COURTROOM, CITY HALL
1 MUNICIPAL PLAZA
BEACON, NY 12508
THE PLANNING BOARD WILL MEET IN THE MUNICIPAL CENTER COURTROOM AT 7:00 P.M. A WORK SESSION WILL TAKE PLACE AT 7:00 P.M. FOR A TRAINING WORKSHOP, DISCUSSION OF AGENDA ITEMS AND/OR TOPICS OF INTEREST TO THE PLANNING BOARD. THE REGULAR MEETING WILL BEGIN IMMEDIATELY THEREAFTER, BUT NO LATER THAN 7:30 P.M.

Len Warner
Karen Quiana
Kevin Byrne
Jill Reynolds
J. Randall Williams
J.C. Calderon
Chair John Gunn

June 14, 2022
7:00 PM
Planning Board Agenda

Regular Meeting

1. Continue Public Hearing for SEQRA Environmental Review on applications for Subdivision and Site Plan Approval, AND open Public Hearing on applications for Subdivision and Site Plan Approval, "Beacon Views Townhouses" 37 units, Conklin Street, submitted by Beacon Views, LLC
2. Continue Public Hearing for SEQRA Environmental Review on applications for Site Plan Approval, Special Use Permit, and Subdivision (lot merger) Approval, Multi-Family Residential (62 units), 16 West Main Street, submitted by Farrell Building Company
3. Public Hearing on application for Special Use Permit and Site Plan Approval, accessory apartment, 18 North Walnut Street, submitted by Brian Donnelly and Scott Ramsey
4. Public Hearing on application for Special Use Permit and Site Plan Approval, indoor and outdoor event space, 4 Hanna Lane, submitted by Jason Hughes
5. Public Hearing on application for Special Use Permit and Site Plan Approval, hotel and event space, 1113 Wolcott Avenue, submitted by Prophecy Theater, LLC
6. Continue review of application for Subdivision Approval, 2-lot residential, 46 Judson Street, submitted by 46 Judson LLC
7. Continue review of application for Special Use Permit and Site Plan Approval, Mirbeau Inn and Spa at Howland Estate, 7 Craig House Lane, submitted by the Mirbeau Companies
8. Review application for Site Plan Approval, small cell wireless facility on an existing light pole and one antenna, 2 Red Flynn Drive, submitted by Verizon Wireless of the East, LP (dba

Verizon Wireless)

9. Review application for Subdivision Approval, 2-lot residential, 67 Grove Street, submitted by Dawn Brill

Miscellaneous Business

1. Zoning Board of Appeals - June meeting
2. Consider request for one 90-day extension of Site Plan and Certificate of Appropriateness Approval, 416-420 Main Street, submitted by 420 Main St. LLC
3. Consider request for one 90-day extension of Amended Site Plan and Preliminary and Final Subdivision Approval, Ferry Landing, submitted by Ferry Landing at Beacon, Ltd.
4. Consider request for one 90-day extension of Preliminary and Final Subdivision Plat Approval, 52 Dennings Avenue, submitted by Angela Ingham.

Architectural Review

1. Certificate of Appropriateness - 145 Main Street; Signage
2. Certificate of Appropriateness - 149 Main Street; Change faÃ§ade color

City of Beacon Planning Board Agenda
06/14/2022

Title:

Continue Public Hearing for SEQRA Environmental Review on applications for Subdivision and Site Plan Approval, AND open Public Hearing on applications for Subdivision and Site Plan Approval, "Beacon Views Townhouses" 37 units, Conklin Street, submitted by Beacon Views, LLC

ATTACHMENTS

Beacon Views Letter to Planning Board.pdf

Beacon Views Eningeer Letter.pdf

Beacon Views Preliminary Plat.pdf

Beacon Views _Kamedulski Memo.pdf

Beacon Views_Full-set.pdf

Beacon Views Public Comment Email.pdf

Planners Comments PB Beacon Views 6.10.22.pdf

Engineers Comments Beacon Views Review 06-10-22.pdf

Beacon Views - Conklin Street -_SEQRA Negative Declaration.pdf

FEAF Part 2 - Beacon Views.pdf

FEAF Part 3 - Beacon Views.pdf

Beacon Views Highland meadows Comment Letter.pdf

Beacon Views Highland Meadows attachment.pdf

Beacon Views Highland Meadows attachment NWP-29 Decision Doc.pdf

633 Rt. 211 East, Suite 4, Box 4
Middletown, NY 10941
Office: (845) 495-0123 • Fax: (866) 688-0836

Re: Beacon Views Wetland Review

Chairman John Gunn and Member of the City of Beacon Planning Board:

In the Wetlands Evaluation and Impact Report provided by Ecological Solutions, LLC, dated May 18, 2020, Michael Nowicki describes the existing wetland through the Army Corps of Engineers' (AOCE) Highway Method format which evaluates the wetland based on a series of potential "functions and values". Based on this evaluation, Mr. Nowicki has noted that the existing wetland provides little or no value for several of the criteria listed. Under the criteria where there are noted functions and values, the most significant of which is groundwater recharge and flood flow attenuation, it was determined that any detriment to these values will be offset or, in fact, improved by the inclusion of the proposed stormwater management practices and wetland mitigation areas. I agree with these findings.

It is critical to note that the result of the proposal is to maintain the same amount of wetland area on site as currently exists. The existing wetland on site is approximately 2.5 acres. The proposed disturbance is approximately 13,000 square feet or 0.3 acres. The area that is to be disturbed will be offset by new wetland of equal size in the proposed on-site mitigation areas. However, the functioning of the existing wetland related to stormwater and flood attenuation will, in fact, be augmented with the creation of the proposed stormwater management system. The stormwater practices will provide additional flood flow storage volume, and groundwater recharge opportunities, in addition to treating the runoff. Additionally, the applicant has agreed to provide a further 1:1 mitigation area at another site with the City of Beacon, doubling the net wetland area as a result of the project's construction.

With regard to ecology, the proposed mitigation areas will offer several benefits. As mentioned, the area of on-site wetland will remain the same. Additionally, the proposed mitigation areas will be cleared of refuse and litter which has accumulated over time as a result of its adjacency to a developed urban environment. This will improve the overall health and function of the wetland. The area will also be planted with native plants which will provide improved habitat over the existing wetland which is somewhat overgrown with invasive exotic species which are of little or no value to the wildlife of the area.

With regard to permitting, a full wetland permit application for AOCE nationwide permit #29 will be completed once a conditional approval of the site plan is made. The application will have to include the Board's determination on SEQR. The ACOE will not issue a permit or complete their review until the project has a conditional site plan approval from the municipality.

In conclusion, in my professional opinion, the existing wetland, as noted in the Ecological Solutions, LLC report, is of limited value and the disturbance to wetland is fairly minimal. The functioning and value of the wetland will be offset, and in some ways improved, by the construction of the proposed mitigation areas and stormwater management practices associated with the project.

Respectfully,

James A Bates

Managing Member
Ecological Analysis, LLC

INSITE
ENGINEERING, SURVEYING &
LANDSCAPE ARCHITECTURE, P.C.

May 31, 2022

City of Beacon Planning Board
1 Municipal Plaza
Beacon, NY 12508

RE: Beacon Views Site Plan and Conservation Subdivision
Conklin Street
Beacon, New York
Tax Parcel ID: 6055-03-331123

Dear Chairman Gunn and Members of the Board:

Enclosed please find the following documents in support of the subject application:

- Site Plan Set, last revised May 31, 2022.
- Preliminary Plat, last revised May 31, 2022.
- Letter from Ecological Analysis, LLC.
- Letter from Colliers Engineering & Design, dated May 17, 2022.

As the Board is aware there have been a few changes to the layout of the project, which were discussed at the May meeting. The enclosed plans represent the formalization of the layout changes discussed. The major revisions include the following:

1. The elimination of three previously proposed units from the northeast corner of the property to make way for additional on-site wetland mitigation.
2. The incorporation of additional retaining walls to minimize the wetland disturbance. The concept that was discussed at the May meeting of the Planning Board contemplated a reduction in wetland disturbance to 13,150 sf. With the extension of the retaining walls as shown in the current plan the disturbance has been further reduced to 12,000 sf+-. The currently proposed on-site mitigation area is 12,175 sf.
3. As discussed at the May meeting, the 13-lot subdivision at 25 Townsend Street has been purchased and its construction is imminent. As such, the option for a through road to Conklin Street has been eliminated from the plans, though a walking trail remains.

In response to open comments provided by John Russo, PE of Lanc & Tully Engineering and Surveying, P.C., dated December 10, 2021 we offer the following responses:

<u>General Comments</u>

3. See the enclosed letter from James Bates of Ecological Analysis, LLC. As the Army Corps of Engineers (AOCE) approval process begins revised easement documents will be provide to the Board for the off-site mitigation at the Van Buren property.

Preliminary Subdivision Plat:

1. The final plat will include bearings and distances for the proposed property lines.
2. Written descriptions of the road right of way will be provided with the final plat submission.

Details:

1. The hydrodynamic separator detail has been revised with the enclosed site plans.

The applicant looks forward to discussing these new developments in the project with the Board at their June 8, 2022 meeting.

Should you have any questions or comments regarding this information, please feel free to contact our office.

Very truly yours,

INSITE ENGINEERING, SURVEYING & LANDSCAPE ARCHITECTURE, P.C.

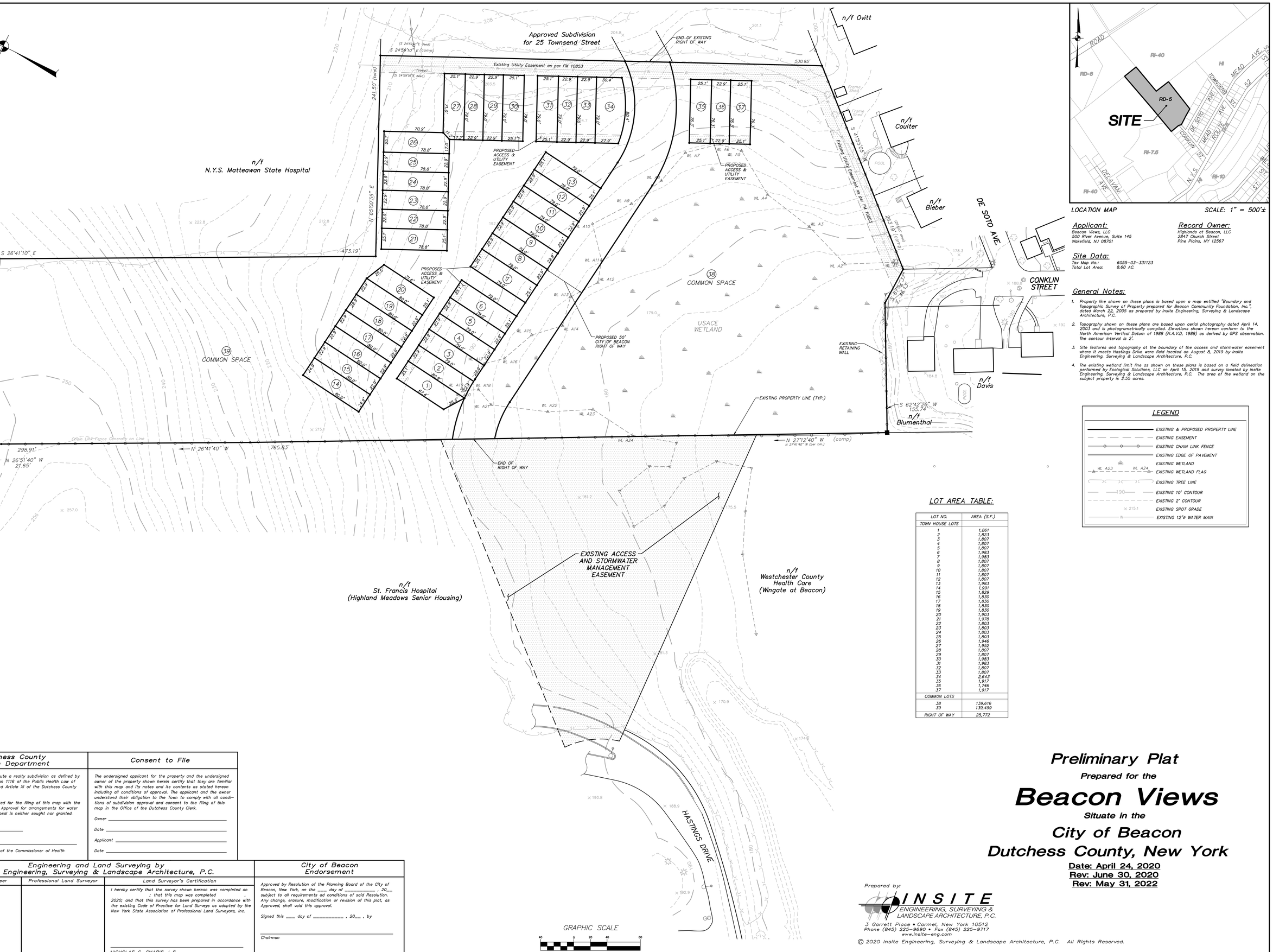
By: _____
Jeffrey J. Contelmo, PE
Senior Principal Engineer

JJC/adt

Enclosures (all email only)

cc: Nathan Kahn
Greg Kamedulski
Richard Cantor, Esq.
Aryeh Siegel
Phil Grealy, P.E.
James Bates

Insite File No. 19131.100



LOCATION MAP SCALE: 1" = 500'±

Applicant:
Beacon Views, LLC
500 River Avenue, Suite 145
Wakefield, NJ 08701

Record Owner:
Highlands at Beacon, LLC
2847 Church Street
Pine Plains, NY 12567

Site Data:
Tax Map No.: 6055-03-331123
Total Lot Area: 8.60 AC.

General Notes:

1. Property line shown on these plans is based upon a map entitled "Boundary and Topographic Survey of Property prepared for Beacon Community Foundation, Inc.", dated March 22, 2005 as prepared by Insite Engineering, Surveying & Landscape Architecture, P.C.
2. Topography shown on these plans are based upon aerial photography dated April 14, 2003 and is photogrametrically compiled. Elevations shown hereon conform to the North American Vertical Datum of 1988 (N.A.V.D. 1988) as derived by GPS observation. The contour interval is 2'.
3. Site features and topography at the boundary of the access and stormwater easement where it meets Hastings Drive were field located on August 8, 2019 by Insite Engineering, Surveying & Landscape Architecture, P.C.
4. The existing wetland limit line as shown on these plans is based on a field delineation performed by Ecological Solutions, LLC on April 15, 2019 and survey located by Insite Engineering, Surveying & Landscape Architecture, P.C. The area of the wetland on the subject property is 2.55 acres.

LEGEND

- EXISTING & PROPOSED PROPERTY LINE
- EXISTING EASEMENT
- EXISTING CHAIN LINK FENCE
- EXISTING EDGE OF PAVEMENT
- EXISTING WETLAND
- WL A23 — WL A24 EXISTING WETLAND FLAG
- EXISTING TREE LINE
- 190 EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- × 215.1 EXISTING SPOT GRADE
- W EXISTING 12"ø WATER MAIN

LOT AREA TABLE:

LOT NO.	AREA (S.F.)
TOWN HOUSE LOTS	
1	1,861
2	1,823
3	1,807
4	1,807
5	1,807
6	1,983
7	1,983
8	1,807
9	1,807
10	1,807
11	1,807
12	1,807
13	1,983
14	1,991
15	1,829
16	1,830
17	1,830
18	1,830
19	1,830
20	1,903
21	1,978
22	1,803
23	1,803
24	1,803
25	1,803
26	1,946
27	1,952
28	1,807
29	1,807
30	1,983
31	1,983
32	1,807
33	1,807
34	2,643
35	1,917
36	1,746
37	1,917
COMMON LOTS	
38	139,616
39	139,499
RIGHT OF WAY	25,772

GRAPHIC SCALE
40 0 20 40 80
(IN FEET)
1 IN. = 40 FT.

Dutchess County Health Department

This plan does not constitute a realty subdivision as defined by Article XI, Title II of Section 1116 of the Public Health Law of the State of New York, and Article XI of the Dutchess County Sanitary Code.

Permission is hereby granted for the filing of this map with the Clerk of Dutchess County. Approval for arrangements for water supply and.or sewage disposal is neither sought nor granted.

Date:_____

_____
Authorized Representative of the Commissioner of Health

Consent to File

The undersigned applicant for the property and the undersigned owner of the property shown herein certify that they are familiar with this map and its notes and its contents as stated hereon including all conditions of approval. The applicant and the owner understand their obligation to the Town to comply with all conditions of subdivision approval and consent to the filing of this map in the Office of the Dutchess County Clerk.

Owner _____
Date _____
Applicant _____
Date _____

Engineering and Land Surveying by Insite Engineering, Surveying & Landscape Architecture, P.C.

Professional Engineer	Professional Land Surveyor	Land Surveyor's Certification
		I hereby certify that the survey shown hereon was completed on _____ ; that this map was completed 2020; and that this survey has been prepared in accordance with the existing Code of Practice for Land Surveys as adopted by the New York State Association of Professional Land Surveyors, Inc.

_____
NICHOLAS G. CHAPIS, L.S.
New York State License No. 049330

City of Beacon Endorsement

Approved by Resolution of the Planning Board of the City of Beacon, New York, on the ____ day of _____ , 20__ subject to all requirements ad conditions of said Resolution. Any change, erasure, modification or revision of this plat, as Approved, shall void this approval.

Signed this ____ day of _____ , 20__ , by

_____
Chairman

_____
Secretary

Preliminary Plat

Prepared for the

Beacon Views

Situate in the

City of Beacon
Dutchess County, New York

Date: April 24, 2020
Rev: June 30, 2020
Rev: May 31, 2022

Prepared by:
INSITE
ENGINEERING, SURVEYING & LANDSCAPE ARCHITECTURE, P.C.
3 Garrett Place • Carmel, New York 10512
Phone (845) 225-9690 • Fax (845) 225-9717
www.insite-eng.com

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19131.100
19131.FP-1.dwg

Z:\19131100\Admin\SUBMITTALS\FINAL PLAT\19131FP-1.dwg, 5/31/2022 9:00:20 AM, stuhler_11

400 Columbus Avenue
Suite 180E
Valhalla New York 10595
Main: 877 627 3772
colliersengineering.com

Colliers Engineering & Design

Memorandum

To: Greg Kamedulski

From: Philip Grealy, Ph.D., P.E.

Date: May 17, 2022

Subject: Traffic Impact Study Revised Date of March 26, 2020

Project No.: 19002075A

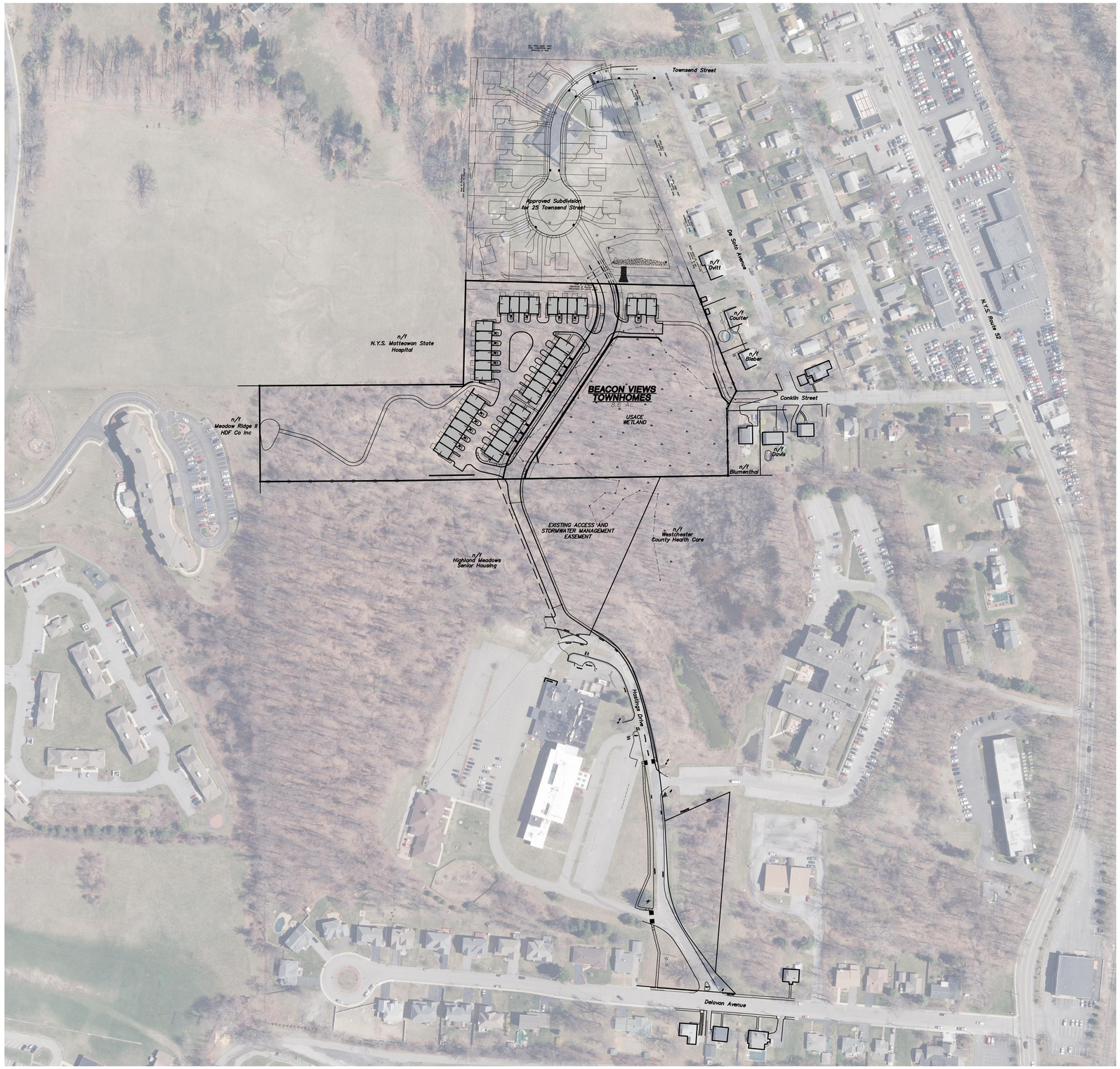
The data contained in the report was prepared based on traffic counts collected in January 2019 and August 2019 and other historical data from New York State Department of Transportation (NYSDOT) as well as other studies conducted in the area. Based on current data and projections from NYSDOT, this base data is still appropriate to represent existing conditions, especially since it was collected prior to the Covid-19 Pandemic.

In addition, it should be noted that the study had also accounted for background growth of 2% per year for 3 years (6% total background increase) and traffic from other potential developments in the area, as well as traffic generated by our project. Therefore, the projections in the study would account for any other traffic growth in the area. Based on this information, the data in the study is appropriate even though some time has passed.

R:\Projects\2019\19002075A\Correspondence\OUT\220518PJG_Kamedelski Memo.docx

BEACON VIEWS

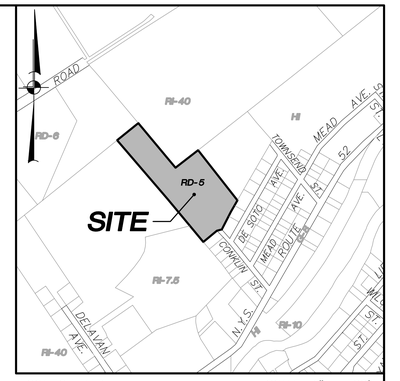
HASTINGS DRIVE / CONKLIN STREET
CITY OF BEACON, NY



ALTERATION OF THIS DOCUMENT, UNLESS UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, IS A VIOLATION OF SECTION 7209 OF ARTICLE 145 OF THE EDUCATION LAW.

SITE PLAN DRAWING LIST

DRAWING NO.	DRAWING NAME	SHEET NO.
CS-1	COVER SHEET	1
EX-1	EXISTING CONDITIONS & REMOVALS PLAN	2
SP-1	LAYOUT & LANDSCAPE PLAN	3
SP-2.1	GRADING & DRAINAGE PLAN	4
SP-2.2	UTILITIES PLAN	5
SP-3	EROSION & SEDIMENT CONTROL PLAN	6
SP-4	ENLARGED PLANS	7
SP-5	OFF-SITE IMPROVEMENTS PLAN	8
SP-6	VEHICLE MANEUVERING PLAN	9
LP-1	LIGHTING PLAN	10
PR-1	DRAINAGE PROFILES	11
PR-2	WATER & SEWER PROFILES	12
D-1	DETAILS	13
D-2	DETAILS	14
D-3	DETAILS	15
D-4	DETAILS	16
D-5	DETAILS	17
A-1	BUILDING PLANS - FRONT GARAGE	18
A-2	BUILDING PLANS - REAR GARAGE	19
A-3	ELEVATIONS / VIEWS	20



LOCATION MAP SCALE: 1" = 500'±

Applicant:
Beacon Views, LLC
500 River Avenue, Suite 145
Wakefield, NJ 08701

Record Owner:
Highlands at Beacon, LLC
2847 Church Street
Pine Plains, NY 12567

Site Data:
Tax Map No.: 6055-03-331123
Total Lot Area: 8.6 AC.
Zone: RD-5

General Notes:

1. Property line shown on these plans is based upon a map entitled "Boundary and Topographic Survey of Property prepared for Beacon Community Foundation, Inc.", dated March 22, 2005 as prepared by Insite Engineering, Surveying & Landscape Architecture, P.C.
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3. Site features and topography at the boundary of the access and stormwater easement where it meets Hastings Drive were field located on August 8, 2019 by Insite Engineering, Surveying & Landscape Architecture, P.C.
4. The existing wetland limit line as shown on these plans is based on a field delineation performed by Ecological Solutions, LLC on April 15, 2019 and survey located by Insite Engineering, Surveying & Landscape Architecture, P.C. The area of the wetland on the subject property is 2.55 acres.

Site Access Notes:

1. The applicant seeks to utilize the proposed connection to the right of way through the approved subdivision on 25 Townsend Street as its primary means of access for the Beacon Views Properties.
2. The road shown in the existing easement on the Highland Meadows Senior Housing Property would be utilized as an emergency access only, in this case.

Affordable-Workforce-Housing Notes:

1. The project shall comply with the requirements of city code Chapter 223 Zoning, Article IVB Affordable Workforce Housing.
2. Based on the proposed unit count of 37 townhomes, there shall be four (4) townhomes meeting the requirements for below-market-rate requirements of the code.

Habitat Protection Notes:

1. Trees clearing will only occur between the period of October 1 through March 31 when bats are not in the vicinity of the site.
2. Lighting on the site will use City of Beacon Planning Board approved light fixtures that have tops that direct light down to minimize light pollution and not interfere with potential bat foraging activities.
3. Implementing soil conservation and dust control best management practices, such as watering dry disturbed soil areas to keep dust down, and using staked, recessed silt fence and anti tracking pads to prevent erosion and sedimentation in surface waters on the site.
4. Stormwater pond/s will not be maintained with any chemicals that might adversely affect bats or insect populations on which they may feed.

GRAPHIC SCALE
100 0 50 100 200 400
(IN FEET)
1 inch = 100 ft.

Site Plan

Approved by resolution of the Beacon Planning Board on the 12th day of July, 2022.

Chairman, City Planning Board — Date

NO.	DATE	REVISION	BY
7	5-31-22	REVISED PER PLANNING BOARD COMMENTS	PJM
6	11-30-21	REVISED PER PLANNING BOARD COMMENTS	EJP
5	12-29-20	REVISED PER PLANNING BOARD COMMENTS	JFR
4	7-28-20	REVISED PER PLANNING BOARD COMMENTS	JFR
4	7-28-20	REVISED PER PLANNING BOARD COMMENTS	JFR
3	6-30-20	REVISED PER PLANNING BOARD COMMENTS	JFR
2	5-26-20	REVISED PER PLANNING BOARD COMMENTS	JFR
1	4-28-20	RESUBMISSION TO PLANNING BOARD	JFR

INSITE
ENGINEERING, SURVEYING & LANDSCAPE ARCHITECTURE, P.C.
3 Garrett Place
Carmel, NY 10512
(845) 225-9690
(845) 225-9717 fax
www.insite-eng.com

PROJECT:
BEACON VIEWS
CITY OF BEACON, DUTCHESS COUNTY, NEW YORK

DRAWING:
COVER SHEET

STATE OF NEW YORK — STACY J. CONFALONE — 91931 — LICENSED PROFESSIONAL ENGINEER

PROJECT NUMBER	19131.100	PROJECT MANAGER	J.J.C.	DRAWING NO.	SHEET
DATE	8-27-19	DRAWN BY	J.F.R.	CS-1	1 / 20
SCALE	1" = 100'	CHECKED BY	A.D.T.		

Z:\EX\19131\00 Admin\01-CS-1.dwg, 5/31/2022 11:37:07 AM, jmalo, 1:1

Approved Subdivision for 25 Townsend Street

n/f N.Y.S. Matteawan State Hospital

n/f Ovitt

n/f Coulter

n/f Bieber

n/f Davis

n/f Blumenthal

n/f Meadow Ridge II HDF Co Inc

n/f Highland Meadows Senior Housing

n/f Westchester County Health Care (Wingate at Beacon)

DE SOTO AVE.

CONKLIN STREET

HASTINGS DRIVE

USACE WETLAND

Existing Utility Easement as per FM 10853

EXISTING CHAIN LINK FENCE TO BE REMOVED

EXISTING ACCESS AND STORMWATER MANAGEMENT EASEMENT

Lot Line Realignment prepared for JCMW, Inc. (filed September 30, 1987 as map no. 8138)

Drain Line-Fence Generally on Line

S 24°59'01" E (deed)
S 24°56'10" E (comp)

241.50' (total)
38.00'
203.50'

25' REAR YARD SETBACK

17.5' SIDE YARD SETBACK

30' FRONT YARD SETBACK

530.95'

S 41°55'10" W 489.19'

S 41°55'10" W 489.19'

S 62°42'26" W 155.74'

N 26°41'40" W 765.83'

N 27°12'40" W (comp)
N 27°41'40" W (per f.m.)

229.78'

473.19'

N 65°00'59" E

S 26°41'10" E

222.71'

N 63°15'18" E

298.91'

N 26°51'40" W 21.65'

Asphalt Curb

Asphalt

Steps

Benches

Building

Sign

Frame Shed

Frame Shed

POOL

POOL

LEGEND

- EXISTING PROPERTY LINE
- EXISTING EASEMENT
- EXISTING CHAIN LINK FENCE
- EXISTING EDGE OF PAVEMENT
- EXISTING WETLAND
- WL A23 / WL A24 — EXISTING WETLAND FLAG
- EXISTING TREE LINE
- 190 — EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- × 215.1 — EXISTING SPOT GRADE
- EXISTING ITEMS TO BE REMOVED

General Notes:

1. Property line shown on these plans is based upon a map entitled "Boundary and Topographic Survey of Property prepared for Beacon Community Foundation, Inc.", dated March 22, 2005 as prepared by Insite Engineering, Surveying & Landscape Architecture, P.C.
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4. The existing wetland limit line as shown on these plans is based on a field delineation performed by Ecological Solutions, LLC on April 15, 2019 and survey located by Insite Engineering, Surveying & Landscape Architecture, P.C. The area of the wetland on the subject property is 2.55 acres.

UNIT DENSITY CALCULATIONS (RD–5)

Based on note "H" of Chapter 223–17D Schedule of Dimensional Regulations

Total Parcel (8.6 acres)	= 374,518 SF±
Wetland	= 111,078 SF±
Slopes 25% or Greater	= 8,500 SF±
Buildable Area	= 254,940 SF
Permitted Units @ 5,000 SF per Unit	= 50 Units
Proposed Units	= 37 Units

* Pursuant to article IVB of the city code, four (4) units of the proposed thirty seven (37) are to be below–market–rate.

GRAPHIC SCALE
0 20 40 80
(IN FEET)
1 inch = 40 ft.

NO.	DATE	REVISION	BY
7	5–31–22	REVISED PER PLANNING BOARD COMMENTS	PJM
6	11–30–21	REVISED PER PLANNING BOARD COMMENTS	EJP
5	12–29–20	REVISED PER PLANNING BOARD COMMENTS	JFR
4	7–28–20	REVISED PER PLANNING BOARD COMMENTS	JFR
3	6–30–20	REVISED PER PLANNING BOARD COMMENTS	JFR
2	5–26–20	REVISED PER PLANNING BOARD COMMENTS	JFR
1	4–28–20	RESUBMISSION TO PLANNING BOARD	JFR

INSITE ENGINEERING, SURVEYING & LANDSCAPE ARCHITECTURE, P.C.
3 Garrett Place
Carmel, NY 10512
(845) 225–9690
(845) 225–9717 fax
www.insite–eng.com

PROJECT:
BEACON VIEWS
CITY OF BEACON, DUTCHESS COUNTY, NEW YORK

DRAWING:
EXISTING CONDITIONS & REMOVALS PLAN

STATE OF NEW YORK — ERNEST J. CONFERTI — 071931 — LICENSED PROFESSIONAL ENGINEER

PROJECT NUMBER	19131.100	PROJECT MANAGER	J.J.C.
DATE	8–27–19	DRAWN BY	J.F.R.
SCALE	1" = 40'	CHECKED BY	A.D.T.

DRAWING NO. EX–1 SHEET 2 / 20

ALTERATION OF THIS DOCUMENT, UNLESS UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, IS A VIOLATION OF SECTION 7209 OF ARTICLE 145 OF THE EDUCATION LAW.

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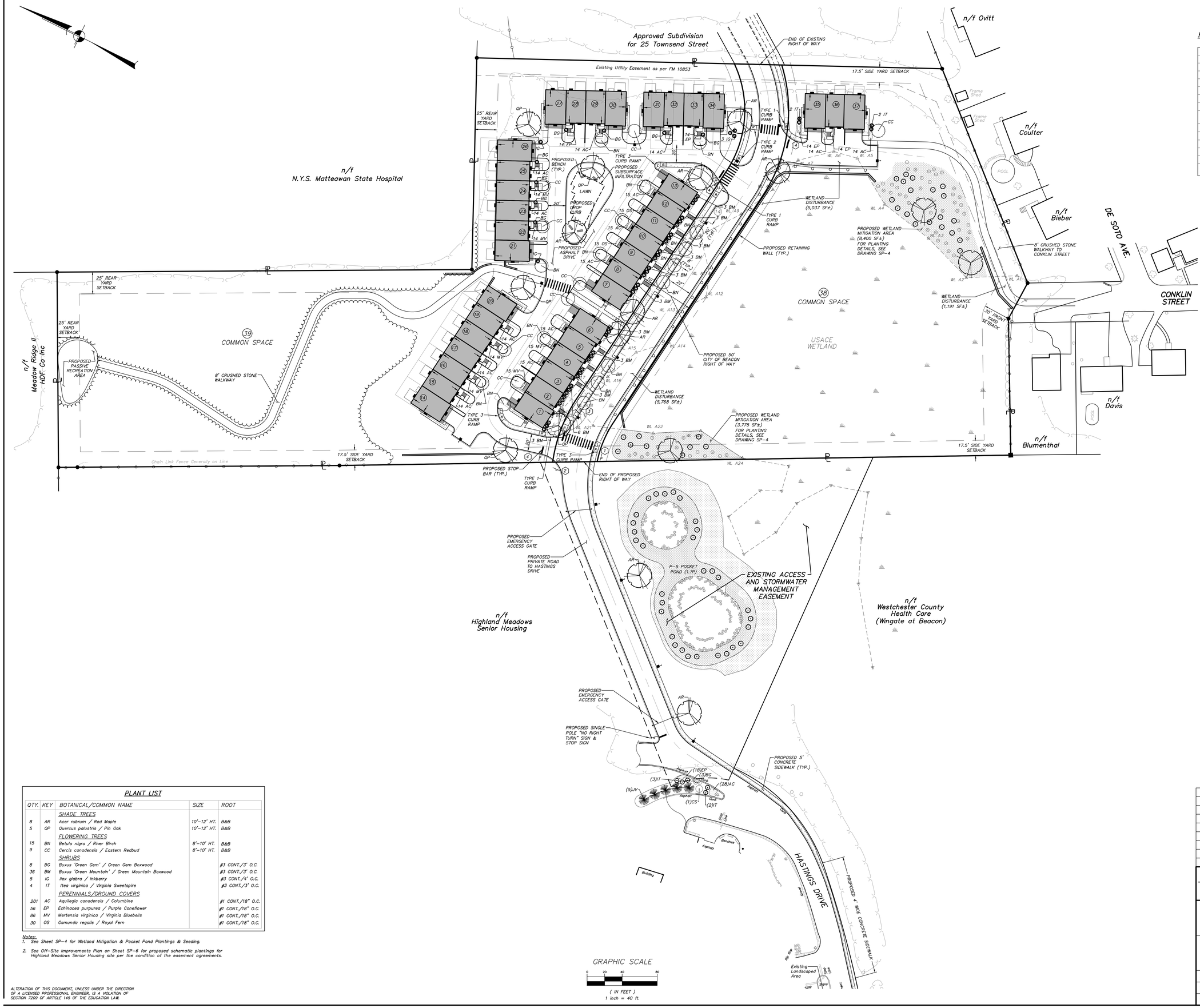

GRAPHIC SCALE

0 20 40 80

(IN FEET)
1 inch = 40 ft.

GENERAL NOTES:

1. Trash and recycling to be collected at each unit by a privately hired waste management contractor.

RD-5 ZONE REQUIREMENTS:

	Required/Permitted:	Provided:
Minimum Lot Area:	5,000 SF	374,518 SF±
Minimum Lot Width:	50'	440'±
Minimum Lot Depth:	100'	848'±
Minimum Yard Setbacks:		
Front:	30'	30'
Minimum Side:	17.5'	32'
Total of 2:	20'	71'
Rear:	25'	25'
Minimum Distance Between Buildings on the Same Lot:	30'	20'*
Maximum Building Height:	3 Stories or 35'	Less than 35'
Minimum Building Height:	1 Story and 12'	More than 12'
Maximum Building Coverage		
Multi-family:	20%	10.5%
Other uses:	30%	0%
Maximum No. of Dwelling Units per Building	16	7

* Seeking relief from minimum distance as part of terms of conservation subdivision.

PARKING REQUIREMENTS:

2 per Dwelling Unit + .25 Spaces per Bedroom	= 102 Total Spaces Required
Garage Spaces	= 74 Spaces Provided
Driveway Spaces	= 37 Spaces Provided
Visitor Spaces	= 14 Spaces Provided
	= 125 Total Spaces Provided

RECREATION AREAS SUMMARY

Required SF @ 2,000 for First 20 Units	
Required 100 SF for Each Additional Unit	= 3,700 SF Required
Western Trail Passive Recreation Area	= 7,500 SF
Eastern Trail to Conklin Street Area	= 2,300 SF
	= 9,800 SF Provided

WETLANDS SUMMARY

U.S.A.C.E. WETLAND PFOIE

TOTAL PROPOSED DISTURBANCE = 12,000 SF±
PROPOSED ON-SITE MITIGATION AREA = 12,175 SF± (1:1+ MITIGATION:DISTURBANCE)
*SEE WETLAND MITIGATION NOTES ON SP-4
**ADDITIONAL OFF-SITE WETLAND MITIGATION IS ALSO BEING CONSIDERED AND WILL BE DETERMINED BY ARMY CORPS OF ENGINEERS REQUIREMENTS

LEGEND

- EXISTING PROPERTY LINE
- EXISTING EASEMENT
- EXISTING CHAIN LINK FENCE
- EXISTING EDGE OF PAVEMENT
- EXISTING WETLAND
- WL A23 — WL A24 — EXISTING WETLAND FLAG
- EXISTING TREE LINE
- (1) PROPOSED SIGN
- PROPOSED DOOR LOCATION
- (9) PROPOSED # OF STALLS TO BE STRIPED
- PROPOSED CONCRETE CURB
- PROPOSED EDGE OF SIDEWALK
- PROPOSED RETAINING WALL
- PROPOSED PAINTED STOPBAR
- PROPOSED CROSSWALK
- PROPOSED LANDSCAPING
- PROPOSED GUIDE RAIL
- PROPOSED POLE MOUNTED LIGHT
- PROPOSED BUILDING MOUNTED LIGHT

SIGN DATA TABLE

LOCATION NO.	TEXT	M.U.T.C.D. NUMBER	SIZE OF SIGN (s.f.)	DESCRIPTION
1		R3-1	30" x 30"	White Background Black Arrow Red Symbol Black Border
2	NO OUTLET		12" x 18"	Red on White
3	RIGHT LANE MUST TURN RIGHT	R3-32C	30" x 30"	Black on White
4	STOP	R1-1C	30" x 30"	White on Red

PLANT LIST

QTY.	KEY	BOTANICAL/COMMON NAME	SIZE	ROOT
		SHADE TREES		
8	AR	Acer rubrum / Red Maple	10'-12' HT.	B&B
5	QP	Quercus palustris / Pin Oak	10'-12' HT.	B&B
		FLOWERING TREES		
15	BN	Betula nigra / River Birch	8'-10' HT.	B&B
9	CC	Cercis canadensis / Eastern Redbud	8'-10' HT.	B&B
		SHRUBS		
8	BG	Buxus 'Green Gem' / Green Gem Boxwood		#3 CONT./3' O.C.
36	BM	Buxus 'Green Mountain' / Green Mountain Boxwood		#3 CONT./3' O.C.
5	IG	Ilex glabra / Inkberry		#3 CONT./4' O.C.
4	IT	Itea virginica / Virginia Sweetspire		#3 CONT./3' O.C.
		PERENNIALS/GROUND COVERS		
201	AC	Aquilegia canadensis / Columbine		#1 CONT./18" O.C.
56	EP	Echinacea purpurea / Purple Coneflower		#1 CONT./18" O.C.
86	MV	Mertensia virginica / Virginia Bluebells		#1 CONT./18" O.C.
30	OS	Osmunda regalis / Royal Fern		#1 CONT./18" O.C.

Notes:
1. See Sheet SP-4 for Wetland Mitigation & Pocket Pond Plantings & Seeding.
2. See Off-Site Improvements Plan on Sheet SP-6 for proposed schematic plantings for Highland Meadows Senior Housing site per the condition of the easement agreements.

NO.	DATE	REVISION	BY
8	5-31-22	REVISED PER PLANNING BOARD COMMENTS	PJM
7	4-26-22	REVISED CONCEPT FOR PLANNING BOARD SUBMISSION	JFR
6	11-30-21	REVISED PER PLANNING BOARD COMMENTS	EJP
5	12-29-20	REVISED PER PLANNING BOARD COMMENTS	JFR
4	7-28-20	REVISED PER PLANNING BOARD COMMENTS	JFR
3	6-30-20	REVISED PER PLANNING BOARD COMMENTS	JFR
2	5-26-20	REVISED PER PLANNING BOARD COMMENTS	JFR
1	4-28-20	RESUBMISSION TO PLANNING BOARD	JFR

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Carmel, NY 10512
(845) 225-9690
(845) 225-9717 fax
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PROJECT:
BEACON VIEWS
CITY OF BEACON, DUTCHESS COUNTY, NEW YORK

DRAWING:
LAYOUT & LANDSCAPE PLAN

STATE OF NEW YORK — STANLEY J. CONKLIN — 21931 — LICENSED PROFESSIONAL ENGINEER

PROJECT NUMBER	19131.100	PROJECT MANAGER	J.J.C.
DATE	8-27-19	DRAWN BY	J.F.R.
SCALE	1" = 40'	CHECKED BY	A.D.T.

DRAWING NO. SP-1 SHEET 3 / 20

ALTERATION OF THIS DOCUMENT, UNLESS UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, IS A VIOLATION OF SECTION 7209 OF ARTICLE 145 OF THE EDUCATION LAW.

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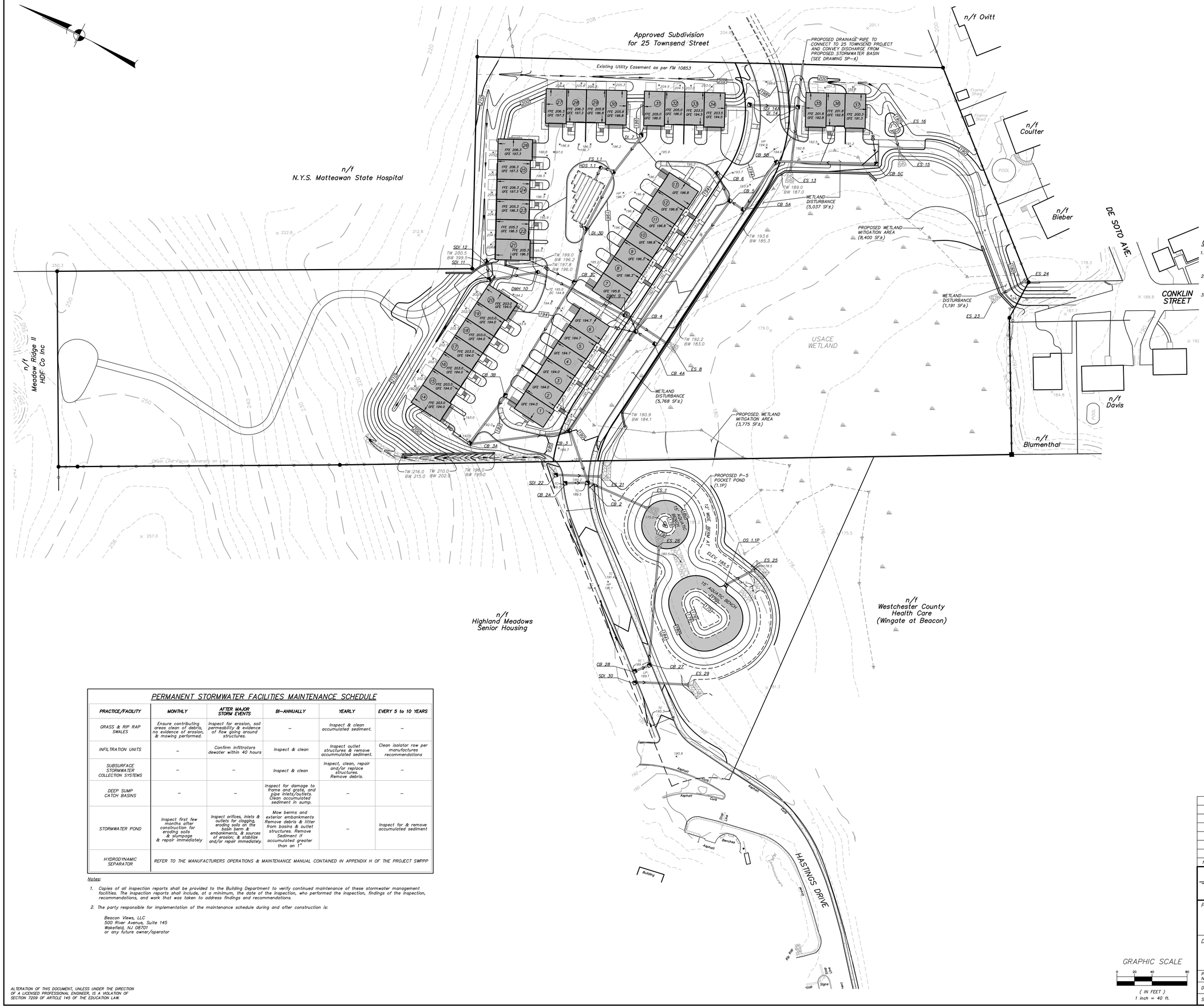

LEGEND

- EXISTING PROPERTY LINE
- EXISTING EASEMENT
- EXISTING CHAIN LINK FENCE
- EXISTING EDGE OF PAVEMENT
- EXISTING WETLAND
- EXISTING WETLAND FLAG
- EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- EXISTING SPOT GRADE
- PROPOSED 10' CONTOUR
- PROPOSED 2' CONTOUR
- PROPOSED SPOT ELEVATION
- PROPOSED TOP OF WALL & BOTTOM OF WALL ELEVATIONS
- PROPOSED DRAINAGE MANHOLE
- PROPOSED CATCH BASIN
- PROPOSED OUTLET STRUCTURE
- PROPOSED END SECTION
- PROPOSED HDPE DRAINAGE PIPE (SIZE AS NOTED)
- PROPOSED GRASS SWALE

General Notes:

1. Stormwater management facilities located within the access and utility easement on the Highland Meadows property are to be maintained by the applicant and subsequent ownership of the proposed project. Maintenance of these facilities will not fall on the City, or the Highland Meadows ownership.
2. In an emergency event the City of Beacon will have the right to maintain the drainage between CB3 and ES1, if the applicant or subsequent owners fail to fulfill their maintenance obligations.
3. All drainage improvements within the proposed City right of way are to be dedicated to the City of Beacon.

PERMANENT STORMWATER FACILITIES MAINTENANCE SCHEDULE

PRACTICE/FACILITY	MONTHLY	AFTER MAJOR STORM EVENTS	BI-ANNUALLY	YEARLY	EVERY 5 to 10 YEARS
GRASS & RIP RAP SWALES	Ensure contributing areas clean of debris, no evidence of erosion, & mowing performed.	Inspect for erosion, soil permeability & evidence of flow going around structures.	–	Inspect & clean accumulated sediment.	–
INFILTRATION UNITS	–	Confirm infiltrators dewater within 40 hours	Inspect & clean	Inspect outlet structures & remove accummulated sediment.	Clean isolator row per manufactures recommendations
SUBSURFACE STORMWATER COLLECTION SYSTEMS	–	–	Inspect & clean	Inspect, clean, repair and/or replace structures. Remove debris.	–
DEEP SUMP CATCH BASINS	–	–	Inspect for damage to frame and grate, and pipe inlets/outlets. Clean accumulated sediment in sump.	–	–
STORMWATER POND	Inspect first few months after construction for eroding soils & slumpage & repair immediately	Inspect orifices, inlets & outlets for clogging, eroding soils on the basin berm & embankments, & sources of erosion; & stabilize and/or repair immediately.	Mow berms and exterior embankments Remove debris & litter from basins & outlet structures. Remove Sediment if accumulated greater than an 1"	–	Inspect for & remove accumulated sediment
HYDRODYNAMIC SEPARATOR	REFER TO THE MANUFACTURERS OPERATIONS & MAINTENANCE MANUAL CONTAINED IN APPENDIX H OF THE PROJECT SWPPP				

Notes:

1. Copies of all inspection reports shall be provided to the Building Department to verify continued maintenance of these stormwater management facilities. The inspection reports shall include, at a minimum, the date of the inspection, who performed the inspection, findings of the inspection, recommendations, and work that was taken to address findings and recommendations.
2. The party responsible for implementation of the maintenance schedule during and after construction is:

   Beacon Views, LLC
   500 River Avenue, Suite 145
   Wakefield, NJ 08701
   or any future owner/operator

GRAPHIC SCALE
0 20 40 80
(IN FEET)
1 inch = 40 ft.

NO.	DATE	REVISION	BY
7	5-31-22	REVISED PER PLANNING BOARD COMMENTS	PJM
6	11-30-21	REVISED PER PLANNING BOARD COMMENTS	EJP
5	12-29-20	REVISED PER PLANNING BOARD COMMENTS	JFR
4	7-28-20	REVISED PER PLANNING BOARD COMMENTS	JFR
3	6-30-20	REVISED PER PLANNING BOARD COMMENTS	JFR
2	5-26-20	REVISED PER PLANNING BOARD COMMENTS	JFR
1	4-28-20	RESUBMISSION TO PLANNING BOARD	JFR

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(845) 225-9717 fax
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PROJECT:
BEACON VIEWS
CITY OF BEACON, DUTCHESS COUNTY, NEW YORK

DRAWING:
GRADING & DRAINAGE PLAN

STATE OF NEW YORK — JAMES J. CONTARINO — 21931 — LICENSED PROFESSIONAL ENGINEER

PROJECT NUMBER	19131.100	PROJECT MANAGER	J.J.C.
DATE	8-27-19	DRAWN BY	J.F.R.
SCALE	1" = 40'	CHECKED BY	A.D.T.

DRAWING NO. SP-2.1
SHEET 4 / 20

ALTERATION OF THIS DOCUMENT, UNLESS UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, IS A VIOLATION OF SECTION 7209 OF ARTICLE 145 OF THE EDUCATION LAW.

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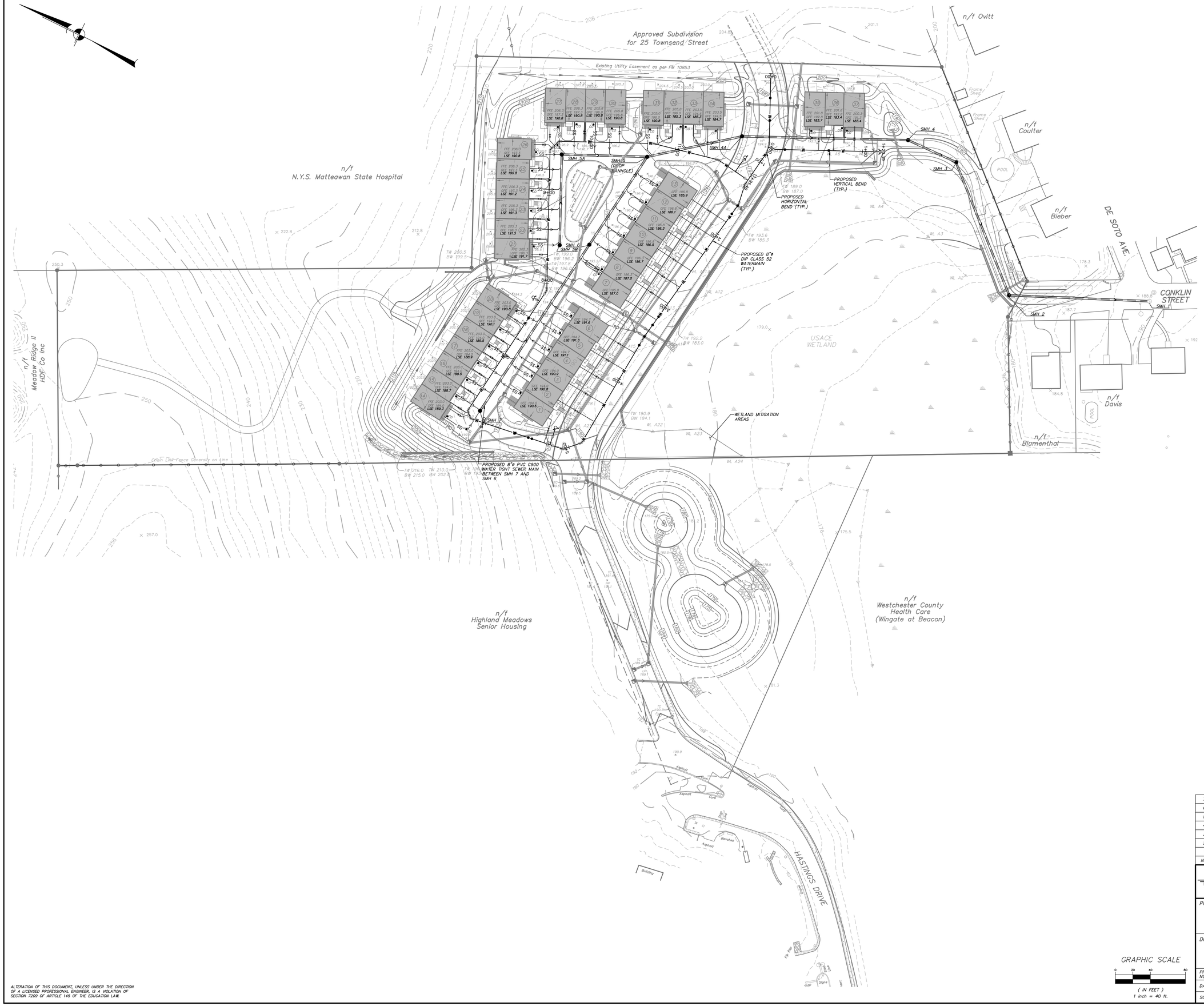

LEGEND

- EXISTING PROPERTY LINE
- EXISTING EASEMENT
- EXISTING CHAIN LINK FENCE
- EXISTING EDGE OF PAVEMENT
- EXISTING WETLAND
- EXISTING WETLAND FLAG
- EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- EXISTING SPOT GRADE
- EXISTING 12"ø WATER MAIN
- PROPOSED 10' CONTOUR
- PROPOSED 2' CONTOUR
- PROPOSED SPOT ELEVATION
- PROPOSED TOP OF WALL & BOTTOM OF WALL ELEVATIONS
- PROPOSED SEWER MANHOLE
- PROPOSED DRAINAGE MANHOLE
- PROPOSED CATCH BASIN
- PROPOSED OUTLET STRUCTURE
- PROPOSED END SECTION
- PROPOSED WATER GATE VALVE
- PROPOSED FIRE HYDRANT
- PROPOSED HDPE DRAINAGE PIPE (SIZE AS NOTED)
- PROPOSED 8"ø PVC SDR 35 SEWER MAIN (UNLESS OTHERWISE NOTED)
- PROPOSED 4"ø PVC SDR 35 SEWER SERVICE WITH CLEANOUT
- PROPOSED 8"ø DIP CLASS 52 WATER MAIN
- PROPOSED 1"ø DIP WATER SERVICE LINE
- PROPOSED GRASS SWALE

General Notes:

1. The City of Beacon shall own, operate and maintain the water main and all hydrants/stubs.
2. All sanitary sewer mains and manholes up to the existing manhole shall be owned, operated, and maintained by the City of Beacon.
3. Blanket agreements and easements to be granted to the City of Beacon for access and utility maintenance purposes.
4. Prior to final approval, a letter from the Town of Fishkill shall be required to show that the required established calculated fee, as provided in Appendix C of the project Water & Wastewater Engineering Report, has been paid and that the project is authorized to make the proposed connection to the existing water main.

GRAPHIC SCALE

0 20 40 80

(IN FEET)
1 inch = 40 ft.

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1	4-28-20	RESUBMISSION TO PLANNING BOARD	JFR

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PROJECT:
BEACON VIEWS
CITY OF BEACON, DUTCHESS COUNTY, NEW YORK

DRAWING:
UTILITIES PLAN

STATE OF NEW YORK · ANDREW J. CONTENTO · 21931 · LICENSED PROFESSIONAL ENGINEER

PROJECT NUMBER	19131.100	PROJECT MANAGER	J.J.C.	DRAWING NO.	SHEET
DATE	8-27-19	DRAWN BY	J.F.R.	SP-2.2	5 / 20
SCALE	1" = 40'	CHECKED BY	A.D.T.		

ALTERATION OF THIS DOCUMENT, UNLESS UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, IS A VIOLATION OF SECTION 7209 OF ARTICLE 145 OF THE EDUCATION LAW.

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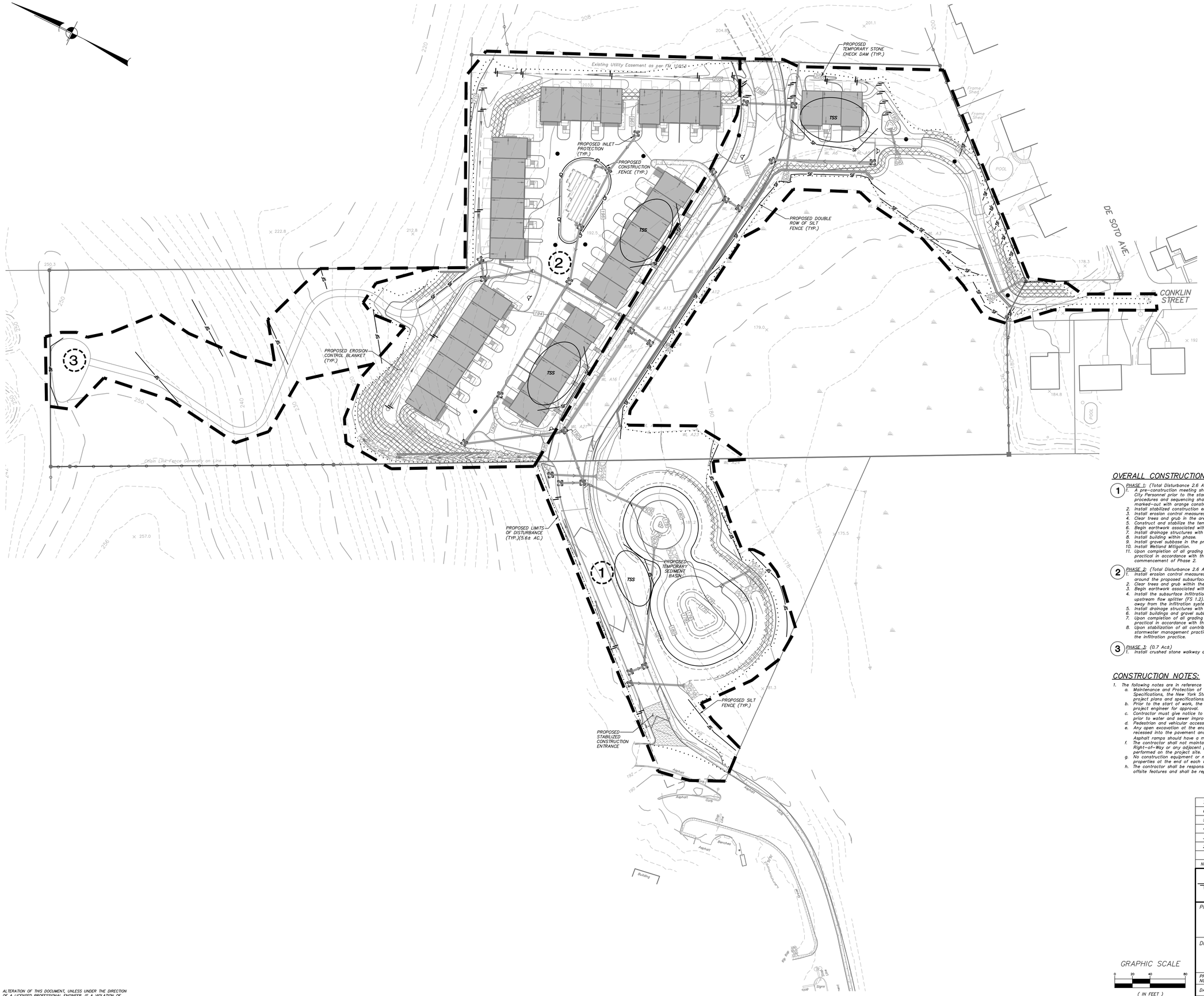

LEGEND

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- PROPOSED DRAINAGE MANHOLE
- PROPOSED CATCH BASIN
- PROPOSED OUTLET STRUCTURE
- PROPOSED END SECTION
- PROPOSED FIRE HYDRANT
- PROPOSED GRASS SWALE
- PROPOSED SILT FENCE
- PROPOSED CONSTRUCTION FENCE
- PROPOSED STONE RIP-RAP
- PROPOSED LIMITS OF DISTURBANCE
- PROPOSED STONE CHECK DAM
- PROPOSED TEMPORARY DIVERSION SWALE
- PROPOSED TEMPORARY SOIL STOCKPILE
- PROPOSED STABILIZED CONSTRUCTION ENTRANCE
- PROPOSED EROSION CONTROL BLANKET
- PROPOSED DRAINAGE STRUCTURE W/ INLET PROTECTION
- PROPOSED PHASING LINE
- PROPOSED PHASING NUMBER

OVERALL CONSTRUCTION SEQUENCE:

(1) PHASE 1: (Total Disturbance 2.6 Ac. ±)

1. A pre-construction meeting shall be coordinated with the Site Contractor, Site Design Engineer, City Engineer & City Personnel prior to the start of construction. During the pre-construction meeting the general construction procedures and sequencing shall be reviewed and all sensitive areas at the project site shall be delineated and marked-out with orange construction fence.
2. Install stabilized construction entrances in accordance with the notes and details at location shown on drawing.
3. Install erosion control measures shown on the plan in accordance with the details.
4. Clear trees and grub in the area of stormwater basin 1.1P.
5. Construct and stabilize the temporary sediment basin in accordance with the notes and details.
6. Begin earthwork associated with the road, parking area and building within limits of the phase.
7. Install drainage structures with inlet protection as shown and pipes within limits of phase.
8. Install building within phase.
9. Install gravel subbase in the proposed paved areas.
10. Install Wetland Mitigation.
11. Upon completion of all grading operations topsoil, seed, and mulch any and all disturbed areas as soon as practical in accordance with the sedimentation and erosion control notes. Phase 1 must be stabilized prior to the commencement of Phase 2.

(2) PHASE 2: (Total Disturbance 2.6 Ac. ±)

1. Install erosion control measures shown on the plan in accordance with the details. Install construction fence around the proposed subsurface infiltration system (1.2P).
2. Clear trees and grub within the limits of the phase.
3. Begin earthwork associated with the parking area and buildings.
4. Install the subsurface infiltration system (1.2P) and plug the outlet pipe to the infiltration practice in the upstream flow splitter (FS 1.2). Infiltration system shall remain offline and all stormwater runoff shall be diverted away from the infiltration system until all contributing areas have been stabilized.
5. Install drainage structures with inlet protection as shown and pipes within the limits of the phase.
6. Install buildings and gravel subbase in the proposed paved areas.
7. Upon completion of all grading operations topsoil, seed, and mulch any and all disturbed areas as soon as practical in accordance with the sedimentation and erosion control notes.
8. Upon stabilization of all contributing area complete, convert the temporary sediment basin to the proposed stormwater management practice per the notes and details and remove plug from primary outlet in FS 1.2 to the infiltration practice.

(3) PHASE 3: (0.7 Ac±)

1. Install crushed stone walkway and passive recreation area.

CONSTRUCTION NOTES:

1. The following notes are in reference to the proposed water and sewer main improvements on Conklin Street:
   a. Maintenance and Protection of Traffic shall be provide in accordance with Section 619 of the Standard Specifications, the New York State Manual of Uniform Control Devices, and any provisions contained in the project plans and specifications.
   b. Prior to the start of work, the contractor shall submit a Maintenance and Protection of Traffic Plan to the project engineer for approval.
   c. Contractor must give notice to all effected residential dwellings on Conklin Street fourty-eight (48) hours prior to water and sewer improvement connections on Conklin Street.
   d. Pedestrian and vehicular access to all residence must be maintained at all times during construction.
   e. Any open excavation at the end of the work day must be covered with steel plates. Plates must be recessed into the pavement and pinned or pinned with asphalt ramps placed along all sides of the plate. Asphalt ramps should have a maximum slope of ½ inch per foot.
   f. The contractor shall not maintain construction equipment or stored overnight within the City of Beacon Right-of-Way or any adjacent properties. Construction equipment maintenance and storage must be performed on the project site.
   g. No construction equipment or material is to be left within the City of Beacon Right-of-Way or adjacent properties at the end of each work day.
   h. The contractor shall be responsible for the restoration of any offsite disturbance and/or damage to existing offsite features and shall be repaired or replaced in kind at the expense of the contractor.

GRAPHIC SCALE

0 20 40 80

(IN FEET)
1 inch = 40 ft.

NO.	DATE	REVISION	BY
7	5-31-22	REVISED PER PLANNING BOARD COMMENTS	PJM
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3	6-30-20	REVISED PER PLANNING BOARD COMMENTS	JFR
2	5-26-20	REVISED PER PLANNING BOARD COMMENTS	JFR
1	4-28-20	RESUBMISSION TO PLANNING BOARD	JFR

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www.insite-emp.com

PROJECT:
BEACON VIEWS
CITY OF BEACON, DUTCHESS COUNTY, NEW YORK

DRAWING:
EROSION & SEDIMENT CONTROL PLAN

STATE OF NEW YORK — JEFFREY J. CONKLIN — 071931 — LICENSED PROFESSIONAL ENGINEER

PROJECT NUMBER	19131.100	PROJECT MANAGER	J.J.C.
DATE	8-27-19	DRAWN BY	J.F.R.
SCALE	1" = 40'	CHECKED BY	A.D.T.

DRAWING NO. SP-3 — SHEET 6 / 20

ALTERATION OF THIS DOCUMENT, UNLESS UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, IS A VIOLATION OF SECTION 7209 OF ARTICLE 145 OF THE EDUCATION LAW.

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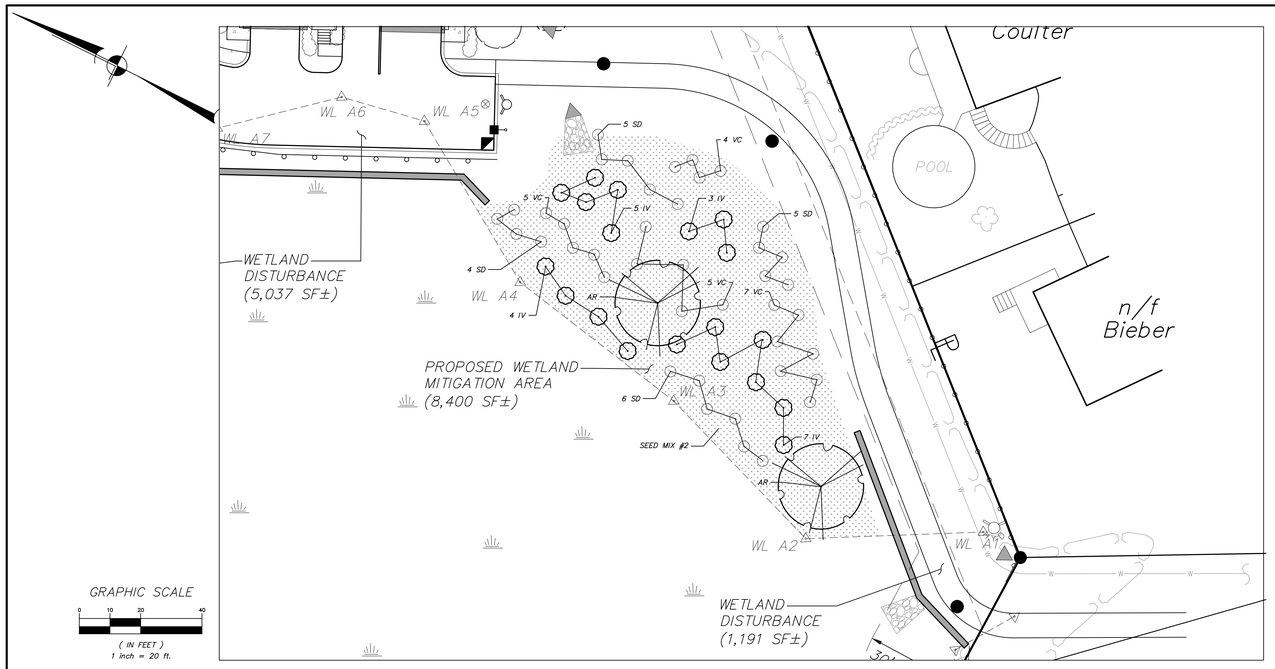
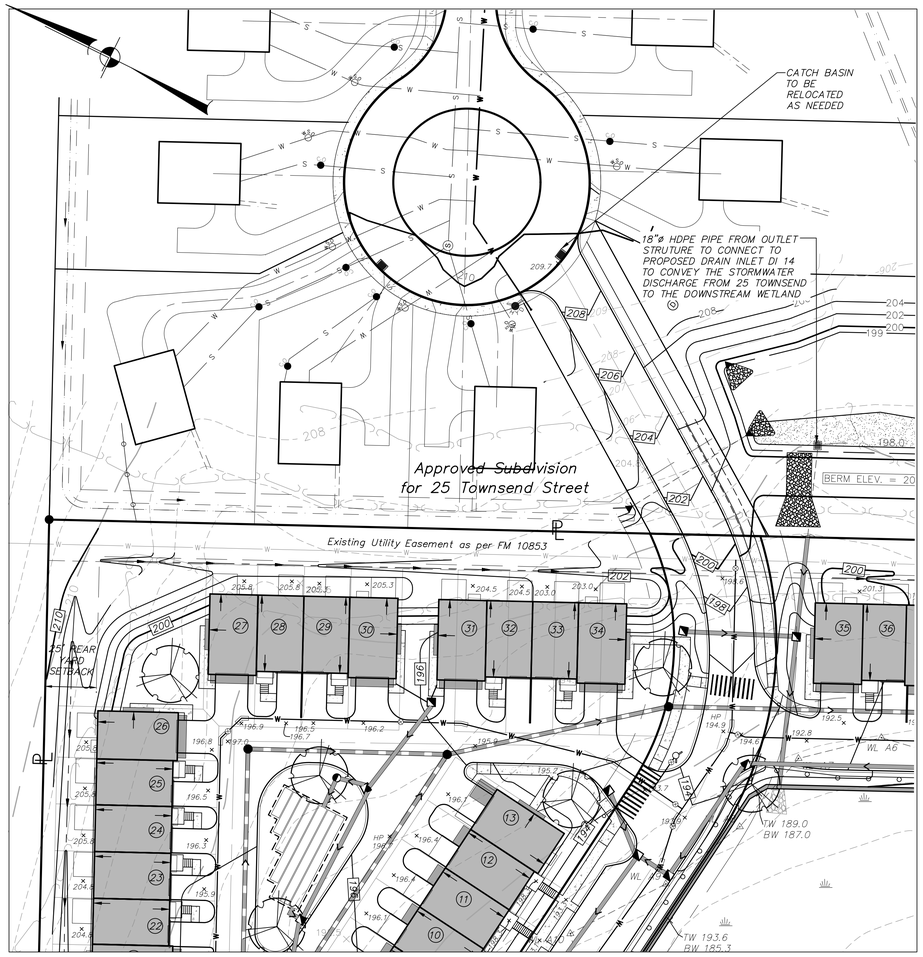


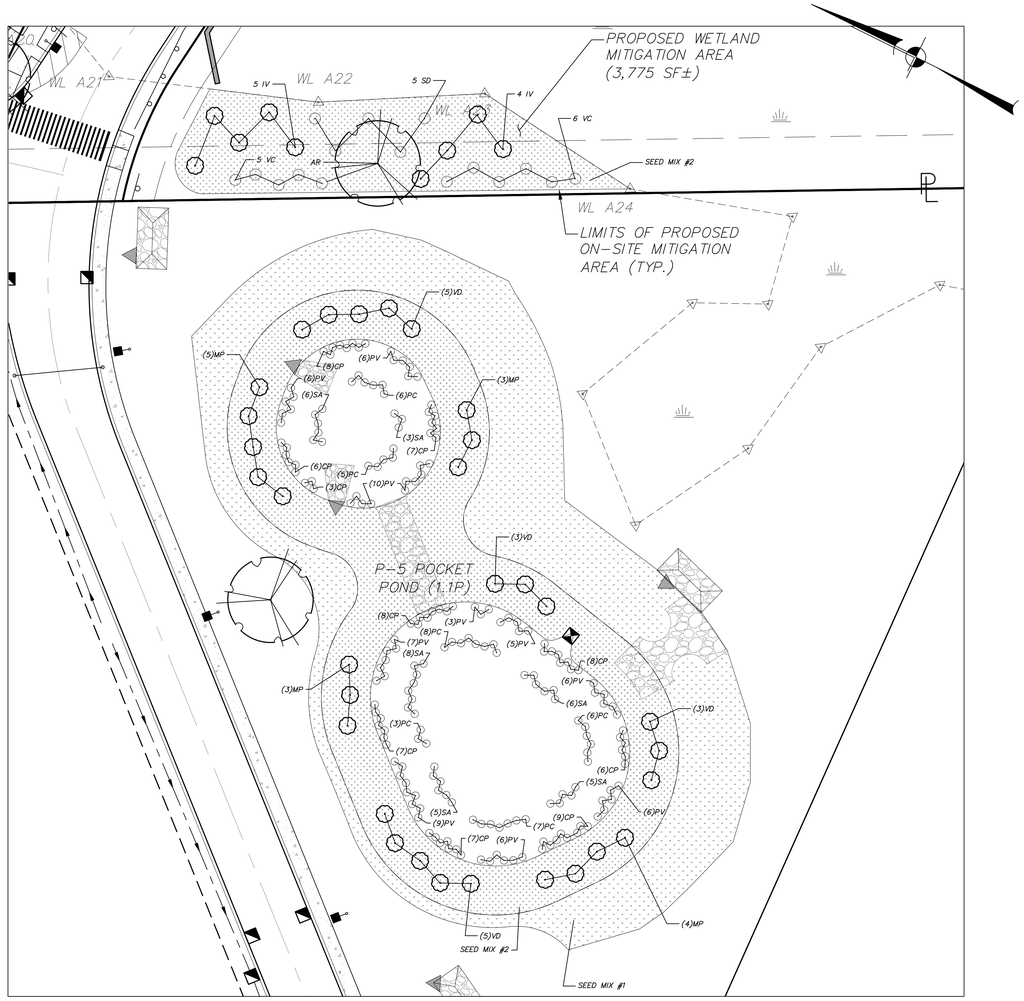
WETLAND MITIGATION PLANTINGS & SEEDING PLAN



25 TOWNSEND STREET THROUGH CONNECTION

Note: See site access notes on sheet CS-1.

GRAPHIC SCALE
0 15 30 60
(IN FEET)
1 inch = 30 ft.



WETLAND MITIGATION & POCKET POND PLANTINGS & SEEDING PLAN

GRAPHIC SCALE
0 10 20 40
(IN FEET)
1 inch = 20 ft.

LEGEND

- EXISTING PROPERTY LINE
- EXISTING EASEMENT
- EXISTING CHAIN LINK FENCE
- EXISTING EDGE OF PAVEMENT
- EXISTING WETLAND
- EXISTING WETLAND FLAG (WL A23 — WL A24)
- EXISTING TREE LINE
- PROPOSED SIGN (1)
- PROPOSED DOOR LOCATION
- PROPOSED # OF STALLS TO BE STRIPED (9)
- PROPOSED CONCRETE CURB
- PROPOSED EDGE OF SIDEWALK
- PROPOSED RETAINING WALL
- PROPOSED PAINTED STOPBAR
- PROPOSED CROSSWALK
- PROPOSED LANDSCAPING
- PROPOSED GUIDE RAIL
- PROPOSED POLE MOUNTED LIGHT
- PROPOSED BUILDING MOUNTED LIGHT

WETLAND MITIGATION NOTES:

1. Limits of both on-site and off-site wetland mitigation areas will be staked prior to the commencement of mitigation.
2. In addition to the plantings shown hereon the mitigation area is to be seeded at a rate of 25 lbs. per acre: New England Erosion Control/Restoration Mix For Detention Basins and Moist Sites from New England Wetland Plants, Inc. of Amherst, MA. See seeding notes for additional information.
3. All plant material to be nursery grown.
4. Plants shall conform with ANSI Z60.1 American Standard for Nursery Stock in all ways including dimensions.
5. Plants shall be taken from healthy nursery stock.
6. Plants shall be grown under climate conditions similar to those in the locality of the project.
7. The location and layout of landscape plants shown on the site plan shall take precedence in any discrepancies between the quantities of plants shown on the plans and the quantity of plants in the Plant List.
8. Provide a 3" layer of shredded mulch (or as specified) over entire watering saucer at all tree pits or over entire planting bed. Do not place mulch within 3" of tree or shrub trunks.
9. All landscape plantings shall be maintained in a healthy condition at all times. Any dead or diseased plants shall immediately be replaced "in kind" by the contractor (during warranty period) or project owner.
10. All landscape and mitigation plantings shall be installed by hand. No mechanical equipment shall be permitted.

WETLAND MITIGATION & POCKET POND PLANT LIST

QTY.	KEY	BOTANICAL/COMMON NAME	SIZE	ROOT
		SHADE TREES		
3	AR	Acer rubrum / Red Maple	10'-12' HT.	B&B
		SHRUBS		
28	IV	Ilex verticillata / Winterberry		#5 CONT./15' O.C.
15	MP	Myrica pensylvanica / Bayberry		#2 CONT./10' O.C.
25	SD	Salix discolor / Pussy Willow		#5 CONT./15' O.C.
32	VC	Vaccinium corymbosum / Highbush Blueberry		#5 CONT./15' O.C.
16	VD	Viburnum dentatum / Arrowwood Viburnum		#2 CONT./10' O.C.
		PERENNIALS/GRASSES/GROUND COVERS		
35	PC	Pontederia cordata / Pickerelweed		#1 CONT./36" O.C.
33	SA	Schoenoplectus acutus / Hard Stem Bulrush		#1 CONT./36" O.C.
64	PV	Panicum virgatum / Switchgrass		#1 CONT./36" O.C.
69	CP	Carex pensylvanica / Pennsylvania Sedge		#1 CONT./24" O.C.

NO.	DATE	REVISION	BY
5	5-31-22	REVISED PER PLANNING BOARD COMMENTS	PJM
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3	12-29-20	REVISED PER PLANNING BOARD COMMENTS	JFR
2	7-28-20	REVISED PER PLANNING BOARD COMMENTS	JFR
1	6-30-20	REVISED PER PLANNING BOARD COMMENTS	JFR

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(845) 225-9717 fax
www.insite-eng.com

PROJECT:
BEACON VIEWS
CITY OF BEACON, DUTCHESS COUNTY, NEW YORK

DRAWING:
ENLARGED PLANS

STATE OF NEW YORK — JEFFREY J. COWLEY — 091931 — LICENSED PROFESSIONAL ENGINEER

PROJECT NUMBER	19131.100	PROJECT MANAGER	J.J.C.
DATE	5-26-20	DRAWN BY	J.F.R.
SCALE	AS SHOWN	CHECKED BY	A.D.T.

DRAWING NO. SP-4
SHEET 7 / 20

ALTERATION OF THIS DOCUMENT, UNLESS UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, IS A VIOLATION OF SECTION 7209 OF ARTICLE 145 OF THE EDUCATION LAW.

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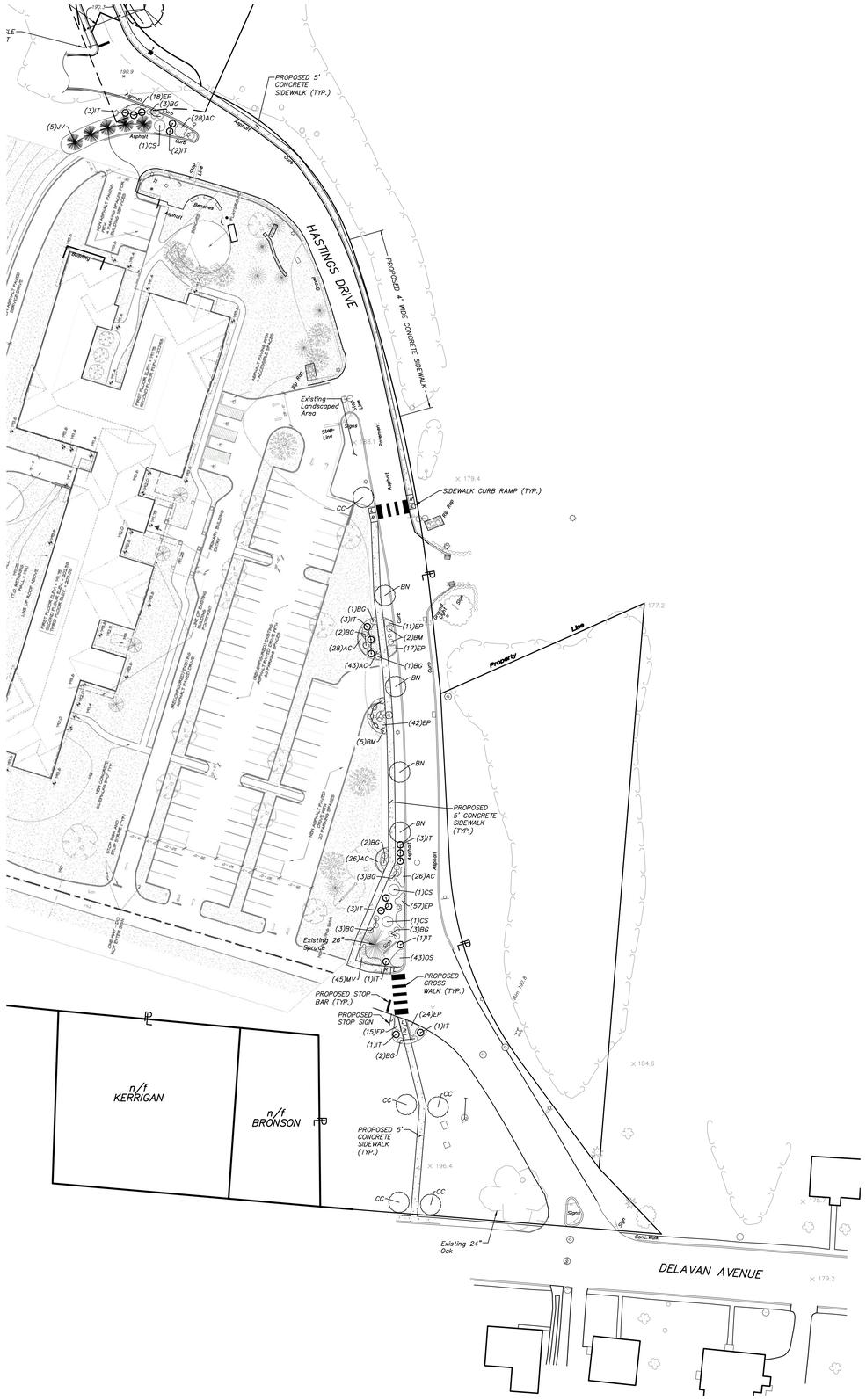

OFF-SITE IMPROVEMENTS PLANT LIST

QTY.	KEY	BOTANICAL/COMMON NAME	SIZE	ROOT
		EVERGREEN TREES		
5	JV	Juniperus virginiana / Eastern Red Cedar	10'-12' HT.	B&B
		FLOWERING TREES		
4	BN	Betula nigra / River Birch	8'-10' HT.	B&B
5	CC	Cercis canadensis / Eastern Redbud	8'-10' HT.	B&B
		SHRUBS		
20	BG	Buxus 'Green Gem' / Green Gem Boxwood		#3 CONT./3' O.C.
7	BM	Buxus 'Green Mountain' / Green Mountain Boxwood		#3 CONT./3' O.C.
3	CS	Cornus sericea / Red Twig Dogwood		#3 CONT./4' O.C.
18	IT	Itea virginica / Virginia Sweetspire		#3 CONT./3' O.C.
		PERENNIALS/GROUND COVERS		
151	AC	Aquilegia canadensis / Columbine		#1 CONT./18" O.C.
184	EP	Echinacea purpurea / Purple Coneflower		#1 CONT./18" O.C.
45	MV	Mertensia virginica / Virginia Bluebells		#1 CONT./18" O.C.
43	OS	Osmunda regalis / Royal Fern		#1 CONT./18" O.C.

LEGEND

- EXISTING PROPERTY LINE
- EXISTING EDGE OF PAVEMENT
- EXISTING TREE LINE
- EXISTING UTILITY POLE W/ GUY WIRE
- EXISTING HYDRANT
- EXISTING DRAINAGE MANHOLE
- EXISTING SEWER MANHOLE
- EXISTING MANHOLE
- EXISTING WATER VALVE
- EXISTING LIGHT
- EXISTING SIGN
- EXISTING TREES
- PROPOSED SIGN
- PROPOSED CONCRETE CURB
- PROPOSED EDGE OF SIDEWALK
- PROPOSED PAINTED STOPBAR
- PROPOSED CROSSWALK
- PROPOSED LANDSCAPING

General Note:

1. Boundary information and field conditions shown hereon were field located on August 8, 2019 by Insite Engineering, Surveying & Landscape Architecture, P.C.
2. Property line information for the Kerrigan and Bronson lots were taken from the Dutchess County Tax Map.
3. Layout information for the Highland Meadows Senior Housing property was taken from design plans by The Schwartz Architectural Group, P.C., dated November 3, 2011.
4. The 140 LF portion of the proposed sidewalk that is proposed at 4' wide is reduced from the 5' width shown elsewhere to accommodate the existing edge of pavement, and its close proximity to the property line. All other proposed sidewalks shown on this plan are 5' wide.

OFF-SITE IMPROVEMENTS PLAN

Notes:
1. See Site Access Notes on Sheet CS-1.

GRAPHIC SCALE

0 20 40 80

(IN FEET)
1 inch = 40 ft.

NO.	DATE	REVISION	BY
3	5-31-22	REVISED PER PLANNING BOARD COMMENTS	PJM
2	11-30-21	REVISED PER PLANNING BOARD COMMENTS	EJP
1	12-29-20	REVISED PER PLANNING BOARD COMMENTS	JFR

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(845) 225-9717 fax
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PROJECT:
BEACON VIEWS
CITY OF BEACON, DUTCHESS COUNTY, NEW YORK

DRAWING:
OFF SITE IMPROVEMENTS PLAN

STATE OF NEW YORK · JEFFREY J. CONTENTO · 91931 · LICENSED PROFESSIONAL ENGINEER

PROJECT NUMBER	19131.100	PROJECT MANAGER	J.J.C.
DATE	7-28-20	DRAWN BY	J.F.R.
SCALE	1" = 40'	CHECKED BY	A.D.T.

DRAWING NO. SP-5 | SHEET 8 / 20

ALTERATION OF THIS DOCUMENT, UNLESS UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, IS A VIOLATION OF SECTION 7209 OF ARTICLE 145 OF THE EDUCATION LAW.

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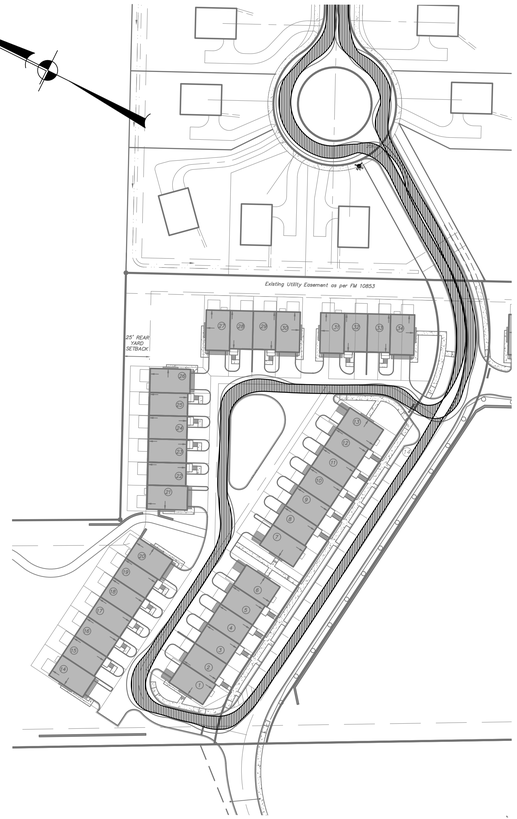
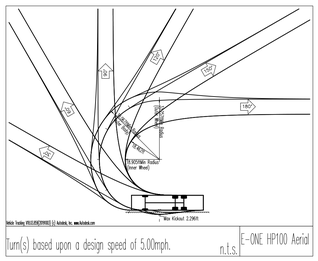
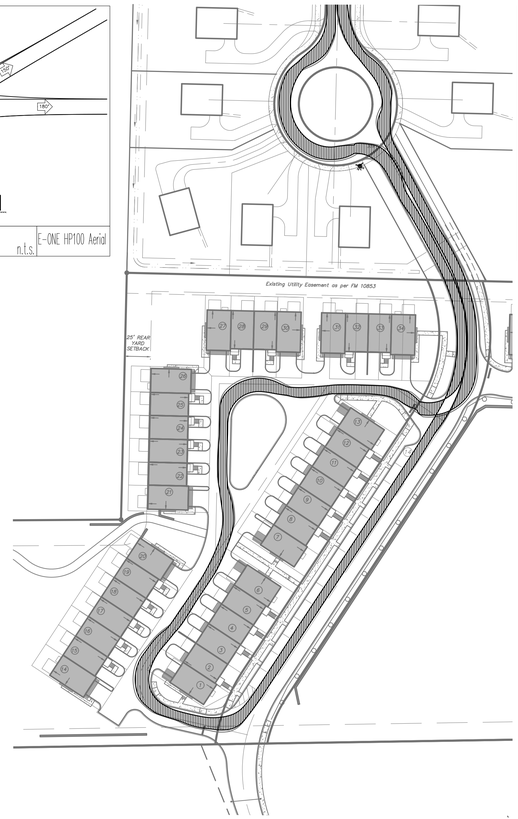
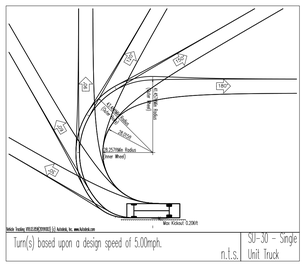


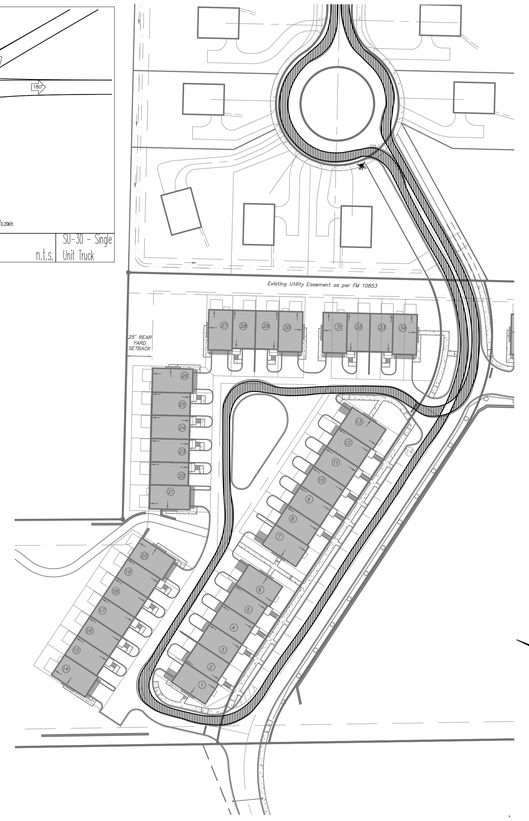
FIRE TRUCK MANEUVER 1
SCALE : 1" = 60'



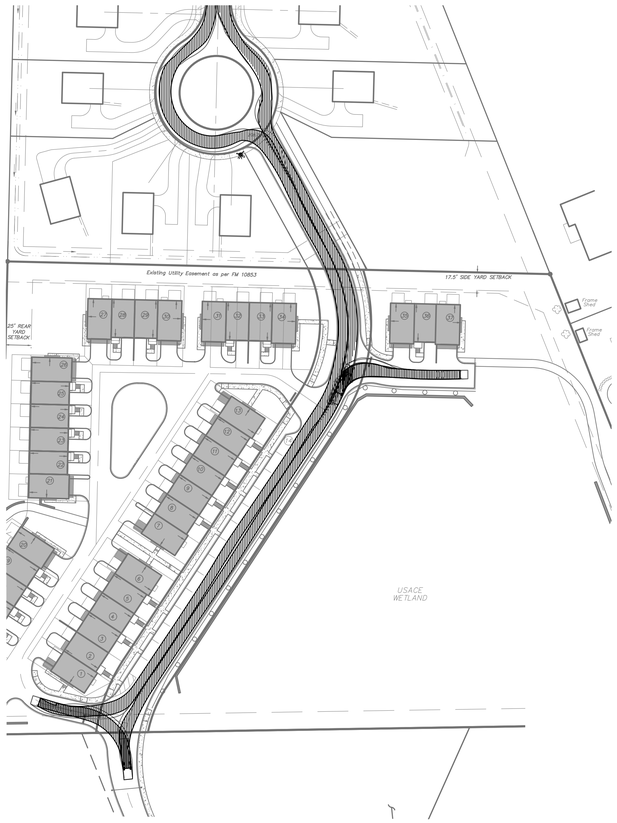


DELIVERY TRUCK MANEUVER 1
SCALE : 1" = 60'

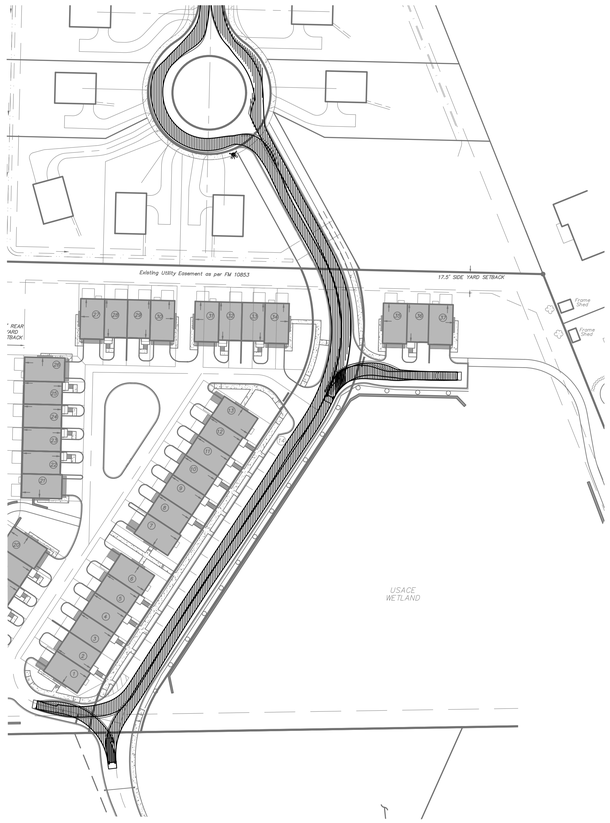




PLOW TRUCK MANEUVER 1
SCALE : 1" = 60'



FIRE TRUCK MANEUVER 2
SCALE : 1" = 60'



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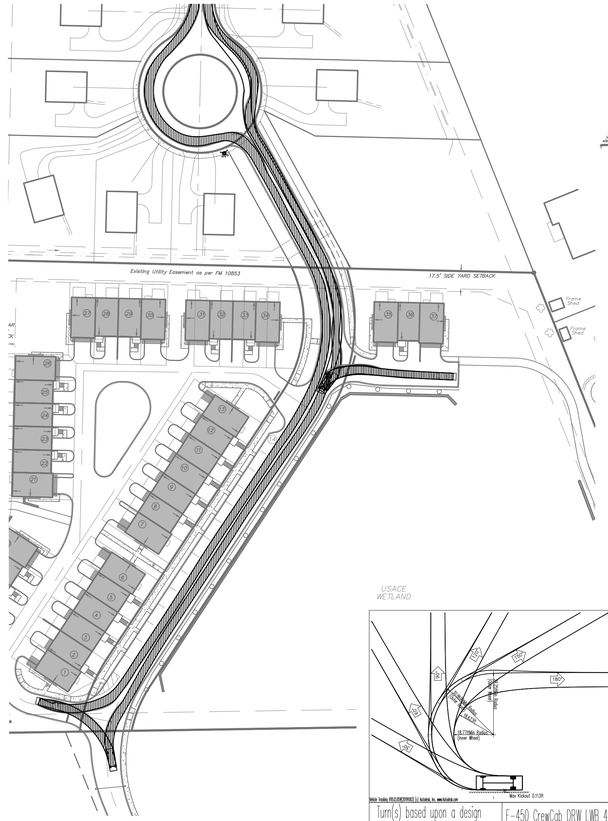
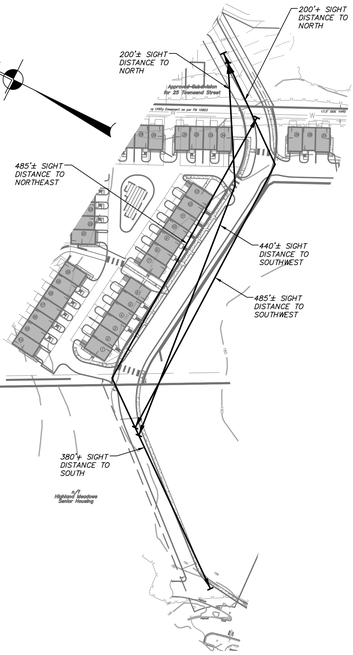
SCALE : 1" = 60'



PLOW TRUCK MANEUVER 2
SCALE : 1" = 60'



SIGHT DISTANCE ANALYSIS
SCALE : 1" = 100'

LEGEND

- EXISTING PROPERTY LINE
- EXISTING EASEMENT
- EXISTING CHAIN LINK FENCE
- EXISTING EDGE OF PAVEMENT
- EXISTING WETLAND
- EXISTING WETLAND FLAG (Wl. A23, Wl. A24)
- EXISTING TREE LINE
- PROPOSED SIGN
- PROPOSED DOOR LOCATION
- PROPOSED # OF STALLS TO BE STRIPED (9)
- PROPOSED CONCRETE CURB
- PROPOSED EDGE OF SIDEWALK
- PROPOSED RETAINING WALL
- PROPOSED PAINTED STOPBAR
- PROPOSED CROSSWALK
- PROPOSED LANDSCAPING
- PROPOSED GUIDE RAIL
- PROPOSED POLE MOUNTED LIGHT
- PROPOSED BUILDING MOUNTED LIGHT

REFER TO CS-1 FOR SITE ACCESS NOTES

NO.	DATE	REVISION	BY
5	5-31-22	REVISED PER PLANNING BOARD COMMENTS	PJM
4	11-30-21	REVISED PER PLANNING BOARD COMMENTS	EJP
3	12-29-20	REVISED PER PLANNING BOARD COMMENTS	JFR
2	7-28-20	REVISED PER PLANNING BOARD COMMENTS	JFR
1	6-30-20	REVISED PER PLANNING BOARD COMMENTS	JFR

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(845) 225-9717 fax
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PROJECT:
BEACON VIEWS
CITY OF BEACON, DUTCHESS COUNTY, NEW YORK

DRAWING:
VEHICLE MANEUVERING PLAN

STATE OF NEW YORK — JEFFREY J. CONTENTO — 21931 — LICENSED PROFESSIONAL ENGINEER

PROJECT NUMBER	19131.100	PROJECT MANAGER	J.J.C.	DRAWING NO.	SHEET
DATE	6-30-20	DRAWN BY	J.F.R.	SP-6	9 / 20
SCALE	AS SHOWN	CHECKED BY	A.D.T.		

ALTERATION OF THIS DOCUMENT, UNLESS UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, IS A VIOLATION OF SECTION 7209 OF ARTICLE 145 OF THE EDUCATION LAW.

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LEGEND

- EXISTING PROPERTY LINE
- EXISTING EASEMENT
- EXISTING CHAIN LINK FENCE
- EXISTING EDGE OF PAVEMENT
- EXISTING WETLAND
- WL A23 / WL A24 — EXISTING WETLAND FLAG
- EXISTING TREE LINE
- PROPOSED SIGN
- PROPOSED DOOR LOCATION
- (9) — PROPOSED # OF STALLS TO BE STRIPED
- PROPOSED CONCRETE CURB
- PROPOSED EDGE OF SIDEWALK
- PROPOSED RETAINING WALL
- PROPOSED PAINTED STOPBAR
- PROPOSED CROSSWALK
- PROPOSED GUIDE RAIL
- PROPOSED POLE MOUNTED LIGHT
- PROPOSED BUILDING MOUNTED LIGHT

Streetworks

DESCRIPTION

The Galleon™ LED luminaire delivers exceptional performance in a highly scalable, low-profile design. Patented, high-efficiency AccuLED Optics™ system provides uniform and energy conscious illumination to walkways, parking lots, roadways, building areas and security lighting applications. IP66 rated and UL/cUL Listed for wet locations.

GAN=Galleon
AF=1A Drive Current
01=1
LED=Solid
U=Universal (120-277V)
T4W=Type IV Wide
8030=80 CRI 3000K[12]

DIMENSIONS

GAN
GALLEON LED

1-10 Light Squares
Solid State LED

AREA / ROADWAY LUMINAIRE
GAN-AF-01-LED-U-T4W-8030

1-Light Zinc Outdoor Wall Barn Light Sconce Lantern
by **Hampton Bay**

Details

Compatible Bulb Type	CFL,Incandescent,LED	Exterior Lighting Product Type	Outdoor Lanterns
Fixture Color/Finish	Zinc	Fixture Material	Stainless Steel
Glass/Lens Type	No Glass/Lens	Included	Hardware Included
Light Bulb Base Code	E26	Light Bulb Type Included	No Bulbs Included
Maximum Bulb Wattage	60	Maximum Wattage (watts)	0
Number of Lights	1 Light	Outdoor Lighting Features	Dark Sky,Dimmable,Weather Resistant
Power Type	Hardwired	Power Type	Hardwired
Product Size	Small	Product Size	Medium
Product Weight (lb.)	1.756	Recommended Light Bulb Shape Code	A19
Returnable	180-Day	Sconce Type	Barn Light
Size	Medium	Style	Farmhouse,Industrial,Rustic
UL Listing	1-UL Listed	Voltage Type	Line Voltage

LIGHTING NOTES:

1. All lighting shall be as noted on the plan or approved equal.
2. Style and finish of all luminaires to be selected by owner and approved by the Planning Board.
3. Site lights will be on photocells and will run from dusk to dawn.
4. Photometrics for building mounted lights are not depicted in this plan.
5. Type, location, and shading of all proposed lighting shall prevent the spillover of light onto all adjacent residential properties.

LIGHT CONTOUR LEGEND

- 0.1 — 0.10 Foot Candles
- 0.5 — 0.50 Foot Candles
- 1 — 1.00 Foot Candles

* Photometric calculations shown on plan are in foot candles.

LUMINAIRE SCHEDULE

Symbol	Qty	Catalog Number	Description	Lamp	Mounting Height
▪■	14	GAN-AF-01-LED -U-T4W-8030	Galleon Area and Roadway Luminaire, 80 CRI, 3000K, Type 4 Distribution	LED	12' – 0"
▬■	120	–	1-Light Zinc Outdoor Wall Barn Sconce Lantern Outfitted with 2700K 9W LED Bulbs CRI 80	LED	7' – 0"

GRAPHIC SCALE
0 20 40 80
(IN FEET)
1 inch = 40 ft.

NO.	DATE	REVISION	BY
7	5-31-22	REVISED PER PLANNING BOARD COMMENTS	PJM
6	11-30-21	REVISED PER PLANNING BOARD COMMENTS	EJP
5	12-29-20	REVISED PER PLANNING BOARD COMMENTS	JFR
4	7-28-20	REVISED PER PLANNING BOARD COMMENTS	JFR
3	6-30-20	REVISED PER PLANNING BOARD COMMENTS	JFR
2	5-26-20	REVISED PER PLANNING BOARD COMMENTS	JFR
1	4-28-20	RESUBMISSION TO PLANNING BOARD	JFR

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PROJECT:
BEACON VIEWS
CITY OF BEACON, DUTCHESS COUNTY, NEW YORK

DRAWING:
LIGHTING PLAN

STATE OF NEW YORK — ERNEST J. CONKLING — LICENSED PROFESSIONAL ENGINEER — 071931

PROJECT NUMBER	19131.100	PROJECT MANAGER	J.J.C.
DATE	8-27-19	DRAWN BY	J.F.R.
SCALE	1" = 40'	CHECKED BY	A.D.T.

DRAWING NO. LP-1
SHEET 10 / 20

ALTERATION OF THIS DOCUMENT, UNLESS UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, IS A VIOLATION OF SECTION 7209 OF ARTICLE 145 OF THE EDUCATION LAW.

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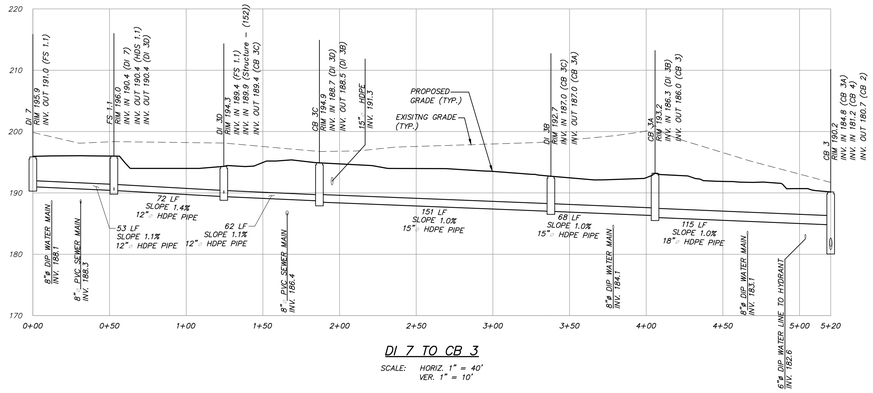
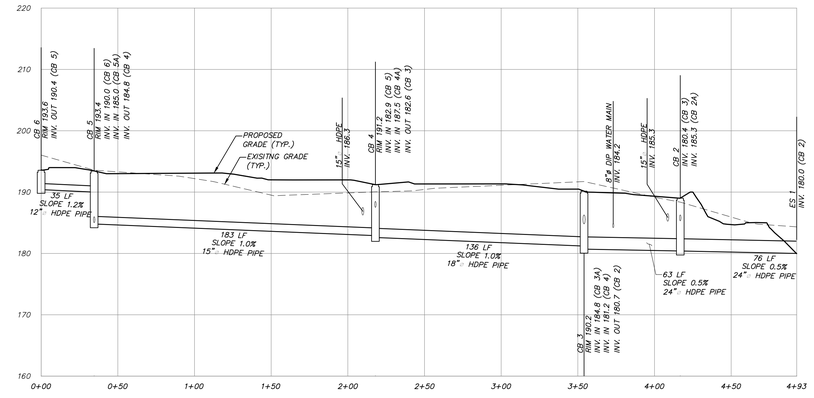


DI 7 TO CB 3

SCALE: HORIZ. 1" = 40'
VER. 1" = 10'



CB 6 TO ES 1

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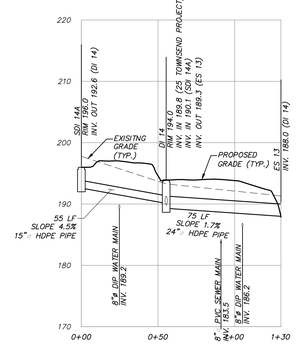
VER. 1" = 10'



SDI 14A TO ES 13

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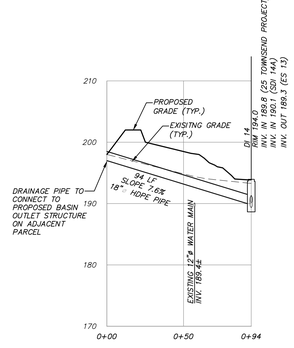
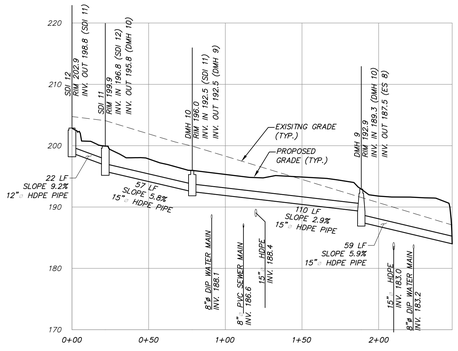
VER. 1" = 10'



DRAINAGE EXTENSION FROM ADJACENT PROJECT TO DI 14

SCALE: HORIZ. 1" = 40'
VER. 1" = 10'



SDI 12 TO ES 8

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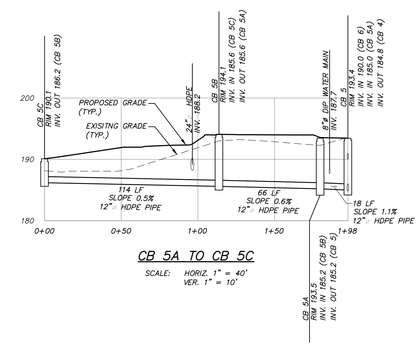
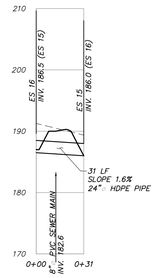
VER. 1" = 10'



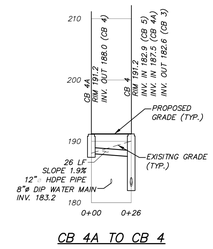
CB 5A TO CB 5C

SCALE: HORIZ. 1" = 40'
VER. 1" = 10'



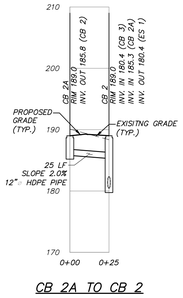
ES 16 TO ES 15

SCALE: HORIZ. 1" = 40'
VER. 1" = 10'



CB 4A TO CB 4

SCALE: HORIZ. 1" = 40'
VER. 1" = 10'



CB 2A TO CB 2

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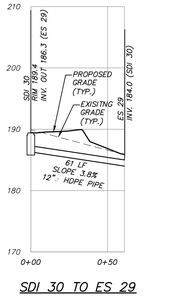
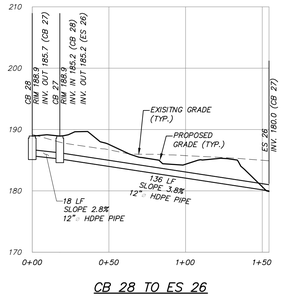
VER. 1" = 10'



SDI 30 TO ES 29

SCALE: HORIZ. 1" = 40'
VER. 1" = 10'



CB 28 TO ES 26

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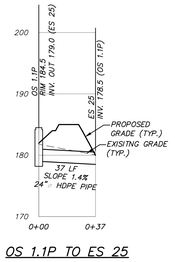
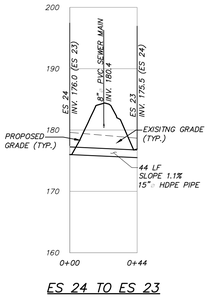
VER. 1" = 10'



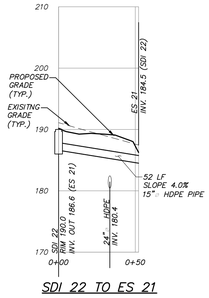
OS 1.1P TO ES 25

SCALE: HORIZ. 1" = 40'
VER. 1" = 10'



ES 24 TO ES 23

SCALE: HORIZ. 1" = 40'
VER. 1" = 10'



SDI 22 TO ES 21

SCALE: HORIZ. 1" = 40'
VER. 1" = 10'

NO.	DATE	REVISION	BY
5	5–31–22	REVISED PER PLANNING BOARD COMMENTS	PJM
4	11–30–21	REVISED PER PLANNING BOARD COMMENTS	EJP
3	12–29–20	REVISED PER PLANNING BOARD COMMENTS	JFR
2	7–28–20	REVISED PER PLANNING BOARD COMMENTS	JFR
1	6–30–20	REVISED PER PLANNING BOARD COMMENTS	JFR

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(845) 225–9717 fax
www.insite-eng.com

PROJECT:
BEACON VIEWS
CITY OF BEACON, DUTCHESS COUNTY, NEW YORK

DRAWING:
DRAINAGE PROFILES

STATE OF NEW YORK — MARY J. CONTENTO — 21931 — LICENSED PROFESSIONAL ENGINEER

PROJECT NUMBER	19131.100	PROJECT MANAGER	J.J.C.
DATE	8–27–19	DRAWN BY	E.J.P.
SCALE	AS SHOWN	CHECKED BY	Z.M.P.

DRAWING NO. PR–1 — SHEET 11 / 20

GRAPHIC SCALE
0 20 40 80
(IN FEET)
1 inch = 40 ft.

ALTERATION OF THIS DOCUMENT, UNLESS UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, IS A VIOLATION OF SECTION 7209 OF ARTICLE 145 OF THE EDUCATION LAW.

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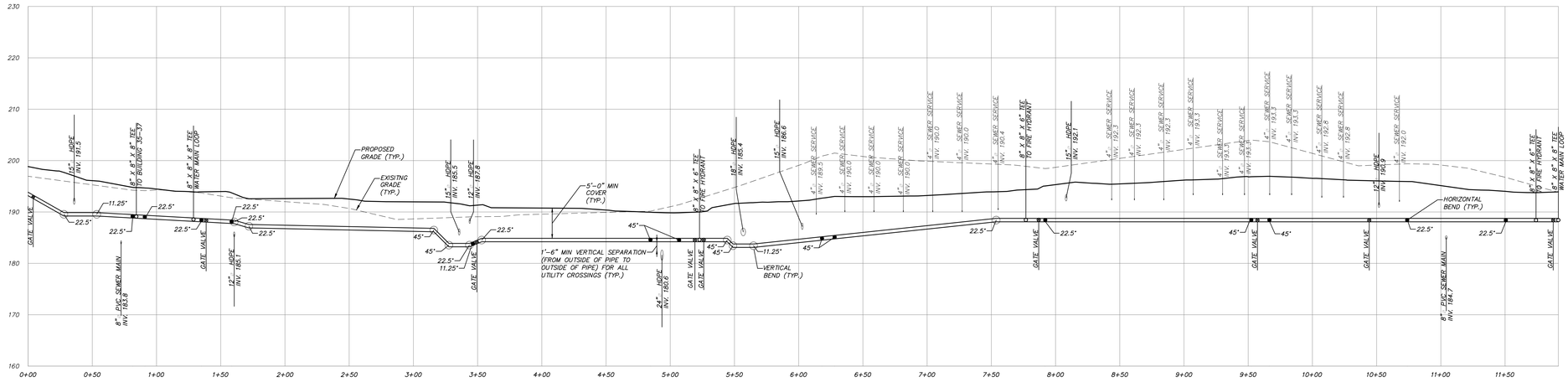
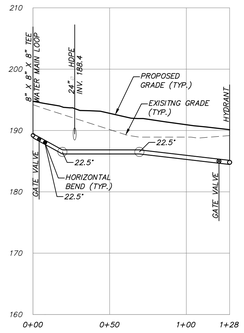


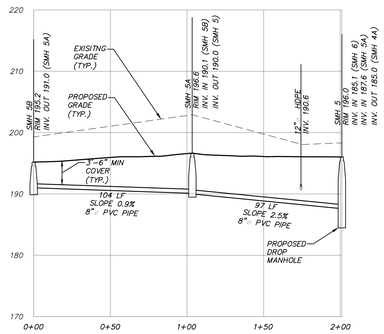
PROPOSED WATER MAIN LOOP PROFILE

SCALE: HORIZ. 1" = 40'
VER. 1" = 10'



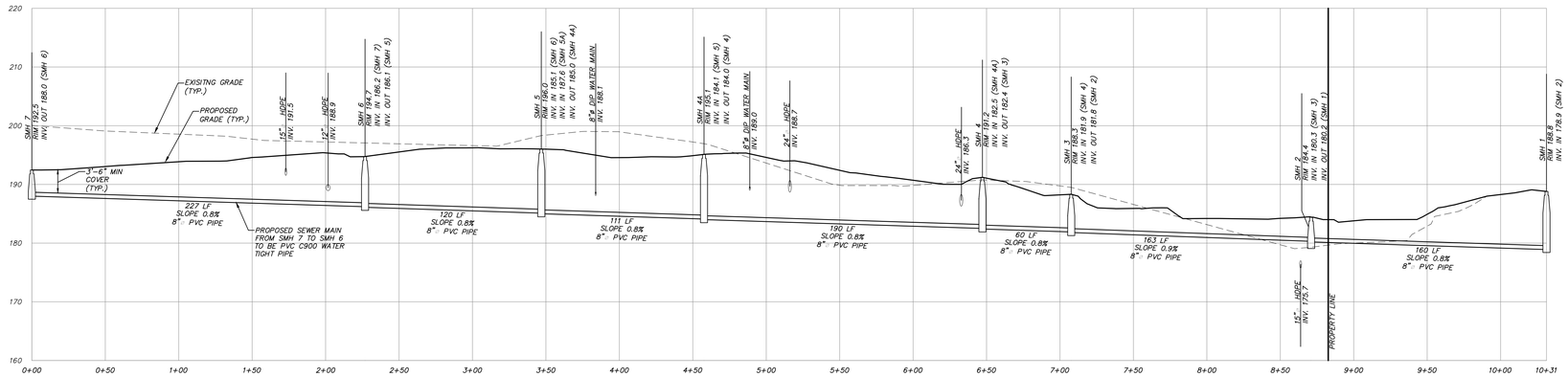
PROPOSED WATER MAIN EXTENSION TO BUILDING 35-40

SCALE: HORIZ. 1" = 40'
VER. 1" = 10'



SMH 5B TO SMH 5

SCALE: HORIZ. 1" = 40'
VER. 1" = 10'



SMH 7 TO SMH 1

SCALE: HORIZ. 1" = 40'
VER. 1" = 10'

GRAPHIC SCALE
0 20 40 80
(IN FEET)
1 inch = 40 ft.

NO.	DATE	REVISION	BY
5	5-31-22	REVISED PER PLANNING BOARD COMMENTS	PJM
4	11-30-21	REVISED PER PLANNING BOARD COMMENTS	EJP
3	12-29-20	REVISED PER PLANNING BOARD COMMENTS	JFR
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1	6-30-20	REVISED PER PLANNING BOARD COMMENTS	JFR

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Carmel, NY 10512
(845) 225-9690
(845) 225-9717 fax
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PROJECT:
BEACON VIEWS
CITY OF BEACON, DUTCHESS COUNTY, NEW YORK

DRAWING:
WATER & SEWER PROFILES

STATE OF NEW YORK — JEFFREY J. CONTENTO — 21931 — LICENSED PROFESSIONAL ENGINEER

PROJECT NUMBER	191.31.100	PROJECT MANAGER	J.J.C.
DATE	8-27-19	DRAWN BY	E.J.P.
SCALE	AS SHOWN	CHECKED BY	Z.M.P.

DRAWING NO. PR-2
SHEET 12 / 20

ALTERATION OF THIS DOCUMENT, UNLESS UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, IS A VIOLATION OF SECTION 7209 OF ARTICLE 145 OF THE EDUCATION LAW.

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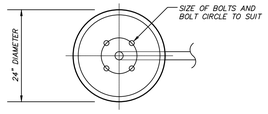
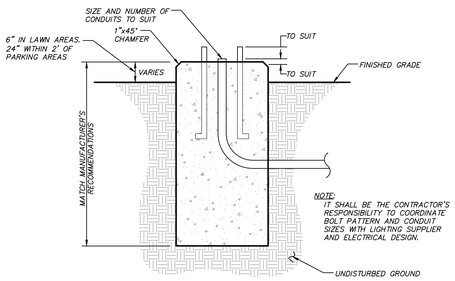
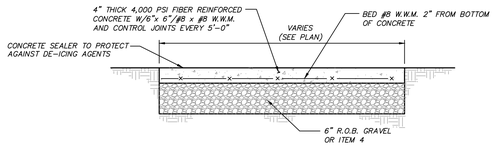


PLAN VIEW



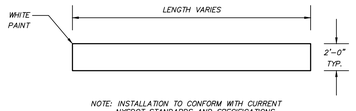
SECTION

LIGHT POLE BASE DETAIL
(N.T.S.)



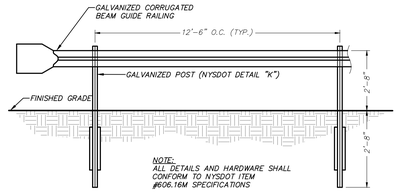
NOTE: INSTALL EXPANSION JOINTS EVERY 10'-0" AND CONTROL JOINTS EVERY 5'-0"

CONCRETE SIDEWALK DETAIL
(N.T.S.)

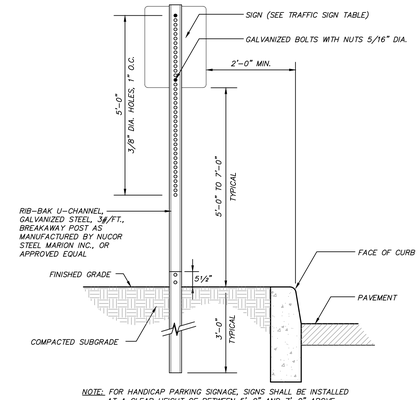


NOTE: INSTALLATION TO CONFORM WITH CURRENT NYSDOT STANDARDS AND SPECIFICATIONS.

PAINTED STOP BAR DETAIL
(N.T.S.)

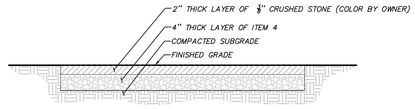


GUIDERAIL DETAIL
(N.T.S.)

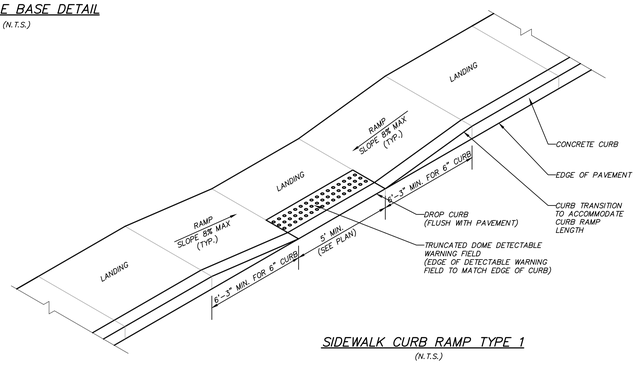


NOTE: FOR HANDICAP PARKING SIGNAGE, SIGNS SHALL BE INSTALLED AT A CLEAR HEIGHT OF BETWEEN 5'-0" AND 7'-0" ABOVE GRADE OF PARKING SPACE AND SUCH THAT SIGNS SHALL NOT BE OBSCURED BY A VEHICLE PARKED IN THE SPACE.

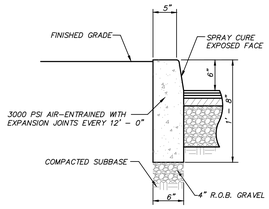
TRAFFIC SIGN DETAIL
(N.T.S.)



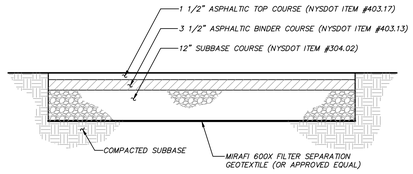
GRAVEL WALKWAY DETAIL
(N.T.S.)



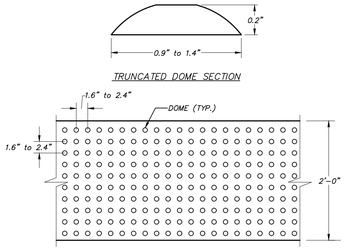
SIDEWALK CURB RAMP TYPE 1
(N.T.S.)



CONCRETE CURB DETAIL
(N.T.S.)



RIGHT OF WAY ASPHALT DETAIL
(N.T.S.)



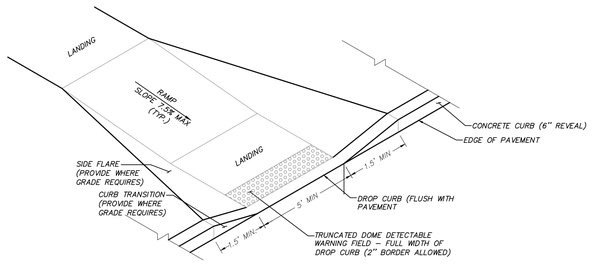
TRUNCATED DOME SECTION

TRUNCATED DOME SPACING

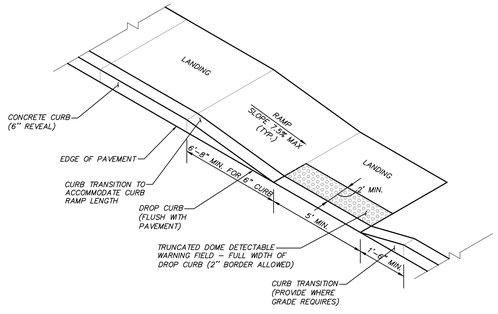
TRUNCATED DOME DETAIL
(N.T.S.)

TRUNCATED DOME DETECTABLE WARNING FIELD NOTES:

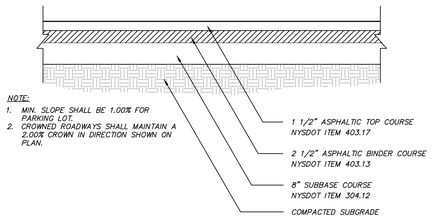
1. The detectable warning field shall consist of raised truncated domes with a nominal diameter of 0.9 inches, a nominal height of 0.2 inches, and a nominal spacing of 2.35 inches on center in accordance with the most recent version of ANSI ICC A117.1.
2. The details provided are not drawn to scale. The quantity of domes depicted on the detectable warning field (the domes and the entire 24 inch level surface) is for illustration only.
3. The size of the detectable warning field shall be 24 inches in the direction of travel and shall extend the full width of the curb ramp or flush surface, exclusive of side flares.
4. Detectable warnings shall be located so that the edge of the warning field nearest to the roadway or street surface is 6 inches to 9 inches from the edge of the roadway/street, or from the front of the dropped curb, where a dropped curb continues across the bottom of the sidewalk curb ramp.
5. Domes shall be aligned on a square grid in the predominant direction of travel.
6. The detectable warning field shall be yellow.



SIDEWALK CURB RAMP TYPE 2
(N.T.S.)



SIDEWALK CURB RAMP TYPE 3
(N.T.S.)



PRIVATE DRIVEWAY ASPHALT DETAIL
(N.T.S.)

PRIVATE ROAD PAVEMENT DETAIL
(N.T.S.)

NO.	DATE	REVISION	BY
7	5-31-22	REVISED PER PLANNING BOARD COMMENTS	PJM
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5	12-29-20	REVISED PER PLANNING BOARD COMMENTS	JFR
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3	6-30-20	REVISED PER PLANNING BOARD COMMENTS	JFR
2	5-26-20	REVISED PER PLANNING BOARD COMMENTS	JFR
1	4-28-20	RESUBMISSION TO PLANNING BOARD	JFR

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www.insite-eng.com

PROJECT:
BEACON VIEWS
CITY OF BEACON, DUTCHESS COUNTY, NEW YORK

DRAWING:
DETAILS

STATE OF NEW YORK — JAMES J. CONTENTO — 21931 — LICENSED PROFESSIONAL ENGINEER

PROJECT NUMBER	19131.100	PROJECT MANAGER	J.J.C.
DATE	8-27-19	DRAWN BY	J.F.R.
SCALE	AS NOTED	CHECKED BY	A.D.T.

DRAWING NO. D-1 — SHEET 13 / 20

ALTERATION OF THIS DOCUMENT, UNLESS UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, IS A VIOLATION OF SECTION 7209 OF ARTICLE 145 OF THE EDUCATION LAW.

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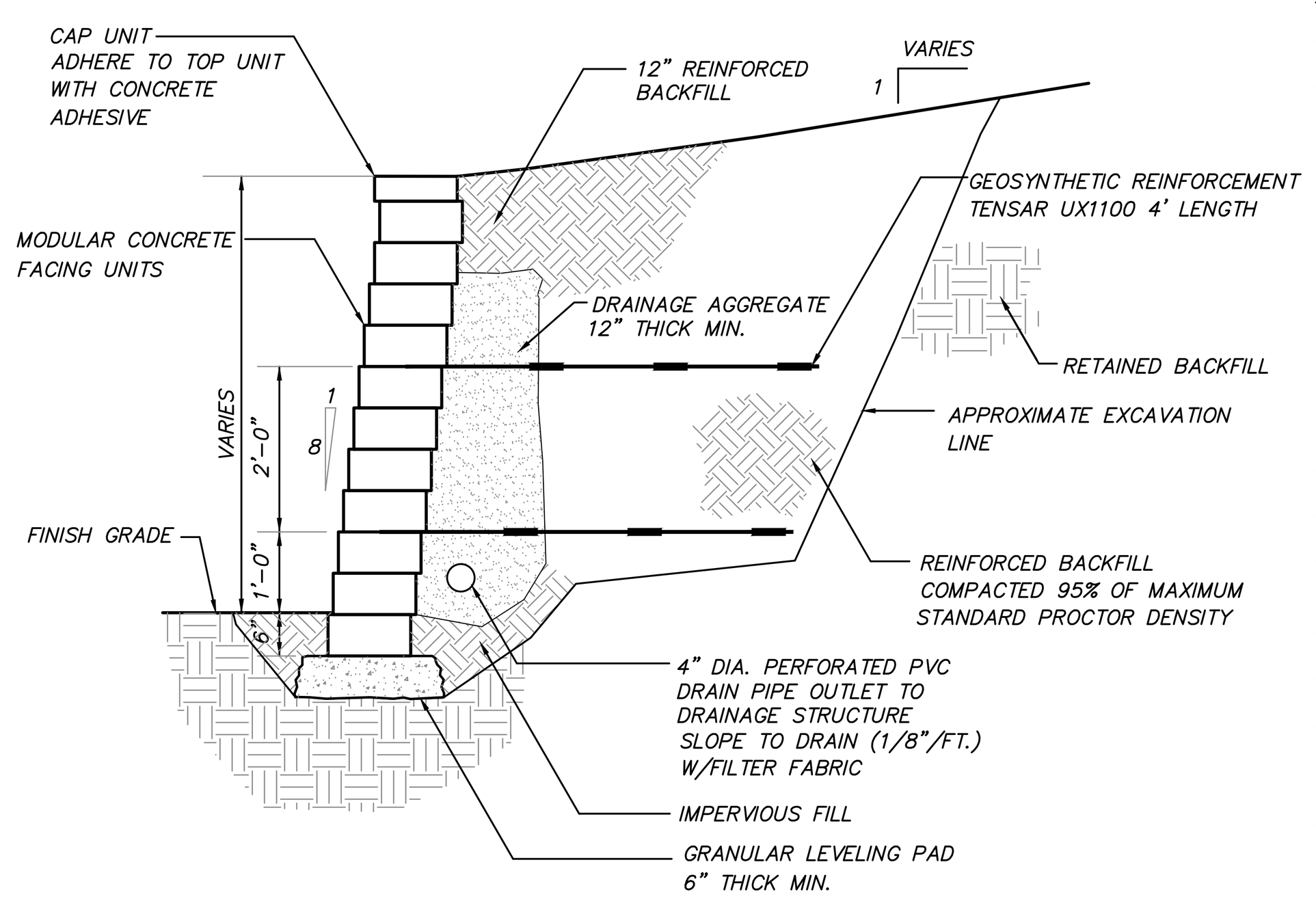
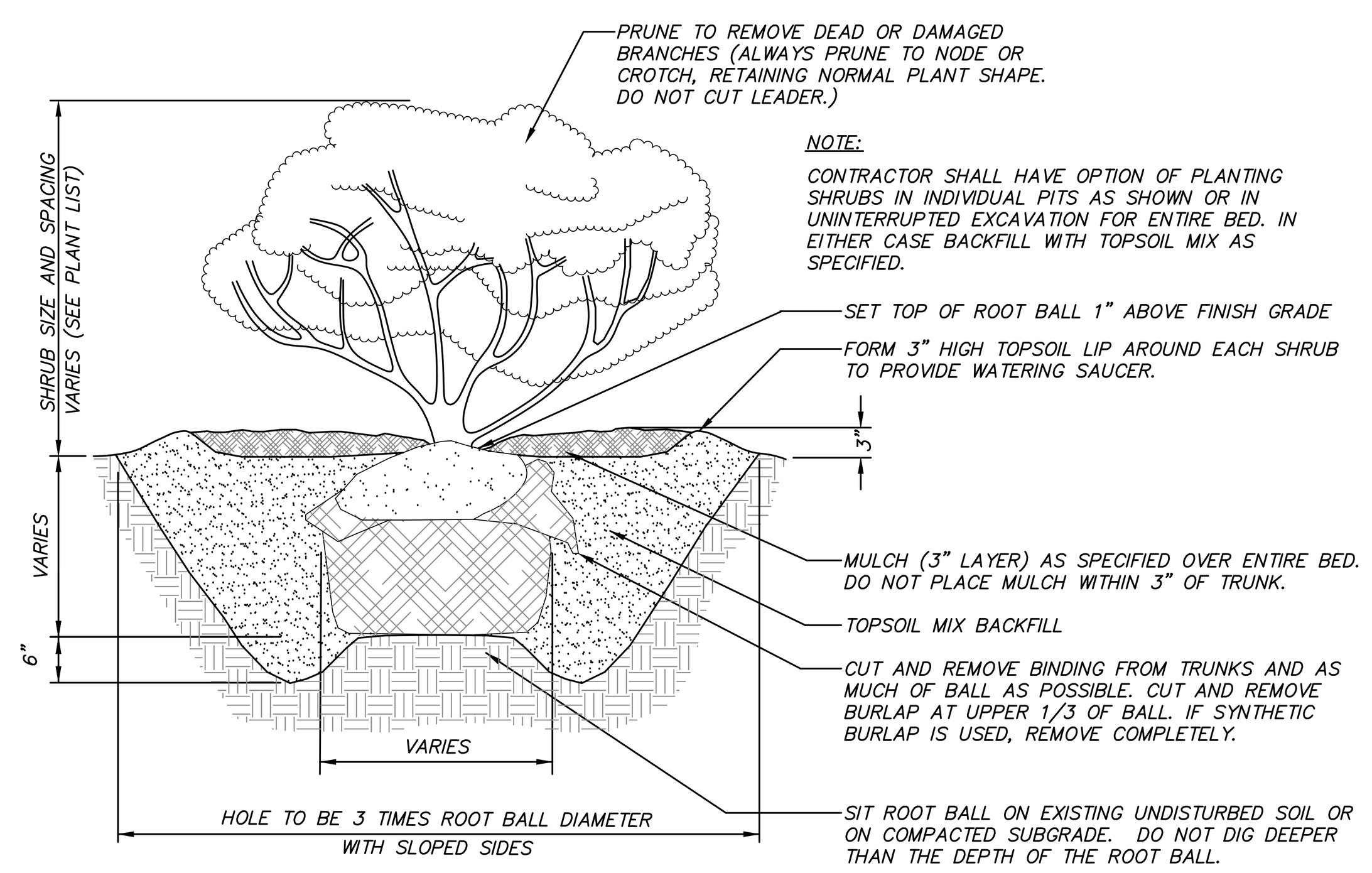


NOTES:

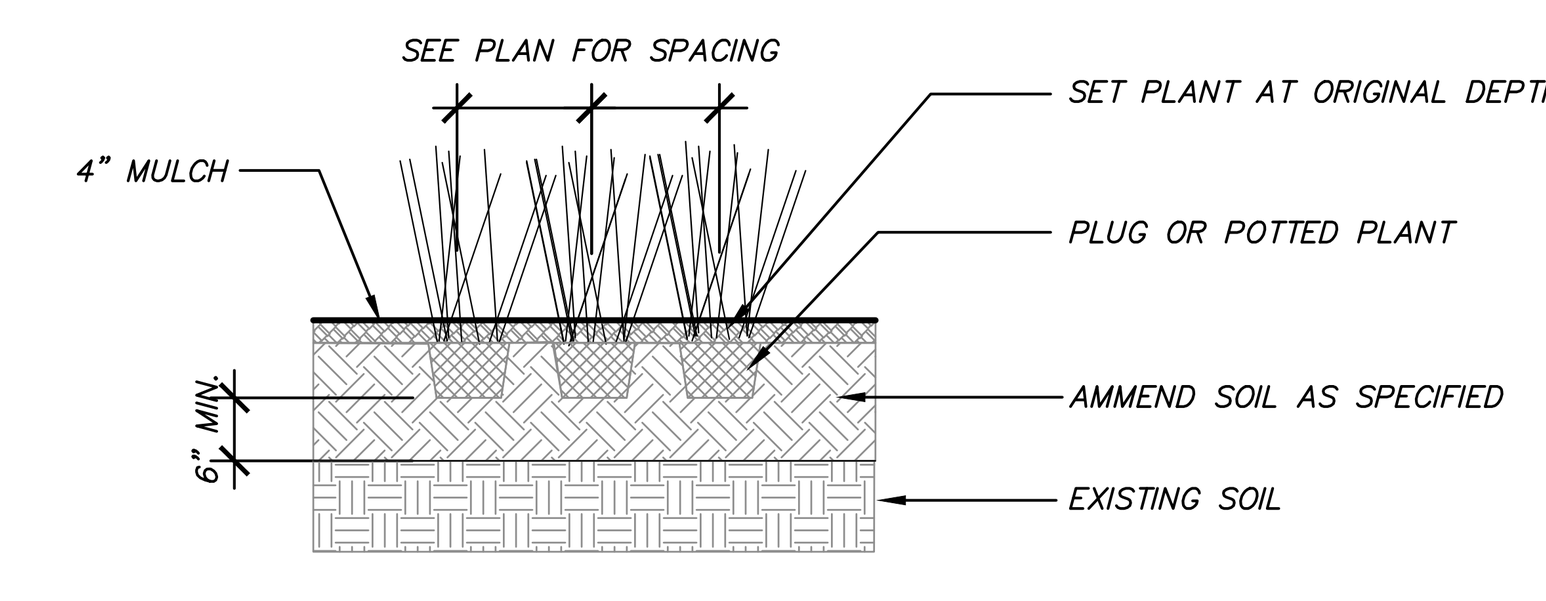
1. STRIP VEGETATION AND ORGANIC SOIL FROM WALL AND GEOSYNTHETIC ALIGNMENT.
2. BENCH CUT ALL EXCAVATED SLOPES.
3. DO NOT OVER EXCAVATE UNLESS DIRECTED BY SITE ENGINEER TO REMOVE UNSUITABLE SOIL.
4. SITE ENGINEER SHALL VERIFY FOUNDATION SOILS AS BEING COMPETENT PER THE DESIGN STANDARDS AND PARAMETERS.
5. LEVELING PAD SHALL CONSIST OF COMPACTED COARSE SAND OR CRUSHED GRAVEL, 6" THICK MIN.
6. CONTRACTOR MAY OPT FOR A LEAN CONCRETE PAD. CONCRETE PAD SHALL BE UNREINFORCED, 3" THICK MAXIMUM.
7. MINIMUM EMBEDMENT OF WALL BELOW FINISH GRADE SHALL BE 6".
8. FOR UNITS TO BE EMBEDDED, COMPACT FILL IN FRONT OF UNITS AT THE SAME TIME FILL BEHIND UNITS IS COMPACTED.
9. DRAINAGE AGGREGATE SHALL BE INSTALLED DIRECTLY BEHIND THE WALL WITHIN 12" OF THE TOP OF THE WALL. DRAINAGE AGGREGATE SHALL NOT EXTEND BELOW FINAL GRADE IN FRONT OF WALL.
10. COMPACTION SHALL BE TO 95% OF MAXIMUM STANDARD PROCTOR DENSITY.(ASTM D-698)
11. COMPACTION TESTS SHALL BE TAKEN AS THE WALL IS INSTALLED. THE MINIMUM NUMBER OF TESTS SHALL BE DETERMINED BY THE SITE SOILS ENGINEER.
12. COMPACTION WITHIN 3 FT. OF WALL SHALL BE LIMITED TO HAND OPERATED EQUIPMENT.
13. GEOSYNTHETIC SHALL BE PLACED WITH STRONGEST DIRECTION PERPENDICULAR TO WALL. FOLLOW GEOSYNTHETIC MANUFACTURER'S INSTALLATION INSTRUCTIONS AND WRITTEN SPECIFICATIONS.
14. CONTRACTOR SHALL DIRECT SURFACE RUNOFF TO AVOID DAMAGING WALL WHILE UNDER CONSTRUCTION.
15. ANY SURFACE DRAINAGE FEATURES, FINISH GRADING, PAVEMENT, OR TURF SHALL BE INSTALLED IMMEDIATELY AFTER WALL IS COMPLETED.
16. FOLLOW APPLICABLE PROVISIONS OF THE MANUFACTURER'S INSTALLATION INSTRUCTIONS AND WRITTEN SPECIFICATIONS.
17. MODULAR BLOCK RETAINING WALL AT STEPS TO BE INSTALLED VERTICALLY (NO BATTER)
18. MODULAR BLOCK RETAINING WALL MANUFACTURER TO SUPPLY CONSTRUCTION DETAILS OF WALL SIGNED AND SEALED BY AN ENGINEER LICENSED IN THE STATE OF NEW YORK.

MODULAR BLOCK RETAINING WALL DETAIL
(N.T.S.)



NOTE:
CONTRACTOR SHALL HAVE OPTION OF PLANTING SHRUBS IN INDIVIDUAL PITS AS SHOWN OR IN UNINTERRUPTED EXCAVATION FOR ENTIRE BED. IN EITHER CASE BACKFILL WITH TOPSOIL MIX AS SPECIFIED.

SHRUB PLANTING DETAIL
(N.T.S.)



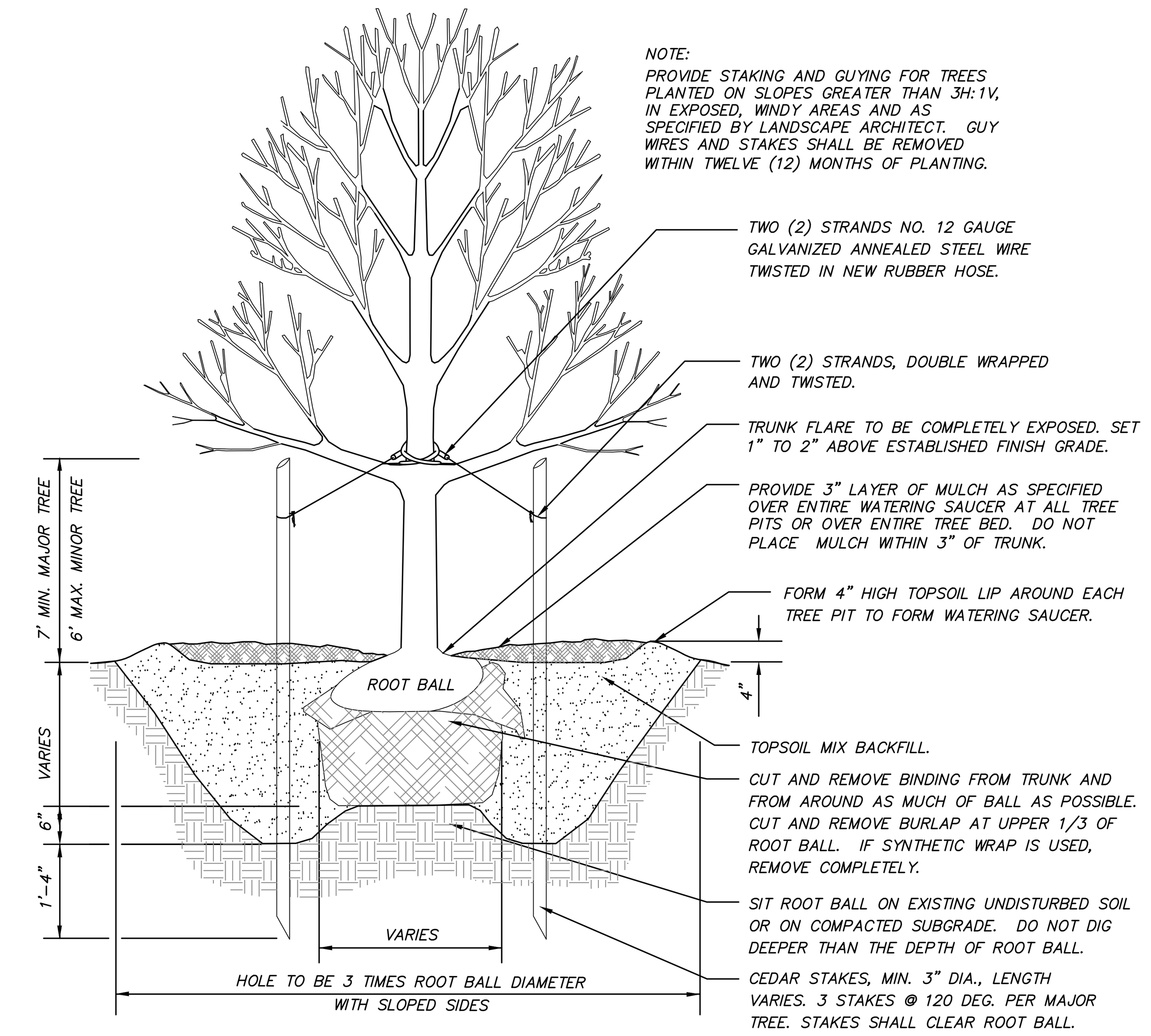
PERENNIAL / ORNAMENTAL GRASS PLANTING DETAIL
(N.T.S.)

GENERAL PLANTING NOTES:

1. All proposed planting beds to receive a 12" min. depth of topsoil. Soil amendments and fertilizer application rates shall be determined based on specific testing of topsoil material.
2. Any new soils added will be amended as required by results of soil testing and placed using a method that will not cause compaction.
3. No fertilizer shall be added in stormwater basin plantings. Nutrient requirements to be met by incorporation of acceptable organic matter.
4. All plant material to be nursery grown.
5. Plants shall conform with ANSI Z60.1 American Standard for Nursery Stock in all ways including dimensions.
6. Plant material shall be taken from healthy nursery stock.
7. All plants shall be grown under climate conditions similar to those in the locality of the project.
8. Plants shall be planted in all locations designed on the plan or as staked in the field by the Landscape Architect.
9. The location and layout of landscape plants shown on the site plan shall take precedence in any discrepancies between the quantities of plants shown on the plans and the quantity of plants in the Plant List.
10. Provide a 3" layer of shredded pine bark mulch (or as specified) over entire watering saucer at all tree pits or over entire planting bed. Do not place mulch within 3" of tree or shrub trunks.
11. All landscape plantings shall be maintained in a healthy condition at all times. Any dead or diseased plants shall immediately be replaced "in kind" by the contractor (during warranty period) or project owner.

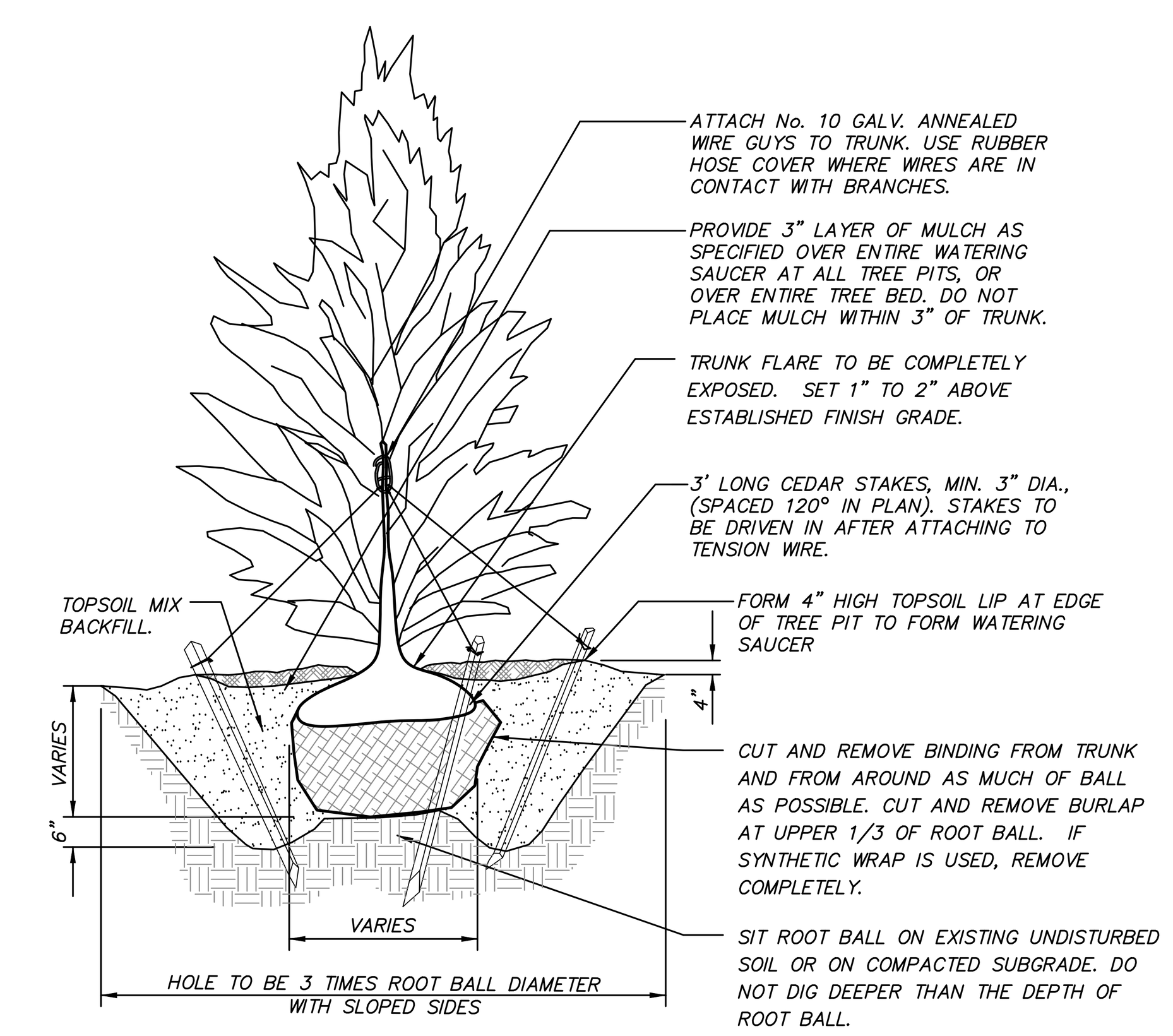
GENERAL SITE SEEDING NOTES:

1. All proposed seeded areas to receive 4" min. depth of topsoil. Soil amendments and fertilizer application rates shall be determined based on specific testing of topsoil material.
2. Upon final grading and placement of topsoil and any required soil amendments, areas to receive permanent vegetation cover in combination with suitable mulch as follows:
   - select seed mixture per drawings and seeding notes.
   - fertilizer applied at the manufacturer's recommended rate using Lesco 10-0-18 (no phosphorous) fertilizer or equivalent.
   - mulch: salt hay or small grain straw applied at a rate of 90 lbs./1000s.f. or 2 tons/acre, to be applied and anchored according to New York State Standards and Specifications for Erosion and Sediment Control, August 2005.
   - if the season prevents the establishment of a permanent vegetation cover, the disturbed areas will be mulched with straw or equivalent.
3. Seed Mix #1 for areas as shown on the drawings, including tops of berms and backslopes of embankments of stormwater basins at a rate of 25 lbs. per acre: New England Conservation/Wildlife Mix from New England Wetland Plants, Inc. of Amherst, MA.
4. Seed Mix #2 for areas as shown on the drawings in stormwater basins with no standing water at a rate of 18 lbs per acre: Erosion Control/ Restoration Mix for Detention Basins and Moist Sites from New England Wetland Plants, Inc. of Amherst MA.
5. Seed Mix #3 for all other disturbed areas not specified as seed mix #1 or #2. Primarily for lawn areas and mow strip along roads at a rate of 100 lbs. per acre:
   Kentucky Bluegrass 20%
   Creeping Red Fescue 40%
   Perennial Ryegrass 20%
   Annual Ryegrass 20%
6. Seed mixes to be planted between March 21 and May 20, or between August 15 and October 15 or as directed by project representative.
7. Mulch: Salt hay or small grain straw applied at a rate of 90 lbs./1000 S.F. or 2 tons/acre, to be applied and anchored according to "New York Standards and Specification For Erosion and Sediment Control," latest edition.
8. Grass seed mix may be applied by either mechanical or hydroseeding methods. Seeding shall be performed in accordance with the current edition of the "NYSDOT Standard Specification, Construction and Materials, Section 610-3.02, Method No. 1". Hydroseeding shall be performed using materials and methods as approved by the site engineer.



NOTE:
PROVIDE STAKING AND GUYING FOR TREES PLANTED ON SLOPES GREATER THAN 3H:1V, IN EXPOSED, WINDY AREAS AND AS SPECIFIED BY LANDSCAPE ARCHITECT. GUY WIRES AND STAKES SHALL BE REMOVED WITHIN TWELVE (12) MONTHS OF PLANTING.

TREE PLANTING DETAIL
(N.T.S.)



NOTE:
PROVIDE STAKING AND GUYING FOR TREES PLANTED ON SLOPES GREATER THAN 3H:1V, IN EXPOSED, WINDY AREAS AND AS SPECIFIED BY LANDSCAPE ARCHITECT. GUY WIRES AND STAKES SHALL BE REMOVED WITHIN TWELVE MONTHS OF PLANTING.

EVERGREEN TREE PLANTING DETAIL
(N.T.S.)

NO.	DATE	REVISION	BY
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PROJECT:
BEACON VIEWS
CITY OF BEACON, DUTCHESS COUNTY, NEW YORK

DRAWING:
DETAILS

STATE OF NEW YORK · JEFFREY J. CONTELMO · 61931 · LICENSED PROFESSIONAL ENGINEER

PROJECT NUMBER	19131.100	PROJECT MANAGER	J.J.C.	DRAWING NO.	SHEET
DATE	8-27-19	DRAWN BY	J.F.R.	D-2	14 / 20
SCALE	AS NOTED	CHECKED BY	A.D.T.		

ALTERATION OF THIS DOCUMENT, UNLESS UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, IS A VIOLATION OF SECTION 7209 OF ARTICLE 145 OF THE EDUCATION LAW.

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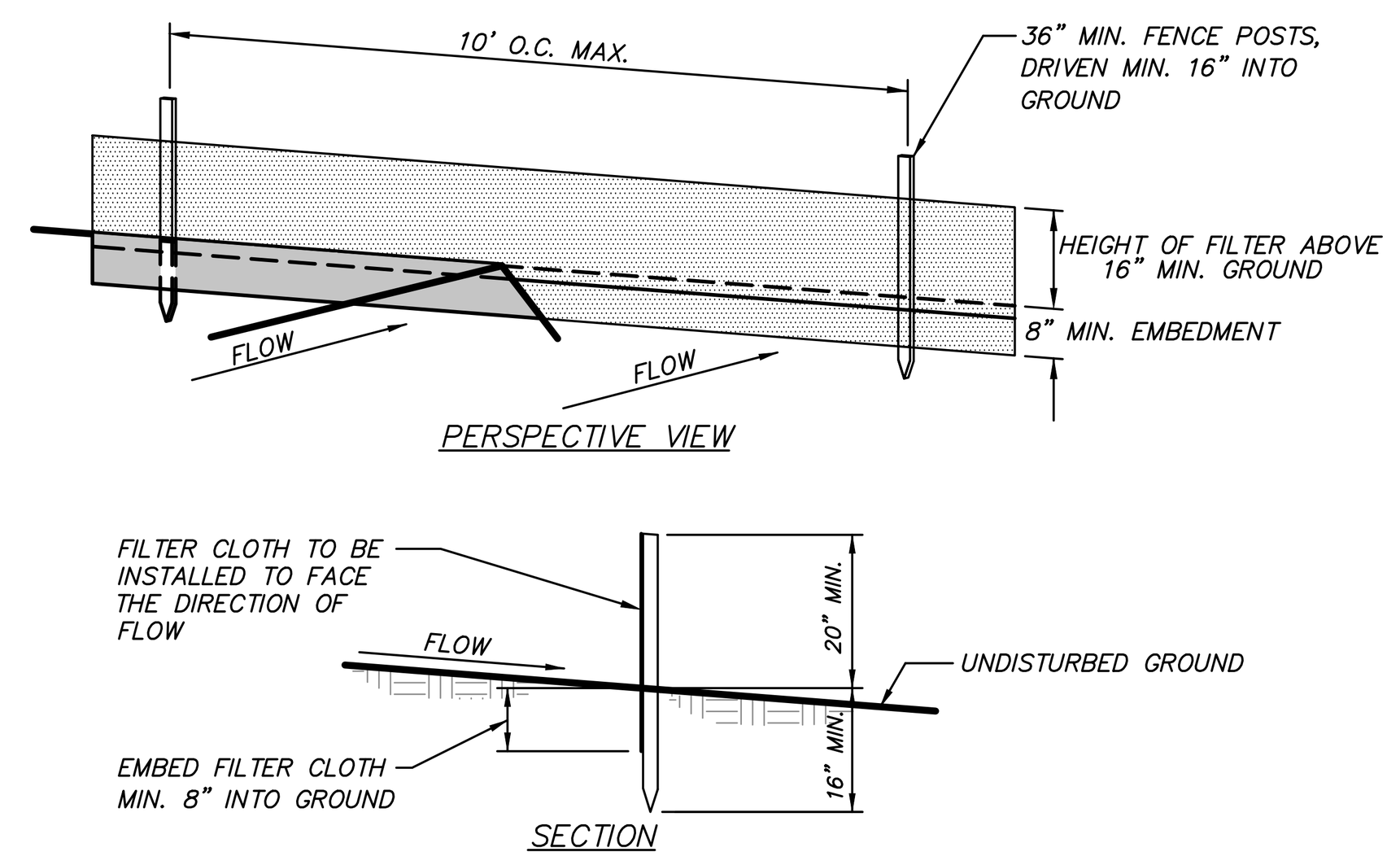


CONSTRUCTION NOTES FOR FABRICATED SILT FENCE

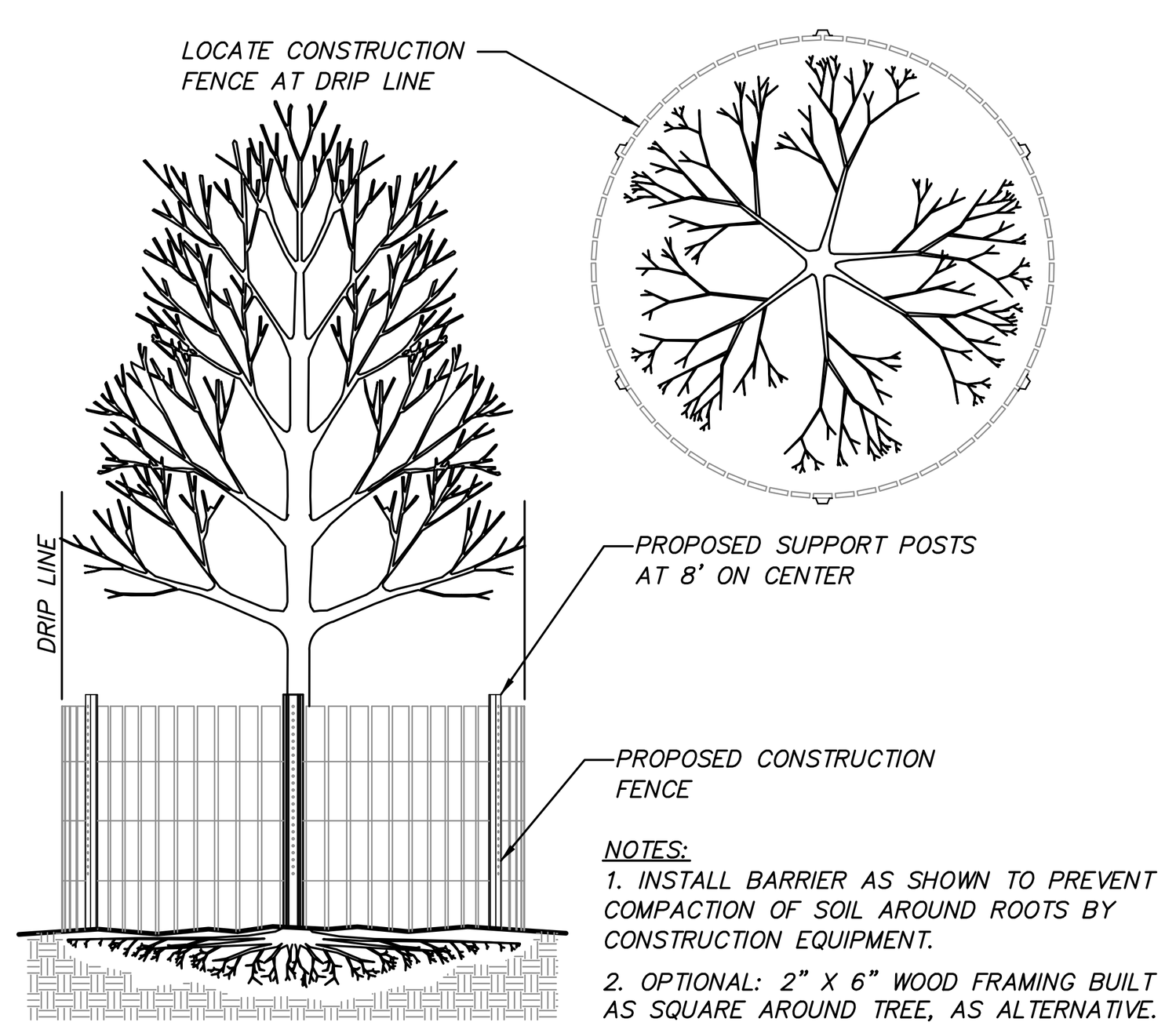
1. FILTER CLOTH TO BE FASTENED SECURELY TO POSTS AT TOP AND MID SECTION.
2. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED BY SIX INCHES AND FOLDED.
3. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.

POSTS: STEEL EITHER T OR U TYPE OR 2" HARDWOOD

FILTER CLOTH: FILTER X, MIRAFI 100X, STABILINKA T140N, OR APPROVED EQUAL

PREFABRICATED UNIT: GEOFAB, ENVIROFENCE, OR APPROVED EQUAL

SILT FENCE DETAIL
(N.T.S.)

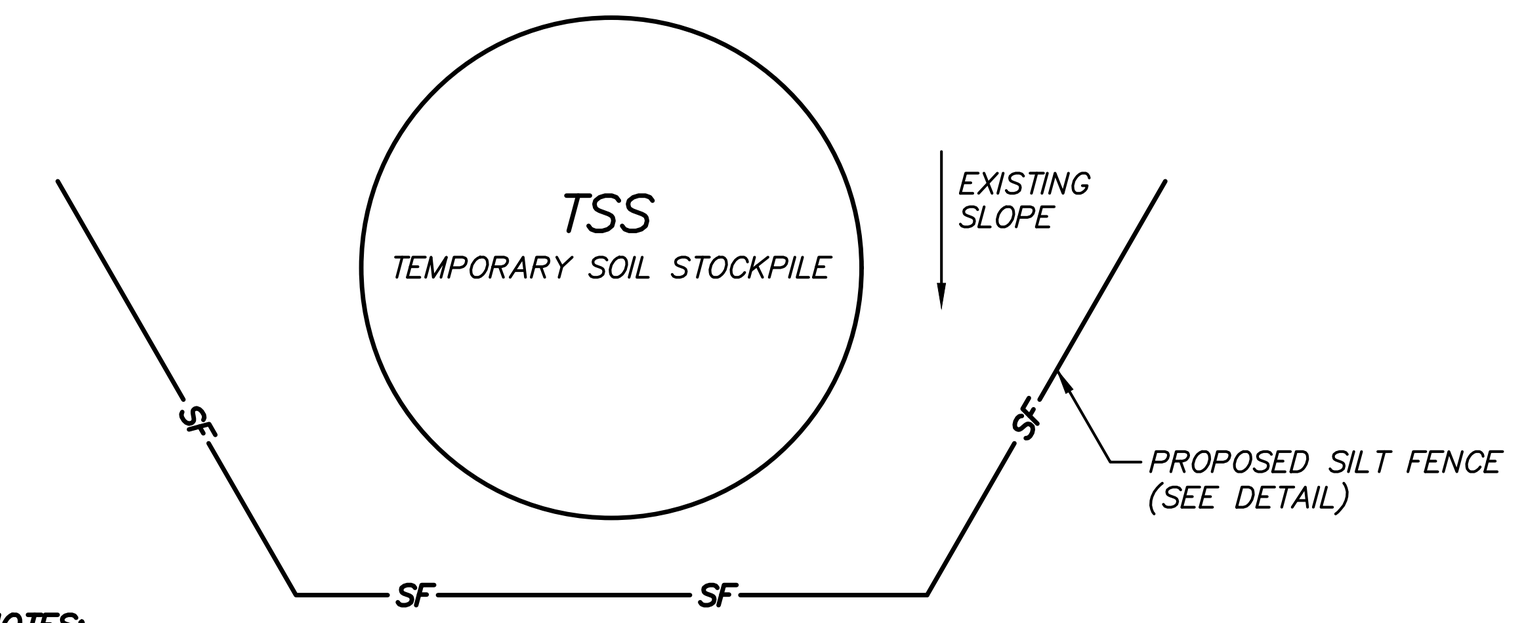


NOTES:
1. INSTALL BARRIER AS SHOWN TO PREVENT COMPACTION OF SOIL AROUND ROOTS BY CONSTRUCTION EQUIPMENT.
2. OPTIONAL: 2" X 6" WOOD FRAMING BUILT AS SQUARE AROUND TREE, AS ALTERNATIVE.

TREE PROTECTION DETAIL
(N.T.S.)

TREE PROTECTION NOTES:

1. Trees to be preserved in proximity to disturbance areas shall be marked in the field by the Landscape Architect prior to start of construction.
2. Install tree protection measures prior to start of site clearing & construction.
3. No construction equipment shall be parked and no earth or construction materials shall be stockpiled or stored under the canopy of trees to be preserved.
4. During tree removal operations associated with construction, do not damage adjacent trees to remain. Lower limbs and tree trunks, do not drop them.
5. Carefully tie back any tree branches that conflict with construction equipment.
6. Where trenching for utilities is required within a root zone, tunneling under and around roots shall be by hand digging. If roots 3" or larger are encountered immediately adjacent to the location of new construction and relocation is not practical, the roots shall be hand pruned under the supervision of a Certified Arborist or Landscape Architect to 6" back from the new construction limit. All exposed roots to receive appropriate treatment prior to backfilling.
7. If tree protection fencing to protect the root zone is not possible, six to eight inches of wood chip mulch and 3/4 inch plywood shall be placed over the entire affected root zone area to prevent soil compaction.
8. Any tree damaged during construction activities must be immediately repaired by a qualified arborist at no additional cost to the owner.

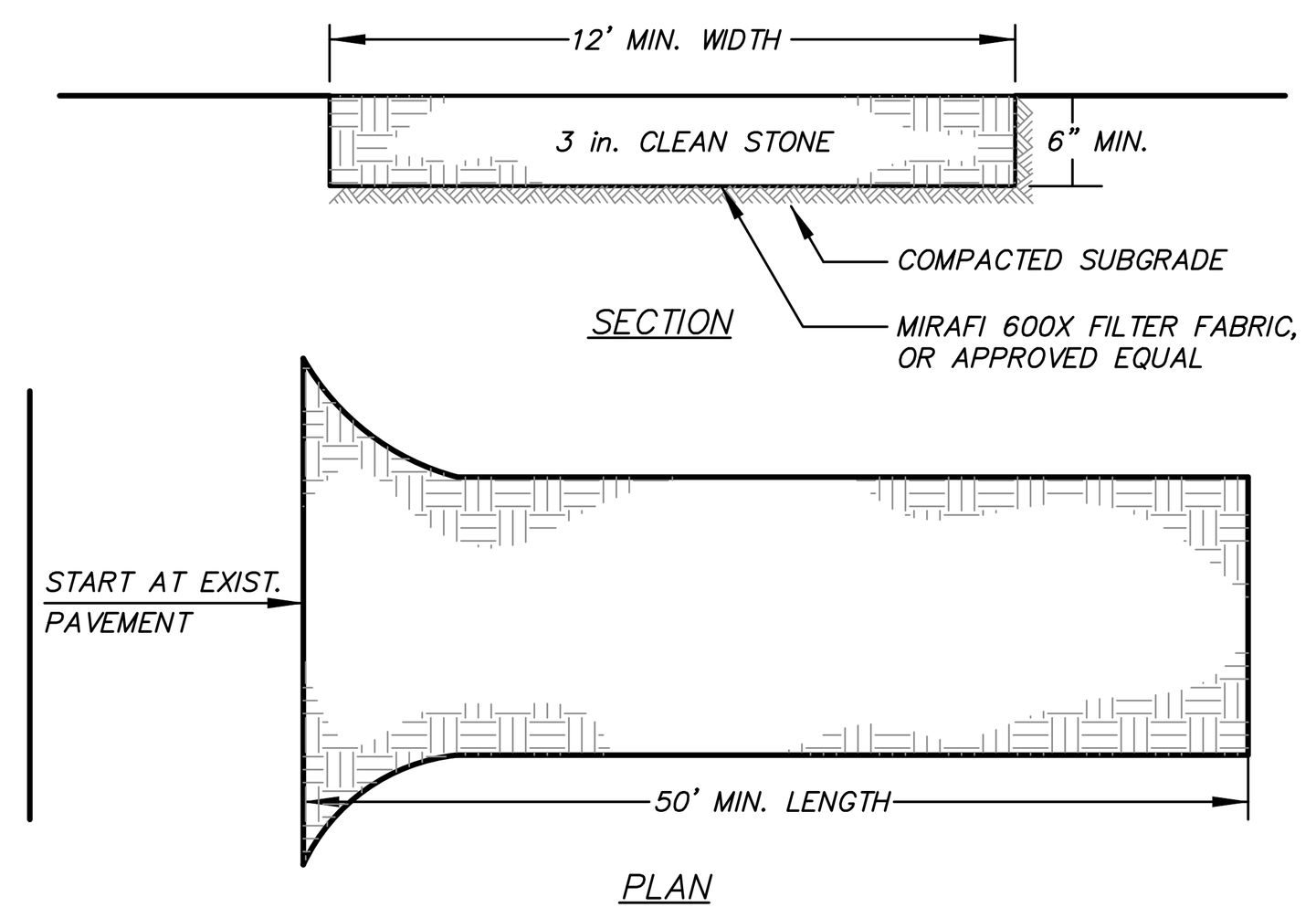


NOTES:

1. AREA CHOSEN FOR STOCKPILE LOCATION SHALL BE DRY AND STABLE.
2. MAXIMUM SLOPE OF STOCKPILE SHALL BE 2:1.
3. UPON COMPLETION OF SOIL STOCKPILING, EACH PILE SHALL BE IMMEDIATELY SEEDED WITH K31 PERENNIAL TALL FESCUE.
4. ALL STOCKPILES SHALL BE PROTECTED WITH SILT FENCING INSTALLED ON THE DOWNGRADIENT SIDE.

TEMPORARY SOIL STOCKPILE DETAIL
(N.T.S.)

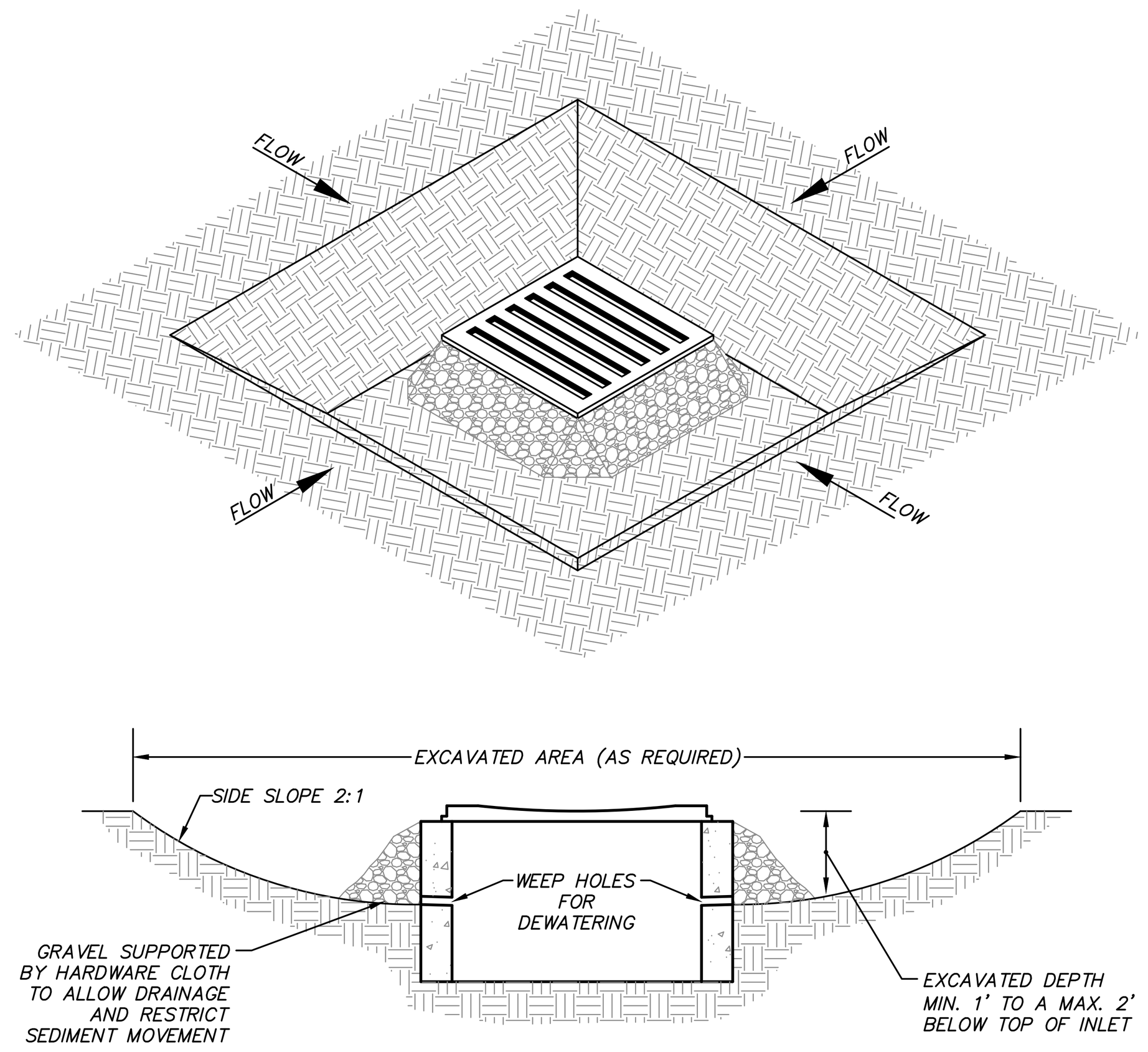
ALTERATION OF THIS DOCUMENT, UNLESS UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, IS A VIOLATION OF SECTION 7209 OF ARTICLE 145 OF THE EDUCATION LAW.



INSTALLATION NOTES

1. STONE SIZE – USE 3" STONE
2. LENGTH – AS REQUIRED, BUT NOT LESS THAN 50 FEET (EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30 FOOT MINIMUM LENGTH WOULD APPLY.)
3. THICKNESS – NOT LESS THAN SIX (6) INCHES.
4. WIDTH – 12 FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCUR.
5. FILTER CLOTH – WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE. FILTER CLOTH WILL NOT BE REQUIRED ON A SINGLE FAMILY RESIDENCE LOT.
6. SURFACE WATER – ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
7. MAINTENANCE – THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHT OF WAY THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHT OF WAY MUST BE REMOVED IMMEDIATELY.
8. WASHING – WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC RIGHT OF WAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
9. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.

STABILIZED CONSTRUCTION ENTRANCE DETAIL
(N.T.S.)



1. CLEAR THE AREA OF ALL DEBRIS THAT WILL HINDER EXCAVATION
2. GRADE APPROACH TO THE INLET UNIFORMLY AROUND THE BASIN
3. WEEP HOLES SHALL BE PROTECTED BY GRAVEL
4. UPON STABILIZATION OF CONTRIBUTING DRAINAGE AREA, SEAL WEEP HOLES, FILL EXCAVATION WITH STABLE SOIL TO FINAL GRADE, COMPACT IT PROPERLY, AND STABILIZE WITH PERMANENT SEEDING
5. MAXIMUM DRAINAGE AREA = 1 ACRE

EXCAVATED DROP INLET PROTECTION DETAIL
(N.T.S.)

REQUIRED EROSION CONTROL SWPPP CONTENTS:

Pursuant to the NYSDEC "SPDES General Permit for Stormwater Discharges from Construction Activity" (GP-0-20-001), all Stormwater Pollution Prevention Plan's (SWPPP) shall include erosion and sediment control practices designed in conformance with the most current version of the technical standard, "New York Standards and Specifications for Erosion and Sediment Control." Where erosion and sediment control practices are not designed in conformance with this technical standard, the owner or operator must demonstrate equivalence to the technical standard. The following list of required SWPPP components is provided in accordance with Part III.B.1a–l of General Permit GP-0-20-001:

a. Background Information: The subject project consists of the construction of (7) townhome buildings with appurtenances and utilities.

b. Site map / construction drawing: These plans serve to satisfy this SWPPP requirement.

c. Description of the soils present at the site: Onsite soils located within the proposed limits of disturbance consist of Bernardston Silt Loam (BeB), Canandigua Silt Loam (Ca), and Nassau-Cardigan Complex (NwC) as identified on the Soil Conservation Service Websoil Survey. These soil types belong to the Hydrologic Soil Group "C/D" and "D"."

d. Construction phasing plan / sequence of operations: The Construction Sequence and phasing found on these plans provide the required phasing. A Construction Sequence and Erosion and Sediment Control Maintenance Schedule has been provided. The Sedimentation and Erosion Control Notes contained hereon outline a general sequence of operations for the proposed project. In general all erosion and sediment control facilities shall be installed prior to commencement with land disturbing activities, and areas of disturbance shall be limited to the shortest period of time as practicable.

e. Description of erosion and sediment control practices: This plan, and details / notes shown hereon serve to satisfy this SWPPP requirement.

f. Temporary and permanent soil stabilization plan: The Sedimentation and Erosion Control Notes and Details provided heron identify temporary and permanent stabilization measures to be employed with respect to specific elements of the project, and at the various stages of development.

g. Site map / construction drawing: This plan set serves to satisfy this SWPPP requirement.

h. The dimensions, material specifications, installation details, and operation and maintenance requirements for all erosion and sediment control practices: The details, Erosion and Sediment Control Notes, and Erosion and Sediment Control Maintenance Schedule serve to satisfy this SWPPP requirement.

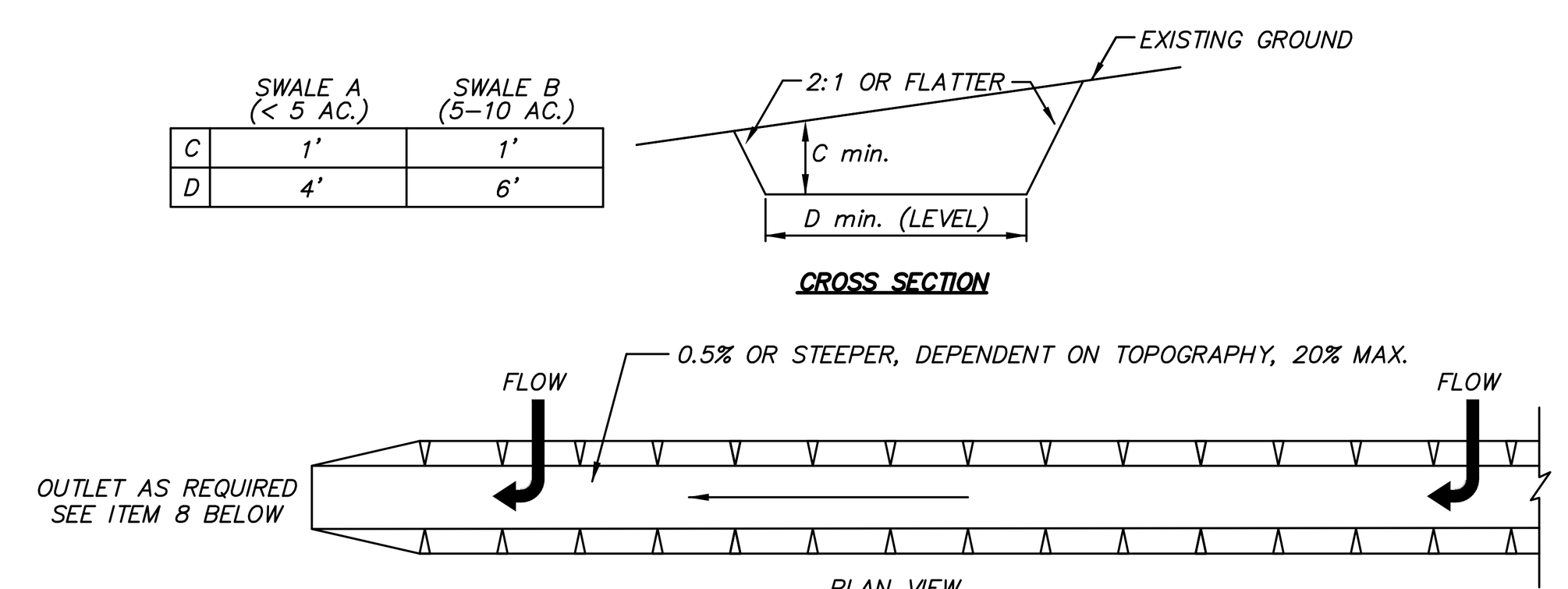
i. An inspection schedule: Inspections are to be performed twice weekly and by a qualified professional as required by the General Permit GP-0-20-001. In addition the NYSDEC Trained Contractor shall perform additional inspections as cited in the Erosion and Sediment Control Notes.

j. A description of pollution prevention measures that will be used to control litter, construction chemicals and construction debris: In general, all construction litter / debris shall be collected and removed from the site. The general contractor shall supply either waste barrels or dumpster for proper waste disposal. Any construction chemicals utilized during construction shall either be removed from site daily by the contractor or stored in a structurally sound and weatherproof building. No hazardous waste shall be disposed of onsite, and shall ultimately be disposed of in accordance with all federal, state and local regulations. Material Safety Data Sheets (MSDS), material inventory, and emergency contact numbers shall be maintained by the general contractor for all construction chemicals utilized onsite. Finally, temporary sanitary facilities (portable toilets) shall be provided onsite during the entire length of construction, and inspected weekly for evidence of leaking holding tanks.

k. A description and location of any stormwater discharges associated with industrial activity other than construction at the site: There are no known industrial stormwater discharges present or proposed at the site.

l. Identification of any elements of the design that are not in conformance with the technical standard, "New York Standards and Specifications for Erosion and Sediment Control." All proposed elements of this SWPPP have been designed in accordance with the "New York Standards and Specifications for Erosion and Sediment Control."

	SWALE A (< 5 AC.)	SWALE B (5–10 AC.)
C	1'	1'
D	4'	6'



CONSTRUCTION SPECIFICATIONS

1. ALL TEMPORARY SWALES SHALL HAVE UNINTERRUPTED POSITIVE GRADE TO AN OUTLET.
2. DIVERTED RUNOFF FROM A DISTURBED AREA SHALL BE CONVEYED TO A SEDIMENT TRAPPING DEVICE.
3. DIVERTED RUNOFF FROM AN UNDISTURBED AREA SHALL OUTLET DIRECTLY INTO AN UNDISTURBED STABILIZED AREA AT NON-EROSIVE VELOCITY.
4. ALL TREES, BRUSH, STUMPS, OBSTRUCTIONS, AND OTHER OBJECTIONABLE MATERIAL SHALL BE REMOVED AND DISPOSED OF SO AS NOT TO INTERFERE WITH THE PROPER FUNCTIONING OF THE SWALE.
5. THE SWALE SHALL BE EXCAVATED OR SHAPED TO LINE, GRADE, AND CROSS SECTION AS REQUIRED TO MEET THE CRITERIA SPECIFIED HEREIN AND BE FREE OF BANK PROJECTIONS OR OTHER IRREGULARITIES WHICH WILL IMPEDE NORMAL FLOW.
6. FILLS SHALL BE COMPACTED BY EARTH MOVING EQUIPMENT.
7. ALL EARTH REMOVED AND NOT NEEDED ON CONSTRUCTION SHALL BE PLACED SO THAT IT WILL NOT INTERFERE WITH THE FUNCTIONING OF THE SWALE.
8. PERIODIC INSPECTION AND REQUIRED MAINTENANCE MUST BE PROVIDED AFTER EACH RAIN EVENT.
9. STABILIZATION SHALL BE AS PER THE CHART BELOW:

FLOW CHANNEL STABILIZATION

TYPE OF TREATMENT	CHANNEL GRADE	A (5 AC. OR LESS)	B (5–10 AC.)
1	0.5–3.0%	SEED AND STRAW MULCH	SEED AND STRAW MULCH
2	3.1–5.0%	SEED AND STRAW MULCH	SEED USING JUTE OR EXCELSIOR
3	5.1–8.0%	SEED WITH JUTE OR EXCELSIOR; SOD	LINED RIP-RAP 4–8" RECYCLED CONCRETE EQUIVALENT
4	8.1–20%	LINED 4–8" RIP-RAP	ENGINEERED DESIGN

TEMPORARY SWALE DETAIL
(N.T.S.)

REQUIRED POST-CONSTRUCTION STORMWATER MANAGEMENT PRACTICE COMPONENTS:

1. Pursuant to the NYSDEC "SPDES General Permit for Stormwater Discharges from Construction Activity" (GP-0-20-001), all construction projects needing post-construction stormwater management practices shall prepare a SWPPP that also includes practices designed in conformance with the most current version of the technical standard, New York State Stormwater Management Design Manual ("Design Manual"). Where post-construction stormwater management practices are not designed in conformance with this technical standard, the owner or operator must demonstrate equivalence to the technical standard. The following list of SWPPP components is provided in accordance with Part III.B.2a–g and III.B.3:

   a. Identification of all post-construction stormwater management practices to be constructed as part of the project; This plan, and details/notes shown hereon serve to satisfy this SWPPP requirement.

   b. A site map/construction drawing(s) showing the specific location and size of each post-construction stormwater management practice; This plan, and details/notes shown hereon serve to satisfy this SWPPP requirement.

A Stormwater Modeling and Analysis Report including pre-development conditions, post-development conditions, the results of the stormwater modeling, a summary table demonstrating that each practice has been designed in conformance with the sizing criteria, identification of and justification for any deviations from the Design Manual, and identification of any design criteria that are not required. The required analysis will be provided in a Preliminary Stormwater Pollution Prevention Plan.

   c. Soil testing results and locations. This SWPPP requirement will be provided in the Preliminary Stormwater Pollution Prevention Plan.

   d. Infiltration testing results. This SWPPP requirement will be provided in the Preliminary Stormwater Pollution Prevention Plan.

   e. An operations and maintenance plan that includes inspection and maintenance schedules and actions to ensure continuous and effective operation of each post-construction stormwater management practice. The plan shall identify the entity that will be responsible for the long term operation and maintenance of each practice. The Permanent Stormwater Facilities Maintenance Schedule provided on these plans serves to satisfy this requirement.

2. Enhanced Phosphorus Removal Standards – Beginning on September 30, 2008, all construction projects identified in Table 2 of Appendix B that are located in the watersheds identified in Appendix C shall prepare a SWPPP that includes post-construction stormwater management practices designed in conformance with the Enhanced Phosphorus Removal Standards included in the most current version of the technical standard, New York Stormwater Management Design Manual. At a minimum, the post-construction stormwater management practice component of the SWPPP shall include items 2.a – 2.f above: These standards do not apply to the subject project.

EROSION & SEDIMENT CONTROL NOTES:

1. The Erosion and Sediment Control Plan is only to be referred to for the installation of erosion and sediment control measures. For all other construction related activities, including, but not limited to, grading and utilities, refer to the appropriate drawings.
2. Each contractor or subcontractor responsible for soil disturbance shall have a NYSDEC trained contractor onsite during soil disturbing activities. The NYSDEC trained contractor will be responsible to comply with the stormwater pollution prevention plan and for the implementation and maintenance of erosion and sediment control measures on this site prior to and during construction. The NYSDEC trained contractor shall sign a certification statement required by GP-0-20-001.
3. All construction activities involving the removal or disposition of soil are to be provided with appropriate protective measures to minimize erosion and contain sediment disposition within. Minimum soil erosion and sediment control measures shall be implemented as shown on the plans and shall be installed in accordance with "New York Standards and Specifications For Erosion and Sediment Control," latest edition.
4. Wherever feasible, natural vegetation should be retained and protected. Disturbance shall be minimized in the areas required to perform construction. No more than 5 acres of unprotected soil shall be exposed at any one time, unless prior authorization is granted by the MS4.
5. When land is exposed during development, the exposure shall be kept to the shortest practical period of time, but in no case more than 7 days after the construction activity in that portion of the site has ceased. Disturbance shall be minimized in the areas required to perform construction.
6. All construction vehicles shall be kept clear of the watercourses and wetland control areas outside the areas of proposed development. Silt fence and orange construction fence shall be installed in the areas where the grading is in close proximity of the watercourses or wetland control areas.
7. The stabilized construction entrance and silt fence shall be installed as shown on the plans prior to beginning any clearing, grubbing or earthwork.
8. All topsoil to be stripped from the area being developed shall be stockpiled and immediately seeded with a rye grass mixture having a quick germination time.
9. Any graded areas not subject to further disturbance or construction traffic shall, within 7 days of final grading, receive permanent vegetation cover in combination with a suitable mulch. Refer to "Site Seeding Notes" for additional detail and application rate.
10. Grass seed mix may be applied by either mechanical or hydroseeding methods. Turf establishment shall be performed in accordance with the current edition of the "NYSDOT Standard Specification, Construction and Materials, Section 610-3.02, Method No. 1".
11. Cut or fill (all) slopes steeper than 3:1 shall be stabilized immediately after grading with a rolled erosion control product (RECP) such as, Curlex I Single Net Erosion Control Blanket, or approved equal.
12. Paved roadways shall be kept clean at all times.
13. The site shall at all times be graded and maintained such that all stormwater runoff is diverted to soil erosion and sediment control facilities.
14. All storm drainage outlets shall be stabilized, as required, before the discharge points become operational.
15. Stormwater from disturbed areas must be passed through erosion control barriers before discharge beyond disturbed areas or discharged into other drainage systems.
16. Erosion and sediment control measures shall be inspected and maintained on a daily basis by the NYSDEC Trained Contractor. to insure that channels, temporary and permanent ditches and pipes are clear of debris, that embankments and berms have not been breached and that all straw bales and silt fences are intact. Any failure of erosion and sediment control measures shall be immediately repaired by the contractor and inspected for approval by the site engineer.
17. Dust shall be controlled by sprinkling or other approved methods as necessary, or as directed by the trained contractor or site engineer.
18. Cut and fills shall not endanger adjoining property, nor divert water onto the property of others.
19. All fills shall be placed and compacted in 6" lifts to provide stability of material and to prevent settlement.
20. The NYSDEC Trained Contractor shall inspect downstream conditions for evidence of sedimentation on a weekly basis and after rainstorms.
21. As warranted by field conditions, special additional erosion and sediment control measures, as specified by the site engineer and the Town Engineer shall be installed by the contractor.
22. Erosion and sediment control measures shall remain in place until all disturbed areas are suitably stabilized.
23. After completion of the site improvements, the owner will assume responsibility for maintenance of the access drive, parking lot, drainage system and stormwater facilities. Each spring the paved areas shall be cleaned to remove the winter accumulation of traction sand. After this is completed all drain inlet and catch basin sumps should be cleaned. All pipes should be checked for debris and blockage and cleaned as required. During the cleaning process, the drain inlets, catch basins and pipes should be inspected for structural integrity and overall condition. Repairs and/or replacements should be made as required.
24. Inspection of the stormwater basin should be performed every 6 months and after large storm events. These inspections should, at a minimum, check the outlet pipes for blockage and the general overall integrity of the basin and appurtenances.
25. Maintain basin vegetation including removal of trees and replacement of vegetation that should die. Remove any litter which accumulates as necessary. Typically, the accumulated silt will be required to be removed every 10 to 20 years. Any accumulated silt shall be removed from the stormwater basins once the site has been stabilized.
26. Refer to the Stormwater Pollution Prevention Plan for additional details regarding long-term maintenance of the storm drainage facilities.

EROSION AND SEDIMENT CONTROL MAINTENANCE SCHEDULE

MONITORING REQUIREMENTS				MAINTENANCE REQUIREMENTS	
PRACTICE	DAILY	WEEKLY	AFTER RAINFALL	DURING CONSTRUCTION	AFTER CONSTRUCTION
SILT FENCE BARRIER	–	Inspect	Inspect	Clean/Replace	Remove
STABILIZED CONSTRUCTION ENTRANCE	Inspect	–	Inspect	Clean/Replace Stone and Fabric	Remove
DUST CONTROL	Inspect	–	Inspect	Mulching/ Spraying Water	N/A
*VEGETATIVE ESTABLISHMENT	–	Inspect	Inspect	Water/Reseed/ Remulch	Reseed to 80% Coverage
INLET PROTECTION	–	Inspect	Inspect	Clean/Repair/ Replace	Remove
SOIL STOCKPILES	–	Inspect	Inspect	Mulching/ Silt Fence Repair	Remove
SWALES	–	Inspect	Inspect	Clean/Mulch/ Repair	Mow Permanent Grass/Replace/ Repair Rip Rap
CHECK DAMS	–	Inspect	Inspect	Clean/Replace Stones/Repair	Clean/Replace Stones/Repair
CONCRETE DRAINAGE STRUCTURES	–	Inspect	Inspect	Clean Sumps/ Remove Debris/ Repair/Replace	Clean Sumps/ Remove Debris/ Repair/Replace
DRAINAGE PIPES	–	Inspect	Inspect	Clean/Repair	Clean/Repair
ROAD & PAVEMENT	–	Inspect	Inspect	Clean	Clean

* Permanent vegetation is considered stabilized when 80% of the plant density is established. Erosion control measures shall remain in place until all disturbed areas area permanently stabilized.

Note: The party responsible for implementation of the maintenance schedule during and after construction is:

BEACON VIEWS, LLC
500 RIVER AVENUE
WAKEFIELD, NEW JERSEY 08701

and/or the current owner(s) of the subject property.

SOIL RESTORATION REQUIREMENTS[1,2]
(ONSITE SOILS WITHIN THE LIMIT OF DISTURBANCE BELONG TO THE HYDROLOGIC SOIL GROUP (HSG) C/D)

TYPE OF SOIL DISTURBANCE	SOIL RESTORATION REQUIREMENT		COMMENTS/EXAMPLES
No soil disturbance	Restoration not permitted		Preservation of Natural Features
Minimal soil disturbance	Restoration not required		Clearing and grubbing
Areas where topsoil is stripped only – no change in grade	~~HSG A & B~~ ~~Apply 6" of topsoil~~	HSG C & D Aerate[3] and apply 6" of topsoil	Protect area from any ongoing construction activities
Areas of cut or fill	~~HSG A & B~~ ~~Aerate[3] and apply 6" of topsoil~~	HSG C & D Apply full Soil Restoration[4]	
Heavy traffic areas on site (especially in a zone 5–25 feet around buildings but not within a 5 foot perimeter around foundation walls.)	Apply full Soil Restoration[5] (de-compaction and compost enhancement)[6]		
Areas where runoff reduction and/or infiltration practices are applied	Restoration not required, but may be applied for appropriate practices.		Keep construction equipment from crossing these areas. To protect newly installed practices from any ongoing construction activities construction a single phase operation fence area.
~~Redevelopment projects~~	~~Soil restoration is required on redevelopment projects in areas where existing impervious area will be converted to pervious area.~~		

1. Table taken from Chapter 5 of the "New York State Stormwater Management Design Manual"
2. Items struck out on the table are items that are not applicable to this project.
3. Aeration includes the use of machines such as tractor-drawn implements with coulters making a narrow slit in the soil, a roller with many spikes making indentations in the soil, or prongs which functions like a mini-subsoiler.
4. Per "Deep Ripping and Decompaction, DEC 2008"
5. During periods of relatively low to moderate subsoil moisture, the disturbed soils are returned to rough grade and the following Soil Restoration steps applied:
   - 5.1. Apply 3 inches of compost over subsoil.
   - 5.2. Till compost into subsoil to a depth of at least 12 inches using a cat-mounted ripper, tractor-mounted disc, or tiller, mixing, and circulating air and compost into subsoils.
   - 5.3. Rock-pick until uplifted stone/rock materials of four inches and larger size area cleaned off the site.
   - 5.4. Apply topsoil to a depth of 6 inches.
   - 5.5. Vegetate as required by Erosion & Sediment Control Note #9.
   - 5.6. Tilling should not be performed within the drip line of any existing trees or over any utility installations that are within 24 inches of the surface
6. Compost shall be aged, from plant derived materials, free of viable weed seeds, have no visible free water or dust produced when handling, pass through a half inch screen and have a pH suitable to grow desired plants.

NO.	DATE	REVISION	BY
7	5-31-22	REVISED PER PLANNING BOARD COMMENTS	PJM
6	11-30-21	REVISED PER PLANNING BOARD COMMENTS	EJP
5	12-29-20	REVISED PER PLANNING BOARD COMMENTS	JFR
4	7-28-20	REVISED PER PLANNING BOARD COMMENTS	JFR
3	6-30-20	REVISED PER PLANNING BOARD COMMENTS	JFR
2	5-26-20	REVISED PER PLANNING BOARD COMMENTS	JFR
1	4-28-20	RESUBMISSION TO PLANNING BOARD	JFR

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ENGINEERING, SURVEYING & LANDSCAPE ARCHITECTURE, P.C.
3 Garrett Place
Carmel, NY 10512
(845) 225-9690
(845) 225-9717 fax
www.insite-eng.com

PROJECT:

BEACON VIEWS

CITY OF BEACON, DUTCHESS COUNTY, NEW YORK

DRAWING:

DETAILS

STATE OF NEW YORK · JEFFREY J. CONTELMO · LICENSED PROFESSIONAL ENGINEER · 61931

PROJECT NUMBER	19131.100	PROJECT MANAGER	J.J.C.	DRAWING NO. D-3
DATE	8-27-19	DRAWN BY	J.F.R.	SHEET 15 / 20
SCALE	AS NOTED	CHECKED BY	A.D.T.	

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SEWER TESTING PROCEDURES

TESTS FOR NON–PRESSURE PIPELINES FOR TRANSPORT OF SEWAGE

The leakage shall be determined by exfiltration, infiltration or low pressure air.

A. Exfiltration Testing

1. Exfiltration tests shall be made by filling a section of pipeline with water and measuring the quantity of leakage.

2. The head of water at the beginning of the test shall be at least 2 feet above the highest pipe within the section being tested.

   a. Should groundwater be present within the section being tested, the head of water for the test shall be 2 feet above the hydraulic gradient of the groundwater.

   b. Should the requirement of 2 feet of water above the highest pipe subject any joint at the lower end of the test section to a differential head of greater than 11.5 feet, another method of testing shall be employed.

B. Infiltration Testing

1. Infiltration tests will be allowed only when the water table gauges determine the groundwater level to be 2 feet or more above the highest pipe of the section being tested.

2. Infiltration test shall be made by measuring the quantity of water leaking into a section of pipeline.

3. Measurement of the infiltration shall be by means of a calibrated weir constructed at the outlet of the section being tested.

C. Allowable Leakage for Non–Pressure Pipelines

1. The allowable leakage (exfiltration or infiltration) for non–pressure pipelines shall not exceed the following in gallons per 24 hours per inch of diameter per 1000 feet of pipe:

Type of Pipe	Leakage
Ductile iron – mechanical or push–on joints	100
Polyvinyl chloride, thermal plastic or fiberglass with rubber joints	100
Cast iron soil pipe	0

2. Regardless of the above allowable leakage, any spurting leaks detected shall be permanently stopped.

D. Low Pressure Air Testing

1. Air testing for acceptance shall not be performed until the backfilling has been completed.

2. Low pressure air tests shall conform to ASTM F1417–92, Section 8.2.2, Time–Pressure Drop Method for a 0.5 psi drop, except as specified herein and shall not be limited to type or size of pipe.

3. All sections of pipelines shall be cleaned and flushed prior to testing.

4. The air test shall be based on the starting pressure of 3.5 to 4.0 psi gauge. The time allowed for the 0.5 psi drop in pressure, measured in seconds, will be computed based on the size and length of the test section by the Engineer.

   a. When groundwater is present, the average test pressure of 3 psig shall be above any back pressure due to the groundwater level.

   b. The maximum pressure allowed under any condition in air testing shall be 10 psig. The maximum groundwater level for air testing is 13 feet above the top of the pipe.

5. The equipment required for air testing shall be furnished by the Contractor and shall include the necessary compressor, valves, gauges and plugs to allow for the monitoring of the pressure, release of pressure and a separable test gauge.

   a. The test gauge shall be sized to allow for the measuring of the 0.5 psig loss allowed during the test period and shall be on a separate line to the test section.

E. Deflection Testing

1. Deflection testing shall be performed 30 days after backfilling. The test shall be made by passing a ball or cylinder no less then 95% of the pipe diameter through the pipe. The test shall be performed without mechanical pulling devices.

F. Manhole Testing

1. General

   a. Each manhole shall be tested by vacuum testing.

2. Vacuum testing shall be performed after backfilling in accordance with the latest revision of ASTM C1244–11 as follows:

   a. The test head shall be placed at the top of the manhole in accordance with the manufacturer's recommendations.

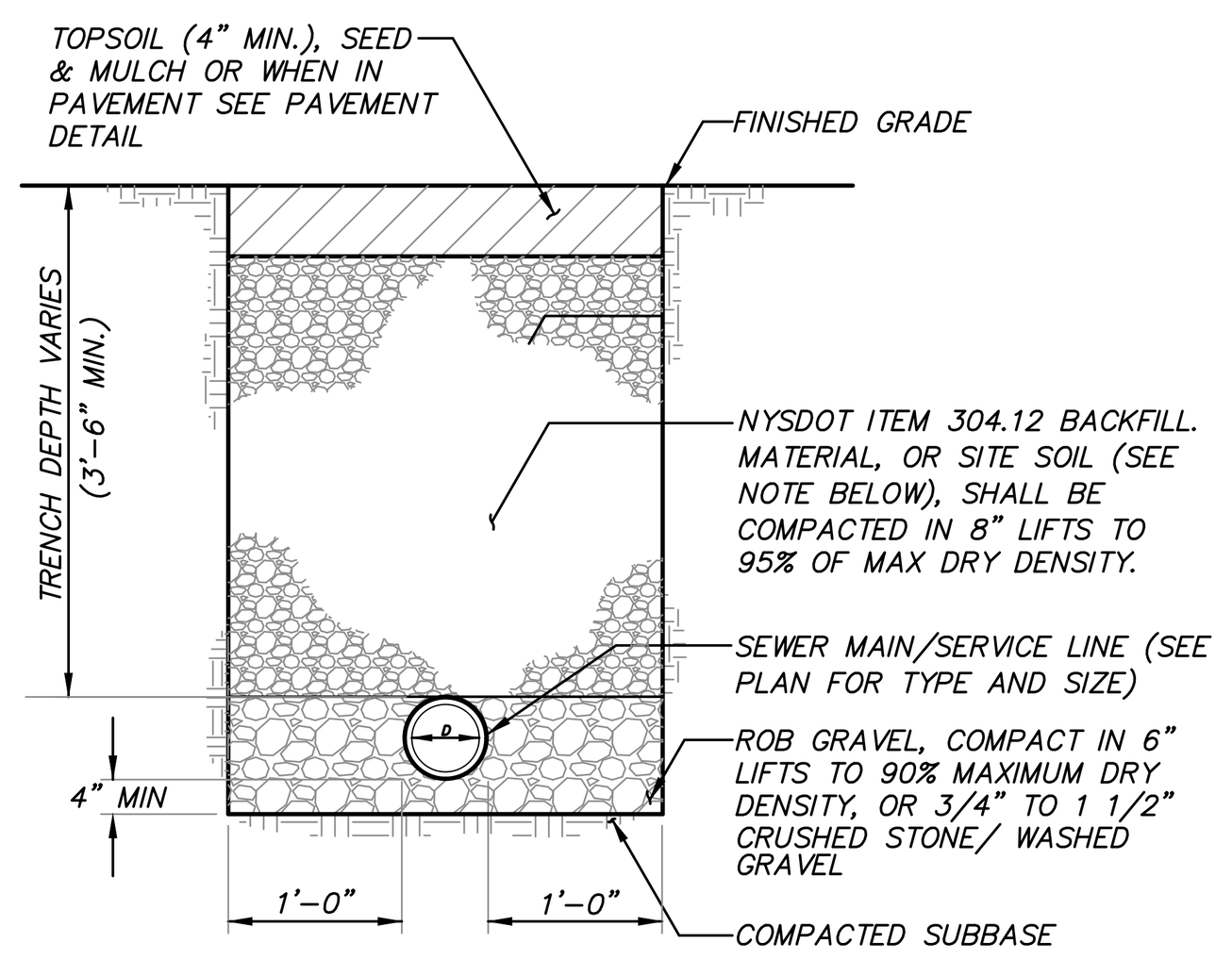
   b. A vacuum of 10 in. of mercury shall be drawn on the manhole, the valve on the vacuum line of the test head closed, and the vacuum pump shut off. The time shall be measured for the vacuum to drop to 9 in. of mercury.

   c. The manhole shall pass if the time for the vacuum reading to drop from 10 in. of mercury to 9 in. of mercury meets or exceeds the values indicated below:

Minimum Test Times for Various Manhole Diameters in Seconds:

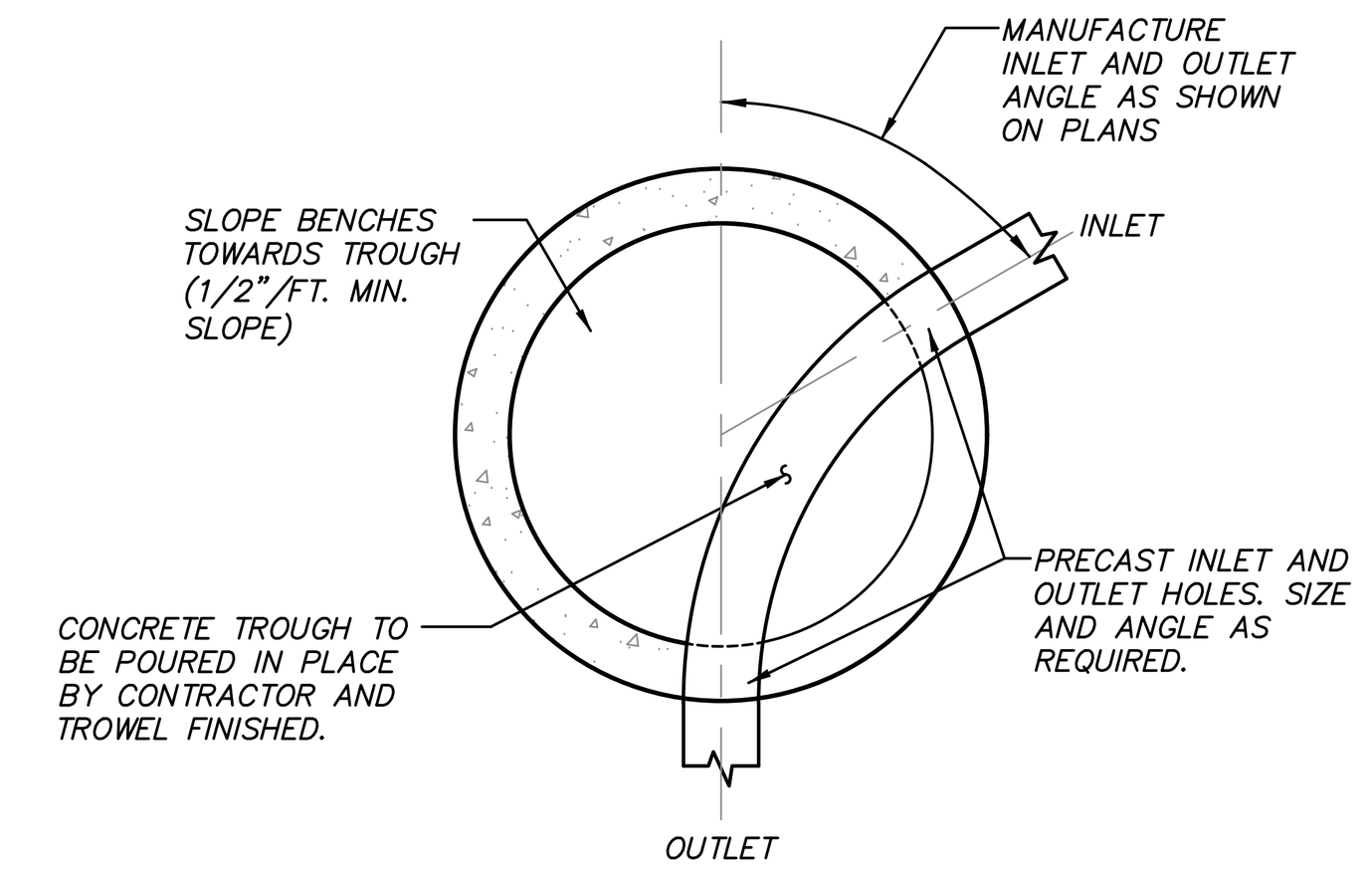
Depth (ft)	Diameter (inches) 48	60
	Time (seconds)	
8 or less	20	26
10	25	33
12	30	39
14	35	46
16	40	52
18	45	59
20	50	65

   d. If the manhole fails the initial test, necessary repairs shall be made by an approved method. The manhole shall then be retested until a satisfactory test is obtained.

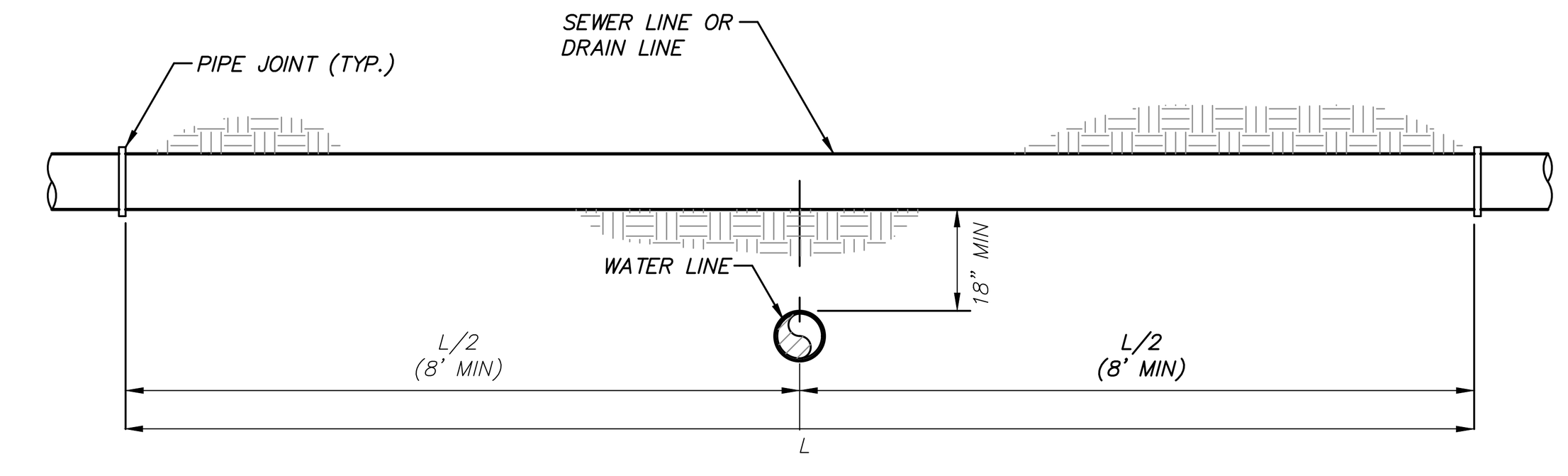


SANITARY SEWER / SANITARY SERVICE LINE TRENCH DETAIL
(N.T.S.)

NOTES:
1. WHERE WATERMAIN TRENCHES LIE WITHIN THE PROPOSED CITY OF BEACON R.O.W., TRENCHES ARE TO BE BACKFILLED WITH NYSDOT ITEM 304.12 BACKFILL MATERIAL. MATERIAL SHALL BE COMPACTED IN 8" LIFTS TO 95% OF MAX DRY DENSITY.
2. WHERE WATERMAIN AND SERVICE CONNECTION TRENCHES LIE OUTSIDE THE PUBLIC R.O.W., TRENCHES TO BE FILLED WITH CLEAN SITE SOIL.

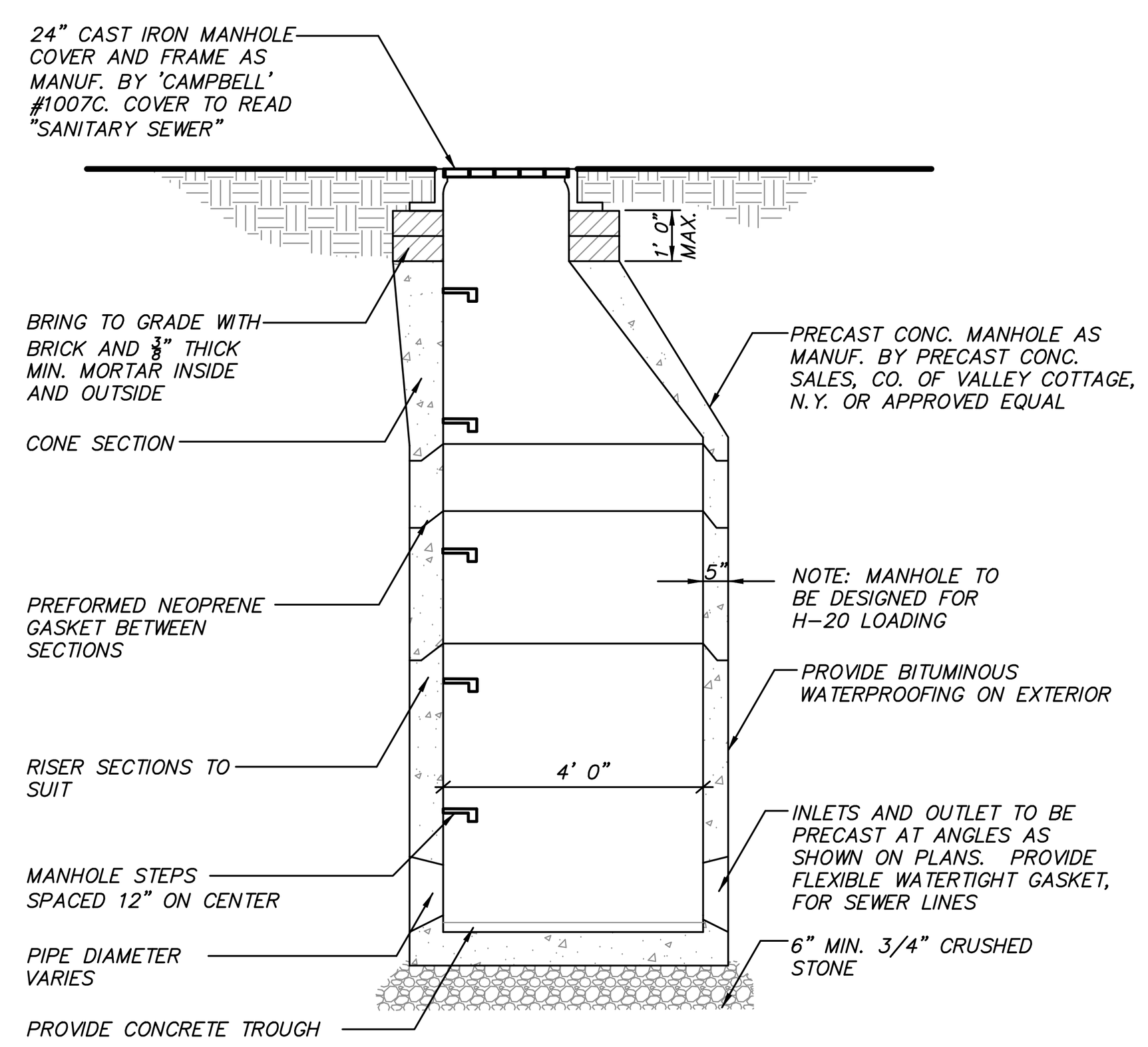


MANHOLE TROUGH DETAIL
(N.T.S.)



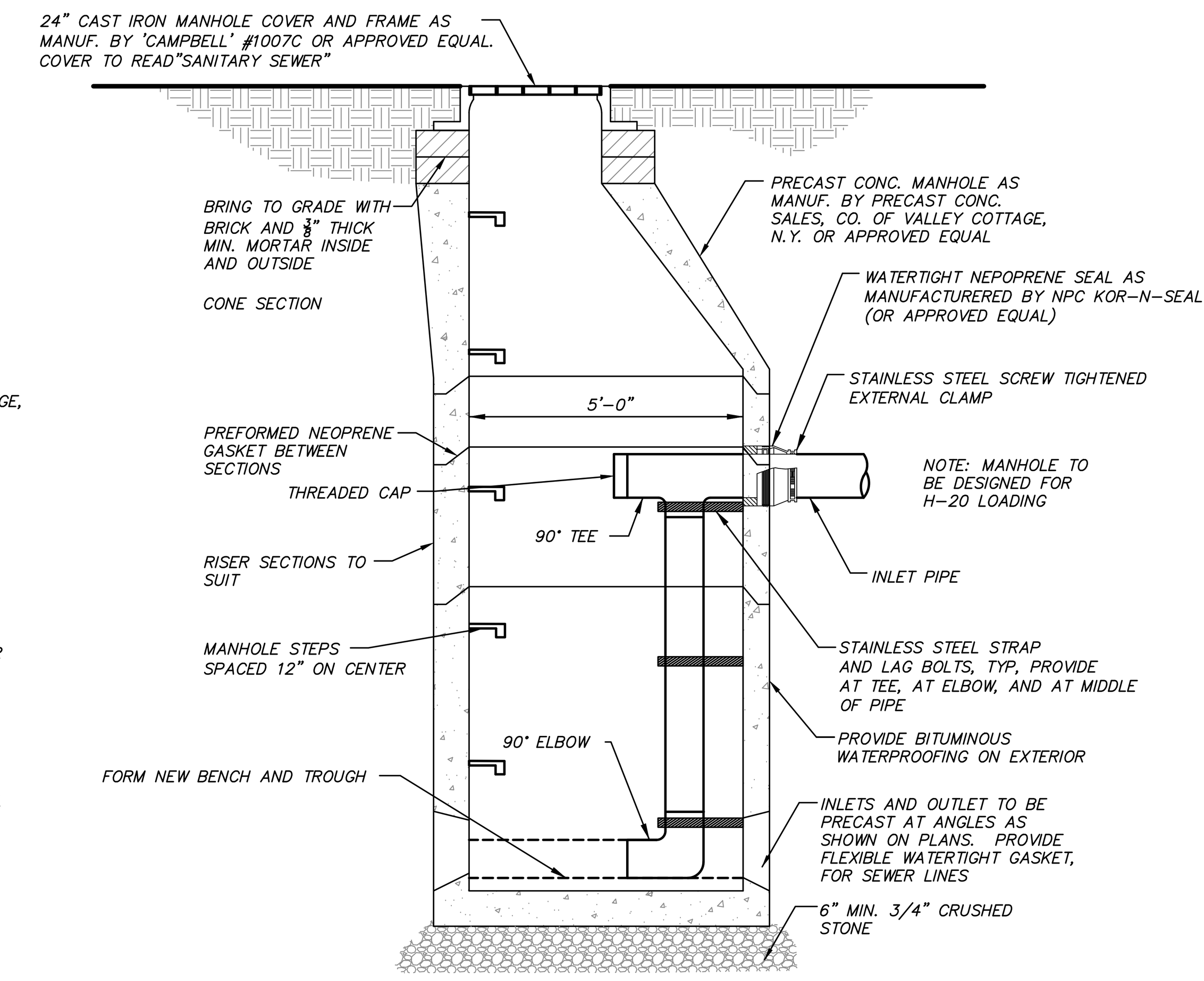
NOTES:
1. WHEN 18" SEPARATION CANNOT BE MAINTAINED, THE WATER LINE SHALL BE ENCASED IN CONCRETE (SEE DETAIL) ONLY WITH PRIOR APPROVAL OF THE DESIGN ENGINEER AND DEPARTMENT OF HEALTH.
2. PROVIDE PIPE AND FITTING RESTRAINT AS REQUIRED.
3. THE 18" SEPARATION APPLIES TO WATER MAINS AND WATER SERVICE CONNECTIONS.

WATER LINE CROSSING DETAIL
(N.T.S.)

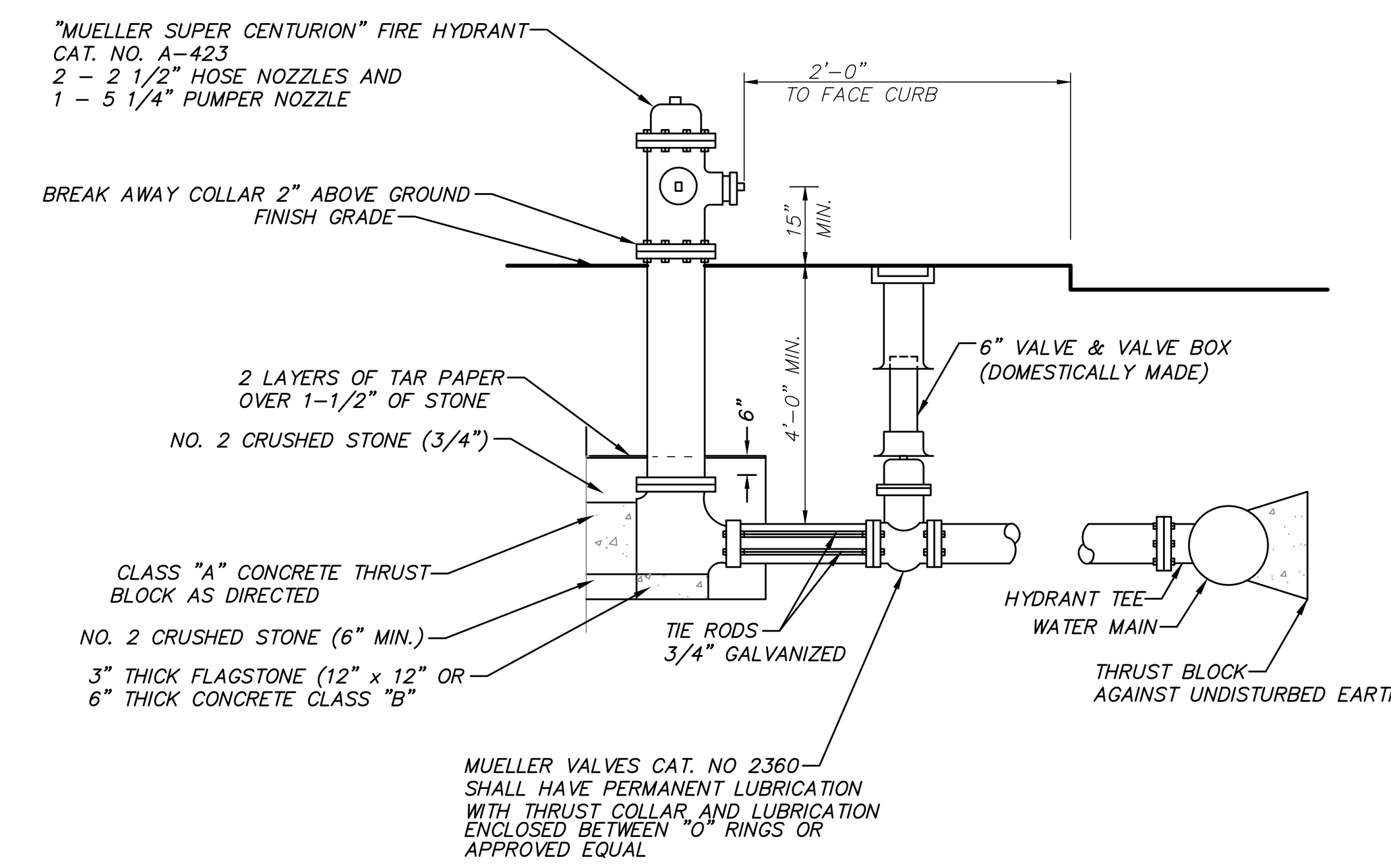


SANITARY MANHOLE DETAIL
(N.T.S.)

NOTE: ALL MANHOLE CASTINGS AND CATCH BASIN CASTINGS ARE TO BE DOMESTICALLY MADE FOR ANY STRUCTURE LOCATED WITHIN THE CITY RIGHT–OF–WAY, OR TO BE DEDICATED TO THE CITY.



INTERNAL DROP SANITARY MANHOLE DETAIL
(N.T.S.)



HYDRANT NOTES:
1. PUMPER OUTLET SHALL FACE STREET;
2. HOSE OUTLETS SHALL BE PARALLEL TO STREET.
3. 1–1/2" STONE SHALL BE PLACED AROUND THE HYDRANT FROM THE BOTTOM OF THE TRENCH, BUT AT LEAST 6" BELOW THE BASE OF THE HYDRANT TO 6" ABOVE THE WASTE OPENING AND TO A DISTANCE OF 12" AROUND THE ELBOW.
4. IF GROUND WATER IS ENCOUNTERED WITHIN 7' OF SURFACE, THEN HYDRANT DRAINS SHOULD BE PLUGGED. WHEN THE DRAINS ARE PLUGGED, THE BARRELS MUST BE PUMPED DRY AFTER USE DURING FREEZING WEATHER. WHERE HYDRANT DRAINS ARE NOT PLUGGED, A GRAVEL POCKET OR DRY WELL SHALL BE PROVIDED UNLESS THE NATURAL SOILS WILL PROVIDE ADEQUATE DRAINAGE. HYDRANT DRAINS SHALL NOT BE CONNECTED TO OR LOCATED WITHIN 10 FEET OF SANITARY SEWERS OR STORM DRAINS.

HYDRANT DETAIL
(N.T.S.)

DUCTILE IRON PIPE WATER TESTING PROCEDURES

TESTS ON PRESSURE PIPING FOR TRANSPORT OF WATER

A. Hydrostatic Pressure Test
Hydrostatic testing shall be performed in accordance with the revision of AWWA C600, Section 5.2, "Hydrostatic Testing".

1. Test pressure shall be as scheduled or, where no pressure is scheduled, shall be 150 psi, or 1.25 times the static operating pressure, whichever is higher.

2. Test pressure shall be held on the piping for a period of at least 2 hours, unless a longer period is requested by the Engineer.

3. The test medium shall be water.

B. Hydrostatic Leakage Test

1. The leakage test shall be conducted concurrently with the pressure test.

2. The rate of leakage shall be determined at 15–minute intervals by means of volumetric measurement of the makeup water added to maintain the test pressure. The test shall proceed until the rate of leakage has stabilized or is decreasing below an allowable value, for three consecutive 15–minute intervals. After this, the test pressure shall be maintained for at least another 15 minutes.

   a. At the completion of the test, the pressure shall be released at the furthermost point from the point of application.

3. All exposed piping shall be examined during the test and all leaks, defective material or joints shall be repaired or replaced before repeating the tests.

4. The allowable leakage will be determined by the following formula.

$$Q = \frac{LD\sqrt{P}}{148{,}000}$$

Where:
Q = quantity of makeup water, in gallons per hour
L = length of pipe tested, in feet
D = nominal diameter of the pipe, in inches
P = average test pressure during the hydrostatic test, in pounds per square inch (gauge)

5. Regardless of the above allowables, any visible leaks shall be permanently stopped.

6. The test medium shall be water.

C. Disinfection
Prior to placing the water main into service, the new pipe shall be cleaned and disinfected in accordance with the latest revision of AWWA C651, Section 4.4.3, "The Continuous Feed Method". The "Tablet Method" will not be accepted.

1. All work under this section shall be performed in the presence of the Design Engineer, and a representative of the public health authority having jurisdiction, as required.

2. Chlorination shall be scheduled such that sampling and flushing will be performed during normal daylight working hours. The contractor shall provide acceptable backflow prevention on all supply water to prevent any potential backflow contamination or cross connection.

3. Chlorination shall be by the use of a solution of water and liquid chlorine, calcium hypochlorite or sodium hypochlorite and the solution shall be contained in the pipe or structure as specified.

4. Prior to chlorination, all dirt and foreign matter shall be removed by a thorough cleaning and flushing of the pipeline or structure.

5. The chlorine solution shall be introduced to pipelines through corporation stops placed in the horizontal axis of the pipe, to structures by means of tubing extending directly into the structure, or other approved methods.

6. The application of the chlorine solution shall be by means of a controlled solution feed device. The rate of chlorine solution flow shall be in such proportion to the rate of water entering the pipe or structure that the resulting free chlorine residual shall be between 25 and 50 parts per million (PPM) or milligrams per liter (mg/l).

7. The chlorine treated water shall be retained in the pipe or structure at least 24 hours, unless otherwise directed. During the retention period, all valves and hydrants within the treated sections shall be operated.

8. The chlorine residual shall be not less than 10 PPM (or mg/l) at any point in the pipe or structure at the end of the 24–hour retention period.

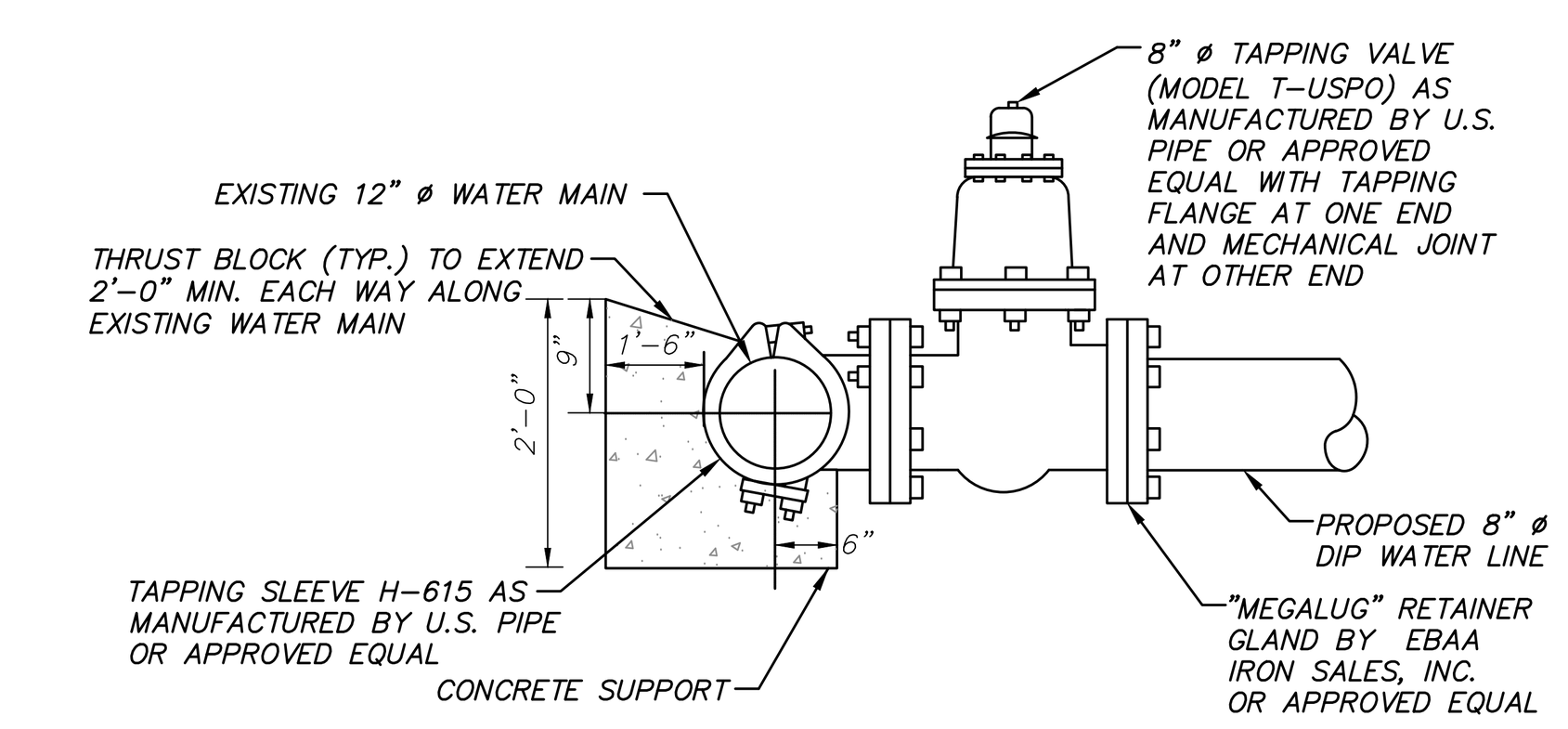
9. When making repairs to, or when specified, structures and portions of pipelines shall be chlorinated by a concentrated chlorine solution containing not less than 200 PPM (mg/l) of free chlorine. The solution shall be applied with a brush or sprayed on the entire inner surface of the empty pipes or structures. The structures disinfected shall remain in contact with the strong chlorine solution for at least 30 minutes.

10. After the required retention of chlorinated water in the pipe or structures, they shall be thoroughly flushed until the replacement water shall, upon test, both chemically and bacteriological, be proven equal to water quality served by the public from the existing water supply system.

11. The disposal of chlorinated water from any pipe or structure shall be such that it will not cause damage to any vegetation, fish, or animal life.

12. The Contractor shall make all arrangements for the testing of water quality by an approved independent laboratory. Two acceptable bacteriological test, taken at least 24 hours apart, shall be collected from the new water main. At least 1 set of samples must be collected from every 1,000 LF of the new water main, plus one set from the end of the line and at least one set from each branch. The results for all tests shall be forwarded to the Design Engineer and the public health authority having jurisdiction.

13. All water quality requirements shall be fulfilled prior to the passage of any water through the new system to a public supply or the use of the new system.



TAPPING SLEEVE, VALVE, AND THRUST BLOCK DETAIL
(N.T.S.)

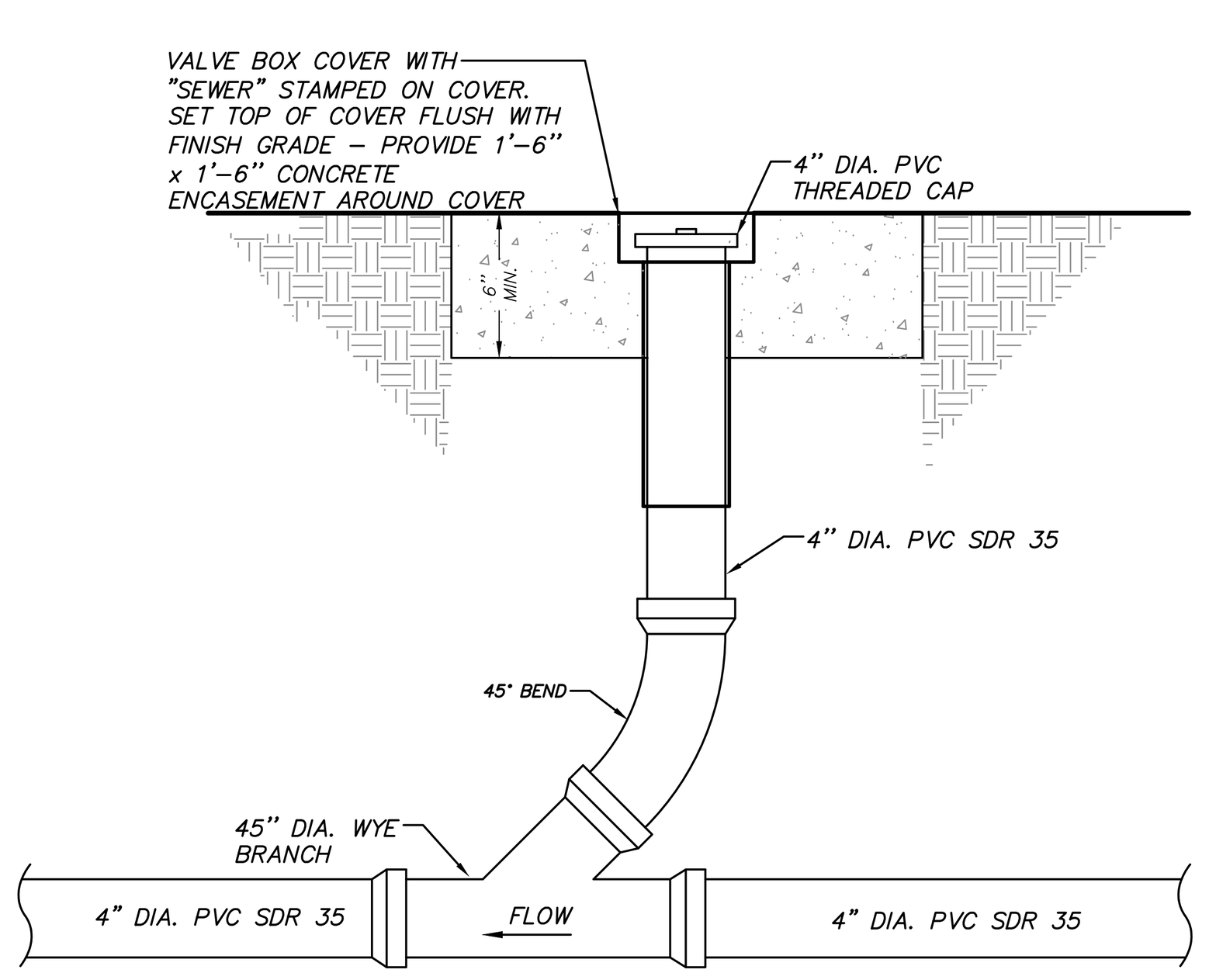
Dutchess County Department of Health Notes:

Standard Notes for Projects with Central Water & Sewer

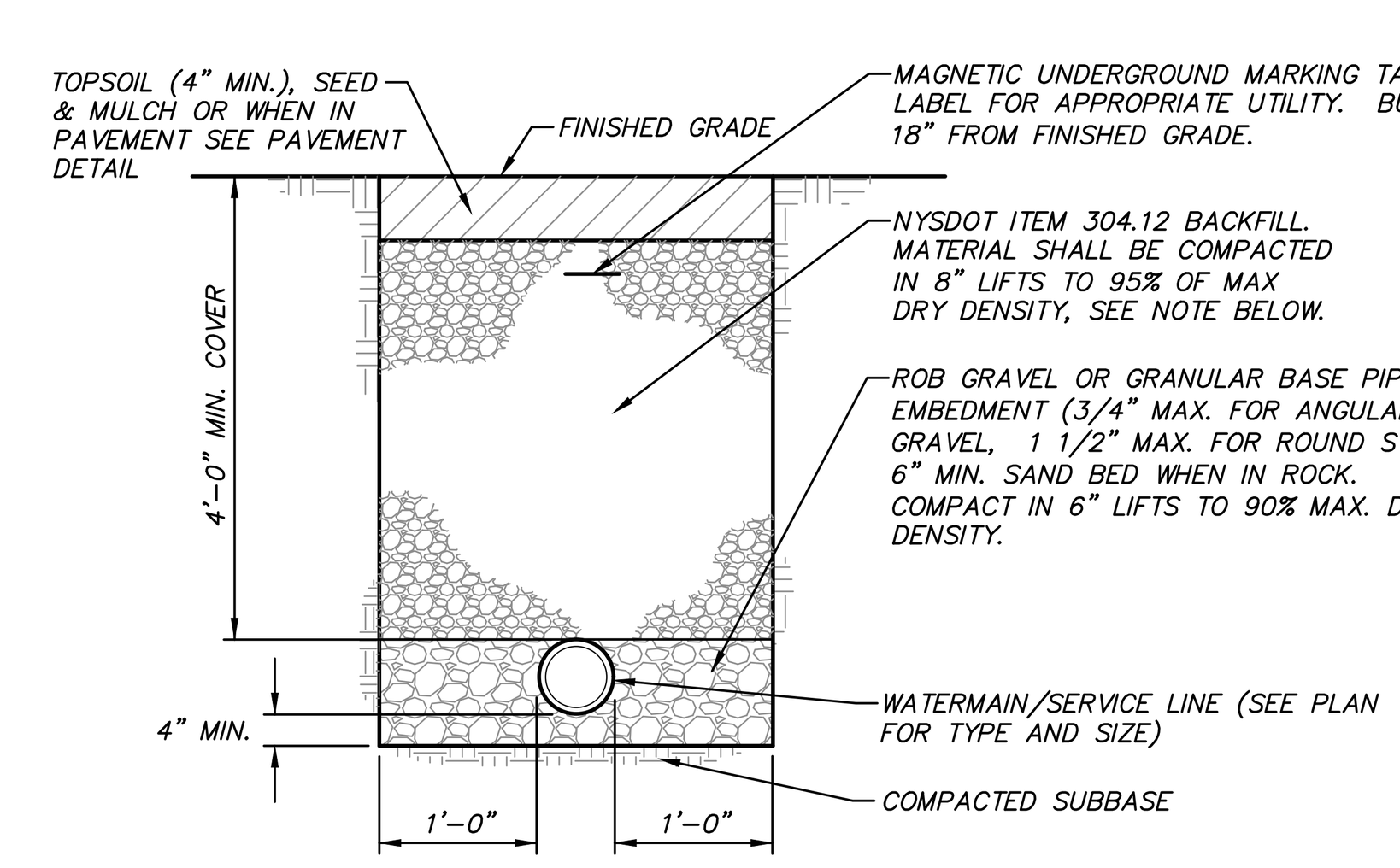
1. The design, construction and installation shall be in accordance with this plan and generally accepted standards in effect at the time of construction which include:
   - "New York State Design Standards for Intermediate Sized Wastewater Treatment Systems", NYSDEC
   - "Recommended Standards for Sewage Treatment Works, (Ten States)."
   - "Recommended Standards for Water Works, (Ten States)."
   - "New York State Department of Health and Dutchess County Environmental Health Services Division policies, procedures and standards."
   - "Dutchess County and New York State Sanitary Codes."
   - "Dutchess County Environmental Health Services Division Certificate of Approval letter."
2. This plan is approved as meeting the appropriate and applied technical standards, guidelines, policies and procedures for arrangement of sewage disposal and water supply facilities.
3. Upon completion of the facilities, the finished works shall be inspected, tested, and certified complete to the DC EHSD by the New York State licensed Professional Engineer supervising construction. No part of the facilities shall be placed into service until accepted by the DC EHSD.
4. Approval of any plan(s) or amendment thereto shall be valid for a period of five (5) years from the date of approval. Following the expiration of said approval, the plan(s) shall be re–submitted to the Commissioner of Health for consideration for re–approval. Re–submission or revised submission of plans and/or associated documents shall be subject to compliance with the technical standards, guidelines, policies and procedures in effect at the time of the re–submission.
5. No cellar, footing, floor, garage, cooler or roof drains shall be discharged into the sewage collection system.
6. All buildings shall be constructed at an elevation high enough to ensure gravity flow to the sewage collection system.
7. All required Erosion & Sediment Control and Stormwater Pollution Prevention Water Quality & Quantity Control structures, permanent and temporary, are shown on the plans.
8. The DC EHSD shall be notified sixty days prior to any change in use; use changes may require re–approval by the DC EHSD.
9. No buildings are to be occupied and the new water system shall not be placed into service, until a "Completed Works Approval" is issued under section 5–1.22(d) of Part 5 of the New York State Sanitary Code (10NYCRR5).
10. No buildings are to be occupied and the new wastewater collection system shall not be placed into service until, a "Certificate of Construction Compliance" is issued under section 19.7 of Article 19 of the Dutchess County Sanitary Code.
11. All service lines are the responsibility of the owner up to the property line. The water and sewer companies shall be responsible for all valves and pipes which are not on the owner's property.
12. The retaining wall / slope stabilization details shown on the project plans are not certified for structural integrity by the DC EHSD.
13. The undersigned owners of the property hereon state that they are familiar with this map, its contents and its legends and hereby consent to all said terms and conditions as stated hereon.

______________________ Owner Signature

____________ Date



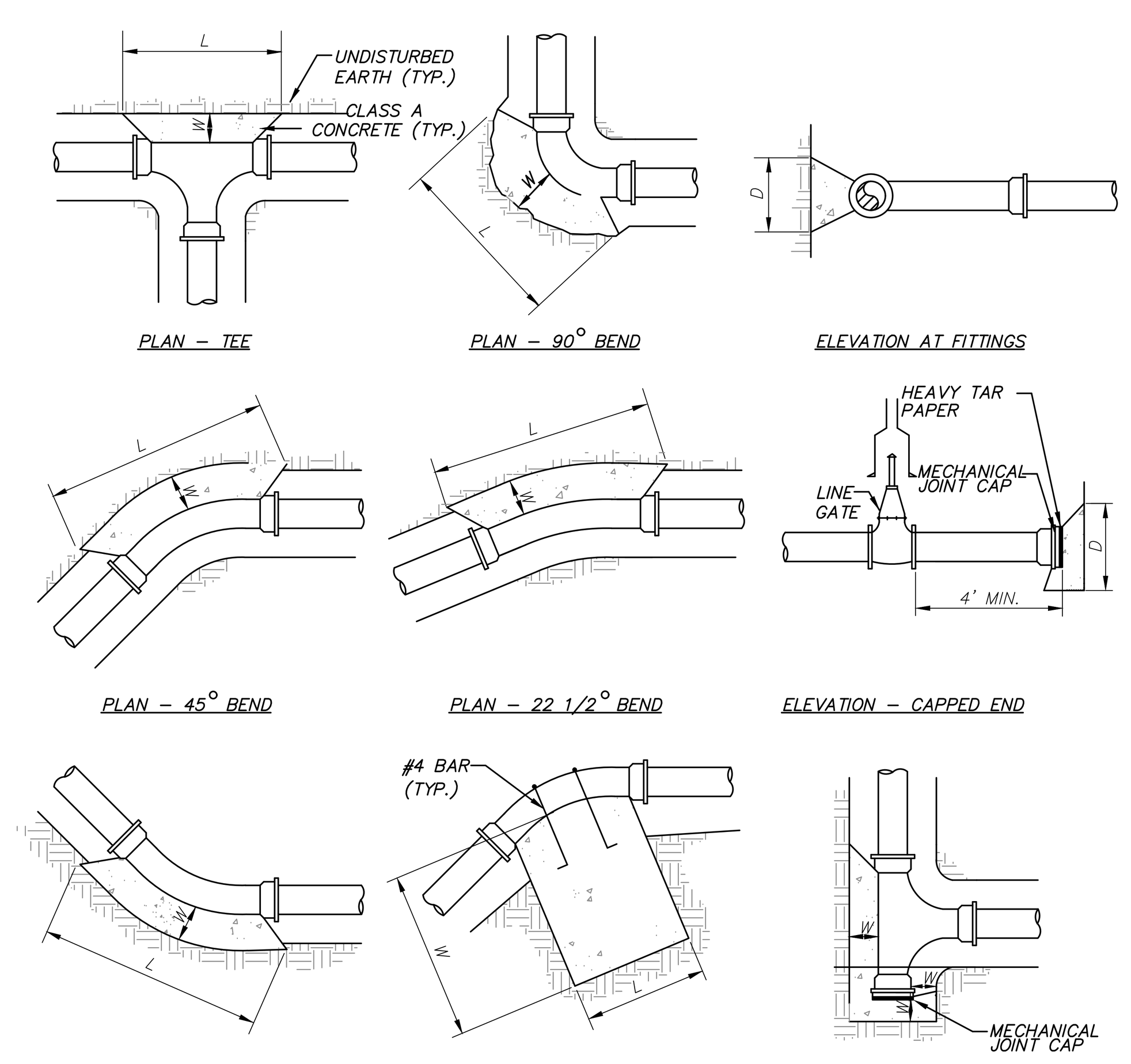
SEWER LINE CLEANOUT DETAIL
(N.T.S.)



NOTE: THE WATER TRENCH SHALL BE COMPLETELY BACKFILLED WITH NYSDOT ITEM 304.12 WITHIN THE NYSDOT RIGHT OF WAY

WATERMAIN/SERVICE LINE TRENCH DETAIL
(N.T.S.)

NOTES:
1. WHERE WATERMAIN TRENCHES LIE WITHIN THE PROPOSED CITY OF BEACON R.O.W., TRENCHES ARE TO BE BACKFILLED WITH NYSDOT ITEM 304.12 BACKFILL MATERIAL. MATERIAL SHALL BE COMPACTED IN 8" LIFTS TO 95% OF MAX DRY DENSITY.
2. WHERE WATERMAIN AND SERVICE CONNECTION TRENCHES LIE OUTSIDE THE PUBLIC R.O.W., TRENCHES TO BE FILLED WITH CLEAN SITE SOIL.



THRUST BLOCK SCHEDULE

PIPE SIZE	CAP/TEE L	CAP/TEE D	22 1/2° L	22 1/2° D	45° L	45° D	90° L	90° D	W
6"	2'	1.5'	2'	1.5'	2'	1.5'	2'	1.5'	1.5'

THRUST BLOCK DETAILS
(N.T.S.)

NO.	DATE	REVISION	BY
7	5–31–22	REVISED PER PLANNING BOARD COMMENTS	PJM
6	11–30–21	REVISED PER PLANNING BOARD COMMENTS	EJP
5	12–29–20	REVISED PER PLANNING BOARD COMMENTS	JFR
4	7–28–20	REVISED PER PLANNING BOARD COMMENTS	JFR
3	6–30–20	REVISED PER PLANNING BOARD COMMENTS	JFR
2	5–26–20	REVISED PER PLANNING BOARD COMMENTS	JFR
1	4–28–20	RESUBMISSION TO PLANNING BOARD	JFR

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ENGINEERING, SURVEYING & LANDSCAPE ARCHITECTURE, P.C.
3 Garrett Place
Carmel, NY 10512
(845) 225–9690
(845) 225–9717 fax
www.insite–eng.com

PROJECT:
BEACON VIEWS
CITY OF BEACON, DUTCHESS COUNTY, NEW YORK

DRAWING:
DETAILS

STATE OF NEW YORK · JEFFREY J. CONTELMO · LICENSED PROFESSIONAL ENGINEER · 61931

PROJECT NUMBER	19131.100	PROJECT MANAGER	J.J.C.	DRAWING NO.	SHEET
DATE	8–27–19	DRAWN BY	J.F.R.	D–4	16 / 20
SCALE	AS NOTED	CHECKED BY	A.D.T.		

ALTERATION OF THIS DOCUMENT, UNLESS UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, IS A VIOLATION OF SECTION 7209 OF ARTICLE 145 OF THE EDUCATION LAW.

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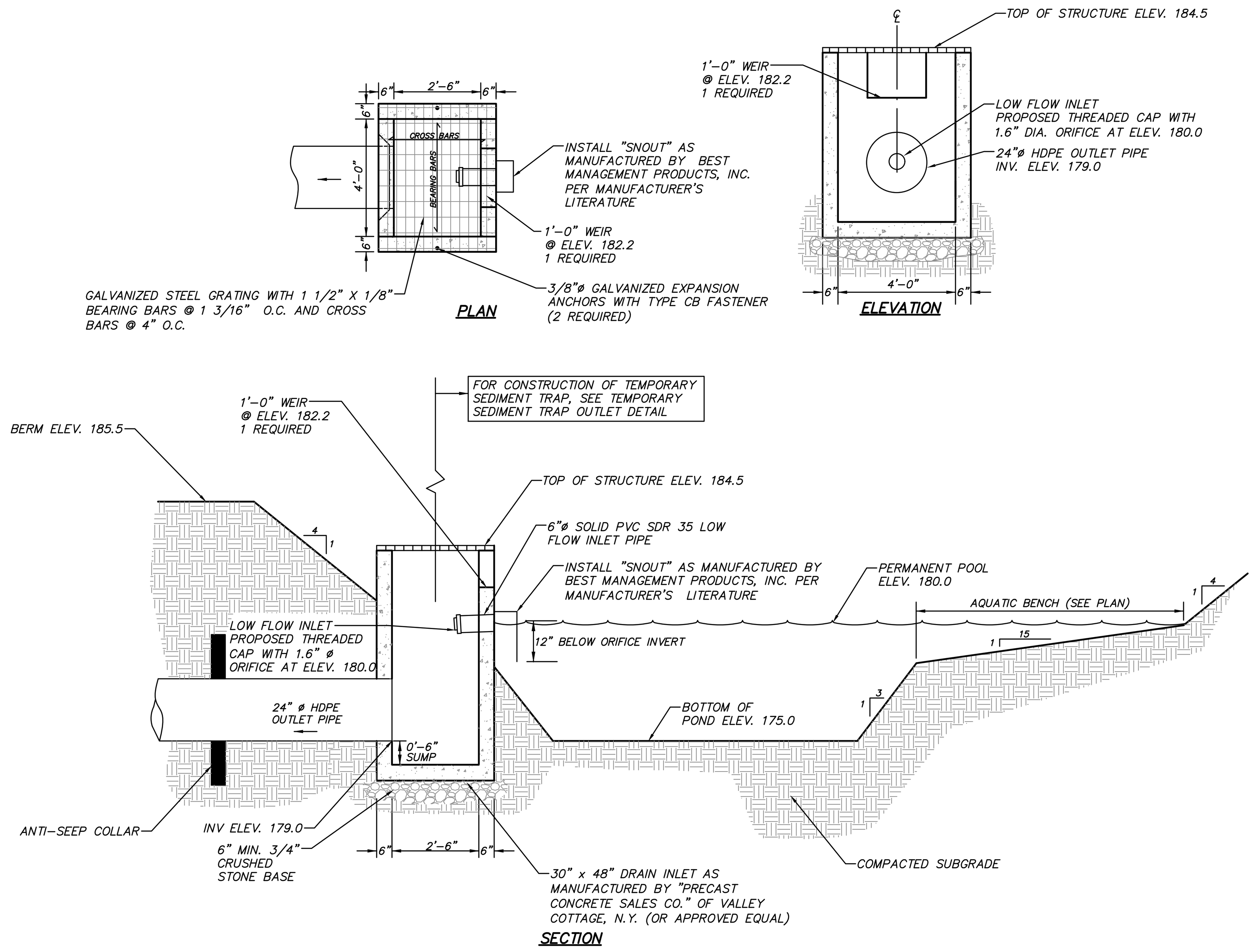


NOTE: THE "SNOUT" ON THE OUTLET STRUCTURE IS PROVIDED AS AN ANTI-CLOGGING DEVICE TO MEET THE REQUIREMENTS OF THE "NEW YORK STATE STORMWATER MANAGEMENT DESIGN MANUAL".

1.1P POCKET POND (NYSDEC DESIGN P-5) PERMANENT OUTLET STRUCTURE DETAIL

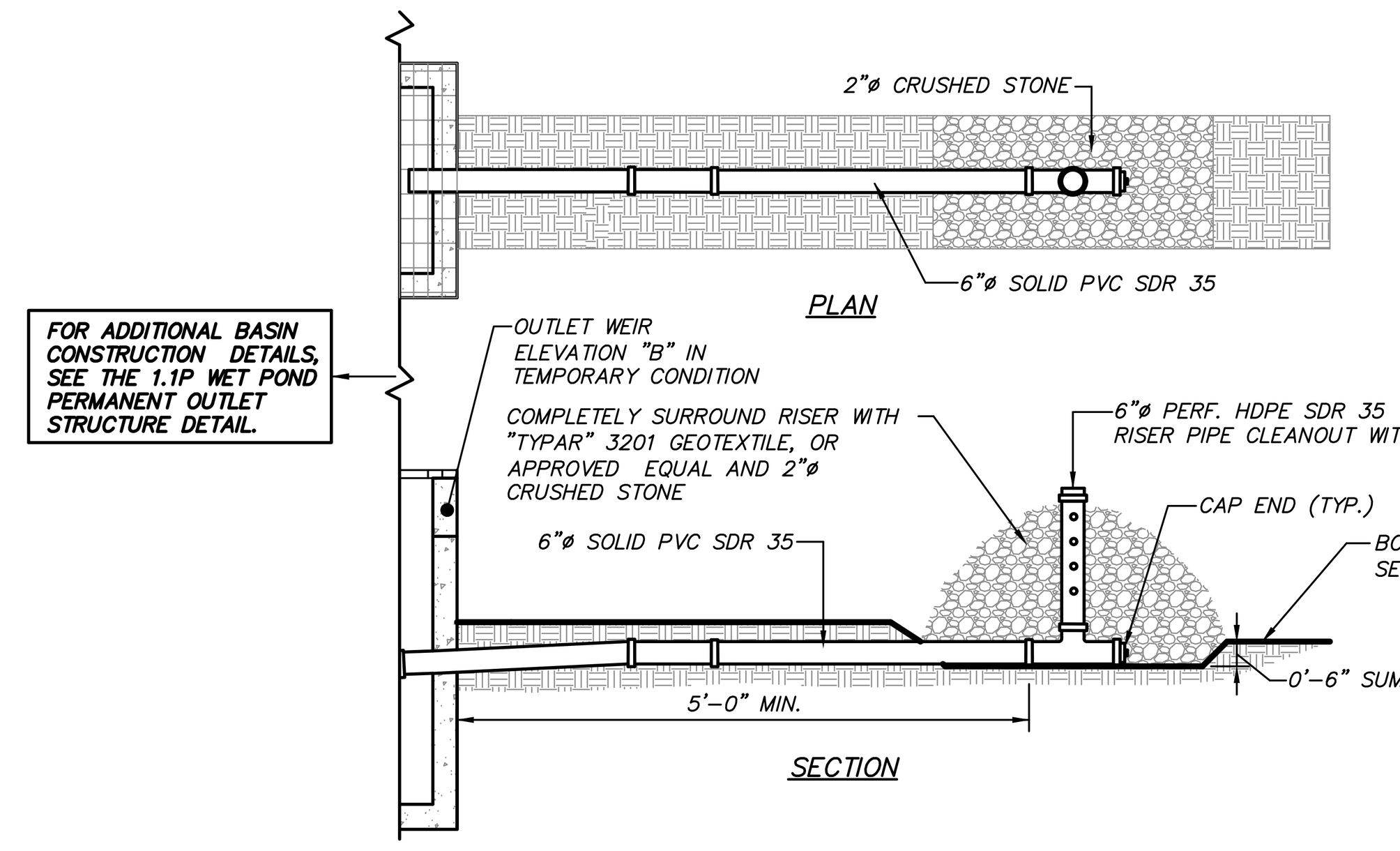
(N.T.S.)

POCKET POND OUTLET NOTES

1. THE POCKET POND (1.1P) BASIN IS PROPOSED TO BE UTILIZED AS TEMPORARY SEDIMENT BASINS DURING CONSTRUCTION.
2. AFTER THE CONTRIBUTING AREAS TO THE BASIN HAS BEEN PERMANENTLY STABILIZED, THE FOLLOWING SHALL BE ACCOMPLISHED:

   A. CLEAN BASIN AND OUTLET STRUCTURE AND REMOVE 6"ø PERFORATED VERTICAL RISER PIPE, CRUSHED STONE AND FILTER FABRIC.
   B. ADD THREADED CAP WITH ORIFICE AT DISCHARGE END OF 6"ø SOLID PVC SDR 35 PIPES PER DETAIL.
   C. REPLACE THE PERFORATED PIPE AND CRUSHED STONE. DO NOT REPLACE FILTER FABRIC.
   D. ESTABLISH THE FINAL VEGETATION IN THE BASIN IN ACCORDANCE WITH THE TYPICAL P-2 WET POND BASIN PLANTING DETAIL.

3. FOLLOWS: * WHEN INITIALLY USED AS THE TEMPORARY SEDIMENT BASIN DEWATERING DEVICE THE RISER SHALL BE WRAPPED WITH TYPAR 3201 GEOTEXTILE OR APPROVED EQUAL AND SURROUNDED WITH 2"ø STONE. THE TOP OF THE RISER SHALL BE SET AT THE SAME ELEVATION AS THE WEIRS AS SHOWN IN THE STORMWATER BASIN OUTLET STRUCTURE DETAILS.

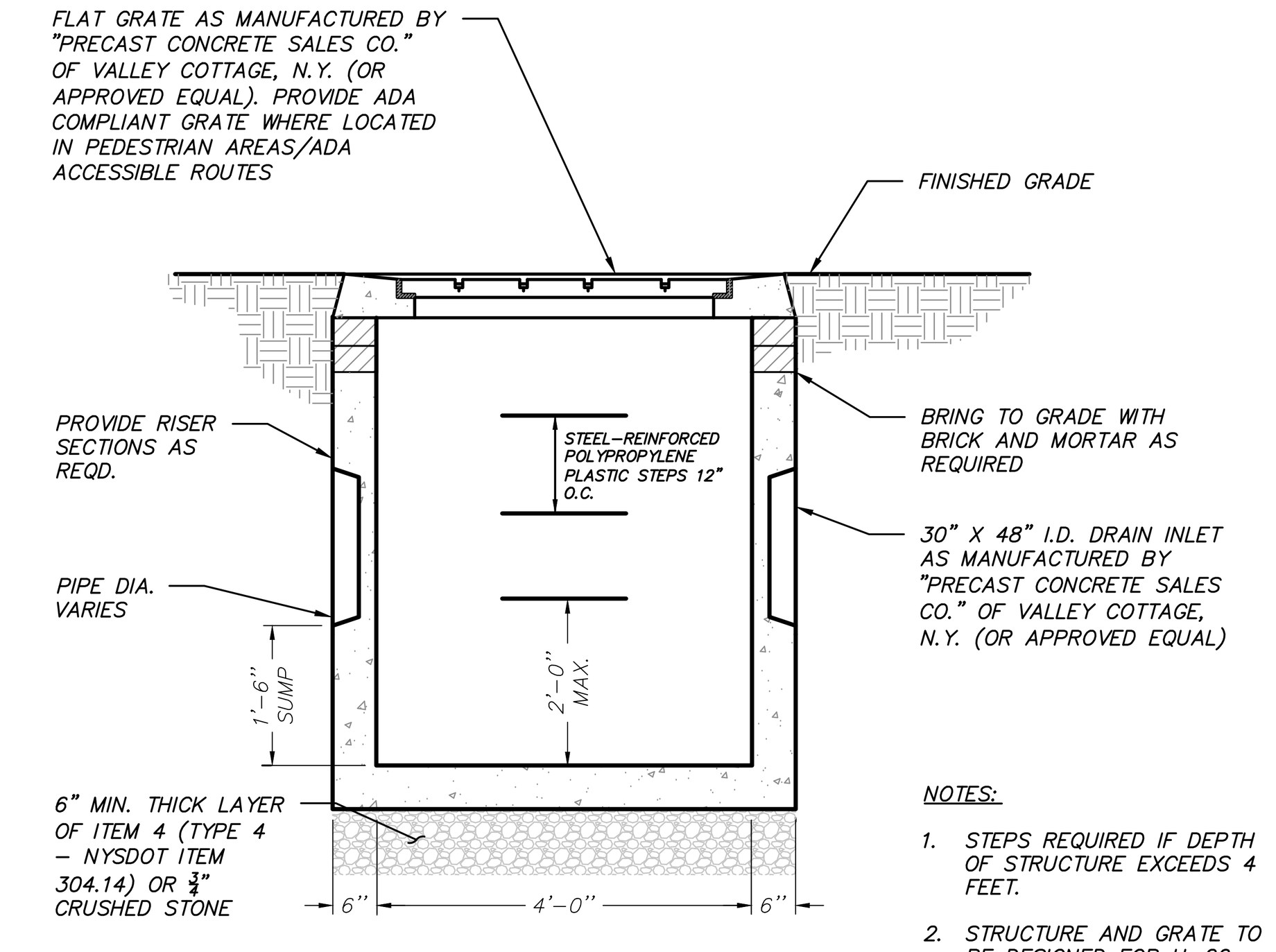


OUTLET STRUCTURE	BOTTOM OF TEMPORARY SEDIMENT TRAP (A)	OUTLET WEIR ELEVATION (B)	CONTRIBUTING AREA (ACRES)	MINIMUM VOLUME REQUIRED* (CF)	VOLUME PROVIDED (CF)
OS 1.1P	180.0	182.2	3.6	12,960	18,258

*MINIMUM 3,600 C.F. OF STORAGE PROVIDED PER ACRE OF CONTRIBUTING AREA PER "NEW YORK STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL".

TEMPORARY SEDIMENT TRAP OUTLET STRUCTURE DETAIL

(N.T.S.)



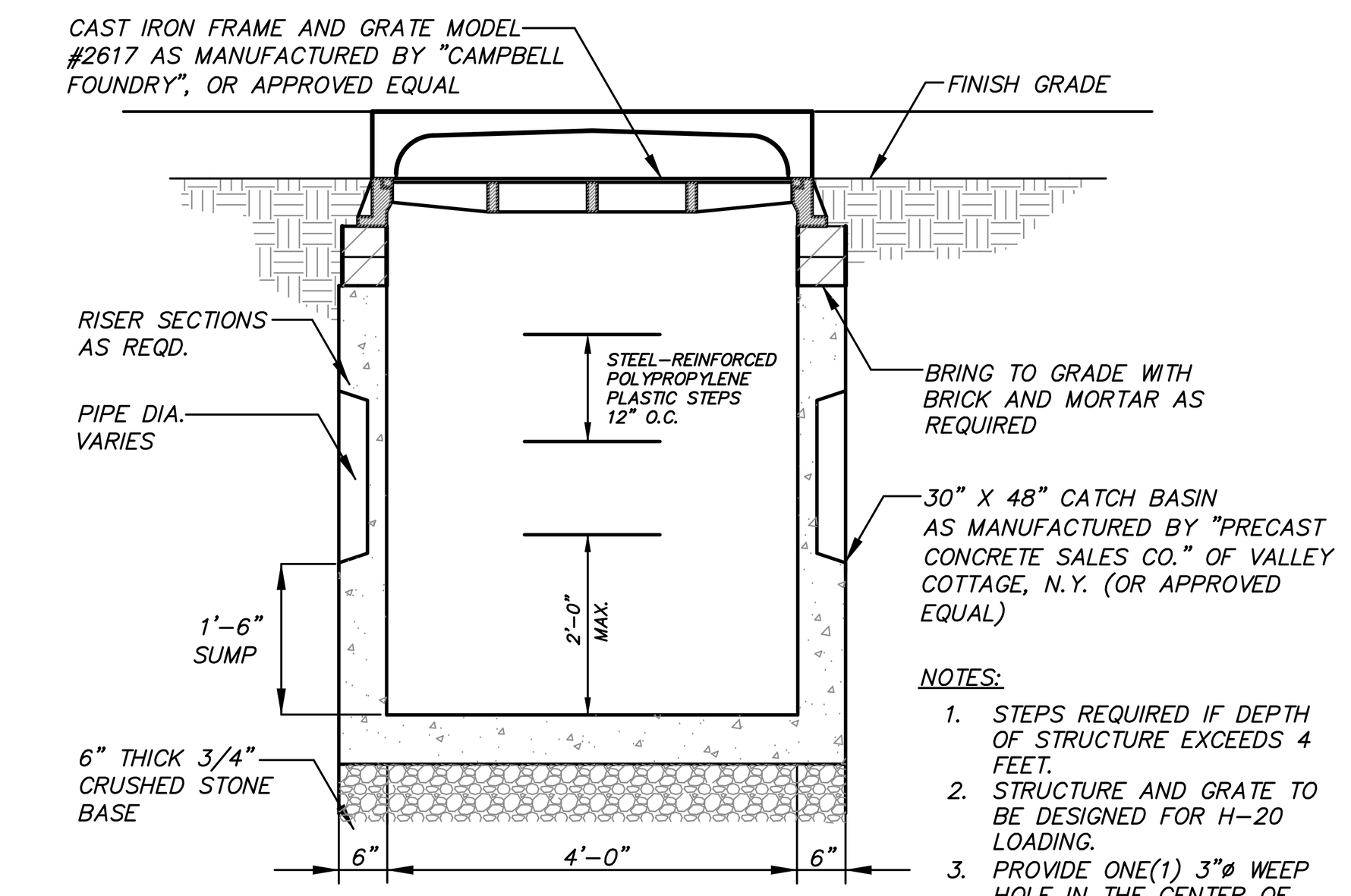
NOTES:

1. STEPS REQUIRED IF DEPTH OF STRUCTURE EXCEEDS 4 FEET.
2. STRUCTURE AND GRATE TO BE DESIGNED FOR H-20 LOADING.

30" X 48" DRAIN INLET DETAIL

(N.T.S.)

NOTE: ALL MANHOLE CASTINGS AND CATCH BASIN CASTINGS ARE TO BE DOMESTICALLY MADE FOR ANY STRUCTURE LOCATED WITHIN THE CITY RIGHT-OF-WAY, OR TO BE DEDICATED TO THE CITY.



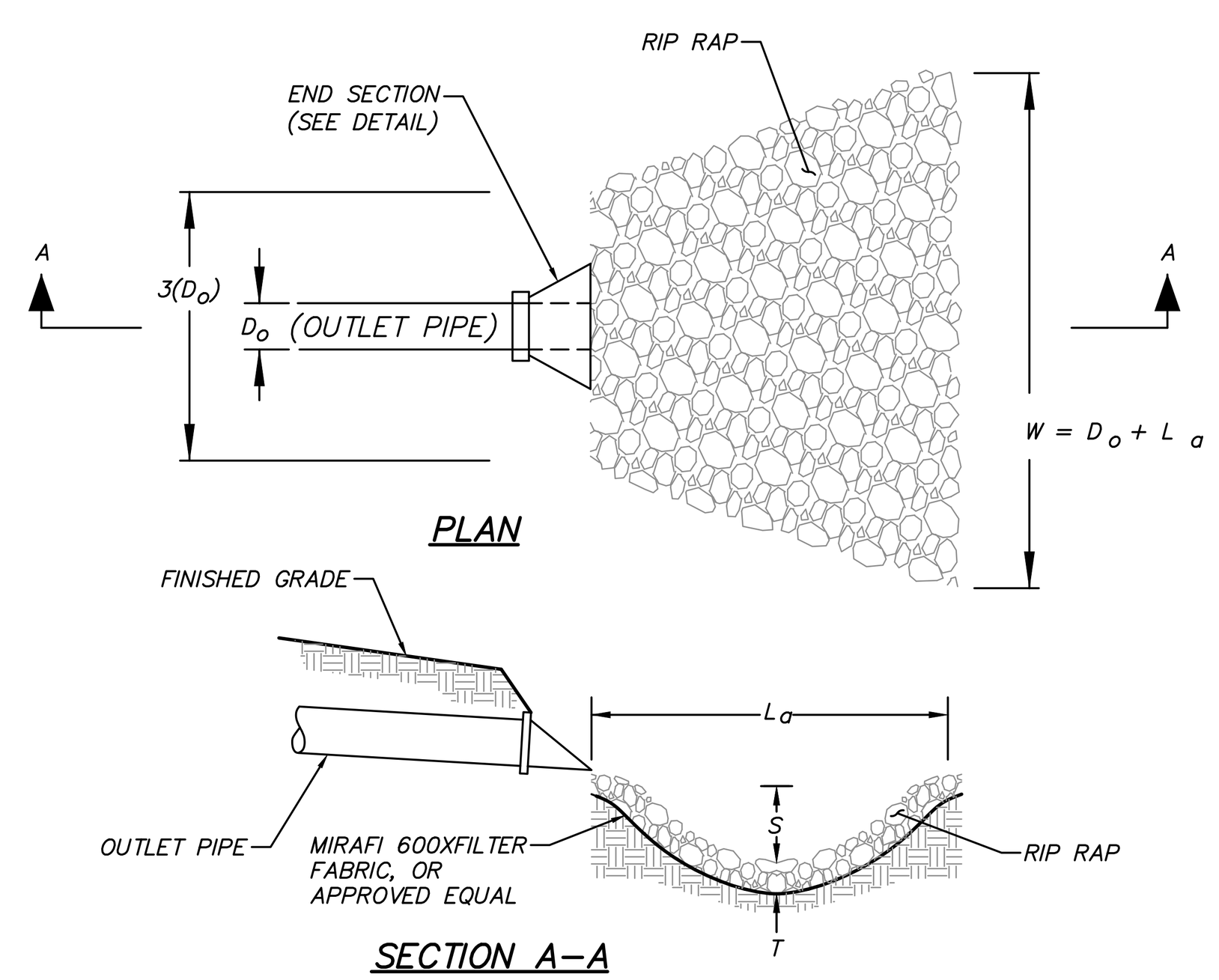
NOTES:

1. STEPS REQUIRED IF DEPTH OF STRUCTURE EXCEEDS 4 FEET.
2. STRUCTURE AND GRATE TO BE DESIGNED FOR H-20 LOADING.
3. PROVIDE ONE(1) 3"ø WEEP HOLE IN THE CENTER OF THE BOTTOM OF ALL STRUCTURES WITH SUMPS.

CATCH BASIN DETAIL

(N.T.S.)

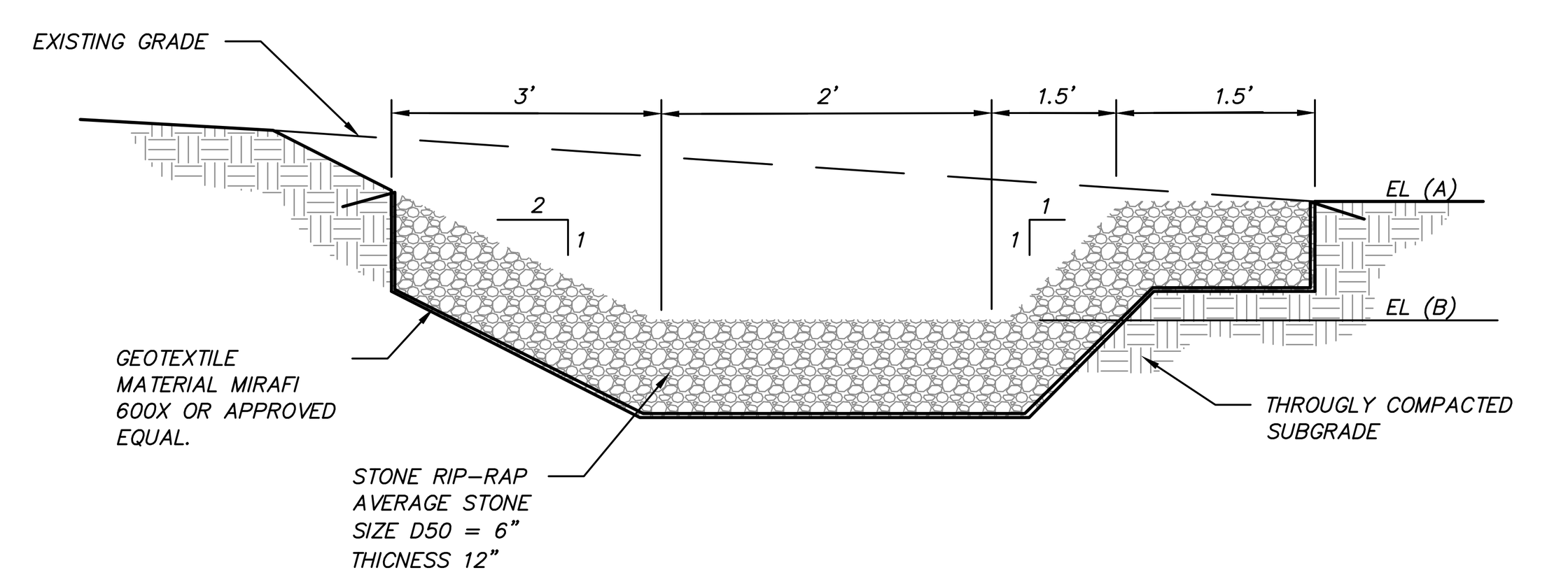
NOTE: ALL MANHOLE CASTINGS AND CATCH BASIN CASTINGS ARE TO BE DOMESTICALLY MADE FOR ANY STRUCTURE LOCATED WITHIN THE CITY RIGHT-OF-WAY, OR TO BE DEDICATED TO THE CITY.



END SECTION ID	OUTLET PIPE DIAMETER (D_o)	CONTRIBUTING DRAINAGE AREA (AC.)	DISCHARGE (100-YEAR)	D50 RIP RAP SIZE	MAX. RIP RAP SIZE	THICKNESS RIP RAP (T)	LENGTH (L_a)MIN.	SUMP DEPTH (S)
ES 1	18"	3.4	8.1 CFS	6"	9"	14"	11 FT	2 FT.
ES 8	15"	4.3	8.3 CFS	6"	9"	14"	8 FT	2 FT.
ES 13	24"	4.4	8.4 CFS	6"	9"	14"	12 FT	2 FT.
ES 15	24"	0.5	1.4 CFS	6"	9"	14"	12 FT	2 FT.
ES 23	15"	0.8	4.1 CFS	6"	9"	14"	8 FT	2 FT.
ES 26	12"	0.2	1.1 CFS	6"	9"	14"	6 FT	2 FT.

ROCK OUTLET PROTECTION DETAIL

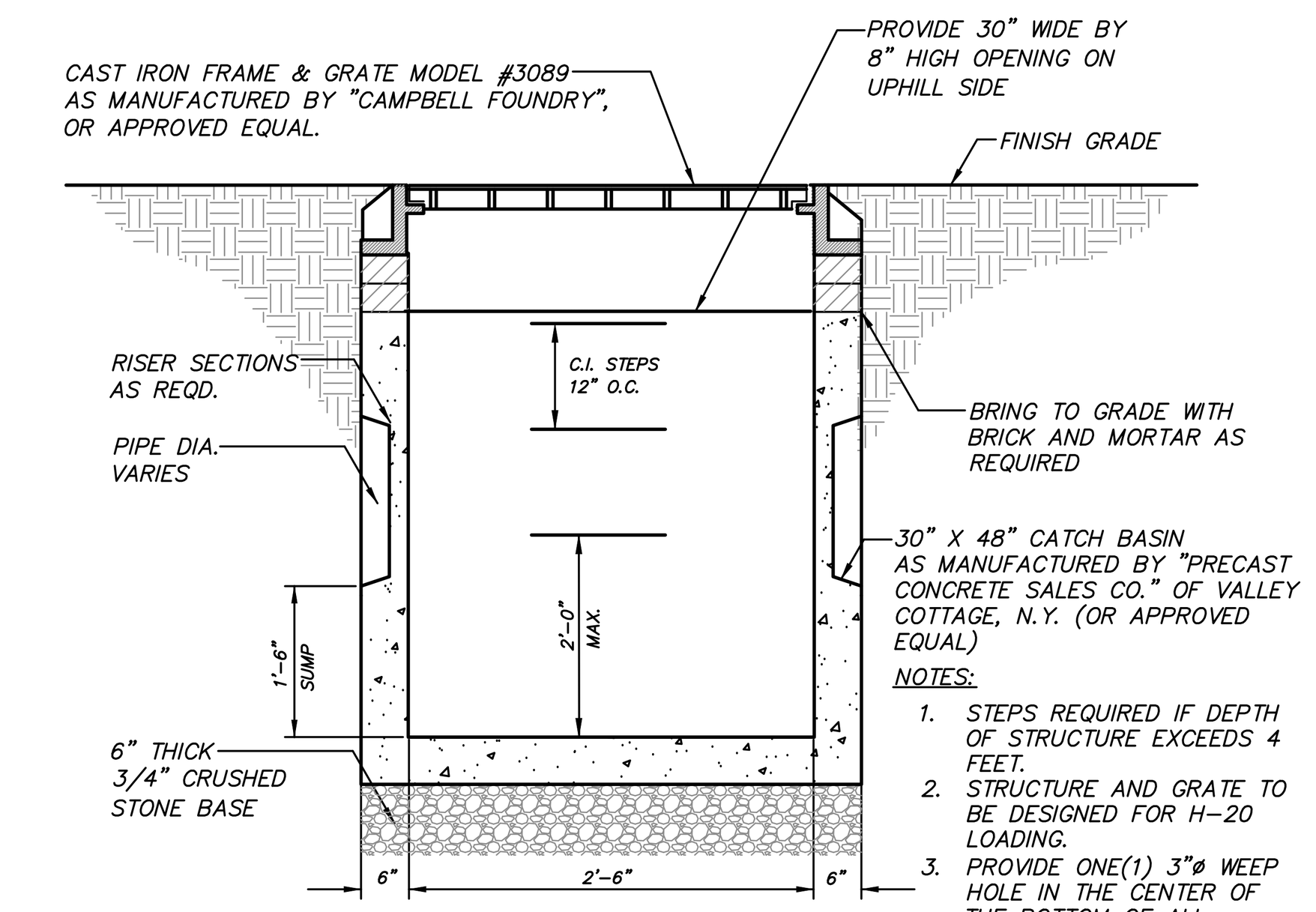
(N.T.S.)



END SECTION ID	DRAINAGE AREA (ac)	100-YEAR PEAK FLOW (cfs)	LENGTH (ft.)	ELEVEATION (A)	ELEVATION (B)
ES 21	2.2	4.2	9	186.0	184.5
ES 25	3.5	8.9	18	178.5	177.0
ES 29	1.5	2.9	6	185.5	184.0

LEVEL SPREADER DETAIL

(N.T.S.)



NOTES:

1. STEPS REQUIRED IF DEPTH OF STRUCTURE EXCEEDS 4 FEET.
2. STRUCTURE AND GRATE TO BE DESIGNED FOR H-20 LOADING.
3. PROVIDE ONE(1) 3"ø WEEP HOLE IN THE CENTER OF THE BOTTOM OF ALL STRUCTURES WITH SUMPS.

SIDE DRAIN INLET DETAIL

(N.T.S.)

(STRUCTURE AND GRATE TO BE DESIGNED FOR H-20 LOADING)

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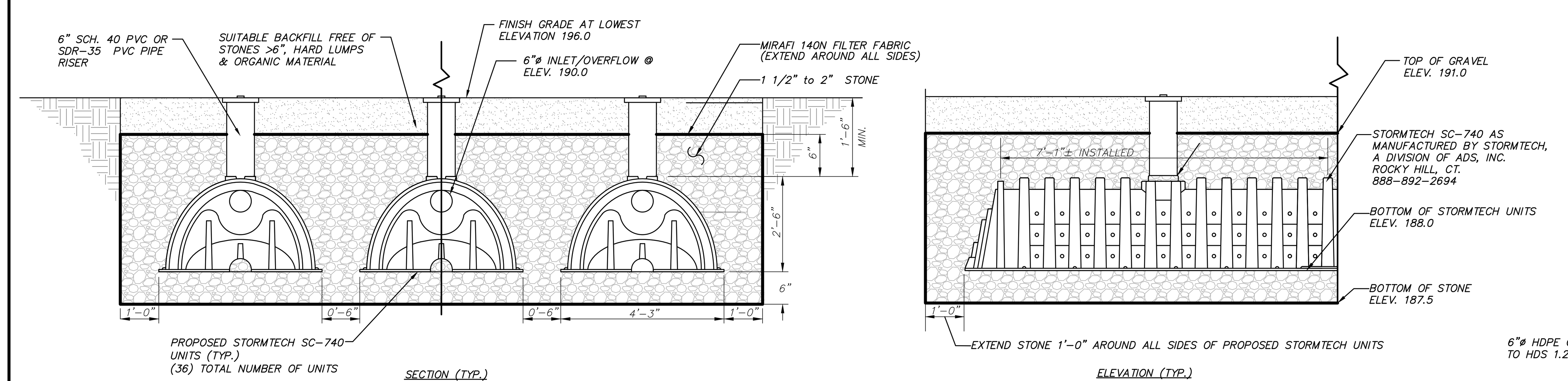
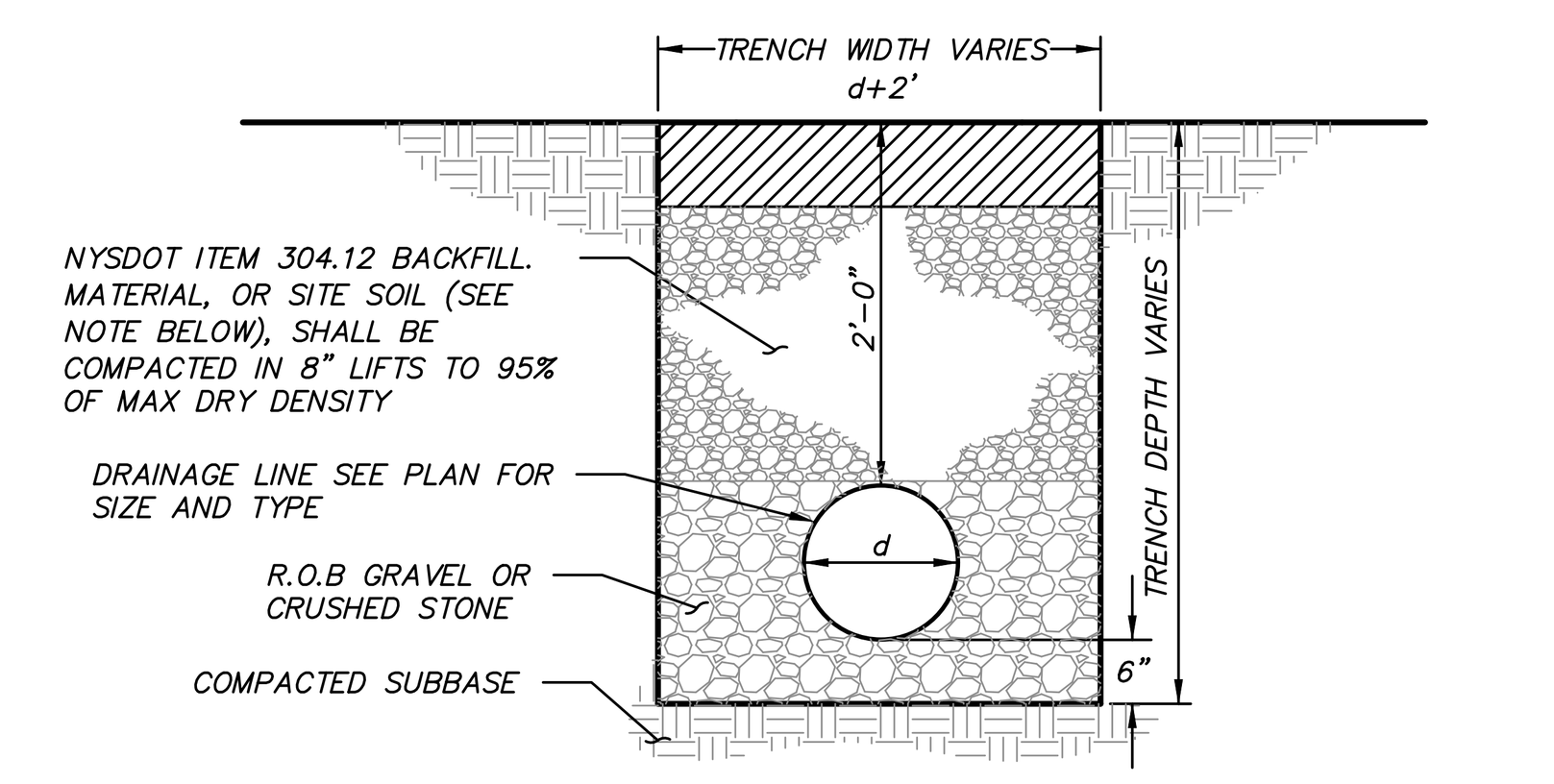


STORMWATER INFILTRATION SYSTEM 1.2P (NYSDEC DESIGN I-4) DETAIL

(N.T.S.)

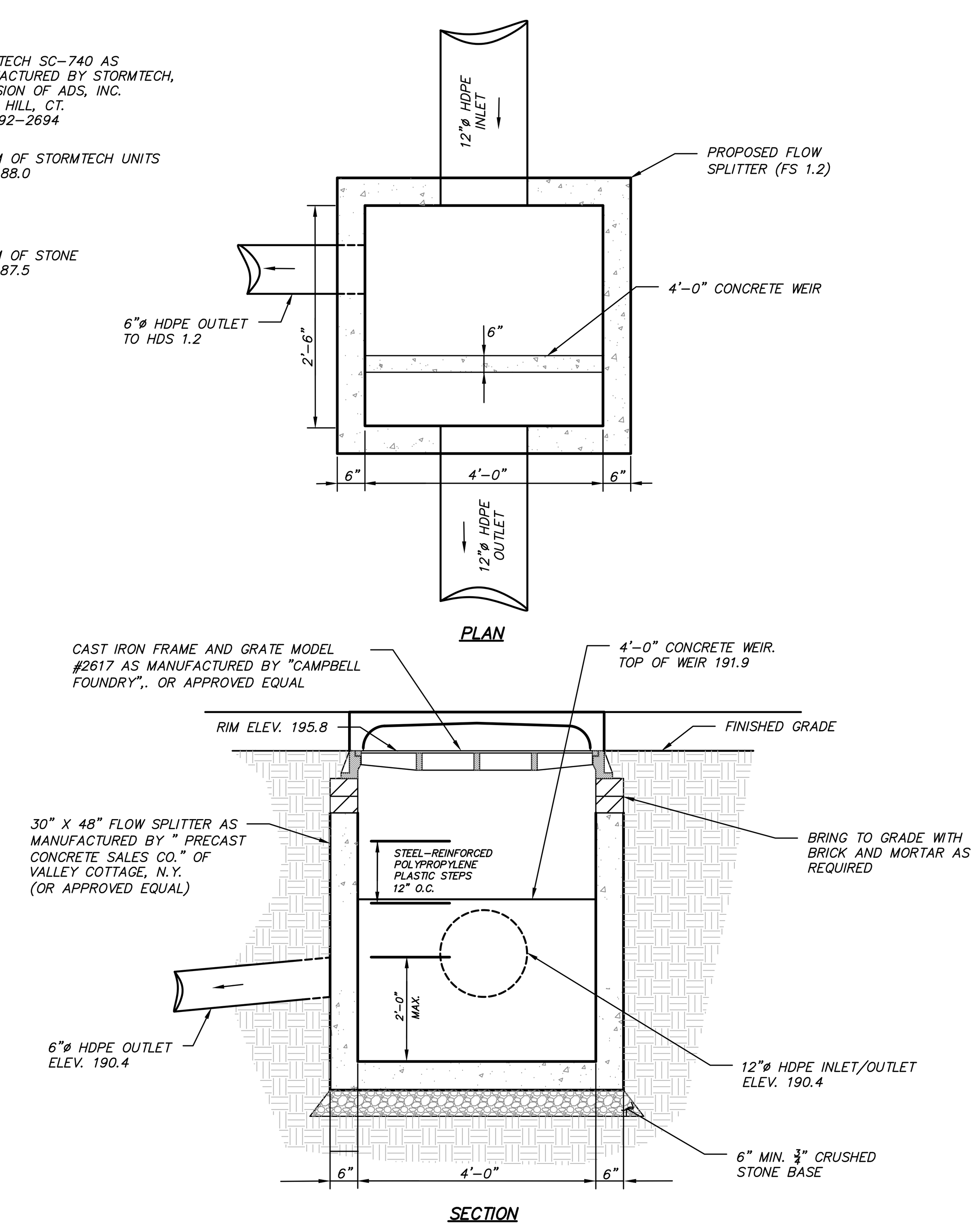


DRAINAGE LINE TRENCH DETAIL

(N.T.S.)

NOTES:

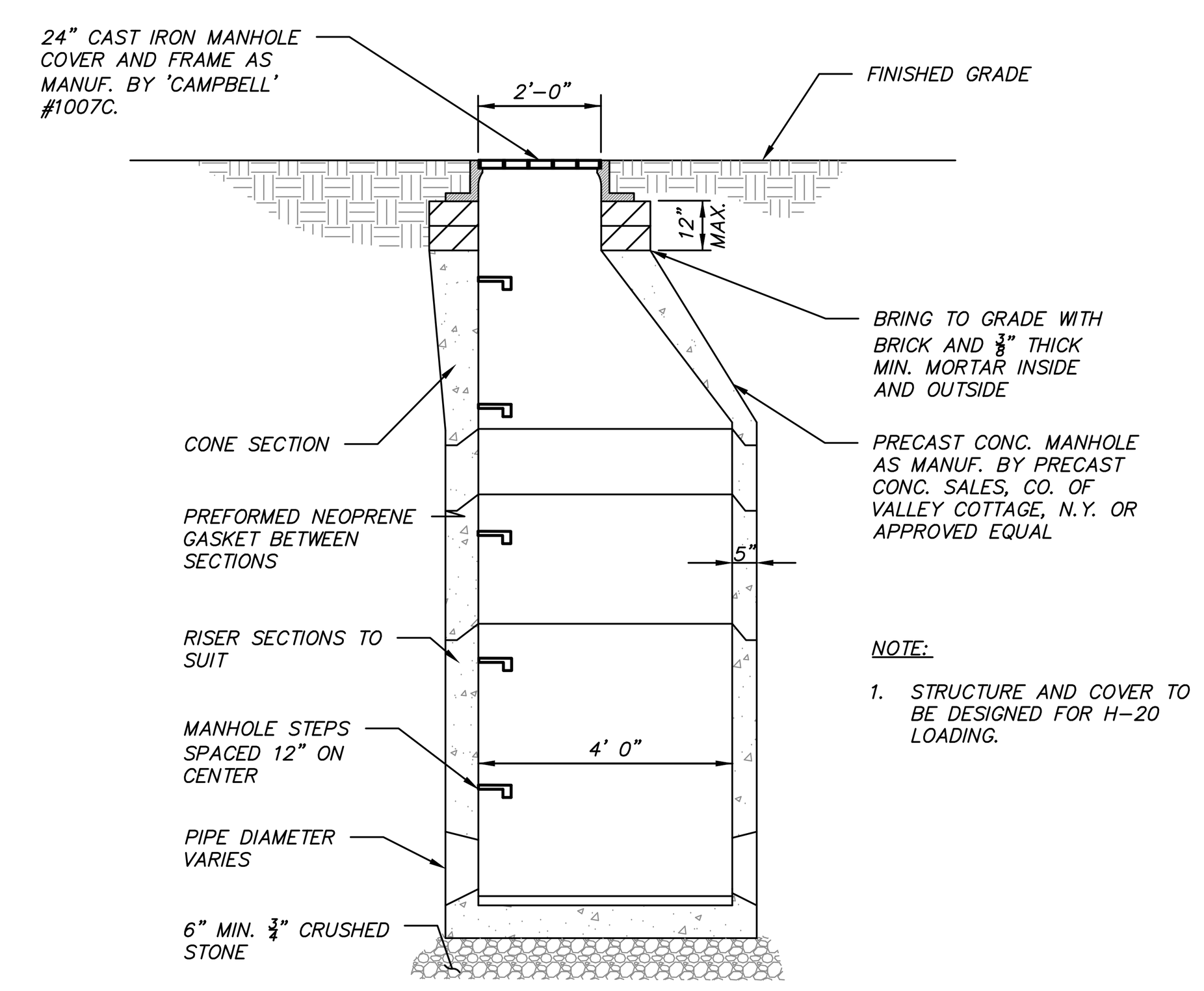
1. WHERE WATERMAIN TRENCHES LIE WITHIN THE PROPOSED CITY OF BEACON R.O.W., TRENCHES ARE TO BE BACKFILLED WITH NYSDOT ITEM 304.12 BACKFILL MATERIAL. MATERIAL SHALL BE COMPACTED IN 8" LIFTS TO 95% OF MAX DRY DENSITY.
2. WHERE WATERMAIN AND SERVICE CONNECTION TRENCHES LIE OUTSIDE THE PUBLIC R.O.W., TRENCHES TO BE FILLED WITH CLEAN SITE SOIL.



FLOW SPLITTER FS 1.2 DETAIL

(N.T.S.)

NOTE: ALL MANHOLE CASTINGS AND CATCH BASIN CASTINGS ARE TO BE DOMESTICALLY MADE FOR ANY STRUCTURE LOCATED WITHIN THE CITY RIGHT-OF-WAY, OR TO BE DEDICATED TO THE CITY.



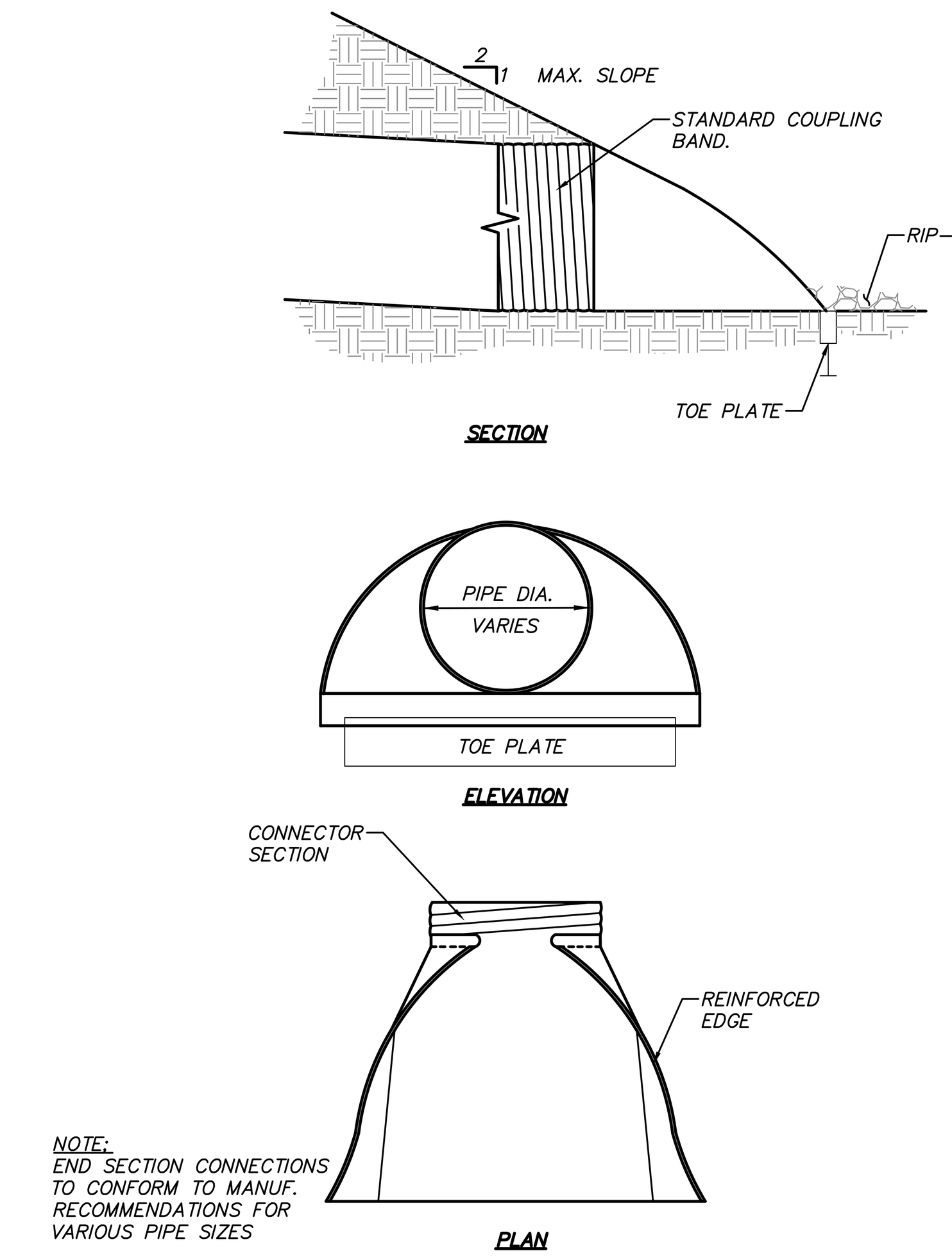
NOTE:

1. STRUCTURE AND COVER TO BE DESIGNED FOR H-20 LOADING.

DRAINAGE MANHOLE DETAIL

(N.T.S.)

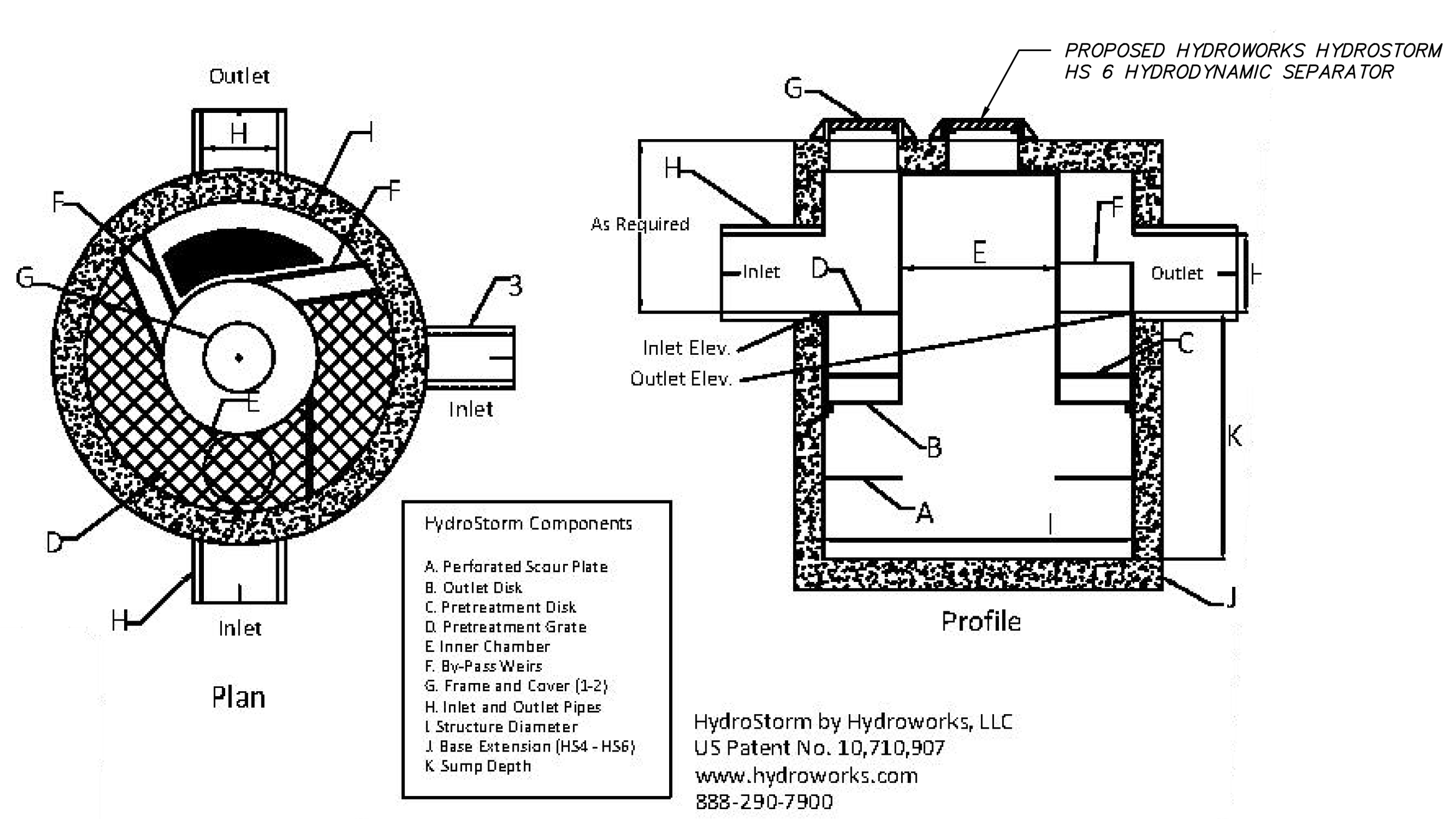
NOTE: ALL MANHOLE CASTINGS AND CATCH BASIN CASTINGS ARE TO BE DOMESTICALLY MADE FOR ANY STRUCTURE LOCATED WITHIN THE CITY RIGHT-OF-WAY, OR TO BE DEDICATED TO THE CITY.



NOTE:
END SECTION CONNECTIONS TO CONFORM TO MANUF. RECOMMENDATIONS FOR VARIOUS PIPE SIZES

END SECTION DETAIL

(N.T.S.)



HydroStorm by Hydroworks, LLC
US Patent No. 10,710,907
www.hydroworks.com
888-290-7900

Notes:

1. Headloss K factor of 1.04 for hydraulic gradeline calculations
2. Sump depths shown are typical. Additional depth can be added as required
3. Multiple inlet pipes allowed
4. Drops allowed
5. Inlet invert elevations should be the same or higher than the outlet invert elevation. Inlet can be up to 12" (300 mm) lower than outlet if pretreatment area is omitted but 12" (300 mm) must be added to sump depth to maintain overall treatment volume.
6. Solid Cover shown. HydroStorm can be desiged with an inlet grate if required.
7. Oil capacities given are spill capacities.
8. Sediment depths are maximum holding capacities and not recommended capacities for regular maintenance.
9. Capacities are rounded down to nearest 5 gal or ft3 (1L or 0.1 m3 for metric units)
10. Base Extensions not provided on standard units larger than the HS 6. Extensions can be provided if required due to groundwater/buoyancy concerns at the request of the engineer of record.
11. HS4 to HS6 models require one frame and cover. HS7 to HS12 models require two covers

HydroStorm Dimensions / Capacities

Model	Diameter ft (m) (9)	Sump Depth ft (m) (11)	Inner Chamber Diam. ft (m) (5)	Max. Pipe in (mm) (8)	Oil Spill Volume gal (L)	Sediment Volume ft3 (m3)	Total Volume gal (L)
HS 6	6 (1.8)	6 (1.8)	3 (0.9)	36 (900)	270 (1030)	110 (3.2)	1265 (4800)

HDS 1.2 HYDROWORKS HYDROSTORM HS 6 HYDRODYNAMIC SEPARATOR DETAIL

(N.T.S.)

ALTERATION OF THIS DOCUMENT, UNLESS UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, IS A VIOLATION OF SECTION 7209 OF ARTICLE 145 OF THE EDUCATION LAW.

Z:\E\19131100 Kahn\13 D-1 - 5.dwg, 5/31/2022 8:48:59 AM, jrusso, 1:1

NO.	DATE	REVISION	BY
7	5-31-22	REVISED PER PLANNING BOARD COMMENTS	PJM
6	11-30-21	REVISED PER PLANNING BOARD COMMENTS	EJP
5	12-29-20	REVISED PER PLANNING BOARD COMMENTS	JFR
4	7-28-20	REVISED PER PLANNING BOARD COMMENTS	JFR
3	6-30-20	REVISED PER PLANNING BOARD COMMENTS	JFR
2	5-26-20	REVISED PER PLANNING BOARD COMMENTS	JFR
1	4-28-20	RESUBMISSION TO PLANNING BOARD	JFR

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Carmel, NY 10512
(845) 225-9690
(845) 225-9717 fax
www.insite-eng.com

PROJECT:
BEACON VIEWS
CITY OF BEACON, DUTCHESS COUNTY, NEW YORK

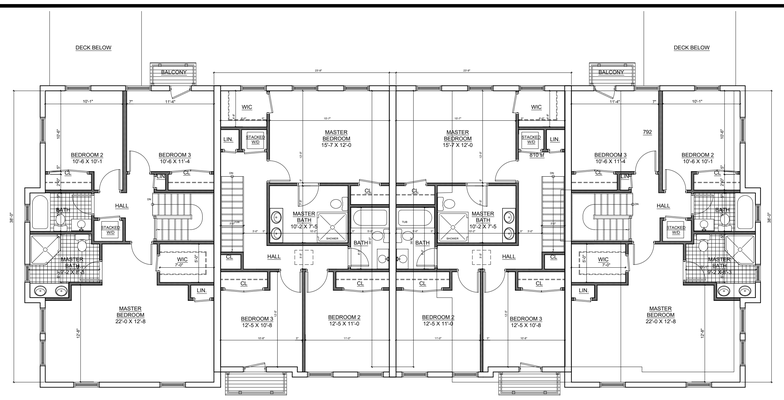
DRAWING:
DETAILS

STATE OF NEW YORK · JEFFREY J. CONTELMO · 61931 · LICENSED PROFESSIONAL ENGINEER

PROJECT NUMBER	19131.100	PROJECT MANAGER	J.J.C.
DATE	8-27-19	DRAWN BY	J.F.R.
SCALE	AS NOTED	CHECKED BY	A.D.T.

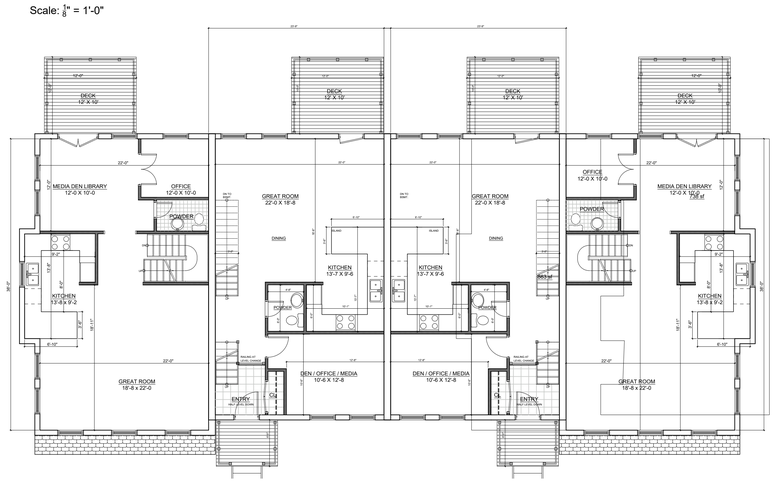
DRAWING NO. D-5

SHEET 17 / 20



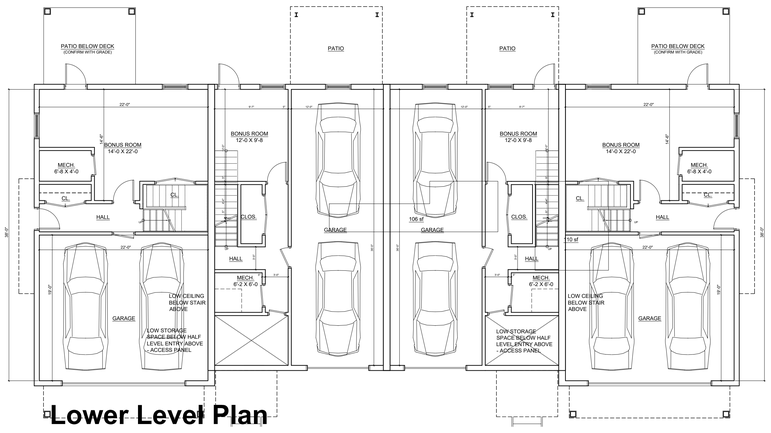
2nd Floor Plan

Scale: $\frac{1}{8}$" = 1'-0"



1st Floor Plan

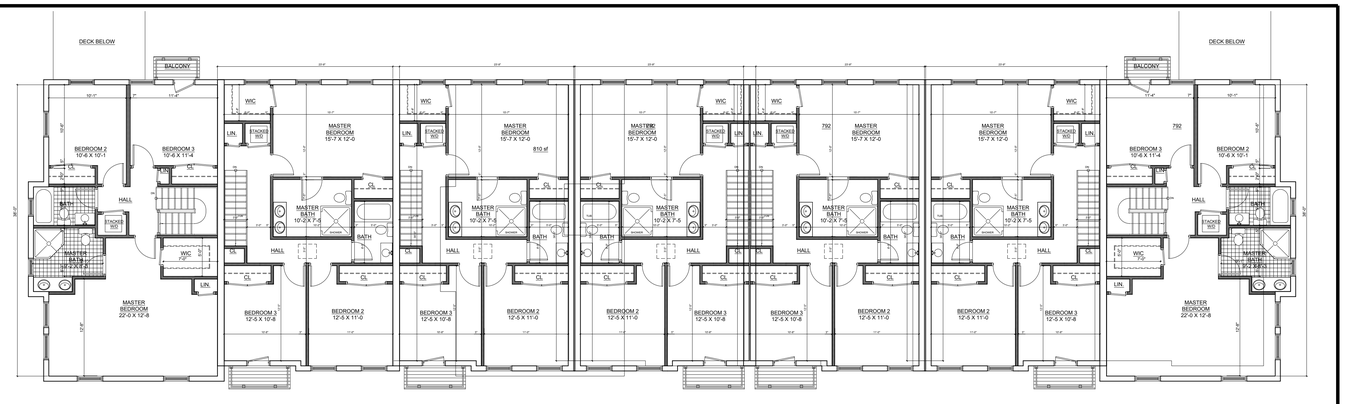
Scale: $\frac{1}{8}$" = 1'-0"



Lower Level Plan

Scale: $\frac{1}{8}$" = 1'-0"

4 Unit Townhouse Plans - Front Garage



2nd Floor Plan

Scale: $\frac{1}{8}$" = 1'-0"



1st Floor Plan

Scale: $\frac{1}{8}$" = 1'-0"

Lower Level Plan

Scale: $\frac{1}{8}$" = 1'-0"

7 Unit Townhouse Plans - Front Garage

APPROVED BY RESOLUTION OF THE PLANNING BOARD OF THE CITY OF BEACON, NEW YORK, ON THE

_____ DAY OF _____, 20 _____ SUBJECT TO ALL REQUIREMENTS AND CONDITIONS OF SAID RESOLUTION. ANY CHANGE, ERASURE, MODIFICATION OR REVISION OF THIS PLAT, AS APPROVED, SHALL VOID THIS APPROVAL.

SIGNED THIS _____ DAY OF _____, 20____, BY

_____ CHAIRMAN

_____ SECRETARY

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5	7/28/20	NO CHANGE	AJS
4	6/30/20	NO CHANGE	AJS
3	5/26/20	NO CHANGE	AJS
2	4/28/20	REVISED PER PLANNING BOARD COMMENTS	AJS
1	2/25/20	REVISED PER PLANNING BOARD COMMENTS	AJS

Architect:
Aryeh Siegel, Architect
84 Mason Circle
Beacon, New York 12508

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(845) 225-9717 fax
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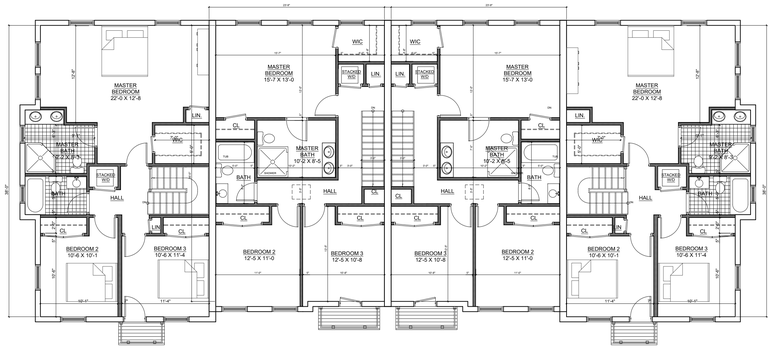
PROJECT:
BEACON VIEWS
CITY OF BEACON, DUTCHESS COUNTY, NEW YORK

DRAWING:
Building Plans – Front Garage

PROJECT NUMBER	19131.100	PROJECT MANAGER	
DATE	10-29-19	DRAWN BY	AJS
SCALE	Not to Scale	CHECKED BY	

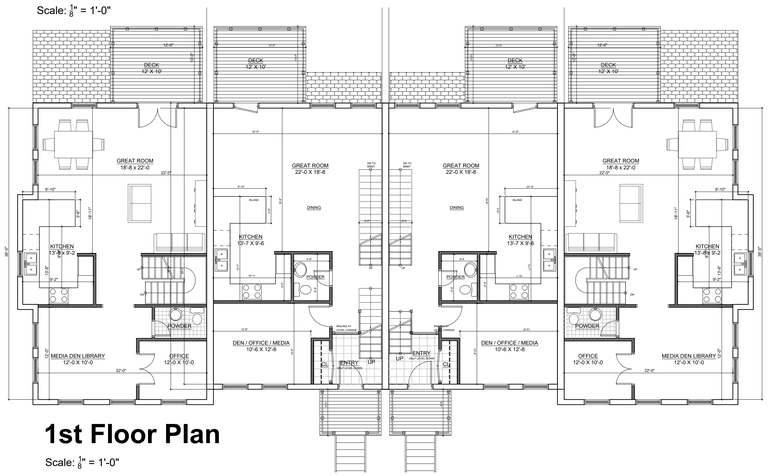
DRAWING NO. A-1

SHEET 18 / 20



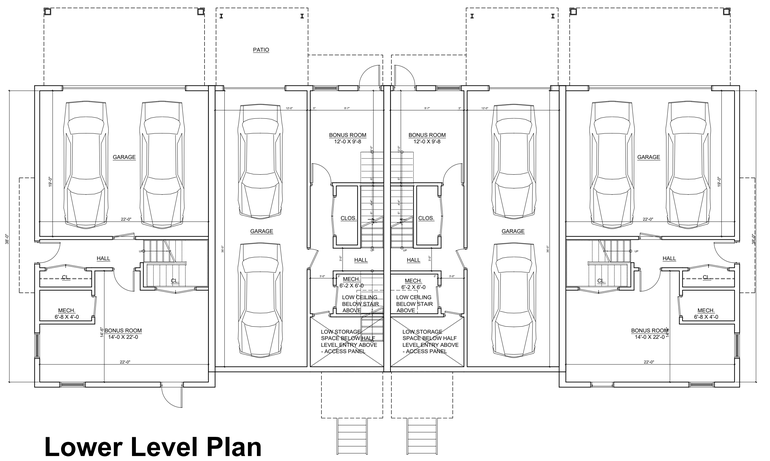
2nd Floor Plan

Scale: $\frac{1}{8}$" = 1'-0"



1st Floor Plan

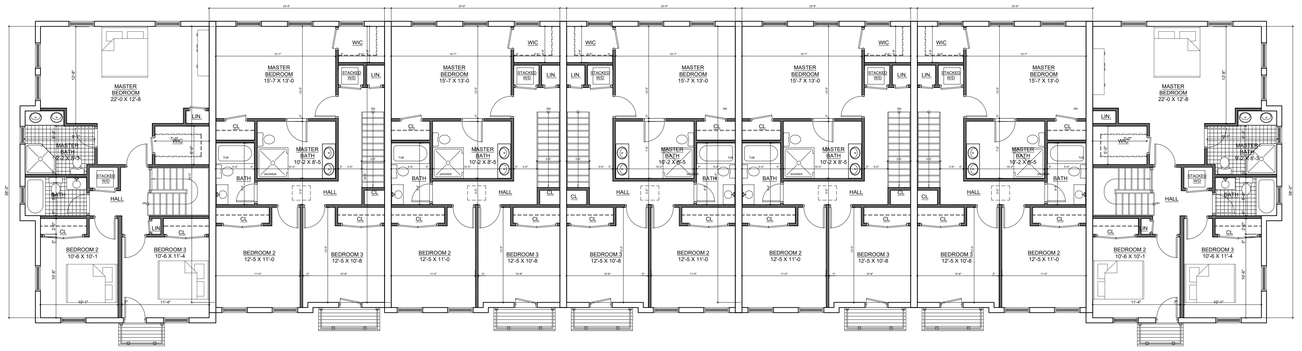
Scale: $\frac{1}{8}$" = 1'-0"



Lower Level Plan

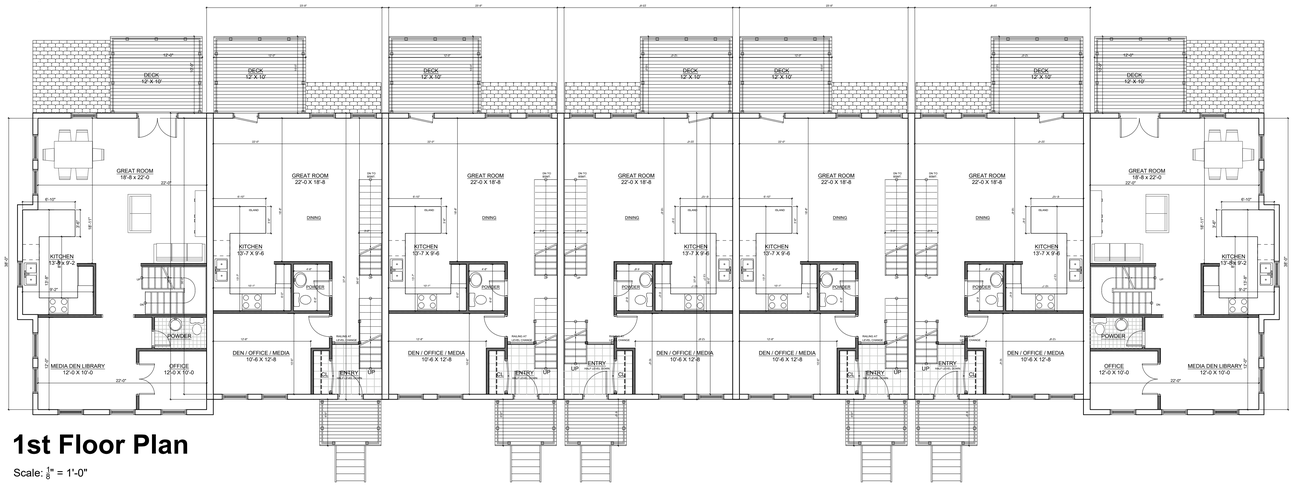
Scale: $\frac{1}{8}$" = 1'-0"

4 Unit Townhouse Plans - Rear Garage



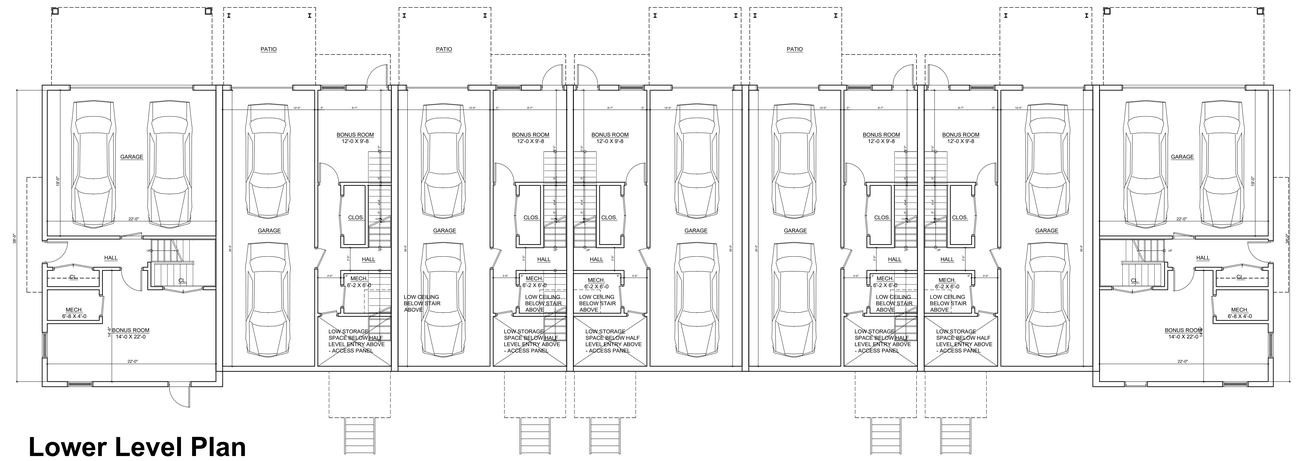
2nd Floor Plan

Scale: $\frac{1}{8}$" = 1'-0"



1st Floor Plan

Scale: $\frac{1}{8}$" = 1'-0"



Lower Level Plan

Scale: $\frac{1}{8}$" = 1'-0"

7 Unit Townhouse Plans - Rear Garage

APPROVED BY RESOLUTION OF THE PLANNING BOARD OF THE CITY OF BEACON, NEW YORK, ON THE

_____ DAY OF _____, 20_____, SUBJECT TO ALL REQUIREMENTS AND CONDITIONS OF SAID RESOLUTION. ANY CHANGE, ERASURE, MODIFICATION OR REVISION OF THIS PLAT, AS APPROVED, SHALL VOID THIS APPROVAL.

SIGNED THIS _____ DAY OF _____, 20____, BY

_____ CHAIRMAN

_____ SECRETARY

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NO.	DATE	REVISION	BY
5	7/28/20	NO CHANGE	AJS
4	6/30/20	NO CHANGE	AJS
3	5/26/20	NO CHANGE	AJS
2	4/28/20	REVISED PER PLANNING BOARD COMMENTS	AJS
1	2/25/20	REVISED PER PLANNING BOARD COMMENTS	AJS

Architect:
Aryeh Siegel, Architect
84 Mason Circle
Beacon, New York 12508

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3 Garrett Place
Carmel, NY 10512
(845) 225-9690
(845) 225-9717 fax
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PROJECT: BEACON VIEWS
CITY OF BEACON, DUTCHESS COUNTY, NEW YORK

DRAWING: Building Plans – Rear Garage

PROJECT NUMBER	19131.100	PROJECT MANAGER	
DATE	10-29-19	DRAWN BY	AJS
SCALE	Not to Scale	CHECKED BY	

DRAWING NO. A-2

SHEET 19 / 20

ROOF:
ARCHITECTURAL ASPHALT SHINGLES. COLOR: GRAY

PARAPETS:
SHEET METAL FLASHING. COLOR: LEAD GRAY

WINDOWS:
VINYL CLAD DOUBLE HUNG WINDOWS BY ANDERSEN OR APPROVED EQUAL. COLOR: WHITE

SIDING:
HORIZONTAL VINYL SIDING. COLOR: VARIATIONS ON LIGHT GRAY SHADES. NOTE THAT EACH BUILDING GROUP WILL BE ONE COLOR, BUT THERE WILL BE 3 COLORS OF SIDING THROUGHOUT THE PROJECT

WINDOW TRIM:
AZEK. COLOR: WHITE

PORCH & BALCONY TRIM:
AZEK. COLOR: LIGHT GRAY



Elevation: Front

BRICK:
GLEN GARY THIN BRICK. COLOR: 56DD OR APPROVED EQUAL



Elevation: Right Side



Elevation: Left Side

RAILING:
TREX RAILING SYSTEM AND DECKING, OR APPROVED EQUAL. COLOR: LIGHT GRAY

GARAGE DOOR:
AUTOMATIC ROLLUP GARAGE DOOR. PANELS AND GLAZING SIMILAR TO DRAWING. COLOR: LIGHT GRAY



Elevation: Rear

Elevations: Rear Garage Entrance

Scale: $\frac{1}{16}$" = 1'-0"



View at Garage Side

Not to Scale

ROOF:
ARCHITECTURAL ASPHALT SHINGLES. COLOR: GRAY

PARAPETS:
SHEET METAL FLASHING. COLOR: LEAD GRAY

WINDOWS:
VINYL CLAD DOUBLE HUNG WINDOWS BY ANDERSEN OR APPROVED EQUAL. COLOR: WHITE

SIDING:
HORIZONTAL VINYL SIDING. COLOR: VARIATIONS ON LIGHT GRAY SHADES. NOTE THAT EACH BUILDING GROUP WILL BE ONE COLOR, BUT THERE WILL BE 3 COLORS OF SIDING THROUGHOUT THE PROJECT

WINDOW TRIM:
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AZEK. COLOR: LIGHT GRAY



Elevation: Front

BRICK:
GLEN GARY THIN BRICK. COLOR: 56DD OR APPROVED EQUAL



Elevation: Right Side



Elevation: Left Side

RAILING:
TREX RAILING SYSTEM AND DECKING, OR APPROVED EQUAL. COLOR: LIGHT GRAY

GARAGE DOOR:
AUTOMATIC ROLLUP GARAGE DOOR. PANELS AND GLAZING SIMILAR TO DRAWING. COLOR: LIGHT GRAY



Elevation: Rear

Elevations: Front Garage Entrance

Scale: $\frac{1}{16}$" = 1'-0"



View at Entry Side

Not to Scale

NOTE THAT THE RENDERINGS ARE ARTISTIC INTERPRETATIONS OF THE PROPOSED BUILDING DESIGN TO AID IN REVIEWING THE PROPOSED DESIGN OF THE BUILDINGS ONLY; AND ARE NOT INTENDED AS DETAILED REPRESENTATIONS OF SITE CONDITIONS. CHANGES TO DESIGN ELEMENTS MAY OCCUR IN THE FINAL CONSTRUCTION DOCUMENTS TO SUIT TENANT LAYOUTS AND BUILDING CODE REQUIREMENTS

APPROVED BY RESOLUTION OF THE PLANNING BOARD OF THE CITY OF BEACON, NEW YORK, ON THE

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NO.	DATE	REVISION	BY
5	7/28/20	UPDATE ELEVATIONS	AJS
4	6/30/20	UPDATE RENDERING	AJS
3	5/26/20	NO CHANGE	AJS
2	4/28/20	REVISED PER PLANNING BOARD COMMENTS	AJS
1	2/25/20	REVISED PER PLANNING BOARD COMMENTS	AJS

Architect:
Aryeh Siegel, Architect
84 Mason Circle
Beacon, New York 12508

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(845) 225-9717 fax
www.insite-eng.com

PROJECT:
BEACON VIEWS
CITY OF BEACON, DUTCHESS COUNTY, NEW YORK

DRAWING:
Elevations / Views

PROJECT NUMBER	19131.100	PROJECT MANAGER	
DATE	10-29-19	DRAWN BY	AJS
SCALE	Not to Scale	CHECKED BY	

DRAWING NO. A-3

SHEET 20 / 20

Amanda Caputo

From: Monique Quigley <mquigley@jonesservices.com>
Sent: Thursday, May 26, 2022 2:59 PM
To: Amanda Caputo
Subject: Re: SEQRA Env Review for Beacon View Townhouses

Hi Amanda,

Thank you for the quick response. I did attend the meeting we just had, I loved it by the way! So informative. Yes, can you please pass along my concern or provide me the email for my public comment for the following:

Conklin is missing a stop sign to 52. I am concerned for the disabled in our community. I live in between a couple of Assistance living communities and a plaza for groceries, restaurants etc. There are so many people in their wheelchairs and walkers, I am very concerned for their safety now- let alone when 40 more townhouses will be here. Please let me know what I should bring up in the planning board to ensure these safety needs get met for the assistant living communities. I have put their website links below too.
Hedgewood Assistance Living
https://gefenseniorcare.com/hedgewood-hfa-assisted-living-program-alp/
Wing gate Healthcare
https://wingatehealthcare.com/location/wingate-at-beacon/

Also, I am concerned about the stormwater management. My basement floods already. What impacts will this have on my home? I am at the bottom of the hill, so I am nervous the runoff will impact our home with these townhouses being on top of the hill behind us.

Did the Army Corps send their review in? I am wondering how many species we are mitigating to the Van Buren location. Is this something the Audubon Society should provide their expertise in? Why can't we just develop the Van Buren lot with the townhouses and keep the natural wetlands where they are or make a nice trail like Constitution Marsh?

Also, how does this impact the value of my home and property tax? I just got my assessment letter while I agree with the assessment now, I can't say I would see value in the additional townhouses.

Thanks,
Monique

From: Amanda Caputo <acaputo@beaconny.gov>
Sent: Thursday, May 26, 2022 2:09 PM
To: Monique Quigley <mquigley@jonesservices.com>
Subject: RE: SEQRA Env Review for Beacon View Townhouses

External Email

Good afternoon,

John Clarke Planning and Design jclarkeplandesign@gmail.com
845.797.4152

To: John Gunn, Chair, and the City of Beacon Planning Board
Date: June 10, 2022
Re: **Beacon Views Townhouses Site Plan and Subdivision**

I reviewed a May 31, 2022 response letter by Insite Engineering, undated wetland review letter from Ecological Analysis, May 17, 2022 Traffic Impact Study memo from Colliers Engineering & Design, May 31, 2022 Preliminary Plat by Insite Engineering, and a 20-sheet Site Plan set, with sheets 1-17 dated May 31, 2022 and architectural sheets 18-20 dated July 28. 2020.

Proposal
The applicant is proposing to subdivide and develop an 8.6-acre site with 37 for-sale townhouse units. The parcel is in the RD-5 zoning district. The applicant is requesting a conservation subdivision under Section 223-12 J, which allows the Board to modify lot sizes, setbacks, building separations, streets, and other requirements in order to help preserve natural features in the site.

Comments and Recommendations

The applicant has addressed all my previous planning concerns. Additional steps include completion of the public hearings, potential follow-up on any comments, a SEQR determination, an agreement regarding the proposed off-site improvements along Hastings Drive, a vote on conditional approval, and a wetland permit application to the Army Corps of Engineers.

If you have any questions or need additional information, please feel free to contact me.



John Clarke, Beacon Planning Consultant

c: Dave Buckley, Building Inspector
Jennifer L. Gray, Esq., City Attorney
Arthur R. Tully, P.E., City Engineer
John Russo, P.E., City Engineer
Jeffrey Contelmo, P.E., Project Engineer

LANC & TULLY

ENGINEERING AND SURVEYING, P.C.

John J. O'Rourke, P.E., Principal
David E. Higgins, P.E., Principal
John Queenan, P.E., Principal
Rodney C. Knowlton, L.S., Principal
Jerry A. Woods, L.S., Principal
John D. Russo, P.E., Principal
John Lanc, P.E., L.S.
Arthur R. Tully, P.E.

June 10, 2022

Mr. John Gunn
Beacon Planning Board Chair
City of Beacon
1 Municipal Plaza
Beacon, NY 12508

RE: Beacon Views
City of Beacon
Special Use & Site Plan Application

Dear Mr. Gunn:

Our office has received the following in regard to the Beacon Views project, located adjacent to the 25 Townsend project and The Highland Meadows Senior Housing parcel:

- Response correspondence from INSITE Engineering & Surveying, dated May 31, 2022.
- Memorandum from Colliers Engineering & Design dated May 17, 2022.
- Correspondence from Ecological Analysis
- Plan titled "Preliminary Plat prepared for the Beacon Views", with the latest revision date of May 31, 2022, as prepared by INSITE Engineering & Surveying.
- Plan set titled "Beacon Views", with the latest revision date of May 31, 2022, and consisting of Sheets 1 of 20 through 20, as prepared by INSITE Engineering and Surveying.

The plans have been updated to reflect the reduction of 3 units in the easterly corner of the project site near Conklin Street, as well as to show the 1:1 mitigation for the wetlands on site. Based on our review of the above materials, we would like to offer the following comments:

General Comments:

1. Wetland mitigation plans and report shall be prepared and submitted to the Army Corp. of Engineers and Beacon Planning Board for review and approval. The applicant shall provide copies of all correspondences between the applicant and Army Corp. of Engineers to the Planning Board and City Engineer's office once submission has been made to the Army Corp. the wetland mitigation plans shall be made part of the overall plan set.

2. The proposed water distribution and sanitary sewer collection system will need to be reviewed and approved by the Dutchess County Department of Health (DCDOH). All correspondences to and from the DCDOH shall be copied to the Planning Board and City Engineer's office.

3. The previously review Stormwater Pollution Prevention Plan for the project will need to be revised to reflect the recent changes to the project site.

4. The previously submitted Engineer's Report for the water and sewer system shall be revised to reflect the reduction of the number of units and shall be resubmitted for review.

Preliminary Subdivision Plat Comments:

1. Plat shall show all metes and bounds for all proposed parcel boundary lines and easements. ***The applicant has stated "The final plat will include bearings and distances for the proposed property lines".***

2. Descriptions shall be prepared for easements and the road right-of-way and provided to the Planning Board Attorney and City Engineer for review. ***The applicant has stated "Written descriptions will be provided with the final plat".***

Grading & Drainage (Sheet 4 of 20):

1. Note No. 1 under "General Notes" shall be expanded upon to state that all stormwater facilities shall be inspected by a licensed engineer on an annual basis and a copy of the inspection report, along with any findings and recommendations, shall be provided to the City Building Department and City Engineer's office. This shall also be included within the SWPPP when it is revised.

2. It is recommended that drainage structure SDI-14A be shifted further uphill away from the back of the sidewalk. It should be further noted that this structure, although shown in the proposed road right-of-way, shall be a private structure along with the associated storm piping running across the road right-of-way, as this drainage structure and associated piping do not benefit the proposed roadway.

This completes our review at this time. Further comments may be forth coming based upon future submissions. **A written response letter addressing each of the above comments should be provided with the next submission.** If you have any questions, or require any additional information, please do not hesitate to contact our office.

Very truly,

LANC & TULLY, P.C.

John Russo, P.E.

cc: John Clarke, Planner
Jennifer Gray, Esq.
David Buckley, Building Inspector

ATTACHMENT TO
NEGATIVE DECLARATION
REASONS SUPPORTING DETERMINATION

APPLICATION FOR SUBDIVISION APPROVAL
FOR BEACON VIEWS – CONKLIN STREET

Parcel No. **6055-03-331123**

CONCLUSIONS

This Part 3 analysis has been prepared to address all relevant areas of environmental concern as identified in the review by the Planning Board. This Part 3 analysis will discuss and explain the analysis of the potential impacts, and why a particular element of the proposed action will not result in a significant adverse environmental impact. Such analysis is appropriately set forth in Part 3, even if the potential impact was identified as "none" or "small." Based upon a review of Parts 1 and 2 of the Full Environmental Assessment Form (EAF) and all other application materials that were submitted in support of the Proposed Action, along with reports from City staff and consultants, information from involved and interested agencies, and information from the public, the Planning Board, acting as Lead Agency, provides the following rationale for its SEQRA Determination.

Project Description:

The Proposed Action is the subdivision of an 8.6-acre parcel site into 37 for-sale townhouse units within a conservation subdivision. The property is located on Conklin Street in the RD-5 Zoning District on property known and designated on the Tax Map as Parcel No. **6055-03-331123** (the "Property").

The Proposed Action is an Unlisted action. The Planning Board circulated its Notice of Intent to act as Lead Agency and received no objections. The Planning Board declared itself Lead Agency and proceeded to review the application pursuant to SEQRA.

Summary of Rationale for Negative Declaration

The Proposed Action will not result in any significant adverse impacts on the environment. In summary:

- **Impact on Land: The Proposed Action will not have a significant adverse environmental impact as a result of any physical change to the project site.**

  The project site is located in the RD-5 Zoning District and is currently vacant. The Proposed Action would involve the subdivision of the existing lot and the construction of 37 townhouse units with typical grading and site work associated with such construction.

  The Proposed Action will not have a significant adverse environmental impact as a result of physical changes to the Property.

- **Impact on Geological Features: The Proposed Action will not have a significant adverse environmental impact on any unique or unusual land forms on the site.**

  There are no unique geological features on the Property.

- **Impacts on Surface Water and Groundwater: The Proposed Action will not have a significant adverse environmental impact on surface or groundwater quality or quantity.**

  Residential land uses are generally not associated with the discharge of contaminants into aquifers or other groundwater sources. There will be no bulk storage of petroleum or chemicals on-site. The Project includes the implementation of erosion and sediment controls, including a Stormwater Pollution Prevention Plan (SWPPP). The Project does not include or require wastewater discharged to groundwater. The Project will be connected to the existing public water distribution and sanitary sewer systems. Adequate water supply and sewer capacity exist for these additional flows.

  Water and Wastewater Utilities. The Applicant provided a report entitled ***Water & Wastewater Engineering Report***, prepared by Insite Engineering, Surveying & Landscape Architecture, P.C., dated December 29, 2020, (the "Water & Wastewater Report") which states that the Project will connect to the existing 12" diameter watermain running through the site subject to the water agreement between the City of Beacon and Town of Fishkill by installing an 8" City of Beacon watermain extension to provide water service to the development.

  The City Engineer reviewed the Water & Wastewater Report prepared by Insite and indicated in his memorandum dated January 8, 2021, pursuant to the water agreement between the City of Beacon and Town of Fishkill, the Applicant is required to pay to the Town of Fishkill the calculated fee to allow for recovery of a portion of their capital expenditures on the construction of the line. Prior to the signing of the Plans a letter from the Town of Fishkill will be required stating that the fee has been paid and the Town authorizes the proposed connection to the existing water main.

  Sanitary sewer service will be provided with an 8" diameter gravity main through the site that will collect from service connections to each unit. The 8" diameter gravity main will discharge to the existing city sewer system in Conklin Street. Henningson, Durham & Richardson Architecture and Engineering, PC ("HDR") the City's consultant, evaluated the impacts of the Project associated with the hydraulic capacity of the City of Beacon's sanitary sewer system during critical conditions, and determined in its July 13, 2020 memorandum that no sanitary sewer overflows (SSOs) are expected to occur anywhere in the sewer system from the proposed connection point through to the sewer treatment plant, with or without the proposed development.

  Wetlands. Discharge of fill material to the 0.28 acres of federal wetlands/waters of the United States requires approval of an Army Corps of Engineers ("ACOE") Nationwide Permit #29. A New York State Department of Environmental Conservation (NYSDEC) Individual Water Quality Certification is also required since federal wetland/waters impacts exceed 0.25 acres. Lastly, the Applicant is required pursuant to City of Beacon Code Section 223-16 to evaluate the functions of the wetlands and impacts associated with the Project.

The Applicant identified and analyzed the functions of the wetlands and impacts to the wetlands pursuant to the report entitled ***Wetlands Mitigation Overview (Onsite and Offsite) Beacon Views Site***, prepared by Michael Nowicki of Ecological Solutions, LLC, dated December 28, 2020 and the report entitled ***Wetland Evaluation and Impact Report Beacon Views Site***, prepared by Michael Nowicki of Ecological Solutions, LLC, dated March 14, 2020 and revised May 18, 2020 (collectively the "Wetlands Reports").

The assessment identified thirteen (13) wetland functions and values which the Applicant used to implement mitigation.

1. Groundwater Recharge/Discharge – The groundwater discharge function will be impacted by the development through the loss of 0.28 acres of wetland. The loss will be mitigated through the establishment of a wetland mitigation area and the proposed conversion of upland to wetland in a 1:1 ratio. In addition, stormwater will be collected from impermeable surfaces of the development and treated in a basin and discharged to the wetland mitigation area and wetland or will be infiltrated directly to groundwater which will contribute hydrology so there is no net loss of function.

2. Floodflow Attenuation – The wetland will maintain its size through the mitigation effort. The gain of capacity from the stormwater basin will increase the total storage area for floodflow attenuation on the site.

3. Fish and Shellfish Habitat – There is no habitat noted in the wetland for this function so no impacts are anticipated.

4. Sediment/Toxicant/Pathogen Retention – As with flood flow attenuation there is a net gain of function with the addition of a stormwater basin and mitigation effort which will allow the wetland to maintain its capacity to retain sediment, toxicants, and pathogens. Substantial erosion control measures and wetland plantings will mitigate erosion potential.

5. Nutrient Removal/Retention/Transformation – This function should not be significantly impacted because the stormwater basin will capture nutrients prior to stormwater being discharged into the wetland mitigation area and wetland. Construction of the stormwater basin and mitigation area should occur during the beginning of the project as some of the first items to be completed.

6. Production Export – This function will not be impacted or enhanced by the proposal.

7. Sediment/Shoreline Stabilization - This function will not be impacted or enhanced by the proposal since there is no shore area.

8. Wildlife Habitat – This function will be impacted but the mitigation effort could offer opportunities to species that require openings in habitat. The wetland mitigation area will offset wetland habitat lost to the development.

9. Recreation – The wetland is within private property. This function will not be impacted.

10. Education/Scientific Value – The wetland is within private property and is not used for education. This function will not be impacted.

11. Uniqueness/Heritage – The wetland is not part of a critical environmental area or unique to this watershed.

12. Visual Quality/Aesthetics – The wetland impacts proposed will be mitigated through the installation of the wetland mitigation area. A wetland mitigation area will begin as an open area which adjacent to forested wetlands adds good visual juxtaposition and is visually and aesthetically pleasing.

13. Threatened or Endangered Species Habitat – A Threatened and endangered species habitat assessment is required as part of all USACE and NYSDEC permitting. As discussed below, a ***Threatened and Endangered Species Habitat Suitability Assessment Report***, was prepared by Ecological Solutions LLC, dated June 12, 2020.

The 0.28 acres of wetlands that will be impacted are at the wetland edge and existing upland boundary adjacent to the wetland, and are associated with the proposed road. Impacts to the wetland cannot be avoided due to the site topography but have been minimized with inclusion of grading techniques and retaining walls, if necessary. The impacts around the periphery of the wetland will not reduce the effectiveness of the wetland in performing it's vital functions of storing floodflows, providing wildlife habitat, and removing nutrients from flows into this area. Additionally, the mitigation plan will create wetland from current upland area to replace the directly impacted wetland area in a ratio of at least 1:1 or 0.28 acres.

The proposed project is designed to provide a suitable layout for the development that meets the City of Beacon Building and Highway Code and meets the Phase II Stormwater Regulations for treating stormwater from impervious surfaces prior to discharge. The site design minimizes wetland disturbances to the maximum extent practicable. The Applicant eliminated three (3) units on the south side of the road (units 38-40) to allow for the construction of additional wetlands on site, providing a 1:1 wetland mitigation on the project site to address maintenance of the wetlands on site. Additionally, if more than 1:1 replacement is required by the Army Corps of Engineers, the Applicant will provide off-site mitigation.

For these reasons, the Proposed Action will not result in any significant adverse impact to surface or groundwater quality or quantity.

- **Impact on Flooding: The Proposed Action will not have a significant adverse environmental impact on or alter drainage flows or patterns, or surface water runoff.**

The Project includes the implementation of erosion and sediment controls, including a SWPPP. The SWPPP was prepared by Insite Engineering, Surveying & Landscape Architecture, P.C., dated June 30, 2020.

Stormwater mitigation for the newly created impervious surfaces will be provided in the form of proposed stormwater management practices (SMP's). The proposed SMP's are designed to capture and treat runoff from the impervious surfaces associated with the proposed buildings, driveway, parking areas and pedestrian walkways. The Project proposes to maintain the existing

drainage patterns on the site to the maximum extent practical in the proposed condition to minimize the impact to the existing downstream wetland. The stormwater collection and conveyance systems for the project will consist of catch basins, drain inlets, drainage manholes, swales and HDPE pipe. The system will be sized to collect and convey at minimum the 100-year, 1-hour design storm using the Rational Method. The stormwater management practices have been sized to capture and treat the Water Quality Volume from the developed area. A hydrodynamic separator is proposed upstream of the subsurface infiltration system for pretreatment only to satisfy the requirements of the Design Manual.

The stormwater runoff from the proposed development will be captured in a collection system and conveyed to the stormwater management practices. The stormwater runoff will be treated by three (3) stormwater management practices, including a I-4 Subsurface Infiltration System (1.2P), F-5 Biorentention Filter (1.3P) and a P-5 Pocket Pond (1.1P). Pretreatment of the stormwater runoff will be provided with a hydrodynamic separator upstream of the proposed subsurface infiltration system, gravel diaphragm and mulch layer for the bioretention filter and a forebay in the pocket pond. A flow splitter is proposed upstream of the subsurface infiltration system to discharge the water quality volume to the practice for treatment and bypass the larger storm events.

The Applicant has also proposed to include both temporary and permanent erosion and sediment controls including stabilized construction entrances, silt fence barriers, storm drain inlet protection and grading to divert stormwater runoff from steep slopes, controlling and reducing stormwater runoff and inclusion of vegetative and structural surface stabilization. Applicant shall maintain all permanent erosion and sediment control facilities, to be periodically inspected by the City.

Additionally, as discussed previously in the point regarding impact on surface water and ground water, the Wetlands Reports have analyzed the impacts associated with filling in wetland areas and its function in assisting with flooding. The site design minimizes wetland disturbances to the maximum extent practicable and to compensate for the loss of wetland area and functional capacity, the Applicant will establish additional wetland in one area on the site in a ratio of 1:1 with the proposed impacts or 0.28 acres which will mitigate impacts to flood storage.

For these reasons and those stated above, the Proposed Action will not have a significant adverse impact on drainage flows or patterns, or surface water runoff.

- **Impact on Air: The Proposed Action will not have a significant adverse environmental impact on air quality.**

Construction activities associated with grading and excavation could result in temporary air quality impacts. Air quality in the area, however, is not expected to be significantly impacted by project construction because the construction activities will be temporary and confined to the Property. Construction vehicles will emit certain air pollutants through engine exhaust. There is also the potential for fugitive dust to be created during the construction period from site preparation activities, including removal of existing impervious surfaces and vegetation, and site grading. Fugitive dust emissions will be mitigated by wetting and stabilizing soils to suppress dust generation. Other dust suppression methods will include the spraying of soil stockpiles during dry periods and covering trucks carrying solid and other dry materials. These unavoidable short-term

impacts to air quality will cease upon project completion. Construction will be conducted in accordance with all applicable federal, state and local codes. It is anticipated that nearby properties will experience temporary fugitive dust and an elevation in vehicle emissions from construction vehicles throughout occasional periods during construction of the proposed project. This is a temporary, construction-related, unavoidable impact that is not significant.

For these reasons, the Proposed Action will not have a significant adverse environmental impact on air quality.

- **Impact on Plants and Animals: The Proposed Action will not have a significant adverse environmental impact on flora or fauna.**

The Full EAF indicates that the Property may contain or serve as habitat for the Indiana Bat.

As indicated in a letter from the ***US Fish and Wildlife Service***, dated June 12, 2020, threatened and endangered species that may occur in project location include the Indiana bat (endangered) and Northern long eared bat (threatened) both of which may have habitats located on the Property.

The Applicant submitted a report by its consultant, Michael Nowicki, entitled ***Threatened and Endangered Species Habitat Suitability Assessment Report***, prepared by Ecological Solutions LLC, dated June 12, 2020, which recommended the following:

- Tree clearing will only occur between the period of October 1 through March 31 when bats are not in the vicinity of the site
- Lighting on the site will use City of Beacon Planning Board approved light fixtures that have tops that direct light down to minimize light pollution and not interfere with potential bat foraging activities
- Implementing soil conservation and dust control best management practices, such as watering dry disturbed soil areas to keep dust down, and using staked, recessed silt fence and anti-tracking pads to prevent erosion and sedimentation in surface waters on the site
- Stormwater pond/s will not be maintained with any chemicals that might adversely affect bats or inspect populations on which they may feed.

The Project proposes the removal approximately 4 acres of trees to accommodate construction of the new town houses and associated improvements. Tree removal at the Project Site will take place between October 1 and March 31 during the bat hibernation period to avoid the removal of trees which may be utilized by Indiana Bats as roosting trees. Lighting on the site will use light fixtures approved by the City of Beacon Planning Board, that direct light down to minimize light pollution and not interfere with potential bat foraging activities. The Applicant shall implement soil conservation and dust control best management practices, such as watering dry disturbed soil areas to keep dust down, and using staked, recessed silt fence and anti-tracking pads to prevent erosion and sedimentation in surface waters on the site. Stormwater pond/s will not be maintained with any chemicals that might adversely affect bats or inspect populations on which they may feed.

According to the Wetlands Reports the compensatory wetland establishment plan will utilize bedding material which will keep soil moisture high during summer dry periods when establishment of vegetation is critical. The design of an interconnected system of existing wetland with forested and shrub wetland is intended so that the existing wetlands serve as a "regeneration nucleus" around which a forested vegetative cover type could be established. This will generate additional cover and food types for wildlife populations. Increased edge equates to more resources being available to an animal in a smaller area. The placement of suitable substrate in the establishment area will provide an ecotonal microhabitat of value to certain wildlife species, while the wooded swamp interface with shrubs will provide two additional ecotones or "edge habitat". By maximizing the amounts and types of these ecotonal areas both the colonization of the area by local wildlife and the natural successional formation of shrub swamp and wooded swamp habitats will be considerably accelerated.

For these reasons, the Proposed Action will not have a significant adverse environmental impact on flora or fauna.

- **Impact on Agricultural Resources: The Proposed Action will not have a significant adverse environmental impact on agricultural resources.**

There are no agricultural resources in the vicinity of the Property.

- **Impact on Aesthetic Resources: The Proposed Action will not have a significant adverse environmental impact on aesthetic resources.**

The Proposed Action will not result in the obstruction, elimination or significant screening of one or more officially designated scenic views. The Project may be visible from publicly accessible vantage points, but it has been careful designed in conformance with architectural standards of the City of Beacon and it is located in an area characterized by single family homes and institutional uses. Further, the clustered nature of the conservation subdivision layout provides for the maximum preservation of open space while concentrating development on only a portion of the Property.

For these reasons, the Proposed Action will not have a significant adverse environmental impact on aesthetic resources.

- **Impact on Historic and Archeological Resources: The Proposed Action will not have a significant adverse environmental impact on historic or archeological resources.**

The subdivision of the Property into 37 town houses at the proposed location will not have a significant adverse impact on historic or archeological resources.

The Applicant identified and analyzed the potential historic, cultural and archeological resources which are summarized in a report entitled **Phase 1A Literature Search and Sensitivity Assessment and Phase 1B Archaeological Field Reconnaissance Survey Beacon Views Project** by Hudson Valley Cultural Resource Consultants (HVCRC) dated August 2019, HVCRC (the "Phase 1A and 1B Report"). The Phase 1A and Phase 1B Report evaluated the recorded archaeological sites and surveys, National Register eligible and listed historic sites,

Native American context, historic context based upon map and image review, and sensitivity for cultural resources. Based upon the Phase 1A review, it was determined that the area is sensitive for precontact cultural resources. A Phase 1B Archaeological Field Reconnaissance Survey was recommended and undertaken on those undisturbed areas within the Project APE to assess the potential to yield cultural resources. A total of seventy-nine shovel tests were completed within the Project APE and no significant cultural material was identified during the Phase 1 Cultural Resource Survey. Therefore, it is reasonable to conclude that the Project will not affect any potentially significant cultural resources. In the opinion of HVCRC no additional cultural resources investigations are warranted for the proposed Project.

For these reasons, the Proposed Action will not have a significant adverse impact on historic or agricultural resources.

- **Impact on Open Space and Recreation: The Proposed Action will not have a significant adverse environmental impact on open space and recreation.**

The area of the Proposed Action is not designated as open space by the City of Beacon. The Proposed Action will not result in the loss of a current or future recreational resource, eliminate significant open space, or result in loss of an area now used informally by the community as an open space resource. A recreation set aside or fee may be required which will be used for the future need for park and recreational opportunities in the City of Beacon.

For these reasons, the Proposed Action will not have a significant adverse impact on open space and recreation.

- **Impact on Critical Environmental Areas: The Proposed Action will not have a significant adverse environmental impact on Critical Environmental Areas.**

The Proposed Action is not located in a Critical Environmental Area.

- **Impact on Transportation: The Proposed Action will not have a significant adverse environmental impact on transportation.**

The Applicant retained Maser Consulting, P.A. (now, Colliers) to conduct a Traffic Impact Study**,** dated August 16, 2019 and updated March 26, 2020 (the "Traffic Impact Study"). The Traffic Impact Study considered traffic impacts with proposed ingress/egress from Hastings Drive and from 25 Townsend Street with secondary emergency access from Hastings Drive.

On behalf of neighboring property owners, Hudson Valley Housing Development Funds Company, Inc. and Highland Meadows Senior Limited Partnership, Greenplan, Inc. submitted comments dated June 26, 2020 regarding potential impacts to the adjacent Highland Meadows Affordable Senior Housing site and the concerns about using Hastings Drive as the primary access to the Project site considering other developments that use the road as access.

Maser responded that the traffic analysis focuses on peak hours in terms of assessing capacity and potential impacts which includes of other projects that the City of Beacon has reviewed. For example, the Panichi Center, which is located at 15 Hastings Drive, was included as part of

the background traffic volumes. Maser reiterated that the critical component is the amount of traffic that is generated in each of the peak hours which is included as part of the background traffic evaluation. The fact that this center generates 237 vehicle trips per day does not change the effect on the ability of Hastings Drive to accommodate additional traffic loadings. Maser asserted that the Beacon Views Traffic Impact Study accounts for all developments (even though not all projects were specifically mentioned in the text) located along and utilizing Hastings Drive as well as all uses and traffic utilizing Delavan Avenue to connect to Route 52 and appropriately evaluates peak hour conditions, for both AM and PM peak periods.

The Applicant considered the impacts associated with the Project, conducted a traffic study, responded to questions and concerns raised by the City's consultants and the public, and developed a traffic concept plan and selected the access with the smallest impact on existing traffic patterns. Pursuant to the Concept Plan dated August 27, 2019, last revised April 26, 2022, primary access is proposed from the 25 Townsend Street subdivision. The southerly Hastings Drive connection is proposed to be gated at both ends and used only for emergency access.

On behalf of the Planning Board, Creighton Manning Engineering, LLP, the City's Traffic Consultant performed a review of the Applicant's Traffic Impact Study, Concept Plan revised April 26, 2022 and Maser's Response to Comments, dated April 26, 2022 and has concluded that all of the outstanding traffic comments have been addressed and has no further comments.

For these reasons, the Project will not result in a significant adverse traffic impact.

- **Impact on Energy: The Proposed Action will not have a significant adverse environmental impact on energy.**

The existing energy infrastructure will adequately serve the additional demand associated with the subdivision into 37 town houses.

The Applicant identified and analyzed the impact on energy resources and sustainability of the Project, as summarized in the Sustainability Report prepared by Aryeh Siegel, Architect, dated July 28, 2020 (the "Sustainability Report"). Pursuant to the Sustainability Report, the proposed project will conserve energy resources by utilizing sustainability measures and energy saving measures such as energy saving appliances, smart HVAC controls, energy efficient window specifications, and increased insulation values. The building thermal envelope, mechanical, electrical and plumbing systems for all buildings will meet or exceed the requirements of the International Energy Conservation Code for residential buildings and comply with the New York Stretch Code overlay to the Energy Conservation Code as adopted by the City of Beacon. All selected appliances will be Energy Star rated. Interior finishes and equipment have been selected to meet sustainability standards regarding indoor air quality and an effort will be made to select products manufactured in the United States and, if possible, within a 500-mile radius. Greenhouse gas emissions for the project are projected to be approximately 45-50% less than a similarly situated single family home project. The Applicant has also researched low embodied carbon concrete, which is not yet available for general use in the New York market, but if it becomes available by the time the project is constructed, the Applicant will consider using this material if it's feasible in terms of structure and cost.

The Proposed Action does not require a new, or an upgrade to any existing substation. For these reasons, the Proposed Action will not have a significant adverse impact on energy.

- **Impact on Noise, Odor and Light: The Proposed Action will not have a significant adverse environmental impact as a result of objectionable odors, noise or light.**

  The Proposed Action is not anticipated to generate any noxious odors. Outdoor lighting will use light fixtures approved by the City of Beacon Planning Board, that direct light down to minimize light pollution and not interfere with potential bat foraging activities. Noise impacts associated with the proposed Project will be limited to temporary impacts generated during construction. Temporary noise impacts associated with construction will be mitigated by limiting construction activities to the hours between 7:00 a.m. and 7:00 p.m. It is not anticipated that blasting will be necessary during the proposed construction. If blasting does become necessary, it will be performed in accordance with all applicable state and local requirements. In addition, there will be no significant noise impacts post-construction.

  For these reasons, the Proposed Action will not have a significant adverse environmental impact as a result of objectionable odors, noise or light.

- **Impact on Human Health: The Proposed Action will not have a significant adverse environmental impact on human health from exposure to new or existing sources of contaminants.**

  Residential land uses are generally not associated with significant adverse impacts on human health from exposure to new or existing sources of contaminants.

  For these reasons, the Proposed Action will not have a significant adverse environmental impact on human health from exposure to new or existing sources of contaminants.

- **Consistency with Community Plans and Community Character: The Proposed Action is not inconsistent with adopted community plans and community character.**

  The Proposed Action is generally consistent with the Comprehensive Plan and City Zoning Code, will not have a significant impact on municipal services, and is consistent with the character of the existing neighborhood.

  Additionally, the Applicant analyzed and considered the impact the Project would have on the Beacon City School District by determining the number of school aged children the Project would likely generate and the amount of tax revenue that would be provided to the City and the Beacon City School District. The Memorandum from AKRF, Inc. dated April 22, 2020 regarding Beacon Views Townhouse Development School Impact Analysis (the "School Impact Analysis") considered the type of unit, the size of the unit and value of the housing unit, the public school age children "PSAC" multipliers estimated that there would be approximately 8-13 public school age children added to the Beacon City School District from the Project. Since that time, the Project has been reduced in scope from 40 units to 37 units.

AKRF further considered the enrollment statistics, budget and other factors including the estimate for future school tax generation and concluded that the proposed project would generate a total of approximately $432, 605 in annual property tax revenue with approximately $244,590 for the Beacon City School District and projected that the enrollment would likely continue to decline for the next decade. AKRF determined that it is unlikely that the addition of 8 to 13 public school age children disbursed over several grade levels in the Beacon City School District would adversely affect the capacity of the District's facilities.

Based upon this information and the information in the Full Environmental Assessment Form and all other documents and information in the record, the Planning Board finds that the Proposed Action will not have any significant adverse impacts upon the environment. This Negative Declaration indicates that no environmental impact statement need be prepared and that the SEQRA process is complete.

Adopted: June 14, 2022
Beacon, New York

Motion by _____, seconded by _____:

Kevin Byrne	Voting:	Len Warner	Voting:
J.C. Calderon	Voting:	Randall Williams	Voting:
Karen Quiana	Voting:	John Gunn, Chairman	Voting:
Jill Reynolds	Voting:		

Full Environmental Assessment Form
Part 2 - Identification of Potential Project Impacts

Part 2 is to be completed by the lead agency. Part 2 is designed to help the lead agency inventory all potential resources that could be affected by a proposed project or action. We recognize that the lead agency's reviewer(s) will not necessarily be environmental professionals. So, the questions are designed to walk a reviewer through the assessment process by providing a series of questions that can be answered using the information found in Part 1. To further assist the lead agency in completing Part 2, the form identifies the most relevant questions in Part 1 that will provide the information needed to answer the Part 2 question. When Part 2 is completed, the lead agency will have identified the relevant environmental areas that may be impacted by the proposed activity.

If the lead agency is a state agency **and** the action is in any Coastal Area, complete the Coastal Assessment Form before proceeding with this assessment.

Tips for completing Part 2:

- Review all of the information provided in Part 1.
- Review any application, maps, supporting materials and the Full EAF Workbook.
- Answer each of the 18 questions in Part 2.
- If you answer "**Yes"** to a numbered question, please complete all the questions that follow in that section.
- If you answer "**No"** to a numbered question, move on to the next numbered question.
- Check appropriate column to indicate the anticipated size of the impact.
- Proposed projects that would exceed a numeric threshold contained in a question should result in the reviewing agency checking the box "Moderate to large impact may occur."
- The reviewer is not expected to be an expert in environmental analysis.
- If you are not sure or undecided about the size of an impact, it may help to review the sub-questions for the general question and consult the workbook.
- When answering a question consider all components of the proposed activity, that is, the "whole action".
- Consider the possibility for long-term and cumulative impacts as well as direct impacts.
- Answer the question in a reasonable manner considering the scale and context of the project.

1. Impact on Land
Proposed action may involve construction on, or physical alteration of, the land surface of the proposed site. (See Part 1. D.1)
If "Yes", answer questions a - j. If "No", move on to Section 2.

☐ NO ☑ YES

	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. The proposed action may involve construction on land where depth to water table is less than 3 feet.	E2d	☑	☐
b. The proposed action may involve construction on slopes of 15% or greater.	E2f	☑	☐
c. The proposed action may involve construction on land where bedrock is exposed, or generally within 5 feet of existing ground surface.	E2a	☑	☐
d. The proposed action may involve the excavation and removal of more than 1,000 tons of natural material.	D2a	☑	☐
e. The proposed action may involve construction that continues for more than one year or in multiple phases.	D1e	☑	☐
f. The proposed action may result in increased erosion, whether from physical disturbance or vegetation removal (including from treatment by herbicides).	D2e, D2q	☑	☐
g. The proposed action is, or may be, located within a Coastal Erosion hazard area.	B1i	☑	☐
h. Other impacts: _____ _____		☑	☐

2. Impact on Geological Features

The proposed action may result in the modification or destruction of, or inhibit access to, any unique or unusual land forms on the site (e.g., cliffs, dunes, minerals, fossils, caves). (See Part 1. E.2.g) ☑ NO ☐ YES

If "Yes", answer questions a - c. If "No", move on to Section 3.

	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. Identify the specific land form(s) attached: _____ _____	E2g	□	□
b. The proposed action may affect or is adjacent to a geological feature listed as a registered National Natural Landmark. Specific feature: _____	E3c	□	□
c. Other impacts: _____ _____		□	□

3. Impacts on Surface Water

The proposed action may affect one or more wetlands or other surface water bodies (e.g., streams, rivers, ponds or lakes). (See Part 1. D.2, E.2.h) ☐ NO ☑ YES

If "Yes", answer questions a - l. If "No", move on to Section 4.

	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. The proposed action may create a new water body.	D2b, D1h	☑	☐
b. The proposed action may result in an increase or decrease of over 10% or more than a 10 acre increase or decrease in the surface area of any body of water.	D2b	☑	☐
c. The proposed action may involve dredging more than 100 cubic yards of material from a wetland or water body.	D2a	☑	☐
d. The proposed action may involve construction within or adjoining a freshwater or tidal wetland, or in the bed or banks of any other water body.	E2h	☑	☐
e. The proposed action may create turbidity in a waterbody, either from upland erosion, runoff or by disturbing bottom sediments.	D2a, D2h	☑	☐
f. The proposed action may include construction of one or more intake(s) for withdrawal of water from surface water.	D2c	☑	☐
g. The proposed action may include construction of one or more outfall(s) for discharge of wastewater to surface water(s).	D2d	☑	☐
h. The proposed action may cause soil erosion, or otherwise create a source of stormwater discharge that may lead to siltation or other degradation of receiving water bodies.	D2e	☑	☐
i. The proposed action may affect the water quality of any water bodies within or downstream of the site of the proposed action.	E2h	☑	☐
j. The proposed action may involve the application of pesticides or herbicides in or around any water body.	D2q, E2h	☑	☐
k. The proposed action may require the construction of new, or expansion of existing, wastewater treatment facilities.	D1a, D2d	☑	☐

l. Other impacts: _____ _____		☑	☐

4. Impact on groundwater

The proposed action may result in new or additional use of ground water, or may have the potential to introduce contaminants to ground water or an aquifer. (See Part 1. D.2.a, D.2.c, D.2.d, D.2.p, D.2.q, D.2.t)

☐ NO ☑ YES

If "Yes", answer questions a - h. If "No", move on to Section 5.

	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. The proposed action may require new water supply wells, or create additional demand on supplies from existing water supply wells.	D2c	☑	☐
b. Water supply demand from the proposed action may exceed safe and sustainable withdrawal capacity rate of the local supply or aquifer. Cite Source: _____	D2c	☑	☐
c. The proposed action may allow or result in residential uses in areas without water and sewer services.	D1a, D2c	☑	☐
d. The proposed action may include or require wastewater discharged to groundwater.	D2d, E2l	☑	☐
e. The proposed action may result in the construction of water supply wells in locations where groundwater is, or is suspected to be, contaminated.	D2c, E1f, E1g, E1h	☑	☐
f. The proposed action may require the bulk storage of petroleum or chemical products over ground water or an aquifer.	D2p, E2l	☑	☐
g. The proposed action may involve the commercial application of pesticides within 100 feet of potable drinking water or irrigation sources.	E2h, D2q, E2l, D2c	☑	☐
h. Other impacts: _____ _____		☑	☐

5. Impact on Flooding

The proposed action may result in development on lands subject to flooding. (See Part 1. E.2)

☐ NO ☑ YES

If "Yes", answer questions a - g. If "No", move on to Section 6.

	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. The proposed action may result in development in a designated floodway.	E2i	☑	☐
b. The proposed action may result in development within a 100 year floodplain.	E2j	☑	☐
c. The proposed action may result in development within a 500 year floodplain.	E2k	☑	☐
d. The proposed action may result in, or require, modification of existing drainage patterns.	D2b, D2e	☑	☐
e. The proposed action may change flood water flows that contribute to flooding.	D2b, E2i, E2j, E2k	☑	☐
f. If there is a dam located on the site of the proposed action, is the dam in need of repair, or upgrade?	E1e	☑	☐

g. Other impacts: _____ _____		☑	☐

6. Impacts on Air

The proposed action may include a state regulated air emission source. ☑ NO ☐ YES
(See Part 1. D.2.f., D.2.h, D.2.g)
If "Yes", answer questions a - f. If "No", move on to Section 7.

	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. If the proposed action requires federal or state air emission permits, the action may also emit one or more greenhouse gases at or above the following levels:			
i. More than 1000 tons/year of carbon dioxide (CO_2)	D2g	☐	☐
ii. More than 3.5 tons/year of nitrous oxide (N_2O)	D2g	☐	☐
iii. More than 1000 tons/year of carbon equivalent of perfluorocarbons (PFCs)	D2g	☐	☐
iv. More than .045 tons/year of sulfur hexafluoride (SF_6)	D2g	☐	☐
v. More than 1000 tons/year of carbon dioxide equivalent of hydrochloroflourocarbons (HFCs) emissions	D2g	☐	☐
vi. 43 tons/year or more of methane	D2h	☐	☐
b. The proposed action may generate 10 tons/year or more of any one designated hazardous air pollutant, or 25 tons/year or more of any combination of such hazardous air pollutants.	D2g	☐	☐
c. The proposed action may require a state air registration, or may produce an emissions rate of total contaminants that may exceed 5 lbs. per hour, or may include a heat source capable of producing more than 10 million BTU's per hour.	D2f, D2g	☐	☐
d. The proposed action may reach 50% of any of the thresholds in "a" through "c", above.	D2g	☐	☐
e. The proposed action may result in the combustion or thermal treatment of more than 1 ton of refuse per hour.	D2s	☐	☐
f. Other impacts: _____ _____		☐	☐

7. Impact on Plants and Animals

The proposed action may result in a loss of flora or fauna. (See Part 1. E.2. m.-q.) ☐ NO ☑ YES
If "Yes", answer questions a - j. If "No", move on to Section 8.

	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. The proposed action may cause reduction in population or loss of individuals of any threatened or endangered species, as listed by New York State or the Federal government, that use the site, or are found on, over, or near the site.	E2o	☑	☐
b. The proposed action may result in a reduction or degradation of any habitat used by any rare, threatened or endangered species, as listed by New York State or the federal government.	E2o	☑	☐
c. The proposed action may cause reduction in population, or loss of individuals, of any species of special concern or conservation need, as listed by New York State or the Federal government, that use the site, or are found on, over, or near the site.	E2p	☑	☐
d. The proposed action may result in a reduction or degradation of any habitat used by any species of special concern and conservation need, as listed by New York State or the Federal government.	E2p	☑	☐

e. The proposed action may diminish the capacity of a registered National Natural Landmark to support the biological community it was established to protect.	E3c	☑	☐
f. The proposed action may result in the removal of, or ground disturbance in, any portion of a designated significant natural community. Source: _____	E2n	☑	☐
g. The proposed action may substantially interfere with nesting/breeding, foraging, or over-wintering habitat for the predominant species that occupy or use the project site.	E2m	☑	☐
h. The proposed action requires the conversion of more than 10 acres of forest, grassland or any other regionally or locally important habitat. Habitat type & information source: _____ _____	E1b	☐	☐
i. Proposed action (commercial, industrial or recreational projects, only) involves use of herbicides or pesticides.	D2q	☑	☐
j. Other impacts: _____ _____		☑	☐

8. Impact on Agricultural Resources

The proposed action may impact agricultural resources. (See Part 1. E.3.a. and b.) ☑ NO ☐ YES

If "Yes", answer questions a - h. If "No", move on to Section 9.

	Relevant Part I Question(s)	**No, or small impact may occur**	**Moderate to large impact may occur**
a. The proposed action may impact soil classified within soil group 1 through 4 of the NYS Land Classification System.	E2c, E3b	☐	☐
b. The proposed action may sever, cross or otherwise limit access to agricultural land (includes cropland, hayfields, pasture, vineyard, orchard, etc).	E1a, Elb	☐	☐
c. The proposed action may result in the excavation or compaction of the soil profile of active agricultural land.	E3b	☐	☐
d. The proposed action may irreversibly convert agricultural land to non-agricultural uses, either more than 2.5 acres if located in an Agricultural District, or more than 10 acres if not within an Agricultural District.	E1b, E3a	☐	☐
e. The proposed action may disrupt or prevent installation of an agricultural land management system.	El a, E1b	☐	☐
f. The proposed action may result, directly or indirectly, in increased development potential or pressure on farmland.	C2c, C3, D2c, D2d	☐	☐
g. The proposed project is not consistent with the adopted municipal Farmland Protection Plan.	C2c	☐	☐
h. Other impacts: _____		☐	☐

9. Impact on Aesthetic Resources

The land use of the proposed action are obviously different from, or are in sharp contrast to, current land use patterns between the proposed project and a scenic or aesthetic resource. (Part 1. E.1.a, E.1.b, E.3.h.)

☐ NO ☑ YES

If "Yes", answer questions a - g. If "No", go to Section 10.

	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. Proposed action may be visible from any officially designated federal, state, or local scenic or aesthetic resource.	E3h	☑	☐
b. The proposed action may result in the obstruction, elimination or significant screening of one or more officially designated scenic views.	E3h, C2b	☑	☐
c. The proposed action may be visible from publicly accessible vantage points: i. Seasonally (e.g., screened by summer foliage, but visible during other seasons) ii. Year round	E3h	☑ ☑	☐ ☐
d. The situation or activity in which viewers are engaged while viewing the proposed action is: i. Routine travel by residents, including travel to and from work ii. Recreational or tourism based activities	E3h E2q, E1c	☑ ☑	☐ ☐
e. The proposed action may cause a diminishment of the public enjoyment and appreciation of the designated aesthetic resource.	E3h	☑	☐
f. There are similar projects visible within the following distance of the proposed project: 0-1/2 mile ½ -3 mile 3-5 mile 5+ mile	D1a, E1a, D1f, D1g	☑	☐
g. Other impacts: _____ _____		☑	☐

10. Impact on Historic and Archeological Resources

The proposed action may occur in or adjacent to a historic or archaeological resource. (Part 1. E.3.e, f. and g.)

☐ NO ☑ YES

If "Yes", answer questions a - e. If "No", go to Section 11.

	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. The proposed action may occur wholly or partially within, or substantially contiguous to, any buildings, archaeological site or district which is listed on the National or State Register of Historical Places, or that has been determined by the Commissioner of the NYS Office of Parks, Recreation and Historic Preservation to be eligible for listing on the State Register of Historic Places.	E3e	☑	☐
b. The proposed action may occur wholly or partially within, or substantially contiguous to, an area designated as sensitive for archaeological sites on the NY State Historic Preservation Office (SHPO) archaeological site inventory.	E3f	☑	☐
c. The proposed action may occur wholly or partially within, or substantially contiguous to, an archaeological site not included on the NY SHPO inventory. Source: _____	E3g	☑	☐

d. Other impacts: _____ _____		☑	☐
e. If any of the above (a-d) are answered "Moderate to large impact may occur", continue with the following questions to help support conclusions in Part 3:			
i. The proposed action may result in the destruction or alteration of all or part of the site or property.	E3e, E3g, E3f	☑	☐
ii. The proposed action may result in the alteration of the property's setting or integrity.	E3e, E3f, E3g, E1a, E1b	☑	☐
iii. The proposed action may result in the introduction of visual elements which are out of character with the site or property, or may alter its setting.	E3e, E3f, E3g, E3h, C2, C3	☑	☐

11. Impact on Open Space and Recreation

The proposed action may result in a loss of recreational opportunities or a reduction of an open space resource as designated in any adopted municipal open space plan.
(See Part 1. C.2.c, E.1.c., E.2.q.)
If "Yes", answer questions a - e. If "No", go to Section 12.

☑ NO ☐ YES

	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. The proposed action may result in an impairment of natural functions, or "ecosystem services", provided by an undeveloped area, including but not limited to stormwater storage, nutrient cycling, wildlife habitat.	D2e, E1b E2h, E2m, E2o, E2n, E2p	□	□
b. The proposed action may result in the loss of a current or future recreational resource.	C2a, E1c, C2c, E2q	□	□
c. The proposed action may eliminate open space or recreational resource in an area with few such resources.	C2a, C2c E1c, E2q	□	□
d. The proposed action may result in loss of an area now used informally by the community as an open space resource.	C2c, E1c	□	□
e. Other impacts: _____ _____		□	□

12. Impact on Critical Environmental Areas

The proposed action may be located within or adjacent to a critical environmental area (CEA). (See Part 1. E.3.d)
If "Yes", answer questions a - c. If "No", go to Section 13.

☑ NO ☐ YES

	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. The proposed action may result in a reduction in the quantity of the resource or characteristic which was the basis for designation of the CEA.	E3d	□	□
b. The proposed action may result in a reduction in the quality of the resource or characteristic which was the basis for designation of the CEA.	E3d	□	□
c. Other impacts: _____ _____		□	□

13. Impact on Transportation

The proposed action may result in a change to existing transportation systems. ☐ NO ☑ YES
(See Part 1. D.2.j)
If "Yes", answer questions a - f. If "No", go to Section 14.

	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. Projected traffic increase may exceed capacity of existing road network.	D2j	☑	☐
b. The proposed action may result in the construction of paved parking area for 500 or more vehicles.	D2j	☑	☐
c. The proposed action will degrade existing transit access.	D2j	☑	☐
d. The proposed action will degrade existing pedestrian or bicycle accommodations.	D2j	☑	☐
e. The proposed action may alter the present pattern of movement of people or goods.	D2j	☑	☐
f. Other impacts: _____ _____		☑	☐

14. Impact on Energy

The proposed action may cause an increase in the use of any form of energy. ☐ NO ☑ YES
(See Part 1. D.2.k)
If "Yes", answer questions a - e. If "No", go to Section 15.

	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. The proposed action will require a new, or an upgrade to an existing, substation.	D2k	☑	☐
b. The proposed action will require the creation or extension of an energy transmission or supply system to serve more than 50 single or two-family residences or to serve a commercial or industrial use.	D1f, D1q, D2k	☑	☐
c. The proposed action may utilize more than 2,500 MWhrs per year of electricity.	D2k	☑	☐
d. The proposed action may involve heating and/or cooling of more than 100,000 square feet of building area when completed.	D1g	☑	☐
e. Other Impacts: _____ _____		☑	☐

15. Impact on Noise, Odor, and Light

The proposed action may result in an increase in noise, odors, or outdoor lighting. ☐ NO ☑ YES
(See Part 1. D.2.m., n., and o.)
If "Yes", answer questions a - f. If "No", go to Section 16.

	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. The proposed action may produce sound above noise levels established by local regulation.	D2m	☑	☐
b. The proposed action may result in blasting within 1,500 feet of any residence, hospital, school, licensed day care center, or nursing home.	D2m, E1d	☑	☐
c. The proposed action may result in routine odors for more than one hour per day.	D2o	☑	☐

d. The proposed action may result in light shining onto adjoining properties.	D2n	☑	☐
e. The proposed action may result in lighting creating sky-glow brighter than existing area conditions.	D2n, E1a	☑	☐
f. Other impacts: _____ _____		☑	☐

16. Impact on Human Health

The proposed action may have an impact on human health from exposure to new or existing sources of contaminants. (See Part 1.D.2.q., E.1. d. f. g. and h.) ☐ NO ☑ YES

If "Yes", answer questions a - m. If "No", go to Section 17.

	Relevant Part I Question(s)	No,or small impact may cccur	Moderate to large impact may occur
a. The proposed action is located within 1500 feet of a school, hospital, licensed day care center, group home, nursing home or retirement community.	E1d	☑	☐
b. The site of the proposed action is currently undergoing remediation.	E1g, E1h	☑	☐
c. There is a completed emergency spill remediation, or a completed environmental site remediation on, or adjacent to, the site of the proposed action.	E1g, E1h	☑	☐
d. The site of the action is subject to an institutional control limiting the use of the property (e.g., easement or deed restriction).	E1g, E1h	☑	☐
e. The proposed action may affect institutional control measures that were put in place to ensure that the site remains protective of the environment and human health.	E1g, E1h	☑	☐
f. The proposed action has adequate control measures in place to ensure that future generation, treatment and/or disposal of hazardous wastes will be protective of the environment and human health.	D2t	☑	☐
g. The proposed action involves construction or modification of a solid waste management facility.	D2q, E1f	☑	☐
h. The proposed action may result in the unearthing of solid or hazardous waste.	D2q, E1f	☑	☐
i. The proposed action may result in an increase in the rate of disposal, or processing, of solid waste.	D2r, D2s	☑	☐
j. The proposed action may result in excavation or other disturbance within 2000 feet of a site used for the disposal of solid or hazardous waste.	E1f, E1g E1h	☑	☐
k. The proposed action may result in the migration of explosive gases from a landfill site to adjacent off site structures.	E1f, E1g	☑	☐
l. The proposed action may result in the release of contaminated leachate from the project site.	D2s, E1f, D2r	☑	☐
m. Other impacts: _____ _____		☑	☐

17. Consistency with Community Plans

The proposed action is not consistent with adopted land use plans. ☑ NO ☐ YES

(See Part 1. C.1, C.2. and C.3.)

If "Yes", answer questions a - h. If "No", go to Section 18.

	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. The proposed action's land use components may be different from, or in sharp contrast to, current surrounding land use pattern(s).	C2, C3, D1a E1a, E1b	☐	☐
b. The proposed action will cause the permanent population of the city, town or village in which the project is located to grow by more than 5%.	C2	☐	☐
c. The proposed action is inconsistent with local land use plans or zoning regulations.	C2, C2, C3	☐	☐
d. The proposed action is inconsistent with any County plans, or other regional land use plans.	C2, C2	☐	☐
e. The proposed action may cause a change in the density of development that is not supported by existing infrastructure or is distant from existing infrastructure.	C3, D1c, D1d, D1f, D1d, Elb	☐	☐
f. The proposed action is located in an area characterized by low density development that will require new or expanded public infrastructure.	C4, D2c, D2d D2j	☐	☐
g. The proposed action may induce secondary development impacts (e.g., residential or commercial development not included in the proposed action)	C2a	☐	☐
h. Other: _____ _____		☐	☐

18. Consistency with Community Character

The proposed project is inconsistent with the existing community character. ☑ NO ☐ YES

(See Part 1. C.2, C.3, D.2, E.3)

If "Yes", answer questions a - g. If "No", proceed to Part 3.

	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. The proposed action may replace or eliminate existing facilities, structures, or areas of historic importance to the community.	E3e, E3f, E3g	☐	☐
b. The proposed action may create a demand for additional community services (e.g. schools, police and fire)	C4	☐	☐
c. The proposed action may displace affordable or low-income housing in an area where there is a shortage of such housing.	C2, C3, D1f D1g, E1a	☐	☐
d. The proposed action may interfere with the use or enjoyment of officially recognized or designated public resources.	C2, E3	☐	☐
e. The proposed action is inconsistent with the predominant architectural scale and character.	C2, C3	☐	☐
f. Proposed action is inconsistent with the character of the existing natural landscape.	C2, C3 E1a, E1b E2g, E2h	☐	☐
g. Other impacts: _____ _____		☐	☐

PRINT FULL FORM

Full Environmental Assessment Form
Part 3 - Evaluation of the Magnitude and Importance of Project Impacts
and
Determination of Significance

Part 3 provides the reasons in support of the determination of significance. The lead agency must complete Part 3 for every question in Part 2 where the impact has been identified as potentially moderate to large or where there is a need to explain why a particular element of the proposed action will not, or may, result in a significant adverse environmental impact.

Based on the analysis in Part 3, the lead agency must decide whether to require an environmental impact statement to further assess the proposed action or whether available information is sufficient for the lead agency to conclude that the proposed action will not have a significant adverse environmental impact. By completing the certification on the next page, the lead agency can complete its determination of significance.

Reasons Supporting This Determination:
To complete this section:

- Identify the impact based on the Part 2 responses and describe its magnitude. Magnitude considers factors such as severity, size or extent of an impact.
- Assess the importance of the impact. Importance relates to the geographic scope, duration, probability of the impact occurring, number of people affected by the impact and any additional environmental consequences if the impact were to occur.
- The assessment should take into consideration any design element or project changes.
- Repeat this process for each Part 2 question where the impact has been identified as potentially moderate to large or where there is a need to explain why a particular element of the proposed action will not, or may, result in a significant adverse environmental impact.
- Provide the reason(s) why the impact may, or will not, result in a significant adverse environmental impact
- For Conditional Negative Declarations identify the specific condition(s) imposed that will modify the proposed action so that no significant adverse environmental impacts will result.
- Attach additional sheets, as needed.

See Attached Addendum

Determination of Significance - Type 1 and Unlisted Actions

SEQR Status: ☐ Type 1 ☑ Unlisted

Identify portions of EAF completed for this Project: ☑ Part 1 ☑ Part 2 ☑ Part 3

Upon review of the information recorded on this EAF, as noted, plus this additional support information
All memoranda, plans, reports, comments received from public meetings, and all other relevant information before the City of Beacon Planning Board.

and considering both the magnitude and importance of each identified potential impact, it is the conclusion of the
City of Beacon Planning Board as lead agency that:

☑ A. This project will result in no significant adverse impacts on the environment, and, therefore, an environmental impact statement need not be prepared. Accordingly, this negative declaration is issued.

☐ B. Although this project could have a significant adverse impact on the environment, that impact will be avoided or substantially mitigated because of the following conditions which will be required by the lead agency:

There will, therefore, be no significant adverse impacts from the project as conditioned, and, therefore, this conditioned negative declaration is issued. A conditioned negative declaration may be used only for UNLISTED actions (see 6 NYCRR 617.7(d)).

☐ C. This Project may result in one or more significant adverse impacts on the environment, and an environmental impact statement must be prepared to further assess the impact(s) and possible mitigation and to explore alternatives to avoid or reduce those impacts. Accordingly, this positive declaration is issued.

Name of Action: Beacon Views Site Plan & Subdivision

Name of Lead Agency: City of Beacon Planning Board

Name of Responsible Officer in Lead Agency: John Gunn

Title of Responsible Officer: City of Beacon Planning Board Chairman

Signature of Responsible Officer in Lead Agency: Date: June 14, 2022

Signature of Preparer (if different from Responsible Officer) Date: June 14, 2022

For Further Information:

Contact Person: Amanda Caputo

Address: 1 Municipal Plaza, Beacon, NY 12508

Telephone Number: (845) 838-5021

E-mail: acaputo@beaconny.gov

For Type 1 Actions and Conditioned Negative Declarations, a copy of this Notice is sent to:

Chief Executive Officer of the political subdivision in which the action will be principally located (e.g., Town / City / Village of)
Other involved agencies (if any)
Applicant (if any)
Environmental Notice Bulletin: http://www.dec.ny.gov/enb/enb.html

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June 14, 2022

VIA ELECTRONIC MAIL (jgunn@cityofbeacon.org)

Mr. John Gunn, Chairman
Planning Board
City of Beacon
1 Municipal Plaza
Beacon, NY 12508

Re: *Beacon Views Townhouses, Conklin Street by Beacon Views, LLC ("Applicant")*

Dear Chairman Gunn and Members of the Planning Board:

On behalf of Highland Meadows Senior Housing Development Fund Company, Inc., and Highland Meadow Senior Limited Partnership ("Highland Meadows"), the comments below are offered in response to the above referenced project and the SEQRA review.

As the Board is aware, there are new and additional modifications to the project layout since last month's meeting, including changes to on-site wetlands mitigation. These changes require Applicant to supplement its plans before its application can be deemed complete and the Planning Board can issue its determination of significance under the State Environmental Quality Review Act ("SEQRA"). Specifically, Applicant notes that "[a]s the Army Corps of Engineers (AOCE) approval process begins [*sic*] revised easement documents will be provide [*sic*] to the Board for the off-site mitigation at the Van Buren property" (Beacon Views' Engineer Letter, May 31, 2022). Applicant also acknowledges that its application for coverage under Nationwide Permit # 29 ("NWP-29") to the ACOE is still not complete (Ecological Analysis LLC Letter, May 11, 2022). Applicant's consultant represents that "a full wetland permit application for AOCE nationwide permit #29 will be completed once a conditional approval of the site plan is made. The application will have to include the Board's determination on SEQR. The ACOE will not issue a permit or complete their review until the project has a conditional site plan approval from the municipality" (Ecological Analysis LLC Letter, May 11, 2022). This representation has no legal support and is simply wrong.

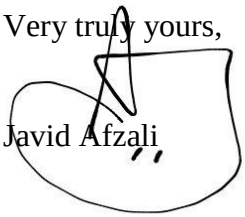
NWP-29 documents (attached) make no mention of securing local land use approvals as a condition precedent to a coverage determination. In particular, under the heading "2021 Nationwide Permit General Conditions," a number of requirements are listed as conditions to be met in order to qualify for NWP authorization. Nowhere is local land use approvals mentioned. This conclusion is reinforced by the statement found at the top of page 20, which indicates that "NWPs do not obviate the need to obtain other federal, state, or local permits, approvals, or authorizations by law." Note that this does not state that these other approvals must be obtained prior to NWP coverage. It merely means that a determination of NWP coverage does not dispense with the need to obtain other required approvals. As such, the Planning Board should not be tricked into concluding its SEQRA review and granting conditional approval on the basis that such approvals are required for coverage under NWP-29.

Furthermore, the Planning Board is aware that there is an ongoing dispute between Applicant and Highland Meadows over the scope of the stormwater easement. As such, Highland Meadows requests that the Planning Board not take action until parties resolve the dispute (either through a negotiated settlement or litigated outcome).

Highland Meadows respectfully requests the continuation of the SEQRA Public Hearing in light of the information provided herein.

Thank you for your consideration in this matter.

Very truly yours,



Javid Afzali

cc:

Planning Board Secretary (*via email*: acaputo@cityofbeaconny.gov)

Nationwide Permit 29 - Residential Developments
Effective Date: March 15, 2021; Expiration Date: March 14, 2026
(NWP Final Notice, 86 FR 2744)

Nationwide Permit 29 - Residential Developments. Discharges of dredged or fill material into non-tidal waters of the United States for the construction or expansion of a single residence, a multiple unit residential development, or a residential subdivision. This NWP authorizes the construction of building foundations and building pads and attendant features that are necessary for the use of the residence or residential development. Attendant features may include but are not limited to roads, parking lots, garages, yards, utility lines, storm water management facilities, septic fields, and recreation facilities such as playgrounds, playing fields, and golf courses (provided the golf course is an integral part of the residential development).

The discharge must not cause the loss of greater than 1/2-acre of non-tidal waters of the United States. This NWP does not authorize discharges of dredged or fill material into non-tidal wetlands adjacent to tidal waters.

Subdivisions: For residential subdivisions, the aggregate total loss of waters of United States authorized by this NWP cannot exceed 1/2-acre. This includes any loss of waters of the United States associated with development of individual subdivision lots.

Notification: The permittee must submit a pre-construction notification to the district engineer prior to commencing the activity. (See general condition 32.) (Authorities: Sections 10 and 404)

2021 Nationwide Permit General Conditions

Note: To qualify for NWP authorization, the prospective permittee must comply with the following general conditions, as applicable, in addition to any regional or case-specific conditions imposed by the division engineer or district engineer. Prospective permittees should contact the appropriate Corps district office to determine if regional conditions have been imposed on an NWP. Prospective permittees should also contact the appropriate Corps district office to determine the status of Clean Water Act Section 401 water quality certification and/or Coastal Zone Management Act consistency for an NWP. Every person who may wish to obtain permit authorization under one or more NWPs, or who is currently relying on an existing or prior permit authorization under one or more NWPs, has been and is on notice that all of the provisions of 33 CFR 330.1 through 330.6 apply to every NWP authorization. Note especially 33 CFR 330.5 relating to the modification, suspension, or revocation of any NWP authorization.

1. **Navigation.** (a) No activity may cause more than a minimal adverse effect on navigation.

(b) Any safety lights and signals prescribed by the U.S. Coast Guard, through regulations or otherwise, must be installed and maintained at the permittee's expense on authorized facilities in navigable waters of the United States.

(c) The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his or her authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

2. **Aquatic Life Movements.** No activity may substantially disrupt the necessary life cycle movements of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the area, unless the activity's primary purpose is to impound water. All permanent and temporary crossings of waterbodies shall be suitably culverted, bridged, or otherwise designed and constructed to maintain low flows to sustain the movement of those aquatic species. If a bottomless culvert cannot be used, then the crossing should be designed and constructed to minimize adverse effects to aquatic life movements.

3. **Spawning Areas.** Activities in spawning areas during spawning seasons must be avoided to the maximum extent practicable. Activities that result in the physical destruction (e.g., through excavation, fill, or downstream smothering by substantial turbidity) of an important spawning area are not authorized.

4. **Migratory Bird Breeding Areas.** Activities in waters of the United States that serve as breeding areas for migratory birds must be avoided to the maximum extent practicable.

5. **Shellfish Beds.** No activity may occur in areas of concentrated shellfish populations, unless the activity is directly related to a shellfish harvesting activity authorized by NWPs 4 and 48, or is a shellfish seeding or habitat restoration activity authorized by NWP 27.

6. **Suitable Material.** No activity may use unsuitable material (e.g., trash, debris, car bodies, asphalt, etc.). Material used for construction or discharged must be free from toxic pollutants in toxic amounts (see section 307 of the Clean Water Act).

7. **Water Supply Intakes.** No activity may occur in the proximity of a public water supply intake, except where the activity is for the repair or improvement of public water supply intake structures or adjacent bank stabilization.

8. **Adverse Effects From Impoundments.** If the activity creates an impoundment of water, adverse effects to the aquatic system due to accelerating the passage of water, and/or restricting its flow must be minimized to the maximum extent practicable.

9. **Management of Water Flows.** To the maximum extent practicable, the pre-construction course, condition, capacity, and location of open waters must be maintained for each activity, including stream channelization, storm water management activities, and temporary and permanent road crossings, except as provided below. The activity must be constructed to withstand expected high flows. The activity must not restrict or impede the passage of normal or high flows, unless the primary purpose of the activity is to impound water or manage high flows. The activity may alter the pre-construction course, condition, capacity, and location of open waters if it benefits the aquatic environment (e.g., stream restoration or relocation activities).

10. **Fills Within 100-Year Floodplains.** The activity must comply with applicable FEMA-approved state or local floodplain management requirements.

11. **Equipment.** Heavy equipment working in wetlands or mudflats must be placed on mats, or other measures must be taken to minimize soil disturbance.

12. **Soil Erosion and Sediment Controls.** Appropriate soil erosion and sediment controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fills, as well as any work below the ordinary high water mark or high tide line, must be permanently stabilized at the earliest practicable date. Permittees are encouraged to perform work within waters of the United States during periods of low-flow or no-flow, or during low tides.

13. **Removal of Temporary Structures and Fills.** Temporary structures must be removed, to the maximum extent practicable, after their use has been discontinued. Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The affected areas must be revegetated, as appropriate.

14. **Proper Maintenance.** Any authorized structure or fill shall be properly maintained, including maintenance to ensure public safety and compliance with applicable NWP general conditions, as well as any activity-specific conditions added by the district engineer to an NWP authorization.

15. **Single and Complete Project.** The activity must be a single and complete project. The same NWP cannot be used more than once for the same single and complete project.

16. **Wild and Scenic Rivers.** (a) No NWP activity may occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a “study river” for possible inclusion in the system while the river is in an official study status, unless the appropriate Federal agency with direct management responsibility for

such river, has determined in writing that the proposed activity will not adversely affect the Wild and Scenic River designation or study status.

(b) If a proposed NWP activity will occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, the permittee must submit a pre-construction notification (see general condition 32). The district engineer will coordinate the PCN with the Federal agency with direct management responsibility for that river. Permittees shall not begin the NWP activity until notified by the district engineer that the Federal agency with direct management responsibility for that river has determined in writing that the proposed NWP activity will not adversely affect the Wild and Scenic River designation or study status.

(c) Information on Wild and Scenic Rivers may be obtained from the appropriate Federal land management agency responsible for the designated Wild and Scenic River or study river (e.g., National Park Service, U.S. Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service). Information on these rivers is also available at: http://www.rivers.gov/.

17. **Tribal Rights.** No activity or its operation may impair reserved tribal rights, including, but not limited to, reserved water rights and treaty fishing and hunting rights.

18. **Endangered Species.** (a) No activity is authorized under any NWP which is likely to directly or indirectly jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act (ESA), or which will directly or indirectly destroy or adversely modify designated critical habitat or critical habitat proposed for such designation. No activity is authorized under any NWP which "may affect" a listed species or critical habitat, unless ESA section 7 consultation addressing the consequences of the proposed activity on listed species or critical habitat has been completed. See 50 CFR 402.02 for the definition of "effects of the action" for the purposes of ESA section 7 consultation, as well as 50 CFR 402.17, which provides further explanation under ESA section 7 regarding "activities that are reasonably certain to occur" and "consequences caused by the proposed action."

(b) Federal agencies should follow their own procedures for complying with the requirements of the ESA (see 33 CFR 330.4(f)(1)). If pre-construction notification is required for the proposed activity, the Federal permittee must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will verify that the appropriate documentation has been submitted. If the appropriate documentation has not been submitted, additional ESA section 7 consultation may be necessary for the activity and the respective federal agency would be responsible for fulfilling its obligation under section 7 of the ESA.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if any listed species (or species proposed for listing) or designated critical

habitat (or critical habitat proposed such designation) might be affected or is in the vicinity of the activity, or if the activity is located in designated critical habitat or critical habitat proposed for such designation, and shall not begin work on the activity until notified by the district engineer that the requirements of the ESA have been satisfied and that the activity is authorized. For activities that might affect Federally-listed endangered or threatened species (or species proposed for listing) or designated critical habitat (or critical habitat proposed for such designation), the pre-construction notification must include the name(s) of the endangered or threatened species (or species proposed for listing) that might be affected by the proposed activity or that utilize the designated critical habitat (or critical habitat proposed for such designation) that might be affected by the proposed activity. The district engineer will determine whether the proposed activity "may affect" or will have "no effect" to listed species and designated critical habitat and will notify the non-Federal applicant of the Corps' determination within 45 days of receipt of a complete pre-construction notification. For activities where the non-Federal applicant has identified listed species (or species proposed for listing) or designated critical habitat (or critical habitat proposed for such designation) that might be affected or is in the vicinity of the activity, and has so notified the Corps, the applicant shall not begin work until the Corps has provided notification that the proposed activity will have "no effect" on listed species (or species proposed for listing or designated critical habitat (or critical habitat proposed for such designation), or until ESA section 7 consultation or conference has been completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

(d) As a result of formal or informal consultation or conference with the FWS or NMFS the district engineer may add species-specific permit conditions to the NWPs.

(e) Authorization of an activity by an NWP does not authorize the "take" of a threatened or endangered species as defined under the ESA. In the absence of separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with "incidental take" provisions, etc.) from the FWS or the NMFS, the Endangered Species Act prohibits any person subject to the jurisdiction of the United States to take a listed species, where "take" means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. The word "harm" in the definition of "take" means an act which actually kills or injures wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering.

(f) If the non-federal permittee has a valid ESA section 10(a)(1)(B) incidental take permit with an approved Habitat Conservation Plan for a project or a group of projects that includes the proposed NWP activity, the non-federal applicant should provide a copy of that ESA section 10(a)(1)(B) permit with the PCN required by paragraph (c) of this general condition. The district engineer will coordinate with the agency that issued the ESA section 10(a)(1)(B) permit to determine whether the proposed NWP activity and the associated incidental take were considered in the internal ESA section 7

consultation conducted for the ESA section 10(a)(1)(B) permit. If that coordination results in concurrence from the agency that the proposed NWP activity and the associated incidental take were considered in the internal ESA section 7 consultation for the ESA section 10(a)(1)(B) permit, the district engineer does not need to conduct a separate ESA section 7 consultation for the proposed NWP activity. The district engineer will notify the non-federal applicant within 45 days of receipt of a complete pre-construction notification whether the ESA section 10(a)(1)(B) permit covers the proposed NWP activity or whether additional ESA section 7 consultation is required.

(g) Information on the location of threatened and endangered species and their critical habitat can be obtained directly from the offices of the FWS and NMFS or their world wide web pages at http://www.fws.gov/ or http://www.fws.gov/ipac and http://www.nmfs.noaa.gov/pr/species/esa/ respectively.

19. **Migratory Birds and Bald and Golden Eagles.** The permittee is responsible for ensuring that an action authorized by an NWP complies with the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. The permittee is responsible for contacting the appropriate local office of the U.S. Fish and Wildlife Service to determine what measures, if any, are necessary or appropriate to reduce adverse effects to migratory birds or eagles, including whether "incidental take" permits are necessary and available under the Migratory Bird Treaty Act or Bald and Golden Eagle Protection Act for a particular activity.

20. **Historic Properties.** (a) No activity is authorized under any NWP which may have the potential to cause effects to properties listed, or eligible for listing, in the National Register of Historic Places until the requirements of Section 106 of the National Historic Preservation Act (NHPA) have been satisfied.

(b) Federal permittees should follow their own procedures for complying with the requirements of section 106 of the National Historic Preservation Act (see 33 CFR 330.4(g)(1)). If pre-construction notification is required for the proposed NWP activity, the Federal permittee must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will verify that the appropriate documentation has been submitted. If the appropriate documentation is not submitted, then additional consultation under section 106 may be necessary. The respective federal agency is responsible for fulfilling its obligation to comply with section 106.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if the NWP activity might have the potential to cause effects to any historic properties listed on, determined to be eligible for listing on, or potentially eligible for listing on the National Register of Historic Places, including previously unidentified properties. For such activities, the pre-construction notification must state which historic properties might have the potential to be affected by the proposed NWP activity or include a vicinity map indicating the location of the historic properties or the potential for the presence of historic properties. Assistance regarding information on the location of,

or potential for, the presence of historic properties can be sought from the State Historic Preservation Officer, Tribal Historic Preservation Officer, or designated tribal representative, as appropriate, and the National Register of Historic Places (see 33 CFR 330.4(g)). When reviewing pre-construction notifications, district engineers will comply with the current procedures for addressing the requirements of section 106 of the National Historic Preservation Act. The district engineer shall make a reasonable and good faith effort to carry out appropriate identification efforts commensurate with potential impacts, which may include background research, consultation, oral history interviews, sample field investigation, and/or field survey. Based on the information submitted in the PCN and these identification efforts, the district engineer shall determine whether the proposed NWP activity has the potential to cause effects on the historic properties. Section 106 consultation is not required when the district engineer determines that the activity does not have the potential to cause effects on historic properties (see 36 CFR 800.3(a)). Section 106 consultation is required when the district engineer determines that the activity has the potential to cause effects on historic properties. The district engineer will conduct consultation with consulting parties identified under 36 CFR 800.2(c) when he or she makes any of the following effect determinations for the purposes of section 106 of the NHPA: no historic properties affected, no adverse effect, or adverse effect.

(d) Where the non-Federal applicant has identified historic properties on which the proposed NWP activity might have the potential to cause effects and has so notified the Corps, the non-Federal applicant shall not begin the activity until notified by the district engineer either that the activity has no potential to cause effects to historic properties or that NHPA section 106 consultation has been completed. For non-federal permittees, the district engineer will notify the prospective permittee within 45 days of receipt of a complete pre-construction notification whether NHPA section 106 consultation is required. If NHPA section 106 consultation is required, the district engineer will notify the non-Federal applicant that he or she cannot begin the activity until section 106 consultation is completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

(e) Prospective permittees should be aware that section 110k of the NHPA (54 U.S.C. 306113) prevents the Corps from granting a permit or other assistance to an applicant who, with intent to avoid the requirements of section 106 of the NHPA, has intentionally significantly adversely affected a historic property to which the permit would relate, or having legal power to prevent it, allowed such significant adverse effect to occur, unless the Corps, after consultation with the Advisory Council on Historic Preservation (ACHP), determines that circumstances justify granting such assistance despite the adverse effect created or permitted by the applicant. If circumstances justify granting the assistance, the Corps is required to notify the ACHP and provide documentation specifying the circumstances, the degree of damage to the integrity of any historic properties affected, and proposed mitigation. This documentation must include any views obtained from the applicant, SHPO/THPO, appropriate Indian tribes if the undertaking occurs on or affects historic properties on tribal lands or affects properties

of interest to those tribes, and other parties known to have a legitimate interest in the impacts to the permitted activity on historic properties.

21. **Discovery of Previously Unknown Remains and Artifacts.** Permittees that discover any previously unknown historic, cultural or archeological remains and artifacts while accomplishing the activity authorized by an NWP, they must immediately notify the district engineer of what they have found, and to the maximum extent practicable, avoid construction activities that may affect the remains and artifacts until the required coordination has been completed. The district engineer will initiate the Federal, Tribal, and state coordination required to determine if the items or remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

22. **Designated Critical Resource Waters.** Critical resource waters include, NOAA-managed marine sanctuaries and marine monuments, and National Estuarine Research Reserves. The district engineer may designate, after notice and opportunity for public comment, additional waters officially designated by a state as having particular environmental or ecological significance, such as outstanding national resource waters or state natural heritage sites. The district engineer may also designate additional critical resource waters after notice and opportunity for public comment.

(a) Discharges of dredged or fill material into waters of the United States are not authorized by NWPs 7, 12, 14, 16, 17, 21, 29, 31, 35, 39, 40, 42, 43, 44, 49, 50, 51, 52, 57 and 58 for any activity within, or directly affecting, critical resource waters, including wetlands adjacent to such waters.

(b) For NWPs 3, 8, 10, 13, 15, 18, 19, 22, 23, 25, 27, 28, 30, 33, 34, 36, 37, 38, and 54, notification is required in accordance with general condition 32, for any activity proposed by permittees in the designated critical resource waters including wetlands adjacent to those waters. The district engineer may authorize activities under these NWPs only after she or he determines that the impacts to the critical resource waters will be no more than minimal.

23. **Mitigation.** The district engineer will consider the following factors when determining appropriate and practicable mitigation necessary to ensure that the individual and cumulative adverse environmental effects are no more than minimal:

(a) The activity must be designed and constructed to avoid and minimize adverse effects, both temporary and permanent, to waters of the United States to the maximum extent practicable at the project site (i.e., on site).

(b) Mitigation in all its forms (avoiding, minimizing, rectifying, reducing, or compensating for resource losses) will be required to the extent necessary to ensure that the individual and cumulative adverse environmental effects are no more than minimal.

(c) Compensatory mitigation at a minimum one-for-one ratio will be required for all wetland losses that exceed 1/10-acre and require pre-construction notification, unless

the district engineer determines in writing that either some other form of mitigation would be more environmentally appropriate or the adverse environmental effects of the proposed activity are no more than minimal, and provides an activity-specific waiver of this requirement. For wetland losses of 1/10-acre or less that require pre-construction notification, the district engineer may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in only minimal adverse environmental effects.

(d) Compensatory mitigation at a minimum one-for-one ratio will be required for all losses of stream bed that exceed 3/100-acre and require pre-construction notification, unless the district engineer determines in writing that either some other form of mitigation would be more environmentally appropriate or the adverse environmental effects of the proposed activity are no more than minimal, and provides an activity-specific waiver of this requirement. This compensatory mitigation requirement may be satisfied through the restoration or enhancement of riparian areas next to streams in accordance with paragraph (e) of this general condition. For losses of stream bed of 3/100-acre or less that require pre-construction notification, the district engineer may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in only minimal adverse environmental effects. Compensatory mitigation for losses of streams should be provided, if practicable, through stream rehabilitation, enhancement, or preservation, since streams are difficult-to-replace resources (see 33 CFR 332.3(e)(3)).

(e) Compensatory mitigation plans for NWP activities in or near streams or other open waters will normally include a requirement for the restoration or enhancement, maintenance, and legal protection (e.g., conservation easements) of riparian areas next to open waters. In some cases, the restoration or maintenance/protection of riparian areas may be the only compensatory mitigation required. If restoring riparian areas involves planting vegetation, only native species should be planted. The width of the required riparian area will address documented water quality or aquatic habitat loss concerns. Normally, the riparian area will be 25 to 50 feet wide on each side of the stream, but the district engineer may require slightly wider riparian areas to address documented water quality or habitat loss concerns. If it is not possible to restore or maintain/protect a riparian area on both sides of a stream, or if the waterbody is a lake or coastal waters, then restoring or maintaining/protecting a riparian area along a single bank or shoreline may be sufficient. Where both wetlands and open waters exist on the project site, the district engineer will determine the appropriate compensatory mitigation (e.g., riparian areas and/or wetlands compensation) based on what is best for the aquatic environment on a watershed basis. In cases where riparian areas are determined to be the most appropriate form of minimization or compensatory mitigation, the district engineer may waive or reduce the requirement to provide wetland compensatory mitigation for wetland losses.

(f) Compensatory mitigation projects provided to offset losses of aquatic resources must comply with the applicable provisions of 33 CFR part 332.

(1) The prospective permittee is responsible for proposing an appropriate compensatory mitigation option if compensatory mitigation is necessary to ensure that the activity results in no more than minimal adverse environmental effects. For the NWPs, the preferred mechanism for providing compensatory mitigation is mitigation bank credits or in-lieu fee program credits (see 33 CFR 332.3(b)(2) and (3)). However, if an appropriate number and type of mitigation bank or in-lieu credits are not available at the time the PCN is submitted to the district engineer, the district engineer may approve the use of permittee-responsible mitigation.

(2) The amount of compensatory mitigation required by the district engineer must be sufficient to ensure that the authorized activity results in no more than minimal individual and cumulative adverse environmental effects (see 33 CFR 330.1(e)(3)). (See also 33 CFR 332.3(f).)

(3) Since the likelihood of success is greater and the impacts to potentially valuable uplands are reduced, aquatic resource restoration should be the first compensatory mitigation option considered for permittee-responsible mitigation.

(4) If permittee-responsible mitigation is the proposed option, the prospective permittee is responsible for submitting a mitigation plan. A conceptual or detailed mitigation plan may be used by the district engineer to make the decision on the NWP verification request, but a final mitigation plan that addresses the applicable requirements of 33 CFR 332.4(c)(2) through (14) must be approved by the district engineer before the permittee begins work in waters of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation (see 33 CFR 332.3(k)(3)). If permittee-responsible mitigation is the proposed option, and the proposed compensatory mitigation site is located on land in which another federal agency holds an easement, the district engineer will coordinate with that federal agency to determine if proposed compensatory mitigation project is compatible with the terms of the easement.

(5) If mitigation bank or in-lieu fee program credits are the proposed option, the mitigation plan needs to address only the baseline conditions at the impact site and the number of credits to be provided (see 33 CFR 332.4(c)(1)(ii)).

(6) Compensatory mitigation requirements (e.g., resource type and amount to be provided as compensatory mitigation, site protection, ecological performance standards, monitoring requirements) may be addressed through conditions added to the NWP authorization, instead of components of a compensatory mitigation plan (see 33 CFR 332.4(c)(1)(ii)).

(g) Compensatory mitigation will not be used to increase the acreage losses allowed by the acreage limits of the NWPs. For example, if an NWP has an acreage limit of 1/2-acre, it cannot be used to authorize any NWP activity resulting in the loss of greater than 1/2-acre of waters of the United States, even if compensatory mitigation is

provided that replaces or restores some of the lost waters. However, compensatory mitigation can and should be used, as necessary, to ensure that an NWP activity already meeting the established acreage limits also satisfies the no more than minimal impact requirement for the NWPs.

(h) Permittees may propose the use of mitigation banks, in-lieu fee programs, or permittee-responsible mitigation. When developing a compensatory mitigation proposal, the permittee must consider appropriate and practicable options consistent with the framework at 33 CFR 332.3(b). For activities resulting in the loss of marine or estuarine resources, permittee-responsible mitigation may be environmentally preferable if there are no mitigation banks or in-lieu fee programs in the area that have marine or estuarine credits available for sale or transfer to the permittee. For permittee-responsible mitigation, the special conditions of the NWP verification must clearly indicate the party or parties responsible for the implementation and performance of the compensatory mitigation project, and, if required, its long-term management.

(i) Where certain functions and services of waters of the United States are permanently adversely affected by a regulated activity, such as discharges of dredged or fill material into waters of the United States that will convert a forested or scrub-shrub wetland to a herbaceous wetland in a permanently maintained utility line right-of-way, mitigation may be required to reduce the adverse environmental effects of the activity to the no more than minimal level.

24. **Safety of Impoundment Structures.** To ensure that all impoundment structures are safely designed, the district engineer may require non-Federal applicants to demonstrate that the structures comply with established state or federal, dam safety criteria or have been designed by qualified persons. The district engineer may also require documentation that the design has been independently reviewed by similarly qualified persons, and appropriate modifications made to ensure safety.

25. **Water Quality.** (a) Where the certifying authority (state, authorized tribe, or EPA, as appropriate) has not previously certified compliance of an NWP with CWA section 401, a CWA section 401 water quality certification for the proposed discharge must be obtained or waived (see 33 CFR 330.4(c)). If the permittee cannot comply with all of the conditions of a water quality certification previously issued by certifying authority for the issuance of the NWP, then the permittee must obtain a water quality certification or waiver for the proposed discharge in order for the activity to be authorized by an NWP.

(b) If the NWP activity requires pre-construction notification and the certifying authority has not previously certified compliance of an NWP with CWA section 401, the proposed discharge is not authorized by an NWP until water quality certification is obtained or waived. If the certifying authority issues a water quality certification for the proposed discharge, the permittee must submit a copy of the certification to the district engineer. The discharge is not authorized by an NWP until the district engineer has notified the permittee that the water quality certification requirement has been satisfied by the issuance of a water quality certification or a waiver.

(c) The district engineer or certifying authority may require additional water quality management measures to ensure that the authorized activity does not result in more than minimal degradation of water quality.

26. **Coastal Zone Management.** In coastal states where an NWP has not previously received a state coastal zone management consistency concurrence, an individual state coastal zone management consistency concurrence must be obtained, or a presumption of concurrence must occur (see 33 CFR 330.4(d)). If the permittee cannot comply with all of the conditions of a coastal zone management consistency concurrence previously issued by the state, then the permittee must obtain an individual coastal zone management consistency concurrence or presumption of concurrence in order for the activity to be authorized by an NWP. The district engineer or a state may require additional measures to ensure that the authorized activity is consistent with state coastal zone management requirements.

27. **Regional and Case-By-Case Conditions.** The activity must comply with any regional conditions that may have been added by the Division Engineer (see 33 CFR 330.4(e)) and with any case specific conditions added by the Corps or by the state, Indian Tribe, or U.S. EPA in its CWA section 401 Water Quality Certification, or by the state in its Coastal Zone Management Act consistency determination.

28. **Use of Multiple Nationwide Permits.** The use of more than one NWP for a single and complete project is authorized, subject to the following restrictions:

(a) If only one of the NWPs used to authorize the single and complete project has a specified acreage limit, the acreage loss of waters of the United States cannot exceed the acreage limit of the NWP with the highest specified acreage limit. For example, if a road crossing over tidal waters is constructed under NWP 14, with associated bank stabilization authorized by NWP 13, the maximum acreage loss of waters of the United States for the total project cannot exceed 1/3-acre.

(b) If one or more of the NWPs used to authorize the single and complete project has specified acreage limits, the acreage loss of waters of the United States authorized by those NWPs cannot exceed their respective specified acreage limits. For example, if a commercial development is constructed under NWP 39, and the single and complete project includes the filling of an upland ditch authorized by NWP 46, the maximum acreage loss of waters of the United States for the commercial development under NWP 39 cannot exceed 1/2-acre, and the total acreage loss of waters of United States due to the NWP 39 and 46 activities cannot exceed 1 acre.

29. **Transfer of Nationwide Permit Verifications.** If the permittee sells the property associated with a nationwide permit verification, the permittee may transfer the nationwide permit verification to the new owner by submitting a letter to the appropriate Corps district office to validate the transfer. A copy of the nationwide permit verification

must be attached to the letter, and the letter must contain the following statement and signature:

"When the structures or work authorized by this nationwide permit are still in existence at the time the property is transferred, the terms and conditions of this nationwide permit, including any special conditions, will continue to be binding on the new owner(s) of the property. To validate the transfer of this nationwide permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below."

_____
(Transferee)

_____
(Date)

30. **Compliance Certification.** Each permittee who receives an NWP verification letter from the Corps must provide a signed certification documenting completion of the authorized activity and implementation of any required compensatory mitigation. The success of any required permittee-responsible mitigation, including the achievement of ecological performance standards, will be addressed separately by the district engineer. The Corps will provide the permittee the certification document with the NWP verification letter. The certification document will include:

(a) A statement that the authorized activity was done in accordance with the NWP authorization, including any general, regional, or activity-specific conditions;

(b) A statement that the implementation of any required compensatory mitigation was completed in accordance with the permit conditions. If credits from a mitigation bank or in-lieu fee program are used to satisfy the compensatory mitigation requirements, the certification must include the documentation required by 33 CFR 332.3(l)(3) to confirm that the permittee secured the appropriate number and resource type of credits; and

(c) The signature of the permittee certifying the completion of the activity and mitigation.

The completed certification document must be submitted to the district engineer within 30 days of completion of the authorized activity or the implementation of any required compensatory mitigation, whichever occurs later.

31. **Activities Affecting Structures or Works Built by the United States.** If an NWP activity also requires review by, or permission from, the Corps pursuant to 33 U.S.C. 408 because it will alter or temporarily or permanently occupy or use a U.S. Army Corps of Engineers (USACE) federally authorized Civil Works project (a "USACE project"), the

prospective permittee must submit a pre-construction notification. See paragraph (b)(10) of general condition 32. An activity that requires section 408 permission and/or review is not authorized by an NWP until the appropriate Corps office issues the section 408 permission or completes its review to alter, occupy, or use the USACE project, and the district engineer issues a written NWP verification.

32. **Pre-Construction Notification.** (a) *Timing*. Where required by the terms of the NWP, the prospective permittee must notify the district engineer by submitting a pre-construction notification (PCN) as early as possible. The district engineer must determine if the PCN is complete within 30 calendar days of the date of receipt and, if the PCN is determined to be incomplete, notify the prospective permittee within that 30 day period to request the additional information necessary to make the PCN complete. The request must specify the information needed to make the PCN complete. As a general rule, district engineers will request additional information necessary to make the PCN complete only once. However, if the prospective permittee does not provide all of the requested information, then the district engineer will notify the prospective permittee that the PCN is still incomplete and the PCN review process will not commence until all of the requested information has been received by the district engineer. The prospective permittee shall not begin the activity until either:

(1) He or she is notified in writing by the district engineer that the activity may proceed under the NWP with any special conditions imposed by the district or division engineer; or

(2) 45 calendar days have passed from the district engineer's receipt of the complete PCN and the prospective permittee has not received written notice from the district or division engineer. However, if the permittee was required to notify the Corps pursuant to general condition 18 that listed species or critical habitat might be affected or are in the vicinity of the activity, or to notify the Corps pursuant to general condition 20 that the activity might have the potential to cause effects to historic properties, the permittee cannot begin the activity until receiving written notification from the Corps that there is "no effect" on listed species or "no potential to cause effects" on historic properties, or that any consultation required under Section 7 of the Endangered Species Act (see 33 CFR 330.4(f)) and/or section 106 of the National Historic Preservation Act (see 33 CFR 330.4(g)) has been completed. If the proposed activity requires a written waiver to exceed specified limits of an NWP, the permittee may not begin the activity until the district engineer issues the waiver. If the district or division engineer notifies the permittee in writing that an individual permit is required within 45 calendar days of receipt of a complete PCN, the permittee cannot begin the activity until an individual permit has been obtained. Subsequently, the permittee's right to proceed under the NWP may be modified, suspended, or revoked only in accordance with the procedure set forth in 33 CFR 330.5(d)(2).

(b) *Contents of Pre-Construction Notification*: The PCN must be in writing and include the following information:

(1) Name, address and telephone numbers of the prospective permittee;

(2) Location of the proposed activity;

(3) Identify the specific NWP or NWP(s) the prospective permittee wants to use to authorize the proposed activity;

(4) (i) A description of the proposed activity; the activity's purpose; direct and indirect adverse environmental effects the activity would cause, including the anticipated amount of loss of wetlands, other special aquatic sites, and other waters expected to result from the NWP activity, in acres, linear feet, or other appropriate unit of measure; a description of any proposed mitigation measures intended to reduce the adverse environmental effects caused by the proposed activity; and any other NWP(s), regional general permit(s), or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity, including other separate and distant crossings for linear projects that require Department of the Army authorization but do not require pre-construction notification. The description of the proposed activity and any proposed mitigation measures should be sufficiently detailed to allow the district engineer to determine that the adverse environmental effects of the activity will be no more than minimal and to determine the need for compensatory mitigation or other mitigation measures.

(ii) For linear projects where one or more single and complete crossings require pre-construction notification, the PCN must include the quantity of anticipated losses of wetlands, other special aquatic sites, and other waters for each single and complete crossing of those wetlands, other special aquatic sites, and other waters (including those single and complete crossings authorized by an NWP but do not require PCNs). This information will be used by the district engineer to evaluate the cumulative adverse environmental effects of the proposed linear project, and does not change those non-PCN NWP activities into NWP PCNs.

(iii) Sketches should be provided when necessary to show that the activity complies with the terms of the NWP. (Sketches usually clarify the activity and when provided results in a quicker decision. Sketches should contain sufficient detail to provide an illustrative description of the proposed activity (e.g., a conceptual plan), but do not need to be detailed engineering plans);

(5) The PCN must include a delineation of wetlands, other special aquatic sites, and other waters, such as lakes and ponds, and perennial and intermittent streams, on the project site. Wetland delineations must be prepared in accordance with the current method required by the Corps. The permittee may ask the Corps to delineate the special aquatic sites and other waters on the project site, but there may be a delay if the Corps does the delineation, especially if the project site is large or contains many wetlands, other special aquatic sites, and other waters. Furthermore, the 45-day period will not start until the delineation has been submitted to or completed by the Corps, as appropriate;

(6) If the proposed activity will result in the loss of greater than 1/10-acre of wetlands or 3/100-acre of stream bed and a PCN is required, the prospective permittee must submit a statement describing how the mitigation requirement will be satisfied, or explaining why the adverse environmental effects are no more than minimal and why compensatory mitigation should not be required. As an alternative, the prospective permittee may submit a conceptual or detailed mitigation plan.

(7) For non-federal permittees, if any listed species (or species proposed for listing) or designated critical habitat (or critical habitat proposed for such designation) might be affected or is in the vicinity of the activity, or if the activity is located in designated critical habitat (or critical habitat proposed for such designation), the PCN must include the name(s) of those endangered or threatened species (or species proposed for listing) that might be affected by the proposed activity or utilize the designated critical habitat (or critical habitat proposed for such designation) that might be affected by the proposed activity. For NWP activities that require pre-construction notification, Federal permittees must provide documentation demonstrating compliance with the Endangered Species Act;

(8) For non-federal permittees, if the NWP activity might have the potential to cause effects to a historic property listed on, determined to be eligible for listing on, or potentially eligible for listing on, the National Register of Historic Places, the PCN must state which historic property might have the potential to be affected by the proposed activity or include a vicinity map indicating the location of the historic property. For NWP activities that require pre-construction notification, Federal permittees must provide documentation demonstrating compliance with section 106 of the National Historic Preservation Act;

(9) For an activity that will occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, the PCN must identify the Wild and Scenic River or the "study river" (see general condition 16); and

(10) For an NWP activity that requires permission from, or review by, the Corps pursuant to 33 U.S.C. 408 because it will alter or temporarily or permanently occupy or use a U.S. Army Corps of Engineers federally authorized civil works project, the pre-construction notification must include a statement confirming that the project proponent has submitted a written request for section 408 permission from, or review by, the Corps office having jurisdiction over that USACE project.

(c) *Form of Pre-Construction Notification*: The nationwide permit pre-construction notification form (Form ENG 6082) should be used for NWP PCNs. A letter containing the required information may also be used. Applicants may provide electronic files of PCNs and supporting materials if the district engineer has established tools and procedures for electronic submittals.

(d) *Agency Coordination*: (1) The district engineer will consider any comments from Federal and state agencies concerning the proposed activity's compliance with the terms and conditions of the NWPs and the need for mitigation to reduce the activity's adverse environmental effects so that they are no more than minimal.

(2) Agency coordination is required for: (i) all NWP activities that require pre-construction notification and result in the loss of greater than 1/2-acre of waters of the United States; (ii) NWP 13 activities in excess of 500 linear feet, fills greater than one cubic yard per running foot, or involve discharges of dredged or fill material into special aquatic sites; and (iii) NWP 54 activities in excess of 500 linear feet, or that extend into the waterbody more than 30 feet from the mean low water line in tidal waters or the ordinary high water mark in the Great Lakes.

(3) When agency coordination is required, the district engineer will immediately provide (e.g., via e-mail, facsimile transmission, overnight mail, or other expeditious manner) a copy of the complete PCN to the appropriate Federal or state offices (FWS, state natural resource or water quality agency, EPA, and, if appropriate, the NMFS). With the exception of NWP 37, these agencies will have 10 calendar days from the date the material is transmitted to notify the district engineer via telephone, facsimile transmission, or e-mail that they intend to provide substantive, site-specific comments. The comments must explain why the agency believes the adverse environmental effects will be more than minimal. If so contacted by an agency, the district engineer will wait an additional 15 calendar days before making a decision on the pre-construction notification. The district engineer will fully consider agency comments received within the specified time frame concerning the proposed activity's compliance with the terms and conditions of the NWPs, including the need for mitigation to ensure that the net adverse environmental effects of the proposed activity are no more than minimal. The district engineer will provide no response to the resource agency, except as provided below. The district engineer will indicate in the administrative record associated with each pre-construction notification that the resource agencies' concerns were considered. For NWP 37, the emergency watershed protection and rehabilitation activity may proceed immediately in cases where there is an unacceptable hazard to life or a significant loss of property or economic hardship will occur. The district engineer will consider any comments received to decide whether the NWP 37 authorization should be modified, suspended, or revoked in accordance with the procedures at 33 CFR 330.5.

(4) In cases of where the prospective permittee is not a Federal agency, the district engineer will provide a response to NMFS within 30 calendar days of receipt of any Essential Fish Habitat conservation recommendations, as required by section 305(b)(4)(B) of the Magnuson-Stevens Fishery Conservation and Management Act.

(5) Applicants are encouraged to provide the Corps with either electronic files or multiple copies of pre-construction notifications to expedite agency coordination.

2021 District Engineer's Decision

1. In reviewing the PCN for the proposed activity, the district engineer will determine whether the activity authorized by the NWP will result in more than minimal individual or cumulative adverse environmental effects or may be contrary to the public interest. If a project proponent requests authorization by a specific NWP, the district engineer should issue the NWP verification for that activity if it meets the terms and conditions of that NWP, unless he or she determines, after considering mitigation, that the proposed activity will result in more than minimal individual and cumulative adverse effects on the aquatic environment and other aspects of the public interest and exercises discretionary authority to require an individual permit for the proposed activity. For a linear project, this determination will include an evaluation of the single and complete crossings of waters of the United States that require PCNs to determine whether they individually satisfy the terms and conditions of the NWP(s), as well as the cumulative effects caused by all of the crossings of waters of the United States authorized by an NWP. If an applicant requests a waiver of an applicable limit, as provided for in NWPs 13, 36, or 54, the district engineer will only grant the waiver upon a written determination that the NWP activity will result in only minimal individual and cumulative adverse environmental effects.

2. When making minimal adverse environmental effects determinations the district engineer will consider the direct and indirect effects caused by the NWP activity. He or she will also consider the cumulative adverse environmental effects caused by activities authorized by an NWP and whether those cumulative adverse environmental effects are no more than minimal. The district engineer will also consider site specific factors, such as the environmental setting in the vicinity of the NWP activity, the type of resource that will be affected by the NWP activity, the functions provided by the aquatic resources that will be affected by the NWP activity, the degree or magnitude to which the aquatic resources perform those functions, the extent that aquatic resource functions will be lost as a result of the NWP activity (e.g., partial or complete loss), the duration of the adverse effects (temporary or permanent), the importance of the aquatic resource functions to the region (e.g., watershed or ecoregion), and mitigation required by the district engineer. If an appropriate functional or condition assessment method is available and practicable to use, that assessment method may be used by the district engineer to assist in the minimal adverse environmental effects determination. The district engineer may add case-specific special conditions to the NWP authorization to address site-specific environmental concerns.

3. If the proposed activity requires a PCN and will result in a loss of greater than 1/10-acre of wetlands or 3/100-acre of stream bed, the prospective permittee should submit a mitigation proposal with the PCN. Applicants may also propose compensatory mitigation for NWP activities with smaller impacts, or for impacts to other types of waters. The district engineer will consider any proposed compensatory mitigation or other mitigation measures the applicant has included in the proposal in determining whether the net adverse environmental effects of the proposed activity are no more than minimal. The compensatory mitigation proposal may be either conceptual or detailed. If the district engineer determines that the activity complies with the terms and conditions of the NWP

and that the adverse environmental effects are no more than minimal, after considering mitigation, the district engineer will notify the permittee and include any activity-specific conditions in the NWP verification the district engineer deems necessary. Conditions for compensatory mitigation requirements must comply with the appropriate provisions at 33 CFR 332.3(k). The district engineer must approve the final mitigation plan before the permittee commences work in waters of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation. If the prospective permittee elects to submit a compensatory mitigation plan with the PCN, the district engineer will expeditiously review the proposed compensatory mitigation plan. The district engineer must review the proposed compensatory mitigation plan within 45 calendar days of receiving a complete PCN and determine whether the proposed mitigation would ensure that the NWP activity results in no more than minimal adverse environmental effects. If the net adverse environmental effects of the NWP activity (after consideration of the mitigation proposal) are determined by the district engineer to be no more than minimal, the district engineer will provide a timely written response to the applicant. The response will state that the NWP activity can proceed under the terms and conditions of the NWP, including any activity-specific conditions added to the NWP authorization by the district engineer.

4. If the district engineer determines that the adverse environmental effects of the proposed activity are more than minimal, then the district engineer will notify the applicant either: (a) that the activity does not qualify for authorization under the NWP and instruct the applicant on the procedures to seek authorization under an individual permit; (b) that the activity is authorized under the NWP subject to the applicant's submission of a mitigation plan that would reduce the adverse environmental effects so that they are no more than minimal; or (c) that the activity is authorized under the NWP with specific modifications or conditions. Where the district engineer determines that mitigation is required to ensure no more than minimal adverse environmental effects, the activity will be authorized within the 45-day PCN period (unless additional time is required to comply with general conditions 18, 20, and/or 31), with activity-specific conditions that state the mitigation requirements. The authorization will include the necessary conceptual or detailed mitigation plan or a requirement that the applicant submit a mitigation plan that would reduce the adverse environmental effects so that they are no more than minimal. When compensatory mitigation is required, no work in waters of the United States may occur until the district engineer has approved a specific mitigation plan or has determined that prior approval of a final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation.

2021 Further Information

1. District engineers have authority to determine if an activity complies with the terms and conditions of an NWP.

2. NWPs do not obviate the need to obtain other federal, state, or local permits, approvals, or authorizations required by law.

3. NWPs do not grant any property rights or exclusive privileges.

4. NWPs do not authorize any injury to the property or rights of others.

5. NWPs do not authorize interference with any existing or proposed Federal project (see general condition 31).

2021 Nationwide Permit Definitions

Best management practices (BMPs): Policies, practices, procedures, or structures implemented to mitigate the adverse environmental effects on surface water quality resulting from development. BMPs are categorized as structural or non-structural.

Compensatory mitigation: The restoration (re-establishment or rehabilitation), establishment (creation), enhancement, and/or in certain circumstances preservation of aquatic resources for the purposes of offsetting unavoidable adverse impacts which remain after all appropriate and practicable avoidance and minimization has been achieved.

Currently serviceable: Useable as is or with some maintenance, but not so degraded as to essentially require reconstruction.

Direct effects: Effects that are caused by the activity and occur at the same time and place.

Discharge: The term "discharge" means any discharge of dredged or fill material into waters of the United States.

Ecological reference: A model used to plan and design an aquatic habitat and riparian area restoration, enhancement, or establishment activity under NWP 27. An ecological reference may be based on the structure, functions, and dynamics of an aquatic habitat type or a riparian area type that currently exists in the region where the proposed NWP 27 activity is located. Alternatively, an ecological reference may be based on a conceptual model for the aquatic habitat type or riparian area type to be restored, enhanced, or established as a result of the proposed NWP 27 activity. An ecological reference takes into account the range of variation of the aquatic habitat type or riparian area type in the region.

Enhancement: The manipulation of the physical, chemical, or biological characteristics of an aquatic resource to heighten, intensify, or improve a specific aquatic resource function(s). Enhancement results in the gain of selected aquatic resource function(s), but may also lead to a decline in other aquatic resource function(s). Enhancement does not result in a gain in aquatic resource area.

Establishment (creation): The manipulation of the physical, chemical, or biological characteristics present to develop an aquatic resource that did not previously exist at an upland site. Establishment results in a gain in aquatic resource area.

High Tide Line: The line of intersection of the land with the water's surface at the maximum height reached by a rising tide. The high tide line may be determined, in the absence of actual data, by a line of oil or scum along shore objects, a more or less continuous deposit of fine shell or debris on the foreshore or berm, other physical markings or characteristics, vegetation lines, tidal gages, or other suitable means that delineate the general height reached by a rising tide. The line encompasses spring high tides and other high tides that occur with periodic frequency but does not include storm surges in which there is a departure from the normal or predicted reach of the tide due to the piling up of water against a coast by strong winds such as those accompanying a hurricane or other intense storm.

Historic Property: Any prehistoric or historic district, site (including archaeological site), building, structure, or other object included in, or eligible for inclusion in, the National Register of Historic Places maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the National Register criteria (36 CFR part 60).

Independent utility: A test to determine what constitutes a single and complete non-linear project in the Corps Regulatory Program. A project is considered to have independent utility if it would be constructed absent the construction of other projects in the project area. Portions of a multi-phase project that depend upon other phases of the project do not have independent utility. Phases of a project that would be constructed even if the other phases were not built can be considered as separate single and complete projects with independent utility.

Indirect effects: Effects that are caused by the activity and are later in time or farther removed in distance, but are still reasonably foreseeable.

Loss of waters of the United States: Waters of the United States that are permanently adversely affected by filling, flooding, excavation, or drainage because of the regulated activity. The loss of stream bed includes the acres of stream bed that are permanently adversely affected by filling or excavation because of the regulated activity. Permanent adverse effects include permanent discharges of dredged or fill material that change an aquatic area to dry land, increase the bottom elevation of a waterbody, or change the use of a waterbody. The acreage of loss of waters of the United States is a threshold measurement of the impact to jurisdictional waters or wetlands for determining whether a project may qualify for an NWP; it is not a net threshold that is calculated after considering compensatory mitigation that may be used to offset losses of aquatic functions and services. Waters of the United States temporarily filled, flooded,

excavated, or drained, but restored to pre-construction contours and elevations after construction, are not included in the measurement of loss of waters of the United States. Impacts resulting from activities that do not require Department of the Army authorization, such as activities eligible for exemptions under section 404(f) of the Clean Water Act, are not considered when calculating the loss of waters of the United States.

Navigable waters: Waters subject to section 10 of the Rivers and Harbors Act of 1899. These waters are defined at 33 CFR part 329.

Non-tidal wetland: A non-tidal wetland is a wetland that is not subject to the ebb and flow of tidal waters. Non-tidal wetlands contiguous to tidal waters are located landward of the high tide line (i.e., spring high tide line).

Open water: For purposes of the NWPs, an open water is any area that in a year with normal patterns of precipitation has water flowing or standing above ground to the extent that an ordinary high water mark can be determined. Aquatic vegetation within the area of flowing or standing water is either non-emergent, sparse, or absent. Vegetated shallows are considered to be open waters. Examples of "open waters" include rivers, streams, lakes, and ponds.

Ordinary High Water Mark: The term ordinary high water mark means that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.

Perennial stream: A perennial stream has surface water flowing continuously year-round during a typical year.

Practicable: Available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes.

Pre-construction notification: A request submitted by the project proponent to the Corps for confirmation that a particular activity is authorized by nationwide permit. The request may be a permit application, letter, or similar document that includes information about the proposed work and its anticipated environmental effects. Pre-construction notification may be required by the terms and conditions of a nationwide permit, or by regional conditions. A pre-construction notification may be voluntarily submitted in cases where pre-construction notification is not required and the project proponent wants confirmation that the activity is authorized by nationwide permit.

Preservation: The removal of a threat to, or preventing the decline of, aquatic resources by an action in or near those aquatic resources. This term includes activities commonly associated with the protection and maintenance of aquatic resources through the implementation of appropriate legal and physical mechanisms. Preservation does not result in a gain of aquatic resource area or functions.

Re-establishment: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former aquatic resource. Re-establishment results in rebuilding a former aquatic resource and results in a gain in aquatic resource area and functions.

Rehabilitation: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of repairing natural/historic functions to a degraded aquatic resource. Rehabilitation results in a gain in aquatic resource function, but does not result in a gain in aquatic resource area.

Restoration: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former or degraded aquatic resource. For the purpose of tracking net gains in aquatic resource area, restoration is divided into two categories: re-establishment and rehabilitation.

Riffle and pool complex: Riffle and pool complexes are special aquatic sites under the 404(b)(1) Guidelines. Riffle and pool complexes sometimes characterize steep gradient sections of streams. Such stream sections are recognizable by their hydraulic characteristics. The rapid movement of water over a course substrate in riffles results in a rough flow, a turbulent surface, and high dissolved oxygen levels in the water. Pools are deeper areas associated with riffles. A slower stream velocity, a streaming flow, a smooth surface, and a finer substrate characterize pools.

Riparian areas: Riparian areas are lands next to streams, lakes, and estuarine-marine shorelines. Riparian areas are transitional between terrestrial and aquatic ecosystems, through which surface and subsurface hydrology connects riverine, lacustrine, estuarine, and marine waters with their adjacent wetlands, non-wetland waters, or uplands. Riparian areas provide a variety of ecological functions and services and help improve or maintain local water quality. (See general condition 23.)

Shellfish seeding: The placement of shellfish seed and/or suitable substrate to increase shellfish production. Shellfish seed consists of immature individual shellfish or individual shellfish attached to shells or shell fragments (i.e., spat on shell). Suitable substrate may consist of shellfish shells, shell fragments, or other appropriate materials placed into waters for shellfish habitat.

Single and complete linear project: A linear project is a project constructed for the purpose of getting people, goods, or services from a point of origin to a terminal point, which often involves multiple crossings of one or more waterbodies at separate and distant locations. The term “single and complete project” is defined as that portion of the total linear project proposed or accomplished by one owner/developer or partnership or other association of owners/developers that includes all crossings of a single water of the United States (i.e., a single waterbody) at a specific location. For linear projects crossing a single or multiple waterbodies several times at separate and distant locations, each crossing is considered a single and complete project for purposes of

NWP authorization. However, individual channels in a braided stream or river, or individual arms of a large, irregularly shaped wetland or lake, etc., are not separate waterbodies, and crossings of such features cannot be considered separately.

Single and complete non-linear project: For non-linear projects, the term "single and complete project" is defined at 33 CFR 330.2(i) as the total project proposed or accomplished by one owner/developer or partnership or other association of owners/developers. A single and complete non-linear project must have independent utility (see definition of "independent utility"). Single and complete non-linear projects may not be "piecemealed" to avoid the limits in an NWP authorization.

Stormwater management: Stormwater management is the mechanism for controlling stormwater runoff for the purposes of reducing downstream erosion, water quality degradation, and flooding and mitigating the adverse effects of changes in land use on the aquatic environment.

Stormwater management facilities: Stormwater management facilities are those facilities, including but not limited to, stormwater retention and detention ponds and best management practices, which retain water for a period of time to control runoff and/or improve the quality (i.e., by reducing the concentration of nutrients, sediments, hazardous substances and other pollutants) of stormwater runoff.

Stream bed: The substrate of the stream channel between the ordinary high water marks. The substrate may be bedrock or inorganic particles that range in size from clay to boulders. Wetlands contiguous to the stream bed, but outside of the ordinary high water marks, are not considered part of the stream bed.

Stream channelization: The manipulation of a stream's course, condition, capacity, or location that causes more than minimal interruption of normal stream processes. A channelized jurisdictional stream remains a water of the United States.

Structure: An object that is arranged in a definite pattern of organization. Examples of structures include, without limitation, any pier, boat dock, boat ramp, wharf, dolphin, weir, boom, breakwater, bulkhead, revetment, riprap, jetty, artificial island, artificial reef, permanent mooring structure, power transmission line, permanently moored floating vessel, piling, aid to navigation, or any other manmade obstacle or obstruction.

Tidal wetland: A tidal wetland is a jurisdictional wetland that is inundated by tidal waters. Tidal waters rise and fall in a predictable and measurable rhythm or cycle due to the gravitational pulls of the moon and sun. Tidal waters end where the rise and fall of the water surface can no longer be practically measured in a predictable rhythm due to masking by other waters, wind, or other effects. Tidal wetlands are located channelward of the high tide line.

Tribal lands: Any lands title to which is either: 1) held in trust by the United States for the benefit of any Indian tribe or individual; or 2) held by any Indian tribe or individual subject to restrictions by the United States against alienation.

Tribal rights: Those rights legally accruing to a tribe or tribes by virtue of inherent sovereign authority, unextinguished aboriginal title, treaty, statute, judicial decisions, executive order or agreement, and that give rise to legally enforceable remedies.

Vegetated shallows: Vegetated shallows are special aquatic sites under the 404(b)(1) Guidelines. They are areas that are permanently inundated and under normal circumstances have rooted aquatic vegetation, such as seagrasses in marine and estuarine systems and a variety of vascular rooted plants in freshwater systems.

Waterbody: For purposes of the NWPs, a waterbody is a "water of the United States." If a wetland is adjacent to a waterbody determined to be a water of the United States, that waterbody and any adjacent wetlands are considered together as a single aquatic unit (see 33 CFR 328.4(c)(2)).

ADDITIONAL INFORMATION

Information about the U.S. Army Corps of Engineers Regulatory Program, including nationwide permits, may also be accessed at http://www.swt.usace.army.mil/Missions/Regulatory.aspx or http://www.usace.army.mil/Missions/CivilWorks/RegulatoryProgramandPermits.aspx

DECISION DOCUMENT
NATIONWIDE PERMIT 29

This document discusses the factors considered by the Corps of Engineers (Corps) during the issuance process for this Nationwide Permit (NWP). This document contains: (1) the public interest review required by Corps regulations at 33 CFR 320.4(a)(1) and (2); (2) a discussion of the environmental considerations necessary to comply with the National Environmental Policy Act; and (3) the impact analysis specified in Subparts C through F of the 404(b)(1) Guidelines (40 CFR Part 230). This evaluation of the NWP includes a discussion of compliance with applicable laws, consideration of public comments, an alternatives analysis, and a general assessment of individual and cumulative environmental effects, including the general potential effects on each of the public interest factors specified at 33 CFR 320.4(a).

1.0 Text of the Nationwide Permit

Residential Developments. Discharges of dredged or fill material into non-tidal waters of the United States for the construction or expansion of a single residence, a multiple unit residential development, or a residential subdivision. This NWP authorizes the construction of building foundations and building pads and attendant features that are necessary for the use of the residence or residential development. Attendant features may include but are not limited to roads, parking lots, garages, yards, utility lines, storm water management facilities, septic fields, and recreation facilities such as playgrounds, playing fields, and golf courses (provided the golf course is an integral part of the residential development).

The discharge must not cause the loss of greater than 1/2-acre of non-tidal waters of the United States. This NWP does not authorize discharges of dredged or fill material into non-tidal wetlands adjacent to tidal waters.

Subdivisions: For residential subdivisions, the aggregate total loss of waters of United States authorized by this NWP cannot exceed 1/2-acre. This includes any loss of waters of the United States associated with development of individual subdivision lots.

Notification: The permittee must submit a pre-construction notification to the district engineer prior to commencing the activity. (See general condition 32.) (Authorities: Sections 10 and 404)

1.1 Requirements

General conditions of the NWPs are in the Federal Register notice announcing the

issuance of this NWP. Pre-construction notification requirements, additional conditions, limitations, and restrictions are in 33 CFR part 330.

1.2 Statutory Authorities

- Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403)
- Section 404 of the Clean Water Act (33 U.S.C. 1344)

1.3 Compliance with Related Laws (33 CFR 320.3)

1.3.1 General

Nationwide permits are a type of general permit designed to authorize certain activities that have no more than minimal individual and cumulative adverse environmental effects and generally comply with the related laws cited in 33 CFR 320.3. Activities that result in more than minimal individual and cumulative adverse environmental effects cannot be authorized by NWPs. Individual review of each activity authorized by an NWP will not normally be performed, except when pre-construction notification to the Corps is required or when an applicant requests verification that an activity complies with an NWP. Potential adverse impacts and compliance with the laws cited in 33 CFR 320.3 are controlled by the terms and conditions of each NWP, regional and case-specific conditions, and the review process that is undertaken prior to the issuance of NWPs.

The evaluation of this NWP, and related documentation, considers compliance with each of the following laws, where applicable: Section 10 of the Rivers and Harbors Act of 1899; Sections 401, 402, and 404 of the Clean Water Act; Section 307(c) of the Coastal Zone Management Act of 1972, as amended; Section 302 of the Marine Protection, Research and Sanctuaries Act of 1972, as amended; the National Environmental Policy Act of 1969; the Fish and Wildlife Act of 1956; the Migratory Marine Game-Fish Act; the Fish and Wildlife Coordination Act, the Federal Power Act of 1920, as amended; the National Historic Preservation Act of 1966; the Interstate Land Sales Full Disclosure Act; the Endangered Species Act; the Deepwater Port Act of 1974; the Marine Mammal Protection Act of 1972; Section 7(a) of the Wild and Scenic Rivers Act; the Ocean Thermal Energy Act of 1980; the National Fishing Enhancement Act of 1984; the Magnuson-Stevens Fishery and Conservation and Management Act, the Bald and Golden Eagle Protection Act; and the Migratory Bird Treaty Act. In addition, compliance of the NWP with other Federal requirements, such as Executive Orders and Federal regulations addressing issues such as floodplains, essential fish habitat, and critical resource waters is considered.

1.3.2 Terms and Conditions

Many NWPs have pre-construction notification requirements that trigger case-by-case review of certain activities. Two NWP general conditions require case-by-case review of all activities that may adversely affect federally-listed endangered or threatened species or historic properties (i.e., general conditions 18 and 20, respectively). General condition 16 restricts the use of NWPs for activities that are located in federally-designated wild and scenic rivers. None of the NWPs authorize the construction of artificial reefs. General condition 28 addresses the use of an NWP with other NWPs to authorize a single and complete project, to ensure that the acreage limits of each of the NWPs used to authorize that project are not exceeded.

In some cases, activities authorized by an NWP may require other federal, state, or local authorizations. Examples of such cases include, but are not limited to: activities that are in marine sanctuaries or affect marine sanctuaries or marine mammals; the ownership, construction, location, and operation of ocean thermal conversion facilities or deep water ports beyond the territorial seas; activities that result in discharges of dredged or fill material into waters of the United States and require Clean Water Act Section 401 water quality certification; or activities in a state operating under a coastal zone management program approved by the Secretary of Commerce under the Coastal Zone Management Act. In such cases, a provision of the NWPs states that an NWP does not obviate the need to obtain other authorizations required by law. [33 CFR 330.4(b)(2)]

Additional safeguards include provisions that allow the Chief of Engineers, division engineers, and/or district engineers to: assert discretionary authority and require an individual permit for a specific activity; modify NWPs for specific activities by adding special conditions on a case-by-case basis; add conditions on a regional or nationwide basis to certain NWPs; or take action to suspend or revoke an NWP or NWP authorization for activities within a region or state. Regional conditions are imposed to protect important regional concerns and resources. [33 CFR 330.4(e) and 330.5]

1.3.3 Review Process

The analyses in this document and the coordination that was undertaken prior to the issuance of the NWP fulfill the requirements of the National Environmental Policy Act (NEPA), the Fish and Wildlife Coordination Act, and other acts promulgated to protect the quality of the environment.

All NWPs that authorize activities that may result in discharges into waters of the United States require compliance with the water quality certification requirements of Section 401 of the Clean Water Act. Nationwide permits that authorize activities within, or affecting land or water uses within a state that has a Federally-approved coastal zone management program, must also be certified as consistent with the state's program, unless a presumption of concurrence occurs. The procedures to ensure that the NWPs comply with these laws are described in 33 CFR 330.4(c) and (d), respectively.

1.4 Public Comments and Responses

For a summary of the public comments received in response to the September 15, 2020, Federal Register notice, refer to the preamble in the Federal Register notice announcing the reissuance of this NWP. The substantive comments received in response to the September 15, 2020, Federal Register notice were used to improve the NWP by changing NWP terms and limits, pre-construction notification requirements, and/or NWP general conditions, as necessary.

The Corps proposed to modify this NWP to remove the 300 linear foot limit for losses of stream bed. The Corps also proposed to remove the ability for district engineers to waive the 300 linear foot limit for losses of intermittent and ephemeral stream bed. This NWP has a 1/2-acre limit for losses of non-tidal waters of the United States, including non-tidal wetlands and non-tidal streams. This NWP requires pre-construction notification for all activities. Therefore, district engineers will review all proposed activities for these on a case-by-case basis. When reviewing these PCNs, district engineers apply the 10 criteria in paragraph 2 of Section D, District Engineer's Decision, to determine whether the proposed activities will result in no more than minimal individual and cumulative adverse environmental effects.

In the proposed rule, the Corps presented a number of reasons for the proposed removal of the 300 linear foot limit for losses of stream bed from this NWP. The Corps' rationale comprises four categories of considerations: (1) the Corps employs several tools in the NWP Program to ensure that NWP activities result only in no more than minimal individual and cumulative adverse environmental effects; (2) removing the 300 linear foot limit would provide consistency across the numeric limits used by the NWP Program for all categories of non-tidal waters of the United States (i.e., jurisdictional wetlands, streams, ponds, and other non-tidal waters); (3) it would further the objective of the NWP Program stated in 33 CFR 330.1(b) (i.e., to authorize with little, if any, delay or paperwork certain activities having minimal impacts), by providing equivalent quantitative limits for jurisdictional wetlands, streams, and other types of non-tidal jurisdictional waters, and NWP authorization for losses of jurisdictional stream bed that have no more than minimal individual and cumulative adverse environmental effects; and (4) using acres or square feet (i.e., an area-based metric) instead of linear feet is a more accurate approach to quantifying losses of stream bed and also serves as a better surrogate for losses of stream functions when a functional assessment method is not available or practical to use.

After reviewing the comments received in response to the proposed rule, for the reasons discussed below the Corps has decided to remove the 300 linear foot limit for losses of stream bed from this NWP. The comments received in response to the proposed rule are summarized below. The Corps' responses to those comments

are also provided along with the comment summaries.

Retaining the 1/2-acre limit for losses of non-tidal jurisdictional waters and wetlands in this NWP while removing the 300 linear foot limit for losses of stream bed will help further Congressional intent with respect to Section 404(e) of the Clean Water Act when that provision was enacted into law in 1977. Section 404(e) authorizes the Corps to issue, after notice and opportunity for public hearing, general permits on a state, regional, or nationwide basis for any category of activities involving discharges of dredged or fill material if the Corps determines that the activities in such category are similar in nature, will cause only minimal adverse environmental effects when performed separately, and will have only minimal cumulative adverse effect on the environment. Section 404(e) does not prescribe any particular approaches for ensuring that activities authorized by general permits result in no more than minimal individual and cumulative adverse environmental effects, thus the Corps developed the PCN process and provided division and district engineers with the authority to modify, suspend, or revoke NWP authorizations on a regional or activity-specific basis after the NWPs are issued by Corps Headquarters. General permits provide a process for authorizing, with minimal paperwork and delays, activities that have no more than minimal individual and cumulative adverse environmental effects. General permits are an important tool for the Corps managing its personnel and workload so that it can focus its efforts on evaluating permit applications for proposed activities that have the potential to cause more than minimal adverse environmental effects.

Removing the 300 linear foot limit for losses of stream bed under this NWP provides equivalent quantitative limits for all categories of non-tidal jurisdictional waters, including non-tidal "tributaries," “lakes, ponds, and impoundments of jurisdictional waters,” and “adjacent wetlands” (see 33 CFR 328.3(a)). These non-tidal waters will continue to be subjected to the 1/2-acre limit for losses of non-tidal waters. This NWP requires PCNs for all authorized activities, and district engineers will review these PCNs to determine which activities can be authorized by this NWP and which activities should require individual permits. When reviewing a PCN, the district engineer has the authority to exercise discretionary authority to modify, suspend, or revoke the NWP authorization (see 33 CFR 330.1(d)). When a district engineer reviews a PCN, and if she or he determines that the proposed activity would have more than minimal individual or cumulative net adverse effects on the environment or otherwise may be contrary to the public interest, he or she will either modify the NWP authorization to reduce or eliminate those adverse effects, or instruct the prospective permittee to apply for a regional general permit or an individual permit (§330.1(d)). To determine whether a proposed NWP activity will result in no more than minimal individual and cumulative adverse environmental effects, the district engineer will apply the 10 criteria in paragraph 2 of Section D, District Engineer’s decision.

Those ten criteria for making minimal adverse environmental effects determinations are:

(1) the direct and indirect effects caused by the NWP activity;
(2) the cumulative adverse environmental effects caused by activities authorized by an NWP and whether those cumulative adverse environmental effects are no more than minimal;
(3) the environmental setting in the vicinity of the NWP activity;
(4) the type of resource that will be affected by the NWP activity;
(5) the functions provided by the aquatic resources that will be affected by the NWP activity;
(6) the degree or magnitude to which the aquatic resources perform those functions;
(7) the extent that aquatic resource functions will be lost as a result of the NWP activity (e.g., partial or complete loss);
(8) the duration of the adverse effects (temporary or permanent);
(9) the importance of the aquatic resource functions to the region (e.g., watershed or ecoregion); and
(10) mitigation required by the district engineer.

If an appropriate functional assessment method is available and practicable to use, that assessment method may be used by the district engineer to help determine whether the proposed activity will result in no more than minimal adverse environmental effects.

The removal of the 300 linear foot limit for losses of stream bed will help increase administrative efficiency by providing a mechanism to authorize, through the NWP Program activities that result in the loss of greater than 300 linear feet of jurisdictional stream bed, but less than 1/2-acre of non-tidal jurisdictional waters. Under the 2017 NWPs, filling or excavating more than 300 linear feet of a perennial stream bed requires an individual permit even under circumstances where the loss of the stream bed would result in no more than minimal individual and cumulative adverse environmental effects. Under this final rule, district engineers would review PCNs for proposed losses of jurisdictional stream bed (plus any other losses of non-tidal waters of the United States) that are less than 1/2-acre and determine whether those proposed activities can be authorized by this NWP. If, for a particular PCN, the district engineer determines that the individual and cumulative adverse environmental effects would be more than minimal, he or she will exercise discretionary authority and require an individual permit. This approach provides administrative efficiency by providing a mechanism for district engineers to distinguish which proposed activities should be authorized by an NWP versus which activities should require individual permits with a public notice and comment process and activity-specific evaluations under NEPA, the public interest review, and the Clean Water Act section 404(b)(1) Guidelines.

This approach also adds efficiency in terms of reducing processing times and paperwork for proposed activities that have no more than minimal adverse environmental effects and that are likely to generate few, if any, public or agency

comments in response to a public notice for an individual permit application. When more activities that result in no more than minimal adverse environmental effects can be authorized by an NWP, there can be more staff and other resources for Corps districts to devote to undertaking other tasks, such as the review and approval of mitigation banks and in-lieu fee programs and overseeing their operation, conducting compliance actions to ensure that authorized activities are being conducted in accordance with the terms and conditions of their DA authorizations, and conducting approved and preliminary jurisdictional determinations that help project proponents plan and design their proposed projects to avoid and minimize impacts to jurisdictional waters and wetlands.

Another benefit of removing the 300 linear foot limit for losses of jurisdictional stream bed and shifting the quantification of losses of jurisdictional stream bed towards the 1/2-acre limit for losses of non-tidal waters of the United States is more accurate accounting of the impacts of activities authorized by this NWP. The discharges of dredged or fill material authorized by this NWP occur over an area of a river or stream bed and also may include impacts to other aquatic resources such as wetlands or open water areas (e.g., lakes or ponds). The discharge of dredged or fill material to a river or stream has a length and a width, and the width can vary depending on the physical characteristics of the impact area, the type of activity being conducted (e.g., bank stabilization, channel excavation, channel realignment), and other factors. To be regulated under Section 404 of the Clean Water Act, a discharge of dredged material involves any addition, including redeposit other than incidental fallback, of dredged material, including excavated material, into waters of the United States that is incidental to any activity, including mechanized land clearing, ditching, channelization, or other excavation (see 33 CFR 323.2(d)(1)(iii)). A regulated discharge of fill material involves the addition of fill material into waters of the United States that has the effect of either replacing any portion of a water of the United States with dry land or changing the bottom elevation of any portion of a water of the United States (see 33 CFR 323.3(e) and (f)). The direct impacts of these activities are most accurately quantified on an area basis, not a linear basis, to inform a district engineer's decision on whether a proposed activity should be or is authorized by an NWP and to track cumulative impacts.

Accurate quantification of stream bed losses authorized by an NWP is an important component of determining whether a proposed NWP activity will result in no more than minimal individual adverse environmental effects. (See item 1 above from paragraph 2 of Section D, District Engineer's Decision: understanding "the direct and indirect effects caused by the NWP activity.") Accurate quantification of stream bed losses is also important for tracking cumulative impacts of activities authorized by an NWP, both on a national and regional basis, and for determining whether a particular NWP activity will contribute to more than minimal cumulative adverse environmental effects. (See item 2 of paragraph 2 of the District Engineer's Decision: "the cumulative adverse environmental effects caused by activities authorized by an NWP and whether those cumulative adverse environmental effects are no more than minimal.")

As discussed in the 2020 Proposal (85 FR 57316), discharges of dredged or fill material into jurisdictional streams can cause losses of stream bed along only a portion of the stream bed (e.g., bank stabilization projects that involve discharging fill along the edge of the stream, with no fill in the rest of the stream bed) or across the entire stream bed (e.g., excavating the stream bed to mine aggregates) along a stream reach. A wide variety of activities involving filling or excavating stream bed may be authorized by the NWPs, such as bank stabilization, channel realignment, culvert installation or replacement, stream channel restoration, the installation of grade control structures (e.g., rock), fills for footings for bridges, livestock crossings, utility line crossings, and temporary fills for construction and access. Quantifying losses of stream bed in linear feet does not distinguish between filling or excavation activities that occur only in a portion of the stream bed along an ordinary high water mark versus filling or excavation activities that occur in the entire stream bed, from ordinary high water mark to ordinary high water mark.

Accurate quantification of losses of stream bed and losses of other types of jurisdictional waters and wetlands is also important for monitoring and evaluating the cumulative adverse environmental effects caused by NWP activities. In response to the 2020 Proposal, numerous commenters criticized the Corps' assessment of cumulative effects for the NWPs. An essential step in conducting a cumulative effects analysis for an NWP is estimating how many times that NWP may be used during the period the NWP is in effect, the quantity of jurisdictional waters and wetlands that may be lost or directly altered by the activities authorized by that NWP, whether those losses or alterations are permanent or temporary, and what, if any compensatory mitigation is being used to offset those losses. The Corps provides those estimates in its national decision documents, and those estimates are more robust if they use a common metric, so that it is possible to calculate total losses and offsets during the period the NWP is in effect.

Division engineers have discretionary authority to modify, suspend, or revoke NWP authorizations on a regional basis (33 CFR 330.5(c)) to help ensure that the NWPs are only used to authorize activities that have no more than minimal individual and cumulative adverse environmental effects. For example, if a Corps district determines, in a particular watershed, county, Corps district, or other geographic region, that cumulative losses of stream bed authorized by NWPs may be approaching a level that might exceed the "no more than minimal cumulative adverse environmental effects" threshold, the Corps district can request that the division engineer modify, suspend, or revoke the relevant NWP authorizations in that region. The division engineer can add regional conditions to the appropriate NWPs to restrict or prohibit their use in particular categories of waters, or suspend or revoke the NWP authorization so that those NWP(s) can no longer be used to authorize regulated activities in that geographic region. The division engineer's authority to modify, suspend, or revoke NWP authorizations on a regional basis can also be used to sort out which activities can be authorized by an NWP versus which activities should require individual permits.

District engineers have discretionary authority to modify, suspend, or revoke NWP authorizations on a case-specific basis (see 33 CFR 330.5(d)) to help ensure that NWPs are only used to authorize specific activities that have no more than minimal individual and cumulative adverse environmental effects. A district engineer can add conditions to an NWP authorization to reduce potential adverse environmental effects that might be caused by a proposed NWP activity, such as mitigation requirements to avoid or minimize direct and indirect effects caused by that activity. One example is a time of year restriction to prevent discharges of dredged or fill material from occurring during spawning seasons for fish or other aquatic organisms. Another example of a permit conditions to help reduce adverse environmental effects caused by an NWP activity might be to require the use of certain best management practices. A district engineer might also add permit conditions to the NWP authorization to require compensatory mitigation to offset losses of waters of the United States caused by the NWP activity.

As the Corps implements this final rule, it will continue to rely on these administrative tools that have long been used with this NWP to help ensure that authorized activities will result in no more than minimal individual and cumulative adverse environmental effects. Those tools are the 1/2-acre limit for losses of non-tidal waters of the United States, the pre-construction notification requirements and associated activity-specific review by district engineers, the regional conditions that can be added by division engineers, and the activity-specific conditions that can be added by district engineers when reviewing individual PCNs.

The proposal was made in accordance with the recommendations in the report issued by the Office of the Assistant Secretary of the Army (Civil Works) in response to E.O. 13783 on ways to streamline the NWPs. In the proposed rule, the Corps invited public comment on the proposal to remove the 300 linear foot limit and to rely on the 1/2-acre limit, the PCN process, the proposed modification of the “mitigation” general condition (general condition 23), and other tools to comply with the statutory and regulatory requirement that activities authorized by an NWP must result in no more than minimal individual and cumulative adverse environmental effects. The Corps also invited comment on whether there are situations where quantifying losses of stream bed in linear feet might more accurately represents the actual amount of stream bed filled or excavated as a result of an NWP activity and would result in more defensible determinations on whether a proposed NWP activity will result in no more than minimal individual and cumulative adverse environmental effects. In the proposed rule, the Corps asked commenters to provide information that would help illustrate or explain how and under what circumstance using a linear foot measure to quantify losses of stream bed would be more accurate than using square feet or acres to quantify the amount of authorized impacts.

The Corps also invited comment on the legal, regulatory, policy, or scientific bases for imposing different numeric limits on jurisdictional stream bed losses versus losses of non-tidal jurisdictional wetlands or other types of non-tidal jurisdictional

waters. Commenters were encouraged to provide supporting information in the form of citations to laws, regulations, and policies, and the scientific literature, because substantive information would be valuable in assisting the Corps in preparing the final NWPs.

The Corps also requested comment on an alternative hybrid approach to establishing consistent quantitative limits for losses of stream bed authorized by this NWP. Under the proposed hybrid approach, losses of stream bed would continue to be quantified in linear feet as long as the activities authorized by this NWP would result only in the loss of stream bed. There would be linear foot limits for losses of stream bed by stream order identified using the Strahler (1957) method, and the mean stream widths identified by Downing et al. (2012). If a proposed NWP activity would result in the loss of jurisdictional stream bed plus other types of waters of the United States, such as non-tidal jurisdictional wetlands, the losses of waters of the United States would be quantified in acres and subjected to the 1/2-acre limit. In the preamble to the proposed rule, the Corps provided a table for the hybrid approach (see 85 FR 57321). A critical component of effectively applying the hybrid approach is identifying the correct stream order for the stream segment that is proposed to be filled or excavated as a result of the proposed NWP activity. In this hybrid approach, the linear foot limits would only apply to losses of stream bed. If a proposed NWP activity would result in a combination of losses of jurisdictional stream bed and other types of waters of the United States, such as non-tidal jurisdictional wetlands, then the 1/2-acre limit would apply to the combined losses of stream bed and non-tidal wetlands, to keep those losses below 1/2-acre.

In conjunction with the proposal to remove the 300 linear foot limit for losses of stream bed, the Corps proposed to remove the provisions in this NWP regarding the ability of district engineers to waive the 300 linear foot limit for losses of intermittent and ephemeral stream bed when the applicant submits a PCN and requests a waiver of that 300 linear foot limit. On April 21, 2020, EPA and the Department of the Army published a final rule to define “waters of the United States” entitled the Navigable Waters Protection Rule (85 FR 22250). On June 22, 2020, the Navigable Waters Protection Rule became effective in all states and jurisdictions except for the State of Colorado due to a federal district court-issued stay in that state. The rule revised the definition of “waters of the United States” at 33 CFR 328.3 such that ephemeral features, including ephemeral streams, are categorically excluded from jurisdiction under the Clean Water Act (see 33 CFR 328.3(b)(3)). Therefore, there would be no need to request waivers for losses of ephemeral stream bed (regardless of length) since NWP authorization (or any other form of DA authorization) will not be needed to authorize discharges of dredge or fill material into ephemeral streams. See Section III.C, for more discussion on the potential impact of the Navigable Water Protection Rule on the NWPs.

In addition, the Corps proposed to remove the agency coordination process for seeking input from federal and state agencies on whether the district engineer should grant the waiver of the 300 linear foot limit requested by an applicant for an

NWP verification. Removing the waiver provision may reduce costs to permittees by reducing the amount of time the district engineer needs to make her or his decision. For example, the district engineer would not have to wait up to 25 days (see paragraph (d)(3) of the "pre-construction notification" general condition (GC 32) to make the decision on whether to issue the NWP verification. Removal of the agency coordination for these activities is also likely to reduce administrative costs to the Corps, by reducing the amount of staff time needed to send copies of PCNs to the agencies and summarizing and responding to agency comments. Removal of the waiver provision and associated agency coordination would also free up additional time for Corps staff to review other PCNs, other permit applications, and other regulatory actions such as jurisdictional determinations and compliance activities. As mentioned above, under the Navigable Waters Protection Rule, ephemeral streams are not "waters of the United States." See 33 CFR 328.3(b)(3). Therefore, it should be noted that this would likely reduce the current number of waivers and required interagency coordination process from state and federal agencies, since the current waivers apply only to certain intermittent streams.

Many commenters opposed the removal of the 300 linear foot limit for losses of stream bed. Many commenters supported the proposed change, stating that calculating losses of stream bed in acres is a more accurate measure of those losses since acreage takes both the length and width of the stream channel into account when determining the amount of stream bed filled or excavated by an NWP activity. Several commenters in favor of the proposed change expressed concern with how this change would affect mitigation banks and credit calculations for future and past permits. Several commenters believed this change would continue to ensure that the activities authorized by this NWP would result in no more than minimal impacts.

As discussed above, the Corps is removing the 300 linear foot limit for losses of stream bed from this NWP for the reasons discussed in this final rule to increase the efficiency of the NWP program, utilize a metric that more accurately reflects the amount of impact, and to allow NWP authorization of losses of stream bed where district engineers determine that those losses would have no more than minimal adverse environmental effects after reviewing PCNs. Quantifying losses of stream bed in acres or square feet will be more accurate, provide a more substantial and defensible basis for decision-making by district engineers on PCNs for these activities, and provide more accurate data for the Corps to track cumulative impacts of the activities authorized by this NWP. The removal of the 300 linear foot limit will not affect the ability of district engineers to require compensatory mitigation or other forms of mitigation for losses of stream bed. In addition, it should not have a substantial effect on mitigation banks that have already been approved and mitigation banks that may be approved in the future. Depending on how existing mitigation banks quantify the credits they produce, there may have to be some technical changes in how credit transactions occur between mitigation bank sponsors and permittees, to determine the appropriate number of stream credits that are needed to offset a permitted loss of stream bed.

A few commenters supported the removal of the 300 linear foot limit because the district engineer retains the ability to exercise discretionary authority to require individual permits if the adverse environmental effects caused by a proposed activity would be more than minimal. These commenters also said they support the removal of the 300 linear foot limit as long as Corps divisions and districts can continue to develop and use regional conditions in districts that have specific resource concerns.

The PCN process is an administrative tool that helps ensure that activities authorized by NWPs cause no more than minimal individual and cumulative adverse environmental effects, by providing activity-specific review of these activities by district engineers before they are authorized by an NWP. The 1/2-acre limit is another tool that helps ensure that activities authorized by this NWP have no more than minimal adverse environmental effects. In geographic areas where there are concerns about cumulative losses of headwater streams and the functions they provide, division engineers can add regional conditions to this NWP to reduce the acreage limit from 1/2-acre to a lower acreage limit, such as 1/4-acre or 1/10-acre. In addition, division engineers can add regional conditions to this NWP to lower the threshold for requiring stream compensatory mitigation from 3/100-acre to a different acreage threshold.

Many commenters expressed concerns with removing the 300-linear foot limit on loss of stream bed for this NWP, stating that this change would allow much larger impacts to smaller stream channels since they typically have smaller widths and therefore a permittee could impact a much longer length of stream before reaching the 1/2-acre limit. Many commenters said that a linear foot measurement was more appropriate for calculating stream impacts and losses than an acreage-based system because streams are fundamentally linear features in the landscape. Many commenters stated that the Corps has not provided any scientific rational or reasoning behind this change and even the scientific studies cited by the Corps were not interpreted appropriately.

As discussed above, the Corps will rely on other, existing protective mechanisms within the NWPs to ensure that the activities authorized by this NWP will result in no more than minimal individual and cumulative adverse environmental effects. Those tools include the 1/2-acre limit, the PCN requirements for this NWP, and the ability of division and district engineers to further condition or restrict the applicability of an NWP in situations where they have concerns for the aquatic environment under the Clean Water Act section 404(b)(1) Guidelines or for any factor of the public interest (see 33 CFR 330.1(d)). While rivers and streams have a strong linear component, they also vary substantially in width. Discharges of dredged or fill material into waters of the United States that cause losses of waters of United States through the filling or excavation of stream beds occur over an area, and using acres or square feet to quantify losses of stream bed is more informative to determinations of minimal effects and accurate in data accounting than using linear feet. The potential

losses of stream functions, and whether those losses are more than minimal, can be addressed through the PCN review process. When determining whether a proposed NWP activity will result in no more than minimal individual and cumulative adverse environmental effects, district engineers will apply the 10 criteria in paragraph 2 of Section D, District Engineer's Decision. Decisions regarding quantitative limits for the NWPs are administrative decisions because the legal threshold for general permits ("no more than minimal individual and cumulative adverse environmental effects") is a subjective threshold. Applying this subjective threshold to complex ecological systems requires a district engineer to exercise his or her judgment as to whether that threshold is crossed for particular NWP activity.

Another tool that the Corps added to this final rule to help ensure that the activities authorized by this NWP will result in no more than minimal individual and cumulative adverse environmental effects is the addition of a 3/100-acre threshold for stream compensatory mitigation in paragraph (d) of the mitigation general condition (general condition 23). The 1/10-acre wetland mitigation threshold in general condition 23 has been effective in providing incentives for project proponents to reduce wetland losses well below the 1/2-acre limit to avoid the costs of providing wetland compensatory mitigation. As shown in figure 5.1 of the Regulatory Impact Analysis for this final rule, more than 80 percent of losses of waters of the United States verified by district engineers in fiscal year 2018 as qualifying for NWP authorization were less than 1/10-acre. The losses of waters of the United States in figure 5.1 include losses of stream bed, which were quantified in acres. The Corps anticipates that the 3/100-acre stream compensatory mitigation threshold will also be an effective incentive to permittees to reduce losses of stream bed to avoid the costs of providing stream compensatory mitigation to offset losses of greater than 3/100-acre of stream bed. For NWP activities that require PCNs, district engineers continue to have discretion to require stream compensatory mitigation for losses of stream bed above or below the 3/100-acre threshold in paragraph (d) of general condition 23.

Several commenters also questioned the Corps' use of the study by Downing et al. (2012), which examined stream channels all over the world, stating that stream channels may be narrower in the United States (citing an average width in the United States of 2.6 feet). Several commenters stated support of a hybrid approach in lieu of an acreage calculation, but were concerned about the variability of stream order classifications and the availability of tools to Corps districts to implement that approach in an effective and defensible manner. One of these commenters noted that LiDAR is not available in all areas of the country. Many commenters opposed the proposed 'hybrid approach' in the preamble in which stream impact limits would vary by stream order by applying a mean stream width. Some of these commenters asserted that a linear foot metric is still likely a more accurate and easier method since determining stream order is highly varied along with determining a stream width.

The Corps acknowledges that the study by Downing et al. (2012) does not fully

represent the variability in stream dimensions. One of the purposes of using the information in that study was to demonstrate how a linear foot limit for losses of stream bed results in disparate differences in the amount of stream bed that can be filled or excavated under an NWP depending on where an affected stream reach is located in a tributary network (i.e., a headwater stream versus a stream segment located further downstream in a watershed). In a study of headwater streams in North America and New Zealand, using field surveys of headwater streams instead of the published data and satellite imagery used by Downing et al. (2012), Allen et al. (2018) found a typical width of 1.05 feet for headwater streams. The Corps agrees that the hybrid approach proposed in the preamble to the 2020 Proposal would not be an efficient or effective approach to establishing quantitative limits for this NWP. There is not sufficiently accurate mapping of headwater streams in the United States to implement such a hybrid approach, and the hybrid approach would not take into account regional variability in stream geomorphology. The Corps does not agree that a linear foot metric is easier or more accurate than an acreage-based metric. The area of stream bed filled or excavated as a result of an NWP activity is already calculated by the Corps to record impacts to aquatic resources, and it represents the amount of stream bed lost as a result the discharges of dredged or fill material regulated under Section 404 of the Clean Water Act.

Many commenters also questioned how stream width was to be measured (ordinary high water mark to ordinary high water mark versus stream bed/bottom) which could also produce variability in how an acreage limit would be applied. Many commenters recognized that the measures for small and large streams should be different but until a more appropriate metric is developed, acreage should not be used in lieu of linear feet since it would be inappropriate to adopt a measure that better represents larger stream systems while the overwhelming majority of impacts occur to smaller streams and are therefore better represented for the time being by a linear foot measurement.

Stream width should be measured from ordinary high water mark to ordinary high water mark, perpendicular to the longitudinal direction of the stream channel. That is consistent with the definition of “stream bed” in Section F of the NWPs. Commenters did not suggest a more accurate method for quantifying impacts to small and large streams in their comments. Establishing different metrics for small versus large streams also presents challenges in terms of consistently determining what constitutes a small stream versus a large stream, which has the potential for being an arbitrary distinction and would add another layer of complexity to the NWP program.

Many commenters noted that smaller stream channels provide important ecological functions and values and they provided numerous references to scientific studies that document the importance of these stream channels as linear systems in the landscape. Some of these commenters said impacts to small stream channels were more severe and/or permanent (e.g., complete losses by filling entire stream reaches) and noted that small streams are more susceptible to fragmentation

impacts, are harder to restore/mitigate, and have compounding effects to downstream waters when impacts are cumulative and more than minimal. Many commenters noted that, in general, disproportionate impacts already occur to these smaller order stream channels because it is easier from an engineering standpoint and ultimately less costly to impact them versus larger order stream channels, and that removing the 300 linear foot limit would provide even less incentive to avoid and minimize impacts to these important resources.

The ecological functions of smaller stream channels are to be considered by district engineers when they review PCNs for proposed activities involving filling or excavating stream beds. When evaluating PCNs, district engineers consider the 10 criteria in paragraph 2 or Section D, District Engineer's Decision. Those criteria include: the environmental setting in the vicinity of the NWP activity, the type of resource that will be affected by the NWP activity, the functions provided by the aquatic resources that will be affected by the NWP activity, the degree or magnitude to which the aquatic resources perform those functions, the extent that aquatic resource functions will be lost as a result of the NWP activity, and the importance of the aquatic resource functions to the region. Division engineers can add regional conditions to this NWP to impose lower acreage limits or other restrictions to address concerns about potential losses of smaller stream channels and the functions they provide, including cumulative impacts to those smaller stream channels. The Corps acknowledges that, because of their size, smaller stream channels may be more susceptible to proposed development activities and other activities involving discharges of dredged or fill material into waters of the United States. Project proponents are less likely to fill larger stream channels because of the water that flows towards those larger stream channels, but other activities such as bank stabilization, excavation activities in the stream bed, and realigning stream channels may be authorized by the NWPs. Removing the 300 linear foot limit and relying on the 1/2-acre limit and PCN review process to identify activities that require individual permits helps the Corps implement its permit program more effectively, to efficiently authorize activities with no more than minimal adverse environmental effects via NWP, and focusing more of its resources on evaluating individual permit applications for activities that are likely have more substantial environmental impacts.

Many commenters said that this change would allow more than minimal impacts because of the disproportionate length of impacts to headwater streams that would be allowed now under the NWP program, which is said to be counter to and inconsistent with the goal and purpose of the NWP program. Many commenters questioned how the Corps could reconcile and justify this change based on the long-standing history of the 300-linear foot limit for losses of stream bed in the NWP program. Many commenters stated that individual permits should be required for proposed impacts to more than 300 linear feet of stream bed, to allow for the public and federal, state, and local resource agencies to comment on proposals to fill or excavate several thousand feet of stream bed.

The Corps will be relying on other, existing protective mechanisms within the NWPs to ensure that this NWP authorizes only those activities that have no more than minimal adverse environmental effects. The NWP program has changed over time as new information is considered and alternative ways of implementing the program are identified to further the program's objective of regulating, "with little, if any, delay or paperwork certain activities having minimal impacts" (33 CFR 330.1(b)). The removal of the 300 linear foot limit, continued application of the 1/2-acre limit, plus the ability of division and district engineers to exercise their discretionary authority to modify, suspend, or revoke NWP authorizations on a regional or case-by-case basis, respectively, will ensure that activities that would cause more than minimal adverse environmental effects will be evaluated through the individual permit process.

Many commenters expressed concern about other changes within this proposal, when combined with the removal of the 300 linear feet limit would eliminate agency coordination with federal and state resource agencies under paragraph (d) of general condition 32. One commenter said that when reviewing the number of individual permits issued versus activities authorized under NWPs that even with what the commenter considers the more stringent 300-linear foot limit in place there is no justifiable need for reducing regulatory burden since the number of individual permits is so small compared to NWP verifications and this change would likely not result in any significant decrease in number of individual permits or regulatory burden.

For this NWP, the agency coordination process in paragraph (d) of general condition 32 was limited to requests for waivers of the 300 linear foot limit for losses of intermittent and ephemeral stream bed. Ephemeral streams are not waters of the United States (see 33 CFR 328.3(b)(3)) and therefore not subject to jurisdiction under Section 404 of the Clean Water Act. In its Regulatory Impact Analyses for the proposed and final rules, the Corps acknowledges that the removal of the 300 linear foot limit is likely to result in a modest increase in NWP authorizations (174 per year), and a commensurate decrease in the number of activities that require individual permits. However, a modest reduction in the number of individual permits that must be processed each year can help improve administration of the Corps Regulatory Program and allow the Corps to devote more time and resources to working with project proponents to reduce the environmental impacts of activities that have the potential to result in more substantial impacts to jurisdictional wetlands and waters.

Many commenters said that the proposed 1/10-acre mitigation threshold for losses of stream bed was not an adequate tool for ensuring no more than minimal adverse environmental effects based on the disproportionately large amount of impacts to smaller headwater streams that would need to occur before compensatory mitigation was required. Many commenters expressed concern about the potential for increased likelihood for out-of-kind mitigation being provided to offset headwater stream impacts if mitigation is based on an acreage or other area-based metric for

losses of stream bed. These commenters said that out-of-kind mitigation would likely increase because it would be the only option available to permittees due to fewer stream credits being generated and available as mitigation bankers and other mitigation providers adapt to this change and the uncertainty in the market that this change might create.

The comments received on the proposed 1/10-acre threshold for stream mitigation are discussed in the section of this preamble that discusses the comments received on general condition 23. In response to those comments, the Corps reduced the threshold for stream mitigation from 1/10-acre to 3/100-acre. As explained in the discussion of general condition 23 below, this change in the stream mitigation threshold aligns with current practice for stream mitigation requirements in the NWP program, and the recommendations for the stream mitigation threshold provided by commenters. The Corps uses a watershed approach for compensatory mitigation (see 33 CFR 332.3(c)). The goal of a watershed approach is to maintain and improve the quality and quantity of aquatic resources within watersheds through strategic selection of compensatory mitigation sites (see 33 CFR 332.3(c)(1)). A watershed approach considers how the types and locations of compensatory mitigation projects will provide the desired aquatic resource functions, and will continue to function over time in a changing landscape (33 CFR 332.3(c)(2)(i)), and may involve the use of out-of-kind mitigation.

Under a watershed approach, other approaches to stream restoration may be used to generate stream credits besides headwater stream channel reconfiguration projects. These other approaches may include process-based stream restoration activities such as dam removal, culvert replacements, levee setbacks or removals, riparian area restoration, allowing beavers to construct dams to aggrade incised channels, or installing structures that mimic beaver dams to aggrade incised channels (Beechie et al. 2010) to generate compensatory mitigation credits for activities authorized by this NWP. The use of beaver dams or structures to aggrade incised stream channels may result in wetland/stream complexes for which an area-based credit metric may be more appropriate than a linear foot-based metric. Focusing on restoring stream functions can be more ecologically successful in improving stream functions than form-based restoration approaches such as channel reconfiguration that have had questionable success in restoring degraded streams (Palmer et al. 2014). The stream credits generated by channel reconfiguration projects in headwater streams can be quantified in linear feet or acres, because the Corps' compensatory mitigation regulations do not mandate a specific approach for quantifying stream credits. Section 332.8(o)(1) states that the principal units for credits and debits are acres, linear feet, functional assessment units, or other suitable metrics of particular resource types. The preamble to the 2008 mitigation rule states that "district engineers retain the discretion to quantify stream impacts and required compensatory mitigation in terms of area or other appropriate units of measure" (73 FR 19633).

The Corps received many comments and questions about how these changes

would likely negatively affect long-standing stream mitigation accounting and the mitigation banking industry in general. These commenters said that a linear foot metric has always been used for stream assessment methodologies and the basis for mitigation accounting systems, and many commenters stated that changing this metric would be unnecessarily burdensome and costly to stream restoration professionals and likely result in fewer stream restoration projects. One commenter stated that the proposed change would not increase mitigation opportunities in larger or higher order stream channels as proposed since the restoration of larger streams is more complex than smaller streams and is dependent on many variables to include funding availability, site selection, engineering and design considerations, mitigation requirements associated with the project, market incentives, and the inability to control future impacts in the headwaters which can jeopardize the larger stream restoration project.

As stated in the previous paragraphs, the Corps' regulations do not require use of a linear foot metric for stream assessment methodologies or for quantifying stream impacts or compensatory mitigation credits. The removal of the 300 linear foot limit for losses of stream bed and the changes to general condition 23 are likely to benefit the mitigation banking industry by providing more opportunities for stream restoration projects that can generate stream credits to offset losses of stream bed authorized by the NWPs and other types of DA permits. The Corps acknowledges that some efforts will need to be made to address differences in accounting systems, but mitigation providers including mitigation bank sponsors and in-lieu fee program sponsors should be able to estimate the amount of stream credits quantified in linear feet that are needed to offset an specific acreage of stream bed lost as the result of an NWP activity. The district engineer can assist in these determinations to ensure that the amount of stream mitigation credits is roughly proportional to the authorized losses of stream bed.

Several commenters said that establishing a stream compensatory mitigation threshold of 1/10-acre would allow approximately 1,675 linear feet of a first order stream channel with a 2.6-foot wide channel to be impacted under this NWP before any compensatory mitigation would be required, which does not meet the Corps' mandated goal of no net loss to aquatic resources and would cause more than minimal effects to these aquatic resources.

In response to public comment, the Corps has modified paragraph (d) of general condition 23 to change the proposed 1/10-acre threshold for stream mitigation to 3/100-acre to make the threshold more consistent with current practice and the recommendations made by commenters. The reasons for changing the proposed 1/10-acre stream mitigation threshold to 3/100-acre are provided in the discussion of general condition 23 below. There is no mandated goal of no net less to aquatic resources in any law or regulation that applies to the Corps' NWP program. Compensatory mitigation, including stream compensatory mitigation, is required for NWP activities on a case-by-case basis to ensure that the authorized activities result in no more than minimal adverse environmental effects. District engineers

determine when compensatory mitigation is required for NWP activities. In prior versions of the NWPs, the Corps had no threshold for requiring compensatory mitigation for losses of stream bed, so those commenters were referring to district practices. Corps districts determined on an activity-specific basis when stream mitigation is necessary for specific NWP activities.

One commenter asserted that based on ORM2 data analyzed for stream channel impacts, that the proposed 1/10-acre stream compensatory mitigation threshold would result in the loss of an additional 130,000 linear feet of headwater streams in which no mitigation would be provided. Several commenters expressed concerns about how this change would affect current mitigation banks that were in the process of being approved and inquired whether all previously executed mitigation banking instruments would need modification to continue to operate and sell credits to permittees. One commenter said that the proper regulatory tool to rectify the disparity between stream impacts versus stream mitigation would be the 2008 mitigation rule and requiring higher mitigation ratios and not revision of this NWP.

The 2017 NWPs and prior NWPs had no threshold for requiring stream mitigation for NWP activities. The proposed addition of the 1/10-acre stream mitigation threshold in paragraph (d) of general condition 23 is a new threshold. That threshold has been reduced to 3/100-acre in response to many commenters that provided calculations to support the reduction. Many commenters did not take into account the ability of district engineers to require stream compensatory mitigation for losses of stream bed less than the acreage threshold specified in paragraph (d) of general condition 23. This is similar in practice to the 1/10-acre wetland mitigation threshold in paragraph (c) of general condition 23, where district engineers also have had the authority to require wetland compensatory mitigation for wetland losses less than 1/10-acre.

Several commenters recommended delaying these changes to allow for more time to study potential effects and one commenter requested that due to the potential for significant environmental effects, an environmental impact statement should be prepared for this propose change. One commenter said that the Corps already converts stream loss/impacts to acreage in their Regulatory Program database (ORM2) for accounting purposes and asked whether the change from linear feet to acreage would even be needed in the first place. Several commenters said that the current 300-linear foot threshold was too high and should be even further reduced.

The Corps is only removing a quantitative limit from this NWP, and is not changing stream compensatory mitigation requirements aside from establishing an acreage threshold in paragraph (d) of general condition 23 that is generally consistent with current agency practice. Under the waiver provision in the 2017 version of this NWP, district engineers could waive the 300 linear foot limit for losses of intermittent and ephemeral stream beds, but the loss of stream bed could not exceed 1/2-acre. Therefore, it has been a long-standing practice in the NWP program to quantify of losses of stream bed in acres. The removal of the 300 linear foot limit and the

change to general condition 23 does not require an environmental impact statement. As one commenter recognized, the Corps tracks losses of stream bed in its ORM2 database in acres.

Several commenters seemed to misunderstand the PCN requirements of this NWP and believed that the proposed changes implied that no notification would be required for any losses of waters of the United States less than 1/10-acre for this NWP and that the 1/10-acre mitigation threshold was the same as the PCN threshold. This misunderstanding resulted in many comments concerned about the Corps not even knowing what impacts are occurring if PCN thresholds are not triggering activity-specific review of these activities by district engineers, and stated that this change would allow activities with more than minimal adverse environmental effects to occur. Several commenters said that the rulemaking process for the NWPs in cases where the Corps does not review PCNs the authorization is automatically issued in some cases with no mitigation proposed. These commenters stated that not requiring PCNs could cause more than minimal impacts.

The 1/10-acre stream mitigation threshold proposed in paragraph (d) of general condition 23 was not the same as the 1/10-acre PCN threshold in NWP 51. If activities are authorized by NWPs without the requirement to submit PCNs, then compensatory mitigation is not required for those NWP activities, because compensatory mitigation requirements must be imposed by district engineers by adding conditions to the NWP authorization. However, it should be noted that all activities authorized by this NWP require PCNs.

Many commenters said that the removal of the 300 linear foot limit would result in a loss of critical habitat for many aquatic species listed under the Endangered Species Act which have cultural and economic importance to tribes. One commenter stated that the removal of the 300 linear foot limit could result in long reaches of streams channels upstream of tribal lands being developed which could cause, without any notification to the affected tribes, downstream changes to tribal lands in terms of stream flow, water quality, subsistence of water use, or cultural water use. Several commenters asked how the tools that the Corps mentioned in the proposed rule as safeguards, such as the PCN review process, regional conditions, activity-specific permit conditions, and use of discretionary authority, prevent more than minimal adverse environmental effects. Several commenters oppose the proposed removal of the 300 linear foot limit because it could essentially be a ‘tipping point’ for a headwater stream system, and that there would be no way to recover the functions and values lost to that system because of approval of large impacts to streams.

The removal of the 300 linear foot limit does not affect how compliance with Section 7 of the ESA is conducted for the NWPs. If the district engineer reviews a PCN for a proposed activity authorized by this NWP and determines that activity may affect listed species or designated critical habitat, she or he will conduct section 7

consultation with the U.S. FWS or NMFS as appropriate. Activities authorized by this NWP must also comply with general condition 17, tribal rights. During the rulemaking process for this NWP, Corps districts have been consulting or coordinating with tribes to identify regional conditions and coordination procedures to help ensure compliance with general condition 17. As discussed in the proposed rule, the PCN review process, regional conditions, and activity-specific conditions have been used successfully for years to ensure that activities authorized by the NWPs result in no more than minimal adverse environmental effects. Tipping points are difficult to identify, and if they can be identified, they are likely to vary from watershed to watershed.

One commenter said that headwater streams warrant more protection because of their relative importance in providing habitat, hydrologic, and water quality benefits to downstream waters, and said that replacing a linear metric with an area-based metric will reduce protection of headwater streams. This commenter stated that most nutrient and hydrologic inputs to streams occur along the borders of riparian zones and streams, so impacts to streams should be quantified in linear feet. In addition, this commenter noted that the longer total stream length and higher nitrogen removal efficiency of lower order streams is the main reason stream length is so important to water quality and why headwater streams are much more important to water quality functions in stream networks than are higher order streams. This commenter said that headwater streams are being lost at high rates, and that more losses of these streams will result in increases of eutrophication of downstream waters, more downstream flooding, and more transportation of pollutants to downstream waters. This commenter stated that using area as a quantitative limit for both headwater streams and higher order rivers will decrease protection and diminish the ecological importance of headwater streams. This commenter concluded that the current linear foot limit is appropriate for streams because they are linear systems that interact with their landscapes along linear borders.

The Corps believes that an appropriate level of protection can be provided to headwater streams through the 1/2-acre limit, the PCN process, and the ability of division and district engineers to modify, suspend, or revoke NWP authorizations on a regional or case-by-case basis, respectively. When reviewing PCNs, district engineers will apply the 10 criteria identified in paragraph 2 of Section D, District Engineer's Decision. In regions where there are concerns that the use of the NWPs may result in more than minimal cumulative adverse effects to headwater streams and the functions they provide, division engineers can add regional conditions to this NWP to establish an acreage limit lower than 1/2-acre or revoke this NWP. Headwater streams are not provided any special status under the Corps' regulations or the U.S. EPA's Clean Water Act Section 404(b)(1) Guidelines. The only streams that are special aquatic sites under the 404(b)(1) Guidelines are riffle and pool complexes (see 40 CFR 230.45), and many headwater streams are not riffle and pool complexes.

One commenter said that this NWP should clarify that the acreage limits are applied cumulatively for both the original construction and any subsequent expansion of the development. One commenter stated that this NWP should not be issued to developments proposed in channel migration zones and floodplains where projects can directly and indirectly impact essential fish habitat, critical habitat, and habitats occupied by federally threatened or endangered species. One commenter said that as a result of climate change, residential developments have increased the public safety risk. One commenter asked if projects occurring in floodplains and authorized by this NWP are consistent with the 2008 biological opinion on the Federal Emergency Management Agency's National Flood Insurance Program.

This NWP includes a subdivision provision, which states that for residential subdivisions, the aggregate total loss of waters of the United States authorized by this NWP cannot exceed 1/2-acre, including any loss of waters of the United States associated with the development of individual subdivision lots. Activities authorized by this NWP must comply with general condition 10, fills within 100-year floodplains. If the district engineer reviews the PCN and determines that the proposed activity may adversely affect essential fish habitat, he or she will initiate essential fish habitat consultation with the NMFS. If the district engineer reviews the PCN and determines the proposed activity may affect ESA-listed species or designated critical habitat, she or he will initiate section 7 consultation with the U.S. FWS and/or NMFS as appropriate (see general condition 18). Potential public safety risks associated with residential developments are more appropriately addressed by local or state land use planning and zoning agencies. The 2008 biological opinion on the Federal Emergency Management Agency's National Flood Insurance Program only applies to that program. It does not directly apply to the Corps' NWP program.

One commenter said that authorizing residential developments with golf courses results in devastating impacts on the environment through habitat loss and fragmentation, nutrient loading that causes algal blooms, and the use of pesticides/herbicides, which must be considered under an environmental impact statement, and therefore, should require an individual permit. One commenter stated that a 1/2-acre loss of waters of the United States is not minimal and that any loss over 1/10-acre should require compensatory mitigation. One commenter said that compensatory mitigation should be required for all unavoidable impacts to wetlands and streams authorized by this NWP. One commenter said that if the Corps does not require compensatory mitigation under NWP 29, the adverse environmental effects are more than minimal. One commenter said that the reliance on compensatory wetland mitigation often leads to a net loss of wetland functions and values and that NWPs like NWP 29 could lead to the loss of thousands of acres of wetlands.

The Corps regulates discharges of dredged or fill material into waters of the United States, and this NWP limits those discharges to non-tidal waters of the United States. If the proposed NWP 29 activity includes the construction of a golf course, the district engineer will review the PCN and determine whether the proposed

activity qualifies for NWP authorization. The Corps does not have the authority to regulate the use of pesticides or herbicides, and therefore is not required to consider the potential use of pesticides or herbicides when reviewing PCNs for proposed activities. Nutrient loading can be the result of non-point source pollution. Nutrient loading may also result from discharges of certain substances from point sources regulated under Section 402 of the Clean Water Act, which is administered by states with approved programs or the U.S. EPA. General condition 23 requires compensatory mitigation for all wetland losses greater than 1/10-acre that require PCNs, unless the district engineer determines that some other form of mitigation would be more environmentally appropriate. Wetland compensatory mitigation projects required for activities authorized by the NWPs must comply with the Corps' regulations at 33 CFR part 332, which require monitoring and other actions to ensure that the required compensatory mitigation offsets the permitted wetland losses.

One commenter said the array of wetland and water types that authorized under NWP 29 and lost are varied and that the Corps cannot determine environmental effects are minimal when they are speculative and unquantifiable. One commenter stated that the cumulative impacts of authorizing large residential driveways in waters of the United States threatens nearshore benthic habitat that is important to salmonids. One commenter said that it is unclear how permit authorizations are coordinated with local agencies to ensure the appropriate use of NWP 29 and that local protections should apply to the permit.

All activities authorized by this NWP require PCNs. Therefore, district engineers review all proposed activities and determine whether those activities qualify for NWP authorization. When reviewing PCNs, district engineers consider cumulative adverse environmental effects caused by activities authorized by an NWP and whether those cumulative adverse effects are no more than minimal (see paragraph 2 of Section D, District Engineer's Decision). If the proposed NWP activity may affect ESA-listed species, including list salmon species, the district engineer conducts ESA section 7 consultation with the U.S. FWS or NMFS, as appropriate. Nationwide permit 29 authorizations are not coordinated with local agencies. As stated in Section E, Further Information, the NWPs do not obviate the need to obtain other federal, state, or local permits, approvals, or authorizations required by law.

2.0 Purpose and Need for the Proposed Action

The proposed action is the issuance of this NWP to authorize discharges of dredged or fill material into waters of the United States under Section 404 of the Clean Water Act and work under Section 10 of the Rivers and Harbors Act of 1899 for residential developments that result in no more than minimal individual and cumulative adverse environmental effects. This proposed action is needed for efficient implementation of the Corps Regulatory Program, by authorizing with little,

if any, delay or paperwork this category of activities, when those activities have no more than minimal individual and cumulative adverse environmental effects. The NWP also provides an incentive to project proponents to reduce impacts to jurisdictional waters and wetlands to receive the required authorization under Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act of 1899 in less time than it takes to obtain individual permits for those activities. Issuing an NWP to authorize activities that have no more than minimal adverse environmental effects instead of processing individual permit applications for these activities, reduces regulatory burdens on the public, benefits the environment through reduced losses of jurisdictional waters and wetlands, and allows the Corps to allocate more of its resources towards evaluating proposed activities requiring authorization under Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act of 1899 that have the potential to cause more substantial adverse environmental effects.

3.0 Alternatives

This evaluation includes an analysis of alternatives based on the requirements of NEPA, which requires a more expansive review than the Clean Water Act Section 404(b)(1) Guidelines. The alternatives discussed below are based on an analysis of the potential environmental impacts and impacts to the Corps, Federal, Tribal, and state resource agencies, general public, and prospective permittees. Since the consideration of off-site alternatives under the 404(b)(1) Guidelines does not apply to specific projects authorized by general permits, the alternatives analysis discussed below consists of a general NEPA alternatives analysis for the NWP.

3.1 No Action Alternative (Do Not Reissue or Modify the Nationwide Permit)

The no action alternative would be to allow this NWP to continue to authorize activities until it expires on March 18, 2022, and not reissue or modify the NWP. After the NWP expires, under the no action alternative activities that were authorized by this NWP would require individual permits, unless Corps districts issued regional general permits to authorize a similar category of activities that the NWP authorized.

3.2 Reissue the Nationwide Permit With Modifications

This alternative consists of modifying and reissuing the NWP while considering the comments received in response to the proposal to reissue this NWP with modifications, including the proposed changes identified by the Corps and changes suggested by commenters. This alternative includes changes to the terms and conditions of this NWP, including quantitative limits for this NWP, pre-construction notification thresholds and requirements, and other provisions of this NWP. This

alternative also includes consideration of modifying, adding, or removing general conditions that apply to this NWP. In addition, this alternative includes the mechanisms in the Corps' NWP program regulations at 33 CFR 330.5(c) and (d) where division and district engineers can modify, suspend, or revoke NWP authorizations on a regional or case-by-case basis to ensure that the NWP authorizes only those activities that result in no more than minimal individual and cumulative adverse environmental effects.

In the September 15, 2020, Federal Register notice, the Corps requested comments on the proposed reissuance of this NWP. The Corps proposed to modify this NWP to removing the 300 linear foot limit for losses of stream bed. The Corps also proposed to remove the ability for district engineers to waive the 300 linear foot limit for losses intermittent or ephemeral stream bed when the district engineer determines the proposed activity will result in no more than minimal individual and cumulative adverse environmental effects.

Since the Corps' NWP program began in 1977, the Corps has continuously strived to develop NWPs that only authorize activities that result in no more than minimal individual and cumulative adverse environmental effects. Every five years the Corps reevaluates the NWPs during the reissuance process, and may modify an NWP to address concerns for the aquatic environment. Utilizing collected data and institutional knowledge concerning activities authorized by the Corps regulatory program, the Corps reevaluates the potential impacts of activities authorized by NWPs. The Corps also uses substantive public comments on proposed NWPs to assess the expected impacts.

3.3 Reissue the Nationwide Permit Without Modifications

This alternative consists of reissuing the NWP without any modifications before it expires on March 18, 2022. This alternative also includes the mechanisms in the Corps' NWP program regulations where division and district engineers can modify, suspend, or revoke NWP authorizations on a regional or case-by-case basis to ensure that the NWP authorizes only those activities that result in no more than minimal individual and cumulative adverse environmental effects (see 33 CFR 330.5(c) and (d)).

4.0 Affected Environment

This environmental assessment is national in scope because the NWP may be used across the country, unless the NWP is revoked or suspended by a division or district engineer under the procedures in 33 CFR 330.5(c) and (d), respectively. The affected environment consists of terrestrial and aquatic ecosystems in the United States, as they have been directly and indirectly affected by past and present federal, non-federal, and private activities. The past and present activities include

activities authorized by the various NWPs issued from 1977 to 2017, activities authorized by other types of Department of the Army (DA) permits, as well as other federal, tribal, state, and private activities that are not regulated by the Corps. Aquatic ecosystems are also influenced by past and present activities in uplands, because those land use/land cover changes in uplands and other activities in uplands have indirect effects on aquatic ecosystems (e.g., MEA 2005a, Reid 1993). Due to the large geographic scale of the affected environment (i.e., the entire United States), as well as the many past and present human activities that have shaped the affected environment, it is only practical to describe the affected environment in general terms. In addition, it is not possible to describe the environmental conditions for specific sites where the NWPs may be used to authorize eligible activities.

The total land area in the United States is approximately 2,260,000,000 acres, and the total land area in the contiguous United States is approximately 1,891,000,000 acres (Bigelow and Borchers 2017). Land uses in the United States as of 2012 is provided in Table 4.1 (Bigelow and Borchers 2017). Of the land area in the entire United States, approximately 60 percent (1,370,000,000 acres) is privately owned (Bigelow and Borchers 2017). Of the remaining lands in the United States, the federal government hold 28 percent (644,000,000 acres), state and local governments own 8 percent (189,000,000 acres), and 3 percent (63,000,000 acres) is held in trust by the Bureau of Indian Affairs (Bigelow and Borchers 2017).

Table 4.1. Major land uses in the United States – 2012 (Bigelow and Borchers 2017).

Land Use	Acres	Percent of Total
Agriculture	1,186,000,000	52.5
Forest land	502,000,000	22.2
Transportation use	27,000,000	1.2
Recreation and wildlife areas	254,000,000	11.2
National defense areas	27,000,000	1.2
Urban land	70,000,000	3.1
Miscellaneous use	196,000,000	8.5
Total land area	2,260,000,000	100.0

4.1 Quantity of Aquatic Ecosystems in the United States

There are approximately 283.1 million acres of wetlands in the United States; 107.7 million acres are in the conterminous United States and the remaining 175.4 million acres are in Alaska (Mitsch and Hernandez 2013). Wetlands occupy less than 9 percent of the global land area (Zedler and Kercher 2005). According to Dahl (2011), wetlands and deepwater habitats cover approximately 8 percent of the land area in the conterminous United States. Rivers and streams comprise approximately 0.52 percent of the total land area of the continental United States (Butman and Raymond 2011). Therefore, the wetlands, streams, rivers, and other

aquatic habitats that are potentially waters of the United States and subject to regulation by the Corps under Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act of 1899 comprise a minor proportion of the land area of the United States. The remaining land area of the United States (more than 92 percent, depending on the proportion of wetlands, streams, rivers, and other aquatic habitats that are subject to regulation under those two statutes) is outside the Corps regulatory authority.

Dahl (1990) estimated that approximately 53 percent of the wetlands in the conterminous United States were lost in the 200-year period from the 1780s to 1980s, while Alaska lost less than one percent of its wetlands and Hawaii lost approximately 12 percent of its original wetland acreage. In the 1780s, there were approximately 221 million acres of wetlands in the conterminous United States (Dahl 1990). California lost the largest percentage of its wetlands (91 percent), whereas Florida lost the largest acreage (9.3 million acres) (Dahl 1990). During that 200-year period, 22 states lost more than 50 percent of their wetland acreage, and 10 states have lost more than 70 percent of their original wetland acreage (Dahl 1990).

Frayer et al. (1983) evaluated wetland status and trends in the United States during the period of the mid-1950s to the mid-1970s. During that 20-year period, approximately 7.9 million acres of wetlands (4.2 percent) were lost in the conterminous United States. Much of the loss of estuarine emergent wetlands was due to changes to estuarine subtidal deepwater habitat, and some loss of estuarine emergent wetlands was due to urban development. For palustrine vegetated wetlands, nearly all of the losses of those wetlands were due to agricultural activities (e.g., conversion to agricultural production).

The U.S. Fish and Wildlife Service also examined the status and trends of wetlands in the United States during the period of the mid-1970s to the 1980s, and found that there was a net loss of more than 2.6 million acres of wetlands (2.5 percent) during that time period (Dahl and Johnson 1991). Freshwater wetlands comprised 98 percent of those wetland losses (Dahl and Johnson 1991). During that time period, losses of estuarine wetlands were estimated to be 71,000 acres, with most of that loss due to changes of emergent estuarine wetlands to open waters caused by shifting sediments (Dahl and Johnson 1991). Conversions of wetlands to agricultural use were responsible for 54 percent of the wetland losses, and conversion to other land uses resulted in the loss of 41 percent of wetlands (Dahl and Johnson 1991). Urban development was responsible for five percent of the wetland loss (Dahl and Johnson 1991). The annual rate of wetland loss has decreased substantially since the 1970s (Dahl 2011), when wetland regulation became more prevalent (Brinson and Malvárez 2002).

Between 2004 and 2009, there was no statistically significant difference in wetland acreage in the conterminous United States (Dahl 2011). According to the 2011 wetland status and trends report, during the period of 2004 to 2009 urban

development accounted for 11 percent of wetland losses (61,630 acres), rural development resulted in 12 percent of wetland losses (66,940 acres), silviculture accounted for 56 percent of wetland losses (307,340 acres), and wetland conversion to deepwater habitats caused 21 percent of the loss in wetland area (115,960 acres) (Dahl 2011). Some of the losses occurred to wetlands that are not subject to Clean Water Act jurisdiction and some losses are due to activities not regulated under Section 404 of the Clean Water Act, such as unregulated drainage activities, exempt forestry activities, or water withdrawals. From 2004 to 2009, approximately 100,020 acres of wetlands were gained as a result of wetland restoration and conservation programs on agricultural land (Dahl 2011). Another source of wetland gain is conversion of other uplands to wetlands, resulting in a gain of 389,600 acres during the period of 2004 to 2009 (Dahl 2011). Inventories of wetlands, streams, and other aquatic resources are incomplete because the techniques used for those studies cannot identify some of those resources (e.g., Dahl (2011) for wetlands; Meyer and Wallace (2001) for streams).

Losses of vegetated estuarine wetlands due to the direct effects of human activities have decreased significantly due to the requirements of Section 404 of the Clean Water Act and other laws and regulations (Dahl 2011). During the period of 2004 to 2009, less than one percent of estuarine emergent wetlands were lost as a direct result of human activities, while other factors such as sea level rise, land subsidence, storm events, erosion, and other ocean processes caused substantial losses of estuarine wetlands (Dahl 2011). The indirect effects of other human activities, such as oil and gas development, water extraction, development of the upper portions of watersheds, and levees, have also resulted in coastal wetland losses (Dahl 2011). Eutrophication of coastal waters can also cause losses of emergent estuarine wetlands, through changes in growth patterns of marsh plants and decreases in the stability of the wetland substrate, which changes those marshes to mud flats (Deegan et al. 2012).

The Emergency Wetlands Resources Act of 1986 (Public Law 99-645) requires the USFWS to submit wetland status and trends reports to Congress (Dahl 2011). The latest status and trends report, which covers the period of 2004 to 2009, is summarized in Table 4.2. The USFWS status and trends report only provides information on acreage of the various aquatic habitat categories and does not assess the quality or condition of those aquatic habitats (Dahl 2011).

Table 4.2. Estimated aquatic resource acreages in the conterminous United States in 2009 (Dahl 2011).

Aquatic Habitat Category	Estimated Area in 2009 (acres)
Marine intertidal	227,800
Estuarine intertidal non-vegetated	1,017,700
Estuarine intertidal vegetated	4,539,700
All intertidal waters and wetlands	5,785,200
Freshwater ponds	6,709,300
Freshwater vegetated	97,565,300
• Freshwater emergent wetlands	27,430,500
• Freshwater shrub wetlands	18,511,500
• Freshwater forested wetlands	51,623,300
All freshwater wetlands	104,274,600
Lacustrine deepwater habitats	16,859,600
Riverine deepwater habitats	7,510,500
Estuarine subtidal habitats	18,776,500
All wetlands and deepwater habitats	153,206,400

The acreage of lacustrine deepwater habitats does not include the open waters of Great Lakes (Dahl 2011).

The Federal Geographic Data Committee has established the Cowardin system developed by the U.S. Fish and Wildlife Service (USFWS) (Cowardin et al. 1979) as the national standard for wetland mapping, monitoring, and data reporting (Dahl 2011) (see Federal Geographic Data Committee (2013)). The Cowardin system is a hierarchical system which describes various wetland and deepwater habitats, using structural characteristics such as vegetation, substrate, and water regime as defining characteristics. Wetlands are defined by plant communities, soils, or inundation or flooding frequency. Deepwater habitats are permanently flooded areas located below the wetland boundary. In rivers and lakes, deepwater habitats are usually more than two meters deep. The Cowardin et al. (1979) definition of "wetland" differs from the definition used by the Corps and U.S. EPA for the purposes of implementing Section 404 of the Clean Water Act. The Corps-U.S. EPA regulations defines wetlands as "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas." [33 CFR 328.3(c)(4); 40 CFR 230.3(o)(3)(iv)] The Cowardin et al. (1979) requires only one factor (i.e., wetland vegetation, soils, hydrology) to be present for an area to be a wetland, while the Corps-U.S. EPA

wetland definition requires all three factors to be present under normal circumstances (Tiner 2017, Mitsch and Gosselink 2015). The NWI produced by applying the Cowardin et al. (1979) definition is the only national scale wetland inventory available. There is no national inventory of wetland acreage based on the Corps' wetland definition at 33 CFR 328.3(c)(16).

There are five major systems in the Cowardin classification scheme: marine, estuarine, riverine, lacustrine, and palustrine (Cowardin et al. 1979). The marine system consists of open ocean on the continental shelf and its high energy coastlines. The estuarine system consists of tidal deepwater habitats and adjacent tidal wetlands that are usually partially enclosed by land, but may have open connections to open ocean waters. The riverine system generally consists of all wetland and deepwater habitats located within a river channel. The lacustrine system generally consists of wetland and deepwater habitats located within a topographic depression or dammed river channel, with a total area greater than 20 acres. The palustrine system generally includes all non-tidal wetlands and wetlands located in tidal areas with salinities less than 0.5 parts per thousand; it also includes ponds less than 20 acres in size. Approximately 95 percent of wetlands in the conterminous United States are freshwater wetlands, and the remaining 5 percent are estuarine or marine wetlands (Dahl 2011).

According to Hall et al. (1994), there are more than 204 million acres of wetlands and deepwater habitats in the State of Alaska, including approximately 174.7 million acres of wetlands. Wetlands and deepwater habitats comprise approximately 50.7 percent of the surface area in Alaska (Hall et al. 1994).

The National Resources Inventory (NRI) is a statistical survey conducted by the Natural Resources Conservation Service (NRCS) (USDA 2018) of natural resources on non-federal land in the United States. The NRCS defines non-federal land as privately owned lands, tribal and trust lands, and lands under the control of local and state governments. Acreages of palustrine and estuarine wetlands and the land uses those wetlands are subjected to are summarized in Table 4.3. The 2015 NRI estimates that there are 110,638,500 acres of palustrine and estuarine wetlands on non-Federal land and water areas in the United States (USDA 2018). The 2015 NRI estimates that there are 49,598,800 acres of open waters on non-Federal land in the United States, including lacustrine, riverine, and marine habitats, as well as estuarine deepwater habitats.

Table 4.3. The 2015 National Resources Inventory acreages for palustrine and estuarine wetlands on non-federal land, by land cover/use category (USDA 2018).

National Resources Inventory Land Cover/Use Category	Area of Palustrine and Estuarine Wetlands (acres)
cropland, pastureland, and Conservation Reserve Program land	17,300,000
forest land	65,800,000
rangeland	7,800,000
other rural land	14,600,000
developed land	1,500,000
water area	3,600,000
Total	111,000,000

The land cover/use categories used by the 2015 NRI are defined below (USDA 2018). Croplands are areas used to produce crops grown for harvest. Pastureland is land managed for livestock grazing, through the production of introduced forage plants. Conservation Reserve Program land is under a Conservation Reserve Program contract. Forest land is comprised of at least 10 percent single stem woody plant species that will be at least 13 feet tall at maturity. Rangeland is land on which plant cover consists mostly of native grasses, herbaceous plants, or shrubs suitable for grazing or browsing, and introduced forage plant species. Other rural land consists of farmsteads and other farm structures, field windbreaks, marshland, and barren land. Developed land is comprised of large urban and built-up areas (i.e., urban and built-up areas 10 acres or more in size), small built-up areas (i.e., developed lands 0.25 to 10 acres in size), and rural transportation land (e.g., roads, railroads, and associated rights-of-way outside urban and built-up areas). Water areas are comprised of waterbodies and streams that are permanent open waters.

The wetlands data from the Fish and Wildlife Service's Status and Trends study and the Natural Resources Conservation Service's National Resources Inventory should not be compared, because they use different methods and analyses to produce their results (Dahl 2011).

Leopold, Wolman, and Miller (1964) estimated that there are approximately 3,250,000 miles of river and stream channels in the United States. This estimate is based on an analysis of 1:24,000 scale topographic maps. Their estimate does not include many small streams. Many small streams, especially headwater streams, are not mapped on 1:24,000 scale U.S. Geological Survey (USGS) topographic maps (Leopold 1994) or included in other inventories (Meyer and Wallace 2001), including the National Hydrography Dataset (Elmore et al. 2013). Many small

streams and rivers are not identified through maps produced by aerial photography or satellite imagery because of inadequate image resolution or trees or other vegetation obscuring the visibility of those streams from above (Benstead and Leigh 2012). In a study of stream mapping in the southeastern United States, only 20 percent of the stream network was mapped on 1:24,000 scale topographic maps, and nearly none of the observed intermittent or ephemeral streams were indicated on those maps (Hansen 2001). Another study in Massachusetts showed that 1:25,000 metric scale topographic maps exclude over 27 percent of stream miles in a watershed (Brooks and Colburn 2011). For a 1:24,000 scale topographic map, the smallest tributary found by using 10-foot contour interval has a drainage area of 0.7 square mile and length of 1,500 feet, and smaller stream channels are common throughout the United States (Leopold 1994). Benstead and Leigh (2012) found that the density of stream channels (length of stream channels per unit area) identified by digital elevation models was three times greater than the drainage density calculated by using USGS maps. Elmore et al. (2013) made similar findings in watersheds in the mid-Atlantic, where they determined that the stream density was 2.5 times greater than the stream density calculated with the National Hydrography Dataset. Due to the difficulty in mapping small streams, there are no accurate estimates of the total number of river or stream miles in the conterminous United States that might be considered as “waters of the United States.”

The quantity of the Nation’s aquatic resources presented by studies that estimate the length or number of stream channels (see above) or the acreage of wetlands (USFWS status and trends studies, National Wetlands Inventory (NWI), and Natural Resources Inventory (NRI) are underestimates, because those inventories do not include many small wetlands and streams. The USFWS status and trends study does not include Alaska, Hawaii, or the territories. The underestimate of national wetland acreage by the USFWS status and trends study and the NWI is primarily the result of the minimum size of wetlands detected through remote sensing techniques and the difficulty of identifying certain wetland types through those remote sensing techniques. The remote sensing approaches used by the USFWS for its NWI maps and its status and trends reports result in errors of omission that exclude wetlands that are difficult to identify through photointerpretation (Tiner 2017). These errors of omission are due to wetland type and the size of target mapping units (Tiner 2017). Therefore, it is important to understand the limitations of the source data when describing the environmental baseline for wetlands using maps and studies produced by remote sensing, especially in terms of wetland quantity.

Factors affecting the accuracy of wetland maps made by remote sensing include: the degree of ease or difficulty in identifying a particular wetland type, map scale, the quality and scale of the source information (e.g., aerial or satellite photos), the environmental conditions when the imagery was obtained, the time of year the imagery was obtained (e.g., leaf-off versus leaf on), the quality of the images, the minimum mapping unit (or target mapping unit), the mapping equipment, and the skills of the people drawing the maps (Tiner 2017). In general, wetland types that

are difficult to identify through field investigations are likely to be underrepresented in maps made by remote sensing (Tiner 2017). Wetlands difficult to identify through remote sensing include evergreen forested wetlands, wetlands and the drier end of the wetland hydrology continuum, and significantly drained wetlands (Tiner 2017). Wetland types that are more readily identified and delineated through remote sensing techniques include ponds, marshes, bogs, and fens (Tiner 2017). In the most recent wetland status and trends report published by the U.S. Fish and Wildlife Service, the target minimum wetland mapping unit was 1 acre, although some easily identified wetlands as small as 0.1 acre were identified in that effort (Dahl 2011). The National Wetlands Inventory identifies wetlands regardless of their jurisdictional status under the Clean Water Act (Tiner 2017).

Activities authorized by NWPs will adversely affect a smaller proportion of the Nation's wetland base than indicated by the wetlands acreage estimates provided in the most recent status and trends report, or the NWI maps for a particular region.

Not all wetlands, streams, and other types of aquatic resources are subject to federal jurisdiction under the Clean Water Act (Mitsch and Gosselink 2015). Two U.S. Supreme Court decisions have identified limits to Clean Water Act jurisdiction. In 2001, in *Solid Waste Agency of Northern Cook County v. Army Corps of Engineers* (531 U.S. 159) the U.S. Supreme Court held that the use of isolated, non-navigable, intrastate waters by migratory birds is not, by itself a sufficient basis for exercising federal regulatory authority under the Clean Water Act (see 80 FR 37056). In the Supreme Court's 2006 decision in *Rapanos* v. *United States,* (547 U.S. 715), one justice stated that waters and wetlands regulated under the Clean Water Act must have a "significant nexus" to downstream traditional navigable waters. Four justices (the plurality) concluded that Clean Water Act jurisdiction applies only to relatively permanent waters connected to traditional navigable waters and to wetlands that have a continuous surface connection to those relatively permanent waters. The remaining justices in *Rapanos* stated that Clean Water Act jurisdiction applies to waters and wetlands that meet either the significant nexus test or the Plurality's test.

There are 94,133 miles of shoreline in the United States (NOAA 1975). Of that shoreline, 88,633 miles are tidal shoreline and 5,500 miles are shoreline along the Great Lakes and rivers that connect those lakes to the Atlantic Ocean. More recently, Gittman et al. (2015) estimate that there is 99,524 miles of tidal shoreline in the conterminous United States.

4.2 Quality of Aquatic Ecosystems in the United States

The USFWS status and trends study does not assess the condition or quality of wetlands and deepwater habitats (Dahl 2011). Information on water quality in waters and wetlands, as well as the causes of water quality impairment, is collected by the U.S. EPA under Sections 305(b) and 303(d) of the Clean Water Act. Table

4.4 provides U.S. EPA's most recent national summary of water quality in the Nation's waters and wetlands.

Table 4.4. National summary of water quality data (U.S. EPA, https://iaspub.epa.gov/waters10/attains_nation_cy.control accessed 11/27/2020).

Category of water	Total waters	Total waters assessed	Percent of waters assessed	Good waters	Threatened waters	Impaired waters
Rivers and streams	3,533,205 miles	1,110,961 miles	31.4	518,293 miles	4,495 miles	588,173 miles
Lakes, reservoirs and ponds	41,666,049 acres	18,629,795 acres	44.7	5,390,570 acres	30,309 acres	13,208,917 acres
Bays and estuaries	87,791 square miles	56,141 square miles	63.9	11,516 square miles	0 square miles	44,625 square miles
Coastal shoreline	58,618 miles	4,627 miles	7.9	1,298 miles	0 miles	3,329 miles
Ocean and near coastal waters	54,120 square miles	6,944 square miles	12.8	726 square miles	0 square miles	6,218 square miles
Wetlands	107,700,000 acres	1,242,252 acres	1.2	569,328 acres	0 acres	672,924 Acres
Great Lakes shoreline	5,202 miles	4,460 miles	85.7	106 miles	0 miles	4,354 miles
Great Lakes open waters	196,343 square miles	39,231 square miles	20.0	1 square mile	0 square miles	39,230 square miles

Waters and wetlands classified by states as "good" meets all their designated uses. Waters classified as "threatened" currently support all of their designated uses, but if pollution control measures are not taken one or more of those uses may become impaired in the future. A water or wetland is classified by the state as "impaired" if any one of its designated uses is not met. The definitions of "good," "threatened," and "impaired" are applied by states to describe the quality of their waters (the above definitions were found in the metadata in U.S. EPA (2015)). Designated uses include the "protection and propagation of fish, shellfish and wildlife," "recreation in and on the water," the use of waters for "public water supplies, propagation of fish, shellfish, wildlife, recreation in and on the water," and "agricultural, industrial and other purposes including navigation." (40 CFR 130.3). These designated uses are assessed by states in a variety of ways, by examining various physical, chemical and biological characteristics, so it is not possible to use the categories of "good," "threatened," and "impaired" to infer the level of ecological functions and services these waters perform.

According to the latest U.S. EPA national summary data, 52.9 percent of assessed rivers and streams, 70.9 percent of assessed lakes, reservoirs, and ponds, 79.5 percent of assessed bays and estuaries, 71.9 percent of assessed coastal shoreline, 89.5 percent of assessed ocean and near coastal waters, 54.2 percent of assessed wetlands, 97.6 percent of assessed Great Lakes shoreline, and 100 percent of Great Lakes open water are impaired.

For rivers and streams, 34 causes of impairment were identified, and the top 10 causes are pathogens, sediment, nutrients, organic enrichment/oxygen depletion, temperature, metals (other than mercury), polychlorinated biphenyls, mercury, habitat alterations, and turbidity. The top 10 primary sources of impairment for the assessed rivers and streams are: unknown sources, agriculture, hydromodification, atmospheric deposition, habitat alterations not directly related to hydromodification, unspecified non-point source, municipal discharges/sewage, natural/wildlife, urban-related runoff/stormwater, and silviculture (forestry).

Thirty-three causes of impairment were identified for lakes, reservoirs, and ponds. The top 10 causes of impairment for these waters are: mercury, nutrients, polychlorinated biphenyls, turbidity, organic enrichment/oxygen depletion, metals (other than mercury), pH/acidity/caustic conditions, salinity/total dissolved solids/chlorides/sulfates, algal growth, and nuisance exotic species. For lakes, reservoirs, and ponds, the top 10 sources of impairment are: atmospheric deposition, unknown sources, agriculture, natural/wildlife, unspecified non-point source, other sources, urban-related runoff/stormwater, legacy/historic pollutants, municipal discharges/sewage, and hydromodification.

Twenty-eight causes of impairment were identified for bays and estuaries. The top 10 causes of impairment for these waters are: polychlorinated biphenyls, nutrients, mercury, turbidity, dioxins, toxic organics, metals (other than mercury), pesticides, pathogens, and organic enrichment/oxygen depletion. For bays and estuaries, the top 10 sources of impairment are: legacy/historic pollutants, urban-related runoff/stormwater, unknown sources, atmospheric deposition, municipal discharges/sewage, unspecified non-point sources, other sources, natural/wildlife, agriculture, and industrial.

Coastal shorelines were impaired by 16 identified causes, the top 10 of which are: mercury, pathogens, turbidity, organic enrichment/oxygen depletion, pH/acidity/caustic conditions, nutrients, oil and grease, temperature, cause unknown – impaired biota, and algal growth. The top 10 sources of impairment of coastal shorelines are municipal discharges/sewage, urban-related runoff/stormwater, unknown sources, recreational boating and marinas, hydromodification, industrial, unspecified non-point sources, agriculture, legacy/historic pollutants, and land application/waste sites/tanks.

Ocean and near coastal waters were impaired by 16 identified causes, the top 10 of

which are: mercury, organic enrichment/oxygen depletion, pathogens, metals (other than mercury), pesticides, turbidity, nuisance exotic species, total toxics, pH/acidity/caustic conditions, and polychlorinated biphenyls. The top 10 sources of impairment of ocean and near coastal waters are: atmospheric deposition, unknown sources, unspecified non-point sources, other sources, recreation and tourism (non-boating), recreational boating and marinas, urban-related runoff/stormwater, hydromodification, municipal discharges/sewage, and construction.

For wetlands, 23 causes of impairment were identified, and the top 10 causes are: organic enrichment/oxygen depletion, mercury, metals (other than mercury), salinity/total dissolved solids/chlorides/sulfates, pathogens, nutrients, toxic inorganics, temperature, pH/acidity/caustic conditions, and turbidity. The 10 primary sources for wetland impairment are: unknown sources, natural/wildlife, agriculture, atmospheric deposition, resource extraction, hydromodification, unspecified non-point sources, other, land application/waste sites/tanks, and groundwater loadings/withdrawals.

For Great Lakes shorelines, 12 causes of impairment were identified, and the top 10 causes are: polychlorinated biphenyls, dioxins, mercury, pesticides, toxic organics, pathogens, nutrients, nuisance exotic species, sediment, and habitat alterations. The 10 primary sources for Great Lakes shoreline impairment are: atmospheric deposition, unknown sources, legacy/historic pollutants, agriculture, municipal discharges/sewage, hydromodification, urban-related runoff/stormwater, habitat alterations (not directly related to hydromodifications), industrial, and unspecified non-point sources.

For Great Lakes open waters, 8 causes of impairment were identified, and those causes are: polychlorinated biphenyls, mercury, dioxins, pesticides, toxic organics, nutrients, metals (other than mercury), and sediment. The 8 sources for Great Lakes open water impairment are: atmospheric deposition, unknown sources, agriculture, municipal discharges/sewage, unspecified non-point sources, industrial, urban-related runoff/stormwater, and legacy/historic pollutants.

Water quality standards are established by states, with review and approval by the U.S. EPA (see Section 303(c) of the Clean Water Act and the implementing regulations at 40 CFR part 131). Under Section 401 of the Clean Water Act States review proposed discharges to determine compliance with applicable water quality standards.

Most causes and sources of impairment identified by states in the water quality summary discussed above are not due to activities regulated under Section 404 of the Clean Water Act or Section 10 of the Rivers and Harbors Act of 1899. Inputs of sediments into aquatic ecosystems can result from erosion occurring within a watershed (Beechie et al. 2013, Gosselink and Lee 1989). As water moves through a watershed it carries sediments and pollutants to streams (e.g., Allan 2004, Dudgeon et al. 2005, Paul and Meyer 2001) and wetlands (e.g., Zedler and Kercher

2005, Wright et al. 2006). Non-point sources of pollution (i.e., pollutants carried in runoff from farms, roads, and urban areas) are largely uncontrolled (Brown and Froemke 2012) because the Clean Water Act only requires permits for point sources discharges of pollutants (i.e., discharges of dredged or fill material regulated under section 404 and point source discharges of other pollutants regulated under section 402). Habitat alterations as a cause or source of impairment may be the result of activities regulated under section 404 and section 10 because they involve discharges of dredged or fill material or structures or work in navigable waters, but habitat alterations may also occur as a result of activities not regulated under those two statutes, such as the removal of vegetation from upland riparian areas. Hydrologic modifications may or may not be regulated under section 404 or section 10.

The indirect effects of changes in upland land use (which are highly likely not to be subject to federal control and responsibility, at least in terms of the Corps Regulatory Program), including the construction and expansion of upland developments, have substantial adverse effects on the quality (i.e. the ability to perform hydrologic, biogeochemical, and habitat functions) of jurisdictional waters and wetlands because those upland activities alter watershed-scale processes. Those watershed-scale processes include water movement and storage, erosion and sediment transport, and the transport of nutrients and other pollutants.

Habitat alterations as a cause or source of impairment may be the result of activities regulated under section 404 and section 10 because they involve discharges of dredged or fill material into jurisdictional waters or structures or work in navigable waters, but habitat alterations may also occur as a result of activities not regulated under those two statutes, such as the removal of vegetation from upland riparian areas. Hydrologic modifications may or may not be regulated under section 404 or section 10, depending on whether those hydrologic modifications are the result of discharges of dredged or fill material into waters of the United States regulated under Section 404 of the Clean Water Act or structures or work in navigable waters of the United States regulated under Section 10 of the Rivers and Harbors Act of 1899. When states, tribes, or the U.S. EPA establish total maximum daily loads (TMDLs) for pollutants and other impairments for specific waters, there may be variations in how these TMDLs are defined (see 40 CFR part 130).

As discussed below, many anthropogenic activities and natural processes affect the ability of jurisdictional waters and wetlands to perform ecological functions. Stream and river functions are affected by activities occurring in their watersheds, including the indirect effects of land uses changes (Beechie et al. 2013, Allan 2004, Paul and Meyer 2001). Booth at al. (2004) found riparian land use in residential areas also strongly affects stream condition because many landowners clear vegetation up to the edge of the stream bank. The removal of vegetation from upland riparian areas and other activities in those non-jurisdictional areas do not require DA authorization. Wetland functions are also affected by indirect effects of land use activities in the land area that drains to the wetland (Zedler and Kercher 2005, Wright et al. 2006).

Human activities within a watershed or catchment that have direct or indirect adverse effects on rivers, streams, wetlands, and other aquatic ecosystems are not limited to discharges of dredged or fill material into waters of the United States or structures or work in a navigable waters. Human activities in uplands have substantial indirect effects on the structure and function of aquatic ecosystems, including streams and wetlands, and their ability to sustain populations of listed species. It is extremely difficult to distinguish between degradation of water quality caused by upland activities and degradation of water quality caused by the filling or alteration of wetlands (Gosselink and Lee 1989).

The U.S. Environmental Protection Agency (U.S. EPA) has undertaken the National Wetland Condition Assessment (NWCA), which is a statistical survey of wetland condition in the United States (U.S. EPA 2016). The NWCA assesses the ambient conditions of wetlands at the national and regional scales. The national scale encompasses the conterminous United States. The regional scale consists of four aggregated ecoregions: Coastal Plains, Eastern Mountains and Upper Midwest, Interior Plains, and West. In May 2016, U.S. EPA issued a final report on the results of its 2011 NWCA (U.S. EPA 2016).

The 2011 NWCA determined that, across the conterminous United States, 48 percent of wetland area (39.8 million acres) is in good condition, 20 percent of the wetland area (12.4 million acres) is in fair condition, and 32 percent (19.9 million acres) is in poor condition (U.S. EPA 2016). The 2011 NWCA also examined indicators of stress for the wetlands that were evaluated. The most prevalent physical stressors were vegetation removal, surface hardening via conversion to pavement or soil compaction, and ditching (U.S. EPA 2016). In terms of chemical stressors, most wetlands were subject to low exposure to heavy metals and soil phosphorous, but substantial percentages of wetland area in the West and Eastern Mountains and Upper Midwest ecoregions were found to have moderate stressor levels for heavy metals (U.S. EPA 2016). For soil phosphorous concentrations, stressor levels were high for 13 percent of the wetland area in the Eastern Mountains and Upper Midwest ecoregion (U.S. EPA 2016). Across the conterminous United States, for biological stressors indicated by non-native plants, 61 percent of the wetland area exhibited low stressor levels (U.S. EPA 2016). When examined on an ecoregion basis, the Eastern Mountains and Upper Midwest and Coastal Plains ecoregions had high percentages of wetland area with low non-native plant stressor levels, but the West and Interior Plains ecoregions had small percentages of areas with low non-native plant stressor levels (U.S. EPA 2016).

4.3 Aquatic resource functions and services

Functions are the physical, chemical, and biological processes that occur in ecosystems (33 CFR 332.2). Wetland functions occur through interactions of their physical, chemical, and biological features (Smith et al. 1995). Wetland functions depend on a number of factors, such as the movement of water through the

wetland, landscape position, surrounding land uses, vegetation density within the wetland, geology, soils, water source, and wetland size (NRC 1995). In its evaluation of wetland compensatory mitigation in the Clean Water Act Section 404 permit program, the National Research Council (2001) recognized five general categories of wetland functions:

- Hydrologic functions
- Water quality improvement
- Vegetation support
- Habitat support for animals
- Soil functions

Hydrologic functions include short- and long-term water storage and the maintenance of wetland hydrology (NRC 1995). Water quality improvement functions encompass the transformation or cycling of nutrients, the retention, transformation, or removal of pollutants, and the retention of sediments (NRC 1995). Vegetation support functions include the maintenance of plant communities, which support various species of animals as well as economically important plants. Wetland soils support diverse communities of bacteria and fungi which are critical for biogeochemical processes, including nutrient cycling and pollutant removal and transformation (NRC 2001). Wetland soils also provide rooting media for plants, as well as nutrients and water for those plants. These various functions generally interact with each other, to influence overall wetland functioning, or ecological integrity (Smith et al. 1995; Fennessy et al. 2007). As discussed earlier in this report, the Corps regulations at 33 CFR 320.4(b) list wetland functions that are important for the public interest review during evaluations of applications for DA permits, and for the issuance of general permits.

Not all wetlands perform the same functions, nor do they provide functions to the same degree (Smith et al. 1995). Therefore, it is necessary to account for individual and regional variation when evaluating wetlands and the functions and services they provide. The types and levels of functions performed by a wetland are dependent on its hydrologic regime, the plant species inhabiting the wetland, soil type, and the surrounding landscape, including the degree of human disturbance of the landscape (Smith et al. 1995).

Streams also provide a variety of functions, which differ from wetland functions. Streams also provide hydrologic functions, nutrient cycling functions, food web support, and corridors for movement of aquatic organisms (Allan and Castillo 2007). When considering stream functions, the stream channel should not be examined in isolation. The riparian corridor next to the stream channel is an integral part of the stream ecosystem and has critical roles in stream functions (NRC 2002). Riparian areas provide many of the same general functions as wetlands (NRC 1995, 2002). Fischenich (2006) conducted a review of stream and riparian corridor functions, and through a committee, identified five broad categories of stream functions:

- Stream system dynamics
- Hydrologic balance

- Sediment processes and character
- Biological support
- Chemical processes and landscape pathways

Stream system dynamics refers to the processes that affect the development and maintenance of the stream channel and riparian area over time, as well as energy management by the stream and riparian area. Hydrologic balance includes surface water storage processes, the exchange of surface and subsurface water, and the movement of water through the stream corridor. Sediment processes and character functions relate to processes for establishing and maintaining stream substrate and structure. Biological support functions include the biological communities inhabiting streams and their riparian areas. Chemical processes and pathway functions influence water and soil quality, as well as the chemical processes and nutrient cycles that occur in streams and their riparian areas. Rivers and streams function perform functions to different degrees, depending on watershed condition, the severity of direct and indirect impacts to streams caused by human activities, and their interactions with other environmental components, such as their riparian areas (Allan 2004, Gergel et al. 2002).

Ecosystem services are the benefits that humans derive from ecosystem functions (33 CFR 332.2). The Millennium Ecosystem Assessment (2005a) describes four categories of ecosystem services: provisioning services, regulating services, cultural services, and supporting services. For wetlands and open waters, provisioning services include the production of food (e.g., fish, fruits, game), fresh water storage, food and fiber production, production of chemicals that can be used for medicine and other purposes, and supporting genetic diversity for resistance to disease. Regulating services relating to open waters and wetlands consist of climate regulation, control of hydrologic flows, water quality through the removal, retention, and recovery of nutrients and pollutants, erosion control, mitigating natural hazards such as floods, and providing habitat for pollinators. Cultural services that come from wetlands and open waters include spiritual and religious values, recreational opportunities, aesthetics, and education. Wetlands and open waters contribute supporting services such as soil formation, sediment retention, and nutrient cycling.

Aquatic ecosystems in the current affected environment provide a wide variety of ecological functions and services to differing degrees (MEA 2005a) to human communities. Degraded ecosystems can provide ecological functions and services that continue to provide some conservation value (Weins and Hobbs 2015).

Examples of services provided by wetland functions include flood damage reduction, maintenance of populations of economically important fish and wildlife species, maintenance of water quality (NRC 1995, MEA 2005a) and the production of populations of wetland plant species that are economically important commodities, such as timber, fiber, and fuel (MEA 2005a). Wetlands can also provide important climate regulation and storm protection services (MEA 2005a).

Stream functions also result in ecosystem services that benefit society. Streams and their riparian areas store water, which can reduce downstream flooding and subsequent flood damage (NRC 2002, MEA 2005a). These ecosystems also maintain populations of economically important fish, wildlife, and plant species, including valuable fisheries (MEA 2005a, NRC 2002). The nutrient cycling and pollutant removal functions help maintain or improve water quality for surface waters (NRC 2002, MEA 2005a). Streams and riparian areas also provide important recreational opportunities. Rivers and streams also provide water for agricultural, industrial, and residential use (MEA 2005a).

Freshwater ecosystems provide services such as water for drinking, household uses, manufacturing, thermoelectric power generation, irrigation, and aquaculture; production of finfish, waterfowl, and shellfish; and non-extractive services, such as flood control, transportation, recreation (e.g., swimming and boating), pollution dilution, hydroelectric generation, wildlife habitat, soil fertilization, and enhancement of property values (Postel and Carpenter 1997).

Marine ecosystems provide a number of ecosystem services, including fish production; materials cycling (e.g., nitrogen, carbon, oxygen, phosphorous, and sulfur); transformation, detoxification, and sequestration of pollutants and wastes produced by humans; support of ocean-based recreation, tourism, and retirement industries; and coastal land development and valuation, including aesthetics related to living near the ocean (Peterson and Lubchenco 1997).

Costanza et al. (2014) estimated the value of ecosystem services, by general categories of ecosystem type. Their estimates, based on data analysis conducted in 2011 and using the 2007 value of the U.S. dollar, are provided in Table 4.5. The ecosystem categories providing the highest values of ecosystem services by acre per year were coral reefs ($142,661 per acre per year), followed by tidal marshes and mangrove wetlands ($78,506 per acre per year). Forested and floodplain wetlands had a value of $10,401 per acre per year.

Table 4.5 – Estimates of the value of ecosystem services, by ecosystem category (Costanza et al. 2014)

Ecosystem category	2007$ per acre per year
Marine	554
open ocean	24
coastal	3,622
• estuaries	11,711
• seagrass/algae beds	11,711
• coral reefs	142,661
• coastal shelf	900
Terrestrial	1,985
forest	1,539
• tropical	2,180
• temperate/boreal	1,270
grass/rangelands	1,687
wetlands	56,770
• tidal marsh/mangroves	78,506
• swamps/floodplains	10,401
lakes/rivers	5,067
desert	-
tundra	-
ice/rock	-
cropland	2,255
urban	2,698

This NWP authorizes discharges of dredged or fill material into non-tidal waters of the United States, but it does not authorize discharges of dredged or fill material into non-tidal wetlands adjacent to tidal waters. These non-tidal waters are included in the palustrine, lacustrine, and riverine systems of the Cowardin classification system.

Activities authorized by this NWP will provide a wide variety of goods and services that are valued by society. For example, residential developments, including single family homes, may require DA permits if the construction of those developments involves regulated activities in waters of the United States. This NWP may also be used to authorize the construction and maintenance of roads, utility lines, and other infrastructure associated with the residential development, but other NWPs may be used to authorize these activities. When natural ecosystems are converted to human-dominated ecosystems, there are tradeoffs between the losses in ecosystem services provided by natural ecosystems and the gains in goods and services provided by land use changes, resource extraction, harvesting, and other activities (MEA 2005c). For thousands of years, human communities have altered landscapes and ecosystems to serve their needs, such as food, safety, and commerce, and made trade-offs by increasing certain ecosystem functions and services while reducing other ecosystem functions and services (Karieva et al. 2007).

4.4 Human Activities and Other Factors that Affect the Quantity and Quality of Aquatic Ecosystems in the United States

The affected environment is the current environmental setting against which the environmental effects of the proposed action is evaluated, to determine whether the issuance of the NWP will have a significant impact on the quality of the human environment. The affected environment is also used as a basis for comparison to determine whether activities authorized by the NWP will result in no more than minimal individual and cumulative adverse environmental effects when added to the current environmental setting.

For thousands of years, humans have caused substantial impacts on ecosystems and the ecological functions and services they provide (Ellis et al. 2010, Evans and Davis 2018). Around the beginning of the 19th century, the degree of impacts of human activities on the Earth's ecosystems began to exceed the degree of impacts to ecosystems caused by natural disturbances and variability (Steffen et al. 2007). All of the Earth's ecosystems have been affected either directly or indirectly by human activities (Vitousek et al. 1997). Over 75 percent of the ice-free land on Earth has been altered by human occupation and use (Ellis and Ramankutty 2008). Approximately 33 percent of the Earth's ice-free land consists of lands heavily used by people: urban areas, villages, lands used to produce crops, and occupied rangelands (Ellis and Ramankutty 2008). For marine ecosystems, Halpern et al. (2008) determined that there are no marine waters that are unaffected by human activities, and that 41 percent of the area of ocean waters are affected by multiple anthropogenic stressors (e.g., land use activities that generate pollution that go to coastal waters, marine habitat destruction or modification, and the extraction of resources). The marine waters most highly impacted by human activities are continental shelf and slope areas, which are affected by both land-based and ocean-based human activities (Halpern et al. 2008). Human population density is a good indicator of the relative effect that people have had on local ecosystems, with lower population densities causing smaller impacts to ecosystems and higher population densities having larger impacts on ecosystems (Ellis and Ramankutty 2008). Human activities such as urbanization, agriculture, and forestry alter ecosystem structure and function by changing their interactions with other ecosystems, their biogeochemical cycles, and their species composition (Vitousek et al. 1997). Changes in land use reduce the ability of ecosystems to produce ecosystem services, such as food production, reducing infectious diseases, and regulating climate and air quality (Foley et al. 2005).

Ecosystems are not separate from human communities, and they are interdependent and comprise a single social-ecological system (Folke et al. 2011). Social-ecological systems are altered by human activities, as well as natural perturbations and changing environmental conditions, but they possess resilience and adaptive capacities that allow them to continue to provide ecological functions

and services when properly managed (Chapin et al. 2010). Social-ecological systems exist at a number of scales, ranging from local to regional to global (Folke et al. 2010). Despite the prevalence of human activities altering landscapes and seascapes and the ecosystems within those landscapes and seascapes over long periods of time, many of those ecosystems continue to provide ecological functions and services to varying degrees (Clewell and Aronson 2013). Disturbances to ecosystems, landscapes, and seascapes may result in those systems recovering to their original state through biotic and abiotic characteristics and processes that provide resilience, or those systems may be transformed to a different ecological state (i.e., an alternative stable state) (van Andel and Aronson 2012). From the perspective of social-ecological systems, resilience is defined by Folke et al. (2010) as the capacity of a social-ecological system to withstand disturbance and undergo changes, while retaining its ability to exhibit similar structure, functions, and interactions. If the ecosystem, landscape, or seascape changes to an alternative stable state, the alternative stable state may be considered an improvement or degradation, depending on the perspective of the person evaluating the change (Backstrom et al. 2018, van Andel and Aronson 2012). This NWP will be used to authorize certain activities that require DA authorization in these social-ecological systems, and the potential environmental consequences of the reissuance of this NWP is evaluated under the current environmental setting and the potential impacts to jurisdictional waters and wetlands that may occur during the 5-year period this NWP is anticipated to be in effect. The environmental consequences of the reissuance of this NWP is also considered for the various public interest review factors in section 6.0 of this document, which include social and ecological components.

Recent changes in climate have had substantial impacts on natural ecosystems and human communities (IPCC 2014). Climate change, both natural and anthropogenic, is a major driving force for changes in ecosystem structure, function, and dynamics (Millar and Brubaker 2006). However, there are other significant drivers of change to aquatic and terrestrial ecosystems. In addition to climate change, aquatic and terrestrial ecosystems are also adversely affected by land use and land cover changes, natural resource extraction (including water withdrawals), pollution, species introductions, and removals of species (NAS and RS 2019, Staudt et al. 2013, Bodkin 2012, MEA 2005a) and changes in nutrient cycling (Julius et al. 2013). During the past century, changes to ecosystems have been driven primarily by changes in biological factors, such as land use/land cover changes and the spread of non-native species, but in the future changes in abiotic processes, such as climate change and nitrogen deposition, may become predominant drivers of ecosystem change (Radeloff et al. 2015). The current contribution of climate change to changes in ecosystems is small compared to other anthropogenic causes of change to ecosystems (Radeloff et al. 2015, Williams et al. 2019) that are identified above, especially land use and land cover changes.

The affected environment (i.e., the current environmental setting) has been shaped by a wide variety of human activities. Wetlands, streams, and other aquatic

resources and the ecological functions and services they provide are directly and indirectly affected by changes in land use and land cover, alien species introductions, overexploitation of species, pollution, eutrophication due to excess nutrients, resource extraction including water withdrawals, climate change, and various natural disturbances (MEA 2005a). A more detailed list of activities is provided below in Table 4.6. Activities regulated and authorized by the Corps under Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act of 1899 through NWPs, individual permits, letters of permission, and regional general permits comprise a small subset of those activities. The impacts of human activities have altered, to some degree, all ecosystems, including the quantity and quality of wetlands, streams, and other aquatic resources in the United States, and the ecological functions and services they provide. Other federal, non-federal, and private activities also contribute to the current environmental setting by changing the quantity and quality of aquatic resources and the ecological functions and services they provide. Human activities that have affected ecosystems, landscapes, and seascapes may have legacy effects that continue under the current environmental setting and affected the quantity of those resources and the ecological functions and services they provide.

Table 4.6 – Human activities and natural factors that cause changes in aquatic ecosystems and the functions and services they perform

Resource type(s)	Human activities and natural factors that drive ecosystem change	Reference(s)
wetlands and waters (generally)	• land use/land cover changes • alien species introductions • species overexploitation • pollution • eutrophication • resource extraction (e.g., water withdrawals) • climate change • natural disturbances	MEA (2005a)

Resource type(s)	Human activities and natural factors that drive ecosystem change	Reference(s)
rivers and streams	• agriculture • urban development • industrial development • deforestation • mining • water removal • flow alteration • invasive species • point source and non-point source pollution • dams (hydroelectric, water supply) and navigational aids such as locks • dredging • erosion • filling • overfishing • road construction • drainage and channelization • sediment deposition • boating	Palmer et al. (2010) Carpenter et al. (2011) Allan (2004) NRC (1992)
wetlands	• wetland conversion through drainage, dredging, and filling • hydrologic modifications that change wetland hydrology and hydrodynamics • pollutants (point source and non-point source), including nutrients and contaminants • waterfowl and wildlife management activities • agriculture and aquaculture activities • flood control and stormwater protection (e.g., severing hydrologic connections between rivers and floodplain wetlands) • silvicultural activities • agricultural activities • urban development • mining activities • water withdrawals, aquifer depletion • river management (e.g., channelization, navigation improvements, dams, locks, weirs) • altered sediment transport • introductions of non-native species • land subsidence, erosion	Mitsch and Gosselink (2015) Mitsch and Hernandez (2013) Wright et al. (2006) Zedler and Kercher (2005) Brinson and Malvárez (2002)

Resource type(s)	Human activities and natural factors that drive ecosystem change	Reference(s)
seagrass beds	• dredging • coastal development activities • degradation of water quality • sediment and nutrient runoff from adjacent lands • physical disturbances • natural processes, such as herbivore grazing, physical disturbances caused by waves and tidal currents • invasive species • diseases • commercial fishing activities • aquaculture • algal blooms • low light availability • nutrient limitations • global climate change	Borum et al. (2013) Waycott et al. (2009) Orth et al. (2006)
coral reefs	• overexploitation/overfishing • destructive fishing practices • nutrients, sediments, pesticides, and other pollutants (point source and non-point source) • nutrient loading • changes in storm frequency and intensity • increasing ocean surface temperatures • ocean acidification • coastal land uses, including development and agriculture • coral mining • sea level rise • invasive species • diseases • bleaching • global climate change	Sheppard (2014) MEA (2005a) Hughes et al. (2003)

coastal areas	• development activities, including the construction of residences, commercial buildings, industrial facilities, resorts, and port developments • agricultural and forestry activities • point source and non-point source pollution (nutrients, organic matter, other pollutants) • aquaculture • fishing activities • overharvesting of species • intentional and unintentional introductions of non-native species • dredging • reclamation • shore protection and other structures • habitat modifications • changes to hydrology and hydrodynamics • global climate change • shoreline erosion • pathogens and toxins • debris and litter	Robb (2014) Day et al. (2013) Lotze et al. (2006) MEA (2005b) NRC (1994)
oceans	• pollution (point and non-point source) • fishing activities • changes in sea temperatures • ultraviolet light • ocean acidification • species invasions • commercial activities • other human activities • benthic structures • offshore energy infrastructure (e.g., wind farms, pipelines)	Halpern et al. (2015) Halpern et al. (2008)

Wetlands, streams, and other aquatic resources and the functions and services they provide are directly and indirectly affected by changes in land use and land cover, alien species introductions, overexploitation of species, pollution, eutrophication due to excess nutrients, resource extraction including water withdrawals, climate change, and various natural disturbances (MEA 2005a). Freshwater ecosystems such as lakes, rivers, and streams are altered by changes to water flow, climate change, land use changes, additions of chemicals, resource extraction, and aquatic invasive species (Carpenter et al. 2011). Cumulative effects to wetlands, streams, and other aquatic resources that form the current environmental setting are the result of landscape-level processes (Gosselink and Lee 1989). As discussed in more detail below, cumulative or aggregate effects to aquatic resources are caused by a variety of activities (including activities that occur entirely in uplands) that take place within a landscape unit, such as the watershed for a river or stream (e.g., Allan 2004, Paul and Meyer 2001, Leopold 1968) or the contributing drainage area for a wetland (e.g., Wright et al. 2006, Brinson and Malvárez 2002, Zedler and Kercher 2005).

There is little national-level information on the current ecological state of the Nation's wetlands, streams, and other aquatic resources, or the general degree to which they perform various ecological functions, although reviews have acknowledged that most of these aquatic resources are degraded to some degree (Zedler and Kercher 2005, Allan 2004) or impaired (U.S. EPA 2015) because of various activities, disturbances, and other stressors. Therefore, the analysis in this environmental assessment is a qualitative analysis.

There is a wide variety of causes and sources of impairment of the Nation's rivers, streams, wetlands, lakes, estuarine waters, and marine waters (U.S. EPA 2015), which also contribute to cumulative effects to these aquatic resources. Many of those causes of impairment are point and non-point sources of pollutants that are not regulated under Section 404 of the Clean Water Act or Section 10 of the Rivers and Harbors Act of 1899. Two common causes of impairment for rivers and streams, habitat alterations and flow alterations, may be due in part to activities regulated by the Corps under Section 404 of the Clean Water Act and/or Section 10 of the Rivers and Harbors Act of 1899. Habitat and flow alterations may also be the caused by activities that do not involve discharges of dredged or fill material or structures or work in navigable waters. For wetlands, impairment due to habitat alterations, flow alterations, and hydrology modifications may involve activities regulated under section 404, but these causes of impairment may also be due to unregulated activities, such as changes in upland land use that affects the movement of water through a watershed or contributing drainage area or the removal of vegetation.

The Millennium Ecosystem Assessment (MEA 2005a) broadly defines wetlands as inland wetlands (e.g., swamps, marshes, lakes, rivers, peatlands, and underground water habitats), coastal and near-shore marine wetlands (e.g., coral reefs, mangroves, seagrass beds, and estuaries), and human-made wetlands (e.g., rice fields, dams, reservoirs, and fish ponds). According to the MEA (2005a), the principal drivers of direct change to estuarine and marine wetlands include the conversion of saltwater marshes, mangroves, seagrass meadows, and coral reefs to other land uses, diversions of freshwater flows, increased inputs of nitrogen, overharvesting various species, water temperature changes, and species introductions. These changes are indirectly driven by increases in human populations in coastal areas (MEA 2005a). Robb (2014) identified a number of threats to estuaries and estuarine habitats such as salt marshes, seagrass beds, and sand flats. Those threats include land-based activities in surrounding watersheds, such as development activities, agricultural activities, forestry activities, pollution, freshwater diversions, shoreline stabilization, waterway impairments, and inputs of debris and litter. With respect to activities occurring directly in coastal waters, Robb (2014) identified the following threats: shoreline development, the construction and operation of port facilities, dredging, marine pollution, aquaculture activities, resource extraction activities, species introductions, and recreational activities. Changing climate conditions also pose threats to estuaries through sea level rise, changing water temperatures, ocean acidification, and changing

precipitation patterns (Robb 2014).

Marine and coastal waters are affected by human activities in the ocean, coastal areas, and watersheds that drain to those marine and coastal waters (Korpinen and Andersen 2016). In marine and coastal environments, human activities and other disturbances that affect resources in those waters can come from a variety of sources, including water-based activities (e.g., transportation, fishing, mariculture, power generation, and tourism) and land-based activities (e.g., urban and suburban development, agriculture, non-point source pollution, forestry activities, power generation, and mining activities) (Clark Murray et al. 2014).

Activities that affect wetland quantity and quality include: land use changes that alter local hydrology (including water withdrawal), clearing and draining wetlands, constructing levees that sever hydrologic connections between rivers and floodplain wetlands, constructing other obstructions to water flow (e.g., dams, locks), constructing water diversions, inputs of nutrients and contaminants, and fire suppression (Brinson and Malvárez 2002). Wetland loss and degradation is caused by hydrologic modifications of watersheds, drainage activities, logging, agricultural runoff, urban development, conversion to agriculture, aquifer depletion, river management, (e.g., channelization, navigation improvements, dams, weirs), oil and gas development activities, levee construction, peat mining, and wetland management activities (Mitsch and Hernandez 2013). Upland development adversely affects wetlands and reduces wetland functionality because those activities change surface water flows and alter wetland hydrology, contribute stormwater and associated sediments, nutrients, and pollutants, cause increases in invasive plant species abundance, and decrease the diversity of native plants and animals (Wright et al. 2006). Many of the remaining wetlands in the United States are degraded (Zedler and Kercher 2005). Wetland degradation and losses are caused by changes in water movement and volume within a watershed or contributing drainage area, altered sediment transport, drainage, inputs of nutrients from non-point sources, water diversions, fill activities, excavation activities, invasion by non-native species, land subsidence, and pollutants (Zedler and Kercher 2005). According to Mitsch and Gosselink (2015), categories of activities that alter wetlands include: wetland conversion through drainage, dredging, and filling; hydrologic modifications that change wetland hydrology and hydrodynamics; highway construction and its effects on wetland hydrology; peat mining; waterfowl and wildlife management; agriculture and aquaculture activities; water quality enhancement activities; and flood control and stormwater protection.

The ecological condition of rivers and streams is dependent on the state of their watersheds (NRC 1992), because they are affected by activities that occur in those watersheds, including agriculture, urban development, deforestation, mining, water removal, flow alteration, and invasive species (Palmer et al. 2010, Allan 2004). Land use changes affect rivers and streams through increased sedimentation, larger inputs of nutrients (e.g., nitrogen, phosphorous) and pollutants (e.g., heavy metals, synthetic chemicals, toxic organics), altered stream hydrology, the alteration or

removal of riparian vegetation, and the reduction or elimination of inputs of large woody debris (Allan 2004). Agriculture is the primary cause of stream impairment, followed by urbanization (Foley et al. 2005, Paul and Meyer 2001). Agricultural land use adversely affects stream water quality, habitat, and biological communities (Allan 2004). Urbanization causes changes to stream hydrology (e.g., higher flood peaks, lower base flows), sediment supply and transport, water chemistry, and aquatic organisms (Paul and Meyer 2001). Leopold (1968) found that land use changes affect the hydrology of an area by altering stream flow patterns, total runoff, water quality, and stream structure. Changes in peak flow patterns and runoff affect stream channel stability. Stream water quality is adversely affected by increased inputs of sediments, nutrients, and pollutants, many of which come from non-point sources (Paul and Meyer 2001, Allan and Castillo 2007).

The construction and operation of water-powered mills in the 17th to 19th centuries substantially altered the structure and function of streams in the eastern United States (Walter and Merritts 2008) and those effects have persisted to the present time. In urbanized and agricultural watersheds, the number of small streams has been substantially reduced, in part by activities that occurred between the 19th and mid-20th centuries (Meyer and Wallace 2001). Activities that affect the quantity and quality of small streams include residential, commercial, and industrial development, mining, agricultural activities, forestry activities, and road construction (Meyer and Wallace 2001), even if those activities are located entirely in uplands.

Waycott et al. (2009) estimated that the areal extent of seagrass beds across the world has declined by nearly 30 percent since the late 19th century. They identified two main categories of causes for that decline: direct impacts from dredging and coastal development activities, and indirect impacts from degradation of water quality. Submersed aquatic vegetation is affected by a wide variety of human activities such as dredging in seagrass meadows, anchoring vessels in seagrass beds, coastal development activities, increased sediment inputs from a variety of sources including land development activities, habitat conversions resulting from mariculture activities, increased nutrient inputs to coastal waters, and climate change (MEA 2005a). According to Orth et al. (2006), seagrasses are threatened by numerous stressors, such as sediment and nutrient runoff from adjacent lands, physical disturbances, overgrazing, invasive species, diseases, commercial fishing activities, aquaculture, algal blooms, and global climate change. Human activities that contribute to cumulative effects to submerged aquatic vegetation include coastal development, hard shore stabilization structures, land uses changes in surrounding watersheds that increase inputs of sediments, nutrients, and pollutants to waters inhabited (or could be inhabited) by seagrasses, discharges of pollutants directly into waters, aquaculture activities, and boating activities (Orth et al. 2017, Orth et al. 2006). Orth et al. (2017, 2006) did not quantify how frequently each of these stressors pose threats to seagrasses. the relative contributions of each of the identified human activities that affect seagrasses. Submersed aquatic vegetation may be affected by natural processes, such as herbivore grazing, physical disturbances caused by waves and tidal currents, and other stressors such as low

light availability, higher temperatures, or nutrient limitations (Borum et al. 2013). Boating activities (e.g., mooring, use of propellers) and fish and shellfish harvesting activities can also contribute to cumulative impacts to submersed aquatic vegetation beds (Fonseca et al. 1998). The recovery of submersed aquatic vegetation from anthropogenic and natural disturbances can vary by species, and is dependent in part on the reproductive mechanisms of those species (Borum et al. 2013, Fonseca et al. 1998). At the meadow or landscape scale, seagrass beds can fully recover after disturbance within 5 years, but recovery can take longer if there are persistent environmental changes persist or seagrass seeds or other propagules are not available to reestablish seagrasses in the affected area (O'Brien et al. 2018).

A variety of human activities have caused, and are continuing to cause declines in corals and coral reefs. Coral reefs are adversely affected by pollution, including sedimentation, excess nutrients, oil discharges, pesticides, and sewage (Sheppard 2014; MEA 2005a; Hughes et al. 2003). Shoreline development activities, development activities in watersheds draining to coastal waters, and agriculture activities in coastal watersheds also contribute to declines in corals and coral reefs (Sheppard 2014; MEA 2005a; Hughes et al. 2003). The pollution may be in runoff from nearby lands or discharged directly into waters inhabited by corals. Corals and coral reefs are also harmed by overexploitation, including overfishing, as well as destructive fishing practices (MEA 2005a) and anchors used by boats (Sheppard 2014). Climate change and associated increases in storm frequency and intensity, diseases, water temperatures, and coral bleaching also contribute to declines in corals and coral reefs (Sheppard 2014; MEA 2005a; Hughes et al. 2003). Invasive species have also affected corals and coral reefs (Sheppard 2014).

For aquatic ecosystems, climate change affects water quality, biogeochemical cycling, and water storage (Julius et al. 2013). Climate change will also affect the abundance and distribution of wetlands across the United States, as well as the functions they provide (Mitsch and Gosselink 2015). Climate change results in increases in stream temperatures, more waterbodies with anoxic conditions, degradation of water quality, and increases in flood and drought frequencies (Julius et al. 2013). The increasing carbon dioxide concentration in the atmosphere also changes the pH of the oceans, resulting in ocean acidification (RS and NAS 2014), which adversely affects corals and some other marine organisms.

In the United States, approximately 39 percent of its population lives in counties that are next to coastal waters, the territorial seas, or the Great Lakes (NOAA 2013). Those counties comprise less than 10 percent of the land area of the United States (NOAA 2013). Humans have been altering estuarine waters and coastal areas for millennia, but those changes have rapidly accelerated over the past 150 to 300 years (Lotze et al. 2006). Coastal waters are also affected by a wide variety of activities. Day et al. (2013) identified the following general categories of human activities that impact estuaries: physical alterations (e.g., habitat modifications and changes in hydrology and hydrodynamics), increases in inputs of nutrients and organic matter (enrichment), releases of toxins, and changes in biological

communities as a result of harvesting activities and intentional and unintentional introductions of new species. The major drivers of changes to coastal areas are: development activities that alter coastal forests, wetlands, and coral reef habitats for aquaculture and the construction of urban areas, industrial facilities, and resort and port developments (MEA 2005b). Dredging, reclamation, shore protection and other structures (e.g., causeways and bridges), and some types of fishing activities also cause substantial changes to coastal areas (MEA 2005b). Nitrogen pollution to coastal zones change coral reef communities (MEA 2005b). Adverse effects to coastal waters are caused by habitat modifications, point source pollution, non-point source pollution, changes to hydrology and hydrodynamics, exploitation of coastal resources, introduction of non-native species, global climate change, shoreline erosion, and pathogens and toxins (NRC 1994). Over the course of history, in estuarine waters human activities caused declines of greater than 90 percent of important species, losses of more than 65 percent of seagrasses and wetland habitat, substantially degraded water quality, and facilitated introductions of new species (Lotze et al. 2006).

Substantial alterations of coastal hydrology and hydrodynamics are caused by land use changes in watersheds draining to coastal waters, the channelization or damming of streams and rivers, water consumption, and water diversions (NRC 1994). Approximately 52 percent of the population of the United States lives in coastal watersheds (NOAA 2013). Eutrophication of coastal waters is caused by nutrients contributed by waste treatment systems, non-point sources, and the atmosphere, and may cause hypoxia or anoxia in coastal waters (NRC 1994). Changes in water movement through watersheds may also alter sediment delivery to coastal areas, which affects the sustainability of wetlands and intertidal habitats and the functions they provide (NRC 1994). Most inland waters in the United States drain to coastal areas, and therefore activities that occur in inland watersheds affect coastal waters (NRC 1994). Inland land uses, such as agriculture, urban development, and forestry, adversely affect coastal waters by diverting fresh water from estuaries and by acting as sources of nutrients and pollutants to coastal waters (MEA 2005b).

Coastal wetlands have been substantially altered by urban development and changes to the watersheds that drain to those wetlands (Mitsch and Hernandez 2013). Coastal habitat modifications are the result of dredging or filling coastal waters, inputs of sediment via non-point sources, changes in water quality, or alteration of coastal hydrodynamics (NRC 1994). Coastal development activities, including those that occur in uplands, affect marine and estuarine habitats (MEA 2005a). The introduction of non-native species may change the functions and structure of coastal wetlands and other habitats (MEA 2005a). Fishing activities may also modify coastal habitats by changing habitat structure and the biological communities that inhabit those areas (NRC 1994).

In order to effectively understand and manage ecosystems, including aquatic ecosystems, it is necessary to take into account how people and societies have

reshaped aquatic and terrestrial resources over time (Ellis 2015), through the effects of human activities on those ecosystems. This includes permitting programs that regulate activities in aquatic resources and other types of natural resources. The current state of an ecosystem (e.g., a wetland or an estuary) can range from "near natural" (i.e., minimally disturbed) to semi-natural to production systems such as agricultural lands to overexploited (i.e., severely impaired) (van Andel and Aronson 2012). Degradation occurs when an ecosystem is subjected to a prolonged disturbance (Clewell and Aronson 2013), and the degree of degradation can be dependent, in part, on the severity of disturbance. Disturbances can be caused by human activities or by natural events, such as changes to ecosystems caused by ecosystem engineers (e.g., beavers) and other organisms, storms, fires, or earthquakes. Two important factors that affect how aquatic ecosystems and other ecosystems respond to disturbances are resistance and resilience.

For ecosystems, stability is the ability of an ecosystem to return its starting state after one or more disturbances cause a significant change in environmental conditions (van Andel et al. 2012). Resistance is the ability of an ecosystem to exhibit little or no change in structure or function when exposed to a disturbance (van Andel et al. 2012). Resilience is the ability of an ecosystem to regain its structural and functional characteristics in a relatively short amount of time after it has been exposed to a disturbance (van Andel et al. 2012). Human activities can change the resilience of ecosystems (Gunderson 2000). In some situations, resilience can be a positive attribute (e.g., the ability to withstand disturbances), and in other situations, resilience can be a negative attribute (e.g., when it is not possible to restore ecosystem because it has changed to the degree where it is resistant to being restored) (Walker et al. 2004). The concept of ecological resilience presumes the existence of multiple stable states, and the ability of ecosystems to tolerate some degree of disturbance before transitioning to an alternative (different) stable state (Gunderson 2000). A regime shift (i.e., a change from one stable state to an alternative stable state) can occur when human activities reduce the resilience of an ecosystem, or functional groups of species within that ecosystem, or when there are changes in the magnitude, frequency, and duration of disturbances (Folke et al. 2004). Folke et al. (2004) and Gunderson (2000) provide examples of aquatic ecosystems that can exist in multiple stable states.

An example of a regime change in an estuary is a shift from an estuary with clear waters and benthic communities dominated by seagrasses, to an estuary with turbid waters dominated by phytoplankton that has insufficient light for seagrasses to grow and persist (Folke et al. 2004). Another example of a regime shift is where an increase in nutrients to a wetland (likely from many sources in the area draining to that wetland) causes a wetland's plant community from a diverse plant community dependent on low nutrient levels to a monotypic plant community dominated by an invasive species that can persist under the higher nutrient levels (Gunderson 2000).

Determining whether an ecosystem altered by human activities is degraded or in an alternative stable state depends on the perspective of the person making that

judgment (Hobbs 2016). That judgment is dependent in part on the ecological functions and services currently being provided by the alternative stable state and the value local stakeholders place on those ecosystem functions and services. In other words, different people may have different views on the current ecological state of a particular ecosystem (Hobbs 2016, Walker et al. 2004): some people may think it is degraded and other people may think it continues to provide important ecological functions and services. It is also important to understand that degradation falls along a continuum, ranging from minimally degraded to severely degraded, since all ecosystems have been directly or indirectly altered by human activities to some degree. Degraded ecosystems can continue to provide important ecological functions and services, although they may be different from what they provided historically. In summary, the affected environment or current environmental setting consists of a variety of aquatic and terrestrial resources that have been subjected to varying degrees of disturbance by human activities, and provide different degrees of aquatic resource functions and services.

5.0 Environmental Consequences

5.1 General Evaluation Criteria

This document contains a general assessment of the reasonably foreseeable effects of the individual activities authorized by this NWP and the anticipated cumulative effects of the activities authorized by this NWP during the 5-year period it is anticipated to be in effect. In the assessment of these individual and cumulative effects, the terms and limits of the NWP, pre-construction notification requirements, and the standard NWP general conditions are considered. The NWP general conditions include mitigation measures that reduce individual and cumulative adverse environmental effects. The supplemental documentation provided by division engineers will address how regional conditions affect the individual and cumulative effects of the NWP.

The environmental effects of proposed activities are evaluated by assessing the direct and indirect effects that those activities have on the current environmental setting (Canter 1996). The current environmental setting is the product of the cumulative or aggregated effects of human activities that have persisted over time, as well as the natural processes that have influenced, and continue to influence, the structure, functions, and dynamics of ecosystems. The current environmental setting includes the present effects of past activities authorized by previously issued versions of this NWP and other NWPs. The current environmental setting can vary substantially in different areas of the country and in different waterbodies. The current environmental setting is dependent in part on the degree to which past and present human activities have altered aquatic and terrestrial resources in a particular geographic area over time. For a particular site in which an NWP may take place, the current environmental setting can range from highly

developed/overexploited (e.g., urban areas, where human impacts to ecosystems are highest) to production systems (e.g., agricultural lands) to seminatural (e.g., parks) to near natural (e.g., wilderness areas, where human impacts to ecosystems are lowest) (van Andel and Aronson 2012). Human impacts on semi-natural ecosystems are lower than human impacts to production ecosystems (van Andel and Aronson 2012). Since humans have altered aquatic and terrestrial environments in numerous, substantial ways for thousands of years (e.g., Evans and Davis 2018, Ellis 2015), the current environmental setting takes into account how human activities and changing biotic and abiotic conditions have modified existing aquatic and terrestrial resources.

The terms “cumulative effects” and “cumulative impacts” have been defined in various ways. For example, the National Research Council (NRC) (1986) defined “cumulative effects” as the on-going degradation of ecological systems caused by repeated perturbations or disturbances. MacDonald (2000) defines “cumulative effects” as the result of the combined effects of multiple activities that occur in a particular area that persist over time. Cumulative effects are caused by the interaction of multiple activities in a landscape unit, such as a watershed or ecoregion (Gosselink and Lee 1989). Cumulative effects can accrue in a number of ways. Cumulative effects can occur when there are repetitive disturbances at a single site over time, and the resource is not able to fully recover between each disturbance. Cumulative effects can also occur as a result of multiple activities occurring in a geographic area over time.

Consistent with the definitions cited above, the cumulative impacts of this NWP are the product of how many times this NWP is used to authorize discharges of dredged or fill material into waters of the United States across the country during the 5-year period this NWP is anticipated to be in effect. In section 8.2.2 of this document, the Corps estimates the number of times this NWP will be used during the 5-year period it is expected to be in effect, as well as estimates of the acreage of permanent and temporary impacts, and the acreage of compensatory mitigation required by district engineers to offset losses of jurisdictional waters and wetlands. The individual and cumulative impacts of activities authorized by this NWP are evaluated against the current environmental setting. This approach is consistent with the Council on Environmental Quality’s definition of “effects or impacts” at 40 CFR 1508.1(g): “Effects or impacts means changes to the human environment from the proposed action or alternatives that are reasonably foreseeable and have a reasonably close causal relationship to the proposed action or alternatives.” The estimated use of this NWP, as well as the estimated authorized impacts and required compensatory mitigation, over the next 5 years are reasonably foreseeable and have a reasonably close causal relationship to the reissuance of this NWP.

The following evaluation comprises the NEPA analysis, the public interest review specified in 33 CFR 320.4(a)(1) and (2), and the impact analysis specified in Subparts C through F of the 404(b)(1) Guidelines (40 CFR Part 230).

The issuance of an NWP is based on a general assessment of the effects on public interest and environmental factors that are likely to occur as a result of using this NWP to authorize activities in waters of the United States. As such, this assessment must be speculative or predictive in general terms. Since NWPs authorize activities across the nation, projects eligible for NWP authorization may be constructed in a wide variety of environmental settings, and affect waters and wetlands of varying quality, from severely degraded to performing one or more functions to a high degree. Nationwide permit activities may result in permanent or temporary losses of aquatic resources, or partial or complete losses of aquatic resources. Therefore, it is difficult to predict all of the direct and indirect impacts that may be associated with each activity authorized by an NWP. For example, the NWP that authorizes 25 cubic yard discharges of dredged or fill material into various types of waters of the United States may be used to fulfill a variety of project purposes, and the direct and indirect effects may vary depending on the specific activity and the environmental characteristics of the site in which the activity takes place. Therefore, certain NWPs require pre-construction notification for certain activities to provide district engineers the opportunity to review proposed activities on a case-by-case basis and determine whether they will result in no more than minimal individual and cumulative adverse environmental effects.

Indication that a factor is not relevant to a particular NWP does not necessarily mean that the NWP would never have an effect on that factor, but that it is a factor not readily identified with the authorized activity. Factors may be relevant, but the adverse effects on the aquatic environment are negligible, such as the impacts of a boat ramp on water level fluctuations or flood hazards. Consistent with 40 CFR 1501.8(g), only the reasonably foreseeable effects or impacts that have a reasonably close causal relationship to the activities authorized as a result of the reissuance of this NWP are evaluated in detail in the environmental assessment for this NWP. Division and district engineers will impose, as necessary, additional conditions on the NWP authorization or exercise discretionary authority to address regionally or locally important factors or to ensure that the authorized activity results in no more than minimal individual and cumulative adverse environmental effects. In any case, adverse effects will be controlled by the terms, conditions, and additional provisions of the NWP. For example, Section 7 Endangered Species Act consultation will be required for all activities that may affect endangered or threatened species or critical habitat (see 33 CFR 330.4(f) and NWP general condition 18).

In a specific watershed, division or district engineers may determine that the cumulative adverse environmental effects of activities authorized by this NWP are more than minimal. Division and district engineers will conduct more detailed assessments for geographic areas that are determined to be potentially subject to more than minimal cumulative adverse environmental effects. Division and district engineers have the authority to require individual permits in watersheds or other geographic areas where the cumulative adverse environmental effects are determined to be more than minimal, or add conditions to the NWP either on a

case-by-case or regional basis to require mitigation measures to ensure that the cumulative adverse environmental effects of these activities are no more than minimal. When a division or district engineer determines, using local or regional information, that a watershed or other geographic area is subject to more than minimal cumulative adverse environmental effects due to the use of this NWP, he or she will use the revocation and modification procedure at 33 CFR 330.5. In reaching the final decision, the division or district engineer will compile information on the cumulative adverse effects and supplement the information in this document.

The Corps expects that the convenience and time savings associated with the use of this NWP will encourage applicants to design their projects within the scope of the NWP rather than request individual permits for projects which could result in greater adverse impacts to the aquatic environment. The minimization encouraged by the issuance of this NWP, as well as compensatory mitigation that may be required for specific activities authorized by this NWP, is likely to help reduce cumulative effects to the Nation's wetlands, streams, and other aquatic resources.

5.2 Impact Analysis

This NWP authorizes discharges of dredged or fill material into non-tidal waters of the United States for the construction and expansion of residential building pads and foundations and attendant features. This NWP does not authorize discharges into tidal waters or non-tidal wetlands adjacent to tidal waters. The acreage limit for this NWP is 1/2 acre.

Pre-construction notification is required for all activities authorized by this NWP. The pre-construction notification requirement allows district engineers to review proposed activities on a case-by-case basis to ensure that the individual and cumulative adverse environmental effects of those activities are no more than minimal. If the district engineer determines that the adverse environmental effects of a particular project are more than minimal after considering mitigation, then discretionary authority will be asserted and the applicant will be notified that another form of DA authorization, such as a regional general permit or individual permit, is required (see 33 CFR 330.4(e) and 330.5).

The potential impacts of activities authorized by this NWP on the Corps' public interest review factors listed in 33 CFR 320.4(a)(1) are discussed in more detail in section 6.0 of this document. The potential impacts on the aquatic environment that could be caused by discharges of dredged or fill material into waters of the United States authorized by this NWP are discussed, in general terms, in section 8.0 of this document in the Clean Water Act Section 404(b)(1) Guidelines analysis.

The terms of this NWP, including any acreage limits or any other quantitative limits in the text of the NWP, the protections provided by many of the NWP general conditions, plus any regional conditions imposed by division engineers and activity-

specific conditions imposed by district engineers will help ensure that the activities authorized by this NWP result in no more than minimal individual and cumulative adverse environmental effects. An additional safeguard is the ability of district engineers to exercise discretionary authority and require project proponents to obtain individual permits for proposed activities whenever a district engineer determines that a proposed activity will result in more than minimal individual or cumulative adverse environmental effects after considering any mitigation proposed by the applicant (see 33 CFR 330.1(e)(3)).

The Council on Environmental Quality's NEPA regulations at 40 CFR 1508.1(g) defines "effects or impacts' as "changes to the human environment from the proposed action or alternatives that are reasonably foreseeable and have a reasonably close causal relationship to the proposed action or alternatives, including those effects that occur at the same time and place as the proposed action or alternatives and may include effects that are later in time or farther removed in distance from the proposed action or alternatives." Furthermore, 40 CFR 1508.1(g)(2) states that:

> [a] "but for" causal relationship is insufficient to make an agency responsible for a particular effect under NEPA. Effects should generally not be considered if they are remote in time, geographically remote, or the product of a lengthy causal chain. Effects do not include those effects that the agency has no ability to prevent due to its limited statutory authority or would occur regardless of the proposed action.

Therefore, the impact analysis in this environmental assessment focuses on the impacts or effects that are reasonably foreseeable and have a reasonably close causal relationship to the activities authorized by this NWP under the Corps' permitting authorities (i.e., work in navigable waters regulated under Section 10 of the Rivers and Harbors Act of 1899 and/or discharges of dredged or fill material into waters of the United States regulated under Section 404 of the Clean Water Act).

This NWP authorizes discharges of dredged or fill material into waters of the United States. The Corps' regulations define "dredged material" as "material that is excavated or dredged from waters of the United States." [33 CFR 323.2(c)] The term "discharge of dredged material" means "any addition of dredged material into, including redeposit of dredged material other than incidental fallback within, the waters of the United States." [33 CFR 323.2(d)(1)] The term "discharge of dredged material" includes, but is not limited to, (1) the addition of dredged material to a specified discharge site located in waters of the United States; (2) the runoff or overflow from a contained land or water disposal area; and (3) any addition, including redeposit other than incidental fallback, of dredged material, including excavated material, into waters of the United States which is incidental to any activity, including mechanized landclearing, ditching, channelization, or other excavation. [33 CFR 323.2(d)(1)]

Under 33 CFR 323.2(d)(2), the term “discharge of dredged material” does not include any of the following:

> (1) discharges of pollutants into waters of the United States resulting from the onshore subsequent processing of dredged material that is extracted for any commercial use (other than fill). These discharges are subject to section 402 of the Clean Water Act even though the extraction and deposit of such material may require a permit from the Corps or applicable State section 404 program.
>
> (2) Activities that involve only the cutting or removing of vegetation above the ground (e.g., mowing, rotary cutting, and chainsawing) where the activity neither substantially disturbs the root system nor involves mechanized pushing, dragging, or other similar activities that redeposit excavated soil material.
>
> (3) Incidental fallback.

The term “fill material” is defined at 33 CFR 323.2(e)(1) as meaning “material placed in waters of the United States where the material has the effect of: (1) replacing any portion of a water of the United States with dry land; or (2) changing the bottom elevation of any portion of a water of the United States. Examples of fill material include: “rock, sand, soil, clay, plastics, construction debris, wood chips, overburden from mining or other excavation activities, and materials used to create any structure or infrastructure in the waters of the United States.” [33 CFR 323.2(e)(2)] “Fill material” does not include trash or garbage (see 33 CFR 323.2(e)(3)). Discharges of trash or garbage may be regulated under Section 402 of the Clean Water Act or other federal, state, or local laws and regulations.

The Corps’ regulations define the term “discharge of fill material” as meaning “the addition of fill material into waters of the United States.” [33 CFR 323.2(f)] Examples of discharges of fill material provided in section 323.2(f) include, but are not limited to, the following activities: (1) the placement of fill that is necessary for the construction of any structure or infrastructure in a water of the United States; (2) the building of any structure, infrastructure, or impoundment requiring rock, sand, dirt, or other material for its construction; (3) site-development fills for recreational, industrial, commercial, residential, or other uses; (4) causeways or road fills; (5) dams and dikes; (6) artificial islands; (7) property protection and/or reclamation devices such as riprap, groins, seawalls, breakwaters, and revetments; (8) beach nourishment; (9) levees; (10) fill for structures such as sewage treatment facilities, intake and outfall pipes associated with power plants and subaqueous utility lines; (11)_ placement of fill material for construction or maintenance of any liner, berm, or other infrastructure associated with solid waste landfills; (12) placement of overburden, slurry, or tailings or similar mining-related materials; and (13) artificial reefs. Under 33 CFR 323.2(f), the term “discharge of fill material” does

not include plowing, cultivating, seeding and harvesting for the production of food, fiber, and forest products.

Discharges of dredged or fill material into a jurisdictional water or wetland authorized under Section 404 of the Clean Water Act may result in the complete or partial loss of stream bed, wetland area, or area of another type of aquatic resource. That complete or partial loss of aquatic ecosystem area may result in a complete or partial loss of aquatic resource functions and services. The direct effects to jurisdictional waters and wetlands caused by activities authorized by this NWP may change those waters and wetlands to components of the built environment or uplands, convert an aquatic resource type to another aquatic resource type, or alter the functions and services provided by those waters and wetlands. The direct effects to jurisdictional waters and wetlands caused by activities authorized by this NWP may be permanent or temporary. The indirect effects to jurisdictional waters and wetlands caused by activities authorized by this NWP may also convert an aquatic resource type to another aquatic resource type. The indirect effects to jurisdictional waters and wetlands caused by activities authorized by this NWP may be permanent or temporary. The contribution of activities authorized by this NWP to cumulative or aggregate effects to ocean waters, estuarine waters, lakes, wetlands, streams, and other aquatic resources is also dependent on the degree or magnitude to which the potentially affected aquatic resources perform ecological functions and services. Nearly all ocean waters, estuaries, lakes, wetlands, streams, and other aquatic resources have been directly and indirectly affected by human activities over time (e.g., Halpern et al. 2008 for oceans, Lotze et al. 2006 for estuaries, Zedler and Kercher (2005) for wetlands, Allan 2004 for streams), including land uses in areas that drain to these aquatic resources.

This NWP also authorizes work in navigable waters of the United States, more specifically discharges of dredged or fill material into waters of the United States that are also navigable waters of the United States as defined in 33 CFR part 329. The Corps' section 10 regulations define the term "work" as including, "without limitation, any dredging or disposal of dredged material, excavation, filling, or other modification of a navigable water of the United States." [33 CFR 322.2(c)] Under this NWP, the section 10 authorization applies to discharges of dredged or fill material into waters of the United States that are also navigable waters under Section 10 of the Rivers and Harbors Act of 1899. Work in navigable waters of the United States, such as discharges of dredged or fill material, may alter the ecological functions and services performed by those navigable waters.

Work in navigable waters of the United States does not typically result in losses of navigable waters. Examples of exceptions would include fills in navigable waters to create fast land along the shoreline, or artificial islands. Work in navigable waters may alter the physical, chemical, and biological characteristics of those waters, but they generally do not result in a loss in the quantity of navigable waters. Work in navigable waters may alter the ecological functions and services provided by those waters. Those alterations will vary, depending on the specific characteristics of the

specific activity authorized by this NWP and the environmental setting in which the NWP activity may occur. The environmental setting will vary from site to site, and from region to region across the country.

The individual environmental impacts are the environmental impacts caused by an activity authorized by this NWP, including the direct and indirect impacts caused by the specific NWP activity at the project site. In the context of the Corps' public interest review (33 CFR 320.4(a)(1) and Section 404(e) of the Clean Water Act, the cumulative environmental impacts are the environmental impacts caused by the activities authorized by this NWP during the 5-year period the NWP is anticipated to be in effect. Both the individual and cumulative environmental impacts are evaluated against the current environmental setting, which is described at a national scale in section 4.0 of this document. The current environmental setting varies substantially throughout the United States. In some areas of the country, the current environmental setting is the result of substantial alteration of waterbodies and other ecosystems by various human activities, but in other areas of the country, the current environmental setting has been less affected by various human activities, and those alterations are more subtle and more difficult to discern (Clewell and Aronson 2013). The categories of human activities that have altered aquatic ecosystems are discussed in section 4.4 of this document, and are summarized in Table 4.6. The types of ecological functions and services provided by aquatic ecosystems also vary considerably by region and by specific ecosystems, with some ecosystems performing ecological functions and services to a high degree, and other ecosystems performing ecological functions and services to a lesser degree.

The analysis of environmental consequences in this environmental assessment is a qualitative analysis because of the lack of quantitative data at a national scale on the various human activities and natural factors that may concurrently alter the current environmental setting during the 5-year period this NWP is expected to be in effect. As discussed in section 4.4, the activities authorized by this NWP are just one category among many categories of human activities and natural factors that affect ocean waters, estuarine waters, lakes, wetlands, streams, and other aquatic resources, and the ecological functions and services they provide.

As discussed in section 4.0 of this document and the Millennium Ecosystem Assessment (2005c), all ecosystems have been affected by human activities to some degree. According to Clewell and Aronson (2013), anthropogenic and natural disturbances to ecosystems can be placed in three categories: (1) stress with maintenance of ecosystem integrity; (2) moderate disturbance where the ecosystem can recover in time through natural processes; and (3) impairment, which may result in a more severe disturbance that may require human intervention (e.g., restoration) to prevent the ecosystem from changing into an alternative, perhaps less functional ecological state. Ecosystems can often tolerate gradual changes and continue to provide ecological functions and services before those changes reach a threshold, that when crossed, causes the ecosystem to change abruptly into an

alternative stable state (Scheffer et al. 2001). For some ecosystems, multiple impacts or disturbances can cause an ecosystem to pass a threshold can result in substantial changes to that ecosystem, but for other ecosystems the changes may be more subtle (Folke et al. 2004). It is difficult to predict where these thresholds are, and ecosystems may exhibit little change before that threshold is reached (Scheffer et al. 2009).

The severity of potential impacts to aquatic resources caused by NWP activities is dependent, in part, on ecosystem resilience and resistance, whether the permitted impacts are temporary or permanent, and how the affected resources respond to the permitted impacts. Impacts to aquatic resources caused by NWP activities may result in a partial, total, or no loss of aquatic resource functions and services, depending on the specific characteristics of the NWP activity and the environmental setting in which those impacts occur. In addition, the duration of the adverse effects (temporary or permanent) caused by NWP activities, can be influenced by the resilience and resistance of the aquatic resource to disturbances caused by those NWP activities. Since there is considerable variation across the country in terms of the types of aquatic resources, the ecological functions and services they provide, and their resilience and resistances to disturbances caused by NWP activities, other human activities, and natural disturbances, the environmental consequences of the issuance of this NWP will vary by site and by region. Given the geographic scope in which this NWP can be used to authorize activities that require DA authorization and the wide variability in aquatic resource structure, functions, and dynamics from site to site and from region to region, the analysis of environmental consequences is a qualitative analysis.

The environmental effects or impacts that are likely to be caused by individual activities authorized by this NWP are evaluated against the current environmental setting (i.e., the affected environment, which is described at a national scale in section 4.0 of this document). The current environmental setting is the result of human activities altering ecosystems over thousands of years (Perring and Ellis 2013), as well as natural changes in environmental conditions that have occurred over time. Since historical baselines (i.e., the state of ecosystems in the absence of modifications caused by human activities) no longer exist in most areas, ecosystem management decisions should be made by using contemporary baselines that acknowledge how humans have dominated and changed ecosystems over long periods of time (Kopf et al. 2015). Permit decisions are an example of management decisions for ecosystems such as oceans, estuaries, lakes, rivers, streams, and wetlands, where the proposed impacts that require a permit are evaluated against the current environmental setting to decide whether the permit (e.g., an NWP authorization) should be issued by the regulatory authority.

The impacts of activities authorized by this NWP during the 5-year period it is anticipated to be in effect are evaluated against the current affected environment, to determine the potential severity of those anticipated impacts in light of the human alterations and natural changes to aquatic ecosystems that have occurred over time

and space. This evaluation takes into account how the activities authorized by this NWP might affect aquatic ecosystems, the resilience of aquatic ecosystems, and the ability of aquatic ecosystems to continue to provide ecological functions and services after the authorized activities have occurred. When evaluating pre-construction notifications, district engineers should be taking into account the current environmental setting, as well as how the jurisdictional waters and wetlands might respond as a result of conducting the NWP activity, including how resilient those waters and wetlands are to disturbances caused by discharges of dredged or fill material and/or structures or work in navigable waters.

Compensatory mitigation required by district engineers for specific activities authorized by this NWP may help reduce the contribution of those activities to the cumulative effects caused by NWPs on the Nation's wetlands, streams, and other aquatic resources, by providing ecological functions to partially or fully replace some or all of the aquatic resource functions lost as a result of those activities. Mitigation requirements, including compensatory mitigation requirements for the NWPs, are described in general condition 23. Compensatory mitigation projects must also comply with the applicable provisions of 33 CFR part 332. District engineers will establish compensatory mitigation requirements on a case-by-case basis, after evaluating pre-construction notifications. Compensatory mitigation requirements for individual NWP activities will be specified through permit conditions added to NWP authorizations. When compensatory mitigation is required, the permittee is required to submit a mitigation plan prepared in accordance with the requirements of 33 CFR 332.4(c). Credits from approved mitigation banks or in-lieu fee programs may also be used to satisfy compensatory mitigation requirements for NWP authorizations. Monitoring is required to demonstrate whether the permittee-responsible mitigation project, mitigation bank, or in-lieu fee project is meeting its objectives and providing the intended aquatic resource structure and functions. If the compensatory mitigation project is not meeting its objectives, adaptive management will be required by the district engineer. Adaptive management may involve taking actions, such as site modifications, remediation, or design changes, to ensure the compensatory mitigation project meets its objectives (see 33 CFR 332.7(c)).

The estimated use of this NWP during the 5-year period the NWP is expected to be in effect and the estimated impacts to wetlands, streams, and other aquatic resources in the United States, plus the estimated acreage of compensatory mitigation, is provided in section 8.2.2 of this document. Division and district engineers will monitor the use of this NWP on a regional and case-specific basis, and under their authorities in 33 CFR 330.5(c) and (d), modify, suspend, or revoke NWP authorizations in situations when the use of the NWP will result in more than minimal cumulative adverse environmental effects. Because the activities authorized by this NWP constitute only a small proportion of the categories of human activities that directly and indirectly affect ocean waters, estuarine waters, lakes, wetlands, streams, and other aquatic resources, the activities authorized by this NWP over the next 5 years are likely to result in only a minor incremental change to the current environmental setting for ocean waters, estuarine waters,

lakes, wetlands, streams, and other aquatic resources and the ecological functions and services they provide.

Under 33 CFR 330.4(f)(2), for an NWP activity proposed by a non-federal permittee, the district engineer will review the pre-construction notification and if she or he determines the proposed NWP activity may affect listed species or designated critical habitat, section 7 consultation will be conducted with the U.S. Fish and Wildlife Service (U.S. FWS) or National Marine Fisheries Service (NMFS) depending on which species the district engineer determined may be affected by the proposed NWP activity. During the ESA section 7 consultation process the U.S. FWS or NMFS will evaluate the effects caused by a proposed NWP activity, the environmental baseline, the status of the species and critical habitat, and the effects of any future state or private activities that are reasonably certain to occur within the action area. For formal ESA section 7 consultations, the U.S. FWS or NMFS will formulate their opinion as to whether the proposed NWP activity is likely to jeopardize the continued existence of listed species or result in the destruction or adverse modification of critical habitat (see 50 CFR 402.14(g)). The ESA section 7 consultation requirements may also be fulfilled through informal consultation, when the U.S. FWS or NMFS provide their written concurrence that the proposed activity is not likely to adversely affect endangered or threatened species or their designated critical habitat (see 50 CFR 402.13(c)).

When determining whether a proposed NWP activity will cause no more than minimal individual and cumulative adverse environmental effects, the district engineer will consider the direct and indirect effects caused by the NWP activity. He or she will also consider the cumulative adverse environmental effects caused by activities authorized by the NWP and whether those cumulative adverse environmental effects are no more than minimal. The district engineer will also consider site specific factors, such as the environmental setting in the vicinity of the NWP activity, the type of resource that will be affected by the NWP activity, the functions provided by the aquatic resources that will be affected by the NWP activity, the degree or magnitude to which the aquatic resources perform those functions, the extent that aquatic resource functions will be lost as a result of the NWP activity (e.g., partial or complete loss), the duration of the adverse effects (temporary or permanent), the importance of the aquatic resource functions to the region (e.g., watershed or ecoregion), and mitigation required by the district engineer. If an appropriate functional or condition assessment method is available and practicable to use, that assessment method may be used by the district engineer to assist in the minimal adverse environmental effects determination. These criteria are listed in the NWPs in Section D, “District Engineer’s Decision.” The district engineer may add case-specific special conditions to the NWP authorization to address site-specific environmental concerns.

Additional conditions can be placed on proposed activities on a regional or case-by-case basis by division or district engineers to ensure that the activities have no more than minimal individual and cumulative adverse environmental effects.

Regional conditions added to this NWP will be used to account for differences in aquatic resource functions, services, and values across the country, ensure that the NWP authorizes only those activities with no more than minimal individual and cumulative adverse environmental effects, and allow each Corps district to prioritize its workload based on where its efforts will best serve to protect the aquatic environment. Regional conditions can prohibit the use of an NWP in certain waters (e.g., high value waters or specific types of wetlands or waters. Specific NWPs can also be revoked on a geographic or watershed basis where the individual and cumulative adverse environmental effects resulting from the use of those NWPs are more than minimal.

In high value waters, division and district engineers can: 1) prohibit the use of the NWP in those waters and require an individual permit or regional general permit; 2) decrease the acreage limit for the NWP; 3) add regional conditions to the NWP to ensure that the individual and cumulative adverse environmental effects are no more than minimal; or 4) for those NWP activities that require pre-construction notification, add special conditions to NWP authorizations, such as compensatory mitigation requirements, to ensure that the adverse environmental effects are no more than minimal. NWPs can authorize activities in high value waters as long as the individual and cumulative adverse environmental effects are no more than minimal.

The construction and use of fills for temporary access for construction may be authorized by NWP 33 or regional general permits. The related activity must meet the terms and conditions of the specified permit(s). If the activity is dependent on portions of a larger project that require an individual permit, this NWP will not apply. [See 33 CFR 330.6(c) and (d)]

5.3 Impact Analysis for Alternatives to the Proposed Action

5.3.1 No Action Alternative (Do Not Modify or Reissue the Nationwide Permit)

The no action alternative would not achieve one of the goals of the Corps' Nationwide Permit Program, which is to regulate with little, if any, delay or paperwork certain activities having minimal impacts (33 CFR 330.1(b)). The no action alternative would also reduce the Corps' ability to pursue the current level of review for other activities that have greater adverse effects on the aquatic environment, including activities that require individual permits as a result of division or district engineers exercising their discretionary authority under the NWP program. The no action alternative would also reduce the Corps' ability to conduct compliance actions.

If this NWP is not available, substantial additional resources would be required for the Corps to evaluate these minor activities through the individual permit process,

and for the public and federal, tribal, and state resource agencies to review and comment on the large number of public notices for these activities. In a considerable majority of cases, when the Corps publishes public notices for proposed activities that result in no more than minimal adverse environmental effects, the Corps typically does not receive responses to these public notices from either the public or federal, tribal, and state resource agencies. Therefore, processing individual permits for these minimal impact activities is not likely to result in substantive changes to those activities. Another important benefit of the NWP program that would not be achieved through the no action alternative is the incentive for project proponents to design their projects so that those activities meet the terms and conditions of an NWP. The Corps believes the NWPs have significantly reduced adverse effects to the aquatic environment because most applicants modify their activities that require DA authorization to comply with the NWPs and avoid the longer permit application review times and larger costs typically associated with the individual permit process.

Under the no action alternative, district engineers may issue regional general permits or programmatic general permits to authorize similar categories of activities that would have no more than minimal adverse environmental effects that could have been authorized by this NWP. However, those regional general permits or programmatic general permits may have different quantitative limits, different restrictions, and other permit conditions, and those quantitative limits, restrictions, and permit conditions may result in the authorization of activities that have greater, similar, or lesser adverse environmental effects than the activities that would have been authorized by this NWP. Under the no action alternative, there may be differences in consistency in implementation of the Corps Regulatory Program among Corps districts. District engineers can tailor their regional general permits and programmatic general permits to effectively address the specific categories of aquatic resources found in their geographic areas of responsibility, the specific categories of activities that occur in those geographic areas, and the ecological functions and services those categories of aquatic resources provide. The environmental consequences of this aspect of the no action alternative are more difficult to predict because of the potential variability of regional general permits and programmatic general permits among Corps districts across the country, when such general permits are available to authorize a similar category of activities as this NWP authorizes.

If this NWP is not reissued, districts would have to draft, propose, and issue regional general permits or programmatic general permits through the public notice and comment process and prepare applicable environmental documentation to support their decisions on whether to issue those regional general permits or programmatic general permits. It would take a substantial amount of time to issue those regional general permits and programmatic general permits, and in the interim proposed activities would have to be authorized through the individual permit process.

5.3.2 Reissue the Nationwide Permit With Modifications

This NWP was developed to authorize discharges of dredged or fill material into waters of the United States and work in navigable waters of the United States for the construction of building pads and foundations for residential developments, as well as their attendant features, that have no more than minimal individual and cumulative adverse environmental effects. The Corps has considered changes to the terms and conditions of this NWP suggested by comments received in response to the proposed rule, as well as modifying or adding NWP general conditions, as discussed in section 1.4 of this document and the preamble of the Federal Register notice announcing the modification and reissuance of this NWP.

Changing the terms and conditions of this NWP would likely result in changes the number of activities authorized by this NWP, and the environmental impacts of authorized activities. The environmental consequences of changing the terms and conditions of this NWP may vary, depending on whether modifications for the reissued NWP are more restrictive, less restrictive, or is similarly restrictive compared to previously issued versions of this NWP. The environmental consequences of changing the terms and conditions of this NWP are also dependent on the application of existing tools used to ensure that activities authorized by this NWP will only have no more than minimal adverse environmental effects. Those tools include the quantitative limits of the NWP, the pre-construction notification process, and the ability of division and district engineers to modify, suspend, or revoke this NWP on a regional or case-by-case basis.

Changing the national terms and conditions of this NWP may change the incentives for project proponents to reduce their proposed impacts to jurisdictional waters and wetlands to qualify for NWP authorization, and receive the required DA authorization for regulated activities in less time than it would take to receive individual permits for those activities. Under the individual permit process, the project proponent may request authorization for activities that have greater impacts on jurisdictional waters and wetlands, and may result in larger losses of aquatic resource functions and services. The NWP program has been effective in reducing losses of jurisdictional waters and wetlands, with a substantial majority of losses of waters of the United States authorized by NWP being 1/10-acre or less (see figure 5.1 of the regulatory impact analysis for this rule).

The environmental consequences of division engineers exercising their discretionary authority to modify, suspend, or revoke this NWP on a regional basis may be a reduction in the number of activities that could be authorized by this NWP in a region or more NWP activities requiring pre-construction notification through regional changes in the PCN requirements for this NWP. The environmental consequences are likely to include reduced losses of waters of the United States because regional conditions can only further condition or restrict the applicability of an NWP (see 33 CFR 330.1(d)). The modification, suspension, or revocation of this

NWP on a regional basis by division engineers may also reduce the number of activities authorized by this NWP, which may increase the number of activities that require standard individual permits. If more activities require standard individual permits, permitted losses of jurisdictional waters and wetlands may increase because standard individual permits have no quantitative limits.

An environmental consequence of regional conditions added to the NWPs by division engineers is the enhanced ability to address differences in aquatic resource functions, services, and values among different regions across the nation. Corps divisions may add regional conditions to the NWPs to enhance protection of the aquatic environment in a region (e.g., a Corps district, state, or watershed) and address regional concerns regarding jurisdictional waters and wetlands and other resources (e.g., listed species or cultural resources) that may be affected or impacted by the activities authorized by this NWP. Division engineers can also revoke an NWP in a region if the use of that NWP results in more than minimal adverse environmental effects, especially in high value or rare waters or wetlands. When an NWP is issued or reissued by the Corps, division engineers issue supplemental documents that evaluate potential impacts of the NWP at a regional level, and assess cumulative impacts caused by this NWP on a regional basis during the period this NWP is in effect. [33 CFR 330.5(c)]

An environmental consequence of district engineers modify, suspending, or revoking this NWP on a case-by-case basis is the ability of district engineers to address site-specific conditions, including the degree to which aquatic resources on the project site provide ecological functions and services. Activity-specific modifications may also address site-specific resources (e.g., listed species or cultural resources) that may be affected by NWP activities. The environmental consequences of modification of this NWP on an activity-specific basis by district engineers may be further reductions in losses of waters of the United States for specific activities authorized by NWP because of mitigation required by district engineers during their reviews of PCNs to ensure that those activities result in no more than minimal individual and cumulative adverse environmental effects (see 33 CFR 330.1(e)(3)). Examples of mitigation that may be required by district engineers include permit conditions requiring compensatory mitigation to offset losses of waters of the United States or conditions added to the NWP authorization to prohibit the permittee from conducting the activity during specific times of the year to protect spawning fish and shellfish. If a proposed NWP activity will result in more than minimal adverse environmental effects, then the district engineer will exercise discretionary authority and require an individual permit. The individual permit review process requires a project-specific alternatives analysis, including the consideration of off-site alternatives, and a public interest review.

5.3.3 Reissue the Nationwide Permit Without Modifications

Retaining the current terms and conditions of this NWP would likely result in little or no changes in the number of activities authorized by this NWP, and the

environmental impacts of authorized activities. Project proponents would likely continue to design their project to qualify for NWP authorization. Retaining the current national terms and conditions of this NWP would likely continue to provide incentives for project proponents to reduce their proposed impacts to jurisdictional waters and wetlands to qualify for NWP authorization, and receive the required DA authorization for regulated activities in less time than it would take to receive individual permits for those activities. Under this alternative, for those activities that require individual permits project proponents may request authorization for activities that have greater impacts on jurisdictional waters and wetlands, and may result in larger losses of aquatic resource functions and services. The NWP program has been effective in reducing losses of jurisdictional waters and wetlands, with a substantial majority of losses of waters of the United States authorized by NWP being 1/10-acre or less (see figure 5.1 of the regulatory impact analysis for this rule).

Under this alternative, the environmental consequences of division engineers exercising their discretionary authority to modify, suspend, or revoke this NWP on a regional basis would be similar to the environmental consequences discussed in section 5.3.2. Corps divisions may add regional conditions to the NWPs to enhance protection of the aquatic environment in a region (e.g., a Corps district, state, or watershed) and address regional concerns regarding jurisdictional waters and wetlands and other resources (e.g., listed species or cultural resources) that may be affected or impacted by the activities authorized by this NWP. Division engineers can also revoke an NWP in a region if the use of that NWP results in more than minimal adverse environmental effects, especially in high value or rare waters or wetlands. When an NWP is issued or reissued by the Corps, division engineers issue supplemental documents that evaluate potential impacts of the NWP at a regional level, and assess cumulative impacts caused by this NWP on a regional basis during the period this NWP is in effect. [33 CFR 330.5(c)]

Under this alternative, the ability of district engineers to modify, suspended, or revoke this NWP on a case-by-case to address site-specific conditions, including the degree to which aquatic resources on the project site provide ecological functions and services, is likely to have environmental consequences similar to the environmental consequences of the alternative identified in section 3.2. Activity-specific modifications under this alternative may also address site-specific resources (e.g., listed species or cultural resources) that may be affected by NWP activities. Activity-specific modifications may also include mitigation requirements similar to the potential mitigation requirements discussed in section 5.3.2.

The modification and reissuance of this NWP adopts the alternative identified in section 3.2 of this document. The Corps has considered the comments received in response to the proposed rule, and made changes to the NWPs, general conditions, and definitions to address those comments. Division engineer may add regional conditions to this NWP to help ensure that the use of the NWPs in a particular geographic area will result in no more than minimal individual and cumulative

adverse environmental effects. District engineers may also add regional conditions to this NWP to help ensure compliance with other applicable laws, such as Section 7 of the Endangered Species Act, Section 106 of the National Historic Preservation Act, and the essential fish habitat provisions of the Magnuson-Stevens Fishery Conservation and Management Act. Division engineers may also add regional conditions to this NWP to fulfill its tribal trust responsibilities.

Corps divisions and districts also monitor the use of this NWP and the authorized impacts identified in NWP verification letters. At a later time, if warranted, a division engineer may add regional conditions to further restrict or prohibit the use of this NWP to ensure that it does not authorize activities that result in more than minimal adverse environmental effects in a particular geographic region (e.g., a watershed, landscape unit, or seascape unit). To the extent practicable, division and district engineers will use regulatory automated information systems and institutional knowledge about the typical adverse effects of activities authorized by this NWP, as well as substantive public comments, to assess the individual and cumulative adverse environmental effects resulting from regulated activities authorized by this NWP.

6.0 Public Interest Review

6.1 Public Interest Review Factors (33 CFR 320.4(a)(1))

For each of the 20 public interest review factors, the extent of the Corps consideration of expected impacts resulting from the use of this NWP is discussed, as well as the reasonably foreseeable cumulative adverse effects that are expected to occur. The Corps decision-making process involves consideration of the benefits and detriments that may result from the activities authorized by this NWP.

(a) Conservation. The activities authorized by this NWP may modify the natural resource characteristics of the project area. Compensatory mitigation, if required for activities authorized by this NWP, will result in the restoration, enhancement, establishment, or preservation of aquatic habitats that will offset losses of conservation values. The adverse effects of activities authorized by this NWP on conservation are likely to be minor.

(b) Economics. The construction of residential developments are likely to have positive impacts on the local economy. During construction, these activities are likely to generate jobs and revenue for local contractors as well as revenue to building supply companies that sell construction materials. Residential developments provide homes and, in some instances, recreational facilities for citizens. Other facilities associated with residential developments, such as golf courses, parks, hiking trails, arenas, and ball fields will provide employment opportunities for the operation and maintenance of these facilities. These

developments may also change the value of the land, and can benefit the surrounding community through profits earned from residents. Developments authorized by this NWP may also benefit the community by improving the local economic base, which is affected by employment, tax revenues, community services, and property values.

(c) Aesthetics. Residential development activities may alter the visual character of some waters of the United States. The extent and perception of these changes will vary, depending on the size and configuration of the development, the nature of the surrounding area, and the public uses of the area. Developments authorized by this NWP can also modify other aesthetic characteristics, such as air quality and the amount of noise. The increased use of the project area and surrounding land by people may also alter local aesthetic values.

(d) General environmental concerns. Activities authorized by this NWP may affect general environmental concerns, such as water, air, noise, and land pollution. The authorized work may also affect the physical, chemical, and biological characteristics of the environment. The adverse effects of the activities authorized by this NWP on general environmental concerns are likely to be minor. Adverse effects to the chemical composition of the aquatic environment will be controlled by general condition 6, which states that the material used for construction must be free from toxic pollutants in toxic amounts. General condition 23 requires mitigation to minimize adverse effects to the aquatic environment through avoidance and minimization at the project site. Compensatory mitigation may be required by district engineers to ensure that the net adverse environmental effects are no more than minimal. Specific environmental concerns are addressed in other sections of this document.

(e) Wetlands. Residential development activities authorized by this NWP may result in the loss or alteration of wetlands. This NWP does not authorize discharges of dredged or fill material into tidal wetlands or non-tidal wetlands adjacent to tidal waters. In most cases, the affected wetlands will be permanently filled, especially where buildings, roads, utilities, and other permanent fills are located, resulting in the permanent loss of aquatic resource functions and services. Wetlands may also be converted to other uses and habitat types. Some areas of the development will be graded and filled to install lawns and ornamental plants, which will replace the wetlands in those areas. Some wetlands may be temporarily impacted by the work through the use of temporary staging areas and access roads. These wetlands will be restored, unless the district engineer authorizes another use for the area, but the plant community may be different, especially if the site was originally forested. Compensatory mitigation may be required to offset the loss of wetlands and ensure that the adverse environmental effects are no more than minimal.

Wetlands provide habitat, including foraging, nesting, spawning, rearing, and resting sites for aquatic and terrestrial species. The loss or alteration of wetlands may alter natural drainage patterns. Wetlands reduce erosion by stabilizing the substrate.

Wetlands also act as storage areas for stormwater and flood waters. Wetlands may act as groundwater discharge or recharge areas. The loss of wetland vegetation may adversely affect water quality because these plants trap sediments, pollutants, and nutrients and transform chemical compounds. Wetland vegetation also provides habitat for microorganisms that remove nutrients and pollutants from water. Wetlands, through the accumulation of organic matter, act as sinks for some nutrients and other chemical compounds, reducing the amounts of these substances in the water.

General condition 23 requires avoidance and minimization of impacts to waters of the United States, including wetlands, at the project site. Compensatory mitigation may be required by district engineers to ensure that the net adverse environmental effects are no more than minimal. General condition 22 prohibits the use of this NWP to discharge dredged or fill material in designated critical resource waters and adjacent wetlands, which may include high value wetlands. Division engineers can add regional conditions to this NWP to restrict or prohibit the use of this NWP in high value non-tidal wetlands. District engineers will also exercise discretionary authority to require an individual permit if the wetlands to be filled are high value and the work will result in more than minimal adverse environmental effects. District engineers can also add case-specific special conditions to the NWP authorization to provide protection to wetlands or require compensatory mitigation to offset losses of wetlands.

(f) Historic properties. General condition 20 states that in cases where the district engineer determines that the activity may affect properties listed, or eligible for listing, in the National Register of Historic Places, the activity is not authorized, until the requirements of Section 106 of the National Historic Preservation Act have been satisfied.

(g) Fish and wildlife values. This NWP authorizes activities in non-tidal waters of the United States, including non-tidal wetlands and streams, which provide habitat to many species of fish and wildlife. Activities authorized by this NWP may alter the habitat characteristics of streams and wetlands, decreasing the quantity and quality of fish and wildlife habitat. Wetland and riparian vegetation provides food and habitat for many species, including foraging areas, resting areas, corridors for wildlife movement, and nesting and breeding grounds. Open waters provide habitat for fish and other aquatic organisms. Woody riparian vegetation shades streams, which reduces water temperature fluctuations and provides habitat for fish and other aquatic animals. Riparian vegetation provides organic matter that is consumed by fish and aquatic invertebrates. Woody riparian vegetation creates habitat diversity in streams when trees and large shrubs fall into the channel, forming snags that provide habitat and shade for fish. The morphology of a stream channel may be altered by activities authorized by this NWP, which may affect fish populations. However, pre-construction notification is required for all activities authorized by this NWP, which provides the district engineer with an opportunity to review the proposed activity and assess potential impacts on fish and wildlife values and

ensure that the authorized activity results in no more than minimal adverse environmental effects. Compensatory mitigation may be required by district engineers to restore, enhance, establish, and/or preserve wetlands to offset losses of jurisdictional wetlands. Stream rehabilitation, enhancement, and preservation activities may be required as compensatory mitigation for impacts to streams. The establishment and maintenance of riparian areas next to streams and other open waters may also be required as compensatory mitigation. These methods of compensatory mitigation will provide fish and wildlife habitat values.

General condition 2 will reduce adverse effects to fish and other aquatic species by prohibiting activities that substantially disrupt the movement of indigenous aquatic species, unless the primary purpose of the activity is to impound water. Compliance with general conditions 3 and 5 will ensure that the authorized work has no more than minimal adverse effects on spawning areas and shellfish beds, respectively. The authorized work cannot have more than minimal adverse effects on breeding areas for migratory birds, due to the requirements of general condition 4.

For an NWP activity, compliance with the Bald and Golden Eagle Protection Act (16 U.S.C. 668(a)-(d)), the Migratory Bird Treaty Act (16 U.S.C. 703; 16 U.S.C. 712), and the Marine Mammal Protection Act (16 U.S.C. 1361 et seq.) is the responsibility of the project proponent. General condition 19 states that the permittee is responsible for contacting appropriate local office of the U.S. Fish and Wildlife Service to determine applicable measures to reduce impacts to migratory birds or eagles, including whether “incidental take” permits are necessary and available under the Migratory Bird Treaty Act or Bald and Golden Eagle Protection Act for a particular activity.

Consultation pursuant to the essential fish habitat provisions of the Magnuson-Stevens Fishery Conservation and Management Act will occur as necessary for proposed NWP activities that may adversely affect essential fish habitat. Consultation may occur on a case-by-case or programmatic basis. Division and district engineers can add regional and special conditions to the NWP authorization to ensure that authorized activities will result in no more than minimal adverse effects on essential fish habitat.

(h) Flood hazards. The activities authorized by this NWP may affect the flood-holding capacity of 100-year floodplains, including surface water flow velocities. Changes in the flood-holding capacity of 100-year floodplains may impact human health, safety, and welfare. To minimize these adverse effects, general condition 10 requires the activity to comply with applicable FEMA-approved state or local floodplain management requirements. The requirements of general condition 10 will help ensure that the activities authorized by this NWP will have no more than minimal adverse effects on flood hazards. Compliance with general condition 9 will also reduce flood hazards. This general condition requires the permittee to maintain, to the maximum extent practicable, the pre-construction course, condition, capacity, and location of open waters, except under certain circumstances. Much of the land area within 100-year floodplains is upland, and outside of the Corps’ control

and responsibility.

(i) Floodplain values. Activities authorized by this NWP may affect the flood-holding capacity of the floodplain, as well as other floodplain values. The fish and wildlife habitat values of floodplains may be adversely affected by activities authorized by this NWP, by modifying or eliminating areas used for nesting, foraging, resting, and reproduction. The water quality functions of floodplains may also be adversely affected by these activities. Modification of the floodplain may also adversely affect other hydrological processes, such as groundwater recharge. Since all activities authorized by this NWP require pre-construction notification, district engineers will review the proposed activities to ensure that they result in no more than minimal adverse environmental effects.

Compensatory mitigation may be required for activities authorized by this NWP, which will offset losses of waters of the United States and provide water quality functions and wildlife habitat. General condition 23 requires avoidance and minimization of impacts to waters of the United States to the maximum extent practicable at the project site, which will reduce losses of floodplain values. The mitigation requirements of general condition 23 will help ensure that the adverse effects of these activities on floodplain values are no more than minimal. The requirements of general condition 10 will minimize adverse effects to the flood storage capacity of 100-year floodplains. Compliance with general condition 9 will also ensure that activities in 100-year floodplains will not cause more than minimal adverse effects on flood storage and conveyance.

(j) Land use. Activities authorized by this NWP will change the land use from natural to developed. The change in land use may alter the character of the area, usually resulting in the loss of open space. The general public will benefit from the residences that will be authorized by this permit. Changes in land use to residential developments are likely to, in most cases, provide economic benefits for the surrounding community. These developments may induce further development on nearby parcels of land. Since the primary responsibility for land use decisions is held by state, local, and tribal governments, the Corps' control and responsibility is limited to significant issues of overriding national importance, such as navigation and water quality (see 33 CFR 320.4(j)(2)).

(k) Navigation. Activities authorized by this NWP will not adversely affect navigation, because these activities must comply with general condition 1. This NWP requires pre-construction notification for all authorized activities, which will allow district engineers to review the proposed work and determine if there will be any adverse effects on navigation. If these developments are built near navigable waters, there may be secondary effects to navigation because new piers, marinas, or boat ramps may be constructed to satisfy the needs for navigable access for the new residents of the area.

(l) Shore erosion and accretion. The activities authorized by this NWP are likely to

have minor direct effects on shore erosion and accretion processes, since residential developments are usually constructed some distance from the shoreline. Nationwide permit 13, regional general permits, or individual permits may be used to authorize bank stabilization projects associated with residential developments, and those bank stabilization projects may affect shore erosion and accretion.

(m) Recreation. Activities authorized by this NWP may change the recreational uses of the area. Certain recreational activities, such as bird watching, hunting, and fishing may no longer be available in the area, but other recreational facilities, such as playgrounds, playing fields, and golf courses, may be constructed as part of the development and provide recreational activities in the area. Some residential developments may eliminate recreational uses of the area. Some residential developments may include attendant features, such as playgrounds, parks, and swimming pools, that provide recreational opportunities for residents and their guests.

(n) Water supply and conservation. Activities authorized by this NWP may adversely affect both surface water and groundwater supplies. Residential developments authorized by this NWP will likely increase demand for potable water in the region. The construction of building pads, foundations, and attendant features such as roads and parking lots may increase the amount of impervious surface in the area, which may decrease replenishment of groundwater supplies. Activities authorized by this NWP may also affect the quality of water supplies by adding pollutants to surface waters and groundwater, but many causes of water pollution, such as discharges regulated under Section 402 of the Clean Water Act, are outside the Corps' control and responsibility. Some water pollution concerns can be addressed through water quality management measures that may be required for activities authorized by this NWP. The quantity and quality of local water supplies may be enhanced through the construction of water treatment facilities. Division and district engineers can prohibit the use of this NWP in watersheds for public water supplies, if it is in the public interest to do so. General condition 7 prohibits discharges in the vicinity of public water supply intakes. Compensatory mitigation may be required for activities authorized by this NWP, which will help improve the quality of surface waters.

(o) Water quality. Residential development activities in wetlands and waters may have adverse effects on water quality. These activities may result in increases in nutrients, sediments, and pollutants in the water. The loss of wetland and riparian vegetation may adversely affect water quality because these plants trap sediments, pollutants, and nutrients and transform chemical compounds. Wetland and riparian vegetation also provides habitat for microorganisms that remove nutrients and pollutants from water. Wetlands, through the accumulation of organic matter, act as sinks for some nutrients and other chemical compounds, reducing the amounts of these substances in the water column. Wetlands and riparian areas may also decrease the velocity of flood waters, removing suspended sediments from the water column and reducing turbidity. Riparian vegetation also serves an important

role in the water quality of streams by shading the water from the intense heat of the sun. Compensatory mitigation may be required for activities authorized by this NWP, to ensure that the work does not have more than minimal adverse environmental effects, including water quality. Wetlands and riparian areas restored, established, enhanced, or preserved as compensatory mitigation may provide local water quality benefits.

During construction of these developments, small amounts of oil and grease from construction equipment may be discharged into the waterway. Because most of the construction will occur during a relatively short period of time, the frequency and concentration of these discharges are not expected to have more than minimal adverse effects on overall water quality.

This NWP requires water quality certification, since it authorizes discharges of dredged or fill material into waters of the United States. Most water quality concerns are addressed by the state or tribal water quality certification agency. In accordance with general condition 25, the permittee may be required to develop and implement water quality management measures that minimizes the degradation of the downstream aquatic environment, including water quality. The district engineer may require water quality management measures to ensure that adverse effects to water quality are no more than minimal. Water quality management measures may involve the installation of stormwater management facilities to trap pollutants and the establishment and maintenance of riparian areas next to open waters. The establishment and maintenance of riparian areas may be required for activities authorized by the NWP, if there are streams or other open waters on the project site. The riparian areas will protect downstream water quality and enhance the aquatic habitat.

(p) Energy needs. The developments authorized by this NWP may increase energy consumption in the area, especially electricity, natural gas, and petroleum products. Additional power plants or oil refineries may be needed to meet increases in energy demand, but these issues are beyond the Corps' control and responsibility. Existing infrastructure may have to be expanded to provide energy to new developments. The installation of utility lines to the authorized residential development is likely to have no more than minimal adverse environmental effects.

(q) Safety. The developments authorized by this NWP will be subject to Federal, state, and local safety laws and regulations. Therefore, the activities authorized by this NWP are not likely to adversely affect the safety of the project area.

(r) Food and fiber production. Activities authorized by this NWP may adversely affect food and fiber production, especially where residential developments are constructed on farmland. The construction of building pads and attendant features on farmland reduces the amount of available agricultural land in the nation, unless that land is replaced by converting other land, such as forest, to agricultural land. The loss of farmland is more appropriately addressed through the land use planning

and zoning authority held by state and local governments.

(s) Mineral needs. Activities authorized by this NWP may increase demand for aggregates and stone, which are used to construct buildings, roads, utility lines, and other features. Residential developments authorized by this NWP may increase the demand for other building materials, such as steel, aluminum, and copper, which are made from mineral ores.

(t) Considerations of property ownership. The NWP complies with 33 CFR 320.4(g), which states that an inherent aspect of property ownership is a right to reasonable private use. The NWP provides expedited DA authorization for discharges of dredged or fill material to construct residential developments, provided the activity complies with the terms and conditions of the NWP and results in no more than minimal adverse environmental effects.

6.2 Additional Public Interest Review Factors (33 CFR 320.4(a)(2))

6.2.1 Relative extent of the public and private need for the proposed structure or work

This NWP authorizes discharges of dredged or fill material into non-tidal waters of the United States, excluding non-tidal wetlands adjacent to tidal waters, for residential development activities that have no more than minimal individual and cumulative adverse environmental effects. These activities satisfy public and private needs for housing. The need for this NWP is based upon the number of these activities that occur annually with no more than minimal individual and cumulative adverse environmental effects.

6.2.2 Where there are unresolved conflicts as to resource use, the practicability of using reasonable alternative locations and methods to accomplish the objective of the proposed structure or work

Most situations in which there are unresolved conflicts concerning resource use arise when environmentally sensitive areas are involved (e.g., special aquatic sites, including wetlands) or where there are competing uses of a resource. The nature and scope of the activity, when planned and constructed in accordance with the terms and conditions of this NWP, reduce the likelihood of such conflict. In the event that there is a conflict, the NWP contains provisions that are capable of resolving the matter (see Section 1.2 of this document).

General condition 23 requires permittees to avoid and minimize adverse effects to waters of the United States to the maximum extent practicable on the project site. Consideration of off-site alternative locations is not required for activities that are authorized by general permits. General permits authorize activities that have no more than minimal individual and cumulative adverse effects on the environment

and the overall public interest. The district engineer will exercise discretionary authority and require an individual permit if the proposed activity will result in more than minimal adverse environmental effects on the project site. The consideration of off-site alternatives can be required during the individual permit process.

6.2.3 The extent and permanence of the beneficial and/or detrimental effects which the proposed structure or work is likely to have on the public and private uses to which the area is suited

The nature and scope of the work authorized by the NWP will most likely restrict the extent of the beneficial and detrimental effects to the area immediately surrounding the residential development. Activities authorized by this NWP will have no more than minimal individual and cumulative adverse environmental effects.

The terms, conditions, and provisions of the NWP were developed to ensure that individual and cumulative adverse environmental effects are no more than minimal. Specifically, NWPs do not obviate the need for the permittee to obtain other Federal, state, or local authorizations required by law. The NWPs do not grant any property rights or exclusive privileges (see 33 CFR 330.4(b) for further information). Additional conditions, limitations, restrictions, and provisions for discretionary authority, as well as the ability to add activity-specific or regional conditions to this NWP, will provide further safeguards to the aquatic environment and the overall public interest. There are also provisions to allow suspension, modification, or revocation of the NWP.

7.0 Endangered and Threatened Species

No activity is authorized by any NWP if that activity is likely to jeopardize the continued existence of a threatened or endangered species as listed or proposed for listing under the Federal Endangered Species Act (ESA), or to destroy or adversely modify the critical habitat of such species (33 CFR 330.4(f)). If the district engineer determines a proposed NWP activity may affect listed species or designated critical habitat, he or she will conduct ESA section 7 consultation with the U.S. Fish and Wildlife Services (USFWS) and/or National Marine Fisheries Services (NMFS) as appropriate. The proposed NWP activity is not authorized until the ESA section 7 consultation process is completed or the district engineer determines the proposed NWP activity will have no effect on listed species or designated critical habitat. Current local procedures in Corps districts are effective in ensuring compliance with ESA. Those local procedures include regional programmatic consultations and the development of Standard Local Operating Procedures for Endangered Species (SLOPES). The issuance or reissuance of an NWP, as governed by NWP general condition 18 (which applies to every NWP and which relates to endangered and threatened species and critical habitat) and 33 CFR 330.4(f), results in “no effect” to listed species or critical habitat, because no activity that “may affect” listed species or critical habitat is authorized by NWP

unless ESA Section 7 consultation with the USFWS and/or NMFS has been completed. If the non-federal project proponent does not comply with 33 CFR 330.4(f)(2) and general condition 18, and does not submit the required PCN, then the activity is not authorized by NWP. In such situations, it is an unauthorized activity and the Corps district will determine an appropriate course of action under its regulations at 33 CFR part 326 to respond to the unauthorized activity. Unauthorized activities may also be subject to the prohibitions of Section 9 of the ESA.

Each activity authorized by an NWP is subject to general condition 18, which states that "[n]o activity is authorized under any NWP which is likely to directly or indirectly jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act (ESA), or which will directly or indirectly destroy or adversely modify designated critical habitat or critical habitat proposed for such designation." In addition, general condition 18 explicitly states that the NWP does not authorize "take" of threatened or endangered species, which will ensure that permittees do not mistake the NWP authorization as a Federal authorization to take threatened or endangered species. General condition 18 also requires a non-federal permittee to submit a pre-construction notification to the district engineer if any listed species or designated critical habitat (or proposed species or proposed critical habitat) might be affected or is in the vicinity of the project, or if the project is located in designated or proposed critical habitat. The Corps established the "might affect" threshold in 33 CFR 330.4(f)(2) and paragraph (c) of general condition 18 because it is more stringent than the "may affect" threshold for section 7 consultation in the USFWS's and NMFS's ESA section 7 consultation regulations at 50 CFR part 402. The word "might" is defined as having "less probability or possibility" than the word "may" (Merriam-Webster's Collegiate Dictionary, 10th edition). Since "might" has a lower probability of occurring, it is below the threshold (i.e., "may affect") that triggers the requirement for ESA section 7 consultation for a proposed Federal action This general condition also states that, in such cases, non-federal permittees shall not begin work on the activity until notified by the district engineer that the requirements of the ESA have been satisfied and that the activity is authorized.

Under the current Corps regulations (33 CFR 325.2(b)(5)), the district engineer must review all permit applications for potential impacts on threatened and endangered species or critical habitat. For the NWP program, this review occurs when the district engineer evaluates the pre-construction notification or request for verification. Nationwide permit general condition 18 requires a non-federal applicant to submit a pre-construction notification to the Corps if any listed species (or species proposed for listing) or designated critical habitat (or critical habitat proposed for such designation) might be affected or is in the vicinity of the project, or if the project is located in designated critical habitat (or critical habitat proposed for such designation). Based on the evaluation of all available information, the district engineer will initiate consultation with the USFWS or NMFS, as appropriate, if he or she determines that the proposed activity may affect any threatened and

endangered species or designated critical habitat. Consultation may occur during the NWP authorization process or the district engineer may exercise discretionary authority to require an individual permit for the proposed activity and initiate section 7 consultation during the individual permit process. If the district engineer determines a proposed NWP activity is likely to jeopardize the continued existence of any proposed species or result in the destruction or adverse modification of proposed critical habitat, he or she will initiate a conference with the USFWS or NMFS. If ESA Section 7 consultation or conference is conducted during the NWP authorization process, then the applicant will be notified that he or she cannot proceed with the proposed NWP activity until section 7 consultation is completed.

If the district engineer determines that the proposed NWP activity will have no effect on any threatened or endangered species or critical habitat, then the district engineer will notify the applicant that he or she may proceed under the NWP authorization as long as the activity complies with all other applicable terms and conditions of the NWP, including applicable regional conditions. When the Corps makes a “no effect” determination, that determination is documented in the record for the NWP verification.

In cases where the Corps makes a “may affect” determination, formal or informal section 7 consultation is conducted before the activity is authorized by NWP. A non-federal permit applicant cannot begin work until notified by the Corps that the proposed NWP activity will have “no effect” on listed species or critical habitat, or until ESA Section 7 consultation has been completed (see also 33 CFR 330.4(f)). Federal permittees are responsible for complying with ESA Section 7(a)(2) and should follow their own procedures for complying with those requirements (see 33 CFR 330.4(f)(1)). Therefore, permittees cannot rely on complying with the terms of an NWP without considering ESA-listed species and critical habitat, and they must comply with the NWP conditions to ensure that they do not violate the ESA. General condition 18 also states that district engineers may add activity-specific conditions to the NWPs to address ESA issues as a result of formal or informal consultation with the USFWS or NMFS.

Each year, the Corps conducts thousands of ESA section 7 consultations with the USFWS and NMFS for activities authorized by NWPs. These section 7 consultations are tracked in ORM. During the period of March 19, 2017, to October 20, 2020, Corps districts conducted 1,294 formal consultations and 8,233 informal consultations under NWP PCNs where the Corps verified that the proposed activities were authorized by NWP. During that time period, the Corps also used regional programmatic consultations for 21,677 NWP verifications to comply with ESA section 7. Therefore, each year an average of 8,700 formal, informal, and programmatic ESA section 7 consultations are conducted with the USFWS and/or NMFS in response to NWP PCNs, including those activities that required PCNs under paragraph (c) of general condition 18. In a study on ESA section 7 consultations tracked by the USFWS, Malcom and Li (2015) found that during the period of 2008 to 2015, the Corps conducted the most formal and informal section 7

consultations, far exceeding the numbers of section 7 consultations conducted by other federal agencies.

Section 7 consultations are often conducted on a case-by-case basis for activities proposed to be authorized by NWP that may affect listed species or critical habitat, in accordance with the USFWS's and NMFS's interagency regulations at 50 CFR part 402. Instead of activity-specific section 7 consultations, compliance with ESA may also be achieved through formal or informal regional programmatic consultations. Compliance with ESA Section 7 may also be facilitated through the adoption of NWP regional conditions. In some Corps districts SLOPES have been developed through consultation with the appropriate regional offices of the USFWS and NMFS to make the process of complying with section 7 more efficient.

Corps districts have, in most cases, established informal or formal procedures with local offices of the USFWS and NMFS, through which the agencies share information regarding threatened and endangered species and their critical habitat. This information helps district engineers determine if a proposed NWP activity may affect listed species or their critical habitat and, when a "may affect" determination is made, initiate ESA section 7 consultation. Corps districts may utilize maps or databases that identify locations of populations of threatened and endangered species and their critical habitat. Where necessary, regional conditions are added to one or more NWPs to require pre-construction notification for NWP activities that occur in known locations of threatened and endangered species or critical habitat. Any information provided by local maps and databases and any comments received during the pre-construction notification review process will be used by the district engineer to make a "no effect" or "may affect" determination for the pre-construction notification.

Based on the safeguards discussed in this section, especially general condition 18 and the NWP regulations at 33 CFR 330.4(f), the Corps believes that the activities authorized by this NWP comply with the ESA. Although the Corps continues to believe that these procedures ensure compliance with the ESA, the Corps has taken some steps to provide further assurance. Corps district offices meet with local representatives of the USFWS and NMFS to establish or modify existing procedures such as regional conditions, where necessary, to ensure that the Corps has the latest information regarding the existence and location of any threatened or endangered species or their critical habitat. Corps districts can also establish, through SLOPES or other tools, additional safeguards that ensure compliance with the ESA. Through ESA Section 7 formal or informal consultations, the Corps ensures that no activity is authorized by any NWP if that activity is likely to jeopardize the continued existence of a threatened or endangered species as listed or proposed for listing under the ESA, or to destroy or adversely modify the critical habitat of such species. Other tools such as ESA section 7 conferences, SLOPES, the development of regional conditions added to the NWP by the division engineer, and conditions added to a specific NWP authorization by the district engineer help ensure compliance with the ESA.

If informal section 7 consultation is conducted, and the USFWS and/or NMFS issues a written concurrence that the proposed activity may affect, but is not likely to adversely affect, listed species or designated critical habitat based on conservation measures incorporated in the project to avoid or minimize potential effects to ESA resources, the district engineer will add conditions (e.g., conservation measures) to the NWP authorization. If the USFWS and/or NMFS does not issue a written concurrence that the proposed NWP activity "may affect, but is not likely to adversely affect" listed species or critical habitat, the Corps will initiate formal section 7 consultation if it changes its determination to "may affect, likely to adversely affect."

If formal section 7 consultation is conducted and a biological opinion is issued, the district engineer will add conditions to the NWP authorization to incorporate appropriate elements of the incidental take statement of the biological opinion into the NWP authorization, if the biological opinion concludes that the proposed NWP activity is not likely to jeopardize the continued existence of listed species or adversely modify or destroy critical habitat. If the biological opinion concludes that the proposed NWP activity is likely to jeopardize the continued existence of listed species or adversely modify or destroy critical habitat, the proposed activity cannot be authorized by NWP and the district engineer will instruct the applicant to apply for an individual permit. The incidental take statement includes reasonable and prudent measures and terms and conditions such as mitigation, monitoring, and reporting requirements that minimize incidental take. To fulfill its obligations under Section 7(a)(2) of the ESA, the Corps will determine which elements of an incidental take statement are appropriate to be added as permit conditions to the NWP authorization (see 33 CFR 325.4(a)). The appropriate elements of the incidental take statement are those reasonable and prudent measures and terms and conditions that: (1) apply to the activities over which the Corps has control and responsibility (i.e., structures or work in navigable waters and/or the discharges of dredged or fill material into waters of the United States), and (2) the Corps has the authority to enforce under its permitting authorities. Incorporation of the appropriate elements of the incidental take statement into the NWP authorization through binding, enforceable permit conditions may provide the project proponent an exemption from the "take" prohibitions in ESA Section 9 (see Section 7(o)(2) of the ESA).

The Corps can modify this NWP at any time that it is deemed necessary to protect listed species or their critical habitat, either through: 1) national general conditions or national-level modifications, suspensions, or revocations of the NWPs; 2) regional conditions or regional modifications, suspensions, or revocations of NWPs; or 3) activity-specific permit conditions (modifications) or activity-specific suspensions or revocations of NWP authorizations. Therefore, although the Corps has issued the NWPs, the Corps can address any ESA issue, if one should arise. The NWP regulations also allow the Corps to suspend the use of some or all of the NWPs immediately, if necessary, while considering the need for permit conditions,

modifications, or revocations. These procedures are provided at 33 CFR 330.5.

8.0 Clean Water Act Section 404(b)(1) Guidelines Analysis

The 404(b)(1) Guidelines compliance criteria for general permits are provided at 40 CFR 230.7. This 404(b)(1) Guidelines compliance analysis includes analyses of the direct, secondary, and cumulative effects on the aquatic environment caused by discharges of dredged or fill material authorized by this NWP.

For activities authorized by general permits, the analysis and documentation required by the 404(b)(1) Guidelines are to be performed at the time of issuance of a general permit, such as an NWP. The analysis and documentation will not be repeated when activities are conducted under the NWP. The 404(b)(1) Guidelines do not require reporting or formal written communication at the time individual activities are conducted under an NWP, but a particular NWP may require appropriate reporting. [40 CFR 230.6(d) and 230.7(b)]

8.1 Evaluation Process (40 CFR 230.7(b))

8.1.1 Alternatives (40 CFR 230.10(a))

General condition 23 requires permittees to avoid and minimize discharges of dredged or fill material into waters of the United States to the maximum extent practicable on the project site. The consideration of off-site alternatives is not directly applicable to general permits (see 40 CFR 230.7(b)(1)).

8.1.2 Prohibitions (40 CFR 230.10(b))

This NWP authorizes discharges of dredged or fill material into waters of the United States, which require water quality certification. Water quality certification requirements will be met in accordance with the procedures at 33 CFR 330.4(c).

No toxic discharges will be authorized by this NWP. General condition 6 states that the material must be free from toxic pollutants in toxic amounts.

This NWP does not authorize discharges of dredged or fill material into waters of the United States that are likely to jeopardize the continued existence of any listed threatened or endangered species or result in the destruction or adverse modification of critical habitat. Reviews of pre-construction notifications, regional conditions, and local operating procedures for endangered species will ensure compliance with the Endangered Species Act. Refer to general condition 18 and to 33 CFR 330.4(f) for information and procedures.

This NWP will not authorize discharges of dredged or fill material into waters of the United States that violate any requirement to protect any marine sanctuary. Refer to

section 8.2.3(j)(1) of this document for further information.

8.1.3 Findings of Significant Degradation (40 CFR 230.10(c))

Potential impact analysis (Subparts C through F): The potential impact analysis specified in Subparts C through F is discussed in section 8.2.3 of this document. Mitigation required by the district engineer will ensure that the adverse effects on the aquatic environment are no more than minimal.

Evaluation and testing (Subpart G): Because the terms and conditions of the NWP specify the types of discharges that are authorized, as well as those that are prohibited, individual evaluation and testing for the presence of contaminants will normally not be required. If a situation warrants, provisions of the NWP allow division or district engineers to further specify authorized or prohibited discharges and/or require testing. General condition 6 requires that materials used for construction be free from toxic pollutants in toxic amounts.

Based upon Subparts B and G, after consideration of Subparts C through F, the discharges authorized by this NWP will not cause or contribute to significant degradation of waters of the United States.

8.1.4 Factual determinations (40 CFR 230.11)

The factual determinations required in 40 CFR 230.11 are discussed in section 8.2.3 of this document.

8.1.5 Appropriate and practicable steps to minimize potential adverse impacts (40 CFR 230.10(d))

As demonstrated by the information in this document, as well as the terms, conditions, and provisions of this NWP, actions to minimize adverse effects (Subpart H) have been thoroughly considered and incorporated into the NWP. General condition 23 requires permittees to avoid and minimize discharges of dredged or fill material into waters of the United States to the maximum extent practicable on the project site. Compensatory mitigation may be required by the district engineer to ensure that the net adverse effects on the aquatic environment are no more than minimal.

8.2 Evaluation Process (40 CFR 230.7(b))

8.2.1 Description of permitted activities (40 CFR 230.7(b)(2))

As indicated by the text of this NWP in section 1.0 of this document, and the discussion of potential impacts in section 5.0, the activities authorized by this NWP are sufficiently similar in nature and environmental impact to warrant authorization

under a single general permit. Specifically, the purpose of the NWP is to authorize discharges of dredged or fill material into non-tidal waters of the United States for the construction or expansion of residential building pads and foundations and attendant features. The nature and scope of the impacts are controlled by the terms and conditions of the NWP.

The activities authorized by this NWP are sufficiently similar in nature and environmental impact to warrant authorization by a general permit. The terms of the NWP authorize a specific category of activity (i.e., discharges of dredged or fill material for the construction or expansion of single residences or multiple unit residential developments) in a specific category of waters (i.e., non-tidal waters, except for non-tidal wetlands adjacent to tidal waters). The restrictions imposed by the terms and conditions of this NWP will result in the authorization of activities that have similar impacts on the aquatic environment, namely the replacement of aquatic habitats, such as certain categories of non-tidal wetlands, with residential structures and attendant features that provide support and amenities for those residential structures.

If a situation arises in which the discharge of dredged or fill material into waters of the United States requires further review, or is more appropriately reviewed under the individual permit process, provisions of the NWPs allow division and/or district engineers to take such action.

8.2.2 Cumulative effects (40 CFR 230.7(b)(3))

The 404(b)(1) Guidelines at 40 CFR 230.11(a) define cumulative effects as "…the changes in an aquatic ecosystem that are attributable to the collective effect of a number of individual discharges of dredged or fill material." For the issuance of general permits, such as this NWP, the 404(b)(1) Guidelines require the permitting authority to "set forth in writing an evaluation of the potential individual and cumulative impacts of the categories of activities to be regulated under the general permit." [40 CFR 230.7(b)] More specifically, the 404(b)(1) Guidelines cumulative effects assessment for the issuance or reissuance of a general permit is to include an evaluation of "the number of individual discharge activities likely to be regulated under a general permit until its expiration, including repetitions of individual discharge activities at a single location." [40 CFR 230.7(b)(3)] If a situation arises in which cumulative effects are likely to be more than minimal and the proposed activity requires further review, or is more appropriately reviewed under the individual permit process, provisions of the NWPs allow division and/or district engineers to take such action.

Based on reported use of this NWP during the period of March 19, 2017, to March 18, 2019, the Corps estimates that this NWP will be used approximately 1,320 times per year on a national basis, resulting in impacts to approximately 210 acres of waters of the United States, including jurisdictional wetlands. All activities discharges of dredged or fill material into waters of the United States by this NWP

require pre-construction notification, and are therefore all proposed NWP 29 activities are reported to Corps districts.

Based on reported use of this NWP during that time period, the Corps estimates that 39 percent of the NWP 29 verifications will require compensatory mitigation to offset the authorized impacts to waters of the United States and ensure that the authorized discharges of dredged or fill material into waters of the United States result in only minimal adverse effects on the aquatic environment. The verified activities that do not require compensatory mitigation will have been determined by Corps district engineers to result in no more than minimal individual and cumulative adverse effects on the aquatic environment without compensatory mitigation. During the period of 2021-2026, the Corps expects little change to the percentage of NWP 29 verifications requiring compensatory mitigation, because there have been no substantial changes in the mitigation general condition or the NWP regulations for determining when compensatory mitigation is to be required for NWP activities. The Corps estimates that approximately 550 acres of compensatory mitigation will be required each year to offset authorized impacts. The demand for these types of activities could increase or decrease over the five-year duration of this NWP.

Based on these annual estimates, the Corps estimates that approximately 6,600 activities could be authorized over a five year period until this NWP expires, resulting in impacts to approximately 1,050 acres of waters of the United States, including jurisdictional wetlands. Approximately 2,750 acres of compensatory mitigation would be required to offset those impacts. The authorized impacts are expected to result in only minor changes to the affected environment (i.e., the current environmental setting), which is described in section 4.0 of this document.

Compensatory mitigation is the restoration (re-establishment or rehabilitation), establishment (creation), enhancement, and/or in certain circumstances preservation of aquatic resources for the purposes of offsetting unavoidable adverse impacts which remain after all appropriate and practicable avoidance and minimization has been achieved (33 CFR 332.2). For discharges of dredged or fill material into waters of the United States authorized by NWPs, compensatory mitigation and other forms of mitigation may be used to ensure that the adverse environmental effects are no more than minimal, individually and cumulatively (33 CFR 330.1(e)(3); NWP general condition 23). Restoration is usually the first compensatory mitigation option considered because the likelihood of ecological success is greater (33 CFR 332.3(a)(2)). As discussed below, restoration of wetlands and streams can increase the ecological functions and services provided by those aquatic resources. However, restoration typically cannot return a degraded wetland or stream to a prior historic condition because of changes in environmental conditions at various scales over time (e.g., Higgs et al. 2014, Jackson and Hobbs 2009, Zedler and Kercher 2005; Palmer et al. 2014), and many of those environmental changes are beyond the control of the mitigation provider. Therefore, it is important to establish realistic goals and objectives for wetland and stream

restoration projects (e.g., Hobbs 2007, Ehrenfeld 2000).

Rey Banayas et al. (2009) concluded that restoration activities can increase biodiversity and the level of ecosystem services provided. However, such increases do not approach the amounts of biodiversity and ecosystem services performed by undisturbed reference sites. The ability to restore ecosystems to provide levels of ecological functions and services similar to historic conditions or reference standard conditions is affected by human impacts (e.g., urbanization, agriculture) to watersheds or other landscape units and to the processes that sustain those ecosystems (Zedler et al. 2012, Hobbs et al. 2014). Those changes need to be taken into account when establishing goals and objectives for restoration projects (Zedler et al. 2012), including compensatory mitigation projects. The ability to reverse ecosystem degradation to restore ecological functions and services is dependent on the degree of degradation of that ecosystem and the surrounding landscape, and whether that degradation is reversible (Hobbs et al. 2014). Most studies of the ecological performance of compensatory mitigation projects have focused solely on the ecological attributes of the compensatory mitigation projects, and few studies have also evaluated the aquatic resources impacted by permitted activities (Kettlewell et al. 2008), so it is difficult to assess whether compensatory mitigation projects have fully or partially offset the lost functions provided by the aquatic resources that are impacted by permitted activities.

Wetland restoration, enhancement, and establishment projects can provide wetland functions, as long as the wetland compensatory mitigation project is placed in an appropriate landscape position, has appropriate hydrology for the desired wetland type, and the watershed condition will support the desired wetland type (NRC 2001). Site selection is critical to find a site with appropriate hydrologic conditions and soils to support a replacement wetland that will provide the desired wetland functions and services (Mitsch and Gosselink 2015). In a meta-analysis of 70 wetland restoration studies, Meli et al. (2014) concluded that wetland restoration activities increase biodiversity and ecosystem service provision in degraded wetlands, but the degree of recovery is context dependent. They identified the following factors as influencing wetland restoration outcomes: wetland type, the main cause of degradation, the type of restoration action conducted, and the assessment protocol used to evaluate restoration outcomes. Moreno-Mateos et al. (2015) reviewed the recovery trajectories of 628 wetland restoration and creation projects and concluded that restoring or establishing wetland hydrology is of primary importance, and is more likely to be ecologically successful if wetland hydrology can be achieved by re-establishing water flows instead of extensive earthwork. In addition, they determined that, with respect to the plant community, natural revegetation is sufficient for recovery and development of most wetland types after wetland hydrology is restored or established.

The ecological performance of wetland restoration, enhancement, and establishment is dependent on practitioner’s understanding of wetland functions, allowing sufficient time for wetland functions to develop, and allowing natural

processes of ecosystem development (self-design or self-organization) to take place, instead of over-designing and over-engineering the replacement wetland (Mitsch and Gosselink 2015). The likelihood of ecological success in wetland restoration varies by wetland type, with the higher rates of success for coastal, estuarine, and freshwater marshes, and lower rates of success for forested wetlands and seagrass beds (Lewis et al. 1995). In its review, the NRC (2001) concluded that some wetland types can be restored or established (e.g., non-tidal emergent wetlands, some forested and scrub-shrub wetlands, seagrasses, and coastal marshes), while other wetland types (e.g., vernal pools, bogs, and fens) are difficult to restore and should be avoided where possible. Restored riverine and tidal wetlands achieved wetland structure and function more rapidly than depressional wetlands (Moreno-Mateos et al. 2012). Because of its greater potential to provide wetland functions, restoration is the preferred compensatory mitigation mechanism (33 CFR 332.3(a)(2)). Bogs, fens, and springs are considered to be difficult-to-replace resources and compensatory mitigation should be provided through in-kind rehabilitation, enhancement, or preservation of these wetlands types (33 CFR 332.3(e)(3)).

In its review of outcomes of wetland compensatory mitigation activities, the NRC (2001) stated that wetland functions can be replaced by wetland restoration and establishment activities. They discussed five categories of wetland functions: hydrology, water quality, maintenance of plant communities, maintenance of animal communities, and soil functions. It is difficult to restore or establish natural wetland hydrology, and water quality functions are likely to be different than the functions provided at wetland impact sites (NRC 2001). Reestablishing or establishing the desired plant community may be difficult because of invasive species colonizing the mitigation project site (NRC 2001). The committee also found that establishing and maintaining animal communities depends on the surrounding landscape. Soil functions can take a substantial amount of time to develop, because they are dependent on soil organic matter and other soil properties (NRC 2001). The NRC (2001) concluded that the ecological performance in replacing wetland functions depends on the particular function of interest, the restoration or establishment techniques used, and the extent of degradation of the compensatory mitigation project site and its watershed.

The ecological performance of wetland restoration and enhancement activities is affected by the amount of changes to hydrology and inputs of pollutants, nutrients, and sediments within the watershed or contributing drainage area (Wright et al. 2006). Wetland restoration is becoming more effective at replacing or improving wetland functions, especially in cases where monitoring and adaptive management are used to correct deficiencies in these efforts (Zedler and Kercher 2005). Wetland functions take time to develop after the restoration or enhancement activity takes place (Mitsch and Gosselink 2015, Gebo and Brooks 2012), and different functions develop at different rates (Moreno-Mateos 2012, NRC 2001). Irreversible changes to landscapes, especially those that affect hydrology within contributing drainage areas or watersheds, cause wetland degradation and impede the ecological

performance of wetland restoration efforts (Zedler and Kercher 2005). Gebo and Brooks (2012) evaluated wetland compensatory mitigation projects in Pennsylvania and compared them to reference standards (i.e., the highest functioning wetlands in the study area) and natural reference wetlands that showed the range of variation due to human disturbances. They concluded that most of the wetland mitigation sites were functioning at levels within with the range of functionality of the reference wetlands in the region, and therefore were functioning at levels similar to some naturally occurring wetlands. The ecological performance of mitigation wetlands is affected by on the landscape context (e.g., urbanization) of the replacement wetland and varies with wetland type (e.g., riverine or depressional) (Gebo and Brooks 2012). Moreno-Mateos et al. (2012) conducted a meta-analysis of wetland restoration studies and concluded that while wetland structure and function can be restored to a large degree, the ecological performance of wetland restoration projects is dependent on wetland size and local environmental setting. They found that wetland restoration projects that are larger in size and in less disturbed landscape settings achieve structure and function more quickly.

Under the Corps' regulations, streams considered to be are difficult-to-replace resources and compensatory mitigation should be provided through stream rehabilitation, enhancement, and preservation since those techniques are most likely to be ecologically successful (see 33 CFR 332.3(e)(3)). For the purposes of this section, the term "stream restoration" is used to cover river and stream rehabilitation and enhancement activities. Restoration can be done on large rivers and small streams, and sometimes entire stream networks (Wohl et al. 2015), in a variety of watershed land use settings, including urban and agricultural areas.

River and stream restoration activities can improve the functions performed by these aquatic ecosystems, and the ecosystem services they provide (Wohl et al. 2015, Beechie et al. 2010). Because of changes in land use and other changes in the watershed that have occurred over time, stream restoration can improve stream functions but cannot return a stream to a historic state (Wohl et al. 2015, Roni et al. 2008). Improvements in ecological performance of stream restoration projects is dependent on the restoration method and how outcomes are assessed (Palmer et al. 2014). The ability to restore the ecological functions of streams is dependent on the condition of the watershed draining to the stream being restored because human land uses and other activities in the watershed affect how that stream functions (Palmer et al. 2014). Ecologically successful stream restoration activities depend on addressing the factors that most strongly affect stream functions, such as water quality, water flow, and riparian area quality, rather than focusing solely on restoring the physical habitat of streams (Palmer et al. 2010, Roni et al. 2008), especially the stream channel.

To be effective, stream restoration activities need to address the causes of stream degradation, which are often within the watershed and outside of the stream channel (Palmer et al. 2014). Actions that focus on restoring processes and connectivity are more likely to be successful that channel reconfiguration efforts

(Hawley 2018). Stream rehabilitation and enhancement projects, including the restoration and preservation of riparian areas, provide riverine functions (e.g., Allan and Castillo (2007) for rivers and streams, NRC (2002) for riparian areas). Ecologically effective stream restoration can be conducted by enhancing riparian areas, removing dams, reforestation, and implementing watershed best management practices that reduce storm water and agricultural runoff to streams (Palmer et al. 2014). Process-based stream restoration is intended to address the causes of stream degradation, and should be conducted at the appropriate scale for the cause of stream degradation, such as the watershed or stream reach (Beechie et al. 2010). Process-based stream restoration has substantial potential to re-establish the physical, chemical, and biological processes that sustain riverine ecosystems, including their floodplains (Beechie et al. 2010). Process-based stream restoration can also reduce long-term restoration costs (Beechie et al. 2013, Hawley 2018).

Restoration of incised streams can be accomplished allowing beavers to construct dams in these streams, or by placing structures in the stream channel that mimic the effects that beaver dams have on these steams (DeVries et al. 2012). Examples of stream restoration and enhancement techniques include: dam removal and modification, culvert replacement or modification, fish passage structures when connectivity cannot be restored or improved by dam removal or culvert replacement, levee removal or setbacks, reconnecting floodplains and other riparian habitats, road removal, road modifications, reducing sediment and pollution inputs to streams, replacing impervious surfaces with pervious surfaces, restoring adequate in-stream or base flows, restoring riparian areas, fencing streams and their riparian areas to exclude livestock, improving in-stream habitat, recreating meanders, and replacing hard bank stabilization structures with bioengineering bank stabilization measures (Roni et al. 2013). Miller and Kochel (2010) recommend that stream restoration projects allow the stream channel to self-adjust in response to changing hydrologic and sediment regimes in the watershed, and include other restoration actions such as re-establishing riparian areas next to the stream channel and excluding livestock from the riparian area and stream channel. Large and medium sized rivers can be restored through various approaches, including levee setbacks, levee removal, or creating openings in levees, to restore or improve connectivity between the river and the floodplain, as well as other ecological and geomorphic processes (Wohl et al. 2015). Dam removal, as well as changes in dam operations that provide environmentally-beneficial flows of water and sediment, can also restore functions of rivers and larger streams (Wohl et al. 2015).

Hydrologic restoration can be more effective than in-stream habitat restoration projects (Hawley 2018) because they can help address alterations in watershed hydrology through land use and other watershed changes. Examples of hydrologic restoration approaches include reforestation, floodplain restoration, bankfull wetlands, detention basins, beaver reintroduction, and placement of large woody debris into the stream channel. Restoration actions outside of the stream channel,

such as constructed wetlands, storm water management ponds, and revegetating riparian areas, can result in significant improvements in the biodiversity, community structure, and nutrient cycling processes of downstream waters (Smucker and Detenbeck 2014). Non-structural and structural techniques can be used to rehabilitate and enhance streams, and restore riparian areas (NRC 1992). Examples of non-structural stream restoration practices include removing disturbances to allow recovery of stream and riparian area structure and function, restoring natural stream flows by reducing or eliminating activities that have altered stream flows, preserving or restoring floodplains, and restoring and protecting riparian areas, including fencing to exclude livestock and people that can degrade riparian areas (NRC 1992).

Form based restoration efforts, such as channel reconfiguration, can cause substantial adverse impacts to riverine systems through earthmoving activities (which can cause substantial increases in sediment loads) and the removal of riparian trees and other vegetation, with little demonstrable improvements in stream functions (Palmer et al. 2014). In-stream habitat enhancement activities, such as channel reconfiguration and adding in-stream structures, have resulted in limited effectiveness in improving biodiversity in streams (Palmer et al. 2010). In an evaluation of 644 stream restoration projects, Palmer et al. (2014) concluded that stream channel reconfiguration does not promote ecological recovery of degraded streams, but actions taken within the watershed and in riparian areas to restore hydrological processes and reduce pollutant inputs to streams can improve stream functions and ecological integrity. Stream restoration activities should also include consideration of social factors, especially the people that live in the floodplain or near the river or stream (Wohl et al. 2015). These social factors may also impose constraints on what restoration actions can be taken.

Seagrass beds are dynamic ecosystems that can persist for long periods of time or change from season to season (Fonseca et al. 1998). Seagrass beds can be restored, but these restoration activities generally have lower rates of ecological success than the restoration of other wetland types, such as estuarine and freshwater marshes (Lewis et al. 1995). The restoration and natural recovery of seagrasses requires consideration of addressing impediments that occur at various scales, including larger scale problems such as water quality and land use practices (Orth et al. 2006). The ecological success of seagrass restoration can be influenced by the dynamics of coastal environments and various stressors (e.g., reduced water quality/eutrophication, construction activities, dredging, other direct impact, natural disturbances) that affect seagrasses (van Katwijk et al. 2016). Realistic expectations should be established for seagrass restoration activities because of our limited understanding of seagrasses and the challenges of controlling conditions in open coastal waters (Fonseca 2011).

Site selection is critical for successful restoration of seagrasses (Fonseca 2011, Fonseca et al. 1998). Ecologically successful seagrass restoration is dependent on finding sites where seagrass beds recently existed (Fonseca et al. 1998). The

ecological outcomes of seagrass restoration activities is also affected by the size of the restoration project, with larger restoration efforts more likely to be ecologically successful and sustainable because larger projects can produce positive feedbacks that facilitate the establishment and persistence of seagrasses (van Katwijk et al. 2016). At some proposed seagrass restoration sites, it may be infeasible to change the site from a stable unvegetated state to a stable vegetated state through seagrass planting efforts (Fonseca 2011). Small scale restoration activities may be overwhelmed by natural processes that prevent seagrasses from becoming reestablished (Fonseca 2011). Another impediment to ecologically successful seagrass restoration is bioturbation, which can impede natural seagrass recruitment (Fonseca 2011) or disturb plantings. Bioturbation can be caused by animals such as shrimp, crabs, ducks, fish, and urchins, and result in stable, unvegetated benthic habitats (Fonseca 2011).

Fonseca (2011) recommends locating seagrass restoration activities in areas with water depths similar to nearby natural seagrass beds, at a sufficient size to achieve restoration goals, with characteristics that are similar to those at other ecologically successful seagrass restoration projects, and where anthropogenic disturbances can be reduced or removed. Restoration of submersed aquatic vegetation beds requires taking actions to reduce inputs of sediment, nutrients, and organic matter into estuarine waters and avoiding physical damage from boating activities and fishing gear (Waycott et al. 2009). Controlling these stressors has been more effective at restoring seagrass beds than seagrass transplantation efforts (Waycott et al. 2009). Potential restoration sites need to have sufficient light, moderate nutrient loads, suitable salinity and water temperatures, available seeds and other propagules, and an absence of mechanical disturbances that will destroy or degrade plants (Fonseca et al. 1998). Seagrass recovery is affected by numerous factors, such as the characteristics of the target seagrass species, disturbance intensity, disturbance characteristic(s), environmental conditions, disturbance history, the condition of existing seagrass beds, population structure, reproductive capacity, timing, and feedbacks between biotic and abiotic components at the site (O'Brien et al. 2018).

As discussed in section 4.0, the status of waters and wetlands in the United States as reported under the provisions of Sections 303(d) and 305(b) of the Clean Water Act exhibits considerable variation, ranging from "good" to "threatened" to "impaired." One of the criteria that district engineers consider when they evaluate proposed NWP activities is the "degree or magnitude to which the aquatic resources perform these functions" (see paragraph 2 of Section D, "District Engineer's Decision." The quality of the affected waters is considered by district engineers when making decisions on whether to require compensatory mitigation for proposed NWP activities to ensure no more than minimal adverse environmental effects (see 33 CFR 330.1(e)(3)), and amount of compensatory mitigation required (see 33 CFR 332.3(f)). The quality of the affected waters also factors into the determination of whether the required compensatory mitigation offsets the losses of aquatic functions caused by the NWP activity.

The compensatory mitigation required by district engineers in accordance with general condition 23 and through activity-specific conditions added to the NWP authorization is expected to provide aquatic resource functions and services to offset some or all of the losses of aquatic resource functions caused by the activities authorized by this NWP, and reduce the incremental contribution of those activities to the cumulative effects on the Nation's wetlands, streams, and other aquatic resources. The required compensatory mitigation must be conducted in accordance with the applicable provisions of 33 CFR part 332, which requires development and implementation of approved mitigation plans, as well as monitoring to assess ecological success in accordance with ecological performance standards established for the compensatory mitigation project. The district engineer will evaluate monitoring reports to determine if the compensatory mitigation project has fulfilled its objectives, is ecological successful, and offsets the permitted impacts. If the monitoring efforts indicate that the compensatory mitigation project is failing to meet its objectives, the district engineer may require additional measures, such as adaptive management or alternative compensatory mitigation, to address the compensatory mitigation project's deficiencies. [33 CFR 332.7(c)]

According to Dahl (2011), during the period of 2004 to 2009 approximately 489,620 acres of former upland were converted to wetlands as a result of wetland reestablishment and establishment activities. Efforts to reestablish or establish wetlands have increased wetland acreage in the United States.

The individual and cumulative adverse effects on the aquatic environment resulting from the activities authorized by this NWP, including compliance with all applicable NWP general conditions as well as regional conditions imposed by division engineers and activity-specific conditions imposed by district engineers, are expected to be no more than minimal. The Corps expects that the convenience and time savings associated with the use of this NWP will encourage applicants to design their projects within the scope of the NWP, including its limits, rather than request individual permits for projects that could result in greater adverse impacts to the aquatic environment. Division and district engineers will restrict or prohibit this NWP on a regional or case-specific basis if they determine that these activities will result in more than minimal individual and cumulative adverse effects on the aquatic environment.

8.2.3 Section 404(b)(1) Guidelines Impact Analysis, Subparts C through F

(a) Substrate: Discharges of dredged or fill material into waters of the United States may alter the substrate of those waters, usually replacing the aquatic area with dry land, and changing the physical, chemical, and biological characteristics of the substrate. The original substrate may be removed or covered by other material, such as concrete, asphalt, soil, gravel, etc. Temporary fills may be placed upon the substrate, but must be removed upon completion of the work (see general condition 13). Higher rates of erosion may result during construction, but general condition

12 requires the use of appropriate measures to control soil erosion and sediment.

(b) Suspended particulates/turbidity: Depending on the method of construction, soil erosion and sediment control measures, equipment, composition of the bottom substrate, and wind and current conditions during construction, fill material placed in open waters may temporarily increase water turbidity. Pre-construction notification is required for all discharges of dredged or fill material into waters of the United States authorized by this NWP, which will allow the district engineer to review each proposed activity and ensure that adverse effects on the aquatic environment are no more than minimal. Particulates may be resuspended in the water column during removal of temporary fills. The turbidity plume will normally be limited to the immediate vicinity of the disturbance and should dissipate shortly after each phase of the construction activity. General condition 12 requires the permittee to stabilize exposed soils and other fills, which will reduce turbidity. In many localities, contractors are required to develop and implement sediment and erosion control plans to minimize the entry of soil into the aquatic environment. Nationwide permit activities cannot create turbidity plumes that smother important spawning areas downstream (see general condition 3).

(c) Water: The construction or expansion of residential developments may affect some characteristics of water, such as water clarity, chemical content, dissolved gas concentrations, pH, and temperature. The construction of residential developments may change the chemical and physical characteristics of the waterbody by introducing suspended or dissolved chemical compounds or sediments into the water. Changes in water quality may affect species living in the vicinity of the proposed discharge of dredged or fill material into waters of the United States and the numbers of individuals inhabiting the aquatic area. Water quality certification is required for discharges of dredged or fill material into waters of the United States authorized by this NWP, which will help ensure that the work does not violate applicable water quality requirements. Permittees may be required to implement water quality management measures to ensure that the authorized work does not result in more than minimal degradation of water quality. Storm water management facilities may be required to prevent or reduce the input of harmful chemical compounds into the waterbody. The district engineer may require the establishment and maintenance of riparian areas next to open waters, such as streams. Riparian areas help improve or maintain water quality, by removing nutrients, moderating water temperature changes, and trapping sediments.

(d) Current patterns and water circulation: Discharges of dredged or fill material into waters of the United States authorized by this NWP may adversely affect the movement of water in the environment. All activities authorized by this NWP require pre-construction notification to the district engineer, which will help ensure that adverse effects to current patterns and water circulation are no more than minimal. Road crossings within a residential development may alter water flow patterns and circulation. General condition 9 requires the authorized activity to be designed to withstand expected high flows and to maintain the course, condition, capacity, and

location of open waters to the maximum extent practicable. General condition 10 requires activities to comply with applicable FEMA-approved state or local floodplain management requirements, which will reduce adverse effects to surface water flows.

(e) Normal water level fluctuations: The discharges of dredged or fill material into waters of the United States authorized by this NWP are not likely to adversely affect normal patterns of water level fluctuations due to tides and flooding. This NWP does not authorize discharges of dredged or fill material into waters of the United States in tidal waters. To ensure that the NWP does not authorize activities that adversely affect normal flooding patterns, general condition 10 requires NWP activities to comply with applicable FEMA-approved state or local floodplain management requirements. General condition 9 requires the permittee to maintain the pre-construction course, condition, capacity, and location of open waters, to the maximum extent practicable.

(f) Salinity gradients: The discharges of dredged or fill material into waters of the United States authorized by this NWP are unlikely to adversely affect salinity gradients, since the NWP is restricted to discharges of dredged or fill material into non-tidal waters, excluding non-tidal wetlands adjacent to tidal waters.

(g) Threatened and endangered species: No activity is authorized by any NWP if that activity is likely to jeopardize the continued existence of a threatened or endangered species as listed or proposed for listing under the Endangered Species Act of 1973, as amended, or to destroy or adversely modify the critical habitat of such species. See 33 CFR 330.4(f) and paragraph (a) of general condition 18. For NWP activities, compliance with the Endangered Species Act is discussed in more detail in section 7.0 of this document.

(h) Fish, crustaceans, molluscs, and other aquatic organisms in the food web. All activities authorized by this NWP require pre-construction notification to the district engineer, which will allow review of each activity to ensure that adverse effects to fish and other aquatic organisms in the food web are no more than minimal. Fish and other motile animals may avoid the project site during construction. Sessile or slow-moving animals in the path of discharges, equipment, and building materials may be destroyed. Some aquatic animals may be smothered by the placement of fill material. Motile animals are likely to return to those areas that are temporarily impacted by the work and restored or allowed to revert back to preconstruction conditions. Aquatic animals might not return to sites of permanent fills. Benthic and sessile animals are likely to recolonize sites temporarily impacted by the authorized activities after the affected areas are restored. Discharges of dredged or fill material into waters of the United States that alter the riparian zone, especially floodplains, may adversely affect populations of fish and other aquatic animals, by altering stream flow, flooding patterns, and surface and groundwater hydrology. Some species of fish spawn on floodplains, which could be prevented if the development involves clearing or filling the floodplain. Residential development activities in the

vicinity of streams may alter habitat features by increasing surface water flow velocities, which can increase erosion and reduce the amount of habitat for aquatic organisms and destroy spawning areas. Residential development activities in the vicinity of streams may also cause more unstable flow regimes, such as higher peak flows, more frequent dry periods, and more frequent flooding, which may decrease the amount of habitat for aquatic animals.

Division and district engineers can add conditions to this NWP to prohibit discharges during important stages of the life cycles of certain aquatic organisms. Such time of year restrictions may prevent adverse effects to these aquatic organisms during reproduction and development periods. General conditions 3 and 5 address protection of spawning areas and shellfish beds, respectively. General condition 3 states that activities in spawning areas during spawning seasons must be avoided to the maximum extent practicable. In addition, general condition 3 also prohibits activities that result in the physical destruction of important spawning areas. General condition 5 prohibits activities in areas of concentrated shellfish populations. General condition 9 requires the maintenance of pre-construction course, condition, capacity, and location of open waters to the maximum extent practicable, which will help minimize adverse impacts to fish, shellfish, and other aquatic organisms in the food web.

(i) Other wildlife: Discharges of dredged or fill material into waters of the United States authorized by this NWP may result in adverse effects on other wildlife associated with aquatic ecosystems, such as resident and transient mammals, birds, reptiles, and amphibians, through the destruction of aquatic habitat, including breeding and nesting areas, escape cover, travel corridors, and preferred food sources. This NWP does not authorize activities that are likely to jeopardize the continued existence of federally-listed endangered and threatened species or result in the destruction or adverse modification of critical habitat. Compensatory mitigation, including the establishment and maintenance of riparian areas next to open waters, may be required for discharges of dredged or fill material into waters of the United States authorized by this NWP, which will help offset losses of aquatic habitat for wildlife. General condition 4 states that activities in breeding areas for migratory birds must be avoided to the maximum extent practicable.

(j) Special aquatic sites: The potential impacts to specific special aquatic sites are discussed below:

(1) Sanctuaries and refuges: The discharges of dredged or fill material into waters of the United States authorized by this NWP may have adverse effects on waters of the United States within sanctuaries or refuges designated by Federal or state laws or local ordinances. General condition 22 prohibits the use of this NWP to discharge dredged or fill material in NOAA-managed marine sanctuaries and marine monuments and National Estuarine Research Reserves. District engineers will exercise discretionary authority and require individual permits for specific projects in waters of the United States in sanctuaries and refuges if those discharges of

dredged or fill material into waters of the United States will result in more than minimal adverse effects on the aquatic environment.

(2) Wetlands: The discharges of dredged or fill material into waters of the United States authorized by this NWP may affect wetlands. District engineers will review pre-construction notifications to ensure that the adverse effects on the aquatic environment are no more than minimal. General condition 23 requires avoidance and minimization of impacts to jurisdictional wetlands to the maximum extent practicable on the project site. Division engineers can add regional conditions to this NWP to restrict or prohibit its use in certain high value wetlands. See paragraph (e) of section 6.1 for a more detailed discussion of impacts to wetlands.

(3) Mud flats: The discharges of dredged or fill material into waters of the United States authorized by this NWP are likely to have minor impacts on mud flats, because the NWP does not authorize discharges of dredged or fill material into tidal waters.

(4) Vegetated shallows: The discharges of dredged or fill material into waters of the United States authorized by this NWP are unlikely to have adverse effects on vegetated shallows in tidal waters, since the NWP does not authorize activities in tidal waters. Discharges of dredged or fill material into waters of the United States in non-tidal vegetated shallows may be authorized by this NWP, but district engineers will review pre-construction notifications to determine if those activities will result in no more than minimal adverse effects on the aquatic environment. If the non-tidal vegetated shallows are high value and the proposed work will result in more than minimal adverse effects on the aquatic environment, the district engineer will exercise discretionary authority to require the project proponent to obtain an individual permit.

(5) Coral reefs: The discharges of dredged or fill material into waters of the United States authorized by this NWP are unlikely to have adverse effects on coral reefs, because this NWP does not authorize discharges of dredged or fill material into tidal waters.

(6) Riffle and pool complexes: Discharges of dredged or fill material into waters of the United States in riffle and pool complexes may be authorized by this NWP, but district engineers will review pre-construction notifications to determine if those discharges will result in no more than minimal adverse effects on the aquatic environment. If the riffle and pool complexes are high value and the proposed work will result in more than minimal adverse effects on the aquatic environment, the district engineer will exercise discretionary authority to require the project proponent to obtain an individual permit.

(k) Municipal and private water supplies: See paragraph (n) of section 6.1 for a discussion of potential impacts to water supplies.

(l) Recreational and commercial fisheries, including essential fish habitat: The discharges of dredged or fill material into waters of the United States authorized by this NWP may adversely affect waters of the United States that act as habitat for populations of economically important fish and shellfish species. Division and district engineers can add conditions to this NWP to prohibit discharges during important life cycle stages, such as spawning or development periods, of economically valuable fish and shellfish. All activities authorized by this NWP require pre-construction notification to the district engineer, which will allow review of each activity in open waters to ensure that adverse effects to economically important fish and shellfish are no more than minimal. Compliance with general conditions 3 and 5 will ensure that the authorized work does not adversely affect important spawning areas or concentrated shellfish populations. As discussed in paragraph (g) of section 6.1, there are procedures to help ensure that individual and cumulative impacts to essential fish habitat are no more than minimal. For example, division and district engineers can impose regional and special conditions to ensure that discharges of dredged or fill material into waters of the United States authorized by this NWP will result in no more than minimal adverse effects on essential fish habitat.

(m) Water-related recreation: See paragraph (m) of section 6.1 above.

(n) Aesthetics: See paragraph (c) of section 6.1 above.

(o) Parks, national and historical monuments, national seashores, wilderness areas, research sites, and similar areas: General condition 22 prohibits the use of this NWP to authorize discharges of dredged or fill material in designated critical resource waters and adjacent wetlands, which may be located in parks, national and historical monuments, national seashores, wilderness areas, and research sites. This NWP can be used to authorize discharges of dredged or fill material into waters of the United States in parks, national and historical monuments, national seashores, wilderness areas, and research sites if the manager or caretaker wants to conduct work in waters of the United States and those activities result in no more than minimal adverse effects on the aquatic environment. Division engineers can add regional conditions to the NWP to prohibit its use in designated areas, such as national wildlife refuges or wilderness areas.

9.0 Determinations

9.1 Finding of No Significant Impact

Based on the information in this document, the Corps has determined that the discharges of dredged or fill material into waters of the United States and work in navigable waters of the United States authorized by the issuance of this NWP will not have a significant impact on the quality of the human environment. During the

five-year period this NWP will be in effect, the activities authorized by this NWP will result in only minor changes to the affected environment described in section 4.0 of this environmental assessment. Therefore, the preparation of an environmental impact statement is not required for the issuance of this NWP.

9.2 Public Interest Determination

In accordance with the requirements of 33 CFR 320.4, the Corps has determined, based on the information in this document, that the issuance of this NWP to authorize discharges of dredged or fill material into waters of the United States and work in navigable waters of the United States for residential developments is not contrary to the public interest.

9.3 Section 404(b)(1) Guidelines Compliance

This NWP has been evaluated for compliance with the 404(b)(1) Guidelines, including Subparts C through G. Based on the information in this document, the Corps has determined that the discharges authorized by this NWP comply with the 404(b)(1) Guidelines, with the inclusion of appropriate and practicable conditions, including mitigation measures required by the NWP general conditions, that minimize adverse effects on affected aquatic ecosystems. The discharges of dredged or fill material into waters of the United States authorized by this NWP will result in only minor changes to the current environmental setting described in section 4.0 of this document, and will have no more than minimal individual and cumulative adverse effects on the aquatic environment during the 5-year period this NWP is in effect.

9.4 Section 176(c) of the Clean Air Act General Conformity Rule Review

This issuance of this NWP has been analyzed for conformity applicability pursuant to regulations implementing Section 176(c) of the Clean Air Act. It has been determined that the activities authorized by this permit will not exceed *de minimis* levels of direct emissions of a criteria pollutant or its precursors and are exempted by 40 CFR 93.153. Any later indirect emissions are generally not within the Corps

continuing program responsibility and generally cannot be practicably controlled by the Corps. For these reasons, a conformity determination is not required for this NWP.

FOR THE COMMANDER

Dated: 4 January 2021

William H. Graham Jr.
Major General, U.S. Army
Deputy Commanding General for Civil and Emergency Operations

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City of Beacon Planning Board Agenda
06/14/2022

Title:

Continue Public Hearing for SEQRA Environmental Review on applications for Site Plan Approval, Special Use Permit, and Subdivision (lot merger) Approval, Multi-Family Residential (62 units), 16 West Main Street, submitted by Farrell Building Company

ATTACHMENTS

16 W Main Letter 05-31-2022.pdf

16 W Main 01 - C-000 Cover Sheet.pdf

16 W Main 02 - C-010 Existing Conditions Plan.pdf

16 W Main 03 - C-020 Demolition Plan.pdf

16 W Main 04 - C-100 Site Plan.pdf

16 W Main 05 - C-200 Grading Plan.pdf

16 W Main 06 - C-300 Utilities Plan.pdf

16 W Main 07 - C-310 Storm Profile.pdf

16 W Main 08 - C-400 Sediment and Erosion Control Plan.pdf

16 W Main 09 - C-600 Lighting Plan.pdf

16 W Main 10 - C-700 Garbage Truck Turning Plan (Front Loading).pdf

16 W Main 11 - C-701 Garbage Truck Turning Plan (Rear Loading).pdf

16 W Main 12 - C-702 Fire Truck Turning Plan (Scenario 1).pdf

16 W Main 13 - C-703 Fire Truck Turning Plan (Scenario 2).pdf

16 W Main 14 - C-704 Fire Truck Turning Plan (Scenario 3).pdf

16 W Main 15 - C-800 Aerial Site Plan.pdf

16 W Main 16 - C-801 Sight Distance Plan.pdf

16 W Main 17 - C-900 Construction Details.pdf

16 W Main 18 - C-901 Construction Details.pdf

16 W Main 19 - C-902 Construction Details.pdf

16 W Main 20 - C-903 Construction Details.pdf

16 W Main 21 - C-904 Construction Details.pdf

16 W Main 22 - C-905 Construction Details.pdf

16 W Main 23 - C-906 Construction Details.pdf

16 W Main 24 - C-907 Construction Details.pdf

16 W Main 25 - C-908 Construction Details.pdf

16 W Main 26 - L-100 Landscaping Plan.pdf

16 W Main A-100 - Building Plans.pdf

16 W Main A-101 - Building Plans.pdf

16 W Main A-102 - Building Plans.pdf

16 W Main A-200 - Elevations.pdf

16 W Main Figure IMP-1.pdf

16 W Main Figure IMP-2.pdf

16 W Main Figure IMP-3.pdf

16 W Main Traffic Study_2022-05-31 (Compiled).pdf

Planners Comments PB Beacon Commons 6.10.22.pdf

Traffic Comments Beacon Commons_Review 3.pdf

Engineers Comments 16 West Main Review 06-10-22.pdf

May 31, 2022

Honorable Chairman John Gunn and Members of the Board
City of Beacon Planning Board
One Municipal Plaza
Beacon, NY 12508

Re: JMC Project 18119
Beacon Commons
16 West Main Street
City of Beacon, NY 12508

Site Plan Approval

Dear Chairman Gunn and Members of the Board:

On behalf of Farrell Building Company, we are pleased to provide five (5) sets of the following revised documents in support of Site Plan Approval for the above captioned project:

1. **JMC Site Plans**

Dwg	Title	Last Revised Date
C-000	Cover Sheet	05/31/2022
C-010	Existing Conditions Plan	05/31/2022
C-020	Demolition Plan	05/31/2022
C-100	Site Plan	05/31/2022
C-200	Grading Plan	05/31/2022
C-300	Utilities Plan	05/31/2022
C-310	Storm Profiles	05/31/2022
C-400	Sediment and Erosion Control Plan	05/31/2022
C-600	Lighting Plan	05/31/2022
C-700	Garbage Truck Turning Plan (Front-Loading)	05/31/2022
C-701	Garbage Truck Turning Plan (Rear-Loading)	05/31/2022
C-702	Fire Truck Turning Plan (Scenario 1)	05/31/2022
C-703	Fire Truck Turning Plan (Scenario 2)	05/31/2022
C-704	Fire Truck Turning Plan (Scenario 3)	05/31/2022
C-800	Aerial Site Plan	05/31/2022
C-801	Sight Distance Plan	05/31/2022
C-900	Construction Details	05/31/2022
C-901	Construction Details	05/31/2022

C-902	Construction Details	05/31/2022
C-903	Construction Details	05/31/2022
C-904	Construction Details	05/31/2022
C-905	Construction Details	05/31/2022
C-906	Construction Details	05/31/2022
C-907	Construction Details	05/31/2022
C-908	Construction Details	05/31/2022
L-100	Landscaping Plan	05/31/2022

2. **Aryeh Siegel Architect Drawing List:**

Dwg	Title	Last Revised Date
A-100	Building Plans	05/31/2022
A-101	Building Plans	05/31/2022
A-102	Building Plans	05/31/2022
A-200	Elevations	05/31/2022

3. **Traffic Study, revised 5/31/2022**

4. **Conceptual Improvement Figures**

Figure	Title	Last Revised Date
IMP-1	"Tompkins Avenue & NY 9D"	05/31/2022
IMP-2	"Bank Street & Tompkins Avenue"	05/31/2022
IMP-3	"West Main Street & Beekman Street"	05/31/2022

Below please find our responses to the comments within the John Clarke Planning and Design Memorandum, dated May 6, 2022.

Comment No. 1

Parking in the adjacent residential district will need a Special Permit from the City Council. The Planning Board should issue a recommendation to the Council.

Response No. 1

So noted.

Comment No. 2

For the Sheet 9 Lighting Plan:

a. The fixture illustrations and a summary of the specifications should be shown on the plans, confirming the full cut-off, temperatures, and Color Rendering Index to comply with Section 223-14B. Four of the fixtures specified have a CRI of 70, outside the 80-100 range.

b. For the underpass driveway, I suggest two canopy lights near both ends and crosswalks.

Response No. 2

a. We have confirmed with the light manufacturer, LSI, that they can design the light fixtures in 80 CRI which has been specified on the table. This is reflected on JMC Drawing C-600 "Lighting Plan".

b. An additional canopy light was added beneath the underpass to increase illumination. This is reflected on JMC Drawing C-600 "Lighting Plan".

Comment No. 3

The revised Sight Distance Plan reduces the number of existing on-street parking spaces that will need to be removed for the new driveway. These lost spaces will be somewhat balanced by the addition of two new on-street spaces along Bank Street.

Response No. 3

So noted. This comment was addressed as part of the previous submission on April 26, 2022.

Comment No. 4

For the Sheets A-100 to A-200 Building Plans:

a. Scaled elevations should be provided with building heights and floor-to-floor heights labeled, along with major rooftop features and a detail for the roof railings.

b. Acceptable rooftop accessory structures are described in Section 223-41.21 D(5), including the need for a 15-foot setback from the front edge of the roof. The proposed storage room, bathroom, and kitchen do not meet the setback requirement.

c. A complete roof plan should be provided with locations for mechanical equipment. The rooftop plantings should be generally described, and the applicant should consider green coverings for the rest of the roof.

Response No. 4

a. Scaled elevations with dimensions are provided in this submission. Rooftop features are shown on the elevations. A detail of the roof railing is included.

b. **The roof plan was revised to keep accessory structures set back 15 feet from the roof edge on all sides.**

c. **A complete roof plan has been added. The roof plan shows locations for mechanical equipment. Rooftop plantings are shown and generally described. The applicant proposes solar panels for areas of the roof not included in the tenant roof deck and mechanical areas.**

Below please find our responses to the comments within the Creighton Manning comment letter dated May 10, 2022.

Site Plan

Comment No. 1

The proposed "Off-Street Parking Area" accessory use adheres to the CBC 223-41.21B.1(3). The 62 spaces provided complies with CBC 223-41.21F(2a). – 2020 Review Letter Comment

Response No. 1

So noted.

Comment No. 2

Exterior bicycle racks and internal bicycle storage facilities are recommended. – 2020 Review Letter Comment

Response No. 2

Drawing A-100 "Building Plans" shows the amenity room on the 1st floor which includes a note indicating bicycle storage. Also, a bicycle rack is proposed as shown along West Main Street on Drawing C-100 "Site Plan".

Comment No. 3

This project is a Transit-Oriented Development (TOD). The applicant should demonstrate how future residents would access the train station on foot and by bicycle and propose the necessary features to promote a safe and direct travel path. – 2020 Review Letter Comment

Response No. 3

The project site is located approximately 750 feet east of the Beacon Metro-North Railroad train station. Pedestrians can access the train station from the property via a series of sidewalks and crosswalks along the north side of West Main Street. The applicant proposes to install a crosswalk across Bank Street. Existing bicycle racks are provided at the train station for public use and the applicant proposes to

provide a bicycle storage area within the proposed building. Also, a bicycle rack is proposed along West Main Street. Bicyclists will follow the local vehicle traffic regulations while utilizing existing sidewalks and roadways to complete the journey between the site and train station.

Comment No. 4

The internal intersection (right) created by the ingress-only driveway on Bank Street should be reexamined for additional traffic control. – 2020 Review Letter Comment

Response No. 4

A stop line and stop sign has been added to the eastbound approach of the northern internal intersection with the driveway from Bank Street to provide additional traffic control.

Comment No. 5

How will this project accommodate larger vehicles (i.e., single-unit box trucks and tractor trailers) commonly used by moving companies?

Response No. 5

Please refer to Drawings C-700 through C-704 for various truck maneuvering routes for large fire trucks and garbage trucks. The project layout design can accommodate single-unit box trucks but not large multi-unit tractor trailers.

Garbage Truck & Fire Truck Turning Plans

Comment No. 1

As noted in the 2020 Review Letter, CM acknowledged that JMC submitted plans to the City of Beacon Fire Department and that no response has been received. Is a response from the Fire Department still forthcoming? CM recommends that sign-off from the Fire Department be made a condition of site plan approval.

Response No. 1

JMC has continued to coordinate with the City Fire Department through correspondence with the City Building Inspector. It is our understanding that there are no outstanding comments from the Fire Department and we have requested that the City Fire Department provide written confirmation. We will provide their approval to the Board once received.

Comment No. 2

As noted in the 2020 Review Letter, CM requested that the applicant confirm that 14 feet of vertical clearance underneath the bridge connector is adequate to accommodate all potential vehicles, including moving trucks, garbage trucks, and emergency response vehicles. CM notes that the clear height has been further reduced to 12'-8". Please confirm that this clear height is adequate for the movements shown on the submitted turning movement plans.

Response No. 2

The clearance provided under the bridge connector is 12'-8". The City Building Inspector indicated that the clearance is adequate for emergency response vehicles and is confirming with the City Fire Department. Appropriate building mounted signage for the clearance will be proposed on the building permit set and will follow the Manual on Uniform Traffic Control Devices.

Sight Distance Plan

Comment No. 1

In order to achieve the required sight distance for a 35-mph design speed, the applicant is proposing to remove 12 on-street parking spaces from the north side of West Main Street. Two on-street parking spaces can be created by Bank Street as part of the project resulting in a net loss of 10 spaces.

Response No. 1

At the direction of the Board, we further reviewed the sight distance to minimize the amount of on-street parking to be removed. Drawing C-801 depicts the stopping sight distance following AASHTO guidelines for 30 mph. For reference, the posted speed limit along West Main Street is 25 mph. This distance provides adequate distance for vehicles to stop. As shown on Drawing C-801, seven parking spaces along West Main Street are proposed to be removed and the Applicant proposes 2 additional on-street parking spaces along Bank Street resulting in a net loss of only 5 on-street parking spaces.

Traffic Impact Study

Comment No. 1

JMC's Traffic Impact Study is based on traffic data collected in late February 2020. This is considered "prepandemic" and should be representative of typical traffic conditions. We note that the satisfactory level of service for eastbound Beekman Street at NY 9D suggests that the eastbound left-turn volume may have been underrepresented. Anecdotally, CM has witnessed PM peak-hour eastbound queues extending to the Beekman Street-West Main Street intersection suggesting that there are capacity constraints on this approach. The eastbound volumes should be verified and queue lengths (i.e., approach volumes) should be considered. Data from prior studies can be cited as necessary.

Response No. 1

The weekday PM volumes for the eastbound Beekman Street approach to its intersection of NY 9D were compared to the volumes utilized in the traffic studies prepared for the River Ridge Residential Development, Edgewater Development, The View, West End Lofts, and the 555 South Avenue project. We updated our traffic analysis for this intersection to utilize the highest weekday PM volumes from the various studies for the eastbound approach to provide a conservative analysis. The existing volumes along the Beekman Street eastbound approach to NY 9D was increased by 29 vehicles during the peak weekday PM hour based on the volumes contained in the other studies.

The increased existing volumes were incorporated throughout the no-build and build volumes. The levels of service depicted on Table 3 for the intersection of NY 9D and Beekman Street remain the same as previously studied.

Comment No. 2

CM reviewed Table 1 and notes that the trip generation is based on the 10th Edition of ITE's Trip Generation Manual. In the fall of 2021, ITE published the 11th Edition which included updated data sets and additional data that provided trip generation for mid-rise multi-family development proximate to rail-transit (½- mile). CM notes that based on the 11th Edition data for the same use and number of units, the site generated trips is less than those used in the study.

- *a. 10th Edition*
  - *i. Weekday AM – Entering: 6 | Exiting:16 | Total: 22*
  - *ii. Weekday PM – Entering : 17 | Exiting: 11 | Total: 28*
- *b. 11th Edition*
  - *i. Weekday AM – Entering: 11 | Exiting: 9 | Total: 20*
  - *ii. Weekday PM – Entering : 8 | Exiting: 10 | Total: 18*

Based on this comparison, the study does not need to be revised as the trip generation used provides a more conservative analysis.

Response No. 2

Comment noted.

Comment No. 3

The Traffic Impact Study shows that the unsignalized intersection of NY 9D and Tompkins Avenue-Ralph
Street will operate at Level of Service F in the No Build and Build conditions. The cumulative traffic associated with other development projects is responsible for this change in level of service; as traffic levels on NY 9D increase, the wait time for traffic on the side streets will increase. It is difficult to mitigate

the level of service at an unsignalized intersection, and while JMC does not assign Beacon Commons traffic
to Tompkins Avenue, the potential exists for future residents to use Tompkins Avenue as an alternative to Beekman Street. Therefore, we recommend that the safety features of this intersection (e.g., sight distance, condition of markings, and need for traffic control and/or warning signs) be evaluated. – 2020 Review Letter Comment

Response No. 3

NY 9D & Tompkins Avenue

A sight distance analysis was performed by our office to assess the sight distance for a vehicle turning from the eastbound approach of Tompkins Avenue onto NY 9D. The posted speed limit along NY 9D is 30 mph. Based on a 2019 NYSDOT speed statistic report, the 85th percentile speed limit for the roadway segment which includes Tompkins Avenue is 40 mph. The 85th percentile speed has been utilized as the design speed for calculating the desired intersection and stopping sight distances based on methodologies from American Association of State Highway and Transportation Official's (AASHTO) "A Policy on Geometric Design of Highways and Streets", latest edition.

At the Tompkins Avenue approach onto NY 9D, the desirable stopping sight distance for vehicles turning left (looking right) is 305 feet while the desirable intersection sight distance is 445 feet. The approximate available sight distance for vehicles turning left is 500 feet. The desirable stopping sight distance for vehicles turning right (looking left) is 305 feet while the desirable intersection sight distance is 385 feet. The approximate available sight distance for vehicles turning right is 725 feet. The available sight distances accommodate the desirable stopping and intersection sight distances for the Tompkins Avenue approach.

To provide an additional safety improvement to the intersection, the applicant proposes to install a retroreflective sign post strip within the existing stop sign post for the eastbound approach. Furthermore, the stop line for the approach is proposed to be restriped. Figure IMP-1 depicts the proposed improvements to the intersection.

Additionally, the applicant proposes to improve three additional intersections within the vicinity of the site. The intersection improvements have been further detailed below.

Tompkins Avenue & Bank Street

The sight distance for a vehicle turning right (looking left) from Bank Street is limited by vegetation in the southwest corner of the intersection. In order to enhance the available sight distance, the Applicant proposes to clear overgrown vegetation and remove low tree limbs within Tompkins Avenue public right-of-way.

Additionally, the curb ramps in the southwest and southeast corners of the intersection are proposed to be reconstructed with embedded detectable warnings. A crosswalk across Bank Street as well as stop sign and stop line for the Bank Street approach are also proposed at the intersection. Figure IMP-2 depicts the proposed improvements to the intersection.

West Main Street & Bank Street

The Applicant proposes to replace the sidewalk along its frontages of West Main Street and Bank Street on the northeast side of the intersection as well as provide a crosswalk across Bank Street. The Applicant additionally proposes to install a stop line on Bank Street behind the proposed crosswalk as well as reconstruct the existing curb ramp in the northwest corner of the intersection with a new concrete curb ramp with detectable warnings.

Beekman Street & West Main Street / The View Driveway

Based on comments from the City, our office assessed the intersection of Beekman Street and West Main Street with The View driveway based on the 4 multi-way stop criteria detailed in the Manual on Uniform Traffic Control Devices (MUTCD). The different criteria are detailed as an interim traffic control measure, crash experience, minimum volumes, and reduction in the minimum values. This intersection does not meet the criteria for an interim traffic control measure as the intersection is not being studied to become a signalized intersection. An accident analysis has not been performed to date for the intersection, thus the crash experience criteria could not be assessed. The minimum volume value criteria is based on a minimum of 8 hours, however the intersection was counted for 4 weekday hours (7:00 – 9:00 AM and 4:00 – 6:00 PM). Therefore, a complete assessment of the criteria could not be provided. Based on the peak hour counts at the intersection of Beekman Street and West Main Street, the minimum volume threshold criterion are not met to warrant the installation of a multi-way stop.

Our office has prepared a traffic analysis of the intersection with stop control on all approaches to compare to the two-way stop control currently installed. During both analyzed hours, the overall intersection operates at a Level of Service B as a multi-way stop. Figure IMP-3 has been prepared to depict the signing and striping improvements to the intersection if the multi-way stop is selected as the desired type of traffic control.

Since the all-way stop MUTCD criteria do not appear to have been met, the Applicant is not proposing modifications to this intersection. However, the applicant is willing to install the multi-way stop improvements as shown on Figure IMP-3 to the Beekman Street and West Main Street intersection if directed by the City.

Comments in Lanc & Tully, memorandum dated April 8, 2022

General Comments

Comment No. 1

A Performance Bond will need to be posted for all public improvements proposed as part of the project. As the project progresses, the applicant's engineer should prepare an itemized cost estimate for all public improvements and submit to the City Engineer's office for review. Applicant acknowledges this comment.

Response No. 1

So noted. A construction estimate shall be prepared by the project team once a construction manager is added to the team and it will be submitted for review.

Comment No. 2

As the building plans are noted as part of the overall plan set, they should be attached to the overall plan set.

Response No. 2

The building drawings are listed on the cover sheet of the Site Plans and are provided together for review.

Comment No. 3

A note shall be added to the plans stating that all stormwater facilities to be constructed as part of the project shall be inspected by a licensed engineer on a yearly basis, with a copy of the report being provided to the City Building Department. The report shall include all findings and recommendations.

Response No. 3

Note #8 has been added to JMC Drawing C-300 "Utilities Plan".

Comment No. 4

The submitted revised Stormwater Pollution Prevention Plan (SWPPP) has been reviewed and found to be acceptable.

Response No. 4

So noted.

Demolition Plan (Sheet 3 of 26):

Comment No. 1

As the plan is showing the sidewalk along West Main to be removed, a pedestrian accessway shall be established to allow pedestrians walking along the roadway to continue in a safe manner since there is no sidewalk on the opposite side of the roadway. This would also apply to the sidewalk along Bank Street.

Response No. 1

So noted. A construction logistics plan and schedule shall be prepared by the project construction manager once they are added to the team and it will be submitted for review.

Site Plan (Sheet 4 of 26)

Comment No. 1

Given the amount of parking area that will require clearing during snowstorm events, it does not appear that sufficient area has been provided for snow storage. Snow should not be stored within parking stalls. How does the applicant plan on handling snow storage and removal from the site? This information shall also be provided on the plan. Applicant has noted that excess snow shall be disposed off-site. The note on the plan shall be expanded upon to provide a time frame as to how quickly the excess snow will be removed from the site.

Response No. 1

Note #2 on JMC Drawing C-100 "Site Plan" has been expanded to indicate that the property manager shall maintain all available parking as part of their responsibility to the property owner and tenants. Snow shall be cleared and stored on-site and/or removed in a timely manner and disposed off-site.

Utilities Plan (Sheet 6 of 26):

Comment No. 1

The sewer lateral running out from the lower building to the City sewer collection system will be in conflict with the existing storm drainage structure located in this area. Additional room shall be provided between the storm drainage structure and sewer lateral to allow for proper maintenance/replacement of either utility without impact to the other utility. Although the applicant has slightly shifted the location of the sewer lateral, we still believe there is insufficient room to pass by the structure without impact once the wall thickness of the structure is accounted for along with the diameter of the proposed lateral.

Response No. 1

The proposed sanitary sewer service has been shifted farther east away from the existing storm drainage structure as shown on JMC Drawing C-300 "Utilities Plan".

Comment No. 2

The connection of the sanitary sewer lateral to the existing sewer main will require a saddle. The plan should note the use of a saddle that is approved by the City of Beacon. A construction detail for this connection shall be included on the plans.

Response No. 2

We have reached out to the City water department for the City standard detail/notes and it will be coordinated with the Construction Documents once received. This will also be included in the future submission to the Dutchess County Department of Health and we will copy the City on all correspondence.

Comment No. 3

The 6" water service line is proposed to connect to the existing 6" water line within West Main Street in a location where the water and sewer are located atop one another. As it is unclear as to the separation distance between these utilities, we recommend that the applicant look at connecting the 6" water service to the 8" water line located in Bank Street so as to avoid conflicts. Construction details for the proposed water tapping shall be provided on the plans.

Response No. 3

The proposed water service has been shifted to connect in Bank Street as shown on JMC Drawing C-300 "Utilities Plan". We have reached out to the City water department for the City standard detail/notes for the water main connection and it will be coordinated with the Construction Documents once received. This will also be included in the future submission to the Dutchess County Department of Health and we will copy the City on all correspondence.

Comment No. 4

The applicant should verify the pressures within the water mains along Bank Street and West Main Street, along with the available fire flows form the hydrants. This information will be required for the design of the sprinkler system that will be required in the building. ***The applicant has noted that the MEP Engineer will coordinate with the City to obtain fire flow data and pressures needed for the design of the fire suppression system.***

Response No. 4

So noted. This shall be prepared by the project MEP engineer once they are added to the team.

Storm Profile (Sheet 7 of 26):

Comment No. 1

The profile shows the proposed storm drainage pipe to be installed on West Main Street will be directly atop of the existing water main. This does not comply with NYSDOH requirements for separation, which requires a minimum of 18" of separation between the two. Furthermore, at least 12" should be provided between utilities to allow for proper maintenance repair of them. The plan shall be revised to show proper separation distances in accordance with NYSDOH standards.

Response No. 1

As previously indicated, the storm drainage pipe crossing has been revised to a proposed elliptical pipe to provide additional separation. The existing crossing utilities will need to be field verified prior to any work being performed.

If the required separation is not achievable, then concrete encasement or other means as approved by the Dutchess County Department of Health and City of Beacon shall be proposed.

Sediment and Erosion Control (Sheet 8 of 26):

Comment No. 1

Stone check dams shall be shown for the swale line proposed north and east side of the rear parking lot, in accordance with NYSDEC standards, until vegetation is established, at which time the stone check dams can be removed. A construction detail for the stone check dams shall be provided on the plans.

Response No. 1

The stone check dam detail was added at #14A on Drawing C-901 "Construction Details".

Additionally, there were some comments received on the items below from the public and the Board during the public hearing on May 10th.

1. Height and size of the building – The project meets the zoning code. A building roof plan has been provided. The project architect has reviewed the code and coordinated with the City Planning Consultant to verify that the roof does not equate to 5th story.

2. Traffic and Pedestrian safety – The public, Planning Board and Traffic consultant asked for safety improvements at surrounding roadways. JMC has coordinated with the City Traffic consultant, done some additional field work and is proposing additional off-site roadway improvements at Tompkins Avenue and NY9D, Bank Street and Tompkins Avenue and West Main Street and Beekman Street.
3. Construction noise – This is temporary condition and will be minimized. The design of the building has been modified to utilize drilled piles instead of driven piles which will reduce the noise and vibration of the pile operations. The construction will also adhere to the City requirements for noise and hours of operation.
4. Construction dust and debris – all City and NYSDEC requirements shall be met.
5. Construction traffic – The construction manager will coordinate with the City Building Department for roadway access/staging areas. Deliveries could possibly be timed to avoid peak hours of traffic. Contractors would arrive prior to the 7am-9am peak hours.
6. Construction schedule:
   Below is an approximate timeline provided by Farrell Building Company.

   - Estimated start of construction - October 2022
   - Complete site work, including walls 4 months
   - Duration of pile drilling 1.5 months
   - Complete Foundations/building shell 5 months
   - Complete building core 6 months
   - Final site work (paving, curbing, landscaping) 1.5 months
   - Total duration 18 Months

We trust that the enclosed documents and above responses are sufficient for the Planning Board's review and we look forward to discussing the project at the next meeting. In the interim, if you have questions or require additional information, please do not hesitate to contact our office at (914) 273-5225.

Sincerely,

JMC Planning Engineering Landscape Architecture & Land Surveying, PLLC

Stephen Spina, PE
Senior Project Manager

cc: Mr. Steve Zagoren
Mr. Greg Pancost
Mr. Aryeh Siegel

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SITE PLAN DRAWINGS

BEACON COMMONS

TAX MAP SECTION 5954 | BLOCK 25 | LOT 616969
DUTCHESS COUNTY
16 WEST MAIN STREET
BEACON, NY 12508

Applicant:
FARRELL COMMUNITIES BEACON LLC
PO BOX 14
BRIDGEHAMPTON, NY 11932
(631) 549-9800

Architect:
ARYEH SIEGEL ARCHITECT
84 MASON CIRCLE
BEACON, NY 12508
(845) 838-2490

Site Planner, Civil & Traffic Engineer, Surveyor and Landscape Architect:
120 BEDFORD ROAD
ARMONK, NY 10504
(914) 273-5225

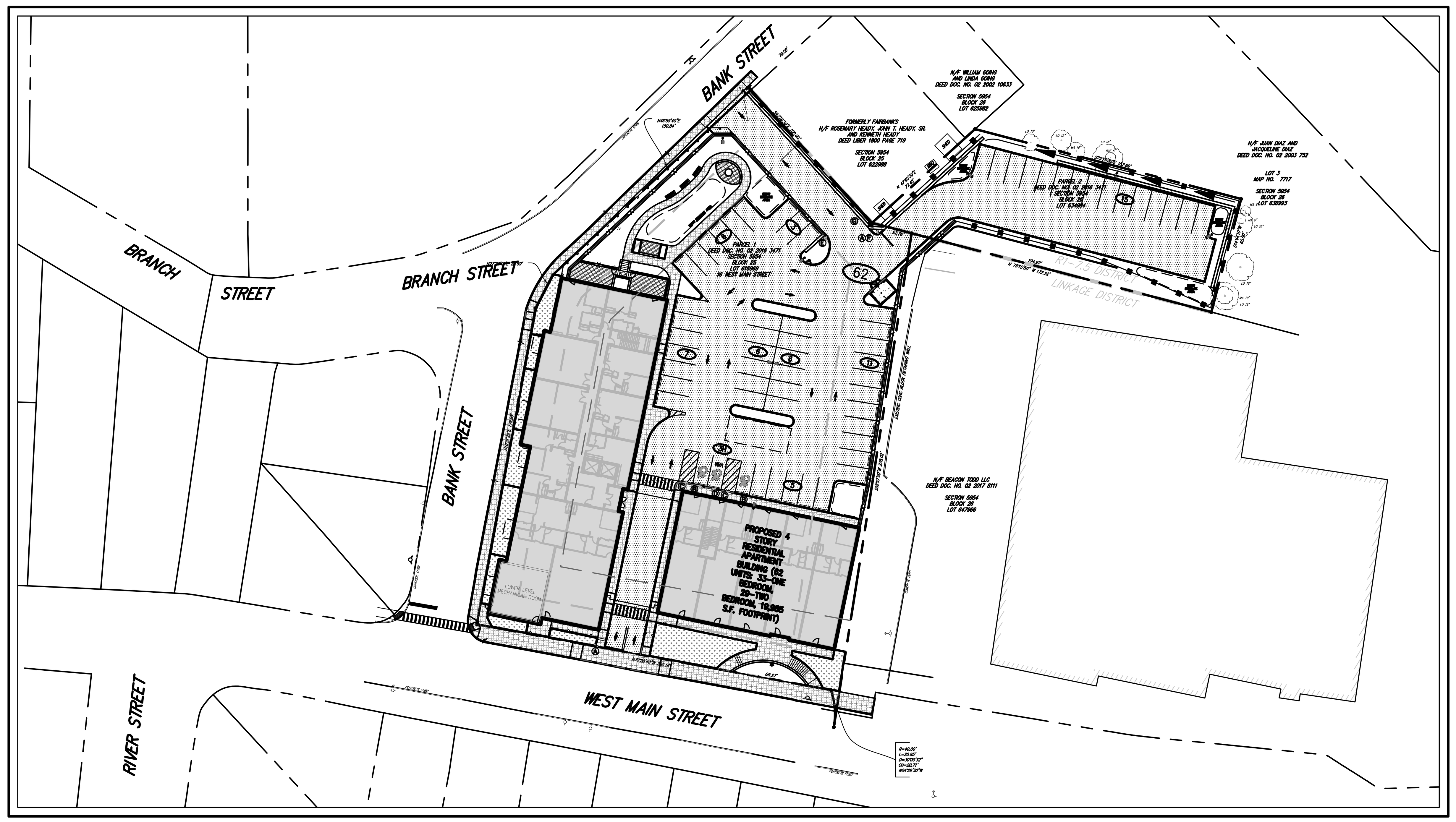
Geotechnical Engineer:
CARLIN-SIMPSON & ASSOCIATES
61 MAIN STREET
SAYREVILLE, NJ 08872
(732) 432-5757

JMC Drawing List:

C-000	(SHEET 1 OF 26)	COVER SHEET
C-010	(SHEET 2 OF 26)	EXISTING CONDITIONS PLAN
C-020	(SHEET 3 OF 26)	DEMOLITION PLAN
C-100	(SHEET 4 OF 26)	SITE PLAN
C-200	(SHEET 5 OF 26)	GRADING PLAN
C-300	(SHEET 6 OF 26)	UTILITIES PLAN
C-310	(SHEET 7 OF 26)	STORM PROFILES
C-400	(SHEET 8 OF 26)	SEDIMENT AND EROSION CONTROL PLAN
C-600	(SHEET 9 OF 26)	LIGHTING PLAN
C-700	(SHEET 10 OF 26)	GARBAGE TRUCK TURNING PLAN (FRONT-LOADING)
C-701	(SHEET 11 OF 26)	GARBAGE TRUCK TURNING PLAN (REAR-LOADING)
C-702	(SHEET 12 OF 26)	FIRE TRUCK TURNING PLAN (SCENARIO 1)
C-703	(SHEET 13 OF 26)	FIRE TRUCK TURNING PLAN (SCENARIO 2)
C-704	(SHEET 14 OF 26)	FIRE TRUCK TURNING PLAN (SCENARIO 3)
C-800	(SHEET 15 OF 26)	AERIAL SITE PLAN
C-801	(SHEET 16 OF 26)	SIGHT DISTANCE PLAN
C-900	(SHEET 17 OF 26)	CONSTRUCTION DETAILS
C-901	(SHEET 18 OF 26)	CONSTRUCTION DETAILS
C-902	(SHEET 19 OF 26)	CONSTRUCTION DETAILS
C-903	(SHEET 20 OF 26)	CONSTRUCTION DETAILS
C-904	(SHEET 21 OF 26)	CONSTRUCTION DETAILS
C-905	(SHEET 22 OF 26)	CONSTRUCTION DETAILS
C-906	(SHEET 23 OF 26)	CONSTRUCTION DETAILS
C-907	(SHEET 24 OF 26)	CONSTRUCTION DETAILS
C-908	(SHEET 25 OF 26)	CONSTRUCTION DETAILS
L-100	(SHEET 26 OF 26)	LANDSCAPING PLAN

ARYEH SIEGEL ARCHITECT Drawing List:

A-100	(SHEET 1 OF 4)	BUILDING PLANS (BASEMENT AND 1ST FLOOR)
A-101	(SHEET 2 OF 4)	BUILDING PLANS (2ND FLOOR AND 3RD FLOOR)
A-102	(SHEET 3 OF 4)	BUILDING PLANS (4TH FLOOR AND ROOF)
A-200	(SHEET 4 OF 4)	BUILDING ELEVATIONS

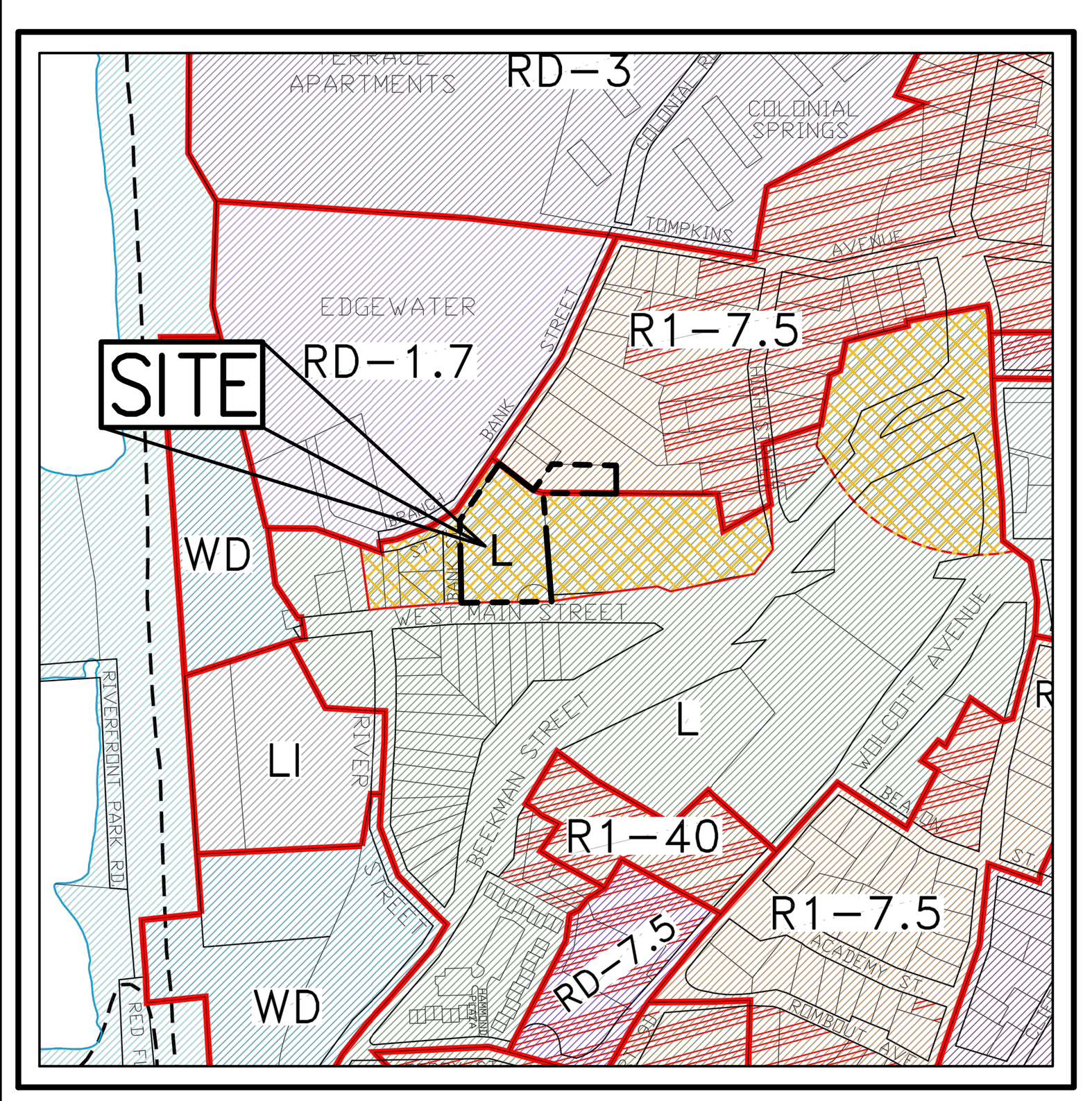


AREA MAP
SCALE: 1" = 50'

TABLE OF LAND USE

SECTION 5954, BLOCK 25, LOT 616969
ZONE "L" – "LINKAGE DISTRICT"
PROPOSED USE: RESIDENTIAL
FIRE DISTRICT: CITY OF BEACON
WATER DISTRICT: CITY OF BEACON
BEACON CITY SCHOOL DISTRICT
SEWER DISTRICT: CITY OF BEACON

DESCRIPTION		REQUIRED	EXISTING	PROPOSED
LOT AREA (PARCELS 1, 2 & 3)	(FEET)	–	1.5 ACRES	1.5 ACRES
LOT WIDTH	(FEET)	–	201'	201'
LOT FRONTAGE	(FEET)	–	555'	555'
LOT DEPTH	(FEET)	75'	320'	320'
BUILDING HEIGHT	(FEET/STORIES)	48'/4 STORIES	–	48'/4 STORIES
FLOOR AREA RATIO		–	–	–
LOT COVERAGE BY LANDSCAPING	(PERCENT)	15% MIN.	47%	17%
YARDS				
FRONT BUILDING SETBACK	(FEET)	MIN. 0'/MAX. 20'	53'/107'	4'
REAR BUILDING SETBACK	(FEET)	MIN. 25'	88'	112'
SIDE BUILDING SETBACK (CORNER LOT)	(FEET)	MIN. 0'/MAX. 30'	13'	3'
PARKING SETBACKS				
FRONT/SIDE (FOR CORNER) PARKING SETBACK	(FEET)	40'/40'	29'/24'	97'/40'
REAR PARKING SETBACK	(FEET)	–	–	–
SIDE PARKING SETBACK	(FEET)	–	–	–
PARKING SUMMARY				
TOTAL SPACES REQUIRED	(1 SPACE/UNIT)	62	28	62
STANDARD SPACES		59	26	59
ACCESSIBLE SPACES		3	2	3



ZONING / VICINITY MAP
SCALE: 1" = 500'
CITY OF BEACON.ORG:
ZONING / 10/04/2017

LEGEND

— - — - —	SITE PROPERTY LINE
(red line)	ZONING BOUNDARY
———	LOT LINE
L	LINKAGE
LI	LIGHT INDUSTRIAL
WD	WATER FRONT DEVELOPMENT
R1-40	ONE FAMILY RESIDENTIAL
R1-7.5	ONE FAMILY RESIDENTIAL
RD-1.7	DESIGNED RESIDENCE
CB	CENTRAL BUSINESS

GENERAL CONSTRUCTION NOTES APPLY TO ALL WORK HEREIN:

1. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL CALL 811 "DIG SAFELY" (1–800–962–7962) TO HAVE UNDERGROUND UTILITIES LOCATED. EXPLORATORY EXCAVATIONS SHALL COMPLY WITH CODE 753 REQUIREMENTS. NO WORK SHALL COMMENCE UNTIL ALL THE OPERATORS HAVE NOTIFIED THE CONTRACTOR THAT THEIR UTILITIES HAVE BEEN LOCATED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PRESERVATION OF ALL PUBLIC AND PRIVATE UNDERGROUND AND SURFACE UTILITIES AND STRUCTURES AT OR ADJACENT TO THE SITE OF CONSTRUCTION, INSOFAR AS THEY MAY BE ENDANGERED BY THE CONTRACTOR'S OPERATIONS. THIS SHALL HOLD TRUE WHETHER OR NOT THEY ARE SHOWN ON THE CONTRACT DRAWINGS. IF THEY ARE SHOWN ON THE DRAWINGS, THEIR LOCATIONS ARE NOT GUARANTEED EVEN THOUGH THE INFORMATION WAS OBTAINED FROM THE BEST AVAILABLE SOURCES, AND IN ANY EVENT, OTHER UTILITIES ON THESE PLANS MAY BE ENCOUNTERED IN THE FIELD. THE CONTRACTOR SHALL, AT HIS OWN EXPENSE, IMMEDIATELY REPAIR OR REPLACE ANY STRUCTURES OR UTILITIES THAT HE DAMAGES, AND SHALL CONSTANTLY PROCEED WITH CAUTION TO PREVENT UNDUE INTERRUPTION OF UTILITY SERVICE.
2. CONTRACTOR SHALL HAND DIG TEST PITS TO VERIFY THE LOCATION OF ALL EXISTING UNDERGROUND UTILITIES PRIOR TO THE START OF CONSTRUCTION. CONTRACTOR SHALL VERIFY EXISTING UTILITIES DEPTHS AND ADVISE OF ANY CONFLICTS WITH PROPOSED UTILITIES. IF CONFLICTS ARE PRESENT, THE OWNER'S FIELD REPRESENTATIVE, JMC, PLLC AND THE APPLICABLE MUNICIPALITY OR AGENCY SHALL BE NOTIFIED IN WRITING. THE EXISTING/PROPOSED UTILITIES RELOCATION SHALL BE DESIGNED BY JMC, PLLC.
3. CONTRACTOR IS RESPONSIBLE FOR OBTAINING ANY AND ALL LOCAL PERMITS REQUIRED.
4. ALL WORK SHALL BE DONE IN STRICT COMPLIANCE WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES, STANDARDS, ORDINANCES, RULES, AND REGULATIONS. ALL CONSTRUCTION WORK SHALL BE PERFORMED IN ACCORDANCE WITH ALL SAFETY CODES. APPLICABLE SAFETY CODES MEAN THE LATEST EDITION INCLUDING ANY AND ALL AMENDMENTS, REVISIONS, AND ADDITIONS THERETO, TO THE FEDERAL DEPARTMENT OF LABOR, OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION'S OCCUPATIONAL SAFETY AND HEALTH STANDARDS (OSHA); AND APPLICABLE SAFETY, HEALTH REGULATIONS AND BUILDING CODES FOR CONSTRUCTION IN THE STATE OF NEW YORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR GUARDING AND PROTECTING ALL OPEN EXCAVATIONS IN ACCORDANCE WITH THE PROVISION OF SECTION 107–05 (SAFETY AND HEALTH REQUIREMENTS) OF THE NYSDOT STANDARD SPECIFICATIONS. IF THE CONTRACTOR PERFORMS ANY HAZARDOUS CONSTRUCTION PRACTICES, ALL OPERATIONS IN THE AFFECTED AREA SHALL BE DISCONTINUED AND IMMEDIATE ACTION SHALL BE TAKEN TO CORRECT THE SITUATION TO THE SATISFACTION OF THE APPROVAL AUTHORITY HAVING JURISDICTION.
5. CONTRACTOR SHALL MAINTAIN ACCESS TO ALL PROPERTIES AFFECTED BY THE SCOPE OF WORK SHOWN HEREON AT ALL TIMES TO THE SATISFACTION OF THE OWNERS REPRESENTATIVE. RAMPING CONSTRUCTION TO PROVIDE ACCESS MAY BE CONSTRUCTED WITH SUBBASE MATERIAL EXCEPT THAT TEMPORARY ASPHALT CONCRETE SHALL BE PLACED AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING SAFE PEDESTRIAN ACCESS AT ALL TIMES.

SUBSURFACE UTILITY LOCATIONS ARE BASED ON A COMPILATION OF FIELD EVIDENCE, AVAILABLE RECORD PLANS AND/OR UTILITY MARK-OUTS. THE LOCATION OR COMPLETENESS OF UNDERGROUND INFORMATION CANNOT BE GUARANTEED. VERIFY THE ACTUAL LOCATION OF ALL UTILITIES PRIOR TO EXCAVATION OR CONSTRUCTION.

811 Know what's below. Call before you dig.

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STATE OF NEW YORK · STEPHEN SPINA · LICENSED PROFESSIONAL ENGINEER · 085983

No.	Revision	Date	By
1.	REVISED PER CITY COMMENTS	12/30/19	AH
2.	REVISED PER CITY COMMENTS	02/24/2020	AH
3.	REVISED PER CITY COMMENTS	09/29/2020	AH
4.	REVISED PER CITY COMMENTS	07/27/2021	BMS
5.	REVISED PER CITY COMMENTS	03/25/2022	BMS
6.	REVISED PER CITY COMMENTS	05/31/2022	BMS
	Previous Editions Obsolete		

JMC Planning, Engineering, Landscape Architecture & Land Surveying, PLLC
JMC Site Development Consultants, LLC
John Meyer Consulting, Inc.
120 BEDFORD ROAD • ARMONK, NY 10504
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Drawn:	BMS	Approved:	SS
Scale:	AS SHOWN		
Date:	10/29/2019		
Project No:	18119		
18119-COVER	COVER	COVER.scr	
Drawing No:	C–000 (Sheet 1 of 26)		

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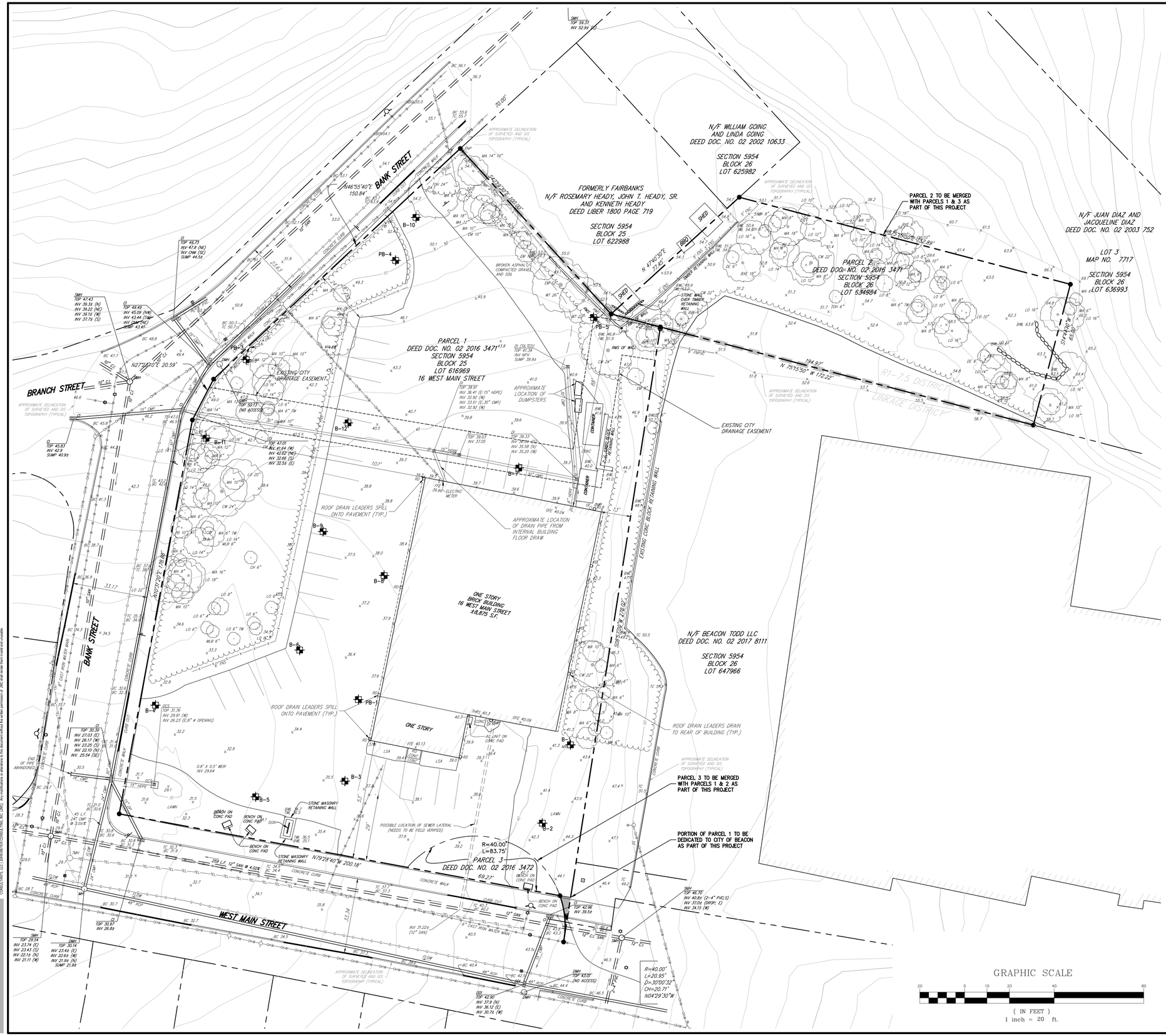

LEGEND

- EXISTING PROPERTY LINE
- ADJACENT PROPERTY LINE
- EXISTING EASEMENT LINE
- EXISTING BUILDING LINE
- EXISTING PAVEMENT EDGE
- EXISTING CURB LINE
- EXISTING INDEX CONTOUR
- EXISTING CONTOUR
- EXISTING SPOT GRADE
- EXISTING STONE WALL
- EXISTING RETAINING WALL
- EXISTING FENCE
- EXISTING TREE AND DESIGNATION
- EXISTING TREE LINE
- EXISTING PARKING
- EXISTING STORM DRAIN LINE AND SIZE
- EXISTING SANITARY LINE AND SIZE
- EXISTING WATER LINE
- EXISTING GAS LINE
- EXISTING OVERHEAD WIRES
- EXISTING DRAIN INLET
- EXISTING MANHOLE
- EXISTING FIRE HYDRANT
- EXISTING GAS VALVE
- EXISTING WATER VALVE
- EXISTING UTILITY POLE
- EXISTING LIGHT POLE
- EXISTING SIGN
- BORING LOCATION & DESIGNATION

NOTES:

1. EXISTING CONDITIONS DEPICTED ON THIS PLAN HAVE BEEN TAKEN FROM SURVEY TITLED, "TOPOGRAPHIC SURVEY," PREPARED BY JMC PLANNING ENGINEERING LANDSCAPE ARCHITECURE & LAND SURVEYING, PLLC, DATED 09/20/2018, LAST REVISED 03/02/2020.
2. THE TOPOGRAPHY SHOWN IS REFERENCED FROM NAVD88 VERTICAL DATUM AS SHOWN ON THE ABOVE TOPOGRAPHIC SURVEY.
3. SUPPLEMENTAL TOPOGRAPHY BEYOND THE LIMIT OF SURVEYED TOPOGRAPHY IS TAKEN FROM DUTCHESS COUNTY GIS.
4. THE PROJECT SITE IS LOCATED IN ZONE X, "AREA OF MINIMAL FLOOD HAZARD," ACCORDING TO FEMA MAP NO. 36027C0463E, EFFECTIVE 05/02/2012.
5. THE EXISTING SANITARY SEWER SERVICE LATERAL WAS NOT LOCATED AND IS PROPOSED TO BE REMOVED. IT IS ASSUMED TO BE LOCATED FROM THE SOUTH SIDE OF THE BUILDING TO THE MAIN WITHIN WEST MAIN STREET. THE CONTRACTOR SHALL VERIFY AND REMOVE IN ACCORDANCE WITH DUTCHESS COUNTY HEALTH DEPARTMENT AND CITY OF BEACON STANDARDS.
6. SOIL BORING DATA SHOWN ON THIS PLAN WAS TAKEN FROM THE "REPORT ON SUBSURFACE SOIL AND FOUNDATION INVESTIGATION," DATED 09/28/2020, LAST REVISED 03/02/2022, PREPARED BY CARLIN SIMPSON & ASSOCIATES.

APPLICANT/OWNER:
FARRELL COMMUNITIES BEACON LLC
PO BOX 14
BRIDGEHAMPTON, NY 11932

ARCHITECT:
ARYEH SIEGEL ARCHITECT
84 MASON CIRCLE
BEACON, NY 12508

JMC Planning, Engineering, Landscape Architecture & Land Surveying, PLLC
JMC Site Development Consultants, LLC
John Meyer Consulting, Inc.
120 BEDFORD ROAD • ARMONK, NY 10504
voice 914.273.5225 • fax 914.273.2102
www.jmcpllc.com

EXISTING CONDITIONS PLAN

BEACON COMMONS
16 WEST MAIN STREET
BEACON, NY 12508

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STATE OF NEW YORK
STEPHEN SPINA
LICENSED PROFESSIONAL ENGINEER
085983

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Drawn: BMS	Approved: SS
Scale: 1" = 20'	
Date: 10/29/2019	
Project No: 18119	
18119-EXISTING	EXIST | EXIST.scr
Drawing No: C–010 (Sheet 2 of 26)	

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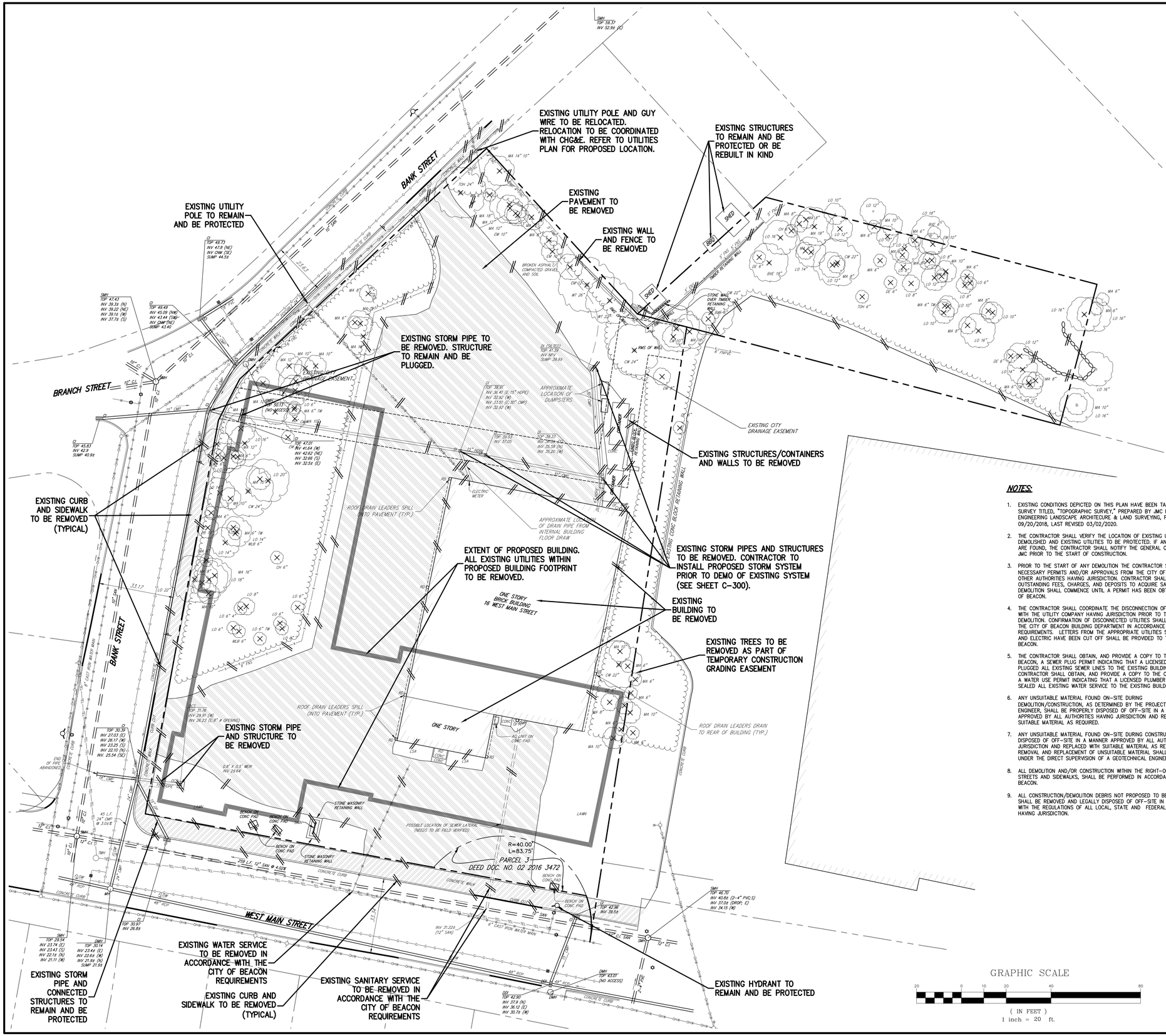

LEGEND

- EXISTING PROPERTY LINE
- ADJACENT PROPERTY LINE
- EXISTING EASEMENT LINE
- EXISTING BUILDING LINE
- EXISTING PAVEMENT EDGE
- EXISTING CURB LINE
- EXISTING RETAINING WALL
- EXISTING FENCE
- EXISTING TREE AND DESIGNATION
- EXISTING TREE TO BE REMOVED
- EXISTING TREE LINE
- EXISTING PARKING
- 36" RCP — EXISTING STORM DRAIN LINE AND SIZE
- 8" SAN — EXISTING SANITARY LINE AND SIZE
- EXISTING WATER LINE
- EXISTING GAS LINE
- EXISTING OVERHEAD WIRES
- EXISTING DRAIN INLET
- EXISTING MANHOLE
- EXISTING FIRE HYDRANT
- EXISTING GAS VALVE
- EXISTING WATER VALVE
- EXISTING UTILITY POLE
- EXISTING LIGHT POLE
- EXISTING SIGN
- EXISTING FEATURE TO BE REMOVED
- PAVEMENT REMOVAL
- CONCRETE REMOVAL
- PROPOSED BUILDING FOOTPRINT

NOTES:

1. EXISTING CONDITIONS DEPICTED ON THIS PLAN HAVE BEEN TAKEN FROM SURVEY TITLED, "TOPOGRAPHIC SURVEY," PREPARED BY JMC PLANNING ENGINEERING LANDSCAPE ARCHITECTURE & LAND SURVEYING, PLLC, DATED 09/20/2018, LAST REVISED 03/02/2020.
2. THE CONTRACTOR SHALL VERIFY THE LOCATION OF EXISTING UTILITIES TO BE DEMOLISHED AND EXISTING UTILITIES TO BE PROTECTED. IF ANY DISCREPANCIES ARE FOUND, THE CONTRACTOR SHALL NOTIFY THE GENERAL CONTRACTOR AND JMC PRIOR TO THE START OF CONSTRUCTION.
3. PRIOR TO THE START OF ANY DEMOLITION THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS AND/OR APPROVALS FROM THE CITY OF BEACON AND ALL OTHER AUTHORITIES HAVING JURISDICTION. CONTRACTOR SHALL PAY ALL OUTSTANDING FEES, CHARGES, AND DEPOSITS TO ACQUIRE SAID PERMITS. NO DEMOLITION SHALL COMMENCE UNTIL A PERMIT HAS BEEN OBTAINED FROM CITY OF BEACON.
4. THE CONTRACTOR SHALL COORDINATE THE DISCONNECTION OF ALL UTILITIES WITH THE UTILITY COMPANY HAVING JURISDICTION PRIOR TO THE START OF DEMOLITION. CONFIRMATION OF DISCONNECTED UTILITIES SHALL BE PROVIDED TO THE CITY OF BEACON BUILDING DEPARTMENT IN ACCORDANCE WITH THEIR REQUIREMENTS. LETTERS FROM THE APPROPRIATE UTILITIES STATING THAT GAS AND ELECTRIC HAVE BEEN CUT OFF SHALL BE PROVIDED TO THE CITY OF BEACON.
5. THE CONTRACTOR SHALL OBTAIN, AND PROVIDE A COPY TO THE CITY OF BEACON, A SEWER PLUG PERMIT INDICATING THAT A LICENSED PLUMBER HAS PLUGGED ALL EXISTING SEWER LINES TO THE EXISTING BUILDING. THE CONTRACTOR SHALL OBTAIN, AND PROVIDE A COPY TO THE CITY OF BEACON, A WATER USE PERMIT INDICATING THAT A LICENSED PLUMBER HAS CUT AND SEALED ALL EXISTING WATER SERVICE TO THE EXISTING BUILDING.
6. ANY UNSUITABLE MATERIAL FOUND ON-SITE DURING DEMOLITION/CONSTRUCTION, AS DETERMINED BY THE PROJECT'S GEOTECHNICAL ENGINEER, SHALL BE PROPERLY DISPOSED OF OFF-SITE IN A MANNER APPROVED BY ALL AUTHORITIES HAVING JURISDICTION AND REPLACED WITH SUITABLE MATERIAL AS REQUIRED.
7. ANY UNSUITABLE MATERIAL FOUND ON-SITE DURING CONSTRUCTION SHALL BE DISPOSED OF OFF-SITE IN A MANNER APPROVED BY ALL AUTHORITIES HAVING JURISDICTION AND REPLACED WITH SUITABLE MATERIAL AS REQUIRED. ALL REMOVAL AND REPLACEMENT OF UNSUITABLE MATERIAL SHALL BE COMPLETED UNDER THE DIRECT SUPERVISION OF A GEOTECHNICAL ENGINEER.
8. ALL DEMOLITION AND/OR CONSTRUCTION WITHIN THE RIGHT-OF-WAY, INCLUDING STREETS AND SIDEWALKS, SHALL BE PERFORMED IN ACCORDANCE WITH CITY OF BEACON.
9. ALL CONSTRUCTION/DEMOLITION DEBRIS NOT PROPOSED TO BE RECYCLED SHALL BE REMOVED AND LEGALLY DISPOSED OF OFF-SITE IN ACCORDANCE WITH THE REGULATIONS OF ALL LOCAL, STATE AND FEDERAL AGENCIES HAVING JURISDICTION.
10. PRIOR TO THE START OF SITE DEMOLITION, EROSION AND SEDIMENT CONTROL DEVICES SHALL BE INSTALLED IN ACCORDANCE WITH CITY OF BEACON, AS REQUIRED AND/OR DIRECTED BY THE CITY OF BEACON OR JMC.
11. EXISTING DRAINAGE PATTERNS ON SITE SHALL BE MAINTAINED TO THE MAXIMUM EXTENT PRACTICABLE.
12. ALL EXISTING UTILITY CASTINGS WHICH ARE TO REMAIN SHALL BE REMOVED AND RESET TO THE NEW PROPOSED GRADES IN ACCORDANCE WITH THE DIRECTIONS OF THE OWNER'S FIELD REPRESENTATIVE. EXISTING CASTINGS WHICH ARE DAMAGED OR UNFIT FOR INSTALLATION IN THE NEW CONSTRUCTION, AS DETERMINED BY THE OWNER'S FIELD REPRESENTATIVE, SHALL BE REPLACED.
13. ALL EXISTING SIDEWALKS, CURBS, PAVEMENT, ETC. TO REMAIN, WHICH ARE DISTURBED OR DAMAGED DUE TO THE NEW CONSTRUCTION, ARE TO BE REPLACED WITH MATERIALS CONSISTENT WITH EXISTING CONDITIONS.
14. THESE PLANS ARE TO BE PROVIDED TO BOTH THE DEMOLITION CONTRACTOR AND THE SITE CONTRACTOR FOR THEIR USE, INFORMATION AND COORDINATION. ANY QUESTIONS OF CONTRACTOR RESPONSIBILITY AND/OR SEPARATION OF WORK SHALL BE DIRECTED TO THE GENERAL CONTRACTOR IN WRITING PRIOR TO ISSUANCE OF BID.
15. THE OWNER SHALL RETAIN A LICENSED AND QUALIFIED PROFESSIONAL, CERTIFIED BY THE CITY OF BEACON, TO INSPECT FOR THE PRESENCE OF ASBESTOS AND/OR OTHER HAZARDOUS MATERIALS WITHIN DEMOLITION AREAS PRIOR TO THE COMMENCEMENT OF DEMOLITION. IF REMEDIATION IS REQUIRED, THE OWNER SHALL DO SO IN ACCORDANCE WITH THE NYS ASBESTOS RULES AND REGULATIONS AND/OR ANY AUTHORITIES HAVING JURISDICTION. THE CONTRACTOR SHALL PROVIDE ALL REQUIRED DOCUMENTATION TO THE NYS PRIOR TO OBTAINING A DEMOLITION PERMIT.
16. THE CONTRACTOR SHALL EXTERMINATE RODENTS AS REQUIRED BY THE DUTCHESS COUNTY DEPARTMENT OF HEALTH AND MENTAL HYGIENE. A LETTER FROM THE HEALTH DEPARTMENT CERTIFYING THAT A LICENSED EXTERMINATOR HAS TREATED THE EXISTING BUILDING SHALL BE PROVIDED TO THE CITY OF BEACON DEPARTMENT OF BUILDINGS.
17. PRIOR TO COMMENCEMENT OF DEMOLITION, THE CONTRACTOR MUST PROVIDE 24-HOUR NOTIFICATION TO THE CITY OF BEACON.
18. THE CONTRACTOR SHALL PROVIDE VERIFICATION TO THE CITY OF BEACON THAT FIVE (5) DAYS' PRIOR NOTIFICATION WAS GIVEN TO ALL ADJOINING OWNERS AND THAT NOTIFICATION WAS GIVEN TO THE APPROPRIATE COMMUNITY BOARD PRIOR TO THE COMMENCEMENT OF DEMOLITION.
19. REFER TO "REPORT ON SUBSURFACE SOIL AND FOUNDATION INVESTIGATION," DATED 09/28/2020, LAST REVISED 03/02/2022 FOR GEOTECHNICAL INFORMATION.
20. TREE REMOVAL SHOULD BE CONDUCTED DURING THE WINTER TIME FRAME OF NOVEMBER 1ST TO MARCH 31ST TO AVOID ADVERSE IMPACTS TO THE BATS. IF TREE REMOVAL IS PLANNED OUTSIDE OF THIS TIME FRAME, A SITE ASSESSMENT

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DEMOLITION PLAN

BEACON COMMONS
16 WEST MAIN STREET
BEACON, NY 12508

STATE OF NEW YORK · STEPHEN SPINA · LICENSED PROFESSIONAL ENGINEER · 085983

Drawn:	BMS	Approved:	SS
Scale:	1" = 20'		
Date:	10/29/2019		
Project No:	18119		
18119-EXISTING	DEMO	DEMO.scr	
Drawing No:	C-020		
	(Sheet 3 of 26)		

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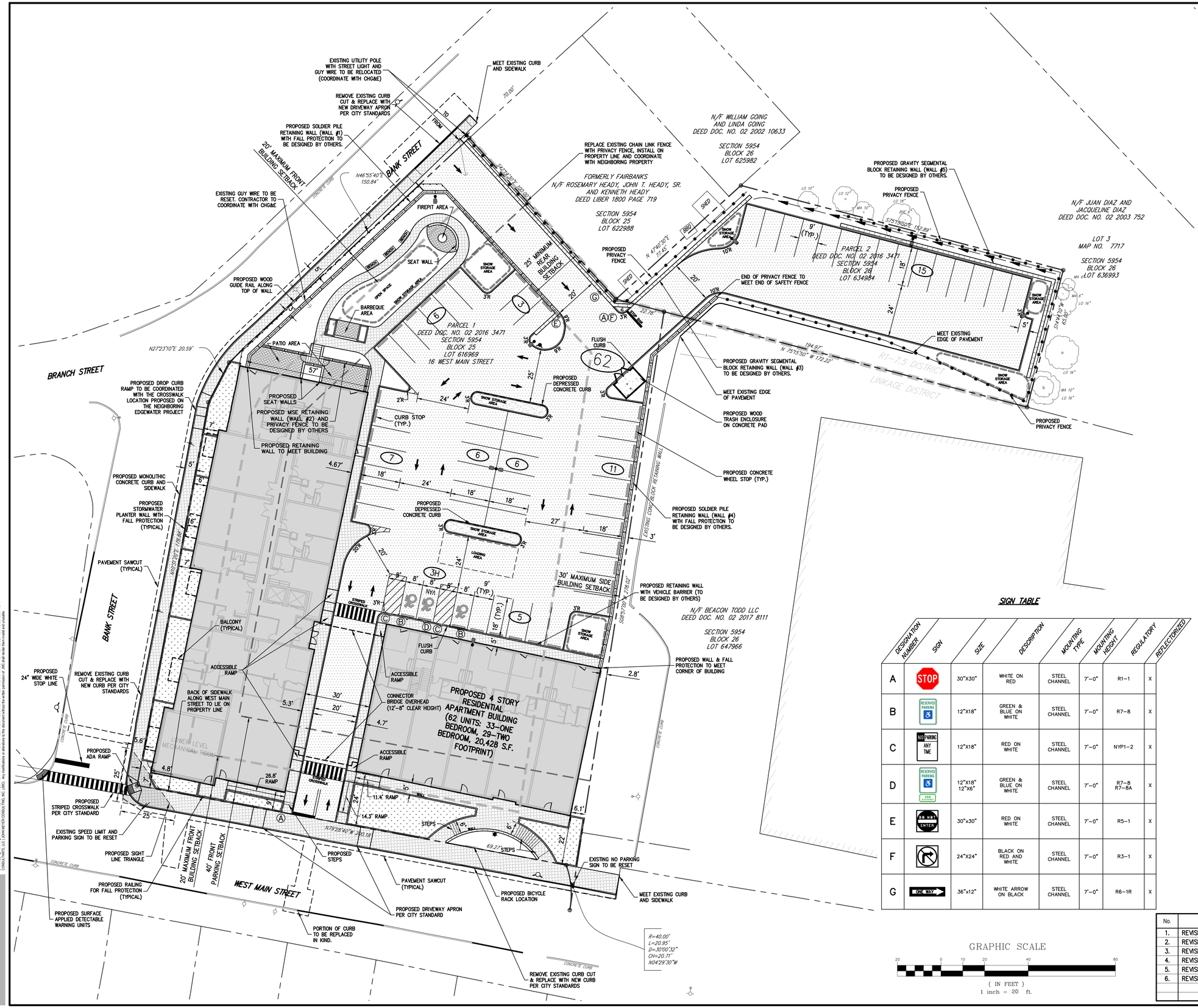

LEGEND

- EXISTING PROPERTY LINE
- ADJACENT PROPERTY LINE
- EXISTING BUILDING SETBACK LINE
- EXISTING PARKING SETBACK LINE
- EXISTING BUILDING LINE
- EXISTING PAVEMENT EDGE
- EXISTING CURB LINE
- EXISTING STONE WALL
- EXISTING RETAINING WALL
- EXISTING FENCE
- EXISTING TREE AND DESIGNATION
- EXISTING PARKING
- EXISTING UTILITY POLE
- EXISTING LIGHT POLE
- EXISTING SIGN
- PROPOSED BUILDING LINE
- PROPOSED CONCRETE CURB
- PROPOSED CONCRETE FLUSH CURB
- PROPOSED SAWCUT LINE
- PROPOSED ACCESSIBLE PARKING SPACES WITH NUMBER OF SPACES INDICATED (REFER TO STRIPING DETAILS)
- PROPOSED PARKING SPACES WITH NUMBER OF SPACES INDICATED (REFER TO STRIPING DETAILS)
- PROPOSED CONCRETE SIDEWALK
- PROPOSED ASPHALT PAVEMENT
- PROPOSED CONCRETE PAVERS
- PROPOSED CONCRETE PAD
- PROPOSED RETAINING WALL (DESIGN BY OTHERS)
- PROPOSED SAFETY FENCE
- PROPOSED PRIVACY FENCE
- PROPOSED WOOD GUIDE RAIL
- PROPOSED 12" WIDE WHITE STOP LINE
- PROPOSED ARROW MARKING ON PAVEMENT
- TRAFFIC SIGN LOCATION & DESIGNATION
- PEDESTRIAN CROSSING
- PROPOSED DOUBLE ARM LIGHTING STANDARD (DESIGN BY OTHERS)
- PROPOSED SINGLE ARM LIGHTING STANDARD (DESIGN BY OTHERS)
- PROPOSED BOLLARD LIGHTING STANDARD

SIGN TABLE

DESIGNATION / NUMBER	SIGN	SIZE	DESCRIPTION	MOUNTING TYPE	MOUNTING HEIGHT	REGULATORY	REFLECTORIZED
A	STOP	30"X30"	WHITE ON RED	STEEL CHANNEL	7'-0"	R1-1	X
B	RESERVED PARKING	12"X18"	GREEN & BLUE ON WHITE	STEEL CHANNEL	7'-0"	R7-8	X
C	NO PARKING ANY TIME	12"X18"	RED ON WHITE	STEEL CHANNEL	7'-0"	NYP1-2	X
D	RESERVED PARKING VAN ACCESSIBLE	12"X18" 12"X6"	GREEN & BLUE ON WHITE	STEEL CHANNEL	7'-0"	R7-8 R7-8A	X
E	ONE WAY ENTRY	30"x30"	RED ON WHITE	STEEL CHANNEL	7'-0"	R5-1	X
F		24"X24"	BLACK ON RED AND WHITE	STEEL CHANNEL	7'-0"	R3-1	X
G	ONE WAY	36"x12"	WHITE ARROW ON BLACK	STEEL CHANNEL	7'-0"	R6-1R	X

NOTES:

1. EXISTING CONDITIONS DEPICTED ON THIS PLAN HAVE BEEN TAKEN FROM SURVEY TITLED, "TOPOGRAPHIC SURVEY," PREPARED BY JMC PLANNING ENGINEERING LANDSCAPE ARCHITECTURE & LAND SURVEYING, PLLC, DATED 09/20/2018, LAST REVISED 03/02/2020.
2. SNOW REMOVAL SHALL BE STORED IN THE DESIGNATED AREAS ON THIS PLAN. THE PROPERTY MANAGER SHALL MAINTAIN ALL AVAILABLE PARKING AS PART OF THEIR RESPONSIBILITY TO THE PROPERTY OWNER AND TENANTS. SNOW SHALL BE CLEARED AND STORED ON-SITE AND/OR REMOVED IN A TIMELY MANNER AND DISPOSED OFF-SITE.

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)

1 inch = 20 ft.

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STATE OF NEW YORK · STEPHEN SPINA · 085983 · LICENSED PROFESSIONAL ENGINEER

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6.	REVISED PER CITY COMMENTS	05/31/2022	BMS
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Drawn: BMS Approved: SS
Scale: 1" = 20'
Date: 11/26/2019
Project No: 18119
18119-SITE | LAY | LAY.scr
Drawing No:

C-100
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SITE PLAN

BEACON COMMONS
16 WEST MAIN STREET
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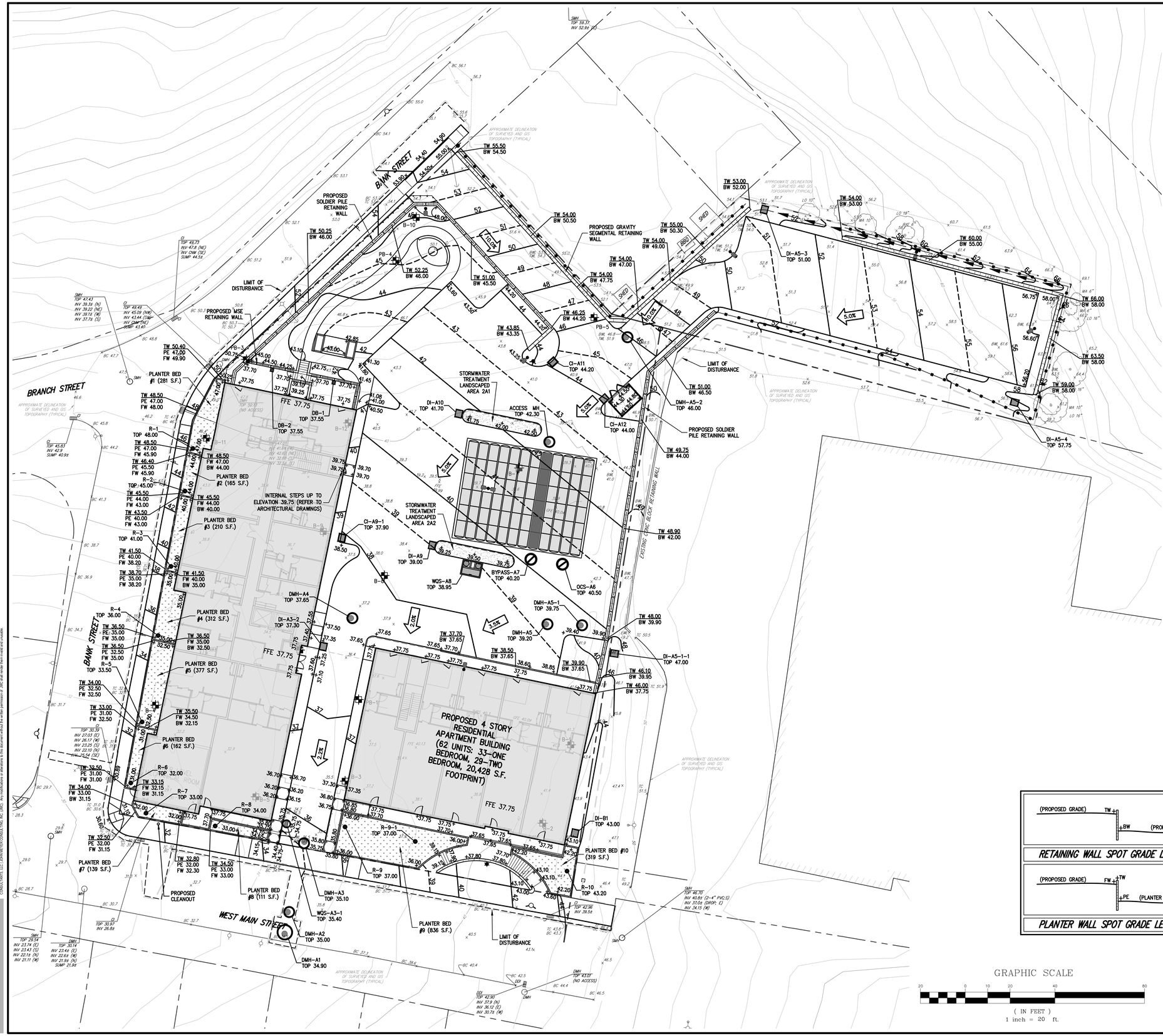

LEGEND

- EXISTING PROPERTY LINE
- ADJACENT PROPERTY LINE
- EXISTING BUILDING LINE
- EXISTING CURB LINE
- EXISTING INDEX CONTOUR
- EXISTING CONTOUR
- EXISTING SPOT GRADE
- EXISTING RETAINING WALL
- EXISTING FENCE
- EXISTING TREE AND DESIGNATION
- EXISTING DRAIN INLET
- EXISTING MANHOLE
- EXISTING UTILITY POLE
- EXISTING LIGHT POLE
- EXISTING SIGN
- EXISTING BORING LOCATION & DESIGNATION
- PROPOSED BORING LOCATION & DESIGNATION
- PROPOSED BUILDING LINE
- PROPOSED CONCRETE CURB
- PROPOSED CONCRETE SIDEWALK
- PROPOSED FINISHED GRADE
- PROPOSED SPOT GRADE
- PROPOSED STORM DRAIN MANHOLE
- PROPOSED TYPE CI DRAIN INLET
- PROPOSED TYPE DI DRAIN INLET
- PROPOSED TYPE DB DRAIN BASIN
- PROPOSED WATER QUALITY STRUCTURE
- PROPOSED SUBSURFACE DRAINAGE OUTLET CONTROL STRUCTURE
- PROPOSED CLEANOUT
- PROPOSED WOOD GUIDE RAIL
- PROPOSED RETAINING WALL AND SAFETY FENCE (DESIGN BY OTHERS)
- PROPOSED PRIVACY RAIL
- PROPOSED LIMIT OF DISTURBANCE
- PROPOSED LIGHTING STANDARD (DESIGN BY OTHERS)

NOTES:

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2. SOIL BORING DATA SHOWN ON THIS PLAN WAS TAKEN FROM THE "REPORT ON SUBSURFACE SOIL AND FOUNDATION INVESTIGATION," DATED 09/28/2020, LAST REVISED 03/02/2022, PREPARED BY CARLIN SIMPSON & ASSOCIATES.
3. FILL MATERIAL, TO BE PLACED IN ADVANCE OF CONSTRUCTION, IS TO BE COORDINATED WITH LATEST GEOTECHNICAL REPORT BY CARLIN SIMPSON & ASSOCIATES AND MONITORED BY CARLIN SIMPSON & ASSOCIATES.
4. ALL STORMWATER MANAGEMENT PRACTICES SHALL REMAIN UNDISTURBED AND BE PROTECTED FROM HEAVY MACHINERY TRAFFIC DURING CONSTRUCTION. HOWEVER DURING CONSTRUCTION OF THE PRACTICE THE CONTRACTOR SHALL MINIMIZE AND AVOID HEAVY MACHINERY TRAFFIC TO THE MAXIMUM EXTENT PRACTICABLE. THERE SHALL BE NO STORAGE OF MATERIALS WITHIN AREAS TO BE USED FOR STORMWATER MANAGEMENT PRACTICES. THE CONTRACTOR SHALL INSTALL CONSTRUCTION FENCE AROUND THE PRACTICE TO DISCOURAGE VEHICLE TRAFFIC.
5. ALL FILLS SHALL BE COMPACTED TO PROVIDE STABILITY OF MATERIAL AND TO PREVENT SETTLEMENT.
6. EXCAVATIONS AND FILLS SHALL NOT ENDANGER ADJOINING PROPERTIES, NOR DIVERT WATER ONTO THE PROPERTY OF OTHERS AT ANY TIME DURING THE COURSE OF CONSTRUCTION.
7. CONTRACTOR SHALL REFER TO EROSION AND SEDIMENT CONTROL PLAN FOR FURTHER DIRECTION REGARDING SITE STABILIZATION THROUGHOUT THE COURSE OF CONSTRUCTION.
8. FILL MATERIAL SHALL BE PLACED 2 TO 3 MONTHS PRIOR TO CONSTRUCTION OF BUILDING AND ALL INSTALLATION SHALL BE WITNESSED BY CARLIN SIMPSON & ASSOCIATES.
9. REFER TO LATEST REVISION OF REPORT ON SUBSURFACE SOIL AND FOUNDATION INVESTIGATION, BY CARLIN SIMPSON & ASSOCIATES. ALL PILES FOR THE PROPOSED BUILDING ARE TO BE DRILLED.
10. AS INDICATED ON THE LATEST CARLIN SIMPSON & ASSOCIATES GEOTECHNICAL REPORT, ALL PILE OPERATIONS SHALL BE DRILLED.

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Drawn:	BMS	Approved:	SS
Scale:	1" = 20'		
Date:	10/29/2019		
Project No:	18119		
18119-SITE	GRAD	GRAD.scr	
Drawing No:	C–200 (Sheet 5 of 26)		

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GRADING PLAN

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2. ALL STORMWATER MANAGEMENT PRACTICES SHALL REMAIN UNDISTURBED AND BE PROTECTED FROM HEAVY MACHINERY TRAFFIC DURING CONSTRUCTION. HOWEVER DURING CONSTRUCTION OF THE PRACTICE THE CONTRACTOR SHALL MINIMIZE AND AVOID HEAVY MACHINERY TRAFFIC TO THE MAXIMUM EXTENT PRACTICABLE. THERE SHALL BE NO STORAGE OF MATERIALS WITHIN AREAS TO BE USED FOR STORMWATER MANAGEMENT PRACTICES. THE CONTRACTOR SHALL INSTALL CONSTRUCTION FENCE AROUND THE PRACTICE TO DISCOURAGE VEHICLE TRAFFIC.
3. UNLESS OTHERWISE SPECIFIED, PIPE FOR STORM DRAINS SHALL BE HIGH DENSITY POLYETHYLENE PIPE (HDPE) WITH A SMOOTH INTERIOR AND ANNULAR EXTERIOR CORRUGATIONS IN ACCORDANCE WITH ASTM F-2648. JOINTS SHALL BE WATERTIGHT IN ACCORDANCE WITH ASTM D-3212.
4. UNLESS OTHERWISE SPECIFIED, PIPE FOR SANITARY SEWER GRAVITY LINES SHALL BE POLYVINYL CHLORIDE PIPE (PVCP), SDR-35, WITH PUSH-ON JOINTS IN ACCORDANCE WITH ASTM D-3034 AND D-3212.
5. UNLESS OTHERWISE SPECIFIED, PIPE FOR WATER LINES SHALL BE DOUBLE CEMENT-LINED DUCTILE IRON PIPE (DIP), CLASS 54, WITH MECHANICAL JOINTS IN ACCORDANCE WITH AWWA C-150, C-151, C-104 AND C-111.
6. ELECTRIC, TELEPHONE, FIRE ALARM AND CABLE TELEVISION LINES SHALL BE INSTALLED UNDERGROUND IN CONDUIT IN ACCORDANCE WITH THE REQUIREMENTS OF THE UTILITY COMPANY HAVING JURISDICTION.
7. THE CONTRACTOR SHALL VERIFY THE LOCATION OF EXISTING UTILITIES TO BE CONNECTED TO AND EXISTING UTILITIES TO REMAIN AND BE PROTECTED. IF ANY DISCREPANCIES ARE FOUND, THE CONTRACTOR SHALL NOTIFY THE GENERAL CONTRACTOR AND JMC PRIOR TO THE START OF CONSTRUCTION. EXISTING 12" SANITARY MAIN INVERT AT CROSSING OF NEW 30" STORM PIPE IS 26.37. EXISTING WATER MAIN, GAS MAIN, AND TELEPHONE/DATA LINE MAY NEED TO BE ADJUSTED TO AVOID CONFLICT WITH PROPOSED STORM.
8. ALL STORMWATER FACILITIES TO BE CONSTRUCTED AS PART OF THIS PROJECT SHALL BE INSPECTED BY A LICENSED ENGINEER ON A YEARLY BASIS, WITH A COPY OF THE REPORT BEING PROVIDED TO THE CITY BUILDING DEPARTMENT. THE REPORT SHALL INCLUDE ALL FINDINGS AND RECOMMENDATIONS.

LEGEND

- EXISTING PROPERTY LINE
- ADJACENT PROPERTY LINE
- EXISTING EASEMENT LINE
- EXISTING BUILDING LINE
- EXISTING PAVEMENT EDGE
- EXISTING CURB LINE
- EXISTING STONE WALL
- EXISTING RETAINING WALL
- EXISTING FENCE
- EXISTING TREE AND DESIGNATION
- EXISTING STORM DRAIN LINE AND SIZE
- EXISTING SANITARY LINE AND SIZE
- EXISTING WATER LINE
- EXISTING GAS LINE
- EXISTING OVERHEAD WIRES
- EXISTING DRAIN INLET
- EXISTING MANHOLE
- EXISTING FIRE HYDRANT
- EXISTING GAS VALVE
- EXISTING WATER VALVE
- EXISTING UTILITY POLE
- EXISTING LIGHT POLE
- EXISTING SIGN
- PROPOSED BUILDING LINE
- PROPOSED CONCRETE CURB
- PROPOSED EASEMENT LINE
- PROPOSED CONCRETE SIDEWALK
- PROPOSED DROP CURB AND RAMP
- PROPOSED STORM DRAIN MANHOLE
- PROPOSED TYPE CI DRAIN INLET
- PROPOSED TYPE DI DRAIN INLET
- PROPOSED TYPE DB DRAIN BASIN
- PROPOSED WATER QUALITY STRUCTURE
- PROPOSED SUBSURFACE DRAINAGE OUTLET CONTROL STRUCTURE
- PROPOSED CLEANOUT
- 15" HDPE — PROPOSED STORM DRAIN LINE & SIZE
- 6" PVC — PROPOSED SANITARY SEWER LINE & SIZE
- 6" WATER — PROPOSED WATER LINE & SIZE
- PROPOSED GAS LINE
- PROPOSED OVERHEAD WIRES
- PROPOSED WATER VALVE
- PROPOSED GAS VALVE
- PROPOSED WOOD GUIDE RAIL
- PROPOSED RETAINING WALL AND SAFETY FENCE (DESIGN BY OTHERS)
- PROPOSED PRIVACY FENCE
- PROPOSED UTILITY POLE

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UTILITIES PLAN

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STATE OF NEW YORK · STEPHEN SPINA · LICENSED PROFESSIONAL ENGINEER · 085983

WEST MAIN STREET AND BANK STREET BLOWUP
SCALE: 1" = 10'

GRAPHIC SCALE
20 0 10 20 40 80
(IN FEET)
1 inch = 20 ft.

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Scale: 1" = 20'
Date: 10/29/2019
Project No: 18119
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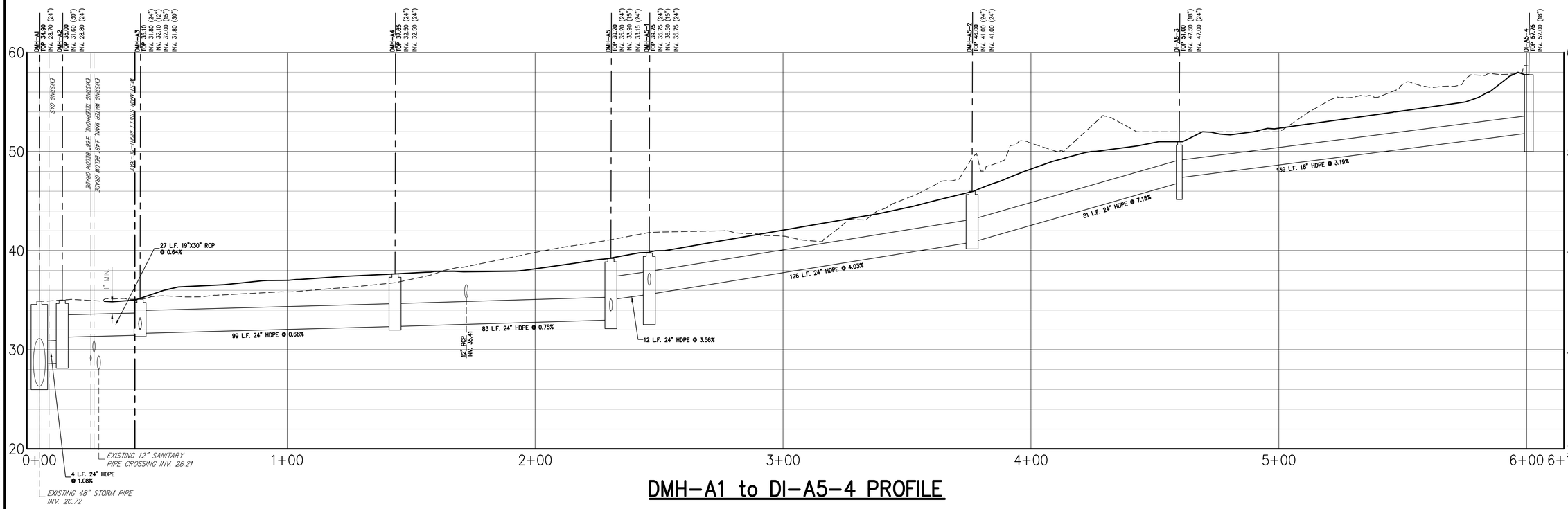

DMH-A1 to DI-A5-4 PROFILE

SCALE
HORIZONTAL: 1" = 20'
VERTICAL: 1" = 5'

APPLICANT/OWNER:
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STORM PROFILE

BEACON COMMONS
16 WEST MAIN STREET
BEACON, NY 12508

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STATE OF NEW YORK · STEPHEN SPINA · 985983 · LICENSED PROFESSIONAL ENGINEER

No.	Revision	Date	By
1.	REVISED PER CITY COMMENTS	07/27/2021	BMS
2.	REVISED PER CITY COMMENTS	03/25/2022	BMS
3.	REVISED PER CITY COMMENTS	05/31/2022	BMS

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Drawn: BMS Approved: SS
Scale: AS SHOWN
Date: 09/29/2020
Project No: 18119
18119-SITE | STORM PROFILE | UTIL.scr
Drawing No: C-310
(Sheet 7 of 26)

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219

PROPOSED CONSTRUCTION ACCESS

PROPOSED TEMPORARY CONSTRUCTION FENCE (TYPICAL)

PROPOSED TEMPORARY SOIL STOCKPILE AREA SURROUNDED BY SILT FENCE

BANK STREET

PROPOSED SILT SACK (TYPICAL)

BRANCH STREET

BANK STREET

PROPOSED TEMPORARY CONSTRUCTION FENCE (TYPICAL)

PROPOSED TEMPORARY TREE PROTECTION FENCE

PROPOSED STONE CHECK DAM (TYPICAL)

PROPOSED DIVERSION SWALE FOR OFFSITE FLOW

EXISTING CITY DRAINAGE EASEMENT

PROPOSED TEMPORARY CONSTRUCTION FENCE (TYPICAL)

PROPOSED EXCAVATED DROP INLET PROTECTION (TYPICAL)

PROPOSED CONCRETE TRUCK WASHOUT AREA

ROOF DRAIN LEADERS DRAIN TO REAR OF BUILDING (TYP.)

PROPOSED 4 STORY RESIDENTIAL APARTMENT BUILDING (62 UNITS: 33–ONE BEDROOM, 29–TWO BEDROOM, 20,428 S.F. FOOTPRINT)

PROPOSED EXCAVATED DROP INLET PROTECTION (TYPICAL)

PROPOSED SILT SACK (TYPICAL)

PROPOSED SILT FENCE AND TEMPORARY CONSTRUCTION FENCE

PROPOSED EXCAVATED DROP INLET PROTECTION

PROPOSED SILT SACK (TYPICAL)

WEST MAIN STREET

ONE STORY BRICK BUILDING 16 WEST MAIN STREET

LOWER LEVEL MECHANICAL ROOM

LEGEND

- PROPOSED EXCAVATED DROP INLET PROTECTION
- PROPOSED SILT SACK
- PROPOSED CONSTRUCTION FENCE
- PROPOSED TEMP. TREE PROTECTION FENCE
- PROPOSED SILT FENCE
- PROPOSED LIMIT OF DISTURBANCE
- PROPOSED STABILIZED CONSTRUCTION ENTRANCE
- PROPOSED STOCKPILE AREA
- EXISTING TREE AND DESIGNATION

NOTES:

1. EXISTING CONDITIONS DEPICTED ON THIS PLAN HAVE BEEN TAKEN FROM SURVEY TITLED, "TOPOGRAPHIC SURVEY," PREPARED BY JMC PLANNING ENGINEERING LANDSCAPE ARCHITECURE & LAND SURVEYING, PLLC, DATED 09/20/2018, LAST REVISED 03/02/2020.
2. THIS PLAN IS FOR TEMPORARY EROSION AND SEDIMENT CONTROL INFORMATION ONLY.
3. PRIOR TO BEGINNING ANY CLEARING, GRUBBING OR EXCAVATION, ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED IN ACCORDANCE WITH ALL THE PLANS AND SPECIFICATIONS. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE MAINTAINED UNTIL THE SITE IS STABILIZED. FINAL STABILIZATION OF LANDSCAPED AREAS SHALL BE IN ACCORDANCE WITH THE LANDSCAPE PLAN.
4. THE CONTRACTOR SHALL INSPECT AND MAINTAIN ON–SITE EROSION AND SEDIMENT CONTROL MEASURES ON A DAILY BASIS. ALL COLLECTED SEDIMENT WITHIN SEDIMENT BARRIERS SHALL BE REMOVED PERIODICALLY AS REQUIRED TO MAINTAIN THE FUNCTION OF THE SEDIMENT BARRIERS. ALL SEDIMENT COLLECTED SHALL BE RESPREAD ON–SITE WITHIN STABILIZED AREAS AS DIRECTED BY THE OWNERS REPRESENTATIVE.
5. THE CONTRACTOR SHALL INSPECT DOWNSTREAM CONDITIONS FOR EVIDENCE OF SEDIMENTATION ON A WEEKLY BASIS, AFTER EACH RAINSTORM, AND AS MAY BE REQUIRED OR DIRECTED BY ALL APPLICABLE APPROVALS AND PERMITS. THE CONTRACTOR SHALL IMMEDIATELY PROVIDE A WRITTEN REPORT ON FINDINGS OF SEDIMENT IN DOWNSTREAM AREAS TO ALL AUTHORITIES HAVING JURISDICTION AND MAKE REPAIRS AS REQUIRED OR DIRECTED.
6. ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED BY THE CONTRACTOR AS REQUIRED/WARRANTED BY FIELD CONDITIONS AND AS DIRECTED BY THE OWNERS REPRESENTATIVE, JMC, AND/OR ANY AUTHORITY HAVING JURISDICTION.
7. STOCKPILING OF CONSTRUCTION MATERIAL SHALL BE PLACED ON–SITE IN THE AREA DESIGNATED ON THIS PLAN OR AS APPROVED BY THE OWNERS REPRESENTATIVE. STOCKPILED EXCAVATED MATERIAL SHALL HAVE TWO ROWS OF SILT FENCE LOCATED AROUND ITS PERIMETER. ALL STOCKPILED MATERIAL SHALL BE MAINTAINED IN AN ORDERLY MANNER SO AS NOT TO IMPEDE ON PEDESTRIAN AND/OR VEHICULAR TRAFFIC CIRCULATION ROUTES.
8. DUST SHALL BE CONTROLLED BY SPRINKLING OR OTHER APPROVED METHODS AS NECESSARY, OR AS DIRECTED BY THE OWNERS REPRESENTATIVE.
9. ALL STORMWATER MANAGEMENT PRACTICES SHALL REMAIN UNDISTURBED AND BE PROTECTED FROM HEAVY MACHINERY TRAFFIC DURING CONSTRUCTION. HOWEVER DURING CONSTRUCTION OF THE PRACTICE THE CONTRACTOR SHALL MINIMIZE AND AVOID HEAVY MACHINERY TRAFFIC TO THE MAXIMUM EXTENT PRACTICABLE. THERE SHALL BE NO STORAGE OF MATERIALS WITHIN AREAS TO BE USED FOR STORMWATER MANAGEMENT PRACTICES. THE CONTRACTOR SHALL INSTALL CONSTRUCTION FENCE AROUND THE PRACTICE TO DISCOURAGE VEHICLE TRAFFIC.
10. ALL EXPOSED SLOPES AND GRADED/DISTURBED AREAS, THAT WILL NOT BE FURTHER DISTURBED WITHIN 14 CALENDAR DAYS (7 DAYS FOR CONSTRUCTION SITES THAT EITHER DIRECTLY DISCHARGE TO ONE OF THE 303(d) SEGMENTS LISTED IN APPENDIX E OF THE GENERAL PERMIT OR ARE LOCATED WITHIN ONE OF THE WATERSHEDS LISTED IN APPENDIX C OF THE GENERAL PERMIT), SHALL BE TEMPORARILY SEEDED WITHIN 24 HOURS OF DISTURBANCE, IN ACCORDANCE WITH THE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION (NYSDEC) "EROSION AND SEDIMENT CONTROL GUIDELINES" AND THE ANSI A300 "BEST MANAGEMENT PRACTICES FOR TREE AND SHRUB PLANTING, TRANSPLANTING, MAINTENANCE AND CARE," PREPARED BY THE INTERNATIONAL SOCIETY OF ARBORICULTURE (ISA), LATEST EDITIONS, AS FOLLOWS:
    - A. SEED MIXTURE AND RATE OF APPLICATION:
        - A.1. IN SPRING, SUMMER OR EARLY FALL, SEED THE AREA WITH RYEGRASS (ANNUAL OR PERENNIAL) AT 30 POUNDS PER ACRES (APPROXIMATELY 0.7 POUNDS/1000 SQUARE FEET OR USE 1 POUND/1000 SQUARE FEET).
        - A.2. IN LATE FALL OR EARLY WINTER, SEED THE AREA WITH CERTIFIED "AROOSTOOK" WINTER RYE (CEREAL RYE) AT 100 POUNDS PER ACRE (2.5 POUNDS/1000 SQUARE FEET).
    - B. APPLICATION SHALL BE UNIFORM BY MECHANICAL OR HYDROSEED METHODS.
    - C. MULCH ALL SEEDED AREAS WITH STRAW AT A RATE OF 2 TONS PER ACRE (90 POUNDS PER 1,000 SQUARE FEET) SUCH THAT THE MULCH FORMS A CONTINUOUS BLANKET.
11. ALL SEEDED AREAS SHALL BE FERTILIZED, RESEEDED, AND MULCHED AS NECESSARY TO MAINTAIN VIGOROUS, DENSE VEGETATIVE COVER.
12. TEMPORARY SEED MIXTURES SHALL NOT BE PLACED ON AREAS WHERE FINAL GRADE HAS BEEN ESTABLISHED AND TOPSOIL HAS BEEN PLACED UNLESS OTHERWISE DIRECTED BY THE PROJECT LANDSCAPE ARCHITECT.
13. SUMPS SHALL BE INSTALLED FOR DEWATERING OF GROUNDWATER DURING CONSTRUCTION. PUMPED GROUNDWATER WILL BE DISCHARGED INTO SEDIMENT SETTLING TANKS AND THEN DISCHARGE LINE SHALL HAVE A FILTER SOCK ON THE END OF THE LINE. THE FILTERED GROUNDWATER SHALL THEN BE DISCHARGED OFF–SITE WITHIN ADJACENT DRAINAGE STRUCTURES.
14. ACCORDING TO THE U.S. FISH AND WILDLIFE SERVICE (USFWS), TREE REMOVAL SHOULD BE CONDUCTED DURING THE WINTER TIME FRAME OF NOVEMBER 1ST TO MARCH 31ST TO AVOID ADVERSE IMPACTS TO THE BATS. IF TREE REMOVAL IS PLANNED OUTSIDE OF THIS TIME FRAME, A SITE ASSESSMENT BY A BAT BIOLOGIST OR A QUALIFIED BAT SURVEYOR SHOULD BE PERFORMED. SUCH A SURVEY WILL IDENTIFY POTENTIAL CONCERNS AND ALLOW FOR IMPLEMENTATION OF SITE ACTIVITY PROTECTIONS.

SEQUENCE OF CONSTRUCTION

CONSTRUCTION SHALL BE SEQUENCED IN SUCH A MANNER THAT ANY AREA WHICH IS DISTURBED SHALL FIRST BE PROTECTED WITH SEDIMENT EROSION CONTROLS AS INDICATED ON THIS PLAN. PARTICULAR REQUIREMENTS ARE GIVEN AS FOLLOWS:

1. INSTALLATION OF SEDIMENT AND EROSION CONTROL MEASURES AS INDICATED ON THIS PLAN.
2. PRE–CONSTRUCTION MEETING WITH SITE CONTRACTOR, CITY OF BEACON PERSONNEL, AND SITE ENGINEER.
3. DEMOLITION OF EXISTING BUILDING AS REQUIRED..
4. CLEAR UNDEVELOPED PORTION OF PROPERTY WHICH IS TO BE DEVELOPED.
5. STRIP AND STOCK PILE TOPSOIL.
6. INSTALL PROPOSED OFFSITE STORMWATER SYSTEM PRIOR TO DEMOLITION OF EXISTING STORM SYSTEM.
7. BEGIN ROUGH GRADING, RETAINING WALLS CONSTRUCTION, BUILDING CONSTRUCTION, AND PARKING LOT CONSTRUCTION.
8. INSTALL STORM DRAIN SYSTEM COMPLETE (IMMEDIATELY INSTALL INLET PROTECTION ON ALL INLETS).
9. INSTALL PUBLIC UTILITIES (GAS, ELECTRIC AND TELEPHONE) AS REQUIRED.
10. INSTALL CONCRETE AND ASPHALT CONCRETE PAVEMENT COMPLETE.
11. FINISH GRADING, REDISTRIBUTE TOPSOIL AND ESTABLISH VEGETATION AND/OR LANDSCAPING.
12. CLEAN PAVEMENTS AND STORM DRAIN SYSTEM OF ALL ACCUMULATED SEDIMENT IN CONJUNCTION WITH THE REMOVAL OF ALL TEMPORARY SEDIMENT AND EROSION CONTROL DEVICES.
13. COMPLETE SITE AND BUILDING CONSTRUCTION.

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

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SEDIMENT AND EROSION CONTROL PLAN

BEACON COMMONS
16 WEST MAIN STREET
BEACON, NY 12508

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STATE OF NEW YORK · STEPHEN SPINA · 085983 · LICENSED PROFESSIONAL ENGINEER

Drawn:	BMS	Approved:	SS
Scale:	1" = 20'		
Date:	10/29/2019		
Project No:	18119		
18119–SITE	SAE	SAE.scr	

Drawing No:
C–400
(Sheet 8 of 26)

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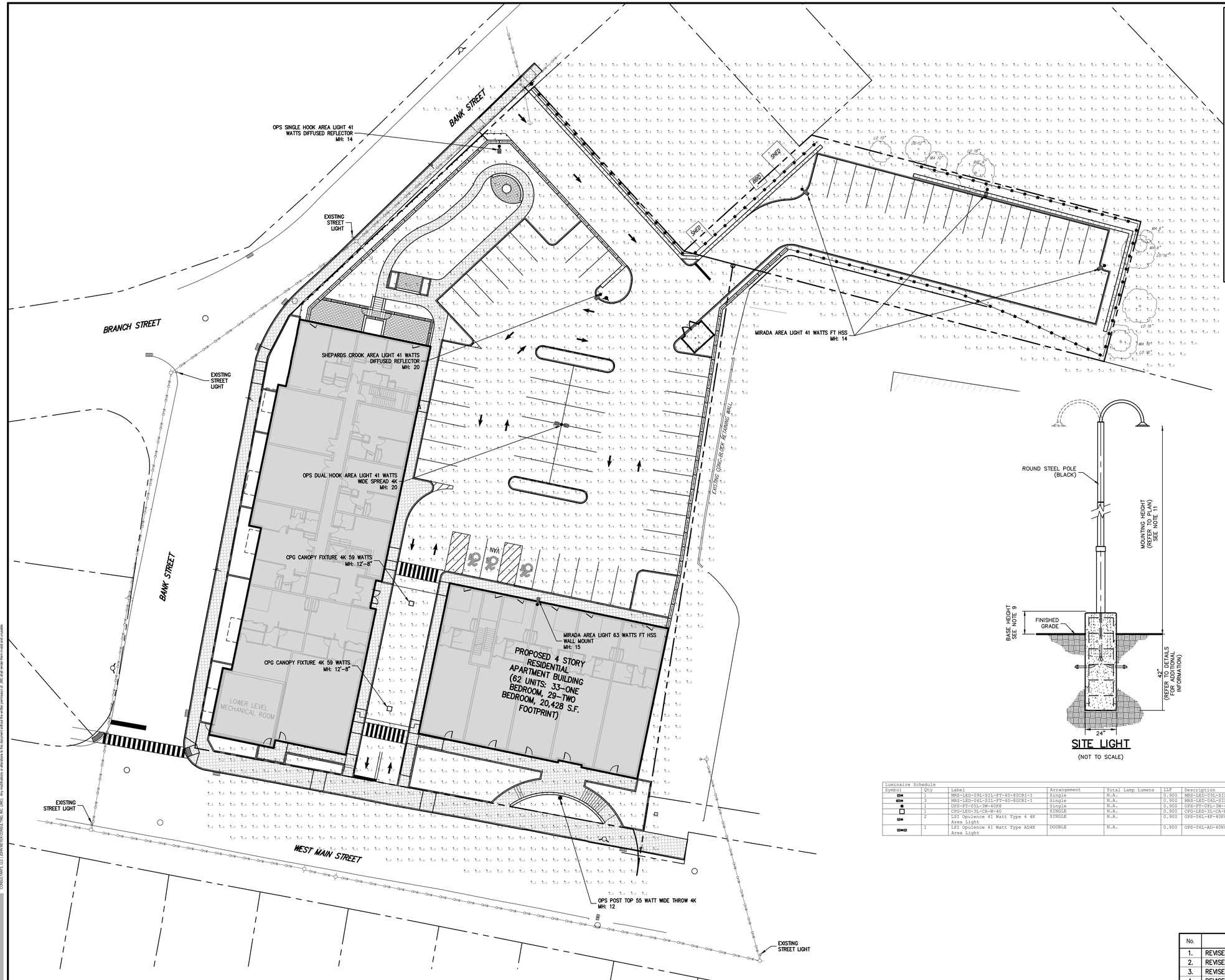

LEGEND

- EXISTING PROPERTY LINE
- ADJACENT PROPERTY LINE
- EXISTING BUILDING LINE
- EXISTING CURB LINE
- EXISTING STONE WALL
- EXISTING RETAINING WALL
- EXISTING FENCE
- EXISTING UTILITY POLE
- EXISTING LIGHT POLE
- PROPOSED BUILDING LINE
- PROPOSED CONCRETE CURB
- PROPOSED CONCRETE SIDEWALK
- PROPOSED GUIDE RAIL
- PROPOSED PRIVACY FENCE
- PROPOSED RETAINING WALL AND SAFETY FENCE (DESIGN BY OTHERS)
- PROPOSED LIGHTING STANDARD
- PROPOSED UNDERPASS LIGHT
- PROPOSED ILLUMINANCE IN FOOT-CANDLES

NOTES:

1. ALL CABLES AND WIRING SHALL BE INSTALLED UNDERGROUND IN CONDUIT. CONDUIT SHALL BE SCHEDULE 40 PVC INSTALLED WITH TWO (2) FEET OF COVER. MINIMUM SIZE OF CONDUIT SHALL BE TWO (2) INCH DIAMETER.
2. CIRCUIT WIRING SHALL BE DESIGNED BY THE PROJECT ELECTRICAL ENGINEER.
3. LIGHTING LEVELS ARE MEASURED AT GROUND SURFACE ELEVATION.
4. THE PROPOSED SITE LIGHT FIXTURES SHALL:
   (1) HAVE A COLOR RENDERING INDEX (CRI) IN THE RANGE OF 80-100.
   (2) HAVE A MAXIMUM TEMPERATURE OF 4,000 K.
   (3) BE FULL CUT-OFF THAT DO NOT LIGHT ABOVE HORIZONTAL PLANE.
   (4) BE DARK SKY COMPLIANT.
5. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO CHECK AND VERIFY ALL ANCHOR BOLT DIMENSIONS (SIZE, BOLT CIRCLE, ETC.) WITH THE POLE MANUFACTURER PRIOR TO INSTALLATION OF THE FOUNDATIONS.
6. CHAMFER EXPOSED EDGES OF ALL FOUNDATIONS.
7. PROVIDE INSULATED GROUNDING BUSHING ON EXPOSED ENDS (IN BASE OF POLE) OF ALL GALVANIZED STEEL BENDS.
8. COLOR OF LUMINAIRE SHALL MATCH COLOR OF POLE.
9. CONCRETE BASE IN PARKING AREAS: 2'-6" CONCRETE BASE IN LANDSCAPED AREAS: 2"
10. LIGHT POLE LENGTHS SHALL BE ADJUSTED DEPENDING ON MOUNTING APPLICATION SUCH AS LAWN AREAS, IN PARKING AREAS. AND MH: MOUNTING HEIGHT IS THE DISTANCE FROM THE GROUND BELOW THE LIGHT TO THE TOP OF THE LIGHT FIXTURE.
11. LIGHT FIXTURES ARE DARK SKY COMPLIANT WITH FULL CUT-OFF SHIELDS.
12. LUMINAIRES AND POLES ARE TO BE THE PRODUCT OF LSI OR APPROVED EQUAL.

SITE LIGHT
(NOT TO SCALE)

Luminaire Schedule						
Symbol	Qty	Label	Arrangement	Total Lamp Lumens	LLF	Description
	1	MRS-LED-09L-SIL-FT-40-80CRI-I	Single	N.A.	0.900	MRS-LED-09L-SIL-FT-40-80CRI-IH
	3	MRS-LED-06L-SIL-FT-40-80CRI-I	Single	N.A.	0.900	MRS-LED-06L-SIL-FT-40-80CRI-IH
	1	OPS-FT-09L-3W-40K8	Single	N.A.	0.900	OPS-FT-09L-3W-40K8
	1	CPG-LED-3L-CA-W-40	SINGLE	N.A.	0.900	CPG-LED-3L-CA-W-40
	2	LSI Opulence 41 Watt Type 4 4K Area Light	SINGLE	N.A.	0.900	OPS-06L-4F-40K8_IES
	1	LSI Opulence 41 Watt Type AD4K Area Light	DOUBLE	N.A.	0.900	OPS-06L-AD-40K8_IES

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	Previous Editions Obsolete		

Drawn: BMS Approved: SS
Scale: 1" = 20'
Date: 10/29/2019
Project No: 18119
18119-LIGHTING | LIGHTING | LIGHT.scr
Drawing No: C-600
(Sheet 9 of 26)

APPLICANT/OWNER:
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LIGHTING PLAN

BEACON COMMONS
16 WEST MAIN STREET
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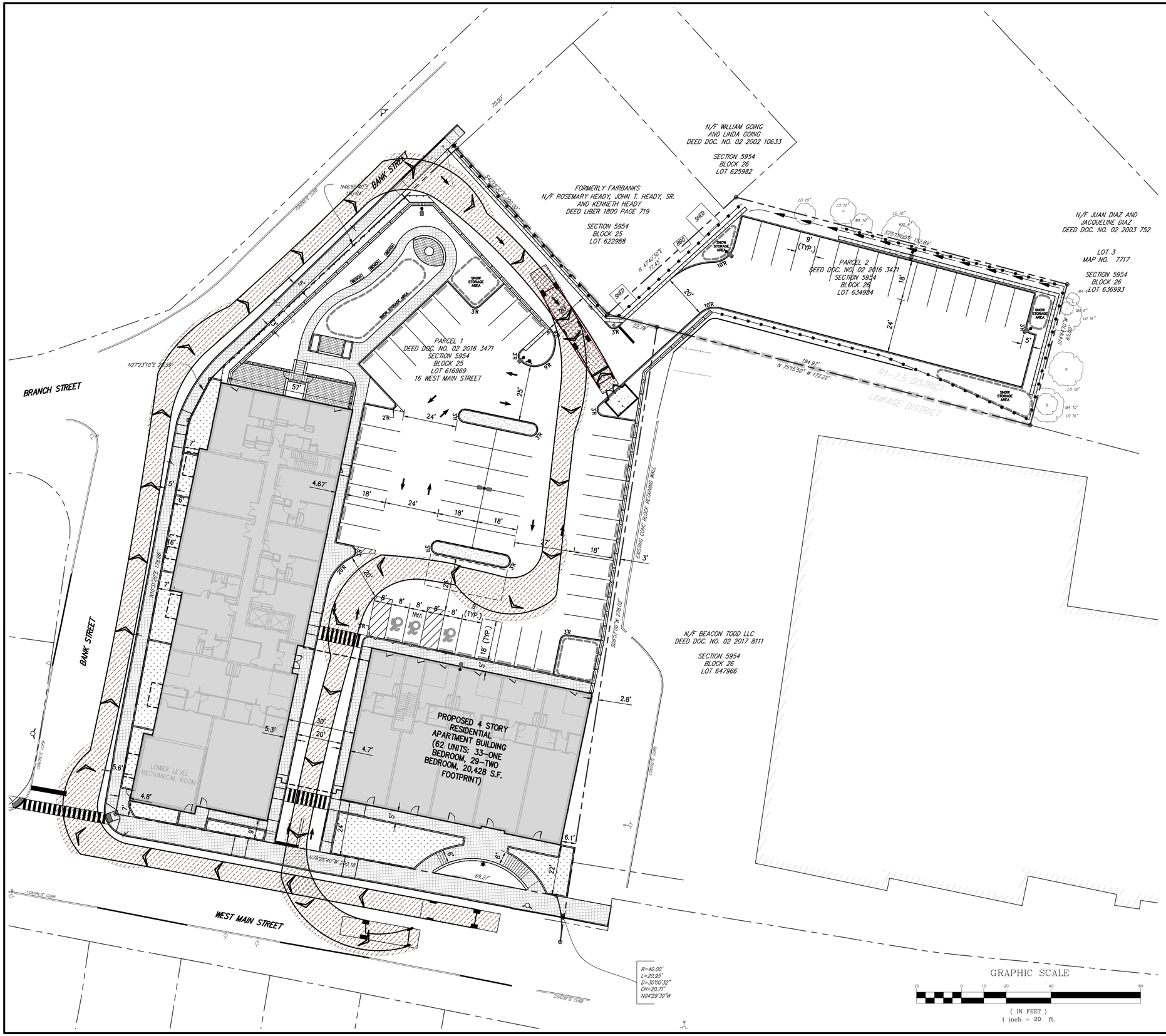

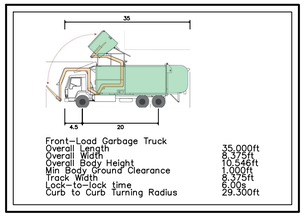

Front-Load Garbage Truck	
Overall Length	35.000ft
Overall Width	8.375ft
Overall Body Height	10.546ft
Min Body Ground Clearance	1.000ft
Track Width	8.375ft
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	29.300ft

PROFILE

SCALE: NTS

APPLICANT/OWNER:
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GARBAGE TRUCK TURNING PLAN (FRONT LOADING)

BEACON COMMONS
16 WEST MAIN STREET
BEACON, NY 12508

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Drawn: BMS	Approved: SS
Scale: 1" = 20'	
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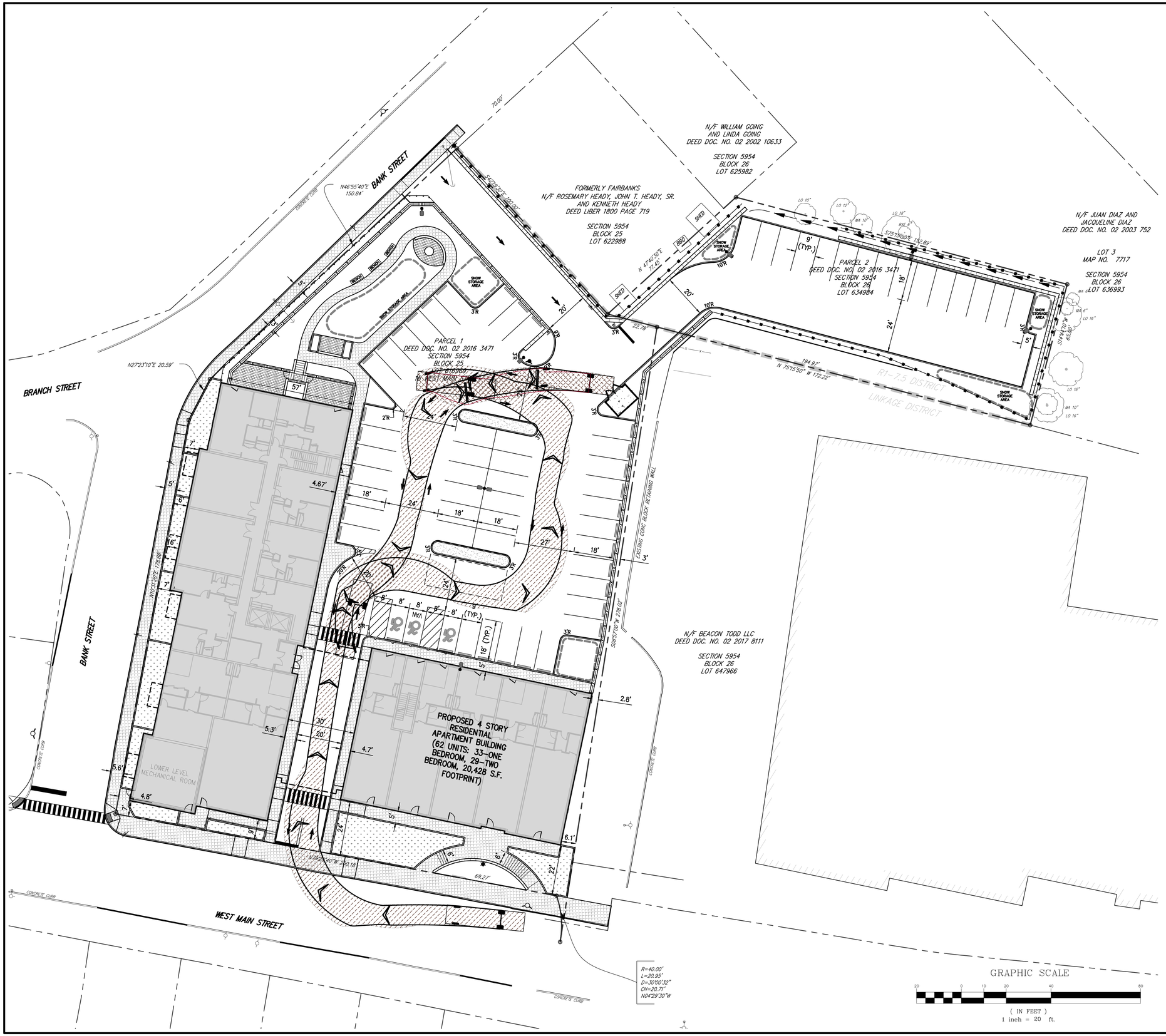

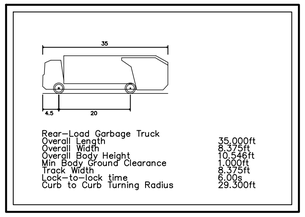

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Overall Length	35.000ft
Overall Width	8.375ft
Overall Body Height	10.546ft
Min Body Ground Clearance	1.000ft
Track Width	8.375ft
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	29.300ft

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GARBAGE TRUCK TURNING PLAN (REAR LOADING)

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Drawn:	BMS	Approved:	SS
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18119-SITE	TRUCK-2	TRUCK.scr	
Drawing No:	C-701 (Sheet 11 of 26)		

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EXISTING FIRE HYDRANT

BANK STREET

N46°55'40"E 150.84'

70.00'

GRAVEL TOE

S42°43'10"E 120.00'

N/F WILLIAM GOING AND LINDA GOING
DEED DOC. NO. 02 2002 10633

SECTION 5954
BLOCK 26
LOT 625982

FORMERLY FAIRBANKS
N/F ROSEMARY HEADY, JOHN T. HEADY, SR. AND KENNETH HEADY
DEED LIBER 1800 PAGE 719

SECTION 5954
BLOCK 25
LOT 622988

N/F JUAN DIAZ AND JACQUELINE DIAZ
DEED DOC. NO. 02 2003 752

LOT 3
MAP NO. 7717

SECTION 5954
BLOCK 26
LOT 636993

SHED

SHED

N 47°40'30"E 77.42'

S75°10'50"E 152.89'

9' (TYP.)

PARCEL 2
DEED DOC. NO. 02 2016 3471
SECTION 5954
BLOCK 26
LOT 634984

18'

24'

20'

10'R

22.78'

3'R

SNOW STORAGE AREA

5'

S74°41'10"W 65.80'

194.97'

N 75°15'50" W 172.22'

R1-7.5 DISTRICT

LINKAGE DISTRICT

PARCEL 1
DEED DOC. NO. 02 2016 3471
SECTION 5954
BLOCK 25
LOT 615609
16 WEST MAIN STREET

PROPOSED FIRE HYDRANT

N27°23'10"E 20.59'

BRANCH STREET

57'

2'R

24'

25'

18'

18'

18'

27'

3'

4.67'

7'

5'

6'

N10°33'27"E 178.88'

9'

8'

8'

8'

8'

8' (TYP.)

18' (TYP.)

3'R

N/F BEACON TODD LLC
DEED DOC. NO. 02 2017 8111

SECTION 5954
BLOCK 26
LOT 647966

S08°57'00"W 278.07'

2.8'

PROPOSED 4 STORY RESIDENTIAL APARTMENT BUILDING (62 UNITS: 33-ONE BEDROOM, 29-TWO BEDROOM, 20,428 S.F. FOOTPRINT)

LOWER LEVEL MECHANICAL ROOM

PROPOSED BUILDING OVER DRIVEWAY MINIMUM HEIGHT CLEARANCE TO BE 12'-8"

5.3'

30'

20'

4.7'

5.6'

4.8'

6.1'

25'

24'

9'

N 79°55'40" W 230.18'

69.27'

20'

PROPOSED FIRE DEPARTMENT CONNECTION

EXISTING FIRE HYDRANT

PROPOSED SIGHT LINE TRIANGLE

EXISTING FIRE HYDRANT

PROPOSED FIRE DEPARTMENT CONNECTION

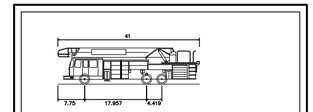
WEST MAIN STREET

CONCRETE CURB

EXISTING CONC. BLOCK RETAINING WALL

R=40.00'
L=20.95'
D=30°00'32"
CH=20.71'
N04°29'30"W

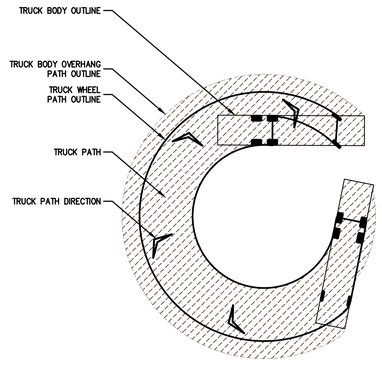
*MINIMUM HEIGHT CLEARANCE FOR THE DRIVEWAY UNDER THE BUILDING WILL BE 12'-8"



Beacon Fire Truck	
Overall Length	41.000ft
Overall Width	8.333ft
Overall Body Height	11.250ft
Min Body Ground Clearance	0.935ft
Track Width	8.417ft
Lock-to-lock time	4.083 s
Curb to Curb Turning Radius	34.833ft

PROFILE

SCALE: NTS



GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

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FIRE TRUCK TURNING PLAN (SCENARIO 1)

BEACON COMMONS
16 WEST MAIN STREET
BEACON, NY 12508

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STATE OF NEW YORK · STEPHEN SPINA · 085583 · LICENSED PROFESSIONAL ENGINEER

No.	Revision	Date	By
1.	REVISED PER CITY COMMENTS	12/30/19	AH
2.	REVISED PER CITY COMMENTS	02/24/2020	AH
3.	REVISED PER CITY COMMENTS	09/29/2020	AH
4.	REVISED PER CITY COMMENTS	07/27/2021	BMS
5.	REVISED PER CITY COMMENTS	03/25/2022	BMS
6.	REVISED PER CITY COMMENTS	05/31/2022	BMS
	Previous Editions Obsolete		

Drawn:	BMS	Approved:	SS
Scale:	1" = 20'		
Date:	10/29/2019		
Project No:	18119		
18119-SITE	TRUCK-3	TRUCK.scr	

Drawing No:
C-702
(Sheet 12 of 26)

EXISTING FIRE HYDRANT

BANK STREET

BRANCH STREET

WEST MAIN STREET

N/F WILLIAM GOING AND LINDA GOING
DEED DOC. NO. 02 2002 10633

SECTION 5954
BLOCK 26
LOT 625982

FORMERLY FAIRBANKS
N/F ROSEMARY HEADY, JOHN T. HEADY, SR. AND KENNETH HEADY
DEED LIBER 1800 PAGE 719

SECTION 5954
BLOCK 25
LOT 622988

N/F JUAN DIAZ AND JACQUELINE DIAZ
DEED DOC. NO. 02 2003 752

LOT 3
MAP NO. 7717

SECTION 5954
BLOCK 26
LOT 636993

PARCEL 1
DEED DOC. NO. 02 2016 3471
SECTION 5954
BLOCK 25
LOT 616969
16 WEST MAIN STREET

PARCEL 2
DEED DOC. NO. 02 2016 3471
SECTION 5954
BLOCK 26
LOT 634984

PROPOSED FIRE HYDRANT

PROPOSED 4 STORY RESIDENTIAL APARTMENT BUILDING (62 UNITS: 33-ONE BEDROOM, 29-TWO BEDROOM, 20,428 S.F. FOOTPRINT)

LOWER LEVEL MECHANICAL ROOM

PROPOSED BUILDING OVER DRIVEWAY MINIMUM HEIGHT CLEARANCE TO BE 12'-8"

EXISTING FIRE HYDRANT

PROPOSED FIRE DEPARTMENT CONNECTION

PROPOSED SIGHT LINE TRIANGLE

PROPOSED FIRE DEPARTMENT CONNECTION

EXISTING FIRE HYDRANT

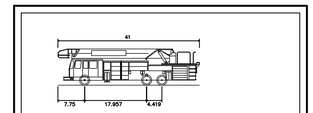
N/F BEACON TODD LLC
DEED DOC. NO. 02 2017 8111

SECTION 5954
BLOCK 26
LOT 647966

R1-7.5 DISTRICT
LINKAGE DISTRICT

SNOW STORAGE AREA

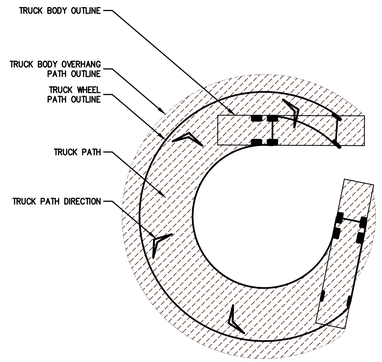
*MINIMUM HEIGHT CLEARANCE FOR THE DRIVEWAY UNDER THE BUILDING WILL BE 12'-8"



Beacon Fire Truck	
Overall Length	41.000ft
Overall Width	8.333ft
Overall Body Height	11.250ft
Min Body Ground Clearance	0.935ft
Track Width	8.417ft
Lock-to-lock time	4.083
Curb to Curb Turning Radius	34.833ft

PROFILE

SCALE: NTS



GRAPHIC SCALE
20 0 10 20 40 80
(IN FEET)
1 inch = 20 ft.

APPLICANT/OWNER:
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FIRE TRUCK TURNING PLAN (SCENARIO 2)

BEACON COMMONS
16 WEST MAIN STREET
BEACON, NY 12508

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STATE OF NEW YORK
STEPHEN SPINA
085583
LICENSED PROFESSIONAL ENGINEER

No.	Revision	Date	By
1.	REVISED PER CITY COMMENTS	12/30/19	AH
2.	REVISED PER CITY COMMENTS	02/24/2020	AH
3.	REVISED PER CITY COMMENTS	09/29/2020	AH
4.	REVISED PER CITY COMMENTS	07/27/2021	BMS
5.	REVISED PER CITY COMMENTS	03/25/2022	BMS
6.	REVISED PER CITY COMMENTS	05/31/2022	BMS
	Previous Editions Obsolete		

Drawn:	BMS	Approved:	SS
Scale:	1" = 20'		
Date:	10/29/2019		
Project No:	18119		
18119-SITE	TRUCK-4	TRUCK.scr	

Drawing No:
C-703
(Sheet 13 of 26)

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EXISTING FIRE HYDRANT

BANK STREET

GRAPHIC SCALE

BRANCH STREET

BANK STREET

WEST MAIN STREET

PROPOSED 4 STORY RESIDENTIAL APARTMENT BUILDING (62 UNITS: 33-ONE BEDROOM, 29-TWO BEDROOM, 20,428 S.F. FOOTPRINT)

LOWER LEVEL MECHANICAL ROOM

PROPOSED BUILDING OVER DRIVEWAY MINIMUM HEIGHT CLEARANCE TO BE 12'-8"

PROPOSED FIRE HYDRANT

EXISTING FIRE HYDRANT

PROPOSED FIRE DEPARTMENT CONNECTION

PROPOSED SIGHT LINE TRIANGLE

PARCEL 1
DEED DOC. NO. 02 2016 3471
SECTION 5954
BLOCK 25
LOT 636969
16 WEST MAIN STREET

PARCEL 2
DEED DOC. NO. 02 2016 3471
SECTION 5954
BLOCK 26
LOT 634984

N/F WILLIAM GOING AND LINDA GOING
DEED DOC. NO. 02 2002 10633
SECTION 5954
BLOCK 26
LOT 625982

FORMERLY FAIRBANKS
N/F ROSEMARY HEADY, JOHN T. HEADY, SR. AND KENNETH HEADY
DEED LIBER 1800 PAGE 719
SECTION 5954
BLOCK 25
LOT 622988

N/F JUAN DIAZ AND JACQUELINE DIAZ
DEED DOC. NO. 02 2003 752
LOT 3
MAP NO. 7717
SECTION 5954
BLOCK 26
LOT 636993

N/F BEACON TODD LLC
DEED DOC. NO. 02 2017 8111
SECTION 5954
BLOCK 26
LOT 647966

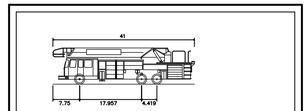
R1-7.5 DISTRICT
LINKAGE DISTRICT

EXISTING CONC. BLOCK RETAINING WALL

SNOW STORAGE AREA

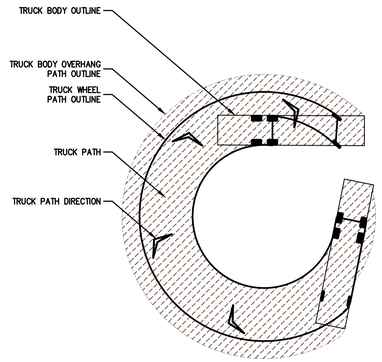
SHED

*MINIMUM HEIGHT CLEARANCE FOR THE DRIVEWAY UNDER THE BUILDING WILL BE 12'-8"



Beacon Fire Truck	
Overall Length	41.000ft
Overall Width	8.333ft
Overall Body Height	11.250ft
Min Body Ground Clearance	0.958ft
Track Width	8.417ft
Lock-to-lock time	4.083
Curb to Curb Turning Radius	34.833ft

PROFILE
SCALE: NTS



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3.	REVISED PER CITY COMMENTS	09/29/2020	AH
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STATE OF NEW YORK · STEPHEN SPINA · 085089 · LICENSED PROFESSIONAL ENGINEER

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FIRE TRUCK TURNING PLAN (SCENARIO 3)

BEACON COMMONS
16 WEST MAIN STREET
BEACON, NY 12508

Drawn:	BMS	Approved:	SS
Scale:	1" = 20'		
Date:	10/29/2019		
Project No:	18119		
18119-SITE	TRUCK-5	TRUCK.scr	

Drawing No:
C-704
(Sheet 14 of 26)

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GRAPHIC SCALE
(IN FEET)
1 inch = 40 ft.

No.	Revision	Date	By
1.	REVISED PER CITY COMMENTS	02/24/2020	AH
2.	REVISED PER CITY COMMENTS	08/28/2020	AH
3.	REVISED PER CITY COMMENTS	01/27/2021	BMS
4.	REVISED PER CITY COMMENTS	03/25/2022	BMS
5.	REVISED PER CITY COMMENTS	05/31/2022	BMS

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Drawing No. C-800 (Sheet 15 of 26)

Drawn: BMS Approved: SS
Scale: 1" = 40'
Date: 12/30/2019
Project No: 18119
3DSURF: AERIAL
AERIAL-str

LICENSED PROFESSIONAL ENGINEER STATE OF NEW YORK STEPHEN SIEGEL

AERIAL SITE PLAN

BEACON COMMONS
16 WEST MAIN STREET
BEACON, NY 12508

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ARCHITECT:
ARYEH SIEGEL ARCHITECT
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BEACON, NY 12508

NOTES:

1. EXISTING CONDITIONS DEPICTED ON THIS PLAN HAVE BEEN TAKEN FROM SURVEY TITLED, "TOPOGRAPHIC SURVEY," PREPARED BY JMC PLANNING ENGINEERING LANDSCAPE ARCHITECURE & LAND SURVEYING, PLLC, DATED 09/20/2018, REVISED 09/23/2019.

2. THE STOPPING SIGHT DISTANCE HAS BEEN CALCULATED FOLLOWING THE PROCEDURE OUTLINED IN "A POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS 2018, 7TH EDITION" PUBLISHED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO).

3. STOPPING SIGHT DISTANCE CALCULATIONS

$$SSD = 1.47\ V\ t + \frac{V^2}{30[(a/32.2)\pm G]}$$

V = DESIGN SPEED, 30 MPH
t = BRAKE REACTION TIME, 2.5 S
a = DECELERATION RATE, 11.2 FT/S^2
G = MAJOR ROAD APPROACH GRADE, RISE/RUN, FT/FT

ONTO WEST MAIN STREET:

POSTED SPEED LIMIT = 25 MPH
DESIGN SPEED = 30 MPH

LEFT TURN (LOOKING RIGHT):

G = +0.043 FT/FT (UPGRADE)

SSD = 187 FT

RIGHT TURN (LOOKING LEFT):

G = −0.107 FT/FT (DOWNGRADE)

SSD = 235 FT

4. THE BANK STREET DRIVEWAY COULD NOT PROVIDE THE REQUIRED SIGHT DISTANCE DUE TO THE EXISTING ON-STREET PARKING, ROADWAY CURVATURE, EXISTING FENCE AND LANDSCAPING ON THE ADJACENT PROPERTY. THEREFORE, THE BANK STREET SITE DRIVEWAY IS PROPOSED AS AN ENTRANCE ONLY.



GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

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SIGHT DISTANCE PLAN

BEACON COMMONS
16 WEST MAIN STREET
BEACON, NY 12508

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STATE OF NEW YORK · STEPHEN SPIRA · 085983 · LICENSED PROFESSIONAL ENGINEER

Drawn:	BMS	Approved:	SS
Scale:	1" = 30'		
Date:	12/30/2019		
Project No:	18119		
18119-SITE	SIGHT	1_ISD.scr	

Drawing No:
C–801
(Sheet 16 of 26)

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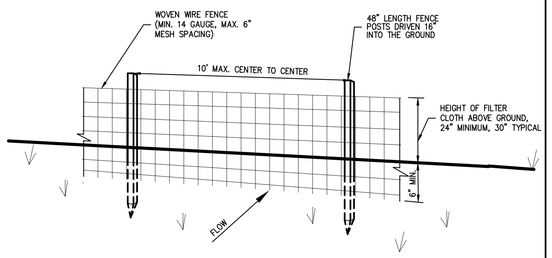
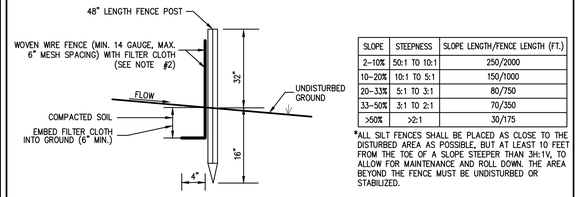


PERSPECTIVE VIEW



SECTION

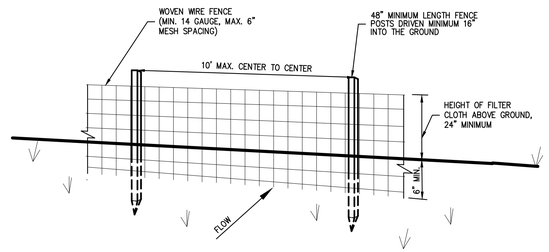
SLOPE	STEEPNESS	SLOPE LENGTH/FENCE LENGTH (FT.)
2–10%	50:1 TO 10:1	250/2000
10–20%	10:1 TO 5:1	150/1000
20–33%	5:1 TO 3:1	80/750
33–50%	3:1 TO 2:1	70/350
>50%	>2:1	30/175

*ALL SILT FENCES SHALL BE PLACED AS CLOSE TO THE DISTURBED AREA AS POSSIBLE, BUT AT LEAST 10 FEET FROM THE TOE OF A SLOPE STEEPER THAN 3H:1V, TO ALLOW FOR MAINTENANCE AND ROLL DOWN. THE AREA BEYOND THE FENCE MUST BE UNDISTURBED OR STABILIZED.

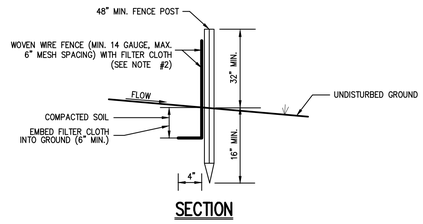
NOTES:

1. WOVEN WIRE FENCE SHALL BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES. POSTS SHALL BE STEEL, EITHER T OR U TYPE OR HARDWOOD.
2. FILTER CLOTH SHALL BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION. FENCE SHALL BE WOVEN WIRE, 6" MAXIMUM MESH OPENING.
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER, THEY SHALL BE OVERLAPPED BY SIX INCHES AND FOLDED. FILTER CLOTH SHALL BE EITHER FILTER X, MIRAFI 100X, STABLINKA T140N, OR APPROVED EQUAL.
4. PREFABRICATED UNITS SHALL BE GEOFAB, ENVROFENCE, OR APPROVED EQUAL.
5. INSPECT WEEKLY AND AFTER EACH RAIN. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED AND REPLACED WHEN "BULGES" DEVELOP IN THE SILT FENCE.

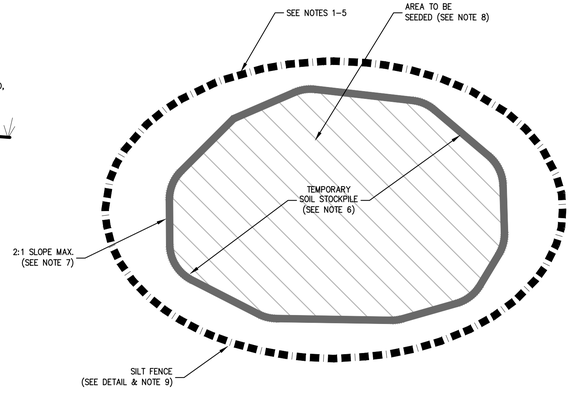
SILT FENCE | 1



PERSPECTIVE VIEW



SECTION

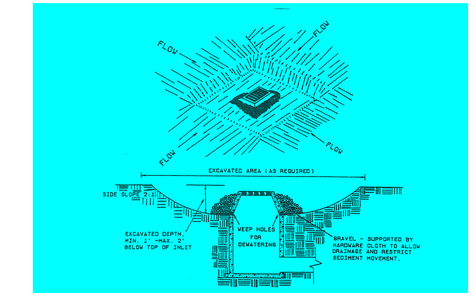


PLAN VIEW

NOTES:

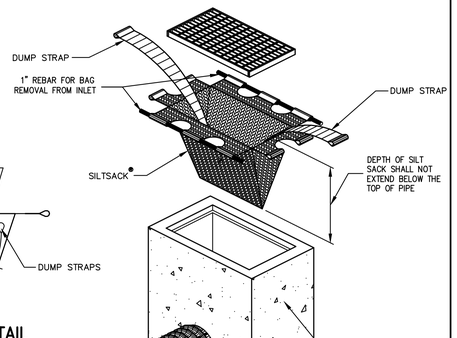
1. WOVEN WIRE FENCE SHALL BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES. POSTS SHALL BE STEEL, EITHER T OR U TYPE OR HARDWOOD.
2. FILTER CLOTH SHALL BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION. FENCE SHALL BE WOVEN WIRE, 6" MAXIMUM MESH OPENING.
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER, THEY SHALL BE OVERLAPPED BY SIX INCHES AND FOLDED. FILTER CLOTH SHALL BE EITHER FILTER X, MIRAFI 100X, STABLINKA T140N, OR APPROVED EQUAL.
4. PREFABRICATED UNITS SHALL BE GEOFAB, ENVROFENCE, OR APPROVED EQUAL.
5. INSPECT WEEKLY AND AFTER EACH RAIN. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED AND REPLACED WHEN "BULGES" DEVELOP IN THE SILT FENCE.
6. THE AREA CHOSEN FOR ALL TEMPORARY SOIL STOCKPILES SHALL BE DRY AND STABLE.
7. ALL STOCKPILED SOIL SHALL NOT CONTAIN SLOPES GREATER THAN 2:1.
8. UPON COMPLETION OF SOIL STOCKPILING, EACH PILE SHALL BE SEEDED WITHIN 24 HOURS. PERENNIAL OR ANNUAL RYEGRASS SHALL BE PLANTED DURING SPRING, SUMMER OR EARLY FALL. WINTER RYE (CEREAL RYE) SHALL BE PLANTED DURING LATE FALL OR EARLY WINTER.
9. ALL STOCKPILES SHALL BE PROTECTED WITH SILT FENCING INSTALLED AROUND THE PERIMETER.

TEMPORARY SOIL STOCKPILE WITH SILT FENCE | 2



1. CLEAR THE AREA OF ALL DEBRIS THAT WILL HINDER EXCAVATION.
2. GRADE APPROACH TO THE INLET UNIFORMLY AROUND THE BASIN.
3. WEEP HOLES SHALL BE PROCTECTED BY/STONE.
4. PROVIDE FREQUENT INSPECTION AND MAINTENANCE. REMOVE ACCUMULATED SEDIMENT AND REPAIR OR REPLACE INLET PROTECTION TO MAINTAIN EFFECTIVENESS OF THE INSTALLATION.
5. UPON STABILIZATION OF CONTRIBUTING DRAINAGE AREA. SEAL WEEP HOLES FILL BASIN WITH STABLE SOIL TO FINAL GRADE. COMPACT IT PROPERLY AND STABILIZE WITH PERMANENT SEEDING.

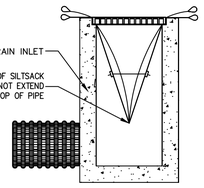
EXCAVATED DROP INLET PROTECTION | 3



BAG DETAIL

NOTES:

1. CURB INLETS SHALL BE TYPE B WITH CURB DEFLECTOR.
2. INLET PROTECTION SHALL BE INSPECTED WEEKLY AND AFTER EACH RAIN. SEDIMENT SHALL BE REMOVED AS NECESSARY. FILTER FABRIC, CRUSHED STONE, AND ANY OTHER COMPONENTS SHALL BE REPLACED IF DAMAGED. ALL MATERIALS SHALL BE CHECKED FOR PROPER ANCHORAGE AND SECURED AS NECESSARY.



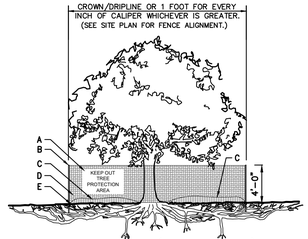
INSTALLATION DETAIL

HI-FLOW SILT SACK AS MANUFACTURED BY ACF ENVIRONMENTAL OR APPROVED EQUAL©

(FOR AREAS OF MODERATE TO HEAVY PRECIPITATION AND RUN-OFF)

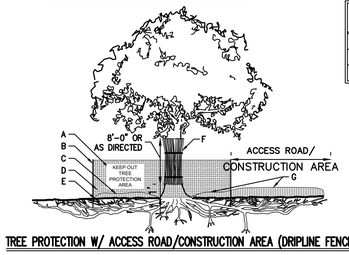
PROPERTIES	TEST METHOD	UNITS
GRAB TENSILE STRENGTH	ASTM D-4632	265 LBS
GRAB TENSILE ELONGATION	ASTM D-4632	20 %
PUNCTURE	ASTM D-4833	135 LBS
MULLEN BURST	ASTM D-3786	420 PSI
TRAPEZOID TEAR	ASTM D-4533	45 LBS
UV RESISTANCE	ASTM D-4355	90 %
APPARENT OPENING SIZE	ASTM D-4751	20 US SIEVE
FLOW RATE	ASTM D-4491	200 GAL/MIN/SQ FT
PERMITTIVITY	ASTM D-4491	1.5 SEC $^{-1}$

SILT SACK | 4



TREE PROTECTION (DRIPLINE FENCE)

A	8.5"X11" SIGN LAMINATED IN PLASTIC SPACED EVERY 50' ALONG FENCE.
B	2"X6" STEEL POSTS OR APPROVED EQUAL.
C	5" THICK LAYER OF MULCH.
D	TREE PROTECTION FENCE: HIGH DENSITY POLYETHYLENE FENCING WITH 3.5" X 1.5" OPENINGS; COLOR ORANGE. STEEL POSTS INSTALLED AT 8' O.C.
E	MAINTAIN EXISTING GRADE WITHIN THE TREE PROTECTION FENCE UNLESS OTHERWISE INDICATED ON THE PLANS.
F	INSTALL ROUGH SAWN WOOD WHERE AND AS DIRECTED BY PROJECT LANDSCAPE ARCHITECT OR PROFESSIONAL ARBORIST. SEE CHART FOR WOOD SIZE BOUND WITH 9 GAUGE WIRE.
G	8"–12" THICK LAYER OF MULCH ON MAINTENANCE ROAD. 5" THICK LAYER INSIDE TREE PROTECTION AREA.



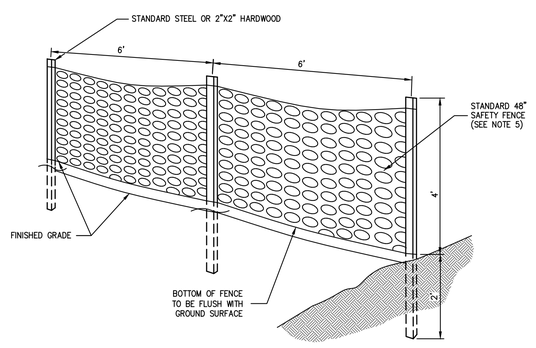
TREE PROTECTION W/ ACCESS ROAD/CONSTRUCTION AREA (DRIPLINE FENCE)

TREE DIAMETER	ROUGH SAWN WOOD SIZE
<12"	2"X2"
13"–24"	2"X4"
>25"	2"X6"

NOTES:

1. SEE SPECIFICATIONS FOR ADDITIONAL TREE PROTECTION REQUIREMENTS.
2. IF THERE IS NO EXISTING IRRIGATION, SEE SPECIFICATIONS FOR WATERING REQUIREMENTS.
3. NO PRUNING SHALL BE PERFORMED EXCEPT BY APPROVED ARBORIST.
4. NO EQUIPMENT SHALL OPERATE INSIDE THE PROTECTIVE FENCING INCLUDING DURING FENCE INSTALLATION AND REMOVAL.
5. SEE SITE PLANS FOR IDENTIFICATIONS/LOCATIONS OF INDIVIDUAL TREES TO BE PROTECTED.
6. ALL EXCAVATION WITHIN THE CROWN/DRIPLINE OF ANY TREE SHALL BE PERFORMED UNDER THE DIRECT SUPERVISION OF THE PROJECT LANDSCAPE ARCHITECT OR PROFESSIONAL ARBORIST. SPECIAL MEASURES, SUCH AS THE USE OF AN AIR SPADE MAY BE REQUIRED.
7. THE CONTRACTOR MAY PROPOSE THE USE OF ENGINEERED MATTING OR OTHER ENGINEERED PRODUCTS IN LIEU OF MULCH, WHICH SHALL BE SUBJECT TO THE REVIEW AND APPROVAL OF ALL AUTHORITIES HAVING JURISDICTION.

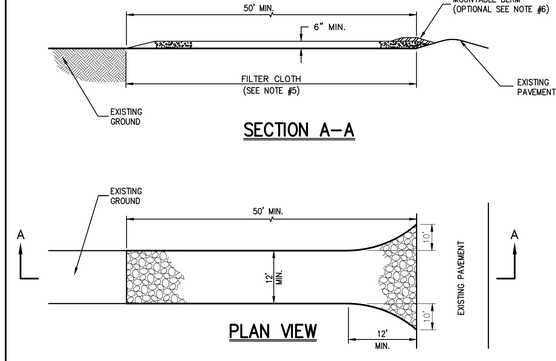
TREE PROTECTION | 5



NOTES:

1. SPACE SUPPORT FENCE POSTS AT 6 FOOT INTERVALS.
2. DRIVE SUPPORT POSTS 2 FEET INTO GROUND.
3. FIRMLY FASTEN FENCE MATERIAL IN PLACE BY WIRING TO FENCE POST WHILE MAINTAINING TENSION ACROSS FULL HEIGHT OF FENCE. WIRING SHALL BE DONE IN A MANNER THAT WILL PREVENT SAGGING OF FENCE MATERIAL.
4. PROVIDE PERIODIC INSPECTION AND MAINTENANCE OF FENCE INCLUDING REPAIRS AS NECESSARY AND REQUIRED.
5. PLASTIC FENCE SHALL BE INTERNATIONAL ORANGE COLOR, AS MANUFACTURED BY ADPI ENTERPRISES, INC. OR APPROVED EQUAL.
6. REMOVE CONSTRUCTION FENCE AS DIRECTED BY THE OWNER'S FIELD REPRESENTATIVE.

CONSTRUCTION FENCE | 6



NOTES

1. STONE SIZE – USE 1" TO 4" STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
2. LENGTH – AS REQUIRED, BUT NOT LESS THAN 50 FEET.
3. THICKNESS – NOT LESS THAN SIX (6) INCHES.
4. WIDTH – 12 FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. 24 FOOT MINIMUM IF SINGLE ENTRANCE TO SITE.
5. FILTER CLOTH TO BE PLACED OVER THE ENTIRE WIDTH AND LENGTH OF AREA PRIOR TO PLACING OF STONE.
6. SURFACE WATER – ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED BENEATH THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
7. MAINTENANCE – THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS–OF–WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURE USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS–OF–WAY MUST BE REMOVED IMMEDIATELY.
8. WASHING – WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC RIGHTS–OF–WAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
9. DAILY INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.

STABILIZED CONSTRUCTION ENTRANCE | 7

No.	Revision	Date
1.	REVISED PER CITY COMMENTS	12/30/19
2.	REVISED PER CITY COMMENTS	02/24/2020
3.	REVISED PER CITY COMMENTS	09/29/2020
4.	REVISED PER CITY COMMENTS	07/27/2021
5.	REVISED PER CITY COMMENTS	03/25/2022
6.	REVISED PER CITY COMMENTS	05/31/2022

Previous Editions Obsolete

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JMC

CONSTRUCTION DETAILS

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16 WEST MAIN STREET
BEACON, NY 12508

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STATE OF NEW YORK · STEPHEN SHINA · 085983 · LICENSED PROFESSIONAL ENGINEER

Drawn:	BMS	Approved:	SS
Scale:	NOT TO SCALE		
Date:	10/29/2019		
Project No:	18119		
18119-DETAILS	C-900	–	
Drawing No:	C–900 (Sheet 17 of 26)		

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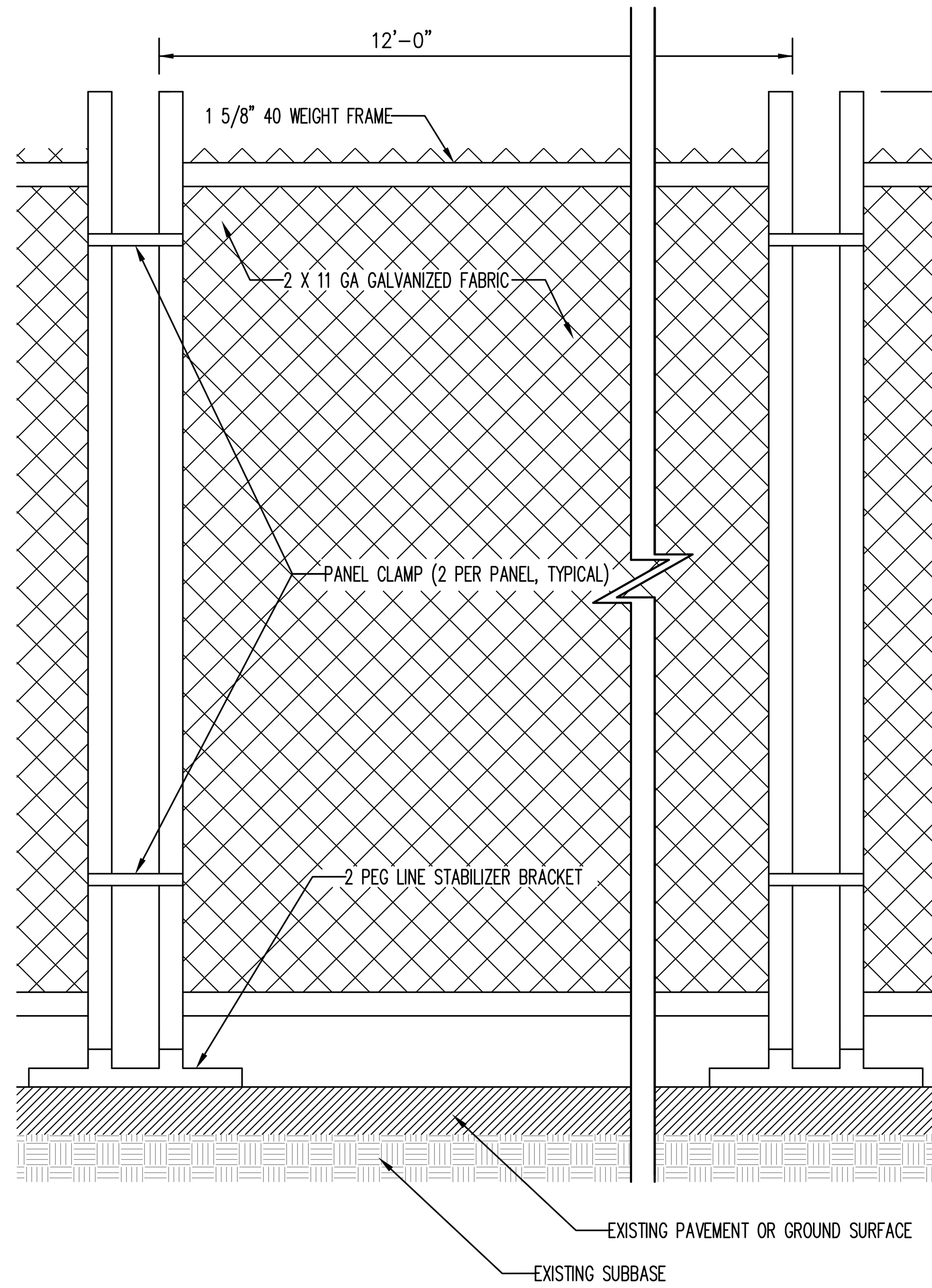
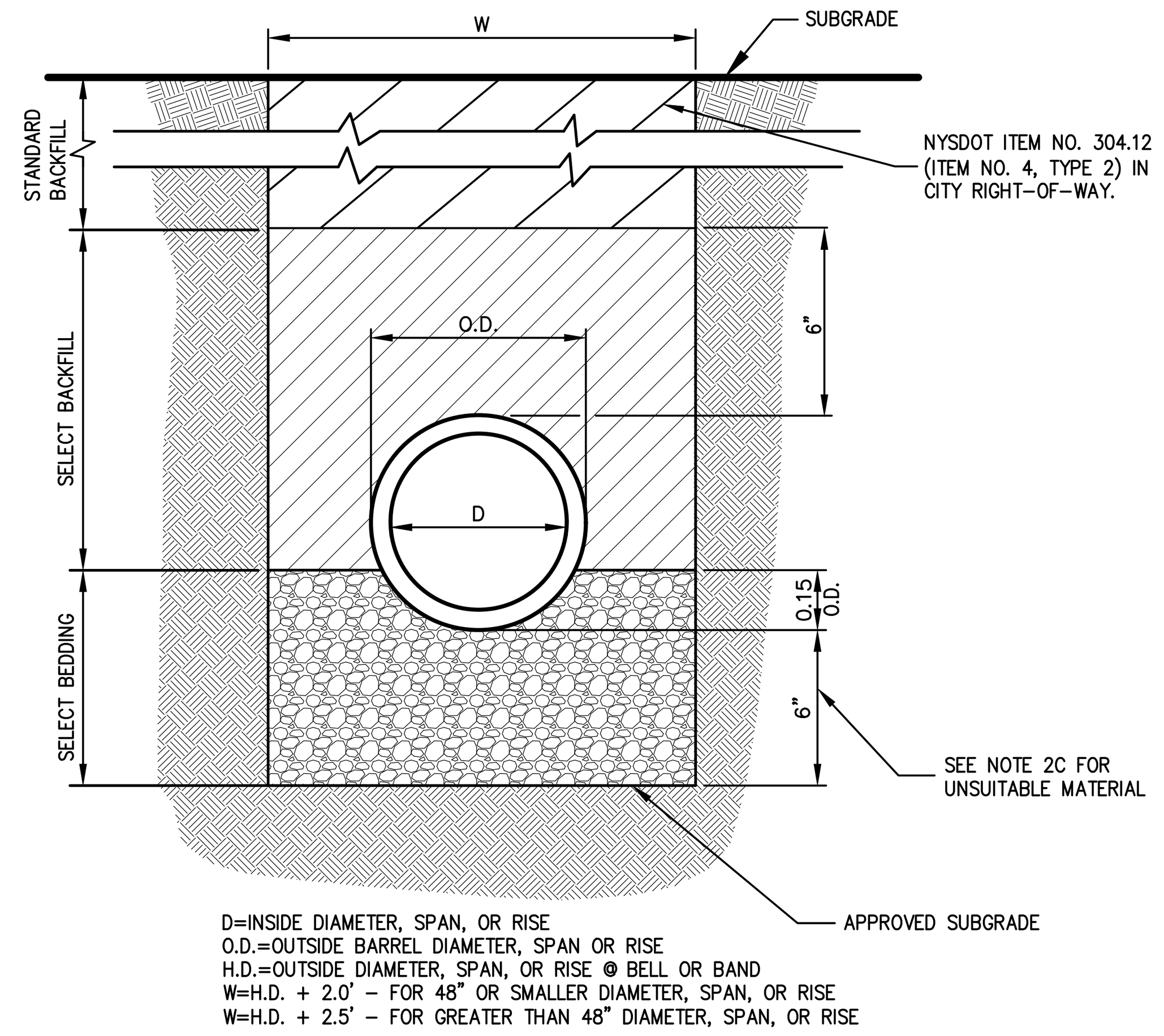


NOTE:
STABILIZED BRACKET TO BE HOT DIPPED GALVANIZED STEEL PIPE.

TEMPORARY CHAIN LINK CONSTRUCTION FENCE — 8

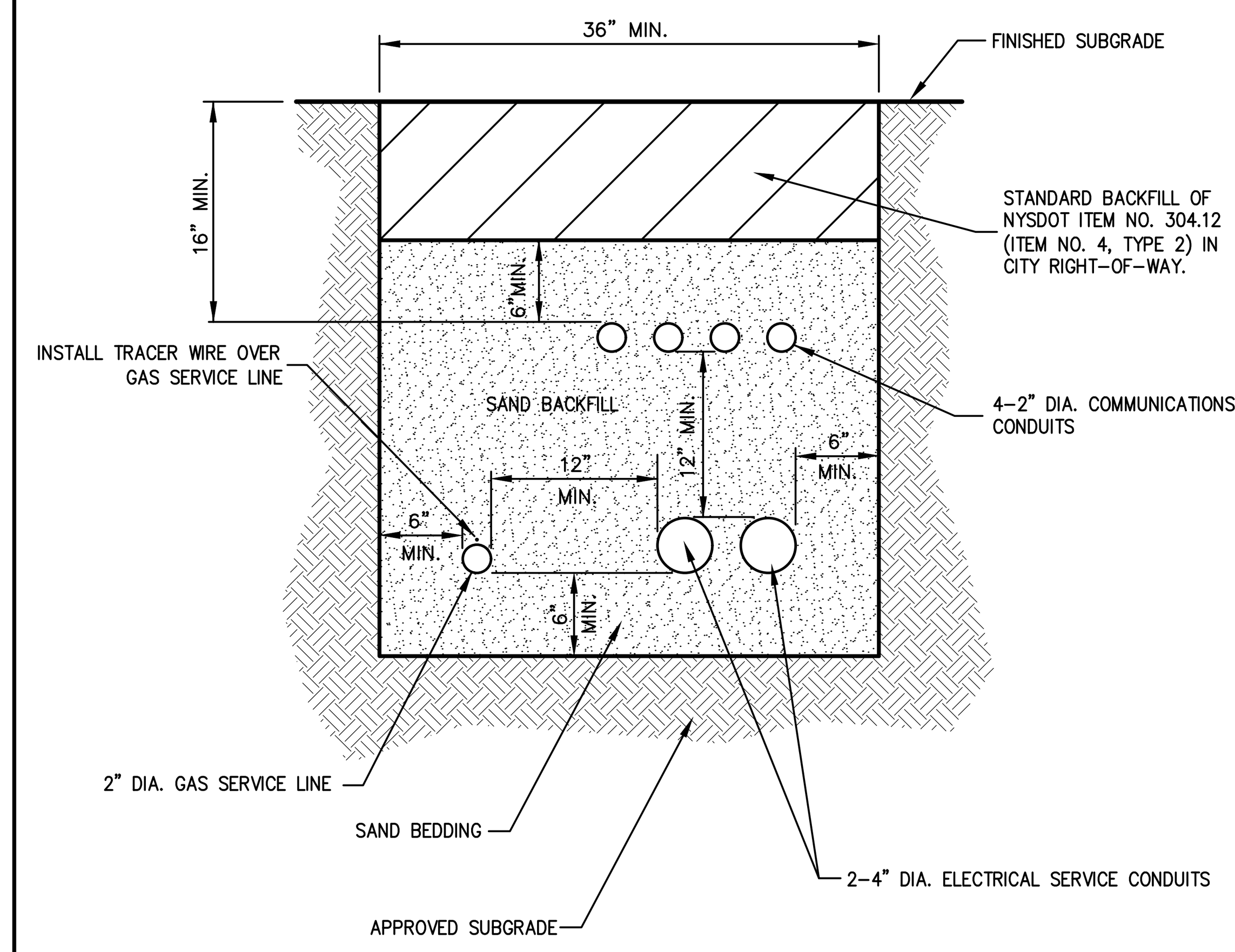


D=INSIDE DIAMETER, SPAN, OR RISE
O.D.=OUTSIDE BARREL DIAMETER, SPAN OR RISE
H.D.=OUTSIDE DIAMETER, SPAN, OR RISE @ BELL OR BAND
W=H.D. + 2.0' – FOR 48" OR SMALLER DIAMETER, SPAN, OR RISE
W=H.D. + 2.5' – FOR GREATER THAN 48" DIAMETER, SPAN, OR RISE

NOTES:

1. FOR TYPE II TRENCH, MATERIAL FOR SELECT BEDDING AND SELECT BACKFILL SHALL BE:
   A. EITHER SAND OR CRUSHED STONE IF NO WATER IS ENCOUNTERED IN TRENCH.
   B. 3/4"CRUSHED STONE IF WATER IS ENCOUNTERED IN TRENCH.
2. TYPE II TRENCH SHALL BE USED IN ALL OF THE FOLLOWING CASES:
   A. FOR ALL CORRUGATED POLYETHYLENE DRAIN PIPE (CPDP) AND PVC PIPE AND CONDUIT INSTALLATION.
   B. WHEN ROCK OR HARDPAN IS ENCOUNTERED IN BOTTOM OF TRENCH.
   C. WHEN UNSUITABLE MATERIAL IS ENCOUNTERED IN BOTTOM OF TRENCH. IN SUCH CASE DEPTH OF UNDERCUTTING SHALL BE AS DIRECTED BY THE ENGINEER WITH 6" MINIMUM.
3. FOR ALL TRENCH EXCAVATION IN FILL AREAS, ALL EMBANKMENTS SHALL BE CONSTRUCTED TO A MINIMUM OF 2 FEET ABOVE THE OUTSIDE TOP (AT THE BELL) OF THE PIPE PRIOR TO BEGINNING ANY TRENCH EXCAVATION.
4. BACKFILL FOR PIPE AND CONDUIT SHALL BE PLACED EVENLY AND CAREFULLY AROUND AND OVER THE PIPE OR CONDUIT IN SIX (6) INCH MAXIMUM LAYERS. EACH LAYER SHALL BE THOROUGHLY AND CAREFULLY COMPACTED UNTIL TWELVE (12) INCHES OF COVER EXISTS OVER THE PIPE OR CONDUIT. THE REMAINDER OF THE BACKFILL MAY THEN BE PLACED AND COMPACTED IN A MAXIMUM OF TWELVE (12) INCH LAYERS. EACH LAYER SHALL BE COMPACTED BY APPROVED MECHANICAL TAMPING MACHINES. UNLESS OTHERWISE SPECIFIED BACKFILL SHALL BE COMPACTED TO NOT LESS THAN 95% MAXIMUM MODIFIED DENSITY IN ACCORDANCE WITH ASTM DESIGNATION D-1557 IN THE MANNER HEREIN DESCRIBED. BACKFILL SHALL PROCEED UP TO THE LINES AND GRADES AS SHOWN ON THE DRAWINGS.

TYPE II TRENCH — 9



NOTES:

1. UTILITIES TO BE INSTALLED IN ACCORDANCE WITH THE REGULATIONS AND REQUIREMENTS OF THE UTILITY COMPANY HAVING JURISDICTION.
2. BACKFILL FOR PIPE AND CONDUIT SHALL BE PLACED EVENLY AND CAREFULLY AROUND AND OVER THE PIPE OR CONDUIT IN SIX (6) INCH MAXIMUM LAYERS. EACH LAYER SHALL BE THOROUGHLY AND CAREFULLY COMPACTED UNTIL TWELVE (12) INCHES OF COVER EXISTS OVER THE PIPE OR CONDUIT. THE REMAINDER OF THE BACKFILL MAY THEN BE PLACED AND COMPACTED IN A MAXIMUM OF TWELVE (12) INCH LAYERS. EACH LAYER SHALL BE COMPACTED BY APPROVED MECHANICAL TAMPING MACHINES. UNLESS OTHERWISE SPECIFIED BACKFILL SHALL BE COMPACTED TO NOT LESS THAN 95% MAXIMUM MODIFIED DENSITY IN ACCORDANCE WITH ASTM DESIGNATION D-1557 IN THE MANNER HEREIN DESCRIBED. BACKFILL SHALL PROCEED UP TO THE LINES AND GRADES AS SHOWN ON THE DRAWINGS.
3. CONTRACTOR SHALL STAKE THE PROPOSED SERVICE LINES AND CONDUITS PRIOR TO BACKFILLING TO ENSURE SERVICES DO NOT MOVE WITHIN TRENCH.

UTILITY TRENCH DETAIL — 10

NOTES PERTAINING TO DRAIN INLETS

A-1 STEPS WILL NOT BE REQUIRED IN INLETS LESS THAN FOUR (4) FEET IN DEPTH. STEPS WILL BE REQUIRED IN INLETS FOUR (4) FEET OR GREATER IN DEPTH. DEPTHS FOR DRAIN INLETS SHALL BE MEASURED FROM FINISHED GRADE TO INSIDE BOTTOM OF STRUCTURE (INCLUDING SUMP AS APPLICABLE).

A-2 WHEN STEPS ARE REQUIRED, STEPS SHALL COMPLY WITH THE SAME REQUIREMENTS OF ASTM STANDARD C-478, ARTICLE 13 ENTITLED "MANHOLE STEPS & LADDERS".

A-3 FOR MASONRY STRUCTURES, THE FIRST COURSE OF MASONRY SHALL BE SET IN THE CONCRETE FOUNDATION BEFORE THE CONCRETE HAS SET. CONCRETE FOUNDATION SHALL BE CLASS "A"(4000 psi) CONCRETE, TWELVE (12) INCHES THICK AND SHALL EXTEND SIX (6) INCHES BEYOND THE OUTSIDE FACE THE STRUCTURE.

A-4 IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO FURNISH AND CONSTRUCT THE PROPER SIZE STRUCTURE INCLUDING THE NECESSARY OPENINGS TO ACCOMMODATE THE WORK AS SHOWN ON THE PLANS OR ORDERED BY THE ENGINEER, AT NO ADDITIONAL COST TO THE OWNER.

A-5 ALL NECESSARY PATCHING FOR DRAIN STRUCTURES SHALL BE ACCOMPLISHED WITH NON-SHRINKING CEMENT MORTAR GROUT, APPROVED EQUAL TO SIKA-SET AS MANUFACTURED BY THE SIKA CHEMICAL CORP.

A-6 FOUNDATIONS FOR PRECAST CONCRETE STRUCTURES SHALL BE SET ON A COMPACTED LAYER OF APPROVED CRUSHED STONE HAVING A MINIMUM COMPACTED THICKNESS OF EIGHT (8) INCHES.

A-7 ALL PIPES SHALL BE CUT FLUSH WITH THE INSIDE WALL OF THE STRUCTURE.

A-8 PROVIDE REINFORCED CONCRETE TOP SLAB FOR OVERSIZED DRAIN INLETS WITH PROPER SIZE OPENING TO ACCOMMODATE INSTALLATION OF FRAME & GRATE.

A-9 FOR MASONRY STRUCTURES GREATER THAN TEN (10) FEET IN DEPTH, THICKNESS OF MASONRY WALLS SHALL BE INCREASED TO TWELVE (12) INCHES.

A-10 FOR ALL STRUCTURES GREATER THAN 10 FEET IN DEPTH, STRUCTURES SHALL PROVIDE MINIMUM INSIDE DIMENSIONS OF 4 FEET X 4 FEET.

NOTES PERTAINING TO MANHOLES

B-1 PRECAST CONCRETE MANHOLES SHALL COMPLY WITH ASTM STANDARD C-478. MANHOLE JOINTS SHALL COMPLY WITH ASTM STANDARD C-443.

B-2 FOR PRECAST CONCRETE MANHOLES FIVE (5) FEET OR LESS IN HEIGHT, TOP CONE SECTION SHALL BE REPLACED WITH PRECAST REINFORCED CONCRETE SLAB (6" MIN. THICKNESS) WITH OPENING OF SUFFICIENT SIZE TO ACCOMMODATE MANHOLE CASTING.

B-3 FOR MANHOLES 10 FEET OR MORE IN DEPTH, MANHOLE DIAMETER SHALL BE FIVE (5) FEET.

B-4 TERMINAL MANHOLE FLOORS SHALL BE SLOPED TOWARD OUTFALL PIPE.

B-5 INVERT CHANNELS FOR PRECAST CONCRETE MANHOLES SHALL BE CONSTRUCTED OF CONCRETE.

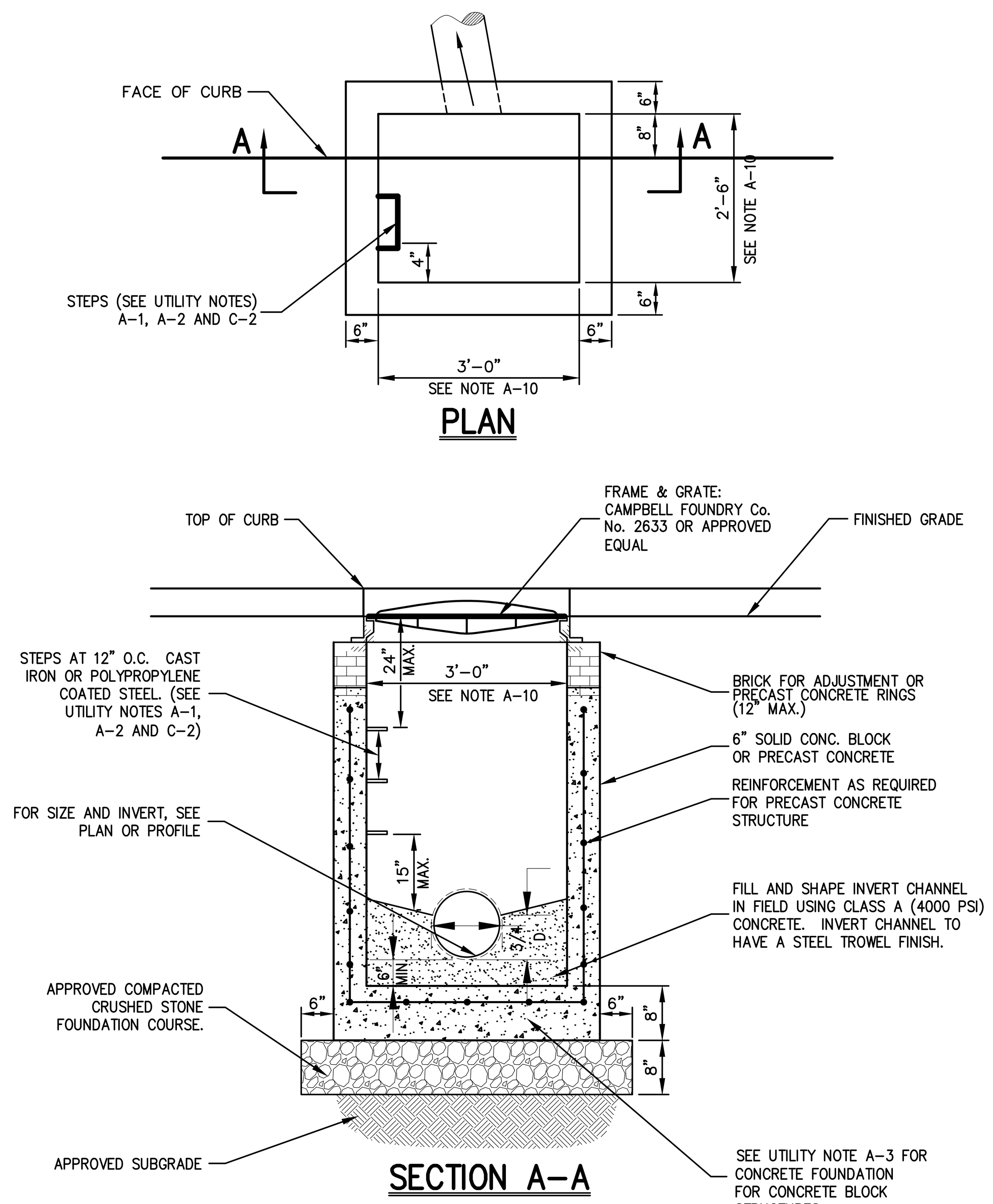
B-6 NOTES A-1, A-2, A-4, A-5, A-6 & A-7 UNDER "NOTES PERTAINING TO DRAIN INLETS" ABOVE SHALL APPLY TO MANHOLES.

NOTES PERTAINING TO PRECAST CONCRETE STRUCTURES FOR STORM DRAINS, SANITARY SEWERS AND WATER LINES

C-1 ALL PRECAST CONCRETE STRUCTURES SHALL BE DESIGNED TO ACCOMMODATE AN H-20 DESIGN LOAD.

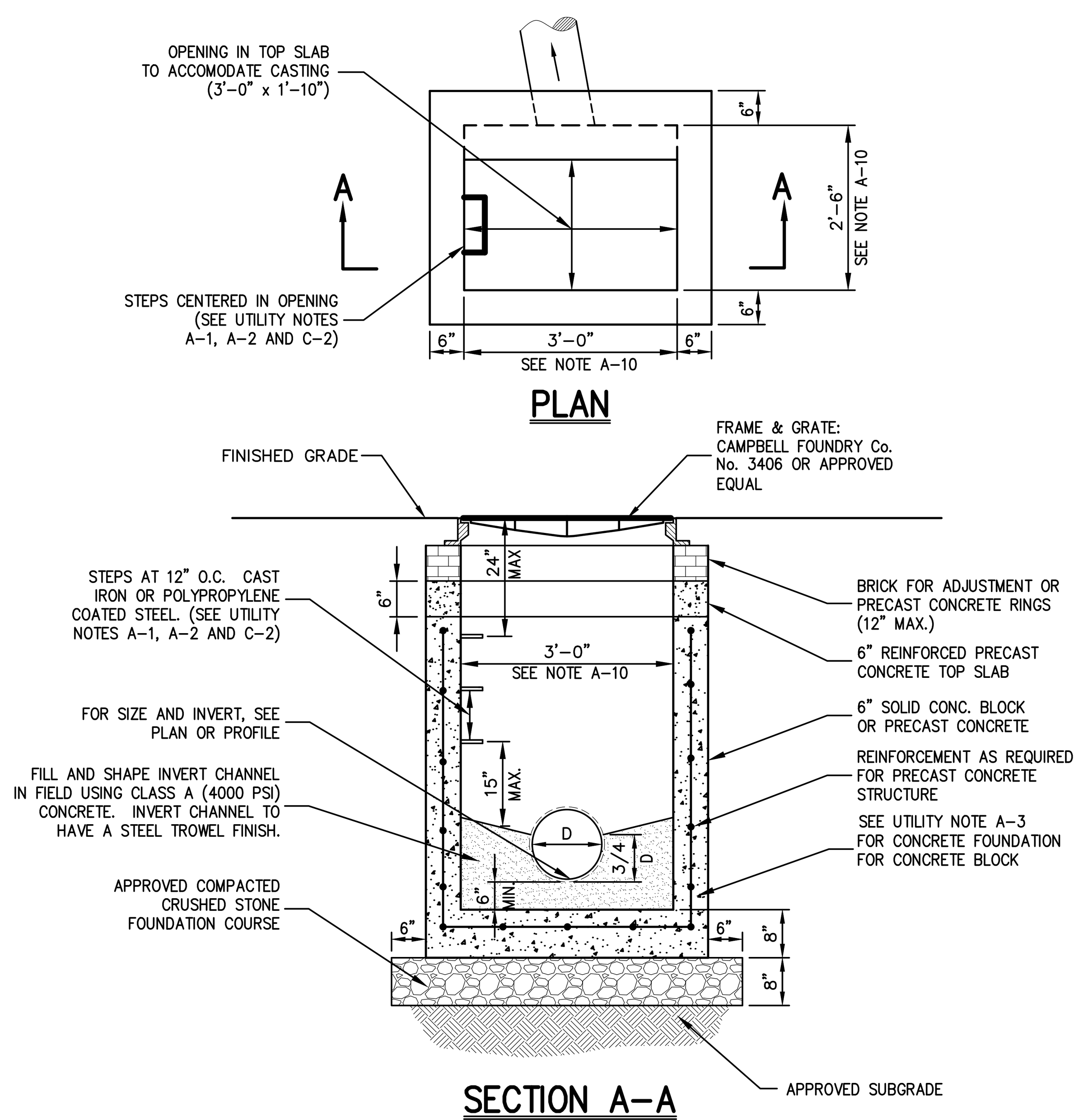
C-2 STEPS SHALL BE LOCATED WITHIN STRUCTURE TO AVOID PLACEMENT OVER PIPES WHEN PRACTICABLE.

UTILITY NOTES — 11



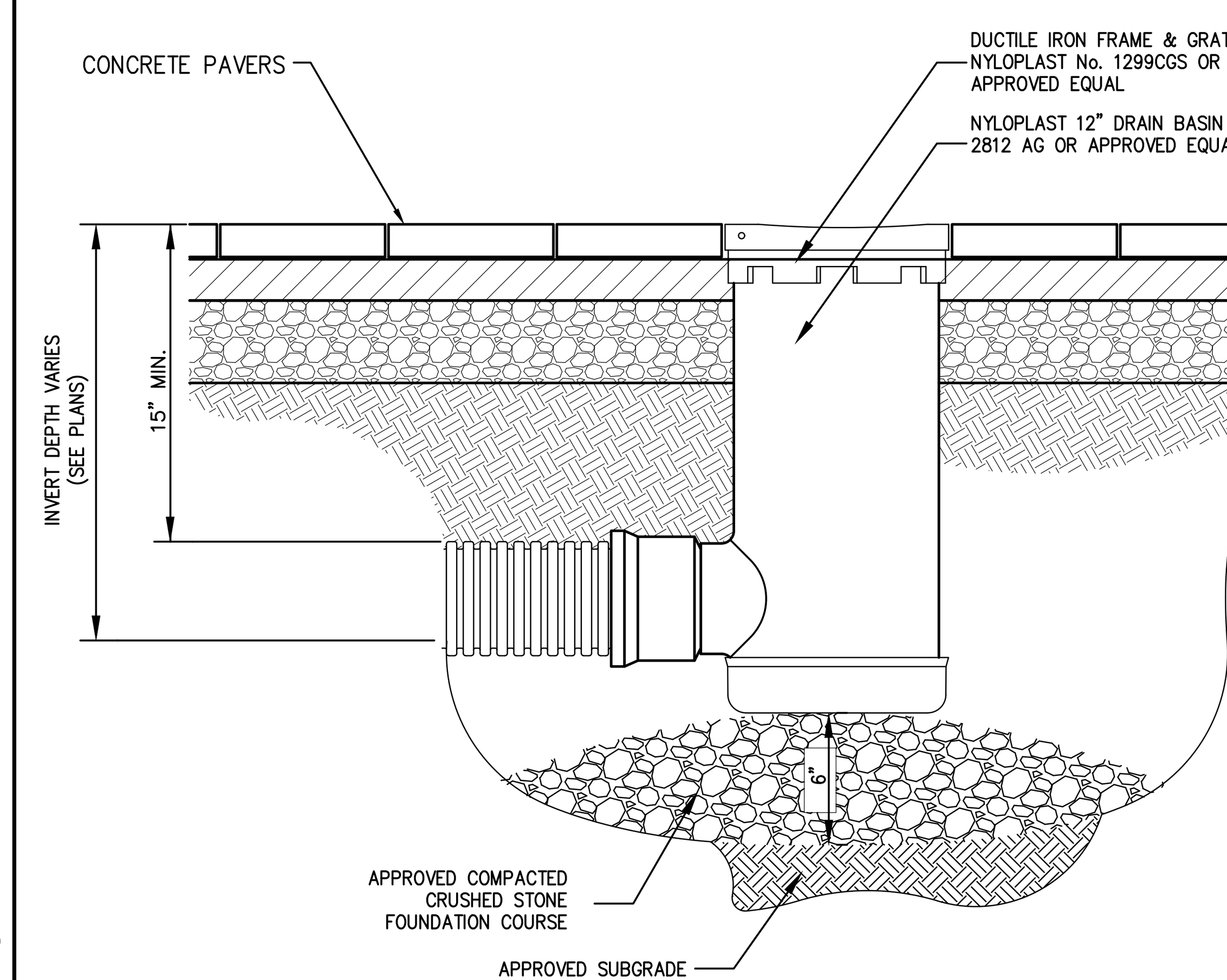
NOTE:
1. SEE NOTES PERTAINING TO DRAIN INLETS UNDER UTILITY NOTES ON DRAWING C-901
2. DRAIN INLETS SHALL BE INSPECTED MONTHLY FOR BLOCKAGE AND/OR EROSION AT TOP OF EACH INLET. BLOCKAGE SHALL BE REMOVED AND INLETS SHALL BE REPAIRED AS NECESSARY.

DRAIN INLET (TYPE CI) — 12
(w/o sump–w/o finger underdrains)



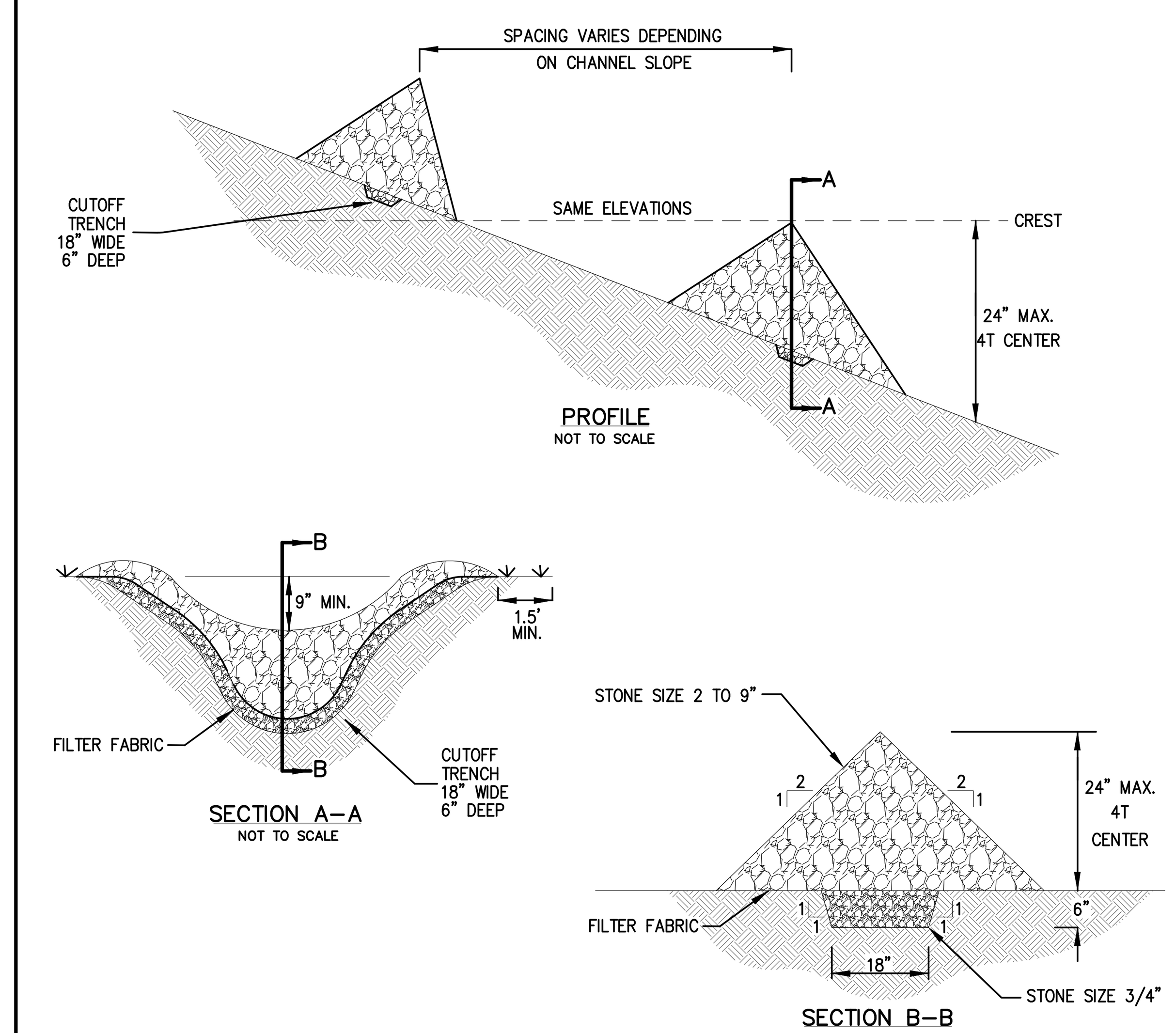
NOTE
1. REINFORCE PRECAST CONCRETE TOP SLAB AND REINFORCE PRECAST CONCRETE STRUCTURE SHALL BE DESIGNED TO ACCOMMODATE AN H-20 DESIGN LOAD.
2. LOCATIONS OF FINGER UNDERDRAINS MAY VARY FROM THAT AS SHOWN DEPENDING UPON NUMBER AND SIZE OF STORM DRAIN LINES ENTERING AND EXITING THE STRUCTURE.
3. SEE NOTES PERTAINING TO DRAIN INLETS UNDER UTILITY NOTES ON DRAWING C-901
4. DRAIN INLETS SHALL BE INSPECTED MONTHLY FOR BLOCKAGE AND/OR EROSION AT TOP OF EACH INLET. BLOCKAGE SHALL BE REMOVED AND INLETS SHALL BE REPAIRED AS NECESSARY.

DRAIN INLET (TYPE DI) — 13
(w/o sump–w/o finger underdrains)



NOTES:
1. ALL MATERIALS SHALL BE PRODUCT OF NYLOPLAST OR APPROVED EQUAL.
   ADDRESS: 3130 VERONA AVENUE, BUFORD, GA 30518
   PHONE: (770) 932 2443.
2. ALL MATERIALS SHALL BE DESIGNED TO ACCOMODATE AN H-20 DESIGN LOAD.
3. GRATES/SOLID COVER SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05.
4. FRAMES SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05.
5. DRAINAGE CONNECTION STUB JOINT TIGHTNESS SHALL CONFORM TO ASTM D3212 FOR CORRUGATED HDPE.

DRAIN BASIN (TYPE DB) — 14
(w/o sump)



CONSTRUCTION SPECIFICATIONS:

1. STONE WILL BE PLACED ON A FILTER FABRIC FOUNDATION TO THE LINES, GRADES AND LOCATIONS SHOWN IN THE PLAN.
2. SET SPACING OF CHECK DAMS TO ASSURE THAT THE ELEVATIONS OF THE CREST OF THE DOWNSTREAM DAM IS AT THE SAME ELEVATION OF THE TOE OF THE UPSTREAM DAM.
3. EXTEND THE STONE A MINIMUM OF 1.5 FEET BEYOND THE DITCH BANK TO PREVENT CUTTING AROUND THE DAM.
4. PROTECT THE CHANNEL DOWNSTREAM OF THE LOWEST CHECK DAM FROM SCOUR AND EROSION WITH STONE OR LINER AS APPROPRIATE.
5. ENSURE THAT CHANNEL APPURTENANCES SUCH AS CULVERT ENTRANCES BELOW CHECK DAMS ARE NOT SUBJECT TO DAMAGE OR BLOCKAGE FROM DISPLACED STONES.

MAXIMUM DRAINAGE AREA 2 ACRES.

STONE CHECK DAM — 14A

No.	Revision	Date
1.	REVISED PER CITY COMMENTS	12/30/19
2.	REVISED PER CITY COMMENTS	02/24/2020
3.	REVISED PER CITY COMMENTS	09/29/2020
4.	REVISED PER CITY COMMENTS	07/27/2021
5.	REVISED PER CITY COMMENTS	03/25/2022
6.	REVISED PER CITY COMMENTS	05/31/2022

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Drawn: BMS	Approved: SS
Scale: NOT TO SCALE	
Date: 10/29/2019	
Project No: 18119	
18119-DETAILS	C-901 –
Drawing No: C-901 (Sheet 18 of 26)	

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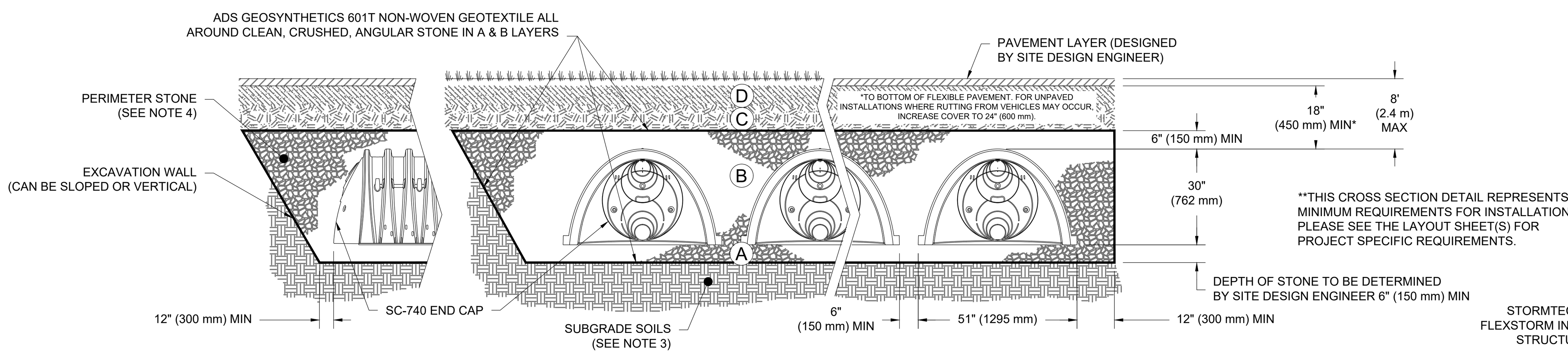
ACCEPTABLE FILL MATERIALS: STORMTECH SC-740 CHAMBER SYSTEMS

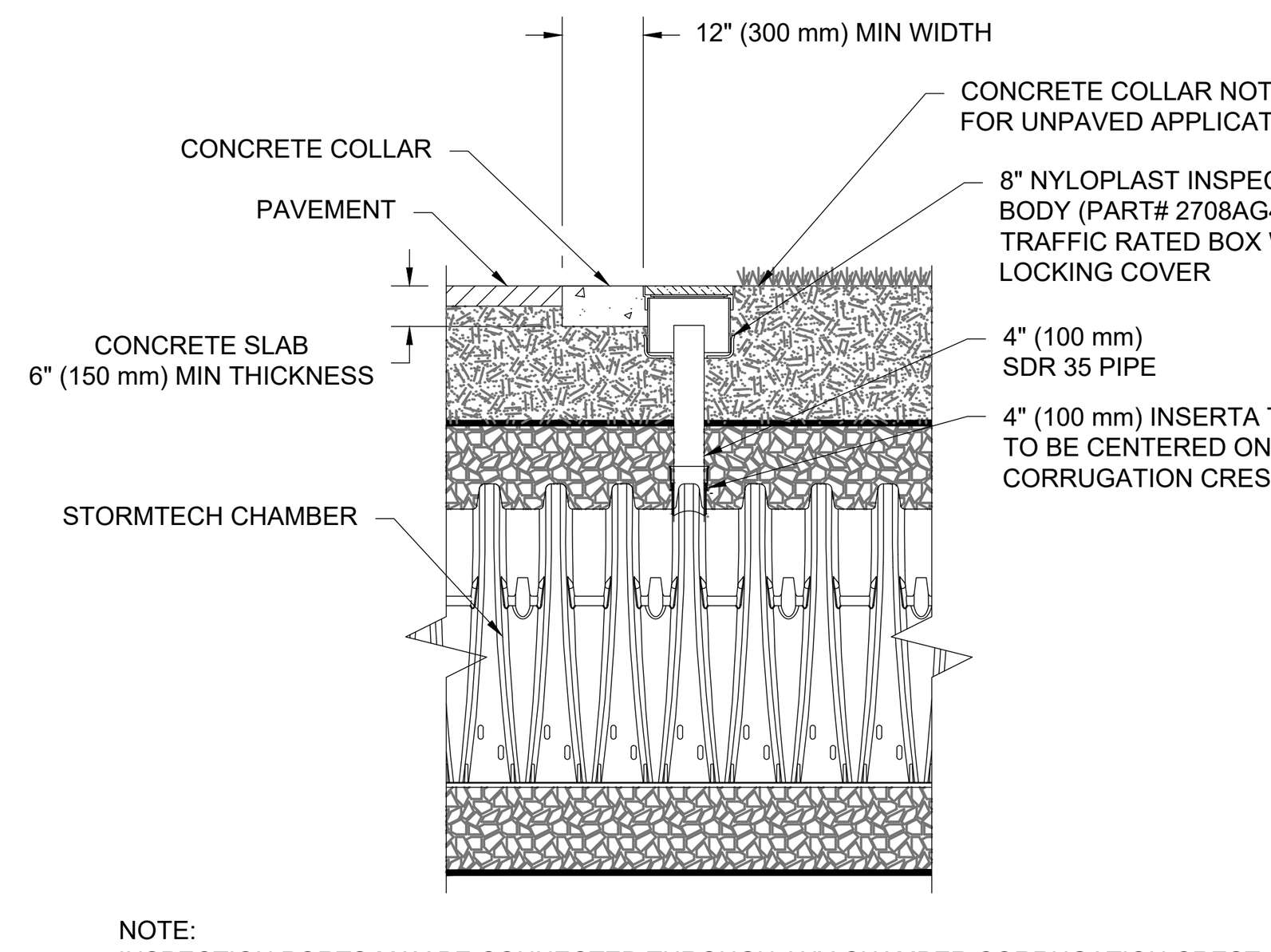
MATERIAL LOCATION		DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	**FINAL FILL:** FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER.	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	**INITIAL FILL:** FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 18" (450 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE. MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.	AASHTO M145[1] A-1, A-2-4, A-3 OR AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 12" (300 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 6" (150 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS. ROLLER GROSS VEHICLE WEIGHT NOT TO EXCEED 12,000 lbs (53 kN). DYNAMIC FORCE NOT TO EXCEED 20,000 lbs (89 kN).
B	**EMBEDMENT STONE:** FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57	NO COMPACTION REQUIRED.
A	**FOUNDATION STONE:** FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE.[2,3]

PLEASE NOTE:
1. THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
2. STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 6" (150 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
3. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.
4. ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.



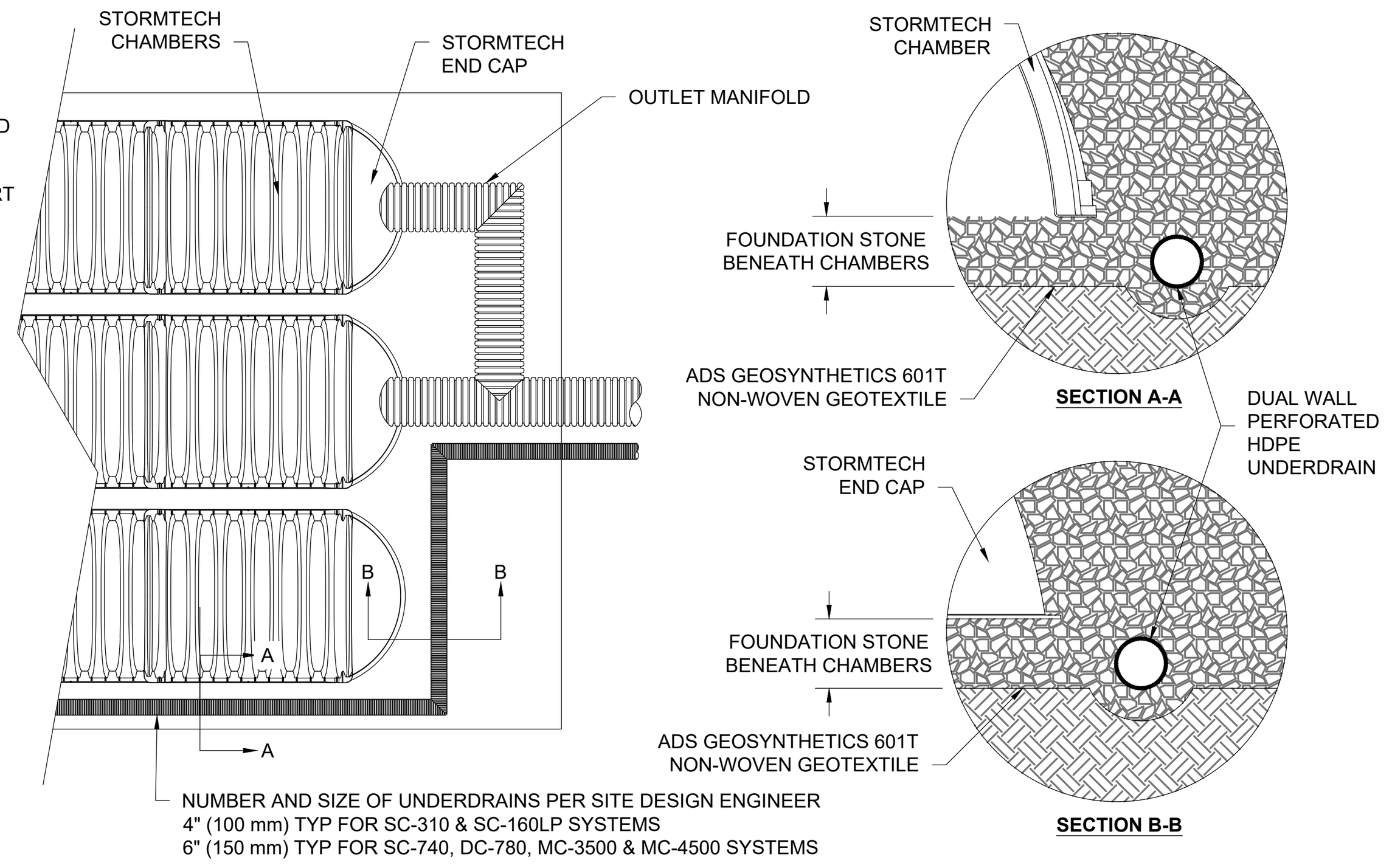
NOTES:
1. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418-16a, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
2. SC-740 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
3. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
4. PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
5. REQUIREMENTS FOR HANDLING AND INSTALLATION:
   - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
   - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 2".
   - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT AS DEFINED IN SECTION 6.2.8 OF ASTM F2418 SHALL BE GREATER THAN OR EQUAL TO 550 LBS/IN/IN. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.

SC-740 CROSS SECTION DETAIL



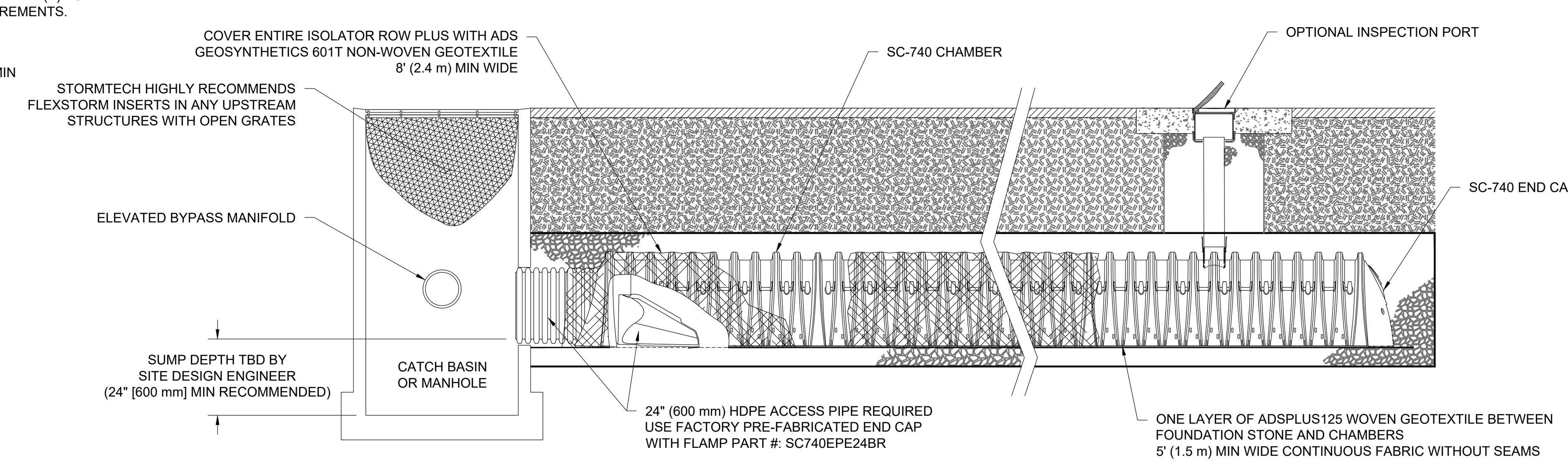
NOTE:
INSPECTION PORTS MAY BE CONNECTED THROUGH ANY CHAMBER CORRUGATION CREST.

4" PVC INSPECTION PORT DETAIL
(SC SERIES CHAMBER)



UNDERDRAIN DETAIL

SEE MAINTENANCE GUIDELINES IN APPENDIX E OF SWPPP REPORT. LEVEL OF SEDIMENT ACCUMULATED WITHIN THE ISOLATOR ROW SHALL BE INSPECTED THROUGH THE ACCESS MANHOLE. IF 3 INCHES OF SEDIMENT OR GREATER HAS ACCUMULATED, IT SHALL BE CLEANED OUT UTILIZING A HIGH-PRESSURE WATER NOZZLE TO SCOUR AND SUSPEND SEDIMENTS. ALL SEDIMENT SHALL BE FLUSHED TO ACCESS MANHOLE AND REMOVED USING A VACUUM TRUCK.



SC-740 ISOLATOR ROW PLUS DETAIL

INSPECTION & MAINTENANCE

STEP 1) INSPECT ISOLATOR ROW PLUS FOR SEDIMENT
- A. INSPECTION PORTS (IF PRESENT)
  - A.1. REMOVE/OPEN LID ON NYLOPLAST INLINE DRAIN
  - A.2. REMOVE AND CLEAN FLEXSTORM FILTER IF INSTALLED
  - A.3. USING A FLASHLIGHT AND STADIA ROD, MEASURE DEPTH OF SEDIMENT AND RECORD ON MAINTENANCE LOG
  - A.4. LOWER A CAMERA INTO ISOLATOR ROW PLUS FOR VISUAL INSPECTION OF SEDIMENT LEVELS (OPTIONAL)
  - A.5. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
- B. ALL ISOLATOR PLUS ROWS
  - B.1. REMOVE COVER FROM STRUCTURE AT UPSTREAM END OF ISOLATOR ROW PLUS
  - B.2. USING A FLASHLIGHT, INSPECT DOWN THE ISOLATOR ROW PLUS THROUGH OUTLET PIPE
    - i) MIRRORS ON POLES OR CAMERAS MAY BE USED TO AVOID A CONFINED SPACE ENTRY
    - ii) FOLLOW OSHA REGULATIONS FOR CONFINED SPACE ENTRY IF ENTERING MANHOLE
  - B.3. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.

STEP 2) CLEAN OUT ISOLATOR ROW PLUS USING THE JETVAC PROCESS
- A. A FIXED CULVERT CLEANING NOZZLE WITH REAR FACING SPREAD OF 45" (1.1 m) OR MORE IS PREFERRED
- B. APPLY MULTIPLE PASSES OF JETVAC UNTIL BACKFLUSH WATER IS CLEAN
- C. VACUUM STRUCTURE SUMP AS REQUIRED

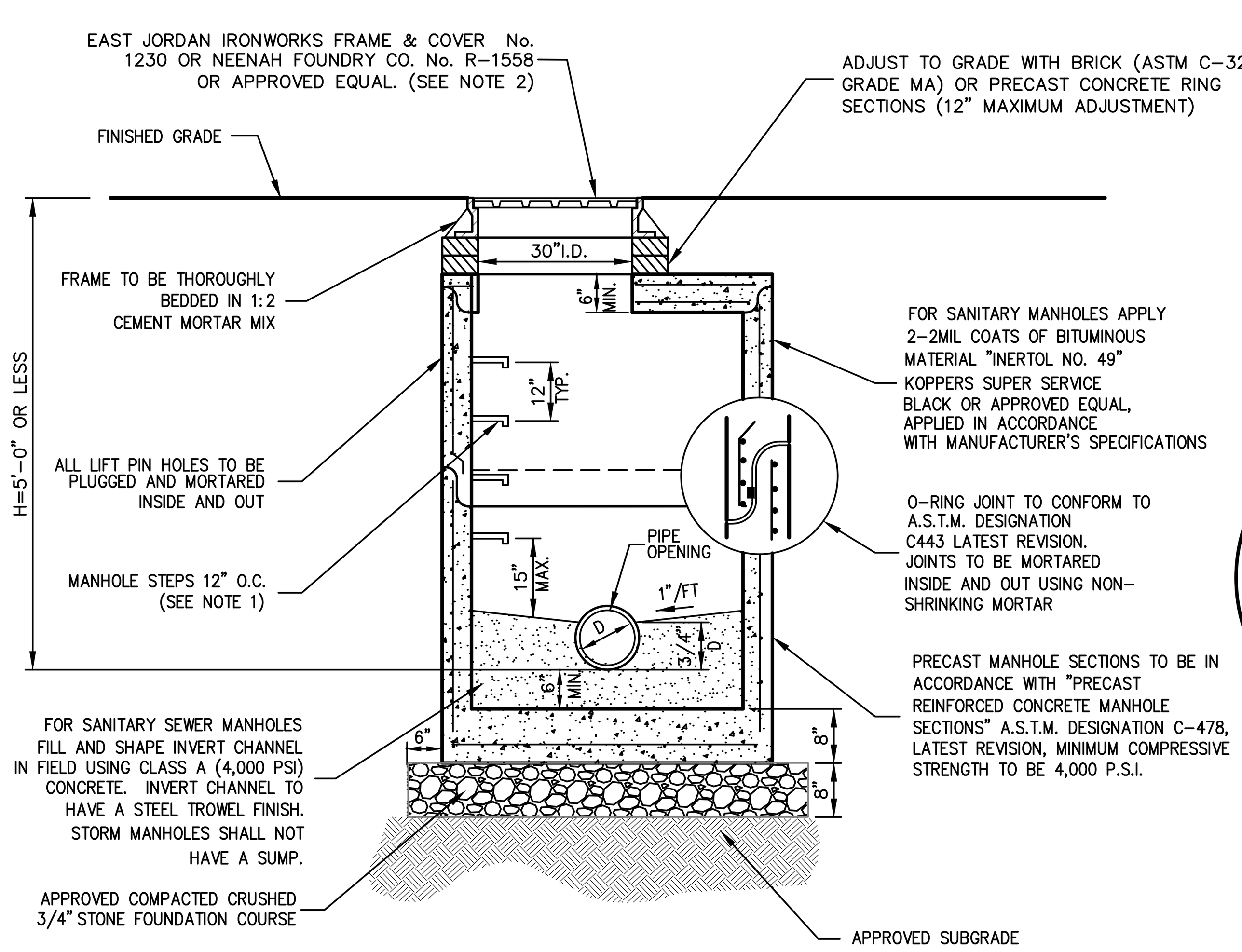
STEP 3) REPLACE ALL COVERS, GRATES, FILTERS, AND LIDS; RECORD OBSERVATIONS AND ACTIONS.

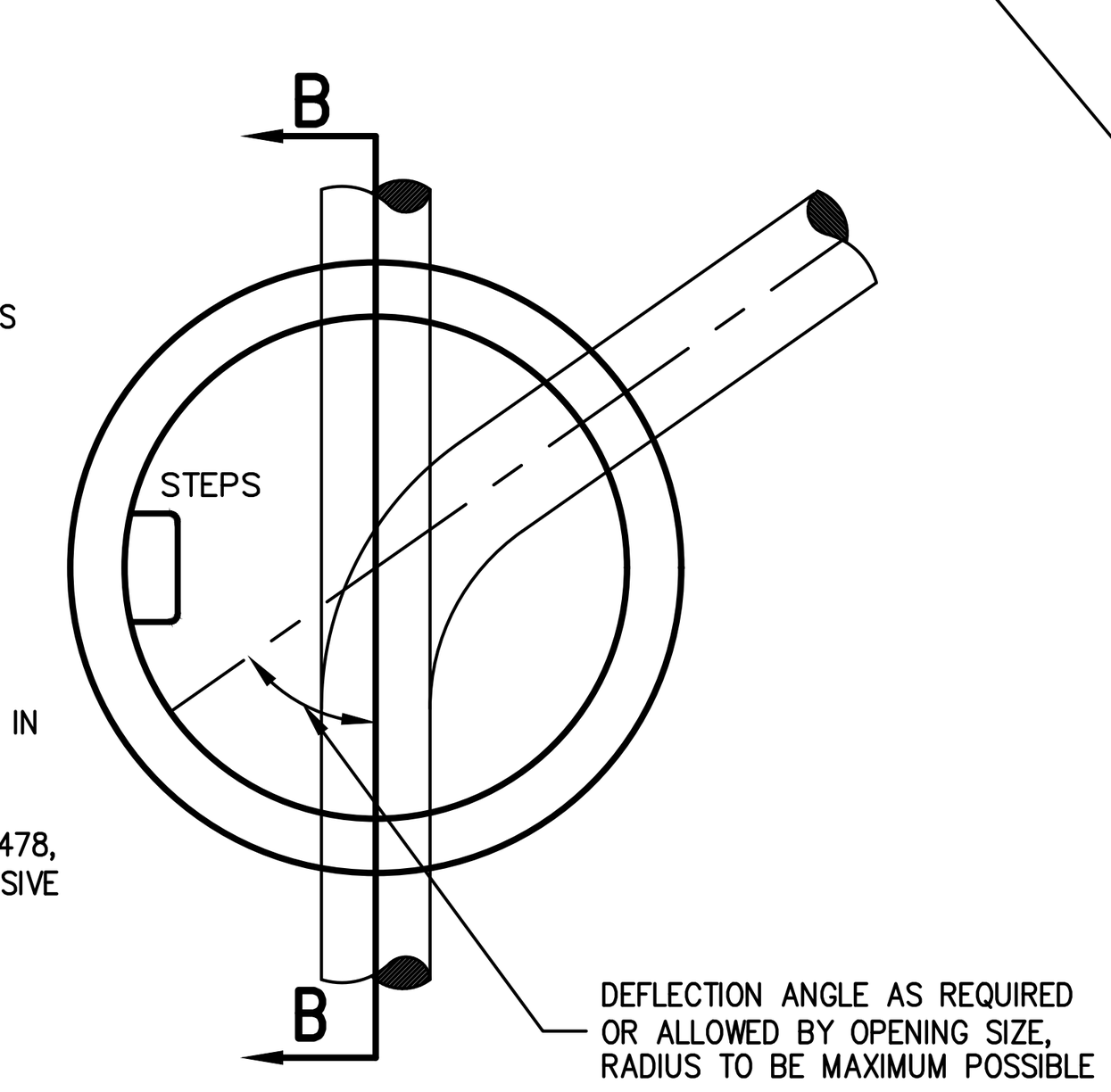
STEP 4) INSPECT AND CLEAN BASINS AND MANHOLES UPSTREAM OF THE STORMTECH SYSTEM.

NOTES
1. INSPECT EVERY 6 MONTHS DURING THE FIRST YEAR OF OPERATION. ADJUST THE INSPECTION INTERVAL BASED ON PREVIOUS OBSERVATIONS OF SEDIMENT ACCUMULATION AND HIGH WATER ELEVATIONS.
2. CONDUCT JETTING AND VACTORING ANNUALLY OR WHEN INSPECTION SHOWS THAT MAINTENANCE IS NECESSARY.

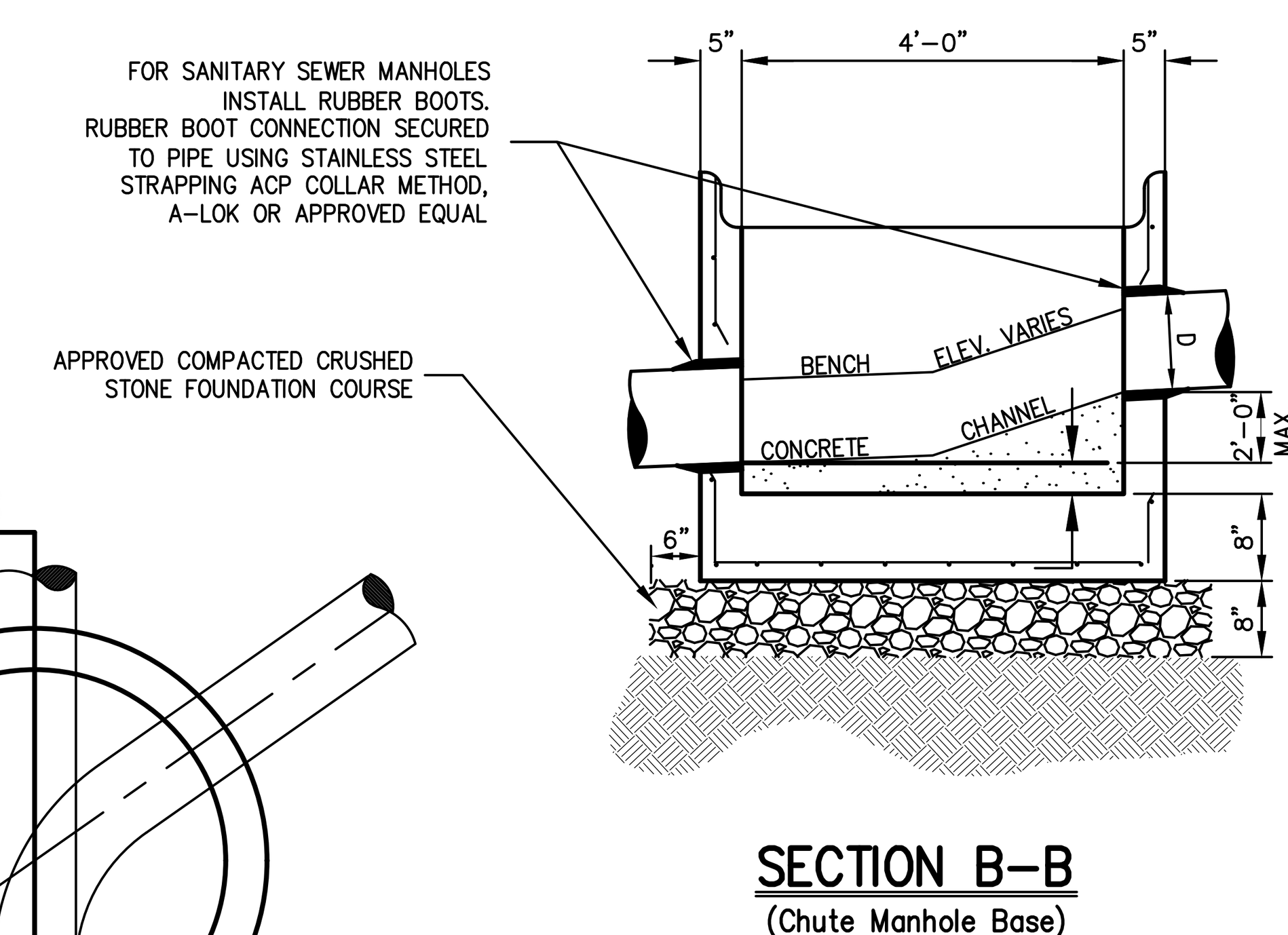
DETENTION SYSTEM
(STORMTECH CHAMBERS SC-740)

15

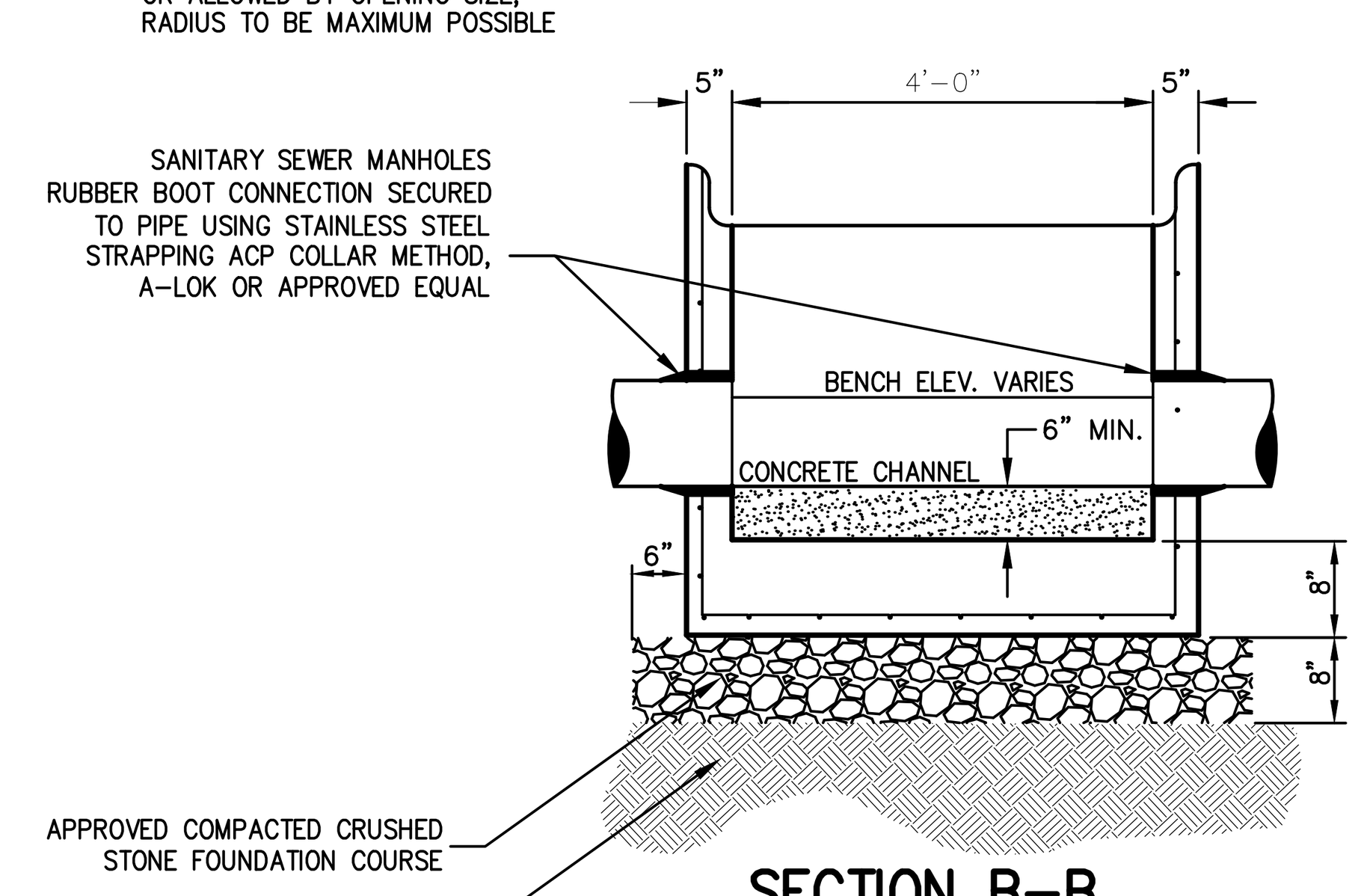




PLAN



SECTION B-B
(Chute Manhole Base)

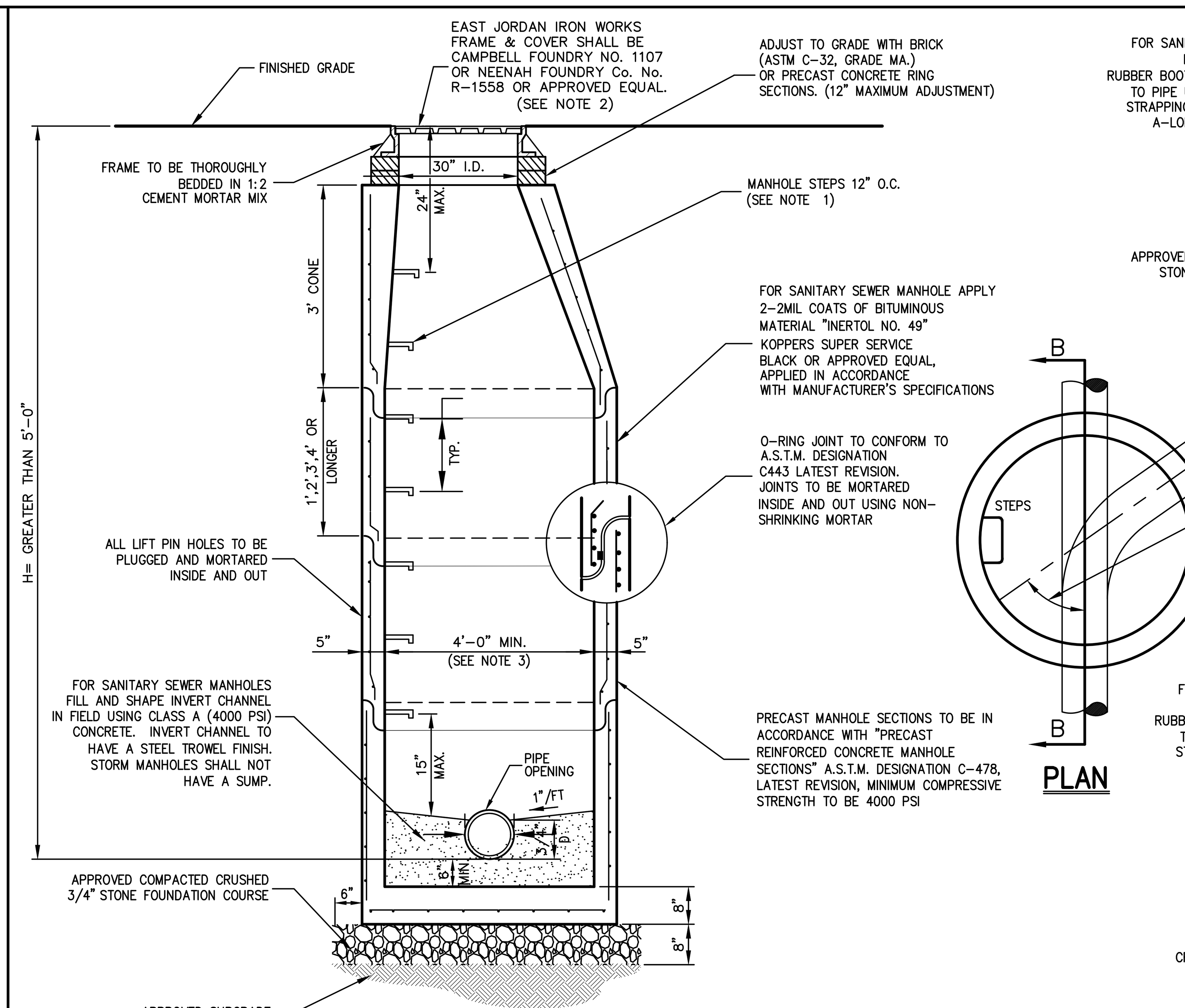


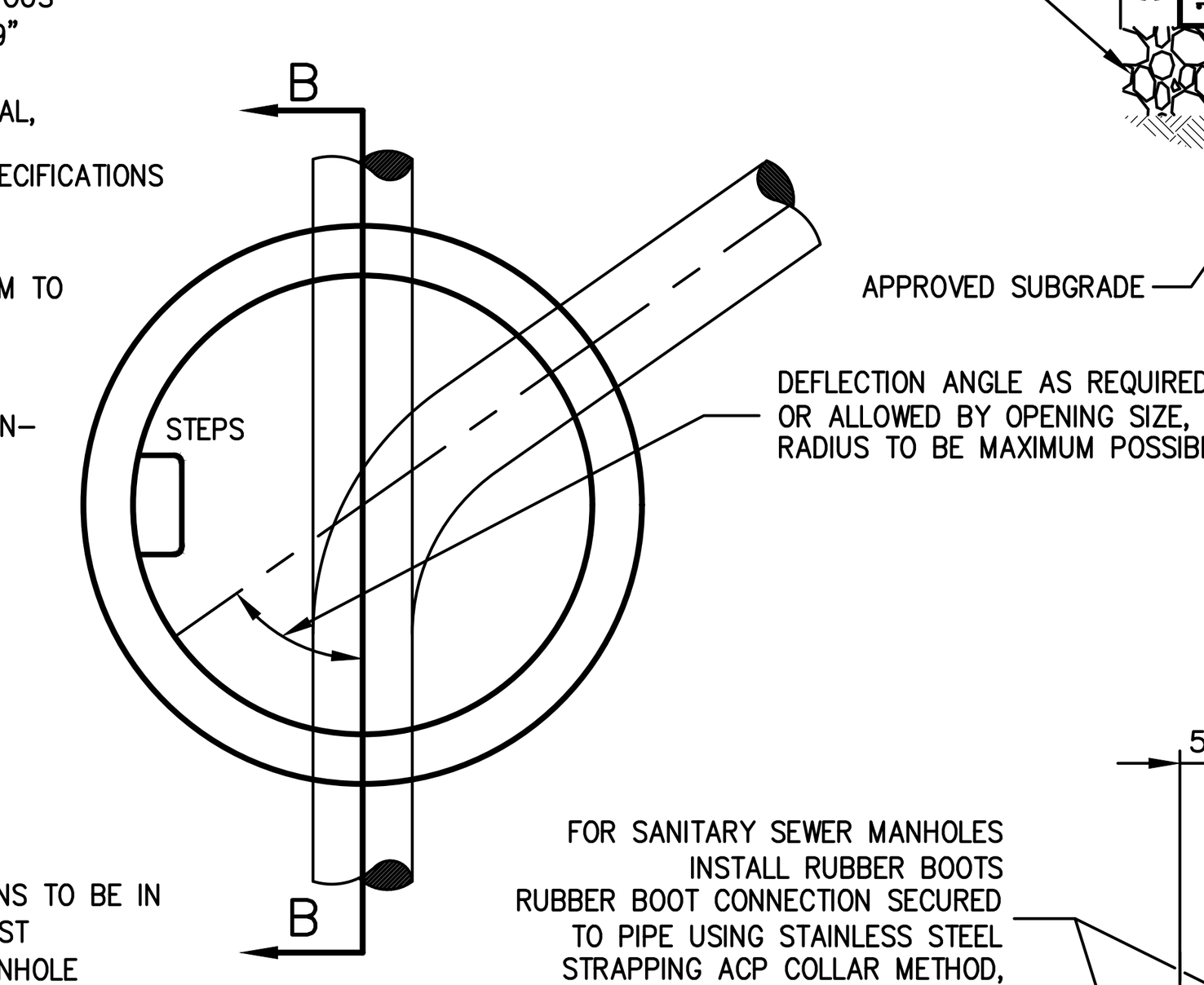
SECTION B-B
(Standard Manhole Base)

NOTES:
1. MANHOLE STEPS SHALL BE CAST IRON NEENAH No. R-1981-0 OR CAMPBELL FOUNDRY No. 2588-1 OR POLYPROPYLENE COATED STEEL (SEE SPECIFICATIONS) OR APPROVED EQUAL.
2. UNLESS OTHERWISE SPECIFIED, SANITARY SEWER MANHOLES SHALL HAVE LETTERS "SEWER" AND STORM DRAIN MANHOLES SHALL HAVE LETTERS "DRAIN" CAST ON COVER. THE COVERS FOR STORM DRAIN MANHOLES ONLY SHALL HAVE VENT HOLES.
3. MANHOLES SHALL MEET OR EXCEED A.S.T.M. AND O.S.H.A. REQUIREMENTS.
4. SEE "NOTES PERTAINING TO MANHOLES" UNDER "UTILITY NOTES" ON DRAWING C-901
5. COATING SHALL BE TOUCHED UP ON SITE AS NEEDED OR AS DIRECTED BY CITY ENGINEER.

MANHOLE (TYPE A)
(H < 5'-0")

16





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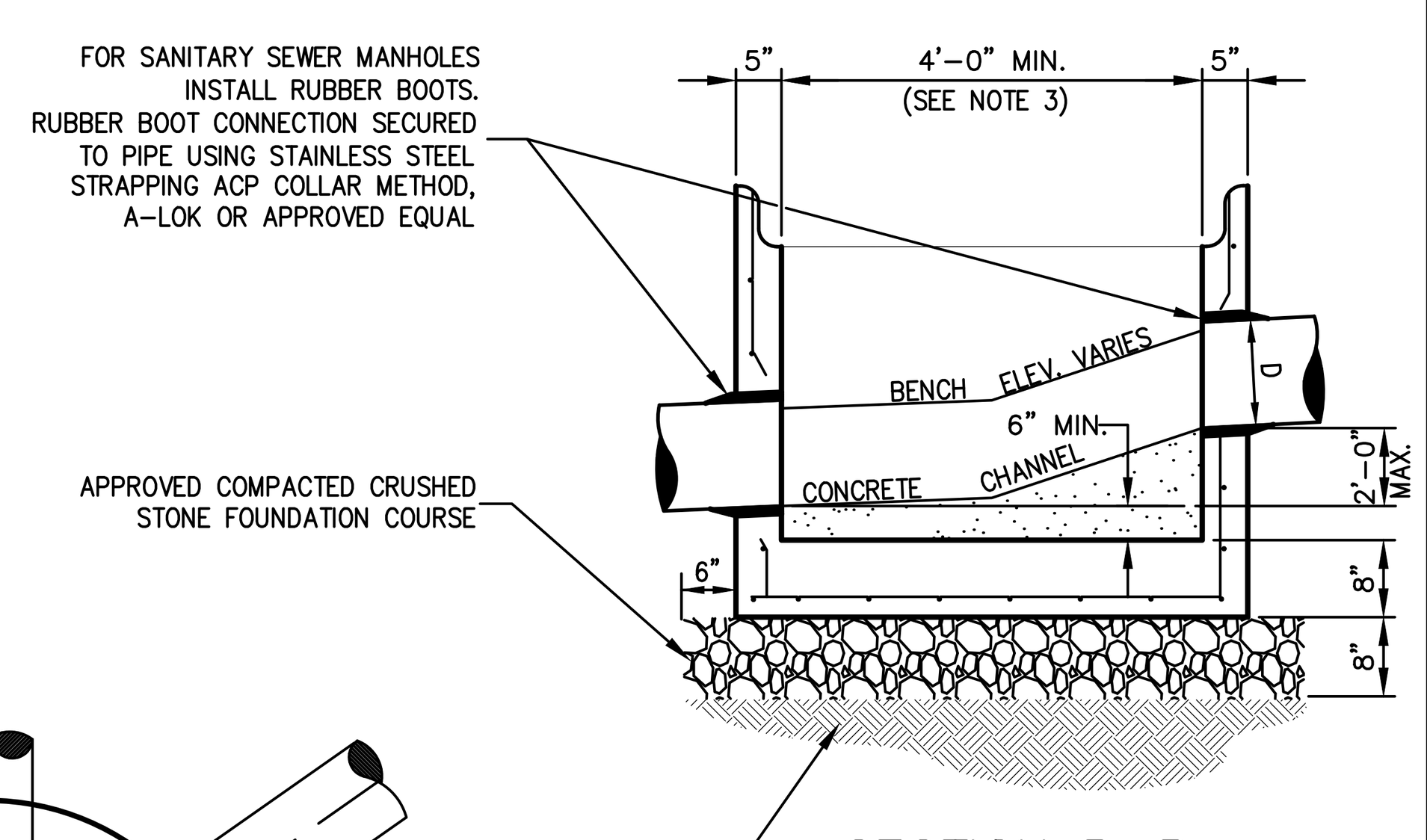
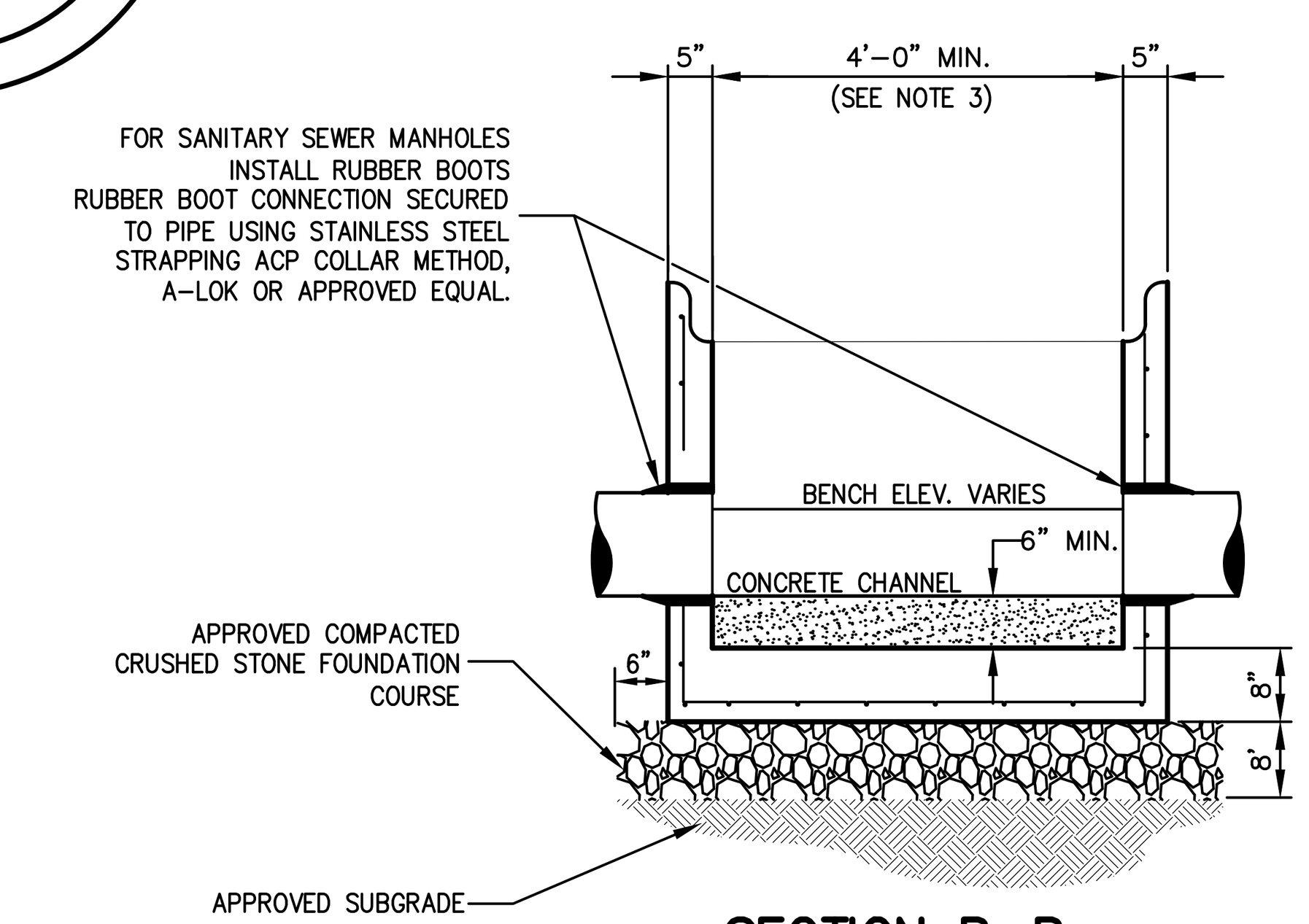


SECTION B-B
(Chute Manhole Base)



SECTION B-B
(Standard Manhole Base)

NOTES:
1. MANHOLE STEPS SHALL BE CAST IRON NEENAH No. R-1981-0 OR CAMPBELL FOUNDRY No. 2588-1 OR POLYPROPYLENE COATED STEEL (SEE SPECIFICATIONS) OR APPROVED EQUAL.
2. UNLESS OTHERWISE SPECIFIED, SANITARY SEWER MANHOLES SHALL HAVE LETTERS "SEWER" AND STORM DRAIN MANHOLES SHALL HAVE LETTERS "DRAIN" CAST ON COVER. THE COVERS FOR STORM DRAIN MANHOLES ONLY SHALL HAVE VENT HOLES.
3. MANHOLES WITH DEPTH (h) 10' OR GREATER SHALL BE FIVE (5) FEET IN DIAMETER.
4. MANHOLES SHALL MEET OR EXCEED A.S.T.M. AND O.S.H.A. REQUIREMENTS.
5. SEE "NOTES PERTAINING TO MANHOLES" UNDER "UTILITY NOTES" ON DRAWING C-901

MANHOLE (TYPE B)
(H > 5'-0")<10'-0")

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No.	Revision	Date
1.	REVISED PER CITY COMMENTS	12/30/19
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C-902
(Sheet 19 of 26)

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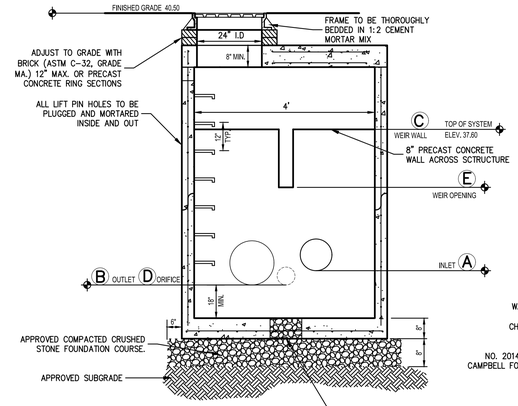
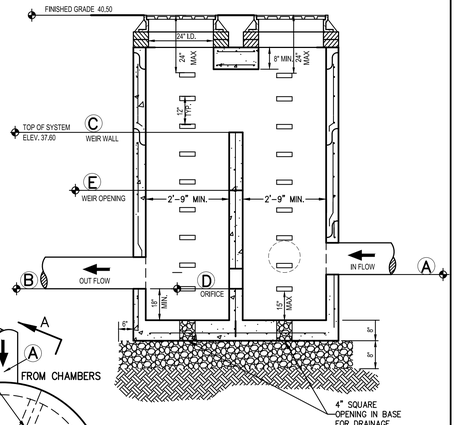
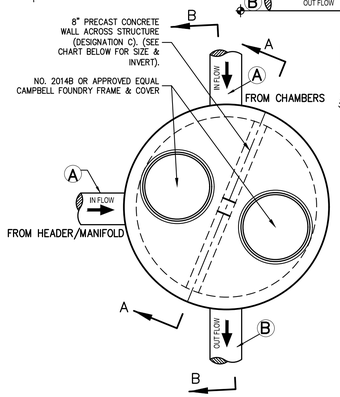


SECTION A–A
N.T.S.



SECTION B–B
N.T.S.



PLAN VIEW
N.T.S.

SCHEDULE OF INVERTS

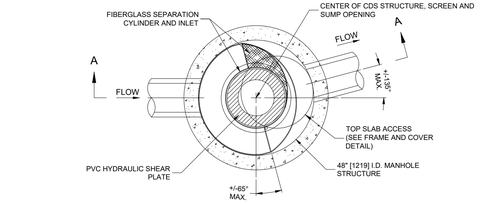
DESIGNATION	A		B		C		D		E	
	INLET		OUTLET		WEIR TOP		ORIFICE		WEIR OPENING	
	SIZE	INVERT	SIZE	INVERT	SIZE	INVERT	SIZE	ELEVATION	SIZE	ELEVATION
OCS–A6	15" HDPE	34.60	15" HDPE	34.10	WEIR WALL	37.60	4"	34.10	4"	35.15

NOTES:

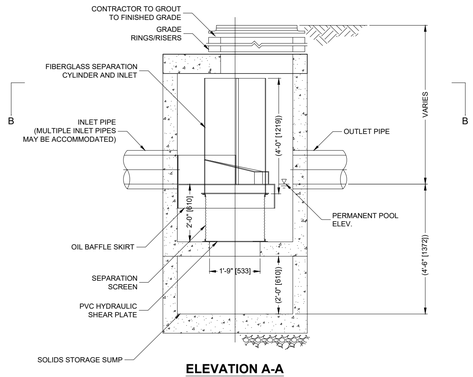
1. STEPS SHALL BE CAST IRON NEENAH No. R-1981-0 OR CAMPBELL FOUNDRY No. 2588-1 OR POLYPROPYLENE COATED STEEL (SEE SPECIFICATIONS) OR APPROVED EQUAL.
2. STRUCTURES SHALL MEET OR EXCEED A.S.T.M AND O.S.H.A REQUIREMENTS.
3. STRUCTURES SHALL BE DESIGNED TO ACCOMMODATE H-20 LOADING.
4. SEE UTILITY NOTES ON DRAWING C-901.

OUTLET CONTROL STRUCTURE

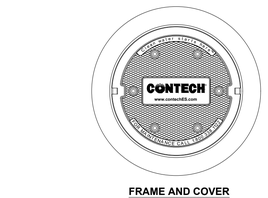
18



PLAN VIEW B-B
N.T.S.



ELEVATION A-A
N.T.S.



FRAME AND COVER
(DIAMETER VARIES)
N.T.S.

CDS2015-4-C DESIGN NOTES

THE STANDARD CDS2015-4-C CONFIGURATION IS SHOWN. ALTERNATE CONFIGURATIONS ARE AVAILABLE AND ARE LISTED BELOW. SOME CONFIGURATIONS MAY BE COMBINED TO SUIT SITE REQUIREMENTS.

CONFIGURATION DESCRIPTION

~~GRATED INLET ONLY (NO INLET PIPE)~~
GRATED INLET WITH INLET PIPE OR PIPES
~~CURB INLET ONLY (NO INLET PIPE)~~
~~CURB INLET WITH INLET PIPE OR PIPES~~
~~SEPARATE OIL BAFFLE (SINGLE INLET PIPE REQUIRED FOR THIS CONFIGURATION)~~
~~SEDIMENT WEIR FOR NJDEP / NJCAT CONFORMING UNITS~~

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID	WQS-A3-1
WATER QUALITY FLOW RATE (CFS OR L/s)	0.7
PEAK FLOW RATE (CFS OR L/s)	0.7
RETURN PERIOD OF PEAK FLOW (YRS)	1
SCREEN APERTURE (2400 OR 4700)	*

PIPE DATA:	I.E.	MATERIAL	DIAMETER
INLET PIPE 1	32.15	HDPE	15"
INLET PIPE 2	*	*	*
OUTLET PIPE	32.15	HDPE	15"

RIM ELEVATION	35.40

ANTI-FLOTATION BALLAST	WIDTH	HEIGHT
	*	*

NOTES/SPECIAL REQUIREMENTS:

* PER ENGINEER OF RECORD

NOTE

1. SEE MAINTENANCE GUIDLINES IN APPENDIX E OF SWPPP REPORT. OPEN ACCESS COVER FOR VISUAL INSPECTION AND MEASURE THE DISTANCE FROM THE STANDING WATER SURFACE TO THE SEDIEMENT PILE WITH A MEASURING STICK OR TAPE. IF LESS THAN 4 FEET, INSERT HOSE FROM VACUUM TRUCK INTO THE SUMP AND SCREEN THROUGH BOTH ACCESS COVERS TO CLEAN OUT THE STANDING WATER, LAYER OF OIL, SEDIMENT, TRASH, ETC. THE SCREEN MUST BE POWERWASHED TO ENSURE IT IS FREE OF TRASH AND DEBRIS.

GENERAL NOTES

1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. DIMENSIONS MARKED WITH ( ) ARE REFERENCE DIMENSIONS. ACTUAL DIMENSIONS MAY VARY.
3. FOR FABRICATION DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHTS, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. www.contechES.com
4. CDS WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING.
5. STRUCTURE SHALL MEET AASHTO HS20 AND CASTINGS SHALL MEET HS20 (AASHTO M 306) LOAD RATING, ASSUMING GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION.
6. PVC HYDRAULIC SHEAR PLATE IS PLACED ON SHELF AT BOTTOM OF SCREEN CYLINDER. REMOVE AND REPLACE AS NECESSARY DURING MAINTENANCE CLEANING.

INSTALLATION NOTES

A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE CDS MANHOLE STRUCTURE (LIFTING CLUTCHES PROVIDED).
C. CONTRACTOR TO ADD JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS, AND ASSEMBLE STRUCTURE.
D. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT PIPES. MATCH PIPE INVERTS WITH ELEVATIONS SHOWN.
E. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO ASSURE UNIT IS WATER TIGHT, HOLDING WATER TO FLOWLINE INVERT MINIMUM. IT IS SUGGESTED THAT ALL JOINTS BELOW PIPE INVERTS ARE GROUTED.

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CDS2015-4-C
INLINE CDS
STANDARD DETAIL

HYDRODYNAMIC WATER QUALITY STRUCTURE

19

No.	Revision	Date
1.	REVISED PER CITY COMMENTS	12/30/19
2.	REVISED PER CITY COMMENTS	02/24/2020
3.	REVISED PER CITY COMMENTS	09/29/2020
4.	REVISED PER CITY COMMENTS	07/27/2021
5.	REVISED PER CITY COMMENTS	03/25/2022
6.	REVISED PER CITY COMMENTS	05/31/2022

Previous Editions Obsolete

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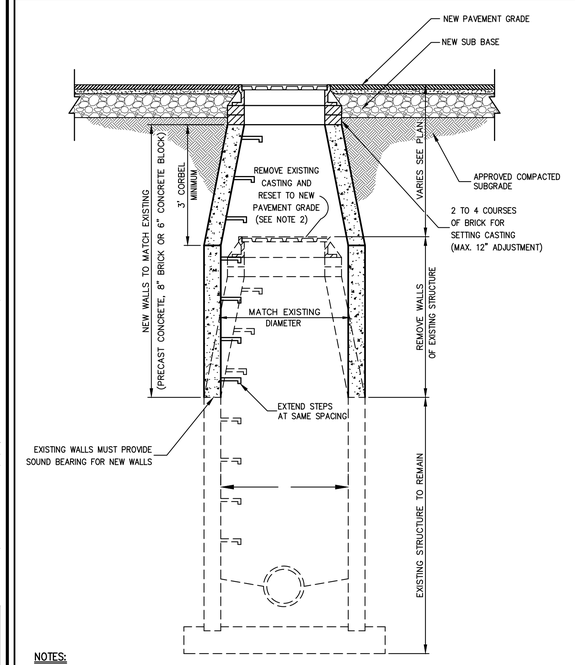

NOTES:

1. SEE "UTILITY NOTES" ON DRAWING C-901 WHICH SHALL APPLY TO THIS DETAIL.
2. IF EXISTING CASTING IS UNFIT FOR RESETTING IN THE NEW CONSTRUCTION, AS DETERMINED BY THE OWNER'S FIELD REPRESENTATIVE, CONTRACTOR SHALL FURNISH AND SET NEW CASTING.

EXISTING MANHOLE RECONSTRUCTED AND RAISED

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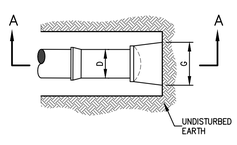
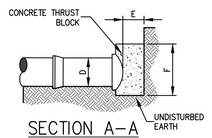
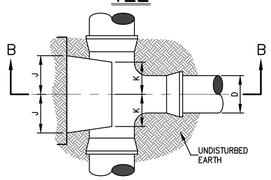


PLAN VIEW



SECTION A–A

TEE



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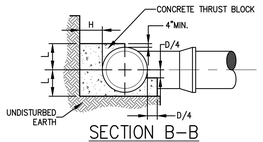
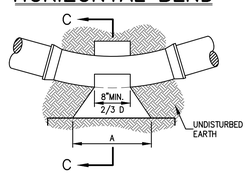
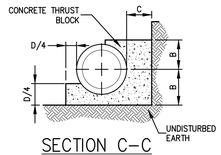


SECTION B–B

HORIZONTAL BEND

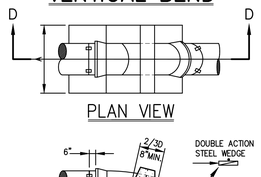


PLAN VIEW



SECTION C–C

VERTICAL BEND



SECTION D–D

END CAP CHART

D	4"	6"	8"	10"	12"
E	6"	6"	8"	8"	10"
F	12"	12"	1'-4"	1'-8"	2'-0"
G	1'-5"	1'-5"	2'-0"	2'-5"	3'-0"

NOTES:

1. ALL CONCRETE TO BE CLASS A (4,000 PSI).
2. ALL DIMENSIONS ARE MINIMUMS; ALL ANCHOR AND THRUST BLOCKS SHALL BEAR ON UNDISTURBED EARTH.
3. IN ALL CASES SHOWN, MEASUREMENT "D" REFERS TO THE INSIDE PIPE DIAMETER.
4. ANCHOR AND THRUST BLOCK DIMENSIONS SHOWN ARE MINIMUM FOR 100 PSI WATER PRESSURE AND SOIL RESISTANCE OF 2 KIPS PER SQ FT. CONTRACTOR SHALL ADJUST FOR OTHER CONDITIONS AND SUBMIT FOR APPROVAL.
5. IF THE OWNER OF THE WATER SYSTEM REQUIRES A METHOD THAT RESTRAINS INDIVIDUAL JOINTS, EACH JOINT THAT FALLS WITHIN THE MINIMUM RESTRAINED LENGTH, MEASURED FROM THE CENTER OF THE FITTING, AS SHOWN ON THESE SHEETS SHALL BE RESTRAINED, AND SHALL WITHSTAND THE MAXIMUM PRESSURE APPLIED TO THE SYSTEM.
6. CLASS A CONCRETE SHALL NOT BE PLACED UNDER WATER. THE CONTRACTOR SHALL DEWATER THE EXCAVATION OR PLACE TYPE G CONCRETE USING APPROPRIATE UNDERWATER PLACEMENT TECHNIQUES.

TEE CHART

D	4"	6"	8"	10"	12"
H	6"	7"	9"	10"	12"
L	8"	8"	10"	12"	1'-3"
J	7"	7"	9"	12"	1'-2"
K	6"	6"	8"	8"	8"

7. CONCRETE FOR THRUST BLOCKS SHALL NOT BE ALLOWED TO COVER OR INTERFERE WITH JOINT OR RESTRAINT HARDWARE, PLASTIC SHEETING OR BUILDING FELT MAY BE PLACED OVER PIPE OR FITTINGS TO PREVENT CONCRETE FROM ADHERING TO SURFACES.
8. FOR BENDS, BEARING AREA SHALL BE PARALLEL TO THE EDGE OF THE FITTING AT THE FITTING MIDPOINT.
9. FOR TEES, BEARING AREA SHALL BE PERPENDICULAR TO THE BRANCH (SINGLE LEG) AXIS.
10. FOR REDUCERS, BEARING AREA SHALL BE PERPENDICULAR TO THE FITTING AXIS. THE MINIMUM THICKNESS ALONG THE FITTING AXIS SHALL BE 1'-0" OR THE LENGTH BETWEEN THE BELLS, WHICHEVER IS SMALLER.
11. THRUST RESTRAINTS FOR SIZES OR FITTINGS NOT SHOWN ON THESE SHEETS WILL BE DESIGNED ON A CASE BY CASE BASIS, AND WILL BE SHOWN IN THE CONTRACT DOCUMENTS.

HORIZONTAL BEND CHART

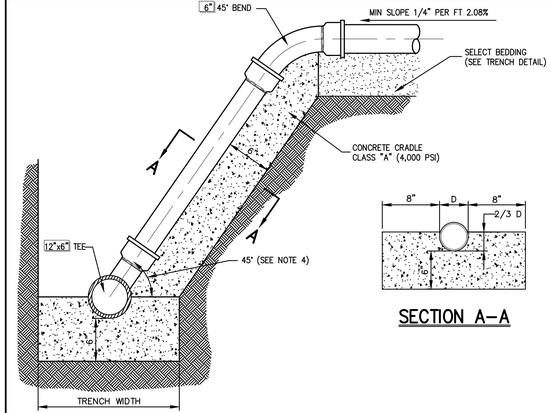
BEND (DEGREES)		DIAMETER (D) 4"	6"	8"	10"	12"
1/32 (11¼)	A	8"	8"	8"	10"	12"
	B	7"	7"	8"	9"	10"
	C	7"	7"	7"	8"	8"
1/16 (22½)	A	9"	9"	12"	1'-6"	1'-9"
	B	7"	7"	8"	9"	10"
	C	8"	8"	9"	10"	11"
1/8 (45)	A	1'-3"	1'-3"	1'-8"	2'-1"	2'-6"
	B	7"	7"	8"	9"	11"
	C	8"	8"	9"	10"	11"
1/4 (90)	A	2'-0"	2'-0"	2'-6"	3'-0"	3'-6"
	B	7"	7"	9"	12"	1'-3"
	C	2'-0"	2'-0"	1'-9"	1'-8"	1'-7"

VERTICAL BEND CHART

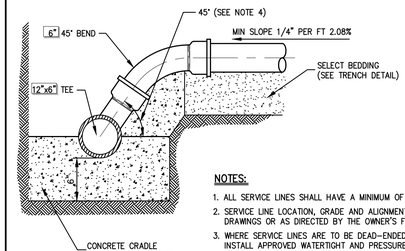
BEND (DEGREES)		DIAMETER (D) 4"	6"	8"	10"	12"	16"
1/32 (11¼)	A	1'-6"	1'-6"	2'-0"	2'-6"	3'-0"	3'-6"
	B	1'-3"	1'-3"	1'-9"	1'-3"	2'-0"	2'-0"
	C	2'-0"	2'-0"	2'-6"	2'-9"	3'-0"	4'-0"
1/16 (22½)	A	2'-0"	2'-0"	3'-4"	3'-8"	4'-0"	4'-4"
	B	1'-9"	1'-9"	2'-3"	2'-6"	2'-6"	2'-6"
	C	2'-6"	2'-6"	2'-8"	4'-0"	4'-0"	5'-6"
1/8 (45)	A	2'-6"	2'-6"	3'-0"	4'-0"	4'-6"	5'-2"
	B	2'-6"	2'-6"	2'-9"	3'-0"	3'-6"	4'-0"
	C	3'-0"	3'-0"	4'-0"	4'-6"	4'-9"	6'-6"

ANCHOR AND THRUST BLOCKS

21



SECTION A–A



NOTES:

1. ALL SERVICE LINES SHALL HAVE A MINIMUM OF FOUR (4) FEET OF COVER.
2. SERVICE LINE LOCATION, GRADE AND ALIGNMENT SHALL BE AS SHOWN ON DRAWINGS OR AS DIRECTED BY THE OWNER'S FIELD REPRESENTATIVE.
3. WHERE SERVICE LINES ARE TO BE DEAD-ENDED, CONTRACTOR SHALL INSTALL APPROVED WATERTIGHT AND PRESSURE-TIGHT PLUGS.
4. IF MINIMUM COVER CANNOT BE ATTAINED WHILE MAINTAINING MINIMUM SLOPE, THE ANGLE OF CONNECTION MAY BE REDUCED TO 22.5°, IF APPROVED BY THE OWNER'S FIELD REPRESENTATIVE AND GOVERNING BODY WITH JURISDICTION.
5. SANITARY SEWER SERVICE LINE INCLUDING FITTINGS SHALL BE PVC, SDR 35.

SANITARY SEWER SERVICE CONNECTION

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CONSTRUCTION DETAILS

BEACON COMMONS
16 WEST MAIN STREET
BEACON, NY 12508

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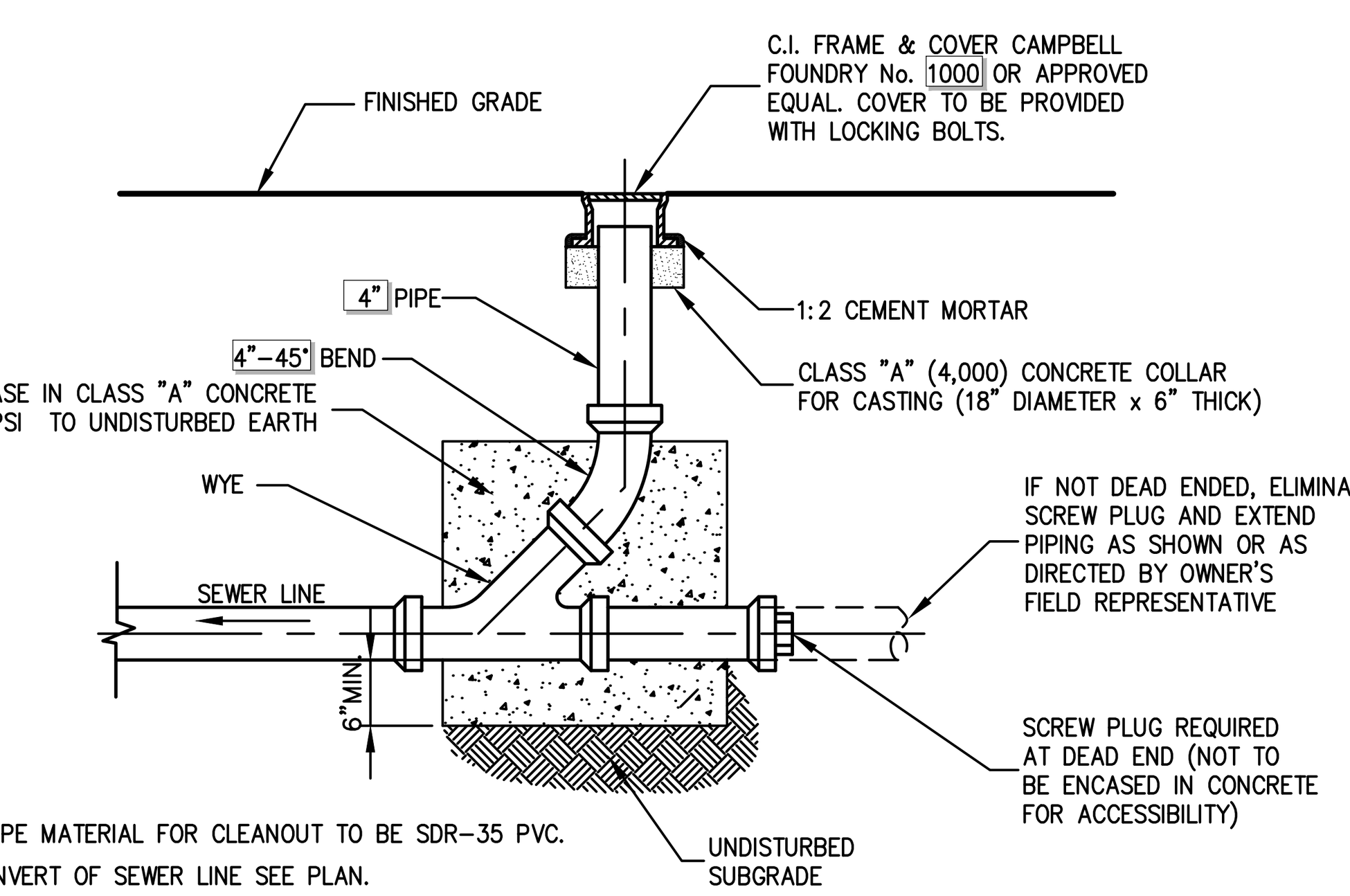
STATE OF NEW YORK
STEPHEN SPINA
LICENSED PROFESSIONAL ENGINEER
085983

Drawn:	BMS Approved: SS
Scale:	NOT TO SCALE
Date:	10/29/2019
Project No:	18119
18119-DETAILS	C-903 –

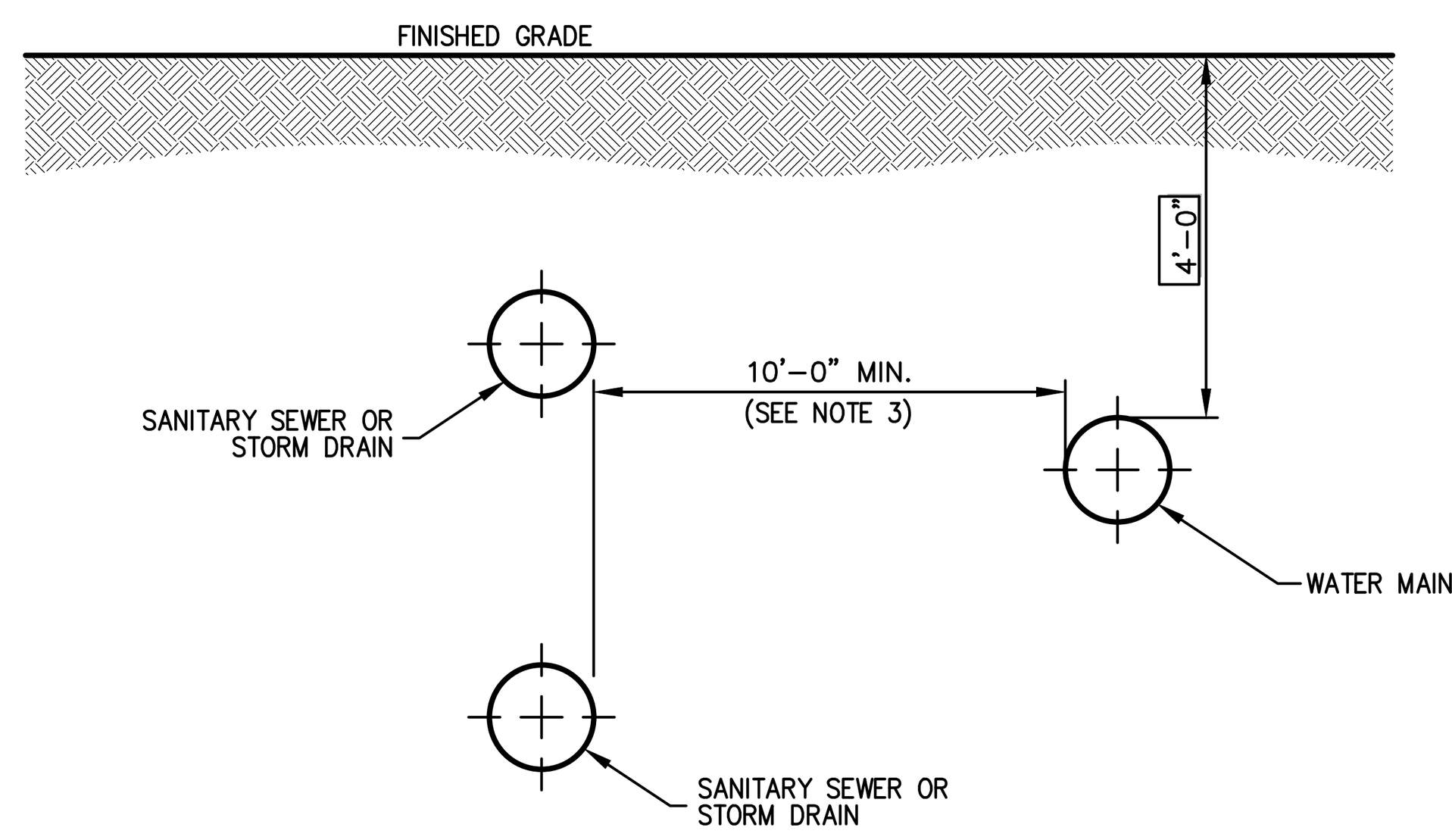
Drawing No:
C-903
(Sheet 20 of 26)



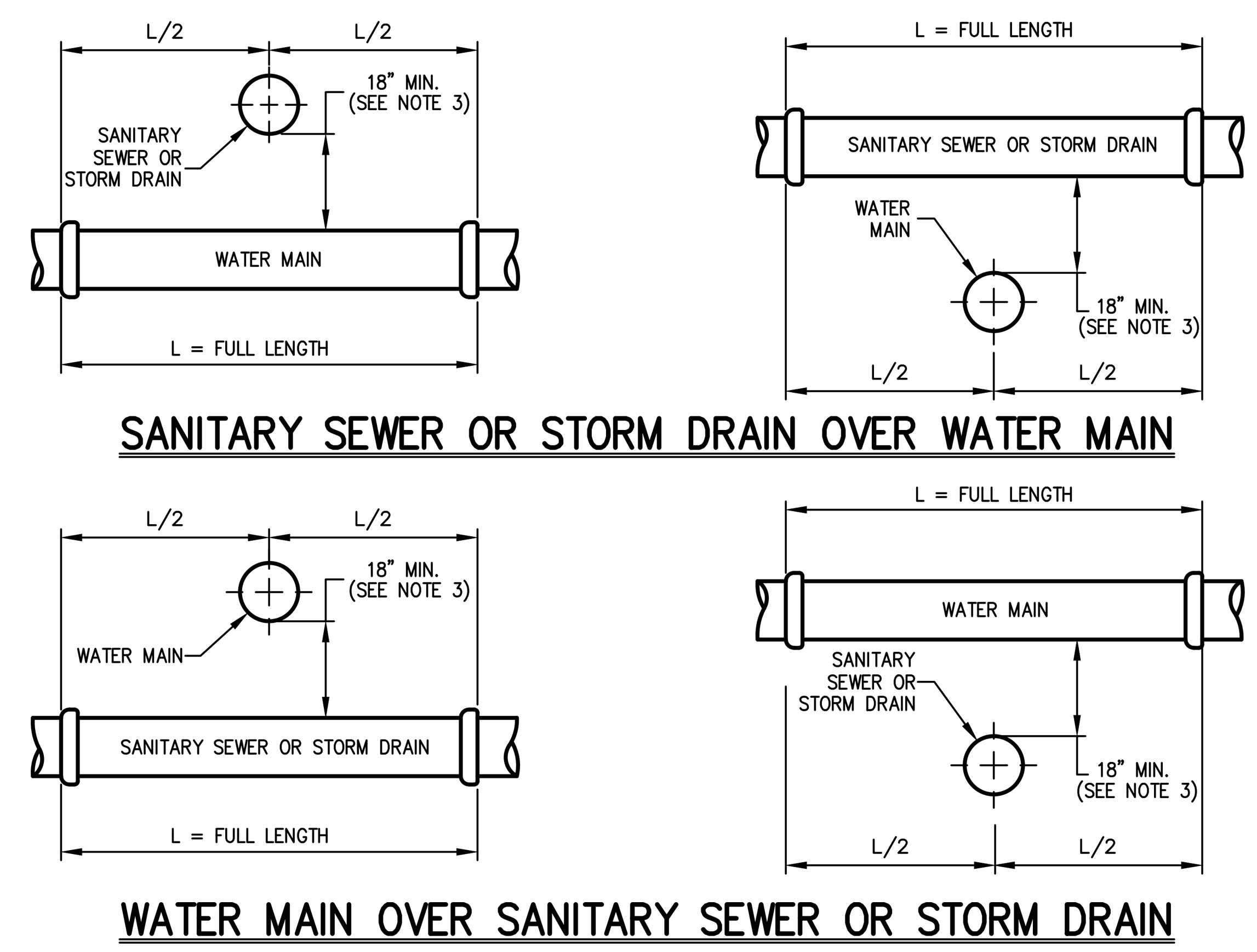
NOTES:

1. ALL PIPE MATERIAL FOR CLEANOUT TO BE SDR-35 PVC.
2. FOR INVERT OF SEWER LINE SEE PLAN.

CLEANOUT W/O MANHOLE — 23



HORIZONTAL SEPARATION

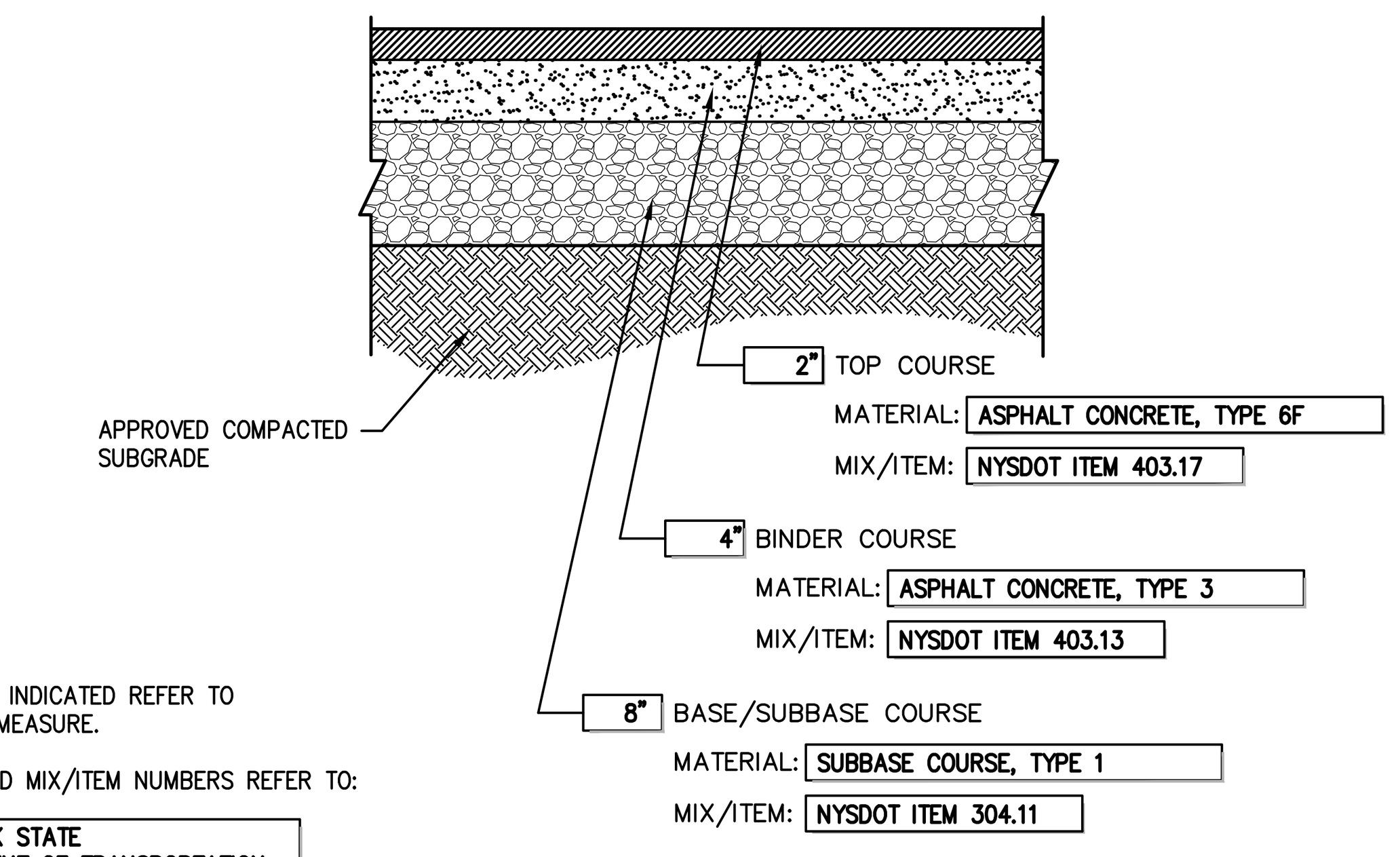


VERTICAL SEPARATION

NOTES:

1. NORMAL CONDITIONS:
   A. WHENEVER A WATER MAIN MUST CROSS OVER OR UNDER A SANITARY SEWER OR STORM DRAIN, THE PIPES SHALL BE LAID TO PROVIDE A VERTICAL SEPARATION BETWEEN THEM OF AT LEAST 18 INCHES, AS MEASURED FROM THE BOTTOM OF THE HIGHER PIPE TO THE CROWN OF THE LOWER PIPE.
   B. FULL LENGTH OF WATER PIPE MUST BE CENTERED AT THE POINT OF CROSSING; NO JOINTS WILL BE PERMITTED AT THE POINT OF CROSSING.
2. WATER MAIN CROSSING UNDER SANITARY SEWERS:
   A. VERTICAL SEPARATION OF 18 INCHES MUST BE PROVIDED.
   B. ADEQUATE STRUCTURAL SUPPORT MUST BE PROVIDED FOR THE SANITARY SEWER TO PREVENT EXCESSIVE DEFLECTION OF JOINTS AND SETTLING.
   C. FULL LENGTH OF WATER PIPE MUST BE CENTERED AT THE POINT OF CROSSING; NO JOINTS WILL BE PERMITTED AT THE POINT OF CROSSING.
3. IF DURING CONSTRUCTION IT IS FOUND THAT THE REQUIRED SEPARATION OF WATER MAINS, SANITARY SEWERS, STORM SEWERS AND BUILDING SANITARY SEWERS CANNOT BE MET, THE CONTRACTOR OR HIS AUTHORIZED REPRESENTATIVE SHALL IN WRITING ADVISE JMC OF THE SPECIFIC CONDITIONS ENCOUNTERED. APPROVAL OF ALTERNATIVE SEPARATION CRITERIA SHALL BE OBTAINED FROM THE DUTCHESS COUNTY HEALTH DEPARTMENT PRIOR TO INSTALLATION.

SEPARATION OF WATER AND SANITARY SEWER/STORM DRAIN LINES — 24

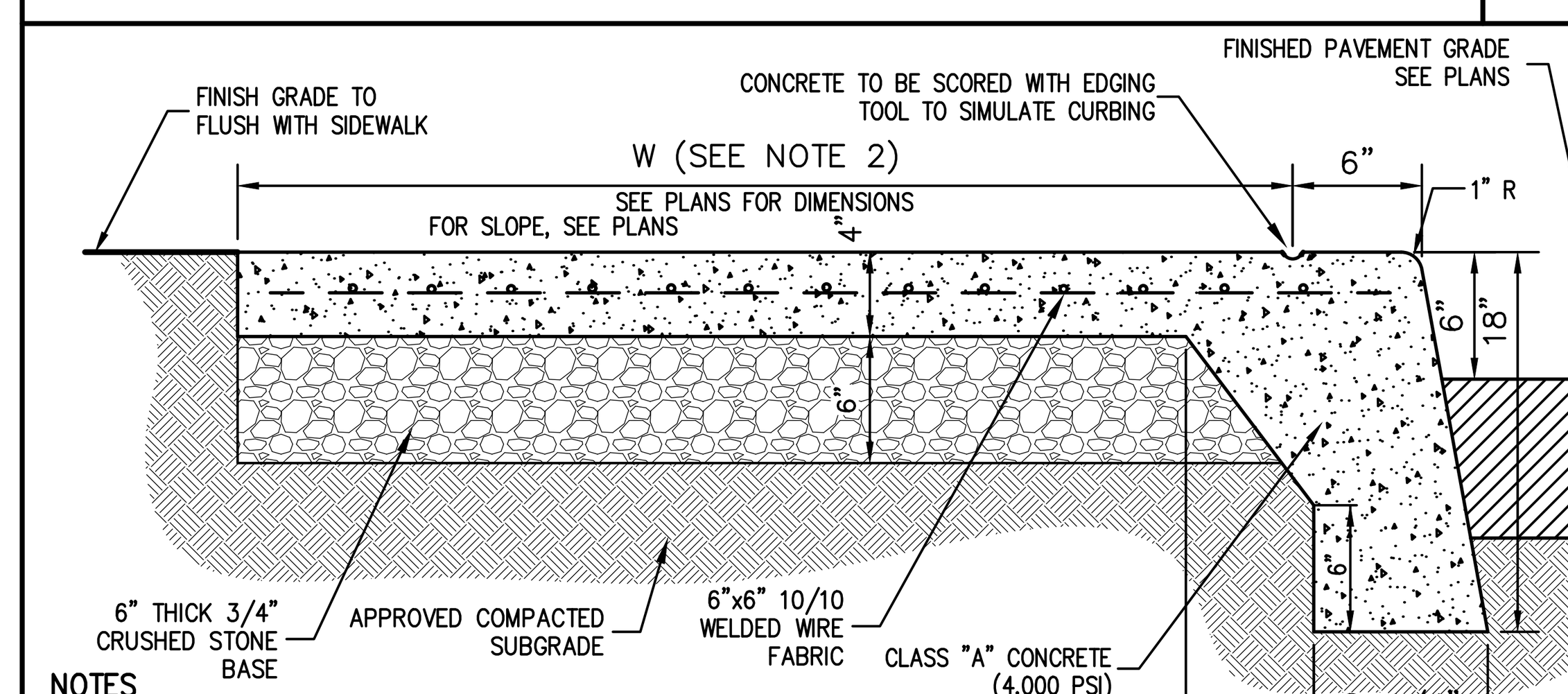


NOTES:

1. THICKNESSES INDICATED REFER TO COMPACTED MEASURE.
2. MATERIAL AND MIX/ITEM NUMBERS REFER TO:

NEW YORK STATE
DEPARTMENT OF TRANSPORTATION
STANDARD SPECIFICATIONS

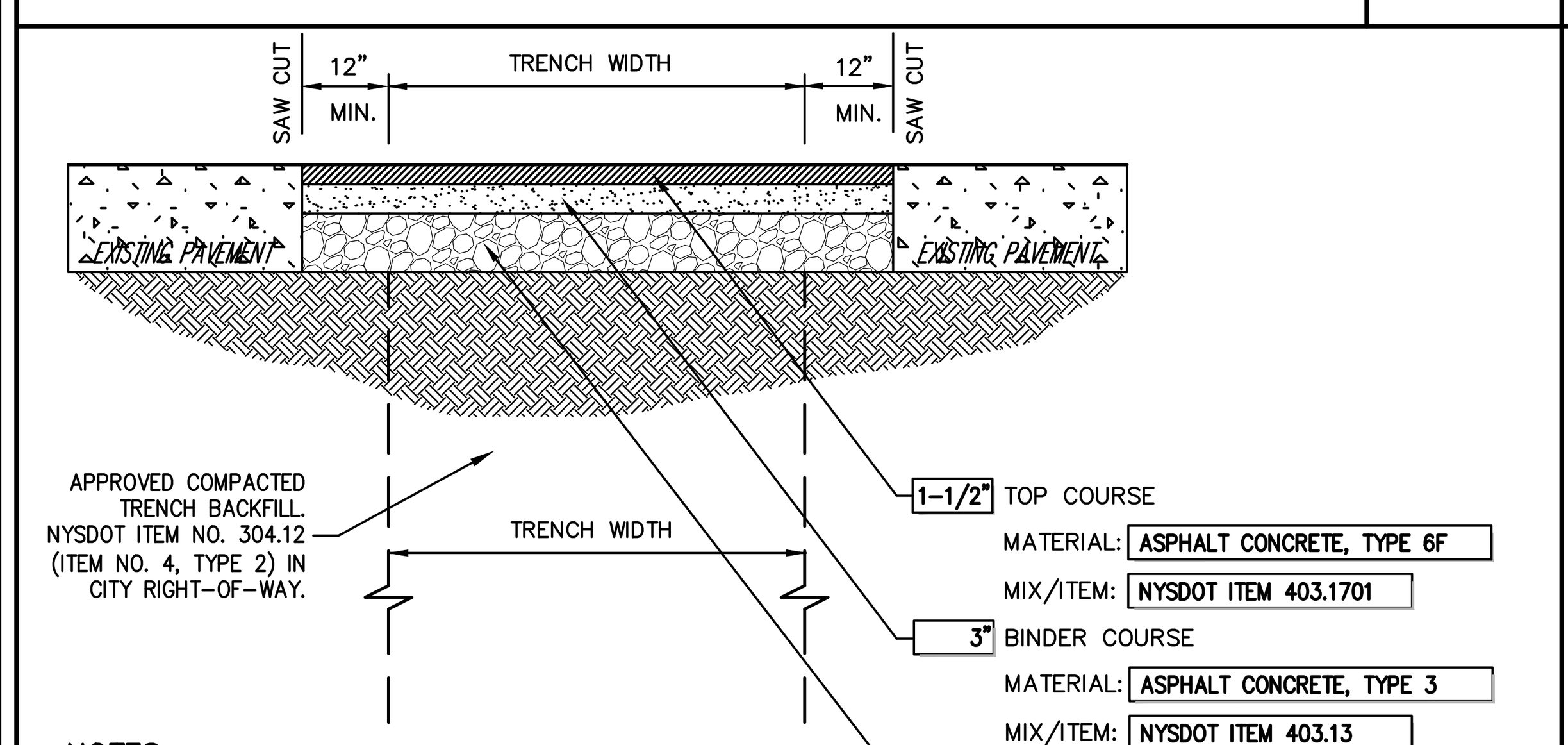
SITE PAVEMENT — 25



NOTES

1. SIDEWALK CROSS SLOPE SHALL BE 1% MIN. TO 2% MAX.
2. FOR SIDEWALK WIDTH SEE PLAN. SIDEWALK SHALL HAVE A 3' MIN. WIDTH CLEAR FROM BACK OF CURBING.
3. PROVIDE JOINT SEALER & PREMOULDED EXPANSION JOINT AT ALL BLDG. WALLS, CONSTRUCTION JOINTS AND OTHER FIXED OBJECTS (HYDRANTS, LIGHT POLES, ETC.)
4. SIDEWALK SHALL HAVE LIGHT BROOM FINISH.
5. PROVIDE 1/2" PREMOULDED EXPANSION JOINTS AT 10 FOOT INTERVALS AND SCORE WITH EDGING TOOL TO SIMULATE JOINTS AT MIDPOINTS BETWEEN EXPANSION JOINTS.
6. REINFORCEMENT SHALL NOT EXTEND THROUGH EXPANSION JOINTS.
7. CONCRETE SIDEWALK SHALL BE SEALED TO PROTECT AGAINST DE-ICING AGENTS.

MONOLITHIC CONCRETE CURB AND SIDEWALK (WITHIN RIGHT-OF-WAY) — 26

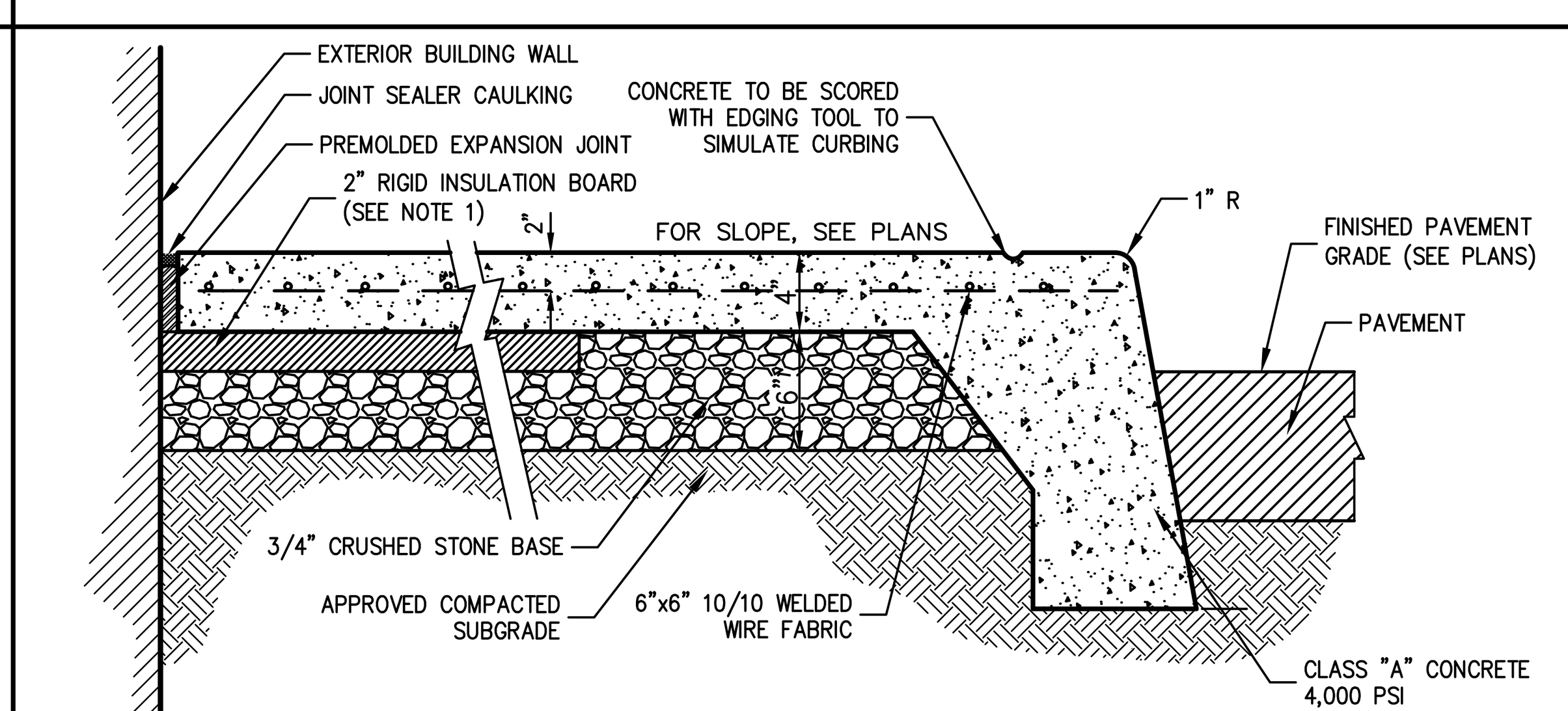


NOTES

1. THICKNESSES INDICATED REFER TO COMPACTED MEASURE.
2. ITEM NUMBERS REFER TO:

NEW YORK STATE
DEPARTMENT OF TRANSPORTATION
STANDARD SPECIFICATIONS

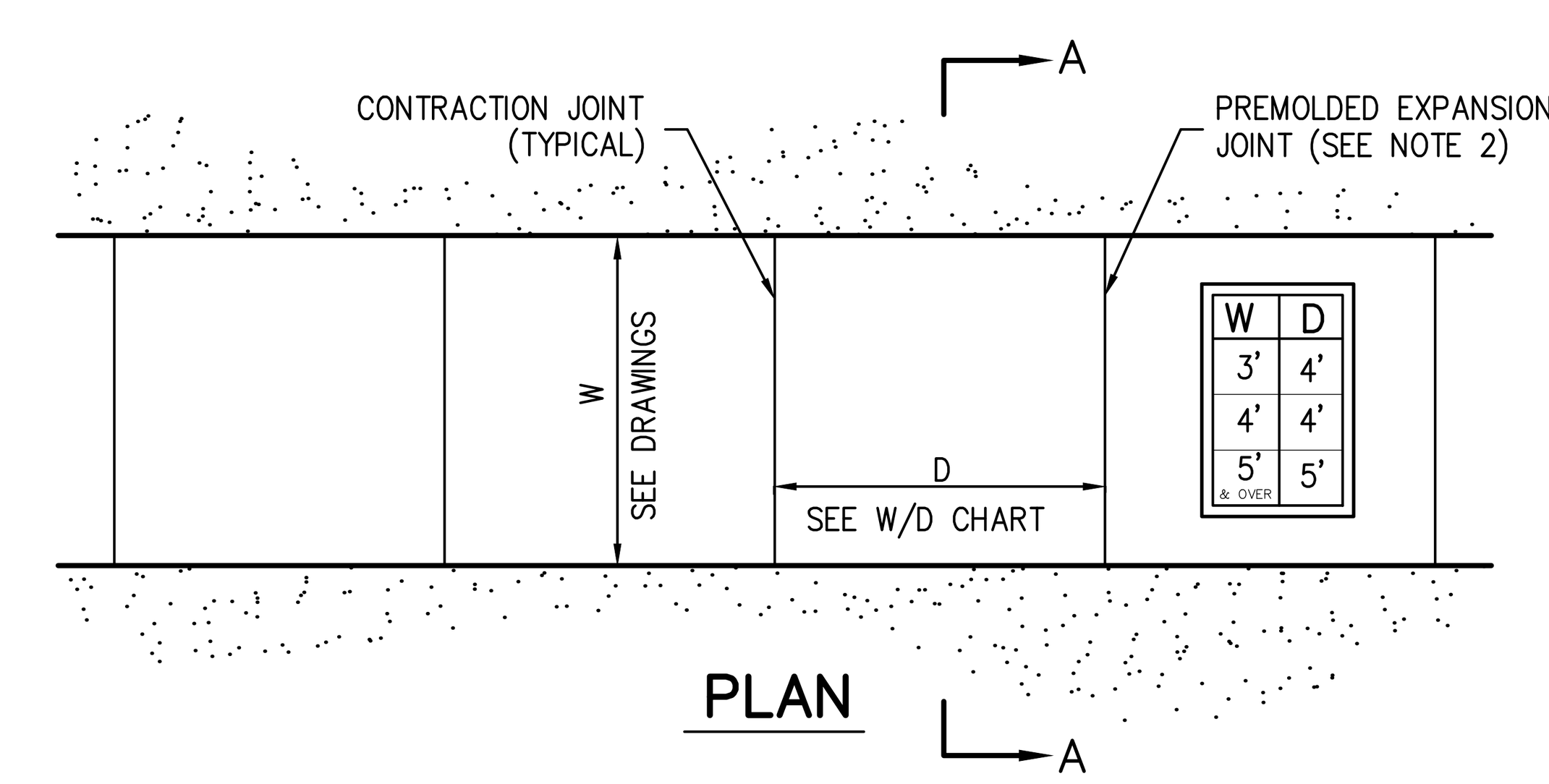
PAVEMENT REPLACEMENT OVER TRENCH — 27

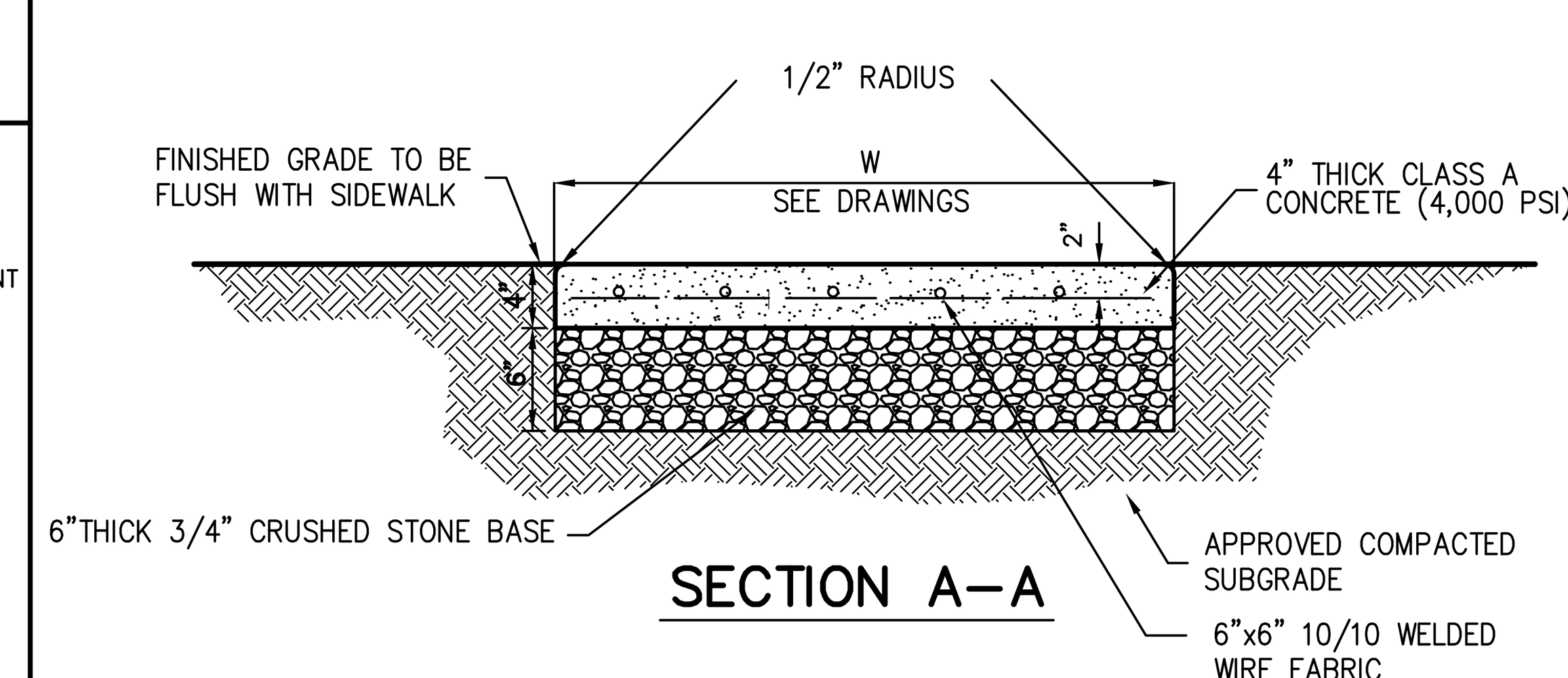


NOTES:

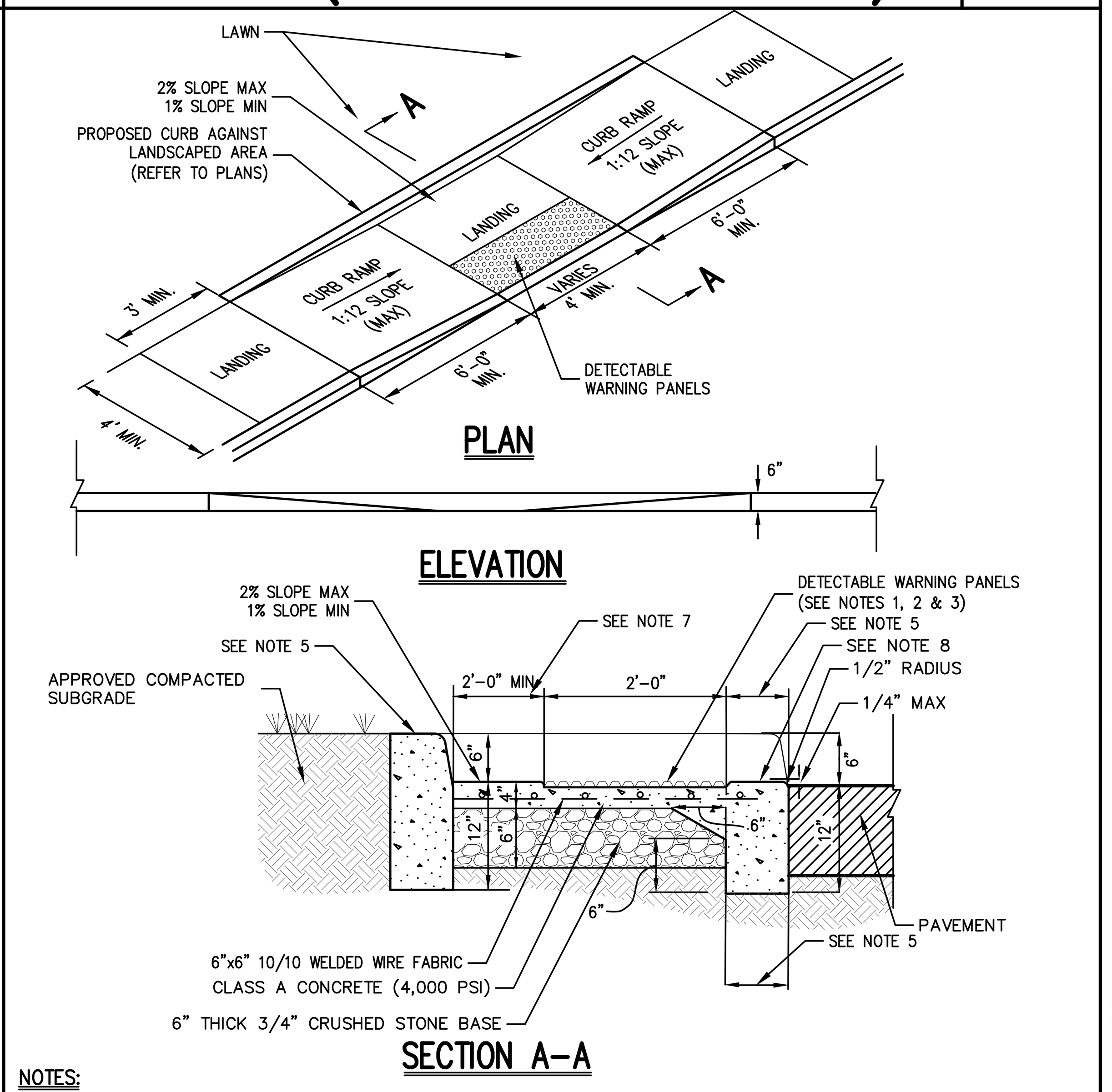
1. PROVIDE 2" RIGID INSULATION BOARD AT ALL DOORWAY OPENINGS AND EXTEND 8' MIN. IN ALL DIRECTIONS OR TO CONSTRUCTION/CONTRACTION JOINT, WHICHEVER IS GREATER.
2. JOINT SEALER CAULKING SHALL BE PSI-641 LOW MODULUS SILICONE SEALANT, BY POLYMERIC SYSTEMS INC. OR APPROVED EQUAL. PREMOULDED EXPANSION JOINT SHALL BE FLEXCELL OR APPROVED EQUAL.
3. PROVIDE JOINT SEALER & PREMOULDED EXPANSION JOINT AT ALL BLDG. WALLS, CONSTRUCTION JOINTS AND OTHER FIXED OBJECTS (HYDRANTS, LIGHT POLES, ETC.)
4. SIDEWALK SHALL HAVE LIGHT BROOM FINISH
5. SIDEWALK CROSS SLOPE SHALL BE 1% MIN. 2% MAX.
6. FOR SIDEWALK WIDTH SEE PLAN. SIDEWALK SHALL HAVE A 3' MIN. WIDTH CLEAR FROM BACK OF CURBING.

BUILDING PERIMETER MONOLITHIC CURB & SIDEWALK — 29





SECTION A-A

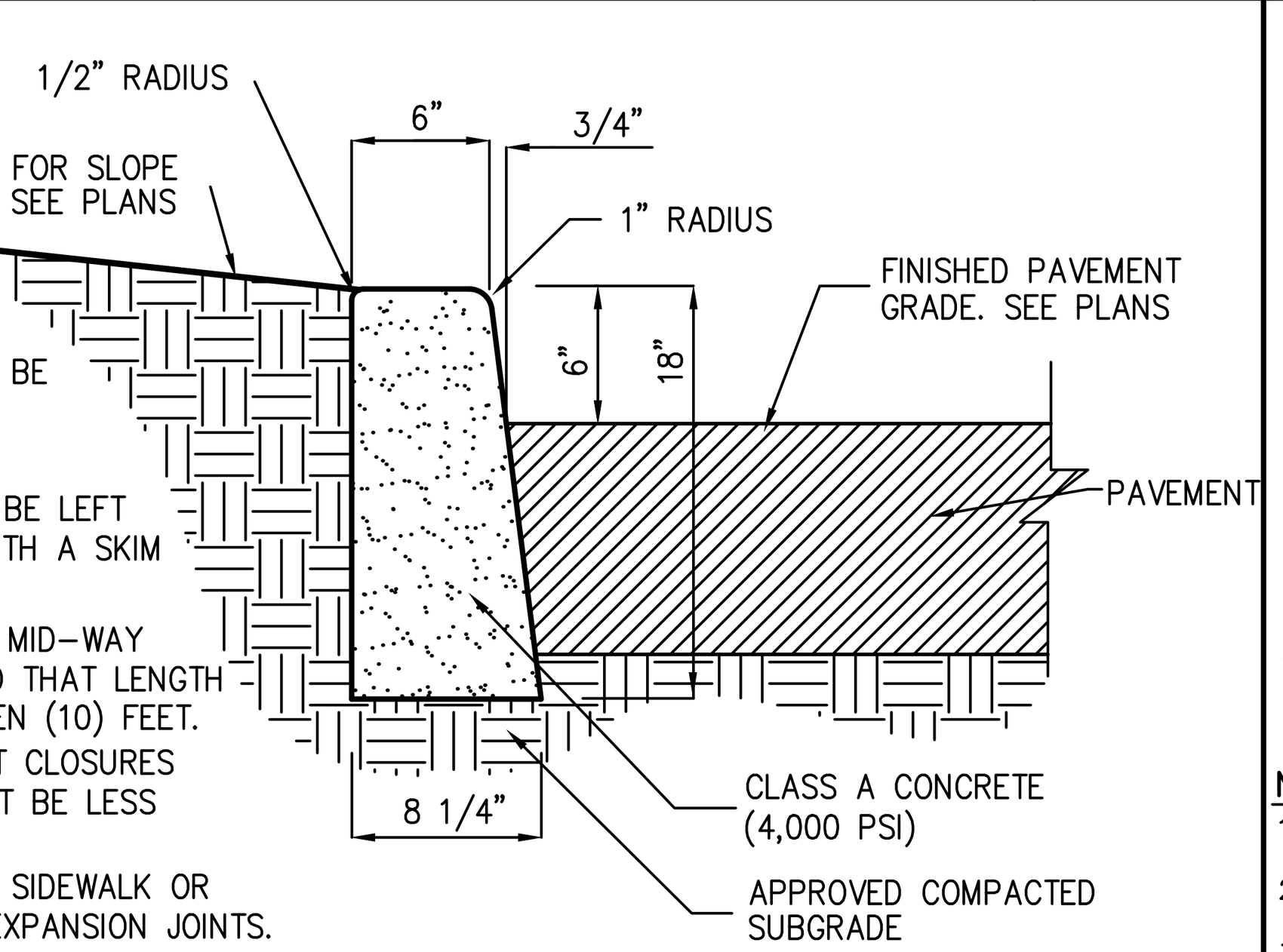


NOTES:

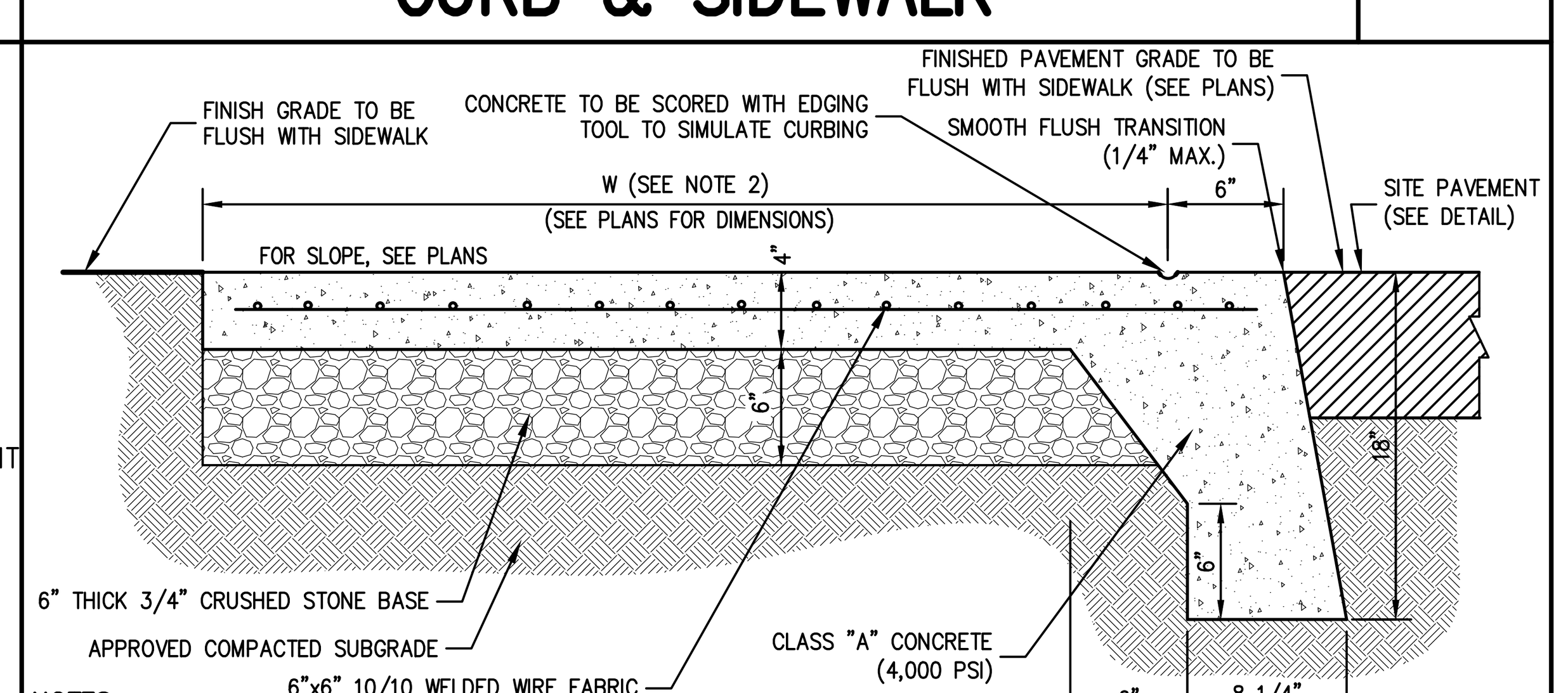
1. RAMPS SHALL HAVE CAST IN PLACE DETECTABLE/TACTILE WARNING SURFACE TILES AS MANUFACTURED BY ARMOR-TILE (OR APPROVED EQUAL) AND SHALL CONSIST OF RAISED TRUNCATED DOMES WITH A DIAMETER OF NOMINAL 0.9 INCHES, A HEIGHT OF NOMINAL 0.2 INCHES AND A CENTER TO CENTER SPACING OF NOMINAL 2.35 INCHES.
2. DETECTABLE WARNING PANELS SHALL CONTRAST VISUALLY WITH ADJOINING SURFACES, EITHER LIGHT-ON-DARK OR DARK-ON-LIGHT IN ACCORDANCE WITH SECTION 4.29.2, FEDERAL REGISTER, VOLUME 56, NO. 144, RULES AND REGULATIONS, APPENDIX A TO PART 36 - STANDARDS FOR ACCESSIBLE DESIGN (AMERICANS WITH DISABILITIES ACT), LATEST EDITION.
3. 24" WIDTH OF PANELS TO BE INSTALLED DIRECTLY BEHIND CURB AND IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
4. A MINIMUM OF 3 FEET CLEAR SHALL BE MAINTAINED AT ANY PERMANENT OBSTACLE IN ACCESSIBLE ROUTE (I.E., HYDRANTS, UTILITY POLES, TREE WELLS, SIGNS, ETC.).
5. CURB TREATMENT VARIES, SEE PLANS FOR CURB TYPE AND SEE CURB DETAIL FOR DIMENSIONS.
6. RAMP, CURB AND ADJACENT PAVEMENTS SHALL BE GRADED TO PREVENT PONDING.
7. WHEN LANDING OF RAMP ADJOINS A DOORWAY THEN THE MINIMUM DOORWAY MANEUVERING AREA SHALL BE AT LEAST THE WIDTH OF THE DOORWAY AND SHALL HAVE A MINIMUM DEPTH OF:
   MANUAL SWING DOORS = 60" MIN.
   FULL POWERED AUTOMATIC SLIDING DOORS = 48" MIN.
8. CONTRACTOR TO ENSURE TOP OF CURB MATCHES SLOPE OF RAMP.

NOTES:

1. INSTALL 1/2" PREMOLDED BITUMINOUS EXPANSION JOINT EVER 20 FEET.
2. UNLESS DIRECTED OTHERWISE, EXPANSION JOINTS SHALL ALSO BE INSTALLED AT THE PC AND PT OF ALL RADIUS CURB.
3. EACH EXPANSION JOINT SHALL BE LEFT EXPOSED AND NOT COVERED WITH A SKIM COAT OF CONCRETE.
4. INSTALL CONSTRUCTION JOINTS MID-WAY BETWEEN EXPANSION JOINTS SO THAT LENGTH OF CURB SEGMENTS WILL BE TEN (10) FEET.
5. LENGTH OF CURB SEGMENTS AT CLOSURES MAY BE VARIED BUT SHALL NOT BE LESS THAN FOUR (4) FEET.
6. WHEN INSTALLED ADJACENT TO SIDEWALK OR CONCRETE PAVEMENT, MATCH EXPANSION JOINTS.



CAST-IN-PLACE CONCRETE CURB — 28



NOTES

1. SIDEWALK CROSS SLOPE SHALL BE 1% MIN. TO 2% MAX.
2. FOR SIDEWALK WIDTH SEE PLAN. SIDEWALK SHALL HAVE A 3' MIN. WIDTH CLEAR FROM BACK OF CURBING.
3. PROVIDE JOINT SEALER & PREMOULDED EXPANSION JOINT AT ALL BLDG. WALLS, CONSTRUCTION JOINTS AND OTHER FIXED OBJECTS (HYDRANTS, LIGHT POLES, ETC.)
4. SIDEWALK SHALL HAVE LIGHT BROOM FINISH.
5. PROVIDE 1/2" PREMOULDED EXPANSION JOINTS AT 20 FOOT INTERVALS UNLESS OTHERWISE DIRECTED.
6. REINFORCEMENT SHALL NOT EXTEND THROUGH EXPANSION JOINTS.

MONOLITHIC CONCRETE FLUSH CURB AND SIDEWALK — 30

NOTES:

1. SIDEWALK CROSS SLOPE SHALL BE 1% MIN. TO 2% MAX.
2. PROVIDE 1/2" PREMOLDED EXPANSION JOINTS AT 20' INTERVALS UNLESS OTHERWISE DIRECTED.
3. REINFORCING SHALL NOT EXTEND THROUGH EXPANSION JOINTS.
4. SIDEWALK SHALL HAVE LIGHT BROOM FINISH

CONCRETE SIDEWALK — 31

DROP CURB & RAMP (TYPE B) — 32

WITH DETECTABLE WARNING

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CONSTRUCTION DETAILS

BEACON COMMONS
16 WEST MAIN STREET
BEACON, NY 12508

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Drawing No:	C-904 (Sheet 21 of 26)

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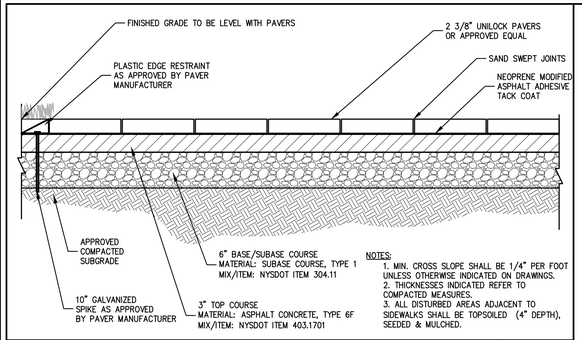
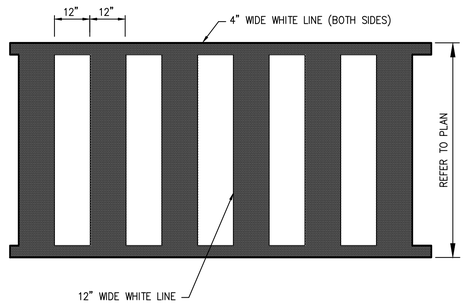
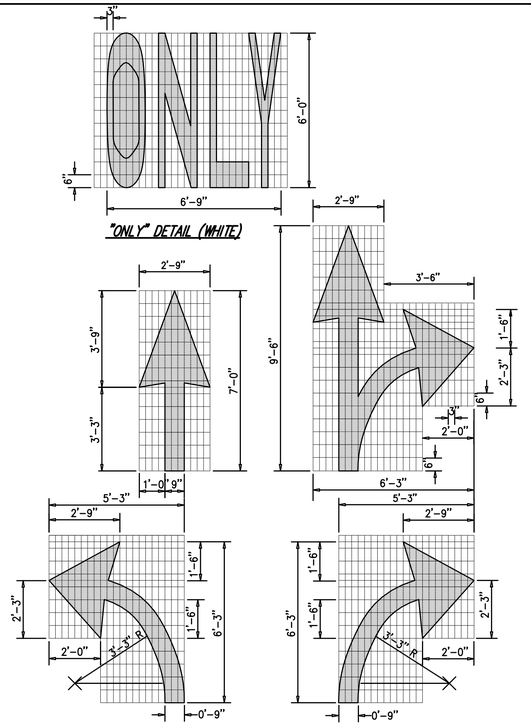


NOTES:
1. MIN. CROSS SLOPE SHALL BE 1/4" PER FOOT UNLESS OTHERWISE INDICATED ON DRAWINGS.
2. THICKNESSES INDICATED REFER TO COMPACTED MEASURES.
3. ALL DISTURBED AREAS ADJACENT TO SIDEWALKS SHALL BE TOPSOILED (4" DEPTH), SEEDED & MULCHED.

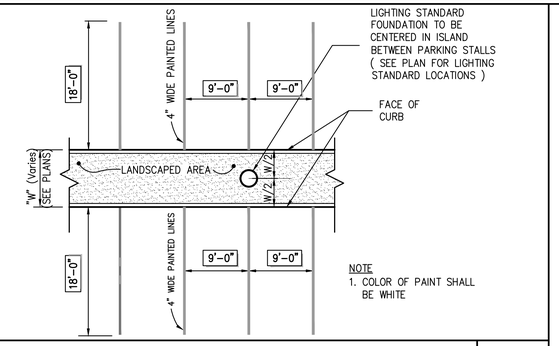
PATIO 33



PEDESTRIAN CROSSING 34

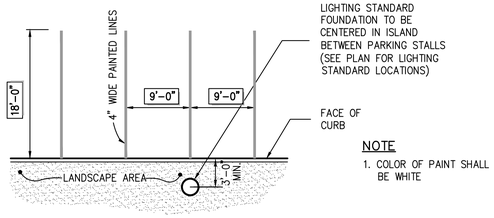


PAVEMENT TEXT & ARROWS (ON-SITE) 35



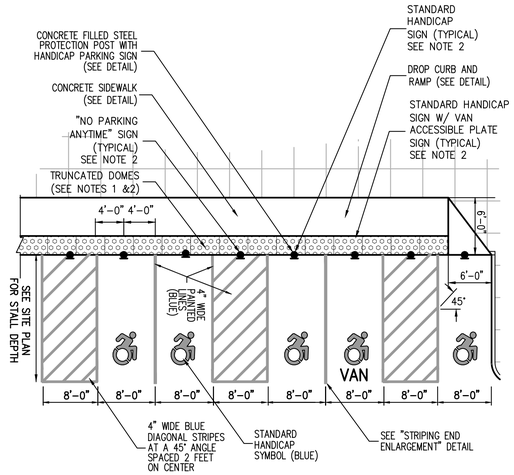
NOTE
1. COLOR OF PAINT SHALL BE WHITE

90° PARKING (SINGLE STRIPING – CURBED ISLAND) 36



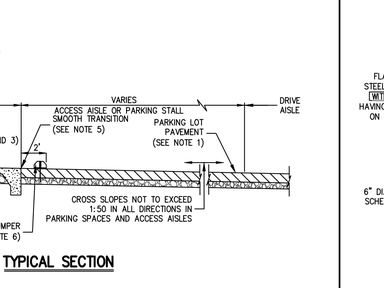
NOTE
1. COLOR OF PAINT SHALL BE WHITE

90° PARKING (SINGLE STRIPING – CURBED PERIMETER) 37



NOTES:
1. RAMPS AND SIDE RAMPS SHALL HAVE DETECTABLE WARNINGS CONSISTING OF RAISED TRUNCATED DOMES WITH A DIAMETER OF NOMINAL 0.9 INCHES, A HEIGHT OF NOMINAL 0.2 INCHES AND A CENTER TO CENTER SPACING OF NOMINAL 2.35 INCHES.
2. THEY SHALL CONTRAST VISUALLY WITH ADJOINING SURFACES, EITHER LIGHT–ON–DARK OR DARK–ON–LIGHT IN ACCORDANCE WITH SECTION 4.29.2, FEDERAL REGISTER, VOLUME 56, NO. 144, RULES AND REGULATIONS, APPENDIX A TO PART 36 – STANDARDS FOR ACCESSIBLE DESIGN (AMERICANS WITH DISABILITIES ACT), DATED JULY 26, 1991 AND SUBSEQUENT REVISIONS.
3. SLOPES IN HANDICAP PARKING AREAS SHALL NOT EXCEED 1.5%.
4. SEE SITE PLANS/SIGN TABLE FOR SIGN DESIGNATIONS, LOCATIONS AND SPECIFICATIONS.

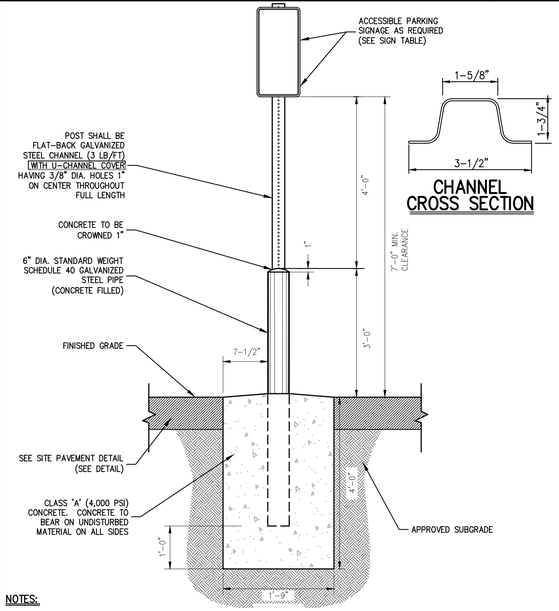
HANDICAP PARKING SINGLE STRIPING – CURBLINE ALIGNMENT – W/SIDEWALK) (NEW YORK) 38



TYPICAL SECTION

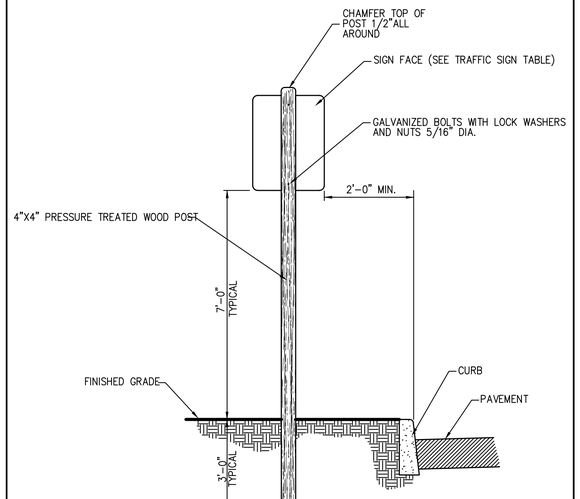
NOTES:
1. THIS SHEET IS INTENDED TO DEPICT THE DIMENSIONAL REQUIREMENTS OF TYPICAL ACCESSIBLE PARKING SPACES. THE SIDEWALK, CURBING, AND PAVEMENT MATERIAL SHALL BE AS SPECIFIED ELSEWHERE IN THE CONTRACT DOCUMENTS.
2. LOCATION – PARKING SPACES FOR USE BY PERSONS WITH DISABILITIES SHALL BE IN THE SPACES CLOSEST TO THE NEAREST ACCESSIBLE BUILDING OR FACILITY ENTRANCE ON AN ACCESSIBLE ROUTE.
3. SURFACE SLOPES – SLOPES AT ACCESSIBLE PARKING SPACES, ACCESS AISLES, AND ADJOINING WALKWAYS SHALL NOT EXCEED 1:50 IN ANY DIRECTION.
4. SIGNAGE – EACH ACCESSIBLE PARKING SPACE SHALL BE MARKED BY PERMANENTLY INSTALLED ABOVE GROUND SIGNS WHICH DISPLAY THE INTERNATIONAL SYMBOL OF ACCESS. EACH ACCESS AISLE SHALL BE MARKED BY PERMANENTLY INSTALLED ABOVE GROUND SIGNS INDICATING THAT PARKING IS NOT PERMITTED IN THE AISLE. SIGNS SHALL NOT BLOCK THE ACCESSIBLE CLEAR WIDTH OF ADJACENT WALKWAYS, SIGNS LOCATED WHERE THEY MAY BE HIT BY VEHICLES BEING PARKED SHALL BE INSTALLED AS SHOWN IN THE PROTECTION POST BASE DETAIL. THE BOTTOMS OF THE SIGNS LOCATED ON POST INSTALLED IN PAVED AREAS SHALL BE AT LEAST 7' ABOVE THE WALKWAY SURFACE. THE BOTTOMS OF SIGNS LOCATED IN UNPAVED AREAS SHALL BE 7' ABOVE THE ADJACENT PAVEMENT SURFACE.
5. A SMOOTH, FLUSH TRANSITION MUST BE PROVIDED BETWEEN ALL PEDESTRIAN WALKWAYS AND THE ACCESSIBLE PARKING SPACES AND AISLES.
6. VEHICLE SIDE FACE OF CONCRETE BUMPER BLOCKS SHALL BE SET 2' BACK FROM EDGE OF PARKING STALL. CONCRETE BLOCKS SHALL NOT BE INSTALLED WITHIN ACCESS AISLES.

TYPICAL ACCESSIBLE PARKING STALL AND AISLE (TYPE B) 39

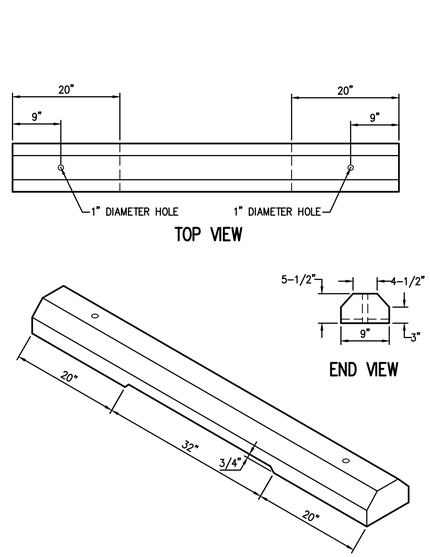


NOTES:
1. GALVANIZED STEEL CHANNEL SHALL BE EMBEDDED A MIN. OF 3 FT. INTO THE CONCRETE
2. POSTS FOR HANDICAP PARKING STALLS AND ACCESS AISLES SHALL BE PAINTED BLUE AS FOLLOWS:
   A. SOLVENT CLEAN TO REMOVE OIL, GREASE AND OTHER CONTAMINANTS.
   B. APPLY METAL PRIMER FOR GALVANIZED SURFACES.
   C. APPLY TWO (2) FINISH COATS OF APPROVED EXTERIOR PAINT FOR METAL SURFACES.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THE INSTALLATION OF THE PARKING SIGNS, BOLLARDS AND FOUNDATIONS WITH THE DESIGN AND INSTALLATION OF THE SITE SIDEWALKS, CURBING, PAVEMENT AND ANY OTHER SITE FEATURES SHOWN ON THE PLANS.
4. FASTEN SIGN TO POSTS WITH GALVANIZED STEEL BOLTS, LOCK WASHERS, AND NUTS (5/16" DIA.)
5. U-CHANNEL COVERS FOR POSTS SHALL BE BLUE WITH WHITE STRIPE FOR HANDICAP PARKING STALLS AND HANDICAP ACCESS AISLES.

ACCESSIBLE PARKING SIGN DETAIL 40



TRAFFIC SIGN POST (WOOD) 41



NOTES
1. CONCRETE MINIMUM STRENGTH–4,000 PSI AT 28 DAYS
2. REINFORCEMENT–#4 REBAR

CONCRETE BUMPER BLOCK 42

No.	Revision	Date
1.	REVISED PER CITY COMMENTS	12/30/19
2.	REVISED PER CITY COMMENTS	02/24/2020
3.	REVISED PER CITY COMMENTS	09/29/2020
4.	REVISED PER CITY COMMENTS	07/27/2021
5.	REVISED PER CITY COMMENTS	03/25/2022
6.	REVISED PER CITY COMMENTS	05/31/2022

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STATE OF NEW YORK · STEPHEN SPINA · LICENSED PROFESSIONAL ENGINEER · 085983

Drawn: BMS	Approved: SS
Scale: NOT TO SCALE	
Date: 10/29/2019	
Project No: 18119	
18119-DETAILS	C-905 –
Drawing No: C-905 (Sheet 22 of 26)	

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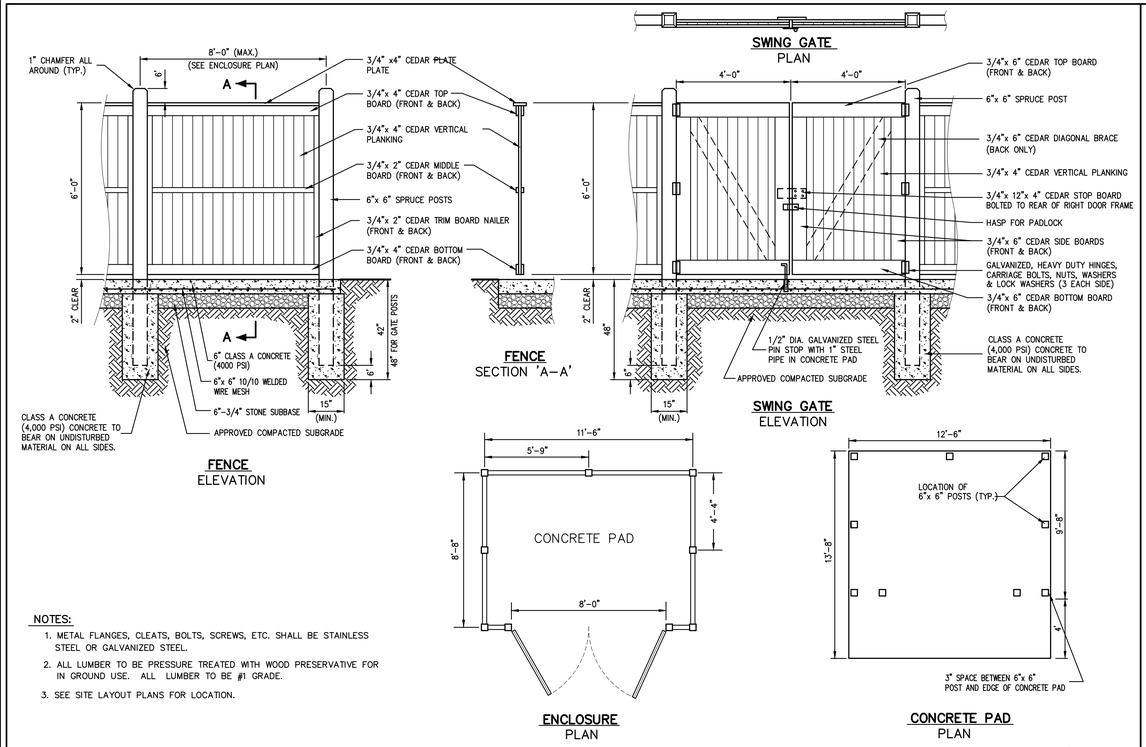


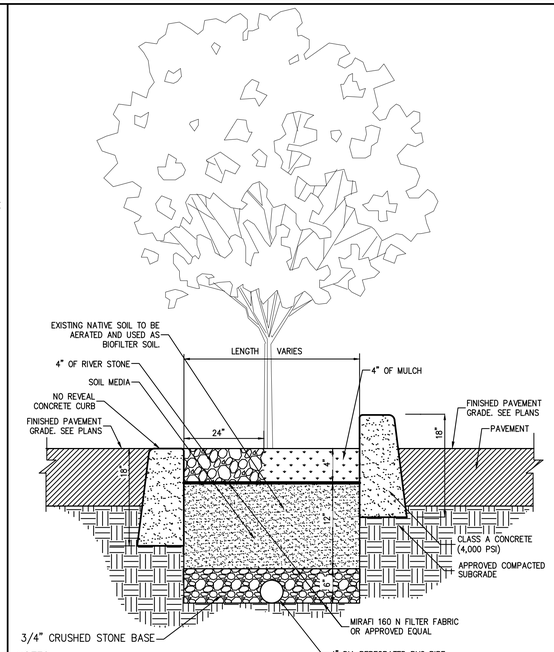
NOTES:

1. METAL FLANGES, CLEATS, BOLTS, SCREWS, ETC. SHALL BE STAINLESS STEEL OR GALVANIZED STEEL.
2. ALL LUMBER TO BE PRESSURE TREATED WITH WOOD PRESERVATIVE FOR IN GROUND USE. ALL LUMBER TO BE #1 GRADE.
3. SEE SITE LAYOUT PLANS FOR LOCATION.

TRASH ENCLOSURE WITH CONCRETE PAD

(WOOD)

43



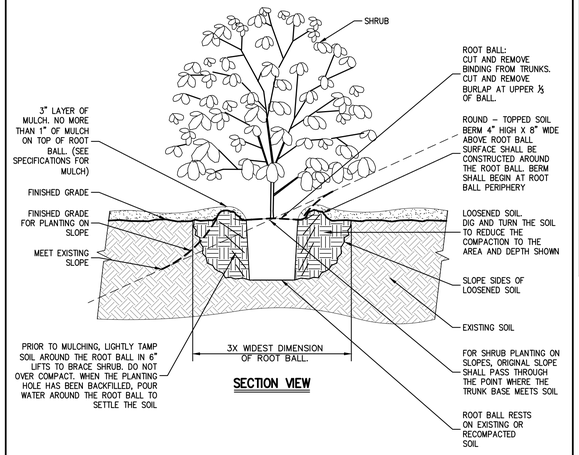
NOTES:

1. INSTALL 1/2" PREMOLDED BITUMINOUS EXPANSION JOINT EVERY 20 FEET.
2. INSTALL CONSTRUCTION JOINTS MID-WAY BETWEEN EXPANSION JOINTS SO THAT LENGTH OF CURB SEGMENTS WILL BE TEN (10) FEET.
3. LENGTH OF CURB SEGMENTS AT CLOSURES MAY BE VARIED BUT SHALL NOT BE LESS THAN FOUR (4) FEET.
4. THE SOIL MEDIA FOR THE RAIN GARDEN IS BASED ON THE NEW YORK STATE STORMWATER MANAGEMENT DESIGN MANUAL SPECIFICATIONS. THE SOIL COMPOSITION SHOULD CONSIST OF 50% TO 70% SAND (LESS THAN 5% CLAY CONTENT), 50% TO 30% TOPSOIL WITH AN AVERAGE OF 5% ORGANIC MATERIAL, SUCH AS COMPOST OR PEAT, FREE OF STONES, ROOTS, WOODY DEBRIS AND ANIMAL WASTE. THE DEPTH OF SOIL SHOULD BE APPROXIMATELY 4 INCHES BELOW THE BOTTOM OF THE DEEPEST ROOT BALL OF ANY TREES OR SHRUBS WITHIN THE RAIN GARDEN.

STORMWATER TREATMENT LANDSCAPED AREA 2A1, 2A2

(W/ UNDERDRAIN)

44

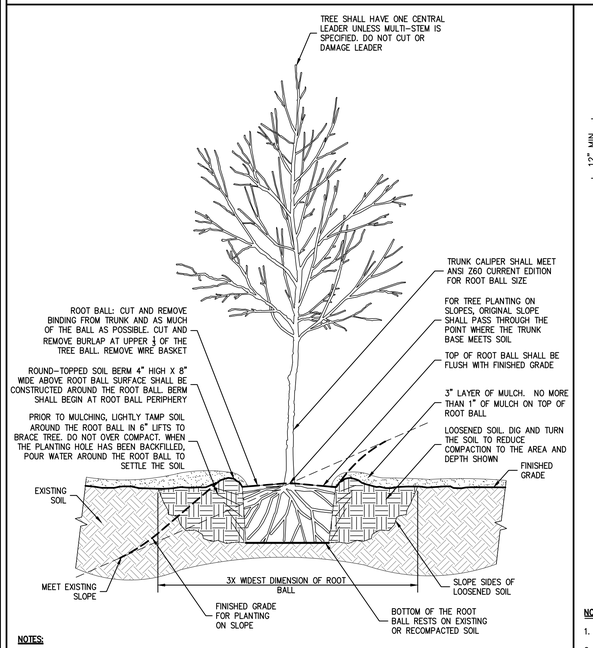


NOTES:

1. ALL PLANTING BEDS SHALL BE FREE OF WEEDS AND GRASS PRIOR TO AND FOLLOWING INSTALLATION OF PLANTS.
2. PLANTS IN CONTAINERS MUST HAVE THE FIBROUS ROOTS PULLED APART.
3. PROPOSED PLANT MATERIAL SHALL BEAR THE SAME RELATION TO FINISHED GRADE AS IT BORE TO PREVIOUS EXISTING GRADE.

SHRUB PLANTING

45



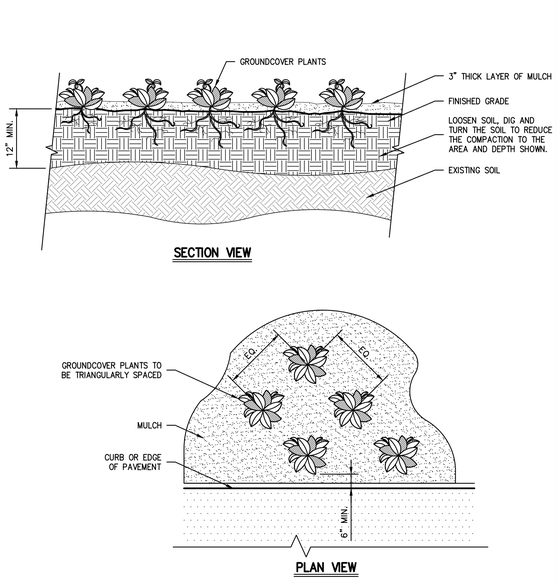
NOTES:

1. ALL PLANTING BEDS SHALL BE FREE OF WEEDS AND GRASS PRIOR TO AND FOLLOWING INSTALLATION OF PLANTS.
2. PLANTS IN CONTAINERS MUST HAVE THE FIBROUS ROOTS PULLED APART.
3. PROPOSED PLANT MATERIAL SHALL BEAR THE SAME RELATION TO FINISHED GRADE AS IT BORE TO PREVIOUS EXISTING GRADE.
4. SEE TREE STAKING DETAIL IF STAKING IS REQUIRED.

TREE PLANTING

(DECIDUOUS AND EVERGREEN)

46

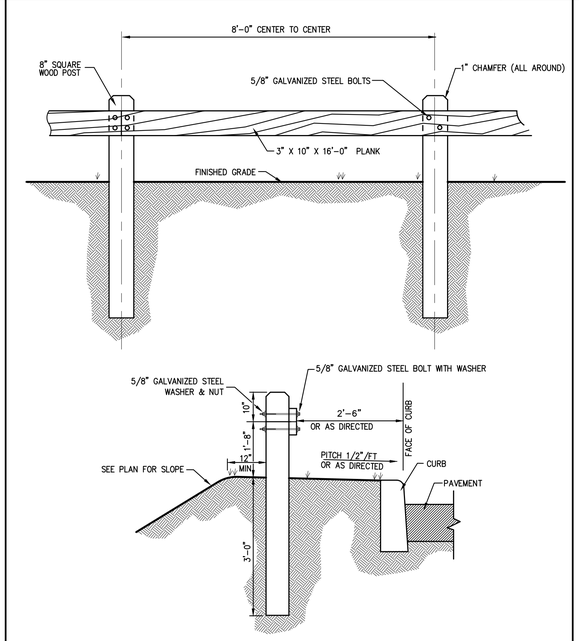


NOTES:

1. SEE PLANTING PLAN FOR GROUNDCOVER SPECIES, SIZE, AND SPACING DIMENSION.
2. SETTLE SOIL AROUND ROOT BALL OF EACH GROUNDCOVER PLANT PRIOR TO MULCHING.
3. ALL PLANTING BEDS SHALL BE FREE OF WEEDS AND GRASS PRIOR TO AND FOLLOWING INSTALLATION OF PLANTS.
4. PLANTS IN CONTAINERS MUST HAVE THE FIBROUS ROOTS PULLED APART.
5. PROPOSED PLANT MATERIAL SHALL BEAR THE SAME RELATION TO FINISHED GRADE AS IT BORE TO PREVIOUS EXISTING GRADE.

GROUNDCOVER

47

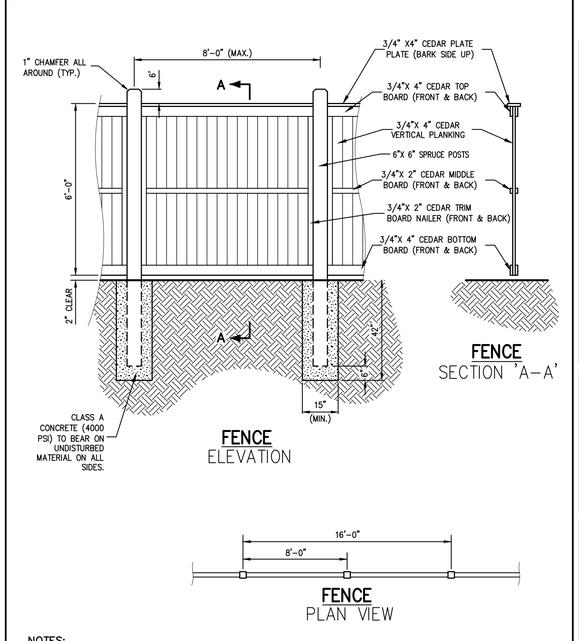


NOTES

1. ALL WOOD TO BE SEASONED NO.1 DOUGLAS FIR, SOUTHERN PINE OR OTHER APPROVED STRUCTURAL LUMBER.
2. GALVANIZED BOLT AND NUT TO BE 4000# MIN., 5400# MAX. TENSILE STRENGTH. AFTER GALVANIZING BOLT AND NUT, THE NUT SHALL BE FREE RUNNING ON THE BOLT.

WOOD GUIDE RAIL

48



NOTES:

1. METAL FLANGES, CLEATS, BOLTS, SCREWS, ETC. SHALL BE STAINLESS STEEL OR GALVANIZED STEEL.
2. ALL LUMBER, EXCEPT WHERE NOTED ON FENCE, TO BE PRESSURE TREATED WITH WOOD PRESERVATIVE FOR IN GROUND USE. ALL LUMBER TO BE #1 GRADE.
3. SEE SITE LAYOUT PLAN FOR LOCATION.

WOODEN PRIVACY FENCE

49

No.	Revision	Date
1.	REVISED PER CITY COMMENTS	12/30/19
2.	REVISED PER CITY COMMENTS	02/24/2020
3.	REVISED PER CITY COMMENTS	09/29/2020
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STATE OF NEW YORK
STEPHEN SPINA
085983
LICENSED PROFESSIONAL ENGINEER

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Date:	10/29/2019		
Project No:	18119		
18119-DETAILS	C-906	-	

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C-906
(Sheet 23 of 26)

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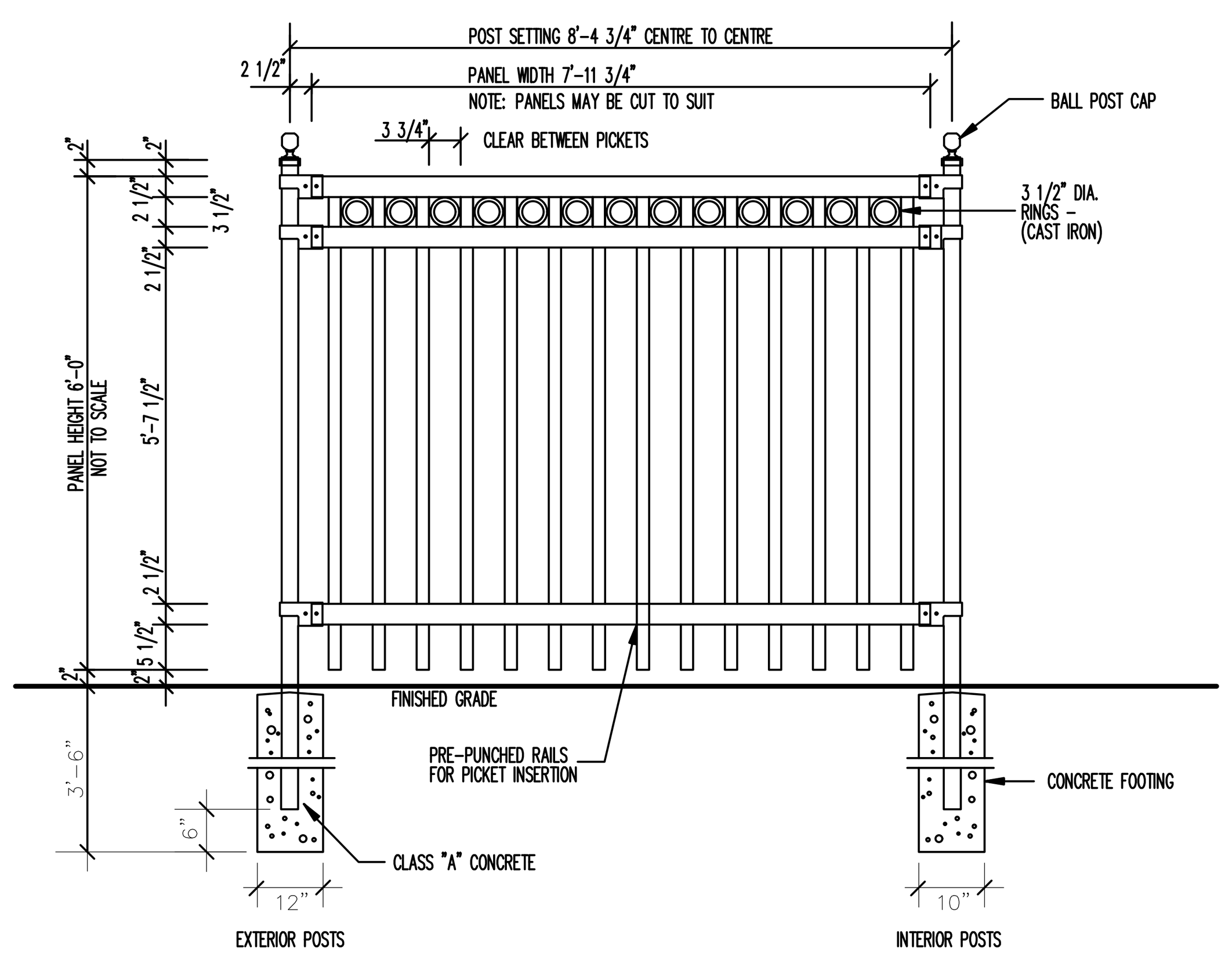
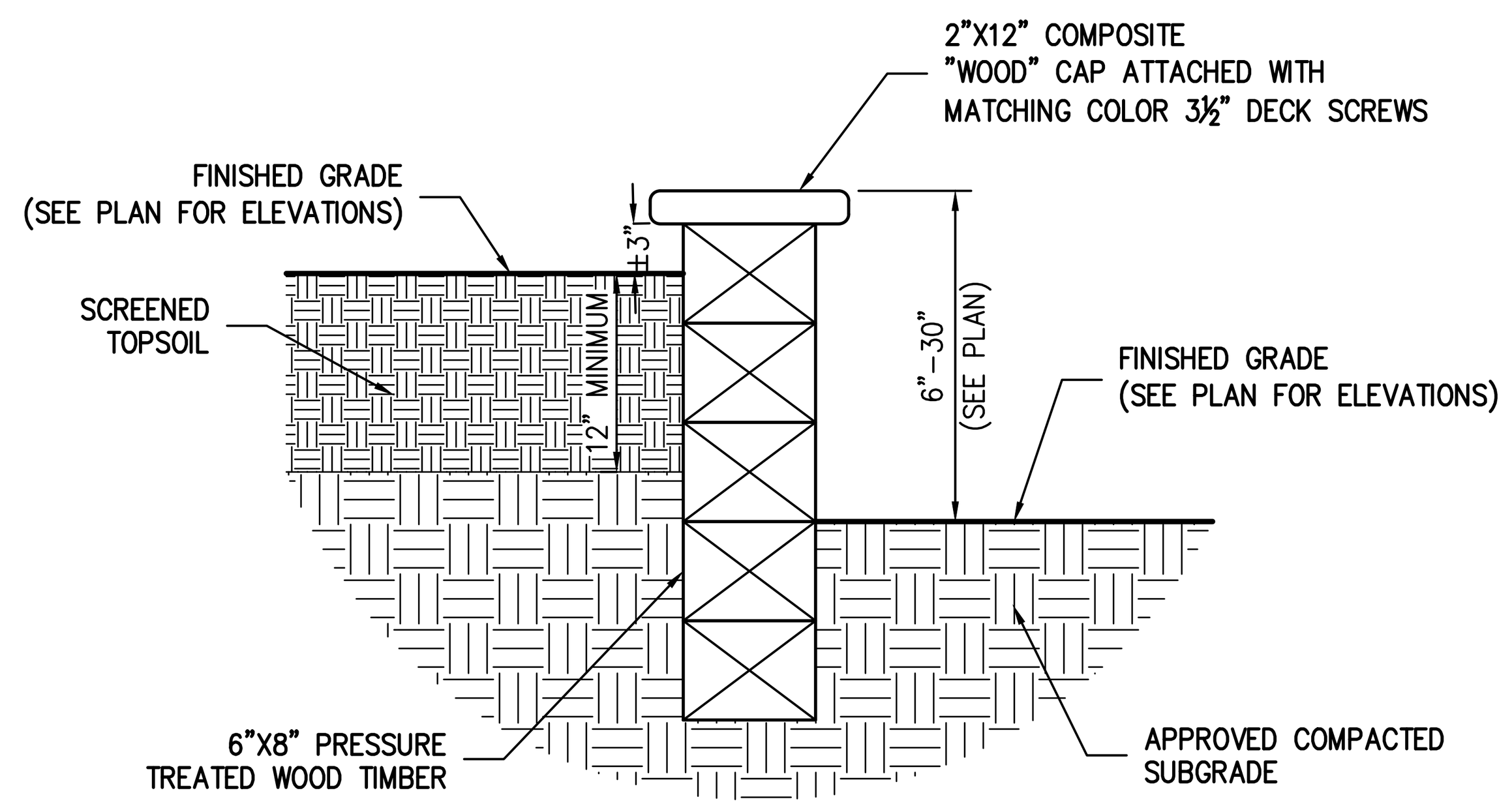


SPECIFICATIONS:

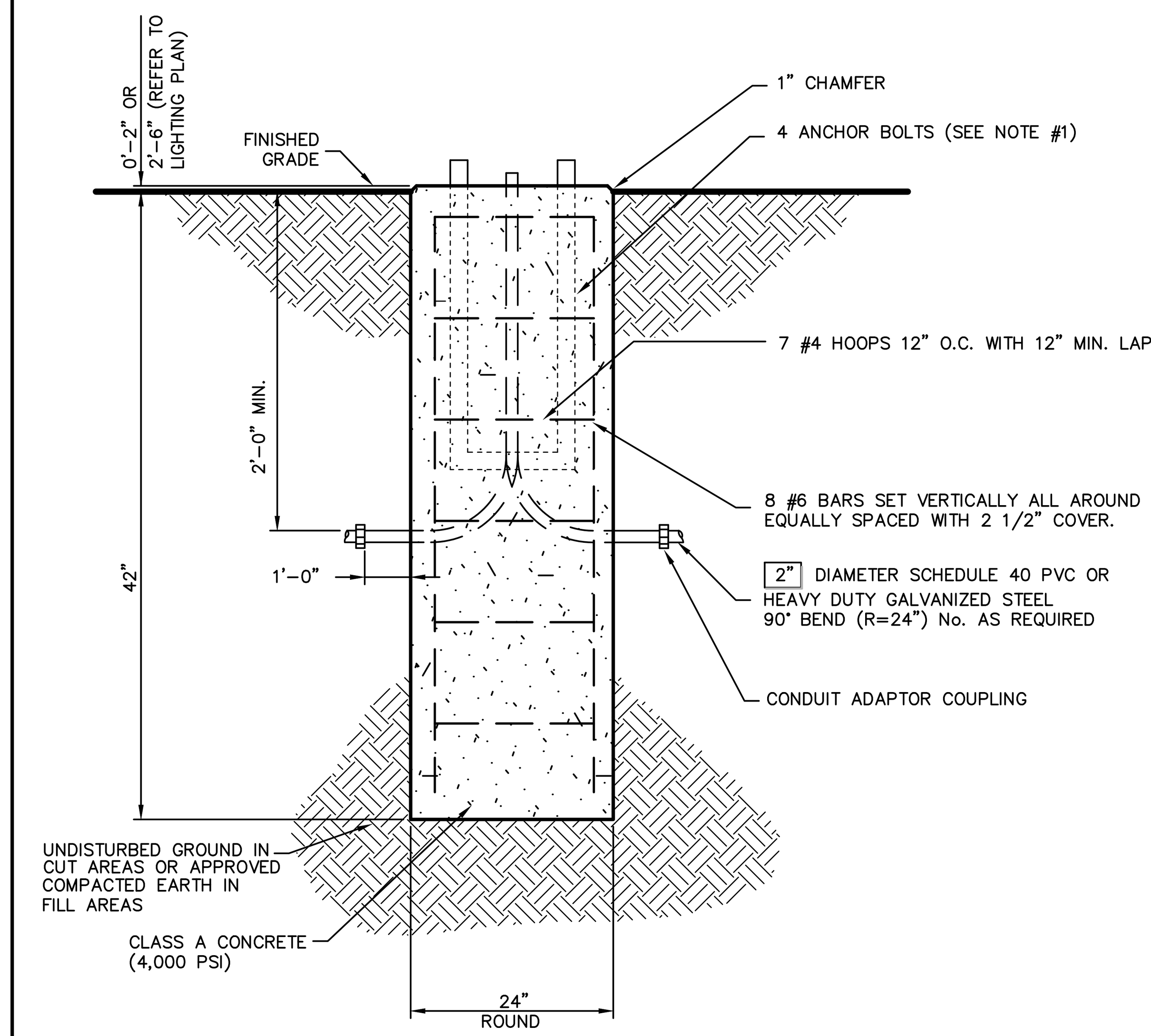
POSTS, RAILS : & PICKETS	COLD FORMED STEEL TUBING INTERIOR & EXTERIOR GALVALUME™ COATING CHROMATE CONVERSION COATING ELECTROSTATICALLY APPLIED THERMALLY BONDED POLYESTER POWDER COATING MINIMUM FILM THICKNESS 2.5 mils
POSTS:	3"x3", 14 GAUGE OR SCH 40 POST SPACING (CENTRE TO CENTRE): 8'-4 3/4"
POST FLANGES:	8"x8" x 1/2" 10"x10" x 1/2"
POST CAP:	BALL
RAILS:	1 1/2" x 2 1/2", 16 GAUGE
PICKETS:	3/4" x 1 1/2", 16 GAUGE
FITTINGS:	12 GAUGE STAMP FORGED FACTORY FINISH AS ABOVE
WELDS:	STAINLESS STEEL
PANEL:	WIDTH OF 7'-11 3/4" HEIGHT OF 6'
COLOUR:	BLACK
WARRANTY:	5 YEAR MAINTENANCE FREE

FENCE TO BE SILVER EAGLE C/W RINGS AS MANUFACTURED BY IRON EAGLE INDUSTRIES, INC. OF MISSISSAUGA, ONTARIO OR APPROVED EQUAL.

BLACK ALUMINUM SAFETY FENCE — 50



SEAT/GARDEN WALL — 51



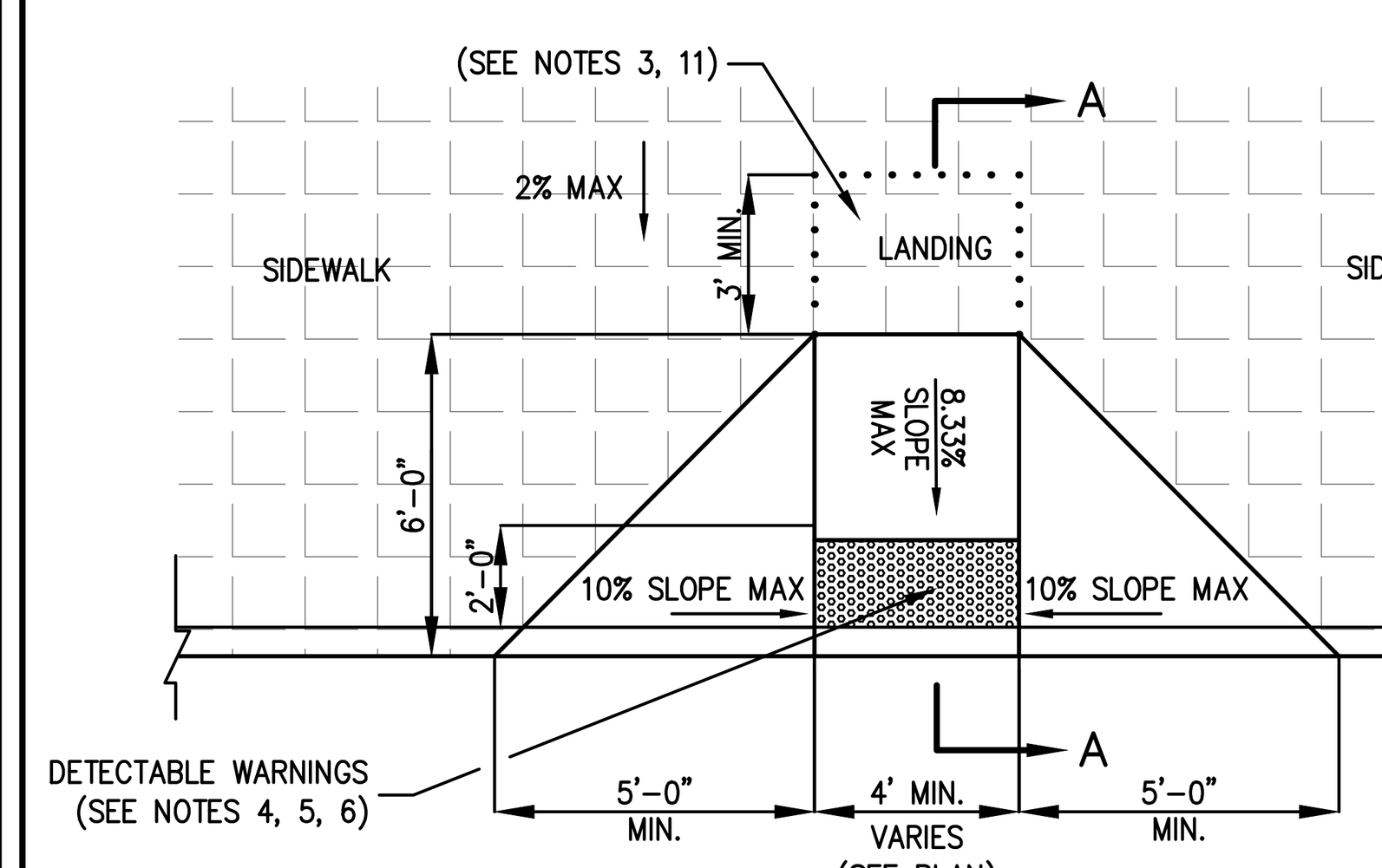
NOTES:

1. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO CHECK AND VERIFY ALL ANCHOR BOLT DIMENSIONS (SIZE, BOLT CIRCLE, ETC.) WITH THE CONTRACTOR WHO WILL BE INSTALLING THE LIGHTING STANDARD PRIOR TO INSTALLATION OF THE FOUNDATIONS.
2. CHAMFER EXPOSED EDGES OF ALL FOUNDATIONS.
3. PROVIDE INSULATED GROUNDING BUSHING ON EXPOSED ENDS (IN BASE OF POLE) OF ALL GALVANIZED STEEL BENDS.
4. POLES AND LUMINAIRES WILL BE FURNISHED AND INSTALLED BY OTHERS.

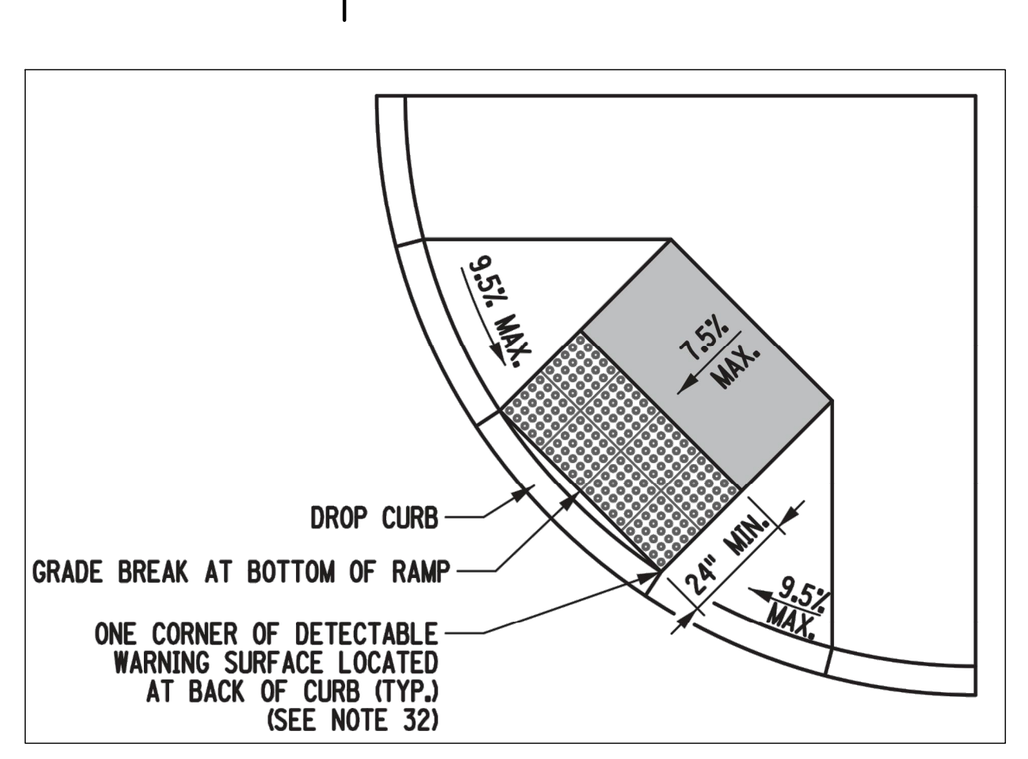
SITE LIGHTING STANDARD FOUNDATION — 52

(ROUND)

X



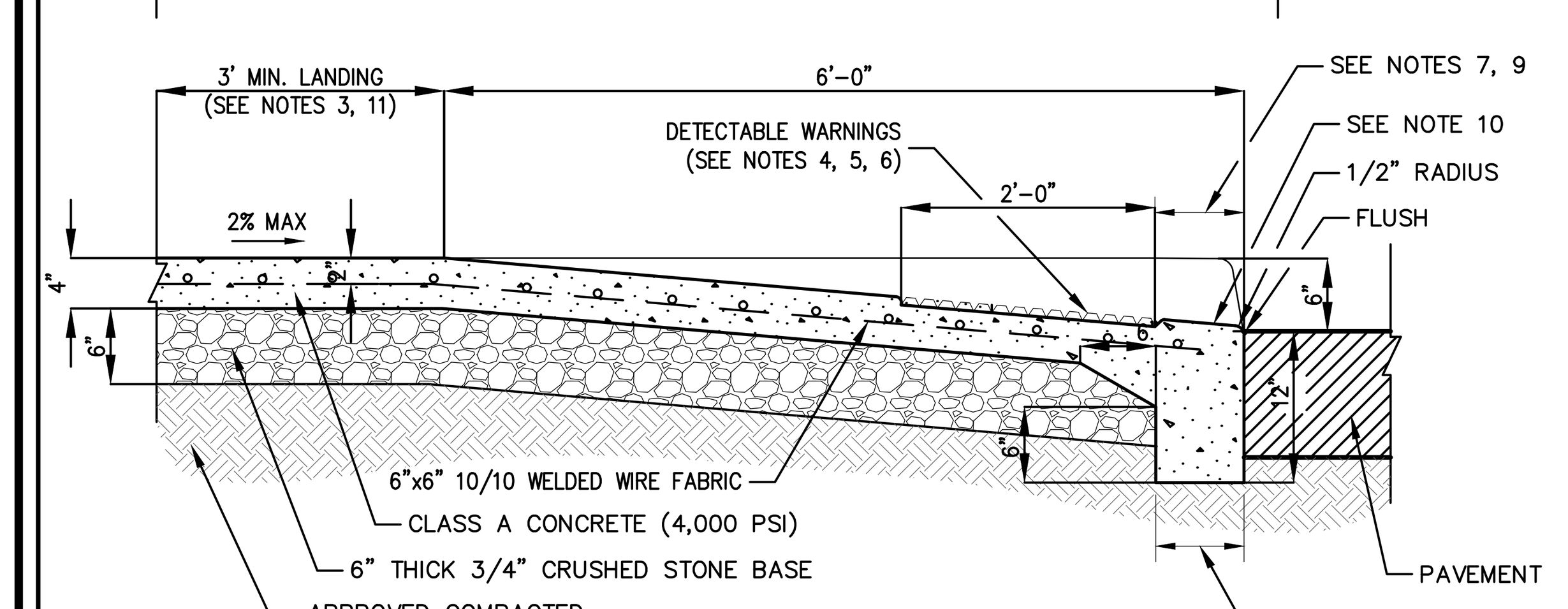
PLAN



OPTION ON CURB



ELEVATION



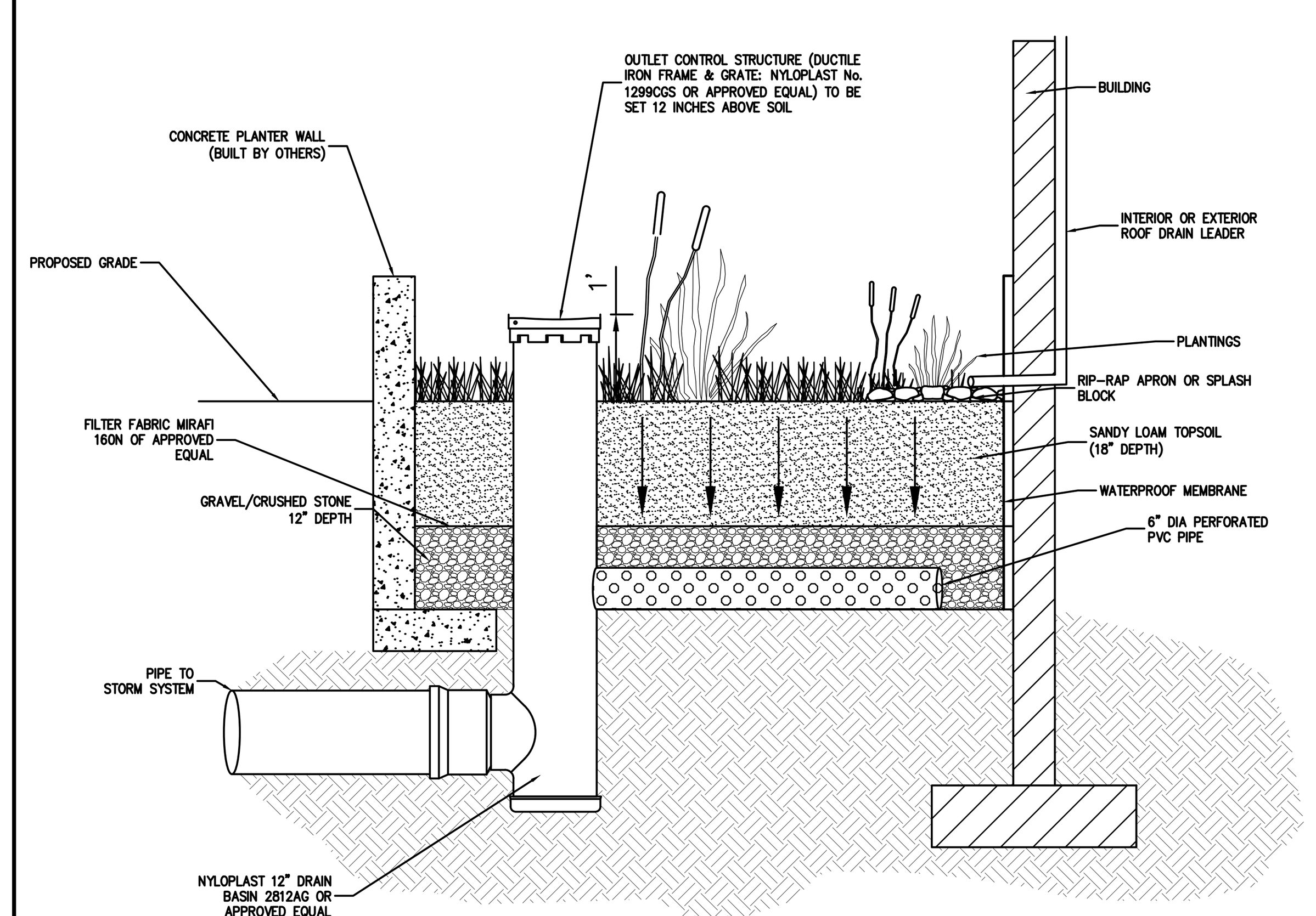
SECTION A-A

NOTES:

1. THE MAXIMUM RUNNING SLOPE OF A CURB RAMP SHALL BE 8.33%, THE MAXIMUM CROSS SLOPE SHALL BE 2.0%, AND WHERE PROVIDED, CURB RAMP FLARES SHALL NOT EXCEED 10% ALONG CURB MEASURED WITH A 2 FOOT SMART LEVEL AS SPECIFIED IN "DIMENSIONAL TOLERANCES IN CONSTRUCTION AND FOR SURFACE ACCESSIBILITY", BY UNITED STATES ACCESS BOARD, LATEST EDITION.
2. COUNTER SLOPES OF ADJOINING GUTTERS AND ROAD SURFACES IMMEDIATELY ADJACENT TO THE CURB RAMP SHALL NOT BE STEEPER THAN 5%. THE ADJACENT SURFACES AT TRANSITIONS AT CURB RAMPS TO WALKS, GUTTERS AND STREETS SHALL BE AT THE SAME LEVEL.
3. LANDINGS SHALL BE PROVIDED AT THE TOP OF CURB RAMPS. THE CLEAR LENGTH OF THE LANDING SHALL BE THIRTY-SIX (36) INCHES MINIMUM. THE CLEAR WIDTH OF THE LANDING SHALL BE AT LEAST AS WIDE AS THE CURB RAMP, EXCLUDING FLARED SIDES, LEADING TO THE LANDING. LANDINGS SHALL HAVE A SLOPE NOT STEEPER THAN 2% IN ANY DIRECTION MEASURED WITH A 2 FOOT SMART LEVEL AS SPECIFIED IN "DIMENSIONAL TOLERANCES IN CONSTRUCTION AND FOR SURFACE ACCESSIBILITY", BY UNITED STATES ACCESS BOARD, LATEST EDITION.
4. RAMPS SHALL HAVE CAST IN PLACE DETECTABLE WARNINGS AS MANUFACTURED BY ARMOR-TILE (OR APPROVED EQUAL) AND SHALL CONSIST OF RAISED TRUNCATED DOMES WITH A BASE DIAMETER OF NOMINAL 0.9 INCHES, A HEIGHT OF NOMINAL 0.2 INCHES AND A CENTER TO CENTER SPACING OF NOMINAL 1.6 INCHES.
5. DETECTABLE WARNING SURFACES SHALL CONTRAST VISUALLY WITH ADJACENT WALKING SURFACES, EITHER LIGHT-ON-DARK OR DARK-ON-LIGHT IN ACCORDANCE WITH THE ADA STANDARDS FOR ACCESSIBLE DESIGN, THE BUILDING CODE, AND APPLICABLE LOCAL LAWS AND REGULATIONS, LATEST EDITIONS.
6. 24" WIDTH OF PANELS TO BE INSTALLED DIRECTLY BEHIND CURB AND IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
7. SEE PLANS AND DETAILS FOR CURB TYPE AND DIMENSIONS.
8. RAMP, CURB AND ADJACENT PAVEMENTS SHALL BE GRADED TO PREVENT PONDING.
9. CURB RAMPS AT MARKED CROSSINGS SHALL BE WHOLLY CONTAINED WITHIN THE MARKINGS, EXCLUDING ANY FLARED SIDES.
10. CONTRACTOR TO ENSURE TOP OF CURB MATCHES SLOPE OF RAMP.
11. CURB RAMPS SHALL NOT BE LOCATED IN AN AREA THAT INTERFERES WITH MINIMUM MANEUVERING CLEARANCES AT DOORS AND GATES.
12. CURB RAMP SHALL HAVE LIGHT BROOM FINISH.
13. THE MINIMUM WIDTH OF A CURB SHALL BE 4'-0".
14. THE GRADE (RUNNING SLOPE) OF A CURB RAMP SHALL BE A MINIMUM OF 5%. THE GRADE FOR DESIGN AND LAYOUT SHALL BE A MAXIMUM OF 7.5% OF THE GRADE FOR ADA ACCESSIBILITY AND WORK ACCEPTANCE SHALL BE A MAXIMUM OF 8.3%.
15. THE CROSS SLOPE OF THE CURB RAMP SHALL BE AS FLAT AS POSSIBLE AND STILL PROVIDE POSITIVE DRAINAGE. THE CROSS SLOPE OF A CURB RAMP SHALL BE 1.5% MAXIMUM FOR DESIGN AND LAYOUT, AND 2% MAXIMUM FOR WORK ACCEPTANCE.
16. WHERE A PEDESTRIAN CIRCULAR PATH CROSSES THE CURB RAMP, FLARED SIDES SHALL BE INSTALLED WITH A MAXIMUM SLOPE OF 9.5% FOR DESIGN AND LAYOUT, AND 10% MAXIMUM FOR WORK ACCEPTANCE. THE SLOPE OF FLARED SIDES IS MEASURED PARALLEL TO THE CURB LINE.
17. WHERE A CHANGE IN DIRECTION IS REQUIRED TO UTILIZE A CURB RAMP, A TURNING SPACE SHALL BE PROVIDED AT THE BASE OR THE TOP OF A CURB RAMP AS APPLICABLE. TURNING SPACES SHALL BE PERMITTED TO OVERLAP CLEAR SPACES.
18. DETECTABLE WARNING SURFACES SHALL BE PROVIDED AT THE FOLLOWING LOCATIONS ON PEDESTRIAN ACCESS ROUTES:
    A. CURB RAMPS AND BLENDED TRANSITIONS AT PEDESTRIAN STREET CROSSINGS.
    B. PEDESTRIAN REFUGE ISLANDS (WHERE THE LENGTH OF THE PEDESTRIAN ACCESS ROUTE ACROSS THE REFUGE ISLAND IS GREATER THAN OR EQUAL TO 6 FEET).
    C. PEDESTRIAN AT-GRADE RAIL CROSSINGS NOT LOCATED WITHIN A STREET OR HIGHWAY.
19. DETECTABLE WARNING SURFACES SHALL BE PROVIDED WHERE THE PEDESTRIAN ACCESS ROUTE CROSSES DRIVEWAYS WITH SIGNAL, YIELD OR STOP CONTROL. DETECTABLE WARNING SURFACES SHALL NOT BE PROVIDED AT CROSSINGS OR UNCONTROLLED DRIVEWAY APRONS.
20. SOME DETECTABLE WARNING PRODUCTS REQUIRE A CONCRETE BORDER FOR PROPER INSTALLATION. IF REQUIRED, THE BORDER SHALL NOT EXCEED 2". WHERE THE BACK OF CURB EDGE IS TOOLED TO PROVIDE A RADIUS, THE BORDER DIMENSION SHALL BE MEASURED FROM THE INSIDE EDGE OF THE CURB RADIUS.

PERPENDICULAR CURB RAMP — 53

(WITH DETECTABLE WARNING)



NOTES:

1. FLOW-THROUGH AND INFILTRATION STORMWATER PLANTERS SHOULD NOT RECEIVE DRAINAGE FROM IMPERVIOUS AREAS GREATER THAN 15,000 SQUARE FEET.
2. INFILTRATION PLANTERS SHOULD BE LOCATED A MINIMUM DISTANCE OF TEN FEET FROM STRUCTURES.
3. RIP-RAP MUST BE PLACED BELOW DOWNSPOUTS OR WHERE STORMWATER ENTERS THE PLANTER TO PREVENT EROSION.
4. STORMWATER PLANTERS ARE DESIGNED TO POND WATER LESS THEN 12 HOURS, WITH A MAXIMUM OF PONDING DEPTH OF 12 INCHES.
5. FLOW-THROUGH AND INFILTRATION PLANTERS MUST HAVE A MINIMUM WIDTH OF 1.5 AND 2.5 FEET, RESPECTIVELY.
6. SOILS SPECIFICATIONS FOR THE STORMWATER PLANTERS GROWING MEDIUM SHOULD ALLOW AN INFILTRATION RATE OF 2 INCHES PER HOUR, AND 5 INCHES AN HOUR FOR THE DRAINAGE LAYER.
7. SOIL COMPACTION MUST BE NO GREATER THAN 85% IN THE PLANTER.
8. THE GROWING MEDIUM DEPTH FOR ALL THREE STORMWATER PLANTERS TYPES SHOULD BE AT LEAST 18 INCHES. GROWING MEDIA SHOULD BE A UNIFORM MIXTURE OF 70% SAND (100% PASSING THE 1-INCH SIEVE AND 5% PASSING THE NO. 200 SIEVE) AND 30% TOPSOIL WITH AN AVERAGE OF 5% ORGANIC MATERIAL, SUCH AS COMPOST OR PEAT, FREE OF STONES, ROOTS AND WOODY DEBRIS AND ANIMAL WASTE.
9. FOR INFILTRATION AND FLOW-THROUGH PLANTERS THE DRAINAGE LAYER SHOULD HAVE A MINIMUM DEPTH OF 12 INCHES. DRAINAGE LAYER SHOULD BE CLEAN SAND WITH 100% PASSING THE 1-INCH SIEVE AND 5% PASSING THE NO. 200 SIEVE.
10. A MINIMUM INFILTRATION DEPTH OF 3 FEET SHOULD BE PROVIDED BETWEEN THE BOTTOM OF THE INFILTRATION PRACTICE AND ANY IMPERMEABLE BOUNDARIES, SUCH AS THE SEASONAL HIGH GROUNDWATER LEVEL OR ROCK.
11. INFILTRATION PLANTERS MUST BE DESIGNED AND CONSTRUCTED WITH NO LONGITUDINAL OR LATERAL SLOPE.

FLOW-THROUGH STORMWATER PLANTER — 54

(WITH UNDER DRAIN)

X

No.	Revision	Date
1.	REVISED PER CITY COMMENTS	12/30/19
2.	REVISED PER CITY COMMENTS	02/24/2020
3.	REVISED PER CITY COMMENTS	09/29/2020
4.	REVISED PER CITY COMMENTS	07/27/2021
5.	REVISED PER CITY COMMENTS	03/25/2022
6.	REVISED PER CITY COMMENTS	05/31/2022

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Drawn:	BMS	Approved:	SS
Scale:	NOT TO SCALE		
Date:	10/29/2019		
Project No:	18119		
18119-DETAILS	C-907	-	
Drawing No:	C-907 (Sheet 24 of 26)		

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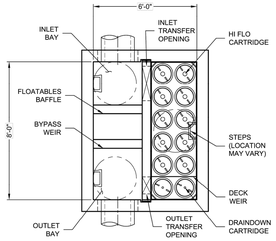
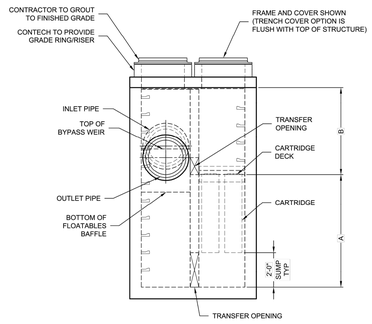


PLAN VIEW
(TOP SLAB NOT SHOWN FOR CLARITY)



ELEVATION VIEW

JELLYFISH DESIGN NOTES

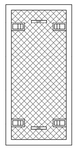
JELLYFISH TREATMENT CAPACITY IS A FUNCTION OF THE CARTRIDGE LENGTH AND THE NUMBER OF CARTRIDGES. THE STANDARD PEAK DIVERSION STYLE WITH PRECAST TOP SLAB IS SHOWN. ALTERNATE OFFLINE VAULT AND/OR SHALLOW ORIENTATIONS ARE AVAILABLE. PEAK CONVEYANCE CAPACITY TO BE DETERMINED BY ENGINEER OF RECORD

CARTRIDGE SELECTION

CARTRIDGE LENGTH	54"	40"	27"	15"
OUTLET INVERT TO STRUCTURE INVERT (A)	6'-6"	5'-4"	4'-3"	3'-3"
FLOW RATE HI-FLO / DRAINDOWN (CFS) (PER CART)	0.178 / 0.089	0.133 / 0.067	0.089 / 0.045	0.049 / 0.025
MAX. TREATMENT (CFS)	1.96	1.47	0.98	0.54
DECK TO INSIDE TOP (MIN) (B)	5.00	4.00	4.00	4.00



FRAME AND COVER
(DIAMETER VARIES)
N.T.S.



24" TRENCH COVER
(LENGTH VARIES)
N.T.S.

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID	*
WATER QUALITY FLOW RATE (cfs)	*
PEAK FLOW RATE (cfs)	*
RETURN PERIOD OF PEAK FLOW (yrs)	*
# OF CARTRIDGES REQUIRED (HF / DD)	*
CARTRIDGE LENGTH	*

PIPE DATA:	I.E.	MAT'L	DIA	SLOPE %	HGL
INLET #1	*	*	*	*	*
INLET #2	*	*	*	*	*
OUTLET	*	*	*	*	*

SEE GENERAL NOTES 6-7 FOR INLET AND OUTLET HYDRAULIC AND SIZING REQUIREMENTS.

RIM ELEVATION	*

ANTI-FLOTATION BALLAST	WIDTH	HEIGHT
	*	*

NOTES/SPECIAL REQUIREMENTS:

* PER ENGINEER OF RECORD

GENERAL NOTES:
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. FOR SITE SPECIFIC DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHT, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS REPRESENTATIVE. www.ContechES.com
3. JELLYFISH WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
4. STRUCTURE SHALL MEET AASHTO HS-20 OR PER APPROVING JURISDICTION REQUIREMENTS, WHICHEVER IS MORE STRINGENT, ASSUMING EARTH COVER OF 0' - 10', AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 LOAD RATING AND BE CAST WITH THE CONTECH LOGO.
5. STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C-857, ASTM C-918, AND AASHTO LOAD FACTOR DESIGN METHOD.
6. OUTLET PIPE INVERT IS EQUAL TO THE CARTRIDGE DECK ELEVATION.
7. THE OUTLET PIPE DIAMETER FOR NEW INSTALLATIONS IS RECOMMENDED TO BE ONE PIPE SIZE LARGER THAN THE INLET PIPE AT EQUAL OR GREATER SLOPE.
8. NO PRODUCT SUBSTITUTIONS SHALL BE ACCEPTED UNLESS SUBMITTED 10 DAYS PRIOR TO PROJECT BID DATE, OR AS DIRECTED BY THE ENGINEER OF RECORD.

INSTALLATION NOTES
A. ANY SUB-BASE/ BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE STRUCTURE.
C. CONTRACTOR WILL INSTALL AND LEVEL THE STRUCTURE, SEALING THE JOINTS, LINE ENTRY AND EXIT POINTS (NON-SHRINK GROUT WITH APPROVED WATERSTOP OR FLEXIBLE BOOT).
D. CARTRIDGE INSTALLATION, BY CONTECH, SHALL OCCUR ONLY AFTER SITE HAS BEEN STABILIZED AND THE JELLYFISH UNIT IS CLEAN AND FREE OF DEBRIS. CONTACT CONTECH TO COORDINATE CARTRIDGE INSTALLATION WITH SITE STABILIZATION.

Jellyfish® Filter
THIS PRODUCT MAY BE PROTECTED BY ONE OR MORE OF THE FOLLOWING PATENTS: U.S. PATENT NOS. 7,425,262; 7,470,366; 8,123,935; OTHER INTERNATIONAL PATENTS PENDING

CONTECH ENGINEERED SOLUTIONS LLC
www.ContechES.com
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

JELLYFISH JFPD0806
STANDARD DETAIL
PEAK DIVERSION CONFIGURATION

NOTES:

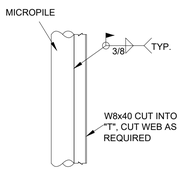
REQUIRED MAINTENANCE FOR THE JELLYFISH FILTER IS BASED UPON RESULTS OF THE MOST RECENT INSPECTION, HISTORICAL MAINTENANCE RECORDS, OR THE SITE SPECIFIC WATER QUALITY MANAGEMENT PLAN; WHICHEVER IS MORE FREQUENT. IN GENERAL, MAINTENANCE REQUIRES SOME COMBINATION OF THE FOLLOWING:

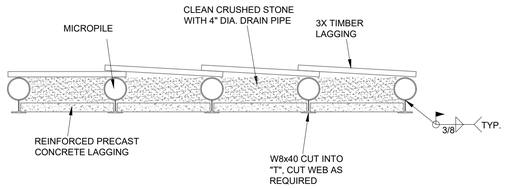
1. SEDIMENT REMOVAL FOR DEPTHS REACHING 12 INCHES OR GREATER, OR WITHIN 3 YEARS OF THE MOST RECENT SEDIMENT CLEANING, WHICHEVER OCCURS SOONER.
2. FLOATABLE TRASH, DEBRIS AND OIL REMOVAL.
3. DECK CLEANED AND FREE FROM SEDIMENT.
4. FILTER CARTRIDGES RINSED AND RE-INSTALLED AS REQUIRED BY THE MOST RECENT INSPECTION RESULTS, OR WITHIN 12 MONTHS OF THE MOST RECENT FILTER RINSING, WHICHEVER OCCURS SOONER.
5. REPLACE TENTACLES IF RINSING DOES NOT RESTORE ADEQUATE HYDRAULIC CAPACITY, REMOVE ACCUMULATED SEDIMENT, OR IF DAMAGED OR MISSING. IT IS RECOMMENDED THAT TENTACLES SHOULD REMAIN IN SERVICE NO LONGER THAN 5 YEARS BEFORE REPLACEMENT.
6. DAMAGED OR MISSING CARTRIDGE DECK COMPONENTS MUST BE REPAIRED OR REPLACED AS INDICATED BY RESULTS OF THE MOST RECENT INSPECTION.
7. THE UNIT MUST BE CLEANED OUT AND FILTER CARTRIDGES INSPECTED IMMEDIATELY AFTER AN UPSTREAM OIL, FUEL, OR CHEMICAL SPILL. Filter CARTRIDGE TENTACLES SHOULD BE REPLACES IF DAMAGED OR COMPROMISED BY THE SPILL.

JELLYFISH FILTER

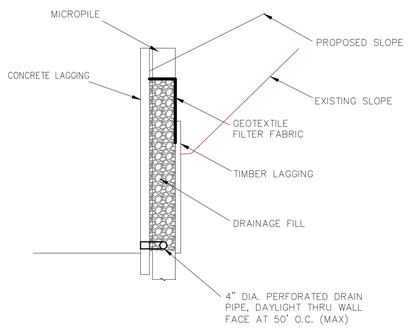
55

X





PLAN



TYPICAL SECTION



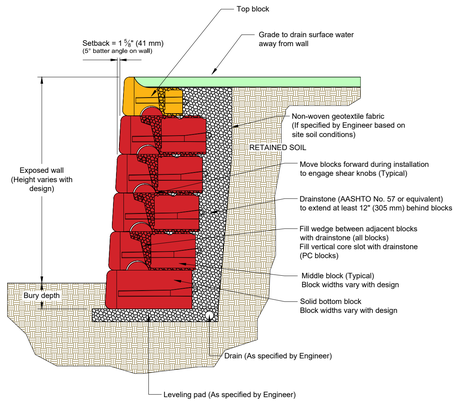
EXAMPLE IMAGE

NOTE:
1. RETAINING WALLS THAT INCLUDE FALL PROTECTION SHALL USE ALUMINUM DECORATIVE FENCE AND INSTALL PER MANUFACTURERS RECOMMENDATIONS.

SOLDIER PILE RETAINING WALL
(FOR REFERENCE ONLY)

56

Typical Gravity Wall Section



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DRAWN BY:	JRJ	TITLE: Typical Gravity Wall Detail	REDI ROCK® 05481 US 31 SOUTH, CHARLEVOIX, MI 49720 (866) 222-8400 ext 3010 • engineering@redi-rock.com www.redi-rock.com
APPROVED BY:	JRJ		
DATE:	17MAR2016		
SHEET:	1 of 1	FILE: 1 Typical Gravity Wall Detail 031716.dwg	



EXAMPLE IMAGE

NOTE:
1. RETAINING WALLS THAT INCLUDE FALL PROTECTION SHALL USE ALUMINUM DECORATIVE FENCE AND INSTALL PER MANUFACTURERS RECOMMENDATIONS.

REDI ROCK GRAVITY WALL
(FOR REFERENCE ONLY)

57

No.	Revision	Date
1.	REVISED PER CITY COMMENTS	12/30/19
2.	REVISED PER CITY COMMENTS	02/24/2020
3.	REVISED PER CITY COMMENTS	09/29/2020
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STATE OF NEW YORK
STEPHEN SPINA
LICENSED PROFESSIONAL ENGINEER
085983

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18119-DETAILS	C-908	-	

Drawing No: C-908
(Sheet 25 of 26)

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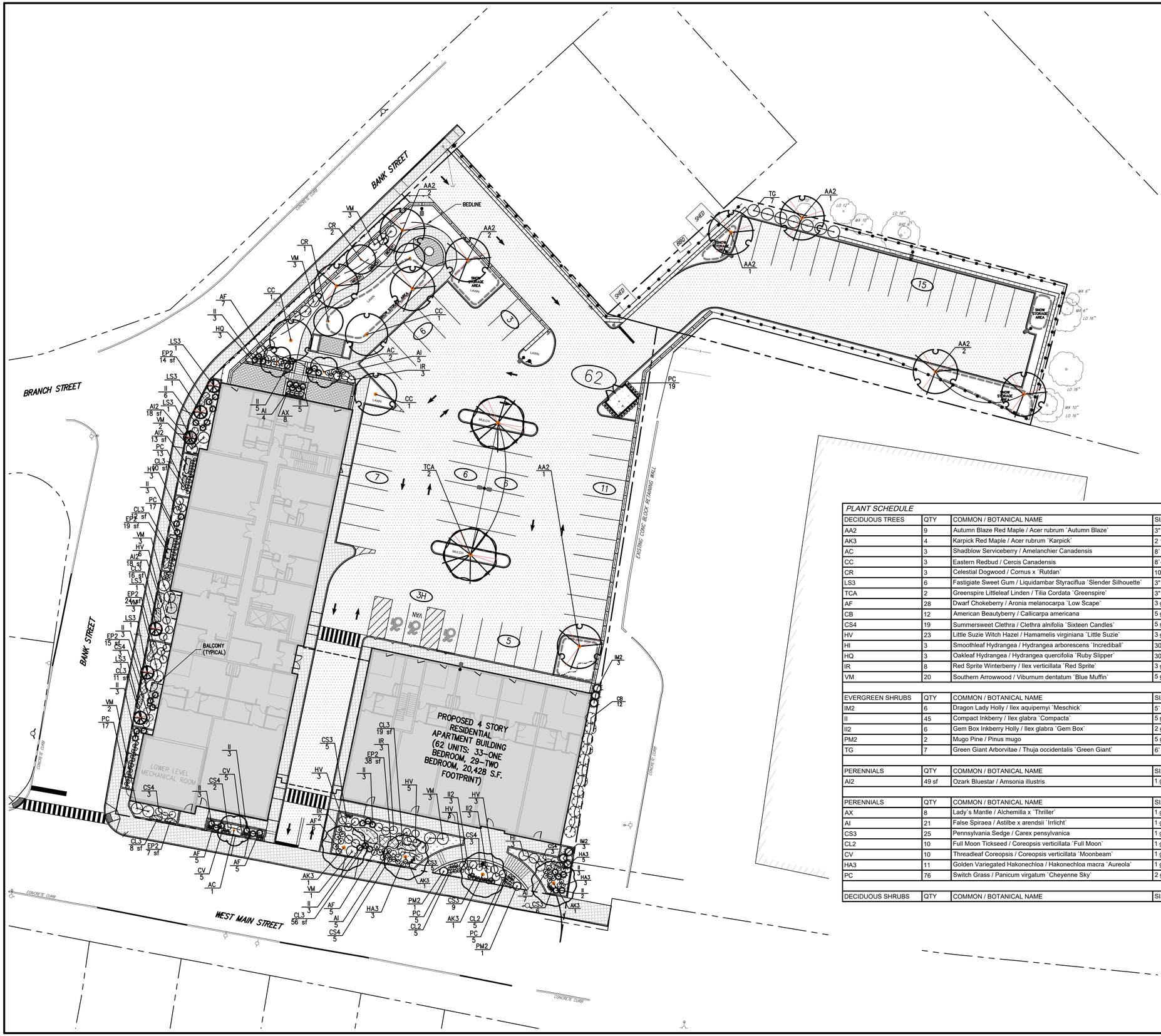

LEGEND

- EXISTING TREE AND DESIGNATION
- PROPOSED DECIDUOUS TREE
- PROPOSED FLOWERING TREE
- PROPOSED CONIFEROUS TREE
- PROPOSED SHRUBS

NOTES:

1. ALL PLANT MATERIAL SHALL BE FIRST QUALITY STOCK. PLANTED MATERIAL AND METHODS OF INSTALLATION SHALL CONFORM TO THE AMERICAN NURSERY AND LANDSCAPE ASSOCIATION, AMERICAN STANDARD FOR NURSERY STOCK, LATEST EDITION.
2. ALL AREAS OF THE SITE NOT OCCUPIED BY BUILDING OR PAVEMENT AND NOT SPECIFIED AS BEING PLANTED WITH TREES, SHRUBS OR GROUND COVER SHALL BE LAWN.
3. ALL PLANTING BEDS SHALL BE MULCHED WITH 3" OF BROWN MULCH. MULCH SHALL BE CLEAN, NON-DYED, TOXIC FREE, SHREDDED HARDWOOD.
4. PLANT MATERIALS AS SPECIFIED ON THE DRAWINGS AND DELIVERED TO THE SITE SHALL BE NURSERY GROWN AND CERTIFIED TRUE TO THEIR GENUS, SPECIES AND VARIETY. SUBSTITUTIONS ARE NOT PERMITTED WITHOUT THE PROJECT LANDSCAPE ARCHITECTS WRITTEN APPROVAL.
5. ALL LANDSCAPING SHALL CONTINUE TO BE MAINTAINED IN A HEALTHY GROWING CONDITION THROUGHOUT THE DURATION OF THE PROJECT. ANY PLANTING NOT SO MAINTAINED SHALL BE REPLACED WITH NEW PLANTS AT THE BEGINNING OF THE NEXT, IMMEDIATELY FOLLOWING, GROWING SEASON.
6. ALL TREES AND SHRUBS SHALL BE PRUNED AND SHAPED AND BE SUBJECT TO THE APPROVAL OF THE PROJECT LANDSCAPE ARCHITECT AND GOVERNMENTAL AUTHORITIES HAVING JURISDICTION. ANY TREES AND SHRUBS THAT WILL POSSIBLY MATURE AND GROW TOWARDS THE BUILDING, LIGHT POLES, RETAINING WALLS, FENCES, PARKING SPACES, ETC. SHALL BE TRIMMED/PRUNED BACK APPROPRIATELY.
7. PLANTING STOCK SHALL BE WELL-BRANCHED AND WELL-FORMED, SOUND, VIGOROUS, HEALTHY, FREE FROM DISEASE, SUN-SCALE, WINDBURN, ABRASION, AND HARMFUL INSECTS OR INSECTS EGGS; AND SHALL HAVE HEALTHY, NORMAL UNBROKEN ROOT SYSTEMS. DECIDUOUS TREES AND SHRUBS SHALL BE SYMMETRICALLY DEVELOPED, OF UNIFORM HABIT OF GROWTH, WITH STRAIGHT TRUNKS OR STEMS, AND FREE FROM OBJECTIONABLE DISFIGUREMENTS. EVERGREEN TREES AND SHRUBS SHALL HAVE WELL-DEVELOPED SYMMETRICAL TOPS WITH TYPICAL SPREAD OF BRANCHES FOR EACH PARTICULAR SPECIES OR VARIETY. ONLY VINES AND GROUND COVER PLANTS WELL ESTABLISHED IN REMOVAL CONTAINERS, INTEGRAL CONTAINERS, OR FORMED HOMOGENEOUS SOIL SECTIONS SHALL BE USED. PLANTS SHALL BE GROWN UNDER CLIMATIC CONDITIONS SIMILAR TO THOSE IN THE LOCALITY OF THE PROJECT.
8. ALL STOCK SHALL BE BALLED AND BURLAPPED OR CONTAINER GROWN STOCK, UNLESS OTHERWISE SPECIFIED. BAREROOT STOCK OF ANY KIND IS UNACCEPTABLE UNLESS SPECIFIED.
9. ALL PLANTING BEDS, LAWNS AND LANDSCAPED AREAS SHALL RECEIVE A MINIMUM 4" THICK LAYER OF TOPSOIL, UNLESS OTHERWISE SPECIFIED.

PLANT SCHEDULE

DECIDUOUS TREES	QTY	COMMON / BOTANICAL NAME	SIZE	ROOT COND.	REMARKS
AA2	9	Autumn Blaze Red Maple / Acer rubrum `Autumn Blaze`	3" CAL.	B & B	
AK3	4	Karpick Red Maple / Acer rubrum `Karpick`	2 1/2" - 3" CAL.	B & B	
AC	3	Shadblow Serviceberry / Amelanchier Canadensis	8` - 10` HT.	B & B	Full Heavy Multi Ste
CC	3	Eastern Redbud / Cercis Canadensis	8`-10` HT	B & B	
CR	3	Celestial Dogwood / Cornus x `Rutdan`	10` - 12` HT	B & B	Full Heavy
LS3	6	Fastigiate Sweet Gum / Liquidambar Styraciflua `Slender Silhouette`	3" CAL.	B & B	
TCA	2	Greenspire Littleleaf Linden / Tilia Cordata `Greenspire`	3" CAL.	B & B	
AF	28	Dwarf Chokeberry / Aronia melanocarpa `Low Scape`	3 gal	Cont.	
CB	12	American Beautyberry / Callicarpa americana	5 gal	Cont.	
CS4	19	Summersweet Clethra / Clethra alnifolia `Sixteen Candles`	5 gal	Cont.	
HV	23	Little Suzie Witch Hazel / Hamamelis virginiana `Little Suzie`	3 gal	Cont.	
HI	3	Smoothleaf Hydrangea / Hydrangea arborescens `Incrediball`	30" - 36"	B & B	
HQ	3	Oakleaf Hydrangea / Hydrangea quercifolia `Ruby Slipper`	30" - 36"	B & B	
IR	8	Red Sprite Winterberry / Ilex verticillata `Red Sprite`	3 gal	Cont.	
VM	20	Southern Arrowwood / Viburnum dentatum `Blue Muffin`	5 gal	Cont.	
EVERGREEN SHRUBS	QTY	COMMON / BOTANICAL NAME	SIZE	ROOT COND.	REMARKS
IM2	6	Dragon Lady Holly / Ilex aquipernyi `Meschick`	5` - 6` HT	B&B	
II	45	Compact Inkberry / Ilex glabra `Compacta`	5 gal	Cont.	
II2	6	Gem Box Inkberry Holly / Ilex glabra `Gem Box`	2 gal	Cont.	
PM2	2	Mugo Pine / Pinus mugo	5 gal	Cont.	
TG	7	Green Giant Arborvitae / Thuja occidentalis `Green Giant`	6` - 8` HT	B & B	
PERENNIALS	QTY	COMMON / BOTANICAL NAME	SIZE	ROOT COND.	REMARKS
AI2	49 sf	Ozark Bluestar / Amsonia illustris	1 gal		
PERENNIALS	QTY	COMMON / BOTANICAL NAME	SIZE	ROOT COND.	REMARKS
AX	8	Lady`s Mantle / Alchemilla x `Thriller`	1 gal	Cont.	
AI	21	False Spiraea / Astilbe x arendsii `Irrlicht`	1 gal	Cont.	
CS3	25	Pennsylvania Sedge / Carex pensylvanica	1 gal	Cont.	
CL2	10	Full Moon Tickseed / Coreopsis verticillata `Full Moon`	1 gal	Cont.	
CV	10	Threadleaf Coreopsis / Coreopsis verticillata `Moonbeam`	1 gal	Cont.	
HA3	11	Golden Variegated Hakonechloa / Hakonechloa macra `Aureola`	1 gal	Cont.	
PC	76	Switch Grass / Panicum virgatum `Cheyenne Sky`	2 gal	Cont.	
DECIDUOUS SHRUBS	QTY	COMMON / BOTANICAL NAME	SIZE	ROOT COND.	REMARKS

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LANDSCAPING PLAN

BEACON COMMONS
16 WEST MAIN STREET
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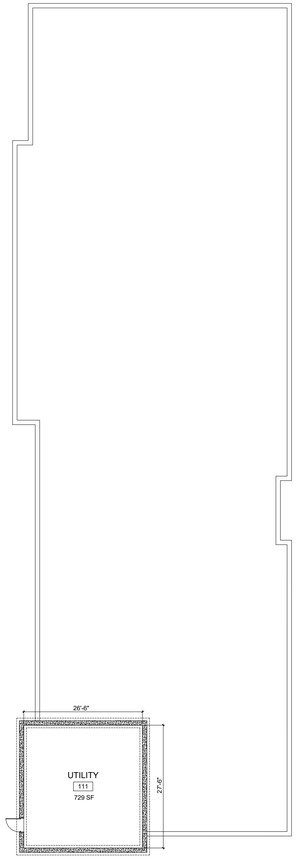
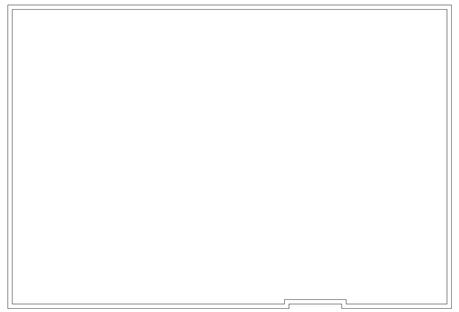
1st Floor Plan



Basement Plan



62 Total Apartments

= 1 Bedroom Apartment (Qty. = 34)	= 2 Bedroom Apartment (Qty. = 20)	*BMR = Below-market-rate Unit (3) 1-Bedroom Units (2) 2- Bedroom Units
= Live Work (Qty. = 7)	= Studio Apartment (Qty. = 1)	

GRAPHIC SCALE
0 8' 16' 32'
SCALE: 1/16" = 1'-0"

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BUILDING PLANS

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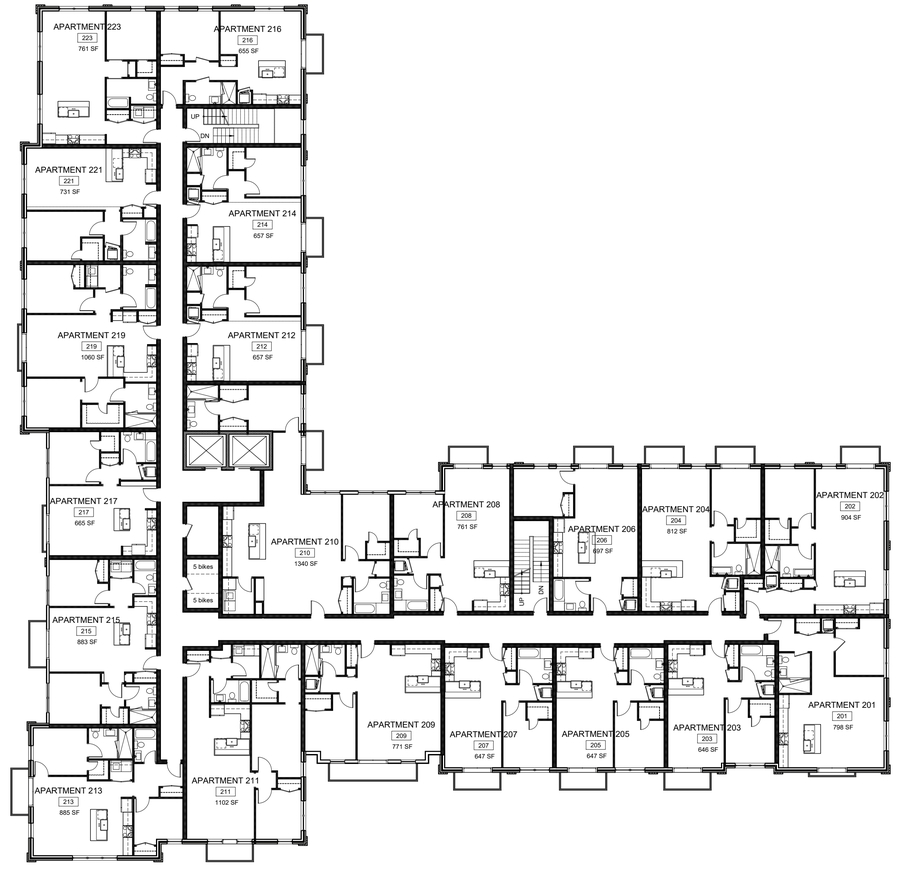
3rd Floor Plan



2nd Floor Plan

62 Total Apartments

= 1 Bedroom Apartment (Qty. = 34)

= 2 Bedroom Apartment (Qty. = 20)

*BMR = Below-market-rate Unit
(3) 1-Bedroom Units
(3) 2- Bedroom Units

= Live Work (Qty. = 7)

= Studio Apartment (Qty. = 1)

0 8' 16' 32'

SCALE: 1/16" = 1'-0"

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BUILDING PLANS

BEACON COMMONS
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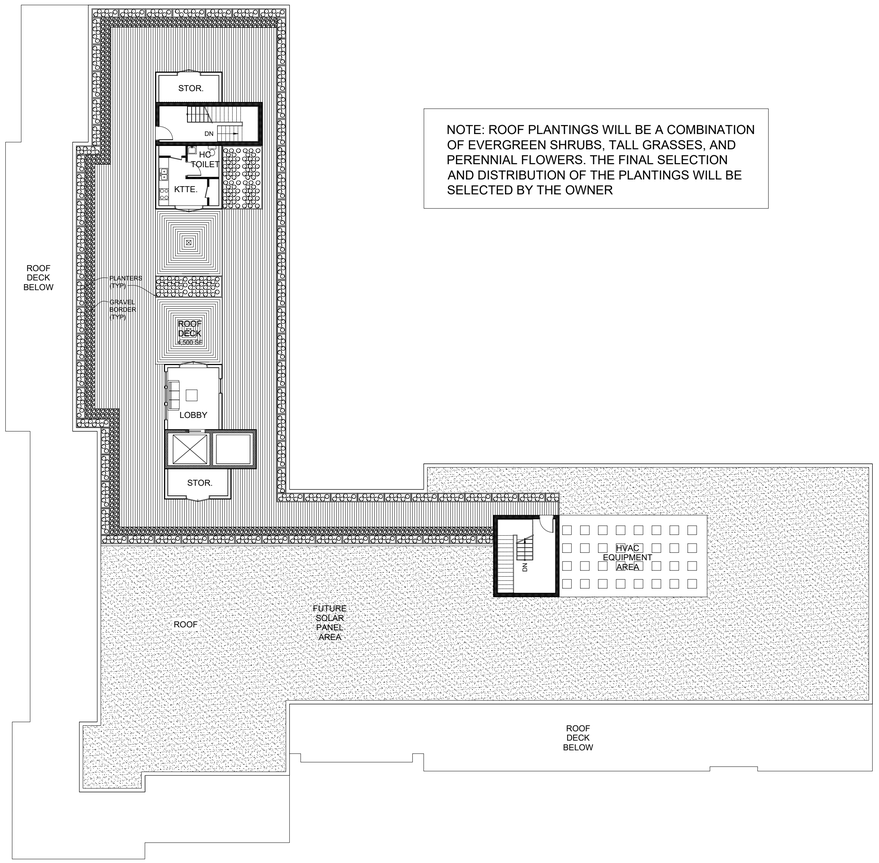
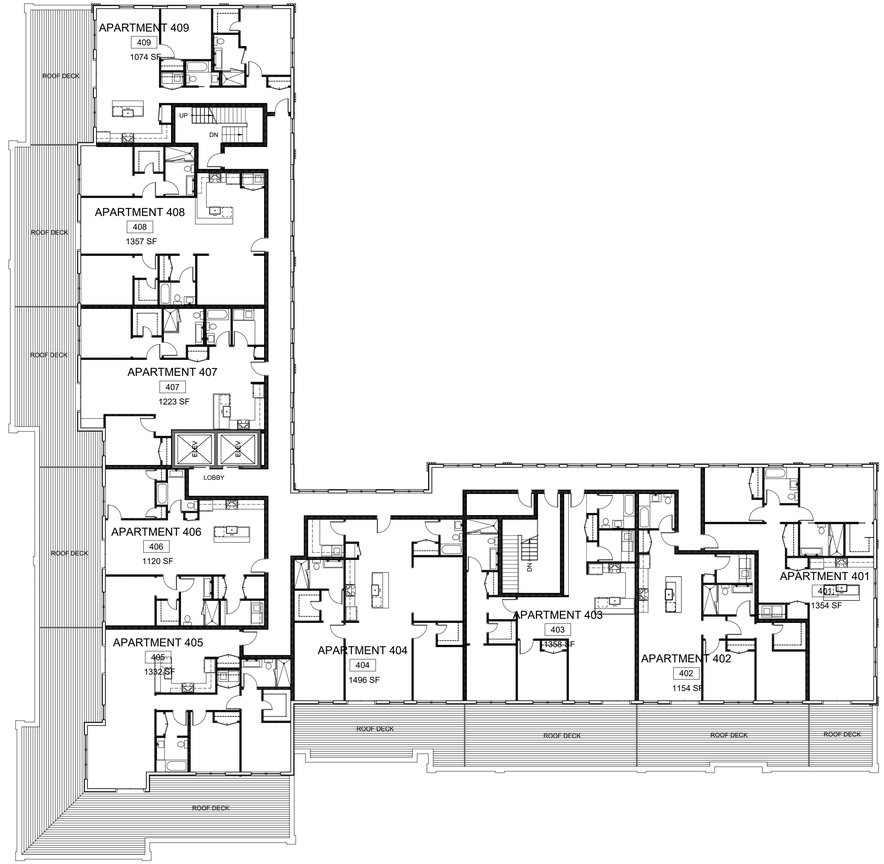


NOTE: ROOF PLANTINGS WILL BE A COMBINATION OF EVERGREEN SHRUBS, TALL GRASSES, AND PERENNIAL FLOWERS. THE FINAL SELECTION AND DISTRIBUTION OF THE PLANTINGS WILL BE SELECTED BY THE OWNER

Roof Plan



4th Floor Plan

62 Total Apartments

= 1 Bedroom Apartment (Qty. = 34)	= 2 Bedroom Apartment (Qty. = 20)	*BMR =	**Below-market-rate Unit** (3) 1-Bedroom Units (3) 2- Bedroom Units
= Live Work (Qty. = 7)	= Studio Apartment (Qty. = 1)		

0 8' 16' 32'

SCALE: 1/16" = 1'-0"

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BUILDING PLANS

BEACON COMMONS
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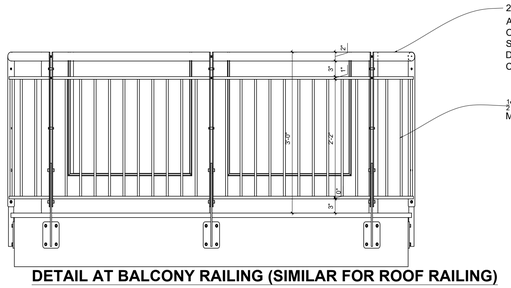

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ELEVATION - SOUTH



ELEVATION - NORTH



ELEVATION - EAST



ELEVATION - WEST



PERSPECTIVE - CORNER OF WEST MAIN STREET & BANK STREET



PERSPECTIVE - LOOKING WEST ON WEST MAIN STREET



PERSPECTIVE - LOOKING NORTHWEST ON WEST MAIN STREET

		Date	By
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ELEVATIONS

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16 WEST MAIN STREET
BEACON, NY 12508

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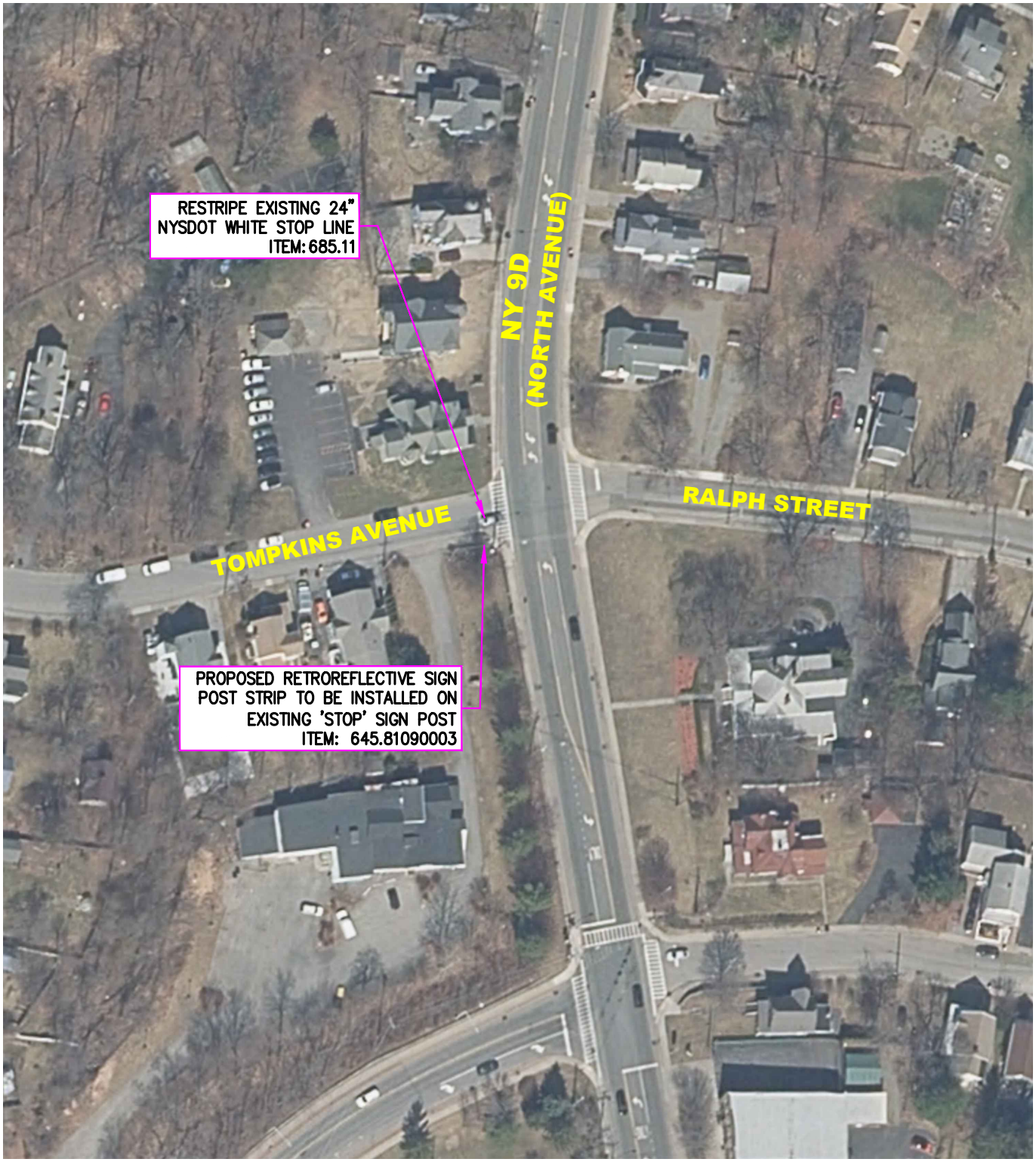

BEACON COMMONS

16 WEST MAIN STREET — BEACON, NY 12508

CONCEPTUAL IMPROVEMENTS

TOMPKINS AVENUE & NY 9D

DATE: 05/31/2022 — JMC PROJECT: 18119

FIGURE: IMP-1 — SCALE: 1" = 100'

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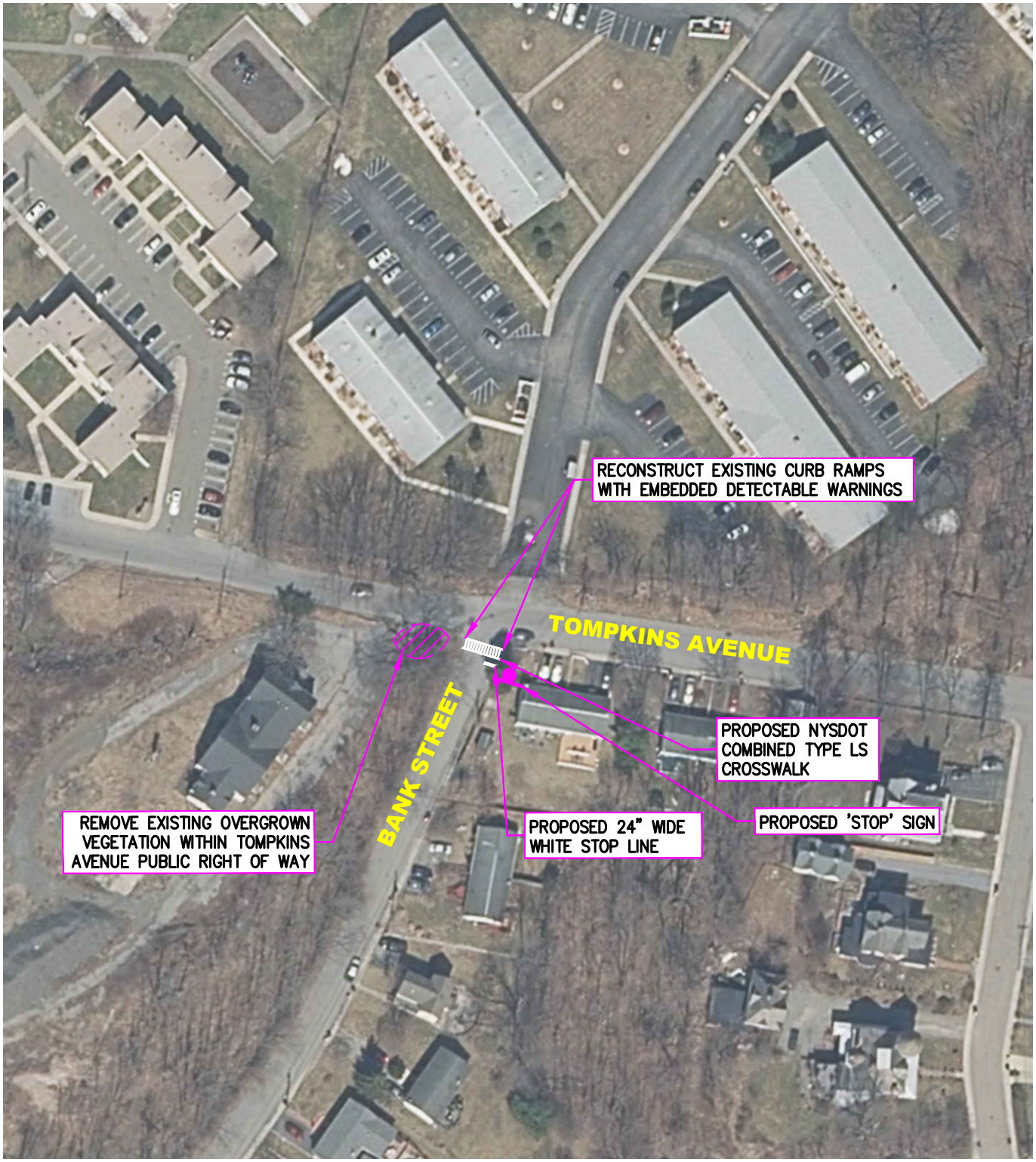

BEACON COMMONS

16 WEST MAIN STREET BEACON, NY 12508

CONCEPTUAL IMPROVEMENTS

BANK STREET & TOMPKINS AVENUE

DATE: 05/31/2022 JMC PROJECT: 18119

FIGURE: IMP-2 SCALE: 1" = 100'

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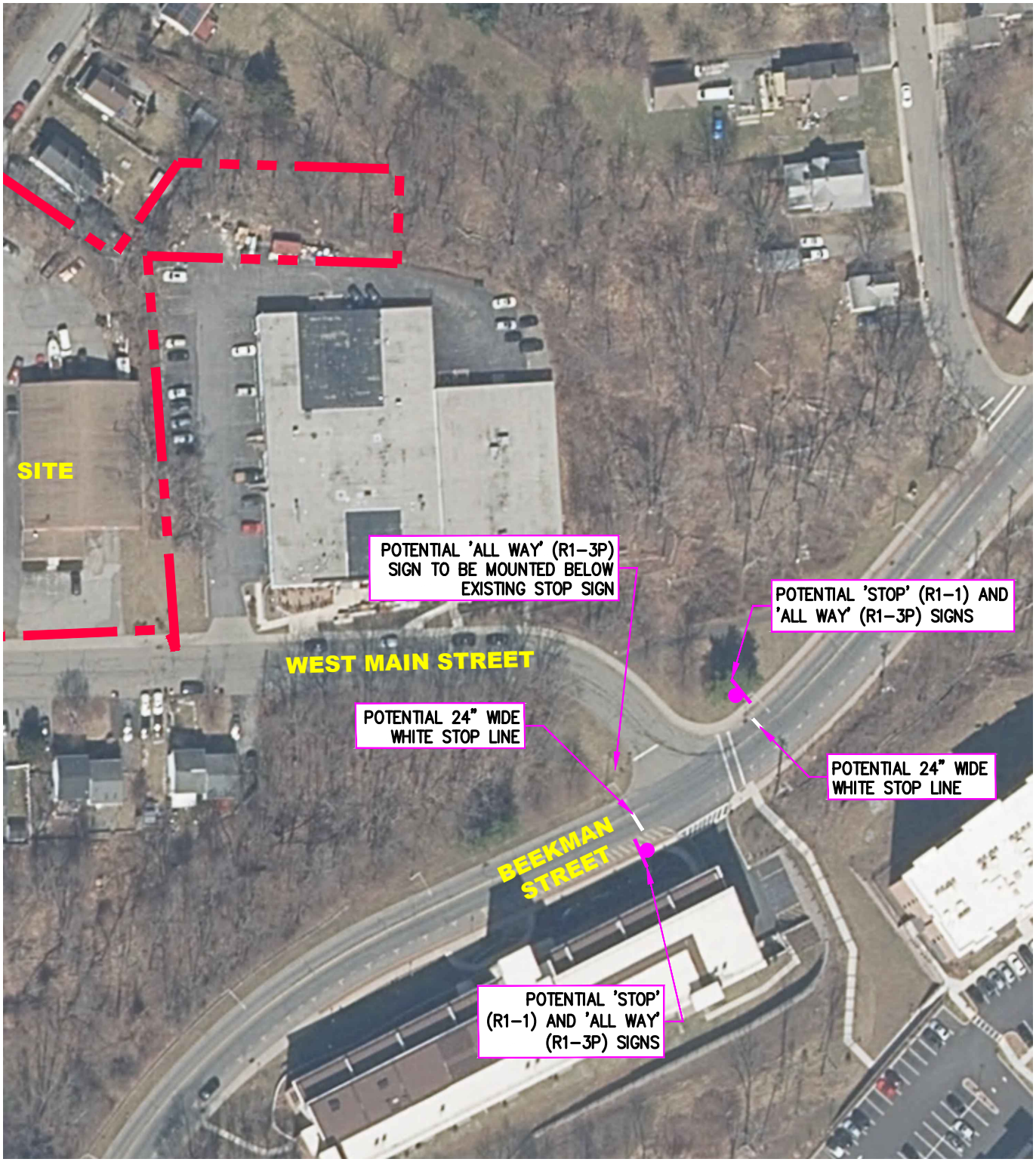

BEACON COMMONS

16 WEST MAIN STREET BEACON, NY 12508

CONCEPTUAL IMPROVEMENTS

WEST MAIN STREET & BEEKMAN STREET

DATE: 05/31/2022 JMC PROJECT: 18119

FIGURE: IMP-3 SCALE: 1" = 100'

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TRAFFIC STUDY

BEACON COMMONS

16 WEST MAIN STREET
CITY OF BEACON, NEW YORK

Prepared for: **Farrell Building Company**
2317 Montauk Highway
Bridgehampton, NY 11932

Prepared by:

JMC Project **18119**

Date: March 31, 2020
Revised: March 8, 2022
Revised: May 31, 2022

TABLE OF CONTENTS

SECTION	DESCRIPTION	PAGE
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II.	EXISTING CONDITIONS	2
	A. Existing Roadway Network	2
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LIST OF APPENDICES

APPENDIX	DESCRIPTION
A.	TABLES

TABLE	TITLE
1	Proposed Development Volumes
2	Intersection Operations-Peak Weekday AM Hour
3	Intersection Operations-Peak Weekday PM Hour

APPENDIX	DESCRIPTION
B.	FIGURES

FIGURE	TITLE
1	2020 Existing Volumes-Peak Weekday AM Hour
2	2020 Existing Volumes-Peak Weekday PM Hour
3	2022 General Growth Volumes-Peak Weekday AM Hour
4	2022 General Growth Volumes-Peak Weekday PM Hour
5	Other Development Volumes-555 South Avenue Development

6 Other Development Volumes-Edgewater Development
7 Other Development Volumes-River Ridge Residential Development
8 Other Development Volumes-The View Development
9 Other Development Volumes-West End Lofts Development
10 2022 No Build Volumes-Peak Weekday AM Hour
11 2022 No Build Volumes-Peak Weekday PM Hour
12 Primary Trip Distributions
13 Primary Volumes-Peak Weekday AM Hour
14 Primary Volumes-Peak Weekday PM Hour
15 2022 Build Volumes-Peak Weekday AM Hour
16 2022 Build Volumes-Peak Weekday PM Hour

C. TURNING MOVEMENT COUNTS

D. CAPACITY ANALYSES

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I. INTRODUCTION

This Traffic Study has been prepared to assess existing conditions as well as future traffic operations in association with the proposed Beacon Commons development located at 16 West Main Street in the City of Beacon, NY. The location of the site is illustrated on the figures included in Appendix B.

The 1.5 acre property currently contains an 8,875 square foot retail store and materials supply distributor building with associated off-street parking. The applicant proposes to raze the existing building and construct a four story apartment building containing 62 residential units with associated off-street parking.

Access to the site is currently provided via one full movement driveway on West Main Street and two full movement driveways on Bank Street. Under proposed conditions, access to the site would be consolidated to provide one full movement driveway on West Main Street and an entrance only driveway from Bank Street.

There is an existing sidewalk along the north side of West Main Street from Beekman Street to the Beacon train station. There are existing crosswalks within the Beacon train station where the pedestrians walk across the parking lot drive aisle to access the train station. There is currently no marked crosswalk to cross Bank Street. As part of the proposed development, the Applicant proposes to replace the existing sidewalk along the subject property's entire frontage along Bank Street and West Main Street. The new sidewalk along the property's frontage is proposed to be concrete having a 5 foot width along Bank Street and an 8 foot width along West Main Street. In addition, the Applicant proposes to construct an accessible ramp on the northeast corner of West Main Street and Bank Street as well as a painted crosswalk to guide pedestrians to the existing sidewalk on the other side of Bank Street.

II. EXISTING CONDITIONS

A. Existing Roadway Network

JMC performed field reconnaissance at the site and adjoining roadway network in order to gather existing conditions data. The field work included a determination of lane widths, striping, horizontal and vertical alignments, signs, traffic signal phasing and timings, speed limits, pedestrian activities, traffic flows, sidewalks, curbing, etc.

NY 9D is under the jurisdiction of the New York State Department of Transportation (NYSDOT). NY 9D in the study area is also known as North Avenue. It is generally a north-south roadway which connects to US 202 in Cortlandt and US 9 in Wappinger Falls. It generally provides one travel lane in each direction; however, it does widen to provide additional lanes at several locations. Within the study area, NY 9D has a posted speed limit of 30 mph and on-street parking is prohibited.

Beekman Street is generally a north/south roadway which changes to an east/west roadway at its south terminus. This roadway is under the jurisdiction of the City of Beacon. The roadway connects to Route 9D at each of its termini. Beekman Street provides one travel lane in each direction and widens at a few intersections to provide additional lanes. It has a posted speed limit of 30 mph and on-street parking is permitted along certain locations of the roadway.

West Main Street is an east/west roadway connecting to Beekman Street in the east and the Beacon train station in the west. This roadway is under the jurisdiction of the City of Beacon. It provides one travel lane in each direction. The roadway has a posted speed limit of 25 mph and parking is permitted on both sides of the street.

In order to evaluate the changes in traffic associated with the proposed development, the following intersections have been analyzed:

1. West Main Street & Site Driveway
2. West Main Street & Beekman Street
3. NY 9D & Beekman Street with West Church Street
4. NY 9D & Tompkins Avenue with Ralph Street

The proposed site driveway intersects West Main Street at a T-type unsignalized intersection. West Main Street provides a single travel lane in both directions for shared thru and turning movements. The site driveway provides one egress lane with shared turning movements.

Beekman Street intersects West Main Street at an unsignalized 'T' intersection. The Beekman Street approaches provide a single thru lane with shared turning movements in both directions. West Main Street provides one approach lane with shared turning movements. West Main Street is controlled by a stop sign. The site driveway for The View development proposes to serve as the fourth leg to this intersection opposite the West Main Street approach. The View driveway is proposed to operate as a stop condition.

Beekman Street and West Church Street intersect NY 9D at a signalized four-legged intersection. The northbound and southbound approaches of NY 9D provide one lane for shared thru/right movements and a separate left turn lane. The eastbound approach of Beekman Street provides a separate right turn lane and a shared left/thru lane. The westbound approach of West Church Street provides a single shared lane for all turning movements.

NY 9D intersects Tompkins Avenue and Ralph Street at an unsignalized four-legged intersection. The Tompkins Avenue and Ralph Street approaches to the intersection provide a single approach lane for all turning movements. The NY 9D northbound and

southbound approaches provide one lane for shared thru and right turn movements and a separate left turn lane. Tompkins Avenue and Ralph Street are under stop sign control.

B. Existing Volumes

Traffic counts were performed at the studied intersections in order to quantify and analyze existing peak hour volumes as well as to establish base conditions for projecting future operations. The counts included pedestrian activities and truck traffic.

Traffic counts were conducted from 7:00 – 9:00 AM and 4:00 – 7:00 PM on Tuesday, February 25, 2020 for all the studied intersections except for the site driveway intersection. Traffic volumes at the site driveway have been projected based on the counts conducted at the intersection of West Main Street and Beekman Street. The peak hour volumes occurred between 7:00 – 8:00 AM during the weekday morning and 4:45-5:45 PM during the weekday afternoon. The intersection traffic count data is included in Appendix C. The weekday PM volumes for the eastbound Beekman Street approach to its intersection of NY 9D were compared to the volumes utilized in the traffic studies prepared for the River Ridge Residential Development, Edgewater Development, The View, West End Lofts, and the 555 South Avenue project. To provide a conservative analysis, the highest weekday PM volumes for the eastbound approach were utilized. The peak hour volumes are shown on Figures 1 and 2 "2020 Existing Volumes". All figures are included in Appendix B.

C. Intersection Analysis Methodology

The intersections have been analyzed based on the methodologies of the Highway Capacity Manual 6th Edition. Information derived from the manual relative to the level of service criteria is provided below.

1. Level-of-Service Criteria for Signalized Intersections

Levels of Service (LOS) for signalized intersections are defined in terms of delay, which is a measure of driver discomfort, frustration, fuel consumption, and lost travel time. The delay experienced by a motorist is made up of a number of factors that relate to control, geometrics, traffic and incidents. Total delay is the difference between the travel time actually experienced and the reference travel time that would result during ideal conditions: in the absence of traffic control, in the absence of geometric delay, in the absence of any incidents, and when there are no other vehicles on the road. Only the portion of total delay attributed to the control facility is quantified. This delay is called control delay. Control delay includes the delays of initial deceleration, move-up time in the queue, stops, and reacceleration. In this chapter, control delay may also be referred to as signal delay. Specifically, LOS criteria for traffic signals are stated in terms of the average control delay per vehicle, typically for a peak 15-minute analysis period. Delay is a complex measure and is dependent on a number of variables, including the quality of progression, the cycle length, the green ratio, and the volume/capacity *(v/c)* ratio for the lane group in question.

LOS A describes operations with very low control delay, up to 10 seconds per vehicle. This level of services occurs when progression is extremely favorable and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.

LOS B describes operations with control delay greater than 10 and up to 20 seconds per vehicle. This level generally occurs with good progression, short cycle lengths, or both.

LOS C describes operations with control delay greater than 20 and up to 35 seconds per vehicle. These higher delays may result from fair progression, longer cycle lengths, or both.

LOS D describes operations with control delay greater than 35 and up to 55 seconds per vehicle. At level D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high *v/c* ratios. Many vehicles stop, and the proportion of vehicles not stopping declines.

LOS E describes operations with control delay greater than 55 and up to 80 seconds per vehicle. These high delay values generally indicate poor progression, long cycle lengths, and high v/c ratios. Individual cycle failures are frequent occurrences.

LOS F describes operations with control delay in excess of 80 seconds per vehicle and/or the arrival flow rates exceed the capacity of the intersection. It will also occur at high *v/c* ratios below 1.0 with many individual cycle failures. If the volume-to-capacity (v/c) is greater than 1.0, the LOS is considered an F, even if the delays are lower than 80 seconds.

The LOS criteria for signalized intersections are presented below.

Signalized Level of Service Criteria		
Control Delay (Seconds/Vehicle)	**LOS by Volume-to-Capacity Ratio**	
	v/c ≤ 1.0	**v/c > 1.0**
≤10	A	F
>10 and ≤20	B	F
>20 and ≤35	C	F
>35 and ≤55	D	F
>55 and ≤80	E	F
>80	F	F

For approach-based and intersectionwide assessments, LOS is defined solely by control delay.

2. Level of Service for Unsignalized Intersections

The Levels of Service (LOS) for Two Way Stop Control (TWSC) and All Way Stop Control (AWSC) intersections and Roundabouts are determined by the computed or measured control delay and are defined for each minor movement. LOS is not defined for the intersection as a whole for TWSC intersections. LOS criteria are presented below.

Unsignalized Level of Service Criteria		
Control Delay (Seconds/Vehicle)	**LOS by Volume-to-Capacity Ratio**	
	v/c ≤ 1.0	**v/c > 1.0**
≤10	A	F
>10 and ≤15	B	F
>15 and ≤25	C	F
>25 and ≤35	D	F
>35 and ≤50	E	F
>50	F	F

For TWSC intersections, the LOS criteria apply to each lane on a given approach and to each approach on the minor street. LOS is not calculated for major-street approaches or the intersection as a whole at TWSC intersections. For approach-based and intersectionwide assessments at AWSC intersections and roundabouts, LOS is defined solely by control delay.

Average control delay less than 10 seconds/vehicle are defined as LOS A. Follow-up times of less than 5 seconds/vehicle have been measured when there is no conflicting traffic, so control delays of less than 10 seconds/vehicle are appropriate for low flow conditions. If the volume-to-capacity (v/c) is greater than 1.0, the LOS is considered an F, even if the delays are lower than 50 seconds.

The LOS criteria for unsignalized intersections are somewhat different than the criteria used for signalized intersections. The primary reason for this difference is that drivers expect different levels of performance from different kinds of transportation facilities. A number of driver behavior considerations combine to make delays at signalized intersections less onerous than delays at unsignalized intersections. For example, drivers at signalized intersections are able to relax during the red interval, whereas drivers on the minor approaches to unsignalized intersections must remain attentive to the task of identifying acceptable gaps and vehicle conflicts. Also, there is often much more variability in the amount of delay experienced by individual drivers at an unsignalized intersections versus that at signalized intersections. For these reasons, it is considered that the control delay threshold for any given LOS would be less for an unsignalized intersection than it would be for a signalized intersection.

D. Existing Operations

The intersection capacity analyses based on existing volumes and conditions are shown on Tables 2 and 3. The specific volume/capacity ratios, delay for average vehicle in seconds and the associated levels of service are summarized for each lane group, the approach as well as the overall intersection as applicable on Tables 2 to 3. All tables are included in Appendix A.

During the peak weekday AM hour, the Beekman Street approach and left/thru lane at its intersection with NY 9D operates at a level of service C. The Tompkins Avenue and Ralph Street approaches to NY 9D operate at a level of service C. All other movements at the studied intersections operate at a level of service B or better during the peak weekday AM hour.

During the peak weekday PM hour, the Beekman Street approach and lanes as well as the West Church Street approach to NY 9D operates at a level of service C. The Tompkins Avenue approach to NY 9D operate at a level of service D while the Ralph Street approach

to NY 9D operates at a level of service C. All other movements at the studied intersections operate at a level of service B or better during the peak weekday PM hour.

III. PROJECTED CONDITIONS

A. No-Build Volumes

In order to project future traffic increases to the year 2022, the existing volumes were increased by a general growth rate of 2% per year compounded annually. Based on discussions with the City of Beacon staff and the City's consultants, we have incorporated the traffic volumes associated with other developments. These developments include the River Ridge Residential Development, Edgewater Development, The View, West End Lofts, and the 555 South Avenue project. The resulting 2021 no-build volumes represent traffic operation in 2022 without the development of the site. The general growth volumes, other development volumes, and no-build volumes have been shown in the figures in Appendix B.

The NYSDOT has implemented improvements along NY 9D in March 2020 which has been considered in the no-build conditions. These improvements consist of converting the existing traffic signals along NY 9D at the Interstate 84 ramps, Verplanck Avenue, and Beekman Street intersections to adaptive traffic signals. Adaptive traffic signals are able to adjust splits and cycle lengths in real time based on real time collection of traffic volume data to allocate green time more efficiently to assist in the progression of vehicles.

During the peak weekday AM hour, the West Main Street approach to its intersection with Beekman Street is projected to increase in delay from a level of service B under existing conditions to a level of service C under no-build conditions. At the intersection of NY 9D and Beekman Street, the Beekman Street approach and left/thru lane are projected to improve in delay from a level of service C under existing conditions to a level of service B under no-build conditions. The NY 9D southbound approach and thru/right lane at its intersection with Beekman Street is project to increase in delay to operate at a level of service C. The Tompkins Avenue approach to NY 9D is projected to increase in delay to

operate at a level of service F under no-build conditions while the Ralph Street approach to NY 9D is projected to operate at a level of service D. All other movements at the studied intersections under no-build conditions are projected to operate at the same levels of service as experienced under existing conditions during the peak weekday AM hour.

During the peak weekday PM hour, the West Main Street approach to its intersection with Beekman Street is projected to increase in delay from a level of service B under existing conditions to a level of service C under no-build conditions. The overall intersection of NY 9D and Beekman Street is projected to increase in delay to operate at a level of service C. At the intersection of NY 9D and Beekman Street, the Beekman Street right turn lane and West Church Street approach are projected to improve in delay from a level of service C under existing conditions to a level of service B under no-build conditions. The NY 9D southbound left turn lane at its intersection with Beekman Street is project to increase in delay to operate at a level of service B while the NY 9D southbound approach and thru/right lane are projected to operate at a level of service C. The Tompkins Avenue approach to NY 9D is projected to increase in delay to operate at a level of service F under no-build conditions while the Ralph Street approach to NY 9D is projected to operate at a level of service C. All other movements at the studied intersections under no-build conditions are projected to operate at the same levels of service as experienced under existing conditions during the peak weekday PM hour.

B. Build Volumes

The projected traffic associated with the proposed development is based on information published by the Institute of Transportation Engineers (ITE) in its publication "Trip Generation Manual, 10th Edition." Table 1 shows the traffic volumes associated with the proposed development. The development will result in approximately 22 and 28 primary trips during the peak weekday AM and Weekday PM hours, respectively. The development's trips represent 1 trip every 2-3 minutes during the peak weekday AM and PM hours. This study provides a conservative analysis since a credit of the traffic volumes related to existing uses to be removed on the property as part of the proposed

development have not been considered. The traffic volumes associated with the proposed development have been shown in the figures in Appendix B.

The primary volumes were routed through the studied intersections based on traffic volume data and consideration of the area roadways. Adding the development related traffic results in 2022 Build Volumes which reflect projected volumes after the completion and occupancy of the development.

IV. FINDINGS & CONCLUSION

Intersection capacity analysis computed based on the Build Volumes indicate that the intersections will operate at the same levels of service as projected for the No-Build Volumes during both studied peak hours except for one turning movement during the peak weekday PM hour. Projected operations with the proposed development are shown on Tables 2 and 3. During the peak weekday PM hour, NY 9D southbound left turn lane at its intersection with Beekman Street is projected to improve in delay to operate at a level of service A under build conditions. The proposed site driveway along West Main Street is projected to operate at a level of service A during both studied peak hours.

Based on the above, it is the professional opinion of JMC that the development of the site to a four story apartment building containing 62 residential units will not have a significant impact on traffic operations in the study area.

Respectfully submitted,
JMC Planning Engineering Landscape Architecture & Land Surveying, PLLC

Marc Petroro, PE, PTOE
Senior Project Manager

Kevin Masciovecchio, PE
Designer Manager

APPENDIX A

TABLES

TABLE 1

PROPOSED DEVELOPMENT VOLUMES[1]

DESCRIPTION	PEAK WEEKDAY AM HOUR			PEAK WEEKDAY PM HOUR		
	ENTER	EXIT	TOTAL	ENTER	EXIT	TOTAL
a. Proposed 62 Unit Multifamily Housing Primary Volumes (ITE Code 221)[2]	6	16	22	17	11	28

Notes:

(1) Trip generation is based on Institute of Transportation Engineers (ITE) Trip Generation Manual, 10th Edition.

(2) Multifamily Housing (Mid-Rise) (ITE Code 221) is defined by ITE as multifamily housing including apartments, townhouses, and condominiums located within the same building with at least three other dwelling units and that have between three and 10 levels (floors).

TABLE 2

INTERSECTION OPERATIONS-PEAK WEEKDAY AM HOUR

INTERSECTION	APPROACH	LANE GROUP	2020 EXISTING			2022 NO BUILD			2022 BUILD		
			V/C(1)	DELAY(2)	LOS(3)	V/C(1)	DELAY(2)	LOS(3)	V/C(1)	DELAY(2)	LOS(3)
1. West Main Street & Site Driveway (Unsignalized)	EASTBOUND (W Main St)	LEFT / THRU							-	0.0	A
	WESTBOUND (W Main St)	THRU / RIGHT		N/A			N/A		-	-	-
	SOUTHBOUND (Site Dwy)	LEFT / RIGHT							0.02	9.8	A
2. West Main Street & Beekman Street (Unsignalized)	EASTBOUND (Beekman St)	THRU / RIGHT	0.01	8.3	A						
	WESTBOUND (Beekman St)	LEFT / THRU	-	-	-		N/A			N/A	
	SOUTHBOUND (W Main St)	LEFT / RIGHT	0.06	13.6	B						
2a. West Main Street / The View Driveway & Beekman Street (Unsignalized with Improvements from Others)	EASTBOUND (Beekman St)	LEFT/THRU/RIGHT				0.02	8.5	A	0.03	8.5	A
	WESTBOUND (Beekman St)	LEFT/THRU/RIGHT		N/A		0.01	7.6	A	0.01	7.6	A
	NORTHBOUND (The View Dwy)	LEFT/THRU/RIGHT				0.04	9.8	A	0.04	9.9	A
	SOUTHBOUND (W Main St)	LEFT/THRU/RIGHT				0.12	17.3	C	0.17	18.2	C
3. NY 9D & Beekman Street / West Church Street (Signalized)	EASTBOUND (Beekman St)	LEFT / THRU	0.45	21.6	C	0.40	17.4	B	0.45	18.0	B
		RIGHT	0.05	18.8	B	0.16	16.1	B	0.18	16.3	B
		COMPOSITE	-	21.4	C	-	17.1	B	-	17.7	B
	WESTBOUND (W Church St)	LEFT/THRU/RIGHT	0.06	18.8	B	0.06	15.7	B	0.06	15.9	B
	NORTHBOUND (NY 9D)	LEFT	0.05	7.7	A	0.14	9.7	A	0.15	9.7	A
		THRU / RIGHT	0.35	9.4	A	0.54	10.0	A	0.53	9.9	A
		COMPOSITE	-	9.3	A	-	10.0	A	-	9.9	A
	SOUTHBOUND (NY 9D)	LEFT	0.01	5.4	A	0.01	6.1	A	0.01	6.0	A
		THRU / RIGHT	0.68	12.8	B	0.92	21.4	C	0.92	21.4	C
		COMPOSITE	-	12.7	B	-	21.4	C	-	21.3	C
	INTERSECTION	COMPOSITE	-	12.9	B	-	16.9	B	-	16.9	B
4. NY 9D & Tompkins Avenue / Ralph Street (Signalized)	EASTBOUND (Tompkins Ave)	LEFT/THRU/RIGHT	0.18	22.7	C	0.69	62.1	F	0.70	64.5	F
	WESTBOUND (Ralph St)	LEFT/THRU/RIGHT	0.06	22.8	C	0.08	31.7	D	0.09	32.3	D
	NORTHBOUND (NY 9D)	LEFT	0.00	9.0	A	0.01	9.5	A	0.01	9.5	A
		THRU / RIGHT	-	-	-	-	-	-	-	-	-
	SOUTHBOUND (NY 9D)	LEFT	-	0.0	A	-	0.0	A	-	0.0	A
		THRU / RIGHT	-	-	-	-	-	-	-	-	-

Notes:

(1) V/C represents volume/capacity ratio

(2) Delay is average seconds delay per vehicle

(3) LOS represents level of service

TABLE 3

INTERSECTION OPERATIONS-PEAK WEEKDAY PM HOUR

INTERSECTION	APPROACH	LANE GROUP	2020 EXISTING			2022 NO BUILD			2022 BUILD		
			V/C(1)	DELAY(2)	LOS(3)	V/C(1)	DELAY(2)	LOS(3)	V/C(1)	DELAY(2)	LOS(3)
1. West Main Street & Site Driveway (Unsignalized)	EASTBOUND (W Main St)	LEFT / THRU							-	0.0	A
	WESTBOUND (W Main St)	THRU / RIGHT		N/A			N/A		-	-	-
	SOUTHBOUND (Site Dwy)	LEFT / RIGHT							0.01	9.4	A
2. West Main Street & Beekman Street (Unsignalized)	EASTBOUND (Beekman St)	THRU / RIGHT	0.00	7.5	A						
	WESTBOUND (Beekman St)	LEFT / THRU	-	-	-		N/A			N/A	
	SOUTHBOUND (W Main St)	LEFT / RIGHT	0.05	12.0	B						
2a. West Main Street / The View Driveway & Beekman Street (Unsignalized with Improvements from Others)	EASTBOUND (Beekman St)	LEFT/THRU/RIGHT				0.04	7.7	A	0.05	7.7	A
	WESTBOUND (Beekman St)	LEFT/THRU/RIGHT		N/A		0.02	8.1	A	0.02	8.1	A
	NORTHBOUND (The View Dwy)	LEFT/THRU/RIGHT				0.02	11.3	B	0.02	11.4	B
	SOUTHBOUND (W Main St)	LEFT/THRU/RIGHT				0.11	17.2	C	0.15	18.5	C
3. NY 9D & Beekman Street / West Church Street (Signalized)	EASTBOUND (Beekman St)	LEFT / THRU	0.72	28.8	C	0.68	23.0	C	0.70	23.0	C
		RIGHT	0.08	20.1	C	0.13	16.2	B	0.13	16.5	B
		COMPOSITE	-	28.0	C	-	22.0	C	-	22.0	C
	WESTBOUND (W Church St)	LEFT/THRU/RIGHT	0.02	19.7	B	0.02	15.5	B	0.02	15.9	B
	NORTHBOUND (NY 9D)	LEFT	0.08	11.2	B	0.26	14.6	B	0.28	14.7	B
		THRU / RIGHT	0.43	14.5	B	0.64	15.7	B	0.64	15.5	B
		COMPOSITE	-	14.3	B	-	15.6	B	-	15.5	B
	SOUTHBOUND (NY 9D)	LEFT	0.01	9.1	A	0.02	10.5	B	0.02	10.5	B
		THRU / RIGHT	0.63	16.8	B	0.93	27.3	C	0.93	28.2	C
		COMPOSITE	-	16.7	B	-	27.2	C	-	28.1	C
	INTERSECTION	COMPOSITE	-	18.9	B	-	22.0	C	-	22.3	C
4. NY 9D & Tompkins Avenue / Ralph Street (Signalized)	EASTBOUND (Tompkins Ave)	LEFT/THRU/RIGHT	0.22	28.8	D	0.74	93.9	F	-	97.4	F
	WESTBOUND (Ralph St)	LEFT/THRU/RIGHT	0.04	17.3	C	0.05	22.2	C	0.05	22.4	C
	NORTHBOUND (NY 9D)	LEFT	0.02	9.0	A	0.05	9.8	A	0.05	9.9	A
		THRU / RIGHT	-	-	-	-	-	-	-	-	-
	SOUTHBOUND (NY 9D)	LEFT	0.01	9.1	A	0.01	9.5	A	0.01	9.6	A
		THRU / RIGHT	-	-	-	-	-	-	-	-	-

Notes:

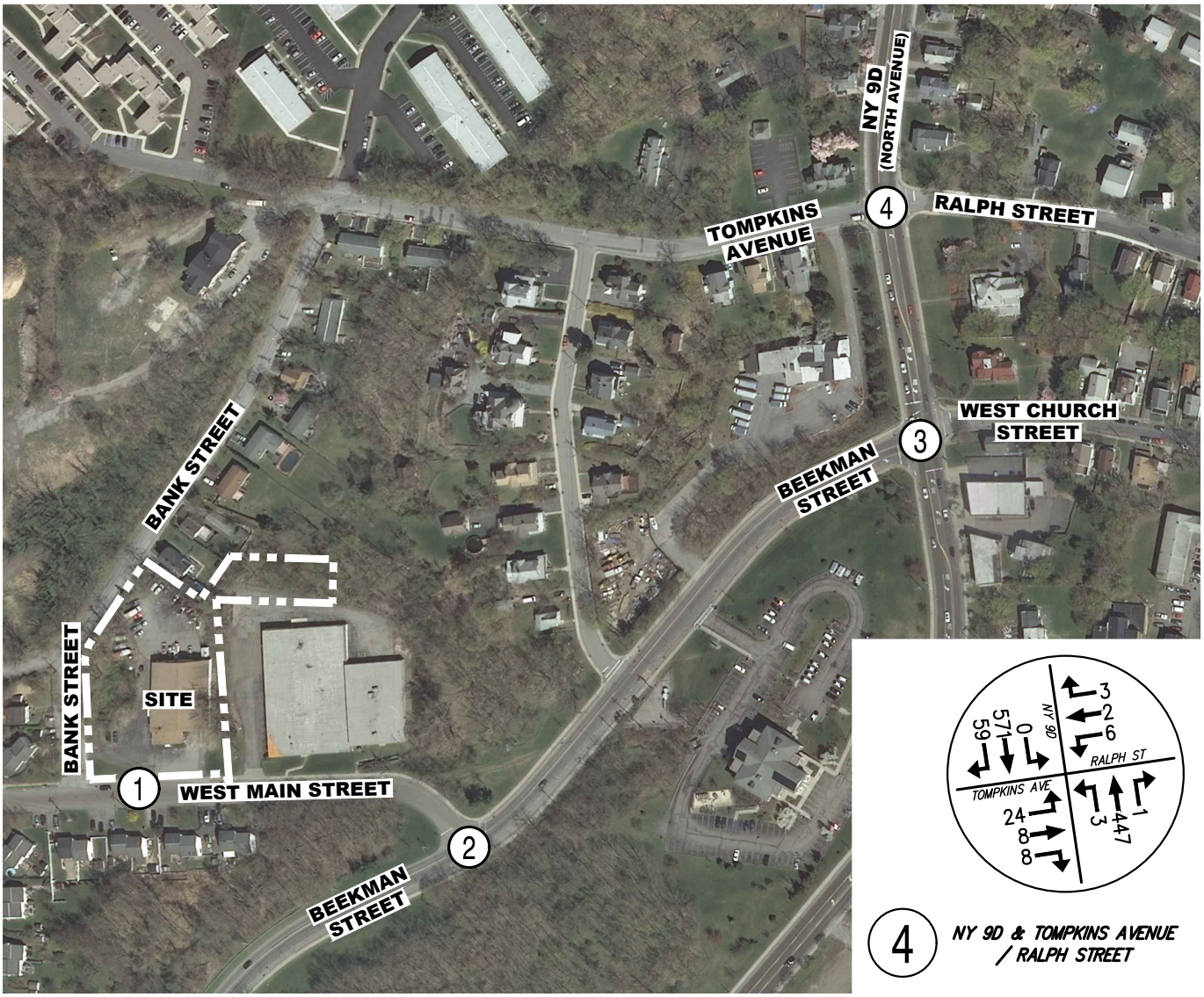
(1) V/C represents volume/capacity ratio

(2) Delay is average seconds delay per vehicle

(3) LOS represents level of service

APPENDIX B

FIGURES



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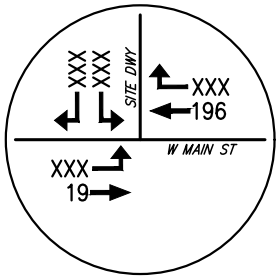

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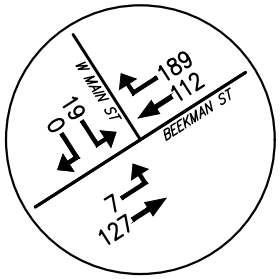

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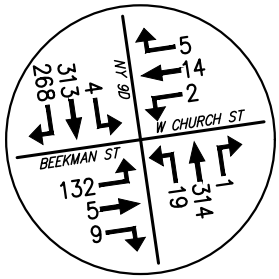

3 NY 9D & BEEKMAN STREET / WEST CHURCH STREET

BEACON COMMONS

16 WEST MAIN STREET BEACON, NY 12508

2020 EXISTING VOLUMES

PEAK WEEKDAY AM HOUR (7:00 - 8:00)

DATE: 03/31/2020 JMC PROJECT: 18119

FIGURE: 01 SCALE: 1" = 250'

120 BEDFORD RD
ARMONK
NY 10504

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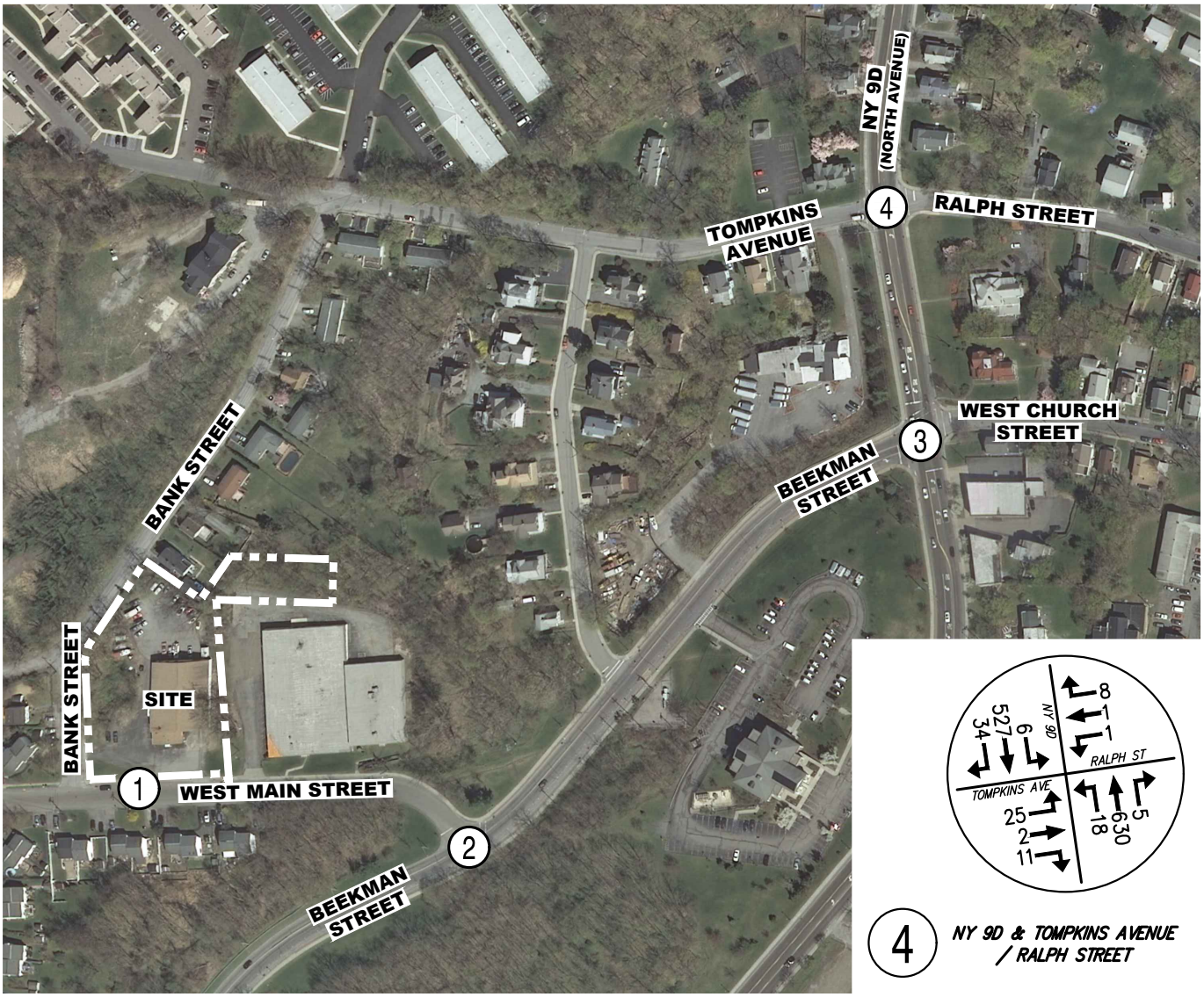

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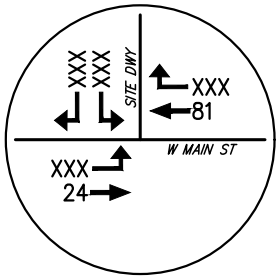

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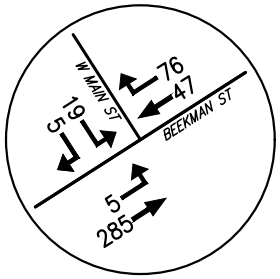

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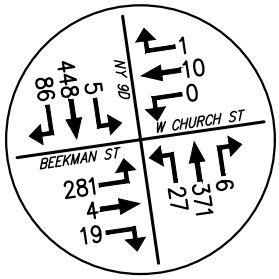

3 NY 9D & BEEKMAN STREET / WEST CHURCH STREET

BEACON COMMONS

16 WEST MAIN STREET BEACON, NY 12508

2020 EXISTING VOLUMES

PEAK WEEKDAY PM HOUR (4:45 - 5:45)

DATE: 03/31/2020 JMC PROJECT: 18119

FIGURE: 02 SCALE: 1" = 250'

120 BEDFORD RD
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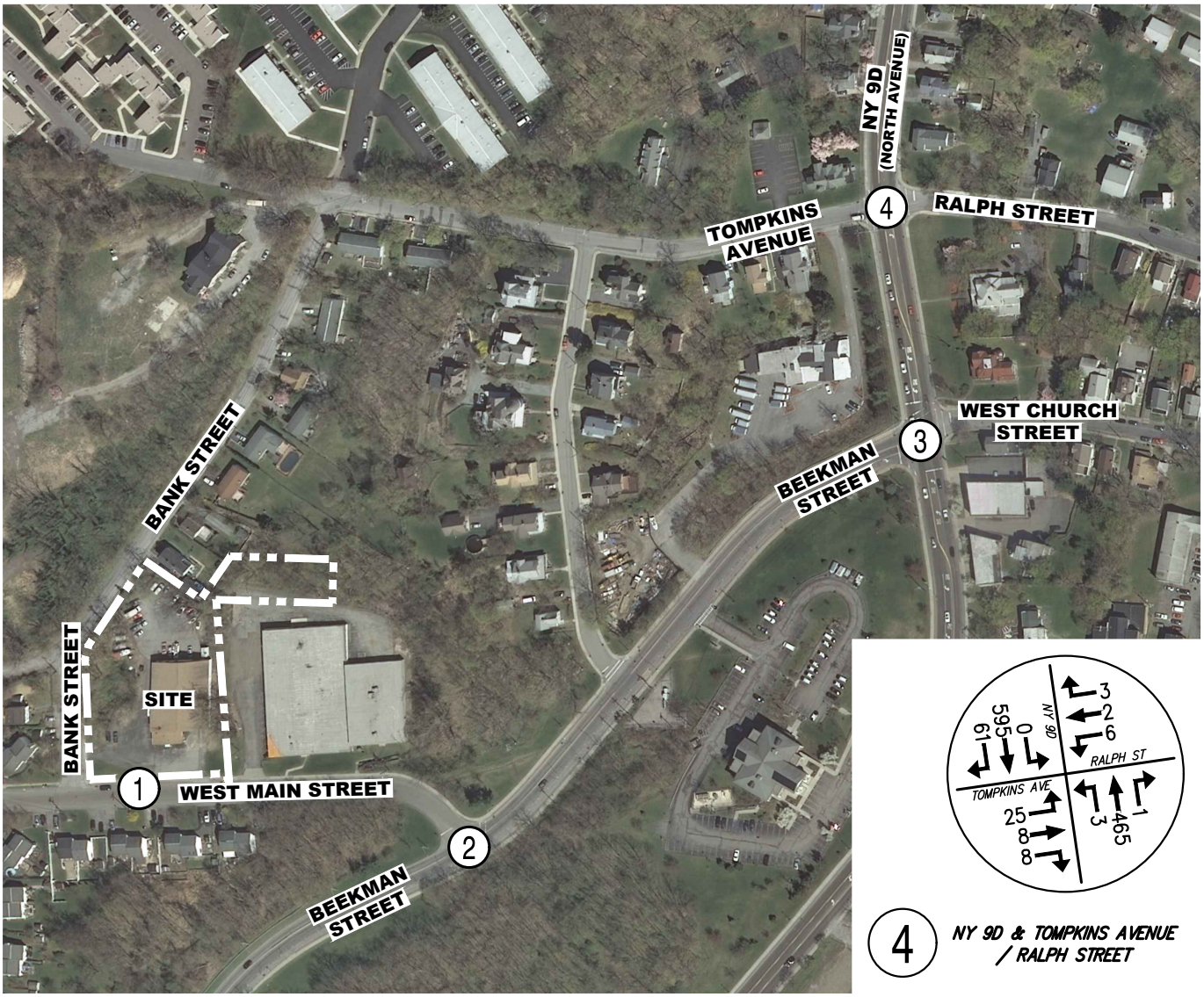

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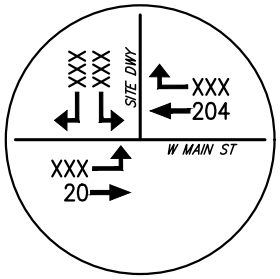

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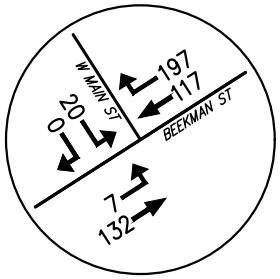
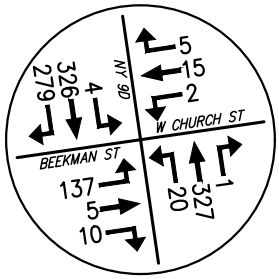


2 WEST MAIN STREET & BEEKMAN STREET



3 NY 9D & BEEKMAN STREET / WEST CHURCH STREET

BEACON COMMONS

16 WEST MAIN STREET BEACON, NY 12508

2022 GENERAL GROWTH VOLUMES

PEAK WEEKDAY AM HOUR

DATE: 03/31/2020 JMC PROJECT: 18119

FIGURE: 03 SCALE: 1" = 250'

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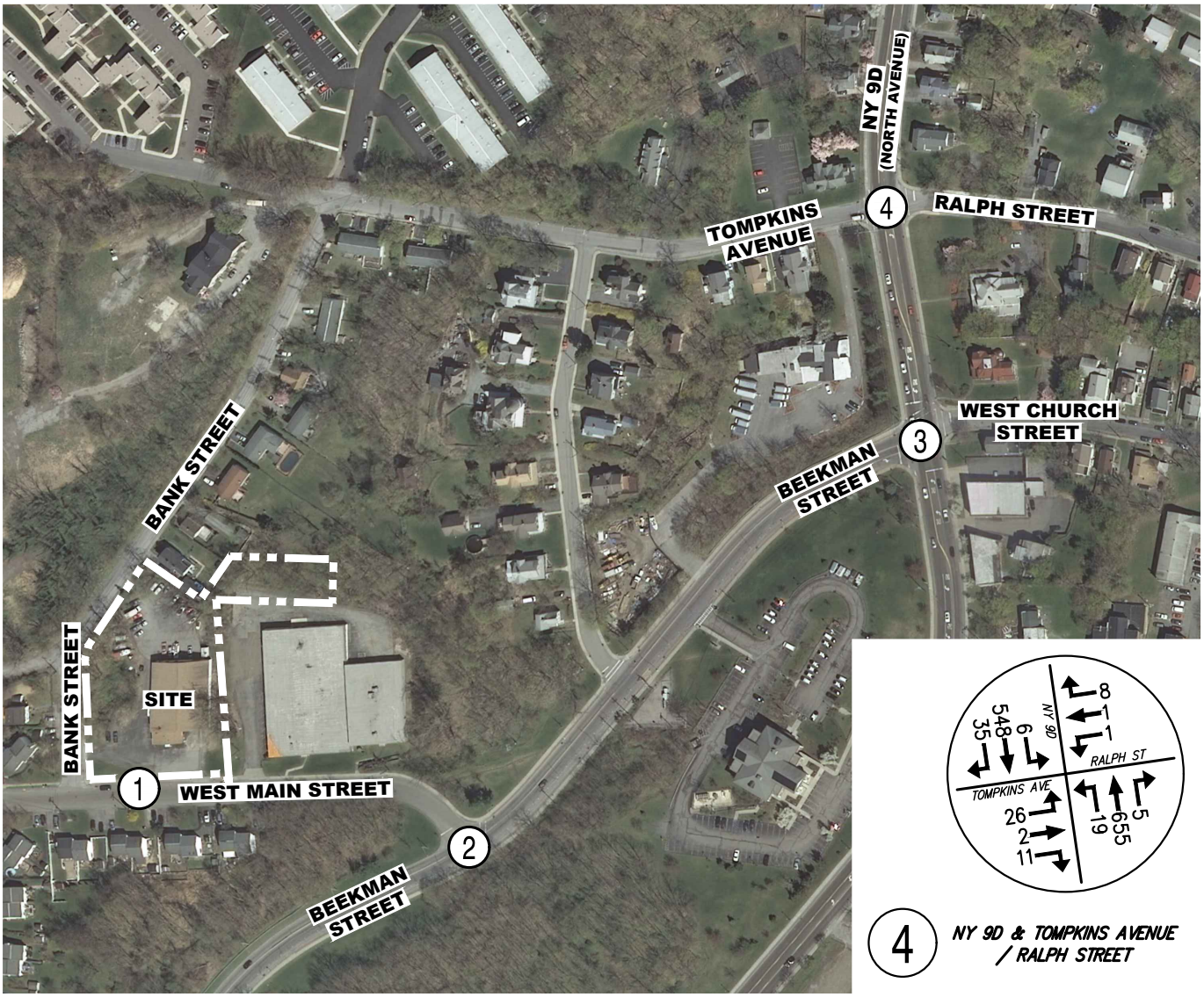
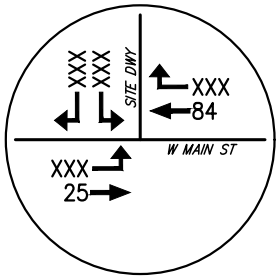
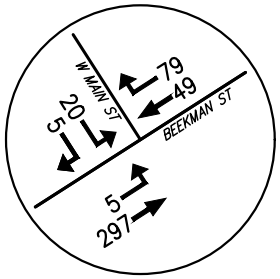


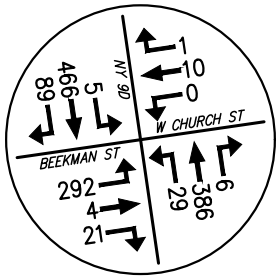
4 NY 9D & TOMPKINS AVENUE / RALPH STREET



1 WEST MAIN STREET & SITE DRIVEWAY



2 WEST MAIN STREET & BEEKMAN STREET



3 NY 9D & BEEKMAN STREET / WEST CHURCH STREET

BEACON COMMONS

16 WEST MAIN STREET BEACON, NY 12508

2022 GENERAL GROWTH VOLUMES

PEAK WEEKDAY PM HOUR

DATE: 03/31/2020 JMC PROJECT: 18119

FIGURE: 04 SCALE: 1" = 250'

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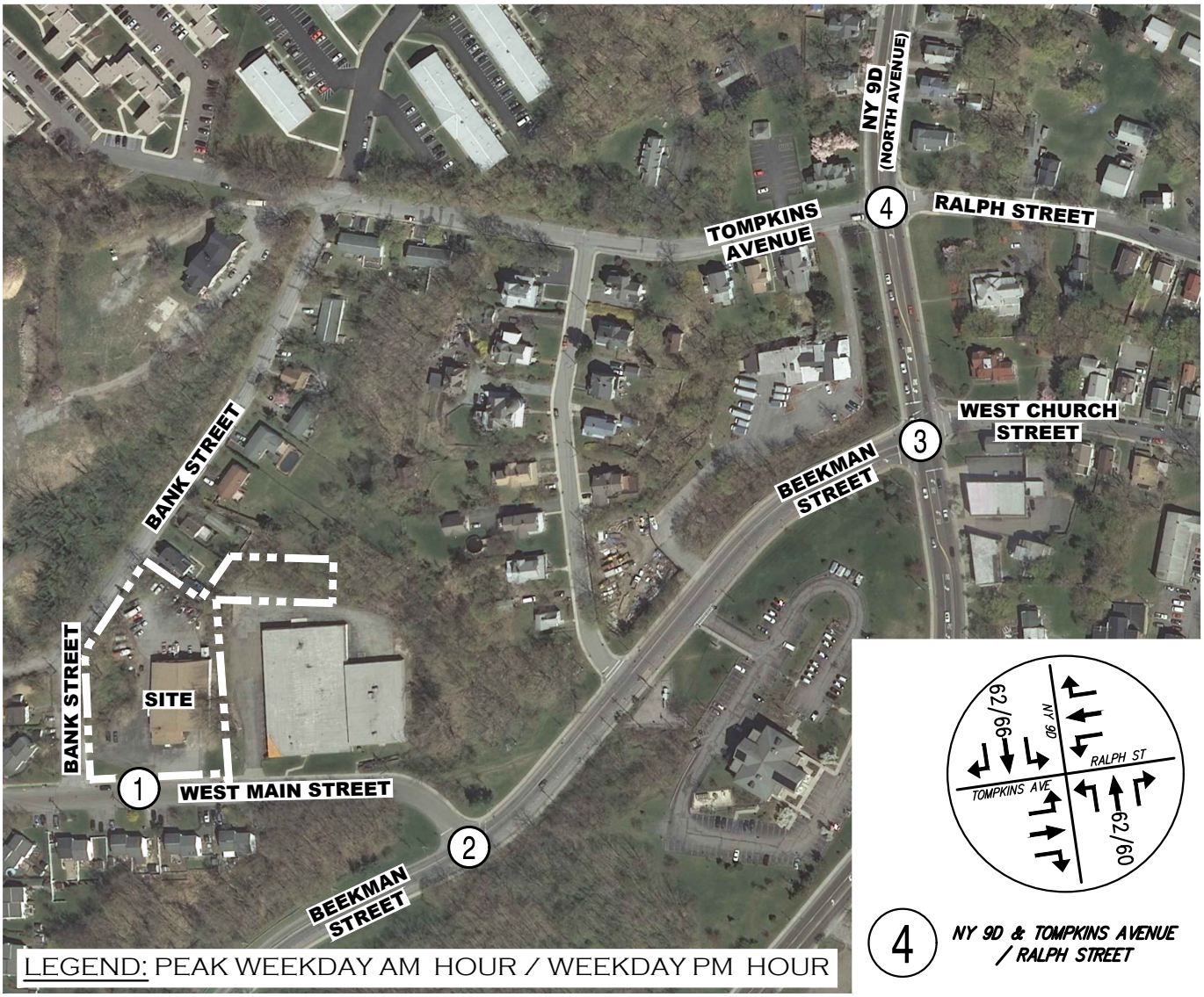
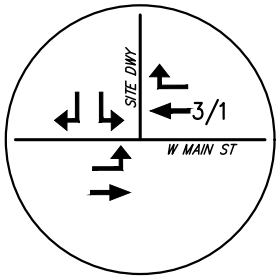
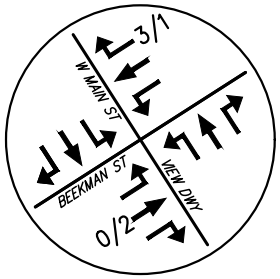


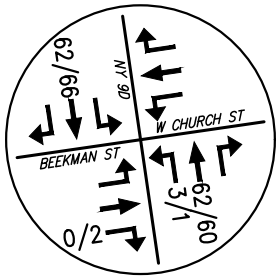
4 NY 9D & TOMPKINS AVENUE / RALPH STREET



1 WEST MAIN STREET & SITE DRIVEWAY



2 WEST MAIN STREET / THE VIEW DRIVEWAY & BEEKMAN STREET



3 NY 9D & BEEKMAN STREET / WEST CHURCH STREET

BEACON COMMONS
16 WEST MAIN STREET BEACON, NY 12508

OTHER DEVELOPMENT VOLUMES
555 SOUTH AVENUE DEVELOPMENT
DATE: 03/31/2020 JMC PROJECT: 18119

FIGURE: 05 SCALE: 1" = 250'

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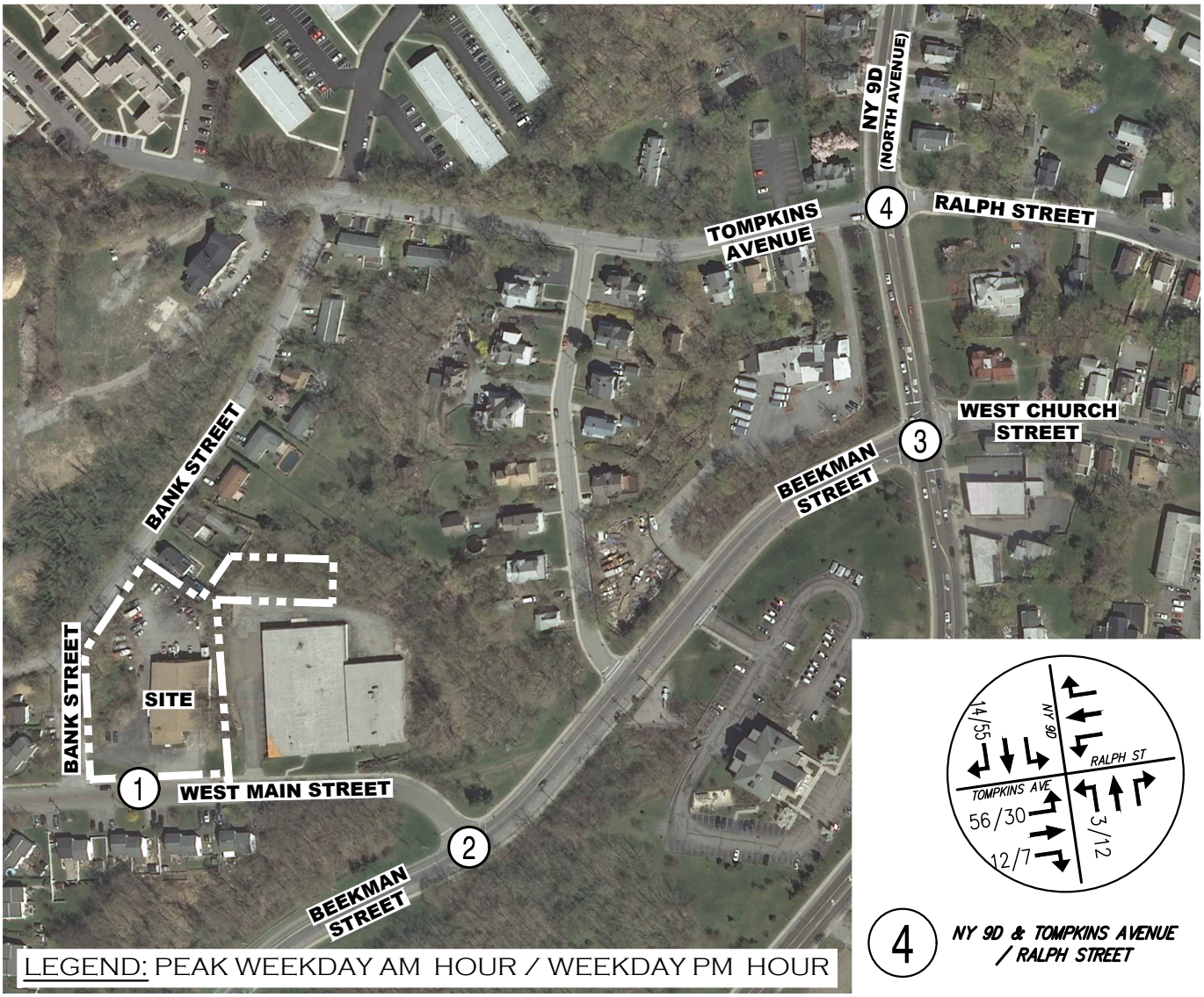
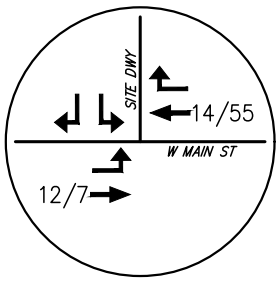
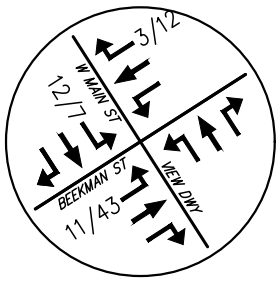


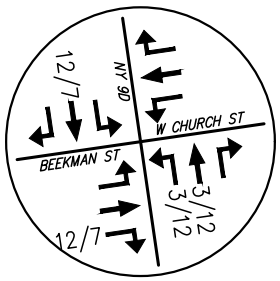
4 NY 9D & TOMPKINS AVENUE / RALPH STREET



1 WEST MAIN STREET & SITE DRIVEWAY



2 WEST MAIN STREET / THE VIEW DRIVEWAY & BEEKMAN STREET



3 NY 9D & BEEKMAN STREET / WEST CHURCH STREET

BEACON COMMONS
16 WEST MAIN STREET BEACON, NY 12508

OTHER DEVELOPMENT VOLUMES
EDGEWATER DEVELOPMENT
DATE: 03/31/2020 JMC PROJECT: 18119

FIGURE: 06 SCALE: 1" = 250'

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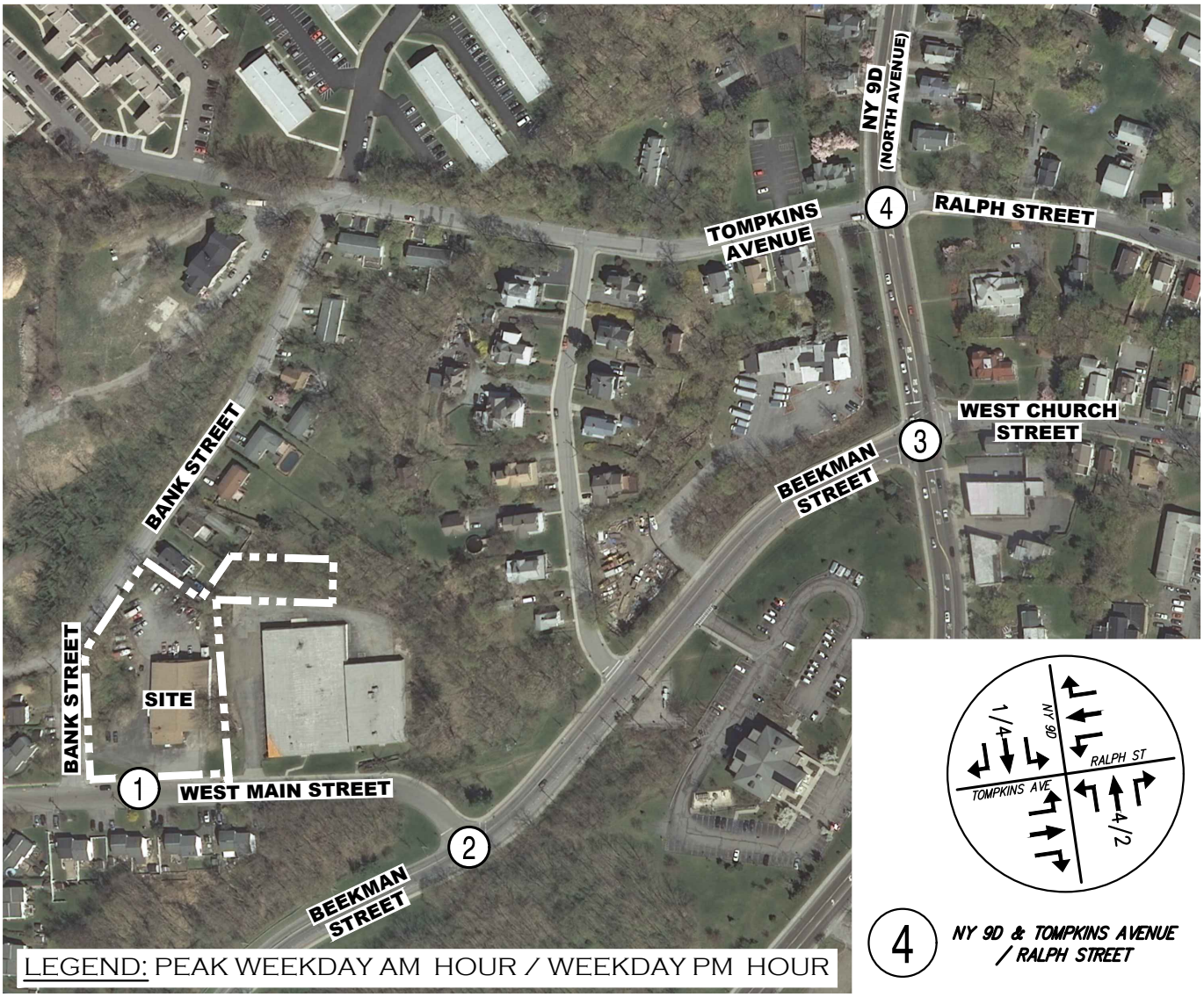
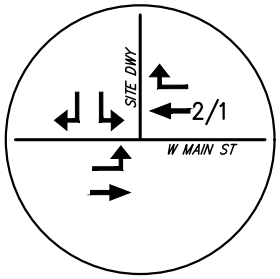
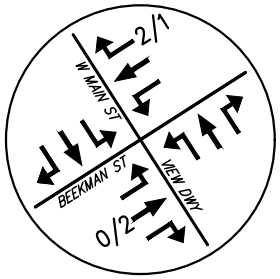


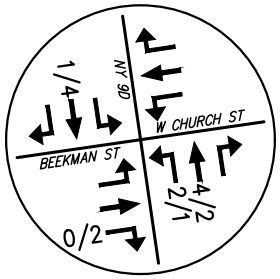
4 NY 9D & TOMPKINS AVENUE / RALPH STREET



1 WEST MAIN STREET & SITE DRIVEWAY



2 WEST MAIN STREET / THE VIEW DRIVEWAY & BEEKMAN STREET



3 NY 9D & BEEKMAN STREET / WEST CHURCH STREET

BEACON COMMONS

16 WEST MAIN STREET BEACON, NY 12508

OTHER DEVELOPMENT VOLUMES

RIVER RIDGE RESIDENTIAL DEVELOPMENT

DATE: 03/31/2020 JMC PROJECT: 18119

FIGURE: 07 SCALE: 1" = 250'

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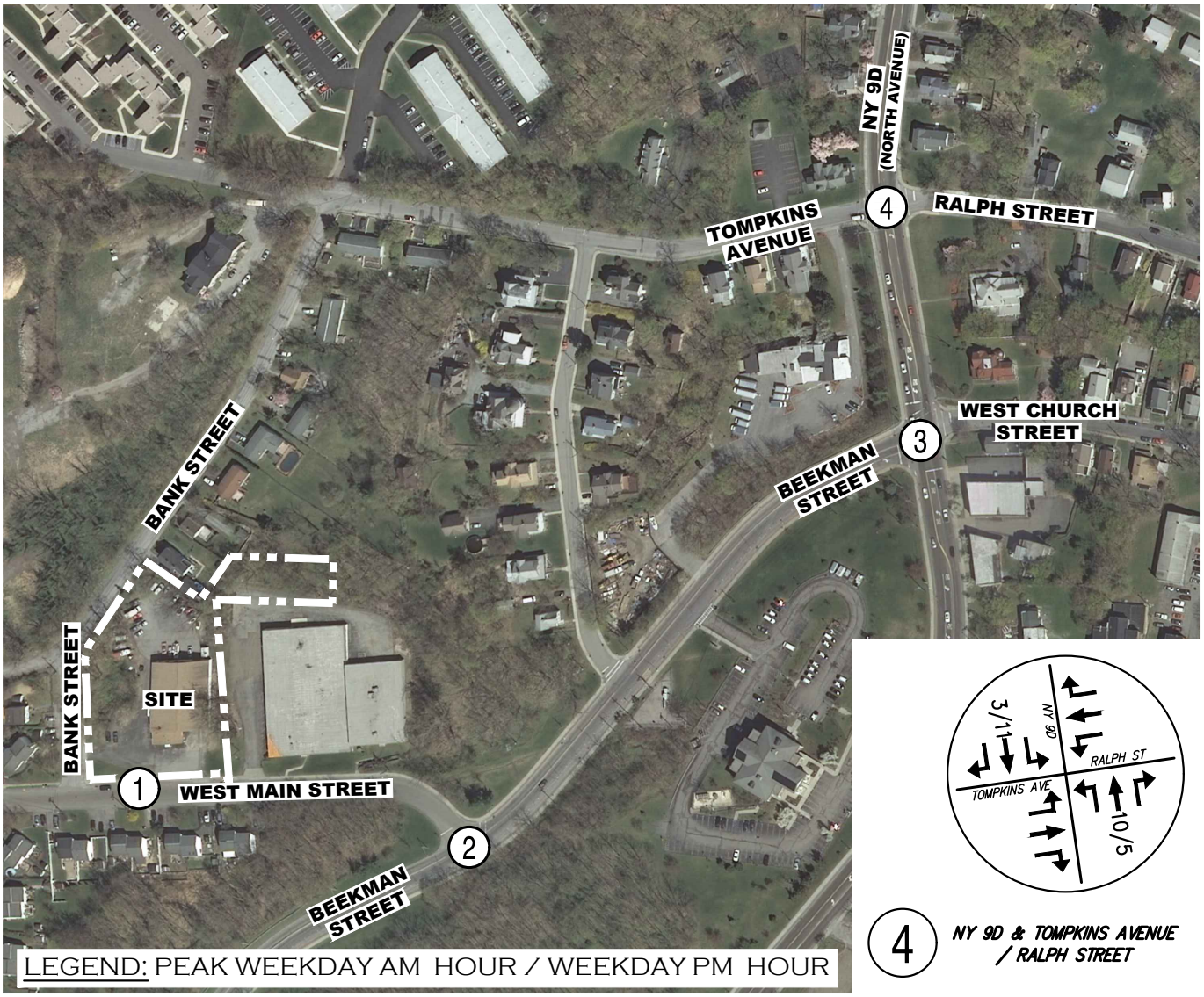
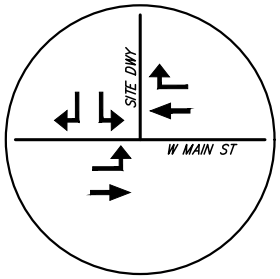
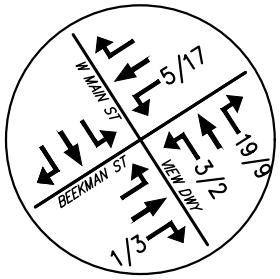


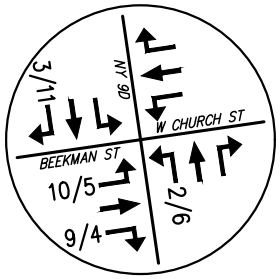
4 NY 9D & TOMPKINS AVENUE / RALPH STREET



1 WEST MAIN STREET & SITE DRIVEWAY



2 WEST MAIN STREET / THE VIEW DRIVEWAY & BEEKMAN STREET



3 NY 9D & BEEKMAN STREET / WEST CHURCH STREET

BEACON COMMONS
16 WEST MAIN STREET BEACON, NY 12508

OTHER DEVELOPMENT VOLUMES
THE VIEW DEVELOPMENT
DATE: 03/31/2020 JMC PROJECT: 18119

FIGURE: 08 SCALE: 1" = 250'

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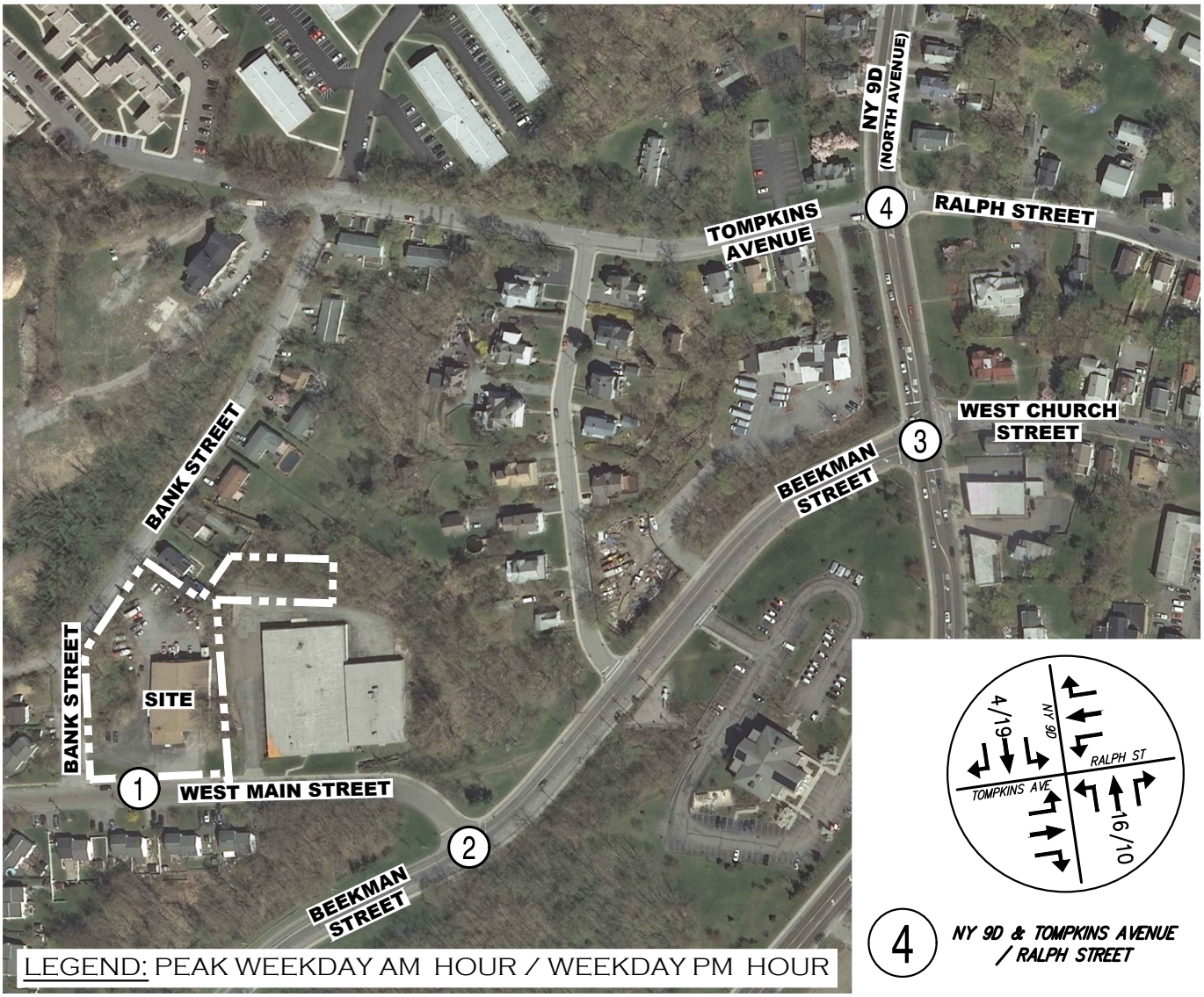
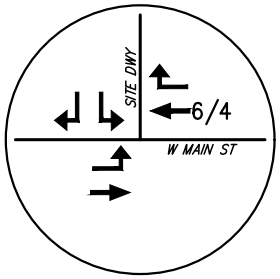
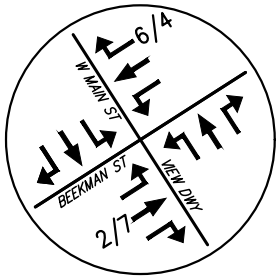


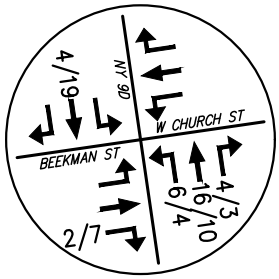
4 NY 9D & TOMPKINS AVENUE / RALPH STREET



1 WEST MAIN STREET & SITE DRIVEWAY



2 WEST MAIN STREET / THE VIEW DRIVEWAY & BEEKMAN STREET



3 NY 9D & BEEKMAN STREET / WEST CHURCH STREET

BEACON COMMONS

16 WEST MAIN STREET BEACON, NY 12508

OTHER DEVELOPMENT VOLUMES

WEST END LOFTS DEVELOPMENT

DATE: 03/31/2020 JMC PROJECT: 18119

FIGURE: 09 SCALE: 1" = 250'

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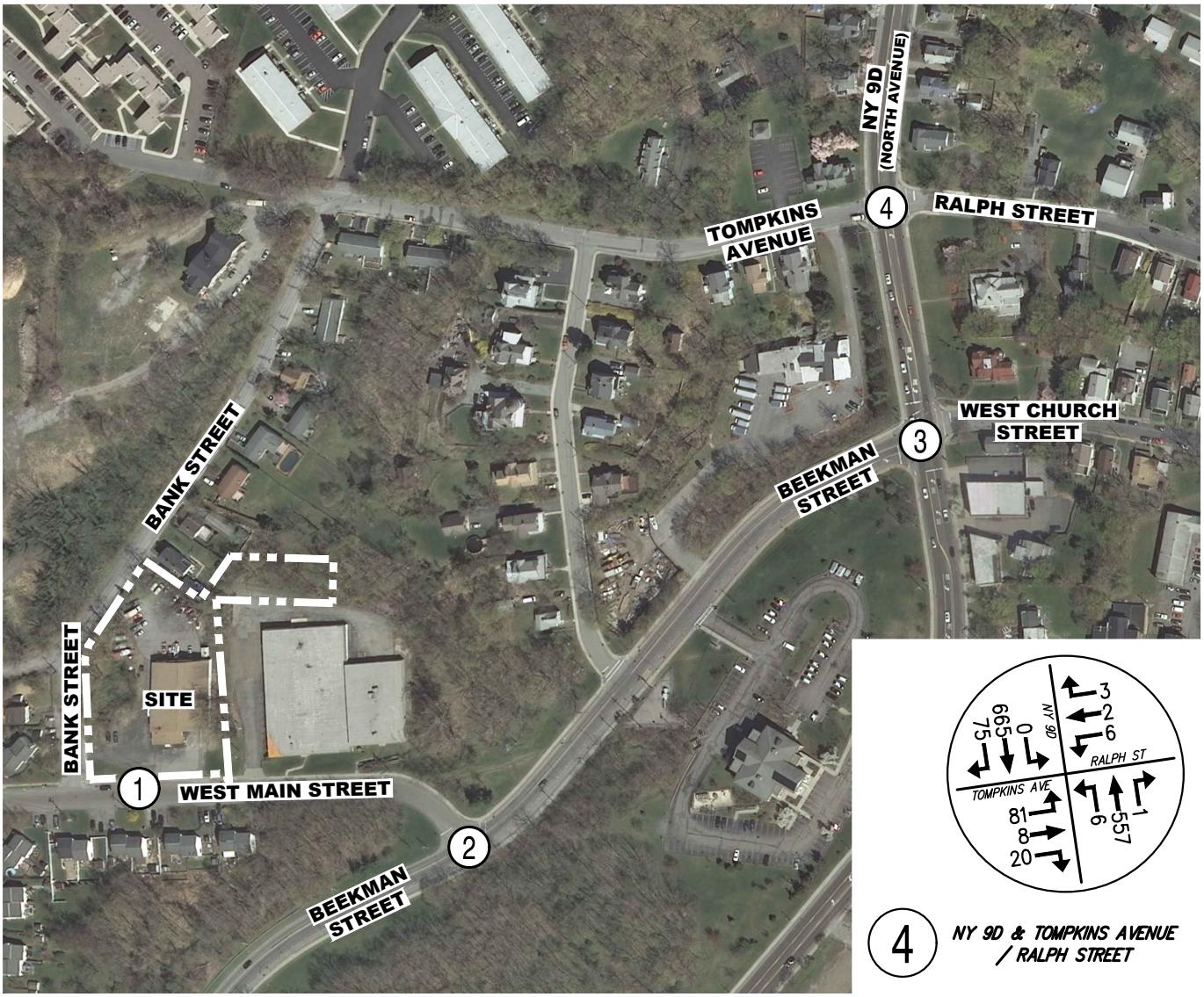
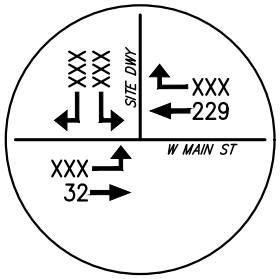
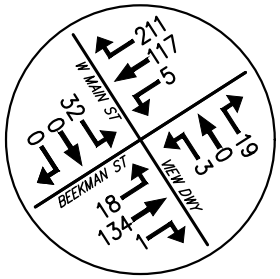


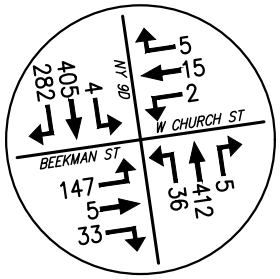
4 NY 9D & TOMPKINS AVENUE / RALPH STREET



1 WEST MAIN STREET & SITE DRIVEWAY



2 WEST MAIN STREET / THE VIEW DRIVEWAY & BEEKMAN STREET



3 NY 9D & BEEKMAN STREET / WEST CHURCH STREET

BEACON COMMONS

16 WEST MAIN STREET BEACON, NY 12508

2022 NO BUILD VOLUMES

PEAK WEEKDAY AM HOUR (7:00 - 8:00)

DATE: 03/31/2020 JMC PROJECT: 18119

FIGURE: 10 SCALE: 1" = 250'

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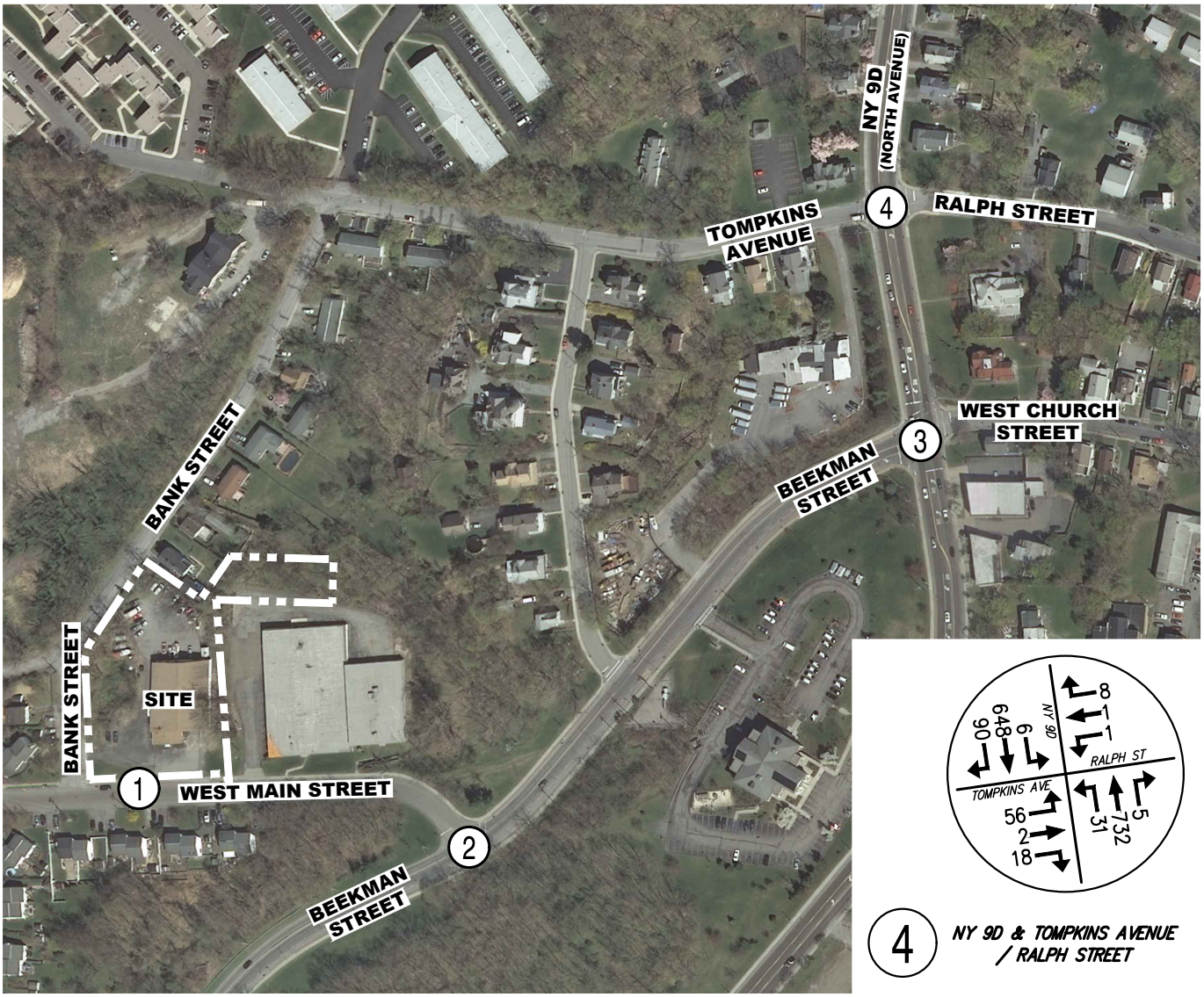
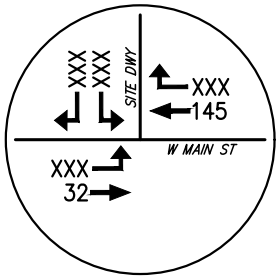
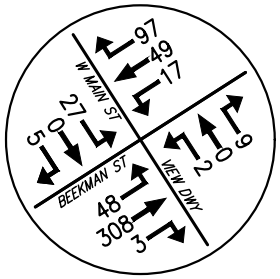


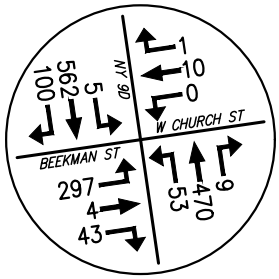
4 NY 9D & TOMPKINS AVENUE / RALPH STREET



1 WEST MAIN STREET & SITE DRIVEWAY



2 WEST MAIN STREET / THE VIEW DRIVEWAY & BEEKMAN STREET



3 NY 9D & BEEKMAN STREET / WEST CHURCH STREET

BEACON COMMONS

16 WEST MAIN STREET BEACON, NY 12508

2022 NO BUILD VOLUMES

PEAK WEEKDAY PM HOUR (4:45 - 5:45)

DATE: 03/31/2020 JMC PROJECT: 18119

FIGURE: 11 SCALE: 1" = 250'

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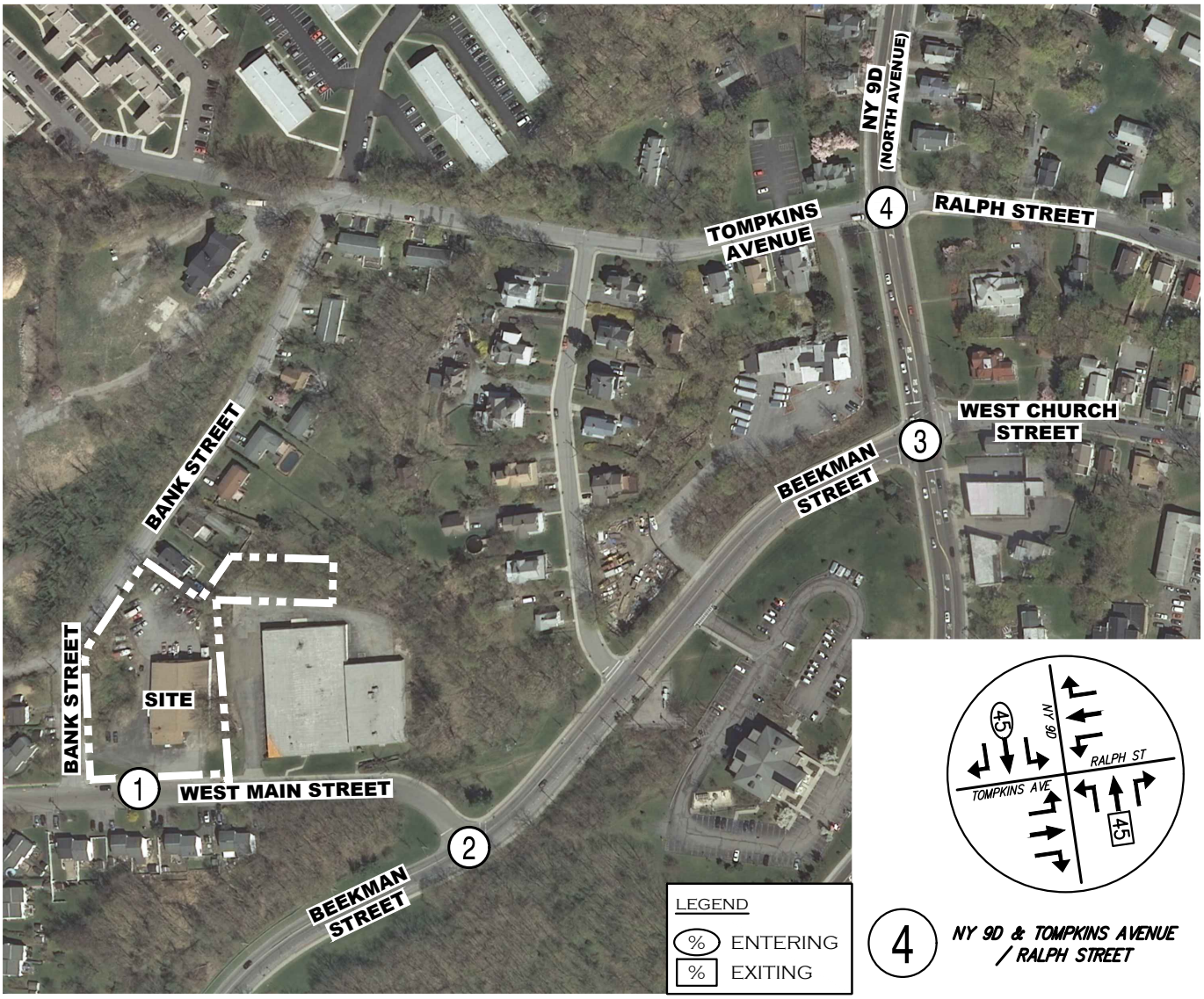
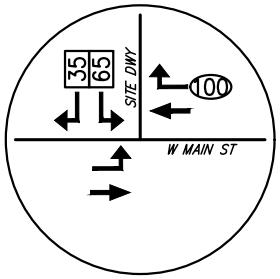
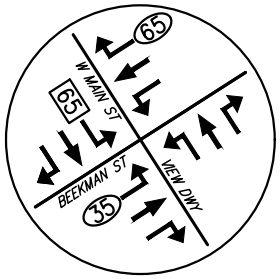


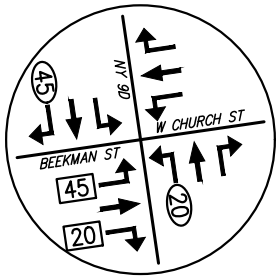
4 NY 9D & TOMPKINS AVENUE / RALPH STREET



1 WEST MAIN STREET & SITE DRIVEWAY



2 WEST MAIN STREET / THE VIEW DRIVEWAY & BEEKMAN STREET



3 NY 9D & BEEKMAN STREET / WEST CHURCH STREET

BEACON COMMONS

16 WEST MAIN STREET BEACON, NY 12508

PRIMARY TRIP DISTRIBUTIONS

DATE: 03/31/2020 JMC PROJECT: 18119

FIGURE: 12 SCALE: 1" = 250'

120 BEDFORD RD
ARMONK
NY 10504

(914) 273-5225
fax 273-2102

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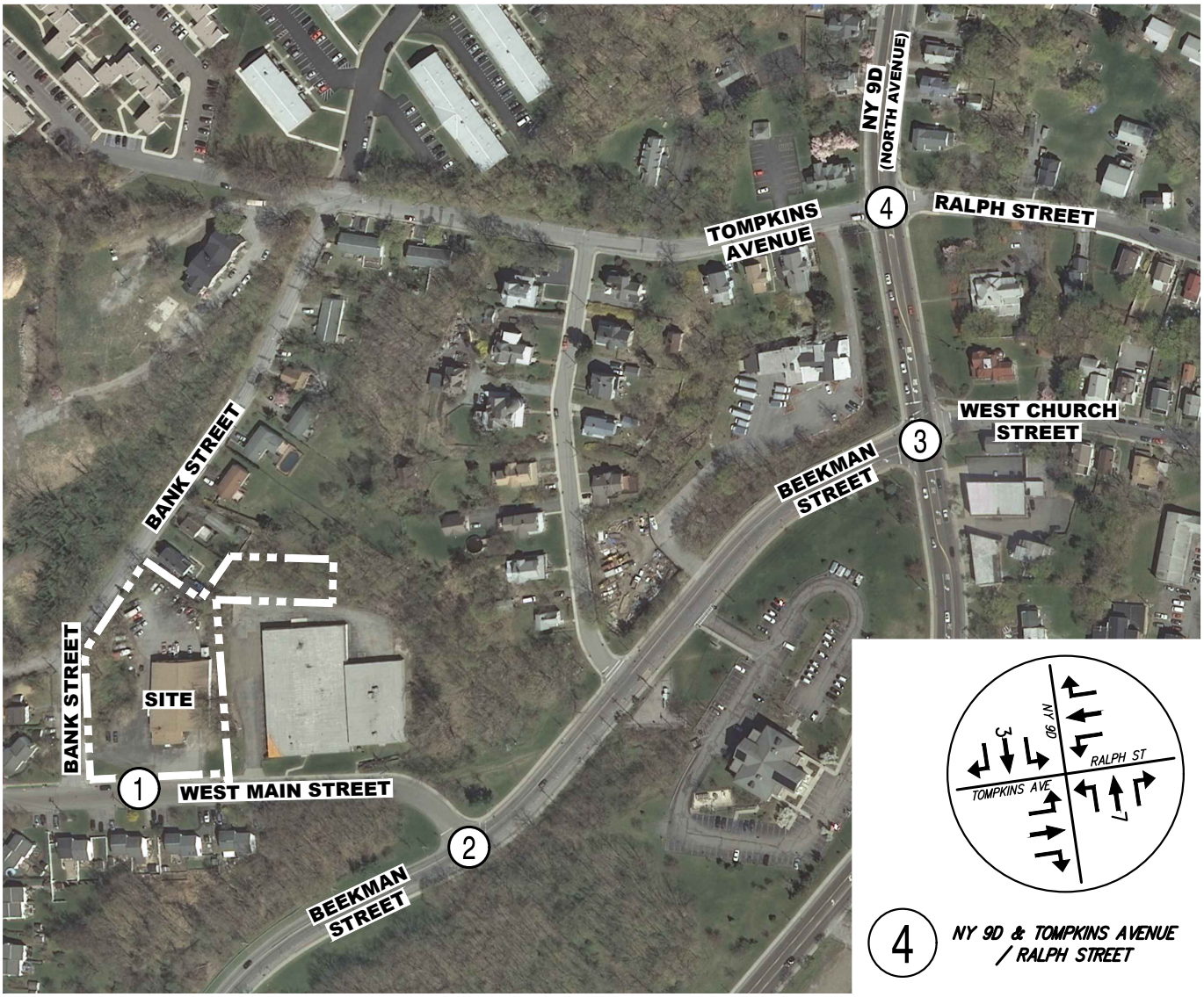
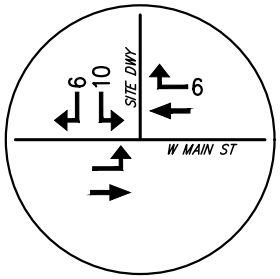
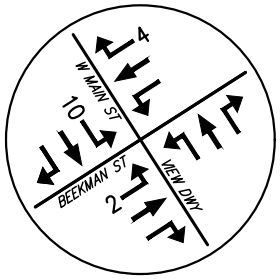


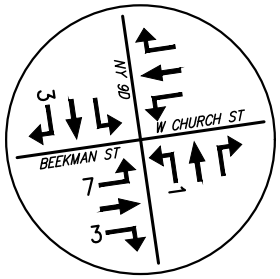
4 NY 9D & TOMPKINS AVENUE / RALPH STREET



1 WEST MAIN STREET & SITE DRIVEWAY



2 WEST MAIN STREET / THE VIEW DRIVEWAY & BEEKMAN STREET



3 NY 9D & BEEKMAN STREET / WEST CHURCH STREET

BEACON COMMONS

16 WEST MAIN STREET BEACON, NY 12508

PRIMARY VOLUMES

PEAK WEEKDAY AM HOUR

DATE: 03/31/2020 JMC PROJECT: 18119

FIGURE: 13 SCALE: 1" = 250'

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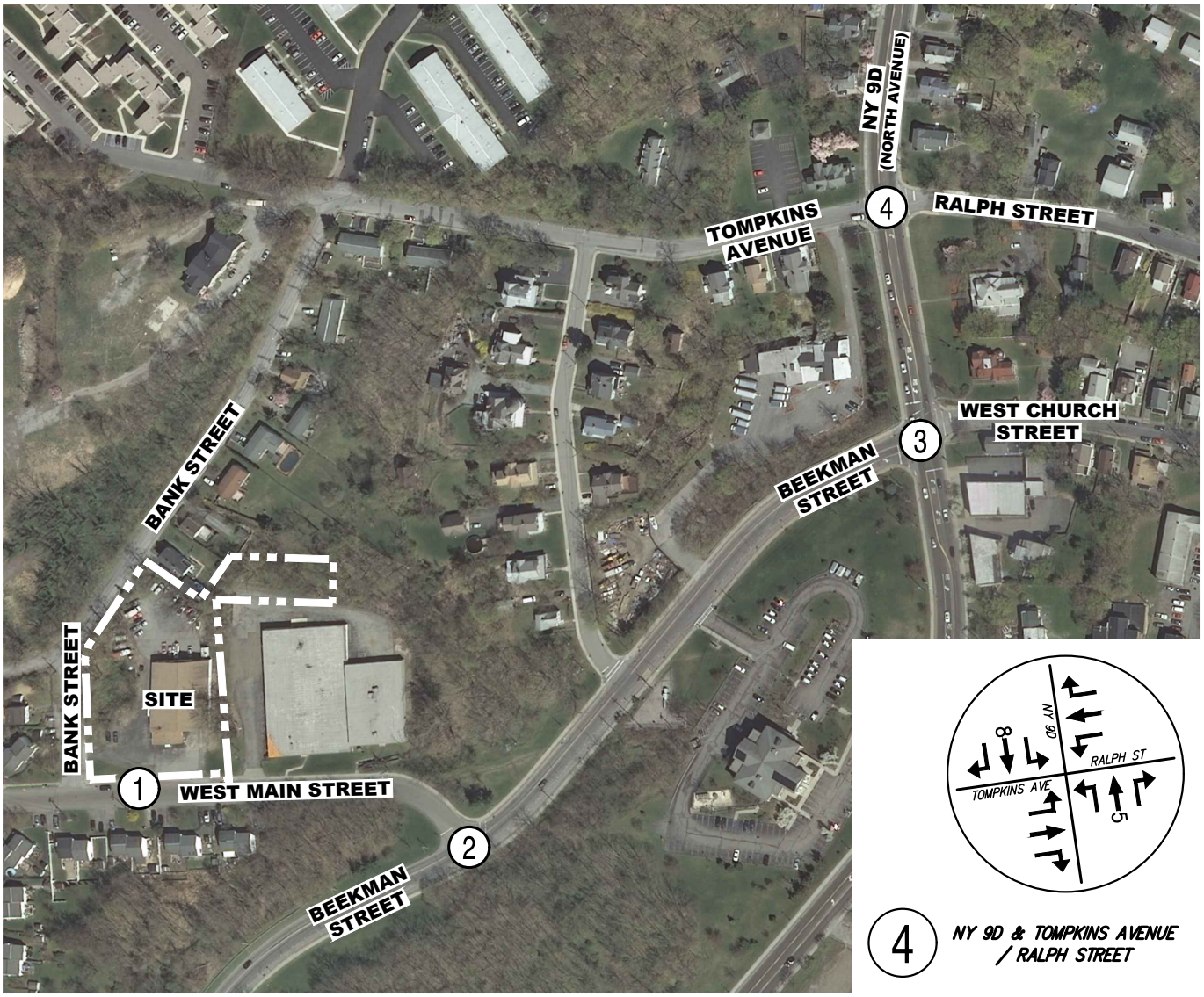
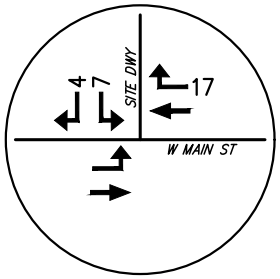
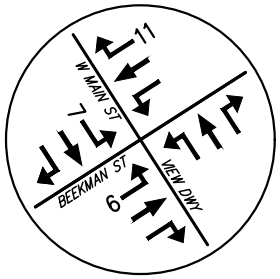


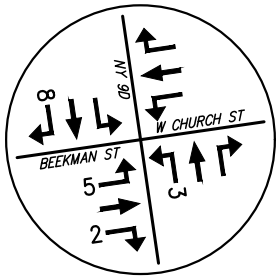
4 NY 9D & TOMPKINS AVENUE / RALPH STREET



1 WEST MAIN STREET & SITE DRIVEWAY



2 WEST MAIN STREET / THE VIEW DRIVEWAY & BEEKMAN STREET



3 NY 9D & BEEKMAN STREET / WEST CHURCH STREET

BEACON COMMONS

16 WEST MAIN STREET BEACON, NY 12508

PRIMARY VOLUMES

PEAK WEEKDAY PM HOUR

DATE: 03/31/2020 JMC PROJECT: 18119

FIGURE: 14 SCALE: 1" = 250'

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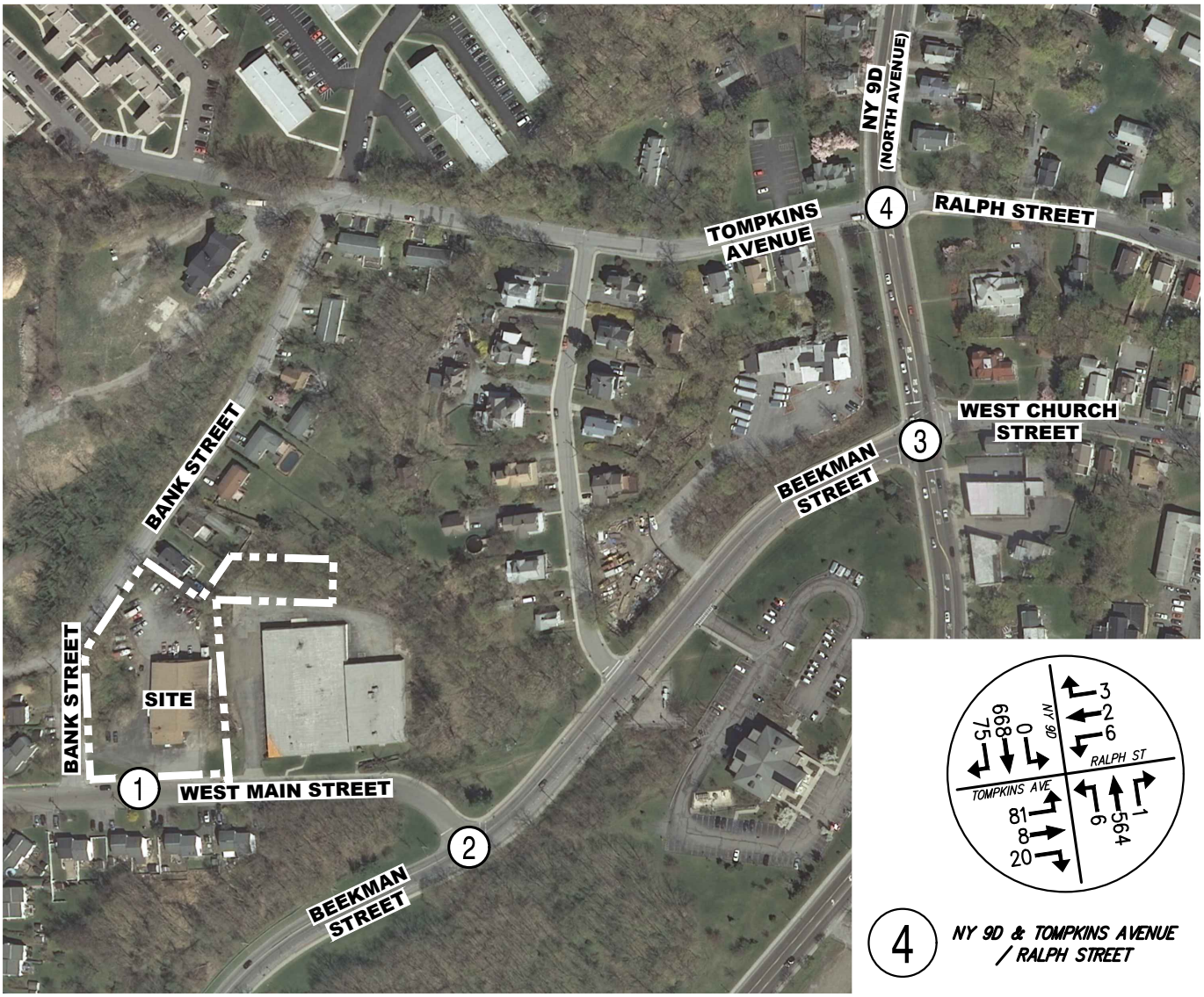
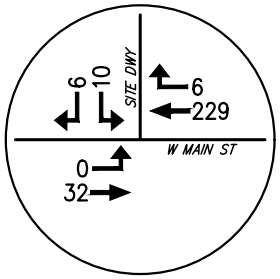
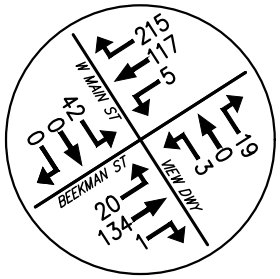


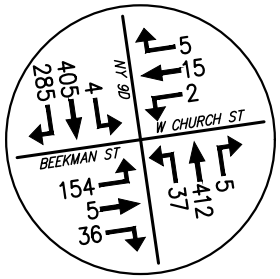
4 NY 9D & TOMPKINS AVENUE / RALPH STREET



1 WEST MAIN STREET & SITE DRIVEWAY



2 WEST MAIN STREET / THE VIEW DRIVEWAY & BEEKMAN STREET



3 NY 9D & BEEKMAN STREET / WEST CHURCH STREET

BEACON COMMONS

16 WEST MAIN STREET BEACON, NY 12508

2022 BUILD VOLUMES

PEAK WEEKDAY AM HOUR (7:00 - 8:00)

DATE: 03/31/2020 JMC PROJECT: 18119

FIGURE: 15 SCALE: 1" = 250'

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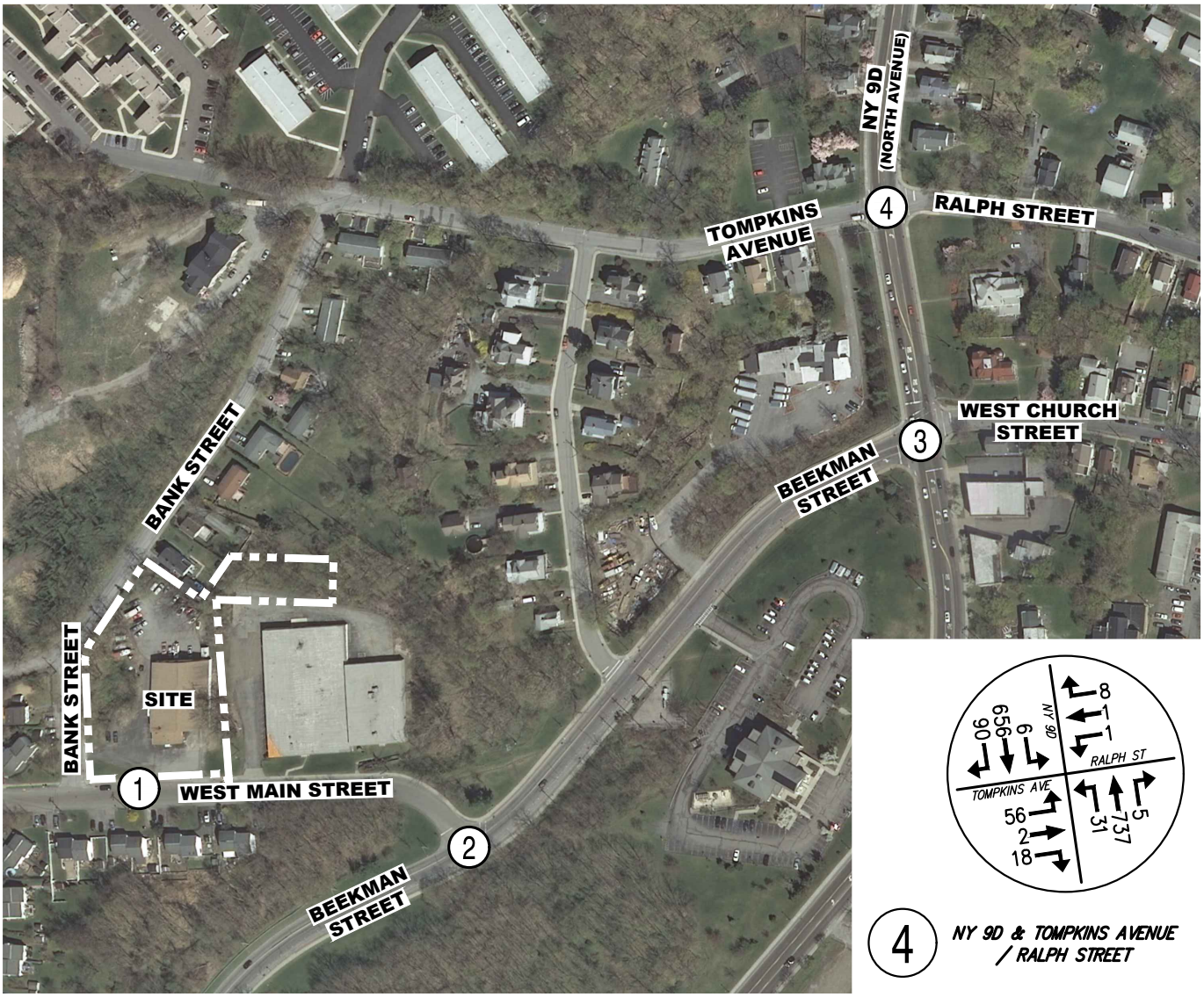
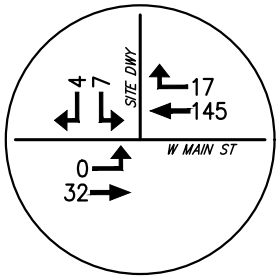
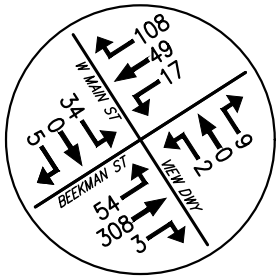


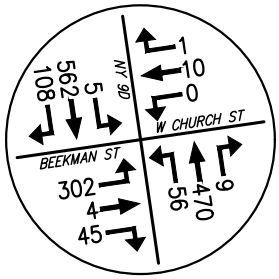
4 NY 9D & TOMPKINS AVENUE / RALPH STREET



1 WEST MAIN STREET & SITE DRIVEWAY



2 WEST MAIN STREET / THE VIEW DRIVEWAY & BEEKMAN STREET



3 NY 9D & BEEKMAN STREET / WEST CHURCH STREET

BEACON COMMONS

16 WEST MAIN STREET BEACON, NY 12508

2022 BUILD VOLUMES

PEAK WEEKDAY PM HOUR (4:45 - 5:45)

DATE: 03/31/2020 JMC PROJECT: 18119

FIGURE: 16 SCALE: 1" = 250'

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APPENDIX C

TURNING MOVEMENT COUNTS

DATE:	2/25/2020	CALCULATIONS - DO NOT EDIT THIS SHEET	JOB NO:	18119
PERIOD:	7:00 - 9:00 AM & 4:00 - 7:00 PM		NAME:	Traffic Databank
LOCATION:	West Main Street & Beekman Street		INT #:	2

TIME	CLASS	VEHICLE MOVEMENT												TOTAL VEHICLES	PED/BIKE MOVEMENT				TOTAL PEDS /BIKE	INT. PHF
		1	2	3	4	5	6	7	8	9	10	11	12		A	B	C	D		
7:00 - 7:15 AM	TOTAL	0	30	34	77	6	0							147		1			1	
	TRUCK		1		1	1														
7:15 - 7:30 AM	TOTAL	1	47	33	56	4	0							141		1			1	
	TRUCK				2	4														
7:30 - 7:45 AM	TOTAL	3	26	19	36	3	0							87	1	2			3	
	TRUCK	1	2		2															
7:45 - 8:00 AM	TOTAL	3	22	26	20	6	0							77						
	TRUCK					1														
8:00 - 8:15 AM	TOTAL	3	10	28	45	5	0							91		3			3	
	TRUCK	1			1															
8:15 - 8:30 AM	TOTAL	2	36	13	20	6	0							77						
	TRUCK		1	3																
8:30 - 8:45 AM	TOTAL	2	16	14	26	5	0							63						
	TRUCK																			
8:45 - 9:00 AM	TOTAL	7	16	21	27	2	1							74	2	1			3	
	TRUCK			1	2															
4:00 - 4:15 PM	TOTAL	3	18	14	13	8	2							58						
	TRUCK				1															
4:15 - 4:30 PM	TOTAL	0	79	4	10	8	0							101	1	3			4	
	TRUCK		1		1	1														
4:30 - 4:45 PM	TOTAL	0	23	9	15	7	1							55						
	TRUCK				1	1														
4:45 - 5:00 PM	TOTAL	3	93	8	20	5	1							130	2	3			5	
	TRUCK		1		3															
5:00 - 5:15 PM	TOTAL	0	20	15	14	6	2							57						
	TRUCK				1															
5:15 - 5:30 PM	TOTAL	2	92	10	18	5	2							129						
	TRUCK		1																	
5:30 - 5:45 PM	TOTAL	0	80	14	24	3	0							121						
	TRUCK				2															
5:45 - 6:00 PM	TOTAL	0	35	10	19	6	0							70		1			1	
	TRUCK		1		1															

6:00 - 6:15 PM	TOTAL	0	74	18	22	6	1							121		2			2	
	TRUCK		1		2															
6:15 - 6:30 PM	TOTAL	3	147	7	15	9	1							182						
	TRUCK		1																	
6:30 - 6:45 PM	TOTAL	1	33	21	26	2	0							83						
	TRUCK				1															
6:45 - 7:00 PM	TOTAL	2	127	5	17	4	2							157	1	2			3	
	TRUCK				1															

1: Beekman Street EB - Left
2: Beekman Street EB - Thru
3: Beekman Street WB - Thru
4: Beekman Street WB - Right
5: W Main Street SB - Left
6: W Main Street SB - Right
7:
8:
9:
10:
11:
12:

A: Cross Beekman Street east of INT
B: Cross W Main Street south of INT
C:
D:

DATE:	2/25/2020	JOB NO:	18119
PERIOD:	7:00 - 9:00 AM & 4:00 - 7:00 PM	NAME:	Traffic Databank
LOCATION:	West Main Street & Beekman Street	INT #:	2

PEAK HOUR MOVEMENTS & % HEAVY VEHICLES - DO NOT EDIT THIS SHEET

TIME	CLASS	VEHICLE MOVEMENT												TOTAL VEHICLES	PED/BIKE MOVEMENT				TOTAL PEDS /BIKE	INT. PHF
		1	2	3	4	5	6	7	8	9	10	11	12		A	B	C	D		
7:00 - 8:00 AM	TOTAL	7	125	112	189	19								452	1	4			5	
	TRUCK	14%	2%	0%	3%	32%														0.77
7:15 - 8:15 AM	TOTAL	10	105	106	157	18								396	1	6			7	
	TRUCK	20%	2%	0%	3%	28%														0.70
7:30 - 8:30 AM	TOTAL	11	94	86	121	20								332	1	5			6	
	TRUCK	18%	3%	3%	2%	5%														0.91
7:45 - 8:45 AM	TOTAL	10	84	81	111	22								308		3			3	
	TRUCK	10%	1%	4%	1%	5%														0.85
8:00 - 9:00 AM	TOTAL	14	78	76	118	18	1							305	2	4			6	
	TRUCK	7%	1%	5%	3%	0%	0%													0.84
4:00 - 5:00 PM	TOTAL	6	213	35	58	28	4							344	3	6			9	
	TRUCK	0%	1%	0%	10%	7%	0%													0.66
4:15 - 5:15 PM	TOTAL	3	215	36	59	26	4							343	3	6			9	
	TRUCK	0%	1%	0%	10%	8%	0%													0.66
4:30 - 5:30 PM	TOTAL	5	228	42	67	23	6							371	2	3			5	
	TRUCK	0%	1%	0%	7%	4%	0%													0.71
4:45 - 5:45 PM	TOTAL	5	285	47	76	19	5							437	2	3			5	
	TRUCK	0%	1%	0%	8%	0%	0%													0.84
5:00 - 6:00 PM	TOTAL	2	227	49	75	20	4							377		1			1	
	TRUCK	0%	1%	0%	5%	0%	0%													0.73
5:15 - 6:15 PM	TOTAL	2	281	52	83	20	3							441		3			3	
	TRUCK	0%	1%	0%	6%	0%	0%													0.85
5:30 - 6:30 PM	TOTAL	3	336	49	80	24	2							494		3			3	
	TRUCK	0%	1%	0%	6%	0%	0%													0.68
5:45 - 6:45 PM	TOTAL	4	289	56	82	23	2							456		3			3	
	TRUCK	0%	1%	0%	5%	0%	0%													0.63
6:00 - 7:00 PM	TOTAL	6	381	51	80	21	4							543	1	4			5	
	TRUCK	0%	1%	0%	5%	0%	0%													0.75

1: Beekman Street EB - Left
2: Beekman Street EB - Thru
3: Beekman Street WB - Thru
7:
8:
9:

A: Cross Beekman Street east of INT
B: Cross W Main Street south of INT
C:

4: Beekman Street WB - Right	**10:**	**D:**
5: W Main Street SB - Left	**11:**	
6: W Main Street SB - Right	**12:**	

DATE:	2/25/2020		JOB NO:	18119
PERIOD:	7:00 - 9:00 AM & 4:00 - 7:00 PM		NAME:	Traffic Databank
LOCATION:	NY 9D & Beekman Street / W Church Street		INT #:	3

CALCULATIONS - DO NOT EDIT THIS SHEET

TIME	CLASS	VEHICLE MOVEMENT												TOTAL VEHICLES	PED/BIKE MOVEMENT				TOTAL PEDS /BIKE	INT. PHF
		1	2	3	4	5	6	7	8	9	10	11	12		A	B	C	D		
7:00 - 7:15 AM	TOTAL	37	1	1	0	2	1	3	58	1	2	69	112	287	2			2	4	
	TRUCK	2						1	2	1		6	1							
7:15 - 7:30 AM	TOTAL	44	1	3	1	4	2	6	75	0	1	55	64	256	2	3		4	9	
	TRUCK	3		1					3			6	1							
7:30 - 7:45 AM	TOTAL	21	3	2	1	5	1	5	89	0	1	62	43	233		1		1	2	
	TRUCK	1						1	5			7	1							
7:45 - 8:00 AM	TOTAL	28	0	3	0	3	1	4	88	0	0	114	37	278		1		1	2	
	TRUCK	2							5											
8:00 - 8:15 AM	TOTAL	10	3	1	1	4	0	5	97	0	0	97	62	280		1	1		2	
	TRUCK							1	3			8								
8:15 - 8:30 AM	TOTAL	35	1	1	2	1	0	2	75	0	0	119	27	263	4			1	5	
	TRUCK	1							2			9	4							
8:30 - 8:45 AM	TOTAL	16	1	2	3	1	0	7	121	0	0	110	32	293	1	4		4	9	
	TRUCK								7			4								
8:45 - 9:00 AM	TOTAL	16	2	2	0	1	1	7	78	0	0	112	35	254	2				2	
	TRUCK								9			5	2							
4:00 - 4:15 PM	TOTAL	26	1	5	0	1	0	6	109	1	1	102	16	268		2		2	4	
	TRUCK								2			1	1							
4:15 - 4:30 PM	TOTAL	83	2	1	1	0	2	2	91	1	0	111	9	303		3		3	6	
	TRUCK	2							4			6								
4:30 - 4:45 PM	TOTAL	21	1	1	2	2	2	4	134	1	4	130	18	320		2		1	3	
	TRUCK	1						1	3			4								
4:45 - 5:00 PM	TOTAL	96	0	1	0	2	0	6	116	3	0	105	17	346				1	1	
	TRUCK	1							8				2							
5:00 - 5:15 PM	TOTAL	14	1	2	0	2	1	7	94	0	2	97	17	237		1	1		2	
	TRUCK							1	3											
5:15 - 5:30 PM	TOTAL	93	1	10	0	2	0	8	73	2	2	135	13	339				2	2	
	TRUCK	1							1			1								
5:30 - 5:45 PM	TOTAL	61	2	5	0	3	0	3	88	1	1	111	30	305	1	3		2	6	
	TRUCK							1	2			2	1							
5:45 - 6:00 PM	TOTAL	45	1	3	3	0	0	2	97	0	0	118	27	296		1	1		2	
	TRUCK	1							2			3								

6:00 - 6:15 PM	TOTAL	59	2	3	2	1	0	9	59	0	1	86	24	246	1				1	
	TRUCK							1				1	1							
6:15 - 6:30 PM	TOTAL	147	0	3	2	0	0	2	80	0	2	88	19	343	1	1	1		3	
	TRUCK											1								
6:30 - 6:45 PM	TOTAL	43	2	4	1	5	2	4	58	0	4	91	35	249		1		2	3	
	TRUCK	1							2			1	1							
6:45 - 7:00 PM	TOTAL	119	4	6	1	0	1	3	61	0	1	77	15	288		3		3	6	
	TRUCK							1	1				1							

1: Beekman Street EB - Left
2: Beekman Street EB - Thru
3: Beekman Street EB - Right
4: W Church Street WB - Left
5: W Church Street WB - Thru
6: W Church Street WB - Right
7: NY 9D NB - Left
8: NY 9D NB - Thru
9: NY 9D NB - Right
10: NY 9D SB - Left
11: NY 9D SB - Thru
12: NY 9D SB - Right

A: Cross Beekman Street west of INT
B: Cross W Church Street east of INT
C: Cross 9D south of INT
D: Cross 9D north of INT

DATE:	2/25/2020		JOB NO:	18119
PERIOD:	7:00 - 9:00 AM & 4:00 - 7:00 PM		NAME:	Traffic Databank
LOCATION:	NY 9D & Beekman Street / W Church Street		INT #:	3

PEAK HOUR MOVEMENTS & % HEAVY VEHICLES - DO NOT EDIT THIS SHEET

TIME	CLASS	VEHICLE MOVEMENT												TOTAL VEHICLES	PED/BIKE MOVEMENT				TOTAL PEDS /BIKE	INT. PHF
		1	2	3	4	5	6	7	8	9	10	11	12		A	B	C	D		
7:00 - 8:00 AM	TOTAL	130	5	9	2	14	5	18	310	1	4	300	256	1,054	4	5		8	17	
	TRUCK	6%	0%	11%	0%	0%	0%	11%	5%	100%	0%	6%	1%							0.92
7:15 - 8:15 AM	TOTAL	103	7	9	3	16	4	20	349		2	328	206	1,047	2	6	1	6	15	
	TRUCK	6%	0%	11%	0%	0%	0%	10%	5%		0%	6%	1%							0.93
7:30 - 8:30 AM	TOTAL	94	7	7	4	13	2	16	349		1	392	169	1,054	4	3	1	3	11	
	TRUCK	4%	0%	0%	0%	0%	0%	13%	4%		0%	6%	3%							0.94
7:45 - 8:45 AM	TOTAL	89	5	7	6	9	1	18	381			440	158	1,114	5	6	1	6	18	
	TRUCK	3%	0%	0%	0%	0%	0%	6%	4%			5%	3%							0.95
8:00 - 9:00 AM	TOTAL	77	7	6	6	7	1	21	371			438	156	1,090	7	5	1	5	18	
	TRUCK	1%	0%	0%	0%	0%	0%	5%	6%			6%	4%							0.93
4:00 - 5:00 PM	TOTAL	226	4	8	3	5	4	18	450	6	5	448	60	1,237		7		7	14	
	TRUCK	2%	0%	0%	0%	0%	0%	6%	4%	0%	0%	2%	5%							0.89
4:15 - 5:15 PM	TOTAL	214	4	5	3	6	5	19	435	5	6	443	61	1,206		6	1	5	12	
	TRUCK	2%	0%	0%	0%	0%	0%	11%	4%	0%	0%	2%	3%							0.87
4:30 - 5:30 PM	TOTAL	224	3	14	2	8	3	25	417	6	8	467	65	1,242		3	1	4	8	
	TRUCK	1%	0%	0%	0%	0%	0%	8%	4%	0%	0%	1%	3%							0.90
4:45 - 5:45 PM	TOTAL	264	4	18		9	1	24	371	6	5	448	77	1,227	1	4	1	5	11	
	TRUCK	1%	0%	0%		0%	0%	8%	4%	0%	0%	1%	4%							0.89
5:00 - 6:00 PM	TOTAL	213	5	20	3	7	1	20	352	3	5	461	87	1,177	1	5	2	4	12	
	TRUCK	1%	0%	0%	0%	0%	0%	10%	2%	0%	0%	1%	1%							0.87
5:15 - 6:15 PM	TOTAL	258	6	21	5	6		22	317	3	4	450	94	1,186	2	4	1	4	11	
	TRUCK	1%	0%	0%	0%	0%		9%	2%	0%	0%	2%	2%							0.87
5:30 - 6:30 PM	TOTAL	312	5	14	7	4		16	324	1	4	403	100	1,190	3	5	2	2	12	
	TRUCK	0%	0%	0%	0%	0%		13%	1%	0%	0%	2%	2%							0.87
5:45 - 6:45 PM	TOTAL	294	5	13	8	6	2	17	294		7	383	105	1,134	2	3	2	2	9	
	TRUCK	1%	0%	0%	0%	0%	0%	6%	1%		0%	2%	2%							0.83
6:00 - 7:00 PM	TOTAL	368	8	16	6	6	3	18	258		8	342	93	1,126	2	5	1	5	13	
	TRUCK	0%	0%	0%	0%	0%	0%	11%	1%		0%	1%	3%							0.82

1: Beekman Street EB - Left
2: Beekman Street EB - Thru
3: Beekman Street EB - Right
7: NY 9D NB - Left
8: NY 9D NB - Thru
9: NY 9D NB - Right

A: Cross Beekman Street west of INT
B: Cross W Church Street east of INT
C: Cross 9D south of INT

4: W Church Street WB - Left
5: W Church Street WB - Thru
6: W Church Street WB - Right

10: NY 9D SB - Left
11: NY 9D SB - Thru
12: NY 9D SB - Right

D: Cross 9D north of INT

DATE:	2/25/2020	CALCULATIONS - DO NOT EDIT THIS SHEET	JOB NO:	18119
PERIOD:	7:00 - 9:00 AM & 4:00 - 7:00 PM		NAME:	Traffic Databank
LOCATION:	NY 9D & Tompkins Avenue / Ralph Street		INT #:	4

TIME	CLASS	VEHICLE MOVEMENT												TOTAL VEHICLES	PED/BIKE MOVEMENT				TOTAL PEDS /BIKE	INT. PHF
		1	2	3	4	5	6	7	8	9	10	11	12		A	B	C	D		
7:00 - 7:15 AM	TOTAL	5	1	2	1	0	0	0	97	0	0	189	18	313	2		3		5	
	TRUCK								4			6								
7:15 - 7:30 AM	TOTAL	8	1	1	0	1	1	2	119	0	0	124	21	278						
	TRUCK						1		6			7	2							
7:30 - 7:45 AM	TOTAL	7	0	2	2	0	1	1	111	1	0	113	11	249	1	1			2	
	TRUCK			1	1				6			7								
7:45 - 8:00 AM	TOTAL	4	6	3	3	1	1	0	120	0	0	145	9	292	1	1	2		4	
	TRUCK								6											
8:00 - 8:15 AM	TOTAL	4	0	3	1	0	4	7	100	1	2	159	9	290			2		2	
	TRUCK			1					3		1	7	1							
8:15 - 8:30 AM	TOTAL	2	2	6	3	0	2	4	106	0	4	142	8	279	3		1		4	
	TRUCK				1				3			10	1							
8:30 - 8:45 AM	TOTAL	3	1	6	2	1	3	2	133	1	0	132	4	288	5		2		7	
	TRUCK	1							8			4								
8:45 - 9:00 AM	TOTAL	6	0	3	1	0	2	4	95	0	0	151	9	271		1			1	
	TRUCK								9			8								
4:00 - 4:15 PM	TOTAL	5	0	3	1	1	0	6	130	2	1	116	9	274	1				1	
	TRUCK	1							2			2	1							
4:15 - 4:30 PM	TOTAL	10	0	2	0	1	3	3	172	0	1	115	5	312	1	1			2	
	TRUCK							1	5			6								
4:30 - 4:45 PM	TOTAL	6	1	6	0	0	2	8	147	1	2	154	6	333	1	1			2	
	TRUCK			1				1	3			3								
4:45 - 5:00 PM	TOTAL	8	1	1	0	1	1	5	204	1	3	120	9	354						
	TRUCK							1	8			2								
5:00 - 5:15 PM	TOTAL	7	0	3	0	0	2	4	104	2	1	112	8	243		2		1	3	
	TRUCK	1							4											
5:15 - 5:30 PM	TOTAL	2	1	6	0	0	4	5	165	1	1	152	6	343						
	TRUCK						1		2			1			1				1	
5:30 - 5:45 PM	TOTAL	8	0	1	1	0	1	4	142	1	1	142	11	312		1			1	
	TRUCK								2			3								
5:45 - 6:00 PM	TOTAL	8	0	3	0	0	2	7	135	1	1	139	5	301	1		4		5	
	TRUCK								3			3								

6:00 - 6:15 PM	TOTAL	2	0	0	0	1	1	0	122	0	1	125	7	259						
	TRUCK											2								
6:15 - 6:30 PM	TOTAL	3	1	4	0	1	0	2	217	2	2	105	8	345			1		1	
	TRUCK											1								
6:30 - 6:45 PM	TOTAL	10	2	5	1	1	2	7	99	3	3	126	6	265	1				1	
	TRUCK								3			1								
6:45 - 7:00 PM	TOTAL	5	0	3	1	0	0	0	182	0	0	96	4	291	1				1	
	TRUCK								1											

1: Tompkins Ave EB - Left
2: Tompkins Ave EB - Thru
3: Tompkins Ave EB - Right
4: Ralph Street WB - Left
5: Ralph Street WB - Thru
6: Ralph Street WB - Right
7: NY 9D NB - Left
8: NY 9D NB - Thru
9: NY 9D NB - Right
10: NY 9D SB - Left
11: NY 9D SB - Thru
12: NY 9D SB - Right

A: Cross Tompkins Ave west of INT
B: Cross Ralph Street east of INT
C: Cross NY 9D south of INT
D: Cross NY 9D north of INT

DATE:	2/25/2020	JOB NO:	18119
PERIOD:	7:00 - 9:00 AM & 4:00 - 7:00 PM	NAME:	Traffic Databank
LOCATION:	NY 9D & Tompkins Avenue / Ralph Street	INT #:	4

PEAK HOUR MOVEMENTS & % HEAVY VEHICLES - DO NOT EDIT THIS SHEET

TIME	CLASS	VEHICLE MOVEMENT												TOTAL VEHICLES	PED/BIKE MOVEMENT				TOTAL PEDS /BIKE	INT. PHF
		1	2	3	4	5	6	7	8	9	10	11	12		A	B	C	D		
7:00 - 8:00 AM	TOTAL	24	8	8	6	2	3	3	447	1		571	59	1,132	4	2	5		11	
	TRUCK	0%	0%	13%	17%	0%	33%	0%	5%	0%		4%	3%							0.90
7:15 - 8:15 AM	TOTAL	23	7	9	6	2	7	10	450	2	2	541	50	1,109	2	2	4		8	
	TRUCK	0%	0%	22%	17%	0%	14%	0%	5%	0%	50%	4%	6%							0.95
7:30 - 8:30 AM	TOTAL	17	8	14	9	1	8	12	437	2	6	559	37	1,110	5	2	5		12	
	TRUCK	0%	0%	14%	22%	0%	0%	0%	4%	0%	17%	4%	5%							0.95
7:45 - 8:45 AM	TOTAL	13	9	18	9	2	10	13	459	2	6	578	30	1,149	9	1	7		17	
	TRUCK	8%	0%	6%	11%	0%	0%	0%	4%	0%	17%	4%	7%							0.98
8:00 - 9:00 AM	TOTAL	15	3	18	7	1	11	17	434	2	6	584	30	1,128	8	1	5		14	
	TRUCK	7%	0%	6%	14%	0%	0%	0%	5%	0%	17%	5%	7%							0.97
4:00 - 5:00 PM	TOTAL	29	2	12	1	3	6	22	653	4	7	505	29	1,273	3	2			5	
	TRUCK	3%	0%	8%	0%	0%	0%	14%	3%	0%	0%	3%	3%							0.90
4:15 - 5:15 PM	TOTAL	31	2	12		2	8	20	627	4	7	501	28	1,242	2	4		1	7	
	TRUCK	3%	0%	8%		0%	0%	15%	3%	0%	0%	2%	0%							0.88
4:30 - 5:30 PM	TOTAL	23	3	16		1	9	22	620	5	7	538	29	1,273	1	3		1	5	
	TRUCK	4%	0%	6%		0%	11%	9%	3%	0%	0%	1%	0%		1				1	0.90
4:45 - 5:45 PM	TOTAL	25	2	11	1	1	8	18	615	5	6	526	34	1,252		3		1	4	
	TRUCK	4%	0%	0%	0%	0%	13%	6%	3%	0%	0%	1%	0%		1				1	0.88
5:00 - 6:00 PM	TOTAL	25	1	13	1		9	20	546	5	4	545	30	1,199	1	3	4	1	9	
	TRUCK	4%	0%	0%	0%		11%	0%	2%	0%	0%	1%	0%		1				1	0.87
5:15 - 6:15 PM	TOTAL	20	1	10	1	1	8	16	564	3	4	558	29	1,215	1	1	4		6	
	TRUCK	0%	0%	0%	0%	0%	13%	0%	1%	0%	0%	2%	0%		1				1	0.89
5:30 - 6:30 PM	TOTAL	21	1	8	1	2	4	13	616	4	5	511	31	1,217	1	1	5		7	
	TRUCK	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	2%	0%							0.88
5:45 - 6:45 PM	TOTAL	23	3	12	1	3	5	16	573	6	7	495	26	1,170	2		5		7	
	TRUCK	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	1%	0%							0.85
6:00 - 7:00 PM	TOTAL	20	3	12	2	3	3	9	620	5	6	452	25	1,160	2		1		3	
	TRUCK	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	1%	0%							0.84

1: Tompkins Ave EB - Left
2: Tompkins Ave EB - Thru
3: Tompkins Ave EB - Right
7: NY 9D NB - Left
8: NY 9D NB - Thru
9: NY 9D NB - Right

A: Cross Tompkins Ave west of INT
B: Cross Ralph Street east of INT
C: Cross NY 9D south of INT

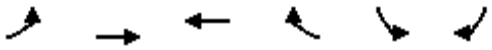
4: Ralph Street WB - Left
5: Ralph Street WB - Thru
6: Ralph Street WB - Right

10: NY 9D SB - Left
11: NY 9D SB - Thru
12: NY 9D SB - Right

D: Cross NY 9D north of INT

APPENDIX D

CAPACITY ANALYSES



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	19	196	0	0	0
Future Volume (vph)	0	19	196	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	16	16	10	10
Grade (%)		5%	-8%		-3%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	0	2058	2196	0	1765	0
Flt Permitted						
Satd. Flow (perm)	0	2058	2196	0	1765	0
Link Speed (mph)		25	25		30	
Link Distance (ft)		427	513		132	
Travel Time (s)		11.6	14.0		3.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	21	213	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	21	213	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		10	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	0.88	0.88	0.80	0.80	1.07	1.07
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

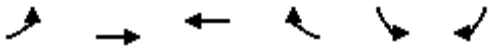
Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	19	196	0	0	0
Future Vol, veh/h	0	19	196	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	5	-8	-	-3	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	21	213	0	0	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	213	0	-	0	234	213
Stage 1	-	-	-	-	213	-
Stage 2	-	-	-	-	21	-
Critical Hdwy	4.12	-	-	-	5.82	5.92
Critical Hdwy Stg 1	-	-	-	-	4.82	-
Critical Hdwy Stg 2	-	-	-	-	4.82	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1357	-	-	-	784	842
Stage 1	-	-	-	-	852	-
Stage 2	-	-	-	-	1005	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1357	-	-	-	784	842
Mov Cap-2 Maneuver	-	-	-	-	784	-
Stage 1	-	-	-	-	852	-
Stage 2	-	-	-	-	1005	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1357	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	-	-	0
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	7	127	112	189	19	0
Future Volume (vph)	7	127	112	189	19	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	12	12	16	16
Grade (%)		1%	-1%		5%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.915			
Flt Protected		0.997			0.950	
Satd. Flow (prot)	0	1821	1715	0	1511	0
Flt Permitted		0.997			0.950	
Satd. Flow (perm)	0	1821	1715	0	1511	0
Link Speed (mph)		30	30		25	
Link Distance (ft)		591	933		513	
Travel Time (s)		13.4	21.2		14.0	
Confl. Peds. (#/hr)	4			4	1	
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77
Heavy Vehicles (%)	14%	2%	0%	3%	32%	0%
Parking (#/hr)	5	5				
Adj. Flow (vph)	9	165	145	245	25	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	174	390	0	25	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		16	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	0.85	1.02	0.99	0.99	0.88	0.88
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	7	127	112	189	19	0
Future Vol, veh/h	7	127	112	189	19	0
Conflicting Peds, #/hr	4	0	0	4	1	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	1	-1	-	5	-
Peak Hour Factor	77	77	77	77	77	77
Heavy Vehicles, %	14	2	0	3	32	0
Mvmt Flow	9	165	145	245	25	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	394	0	-	0	456	272
Stage 1	-	-	-	-	272	-
Stage 2	-	-	-	-	184	-
Critical Hdwy	4.24	-	-	-	7.72	6.7
Critical Hdwy Stg 1	-	-	-	-	6.72	-
Critical Hdwy Stg 2	-	-	-	-	6.72	-
Follow-up Hdwy	2.326	-	-	-	3.788	3.3
Pot Cap-1 Maneuver	1102	-	-	-	450	743
Stage 1	-	-	-	-	658	-
Stage 2	-	-	-	-	741	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1096	-	-	-	441	739
Mov Cap-2 Maneuver	-	-	-	-	441	-
Stage 1	-	-	-	-	649	-
Stage 2	-	-	-	-	737	-

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	13.6
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1096	-	-	-	441
HCM Lane V/C Ratio	0.008	-	-	-	0.056
HCM Control Delay (s)	8.3	0	-	-	13.6
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.2

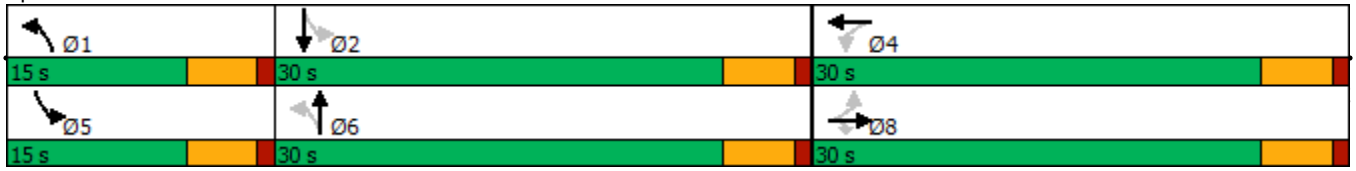
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	132	5	9	2	14	5	19	314	1	4	313	268
Future Volume (vph)	132	5	9	2	14	5	19	314	1	4	313	268
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	13	13	13	12	13	13	12	14	14
Grade (%)		2%			-10%			-4%			1%	
Storage Length (ft)	0		95	0		0	95		0	85		0
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (ft)	25			25			55			65		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.98			0.99		1.00	1.00		1.00	0.99	
Frt			0.850		0.969						0.931	
Flt Protected		0.954			0.995		0.950			0.950		
Satd. Flow (prot)	0	1640	1392	0	1744	0	1659	1902	0	1796	1789	0
Flt Permitted		0.717			0.967		0.296			0.542		
Satd. Flow (perm)	0	1211	1392	0	1695	0	516	1902	0	1022	1789	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			102		5						62	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		933			505			383			349	
Travel Time (s)		21.2			11.5			8.7			7.9	
Confl. Peds. (#/hr)	8					8	4		5	5		4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	6%	0%	11%	0%	0%	0%	11%	5%	100%	0%	6%	1%
Parking (#/hr)				3	3	3						
Adj. Flow (vph)	143	5	10	2	15	5	21	341	1	4	340	291
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	148	10	0	22	0	21	342	0	4	631	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.06	1.06	1.06	0.90	1.05	0.90	0.97	0.93	0.93	1.01	0.92	0.92
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	2	1	2		2	0		2	0	
Detector Template	Left			Left								
Leading Detector (ft)	20	78	78	20	78		78	0		78	0	
Trailing Detector (ft)	0	-10	-10	0	-10		-10	0		-10	0	
Detector 1 Position(ft)	0	-10	-10	0	-10		-10	-10		-10	-10	
Detector 1 Size(ft)	20	40	40	20	40		40	40		40	40	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	2.0	2.0	0.0	2.0		1.0	3.0		1.0	3.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	3.0	5.0	0.0	3.0		3.0	0.0		3.0	0.0	
Detector 2 Position(ft)		38	38		38		38			38		
Detector 2 Size(ft)		40	40		40		40			40		

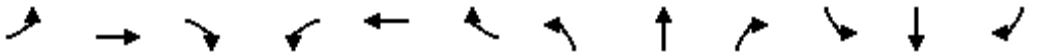
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Type		Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex			Cl+Ex		
Detector 2 Channel												
Detector 2 Extend (s)		3.0	3.0		3.0		3.0			3.0		
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8		8	4			6			2		
Detector Phase	8	8	8	4	4		1	6		5	2	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	16.0		4.0	16.0	
Minimum Split (s)	9.0	9.0	9.0	21.0	21.0		9.0	21.0		9.0	21.0	
Total Split (s)	30.0	30.0	30.0	30.0	30.0		15.0	30.0		15.0	30.0	
Total Split (%)	40.0%	40.0%	40.0%	40.0%	40.0%		20.0%	40.0%		20.0%	40.0%	
Maximum Green (s)	25.0	25.0	25.0	25.0	25.0		10.0	25.0		10.0	25.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		5.0	5.0		5.0		5.0	5.0		5.0	5.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0		1.0	1.0		1.0	1.0	
Recall Mode	None	None	None	None	None		None	Max		None	Max	
Walk Time (s)				5.0	5.0							
Flash Dont Walk (s)				11.0	11.0							
Pedestrian Calls (#/hr)				4	4							
v/c Ratio		0.55	0.03		0.06		0.05	0.29		0.01	0.57	
Control Delay		25.4	0.1		13.7		6.2	8.8		6.0	12.6	
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Delay		25.4	0.1		13.7		6.2	8.8		6.0	12.6	
Queue Length 50th (ft)		34	0		3		2	40		1	81	
Queue Length 95th (ft)		94	0		19		11	150		4	#369	
Internal Link Dist (ft)		853			425			303			269	
Turn Bay Length (ft)			95				95			85		
Base Capacity (vph)		631	774		886		558	1166		795	1116	
Starvation Cap Reductn		0	0		0		0	0		0	0	
Spillback Cap Reductn		0	0		0		0	0		0	0	
Storage Cap Reductn		0	0		0		0	0		0	0	
Reduced v/c Ratio		0.23	0.01		0.02		0.04	0.29		0.01	0.57	

Intersection Summary	
Area Type:	Other
Cycle Length: 75	
Actuated Cycle Length: 48.8	
Natural Cycle: 60	
Control Type: Semi Act-Uncoord	

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: NY 9D & Beekman Street/West Church Street

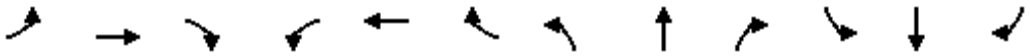




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	132	5	9	2	14	5	19	314	1	4	313	268
Future Volume (veh/h)	132	5	9	2	14	5	19	314	1	4	313	268
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.97	0.98		0.97	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	0.88	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1876	1876	1713	2385	2385	2385	1892	2062	2062	1894	1877	1877
Adj Flow Rate, veh/h	143	5	10	2	15	5	21	341	1	4	340	291
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	11	0	0	0	11	5	5	0	6	6
Cap, veh/h	324	7	219	83	215	65	394	987	3	673	500	428
Arrive On Green	0.15	0.15	0.15	0.15	0.15	0.15	0.02	0.48	0.48	0.08	0.54	0.54
Sat Flow, veh/h	1213	42	1415	47	1386	421	1802	2054	6	1804	932	798
Grp Volume(v), veh/h	148	0	10	22	0	0	21	0	342	4	0	631
Grp Sat Flow(s),veh/h/ln	1256	0	1415	1854	0	0	1802	0	2060	1804	0	1729
Q Serve(g_s), s	0.4	0.0	0.3	0.0	0.0	0.0	0.3	0.0	5.4	0.1	0.0	13.8
Cycle Q Clear(g_c), s	6.1	0.0	0.3	5.9	0.0	0.0	0.3	0.0	5.4	0.1	0.0	13.8
Prop In Lane	0.97		1.00	0.09		0.23	1.00		0.00	1.00		0.46
Lane Grp Cap(c), veh/h	330	0	219	363	0	0	394	0	989	673	0	929
V/C Ratio(X)	0.45	0.00	0.05	0.06	0.00	0.00	0.05	0.00	0.35	0.01	0.00	0.68
Avail Cap(c_a), veh/h	781	0	679	998	0	0	705	0	989	881	0	929
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	21.2	0.0	18.7	18.8	0.0	0.0	7.7	0.0	8.4	5.4	0.0	8.8
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	4.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	0.0	0.1	0.2	0.0	0.0	0.1	0.0	2.2	0.0	0.0	4.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.6	0.0	18.8	18.8	0.0	0.0	7.7	0.0	9.4	5.4	0.0	12.8
LnGrp LOS	C	A	B	B	A	A	A	A	A	A	A	B
Approach Vol, veh/h		158			22			363			635	
Approach Delay, s/veh		21.4			18.8			9.3			12.7	
Approach LOS		C			B			A			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.0	33.0		13.2	9.0	30.0		13.2				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	10.0	25.0		25.0	10.0	25.0		25.0				
Max Q Clear Time (g_c+I1), s	2.3	0.0		7.9	2.1	0.0		8.1				
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	0.0		0.4				

Intersection Summary												
HCM 6th Ctrl Delay			12.9									
HCM 6th LOS			B									



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	24	8	8	6	2	3	3	447	1	0	571	59
Future Volume (vph)	24	8	8	6	2	3	3	447	1	0	571	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	14	14	14	14	14	14	12	13	13	12	14	14
Grade (%)		-4%			-2%			-2%			-6%	
Storage Length (ft)	0		0	0		0	55		0	50		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	25			25			30			50		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.973			0.966						0.986	
Flt Protected		0.971			0.972		0.950					
Satd. Flow (prot)	0	1685	0	0	1439	0	1823	1889	0	1957	1981	0
Flt Permitted		0.971			0.972		0.950					
Satd. Flow (perm)	0	1685	0	0	1439	0	1823	1889	0	1957	1981	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		391			425			349			506	
Travel Time (s)		8.9			9.7			7.9			11.5	
Confl. Peds. (#/hr)			5	5			4		2	2		4
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	13%	17%	0%	33%	0%	5%	0%	0%	4%	3%
Parking (#/hr)	3	3	3	3	3	3						
Adj. Flow (vph)	27	9	9	7	2	3	3	497	1	0	634	66
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	45	0	0	12	0	3	498	0	0	700	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane											Yes	
Headway Factor	0.89	1.05	0.89	0.91	1.06	0.91	0.99	0.95	0.95	0.96	0.88	0.88
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

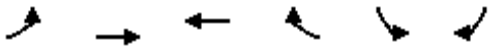
Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	24	8	8	6	2	3	3	447	1	0	571	59
Future Vol, veh/h	24	8	8	6	2	3	3	447	1	0	571	59
Conflicting Peds, #/hr	0	0	5	5	0	0	4	0	2	2	0	4
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	55	-	-	50	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-4	-	-	-2	-	-	-2	-	-	-6	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	13	17	0	33	0	5	0	0	4	3
Mvmt Flow	27	9	9	7	2	3	3	497	1	0	634	66

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1177	1177	676	1187	1210	500	704	0	0	500	0	0
Stage 1	671	671	-	506	506	-	-	-	-	-	-	-
Stage 2	506	506	-	681	704	-	-	-	-	-	-	-
Critical Hdwy	6.3	5.7	5.93	6.87	6.1	6.33	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	5.3	4.7	-	5.87	5.1	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.3	4.7	-	5.87	5.1	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.417	3.653	4	3.597	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	220	250	469	176	211	528	903	-	-	1075	-	-
Stage 1	521	532	-	552	575	-	-	-	-	-	-	-
Stage 2	618	608	-	450	479	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	215	248	465	166	209	527	899	-	-	1073	-	-
Mov Cap-2 Maneuver	215	248	-	166	209	-	-	-	-	-	-	-
Stage 1	517	530	-	549	572	-	-	-	-	-	-	-
Stage 2	610	605	-	432	477	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	22.7	22.8	0.1	0
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	899	-	-	248	214	1073	-	-
HCM Lane V/C Ratio	0.004	-	-	0.179	0.057	-	-	-
HCM Control Delay (s)	9	-	-	22.7	22.8	0	-	-
HCM Lane LOS	A	-	-	C	C	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.6	0.2	0	-	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	24	81	0	0	0
Future Volume (vph)	0	24	81	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	16	16	10	10
Grade (%)		5%	-8%		-3%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	0	2058	2196	0	1765	0
Flt Permitted						
Satd. Flow (perm)	0	2058	2196	0	1765	0
Link Speed (mph)		25	25		30	
Link Distance (ft)		427	513		132	
Travel Time (s)		11.6	14.0		3.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	26	88	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	26	88	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		10	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	0.88	0.88	0.80	0.80	1.07	1.07
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

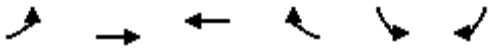
Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	24	81	0	0	0
Future Vol, veh/h	0	24	81	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	5	-8	-	-3	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	26	88	0	0	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	88	0	-	0	114	88
Stage 1	-	-	-	-	88	-
Stage 2	-	-	-	-	26	-
Critical Hdwy	4.12	-	-	-	5.82	5.92
Critical Hdwy Stg 1	-	-	-	-	4.82	-
Critical Hdwy Stg 2	-	-	-	-	4.82	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1508	-	-	-	899	977
Stage 1	-	-	-	-	949	-
Stage 2	-	-	-	-	1001	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1508	-	-	-	899	977
Mov Cap-2 Maneuver	-	-	-	-	899	-
Stage 1	-	-	-	-	949	-
Stage 2	-	-	-	-	1001	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1508	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	-	-	0
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	5	285	47	76	19	5
Future Volume (vph)	5	285	47	76	19	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	12	12	16	16
Grade (%)		1%	-1%		5%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.917		0.972	
Flt Protected		0.999			0.962	
Satd. Flow (prot)	0	1855	1669	0	1963	0
Flt Permitted		0.999			0.962	
Satd. Flow (perm)	0	1855	1669	0	1963	0
Link Speed (mph)		30	30		25	
Link Distance (ft)		591	933		513	
Travel Time (s)		13.4	21.2		14.0	
Confl. Peds. (#/hr)	3			3	2	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles (%)	0%	1%	0%	8%	0%	0%
Parking (#/hr)	5	5				
Adj. Flow (vph)	6	339	56	90	23	6
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	345	146	0	29	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		16	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	0.85	1.02	0.99	0.99	0.88	0.88
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

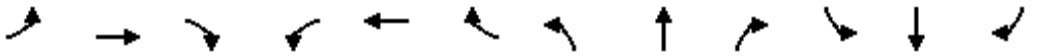
Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	5	285	47	76	19	5
Future Vol, veh/h	5	285	47	76	19	5
Conflicting Peds, #/hr	3	0	0	3	2	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	1	-1	-	5	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	0	1	0	8	0	0
Mvmt Flow	6	339	56	90	23	6

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	149	0	-	0	457	104
Stage 1	-	-	-	-	104	-
Stage 2	-	-	-	-	353	-
Critical Hdwy	4.1	-	-	-	7.4	6.7
Critical Hdwy Stg 1	-	-	-	-	6.4	-
Critical Hdwy Stg 2	-	-	-	-	6.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1445	-	-	-	498	942
Stage 1	-	-	-	-	899	-
Stage 2	-	-	-	-	649	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1439	-	-	-	492	938
Mov Cap-2 Maneuver	-	-	-	-	492	-
Stage 1	-	-	-	-	891	-
Stage 2	-	-	-	-	646	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	12
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1439	-	-	-	546
HCM Lane V/C Ratio	0.004	-	-	-	0.052
HCM Control Delay (s)	7.5	0	-	-	12
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.2



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	296	6	31	0	10	1	27	371	6	5	448	86
Future Volume (vph)	296	6	31	0	10	1	27	371	6	5	448	86
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	13	13	13	12	13	13	12	14	14
Grade (%)		2%			-10%			-4%			1%	
Storage Length (ft)	0		95	0		0	95		0	85		0
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (ft)	25			25			55			65		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99	0.98		1.00		1.00	1.00		1.00	1.00	
Frt			0.850		0.989			0.998			0.976	
Flt Protected		0.953					0.950			0.950		
Satd. Flow (prot)	0	1716	1546	0	1799	0	1705	1922	0	1796	1933	0
Flt Permitted		0.722					0.245			0.426		
Satd. Flow (perm)	0	1282	1512	0	1799	0	440	1922	0	804	1933	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			85		1			1			13	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		933			505			383			349	
Travel Time (s)		21.2			11.5			8.7			7.9	
Confl. Peds. (#/hr)	5		1	1		5	1		4	4		1
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	1%	0%	0%	0%	0%	0%	8%	4%	0%	0%	1%	4%
Parking (#/hr)				3	3	3						
Adj. Flow (vph)	333	7	35	0	11	1	30	417	7	6	503	97
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	340	35	0	12	0	30	424	0	6	600	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.06	1.06	1.06	0.90	1.05	0.90	0.97	0.93	0.93	1.01	0.92	0.92
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	2	1	2		2	0		2	0	
Detector Template	Left			Left								
Leading Detector (ft)	20	78	78	20	78		78	0		78	0	
Trailing Detector (ft)	0	-10	-10	0	-10		-10	0		-10	0	
Detector 1 Position(ft)	0	-10	-10	0	-10		-10	-10		-10	-10	
Detector 1 Size(ft)	20	40	40	20	40		40	40		40	40	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	2.0	2.0	0.0	2.0		1.0	3.0		1.0	3.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	3.0	5.0	0.0	3.0		3.0	0.0		3.0	0.0	
Detector 2 Position(ft)		38	38		38		38			38		
Detector 2 Size(ft)		40	40		40		40			40		

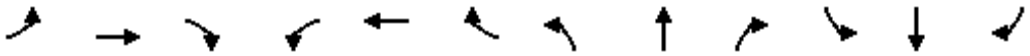
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Type		Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex			Cl+Ex		
Detector 2 Channel												
Detector 2 Extend (s)		3.0	3.0		3.0		3.0			3.0		
Turn Type	Perm	NA	Perm		NA		pm+pt	NA		pm+pt	NA	
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8		8	4			6			2		
Detector Phase	8	8	8	4	4		1	6		5	2	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	16.0		4.0	16.0	
Minimum Split (s)	9.0	9.0	9.0	21.0	21.0		9.0	21.0		9.0	21.0	
Total Split (s)	30.0	30.0	30.0	30.0	30.0		20.0	40.0		20.0	40.0	
Total Split (%)	33.3%	33.3%	33.3%	33.3%	33.3%		22.2%	44.4%		22.2%	44.4%	
Maximum Green (s)	25.0	25.0	25.0	25.0	25.0		15.0	35.0		15.0	35.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		5.0	5.0		5.0		5.0	5.0		5.0	5.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0		1.0	1.0		1.0	1.0	
Recall Mode	None	None	None	None	None		None	Max		None	Max	
Walk Time (s)				5.0	5.0							
Flash Dont Walk (s)				11.0	11.0							
Pedestrian Calls (#/hr)				3	3							
v/c Ratio		0.81	0.06		0.02		0.10	0.43		0.01	0.64	
Control Delay		40.6	0.3		17.9		8.9	13.8		8.2	19.0	
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Delay		40.6	0.3		17.9		8.9	13.8		8.2	19.0	
Queue Length 50th (ft)		126	0		3		6	109		1	171	
Queue Length 95th (ft)		#300	1		15		17	220		6	344	
Internal Link Dist (ft)		853			425			303			269	
Turn Bay Length (ft)			95				95			85		
Base Capacity (vph)		442	576		621		496	980		633	940	
Starvation Cap Reductn		0	0		0		0	0		0	0	
Spillback Cap Reductn		0	0		0		0	0		0	0	
Storage Cap Reductn		0	0		0		0	0		0	0	
Reduced v/c Ratio		0.77	0.06		0.02		0.06	0.43		0.01	0.64	

Intersection Summary	
Area Type:	Other
Cycle Length: 90	
Actuated Cycle Length: 73	
Natural Cycle: 60	
Control Type: Semi Act-Uncoord	

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: NY 9D & Beekman Street/West Church Street

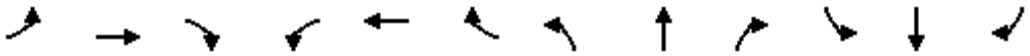




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	296	6	31	0	10	1	27	371	6	5	448	86
Future Volume (veh/h)	296	6	31	0	10	1	27	371	6	5	448	86
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	0.88	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1862	1876	1876	2385	2385	2385	1937	2077	2140	1894	1954	1908
Adj Flow Rate, veh/h	333	7	35	0	11	1	30	417	7	6	503	97
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	1	0	0	0	0	0	8	4	0	0	1	4
Cap, veh/h	465	8	431	0	520	47	370	959	16	520	796	153
Arrive On Green	0.27	0.27	0.27	0.00	0.27	0.27	0.02	0.47	0.47	0.05	0.50	0.50
Sat Flow, veh/h	1352	28	1576	0	1905	173	1845	2037	34	1804	1591	307
Grp Volume(v), veh/h	340	0	35	0	0	12	30	0	424	6	0	600
Grp Sat Flow(s),veh/h/ln	1380	0	1576	0	0	2078	1845	0	2071	1804	0	1898
Q Serve(g_s), s	17.4	0.0	1.2	0.0	0.0	0.3	0.6	0.0	10.1	0.1	0.0	17.2
Cycle Q Clear(g_c), s	17.7	0.0	1.2	0.0	0.0	0.3	0.6	0.0	10.1	0.1	0.0	17.2
Prop In Lane	0.98		1.00	0.00		0.08	1.00		0.02	1.00		0.16
Lane Grp Cap(c), veh/h	473	0	431	0	0	568	370	0	975	520	0	949
V/C Ratio(X)	0.72	0.00	0.08	0.00	0.00	0.02	0.08	0.00	0.43	0.01	0.00	0.63
Avail Cap(c_a), veh/h	562	0	530	0	0	699	697	0	975	787	0	949
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	26.2	0.0	20.1	0.0	0.0	19.7	11.2	0.0	13.1	9.1	0.0	13.6
Incr Delay (d2), s/veh	2.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	0.0	0.0	3.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.8	0.0	0.4	0.0	0.0	0.1	0.2	0.0	4.7	0.0	0.0	7.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.8	0.0	20.1	0.0	0.0	19.7	11.2	0.0	14.5	9.1	0.0	16.8
LnGrp LOS	C	A	C	A	A	B	B	A	B	A	A	B
Approach Vol, veh/h		375			12			454			606	
Approach Delay, s/veh		28.0			19.7			14.3			16.7	
Approach LOS		C			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.8	42.2		25.3	9.0	40.0		25.3				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	15.0	35.0		25.0	15.0	35.0		25.0				
Max Q Clear Time (g_c+I1), s	2.6	0.0		2.3	2.1	0.0		19.7				
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	0.0		0.6				

Intersection Summary			
HCM 6th Ctrl Delay		18.9	
HCM 6th LOS		B	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	2	11	1	1	8	18	630	5	6	527	34
Future Volume (vph)	25	2	11	1	1	8	18	630	5	6	527	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	14	14	14	14	14	14	12	13	13	12	14	14
Grade (%)		-4%			-2%			-2%			-6%	
Storage Length (ft)	0		0	0		0	55		0	50		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	25			25			30			50		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.959			0.890			0.999			0.991	
Flt Protected		0.968			0.995		0.950			0.950		
Satd. Flow (prot)	0	1655	0	0	1450	0	1720	1924	0	1859	2049	0
Flt Permitted		0.968			0.995		0.950			0.950		
Satd. Flow (perm)	0	1655	0	0	1450	0	1720	1924	0	1859	2049	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		391			425			349			506	
Travel Time (s)		8.9			9.7			7.9			11.5	
Confl. Peds. (#/hr)	1					1			3	3		
Confl. Bikes (#/hr)												1
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	4%	0%	0%	0%	0%	13%	6%	3%	0%	0%	1%	0%
Parking (#/hr)	3	3	3	3	3	3						
Adj. Flow (vph)	28	2	13	1	1	9	20	716	6	7	599	39
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	43	0	0	11	0	20	722	0	7	638	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane											Yes	
Headway Factor	0.89	1.05	0.89	0.91	1.06	0.91	0.99	0.95	0.95	0.96	0.88	0.88
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

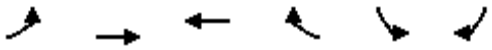
Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↰	↑		↰	↑	
Traffic Vol, veh/h	25	2	11	1	1	8	18	630	5	6	527	34
Future Vol, veh/h	25	2	11	1	1	8	18	630	5	6	527	34
Conflicting Peds, #/hr	1	0	0	0	0	1	0	0	3	3	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	55	-	-	50	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-4	-	-	-2	-	-	-2	-	-	-6	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	4	0	0	0	0	13	6	3	0	0	1	0
Mvmt Flow	28	2	13	1	1	9	20	716	6	7	599	39

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1398	1398	619	1402	1414	723	638	0	0	725	0	0
Stage 1	633	633	-	762	762	-	-	-	-	-	-	-
Stage 2	765	765	-	640	652	-	-	-	-	-	-	-
Critical Hdwy	6.34	5.7	5.8	6.7	6.1	6.13	4.16	-	-	4.1	-	-
Critical Hdwy Stg 1	5.34	4.7	-	5.7	5.1	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.34	4.7	-	5.7	5.1	-	-	-	-	-	-	-
Follow-up Hdwy	3.536	4	3.3	3.5	4	3.417	2.254	-	-	2.2	-	-
Pot Cap-1 Maneuver	160	194	527	139	163	425	927	-	-	887	-	-
Stage 1	535	548	-	436	453	-	-	-	-	-	-	-
Stage 2	466	492	-	502	502	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	152	188	527	131	158	423	927	-	-	884	-	-
Mov Cap-2 Maneuver	152	188	-	131	158	-	-	-	-	-	-	-
Stage 1	523	544	-	425	442	-	-	-	-	-	-	-
Stage 2	445	480	-	484	498	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	28.8	17.3	0.2	0.1
HCM LOS	D	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	927	-	-	194	304	884	-	-
HCM Lane V/C Ratio	0.022	-	-	0.223	0.037	0.008	-	-
HCM Control Delay (s)	9	-	-	28.8	17.3	9.1	-	-
HCM Lane LOS	A	-	-	D	C	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.8	0.1	0	-	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	32	229	0	0	0
Future Volume (vph)	0	32	229	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	16	16	10	10
Grade (%)		5%	-8%		-3%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	0	2058	2196	0	1765	0
Flt Permitted						
Satd. Flow (perm)	0	2058	2196	0	1765	0
Link Speed (mph)		25	25		30	
Link Distance (ft)		427	513		132	
Travel Time (s)		11.6	14.0		3.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	35	249	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	35	249	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		10	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	0.88	0.88	0.80	0.80	1.07	1.07
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

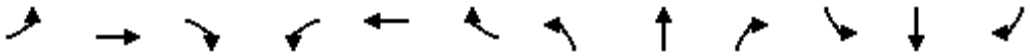
Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	32	229	0	0	0
Future Vol, veh/h	0	32	229	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	5	-8	-	-3	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	35	249	0	0	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	249	0	-	0	284	249
Stage 1	-	-	-	-	249	-
Stage 2	-	-	-	-	35	-
Critical Hdwy	4.12	-	-	-	5.82	5.92
Critical Hdwy Stg 1	-	-	-	-	4.82	-
Critical Hdwy Stg 2	-	-	-	-	4.82	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1317	-	-	-	740	806
Stage 1	-	-	-	-	826	-
Stage 2	-	-	-	-	993	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1317	-	-	-	740	806
Mov Cap-2 Maneuver	-	-	-	-	740	-
Stage 1	-	-	-	-	826	-
Stage 2	-	-	-	-	993	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1317	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	-	-	0
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	134	1	5	117	211	3	0	19	32	0	0
Future Volume (vph)	18	134	1	5	117	211	3	0	19	32	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	12	12	12	12	12	12	12	16	12	16
Grade (%)		1%			-1%			0%			5%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.999			0.914			0.884				
Flt Protected		0.994			0.999			0.993			0.950	
Satd. Flow (prot)	0	1801	0	0	1711	0	0	1635	0	0	1333	0
Flt Permitted		0.994			0.999			0.993			0.950	
Satd. Flow (perm)	0	1801	0	0	1711	0	0	1635	0	0	1333	0
Link Speed (mph)		30			30			30			25	
Link Distance (ft)		591			933			186			513	
Travel Time (s)		13.4			21.2			4.2			14.0	
Confl. Peds. (#/hr)	4					4				1		
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Heavy Vehicles (%)	14%	2%	2%	2%	0%	3%	2%	2%	2%	32%	2%	0%
Parking (#/hr)	5	5	5									
Adj. Flow (vph)	23	174	1	6	152	274	4	0	25	42	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	198	0	0	432	0	0	29	0	0	42	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	0.85	1.02	1.01	0.99	0.99	0.99	1.00	1.00	1.00	0.88	1.03	0.88
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

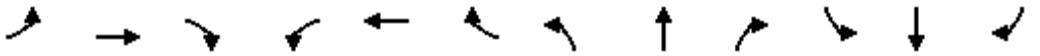
Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	18	134	1	5	117	211	3	0	19	32	0	0
Future Vol, veh/h	18	134	1	5	117	211	3	0	19	32	0	0
Conflicting Peds, #/hr	4	0	0	0	0	4	0	0	0	1	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	1	-	-	-1	-	-	0	-	-	5	-
Peak Hour Factor	77	77	77	77	77	77	77	77	77	77	77	77
Heavy Vehicles, %	14	2	2	2	0	3	2	2	2	32	2	0
Mvmt Flow	23	174	1	6	152	274	4	0	25	42	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	430	0	0	175	0	0	522	663	176	539	526	293
Stage 1	-	-	-	-	-	-	221	221	-	305	305	-
Stage 2	-	-	-	-	-	-	301	442	-	234	221	-
Critical Hdwy	4.24	-	-	4.12	-	-	7.12	6.52	6.22	8.42	7.52	6.7
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	7.42	6.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	7.42	6.52	-
Follow-up Hdwy	2.326	-	-	2.218	-	-	3.518	4.018	3.318	3.788	4.018	3.3
Pot Cap-1 Maneuver	1068	-	-	1401	-	-	465	382	867	353	395	721
Stage 1	-	-	-	-	-	-	781	720	-	593	608	-
Stage 2	-	-	-	-	-	-	708	576	-	662	678	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1064	-	-	1401	-	-	454	369	866	334	382	718
Mov Cap-2 Maneuver	-	-	-	-	-	-	454	369	-	334	382	-
Stage 1	-	-	-	-	-	-	762	703	-	576	602	-
Stage 2	-	-	-	-	-	-	704	570	-	627	662	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1	0.1	9.8	17.3
HCM LOS			A	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	771	1064	-	-	1401	-	-	334
HCM Lane V/C Ratio	0.037	0.022	-	-	0.005	-	-	0.124
HCM Control Delay (s)	9.8	8.5	0	-	7.6	0	-	17.3
HCM Lane LOS	A	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.1	0.1	-	-	0	-	-	0.4



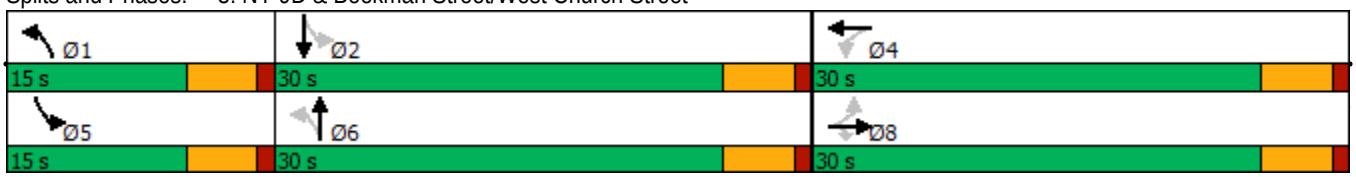
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	147	5	33	2	15	5	36	412	5	4	405	282
Future Volume (vph)	147	5	33	2	15	5	36	412	5	4	405	282
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	13	13	13	12	13	13	12	14	14
Grade (%)		2%			-10%			-4%			1%	
Storage Length (ft)	0		95	0		0	95		0	85		0
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (ft)	25			25			55			65		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.98			0.99		1.00	1.00		1.00	0.99	
Frt			0.850		0.971			0.998			0.938	
Flt Protected		0.954			0.996		0.950			0.950		
Satd. Flow (prot)	0	1639	1392	0	1750	0	1659	1884	0	1796	1800	0
Flt Permitted		0.716			0.973		0.172			0.445		
Satd. Flow (perm)	0	1209	1392	0	1709	0	300	1884	0	839	1800	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			102		5			1			50	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		933			505			383			349	
Travel Time (s)		21.2			11.5			8.7			7.9	
Confl. Peds. (#/hr)	8					8	4		5	5		4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	6%	0%	11%	0%	0%	0%	11%	5%	100%	0%	6%	1%
Parking (#/hr)				3	3	3						
Adj. Flow (vph)	160	5	36	2	16	5	39	448	5	4	440	307
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	165	36	0	23	0	39	453	0	4	747	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.06	1.06	1.06	0.90	1.05	0.90	0.97	0.93	0.93	1.01	0.92	0.92
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	2	1	2		2	2		2	2	
Detector Template	Left			Left								
Leading Detector (ft)	20	78	78	20	78		78	78		78	78	
Trailing Detector (ft)	0	-10	-10	0	-10		-10	-10		-10	-10	
Detector 1 Position(ft)	0	-10	-10	0	-10		-10	-10		-10	-10	
Detector 1 Size(ft)	20	40	40	20	40		40	40		40	40	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	2.0	2.0	0.0	2.0		1.0	1.0		1.0	1.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	3.0	5.0	0.0	3.0		3.0	0.0		3.0	0.0	
Detector 2 Position(ft)		38	38		38		38	38		38	38	
Detector 2 Size(ft)		40	40		40		40	40		40	40	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Type		Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		3.0	3.0		3.0		3.0	3.0		3.0	3.0	
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8		8	4			6			2		
Detector Phase	8	8	8	4	4		1	6		5	2	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	16.0		4.0	16.0	
Minimum Split (s)	9.0	9.0	9.0	21.0	21.0		9.0	21.0		9.0	21.0	
Total Split (s)	30.0	30.0	30.0	30.0	30.0		15.0	30.0		15.0	30.0	
Total Split (%)	40.0%	40.0%	40.0%	40.0%	40.0%		20.0%	40.0%		20.0%	40.0%	
Maximum Green (s)	25.0	25.0	25.0	25.0	25.0		10.0	25.0		10.0	25.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		5.0	5.0		5.0		5.0	5.0		5.0	5.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0		1.0	1.0		1.0	1.0	
Recall Mode	None	None	None	None	None		None	Min		None	Min	
Walk Time (s)				5.0	5.0							
Flash Dont Walk (s)				11.0	11.0							
Pedestrian Calls (#/hr)				4	4							
v/c Ratio		0.61	0.09		0.06		0.14	0.43		0.01	0.77	
Control Delay		28.8	0.5		14.8		7.1	10.5		6.2	21.8	
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Delay		28.8	0.5		14.8		7.1	10.5		6.2	21.8	
Queue Length 50th (ft)		39	0		4		5	66		1	130	
Queue Length 95th (ft)		105	0		20		18	217		4	#508	
Internal Link Dist (ft)		853			425			303			269	
Turn Bay Length (ft)			95				95			85		
Base Capacity (vph)		567	707		805		431	1054		671	964	
Starvation Cap Reductn		0	0		0		0	0		0	0	
Spillback Cap Reductn		0	0		0		0	0		0	0	
Storage Cap Reductn		0	0		0		0	0		0	0	
Reduced v/c Ratio		0.29	0.05		0.03		0.09	0.43		0.01	0.77	

Intersection Summary	
Area Type:	Other
Cycle Length: 75	
Actuated Cycle Length: 54.4	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

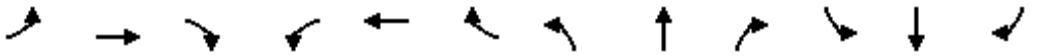
Splits and Phases: 3: NY 9D & Beekman Street/West Church Street



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	147	5	33	2	15	5	36	412	5	4	405	282
Future Volume (veh/h)	147	5	33	2	15	5	36	412	5	4	405	282
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.97	0.98		0.97	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	0.88	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1876	1876	1713	2385	2385	2385	1892	2062	2062	1894	1877	1877
Adj Flow Rate, veh/h	160	5	36	2	16	5	39	448	5	4	440	307
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	11	0	0	0	11	5	5	0	6	6
Cap, veh/h	402	7	220	99	229	66	277	830	9	561	478	334
Arrive On Green	0.16	0.16	0.16	0.16	0.16	0.16	0.03	0.41	0.41	0.09	0.47	0.47
Sat Flow, veh/h	1535	48	1415	60	1468	424	1802	2035	23	1804	1027	717
Grp Volume(v), veh/h	165	0	36	23	0	0	39	0	453	4	0	747
Grp Sat Flow(s),veh/h/ln	1583	0	1415	1952	0	0	1802	0	2057	1804	0	1744
Q Serve(g_s), s	0.2	0.0	1.0	0.0	0.0	0.0	0.5	0.0	7.3	0.0	0.0	17.5
Cycle Q Clear(g_c), s	3.9	0.0	1.0	4.4	0.0	0.0	0.5	0.0	7.3	0.0	0.0	17.5
Prop In Lane	0.97		1.00	0.09		0.22	1.00		0.01	1.00		0.41
Lane Grp Cap(c), veh/h	409	0	220	394	0	0	277	0	840	561	0	812
V/C Ratio(X)	0.40	0.00	0.16	0.06	0.00	0.00	0.14	0.00	0.54	0.01	0.00	0.92
Avail Cap(c_a), veh/h	986	0	812	1211	0	0	628	0	1181	809	0	1001
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	17.1	0.0	15.9	15.7	0.0	0.0	9.6	0.0	9.8	6.1	0.0	10.9
Incr Delay (d2), s/veh	0.2	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.2	0.0	0.0	10.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.0	0.3	0.2	0.0	0.0	0.2	0.0	2.5	0.0	0.0	7.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.4	0.0	16.1	15.7	0.0	0.0	9.7	0.0	10.0	6.1	0.0	21.4
LnGrp LOS	B	A	B	B	A	A	A	A	A	A	A	C
Approach Vol, veh/h		201			23			492			751	
Approach Delay, s/veh		17.1			15.7			10.0			21.4	
Approach LOS		B			B			A			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.5	25.3		11.9	9.0	22.8		11.9				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	10.0	25.0		25.0	10.0	25.0		25.0				
Max Q Clear Time (g_c+I1), s	2.5	19.5		6.4	2.0	9.3		5.9				
Green Ext Time (p_c), s	0.0	1.0		0.0	0.0	0.7		0.6				

Intersection Summary												
HCM 6th Ctrl Delay			16.9									
HCM 6th LOS			B									



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	81	8	20	6	2	3	6	557	1	0	665	75
Future Volume (vph)	81	8	20	6	2	3	6	557	1	0	665	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	14	14	14	14	14	14	12	13	13	12	14	14
Grade (%)		-4%			-2%			-2%			-6%	
Storage Length (ft)	0		0	0		0	55		0	50		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	25			25			30			50		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.975			0.966						0.985	
Flt Protected		0.964			0.972		0.950					
Satd. Flow (prot)	0	1680	0	0	1439	0	1823	1889	0	1957	1979	0
Flt Permitted		0.964			0.972		0.950					
Satd. Flow (perm)	0	1680	0	0	1439	0	1823	1889	0	1957	1979	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		391			425			349			506	
Travel Time (s)		8.9			9.7			7.9			11.5	
Confl. Peds. (#/hr)			5	5			4		2	2		4
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	13%	17%	0%	33%	0%	5%	0%	0%	4%	3%
Parking (#/hr)	3	3	3	3	3	3						
Adj. Flow (vph)	90	9	22	7	2	3	7	619	1	0	739	83
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	121	0	0	12	0	7	620	0	0	822	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane											Yes	
Headway Factor	0.89	1.05	0.89	0.91	1.06	0.91	0.99	0.95	0.95	0.96	0.88	0.88
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

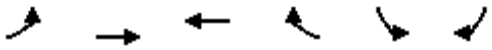
Intersection	
Int Delay, s/veh	5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↰	↑		↰	↑	
Traffic Vol, veh/h	81	8	20	6	2	3	6	557	1	0	665	75
Future Vol, veh/h	81	8	20	6	2	3	6	557	1	0	665	75
Conflicting Peds, #/hr	0	0	5	5	0	0	4	0	2	2	0	4
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	55	-	-	50	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-4	-	-	-2	-	-	-2	-	-	-6	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	13	17	0	33	0	5	0	0	4	3
Mvmt Flow	90	9	22	7	2	3	7	619	1	0	739	83

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1421	1421	790	1437	1462	622	826	0	0	622	0	0
Stage 1	785	785	-	636	636	-	-	-	-	-	-	-
Stage 2	636	636	-	801	826	-	-	-	-	-	-	-
Critical Hdwy	6.3	5.7	5.93	6.87	6.1	6.33	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	5.3	4.7	-	5.87	5.1	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.3	4.7	-	5.87	5.1	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.417	3.653	4	3.597	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	158	189	408	121	153	450	813	-	-	969	-	-
Stage 1	463	484	-	474	510	-	-	-	-	-	-	-
Stage 2	541	547	-	390	427	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	153	186	404	109	151	449	809	-	-	967	-	-
Mov Cap-2 Maneuver	153	186	-	109	151	-	-	-	-	-	-	-
Stage 1	457	482	-	469	504	-	-	-	-	-	-	-
Stage 2	530	541	-	360	425	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	62.1	31.7	0.1	0
HCM LOS	F	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	809	-	-	175	147	967	-	-
HCM Lane V/C Ratio	0.008	-	-	0.692	0.083	-	-	-
HCM Control Delay (s)	9.5	-	-	62.1	31.7	0	-	-
HCM Lane LOS	A	-	-	F	D	A	-	-
HCM 95th %tile Q(veh)	0	-	-	4.2	0.3	0	-	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	32	145	0	0	0
Future Volume (vph)	0	32	145	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	16	16	10	10
Grade (%)		5%	-8%		-3%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	0	2058	2196	0	1765	0
Flt Permitted						
Satd. Flow (perm)	0	2058	2196	0	1765	0
Link Speed (mph)		25	25		30	
Link Distance (ft)		427	513		132	
Travel Time (s)		11.6	14.0		3.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	35	158	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	35	158	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		10	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	0.88	0.88	0.80	0.80	1.07	1.07
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

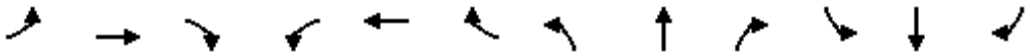
Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	32	145	0	0	0
Future Vol, veh/h	0	32	145	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	5	-8	-	-3	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	35	158	0	0	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	158	0	-	0	193	158
Stage 1	-	-	-	-	158	-
Stage 2	-	-	-	-	35	-
Critical Hdwy	4.12	-	-	-	5.82	5.92
Critical Hdwy Stg 1	-	-	-	-	4.82	-
Critical Hdwy Stg 2	-	-	-	-	4.82	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1422	-	-	-	822	899
Stage 1	-	-	-	-	894	-
Stage 2	-	-	-	-	993	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1422	-	-	-	822	899
Mov Cap-2 Maneuver	-	-	-	-	822	-
Stage 1	-	-	-	-	894	-
Stage 2	-	-	-	-	993	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1422	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	-	-	0
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	48	308	3	17	49	97	2	0	9	27	0	5
Future Volume (vph)	48	308	3	17	49	97	2	0	9	27	0	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	16	12	12	12	12	12	12	16	12	16
Grade (%)		1%			-1%			0%			5%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.999			0.920			0.886			0.979	
Flt Protected		0.993			0.995			0.992			0.960	
Satd. Flow (prot)	0	1844	0	0	1665	0	0	1637	0	0	1741	0
Flt Permitted		0.993			0.995			0.992			0.960	
Satd. Flow (perm)	0	1844	0	0	1665	0	0	1637	0	0	1741	0
Link Speed (mph)		30			30			30			25	
Link Distance (ft)		591			933			185			513	
Travel Time (s)		13.4			21.2			4.2			14.0	
Confl. Peds. (#/hr)	3					3				2		
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles (%)	0%	1%	2%	2%	0%	8%	2%	2%	2%	0%	2%	0%
Parking (#/hr)	5	5	0									
Adj. Flow (vph)	57	367	4	20	58	115	2	0	11	32	0	6
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	428	0	0	193	0	0	13	0	0	38	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	0.85	1.02	0.85	0.99	0.99	0.99	1.00	1.00	1.00	0.88	1.03	0.88
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

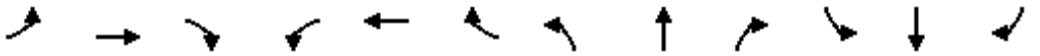
Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	48	308	3	17	49	97	2	0	9	27	0	5
Future Vol, veh/h	48	308	3	17	49	97	2	0	9	27	0	5
Conflicting Peds, #/hr	3	0	0	0	0	3	0	0	0	2	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	1	-	-	-1	-	-	0	-	-	5	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	0	1	2	2	0	8	2	2	2	0	2	0
Mvmt Flow	57	367	4	20	58	115	2	0	11	32	0	6

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	176	0	0	371	0	0	642	699	371	650	644	119
Stage 1	-	-	-	-	-	-	483	483	-	159	159	-
Stage 2	-	-	-	-	-	-	159	216	-	491	485	-
Critical Hdwy	4.1	-	-	4.12	-	-	7.12	6.52	6.22	8.1	7.52	6.7
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	7.1	6.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	7.1	6.52	-
Follow-up Hdwy	2.2	-	-	2.218	-	-	3.518	4.018	3.318	3.5	4.018	3.3
Pot Cap-1 Maneuver	1412	-	-	1188	-	-	387	364	675	321	327	923
Stage 1	-	-	-	-	-	-	565	553	-	811	733	-
Stage 2	-	-	-	-	-	-	843	724	-	491	482	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1408	-	-	1188	-	-	364	338	674	298	303	920
Mov Cap-2 Maneuver	-	-	-	-	-	-	364	338	-	298	303	-
Stage 1	-	-	-	-	-	-	536	525	-	767	717	-
Stage 2	-	-	-	-	-	-	822	708	-	458	457	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1	0.8	11.3	17.2
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	584	1408	-	-	1188	-	-	333
HCM Lane V/C Ratio	0.022	0.041	-	-	0.017	-	-	0.114
HCM Control Delay (s)	11.3	7.7	0	-	8.1	0	-	17.2
HCM Lane LOS	B	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.1	0.1	-	-	0.1	-	-	0.4



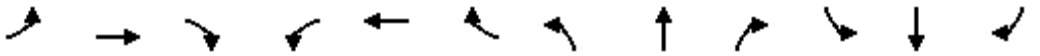
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	313	6	54	0	10	1	53	470	9	5	562	100
Future Volume (vph)	313	6	54	0	10	1	53	470	9	5	562	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	13	13	13	12	13	13	12	14	14
Grade (%)		2%			-10%			-4%			1%	
Storage Length (ft)	0		95	0		0	95		0	85		0
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (ft)	25			25			55			65		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99	0.98		1.00		1.00	1.00		1.00	1.00	
Frt			0.850		0.989			0.997			0.977	
Flt Protected		0.953					0.950			0.950		
Satd. Flow (prot)	0	1716	1546	0	1799	0	1705	1920	0	1796	1936	0
Flt Permitted		0.722					0.101			0.345		
Satd. Flow (perm)	0	1282	1512	0	1799	0	181	1920	0	651	1936	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			85		1			1			12	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		933			505			383			349	
Travel Time (s)		21.2			11.5			8.7			7.9	
Confl. Peds. (#/hr)	5		1	1		5	1		4	4		1
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	1%	0%	0%	0%	0%	0%	8%	4%	0%	0%	1%	4%
Parking (#/hr)				3	3	3						
Adj. Flow (vph)	352	7	61	0	11	1	60	528	10	6	631	112
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	359	61	0	12	0	60	538	0	6	743	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.06	1.06	1.06	0.90	1.05	0.90	0.97	0.93	0.93	1.01	0.92	0.92
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	2	1	2		2	2		2	2	
Detector Template	Left			Left								
Leading Detector (ft)	20	78	78	20	78		78	78		78	78	
Trailing Detector (ft)	0	-10	-10	0	-10		-10	-10		-10	-10	
Detector 1 Position(ft)	0	-10	-10	0	-10		-10	-10		-10	-10	
Detector 1 Size(ft)	20	40	40	20	40		40	40		40	40	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	2.0	2.0	0.0	2.0		1.0	1.0		1.0	1.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	3.0	5.0	0.0	3.0		3.0	0.0		3.0	0.0	
Detector 2 Position(ft)		38	38		38		38	38		38	38	
Detector 2 Size(ft)		40	40		40		40	40		40	40	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Type		Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		3.0	3.0		3.0		3.0	3.0		3.0	3.0	
Turn Type	Perm	NA	Perm		NA		pm+pt	NA		pm+pt	NA	
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8		8	4			6			2		
Detector Phase	8	8	8	4	4		1	6		5	2	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	16.0		4.0	16.0	
Minimum Split (s)	9.0	9.0	9.0	21.0	21.0		9.0	21.0		9.0	21.0	
Total Split (s)	30.0	30.0	30.0	30.0	30.0		20.0	40.0		20.0	40.0	
Total Split (%)	33.3%	33.3%	33.3%	33.3%	33.3%		22.2%	44.4%		22.2%	44.4%	
Maximum Green (s)	25.0	25.0	25.0	25.0	25.0		15.0	35.0		15.0	35.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		5.0	5.0		5.0		5.0	5.0		5.0	5.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	2.0	2.0		1.0	1.0		1.0	1.0	
Recall Mode	None	None	None	None	None		None	Min		None	Min	
Walk Time (s)				5.0	5.0							
Flash Dont Walk (s)				11.0	11.0							
Pedestrian Calls (#/hr)				3	3							
v/c Ratio		0.85	0.11		0.02		0.31	0.54		0.02	0.87	
Control Delay		47.1	3.4		19.0		12.1	15.4		8.0	33.5	
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Delay		47.1	3.4		19.0		12.1	15.4		8.0	33.5	
Queue Length 50th (ft)		169	0		4		13	150		1	320	
Queue Length 95th (ft)		#330	16		16		28	296		6	#543	
Internal Link Dist (ft)		853			425			303			269	
Turn Bay Length (ft)			95				95			85		
Base Capacity (vph)		422	555		594		399	1040		577	900	
Starvation Cap Reductn		0	0		0		0	0		0	0	
Spillback Cap Reductn		0	0		0		0	0		0	0	
Storage Cap Reductn		0	0		0		0	0		0	0	
Reduced v/c Ratio		0.85	0.11		0.02		0.15	0.52		0.01	0.83	

Intersection Summary	
Area Type:	Other
Cycle Length: 90	
Actuated Cycle Length: 76.6	
Natural Cycle: 75	
Control Type: Actuated-Uncoordinated	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 3: NY 9D & Beekman Street/West Church Street

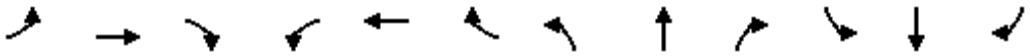




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	313	6	54	0	10	1	53	470	9	5	562	100
Future Volume (veh/h)	313	6	54	0	10	1	53	470	9	5	562	100
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	1.00		0.99	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	0.88	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1862	1876	1876	2385	2385	2385	1937	2077	2140	1894	1954	1908
Adj Flow Rate, veh/h	352	7	61	0	11	1	60	528	10	6	631	112
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	1	0	0	0	0	0	8	4	0	0	1	4
Cap, veh/h	519	8	472	0	570	52	228	810	15	394	680	121
Arrive On Green	0.30	0.30	0.30	0.00	0.30	0.30	0.04	0.40	0.40	0.06	0.42	0.42
Sat Flow, veh/h	1356	27	1577	0	1905	173	1845	2032	38	1804	1615	287
Grp Volume(v), veh/h	359	0	61	0	0	12	60	0	538	6	0	743
Grp Sat Flow(s),veh/h/ln	1383	0	1577	0	0	2078	1845	0	2070	1804	0	1901
Q Serve(g_s), s	15.3	0.0	1.8	0.0	0.0	0.3	1.2	0.0	13.3	0.1	0.0	23.4
Cycle Q Clear(g_c), s	15.5	0.0	1.8	0.0	0.0	0.3	1.2	0.0	13.3	0.1	0.0	23.4
Prop In Lane	0.98		1.00	0.00		0.08	1.00		0.02	1.00		0.15
Lane Grp Cap(c), veh/h	527	0	472	0	0	622	228	0	826	394	0	801
V/C Ratio(X)	0.68	0.00	0.13	0.00	0.00	0.02	0.26	0.00	0.65	0.02	0.00	0.93
Avail Cap(c_a), veh/h	665	0	626	0	0	825	591	0	1151	709	0	1057
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	21.0	0.0	16.1	0.0	0.0	15.5	14.4	0.0	15.4	10.5	0.0	17.3
Incr Delay (d2), s/veh	2.0	0.0	0.1	0.0	0.0	0.0	0.2	0.0	0.3	0.0	0.0	10.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.8	0.0	0.6	0.0	0.0	0.1	0.4	0.0	5.6	0.0	0.0	11.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.0	0.0	16.2	0.0	0.0	15.5	14.6	0.0	15.7	10.5	0.0	27.3
LnGrp LOS	C	A	B	A	A	B	B	A	B	B	A	C
Approach Vol, veh/h		420			12			598			749	
Approach Delay, s/veh		22.0			15.5			15.6			27.2	
Approach LOS		C			B			B			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.6	31.5		23.8	9.0	30.1		23.8				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	15.0	35.0		25.0	15.0	35.0		25.0				
Max Q Clear Time (g_c+I1), s	3.2	25.4		2.3	2.1	15.3		17.5				
Green Ext Time (p_c), s	0.0	1.1		0.0	0.0	0.8		1.3				

Intersection Summary												
HCM 6th Ctrl Delay			22.0									
HCM 6th LOS			C									



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	56	2	18	1	1	8	31	732	5	6	648	90
Future Volume (vph)	56	2	18	1	1	8	31	732	5	6	648	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	14	14	14	14	14	14	12	13	13	12	14	14
Grade (%)		-4%			-2%			-2%			-6%	
Storage Length (ft)	0		0	0		0	55		0	50		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	25			25			30			50		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.969			0.890			0.999			0.982	
Flt Protected		0.964			0.995		0.950			0.950		
Satd. Flow (prot)	0	1660	0	0	1450	0	1720	1924	0	1859	2032	0
Flt Permitted		0.964			0.995		0.950			0.950		
Satd. Flow (perm)	0	1660	0	0	1450	0	1720	1924	0	1859	2032	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		391			425			349			506	
Travel Time (s)		8.9			9.7			7.9			11.5	
Confl. Peds. (#/hr)	1					1			3	3		
Confl. Bikes (#/hr)												1
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	4%	0%	0%	0%	0%	13%	6%	3%	0%	0%	1%	0%
Parking (#/hr)	3	3	3	3	3	3						
Adj. Flow (vph)	64	2	20	1	1	9	35	832	6	7	736	102
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	86	0	0	11	0	35	838	0	7	838	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane											Yes	
Headway Factor	0.89	1.05	0.89	0.91	1.06	0.91	0.99	0.95	0.95	0.96	0.88	0.88
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

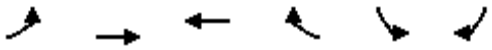
Intersection	
Int Delay, s/veh	4.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	56	2	18	1	1	8	31	732	5	6	648	90
Future Vol, veh/h	56	2	18	1	1	8	31	732	5	6	648	90
Conflicting Peds, #/hr	1	0	0	0	0	1	0	0	3	3	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	55	-	-	50	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-4	-	-	-2	-	-	-2	-	-	-6	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	4	0	0	0	0	13	6	3	0	0	1	0
Mvmt Flow	64	2	20	1	1	9	35	832	6	7	736	102

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1712	1712	787	1720	1760	839	838	0	0	841	0	0
Stage 1	801	801	-	908	908	-	-	-	-	-	-	-
Stage 2	911	911	-	812	852	-	-	-	-	-	-	-
Critical Hdwy	6.34	5.7	5.8	6.7	6.1	6.13	4.16	-	-	4.1	-	-
Critical Hdwy Stg 1	5.34	4.7	-	5.7	5.1	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.34	4.7	-	5.7	5.1	-	-	-	-	-	-	-
Follow-up Hdwy	3.536	4	3.3	3.5	4	3.417	2.254	-	-	2.2	-	-
Pot Cap-1 Maneuver	103	134	431	86	104	366	779	-	-	803	-	-
Stage 1	448	478	-	368	395	-	-	-	-	-	-	-
Stage 2	399	436	-	411	416	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	95	126	431	77	98	364	779	-	-	800	-	-
Mov Cap-2 Maneuver	95	126	-	77	98	-	-	-	-	-	-	-
Stage 1	428	474	-	350	376	-	-	-	-	-	-	-
Stage 2	370	415	-	386	412	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	93.9	22.2	0.4	0.1
HCM LOS	F	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	779	-	-	117	221	800	-	-
HCM Lane V/C Ratio	0.045	-	-	0.738	0.051	0.009	-	-
HCM Control Delay (s)	9.8	-	-	93.9	22.2	9.5	-	-
HCM Lane LOS	A	-	-	F	C	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	4.1	0.2	0	-	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	32	229	6	10	6
Future Volume (vph)	0	32	229	6	10	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	16	16	10	10
Grade (%)		5%	-8%		-3%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.996		0.947	
Flt Protected					0.970	
Satd. Flow (prot)	0	2058	2187	0	1621	0
Flt Permitted					0.970	
Satd. Flow (perm)	0	2058	2187	0	1621	0
Link Speed (mph)		25	25		30	
Link Distance (ft)		427	513		132	
Travel Time (s)		11.6	14.0		3.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	35	249	7	11	7
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	35	256	0	18	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		10	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	0.88	0.88	0.80	0.80	1.07	1.07
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

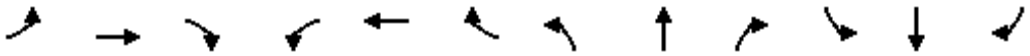
Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	32	229	6	10	6
Future Vol, veh/h	0	32	229	6	10	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	5	-8	-	-3	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	35	249	7	11	7

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	256	0	-	0	288	253
Stage 1	-	-	-	-	253	-
Stage 2	-	-	-	-	35	-
Critical Hdwy	4.12	-	-	-	5.82	5.92
Critical Hdwy Stg 1	-	-	-	-	4.82	-
Critical Hdwy Stg 2	-	-	-	-	4.82	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1309	-	-	-	737	802
Stage 1	-	-	-	-	823	-
Stage 2	-	-	-	-	993	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1309	-	-	-	737	802
Mov Cap-2 Maneuver	-	-	-	-	737	-
Stage 1	-	-	-	-	823	-
Stage 2	-	-	-	-	993	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	9.8
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1309	-	-	-	760
HCM Lane V/C Ratio	-	-	-	-	0.023
HCM Control Delay (s)	0	-	-	-	9.8
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	134	1	5	117	215	3	0	19	42	0	0
Future Volume (vph)	20	134	1	5	117	215	3	0	19	42	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	12	12	12	12	12	12	12	16	12	16
Grade (%)		1%			-1%			0%			5%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.999			0.914			0.884				
Flt Protected		0.994			0.999			0.993			0.950	
Satd. Flow (prot)	0	1798	0	0	1710	0	0	1635	0	0	1333	0
Flt Permitted		0.994			0.999			0.993			0.950	
Satd. Flow (perm)	0	1798	0	0	1710	0	0	1635	0	0	1333	0
Link Speed (mph)		30			30			30			25	
Link Distance (ft)		591			933			186			513	
Travel Time (s)		13.4			21.2			4.2			14.0	
Confl. Peds. (#/hr)	4					4				1		
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Heavy Vehicles (%)	14%	2%	2%	2%	0%	3%	2%	2%	2%	32%	2%	0%
Parking (#/hr)	5	5	5									
Adj. Flow (vph)	26	174	1	6	152	279	4	0	25	55	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	201	0	0	437	0	0	29	0	0	55	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	0.85	1.02	1.01	0.99	0.99	0.99	1.00	1.00	1.00	0.88	1.03	0.88
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

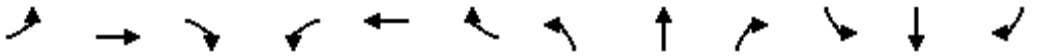
Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	20	134	1	5	117	215	3	0	19	42	0	0
Future Vol, veh/h	20	134	1	5	117	215	3	0	19	42	0	0
Conflicting Peds, #/hr	4	0	0	0	0	4	0	0	0	1	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	1	-	-	-1	-	-	0	-	-	5	-
Peak Hour Factor	77	77	77	77	77	77	77	77	77	77	77	77
Heavy Vehicles, %	14	2	2	2	0	3	2	2	2	32	2	0
Mvmt Flow	26	174	1	6	152	279	4	0	25	55	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	435	0	0	175	0	0	531	674	176	548	535	296
Stage 1	-	-	-	-	-	-	227	227	-	308	308	-
Stage 2	-	-	-	-	-	-	304	447	-	240	227	-
Critical Hdwy	4.24	-	-	4.12	-	-	7.12	6.52	6.22	8.42	7.52	6.7
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	7.42	6.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	7.42	6.52	-
Follow-up Hdwy	2.326	-	-	2.218	-	-	3.518	4.018	3.318	3.788	4.018	3.3
Pot Cap-1 Maneuver	1064	-	-	1401	-	-	459	376	867	347	389	718
Stage 1	-	-	-	-	-	-	776	716	-	590	606	-
Stage 2	-	-	-	-	-	-	705	573	-	656	672	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1060	-	-	1401	-	-	448	362	866	327	375	715
Mov Cap-2 Maneuver	-	-	-	-	-	-	448	362	-	327	375	-
Stage 1	-	-	-	-	-	-	755	697	-	572	600	-
Stage 2	-	-	-	-	-	-	701	567	-	620	654	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.1	0.1	9.9	18.2
HCM LOS			A	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	768	1060	-	-	1401	-	-	327
HCM Lane V/C Ratio	0.037	0.025	-	-	0.005	-	-	0.167
HCM Control Delay (s)	9.9	8.5	0	-	7.6	0	-	18.2
HCM Lane LOS	A	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.1	0.1	-	-	0	-	-	0.6



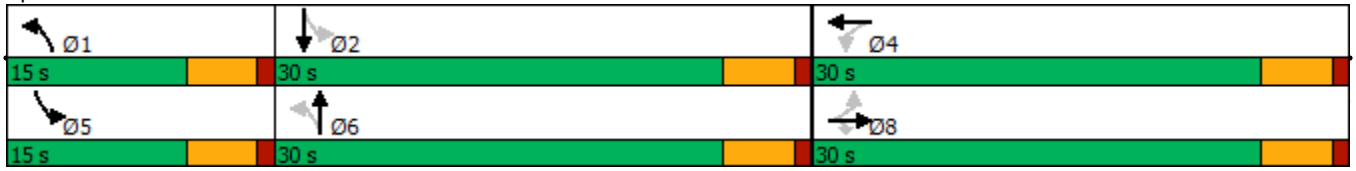
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	154	5	36	2	15	5	37	412	5	4	405	285
Future Volume (vph)	154	5	36	2	15	5	37	412	5	4	405	285
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	13	13	13	12	13	13	12	14	14
Grade (%)		2%			-10%			-4%			1%	
Storage Length (ft)	0		95	0		0	95		0	85		0
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (ft)	25			25			55			65		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.98			0.99		1.00	1.00		1.00	0.99	
Frt			0.850		0.971			0.998			0.938	
Flt Protected		0.954			0.996		0.950			0.950		
Satd. Flow (prot)	0	1639	1392	0	1750	0	1659	1884	0	1796	1800	0
Flt Permitted		0.716			0.974		0.167			0.443		
Satd. Flow (perm)	0	1209	1392	0	1711	0	291	1884	0	836	1800	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			102		5			1			51	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		933			505			383			349	
Travel Time (s)		21.2			11.5			8.7			7.9	
Confl. Peds. (#/hr)	8					8	4		5	5		4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	6%	0%	11%	0%	0%	0%	11%	5%	100%	0%	6%	1%
Parking (#/hr)				3	3	3						
Adj. Flow (vph)	167	5	39	2	16	5	40	448	5	4	440	310
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	172	39	0	23	0	40	453	0	4	750	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.06	1.06	1.06	0.90	1.05	0.90	0.97	0.93	0.93	1.01	0.92	0.92
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	2	1	2		2	2		2	2	
Detector Template	Left			Left								
Leading Detector (ft)	20	78	78	20	78		78	78		78	78	
Trailing Detector (ft)	0	-10	-10	0	-10		-10	-10		-10	-10	
Detector 1 Position(ft)	0	-10	-10	0	-10		-10	-10		-10	-10	
Detector 1 Size(ft)	20	40	40	20	40		40	40		40	40	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	2.0	2.0	0.0	2.0		1.0	1.0		1.0	1.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	3.0	5.0	0.0	3.0		3.0	0.0		3.0	0.0	
Detector 2 Position(ft)		38	38		38		38	38		38	38	
Detector 2 Size(ft)		40	40		40		40	40		40	40	

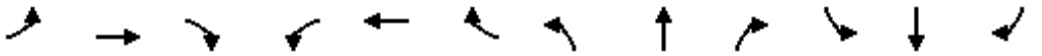
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Type		Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		3.0	3.0		3.0		3.0	3.0		3.0	3.0	
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8		8	4			6			2		
Detector Phase	8	8	8	4	4		1	6		5	2	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	16.0		4.0	16.0	
Minimum Split (s)	9.0	9.0	9.0	21.0	21.0		9.0	21.0		9.0	21.0	
Total Split (s)	30.0	30.0	30.0	30.0	30.0		15.0	30.0		15.0	30.0	
Total Split (%)	40.0%	40.0%	40.0%	40.0%	40.0%		20.0%	40.0%		20.0%	40.0%	
Maximum Green (s)	25.0	25.0	25.0	25.0	25.0		10.0	25.0		10.0	25.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		5.0	5.0		5.0		5.0	5.0		5.0	5.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0		1.0	1.0		1.0	1.0	
Recall Mode	None	None	None	None	None		None	Min		None	Min	
Walk Time (s)				5.0	5.0							
Flash Dont Walk (s)				11.0	11.0							
Pedestrian Calls (#/hr)				4	4							
v/c Ratio		0.62	0.10		0.06		0.14	0.43		0.01	0.78	
Control Delay		29.1	0.5		14.6		7.4	10.7		6.5	22.4	
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Delay		29.1	0.5		14.6		7.4	10.7		6.5	22.4	
Queue Length 50th (ft)		40	0		4		5	68		1	133	
Queue Length 95th (ft)		109	1		20		19	222		4	#519	
Internal Link Dist (ft)		853			425			303			269	
Turn Bay Length (ft)			95				95			85		
Base Capacity (vph)		564	704		801		425	1048		665	959	
Starvation Cap Reductn		0	0		0		0	0		0	0	
Spillback Cap Reductn		0	0		0		0	0		0	0	
Storage Cap Reductn		0	0		0		0	0		0	0	
Reduced v/c Ratio		0.30	0.06		0.03		0.09	0.43		0.01	0.78	

Intersection Summary	
Area Type:	Other
Cycle Length: 75	
Actuated Cycle Length: 54.8	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: NY 9D & Beekman Street/West Church Street

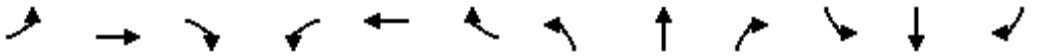




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	154	5	36	2	15	5	37	412	5	4	405	285
Future Volume (veh/h)	154	5	36	2	15	5	37	412	5	4	405	285
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.97	0.98		0.97	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	0.88	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1876	1876	1713	2385	2385	2385	1892	2062	2062	1894	1877	1877
Adj Flow Rate, veh/h	167	5	39	2	16	5	40	448	5	4	440	310
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	11	0	0	0	11	5	5	0	6	6
Cap, veh/h	379	7	219	98	227	66	275	842	9	562	480	338
Arrive On Green	0.16	0.16	0.16	0.16	0.16	0.16	0.04	0.41	0.41	0.09	0.47	0.47
Sat Flow, veh/h	1404	42	1415	59	1464	423	1802	2035	23	1804	1023	721
Grp Volume(v), veh/h	172	0	39	23	0	0	40	0	453	4	0	750
Grp Sat Flow(s),veh/h/ln	1446	0	1415	1946	0	0	1802	0	2057	1804	0	1743
Q Serve(g_s), s	3.7	0.0	1.1	0.0	0.0	0.0	0.6	0.0	7.3	0.0	0.0	17.7
Cycle Q Clear(g_c), s	4.9	0.0	1.1	4.5	0.0	0.0	0.6	0.0	7.3	0.0	0.0	17.7
Prop In Lane	0.97		1.00	0.09		0.22	1.00		0.01	1.00		0.41
Lane Grp Cap(c), veh/h	385	0	219	390	0	0	275	0	852	562	0	818
V/C Ratio(X)	0.45	0.00	0.18	0.06	0.00	0.00	0.15	0.00	0.53	0.01	0.00	0.92
Avail Cap(c_a), veh/h	952	0	802	1195	0	0	621	0	1167	808	0	989
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	17.7	0.0	16.2	15.9	0.0	0.0	9.6	0.0	9.7	6.0	0.0	10.9
Incr Delay (d2), s/veh	0.3	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.2	0.0	0.0	10.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	0.0	0.3	0.2	0.0	0.0	0.2	0.0	2.5	0.0	0.0	7.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.0	0.0	16.3	15.9	0.0	0.0	9.7	0.0	9.9	6.0	0.0	21.4
LnGrp LOS	B	A	B	B	A	A	A	A	A	A	A	C
Approach Vol, veh/h		211			23			493			754	
Approach Delay, s/veh		17.7			15.9			9.9			21.3	
Approach LOS		B			B			A			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.6	25.6		12.0	9.0	23.2		12.0				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	10.0	25.0		25.0	10.0	25.0		25.0				
Max Q Clear Time (g_c+I1), s	2.6	19.7		6.5	2.0	9.3		6.9				
Green Ext Time (p_c), s	0.0	0.9		0.0	0.0	0.7		0.6				

Intersection Summary												
HCM 6th Ctrl Delay			16.9									
HCM 6th LOS			B									



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	81	8	20	6	2	3	6	564	1	0	668	75
Future Volume (vph)	81	8	20	6	2	3	6	564	1	0	668	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	14	14	14	14	14	14	12	13	13	12	14	14
Grade (%)		-4%			-2%			-2%			-6%	
Storage Length (ft)	0		0	0		0	55		0	50		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	25			25			30			50		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.975			0.966						0.985	
Flt Protected		0.964			0.972		0.950					
Satd. Flow (prot)	0	1680	0	0	1439	0	1823	1889	0	1957	1979	0
Flt Permitted		0.964			0.972		0.950					
Satd. Flow (perm)	0	1680	0	0	1439	0	1823	1889	0	1957	1979	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		391			425			349			506	
Travel Time (s)		8.9			9.7			7.9			11.5	
Confl. Peds. (#/hr)			5	5			4		2	2		4
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	13%	17%	0%	33%	0%	5%	0%	0%	4%	3%
Parking (#/hr)	3	3	3	3	3	3						
Adj. Flow (vph)	90	9	22	7	2	3	7	627	1	0	742	83
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	121	0	0	12	0	7	628	0	0	825	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane											Yes	
Headway Factor	0.89	1.05	0.89	0.91	1.06	0.91	0.99	0.95	0.95	0.96	0.88	0.88
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

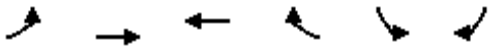
Intersection	
Int Delay, s/veh	5.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	81	8	20	6	2	3	6	564	1	0	668	75
Future Vol, veh/h	81	8	20	6	2	3	6	564	1	0	668	75
Conflicting Peds, #/hr	0	0	5	5	0	0	4	0	2	2	0	4
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	55	-	-	50	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-4	-	-	-2	-	-	-2	-	-	-6	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	13	17	0	33	0	5	0	0	4	3
Mvmt Flow	90	9	22	7	2	3	7	627	1	0	742	83

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1432	1432	793	1448	1473	630	829	0	0	630	0	0
Stage 1	788	788	-	644	644	-	-	-	-	-	-	-
Stage 2	644	644	-	804	829	-	-	-	-	-	-	-
Critical Hdwy	6.3	5.7	5.93	6.87	6.1	6.33	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	5.3	4.7	-	5.87	5.1	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.3	4.7	-	5.87	5.1	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.417	3.653	4	3.597	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	155	186	406	119	151	445	811	-	-	962	-	-
Stage 1	462	483	-	470	506	-	-	-	-	-	-	-
Stage 2	536	544	-	389	426	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	150	183	402	107	149	444	807	-	-	960	-	-
Mov Cap-2 Maneuver	150	183	-	107	149	-	-	-	-	-	-	-
Stage 1	456	481	-	465	500	-	-	-	-	-	-	-
Stage 2	525	538	-	359	424	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	64.5	32.3	0.1	0
HCM LOS	F	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	807	-	-	172	144	960	-	-
HCM Lane V/C Ratio	0.008	-	-	0.704	0.085	-	-	-
HCM Control Delay (s)	9.5	-	-	64.5	32.3	0	-	-
HCM Lane LOS	A	-	-	F	D	A	-	-
HCM 95th %tile Q(veh)	0	-	-	4.3	0.3	0	-	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	32	145	17	7	4
Future Volume (vph)	0	32	145	17	7	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	16	16	10	10
Grade (%)		5%	-8%		-3%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.986		0.955	
Flt Protected					0.968	
Satd. Flow (prot)	0	2058	2165	0	1631	0
Flt Permitted					0.968	
Satd. Flow (perm)	0	2058	2165	0	1631	0
Link Speed (mph)		25	25		30	
Link Distance (ft)		427	513		132	
Travel Time (s)		11.6	14.0		3.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	35	158	18	8	4
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	35	176	0	12	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		10	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	0.88	0.88	0.80	0.80	1.07	1.07
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	32	145	17	7	4
Future Vol, veh/h	0	32	145	17	7	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	5	-8	-	-3	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	35	158	18	8	4

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	176	0	-	0	202	167
Stage 1	-	-	-	-	167	-
Stage 2	-	-	-	-	35	-
Critical Hdwy	4.12	-	-	-	5.82	5.92
Critical Hdwy Stg 1	-	-	-	-	4.82	-
Critical Hdwy Stg 2	-	-	-	-	4.82	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1400	-	-	-	813	890
Stage 1	-	-	-	-	887	-
Stage 2	-	-	-	-	993	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1400	-	-	-	813	890
Mov Cap-2 Maneuver	-	-	-	-	813	-
Stage 1	-	-	-	-	887	-
Stage 2	-	-	-	-	993	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	9.4
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1400	-	-	-	839
HCM Lane V/C Ratio	-	-	-	-	0.014
HCM Control Delay (s)	0	-	-	-	9.4
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	54	308	3	17	49	108	2	0	9	34	0	5
Future Volume (vph)	54	308	3	17	49	108	2	0	9	34	0	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	16	12	12	12	12	12	12	16	12	16
Grade (%)		1%			-1%			0%			5%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.999			0.916			0.886			0.982	
Flt Protected		0.993			0.995			0.992			0.958	
Satd. Flow (prot)	0	1844	0	0	1655	0	0	1637	0	0	1743	0
Flt Permitted		0.993			0.995			0.992			0.958	
Satd. Flow (perm)	0	1844	0	0	1655	0	0	1637	0	0	1743	0
Link Speed (mph)		30			30			30			25	
Link Distance (ft)		591			933			185			513	
Travel Time (s)		13.4			21.2			4.2			14.0	
Confl. Peds. (#/hr)	3					3				2		
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles (%)	0%	1%	2%	2%	0%	8%	2%	2%	2%	0%	2%	0%
Parking (#/hr)	5	5	0									
Adj. Flow (vph)	64	367	4	20	58	129	2	0	11	40	0	6
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	435	0	0	207	0	0	13	0	0	46	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	0.85	1.02	0.85	0.99	0.99	0.99	1.00	1.00	1.00	0.88	1.03	0.88
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

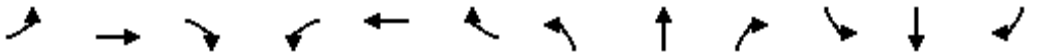
Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	54	308	3	17	49	108	2	0	9	34	0	5
Future Vol, veh/h	54	308	3	17	49	108	2	0	9	34	0	5
Conflicting Peds, #/hr	3	0	0	0	0	3	0	0	0	2	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	1	-	-	-1	-	-	0	-	-	5	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	0	1	2	2	0	8	2	2	2	0	2	0
Mvmt Flow	64	367	4	20	58	129	2	0	11	40	0	6

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	190	0	0	371	0	0	663	727	371	671	665	126
Stage 1	-	-	-	-	-	-	497	497	-	166	166	-
Stage 2	-	-	-	-	-	-	166	230	-	505	499	-
Critical Hdwy	4.1	-	-	4.12	-	-	7.12	6.52	6.22	8.1	7.52	6.7
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	7.1	6.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	7.1	6.52	-
Follow-up Hdwy	2.2	-	-	2.218	-	-	3.518	4.018	3.318	3.5	4.018	3.3
Pot Cap-1 Maneuver	1396	-	-	1188	-	-	375	351	675	309	316	914
Stage 1	-	-	-	-	-	-	555	545	-	803	727	-
Stage 2	-	-	-	-	-	-	836	714	-	481	473	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1392	-	-	1188	-	-	351	323	674	285	291	911
Mov Cap-2 Maneuver	-	-	-	-	-	-	351	323	-	285	291	-
Stage 1	-	-	-	-	-	-	523	513	-	754	711	-
Stage 2	-	-	-	-	-	-	815	698	-	445	446	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.1	0.8	11.4	18.5
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	577	1392	-	-	1188	-	-	313
HCM Lane V/C Ratio	0.023	0.046	-	-	0.017	-	-	0.148
HCM Control Delay (s)	11.4	7.7	0	-	8.1	0	-	18.5
HCM Lane LOS	B	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.1	0.1	-	-	0.1	-	-	0.5



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	318	6	56	0	10	1	56	470	9	5	562	108
Future Volume (vph)	318	6	56	0	10	1	56	470	9	5	562	108
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	13	13	13	12	13	13	12	14	14
Grade (%)		2%			-10%			-4%			1%	
Storage Length (ft)	0		95	0		0	95		0	85		0
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (ft)	25			25			55			65		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99	0.98		1.00		1.00	1.00		1.00	1.00	
Frt			0.850		0.989			0.997			0.976	
Flt Protected		0.953					0.950			0.950		
Satd. Flow (prot)	0	1716	1546	0	1799	0	1705	1920	0	1796	1933	0
Flt Permitted		0.722					0.099			0.349		
Satd. Flow (perm)	0	1282	1512	0	1799	0	178	1920	0	659	1933	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			85		1			1			13	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		933			505			383			349	
Travel Time (s)		21.2			11.5			8.7			7.9	
Confl. Peds. (#/hr)	5		1	1		5	1		4	4		1
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	1%	0%	0%	0%	0%	0%	8%	4%	0%	0%	1%	4%
Parking (#/hr)				3	3	3						
Adj. Flow (vph)	357	7	63	0	11	1	63	528	10	6	631	121
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	364	63	0	12	0	63	538	0	6	752	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.06	1.06	1.06	0.90	1.05	0.90	0.97	0.93	0.93	1.01	0.92	0.92
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	2	1	2		2	2		2	2	
Detector Template	Left			Left								
Leading Detector (ft)	20	78	78	20	78		78	78		78	78	
Trailing Detector (ft)	0	-10	-10	0	-10		-10	-10		-10	-10	
Detector 1 Position(ft)	0	-10	-10	0	-10		-10	-10		-10	-10	
Detector 1 Size(ft)	20	40	40	20	40		40	40		40	40	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	2.0	2.0	0.0	2.0		1.0	1.0		1.0	1.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	3.0	5.0	0.0	3.0		3.0	0.0		3.0	0.0	
Detector 2 Position(ft)		38	38		38		38	38		38	38	
Detector 2 Size(ft)		40	40		40		40	40		40	40	

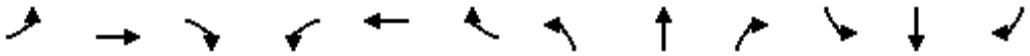
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Type		Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		3.0	3.0		3.0		3.0	3.0		3.0	3.0	
Turn Type	Perm	NA	Perm		NA		pm+pt	NA		pm+pt	NA	
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8		8	4			6			2		
Detector Phase	8	8	8	4	4		1	6		5	2	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	16.0		4.0	16.0	
Minimum Split (s)	9.0	9.0	9.0	21.0	21.0		9.0	21.0		9.0	21.0	
Total Split (s)	30.0	30.0	30.0	30.0	30.0		20.0	40.0		20.0	40.0	
Total Split (%)	33.3%	33.3%	33.3%	33.3%	33.3%		22.2%	44.4%		22.2%	44.4%	
Maximum Green (s)	25.0	25.0	25.0	25.0	25.0		15.0	35.0		15.0	35.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		5.0	5.0		5.0		5.0	5.0		5.0	5.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0		1.0	1.0		1.0	1.0	
Recall Mode	None	None	None	None	None		None	Min		None	Min	
Walk Time (s)				5.0	5.0							
Flash Dont Walk (s)				11.0	11.0							
Pedestrian Calls (#/hr)				3	3							
v/c Ratio		0.87	0.11		0.02		0.32	0.54		0.02	0.88	
Control Delay		50.1	3.7		19.0		12.4	15.2		8.0	33.7	
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Delay		50.1	3.7		19.0		12.4	15.2		8.0	33.7	
Queue Length 50th (ft)		173	0		4		13	150		1	327	
Queue Length 95th (ft)		#338	18		16		29	296		6	#556	
Internal Link Dist (ft)		853			425			303			269	
Turn Bay Length (ft)			95				95			85		
Base Capacity (vph)		417	549		586		395	1031		580	889	
Starvation Cap Reductn		0	0		0		0	0		0	0	
Spillback Cap Reductn		0	0		0		0	0		0	0	
Storage Cap Reductn		0	0		0		0	0		0	0	
Reduced v/c Ratio		0.87	0.11		0.02		0.16	0.52		0.01	0.85	

Intersection Summary	
Area Type:	Other
Cycle Length: 90	
Actuated Cycle Length: 77.3	
Natural Cycle: 80	
Control Type: Actuated-Uncoordinated	

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: NY 9D & Beekman Street/West Church Street





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	318	6	56	0	10	1	56	470	9	5	562	108
Future Volume (veh/h)	318	6	56	0	10	1	56	470	9	5	562	108
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	0.88	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1862	1876	1876	2385	2385	2385	1937	2077	2140	1894	1954	1908
Adj Flow Rate, veh/h	357	7	63	0	11	1	63	528	10	6	631	121
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	1	0	0	0	0	0	8	4	0	0	1	4
Cap, veh/h	514	8	468	0	565	51	227	823	16	398	678	130
Arrive On Green	0.30	0.30	0.30	0.00	0.30	0.30	0.04	0.41	0.41	0.06	0.43	0.43
Sat Flow, veh/h	1356	27	1577	0	1905	173	1845	2032	38	1804	1592	305
Grp Volume(v), veh/h	364	0	63	0	0	12	63	0	538	6	0	752
Grp Sat Flow(s),veh/h/ln	1383	0	1577	0	0	2078	1845	0	2070	1804	0	1898
Q Serve(g_s), s	15.8	0.0	1.9	0.0	0.0	0.3	1.2	0.0	13.3	0.1	0.0	24.0
Cycle Q Clear(g_c), s	16.1	0.0	1.9	0.0	0.0	0.3	1.2	0.0	13.3	0.1	0.0	24.0
Prop In Lane	0.98		1.00	0.00		0.08	1.00		0.02	1.00		0.16
Lane Grp Cap(c), veh/h	522	0	468	0	0	617	227	0	839	398	0	808
V/C Ratio(X)	0.70	0.00	0.13	0.00	0.00	0.02	0.28	0.00	0.64	0.02	0.00	0.93
Avail Cap(c_a), veh/h	656	0	618	0	0	815	583	0	1136	709	0	1042
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	21.5	0.0	16.4	0.0	0.0	15.9	14.5	0.0	15.2	10.5	0.0	17.4
Incr Delay (d2), s/veh	1.4	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.3	0.0	0.0	10.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.0	0.0	0.6	0.0	0.0	0.1	0.5	0.0	5.6	0.0	0.0	11.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.0	0.0	16.5	0.0	0.0	15.9	14.7	0.0	15.5	10.5	0.0	28.2
LnGrp LOS	C	A	B	A	A	B	B	A	B	B	A	C
Approach Vol, veh/h		427			12			601			758	
Approach Delay, s/veh		22.0			15.9			15.5			28.1	
Approach LOS		C			B			B			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.7	32.2		23.9	9.0	30.8		23.9				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	15.0	35.0		25.0	15.0	35.0		25.0				
Max Q Clear Time (g_c+I1), s	3.2	26.0		2.3	2.1	15.3		18.1				
Green Ext Time (p_c), s	0.0	1.1		0.0	0.0	0.8		0.9				

Intersection Summary												
HCM 6th Ctrl Delay			22.3									
HCM 6th LOS			C									

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	56	2	18	1	1	8	31	737	5	6	656	90
Future Volume (vph)	56	2	18	1	1	8	31	737	5	6	656	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	14	14	14	14	14	14	12	13	13	12	14	14
Grade (%)		-4%			-2%			-2%			-6%	
Storage Length (ft)	0		0	0		0	55		0	50		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	25			25			30			50		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.969			0.890			0.999			0.982	
Flt Protected		0.964			0.995		0.950			0.950		
Satd. Flow (prot)	0	1660	0	0	1450	0	1720	1924	0	1859	2032	0
Flt Permitted		0.964			0.995		0.950			0.950		
Satd. Flow (perm)	0	1660	0	0	1450	0	1720	1924	0	1859	2032	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		391			425			349			506	
Travel Time (s)		8.9			9.7			7.9			11.5	
Confl. Peds. (#/hr)	1					1			3	3		
Confl. Bikes (#/hr)												1
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	4%	0%	0%	0%	0%	13%	6%	3%	0%	0%	1%	0%
Parking (#/hr)	3	3	3	3	3	3						
Adj. Flow (vph)	64	2	20	1	1	9	35	838	6	7	745	102
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	86	0	0	11	0	35	844	0	7	847	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane											Yes	
Headway Factor	0.89	1.05	0.89	0.91	1.06	0.91	0.99	0.95	0.95	0.96	0.88	0.88
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↰	↑		↰	↑	
Traffic Vol, veh/h	56	2	18	1	1	8	31	737	5	6	656	90
Future Vol, veh/h	56	2	18	1	1	8	31	737	5	6	656	90
Conflicting Peds, #/hr	1	0	0	0	0	1	0	0	3	3	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	55	-	-	50	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-4	-	-	-2	-	-	-2	-	-	-6	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	4	0	0	0	0	13	6	3	0	0	1	0
Mvmt Flow	64	2	20	1	1	9	35	838	6	7	745	102

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1727	1727	796	1735	1775	845	847	0	0	847	0	0
Stage 1	810	810	-	914	914	-	-	-	-	-	-	-
Stage 2	917	917	-	821	861	-	-	-	-	-	-	-
Critical Hdwy	6.34	5.7	5.8	6.7	6.1	6.13	4.16	-	-	4.1	-	-
Critical Hdwy Stg 1	5.34	4.7	-	5.7	5.1	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.34	4.7	-	5.7	5.1	-	-	-	-	-	-	-
Follow-up Hdwy	3.536	4	3.3	3.5	4	3.417	2.254	-	-	2.2	-	-
Pot Cap-1 Maneuver	101	131	426	84	102	363	773	-	-	799	-	-
Stage 1	444	474	-	365	393	-	-	-	-	-	-	-
Stage 2	396	433	-	407	413	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	93	124	426	75	96	361	773	-	-	796	-	-
Mov Cap-2 Maneuver	93	124	-	75	96	-	-	-	-	-	-	-
Stage 1	424	470	-	347	374	-	-	-	-	-	-	-
Stage 2	367	412	-	382	409	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	97.4	22.4	0.4	0.1
HCM LOS	F	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	773	-	-	115	218	796	-	-
HCM Lane V/C Ratio	0.046	-	-	0.751	0.052	0.009	-	-
HCM Control Delay (s)	9.9	-	-	97.4	22.4	9.6	-	-
HCM Lane LOS	A	-	-	F	C	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	4.2	0.2	0	-	-

John Clarke Planning and Design jclarkeplandesign@gmail.com
845.797.4152

To: John Gunn, Chair, and the City of Beacon Planning Board
Date: June 10, 2022
Re: **Beacon Commons, 16 West Main Street, Site Plan and Merger of Three Lots**

I have reviewed a response letter from JMC, a revised Traffic Study with conceptual improvements by JMC, a 26-sheet Site Plan set from JMC, and a 4-sheet set of Architectural Drawings by Aryeh Siegel, all dated May 31, 2022.

Proposal

The applicant is proposing to construct a 62-unit multifamily building on a 1.5-acre site in the Linkage and R1-7.5 districts and within the Local Waterfront Revitalization Program (LWRP) boundary.

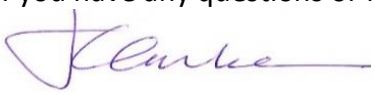
Comments and Recommendations

1. Parking in the adjacent residential district will need a Special Permit from the City Council. The Planning Board should issue a recommendation to the Council. The applicant should also have evidence of agreement from the adjacent property owner for the proposed access drive across the corner of the parcel to the east.

2. For the Sheet 9 Lighting Plan, each of the lighting fixtures should be illustrated on the plans with a summary of the specifications.

3. For the Sheets A-100 to A-200 Building Plans, elevations and a complete roof plan have now been included. The drawings are generally consistent with the comments from the Architectural Review Subcommittee at its meeting on May 6, 2022. The ARS has scheduled one additional meeting with the project architect on June 17, 2022.

If you have any questions or need additional information, please feel free to contact me.



John Clarke, Beacon Planning Consultant

c: Dave Buckley, Building Inspector
Jennifer L. Gray, Esq., City Attorney
Arthur R. Tully, P.E., City Engineer
John Russo, P.E., City Engineer
Aryeh Siegel, Project Architect

June 10, 2022

Mr. John Gunn, Chairman
Beacon Planning Board
City of Beacon City Hall
1 Municipal Plaza
Beacon, NY 12508

RE: Site Plan and Traffic Review #3 for ***Beacon Commons*** **Proposed Residential Development**, 16 West Main Street, City of Beacon, Dutchess County, New York; CM Project No. 121-295

Dear Chairperson Gunn:

Creighton Manning Engineering, LLP (CM) reviewed the documents contained in the City of Beacon Planning Board Agenda Packet for the June 14, 2022 meeting. Below please find new and follow-up comments for consideration by the Planning Board.

1. As depicted on Sheet C-701, a garbage truck entering via the driveway on West Main Street would encroach on the opposing travel lane. This scenario could lead to the garbage truck being forced to reverse onto the public roadway. Therefore, it is recommended that garbage trucks be restricted from entering the site via the driveway on West Main Street. Furthermore, it is recommended that garbage pickup occur during off-peak hours. Regarding access for fire apparatus, it is noted that the applicant is awaiting approval from the City Fire Department.
2. The applicant is proposing pedestrian improvements to the to north leg of the West Main Street/Bank Street intersection that will enhance pedestrian connectivity, accessibility, and visibility as pedestrian access the Beacon Train Station.
3. The revised traffic study considers a build year of 2022. The applicant should address the likelihood that the project, if approved, is not built until 2023 or later. Also, the traffic generated by the 1113 Wolcott Avenue development (currently under review by the Planning Board) should be considered.
4. The applicant's traffic engineer stated that a warrant analysis of the intersection of West Main Street/Beekman Street/The View Driveway under all-way stop control is not possible due to the unavailability of some data. If the City of Beacon is interested in pursuing all-way stop control at this location, (i) a full MUTCD warrant analysis and (ii) level of service analysis are recommend. It is CM's understanding that the intended benefit of the all-way stop control is for left-turning traffic from West Main Street onto Beekman Street during periods of congestion on Beekman Street. The analysis should explore how effective the all-way stop control will be in benefitting this moving contrasted with the drawbacks of stopping mainline traffic.
5. The proposed improvements at the Bank Street/Tompkins Avenue intersection would benefit pedestrians.
6. The proposed improvements at the Tompkins Avenue/NYS Route 9D intersection will enhance visibility of the stop condition for the Tompkins Avenue approach.

If you have any questions about the above comments, please do not hesitate to contact our office at (914) 800-9201.

Respectfully,
Creighton Manning Engineering, LLP

Frank A. Filiciotto, PE
Associate

Starke W. Hipp, PE
Project Engineer

N:\Projects\2021\121-295 Beacon - 2021 Traffic Reviews\Working\Correspondence\16 West Main (Beacon Commons)\Beacon Commons_Review 3.docx

LANC & TULLY

ENGINEERING AND SURVEYING, P.C.

John J. O'Rourke, P.E., Principal
David E. Higgins, P.E., Principal
John Queenan, P.E., Principal
Rodney C. Knowlton, L.S., Principal
Jerry A. Woods, L.S., Principal
John D. Russo, P.E., Principal
John Lanc, P.E., L.S.
Arthur R. Tully, P.E.

June 10, 2022

Mr. John Gunn
Beacon Planning Board Chair
City of Beacon
1 Municipal Plaza
Beacon, NY 12508

RE: 16 West Main Street/Beacon Commons
City of Beacon
Tax Map No. 5954-25-616969

Dear Mr. Gunn:

My office has received the following in regard to the above application:

- Response correspondence from JMC Consulting dated May 31, 2022.
- Traffic Study – Beacon Commons, with the latest revision date of May 31, 2022, as prepared by JMC Consulting.
- 3 Offsite conceptual traffic improvement sheets, as prepared by JMC Consulting.
- West Main", last revised March 25, 2022, as prepared by JMC Consulting.
- Plan set titled "Site Plan Drawings – Beacon Commons", with the latest revision date of May 31, 2022, and consisting of Sheets 1 of 26 through 26 of 26, as prepared by JMC Consulting, along with Sheets A-100, A-101, A-102 and A-200, with the latest revision date of May 31, 2022, as prepared by Aryeh Siegel, Architect.

Based upon our review of the above referenced documents and plans, we offer the following comments:

General Comments:

1. A Performance Bond will need to be posted for all public improvements proposed as part of the project. As the project progresses, the applicant's engineer should prepare an itemized cost estimate for all public improvements and submit to the City Engineer's office for review. ***Applicant acknowledges this comment.***

2. Although the applicant has submitted 3 concept plans for offsite improvements with regards to traffic, none of the proposed improvements are discussed with in the Traffic Study. The Traffic Study revised to include discussion for these proposed improvements and the benefits that these improvements will provide. Any proposed offsite improvements shall be provided as part of the overall plan set for the project.

3. Table 2 of the Traffic Study notes that the composite for Beekman Street, at the signalized intersection of NY 9D, in the AM hours improves in level of service in comparison to current conditions. The study should discuss how this improvement in level of service is being obtained. Are signal timing adjustments to be made at this intersection, or what other actions are occurring that would account for the improvement in the level of service?

4. Table 2 of the Traffic Study notes that Tompkins Avenue, at the signalized intersection of NY 9D, is currently operating at a Level of Service "C" but will operate at a Level of Service of "F" in in the No Build in 2022 and Level of Service of "F" 2022 Build scenario. The applicant should further study this intersection with NYSDOT to see if improvements can be made at the intersection, or signal timing adjusted, so that the Tompkins Avenue approach does not operate at a Level of Service "F".

5. We would recommend that the traffic counts for the project be updated to reflect current traffic conditions, as the original traffic count was conducted in March of 2020, which was over 2-years ago, and the study is looking at the "Build" scenario being 2022, which is not realistic given we are in June of 2022.

6. The construction schedule provided in the response correspondence seems a little unrealistic, as site work and construction of the walls is proposed to start in October and take 4 months to complete. As this will bring you into the winter months, we this goal hard to achieve, as the ground and materials could be frozen. We would ask that this be looked at realistically given the time of year the work is proposed.

Demolition Plan (Sheet 3 of 26):

1. As the plan is showing the sidewalk along West Main to be removed, a pedestrian accessway shall be established to allow pedestrians walking along the roadway to continue in a safe manner since there is no sidewalk on the opposite side of the roadway. This would also apply to the sidewalk along Bank Street. ***The Applicant states a construction logistics plan and schedule shall be prepared by the project construction manager once they are added to the team and it will be submitted for review.*** This will need to be reviewed by the Beacon Building Department once prepared.

Utilities Plan (Sheet 6 of 26):

1. The connection of the sanitary sewer lateral to the existing sewer main will require a saddle. The plan should note the use of a saddle that is approved by the City of Beacon. A construction detail for this connection shall be included on the plans.

2. Construction details for the proposed water tapping of the water main on Bank Street shall be provided on the plans.

3. The applicant should verify the pressures within the water mains along Bank Street and West Main Street, along with the available fire flows form the hydrants. This information will be required for the design of the sprinkler system that will be required in the building. ***The applicant has noted that the MEP Engineer will coordinate with the City to obtain fire flow data and pressures needed for the design of the fire suppression system.*** We would recommend that this occurs at this time to ensure proper sizing of the line from Bank Street to the building.

4. The pipe length, size, material and slope of the pipe running between storm structures CI-A11 and CI-A12 be provided on the plan.

Storm Profile (Sheet 7 of 26):

1. The profile shows the proposed storm drainage pipe to be installed on West Main Street will be directly atop of the existing water main. This does not comply with NYSDOH requirements for separation, which requires a minimum of 18" of separation between the two. The plan shall be revised to show proper separation distances in accordance with NYSDOH standards. If proper separation cannot be achieved, then additional measures shall be provided on the plans at this time to ensure compliance with NYSDOH standards.

This completes our review at this time. Further comments may be forth coming based upon future submissions. **A written response letter addressing each of the above comments should be provided with the next submission.** If you have any questions, or require any additional information, please do not hesitate to contact our office.

Very truly,

LANC & TULLY, P.C.

John Russo, P.E.

Cc: John Clarke, Planner
Jennifer Gray, Esq.
David Buckley, Building Inspector

City of Beacon Planning Board Agenda
06/14/2022

Title:

Public Hearing on application for Special Use Permit and Site Plan Approval, accessory apartment, 18 North Walnut Street, submitted by Brian Donnelly and Scott Ramsey

ATTACHMENTS

18 N Walnut Cover Letter.pdf

18 N Walnut Ramsey-Donnelly Planning Bd 22-05-31.pdf

Resolution Zoning 2022-05.pdf

Planners Comments PB Walnut St Acc Apt 6.10.22.pdf

Engineers Comments 18 North Walnut Final Review 06-06-22_0001.pdf

18 North Walnut Street Accessory Apartment Special Permit and Site Plan Approval Resolution.pdf

Project: **Alterations to Existing Ramsey - Donnelly Residence**
18 North Walnut Street
Beacon, NY 10508

Re: **Proposed Site Plan and Special Permit of Accessory Apartment**
Tax No. 5954-28-91293

Date: **27 May 2022**

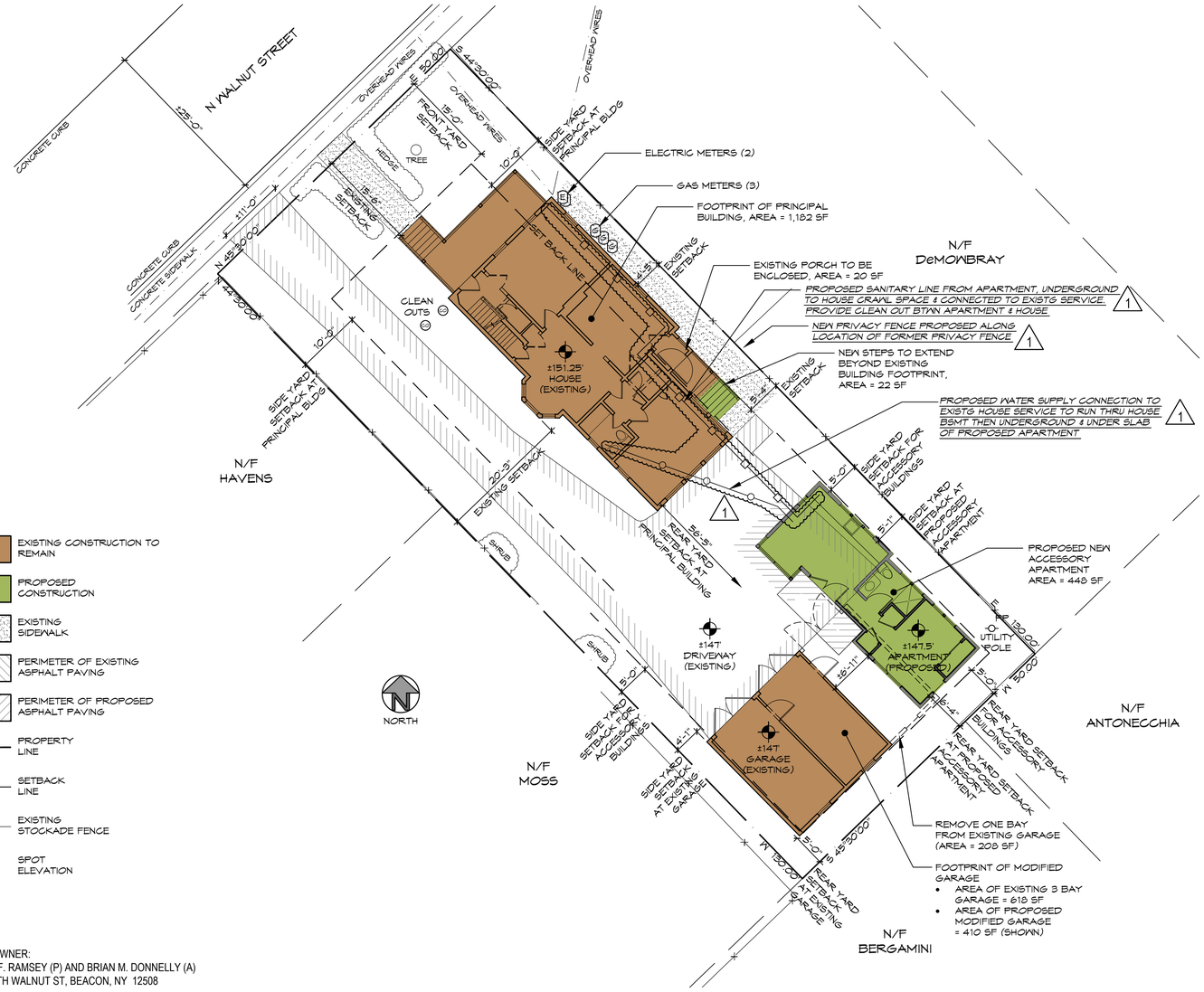
Dear Members of the City of Beacon Planning Board,

This letter accompanies drawings *SP-1 Site Plan and Data Tables* and *A-1 Accessory Bldgs Plans & Elevs*, both dated 31 May 2022.

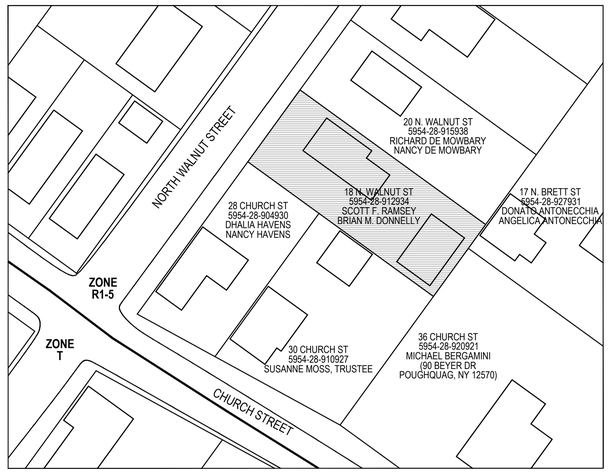
The drawings contain information to respond to review comments from the City Engineer and City Planner.

- Utilities are indicated.
- Corrections have been made to Zoning Tables.
- The privacy fence information has bee updated.
- Compliance with Section 223-24.1 has been added to Planning Notes on sheet SP-1.
- Sheet A-1 has been added showing elevations of the proposed apartment and modified garage.

Best regards,



1 SP-1 — SITE PLAN
1" = 10'-0"



2 SP-1 — LOCATION PLAN
1" = 40'-0"

LEGEND

- EXISTING CONSTRUCTION TO REMAIN
- PROPOSED CONSTRUCTION
- EXISTING SIDEWALK
- PERIMETER OF EXISTING ASPHALT PAVING
- PERIMETER OF PROPOSED ASPHALT PAVING
- PROPERTY LINE
- SETBACK LINE
- EXISTING STOCKADE FENCE
- SPOT ELEVATION

PROPERTY OWNER:
SCOTT F. RAMSEY (P) AND BRIAN M. DONNELLY (A)
18 NORTH WALNUT ST, BEACON, NY 12508

PARTIAL MAP INFORMATION OBTAINED FROM SURVEY COMPLETED BY:
ROBERT F. OICLE, PLS
946 ROUTE 376, UNIT 10, WAPPINGERS FALLS, NY 12590
845-293-0831
DATED MARCH 20, 2021

STATEMENT OF APPROVAL

APPROVED BY RESOLUTION OF THE BEACON PLANNING BOARD
ON THE _____ DAY OF _____, 20____
SUBJECT TO ALL CONDITIONS AS STATED THEREIN

_____ _____
CHAIRMAN, CITY PLANNING BOARD DATE

ZONING INFORMATION

CITY OF BEACON
DUTCHESS COUNTY, NY
ZONE: R1-5 (ZONING MAP DATE 7/13/2020)

18 NORTH WALNUT STREET, 12508
LOT AREA = 0.149 ACRES (6,500 SQUARE FEET)

SECTION: 5954
BLOCK: 28
LOT: 912934

EXISTING HOUSE FOOTPRINT = 1,160 SF
EXISTING GARAGE FOOTPRINT = 618 SF

PROPOSED HOUSE FOOTPRINT = 1,182 SF
PROPOSED GARAGE FOOTPRINT = 410 SF
PROPOSED ACCESSORY APARTMENT FOOTPRINT = 448 SF

LOT AND PRINCIPAL BUILDING

	LOT AREA	MIN. LOT PER UNIT	MIN. LOT WIDTH	MIN. LOT DEPTH	MIN. FRONT YARD SETBACK	MIN. SIDE YARD SETBACK	MIN. REAR YARD SETBACK	MIN DISTANCE BTWN BLDGS ON LOT	MAX. HEIGHT MAIN BLDG	MAX. % BLDG COVERAGE	MAX. # OF UNITS PER BLDG	MIN. OPEN SPACE	OFF STREET PARKING SPACES
ORDINANCE REQUIREMENT:	5,000 SF, MIN	5,000 S.F.	50'-0"	100'-0"	15'-0"	10'-0"	20'-0"	NR	2.5 ST / 35'-0"	30%	1	NR	2 / DWELLING UNIT
EXISTING:	6,500 SF		50'-0"	130'-0"	15'-6"	4'-5"	56'-5"	NA	2 ST / 26'-7"	27.4%[a]	NC	NR	4
PROPOSED:	NC		NC	NC	NC	NC	NC	NA	NC / NC	31.4%[b]	NC	NR	4 [d]

ACCESSORY BUILDINGS

	MIN. FRONT YARD SETBACK[c]	MIN. SIDE YARD SETBACK	MIN. REAR YARD SETBACK	STRUCTURE HEIGHT	MAX CUMULATIVE SF FOR ALL ACCESSORY BLDGS	MAX SF FOR EACH ACCESSORY BLDG (BASED ON FOOTPRINT OF PRINCIPAL BLDG)	MAX # OF SHEDS
ORDINANCE REQUIREMENT:	NA	5'-0"	5'-0"	-	1 ***720 SF***	40%	1
EXISTING GARAGE:	NA	4'-1"	5'-0"	9'-4"	618 SF	464 SF	0
MODIFIED GARAGE:	NA	NC	NC	NC	858 SF	473 SF	0
PROPOSED ACCESSORY APARTMENT:	NA	5'-0"	6'-4"	11'-8"		473 SF	0

NA - NOT APPLICABLE
NC - NO CHANGE
NR - NO REQUIREMENT
X - NOT PERMITTED

a - [EXISTING HOUSE + GARAGE FOOTPRINTS] / LOT AREA
b - [PROPOSED HOUSE + GARAGE + APARTMENT FOOTPRINTS] / LOT AREA
c - ACCESSORY BUILDINGS NOT PERMITTED IN FRONT YARDS
1 d - ***THREE (3)*** PARKING SPACES REQUIRED: ***TWO (2) SPACES FOR SINGLE-FAMILY RESIDENCE PLUS ONE (1) SPACE FOR ACCESSORY UNIT***

PLANNING NOTES:

1. CURRENT OWNERS HAVE CONVERTED THE RESIDENCE FROM A TWO-FAMILY RESIDENCE TO SINGLE-FAMILY RESIDENCE. UTILITY METERS ON THE EAST EXTERIOR WALL SERVED THE HOUSE AND FORMER APARTMENT ON THE HOME'S SECOND FLOOR.
2. SITE IS HAS NO OUTSTANDING NATURAL CHARACTERISTICS. TREE IN FRONT YARD TO REMAIN. HEDGES IN FRONT YARD AND ALONG DRIVEWAY TO REMAIN.
3. CURB CUT TO REMAIN AS-IS. NO WORK IN STREET OR SIDEWALK IS ANTICIPATED.
4. ROOF DRAINS FOR PROPOSED ACCESSORY APARTMENT SHALL BE RUN UNDERGROUND AND CONNECTED TO CITY STORM SEWER SYSTEM.
5. ALL NEW WATER AND SEWER LINES SHALL BE RUN BETWEEN THE EXISTING RESIDENCE TO THE ACCESSORY APARTMENT. FINAL LOCATIONS TO BE DETERMINED IN THE FIELD BY THE CONSTRUCTION CONTRACTOR AND PROPERTY OWNER.
6. ALL NEW POWER AND TELEPHONE LINES SHALL BE RUN UNDERGROUND. NEW LINES SHALL RUN FROM THE EXISTING RESIDENCE TO THE ACCESSORY BUILDINGS. FINAL LOCATIONS TO BE DETERMINED IN THE FIELD BY THE CONSTRUCTION CONTRACTOR AND PROPERTY OWNER.
7. PROPOSED ACCESSORY APARTMENT SHALL BE SLAB-ON-GRADE CONSTRUCTION. MINIMAL EXCAVATION SHALL BE REQUIRED.
8. EXISTING LANDSCAPING TO BE MAINTAINED. NO NEW LANDSCAPING IS PROPOSED.
1 9. ***THE OWNER SHALL COMPLY WITH THE SPECIFIC ACCESSORY APARTMENT PROVISION OF SECTION 223-24.1 OF THE CHARTER OF THE CITY OF BEACN, INCLUDING THAT THE EXISTING HOUSE WILL REMAIN A SINGLE-FAMILY HOME AND THAT THE PROPERTY OWNER WILL OCCUPY ONE OF THE DWELLINGS UNITS ON THE LOT.***

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HIGHLANDS ARCHITECTURE pllc
3212 ROUTE 9
COLD SPRING, NY 10516
845.809.5976 OFFICE
highlandsarchitecture.com

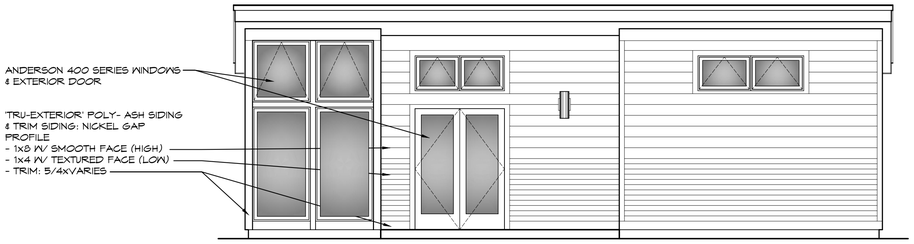
ALTERATIONS TO EXISTING:
RAMSEY - DONNELLY RESIDENCE
18 NORTH WALNUT STREET
BEACON, NY 12508

SITE PLAN AND DATA TABLES

SP-1

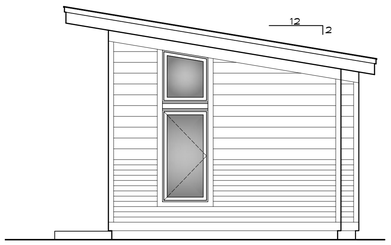
SHEET 1 OF 2

DATE: 22 MARCH 2022
REVISIONS: #1 - 31 MAY 2022
REVISIONS:
REVISIONS:
DRAWN BY: EN
PROJECT NUMBER: 2108

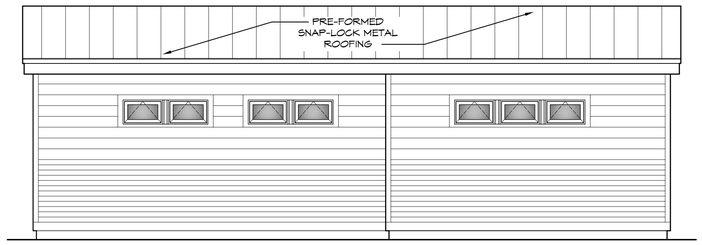


EXTERIOR COLORS:
SIDING COLOR: WHITE
WINDOW & DOOR COLOR: BLACK

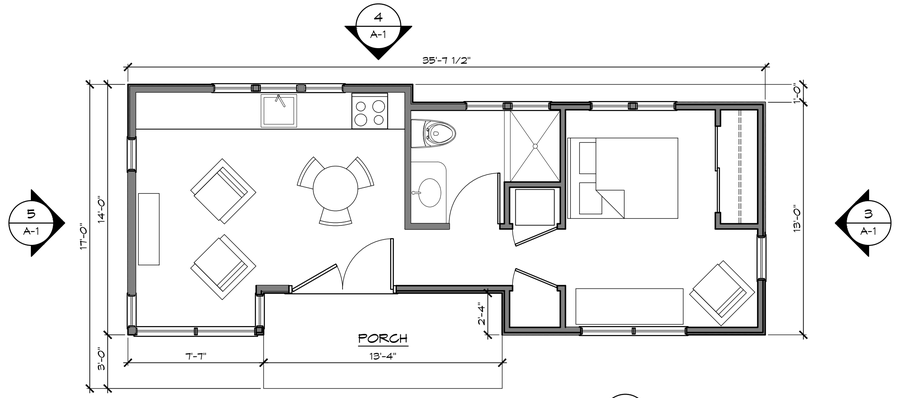
2 A-1 APARTMENT ELEVATION - FRONT (SOUTH)
SCALE: 1/4" = 1'-0"

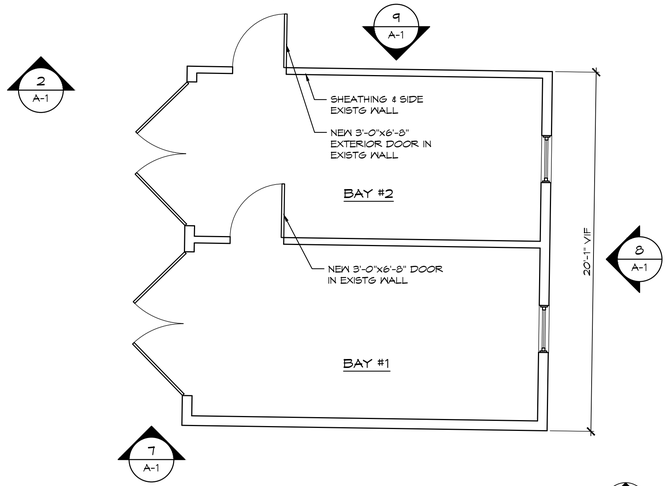


3 A-1 APARTMENT ELEV - SIDE (EAST)
SCALE: 1/4" = 1'-0"



4 A-1 APARTMENT ELEVATION - REAR (NORTH)
SCALE: 1/4" = 1'-0"





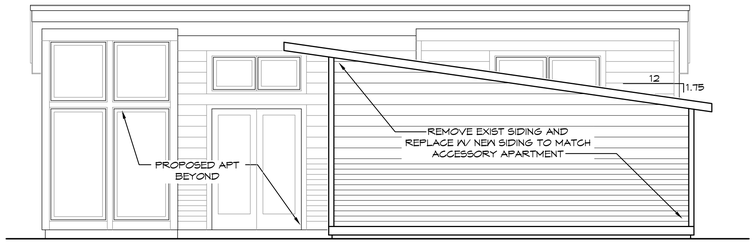
1 A-1 PROPOSED ACCESSORY APARTMENT & MODIFIED GARAGE PLANS
SCALE: 1/4" = 1'-0"

PLAN NORTH

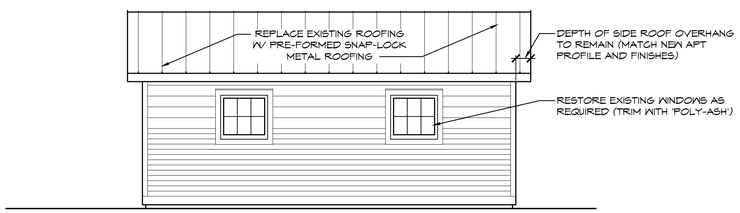


5 A-1 APARTMENT ELEV - SIDE (WEST)
SCALE: 1/4" = 1'-0"

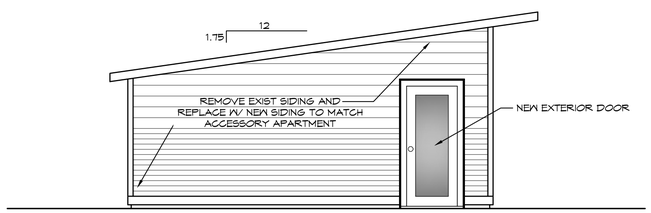
6 A-1 GARAGE ELEVATION - FRONT (WEST)
SCALE: 1/4" = 1'-0"



7 A-1 GARAGE ELEVATION - SIDE (SOUTH)
SCALE: 1/4" = 1'-0"



8 A-1 GARAGE ELEVATION - REAR (EAST)
SCALE: 1/4" = 1'-0"



9 A-1 GARAGE ELEVATION - SIDE (NORTH)
SCALE: 1/4" = 1'-0"

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ALTERATIONS TO EXISTING:
RAMSEY - DONNELLY RESIDENCE
18 NORTH WALNUT STREET
BEACON, NY 12508

ACCESSORY BLDGS PLANS & ELEVS

A-1

SHEET 2 OF 2
DATE: 31 MAY 2022
REVISIONS:
REVISIONS:
REVISIONS:
DRAWN BY: JK, EN
PROJECT NUMBER: 2108

CITY OF BEACON
ZONING BOARD OF APPEALS

RESOLUTION
Parcel ID# 5954-28-912934

WHEREAS, an application has been made to the City of Beacon Zoning Board of Appeals by **Scott Ramsey & Brian Donnelly** (the "Applicants") for a 138 square foot cumulative lot coverage variance where the maximum permitted cumulative lot coverage for an accessory structure is 720 square feet pursuant to City Code §§ 223-17(E) and 223 Attachment 3 in connection with the construction of an 858 square foot accessory structure (accessory apartment) on property located at **18 North Walnut Street** in the R1-5 Zoning District. Said premises being known and designated on the tax map of the City of Beacon as **Parcel ID# 5954-28-912934** (the "Property"); and

WHEREAS, a duly advertised public hearing on the application was held on May 17, 2022, at which time all those wishing to be heard on the application were given such opportunity; and

WHEREAS, the Board closed the public hearing on May 17, 2022; and

WHEREAS, the proposed action is a Type II Action pursuant to the New York State Environmental Quality Review Act, and accordingly, no further environmental review is required; and

WHEREAS, the Board considered the benefit to the Applicants if the variance is granted, as weighed against the detriment to the health, safety and welfare of the neighborhood or community by such grant.

NOW, THEREFORE, BE IT RESOLVED, that the Board, from the application, considered each of the factors set forth at Section 81-b(4)(b) of the General City Law and found, with respect to those considerations, as follows:

1) As to whether an undesirable change will be produced in the character of the neighborhood or a detriment to nearby properties will be created by the granting of the area variance, the Board found that an undesirable change will not be produced in the character of the neighborhood.
2) As to whether the benefit the Applicants seek can be achieved through another method, feasible for the Applicants to pursue, that does not require the area variance, the Board found that the Applicant could achieve the benefit of accessory apartment without the need for a variance by removing two garage bays. This alternative would reduce the size of the garage and reduce the variance needed to construct the accessory apartment.
3) As to whether the requested variance is substantial, the Board found that the variance results in about a 4% change. The majority of the Board considered this percentage not substantial. In, addition, the variance is not substantial in relation to the total size of the lot. The lot is over the minimum required lot size in the R-1 District.

4) As to whether the proposed variance will have an adverse effect or impact on the physical or environmental conditions in the neighborhood or district, the Board found that the proposed variance will not have an adverse effect or impact on the physical or environmental conditions in the neighborhood. The accessory apartment is set behind the house and adjacent to the garage so it will not be noticeable. The accessory apartment will not take over the lot.
5) As to whether the alleged difficulty is self-created, the Board found the alleged difficulty is self-created.

BE IT FURTHER RESOLVED, that the Board finds that the requested variance IS the minimum variance necessary and adequate to preserve and protect the character of the neighborhood and the health, safety and welfare of the community.

BE IT FURTHER RESOLVED, that said application for a 138 square foot cumulative lot coverage variance where the maximum permitted cumulative lot coverage for an accessory structure is 720 square feet pursuant to City Code §§ 223-17(E) and 223 Attachment 3 in connection with the construction of an 858 square foot accessory structure (accessory apartment) on property located at 18 North Walnut Street, is hereby GRANTED, subject to the following conditions:

1. No permit or certificate of occupancy shall be issued until the Applicants have paid in full all application and consultant fees incurred by the City in connection with the review of this application.

2. The variance shall be void if the Applicants fail to (i) obtain a building permit within six months from the date of this Resolution; (ii) commence construction within six months following the date of issuance of the building permit; or (iii) complete construction and obtain a certificate of occupancy within 24 months after the date of issuance of said building permit.

BE IT FURTHER RESOLVED, that the Zoning Board of Appeals may grant a six-month extension of the variance provided that a written request for an extension is submitted before the variance expire. Such extension shall only be granted upon a showing by the Applicants that the circumstances and conditions upon which the variance were originally granted have not substantially changed.

Dated: May 17, 2022

Mr. David Jensen, Chairman

Chairman Jensen called the roll:

Motion	Second	Zoning Board Member	Aye	Nay	Abstain	Excused	Absent
		David Jensen	X				
		Judy Smith	X				
X		Montos Vakirtzis	X				
		Jordan Haug	X				
	X	Elaine Ciaccio	X				
		Motion Carried	**5**	**0**			

Received in the Office of
The City Clerk
May 20, 2022

John Clarke Planning and Design jclarkeplandesign@gmail.com
845.797.4152

To: John Gunn, Chair, and the City of Beacon Planning Board
Date: June 10, 2022
Re: **18 North Walnut Street, Site Plan and Special Permit for Accessory Apartment**

I have reviewed a May 27, 2022 cover letter and a 2-sheet Site Plan set, dated May 31, 2022.

Proposal

The applicant is proposing the partial demolition of an existing garage and construction of a 448 square foot accessory apartment in the back yard of a single-family house in the R1-5 district.

Comments and Recommendations

1. For the Zoning Information table:

    a. The proposed accessory apartment should be listed on the bottom line of the table as 448 square feet.

    b. A variance for the Maximum Cumulative Square Footage for All Accessory Buildings was granted by the Zoning Board of Appeals. A note confirming this should be provided on the plans, including the date of the variance.

    c. No building coverage requirement is listed for the R1-5 district, so the 30% requirement should be removed.

2. The replacement privacy fence should be shown in a detail on the plans.

3. The new exterior lighting fixture should not have any spillover on adjacent properties, prevent any light above the horizontal plane into the night sky, and comply with the other provisions in Section 223-14B.

If you have any questions or need additional information, please feel free to contact me.

John Clarke, Beacon Planning Consultant

c: Dave Buckley, Building Inspector
Jennifer L. Gray, Esq., City Attorney
Arthur R. Tully, P.E., City Engineer
John Russo, P.E., City Engineer
Justin Kacur, Highlands Architecture

LANC & TULLY
ENGINEERING AND SURVEYING, P.C.

John J. O'Rourke, P.E., Principal
David E. Higgins, P.E., Principal
John Queenan, P.E., Principal
Rodney C. Knowlton, L.S., Principal
Jerry A. Woods, L.S., Principal
John D. Russo, P.E., Principal
John Lanc, P.E., L.S.
Arthur R. Tully, P.E.

June 6, 2022

Mr. John Gunn
Beacon Planning Board Chair
City of Beacon
1 Municipal Plaza
Beacon, NY 12508

RE: 18 North Walnut
Accessory Apartment
Tax No. 5954-28-912934
City of Beacon

Dear Mr. Gunn:

My office has received the following in regard to the above application:

- Plan titled "Ramsey-Donnelly Residence – Site Plan", last revised May 31, 2022, as prepared by Highland Architecture.

The proposed project is located in the R1-5 Zone and entails the construction of a 448 square foot apartment on the rear side of the lot behind the existing residence. Based upon our review of the revised submitted plans, all previous engineering comments have been addressed. We would recommend the plans be signed once the applicant has paid all bills and/or fees and addressed any outstanding comments from the City's Planner and/or Planning Board Attorney.

If you have any questions, or require any additional information, please do not hesitate to contact our office.

Very truly,

LANC & TULLY, P.C.

John Russo, P.E.

cc: John Clarke, Planner
Jennifer Gray, Esq.
David Buckley, Building Inspector

RESOLUTION

PLANNING BOARD
BEACON, NEW YORK

GRANTING SPECIAL PERMIT AND
SITE PLAN APPROVALS FOR
18 NORTH WALNUT STREET

Parcel ID# 5954-28-912934

WHEREAS, the City of Beacon Planning Board, (the "Planning Board"), received an application for a Special Permit and Site Plan Approval from Brian Donnelly & Scott Ramsey (the "Applicants"), to partially demolish an existing garage and construct a 448 square foot accessory apartment (the "Proposed Action" or "Project") on a 6,500 square foot property located at 18 North Walnut Street in the R1-5 Zoning District and designated on the City tax map as **Parcel ID# 5954-28-912934** (the "Property"); and

WHEREAS, the Planning Board is the approval authority for a Special Permit for the accessory apartment pursuant to City of Beacon Zoning Code § 223-17.C; and

WHEREAS, the Planning Board is the approval authority for the Site Plan pursuant to City of Beacon Zoning Code § 223-25; and

WHEREAS, the application consists of application materials, correspondence, and professional studies and reports submitted to the Planning Board; and

WHEREAS, the Site Plan is shown on the drawings, entitled "Ramsey-Donnelly Residence – Site Plan," Sheet SP-1, Site Plan, dated March 22, 2022, prepared by Highland Architecture PLLC; and

WHEREAS, the Proposed Action is a Type II Action, pursuant to 6 NYCRR 617.5(c)(11) of the New York State Environmental Quality Review Act ("SEQRA") requiring no further environmental review; and

WHEREAS, the Planning Board referred the application to the City of Beacon Zoning Board of Appeals, (the "ZBA") on April 12, 2022, for a 138 square foot cumulative lot coverage variance where the maximum permitted cumulative lot coverage for an accessory structure is 720 square feet pursuant to City Code §§ 223-17(E) and 223 Attachment 3; and

WHEREAS, on May 17, 2022, the ZBA granted a 138 square foot cumulative lot coverage variance to allow for 858 square feet of accessory building coverage on the Property where the maximum permitted cumulative lot coverage for an accessory structure is 720 square feet pursuant to City Code §§ 223-17(E) and 223 Attachment 3 in connection

with the construction of a 448 square foot accessory apartment and modification of the existing garage structure to remove one bay (208 square feet) from the existing three-bay garage reducing it from 618 square feet to 410 square feet; and

WHEREAS, on June 14, 2022, the Planning Board opened a duly noticed public hearing on the Special Permit and Site Plan applications, at which time all interested parties were given the opportunity to be heard and the public hearing was closed on June 14, 2022; and

WHEREAS, the Planning Board has reviewed the application for approval of a Special Permit to allow for an accessory apartment and compared the application against the standards set forth in the City of Beacon Zoning Code §§ 223-18.B and 223-24.1; and

WHEREAS, the Planning Board has reviewed the application for Site Plan Approval and considered the standards as set forth in the City of Beacon Zoning Code § 223-25.E; and

WHEREAS, the Planning Board is fully familiar with the Project and has reviewed the Project relative to all applicable provisions of the City Code.

NOW, THEREFORE, BE IT RESOLVED, that upon review of the Special Permit application to partially demolish an existing garage and construct a 448 square foot accessory apartment the Planning Board hereby finds pursuant to Sections 223-18.B and 223-24.1 of the City of Beacon Zoning Code:

1. The location and size of the use, the nature, hours and intensity of the operations involved in or conducted in connection with it, the size of the site in relation to it and the location of the site with respect to streets giving access to it are such that it will be in harmony with the appropriate and orderly development of the site and the existing permitted uses on adjacent blocks.

2. The location, nature and height of the buildings, walls and fences and the nature and extent of the landscaping on the site are such that the use will not conflict with the existing permitted uses on adjacent blocks and will not hinder or discourage the appropriate development use of adjacent land and buildings. The proposed accessory apartment is compatible with the surrounding residential uses in the neighborhood.

3. Operations in connection with the use as an accessory apartment will not be more objectionable to nearby properties by reason of noise, fumes, vibration or other characteristic than would be the operations of any permitted use, not requiring a special permit.

4. Parking areas will be of adequate size for the particular use and properly located and suitably screened from the adjoining residential uses, the entrance

and exit drives are laid out in a manner that achieves maximum safety, and uses will not cause unreasonable traffic congestion or create a traffic hazard.

5. The building is accessible for emergency services and appropriately located for water, sewer and other infrastructure requirements.

6. The accessory apartment is located in an accessory building on a single-family lot where the owner shall occupy at least one of the dwelling units on the lot.

7. The accessory apartment at 448 square feet, complies with the requirement to have a minimum floor area of 300 square feet and a maximum floor area of 600 square feet for accessory apartments in an accessory building.

8. Two (2) additional off-street parking spaces are available for the accessory apartment.

BE IT FURTHER RESOLVED, that the Planning Board hereby grants Special Permit and Site Plan Approvals to partially demolish an existing garage and construct a 448 square foot accessory apartment on property located at 18 North Walnut Street as shown on the application materials enumerated above, subject to compliance with the following conditions and any other requirements which must be met by law:

A. Prior to signing of the Site Plan Drawings by the Planning Board Chairman, the following conditions shall be fulfilled:

1. All application review fees shall be paid in full.

2. The Applicant shall seek and obtain all required permits and/or approvals from the appropriate agencies for the Project shall meet all conditions contained in such approvals, as required therein.

3. The comments contained in the City Planner's letter to the Planning Board dated June 10, 2022, and all comments in any subsequent letter(s) issued, shall be fulfilled to the satisfaction of the City Planner.

When the conditions above have been satisfied, six (6) sets of the above referenced plans revised as per the conditions above shall be submitted for endorsement by the Planning Board Chairman. One set of the endorsed plans will be returned to the Applicant, one set will be retained by the City Clerk, one set will be provided to the Planning Board, and one set each will be forwarded to the Building Inspector, City Engineer and City Planner.

B. Prior to the issuance of the Certificate of Occupancy, the following conditions shall be fulfilled to the satisfaction of the Building Inspector:

1. Based on the current and anticipated future need for park and recreational opportunities in the City of Beacon, as set forth in the analysis provided by BFJ Planning, and the demands of the future population of the Project, the Planning Board hereby finds that additional recreation/parkland should be created as a condition of approval. However, the Planning Board hereby determines that recreation/parkland of adequate size and location cannot be provided on the Project Site. Therefore, that Applicant shall pay a Recreation Fee as prescribed under Sections 223-25.H(4) and 223-61.A(7) of the Zoning Law.

   The Planning Board hereby requires that, prior to the issuance of the Certificate of Occupancy, the Applicant shall pay a Recreation Fee for the new accessory apartment in accordance with Sections 223-25.H(4) and 223-61.A(7) of the Zoning Law, as per the City's Fee Schedule in effect at the time of payment.

2. All application review fees shall be paid in full.

C. The following are general conditions which shall be fulfilled:

1. The Building Inspector and the City Engineer shall have the right to direct the Applicant to cause the placement, cleaning and/or repair of sedimentation and erosion control devices wherever and whenever deemed necessary during construction.

2. A copy of this Resolution shall be attached to the Certificate of Occupancy.

3. The accessory apartment shall be inspected by the Building Department every two years in order to determine whether the apartment remains in compliance with § 223-24.1 of the City of Beacon Zoning Code. Upon a satisfactory inspection report, the accessory apartment owner shall be reissued a certificate of occupancy. In the event that the inspection indicates that the apartment is no longer in compliance, the certificate of occupancy shall be revoked until the violations are cured.

4. The Building Inspector may revoke this Special Permit Approval where it is found that the use of the premises does not conform to the limitations and conditions contained in the Special Permit Approval.

5. The accessory apartment shall not be used for short term rentals unless a short-term rental permit is obtained pursuant to Section 223-26.5 of the City Code.

6. In accordance with Section 223-18.F(1) of the Zoning Law, this Special Permit Approval authorizes only the particular use specified in the permit and shall expire if:
   a. A bona fide application for a Building Permit is not filed within one (1) year of the issuances of this Special Permit Approval; or

   b. If all required improvements are not made within two (2) years from the date of issuance of the Building Permit; or

   c. If said use ceases for more than six (6) months for any reason.

7. In accordance with Section 223-18.F(2) of the Zoning Law, the Planning Board may grant one (1) or more extensions of up to six (6) months each, to (a) complete the conditions of approval for the special permit use, upon a finding that the applicant is working toward completion of such conditions with due diligence and has offered a reasonable explanation of its inability to complete such improvements and file a bona fide application for a building permit, and (b) to complete construction of the improvements, upon a finding that the Applicant is prosecuting construction with due diligence and has offered a reasonable explanation of its inability to complete the Project. The Planning Board may impose such conditions as it deems appropriate upon the grant of any extension. The granting of an extension of time shall not require a public hearing.

8. The Applicant shall be responsible for the payment of all application review costs incurred by the City in its review and approval of this project. Such fees shall be paid by the Applicant within thirty (30) days of each notification by the City that such fees are due. If such fees are not paid within the thirty (30) day period, and an extension therefor has not been granted by the City, this resolution shall be rendered null and void.

9. As used herein, the term "Applicant" shall include the Applicant and the Applicant's heirs, successors and assigns, and where applicable its contractors and employees.

10. If any of the conditions enumerated in this resolution upon which this approval is granted are found to be invalid or unenforceable, then the integrity of this resolution and the remaining conditions shall remain valid and intact.

11. The approval granted by this resolution does not supersede the authority of any other entity.

12. The Applicant must return for approval from the Planning Board if any changes to the endorsed plans and/or this resolution of approval are

subsequently desired other than changes determined to be field changes by the Building Inspector or City Engineer. The Planning Board, in its discretion, shall determine the appropriate procedures for consideration of the proposed revision, and whether such revision is material enough to require further environmental analysis, further project review and/or a public hearing, as it may deem appropriate.

Resolution Adopted: June 14, 2022
Beacon, New York

_____ _____, 2022
John Gunn, Chairman Dated
City of Beacon Planning Board

Motion by _____, seconded by _____:

Kevin Byrne	Voting:	Len Warner	Voting:
J.C. Calderon	Voting:	Randall Williams	Voting:
Karen Quiana	Voting:	John Gunn, Chairman	Voting:
Jill Reynolds	Voting:		

Resolution:

City of Beacon Planning Board Agenda
06/14/2022

Title:

Public Hearing on application for Special Use Permit and Site Plan Approval, indoor and outdoor event space, 4 Hanna Lane, submitted by Jason Hughes

ATTACHMENTS

Comment Response Letter - 4 Hanna Lane_220531.pdf

DEC Remediation List for Hanna Lane_220531.pdf

L220531_Amanda_Planning Board_Hughes Yard.pdf

Sheet 1 Site Plan_Planning Board Submittal_3_220531.pdf

Sheet 2 Existing Conditions Plan_Planning Board Submittal_3_220531.pdf

Sheet 3 Overall Site Plan_Planning Board Submittal_3_220531.pdf

Sheet 4 Lighting Plan_Planning Board Submittal_3_220531.pdf

Sheet 5 Building Plan_Planning Board Submittal_3_220531.pdf

4 Hanna Lane Public Comment Fareground.pdf

4 Hanna Lane Public Comment Saraf.pdf

4 Hanna Lane Public Comment Lisa Arnoff.pdf

4 Hanna Lane Public Comment Viridescent Floral.pdf

4 Hanna Lane Public Comment Brian Arnoff.pdf

4 Hanna Lane Public Comment Naimool.pdf

Planners Comments PB Hanna Lane 6.10.22.pdf

Engineers Comments 4 Hanna Lane Review 06-08-22.pdf

4 Hanna Lane B4BL Letter to Planning Board.pdf

4 Hanna Lane Public Comment signed by multiple residents.pdf

4 Hanna Lane Public Comment Annalyse and Ryan.pdf

4 Hanna Lane Public Comment Means.pdf

4 hanna Lane Public Comment Samardge.pdf

ARYEH SIEGEL
ARCHITECT

John Gunn - Planning Board Chairman
City of Beacon
One Municipal Plaza
Beacon, NY 12508

Re: 4 Hanna Lane – The Yard
Site Plan Application – Responses to Comments

May 31, 2022

Dear Chairman Gunn and Members of the Planning Board,

Below please find our responses to the comments included in John Clarke Planning and Design's Memorandum, dated May 6. 2022. Please refer to Hudson Land Design's response letter regarding Lanc & Tully's letter dated May 4, 2022.

John Clarke Planning and Design Comment Responses:

1. The Site Plan notes hours of operation.

2. The indoor occupancy limit is 99 people, per the Building Inspector. This number is now reflected on the Parking chart and the floor plan.

3. The required parking is shown on the parking chart per the Building Inspector's determination of 1 space per 100 square feet of outdoor assembly area. The outdoor assembly area limits, excluding space for circulation and egress, is indicated on the Site Plan.

4. Comment acknowledged.

5. For the long lot along Hanna Lane:
    a The owner is in communication with the adjacent property owner regarding permission to stripe the parking
    b A sidewalk has been extended between the adjacent parking and the front of the Workshop / Event Building
    c The owner is in communication with the adjacent property owner regarding permission to landscape the northern end of the lot to provide screening from Fishkill Avenue
    d The owner is in communication with the adjacent property owner regarding permission to add lighting to the parking lot.

84 Mason Circle | ajs@ajsarch.com | *Tel* 845 838 2490
Beacon, New York 12508 | www.ajsarch.com | *Fax* 845 838 2657

6. The EAF Question 20 regarding remediation was researched. Please see the attached list of remediation projects from the DEC website. No evidence of on site or adjacent site remediation was found.

Lanc & Tully Comment Responses:

General Comments

1. The Applicant has engaged Hudson Land Design to prepare an I & I Study for the existing building. A previous study for the existing house was performed.

Sheet 1 – Site Plan

1. The stop sign has been relocated to the south side.

2. The grass hatching has been removed, and a sidewalk detail added to the plans.

3. The site plan has been updated to show a 10 foot separation between the proposed water and sewer service extensions. A shut-off valve is indicated on the plan. A trench detail is shown on the plan, along with pipe sizing and material for each service.

4. Signage for handicapped parking is shown on the plans.

5. Fencing and gates shown are to match existing, and are typical for all fencing

6. The parking for outside events is now shown on the parking table

7. Comment acknowledged. The Applicant is still in communication with the adjacent property owner

8. Plans show a sidewalk to the parking area.

Thank you. Please let me know if you have any questions.

Sincerely,



Aryeh Siegel
Aryeh Siegel, Architect

	Site Code	Site Name	Program	Site Class	County	City/town
1	C314107	Beacon Terminal	BCP	N	Dutchess	Beacon
2	C314112	Long Dock Beacon	BCP	C	Dutchess	Beacon
3	C314117	Beacon Terminal	BCP	A	Dutchess	Beacon
4	C314118	Churchill Mills	BCP	N	Dutchess	Beacon
5	B00130	Brunetto Cheese	ERP	C	Dutchess	Beacon (c)
6	314024	Beacon City Landfill (Inactive)	HW	N	Dutchess	Beacon
7	314025	Braendly Dye Company	HW	N	Dutchess	Beacon
8	314044	Tuck Industries	HW	C	Dutchess	Beacon
9	314046	Beacon City Landfill	HW	N	Dutchess	Beacon
10	314069	CH - MGP - Beacon Street	HW	N	Dutchess	Beacon
11	314086	Dennings Point	HW	N	Dutchess	Beacon
12	V00096	Ferry Road Waterfront Site	VCP	N	Dutchess	Beacon
13	V00293	Doral Hat Property	VCP	C	Dutchess	Beacon
14	V00299	Dia Center for the Arts	VCP	C	Dutchess	Beacon
15	V00443	Beacon Terminal	VCP	N	Dutchess	Beacon
16	V00444	Beacon Salvage Property	VCP	N	Dutchess	Beacon

Address
579 South Avenue
8 and 23 Long Dock Beacon Road
555 South Avenue
1 East Main Street
33 North Cedar Street
Municipal Park adjacent to Railroad Station
Leonard & Grove Streets
Tioronda Avenue
Dennings Avenue
River Street
Dennings Point
West End of Ferry Street
1 West Main Street
3 Beekman Street
579 South Avenue
Red Flynn Drive

ARYEH SIEGEL
ARCHITECT

Amanda Caputo
Planning Board Secretary
City of Beacon
One Municipal Plaza
Beacon, NY 12508

Re: **The Yard – 4 Hanna Lane**
Special Use Permit Application

May 31, 2022

Dear Amanda,

Please find enclosed:

- (5) sets of Sheets 1 through 5, dated 5/31/22
- (5) copies of the Comment Response Letter
- (2) copies of DEC Remediation Chart
- CD-ROM

Thank you. Please let me know if you have any questions.

Sincerely,



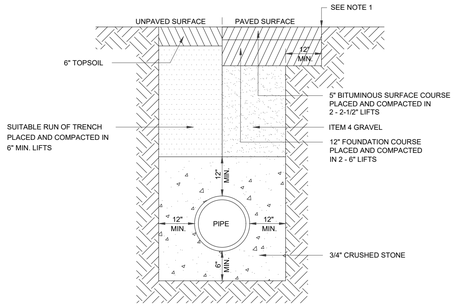
Aryeh Siegel
Aryeh Siegel, Architect

84 Mason Circle
Beacon, New York 12508
ajs@ajsarch.com
www.ajsarch.com
Tel 845 838 2490
Fax 845 838 2657

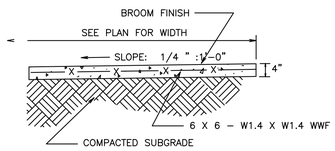
Bulk Zoning Regulations Table

	Required Setbacks			Existing Setbacks - Event Building			Minimum Lot Depth	Existing Lot Depth	Minimum Lot Depth	Existing Lot Depth	Allowable Building Height	Proposed Building Height	Maximum Percent Building Coverage	Proposed/Existing Percent Building Coverage	Lot Area	Existing Building Footprint
	Front	Side	Rear	Front	Side	Rear										
Zoning District																
LI*	20'	20'	25'	143.3'	5'	10'	60'	159'	100'	249'	35'	32' Existing	70%	Existing on Lot 6054-30-183889 = 13%	36,427 sf	4,586 sf

* The existing building on adjacent Lot 6054-30-172867 is in the T District. That lot is not in the proposed Special Use Permit scope of work.
** No new building construction is proposed. All setbacks are existing.

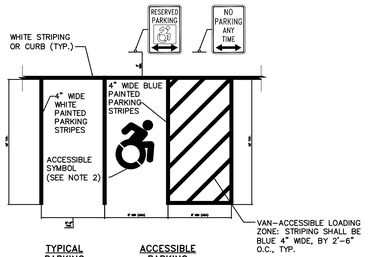


PIPE TRENCH DETAIL
NTS



CONCRETE SIDEWALK

SCALE: 3/4 " = 1' – 0"



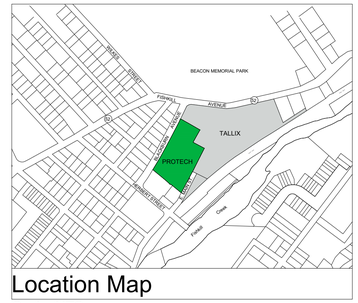
NOTES:
1. ALL DIMENSIONS SUBJECT TO CURRENT MUNICIPALITY ZONING AND SITE REGULATIONS.
2. PAINTED ACCESSIBLE SYMBOL TO BE IN ACCORDANCE WITH NYSDOT AND ADA STANDARDS.
3. IF PARKING ABUTS A SIDEWALK, THEN THE REGULATORY SIGNS SHALL BE PLACED BEHIND THE SIDEWALK.

PARKING AND STRIPING DETAIL

NOT TO SCALE

Site Plan

Scale: 1" = 20'



Location Map

Scale: NTS

Zoning Summary

Zoning District:	LI (Light Industrial)
Tax Map No.:	6054-30-183889
Lot Area:	36,427 sf (0.84 acres)
Building Footprint:	4,586 sf (Existing Building)
Historical Overlay District:	No
Parking Overlay District:	No
Existing Use:	Shop
Proposed Use:	Mixed-Use: Shop & Event Space

Parking & Loading

Use & Parking Requirements	Area / Count	Parking Requirement
Event Space Building Main Floor *1 space for each 4 seats or pew spaces or, in places or, in places without seats, 1 space for each 100 square feet of floor space used for public assembly*	99 Seats	25 spaces
Event Space Building Mezzanine *1 space for each 4 seats or pew spaces or, in places or, in places without seats, 1 space for each 100 square feet of floor space used for public assembly*	1,060 nsf	11 spaces Note that the mezzanine is a non-simultaneous use with the Main Floor event use
Outside Event Area *1 space for each 100 square feet, per the Building Inspector*	3,860 sf	39 spaces
Total Required Parking Spaces		***75 spaces***
Total Proposed Parking Spaces		**83 spaces proposed See Note 1 below**

0 3

Notes:

1. There are 34 parking spaces proposed on the property controlled by the Applicant. There are 49 parking spaces available to the applicant on a shared basis with the adjacent property owner as required by the capacity of proposed events, for a total of 83 parking spaces. The Applicant will provide documentation, acceptable to the City of Beacon, demonstrating the proposed shared use and availability of the proposed shared spaces
2. There are a total of 158 striped and/or demonstrated parking spaces on the adjacent parcels controlled by Tallix Condominiums.
3. The Event Space Building mezzanine space will not be used at the same time as the Event Space Building Main Floor. Therefore, the maximum required number of parking spaces for the Event Space Building is 30 spaces, based on the Main Floor.
4. Hours of operation vary according to proposed events. Outdoor evening event performances will end no later than 10pm.
5. No signage is proposed as part of this application
6. Landscaping is existing, and no additional landscaping is proposed as part of this application
7. The Applicant is in communication with the owners of the Tallix Condominium property regarding a lease for parking spaces on the adjacent property, as well as striping, lighting, and landscaping on the adjacent property.

REVISIONS:

NO.	DATE	DESCRIPTION	BY
1	04/26/22	REVISE PER PLANNING BOARD COMMENTS	AJS
2	05/31/22	REVISE PER PLANNING BOARD COMMENTS	AJS

Index of Drawings

Sheet 1 of 5	Site Plan
Sheet 2 of 5	Existing Conditions & Demolition Plan
Sheet 3 of 5	Overall Site Plan
Sheet 4 of 5	Lighting Plan
Sheet 5 of 5	Floor Plans

Site Plan Application

Sheet 1 of 5 - Site Plan

Owner:
EJC III, LLC
4 Hanna Lane
Beacon, NY 12508

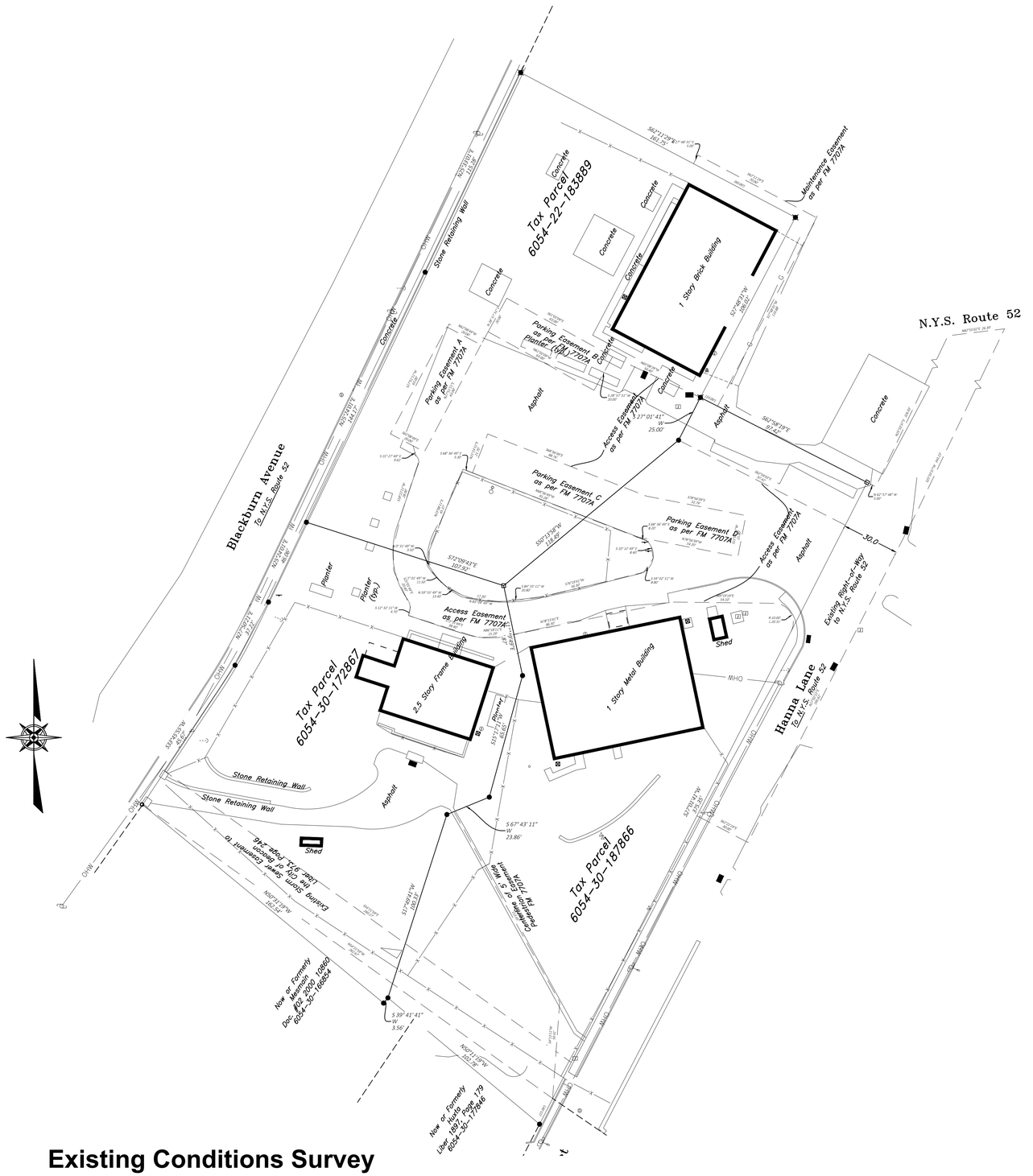
Architect:
Aryeh Siegel, Architect
84 Mason Circle
Beacon, New York 12508

Surveyor:
MJ Engineering And Land Surveying, P.C
1533 Crescent Road
Clifton Park, NY 12065

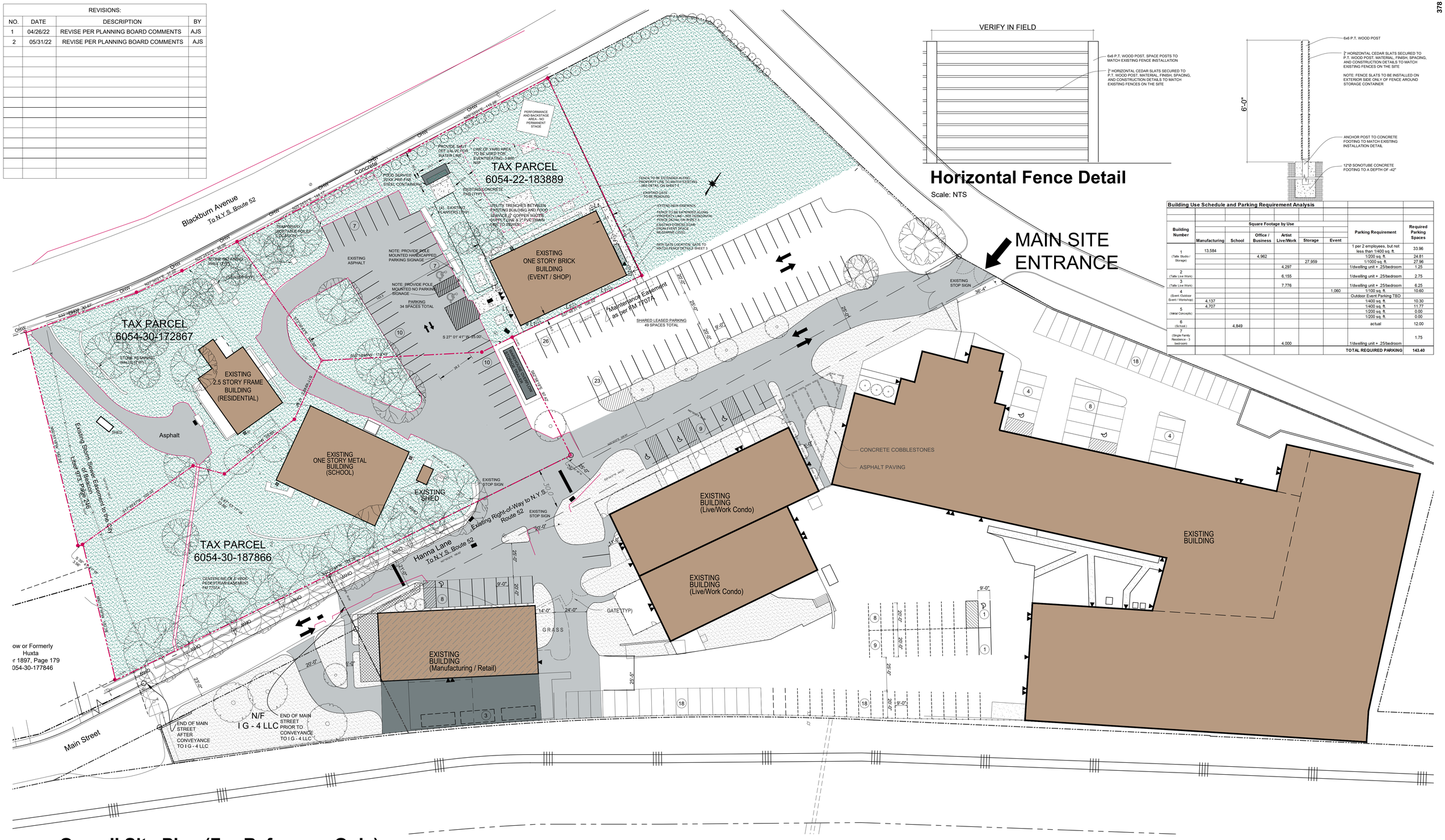
The Yard - Event Space

Beacon, New York
March 29, 2022

REVISIONS:			
NO.	DATE	DESCRIPTION	BY
1	04/26/22	REVISE PER PLANNING BOARD COMMENTS	AJS
2	05/31/22	NO CHANGE	AJS


Blackburn Avenue
To N.Y.S. Route 52
N.Y.S. Route 52
Hanna Lane
To N.Y.S. Route 52
Existing Right-of-Way to N.Y.S. Route 52
Tax Parcel 6054-22-183889
Tax Parcel 6054-30-172867
Tax Parcel 6054-30-187866
Now or Formerly Mansion 12060 Doc. #22 2700 6054-30-166854
Now or Formerly Hudson Bridge 179 Liber 1957 6054-30-171846
1 Story Brick Building
2.5 Story Frame Building
1 Story Metal Building
Shed
Concrete
Asphalt
Stone Retaining Wall
Planter
Planter (typ.)
Maintenance Easement as per FM 7707A
Parking Easement A as per FM 7707A
Parking Easement B as per FM 7707A
Parking Easement C as per FM 7707A
Parking Easement D as per FM 7707A
Access Easement as per FM 7707A
Existing Storm Sewer Easement to the City of Beacon Liber 974, Page 218
Combined 0.5' Wide Possession Line 7707A
S62°11'29"E 167.75'
S27°48'31"W 150.00'
S62°58'19"E 97.47'
N27°01'41"E 150.00'
S27°01'41"W 25.00'
S62°58'19"E 97.47'
S27°09'43"E 100.00'
S20°13'56"W 118.05'
N62°11'29"W 167.75

REVISIONS:			
NO.	DATE	DESCRIPTION	BY
1	04/26/22	REVISE PER PLANNING BOARD COMMENTS	AJS
2	05/31/22	REVISE PER PLANNING BOARD COMMENTS	AJS



Overall Site Plan (For Reference Only)

Scale: 1" = 30'

Horizontal Fence Detail

Scale: NTS

Building Use Schedule and Parking Requirement Analysis

Building Number	Square Footage by Use						Parking Requirement	Required Parking Spaces
	Manufacturing	School	Office / Business	Artist Live/Work	Storage	Event		
1 (Talle Studio / Storage)	13,584						1 per 2 employees, but not less than 1/400 sq. ft.	33.96
			4,962				1/200 sq. ft.	24.81
					27,959		1/1000 sq. ft.	27.96
				4,297			1/dwelling unit + .25/bedroom	1.25
2 (Talle Live Work)				6,155			1/dwelling unit + .25/bedroom	2.75
3 (Talle Live Work)				7,776			1/dwelling unit + .25/bedroom	6.25
4 (Event /Outdoor Event) / Workshop)						1,060	1/100 sq. ft.	10.60
							Outdoor Event Parking TBD	
	4,137						1/400 sq. ft.	10.30
5 (Metal Concepts)	4,707						1/400 sq. ft.	11.77
							1/200 sq. ft.	0.00
							1/200 sq. ft.	0.00
6 (School)		4,849					actual	12.00
7 (Single Family Residence - 3 bedroom)				4,000			1/dwelling unit + .25/bedroom	1.75
							TOTAL REQUIRED PARKING	**143.40**

Site Plan Application

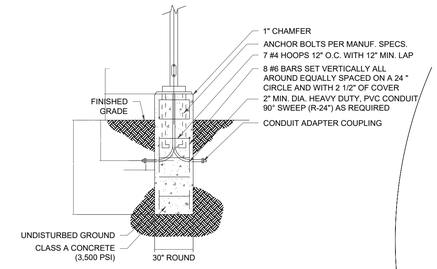
Sheet 3 of 5 - Overall Site Plan

Owner:
EJC III, LLC
4 Hanna Lane
Beacon, NY 12508

Architect:
Aryeh Siegel, Architect
84 Mason Circle
Beacon, New York 12508

Surveyor:
MJ Engineering And Land Surveying, P.C
1533 Crescent Road
Clifton Park, NY 12065

The Yard - Event Space
Beacon, New York
March 29, 2022



NOTE:

1. PROVIDE 24" CONCRETE FOUNDATION REVEAL FOR ALL FIXTURES WITHIN PARKING AREAS. ALL OTHER AREAS SHALL BE INSTALLED FLUSH.
2. CONCRETE SHALL HAVE A 28 DAY COMPRESSIVE STRENGTH OF 3,500 PSI, WITH AIR-ENTAINMENT OF 5-7%
3. COLOR OF LUMINAIRE SHALL MATCH COLOR OF POLE

LIGHT POLE BASE DETAIL
NOT TO SCALE

Site Plan
Scale: 1" = 20'

NOTE: ALL EXTERIOR LIGHTING ON THE SITE SHALL BE DIRECTED AND/OR SHIELDED SO AS NOT TO CAUSE ANY OBJECTIONABLE GLARE OBSERVABLE FROM NEIGHBORING STREETS AND PROPERTIES. THE SOURCE (BULBS) OF SUCH LIGHTING SHALL NOT BE VISIBLE FROM SAID NEIGHBORING STREETS AND PROPERTIES. PHOTOMETRIC DIAGRAMS ARE SHOWN WITH SHIELDED CONDITIONS.



POLE MOUNTED LIGHT (L2)

SELUX LIGHTING "BETA PENDANT" POLE MOUNTED LED FIXTURE. MODEL #BPC-L-R2-1-H100-BK-120-HS-PC WITH LOW GLARE CUTOFF SHIELD, COLOR: BLACK. COLOR TEMPERATURE: 2700 K. CRI 95. PHOTOCELL & MANUAL CONTROL. OR APPROVED EQUAL. MOUNTING HEIGHT ON A35 SERIES BLACK ALUMINUM POLE = 12 FEET



WALL MOUNTED HOUSE LIGHT (L1)

BARNLIGHT ELECTRIC WALL MOUNTED FIXTURE. MODEL "WESCO GOOSENECK", 100W, COLOR: DARK GREEN METAL SHADE, OR APPROVED EQUAL. MOUNTING HEIGHT = 7 FEET.

NOTE THAT THE MANUFACTURER DOES NOT PROVIDE FOOTCANDLE DIAGRAMS FOR THIS FIXTURE. THE FIXTURE IS SHADED AND DOES NOT EMIT GLARE

REVISIONS:			
NO.	DATE	DESCRIPTION	BY
1	04/26/22	REVISE PER PLANNING BOARD COMMENTS	AJS
2	05/31/22	REVISE PER PLANNING BOARD COMMENTS	AJS

Site Plan Application
Sheet 4 of 5 - Lighting Plan

Owner:
EJC III, LLC
4 Hanna Lane
Beacon, NY 12508

Architect:
Aryeh Siegel, Architect
84 Mason Circle
Beacon, New York 12508

Surveyor:
MJ Engineering And Land Surveying, P.C
1533 Crescent Road
Clifton Park, NY 12065

The Yard - Event Space
Beacon, New York
March 29, 2022

REVISIONS:			
NO.	DATE	DESCRIPTION	BY
1	04/26/22	REVISE PER PLANNING BOARD COMMENTS	AJS
2	05/31/22	REVISE PER PLANNING BOARD COMMENTS	AJS

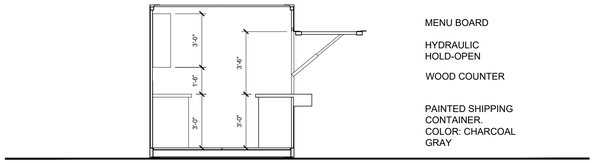






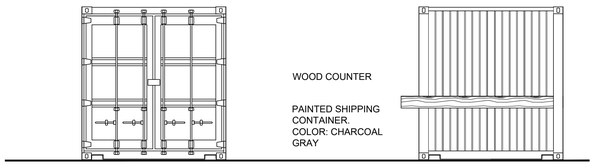
Shipping Container Food Service Examples

FOOD SERVICE CONTAINER TO BE CUSTOM FABRICATED FROM A 20' LONG SHIPPING CONTAINER ACCORDING TO OWNER'S REQUIREMENTS. THE ABOVE IMAGES ARE EXAMPLES ONLY, TO EXPLAIN THE PROPOSED CONCEPT. DESIGN IS SUBJECT TO OWNER REQUIREMENTS



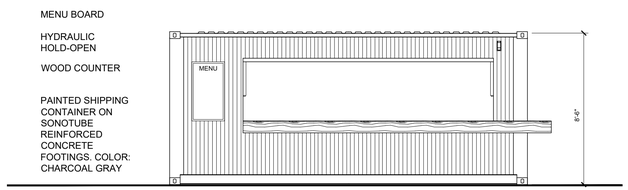
Section: Food Service Container

Scale: $\frac{1}{4}$" = 1'-0"



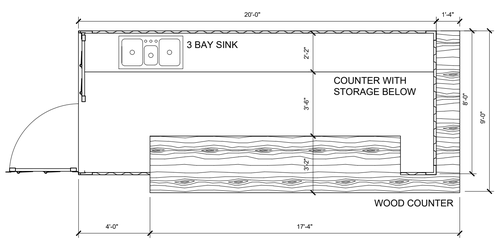
Side Elevations: Food Service Container

Scale: $\frac{1}{4}$" = 1'-0"



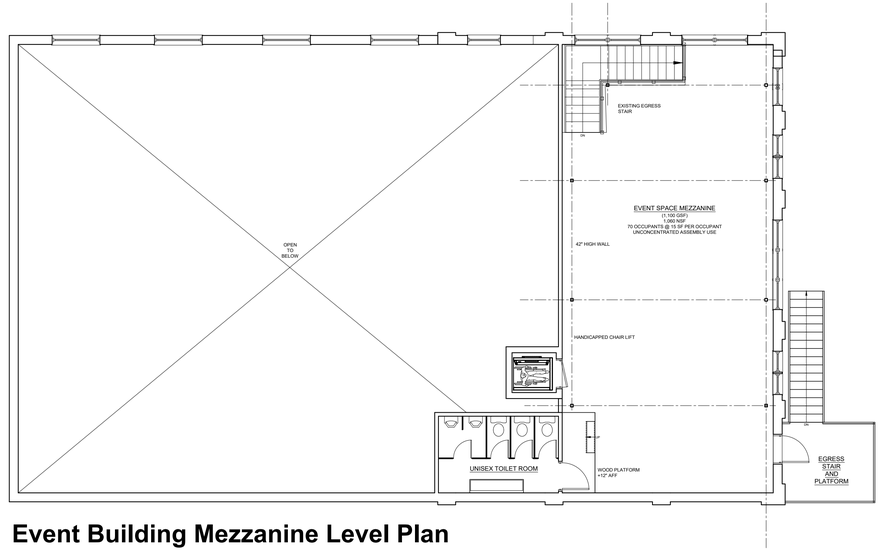
Front Elevation: Food Service Container

Scale: $\frac{1}{4}$" = 1'-0"



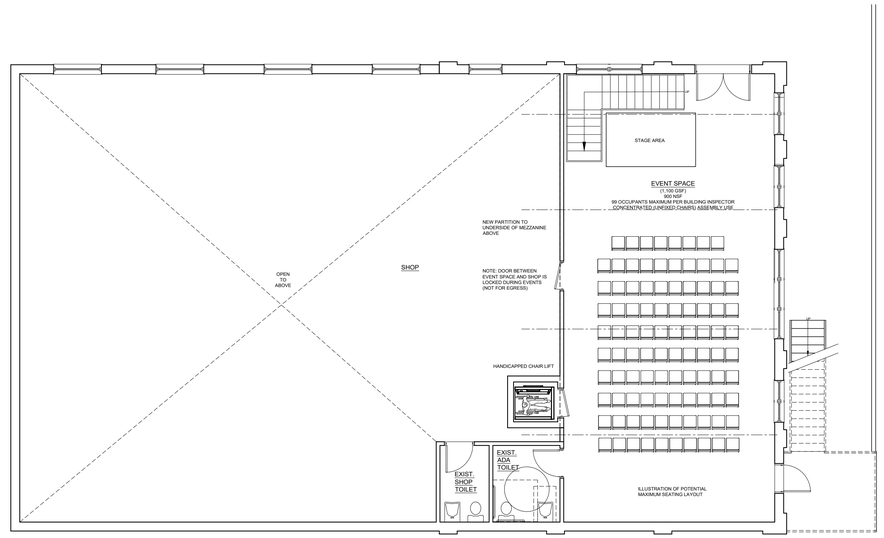
Floor Plan: Food Service Container

Scale: $\frac{1}{4}$" = 1'-0"



Event Building Mezzanine Level Plan

Scale: $\frac{1}{8}$" = 1'-0"



Event Building Main Level Plan

Scale: $\frac{1}{8}$" = 1'-0"

Site Plan Application

Sheet 5 of 5 - Building Plans

Owner:
EJC III, LLC
4 Hanna Lane
Beacon, NY 12508

Architect:
Aryeh Siegel, Architect
84 Mason Circle
Beacon, New York 12508

Surveyor:
MJ Engineering And Land Surveying, P.C
1533 Crescent Road
Clifton Park, NY 12065

4 Hanna Lane - The Yard - Event Space

Beacon, New York
March 29, 2022

Amanda Caputo

From: Fareground <fareground@gmail.com>
Sent: Monday, June 13, 2022 1:12 PM
To: Amanda Caputo
Subject: The Yard as an official Event Venue!

Follow Up Flag: Follow up
Flag Status: Flagged

Hello, Amanda!

I'm reaching out about the YARD as an official event venue!
The YARD and all of its staff have been incredibly instrumental in the success of Fareground. I am not sure if you are familiar with us, but Fareground is a local food access and food justice organization.

The YARD has helped us hold small fundraisers, lunches, meetings, food donation drives, and many other gatherings to help support the functioning of Fareground. They are kind, compassionate, hard working, and very responsible people! I hope you can help them become an official event venue as I know all that they do is grounded in justice and equity and I hope you can share this email with your other board members.
Without LNJ and The Yard, Fareground would not be able to be where we are, doing what we're doing (we shared over 4,000 pounds of food last week!)
I can not be at the hearing tomorrow so would like this email to be on the record regarding my support.

Hope you are well and let me know if you have any questions or concerns!
All my best,
Kara, Fareground Board President

Fareground
845.375.7194 **|** fareground.org
fareground.org | Donate | Volunteer | Events

Food + Community

Amanda Caputo

From: Kadia Saraf <kadyushka@gmail.com>
Sent: Monday, June 13, 2022 5:55 PM
To: Amanda Caputo
Subject: THE YARD Public Hearing 6/14/22

Follow Up Flag: Follow up
Flag Status: Flagged

Dear Amanda,

Last Wednesday we had our wedding at The Yard. Jason and his staff were professional, courteous and responsible. The entire wedding event was a beautiful collaboration of the Beacon community (florist, musician, caterer and event staff) and Jason was the captain of that ship.

We strongly believe that Beacon will benefit from The Yard being an official venue both because of their desire to serve the community with professionalism and respect AND the added business it'll funnel into the Beacon economy.

The team at The Yard is very conscientious of the impact the venue has on the neighborhood in terms of noise, parking, lights etc.
At our wedding, they made sure that we knew that the venue was beholden to its neighbors.

Please give The Yard its permit. They are really good people and they are really good for Beacon.

Thank you for your time!

Best,
Kadia Saraf Serpico and Terry Serpico

Kadia Saraf
(212) 335-0210
www.KadiaSaraf.com
IMDb
Instagram

Amanda Caputo

From: Lisa Arnoff <lisaarnoff@gmail.com>
Sent: Tuesday, June 14, 2022 8:28 AM
To: Amanda Caputo
Cc: Mike Arnoff
Subject: The Yard

Follow Up Flag: Follow up
Flag Status: Flagged

To Whom It May Concern:

As the property owner at 184 Main Street, Beacon we would like to offer our support in favor of granting The Yard whatever permits necessary to make it an official event venue. The Yard has a fantastic community focus offering the space for all kinds of events including to not-for-profits for fundraisers. It's an invaluable asset to the community to attract visitors and locals which in turn is a benefit to all of us.
Thank you,

Lisa and Michael Arnoff
184 Main LLC

Amanda Caputo

From: Viridescent Floral Design <virifloraldesign@gmail.com>
Sent: Tuesday, June 14, 2022 7:49 AM
To: Amanda Caputo
Subject: Public Hearing Comment: LNJ's The Yard

Follow Up Flag: Follow up
Flag Status: Flagged

Dear Members of the Beacon City Planning Board,

As a small business owner of Beacon for the past 7 years, I write to you in support of LNJ's new event space, The Yard. I have personally worked with LNJ on over 50 special events at many different venues throughout the Hudson Valley. I am constantly impressed by the professionalism, attention to detail, and quality of work that not only the owners of LNJ represent, but also their entire staff. While working in the wedding industry, I solely recommend their lighting and structural services to my new clients.

I believe The Yard would be an exceptional addition to Beacon as an event space. I am confident they will include special events that truly add value to our community.

Many thanks for your time.

Sincerely,
Kate Amato, Owner

Viridescent Floral Design LLC
45 Beekman Street, Unit 12
Beacon, NY 12508

Amanda Caputo

From: Brian Arnoff <brian@kitchensinkny.com>
Sent: Monday, June 13, 2022 8:20 PM
To: Amanda Caputo
Subject: Tomorrows meeting

Follow Up Flag: Follow up
Flag Status: Flagged

Ms. Caputo

I would like to submit the following letter as it relates to item 4 on the agenda LNG Tech / The Yard on Hannah Lane. Please confirm receipt of this email.

Thanks

Planning board

As a Beacon resident/home owner (90 Maple Street) and the business owner of Kitchen Sink and Meyer's Olde Dutch, I want to support the efforts LNJ Tech are making at The Yard on Hannah Lane to improve their property and aquire the necessary use permits to host events there.

The team behind The Yard has supported great, local causes and has always made an effort to include other local businesses in their events.

I hope you will approve their current request.

Thank you for your time and consideration,

Brian Arnoff

Sent from my iPhone

Amanda Caputo

From: Kk Naimool <kk@collective-justice.com>
Sent: Monday, June 13, 2022 7:54 PM
To: Amanda Caputo
Subject: Public Hearing re: The Yard

Follow Up Flag: Follow up
Flag Status: Flagged

Hi Amanda,

Re: **Public Hearing on application for Special Use Permit and Site Plan Approval, indoor and outdoor event space, 4 Hanna Lane, submitted by Jason Hughes**

I write this email in FULL support of the above- mentioned petition. I hope that the following testimony is considered in reviewing their petition.

The Yard is an integral member of our local Beacon community and has gone above and beyond to ensure that they amplify the voices of their neighbors and the work of community members. I have attended events at The Yard organized by organizations/groups like Compass Arts Creative Projects, FareGround, The Newburgh LGBTQIA+ Center, Beacon 4 Black Lives, Mid-Hudson Proud Families and Beacon Queer Liberation. I, myself have organized a few events in collaboration with many of the organizations I listed. These organizations support the most vulnerable in our communities.

The City of Beacon has enjoyed unprecedented economic growth in the last decade and has attracted many businesses, developers and event-oriented businesses who wish to benefit from our beautiful city and its proximity to New York City. In fact the City of Beacon is often listed as a "must visit" destination in various media. Many of these businesses focus on maximising profits and in practice exclude local community members.

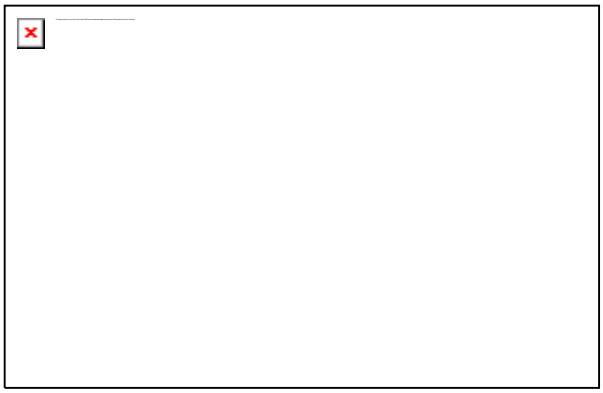
People at The Yard, like Ben and Jason, have offered their space, equipment, and knowledge to community based organizations for FREE. In addition, they show up not only to offer help at these events but to attend them - as members of OUR community.

I am a Beacon resident, Chair of the city's Human Rights Commission, a community organizer and Board Member of the Newburgh LGBTQIA Center - and I hope that you recognise that there are very few, if any, event spaces in the City of Beacon that deserve an opportunity to provide services in the City of Beacon.

The Yard sets itself apart from all of those businesses, in that they are an integral part of Beacon community support networks built by our local residents.

Please consider this email as my public support of The Yard becoming an official event venue. I am available for any follow up as needed.

Best,
kk



kk naimool (kay-kay, all pronouns)

Principal/Founder/Consultant

https://www.collective-justice.com/

John Clarke Planning and Design jclarkeplandesign@gmail.com
845.797.4152

To: John Gunn, Chair, and the City of Beacon Planning Board
Date: June 10, 2022
Re: **4 Hanna Lane, The Yard Event Space Site Plan**

I have reviewed a response letter and an attached list of remediation sites in the City from Aryeh Siegel and a 5-sheet Site Plan Application set, all dated May 31, 2022.

Proposal

The applicant is proposing to convert an existing building to an indoor and outdoor event space. The 0.84-acre parcel is in the Light Industrial (LI) district.

Comments and Recommendations

1. The applicant should be prepared to justify the square footage used to calculate parking for the outdoor space without seats. The number of spaces in Note 3 also needs to be corrected.

2. The Project Narrative mentions that past events encouraged walking to the site, but Fishkill Avenue does not have a sidewalk on this side of the street or a crosswalk. There is also no designated walkway from the Fishkill Avenue entrance to the building or a complete walkway from the Main Street gate to the building. The Board and applicant should consider site improvements to ensure safe walking from the entrances.

3. For the long lot along Hanna Lane:

    a. Parking on an adjacent property will need a formal agreement acceptable to the City.

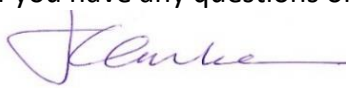
    b. The spaces should be striped at 18 feet long with a 24-foot aisle. Any surplus asphalt can then be used as a walkway on the building side of the parking lot.

    c. The northern end of the lot should be landscaped to provide screening from Fishkill Avenue.

    d. If to be used in the evening, the lot will need additional lighting.

    e. For total parking between 76 and 100 spaces, 4 ADA-compliant spaces should be provided.

If you have any questions or need more information, please feel free to contact me.



John Clarke, Beacon City Planning Consultant

c: Dave Buckley, Building Inspector
Jennifer L. Gray, Esq., City Attorney
Arthur R. Tully, P.E., City Engineer
John Russo, P.E., City Engineer
Aryeh Siegel, Project Architect

LANC & TULLY
ENGINEERING AND SURVEYING, P.C.

John J. O'Rourke, P.E., Principal
David E. Higgins, P.E., Principal
John Queenan, P.E., Principal
Rodney C. Knowlton, L.S., Principal
Jerry A. Woods, L.S., Principal
John D. Russo, P.E., Principal
John Lanc, P.E., L.S.
Arthur R. Tully, P.E.

June 8, 2022

Mr. John Gunn
Beacon Planning Board Chair
City of Beacon
1 Municipal Plaza
Beacon, NY 12508

RE: 4 Hanna Lane – Special Use Permit
Tax No. 6054-30-183889
City of Beacon

Dear Mr. Gunn:

My office has received the following in regard to a Special Use Permit for 4 Hanna Lane:

- Correspondence dated May 31, 2022, from Aryeh Siegel, Architect.
- Plan set titled "Site Plan Application – The Yard Event Space", consisting of 5 sheets, all with the latest revision date of May 31, 2022, as prepared by Aryeh Siegel, Architect.

The proposed project entails the re-use of an existing building on Hanna Lane for assembly of indoor and outdoor events. The site is located in the LI Zone. Based on our review of the above documents and plans, we would like to offer the following comments:

General Comments:

1. The applicant's consultant should conduct an Inflow & Infiltration study of the existing site and building and provide certification to the City of Beacon that the site currently has no illegal cross-connections between the existing site and the City's sanitary sewer system. Possible cross-connections that should be looked at would be roof-leaders, sump pumps, existing site drains, etc. If any cross-connections are found, a report should be submitted as to the findings, the volume of I&I being introduced into the sanitary sewer collection system, and the proposed remediation for the cross-connection(s) found. The plans should also clearly show the proposed remediation as outlined in the report. A note should also be added to the plans granting the City of Beacon Building Department access to verify where the existing roof leaders and sump pump(s), if present, drain to. ***Applicant has retained Hudson Land Design to prepare an Infiltration and Inflow (I&I) Study for the site.***

2. Based upon recent correspondences with the applicant, a new sewer line will need to be run from the proposed food service building to the new sewer main that is currently proposed to be constructed on Hanna Lane in the next few months. The plans for the sewer main project have been provided to the applicant's consultant so that they may show the location of their proposed sewer service, along with the tie-in location to the new sanitary sewer collection system.

Site Plan (Sheet 1 of 5):

1. The "Stop" sign located on the north side of the access drive into the 4 Hanna Lane site shall be relocated to the south side so that it is visible vehicles leaving the parking lot and entering on to Hanna Lane. Although the plans note the sign to be in this location, based upon a recent site visit, the stop sign is located in the middle of the access drive.

2. The "Pipe Trench Detail" shall be updated to include notes for the minimum depth of the water service line, and the minimum slope of the proposed drainage line.

3. It is recommended that a shut-off valve for the proposed water service line be located closer to the primary structure where water is to be supplied from for the food service structure. This will allow for the exterior line to be shut down in case the line is damaged.

4. Note No. 7 on Sheet 1 of 5 states that the applicant is currently in communication with Owners of Tallix with regards to leasing of the additional parking located on the adjacent parcel, as well as the proposed work on that parcel. A copy of the agreement shall be submitted to the Planning Board Attorney for review prior to approval being granted for the project.

This completes our review at this time. Further comments may be provided based on future submissions. **A written response letter addressing each of the above comments should be provided with the next submission.** If you have any questions, or require any additional information, please do not hesitate to contact our office.

Very truly,
LANC & TULLY, P.C.

John Russo, P.E.

cc: John Clarke, Planner
Jennifer Gray, Esq.
David Buckley, Building Inspector

To whom it may concern,

We're writing to express our public support for The Yard at Hanna Lane as an official Event Venue. Beacon4BlackLives is a community grassroots organization founded in 2020 that works to end systemic inequity on a local level, and the staff at the Yard and LNJ Tech have supported us since the beginning. The team at the Yard has helped us host and put together dozens of free community events, and they have been actively inclusive, generous, and welcoming in ways we have not seen elsewhere.

In the wake of the pandemic, the team at The Yard has offered safe outdoor space to gather, connect, and build community. Their dedication to justice, safety, equity, and community has brought people in Beacon together and will continue to be a hub for recreation and connection if the city approves.

We highly encourage you to support The Yard as an official event venue.
We would like this letter of support to be on the public record.

Best,

Aminah Taariq-Sidibe

Xavier Mayo

Beacon4BlackLives

June 13, 2022

To: Members of the Beacon City Planning Board,

We appreciate your careful consideration of this letter, submitted by the undersigned to express our concerns and opinions regarding the possible permission for the conversion of the property at **4 Hannah Lane to include "Event Space".** This letter contains important information which we believe is critical to the board's ability to make an informed decision regarding the permissions you are tasked with considering.

The residential neighborhood surrounding the property at 4 Hannah Lane is inhabited by a community of families with small children, young professionals, retirees and senior citizens, all of whom value their neighborhood because it provides a peaceful place to live. In general, we're appreciative of the fact that Beacon is a growing city. We recognize that it is a desirable tourist destination, and are not inherently opposed to expanding opportunities for public gatherings, cultural events and celebrations. However, we agree with the applicants assertion (see below) that expansion of this nature will only succeed if it is carried out in a manner that is responsible and mindful of the existing community's needs. As such we cannot support the full scope of the proposed event space at 4 Hanna Lane, specifically as it relates to noise control regarding outdoor events.

In their proposal the applicant "LNJ" states the following:
"Noise control is imperative in a mixed-use area, and the founders of LNJ bring their combined 55 years of live event production experience to bear when decisions are made regarding outdoor events. For the three concerts in 2021, a Noise Permit was obtained each time from the Building Department and Beacon Police. For those concerts, there were three different stage/audience configurations, and while it was noted that one configuration would only be appropriate for small, acoustic acts, none of the setups resulted in noise complaints. Every Yard event moving forward must take the same factors into account that have led to success thus far, while remaining open to evolution to meet the evolving needs of the community, without whose support the Yard cannot succeed."

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It is our contention that if permission is granted, we as a community will have to suffer similar degradation of our quality of life in perpetuity, and that our property values will suffer as well. We strongly urge the board to insist on a thorough review of noise levels within the surrounding community. We ask that you require a greater degree of proof that no one will be disturbed.

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Thank you for your time and careful attention to our concerns.

Sincerely,

Erica L Mbasan

Robert and Erica Mbasan
2 Herbert Street
Beacon, NY 12508

June 13, 2022

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Sincerely,

Katharine Baker KATHARINE BAKER 6/14/22

Gamble Staempli GAMBLE STAEMPLI 6/14/22

10 HERBERT ST., BEACON NY

June 13, 2022

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Sincerely,

M. Frey

Matt Frey

15 Franklin Ave.

June 13, 2022

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Thank you for your time and careful attention to our concerns.

Sincerely,

Katie Sheehan-Lopez & Jose Lopez

16 Blackburn Ave

June 13, 2022

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Thank you for your time and careful attention to our concerns.

Sincerely,

Owain Fye

Marilyn Fye

4 Herbert St.
Beacon, NY 12508

June 13, 2022

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We appreciate that proper permits were obtained for the three concert events already held at 4 Hannah Lane. However, it is a logical fallacy to assume that since "none of the setups resulted in noise complaints" no one was disturbed, and therefore, the introduction of comparable events on a routine basis will be problem-free.

We wish to correct the mistaken conclusion that because no formal complaints were filed, the surrounding residents were not disturbed by the noise. We were disturbed greatly. The event organizers may have obtained proper permits, but to our knowledge, no one reached out to homeowners in the surrounding area to inform them about the outdoor events that were planned, nor was there any follow up with neighbors afterward to inquire about any adverse reactions. Had either of these measures been taken, they would have received a vocal negative response. It should also be noted that many among us who know and respect the owners of LNJ, were trying to be "good neighbors". We did not want to create

trouble for our friends in the community and we hoped and assumed these would be rare, or ideally one-time happenings.

Given the magnitude of what is being proposed, with the applicant seeking to host an unspecified number of outdoor events, including "concerts, weddings and rehearsal dinners", we now feel an imperative to speak up. We hereby submit our retroactive complaint: Those events were too loud, we heard everything as if it were playing out in our backyard. The events kept our kids up and diminished our quality of life while they were being held. The noise, which included both amplified music and DJ-style crowd communication, could be heard from blocks away and lasted for hours.

It is our contention that if permission is granted, we as a community will have to suffer similar degradation of our quality of life in perpetuity, and that our property values will suffer as well. We strongly urge the board to insist on a thorough review of noise levels within the surrounding community. We ask that you require a greater degree of proof that no one will be disturbed.

Thus far the city planner John Clarke has submitted the following comments relevant to our concerns: "The Site Plan should provide information on the proposed hours of operations, including evening limits on outdoor events where noise may be a concern."

It is the opinion of the undersigned, who reside close to 4 Hannah Lane, that noise IS a concern, day or night. Mr. Clark's comments should be amended to include that "limits" should be set not just for evening hours but all hours of the day, and that the definition of the phrase "excess sound" be established not by the applicant, who clearly has a conflict of interest in making such a determination, but by the board itself, possibly with 3rd party consultation. If in the end, a reasonable compromise can be achieved, we support the applicants endeavors and look forward to taking part in events that may be relevant to our lives; but if the applicant is not able to adhere to stricter standards regarding noise pollution, we request that this application be denied or amended to allow for only outdoor events which do not require audio amplification.

Thank you for your time and careful attention to our concerns.

Sincerely,

Karen Krieger

KAREN KRIEGER
7 HERBERT ST.
BEACON, NY 12508

June 13, 2022

To: Members of the Beacon City Planning Board,

We appreciate your careful consideration of this letter, submitted by the undersigned to express our concerns and opinions regarding the possible permission for the conversion of the property at **4 Hannah Lane to include "Event Space".** This letter contains important information which we believe is critical to the board's ability to make an informed decision regarding the permissions you are tasked with considering.

The residential neighborhood surrounding the property at 4 Hannah Lane is inhabited by a community of families with small children, young professionals, retirees and senior citizens, all of whom value their neighborhood because it provides a peaceful place to live. In general, we're appreciative of the fact that Beacon is a growing city. We recognize that it is a desirable tourist destination, and are not inherently opposed to expanding opportunities for public gatherings, cultural events and celebrations. However, we agree with the applicants assertion (see below) that expansion of this nature will only succeed if it is carried out in a manner that is responsible and mindful of the existing community's needs. As such we cannot support the full scope of the proposed event space at 4 Hanna Lane, specifically as it relates to noise control regarding outdoor events.

In their proposal the applicant "LNJ" states the following:
"Noise control is imperative in a mixed-use area, and the founders of LNJ bring their combined 55 years of live event production experience to bear when decisions are made regarding outdoor events. For the three concerts in 2021, a Noise Permit was obtained each time from the Building Department and Beacon Police. For those concerts, there were three different stage/audience configurations, and while it was noted that one configuration would only be appropriate for small, acoustic acts, none of the setups resulted in noise complaints. Every Yard event moving forward must take the same factors into account that have led to success thus far, while remaining open to evolution to meet the evolving needs of the community, without whose support the Yard cannot succeed."

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Thank you for your time and careful attention to our concerns.

Sincerely,

Jessica Bottalico
21 Herbert St
Beacon, NY 12508

STEVEN PANECCIASIO
21 HERBERT STREET
BEACON NY 12508

June 13, 2022

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Thank you for your time and careful attention to our concerns.

Sincerely,

Christina Amato

17 Herbert St. Beacon, NY 12508

Amanda Caputo

From: Annalyse & Ryan <annalyseandryan@gmail.com>
Sent: Tuesday, June 14, 2022 10:28 AM
To: Amanda Caputo
Subject: Testimony regarding Planning Board Public Hearing TONIGHT - The Yard venue application

Hello,

We're writing in regards to the Public Hearing tonight of the Planning Board on the application to make The Yard an official event venue.

We produced 2 concerts in a series entitled *Summer Night Soundtracks* in the summer of 2021 at The Yard. These concerts both sold out and offered us the chance to safely bring together around 40 musicians and 300+ music lovers in our community.

We produce concerts all over the country, working with lots of venues, and we love pairing up with The Yard. They are 100% professional and responsible in all they do, with the well being & happiness of their neighbors in mind, and with respect to Covid precautions during such a delicate time.

We sincerely hope that The Yard's application is approved so that they may continue to contribute to the cultural growth and sense of togetherness & community in the town of Beacon.

Warm regards,

Annalyse McCoy & Ryan Dunn

Annalyse & Ryan
annalyseandryan.com
Instagram: @annalyseandryan

Amanda Means
5 Hanna Lane, Unit #5
Beacon, NY 12508
Ameans9933@gmail.com
646 724 1232

Date: June 14, 2022

To: Amanda Caputo
Beacon Planning Board
1 Municipal Plaza
Beacon, NY 12508

F**rom:** Amanda Means
Resident Tallix Commercial Condominium

Re: Jason Hughes application for a Special Use Permit and Site Plan Approval and for an indoor and outdoor event space at 4 Hanna Lane.

I have known Jason Hughes for nearly ten years. He became my neighbor on Hanna Lane in 2013. I had been living there since 2008.

In an early conversation with Jason I remember him saying that after his becoming a Beacon resident his priority was to be sure that all his projects would be geared toward having a positive effect on our Beacon Community.

Jason had bought a large property on Hanna Lane that used to be part of the Tallix Foundry. There was a big warehouse building there with a large grassy area on one side. He calls this property LNJ and The Yard.

For the last 9 years, Jason has been holding many different types of events on this property. These include both private and public events.

The private events include things like:

- Weddings, other types of family gatherings, or gatherings for groups.

The events open to the public include:

- Various Pop-Up Markets – the Spring Pop-Up Market, Holiday Markets…to support area artisans and provide local handmade items and foods for the Hudson River Valley Community.

- Fundraisers that help support Not-for-Profit groups such as Fairground, Beacon4BlackLives, The Firefly Festival for Common Ground Farm, Land to Learn (when it was Hudson Valley Seed), and a comedy benefit show for Planned Parenthood.

- Fundraisers that provide enrichment for the community as well as financial support for The Yard, such as:

    - Concerts
    - Films
    - Community parties, for example a Halloween party, *The Undead Bazaar*, last October...

I am one of 7 condo residents who live directly across from Jason's property. There are also 3 commercial owners that are part of the Tallix Commercial Condominium's property. Jason has been considerate and responsible toward us every time he has held an event. He notifies us ahead of time of his events and asks permission to use some of our parking areas when it is needed. He helps keep parking organized with signs that he provides. He does what he can to minimize any disruption to our condo community across the street. If there is a problem, he promptly takes care of it.

I am completely in support of granting Jason Hughes the Special Use Permit and Site Plan Approval that he requests in order to convert his building at 4 Hanna Lane to an indoor/outdoor event space. Until now, Jason has had to apply for a Permit each time he hosts an event. With the Special Use Permit this will no longer be necessary. He'll be able to hold events much more easily without so much red tape. Jason has already, for the last 9 years, proven himself capable of handling all of these events in a safe, responsible and considerate manner. It has been a pleasure to have him and The Yard as my neighbor. He has helped the Tallix property owners with our interest in developing a neighborhood with a cooperative spirit, and a spirit of equality and diversity.

I am wholeheartedly in favor of granting Jason the Special use Permit and Site Plan Approval he has requested.

Thank you,

Amanda Means

Amanda Caputo

From: Gina Samardge <gina@compassarts.org>
Sent: Tuesday, June 14, 2022 4:29 PM
To: Amanda Caputo
Cc: J.C. Calderon
Subject: The Yard hearing tonight

Follow Up Flag: Follow up
Flag Status: Flagged

Hello, Amanda and JC,

I realize I may have missed the deadline for letters, but I wanted to send one just in case it can still be included. I do hope the board will approve The Yard's proposal to become an official event venue in Beacon. Over the years that I have run Compass Arts, Jason Hughes and his team at The Yard/LNJ Tech have been an incredible resource and support network for my non-profit organization and many other community groups and non-profits around Beacon.

What they have created at The Yard is a truly special space that not only provides some fantastic events, but also provides immense value to our community. We recently had our spring showcase at The Yard at the end of April. Jason and his team gave us the space for free, including the week leading up to the event and the entire weekend, and were on hand the entire time to make sure that everything ran smoothly and that our teachers, families, and volunteers were all taken care of. I cannot speak more highly of this group of individuals and what they have created.

The City of Beacon is so lucky to have a small business here in town that devotes so many of its resources to providing support to our community. Approving their official event venue permit will allow them to not only provide an exceptional and magical event space in Beacon, but to continue to serve our local organizations and charities.

Thank you for your time.

Sincerely,
Gina Samardge

--
Gina Samardge, she/they
Founder/Director
Compass Arts Creativity Project - www.CompassArts.org
Follow us on Facebook And Instagram!
Support our financial assistance fund and make the arts accessible! Donate Today!

City of Beacon Planning Board Agenda
06/14/2022

Title:

Public Hearing on application for Special Use Permit and Site Plan Approval, hotel and event space, 1113 Wolcott Avenue, submitted by Prophecy Theater, LLC

ATTACHMENTS

1113 Wolcott Supplemental Planning Board Submission Cover Letter.pdf

Ex. A - Response to Comments Memorandum prepared by Aryeh J. Siegel Architect dated May 31, 2022.pdf

Ex. B - Response to Comments Memorandum prepared by HLD, dated May 31, 2022.pdf

Ex. C - Response to Comments Memorandum prepared by Colliers Engineering & Design, P.C., dated May 26, 2022.pdf

Ex. D - Revised Traffic and Parking Management Plan prepared by Colliers Engineering & Design P.C., dated May 26, 2022.pdf

Ex. E - Letters of Support.pdf

Sheet 1_Site Plan_Planning Board Submission 9_220531.pdf

Sheet 2_Full Site Plan_Planning Board Submission 9_220531.pdf

Sheet 3_Existing Conditions and Demoltion Plan_Planning Board Submission 9_220531.pdf

Sheet 4_Landscape and Lighting Plan_Planning Board Submission 9_220531.pdf

Sheet 5_Floor Plans_Hotel_Planning Board Submission 9_220531.pdf

Sheet 6_Floor Plans_Church_Planning Board Submission 9_220531.pdf

Sheet 7_Elevations_Church_Planning Board Submission 9_220531.pdf

Sheet 8-Plan Sheet Set_1113 Wolcott Ave-GRADING & UTILITY.pdf

Sheet 9-Plan Sheet Set_1113 Wolcott Ave-E&SC PLAN.pdf

Sheet 10-Plan Sheet Set_1113 Wolcott Ave-VEHICLE TRACKING PLAN.pdf

Sheet 11-Plan Sheet Set_1113 Wolcott Ave-SITE DETAILS.pdf

Sheet 12-Plan Sheet Set_1113 Wolcott Ave-STORMWATER DETAILS.pdf

Sheet 13-Plan Sheet Set_1113 Wolcott Ave-WATER & SEWER DETAILS.pdf

Sheet 14-Plan Sheet Set_1113 Wolcott Ave-E&SC DETAILS.pdf

1113 Wolcott Letter to Beacon Planning Board.pdf

1113 Wolcott Public Comment Email Krepp.pdf

1113 Wolcott Public Comment Simmons.pdf

1113 Wolcott Public Comment Borenstein.pdf

1113 Wolcott Planning and Zoning Public Comment Rodriguez.pdf

1113 Wolcott Public Comment Wall.pdf

1113 Wolcott Public Comment Jaffe.pdf

NYS Parks SEQRA Response Letter.pdf

Public Comment River Ridge Residents.pdf

Memo ZBA to PB_1113 Wolcott Avenue.pdf

1113 Wolcott Letter of Support Taylor.pdf

1113 Wolcott Public Comment Romano Yee.pdf

1113 Wolcott Public Comment Carlin.pdf

1113 Supplemental PB Submission.pdf

1113 Wolcott Public Comment White.pdf

1113 Wolcott Public Comment Moses.pdf

1113 Wolcott Public Comment Bell.pdf

1113 Wolcott Petition from surrounding neighbors and river ridge.pdf

1113 Wolcott Public Comment Shriftman.pdf

Planners Comments PB 1113 Wolcott Av 6.10.22.pdf

Traffic Comments 1113 Wolcott Avenue_Rev 6.pdf

Engineers Comments 1113 Wolcott Review 06-10-22.pdf

1113 Wolcott Public Comment Shriftman.pdf

1113 Wolcott Public Comment Shapley.pdf

1113 Wolcott Public Comment Signatures The View.pdf

1113 Wolcott Public Comment Rivkinc.pdf

1113 Wolcott Letter of Support Harvey.pdf

CUDDY +FEDER LLP

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Taylor M. Palmer, Esq.
tpalmer@cuddyfeder.com

May 31, 2022

VIA E-MAIL
AND HAND DELIVERY
Hon. John Gunn
And Members of the Planning Board
City of Beacon
1 Municipal Plaza
Beacon, New York 12508

Re: Supplemental Submission – Application for Site Plan and Special Use Permit Approval
Premises: 1113 Wolcott Avenue, Beacon, New York 12508
Tax Parcel ID: (5054-26-6511901)

Dear Chairman Gunn and Members of the Planning Board:

On behalf of Prophecy Theater, LLC (the "Applicant"), the owner of the above-referenced Premises, we respectfully submit this letter and the referenced enclosures in furtherance of the Applicant's pending Applications for Site Plan Approval and Special Permit Approval (the "Application") to adaptively re-use the Premises for a hotel and accessory conference/event space and café (the "Project").

Since the Applicant last appeared before this Board at its May 10, 2021 meeting Agenda, the Zoning Board of Appeals ("ZBA"), as an Involved Agency in the coordinated State Environmental Quality Review Act ("SEQRA") environmental review of the Project, has completed its referral review. The Applicant looks forward to reviewing the ZBA's feedback with this Board during its Special Use Permit & Site Plan Public Hearing that is scheduled for the June 14th meeting Agenda. This letter and its enclosures, for the benefit of the public and the Board, provide an overview of the Project and its history, site plan updates made in response to the Board and its consultants' comments and the Applicant's traffic and parking evaluations.

THE ADAPTIVE RE-USE PROPOSAL:

As this Board is aware, the Premises consist of a through lot that has frontages along Wolcott Avenue and Beekman Street. The Premises are presently improved with a historic church, rectory, and cemetery. As is detailed in the Applicant's prior submissions to the Planning Board, the Applicant's application consists of the following:

(1) expanding the rectory into a 2½-story, thirty (30) room hotel with thirty-one (31) off-street parking spaces provided on-site;

(2) renovating the church into an accessory use space that includes a conference center and dining facilities (café/restaurant/bar); and

(3) restoring the cemetery to open it as a public park, which will include a walking path from Beekman Street to Wolcott Avenue.[1]

The Project is designed to more effectively realize the potential of the property's intended use as a space to congregate. As it stands today, the church is in poor condition, and the cemetery has been abandoned for approximately 100 years. The former congregation, unfortunately, could not maintain the building as they lacked the people and necessary funding. An active church community for a space of this size—the church at present can serve 336 people—would have a similar use intensity as the Applicant is proposing. There was once daily use of the property as a school, as well as large services every weekend. This church was a centerpiece for the community, and the Applicant's plans will maintain its use as intended. By rehabilitating the cemetery, the Applicant will be bringing an additional historic resource to the community and members of the public adding character and adding to the aesthetic appeal of the property. Of note, the Applicant has conducted several outreach meetings with the public and has received support from many Beacon citizens. *See* **Exhibit E** – Letters of Support for the Project.

As this Board is aware, the hotel lodging is proposed to be available 24/7, 365 days per year, and the café will be situated in the rear of the existing historic church. The café will serve as a reception for guests of the hotel and offer meals to the hotel guests, as well as members of the public. The conference center accessory use will operate less intensely and frequently, utilizing the former church building for various cultural, educational, or professional programs, conferences, art exhibitions, performances, lectures, seminars, events and workshops.

Since first appearing before the Board, and in contrast to the programmatic scope previously before this Board in the prior proposal, the Applicant is now proposing a reduced scope of programs from that which was originally envisioned. While the Applicant previously contemplated a maximum capacity of 420 people for occasional larger weekend events, the expected maximum capacity for the occasional weekend programming for the hotel conference center is a *maximum* of 350 people, including employees. Notwithstanding the maximum capacity noted here, we understand that these occasional larger weekend programs are typically

[1] Note: On November 30, 2021, the Building Inspector issued a Determination that the proposed conference center/event space accessory uses contemplated in this refined application are permitted uses on the Premises, subject to special permit review. *See* CITY OF BEACON ZONING CODE § 223-24.7.B(6) (permitting hotels and hotel-related accessory uses and structures pursuant to a special permit issued by the Planning Board).

expected to have fewer people, ranging between 125-200 people. Along the same line, instead of hosting events seven (7) days a week as was originally proposed, the refined programing proposes that conference center programming would likely be limited to larger events held only on weekends with smaller functions, such as seminars, workshops or retreats on weekdays with a range between 50 to 200 attendees, but on fewer days of the week.

THE REVISED SITE PLAN & UPDATED SITE CIRCULATION:

In direct response to the discussions with the Board and its consultants at the May 10th meeting, the Applicant has modified the driveway entrance/exit and on-site circulation pattern. The Project is now proposed to be served by a one-way entry only driveway between at the existing main driveway location (between the existing parsonage and church buildings) and a one-way exit only driveway immediately north of the existing parsonage building. This will provide for a one-way clockwise circulation on the Project site that will prevent any dead-end circulation issues in the rear parking lot. This circulation update results in the removal of the previously proposed gate on the norther driveway. Additionally, in order to better serve those with special needs, the Applicant is now proposing four (4) on-site ADA accessible parking spaces to meet the needs of the total development. These updated site operational details are now incorporated into the enclosed Site Plan set, as well as in the Applicant's traffic and parking consultant, Colliers Engineering & Design's ("Colliers") Response to Comments Memorandum and revised Traffic and Parking Management Plan (the "Parking Management Plan"). *See* **Exhibits C & D**.

In support of this Application and consistent with the pattern of street trees in front of adjacent properties, the Applicant has revised the enclosed Landscape Plan to include the specifications for the two (2) additional canopy trees in front of the hotel. The Applicant has also revised the Site Plan with respect to the café deck seating. Upon the request of the Board, the Applicant's prior submission included details demonstrating the capacity of the outdoor seating area. As clarified to the Board at the prior meeting, the Applicant is *not* proposing forty *additional* seats on the deck. Instead, the deck area exists as a seasonal observation area for photo opportunities during the daylight hours of events. Its use will not incorporate any additional seating for the cafe. If weather permits, a few tables and chairs would be moved from inside the café to the deck for seated service during cafe hours. Therefore, the total number of seats for the café, including the deck, is 50.

PROJECT PARKING AND TRAFFIC EVALUATIONS:

The previously submitted Traffic & Parking Study provides a detailed analysis of the potential traffic impacts associated with the Project. This analysis, which has been reviewed by the City's

Traffic Consultant as well as by the New York State Department of Transportation, indicates that the Project is not anticipated to result in any potentially significant adverse environmental traffic related impacts. Moreover, the recently submitted Sensitivity Analysis, which provides an assessment of the traffic impacts associated with the Project accounting for the anticipated off-site parking locations, similarly concludes that the Project is not anticipated to have a significant traffic impact. Furthermore, the revised Traffic & Parking Management Plan, identifies strategies to mitigate any traffic and parking pick-up/drop-off operational impacts on the surrounding neighborhoods and residents. *See* **Exhibit D**. This Plan includes the use of on-site parking and traffic flow attendants, directional signage, and providing information to event attendees on optimal parking areas and public transportation options. Other strategies are also proposed to try to reduce the Project event attendees' reliance on personal vehicles to the greatest extent practicable, including the use of shuttles, ability to utilize valet parking, encouraging and disseminating information on public transportation options, and the facilitation of pedestrian and bicycle access to the Premises.

With respect of off-street parking, the Applicant is proposing 31 spaces on the rear portion of the property, located behind the hotel/rectory. These spaces are intended to accommodate the hotel guests and employees, with the remainder of the required parking proposed to be accommodated by public parking surrounding the Project sites and, pending a formal agreement, by a private parking lot in close vicinity of the site. Parking for the 50-seat café use and church event space will be accommodated by several off-site parking locations. Locations of off-site public parking have been identified including the Tompkins lot, the Municipal Plaza lot and on-street parking along Beekman Street. All parking spaces within these areas are within reasonable walking distance from the Site. As indicated in the previously submitted Traffic & Parking Study, these public parking locations have been observed under existing conditions and found to have more than sufficient available parking spaces to accommodate the needs of the largest events anticipated at the site. Furthermore, the provision of a dedicated off-site parking location through a forthcoming agreement with the nearby funeral home could further lessen the Project's utilization of existing (and available) public parking during the planned events. The Applicant will also provide a free shuttle service from any off-site parking location with a distance greater than 1,000 feet when needed for a larger event.

REFERRAL TO THE ZONING BOARD OF APPEALS:

As this Board is aware, on February 3, 2022, the Applicant submitted a request for determination to the Building Inspector in connection with the total number of off-street parking spaces that are

required for the Project.[2] While the Applicant's request for a determination was reviewed by the Building Inspector, this Board as Lead Agency in the coordinated SEQRA environmental review of the Project referred the Project to the ZBA—an Involved Agency—for discussion regarding the SEQRA review and the off-street parking proposal for consideration at the ZBA's March 15, 2022 meeting Agenda.

The Applicant has since appeared before the ZBA at its March 15th, April 19th, and May 17th meeting Agendas to address comments from the Board and, as noted above, the ZBA has now completed its environmental review of the currently proposed Project. The ZBA issued a memorandum to this Board dated May 27, 2022 (the "ZBA Memo"), regarding what the ZBA perceived as potential environmental impacts with a focus on the occasional 350-person larger event capacity that specifically triggers the need for a parking variance and the ZBA's involvement herein. While the Applicant generally responded to these comments in detailed supplemental submissions to ZBA and during its presentations to the ZBA, the ZBA appears to have reiterated some of these comments in the ZBA Memo. Notwithstanding the comments in the ZBA Memo, it is respectfully submitted that a review of the ZBA meeting minutes regarding this SEQR referral more accurately reflects that the ZBA had concern with the maximum larger event capacity presently proposed by the Applicant—and not the use itself.[3]

Additionally, it's important to highlight the context of some of the ZBA's comments when the only area variance relief that is required for the instant application is for off-street parking for the occasional larger events. For example, the ZBA Memo includes a comment that "[w]hile the mitigation efforts presented by the Applicant may alleviate some of these impacts, they do not **eliminate** them...] (emphasis added).[4] It is respectfully submitted that is not the SEQR standard of review, and further that the ZBA's comments *do not* fully consider the scope of the Applicant's mitigation measures that the ZBA itself indicates the Applicant is employing.[5] Other perceived

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[2] Note: The Building Inspector issued a determination regarding the required off-street parking for the current proposal for a hotel and accessory conference center/event space with a maximum of 350 people at occasional larger weekend events. That determination indicated that notwithstanding the 1964 parking exception that could be applied to the Premises and proposed uses if the parking requirement for the proposal only required eighty-six (86) parking spaces (i.e., 25% more than the sixty-nine (69) spaces required for the Church use in 1964), the present proposal with occasional events of 350 people requires one hundred thirty-six (136) spaces, and thus a parking variance for one hundred four (105) spaces (the total number of spaces not provided on-site) is required.

[3] *See, e.g.,* ZBA May 17, 2022 meeting Agenda Video available at approximately 2:43:00; *see also* ZBA Memo at page 5 whereby "[t]he Zoning Board is generally in support of the reuse of this historic building..."

[4] *See* ZBA Memo at page 3.

[5] *See also* the Applicant's correspondence to the ZBA dated May 17, 2022, April 26, 2022, and March 9, 2022, providing itemized responses to the comments that have now been embodied in the ZBA Memo.

impacts expressed by the ZBA include that potential "... increased noise in residential neighborhoods from people closing doors and taking as they walk to or from the Property."[6] This comment is patently unreasonable and ignores the built environment of the walkable transition between the metro-north train station and Main Street.

The Applicant respectfully submits and reiterates that the proposed Project, its proposed capacity and the attendant parking needs, will not create any potentially significant adverse environmental impacts to the surrounding area given the mitigation measures proposed by the Applicant to control the traffic conditions on site and to promote use of available parking facilities and alternative methods of transportation, and considering the character of the surrounding area, which consists of adjacent residential neighborhoods are representative of high-density urban living. Indeed, in the Applicant's supplemental submissions and during its presentations to the ZBA, the Applicant highlighted its supporting studies and related details that address the comments in the ZBA Memo. However, unlike at Planning Board meetings, the ZBA does not have the benefit of the Board's engineering, traffic and planning consultants during its meetings. It is therefore respectfully reiterated and submitted that the Project effectively mitigates against any potentially significant adverse environmental impacts.

ADDITIONAL RESPONSES TO COMMENTS MEMORANDA:

To further assist this Board in its review of the Application, the Applicant respectfully submits the following memoranda prepared by its consultants providing annotated responses to the applicable comments noted in in the memoranda prepared by the City's Engineering Consultant, Lanc & Tully, dated May 5, 2022 (the "Engineering Comments Memorandum"); the City's Planning Consultant, John Clarke Planning and Design, dated May 6, 2022 (the "Planning Comments Memorandum"); and the City's Traffic Consultant, Creighton Manning, dated May 10, 2022 (the "Traffic Comments Memorandum").

- Response to Comments Memorandum prepared by Aryeh J. Siegel Architect dated April 26, 2022, (the "Architect Response to Comments Memorandum"). *See* **Exhibit A** – Architect Response to Comments Memorandum;
- Response to Comments Memorandum prepared by Hudson Land Design Professional Engineering, P.C. ("HLD") dated April 26, 2022 (the "HLD Response to Comments Memorandum"). *See* **Exhibit B** – HLD Response to Comments

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Copies are on file with the Building Department and posted on the City's website, and the Applicant is pleased for provide additional copies as requested.

[6] *See* ZBA Memo at page 3.

Memorandum; and

- Response to Comments Memorandum prepared by Colliers Engineering & Design dated May 26, 2022 (the "Colliers Response to Comments Memorandum"). *See* **Exhibit C** – Colliers Response to Comments Memorandum.

UPDATED SITE PLAN SET:

In support of this supplemental submission and in response to the comments contained in the City Planning and Engineering Comments Memoranda, we respectfully submit revised site plans and renderings entitled "Special Use Permit Application", prepared by Hudson Land Design Professional Engineering, P.C. and Aryeh Siegel, Architect, dated June 29, 2021, last revised May 31, 2022, numbered and titled as follows:

- Sheet 1 of 14 Site Plan;
- Sheet 2 of 14 Full Site Plan;
- Sheet 3 of 14 Existing Conditions & Demolition Plan;
- Sheet 4 of 14 Landscape Plan & Planting Schedule;
- Sheet 5 of 14 Hotel Building Plans & Elevations;
- Sheet 6 of 14 Conference Center Plans;
- Sheet 7 of 14 Conference Center Elevations;
- Sheet 8 of 14 Grading & Utility Plans;
- Sheet 9 of 14 Erosion and Sediment Control Plan;
- Sheet 10 of 14 Vehicle Tracking Plan;
- Sheet 11 of 14 Site Details;
- Sheet 12 of 14 Stormwater Details;
- Sheet 13 of 14 Water & Sewer Details; and
- Sheet 14 of 14 Erosion and Sediment Control Details.

INDEX OF ENCLOSURES:

In support of this supplemental submission, please find enclosed five (5) sets of the instant letter with the following materials:

Exhibit A: Response to Comments Memorandum prepared by Aryeh J. Siegel Architect dated May 31, 2022, providing responses to the Planning Comments Memorandum;

Exhibit B: Response to Comments Memorandum prepared by Hudson Land Design Professional Engineering, P.C. dated May 31, 2022, providing responses to the Engineering Comments Memorandum;

Exhibit C: Response to Comments Memorandum prepared by Colliers Engineering & Design, P.C., dated May 26, 2022, providing responses to the Traffic Comments Memorandum and enclosing the Revised Traffic and Parking Sensitivity Analysis;

Exhibit D: Revised Traffic and Parking Management Plan prepared by Colliers Engineering & Design P.C., dated May 26, 2022; and

Exhibit E: Letters of Support for the Project.

The Applicant looks forward to continuing its review of the Project with the Board and to more fully discussing its responses to the comments in the ZBA Memo at the June 14th regular meeting for the Site Plan and Special Use Permit Public Hearing on the Application.

In the meantime, should the Planning Board or City Staff have any questions or comments with regard to the foregoing, please do not hesitate to contact me.

Very truly yours,

Taylor M. Palmer

Enclosures

cc: Jennifer L. Gray, Esq.
John Clarke Planning and Design
Lanc & Tully, P.C.
Aryeh J. Siegel Architect
Michael A. Bodendorf, P.E. – Hudson Land Design Professional Engineering, P.C.
Colliers Engineering & Design, P.C.
Allison Fausner, Esq.

ARYEH SIEGEL
ARCHITECT

John Gunn - Planning Board Chairman
City of Beacon
One Municipal Plaza
Beacon, NY 12508

Re: 1113 Wolcott Avenue, Beacon, New York
Site Plan Application – Responses to Comments

May 31, 2022

Dear Chairman Gunn and Members of the Planning Board,

Below please find our responses to the comments included in John Clarke Planning and Design's Memorandum, dated May 6. 2022. Please refer to Hudson Land Design's response letter regarding Lanc & Tully's letter dated May 5, 2022.

John Clarke Planning and Design Comment Responses:

1. Comment acknowledged. Discussion of parking will continue with the Planning Board. The Applicant appeared before the Zoning Board of Appeals to review the project with regard to SEQRA.

2. Comment acknowledged.

    a The Applicant is reviewing parking solutions to present to the Planning Board. There are now 31 parking spaces on the site.

    b Comment acknowledged.

    c Comment acknowledged. Please refer to the traffic consultants response.

    d Comment acknowledged. Please refer to the traffic consultants response.

    e We are providing 4 ADA spaces on site. This resulted in the loss of one space. The total number of spaces provided on site is 31.

84 Mason Circle | ajs@ajsarch.com | *Tel* 845 838 2490
Beacon, New York 12508 | www.ajsarch.com | *Fax* 845 838 2657

3. For Sheet 1
    a The access proposal now indicates a one way system which reduces the size of the entrance driveway.

    b A one way traffic system is shown. The total number of seats for the café, including the deck, is 50. The Applicant clarified that the deck will not be used for additional seating.

4. For Sheet 4
    a Canopy street trees and additional low landscaping have been added in front of the hotel. The landscaping schedule and specifications for the 2 new street trees has been revised to reflect the additional 2 trees.

5. Comment acknowldedged.

Lanc & Tully Comment Responses:

Sheet 1 – Site Plan

1. The parking requirement reflects the 136 spaces per the Building Inspector's determination.
2. The Applicant revised the entry and is not adding a gate with the new one way layout.

Sheet 2 – Full Site Plan

1. Landscaping and lighting are coordinated on both site plans.
2. The site plan reflects the access from Wolcott Avenue in coordination with other plans.

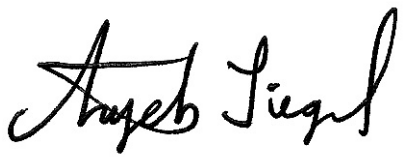
Sheet 3 – Existing Conditions & Demolition

1. The plan indicates the extent of existing sidewalk being replaced at the front of the project.

Please refer to Hudson Land Design's letter for responses to additional engineering comments.

Thank you. Please let me know if you have any questions.

Sincerely,



Aryeh Siegel
Aryeh Siegel, Architect

Civil & Environmental Engineering Consultants
174 Main Street, Beacon, New York 12508 (Main Office and Mailing Address)
13 Chambers Street, Newburgh, NY 12550 (Satellite Office)
Phone: 845-440-6926 Fax: 845-440-6637
www.HudsonLandDesign.com

May 31, 2022

Hon. John Gunn, Chairman
City of Beacon Planning Board
1 Municipal Plaza
Beacon, NY 12508

Re: 1113 Wolcott Avenue, Site Plan and Special Use Permit
1113 Wolcott Avenue
Tax Parcel: 5954-26-651901, ±2.28 ac.
City of Beacon, NY

Dear Chairman Gunn and Members of the Planning Board:

On behalf of the Applicant for the above referenced project, Hudson Land Design (HLD) has revised the plan set in response to Lanc & Tully's May 5, 2022 comment letter. Below is a point-by-point response to the comments received. Please note that Aryeh Siegel has prepared Sheets 1 through 7 of the plan set and has responded to comments that pertain his sheets under separate cover, as well as John Clarke Planning and Design's May 6, 2022 comment letter.

Lanc & Tully May 5, 2022 Comment Letter

General Comments

1. Richard Diandrea from Colliers has responded to this comment under separate cover. The site plan has been updated to include 4 ADA van-accessible parking spaces.
2. Richard Diandrea from Colliers has responded to this comment under separate cover.
3. Richard Diandrea from Colliers has responded to this comment under separate cover.
4. Aryeh Siegel has removed the existing driveway outlines from sheets 2 and 4.
5. Richard Diandrea from Colliers has responded to this comment under separate cover.

Sheet 1 of 13 – Site Plan

1. Aryeh Siegel has responded to this comment under separate cover.
2. The gate has been removed from the north drive. The site circulation is now a one-way ingress only at the south entrance and one-way egress only at the north entrance.

Sheet 2 of 13 – Full Site Plan

1. Aryeh Siegel has responded to this comment under separate cover.
2. Aryeh Siegel has responded to this comment under separate cover.

Sheet 3 of 13 – Existing Conditions & Demolition Plan

1. Aryeh Siegel has responded to this comment under separate cover.

Sheet 8 of 13 – Grading & Utility Plan

1. The soil testing will be coordinated with Lanc & Tully's (L&T) office as soon as possible and weather permitting. We will continue to monitor the weather in the next week and set up a date with L&T.
2. We will discuss the procedure for abandoning the existing water and sewer services with the Beacon Water & Sewer Department and add applicable notes and details to the plans.
3. See sheet 1 of 13 response #2. The gate is no longer proposed.

Sheet 11 of 13 – Site and Erosion & Sediment Control Details

1. The pavement restoration detail has been updated to reflect the cross section provided by the NYSDOT.
2. The walking trail has been updated to include 2" of ¼" crushed gravel over 6" of compacted item 4.

Five (5) hard copies of revised sheets 8, 10 and 11 are provided with this submission for review. A full set of digital plans are provided with the digital submission package. We look forward to discussing this project at your next available planning board agenda. Should you have any questions, please feel free to contact me at 845-440-6926.

Sincerely,

Michael A. Bodendorf, P.E.
Principal

cc: Prophecy Theater, LLC
Taylor M. Palmer, Esq.
Aryeh Siegel, AIA
Richard D'Andrea, P.E., PTOE
Daniel G. Koehler, P.E. (HLD file)

400 Columbus Avenue
Suite 180E
Valhalla New York 10595
Main: 877 627 3772
colliersengineering.com

Colliers Engineering & Design

Via E-Mail
May 26, 2022

Mr. John Gunn, Chairperson
City of Beacon Planning Board
City of Beacon City Hall
1 Municipal Plaza
Beacon, NY 12508

1113 Wolcott Avenue – Prophecy Theater LLC
City of Beacon, Dutchess County, New York
Colliers Engineering & Design Project No. 21004333A

Dear Mr. Gunn & Planning Board Members,

Colliers Engineering & Design CT, P.C. (CED) has reviewed the most recent comments received from the Planning Board's Consultants as provided in the letters listed below:

- Creighton Manning (CM) Review #5 letter dated May 10, 2022.
- Lanc & Tully Engineering & Surveying Letter dated May 5, 2022
- John Clarke Planning and Design Letter dated May 6, 2022

The following provides detailed responses to each of the traffic related items contained in these letters.

It should also be noted that based on discussions with the Board and its consultants at the May 10, 2022 Planning Board Meeting, the driveway entrance/exit and on-site circulation pattern has been modified. The Project is now proposed to be served by a one-way entry only driveway between at the existing main driveway location (between the existing parsonage and church buildings) and a one-way exit only driveway immediately north of the existing parsonage building. This will provide for a one-way clockwise circulation on the Project site. The associated on-site modifications to accompany this circulation pattern are reflected on the Site Plans. The Traffic & Parking Management Plan has also been updated to reflect this permanent one-way clockwise circulation patter.

Crieghton Manning Review #5 Letter dated May 10, 2022

The following provides response to the open and/or new comments contained in the CM letter. Those items for which CM has indicated "No further comment" in their letter are not repeated below.

Site Plan

1. On-site vehicular circulation should be clarified. We have the following questions:

Colliers Engineering & Design

- CM Review #5 Follow-Up Comment: A stop bar is still absent from the north site driveway.

  Response: ***A Stop bar has been added to the north site exit only driveway.***

Traffic Impact & Parking Study

3. CM Review #5 Follow-Up Comment: The Riverview Funeral Home is approximately 0.3-miles from the subject site or a five-minute walk according to Google Maps. CM agrees that this is a legitimate location for off-street parking to be located. Pending a final agreement on the use of the lot, CM recommends that the Traffic & Parking Management plan incorporate this lot with signage and potentially an attendant to facilitate efficient parking within the lot.

   Response: ***Pending a final agreement for the use of this parking location, additional signage will be added to direct event attendees to this lot.***

DRAFT Traffic & Parking Management Plan

2. CM Review #5 Follow-Up Comment: CM acknowledges Colliers' concern of queuing onto NYS Route 9D. However, the additional attendant would ensure that guest seeking to park on-site never enter the driveway. Furthermore, this attendant could enforce prohibition of drop-offs/pickups occurring on the roadside of NYS Route 9D.

   Response: ***A third parking attendant is included in the Traffic & Parking Management Plan dated April 25, 2022, previously submitted to the Board. The Traffic & Parking Management Plan has also been updated to reflect the permanent one-way clockwise on-site circulation patter.***

Traffic & Parking Sensitivity Analysis

1. There is a discrepancy between the trip distribution shown on the Figures 12S and 13S and the trip assignments shown Figures 16S-19S. CM alerted Colliers to this discrepancy. Colliers provided CM with revised trip assignment figures, Synchro reports, and Level of Service summary tables for review. Colliers should provide those revised documents and a revised report to the Planning Board.

   Response: ***The Traffic & Parking Sensitivity Analysis Technical Appendix has been updated accordingly and is attached.***

2. The number of exiting trips at the site driveway in the Friday and Saturday Event Entry scenarios do not reflect the number of exiting trips anticipated associated with the anticipated rideshare volumes. CM recommends that Colliers prepare Entry/Exit distributions specific to the arrival and departure peak hours. For instance, during the arrival peak hour 100% of exiting trips should be originating from the site driveway as these trips would be associated with the hotel patrons not attending the event and the rideshare vehicles having dropped off their passengers.

   Response: ***We acknowledge the technical nature of this comment. However, it is our opinion that further revision to the analysis as suggested is not necessary. The goal of the***

Colliers Engineering & Design

Sensitivity Analysis was to demonstrate that there would be no other traffic related impacts associated with vehicles destine to and from the various off-site parking locations, which the analysis has confirmed. The original traffic analysis contained in the Traffic & Parking Study dated February 21, 2022, assumed all event traffic entering and exiting at the Site driveways and indicated that the site access intersection would operate at a Level of Service "B". Further analysis as suggested in the comment would not change this conclusion.

3. In Table 1S, the HTGR's do not reflect the trip volumes listed. The 0.99 should be 0.36 to reflect the 2.75 persons per vehicle occupancy rate.

   Response: Table 1S in the attached Traffic & Parking Senstivity Analysis Technical Appendix has been revised to reflect the correct HTGRs.

4. The LOS report for the NYS Route 9D/Verplanck Ave intersection indicates that default peak hour factor (PHF) and heavy vehicle percentages (HV%) are being used. Turning movement count (TMC) data was not included as part of this study; therefore, CM reviewed the TMC data included under Appendix E of the revised TIS dated February 21, 2022 and could not find such data for the intersection. Please confirm if the PHF and HV% in the synchro report are correct.

   Response: The traffic volume data for the intersection of NYS Route 9D/Veplanck Avenue was adapted from a prior study conducted in 2018. The PHF and HV% data for this intersection was not available to our office when conducted the analysis, therefore default PHFs and HV% were utilized in the analysis of this intersection.

5. Colliers notes that the project will require 78 off-site parking spaces based on the Sensitivity Analysis scenario. If an agreement is met with the Riverview Funeral Home to utilize the 46 off-street parking spaces, the development would require 32 parking spaces to be sourced from available public parking.

   Response: Comment noted. It should be noted that this number of 78 parking spaces to be sourced from available public parking is based on an assumption of 50% of the hotel guests also attending the events. As previously stated by the Applicant, the hotel anticipates prioritizing hotel rooms for event attendees prior to opening booking to general public as a way to maximize the number of event attendees also staying at the hotel. Also note that the Project on-site parking has been modified resulting in 31 on-site parking spaces and a need for 79 spaces to be accommodated off-site. This is further reflected in the Traffic & Parking Sensitivity Analysis attached.

Colliers Engineering & Design

Lanc & Tully Engineering & Surveying Letter dated May 5, 2022

The following provides response to only those comments from the Lanc & Tully letter related to traffic.

General Comments

1. The "Traffic & Parking Management Plan" should be updated to reflect how those with special needs will be handled during large events, as this may require additional room for a van with a ramp, as well as extended time to unload the occupant of the van. This could lead to longer queue times, and in turn disruption of normal traffic flow along Route 9D.

   Response: ***The Site Plan has been modified to now provide four (4) on-site ADA accessible parking spaces to meet the needs of the total development.***

2. The offsite parking value for the Tompkins Firehouse Parking Lot in the "Traffic & Parking Management Plan" should be revised to reflect what may be available at this lot based upon the future expansion of the fire house, which would be 54 spaces as noted in the previously submitted traffic study of February 2022.

   Response: ***The Traffic & Parking Management Plan only makes reference to the number of available parking spaces in each of the area parking lots. The utilization of the parking lots is not referred to within the Traffic & Parking Management Plan. Unless it is known that 14 spaces within the Tompkins Lot are to be strictly signed for Firehouse Parking Only, we do not see a need to modify the Traffic & Parking Management Plan. Furthermore, it has been identified in the Traffic & Parking Study that there is sufficient parking in other public areas to accommodate the parking needs for the Project.***

3. The Traffic Study and "Traffic & Parking Sensitivity Analysis" should be updated to reflect the required parking for the site as determined by the Beacon Building Department.

   Response: ***The Beacon Building Department determination indicated that 136 parking spaces are required for the Project. The Applicant maintains that the Café and Event spaces are to strictly non-simultaneous uses and therefore during events there would no separate parking demand generated by the Café space. The Traffic & Parking Study dated February 21, 2022, and the Traffic & Parking Sensitivity Analysis parking demand calculations are based on this planned usage of the Site.***

5. A "Work Zone Traffic Control Plan" shall be prepared as per the NYSDOT correspondence of April 17, 2022, and made part of the overall plan set.

   Response: ***Work Zone Traffic Control Plans for the proposed driveway, sidewalk and utility installation work within the NYSDOT Right-of-Way will be provided as part of the NYSDOT Highway Work Permit Application, to be submitted at a later date.***

Colliers Engineering & Design

John Clarke Planning and Design Letter dated May 6, 2022

The following provides response to only those comments from the John Clarke Planning and Design letter related to traffic.

2. Adequate parking is a specific Special Permit condition under Sections 223-24.7D and 223-18B.Parking for the varied uses remains a serious concern, including:

   a. The 32 proposed parking spaces barely cover the hotel use. If the hotel is full, there will be little or no parking available for non-hotel café customers during the day or for event space participants during scheduled times. The Traffic and Parking Study cites the Tompkins and Municipal Building public lots to the north, but there is no guarantee that these lots will have the same capacities in five years with the planned expansion of the Firehouse and redevelopment options for various public lots being considered.

      Response: ***The Applicant is in the process of finalizing an agreement for an off-site parking location with the nearby Riverview Funeral Home located at 2 Beekman Street, near the Wolcott Avenue/Beekman Street intersection, which will allow for the use of 46 parking spaces during the on-site events. The details of this agreement at being finalized and will be provided to the Board upon completion. This will reduce the total need for the use of offsite public parking from 88 spaces to 42 spaces before any assumption of hotel guests as event attendees as well as event attendees arriving without the use of a personal vehicle.***

      Furthermore, the Traffic & Parking Study identifies several other areas including the 70± parking spaces along Beekman Street that can accommodate the additional parking demand of the Project.

   b. The applicant is working on an off-site parking agreement for 46 spaces with the Funeral Home at the south end of Beekman Street. This is a positive initiative, but that parking lot is over 1,600 feet away and will not necessarily be an attractive alternative to instead parking on much closer residential streets, like Rombout or Stratford avenues.

      Response: ***The Applicant has agreed to provide a shuttle during events to and from this off-site parking location, which will make this a more desirable parking location.***

   c. It is difficult to assume that many patrons will walk from Beekman Street and the Metro-North lots up the hill through the cemetery with five stair sections.

      Response: ***The majority of on-street parking spaces along Beekman Street are within a 5± minute walk to the Church building utilizing either existing pathways or the on-site pathway connecting the main portion of the Project site to Beekman Street. If necessary, the Applicant can also provide shuttle service to and from the Beacon Metro-North train station area.***

Colliers Engineering & Design

d. The Traffic and Parking Study suggested a reduced event parking calculation with a 10% deduction for transit use and walking. Section 223-26 C(6) allows the Planning Board to consider shared parking adjustments, such as for the overlapping café and event use, but there is no provision in the Code, other than a variance, to allow additional reductions for transportation alternatives. The Study assumed 2.75 occupants per vehicle for its event traffic generation calculation and yet the minimum parking requirement is only 1 space for every 4 occupants, so it seems that the parking standard already factors in a reduction for transportation alternatives.

Response: ***The 2.75 persons per vehicle car occupancy ratio identified for the traffic generation calculations for events was utilized to provide a somewhat conservative analysis of traffic conditions associated with the events. Furthermore, there is not necessarily a direct correlation between parking demand and traffic generation.***

Regardless of the above, the Traffic & Parking Sensitivity Analysis, while still taking a credit of 10% for transit use, walking, biking, ridesharing, etc. also accounts for a lower number of hotel guests (50%) also attending events. In addition, parking associated with event employees/staff was also specifically accounted for at a ratio of 1 space per employee. This is not specifically required based on the City of Beacon Code for this use but was included as requested by the Planning Board to assess the potential overall parking demand of the Project during events.

e. Since ADA access cannot be conveniently handled by remote parking, two on-site ADA spaces are not sufficient for an event capacity up to 350.

Response: ***The Site Plan has been modified to now provide four (4) on-site ADA accessible parking spaces to meet the needs of the total development.***

Sincerely,

Colliers Engineering & Design CT, P.C.
(DBA Maser Consulting Engineering & Land Surveying)

Richard D'Andrea, P.E., PTOE
Assistant Department Manager

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Colliers Engineering & Design

Technical Appendix

Traffic & Parking Sensitivity Analysis

Colliers Engineering & Design

Traffic & Parking Sensitivity Analysis

Based on discussions with the City of Beacon Planning Board as well as comments from the City's Traffic Consultant, Creighton Manning, a Traffic & Parking Sensitivity Analysis has been conducted for the 1113 Wolcott Avenue Project to further assess the potential traffic and parking impacts of the Project. This sensitivity analysis focuses on the traffic and parking impacts of planned maximum attendance events, totaling 350 persons, to be held within the Church. As part of this analysis, it was requested that the traffic and parking demand for employees be further accounted for within the traffic volume and parking demand projections for the Project. In addition, the traffic analysis has been updated to account for traffic destined to and from the planned off-site parking locations identified to accommodate the parking needs of the planned events. The details of these sensitivity analyses are discussed further below.

Traffic Sensitivity Analysis

Site Generated Traffic Volumes

It has been estimated by the Applicant that a typical 350-person event will be staffed by approximately 10 employees/vendors. As indicated in the Traffic & Parking Study dated February 21, 2022, the maximum on-site occupancy including staff & vendors will be 350 persons so the actual event attendance accounting for these 10 employees will be reduced to 340 persons.

Based on the above, traffic generation estimates were developed for the event conditions for each of the peak hours. The event conditions estimates were developed for the Friday PM and Saturday Peak Hour Entry Periods as well as the Friday PM and Saturday Peak Hour Exit Periods. During events it is anticipated that the Café use will be a non-simultaneous use, meaning that the café area will be fully accessory to the events and therefore will not generate any traffic of its own. It is anticipated that the Hotel will be fully occupied during events and as much as 100% of hotel guests will also be attending the events. However, for the purposes of the analysis it has been assumed that only 50% of the Hotel traffic generation will be attributable to the events. The same Hotel traffic generated as indicated under the Typical conditions has been assumed for the event conditions periods, although it is unlikely that the peak hour of hotel generation will actually overlap with the event periods.

Consistent with the Traffic & Parking Study, for the purposes of the analysis a 2.75 persons per vehicle car occupancy has been utilized for event attendees, which is at the low end of the anticipated vehicle occupancy for the events. In addition, a vehicle car occupancy of 1.0 persons per vehicle has been utilized for the employees/vendors. Applying this to the anticipated maximum occupancy of 350 persons, including 10 employees/vendors, for the larger weekend events results in the anticipated peak entering and exiting traffic volumes as summarized in Table No. 1-S. It has been conservatively assumed that all traffic will either enter or exit during a one-hour period. The sensitivity analysis also accounts for a 10% credit to account for event attendees that are anticipated to arrive to the events via non-vehicular transportation.

Sensitivity Analysis Arrival/Departure Distributions & Build Conditions Traffic Volumes

In order to account for the fact that all event parking will be accommodated by offsite parking locations, modified arrival and departure distributions for the event conditions have been established accounting for traffic destined to and from the anticipated off-site parking locations. These locations primarily include the Tompkins Lot, the City of Beacon Municipal Plaza Lot, on-street metered parking along Beekman Street and the Riverview Funeral Home at which the Applicant is currently finalizing an agreement to utilize 46 parking spaces during the on-site events. These sensitivity analysis arrival and departure distributions are summarized on Figures No. 12S and 13S, attached.

The event conditions site generated traffic volumes summarized in Table No. 1-S were assigned to the roadway network based on the arrival and departure distributions referenced above. The resulting event conditions site generated traffic volumes for the Friday PM Event Entry Period and Friday PM Event Exit Period are identified on Figures No. 16S and 17S, while the site generated traffic volumes for the Saturday Event Entry and Event Exit Period are identified on Figures No. 18S and 19S. The site generated traffic volumes were then added to the 2024 No-Build Traffic Volumes to obtain the 2024 Build Traffic Volumes. The resulting Year 2024 Build Traffic Volumes for the sensitivity analysis are shown on Figures No. 22S through 25S.

Results of Analysis

Capacity analyses were recomputed utilizing the Build Conditions Sensitivity Analysis traffic volumes for each of the study area intersections consistent with the procedures identified in the Traffic & Parking Study. Table No. 2S, attached summarizes the results of the capacity analysis for the 2021 Existing, 2024 No-Build and 2024 Build Event Conditions. The results of these analyses are generally consistent with the analysis results provided in the Traffic & Parking Study which concluded that the Project is not anticipated to have a significant impact on traffic conditions in the vicinity of the Project site. However as previously indicated, recommendations for traffic signal phasing and timing modifications at the intersection of Wolcott Avenue (Route 9D) and Beekman Street should be explored regardless of the proposed Project in order to reduce delays on the eastbound Beekman Street approach. These modifications would require the review and approval of the NYSDOT who owns and maintains the traffic signal at that location.

Parking Sensitivity Analysis

The City of Beacon Zoning Code's (the "Zoning Code") Schedule Off-Street Parking Requirements (§223-26.F) indicates the required number of off-street parking spaces to be provided for the Project. Based the Zoning Code, Table No. 3 of the Traffic & Parking Study indicated a total need parking requirement of 119 parking spaces. However, the Café use is proposed to be a non-simultaneous use with the Event Space. Therefore, the calculation of total required parking spaces for the Project is based on the critical event periods during which times the Café will be used as a complimentary space to the Event space and no additional persons outside of those attending the events will be permitted in the Café during these times.

As indicated above, it has been estimated by the Applicant that a typical 350-person event will be staffed by approximately 10 employees/vendors. As indicated in the Traffic & Parking Study dated February 21, 2022, the maximum on-site occupancy including staff & vendors will be 350 persons so the actual event attendance accounting for these 10 employees will be reduced to 340 persons. However, as part of this sensitivity analysis, employee/vendor parking will be accounted for separately at a rate of 1.0 parking spaces per employee/vendor.

Consistent with the parking analysis conducted in the Traffic & Parking Study it is also assumed that 10% of event attendees will arrive via non-vehicular modes of transportation and therefore will not generate any additional parking demand. Applying this 10% reduction, the total number of event occupants arriving by personal vehicle would be 306 occupants *(340 occupants X 0.90% non-vehicular = 315 Occupants)*. In addition, it is also anticipated that the uses within the proposed development would permit for some amount of "Shared Parking" resulting from hotel guests frequenting the Café and also the events held in the Church building. For the purposes of the sensitivity analysis, it is assumed that 50% of the hotel guests will also be attending an event in the Church building. Assuming a room occupancy of two (2) persons per room this would reduce the total occupants arriving at events by personal vehicle to 276 occupants *(15 rooms X 2 persons/room = 30 occupants in Hotel also attending events, 306 – 30 = 276 occupants by personal vehicle)*

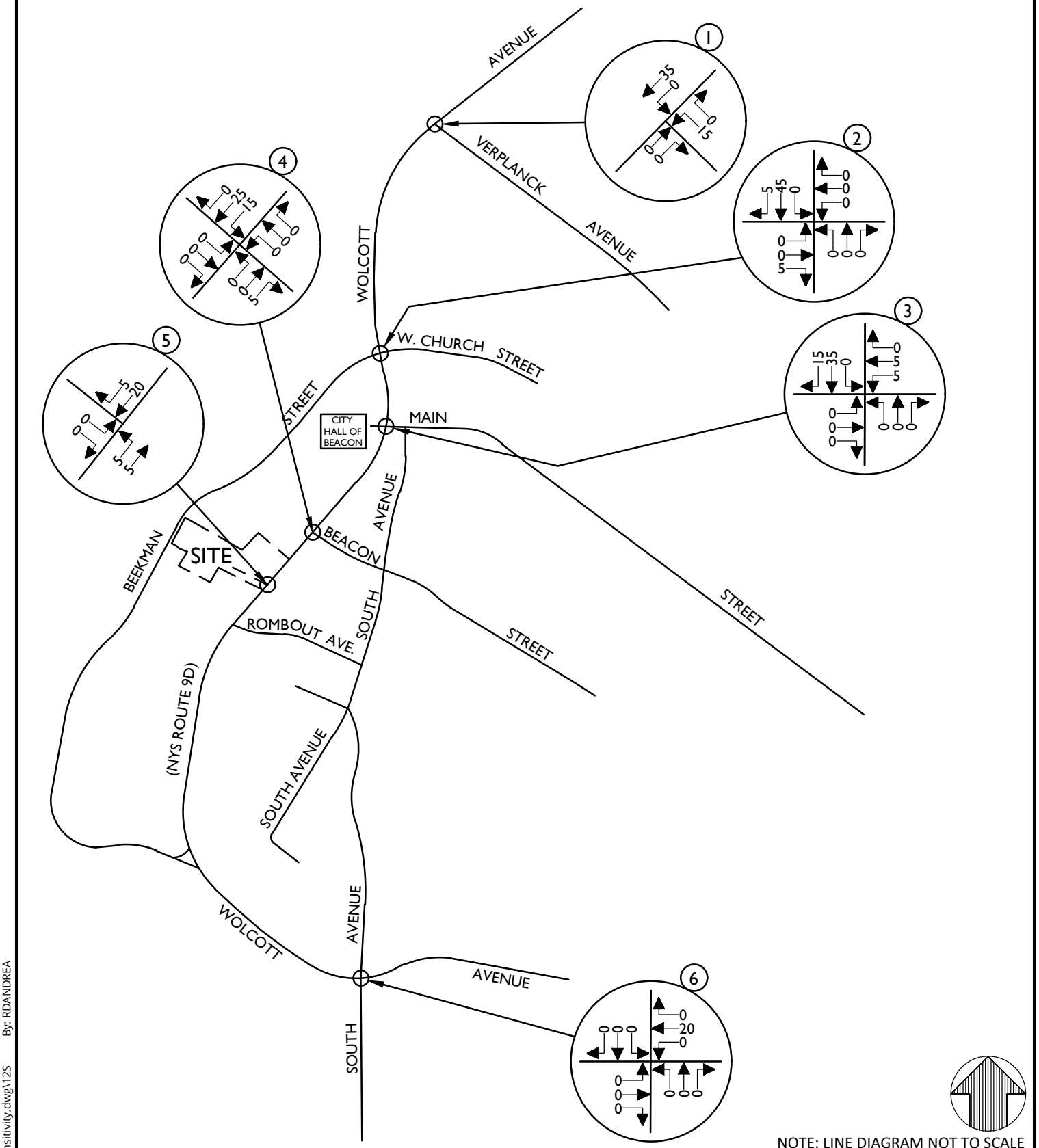
The below provides a summary of the anticipated parking demand based on the City of Beacon Code parking requirements and accounting for the credits identified above. In addition, as indicated previously the table also provides for 10 spaces for employees/vendors.

Table No. 3S – Event Conditions Sensitivity Anticipated Parking Demand

Proposed Use	Size	City of Beacon Code Requirement	Required Spaces
Hotel	30 Rooms 1 Employee	1 Space/Room +1 Space/Employee	31 Spaces
Event Space	276 Persons (Seats)	1 Space/4 seats	69 Spaces
Event Space	10 Employees/ Vendors[1]	1 Space/4 seats	10 Spaces
		Total Anticipated Parking Demand	**110 Spaces**
		On-Site Parking Provided	**31 Spaces**
		Total Required Off-Site Parking Spaces	**79 Spaces**

As noted in the table above the anticipated parking demand for the project during the largest events is 110 spaces using the sensitivity analysis assumptions identified above. Accounting for the 31 parking spaces provided on-site, the total required off-site parking spaces to accommodate these events if 79 parking spaces.

The Traffic & Parking Study had identified sufficient public parking in the vicinity of the site within the nearest public parking locations including the Tompkins Lot, the Municipal Plaza Lot and Beekman Street on-street metered parking to accommodate the parking needs of the Project during these maximum attendance events. To further supplement this parking, the Applicant is currently finalizing an agreement with the Riverview Funeral Home located at 2 Beekman Street to utilize 46 parking spaces during the on-site events. Further information will be provided to the City regarding this agreement will be provided once completed.



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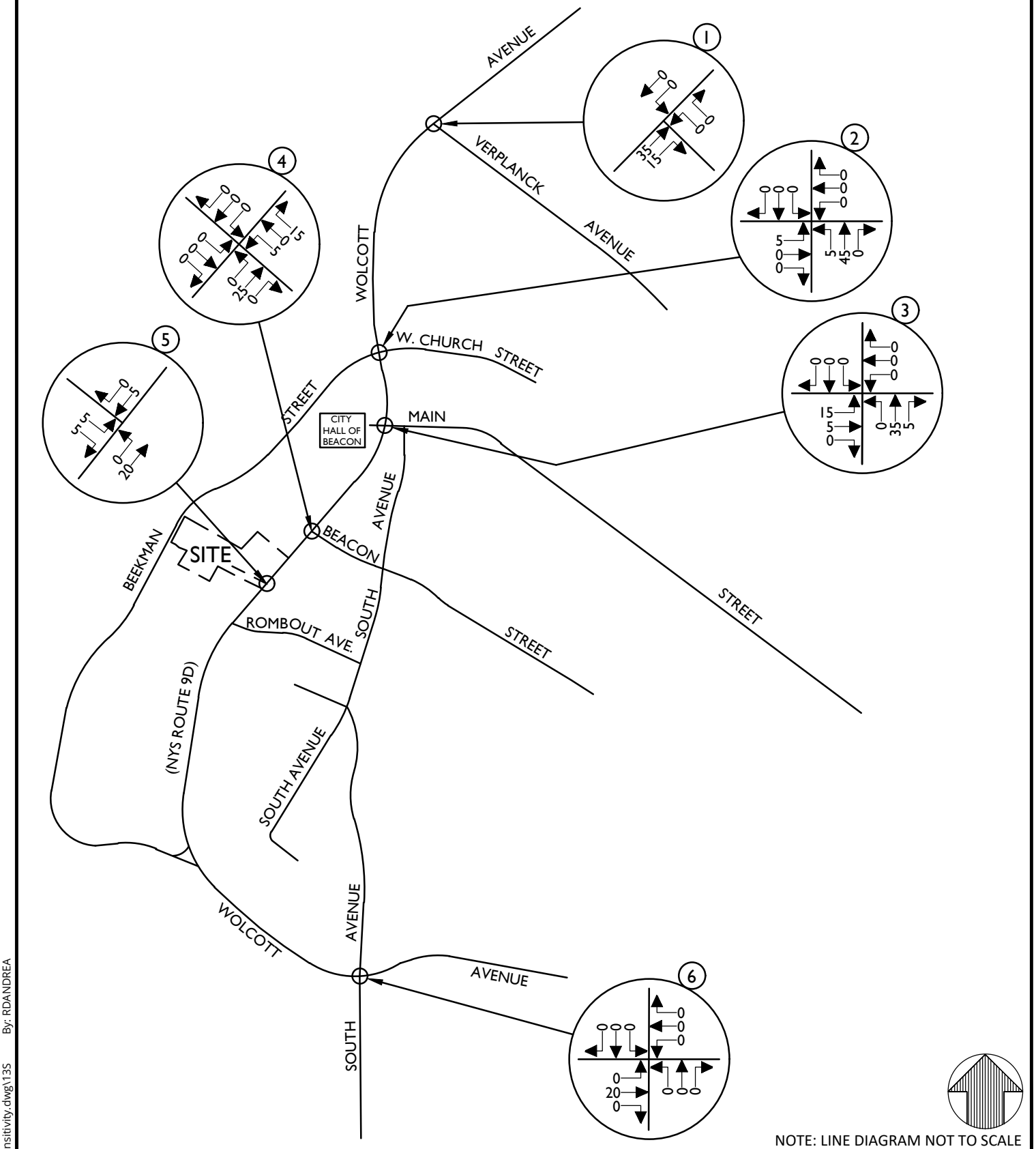

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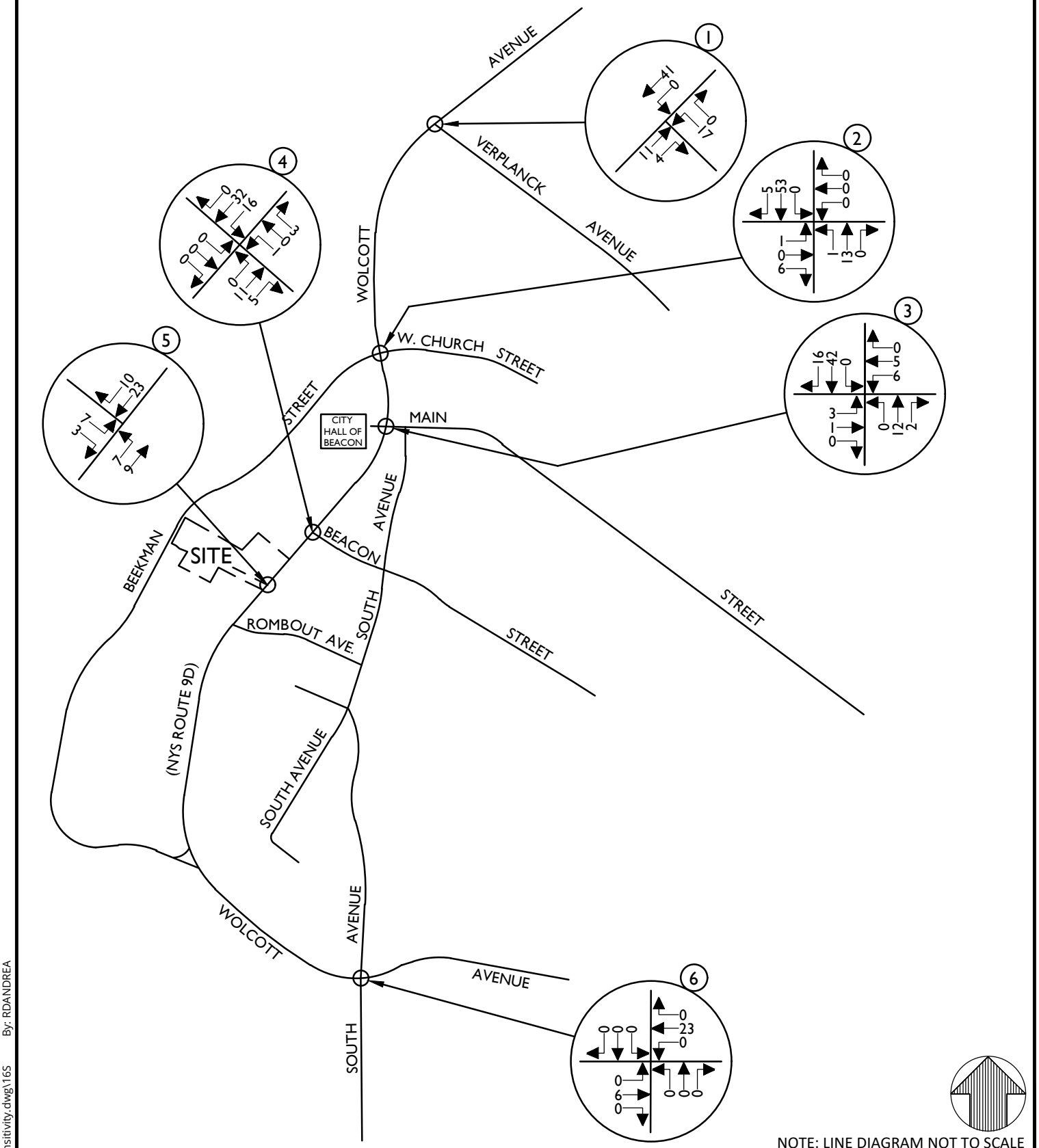

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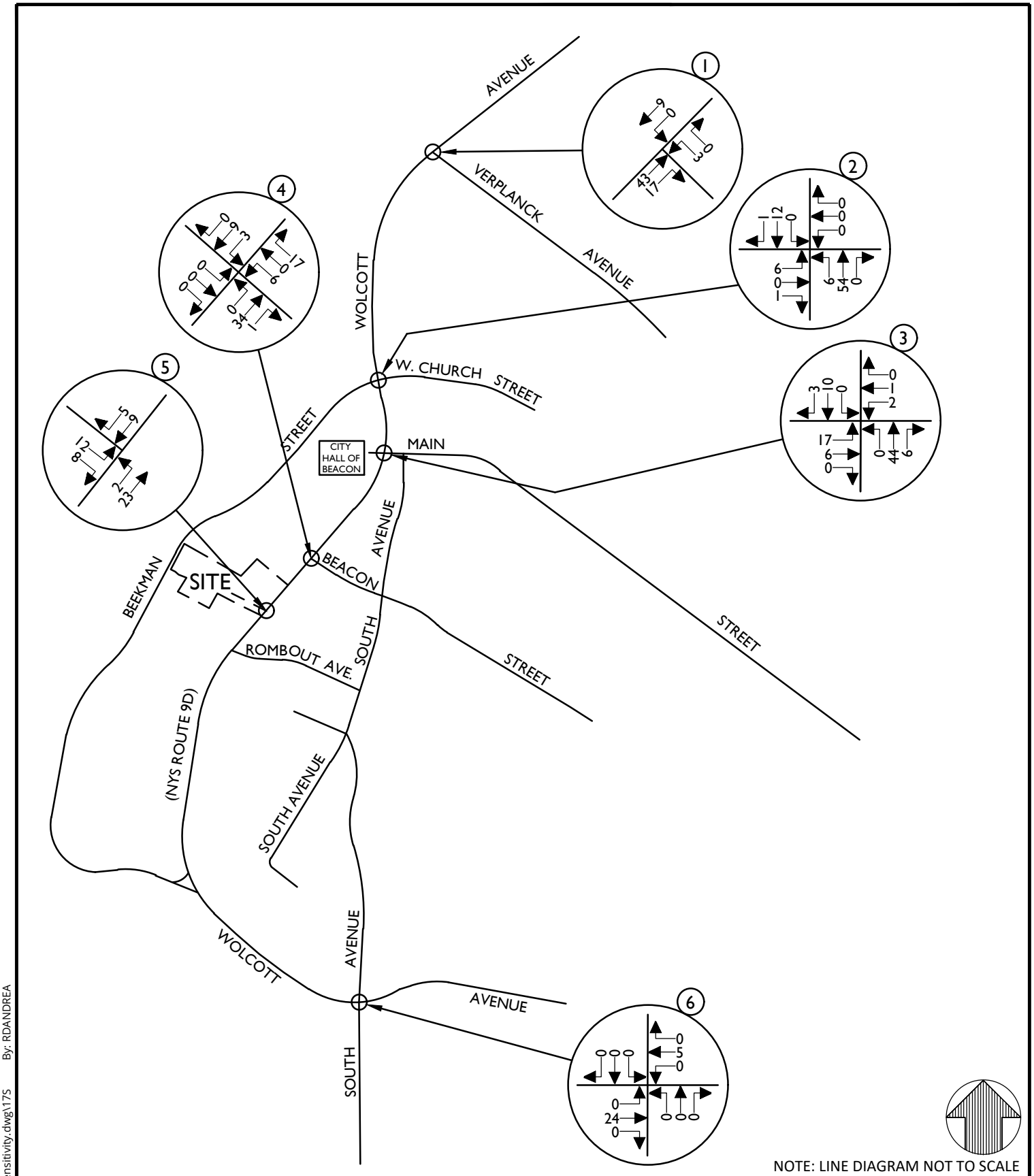

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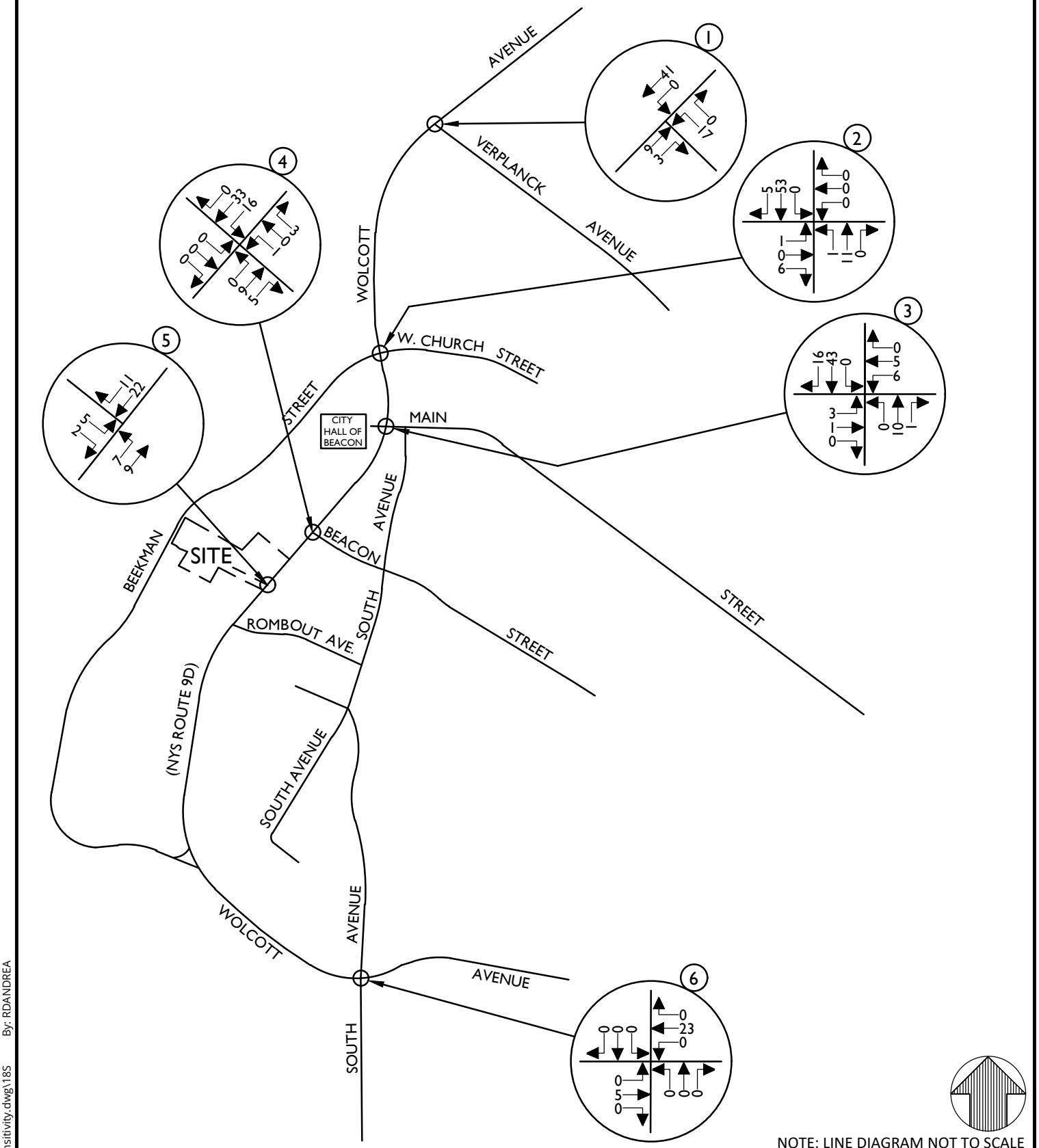

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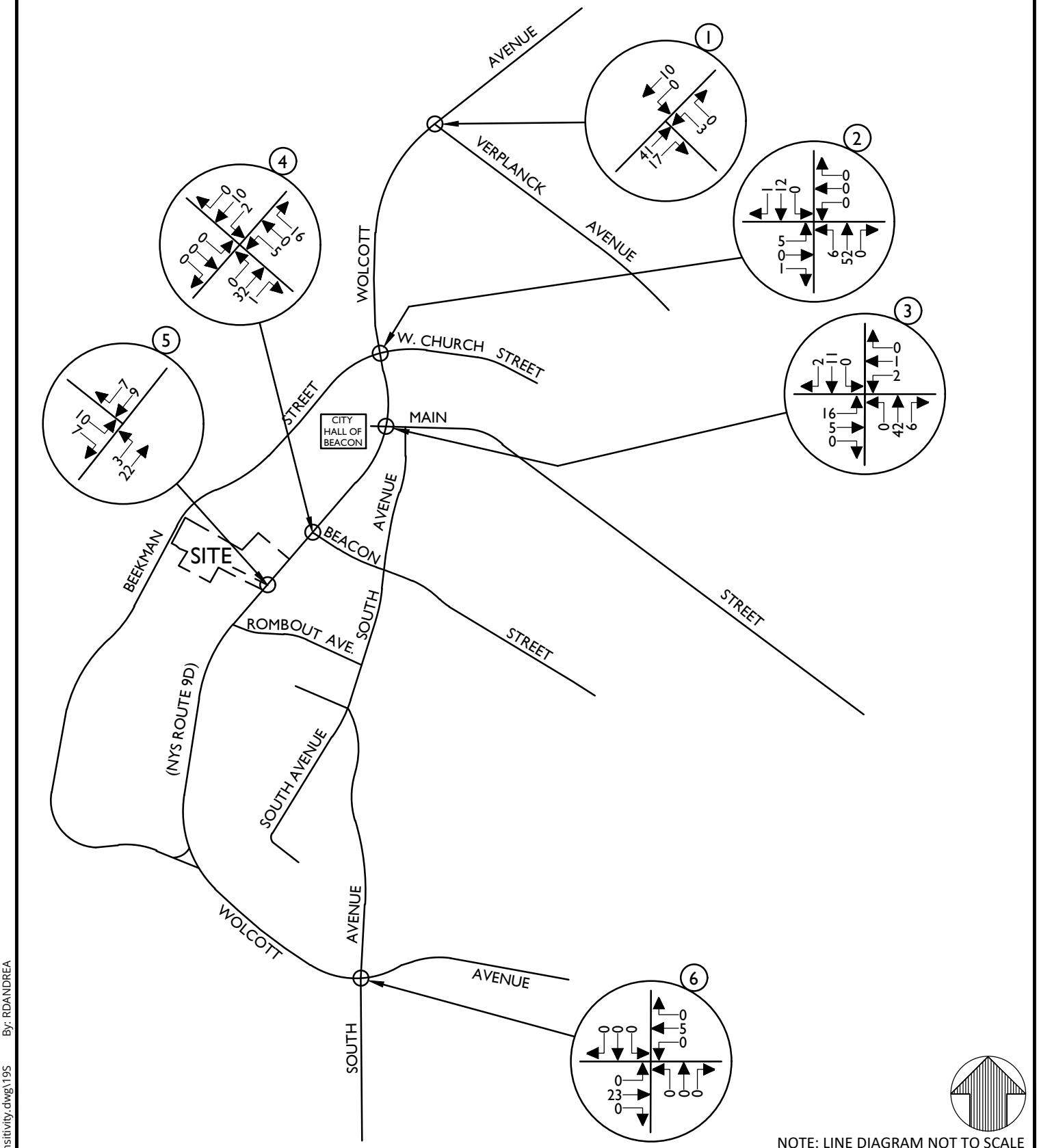

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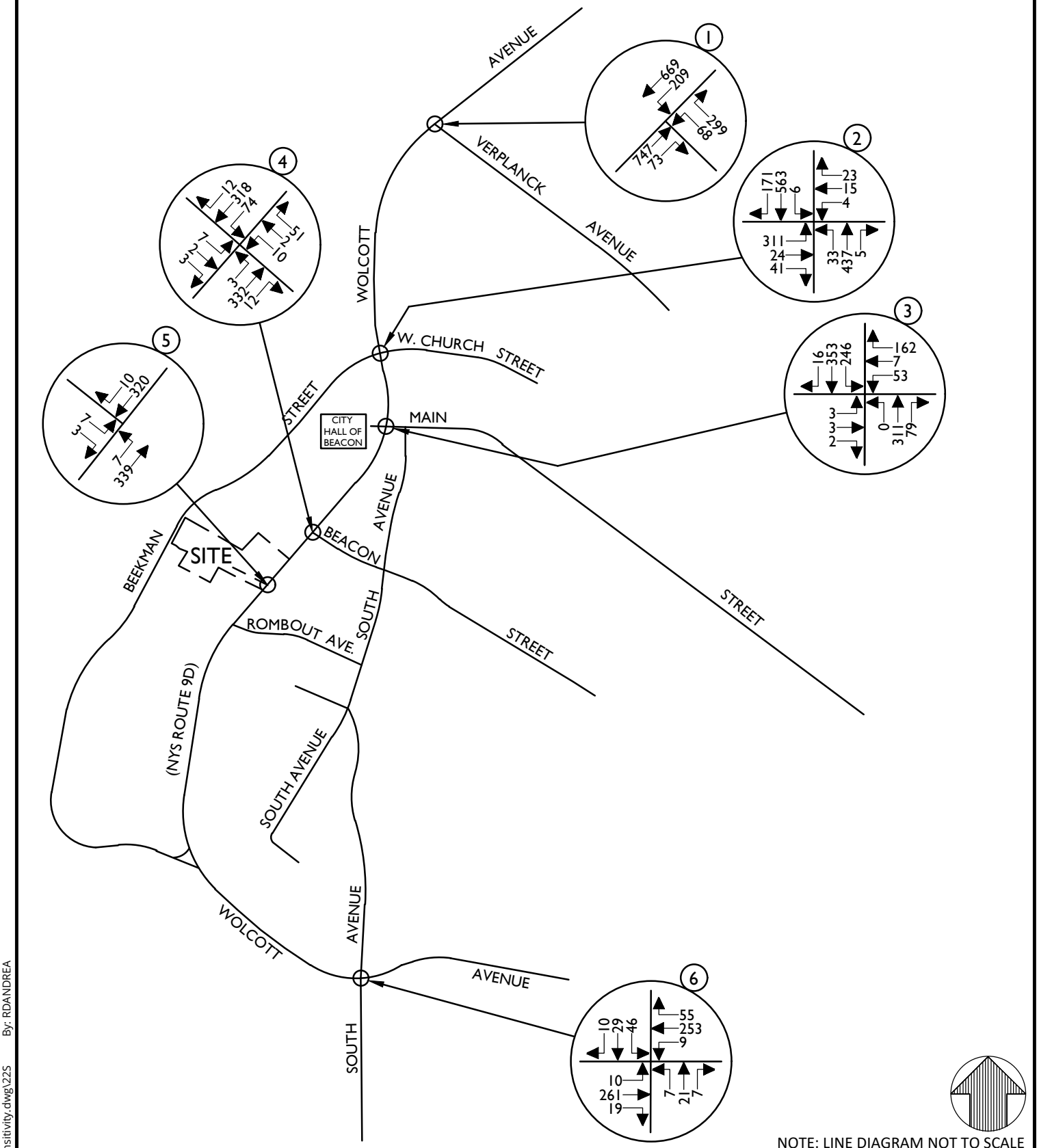

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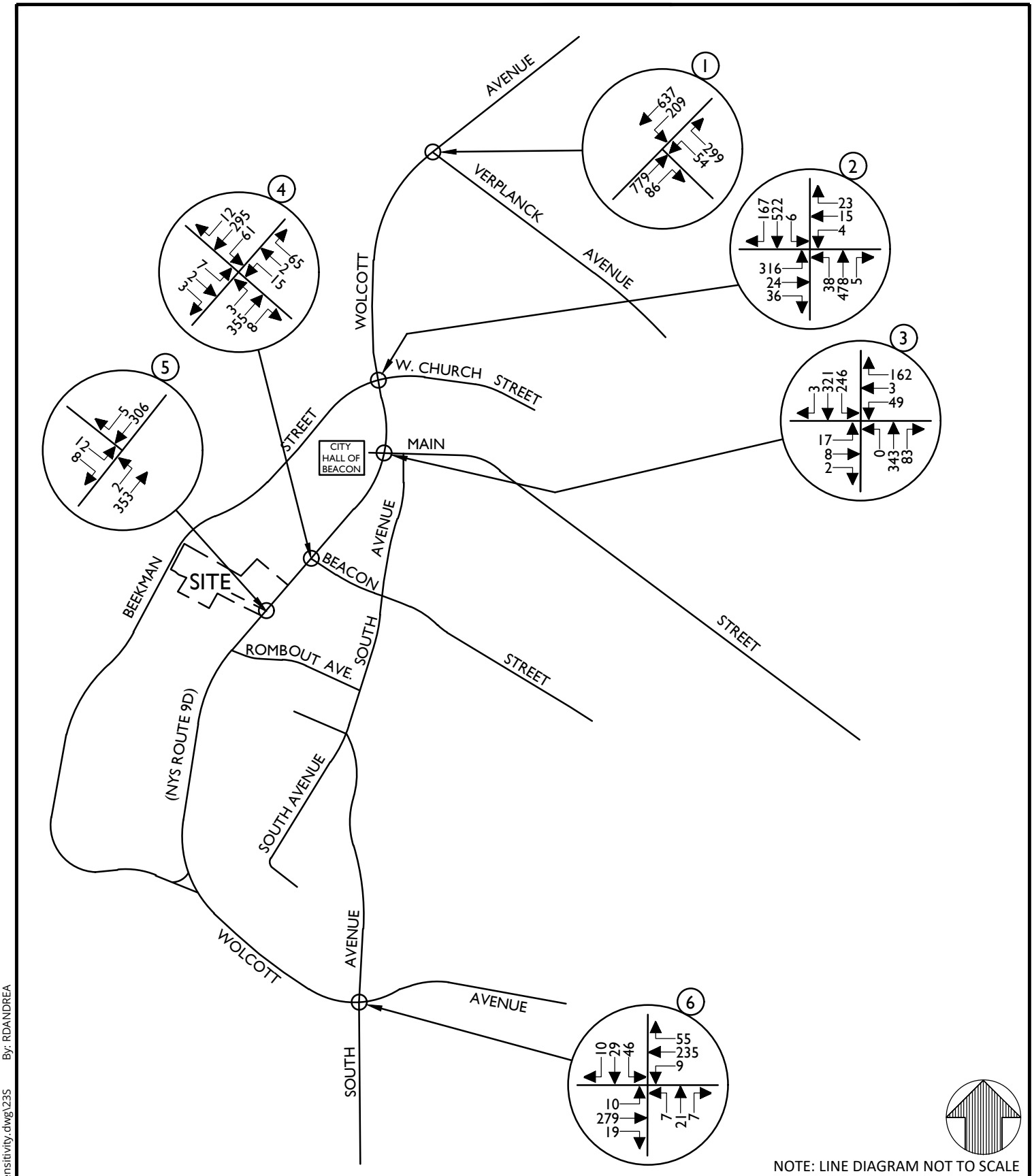

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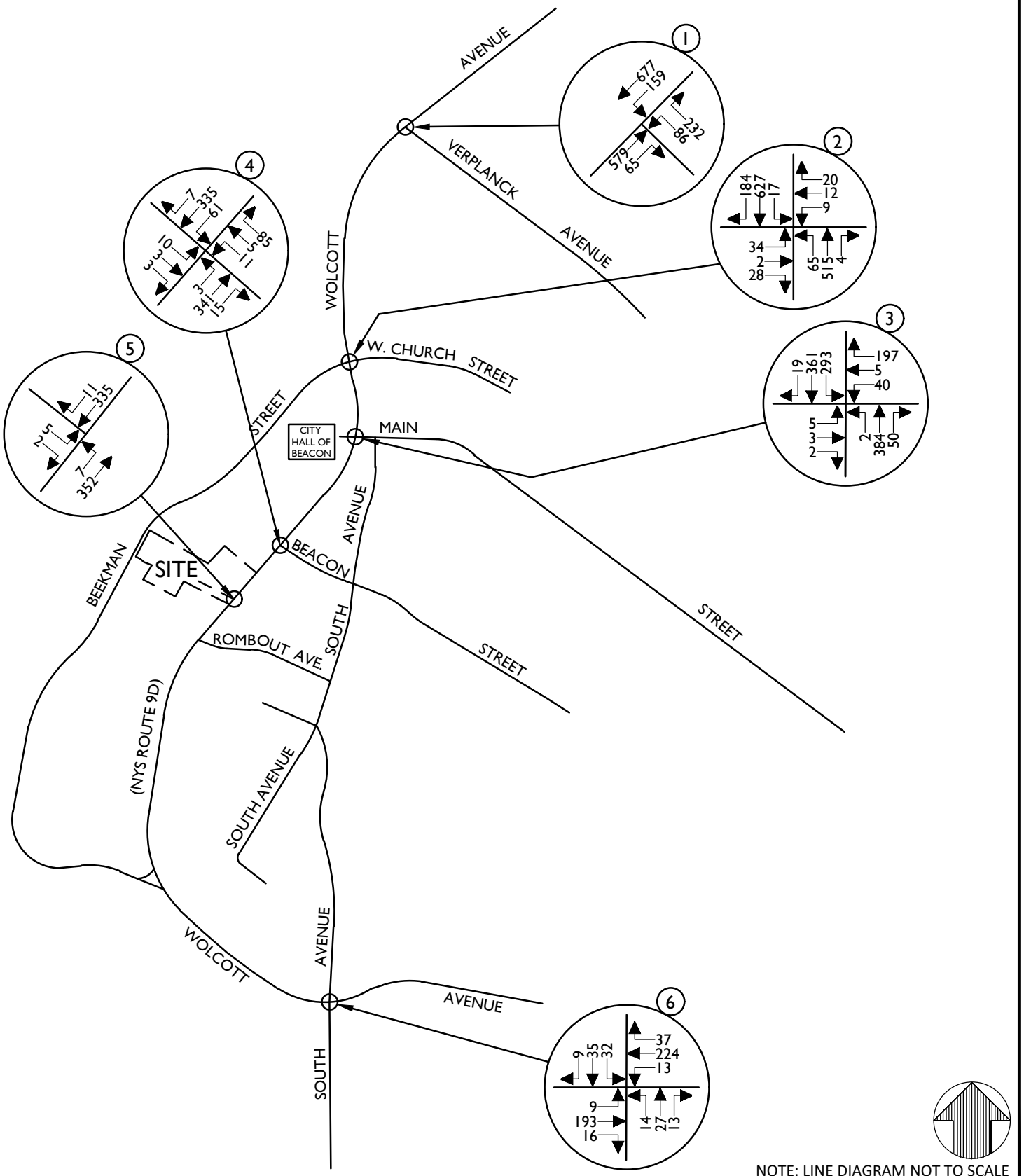

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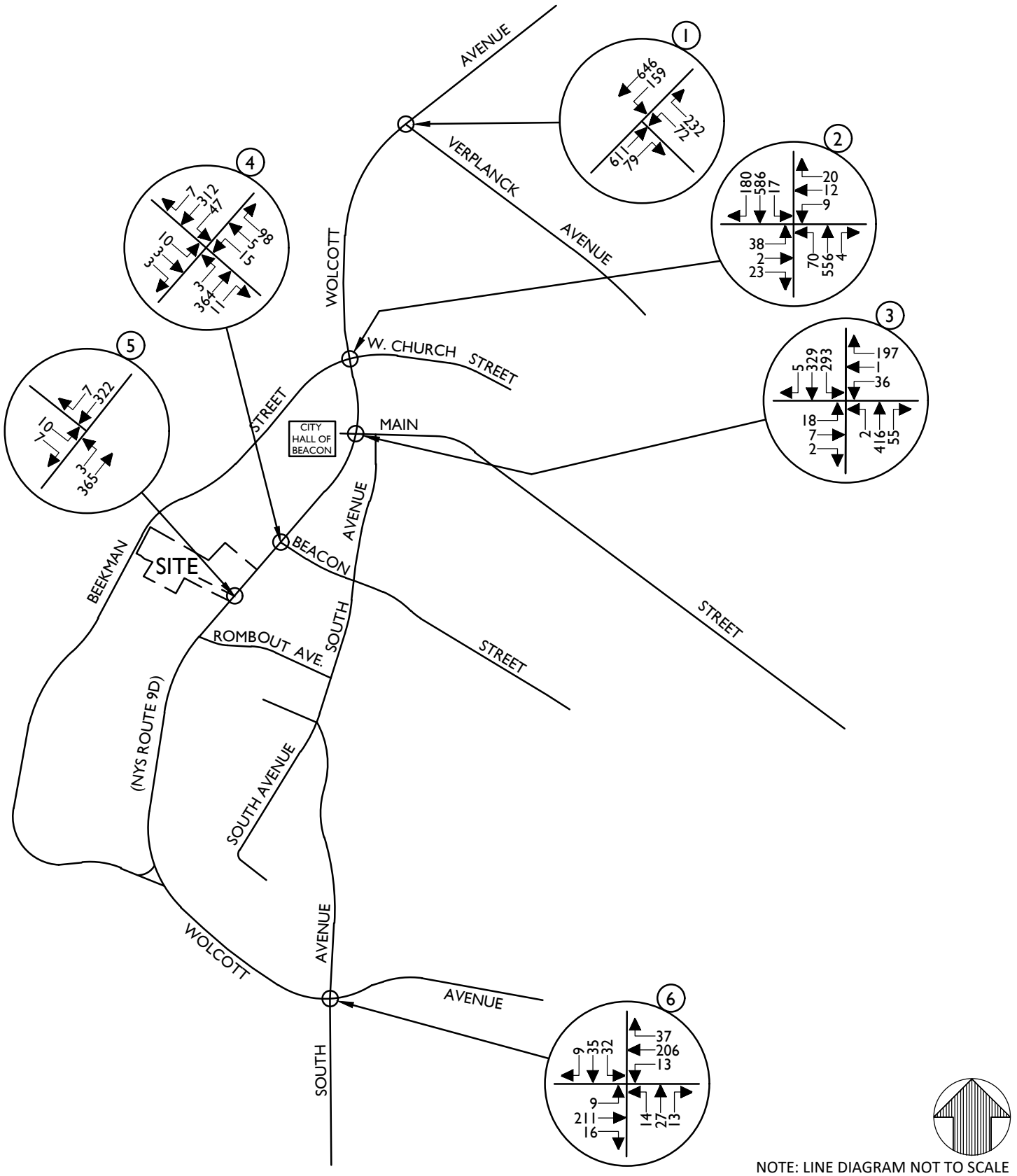

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Table No. 1-S
Hourly Trip Generation Rates (HTGR) and
Anticipated Site Generated Traffic Volumes

1113 Wolcott Avenue City of Beacon, New York	Entry			Exit			Total Trips
	HTGR[1]	Volume	New Trips[2]	HTGR1	HTGR[1]	New Trips[2]	
Event Conditions							
Weekday Peak Event Entry Hour							
Hotel (30 Rooms)	0.37	11	6	0.40	12	8	14
Event (340 Attendees)	0.99	124	107	0.20	25	19	125
Event (10 Employees/Vendors)	1.00	10	10	0.00	0	0	10
Total	-	**145**	**123**	-	**37**	**27**	**149**
Weekday Peak Event Exit Hour							
Hotel (30 Rooms)	0.37	11	6	0.40	12	8	14
Event (340 Attendees)	0.20	25	18	0.99	124	108	125
Event (10 Employees/Vendors)	0.00	0	0	1.00	10	10	10
Total	-	**36**	**24**	-	**146**	**126**	**149**
Saturday Peak Event Entry Hour							
Hotel (30 Rooms)	0.50	15	8	0.40	12	6	14
Event (340 Attendees)	0.99	124	105	0.20	25	17	121
Event (10 Employees/Vendors)	1.00	10	10	0.00	0	0	10
Total	-	**149**	**123**	-	**37**	**23**	**145**
Saturday Peak Event Exit Hour							
Hotel (30 Rooms)	0.50	15	8	0.40	12	6	14
Event (340 Attendees)	0.20	25	16	0.99	124	106	121
Event (10 Employees/Vendors)	0.00	0	0	0.00	0	0	0
Total	-	**40**	**24**	-	**136**	**112**	**135**

NOTES:

1) The Hotel and Café Hourly Trip Generation Rates (HTGR) are based on data published by the Institute of Transportation Engineers (ITE) as contained in the Trip Generation Handbook, 10TH Edition, 2017. ITE Land Use Code - 310 - Hotel and Land Use - 932 - High-Turnover (Sit-Down) Restaurant. The Event traffic generation is based on a 2.75 Persons per Vehicle car occupancy ratio for attedees and 1.0 Persons per Vehicle car occupancy ratio for Employees/Vendors. It is assumed that all guests & employees/vendors will enter in a one hour period prior to the event and exit in a one hour period following the event.

Table No. 2S
Level of Service Summary Table
Friday PM Peak Hour

				2021 Existing			2024 No-Build			2024 Build Typical Conditions			2024 Build Event Entry Conditions			2024 Build Event Exit Conditions		
				v/c	LOS	Delay	v/c	LOS	Delay	v/c	LOS	Delay	v/c	LOS	Delay	v/c	LOS	Delay
1	**NYS Route 9D & Verplanck Avenue**	**Signalized**																
	Verplanck Avenue	WB	L	0.14	D	39.6	0.16	D	40.8	0.16	D	39.9	0.22	D	40.8	0.17	D	40.1
			R	0.53	D	36.4	0.64	D	41.1	0.63	D	39.6	0.67	D	41.4	0.67	D	41.4
		WB Approach			*D*	*36.9*		*D*	*41.0*		*D*	*39.6*		*D*	*41.3*		*D*	*41.2*
	NYS Route 9D	NB	TR	0.83	C	30.8	0.88	D	35.2	0.91	D	38.5	0.92	D	40.1	0.97	D	49.5
		NB Approach			*C*	*30.8*		*D*	*35.2*		*D*	*38.5*		*D*	*40.1*		*D*	*49.5*
	NYS Route 9D	SB	L	0.54	C	25.3	0.63	C	31.9	0.66	C	34.6	0.66	D	36.2	0.74	D	49.6
			T	0.46	A	8.8	0.51	A	9.3	0.52	A	9.6	0.54	A	9.8	0.51	A	9.4
		SB Approach			*B*	*13.0*		*B*	*14.9*		*B*	*15.8*		*B*	*16.1*		*B*	*19.3*
		Overall			**C**	**24.4**		**C**	**27.7**		**C**	**29.1**		**C**	**30.1**		**D**	**35.7**
2	**NYS Route 9D & Beekman Street/W. Church Street**	**Unsignalized**																
	Beekman Street	EB	LT	2.17	F	573.4	2.33	F	647.2	2.33	F	648.2	2.36	F	658.2	2.40	F	677.1
			R	0.08	B	17.1	0.08	B	17.2	0.09	B	17.3	0.10	B	17.4	0.09	A	17.4
		EB Approach			*F*	*520.9*		*F*	*587.9*		*F*	*585.5*		*F*	*588.1*		*F*	*613.6*
	W. Church Street	WB	LTR	0.09	B	18.4	0.12	B	18.5	0.12	B	18.5	0.11	B	18.4	0.11	B	18.5
		WB Approach			*B*	*18.4*		*B*	*18.5*		*B*	*18.5*		*B*	*18.4*		*B*	*18.5*
	NYS Route 9D	NB	L	0.16	B	17.1	0.21	B	19.0	0.23	B	19.6	0.27	C	21.0	0.25	B	19.9
			TR	0.54	B	19	0.60	C	20.2	0.61	C	20.6	0.56	B	19.2	0.61	C	20.2
		NB Approach			*B*	*18.9*		*C*	*20.1*		*C*	*20.5*		*B*	*19.3*		*C*	*20.2*
	NYS Route 9D	SB	L	0.01	B	14.4	0.02	B	14.7	0.02	B	14.8	0.02	B	14.5	0.02	B	14.9
			TR	0.83	C	31.3	0.92	D	40.6	0.94	D	44.0	1.01	F	58.8	0.95	D	46.3
		SB Approach			*C*	*31.2*		*D*	*40.4*		*D*	*43.7*		*E*	*58.5*		*D*	*46.0*
		Overall			**F**	**172.5**		**F**	**191.1**		**F**	**189.6**		**F**	**194.0**		**F**	**194.9**
	<u>With Signal Timing & Phasing Modifications</u>																	
	Beekman Street	EB	LT	-	-	-	-	-	-	1.23	F	152.5	1.31	F	185.3	1.28	F	174.0
			R	-	-	-	-	-	-	0.15	C	22.1	0.18	C	23.7	0.15	C	22.4
		EB Approach		-	-	-	-	-	-		*F*	*139.8*		*F*	*167.7*		*F*	*159.4*
	W. Church Street	WB	LTR	-	-	-	-	-	-	0.83	E	59.6	0.76	D	52.1	0.74	D	49.9
		WB Approach		-	-	-	-	-	-		*E*	*59.6*		*D*	*52.1*		*D*	*49.9*
	NYS Route 9D	NB	L	-	-	-	-	-	-	0.20	B	16.1	0.20	B	16.8	0.22	B	16.2
			TR	-	-	-	-	-	-	0.61	B	15.1	0.53	B	13.7	0.60	B	14.9
		NB Approach		-	-	-	-	-	-		*B*	*15.2*		*B*	*13.9*		*B*	*15.0*
	NYS Route 9D	SB	L	-	-	-	-	-	-	0.02	B	12.2	0.02	B	11.5	0.02	B	12.2
			TR	-	-	-	-	-	-	0.93	C	33.4	0.95	D	37.9	0.93	C	34.4
		SB Approach		-	-	-	-	-	-		*C*	*33.2*		*D*	*37.7*		*C*	*34.2*
		Overall		**-**	**-**	**-**	**-**	**-**	**-**		**E**	**58.5**		**E**	**67.3**		**E**	**63.2**
3	**NYS Route 9D & Main Street/City Hall**	**Signalized**																
	City Hall	EB	LTR	0.02	C	23.7	0.03	C	23.7	0.03	C	23.7	0.05	C	23.8	0.16	C	24.4
		EB Approach			*C*	*23.7*		*C*	*23.7*		*C*	*23.7*		*C*	*23.8*		*C*	*24.4*
	Main Street	WB	LT	0.13	C	24.5	0.18	C	24.8	0.19	C	24.9	0.20	C	24.7	0.17	C	24.4
			R	0.56	C	24.2	0.59	C	24.5	0.59	C	24.5	0.52	C	23.6	0.52	C	23.6
		WB Approach			*C*	*24.2*		*C*	*24.6*		*C*	*24.6*		*C*	*23.9*		*C*	*23.8*
	NYS Route 9D	NB	L	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0
			TR	0.41	A	8.8	0.47	A	9.5	0.49	A	9.8	0.46	A	9.3	0.54	A	9.8
		NB Approach			*A*	*8.8*		*A*	*9.5*		*A*	*9.8*		*A*	*9.3*		*A*	*9.8*
	NYS Route 9D	SB	L	0.38	B	10.8	0.47	B	13.0	0.48	B	13.7	0.48	B	13.0	0.50	B	14.4
			TR	0.30	A	7.7	0.34	A	8.1	0.36	A	8.2	0.36	A	8.3	0.36	A	8.3
		SB Approach			*A*	*9.0*		*B*	*10.2*		*B*	*10.6*		*B*	*10.3*		*B*	*10.9*
		Overall			**B**	**11.6**		**B**	**12.5**		**B**	**12.7**		**B**	**12.5**		**B**	**13.0**

Table No. 2S
Level of Service Summary Table
Friday PM Peak Hour

				2021 Existing			2024 No-Build			2024 Build Typical Conditions			2024 Build Event Entry Conditions			2024 Build Event Exit Conditions		
				v/c	LOS	Delay	v/c	LOS	Delay	v/c	LOS	Delay	v/c	LOS	Delay	v/c	LOS	Delay
4	**NYS Route 9D & Beacon Street/West End Lofts**	**Unsignalized**																
	West End Lofts	EB	LTR	0.04	C	17.9	0.06	C	20.4	0.07	C	21.9	0.07	C	23.3	0.07	C	23.3
	Beacon Street	WB	LTR	0.15	B	12.5	0.18	B	13.8	0.19	B	14.3	0.21	B	14.8	0.28	C	16.0
	NYS Route 9D	NB	LTR	0.00	A	7.8	0.00	A	7.9	0.00	A	8.0	0.01	A	8.0	0.01	A	7.9
	NYS Route 9D	SB	LTR	0.52	A	8.3	0.06	A	8.5	0.06	A	8.6	0.08	A	8.7	0.06	A	8.7
5	**NYS Route 9D & Site Access**	**Unsignalized**																
		EB	LR	-	-	-	-	-	-	0.05	B	12.0	0.02	B	11.8	0.04	B	11.6
		NB	LT	-	-	-	-	-	-	0.01	A	8.0	0.01	A	8.0	0.01	A	8.0
6	**NYS Route 9D & South Avenue**	**Signalized**																
	NYS Route 9D	EB	LTR	0.33	C	23.4	0.37	C	24.0	0.37	C	24.1	0.41	C	24.9	0.43	C	25.4
	NYS Route 9D	WB	LTR	0.37	C	24.1	0.41	C	24.8	0.42	C	24.9	0.40	C	24.5	0.38	C	24.1
	South Avenue	NB	LTR	0.03	B	19.1	0.05	B	19.4	0.05	B	19.4	0.05	B	19.4	0.05	B	19.4
	South Avenue	SB	LTR	0.11	C	20.1	0.15	C	20.6	0.15	C	20.6	0.16	C	20.8	0.16	C	20.8
		Overall			**C**	**23.2**		**C**	**23.7**		**C**	**23.8**		**C**	**24.0**		**C**	**24.0**

NOTES:

1) THE ABOVE REPRESENTS THE LEVEL OF SERVICE AND VEHICLE DELAY IN SECONDS, C [16.2], FOR EACH KEY APPROACH OF THE UNSIGNALIZED INTERSECTIONS AS WELL AS FOR EACH APPROACH AND THE OVERALL INTERSECTION FOR THE SIGNALIZED INTERSECTIONS. SEE APPENDIX "C" FOR A DESCRIPTION OF THE LEVELS OF SERVICE.

Table No. 2S
Level of Service Summary Table
Saturday Peak Hour

				2021 Existing			2024 No-Build			2024 Build Typical Conditions			2024 Build Event Entry Conditions			2024 Build Event Exit Conditions		
				v/c	LOS	Delay	v/c	LOS	Delay	v/c	LOS	Delay	v/c	LOS	Delay	v/c	LOS	Delay
1	**NYS Route 9D & Verplanck Avenue**	**Signalized**																
	Verplanck Avenue	WB	L	0.20	D	40.4	0.21	D	40.6	0.22	D	40.8	0.27	D	41.8	0.23	D	41.0
			R	0.41	C	33.3	0.49	D	35.2	0.49	D	35.2	0.52	D	36.1	0.52	D	36.1
		WB Approach			*D*	*35.1*		*D*	*36.4*		*D*	*36.5*		*D*	*37.7*		*D*	*37.3*
	NYS Route 9D	NB	TR	0.64	C	22.6	0.70	C	24.6	0.72	C	25.2	0.72	C	25.4	0.78	C	27.9
		NB Approach			*C*	*22.6*		*C*	*24.6*		*C*	*25.2*		*C*	*25.4*		*C*	*27.9*
	NYS Route 9D	SB	L	0.31	B	13.3	0.36	B	15.7	0.37	B	16.4	0.36	B	16.4	0.39	B	19.0
			T	0.47	A	8.8	0.52	A	9.6	0.53	A	9.7	0.54	A	9.9	0.52	A	9.5
		SB Approach			*A*	*9.7*		*B*	*10.8*		*B*	*11.0*		*B*	*11.1*		*B*	*11.4*
		Overall			**B**	**18.7**		**C**	**20.3**		**C**	**20.7**		**C**	**20.9**		**C**	**22.1**
2	**NYS Route 9D & Beekman Street/W. Church Street**	**Unsignalized**																
	Beekman Street	EB	LT	0.17	C	25.0	0.19	C	25.1	0.18	C	25.0	0.20	C	25.1	0.22	C	25.3
			R	0.22	C	25.4	0.24	C	25.5	0.27	C	25.8	0.30	C	26.0	0.25	C	25.6
		EB Approach			*C*	*25.2*		*C*	*25.2*		*C*	*25.3*		*C*	*25.5*		*C*	*25.4*
	W. Church Street	WB	LTR	0.17	C	24.9	0.24	C	25.3	0.24	C	25.3	0.22	C	25.1	0.22	C	25.1
		WB Approach			*C*	*24.9*		*C*	*25.3*		*C*	*25.3*		*C*	*25.1*		*C*	*25.1*
	NYS Route 9D	NB	L	0.14	A	5.9	0.17	A	7.1	0.18	A	7.4	0.18	A	8.3	0.18	A	7.5
			TR	0.40	A	6.0	0.44	A	6.5	0.45	A	6.6	0.41	A	6.2	0.44	A	6.4
		NB Approach			*A*	*6.0*		*A*	*6.5*		*A*	*6.7*		*A*	*6.4*		*A*	*6.5*
	NYS Route 9D	SB	L	0.03	A	4.3	0.03	A	4.5	0.03	A	4.6	0.03	A	4.5	0.03	A	4.6
			TR	0.66	B	10.6	0.74	B	12.6	0.76	B	13.2	0.80	B	15.2	0.76	B	13.5
		SB Approach			*B*	*10.4*		*B*	*12.4*		*B*	*13.1*		*B*	*15.0*		*B*	*13.3*
		Overall			**A**	**9.8**		**B**	**11.2**		**B**	**11.6**		**B**	**12.6**		**B**	**11.6**
3	**NYS Route 9D & Main Street/City Hall**	**Signalized**																
	City Hall	EB	LTR	0.01	C	23.6	0.03	C	23.7	0.03	C	23.7	0.05	C	23.8	0.14	C	24.3
		EB Approach			*C*	*23.6*		*C*	*23.7*		*C*	*23.7*		*C*	*23.8*		*C*	*24.3*
	Main Street	WB	LT	0.09	C	24.1	0.13	C	24.3	0.14	C	24.4	0.16	C	24.4	0.13	C	24.2
			R	0.66	C	25.5	0.70	C	26.2	0.70	C	26.1	0.63	C	24.7	0.62	C	24.7
		WB Approach			*C*	*25.4*		*C*	*25.9*		*C*	*25.9*		*C*	*24.7*		*C*	*24.6*
	NYS Route 9D	NB	L	0.00	A	6.4	0.00	A	6.9	0.00	A	7.1	0.00	A	7.7	0.00	A	7.1
			TR	0.40	A	8.7	0.46	A	9.4	0.49	A	9.7	0.45	A	9.2	0.49	A	9.7
		NB Approach			*A*	*8.7*		*A*	*9.4*		*A*	*9.7*		*A*	*9.2*		*A*	*9.6*
	NYS Route 9D	SB	L	0.44	B	11.4	0.53	B	13.9	0.55	B	14.7	0.54	B	13.8	0.56	B	15.2
			TR	0.29	A	7.7	0.33	A	8.1	0.35	A	8.3	0.40	A	8.8	0.35	A	8.3
		SB Approach			*A*	*9.5*		*B*	*10.9*		*B*	*11.2*		*B*	*11.0*		*B*	*11.5*
		Overall			**B**	**12.2**		**B**	**13.2**		**B**	**13.4**		**B**	**13.0**		**B**	**13.4**
4	**NYS Route 9D & Beacon Street/West End Lofts**	**Unsignalized**																
	West End Lofts	EB	LTR	0.07	C	18.4	0.11	C	21.5	0.12	C	23.3	0.13	C	24.6	0.13	C	24.6
	Beacon Street	WB	LTR	0.17	B	12.1	0.21	B	13.3	0.21	B	13.7	0.22	B	13.9	0.22	B	13.9
	NYS Route 9D	NB	LTR	0.00	A	7.8	0.00	A	7.9	0.00	A	8.0	0.03	A	8.0	0.01	A	8.0
	NYS Route 9D	SB	LTR	0.04	A	8.1	0.04	A	8.3	0.04	A	8.3	0.06	A	8.4	0.06	A	8.4

Table No. 2S
Level of Service Summary Table
Saturday Peak Hour

				2021 Existing			2024 No-Build			2024 Build Typical Conditions			2024 Build Event Entry Conditions			2024 Build Event Exit Conditions		
				v/c	LOS	Delay	v/c	LOS	Delay	v/c	LOS	Delay	v/c	LOS	Delay	v/c	LOS	Delay
5	**NYS Route 9D &**	**Unsignalized**																
	Site Access	EB	LR	-	-	-	-	-	-	0.06	B	12.3	0.02	B	12.0	0.02	B	12.0
		NB	LT	-	-	-	-	-	-	0.01	A	8.1	0.01	A	8.1	0.01	A	8.1
6	**NYS Route 9D &**	**Signalized**																
	South Avenue																	
	NYS Route 9D	EB	LTR	0.27	C	22.4	0.30	C	22.9	0.31	C	23.1	0.34	C	23.6	0.34	C	23.6
	NYS Route 9D	WB	LTR	0.31	C	23.0	0.34	C	23.5	0.35	C	23.7	0.34	C	23.4	0.34	C	23.4
	South Avenue	NB	LTR	0.08	B	19.7	0.12	C	20.2	0.12	C	20.2	0.12	C	20.2	0.12	C	20.2
	South Avenue	SB	LTR	0.08	B	19.7	0.13	C	20.3	0.13	C	20.3	0.13	C	20.4	0.13	C	20.4
		Overall			**C**	**22.1**		**C**	**22.5**		**C**	**22.6**		**C**	**22.7**		**C**	**22.7**

NOTES:

1) THE ABOVE REPRESENTS THE LEVEL OF SERVICE AND VEHICLE DELAY IN SECONDS, C [16.2], FOR EACH KEY APPROACH OF THE UNSIGNALIZED INTERSECTIONS AS WELL AS FOR EACH APPROACH AND THE OVERALL INTERSECTION FOR THE SIGNALIZED INTERSECTIONS. SEE APPENDIX "C" FOR A DESCRIPTION OF THE LEVELS OF SERVICE.

Colliers
Engineering
& Design

Traffic & Parking Management Plan

May 26, 2022

1113 Wolcott Avenue

City of Beacon
Dutchess County, New York

Prepared for:

Prophecy Theatre LLC
369 Main Street, Unit 493 Beacon,
NY 12508

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Colliers Engineering & Design

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Colliers Engineering & Design

Introduction and Background

The 1113 Wolcott Avenue Project ("the Project") is a proposed redevelopment of the property located at 1113 Wolcott Avenue (NYS Route 9D) in the City of Beacon, Dutchess County, New York. The former rectory building and church, which was most recently occupied by the Reformed Church of Beacon, are proposed to be redeveloped as a 30-room hotel contained in an expanded rectory building along with accessory conference center and dining facility (café/restaurant/bar) uses within the church building. In addition, the existing cemetery located behind (west of) the church and rectory building will be restored to be opened as a public park including a walking path from Beekman Street to Wolcott avenue.

The hotel will operate 365 days per year, and the dining facilities will be situated in the rear of the existing church. The dining facilities will serve as a reception for guests of the hotel and offer breakfast, lunch and dinner to the hotel guests, as well as members of the public. In addition, it will operate as a bar for hotel guests and for accessory conference center programming and events. The dining facilities are expected to operate seven (7) days a week in support of the hotel operations and guests with a maximum capacity of 50 seats including deck seating.

The conference center accessory use will operate less frequently, utilizing the former church building for various cultural, educational, or professional programs, including weddings, conferences, art exhibitions, performances, lectures, seminars and workshops. The expected maximum capacity for the occasional weekend programming for the hotel conference center is a maximum of 350 people including required staff to support these events, however these larger programs, which will occur on weekends, will typically have fewer people, ranging between 125-200 people. Furthermore, smaller functions, such as seminars, workshops or retreats with attendance ranging between 50 to 200 people will occur on weekdays generally Wednesday – Friday.

Access to the Project is proposed via an existing access connection from Wolcott Avenue that will provide access to the main parking area as an entry only driveway. A second, exit only driveway is also proposed at the northern property line of the Site, which will be a reestablishment of the existing driveway in this location. A total of 31 off-street parking spaces will be provided primarily for use by hotel guests and employees. The existing Site is also provided a third driveway connection to Wolcott Avenue south of the existing church building. This existing southern driveway is proposed to be eliminated as part of the Project.

During events, all event related parking will be required to be accommodated by off-site public parking in the vicinity of the Project. This is anticipated to create a need for the management of on-site drop-off and pick-up operations. In addition, it was determined that specific parking strategies were needed to ensure event parking occurs in desired locations, to reduce parking as practicable and manage on-site parking.

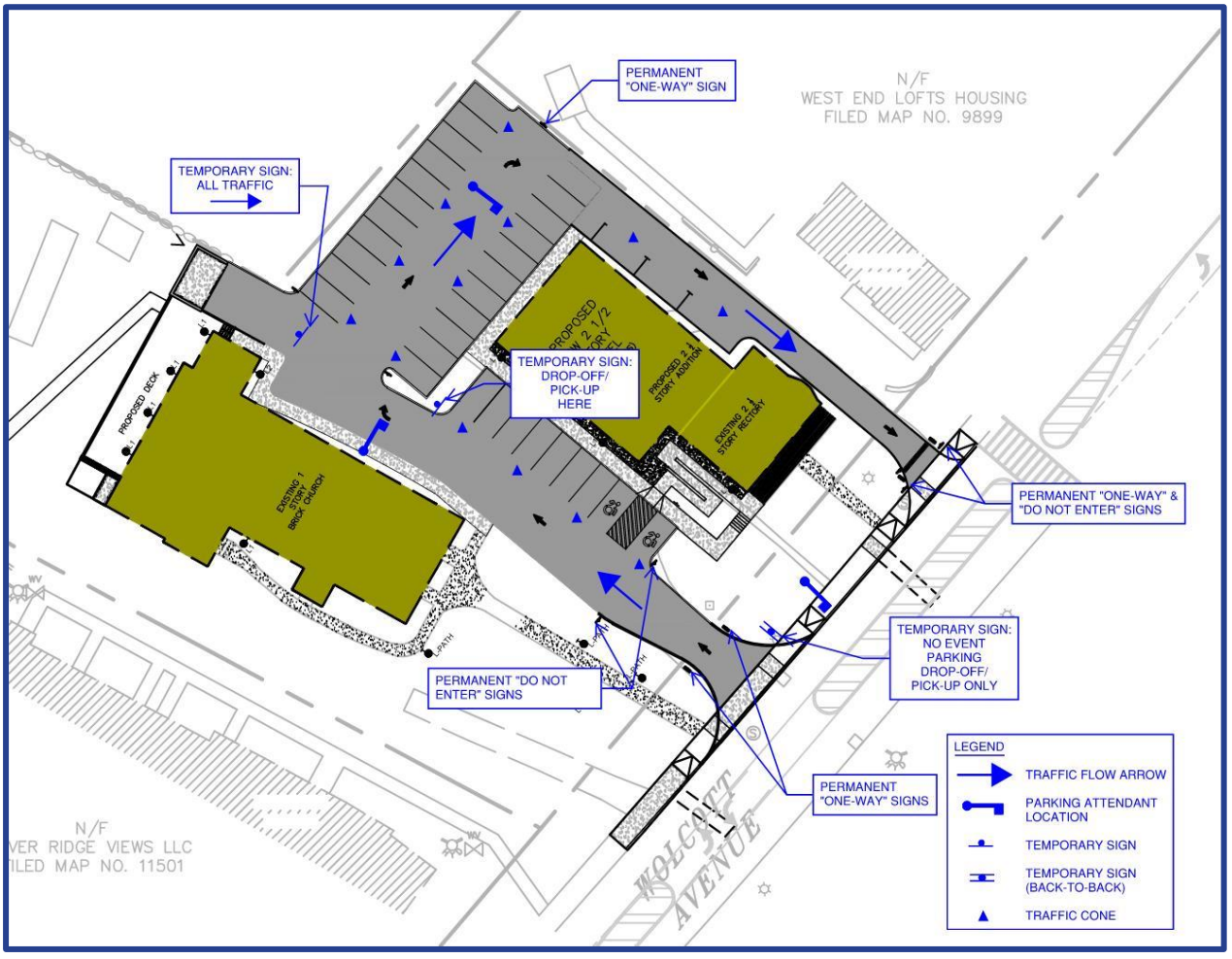
Based on the above, and associated with the review of the Project by the City of Beacon Planning Board and its consultants, this Traffic & Parking Management Plan has been prepared in order to provide an efficient and ongoing method of managing traffic flows, on-site and off-site parking, and other transportation related aspects of the Project. The purpose of this plan is to allow input and coordination with other agencies, including the New York State Department of Transportation (NYSDOT) and the City of Beacon and allow for ongoing revisions to this plan upon implementation of the Project.

On-Site Parking and Circulation

The Project site will provide a total of 31 parking spaces. These spaces will primarily be designated for the use of the Hotel guests. Therefore, during Event Conditions all additional parking needs will need to be accommodated by off-site public parking in the area. It is anticipated that this will result in a need for drop-off/pick-up operations within the Site.

In order to manage these drop-off/pick-up operations the Applicant will provide staff within the on-site driveways and parking area to ensure efficient flow of traffic within the Site. Exhibit No. 1 below indicates the drop-off/pick-up location as well as locations of staff for traffic direction and anticipated directional signage.

Exhibit No. 1 - Event Site Circulation Plan



As indicated previously, the Main (southerly) access driveway will be a one-way entry only driveway with the northerly driveway a one-way exit only driveway. This will help to facilitate the onsite drop-off/pick-up operations during events. However, during events it is anticipated that on-site parking attendants will be required to facility drop-off/pick-up operations, ensure efficient traffic flow, and

monitor any queuing. In addition to the permanent signage proposed on the site, additional temporary signage is also proposed to further indicate the on-site flow pattern during events as indicated on Exhibit No. 1 above.

A total of three parking attendants will be provided on-site during events. The first will be provided near the Main entry driveway, the second at the intended drop-off/pick-up location and the third within the main parking area behind the hotel. The parking attendant near the Main entry driveway will assist with traffic flow entering the Site and monitoring of the queueing of vehicles on the entry driveway to ensure no disruption of normal traffic flows along Route 9D. The driveway provides stacking for approximately 7-8 passenger car vehicles which is anticipated accommodate the vehicle queues during the drop-off/pick-up operations. However, in the unlikely event that this storage area is exceeded by the queue, there is sufficient space within the driveway to queue vehicles in two queues, which the parking attendants can adjust as necessary.

The parking attendant at the drop-off/pick-up location will be tasked with managing the drop-off/pick-up of event attendees as well as monitoring the queueing of vehicles. The last parking attendant within the main parking area behind the hotel will be tasked with monitoring this parking area and maintaining the flow of exiting traffic. All three attendants will be able to provide information to vehicles on the nearby offsite parking locations as discussed further below.

The on-site parking during events will be reserved for the exclusive use of hotel guests and employees of the Project only. These parking spaces will be coned off during events. In the event that hotel guests desire to enter or exit during the event times, they will be assisted by on-site staff with entering and exiting the parking spaces. Hotel guests will also be provided with printed parking passes or tags to signify their ability to park in these spaces. It is anticipated that majority, if not all, of the hotel guests will also be attendees of the events, limiting the amount of hotel related entries and exits during the event periods.

As discussed further below, event parking attendants will also be provided with information regarding parking areas to be utilized by event attendees.

Off-Site Parking

Off-Site Parking Locations

The Project proposes to provide 31 off-street parking spaces on the Site primarily for the use of Hotel guests and employees as required by the City of Beacon code for that use. All additional parking required for event attendees will be accommodated by off-site public parking in the vicinity of the Site. The closest public parking in the area include the below listed locations in order of proximity to the Project:

- **Tomkins Firehouse Parking Lot** – 68± Parking Spaces
- **City of Beacon Municipal Plaza (City Hall) Parking Lots** – 76 Parking Spaces
- **Beekman Street Metro North on-street parking between Railroad Drive and Wolcott Avenue** - 70± on-street metered parking spaces

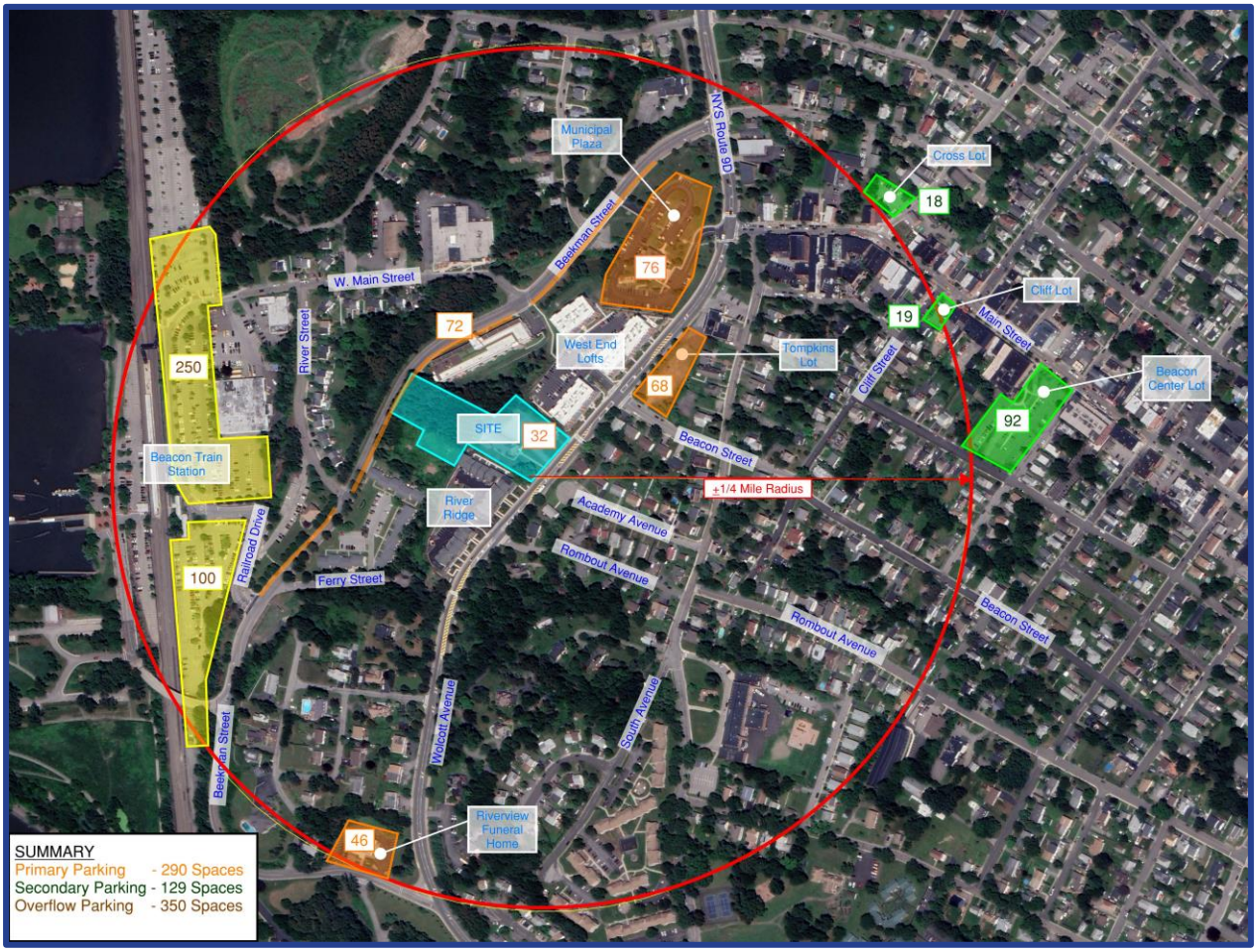
  This parking is operated by LAZ parking, parking can be paid electronically via LAZgo Parking App.

- **Cross Lot** – 18 Parking Spaces (24 Hour Free Parking – City Lot)
- **Cliff Lot** – 19 Parking Spaces (24 Hour Free Parking – City Lot)
- **Beacon Center Lot** – 92 Parking Spaces (24 Hour Free Parking – City Lot)
- **Beacon Metro North Train Station Parking lots metered parking spaces**
  This parking is operated by LAZ parking, parking can be paid electronically via LAZgo Parking App.

In addition to the above parking locations, the Applicant is currently in the process of securing a license agreement with the nearby Riverview Funeral Home located at 2 Beekman Street, near the Wolcott Avenue/Beekman Street intersection, which will allow for the use of 46 parking spaces during the on-site events in an effort to reduce the Project's dependency on available public parking in the vicinity of the Site.

Exhibit No. 2 below identifies the locations of parking within 1/3 of mile of the Project location.

Exhibit No. 2 – Off-Site Parking Locations



The Tomkins Firehouse and City of Beacon Municipal Plaza parking lots are within 500 and 1,000 ft. respectively of the Project Site making these the most accessible public parking for the Project. As previously noted, a walkway connection to Beekman Street is proposed to be provided through the Site as part of the Project with signage at Beekman Street directing patrons to the Site. This will provide more convenient access to the Beekman Street on-street metered parking spaces of which the nearest spaces will be within the 350 ft. of the Hotel and Café/Event spaces with the more remote spaces approximately 1,200 ft. from these buildings. This pathway will also provide more convenient access to parking available at the Beacon Metro north station, however these metered spaces are more remote, in excess of 2,000 ft. from the Project site, and less likely to be utilized. The Cross Street lot, Cliff Lot and Beacon Center Lot are more remote parking locations located within 1,500 – 1,900 ft. from the Project site.

In total there are approximately 343 total parking spaces within 2,000 ft. walking distance of the Project site which can be utilized to accommodate the parking needs of the Project under the event conditions. Each of the identified areas of public parking were observed during the anticipated peak event periods to determine the parking availability in the area. These observations indicated that there is sufficient public parking within the Tomkins Lot, the Municipal Plaza Lot and along Beekman Street to accommodate the parking needs of the Project Event conditions.

Temporary Off-Site Signage

The installation of temporary off-site signage is also recommended during events to alert attendees of preferred parking areas and areas where parking is note permitted. As identified in Exhibit No. 3 below temporary signage is recommended to be installed along Route 9D at the entrance to the Municipal Plaza and at Beacon Street to direct attendees to both the Municipal Plaza and Tompkins Lots. The installation of these temporary signs is subject to approval by the City of Beacon.

In addition, temporary signage indicated “No Event Parking” is recommended to be installed at the entrance to the River Ridge and West End Lofts residential developments. The temporary installation of these signs will also be subject to approval by the City of Beacon as well as the residents/owners of those specific private developments.

Exhibit No. 3 – Off-Site Signage



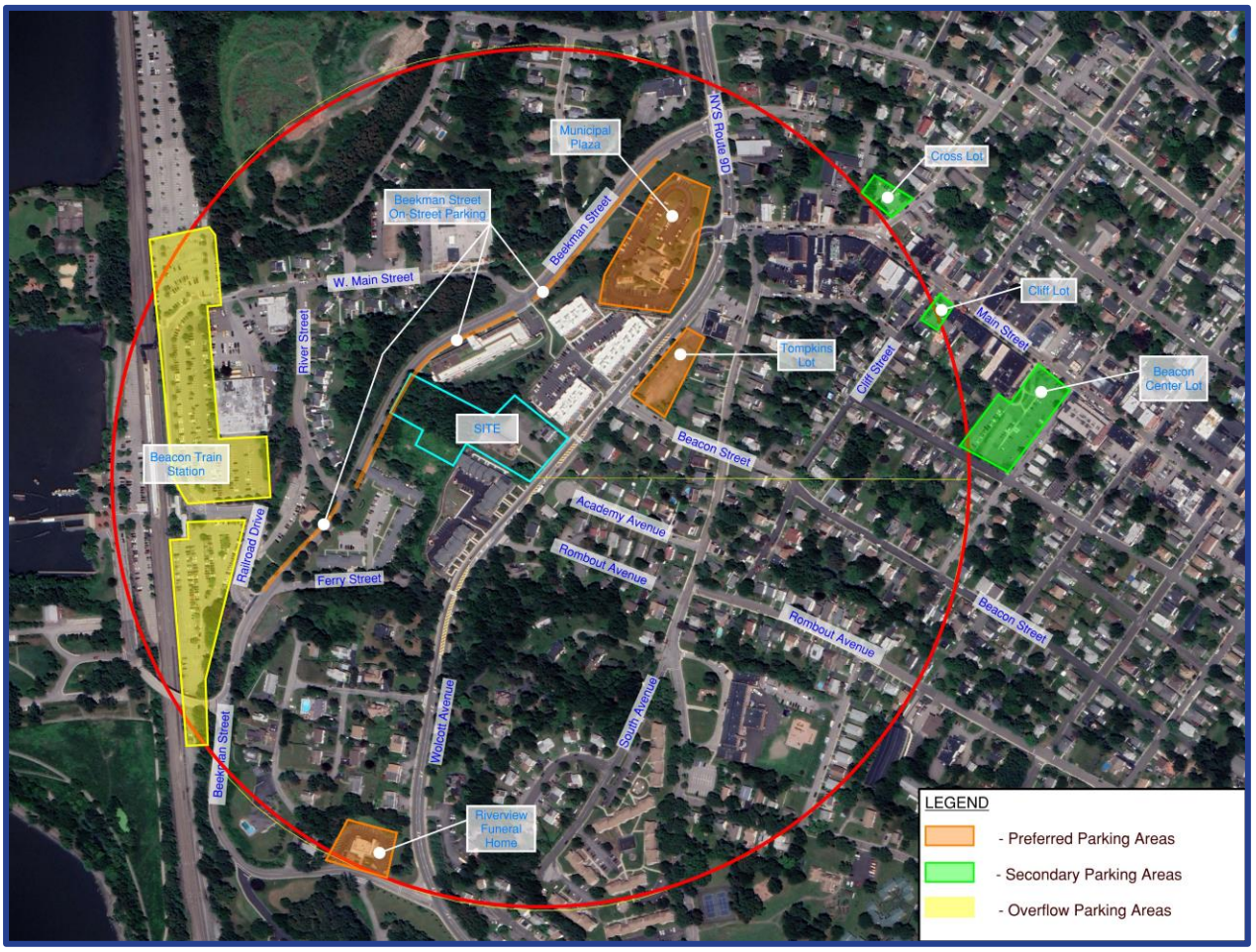
Dissemination of Information

Parking Information

Prophecy Theater, LLC as owners of the Project will be responsible to disseminate parking information to Event attendees to identify appropriate available parking areas. This will be accomplished in several ways.

The Project's website will provide parking information including a map indicating the preferred areas of public parking. These will include the Tompkins Lot, the Municipal Plaza Lot and the on-street metered parking along Beekman Street. This map will be similar to that provided in Exhibit 4 below. In addition, the map will indicate other more remote parking locations as identified above.

Exhibit No. 4 - Preferred Parking Area Map



This map will also be distributed electronically to all event attendees for ticketed events. Distribution of this map for other non-ticketed events will be can be done via the Event representative or coordinator for those specific events.

On the day of the event the on-site parking attendants will be provided with copies of this map which can be provided to any attendees that may enter the Site for drop-off and/or looking for parking.

It should be noted that this map does not include reference to other areas of on-street parking, specifically those that may be located within residential neighborhoods near the Project in an effort to prevent attendees from parking along these roadways.

Public Transportation Information

Similar to the above, the Project owners will also disseminate and encourage the use of public transportation by event attendees in order to reduce the overall parking demand of the Project, as well as the Project traffic generation. This will include links to information on available metro-north train schedules, Duchess County bus schedules and any other relevant public transportation information to be provided through the Project's website. This information map will also be distributed electronically to all event attendees for ticketed events as well as for other non-ticketed events by the Event representative or coordinator for those events.

Shuttles

Events such as conferences or weddings may allow for the use of shuttle buses for attendees arriving from other area hotels. The use of shuttles will be strongly encouraged by the Project owners. Information on available area shuttle bus companies will be provided to event coordinators at the start of the event planning process to assist in this effort. The use of shuttles for attendees arriving from other consolidated locations will reduce the overall parking needs for certain types of events.

A shuttle will also be provided by the Project to provide transportation to event attendees to and from nearby parking locations including the Riverview Funeral Home and Beacon Metro-North Train Station.

Pedestrian and Bicycle Access

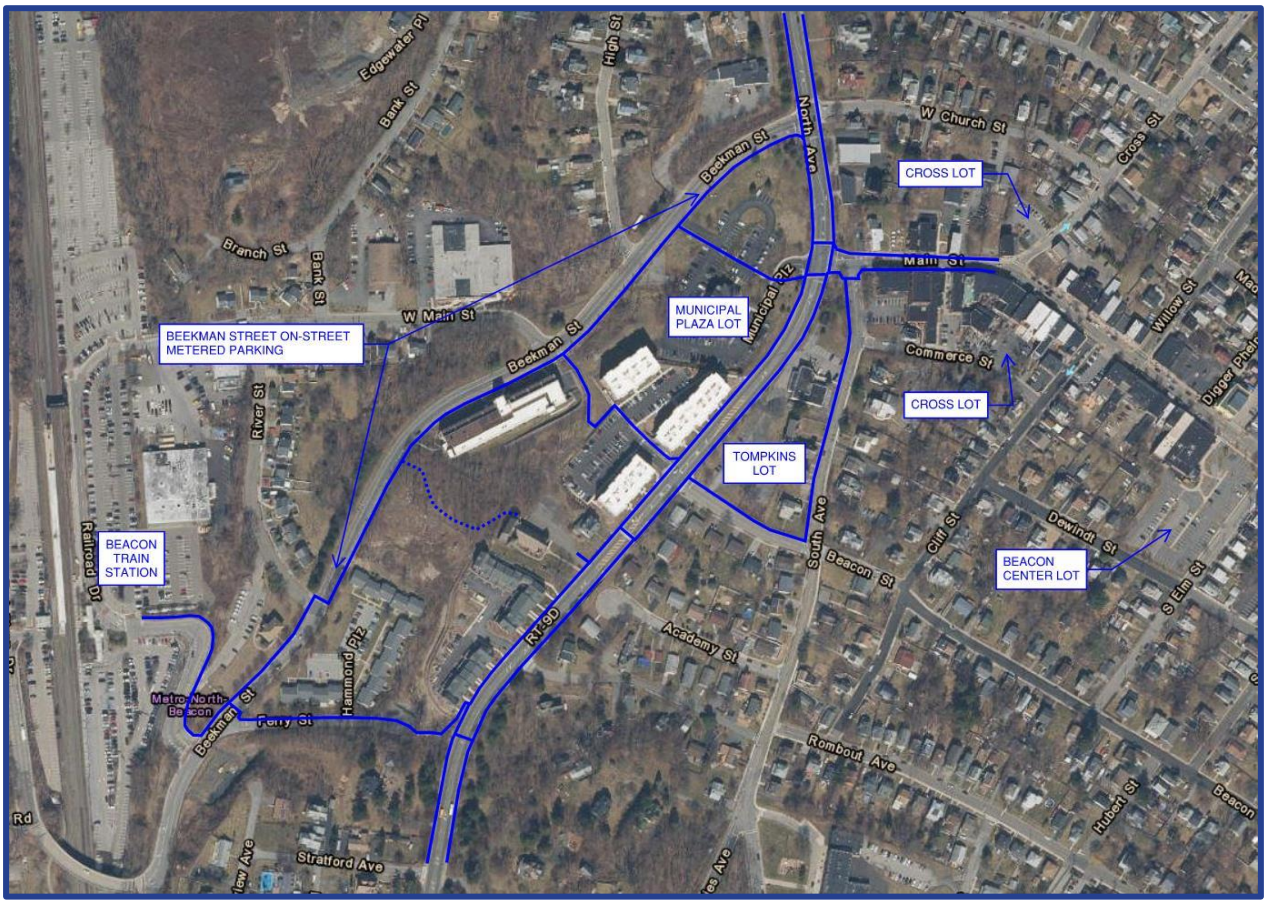
Access to the Project by pedestrians, including event attendees parking off-site, is provided in several manners. There are existing sidewalks along all area roadways surrounding the Project that can be utilized to access various parking areas or pedestrians arriving from other destinations. There are existing signalized crosswalks of Wolcott Avenue both at its signalized intersections with Beekman Street and Main Street providing signalized pedestrian access from the east side of Wolcott Avenue to the west side where the Project site is located. In addition, there are existing crosswalks crossing Wolcott Avenue that are supplemented with pedestrian activated Rectangular Rapid Flashing Beacon (RRFB) signs located at the northern property line of the Project site as well as at a location approximately 150 ft. south of Rombout Avenue at approximately the southern property line of the River Ridge property. Any patrons utilizing the public parking available at the Tompkins lot on the east side of Wolcott Avenue would be likely to use the RRFB crosswalk at the northern property line of the Project site to cross Wolcott Avenue. Similarly, any pedestrians coming from the Main Street area would be likely to utilize either the signalized pedestrian crossing at the Wolcott Avenue/Main Street intersection or the RRFB crosswalk at the northern property line to cross to the west side of the roadway.

Pedestrians arriving from the Beacon Train Station or utilizing parking along Beekman Street would also be provided several opportunities to access the Project site. There are existing public pedestrian pathway connections between Beekman Street and Wolcott Avenue through the River Ridge and West End Lofts developments that could be utilized. In addition to these pathways, the

Project also proposes to provide a pedestrian pathway between Beekman Street and Wolcott Avenue for direct access to the Project Site. Signage is proposed to be provided at the connection of the on-site path with Beekman Street to direct patrons to the Site. Exhibit No. 5 below provides a map of the existing and future pedestrian accommodations in the vicinity of the Project that would be anticipated to be utilized by Event attendees.

Bicycle racks are also proposed to be provided on the Site for any event attendees that may arrive via bicycle.

Exhibit No. 5 – Existing & Proposed Pedestrian Pathways



Ongoing Monitoring and Coordination

This Traffic & Parking Management Plan is meant to be a living document that can regularly be referred to and updated by the operators of the Project. This document provides the basis for managing and directing traffic and parking for the anticipated Events to be held at the facility. This document may be updated and modified based on the future needs of the Project and in coordination with the City of Beacon to best serve the Project and the City as traffic and parking conditions in the vicinity of the Project may change over time.

In order to ensure that the Traffic & Parking Management Plan is achieving the goals set forth herein the Applicant agrees to conduct a monitoring of the event conditions within a 6 to 12-month period after initial occupancy of the event space. This monitoring will be utilized to incorporate further refinements to this plan at that time if determined to be necessary, which will be determined in consultation with the City of Beacon. This monitoring will be worked into the Project approvals with the City of Beacon.

Colliers Engineering & Design

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Infrastructure • Geotechnical/Environmental • Telecommunications • Utilities/Energy

LETTER OF SUPPORT AND APPROVAL RECOMMENDATION

Date: 1/26/2022

Hon. John Gunn
Members of the Planning Board
City of Beacon
1 Municipal Plaza
Beacon, New York 12508

Dear Chairman Gunn and Members of the Planning Board:

I am (we are) the abutting or neighborhood property resident(s) of the property located at 1113 Wolcott Avenue, City of Beacon, New York (the "Property"), which is classified in the R1-40 One-Family Residence District Zoning District and the Historic District and Landmark Overlay ("HDLO") District and is improved with the Reformed Church of Beacon.

This letter will serve to confirm that I (we) have had a chance to review the application of Prophecy Theater, LLC (the "Applicant"), the owner of the above-referenced Property, to the Planning Board of the City of Beacon requesting Site Plan and Special Use Permit Approval for the Applicant's proposed hotel and accessory café and conference/event space on the Property.

I (We) have reviewed the application materials and/or have walked the Property and have otherwise become familiar with the Applicant's proposal. This shall confirm that I (we) have no objection to the issuance of the Site Plan and Special Use Permit Approval described above. The proposed use is appropriate both in the R1-40 and HDLO Zoning Districts and on this particular Property.

I (We) therefore recommend the Planning Board approve the application described above.

Very truly yours,

Jessica Carter
Name(s)

4 Liam Drive Apt 405
Address

Beacon. NY 12508

LETTER OF SUPPORT AND APPROVAL RECOMMENDATION

Date: 2-10-22

Hon. John Gunn
Members of the Planning Board
City of Beacon
1 Municipal Plaza
Beacon, New York 12508

Dear Chairman Gunn and Members of the Planning Board:

I am (we are) the abutting or neighborhood property resident(s) of the property located at 1113 Wolcott Avenue, City of Beacon, New York (the "Property"), which is classified in the R1-40 One-Family Residence District Zoning District and the Historic District and Landmark Overlay ("HDLO") District and is improved with the Reformed Church of Beacon.

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I (We) therefore recommend the Planning Board approve the application described above.

Very truly yours,

Kate Ward
Name(s)

4 Liam Dr 203 Beacon NY 12508
Address

LETTER OF SUPPORT AND APPROVAL RECOMMENDATION

Date: 2/10/2022

Hon. John Gunn
Members of the Planning Board
City of Beacon
1 Municipal Plaza
Beacon, New York 12508

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I (We) therefore recommend the Planning Board approve the application described above.

Very truly yours,

Name(s)

4 Liam Dr Apt 102 Beacon, NY 12508
Address

LETTER OF SUPPORT AND APPROVAL RECOMMENDATION

Date: 2/11/2022

Hon. John Gunn
Members of the Planning Board
City of Beacon
1 Municipal Plaza
Beacon, New York 12508

Dear Chairman Gunn and Members of the Planning Board:

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I (We) therefore recommend the Planning Board approve the application described above.

Very truly yours,

Adam Eisenhut
Name(s)

4 Liam Dr. #302, Beacon, NY 12508
Address

DocuSign Envelope ID: D5242CAA-FAA2-4DB8-9583-382F3414A856

LETTER OF SUPPORT AND APPROVAL RECOMMENDATION

Date: 2/10/2022

Hon. John Gunn
Members of the Planning Board
City of Beacon
1 Municipal Plaza
Beacon, New York 12508

Dear Chairman Gunn and Members of the Planning Board:

I am (we are) the abutting or neighborhood property resident(s) of the property located at 1113 Wolcott Avenue, City of Beacon, New York (the "Property"), which is classified in the R1-40 One-Family Residence District Zoning District and the Historic District and Landmark Overlay ("HDLO") District and is improved with the Reformed Church of Beacon.

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I (We) therefore recommend the Planning Board approve the application described above.

Very truly yours,

DocuSigned by:
Kristy LaRocco
21E0037FF4DE488...

Name(s)

4 Liam Drive Apt 405 Beacon, NY 12508

Address

LETTER OF SUPPORT AND APPROVAL RECOMMENDATION

Date: 2/10/2022

Hon. John Gunn
Members of the Planning Board
City of Beacon
1 Municipal Plaza
Beacon, New York 12508

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I (We) therefore recommend the Planning Board approve the application described above.

Very truly yours,

Name(s)

4 Liam Dr Apt 102 Beacon, NY 12508
Address

LETTER OF SUPPORT AND APPROVAL RECOMMENDATION

Date: 2/8/22

Hon. John Gunn
Members of the Planning Board
City of Beacon
1 Municipal Plaza
Beacon, New York 12508

Dear Chairman Gunn and Members of the Planning Board:

I am (we are) the abutting or neighborhood property resident(s) of the property located at 1113 Wolcott Avenue, City of Beacon, New York (the "Property"), which is classified in the R1-40 One-Family Residence District Zoning District and the Historic District and Landmark Overlay ("HDLO") District and is improved with the Reformed Church of Beacon.

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I (We) therefore recommend the Planning Board approve the application described above.

Very truly yours,

Samuel Jones
Name(s)

4 Liam Drive Ap. 202
Address

LETTER OF SUPPORT AND APPROVAL RECOMMENDATION

Date: **2/1/22**

Hon. John Gunn
Members of the Planning Board
City of Beacon
1 Municipal Plaza
Beacon, New York 12508

Dear Chairman Gunn and Members of the Planning Board:

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I (We) therefore recommend the Planning Board approve the application described above.

Very truly yours,

Soren Beck
Name(s)

4 Liam Drive Beacon, NY 12508
Address

LETTER OF SUPPORT AND APPROVAL RECOMMENDATION

Date: 1/26/22

Hon. John Gunn
Members of the Planning Board
City of Beacon
1 Municipal Plaza
Beacon, New York 12508

Dear Chairman Gunn and Members of the Planning Board:

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I (We) therefore recommend the Planning Board approve the application described above.

Very truly yours,

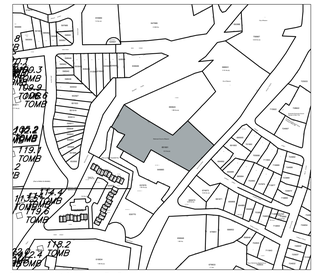
Brandon Ward
Name(s)

4 Liam Drive, Beacon NY 12508
Address

Bulk Zoning Regulations Table

	Mininum Lot Size Required	Actual Lot Size	Minumum Width	Actual Width	Minimum Depth	Actual Depth	Required Setbacks			Actual & Proposed Setbacks			Minimum Distance Between Buildings Same Lot	Allowable Building Height	Proposed Building Height	Maximum Building Coverage	Proposed Building Coverage
							Front	Side	Rear	Front	Side	Rear					
Zoning District																	
R1-40	40,000 sf	99,316.8 sf	150'	197.67' at street	150'	518.34' varies										15%	1%
Existing Church Building							40'	25'	50'	85.57'	26.73'	310.03'	NA	2.5 stories / 35'	Existing		
Proposed Hotel Building							40'	25'	50'	22.39'*	12.15'*	72.07'	NA	2.5 stories / 35'	2.5 Stories / 35'		
											133.97'*						

* Existing Condition to remain



Location Map

Scale: 1" = 400'

Zoning Summary

Zoning District:	R1-40
Tax Map No.:	5954-26-651901
Lot Area:	2.28 Acres
Building Footprint:	10,279 square feet (existing church building + proposed hotel building)
Historical Overlay District:	Yes
Parking Overlay District:	Yes
Existing Use:	Church / Rectory
Proposed Use:	Hotel, Event Space accessory to the Hotel Use

Parking & Loading

Use & Parking Requirements	1964 Units	1964 Parking Requirement	Proposed Units	Current Parking Requirement
Church				
1964 - 1 space per 5 seats	336 occupants	68 parking spaces		
Rectory				
1964 - 1 space per dwelling unit	1 dwelling unit	1 parking space		
Conference Center				
1 space for each 4 seats or pew spaces or, in places or, in places without seats, 1 space for each 100 square feet of floor space used for public assembly			350 occupants	88 parking spaces
Café				
1 space for each 3 patron seats or 1 space for each 150 square feet of gross floor area, excluding kitchen and storage areas, whichever is greater			50 occupants Note that this is a non-simultaneous use with the Conference Center	17 parking spaces
Hotel				
Present - 1 space per room plus one space per employee for the maximum number of employees at any one time			30 rooms plus 1 employee	31 parking spaces
Total Required Parking Spaces		***69 Parking Spaces***		***136 Parking Spac***
Total Proposed Parking Spaces				**31 Parking Space (Note 1)**

Notes:

1. Parking is required per Beacon Zoning Code Section 223-26 (B.2): The building was in existence on April 20, 1964. The Code permits no more than 25% greater intensity than the use existing in 1964. 69 parking spaces would have been required in 1964 for the uses in existence at that time. The 1964 exception would allow for a total of 86 parking spaces. 119 parking spaces are required for the current proposed hotel and event space uses. The total required parking is subject to a determination from the Building Inspector regarding shared parking for 2 or multiple uses on the same lot.
2. The existing use in 1964 was a Church with 336 seats, plus the Rectory, according to the Building Inspector's records.
3. Business hours: 8am – 11pm Monday through Sunday inclusive for the Conference Center. The Hotel is open 24 hours per day.

REVISIONS:			
NO.	DATE	DESCRIPTION	BY
1	08/31/21	REVISED PER PLANNING BOARD COMMENTS	AJS
2	09/28/21	REVISED PER PLANNING BOARD COMMENTS	AJS
3	11/30/21	REVISED PER PLANNING BOARD COMMENTS	AJS
4	12/28/21	REVISED PER PLANNING BOARD COMMENTS	AJS
5	01/25/22	REVISED PER PLANNING BOARD COMMENTS	AJS
6	02/22/22	REVISED PER PLANNING BOARD COMMENTS	AJS
7	04/26/22	REVISED PER PLANNING BOARD COMMENTS	AJS
8	05/31/22	REVISED PER PLANNING BOARD COMMENTS	AJS

Index of Drawings

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Sheet 4 of 14	Landscape & Lighting Plan
Sheet 5 of 14	Hotel Building Plans & Elevations
Sheet 6 of 13	Conference Center Plans
Sheet 7 of 14	Conference Center Elevations
Sheet 8 of 14	Grading & Utility Plan
Sheet 9 of 14	Erosion & Sediment Control Plan
Sheet 10 of 14	Vehicle Tracking Plan
Sheet 11 of 14	Site Construction Details
Sheet 12 of 14	Stormwater Construction Details
Sheet 13 of 14	Water & Sewer Construction Details
Sheet 14 of 14	Erosion & Sediment Control Plan

Site Plan

Scale: 1" = 20'

Special Use Permit Application

Sheet 1 of 14 - Site Plan

Owner:
Prophecy Theater, LLC
36 South Brett Street
Beacon, NY 12508

Architect:
Aryeh Siegel, Architect
84 Mason Circle
Beacon, New York 12508

Site / Civil Engineer:
Hudson Land Design
174 Main Street
Beacon, New York 12508

Surveyor:
Robert Oswald
175 WALSH ROAD PO BOX 1
LAGRANGEVILLE, NEW YORK 12540

Landscape Designer:
Landscape Restorations
7 Creek Drive
Beacon, New York 12508

1113 Wolcott Avenue
Beacon, New York
Scale: 1" = 20'
June 29, 2021

REVISIONS:			
NO.	DATE	DESCRIPTION	BY
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2	09/28/21	REVISED PER PLANNING BOARD COMMENTS	AJS
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7	04/26/22	REVISED PER PLANNING BOARD COMMENTS	AJS
8	05/31/22	REVISED PER PLANNING BOARD COMMENTS	AJS



Site Plan

Scale: 1" = 30'

Special Use Permit Application

Sheet 2 of 14 - Full Site Plan

Owner:
Prophecy Theater, LLC
36 South Brett Street
Beacon, NY 12508

Architect:
Aryeh Siegel, Architect
84 Mason Circle
Beacon, New York 12508

Site / Civil Engineer:
Hudson Land Design
174 Main Street
Beacon, New York 12508

Surveyor:
Robert Oswald
175 WALSH ROAD PO BOX 1
LAGRANGEVILLE, NEW YORK 12540

Landscape Designer:
Landscape Restorations
7 Creek Drive
Beacon, New York 12508

1113 Wolcott Avenue

Beacon, New York
Scale: 1" = 30'
June 29, 2021

DMS CONSOLIDATORS, LTD
DOCUMENT NO. 2015-2498

N/F
WEST END LOFTS HOUSING
FILED MAP NO. 9899

REVISIONS:			
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4	12/28/21	REVISED PER PLANNING BOARD COMMENTS	AJS
5	01/25/22	NO CHANGE	AJS
6	02/22/22	NO CHANGE	AJS
7	04/26/22	NO CHANGE	AJS
8	05/31/22	REVISED PER PLANNING BOARD COMMENTS	AJS

CATCH BASIN RIM=79.1'
N 27°44'52" E 64.36'
N 34°22'48" E 72.03'
S 59°50'43" E 319.50'
306.3'
AREA= 2.28 ACRES +/-
STONE WALL
TOMB
N 41°16'37" E 108.64'
25.1'
GARBAGE
CONCRETE SIDEWALK
S 50°07'23" E 198.84'
RETAINING WALL
3 STORY BRICK
GRAVEL PARKING
REMOVE EXISTING GRAVEL DRIVEWAY
REMOVE EXISTING STAIR AND PORCH
2 STORY FRAME
15.7'
RETAINING WALL
BLACKTOP PARKING
REMOVE EXISTING ADDITIONS TO BUILDING
REMOVE EXISTING WALK
22.3'
CONCRETE SIDEWALK
AREA OF SIDEWALK REPLACEMENT
SEWER MANHOLE RIM=149.1'
UTILITIES
RELOCATE SIGN
S40°23'53"W 197.67'
WOLCOTT AVENUE
LIGHT POST (TYP)
CATCH BASIN RIM=146.7'
FIRE HYDRANT (TYP)
SEWER MANHOLE RIM=146.2'
CATCH BASIN RIM=146.7'
WATER VALVE (TYP)
1 STORY BRICK CHURCH
28.7'
CONCRETE SIDEWALK
N61°49'53"W 243.00'
REMOVE BLACKTOP DRIVEWAY
85.6'
CONCRETE SIDEWALK
2 STORY FRAME
S29°14'17"W 82.00'
RETAINING WALL
N61°04'53"W 174.76'
N68°54'53"W 46.42'
N 32°45'07" E 82.36'
N/F
RIVER RIDGE VIEWS LLC
FILED MAP NO. 11501
N/F
RIVER RIDGE VIEWS LLC
FILED MAP NO. 11501

Site Plan
Scale: 1" = 20'

Special Use Permit Application

Sheet 3 of 14 - Existing Conditions & Demolition Plan

Owner:
Prophecy Theater, LLC
36 South Brett Street
Beacon, NY 12508

Architect:
Aryeh Siegel, Architect
84 Mason Circle
Beacon, New York 12508

Site / Civil Engineer:
Hudson Land Design
174 Main Street
Beacon, New York 12508

Surveyor:
Robert Oswald
175 WALSH ROAD PO BOX 1
LAGRANGEVILLE, NEW YORK 12540

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June 29, 2021



POLE MOUNTED LIGHT (L1A)

KING LUMINAIRE "K-595 ARISTOCRAT" POLE MOUNTED 3000K LED FIXTURE. LOW GLARE CUTOFF SHIELD, DARK SKY COMPLIANT. COLOR: BLACK. PHOTOCELL CONTROL. OR APPROVED EQUAL. MOUNTING HEIGHT ON BLACK ALUMINUM POLE = 12 FEET



WALL MOUNTED HOUSE LIGHT (L1)

HUBBARDTON FORGE WALL MOUNTED FIXTURE. MODEL "Hood Outdoor Dark Sky Wall Sconce", 60W, 2700K. COLOR: COASTAL BLACK, OR APPROVED EQUAL. MOUNTING HEIGHT = 7 FEET. NOTE THAT THE MANUFACTURER DOES NOT PROVIDE FOOTCANDLE DIAGRAMS FOR THIS FIXTURE



WALL MOUNTED HOUSE LIGHT (L2)

MATCH EXISTING BUILDING MOUNTED LIGHTS ON CHURCH. PROVIDE CUSTOM FABRICATED LIGHTING IF A SUITABLE MATCH CANNOT BE FOUND FROM AVAILABLE MANUFACTURERS.



PATH LIGHT (L-PATH)

VOLT Estate Colonial Brass Path Light. 25 watt, 2700K, COLOR: BRASS, OR APPROVED EQUAL. DARK SKY COMPLIANT. 30" HIGH POST MOUNTED. NOTE THAT THE MANUFACTURER DOES NOT PROVIDE FOOTCANDLE DIAGRAMS FOR THIS FIXTURE

NOTE: ALL EXTERIOR LIGHTING ON THE SITE SHALL BE DIRECTED AND/OR SHIELDED SO AS NOT TO CAUSE ANY OBJECTIONABLE GLARE OBSERVABLE FROM NEIGHBORING STREETS AND PROPERTIES. THE SOURCE (BULBS) OF SUCH LIGHTING SHALL NOT BE VISIBLE FROM SAID NEIGHBORING STREETS AND PROPERTIES. PHOTOMETRIC DIAGRAMS ARE SHOWN WITH SHIELDED CONDITIONS.

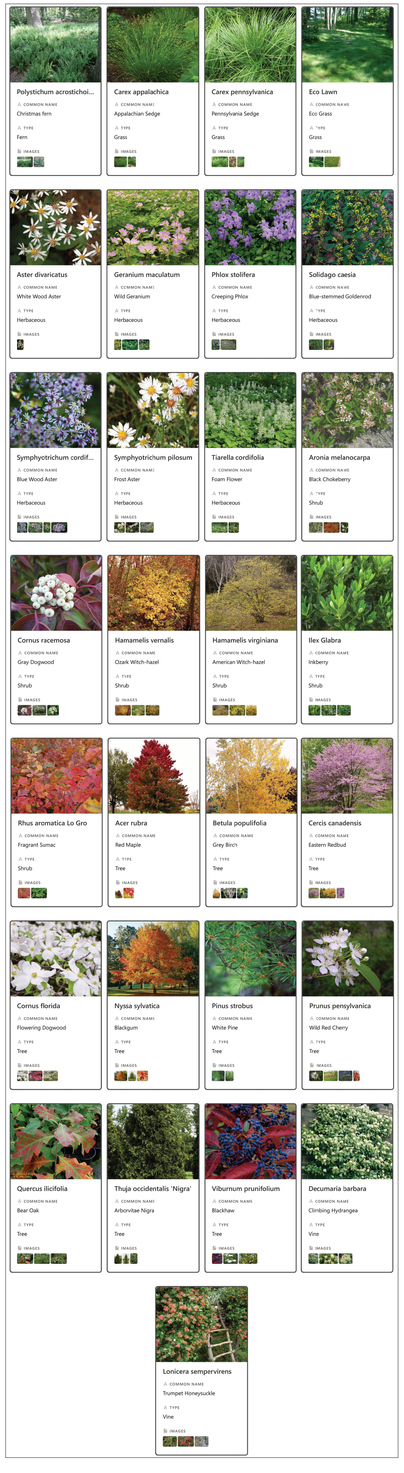
Planting Schedule

Symbol	Quantity	Type	Common Name	Botanical Name	Size	Planting Time
T-Ar	5	Tree	Red Maple	Acer rubrum	7'-8'	Spring/Fall
T-Bp	3	Tree	Grey Birch	Betula populifolia	7'-8'	Spring/Fall
T-Cc	2	Tree	Eastern Redbud	Cercis canadensis	6'-7'	Spring/Fall
T-Cf	1	Tree	Flowering Dogwood	Cornus florida	6'-7'	Spring/Fall
T-Ns	2	Tree	Blackgum	Nyssa sylvatica	7'-8'	Spring/Fall
T-Ps	12	Tree	White Pine	Pinus strobus	7'-8'	Spring/Fall
T-Pp	1	Tree	Wild Red Cherry	Prunus pensylvanica	7'-8'	Spring/Fall
T-Qi	2	Tree	Bear Oak	Quercus illicifolia	7'-8'	Spring/Fall
T-To	14	Tree	Arborvitae 'Nigra'	Thuja occidentalis 'Nigra'	7'-8'	Spring/Fall
S-Am	5	Shrub	Black Chokeberry	Aronia melanocarpa	3 Gallon	Spring/Fall
S-Cr	7	Shrub	Gray Dogwood American	Cornus racemosa	3 Gallon	Spring/Fall
S-Hve	15	Shrub	Ozark Witch-hazel	Hamamelis vernalis	3 Gallon	Spring/Fall
S-Hv	9	Shrub	Witch-hazel	Hamamelis virginiana	3 Gallon	Spring/Fall
S-Ig	61	Shrub	Inkberry	Ilex glabra	3 Gallon	Spring/Fall
S-Ra	33	Shrub	Low-grow Sumac	Rhus aromatica	3 Gallon	Spring/Fall
H-S/F/W	15	Fern	Christmas Fern	Polystichum arostichoides	1 Gallon	Spring, Summer or Fall
H-S/F/W	20	Herbaceous	White Wood Aster	Aster divaricatus	Plugs	Spring, Summer or Fall
H-S/F/W	20	Herbaceous	Wild Geranium	Geranium maculatum	Plugs	Spring, Summer or Fall
H-S/F/W	20	Herbaceous	Creeping Phlox	Phlox stolifera	Plugs	Spring, Summer or Fall
H-S/F/W	20	Herbaceous	Blue-stemmed Goldenrod	Solidago caesia	Plugs	Spring, Summer or Fall
H-S/F/W	20	Herbaceous	Blue Wood Aster	Symphyotrichum cordifolia	Plugs	Spring, Summer or Fall
H-S/F/W	20	Herbaceous	Frost Aster	Symphyotrichum pilosum	Plugs	Spring, Summer or Fall
V-Db	25	Vine	Climbing Hydrangea	Decumaria barbara	Plugs	Spring, Summer or Fall
V-Ls	25	Vine	Trumpet Honeysuckle	Lonicera sempervirens	Plugs	Spring, Summer or Fall
G-Ca	100	Grass	Appalachian Sedge	Carex appalachica	Plugs	Spring, Summer or Fall
G-Cp	100	Grass	Pennsylvania Sedge	Carex pennsylvanica	Plugs	Spring, Summer or Fall
G-Eg	10	Grass	Eco Grass	Eco Lawn	Seed	Spring/Fall

Planting and Landscape Notes

1. Contractors shall enter and exit site through pre-approved routes only.
2. No non-native plant species shall be introduced onto the site. All species shall be indigenous to the northeast region of North America.
3. If a straight specie is specified, no cultivars will be accepted without prior approval of designer.
4. No plants will be accepted that display mechanical injury, disease or specie irregularities.
5. Soil shall be prepped by removing all construction debris, loose roots and stones larger than 3".
6. All plants must be labeled when delivered to site.
7. Areas to be planted shall be marked and labeled by designer.
8. All plant locations and orientations in the field require approval from designer and owner prior to installation.
9. Test tree-pit for drainage before planting. Do not plant tree in pit if water is still evident after one hour. Contact site engineer or landscape designer if this condition is encountered.
10. All tree-planting to be coordinated with as-built utilities. Trees to be located minimum of 5' from active lines.
11. All trees shall be ball and burlap unless otherwise specified on Plant List.
12. Each new tree hole tree shall be twice the width of the rootball.
13. Burlap, wire, cords, ties and any wrapping materials must be removed from all rootballs before backfilling.
14. Plant all plants so top of rootball is slightly above surrounding soil(small and large plants)
15. No planting shall be done in muddy, rainy or frozen conditions.
16. All plants calling for 'Overflowing" in the notes shall not be accepted by designer if plants are thin.
17. If planting is delayed for more than 3 hours after delivery, set plants in shade. Protect from weather and mechanical damage. Keep roots moist and cover with mulch.
18. Contractors shall leave site neat and orderly during course of project, and store materials and equipment in owner-approved locations away from all trees and plants. Store all unplanted plant material away from damaging sun.
19. If site conditions conflict with intended design, contractor shall alert Owner and designer.
20. No substitutions are to be made without the written or verbal consent of landscape designer and owner.
21. Create a size-specific water-well around each plant, 3' from center of tree, and mulch from the outside. Do not mulch crown.
22. Water thoroughly after planting each plant. Water schedule to be determined.
23. Spray for deer if planted in fall. Sometimes bucks mark their territory with their antlers.
24. Keep planting areas weed-free until plant is established.
25. Eco Lawn seeding shall be implemented by contractor familiar with this specie mix and with the process and approved by designer. This is not the same as casting contractor grass seed.
26. Pervious/Permeable Pavers and associated grass seeding shall be installed by contractor with experience in this process. This process requires establishment maintenance, in order to succeed.
27. Bermed areas shall be built with designer directing construction.
28. Street tree and surrounding tree-pit shall be installed by contractor experienced with these materials and approved by designer.
29. All plants require regular watering for the first two seasons to succeed.

Illustrated Plant List





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7	04/26/22	REVISED PER PLANNING BOARD COMMENTS	AJS
8	05/31/22	REVISED PER PLANNING BOARD COMMENTS	AJS

Special Use Permit Application

Sheet 4 of 14 - Landscape and Lighting Plan

Owner:
Prophecy Theater, LLC
36 South Brett Street
Beacon, NY 12508

Architect:
Aryeh Siegel, Architect
84 Mason Circle
Beacon, New York 12508

Site / Civil Engineer:
Hudson Land Design
174 Main Street
Beacon, New York 12508

Surveyor:
Robert Oswald
175 WALSH ROAD PO BOX 1
LAGRANGEVILLE, NEW YORK 12540

Landscape Designer:
Landscape Restorations
7 Creek Drive
Beacon, New York 12508

1113 Wolcott Avenue
Beacon, New York
Scale: 1" = 30'
June 29, 2021



Elevation: Side Facing Church

Scale: $\frac{3}{32}$" = 1'-0"



Elevation: Rear

Scale: $\frac{3}{32}$" = 1'-0"



Elevation: Side

Scale: $\frac{3}{32}$" = 1'-0"



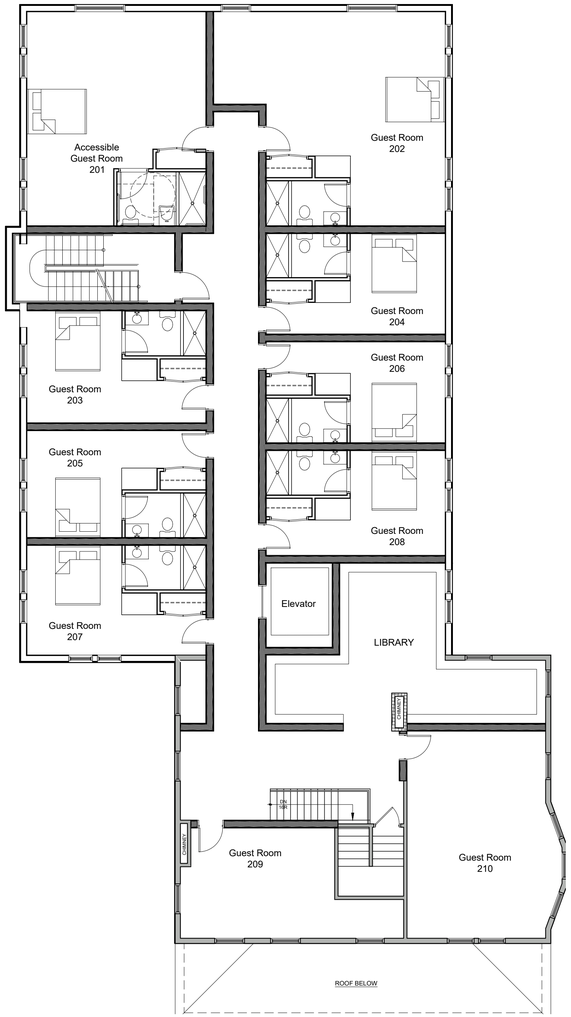
Elevation: Front - Facing Wolcott

Scale: $\frac{3}{32}$" = 1'-0"



3rd Floor Plan: Hotel

Scale: $\frac{1}{8}$" = 1'-0"



2nd Floor Plan: Hotel

Scale: $\frac{1}{8}$" = 1'-0"



1st Floor Plan: Hotel

Scale: $\frac{1}{8}$" = 1'-0"



View



View

Special Use Permit Application

Sheet 5 of 14 - Hotel Plans & Elevations

1113 Wolcott Avenue

Beacon, New York
Scale: AS NOTED
April 29, 2021

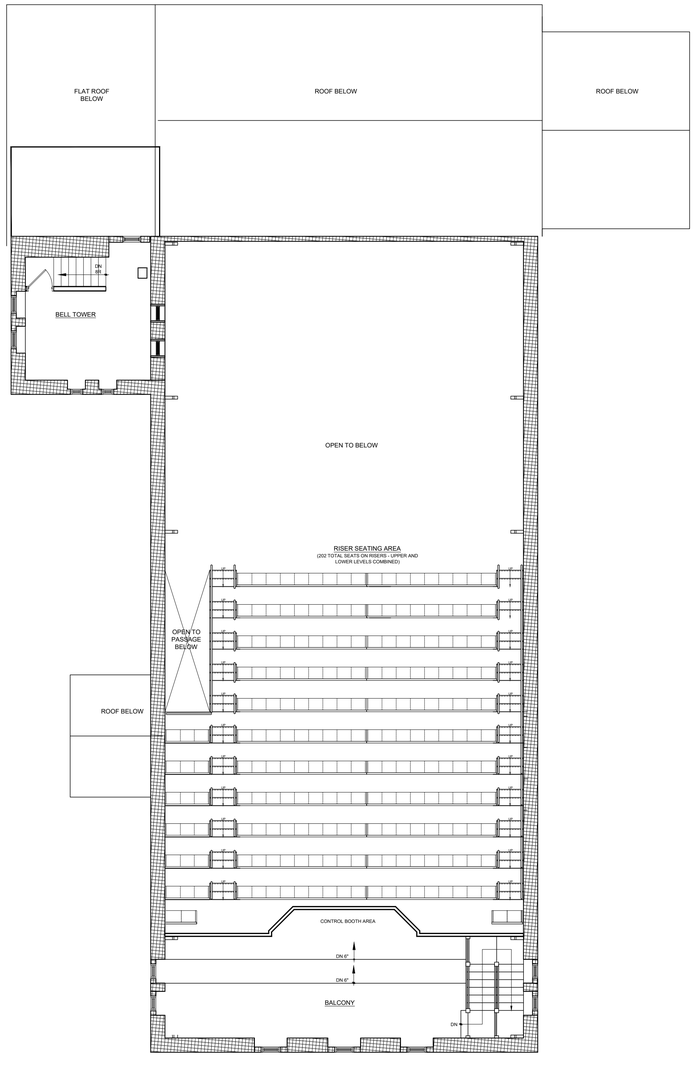
Owner:
Prophecy Theater, LLC
36 South Brett Street
Beacon, NY 12508

Architect:
Aryeh Siegel, Architect
84 Mason Circle
Beacon, New York 12508

Site / Civil Engineer:
Hudson Land Design
174 Main Street
Beacon, New York 12508

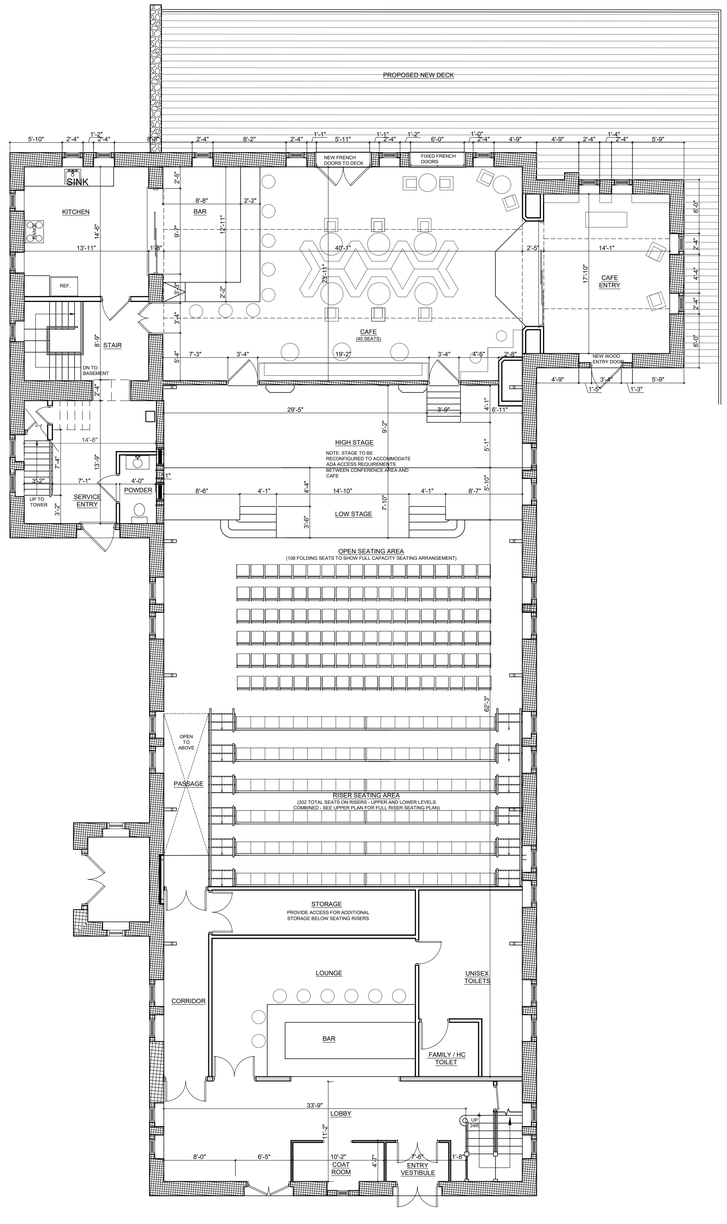
Surveyor:
Robert Oswald
175 WALSH ROAD PO BOX 1
LAGRANGEVILLE, NEW YORK 12540

Landscape Designer:
Landscape Restorations
7 Creek Drive
Beacon, New York 12508



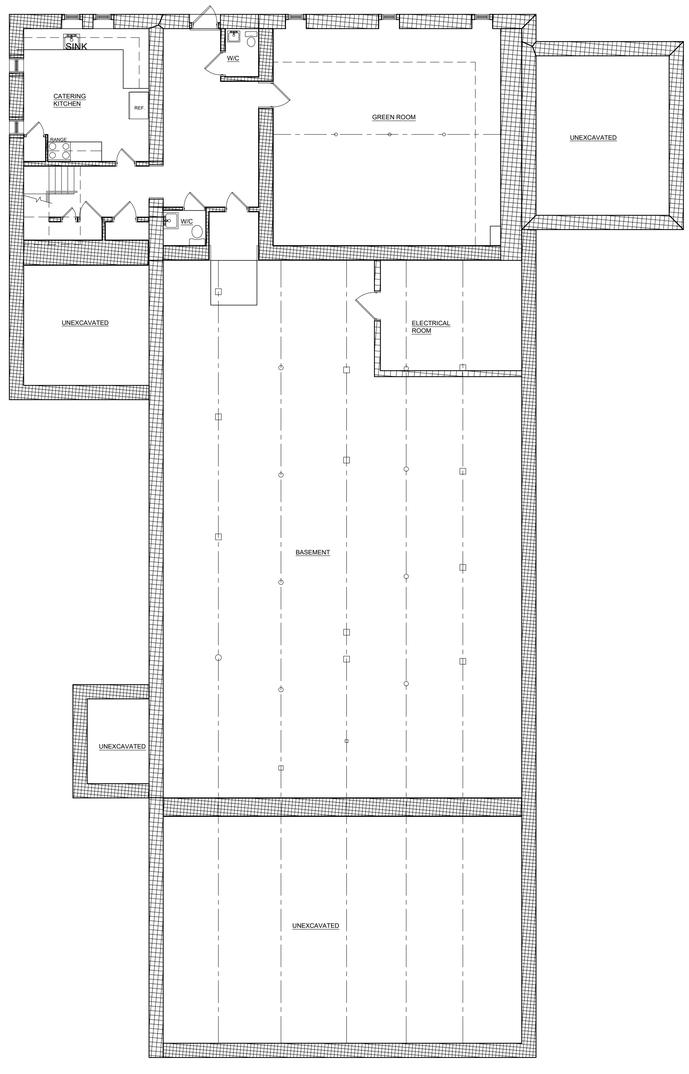
Upper Level Plan: Conference Center

Scale: 1/8" = 1'-0"



Main Level Plan: Conference Center

Scale: 1/8" = 1'-0"



Basement Plan: Conference Center

Scale: 1/8" = 1'-0"

Special Use Permit Application

Sheet 6 of 14 - Conference Center Plans

Owner:
Prophecy Theater, LLC
36 South Brett Street
Beacon, NY 12508

Architect:
Aryeh Siegel, Architect
84 Mason Circle
Beacon, New York 12508

Site / Civil Engineer:
Hudson Land Design
174 Main Street
Beacon, New York 12508

Surveyor:
Robert Oswald
175 WALSH ROAD PO BOX 1
LAGRANGEVILLE, NEW YORK 12540

Landscape Designer:
Landscape Restorations
7 Creek Drive
Beacon, New York 12508

1113 Wolcott Avenue
Beacon, New York
Scale: 1/8" = 1'-0"
April 29, 2021

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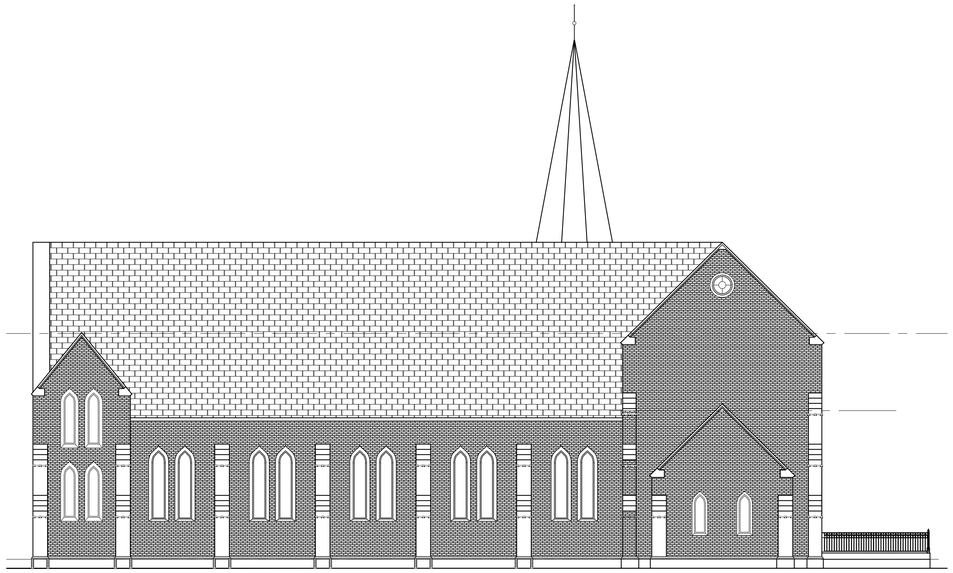
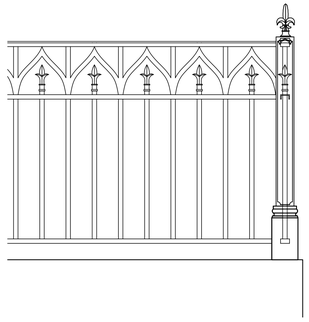


Elevation: Conference Center Building - North

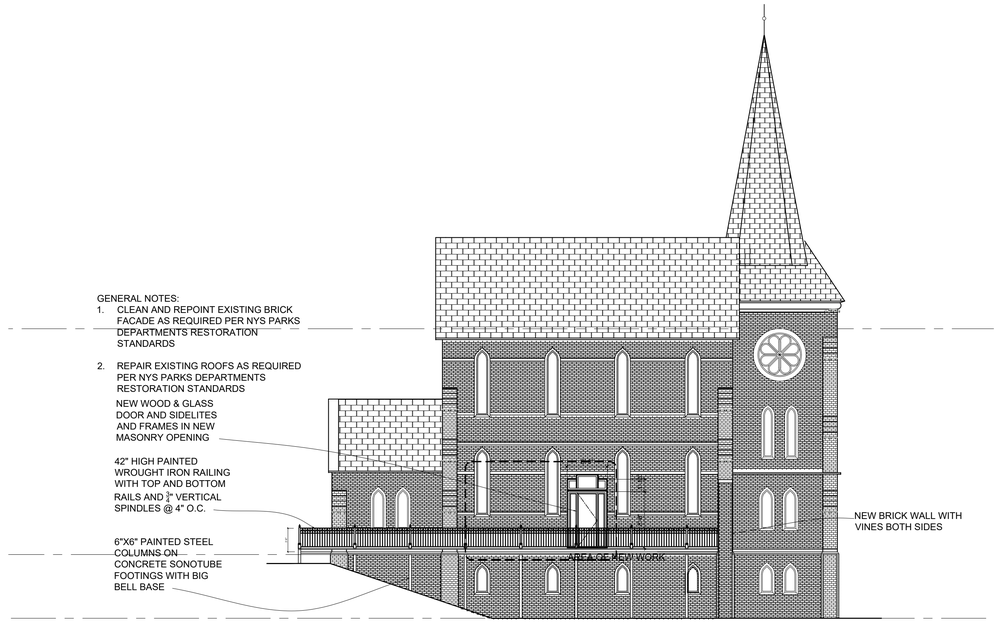
Scale: $\frac{3}{32}$" = 1'-0"



Enlarged View: Railing

Scale: 1" = 1'-0"

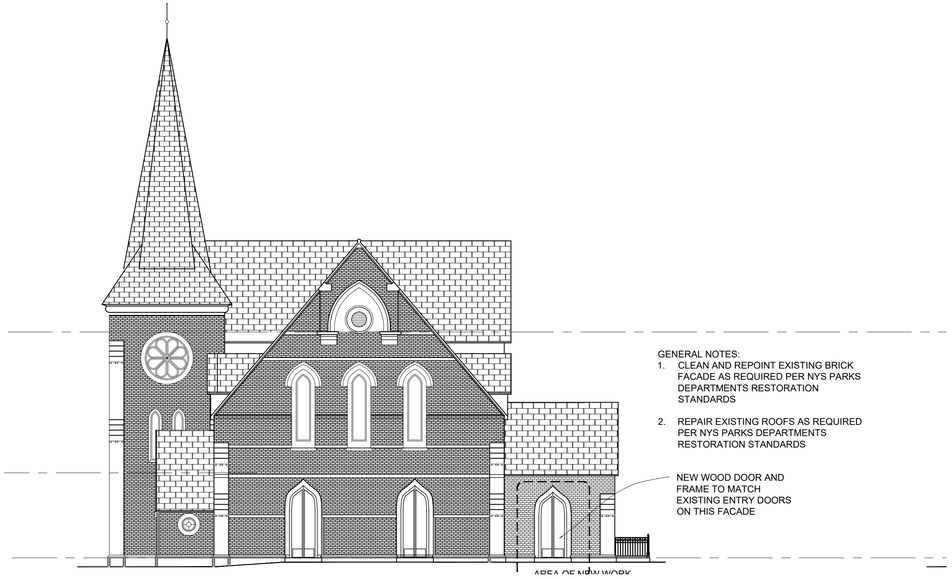
NOTE: THE RAILING CONFIGURATION WILL BE SIMILAR TO THE RAILING SHOWN, BUT MAY DIFFER IN FINAL DETAILING DEPENDING ON THE FABRICATOR SELECTED.



ELEVATION: WEST

Elevation: Conference Center Building - West

Scale: $\frac{3}{32}$" = 1'-0"



Elevation: Conference Center Building - East

Scale: $\frac{3}{32}$" = 1'-0"



Elevation: Conference Center Building - South

Scale: $\frac{3}{32}$" = 1'-0"

Special Use Permit Application

Sheet 7 of 14 - Conference Center Elevations

Owner:
Prophecy Theater, LLC
36 South Brett Street
Beacon, NY 12508

Architect:
Aryeh Siegel, Architect
84 Mason Circle
Beacon, New York 12508

Site / Civil Engineer:
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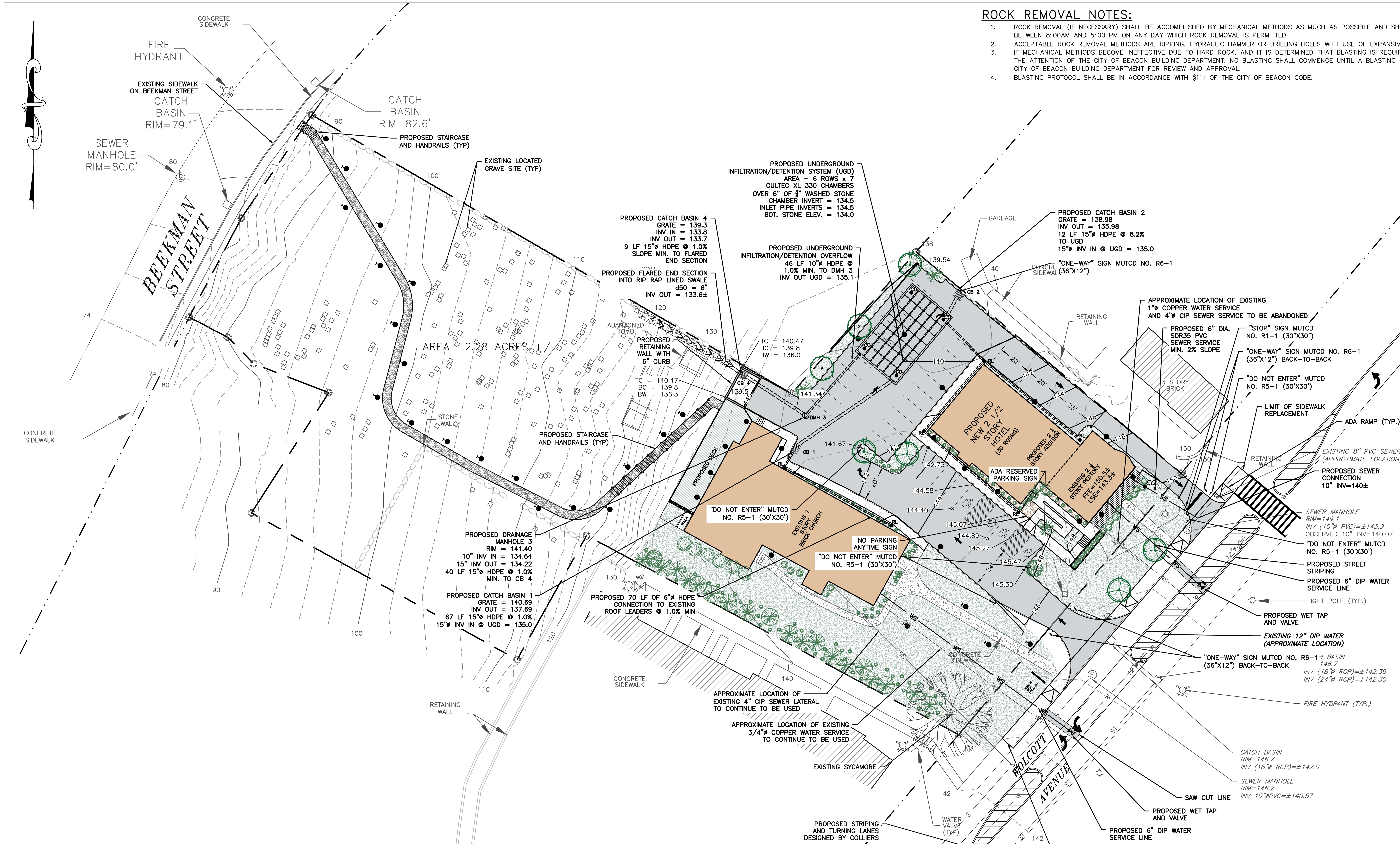

ROCK REMOVAL NOTES:

1. ROCK REMOVAL (IF NECESSARY) SHALL BE ACCOMPLISHED BY MECHANICAL METHODS AS MUCH AS POSSIBLE AND SHALL ONLY BE PERMITTED BETWEEN 8:00AM AND 5:00 PM ON ANY DAY WHICH ROCK REMOVAL IS PERMITTED.
2. ACCEPTABLE ROCK REMOVAL METHODS ARE RIPPING, HYDRAULIC HAMMER OR DRILLING HOLES WITH USE OF EXPANSIVE TOOLS AND/OR WEDGES.
3. IF MECHANICAL METHODS BECOME INEFFECTIVE DUE TO HARD ROCK, AND IT IS DETERMINED THAT BLASTING IS REQUIRED, IT SHALL BE BROUGHT TO THE ATTENTION OF THE CITY OF BEACON BUILDING DEPARTMENT. NO BLASTING SHALL COMMENCE UNTIL A BLASTING PROTOCOL IS SUBMITTED TO THE CITY OF BEACON BUILDING DEPARTMENT FOR REVIEW AND APPROVAL.
4. BLASTING PROTOCOL SHALL BE IN ACCORDANCE WITH §111 OF THE CITY OF BEACON CODE.

LEGEND:

- EXISTING PROPERTY LINE
- ADJOINING PROPERTY LINE
- EXISTING EASEMENT LINE
- EXISTING STREAM
- EXISTING WETLAND BOUNDARY
- 100' WETLAND BUFFER
- 250 — EXISTING MAJOR CONTOUR
- 252 — EXISTING MINOR CONTOUR
- EXISTING TREE LINE
- OHW — EXISTING OVER HEAD WIRE
- EXISTING UTILITY POLE
- SS — EXISTING SEWER SERVICE LINE
- S — EXISTING SEWER LINE
- EXISTING SEWER MANHOLE
- CO — EXISTING SEWER CLEAN OUT
- W — EXISTING WATER LINE
- WS — EXISTING WATER SERVICE LINE
- EXISTING WELL
- EXISTING HYDRANT
- EXISTING WATER SHUT OFF VALVE
- EXISTING WATER VALVE
- EXISTING STORM WATER LINE
- RL — EXISTING ROOF LEADER
- EXISTING CATCH BASIN
- 250 — PROPOSED MAJOR CONTOUR
- 252 — PROPOSED MINOR CONTOUR
- PROPOSED EASEMENT
- PROPOSED TREE LINE
- S — PROPOSED SEWER LINE
- SS — PROPOSED SEWER SERVICE LINE
- PROPOSED SEWER MANHOLE
- CO — PROPOSED SEWER CLEAN OUT
- ST — PROPOSED STORM WATER LINE
- RL — PROPOSED ROOF LEADER LINE
- RL — PROPOSED ROOF LEADER
- W — PROPOSED WATER LINE
- WS — PROPOSED WATER SERVICE LINE
- PROPOSED WELL
- PROPOSED HYDRANT
- PROPOSED WATER SHUT OFF VALVE
- PROPOSED WATER VALVE

INSPECTION SCHEDULE & LONG TERM MAINTENANCE OF STORMWATER STRUCTURES

CATCH BASINS AND PIPING:

ALL CATCH BASINS SHALL BE INSPECTED AFTER EACH STORM EVENT FOR SEDIMENT ACCUMULATION, AND DEBRIS, AND REMOVE AS NECESSARY. WHEN SEDIMENT ACCUMULATION WITHIN THE CATCH BASIN SUMP REACHES 1/2 OF THE SUMP DEPTH, IT SHALL BE REMOVED. ASSOCIATED PIPING SHALL BE INSPECTED ANNUALLY AND ACCUMULATED SEDIMENT SHALL BE REMOVED AS NEEDED.

RIP RAP OUTLET PROTECTION:

RIP RAP OUTLET PROTECTION SHALL BE INSPECTED AFTER EACH STORM AND CLEARED OF ANY SEDIMENT AND/OR DEBRIS. IF THE RIP RAP STONE BECOMES SILTED WITH SEDIMENT, IT MAY REQUIRE REMOVAL OF THE RIP RAP STONE SO THAT THE SEDIMENT CAN BE REMOVED PROPERLY. REPLACE RIP RAP STONE AS REQUIRED.

UNDERGROUND INFILTRATION/DETENTION/INFILTRATION:

BEST MANAGEMENT PRACTICE FOR MAINTAINING OPTIMUM PERFORMANCE OF THE UNDERGROUND INFILTRATION SYSTEM IS A COMBINATION OF THE FOLLOWING:
1. PROPER MAINTENANCE OF THE INLET ROW,
2. REMOVAL OF ACCUMULATED SEDIMENT FROM THE UPSTREAM CATCH BASIN AND STORMWATER COLLECTION SYSTEM, AND
3. MAINTAINING THE SITE IMPERVIOUS AND LAWN AREAS IN A STABLE CONDITION. ANY FUTURE LAND DISTURBANCE ASSOCIATED WITH MAINTENANCE OF THE BUILDINGS AND GROUNDS SHALL CAREFULLY PREPARE AN EROSION AND SEDIMENT CONTROL PLAN TO LIMIT TRANSPORT OF SEDIMENT LADEN RUNOFF TO THE COLLECTION SYSTEM.

THE CULTEC SYSTEM SHALL BE EQUIPPED WITH AN INSPECTION PORT LOCATED ON THE INLET ROW. THE INSPECTION PORT IS A CIRCULAR CAST BOX PLACED IN A RECTANGULAR CONCRETE COLLAR. WHEN THE LID IS REMOVED, A 6-INCH PIPE WITH A SCREW-IN PLUG WILL BE EXPOSED. REMOVE THE PLUG. THIS WILL PROVIDE ACCESS TO THE CULTEC CHAMBER ROW BELOW. FROM THE SURFACE, THROUGH THIS ACCESS, THE SEDIMENT MAY BE MEASURED AT THIS LOCATION. A STADIA ROD MAY BE USED TO MEASURE THE DEPTH OF SEDIMENT IF ANY IN THIS ROW. ADDITIONALLY, CCTV INSPECTION OF THIS ROW CAN BE DEPLOYED THROUGH THIS ACCESS PORT TO DETERMINE IF ANY SEDIMENT HAS ACCUMULATED. IF THE DEPTH OF SEDIMENT IS IN EXCESS OF 3 INCHES, THEN THIS ROW SHOULD BE CLEANED WITH HIGH PRESSURE WATER THROUGH A CULVERT CLEANING NOZZLE. THIS WOULD BE CARRIED OUT THROUGH THE UPSTREAM STRUCTURES. THE INLET ROW IS PLACED ON A POLYETHYLENE LINER TO PREVENT SCOURING OF THE WASHED STONE BENEATH THIS ROW. THIS FACILITATES THE FLUSHING OF THIS ROW WITH HIGH PRESSURE WATER THROUGH A CULVERT CLEANING NOZZLE. THE NOZZLE IS DEPLOYED THROUGH THE UPSTREAM STRUCTURE AND EXTENDED TO THE END OF THE ROW. THE WATER IS TURNED ON AND THE INLET ROW IS BACK-FLUSHED INTO THE STRUCTURE WHERE IT IS REMOVED BY USING A VACUUM TRUCK.

MAINTENANCE GUIDELINES:
1. THE OWNER SHALL KEEP A MAINTENANCE LOG WHICH SHALL INCLUDE DETAILS OF ANY EVENTS WHICH WOULD HAVE AN EFFECT ON THE SYSTEM'S OPERATIONAL CAPACITY.
2. THE OPERATION AND MAINTENANCE PROCEDURE SHALL BE REVIEWED PERIODICALLY AND CHANGED TO MEET SITE CONDITIONS.
3. MAINTENANCE OF THE STORMWATER MANAGEMENT SYSTEM SHALL BE PERFORMED BY QUALIFIED WORKERS AND SHALL FOLLOW APPLICABLE OCCUPATIONAL HEALTH AND SAFETY REQUIREMENTS.
4. DEBRIS REMOVED FROM THE STORMWATER MANAGEMENT SYSTEM SHALL BE DISPOSED OF IN ACCORDANCE WITH APPLICABLE LAWS AND REGULATIONS.

SUGGESTED MAINTENANCE SCHEDULE (TO BE RE-ASSESSED BY THE OPERATOR PERIODICALLY BASED ON SITE CONDITIONS AND EVALUATION OF SYSTEM FUNCTIONALITY):
1. YEAR 1: INSPECT INLETS AND OUTLETS MONTHLY FOR ANY CLOGGING, AND REMOVE DEBRIS AS MAY BE NECESSARY. INSPECT THE SURFACE AROUND THE CHAMBERS FOR ANY DEPRESSIONS.
2. YEAR 2 AND AFTER: INSPECT INLETS AND OUTLETS EVERY SPRING AND FALL FOR ANY CLOGGING, AND REMOVE DEBRIS AS MAY BE NECESSARY. INSPECT THE SURFACE AROUND THE CHAMBERS FOR ANY DEPRESSIONS.
3. 2 YEARS AFTER COMMISSIONING: INSPECT THE INTERIOR OF THE STORMWATER MANAGEMENT CHAMBERS THROUGH INSPECTION PORT FOR DEFICIENCIES USING CCTV OR COMPARABLE TECHNIQUE.
4. 9 YEARS AFTER COMMISSIONING, AND EVERY 9 YEARS THEREAFTER (OR AS MAY BE NEEDED): CLEAN STORMWATER MANAGEMENT CHAMBERS AND FEED CONNECTORS OF ANY DEBRIS. INSPECT THE INTERIOR OF THE STORMWATER MANAGEMENT CHAMBERS THROUGH INSPECTION PORT FOR DEFICIENCIES USING CCTV OR COMPARABLE TECHNIQUE.
5. 45 YEARS AFTER COMMISSIONING: A PROFESSIONAL ENGINEER SHALL ASSESS THE REMAINING LIFE EXPECTANCY OF THE STORMWATER MANAGEMENT CHAMBERS AND RECOMMEND ACTIONS TO REHABILITATE, RESTORE OR REPLACE THE STORMWATER MANAGEMENT CHAMBERS AS MAY BE REQUIRED.
6. ANNUALLY: CONFIRM THAT NO UNAUTHORIZED MODIFICATIONS HAVE BEEN PERFORMED TO THE SITE THAT MAY IMPACT THE ADEQUATE FUNCTIONING OF THE SYSTEM.
7. PERIODICALLY: MONITOR WATER LEVELS IN THE CHAMBER SYSTEM FOLLOWING SIGNIFICANT STORM EVENTS. DEWATERING OF THE SYSTEM SHOULD TAKE NO LONGER THAN 24 HOURS.

THE FACILITY OWNER SHALL PROVIDE FOR THE PERIODIC INSPECTION OF THE STORMWATER FACILITIES IN ACCORDANCE WITH THE SWPPP, AND SHALL HAVE THE FACILITIES INSPECTED ON A YEARLY BASIS BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF NEW YORK, TO DETERMINE THE CONDITION AND INTEGRITY OF THE STORMWATER CONTROL MEASURES. THE INSPECTING PROFESSIONAL SHALL PREPARE AND SUBMIT TO THE CITY OF BEACON WITHIN 30 DAYS OF THE INSPECTION BUT NOT LATER THAN JUNE 1 OF EACH YEAR, A WRITTEN REPORT OF THE FINDINGS INCLUDING RECOMMENDATIONS FOR THOSE ACTIONS NECESSARY FOR THE CONTINUATION OF THE STORMWATER CONTROL MEASURES. SEE "APPENDIX O" OF THE STORMWATER POLLUTION PREVENTION PLAN FOR DETAILED OPERATIONS AND MAINTENANCE PROCEDURES.

SITE SPECIFIC NOTES:

1. THE CONTRACTOR SHALL PERFORM A UTILITIES CALL-OUT PRIOR TO CONSTRUCTION TO VERIFY ALL UNDERGROUND UTILITY LOCATIONS BY CONTACTING UFPO @ 1-800-962-7962. SPECIFIC ATTENTION SHALL BE PAID TO THE LOCATIONS OF THE GAS, WATER AND SEWER MAINS WITH RESPECT TO THE PROPOSED LOCATIONS FOR THE SERVICE LINES.
2. THE CONTRACTOR SHALL FIELD VERIFY THE LOCATIONS AND INVERTS OF ALL DRAINAGE, SANITARY SEWER, WATER AND GAS LINES AND STRUCTURES PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL NOT ASSUME THAT ALL LOCATIONS AS SHOWN ON THE PLAN ARE CORRECT.
3. THE PROPOSED LOT SHALL BE SERVED BY THE CITY OF BEACON MUNICIPAL WATER AND SEWER SERVICES. AS SUCH, THE CONTRACTOR SHALL CONTACT THE CITY OF BEACON WATER AND SEWER DEPARTMENTS TO SCHEDULE A PRE-CONSTRUCTION MEETING TO ENSURE THAT THE ARRANGEMENTS FOR WATER SUPPLY AND SEWAGE DISPOSAL ARE COMMENCED IN ACCORDANCE WITH THE APPROVED PLANS AND AMENDMENTS THERETO AND GENERALLY ACCEPTED STANDARDS.
4. THE WATER SERVICE LINE AND METER SHALL BE INSTALLED IN ACCORDANCE WITH THE CITY OF BEACON WATER DEPARTMENT REQUIREMENTS.
5. THE NEW WATER SERVICE LINE SHALL BE CLASS 52 DIP, SIZE TO BE DETERMINED.
6. THE SEWER SERVICE LATERAL SHALL BE 6"ø SDR-35 PVC PIPE WITH PITCH AS SHOWN ON THE PLAN.
7. STREET CLOSURE FOR WATER, SEWER AND GAS SERVICE CONNECTIONS AND DRIVEWAY CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH CITY OF BEACON AND NYSDOT REQUIREMENTS. A PLAN SHALL BE IN PLACE FOR MAINTENANCE AND PROTECTION OF TRAFFIC.
8. ALL EROSION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO CONSTRUCTION. WOLLCOTT AVENUE SHALL BE KEPT CLEAN AND SWEPT DURING CONSTRUCTION.
9. SUMP PUMPS TO BE PROVIDED FOR FOOTING DRAINS, AS REQUIRED. THE TYPES OF PUMPS AND METHODS USED TO ENSURE PROPER DRAINAGE SHALL BE ACCEPTABLE TO THE CITY OF BEACON BUILDING DEPARTMENT.
10. THE BUILDING DEPARTMENT SHALL HAVE THE RIGHT TO INSPECT THE EXISTING BUILDING TO CONFIRM THAT THERE ARE NOT EXISTING STORMWATER CONNECTIONS TO THE CITY'S SANITARY SEWER SYSTEM PRIOR TO THE MAP BEING SIGNED.
11. WATER AND SEWER FOR THE RECTORY WILL BE ABANDONED IN ACCORDANCE WITH CITY REQUIREMENTS.
12. IN ORDER TO PROTECT THE FEDERALLY-LISTED ENDANGERED INDIANA BAT (MYOTIS SODALIS) AND THE FEDERALLY-LISTED THREATENED NORTHERN LONG-EARED BAT (MYOTIS SEPTENTRIONALIS), THE CLEARING OF POTENTIAL ROOSTING TREES SHALL OCCUR ONLY BETWEEN NOVEMBER 1 AND MARCH 31. ORANGE CONSTRUCTION FENCING SHALL BE USED TO SEPARATE AREAS TO BE GRADED FROM AREAS NOT TO BE DISTURBED. NO ARTIFICIAL DYES, COLORING, INSECTICIDE, OR ALGAECIDE SUCH AS COPPER SULFATE SHALL BE USED IN STORMWATER CONTROL STRUCTURES.

SIGHT DISTANCE NOTE:

MAIN ENTRANCE:

THE SIGHT DISTANCES AT THE PROPOSED DRIVEWAY LOCATION WERE ANALYZED. BASED ON FIELD MEASUREMENTS, THE EXISTING SIGHT DISTANCES ARE APPROXIMATELY 433 FEET LOOKING LEFT (NORTH) AND 544 FEET RIGHT (SOUTH) FROM THE PROPOSED ACCESS. EXISTING STOPPING SIGHT DISTANCES ARE APPROXIMATELY 336 FEET LOOKING LEFT (NORTH) AND 534 FEET RIGHT (SOUTH) FROM THE PROPOSED ACCESS. SIGHT DISTANCES ARE BASED ON AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO) CRITERIA THE STOPPING SIGHT DISTANCE (200 FEET) AND INTERSECTION SIGHT DISTANCE (335 FEET) FOR THE 30 MPH POSTED SPEED LIMIT ALONG ROUTE 9D WILL BE SATISFIED. AVAILABLE NYSDOT SPEED DATA FOR ROUTE 9D IN THIS AREA INDICATES THAT THE 85TH PERCENTILE SPEEDS ARE APPROXIMATELY 37 TO 38 MPH. FOR A 40 MPH DESIGN SPEED, AASHTO REQUIRES A MINIMUM 305 FOOT STOPPING SIGHT DISTANCE, 385 FEET MINIMUM INTERSECTION SIGHT DISTANCE LEFT, 445 FEET MINIMUM INTERSECTION SIGHT DISTANCE RIGHT. AND TO ALLOW FOR THE SAFE OPERATION OF THE INTERSECTION. THIS REQUIRED STOPPING SIGHT DISTANCE WILL ALSO BE SATISFIED. IT SHOULD BE NOTED THAT SOME PRUNING/CLEARING OF VEGETATION IMMEDIATELY NORTH OF THE PROPOSED DRIVEWAY LOCATION ON THE WEST SIDE OF ROUTE 9D SHOULD BE COMPLETED IN ORDER TO MAXIMIZE THE SIGHT DISTANCE LOOKING TO THE NORTH FROM THE SITE DRIVEWAY.

SOUTHERLY EGRESS ONLY LOOP:

THE SIGHT DISTANCES AT THE PROPOSED DRIVEWAY LOCATION WERE ANALYZED. BASED ON FIELD MEASUREMENTS, THE EXISTING SIGHT DISTANCES ARE APPROXIMATELY 389 FEET LOOKING LEFT (NORTH) AND 536 FEET RIGHT (SOUTH) FROM THE PROPOSED ACCESS. EXISTING STOPPING SIGHT DISTANCES ARE APPROXIMATELY 331 FEET LOOKING LEFT (NORTH) AND 501 FEET RIGHT (SOUTH) FROM THE PROPOSED ACCESS. SIGHT DISTANCES ARE BASED ON AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO) CRITERIA THE STOPPING SIGHT DISTANCE (200 FEET) AND INTERSECTION SIGHT DISTANCE (335 FEET) FOR THE 30 MPH POSTED SPEED LIMIT ALONG ROUTE 9D WILL BE SATISFIED. AVAILABLE NYSDOT SPEED DATA FOR ROUTE 9D IN THIS AREA INDICATES THAT THE 85TH PERCENTILE SPEEDS ARE APPROXIMATELY 37 TO 38 MPH. FOR A 40 MPH DESIGN SPEED, AASHTO REQUIRES A MINIMUM 305 FOOT STOPPING SIGHT DISTANCE, 385 FEET MINIMUM INTERSECTION SIGHT DISTANCE LEFT, 445 FEET MINIMUM INTERSECTION SIGHT DISTANCE RIGHT. AND TO ALLOW FOR THE SAFE OPERATION OF THE INTERSECTION. THIS REQUIRED STOPPING SIGHT DISTANCE WILL ALSO BE SATISFIED.

SNOW REMOVAL AND STORAGE NOTES:

1. SNOW SHALL BE REMOVED WITHIN 8 HOURS AFTER A SNOW EVENT.
2. THE PEDESTRIAN PATH THROUGH THE CEMETERY SHALL BE MAINTAINED ND KEPT CLEAR OF SNOW AND ICE DURING THE WINTER MONTHS.

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GRADING & UTILITY PLAN
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GRAPHIC SCALE
30 0 15 30 60 120
(IN FEET)
1 inch = 30 ft.

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GRADING & UTILITY PLAN

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CITY OF BEACON
DUTCHESS COUNTY, NEW YORK
TAX ID: 5954-26-651901

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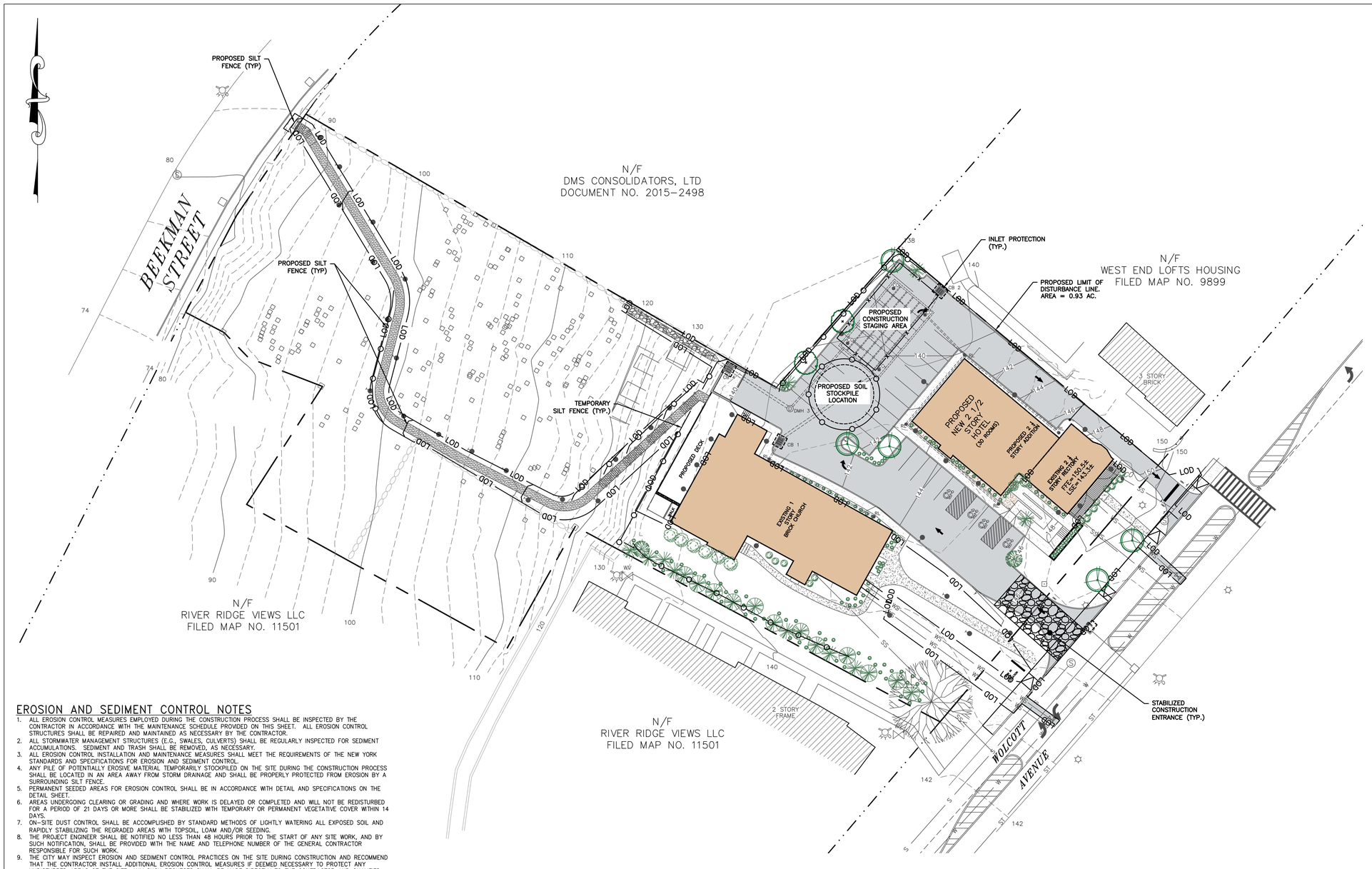

LEGEND:

- EXISTING PROPERTY LINE
- ADJOINING PROPERTY LINE
- EXISTING EASEMENT LINE
- EXISTING STREAM
- EXISTING WETLAND BOUNDARY
- 100' WETLAND BUFFER
- 250 EXISTING MAJOR CONTOUR
- 252 EXISTING MINOR CONTOUR
- EXISTING TREE LINE
- OHW EXISTING OVER HEAD WIRE
- EXISTING UTILITY POLE
- SS EXISTING SEWER SERVICE LINE
- S EXISTING SEWER LINE
- EXISTING SEWER MANHOLE
- EXISTING SEWER CLEAN OUT
- W EXISTING WATER LINE
- WS EXISTING WATER SERVICE LINE
- EXISTING WELL
- EXISTING HYDRANT
- EXISTING WATER SHUT OFF VALVE
- EXISTING WATER VALVE
- EXISTING STORM WATER LINE
- RL EXISTING ROOF LEADER
- EXISTING CATCH BASIN
- 250 PROPOSED MAJOR CONTOUR
- 252 PROPOSED MINOR CONTOUR
- PROPOSED EASEMENT
- PROPOSED TREE LINE
- S PROPOSED SEWER LINE
- SS PROPOSED SEWER SERVICE LINE
- PROPOSED SEWER MANHOLE
- PROPOSED SEWER CLEAN OUT
- ST PROPOSED STORM WATER LINE
- RL PROPOSED ROOF LEADER LINE
- PROPOSED ROOF LEADER
- W PROPOSED WATER LINE
- WS PROPOSED WATER SERVICE LINE
- PROPOSED WELL
- PROPOSED HYDRANT
- PROPOSED WATER SHUT OFF VALVE
- PROPOSED WATER VALVE
- PROPOSED SILT FENCE
- LOD PROPOSED LIMIT OF DISTURBANCE
- PROPOSED CONSTRUCTION ENTRANCE

INSPECTION SCHEDULE & MAINTENANCE OF EROSION AND SEDIMENT CONTROL MEASURES

PERMANENT AND TEMPORARY VEGETATION:
INSPECT ALL AREAS THAT HAVE RECEIVED VEGETATION EVERY SEVEN DAYS AND AFTER EVERY STORM EVENT WITH RAINFALL THAT EQUALS OR EXCEEDS 0.5 INCH. ALL AREAS DAMAGED BY EROSION OR WHERE SEED HAS NOT ESTABLISHED SHALL BE REPAIRED AND RESTABILIZED IMMEDIATELY.

STABILIZED CONSTRUCTION ENTRANCE:
INSPECT THE ENTRANCE PAD EVERY SEVEN DAYS AND AFTER EVERY STORM EVENT WITH RAINFALL THAT EQUALS OR EXCEEDS 0.5 INCH. CHECK FOR MUD, SEDIMENT BUILD-UP AND PAD INTEGRITY. MAKE DAILY INSPECTIONS DURING WET WEATHER. REGRADE PAD AS NEEDED FOR RUNOFF CONTROL. WASH AND REPLACE STONE AS NEEDED. THE STONE IN THE ENTRANCE SHOULD BE WASHED OR REPLACED WHENEVER THE ENTRANCE FAILS TO REDUCE MUD BEING CARRIED OFF SITE BY VEHICLES. IMMEDIATELY REMOVE MUD AND SEDIMENT TRACKED OR WASHED ONTO PUBLIC ROADS BY BRUSHING OR SWEEPING. REMOVE TEMPORARY CONSTRUCTION ENTRANCE AS SOON AS THEY ARE NO LONGER NEEDED TO PROVIDE ACCESS TO THE SITE AS DIRECTED BY PROJECT ENGINEER.

SILT FENCE:
INSPECT FOR DAMAGE EVERY SEVEN DAYS AND AFTER EVERY STORM EVENT WITH RAINFALL THAT EQUALS OR EXCEEDS 0.5 INCH. MAKE ALL REPAIRS IMMEDIATELY. REMOVE SEDIMENT FROM THE UP-SLOPE FACE OF THE FENCE BEFORE IT ACCUMULATES TO A HEIGHT EQUAL TO ONE-QUARTER THE HEIGHT OF THE FENCE. IF FENCE FABRIC TEARS, BEGINS TO DECOMPOSE, OR IN ANY WAY BECOMES INEFFECTIVE, REPLACE THE AFFECTED SECTION OF FENCE IMMEDIATELY.

SOIL STOCKPILE:
INSPECT SEDIMENT CONTROL BARRIERS (SILT FENCE) AND VEGETATION FOR DAMAGE EVERY SEVEN DAYS AND AFTER EVERY STORM EVENT WITH RAINFALL THAT EQUALS OR EXCEEDS 0.5 INCH. MAKE ALL REPAIRS IMMEDIATELY. REMOVE SEDIMENT FROM THE UP-SLOPE FACE OF THE SEDIMENT CONTROL BARRIER BEFORE IT ACCUMULATES TO A HEIGHT EQUAL TO ONE-QUARTER THE HEIGHT OF THE SEDIMENT CONTROL BARRIER. IF SEDIMENT CONTROL BARRIER TEARS, BEGINS TO DECOMPOSE, OR IN ANY WAY BECOMES INEFFECTIVE, REPLACE THE AFFECTED SECTION OF SEDIMENT CONTROL BARRIER IMMEDIATELY. REVEGETATE DISTURBED AREA TO STABILIZE SOIL STOCKPILE. REMOVE THE SEDIMENT CONTROL BARRIER WHEN THE SOIL STOCKPILE HAS BEEN REMOVED.

DUST CONTROL:
SCHEDULE CONSTRUCTION OPERATIONS TO MINIMIZE THE AMOUNT OF DISTURBED AREAS AT ANY ONE TIME DURING THE COURSE OF WORKS. APPLY TEMPORARY SOIL STABILIZATION PRACTICES SUCH AS MULCHING, SEEDING, AND SPRAYING (WATER). STRUCTURAL MEASURES (MULCH, SEEDING) SHALL BE INSTALLED IN DISTURBED AREAS BEFORE SIGNIFICANT BLOWING PROBLEMS DEVELOP. WATER SHALL BE SPRAYED AS NEEDED. REPEAT AS NEEDED, BUT AVOID EXCESSIVE SPRAYING, WHICH COULD CREATE RUNOFF AND EROSION PROBLEMS.

CHECK DAM:
(IF REQUIRED) INSPECT CHECK DAMS EVERY SEVEN DAYS AND AFTER EVERY STORM EVENT WITH RAINFALL THAT EQUALS OR EXCEEDS 0.5 INCH. IF SIGNIFICANT EROSION OCCURS BETWEEN STRUCTURES, A LINER OF STONE OR OTHER SUITABLE MATERIAL SHOULD BE INSTALLED IN THAT PORTION OF THE CHANNEL. REMOVE SEDIMENT ACCUMULATED BEHIND THE DAM AS NEEDED TO ALLOW CHANNEL TO DRAIN THROUGH THE STONE CHECK DAM AND PREVENT LARGE FLOWS FROM CARRYING SEDIMENT OVER THE DAM. REPLACE STONES AS NEEDED TO MAINTAIN THE DESIGN CROSS SECTION OF THE STRUCTURES. REMOVE CHECK DAMS AS PER APPROVAL OF THE PROJECT ENGINEER.

EROSION CONTROL BLANKET:
(IF REQUIRED) INSPECT THE BLANKET EVERY SEVEN DAYS AND AFTER EVERY STORM EVENT WITH RAINFALL THAT EQUALS OR EXCEEDS 0.5 INCH. REPLACE WIRE STAPLES AS REQUIRED. REPAIR AND RESEED WHERE CRACKS AND DAMAGED VEGETATION IS EVIDENT. WHEN DAMAGED BEYOND REPAIR OR NO LONGER FUNCTIONING, THE BLANKET SHALL BE REPLACED.

DEWATERING PITS:
(IF REQUIRED) – INSPECT DAILY DURING OPERATION FOR CLOGGING OR OVERFLOW. CLEAR INLET AND DISCHARGE PIPES OF OBSTRUCTIONS. IF A FILTER MATERIAL BECOMES CLOGGED WITH SEDIMENT, PIT SHALL BE DISMANTLED AND NEW PITS SHALL BE CONSTRUCTED AS NEEDED.

SEDIMENT TRAP:
(IF REQUIRED) SEDIMENT SHALL BE REMOVED AND THE TRAP RESTORED TO THE ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO ONE-HALF OF THE DESIGN DEPTH OF THE TRAP. SEDIMENT REMOVED FROM THE TRAP SHALL BE DEPOSITED IN A PROTECTED AREA IN SUCH A MANNER THAT IT WILL NOT ERODE.

CATCH BASINS:
ALL CATCH BASINS SHALL BE INSPECTED AFTER EACH STORM EVENT FOR SEDIMENT ACCUMULATION, AND DEBRIS, AND REMOVE AS NECESSARY. THE INLET PROTECTION SHALL BE INSPECTED FOR SEDIMENT ACCUMULATION AND REPLACED AS NECESARRY. WHEN SEDIMENT ACCUMULATION WITHIN THE CATCH BASIN SUMP REACHES 1/2 OF THE SUMP DEPTH, IT SHALL BE REMOVED.

EROSION AND SEDIMENT CONTROL NOTES

1. ALL EROSION CONTROL MEASURES EMPLOYED DURING THE CONSTRUCTION PROCESS SHALL BE INSPECTED BY THE CONTRACTOR IN ACCORDANCE WITH THE MAINTENANCE SCHEDULE PROVIDED ON THIS SHEET. ALL EROSION CONTROL STRUCTURES SHALL BE REPAIRED AND MAINTAINED AS NECESSARY BY THE CONTRACTOR.
2. ALL STORMWATER MANAGEMENT STRUCTURES (E.G., SWALES, CULVERTS) SHALL BE REGULARLY INSPECTED FOR SEDIMENT ACCUMULATIONS. SEDIMENT AND TRASH SHALL BE REMOVED, AS NECESSARY.
3. ALL EROSION CONTROL INSTALLATION AND MAINTENANCE MEASURES SHALL MEET THE REQUIREMENTS OF THE NEW YORK STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL.
4. ANY PILE OF POTENTIALLY EROSIVE MATERIAL TEMPORARILY STOCKPILED ON THE SITE DURING THE CONSTRUCTION PROCESS SHALL BE LOCATED IN AN AREA AWAY FROM STORM DRAINAGE AND SHALL BE PROPERLY PROTECTED FROM EROSION BY A SURROUNDING SILT FENCE.
5. PERMANENT SEEDED AREAS FOR EROSION CONTROL SHALL BE IN ACCORDANCE WITH DETAIL AND SPECIFICATIONS ON THE DETAIL SHEET.
6. AREAS UNDERGOING CLEARING OR GRADING AND WHERE WORK IS DELAYED OR COMPLETED AND WILL NOT BE REDISTURBED FOR A PERIOD OF 21 DAYS OR MORE SHALL BE STABILIZED WITH TEMPORARY OR PERMANENT VEGETATIVE COVER WITHIN 14 DAYS.
7. ON-SITE DUST CONTROL SHALL BE ACCOMPLISHED BY STANDARD METHODS OF LIGHTLY WATERING ALL EXPOSED SOIL AND RAPIDLY STABILIZING THE REGRADED AREAS WITH TOPSOIL, LOAM AND/OR SEEDING.
8. THE PROJECT ENGINEER SHALL BE NOTIFIED NO LESS THAN 48 HOURS PRIOR TO THE START OF ANY SITE WORK, AND BY SUCH NOTIFICATION, SHALL BE PROVIDED WITH THE NAME AND TELEPHONE NUMBER OF THE GENERAL CONTRACTOR RESPONSIBLE FOR SUCH WORK.
9. THE CITY MAY INSPECT EROSION AND SEDIMENT CONTROL PRACTICES ON THE SITE DURING CONSTRUCTION AND RECOMMEND THAT THE CONTRACTOR INSTALL ADDITIONAL EROSION CONTROL MEASURES IF DEEMED NECESSARY TO PROTECT ANY UNDISTURBED AREAS OF THE SITE. ANY SUCH REQUESTS SHALL BE MADE DIRECTLY TO THE CONTRACTOR AND QUALIFIED PROFESSIONAL AND FOLLOWED UP WITH A WRITTEN NOTIFICATION TO THE DEVELOPER. IN ADDITION, THE CITY SHALL BE CONSULTED ON ANY SPECIAL ADDITIONS OR DELETIONS OF EROSION CONTROL MEASURES WARRANTED BY CHANGING FIELD CONDITIONS. THE NOTICE OF INTENT (NOI) MAY NEED TO BE UPDATED AS A RESULT OF THE CHANGES.
10. THE CONTRACTOR/OWNER SHALL MAINTAIN A RECORD OF ALL EROSION AND SEDIMENT CONTROL INSPECTION REPORTS AT THE SITE IN A LOG BOOK. THE SITE LOG BOOK SHALL BE MAINTAINED ON SITE AND BE MADE AVAILABLE TO THE PERMITTING AUTHORITY. THE OWNER/CONTRACTOR SHALL, ON A MONTHLY BASIS, POST AT THE SITE A SUMMARY OF THE SITE INSPECTION ACTIVITIES IN A PUBLICLY ACCESSIBLE LOCATION.
11. THE OWNER SHALL FILE A NOI WITH THE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION (NYSDEC) PRIOR TO COMMENCING CONSTRUCTION ACTIVITIES AND A NOTICE OF TERMINATION (NOT) WITH THE NYSDEC FOLLOWING CONSTRUCTION ACTIVITIES.
12. IF GROUNDWATER IS ENCOUNTERED DURING CONSTRUCTION ACTIVITIES, THE CONTRACTOR SHALL CONSTRUCT A DEWATERING PIT IN ACCORDANCE WITH NEW YORK STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL (AKA SUMP PIT) TO FILTER WATER FOR PUMPING TO A SUITABLE LOCATION.
13. WHEN ALL DISTURBED AREAS ARE STABLE, ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED PER THE APPROVAL OF THE CITY AND QUALIFIED PROFESSIONAL.
14. UPON COMPLETION OF CONSTRUCTION, THE PARCEL OWNER(S) AND SUBSEQUENTLY THE HOMEOWNERS ASSOCIATION SHALL BE RESPONSIBLE FOR THE INSPECTION AND MAINTENANCE OF THE STORMWATER MANAGEMENT SYSTEM. THE STORMWATER MANAGEMENT SYSTEM SHALL BE INSPECTED QUARTERLY AND AFTER EACH SIGNIFICANT RAINFALL EVENT. THE OWNER(S) SHALL MAINTAIN A RECORD OF INSPECTION AND MAINTENANCE REPORTS AT THE SITE. REFER TO THE SWPPP FOR INSPECTION REQUIREMENTS AND FUTURE MAINTENANCE.

SOIL RESTORATION NOTES:

1. THE CONSTRACTOR SHALL EMPLOY SOIL RESTORATION TO ALL DISTURBED AREAS THAT WILL REMAIN LANDSCAPED.
2. FOR HEAVY TRAFFIC AREAS, FULL SOIL REASTORATION WILL BE REQUIRED. FULL SOIL RESTORATION CONSISTS OF USE OF A BULLDOZER WITH A DEEP RIPPER ATTACHED TO IT. THE RIPPING SHALL BE DONE TO A DEPTH OF 12"-24". COMPOST IS PLACED OVER THE RIPPED SOIL, THEN WORKED INTO THE SOIL WITH A DEEP SUB-SOILER.
3. FOR LIGHT TRAFFIC AREAS, SOIL RESTORATION MAY BE ACCOMPLISHED BY MEANS OF TILLING THE SOIL WITH A DISK TYPE TILLER PULLED BY A TRACTOR OR PLACEMENT OF TOPSOIL OVER THE EXISTING SOIL A.O.B.E..

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EROSION & SEDIMENT CONTROL PLAN
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1 inch = 30 ft.

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EROSION & SEDIMENT CONTROL PLAN

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CITY OF BEACON
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TAX ID: 5954-26-651901

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SHEET:	9 OF 14

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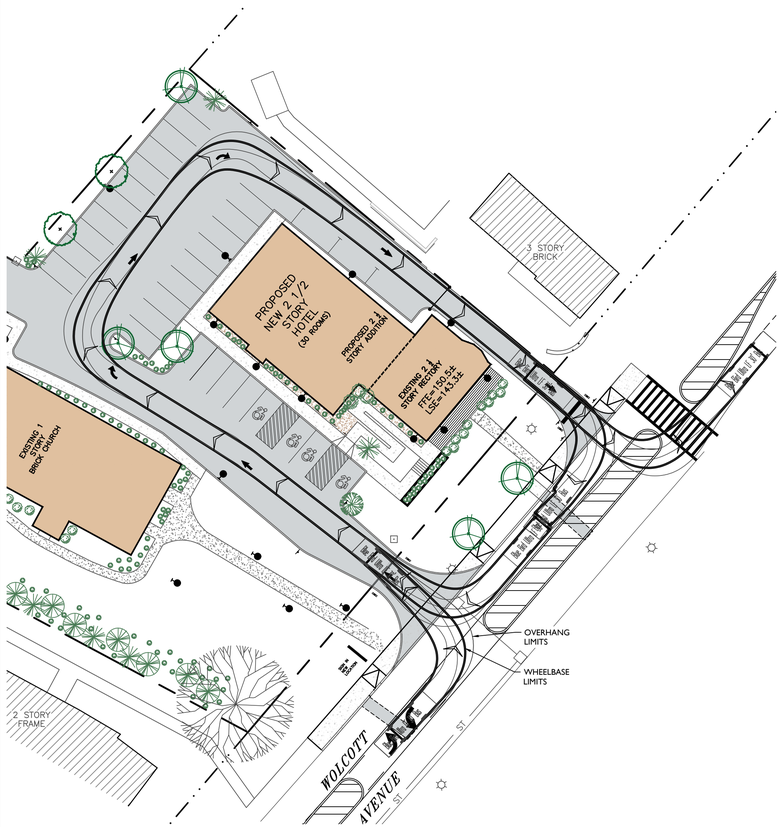
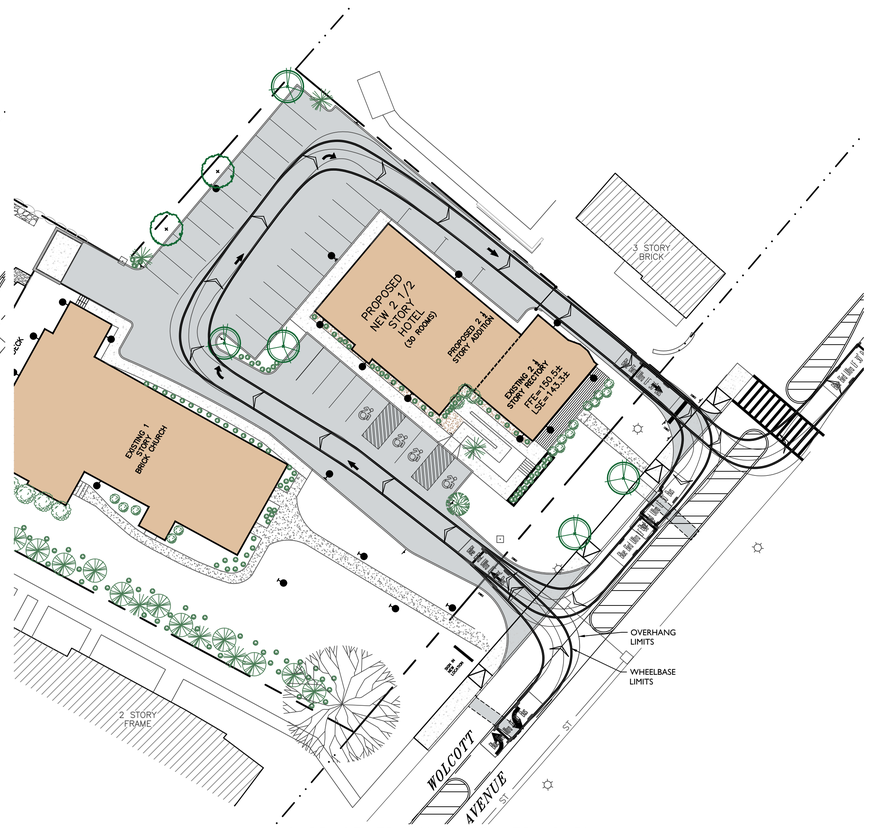
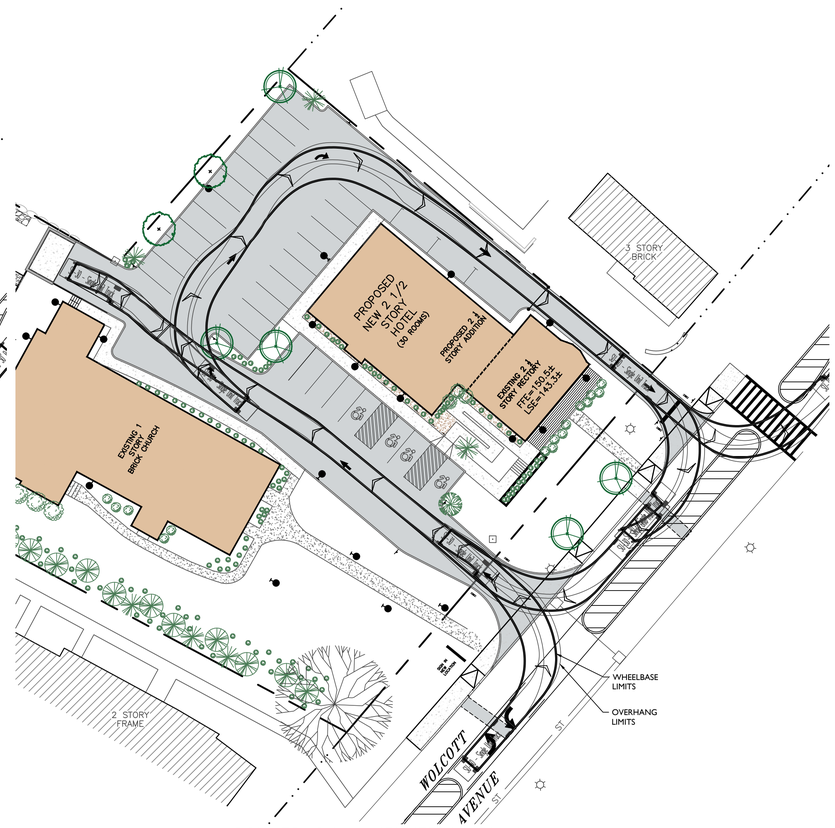


SHUTTLE–BUS MANEUVERING PLAN
SCALE: 1" = 30'



GARBAGE–TRUCK MANEUVERING PLAN
SCALE: 1" = 30'



BOX–TRUCK MANEUVERING PLAN
SCALE: 1" = 30'

DRAWN BY: ESR				CHECKED BY: MAB			
REVISIONS:				REVISIONS:			
NO.	DATE	DESCRIPTION	BY	NO.	DATE	DESCRIPTION	BY
1	12/28/21	SHEET CREATED	CMB				
2	1/25/22	PER PLANNING BOARD COMMENTS	MAB				
3	2/22/22	PER PLANNING BOARD COMMENTS	CMB				
4	4/26/22	PER PLANNING BOARD COMMENTS	CMB				
5	5/31/22	PER PLANNING BOARD COMMENTS	CMB				

VEHICLE TRACKING PLAN
SCALE: 1" = 30'
GRAPHIC SCALE
30 0 15 30 60 120
(IN FEET)
1 inch = 30 ft.

STATE OF NEW YORK
MICHAEL A. BODENDORF
084469
LICENSED PROFESSIONAL ENGINEER
SEAL

HUDSON LAND DESIGN
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174 MAIN ST., BEACON, NEW YORK 12508
13 CHAMBERS ST., NEWBURGH, NEW YORK 12550
PH: 845-440-6926
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VEHICLE TRACKING PLAN

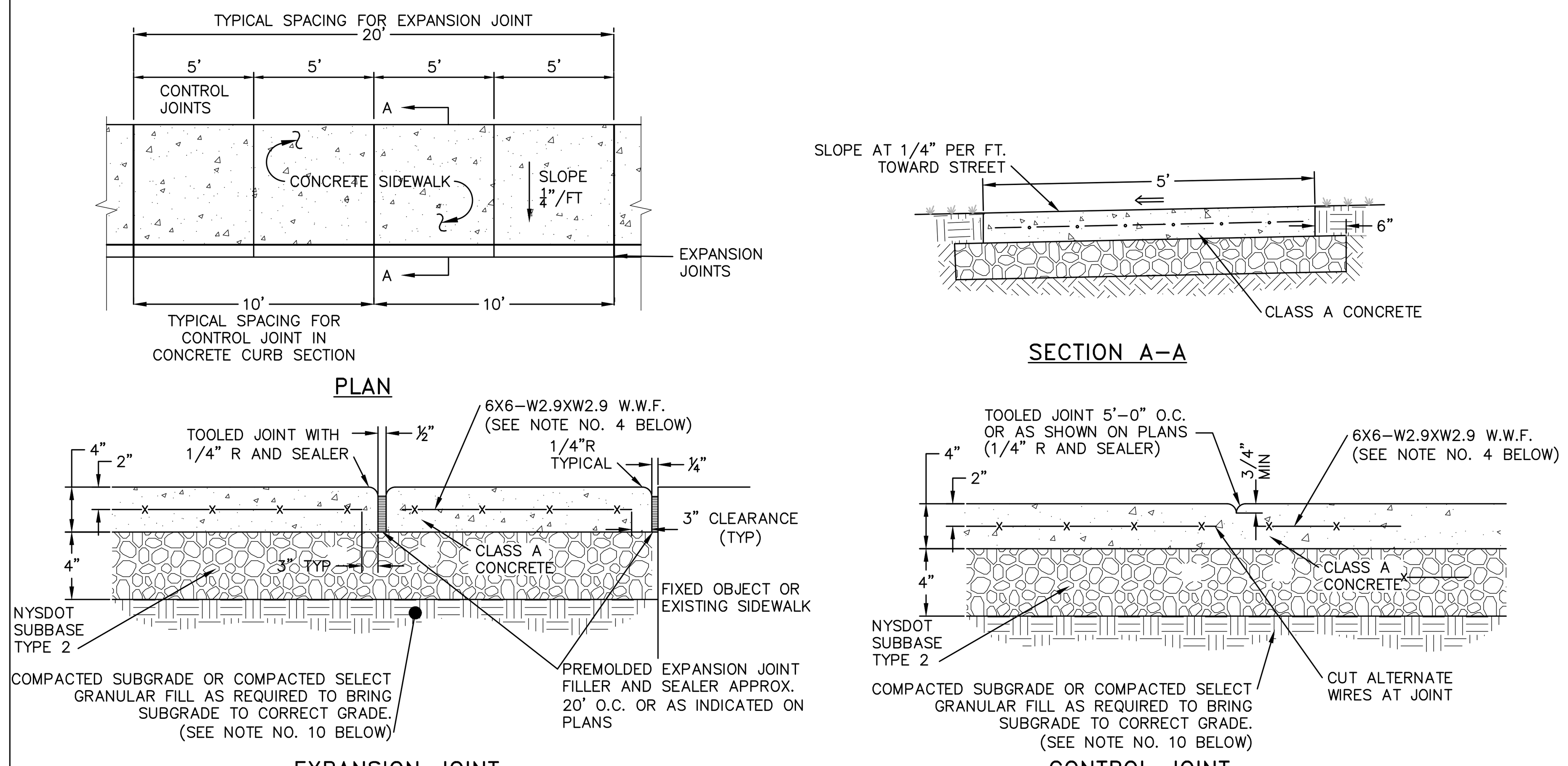
1113 WOLCOTT AVENUE

1113 WOLCOTT AVENUE
CITY OF BEACON
DUTCHESS COUNTY, NEW YORK
TAX ID: 5954-26-651901

JOB #:	2021:022
DATE:	6/29/2021
SCALE:	1" = 30'
TITLE:	VHC-1
SHEET:	10 OF 14

UNAUTHORIZED ALTERATIONS OR ADDITIONS TO THIS DRAWING IS A VIOLATION OF SECTION 7209.2 OF THE NEW YORK EDUCATION LAW

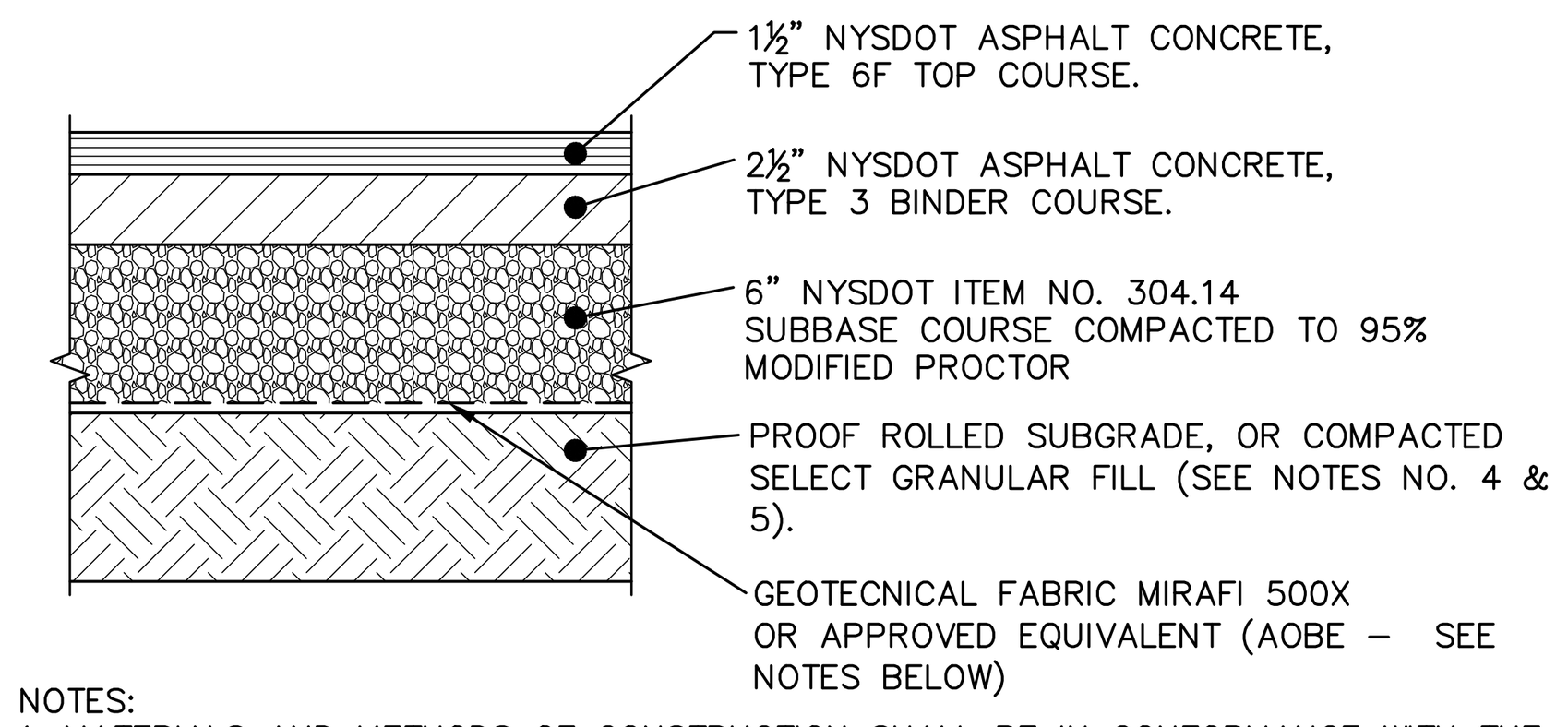
SITE DETAILS



NOTES:

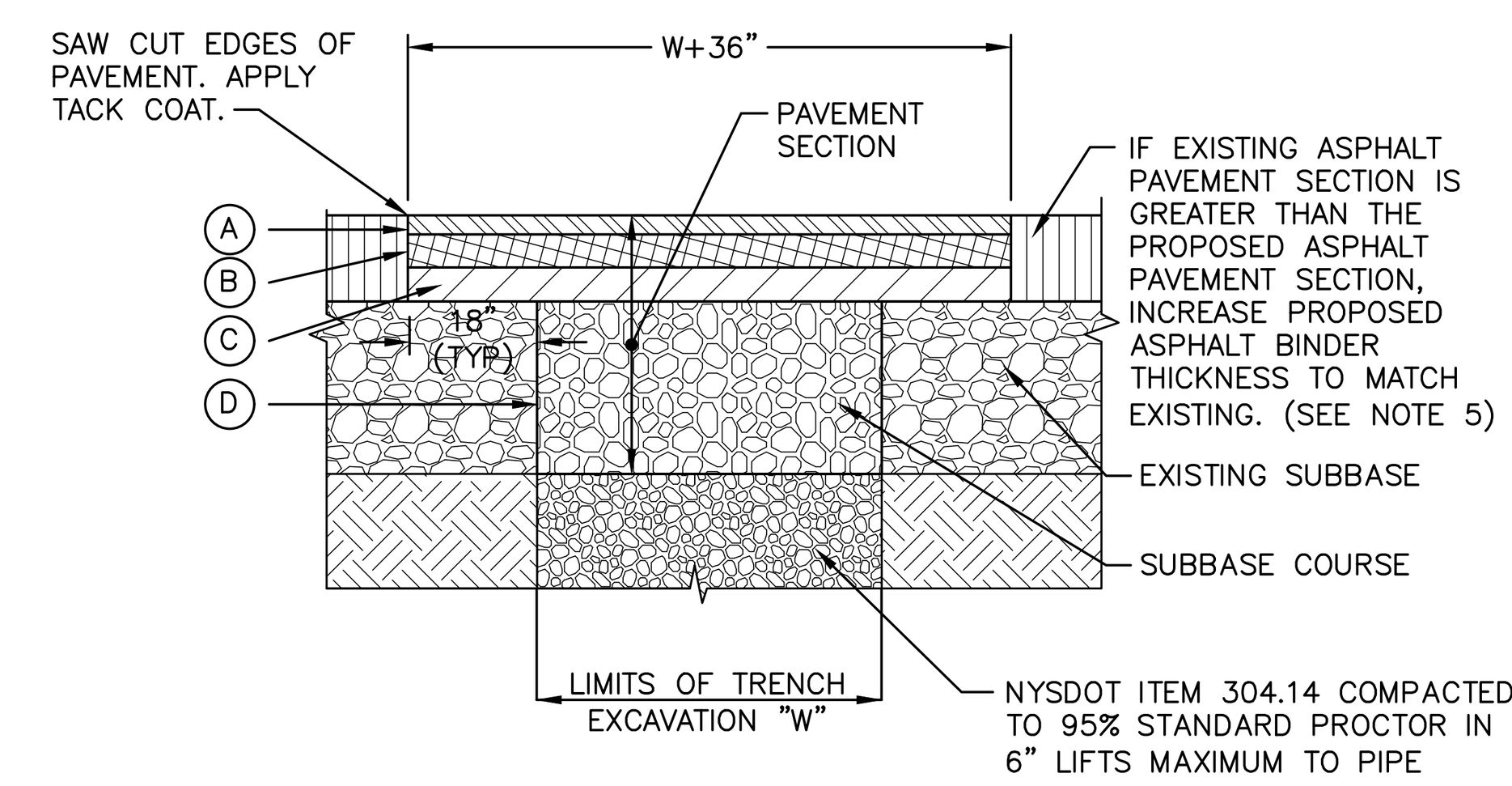
1. 10' SPACING OF CONTROL JOINTS SHALL BE USED FOR CAST IN PLACE CONCRETE CURBS.
2. MATERIAL AND METHODS OF CONSTRUCTION SHALL BE IN CONFORMANCE WITH THE NEW YORK STATE DEPARTMENT OF TRANSPORTATION (NYSDOT) STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, DATED JANUARY 2, 2002, AND ALL ADDENDA THERETO; THE ONLY EXCEPTION BEING THAT THE WORK OF THIS CONTRACT SHALL BE MEASURED IN ENGLISH UNITS.
3. ALL CONCRETE SHALL BE 3,500 PSI CLASS A CONCRETE. CONCRETE MATERIALS, PLACEMENT, AND CONSTRUCTION SHALL CONFORM WITH SECTION 500 OF THE ABOVE REFERENCED NYSDOT STANDARD SPECIFICATIONS.
4. REINFORCING STEEL FOR CONCRETE SHALL CONFORM WITH SECTION 556 – REINFORCING STEEL FOR CONCRETE STRUCTURES OF THE ABOVE REFERENCED NYSDOT STANDARD SPECIFICATIONS AND AS SPECIFICALLY CALLED OUT IN THE DRAWINGS.
5. ALL EXPOSED SURFACED SHALL HAVE A BROOM TEXTURED FINISH.
6. EXPANSION JOINTS SHALL BE LOCATED A MAXIMUM OF 20' ON CENTER, OR AS INDICATED ON PLANS.
7. JOINTS SHALL NOT BE SAW CUT.
8. EXPOSED CONCRETE SURFACES SHALL BE TREATED WITH "SUREBOND"/"SAFEBOND"SB–7000 INTENSIFIER BRIGHT PROTECTOR AND SIDEWALK SEALER, OR EQUAL. RATE AND METHOD OF APPLICATION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
9. SUBBASE MATERIAL SHALL CONFORM WITH SECTION 304 OF THE ABOVE REFERENCED NYSDOT STANDARD.
10. WHERE IT IS NECESSARY TO PLACE FILL FOR PURPOSE OF BRINGING THE SUBGRADE ELEVATION UP TO A SPECIFIED GRADE, THE FILL MATERIAL PLACED SHALL BE IN CONFORMATION WITH SECTION 203–EXCAVATION AND EMBANKMENT OF THE ABOVE REFERENCED NYSDOT STANDARD SPECIFICATIONS.
11. ALL WORK SHALL CONFORM WITH SECTION 608–SIDEWALK, DRIVEWAYS, AND BICYCLE PATHS OF THE ABOVE REFERENCED NYSDOT STANDARD SPECIFICATIONS.

CONCRETE SIDEWALK DETAIL
NOT TO SCALE



NOTES:
1. MATERIALS AND METHODS OF CONSTRUCTION SHALL BE IN CONFORMANCE WITH THE NEW YORK STATE DEPARTMENT OF TRANSPORTATION (NYSDOT) STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, DATED JANUARY 2, 2002.
2. SUBGRADE SHALL NOT INCLUDE FROZEN MATERIALS, DEBRIS, ORGANIC MATERIALS, LARGE STONES OR OTHER UNSUITABLE MATERIALS.
3. TACK COAT WHEN SPECIFIED OR CALLED OUT IN THESE DRAWINGS OR REQUIRED BY THE REFERENCED SPECIFICATIONS SHALL CONFORM WITH SECTION 407–TACK COAT OF THE ABOVE REFERENCED NYSDOT STANDARD SPECIFICATIONS.
4. WHERE IT IS NECESSARY TO PLACE FILL FOR PURPOSES OF BRINGING THE SUBGRADE ELEVATION UP TO A SPECIFIED GRADE, THE FILL MATERIAL PLACED SHALL BE IN CONFORMANCE WITH SECTION 203–EXCAVATION AND EMBANKMENT OF THE ABOVE REFERENCED NYSDOT STANDARD SPECIFICATIONS.
5. IT IS EXPECTED THAT THE EXISTING SITE SUB–SOILS ARE SAND AND GRAVEL IN NATURE (CALIFORNIA BEARING RATIO RANGE BETWEEN 40 AND 80) . IF UNSUITABLE SOILS ARE ENCOUNTERED DURING CONSTRUCTION, THE CONTRACTOR SHALL CONTACT THE ENGINEER FOR POSSIBLE MODIFICATIONS TO THE PAVEMENT DETAIL.

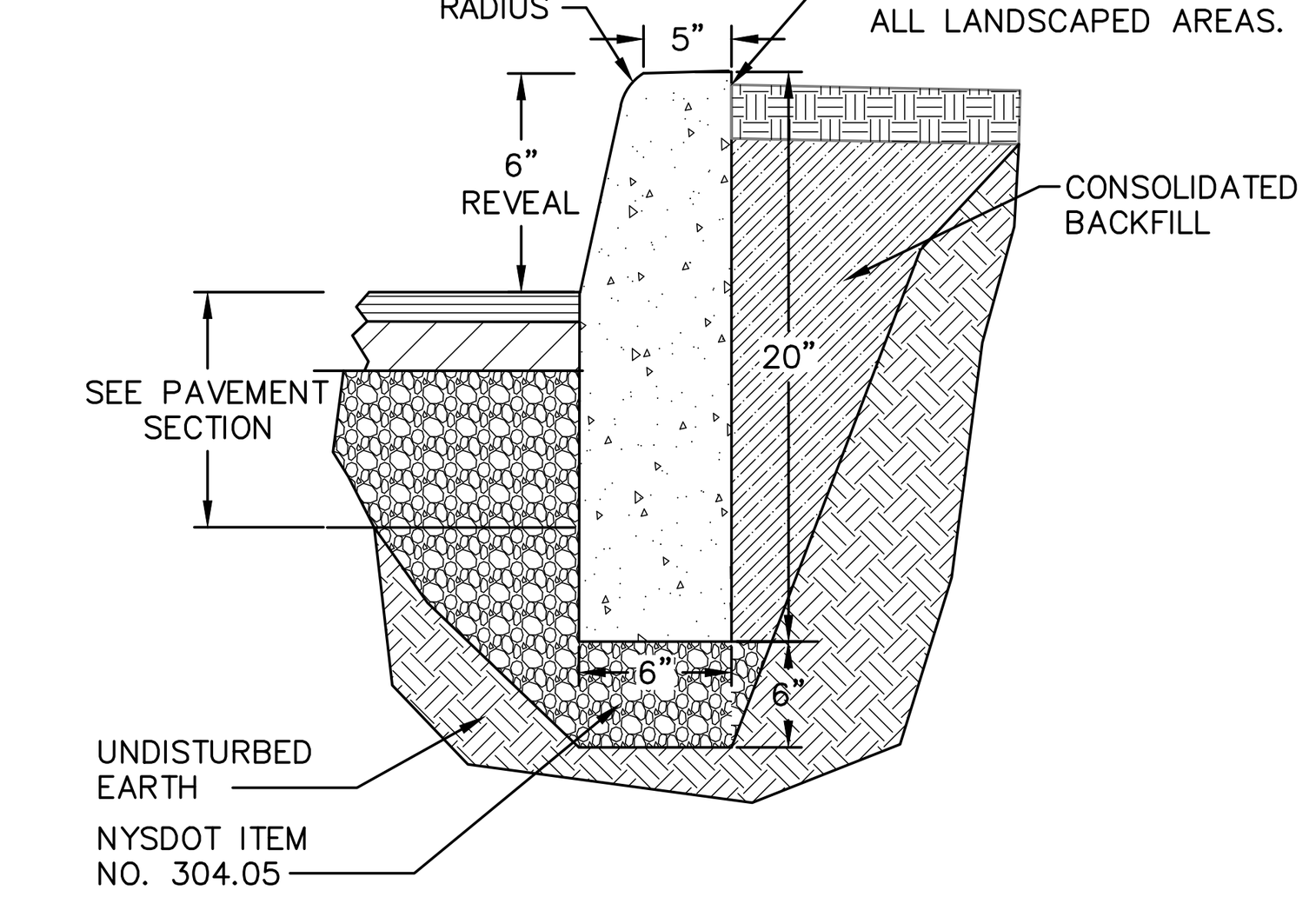
PAVEMENT SECTION DETAIL
NOT TO SCALE



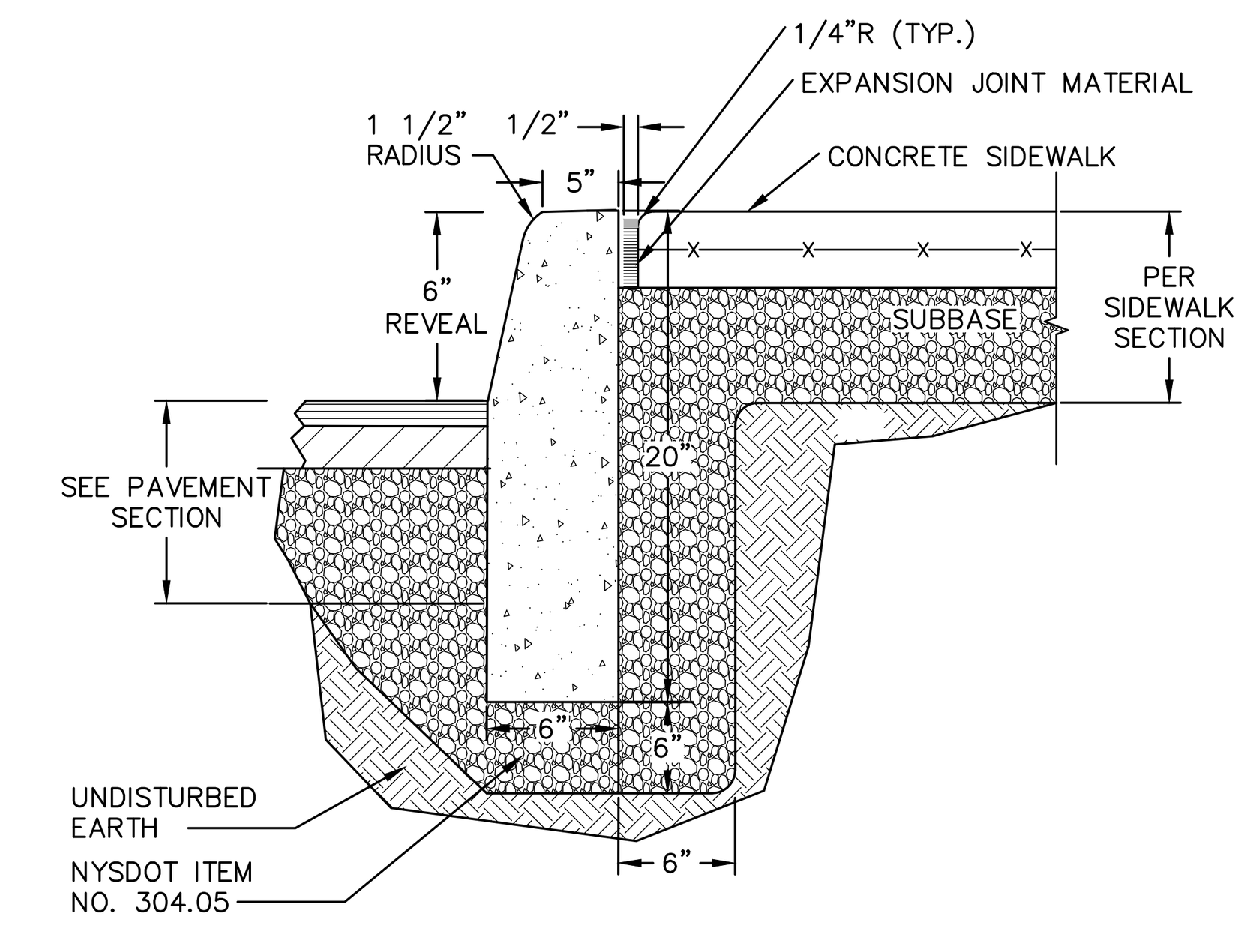
LEGEND
- (A) 1–1/2" ASPHALT CONCRETE TOP COURSE– NYSDOT ITEM 402.1261013
- (B) 2–1/2" ASPHALT CONCRETE BINDER COURSE– NYSDOT ITEM 402.256903
- (C) 8" ASPHALT CONCRETE BASE COURSE– NYSDOT ITEM 402.376903 (2"–4" LIFTS)
- (D) 12" GRANULAR SUBBASE COURSE– NYSDOT ITEM 304.11000008

NOTES:
1. SAW CUT MIN. 18" BEYOND EXCAVATION WITH SMOOTH EDGES. 18" JOINT BETWEEN EXISTING AND NEW TOP COURSE TO BE MILLED. JOINT TO BE SEALED WITH POLYMER MODIFIED SEALER.
2. FURNISH, PLACE, AND COMPACT SUBBASE.
3. TACK COAT IN ACCORDANCE WITH NYSDOT STANDARD SPEC.
4. FURNISH AND PLACE ASPHALT CONCRETE PAVEMENT AS SPECIFIED.
5. IF THE PAVEMENT SECTION IS OVER A CONCRETE SLAB, THE RESTORED PAVEMENT SECTION SHALL MATCH THE TOTAL THICKNESS OF THE EXISTING CONCRETE SLAB AND PAVEMENT.

NYSDOT ROW PAVEMENT RESTORATION DETAIL
NOT TO SCALE



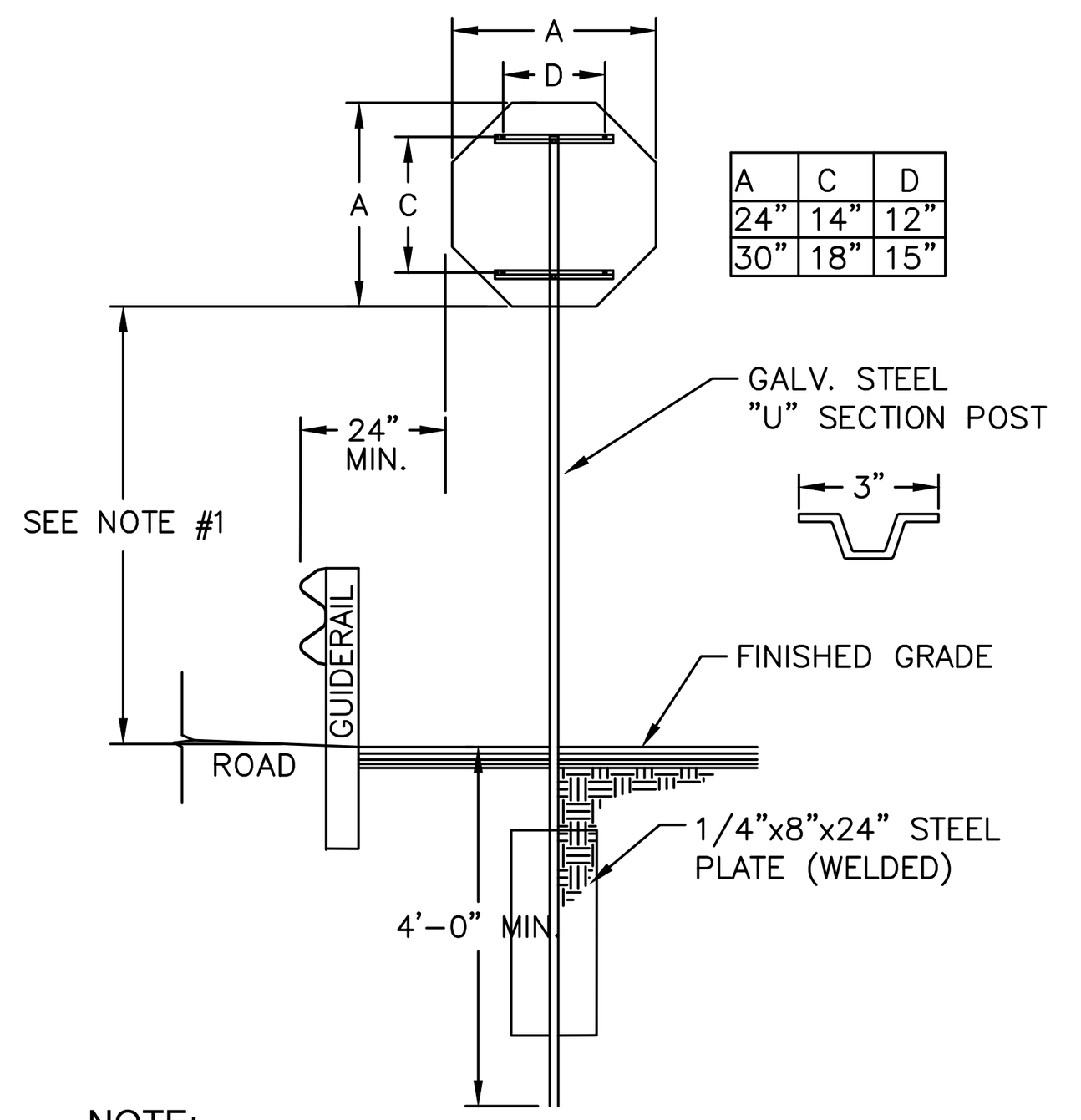
ABUTTING GRASS OR LANDSCAPE



ABUTTING SIDEWALK

NOTES:
1. CONCRETE CURB SHALL BE 4,000 PSI CAST–IN–PLACE, AND IN ACCORDANCE WITH NYSDOT STANDARD SPECIFICATION SECTION 609.
2. EXPANSION JOINTS OF 1/2" CELLULOSE OR SIMILAR MATERIAL SHALL BE PLACED AT 10 FOOT INTERVALS.
3. FOR MOUNTABLE CURBS ABUTTING SIDEWALK OR OTHER HARDSCAPE, REFER TO "ABUTTING SIDEWALK" DETAIL.

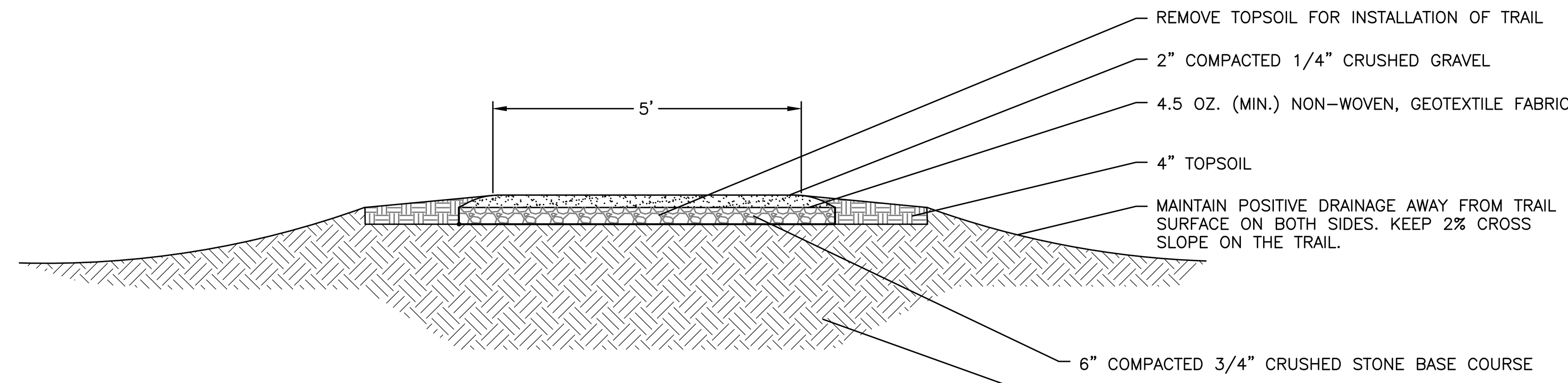
CAST–IN–PLACE CONCRETE CURB DETAIL
NOT TO SCALE



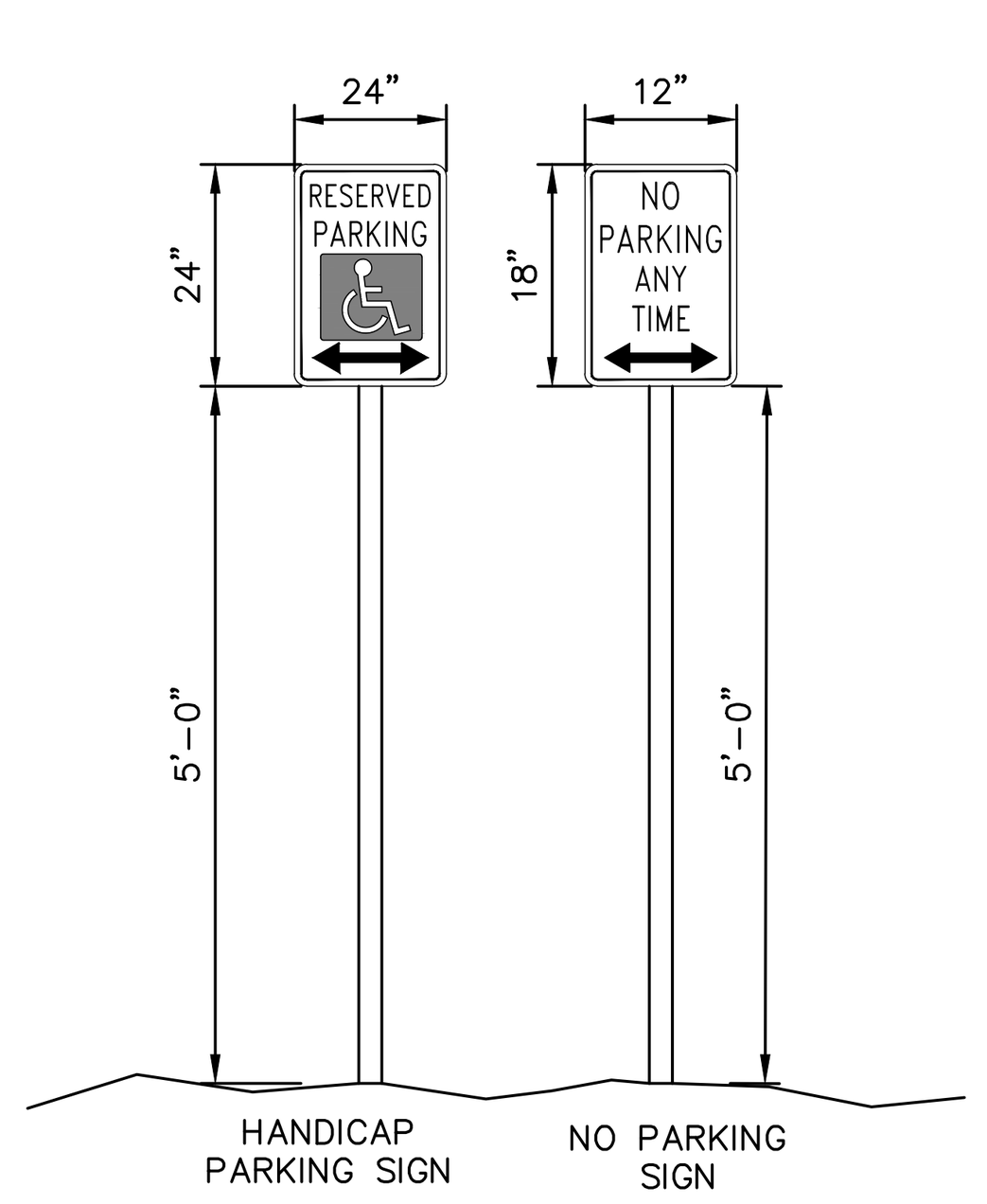
A	C	D
24"	14"	12"
30"	18"	15"

NOTE:
1. SIGN MOUNTING HEIGHT SHALL BE A MINIMUM OF 7'. MINIMUM MOUNTING HEIGHT MAY BE ADJUSTED ONLY IN ACCORDANCE WITH PROVISIONS OUTLINED IN "NYCRR, CHAPTER V–UNIFORM TRAFFIC CONTROL DEVICES."
2. SIGN POST SHALL BE IN ACCORDANCE W/ NYSDOT STANDARD SPECS SECTION 730.
3. THIS SIGN POST MAY BE SUBSTITUTED FOR THE BREAKAWAY WOOD SIGN POSTS AS DIRECTED BY THE ENGINEER (ITEM 645.81).

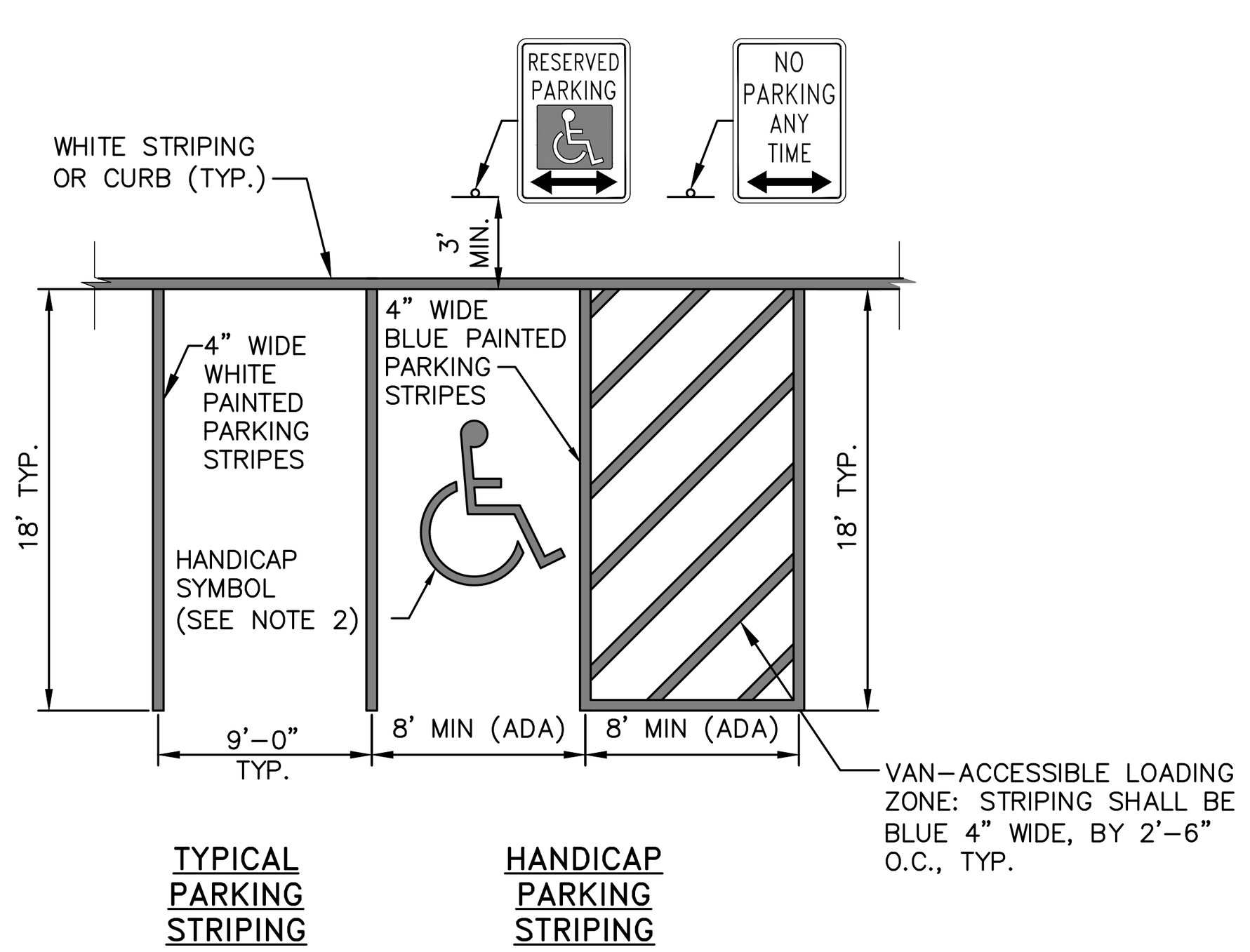
SINGLE POLE SIGN DETAIL
SCALE: NOT TO SCALE



WALKING TRAIL CROSS SECTION
NOT TO SCALE

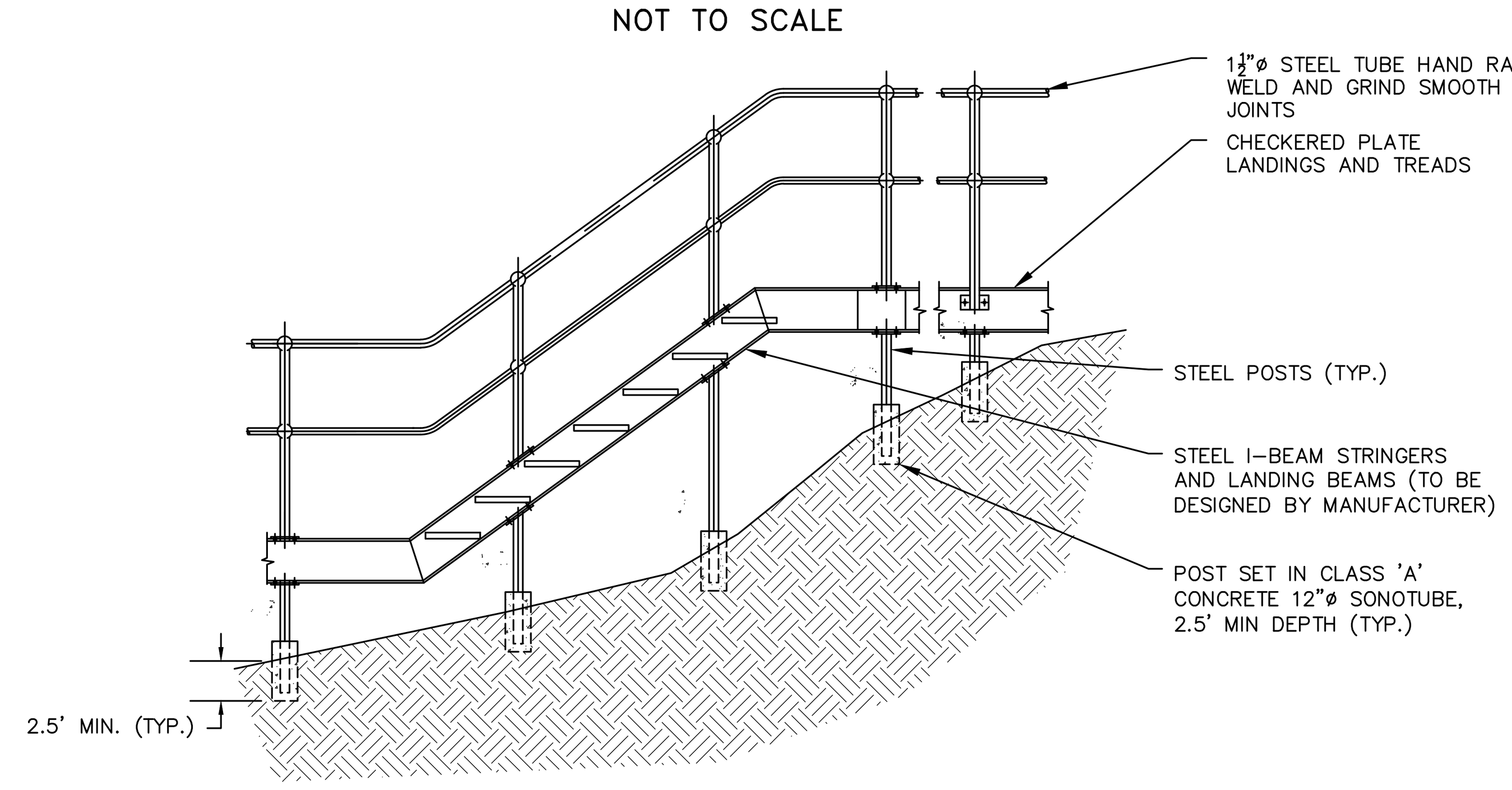


SIGN DETAILS
NOT TO SCALE

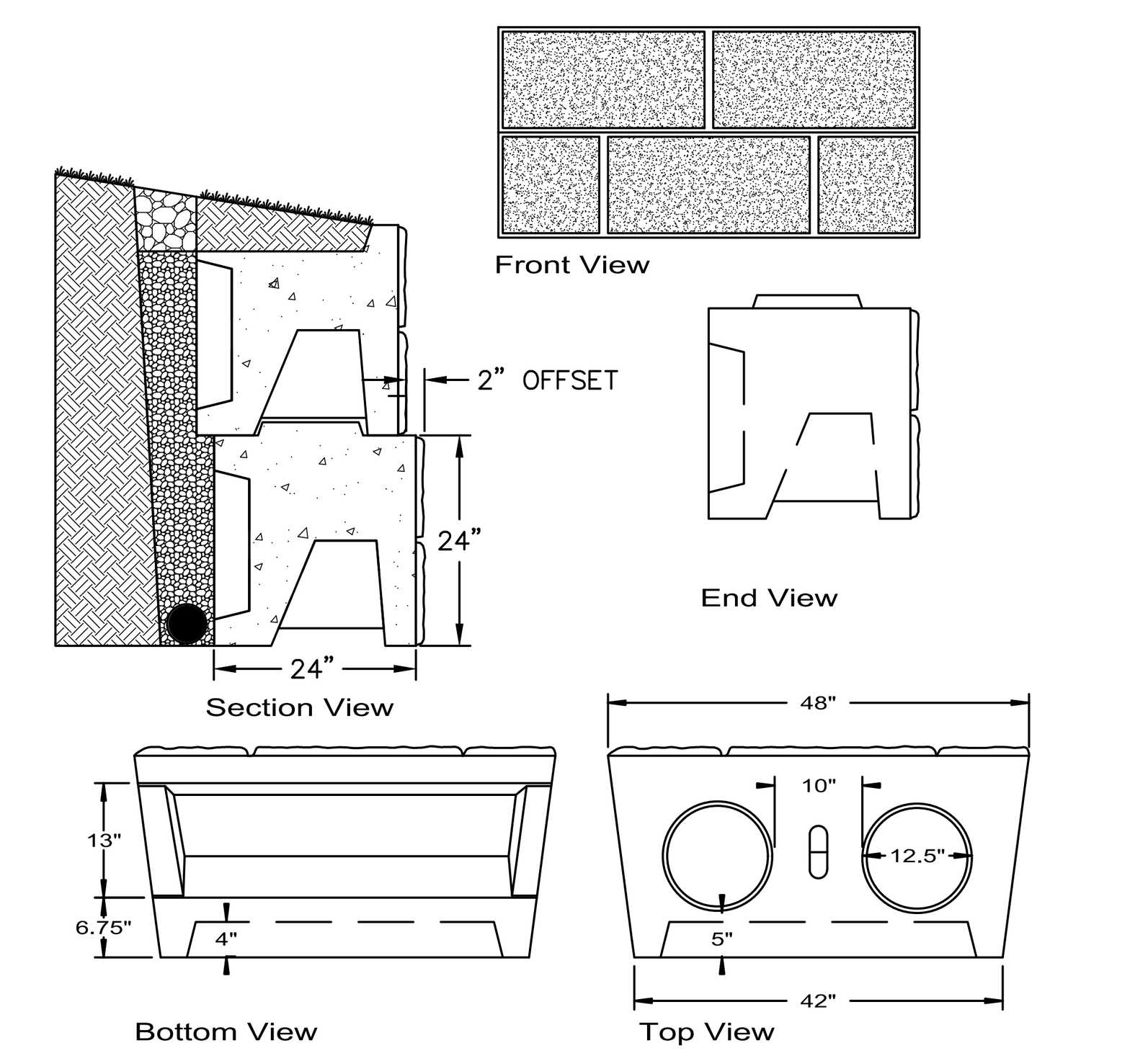


NOTES:
1. ALL DIMENSIONS SUBJECT TO CURRENT MUNICIPALITY ZONING AND SITE REGULATIONS.
2. PAINTED HANDICAP SYMBOL TO BE IN ACCORDANCE WITH NYSDOT AND ADA STANDARDS.
3. IF PARKING ABUTS A SIDEWALK, THEN THE REGULATORY SIGNS SHALL BE PLACED BEHIND THE SIDEWALK.

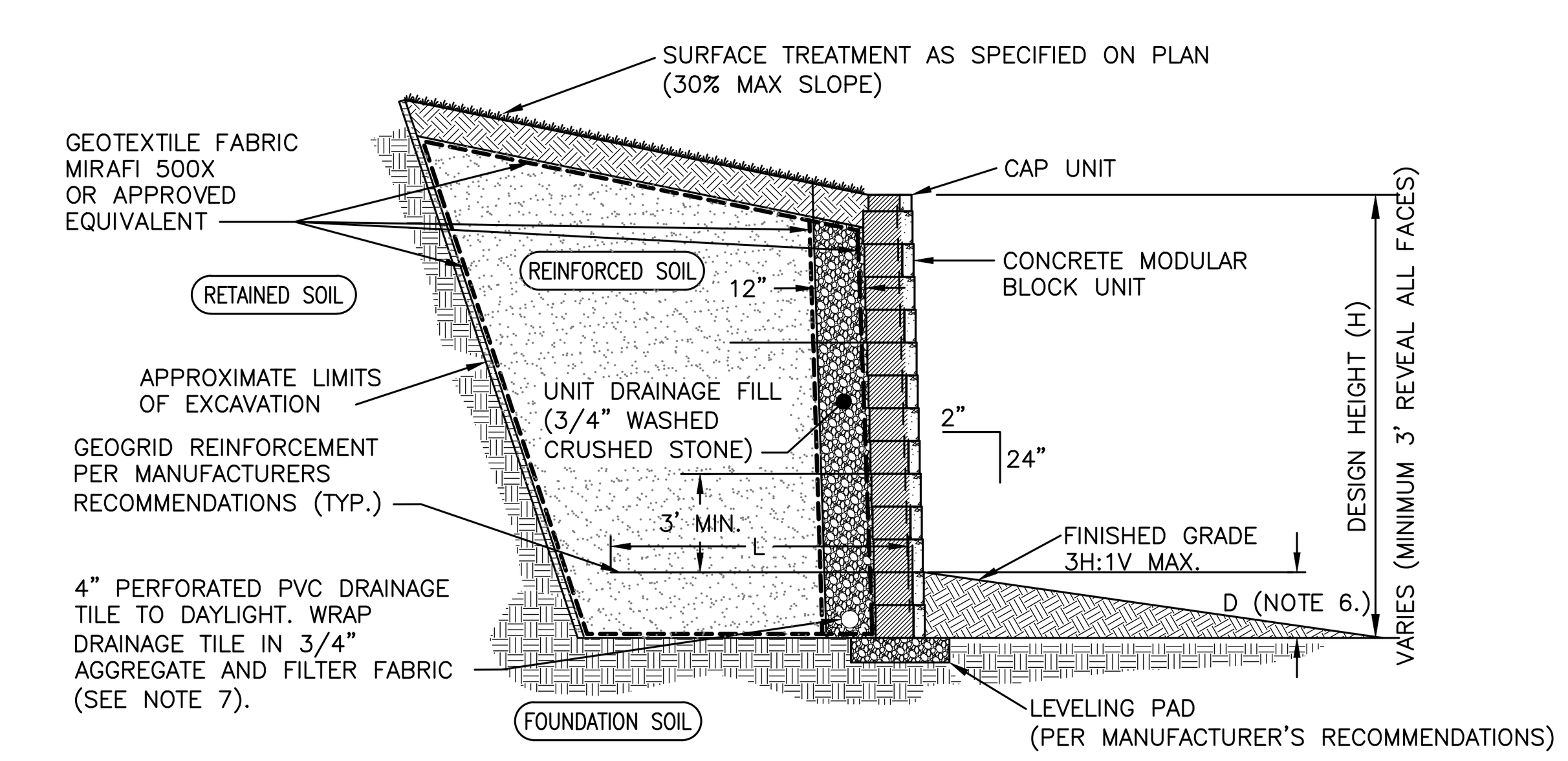
PARKING AND STRIPING DETAIL
NOT TO SCALE



STEEL STAIRCASE AND HANDRAILS DETAIL
NOT TO SCALE



WOODARD'S CONCRETE BLOCK WALL DETAIL
NOT TO SCALE



MODULAR RETAINING WALL NOTES:
1. MODULAR RETAINING WALL MANUFACTURED BY WOODARD'S OR APPROVED EQUAL.
2. GRID TYPE SHALL BE AS SPECIFIED BY THE MANUFACTURER.
3. GRID SPACING AND LENGTH VARY BASED ON OVERALL WALL HEIGHT, SOIL AND LOADING CONDITIONS. WALLS OF LIMITED HEIGHT (I.E., 4' OR LESS) MAY NOT REQUIRE THE INSTALLATION OF GRID.
4. LEVELING PAD DEPTH SHALL BE SPECIFIED BY THE MANUFACTURER BASED ON ENGINEERING DESIGN SPECIFIC FOR THE SITE.
5. MANUFACTURER TO PROVIDE FINAL ENGINEERING CALCULATIONS AND DETAILS TO THE OWNER FOR REVIEW BY THE OWNERS ENGINEER.
6. D SHALL BE PER MANUFACTURER'S RECOMMENDATIONS.
7. RELOCATE PERFORATED PIPE WITHIN STONE CROSS SECTION FOR STEPPED WALLS TO ACHIEVE CONTINUOUS FLOW TOWARD DISCHARGE POINT.
8. SEE MANUFACTURER'S DETAILS AND INSTALLATION GUIDELINES FOR FURTHER REQUIREMENTS.

CONCRETE MODULAR RETAINING WALL DETAIL
NOT TO SCALE

DRAWN BY: ESR				CHECKED BY: MAB			
REVISIONS:				REVISIONS:			
NO.	DATE	DESCRIPTION	BY	NO.	DATE	DESCRIPTION	BY
1	8/31/21	PER PLANNING BOARD COMMENTS	CMB	7	5/31/22	PER PLANNING BOARD COMMENTS	CMB
2	11/30/21	PER PLANNING BOARD COMMENTS	MAB				
3	12/28/21	PER PLANNING BOARD COMMENTS	MAB				
4	1/25/22	PER PLANNING BOARD COMMENTS	MAB				
5	2/22/22	PER PLANNING BOARD COMMENTS	CMB				
6	4/26/22	PER PLANNING BOARD COMMENTS	CMB				



SEAL

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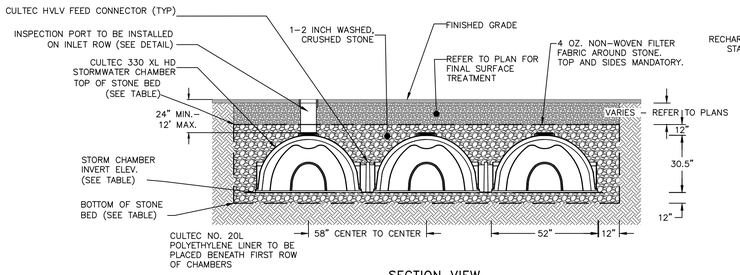
SITE CONSTRUCTION DETAILS

1113 WOLCOTT AVENUE

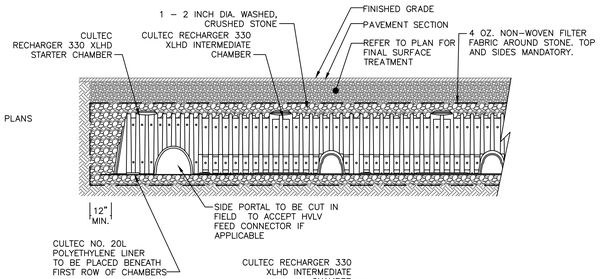
1113 WOLCOTT AVENUE
CITY OF BEACON
DUTCHESS COUNTY, NEW YORK
TAX ID: 5954–26–651901

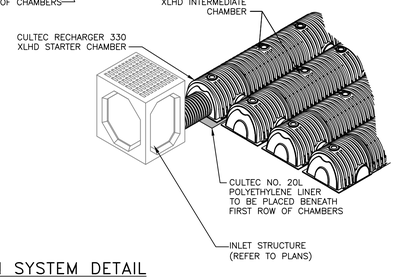
JOB #:	2021:022
DATE:	6/29/2021
SCALE:	AS SHOWN
TITLE:	CD–1
SHEET:	11 OF 14

UNAUTHORIZED ALTERATIONS OR ADDITIONS TO THIS DRAWING IS A VIOLATION OF SECTION 7209.2 OF THE NEW YORK EDUCATION LAW



SECTION VIEW

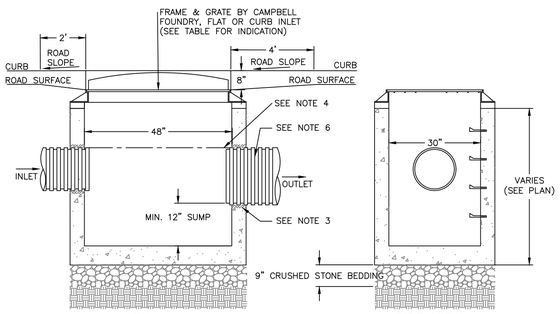




NOTES:
1. CULTEC RECHARGER 330XLHD CHAMBERS BY CULTEC, INC. OF BROOKFIELD, CT. ALL CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH CULTEC INC.'S CURRENT RECOMMENDED INSTALLATION GUIDELINES.
2. THE BED OF THE SYSYTEM FOOTPRINT SHALL BE LAID NEARLY LEVEL.
3. EACH ROW OF CHAMBERS SHALL BE FED VIA A 12" MANIFOLD WITH TEE CONNECTIONS BY CULTEC OR EQUAL.
4. THE CONTRACTOR SHALL NOTIFY THE DESIGN ENGINEER IF SUBSURFACE CONDITIONS IN THE AREAS OF THE INFILTRATOR TRENCHES IS NOT CONSISTENT WITH THE TEST PIT OR PERCOLATION DATA (E.G. GROUNDWATER OR BEDROCK ENCOUNTERED, SOIL PROPERTIES ARE NOT CONSISTENT, ETC.).
5. REFER TO THE INSPECTION SCHEDULE & LONG TERM MAINTENANCE OF STORMWATER STRUCTURES NOTES ON THE GRADING SHEET.
6. SEE ALSO CLAY KEY DETAIL THIS SHEET.

BOTTOM OF STONE BED ELEVATION	CHAMBER INVERT	TOP OF STONE BED ELEVATION	STONE BED FOOTPRINT	STONE BED DIMENSIONS	NO. OF CHAMBERS
134.0	134.5	137.54	1,601 S.F.	30.5'X52.5'	42

UNDERGROUND INFILTRATION/DETENTION SYSTEM DETAIL
NOT TO SCALE

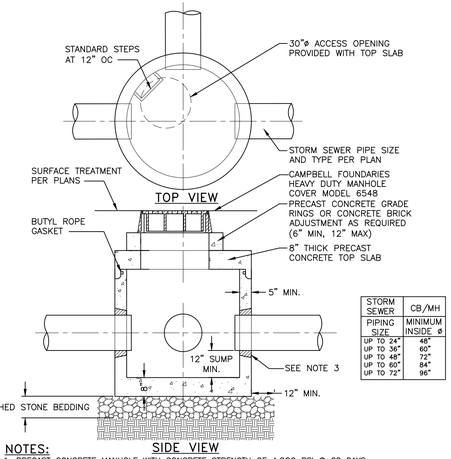


FRONT VIEW

SIDE VIEW

NOTES:
1. PRECAST CONCRETE CATCH BASIN WITH CONCRETE STRENGTH OF 4,000 PSI @ 28 DAYS.
2. THE ENDS OF ALL PIPES SHALL BE CUT OFF FLUSH WITH THE INSIDE SURFACE OF THE CATCH BASIN AND PARGED AROUND.
3. PIPES SHALL BE PARGED AROUND INTERIOR AND EXTERIOR PRIOR TO BACKFILLING OF STRUCTURE. CONNECTIONS MADE WITHIN 10 FEET OF A WATER MAIN (OR SERVICE LINE) OR A SEWER MAIN (OR SERVICE LATERAL) SHALL BE MADE WATERTIGHT.
4. PROVIDE A MINIMUM 0.1' DROP BETWEEN INLET AND OUTLET INVERTS (MATCH CROWNS FOR PIPES WITH DIFFERENT SIZE) UNLESS OTHERWISE NOTED ON THE PLAN.
5. CATCH BASINS WITH AN INTERIOR DEPTH OF 4' AND GREATER SHALL BE FURNISHED WITH STEEL REINFORCED POLYPROPYLENE PLASTIC STEPS AT 12" INTERVALS.
6. HDPE PIPE SHALL BE PROVIDED WITH WATERTIGHT CONNECTIONS. ADS MODEL N12 WT IB OR APPROVED EQUAL.

CATCH BASIN DETAIL
NOT TO SCALE

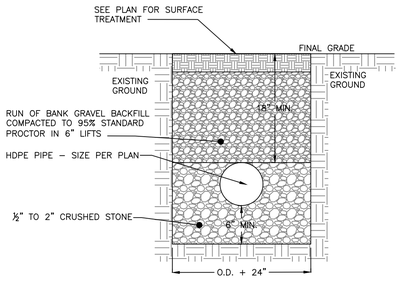


STORM SEWER	CB/MH
PIPING SIZE	MINIMUM INSIDE ø
UP TO 24"	48"
UP TO 36"	60"
UP TO 48"	72"
UP TO 60"	84"
UP TO 72"	96"

SIDE VIEW

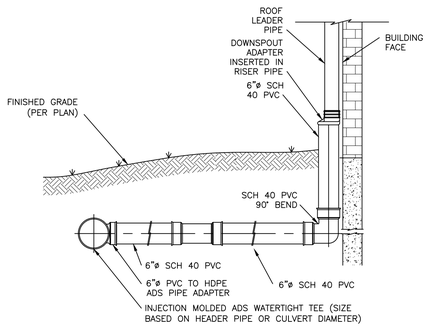
NOTES:
1. PRECAST CONCRETE MANHOLE WITH CONCRETE STRENGTH OF 4,000 PSI @ 28 DAYS.
2. THE ENDS OF ALL PIPES SHALL BE CUT OFF FLUSH WITH THE INSIDE SURFACE OF THE MANHOLE AND PARGED AROUND.
3. PIPES SHALL BE PARGED AROUND INTERIOR AND EXTERIOR PRIOR TO BACKFILLING OF STRUCTURE.
4. CONCRETE STRUCTURE AND CASTING SHALL BE RATED FOR H20 TRAFFIC LOADING.
5. INLET FRAME SHALL BE FULLY SUPPORTED ON THE CONCRETE STRUCTURE FOR H20 LOADING.
6. MANHOLES WITH AN INTERIOR DEPTH OF 4' AND GREATER SHALL BE FURNISHED WITH STEEL REINFORCED POLYPROPYLENE PLASTIC STEPS AT 12" INTERVALS.

STORMWATER MANHOLE DETAIL
NOT TO SCALE



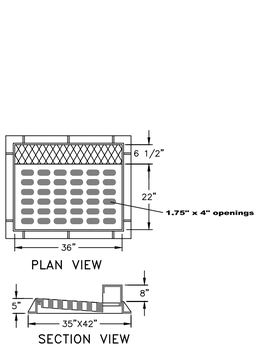
NOTES:
1. EXCAVATION AND TRENCHING SHALL MEET ALL OSHA REQUIREMENTS.

STORMWATER PIPE IN TRENCH DETAIL
NOT TO SCALE



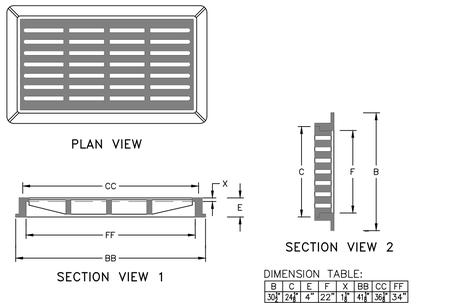
NOTES:
1. ROOF LEADER LOCATIONS AND SIZES TO BE DETERMINED BY THE PROJECT ARCHITECT. DOWNSPOUT ADAPTER TO MATCH DOWNSPOUT SIZE.
2. PVC JOINT CONNECTIONS SHALL BE MADE WITH PVC CEMENT.
3. ROOF DRAINAGE HEADER PIPES SHALL BE AS NOTED ON THE UTILITY SHEET.
4. SUBSTITUTIONS OF PIPE MATERIAL SHALL BE BROUGHT TO THE DESIGN ENGINEER'S ATTENTION FOR REVIEW.

ROOF LEADER CONNECTION DETAIL
NOT TO SCALE



NOTES:
1. HEAVY DUTY RECTANGULAR STORMWATER INLET GRATE TO BE CAMPBELL FOUNDRY MODEL 2541, OR APPROVED EQUAL.
2. CATCH BASINS TO RECEIVE CURB INLETS ARE: CB 1&2. CB 4 TO RECEIVE A FLAT GRATE

CAST IRON STORMWATER CURB INLET GRATE DETAIL
NOT TO SCALE



DIMENSION TABLE:

B	C	E	F	X	BB	CC	FF
30"	24"	4"	22"	1"	41"	36"	34"

NOTES:
1. HEAVY DUTY RECTANGULAR STORMWATER INLET GRATE TO BE CAMPBELL FOUNDRY MODEL 3433, OR APPROVED EQUAL.
2. STMH1 AND STMH 2 RECEIVE SOLID CAST IRON COVERS.

CAST IRON STORMWATER FLAT INLET GRATE DETAIL
NOT TO SCALE

DRAWN BY: ESR				CHECKED BY: MAB			
REVISIONS:				REVISIONS:			
NO.	DATE	DESCRIPTION	BY	NO.	DATE	DESCRIPTION	BY
1	8/31/21	PER PLANNING BOARD COMMENTS	CMB	7	5/31/22	PER PLANNING BOARD COMMENTS	CMB
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6	4/26/22	PER PLANNING BOARD COMMENTS	CMB				

STATE OF NEW YORK · MICHAEL A. BODENDORF · 084469 · LICENSED PROFESSIONAL ENGINEER

SEAL

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F: 845-440-6637

STORMWATER CONSTRUCTION DETAILS

1113 WOLCOTT AVENUE

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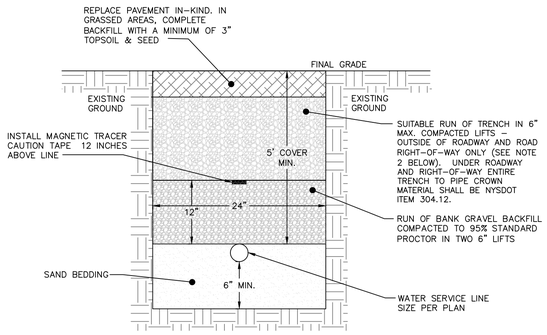
DUTCHESS COUNTY, NEW YORK
TAX ID: 5954-26-651901

JOB #: 2021:022
DATE: 6/29/2021
SCALE: AS SHOWN
TITLE: CD-2
SHEET: 12 OF 14

UNAUTHORIZED ALTERATIONS OR ADDITIONS TO THIS DRAWING IS A VIOLATION OF SECTION 7209.2 OF THE NEW YORK EDUCATION LAW



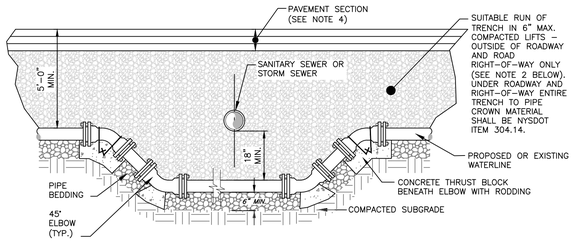
NOTES:

1. EXCAVATION AND TRENCHING SHALL MEET ALL OSHA REQUIREMENTS.

2. SUITABLE RUN OF TRENCH SHALL NOT INCLUDE FROZEN MATERIALS, DEBRIS, ORGANIC MATERIALS, ELONGATED PARTICLES, LARGE STONES OR OTHER UNSUITABLE MATERIALS. IF THE RUN OF TRENCH MATERIAL IS FOUND TO BE UNSUITABLE, A SUITABLE BACKFILL MATERIAL SHALL BE IMPORTED AND USED.

3. IN AREAS WHERE 5' COVER REQUIREMENT CANNOT BE MET, THE CONTRACTOR SHALL PROVIDE PIPE INSULATION TO PREVENT FREEZING.

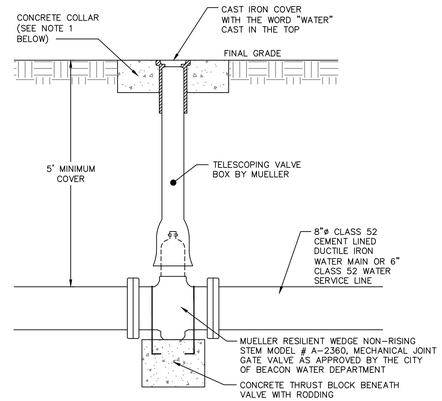
WATER SERVICE LINE TRENCH DETAIL
NOT TO SCALE



NOTES:
1. WHEN THE ELEVATION OF THE SANITARY OR STORM SEWER CAN NOT BE VARIED TO MEET THE ABOVE REQUIREMENTS, THE WATER SERVICE LINE OR MAIN SHALL BE RELOCATED TO PROVIDE THIS REQUIRED SEPARATION OR RECONSTRUCTED WITH MECHANICAL JOINT PIPE FOR A DISTANCE OF TEN (10) FEET ON EACH SIDE OF THE SEWER. ONE FULL LENGTH OF WATERMAIN SHALL BE CENTERED OVER THE SEWER SO THAT BOTH JOINTS WILL BE AS FAR AWAY FROM THE SEWER AS POSSIBLE.
2. SUITABLE RUN OF TRENCH SHALL NOT INCLUDE FROZEN MATERIALS, DEBRIS, ORGANIC MATERIALS, ENLOGATED PARTICLES, LARGE STONES OR OTHER UNSUITABLE MATERIALS. IF THE RUN OF TRENCH MATERIAL IS FOUND TO BE UNSUITABLE, A SUITABLE BACKFILL MATERIAL SHALL BE IMPORTED AND USED.

3. THE RELOCATED WATER MAIN/SERVICE LINE SHALL BE DISINFECTED IN ACCORDANCE WITH AWWA, NYSDOH AND DCDOH STANDARDS.
4. PAVEMENT RESTORATION SHALL BE IN ACCORDANCE WITH THE PAVEMENT RESTORATION DETAIL.
5. ALL REPLACED WATERMAIN SHALL BE 12"ø CLASS 52 DUCTILE IRON.

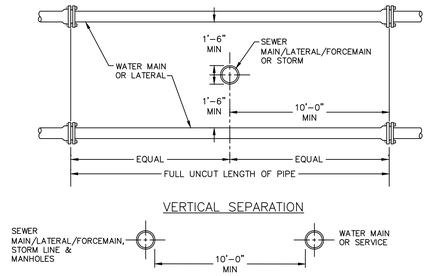
WATER LINE OFFSET DETAIL
NOT TO SCALE



NOTES:

1. CONCRETE COLLAR TO BE PROVIDED IN AREAS THAT ARE NOT PAVED. THE COLLAR SHALL BE 6" FROM THE COVER AND SHALL EXTEND 6" BELOW FINAL GRADE.

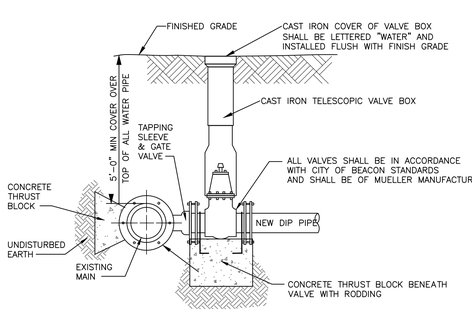
GATE VALVE DETAIL
NOT TO SCALE



NOTE:

NO DEVIATION IN THE SEPARATION REQUIREMENTS WILL BE PERMITTED WITHOUT THE EXPRESS APPROVAL OF THE DUTCHESS COUNTY DEPARTMENT OF HEALTH AND THE CITY OF BEACON. CONCRETE ENCASEMENT OF WATERLINE OR OFFSETTING OF WATERLINE SHALL BE REQUIRED WHERE SEPARATION DISTANCES CANNOT BE MAINTAINED.

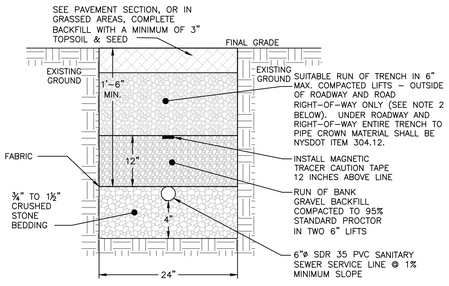
WATER LINE SEPARATION DETAIL
NOT TO SCALE



NOTES:

1. ALL VALVES SHALL OPEN BY TURNING LEFT (COUNTERCLOCKWISE) AND HAVE A 2-INCH SQUARE-OPERATING NUT PAINTED RED.
2. ALL VALVES SHALL BE M.J. RESILIENT WEDGE TYPE WITH "O" RING PACKING, DESIGNED FOR A WORKING PRESSURE OF 150 PSI AND BE IN FULL CONFORMANCE WITH AWWA C500.
3. TAPPING SLEEVE AND GATE VALVE SHOWN ARE MUELLER H-615, AND T-2630 RESPECTIVELY.

TAPPING SLEEVE DETAIL
NOT TO SCALE



NOTES:
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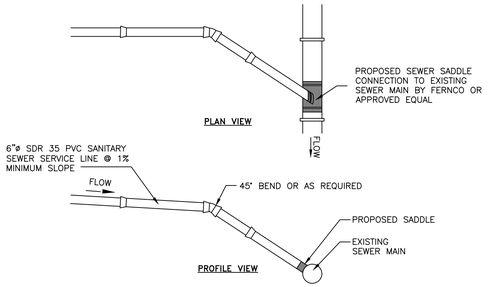
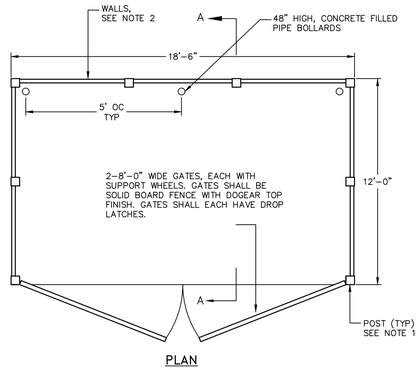
2. SUITABLE RUN OF TRENCH SHALL NOT INCLUDE FROZEN MATERIALS, DEBRIS, ORGANIC MATERIALS, LARGE STONES OR OTHER UNSUITABLE MATERIALS. IF THE RUN OF TRENCH MATERIAL IS FOUND TO BE UNSUITABLE, A SUITABLE BACKFILL MATERIAL SHALL BE IMPORTED AND USED.

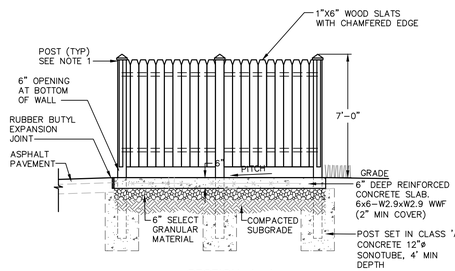
SANITARY SEWER SERVICE LINE TRENCH DETAIL
NOT TO SCALE



NOTES:
1. EXCAVATION AND TRENCHING SHALL MEET ALL OSHA REQUIREMENTS.
2. SUITABLE RUN OF TRENCH SHALL NOT INCLUDE FROZEN MATERIALS, DEBRIS, ORGANIC MATERIALS, LARGE STONES OR OTHER UNSUITABLE MATERIALS. IF THE RUN OF TRENCH MATERIAL IS FOUND TO BE UNSUITABLE, A SUITABLE BACKFILL MATERIAL SHALL BE IMPORTED AND USED.

SANITARY SEWER SERVICE CONNECTION DETAIL
NOT TO SCALE





NOTES

1. POSTS SHALL HAVE A DECORATIVE CAP, CONSISTENT WITH THE ARTS & CRAFTS STYLE, AS APPROVED BY OWNER. POST SPACING SHALL BE AS REQUIRED BY WALL CONSTRUCTION.

2. WALLS OF DUMPSTER ENCLOSURE SHALL BE A SOLID WOOD PRIVACY FENCING NATURAL STAIL OR PAINT TO COMPLEMENT BUILDING.

TRASH ENCLOSURE DETAILS
NOT TO SCALE

DRAWN BY: ESR				CHECKED BY: MAB			
REVISIONS:				REVISIONS:			
NO.	DATE	DESCRIPTION	BY	NO.	DATE	DESCRIPTION	BY
1	8/31/21	PER PLANNING BOARD COMMENTS	CMB	7	5/31/22	PER PLANNING BOARD COMMENTS	CMB
2	11/30/21	PER PLANNING BOARD COMMENTS	MAB				
3	12/28/21	PER PLANNING BOARD COMMENTS	MAB				
4	1/25/22	PER PLANNING BOARD COMMENTS	MAB				
5	2/22/22	PER PLANNING BOARD COMMENTS	CMB				
6	4/26/22	PER PLANNING BOARD COMMENTS	CMB				

STATE OF NEW YORK MICHAEL A. BOEHNKE 084466 LICENSED PROFESSIONAL ENGINEER

SEAL

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174 MAIN ST., BEACON, NEW YORK 12508
13 CHAMBERS ST., NEWBURGH, NEW YORK 12550
PH: 845-440-6926
F: 845-440-6637

WATER & SEWER CONSTRUCTION DETAILS

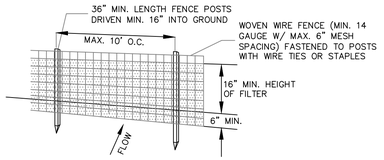
1113 WOLCOTT AVENUE

1113 WOLCOTT AVENUE
CITY OF BEACON
DUTCHESS COUNTY, NEW YORK
TAX ID: 5954-26-651901

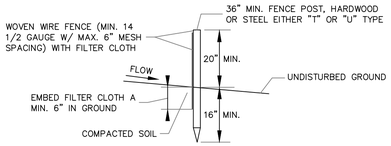
JOB #: 2021:022
DATE: 6/29/2021
SCALE: AS SHOWN
TITLE: CD-3
SHEET: 13 OF 14

UNAUTHORIZED ALTERATIONS OR ADDITIONS TO THIS DRAWING IS A VIOLATION OF SECTION 7209.2 OF THE NEW YORK EDUCATION LAW

EROSION AND SEDIMENT CONTROL DETAILS



PERSPECTIVE VIEW

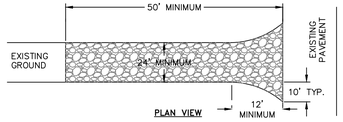


SECTION VIEW

NOTES:

1. FILTER CLOTH TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION.
2. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVER-LAPPED BY SIX INCHES AND FOLDED. FILTER CLOTH SHALL BE EITHER FILTER X, MIRAFI 100X, STABILINKA T140N OR APPROVED EQUAL.
3. PREFABRICATED UNITS SHALL BE GEOFAB, ENVIROFENCE OR APPROVED EQUAL.
4. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.

SILT FENCE DETAIL
NOT TO SCALE



NOTES:

1) STONE SIZE - USE 1-4 INCH STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.

2) LENGTH - NOT LESS THAN 50 FEET FOR A COMMERCIAL.

3) THICKNESS - NOT LESS THAN SIX (6) INCHES.

4) WIDTH - 12 FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. 24 FOOT MINIMUM IF SINGLE ENTRANCE TO SITE.

5) GEOTEXTILE - WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.

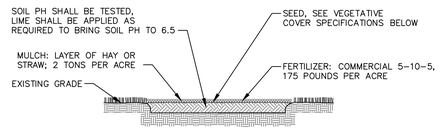
6) SURFACE WATER - ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED BENEATH THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.

7) MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURE USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACTED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.

8) WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.

9) PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.

STABILIZED CONSTRUCTION ENTRANCE DETAIL
NOT TO SCALE



NOTES:

1. TOPSOIL, SEED, MULCH, AND FERTILIZE DISTURBED SOIL AREAS THAT WILL BE LEFT EXPOSED FOR 14 DAYS OR MORE.
2. SEED MIXTURE FOR USE ON LAWNS IN SUNNY AREAS:

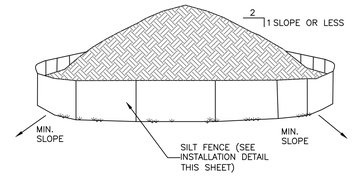
65% KENTUCKY BLUE GRASS BLEND	114 POUNDS PER ACRE
20% PERENNIAL RYEGRASS	35 POUNDS PER ACRE
15% FINE FESCUE	26 POUNDS PER ACRE
	175 POUNDS PER ACRE

3. SEED MIXTURE FOR USE IN SHADY AREAS:

80% BLEND OF SHADE TOLERANT KENTUCKY BLUEGRASS	138 POUNDS PER ACRE
20% FINE FESCUE	37 POUNDS PER ACRE
	175 POUNDS PER ACRE

4. SEED BETWEEN APRIL 1ST AND MAY 15TH OR AUGUST 15TH AND OCTOBER 15TH. SEEDING MAY OCCUR BETWEEN MAY 15TH AND AUGUST 15TH IF ADEQUATE IRRIGATION IS PROVIDED.
5. TOPSOIL SHALL HAVE AT LEAST 6% BY WEIGHT OF FINE TEXTURED STABLE ORGANIC MATERIAL, AND NO GREATER THAN 20%. TOPSOIL SHALL HAVE NOT LESS THAN 20% FINE TEXTURED MATERIAL (PASSING THE NO. 200 SIEVE) AND NOT MORE THAN 15% CLAY.

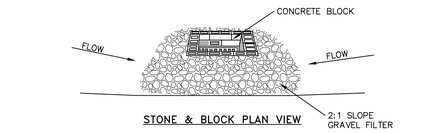
TOPSOIL, SEED AND MULCH DETAIL
NOT TO SCALE



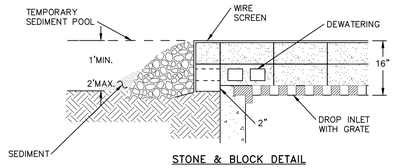
NOTES:

1. AREA CHOSEN FOR STOCKPILING OPERATIONS SHALL BE DRY AND STABLE.
2. EACH PILE SHALL BE SURROUNDED WITH SILT FENCING, THEN STABILIZED WITH VEGETATION OR COVERED.

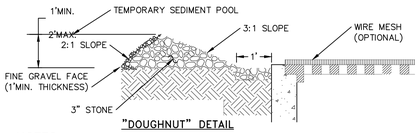
TEMPORARY SOIL STOCKPILE DETAIL
NOT TO SCALE



STONE & BLOCK PLAN VIEW



STONE & BLOCK DETAIL



"DOUGHNUT" DETAIL

NOTES:

1. LAY ONE BLOCK ON EACH SIDE OF THE STRUCTURE ON ITS SIDE FOR DEWATERING. FOUNDATION SHALL BE 2 INCHES MINIMUM BELOW REST OF INLET AND BLOCKS SHALL BE PLACED AGAINST INLET FOR SUPPORT.
2. HARDWARE CLOTH OR 1/2" WIRE MESH SHALL BE PLACED OVER BLOCK OPENINGS TO SUPPORT STONE.
3. USE CLEAN STONE OR GRAVEL 1/2-3/4 INCH IN DIAMETER PLACED 2 INCHES BELOW TOP OF THE BLOCK ON A 2:1 SLOPE OR FLATTER.
4. FOR STONE STRUCTURES ONLY, A 1 FOOT THICK LAYER OF THE FILTER STONE WILL BE PLACED AGAINST THE 3 INCH STONE AS SHOWN ON THE DRAWINGS. MAXIMUM DRAINAGE AREA 1 ACRE

CATCH BASIN INLET PROTECTION DETAIL
NOT TO SCALE

DRAWN BY: ESR				CHECKED BY: MAB			
REVISIONS:				REVISIONS:			
NO.	DATE	DESCRIPTION	BY	NO.	DATE	DESCRIPTION	BY
1	4/26/22	SHEET CREATED	CMB				
2	5/31/22	PER PLANNING BOARD COMMENTS	CMB				

SEAL

HUDSON LAND DESIGN
PROFESSIONAL ENGINEERING P.C.
174 MAIN ST., BEACON, NEW YORK 12508
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PH: 845-440-6926
F: 845-440-6637

EROSION & SEDIMENT CONTROL DETAILS

1113 WOLCOTT AVENUE

1113 WOLCOTT AVENUE
CITY OF BEACON
DUTCHESS COUNTY, NEW YORK
TAX ID: 5954-26-651901

JOB #: 2021:022
DATE: 6/29/2021
SCALE: AS SHOWN
TITLE: CD-4
SHEET: 14 OF 14

UNAUTHORIZED ALTERATIONS OR ADDITIONS TO THIS DRAWING IS A VIOLATION OF SECTION 7209.2 OF THE NEW YORK EDUCATION LAW

May 27, 2022

Dear Chairman John Gunn and City of Beacon Planning Board Members,

We are tenants at the West End Lofts Apartment Complex, located off of Wolcott Ave/9D, on Liam Drive. Our housing, which includes a conspicuous parking lot for tenant use only, is directly next to the Prophecy Theater, LLC hotel and event space, planned for 1113 Wolcott Avenue.

We are writing to express our concern at the lack of an adequate parking plan for this complex. We have reviewed Exhibit D - Traffic & Parking Management Plan prepared by Colliers Engineering & Design P.C., dated April 25, 2022, as shared in the City of Beacon Planning Board Agenda from May 10, 2022, and have come to the conclusion that it is not an adequate plan as far as the needs of the residents in our complex are concerned.

The plan to add only 32 off-street parking spots for an event space that may at times have 500 attendees for weekend events and should regularly have 50-200 occupants (staff, hotel guests) on weekdays is absurd. While we heartily applaud the plan of encouraging the use of public transit, approach by foot, and by bicycle, what kinds of studies have been done to suggest that attendees will in fact utilize these transportation modes? We also note that there are not actual plans for bicycle racks in the construction, but that they are "proposed to be provided," which is not in any way a concrete plan to support cyclists.

In terms of motor vehicle traffic, it seems most likely that people will drive to events at 1113 Wolcott Ave, be unable to park in the lot of venue, due to insufficient space, and take the past of least resistance, parking at the West End Lofts instead. The municipal lot across the street 1) doesn't have the capacity to handle this traffic, either, and 2) requires people to cross a busy road with no traffic light. The pedestrian crossing light is helpful, but, we believe, not enough for event attendees to opt to park in municipal lots as opposed to our private residential lot. The City of Beacon available beyond West End Lofts, at the intersection of Main St, would be a farther walk for event attendees, and, again, the path of least resistance would lead them to West End Lofts.

Regarding the further "overflow" parking options, the Metro North parking proposed is down a very steep hill, requires payment, and is in no way convenient for attendees to this venue. The secondary parking locations on Main Street proposed are also quite far from the venue, and there is no mention of shuttle service other than from local hotels, and even then it is not a

specific plan, but rather a general idea that perhaps shuttles might be used, maybe, for some sort of event, but not on a regular basis or through any sort of coordinated event management plan. Although the Beacon Free Loop is not mentioned at all in this plan, it is also insufficient as a shuttle service, due to not running 7 days a week.

Respectfully, we ask for the Planning Board to compel Prophecy Theater, LLC to include at minimum 100 off-street parking spots to support their activities and anticipated volume of attendees. It is not adequate that Prophecy Theater, LLC build the venue without adequate parking, and monitor event conditions for 6-12 months. As current residents of Beacon, and neighbors to this development project, we believe that this is the only responsible approach for a venue of this size.

We thank you for your time and consideration.

Regards,
The tenants of West End Lofts

Including:
Clark Frankel
Esther Jackson
Joni Sweet

Amanda Caputo

From: Karina Krepp <kkrepp@gmail.com>
Sent: Tuesday, May 31, 2022 2:26 PM
To: Amanda Caputo
Subject: 1113 Wolcott Development Concerns

To Whom It May Concern,

We are aware of the pending approval of the church at 1113 Wolcott. As residents of River Ridge Townhouses, the church is my front yard. As with any neighbor's property, I would like to clarify some concerns to be addressed before groundbreaking.

It has come to our attention that the municipality and the developers have secured only 32 parking places for an event space that will welcome up to 150 guests. This seems not only shortsighted but dangerous for motorists travelling on Wolcott avenue. There will be an inevitable traffic pile up for cars with nowhere to park. For the parenthetical properties, it seems a policing of guest parking will create bad blood with our new neighbors.

My second concern includes the event capacity and the noise. I heard recently the number of attendees was pushed to 300 people. That is ridiculous given the parking situation. But also the noise from that many participants, their cars and the music leads me to two requests: first is a midnight cut off for events and second is a 150 participants cap, assuming a parking solution is organized.

I personally celebrate the culture and joy the development will bring to Beacon. However, addressing these concerns before launching is prudent. As city planners, the crystal ball is in your hands. Dreaming of the future but also participating in organizing to manage the possible pitfalls. Keeping the event space smaller, more exclusive and desirable will keep the community pride from eroding because of poor planning.

I look forward to hearing your moderated parameters to keep the community content.

Thank you for your service,
Karina Krepp

17 River Ridge Ct
Beacon, NY

--
Certified Holistic Lifestyle Coach
Certified Personal Trainer
Certified Yoga Instructor
Certified Run Coach
Act as if what you do makes a difference. It does.
William James

Amanda Caputo

From: Shelley Simmons <shelleysimmonsnyc@gmail.com>
Sent: Saturday, June 04, 2022 4:44 PM
To: Amanda Caputo
Subject: Fwd: Follow up: 1113 Walcott Avenue plans query

Dear Amanda,
I received a notice from Etha's email to forward my correspondence to you. Could you please see my query below and let me know if my letter can be added to the agenda packet for the 1113 Walcott Avenue hearing on June 14th?
Many thanks,
Shelley

---------- Forwarded message ---------
From: **Shelley Simmons** <shelleysimmonsnyc@gmail.com>
Date: Sat, Jun 4, 2022 at 4:23 PM
Subject: Follow up: 1113 Walcott Avenue plans query
To: Etha Grogan <egrogan@beaconny.gov>, Matthew Bloom <mattbloom64@gmail.com>

Dear Etha,

I hope this email finds you well. I was just reviewing the Planning Board packet for 1113 Walcott Avenue (the Dutch Reformed Church project) for June 14 and noticed that my email below regarding our concerns is not included. Can it please be added to the letters of concern?

Look forward to hearing from you.
With thanks,
Shelley

---------- Forwarded message ---------
From: **Shelley Simmons** <shelleysimmonsnyc@gmail.com>
Date: Fri, Jan 7, 2022 at 10:55 AM
Subject: Follow up: Dutch Reformed Church plans query
To: Etha Grogan <egrogan@beaconny.gov>, <egrogan@cityofbeacon.org>
Cc: Matthew Bloom <mattbloom64@gmail.com>

Dear Etha,
Happy New Year! I hope this email finds you well.
I saw in this morning's *Highlands Current* that the Beacon Planning Board is due to further discuss the proposal for the Dutch Reformed Church in Beacon this Tuesday 1/11/2022 and that the plans now include the "restoration" of the cemetery into a public park with another pathway added.

I'm re-sending the letter I shared a few months ago for the Planning Board but I would also like to emphasize that we are equally deeply concerned at the prospect of a public park, a hotel and an entertainment venue all right on top of our residential area. We are also concerned that a public park will impact the wildlife that currently enjoy both the cemetery and our land which is connected to the property. It will transform the space from a quiet sanctuary to a noisy, disruptive nuisance. In addition to our personal concerns, the environment needs every bit of help it can get and the preservation

of the trees and the wildlife should be a factor taken into consideration here in determining whether this should receive permission to go ahead.

As I said in my original letter, we bought our apartment here specifically because it backed onto a historic church and cemetery, thinking that it would be protected from developers. We purposely didn't buy on Main Street because that is where we would expect this kind of project to exist.

We firmly oppose the proposals that have been put forward so far and would ask that the Planning Board take them into account. We look forward to receiving notification of a public hearing so that we may further share our concerns.

With many thanks,
Best,
Shelley Simmons-Bloom and Matt Bloom
30 Beekman Street, Beacon, NY 12508

---------- Forwarded message ---------
From: **Shelley Simmons** <shelleysimmonsnyc@gmail.com>
Date: Tue, Jul 20, 2021 at 8:03 AM
Subject: Dutch Reformed Church plans query
To: <egrogan@cityofbeacon.org>

Dear Etha,
My husband and I read about the proposed plans for the Reformed Church of Beacon on Walcott Avenue in the latest issue of the Highland Current. As residents who live on Beekman Street, we're very concerned about the proposals for the Church and the demolition of the parsonage which overlooks our property (which we have a great appreciation for) and would like to make sure we have the appropriate opportunities to have our say.

Our decision to move onto Beekman Street was informed partly by the proximity to a historic property and the quiet it would likely ensure us. As you know, this is a very residential area and we're pretty sure many of our neighbors feel the same.

Would you please direct me to resources we can use to lodge our concerns and to understand how to best stay informed of developments?

With many thanks in advance.
Very best,
Shelley

Amanda Caputo

From: Susan Borenstein <sborenstei@aol.com>
Sent: Sunday, June 05, 2022 1:43 PM
To: Amanda Caputo
Subject: 1113 Wolcott St Church

Dear Ms Caputo:

I own a condo in The View at 30 Beekman Street. I have seen the proposal for a total renovation of the church and cemetery at 1113 Wolcott Street. I am writing to you to oppose the renovation.

The renovation will adversely affect my quality of life should the proposal be approved. Firstly, there is no doubt in my mind that the noise levels from the proposed cafe and event space will shatter the quiet in the area. The idea that there will just be conferences mainly on week days is absurd. It is more likely that This will be a wedding location to compete with the Roundhouse with lots of revelers invited breaking the peace and quiet as they celebrate outside in the summer months.

Secondly, there is no proposal to block people from accessing the green space behind The View as those destined to this new venue walk from Beekman Street to the event space. This is not to mention cutting down trees to provide a walkway from Beekman Street.

Also with hundreds of people at the event space many will certainly attempt to walk down the hill to the The View's green space as there is nothing to block their way

Lastly, the parking problem is real. There just are not enough spaces and with many more cars comes a lot more noise.

For these reasons I oppose the proposal and I hope you will consider opposing it in support of your neighbors who liv3 at The View.

Very Truly Yours,
Susan Borenstein

Sent from my iPhone

June 2, 2022

The Planning Board
1 Municipal Plaza
Beacon, NY 12508

Dear Planning Board Members,

I'm writing as a resident of River Ridge Views located on Wolcott Avenue, adjacent to the southern side of the historic Dutch Reformed Church. I'm writing to voice my concerns about the proposed entertainment venue, restaurant and hotel development by Prophecy Theater, LLC.

My husband and I, along with our daughter who attends Rombout Middle School, moved to the area 4 years ago. When we moved from Michigan, we rented for the first 3 years until purchasing our home in 2021. My husband is stationed at Stewart Air Force Base in Newburgh and is the Fire Chief there. We chose to move to Beacon because of many factors: it was an evolving city where you could still find the quaintness of kids riding their bikes to school, people walking their dogs, small town ice cream shops, pocket parks and an overall family friendly environment all while allowing the city to continue to grow and change as the time allows.

I am not against development. I own a dance studio in Michigan and understand the importance of art and culture to be interwoven in a community. I am however concerned about this specific development affecting the area in which we chose to raise our family. When we purchased this space, we knew we were taking a chance being located on 9D and just a busier area in general then our previous rental space, but we took a chance. Now we fear the value of our home, not just financial, but security and community, is in danger of being completely changed with this venue proposal.

I urge you to take a moment and think about the families in this residential area. This is not Main Street. In fact, the nearest business is the City of Beacon, and I wouldn't say that is similar to a 300+ music venue, cafe, and hotel. It will change the atmosphere of the area, there is no arguing that.

Of highest concern for community members should be preserving the history of the church by the City of Beacon and by the developer. I am not going to assume that won't take place, I just urge you to prioritize the value of this historical property and the significance of those who have been a part of the legacy of the space. The legalities involving the cemetery and the historical marker that occupy that space are significant and come with their own set of rules and regulations.

Traffic is already becoming more of an issue as things get back to our new normal. Yes, the two crosswalks that are around our area are helpful, but just look at the tire marks already there from a

screeching truck flying through it while a parent and child tried to cross. While the foot traffic from the train isn't bad, I worry about the foot traffic from a night out, down the cement steps to the south of our area and at the lofts, as they head to the train or to one of the proposed borrowed lots for parking.

The sound from a music venue is going to be an issue. There is no way to control the sound unless you plan to have someone there at all times helping to maintain the levels. We already have issues with hearing the sound from across the river, the drums, constantly and there is a noise ordinance in effect. If it can't be followed from across the river, it's is going to be hard to maintain right next door. We do not live in a 9-5 world anymore. People work all hours of the day, to expect the venue to keep their music down to a level that is agreeable in the middle of a residential area is just not something that I believe will be maintained long term.

There is a concern about the value of our homes and those surrounding us being effected by this new development. I don't want to dwell on that, but I would like to point out, that while our development has also came with its own concerns, it has brought in a solid addition to the city's tax revenue. Long term, I would think maintaining the value of those around the Church up will only benefit Beacon in the long term. Surely, that has to bear some weight.

I am sure that you as the board are trying your best to encourage growth and development while also keeping the community safe. I just wanted to reach out and voice our concerns as home owners in Beacon, that we feel that while this is a great venture in Beacon, we are worried that the location may not be a good fit to continue harmonious growth for the community, now and in the future.

I appreciate your time and wish you the best in making these decisions.



Kimberly Rodriguez
12 River Ridge CT, Beacon, NY (269)818-7069
ksrodriguez129@gmail.com

June 2, 2022

The Beacon Zoning Board
1 Municipal Plaza
Beacon, NY 12508

Dear Zoning Board of Appeals Members,

I'm writing as a resident of River Ridge Views located on Wolcott Avenue, adjacent to the southern side of the historic Dutch Reformed Church. I'm writing to voice my concerns about the proposed entertainment venue, restaurant and hotel development by Prophecy Theater, LLC.

My husband and I, along with our daughter who attends Rombout Middle School, moved to the area 4 years ago. When we moved from Michigan, we rented for the first 3 years until purchasing our home in 2021. My husband is stationed at Stewart Air Force Base in Newburgh and is the Fire Chief there. We chose to move to Beacon because of many factors: it was an evolving city where you could still find the quaintness of kids riding their bikes to school, people walking their dogs, small town ice cream shops, pocket parks and an overall family friendly environment all while allowing the city to continue to grow and change as the time allows.

I am not against development. I own a dance studio in Michigan and understand the importance of art and culture to be interwoven in a community. I am however concerned about this specific development affecting the area in which we chose to raise our family. When we purchased this space, we knew we were taking a chance being located on 9D and just a busier area in general then our previous rental space, but we took a chance. Now we fear the value of our home, not just financial, but security and community, is in danger of being completely changed with this venue proposal.

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I appreciate your time and wish you the best in making these decisions.



Kimberly Rodriguez
12 River Ridge CT, Beacon, NY (269)818-7069
ksrodriguez129@gmail.com

June 3, 2022

The Beacon Planning Board
1 Municipal Plaza
Beacon, NY 12508

Dear Planning Board Members,

First, I would like to say thank you for all the time and effort that you devote to this position. I am sure it is not an easy job and that there is not as much community appreciation as there should be. So again, thank you.

I am writing to you having voiced my initial concerns on 3/16/22 — when I was speaking for my development, as the President of River Ridge Views, the community that abuts The Dutch Reformed Church. Today I am writing as a resident.

Over the past 10+ months, I have been attending both Planning and Zoning Board meetings and watching the progression of the Prophecy Theater proposal move through the various channels. It is my understanding that the community will have the opportunity to speak to both the Planning Board and hopefully the Zoning Board in the next few months.

I had hoped that over these many months, I would hear some concrete solutions to the significant issues that are being discussed — **parking, traffic, noise, and community safety.**

At the last Zoning Board meeting I really appreciated hearing the concerns that some of the Board Members raised, such as the communities right to a quiet enjoyment of their homes.

On May 12th, 9D going North was backed up for well over an hour. (Images attached.) We documented many vehicles making U-turns (some almost caused collisions), to get out of the traffic jam. Given the current discussions about parking and drop offs at the Prophecy, I would suspect this will be a regular occurrence on 9D, and I respectfully disagree with the traffic consultant who has been hired by the developer, who says that a 350 person event venue with a 30 room hotel and a 50-90 seat bar/cafe (when there are only 30 parking spaces and 2 ADA compliant parking spaces on premise), will not adversely affect the environment.

Recently the developer proposed using the funeral home for additional parking. That of course would bring people right by our homes late in the evenings, but more importantly, when pressed by the Board about this arrangement, they said it will most likely be a licensing agreement for 1 year and that it could be cancelled at any time which makes sense because maybe the funeral home will want to have evening services in the future, or maybe they will sell to another owner or another type of business or simply get a better offer from someone else who wants to lease the parking spaces.

I also heard mention at the Zoning Board meeting, of valet parking potentially solving the parking issue, not that the developers have agreed to this yet. I am not sure how that could work without causing severe backups on 9D and lots of noise while people are gathered and waiting for their cars after an event.

How many valet attendants would be needed to take all those cars to offsite parking? Drivers would need to wait in line to drop off their passengers, get their claim check, and then those attendants would need to drive those cars to parking lots that could be as far away as the funeral home or Metro North and then walk/run back up a steep flight of stairs to park the next car. If 200+ people arrive within 10-45 minutes of an event, I can't imagine what the traffic and noise would be like — not to mention the safety of attendees and residents.

In addition to the traffic and parking issues which I think are huge, I am also concerned with River Ridge's safety and security. How can we keep what could be hundreds of people from coming into our development at all hours of the day including late in the evening? We have babies, young children and older people living here. Will there be hundreds of noisy/rowdy people walking by our homes after a late concert trying to get back to their cars parked at the funeral home or Metro North or other residential streets in the neighborhood. (This concern applies to other developments and residents on nearby streets, who will be highly impacted as well.)

I agree with one of the Zoning Board Members who stated that attendees will take the route of least resistance, which means parking on the closest residential streets. Even if the developers put up signs, will those cars get towed away if they disregard the signs? We have a very small parking lot for our residents and guests, and we could not afford to lose even 1 spot to an event attendee, and we do not want to be monitoring that, calling the police regularly, and getting into confrontations with attendees. Nor do we think it's safe for large numbers of cars to be turning into our development to look for parking or to make a U-turn to get out of traffic. That is something that already occurs on a regular basis here. The developer has proposed putting up a sign in front of our development during events, which is personally not something that I would like in front of my home, but I also don't think it will deter people who are determined, from pulling in.

The developer keeps saying that the "large events", I believe they are using the number "200-350 people" (I would say anything over 50-75 people in this residential location should be considered large) will only be held "occasionally" but their definition is weekends which could be 3 days a week x 52 weeks or 156 days — that doesn't seem occasional to me.

I also heard Dave Buckley talk about the towns ability to enforce any problems that arise. I believe the term he used was "weak enforcement".

It seems as if a variety of "potential" short term solutions, which don't really solve the problems, are being proposed to get project approval. The developers recently suggested that once they get approval and are up and running, they would do a 6–12-month study to make sure things are running smoothly. But at that point, the project is built and in use. It seems like now is the time to figure out all the "what-if's" and not once it's too late.

This project has been discussed with various Board's for close to a year, so I could go on and on, point by point, but my goal is to ask you all to **please** stay on top of this and do what is right for the residents of Beacon. At one of the first Planning Board meetings, I attended, I recall one of the Member's saying this could be a good thing for the community or it could be a very bad thing. Please ensure that it doesn't end up being the latter.

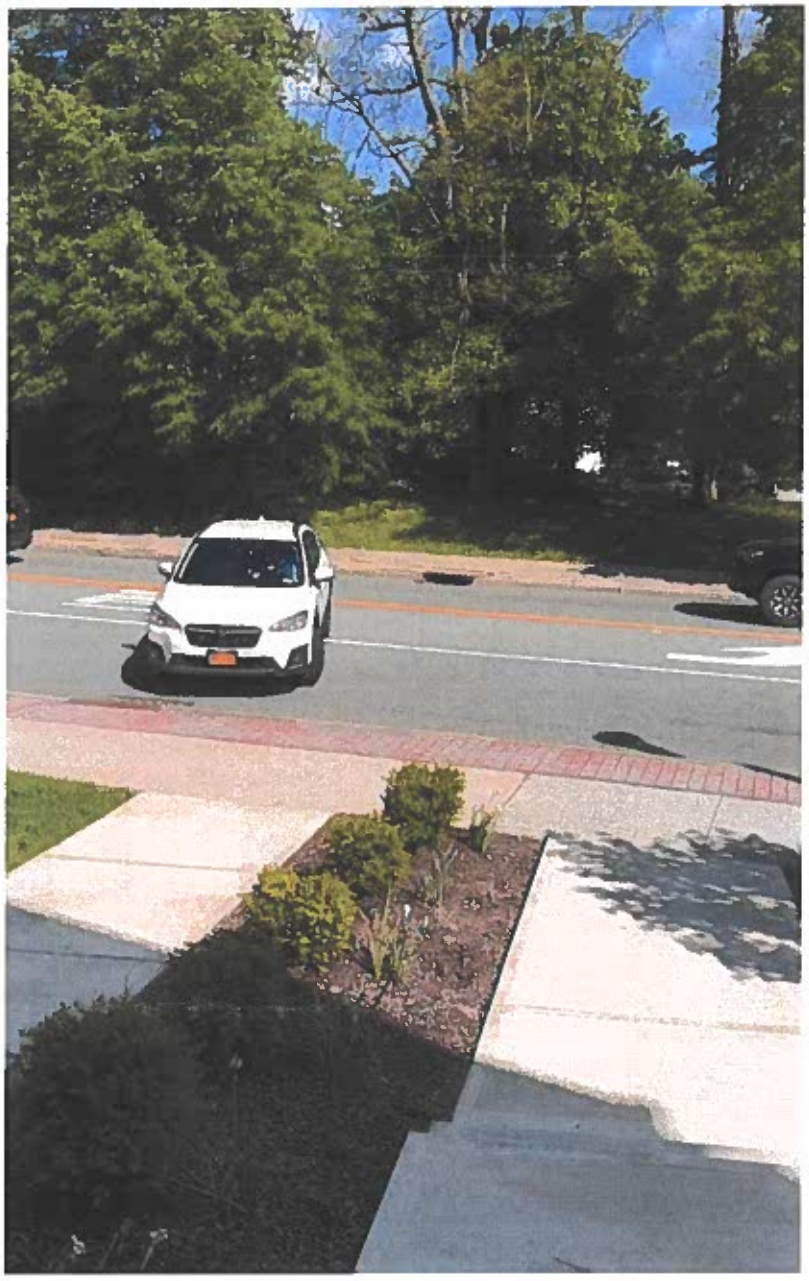
Thank you again for your time and all that you do for the residents of Beacon.

Betty Wall,
8 River Ridge Court
Beacon, NY 12508

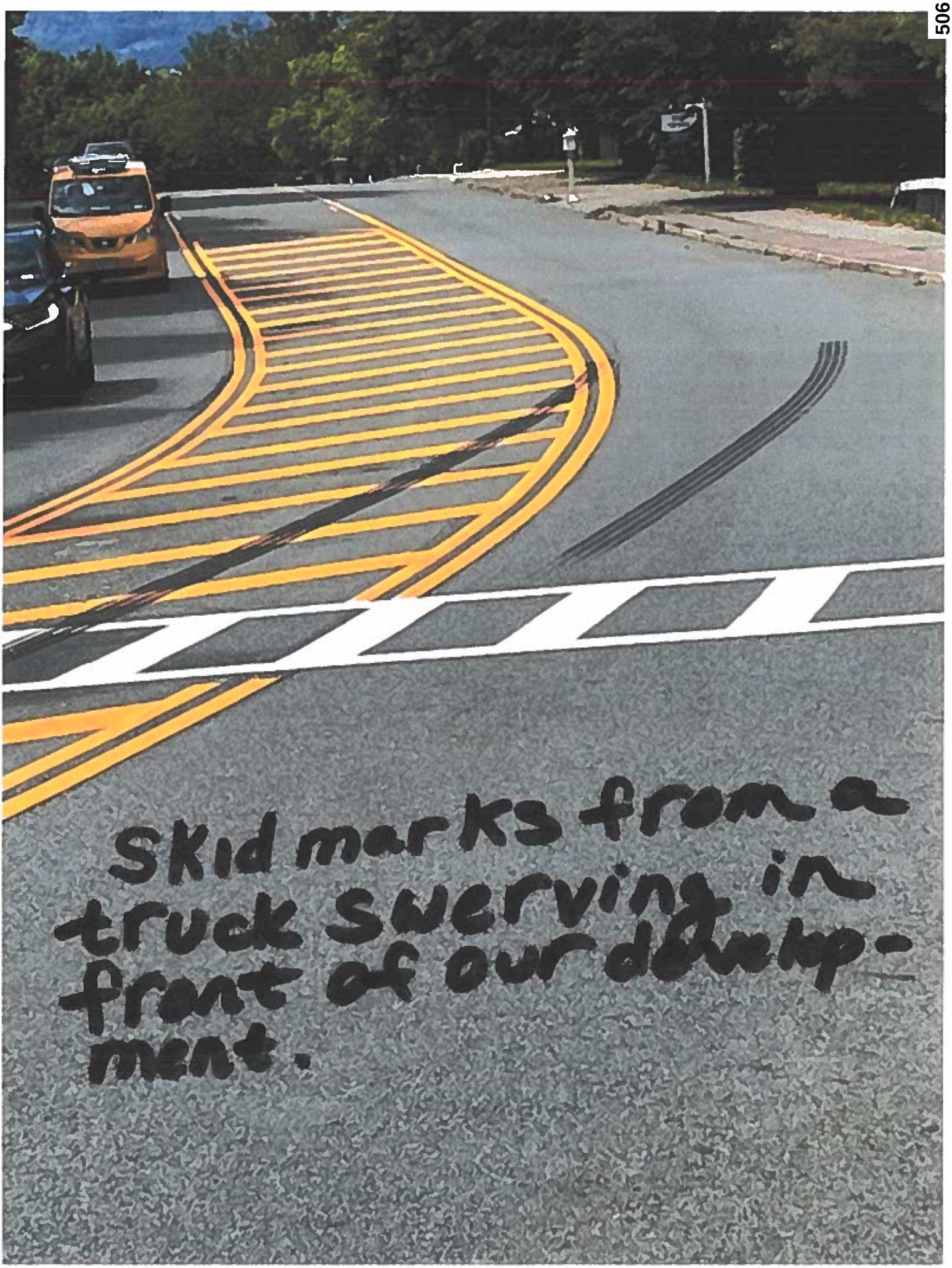
Betty Wall

NO OUTLET


NO OUTLET
River Ridge
RIVER RIDGE



Car making U-turn to get out of traffic on 9D in front of our home.


skid marks from a truck swerving in front of our dump-ment.

Dear Planning Board Members,

I'm writing as a resident of River Ridge Views located on Wolcott Avenue, adjacent to the southern side of the historic Dutch Reformed Church.
I have been attending Planning Board meetings for the past year or so and have attended two Zoning Board meetings and watched the recording of the May Zoning Board meeting. I'm writing to voice my concerns about the proposed entertainment venue, restaurant and hotel development by Prophecy Theater, LLC.

While I am a recent resident of Beacon, I have come to love the city, it's vibe and it's livability. The church is surrounded on four sides by quiet residential communities who have the right to the quiet enjoyment of their homes.

I am not against any development, and I understand that the church needs repairs, but I am against this development. The plans for this venue are simply oversized for the area. There are many concerns, not the least of which is parking. City requirements call for upwards of 120 parking spaces on the property, yet the plans only call for 32 on-site spaces. Where will the additional cars park? The accompanying traffic will burden our roads and our police and fire departments.

We are also concerned with noise and security, and the potential for rowdy crowds leaving the venue late in the evening. We have babies and children living here. At the Board meetings I have attended for the past many months, there has been no discussion of how to keep 350 people attending events off neighboring properties or how to keep the noise level reasonable. The developer can put up some landscaping, but that will not prevent people from wandering onto our property. The developers may be able to control the noise inside the venue, but they will not be able to control the noise before, during and after the events caused by people gathering and waiting to be picked up by a car service, friends, a shuttle bus or potentially a valet to retrieve a car parked in a distant parking lot. Has the developer actually done a real study on how long it would take and how many people it would need to actually valet park 120 cars? How many cars will be backed up on Wolcott Ave?

It's my understanding that to even be considered in this district, the entertainment venue must be as an accessory to the hotel. The hotel will have 30 rooms, yet the venue will have a capacity of 350. It seems that the hotel is an accessory to the venue!
And recently, the developer has said that the cafe will have a capacity of 90 people, up from 50, just a few weeks ago.

The notion that their traffic plan will be monitored and updated as needed is ridiculous in that they will already have been given approval to be in operation! Who is going to do the monitoring? Who is going to enforce any of this? Will the neighboring communities need to do the monitoring? Will we have to call the police whenever there is an infraction? The developer's mitigation plans all seem incomplete and not much past the "this might be a good idea" stage.

This all seems to be trying to drive a square peg into a round hole causing a substantial negative impact on the surrounding residential community.

Thank you for listening,

Steve Jaffe, River Ridge Views, Beacon, NY (917) 847-0355 June 3, 2022



NEW YORK STATE OF OPPORTUNITY. | Parks, Recreation, and Historic Preservation

KATHY HOCHUL
Governor

ERIK KULLESEID
Commissioner

June 3, 2022

Mike Bodendorf
Hudson Land Design
174 Main Street
Beacon, NY 12508

Re: SEQRA
Reformed Dutch Church of Fishkill Landing
1113 Wolcott Ave.
Beacon, Dutchess Co.
21PR08257

Dear Mike Bodendorf:

Thank you for providing additional information to the Office of Parks, Recreation and Historic Preservation's Division for Historic Preservation (OPRHP/DHP) as part of your State Environmental Quality Review Act (SEQRA) process. These comments are those of OPRHP/DHP and relate only to historic/cultural resources.

The additional information you provided about the proposed path through the cemetery was helpful. We have no concerns about the path.

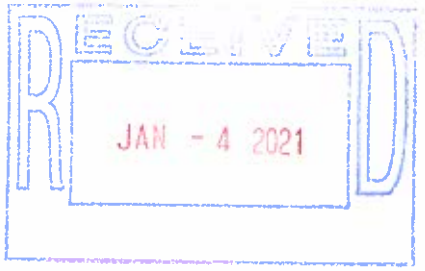
If you have questions, please contact me at sloane.bullough@parks.ny.gov or 518-268-2158.

Sincerely,

Sloane Bullough

Sloane Bullough
Historic Sites Restoration Coordinator

via e-mail only



1/4/2021

Re: Goodwill Church conversion to hotel/event space and café

Dear Chairman Gunn and Members of the Planning Board,

I am the newly elected President of the HOA at River Ridge Views (RRV's), a residential community of 18 townhomes on Wolcott/9D, which, as you probably know, abuts the Goodwill Church. I, along with 5 other owners, comprise a committee formed to represent our community, understand their perspectives, and speak on their behalf. We have conducted an in-depth survey and have found that while there are some positive aspects of the church proposal, there are many serious issues that we feel will adversely affect our community as well as the broader community that surrounds the church.

On all sides of the church are quiet residential communities--not a single commercial establishment -- and, in short, we are concerned that the developer's project, as currently proposed, will interfere with our right to a quiet enjoyment of our homes. At the same time, we support the idea that the church must not be allowed to suffer damage generated by the passage of time and a lack of attention. However, the needs of the residents in the communities that straddle it, must all be duly considered.

I, and others on our committee, attended most of the meetings of the Planning Board since September at which the developer pled his case. We heard him say that he had the support of neighboring communities including RRV's, and although he may have spoken to 2-3 residents here, who may or may not have been supportive, we want to make it clear that a very large majority (70%) of our community is strongly opposed to the proposal as it currently stands. The community's primary concerns center around security, noise, and parking.

The seriousness of our apprehensions brought us to create and summarize a survey (attached) sent to all the owners, which, we believe, fairly addresses most of the issues we heard the Planning Board, itself, address as counterpoints to the developer's presentations. At the conclusion of the meeting in September, I and another committee member, introduced ourselves to Mr. Hecker and offered to meet with him. Only in mid-December did Mr. Hecker take up our offer with an email, which we appreciated, both as to its tone and content, and we acknowledged that. We expect to meet with him in the next few weeks.

Given Mr. Hecker is busy working for his many shareholders and has spent a lot of money on architects, traffic study consultants, bank loan underwriting, attorneys and other advisory – who all may not live nearby to this venue, we are concerned that the developers are trying to "push something through" without having engaged the four local multi-family developments and many adjacent single-family homes comprising at least 400+ directly impacted, concerned, and taxpaying Beacon residents. We all love Beacon and want to see it grow and prosper, while maintaining and enhancing the quality of life for residents of the community – but we question if this growth and quality of life will be realized by quickly converting a longstanding quiet local church to potentially an event venue for 350+ intoxicated patrons partying until late in the evening.

The purpose of this letter is to give the Planning Board notice that we are very concerned about this proposed development as currently planned and most anxious to be heard when this matter is set for public hearing.

Cordially,

Betty Wall

Betty Wall, President, HOA
River Ridge Views
8 River Ridge Court
Beacon, NY 12508

(enclosure)

1/3/21
1113 WOLCOTT AVE "PROPHECY HALL" CHURCH DEVELOPMENT LOCAL RESIDENT SURVEY RESULTS

SURVEY METHODOLOGY

Responses are from River Ridge View's (RRV) community Residents who live on the South side adjacent to 1113 Wolcott

RRV is a community composed of 18 town home residences and 40 Beacon Residents

This survey was conducted in October 2021 with 100% Resident participation

Results were summarized and interpreted by RRV HOA Board

KEY TAKEAWAYS

1. As a community, RRV is opposed to the Prophecy Hall development as currently planned.

2. Even if in favor, we mostly all agree on key restrictions that should be put in place:
    1. Limiting capacity to 200 or less attendees
    2. Limiting operating hours to end at or before 10pm

3. All Residents are concerned about security, traffic, and noise.

OVERALL

70% outright opposed (a "1" or "2" on a 1-5 scale)
14% outright in favor (a "4" of "5" or on a 1-5 scale)
16% neither for nor against

No Resident felt the development should go ahead without further community engagement from Prophecy Hall Developers to understand community concerns and incorporate into the community in a good way for local Beacon residents and taxpayers as well as tourists.

CAPACITY/EVENT SIZE

83% thought capacity should be limited to 200 or less
11% thought capacity should be limited to 200-300
6% felt capacity could be 300-400

94% of Residents are opposed to Prophecy Hall's currently proposed event sizes due to parking, security, and noise concerns.

OPERATING HOURS

Note: When Beacon implements rules/regulations on the operating hours of Prophecy Hall, RRV currently understands that restrictions do not break out between weekdays and weekends which implies any "end time" affects resident sleep during the work week as well as weekends.

Events/Shows

83% thought events should end by 10pm or earlier
17% thought events could extend to 11pm

No Residents thought or would like events to be allowed later than 11pm, and the overwhelming majority felt they should end by **10pm or earlier**.

Bar/Cafe

86% thought the bar/cafe should be closed by 10pm or earlier
6% thought the bar/cafe could stay open until 11pm
8% thought the bar/cafe could stay open until 12am

The overwhelming majority of Residents felt the bar/cafe should close by **10pm or earlier**, with many Residents responding as early as 7pm.

USAGE

Assuming the development was to go ahead, there were concerns over usage of the property:

71% were opposed to wedding receptions
59% were opposed to corporate events
55% were opposed to concerts/music events

But there were also use cases that many people felt were more appropriate:

96% were in favor of educational talks
96% were in favor of art shows / exhibitions
83% were in favor of theater
75% were in favor of film screenings
58% were in favor of standup comedy

The biggest takeaway is that **most Residents are open-minded to certain types of events**, but the majority think **wedding receptions would be inappropriate/disruptive**.

BIGGEST ISSUES

The three most common concerns (94%) were **traffic/parking**, **noise**, and **security**.

Noise

Theoretically, some kind of ordinance could be placed on the development to ensure noise is below a specific number of dB. Similarly, we could ask for this provision to be included in an agreement between the developer and River Ridge.

Security
Residents are concerned about Prophecy Hall visitors trespassing on River Ridge property -- whether to look for parking, take wedding pictures, look for a bathroom when drunk, when lost, and for a variety of other reasons

Traffic / Parking

This is one of the issues that is most concerning to the town planning board as well. One of the biggest threats to our quality of life is lines of traffic blocking Wolcott Ave, making egress extremely difficult and causing significant extensions to travel time. The extensive delays that happen on Wolcott closer to 84 during peak traffic (especially during construction on the Newburgh-Beacon bridge) are a good representation of what we could expect on our doorstep. The only obvious way to really address this problem, if the development goes ahead, is to limit the capacity of the venue as much as possible. This is something we should learn more about from the parking/traffic study that is apparently being conducted.

Other Issues

Garbage was a common issue that was selected, however the current proposal shows garbage storage and collection on the West End Lofts side of the church, so this should not be an issue for us (unless the proposal is amended).

BIGGEST POSITIVES

75% thought that maintenance of the church itself was a positive.
50% thought that having a nearby hotel, arts venue, and bar/cafe was a net positive, if the concerns were addressed.

MEMORANDUM
ZONING BOARD

TO: **Chair Gunn and Members of the Planning Board**

FROM: **Chair Jensen and Members of the Zoning Board of Appeals**

RE: **1113 Wolcott Avenue- Prophecy Theater**

DATE: **May 27, 2022**

I. INTRODUCTION

The Planning Board is serving as the SEQRA Lead Agency to review the site plan and special use permit applications submitted by the Prophecy Theater, LLC (the "Applicant") for a proposed development at 1113 Wolcott Avenue (the "Property"). The Applicant proposes to renovate and expand the existing parsonage as a 2 ½ story, 30 room hotel and reuse the existing historic church as a conference center/event space (the "Project"). The renovated space will have a maximum occupancy of 350 persons and will also have a café. The Property is in the R1-40 Zoning Historic and the Historic District and Landmark Overlay Zone ("HDLO"). In connection with the Project, the Applicant has proposed 32 off-street parking spaces, where 136 off-street parking spaces are required pursuant to § 223-26.F of the Code of the City of Beacon. To complete the Project, the Applicant would need to seek approval for a variance of 104 off-street parking spaces. The Planning Board has requested the Zoning Board of Appeals (the "Zoning Board") provide input regarding and comments relative to parking. Specifically, the Planning Board has asked the Zoning Board to provide comments on the parking variance for purposes of completing the required review under the State Environmental Quality Review Act ("SEQRA").

II. SEQRA OVERVIEW

The Project is an Unlisted Action under SEQRA. Accordingly, the Planning Board cannot approve the proposed development until it renders a Determination of Significance. If the Planning Board finds that the proposed project "will not result in any significant adverse environmental impacts," then it will issue a "negative" SEQRA Determination. 6 NYCRR §§ 617.2(z), 617.3(c). However, if the Planning Board finds that the proposed project "may include the potential for at least one significant adverse environmental impact," then it must issue a "positive" SEQRA Determination, which would require the applicant prepare an Environmental Impact Statement that addresses environmental impacts, alternatives and mitigation in a satisfactory manner. 6 NYCRR §§ 617.2(n), 617.7(a)(1).

The Zoning Board is an "involved agency" because it will ultimately make a discretionary decision regarding the required parking variance. As an involved agency, the Zoning Board "has the responsibility to provide the lead agency with information it may have that may assist the lead agency in making its determination of significance," as well as to provide additional information at other stages of the SEQRA review process. 6 NYCRR § 617.3(e).

III. THE RECORD

The Zoning Board has considered the following materials:

- Planning Board Memorandum, dated February 16, 2022
- Colliers Traffic & Parking Study, dated February 21, 2022 (with attachments)
- Colliers Traffic & Parking Management Plan, dated February 21, 2022
- Cuddy & Feder letter, dated February 22, 2022 (with attachments)
- Building Department letter, dated March 1, 2022
- Creighton Manning letter, dated March 7, 2022
- Comments and remarks made at the Zoning Board's March 15, 2022, April19, 2022 and May 17, 2022 meetings, including from principal Gavin Hecker, architect Aryeh Siegel, engineer Richard D'Andrea and city planner John Clarke
- Cuddy & Feder letter, dated March 29, 2022 (with attachments)

- Cuddy & Feder letter, dated April 26, 2022 (with attachments)
- Colliers Engineering & Design letter, dated April 25, 2022
- Colliers Traffic & Parking Management Plan, dated April 25, 2022
- Special Use Permit Application Site Plan, Sheet 1 of 14, last revised on April 26, 2022
- Special Use Permit Application Site Plan, Sheet 2 of 14, last revised on April 26, 2022
- Cuddy & Feder letter, dated May 17, 2022

IV. COMMENTS

After reviewing the information submitted and the criteria and other considerations set forth in 6 NYCRR § 617.7, the Zoning Board's view is that the proposed parking variance may result in at least one significant adverse environmental impact, including negative impacts on local traffic patterns, quality of life and noise levels. The proposed action may alter the present pattern of movement of traffic and pedestrians, produce sound above permitted levels in the surrounding residential neighborhood, eliminate the availability of parking for use by other businesses in the City and negatively impact the well-being of neighboring residents. While the mitigation efforts presented by the Applicant may alleviate some of these impacts, they do not eliminate them, and the risk of significant adverse impacts remains.

The parking required for a facility with a maximum capacity of 350 persons far exceeds the parking available on the Property. The Zoning Board is concerned about parking in the surrounding residential neighborhoods and the disturbances that would result therefrom, including emergency vehicle access down congested residential streets and increased noise in residential neighborhoods from people closing doors and talking as they walk to or from the Property. The Zoning Board is also concerned about the safety of pedestrians as they walk from their parking location to the Property. The Zoning Board does not believe the Applicant can protect neighbors from quality of life impacts caused by people parking on residential streets or ensure pedestrian safety.

The Zoning Board is also concerned about the Applicant's high dependency on shared parking and existing public parking areas. The Applicant relies on existing parking located throughout the City to serve the proposed event space. Many businesses rely on these same existing public parking areas to serve patrons of their stores and businesses. The Zoning Board is concerned that the Applicant's proposal will impact these existing businesses. The Zoning Board is also

concerned that many of the parking areas identified by the Applicant will not be able to provide parking in the future. For example, the Applicant identified the Tompkins Fire House and City Hall as potential available parking areas for events. Development plans are already being discussed to expand the Tompkins Fire House and City Hall. Such development that may take place in the future would reduce the parking available to all of the public, including those accessing the Project.

The Applicant stated that they are working on obtaining an agreement to share parking with the Riverview Funeral Home, located at 2 Beekman Street. However, the Riverview Funeral Home is located 1,584 feet away from the event space. People may attempt to avoid walking a distance this long, particularly if they are in dress attire or the weather is inclement, and to do so they may resort to "free" parking on the residential streets nearby. The Zoning Board believes that many patrons will inevitably take the path of least resistance and will park as close to the Property as possible. The Zoning Board has concerns about how the Applicant will enforce and regulate where patrons park. There is nothing in place that would prevent people from parking at the closest available parking locations. The Zoning Board is concerned about the feasibility of mitigation efforts that rely on enforcement by the City.

The Zoning Board also has concerns about the reliability of private parking license agreements or lease agreements. The Zoning Board would like the Applicant to demonstrate that it has permanent rights to off-site parking areas and seeks clarity on the terms of any license agreements that would provide the Applicant with access to additional off-street parking. For example, when would the Applicant be able to use parking at the Riverview Funeral Home? What would trigger termination of the agreement? Would the agreement run with the land and bind future property owners? As an attempt at further mitigation, the Zoning Board would also encourage the Applicant to further explore the possibility of using valet parking.

The Applicant has noted that it is willing to provide a free shuttle service from any off-site parking location with a distance greater than 1,000 feet, when needed for larger events. The Zoning Board believes that a shuttle could mitigate some of the potential significant environmental impacts by, pertinently, encouraging patrons to park in designated locations. The Applicant should provide more information about how such a shuttle would operate. Among other things, it is unclear what constitutes a "larger event," whether the shuttle(s) would have sufficient capacity, and what volume of shuttle traffic the Property and the surrounding area could reasonably accommodate.

A final concern is the Applicant's calculation of on-site handicapped parking requirements. The Applicant has proposed only two handicapped parking spots on-site, but at the April 19, 2022 hearing the question arose of whether this

was sufficient in light of the size of the events proposed. At the May 17, 2022 hearing, the Applicant advised the Zoning Board that the matter remained unresolved with the Planning Board. Suffice it to say that the potential for significant adverse environmental impacts would increase if the Applicant sought a parking variance for more than 104 off-street parking spaces.

In sum, significant uncertainty remains regarding parking availability during large events, impacts on vehicle and pedestrian traffic, and the ability of parking enforcement to ensure patrons park in designated off-site locations. A parking variance of 104 off-street parking spaces would be substantial. Based on the input of city planner John Clarke, it appears that the only action that would avoid significant adverse impacts, as opposed to mitigating against them, would be to reduce or eliminate the amount of off-site parking needed. Even though the Applicant is working on securing parking off-site, it would likely be difficult to force patrons to park in these locations if closer, more convenient parking is available. The Zoning Board is generally in support of the reuse of this historic building, but the Zoning Board has major concerns and, as discussed above, ultimately believes that the project may result in significant adverse impacts to the community.

LETTER OF SUPPORT AND APPROVAL RECOMMENDATION

Date: June 7, 2022

Hon. John Gunn
Members of the Planning Board
City of Beacon
1 Municipal Plaza
Beacon, New York 12508

Dear Chairman Gunn and Members of the Planning Board:

We are writing in regards to the property located at 1113 Wolcott Avenue, City of Beacon, New York (the "Property"), which is classified in the R1-40 One-Family Residence District Zoning District and the Historic District and Landmark Overlay ("HDLO") District and is improved with the Reformed Church of Beacon.

This letter will serve to confirm that we have had a chance to review the application of Prophecy Theater, LLC (the "Applicant"), the owner of the above-referenced Property, to the Planning Board of the City of Beacon requesting Site Plan and Special Use Permit Approval for the Applicant's proposed hotel and accessory café and conference/event space on the Property.

We have reviewed the application materials and/or have walked the Property and have otherwise become familiar with the Applicant's proposal. This shall confirm that we have no objection to the issuance of the Site Plan and Special Use Permit Approval described above. The proposed use is appropriate both in the R1-40 and HDLO Zoning Districts and on this particular Property.

We therefore recommend the Planning Board approve the application described above.

Very truly yours,

Jonathan & Abigail Taylor

_____
Name(s)
21 Saint Lukes Pl, Beacon, NY

_____
Address

City of Beacon
Planning Board and Zoning Board of Appeals
1 Municipal Place
Beacon NY 12508

June 7, 2022

Re: Prophecy Theatre, LLC – 1113 Wolcott Avenue

Chair John Gunn and Members of the Planning Board,
Chair David Jensen and Members of the Zoning Board of Appeals

I am Virginia Romano.

I grew up in the Hudson Valley (HV), where I attended primary and secondary public school and received my master's degree from Marist College. I met my husband (Dr. Jerry Yee) at West Point when he was the Chief of Medicine at Keller Army Community Hospital.

My roots are here, and it has been a long-held dream of mine to eventually return to the HV. After approximately 10 years of looking for a home, we found River Ridge Views Townhomes. It was thrilling to see the redevelopment and revitalization of the City of Beacon. This is our respite/retreat.

Given our professions (physician and CEO of a philanthropic foundation), the last thing we want to encounter is interference with our right to quiet and peaceful enjoyment of our home, especially within the context of the last two plus COVID-19 years. The proposed project will do so on a constant basis. It is my understanding that the developer lives in the community, approximately 4 or more blocks away from the proposed project. He and his family will profit from the project and will not be disturbed or inconvenienced by it.

Additionally, because of my philanthropic experience, I am familiar with the repurposing and renovation of community-based properties. I cannot imagine that a venue of the proposed type and scope would be an asset to or serve the surrounding community. The required parking projections are unrealistic, given the developer anticipates 350-person occupancy on weekends and use during the week. Furthermore, the overflow from events will be intrusive, disruptive, present safety issues, and place undue burdens on those that protect our community.

Thank you for your consideration of our concerns and the impact that this project will have on the nearby neighborhoods and the City of Beacon.

Sincerely,

Virginia Romano and Jerry Yee

Virginia Romano and Jerry Yee
9 River Ridge Court
Beacon, NY 12508

Amanda Caputo

From: Marilou Carlin <mlou.carlin@gmail.com>
Sent: Monday, June 06, 2022 7:05 PM
To: Amanda Caputo
Subject: Dutch Reformed Church renovation project

The Beacon Planning Board
1 Municipal Plaza
Beacon, NY 12508

Dear Planning Board Members:

We are the owners of 16 River Ridge Ct., part of the River Ridge Views town homes on 9D in Beacon. Our front yard is directly adjacent to the side yard of the Dutch Reformed Church, whose purchase and proposed renovation/reuse by Prophecy Theater LLC is currently under review by the City of Beacon.

We chose our particular unit at River Ridge because of its view of the church, which we appreciate for its beauty and history. However, residing in such close proximity, we are especially conscious of the church's dilapidated and unsafe condition, along with the woefully neglected cemetery behind it.

We were, then, initially enthusiastic upon learning that the property had been sold and that the new owners planned to renovate and restore the church and give it a new life as a hotel and entertainment/restaurant venue, and would also restore the cemetery.

Unfortunately, as the scope of the project was revealed, our enthusiasm quickly turned to deep concern, and even dread. We are now contending with the fact that, just steps away from our front door, there may be as many as 350 people congregating at the church, every weekend, for concerts, weddings, and other events, possibly with additional restaurant patrons and hotel guests. What seemed like a potentially great way to save the church has turned into a potentially great way to negatively affect not only *our* quality of life, but that of all Beacon residents.

The problems begin with the parking issues. The plan currently calls for only 32 on site spaces, which will only accommodate hotel guests and staff. The current "plan" for event attendees to park at several different remote lots, with maps provided to guide them, is insufficient and a recipe for chaos. As many dozens of cars attempt to locate these lots, many with drivers unfamiliar with the area, traffic will be ensnared. Expect a miles-long back up on 9D in both directions, illegal and dangerous U-turns, cars venturing onto private property, illegal parking throughout the extended neighborhood, and pedestrians crossing Wolcott without benefit of signals. And all of this is by a stretch of Wolcott that is already dangerous, as the curve towards the south, just beyond River Ridge, obscures visibility.

The developer's expectation that many people will take the train to attend events is based on nothing but hope; it is a faulty and delusional assumption. Plus, many train travelers will still need transportation to the uphill church site, adding to congestion. And valet parking, also floated as a solution, is none at all; if anything, it would simply make congestion worse.

There are vague plans for shuttle buses, presumably from other hotels and, perhaps, from parking lots further away. That might help a bit with the parking situation, but creates its own set of problems when the events end and a horde of revelers congregate outside the church waiting for their rides, just steps from our front doors, with no demarcation between the church and River Ridge other than some plants. We all know that weddings and concerts engender inebriation (and with a café and a bar as part of the plan, it's clear that alcohol is part of the plan). Attendees would have no problem stumbling onto our property and causing trouble--from being noisy to smoking cigarettes to doing physical damage to inciting altercations.

In addition, there is no mechanism to enforce traffic and noise issues, save calling the police--a burden on them and a dangerously poor use of their time.

The idea of repairing, renovating, and reinventing the church and its property is a good one, and a small hotel and a restaurant would be welcome additions to Beacon. But Prophecy is being cavalier in its overly ambitious plan for large events, and not seriously taking into account the negative impact that such gatherings will have on the community. They are saying that the large events would "only" take place on weekends. Well, weekends also happen to be when residents most want to enjoy the peace and quiet of our neighborhood.

Events of the size that they are proposing have no place on this site, situated on the city's most trafficked artery and with neighbors living within 100 feet of the venue. Having such events more than a few times a year would constitute a major disruption for everyone in the surrounding neighborhood, and would prevent residents from the quiet enjoyment of our properties, to which we are entitled. We urge you to rein in this project to ensure that it is an asset to our community and not a detriment.

Sincerely,

Marilou Carlin
Mae Skidmore

CUDDY +FEDER LLP

445 Hamilton Avenue, 14th Floor
White Plains, New York 10601
T 914 761 1300
F 914 761 5372
cuddyfeder.com

Taylor M. Palmer, Esq.
tpalmer@cuddyfeder.com

June 8, 2022

VIA E-MAIL AND FEDERAL EXPRESS

Hon. John Gunn
And Members of the Planning Board
City of Beacon
1 Municipal Plaza
Beacon, New York 12508

Re: Supplemental Submission – Application for Site Plan and Special Use Permit Approval
Additional Letter of Support
Premises: 1113 Wolcott Avenue, Beacon, New York 12508
Tax Parcel ID: (5054-26-6511901)

Dear Chairman Gunn and Members of the Planning Board:

On behalf of Prophecy Theater, LLC (the "Applicant"), the owner of the above-referenced Premises, in furtherance of the Applicant's pending Applications for Site Plan Approval and Special Permit Approval we respectfully submit three (3) additional Letters of Support for the project, which letters are in addition to the nine (9) Letters of Support that the Applicant previously included in its May 31, 2022 supplemental correspondence to this Board. *See* **Exhibit A** – Copies of the twelve (12) Letters of Support Received to Date. Please incorporate the enclosed as part of the official record of proceedings in connection with this matter.

The Applicant looks forward to continuing its review of the Project with the Board at the June 14th regular meeting for the Site Plan and Special Use Permit Public Hearing on the Application. In the meantime, should the Planning Board or City Staff have any questions or comments with regard to the foregoing, please do not hesitate to contact me.

Very truly yours,

Taylor M. Palmer
Enclosures
cc: Jennifer L. Gray, Esq.
John Clarke Planning and Design
Lanc & Tully, P.C.
Aryeh J. Siegel Architect
Michael A. Bodendorf, P.E. – Hudson Land Design Professional Engineering, P.C.
Colliers Engineering & Design, P.C.
Allison Fausner, Esq.

LETTER OF SUPPORT AND APPROVAL RECOMMENDATION

Date: 6.7.22

Hon. John Gunn
Members of the Planning Board
City of Beacon
1 Municipal Plaza
Beacon, New York 12508

Dear Chairman Gunn and Members of the Planning Board:

I am (we are) the neighborhood property owner(s) of the property located at 1113 Wolcott Avenue, City of Beacon, New York (the "Property"), which is classified in the R1-40 One-Family Residence District Zoning District and the Historic District and Landmark Overlay ("HDLO") District and is improved with the Reformed Church of Beacon.

This letter will serve to confirm that I (we) have had a chance to review the application of Prophecy Theater, LLC (the "Applicant"), the owner of the above-referenced Property, to the Planning Board of the City of Beacon requesting Site Plan and Special Use Permit Approval for the Applicant's proposed hotel and accessory café and conference/event space on the Property.

I (We) have reviewed the application materials and/or have walked the Property and have otherwise become familiar with the Applicant's proposal. This shall confirm that I (we) have no objection to the issuance of the Site Plan and Special Use Permit Approval described above. The proposed use is appropriate both in the R1-40 and HDLO Zoning Districts and on this particular Property.

I (We) therefore recommend the Planning Board approve the application described above.

Very truly yours,

Name(s)

20 S. CEDAR ST BEACON 12508
Address

LETTER OF SUPPORT AND APPROVAL RECOMMENDATION

Date: 6/7/22

Hon. John Gunn
Members of the Planning Board
City of Beacon
1 Municipal Plaza
Beacon, New York 12508

Dear Chairman Gunn and Members of the Planning Board:

I am (we are) the neighborhood property owner(s) of the property located at 1113 Wolcott Avenue, City of Beacon, New York (the "Property"), which is classified in the R1-40 One-Family Residence District Zoning District and the Historic District and Landmark Overlay ("HDLO") District and is improved with the Reformed Church of Beacon.

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I (We) therefore recommend the Planning Board approve the application described above.

Very truly yours,

Emma Myers
Name(s)

20 S. Cedar St. Beacon, NY 12508
Address

5081790.v1

LETTER OF SUPPORT AND APPROVAL RECOMMENDATION

Date: February 17, 2022

Hon. John Gunn
Members of the Planning Board
City of Beacon
1 Municipal Plaza
Beacon, New York 12508

Dear Chairman Gunn and Members of the Planning Board:

I am (we are) the neighborhood property owner(s) of the property located at 1113 Wolcott Avenue, City of Beacon, New York (the "Property"), which is classified in the R1-40 One-Family Residence District Zoning District and the Historic District and Landmark Overlay ("HDLO") District and is improved with the Reformed Church of Beacon.

This letter will serve to confirm that I (we) have had a chance to review the application of Prophecy Theater, LLC (the "Applicant"), the owner of the above-referenced Property, to the Planning Board of the City of Beacon requesting Site Plan and Special Use Permit Approval for the Applicant's proposed hotel and accessory café and conference/event space on the Property.

I (We) have reviewed the application materials and/or have walked the Property and have otherwise become familiar with the Applicant's proposal. This shall confirm that I (we) have no objection to the issuance of the Site Plan and Special Use Permit Approval described above. The proposed use is appropriate both in the R1-40 and HDLO Zoning Districts and on this particular Property.

I (We) therefore recommend the Planning Board approve the application described above.

Very truly yours,

Scott and Avalon Alexander
Name(s)

1085 Wolcott Ave
Beacon NY 12508
Address

LETTER OF SUPPORT AND APPROVAL RECOMMENDATION

Date: 1/26/2022

Hon. John Gunn
Members of the Planning Board
City of Beacon
1 Municipal Plaza
Beacon, New York 12508

Dear Chairman Gunn and Members of the Planning Board:

I am (we are) the abutting or neighborhood property resident(s) of the property located at 1113 Wolcott Avenue, City of Beacon, New York (the "Property"), which is classified in the R1-40 One-Family Residence District Zoning District and the Historic District and Landmark Overlay ("HDLO") District and is improved with the Reformed Church of Beacon.

This letter will serve to confirm that I (we) have had a chance to review the application of Prophecy Theater, LLC (the "Applicant"), the owner of the above-referenced Property, to the Planning Board of the City of Beacon requesting Site Plan and Special Use Permit Approval for the Applicant's proposed hotel and accessory café and conference/event space on the Property.

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I (We) therefore recommend the Planning Board approve the application described above.

Very truly yours,

Jessica Carter
Name(s)

4 Liam Drive Apt 405
Address

Beacon, NY 12508

LETTER OF SUPPORT AND APPROVAL RECOMMENDATION

Date: 2-10-22

Hon. John Gunn
Members of the Planning Board
City of Beacon
1 Municipal Plaza
Beacon, New York 12508

Dear Chairman Gunn and Members of the Planning Board:

I am (we are) the abutting or neighborhood property resident(s) of the property located at 1113 Wolcott Avenue, City of Beacon, New York (the "Property"), which is classified in the R1-40 One-Family Residence District Zoning District and the Historic District and Landmark Overlay ("HDLO") District and is improved with the Reformed Church of Beacon.

This letter will serve to confirm that I (we) have had a chance to review the application of Prophecy Theater, LLC (the "Applicant"), the owner of the above-referenced Property, to the Planning Board of the City of Beacon requesting Site Plan and Special Use Permit Approval for the Applicant's proposed hotel and accessory café and conference/event space on the Property.

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I (We) therefore recommend the Planning Board approve the application described above.

Very truly yours,

Kate Ward
Name(s)

4 Liam Dr 203 Beacon NY 12508
Address

LETTER OF SUPPORT AND APPROVAL RECOMMENDATION

Date: 2/10/2022

Hon. John Gunn
Members of the Planning Board
City of Beacon
1 Municipal Plaza
Beacon, New York 12508

Dear Chairman Gunn and Members of the Planning Board:

I am (we are) the abutting or neighborhood property resident(s) of the property located at 1113 Wolcott Avenue, City of Beacon, New York (the "Property"), which is classified in the R1-40 One-Family Residence District Zoning District and the Historic District and Landmark Overlay ("HDLO") District and is improved with the Reformed Church of Beacon.

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I (We) therefore recommend the Planning Board approve the application described above.

Very truly yours,

Name(s)

4 Liam Dr Apt 102 Beacon, NY 12508
Address

LETTER OF SUPPORT AND APPROVAL RECOMMENDATION

Date: 2/11/2022

Hon. John Gunn
Members of the Planning Board
City of Beacon
1 Municipal Plaza
Beacon, New York 12508

Dear Chairman Gunn and Members of the Planning Board:

I am (we are) the abutting or neighborhood property resident(s) of the property located at 1113 Wolcott Avenue, City of Beacon, New York (the "Property"), which is classified in the R1-40 One-Family Residence District Zoning District and the Historic District and Landmark Overlay ("HDLO") District and is improved with the Reformed Church of Beacon.

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I (We) therefore recommend the Planning Board approve the application described above.

Very truly yours,

Adam Eisenhut
Name(s)

4 Liam Dr #302, Beacon, NY 12508
Address

DocuSign Envelope ID: D5242CAA-FAA2-4DB8-9583-382F3414A856

LETTER OF SUPPORT AND APPROVAL RECOMMENDATION

Date: 2/10/2022

Hon. John Gunn
Members of the Planning Board
City of Beacon
1 Municipal Plaza
Beacon, New York 12508

Dear Chairman Gunn and Members of the Planning Board:

I am (we are) the abutting or neighborhood property resident(s) of the property located at 1113 Wolcott Avenue, City of Beacon, New York (the "Property"), which is classified in the R1-40 One-Family Residence District Zoning District and the Historic District and Landmark Overlay ("HDLO") District and is improved with the Reformed Church of Beacon.

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I (We) therefore recommend the Planning Board approve the application described above.

Very truly yours,

DocuSigned by:
Kristy LaRocca
21E0037FF4DE488...

Name(s)

4 Liam Drive Apt 405 Beacon, NY 12508

Address

LETTER OF SUPPORT AND APPROVAL RECOMMENDATION

Date: 2/10/2022

Hon. John Gunn
Members of the Planning Board
City of Beacon
1 Municipal Plaza
Beacon, New York 12508

Dear Chairman Gunn and Members of the Planning Board:

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I (We) therefore recommend the Planning Board approve the application described above.

Very truly yours,

Name(s)

4 Liam Dr Apt 102 Beacon, NY 12508
Address

LETTER OF SUPPORT AND APPROVAL RECOMMENDATION

Date: 2/8/22

Hon. John Gunn
Members of the Planning Board
City of Beacon
1 Municipal Plaza
Beacon, New York 12508

Dear Chairman Gunn and Members of the Planning Board:

I am (we are) the abutting or neighborhood property resident(s) of the property located at 1113 Wolcott Avenue, City of Beacon, New York (the "Property"), which is classified in the R1-40 One-Family Residence District Zoning District and the Historic District and Landmark Overlay ("HDLO") District and is improved with the Reformed Church of Beacon.

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I (We) therefore recommend the Planning Board approve the application described above.

Very truly yours,

Name(s)

4 Liam Drive Ap. 202
Address

LETTER OF SUPPORT AND APPROVAL RECOMMENDATION

Date: 2/1/22

Hon. John Gunn
Members of the Planning Board
City of Beacon
1 Municipal Plaza
Beacon, New York 12508

Dear Chairman Gunn and Members of the Planning Board:

I am (we are) the abutting or neighborhood property resident(s) of the property located at 1113 Wolcott Avenue, City of Beacon, New York (the "Property"), which is classified in the R1-40 One-Family Residence District Zoning District and the Historic District and Landmark Overlay ("HDLO") District and is improved with the Reformed Church of Beacon.

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I (We) therefore recommend the Planning Board approve the application described above.

Very truly yours,

Soren Beck

Name(s)

4 Liam Drive Beacon, NY 12508

Address

LETTER OF SUPPORT AND APPROVAL RECOMMENDATION

Date: 1/26/22

Hon. John Gunn
Members of the Planning Board
City of Beacon
1 Municipal Plaza
Beacon, New York 12508

Dear Chairman Gunn and Members of the Planning Board:

I am (we are) the abutting or neighborhood property resident(s) of the property located at 1113 Wolcott Avenue, City of Beacon, New York (the "Property"), which is classified in the R1-40 One-Family Residence District Zoning District and the Historic District and Landmark Overlay ("HDLO") District and is improved with the Reformed Church of Beacon.

This letter will serve to confirm that I (we) have had a chance to review the application of Prophecy Theater, LLC (the "Applicant"), the owner of the above-referenced Property, to the Planning Board of the City of Beacon requesting Site Plan and Special Use Permit Approval for the Applicant's proposed hotel and accessory café and conference/event space on the Property.

I (We) have reviewed the application materials and/or have walked the Property and have otherwise become familiar with the Applicant's proposal. This shall confirm that I (we) have no objection to the issuance of the Site Plan and Special Use Permit Approval described above. The proposed use is appropriate both in the R1-40 and HDLO Zoning Districts and on this particular Property.

I (We) therefore recommend the Planning Board approve the application described above.

Very truly yours,

Brandon Ward
Name(s)

4 Liam Drive, Beacon NY 12508
Address

June 11, 2022

The Beacon Zoning Board
1 Municipal Plaza
Beacon, NY 12508

Dear Zoning and Planning Boards,

I'm writing as a resident of River Ridge Views located on Wolcott Avenue and I live directly next to the historic Dutch Reformed Church. I'm writing to **voice my concerns and lack of support** regarding the proposed entertainment venue, restaurant and hotel development by Prophecy Theater, LLC.

As a resident of River Ridge Views, I am living in a townhouse that will be directly impacted by this decision if you chose to move forward with the proposed entertainment venue, restaurant and hotel development by Prophecy Theater, LLC. To be specific, the majority of my windows face the church, its parking lot and the hotel. In which case, this decision would have a **negative impact on my existing living experience.**

I am empathetic to the needs of the church; however, I am in not in support of this particular development being the solution as it lacks functionality by design and does not enhance the existing community (as this was not a need surfaced by those living in proximity to this proposal). This development **creates uncontrollable environments in between residential communities** and those living directly next to this will be heavily impacted by parking, traffic, noise (traffic, commuters and patrons), cleanliness of our neighborhood and community safety.

My primary issue is the **decrease in quality of living.** This proposed development will disrupt the existing culture from a noise, traffic, cleanliness and security perspective. The proposed events **will introduce uncontrolled environments** (entertainment venue, restaurant, café, hotel) to environments that are presently controlled (residential). Because of this, there will be an increase in noise from the traffic, the pedestrians, the patrons, hotel guest, entertainment events and restaurant spaces. There will be disturbances pre (setup and deliveries) and post (clean-up, break down, loitering) hours of operation from workers and vendors. As well as **patrons and guest coming, going, congregating, assembling and loitering pre and post event/outing/stay**. Equally important, there will be an obscene loss of privacy (especially for those with windows facing the church), decreasing the value and purpose of our existing relationship with our home and community.

A part of **feeling safe is knowing your environment and the people in it.** Hotels are a revolving door and will upset the existing dynamic causing a consistent number of **strangers living next door**. Hard to build and sustain a community with locations that are transactional (hotels, restaurant, cafés, event space, etc.) Commercial properties with perishable items such as food and drink also come with the risk of filth, insects and rodents. Have you thought about where the trash will be stored at the restaurant, café and entertainment space? Have you thought about the smell associated with trash from restaurants, cafés and entertainment spaces? Have you thought about **patrons littering and trash blowing onto our residential properties**? Have you thought about how any of this negatively impacts residents on a daily basis who live directly next door to these spaces?

Wolcott Ave has **one lane in both directions**. There is already a heavy amount of traffic flowing with the existing behaviors of the Beacon community and commuters. This development will make this worse, as

there is absolutely **nowhere to park, nowhere to safely drop off and pick up passengers and limited areas to walk** (without trespassing) because this is a residential (not commercial) community. My bedroom and living room face Wolcott Ave so I have a front row seat to the existing pain points of this road and this proposal will not make any of this better, **nor does the existing solutions proposed by the developer logically solve for this in the near future and long term**. This decision will exasperate the existing issues with Wolcott Ave and based on its design, this decision will constantly and continuously make this worse. On another note, none of the proposed solutions show an ounce of EMPATHY for the people who actually live here. Based on the existing community and its design, this development will deeply upset the community and its resident.

Honestly, I hope you decline this proposal and figure out a functional option to preserve the existing structures without disturbing the people who actually live here. This location **isn't presently designed for commercial use and based on the existing layout, there is no way of shielding/protecting us from the pain-points mentioned above**. The need is not coming from the community. The need is not coming from people who actually live here. For those of us who live here, especially those who face the church, introducing **what is proposed turns this environment into something transactional and completely pedestrian**. It will disturb our peace, the peace that a home is supposed to provide. If we wanted to live next to attractions in Beacon, we would have moved to Main Street. In other words, there is **no need for disturbing our peace for a gain that doesn't benefit the community** or isn't addressing a communal need.

The developer's **personal gains are not worth disturbing us** from a noise, disturbance, security, cleanliness, loss of privacy, nuisance and liability perspective.

If you move forward with this development, **you are choosing a poorly designed development with no functionality** over the existing Beacon community and the residents directly impacted.

If you move forward with this development, you are **intentionally choosing profit (greed) over Beacon residents' quality of living.**

If you allow this poorly designed development to execute its plans, you are **supporting zoning that logically does not align with the existing zoning in place** (since this community and its road is not designed to accommodate these plans).

If you allow this poorly designed development to execute its plans, **you are supporting zoning that further disrupts the existing problematic traffic patterns** (one lane in both directions with no shoulders).

If you allow this poorly designed development to execute its plans, you are in fact **supporting a development that alters the essential character of our neighborhood.**

In other words, I **hope you choose the people of Beacon and the residents directly impacted by this decision** over a development that clearly does not live up to its design.

Thank you for your time.

Rashida White,
13 River Ridge Court
Beacon, NY 12508

Amanda Caputo

From: Brett Moses <brettmoses@gmail.com>
Sent: Monday, June 13, 2022 1:53 PM
To: Amanda Caputo
Subject: A letter to the planning board in support of the project at 1113 Wolcott Ave.

Follow Up Flag: Follow up
Flag Status: Flagged

Attn:
Hon John Gunn
Members of the Planning Board
City of Beacon
1 Municipal Plaza
Beacon, NY 12508

Dear Chairman Gunn and Members of the Planning Board,

I am the homeowner of 160 Rombout Ave in Beacon, New York.

One of the things I love most about Beaconites is that they are creative and entrepreneurial, respectful of history but also unafraid to look forward. What would Beacon be without these innovators, who turned old factories into a world class museum and top-tier hotel? What will Beacon become if we can't rally behind projects like the Prophecy Theater, which manages to be both a celebration of Beacon's architectural and cultural heritage and a forward-looking cultural amenity that will stimulate tourism and boost the local economy?

As a weekly reader of The Highland Current, I've read letters from the folks who think that the Prophecy Theater will create a parking boondoggle. I suppose it was these same people who rallied against Dia or the Hudson Valley Brewery, who shuddered when Story Screen came to town. Sure, new cultural amenities will bring more people to Beacon. And thank goodness for that! There's plenty of parking in Beacon, if you don't mind walking a block or two. Better yet, take the train.

It is my hope that Chairman Gunn and the other forward-thinking members of the planning board will give their full-throated support to this exciting project, which is dreamed up and funded by Beaconites. I am so proud to live in a city that celebrates and facilitates creative reuse.

Best,

Brett Moses
160 Rombout Ave
Beacon, NY 12508
8179943131

Amanda Caputo

From: Andrew Bell <mtbeacon@gmail.com>
Sent: Monday, June 13, 2022 2:29 PM
To: Amanda Caputo
Subject: Letter in support of 1133 Wolcott Avenue - Prophecy Theater LLC

Follow Up Flag: Follow up
Flag Status: Flagged

Hello Amanda,

Can you please distribute this not to Chairman Gunn and the Members of the Planning Board prior to tomorrow evening's meeting?
Thanks so much!
Andrew

June 13, 2022

Hon. John Gunn
and Members of the Planning Board
City of Beacon
1 Municipal Plaza
Beacon, NY 12508

Dear Chairman Gunn and Members of the Planning Board:

I would like to express my enthusiastic support of the proposed plans for 1133 Wolcott Avenue. This is adaptive reuse in its finest form, from preserving a historic treasure to also keeping it accessible to the public. The plans honor this treasured sacred space, I can't think of a better use.

I understand that parking is a concern, but feel the applicants have addressed this by altering their plans, reducing maximum capacity and times of operation. Most evenings and weekends there is ample nearby street parking and hundreds of spaces in the MTA lot. The plans also call for utilizing other further away parking alternatives when necessary.

This will be a great cultural and community asset for Beacon, with the added benefit of restoring and preserving one of Beacon's most historic properties. I ask the planning board to support this application.

Very truly yours,

Andrew Bell
50 Verplanck Avenue
Beacon, NY

6/13/22

Beacon Planning & Zoning Boards
1 Municipal Plaza
Beacon, NY 12508

Dear Beacon Planning & Zoning Boards,

Enclosed please find a signed petition from local residents of Beacon who want to voice their concerns about the current proposed development of the Goodwill Church at 1113 Wolcott Avenue. The concerns revolve around safety, noise, parking, and traffic.

We have also included in this petition the signatures that we received from EVERY home in River Ridge Views which directly abuts the church and will be one of the most detrimentally impacted group of residents.

We will be submitting the petition from River Ridge Views under separate cover as well.

Thank you.
Betty Wall
President
River Ridge Views
8 River Ridge Court
Beacon, NY 12508

6/13/22

Beacon Planning & Zoning Boards
1 Municipal Plaza
Beacon, NY 12508

Dear Beacon Planning & Zoning Boards,

Enclosed please find a signed petition **by all 18 homes in River Ridge Views**. We want to voice our concerns about the current proposed development of the Goodwill Church at 1113 Wolcott Avenue. Our concerns revolve around safety, noise, parking, and traffic and how this development will impact our residents as we are the direct neighbor of the church (some of us live less than 100 feet away).

We are individually submitting letters to the Boards and many of us plan to speak tomorrow night during the public hearing.

Thank you.

Betty Wall

Betty Wall
President, River Ridge Views
8 River Ridge Court
Beacon, NY 12508

6/22

We as residents of Beacon, NY, while supportive of a venture to improve the Dutch Reform Church at 1113 Wolcott Avenue, have concerns about the current proposal before the Beacon Planning and Zoning Boards.

Our concerns revolve around **safety, noise, parking, and traffic.**

	Print	Signature	Address
1	John Bono		10 Stratford ave
2	JANE Riley	Jane Riley	4 STRATFORD Ave
3	Robert Riley	Robert Riley	4 STRATFORD Ave
4	Mary Sue Kelly	Mary Sue Kelly	5 Bayview Avenue
5	Charles Kelly	Charles Kelly	5 Bayview Avenue
6	ELIZABETH Doty	Elizabeth Doty	6 Stratford Ave
7	Jim JENKINS		6 Stratford ave
8	LINDA BRADFORD		6 STRATFORD AVE
9	Laura Bono	Laura Bono	10 Stratford Ave Beacon NY
10	Karen DeCandia	Karen DeCandia	6 Kitteridge Pl. Beacon, NY
11	Phil DeCal		6 Kitteridge Pl Beacon, NY
12	Nicholas DeCandia		6 Kitteridge Pl. Beacon, NY
13	Joseph DeCandia		6 Kitteridge Pl, Beacon, NY
14	Pat Isaza		43 Verplanck AVE Beacon NY
15	MICHAEL MART	Michael Mart	23 MEAD AVE BEACON NY
16	James Diaz	James Diaz	23 Beacon St. Beacon NY
17	ANNA Garcia	Anna Garcia	25 Beacon ST
18	Eunice Whitted	Eunice Whitte	27 Beacon
	Print	Signature	Address

6/22

We as residents of Beacon, NY, while supportive of a venture to improve the Dutch Reform Church at 1113 Wolcott Avenue, have concerns about the current proposal before the Beacon Planning and Zoning Boards.

Our concerns revolve around **safety, noise, parking,** and **traffic.**

	Print	Signature	Address
19	Charlie Whittel	Charlie Whittel	27 Beacon St
20	VANCE Hunt	Vance Hunt	2 Liam Dr. Apt. 201
21	Sylvia Vargas	Sylvia Vargas	29 Beacon St.
22	Nancy Johnston	Nancy Johnston	77 N. Elm St.
23	SCOTT J. STEVENS	Scott J. Stevens	77 N. Elm St. BEACON NY
24	CARLSON WILSHIRE	[illegible]	90 MADISON AVE APT K
25	Kevin Tegram	[illegible]	29 So. Ave Beacon N.Y.
26	Alicia Gonzalez	Alicia Gonzalez	31 South Ave Beacon, NY
27	MILENA PISANO-MONDAY	[illegible]	43 CLIFF ST. BEACON, NY
28	Alina Botta	[illegible]	103 Rombout Ave.
29	Anna Cannon	[illegible]	10 Academy St
30	Diane White	Diane White	8 Academy St.
31	Jon Tillson	[illegible]	6 Academy St.
32	Tracey Tillson	Tracey Tillson	6 Academy St.
33	Michael Alonzo	[illegible]	1 Academy St.
34	Semra Ercin	[illegible]	2 Academy St.
	Print	Signature	Address
	Print	Signature	Address

6/22

We as residents of Beacon, NY, while supportive of a venture to improve the Dutch Reform Church at 1113 Wolcott Avenue, have concerns about the current proposal before the Beacon Planning and Zoning Boards.

Our concerns revolve around **safety, noise, parking,** and **traffic.**

	Print	Signature	Address
35	Amy Stephenson	[signature]	15 Ralph St.
36	CARLOS Delgado	[signature]	19 Academy ST.
37	Annmarie Abdullel	[signature]	1075 Wolcott Ave
38	Jill Heitmann	[signature]	2 Lisa Drive, Beacon
39	DENNIS Quirk	[signature]	23 FOWLER ST BEACON
40	CARMAN JOHNSON	Carman J. Johnson	25 FALCONER ST. BEACON
41	Graciela Rezinsky	[signature]	12 Academy St
42	Jennifer Sims	[signature]	39 SOUTH AVE
43	Erin Dotson	[signature]	50 Dutchess terr beacon NY
44	Christina Kilbane	[signature]	8 Pleasant View Ave. Beacon, NY
45	Jacob Parish	[signature]	40 St Luke St.
46	Bill Sykes	[signature]	13 Academy
47	ANDREA KOURA	Andrea Koura	7 ACADEMY ST, BEACON NY
48	Boris Liberman	[signature]	7 Van Ness Rd
49	RYAN GREEN	[signature]	23 CHURCH ST
50	MILENA PISANO-MONTALLY	[signature]	43 CLIFF ST.
51	Laura Hado	[signature]	51 Dutchess terr Beacon NY 12508
52	Cristi McLean	[signature]	74 Tompkins Terrace Beacon 12508

6//22

We as residents of Beacon, NY, while supportive of a venture to improve the Dutch Reform Church at 1113 Wolcott Avenue, have concerns about the current proposal before the Beacon Planning and Zoning Boards.

Our concerns revolve around **safety, noise, parking,** and **traffic.**

	Print	Signature	Address
53	Patrick McGinn	[signature]	135 Main st
54	Liz Mintzer	[signature]	62 Mason Rd
55	Lisa Caccomo	[signature]	5 Russell Ave
56	EM Delgado	EM Delgado	57 Mead Ave
57	TOM PANTANO	[signature]	90 MADISON AVE.
58	RANDY CASALE	Randy Casale	106 PROSPECT ST.
59	Parker Elbe	[signature]	17d Van Horn Circle
60	Ryan McKeon	[signature]	111 Teller Avenue
61	Lorraine Festa	[signature]	15 VAN NESS Rd
62	Lombardi, Jonathan	[signature]	26 Union St.
63	THERESA KRAFT	[signature]	315 Liberty St
64	THOMAS DE VILLIERS	[signature]	28 DAVIS ST
65	Ashley Mangano	[signature]	35 VAN NYDECK AVE
66	Jordan Winstel	[signature]	14 Cross St
67	Teresa Keenum	[signature]	502 Meadow Ridge Beacon
68	Michael Alonzo	[signature]	1 Academy St Beacon
69	Dawn Powell-Manso	Dawn Powell-Manso	19 Hammond Plaza Beacon
70	Carlos Manso Jr	Carlos Manso	19 Hammond Plaza Beacon

6/22

We as residents of Beacon, NY, while supportive of a venture to improve the Dutch Reform Church at 1113 Wolcott Avenue, have concerns about the current proposal before the Beacon Planning and Zoning Boards.

Our concerns revolve around **safety, noise, parking,** and **traffic.**

	Print	Signature	Address
71	Sabrina Washington		South Davis Terrace
72	Daniel Blackburn		45 South Ave
73	Virginia Peterson		50 Dutchess Ave
74	Flynn Larsen		74 Rombout Ave
75	KYLE DONNELLY		31 Beacon St
76	PETER LAPIS	Peter Lapis	558 BEACON
77	GARY FLYNN	Gary Flynn	20 VAN KLEECK Ave Beacon
78	Arthur Camins		39 Rombout Ave.
79	Alex Sheppard		5 Colonial Rd.
80	Thomas Starr		514 Hudson View Ct
81	Lauren Fasano		1 East Willow St.
82	Sarah Mosher		193 Tompkins Terrace
83	Helen Ehrmann		25 N. Elm
	Print	Signature	Address
	Print	Signature	Address
	Print	Signature	Address
	Print	Signature	Address
	Print	Signature	Address
	Print	Signature	Address

6/22

We as residents of Beacon, NY, while supportive of a venture to improve the Dutch Reform Church at 1113 Wolcott Avenue, have concerns about the current proposal before the Beacon Planning and Zoning Boards.

Our concerns revolve around **safety, noise, parking**, and **traffic**.

	Print	Signature	Address
84	Barbara Stern	Barbara Stern	10 Hammond Plaza Beacon
85	Joyce Kaiden	Joyce Kaiden	1 Hammond PL
86	Meaghan Schick	Meaghan Schick	12 Hammond Plz
87	Ann Marie Colucci	Ann Marie Colucci	23 Hammond Plz.
88	ROSHEN CARMAN	Roshen	23 HAMMOND PLZ
89	Pedro Rivera Jr	Pedro Rivera Jr	20 Hammond Plaza
90	Pedro Rivera III	Pedro Rivera III	20 Hammond Plaza *
91	Elida Rivera	Elida Rivera	20 Hammond PLZ
92	Analiz Rivera	Analiz Rivera	20 Hammond PLZ
93	CAROL ZACCARA	Carol Zaccara	14 Hammond Plz
94	Briana Webber	Briana Webber	Judson st.
95	Penelope Wendtlandt	Penelope Wendtlandt	176 Main St.
	Print	Signature	Address
	Print	Signature	Address
	Print	Signature	Address
	Print	Signature	Address
	Print	Signature	Address
	Print	Signature	Address

* may be under the age of 18, not certain.

6//22

We as residents of Beacon, NY, while supportive of a venture to improve the Dutch Reform Church at 1113 Wolcott Avenue, have concerns about the current proposal before the Beacon Planning and Zoning Boards.

Our concerns revolve around **safety**, **noise**, **parking**, and **traffic**.

	Print	Signature	Address
96	Alec Jewell	[signature]	7 Colonial Road Apt. 11, Beacon, NY
97	Van Robinson	[signature]	35 Mead Avenue, Beacon, NY
98	Scott Catalano	[signature]	67 Spring St. Beacon N.Y.
99	Dave Dress	[signature]	143 Overlook Ave
100	Amanda Gonella	[signature]	26 Union St.
101	Dia Lombardi	DL	143 Overlook Ave
102	Michael Lombardi	ML	26 Union St.
103	Noah Mayers	NM	47 Falconer St
104	Joe Catalano	[signature]	675 Spring St. Beacon N.Y.
105	Jon Franco	[signature]	17 Oak St
106	Hazel Sumler	[signature]	137 Main Street, Beacon NY
107	Drilloh Jakubaj	[signature]	45 Spring Vally St
108	Jonathan Lombardi	[signature]	424 Main St
109	Henry Zook	[signature]	21 High St.

6/22

We as residents of Beacon, NY, while supportive of a venture to improve the Dutch Reform Church at 1113 Wolcott Avenue, have concerns about the current proposal before the Beacon Planning and Zoning Boards.

Our concerns revolve around **safety, noise, parking,** and **traffic.**

	Print	Signature	Address
110	Rita White	R White	17 Academy St, Beacon
111	Nilda Otero	Nilda Otero	39 So. Ave Beacon
112	Carlos Otero	Carlos Otero	39 So Ave, Beacon
113	BARBARA SIMS	Barbara Sims	5 Kitteridge, Beacon
114	Mary Jane RODRIGUES	Mary Jane Rodrigues	28 Bayview Ave Beacon
115	Caitlyn Gonzalez	Caitlyn Gonzalez	9 Hammond plaza
	~~Meaghan Schick~~	~~Meaghan Schick~~	~~12 Hammond Plz~~ duplicate sig.
116	Mitchell Schuh	Mitchell Schuh	13 Hammond Plz
	Print	Signature	Address
	Print	Signature	Address
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6/22

We as residents of Beacon, NY, while supportive of a venture to improve the Dutch Reform Church at 1113 Wolcott Avenue, have concerns about the current proposal before the Beacon Planning and Zoning Boards.

Our concerns revolve around **safety, noise, parking,** and **traffic.**

	Print	Signature	Address
117	KATRIN HELMICK	Katrin Reiss-Helmick	13 HEANEY DR, BEACON, NY 12508
118	HISOURATHIMA CAMARA		17 W. MAIN ST NY 12508
119	Deanna Medley	Deanna Medley	42 South Davies Terrace Beacon NY 12508
120	Alexa Brown		56 Union St Beacon NY 12508

6/22

We as residents of Beacon, NY, while supportive of a venture to improve the Dutch Reform Church at 1113 Wolcott Avenue, have concerns about the current proposal before the Beacon Planning and Zoning Boards.

Our concerns revolve around **safety, noise, parking,** and **traffic.**

	Print	Signature	Address
121	Kaila Rivera	Kaila Rivera	9 South Street
122	Evan Winkler	Evan Winkler	9 South Street

6/22

We as residents of Beacon, NY, while supportive of a venture to improve the Dutch Reform Church at 1113 Wolcott Avenue, have concerns about the current proposal before the Beacon Planning and Zoning Boards.

Our concerns revolve around **safety, noise, parking,** and **traffic.**

	Print	Signature	Address
123	Maryellen Case	Maryellen Case	9 High St Beacon, NY
124	Lisa Pinsley		11 High St 12508
	Print	Signature	Address
	Print	Signature	Address
	Print	Signature	Address
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	Print	Signature	Address

6/6/22

We the residents of River Ridge Views, while supportive of a venture to improve the Dutch Reform Church at 1113 Wolcott Avenue, have major concerns about the current proposal before the Beacon Planning and Zoning Boards.

Our concerns revolve around **safety, noise, parking**, and **traffic**. If you would like more info about our concerns, see the community survey that we submitted or contact the president of the River Ridge Views HOA: bettyw@jaffeandpartners.com

Unit 1 Angela OBrien
Print Signature

Unit 2 Cecilia Cancellaro
Print Signature

Unit 3 M. GLASS Jennifer
Print Signature

Unit 4 Thom Hering Francine Cormier (signed by Betty Wall with Residents permiss. attached)
Print Signature

Unit 5
Print Signature

Unit 6 Madeleine + Elliott Shriftman
Print Signature

Unit 7 Arthur Arcks
Print Signature

Unit 8 Betty Wall, Steven Jaffe Betty Wall
Print Signature

Unit 9 Jerry Yee + Virginia Romano (see attached for signatures) BW
Print Signature

Unit 10 Dale Brooks
Print Signature

Unit 11 Casey Renee Rogers + Alex Campbell (see attached for permissio. BW
Print Signature

Unit 12 Kimberly Rodriguez
Print Signature

Unit 13 Feretta Odun
Print Signature

Unit 14 Karoline Novillo
Print Signature

Unit 15 Jenko Kerr Cindel Krajewski
Print Signature

Unit 16 Mae Skidmore + Marilou Carlin (see attached for signatures) BW
Print Signature

Unit 17 Karina Kropp
Print Signature

Unit 18 Jordan Comito
Print Signature

From: [redacted]
Subject: Fwd: Church Petition
Date: June 8, 2022 at 7:22 AM
To: [redacted]



Begin forwarded message:

From: [redacted]
Subject: Re: Church Petition
Date: June 5, 2022 at 5:37:38 PM EDT
To: [redacted]

Hi Betty

Signed.

Virginia

6/6/22

We the residents of River Ridge Views, while supportive of a venture to improve the Dutch Reform Church at 1113 Wolcott Avenue, have major concerns about the current proposal before the Beacon Planning and Zoning Boards.

Our concerns revolve around **safety, noise, parking,** and **traffic.** If you would like more info about our concerns, see the community survey that we submitted or contact the president of the River Ridge Views HOA: bettyw@jaffeandpartners.com

	Print	Signature
Unit 1	Angela O'Brien	Angela O'Brien
Unit 2		
Unit 3		
Unit 4		
Unit 5		
Unit 6		
Unit 7	Arthur Hicks	
Unit 8	Betty Wall	Betty Wall
Unit 9	Jerry Yee and Virginia Romano	Jerry Yee and Virginia Romano
Unit 10	Dale Brooks	Dale Brooks
Unit 11		
Unit 12	Kimberly Rodriguez	

From: [redacted]
Subject: Petition sigs
Date: June 6, 2022 at 11:53 AM
To: [redacted]

Betty, here you go.

To Whom It May Concern:

We are the owners of 16 River Ridge Ct., part of River Ridge Views townhomes on 9D/Wolcott Avenue.

Please consider this permission for Betty Wall (President of River Ridge Views HOA) to affix our signatures to the petition from River Ridge Views regarding the proposed venture at the Dutch Reformed Church at 1113 Wolcott Avenue.

We are out of town and not able to sign the petition in person.

Mae Skidmore

Marilou Carlin

From: [redacted]
Subject: Fwd: Request
Date: June 8, 2022 at 7:17 AM
To:



Begin forwarded message:

From: [redacted]
Subject: Re: Request
Date: June 7, 2022 at 7:13:43 PM EDT
[redacted]

Hey Betty,

Thanks for reaching out, and, yes, you can feel free to add our names to the list.

Be well.
Casey

[redacted]

6/6/22

We the residents of River Ridge Views, while supportive of a venture to improve the Dutch Reform Church at 1113 Wolcott Avenue, have major concerns about the current proposal before the Beacon Planning and Zoning Boards.

Our concerns revolve around **safety, noise, parking,** and **traffic**. If you would like more info about our concerns, see the community survey that we submitted or contact the president of the River Ridge Views HOA: bettyw@jaffeandpartners.com

Unit 1 Angela O'Brien
Print Signature

Unit 2 Cecilia Cancellaro
Print Signature

Unit 3 _____
Print Signature

Unit 4 _____
Print Signature

Unit 5 _____
Print Signature

Unit 6 Madeleine + Elliott Shriftman
Print Signature

Unit 7 Arthur Hicks
Print Signature

Unit 8 Betty Wall
Print Signature

Unit 9 Jerry Yee + Virginia Romano (see attached for signatures) BW
Print Signature

Unit 10 Dale Brooks
Print Signature

Unit 11 _____

From: [redacted]
Subject: 1113 Wolcott Avenue/Prophecy Hall Petition
Date: June 10, 2022 at 10:59 AM
[redacted]



Thom and Francine,

Betty is asking for your permission to sign your names on the petition, most immediately. Do we have it?

Yes, can sign on our behalf. ☑

6/22

We as residents of Beacon, NY, while supportive of a venture to improve the Dutch Reform Church at 1113 Wolcott Avenue, have concerns about the current proposal before the Beacon Planning and Zoning Boards.

Our concerns revolve around **safety, noise, parking,** and **traffic.**

	Print	Signature	Address
153	Marlene Ramirez	Marlene Ramirez	189 Main St. Apt Beacon NY
154	Ariel Hughes	[illegible]	19 north [illegible] Beacon NY
155	Jannette M. Pitchett	Jannette M. Pitchett	167 Tompkins Terrace Beacon, NY 12508
156	Hattie Hess	Hattie Hess	9 Mattie Cooper Sq. Beacon

6 River Ridge Court,
Beacon, NY 12508
June 7, 2022
BY HAND

Chairman and Members of the Planning Board of the City of Beacon
Town Center
Beacon, NY

Re: Prophecy Theater Development of Goodwill Church and Sanctuary

Dear Planning Board:

We have been residing at the above address since January 7, 2021, having just moved from our home on the eastern end of Long Island. Our house provided us forever farm views with great sunsets and, above all, we always had the quiet enjoyment of our home. When two of our three children moved to Texas and our eldest son moved his family to Yorktown Heights, we realized it was time to downsize and look for a new home in the Hudson Valley where we could be close to our only grandchildren. We knew nothing about Beacon at the time we bought our town home here but have come to really relish all that it offers, including a spectacular view of the Hudson Valley with great sunsets and mountain vistas. We appreciate and support the myriad of shops, restaurants, and service providers on Main Street on almost a daily basis. Now, however, we are fearful that approval of the developer's proposal of the Goodwill Church and Sanctuary will impact us negatively, particularly we believe it raises concerns about our safety and our quiet enjoyment. [That it may lower the value of our home with a concomitant lessening of the taxes collected by the City merits only a footnote].

We have attended many meetings of the Planning Board or watched the proceedings on television allowing us to draw this conclusion. The inadequate parking spaces will cause both hotel and concert/event going guests to be confused about where to park and the parking lot at the subject premises will fill up in short order causing chaos on Wolcott Avenue with attendant traffic jams. It defies logic to think that 32 on-site parking spots is adequate for hotel guests and staff, café guests and staff, and attendees of a concert/event for potentially 350 persons. Driving attendees will soon become angry that they cannot find parking at the venue or on the street and the tie-up of traffic coming to the venue from the North will prevent concert goers coming from the South to make a left turn into the venue and they will not be able to make a U-turn. We envision such traffic will be stuck all the way down to the intersection with South Avenue. It is easy to see that the North travelling drivers will block access to or from Rombout Avenue. The homeowners living in our community will only be able to travel South when, in fact, they are seeking to go North to get onto Route 84 and the cars trying to exit Rombout Avenue will have the same problem albeit in the opposite direction. This increased "standing" traffic will cause significant air pollution and create a serious safety hazard to pedestrians seeking to cross Wolcott Avenue to attend the events at the church or to cross to get to Main Street. The crosswalks are not sufficient to address this issue.

Additionally, the parking in our community is very limited (only six guest spots) and we want to make sure that they are available to only our guests or vendors. It is easy to imagine that troubled event-going drivers seeing a classic street sign at the entrance to our driveway, "River Ridge Court", will attempt to drive down our driveway, despite the no trespassing and no U-turn signs, seeking a parking spot and either taking one or causing a bottleneck traffic jam trying to turn around and exit. Only if a homeowner observes such a trespasser and requests that the illegally parking driver leave, at the risk of that very person being belligerent, is there a chance of that person heeding the directive. We certainly do not wish to be in the predicament of having to call the police for every such incident. It must be noted that at the hearings before you, the phrase, "weak enforcement", was uttered frequently.

Moreover, if a concert/event ends at 10:30 or 11:00 PM, there will inevitably be those who hang around the venue and, after having imbibed or if in large groups, will noisily walk past our homes with great potential for disturbing our quiet enjoyment and our sleep and potentially being disrespectful or destructive of our property. The noise from the concert/event as well as the café, with proposed outdoor seating and seeking to remain open until 11:00PM, also poses a noise issue and a threat to our enjoying our rearview decks as we know how noise travels even across the river from Newburgh.

We have other concerns about the developer's vision to have over three hundred (300) persons attending their events. One of us is familiar with the inside of the church and believes that while there may have been a wedding ceremony held at the church, from rare time to time, in the past, there could not have been a wedding party held there given that the pews were and are still rigidly fixed to the floor. Assuming the pews were to be moved or removed and individual seats drawn from storage for each event, even if lined up tightly, that would not give the developer the seating capacity they seek, causing an event with lots of standing room only which is a hazard waiting to happen. We hope that the Planning Board, as fiduciaries, will appreciate these concerns and deny the developer's application.

One additional point: we believe that the River Ridge community, which abuts the church, has the greatest nexus and, thus, the strongest voice to speak to this proposed development than any other community. The Lofts, which occupy a significant space between the Sanctuary and City Hall, are comprised of renters, who by that very nature, will not have the same type of long-term interest that we have and, as such, they would more easily feel they will not be negatively impacted by the development. If they dislike it, they can easily move out, which is not an option for River Ridge residents or other homeowners in the immediate area. In this regard, were, hypothetically, the Planning Board considering the merits of a large-scale housing project, surely if those who abut even just one side could show that there would be an environmental danger or other appreciable negative impact to them, their nexus status would be given great if not compelling weight. Should we not be given the same protective treatment once we demonstrate the existence of the above defects? We hope you will appreciate our arguments and sustain them.

Very truly yours,

Madeleine and Elliott Shriftman

John Clarke Planning and Design jclarkeplandesign@gmail.com
845.797.4152

To: John Gunn, Chair, and the City of Beacon Planning Board
Date: June 10, 2022
Re: **1113 Wolcott Avenue Street Site Plan and Special Permit**

I have reviewed the May 31, 2022 cover letter from Cuddy+Feder, May 31, 2022 response letters from Aryeh Siegel and Hudson Land Design, May 26, 2022 response letter and Traffic and Parking Management Plan from Colliers Engineering, 16 comment letters from local residents, and sheets 1-4, 6, 8, 10, 11, and 12 of a 14-sheet Site Plan set, all dated May 31, 2022.

Proposal
The applicant is proposing to construct a 2½-story, 30-room hotel as an expansion to the existing parsonage and renovate the historic church as a conference center/event space and rear café. The 2.28-acre site is in the R1-40 zoning district, in the Historic District and Landmark Overlay (HDLO) zone, and within the Local Waterfront Revitalization Program (LWRP) boundary.

Comments and Recommendations

1. The Building Inspector has determined that the required parking for the three primary uses adds up to a total of 136 spaces. When asked to provide SEQRA comments on the proposed parking requirements in anticipation of a likely variance request, the Zoning Board of Appeals prepared a May 27, 2022 memo raising multiple issues that may result in significant adverse impacts to the community.

2. Adequate parking is a specific Special Permit condition under Sections 223-24.7D and 223-18B. Parking for the varied uses remains a serious concern, including:

    a. The 31 proposed parking spaces only cover the hotel use. If the hotel is full, there will be little or no parking available for non-hotel café customers during the day or for event space participants during scheduled times. The Traffic and Parking Study cites the Tompkins and Municipal Building public lots to the north, but there is no guarantee that these lots will have the same capacities in five years with the planned expansion of the Firehouse and redevelopment options for various public lots being considered.

    b. The Traffic and Parking Study suggested a reduced event parking calculation with a 10% deduction for transit use and walking. Section 223-26 C(6) allows the Planning Board to consider shared parking adjustments, such as for the overlapping café and event use, but there is no provision in the Code, other than a variance, to allow additional reductions for transportation alternatives. The Study assumed 2.75 occupants per vehicle for its event traffic generation calculation and yet the minimum parking requirement is only 1 space for every 4 occupants, so it seems that the parking standard already factors in a reduction for transportation alternatives.

3. The Sheet 10 turning diagrams show that the driveway entrance radii are much wider than necessary. Since this is the front yard of the historic church building, the proposed entrance should be as narrow as possible.

4. All exterior construction must meet the standards in Chapter 134, Historic Preservation, and will require a Certificate of Appropriateness. The Architectural Review Subcommittee has met twice on this proposal and has referred the final design back to the full Board.

If you have any questions or need additional information, please feel free to contact me.

John Clarke, Beacon Planning Consultant

c. Dave Buckley, Building Inspector
Jennifer L. Gray, Esq., City Attorney
Arthur R. Tully, P.E., City Engineer
John Russo, P.E., City Engineer
Frank Filiciotto, P.E., City Traffic Consultant
Aryeh Siegel, Project Architect
Michael Bodendorf, P.E., Project Engineer

June 10, 2022

Mr. John Gunn, Chairperson
Beacon Planning Board
City of Beacon City Hall
1 Municipal Plaza
Beacon, NY 12508

RE: Site Plan, Traffic and Parking Study Review #6 for **Proposed 30-Room Hotel, Restaurant and Conference Center Redevelopment**, 1113 Wolcott Avenue, City of Beacon, Dutchess County, New York; CM Project No. 121-295

Dear Chairperson Gunn:

Creighton Manning Engineering, LLP (CM) reviewed the documents contained in the City of Beacon Planning Board Agenda Packet for the June 14, 2022 meeting. At this time, the applicant and their consultants have addressed all previous comments raised by our office. Below, please find our most recent comments for consideration by the Board.

1. The traffic impact analyses completed, which consider the scenarios presented in the initial Traffic Impact Study and the Sensitivity Analysis, indicate that the majority of intersections will operate at acceptable levels of service when the subject site hosts events. The NYS Route 9D/Beekman Street/W. Church Street intersection currently operates with capacity constraints during the Friday PM Peak Hour. Colliers' study considers modifying the signal phasing to benefit the overall operation of the intersection. These modifications are subject to review and approval by the NYSDOT.
2. Access to the site is proposed via one ingress-only driveway and one egress-only driveway. Vehicles would circulate in a clockwise direction. This configuration is acceptable. The proposed access configuration requires review and approval by the NYSDOT.
3. The vehicle tracking plans indicate that the anticipated vehicle types (shuttle bus, garbage truck, box truck) will be able to circulate the site.
4. The proposed development requires 136 parking spaces per the City of Beacon Zoning Requirement. The proposed development is supported by 31 parking spaces inclusive of four ADA-accessible parking spaces. Therefore, the proposed development is seeking a variance of 105 parking spaces. Colliers' evaluated multiple public parking options within the vicinity of subject site to determine if parking could be sourced off-site. Based on Colliers' evaluation, which is based on industry-standard practices, the Tompkins Firehouse Lot and the Municipal Building Lot have capacity to accommodate the necessary volume of off-site parking. These lots are within a reasonable 1,000-ft walking distance of the subject site and there are sufficient pedestrian accommodations in place. CM notes that patrons parking in the Tompkins Firehouse Lot will have to cross Wolcott Ave; a marked crosswalk with high-visibility pedestrian warning signs is provided to cross Wolcott Avenue at Beacon Street.
5. As part of the Traffic and Parking Management Plan, the applicant will provide a minimum of three parking attendants as well as on-site and off-site signing to direct eventgoers to the designated off-site parking areas. Additionally, information regarding other transportation options and parking will be disseminated to the public. CM recommends that the Traffic and Parking Management Plan include instructions on how to accommodate event goers that need additional time to enter/exit their vehicles in the drop-off/pickup queue.

In summary, the parking variance being requested by the proposed development requires feedback from the Zoning Board of Appeals. While it is not uncommon in the City of Beacon or other municipalities for developments to seek relief via public parking, the justification for the variance being requested is based on a lot that could be reduced in capacity (Tompkins Lot) and a lot that is subject to time of day restrictions (Municipal Plaza Lot). It

should be noted that the development is pursuing an agreement with the Riverview Funeral Home to utilize 46 off-street parking spaces during events to provide additional off-street parking capacity. Lastly, the Traffic and Parking Management Plan currently prepared is satisfactory for the scale of the proposed events pending consideration of comment #5 above.

If you have any questions about the above comments, please do not hesitate to contact our office at (914) 800-9201.

Respectfully,

Creighton Manning Engineering, LLP

Frank A. Filiciotto, PE
Associate

Starke W. Hipp, PE
Project Engineer

N:\Projects\2021\121-295 Beacon - 2021 Traffic Reviews\Working\Correspondence\1113 Wolcott Avenue\1113 Wolcott Avenue_Rev 6.docx

LANC & TULLY

ENGINEERING AND SURVEYING, P.C.

John J. O'Rourke, P.E., Principal
David E. Higgins, P.E., Principal
John Queenan, P.E., Principal
Rodney C. Knowlton, L.S., Principal
Jerry A. Woods, L.S., Principal
John D. Russo, P.E., Principal
John Lanc, P.E., L.S.
Arthur R. Tully, P.E.

June 10, 2022

Mr. John Gunn
Beacon Planning Board Chair
City of Beacon
1 Municipal Plaza
Beacon, NY 12508

RE: 1113 Wolcott Avenue
Tax No. 5954-26-651901
Special Use & Site Plan
City of Beacon

Dear Mr. Gunn:

My office has received the following in regard to the above application:

- Correspondence/Project Narrative dated May 31, 2022, from Cuddy & Feder.
- Correspondence dated May 31, 2022, from Hudson Land Design.
- Correspondence dated May 31, 2022, from Aryeh Siegel, Architect.
- Correspondence dated May 26, 2022, from Colliers Engineering & Design.
- Traffic & Parking Management Plan, dated May 26, 2022, as prepared by Colliers Engineering & Design.
- Several letter of support for the project from various residents.
- Plans titled "1113 Wolcott Avenue", consisting of sheets 1 through 4 and sheet 6 of 14, with the latest revision date of May 31, 2022, as prepared by Aryeh Siegel, Architect, along with sheets 8, 10 and 11 of 14, with the latest revision date of May 31, 2022, as prepared by Hudson Land Design.

The proposed project is located on Wolcott Avenue in the R1-40 Zone and Historic District & Landmark Overlay District (HDLO). The existing 2.28± acre parcel contains a church (Reformed Dutch Church of Fishkill Landing), parsonage building and a cemetery. The applicant is proposing to convert the church into a conference center with dining facilities, and to construct a 30-room hotel on the parcel, along with providing 31 on site spaces for parking as related to the hotel. Based on our review of the above documents and plans, we would like to offer the following comments:

General Comments:

1. A "Work Zone Traffic Control Plan" shall be prepared as per the NYSDOT correspondence of April 17, 2022 and made part of the overall plan set. ***The applicant's consultant notes that these will be provided as part of the NYSDOT Highway Work Permit Application that is to be submitted at a later date.*** Although they will be part of the NYSDOT Permit Application, we also recommend that these plans be part of the overall plan set for the project.

Sheet 1 of 14 – Site Plan:

1. The parking stall striping on the north side of the building, represented for the parallel parking should be corrected, as it shows overlapping spaces.

2. The location of the two proposed trees in front of the existing rectory building should either be shifted to avoid the proposed water service for the building as shown on Sheet 8 of 14, or the water service will need to be shifted. As currently represented, the tree will be directly atop of the proposed water service.

3. The location of the path light on the left side of the church, nearest to the church, should be looked at further. This light appears to be located more in the lawn area than along the sidewalk.

Sheet 2 of 14 – Full Site Plan:

1. See Notes 1, 2 and 3 above for Sheet 1 of 14.

Sheet 8 of 13 – Grading & Utility Plan:

1. Plan shows an underground stormwater management structure to be constructed in the parking lot located to the east of the hotel. Based upon the construction details provided on Sheet 9, it appears that the proposed system will be an infiltration system. Soil testing will need to be conducted as part of the design of this system and the testing shall require witnessing by the City Engineer's office. The applicant's consultant shall contact the City Engineer's office to schedule the soil testing to allow for the witnessing of the required soil testing. ***Applicant's engineer notes that the soil testing will be coordinated with the City Engineer's office, weather permitting.***

2. As the existing water and sewer services to the rectory structure are to be abandoned, the applicant's consultant shall contact the Beacon Water & Sewer Department to determine as to how these services are to be abandoned and where. Notes and pertinent construction details shall be added to the plans for the abandonment of each service. ***Applicant's engineer has noted that they will discuss this with the Beacon Water & Sewer Department and will add applicable notes and details to the plans.***

3. The location of the proposed water service to the rectory should be coordinated with the landscaping. Either the landscaping or the proposed water service shall be adjusted so that they are not in conflict with one another.

This completes our review at this time. Further comments may be provided based on future submissions. **A written response letter addressing each of the above comments should be provided with the next submission.** If you have any questions, or require any additional information, please do not hesitate to contact our office.

Very truly,

LANC & TULLY, P.C.

John Russo, P.E.

cc: John Clarke, Planner
Jennifer Gray, Esq.
David Buckley, Building Inspector

6 River Ridge Court,
Beacon, NY 12508
June 7, 2022
BY HAND

Chairman and Members of the Planning Board of the City of Beacon
Town Center
Beacon, NY

Re: Prophecy Theater Development of Goodwill Church and Sanctuary

Dear Planning Board:

We have been residing at the above address since January 7, 2021, having just moved from our home on the eastern end of Long Island. Our house provided us forever farm views with great sunsets and, above all, we always had the quiet enjoyment of our home. When two of our three children moved to Texas and our eldest son moved his family to Yorktown Heights, we realized it was time to downsize and look for a new home in the Hudson Valley where we could be close to our only grandchildren. We knew nothing about Beacon at the time we bought our town home here but have come to really relish all that it offers, including a spectacular view of the Hudson Valley with great sunsets and mountain vistas. We appreciate and support the myriad of shops, restaurants, and service providers on Main Street on almost a daily basis. Now, however, we are fearful that approval of the developer's proposal of the Goodwill Church and Sanctuary will impact us negatively, particularly we believe it raises concerns about our safety and our quiet enjoyment. [That it may lower the value of our home with a concomitant lessening of the taxes collected by the City merits only a footnote].

We have attended many meetings of the Planning Board or watched the proceedings on television allowing us to draw this conclusion. The inadequate parking spaces will cause both hotel and concert/event going guests to be confused about where to park and the parking lot at the subject premises will fill up in short order causing chaos on Wolcott Avenue with attendant traffic jams. It defies logic to think that 32 on-site parking spots is adequate for hotel guests and staff, café guests and staff, and attendees of a concert/event for potentially 350 persons. Driving attendees will soon become angry that they cannot find parking at the venue or on the street and the tie-up of traffic coming to the venue from the North will prevent concert goers coming from the South to make a left turn into the venue and they will not be able to make a U-turn. We envision such traffic will be stuck all the way down to the intersection with South Avenue. It is easy to see that the North travelling drivers will block access to or from Rombout Avenue. The homeowners living in our community will only be able to travel South when, in fact, they are seeking to go North to get onto Route 84 and the cars trying to exit Rombout Avenue will have the same problem albeit in the opposite direction. This increased "standing" traffic will cause significant air pollution and create a serious safety hazard to pedestrians seeking to cross Wolcott Avenue to attend the events at the church or to cross to get to Main Street. The crosswalks are not sufficient to address this issue.

Additionally, the parking in our community is very limited (only six guest spots) and we want to make sure that they are available to only our guests or vendors. It is easy to imagine that troubled event-going drivers seeing a classic street sign at the entrance to our driveway, "River Ridge Court", will attempt to drive down our driveway, despite the no trespassing and no U-turn signs, seeking a parking spot and either taking one or causing a bottleneck traffic jam trying to turn around and exit. Only if a homeowner observes such a trespasser and requests that the illegally parking driver leave, at the risk of that very person being belligerent, is there a chance of that person heeding the directive. We certainly do not wish to be in the predicament of having to call the police for every such incident. It must be noted that at the hearings before you, the phrase, "weak enforcement", was uttered frequently.

Moreover, if a concert/event ends at 10:30 or 11:00 PM, there will inevitably be those who hang around the venue and, after having imbibed or if in large groups, will noisily walk past our homes with great potential for disturbing our quiet enjoyment and our sleep and potentially being disrespectful or destructive of our property. The noise from the concert/event as well as the café, with proposed outdoor seating and seeking to remain open until 11:00PM, also poses a noise issue and a threat to our enjoying our rearview decks as we know how noise travels even across the river from Newburgh.

We have other concerns about the developer's vision to have over three hundred (300) persons attending their events. One of us is familiar with the inside of the church and believes that while there may have been a wedding ceremony held at the church, from rare time to time, in the past, there could not have been a wedding party held there given that the pews were and are still rigidly fixed to the floor. Assuming the pews were to be moved or removed and individual seats drawn from storage for each event, even if lined up tightly, that would not give the developer the seating capacity they seek, causing an event with lots of standing room only which is a hazard waiting to happen. We hope that the Planning Board, as fiduciaries, will appreciate these concerns and deny the developer's application.

One additional point: we believe that the River Ridge community, which abuts the church, has the greatest nexus and, thus, the strongest voice to speak to this proposed development than any other community. The Lofts, which occupy a significant space between the Sanctuary and City Hall, are comprised of renters, who by that very nature, will not have the same type of long-term interest that we have and, as such, they would more easily feel they will not be negatively impacted by the development. If they dislike it, they can easily move out, which is not an option for River Ridge residents or other homeowners in the immediate area. In this regard, were, hypothetically, the Planning Board considering the merits of a large-scale housing project, surely if those who abut even just one side could show that there would be an environmental danger or other appreciable negative impact to them, their nexus status would be given great if not compelling weight. Should we not be given the same protective treatment once we demonstrate the existence of the above defects? We hope you will appreciate our arguments and sustain them.

Very truly yours,

Madeleine and Elliott Shriftman

LETTER OF SUPPORT AND APPROVAL RECOMMENDATION

Date: 6/14/2022

Hon. John Gunn
Members of the Planning Board
City of Beacon
1 Municipal Plaza
Beacon, New York 12508

Dear Chairman Gunn and Members of the Planning Board:

I am the neighborhood property owner of the property located at 859 Wolcott Avenue, City of Beacon, New York (the "Property"), which is classified in the R1-40 One-Family Residence District Zoning District near the Reformed Church of Beacon.

This letter will serve to confirm that I have had a chance to review the application of Prophecy Theater, LLC (the "Applicant"), the owner of the above-referenced Property, to the Planning Board of the City of Beacon requesting Site Plan and Special Use Permit Approval for the Applicant's proposed hotel and accessory café and conference/event space on the Property. I feel this development plan is the best option given the restrictions on this historic property, the evolving character of the city and the potential tax benefit to the city.

I have reviewed the application materials and have walked the Property and have otherwise become familiar with the Applicant's proposal. This shall confirm that I have no objection to the issuance of the Site Plan and Special Use Permit Approval described above. The proposed use is appropriate both in the R1-40 and HDLO Zoning Districts and on this particular Property.

I (We) therefore recommend the Planning Board approve the application described above.

Very truly yours,

Lee Shapley, MD
859 Wolcott ave
Beacon, NY 12508

THE VIEW, 30 Beekman Street.

6//22

We as residents of Beacon, NY, while supportive of a venture to improve the Dutch Reform Church at 1113 Wolcott Avenue, have concerns about the current proposal before the Beacon Planning and Zoning Boards.

Our concerns revolve around **safety, noise, parking, and traffic.**

Print	Signature	Address
MATTHEW BLOOM		30 Beekman St, 208, Beacon, NY,
SHELLEY SIMMONS-BLOOM		THE VIEW, 30 BEEKMAN ST UNIT 208, BEACON 12508
SUSAN BORENSTEIN		THE VIEW 30 BEEKMAN BEACON 12508
LAURA PERDOMO		30 BEEKMAN ST. UNIT 108, BEACON, NY 1250
CHRISTOPHER DEVINE		30 BEEKMAN ST. UNIT 110 BEACON, NY
Joan Bloom		30 Beekman St #305 Beacon, NY 12508
ROBERT BLOOM		30 Beekman St. #305, Beacon, NY 12508
Paula R. Booth		30 Beekman St #202 Bea NY 12508
Diane Wiltshire		30 Beekman St #105,
James Steven Jenkins		30 Beekman St, #105 Beacon, NY 12508

June 14th, 2022

To whom it may concern,

I am sure most of us remember Nov 3rd 2020, as it was one of the most contentious Presidential elections in recent history. Nov 3rd 2020 was also the day my husband and I moved our entire lives (with trucks and all) and officially became full time residents of the City of Beacon. It was a risky day to move but one we took, as we couldn't wait to be in Beacon.

I moved to Beacon after living in Manhattan, NY for over 20yrs. I have also been in the Residential Real Estate Industry for over 20 plus years. I have pre sold numerous new condominiums/developments and currently work at Sotheby' International Reality.

I support commerce and new development, as my husband and I also purchased at River Ridge Ct, the new 18 unit residential development which is literally adjacent to the Applicant s site.

I did know upon purchasing that the Church parcel was for sale. However, the City of Beacon that we purchased in was that of strict zoning laws. A mere 4" in site space deviation was a matter of heated debate

The lack of parking, traffic, safety and noise that all nearby residents will be effected by is obvious

I am writing to bring awareness to stated business proposal/development at 1113 Wolcott Avenue which I am strongly against.

The Primary and approved use of this plot is a 30 room hotel with 1 employee.

The Secondary use, which what Applicant is asking for in his special use variance, is to convert the existing historic Church to that of 350 person cafe/concert/reception venue with 10 employees/vendors. This includes 3 of the 10 for traffic control. Per the submitted floor plans it will also have only1 bathroom to service all 350 attendees.

This project is a disaster with no real thought. It is okay though because Applicant will after approval and official opening conduct a 6 month trial period and will monitor and adjust accordingly.

Just as Applicant says he will adjust; I and entire City of Beacon should be ready to adjust accordingly as well to this daily influx of 350 people. These individuals will not be on Main Street dininig or shopping (generating revue to this city, they will be going back to somewhere else. I don't know how luring an adjacent 30 room hotel with 1 employee is to encourage visitors to stay overnight.

Additionally, I am not even sure the City of Beacon has the infrastructure to handle this influx in terms of power, water, sewage capacity and so forth.

For the above and so many other reasons , I am completely against the Applicant and his stated development/business proposal on 1113 Wolcott Avenue

My numerous tax dollars go to the City of Beacon as do yours.

Again, I believe in development and I am very happy for all those who have seen their home prices appreciate, as I wish the same for mine.

For all those developers who have residential sites in the pipeline good luck as well. Prophecy Theater would be a deal breaker for me and I'm sure for many others.

My plea to the Planning Board is to truly think this development through and its unintended consequences.

As a current resident and neighbor, I hope you can consider my view in making your decision

Sincerely,

Rachel Rivkind

10 River Ridge Ct
Beacon, NY 12508

LETTER OF SUPPORT AND APPROVAL RECOMMENDATION

Date: 6.14.22

Hon. John Gunn
Members of the Planning Board
City of Beacon
1 Municipal Plaza
Beacon, New York 12508

Dear Chairman Gunn and Members of the Planning Board:

I am (we are) writing in regards to the property located at 1113 Wolcott Avenue, City of Beacon, New York (the "Property"), which is classified in the R1-40 One-Family Residence District Zoning District and the Historic District and Landmark Overlay ("HDLO") District and is improved with the Reformed Church of Beacon.

This letter will serve to confirm that I (we) have had a chance to review the application of Prophecy Theater, LLC (the "Applicant"), the owner of the above-referenced Property, to the Planning Board of the City of Beacon requesting Site Plan and Special Use Permit Approval for the Applicant's proposed hotel and accessory café and conference/event space on the Property.

I (We) have reviewed the application materials and/or have walked the Property and have otherwise become familiar with the Applicant's proposal. This shall confirm that I (we) have no objection to the issuance of the Site Plan and Special Use Permit Approval described above. The proposed use is appropriate both in the R1-40 and HDLO Zoning Districts and on this particular Property.

I (We) therefore recommend the Planning Board approve the application described above.

Very truly yours,

CURTIS HARVEY
Name(s)

22 NORTH BRETT ST. BEACON NY 12508
Address

City of Beacon Planning Board Agenda
06/14/2022

Title:

Continue review of application for Subdivision Approval, 2-lot residential, 46 Judson Street, submitted by 46 Judson LLC

ATTACHMENTS

46 Judson Preliminary Plat-SUBDIVISION.pdf

46 Judson Sheet 1 Improvement Plan.pdf

46 Judson Sheet 2 Erosion and Sediment Control Plan.pdf

46 Judson Sheet 3 Details.pdf

46 Judson_Responds_To_PB_Consultants.pdf

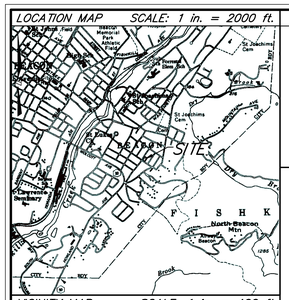
Planners Comments PB Judson St Sub 6.10.22.pdf

Engineers Comments 46 Judson Review 06-08-22.pdf

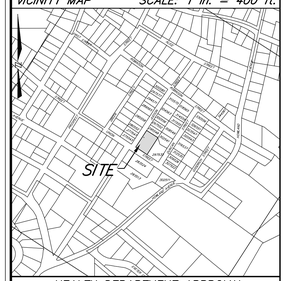
GEOGRAPHIC INDEX 41-29-49.3 -73-57-26.7

576

LOCATION MAP SCALE: 1 in. = 2000 ft.



VICINITY MAP SCALE: 1 in. = 400 ft.



SURVEYOR	ENGINEER	OWNER & APPLICANT
License No. 50389	License No. 103021	46 Judson Street LLC 8 Churchill Street Beacon, New York

OWNER'S APPROVAL

The undersigned, owner(s) of the property hereon, states that they are familiar with this map, its contents and its legends and hereby consents to the filing of this map.

Signed this _____ day of _____, 2022.

46 JUDSON STREET LLC

by _____

Paula Dowd, Member

PROPERTY DATA

Tax Map Designation: 6054-47-290539

Zoning District: R1-5 Total

Area: 15,000 Sq. Ft.

ZONING REQUIREMENTS (R1-5)

	REQUIRED (R1-5)	LOT E1		LOT E2	
		EXISTING	PROPOSED	EXISTING	PROPOSED
Min. Lot Area	5,000 Sq. Ft.	15,000 Sq. Ft.	8,120 Sq. Ft.	N/A	6,880 Sq. Ft.
Min. Lot Width	50 Ft.	150 Ft.	81.2 Ft.	N/A	68.8 Ft.
Min. Lot Depth	100 Ft.	100 Ft.	N/A	N/A	100 Ft
Min. Setback from Front Yard	15 Ft.	8.8 Ft.	N/A	N/A	15 Ft.
Alt. Min. Front Yard Setback	8.9 Ft.	8.9 Ft.	8.9 Ft.	N/A	8.9 Ft.
Min. Setback from Rear Yard	20 Ft.	6.6 Ft.	N/A	N/A	20 Ft.
Min. Setback from Side Yard	10 Ft.	4.9 Ft.	N/A	N/A	15 Ft.
Max. Building Height	35 ft./2½ Stories	29.9 Ft.	N/A	N/A	29.8 Ft.
Max. Lot Coverage	N/A	2,609.3 Sq. Ft.	2,408.7 Sq. Ft.	N/A	1834 Sq. Ft.
Min. Accessory Building	5 Ft.	6.6 Ft.	N/A	N/A	N/A

SOILS LEGEND

Map Symbol	Hydrologic Group	Soil Name
StB	C	Stockbridge-Urban land complex, 3 to 8 percent slopes

_____ = Soil delineation (boundary) lines

Soils classifications and delineated lines have been derived from U.S. Department of Agriculture, Natural Resources Conservation Service "Soil Survey of Dutchess County, New York" compiled 1999

UNDERGROUND WARNING -- CODE RULE 753

NEW YORK STATE INDUSTRIAL CODE 753 REQUIRES EXCAVATORS TO CALL THE DIG SAFELY NEW YORK ORGANIZATION (DIAL 811) AT LEAST 2, BUT NO MORE THAN 10 WORKING DAYS PRIOR TO AN EXCAVATION. NON-MEMBER UTILITIES MUST BE CONTACTED SEPARATELY.

HEALTH DEPARTMENT APPROVAL

This plan does not constitute a Realty Subdivision as defined by Article XI, Title II Section 1115, of the Public Health Law of the State of New York, and Article XI of the Dutchess County Sanitary Code.

Permission is hereby granted for the filing of this map with the clerk of Dutchess County. Approval for arrangements for water supply and/or sewage disposal is neither sought nor granted.

_____

Authorized Representative of the Commissioner of Health

PLANNING BOARD APPROVAL

"Approved by Resolution of the Planning Board of the City of Beacon, New York, on the _____ day of _____, 20____, subject to
All requirements and conditions of said Resolution. Any change, erasure, modification or revision of this plat, as approved, shall void this approval.

Signed this ____ day of _____, 2022, by
_____, Chairman
_____, Secretary

In absence of the Chairman or Secretary, the Acting Chairman or Acting Secretary Respectively may sign in this place

NOTES

1. Unauthorized alteration or addition to a document prepared by a licensed Land Surveyor or licensed Professional Engineer is a violation of Section 7209, Sub-Division 2 of the New York State Education Law.
2. The topographic data hereon was compiled from an actual field survey conducted by Badey & Watson on January 20, 2022.
3. The vertical datum hereon is North American Vertical Datum of 1988 (NAVD 1988).
4. No NYSDEC or Federal Wetlands were found onsite.
5. The Federal Emergency Management Agency (FEMA) has determined that this property lies within Flood Hazard Zone X as indicated hereon. The Zone boundaries were taken from Flood Insurance Rate Maps (FIRM)Community Map No. 36027C0577E with an effective date of May 2, 2012.
6. Pipe size and material based on inquiry at DPW on May 31, 2022

REVISIONS

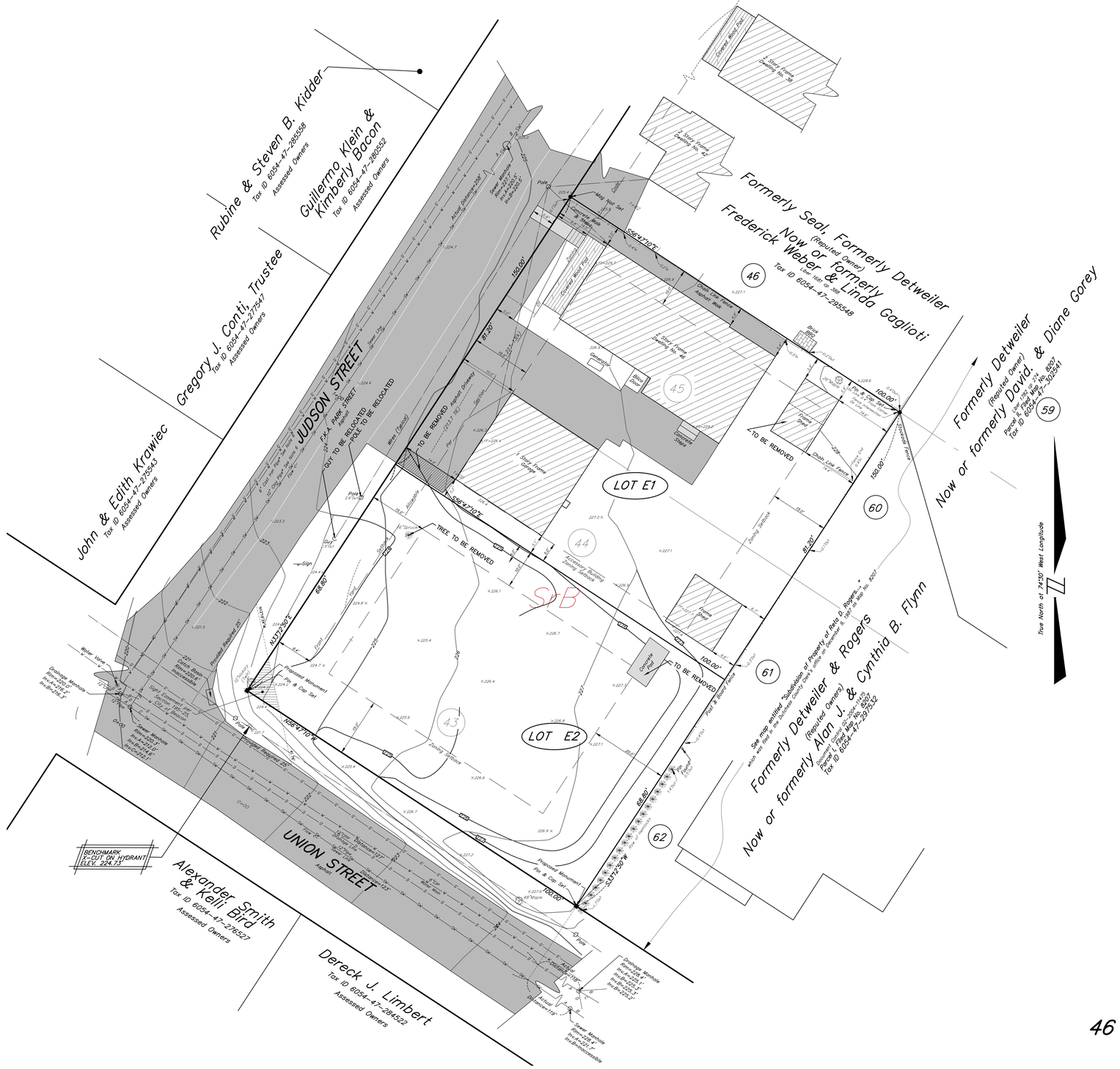
See Title	R01	Original Drawing.
May 31, 2022	R02	Planning Board Comments

LEGEND

—150—	CONTOUR LINE
CPP	CORRUGATED PLASTIC PIPE
362.8	SPOT ELEVATION
FF=362.8	FIRST FLOOR ELEVATION
FS=362.8	FIRST FLOOR SILL ELEVATION
SUBTERRANEAN	
—G—	GAS LINE (PLATE PROVIDED)

SURVEYED & PREPARED BY

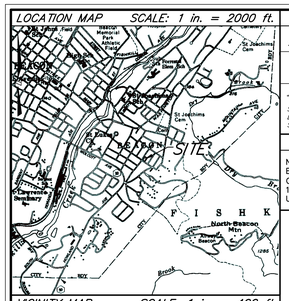
BADEY & WATSON
Surveying & Engineering, D.P.C.
3063 Route 9
Cold Spring, NY 10516
www.Badey-Watson.com
845.265.9217
877.3.141593 (Toll Free)


Rubine & Steven B. Kidder
Tax ID 6054-47-285538
Assessed Owner's
Guillermo Klein & Kimberly Bacon
Tax ID 6054-47-280552
Assessed Owner's
Gregory J. Conti, Trustee
Tax ID 6054-47-277547
Assessed Owner's
John & Edith Krawiec
Tax ID 6054-47-275543
Assessed Owner's
JUDSON STREET
Asphalt
F.K.A. PARK STREET
Asphalt
UNION STREET
Asphalt
Alexander Smith & Kelli Bird
Tax ID 6054-47-276527
Assessed Owners
Dereck J. Limbert
Tax ID 6054-47-284522
Assessed Owners
Formerly Seal, Formerly Detweiler
Now or Formerly Frederick Weber & Linda Gaglioti
(Reputed Owner)
Liber 1681 at Page 1
Tax ID 6054-47-295548
Formerly Detweiler
Now or formerly David. & Diane Gorey
(Reputed Owner)
Parcel 1 as Filed Map No. 8307
Tax ID 6054-47-302541
Formerly Detweiler & Rogers
Now or formerly Alan J. & Cynthia B. Flynn
(Reputed Owners)
Document Liber 2064 at Page 1425
Parcel 1 as Filed Map No. 8307
Tax ID 6054-47-297532
See map entitled "Subdivision of Property of Reg D. Rogers" which will file in the Dutchess County Clerk's Office as Document No. 1897 as Map No. 8307
BENCHMARK
X-CUT ON HYDRANT
ELEV. 224.73'
LOT E1
LOT E2
S66°47'10"E 150.00'
N23°13'50"E 81.20'
N66°47'10"W 68.80'
S23°13'50"W 100.00'
S66°47'10"E 150.00'
N23°13'50"E 81.20'
N66°47'10"W 68.80'
S23°13'50"W 100.00'
TO BE REMOVED
TO BE RELOCATED
POLE TO BE RELOCATED
Proposed Monument Pin & Cap Set
Concrete Pad
Chain Link Fence
Wood Fence
Stone Wall
Overhead Wires
Gravel Alley 20'
Proposed Reserved 20'
Proposed Reserved 25'
Zoning Setback
Accessory Building Zoning Setback
Sewer Manhole Rim=227.7' Inv.E=220.5' Inv.E=220.5'
Drainage Manhole Rim=226.2' Inv.E=216.5'
Water Valve
Sight Easement Plan Dutchess County Water & Sewer Authority
221 Cobb Stein Associates
Sewer Manhole Rim=224.0' Inv.E=216.6' Inv.E=216.5'
Drainage Manhole Rim=224.2' Inv.E=216.3'
Sewer Manhole Rim=226.4' Inv.E=218.1' Inv.E=218.0' Inv.E=unascertainable
Drainage Manhole Rim=226.4' Inv.E=222.1' Inv.E=222.1' Inv.E=222.1' Inv.E=222.1'
Sewer Manhole Rim=226.4' Inv.E=222.4' Inv.E=unascertainable
Catch Basin Rim=224.2' Inv.E=220.2'
Catch Basin Rim=224.2' Inv.E=220.2'
Catch Basin Rim=224.2' Inv.E=220.2'

GEOGRAPHIC INDEX 41-29-49.3 -73-57-26.7

577

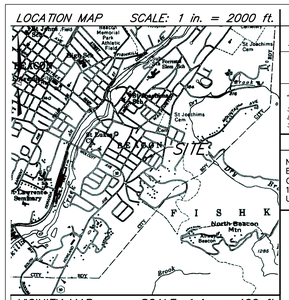
LOCATION MAP SCALE: 1 in. = 2000 ft.


SITE
Beacon
Fishkill
Wappinger
Newburgh
Matteawan
Glenham
Hopewell Junction
Fishkill Creek
Long Dock Rd
Rte 52
Rte 9D
Rte 84
Rte 9
Rte 52
Rte 9
Rte 84
Rte 9D
Rte 52
Rte 9
Rte 84
Rte 9D
Rte 52
Rte 9
Rte 84
Rte 9D

GEOGRAPHIC INDEX 41-29-49.3 -73-57-26.7

578

LOCATION MAP SCALE: 1 in. = 2000 ft.



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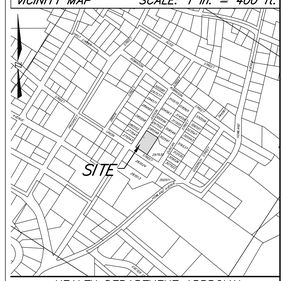

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This plan does not constitute a Realty Subdivision as defined by Article XI, Title II Section 1115, of the Public Health Law of the State of New York, and Article XI of the Dutchess County Sanitary Code.

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_____

Authorized Representative of the Commissioner of Health

PLANNING BOARD APPROVAL

"Approved by Resolution of the Planning Board of the City of Beacon, New York, on the _____ day of_____, 20____, subject to All requirements and conditions of said Resolution. Any change, erasure, modification or revision of this plat, as approved, shall void this approval.

Signed this ____day of _____, 2022, by
_____, Chairman
_____, Secretary

In absence of the Chairman or Secretary, the Acting Chairman or Acting Secretary Respectively may sign in this place

NOTES

1. Unauthorized alteration or addition to a document prepared by a licensed Land Surveyor or licensed Professional Engineer is a violation of Section 7209, Sub-Division 2 of the New York State Education Law.
2. The topographic data hereon was compiled from an actual field survey conducted by Badey & Watson on January 20, 2022.
3. The vertical datum hereon is North American Vertical Datum of 1988 (NAVD 1988).
4. No NYSDEC or Federal Wetlands were found onsite.
5. The Federal Emergency Management Agency (FEMA) has determined that this property lies within Flood Hazard Zone 'x' as indicated hereon. The Zone boundaries were taken from Flood Insurance Rate Maps (FIRM)Community Map No. 36027C0577E with an effective date of May 2, 2012.
6. Pipe size and material based on inquiry at DPW on May 31, 2022

REVISIONS

See Title	R01	Original Drawing.
May 31, 2022	R02	Planning Board Comments

LEGEND

—350—	CONTOUR LINE
CPP	CORRUGATED PLASTIC PIPE
×42.6	SPOT ELEVATION
FF=382.6	FIRST FLOOR ELEVATION
FS=382.6	FIRST FLOOR SILL ELEVATION
	SUBTERRANEAN
—G—	GAS LINE (PLATE PROVIDED)

SOILS LEGEND

Map Symbol	Hydrologic Group	Soil Name
StB	C	Stockbridge-Urban land complex, 3 to 8 percent slopes

_____ = Soil delineation (boundary) lines

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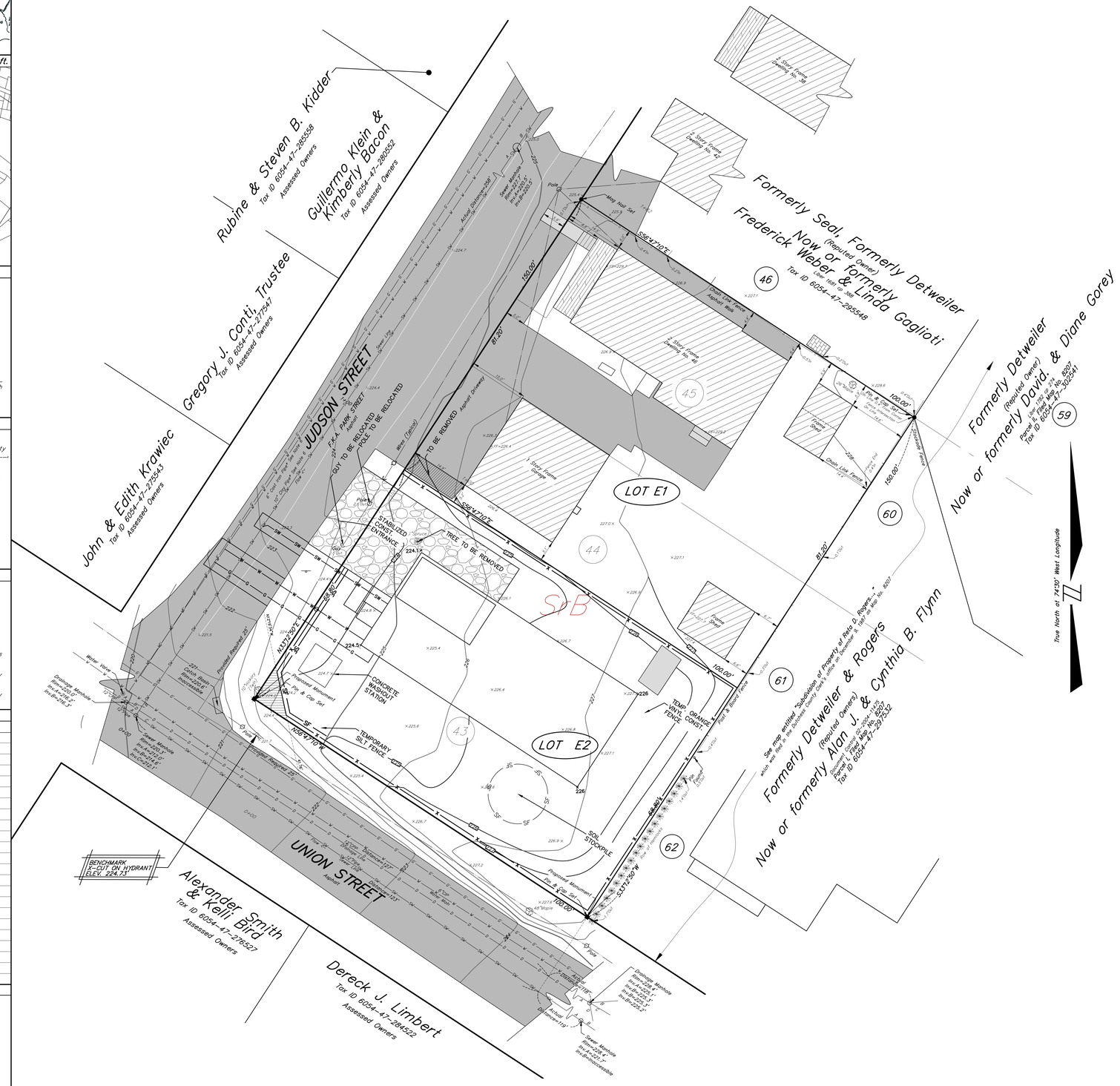
Rubine & Steven B. Kidder
Tax ID 6054-47-285558
Assessed Owners
Guillermo Klein & Kimberly Bacon
Tax ID 6054-47-280532
Assessed Owners
Gregory J. Conti, Trustee
Tax ID 6054-47-277547
Assessed Owners
John & Edith Krawiec
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Assessed Owners
Alexander Smith & Kelli Bird
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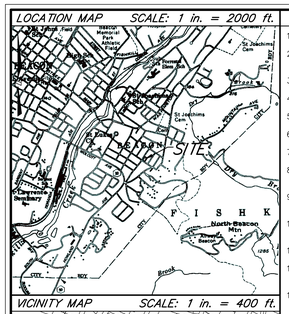
Formerly Alan J. & Cynthia B. Flynn
(Reputed Owners)
Now or formerly Detweiler & Rogers
Tax ID 6054-47-297532
JUDSON STREET
UNION STREET
46
45
44
43
61
62
59
60
LOT E1
LOT E2
S-B
S56°47'10"E 150.00'
N33°13'50"E 81.20'
N56°47'10"W 150.00'
S33°13'50"W 81.20'
Mag Nail Set
Pipe & Cap Set
Proposed Monument
Proposed Required 25'
Existing Building
Shed
Stone Fence
Chain Link Fence
Asphalt Walk
Asphalt Driveway
Wood Fence
Utility Pole
Guy Wire
Water Valve
Drainage Manhole
Sewer Manhole
Catch Basin
Hydrant
Gas Valve
Gas Meter
Electric Meter
Electric Transformer
Telephone Pedestal
Cable TV Pedestal
Electric Pedestal
Light Pole
Flood Light
Sign
Bollard
Tree
Shrub
Deciduous Tree
Coniferous Tree
Hedge
Top of Bank
Toe of Slope
Edge of Pavement
Edge of Gravel
Edge of Concrete
Edge of Grass
Edge of Brush
Edge of Woods
Tree Line
Fence Line
Property Line
Adjoining Property Line
Right of Way Line
Centerline
Existing Contour
Proposed Contour
Spot Elevation
Flow Direction
Existing Catch Basin
Proposed Catch Basin
Existing Drainage Manhole
Proposed Drainage Manhole
Existing Sewer Manhole
Proposed Sewer Manhole
Existing Hydrant
Proposed Hydrant
Existing Water Valve
Proposed Water Valve
Existing Gas Valve
Proposed Gas Valve
Existing Utility Pole
Proposed Utility Pole
Existing Light Pole
Proposed Light Pole
Existing Guy Wire
Proposed Guy Wire
Existing Sign
Proposed Sign
Existing Bollard
Proposed Bollard
Existing Tree
Proposed Tree
Existing Shrub
Proposed Shrub
Existing Deciduous Tree
Proposed Deciduous Tree
Existing Coniferous Tree
Proposed Coniferous Tree
Existing Hedge
Proposed Hedge
Existing Top of Bank
Proposed Top of Bank
Existing Toe of Slope
Proposed Toe of Slope
Existing Edge of Pavement
Proposed Edge of Pavement
Existing Edge of Gravel
Proposed Edge of Gravel
Existing Edge of Concrete
Proposed Edge of Concrete
Existing Edge of Grass
Proposed Edge of Grass
Existing Edge of Brush
Proposed Edge of Brush
Existing Edge of Woods
Proposed Edge of Woods
Existing Tree Line
Proposed Tree Line
Existing Fence Line
Proposed Fence Line
Existing Property Line
Proposed Property Line
Existing Adjoining Property Line
Proposed Adjoining Property Line
Existing Right of Way Line
Proposed Right of Way Line
Existing Centerline
Proposed Centerline
Existing Contour
Proposed Contour
Existing Spot Elevation
Proposed Spot Elevation
Existing Flow Direction
Proposed Flow Direction
STABILIZED CONST. ENTRANCE
TREE TO BE REMOVED
TO BE REMOVED
GUY TO BE RELOCATED
POLE TO BE RELOCATED
F.K.A. PARK STREET
CONCRETE WASHOUT STATION
TEMPORARY SILT FENCE
TEMP. ORANGE CONST. FENCE
SOIL STOCKPILE
BENCHMARK
T-CUT ON HYDRANT
ELEV. 224.73
See map entitled "Subdivision of Property of Rae D. Rogers" which was filed in Dutchess County Clerk's office on December 4, 1941 as Map No. 8207
Document Liber 2230 Page 1172
Parcel 1 Filed Map No. 8207
Parcel 2 Liber 1135 Page 374 Filed Map No. 8207
Parcel ID 6054-47-302541
Parcel ID 6054-47-297532
Parcel ID 6054-47-280548
Parcel ID 6054-47-285558
Parcel ID 6054-47-280532
Parcel ID 6054-47-277547
Parcel ID 6054-47-275543
Parcel ID 6054-47-276527
Parcel ID 6054-47-284522
Assessed Owners
Asphalt
Concrete
Gravel
Stone
Brick
Wood
Grass
Brush
Woods
Water
Rock
Sand
Soil
Pipe & Cap Set
Pipe & Cap Found
Rebar & Cap Set
Rebar & Cap Found
Mag Nail Found
Rebar Found
Pipe Found
Concrete Monument Found
Concrete Monument Set
Iron Pin Found
Iron Pin Set
Drill Hole Found
Drill Hole Set
Chiseled X Found
Chiseled X Set
Railroad Spike Found
Railroad Spike Set
Stone Bound Found
Stone Bound Set
Survey Marker Found
Survey Marker Set
Monument Found
Monument Set
Point of Curvature
Point of Tangency
Point of Reverse Curvature
Point of Compound Curvature
Point of Intersection
Point of Beginning
Point of Commencement
Point of Ending
Point of Termination
Point of Origin
Point of Reference
Point of Intersection

GEOGRAPHIC INDEX 41-29-49.3 -73-57-26.7

579

LOCATION MAP SCALE: 1 in. = 2000 ft.


SITE
Beacon
Fishkill
Wappinger
Hopewell Junction
Wappingers Falls
Poughkeepsie
Newburgh
Matteawan
Glenham
Fishkill Creek
Wiccopee Pond
Mount Beacon
North Beacon Mtn.
Breakneck Ridge
Dutchess Quarry
Cemetery
Dutchess Quarry
Caves
Brook
Stony Kill
Creek
Fishkill Ridge
Scenic Hudson Park at Long Dock
Long Dock
St Joachims Cem
St Joachims Cem
Dutchess Quarry
Caves
Dutchess Quarry
Cemetery
Dutchess Quarry
Caves
Stony Kill
Creek
Fishkill Ridge
Scenic Hudson
Beacon Sloop
Club
Dutchess Quarry
Caves
Dutchess Quarry
Cemetery
Dutchess Quarry
Caves
Dutchess Quarry
Caves
Dutchess Quarry
Caves

June 2, 2022

John Gunn, Chair
Beacon Planning Board
1 Municipal Plaza
Beacon, NY 12508

BADEY & WATSON
Surveying & Engineering, D.P.C.

Application of 46 Judson Street, LLC – Submission of Revised Materials

Dear Mr. Gunn and Members of the Planning Board:

This letter should have accompanied the 5 sets of prints for the captioned application. We apologize for omitting it. The sets that were submitted on May 31, included the following 4 sheets for the captioned project:

1. Preliminary Subdivision;
2. Improvement Plan;
3. Erosion & Sediment Control Plan; and
4. Detail Sheet.

The plans, which were revised in several ways included responses to both Mr. Russo's and Mr. Clarke's comments in their letter reports of May 6, 2022. Following are brief comments on how the revised plans responded to your consultants.

As to Mr. Russo's Comments:

General

1. Improvement Plan sheets have been renumbered
2. Bulk Tables of been completed
3. Inflow Analysis is being planned, but has not been completed
4. The Concrete Pad on Lot 2 is to be removed
5. An Erosion and Control Plan has been added to the Plan Set.

Preliminary Plat

1. A Sight Easement at the street intersection has been added to the Plat.

Improvement Plan

2. Judson Street water main size and material have been noted on the plan.
3. Judson Street sewer main size and material have been noted on the plan.
4. Garage floor and first floor elevations have been added to the plan.
5. The lowest "sewerable" elevation has been added to the plan.
6. Roof leaders have been added to the plan.
7. The "Proposed Drainage" box has been removed. Additionally, more complete drainage information has been added to the plan.
8. Sewer lateral connection has been shown in the profile.
9. The water service curb stop has been added to the plan.
10. Walks, stairs, etc. have been added to the plan.
11. The front porch has changed, but it is still located in front of the 15-foot setback. However, based on Section 223-16K of the Zoning Code we believe the location is

compliant. The alternate front setback has been added to the plan along with the setbacks of other house along Judson Street to demonstrate compliance.

12. The house will have a basement, the basement floor elevation has been added to the plan.
13. Proposed grading has been added to the plan. It shows the required downward grading away from the proposed house.
14. The driveway has been relocated away from the property line.

.

Detail Plans

1. A note has been added to the Sewer Main/Sewer Service Trench Detail specifying the backfill material with in the City Street right-of-way shall be NYSDOT Item 304.12, Type 2 Item 4.
2. An Asphalt Pavement Detail does appear on the Detail Sheet.
3. The Typical Water Service Connection detail was corrected to specify a ¾ inch service line.
4. Another Water Service Connection Detail has been added to the plan to provide clarification and identify that the Mueller BR1B0684075 Bronze Tapping Saddle is to be used.
5. Notes have been added to the water service connection details to require that the corporation valve and the curb stop valve shall be Mueller compression valves.
6. We spoke with the City of Beacon Sewer & Water Department and were advised that there is no specific make and model preference for the tapping saddle connection.
7. The Storm Drainage Trench Detail is for the underdrains that have since been added to the plan.

As to Mr. Clarke's comments:

1. The zoning requirements table has been revised to document compliance.
2. The driveway has been repositioned to conform with the 5-foot setback requirement.
3. The client has stated its willingness to add the one or two trees that Mr. Clarke suggested to the plan. We await further advice.

We trust that these comments will be helpful during your continued review. Thank you.

Yours truly,

BADEY & WATSON
Surveying & Engineering, D.P.C.

By
Glennon J. Watson, L.S.

Cc: John Russo, PE
John Clarke, Planner

John Clarke Planning and Design jclarkeplandesign@gmail.com
845.797.4152

To: John Gunn, Chair, and the City of Beacon Planning Board
Date: June 10, 2022
Re: **46 Judson Street Subdivision**

I have reviewed the June 2, 2022 response letter from Badey & Watson, May 31, 2022 Preliminary Plat, and a 3-sheet Preliminary Subdivision Plan set, dated May 31, 2022.

Proposal

The applicant is proposing to subdivide a 15,000 square foot parcel with one existing house into two lots for the construction of an additional house. Parcel E1 would have 8,120 square feet and Parcel E2 would have 6,880 square feet. The proposed parcels are in the R1-5 zoning district.

Comments and Recommendations

1. Section 223-26 C(1) states that no off-street parking facility shall be developed in any front yard. The proposed garage location on the front corner of the new house with a parking pad out front is inconsistent with most other houses along Judson Street, which have side driveways or garages set back from the front of the house. Combined with the all-asphalt front yard on Lot E1, the proposed double-wide driveway frontage would also add to any street drainage issues. If the house was located towards Union Street, as originally proposed, the garage could be set back from the front of the house by 20 feet and the driveway narrowed to 10 feet at the front property line. This would emphasize the house over the parking pad and garage and create a more attractive landscaped frontage.

2. I recommend at least one deciduous street tree be planted along the Judson Street property line to replace the large tree to be removed.

If you have any questions or need additional information, please feel free to contact me.

John Clarke, Beacon Planning Consultant

c: Dave Buckley, Building Inspector
Jennifer L. Gray, Esq., City Attorney
Arthur R. Tully, P.E., City Engineer
John Russo, P.E., City Engineer
Glenn Watson, L.S., Badey & Watson Surveying and Engineering, D.P.C.

LANC & TULLY

ENGINEERING AND SURVEYING, P.C.

John J. O'Rourke, P.E., Principal
David E. Higgins, P.E., Principal
John Queenan, P.E., Principal
Rodney C. Knowlton, L.S., Principal
Jerry A. Woods, L.S., Principal
John D. Russo, P.E., Principal
John Lanc, P.E., L.S.
Arthur R. Tully, P.E.

June 8, 2022

Mr. John Gunn
Beacon Planning Board Chair
City of Beacon
1 Municipal Plaza
Beacon, NY 12508

RE: 46 Judson St. – 2 Lot Subdivision
Tax No. 6054-21-028928
City of Beacon

Dear Mr. Gunn:

My office has received the following in regard to a 2-lot subdivision of the parcel located at 46 Judson Street:

- Correspondence from Badey & Watson dated June 2, 2022.
- Plan titled "Preliminary Plat prepared for 46 Judson Street LLC", with the latest revision date of May 31, 2022.
- Plan set titled "46 Judson Street LLC", consisting of the following plans as prepared by Badey & Watson.
  - Sheet 1 of 3 titled "Improvement Plan", with latest revision date of May 31, 2022.
  - Sheet 2 of 3 titled "Erosion & Sediment Control Plan", with the latest revision date of May 31, 2022.
  - Sheet 3 of 3 titled "Details", with the latest revision date of May 31, 2022.

The proposed project entails the subdivision of a 15,000 square foot parcel located at 46 Judson Street into 2 lots, with proposed Lot 1 being 8,120 square feet in size with an existing single-family residence, and proposed Lot 2 being 6,880 square feet in size to allow for the construction of an additional single-family residence. The project is located in the R1-5 Zone. Based on our review of the above plans, we would like to offer the following comments:

General Comments:

1. The applicant's consultant should conduct an Inflow & Infiltration study of the existing site and building and provide certification to the City of Beacon that the site currently has no illegal cross-connections between the existing site and the City's sanitary sewer system. Possible cross-connections that should

be looked at would be roof-leaders, sump pumps, existing site drains, etc. If any cross-connections are found, a report should be submitted as to the findings, the volume of I&I being introduced into the sanitary sewer collection system, and the proposed remediation for the cross-connection(s) found. The plans should also clearly show the proposed remediation as outlined in the report. A note should also be added to the plans granting the City of Beacon Building Department access to verify where the existing roof leaders and sump pump(s), if present, drain to.

Preliminary Plat:

1. Although the existing frame shed located behind the garage meets current setbacks for an accessory structure, the shed will not comply with the minimum accessory setback of 5 feet to a side-yard based upon the proposed subdivision. The applicant should either move the shed to ensure the minimum setback from the side-yard is achieved or seek a Zoning Variance.

2. The 6.6-foot measurement provided in the Bulk Table for Lot E1 under existing should be revised to reflect an actual measurement of 5.9 feet, as this is the minimum accessory measurement shown on the plan for the shed located behind the house.

3. The existing and proposed measurement of 8.9 feet for the existing front yard setback on Lot E1 in the Bulk Table should be revised to reflect 8.8 feet as indicated on the north side of the porch on the plan.

4. The proposed grading shown on the plat should be removed.

Improvement Plan (Sheet 1 of 3):

1. The existing and proposed topographic lines are hard to distinguish between. The line weight for one or the other should be revised so that it is easy to distinguish between proposed and existing.

2. Based upon the City's sewer mapping and manhole inspections that were performed in the past, the sewer line running along Judson Street is 8" clay pipe. The plan shall be revised to reflect the accurate size of the pipe. The profile shall also be adjusted as it notes the sewer line to be 12" in size.

3. A note on the rear of the house states that the footing drains are to drain at 0.5% minimum and pitch to daylight. As the basement floor elevation is proposed at 221.2, it is unclear how the footing drains will drain to daylight. This should be looked at further by the applicant's engineer.

4. It appears that there are 2 underdrains running from the west side of the proposed residence to rain gardens and also towards the catch basin at the intersection. Very little information is provided with regards to this proposed drainage system. Additional information shall be provided as to what water is being conveyed to the rain gardens, the size and pipe material of the underdrains, the invert elevations of the pipes, sizing of the rain gardens, construction details for the rain gardens, and landscaping for the gardens. With regards to the rain gardens, the NYSDEC Stormwater Design Manual states "A single rain garden system should be designed to receive sheet flow runoff or shallow contracted flow from an impervious area or from a roof drain downspout with a total contributing drainage area equal to or less than 1,000 square feet. Treatment of larger drainage areas should incorporate the design elements of bioretention practices. Because the system works by filtration through a planting media, runoff must enter at the surface."

5. If the drainage system is to be connected to the City's storm drainage basin, then the plan shall show and call this out, and shall provide an invert elevation of the pipe into the catch basin.

6. The proposed sewer service lateral is noted as being 6" in diameter. A typical residential house sewer lateral is only 4" in diameter. Is there a need for the larger sewer lateral size? If not, then the size of the lateral should be revised to a 4" diameter pipe.

7. We would recommend spot elevations be provided along the rear yard to show a 6" elevation drop between the rear of the house, which is at 226, and the 226-contour line located 11 feet off the rear of the house. Grading should be done in such a way that this lowered area is free draining around the house.

8. Consideration should be given to planting trees along the north side of the proposed Lot E2, to provide for some privacy between the two parcels.

9. An additional note shall be added to the plan stating, "Prior to any work occurring withing the City's right-of-way, all necessary permits shall be obtained from the Beacon Highway Department and Beacon Water & Sewer Department."

10. All erosion and sediment control to be employed on the site during the construction of the project shall be shown on the plan, or an individual plan sheet prepared to

Details Plan:

1. The "Asphalt Pavement" detail shall be revised to reflect 4" of Type 3 binder in place of the Type 2 base course noted.

2. The sanitary sewer and water line trench details shall be revised to note that backfill within the City's road right-of-way shall be NYSDOT Item 304.12, Type 2 - Item 4, for the entire trench depth, compacted in 6" lifts to 95% modified proctor.

3. A pavement construction detail shall be added for the proposed driveway on Lot 2.

4. A House Sewer Connection detail shall be to show how the proposed sewer lateral will be connected to the existing sewer main. This would also include providing the make and model of the saddle that will be required for the connection.

This completes our review at this time. Further comments may be provided based on future submissions. **A written response letter addressing each of the above comments should be provided with the next submission.** If you have any questions, or require any additional information, please do not hesitate to contact our office.

Very truly,

LANC & TULLY, P.C.

John Russo, P.E.

cc: John Clarke, Planner
Jennifer Gray, Esq.
David Buckley, Building Inspector

City of Beacon Planning Board Agenda
06/14/2022

Title:

Continue review of application for Special Use Permit and Site Plan Approval, Mirbeau Inn and Spa at Howland Estate, 7 Craig House Lane, submitted by the Mirbeau Companies

ATTACHMENTS

Mirbeau Application for Subdivision Approval.pdf

Traffic Comments Mirbeau.pdf

Mirbeau Comment Response.pdf

MirbeauBeaconColliersParking.pdf

MirbeauBeaconEAFAmendPage2.pdf

MirbeauBeaconTMCFinalSubdivisionSubMay262022.pdf

MIrbeauBeaconTMCFinalSUPSubmittalMay26.pdf

MirbeauBeacon_SpecialUseSitePlanReview_Architectural.pdf

Mirbeau Traffic Study.pdf

MirbeauBeaconTMCResponseJClarkeCommentsMay252022.pdf

Mirbeau HLD Response Letter.pdf

Preliminary SWPPP Mirbeau.pdf

Preliminary Water-Sewer Engineering Report Mirbeau.pdf

1 OF 1-SITE PLAN SET_MIRBEAU-SUBDIVISION PLAT.pdf

1-SITE PLAN SET_MIRBEAU-COVER SHEET.pdf

2-SITE PLAN SET_MIRBEAU-EXISTING CONDITIONS PLAN.pdf

3-SITE PLAN SET_MIRBEAU-OVERALL MASTER PLAN.pdf

4-SITE PLAN SET_MIRBEAU-SITE PLAN 1.pdf

5-SITE PLAN SET_MIRBEAU-SITE PLAN 2.pdf

6-SITE PLAN SET_MIRBEAU-SITE PLAN 3.pdf

7-SITE PLAN SET_MIRBEAU-GRADING & UTILITY 1.pdf

8-SITE PLAN SET_MIRBEAU-GRADING & UTILITY 2.pdf

9-SITE PLAN SET_MIRBEAU-GRADING & UTILITY 3.pdf

10-SITE PLAN SET_MIRBEAU-E&SC 1.pdf

11-SITE PLAN SET_MIRBEAU-E&SC 2.pdf

12-SITE PLAN SET_MIRBEAU-PROFILES 1.pdf

13-SITE PLAN SET_MIRBEAU-PROFILES 2.pdf

14-SITE PLAN SET_MIRBEAU-PROFILES 3.pdf

15-SITE PLAN SET_MIRBEAU-PROFILES 4.pdf

16-SITE PLAN SET_MIRBEAU-DETAILS 1.pdf

17-SITE PLAN SET_MIRBEAU-DETAILS 2.pdf

18-SITE PLAN SET_MIRBEAU-DETAILS 3.pdf

19-SITE PLAN SET_MIRBEAU-DETAILS 4.pdf

20-SITE PLAN SET_MIRBEAU-TREE REMOVAL & PROTECTION NORTH.pdf

21-SITE PLAN SET_MIRBEAU-TREE REMOVAL & PROTECTION SOUTH.pdf

22-SITE PLAN SET_MIRBEAU-PLANTING PLAN NORTH.pdf

23-SITE PLAN SET_MIRBEAU-PLANTING PLAN SOUTHEAST.pdf

24-SITE PLAN SET_MIRBEAU-PLANTING PLAN SOUTHWEST.pdf

25-SITE PLAN SET_MIRBEAU-PLANTING PLAN NORTH-20.pdf

26-SITE PLAN SET_MIRBEAU-PLANTING PLAN SOUTHWEST-20.pdf

27-SITE PLAN SET_MIRBEAU-LIGHTING PLAN NORTH.pdf

28-SITE PLAN SET_MIRBEAU-LIGHTING PLAN SOUTHEAST.pdf

Tioronda HAA 2016.pdf

Planners Comments PB MIrbeau 6.10.22.pdf

Traffic Comments Mirbeau_Rev 2.pdf

Engineers Comments Mirbeau Spa Review 06-10-22.pdf

DOT Response to Lead Agency Letter.pdf

APPLICATION FOR SUBDIVISION APPROVAL

Submit to Planning Board Secretary, One Municipal Plaza, Suite One, Beacon, New York 12508

IDENTIFICATION OF APPLICANT

Name: Mirbeau of Beacon LLC

Address: 433 Broadway STE 203
Saratoga Springs, NY 12866

Signature: [signature]

Date: 5/31/22

Phone: 315-217-4164

(For Official Use Only)

	Date	Initials
Preliminary Application Rec'd		
Application Fee:		
Public Hearing		
Preliminary Plat Approved:		
Final Plat Approved:		
Recreation Fee:		
Performance Bond:		

IDENTIFICATION OF REPRESENTATIVE / DESIGN PRFESSIONAL

Name: Hudson Land Design

Address: 174 Main Street
Beacon, NY 12508

Phone: 845-440-6926

Fax:

Email address: mbodendorf@hudsonlanddesign.com

IDENTIFICATION OF SUBJECT PROPERTY:

Subdivision name or identifying title:
Mirbeau Inn & Spa Beacon - 7 Craig House Lane

Street which property abuts: Grandview Avenue

Current Tax Map Designation: Section 6054-13-001258 Block _____ Lot(s) _____

Property (does) (does not) connect directly into a (State) (County) highway.

Land in subdivision (is) (is not) within 500 feet of a Municipal boundary.

Total area of property is 7.13 acres / 301,656 sf

ITEMS TO ACCOMPANY THIS APPLICATION

a. One electronic and five (5) **folded** copies of a subdivision plat showing the location of the subject property and the proposed development with respect to neighboring properties and developments.

b. An application fee, payable to the City of Beacon, computed per the attached fee schedule.

c. An initial escrow amount, payable to the City of Beacon, as set forth in the attached fee schedule.

APPLICATION FEES

Site Plan	**Residential** $500 + $250 per dwelling unit **Commercial** $500 + $250 per 1,000 s.f.
Special Use Permit	**Residential** $500 + $250 per dwelling unit **Commercial** $500 + $250 per 1,000 s.f.
Subdivision	$ 750 for 2-4 lots + $100 per lot $1,000 for 5 or more lots + $300 per lot
Zoning Board of Appeals	Use Variance $500 Area Variance $250 Interpretation $250

ESCROW FEES

ALL SUBDIVISIONS, AND RESIDENTIAL SITE PLAN AND SUP APPLICATIONS

No. of Lots or Dwelling Units	Initial Deposit	Depleted to	Replenishment
1-5 (including lot-line realignment)	$ 2,500	$ 1,000	Current bills + $1,000
6-15	$ 7,500	$ 2,500	Current bills + $1,000
Over 15	$ 15,000	$ 5,000	Current bills + $5,000

NON-RESIDENTIAL SITE PLAN AND SUP APPLICATIONS

	Initial Deposit	Depleted to	Replenishment
Existing Buildings/Change of Use with no site development	$ 1,500	$ 1,000	Current bills + $500
Up to 3,000 s.f. gross floor area	$ 2,500	$ 1,000	Current bills + $1,000
3,000 to 10,000 s.f. gross floor area	$ 2,500 + $0.50 per sq.ft. over 3,000	$ 2,500	Current bills + $2,500
Over 10,000 s.f. gross floor area	$ 7,500 + $0.50 per sq.ft. over 10,000	$ 2,500	Current bills + $2,500

ZONING

* *if required by Chairman*	Initial Deposit	Depleted to	Replenishment
Use Variance*	$ 1,000	$500	Current bills + $500
Area Variance*	$ 1,000	$500	Current bills + $500
Interpretation*	$ 1,000	$500	Current bills + $500

ARCHITECTURAL REVIEW OR CERTIFICATE OF APPROPRIATENESS ***(if not currently before PB)***

* *if required by Chairman*	Initial Deposit	Depleted to	Replenishment
Single Family House*	$500	$250	Current bills + $250
All others*	$500	$250	Current bills + $250

APPLICATION PROCESSING RESTRICTION LAW

Affidavit of Property Owner

Property Owner: Mirbeau of Beacon LLC

If owned by a corporation, partnership or organization, please list names of persons holding over 5% interest.
The Mirbeau Companies LLC

List all properties in the City of Beacon that you hold a 5% interest in:
7 Craig House Lane, 668 Wolcott Avenue

Applicant Address: 433 Broadway STE 203, Saratoga Springs, NY 12866

Project Address: 7 Craig House Lane, Beacon, NY 12508

Project Tax Grid # 6054-13-001258

Type of Application Subdivision

Please note that the property owner is the applicant. "Applicant" is defined as any individual who owns at least five percent (5%) interest in a corporation or partnership or other business.

I, Mirbeau of Beacon, by Jonathan Dal Pos, the undersigned owner of the above referenced property, hereby affirm that I have reviewed my records and verify that the following information is true.

1. No violations are pending for ANY parcel owned by me situated within the City of Beacon — YES
2. Violations are pending on a parcel or parcels owned by me situated within the City of Beacon — NO
3. ALL tax payments due to the City of Beacon are current — YES
4. Tax delinquencies exist on a parcel or parcels owned by me within the City of Beacon — NO
5. Special Assessments are outstanding on a parcel or parcels owned by me in the City of Beacon — NO
6. ALL Special Assessments due to the City of Beacon on any parcel owned by me are current — YES

Signature of Owner

LLC Member, The Mirbeau Companies LLC

Title if owner is corporation

Office Use Only:	NO	YES	Initial
Applicant has violations pending for ANY parcel owned within the City of Beacon (Building Dept.)	___	___	_____
ALL taxes are current for properties in the City of Beacon are current (Tax Dept.)	___	___	_____
ALL Special Assessments, i.e. water, sewer, fines, etc. are current (Water Billing)	___	___	_____

CITY OF BEACON
PRELIMINARY SUBDIVISION PLAT
AND CONSTRUCTION PLANS SPECIFICATION FORM

Name of Application: Mirbeau Inn & Spa Beacon

PRELIMINARY SUBDIVISION PLAT	YES	NO
The preliminary plat shall be clearly marked "Preliminary Plat", shall be drawn to a convenient scale but not less than 1" = 100', and shall contain the following information:	✓	
Proposed subdivision name or identifying title, name, and address of property owner and subdivider (if other than owner), name and address of the surveyor and/or engineer preparing the plan, scale, approximate true North point, and date.	✓	
The approximate location and dimensions of all property lines, the total acreage of the proposed subdivision, the location of any zoning, special district or municipal boundary lines affecting the subdivision, and the names of owners of record of properties adjoining and directly across the street from proposed subdivision.	✓	
The location of all existing structures and pertinent features, including railroads, water bodies, water courses, wetlands, rock outcroppings, wooded areas, major trees, and stone walls, that may influence the design of the subdivision, plus accurate topography at a vertical contour interval of not more than two (2) feet. The topographic data shall be determined by field survey unless the Planning Board specifically waives this requirement and/or permits the substitution of topographic information obtained from other sources determined satisfactory for the particular case.	✓	
The location and status of existing streets or private roads, easements and rights-of-way (if any), proposals for the layout of new streets or private roads (including widths and approximate curve radii) and any proposed easements, rights-of-way and/or reservations.	✓	
The names of existing streets or private roads and proposed names for new streets or private roads.	✓	
The proposed arrangement of lots, including identifying numbers and approximate area and dimensions of each.	✓	
Location, size and nature of any area proposed to be reserved for park purposes.	N/A	
A site location sketch, at a scale of one inch equals 400 feet, showing the general situation within 1,000 feet of the applicant's property with respect to surrounding properties, streets and private roads.	✓	
Where the preliminary plat includes only a portion of an applicant's contiguous holding, the applicant shall also indicate, on a sketch at a scale of not less than one inch equals 200 feet, the probable future street or private road system, lot arrangement and location of park and other reservations for the remaining portion of the tract. Such sketch shall be for the purpose of guiding the Planning Board in reviewing the proposed preliminary plat and shall include topographic data with a vertical contour interval of not more than five feet plus any other information determined necessary by the Planning Board.	N/A	
Such additional information as may be required by Chapter 195 – Subdivision of Land; Chapter 223 – Zoning; or the Planning Board.	✓	

PRELIMINARY CONSTRUCTION PLANS	YES	NO
The preliminary construction plans shall be drawn at the same scale as the preliminary plat and shall include the following information:		
Location and sizes of any existing water, sewer storm drainage and other utility lines and structures within and nearby the proposed subdivision.		
The proposed system for the provision of water supply and fire protection facilities, sewage disposal, stormwater drainage, and other utility services.		
Proposed street or private road profiles and cross-sections showing the approximate grade of proposed streets or private roads, the relationship of existing to proposed grades, and the proposed grades, and the proposed vertical curvature along the center line of all new streets or private roads.		
Location of all existing and proposed monuments and other subdivision improvements.		
Such additional information as may be required by this chapter, the Zoning chapter, or the Planning Board.		

CITY OF BEACON
FINAL SUBDIVISION PLAT
AND CONSTRUCTION PLANS SPECIFICATION FORM

Name of Application: Mirbeau Inn & Spa Beacon

FINAL SUBDIVISION PLAT	**YES**	**NO**
The final subdivision plat shall be drawn clearly and legibly on transparent tracing cloth with black waterproof ink, at a scale no smaller than one inch equals 100 feet but preferably at a scale of one inch equals 50 feet. The sheet size shall not exceed 36 inches by 48 inches. If the size of proposed subdivision required a drawing larger than this, two or more sheets may be submitted, with match lines clearly indicated, and an index map shall be prepared on the same size sheet.		
The final plat shall contain the following information:		
Proposed subdivision name or identifying title, name, and address of owner of record and of subdivider (if other than owner), certification and seal of the registered engineer or licensed land surveyor who prepared the plat, names of the owners of record of adjoining properties and of properties directly across the street or private road, graphic scale, approximate true North point, and date.		
The location and dimensions of all boundary lines of the proposed subdivision, and all existing and proposed streets, private roads, lot lines, easements and rights-of-way, with sufficient data to readily determine the location, bearing and length of all such lines and to reproduce such lines upon the ground.		
The names of all existing and proposed streets and private roads.		
The locations of all water bodies and watercourses.		
The location of all existing buildings, including identification of all buildings to be removed as a condition of plat approval.		
The total acreage included in the entire subdivision, and the identification number and acreage of all lots and land reservations within the proposed subdivision.		
Location of all existing and proposed monuments.		
A site location map, at a scale of one inch equals 400 feet, showing the location of the subject property with respect to neighboring properties, streets and private roads.		
Notations explaining any drainage, sight slope, street widening, park area or other reservations or easements, including any self-imposed restrictions or covenants.		
Endorsement of approval by the Dutchess County Health Department.		
Plan for the provisional delivery of mail, as approved by the local postmaster.		
Endorsement of the owner as follows: "Approved for filing: _____ _____" Owner Date		

FINAL SUBDIVISION PLAT *(continued)*	YES	NO
Form for endorsement by Planning Board Chairman as follows: "Approved by Resolution of the Planning Board of the City of Beacon, New York, on the _____ day of _____, 20_____, subject to All requirements and conditions of said Resolution. Any change, erasure, modification or revision of this plat, as approved, shall void this approval. Signed this _____ day of _____, 20_____, by _____, Chairman _____, Secretary In absence of the Chairman or Secretary, the Acting Chairman or Acting Secretary Respectively may sign in this place.		
Such additional information as may be required by Chapter 195 – Subdivision of Land; Chapter 223 – Zoning; or the Planning Board.		
Stormwater pollution prevention plan. A stormwater pollution prevention plan consistent with the requirements of Chapter 190 and with the terms of preliminary plan approval shall be required for final subdivision plat approval. The SWPPP shall meet the performance and design criteria and standards in Chapter 190, Article II. The approved final subdivision plat shall be consistent with the provisions of Chapter 190.		

FINAL CONSTRUCTION PLANS	YES	NO
Final construction plans and profiles shall be prepared for all proposed streets, private roads and other required improvements. Plans shall be drawn at the same scale as the final plat and on the same size sheets, but not on the same sheets. The following information shall be shown:		
Plans and profiles showing the location and a typical cross-section of street and/or private road pavements including curbs and gutters, sidewalks, manholes and catch basins; the location of street or private road trees, lighting and signs; the location, size and invert elevations of existing and proposed sanitary sewers, stormwater drains and fire hydrants; the location and size of all water, gas or other underground utilities or structures; and the location and design of any other required improvements.		
Profiles showing existing and proposed elevations along the center line of all streets and private roads. Where a proposed street or private road intersects an existing street or private road, the elevation along the center line of the existing street or private road within 100 feet of intersection, shall be shown. All elevations must be referred to established U.S. Government of approved local benchmarks, where they exist within ½ mile of the boundary of the subdivision.		
The Planning Board may require, where steep slopes exist, cross-sections showing existing and proposed elevations of all new streets and private roads every 100 feet at five points on a line at right angles to the center line of the street or private road, said elevation points to be at the center line of the street or private road, each property line, and points 30 feet inside each property line.		
Location, size, elevation and other appropriate description of any existing facilities which will be connected to proposed facilities and utilities within the subdivision.		

FINAL CONSTRUCTION PLANS ***(continued)***		
Where the design of the subdivision requires the regarding of land, the regarding of land, the regraded contours shall be shown along with estimates of the quantity of material to be added or removed and the proposed measures to be implemented by the subdivider to rehabilitate the disturbed area or areas.		
Title of all sheets, name, address, signature and seal of licensed engineer preparing the construction plans, the date prepared, including revisions dates if any, approximate true North point, scale, and consecutive numbering as sheet _____ of _____.		
A notation of approval, on all sheets as follows "Approved by: _____ _____ Owner Date and _____ _____ Planning Board Chairman Date"		
Such additional information as may be required by Chapter 195 – Subdivision of Land; Chapter 223 – Zoning; or the Planning Board.		

For all items marked "NO" above, please explain below why the required information has not been provided:

_____

_____

_____

_____

_____

_____

Applicant/Sponsor Name: Mirbeau of Beacon LLC

Signature: _____

Date: 5/31/22

FOR OFFICE USE ONLY
Application #

CITY OF BEACON

1 Municipal Plaza, Beacon, NY

Telephone (845) 838-5000 • http://cityofbeacon.org/

ENTITY DISCLOSURE FORM

(This form must accompany every land use application and every application for a building permit or certificate of occupancy submitted by any person(s))

Disclosure of the names and addresses of all persons or entities owning any interest or controlling position of any Limited Liability Company, Partnership, Limited Partnership, Joint Venture, Corporation or other business entity (hereinafter referred to as the "Entity") filing a land-use application with the City is required pursuant to Section 223-62 of the City Code of the City of Beacon. Applicants shall submit supplemental sheets for any additional information that does not fit within the below sections, identifying the Section being supplemented.

SECTION A

Name of Applicant: Mirbeau of Beacon LLC

Address of Applicant: 433 Broadway STE 203, Saratoga Springs, NY 12866

Telephone Contact Information: 315-217-4164 (Jonathan Dal Pos)

SECTION B. List all owners of record of the subject property or any part thereof.

Name	**Residence or Business Address**	**Telephone Number**	**Date and Manner title was acquired**	**Date and place where the deed or document of conveyance was recorded or filed.**
The Mirbeau Companies LLC	433 Broadway STE 203, Saratoga Springs, NY 12866	315-217-4164	Purchase, February 18, 2022	Dutchess County Clerk, Feb. 2022

SECTION B. Is any owner of record an officer, elected or appointed, or employee of the City of Beacon or related, by marriage or otherwise, to a City Council member, planning board member, zoning board of appeals member or employee of the City of Beacon ?

☐ **YES** ☒ **NO**

If yes, list every Board, Department, Office, agency or other position with the City of Beacon with which a party has a position, unpaid or paid, or relationship and identify the agency, title, and date of hire.

Agency	**Title**	**Date of Hire, Date Elected, or Date Appointed**	**Position or Nature of Relationship**

SECTION C. If the applicant is a contract vendee, a duplicate original or photocopy of the full and complete contract of purchase, including all riders, modification and amendments thereto, shall be submitted with the application.

SECTION D. Have the present owners entered into a contract for the sale of all or any part of the subject property and, if in the affirmative, please provide a duplicate original or photocopy of the fully and complete contract of sale, including all riders, modifications and amendments thereto.

☐ **YES** ☒ **NO**

I, Jonathan Dal Pos being first duly sworn, according to law, deposes and says that the statements made herein are true, accurate, and complete.

(Print) Jonathan Dal Pos

(Signature) 

B. Government Approvals

B. Government Approvals, Funding, or Sponsorship. ("Funding" includes grants, loans, tax relief, and any other forms of financial assistance.)		
Government Entity	**If Yes: Identify Agency and Approval(s) Required**	**Application Date (Actual or projected)**
a. City Counsel, Town Board, or Village Board of Trustees ☐Yes☑No		
b. City, Town or Village Planning Board or Commission ☑Yes☐No	City of Beacon Planning Board - Subdivision, Site plan, Special Use Permit and Certificate of Appropriateness.	3/29/2022; Amended 5/25/2022
c. City, Town or Village Zoning Board of Appeals ☐Yes☑No		
d. Other local agencies ☑Yes☐No	Building Department - Building Permit	
e. County agencies ☑Yes☐No	DCDBCH approval for water and sewer; DC Planning GML 239m referral	4/12/2022 - Initial SEQR Circulation
f. Regional agencies ☐Yes☑No		
g. State agencies ☑Yes☐No	NYSDOT - Interested Agency; NYSDEC SPDES GP-0-020-001 for Construction Activities	4/12/2022 - initial SEQR Circulation
h. Federal agencies ☐Yes☑No		

i. Coastal Resources.
i. Is the project site within a Coastal Area, or the waterfront area of a Designated Inland Waterway? ☑Yes☐No

ii. Is the project site located in a community with an approved Local Waterfront Revitalization Program? ☑Yes☐No

iii. Is the project site within a Coastal Erosion Hazard Area? ☐Yes☑No

C. Planning and Zoning

C.1. Planning and zoning actions.

Will administrative or legislative adoption, or amendment of a plan, local law, ordinance, rule or regulation be the only approval(s) which must be granted to enable the proposed action to proceed? ☐Yes☑No

- **If Yes,** complete sections C, F and G.
- **If No,** proceed to question C.2 and complete all remaining sections and questions in Part 1

C.2. Adopted land use plans.

a. Do any municipally- adopted (city, town, village or county) comprehensive land use plan(s) include the site where the proposed action would be located? ☑Yes☐No

If Yes, does the comprehensive plan include specific recommendations for the site where the proposed action would be located? ☑Yes☐No

b. Is the site of the proposed action within any local or regional special planning district (for example: Greenway; Brownfield Opportunity Area (BOA); designated State or Federal heritage area; watershed management plan; or other?) ☑Yes☐No

If Yes, identify the plan(s):

Remediaton Sites:546031 Site is located near the Hudson River. The remediation site identified as 546031 is the Hudson River State Superfund for removal of PCBs.

c. Is the proposed action located wholly or partially within an area listed in an adopted municipal open space plan, or an adopted municipal farmland protection plan? ☐Yes☑No

If Yes, identify the plan(s):

May 10, 2022

Mr. John Gunn, Chairman
Beacon Planning Board
City of Beacon City Hall
1 Municipal Plaza
Beacon, NY 12508

RE: Site Plan, Traffic and Parking Study Review #1 for **Mirbeau Beacon**, 7 Craig House Lane, City of Beacon, Dutchess County, New York; CM Project No. 121-295

Dear Mr. Gunn:

Creighton Manning Engineering, LLP (CM) has reviewed the documents listed below in connection with the proposed Mirbeau Beacon development.

- Cover Letter, prepared by Berlandi Nussbaum & Reitzas LLP (BNR), dated March 29 ,2022
- Overall Master Plan, prepared by Hudson Land Design, dated March 29, 2021
- Traffic Impact Study, prepared by Colliers Engineering & Design, dated March 28, 2022

Based on the submitted documents the proposed development consists of 75 hotel rooms, 21 spa rooms, 110-seat restaurant, a maximum of 15 two-three bedroom rental cottages, a 500-square-foot farm store, and a space for tented events for a maximum of 100 attendees. The proposed development will be supported by a total of 272 paved parking spaces inclusive of 7 ADA-accessible parking spaces and an additional 49 spaces to be located on a reinforced grass area to be utilized for events. Access to the site will be provided via three driveways: (i)a full-movement driveway, which improves upon the existing northern driveway on NYS Route 9D that will include two egress lanes for exclusive left-turns and exclusive right-turns, (ii)a secondary "emergency only" access will be constructed south of the main intersection on NYS Route 9D, (iii)a full-movement driveway on Grandview Avenue.

Site Plan

1. Please provide travel lane widths of roadway segments and drive aisle widths in parking lots. It appears that the roadway connecting to the cottages in not wide enough to provide two-way travel.
2. The guiderail along the west side of the roadway connecting to the cottage should be repaired/replaced.
3. CM recommends that sidewalks or footpaths be provided between the cottages and the main building where the spa and restaurant will be located in order to reduce internal vehicle trips.

Traffic Impact & Parking Study

1. Please provide the NYSDOT ATR data used for comparison to the observed counts conducted by Colliers.
2. CM notes that the 2021 Existing volumes depicted on the traffic figures do not match the observed turning movement counts. Please provide an explanation on how the 2021 Existing volumes were adjusted based on comparisons to historic data.
3. CM notes that the report indicated the Friday PM peak to be 4:45PM-5:45PM. However, the turning movement counts conducted at the study intersection indicate that the peak hour typically between 2:45PM and 3:45PM (NYS Route 9D/Tioronda Ave and NYS Route 9D/Kristy Drive) and between 3:00PM and 4:00PM (NYS Route 9D/Howland Ave and NYS Route 9D/Grandview Ave). Please explain why the peak hour utilized in the report was utilized. If it was in error, please revise analyzed volumes.
4. Regarding the trip generation rates, CM agrees with the Colliers' utilization of observed counts from an operational Mirbeau facility in Rhinebeck, NY. CM notes that the ITE does provide data for a land use designated as "Resort Hotel" – LUC 330; however, the description for this use does not match the proposed use of this development as a resort hotel typically provides "a wide variety of recreational facilities/programs (e.g., golf courses, tennis courts, beach access, or other amenities)."

5. Can the applicant provide more details on the Farm Store component in regards to its clientele, products to be sold, hours of operation?
6. Regarding the number of rooms utilized in computing the trip generation of the development, CM notes that Colliers utilizes 80 rooms. However, based on the Cover Letter prepared by BNR, the proposed cottages will contain two to three rooms each and there could be maximum of 15 cottages. Assuming each cottage will be utilized by one family unit or party, CM recommends that that the trip generation be revised to account for 90 rooms or "keys" (4 mansion rooms + 8 grotto rooms + 63 spa/chateau rooms + 15 cottages).
7. Regarding the trip generation, CM agrees with Colliers' use of 2.75 for vehicle occupancy of event goers. Furthermore, the assumption that these 100 event goers will be separate from the trip generation of the other proposed uses within the development and that they with arrive and depart within one peak hour provides a conservative analysis of an event's traffic impact.
8. Please provide a sight distance analysis for the proposed driveway on Grandview Avenue.
9. The left-turn lane warrant analysis correctly indicates that a left-turn lane is warranted based on the suggested guidelines in the 2018 AASHTO "Greenbook." CM notes that the construction of the left-turn lane as well as the improved driveways will be subject to the review and approval from the New York State Department of Transportation (NYSDOT).
10. CM reviewed the Parking Analysis provided in Colliers' report. CM notes that the analysis considers five cottages instead of 15. CM agrees with the code requirement applied to the cottage (2 spaces/cottage), and when that requirement is applied to 15 cottages the result would be 30 required spaces. This will increase the total number of required spaces to 233. CM notes that the development currently proposes 272 paved parking spaces and 49 spaces to be located in a reinforced grass area, which would accommodate the revised parking requirement total and the 36 event goer vehicles with a surplus of 52 spaces that could be utilized for periods of atypically higher demand or event vendors. CM does note that the proposed reinforced grass parking area is not shown on the Overall Site Plan.

We anticipate providing a more thorough review of the traffic study once our questions and concerns are addressed. If you have any questions about the above comments, please do not hesitate to contact our office at (914) 800-9201. In an effort to make the comment-response process as efficient as possible, we are available to attend a meeting via Zoom to discuss the project and the issues raised in this letter.

Respectfully,

Creighton Manning Engineering, LLP

Frank A. Filiciotto, PE
Associate

Starke W. Hipp, PE
Project Engineer

N:\Projects\2021\121-295 Beacon - 2021 Traffic Reviews\Working\Correspondence\Mirbeau\Mirbeau_Rev 1.docx

400 Columbus Avenue
Suite 180E
Valhalla New York 10595
Main: 877 627 3772
colliersengineering.com

Colliers Engineering & Design

May 24, 2022

Chairman John Gunn
Beacon Planning Board
City of Beacon City Hall
1 Municipal Plaza
Beacon, NY 12508

Mirbeau Beacon - 7 Craig House Lane
City of Beacon, Dutchess County, New York
Colliers Engineering & Design Project No. 21007271A

Dear Chairman Gunn and Members of the Planning Board:

The following items are in response to comments as contained in the letter from Creighton Manning Engineering, LLP (CM) dated May 10, 2022. The items are numbered consistent with the numbering provided in the CM letter for ease of review. Also, note that the Traffic Impact Study (TIS) has been revised based on the comments below and where appropriate, references to the TIS have been provided.

Site Plan

1. Please provide travel lane widths of roadway segments and drive aisle widths in parking lots. It appears that the roadway connecting to the cottages is not wide enough to provide two-way travel.

   Response: ***Dimensions identifying the widths of the roadway segments and parking lot drive aisles have been added to the site plans. The roadway connecting to the cottages and ultimately out to Grandview Avenue, known as Mirbeau Lane, is now proposed to be widened to 18 feet in total width. The parking drive aisles are in conformance with the City Code requirements.***

2. The guiderail along the west side of the roadway connecting to the cottage should be repaired/replaced.

   Response: ***This guiderail is now proposed to be repaired and/or replaced as suggested.***

3. CM recommends that sidewalks or footpaths be provided between the cottages and the main building where the spa and restaurant will be located in order to reduce internal vehicle trips.

   Response: ***Pathways have now been added to the site plan connecting the cottages with the main building.***

Colliers Engineering & Design

Traffic Impact & Parking Study

1. Please provide the NYSDOT ATR data used for comparison to the observed counts conducted by Colliers.

   Response: This information has been added to Appendix "E" of the Traffic Impact Study.

2. CM notes that the 2021 Existing volumes depicted on the traffic figures do not match the observed turning movement counts. Please provide an explanation on how the 2021 Existing volumes were adjusted based on comparisons to historic data.

   Response: The traffic volumes through the roadway network were generally balanced based on the highest observed traffic volumes. The intersection of NYS Route 9D at Tioronda Avenue was found to have the highest volumes through the intersection along NYS Route 9D. These volumes were then carried through the network to ensure consistency of volumes between intersections. In all instances where traffic volumes were modified, the volumes were increased, which may provide a somewhat conservative analysis. Although in this case, we feel the volumes analyzed are representative of actual volume conditions and consistent with available NYSDOT traffic volume data for the corridor.

3. CM notes that the report indicated the Friday PM peak to be 4:45PM-5:45PM. However, the turning movement counts conducted at the study intersection indicated that the peak hour is typically between 2:45PM and 3:45PM (NYS Route 9D/Tioronda Ave and NYS Route 9D/Kristy Drive) and between 3:00PM and 4:00PM (NYS Route 9D/Howland Ave and NYS Route 9D/Grandview Ave). Please explain why the peak hour utilized in the report was utilized. If it was in error, please revise analyzed volumes.

   Response: The traffic study has been revised to indicate 3:00 PM to 4:00 PM as the peak hour for the Friday PM Peak Hour. The previously indicated peak hour of 4:45 PM – 5:45 PM was incorrect.

4. Regarding the trip generation rates, CM agrees with the Colliers' utilization of observed counts from an operational Mirbeau facility in Rhinebeck, NY. CM notes that the ITE does provide data for a land use designated as "Resort Hotel" – LUC 330; however, the description for this use does not match the proposed use of this development as a resort hotel typically provides "a wide variety of recreational facilities/programs (e.g., golf courses, tennis courts, beach access, or other amenities)."

   Response: Comment noted. As indicated in the comment, we do not believe the proposed project fits the description of a Resort Hotel as identified in ITE. Therefore, the utilization of observed counts from the existing Mirbeau facility in Rhinebeck, NY is appropriate.

Colliers Engineering & Design

5. Can the applicant provide more details on the Farm Store component in regards to its clientele, products to be sold, hours of operation?

   Response: A further layout of the Farm Area is now provided on the site plans. A farm store is no longer proposed as part of the Project. The farm will generally be utilized to support the onsite restaurant. It should also be noted that the Farm Area and the recreational uses in and around the Tioronda School Building will be for resort guests only; these specific uses will not generate any additional traffic or parking demand. Furthermore, the Project proposes to provide small transport vehicles for internal use only to shuttle guests between the main resort area and the proposed recreational uses.

6. Regarding the number of rooms utilized in computing the trip generation of the development, CM notes that Colliers utilized 80 rooms. However, based on the Cover Letter prepared by BNR, the proposed cottages will contain two to three rooms each and there could be a maximum of 15 cottages. Assuming each cottage will be utilized by one family unit or party, CM recommends that the trip generation be revised to account for 90 rooms or "keys" (4 mansion rooms + 8 grotto rooms + 63 spa/chateau rooms + 15 cottages).

   Response: The main hotel buildings will include a total of 75 rooms (including 4 mansion rooms, 8 grotto rooms, and 63 spa/chateau rooms). An additional 5 cottages with 2-bedrooms each are also currently proposed for a total of 85 rooms (keys). The Traffic Impact Study has been updated to reflect this.

   Separately, the future subdivision parcel as identified on the site plans could include 19 2-3 bedroom extended-stay rental homes (Resort Rentals). The Traffic Impact Study has been specifically updated to account for the potential traffic impacts from these future Resort Rentals.

7. Regarding the trip generation, CM agrees with Colliers' use of 2.75 for vehicle occupancy of event goers. Furthermore, the assumption that these 100 event goers will be separate from the trip generation of the other proposed uses within the development and that they will arrive and depart within one peak hour provides a conservative analysis of an event's traffic impact.

   Response: Comment noted. No further response required.

8. Please provide a sight distance analysis for the proposed driveway on Grandview Avenue.

   Response: A new driveway to Grandview Avenue is no longer proposed. However, the existing driveway connection to Grandview Avenue is proposed to remain and sight distances have been reviewed for this driveway. Looking to the right approximately 600 feet of sight distance is available to the intersection of Grandview Avenue and South Avenue. Looking to the left, sight distance of only approximately 150 feet is currently available due to obstruction from vegetation. With clearing of brush and some trees removed, a sight distance of 350 feet or more could be achieved. Assuming a 30 MPH design speed along Grandview Avenue, AASHTO indicates a minimum Stopping Sight Distance of 200 feet with an Intersection Sight Distance of 335 feet that is required for the safe operation of the intersection. Based on this, with the recommended clearing, the required sight distances will be satisfied.

Colliers Engineering & Design

9. The left-turn lane warrant analysis correctly indicates that a left-turn is warranted based on the suggested guidelines in the 2018 AASHTO "Greenbook." CM notes that the construction of the left-turn lane as well as the improved driveways will be subject to the review and approval from the New York State Department of Transportation (NYSDOT).

   Response: ***Based on discussions and correspondence from NYSDOT, it has been determined that this section of NYS Route 9D is not under the jurisdiction of the NYSDOT; the property does not abut the State system and NYSDOT permits are not required for this project (see attached email from NYSDOT Residency Permit Engineer Cassandra Bibbo). Note that the NYSDOT jurisdiction of NYS Route 9D in Beacon begins at I-84 and continues south to approximately Harbor View Court. The City of Beacon then has jurisdiction over the roadway from Harbor View Court to the south City Line just south of Grandview Avenue. NYSDOT jurisdiction resumes again south of the City Line.***

10. CM reviewed the Parking Analysis provided in Colliers' report. CM notes that the analysis considers five cottages instead of 15. CM agrees with the code requirement applied to the cottage (2 spaces/cottage), and when that requirement is applied to 15 cottages the result would be 30 required spaces. This will increase the total number of required spaces to 233. CM notes that the development currently proposes 272 paved parking spaces and 49 spaces to be located in a reinforced grass area, which would accommodate the revised parking requirement total and the 36 event goer vehicles with a surplus of 52 spaces that could be utilized for periods of atypically higher demand or event vendors. CM does not that the proposed reinforced grass parking area is not shown on the Overall Site Plan.

    Response: ***As noted above, only five (5) 2-bedroom cottages are currently proposed. The parking analysis contained in the Traffic Impact Study is accurate per the City Code requirements. The Traffic Impact Study has also been updated with a further discussion of the anticipated parking needs of the Project based on a further review of parking at the other existing Mirbeau facilities. Note the Project now proposes 251 parking spaces reduced from the 272 parking spaces previously proposed.***

Sincerely,

Colliers Engineering & Design CT, P.C.

Richard D'Andrea, P.E., PTOE
Assistant Department Manager

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Richard D'Andrea

From: Bibbo, Cassandra (DOT) <Cassandra.Bibbo@dot.ny.gov>
Sent: Wednesday, May 11, 2022 2:31 PM
To: Richard D'Andrea
Subject: RE: Mirbeau Beacon (21007271A)

This message originated from outside your organization

You are correct, this section of 9D is not within DOT jurisdiction. If you are coming from the I-84 9D exit, our jurisdiction ends approximately at the Harbor View Court Intersection (where the red brick pavers end) and picks back up about 350 feet south of the Grandview Avenue intersection.

In my letter I stated that this project does not abut the state system, but it could potentially impact it with traffic so we would like to stay involved in the SEQRA process but no permit will be required.

Hope this clears things up

Cassandra

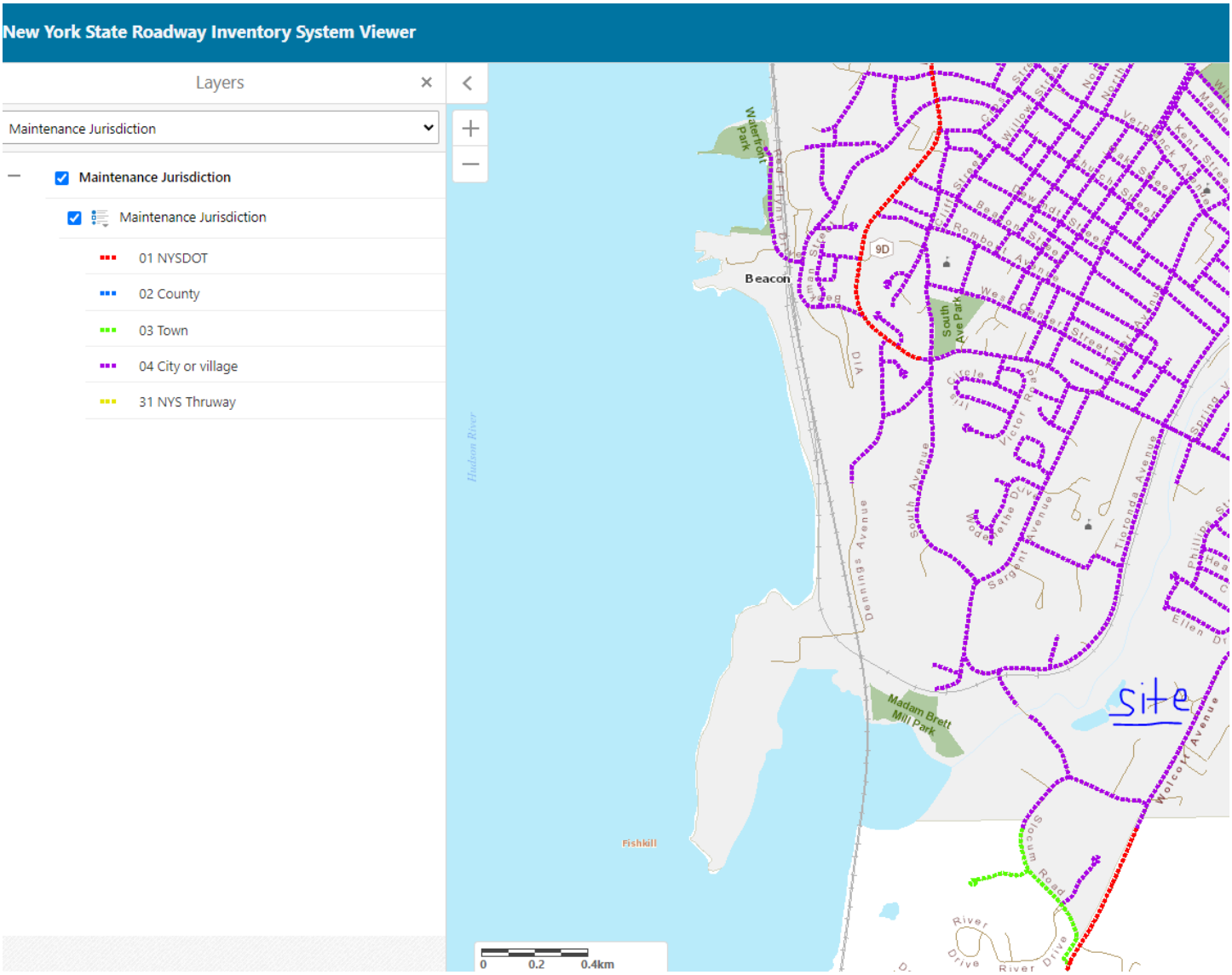
From: Richard D'Andrea <richard.dandrea@colliersengineering.com>
Sent: Wednesday, May 11, 2022 2:21 PM
To: Bibbo, Cassandra (DOT) <Cassandra.Bibbo@dot.ny.gov>
Subject: RE: Mirbeau Beacon (21007271A)

ATTENTION: This email came from an external source. Do not open attachments or click on links from unknown senders or unexpected emails.

Great.

If you haven't sent out the letter yet, can I ask you to include one item in the letter if it's not already in there? We are trying to determine where the Department's Jurisdiction begins and ends along Route 9D. Based on information on the DOT website (see below snip), this section of Route 9D is actually under the City's Maintenance Jurisdiction. However, no one, including the City seems to be clear on whether this is accurate. If would be great if you could look into this an confirm in the letter whether or not a DOT Permit will be required so everyone is clear on what is needed as we move forward with this Project.

Note I previously spoke to Lee Zimmer about this specifically, and he indicated that he did not think this section of the roadway was within the Department's jurisdiction, but that we should still circulate to the Department as at least and interested agency under SEQRA.



Richard D'Andrea, P.E., PTOE
Assistant Department Manager | Transportation
Valhalla, New York

richard.dandrea@colliersengineering.com
Main: 877 627 3772 | Direct: 914 984 4709 | Mobile: 914 424 7267
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From: Bibbo, Cassandra (DOT) <Cassandra.Bibbo@dot.ny.gov>
Sent: Wednesday, May 11, 2022 2:13 PM
To: Richard D'Andrea <richard.dandrea@colliersengineering.com>
Subject: RE: Mirbeau Beacon (21007271A)

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Valhalla New York 10595
Main: 877 627 3772
colliersengineering.com

Colliers Engineering & Design

Memorandum

To: Jonathan DalPos, Edward Kellogg

From: Richard D'Andrea, P.E., PTOE

Date: May 24, 2022

Subject: Mirbeau Beacon Parking

Project No.: 21007271A

Colliers Engineering & Design has conducted a parking comparison of the proposed Mirbeau Beacon Project to the other existing Mirbeau Inn & Spa facilities located in Rhinebeck, New York, Skaneateles, New York and Plymouth, Massachusetts. This comparison is provided in the table below. This table provides a summary of number of hotel rooms, spa rooms, restaurant seats and peak employees on-site during shift overlap for each of the existing facilities as well as the proposed Beacon Facility. The table also identifies the number of parking spaces currently provided or proposed to be provided at each location.

It should be noted that based on planned modifications to the proposed Beacon Project design, the provided parking is anticipated to be decreased from the previously proposed 273 parking spaces to 251 parking spaces. In addition, the Traffic Impact Study previously prepared by our office dated March 28, 2022, had indicated a total of 60 employees on the Site at any one time. However, revised information provided by Mirbeau, based on further review of their operations of their other locations, now indicates that the anticipated number of employees will be 70 employees during a full shift with parking required for 80 employees during shift overlap periods. This increases the total number or parking spaces required by Code from the 213 parking spaces noted in the Traffic Impact Study to 233 parking spaces as is now indicated in the Traffic Impact Study dated May 24, 2022.

The below table breaks down the number of provided parking spaces for each location as a number of parking spaces provided per room. This is relevant since the number of rooms is generally the main driver to the number of parking spaces required for these facilities. It should be noted that the Rhinebeck facility also has approximately 85 off-site public parking spaces within one-quarter mile of that location which can be used for overflow parking as needed, which does occur at certain times. Conversely, the Skaneateles and Plymouth locations are more similar in setting to the proposed Beacon location in that they are not located in a town center type area and are not in proximity to other public parking that could be utilized in the event of overflow parking from the facility.

Colliers Engineering & Design

Mirbeau Parking Comparison

	LOCATION			
	Rhinebeck, NY	Skaneateles, NY	Plymouth, MA	Beacon, NY Proposed
Hotel Rooms	50	34	50	85 (includes 5 two-bedroom cottages)
Spa Rooms	12	14	20	10
Restaurant Seats	110	120	145	110
Peak Employees with Shift Overlap	60	75	75	80
Parking Spaces Provided On-Site	90	123	217	251
Parking Spaces Provided Per Hotel Room	1.8 /Room	3.6 /Room	4.3 /Room	2.9 /Room

The Skaneateles, NY and Plymouth, MA locations are the most comparable locations to the proposed Beacon facility as it relates to the specific site locations within the municipalities as indicated previously. As can be seen from the table the parking proposed to be provided at the Beacon facility on a per Room basis is less than what is currently provided at each of these existing facilities. Based on this and Mirabeau's experience with the operation of the existing facilities, we feel the proposed 251 parking spaces currently proposed for the Beacon facility is appropriate to accommodate the parking needs of the Project.

In addition to the above, parking data provided by the Institute of Transportation Engineers (ITE) as contained in Parking Generation, 5th Edition was also reviewed for the Hotel and Restaurant portions of the development. Note that ITE does not provide specific information for a Spa.

ITE Parking Requirements Summary

Land Use	Weekday		Saturday		
	Average Parking Demand	85th Percentile (Peak) Parking Demand	Average Parking Demand	85th Percentile (Peak) Parking Demand	City of Beacon Code Required Parking
Hotel - ITE Use 310 (85 rooms)	69	80	70	83	80
Restaurant - ITE Use 931 (110 Seats)	57	---	51	70	37

Source: Institute of Transportation Engineers, Parking Generation 5th Edition

Colliers Engineering & Design

As indicated by the above table the peak parking demand for the hotel is generally consistent with the City of Beacon Code required parking. However, for the restaurant use the ITE data indicates a significantly higher parking demand than required by the City of Beacon Code. This further supports the number of parking spaces proposed to be provided on the Site.

R:\Projects\2021\21007271A-Mirbeau Spa\Correspondence\OUT\220524RGD_Parking Comparison.docx

B. Government Approvals

B. Government Approvals, Funding, or Sponsorship. ("Funding" includes grants, loans, tax relief, and any other forms of financial assistance.)

Government Entity	If Yes: Identify Agency and Approval(s) Required	Application Date (Actual or projected)
a. City Counsel, Town Board, or Village Board of Trustees ☐Yes ☑No		
b. City, Town or Village Planning Board or Commission ☑Yes ☐No	City of Beacon Planning Board - Subdivision, Site plan, Special Use Permit and Certificate of Appropriateness.	3/29/2022; Amended 5/25/2022
c. City, Town or Village Zoning Board of Appeals ☐Yes ☑No		
d. Other local agencies ☑Yes ☐No	Building Department - Building Permit	
e. County agencies ☑Yes ☐No	DCDBCH approval for water and sewer; DC Planning GML 239m referral	4/12/2022 - Initial SEQR Circulation
f. Regional agencies ☐Yes ☑No		
g. State agencies ☑Yes ☐No	NYSDOT - Interested Agency; NYSDEC SPDES GP-0-020-001 for Construction Activities	4/12/2022 - initial SEQR Circulation
h. Federal agencies ☐Yes ☑No		

i. Coastal Resources.

i. Is the project site within a Coastal Area, or the waterfront area of a Designated Inland Waterway? ☑Yes ☐No

ii. Is the project site located in a community with an approved Local Waterfront Revitalization Program? ☑Yes ☐No

iii. Is the project site within a Coastal Erosion Hazard Area? ☐Yes ☑No

C. Planning and Zoning

C.1. Planning and zoning actions.

Will administrative or legislative adoption, or amendment of a plan, local law, ordinance, rule or regulation be the only approval(s) which must be granted to enable the proposed action to proceed? ☐Yes ☑No

- **If Yes,** complete sections C, F and G.
- **If No,** proceed to question C.2 and complete all remaining sections and questions in Part 1

C.2. Adopted land use plans.

a. Do any municipally- adopted (city, town, village or county) comprehensive land use plan(s) include the site where the proposed action would be located? ☑Yes ☐No

If Yes, does the comprehensive plan include specific recommendations for the site where the proposed action would be located? ☑Yes ☐No

b. Is the site of the proposed action within any local or regional special planning district (for example: Greenway; Brownfield Opportunity Area (BOA); designated State or Federal heritage area; watershed management plan; or other?) ☑Yes ☐No

If Yes, identify the plan(s):

Remediaton Sites:546031 Site is located near the Hudson River. The remediation site identified as 546031 is the Hudson River State Superfund for removal of PCBs.

c. Is the proposed action located wholly or partially within an area listed in an adopted municipal open space plan, or an adopted municipal farmland protection plan? ☐Yes ☑No

If Yes, identify the plan(s):

THE Mirbeau COMPANIES

May 26, 2022

Mr. David J. Buckley
Building Inspector
City of Beacon
1 Municipal Plaza
Beacon, NY 12508

Re: Mirbeau of Beacon, LLC Subdivision

Dear Mr. Buckley,

We have included the Application for Subdivision Approval for the 7 Acre parcel along Grandview Ave that lies within the Mirbeau resort property. This will create the primary development parcel and the resort rental parcel. This includes:

1. Application dated May 25th, 2022
2. Mirbeau of Rhinebeck Check no. 5460 for $950.
3. Preliminary Subdivision Plat dated
4. EAF Part 1 Amended Page 2, Section B adding the Subdivision as a required approval. The complete EAF Part 1 dated March 29th submitted with the Special Use Permit application.

This Application is being made in response to the Planning Board's request. Please reference the attached cover letter regarding the submittal of additional documents to the Planning Board.

We request that this item be placed on the June 14th Planning Board Agenda. We will be prepared to discuss this at that time.

Thank you.

Edward A. Kellogg

Mirbeau of Beacon, LLC

THE Mirbeau COMPANIES

May 26, 2022

Mr. David J. Buckley
Building Inspector
City of Beacon
Building Department
1 Municipal Plaza, Suite 4
Beacon, NY 12508

Re: Mirbeau of Beacon Special Use Permit/ Site Plan Application

Mr. Buckley,

Please find enclosed 5 complete sets of The Mirbeau Companies application documents for Special Use Permit in response to the comments received from the Planning Board and the City's professional consultants. We would like to review these with the Planning Board at the June 14th Planning Board meeting.

1. Mirbeau Beacon TMC:
a. Amended SEQRA Environmental Assessment Form Part 1, page 2. This is specific to Section B which adds the Subdivision as a required Approval.
b. Mirbeau of Beacon May 25th response to John Clarke April 7 comments

2. Hudson Land Design/LRC plans:
a. Site Plans per the attached Index
b. Responses to Lanc & Tully April 8 comments with corresponding documents.

3. LRC Landscape Plans:
a. Design Intent-Front Yard Landscape Plan FY-1

4. Arrowstreet Architects:
a. Entrance Drive Viewshed plan A0.01
b. Architectural Elevations plans A3.00A & A3.00B
c. Floor Plans-Ground level for Mansion, Chateau, and Dining sections plans A2.01 & A2.02
d. View shed of South Meadow from Mansion plan A3.01

THE Mirbeau COMPANIES

5. Colliers:
a. Traffic Impact Study revised 5/25/22
b. Parking Analysis dated 5/25/22 (also included in TIS)
c. Responses to Crieighton Manning May 10 comments.

Please let me know if there is anything needed.

Thank you.

Regards,

Edward A. Kellogg
Partner
Mirbeau of Beacon, LLC

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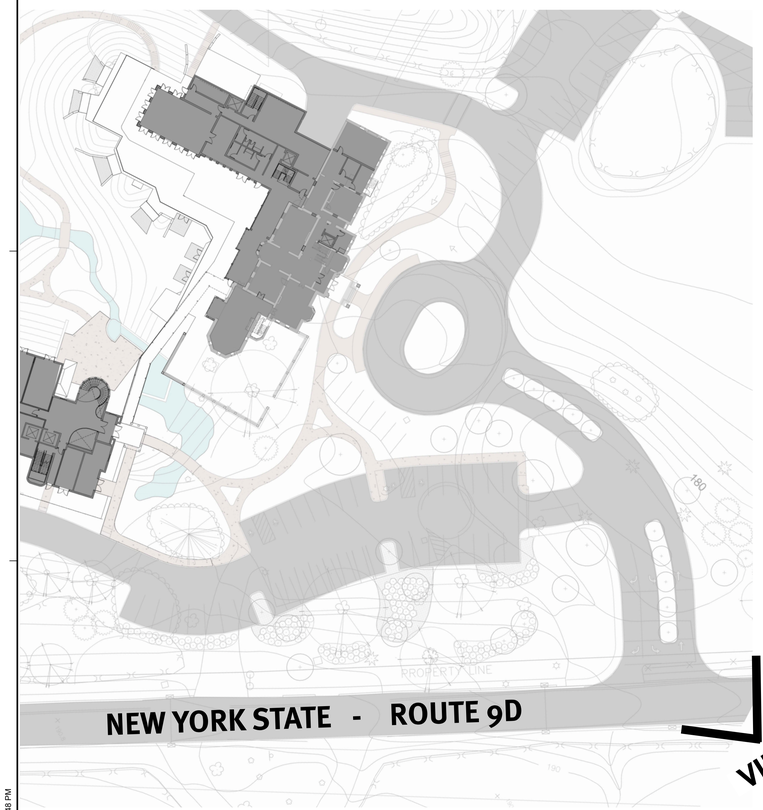
CURRENT ENTRY VIEW





NEW ENTRY VIEW

NOTE:
Elevation at driveway entrance to match RT. 9D = 183
Elevation at Mansion exterior ground under portico = 178.6

5/17/2022 4:17:48 PM

CLIENT:
Mirbeau INN & SPA

ARCHITECT:
ARROWSTREET
ARCHITECTURE & DESIGN
10 POST OFFICE SQUARE
SUITE 700N
BOSTON MA 02109
617.623.5555
arrowstreet.com

CONSULTANT:

PROJECT INFORMATION:
MIRBEAU BEACON
7 CRAIG HOUSE LANE
BEACON, NY 12508

ISSUANCE:
SPECIAL USE PERMIT APPLICATION

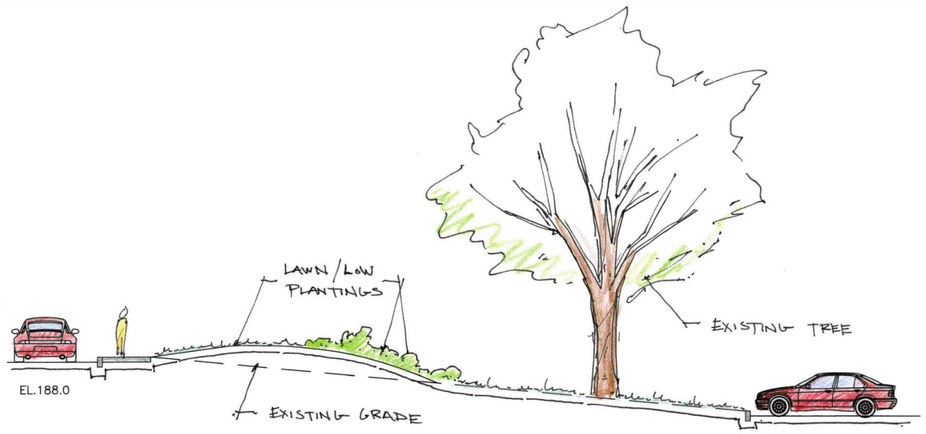
REVISIONS:

No.	Date	Description

DRAWING TITLE:
PROPERTY ENTRY VIEW RENDERING

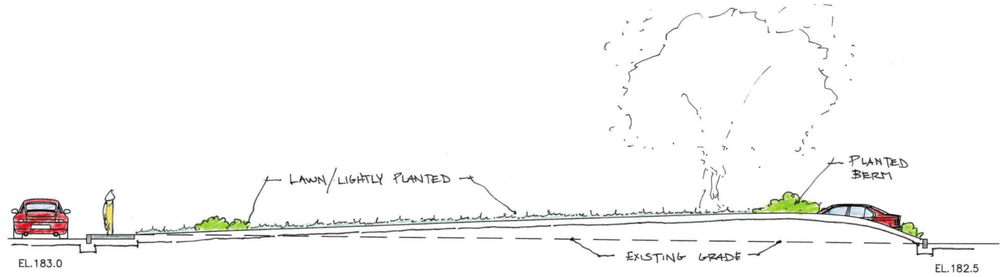
05/25/22

DRAWING NUMBER:
A 0.01



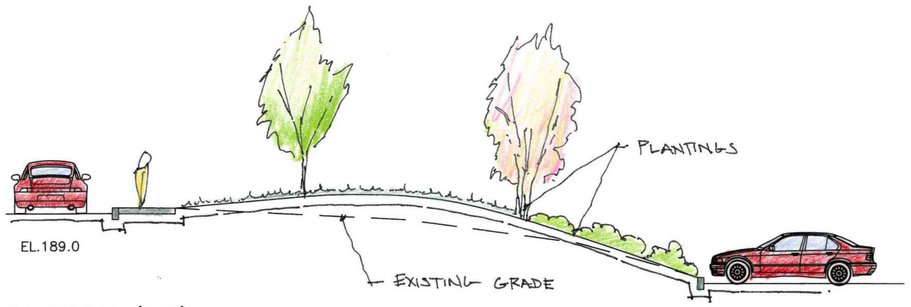
SECTION 'DD'

N.T.S.



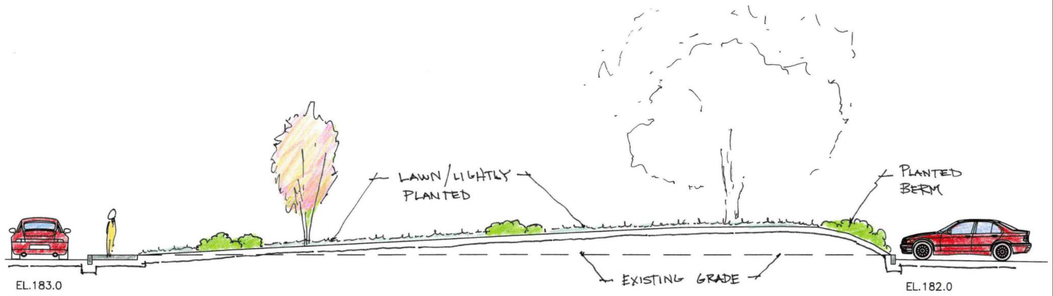
SECTION 'AA'

N.T.S.



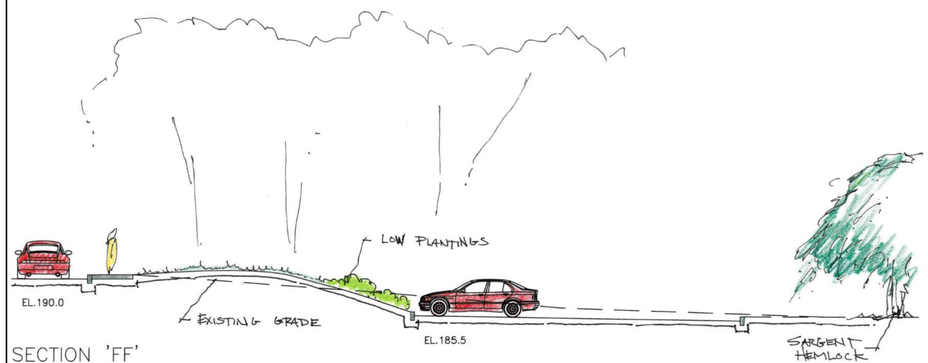
SECTION 'EE'

N.T.S.



SECTION 'BB'

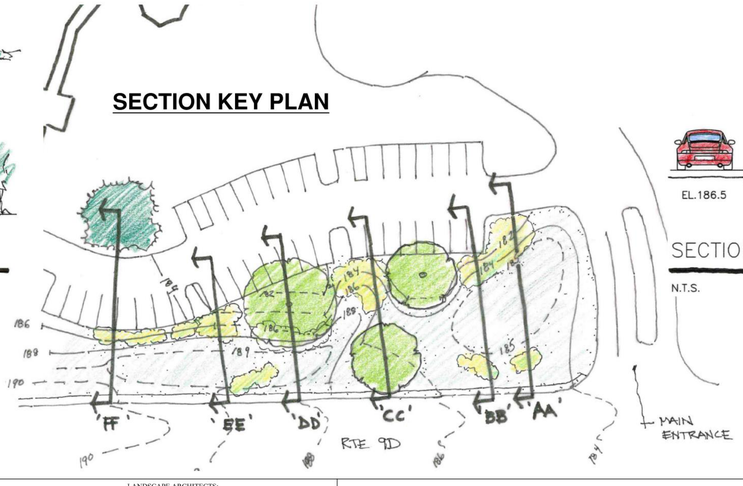
N.T.S.

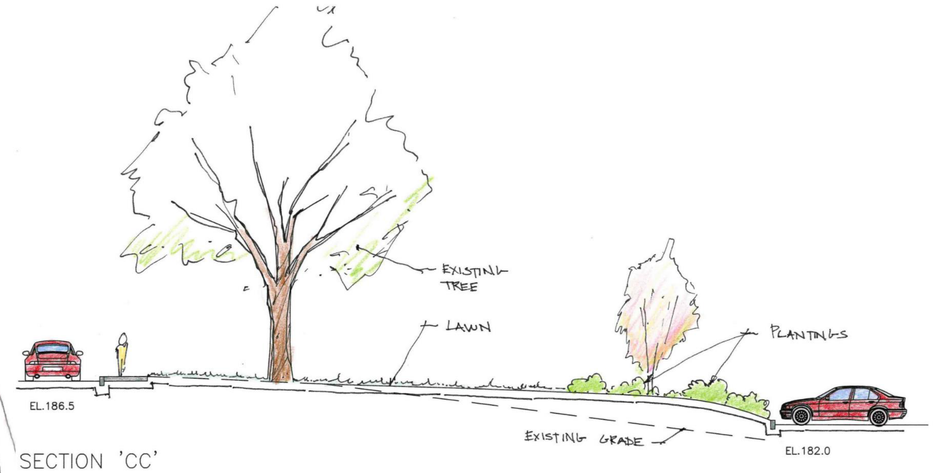


SECTION 'FF'

N.T.S.

SECTION KEY PLAN





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Design Intent – Front Yard Landscape

MIRBEAU BEACON

7 CRAIG HOUSE LANE
CITY OF BEACON
DUTCHESS COUNTY, NEW YORK
TAX ID: 6054-13-001258

JOB #:	2021:051
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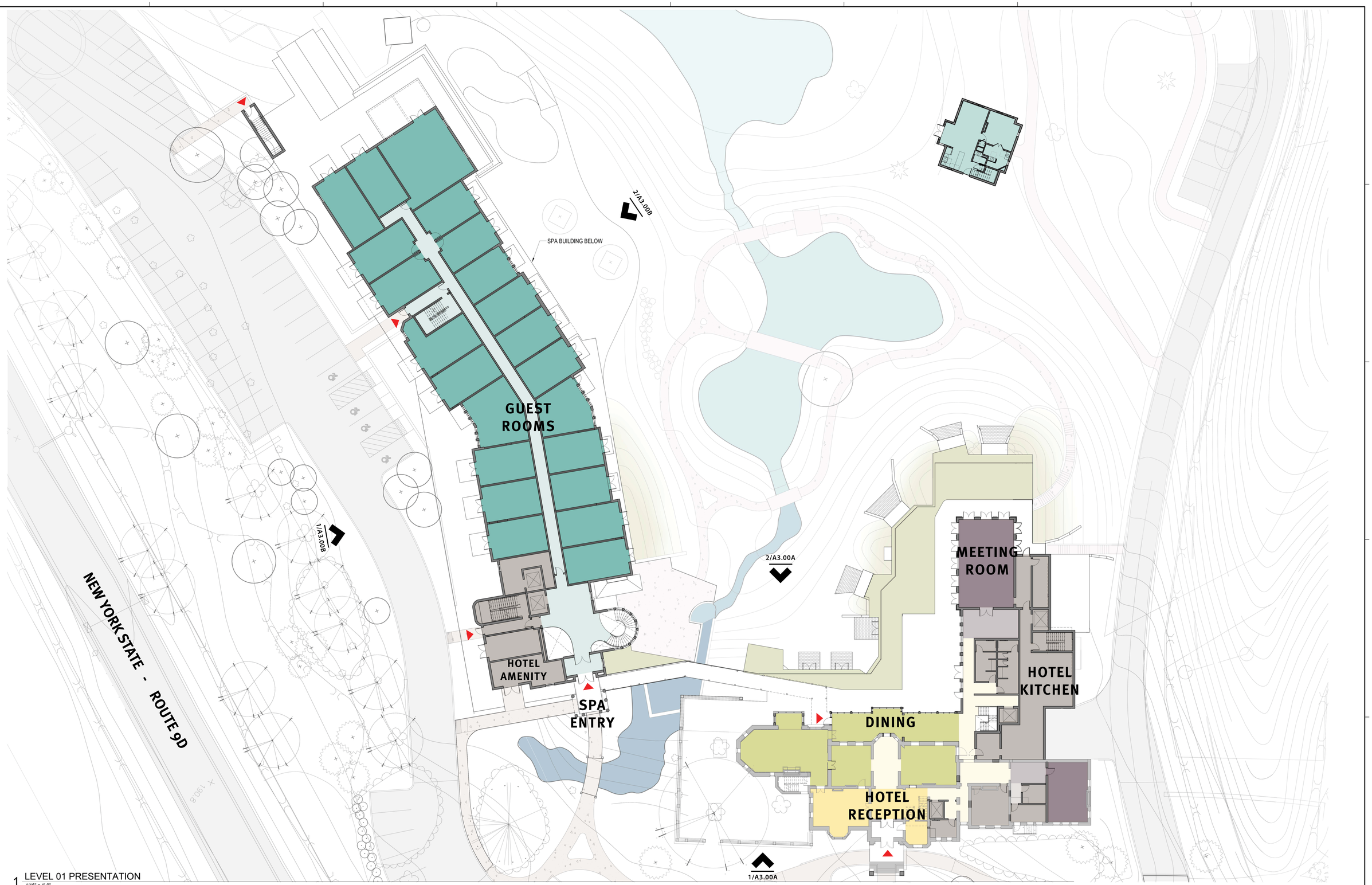

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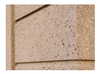
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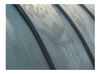
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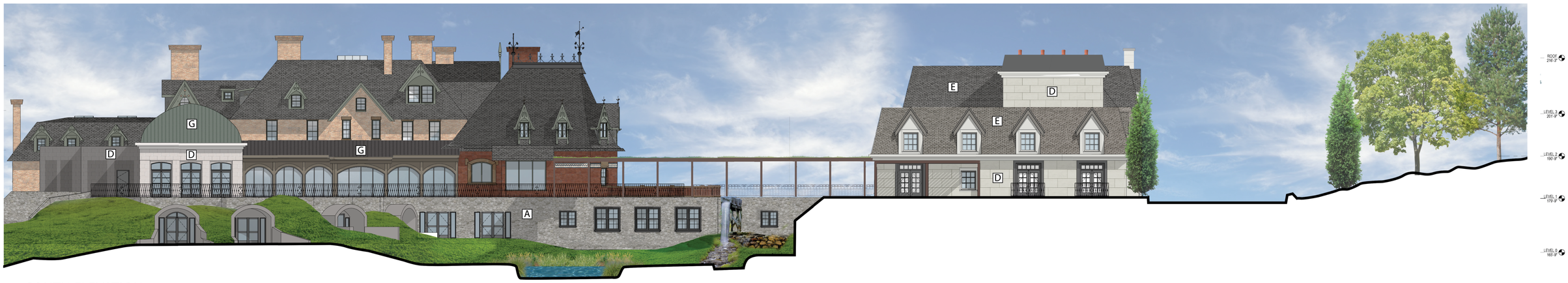

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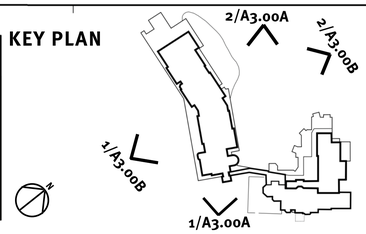

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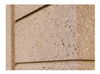
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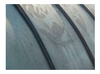
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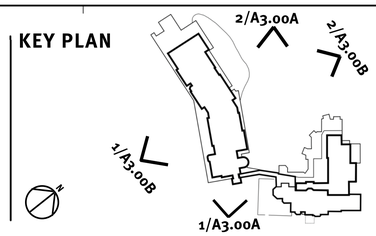

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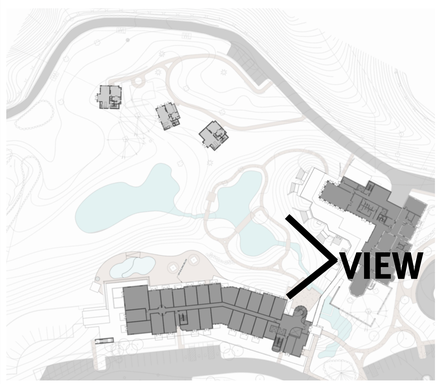

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Traffic Impact Study

May 24, 2022

Mirbeau Beacon
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Colliers Engineering & Design

I. Introduction

A. Project Description and Location

(Figure No. 1)

This report has been prepared to evaluate the potential traffic impacts associated with the Mirbeau Beacon development ("the Project"), which is proposed to be developed on the property located on the west side of Wolcott Avenue (NYS Route 9D) in the City of Beacon, Dutchess County, New York. As shown on Figure No. 1, the property is generally bounded by Wolcott Avenue to the east, the Fishkill Creek to the west, Grandview Avenue & South Avenue to the south and Ellen Drive to the north. The property is part of the former Howland Estate, also known as the Craig House, but is currently vacant. The existing site is currently accessed via two driveway connections to Wolcott Avenue approximately opposite the Beacon Glades Disc Golf. The two existing driveways are separated by approximately 240 ft. The site also has an existing access to Grandview Avenue approximately 470 ft. west of Wolcott Avenue. The southwest corner of the property along South Avenue also contains the former Tioronda School building.

The Project is proposed to consist of a resort type hotel and spa. The Hotel will consist of 75 rooms contained within the existing mansion building and a new extension wing plus an additional five (5) two-bedroom cottages that will be located at other locations within the property. Together the Hotel and Cottages will provide a total of 85 Rooms (Keys). The Spa will consist of 21 spa treatment rooms and will be open to both hotel guests and the general public. The Project will also include a 110-seat restaurant as well as other ancillary supporting facilities within the main hotel such as small meeting and/or banquet rooms.

In addition to these main portions of the Project, also proposed are the adaptive reuse of the former Tioronda School Building, a tented event space and associated support facilities, a small farm facility that will generally support the restaurant for farm-to-table style dining and a future subdivision property that is currently anticipated to be developed with up to 19, 2-3 bedroom Resort Rental homes. The use of the Tioronda School Building as well as the farm are planned to be for the exclusive use of hotel guests and therefore is not anticipated to generate any additional traffic demand for the Project. The tented event space is anticipated to be utilized for weddings or similar type events and will have a maximum capacity of approximately 100 attendees. Separate parking is proposed to be provided for these events totaling approximately 49 spaces in a reinforced grassed area. The Resort Rental homes portion of the property is only conceptually illustrated on the Site Plans at this time and are not formally part of the Site Plan application for the Project. It is anticipated that a separate Site Plan application will be provided for these units in the future. Traffic associated with this portion of the development has been accounted for herein to assess the total potential impacts of the Project.

Access to the Project is proposed to be provided via a reconfiguration of the existing northerly driveway connection to Wolcott Avenue. The existing southerly driveway connection to Wolcott Avenue will be removed as part of the Project while a new "Emergency Only" access driveway will be constructed connecting to Route 9D south of the proposed spa building extension. In

addition to the Wolcott Avenue access driveway locations, the existing access driveway to Grandview Avenue is also proposed to remain as well as the existing access to the Tioronda School building which connects to South Avenue.

A Design Year of 2025 has been utilized in completing the traffic analysis in order to evaluate future traffic conditions associated with this proposed development.

B. Scope of Study

This study has been prepared to identify current and future traffic operating conditions on the surrounding roadway network and to assess the potential traffic impacts of the proposed Mirbeau Beacon development.

All available traffic count data for the study area intersections were obtained from previous reports prepared by our office. These data were supplemented with new traffic counts collected by representatives of Colliers Engineering & Design CT, P.C. These data were also compared to count data obtained from the New York State Department of Transportation (NYSDOT). Together these data were utilized to establish the 2021 Existing Traffic Volumes representing existing traffic conditions in the vicinity of the site.

The 2021 Existing Traffic Volumes were then projected to the 2025 Design Year to take into account background traffic growth. In addition, traffic for other specific potential or approved developments in the area were estimated and then added to the Projected Traffic Volumes to obtain the 2025 No-Build Traffic Volumes.

Estimates were then made of the potential traffic that the proposed development would generate during each of the peak hours (see Section III-C for further discussion). The resulting site generated traffic volumes were then added to the roadway system and combined with the 2025 No-Build Traffic Volumes resulting in the 2025 Build Traffic Volumes.

The Existing, No-Build and Build Traffic Volumes were then compared to roadway capacities based on the procedures from the Highway Capacity Manual to determine existing and future Levels of Service and operating conditions. Recommendations for improvements were made where necessary to serve the existing and/or future traffic volumes.

In addition to the traffic analysis summarized above a detailed analysis of the required parking for the Project was also conducted based on the City of Beacon Code as well as industry standard requirements.

II. Existing Roadway and Traffic Descriptions

A. Description of Existing Roadways

The following is a brief description of the roadways located within the study area. In addition to the below, Section III-F provides a further description of the existing geometrics, traffic control and a summary of the existing and future Levels of Service and any recommended improvements for each of the study area intersections. Appendix "D" contains copies of the capacity analyses which indicate the existing geometrics (including lane widths) and other characteristics for each of the individual intersections studied.

1. Wolcott Avenue (NYS Route 9D)

Wolcott Avenue (NYS Route 9D) is classified as a Minor Arterial roadway in the study area under the jurisdiction of the City of Beacon from the southern City line north to South Avenue. The roadway is under the jurisdiction of the New York State Department of Transportation (NYSDOT) from south avenue north. Wolcott Avenue generally traverses in a north/south direction throughout Putnam and Southern Dutchess Counties. In the vicinity of the site the roadway provides regional access to I-84 as well as the Beacon Main Street area and the Beacon Train Station. The roadway generally consists of a two-lane cross-section in the immediate area of the project site with additional lanes provided in the vicinity of the I-84 interchange. The posted speed limit is 30 MPH except for the school zone area between Coffey Avenue and Tioronda Avenue in the vicinity of the Sargent School, where the posted speed limit is 15 MPH. Sidewalks are provided along both sides of the roadway for most of the roadway's length within the City of Beacon. In the immediate Project area, the sidewalks along the west side of Wolcott Avenue terminate at Grandview Avenue, while the sidewalks along the east side of Wolcott Avenue terminate at Hillside Road approximately 450 ft. south of Howland Avenue. The speed limit of Route 9D also changes to 45 MPH immediately south of Grandview Avenue.

2. Grandview Avenue

Grandview Avenue is a City roadway that originates at an unsignalized "T-shaped" intersection with NYS Route 9D. The roadway traverses in a westerly direction and provides access to several residential single-family homes. The roadway is approximately 20-22 feet wide depending on location and provides a single lane in each direction. Grandview Avenue becomes South Avenue continuing west towards the Fishkill Creek where the roadway currently terminates the abandoned bridge over the Fishkill Creek. It should be noted that the City of Beacon has plans for the potenatial reestablishment of this bridge as a vehicle and pedestrian passage, however the final configuration of the possible bridge is not currently known. There are no existing sidewalks along Grandview Avenue.

3. **Howland Avenue**

   Howland Avenue is a two-lane City roadway which has an unsignalized intersection with NYS Route 9D north of the Project site location. The roadway, which continues north from Wolcott Avenue, serves both residential and institutional land uses and terminates at an unsignalized intersection with East Main Street. From this intersection the roadway continues north as Depuyster Avenue and ultimately can be utilized as an alternate Route between Wolcott Avenue and NYS Route 52/Interstate 84 in the Town of Fishkill. The roadway has a speed limit of 30 MPH. There is an existing bus stop on the south side of Howland Avenue in the vicinity of the Mount Beacon Trailhead parking area. Section between Wolcott Avenue and the Mount Beacon Trailhead is the only section of the roadway where sidewalks are provided.

4. **Tioronda Avenue**

   Tioronda Avenue is a City roadway that intersects with Wolcott Avenue at a signalized four-way intersection immediately west of the Fishkill Creek overpass. South of Wolcott Avenue, the roadway connects to South Avenue on the west side of the Fishkill Creek. North of Wolcott Avenue the roadway provides access to the Main Street area intersecting Main Street at an unsignalized intersection where the roadway terminates. There is an existing sidewalk along the west side of Tioronda Avenue between Wolcott Avenue Main Street. This portion of the roadway also accommodates on-street parking. There is also an existing bus stop on the west side of Tioronda Avenue immediately north of Wolcott Avenue. The roadway has a speed limit of 25 mph. It should also be noted that signage along Wolcott Avenue approaching Tioronda Avenue from the south directs motorists to Tioronda Avenue for access to Main Street.

B. 2021 Existing Traffic Volumes

(Figures No. 2 and 3)

Manual traffic counts were collected by representatives of Colliers Engineering & Design CT, P.C. on Friday April 23 and Saturday April 24, 2021 for the Weekday PM Peak and Saturday Peak Hours to determine the existing traffic volume conditions at the study area intersections. In addition, an Automatic Traffic Recorder (ATR) machine was also installed along Wolcott Avenue in the vicinity of the Project site in order to collect traffic volume, vehicle classification and vehicle speed data over an approximately one-week period (add dates) to identify any hourly or daily variations in traffic volumes along the roadway as well as to collect vehicle speed and classification data in the vicinity of the site access. All traffic volume data is provided in Appendix E for reference.

These traffic counts were then compared to traffic volume data from previous traffic studies conducted by our office and to traffic volume data available from the New York State Department of Transportation (NYSDOT) for the NYS Route 9D corridor. Based on this information, the Year 2021 Existing Traffic Volumes were established for the Weekday Peak AM and Weekday Peak PM Hours at the following study area intersections.

- NYS Route 9D and Tioronda Avenue
- NYS Route 9D and Howland Avenue
- NYS Route 9D and Kristy Drive
- NYS Route 9D and Site Access
- NYS Route 9D and Grandview Avenue

Based upon a review of the traffic counts, the peak hours were generally identified as follows:

- Friday PM Peak Hour 3:00 PM – 4:00 PM
- Saturday Peak Hour 2:30 PM – 3:30 PM

The resulting 2021 Existing Traffic Volumes are shown on Figures No. 2 and 3 for the Friday PM Peak Hour and Saturday Peak Hour, respectively.

C. Public Transportation

(Appendix F)

The City of Beacon has several public transportation options including Metro-North Trains via the Beacon Metro-North Train Station located approximately 2.5 miles north of the Project site as well as Ducthess County buses. The Dutchess County busses serving the City of Beacon include the Poughkeepsie Transit Hub to Fishkill (Route A) and the Poughkeepsie Transit Hub to Beacon Routes (Route B), the Beacon to Hopewell Junction Route (Route F), and the Beacon Free Loop (Route G). The nearest bus stop to the Project site is located at the intersection of Wolcott Avenue and Howland Avenue near the Mount Beacon Trailhead, which is only serviced by the Beacon Free Loop bus. The various bus route maps and schedules are provided in Appendix F for reference. It should be noted that some portion of the guests of the Project would be expected to utilize the nearby Metro-North train station for travel to the Site, especially those arriving from New York City, however no credit for the public transportation usage has been taken in this traffic and parking analyses contained herein. It is also not anticipated that a significant portion of Project guests will utilize the available bus transportation due to its limited availability and since it is generally remotely located from the Project site.

III. Evaluation of Future Traffic Conditions

A. 2025 No-Build Traffic Volumes

(Figure No. 4 through 9)

The 2021 Existing Traffic Volumes were increased by a growth factor of 2% per year to account for general background growth resulting in the 2025 Projected Traffic Volumes, which are shown on Figures No. 4 and 5 for each of the Peak Hours. In addition, traffic from other specific potential developments in the area including the proposed 248 Tioronda Avenue and 1113 Wolcott Avenue projects were identified. The resulting traffic volumes associated with these other developments are shown on Figures No. 6 and 7 for each of the peak hours. These volumes were added to the 2025 Projected Traffic Volumes resulting in the 2025 No-Build Traffic Volumes, which are shown on Figures No. 8 and 9 for the Friday PM and Saturday Peak Hours, respectively.

B. Site Generated Traffic Volumes

(Tables No. 1, 1E, 1P and 2)

In order to project the traffic generated by the Project, the existing Mirbeau Inn & Spa Rhinebeck was reviewed. Existing traffic generation data was collected for that facility, which is located on W. Market Street in the Village of Rhinebeck, New York. The traffic generation data was collected continuously from Friday December 3, 2021 through Monday December 6, 2021 in order to document actual traffic generation for similar type facility. The Mirbeau Rhinebeck traffic generation data is summarized in Table No. 1 contained in Appendix B. The peak hours of traffic for each day of data collection are also identified in this table. It should be noted that the Mirbeau Rhinebeck facility is similar to the proposed Project, but somewhat smaller in size. The Mirbeau Rhinebeck facility consists of 50 hotel rooms, a 15-room spa and a 150-seat restaurant along with other ancillary amenities. It should be noted that during the data collection at the Mirbeau Rhinebeck facility, the hotel, spa and restaurant were all near full capacity utilization.

The peak hour traffic generation observed at the existing Mirbeau Rhinebeck was then compared to traffic generation estimates for a 50-room hotel based on information published by the Institute of Transportation Engineers (ITE) as contained in the report entitled "Trip Generation", 11th Edition, 2021, utilizing Land Use Category – 310 – Hotel. It should be noted that the ITE description for Land Use Category 310 indicates *"A hotel is a place of lodging that provides sleeping accommodations and supporting facilities such as a full-service restaurant, cocktail lounge, meeting rooms, banquet room, and convention facilities. A hotel typically provides a swimming pool or another recreational facility such as a fitness room."* Therefore, the ITE Land Use generally encompasses the uses proposed on the Site. The comparison of the ITE data to the traffic generation data collected at the Mirbeau Rhinebeck facility is provided in Table No. 1E. As indicated in Table the ITE data is generally comparable to but in some cases is slightly lower than the traffic generation observed at the existing Mirbeau Rhinebeck facility.

The ITE data as well as the traffic generation rates observed at the Mirbeau Rhinebeck facility were then utilized to estimate the traffic that will be generated by the proposed Beacon facility. These estimates are presented in Table No. 1P. Again, this table indicates that the ITE data is generally comparable to but in some cases is slightly lower than the traffic generation estimated based on traffic generation rates observed at the existing Mirbeau Rhinebeck facility. Therefore, it was determined to utilize the traffic generation estimates based on the observed generation rates for the analysis of future traffic impacts. The traffic generation estimates utilized in the analysis are summarized in Table No. 2.

Table No. 2 also provides separate trip generation estimates for the potential Resort Rentals. It is anticipated that the traffic generation associated with these future units will be similar to that experienced by the main hotel. Therefore, the traffic generation rates experienced at the existing Mirbeau Rhinebeck facility were utilized to estimate the anticipated traffic generation of these rental homes.

Furthermore, as previously indicated, the Project also proposes to hold special events such as weddings or other similar type parties. These events are planned to be tented events accommodating approximately 100 attendees. Estimates of the amount of traffic generated by these events are also provided in Table No. 2. These estimates assume a car occupancy for event attendees of 2.75 persons/vehicle. For the purposes of the analysis it is conservatively assumed that all attendees will be arriving from offsite, but it is likely that a significant portion of the attendees will also be staying at the hotel, which would reduce the actual traffic generation during these events. It is assumed that all 100 attendees will enter and exit within the peak hour periods, which is also very conservative since these events will typically span a 2 to 5-hour period.

C. Arrival/Departure Distribution

(Figures No. 10, 11, 16, 17, 22 and 23)

It was necessary to establish arrival and departure distributions to assign the site generated traffic volumes to the surrounding roadway network. Based on a review of the Existing Traffic Volumes and the expected travel patterns on the surrounding roadway network, the anticipated draw areas for hotel, spa and restaurant guests as well as a review of travel time data, the distributions were identified. The anticipated arrival and departure distributions expressed as percentages are shown on Figures No. 10 and 11 for the hotel, spa and restaurant uses.

Separate distributions were also identified for the future Resort Rentals given their somewhat separate location on the Site. The Resort Rentals distributions are shown on Figures No. 16 and 17.

In addition, separate distributions for the anticipated events were also development. These distributions are shown on Figures No. 22 and 23.

D. 2025 Build Conditions Traffic Volumes

(Figures No. 12 through 15, 18 through 21, and 24 through 27)

The site generated traffic volumes were assigned to the roadway network based on the arrival and departure distributions referenced above. The resulting hotel, spa and restaurant site generated traffic volumes for each of the study area intersections are shown on Figures No. 12 and 13 for each of the peak hours, respectively. The site generated traffic volumes were then added to the 2025 No-Build Traffic Volumes to obtain the 2025 Build Traffic Volumes. The resulting 2025 Build Traffic Volumes are shown on Figures No. 14 and 15 for the Friday PM and Saturday Peak Hours, respectively.

In addition, separate site generated traffic volumes were developed for the additional traffic that is anticipated to be generated by the future Resort Rentals. These Resort Rental site generated traffic volumes are identified on Figures No. 18 and 19, which were then added to the 2025 Build Traffic Volumes previously discussed above to obtain the 2025 Build Traffic Volumes with Resort Rentals, which are summarized on Figures No. 20 and 21 for the Friday PM and Saturday Peak Hours, respectively.

Finally, separate site generated traffic volumes were developed for the additional traffic that is anticipated to be generated by the proposed tented events. These Event site generated traffic volumes are identified on Figures No. 24 and 25. These volumes were then added to the 2025 Build Traffic Volumes with Resort Rentals to provide a Full Build Out Event Conditions analysis. The 2025 Build Full Build Out Event Conditions Traffic Volumes are summarized on Figures No. 26 and 27 for the Friday PM and Saturday Peak Hours, respectively.

E. Description of Analysis Procedures

It was necessary to perform capacity analyses in order to determine existing and future traffic operating conditions at the study area intersections. The following is a brief description of the analysis method utilized in this report:

Signalized Intersection Capacity Analysis

The capacity analysis for a signalized intersection was performed in accordance with the procedures described in the Highway Capacity Manual, 6th Edition, dated 2016, published by the Transportation Research Board. The terminology used in identifying traffic flow conditions is Levels of Service. A Level of Service “A” represents the best condition and a Level of Service “F” represents the worst condition. A Level of Service “C” is generally used as a design standard while a Level of Service “D” is acceptable during peak periods. A Level of Service “E” represents an operation near capacity. In order to identify an intersection’s Level of Service, the average amount of vehicle delay is computed for each approach to the intersection as well as for the overall intersection.

Unsignalized Intersection Capacity Analysis

The unsignalized intersection capacity analysis method utilized in this report was also performed in accordance with the procedures described in the Highway Capacity Manual, 6th Edition, dated 2016. The procedure is based on total elapsed time from when a vehicle stops at the end of the queue until the vehicle departs from the stop line. The average total delay for any particular critical movement is a function of the service rate or capacity of the approach and the degree of saturation. In order to identify the Level of Service, the average amount of vehicle delay is computed for each critical movement to the intersection.

Additional information concerning signalized and unsignalized Levels of Service can be found in Appendix "C" of this report.

F. Results of Analysis

(Table No. 2)

Capacity analyses which take into consideration appropriate truck percentages, pedestrian activity, roadway grades and other factors were performed at the study area intersections utilizing the procedures described above to determine the Levels of Service and average vehicle delays. Summarized below are a description of the existing geometrics, traffic control and a summary of the existing and future Levels of Service as well as any recommended improvements.

Table No. 3 summarizes the results of the capacity analysis for the 2021 Existing, 2025 No-Build and 2025 Build Conditions for the typical conditions under the initial build scenario. Table No. 3A summarizes the results for the 2025 Build conditions with the future Resort Rentals while Table No. 3E summarizes the results for the Event conditions at full buildout. Appendix "D" contains copies of the capacity analysis which also indicate the existing geometrics (including lane widths) and other characteristics for each of the individual intersections studied.

1. **Wolcott Avenue (NYS Route 9D) and Tioronda Avenue**

   Wolcott Avenue intersects Tioronda Avenue at a signalized full movement intersection. All approaches to the intersection consist of one lane and sight distances are good for all approaches. Sidewalks are provided along all corners of the intersection and striped signalized pedestrian crosswalks are provided on the west, north and south sides at the intersection.

   Capacity analysis was conducted for this intersection utilizing the 2021 Existing Traffic Volumes. The analysis results indicate that the intersection is currently operating at an overall Level of Service "A" during the Friday PM and Saturday Peak Hours.

   The capacity analysis was recomputed using the 2025 No-Build and Build Traffic volumes. These results indicate that the intersection is expected to continue to operate at similar Levels of Service during the Friday PM and Saturday Peak Hours under all analyzed volume conditions including the future Resort Rental and full buildout event conditions.

2. **Wolcott Avenue (NYS Route 9D) and Howland Avenue**

   Wolcott Avenue and Howland Avenue intersect at a "T" shaped unsignalized intersection. All of the approaches consist of a single lane. There is a striped pedestrian crosswalk crossing Howland Avenue on the east side of Wolcott Avenue at this intersection.

   Capacity analysis was conducted for this intersection utilizing the 2021 Existing Traffic Volumes. The analysis results indicate that the intersection is currently operating at an overall Level of Service "B" during the Friday PM and Saturday Peak Hours.

   The capacity analysis was recomputed using the 2025 No-Build Traffic volumes. These volumes indicate that the intersection is expected to experience Levels of Service "C" or better during the Friday PM and Saturday Peak Hours without the Project.

   The capacity analysis was again recomputed using the 2025 Build, 2025 Build with Resort Rentals and 2025 Event Conditions Build Traffic volumes. These results indicate that the intersection is expected to continue to experience a Level of Service "C" or better during each of the peak hours.

   It should be noted that the drop in Level of Service from "B" under existing conditions to "C" under the No-Build and Build conditions results from an average increase in delay of less than 5-seconds per vehicle and is not considered significant.

3. **Wolcott Avenue (NYS Route 9D) and Kristy Drive**

   NYS Route 9D and Kristy Drive intersect at a "T" shaped unsignalized intersection. All of the approaches consist of a single lane approach. There is a striped pedestrian crosswalk crossing Kristy Avenue on the west side of Wolcott Avenue at this intersection.

   Capacity analysis was conducted for this intersection utilizing the 2021 Existing Traffic Volumes. The analysis results indicate that the intersection is currently operating at an overall Level of Service "C" during the Friday PM and Saturday Peak Hours.

   The capacity analysis was recomputed using the 2025 No-Build and 2025 Build and 2025 Build with Resort Rentals Traffic volumes. These volumes indicate that the intersection is expected to continue to experience Levels of Service "C" or better during the Friday PM and Saturday Peak Hours.

   It should be noted that the Friday PM Event Conditions Build analysis does indicate that vehicles exiting Kristy Drive may experience a Level of Service "D" during this time period. However, as note previously, the Event Conditions analysis is very conservative. Furthermore, this will be a short duration impact occurring only during the Event Condition entry or exit period.

4. **Wolcott Avenue (NYS Route 9D) and Site Access**

   As previously discussed, the Project is proposed to be access via a reconfigured driveway connection to Wolcott Avenue at the approximate location of the existing northern driveway to the property. The driveway will form an unsignalized "T"-shaped intersection and is proposed to consist of two exiting lanes with a single-entry lane. The entry and exit lanes will be separate by a raised median.

   The capacity analysis was computed for the future site access. The analysis indicates a Level of Service "C" will be experienced during each of the peak hours under both the typical build and event conditions build scenarios.

   For a discussion of sight distances and the potential need for a left turn lane at the proposed site access driveway location to Wolcott Avenue see Section III.G and III.H below.

5. **Wolcott Avenue (NYS Route 9D) and Grandview Avenue**

   Wolcott Avenue (NYS Route 9D) intersections Grandview Avenue at an unsignalized "T-shaped" intersection. All approaches to the intersection consist of one lane and sight distances are good for all approaches. There is a sidewalk on the west side of the Wolcott Avenue southbound approach, which turns the corner onto Grandview Avenue and terminates approximately 15 ft. west of the intersection.

   Capacity analysis was conducted for this intersection utilizing the 2021 Existing Traffic Volumes. The analysis results indicate that the intersection is currently operating at a Level of Service "C" or better during the Friday PM and Saturday Peak Hours.

   The capacity analysis was recomputed using the 2025 No-Build and Build Traffic volumes. These results indicate that the intersection is expected to continue to operate at similar Levels of Service during the Friday PM and Saturday Peak Hours under all analyzed volume conditions including the event conditions.

G. Site Access Sight Distance Analysis

Sight distance was reviewed at the proposed Site Access location to Wolcott Avenue. The observed sight distances bases on field measurements taken by representatives of Colliers Engineering & Design, are summarized in the table below. These sight distances were then compared to the AASHTO required sight distances for these access locations based on the measured 85th Percentile speed along Wolcott Avenue of 45 MPH as recorded by the ATR machine data installed in the vicinity of the Site Access driveway. As shown in the table, the required sight distances will be exceeded at the access location.

Sight Distance Summary Table

Sight Distance Direction	Measured Sight Distance	AASHTO Required Sight Distance	
		Stopping Sight Distance	Intersection Sight Distance
Looking Left (North)	710 ft.	360 ft.	500 ft.
Looking Right (South)	725 ft.	360 ft.	500 ft.
Left Turn Entry (Ahead)	625 ft.	360 ft.	365 ft.
Left Turn Entry (Rear End)	700 ft.	360 ft.	---

Source: AASHTO Required Sight Distances are based on ***A Policy on Geometric Design of Highways & Streets, 7th Edition*** dated 2018 for an assumed operating speed of 45 MPH along Wolcott Avenue.

Sight Distance was also reviewed at the existing driveway connection (Mirbeau Lane) to Grandview Avenue, which is proposed to remain. Looking to the right from this existing driveway location, approximately 600 feet of sight distance is available to the intersection of Grandview Avenue and South Avenue. Looking to the left, sight distance of only approximately 150 feet is currently available due to obstruction from vegetation. With clearing of brush and some trees removed, a sight distance of 350 feet or more could be achieved. Assuming a 30 MPH design speed along Grandview Avenue, AASHTO indicates a minimum Stopping Sight Distance of 200 feet with an Intersection Sight Distance of 335 feet is required for the safe operation of the intersection. Based on this, with the recommended clearing, the required sight distances will be satisfied.

H. Site Access Left Turn

(Table No. 4, Sheet No. CP-1)

The need for the construction of a separate left turn lane along Wolcott Avenue at the site access location was also assessed based on the AASHTO Left Turn Lane Warrant criteria. The AASHTO criteria identify the potential need for a left turn lane at an unsignalized intersection location based on the number of left turn vehicles from the main road vs. the number of opposing vehicles passing the intersection location in the opposite direction. The left turn lane warrant analysis is provided in Table No. 4 contained in Appendix B. This analysis was conducted utilizing the 2025 Build Conditions traffic volumes under for the Friday PM and Saturday Peak Hours. The analysis indicates that a left turn lane will be warranted at this location with the Project generated traffic.

A preliminary concept plan for this left turn lane has been prepared and is provided on Sheet No. CP-1 contained in Appendix A. This left turn lane widening will require modification to existing drainage facilities and as well as the existing sidewalk on the west side of Wolcott Avenue. Some dedication of lands to the City of Beacon to accommodate the relocated sidewalk may also be required. The concept plan for the left turn lane widening also identifies recommended signage to be installed for the left turn lane as well as to alert passing vehicles of the intersection location. In addition, this plan identifies the installation of "Stop" sign on the driveway exit approach. A more detail design of this left turn lane will be required to identify limits of widening, materials, grading and drainage treatments, etc. for review and approval by the City of Beacon.

IV. Parking Analysis

A. City Code Parking Requirements

The City of Beacon Code Section 223-26.F and Section 223-14.1.C specifies the minimum number of required parking spaces for various potential uses. The minimum number of required parking spaces for the Project per the code parking requirements are identified in Table No. P-1 below.

Table No. P-1 – City of Beacon Code Required Parking Spaces

Land Use	Code Requirement	Required Parking Spaces
Hotel (75 Rooms)	1 Space/Room	75 Spaces
Cottages (5)	2 Spaces/Cottage	10 Spaces
Restaurant (110 seats/2,364 Sq. Ft.)	1 Space/3 Persons OR 1 Space/150 Sq. Ft. of Gross Floor Area Excluding Kitchen & Storage Area	37 Spaces OR 16 Spaces
Spa (21 Rooms/6,125 Sq. Ft.)	1 Space/200 Sq. Ft. of Gross Floor Area Excluding Utility Areas	31 Spaces
Employees (80 Persons at shift overlap)	1 Space/Employee	80 Spaces
	Total	**233 Spaces**

Note:

1. Parking for Cottages is proposed to be provided at a rate of 2 Spaces/Cottage
2. 70 Employees is anticipated number of total employees onsite at any one time to service the Hotel, Restaurant and Spa as well as other portions of the Project, but based on typical experience from other existing Mirbeau locations, parking for 80 employees is necessary during shift overlap periods.
3. Spa Square Footage includes all publicly available spa space. Certain areas within the spa will be limited to hotel quests such as workout space and salons. Locker rooms reception area and other "back-of-house or support space has been excluded from this calculation.

The Project currently proposes to provide a total of 251 paved parking spaces in the immediate vicinity of the hotel, spa & restaurant for use by hotel, spa and restaurant guests as well as designated employee parking. This also includes 10 parking spaces for use of the cottage Guests that will be positioned in proximity to the cottages. Approximately 38 additional parking spaces will also be provided in the vicinity of Tioronda School. Based on the above parking analysis, it is the opinion of Colliers Engineer & Design that there will be sufficient parking within the Site to accommodate the parking demand for the Project.

It should be noted that the above summary of parking requirements does not include the future Subdivision property for the Resort Rentals. Parking needs for these Resort Rentals has not been identified at this time and will be provided under a future Site Plan application for that area.

B. Comparison to Existing Mirbeau Facilities

Colliers Engineering & Design has conducted a parking comparison of the proposed Mirbeau Beacon Project to the other existing Mirbeau Inn & Spa facilities located in Rhinebeck, New York, Skaneateles, New York and Plymouth, Massachusetts. This comparison is provided in Table P-2 below. This table provides a summary of number of hotel rooms, spa rooms, restaurant seats and peak employees on-site during shift overlap for each of the existing facilities as well as the proposed Beacon Facility. The table also identifies the number of parking spaces currently provided or proposed to be provided at each location.

The below table breaks down the number of provided parking spaces for each location as a number of parking spaces provided per room. This is relevant since the number of rooms is generally the main driver to the number of parking spaces required for these facilities. It should be noted that the Rhinebeck facility also has approximately 85 off-site public parking spaces within one-quarter mile of that location which can be used for overflow parking as needed, which does occur at certain times. Conversely, the Skaneateles and Plymouth locations are more similar in setting to the proposed Beacon location in that they are not located in a town center type area and are not in proximity to other public parking that could be utilized in the event of overflow parking from the facility.

Table P-2 – Mirbeau Parking Comparison

	LOCATION			
	Rhinebeck, NY	Skaneateles, NY	Plymouth, MA	Beacon, NY Proposed
Hotel Rooms	50	34	50	85 (includes 5 two-bedroom cottages)
Spa Rooms	12	14	20	10
Restaurant Seats	110	120	145	110
Peak Employees with Shift Overlap	60	75	75	80
Parking Spaces Provided On-Site	90	123	217	251
Parking Spaces Provided Per Hotel Room	1.80 /Room	3.62 /Room	4.34 /Room	2.95/Room

The Skaneateles, NY and Plymouth, MA locations are the most comparable locations to the proposed Beacon facility as it relates to the specific site locations within the municipalities as indicated previously. As can be seen from the table the parking proposed to be provided at the Beacon facility on a per Room basis is less than what is currently provided at each of these existing facilities. Based on this and Mirabeau's experience with the operation of the existing facilities, we feel the proposed 251 parking spaces currently proposed for the Beacon facility is appropriate to accommodate the parking needs of the Project. It should be noted that the Rhinebeck location is in

proximity to other off-site parking that can be utilized in the event of overflow of parking from that location. This is not accounted for in the above table.

C. Comparison to Industry Standard Data

In addition to the above, parking data provided by the Institute of Transportation Engineers (ITE) as contained in Parking Generation, 5th Edition was also reviewed for the Hotel and Restaurant portions of the development. Note that ITE does not provide specific information for a Spa.

Table P-3 – ITE Parking Requirements Summary

Land Use	Weekday		Saturday		
	Average Parking Demand	85th Percentile (Peak) Parking Demand	Average Parking Demand	85th Percentile (Peak) Parking Demand	City of Beacon Code Required Parking
Hotel - ITE Use 310 (85 rooms)	69	80	70	83	80
Restaurant - ITE Use 931 (110 Seats)	57	---	51	70	37

Source: Institute of Transportation Engineers, Parking Generation 5th Edition

As indicated by the above table the peak parking demand for the hotel is generally consistent with the City of Beacon Code required parking. However, for the restaurant use the ITE data indicates a significantly higher parking demand than required by the City of Beacon Code. This further supports the number of parking spaces proposed to be provided on the Site.

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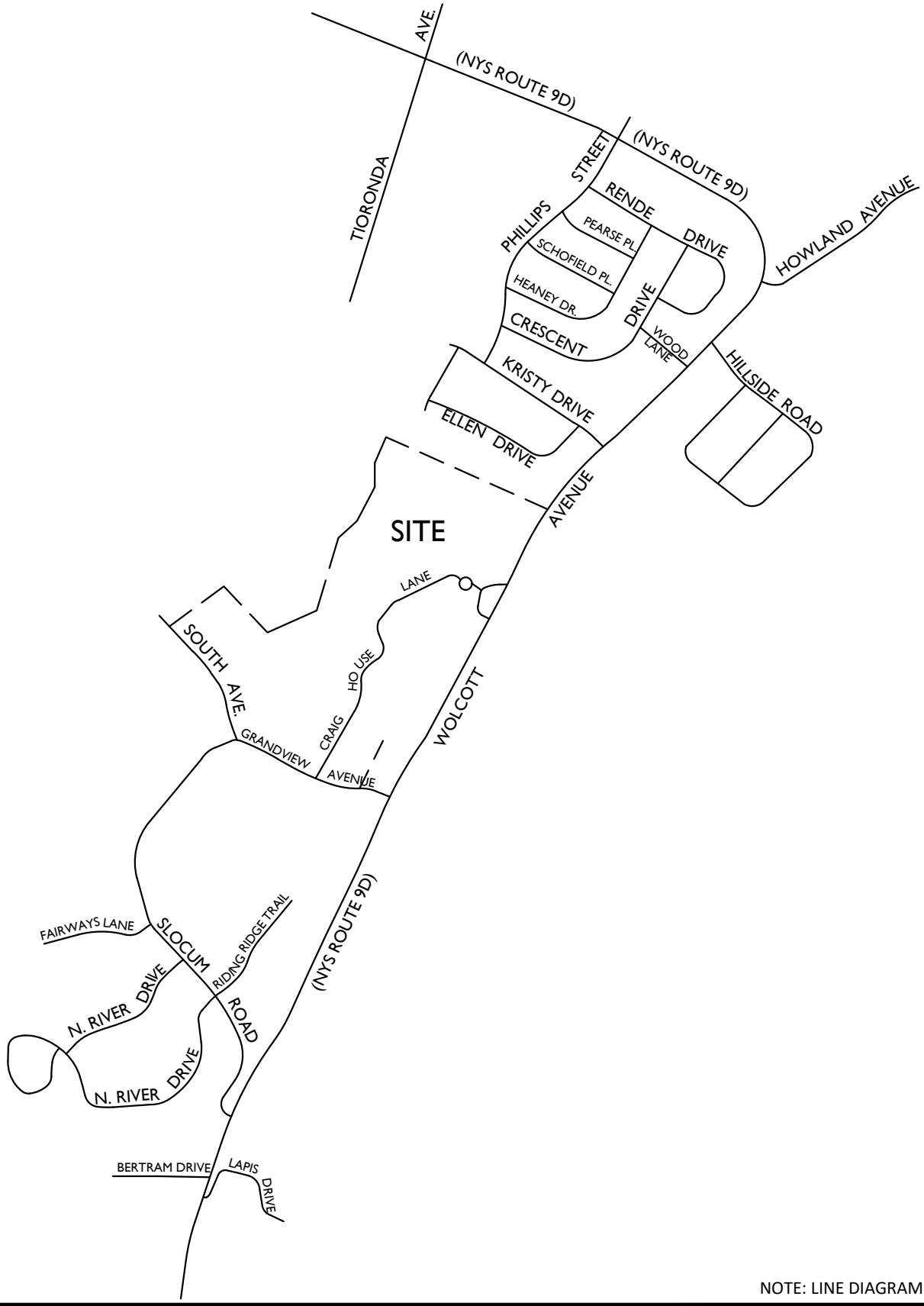
Traffic Impact Study

Appendix A | Traffic Figures



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21007271A	220524RGD_FIGURE-85 TOTAL ROOMS

SHEET TITLE: SITE LOCATION MAP

SHEET NUMBER: 1

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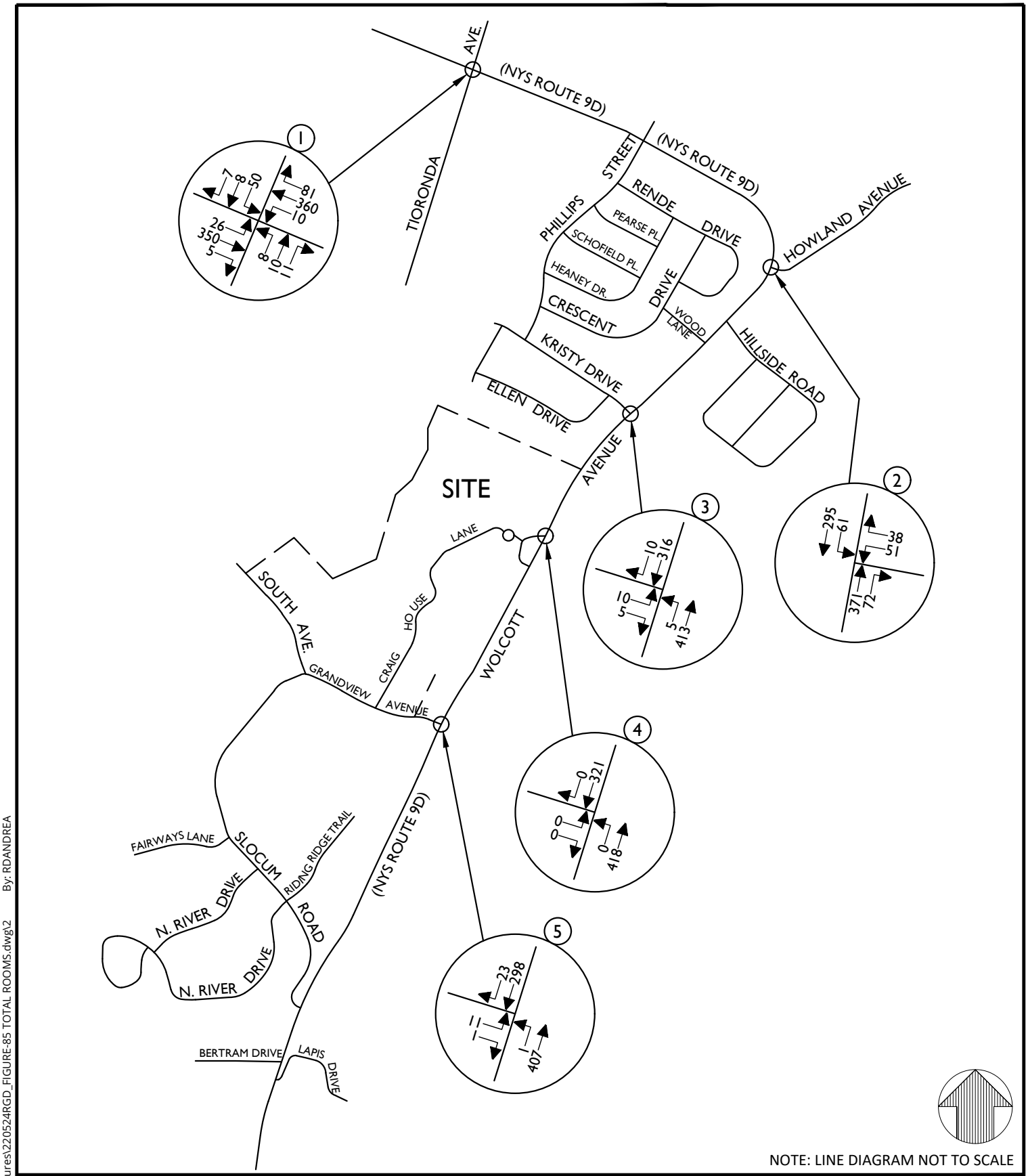

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SHEET TITLE:
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WEEKDAY PEAK FRIDAY PM HOUR

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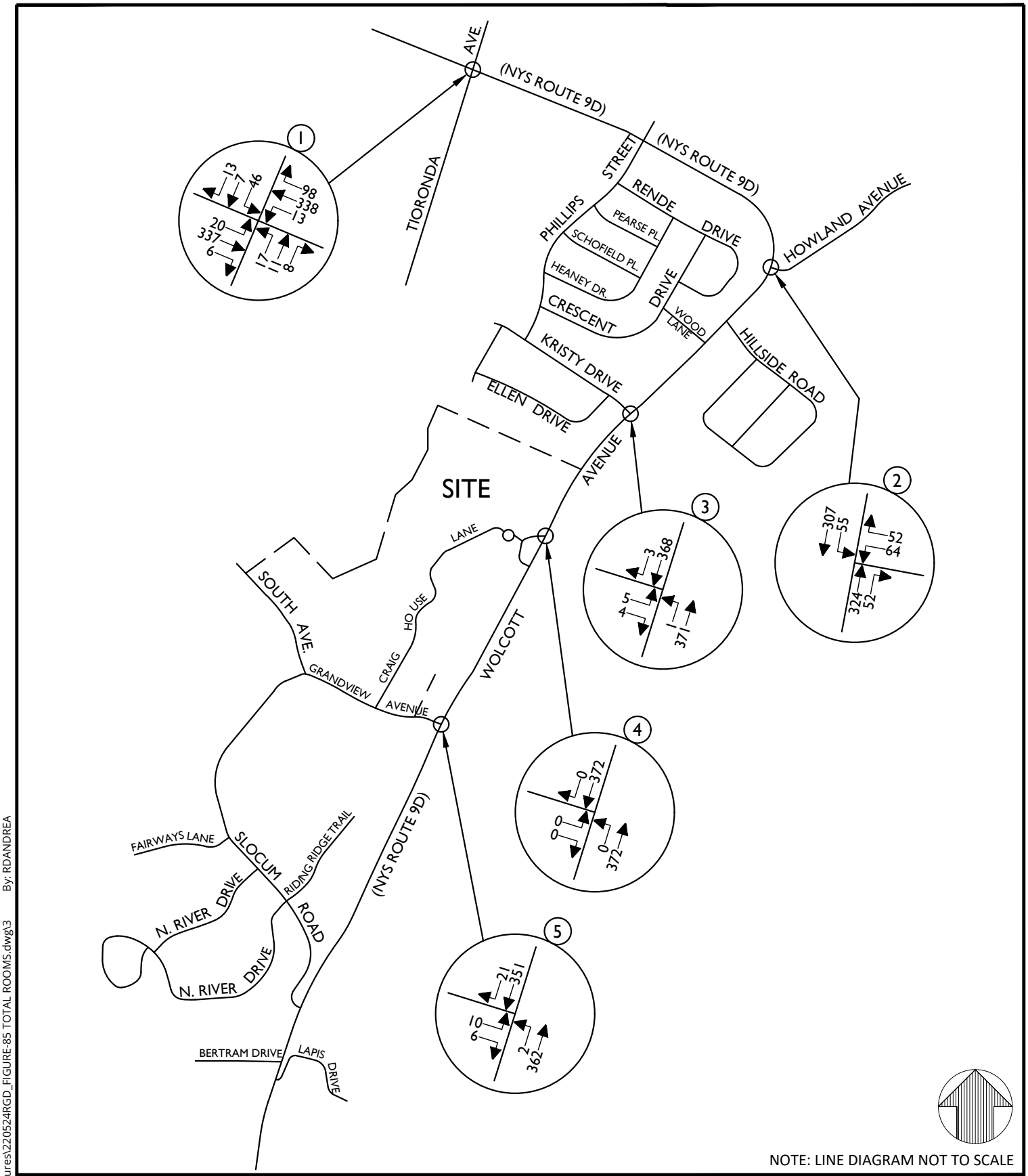

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SHEET TITLE:
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WEEKEND PEAK SAT HOUR

SHEET NUMBER:
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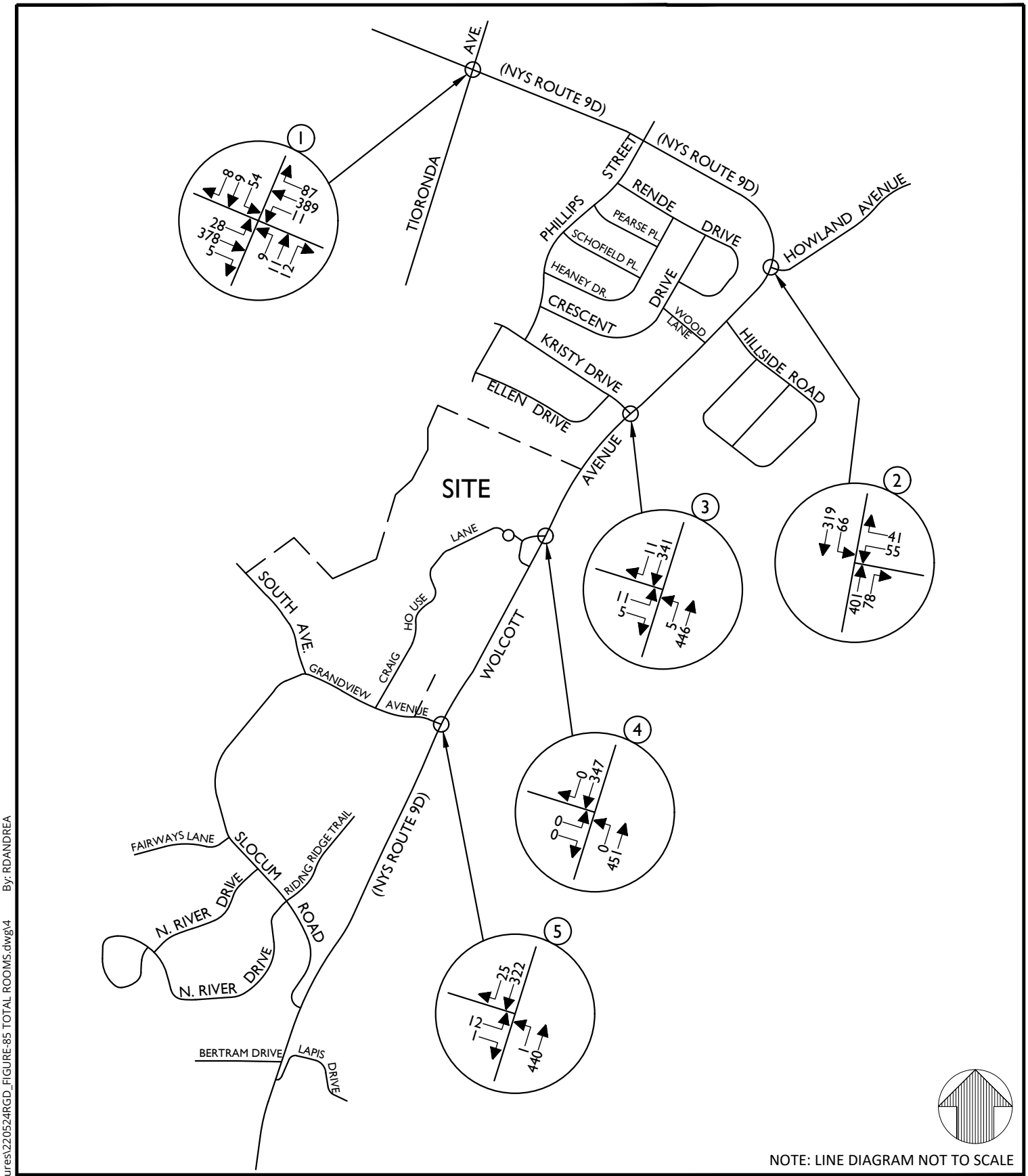

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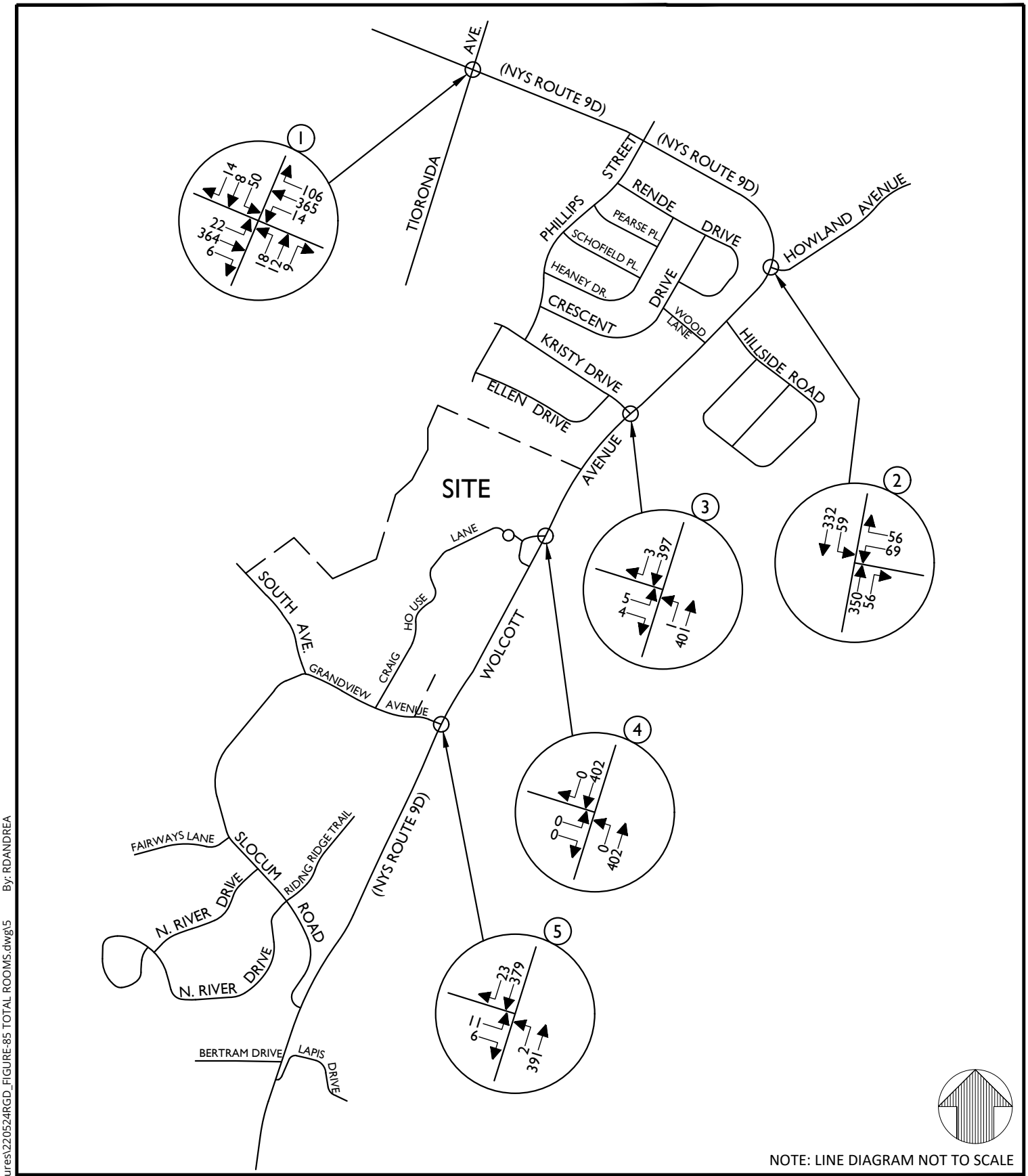

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WEEKEND PEAK SAT HOUR

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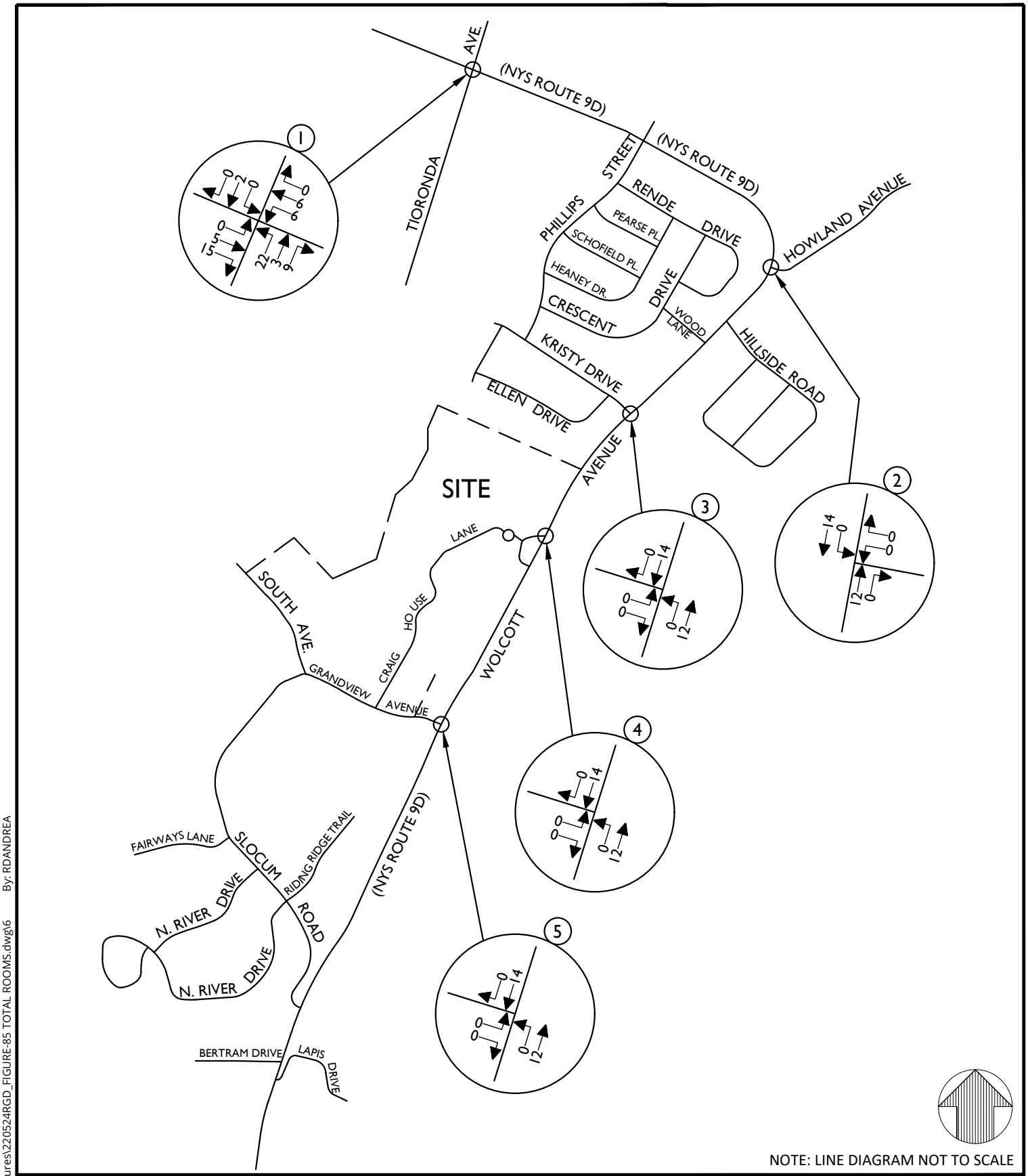

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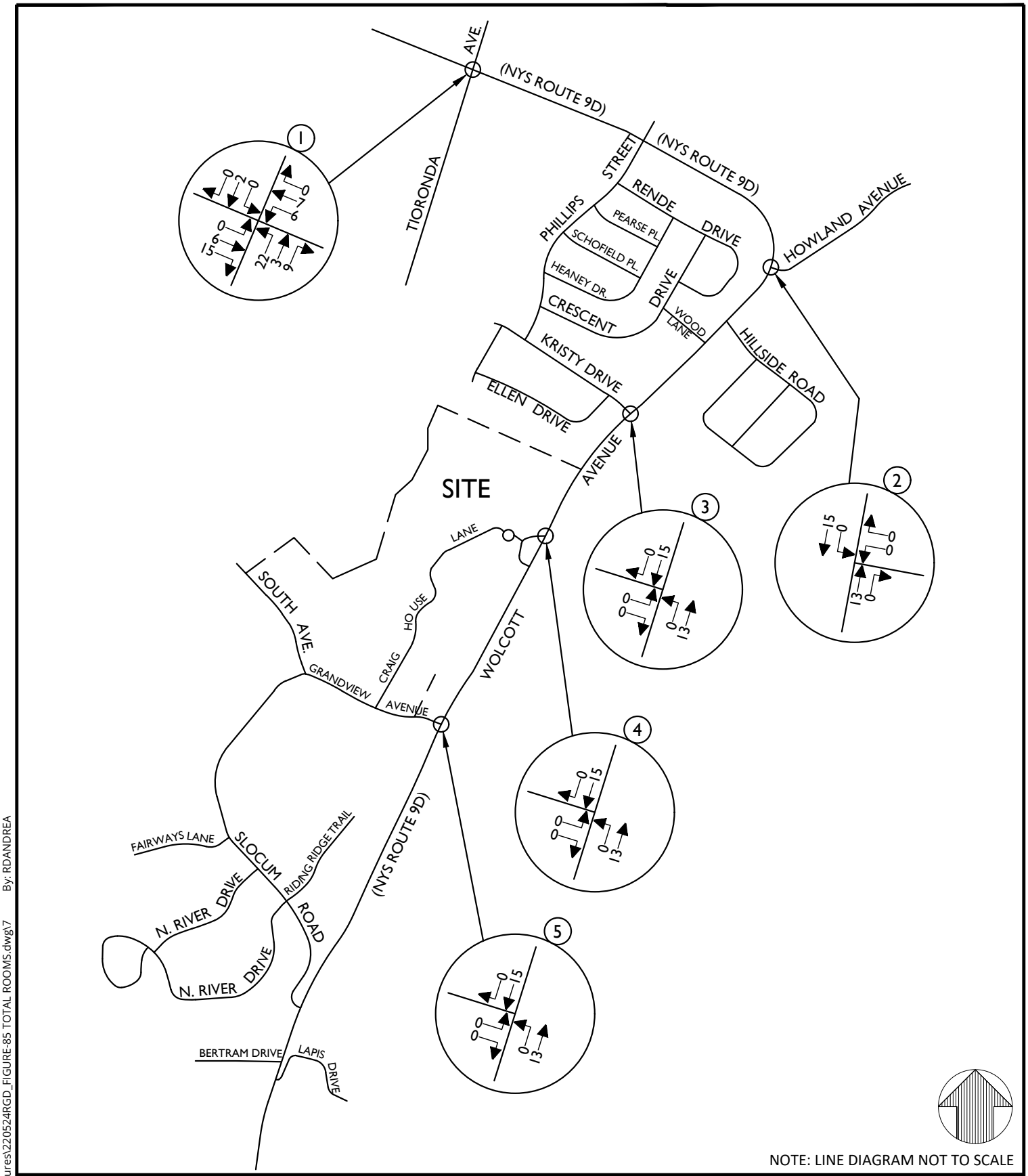
SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	5/24/22	R.H.	P.J.G.

PROJECT NUMBER:	DRAWING NAME:
21007271A	220524RGD_FIGURE-85 TOTAL ROOMS

SHEET TITLE:
OTHER DEVELOPMENT
TRAFFIC VOLUMES
WEEKDAY PEAK FRIDAY PM HOUR

SHEET NUMBER: 6

7271A-Mirbeau Spa\Reports\Traffic\Figures\220524RGD_FIGURE-85 TOTAL ROOMS.dwg\6 By: RDANDREA



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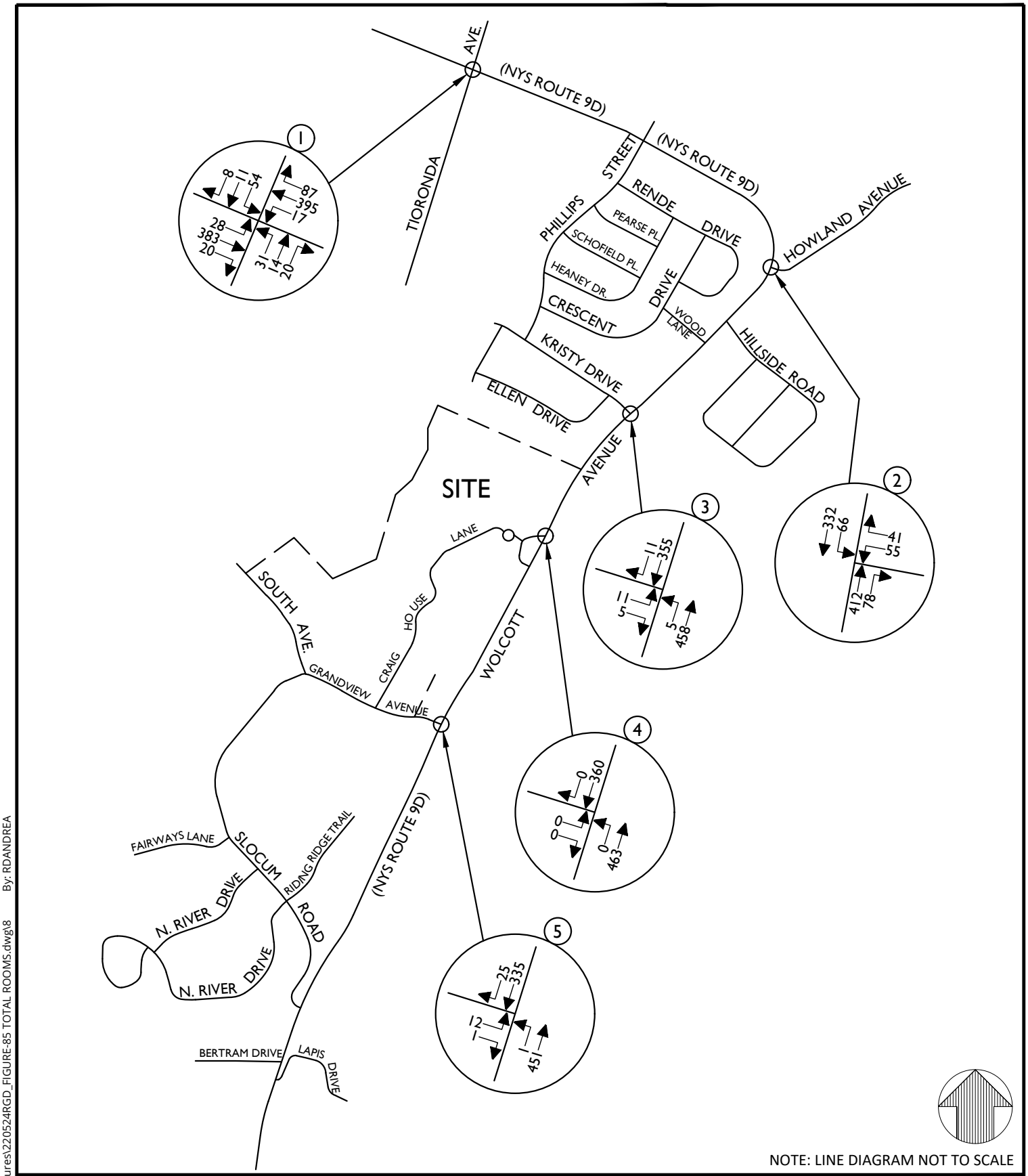
AS SHOWN	5/24/22	R.H.	P.J.G.

PROJECT NUMBER:	DRAWING NAME:
21007271A	220524RGD_FIGURE-85 TOTAL ROOMS

SHEET TITLE:
OTHER DEVELOPMENT
TRAFFIC VOLUMES
WEEKEND PEAK SAT HOUR

SHEET NUMBER: 7

7271A-Mirbeau Spa\Reports\Traffic\Figures\220524RGD_FIGURE-85 TOTAL ROOMS.dwg\7 By: RDANDREA



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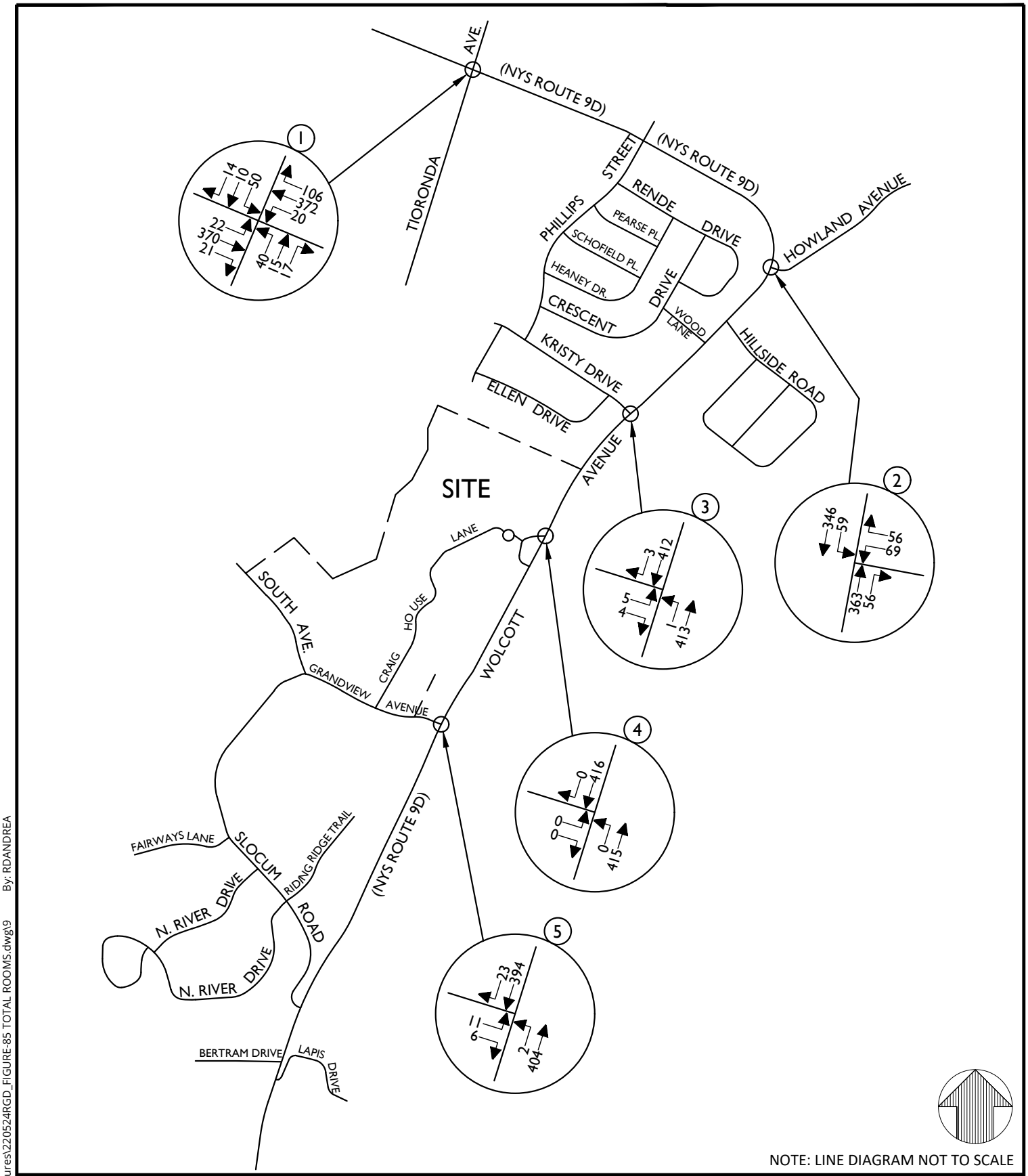
SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	5/24/22	R.H.	P.J.G.

PROJECT NUMBER:	DRAWING NAME:
21007271A	220524RGD_FIGURE-85 TOTAL ROOMS

SHEET TITLE:
2025 NO-BUILD TRAFFIC VOLUMES
WEEKDAY PEAK FRIDAY PM HOUR

SHEET NUMBER:
8

7271A-Mirbeau Spa\Reports\Traffic\Figures\220524RGD_FIGURE-85 TOTAL ROOMS.dwg\8 By: RDANDREA



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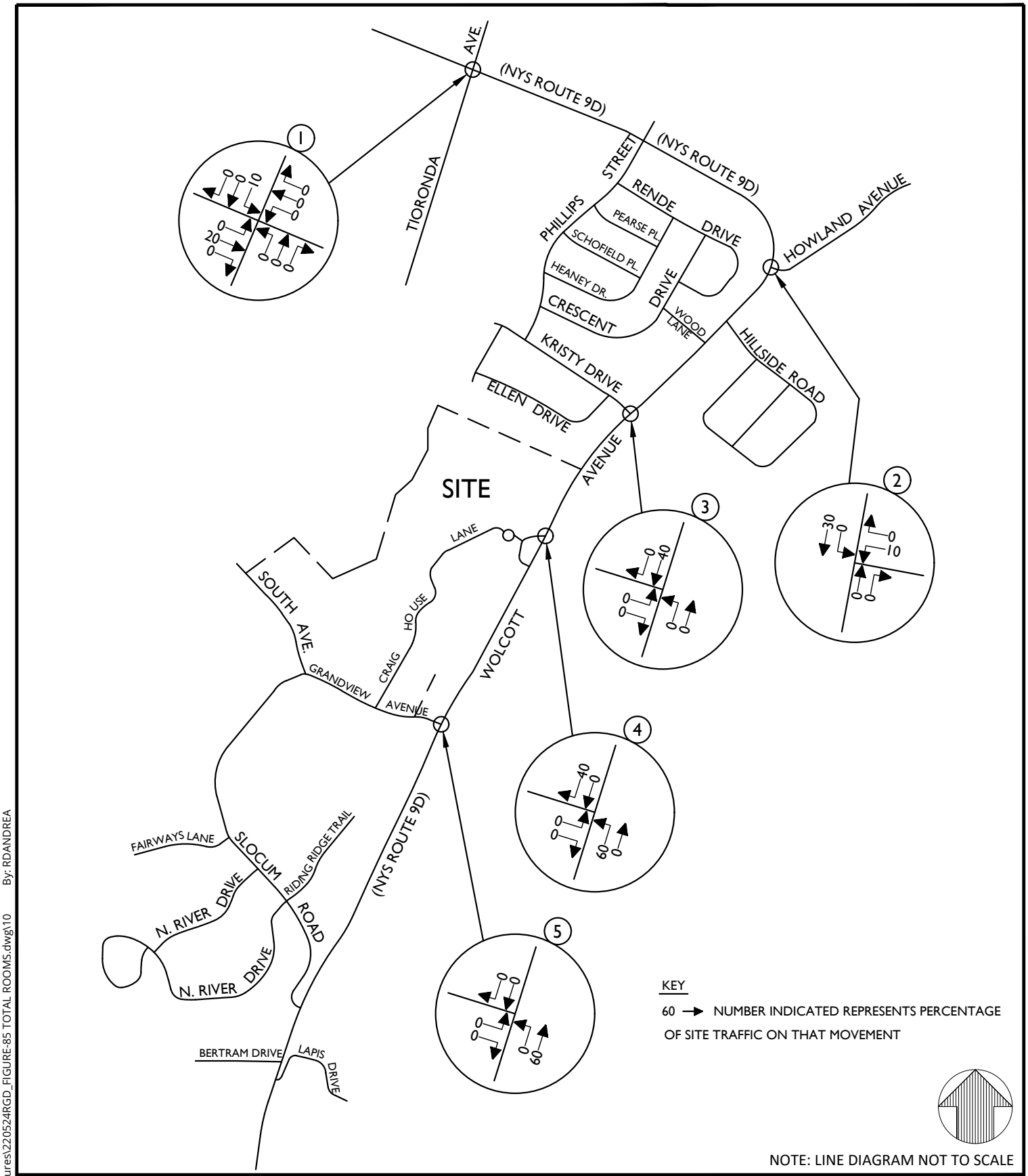
AS SHOWN	5/24/22	R.H.	P.J.G.

PROJECT NUMBER:	DRAWING NAME:
21007271A	220524RGD_FIGURE-85 TOTAL ROOMS

SHEET TITLE:
2025 NO-BUILD TRAFFIC VOLUMES
WEEKEND PEAK SAT HOUR

SHEET NUMBER:
9

7271A-Mirbeau Spa\Reports\Traffic\Figures\220524RGD_FIGURE-85 TOTAL ROOMS.dwg9 By: RDANDREA



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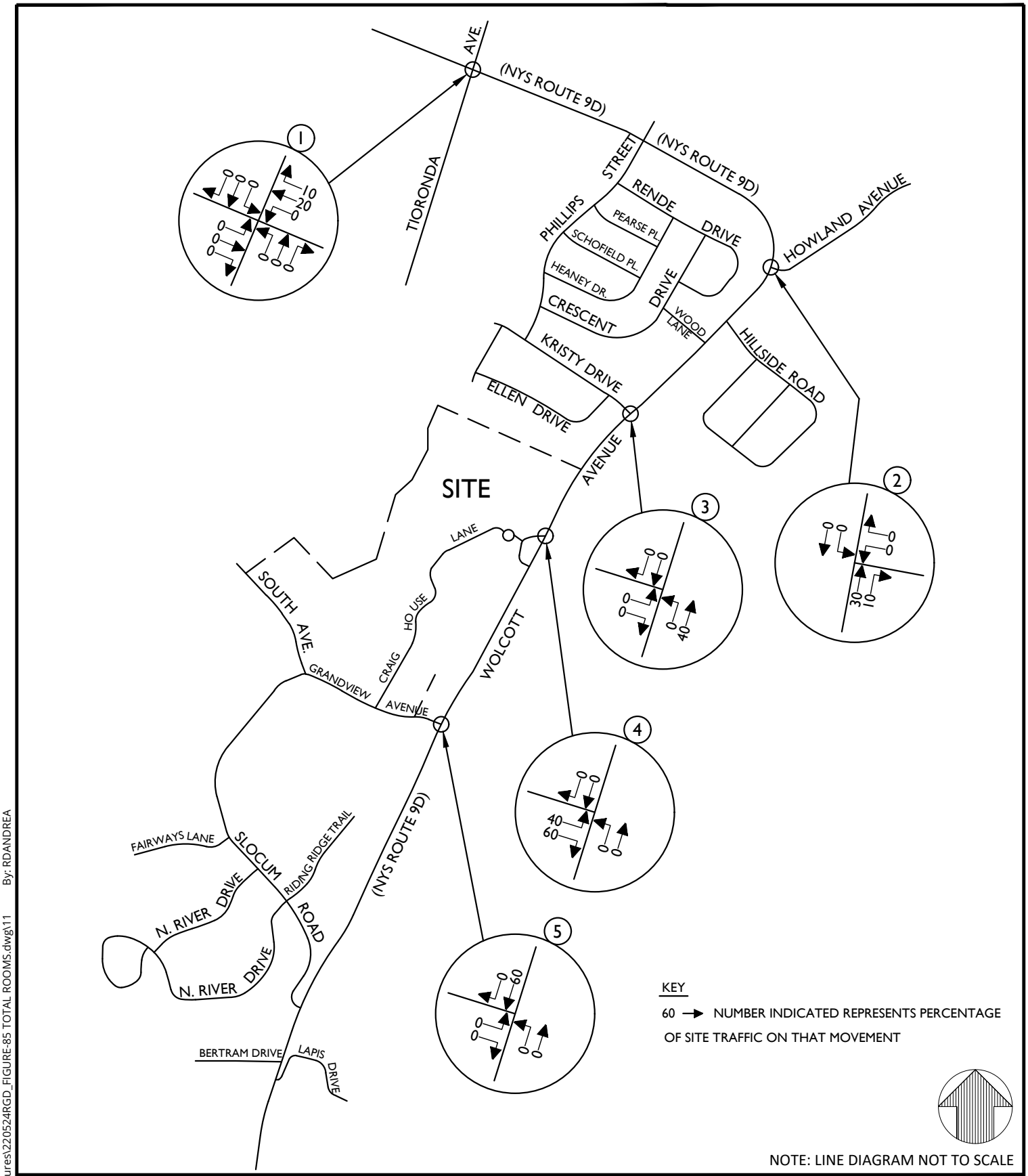
AS SHOWN	5/24/22	R.H.	P.J.G.

PROJECT NUMBER:	DRAWING NAME:
21007271A	220524RGD_FIGURE-85 TOTAL ROOMS

SHEET TITLE:
ARRIVAL DISTRIBUTION
(ALL VALUES ARE EXPRESSED AS %)
(MIRBEAU SPA)

SHEET NUMBER: 10

7271A-Mirbeau Spa\Reports\Traffic\Figures\220524RGD_FIGURE-85 TOTAL ROOMS.dwg\10 By: RDANDREA



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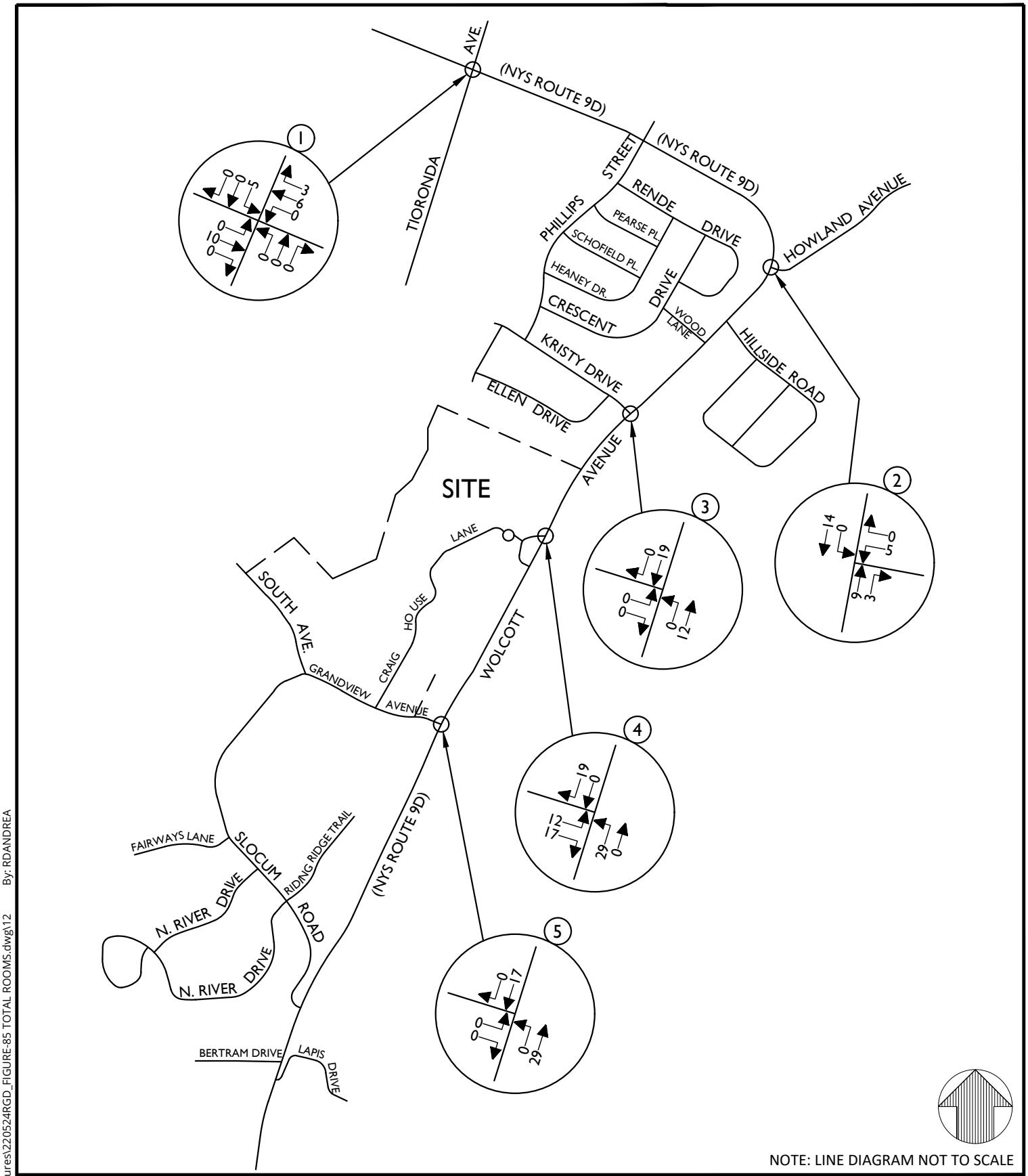
PROJECT NUMBER:	DRAWING NAME:
21007271A	220524RGD_FIGURE-85 TOTAL ROOMS

SHEET TITLE:
DEPARTURE DISTRIBUTION
(ALL VALUES ARE EXPRESSED AS %)
(MIRBEAU SPA)

SHEET NUMBER: 11



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SCALE:	DATE:	DRAWN BY:	CHECKED BY:
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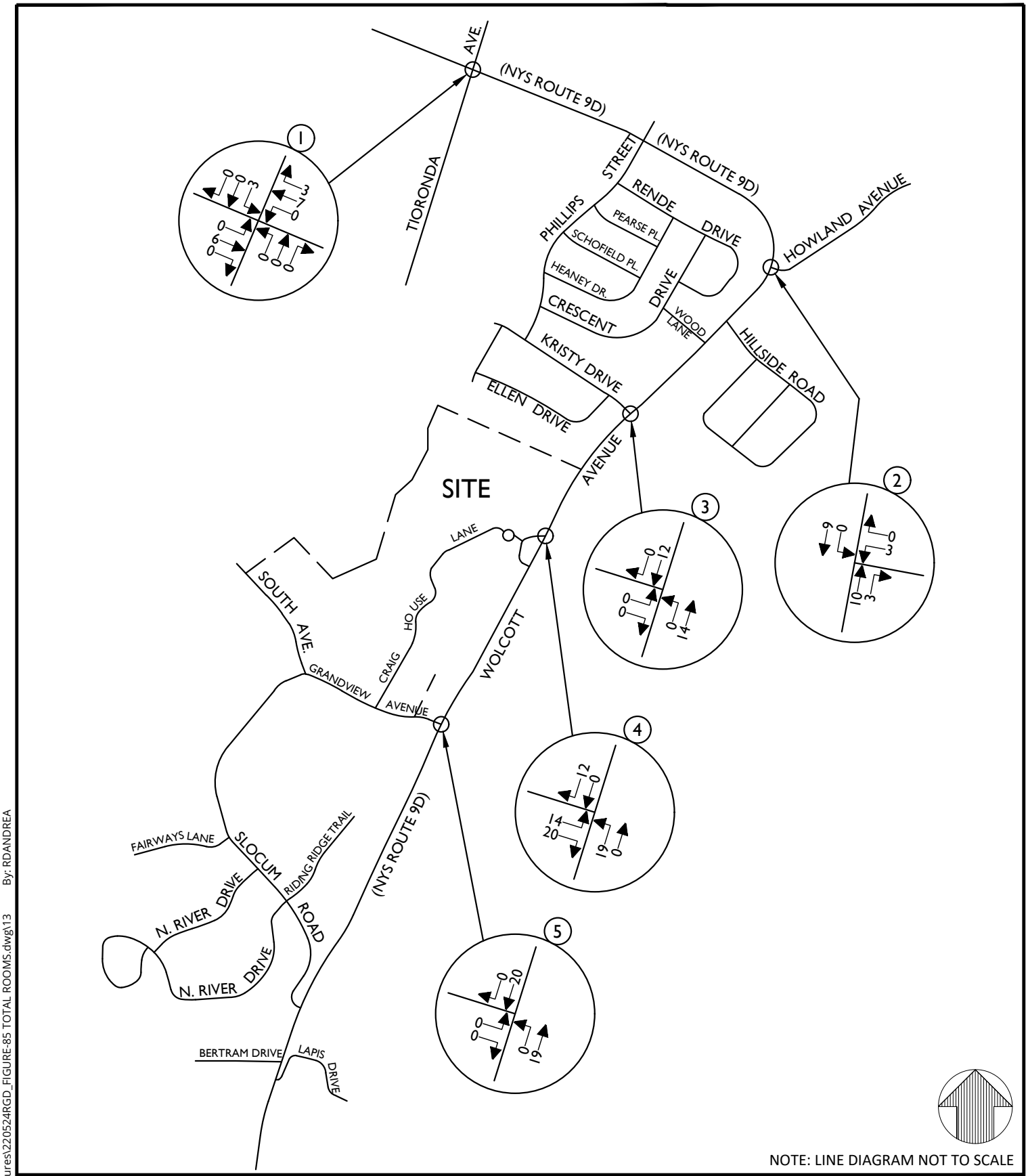
PROJECT NUMBER: 21007271A
DRAWING NAME: 220524RGD_FIGURE-85 TOTAL ROOMS

SHEET TITLE:
SITE GENERATED
TRAFFIC VOLUMES
WEEKDAY FRIDAY PEAK PM HOUR

SHEET NUMBER: 12

7271A-Mirbeau Spa\Reports\Traffic\Figures\220524RGD_FIGURE-85 TOTAL ROOMS.dwg\12 By: RDANDREA



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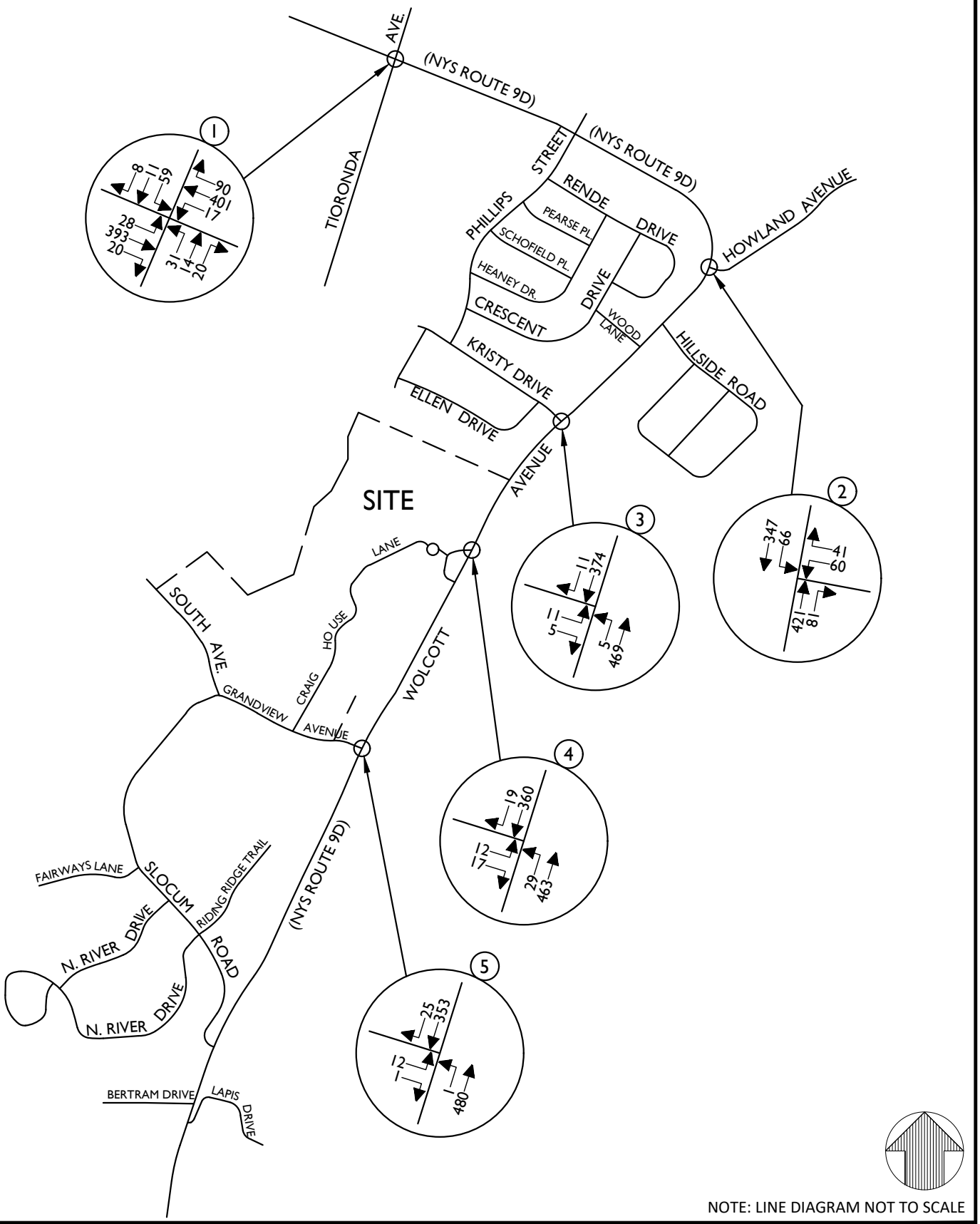
PROJECT NUMBER:	DRAWING NAME:
21007271A	220524RGD_FIGURE-85 TOTAL ROOMS

SHEET TITLE:
SITE GENERATED
TRAFFIC VOLUMES
WEEKEND SATURDAY PEAK HOUR

SHEET NUMBER:
13

7271A-Mirbeau Spa\Reports\Traffic\Figures\220524RGD_FIGURE-85 TOTAL ROOMS.dwg\13 By: RDANDREA



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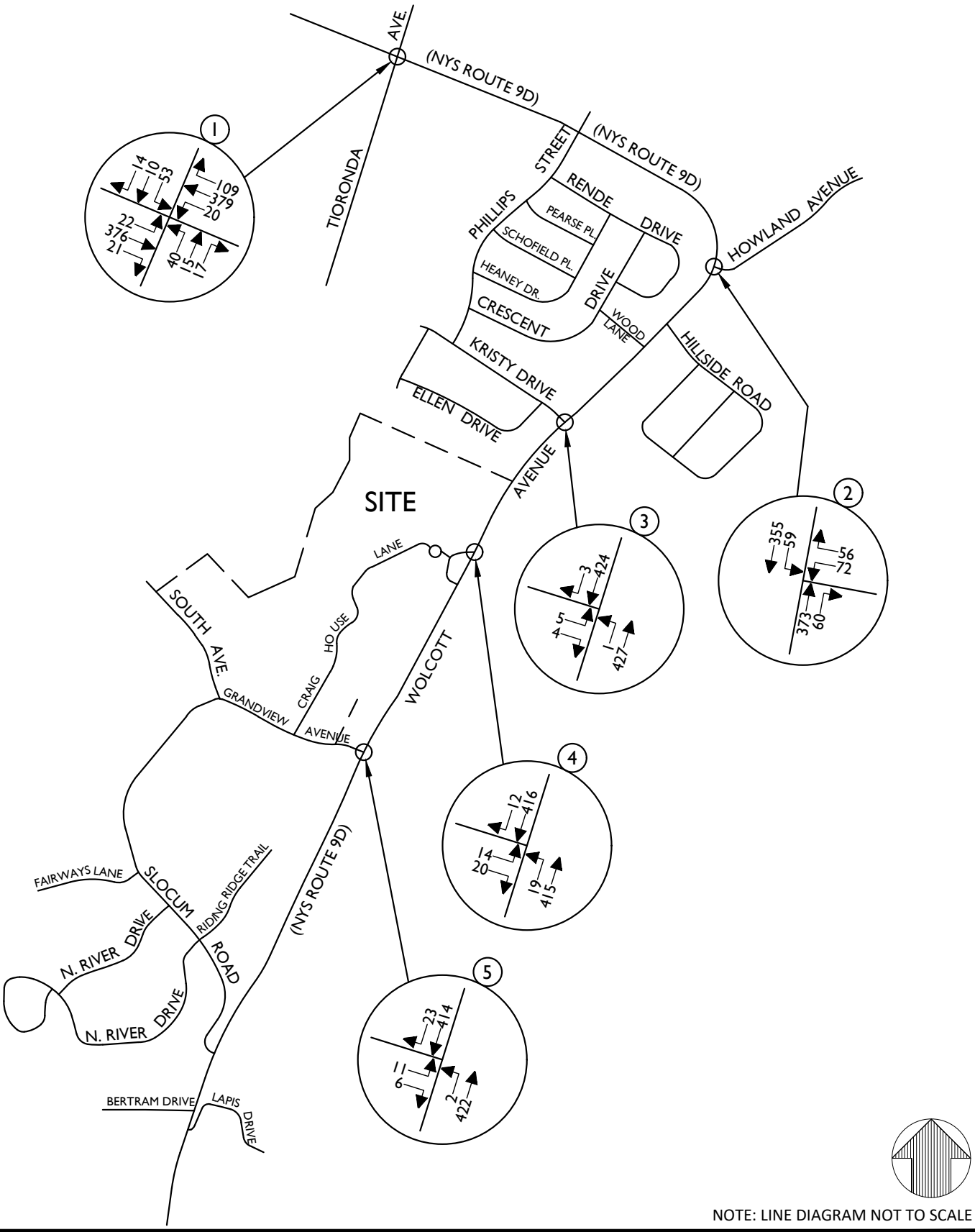
PROJECT NUMBER: 21007271A
DRAWING NAME: 220524RGD_FIGURE-85 TOTAL ROOMS

SHEET TITLE:
2025 BUILD TRAFFIC VOLUMES
WEEKDAY FRIDAY PEAK PM HOUR

SHEET NUMBER: 14

7271A-Mirbeau Spa\Reports\Traffic\Figures\220524RGD_FIGURE-85 TOTAL ROOMS.dwg\14 By: RDANDREA



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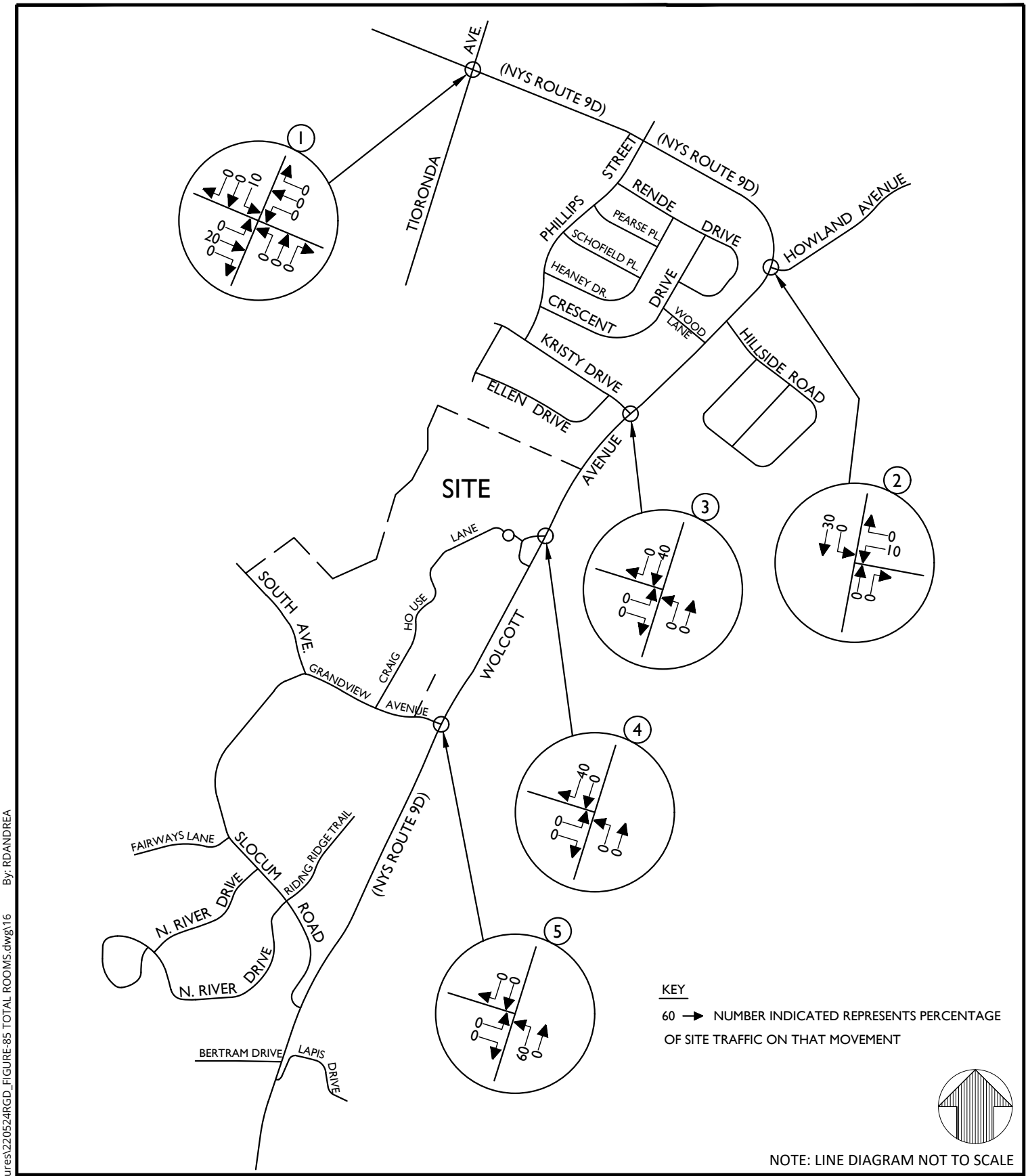
AS SHOWN	5/24/22	R.H.	P.J.G.

PROJECT NUMBER:	DRAWING NAME:
21007271A	220524RGD_FIGURE-85 TOTAL ROOMS

SHEET TITLE:
2025 BUILD TRAFFIC VOLUMES
WEEKEND SATURDAY PEAK HOUR

SHEET NUMBER:
15

7271A-Mirbeau Spa\Reports\Traffic\Figures\220524RGD_FIGURE-85 TOTAL ROOMS.dwg\15 By: RDANDREA



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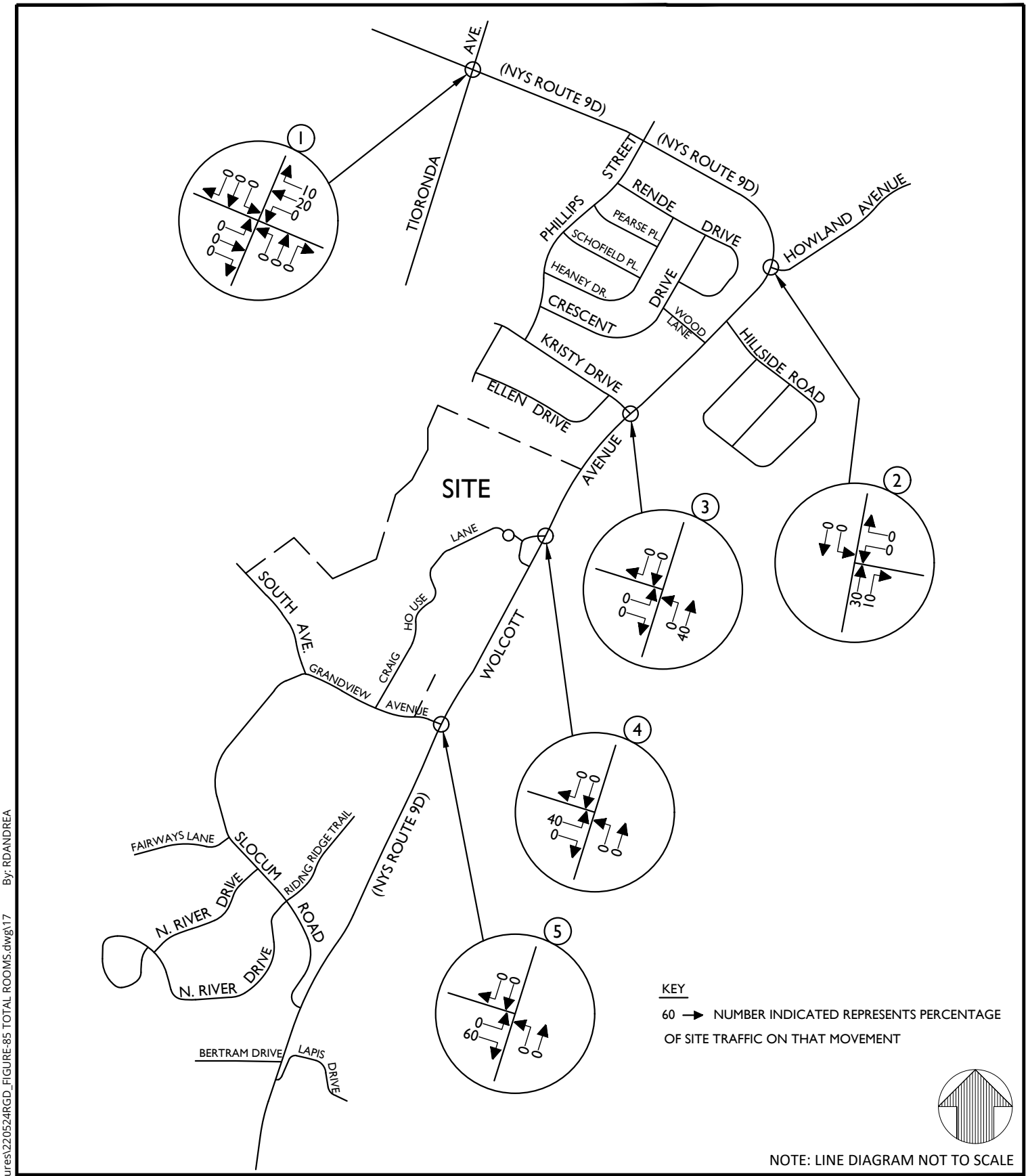
AS SHOWN	5/24/22	R.H.	P.J.G.

PROJECT NUMBER:	DRAWING NAME:
21007271A	220524RGD_FIGURE-85 TOTAL ROOMS

SHEET TITLE:
ARRIVAL DISTRIBUTION
(ALL VALUES EXPRESSED AS A %)
(RESORT RENTALS)

SHEET NUMBER: 16

7271A-Mirbeau Spa\Reports\Traffic\Figures\220524RGD_FIGURE-85 TOTAL ROOMS.dwg\16 By: RDANDREA



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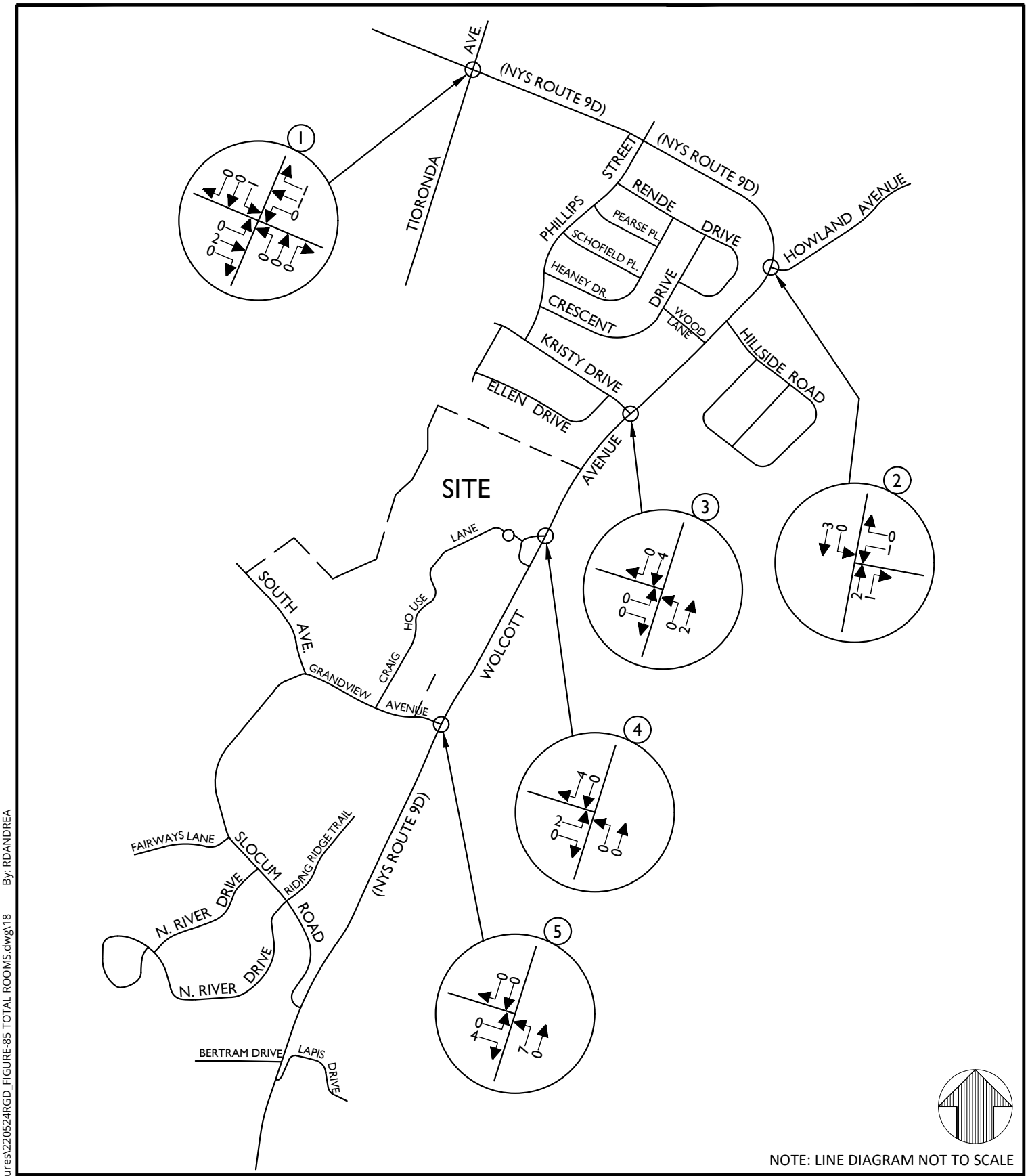
PROJECT NUMBER:	DRAWING NAME:
21007271A	220524RGD_FIGURE-85 TOTAL ROOMS

SHEET TITLE:
DEPARTURE DISTRIBUTION
(ALL VALUES EXPRESSED AS A %)
(RESORT RENTALS)

SHEET NUMBER: 17

7271A-Mirbeau Spa\Reports\Traffic\Figures\220524RGD_FIGURE-85 TOTAL ROOMS.dwg\17 By: RDANDREA



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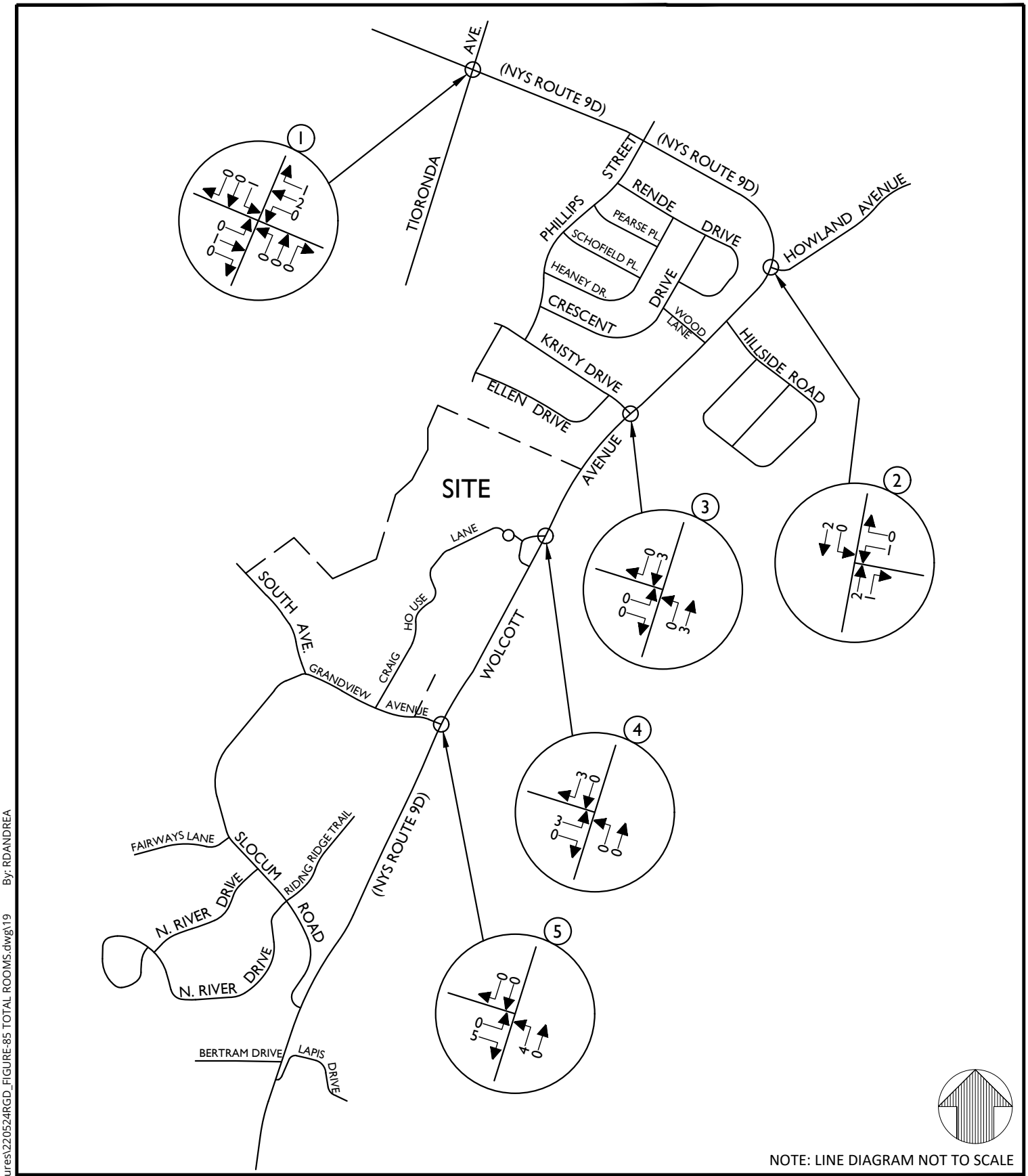
AS SHOWN	5/24/22	R.H.	P.J.G.

PROJECT NUMBER:	DRAWING NAME:
21007271A	220524RGD_FIGURE-85 TOTAL ROOMS

SHEET TITLE:
SITE GENERATED TRAFFIC VOLUMES WITH FUTURE RESORT RENTALS WEEKDAY FRIDAY PEAK PM HOUR

SHEET NUMBER:
18

7271A-Mirbeau Spa\Reports\Traffic\Figures\220524RGD_FIGURE-85 TOTAL ROOMS.dwg18 By: RDANDREA



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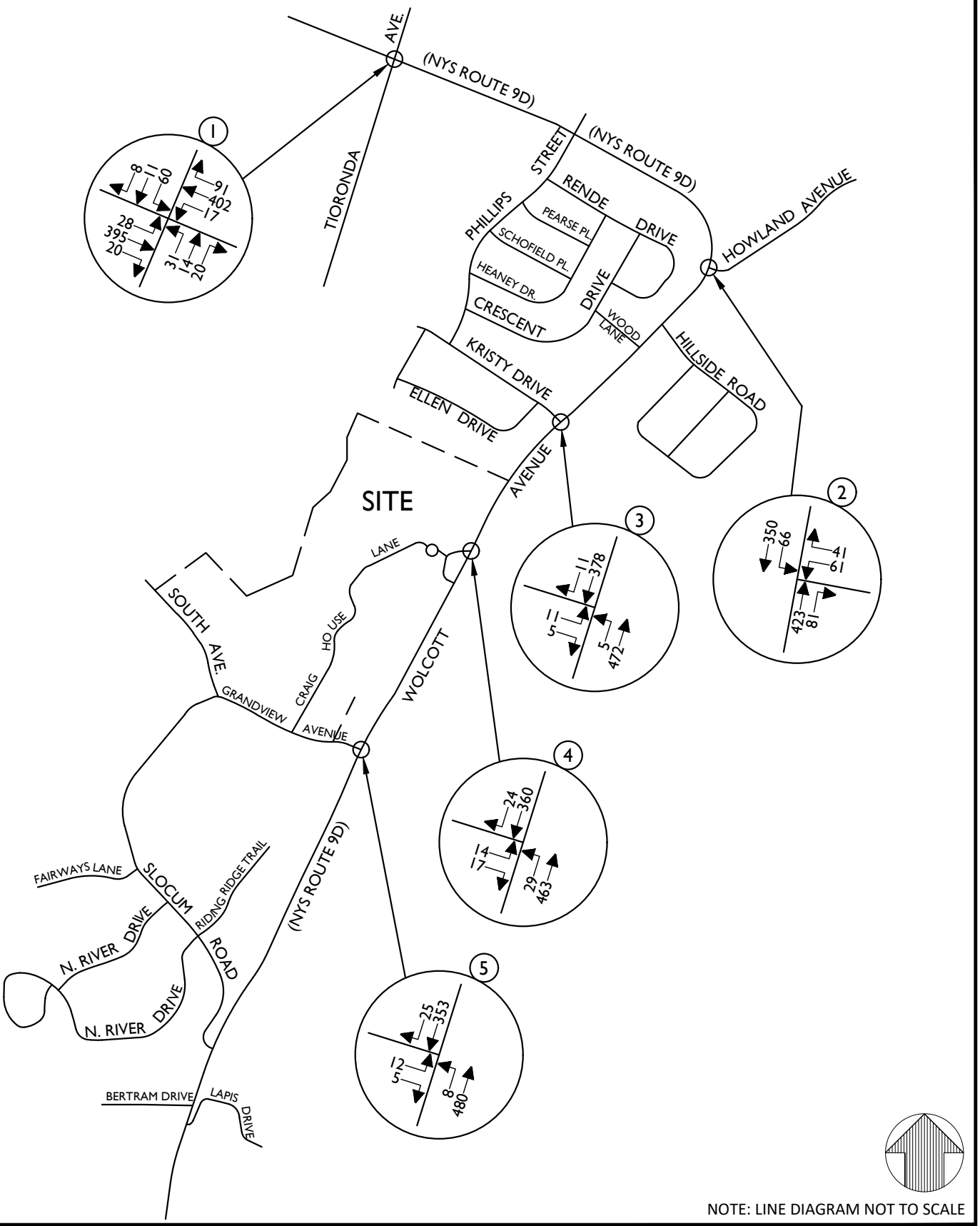
PROJECT NUMBER:	DRAWING NAME:
21007271A	220524RGD_FIGURE-85 TOTAL ROOMS

SHEET TITLE:
SITE GENERATED TRAFFIC VOLUMES WITH FUTURE RESORT RENTALS WEEKEND SATURDAY PEAK HOUR

SHEET NUMBER:
19

7271A-Mirbeau Spa\Reports\Traffic\Figures\220524RGD_FIGURE-85 TOTAL ROOMS.dwg\19 By: RDANDREA



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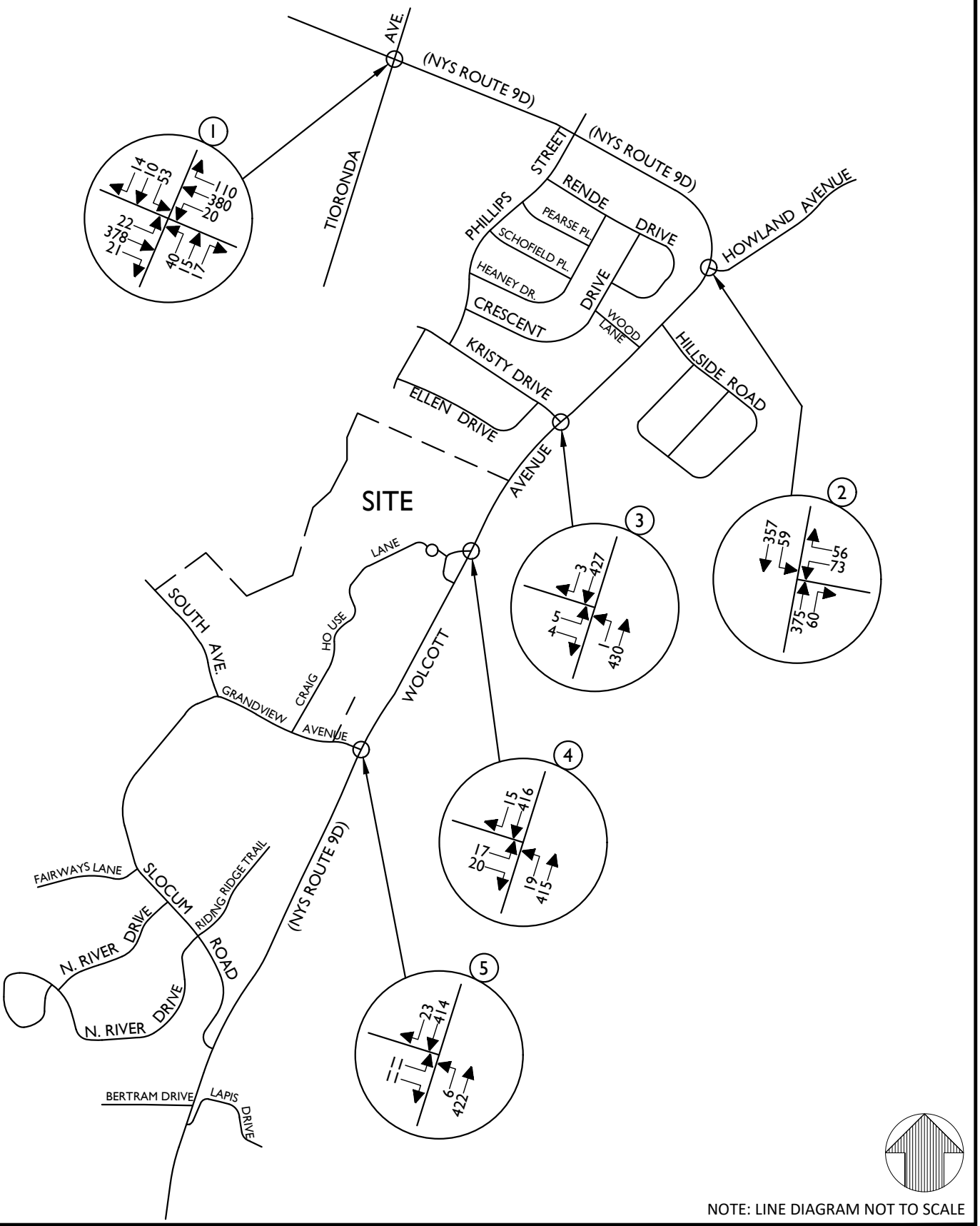
PROJECT NUMBER:	DRAWING NAME:
21007271A	220524RGD_FIGURE-85 TOTAL ROOMS

SHEET TITLE:
2025 BUILD TRAFFIC VOLUMES WITH FUTURE RESORT RENTALS WEEKDAY FRIDAY PEAK PM HOUR

SHEET NUMBER:
20

7271A-Mirbeau Spa\Reports\Traffic\Figures\220524RGD_FIGURE-85 TOTAL ROOMS.dwg\20 By: RDANDREA



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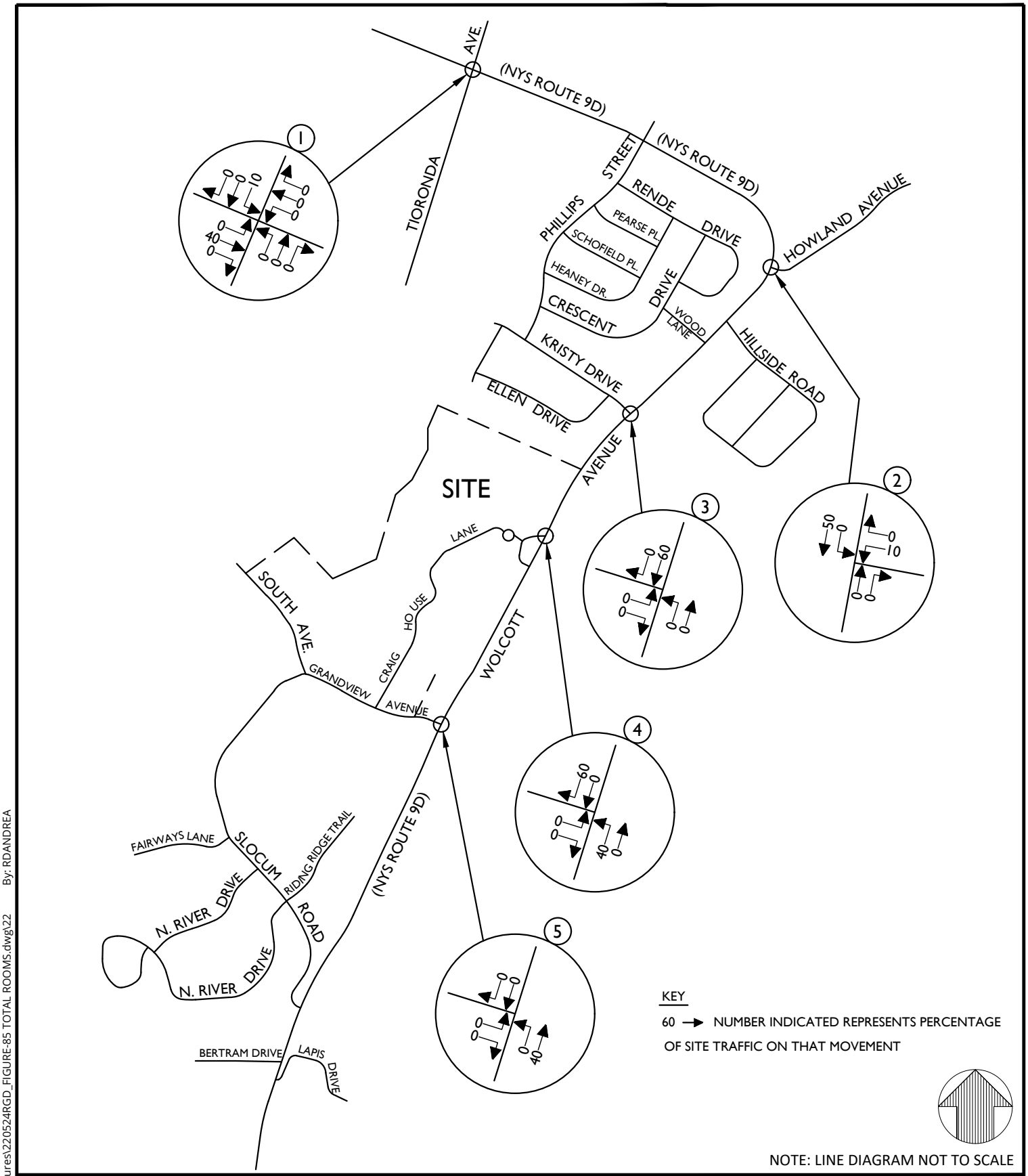
PROJECT NUMBER:	DRAWING NAME:
21007271A	220524RGD_FIGURE-85 TOTAL ROOMS

SHEET TITLE:
2025 BUILD TRAFFIC VOLUMES WITH FUTURE RESORT RENTALS WEEKEND SATURDAY PEAK HOUR

SHEET NUMBER:
21

7271A-Mirbeau Spa\Reports\Traffic\Figures\220524RGD_FIGURE-85 TOTAL ROOMS.dwg\21 By: RDANDREA



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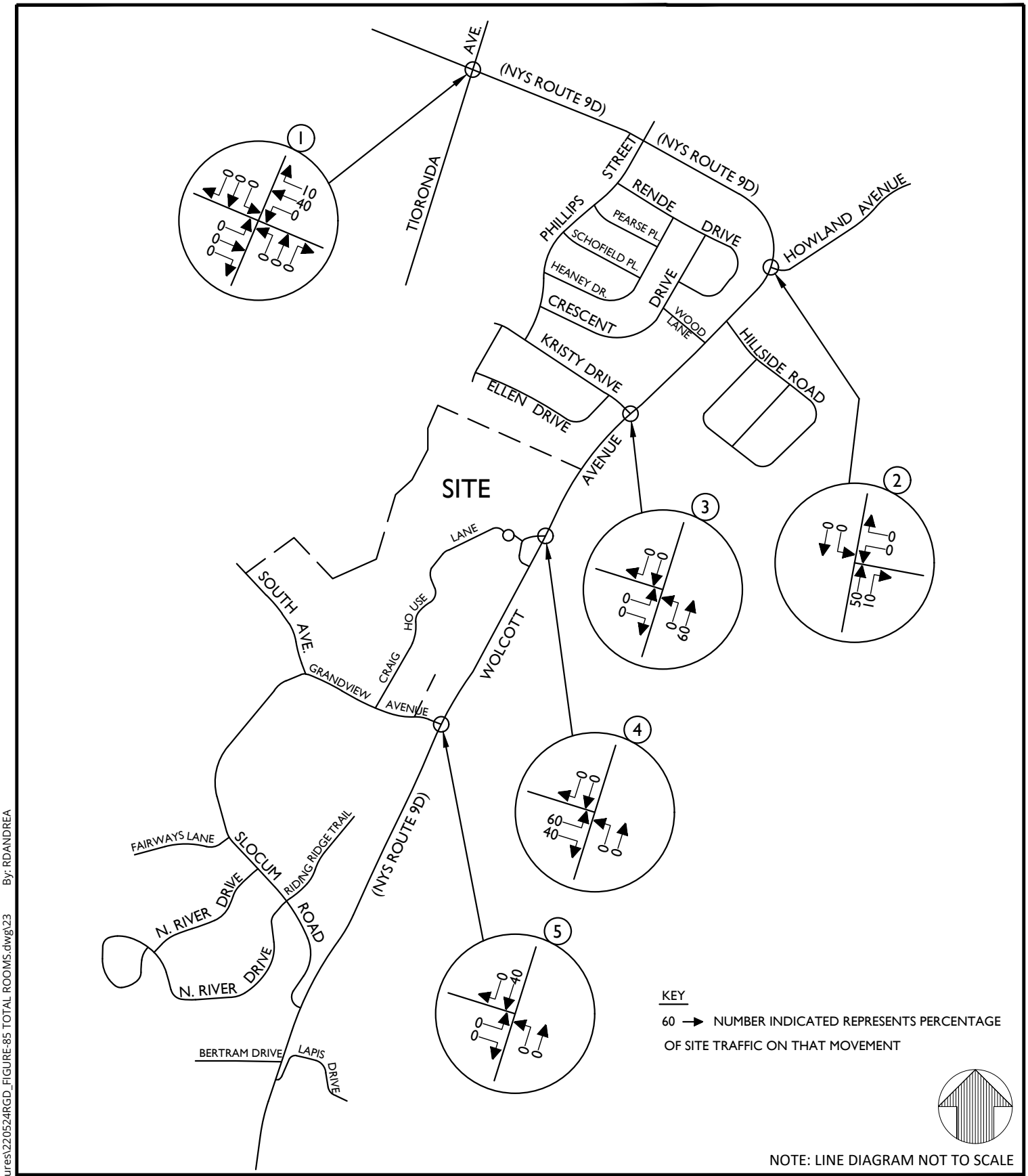
PROJECT NUMBER:	DRAWING NAME:
21007271A	220524RGD_FIGURE-85 TOTAL ROOMS

SHEET TITLE:
ARRIVAL DISTRIBUTION
(ALL VALUES EXPRESSED AS A %)
(EVENT CONDITIONS)

SHEET NUMBER:
22

7271A-Mirbeau Spa\Reports\Traffic\Figures\220524RGD_FIGURE-85 TOTAL ROOMS.dwg\22 By: RDANDREA



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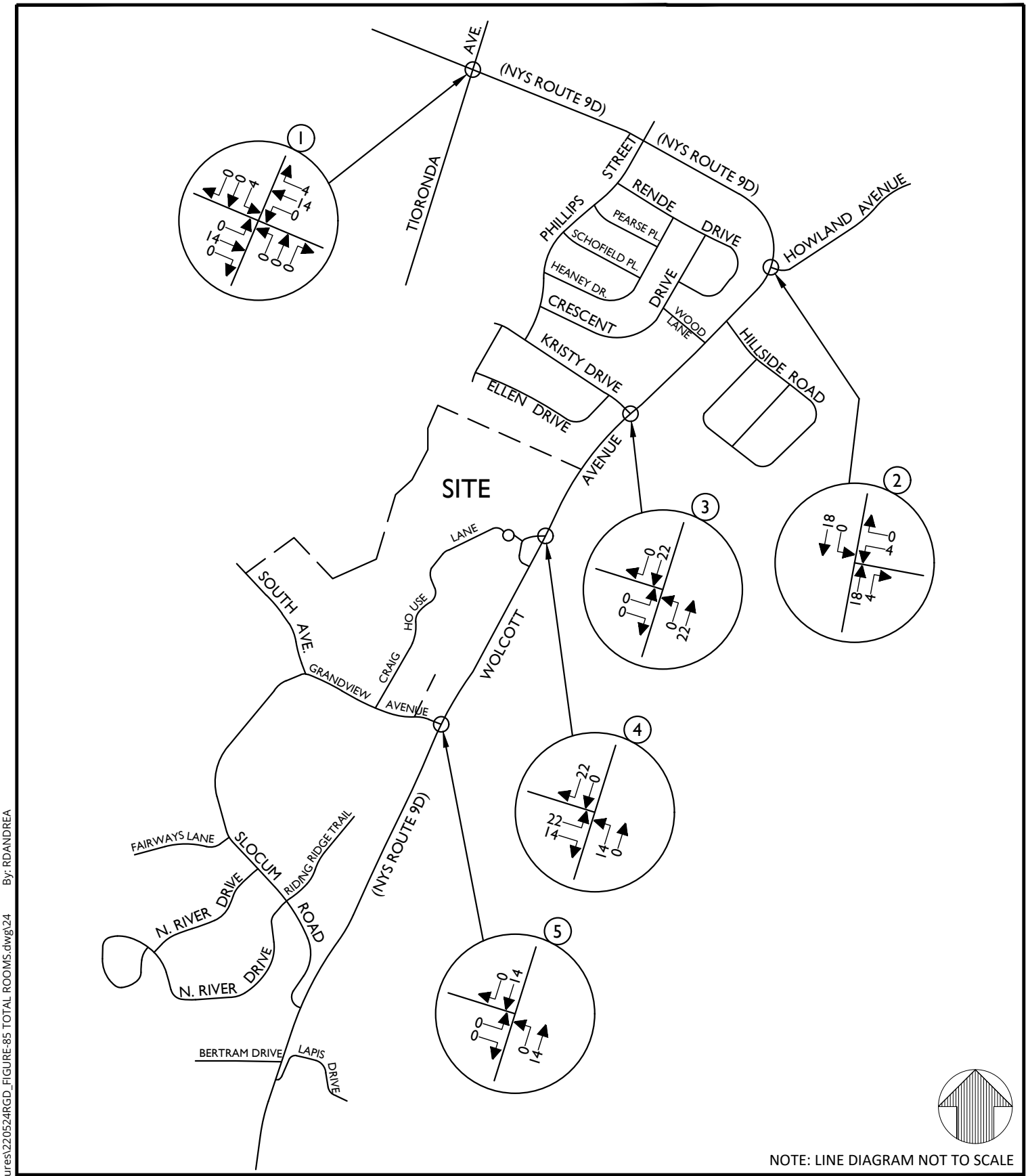
PROJECT NUMBER:	DRAWING NAME:
21007271A	220524RGD_FIGURE-85 TOTAL ROOMS

SHEET TITLE:
DEPARTURE DISTRIBUTION
(ALL VALUES EXPRESSED AS A %)
(EVENT CONDITIONS)

SHEET NUMBER:
23

7271A-Mirbeau Spa\Reports\Traffic\Figures\220524RGD_FIGURE-85 TOTAL ROOMS.dwg\23 By: RDANDREA



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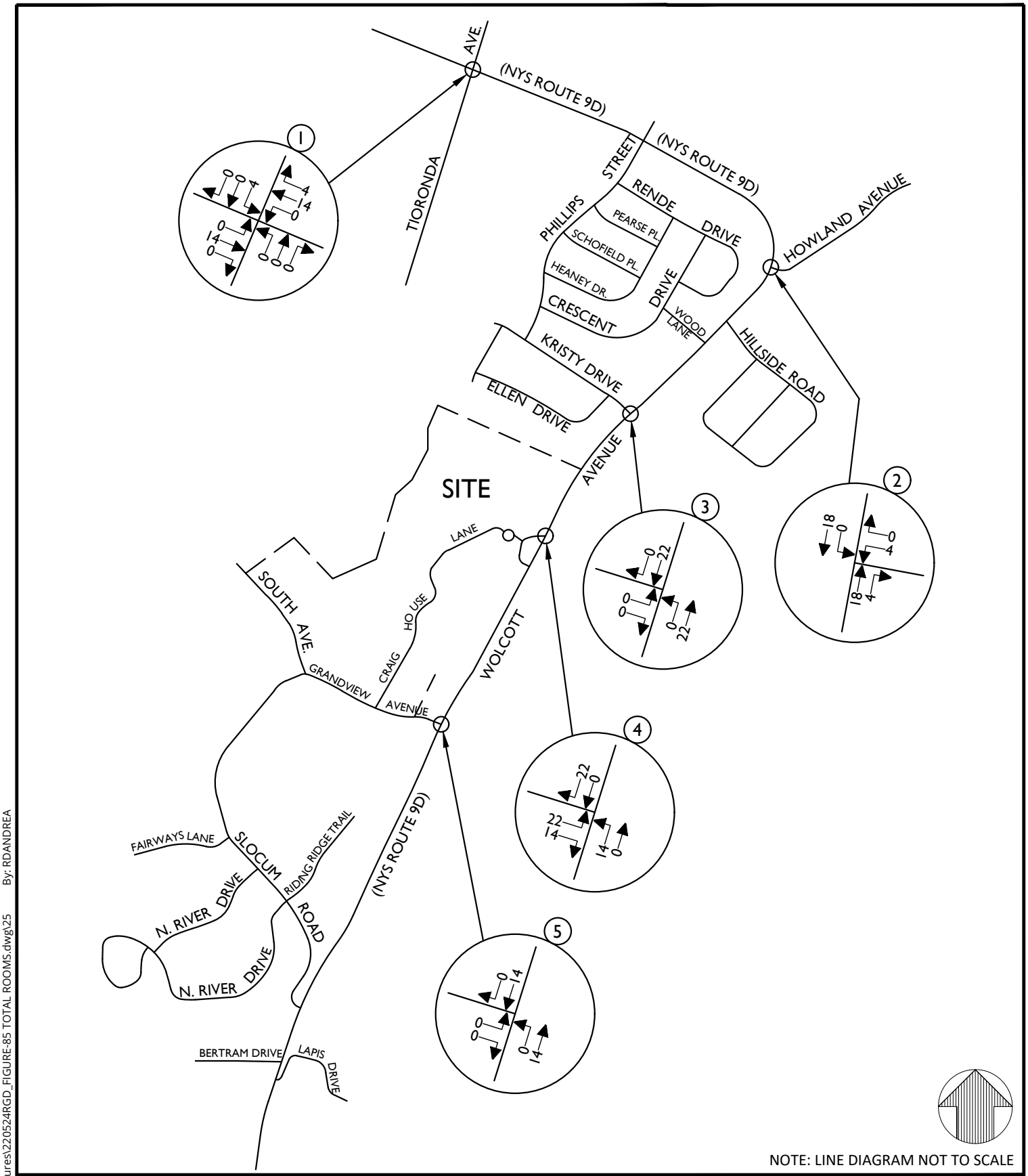
AS SHOWN	5/24/22	R.H.	P.J.G.

PROJECT NUMBER:	DRAWING NAME:
21007271A	220524RGD_FIGURE-85 TOTAL ROOMS

SHEET TITLE:
SITE GENERATED TRAFFIC VOLUMES
WEEKDAY PEAK FRIDAY PM HOUR
(EVENT CONDITIONS)

SHEET NUMBER: 24

7271A-Mirbeau Spa\Reports\Traffic\Figures\220524RGD_FIGURE-85 TOTAL ROOMS.dwg\24 By: RDANDREA



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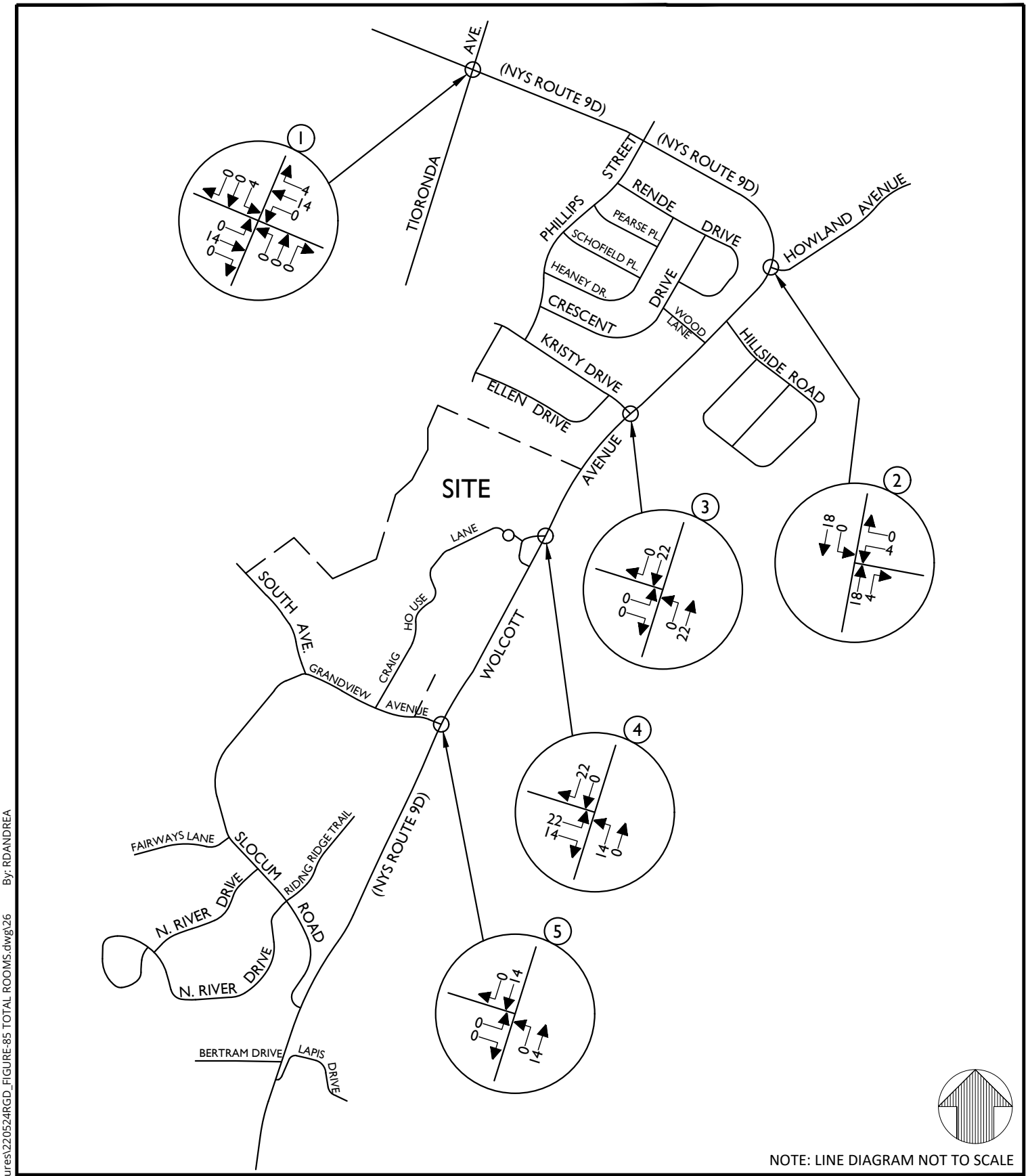
PROJECT NUMBER:	DRAWING NAME:
21007271A	220524RGD_FIGURE-85 TOTAL ROOMS

SHEET TITLE:
SITE GENERATED TRAFFIC VOLUMES
WEEKEND PEAK SATURDAY HOUR
(EVENT CONDITIONS)

SHEET NUMBER: 25

7271A-Mirbeau Spa\Reports\Traffic\Figures\220524RGD_FIGURE-85 TOTAL ROOMS.dwg\25 By: RDANDREA



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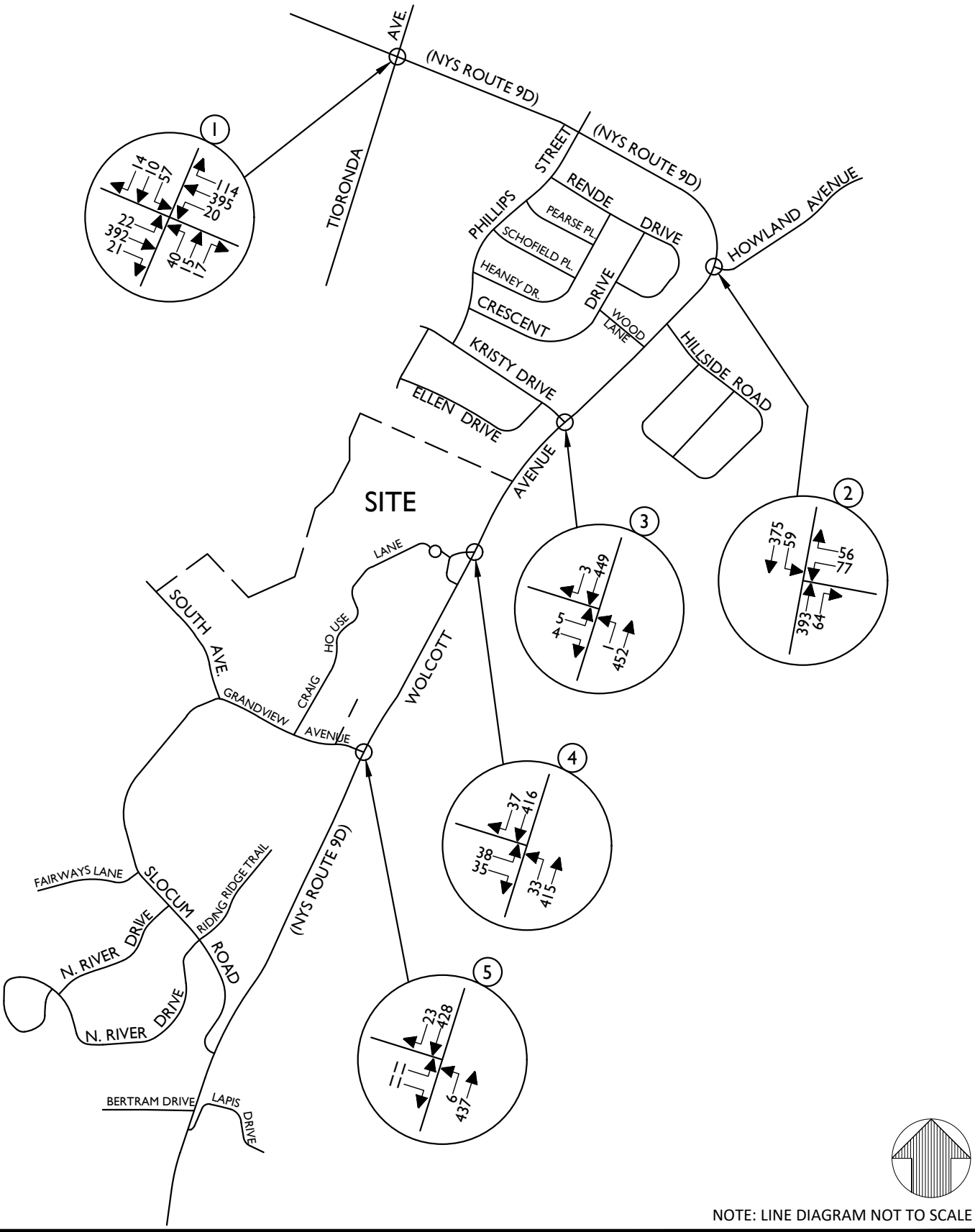
PROJECT NUMBER:	DRAWING NAME:
21007271A	220524RGD_FIGURE-85 TOTAL ROOMS

SHEET TITLE:
2025 FULL BUILD TRAFFIC VOLUMES
WEEKDAY PEAK FRIDAY PM HOUR
(EVENT CONDITIONS)

SHEET NUMBER:
26

7271A-Mirbeau Spa\Reports\Traffic\Figures\220524RGD_FIGURE-85 TOTAL ROOMS.dwg\26 By: RDANDREA



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AS SHOWN	5/24/22	R.H.	P.J.G.

PROJECT NUMBER:	DRAWING NAME:
21007271A	220524RGD_FIGURE-85 TOTAL ROOMS

SHEET TITLE:
2025 FULL BUILD TRAFFIC VOLUMES
WEEKEND PEAK SATURDAY HOUR
(EVENT CONDITIONS)

SHEET NUMBER:
27

7271A-Mirbeau Spa\Reports\Traffic\Figures\220524RGD_FIGURE-85 TOTAL ROOMS.dwg\27 By: RDANDREA

225' MEDIAN TAPER

86' LEFT TURN LANE TAPER

100' LEFT TURN LANE

225' MEDIAN TAPER

NYS ROUTE 9D

SITE ACCESS

STOP
R1-1
(30" X 30")

R=25'

R=25'

W2-2
(30" X 30")

PROPERTY LINE

WIDEN ROADWAY TO CONSTRUCT
100' LEFT TURN LANE

W2-2
(30" X 30")

LEFT LANE MUST TURN LEFT
R3-7
(30" X 30")

LEFT LANE MUST TURN LEFT
R3-7
(30" X 30")

30 0 30 60
SCALE : 1" = 30'

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REV	DATE	DRAWN BY	DESCRIPTION

PRELIMINARY

PRELIMINARY CONCEPTUAL ROADWAY IMPROVEMENT PLAN
FOR
MIRBEAU BEACON

WOLCOTT AVENUE
(NYS ROUTE 9D)

CITY OF BEACON
DUTCHESS COUNTY
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AS SHOWN	03/24/22	J.F.M.	R.G.D.

PROJECT NUMBER:	DRAWING NAME:
21007271A	R-CNPT-WDNG-WEST

SHEET TITLE:
LEFT TURN LANE CONCEPT PLAN

SHEET NUMBER:
CP-1

2021\21007271A\Transportation\Concept\Concept Plans\Relocated Site Access\R-CNPT-WDNG-WEST.dwg\R-CNPT-ALT By: RDANDREA

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Traffic Impact Study

Appendix B | Tables

Table No. 1
Mirbeau Inn & Spa Rhinebeck Traffic Generation Summary

Time		Entry		Exit		Total
		HTGR	Volume	HTGR	Volume	
Friday December 3, 2021						
6:00 AM	7:00 AM	0.12	6	0.00	0	6
7:00 AM	8:00 AM	0.18	9	0.04	2	11
8:00 AM	9:00 AM	0.48	24	0.08	4	28
9:00 AM	10:00 AM	0.44	22	0.06	3	25
10:00 AM	11:00 AM	0.40	20	0.28	14	34
11:00 AM	12:00 PM	0.44	22	0.26	13	35
12:00 PM	1:00 PM	0.28	14	0.18	9	23
1:00 PM	2:00 PM	0.56	28	0.34	17	45
2:00 PM	3:00 PM	0.38	19	0.24	12	31
3:00 PM	4:00 PM	0.46	23	0.40	20	43
4:00 PM	5:00 PM	0.28	14	0.24	12	26
5:00 PM	6:00 PM	0.38	19	0.22	11	30
6:00 PM	7:00 PM	0.20	10	0.22	11	21
7:00 PM	8:00 PM	0.22	11	0.08	4	15
Saturday December 4, 2021						
6:00 AM	7:00 AM	0.08	4	0.02	1	5
7:00 AM	8:00 AM	0.16	8	0.08	4	12
8:00 AM	9:00 AM	0.22	11	0.12	6	17
9:00 AM	10:00 AM	0.24	12	0.12	6	18
10:00 AM	11:00 AM	0.16	8	0.16	8	16
11:00 AM	12:00 PM	0.30	15	0.24	12	27
12:00 PM	1:00 PM	0.42	21	0.26	13	34
1:00 PM	2:00 PM	0.36	18	0.24	12	30
2:00 PM	3:00 PM	0.26	13	0.26	13	26
3:00 PM	4:00 PM	0.30	15	0.40	20	35
4:00 PM	5:00 PM	0.36	18	0.40	20	38
5:00 PM	6:00 PM	0.00	0	0.04	2	2
6:00 PM	7:00 PM	0.00	0	0.00	0	0
7:00 PM	8:00 PM	0.08	4	0.24	12	16

Table No. 1
Mirbeau Inn & Spa Rhinebeck Traffic Generation Summary

Time		Entry		Exit		Total
		HTGR	Volume	HTGR	Volume	
Sunday December 5, 2021						
6:00 AM	7:00 AM	0.10	5	0.00	0	5
7:00 AM	8:00 AM	0.14	7	0.08	4	11
8:00 AM	9:00 AM	0.22	11	0.08	4	15
9:00 AM	10:00 AM	0.28	14	0.14	7	21
10:00 AM	11:00 AM	0.40	20	0.34	17	37
11:00 AM	12:00 PM	0.38	19	0.52	26	45
12:00 PM	1:00 PM	0.22	11	0.26	13	24
1:00 PM	2:00 PM	0.30	15	0.48	24	39
2:00 PM	3:00 PM	0.34	17	0.34	17	34
3:00 PM	4:00 PM	0.42	21	0.40	20	41
4:00 PM	5:00 PM	0.26	13	0.36	18	31
5:00 PM	6:00 PM	0.10	5	0.22	11	16
6:00 PM	7:00 PM	0.16	8	0.12	6	14
7:00 PM	8:00 PM	0.12	6	0.28	14	20
Monday December 6, 2021						
6:00 AM	7:00 AM	0.10	5	0.00	0	5
7:00 AM	8:00 AM	0.20	10	0.08	4	14
8:00 AM	9:00 AM	0.46	23	0.08	4	27
9:00 AM	10:00 AM	0.60	30	0.14	7	37
10:00 AM	11:00 AM	0.42	21	0.34	17	38
11:00 AM	12:00 PM	0.44	22	0.52	26	48
12:00 PM	1:00 PM	0.42	21	0.26	13	34
1:00 PM	2:00 PM	0.20	10	0.48	24	34
2:00 PM	3:00 PM	0.38	19	0.34	17	36
3:00 PM	4:00 PM	0.36	18	0.40	20	38
4:00 PM	5:00 PM	0.22	11	0.36	18	29
5:00 PM	6:00 PM	0.22	11	0.22	11	22
6:00 PM	7:00 PM	0.32	16	0.12	6	22
7:00 PM	8:00 PM	0.20	10	0.28	14	24

Table No. 1E

Hourly Trip Generation Rates (HTGR) and Site Generated Traffic Volumes Comparison

Mirbeau Rhinebeck Inn & Spa

Mirbeau Rhinebeck	Entry		Exit		Total
	HTGR[1]	Volume	HTGR[1]	Volume	
ITE 310 - Hotel (50 Rooms)					
Peak AM Hour	0.26	13	0.20	10	23
Peak AM Hour Generator	0.34	17	0.32	16	33
Peak PM Hour	0.30	15	0.30	15	30
Peak PM Hour Generator	0.36	18	0.26	13	31
Satuday Peak Hour Generator	0.44	22	0.36	18	40
Sunday Peak Hour Generator	0.26	13	0.30	15	28
ITE 310 - Hotel (50 Occupied Rooms)					
Peak AM Hour	0.42	21	0.32	16	37
Peak AM Hour Generator	0.40	20	0.36	18	38
Peak PM Hour	0.36	18	0.38	19	37
Peak PM Hour Generator	0.56	28	0.42	21	49
Saturday Peak Hour	0.36	18	0.44	22	40
Sunday Peak Hour Generator	0.38	19	0.32	16	35
Mirbeau Rhinebeck (50 Rooms)					
Peak AM Hour	0.60	30	0.14	7	37
Peak AM Hour Generator	0.44	22	0.52	26	48
Peak PM Hour	0.38	19	0.22	11	30
Peak PM Hour Generator	0.56	28	0.34	17	45
Saturday Peak Hour	0.36	18	0.40	20	38
Sunday Peak Hour Generator	0.38	19	0.52	26	45

NOTES:

1) THE HOURLY TRIP GENERATION RATES (HTGR) ARE BASED ON DATA PUBLISHED BY THE INSTITUTE OF TRANSPORTATION ENGINEERS (ITE) AS CONTAINED IN THE TRIP GENERATION HANDBOOK, 11TH EDITION, 2021. ITE LAND USE CODE - 310 - HOTEL.

Table No. 1P
Hourly Trip Generation Rates (HTGR) and Site Generated Traffic Volumes Comapison
Proposed Mirbeau Beacon

Mirbeau Beacon	Entry		Exit		Total
	HTGR[1]	Volume	HTGR[1]	Volume	
ITE 310 - Hotel (85 Rooms)					
Peak AM Hour	0.26	21	0.20	16	37
Peak AM Hour Generator	0.33	26	0.29	23	49
Peak PM Hour	0.30	24	0.29	23	47
Peak PM Hour Generator	0.35	28	0.26	21	49
Satuday Peak Hour Generator	0.43	34	0.34	27	61
Sunday Peak Hour Generator	0.28	22	0.30	24	46
ITE 310 - Hotel (85 Occupied Rooms)					
Peak AM Hour	0.39	31	0.31	25	56
Peak AM Hour Generator	0.39	31	0.34	27	58
Peak PM Hour	0.35	28	0.38	30	58
Peak PM Hour Generator	0.51	41	0.39	31	72
Saturday Peak Hour	0.35	28	0.44	35	63
Sunday Peak Hour Generator	0.38	30	0.33	26	56
Mirbeau Rhinebeck (85 Rooms)					
Peak AM Hour	0.60	51	0.14	12	63
Peak AM Hour Generator	0.44	37	0.52	44	81
Peak PM Hour	0.38	32	0.22	19	51
Peak PM Hour Generator	0.56	48	0.34	29	77
Saturday Peak Hour	0.36	31	0.40	34	65
Sunday Peak Hour Generator	0.38	32	0.52	44	76

NOTES:

1) THE HOURLY TRIP GENERATION RATES (HTGR) ARE BASED ON DATA PUBLISHED BY THE INSTITUTE OF TRANSPORTATION ENGINEERS (ITE) AS CONTAINED IN THE TRIP GENERATION HANDBOOK, 11TH EDITION, 2021. ITE LAND USE CODE - 310 - HOTEL.

Table No. 2
Hourly Trip Generation Rates (HTGR) and Analyzed Site Generated Traffic Volumes
Proposed Mirbeau Beacon

Mirbeau Beacon	Entry		Exit		Total
	HTGR[1]	Volume	HTGR[1]	Volume	
Mirbeau Beacon (80 Hotel Rooms)					
Peak PM Hour Generator	0.56	48	0.34	29	77
Saturday Peak Hour	0.36	31	0.40	34	65
Future Rental Homes (19 Units)					
Peak PM Hour Generator	0.56	11	0.34	6	17
Saturday Peak Hour	0.36	7	0.40	8	15
Total With Future Rental Homes					
Peak PM Hour Generator	-	59	-	35	94
Saturday Peak Hour	-	38	-	42	80
Events (100 Attendees)					
Peak PM Hour Generator	-	36	-	36	72
Saturday Peak Hour	-	36	-	36	72
Total With Events					
Peak PM Hour Generator	-	95	-	71	166
Saturday Peak Hour	-	74	-	78	152

NOTES:

1) THE HOURLY TRIP GENERATION RATES (HTGR) ARE BASED ON DATA PUBLISHED BY THE INSTITUTE OF TRANSPORTATION ENGINEERS (ITE) AS CONTAINED IN THE TRIP GENERATION HANDBOOK, 11TH EDITION, 2021. ITE LAND USE CODE - 310 - HOTEL.

Table No. 3
Level of Service Summary Table
Weekday Peak Friday PM Hour

				2021 Existing			2025 No-Build			2025 Build			Change in Delay
				v/c	LOS	Delay	v/c	LOS	Delay	v/c	LOS	Delay	No-Build to Build
1	**NYS Route 9D & Tioronda Avenue**	**Signalized**											
	NYS Route 9D	EB	LTR	0.31	A	3.4	0.35	A	3.8	0.36	A	3.8	0.0
	NYS Route 9D	WB	LTR	0.49	A	5.0	0.55	A	5.9	0.56	A	6.0	0.1
	Tioronda Avenue	NB	LTR	0.14	C	20.9	0.30	C	21.3	0.29	C	21.3	0.0
	Tioronda Avenue	SB	LTR	0.29	C	21.5	0.30	C	21.4	0.32	C	21.4	0.0
		Overall		**-**	**A**	**6.0**	**-**	**A**	**7.0**	**-**	**A**	**7.1**	**0.1**
2	**NYS Route 9D & Howland Avenue**	**Unsignalized**											
	Howland Avenue	WB	LR	0.21	B	14.7	0.25	C	16.2	0.27	C	17.0	0.8
	NYS Route 9D	SB	LT	0.06	A	8.6	0.07	A	8.8	0.07	A	8.9	0.1
3	**NYS Route 9D & Kristy Drive**	**Unsignalized**											
	Kristy Drive	SEB	LR	0.06	C	19.5	0.08	C	22.7	0.09	C	24.0	1.3
	NYS Route 9D	NEB	LT	0.01	A	8.0	0.01	A	8.2	0.01	A	8.2	0.0
4	**NYS Route 9D & Site Access (South)**	**Unsignalized**											
	Site Access (South)	EB	L	-	-	-	-	-	-	0.08	C	20.3	-
			R	-	-	-	-	-	-	0.03	B	10.9	
	NYS Route 9D	NB	LT	-	-	-	-	-	-	0.03	A	8.3	-
5	**NYS Route 9D & Grandview Avenue**	**Unsignalized**											
	Site Access	EB	LR	0.05	C	18.3	0.06	C	20.8	0.06	C	22.3	1.5
	NYS Route 9D	NB	LT	0.00	A	8.0	0.00	A	8.1	0.00	A	8.1	0.0

NOTES:

1) THE ABOVE REPRESENTS THE LEVEL OF SERVICE AND VEHICLE DELAY IN SECONDS, C [16.2], FOR EACH KEY APPROACH OF THE UNSIGNALIZED INTERSECTIONS AS WELL AS FOR EACH APPROACH AND THE OVERALL INTERSECTION FOR THE SIGNALIZED INTERSECTIONS. SEE APPENDIX "C" FOR A DESCRIPTION OF THE LEVELS OF SERVICE.

Table No. 3
Level of Service Summary Table
Weekend Peak Saturday Hour

				2021 Existing			2025 No-Build			2025 Build			Change in Delay
				v/c	LOS	Delay	v/c	LOS	Delay	v/c	LOS	Delay	No-Build to Build
1	**NYS Route 9D & Tioronda Avenue**	**Signalized**											
	NYS Route 9D	EB	LTR	0.25	A	3.1	0.29	A	3.4	0.30	A	3.4	0.0
	NYS Route 9D	WB	LTR	0.43	A	4.4	0.48	A	5.1	0.49	A	5.2	0.1
	Tioronda Avenue	NB	LTR	0.16	C	21.0	0.29	C	21.4	0.29	C	21.4	0.0
	Tioronda Avenue	SB	LTR	0.27	C	21.5	0.28	C	21.3	0.29	C	21.4	0.1
		Overall		**-**	**A**	**5.7**	**-**	**A**	**6.6**	**-**	**A**	**6.7**	**0.1**
2	**NYS Route 9D & Howland Avenue**	**Unsignalized**											
	Howland Avenue	WB	LR	0.26	B	14.7	0.32	C	17.1	0.34	C	17.7	0.6
	NYS Route 9D	SB	LT	0.04	A	8.4	0.06	A	8.7	0.06	A	8.7	0.0
3	**NYS Route 9D & Kristy Drive**	**Unsignalized**											
	Kristy Drive	SEB	LR	0.04	C	18.3	0.04	C	20.9	0.05	C	21.7	0.8
	NYS Route 9D	NEB	LT	0.00	A	8.2	0.00	A	8.3	0.00	A	8.4	0.1
4	**NYS Route 9D & Site Access (South)**	**Unsignalized**											
	Site Access (South)	EB	L	-	-	-	-	-	-	0.07	C	20,7	-
			R	-	-	-	-	-	-	0.04	B	11.5	
	NYS Route 9D	NB	LT	-	-	-	-	-	-	0.02	A	8.4	-
5	**NYS Route 9D & Grandview Avenue**	**Unsignalized**											
	Site Access	EB	LR	0.05	C	16.4	0.07	C	18.7	0.07	C	19.7	1.0
	NYS Route 9D	NB	LT	0.00	A	8.1	0.00	A	8.3	0.00	A	8.3	0.0

NOTES:

1) THE ABOVE REPRESENTS THE LEVEL OF SERVICE AND VEHICLE DELAY IN SECONDS, C [16.2], FOR EACH KEY APPROACH OF THE UNSIGNALIZED INTERSECTIONS AS WELL AS FOR EACH APPROACH AND THE OVERALL INTERSECTION FOR THE SIGNALIZED INTERSECTIONS. SEE APPENDIX "C" FOR A DESCRIPTION OF THE LEVELS OF SERVICE.

Table No. 3A
Level of Service Summary Table
Weekday Peak Friday PM Hour
With Future Resort Rentals

				2021 Existing			2025 No-Build			2025 Build With Future Resort Rentals			Change in Delay
				v/c	LOS	Delay	v/c	LOS	Delay	v/c	LOS	Delay	No-Build to Build
1	**NYS Route 9D & Tioronda Avenue**	**Signalized**											
	NYS Route 9D	EB	LTR	0.31	A	3.4	0.35	A	3.8	0.36	A	3.9	0.1
	NYS Route 9D	WB	LTR	0.49	A	5.0	0.55	A	5.9	0.56	A	6.0	0.1
	Tioronda Avenue	NB	LTR	0.14	C	20.9	0.30	C	21.3	0.29	C	21.3	0.0
	Tioronda Avenue	SB	LTR	0.29	C	21.5	0.30	C	21.4	0.33	C	21.5	0.1
		Overall		**-**	**A**	**6.0**	**-**	**A**	**7.0**	**-**	**A**	**7.2**	**0.2**
2	**NYS Route 9D & Howland Avenue**	**Unsignalized**											
	Howland Avenue	WB	LR	0.21	B	14.7	0.25	C	16.2	0.28	C	17.2	1.0
	NYS Route 9D	SB	LT	0.06	A	8.6	0.07	A	8.8	0.07	A	8.9	0.1
3	**NYS Route 9D & Kristy Drive**	**Unsignalized**											
	Kristy Drive	SEB	LR	0.06	C	19.5	0.08	C	22.7	0.09	C	24.2	1.5
	NYS Route 9D	NEB	LT	0.01	A	8.0	0.01	A	8.2	0.01	A	8.2	0.0
4	**NYS Route 9D & Site Access (South)**	**Unsignalized**											
	Site Access (South)	EB	L	-	-	-	-	-	-	0.06	C	20.5	-
			R	-	-	-	-	-	-	0.03	B	10.9	
	NYS Route 9D	NB	LT	-	-	-	-	-	-	0.03	A	8.3	-
5	**NYS Route 9D & Grandview Avenue**	**Unsignalized**											
	Site Access	EB	LR	0.05	C	18.3	0.06	C	20.8	0.07	C	20.3	-0.5
	NYS Route 9D	NB	LT	0.00	A	8.0	0.00	A	8.1	0.00	A	8.1	0.0

NOTES:

1) THE ABOVE REPRESENTS THE LEVEL OF SERVICE AND VEHICLE DELAY IN SECONDS, C [16.2], FOR EACH KEY APPROACH OF THE UNSIGNALIZED INTERSECTIONS AS WELL AS FOR EACH APPROACH AND THE OVERALL INTERSECTION FOR THE SIGNALIZED INTERSECTIONS. SEE APPENDIX "C" FOR A DESCRIPTION OF THE LEVELS OF SERVICE.

Table No. 3A
Level of Service Summary Table
Weekend Peak Saturday Hour
With Future Resort Rentals

				2021 Existing			2025 No-Build			2025 Build With Future Resort Rentals			Change in Delay
				v/c	LOS	Delay	v/c	LOS	Delay	v/c	LOS	Delay	No-Build to Build
1	**NYS Route 9D & Tioronda Avenue**	**Signalized**											
	NYS Route 9D	EB	LTR	0.25	A	3.1	0.29	A	3.4	0.30	A	3.4	0.0
	NYS Route 9D	WB	LTR	0.43	A	4.4	0.48	A	5.1	0.50	A	5.2	0.1
	Tioronda Avenue	NB	LTR	0.16	C	21.0	0.29	C	21.4	0.29	C	21.4	0.0
	Tioronda Avenue	SB	LTR	0.27	C	21.5	0.28	C	21.3	0.29	C	21.4	0.1
		Overall		**-**	**A**	**5.7**	**-**	**A**	**6.6**	**-**	**A**	**6.7**	**0.1**
2	**NYS Route 9D & Howland Avenue**	**Unsignalized**											
	Howland Avenue	WB	LR	0.26	B	14.7	0.32	C	17.1	0.34	C	17.9	0.8
	NYS Route 9D	SB	LT	0.04	A	8.4	0.06	A	8.7	0.06	A	8.7	0.0
3	**NYS Route 9D & Kristy Drive**	**Unsignalized**											
	Kristy Drive	SEB	LR	0.04	C	18.3	0.04	C	20.9	0.05	C	21.9	1.0
	NYS Route 9D	NEB	LT	0.00	A	8.2	0.00	A	8.3	0.00	A	8.4	0.1
4	**NYS Route 9D & Site Access (South)**	**Unsignalized**											
	Site Access (South)	EB	L	-	-	-	-	-	-	0.08	C	21.0	-
			R	-	-	-	-	-	-	0.04	B	11.5	
	NYS Route 9D	NB	LT	-	-	-	-	-	-	0.02	A	8.4	-
5	**NYS Route 9D & Grandview Avenue**	**Unsignalized**											
	Site Access	EB	LR	0.05	C	16.4	0.07	C	18.7	0.08	C	18.3	-0.4
	NYS Route 9D	NB	LT	0.00	A	8.1	0.00	A	8.3	0.00	A	8.3	0.0

NOTES:

1) THE ABOVE REPRESENTS THE LEVEL OF SERVICE AND VEHICLE DELAY IN SECONDS, C [16.2], FOR EACH KEY APPROACH OF THE UNSIGNALIZED INTERSECTIONS AS WELL AS FOR EACH APPROACH AND THE OVERALL INTERSECTION FOR THE SIGNALIZED INTERSECTIONS. SEE APPENDIX "C" FOR A DESCRIPTION OF THE LEVELS OF SERVICE.

Table No. 3E
Level of Service Summary Table
Weekday Peak Friday PM Hour
Event Conditions

				2021 Existing			2025 No-Build			2025 Build Event Conditions			Change in Delay
				v/c	LOS	Delay	v/c	LOS	Delay	v/c	LOS	Delay	No-Build to Build
1	**NYS Route 9D & Tioronda Avenue**	**Signalized**											
	NYS Route 9D	EB	LTR	0.31	A	3.4	0.35	A	3.8	0.37	A	3.9	0.1
	NYS Route 9D	WB	LTR	0.49	A	5.0	0.55	A	5.9	0.58	A	6.3	0.4
	Tioronda Avenue	NB	LTR	0.14	C	20.9	0.30	C	21.3	0.29	C	21.3	0.0
	Tioronda Avenue	SB	LTR	0.29	C	21.5	0.30	C	21.4	0.34	C	21.5	0.1
		Overall		**-**	**A**	**6.0**	**-**	**A**	**7.0**	**-**	**A**	**7.3**	**0.3**
2	**NYS Route 9D & Howland Avenue**	**Unsignalized**											
	Howland Avenue	WB	LR	0.21	B	14.7	0.25	C	16.2	0.30	C	18.2	2.0
	NYS Route 9D	SB	LT	0.06	A	8.6	0.07	A	8.8	0.08	A	9.0	0.2
3	**NYS Route 9D & Kristy Drive**	**Unsignalized**											
	Kristy Drive	SEB	LR	0.06	C	19.5	0.08	C	22.7	0.09	D	26.0	3.3
	NYS Route 9D	NEB	LT	0.01	A	8.0	0.01	A	8.2	0.01	A	8.3	0.1
4	**NYS Route 9D & Site Access (South)**	**Unsignalized**											
	Site Access (South)	EB	L	-	-	-	-	-	-	0.18	C	24.2	-
			R	-	-	-	-	-	-	0.06	B	11.1	
	NYS Route 9D	NB	LT	-	-	-	-	-	-	0.04	A	8.4	-
5	**NYS Route 9D & Grandview Avenue**	**Unsignalized**											
	Site Access	EB	LR	0.05	C	18.3	0.06	C	20.8	0.07	C	21.2	0.4
	NYS Route 9D	NB	LT	0.00	A	8.0	0.00	A	8.1	0.00	A	8.2	0.1

NOTES:

1) THE ABOVE REPRESENTS THE LEVEL OF SERVICE AND VEHICLE DELAY IN SECONDS, C [16.2], FOR EACH KEY APPROACH OF THE UNSIGNALIZED INTERSECTIONS AS WELL AS FOR EACH APPROACH AND THE OVERALL INTERSECTION FOR THE SIGNALIZED INTERSECTIONS. SEE APPENDIX "C" FOR A DESCRIPTION OF THE LEVELS OF SERVICE.

Table No. 3E
Level of Service Summary Table
Weekend Peak Saturday Hour
Event Conditions

				2021 Existing			2025 No-Build			2025 Build Event Conditions			Change in Delay
				v/c	LOS	Delay	v/c	LOS	Delay	v/c	LOS	Delay	No-Build to Build
1	**NYS Route 9D & Tioronda Avenue**	**Signalized**											
	NYS Route 9D	EB	LTR	0.25	A	3.1	0.29	A	3.4	0.31	A	3.5	0.1
	NYS Route 9D	WB	LTR	0.43	A	4.4	0.48	A	5.1	0.51	A	5.4	0.3
	Tioronda Avenue	NB	LTR	0.16	C	21.0	0.29	C	21.4	0.29	C	21.4	0.0
	Tioronda Avenue	SB	LTR	0.27	C	21.5	0.28	C	21.3	0.31	C	21.4	0.1
		Overall		**-**	**A**	**5.7**	**-**	**A**	**6.6**	**-**	**A**	**6.8**	**0.2**
2	**NYS Route 9D & Howland Avenue**	**Unsignalized**											
	Howland Avenue	WB	LR	0.26	B	14.7	0.32	C	17.1	0.37	C	19.1	2.0
	NYS Route 9D	SB	LT	0.04	A	8.4	0.06	A	8.7	0.07	A	8.8	0.1
3	**NYS Route 9D & Kristy Drive**	**Unsignalized**											
	Kristy Drive	SEB	LR	0.04	C	18.3	0.04	C	20.9	0.05	C	23.6	2.7
	NYS Route 9D	NEB	LT	0.00	A	8.2	0.00	A	8.3	0.00	A	8.5	0.2
4	**NYS Route 9D & Site Access (South)**	**Unsignalized**											
	Site Access (South)	EB	L	-	-	-	-	-	-	0.20	C	24.9	-
			R	-	-	-	-	-	-	0.07	B	11.9	
	NYS Route 9D	NB	LT	-	-	-	-	-	-	0.04	A	8.6	-
5	**NYS Route 9D & Grandview Avenue**	**Unsignalized**											
	Site Access	EB	LR	0.05	C	16.4	0.07	C	18.7	0.09	C	19.0	0.3
	NYS Route 9D	NB	LT	0.00	A	8.1	0.00	A	8.3	0.01	A	8.4	0.1

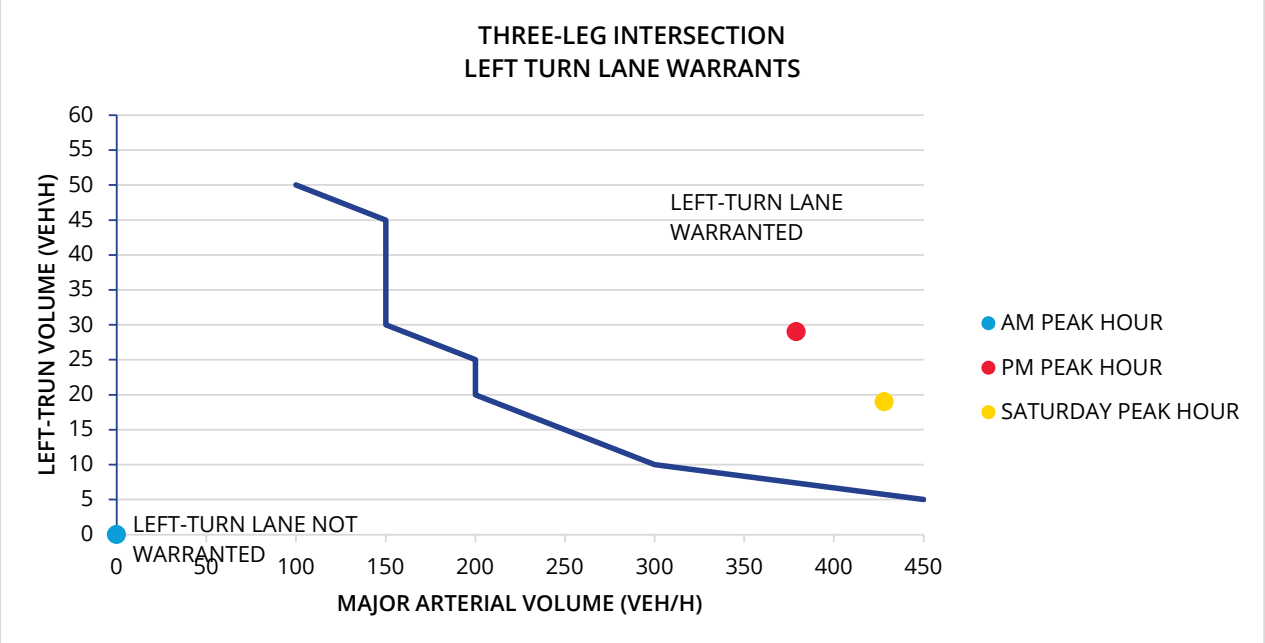
NOTES:

1) THE ABOVE REPRESENTS THE LEVEL OF SERVICE AND VEHICLE DELAY IN SECONDS, C [16.2], FOR EACH KEY APPROACH OF THE UNSIGNALIZED INTERSECTIONS AS WELL AS FOR EACH APPROACH AND THE OVERALL INTERSECTION FOR THE SIGNALIZED INTERSECTIONS. SEE APPENDIX "C" FOR A DESCRIPTION OF THE LEVELS OF SERVICE.

TABLE NO. 4
LEFT TURN LANE WARRANTS ANALYSIS
URBAN ARTERIALS
WOLCOTT ANENUE (NYS ROUTE 9D) AT SITE ACCESS

AASHTO LEFT TURN LANE WARRANT CRITERIA		
LEFT-TURN LANE PEAK HOUR VOLUME (VEH/H)	THREE-LEG INTERSECTION, MAJOR-ROAD VOLUME (VEH/H/LN) THAT WARRANTS A LEFT TURN LANE	FOUR-LEG INTERSECTION, MAJOR-ROAD VOLUME (VEH/H/LN) THAT WARRANTS A LEFT-TURN LANE
5	450	450
5	450	50
10	300	50
15	250	50
20	200	50
25	200	50
30	150	50
35	150	50
40	150	50
45	150	< 50
50+	100	< 50

INTERSECTION VOLUMES THREE-LEG INTERSECTION LEFT TURN LANE WARRANTS		
TIME PERIOD	LEFT TURN VOLUME	MAJOR ROAD OPPOSING TRAFFIC VOLUME
AM PEAK HOUR	0	0
PM PEAK HOUR	29	379
SATURDAY PEAK HOUR	19	428



Colliers Engineering & Design

Traffic Impact Study

Appendix C | Level of Service Standards

Colliers Engineering & Design

Level of Service Standards

Level of Service for Signalized Intersections

Level of Service (LOS) can be characterized for the entire intersection, each intersection approach, and each lane group. Control delay alone is used to characterize LOS for the entire intersection or an approach. Control delay and volume-to-capacity (v/c) ratio are used to characterize LOS for a lane group. Delay quantifies the increase in travel time due to traffic signal control. It is also a measure of driver discomfort and fuel consumption. The volume-to-capacity ratio quantifies the degree to which a phase's capacity is utilized by a lane group.

- **LOS A** describes operations with a control delay of 10 s/veh or less and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is low and either progression is exceptionally favorable or the cycle length is very short. If it is due to favorable progression, most vehicles arrive during the green indication and travel through the intersection without stopping.
- **LOS B** describes operations with control delay between 10 and 20 s/veh and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is low and either progression is highly favorable or the cycle length is short. More vehicles stop than with LOS A.
- **LOS C** describes operations with control delay between 20 and 35 s/veh and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when progression is favorable or the cycle length is moderate.
- **LOS D** describes operations with control delay between 35 and 55 s/veh and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is high and either progression is ineffective or the cycle length is long.
- **LOS E** describes operations with control delay between 55 and 80 s/veh and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is high, progression is unfavorable, and the cycle length is long.
- **LOS F** describes operations with control delay exceeding 80 s/veh or a volume-to-capacity ratio greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is very high, progression is very poor, and the cycle length is long.

A lane group can incur a delay less than 80 s/veh when the volume-to-capacity ratio exceeds 1.0. This condition typically occurs when the cycle length is short, the signal progression is favorable, or both. As a result, both the delay and volume-to-capacity ratio are considered when lane group LOS is established. A ratio of 1.0 or more indicates that cycle capacity is fully utilized and represents failure from a capacity perspective (just as delay in excess of 80 s/veh represents failure from a delay perspective).

The Level of Service Criteria for signalized intersections are given in Exhibit 19-8 from the *Highway Capacity Manual, 6th Edition* published by the Transportation Research Board.

Exhibit 19-8 LOS by Volume-to-Capacity Ratio

Control Delay (s/veh)	v/c ≤ 1.0	v/c ≥ 1.0
≤10	A	F
>10-20	B	F
>20-35	C	F
>35-55	D	F
>55-80	E	F
>80	F	F

For approach-based and intersection wide assessments, LOS is defined solely by control delay.

Level of Service Criteria For Two-Way Stop-Controlled (TWSC) Unsignalized Intersections

Level of Service (LOS) for a two-way stop-controlled (TWSC) intersection is determined by the computed or measured control delay. For motor vehicles, LOS is determined for each minor-street movement (or shared movement) as well as major-street left turns. LOS is not defined for the intersection as a whole or for major-street approaches.

The Level of Service Criteria for TWSC unsignalized intersections are given in Exhibit 20-2 from the Highway Capacity Manual, 6th Edition published by the Transportation Research Board.

Exhibit 20-2 LOS by Volume-to-Capacity Ratio

Control Delay (s/veh)	v/c ≤ 1.0	v/c ≥ 1.0
0-10	A	F
>10-15	B	F
>15-25	C	F
>25-35	D	F
>35-50	E	F
>50	F	F

The LOS criteria apply to each lane on a given approach and to each approach on the minor street.
LOS is not calculated for major-street approaches or for the intersection as a whole.

As Exhibit 20-2 notes, LOS F is assigned to the movement if the volume-to-capacity ratio for the movement exceeds 1.0, regardless of the control delay.

The Level of Service Criteria for unsignalized intersections are somewhat different from the criteria for signalized intersections.

Level of Service Criteria For All-Way Stop-Controlled (AWSC) Unsignalized Intersections

The Levels of Service (LOS) for all-way stop-controlled (AWSC) intersections are given in Exhibit 21-8. As the exhibit notes, LOS F is assigned if the volume-to-capacity (v/c) ratio of a lane exceeds 1.0, regardless of the control delay. For assessment of LOS at the approach and intersection levels, LOS is based solely on control delay.

The Level of Service Criteria for AWSC unsignalized intersections are given in Exhibit 21-8 from the *Highway* Capacity *Manual, 6th Edition* published by the Transportation Research Board.

Exhibit 21-8 LOS by Volume-to-Capacity Ratio

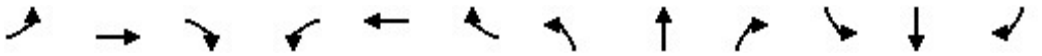
Control Delay (s/veh)	v/c ≤ 1.0	v/c ≥ 1.0
0-10	A	F
>10-15	B	F
>15-25	C	F
>25-35	D	F
>35-50	E	F
>50	F	F

For approaches and intersection wide assessment, LOS is defined solely by control delay.

Colliers Engineering & Design

Traffic Impact Study

Appendix D | Capacity Analysis

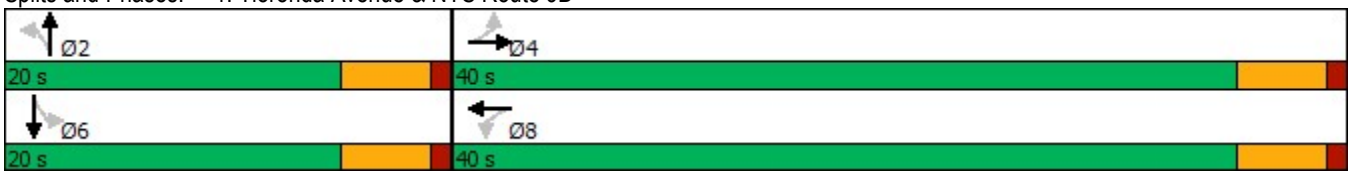


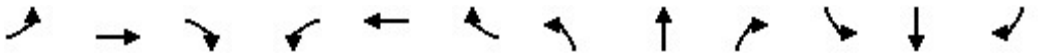
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	350	5	10	360	81	8	10	11	50	8	7
Future Volume (vph)	26	350	5	10	360	81	8	10	11	50	8	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	11	12	12	11	12	12	13	12	12	12	12
Grade (%)		-7%			7%			6%			0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			0.99			0.99			0.99	
Frt		0.998			0.976			0.950			0.985	
Flt Protected		0.997			0.999			0.986			0.963	
Satd. Flow (prot)	0	1834	0	0	1662	0	0	1628	0	0	1761	0
Flt Permitted		0.951			0.990			0.901			0.754	
Satd. Flow (perm)	0	1748	0	0	1647	0	0	1484	0	0	1374	0
Right Turn on Red			Yes			Yes			No			No
Satd. Flow (RTOR)		2			32							
Link Speed (mph)		30			30			25			30	
Link Distance (ft)		820			2162			1011			636	
Travel Time (s)		18.6			49.1			27.6			14.5	
Confl. Peds. (#/hr)	17		10	10		17	6		2	2		6
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles (%)	4%	3%	2%	2%	3%	3%	25%	2%	2%	2%	2%	2%
Adj. Flow (vph)	32	427	6	12	439	99	10	12	13	61	10	9
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	465	0	0	550	0	0	35	0	0	80	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	0.96	1.00	0.96	1.05	1.09	1.05	1.04	1.00	1.04	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	2		1	2	
Detector Template	Left			Left			Left			Left		
Leading Detector (ft)	20	6		20	6		20	83		20	83	
Trailing Detector (ft)	0	0		0	0		0	-5		0	-5	
Detector 1 Position(ft)	0	0		0	0		0	-5		0	-5	
Detector 1 Size(ft)	20	6		20	6		20	40		20	40	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)								43			43	
Detector 2 Size(ft)								40			40	
Detector 2 Type								Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)								0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	40.0	40.0		40.0	40.0		10.0	10.0		10.0	10.0	
Total Split (s)	40.0	40.0		40.0	40.0		20.0	20.0		20.0	20.0	
Total Split (%)	66.7%	66.7%		66.7%	66.7%		33.3%	33.3%		33.3%	33.3%	
Maximum Green (s)	35.0	35.0		35.0	35.0		15.0	15.0		15.0	15.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Pedestrian Calls (#/hr)	60	60		60	60		10	10		10	10	
v/c Ratio		0.34			0.42			0.16			0.39	
Control Delay		5.0			5.5			21.8			27.0	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		5.0			5.5			21.8			27.0	
Queue Length 50th (ft)		53			63			12			29	
Queue Length 95th (ft)		123			149			26			49	
Internal Link Dist (ft)		740			2082			931			556	
Turn Bay Length (ft)												
Base Capacity (vph)		1383			1310			386			357	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.34			0.42			0.09			0.22	

Intersection Summary	
Area Type:	Other
Cycle Length: 60	
Actuated Cycle Length: 57.7	
Natural Cycle: 50	
Control Type: Semi Act-Uncoord	

Splits and Phases: 1: Tioronda Avenue & NYS Route 9D





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	350	5	10	360	81	8	10	11	50	8	7
Future Volume (veh/h)	26	350	5	10	360	81	8	10	11	50	8	7
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	0.98		0.97	0.97		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	2115	2130	2145	1582	1567	1567	1317	1725	1658	1870	1870	1870
Adj Flow Rate, veh/h	32	427	6	12	439	99	10	12	13	61	10	9
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Percent Heavy Veh, %	4	3	2	2	3	3	25	2	2	2	2	2
Cap, veh/h	121	1378	19	81	859	190	119	68	56	232	25	16
Arrive On Green	0.70	0.70	0.70	0.70	0.70	0.70	0.10	0.10	0.10	0.10	0.10	0.10
Sat Flow, veh/h	62	1964	26	10	1224	271	270	695	570	1067	258	168
Grp Volume(v), veh/h	465	0	0	550	0	0	35	0	0	80	0	0
Grp Sat Flow(s),veh/h/ln	2053	0	0	1505	0	0	1536	0	0	1493	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	0.0	0.0
Cycle Q Clear(g_c), s	4.2	0.0	0.0	8.5	0.0	0.0	1.0	0.0	0.0	2.4	0.0	0.0
Prop In Lane	0.07		0.01	0.02		0.18	0.29		0.37	0.76		0.11
Lane Grp Cap(c), veh/h	1518	0	0	1130	0	0	243	0	0	273	0	0
V/C Ratio(X)	0.31	0.00	0.00	0.49	0.00	0.00	0.14	0.00	0.00	0.29	0.00	0.00
Avail Cap(c_a), veh/h	1518	0	0	1130	0	0	538	0	0	561	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	2.8	0.0	0.0	3.5	0.0	0.0	20.8	0.0	0.0	21.3	0.0	0.0
Incr Delay (d2), s/veh	0.5	0.0	0.0	1.5	0.0	0.0	0.1	0.0	0.0	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	0.0	1.5	0.0	0.0	0.4	0.0	0.0	0.8	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	3.4	0.0	0.0	5.0	0.0	0.0	20.9	0.0	0.0	21.5	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	C	A	A	C	A	A
Approach Vol, veh/h		465			550			35			80	
Approach Delay, s/veh		3.4			5.0			20.9			21.5	
Approach LOS		A			A			C			C	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		9.9		40.0		9.9		40.0				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		15.0		35.0		15.0		35.0				
Max Q Clear Time (g_c+I1), s		3.0		6.2		4.4		10.5				
Green Ext Time (p_c), s		0.0		0.6		0.1		0.7				

Intersection Summary	
HCM 6th Ctrl Delay	6.0
HCM 6th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	51	38	371	72	61	295
Future Volume (vph)	51	38	371	72	61	295
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	15	12	11	12	12	12
Grade (%)	-7%		1%			3%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.943		0.978			
Flt Protected	0.972					0.991
Satd. Flow (prot)	1911	0	1738	0	0	1818
Flt Permitted	0.972					0.991
Satd. Flow (perm)	1911	0	1738	0	0	1818
Link Speed (mph)	30		30			30
Link Distance (ft)	728		1350			591
Travel Time (s)	16.5		30.7			13.4
Confl. Peds. (#/hr)	3	3		3	3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	2%	3%	2%	2%	2%
Adj. Flow (vph)	57	42	412	80	68	328
Shared Lane Traffic (%)						
Lane Group Flow (vph)	99	0	492	0	0	396
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	15		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	0.84	0.96	1.05	1.01	1.02	1.02
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	2.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	51	38	371	72	61	295
Future Vol, veh/h	51	38	371	72	61	295
Conflicting Peds, #/hr	3	3	0	3	3	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	-7	-	1	-	-	3
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	5	2	3	2	2	2
Mvmt Flow	57	42	412	80	68	328

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	922	458	0	0	495	0
Stage 1	455	-	-	-	-	-
Stage 2	467	-	-	-	-	-
Critical Hdwy	5.05	5.52	-	-	4.12	-
Critical Hdwy Stg 1	4.05	-	-	-	-	-
Critical Hdwy Stg 2	4.05	-	-	-	-	-
Follow-up Hdwy	3.545	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	424	659	-	-	1069	-
Stage 1	755	-	-	-	-	-
Stage 2	749	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	388	655	-	-	1065	-
Mov Cap-2 Maneuver	388	-	-	-	-	-
Stage 1	752	-	-	-	-	-
Stage 2	689	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.7	0	1.5
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	470	1065	-
HCM Lane V/C Ratio	-	-	0.21	0.064	-
HCM Control Delay (s)	-	-	14.7	8.6	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.8	0.2	-



Lane Group	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Volume (vph)	10	5	5	413	316	10
Future Volume (vph)	10	5	5	413	316	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	14	12	12	10	10	12
Grade (%)	10%			1%	-1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.952				0.996	
Flt Protected	0.969			0.999		
Satd. Flow (prot)	1493	0	0	1695	1708	0
Flt Permitted	0.969			0.999		
Satd. Flow (perm)	1493	0	0	1695	1708	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	1052			654	1350	
Travel Time (s)	23.9			14.9	30.7	
Confl. Peds. (#/hr)	2	2	2			2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	50%	2%	4%	4%	2%
Adj. Flow (vph)	11	6	6	459	351	11
Shared Lane Traffic (%)						
Lane Group Flow (vph)	17	0	0	465	362	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	14			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	0.98	1.07	1.01	1.10	1.09	0.99
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.4

Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Vol, veh/h	10	5	5	413	316	10
Future Vol, veh/h	10	5	5	413	316	10
Conflicting Peds, #/hr	2	2	2	0	0	2
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	10	-	-	1	-1	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	50	2	4	4	2
Mvmt Flow	11	6	6	459	351	11

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	832	361	364	0	-	0
Stage 1	359	-	-	-	-	-
Stage 2	473	-	-	-	-	-
Critical Hdwy	8.42	7.7	4.12	-	-	-
Critical Hdwy Stg 1	7.42	-	-	-	-	-
Critical Hdwy Stg 2	7.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.75	2.218	-	-	-
Pot Cap-1 Maneuver	214	532	1195	-	-	-
Stage 1	579	-	-	-	-	-
Stage 2	482	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	212	530	1192	-	-	-
Mov Cap-2 Maneuver	212	-	-	-	-	-
Stage 1	574	-	-	-	-	-
Stage 2	481	-	-	-	-	-

Approach	SE	NE	SW
HCM Control Delay, s	19.5	0.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NEL	NET	SELn1	SWT	SWR
Capacity (veh/h)	1192	-	265	-	-
HCM Lane V/C Ratio	0.005	-	0.063	-	-
HCM Control Delay (s)	8	0	19.5	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	11	1	1	407	298	23
Future Volume (vph)	11	1	1	407	298	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	12	12	11	11	12
Grade (%)	7%			-3%	0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.990				0.990	
Flt Protected	0.956					
Satd. Flow (prot)	1493	0	0	1810	1764	0
Flt Permitted	0.956					
Satd. Flow (perm)	1493	0	0	1810	1764	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	839			832	1447	
Travel Time (s)	19.1			18.9	32.9	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	9%	2%	2%	3%	3%	4%
Adj. Flow (vph)	12	1	1	433	317	24
Shared Lane Traffic (%)						
Lane Group Flow (vph)	13	0	0	434	341	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	10			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.14	1.05	0.98	1.02	1.04	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

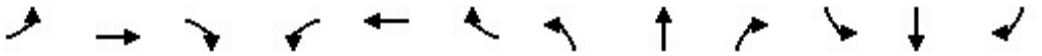
Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	11	1	1	407	298	23
Future Vol, veh/h	11	1	1	407	298	23
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	7	-	-	-3	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	9	2	2	3	3	4
Mvmt Flow	12	1	1	433	317	24

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	764	329	341	0	-	0
Stage 1	329	-	-	-	-	-
Stage 2	435	-	-	-	-	-
Critical Hdwy	7.89	6.92	4.12	-	-	-
Critical Hdwy Stg 1	6.89	-	-	-	-	-
Critical Hdwy Stg 2	6.89	-	-	-	-	-
Follow-up Hdwy	3.581	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	269	668	1218	-	-	-
Stage 1	628	-	-	-	-	-
Stage 2	539	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	269	668	1218	-	-	-
Mov Cap-2 Maneuver	269	-	-	-	-	-
Stage 1	627	-	-	-	-	-
Stage 2	539	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	18.3	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1218	-	283	-	-
HCM Lane V/C Ratio	0.001	-	0.045	-	-
HCM Control Delay (s)	8	0	18.3	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

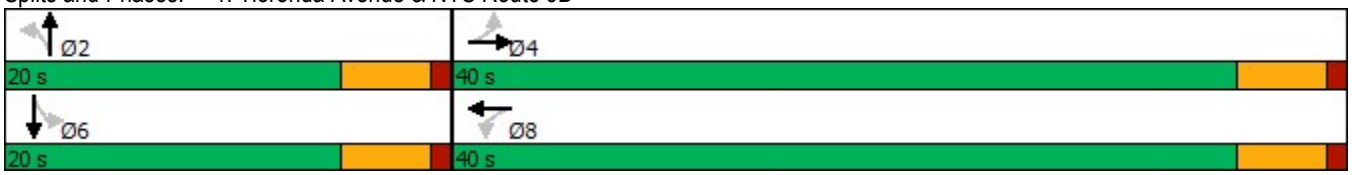


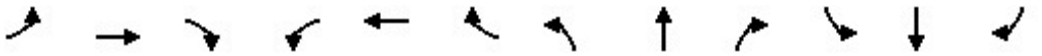
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	337	6	13	338	98	17	11	8	46	7	13
Future Volume (vph)	20	337	6	13	338	98	17	11	8	46	7	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	11	12	12	11	12	12	13	12	12	12	12
Grade (%)		-7%			7%			6%			0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			0.99			0.99			0.99	
Frt		0.998			0.970			0.969			0.974	
Flt Protected		0.997			0.999			0.977			0.966	
Satd. Flow (prot)	0	1854	0	0	1664	0	0	1758	0	0	1719	0
Flt Permitted		0.968			0.988			0.827			0.768	
Satd. Flow (perm)	0	1798	0	0	1646	0	0	1482	0	0	1363	0
Right Turn on Red			Yes			Yes			No			No
Satd. Flow (RTOR)		3			40							
Link Speed (mph)		30			30			25			30	
Link Distance (ft)		820			2162			1011			636	
Travel Time (s)		18.6			49.1			27.6			14.5	
Confl. Peds. (#/hr)	17		2	2		17	5		2	2		5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	4%	2%	2%
Adj. Flow (vph)	22	366	7	14	367	107	18	12	9	50	8	14
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	395	0	0	488	0	0	39	0	0	72	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	0.96	1.00	0.96	1.05	1.09	1.05	1.04	1.00	1.04	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	2		1	2	
Detector Template	Left			Left			Left			Left		
Leading Detector (ft)	20	6		20	6		20	83		20	83	
Trailing Detector (ft)	0	0		0	0		0	-5		0	-5	
Detector 1 Position(ft)	0	0		0	0		0	-5		0	-5	
Detector 1 Size(ft)	20	6		20	6		20	40		20	40	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)								43			43	
Detector 2 Size(ft)								40			40	
Detector 2 Type								Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)								0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	40.0	40.0		40.0	40.0		10.0	10.0		10.0	10.0	
Total Split (s)	40.0	40.0		40.0	40.0		20.0	20.0		20.0	20.0	
Total Split (%)	66.7%	66.7%		66.7%	66.7%		33.3%	33.3%		33.3%	33.3%	
Maximum Green (s)	35.0	35.0		35.0	35.0		15.0	15.0		15.0	15.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Pedestrian Calls (#/hr)	60	60		60	60		10	10		10	10	
v/c Ratio		0.28			0.37			0.19			0.37	
Control Delay		4.4			4.9			22.4			26.7	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		4.4			4.9			22.4			26.7	
Queue Length 50th (ft)		40			50			14			26	
Queue Length 95th (ft)		113			146			31			50	
Internal Link Dist (ft)		740			2082			931			556	
Turn Bay Length (ft)												
Base Capacity (vph)		1428			1315			385			354	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.28			0.37			0.10			0.20	

Intersection Summary	
Area Type:	Other
Cycle Length: 60	
Actuated Cycle Length: 57.8	
Natural Cycle: 50	
Control Type: Semi Act-Uncoord	

Splits and Phases: 1: Tioronda Avenue & NYS Route 9D





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	337	6	13	338	98	17	11	8	46	7	13
Future Volume (veh/h)	20	337	6	13	338	98	17	11	8	46	7	13
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	0.99		0.99	0.98		0.98	0.98		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	2145	2145	2145	1582	1582	1582	1658	1725	1658	1841	1870	1870
Adj Flow Rate, veh/h	22	366	7	14	367	107	18	12	9	50	8	14
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	4	2	2
Cap, veh/h	108	1417	26	84	819	233	153	63	33	213	25	28
Arrive On Green	0.70	0.70	0.70	0.70	0.70	0.70	0.09	0.09	0.09	0.09	0.09	0.09
Sat Flow, veh/h	44	2011	37	14	1162	330	496	674	351	957	266	295
Grp Volume(v), veh/h	395	0	0	488	0	0	39	0	0	72	0	0
Grp Sat Flow(s),veh/h/ln	2092	0	0	1506	0	0	1521	0	0	1518	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0
Cycle Q Clear(g_c), s	3.3	0.0	0.0	7.0	0.0	0.0	1.1	0.0	0.0	2.1	0.0	0.0
Prop In Lane	0.06		0.02	0.03		0.22	0.46		0.23	0.69		0.19
Lane Grp Cap(c), veh/h	1551	0	0	1136	0	0	249	0	0	266	0	0
V/C Ratio(X)	0.25	0.00	0.00	0.43	0.00	0.00	0.16	0.00	0.00	0.27	0.00	0.00
Avail Cap(c_a), veh/h	1551	0	0	1136	0	0	543	0	0	564	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	2.7	0.0	0.0	3.2	0.0	0.0	20.9	0.0	0.0	21.3	0.0	0.0
Incr Delay (d2), s/veh	0.4	0.0	0.0	1.2	0.0	0.0	0.1	0.0	0.0	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	0.0	1.2	0.0	0.0	0.4	0.0	0.0	0.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	3.1	0.0	0.0	4.4	0.0	0.0	21.0	0.0	0.0	21.5	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	C	A	A	C	A	A
Approach Vol, veh/h		395			488			39			72	
Approach Delay, s/veh		3.1			4.4			21.0			21.5	
Approach LOS		A			A			C			C	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		9.7		40.0		9.7		40.0				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		15.0		35.0		15.0		35.0				
Max Q Clear Time (g_c+I1), s		3.1		5.3		4.1		9.0				
Green Ext Time (p_c), s		0.0		0.4		0.1		0.6				

Intersection Summary												
HCM 6th Ctrl Delay			5.7									
HCM 6th LOS			A									

Notes

User approved pedestrian interval to be less than phase max green.



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	64	52	324	52	35	307
Future Volume (vph)	64	52	324	52	35	307
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	15	12	11	12	12	12
Grade (%)	-7%		1%			3%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.939		0.981			
Flt Protected	0.973					0.995
Satd. Flow (prot)	1938	0	1758	0	0	1826
Flt Permitted	0.973					0.995
Satd. Flow (perm)	1938	0	1758	0	0	1826
Link Speed (mph)	30		30			30
Link Distance (ft)	728		1350			591
Travel Time (s)	16.5		30.7			13.4
Confl. Peds. (#/hr)	22	20		22	20	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	71	58	360	58	39	341
Shared Lane Traffic (%)						
Lane Group Flow (vph)	129	0	418	0	0	380
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	15		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	0.84	0.96	1.05	1.01	1.02	1.02
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	2.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	64	52	324	52	35	307
Future Vol, veh/h	64	52	324	52	35	307
Conflicting Peds, #/hr	22	20	0	22	20	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	-7	-	1	-	-	3
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	71	58	360	58	39	341

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	852	431	0	0	440	0
Stage 1	411	-	-	-	-	-
Stage 2	441	-	-	-	-	-
Critical Hdwy	5.02	5.52	-	-	4.12	-
Critical Hdwy Stg 1	4.02	-	-	-	-	-
Critical Hdwy Stg 2	4.02	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	460	679	-	-	1120	-
Stage 1	785	-	-	-	-	-
Stage 2	770	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	420	649	-	-	1091	-
Mov Cap-2 Maneuver	420	-	-	-	-	-
Stage 1	765	-	-	-	-	-
Stage 2	722	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.7	0	0.9
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	499	1091	-
HCM Lane V/C Ratio	-	-	0.258	0.036	-
HCM Control Delay (s)	-	-	14.7	8.4	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	1	0.1	-



Lane Group	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Volume (vph)	5	4	1	371	368	3
Future Volume (vph)	5	4	1	371	368	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	14	12	12	10	10	12
Grade (%)	10%			1%	-1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.939				0.999	
Flt Protected	0.973					
Satd. Flow (prot)	1725	0	0	1730	1746	0
Flt Permitted	0.973					
Satd. Flow (perm)	1725	0	0	1730	1746	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	1052			654	1350	
Travel Time (s)	23.9			14.9	30.7	
Confl. Peds. (#/hr)	3	3	3			3
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	6	5	1	426	423	3
Shared Lane Traffic (%)						
Lane Group Flow (vph)	11	0	0	427	426	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	14			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	0.98	1.07	1.01	1.10	1.09	0.99
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	0.2

Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Vol, veh/h	5	4	1	371	368	3
Future Vol, veh/h	5	4	1	371	368	3
Conflicting Peds, #/hr	3	3	3	0	0	3
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	10	-	-	1	-1	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	5	1	426	423	3

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	859	431	429	0	-	0
Stage 1	428	-	-	-	-	-
Stage 2	431	-	-	-	-	-
Critical Hdwy	8.42	7.22	4.12	-	-	-
Critical Hdwy Stg 1	7.42	-	-	-	-	-
Critical Hdwy Stg 2	7.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	203	554	1130	-	-	-
Stage 1	518	-	-	-	-	-
Stage 2	516	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	202	551	1126	-	-	-
Mov Cap-2 Maneuver	202	-	-	-	-	-
Stage 1	516	-	-	-	-	-
Stage 2	514	-	-	-	-	-

Approach	SE	NE	SW
HCM Control Delay, s	18.3	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NEL	NET	SELn1	SWT	SWR
Capacity (veh/h)	1126	-	281	-	-
HCM Lane V/C Ratio	0.001	-	0.037	-	-
HCM Control Delay (s)	8.2	0	18.3	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	10	6	2	362	351	21
Future Volume (vph)	10	6	2	362	351	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	12	12	11	11	12
Grade (%)	7%			-3%	0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.947				0.992	
Flt Protected	0.970					
Satd. Flow (prot)	1541	0	0	1828	1783	0
Flt Permitted	0.970					
Satd. Flow (perm)	1541	0	0	1828	1783	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	839			832	1447	
Travel Time (s)	19.1			18.9	32.9	
Confl. Peds. (#/hr)	1	1	1			1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	2%	2%	2%	5%
Adj. Flow (vph)	11	7	2	393	382	23
Shared Lane Traffic (%)						
Lane Group Flow (vph)	18	0	0	395	405	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	10			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.14	1.05	0.98	1.02	1.04	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

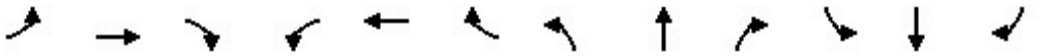
Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	10	6	2	362	351	21
Future Vol, veh/h	10	6	2	362	351	21
Conflicting Peds, #/hr	1	1	1	0	0	1
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	7	-	-	-3	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	5
Mvmt Flow	11	7	2	393	382	23

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	793	396	406	0	-	0
Stage 1	395	-	-	-	-	-
Stage 2	398	-	-	-	-	-
Critical Hdwy	7.82	6.92	4.12	-	-	-
Critical Hdwy Stg 1	6.82	-	-	-	-	-
Critical Hdwy Stg 2	6.82	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	263	605	1153	-	-	-
Stage 1	584	-	-	-	-	-
Stage 2	581	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	262	604	1152	-	-	-
Mov Cap-2 Maneuver	262	-	-	-	-	-
Stage 1	582	-	-	-	-	-
Stage 2	580	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	16.4	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1152	-	333	-	-
HCM Lane V/C Ratio	0.002	-	0.052	-	-
HCM Control Delay (s)	8.1	0	16.4	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

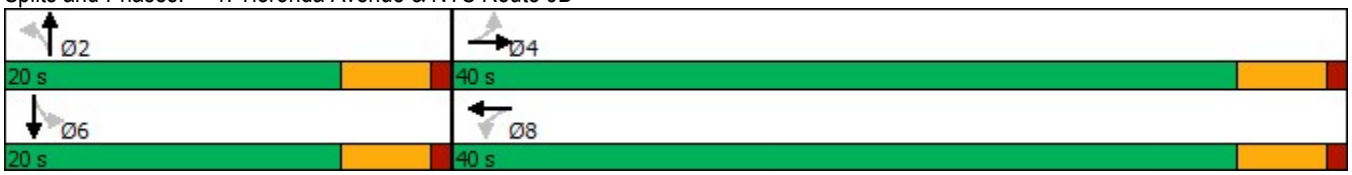


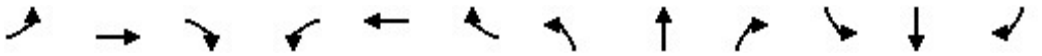
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	28	383	20	17	395	87	31	14	20	54	11	8
Future Volume (vph)	28	383	20	17	395	87	31	14	20	54	11	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	11	12	12	11	12	12	13	12	12	12	12
Grade (%)		-7%			7%			6%			0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			0.99			0.99			0.99	
Frt		0.994			0.977			0.959			0.985	
Flt Protected		0.997			0.998			0.977			0.964	
Satd. Flow (prot)	0	1825	0	0	1663	0	0	1567	0	0	1762	0
Flt Permitted		0.948			0.979			0.848			0.784	
Satd. Flow (perm)	0	1734	0	0	1631	0	0	1353	0	0	1430	0
Right Turn on Red			Yes			Yes			No			No
Satd. Flow (RTOR)		7			30							
Link Speed (mph)		30			30			25			30	
Link Distance (ft)		820			2162			1011			636	
Travel Time (s)		18.6			49.1			27.6			14.5	
Confl. Peds. (#/hr)	17		10	10		17	6		2	2		6
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles (%)	4%	3%	2%	2%	3%	3%	25%	2%	2%	2%	2%	2%
Adj. Flow (vph)	34	467	24	21	482	106	38	17	24	66	13	10
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	525	0	0	609	0	0	79	0	0	89	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	0.96	1.00	0.96	1.05	1.09	1.05	1.04	1.00	1.04	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	2		1	2	
Detector Template	Left			Left			Left			Left		
Leading Detector (ft)	20	6		20	6		20	83		20	83	
Trailing Detector (ft)	0	0		0	0		0	-5		0	-5	
Detector 1 Position(ft)	0	0		0	0		0	-5		0	-5	
Detector 1 Size(ft)	20	6		20	6		20	40		20	40	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)								43			43	
Detector 2 Size(ft)								40			40	
Detector 2 Type								Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)								0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	40.0	40.0		40.0	40.0		10.0	10.0		10.0	10.0	
Total Split (s)	40.0	40.0		40.0	40.0		20.0	20.0		20.0	20.0	
Total Split (%)	66.7%	66.7%		66.7%	66.7%		33.3%	33.3%		33.3%	33.3%	
Maximum Green (s)	35.0	35.0		35.0	35.0		15.0	15.0		15.0	15.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Pedestrian Calls (#/hr)	60	60		60	60		10	10		10	10	
v/c Ratio		0.41			0.51			0.39			0.41	
Control Delay		6.1			7.1			26.4			26.8	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		6.1			7.1			26.4			26.8	
Queue Length 50th (ft)		62			75			24			27	
Queue Length 95th (ft)		142			177			48			53	
Internal Link Dist (ft)		740			2082			931			556	
Turn Bay Length (ft)												
Base Capacity (vph)		1268			1199			351			370	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.41			0.51			0.23			0.24	

Intersection Summary	
Area Type:	Other
Cycle Length: 60	
Actuated Cycle Length: 58.2	
Natural Cycle: 50	
Control Type: Semi Act-Uncoord	

Splits and Phases: 1: Tioronda Avenue & NYS Route 9D





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	28	383	20	17	395	87	31	14	20	54	11	8
Future Volume (veh/h)	28	383	20	17	395	87	31	14	20	54	11	8
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	0.98		0.97	0.98		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	2115	2130	2145	1582	1567	1567	1317	1725	1658	1870	1870	1870
Adj Flow Rate, veh/h	34	467	24	21	482	106	38	17	24	66	13	10
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Percent Heavy Veh, %	4	3	2	2	3	3	25	2	2	2	2	2
Cap, veh/h	118	1308	65	87	844	181	167	50	49	239	35	19
Arrive On Green	0.69	0.69	0.69	0.69	0.69	0.69	0.11	0.11	0.11	0.11	0.11	0.11
Sat Flow, veh/h	60	1883	93	19	1216	260	574	470	456	1071	324	177
Grp Volume(v), veh/h	525	0	0	609	0	0	79	0	0	89	0	0
Grp Sat Flow(s),veh/h/ln	2036	0	0	1495	0	0	1500	0	0	1572	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
Cycle Q Clear(g_c), s	5.1	0.0	0.0	10.3	0.0	0.0	2.3	0.0	0.0	2.4	0.0	0.0
Prop In Lane	0.06		0.05	0.03		0.17	0.48		0.30	0.74		0.11
Lane Grp Cap(c), veh/h	1491	0	0	1113	0	0	266	0	0	292	0	0
V/C Ratio(X)	0.35	0.00	0.00	0.55	0.00	0.00	0.30	0.00	0.00	0.30	0.00	0.00
Avail Cap(c_a), veh/h	1491	0	0	1113	0	0	530	0	0	563	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	3.1	0.0	0.0	3.9	0.0	0.0	21.1	0.0	0.0	21.1	0.0	0.0
Incr Delay (d2), s/veh	0.7	0.0	0.0	1.9	0.0	0.0	0.2	0.0	0.0	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.0	0.0	2.0	0.0	0.0	0.8	0.0	0.0	0.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	3.8	0.0	0.0	5.9	0.0	0.0	21.3	0.0	0.0	21.4	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	C	A	A	C	A	A
Approach Vol, veh/h		525			609			79			89	
Approach Delay, s/veh		3.8			5.9			21.3			21.4	
Approach LOS		A			A			C			C	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		10.4		40.0		10.4		40.0				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		15.0		35.0		15.0		35.0				
Max Q Clear Time (g_c+I1), s		4.3		7.1		4.4		12.3				
Green Ext Time (p_c), s		0.1		0.7		0.1		0.8				

Intersection Summary	
HCM 6th Ctrl Delay	7.0
HCM 6th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	55	41	412	78	66	332
Future Volume (vph)	55	41	412	78	66	332
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	15	12	11	12	12	12
Grade (%)	-7%		1%			3%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.942		0.978			
Flt Protected	0.972					0.992
Satd. Flow (prot)	1910	0	1738	0	0	1820
Flt Permitted	0.972					0.992
Satd. Flow (perm)	1910	0	1738	0	0	1820
Link Speed (mph)	30		30			30
Link Distance (ft)	728		1350			591
Travel Time (s)	16.5		30.7			13.4
Confl. Peds. (#/hr)	3	3		3	3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	2%	3%	2%	2%	2%
Adj. Flow (vph)	61	46	458	87	73	369
Shared Lane Traffic (%)						
Lane Group Flow (vph)	107	0	545	0	0	442
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	15		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	0.84	0.96	1.05	1.01	1.02	1.02
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	2.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	55	41	412	78	66	332
Future Vol, veh/h	55	41	412	78	66	332
Conflicting Peds, #/hr	3	3	0	3	3	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	-7	-	1	-	-	3
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	5	2	3	2	2	2
Mvmt Flow	61	46	458	87	73	369

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1023	508	0	0	548	0
Stage 1	505	-	-	-	-	-
Stage 2	518	-	-	-	-	-
Critical Hdwy	5.05	5.52	-	-	4.12	-
Critical Hdwy Stg 1	4.05	-	-	-	-	-
Critical Hdwy Stg 2	4.05	-	-	-	-	-
Follow-up Hdwy	3.545	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	384	624	-	-	1021	-
Stage 1	730	-	-	-	-	-
Stage 2	724	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	347	620	-	-	1017	-
Mov Cap-2 Maneuver	347	-	-	-	-	-
Stage 1	727	-	-	-	-	-
Stage 2	657	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	16.2	0	1.5
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	427	1017	-
HCM Lane V/C Ratio	-	-	0.25	0.072	-
HCM Control Delay (s)	-	-	16.2	8.8	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	1	0.2	-



Lane Group	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Volume (vph)	11	5	5	458	355	11
Future Volume (vph)	11	5	5	458	355	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	14	12	12	10	10	12
Grade (%)	10%			1%	-1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.955				0.996	
Flt Protected	0.968			0.999		
Satd. Flow (prot)	1508	0	0	1695	1708	0
Flt Permitted	0.968			0.999		
Satd. Flow (perm)	1508	0	0	1695	1708	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	1052			654	1350	
Travel Time (s)	23.9			14.9	30.7	
Confl. Peds. (#/hr)	2	2	2			2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	50%	2%	4%	4%	2%
Adj. Flow (vph)	12	6	6	509	394	12
Shared Lane Traffic (%)						
Lane Group Flow (vph)	18	0	0	515	406	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	14			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	0.98	1.07	1.01	1.10	1.09	0.99
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.5

Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Vol, veh/h	11	5	5	458	355	11
Future Vol, veh/h	11	5	5	458	355	11
Conflicting Peds, #/hr	2	2	2	0	0	2
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	10	-	-	1	-1	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	50	2	4	4	2
Mvmt Flow	12	6	6	509	394	12

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	925	404	408	0	-	0
Stage 1	402	-	-	-	-	-
Stage 2	523	-	-	-	-	-
Critical Hdwy	8.42	7.7	4.12	-	-	-
Critical Hdwy Stg 1	7.42	-	-	-	-	-
Critical Hdwy Stg 2	7.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.75	2.218	-	-	-
Pot Cap-1 Maneuver	179	496	1151	-	-	-
Stage 1	540	-	-	-	-	-
Stage 2	445	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	177	494	1148	-	-	-
Mov Cap-2 Maneuver	177	-	-	-	-	-
Stage 1	535	-	-	-	-	-
Stage 2	444	-	-	-	-	-

Approach	SE	NE	SW
HCM Control Delay, s	22.7	0.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NEL	NET	SELn1	SWT	SWR
Capacity (veh/h)	1148	-	221	-	-
HCM Lane V/C Ratio	0.005	-	0.08	-	-
HCM Control Delay (s)	8.2	0	22.7	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	12	1	1	451	335	25
Future Volume (vph)	12	1	1	451	335	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	12	12	11	11	12
Grade (%)	7%			-3%	0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.990				0.990	
Flt Protected	0.956					
Satd. Flow (prot)	1493	0	0	1810	1764	0
Flt Permitted	0.956					
Satd. Flow (perm)	1493	0	0	1810	1764	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	839			832	1447	
Travel Time (s)	19.1			18.9	32.9	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	9%	2%	2%	3%	3%	4%
Adj. Flow (vph)	13	1	1	480	356	27
Shared Lane Traffic (%)						
Lane Group Flow (vph)	14	0	0	481	383	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	10			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.14	1.05	0.98	1.02	1.04	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

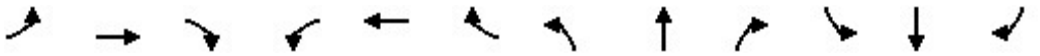
Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	12	1	1	451	335	25
Future Vol, veh/h	12	1	1	451	335	25
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	7	-	-	-3	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	9	2	2	3	3	4
Mvmt Flow	13	1	1	480	356	27

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	852	370	383	0	-	0
Stage 1	370	-	-	-	-	-
Stage 2	482	-	-	-	-	-
Critical Hdwy	7.89	6.92	4.12	-	-	-
Critical Hdwy Stg 1	6.89	-	-	-	-	-
Critical Hdwy Stg 2	6.89	-	-	-	-	-
Follow-up Hdwy	3.581	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	230	629	1175	-	-	-
Stage 1	592	-	-	-	-	-
Stage 2	503	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	230	629	1175	-	-	-
Mov Cap-2 Maneuver	230	-	-	-	-	-
Stage 1	591	-	-	-	-	-
Stage 2	503	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	20.8	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1175	-	242	-	-
HCM Lane V/C Ratio	0.001	-	0.057	-	-
HCM Control Delay (s)	8.1	0	20.8	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

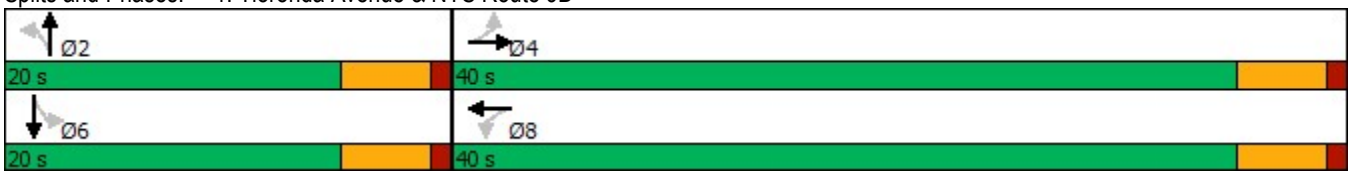


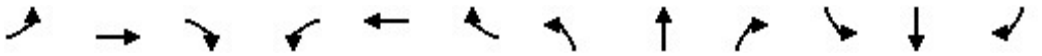
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	22	370	21	20	372	106	40	15	17	50	10	14
Future Volume (vph)	22	370	21	20	372	106	40	15	17	50	10	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	11	12	12	11	12	12	13	12	12	12	12
Grade (%)		-7%			7%			6%			0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			0.99			0.99			0.99	
Frt		0.993			0.971			0.968			0.975	
Flt Protected		0.997			0.998			0.973			0.967	
Satd. Flow (prot)	0	1843	0	0	1665	0	0	1749	0	0	1724	0
Flt Permitted		0.966			0.978			0.832			0.798	
Satd. Flow (perm)	0	1784	0	0	1631	0	0	1488	0	0	1419	0
Right Turn on Red			Yes			Yes			No			No
Satd. Flow (RTOR)		8			39							
Link Speed (mph)		30			30			25			30	
Link Distance (ft)		820			2162			1011			636	
Travel Time (s)		18.6			49.1			27.6			14.5	
Confl. Peds. (#/hr)	17		2	2		17	5		2	2		5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	4%	2%	2%
Adj. Flow (vph)	24	402	23	22	404	115	43	16	18	54	11	15
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	449	0	0	541	0	0	77	0	0	80	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	0.96	1.00	0.96	1.05	1.09	1.05	1.04	1.00	1.04	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	2		1	2	
Detector Template	Left			Left			Left			Left		
Leading Detector (ft)	20	6		20	6		20	83		20	83	
Trailing Detector (ft)	0	0		0	0		0	-5		0	-5	
Detector 1 Position(ft)	0	0		0	0		0	-5		0	-5	
Detector 1 Size(ft)	20	6		20	6		20	40		20	40	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)								43			43	
Detector 2 Size(ft)								40			40	
Detector 2 Type								Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)								0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	40.0	40.0		40.0	40.0		10.0	10.0		10.0	10.0	
Total Split (s)	40.0	40.0		40.0	40.0		20.0	20.0		20.0	20.0	
Total Split (%)	66.7%	66.7%		66.7%	66.7%		33.3%	33.3%		33.3%	33.3%	
Maximum Green (s)	35.0	35.0		35.0	35.0		15.0	15.0		15.0	15.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Pedestrian Calls (#/hr)	60	60		60	60		10	10		10	10	
v/c Ratio		0.32			0.42			0.35			0.37	
Control Delay		4.8			5.6			24.5			25.4	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		4.8			5.6			24.5			25.4	
Queue Length 50th (ft)		48			59			24			25	
Queue Length 95th (ft)		132			172			52			54	
Internal Link Dist (ft)		740			2082			931			556	
Turn Bay Length (ft)												
Base Capacity (vph)		1400			1286			398			380	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.32			0.42			0.19			0.21	

Intersection Summary	
Area Type:	Other
Cycle Length: 60	
Actuated Cycle Length: 56.1	
Natural Cycle: 50	
Control Type: Semi Act-Uncoord	

Splits and Phases: 1: Tioronda Avenue & NYS Route 9D





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	370	21	20	372	106	40	15	17	50	10	14
Future Volume (veh/h)	22	370	21	20	372	106	40	15	17	50	10	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	0.98		0.98	0.98		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	2145	2145	2145	1582	1582	1582	1658	1725	1658	1841	1870	1870
Adj Flow Rate, veh/h	24	402	23	22	404	115	43	16	18	54	11	15
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	4	2	2
Cap, veh/h	106	1343	74	91	806	222	183	46	36	218	35	31
Arrive On Green	0.70	0.70	0.70	0.70	0.70	0.70	0.10	0.10	0.10	0.10	0.10	0.10
Sat Flow, veh/h	44	1925	106	23	1156	318	693	445	347	952	340	298
Grp Volume(v), veh/h	449	0	0	541	0	0	77	0	0	80	0	0
Grp Sat Flow(s),veh/h/ln	2075	0	0	1498	0	0	1486	0	0	1590	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	4.1	0.0	0.0	8.4	0.0	0.0	2.2	0.0	0.0	2.1	0.0	0.0
Prop In Lane	0.05		0.05	0.04		0.21	0.56		0.23	0.67		0.19
Lane Grp Cap(c), veh/h	1524	0	0	1120	0	0	265	0	0	284	0	0
V/C Ratio(X)	0.29	0.00	0.00	0.48	0.00	0.00	0.29	0.00	0.00	0.28	0.00	0.00
Avail Cap(c_a), veh/h	1524	0	0	1120	0	0	533	0	0	566	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	2.9	0.0	0.0	3.6	0.0	0.0	21.2	0.0	0.0	21.1	0.0	0.0
Incr Delay (d2), s/veh	0.5	0.0	0.0	1.5	0.0	0.0	0.2	0.0	0.0	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	0.0	1.6	0.0	0.0	0.8	0.0	0.0	0.8	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	3.4	0.0	0.0	5.1	0.0	0.0	21.4	0.0	0.0	21.3	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	C	A	A	C	A	A
Approach Vol, veh/h		449			541			77			80	
Approach Delay, s/veh		3.4			5.1			21.4			21.3	
Approach LOS		A			A			C			C	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		10.2		40.0		10.2		40.0				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		15.0		35.0		15.0		35.0				
Max Q Clear Time (g_c+I1), s		4.2		6.1		4.1		10.4				
Green Ext Time (p_c), s		0.1		0.5		0.1		0.7				

Intersection Summary		
HCM 6th Ctrl Delay		6.6
HCM 6th LOS		A

Notes

User approved pedestrian interval to be less than phase max green.



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	69	56	363	56	59	346
Future Volume (vph)	69	56	363	56	59	346
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	15	12	11	12	12	12
Grade (%)	-7%		1%			3%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.940		0.982			
Flt Protected	0.973					0.993
Satd. Flow (prot)	1940	0	1759	0	0	1822
Flt Permitted	0.973					0.993
Satd. Flow (perm)	1940	0	1759	0	0	1822
Link Speed (mph)	30		30			30
Link Distance (ft)	728		1350			591
Travel Time (s)	16.5		30.7			13.4
Confl. Peds. (#/hr)	22	20		22	20	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	77	62	403	62	66	384
Shared Lane Traffic (%)						
Lane Group Flow (vph)	139	0	465	0	0	450
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	15		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	0.84	0.96	1.05	1.01	1.02	1.02
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	2.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	69	56	363	56	59	346
Future Vol, veh/h	69	56	363	56	59	346
Conflicting Peds, #/hr	22	20	0	22	20	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	-7	-	1	-	-	3
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	77	62	403	62	66	384

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	994	476	0	0	487	0
Stage 1	456	-	-	-	-	-
Stage 2	538	-	-	-	-	-
Critical Hdwy	5.02	5.52	-	-	4.12	-
Critical Hdwy Stg 1	4.02	-	-	-	-	-
Critical Hdwy Stg 2	4.02	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	400	646	-	-	1076	-
Stage 1	762	-	-	-	-	-
Stage 2	722	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	352	617	-	-	1048	-
Mov Cap-2 Maneuver	352	-	-	-	-	-
Stage 1	742	-	-	-	-	-
Stage 2	651	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	17.1	0	1.3
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	436	1048	-
HCM Lane V/C Ratio	-	-	0.319	0.063	-
HCM Control Delay (s)	-	-	17.1	8.7	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	1.4	0.2	-



Lane Group	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Volume (vph)	5	4	1	413	412	3
Future Volume (vph)	5	4	1	413	412	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	14	12	12	10	10	12
Grade (%)	10%			1%	-1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.939				0.999	
Flt Protected	0.973					
Satd. Flow (prot)	1725	0	0	1730	1746	0
Flt Permitted	0.973					
Satd. Flow (perm)	1725	0	0	1730	1746	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	1052			654	1350	
Travel Time (s)	23.9			14.9	30.7	
Confl. Peds. (#/hr)	3	3	3			3
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	6	5	1	475	474	3
Shared Lane Traffic (%)						
Lane Group Flow (vph)	11	0	0	476	477	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	14			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	0.98	1.07	1.01	1.10	1.09	0.99
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	0.2

Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Vol, veh/h	5	4	1	413	412	3
Future Vol, veh/h	5	4	1	413	412	3
Conflicting Peds, #/hr	3	3	3	0	0	3
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	10	-	-	1	-1	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	5	1	475	474	3

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	959	482	480	0	-	0
Stage 1	479	-	-	-	-	-
Stage 2	480	-	-	-	-	-
Critical Hdwy	8.42	7.22	4.12	-	-	-
Critical Hdwy Stg 1	7.42	-	-	-	-	-
Critical Hdwy Stg 2	7.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	167	511	1082	-	-	-
Stage 1	477	-	-	-	-	-
Stage 2	477	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	166	508	1078	-	-	-
Mov Cap-2 Maneuver	166	-	-	-	-	-
Stage 1	475	-	-	-	-	-
Stage 2	476	-	-	-	-	-

Approach	SE	NE	SW
HCM Control Delay, s	20.9	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NEL	NET	SELn1	SWT	SWR
Capacity (veh/h)	1078	-	237	-	-
HCM Lane V/C Ratio	0.001	-	0.044	-	-
HCM Control Delay (s)	8.3	0	20.9	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	11	6	2	404	394	23
Future Volume (vph)	11	6	2	404	394	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	12	12	11	11	12
Grade (%)	7%			-3%	0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.950				0.993	
Flt Protected	0.969					
Satd. Flow (prot)	1544	0	0	1828	1785	0
Flt Permitted	0.969					
Satd. Flow (perm)	1544	0	0	1828	1785	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	839			832	1447	
Travel Time (s)	19.1			18.9	32.9	
Confl. Peds. (#/hr)	1	1	1			1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	2%	2%	2%	5%
Adj. Flow (vph)	12	7	2	439	428	25
Shared Lane Traffic (%)						
Lane Group Flow (vph)	19	0	0	441	453	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	10			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.14	1.05	0.98	1.02	1.04	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

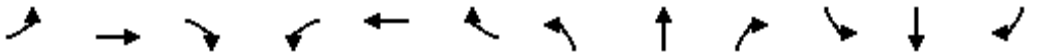
Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	11	6	2	404	394	23
Future Vol, veh/h	11	6	2	404	394	23
Conflicting Peds, #/hr	1	1	1	0	0	1
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	7	-	-	-3	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	5
Mvmt Flow	12	7	2	439	428	25

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	886	443	454	0	-	0
Stage 1	442	-	-	-	-	-
Stage 2	444	-	-	-	-	-
Critical Hdwy	7.82	6.92	4.12	-	-	-
Critical Hdwy Stg 1	6.82	-	-	-	-	-
Critical Hdwy Stg 2	6.82	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	223	564	1107	-	-	-
Stage 1	545	-	-	-	-	-
Stage 2	544	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	222	563	1106	-	-	-
Mov Cap-2 Maneuver	222	-	-	-	-	-
Stage 1	543	-	-	-	-	-
Stage 2	543	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	18.7	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1106	-	282	-	-
HCM Lane V/C Ratio	0.002	-	0.066	-	-
HCM Control Delay (s)	8.3	0	18.7	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-



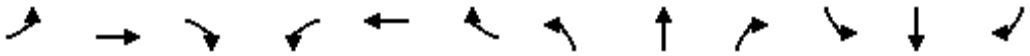
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	28	393	20	17	401	90	31	14	20	59	11	8
Future Volume (vph)	28	393	20	17	401	90	31	14	20	59	11	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	11	12	12	11	12	12	13	12	12	12	12
Grade (%)		-7%			7%			6%			0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			0.99			0.99			0.99	
Frt		0.994			0.976			0.959			0.986	
Flt Protected		0.997			0.998			0.977			0.963	
Satd. Flow (prot)	0	1825	0	0	1661	0	0	1567	0	0	1763	0
Flt Permitted		0.948			0.979			0.847			0.775	
Satd. Flow (perm)	0	1734	0	0	1629	0	0	1351	0	0	1415	0
Right Turn on Red			Yes			Yes			No			No
Satd. Flow (RTOR)		7			31							
Link Speed (mph)		30			30			25			30	
Link Distance (ft)		820			2162			1011			636	
Travel Time (s)		18.6			49.1			27.6			14.5	
Confl. Peds. (#/hr)	17		10	10		17	6		2	2		6
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles (%)	4%	3%	2%	2%	3%	3%	25%	2%	2%	2%	2%	2%
Adj. Flow (vph)	34	479	24	21	489	110	38	17	24	72	13	10
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	537	0	0	620	0	0	79	0	0	95	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	0.96	1.00	0.96	1.05	1.09	1.05	1.04	1.00	1.04	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	2		1	2	
Detector Template	Left			Left			Left			Left		
Leading Detector (ft)	20	6		20	6		20	83		20	83	
Trailing Detector (ft)	0	0		0	0		0	-5		0	-5	
Detector 1 Position(ft)	0	0		0	0		0	-5		0	-5	
Detector 1 Size(ft)	20	6		20	6		20	40		20	40	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)								43			43	
Detector 2 Size(ft)								40			40	
Detector 2 Type								Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)								0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	40.0	40.0		40.0	40.0		10.0	10.0		10.0	10.0	
Total Split (s)	40.0	40.0		40.0	40.0		20.0	20.0		20.0	20.0	
Total Split (%)	66.7%	66.7%		66.7%	66.7%		33.3%	33.3%		33.3%	33.3%	
Maximum Green (s)	35.0	35.0		35.0	35.0		15.0	15.0		15.0	15.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Pedestrian Calls (#/hr)	60	60		60	60		10	10		10	10	
v/c Ratio		0.43			0.52			0.38			0.43	
Control Delay		6.4			7.4			25.8			27.1	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		6.4			7.4			25.8			27.1	
Queue Length 50th (ft)		65			79			24			29	
Queue Length 95th (ft)		147			182			48			56	
Internal Link Dist (ft)		740			2082			931			556	
Turn Bay Length (ft)												
Base Capacity (vph)		1260			1191			350			367	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.43			0.52			0.23			0.26	

Intersection Summary	
Area Type:	Other
Cycle Length: 60	
Actuated Cycle Length: 58.1	
Natural Cycle: 50	
Control Type: Semi Act-Uncoord	

Splits and Phases: 1: Tioronda Avenue & NYS Route 9D





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	28	393	20	17	401	90	31	14	20	59	11	8
Future Volume (veh/h)	28	393	20	17	401	90	31	14	20	59	11	8
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	0.98		0.97	0.98		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	2115	2130	2145	1582	1567	1567	1317	1725	1658	1870	1870	1870
Adj Flow Rate, veh/h	34	479	24	21	489	110	38	17	24	72	13	10
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Percent Heavy Veh, %	4	3	2	2	3	3	25	2	2	2	2	2
Cap, veh/h	117	1310	63	87	840	184	168	51	49	245	31	18
Arrive On Green	0.69	0.69	0.69	0.69	0.69	0.69	0.11	0.11	0.11	0.11	0.11	0.11
Sat Flow, veh/h	59	1887	91	19	1210	265	578	475	459	1115	287	165
Grp Volume(v), veh/h	537	0	0	620	0	0	79	0	0	95	0	0
Grp Sat Flow(s),veh/h/ln	2037	0	0	1494	0	0	1512	0	0	1566	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0
Cycle Q Clear(g_c), s	5.3	0.0	0.0	10.7	0.0	0.0	2.3	0.0	0.0	2.6	0.0	0.0
Prop In Lane	0.06		0.04	0.03		0.18	0.48		0.30	0.76		0.11
Lane Grp Cap(c), veh/h	1490	0	0	1111	0	0	268	0	0	294	0	0
V/C Ratio(X)	0.36	0.00	0.00	0.56	0.00	0.00	0.29	0.00	0.00	0.32	0.00	0.00
Avail Cap(c_a), veh/h	1490	0	0	1111	0	0	531	0	0	562	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	3.2	0.0	0.0	4.0	0.0	0.0	21.1	0.0	0.0	21.2	0.0	0.0
Incr Delay (d2), s/veh	0.7	0.0	0.0	2.0	0.0	0.0	0.2	0.0	0.0	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.0	0.0	2.1	0.0	0.0	0.8	0.0	0.0	1.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	3.8	0.0	0.0	6.0	0.0	0.0	21.3	0.0	0.0	21.4	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	C	A	A	C	A	A
Approach Vol, veh/h		537			620			79			95	
Approach Delay, s/veh		3.8			6.0			21.3			21.4	
Approach LOS		A			A			C			C	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		10.4		40.0		10.4		40.0				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		15.0		35.0		15.0		35.0				
Max Q Clear Time (g_c+I1), s		4.3		7.3		4.6		12.7				
Green Ext Time (p_c), s		0.1		0.7		0.2		0.8				

Intersection Summary												
HCM 6th Ctrl Delay			7.1									
HCM 6th LOS			A									

Notes

User approved pedestrian interval to be less than phase max green.



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	60	41	421	81	66	347
Future Volume (vph)	60	41	421	81	66	347
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	15	12	11	12	12	12
Grade (%)	-7%		1%			3%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.945		0.978			
Flt Protected	0.971					0.992
Satd. Flow (prot)	1913	0	1738	0	0	1820
Flt Permitted	0.971					0.992
Satd. Flow (perm)	1913	0	1738	0	0	1820
Link Speed (mph)	30		30			30
Link Distance (ft)	728		1350			591
Travel Time (s)	16.5		30.7			13.4
Confl. Peds. (#/hr)	3	3		3	3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	2%	3%	2%	2%	2%
Adj. Flow (vph)	67	46	468	90	73	386
Shared Lane Traffic (%)						
Lane Group Flow (vph)	113	0	558	0	0	459
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	15		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	0.84	0.96	1.05	1.01	1.02	1.02
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	2.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	60	41	421	81	66	347
Future Vol, veh/h	60	41	421	81	66	347
Conflicting Peds, #/hr	3	3	0	3	3	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	-7	-	1	-	-	3
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	5	2	3	2	2	2
Mvmt Flow	67	46	468	90	73	386

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1051	519	0	0	561	0
Stage 1	516	-	-	-	-	-
Stage 2	535	-	-	-	-	-
Critical Hdwy	5.05	5.52	-	-	4.12	-
Critical Hdwy Stg 1	4.05	-	-	-	-	-
Critical Hdwy Stg 2	4.05	-	-	-	-	-
Follow-up Hdwy	3.545	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	373	616	-	-	1010	-
Stage 1	725	-	-	-	-	-
Stage 2	716	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	336	612	-	-	1006	-
Mov Cap-2 Maneuver	336	-	-	-	-	-
Stage 1	722	-	-	-	-	-
Stage 2	649	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	17	0	1.4
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	411	1006	-
HCM Lane V/C Ratio	-	-	0.273	0.073	-
HCM Control Delay (s)	-	-	17	8.9	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	1.1	0.2	-



Lane Group	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Volume (vph)	11	5	5	469	374	11
Future Volume (vph)	11	5	5	469	374	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	14	12	12	10	10	12
Grade (%)	10%			1%	-1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.955				0.996	
Flt Protected	0.968			0.999		
Satd. Flow (prot)	1508	0	0	1695	1708	0
Flt Permitted	0.968			0.999		
Satd. Flow (perm)	1508	0	0	1695	1708	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	1052			654	1350	
Travel Time (s)	23.9			14.9	30.7	
Confl. Peds. (#/hr)	2	2	2			2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	50%	2%	4%	4%	2%
Adj. Flow (vph)	12	6	6	521	416	12
Shared Lane Traffic (%)						
Lane Group Flow (vph)	18	0	0	527	428	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	14			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	0.98	1.07	1.01	1.10	1.09	0.99
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

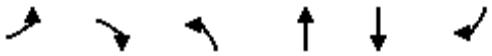
Intersection	
Int Delay, s/veh	0.5

Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Vol, veh/h	11	5	5	469	374	11
Future Vol, veh/h	11	5	5	469	374	11
Conflicting Peds, #/hr	2	2	2	0	0	2
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	10	-	-	1	-1	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	50	2	4	4	2
Mvmt Flow	12	6	6	521	416	12

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	959	426	430	0	-	0
Stage 1	424	-	-	-	-	-
Stage 2	535	-	-	-	-	-
Critical Hdwy	8.42	7.7	4.12	-	-	-
Critical Hdwy Stg 1	7.42	-	-	-	-	-
Critical Hdwy Stg 2	7.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.75	2.218	-	-	-
Pot Cap-1 Maneuver	167	478	1129	-	-	-
Stage 1	522	-	-	-	-	-
Stage 2	436	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	165	476	1126	-	-	-
Mov Cap-2 Maneuver	165	-	-	-	-	-
Stage 1	517	-	-	-	-	-
Stage 2	435	-	-	-	-	-

Approach	SE	NE	SW
HCM Control Delay, s	24	0.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NEL	NET	SELn1	SWT	SWR
Capacity (veh/h)	1126	-	207	-	-
HCM Lane V/C Ratio	0.005	-	0.086	-	-
HCM Control Delay (s)	8.2	0	24	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	12	17	29	463	360	19
Future Volume (vph)	12	17	29	463	360	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	11	11	12
Grade (%)	1%			-3%	1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850			0.993	
Flt Protected	0.950			0.997		
Satd. Flow (prot)	1761	1575	0	1773	1715	0
Flt Permitted	0.950			0.997		
Satd. Flow (perm)	1761	1575	0	1773	1715	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	263			1447	440	
Travel Time (s)	6.0			32.9	10.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	5%	6%	2%
Adj. Flow (vph)	13	19	32	514	400	21
Shared Lane Traffic (%)						
Lane Group Flow (vph)	13	19	0	546	421	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	0.98	1.02	1.05	1.01
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

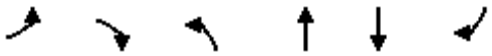
Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	12	17	29	463	360	19
Future Vol, veh/h	12	17	29	463	360	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	1	-	-	-3	1	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	5	6	2
Mvmt Flow	13	19	32	514	400	21

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	989	411	421	0	-	0
Stage 1	411	-	-	-	-	-
Stage 2	578	-	-	-	-	-
Critical Hdwy	6.62	6.32	4.12	-	-	-
Critical Hdwy Stg 1	5.62	-	-	-	-	-
Critical Hdwy Stg 2	5.62	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	259	633	1138	-	-	-
Stage 1	654	-	-	-	-	-
Stage 2	543	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	249	633	1138	-	-	-
Mov Cap-2 Maneuver	249	-	-	-	-	-
Stage 1	628	-	-	-	-	-
Stage 2	543	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	14.8	0.5	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1138	-	249	633	-	-
HCM Lane V/C Ratio	0.028	-	0.054	0.03	-	-
HCM Control Delay (s)	8.3	0	20.3	10.9	-	-
HCM Lane LOS	A	A	C	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.2	0.1	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	12	1	1	480	353	25
Future Volume (vph)	12	1	1	480	353	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	12	12	11	11	12
Grade (%)	7%			-3%	0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.990				0.991	
Flt Protected	0.956					
Satd. Flow (prot)	1493	0	0	1810	1766	0
Flt Permitted	0.956					
Satd. Flow (perm)	1493	0	0	1810	1766	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	839			832	1447	
Travel Time (s)	19.1			18.9	32.9	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	9%	2%	2%	3%	3%	4%
Adj. Flow (vph)	13	1	1	511	376	27
Shared Lane Traffic (%)						
Lane Group Flow (vph)	14	0	0	512	403	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	10			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.14	1.05	0.98	1.02	1.04	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

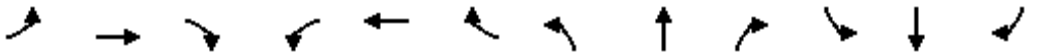
Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	12	1	1	480	353	25
Future Vol, veh/h	12	1	1	480	353	25
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	7	-	-	-3	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	9	2	2	3	3	4
Mvmt Flow	13	1	1	511	376	27

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	903	390	403	0	-	0
Stage 1	390	-	-	-	-	-
Stage 2	513	-	-	-	-	-
Critical Hdwy	7.89	6.92	4.12	-	-	-
Critical Hdwy Stg 1	6.89	-	-	-	-	-
Critical Hdwy Stg 2	6.89	-	-	-	-	-
Follow-up Hdwy	3.581	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	211	610	1156	-	-	-
Stage 1	575	-	-	-	-	-
Stage 2	481	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	211	610	1156	-	-	-
Mov Cap-2 Maneuver	211	-	-	-	-	-
Stage 1	574	-	-	-	-	-
Stage 2	481	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	22.3	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1156	-	222	-	-
HCM Lane V/C Ratio	0.001	-	0.062	-	-
HCM Control Delay (s)	8.1	0	22.3	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-



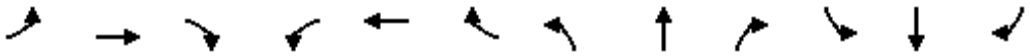
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	22	376	21	21	379	109	40	15	17	53	10	14
Future Volume (vph)	22	376	21	21	379	109	40	15	17	53	10	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	11	12	12	11	12	12	13	12	12	12	12
Grade (%)		-7%			7%			6%			0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			0.99			0.99			0.99	
Frt		0.993			0.971			0.968			0.976	
Flt Protected		0.997			0.998			0.973			0.967	
Satd. Flow (prot)	0	1843	0	0	1665	0	0	1749	0	0	1725	0
Flt Permitted		0.965			0.977			0.842			0.793	
Satd. Flow (perm)	0	1782	0	0	1630	0	0	1506	0	0	1411	0
Right Turn on Red			Yes			Yes			No			No
Satd. Flow (RTOR)		8			39							
Link Speed (mph)		30			30			25			30	
Link Distance (ft)		820			2162			1011			636	
Travel Time (s)		18.6			49.1			27.6			14.5	
Confl. Peds. (#/hr)	17		2	2		17	5		2	2		5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	4%	2%	2%
Adj. Flow (vph)	24	409	23	23	412	118	43	16	18	58	11	15
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	456	0	0	553	0	0	77	0	0	84	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	0.96	1.00	0.96	1.05	1.09	1.05	1.04	1.00	1.04	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	2		1	2	
Detector Template	Left			Left			Left			Left		
Leading Detector (ft)	20	6		20	6		20	83		20	83	
Trailing Detector (ft)	0	0		0	0		0	-5		0	-5	
Detector 1 Position(ft)	0	0		0	0		0	-5		0	-5	
Detector 1 Size(ft)	20	6		20	6		20	40		20	40	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)								43			43	
Detector 2 Size(ft)								40			40	
Detector 2 Type								Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)								0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	40.0	40.0		40.0	40.0		10.0	10.0		10.0	10.0	
Total Split (s)	40.0	40.0		40.0	40.0		20.0	20.0		20.0	20.0	
Total Split (%)	66.7%	66.7%		66.7%	66.7%		33.3%	33.3%		33.3%	33.3%	
Maximum Green (s)	35.0	35.0		35.0	35.0		15.0	15.0		15.0	15.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Pedestrian Calls (#/hr)	60	60		60	60		10	10		10	10	
v/c Ratio		0.33			0.43			0.34			0.39	
Control Delay		4.9			5.7			24.2			25.7	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		4.9			5.7			24.2			25.7	
Queue Length 50th (ft)		50			62			24			26	
Queue Length 95th (ft)		135			179			52			56	
Internal Link Dist (ft)		740			2082			931			556	
Turn Bay Length (ft)												
Base Capacity (vph)		1395			1284			403			377	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.33			0.43			0.19			0.22	

Intersection Summary	
Area Type:	Other
Cycle Length: 60	
Actuated Cycle Length: 56.1	
Natural Cycle: 50	
Control Type: Semi Act-Uncoord	

Splits and Phases: 1: Tioronda Avenue & NYS Route 9D





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	376	21	21	379	109	40	15	17	53	10	14
Future Volume (veh/h)	22	376	21	21	379	109	40	15	17	53	10	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	0.98		0.98	0.98		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	2145	2145	2145	1582	1582	1582	1658	1725	1658	1841	1870	1870
Adj Flow Rate, veh/h	24	409	23	23	412	118	43	16	18	58	11	15
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	4	2	2
Cap, veh/h	106	1344	73	92	804	223	184	46	36	223	33	29
Arrive On Green	0.70	0.70	0.70	0.70	0.70	0.70	0.10	0.10	0.10	0.10	0.10	0.10
Sat Flow, veh/h	43	1928	105	24	1153	319	694	449	349	987	315	283
Grp Volume(v), veh/h	456	0	0	553	0	0	77	0	0	84	0	0
Grp Sat Flow(s),veh/h/ln	2076	0	0	1496	0	0	1492	0	0	1584	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	4.2	0.0	0.0	8.7	0.0	0.0	2.2	0.0	0.0	2.2	0.0	0.0
Prop In Lane	0.05		0.05	0.04		0.21	0.56		0.23	0.69		0.18
Lane Grp Cap(c), veh/h	1523	0	0	1118	0	0	266	0	0	285	0	0
V/C Ratio(X)	0.30	0.00	0.00	0.49	0.00	0.00	0.29	0.00	0.00	0.29	0.00	0.00
Avail Cap(c_a), veh/h	1523	0	0	1118	0	0	534	0	0	565	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	2.9	0.0	0.0	3.6	0.0	0.0	21.2	0.0	0.0	21.2	0.0	0.0
Incr Delay (d2), s/veh	0.5	0.0	0.0	1.6	0.0	0.0	0.2	0.0	0.0	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	0.0	1.6	0.0	0.0	0.8	0.0	0.0	0.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	3.4	0.0	0.0	5.2	0.0	0.0	21.4	0.0	0.0	21.4	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	C	A	A	C	A	A
Approach Vol, veh/h		456			553			77			84	
Approach Delay, s/veh		3.4			5.2			21.4			21.4	
Approach LOS		A			A			C			C	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		10.2		40.0		10.2		40.0				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		15.0		35.0		15.0		35.0				
Max Q Clear Time (g_c+I1), s		4.2		6.2		4.2		10.7				
Green Ext Time (p_c), s		0.1		0.5		0.1		0.7				

Intersection Summary		
HCM 6th Ctrl Delay		6.7
HCM 6th LOS		A

Notes

User approved pedestrian interval to be less than phase max green.



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	72	56	373	60	59	355
Future Volume (vph)	72	56	373	60	59	355
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	15	12	11	12	12	12
Grade (%)	-7%		1%			3%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.941		0.981			
Flt Protected	0.973					0.993
Satd. Flow (prot)	1942	0	1758	0	0	1822
Flt Permitted	0.973					0.993
Satd. Flow (perm)	1942	0	1758	0	0	1822
Link Speed (mph)	30		30			30
Link Distance (ft)	728		1350			591
Travel Time (s)	16.5		30.7			13.4
Confl. Peds. (#/hr)	22	20		22	20	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	80	62	414	67	66	394
Shared Lane Traffic (%)						
Lane Group Flow (vph)	142	0	481	0	0	460
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	15		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	0.84	0.96	1.05	1.01	1.02	1.02
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	2.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	72	56	373	60	59	355
Future Vol, veh/h	72	56	373	60	59	355
Conflicting Peds, #/hr	22	20	0	22	20	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	-7	-	1	-	-	3
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	80	62	414	67	66	394

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1018	490	0	0	503	0
Stage 1	470	-	-	-	-	-
Stage 2	548	-	-	-	-	-
Critical Hdwy	5.02	5.52	-	-	4.12	-
Critical Hdwy Stg 1	4.02	-	-	-	-	-
Critical Hdwy Stg 2	4.02	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	391	636	-	-	1061	-
Stage 1	755	-	-	-	-	-
Stage 2	717	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	343	608	-	-	1033	-
Mov Cap-2 Maneuver	343	-	-	-	-	-
Stage 1	735	-	-	-	-	-
Stage 2	645	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	17.7	0	1.2
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	424	1033	-
HCM Lane V/C Ratio	-	-	0.335	0.063	-
HCM Control Delay (s)	-	-	17.7	8.7	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	1.5	0.2	-



Lane Group	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Volume (vph)	5	4	1	427	424	3
Future Volume (vph)	5	4	1	427	424	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	14	12	12	10	10	12
Grade (%)	10%			1%	-1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.939				0.999	
Flt Protected	0.973					
Satd. Flow (prot)	1725	0	0	1730	1746	0
Flt Permitted	0.973					
Satd. Flow (perm)	1725	0	0	1730	1746	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	1052			654	1350	
Travel Time (s)	23.9			14.9	30.7	
Confl. Peds. (#/hr)	3	3	3			3
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	6	5	1	491	487	3
Shared Lane Traffic (%)						
Lane Group Flow (vph)	11	0	0	492	490	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	14			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	0.98	1.07	1.01	1.10	1.09	0.99
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

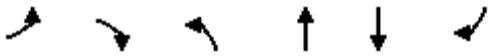
Intersection	
Int Delay, s/veh	0.2

Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Vol, veh/h	5	4	1	427	424	3
Future Vol, veh/h	5	4	1	427	424	3
Conflicting Peds, #/hr	3	3	3	0	0	3
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	10	-	-	1	-1	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	5	1	491	487	3

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	988	495	493	0	-	0
Stage 1	492	-	-	-	-	-
Stage 2	496	-	-	-	-	-
Critical Hdwy	8.42	7.22	4.12	-	-	-
Critical Hdwy Stg 1	7.42	-	-	-	-	-
Critical Hdwy Stg 2	7.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	158	501	1071	-	-	-
Stage 1	468	-	-	-	-	-
Stage 2	465	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	157	498	1067	-	-	-
Mov Cap-2 Maneuver	157	-	-	-	-	-
Stage 1	466	-	-	-	-	-
Stage 2	464	-	-	-	-	-

Approach	SE	NE	SW
HCM Control Delay, s	21.7	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NEL	NET	SELn1	SWT	SWR
Capacity (veh/h)	1067	-	226	-	-
HCM Lane V/C Ratio	0.001	-	0.046	-	-
HCM Control Delay (s)	8.4	0	21.7	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	14	20	19	415	416	12
Future Volume (vph)	14	20	19	415	416	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	11	11	12
Grade (%)	1%			-3%	1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850			0.996	
Flt Protected	0.950			0.998		
Satd. Flow (prot)	1761	1575	0	1824	1784	0
Flt Permitted	0.950			0.998		
Satd. Flow (perm)	1761	1575	0	1824	1784	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	263			1447	440	
Travel Time (s)	6.0			32.9	10.0	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	16	23	22	477	478	14
Shared Lane Traffic (%)						
Lane Group Flow (vph)	16	23	0	499	492	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	0.98	1.02	1.05	1.01
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

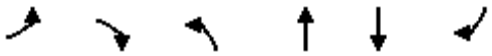
Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	14	20	19	415	416	12
Future Vol, veh/h	14	20	19	415	416	12
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	1	-	-	-3	1	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	16	23	22	477	478	14

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1006	485	492	0	-	0
Stage 1	485	-	-	-	-	-
Stage 2	521	-	-	-	-	-
Critical Hdwy	6.62	6.32	4.12	-	-	-
Critical Hdwy Stg 1	5.62	-	-	-	-	-
Critical Hdwy Stg 2	5.62	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	253	574	1071	-	-	-
Stage 1	603	-	-	-	-	-
Stage 2	579	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	246	574	1071	-	-	-
Mov Cap-2 Maneuver	246	-	-	-	-	-
Stage 1	586	-	-	-	-	-
Stage 2	579	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	15.3	0.4	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1071	-	246	574	-	-
HCM Lane V/C Ratio	0.02	-	0.065	0.04	-	-
HCM Control Delay (s)	8.4	0	20.7	11.5	-	-
HCM Lane LOS	A	A	C	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.2	0.1	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	11	6	2	422	414	23
Future Volume (vph)	11	6	2	422	414	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	12	12	11	11	12
Grade (%)	7%			-3%	0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.950				0.993	
Flt Protected	0.969					
Satd. Flow (prot)	1544	0	0	1828	1785	0
Flt Permitted	0.969					
Satd. Flow (perm)	1544	0	0	1828	1785	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	839			832	1447	
Travel Time (s)	19.1			18.9	32.9	
Confl. Peds. (#/hr)	1	1	1			1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	2%	2%	2%	5%
Adj. Flow (vph)	12	7	2	459	450	25
Shared Lane Traffic (%)						
Lane Group Flow (vph)	19	0	0	461	475	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	10			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.14	1.05	0.98	1.02	1.04	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

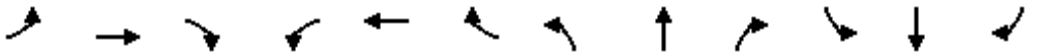
Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	11	6	2	422	414	23
Future Vol, veh/h	11	6	2	422	414	23
Conflicting Peds, #/hr	1	1	1	0	0	1
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	7	-	-	-3	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	5
Mvmt Flow	12	7	2	459	450	25

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	928	465	476	0	-	0
Stage 1	464	-	-	-	-	-
Stage 2	464	-	-	-	-	-
Critical Hdwy	7.82	6.92	4.12	-	-	-
Critical Hdwy Stg 1	6.82	-	-	-	-	-
Critical Hdwy Stg 2	6.82	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	207	546	1086	-	-	-
Stage 1	528	-	-	-	-	-
Stage 2	528	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	206	545	1085	-	-	-
Mov Cap-2 Maneuver	206	-	-	-	-	-
Stage 1	526	-	-	-	-	-
Stage 2	527	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	19.7	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1085	-	264	-	-
HCM Lane V/C Ratio	0.002	-	0.07	-	-
HCM Control Delay (s)	8.3	0	19.7	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-



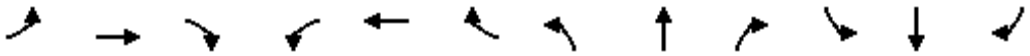
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	28	395	20	17	402	91	31	14	20	60	11	8
Future Volume (vph)	28	395	20	17	402	91	31	14	20	60	11	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	11	12	12	11	12	12	13	12	12	12	12
Grade (%)		-7%			7%			6%			0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			0.99			0.99			0.99	
Frt		0.994			0.976			0.959			0.986	
Flt Protected		0.997			0.998			0.977			0.963	
Satd. Flow (prot)	0	1825	0	0	1661	0	0	1567	0	0	1763	0
Flt Permitted		0.948			0.979			0.847			0.775	
Satd. Flow (perm)	0	1735	0	0	1629	0	0	1351	0	0	1415	0
Right Turn on Red			Yes			Yes			No			No
Satd. Flow (RTOR)		7			31							
Link Speed (mph)		30			30			25			30	
Link Distance (ft)		820			2162			1011			636	
Travel Time (s)		18.6			49.1			27.6			14.5	
Confl. Peds. (#/hr)	17		10	10		17	6		2	2		6
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles (%)	4%	3%	2%	2%	3%	3%	25%	2%	2%	2%	2%	2%
Adj. Flow (vph)	34	482	24	21	490	111	38	17	24	73	13	10
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	540	0	0	622	0	0	79	0	0	96	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	0.96	1.00	0.96	1.05	1.09	1.05	1.04	1.00	1.04	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	2		1	2	
Detector Template	Left			Left			Left			Left		
Leading Detector (ft)	20	6		20	6		20	83		20	83	
Trailing Detector (ft)	0	0		0	0		0	-5		0	-5	
Detector 1 Position(ft)	0	0		0	0		0	-5		0	-5	
Detector 1 Size(ft)	20	6		20	6		20	40		20	40	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)								43			43	
Detector 2 Size(ft)								40			40	
Detector 2 Type								Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)								0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	40.0	40.0		40.0	40.0		10.0	10.0		10.0	10.0	
Total Split (s)	40.0	40.0		40.0	40.0		20.0	20.0		20.0	20.0	
Total Split (%)	66.7%	66.7%		66.7%	66.7%		33.3%	33.3%		33.3%	33.3%	
Maximum Green (s)	35.0	35.0		35.0	35.0		15.0	15.0		15.0	15.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Pedestrian Calls (#/hr)	60	60		60	60		10	10		10	10	
v/c Ratio		0.43			0.52			0.37			0.43	
Control Delay		6.4			7.5			25.7			27.1	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		6.4			7.5			25.7			27.1	
Queue Length 50th (ft)		66			80			24			29	
Queue Length 95th (ft)		148			183			48			56	
Internal Link Dist (ft)		740			2082			931			556	
Turn Bay Length (ft)												
Base Capacity (vph)		1260			1189			350			366	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.43			0.52			0.23			0.26	

Intersection Summary	
Area Type:	Other
Cycle Length: 60	
Actuated Cycle Length: 58.1	
Natural Cycle: 50	
Control Type: Semi Act-Uncoord	

Splits and Phases: 1: Tioronda Avenue & NYS Route 9D





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	28	395	20	17	402	91	31	14	20	60	11	8
Future Volume (veh/h)	28	395	20	17	402	91	31	14	20	60	11	8
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	0.98		0.97	0.98		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	2115	2130	2145	1582	1567	1567	1317	1725	1658	1870	1870	1870
Adj Flow Rate, veh/h	34	482	24	21	490	111	38	17	24	73	13	10
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Percent Heavy Veh, %	4	3	2	2	3	3	25	2	2	2	2	2
Cap, veh/h	116	1311	63	87	839	185	168	51	49	246	30	18
Arrive On Green	0.69	0.69	0.69	0.69	0.69	0.69	0.11	0.11	0.11	0.11	0.11	0.11
Sat Flow, veh/h	58	1889	91	19	1208	267	578	475	460	1122	281	163
Grp Volume(v), veh/h	540	0	0	622	0	0	79	0	0	96	0	0
Grp Sat Flow(s),veh/h/ln	2037	0	0	1494	0	0	1513	0	0	1565	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0
Cycle Q Clear(g_c), s	5.3	0.0	0.0	10.8	0.0	0.0	2.3	0.0	0.0	2.6	0.0	0.0
Prop In Lane	0.06		0.04	0.03		0.18	0.48		0.30	0.76		0.10
Lane Grp Cap(c), veh/h	1490	0	0	1111	0	0	269	0	0	294	0	0
V/C Ratio(X)	0.36	0.00	0.00	0.56	0.00	0.00	0.29	0.00	0.00	0.33	0.00	0.00
Avail Cap(c_a), veh/h	1490	0	0	1111	0	0	531	0	0	562	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	3.2	0.0	0.0	4.0	0.0	0.0	21.1	0.0	0.0	21.2	0.0	0.0
Incr Delay (d2), s/veh	0.7	0.0	0.0	2.0	0.0	0.0	0.2	0.0	0.0	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.0	0.0	2.1	0.0	0.0	0.8	0.0	0.0	1.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	3.9	0.0	0.0	6.0	0.0	0.0	21.3	0.0	0.0	21.5	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	C	A	A	C	A	A
Approach Vol, veh/h		540			622			79			96	
Approach Delay, s/veh		3.9			6.0			21.3			21.5	
Approach LOS		A			A			C			C	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		10.4		40.0		10.4		40.0				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		15.0		35.0		15.0		35.0				
Max Q Clear Time (g_c+I1), s		4.3		7.3		4.6		12.8				
Green Ext Time (p_c), s		0.1		0.7		0.2		0.8				

Intersection Summary		
HCM 6th Ctrl Delay		7.2
HCM 6th LOS		A

Notes

User approved pedestrian interval to be less than phase max green.



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	61	41	423	81	66	350
Future Volume (vph)	61	41	423	81	66	350
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	15	12	11	12	12	12
Grade (%)	-7%		1%			3%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.946		0.978			
Flt Protected	0.971					0.992
Satd. Flow (prot)	1914	0	1738	0	0	1820
Flt Permitted	0.971					0.992
Satd. Flow (perm)	1914	0	1738	0	0	1820
Link Speed (mph)	30		30			30
Link Distance (ft)	728		1350			591
Travel Time (s)	16.5		30.7			13.4
Confl. Peds. (#/hr)	3	3		3	3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	2%	3%	2%	2%	2%
Adj. Flow (vph)	68	46	470	90	73	389
Shared Lane Traffic (%)						
Lane Group Flow (vph)	114	0	560	0	0	462
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	15		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	0.84	0.96	1.05	1.01	1.02	1.02
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	2.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	61	41	423	81	66	350
Future Vol, veh/h	61	41	423	81	66	350
Conflicting Peds, #/hr	3	3	0	3	3	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	-7	-	1	-	-	3
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	5	2	3	2	2	2
Mvmt Flow	68	46	470	90	73	389

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1056	521	0	0	563	0
Stage 1	518	-	-	-	-	-
Stage 2	538	-	-	-	-	-
Critical Hdwy	5.05	5.52	-	-	4.12	-
Critical Hdwy Stg 1	4.05	-	-	-	-	-
Critical Hdwy Stg 2	4.05	-	-	-	-	-
Follow-up Hdwy	3.545	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	371	615	-	-	1008	-
Stage 1	724	-	-	-	-	-
Stage 2	714	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	334	611	-	-	1004	-
Mov Cap-2 Maneuver	334	-	-	-	-	-
Stage 1	721	-	-	-	-	-
Stage 2	646	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	17.2	0	1.4
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	408	1004	-
HCM Lane V/C Ratio	-	-	0.278	0.073	-
HCM Control Delay (s)	-	-	17.2	8.9	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	1.1	0.2	-



Lane Group	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Volume (vph)	11	5	5	472	378	11
Future Volume (vph)	11	5	5	472	378	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	14	12	12	10	10	12
Grade (%)	10%			1%	-1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.955				0.996	
Flt Protected	0.968			0.999		
Satd. Flow (prot)	1508	0	0	1695	1708	0
Flt Permitted	0.968			0.999		
Satd. Flow (perm)	1508	0	0	1695	1708	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	1052			654	1350	
Travel Time (s)	23.9			14.9	30.7	
Confl. Peds. (#/hr)	2	2	2			2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	50%	2%	4%	4%	2%
Adj. Flow (vph)	12	6	6	524	420	12
Shared Lane Traffic (%)						
Lane Group Flow (vph)	18	0	0	530	432	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	14			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	0.98	1.07	1.01	1.10	1.09	0.99
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

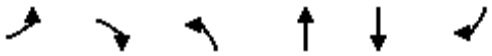
Intersection	
Int Delay, s/veh	0.5

Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Vol, veh/h	11	5	5	472	378	11
Future Vol, veh/h	11	5	5	472	378	11
Conflicting Peds, #/hr	2	2	2	0	0	2
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	10	-	-	1	-1	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	50	2	4	4	2
Mvmt Flow	12	6	6	524	420	12

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	966	430	434	0	-	0
Stage 1	428	-	-	-	-	-
Stage 2	538	-	-	-	-	-
Critical Hdwy	8.42	7.7	4.12	-	-	-
Critical Hdwy Stg 1	7.42	-	-	-	-	-
Critical Hdwy Stg 2	7.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.75	2.218	-	-	-
Pot Cap-1 Maneuver	165	475	1126	-	-	-
Stage 1	518	-	-	-	-	-
Stage 2	434	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	163	473	1123	-	-	-
Mov Cap-2 Maneuver	163	-	-	-	-	-
Stage 1	513	-	-	-	-	-
Stage 2	433	-	-	-	-	-

Approach	SE	NE	SW
HCM Control Delay, s	24.2	0.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NEL	NET	SELn1	SWT	SWR
Capacity (veh/h)	1123	-	205	-	-
HCM Lane V/C Ratio	0.005	-	0.087	-	-
HCM Control Delay (s)	8.2	0	24.2	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	14	17	29	463	360	24
Future Volume (vph)	14	17	29	463	360	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	11	11	12
Grade (%)	1%			-3%	1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850			0.991	
Flt Protected	0.950			0.997		
Satd. Flow (prot)	1761	1575	0	1773	1713	0
Flt Permitted	0.950			0.997		
Satd. Flow (perm)	1761	1575	0	1773	1713	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	263			1447	440	
Travel Time (s)	6.0			32.9	10.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	5%	6%	2%
Adj. Flow (vph)	16	19	32	514	400	27
Shared Lane Traffic (%)						
Lane Group Flow (vph)	16	19	0	546	427	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	0.98	1.02	1.05	1.01
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

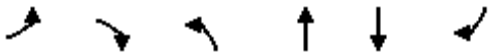
Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	14	17	29	463	360	24
Future Vol, veh/h	14	17	29	463	360	24
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	1	-	-	-3	1	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	5	6	2
Mvmt Flow	16	19	32	514	400	27

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	992	414	427	0	-	0
Stage 1	414	-	-	-	-	-
Stage 2	578	-	-	-	-	-
Critical Hdwy	6.62	6.32	4.12	-	-	-
Critical Hdwy Stg 1	5.62	-	-	-	-	-
Critical Hdwy Stg 2	5.62	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	258	631	1132	-	-	-
Stage 1	652	-	-	-	-	-
Stage 2	543	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	248	631	1132	-	-	-
Mov Cap-2 Maneuver	248	-	-	-	-	-
Stage 1	626	-	-	-	-	-
Stage 2	543	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	15.2	0.5	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1132	-	248	631	-	-
HCM Lane V/C Ratio	0.028	-	0.063	0.03	-	-
HCM Control Delay (s)	8.3	0	20.5	10.9	-	-
HCM Lane LOS	A	A	C	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.2	0.1	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	12	5	8	480	353	25
Future Volume (vph)	12	5	8	480	353	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	12	12	11	11	12
Grade (%)	7%			-3%	0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.962				0.991	
Flt Protected	0.965			0.999		
Satd. Flow (prot)	1484	0	0	1808	1766	0
Flt Permitted	0.965			0.999		
Satd. Flow (perm)	1484	0	0	1808	1766	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	839			832	1447	
Travel Time (s)	19.1			18.9	32.9	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	9%	2%	2%	3%	3%	4%
Adj. Flow (vph)	13	5	9	511	376	27
Shared Lane Traffic (%)						
Lane Group Flow (vph)	18	0	0	520	403	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	10			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.14	1.05	0.98	1.02	1.04	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

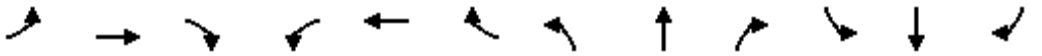
Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	12	5	8	480	353	25
Future Vol, veh/h	12	5	8	480	353	25
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	7	-	-	-3	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	9	2	2	3	3	4
Mvmt Flow	13	5	9	511	376	27

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	919	390	403	0	-	0
Stage 1	390	-	-	-	-	-
Stage 2	529	-	-	-	-	-
Critical Hdwy	7.89	6.92	4.12	-	-	-
Critical Hdwy Stg 1	6.89	-	-	-	-	-
Critical Hdwy Stg 2	6.89	-	-	-	-	-
Follow-up Hdwy	3.581	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	205	610	1156	-	-	-
Stage 1	575	-	-	-	-	-
Stage 2	470	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	203	610	1156	-	-	-
Mov Cap-2 Maneuver	203	-	-	-	-	-
Stage 1	569	-	-	-	-	-
Stage 2	470	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	20.3	0.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1156	-	253	-	-
HCM Lane V/C Ratio	0.007	-	0.071	-	-
HCM Control Delay (s)	8.1	0	20.3	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-



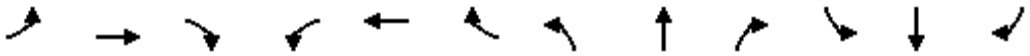
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	22	378	21	20	380	110	40	15	17	53	10	14
Future Volume (vph)	22	378	21	20	380	110	40	15	17	53	10	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	11	12	12	11	12	12	13	12	12	12	12
Grade (%)		-7%			7%			6%			0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			0.99			0.99			0.99	
Frt		0.993			0.971			0.968			0.976	
Flt Protected		0.997			0.998			0.973			0.967	
Satd. Flow (prot)	0	1843	0	0	1664	0	0	1749	0	0	1725	0
Flt Permitted		0.965			0.978			0.842			0.793	
Satd. Flow (perm)	0	1783	0	0	1631	0	0	1506	0	0	1411	0
Right Turn on Red			Yes			Yes			No			No
Satd. Flow (RTOR)		8			40							
Link Speed (mph)		30			30			25			30	
Link Distance (ft)		820			2162			1011			636	
Travel Time (s)		18.6			49.1			27.6			14.5	
Confl. Peds. (#/hr)	17		2	2		17	5		2	2		5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	4%	2%	2%
Adj. Flow (vph)	24	411	23	22	413	120	43	16	18	58	11	15
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	458	0	0	555	0	0	77	0	0	84	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	0.96	1.00	0.96	1.05	1.09	1.05	1.04	1.00	1.04	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	2		1	2	
Detector Template	Left			Left			Left			Left		
Leading Detector (ft)	20	6		20	6		20	83		20	83	
Trailing Detector (ft)	0	0		0	0		0	-5		0	-5	
Detector 1 Position(ft)	0	0		0	0		0	-5		0	-5	
Detector 1 Size(ft)	20	6		20	6		20	40		20	40	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)								43			43	
Detector 2 Size(ft)								40			40	
Detector 2 Type								Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)								0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	40.0	40.0		40.0	40.0		10.0	10.0		10.0	10.0	
Total Split (s)	40.0	40.0		40.0	40.0		20.0	20.0		20.0	20.0	
Total Split (%)	66.7%	66.7%		66.7%	66.7%		33.3%	33.3%		33.3%	33.3%	
Maximum Green (s)	35.0	35.0		35.0	35.0		15.0	15.0		15.0	15.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Pedestrian Calls (#/hr)	60	60		60	60		10	10		10	10	
v/c Ratio		0.33			0.43			0.34			0.39	
Control Delay		4.9			5.7			24.2			25.7	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		4.9			5.7			24.2			25.7	
Queue Length 50th (ft)		50			62			24			26	
Queue Length 95th (ft)		136			179			52			56	
Internal Link Dist (ft)		740			2082			931			556	
Turn Bay Length (ft)												
Base Capacity (vph)		1396			1285			403			377	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.33			0.43			0.19			0.22	

Intersection Summary	
Area Type:	Other
Cycle Length: 60	
Actuated Cycle Length: 56.1	
Natural Cycle: 50	
Control Type: Semi Act-Uncoord	

Splits and Phases: 1: Tioronda Avenue & NYS Route 9D





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	378	21	20	380	110	40	15	17	53	10	14
Future Volume (veh/h)	22	378	21	20	380	110	40	15	17	53	10	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	0.98		0.98	0.98		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	2145	2145	2145	1582	1582	1582	1658	1725	1658	1841	1870	1870
Adj Flow Rate, veh/h	24	411	23	22	413	120	43	16	18	58	11	15
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	4	2	2
Cap, veh/h	105	1345	73	90	802	226	184	46	36	223	33	29
Arrive On Green	0.70	0.70	0.70	0.70	0.70	0.70	0.10	0.10	0.10	0.10	0.10	0.10
Sat Flow, veh/h	43	1929	104	23	1150	324	694	449	349	987	315	283
Grp Volume(v), veh/h	458	0	0	555	0	0	77	0	0	84	0	0
Grp Sat Flow(s),veh/h/ln	2076	0	0	1497	0	0	1492	0	0	1584	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	4.2	0.0	0.0	8.8	0.0	0.0	2.2	0.0	0.0	2.2	0.0	0.0
Prop In Lane	0.05		0.05	0.04		0.22	0.56		0.23	0.69		0.18
Lane Grp Cap(c), veh/h	1523	0	0	1118	0	0	266	0	0	285	0	0
V/C Ratio(X)	0.30	0.00	0.00	0.50	0.00	0.00	0.29	0.00	0.00	0.29	0.00	0.00
Avail Cap(c_a), veh/h	1523	0	0	1118	0	0	534	0	0	565	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	2.9	0.0	0.0	3.6	0.0	0.0	21.2	0.0	0.0	21.2	0.0	0.0
Incr Delay (d2), s/veh	0.5	0.0	0.0	1.6	0.0	0.0	0.2	0.0	0.0	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	0.0	1.6	0.0	0.0	0.8	0.0	0.0	0.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	3.4	0.0	0.0	5.2	0.0	0.0	21.4	0.0	0.0	21.4	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	C	A	A	C	A	A
Approach Vol, veh/h		458			555			77			84	
Approach Delay, s/veh		3.4			5.2			21.4			21.4	
Approach LOS		A			A			C			C	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		10.2		40.0		10.2		40.0				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		15.0		35.0		15.0		35.0				
Max Q Clear Time (g_c+I1), s		4.2		6.2		4.2		10.8				
Green Ext Time (p_c), s		0.1		0.5		0.1		0.7				

Intersection Summary												
HCM 6th Ctrl Delay			6.7									
HCM 6th LOS			A									

Notes

User approved pedestrian interval to be less than phase max green.



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	73	56	375	60	59	357
Future Volume (vph)	73	56	375	60	59	357
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	15	12	11	12	12	12
Grade (%)	-7%		1%			3%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.941		0.981			
Flt Protected	0.972					0.993
Satd. Flow (prot)	1940	0	1758	0	0	1822
Flt Permitted	0.972					0.993
Satd. Flow (perm)	1940	0	1758	0	0	1822
Link Speed (mph)	30		30			30
Link Distance (ft)	728		1350			591
Travel Time (s)	16.5		30.7			13.4
Confl. Peds. (#/hr)	22	20		22	20	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	81	62	417	67	66	397
Shared Lane Traffic (%)						
Lane Group Flow (vph)	143	0	484	0	0	463
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	15		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	0.84	0.96	1.05	1.01	1.02	1.02
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	2.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	73	56	375	60	59	357
Future Vol, veh/h	73	56	375	60	59	357
Conflicting Peds, #/hr	22	20	0	22	20	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	-7	-	1	-	-	3
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	81	62	417	67	66	397

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1024	493	0	0	506	0
Stage 1	473	-	-	-	-	-
Stage 2	551	-	-	-	-	-
Critical Hdwy	5.02	5.52	-	-	4.12	-
Critical Hdwy Stg 1	4.02	-	-	-	-	-
Critical Hdwy Stg 2	4.02	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	388	634	-	-	1059	-
Stage 1	754	-	-	-	-	-
Stage 2	715	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	340	606	-	-	1031	-
Mov Cap-2 Maneuver	340	-	-	-	-	-
Stage 1	734	-	-	-	-	-
Stage 2	644	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	17.9	0	1.2
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	420	1031	-
HCM Lane V/C Ratio	-	-	0.341	0.064	-
HCM Control Delay (s)	-	-	17.9	8.7	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	1.5	0.2	-



Lane Group	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Volume (vph)	5	4	1	430	427	3
Future Volume (vph)	5	4	1	430	427	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	14	12	12	10	10	12
Grade (%)	10%			1%	-1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.939				0.999	
Flt Protected	0.973					
Satd. Flow (prot)	1725	0	0	1730	1746	0
Flt Permitted	0.973					
Satd. Flow (perm)	1725	0	0	1730	1746	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	1052			654	1350	
Travel Time (s)	23.9			14.9	30.7	
Confl. Peds. (#/hr)	3	3	3			3
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	6	5	1	494	491	3
Shared Lane Traffic (%)						
Lane Group Flow (vph)	11	0	0	495	494	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	14			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	0.98	1.07	1.01	1.10	1.09	0.99
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

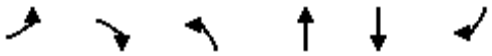
Intersection	
Int Delay, s/veh	0.2

Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Vol, veh/h	5	4	1	430	427	3
Future Vol, veh/h	5	4	1	430	427	3
Conflicting Peds, #/hr	3	3	3	0	0	3
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	10	-	-	1	-1	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	5	1	494	491	3

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	995	499	497	0	-	0
Stage 1	496	-	-	-	-	-
Stage 2	499	-	-	-	-	-
Critical Hdwy	8.42	7.22	4.12	-	-	-
Critical Hdwy Stg 1	7.42	-	-	-	-	-
Critical Hdwy Stg 2	7.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	156	498	1067	-	-	-
Stage 1	465	-	-	-	-	-
Stage 2	462	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	155	495	1063	-	-	-
Mov Cap-2 Maneuver	155	-	-	-	-	-
Stage 1	463	-	-	-	-	-
Stage 2	461	-	-	-	-	-

Approach	SE	NE	SW
HCM Control Delay, s	21.9	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NEL	NET	SELn1	SWT	SWR
Capacity (veh/h)	1063	-	223	-	-
HCM Lane V/C Ratio	0.001	-	0.046	-	-
HCM Control Delay (s)	8.4	0	21.9	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	17	20	19	415	416	15
Future Volume (vph)	17	20	19	415	416	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	11	11	12
Grade (%)	1%			-3%	1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850			0.995	
Flt Protected	0.950			0.998		
Satd. Flow (prot)	1761	1575	0	1824	1783	0
Flt Permitted	0.950			0.998		
Satd. Flow (perm)	1761	1575	0	1824	1783	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	263			1447	440	
Travel Time (s)	6.0			32.9	10.0	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	20	23	22	477	478	17
Shared Lane Traffic (%)						
Lane Group Flow (vph)	20	23	0	499	495	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	0.98	1.02	1.05	1.01
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

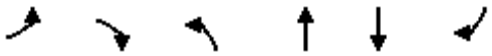
Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	17	20	19	415	416	15
Future Vol, veh/h	17	20	19	415	416	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	1	-	-	-3	1	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	20	23	22	477	478	17

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1008	487	495	0	-	0
Stage 1	487	-	-	-	-	-
Stage 2	521	-	-	-	-	-
Critical Hdwy	6.62	6.32	4.12	-	-	-
Critical Hdwy Stg 1	5.62	-	-	-	-	-
Critical Hdwy Stg 2	5.62	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	252	573	1069	-	-	-
Stage 1	601	-	-	-	-	-
Stage 2	579	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	245	573	1069	-	-	-
Mov Cap-2 Maneuver	245	-	-	-	-	-
Stage 1	584	-	-	-	-	-
Stage 2	579	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	15.9	0.4	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1069	-	245	573	-	-
HCM Lane V/C Ratio	0.02	-	0.08	0.04	-	-
HCM Control Delay (s)	8.4	0	21	11.5	-	-
HCM Lane LOS	A	A	C	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.3	0.1	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	11	11	6	422	414	23
Future Volume (vph)	11	11	6	422	414	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	12	12	11	11	12
Grade (%)	7%			-3%	0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.932				0.993	
Flt Protected	0.976			0.999		
Satd. Flow (prot)	1526	0	0	1826	1785	0
Flt Permitted	0.976			0.999		
Satd. Flow (perm)	1526	0	0	1826	1785	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	839			832	1447	
Travel Time (s)	19.1			18.9	32.9	
Confl. Peds. (#/hr)	1	1	1			1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	2%	2%	2%	5%
Adj. Flow (vph)	12	12	7	459	450	25
Shared Lane Traffic (%)						
Lane Group Flow (vph)	24	0	0	466	475	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	10			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.14	1.05	0.98	1.02	1.04	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

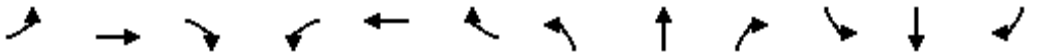
Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	11	11	6	422	414	23
Future Vol, veh/h	11	11	6	422	414	23
Conflicting Peds, #/hr	1	1	1	0	0	1
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	7	-	-	-3	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	5
Mvmt Flow	12	12	7	459	450	25

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	938	465	476	0	-	0
Stage 1	464	-	-	-	-	-
Stage 2	474	-	-	-	-	-
Critical Hdwy	7.82	6.92	4.12	-	-	-
Critical Hdwy Stg 1	6.82	-	-	-	-	-
Critical Hdwy Stg 2	6.82	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	204	546	1086	-	-	-
Stage 1	528	-	-	-	-	-
Stage 2	521	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	202	545	1085	-	-	-
Mov Cap-2 Maneuver	202	-	-	-	-	-
Stage 1	523	-	-	-	-	-
Stage 2	520	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	18.3	0.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1085	-	295	-	-
HCM Lane V/C Ratio	0.006	-	0.081	-	-
HCM Control Delay (s)	8.3	0	18.3	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-



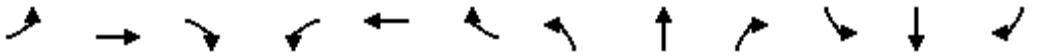
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	28	409	20	17	416	95	31	14	20	64	11	8
Future Volume (vph)	28	409	20	17	416	95	31	14	20	64	11	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	11	12	12	11	12	12	13	12	12	12	12
Grade (%)		-7%			7%			6%			0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			0.99			0.99			0.99	
Frt		0.994			0.976			0.959			0.987	
Flt Protected		0.997			0.998			0.977			0.963	
Satd. Flow (prot)	0	1826	0	0	1661	0	0	1567	0	0	1765	0
Flt Permitted		0.948			0.979			0.845			0.766	
Satd. Flow (perm)	0	1735	0	0	1629	0	0	1348	0	0	1400	0
Right Turn on Red			Yes			Yes			No			No
Satd. Flow (RTOR)		6			32							
Link Speed (mph)		30			30			25			30	
Link Distance (ft)		820			2162			1011			636	
Travel Time (s)		18.6			49.1			27.6			14.5	
Confl. Peds. (#/hr)	17		10	10		17	6		2	2		6
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles (%)	4%	3%	2%	2%	3%	3%	25%	2%	2%	2%	2%	2%
Adj. Flow (vph)	34	499	24	21	507	116	38	17	24	78	13	10
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	557	0	0	644	0	0	79	0	0	101	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	0.96	1.00	0.96	1.05	1.09	1.05	1.04	1.00	1.04	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	2		1	2	
Detector Template	Left			Left			Left			Left		
Leading Detector (ft)	20	6		20	6		20	83		20	83	
Trailing Detector (ft)	0	0		0	0		0	-5		0	-5	
Detector 1 Position(ft)	0	0		0	0		0	-5		0	-5	
Detector 1 Size(ft)	20	6		20	6		20	40		20	40	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)								43			43	
Detector 2 Size(ft)								40			40	
Detector 2 Type								Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)								0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	40.0	40.0		40.0	40.0		10.0	10.0		10.0	10.0	
Total Split (s)	40.0	40.0		40.0	40.0		20.0	20.0		20.0	20.0	
Total Split (%)	66.7%	66.7%		66.7%	66.7%		33.3%	33.3%		33.3%	33.3%	
Maximum Green (s)	35.0	35.0		35.0	35.0		15.0	15.0		15.0	15.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Pedestrian Calls (#/hr)	60	60		60	60		10	10		10	10	
v/c Ratio		0.44			0.54			0.37			0.45	
Control Delay		6.6			7.8			25.4			27.6	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		6.6			7.8			25.4			27.6	
Queue Length 50th (ft)		71			86			24			31	
Queue Length 95th (ft)		155			194			48			59	
Internal Link Dist (ft)		740			2082			931			556	
Turn Bay Length (ft)												
Base Capacity (vph)		1255			1185			350			363	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.44			0.54			0.23			0.28	

Intersection Summary	
Area Type:	Other
Cycle Length: 60	
Actuated Cycle Length: 58	
Natural Cycle: 50	
Control Type: Semi Act-Uncoord	

Splits and Phases: 1: Tioronda Avenue & NYS Route 9D





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	28	409	20	17	416	95	31	14	20	64	11	8
Future Volume (veh/h)	28	409	20	17	416	95	31	14	20	64	11	8
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	0.98		0.97	0.98		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	2115	2130	2145	1582	1567	1567	1317	1725	1658	1870	1870	1870
Adj Flow Rate, veh/h	34	499	24	21	507	116	38	17	24	78	13	10
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Percent Heavy Veh, %	4	3	2	2	3	3	25	2	2	2	2	2
Cap, veh/h	115	1313	61	86	837	187	169	52	50	251	27	17
Arrive On Green	0.69	0.69	0.69	0.69	0.69	0.69	0.11	0.11	0.11	0.11	0.11	0.11
Sat Flow, veh/h	57	1893	88	18	1206	269	581	479	463	1154	252	155
Grp Volume(v), veh/h	557	0	0	644	0	0	79	0	0	101	0	0
Grp Sat Flow(s),veh/h/ln	2038	0	0	1494	0	0	1523	0	0	1561	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0
Cycle Q Clear(g_c), s	5.5	0.0	0.0	11.4	0.0	0.0	2.3	0.0	0.0	2.8	0.0	0.0
Prop In Lane	0.06		0.04	0.03		0.18	0.48		0.30	0.77		0.10
Lane Grp Cap(c), veh/h	1489	0	0	1110	0	0	270	0	0	295	0	0
V/C Ratio(X)	0.37	0.00	0.00	0.58	0.00	0.00	0.29	0.00	0.00	0.34	0.00	0.00
Avail Cap(c_a), veh/h	1489	0	0	1110	0	0	532	0	0	561	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	3.2	0.0	0.0	4.1	0.0	0.0	21.1	0.0	0.0	21.3	0.0	0.0
Incr Delay (d2), s/veh	0.7	0.0	0.0	2.2	0.0	0.0	0.2	0.0	0.0	0.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.0	0.0	2.3	0.0	0.0	0.8	0.0	0.0	1.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	3.9	0.0	0.0	6.3	0.0	0.0	21.3	0.0	0.0	21.5	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	C	A	A	C	A	A
Approach Vol, veh/h		557			644			79			101	
Approach Delay, s/veh		3.9			6.3			21.3			21.5	
Approach LOS		A			A			C			C	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		10.5		40.0		10.5		40.0				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		15.0		35.0		15.0		35.0				
Max Q Clear Time (g_c+I1), s		4.3		7.5		4.8		13.4				
Green Ext Time (p_c), s		0.1		0.7		0.2		0.8				

Intersection Summary												
HCM 6th Ctrl Delay			7.3									
HCM 6th LOS			A									

Notes

User approved pedestrian interval to be less than phase max green.



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	65	41	441	85	66	368
Future Volume (vph)	65	41	441	85	66	368
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	15	12	11	12	12	12
Grade (%)	-7%		1%			3%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.947		0.978			
Flt Protected	0.970					0.992
Satd. Flow (prot)	1914	0	1738	0	0	1820
Flt Permitted	0.970					0.992
Satd. Flow (perm)	1914	0	1738	0	0	1820
Link Speed (mph)	30		30			30
Link Distance (ft)	728		1350			591
Travel Time (s)	16.5		30.7			13.4
Confl. Peds. (#/hr)	3	3		3	3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	2%	3%	2%	2%	2%
Adj. Flow (vph)	72	46	490	94	73	409
Shared Lane Traffic (%)						
Lane Group Flow (vph)	118	0	584	0	0	482
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	15		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	0.84	0.96	1.05	1.01	1.02	1.02
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	2.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	65	41	441	85	66	368
Future Vol, veh/h	65	41	441	85	66	368
Conflicting Peds, #/hr	3	3	0	3	3	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	-7	-	1	-	-	3
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	5	2	3	2	2	2
Mvmt Flow	72	46	490	94	73	409

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1098	543	0	0	587	0
Stage 1	540	-	-	-	-	-
Stage 2	558	-	-	-	-	-
Critical Hdwy	5.05	5.52	-	-	4.12	-
Critical Hdwy Stg 1	4.05	-	-	-	-	-
Critical Hdwy Stg 2	4.05	-	-	-	-	-
Follow-up Hdwy	3.545	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	356	600	-	-	988	-
Stage 1	713	-	-	-	-	-
Stage 2	705	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	320	596	-	-	984	-
Mov Cap-2 Maneuver	320	-	-	-	-	-
Stage 1	710	-	-	-	-	-
Stage 2	636	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	18.2	0	1.4
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	390	984	-
HCM Lane V/C Ratio	-	-	0.302	0.075	-
HCM Control Delay (s)	-	-	18.2	9	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	1.3	0.2	-



Lane Group	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Volume (vph)	11	5	5	493	400	11
Future Volume (vph)	11	5	5	493	400	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	14	12	12	10	10	12
Grade (%)	10%			1%	-1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.955				0.996	
Flt Protected	0.968			0.999		
Satd. Flow (prot)	1508	0	0	1695	1708	0
Flt Permitted	0.968			0.999		
Satd. Flow (perm)	1508	0	0	1695	1708	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	1052			654	1350	
Travel Time (s)	23.9			14.9	30.7	
Confl. Peds. (#/hr)	2	2	2			2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	50%	2%	4%	4%	2%
Adj. Flow (vph)	12	6	6	548	444	12
Shared Lane Traffic (%)						
Lane Group Flow (vph)	18	0	0	554	456	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	14			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	0.98	1.07	1.01	1.10	1.09	0.99
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

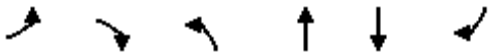
Intersection	
Int Delay, s/veh	0.5

Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Vol, veh/h	11	5	5	493	400	11
Future Vol, veh/h	11	5	5	493	400	11
Conflicting Peds, #/hr	2	2	2	0	0	2
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	10	-	-	1	-1	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	50	2	4	4	2
Mvmt Flow	12	6	6	548	444	12

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1014	454	458	0	-	0
Stage 1	452	-	-	-	-	-
Stage 2	562	-	-	-	-	-
Critical Hdwy	8.42	7.7	4.12	-	-	-
Critical Hdwy Stg 1	7.42	-	-	-	-	-
Critical Hdwy Stg 2	7.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.75	2.218	-	-	-
Pot Cap-1 Maneuver	151	456	1103	-	-	-
Stage 1	499	-	-	-	-	-
Stage 2	418	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	149	454	1101	-	-	-
Mov Cap-2 Maneuver	149	-	-	-	-	-
Stage 1	494	-	-	-	-	-
Stage 2	417	-	-	-	-	-

Approach	SE	NE	SW
HCM Control Delay, s	26	0.1	0
HCM LOS	D		

Minor Lane/Major Mvmt	NEL	NET	SELn1	SWT	SWR
Capacity (veh/h)	1101	-	189	-	-
HCM Lane V/C Ratio	0.005	-	0.094	-	-
HCM Control Delay (s)	8.3	0	26	-	-
HCM Lane LOS	A	A	D	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	36	32	43	463	360	45
Future Volume (vph)	36	32	43	463	360	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	11	11	12
Grade (%)	1%			-3%	1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850			0.985	
Flt Protected	0.950			0.996		
Satd. Flow (prot)	1761	1575	0	1773	1705	0
Flt Permitted	0.950			0.996		
Satd. Flow (perm)	1761	1575	0	1773	1705	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	263			1447	440	
Travel Time (s)	6.0			32.9	10.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	5%	6%	2%
Adj. Flow (vph)	40	36	48	514	400	50
Shared Lane Traffic (%)						
Lane Group Flow (vph)	40	36	0	562	450	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	0.98	1.02	1.05	1.01
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

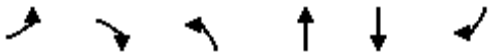
Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	36	32	43	463	360	45
Future Vol, veh/h	36	32	43	463	360	45
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	1	-	-	-3	1	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	5	6	2
Mvmt Flow	40	36	48	514	400	50

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1035	425	450	0	-	0
Stage 1	425	-	-	-	-	-
Stage 2	610	-	-	-	-	-
Critical Hdwy	6.62	6.32	4.12	-	-	-
Critical Hdwy Stg 1	5.62	-	-	-	-	-
Critical Hdwy Stg 2	5.62	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	242	622	1110	-	-	-
Stage 1	644	-	-	-	-	-
Stage 2	524	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	227	622	1110	-	-	-
Mov Cap-2 Maneuver	227	-	-	-	-	-
Stage 1	605	-	-	-	-	-
Stage 2	524	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	18	0.7	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1110	-	227	622	-	-
HCM Lane V/C Ratio	0.043	-	0.176	0.057	-	-
HCM Control Delay (s)	8.4	0	24.2	11.1	-	-
HCM Lane LOS	A	A	C	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.6	0.2	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	12	5	8	495	367	25
Future Volume (vph)	12	5	8	495	367	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	12	12	11	11	12
Grade (%)	7%			-3%	0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.962				0.991	
Flt Protected	0.965			0.999		
Satd. Flow (prot)	1484	0	0	1808	1766	0
Flt Permitted	0.965			0.999		
Satd. Flow (perm)	1484	0	0	1808	1766	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	839			832	1447	
Travel Time (s)	19.1			18.9	32.9	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	9%	2%	2%	3%	3%	4%
Adj. Flow (vph)	13	5	9	527	390	27
Shared Lane Traffic (%)						
Lane Group Flow (vph)	18	0	0	536	417	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	10			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.14	1.05	0.98	1.02	1.04	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

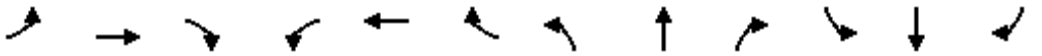
Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	12	5	8	495	367	25
Future Vol, veh/h	12	5	8	495	367	25
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	7	-	-	-3	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	9	2	2	3	3	4
Mvmt Flow	13	5	9	527	390	27

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	949	404	417	0	-	0
Stage 1	404	-	-	-	-	-
Stage 2	545	-	-	-	-	-
Critical Hdwy	7.89	6.92	4.12	-	-	-
Critical Hdwy Stg 1	6.89	-	-	-	-	-
Critical Hdwy Stg 2	6.89	-	-	-	-	-
Follow-up Hdwy	3.581	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	194	598	1142	-	-	-
Stage 1	563	-	-	-	-	-
Stage 2	459	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	192	598	1142	-	-	-
Mov Cap-2 Maneuver	192	-	-	-	-	-
Stage 1	557	-	-	-	-	-
Stage 2	459	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	21.2	0.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1142	-	240	-	-
HCM Lane V/C Ratio	0.007	-	0.075	-	-
HCM Control Delay (s)	8.2	0	21.2	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-



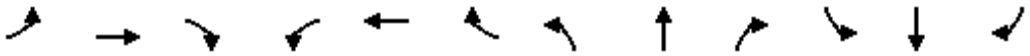
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	22	392	21	20	395	114	40	15	17	57	10	14
Future Volume (vph)	22	392	21	20	395	114	40	15	17	57	10	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	11	12	12	11	12	12	13	12	12	12	12
Grade (%)		-7%			7%			6%			0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			0.99			0.99			0.99	
Frt		0.993			0.971			0.968			0.977	
Flt Protected		0.997			0.998			0.973			0.966	
Satd. Flow (prot)	0	1843	0	0	1665	0	0	1749	0	0	1725	0
Flt Permitted		0.965			0.978			0.833			0.773	
Satd. Flow (perm)	0	1783	0	0	1631	0	0	1490	0	0	1377	0
Right Turn on Red			Yes			Yes			No			No
Satd. Flow (RTOR)		7			40							
Link Speed (mph)		30			30			25			30	
Link Distance (ft)		820			2162			1011			636	
Travel Time (s)		18.6			49.1			27.6			14.5	
Confl. Peds. (#/hr)	17		2	2		17	5		2	2		5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	4%	2%	2%
Adj. Flow (vph)	24	426	23	22	429	124	43	16	18	62	11	15
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	473	0	0	575	0	0	77	0	0	88	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	0.96	1.00	0.96	1.05	1.09	1.05	1.04	1.00	1.04	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	2		1	2	
Detector Template	Left			Left			Left			Left		
Leading Detector (ft)	20	6		20	6		20	83		20	83	
Trailing Detector (ft)	0	0		0	0		0	-5		0	-5	
Detector 1 Position(ft)	0	0		0	0		0	-5		0	-5	
Detector 1 Size(ft)	20	6		20	6		20	40		20	40	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)								43			43	
Detector 2 Size(ft)								40			40	
Detector 2 Type								Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)								0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	40.0	40.0		40.0	40.0		10.0	10.0		10.0	10.0	
Total Split (s)	40.0	40.0		40.0	40.0		20.0	20.0		20.0	20.0	
Total Split (%)	66.7%	66.7%		66.7%	66.7%		33.3%	33.3%		33.3%	33.3%	
Maximum Green (s)	35.0	35.0		35.0	35.0		15.0	15.0		15.0	15.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Pedestrian Calls (#/hr)	60	60		60	60		10	10		10	10	
v/c Ratio		0.36			0.48			0.34			0.43	
Control Delay		5.6			6.6			24.9			27.5	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		5.6			6.6			24.9			27.5	
Queue Length 50th (ft)		53			67			24			27	
Queue Length 95th (ft)		142			191			52			59	
Internal Link Dist (ft)		740			2082			931			556	
Turn Bay Length (ft)												
Base Capacity (vph)		1306			1203			385			355	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.36			0.48			0.20			0.25	

Intersection Summary	
Area Type:	Other
Cycle Length: 60	
Actuated Cycle Length: 58.4	
Natural Cycle: 50	
Control Type: Semi Act-Uncoord	

Splits and Phases: 1: Tioronda Avenue & NYS Route 9D





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	22	392	21	20	395	114	40	15	17	57	10	14
Future Volume (veh/h)	22	392	21	20	395	114	40	15	17	57	10	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	0.98		0.98	0.98		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	2145	2145	2145	1582	1582	1582	1658	1725	1658	1841	1870	1870
Adj Flow Rate, veh/h	24	426	23	22	429	124	43	16	18	62	11	15
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	4	2	2
Cap, veh/h	104	1348	70	90	803	225	184	47	36	228	30	28
Arrive On Green	0.70	0.70	0.70	0.70	0.70	0.70	0.10	0.10	0.10	0.10	0.10	0.10
Sat Flow, veh/h	42	1934	101	22	1152	323	697	452	351	1021	291	269
Grp Volume(v), veh/h	473	0	0	575	0	0	77	0	0	88	0	0
Grp Sat Flow(s),veh/h/ln	2076	0	0	1497	0	0	1499	0	0	1581	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0
Cycle Q Clear(g_c), s	4.4	0.0	0.0	9.3	0.0	0.0	2.2	0.0	0.0	2.4	0.0	0.0
Prop In Lane	0.05		0.05	0.04		0.22	0.56		0.23	0.70		0.17
Lane Grp Cap(c), veh/h	1522	0	0	1118	0	0	268	0	0	287	0	0
V/C Ratio(X)	0.31	0.00	0.00	0.51	0.00	0.00	0.29	0.00	0.00	0.31	0.00	0.00
Avail Cap(c_a), veh/h	1522	0	0	1118	0	0	534	0	0	565	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	3.0	0.0	0.0	3.7	0.0	0.0	21.1	0.0	0.0	21.2	0.0	0.0
Incr Delay (d2), s/veh	0.5	0.0	0.0	1.7	0.0	0.0	0.2	0.0	0.0	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	0.0	1.8	0.0	0.0	0.8	0.0	0.0	0.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	3.5	0.0	0.0	5.4	0.0	0.0	21.4	0.0	0.0	21.4	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	C	A	A	C	A	A
Approach Vol, veh/h		473			575			77			88	
Approach Delay, s/veh		3.5			5.4			21.4			21.4	
Approach LOS		A			A			C			C	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		10.2		40.0		10.2		40.0				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		15.0		35.0		15.0		35.0				
Max Q Clear Time (g_c+I1), s		4.2		6.4		4.4		11.3				
Green Ext Time (p_c), s		0.1		0.6		0.1		0.7				

Intersection Summary		
HCM 6th Ctrl Delay		6.8
HCM 6th LOS		A

Notes

User approved pedestrian interval to be less than phase max green.



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	77	56	393	64	59	375
Future Volume (vph)	77	56	393	64	59	375
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	15	12	11	12	12	12
Grade (%)	-7%		1%			3%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.943		0.981			
Flt Protected	0.972					0.993
Satd. Flow (prot)	1944	0	1758	0	0	1822
Flt Permitted	0.972					0.993
Satd. Flow (perm)	1944	0	1758	0	0	1822
Link Speed (mph)	30		30			30
Link Distance (ft)	728		1350			591
Travel Time (s)	16.5		30.7			13.4
Confl. Peds. (#/hr)	22	20		22	20	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	86	62	437	71	66	417
Shared Lane Traffic (%)						
Lane Group Flow (vph)	148	0	508	0	0	483
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	15		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	0.84	0.96	1.05	1.01	1.02	1.02
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	77	56	393	64	59	375
Future Vol, veh/h	77	56	393	64	59	375
Conflicting Peds, #/hr	22	20	0	22	20	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	-7	-	1	-	-	3
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	86	62	437	71	66	417

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1066	515	0	0	530	0
Stage 1	495	-	-	-	-	-
Stage 2	571	-	-	-	-	-
Critical Hdwy	5.02	5.52	-	-	4.12	-
Critical Hdwy Stg 1	4.02	-	-	-	-	-
Critical Hdwy Stg 2	4.02	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	373	619	-	-	1037	-
Stage 1	743	-	-	-	-	-
Stage 2	706	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	326	591	-	-	1010	-
Mov Cap-2 Maneuver	326	-	-	-	-	-
Stage 1	724	-	-	-	-	-
Stage 2	633	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	19.1	0	1.2
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	402	1010	-
HCM Lane V/C Ratio	-	-	0.368	0.065	-
HCM Control Delay (s)	-	-	19.1	8.8	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	1.7	0.2	-



Lane Group	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Volume (vph)	5	4	1	452	449	3
Future Volume (vph)	5	4	1	452	449	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	14	12	12	10	10	12
Grade (%)	10%			1%	-1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.939				0.999	
Flt Protected	0.973					
Satd. Flow (prot)	1725	0	0	1730	1746	0
Flt Permitted	0.973					
Satd. Flow (perm)	1725	0	0	1730	1746	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	1052			654	1350	
Travel Time (s)	23.9			14.9	30.7	
Confl. Peds. (#/hr)	3	3	3			3
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	6	5	1	520	516	3
Shared Lane Traffic (%)						
Lane Group Flow (vph)	11	0	0	521	519	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	14			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	0.98	1.07	1.01	1.10	1.09	0.99
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

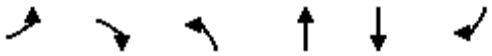
Intersection	
Int Delay, s/veh	0.2

Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Vol, veh/h	5	4	1	452	449	3
Future Vol, veh/h	5	4	1	452	449	3
Conflicting Peds, #/hr	3	3	3	0	0	3
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	10	-	-	1	-1	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	5	1	520	516	3

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1046	524	522	0	-	0
Stage 1	521	-	-	-	-	-
Stage 2	525	-	-	-	-	-
Critical Hdwy	8.42	7.22	4.12	-	-	-
Critical Hdwy Stg 1	7.42	-	-	-	-	-
Critical Hdwy Stg 2	7.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	141	478	1044	-	-	-
Stage 1	446	-	-	-	-	-
Stage 2	443	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	140	475	1041	-	-	-
Mov Cap-2 Maneuver	140	-	-	-	-	-
Stage 1	444	-	-	-	-	-
Stage 2	442	-	-	-	-	-

Approach	SE	NE	SW
HCM Control Delay, s	23.6	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NEL	NET	SELn1	SWT	SWR
Capacity (veh/h)	1041	-	204	-	-
HCM Lane V/C Ratio	0.001	-	0.051	-	-
HCM Control Delay (s)	8.5	0	23.6	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	38	35	33	415	416	37
Future Volume (vph)	38	35	33	415	416	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	11	11	12
Grade (%)	1%			-3%	1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850			0.989	
Flt Protected	0.950			0.996		
Satd. Flow (prot)	1761	1575	0	1820	1772	0
Flt Permitted	0.950			0.996		
Satd. Flow (perm)	1761	1575	0	1820	1772	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	263			1447	440	
Travel Time (s)	6.0			32.9	10.0	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	44	40	38	477	478	43
Shared Lane Traffic (%)						
Lane Group Flow (vph)	44	40	0	515	521	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	0.98	1.02	1.05	1.01
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

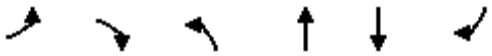
Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	38	35	33	415	416	37
Future Vol, veh/h	38	35	33	415	416	37
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	1	-	-	-3	1	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	44	40	38	477	478	43

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1053	500	521	0	-	0
Stage 1	500	-	-	-	-	-
Stage 2	553	-	-	-	-	-
Critical Hdwy	6.62	6.32	4.12	-	-	-
Critical Hdwy Stg 1	5.62	-	-	-	-	-
Critical Hdwy Stg 2	5.62	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	236	563	1045	-	-	-
Stage 1	593	-	-	-	-	-
Stage 2	559	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	224	563	1045	-	-	-
Mov Cap-2 Maneuver	224	-	-	-	-	-
Stage 1	564	-	-	-	-	-
Stage 2	559	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	18.7	0.6	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1045	-	224	563	-	-
HCM Lane V/C Ratio	0.036	-	0.195	0.071	-	-
HCM Control Delay (s)	8.6	0	24.9	11.9	-	-
HCM Lane LOS	A	A	C	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.7	0.2	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	11	11	6	437	428	23
Future Volume (vph)	11	11	6	437	428	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	12	12	11	11	12
Grade (%)	7%			-3%	0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.932				0.993	
Flt Protected	0.976			0.999		
Satd. Flow (prot)	1526	0	0	1826	1785	0
Flt Permitted	0.976			0.999		
Satd. Flow (perm)	1526	0	0	1826	1785	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	839			832	1447	
Travel Time (s)	19.1			18.9	32.9	
Confl. Peds. (#/hr)	1	1	1			1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	2%	2%	2%	5%
Adj. Flow (vph)	12	12	7	475	465	25
Shared Lane Traffic (%)						
Lane Group Flow (vph)	24	0	0	482	490	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	10			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.14	1.05	0.98	1.02	1.04	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	11	11	6	437	428	23
Future Vol, veh/h	11	11	6	437	428	23
Conflicting Peds, #/hr	1	1	1	0	0	1
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	7	-	-	-3	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	5
Mvmt Flow	12	12	7	475	465	25

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	969	480	491	0	-	0
Stage 1	479	-	-	-	-	-
Stage 2	490	-	-	-	-	-
Critical Hdwy	7.82	6.92	4.12	-	-	-
Critical Hdwy Stg 1	6.82	-	-	-	-	-
Critical Hdwy Stg 2	6.82	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	193	534	1072	-	-	-
Stage 1	517	-	-	-	-	-
Stage 2	509	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	191	533	1071	-	-	-
Mov Cap-2 Maneuver	191	-	-	-	-	-
Stage 1	512	-	-	-	-	-
Stage 2	508	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	19	0.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1071	-	281	-	-
HCM Lane V/C Ratio	0.006	-	0.085	-	-
HCM Control Delay (s)	8.4	0	19	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-

Colliers Engineering & Design

Traffic Impact Study

Appendix E | Traffic Volume Data

Maser Consulting

400 Columbus Avenue, Stuite 180 E
Valhalla, NY 10595

Customer Loyalty through Client Satisfaction

File Name : 1-NYS_ROUTE_9D_AT_GRANDVIEW_AVE-FRI_830570_04-23-2021
Site Code :
Start Date : 4/23/2021
Page No : 1

Groups Printed- Lights - Buses - Trucks - Pedestrians

	NYS ROUTE 9D From North					DRIVEWAY From East					NYS ROUTE 9D From South					GRANDVIEW AVE From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
02:00 PM	3	62	0	0	65	0	0	0	0	0	0	62	1	0	63	0	0	4	0	4	132
02:15 PM	2	49	0	0	51	0	0	0	0	0	0	49	0	0	49	1	0	3	0	4	104
02:30 PM	5	55	0	0	60	0	0	0	0	0	0	76	0	0	76	0	0	2	0	2	138
02:45 PM	9	62	0	0	71	0	0	0	0	0	0	60	0	0	60	1	0	1	0	2	133
Total	19	228	0	0	247	0	0	0	0	0	0	247	1	0	248	2	0	10	0	12	507
03:00 PM	9	65	1	0	75	0	0	0	0	0	0	94	0	0	94	0	0	0	0	0	169
03:15 PM	6	70	0	0	76	0	0	0	0	0	0	89	0	0	89	0	0	3	0	3	168
03:30 PM	6	61	0	0	67	0	0	0	0	0	0	89	0	0	89	0	0	7	0	7	163
03:45 PM	2	39	0	0	41	0	0	0	0	0	0	93	0	0	93	1	0	1	0	2	136
Total	23	235	1	0	259	0	0	0	0	0	0	365	0	0	365	1	0	11	0	12	636
04:00 PM	4	52	0	0	56	0	0	0	0	0	0	103	1	0	104	0	0	2	0	2	162
04:15 PM	4	55	0	0	59	0	0	0	0	0	0	79	1	0	80	1	0	3	0	4	143
04:30 PM	6	54	0	0	60	0	0	0	0	0	0	100	0	0	100	1	0	3	0	4	164
04:45 PM	2	59	0	0	61	0	0	0	0	0	0	90	0	0	90	0	0	3	2	5	156
Total	16	220	0	0	236	0	0	0	0	0	0	372	2	0	374	2	0	11	2	15	625
05:00 PM	4	59	0	0	63	0	0	0	0	0	0	81	1	0	82	0	0	4	0	4	149
05:15 PM	5	51	0	0	56	0	0	0	0	0	0	79	0	0	79	0	0	2	0	2	137
05:30 PM	2	51	0	0	53	0	0	0	0	0	0	72	0	0	72	0	0	3	0	3	128
05:45 PM	6	41	0	0	47	0	0	0	0	0	0	92	0	0	92	1	0	2	0	3	142
Total	17	202	0	0	219	0	0	0	0	0	0	324	1	0	325	1	0	11	0	12	556
Grand Total	75	885	1	0	961	0	0	0	0	0	0	1308	4	0	1312	6	0	43	2	51	2324
Apprch %	7.8	92.1	0.1	0		0	0	0	0		0	99.7	0.3	0		11.8	0	84.3	3.9		
Total %	3.2	38.1	0	0	41.4	0	0	0	0	0	0	56.3	0.2	0	56.5	0.3	0	1.9	0.1	2.2	
Lights	70	869	1	0	940	0	0	0	0	0	0	1274	4	0	1278	6	0	42	0	48	2266
% Lights	93.3	98.2	100	0	97.8	0	0	0	0	0	0	97.4	100	0	97.4	100	0	97.7	0	94.1	97.5
Buses	4	3	0	0	7	0	0	0	0	0	0	13	0	0	13	0	0	0	0	0	20
% Buses	5.3	0.3	0	0	0.7	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0.9
Trucks	1	13	0	0	14	0	0	0	0	0	0	21	0	0	21	0	0	1	0	1	36
% Trucks	1.3	1.5	0	0	1.5	0	0	0	0	0	0	1.6	0	0	1.6	0	0	2.3	0	2	1.5
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2
% Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	3.9	0.1

Maser Consulting

400 Columbus Avenue, Stuite 180 E
Valhalla, NY 10595

Customer Loyalty through Client Satisfaction

File Name : 1-NYS_ROUTE_9D_AT_GRANDVIEW_AVE-FRI_830570_04-23-2021
Site Code :
Start Date : 4/23/2021
Page No : 2

	NYS ROUTE 9D From North					DRIVEWAY From East					NYS ROUTE 9D From South					GRANDVIEW AVE From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 02:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 03:00 PM																					
03:00 PM	9	65	1	0	75	0	0	0	0	0	0	94	0	0	94	0	0	0	0	0	169
03:15 PM	6	70	0	0	76	0	0	0	0	0	0	89	0	0	89	0	0	3	0	3	168
03:30 PM	6	61	0	0	67	0	0	0	0	0	0	89	0	0	89	0	0	7	0	7	163
03:45 PM	2	39	0	0	41	0	0	0	0	0	0	93	0	0	93	1	0	1	0	2	136
Total Volume	23	235	1	0	259	0	0	0	0	0	0	365	0	0	365	1	0	11	0	12	636
% App. Total	8.9	90.7	0.4	0		0	0	0	0		0	100	0	0		8.3	0	91.7	0		
PHF	.639	.839	.250	.000	.852	.000	.000	.000	.000	.000	.000	.971	.000	.000	.971	.250	.000	.393	.000	.429	.941
Lights	22	229	1	0	252	0	0	0	0	0	0	354	0	0	354	1	0	10	0	11	617
% Lights	95.7	97.4	100	0	97.3	0	0	0	0	0	0	97.0	0	0	97.0	100	0	90.9	0	91.7	97.0
Buses	0	3	0	0	3	0	0	0	0	0	0	6	0	0	6	0	0	0	0	0	9
% Buses	0	1.3	0	0	1.2	0	0	0	0	0	0	1.6	0	0	1.6	0	0	0	0	0	1.4
Trucks	1	3	0	0	4	0	0	0	0	0	0	5	0	0	5	0	0	1	0	1	10
% Trucks	4.3	1.3	0	0	1.5	0	0	0	0	0	0	1.4	0	0	1.4	0	0	9.1	0	8.3	1.6
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Maser Consulting

400 Columbus Avenue, Stuite 180 E
Valhalla, NY 10595

Customer Loyalty through Client Satisfaction

File Name : 1-NYS_ROUTE_9D_AT_GRANDVIEW_AVE-SAT_830572_04-24-2021
Site Code :
Start Date : 4/24/2021
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Groups Printed- Lights - Buses - Trucks - Pedestrians

	NYS ROUTE 9D From North					DRIVEWAY From East					NYS ROUTE 9D From South					GRANDVIEW AVE From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
12:00 PM	7	56	0	0	63	0	0	0	0	0	0	74	1	0	75	0	0	4	1	5	143
12:15 PM	5	55	0	0	60	0	0	1	0	1	0	90	0	0	90	0	0	2	0	2	153
12:30 PM	7	67	0	0	74	0	0	0	1	1	0	77	0	0	77	0	0	5	0	5	157
12:45 PM	5	56	0	0	61	0	0	0	0	0	1	77	2	0	80	2	0	9	0	11	152
Total	24	234	0	0	258	0	0	1	1	2	1	318	3	0	322	2	0	20	1	23	605
01:00 PM	3	75	0	0	78	0	0	0	0	0	0	68	0	0	68	0	0	1	0	1	147
01:15 PM	3	90	0	0	93	0	0	0	0	0	0	77	0	0	77	2	0	1	0	3	173
01:30 PM	3	62	0	0	65	0	0	0	0	0	0	81	0	0	81	1	0	3	1	5	151
01:45 PM	1	72	0	0	73	0	0	0	0	0	0	77	0	0	77	0	0	4	0	4	154
Total	10	299	0	0	309	0	0	0	0	0	0	303	0	0	303	3	0	9	1	13	625
02:00 PM	6	74	0	0	80	0	0	0	0	0	0	80	1	0	81	0	0	6	0	6	167
02:15 PM	10	77	1	0	88	0	0	0	1	1	0	71	0	0	71	0	0	2	0	2	162
02:30 PM	4	53	0	0	57	0	0	0	0	0	0	64	1	0	65	1	0	3	0	4	126
02:45 PM	5	76	1	0	82	0	0	0	0	0	0	87	2	0	89	0	0	4	1	5	176
Total	25	280	2	0	307	0	0	0	1	1	0	302	4	0	306	1	0	15	1	17	631
03:00 PM	6	85	0	0	91	0	0	0	0	0	0	77	0	0	77	1	0	3	0	4	172
03:15 PM	4	74	0	0	78	0	0	1	0	1	0	80	0	0	80	2	0	3	1	6	165
03:30 PM	6	77	0	0	83	0	0	0	0	0	0	85	1	0	86	1	0	1	0	2	171
03:45 PM	5	90	0	0	95	0	0	0	0	0	0	90	1	0	91	2	0	1	0	3	189
Total	21	326	0	0	347	0	0	1	0	1	0	332	2	0	334	6	0	8	1	15	697
04:00 PM	3	71	0	0	74	0	0	0	0	0	0	89	0	0	89	0	0	0	1	1	164
04:15 PM	2	59	0	0	61	0	0	2	0	2	0	71	0	0	71	0	0	2	0	2	136
04:30 PM	8	75	0	0	83	0	0	0	0	0	0	90	0	0	90	0	0	0	0	0	173
04:45 PM	6	68	0	0	74	0	0	0	0	0	0	59	0	0	59	1	0	3	1	5	138
Total	19	273	0	0	292	0	0	2	0	2	0	309	0	0	309	1	0	5	2	8	611
05:00 PM	4	96	0	0	100	0	0	0	0	0	0	59	0	0	59	0	0	2	0	2	161
05:15 PM	5	71	0	0	76	0	0	0	0	0	0	83	0	0	83	0	0	5	0	5	164
05:30 PM	3	76	0	0	79	0	0	0	0	0	0	55	1	0	56	0	0	2	0	2	137
05:45 PM	1	48	0	0	49	0	0	0	0	0	0	68	0	0	68	1	0	4	0	5	122
Total	13	291	0	0	304	0	0	0	0	0	0	265	1	0	266	1	0	13	0	14	584
Grand Total	112	1703	2	0	1817	0	0	4	2	6	1	1829	10	0	1840	14	0	70	6	90	3753
Apprch %	6.2	93.7	0.1	0		0	0	66.7	33.3		0.1	99.4	0.5	0		15.6	0	77.8	6.7		
Total %	3	45.4	0.1	0	48.4	0	0	0.1	0.1	0.2	0	48.7	0.3	0	49	0.4	0	1.9	0.2	2.4	
Lights	108	1689	2	0	1799	0	0	4	0	4	1	1817	10	0	1828	14	0	69	0	83	
% Lights	96.4	99.2	100	0	99	0	0	100	0	66.7	100	99.3	100	0	99.3	100	0	98.6	0	92.2	

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400 Columbus Avenue, Stuite 180 E
Valhalla, NY 10595

Customer Loyalty through Client Satisfaction

File Name : 1-NYS_ROUTE_9D_AT_GRANDVIEW_AVE-SAT_830572_04-24-2021
Site Code :
Start Date : 4/24/2021

Groups Printed- Lights - Buses - Trucks - Pedestrians

	NYS ROUTE 9D From North					DRIVEWAY From East					NYS ROUTE 9D From South					GRANDVIEW AVE From West					
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Buses	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
% Buses	0	0.1	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1
Trucks	4	12	0	0	16	0	0	0	0	0	0	12	0	0	12	0	0	1	0	1	29
% Trucks	3.6	0.7	0	0	0.9	0	0	0	0	0	0	0.7	0	0	0.7	0	0	1.4	0	1.1	0.8
Pedestrians	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	6	6	8
% Pedestrians	0	0	0	0	0	0	0	0	100	33.3	0	0	0	0	0	0	0	0	100	6.7	0.2

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400 Columbus Avenue, Stuite 180 E
Valhalla, NY 10595

Customer Loyalty through Client Satisfaction

File Name : 1-NYS_ROUTE_9D_AT_GRANDVIEW_AVE-SAT_830572_04-24-2021
Site Code :
Start Date : 4/24/2021
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	NYS ROUTE 9D From North					DRIVEWAY From East					NYS ROUTE 9D From South					GRANDVIEW AVE From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 03:00 PM																					
03:00 PM	6	85	0	0	91	0	0	0	0	0	0	77	0	0	77	1	0	3	0	4	172
03:15 PM	4	74	0	0	78	0	0	1	0	1	0	80	0	0	80	2	0	3	1	6	165
03:30 PM	6	77	0	0	83	0	0	0	0	0	0	85	1	0	86	1	0	1	0	2	171
03:45 PM	5	90	0	0	95	0	0	0	0	0	0	90	1	0	91	2	0	1	0	3	189
Total Volume	21	326	0	0	347	0	0	1	0	1	0	332	2	0	334	6	0	8	1	15	697
% App. Total	6.1	93.9	0	0		0	0	100	0		0	99.4	0.6	0		40	0	53.3	6.7		
PHF	.875	.906	.000	.000	.913	.000	.000	.250	.000	.250	.000	.922	.500	.000	.918	.750	.000	.667	.250	.625	.922
Lights	20	323	0	0	343	0	0	1	0	1	0	330	2	0	332	6	0	8	0	14	690
% Lights	95.2	99.1	0	0	98.8	0	0	100	0	100	0	99.4	100	0	99.4	100	0	100	0	93.3	99.0
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Trucks	1	3	0	0	4	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	6
% Trucks	4.8	0.9	0	0	1.2	0	0	0	0	0	0	0.6	0	0	0.6	0	0	0	0	0	0.9
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
% Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	6.7	0.1

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Customer Loyalty through Client Satisfaction

File Name : 2-NYS_ROUTE_9D_AT_KRISTY_DR-FRI_830573_04-23-2021
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Groups Printed- Lights - Buses - Trucks - Pedestrians

	NYS ROUTE 9D From North					From East					NYS ROUTE 9D From South					KRYSTY DR From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
02:00 PM	0	64	0	0	64	0	0	0	0	0	0	60	0	0	60	0	0	0	0	0	124
02:15 PM	1	58	0	0	59	0	0	0	0	0	0	58	1	0	59	0	0	1	0	1	119
02:30 PM	0	62	0	0	62	0	0	0	0	0	0	73	0	0	73	1	0	2	0	3	138
02:45 PM	1	68	0	0	69	0	0	0	0	0	0	65	1	0	66	2	0	3	2	7	142
Total	2	252	0	0	254	0	0	0	0	0	0	256	2	0	258	3	0	6	2	11	523
03:00 PM	0	74	0	0	74	0	0	0	0	0	0	90	1	0	91	0	0	0	0	0	165
03:15 PM	2	83	0	0	85	0	0	0	0	0	0	94	1	0	95	1	0	2	0	3	183
03:30 PM	1	66	0	0	67	0	0	0	0	0	0	101	1	0	102	1	0	1	0	2	171
03:45 PM	2	45	0	0	47	0	0	0	0	0	0	90	1	0	91	0	0	0	0	0	138
Total	5	268	0	0	273	0	0	0	0	0	0	375	4	0	379	2	0	3	0	5	657
04:00 PM	2	56	0	0	58	0	0	0	0	0	0	100	2	0	102	0	0	0	0	0	160
04:15 PM	1	58	0	0	59	0	0	0	0	0	0	89	2	0	91	0	0	2	0	2	152
04:30 PM	1	63	0	0	64	0	0	0	0	0	0	102	0	0	102	0	0	2	0	2	168
04:45 PM	2	62	0	0	64	0	0	0	0	0	0	97	2	0	99	3	0	2	0	5	168
Total	6	239	0	0	245	0	0	0	0	0	0	388	6	0	394	3	0	6	0	9	648
05:00 PM	0	67	0	0	67	0	0	0	0	0	0	83	1	0	84	0	0	2	0	2	153
05:15 PM	2	57	0	0	59	0	0	0	0	0	0	82	0	0	82	0	0	2	0	2	143
05:30 PM	3	57	0	0	60	0	0	0	0	0	0	73	0	0	73	0	0	2	1	3	136
05:45 PM	1	52	0	0	53	0	0	0	0	0	0	101	1	0	102	0	0	0	0	0	155
Total	6	233	0	0	239	0	0	0	0	0	0	339	2	0	341	0	0	6	1	7	587
Grand Total	19	992	0	0	1011	0	0	0	0	0	0	1358	14	0	1372	8	0	21	3	32	2415
Apprch %	1.9	98.1	0	0		0	0	0	0		0	99	1	0		25	0	65.6	9.4		
Total %	0.8	41.1	0	0	41.9	0	0	0	0	0	0	56.2	0.6	0	56.8	0.3	0	0.9	0.1	1.3	
Lights	18	971	0	0	989	0	0	0	0	0	0	1322	14	0	1336	6	0	19	0	25	2350
% Lights	94.7	97.9	0	0	97.8	0	0	0	0	0	0	97.3	100	0	97.4	75	0	90.5	0	78.1	97.3
Buses	0	6	0	0	6	0	0	0	0	0	0	13	0	0	13	2	0	0	0	2	21
% Buses	0	0.6	0	0	0.6	0	0	0	0	0	0	1	0	0	0.9	25	0	0	0	6.2	0.9
Trucks	1	15	0	0	16	0	0	0	0	0	0	23	0	0	23	0	0	2	0	2	41
% Trucks	5.3	1.5	0	0	1.6	0	0	0	0	0	0	1.7	0	0	1.7	0	0	9.5	0	6.2	1.7
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	3
% Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	9.4	0.1

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400 Columbus Avenue, Stuite 180 E
Valhalla, NY 10595

Customer Loyalty through Client Satisfaction

File Name : 2-NYS_ROUTE_9D_AT_KRISTY_DR-FRI_830573_04-23-2021
Site Code :
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	NYS ROUTE 9D From North					From East					NYS ROUTE 9D From South					KRYSTY DR From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 02:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 02:45 PM																					
02:45 PM	1	68	0	0	69	0	0	0	0	0	0	65	1	0	66	2	0	3	2	7	142
03:00 PM	0	74	0	0	74	0	0	0	0	0	0	90	1	0	91	0	0	0	0	0	165
03:15 PM	2	83	0	0	85	0	0	0	0	0	0	94	1	0	95	1	0	2	0	3	183
03:30 PM	1	66	0	0	67	0	0	0	0	0	0	101	1	0	102	1	0	1	0	2	171
Total Volume	4	291	0	0	295	0	0	0	0	0	0	350	4	0	354	4	0	6	2	12	661
% App. Total	1.4	98.6	0	0		0	0	0	0		0	98.9	1.1	0		33.3	0	50	16.7		
PHF	.500	.877	.000	.000	.868	.000	.000	.000	.000	.000	.000	.866	1.00	.000	.868	.500	.000	.500	.250	.429	.903
Lights	4	280	0	0	284	0	0	0	0	0	0	335	4	0	339	2	0	6	0	8	631
% Lights	100	96.2	0	0	96.3	0	0	0	0	0	0	95.7	100	0	95.8	50.0	0	100	0	66.7	95.5
Buses	0	5	0	0	5	0	0	0	0	0	0	8	0	0	8	2	0	0	0	2	15
% Buses	0	1.7	0	0	1.7	0	0	0	0	0	0	2.3	0	0	2.3	50.0	0	0	0	16.7	2.3
Trucks	0	6	0	0	6	0	0	0	0	0	0	7	0	0	7	0	0	0	0	0	13
% Trucks	0	2.1	0	0	2.0	0	0	0	0	0	0	2.0	0	0	2.0	0	0	0	0	0	2.0
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2
% Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	16.7	0.3

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Valhalla, NY 10595

Customer Loyalty through Client Satisfaction

File Name : 2-NYS_ROUTE_9D_AT_KRISTY_DR-SAT_830574_04-24-2021
Site Code :
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Groups Printed- Lights - Buses - Trucks - Pedestrians

	NYS ROUTE 9D From North					From East					NYS ROUTE 9D From South					KRISTY DR From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
12:00 PM	3	59	0	0	62	0	0	0	0	0	0	78	1	0	79	1	0	2	2	5	146
12:15 PM	0	68	0	0	68	0	0	0	0	0	0	92	1	0	93	0	0	1	2	3	164
12:30 PM	1	67	0	0	68	0	0	0	0	0	0	82	1	0	83	1	0	1	2	4	155
12:45 PM	3	66	0	0	69	0	0	0	0	0	0	84	1	0	85	2	0	3	0	5	159
Total	7	260	0	0	267	0	0	0	0	0	0	336	4	0	340	4	0	7	6	17	624
01:00 PM	2	77	0	0	79	0	0	0	0	0	0	69	0	0	69	4	0	2	0	6	154
01:15 PM	1	94	0	0	95	0	0	0	0	0	0	81	0	0	81	0	0	0	1	1	177
01:30 PM	0	66	0	0	66	0	0	0	0	0	0	82	2	0	84	0	0	2	1	3	153
01:45 PM	4	74	0	0	78	0	0	0	0	0	0	78	1	0	79	1	0	0	1	2	159
Total	7	311	0	0	318	0	0	0	0	0	0	310	3	0	313	5	0	4	3	12	643
02:00 PM	3	86	0	0	89	0	0	0	0	0	0	90	1	0	91	0	0	3	1	4	184
02:15 PM	2	82	0	0	84	0	0	0	0	0	0	70	3	0	73	5	0	1	2	8	165
02:30 PM	0	65	0	0	65	0	0	0	0	0	0	70	2	0	72	0	0	2	1	3	140
02:45 PM	0	86	0	0	86	0	0	0	0	0	0	97	0	0	97	0	0	0	1	1	184
Total	5	319	0	0	324	0	0	0	0	0	0	327	6	0	333	5	0	6	5	16	673
03:00 PM	1	91	0	0	92	0	0	0	0	0	0	80	0	0	80	1	0	2	2	5	177
03:15 PM	1	78	0	0	79	0	0	0	0	0	0	83	1	0	84	1	0	0	0	1	164
03:30 PM	1	87	0	0	88	0	0	0	0	0	0	87	0	0	87	1	0	1	0	2	177
03:45 PM	0	104	0	0	104	0	0	0	0	0	0	102	0	0	102	1	0	2	1	4	210
Total	3	360	0	0	363	0	0	0	0	0	0	352	1	0	353	4	0	5	3	12	728
04:00 PM	2	71	0	0	73	0	0	0	0	0	0	92	1	0	93	0	0	0	3	3	169
04:15 PM	1	70	0	0	71	0	0	0	0	0	0	71	2	0	73	0	0	0	1	1	145
04:30 PM	4	82	0	0	86	0	0	0	0	0	0	100	0	0	100	0	0	1	2	3	189
04:45 PM	3	77	0	0	80	0	0	0	0	0	0	68	1	0	69	1	0	2	1	4	153
Total	10	300	0	0	310	0	0	0	0	0	0	331	4	0	335	1	0	3	7	11	656
05:00 PM	0	107	0	0	107	0	0	0	0	0	0	62	0	0	62	0	0	2	0	2	171
05:15 PM	2	78	0	0	80	0	0	0	0	0	0	91	0	0	91	0	0	0	0	0	171
05:30 PM	2	72	0	0	74	0	0	0	0	0	0	58	0	0	58	0	0	5	0	5	137
05:45 PM	6	55	0	0	61	0	0	0	0	0	0	76	0	0	76	1	0	2	0	3	140
Total	10	312	0	0	322	0	0	0	0	0	0	287	0	0	287	1	0	9	0	10	619
Grand Total	42	1862	0	0	1904	0	0	0	0	0	0	1943	18	0	1961	20	0	34	24	78	3943
Apprch %	2.2	97.8	0	0		0	0	0	0		0	99.1	0.9	0		25.6	0	43.6	30.8		
Total %	1.1	47.2	0	0	48.3	0	0	0	0	0	0	49.3	0.5	0	49.7	0.5	0	0.9	0.6	2	
Lights	42	1845	0	0	1887	0	0	0	0	0	0	1932	16	0	1948	19	0	34	0	53	
% Lights	100	99.1	0	0	99.1	0	0	0	0	0	0	99.4	88.9	0	99.3	95	0	100	0	67.9	

Maser Consulting

400 Columbus Avenue, Stuite 180 E
Valhalla, NY 10595

Customer Loyalty through Client Satisfaction

File Name : 2-NYS_ROUTE_9D_AT_KRISTY_DR-SAT_830574_04-24-2021
Site Code :
Start Date : 4/24/2021

Groups Printed- Lights - Buses - Trucks - Pedestrians

	NYS ROUTE 9D From North					From East					NYS ROUTE 9D From South					KRISTY DR From West					
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Buses	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
% Buses	0	0.1	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1
Trucks	0	15	0	0	15	0	0	0	0	0	0	11	2	0	13	1	0	0	0	1	29
% Trucks	0	0.8	0	0	0.8	0	0	0	0	0	0	0.6	11.1	0	0.7	5	0	0	0	1.3	0.7
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24	24	24
% Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	30.8	0.6

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400 Columbus Avenue, Stuite 180 E
Valhalla, NY 10595

Customer Loyalty through Client Satisfaction

File Name : 2-NYS_ROUTE_9D_AT_KRISTY_DR-SAT_830574_04-24-2021
Site Code :
Start Date : 4/24/2021
Page No : 3

	NYS ROUTE 9D From North					From East					NYS ROUTE 9D From South					KRISTY DR From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 03:00 PM																					
03:00 PM	1	91	0	0	92	0	0	0	0	0	0	80	0	0	80	1	0	2	2	5	177
03:15 PM	1	78	0	0	79	0	0	0	0	0	0	83	1	0	84	1	0	0	0	1	164
03:30 PM	1	87	0	0	88	0	0	0	0	0	0	87	0	0	87	1	0	1	0	2	177
03:45 PM	0	104	0	0	104	0	0	0	0	0	0	102	0	0	102	1	0	2	1	4	210
Total Volume	3	360	0	0	363	0	0	0	0	0	0	352	1	0	353	4	0	5	3	12	728
% App. Total	0.8	99.2	0	0		0	0	0	0		0	99.7	0.3	0		33.3	0	41.7	25		
PHF	.750	.865	.000	.000	.873	.000	.000	.000	.000	.000	.000	.863	.250	.000	.865	1.00	.000	.625	.375	.600	.867
Lights	3	356	0	0	359	0	0	0	0	0	0	350	1	0	351	4	0	5	0	9	719
% Lights	100	98.9	0	0	98.9	0	0	0	0	0	0	99.4	100	0	99.4	100	0	100	0	75.0	98.8
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Trucks	0	4	0	0	4	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	6
% Trucks	0	1.1	0	0	1.1	0	0	0	0	0	0	0.6	0	0	0.6	0	0	0	0	0	0.8
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	3
% Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	25.0	0.4

Maser Consulting

400 Columbus Avenue, Stuite 180 E
Valhalla, NY 10595

Customer Loyalty through Client Satisfaction

File Name : 3-NYS_ROUTE_9D_AT_HOWLAND_AVE-FRI_830575_04-23-2021
Site Code :
Start Date : 4/23/2021
Page No : 1

Groups Printed- Lights - Buses - Trucks - Pedestrians

	NYS ROUTE 9D From North					HOWLAND AVE From East					NYS ROUTE 9D From South					From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
02:00 PM	0	60	8	0	68	3	0	5	0	8	8	52	0	0	60	0	0	0	0	0	136
02:15 PM	0	56	6	0	62	6	0	11	3	20	8	62	0	0	70	0	0	0	0	0	152
02:30 PM	0	52	8	0	60	5	0	9	0	14	14	69	0	0	83	0	0	0	0	0	157
02:45 PM	0	64	6	0	70	9	0	10	0	19	19	57	0	0	76	0	0	0	0	0	165
Total	0	232	28	0	260	23	0	35	3	61	49	240	0	0	289	0	0	0	0	0	610
03:00 PM	0	71	13	0	84	12	0	8	2	22	16	80	0	0	96	0	0	0	0	0	202
03:15 PM	0	72	19	0	91	7	0	14	0	21	13	86	0	0	99	0	0	0	0	0	211
03:30 PM	0	58	8	0	66	3	0	12	1	16	20	77	0	0	97	0	0	0	0	0	179
03:45 PM	0	44	11	0	55	6	0	7	0	13	11	88	0	0	99	0	0	0	0	0	167
Total	0	245	51	0	296	28	0	41	3	72	60	331	0	0	391	0	0	0	0	0	759
04:00 PM	0	49	10	0	59	7	0	7	1	15	21	86	0	0	107	0	0	0	0	0	181
04:15 PM	0	65	7	0	72	14	0	2	3	19	13	72	0	0	85	0	0	0	0	0	176
04:30 PM	0	52	10	0	62	3	0	10	0	13	18	91	0	0	109	0	0	0	0	0	184
04:45 PM	0	57	11	0	68	3	0	9	0	12	14	78	0	0	92	0	0	0	0	0	172
Total	0	223	38	0	261	27	0	28	4	59	66	327	0	0	393	0	0	0	0	0	713
05:00 PM	0	65	9	0	74	2	0	6	2	10	7	83	0	0	90	0	0	0	0	0	174
05:15 PM	0	50	14	0	64	6	0	10	1	17	18	73	0	0	91	0	0	0	0	0	172
05:30 PM	0	52	7	0	59	6	0	8	1	15	12	64	0	0	76	0	0	0	0	0	150
05:45 PM	0	54	12	0	66	7	0	7	0	14	14	86	0	0	100	0	0	0	0	0	180
Total	0	221	42	0	263	21	0	31	4	56	51	306	0	0	357	0	0	0	0	0	676
Grand Total	0	921	159	0	1080	99	0	135	14	248	226	1204	0	0	1430	0	0	0	0	0	2758
Apprch %	0	85.3	14.7	0		39.9	0	54.4	5.6		15.8	84.2	0	0		0	0	0	0		
Total %	0	33.4	5.8	0	39.2	3.6	0	4.9	0.5	9	8.2	43.7	0	0	51.8	0	0	0	0	0	
Lights	0	899	150	0	1049	99	0	133	0	232	219	1171	0	0	1390	0	0	0	0	0	2671
% Lights	0	97.6	94.3	0	97.1	100	0	98.5	0	93.5	96.9	97.3	0	0	97.2	0	0	0	0	0	96.8
Buses	0	5	6	0	11	0	0	1	0	1	5	9	0	0	14	0	0	0	0	0	26
% Buses	0	0.5	3.8	0	1	0	0	0.7	0	0.4	2.2	0.7	0	0	1	0	0	0	0	0	0.9
Trucks	0	17	3	0	20	0	0	1	0	1	2	24	0	0	26	0	0	0	0	0	47
% Trucks	0	1.8	1.9	0	1.9	0	0	0.7	0	0.4	0.9	2	0	0	1.8	0	0	0	0	0	1.7
Pedestrians	0	0	0	0	0	0	0	0	14	14	0	0	0	0	0	0	0	0	0	0	14
% Pedestrians	0	0	0	0	0	0	0	0	100	5.6	0	0	0	0	0	0	0	0	0	0	0.5

Maser Consulting

400 Columbus Avenue, Stuite 180 E
Valhalla, NY 10595

Customer Loyalty through Client Satisfaction

File Name : 3-NYS_ROUTE_9D_AT_HOWLAND_AVE-FRI_830575_04-23-2021
Site Code :
Start Date : 4/23/2021
Page No : 2

	NYS ROUTE 9D From North					HOWLAND AVE From East					NYS ROUTE 9D From South					From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 02:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 03:00 PM																					
03:00 PM	0	71	13	0	84	12	0	8	2	22	16	80	0	0	96	0	0	0	0	0	202
03:15 PM	0	72	19	0	91	7	0	14	0	21	13	86	0	0	99	0	0	0	0	0	211
03:30 PM	0	58	8	0	66	3	0	12	1	16	20	77	0	0	97	0	0	0	0	0	179
03:45 PM	0	44	11	0	55	6	0	7	0	13	11	88	0	0	99	0	0	0	0	0	167
Total Volume	0	245	51	0	296	28	0	41	3	72	60	331	0	0	391	0	0	0	0	0	759
% App. Total	0	82.8	17.2	0		38.9	0	56.9	4.2		15.3	84.7	0	0		0	0	0	0		
PHF	.000	.851	.671	.000	.813	.583	.000	.732	.375	.818	.750	.940	.000	.000	.987	.000	.000	.000	.000	.000	.899
Lights	0	240	50	0	290	28	0	39	0	67	57	322	0	0	379	0	0	0	0	0	736
% Lights	0	98.0	98.0	0	98.0	100	0	95.1	0	93.1	95.0	97.3	0	0	96.9	0	0	0	0	0	97.0
Buses	0	1	1	0	2	0	0	1	0	1	3	4	0	0	7	0	0	0	0	0	10
% Buses	0	0.4	2.0	0	0.7	0	0	2.4	0	1.4	5.0	1.2	0	0	1.8	0	0	0	0	0	1.3
Trucks	0	4	0	0	4	0	0	1	0	1	0	5	0	0	5	0	0	0	0	0	10
% Trucks	0	1.6	0	0	1.4	0	0	2.4	0	1.4	0	1.5	0	0	1.3	0	0	0	0	0	1.3
Pedestrians	0	0	0	0	0	0	0	0	3	3	0	0	0	0	0	0	0	0	0	0	3
% Pedestrians	0	0	0	0	0	0	0	0	100	4.2	0	0	0	0	0	0	0	0	0	0	0.4

Maser Consulting

400 Columbus Avenue, Stuite 180 E
Valhalla, NY 10595

Customer Loyalty through Client Satisfaction

File Name : 3-NYS_ROUTE_9D_AT_HOWLAND_AVE-SAT_830576_04-24-2021
Site Code :
Start Date : 4/24/2021
Page No : 1

Groups Printed- Lights - Buses - Trucks - Pedestrians

	NYS ROUTE 9D From North					HOWLAND AVE From East					NYS ROUTE 9D From South					From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
12:00 PM	0	67	11	0	78	12	0	18	2	32	10	65	0	0	75	0	0	0	0	0	185
12:15 PM	0	60	18	0	78	9	0	19	7	35	16	82	0	0	98	0	0	0	0	0	211
12:30 PM	0	63	18	0	81	3	0	17	10	30	13	68	0	0	81	0	0	0	0	0	192
12:45 PM	0	62	17	0	79	10	0	16	0	26	17	72	0	0	89	0	0	0	0	0	194
Total	0	252	64	0	316	34	0	70	19	123	56	287	0	0	343	0	0	0	0	0	782
01:00 PM	0	73	2	0	75	13	0	12	2	27	8	73	0	0	81	0	0	0	0	0	183
01:15 PM	0	83	8	0	91	10	0	18	6	34	8	72	0	0	80	0	0	0	0	0	205
01:30 PM	0	62	9	0	71	14	0	13	2	29	13	72	0	0	85	0	0	0	0	0	185
01:45 PM	0	65	16	0	81	23	0	21	3	47	10	69	0	0	79	0	0	0	0	0	207
Total	0	283	35	0	318	60	0	64	13	137	39	286	0	0	325	0	0	0	0	0	780
02:00 PM	0	88	11	1	100	5	0	18	2	25	13	81	0	0	94	0	0	0	0	0	219
02:15 PM	0	67	13	0	80	10	0	20	2	32	13	61	0	0	74	0	0	0	0	0	186
02:30 PM	0	59	15	0	74	9	0	15	1	25	12	64	0	0	76	0	0	0	0	0	175
02:45 PM	0	75	16	0	91	2	0	24	12	38	16	87	0	0	103	0	0	0	0	0	232
Total	0	289	55	1	345	26	0	77	17	120	54	293	0	0	347	0	0	0	0	0	812
03:00 PM	0	76	6	0	82	13	0	18	2	33	13	71	0	1	85	0	0	0	0	0	200
03:15 PM	0	72	12	0	84	7	0	12	2	21	13	74	0	1	88	0	0	0	0	0	193
03:30 PM	0	84	6	0	90	10	0	10	4	24	10	72	0	0	82	0	0	0	0	0	196
03:45 PM	0	92	13	0	105	10	0	12	0	22	11	87	0	0	98	0	0	0	0	0	225
Total	0	324	37	0	361	40	0	52	8	100	47	304	0	2	353	0	0	0	0	0	814
04:00 PM	0	68	12	0	80	13	0	8	3	24	13	78	0	0	91	0	0	0	0	0	195
04:15 PM	0	72	11	0	83	6	0	6	6	18	7	67	0	0	74	0	0	0	0	0	175
04:30 PM	0	82	9	2	93	6	0	8	2	16	19	82	0	0	101	0	0	0	0	0	210
04:45 PM	0	63	12	0	75	6	0	20	1	27	10	66	0	0	76	0	0	0	0	0	178
Total	0	285	44	2	331	31	0	42	12	85	49	293	0	0	342	0	0	0	0	0	758
05:00 PM	0	90	11	0	101	8	0	12	5	25	9	66	0	0	75	0	0	0	0	0	201
05:15 PM	0	75	6	0	81	4	0	11	2	17	20	70	0	0	90	0	0	0	0	0	188
05:30 PM	0	66	13	0	79	10	0	13	2	25	12	56	0	0	68	0	0	0	0	0	172
05:45 PM	0	59	8	0	67	8	0	6	1	15	13	69	0	0	82	0	0	0	0	0	164
Total	0	290	38	0	328	30	0	42	10	82	54	261	0	0	315	0	0	0	0	0	725
Grand Total	0	1723	273	3	1999	221	0	347	79	647	299	1724	0	2	2025	0	0	0	0	0	4671
Apprch %	0	86.2	13.7	0.2		34.2	0	53.6	12.2		14.8	85.1	0	0.1		0	0	0	0		
Total %	0	36.9	5.8	0.1	42.8	4.7	0	7.4	1.7	13.9	6.4	36.9	0	0	43.4	0	0	0	0	0	
Lights	0	1707	258	0	1965	219	0	344	0	563	297	1715	0	0	2012	0	0	0	0	0	
% Lights	0	99.1	94.5	0	98.3	99.1	0	99.1	0	87	99.3	99.5	0	0	99.4	0	0	0	0	0	

Maser Consulting

400 Columbus Avenue, Stuite 180 E
Valhalla, NY 10595

Customer Loyalty through Client Satisfaction

File Name : 3-NYS_ROUTE_9D_AT_HOWLAND_AVE-SAT_830576_04-24-2021
Site Code :
Start Date : 4/24/2021

Groups Printed- Lights - Buses - Trucks - Pedestrians

	NYS ROUTE 9D From North					HOWLAND AVE From East					NYS ROUTE 9D From South					From West					
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Buses	0	1	11	0	12	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	14
% Buses	0	0.1	4	0	0.6	0.9	0	0	0	0.3	0	0	0	0	0	0	0	0	0	0	0.3
Trucks	0	15	4	0	19	0	0	3	0	3	2	9	0	0	11	0	0	0	0	0	33
% Trucks	0	0.9	1.5	0	1	0	0	0.9	0	0.5	0.7	0.5	0	0	0.5	0	0	0	0	0	0.7
Pedestrians	0	0	0	3	3	0	0	0	79	79	0	0	0	2	2	0	0	0	0	0	84
% Pedestrians	0	0	0	100	0.2	0	0	0	100	12.2	0	0	0	100	0.1	0	0	0	0	0	1.8

Maser Consulting

400 Columbus Avenue, Stuite 180 E
Valhalla, NY 10595

Customer Loyalty through Client Satisfaction

File Name : 3-NYS_ROUTE_9D_AT_HOWLAND_AVE-SAT_830576_04-24-2021
Site Code :
Start Date : 4/24/2021
Page No : 3

	NYS ROUTE 9D From North					HOWLAND AVE From East					NYS ROUTE 9D From South					From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 02:45 PM																					
02:45 PM	0	75	16	0	91	2	0	24	12	38	16	87	0	0	103	0	0	0	0	0	232
03:00 PM	0	76	6	0	82	13	0	18	2	33	13	71	0	1	85	0	0	0	0	0	200
03:15 PM	0	72	12	0	84	7	0	12	2	21	13	74	0	1	88	0	0	0	0	0	193
03:30 PM	0	84	6	0	90	10	0	10	4	24	10	72	0	0	82	0	0	0	0	0	196
Total Volume	0	307	40	0	347	32	0	64	20	116	52	304	0	2	358	0	0	0	0	0	821
% App. Total	0	88.5	11.5	0		27.6	0	55.2	17.2		14.5	84.9	0	0.6		0	0	0	0		
PHF	.000	.914	.625	.000	.953	.615	.000	.667	.417	.763	.813	.874	.000	.500	.869	.000	.000	.000	.000	.000	.885
Lights	0	305	40	0	345	32	0	63	0	95	52	302	0	0	354	0	0	0	0	0	794
% Lights	0	99.3	100	0	99.4	100	0	98.4	0	81.9	100	99.3	0	0	98.9	0	0	0	0	0	96.7
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Trucks	0	2	0	0	2	0	0	1	0	1	0	2	0	0	2	0	0	0	0	0	5
% Trucks	0	0.7	0	0	0.6	0	0	1.6	0	0.9	0	0.7	0	0	0.6	0	0	0	0	0	0.6
Pedestrians	0	0	0	0	0	0	0	0	20	20	0	0	0	2	2	0	0	0	0	0	22
% Pedestrians	0	0	0	0	0	0	0	0	100	17.2	0	0	0	100	0.6	0	0	0	0	0	2.7

Maser Consulting

400 Columbus Avenue, Stuite 180 E
Valhalla, NY 10595

Customer Loyalty through Client Satisfaction

File Name : 4-NYS_ROUTE_9D_AT_TIORONDA_AVE-FRI_830577_04-23-2021
Site Code :
Start Date : 4/23/2021
Page No : 1

Groups Printed- Lights - Buses - Trucks - Pedestrians

	TIORONDA AVE From North					NYS ROUTE 9D From East					TIORONDA AVE From South					NYS ROUTE 9D From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
02:00 PM	2	0	10	3	15	17	46	2	0	65	0	1	2	2	5	2	57	2	4	65	150
02:15 PM	1	2	9	2	14	10	59	2	0	71	0	1	1	0	2	2	57	2	0	61	148
02:30 PM	3	2	12	1	18	28	61	1	0	90	3	1	1	4	9	3	62	1	4	70	187
02:45 PM	4	2	10	2	18	18	73	0	0	91	4	2	2	2	10	1	77	2	2	82	201
Total	10	6	41	8	65	73	239	5	0	317	7	5	6	8	26	8	253	7	10	278	686
03:00 PM	1	2	14	13	30	27	99	7	2	135	5	3	3	5	16	1	98	10	2	111	292
03:15 PM	1	3	13	1	18	24	91	1	0	116	1	1	3	1	6	3	103	9	0	115	255
03:30 PM	1	1	13	1	16	12	97	2	0	111	1	1	0	2	4	0	72	5	2	79	210
03:45 PM	2	2	13	2	19	8	87	0	3	98	1	2	2	0	5	3	59	2	3	67	189
Total	5	8	53	17	83	71	374	10	5	460	8	7	8	8	31	7	332	26	7	372	946
04:00 PM	2	0	10	3	15	8	102	1	0	111	1	1	1	0	3	1	63	1	1	66	195
04:15 PM	4	4	6	6	20	15	87	4	1	107	1	4	2	1	8	3	80	6	1	90	225
04:30 PM	4	4	10	2	20	19	93	3	0	115	8	3	2	0	13	3	68	2	0	73	221
04:45 PM	2	1	16	1	20	22	78	1	0	101	0	2	2	1	5	2	71	6	1	80	206
Total	12	9	42	12	75	64	360	9	1	434	10	10	7	2	29	9	282	15	3	309	847
05:00 PM	4	1	12	1	18	15	84	0	2	101	2	1	0	1	4	0	81	6	0	87	210
05:15 PM	0	2	11	4	17	21	92	2	3	118	1	0	0	2	3	1	73	3	0	77	215
05:30 PM	2	0	17	5	24	14	72	2	0	88	0	1	1	2	4	0	66	5	2	73	189
05:45 PM	1	2	14	6	23	20	92	2	0	114	1	1	2	8	12	1	65	0	5	71	220
Total	7	5	54	16	82	70	340	6	5	421	4	3	3	13	23	2	285	14	7	308	834
Grand Total	34	28	190	53	305	278	1313	30	11	1632	29	25	24	31	109	26	1152	62	27	1267	3313
Apprch %	11.1	9.2	62.3	17.4		17	80.5	1.8	0.7		26.6	22.9	22	28.4		2.1	90.9	4.9	2.1		
Total %	1	0.8	5.7	1.6	9.2	8.4	39.6	0.9	0.3	49.3	0.9	0.8	0.7	0.9	3.3	0.8	34.8	1.9	0.8	38.2	
Lights	34	28	182	0	244	275	1279	28	0	1582	29	24	22	0	75	25	1127	60	0	1212	3113
% Lights	100	100	95.8	0	80	98.9	97.4	93.3	0	96.9	100	96	91.7	0	68.8	96.2	97.8	96.8	0	95.7	94
Buses	0	0	5	0	5	2	11	2	0	15	0	1	0	0	1	0	9	2	0	11	32
% Buses	0	0	2.6	0	1.6	0.7	0.8	6.7	0	0.9	0	4	0	0	0.9	0	0.8	3.2	0	0.9	1
Trucks	0	0	3	0	3	1	23	0	0	24	0	0	2	0	2	1	16	0	0	17	46
% Trucks	0	0	1.6	0	1	0.4	1.8	0	0	1.5	0	0	8.3	0	1.8	3.8	1.4	0	0	1.3	1.4
Pedestrians	0	0	0	53	53	0	0	0	11	11	0	0	0	31	31	0	0	0	27	27	122
% Pedestrians	0	0	0	100	17.4	0	0	0	100	0.7	0	0	0	100	28.4	0	0	0	100	2.1	3.7

Maser Consulting

400 Columbus Avenue, Stuite 180 E
Valhalla, NY 10595

Customer Loyalty through Client Satisfaction

File Name : 4-NYS_ROUTE_9D_AT_TIORONDA_AVE-FRI_830577_04-23-2021
Site Code :
Start Date : 4/23/2021
Page No : 2

	TIORONDA AVE From North					NYS ROUTE 9D From East					TIORONDA AVE From South					NYS ROUTE 9D From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 02:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 02:45 PM																					
02:45 PM	4	2	10	2	18	18	73	0	0	91	4	2	2	2	10	1	77	2	2	82	201
03:00 PM	1	2	14	13	30	27	99	7	2	135	5	3	3	5	16	1	98	10	2	111	292
03:15 PM	1	3	13	1	18	24	91	1	0	116	1	1	3	1	6	3	103	9	0	115	255
03:30 PM	1	1	13	1	16	12	97	2	0	111	1	1	0	2	4	0	72	5	2	79	210
Total Volume	7	8	50	17	82	81	360	10	2	453	11	7	8	10	36	5	350	26	6	387	958
% App. Total	8.5	9.8	61	20.7		17.9	79.5	2.2	0.4		30.6	19.4	22.2	27.8		1.3	90.4	6.7	1.6		
PHF	.438	.667	.893	.327	.683	.750	.909	.357	.250	.839	.550	.583	.667	.500	.563	.417	.850	.650	.750	.841	.820
Lights	7	8	50	0	65	79	349	9	0	437	11	7	6	0	24	5	340	25	0	370	896
% Lights	100	100	100	0	79.3	97.5	96.9	90.0	0	96.5	100	100	75.0	0	66.7	100	97.1	96.2	0	95.6	93.5
Buses	0	0	0	0	0	2	6	1	0	9	0	0	0	0	0	0	6	1	0	7	16
% Buses	0	0	0	0	0	2.5	1.7	10.0	0	2.0	0	0	0	0	0	0	1.7	3.8	0	1.8	1.7
Trucks	0	0	0	0	0	0	5	0	0	5	0	0	2	0	2	0	4	0	0	4	11
% Trucks	0	0	0	0	0	0	1.4	0	0	1.1	0	0	25.0	0	5.6	0	1.1	0	0	1.0	1.1
Pedestrians	0	0	0	17	17	0	0	0	2	2	0	0	0	10	10	0	0	0	6	6	35
% Pedestrians	0	0	0	100	20.7	0	0	0	100	0.4	0	0	0	100	27.8	0	0	0	100	1.6	3.7

Maser Consulting

400 Columbus Avenue, Stuite 180 E
Valhalla, NY 10595

Customer Loyalty through Client Satisfaction

File Name : 4-NYS_ROUTE_9D_AT_TIORONDA_AVE-SAT_830578_04-24-2021
Site Code :
Start Date : 4/24/2021
Page No : 1

Groups Printed- Lights - Buses - Trucks - Pedestrians

	TIORONDA AVE From North					NYS ROUTE 9D From East					TIORONDA AVE From South					NYS ROUTE 9D From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
12:00 PM	1	1	8	8	18	15	82	3	1	101	3	1	0	0	4	8	79	2	1	90	213
12:15 PM	1	0	4	5	10	27	89	4	2	122	1	1	0	0	2	5	87	0	0	92	226
12:30 PM	3	0	5	3	11	29	65	3	0	97	6	2	1	1	10	3	89	4	1	97	215
12:45 PM	4	0	11	2	17	20	86	4	0	110	3	1	2	7	13	2	93	3	8	106	246
Total	9	1	28	18	56	91	322	14	3	430	13	5	3	8	29	18	348	9	10	385	900
01:00 PM	7	2	9	1	19	16	85	3	0	104	2	1	0	3	6	4	68	1	6	79	208
01:15 PM	2	2	15	2	21	13	68	3	0	84	0	5	2	3	10	2	83	2	5	92	207
01:30 PM	1	2	8	7	18	21	79	2	0	102	2	1	0	1	4	0	72	3	0	75	199
01:45 PM	4	2	14	5	25	26	100	4	0	130	2	2	2	1	7	5	75	5	0	85	247
Total	14	8	46	15	83	76	332	12	0	420	6	9	4	8	27	11	298	11	11	331	861
02:00 PM	4	2	9	3	18	30	84	3	0	117	1	4	5	0	10	0	101	8	1	110	255
02:15 PM	2	1	13	4	20	23	78	2	0	103	3	3	2	0	8	0	78	3	2	83	214
02:30 PM	3	2	10	5	20	19	76	4	2	101	2	2	8	1	13	1	83	4	2	90	224
02:45 PM	6	1	16	1	24	27	83	3	0	113	2	1	1	3	7	4	89	5	4	102	246
Total	15	6	48	13	82	99	321	12	2	434	8	10	16	4	38	5	351	20	9	385	939
03:00 PM	6	2	17	2	27	23	65	2	0	90	2	2	4	5	13	3	73	3	5	84	214
03:15 PM	5	0	12	4	21	21	62	0	0	83	3	1	0	0	4	3	84	5	1	93	201
03:30 PM	3	0	11	0	14	30	64	3	0	97	1	1	2	1	5	0	83	1	1	85	201
03:45 PM	4	1	24	9	38	18	82	3	2	105	0	0	2	1	3	2	91	5	5	103	249
Total	18	3	64	15	100	92	273	8	2	375	6	4	8	7	25	8	331	14	12	365	865
04:00 PM	5	1	15	4	25	30	72	3	0	105	6	3	1	1	11	1	81	2	0	84	225
04:15 PM	2	1	10	11	24	20	73	4	0	97	8	0	3	3	14	1	79	1	5	86	221
04:30 PM	4	3	10	3	20	18	76	1	0	95	4	2	2	0	8	2	88	2	4	96	219
04:45 PM	2	1	14	6	23	15	66	3	1	85	4	1	0	3	8	2	63	6	3	74	190
Total	13	6	49	24	92	83	287	11	1	382	22	6	6	7	41	6	311	11	12	340	855
05:00 PM	2	0	15	4	21	8	87	1	0	96	3	1	3	0	7	1	103	1	0	105	229
05:15 PM	0	2	18	5	25	20	69	0	0	89	5	1	1	0	7	3	70	4	2	79	200
05:30 PM	1	3	13	2	19	15	63	0	0	78	3	1	2	0	6	5	64	2	0	71	174
05:45 PM	5	0	14	0	19	20	70	1	0	91	2	0	1	1	4	2	65	3	0	70	184
Total	8	5	60	11	84	63	289	2	0	354	13	3	7	1	24	11	302	10	2	325	787
Grand Total	77	29	295	96	497	504	1824	59	8	2395	68	37	44	35	184	59	1941	75	56	2131	5207
Apprch %	15.5	5.8	59.4	19.3		21	76.2	2.5	0.3		37	20.1	23.9	19		2.8	91.1	3.5	2.6		
Total %	1.5	0.6	5.7	1.8	9.5	9.7	35	1.1	0.2	46	1.3	0.7	0.8	0.7	3.5	1.1	37.3	1.4	1.1	40.9	
Lights	77	29	285	0	391	501	1813	59	0	2373	68	37	44	0	149	58	1924	74	0	2056	
% Lights	100	100	96.6	0	78.7	99.4	99.4	100	0	99.1	100	100	100	0	81	98.3	99.1	98.7	0	96.5	

Maser Consulting

400 Columbus Avenue, Stuite 180 E
Valhalla, NY 10595

Customer Loyalty through Client Satisfaction

File Name : 4-NYS_ROUTE_9D_AT_TIORONDA_AVE-SAT_830578_04-24-2021
Site Code :
Start Date : 4/24/2021
Page No : 2

Groups Printed- Lights - Buses - Trucks - Pedestrians

	TIORONDA AVE From North					NYS ROUTE 9D From East					TIORONDA AVE From South					NYS ROUTE 9D From West					
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Buses	0	0	8	0	8	1	1	0	0	2	0	0	0	0	0	0	3	0	0	3	13
% Buses	0	0	2.7	0	1.6	0.2	0.1	0	0	0.1	0	0	0	0	0	0	0.2	0	0	0.1	0.2
Trucks	0	0	2	0	2	2	10	0	0	12	0	0	0	0	0	1	14	1	0	16	30
% Trucks	0	0	0.7	0	0.4	0.4	0.5	0	0	0.5	0	0	0	0	0	1.7	0.7	1.3	0	0.8	0.6
Pedestrians	0	0	0	96	96	0	0	0	8	8	0	0	0	35	35	0	0	0	56	56	195
% Pedestrians	0	0	0	100	19.3	0	0	0	100	0.3	0	0	0	100	19	0	0	0	100	2.6	3.7

Maser Consulting

400 Columbus Avenue, Stuite 180 E
Valhalla, NY 10595

Customer Loyalty through Client Satisfaction

File Name : 4-NYS_ROUTE_9D_AT_TIORONDA_AVE-SAT_830578_04-24-2021
Site Code :
Start Date : 4/24/2021

	TIORONDA AVE From North					NYS ROUTE 9D From East					TIORONDA AVE From South					NYS ROUTE 9D From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 01:45 PM																					
01:45 PM	4	2	14	5	25	26	100	4	0	130	2	2	2	1	7	5	75	5	0	85	247
02:00 PM	4	2	9	3	18	30	84	3	0	117	1	4	5	0	10	0	101	8	1	110	255
02:15 PM	2	1	13	4	20	23	78	2	0	103	3	3	2	0	8	0	78	3	2	83	214
02:30 PM	3	2	10	5	20	19	76	4	2	101	2	2	8	1	13	1	83	4	2	90	224
Total Volume	13	7	46	17	83	98	338	13	2	451	8	11	17	2	38	6	337	20	5	368	940
% App. Total	15.7	8.4	55.4	20.5		21.7	74.9	2.9	0.4		21.1	28.9	44.7	5.3		1.6	91.6	5.4	1.4		
PHF	.813	.875	.821	.850	.830	.817	.845	.813	.250	.867	.667	.688	.531	.500	.731	.300	.834	.625	.625	.836	.922
Lights	13	7	44	0	64	97	336	13	0	446	8	11	17	0	36	6	335	19	0	360	906
% Lights	100	100	95.7	0	77.1	99.0	99.4	100	0	98.9	100	100	100	0	94.7	100	99.4	95.0	0	97.8	96.4
Buses	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	3
% Buses	0	0	4.3	0	2.4	0	0	0	0	0	0	0	0	0	0	0	0.3	0	0	0.3	0.3
Trucks	0	0	0	0	0	1	2	0	0	3	0	0	0	0	0	0	1	1	0	2	5
% Trucks	0	0	0	0	0	1.0	0.6	0	0	0.7	0	0	0	0	0	0	0.3	5.0	0	0.5	0.5
Pedestrians	0	0	0	17	17	0	0	0	2	2	0	0	0	2	2	0	0	0	5	5	26
% Pedestrians	0	0	0	100	20.5	0	0	0	100	0.4	0	0	0	100	5.3	0	0	0	100	1.4	2.8

Project: MIRBEAU BEACON
Location: BEACON, NY
Job No. 21007271A

Colliers Engineering

400 Columbus Avenue, Ste 180 E
Valhalla, NY 10595

Customer Loyalty through Client Satisfaction

Site Code: 21007271 1010
Station ID:
ROUTE 9D (NORTH OF CRAIG HOUSE LANE & SOUTH OF KRISTY DRIVE)
Latitude: 0' 0.0000 Undefined

Start	06-Dec-21		Tue		Wed		Thu		Fri		Sat		Sun		Week Average	
Time	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB
12:00 AM	*	*	*	*	*	*	*	*	20	5	33	15	63	26	39	15
01:00	*	*	*	*	*	*	*	*	10	6	21	9	36	11	22	9
02:00	*	*	*	*	*	*	*	*	8	5	7	5	25	9	13	6
03:00	*	*	*	*	*	*	*	*	7	8	6	7	20	7	11	7
04:00	*	*	*	*	*	*	*	*	8	31	7	10	11	12	9	18
05:00	*	*	*	*	*	*	*	*	32	94	11	41	29	18	24	51
06:00	*	*	*	*	*	*	*	*	87	217	31	53	47	38	55	103
07:00	*	*	*	*	*	*	*	*	166	**278**	44	75	80	71	97	141
08:00	*	*	*	*	*	*	*	*	163	254	95	108	151	79	136	147
09:00	*	*	*	*	*	*	*	*	**185**	162	131	145	186	115	167	141
10:00	*	*	*	*	*	*	*	*	143	166	189	153	277	201	203	173
11:00	*	*	*	*	*	*	*	*	184	189	**209**	**233**	**411**	**230**	**268**	**217**
12:00 PM	*	*	*	*	*	*	*	*	203	197	225	198	**443**	240	290	212
01:00	*	*	*	*	*	*	*	*	190	178	267	190	389	255	282	208
02:00	*	*	*	*	*	*	170	171	241	215	297	225	391	259	275	218
03:00	*	*	*	*	*	*	354	**225**	331	**264**	342	**259**	429	**286**	364	**258**
04:00	*	*	*	*	*	*	**372**	190	**380**	247	**356**	203	430	236	**384**	219
05:00	*	*	*	*	*	*	309	196	315	210	288	165	320	201	308	193
06:00	*	*	*	*	*	*	214	135	256	169	222	147	212	146	226	149
07:00	*	*	*	*	*	*	127	87	183	119	263	99	177	106	188	103
08:00	*	*	*	*	*	*	114	73	112	78	179	81	133	87	134	80
09:00	*	*	*	*	*	*	71	63	92	95	116	69	75	50	88	69
10:00	*	*	*	*	*	*	53	41	83	57	108	58	66	34	78	48
11:00	*	*	*	*	*	*	40	24	63	38	83	64	47	21	58	37
Lane	0	0	0	0	0	0	1824	1205	3462	3282	3530	2612	4448	2738	3719	2822
Day	0		0		0		3029		6744		6142		7186		6541	
AM Peak	-	-	-	-	-	-	-	-	09:00	07:00	11:00	11:00	11:00	11:00	11:00	11:00
Vol.	-	-	-	-	-	-	-	-	185	278	209	233	411	230	268	217
PM Peak	-	-	-	-	-	-	16:00	15:00	16:00	15:00	16:00	15:00	12:00	15:00	16:00	15:00
Vol.	-	-	-	-	-	-	372	225	380	264	356	259	443	286	384	258

Project: MIRBEAU BEACON
Location: BEACON, NY
Job No. 21007271A

Colliers Engineering
400 Columbus Avenue, Ste 180 E
Valhalla, NY 10595

Customer Loyalty through Client Satisfaction

Site Code: 21007271 1010
Station ID:
ROUTE 9D (NORTH OF CRAIG HOUSE LANE & SOUTH OF KRISTY DRIVE)
Latitude: 0' 0.0000 Undefined

Start	13-Dec-21		Tue		Wed		Thu		Fri		Sat		Sun		Week Average	
Time	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB
12:00 AM	33	14	28	4	*	*	*	*	*	*	*	*	*	*	30	9
01:00	11	3	9	3	*	*	*	*	*	*	*	*	*	*	10	3
02:00	4	7	9	3	*	*	*	*	*	*	*	*	*	*	6	5
03:00	15	10	10	7	*	*	*	*	*	*	*	*	*	*	12	8
04:00	14	33	18	42	*	*	*	*	*	*	*	*	*	*	16	38
05:00	43	106	39	117	*	*	*	*	*	*	*	*	*	*	41	112
06:00	125	214	126	262	*	*	*	*	*	*	*	*	*	*	126	238
07:00	237	**318**	291	**324**	*	*	*	*	*	*	*	*	*	*	264	**321**
08:00	**340**	266	**375**	266	*	*	*	*	*	*	*	*	*	*	**358**	266
09:00	296	172	265	170	*	*	*	*	*	*	*	*	*	*	280	171
10:00	232	161	249	169	*	*	*	*	*	*	*	*	*	*	240	165
11:00	284	166	274	183	*	*	*	*	*	*	*	*	*	*	279	174
12:00 PM	286	182	**288**	**198**	*	*	*	*	*	*	*	*	*	*	287	190
01:00	297	183	0	0	*	*	*	*	*	*	*	*	*	*	148	92
02:00	330	224	*	*	*	*	*	*	*	*	*	*	*	*	330	224
03:00	497	**235**	*	*	*	*	*	*	*	*	*	*	*	*	497	**235**
04:00	**561**	226	*	*	*	*	*	*	*	*	*	*	*	*	**561**	226
05:00	503	187	*	*	*	*	*	*	*	*	*	*	*	*	503	187
06:00	301	147	*	*	*	*	*	*	*	*	*	*	*	*	301	147
07:00	191	86	*	*	*	*	*	*	*	*	*	*	*	*	191	86
08:00	137	82	*	*	*	*	*	*	*	*	*	*	*	*	137	82
09:00	92	43	*	*	*	*	*	*	*	*	*	*	*	*	92	43
10:00	67	31	*	*	*	*	*	*	*	*	*	*	*	*	67	31
11:00	36	21	*	*	*	*	*	*	*	*	*	*	*	*	36	21
Lane	4932	3117	1981	1748	0	0	0	0	0	0	0	0	0	0	4812	3074
Day	8049		3729		0		0		0		0		0		7886	
AM Peak	08:00	07:00	08:00	07:00	-	-	-	-	-	-	-	-	-	-	08:00	07:00
Vol.	340	318	375	324	-	-	-	-	-	-	-	-	-	-	358	321
PM Peak	16:00	15:00	12:00	12:00	-	-	-	-	-	-	-	-	-	-	16:00	15:00
Vol.	561	235	288	198	-	-	-	-	-	-	-	-	-	-	561	235

Comb. Total	8049	3729	0	3029	6744	6142	7186	14427
ADT	ADT 6,976	AADT 6,976						

Project: MIRBEAU BEACON
Location: BEACON, NY
Job No. 21007271A

Colliers Engineering
400 Columbus Avenue, Ste 180 E
Valhalla, NY 10595

Customer Loyalty through Client Satisfaction

Site Code: 21007271 1010
Station ID:
ROUTE 9D (NORTH OF CRAIG HOUSE LANE
& SOUTH OF KRISTY DRIVE)
Latitude: 0' 0.0000 Undefined

NB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classed	Total
12/09/21	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
01:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
02:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
03:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
04:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
05:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
06:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
12 PM	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
13:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
14:00	1	126	30	3	10	0	0	0	0	0	0	0	0	0	170
15:00	4	255	68	8	15	4	0	0	0	0	0	0	0	0	354
16:00	5	279	73	1	10	2	1	0	0	0	0	0	0	0	371
17:00	2	259	39	0	9	0	0	0	0	0	0	0	0	0	309
18:00	1	176	27	1	8	0	0	1	0	0	0	0	0	0	214
19:00	0	104	13	0	8	1	0	0	1	0	0	0	0	0	127
20:00	0	100	12	0	2	0	0	0	0	0	0	0	0	0	114
21:00	2	59	9	0	1	0	0	0	0	0	0	0	0	0	71
22:00	0	47	6	0	0	0	0	0	0	0	0	0	0	0	53
23:00	1	36	2	0	1	0	0	0	0	0	0	0	0	0	40
Total	16	1441	279	13	64	7	1	1	1	0	0	0	0	0	1823
Percent	0.9%	79.0%	15.3%	0.7%	3.5%	0.4%	0.1%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak Vol.															
PM Peak	16:00	16:00	16:00	15:00	15:00	15:00	16:00	18:00	19:00						
Vol.	5	279	73	8	15	4	1	1	1						

Project: MIRBEAU BEACON
Location: BEACON, NY
Job No. 21007271A

Colliers Engineering
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Customer Loyalty through Client Satisfaction

Site Code: 21007271 1010
Station ID:
ROUTE 9D (NORTH OF CRAIG HOUSE LANE
& SOUTH OF KRISTY DRIVE)
Latitude: 0' 0.0000 Undefined

NB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classed	Total
12/10/21	0	15	3	0	2	0	0	0	0	0	0	0	0	0	20
01:00	0	8	2	0	0	0	0	0	0	0	0	0	0	0	10
02:00	0	4	2	0	2	0	0	0	0	0	0	0	0	0	8
03:00	0	4	2	0	1	0	0	0	0	0	0	0	0	0	7
04:00	0	6	1	0	1	0	0	0	0	0	0	0	0	0	8
05:00	0	25	4	2	1	0	0	0	0	0	0	0	0	0	32
06:00	0	65	15	2	3	0	0	0	2	0	0	0	0	0	87
07:00	4	116	32	2	9	0	0	0	2	0	0	0	0	0	165
08:00	0	119	34	4	5	0	0	1	0	0	0	0	0	0	163
09:00	2	132	33	0	15	1	0	2	0	0	0	0	0	0	185
10:00	2	109	22	1	9	0	0	0	0	0	0	0	0	0	143
11:00	0	137	37	0	8	0	1	1	0	0	0	0	0	0	184
12 PM	1	154	32	4	10	1	0	1	0	0	0	0	0	0	203
13:00	1	143	30	1	7	4	1	1	0	1	0	0	1	0	190
14:00	0	192	41	1	6	1	0	0	0	0	0	0	0	0	241
15:00	2	250	53	8	12	4	0	1	1	0	0	0	0	0	331
16:00	4	291	71	0	12	1	0	0	0	0	0	0	0	0	379
17:00	3	258	37	0	12	2	0	2	1	0	0	0	0	0	315
18:00	3	221	25	0	7	0	0	0	0	0	0	0	0	0	256
19:00	0	162	18	1	2	0	0	0	0	0	0	0	0	0	183
20:00	0	96	14	0	2	0	0	0	0	0	0	0	0	0	112
21:00	0	79	10	0	3	0	0	0	0	0	0	0	0	0	92
22:00	0	71	11	0	1	0	0	0	0	0	0	0	0	0	83
23:00	0	53	10	0	0	0	0	0	0	0	0	0	0	0	63
Total	22	2710	539	26	130	14	2	9	6	1	0	0	1	0	3460
Percent	0.6%	78.3%	15.6%	0.8%	3.8%	0.4%	0.1%	0.3%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak	07:00	11:00	11:00	08:00	09:00	09:00	11:00	09:00	06:00						
Vol.	4	137	37	4	15	1	1	2	2						
PM Peak	16:00	16:00	16:00	15:00	15:00	13:00	13:00	17:00	15:00	13:00			13:00		
Vol.	4	291	71	8	12	4	1	2	1	1			1		

Project: MIRBEAU BEACON
Location: BEACON, NY
Job No. 21007271A

Colliers Engineering
400 Columbus Avenue, Ste 180 E
Valhalla, NY 10595

Customer Loyalty through Client Satisfaction

Site Code: 21007271 1010
Station ID:
ROUTE 9D (NORTH OF CRAIG HOUSE LANE
& SOUTH OF KRISTY DRIVE)
Latitude: 0' 0.0000 Undefined

NB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classed	Total
12/11/21	0	30	3	0	0	0	0	0	0	0	0	0	0	0	33
01:00	0	20	1	0	0	0	0	0	0	0	0	0	0	0	21
02:00	0	7	0	0	0	0	0	0	0	0	0	0	0	0	7
03:00	0	4	1	0	1	0	0	0	0	0	0	0	0	0	6
04:00	0	6	0	0	1	0	0	0	0	0	0	0	0	0	7
05:00	0	6	3	2	0	0	0	0	0	0	0	0	0	0	11
06:00	0	25	4	0	1	0	0	0	1	0	0	0	0	0	31
07:00	1	34	5	0	4	0	0	0	0	0	0	0	0	0	44
08:00	0	74	12	1	5	1	0	0	2	0	0	0	0	0	95
09:00	0	103	23	1	2	2	0	0	0	0	0	0	0	0	131
10:00	0	155	25	0	6	0	0	2	0	1	0	0	0	0	189
11:00	2	183	21	0	3	0	0	0	0	0	0	0	0	0	209
12 PM	9	185	23	0	6	1	1	0	0	0	0	0	0	0	225
13:00	29	167	61	0	8	0	0	0	0	0	0	0	0	0	265
14:00	35	185	55	0	4	16	0	0	0	0	0	0	0	0	295
15:00	79	169	69	1	4	18	0	0	0	0	0	0	0	0	340
16:00	88	157	84	1	2	21	0	0	0	1	0	0	0	0	354
17:00	74	126	74	0	2	11	0	0	0	1	0	0	0	0	288
18:00	59	105	50	0	1	7	0	0	0	0	0	0	0	0	222
19:00	70	133	50	1	3	6	1	0	0	0	0	0	0	0	264
20:00	49	89	34	0	1	6	0	0	0	0	0	0	0	0	179
21:00	32	58	22	0	1	3	0	0	0	0	0	0	0	0	116
22:00	22	61	20	0	1	4	0	0	0	0	0	0	0	0	108
23:00	20	43	15	0	0	4	0	0	0	0	0	0	0	0	82
Total	569	2125	655	7	56	100	2	2	3	3	0	0	0	0	3522
Percent	16.2%	60.3%	18.6%	0.2%	1.6%	2.8%	0.1%	0.1%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	
AM Peak	11:00	11:00	10:00	05:00	10:00	09:00		10:00	08:00	10:00					
Vol.	2	183	25	2	6	2		2	2	1					
PM Peak	16:00	12:00	16:00	15:00	13:00	16:00	12:00			16:00					
Vol.	88	185	84	1	8	21	1			1					

Project: MIRBEAU BEACON
Location: BEACON, NY
Job No. 21007271A

Colliers Engineering
400 Columbus Avenue, Ste 180 E
Valhalla, NY 10595

Customer Loyalty through Client Satisfaction

Site Code: 21007271 1010
Station ID:
ROUTE 9D (NORTH OF CRAIG HOUSE LANE
& SOUTH OF KRISTY DRIVE)
Latitude: 0' 0.0000 Undefined

NB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classed	Total
12/12/21	12	35	14	0	0	2	0	0	0	0	0	0	0	0	63
01:00	8	18	9	0	1	0	0	0	0	0	0	0	0	0	36
02:00	7	9	7	0	0	2	0	0	0	0	0	0	0	0	25
03:00	3	13	4	0	0	0	0	0	0	0	0	0	0	0	20
04:00	2	6	2	0	0	0	0	0	0	0	0	0	0	0	10
05:00	5	18	6	0	0	0	0	0	0	0	0	0	0	0	29
06:00	13	22	10	2	0	0	0	0	0	0	0	0	0	0	47
07:00	14	50	11	0	0	5	0	0	0	0	0	0	0	0	80
08:00	30	81	31	0	1	7	0	0	0	1	0	0	0	0	151
09:00	52	73	52	0	3	5	0	0	0	0	0	0	0	0	185
10:00	76	121	72	0	2	5	0	0	0	0	0	0	0	0	276
11:00	124	163	106	1	5	13	0	0	0	0	0	0	0	0	412
12 PM	128	192	108	1	2	13	0	0	0	0	0	0	0	0	444
13:00	116	150	111	0	4	6	0	1	0	0	0	0	0	0	388
14:00	112	160	101	0	2	12	0	0	1	1	0	0	0	0	389
15:00	111	189	109	0	4	14	0	1	0	0	0	0	0	0	428
16:00	116	196	111	1	1	4	0	0	0	0	0	0	0	0	429
17:00	101	129	82	0	4	3	0	0	0	0	0	0	0	0	319
18:00	51	103	49	0	1	8	0	0	0	0	0	0	0	0	212
19:00	38	95	39	0	2	3	0	0	0	0	0	0	0	0	177
20:00	30	72	27	0	2	2	0	0	0	0	0	0	0	0	133
21:00	16	40	16	0	1	2	0	0	0	0	0	0	0	0	75
22:00	16	29	18	0	0	3	0	0	0	0	0	0	0	0	66
23:00	7	31	8	0	0	1	0	0	0	0	0	0	0	0	47
Total	1188	1995	1103	5	35	110	0	2	1	2	0	0	0	0	4441
Percent	26.8%	44.9%	24.8%	0.1%	0.8%	2.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak	11:00	11:00	11:00	06:00	11:00	11:00				08:00					
Vol.	124	163	106	2	5	13				1					
PM Peak	12:00	16:00	13:00	12:00	13:00	15:00		13:00	14:00	14:00					
Vol.	128	196	111	1	4	14		1	1	1					

Colliers Engineering
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Customer Loyalty through Client Satisfaction

Project: MIRBEAU BEACON
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Site Code: 21007271 1010
Station ID:
ROUTE 9D (NORTH OF CRAIG HOUSE LANE & SOUTH OF KRISTY DRIVE)
Latitude: 0' 0.0000 Undefined

NB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classed	Total
12/13/21	4	22	5	0	0	2	0	0	0	0	0	0	0	0	33
01:00	1	8	1	0	0	1	0	0	0	0	0	0	0	0	11
02:00	0	3	0	0	0	1	0	0	0	0	0	0	0	0	4
03:00	4	5	6	0	0	0	0	0	0	0	0	0	0	0	15
04:00	2	8	1	1	1	0	0	0	0	0	0	0	0	0	13
05:00	6	24	7	2	1	3	0	0	0	0	0	0	0	0	43
06:00	31	55	33	1	1	3	0	0	1	0	0	0	0	0	125
07:00	73	83	69	5	2	4	0	0	0	0	0	0	0	0	236
08:00	80	154	75	7	11	11	0	1	1	0	0	0	1	0	341
09:00	63	154	65	1	5	5	1	1	0	0	0	0	0	0	295
10:00	51	113	57	1	3	6	0	0	0	0	0	0	0	0	231
11:00	67	132	66	1	9	10	0	1	0	0	0	0	0	0	286
12 PM	68	132	71	0	6	7	0	0	0	0	0	0	0	0	284
13:00	71	133	70	1	6	15	0	0	1	0	0	0	0	0	297
14:00	85	142	89	1	4	5	1	0	1	1	0	0	0	0	329
15:00	123	212	127	5	8	20	0	1	1	0	0	0	0	0	497
16:00	153	233	149	2	8	14	1	0	0	0	0	0	1	0	561
17:00	133	222	127	1	6	14	1	0	0	0	0	0	0	0	504
18:00	81	137	74	0	3	5	0	0	0	1	0	0	0	0	301
19:00	45	107	35	0	1	3	0	0	0	0	0	0	0	0	191
20:00	32	68	33	0	1	3	0	0	0	0	0	0	0	0	137
21:00	15	58	17	0	0	1	0	0	0	1	0	0	0	0	92
22:00	12	43	11	0	0	0	0	0	0	0	0	0	0	0	66
23:00	6	19	9	0	1	0	0	0	0	0	0	0	0	0	35
Total	1206	2267	1197	29	77	133	4	4	5	3	0	0	2	0	4927
Percent	24.5%	46.0%	24.3%	0.6%	1.6%	2.7%	0.1%	0.1%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	
AM Peak	08:00	08:00	08:00	08:00	08:00	08:00	09:00	08:00	06:00				08:00		
Vol.	80	154	75	7	11	11	1	1	1				1		
PM Peak	16:00	16:00	16:00	15:00	15:00	15:00	14:00	15:00	13:00	14:00			16:00		
Vol.	153	233	149	5	8	20	1	1	1	1			1		

Project: MIRBEAU BEACON
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Station ID:
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& SOUTH OF KRISTY DRIVE)
Latitude: 0' 0.0000 Undefined

NB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classed	Total
12/14/21	4	17	6	0	0	0	0	0	0	0	0	0	0	0	27
01:00	1	7	1	0	0	0	0	0	0	0	0	0	0	0	9
02:00	0	7	0	0	1	1	0	0	0	0	0	0	0	0	9
03:00	1	4	1	0	2	1	0	0	0	0	0	0	0	0	9
04:00	4	10	4	0	0	0	0	0	0	0	0	0	0	0	18
05:00	8	19	7	2	1	2	0	0	0	0	0	0	0	0	39
06:00	36	55	28	1	4	2	0	0	0	0	0	0	0	0	126
07:00	83	117	74	5	5	8	0	0	0	0	0	0	0	0	292
08:00	88	169	95	3	12	7	0	0	1	0	0	0	0	0	375
09:00	51	132	60	0	12	8	1	0	0	0	0	0	0	0	264
10:00	59	103	62	2	8	10	2	0	0	1	0	0	0	0	247
11:00	71	124	69	2	5	3	0	1	0	0	0	0	0	0	275
12 PM	69	128	70	1	5	11	2	0	0	0	0	0	0	0	286
13:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
15:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
16:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
17:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
18:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
19:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
20:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
21:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
22:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
23:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Total	475	892	477	16	55	53	5	1	1	1	0	0	0	0	1976
Percent	24.0%	45.1%	24.1%	0.8%	2.8%	2.7%	0.3%	0.1%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	
AM Peak	08:00	08:00	08:00	07:00	08:00	10:00	10:00	11:00	08:00	10:00					
Vol.	88	169	95	5	12	10	2	1	1	1					
PM Peak	12:00	12:00	12:00	12:00	12:00	12:00	12:00								
Vol.	69	128	70	1	5	11	2								
Grand Total	3476	11430	4250	96	417	417	14	19	17	10	0	0	3	0	20149
Percent	17.3%	56.7%	21.1%	0.5%	2.1%	2.1%	0.1%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	

Project: MIRBEAU BEACON
Location: BEACON, NY
Job No. 21007271A

Colliers Engineering
400 Columbus Avenue, Ste 180 E
Valhalla, NY 10595

Customer Loyalty through Client Satisfaction

Site Code: 21007271 1010
Station ID:
ROUTE 9D (NORTH OF CRAIG HOUSE LANE
& SOUTH OF KRISTY DRIVE)
Latitude: 0' 0.0000 Undefined

SB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classed	Total
12/09/21	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
01:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
02:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
03:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
04:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
05:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
06:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
12 PM	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
13:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
14:00	2	122	36	3	8	0	0	0	0	0	0	0	0	0	171
15:00	6	159	36	4	19	0	0	1	0	0	0	0	0	0	225
16:00	6	139	33	1	8	2	0	0	0	0	0	0	0	0	189
17:00	2	165	25	0	4	0	0	0	0	0	0	0	0	0	196
18:00	1	113	14	0	6	0	0	0	1	0	0	0	0	0	135
19:00	1	78	7	0	1	0	0	0	0	0	0	0	0	0	87
20:00	0	66	6	0	1	0	0	0	0	0	0	0	0	0	73
21:00	2	50	11	0	0	0	0	0	0	0	0	0	0	0	63
22:00	0	36	4	0	1	0	0	0	0	0	0	0	0	0	41
23:00	1	20	2	0	1	0	0	0	0	0	0	0	0	0	24
Total	21	948	174	8	49	2	0	1	1	0	0	0	0	0	1204
Percent	1.7%	78.7%	14.5%	0.7%	4.1%	0.2%	0.0%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak Vol.															
PM Peak Vol.	15:00 6	17:00 165	14:00 36	15:00 4	15:00 19	16:00 2		15:00 1	18:00 1						

Project: MIRBEAU BEACON
Location: BEACON, NY
Job No. 21007271A

Colliers Engineering
400 Columbus Avenue, Ste 180 E
Valhalla, NY 10595

Customer Loyalty through Client Satisfaction

Site Code: 21007271 1010
Station ID:
ROUTE 9D (NORTH OF CRAIG HOUSE LANE & SOUTH OF KRISTY DRIVE)
Latitude: 0' 0.0000 Undefined

SB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classed	Total
12/10/21	0	2	3	0	0	0	0	0	0	0	0	0	0	0	5
01:00	0	6	0	0	0	0	0	0	0	0	0	0	0	0	6
02:00	0	3	1	0	1	0	0	0	0	0	0	0	0	0	5
03:00	0	6	1	0	1	0	0	0	0	0	0	0	0	0	8
04:00	0	24	5	1	1	0	0	0	0	0	0	0	0	0	31
05:00	0	68	19	1	6	0	0	0	0	0	0	0	0	0	94
06:00	0	166	39	1	9	0	0	0	2	0	0	0	0	0	217
07:00	1	220	46	3	6	0	0	0	2	0	0	0	0	0	278
08:00	0	204	39	4	5	0	0	1	0	0	0	0	0	0	253
09:00	3	117	30	0	10	1	1	0	0	0	0	0	0	0	162
10:00	2	123	31	1	7	0	1	0	0	0	0	0	0	0	165
11:00	0	134	28	3	19	0	1	1	2	1	0	0	0	0	189
12 PM	2	152	22	2	16	0	0	2	0	1	0	0	0	0	197
13:00	2	140	23	0	11	1	0	0	1	0	0	0	0	0	178
14:00	0	158	42	4	8	2	0	0	1	0	0	0	0	0	215
15:00	7	201	44	4	7	0	0	1	0	0	0	0	0	0	264
16:00	4	200	30	1	9	3	0	0	0	0	0	0	0	0	247
17:00	5	172	27	0	6	0	0	0	0	0	0	0	0	0	210
18:00	2	140	26	0	1	0	0	0	0	0	0	0	0	0	169
19:00	1	90	26	0	2	0	0	0	0	0	0	0	0	0	119
20:00	0	71	7	0	0	0	0	0	0	0	0	0	0	0	78
21:00	0	82	10	0	3	0	0	0	0	0	0	0	0	0	95
22:00	0	51	5	0	1	0	0	0	0	0	0	0	0	0	57
23:00	0	36	1	0	1	0	0	0	0	0	0	0	0	0	38
Total	29	2566	505	25	130	7	3	5	8	2	0	0	0	0	3280
Percent	0.9%	78.2%	15.4%	0.8%	4.0%	0.2%	0.1%	0.2%	0.2%	0.1%	0.0%	0.0%	0.0%	0.0%	
AM Peak	09:00	07:00	07:00	08:00	11:00	09:00	09:00	08:00	06:00	11:00					
Vol.	3	220	46	4	19	1	1	1	2	1					
PM Peak	15:00	15:00	15:00	14:00	12:00	16:00		12:00	13:00	12:00					
Vol.	7	201	44	4	16	3		2	1	1					

Project: MIRBEAU BEACON
Location: BEACON, NY
Job No. 21007271A

Colliers Engineering
400 Columbus Avenue, Ste 180 E
Valhalla, NY 10595

Customer Loyalty through Client Satisfaction

Site Code: 21007271 1010
Station ID:
ROUTE 9D (NORTH OF CRAIG HOUSE LANE & SOUTH OF KRISTY DRIVE)
Latitude: 0' 0.0000 Undefined

SB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classed	Total
12/11/21	0	14	1	0	0	0	0	0	0	0	0	0	0	0	15
01:00	0	7	2	0	0	0	0	0	0	0	0	0	0	0	9
02:00	0	4	1	0	0	0	0	0	0	0	0	0	0	0	5
03:00	0	5	2	0	0	0	0	0	0	0	0	0	0	0	7
04:00	0	8	1	0	1	0	0	0	0	0	0	0	0	0	10
05:00	0	31	8	1	1	0	0	0	0	0	0	0	0	0	41
06:00	0	45	3	1	3	0	0	0	1	0	0	0	0	0	53
07:00	0	53	17	0	3	1	0	0	1	0	0	0	0	0	75
08:00	0	85	21	0	2	0	0	0	0	0	0	0	0	0	108
09:00	2	108	19	1	11	1	0	1	1	1	0	0	0	0	145
10:00	0	134	17	0	1	0	0	0	0	0	0	0	0	0	152
11:00	1	192	31	1	6	2	0	0	0	0	0	0	0	0	233
12 PM	1	155	34	0	8	0	0	0	0	0	0	0	0	0	198
13:00	3	136	31	1	17	1	0	1	0	0	0	0	0	0	190
14:00	3	192	22	0	8	0	0	0	0	0	0	0	0	0	225
15:00	7	222	21	0	7	0	0	1	1	0	0	0	0	0	259
16:00	6	168	21	0	4	3	0	0	0	0	0	0	0	0	202
17:00	4	144	14	0	2	0	0	0	0	0	0	0	0	0	164
18:00	3	127	13	0	3	0	0	0	0	0	0	0	0	0	146
19:00	1	86	9	0	3	0	0	0	0	0	0	0	0	0	99
20:00	2	68	10	0	0	0	0	0	0	0	0	0	0	0	80
21:00	1	62	5	0	1	0	0	0	0	0	0	0	0	0	69
22:00	0	52	5	0	1	0	0	0	0	0	0	0	0	0	58
23:00	1	56	4	0	2	1	0	0	0	0	0	0	0	0	64
Total	35	2154	312	5	84	9	0	3	4	1	0	0	0	0	2607
Percent	1.3%	82.6%	12.0%	0.2%	3.2%	0.3%	0.0%	0.1%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak	09:00	11:00	11:00	05:00	09:00	11:00		09:00	06:00	09:00					
Vol.	2	192	31	1	11	2		1	1	1					
PM Peak	15:00	15:00	12:00	13:00	13:00	16:00		13:00	15:00						
Vol.	7	222	34	1	17	3		1	1						

Project: MIRBEAU BEACON
Location: BEACON, NY
Job No. 21007271A

Colliers Engineering
400 Columbus Avenue, Ste 180 E
Valhalla, NY 10595

Customer Loyalty through Client Satisfaction

Site Code: 21007271 1010
Station ID:
ROUTE 9D (NORTH OF CRAIG HOUSE LANE
& SOUTH OF KRISTY DRIVE)
Latitude: 0' 0.0000 Undefined

SB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classed	Total
12/12/21	0	22	3	0	0	0	0	0	0	0	0	0	0	0	25
01:00	0	10	1	0	0	0	0	0	0	0	0	0	0	0	11
02:00	0	8	0	0	0	0	0	0	0	0	0	0	0	0	8
03:00	0	6	1	0	0	0	0	0	0	0	0	0	0	0	7
04:00	0	9	3	0	0	0	0	0	0	0	0	0	0	0	12
05:00	0	15	2	0	1	0	0	0	0	0	0	0	0	0	18
06:00	0	33	4	0	1	0	0	0	0	0	0	0	0	0	38
07:00	2	59	8	0	1	0	0	0	1	0	0	0	0	0	71
08:00	1	69	7	0	2	0	0	0	0	0	0	0	0	0	79
09:00	1	101	12	0	0	1	0	0	0	0	0	0	0	0	115
10:00	1	174	23	1	1	0	0	0	0	0	0	0	0	0	200
11:00	5	195	27	0	3	0	0	0	0	0	0	0	0	0	230
12 PM	4	204	26	0	4	2	0	0	0	0	0	0	0	0	240
13:00	9	219	24	0	2	0	0	0	1	0	0	0	0	0	255
14:00	3	215	38	0	3	0	0	0	0	0	0	0	0	0	259
15:00	10	238	32	1	5	0	0	0	0	0	0	0	0	0	286
16:00	4	202	25	1	2	1	0	1	0	0	0	0	0	0	236
17:00	2	178	20	0	1	0	0	0	0	0	0	0	0	0	201
18:00	3	125	17	0	0	0	0	0	0	0	0	0	0	0	145
19:00	1	89	11	0	3	1	0	0	1	0	0	0	0	0	106
20:00	2	78	7	0	0	0	0	0	0	0	0	0	0	0	87
21:00	0	43	6	0	1	0	0	0	0	0	0	0	0	0	50
22:00	1	28	5	0	0	0	0	0	0	0	0	0	0	0	34
23:00	0	17	1	0	2	0	0	0	0	0	0	0	0	0	20
Total	49	2337	303	3	32	5	0	1	3	0	0	0	0	0	2733
Percent	1.8%	85.5%	11.1%	0.1%	1.2%	0.2%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak	11:00	11:00	11:00	10:00	11:00	09:00			07:00						
Vol.	5	195	27	1	3	1			1						
PM Peak	15:00	15:00	14:00	15:00	15:00	12:00		16:00	13:00						
Vol.	10	238	38	1	5	2		1	1						

Project: MIRBEAU BEACON
Location: BEACON, NY
Job No. 21007271A

Colliers Engineering
400 Columbus Avenue, Ste 180 E
Valhalla, NY 10595

Customer Loyalty through Client Satisfaction

Site Code: 21007271 1010
Station ID:
ROUTE 9D (NORTH OF CRAIG HOUSE LANE & SOUTH OF KRISTY DRIVE)
Latitude: 0' 0.0000 Undefined

SB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classed	Total
12/13/21	1	11	0	0	1	0	0	0	0	0	0	0	0	0	13
01:00	0	3	0	0	0	0	0	0	0	0	0	0	0	0	3
02:00	0	5	2	0	0	0	0	0	0	0	0	0	0	0	7
03:00	0	7	1	0	2	0	0	0	0	0	0	0	0	0	10
04:00	0	27	3	2	1	0	0	0	0	0	0	0	0	0	33
05:00	1	78	24	0	3	0	0	0	0	0	0	0	0	0	106
06:00	2	166	41	2	3	0	0	0	0	0	0	0	0	0	214
07:00	7	240	46	5	13	1	1	2	2	0	1	0	0	0	318
08:00	7	204	37	3	7	3	0	4	0	0	0	0	0	0	265
09:00	3	122	33	1	10	0	0	1	1	0	0	0	0	0	171
10:00	1	123	24	1	10	1	0	0	0	0	0	0	0	0	160
11:00	5	127	21	2	8	1	0	2	0	0	0	0	0	0	166
12 PM	3	134	32	0	11	0	0	1	1	0	0	0	0	0	182
13:00	5	132	35	0	9	1	1	0	0	0	0	0	0	0	183
14:00	4	169	35	4	9	1	0	1	0	0	0	0	0	0	223
15:00	6	171	41	3	8	2	0	1	1	0	0	0	0	0	233
16:00	11	167	35	0	9	2	0	1	0	0	0	0	0	0	225
17:00	3	154	26	0	2	2	0	0	0	0	0	0	0	0	187
18:00	2	128	15	0	1	0	0	0	0	0	0	0	0	0	146
19:00	1	75	9	0	1	0	0	0	0	0	0	0	0	0	86
20:00	3	73	4	0	2	0	0	0	0	0	0	0	0	0	82
21:00	0	38	4	0	0	0	0	0	0	0	0	0	0	0	42
22:00	0	28	3	0	0	0	0	0	0	0	0	0	0	0	31
23:00	0	15	4	0	2	0	0	0	0	0	0	0	0	0	21
Total	65	2397	475	23	112	14	2	13	5	0	1	0	0	0	3107
Percent	2.1%	77.1%	15.3%	0.7%	3.6%	0.5%	0.1%	0.4%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak	07:00	07:00	07:00	07:00	07:00	08:00	07:00	08:00	07:00		07:00				
Vol.	7	240	46	5	13	3	1	4	2		1				
PM Peak	16:00	15:00	15:00	14:00	12:00	15:00	13:00	12:00	12:00						
Vol.	11	171	41	4	11	2	1	1	1						

Project: MIRBEAU BEACON
Location: BEACON, NY
Job No. 21007271A

Colliers Engineering
400 Columbus Avenue, Ste 180 E
Valhalla, NY 10595

Customer Loyalty through Client Satisfaction

Site Code: 21007271 1010
Station ID:
ROUTE 9D (NORTH OF CRAIG HOUSE LANE & SOUTH OF KRISTY DRIVE)
Latitude: 0' 0.0000 Undefined

SB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classed	Total
12/14/21	0	4	0	0	0	0	0	0	0	0	0	0	0	0	4
01:00	0	3	0	0	0	0	0	0	0	0	0	0	0	0	3
02:00	0	3	0	0	0	0	0	0	0	0	0	0	0	0	3
03:00	0	4	1	0	1	0	0	0	0	0	0	0	0	0	6
04:00	0	34	6	1	1	0	0	0	0	0	0	0	0	0	42
05:00	1	85	27	1	3	0	0	0	0	0	0	0	0	0	117
06:00	3	210	43	2	1	1	0	1	0	0	0	0	0	0	261
07:00	2	252	51	3	11	2	0	1	2	0	0	0	0	0	324
08:00	6	193	46	4	10	6	0	1	0	0	0	0	0	0	266
09:00	1	128	29	2	8	0	0	1	0	0	0	0	0	0	169
10:00	3	123	32	2	7	1	0	1	0	0	0	0	0	0	169
11:00	2	142	30	2	4	1	1	0	0	0	0	0	0	0	182
12 PM	5	144	33	2	13	0	0	1	0	0	0	0	0	0	198
13:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
15:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
16:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
17:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
18:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
19:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
20:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
21:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
22:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
23:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Total	23	1325	298	19	59	11	1	6	2	0	0	0	0	0	1744
Percent	1.3%	76.0%	17.1%	1.1%	3.4%	0.6%	0.1%	0.3%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak	08:00	07:00	07:00	08:00	07:00	08:00	11:00	06:00	07:00						
Vol.	6	252	51	4	11	6	1	1	2						
PM Peak	12:00	12:00	12:00	12:00	12:00			12:00							
Vol.	5	144	33	2	13			1							
Grand Total	222	11727	2067	83	466	48	6	29	23	3	1	0	0	0	14675
Percent	1.5%	79.9%	14.1%	0.6%	3.2%	0.3%	0.0%	0.2%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	

Project: MIRBEAU BEACON
Location: BEACON, NY
Job No. 21007271A

Colliers Engineering

400 Columbus Avenue, Ste 180 E
Valhalla, NY 10595

Customer Loyalty through Client Satisfaction

Site Code: 21007271 1010
Station ID:
ROUTE 9D (NORTH OF CRAIG HOUSE LANE & SOUTH OF KRISTY DRIVE)
Latitude: 0' 0.0000 Undefined

NB

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	85th Percent	95th Percent
12/09/21	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
01:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
02:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
03:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
04:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
05:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
06:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
12 PM	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
13:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
14:00	5	**1**	0	6	41	65	37	12	3	0	0	0	0	0	170	43	47
15:00	5	1	0	5	64	135	**99**	**38**	1	**3**	**1**	**2**	0	0	354	44	48
16:00	**11**	0	**1**	3	**87**	**165**	79	24	2	0	0	0	0	0	**372**	43	46
17:00	4	0	0	0	58	121	83	36	6	1	0	0	0	0	309	44	48
18:00	3	0	0	**11**	29	69	68	24	**10**	0	0	0	0	0	214	45	49
19:00	0	0	0	2	15	43	44	20	3	0	0	0	0	0	127	45	49
20:00	1	0	0	2	14	28	37	24	7	1	0	0	0	0	114	48	51
21:00	1	0	0	1	8	19	26	12	2	2	0	0	0	0	71	47	51
22:00	0	0	0	2	3	18	19	7	1	3	0	0	0	0	53	47	55
23:00	1	0	1	1	6	6	9	9	4	3	0	0	0	0	40	51	56
Total	31	2	2	33	325	669	501	206	39	13	1	2	0	0	1824		
Percent	1.7%	0.1%	0.1%	1.8%	17.8%	36.7%	27.5%	11.3%	2.1%	0.7%	0.1%	0.1%	0.0%	0.0%			
AM Peak Vol.																	
PM Peak Vol.	16:00 11	14:00 1	16:00 1	18:00 11	16:00 87	16:00 165	15:00 99	15:00 38	18:00 10	15:00 3	15:00 1	15:00 2			16:00 372		

Project: MIRBEAU BEACON
Location: BEACON, NY
Job No. 21007271A

Colliers Engineering

400 Columbus Avenue, Ste 180 E
Valhalla, NY 10595

Customer Loyalty through Client Satisfaction

Site Code: 21007271 1010
Station ID:
ROUTE 9D (NORTH OF CRAIG HOUSE LANE & SOUTH OF KRISTY DRIVE)
Latitude: 0' 0.0000 Undefined

NB

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	85th Percent	95th Percent
12/10/21	0	0	0	0	1	1	7	6	1	2	**1**	**1**	0	0	20	57	65
01:00	0	0	0	0	1	0	2	5	1	1	0	0	0	0	10	52	57
02:00	0	0	0	0	1	0	3	2	2	0	0	0	0	0	8	52	53
03:00	0	**1**	0	0	0	4	1	1	0	0	0	0	0	0	7	44	48
04:00	0	0	0	0	2	3	1	0	2	0	0	0	0	0	8	52	54
05:00	0	0	0	0	0	16	8	5	1	1	1	0	0	0	32	48	57
06:00	0	0	1	1	27	30	18	6	3	0	1	0	0	0	87	44	49
07:00	**8**	0	0	**4**	32	59	43	16	1	1	0	0	**2**	0	166	44	48
08:00	1	1	0	3	25	48	42	**33**	6	**3**	0	0	0	**1**	163	47	50
09:00	3	0	**2**	3	29	**65**	46	30	5	2	0	0	0	0	**185**	46	49
10:00	0	0	0	2	23	54	45	15	3	1	0	0	0	0	143	44	48
11:00	0	0	0	4	**35**	61	**49**	25	**10**	0	0	0	0	0	184	46	50
12 PM	1	**1**	0	**7**	21	86	58	27	1	1	0	0	0	0	203	44	48
13:00	4	1	0	5	52	52	43	24	**9**	0	0	0	0	0	190	45	49
14:00	3	0	0	2	43	89	69	32	3	0	0	0	0	0	241	44	48
15:00	4	0	**1**	3	51	145	94	27	6	0	0	0	0	0	331	44	48
16:00	**10**	0	0	2	**70**	**166**	84	44	4	0	0	0	0	0	**380**	44	48
17:00	4	0	0	0	39	124	95	**47**	5	0	0	0	0	**1**	315	45	48
18:00	0	0	0	2	27	87	**104**	28	8	0	0	0	0	0	256	44	49
19:00	0	0	0	2	26	56	69	27	3	0	0	0	0	0	183	45	48
20:00	1	0	0	2	11	30	45	20	3	0	0	0	0	0	112	46	49
21:00	0	0	0	4	7	27	31	16	5	1	**1**	0	0	0	92	47	52
22:00	0	0	0	2	6	28	19	21	1	**4**	1	0	0	1	83	48	56
23:00	0	0	0	0	3	14	20	19	6	1	0	0	0	0	63	49	53
Total	39	4	4	48	532	1245	996	476	89	18	5	1	2	3	3462		
Percent	1.1%	0.1%	0.1%	1.4%	15.4%	36.0%	28.8%	13.7%	2.6%	0.5%	0.1%	0.0%	0.1%	0.1%			
AM Peak	07:00	03:00	09:00	07:00	11:00	09:00	11:00	08:00	11:00	08:00	00:00	00:00	07:00	08:00	09:00		
Vol.	8	1	2	4	35	65	49	33	10	3	1	1	2	1	185		
PM Peak	16:00	12:00	15:00	12:00	16:00	16:00	18:00	17:00	13:00	22:00	21:00			17:00	16:00		
Vol.	10	1	1	7	70	166	104	47	9	4	1			1	380		

Project: MIRBEAU BEACON
Location: BEACON, NY
Job No. 21007271A

Colliers Engineering
400 Columbus Avenue, Ste 180 E
Valhalla, NY 10595

Customer Loyalty through Client Satisfaction

Site Code: 21007271 1010
Station ID:
ROUTE 9D (NORTH OF CRAIG HOUSE LANE & SOUTH OF KRISTY DRIVE)
Latitude: 0' 0.0000 Undefined

NB

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	85th Percent	95th Percent
12/11/21	0	0	0	0	2	17	4	5	4	1	0	0	0	0	33	50	54
01:00	0	0	0	0	2	5	8	4	2	0	0	0	0	0	21	48	52
02:00	0	0	0	0	1	0	2	2	1	1	0	0	0	0	7	54	58
03:00	0	0	0	0	0	2	1	2	0	1	0	0	0	0	6	55	58
04:00	0	0	0	0	1	4	1	0	0	0	0	**1**	0	0	7	44	68
05:00	0	0	0	1	2	3	1	1	3	0	0	0	0	0	11	52	54
06:00	0	0	0	0	8	7	12	2	1	1	0	0	0	0	31	44	52
07:00	1	0	0	0	5	6	18	11	0	**3**	0	0	0	0	44	48	56
08:00	0	0	0	1	16	35	23	12	**8**	0	0	0	0	0	95	47	52
09:00	0	0	0	6	31	49	35	8	2	0	0	0	0	0	131	43	47
10:00	3	0	0	**7**	30	64	**53**	**22**	8	2	0	0	0	0	189	45	50
11:00	**7**	0	0	5	**56**	**76**	42	19	4	0	0	0	0	0	**209**	44	48
12 PM	15	0	1	5	39	75	63	23	4	0	0	0	0	0	225	44	48
13:00	39	0	0	4	30	81	59	**42**	**11**	1	0	0	0	0	267	46	49
14:00	40	2	**4**	21	66	75	66	20	3	0	0	0	0	0	297	43	47
15:00	47	**3**	2	**27**	75	97	64	21	4	1	0	0	0	**1**	342	43	47
16:00	47	1	4	22	**96**	**108**	57	17	2	0	**1**	0	0	1	**356**	42	45
17:00	25	0	1	16	44	100	**83**	18	0	0	1	0	0	0	288	43	46
18:00	27	0	1	9	42	47	65	20	11	0	0	0	0	0	222	44	49
19:00	**58**	0	0	18	38	76	43	23	6	0	0	0	0	1	263	43	48
20:00	30	0	0	15	36	46	38	11	3	0	0	0	0	0	179	43	47
21:00	21	1	0	8	13	32	25	10	4	**2**	0	0	0	0	116	44	50
22:00	18	0	0	10	17	31	24	5	3	0	0	0	0	0	108	43	47
23:00	11	1	1	5	16	21	19	9	0	0	0	0	0	0	83	44	47
Total	389	8	14	180	666	1057	806	307	84	13	2	1	0	3	3530		
Percent	11.0%	0.2%	0.4%	5.1%	18.9%	29.9%	22.8%	8.7%	2.4%	0.4%	0.1%	0.0%	0.0%	0.1%			
AM Peak	11:00			10:00	11:00	11:00	10:00	10:00	08:00	07:00		04:00			11:00		
Vol.	7			7	56	76	53	22	8	3		1			209		
PM Peak	19:00	15:00	14:00	15:00	16:00	16:00	17:00	13:00	13:00	21:00	16:00			15:00	16:00		
Vol.	58	3	4	27	96	108	83	42	11	2	1			1	356		

Project: MIRBEAU BEACON
Location: BEACON, NY
Job No. 21007271A

Colliers Engineering

400 Columbus Avenue, Ste 180 E
Valhalla, NY 10595

Customer Loyalty through Client Satisfaction

Site Code: 21007271 1010
Station ID:
ROUTE 9D (NORTH OF CRAIG HOUSE LANE & SOUTH OF KRISTY DRIVE)
Latitude: 0' 0.0000 Undefined

NB

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	85th Percent	95th Percent
12/12/21	8	0	0	0	7	16	20	8	2	1	**1**	0	0	0	63	46	52
01:00	3	0	0	0	2	8	11	10	0	2	0	0	0	0	36	48	55
02:00	3	1	0	0	4	6	8	3	0	0	0	0	0	0	25	44	47
03:00	3	0	0	1	1	6	1	4	3	0	1	0	0	0	20	51	60
04:00	2	0	0	0	3	2	2	1	0	1	0	0	0	0	11	46	57
05:00	4	0	0	2	3	4	4	7	1	2	1	**1**	0	0	29	53	62
06:00	9	0	0	2	9	17	6	3	0	1	0	0	0	0	47	42	47
07:00	12	1	**2**	4	8	16	29	2	1	**5**	0	0	0	0	80	44	56
08:00	18	0	2	8	35	41	20	23	3	0	0	0	0	1	151	45	49
09:00	28	**2**	0	5	38	52	43	13	5	0	0	0	0	0	186	43	48
10:00	38	0	1	15	41	67	69	**37**	**9**	0	0	0	0	0	277	45	49
11:00	**62**	0	2	**20**	**71**	**111**	**104**	35	3	1	0	0	0	**2**	**411**	43	47
12 PM	**61**	1	2	26	84	114	**125**	24	5	0	0	0	0	**1**	**443**	43	46
13:00	50	1	**6**	17	67	109	104	**30**	5	0	0	0	0	0	389	43	47
14:00	45	0	0	23	77	115	103	25	3	0	0	0	0	0	391	43	46
15:00	44	1	5	**35**	93	114	101	30	3	0	**1**	**1**	0	1	429	43	47
16:00	42	0	0	29	**107**	**157**	77	15	2	0	1	0	0	0	430	41	44
17:00	36	0	3	19	63	114	66	14	5	0	0	0	0	0	320	42	46
18:00	24	**2**	0	7	44	72	36	22	5	0	0	0	0	0	212	44	48
19:00	22	0	2	12	33	45	41	19	3	0	0	0	0	0	177	44	48
20:00	16	0	1	13	25	23	37	9	4	**5**	0	0	0	0	133	44	52
21:00	5	0	0	3	14	20	16	12	1	3	0	0	0	1	75	47	51
22:00	5	0	0	3	7	22	15	9	2	3	0	0	0	0	66	47	54
23:00	3	0	0	2	3	9	14	4	**9**	3	0	0	0	0	47	52	56
Total	543	9	26	246	839	1260	1052	359	74	27	5	2	0	6	4448		
Percent	12.2%	0.2%	0.6%	5.5%	18.9%	28.3%	23.7%	8.1%	1.7%	0.6%	0.1%	0.0%	0.0%	0.1%			
AM Peak	11:00	09:00	07:00	11:00	11:00	11:00	11:00	10:00	10:00	07:00	00:00	05:00		11:00	11:00		
Vol.	62	2	2	20	71	111	104	37	9	5	1	1		2	411		
PM Peak	12:00	18:00	13:00	15:00	16:00	16:00	12:00	13:00	23:00	20:00	15:00	15:00		12:00	12:00		
Vol.	61	2	6	35	107	157	125	30	9	5	1	1		1	443		

Project: MIRBEAU BEACON
Location: BEACON, NY
Job No. 21007271A

Colliers Engineering
400 Columbus Avenue, Ste 180 E
Valhalla, NY 10595

Customer Loyalty through Client Satisfaction

Site Code: 21007271 1010
Station ID:
ROUTE 9D (NORTH OF CRAIG HOUSE LANE & SOUTH OF KRISTY DRIVE)
Latitude: 0' 0.0000 Undefined

NB

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	85th Percent	95th Percent
12/13/21	3	0	0	1	3	6	12	4	2	1	**1**	0	0	0	33	48	56
01:00	1	0	0	0	1	1	4	1	2	1	0	0	0	0	11	53	57
02:00	0	0	1	1	1	0	0	1	0	0	0	0	0	0	4	47	49
03:00	0	0	0	0	3	4	6	1	0	1	0	0	0	0	15	44	56
04:00	2	0	0	0	5	4	2	0	1	0	0	0	0	0	14	42	51
05:00	0	0	0	5	11	8	11	1	1	**6**	0	0	0	0	43	52	58
06:00	20	0	2	11	28	37	18	4	3	2	0	0	0	0	125	42	48
07:00	44	3	2	12	44	86	28	11	**5**	2	0	0	0	0	237	41	47
08:00	51	**4**	3	**27**	**81**	82	**65**	**24**	1	2	0	0	0	0	**340**	43	47
09:00	41	1	**4**	22	59	**102**	50	12	4	0	0	0	0	**1**	296	42	45
10:00	31	1	0	16	44	85	36	14	4	0	1	0	0	0	232	42	47
11:00	**52**	0	2	12	65	72	59	19	2	1	0	0	0	0	284	43	47
12 PM	43	1	1	10	56	85	61	24	5	0	0	0	0	0	286	43	48
13:00	38	2	0	20	57	108	40	24	**7**	1	0	0	0	0	297	43	48
14:00	46	**3**	**2**	19	68	75	93	23	0	1	0	0	0	0	330	43	46
15:00	75	2	2	29	128	136	97	**26**	2	0	0	0	0	0	497	42	45
16:00	**82**	3	1	**43**	**138**	**177**	89	20	5	1	0	0	0	**2**	**561**	41	44
17:00	56	2	2	27	117	173	**103**	20	2	0	0	**1**	0	0	503	42	44
18:00	32	0	2	16	75	75	78	14	7	2	0	0	0	0	301	43	47
19:00	23	0	0	11	39	48	47	21	2	0	0	0	0	0	191	44	48
20:00	18	0	0	9	23	40	30	15	1	1	0	0	0	0	137	44	48
21:00	10	0	0	3	15	27	13	17	6	1	0	0	0	0	92	47	51
22:00	8	0	0	1	7	9	23	8	7	**3**	**1**	0	0	0	67	50	56
23:00	2	0	0	3	4	11	7	5	3	1	0	0	0	0	36	48	53
Total	678	22	24	298	1072	1451	972	309	72	27	3	1	0	3	4932		
Percent	13.7%	0.4%	0.5%	6.0%	21.7%	29.4%	19.7%	6.3%	1.5%	0.5%	0.1%	0.0%	0.0%	0.1%			
AM Peak	11:00	08:00	09:00	08:00	08:00	09:00	08:00	08:00	07:00	05:00	00:00			09:00	08:00		
Vol.	52	4	4	27	81	102	65	24	5	6	1			1	340		
PM Peak	16:00	14:00	14:00	16:00	16:00	16:00	17:00	15:00	13:00	22:00	22:00	17:00		16:00	16:00		
Vol.	82	3	2	43	138	177	103	26	7	3	1	1		2	561		

Project: MIRBEAU BEACON
Location: BEACON, NY
Job No. 21007271A

Colliers Engineering
400 Columbus Avenue, Ste 180 E
Valhalla, NY 10595

Customer Loyalty through Client Satisfaction

Site Code: 21007271 1010
Station ID:
ROUTE 9D (NORTH OF CRAIG HOUSE LANE & SOUTH OF KRISTY DRIVE)
Latitude: 0' 0.0000 Undefined

NB

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	85th Percent	95th Percent
12/14/21	2	0	0	0	4	3	9	4	4	**2**	0	0	0	0	28	52	56
01:00	0	0	0	0	2	1	1	2	3	0	0	0	0	0	9	52	54
02:00	1	0	0	0	2	1	3	1	1	0	0	0	0	0	9	48	52
03:00	2	0	0	0	3	4	0	0	1	0	0	0	0	0	10	39	52
04:00	3	0	0	2	2	4	5	2	0	0	0	0	0	0	18	44	47
05:00	4	0	0	4	10	9	8	1	2	1	0	0	0	0	39	43	52
06:00	19	0	1	14	43	27	15	4	1	1	0	**1**	0	0	126	41	45
07:00	65	0	5	15	69	69	35	**26**	**6**	1	0	0	0	0	291	43	48
08:00	**67**	**2**	**7**	19	**85**	**105**	**68**	15	6	0	0	0	0	**1**	**375**	42	45
09:00	44	0	3	17	53	72	59	17	0	0	0	0	0	0	265	43	46
10:00	44	2	2	11	50	80	33	23	2	1	0	1	0	0	249	43	48
11:00	49	1	0	**20**	49	101	47	7	0	0	0	0	0	0	274	41	44
12 PM	**42**	0	0	**14**	**67**	**87**	**61**	**14**	**1**	0	0	**1**	**1**	0	**288**	42	45
13:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
14:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
15:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
16:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
17:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
18:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
19:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
20:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
21:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
22:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
23:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Total	342	5	18	116	439	563	344	116	27	6	0	3	1	1	1981		
Percent	17.3%	0.3%	0.9%	5.9%	22.2%	28.4%	17.4%	5.9%	1.4%	0.3%	0.0%	0.2%	0.1%	0.1%			
AM Peak	08:00	08:00	08:00	11:00	08:00	08:00	08:00	07:00	07:00	00:00		06:00		08:00	08:00		
Vol.	67	2	7	20	85	105	68	26	6	2		1		1	375		
PM Peak	12:00			12:00	12:00	12:00	12:00	12:00	12:00			12:00	12:00		12:00		
Vol.	42			14	67	87	61	14	1			1	1		288		
Grand Total	2022	50	88	921	3873	6245	4671	1773	385	104	16	10	3	16	20177		
Percent	10.0%	0.2%	0.4%	4.6%	19.2%	31.0%	23.2%	8.8%	1.9%	0.5%	0.1%	0.0%	0.0%	0.1%			

15th Percentile :	29 MPH
50th Percentile :	37 MPH
85th Percentile :	44 MPH
95th Percentile :	48 MPH

Statistics

10 MPH Pace Speed :	36-45 MPH
Number in Pace :	10916
Percent in Pace :	54.1%
Number of Vehicles > 55 MPH :	149
Percent of Vehicles > 55 MPH :	0.7%
Mean Speed(Average) :	36 MPH

Project: MIRBEAU BEACON
Location: BEACON, NY
Job No. 21007271A

Colliers Engineering
400 Columbus Avenue, Ste 180 E
Valhalla, NY 10595

Customer Loyalty through Client Satisfaction

Site Code: 21007271 1010
Station ID:
ROUTE 9D (NORTH OF CRAIG HOUSE LANE & SOUTH OF KRISTY DRIVE)
Latitude: 0' 0.0000 Undefined

SB

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	85th Percent	95th Percent
12/09/21	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
01:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
02:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
03:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
04:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
05:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
06:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
12 PM	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
13:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
14:00	**10**	**1**	**3**	**12**	28	54	46	17	0	0	0	0	0	0	171	44	47
15:00	7	0	0	4	24	**83**	**67**	**31**	**8**	0	0	**1**	0	0	**225**	46	49
16:00	10	0	1	4	30	65	60	18	2	0	0	0	0	0	190	44	47
17:00	4	0	0	2	**35**	74	59	17	3	**2**	0	0	0	0	196	44	48
18:00	0	0	0	2	19	52	40	15	4	1	**1**	0	**1**	0	135	45	50
19:00	1	0	1	0	9	29	33	10	4	0	0	0	0	0	87	45	49
20:00	3	0	0	3	8	32	19	6	2	0	0	0	0	0	73	44	48
21:00	0	0	0	0	13	21	17	8	4	0	0	0	0	0	63	46	51
22:00	0	0	0	0	4	11	17	5	3	1	0	0	0	0	41	47	53
23:00	0	0	0	1	4	4	10	5	0	0	0	0	0	0	24	46	48
Total	35	1	5	28	174	425	368	132	30	4	1	1	1	0	1205		
Percent	2.9%	0.1%	0.4%	2.3%	14.4%	35.3%	30.5%	11.0%	2.5%	0.3%	0.1%	0.1%	0.1%	0.0%			
AM Peak Vol.																	
PM Peak Vol.	14:00 10	14:00 1	14:00 3	14:00 12	17:00 35	15:00 83	15:00 67	15:00 31	15:00 8	17:00 2	18:00 1	15:00 1	18:00 1		15:00 225		

Project: MIRBEAU BEACON
Location: BEACON, NY
Job No. 21007271A

Colliers Engineering
400 Columbus Avenue, Ste 180 E
Valhalla, NY 10595

Customer Loyalty through Client Satisfaction

Site Code: 21007271 1010
Station ID:
ROUTE 9D (NORTH OF CRAIG HOUSE LANE & SOUTH OF KRISTY DRIVE)
Latitude: 0' 0.0000 Undefined

SB

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	85th Percent	95th Percent
12/10/21	0	0	0	0	0	1	3	1	0	0	0	0	0	0	5	46	48
01:00	0	0	0	0	0	3	2	0	0	1	0	0	0	0	6	55	58
02:00	0	**2**	0	0	1	1	0	1	0	0	0	0	0	0	5	46	48
03:00	0	0	0	1	3	0	2	0	1	1	0	0	0	0	8	53	57
04:00	0	0	1	0	5	7	7	7	3	1	0	0	0	0	31	49	54
05:00	0	0	0	0	15	27	22	15	**11**	**3**	0	**1**	0	0	94	50	54
06:00	0	0	0	4	28	84	70	22	6	2	**1**	0	0	0	217	44	49
07:00	**4**	1	**5**	2	**47**	**100**	85	29	5	0	0	0	0	0	**278**	44	48
08:00	1	0	0	2	30	66	**111**	**34**	10	0	0	0	0	0	254	45	49
09:00	1	0	1	2	6	63	57	28	2	2	0	0	0	0	162	46	49
10:00	2	0	2	5	27	46	48	33	2	1	0	0	0	0	166	46	49
11:00	1	0	0	**7**	34	56	63	20	7	1	0	0	0	0	189	44	49
12 PM	3	**1**	0	0	42	75	53	20	3	0	0	0	0	0	197	44	48
13:00	3	0	**1**	2	19	59	61	21	12	0	0	0	0	0	178	46	51
14:00	4	0	0	2	31	70	77	22	6	**3**	0	0	0	0	215	44	49
15:00	**10**	0	1	2	**47**	**87**	**82**	22	**13**	0	0	0	0	0	**264**	44	49
16:00	5	0	1	**7**	42	85	79	**24**	4	0	0	0	0	0	247	44	48
17:00	7	0	1	4	42	81	56	16	2	1	0	0	0	0	210	43	47
18:00	4	0	0	2	36	44	58	18	5	1	**1**	0	0	0	169	44	49
19:00	1	0	0	1	18	48	31	15	3	1	1	0	0	0	119	45	49
20:00	1	0	0	2	13	24	21	15	2	0	0	0	0	0	78	46	49
21:00	0	0	0	0	8	40	33	11	2	0	1	0	0	0	95	44	49
22:00	0	0	0	1	8	16	20	10	1	1	0	0	0	0	57	46	49
23:00	0	0	0	0	7	9	14	7	1	0	0	0	0	0	38	46	49
Total	47	4	13	46	509	1092	1055	391	101	19	4	1	0	0	3282		
Percent	1.4%	0.1%	0.4%	1.4%	15.5%	33.3%	32.1%	11.9%	3.1%	0.6%	0.1%	0.0%	0.0%	0.0%			
AM Peak	07:00	02:00	07:00	11:00	07:00	07:00	08:00	08:00	05:00	05:00	06:00	05:00			07:00		
Vol.	4	2	5	7	47	100	111	34	11	3	1	1			278		
PM Peak	15:00	12:00	13:00	16:00	15:00	15:00	15:00	16:00	15:00	14:00	18:00				15:00		
Vol.	10	1	1	7	47	87	82	24	13	3	1				264		

Project: MIRBEAU BEACON
Location: BEACON, NY
Job No. 21007271A

Colliers Engineering
400 Columbus Avenue, Ste 180 E
Valhalla, NY 10595

Customer Loyalty through Client Satisfaction

Site Code: 21007271 1010
Station ID:
ROUTE 9D (NORTH OF CRAIG HOUSE LANE & SOUTH OF KRISTY DRIVE)
Latitude: 0' 0.0000 Undefined

SB

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	85th Percent	95th Percent
12/11/21	0	0	0	0	4	2	3	5	1	0	0	0	0	0	15	48	51
01:00	0	0	0	0	0	3	3	3	0	0	0	0	0	0	9	47	49
02:00	0	0	0	0	0	0	3	2	0	0	0	0	0	0	5	48	49
03:00	0	0	0	1	2	1	2	0	0	0	0	0	**1**	0	7	44	73
04:00	0	0	0	0	3	2	2	1	2	0	0	0	0	0	10	51	53
05:00	0	0	0	0	5	9	15	7	3	**1**	**1**	0	0	0	41	49	54
06:00	0	0	**1**	0	8	13	16	11	3	1	0	0	0	0	53	48	52
07:00	1	0	0	0	14	17	24	17	1	1	0	0	0	0	75	47	49
08:00	0	0	0	1	13	37	35	19	3	0	0	0	0	0	108	46	49
09:00	**6**	0	1	1	12	39	53	**30**	3	0	0	0	0	0	145	46	49
10:00	2	0	0	**6**	20	47	49	23	**6**	0	0	0	0	0	153	46	49
11:00	4	0	0	4	**48**	**69**	**74**	28	5	1	0	0	0	0	**233**	44	48
12 PM	6	0	0	0	23	54	**74**	33	7	**1**	0	0	0	0	198	46	49
13:00	7	0	0	3	17	44	66	**41**	**11**	1	0	0	0	0	190	47	51
14:00	19	0	**3**	6	27	79	66	20	5	0	0	0	0	0	225	44	48
15:00	24	**1**	2	**13**	**56**	**85**	63	14	1	0	0	0	0	0	**259**	43	45
16:00	**26**	0	2	3	40	73	43	12	3	1	0	0	0	0	203	43	47
17:00	13	1	1	1	22	59	51	15	1	1	0	0	0	0	165	44	47
18:00	13	0	0	3	42	47	34	7	1	0	0	0	0	0	147	42	45
19:00	9	0	0	5	37	33	9	6	0	0	0	0	0	0	99	40	45
20:00	13	0	0	5	21	24	16	2	0	0	0	0	0	0	81	41	44
21:00	6	0	1	9	10	17	19	6	1	0	0	0	0	0	69	44	47
22:00	3	0	0	1	17	24	10	3	0	0	0	0	0	0	58	42	45
23:00	7	0	0	2	7	22	14	10	2	0	0	0	0	0	64	46	49
Total	159	2	11	64	448	800	744	315	59	8	1	0	1	0	2612		
Percent	6.1%	0.1%	0.4%	2.5%	17.2%	30.6%	28.5%	12.1%	2.3%	0.3%	0.0%	0.0%	0.0%	0.0%			
AM Peak	09:00		06:00	10:00	11:00	11:00	11:00	09:00	10:00	05:00	05:00		03:00		11:00		
Vol.	6		1	6	48	69	74	30	6	1	1		1		233		
PM Peak	16:00	15:00	14:00	15:00	15:00	15:00	12:00	13:00	13:00	12:00					15:00		
Vol.	26	1	3	13	56	85	74	41	11	1					259		

Project: MIRBEAU BEACON
Location: BEACON, NY
Job No. 21007271A

Colliers Engineering
400 Columbus Avenue, Ste 180 E
Valhalla, NY 10595

Customer Loyalty through Client Satisfaction

Site Code: 21007271 1010
Station ID:
ROUTE 9D (NORTH OF CRAIG HOUSE LANE & SOUTH OF KRISTY DRIVE)
Latitude: 0' 0.0000 Undefined

SB

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	85th Percent	95th Percent
12/12/21	2	0	0	0	4	5	7	7	0	1	0	0	0	0	26	47	49
01:00	0	0	0	2	0	3	4	0	2	0	0	0	0	0	11	50	53
02:00	2	0	**1**	1	0	1	4	0	0	0	0	0	0	0	9	43	44
03:00	2	0	0	0	1	0	3	1	0	0	0	0	0	0	7	44	48
04:00	0	0	0	0	4	4	4	0	0	0	0	0	0	0	12	42	44
05:00	0	0	0	0	1	2	5	6	2	1	0	**1**	0	0	18	53	65
06:00	0	0	0	0	3	9	17	7	1	1	0	0	0	0	38	47	50
07:00	5	0	0	4	8	19	14	14	**6**	0	0	0	**1**	0	71	48	52
08:00	9	0	0	1	12	19	23	14	1	0	0	0	0	0	79	46	48
09:00	9	0	1	4	12	23	37	**23**	4	2	0	0	0	0	115	47	50
10:00	12	0	0	2	19	63	**75**	21	6	**3**	0	0	0	0	201	44	49
11:00	**23**	0	1	**5**	**29**	**75**	72	19	6	0	0	0	0	0	**230**	44	48
12 PM	25	**1**	0	3	24	57	86	33	7	**3**	0	**1**	0	0	240	46	49
13:00	9	1	1	3	37	57	**91**	**41**	**10**	2	**3**	0	0	0	255	47	51
14:00	17	1	0	**8**	26	84	89	29	4	0	1	0	0	0	259	44	48
15:00	**26**	0	1	6	**42**	**94**	86	25	4	0	2	0	0	0	**286**	44	48
16:00	15	0	0	5	25	78	80	31	2	0	0	0	0	0	236	44	48
17:00	7	0	0	3	39	79	51	17	3	2	0	0	0	0	201	44	48
18:00	8	0	1	1	21	54	45	12	4	0	0	0	0	0	146	44	48
19:00	5	0	0	5	29	36	25	5	1	0	0	0	0	0	106	43	45
20:00	6	0	**2**	4	10	19	35	9	1	0	1	0	0	0	87	44	48
21:00	4	0	0	1	7	16	13	9	0	0	0	0	0	0	50	45	48
22:00	3	0	0	1	1	11	9	5	3	0	1	0	0	0	34	48	53
23:00	2	0	0	0	1	6	3	5	4	0	0	0	0	0	21	51	53
Total	191	3	8	59	355	814	878	333	71	15	8	2	1	0	2738		
Percent	7.0%	0.1%	0.3%	2.2%	13.0%	29.7%	32.1%	12.2%	2.6%	0.5%	0.3%	0.1%	0.0%	0.0%			
AM Peak	11:00		02:00	11:00	11:00	11:00	10:00	09:00	07:00	10:00		05:00	07:00		11:00		
Vol.	23		1	5	29	75	75	23	6	3		1	1		230		
PM Peak	15:00	12:00	20:00	14:00	15:00	15:00	13:00	13:00	13:00	12:00	13:00	12:00			15:00		
Vol.	26	1	2	8	42	94	91	41	10	3	3	1			286		

Project: MIRBEAU BEACON
Location: BEACON, NY
Job No. 21007271A

Colliers Engineering

400 Columbus Avenue, Ste 180 E
Valhalla, NY 10595

Customer Loyalty through Client Satisfaction

Site Code: 21007271 1010
Station ID:
ROUTE 9D (NORTH OF CRAIG HOUSE LANE & SOUTH OF KRISTY DRIVE)
Latitude: 0' 0.0000 Undefined

SB

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	85th Percent	95th Percent
12/13/21	2	**1**	0	0	2	5	2	2	0	0	0	0	0	0	14	44	48
01:00	1	0	0	0	0	1	0	1	0	0	0	0	0	0	3	47	49
02:00	0	0	0	0	1	3	3	0	0	0	0	0	0	0	7	43	44
03:00	0	0	0	0	2	5	1	0	1	1	0	0	0	0	10	52	57
04:00	0	0	1	1	10	9	6	2	2	2	0	0	0	0	33	47	55
05:00	4	0	0	2	16	30	32	12	7	**3**	0	0	0	0	106	47	53
06:00	6	0	0	**7**	47	70	55	25	2	2	0	0	0	0	214	44	48
07:00	19	0	0	6	**52**	**114**	**103**	18	5	0	**1**	0	0	0	**318**	43	47
08:00	**32**	1	0	1	30	68	87	**38**	**9**	0	0	0	0	0	266	45	49
09:00	11	1	0	1	33	52	55	16	2	1	0	0	0	0	172	44	48
10:00	12	0	0	2	25	53	49	15	4	1	0	0	0	0	161	44	48
11:00	17	1	**2**	3	22	46	57	13	3	2	0	0	0	0	166	44	48
12 PM	14	0	0	2	22	52	64	26	2	0	0	0	0	0	182	45	48
13:00	24	**1**	1	4	9	49	56	**31**	**5**	1	**2**	0	0	0	183	46	49
14:00	11	0	**2**	2	24	**92**	76	15	2	0	0	0	0	0	224	43	46
15:00	**39**	0	2	**13**	22	51	**81**	22	4	0	0	**1**	0	0	**235**	44	48
16:00	32	0	1	5	24	92	55	11	4	**2**	0	0	0	0	226	43	47
17:00	20	0	0	2	**31**	58	52	19	4	1	0	0	0	0	187	44	48
18:00	11	0	0	6	30	52	34	10	3	1	0	0	0	0	147	43	48
19:00	4	0	0	1	20	31	20	8	1	1	0	0	0	0	86	44	48
20:00	7	0	0	5	16	20	22	7	3	2	0	0	0	0	82	44	51
21:00	2	0	0	1	4	15	14	5	2	0	0	0	0	0	43	45	49
22:00	0	0	0	0	3	10	6	10	0	2	0	0	0	0	31	48	56
23:00	0	0	0	2	3	4	4	3	3	2	0	0	0	0	21	53	57
Total	268	5	9	66	448	982	934	309	68	24	3	1	0	0	3117		
Percent	8.6%	0.2%	0.3%	2.1%	14.4%	31.5%	30.0%	9.9%	2.2%	0.8%	0.1%	0.0%	0.0%	0.0%			
AM Peak	08:00	00:00	11:00	06:00	07:00	07:00	07:00	08:00	08:00	05:00	07:00				07:00		
Vol.	32	1	2	7	52	114	103	38	9	3	1				318		
PM Peak	15:00	13:00	14:00	15:00	17:00	14:00	15:00	13:00	13:00	16:00	13:00	15:00			15:00		
Vol.	39	1	2	13	31	92	81	31	5	2	2	1			235		

Project: MIRBEAU BEACON
Location: BEACON, NY
Job No. 21007271A

Colliers Engineering
400 Columbus Avenue, Ste 180 E
Valhalla, NY 10595

Customer Loyalty through Client Satisfaction

Site Code: 21007271 1010
Station ID:
ROUTE 9D (NORTH OF CRAIG HOUSE LANE & SOUTH OF KRISTY DRIVE)
Latitude: 0' 0.0000 Undefined

SB

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	85th Percent	95th Percent
12/14/21	0	0	0	0	1	0	0	3	0	0	0	0	0	0	4	49	49
01:00	0	0	0	0	1	1	1	0	0	0	0	0	0	0	3	42	44
02:00	0	0	0	0	0	1	1	0	1	0	0	0	0	0	3	52	54
03:00	2	0	0	1	1	1	2	0	0	0	0	0	0	0	7	42	44
04:00	0	0	0	1	8	15	8	6	4	0	0	0	0	0	42	48	52
05:00	4	0	0	0	28	33	33	11	6	2	0	0	0	0	117	45	51
06:00	8	0	0	9	**64**	98	50	24	6	**3**	0	0	0	0	262	44	49
07:00	15	0	0	**11**	62	**108**	**90**	29	**9**	0	0	0	0	0	**324**	44	48
08:00	**21**	**1**	**1**	0	39	86	59	**49**	8	1	**1**	0	0	0	266	46	49
09:00	13	1	0	1	22	54	55	20	3	1	0	0	0	0	170	44	48
10:00	16	0	0	6	28	64	38	12	5	0	0	0	0	0	169	43	48
11:00	11	0	0	0	19	70	59	19	5	0	0	0	0	0	183	44	48
12 PM	**14**	**1**	0	**2**	**23**	**50**	**71**	**32**	**2**	**3**	0	0	0	0	**198**	46	49
13:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
14:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
15:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
16:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
17:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
18:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
19:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
20:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
21:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
22:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
23:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Total	104	3	1	31	296	581	467	205	49	10	1	0	0	0	1748		
Percent	5.9%	0.2%	0.1%	1.8%	16.9%	33.2%	26.7%	11.7%	2.8%	0.6%	0.1%	0.0%	0.0%	0.0%			
AM Peak	08:00	08:00	08:00	07:00	06:00	07:00	07:00	08:00	07:00	06:00	08:00				07:00		
Vol.	21	1	1	11	64	108	90	49	9	3	1				324		
PM Peak	12:00	12:00		12:00	12:00	12:00	12:00	12:00	12:00	12:00					12:00		
Vol.	14	1		2	23	50	71	32	2	3					198		
Grand Total	804	18	47	294	2230	4694	4446	1685	378	80	18	5	3	0	14702		
Percent	5.5%	0.1%	0.3%	2.0%	15.2%	31.9%	30.2%	11.5%	2.6%	0.5%	0.1%	0.0%	0.0%	0.0%			

	15th Percentile :	32 MPH
	50th Percentile :	39 MPH
	85th Percentile :	44 MPH
	95th Percentile :	49 MPH

Statistics		
	10 MPH Pace Speed :	36-45 MPH
	Number in Pace :	9140
	Percent in Pace :	62.2%
	Number of Vehicles > 55 MPH :	106
	Percent of Vehicles > 55 MPH :	0.7%
	Mean Speed(Average) :	39 MPH

NYSDOT VOLUME DATA SUMMARY

ROADWAY: NYS ROUTE 9D
SEGMENT: FROM PUTNAM/ DUTCH CO LINE - CHESTER TO CITY OF BEACON
LOCATION: 102' S OF CORIS LANE
START DATE OF COUNT: Tuesday, April 19, 2016
NYSDOT COUNT STATION: 820632
FUNCTIONAL CLASS: 16 - URBAN MINOR ARTERIAL
FACTOR GROUP: 30
SEASONAL FACTOR: 1.052

TIME PERIOD		DIRECTIONAL VOLUMES		TOTAL VOLUME
START	FINISH	NORTHBOUND	SOUTHBOUND	
12:00 AM	1:00 AM	26	12	38
1:00 AM	2:00 AM	18	8	26
2:00 AM	3:00 AM	10	6	16
3:00 AM	4:00 AM	5	9	14
4:00 AM	5:00 AM	8	43	51
5:00 AM	6:00 AM	14	160	174
6:00 AM	7:00 AM	48	279	327
7:00 AM	8:00 AM	107	292	399
8:00 AM	9:00 AM	137	236	373
9:00 AM	10:00 AM	109	175	284
10:00 AM	11:00 AM	102	143	245
11:00 AM	12:00 PM	118	131	249
12:00 PM	1:00 PM	119	120	239
1:00 PM	2:00 PM	146	134	280
2:00 PM	3:00 PM	170	144	314
3:00 PM	4:00 PM	269	158	427
4:00 PM	5:00 PM	369	174	543
5:00 PM	6:00 PM	405	164	569
6:00 PM	7:00 PM	241	117	358
7:00 PM	8:00 PM	168	84	252
8:00 PM	9:00 PM	145	78	223
9:00 PM	10:00 PM	96	55	151
10:00 PM	11:00 PM	64	48	112
11:00 PM	12:00 AM	43	21	64
AVERAGE WEEKDAY DAILY TRAFFIC		**2937**	**2791**	**5728**
	AADT	**2792**	**2653**	**5445**

NOTES:

1) DATA SOURCE: NEW YORK STATE DEPARTMENT OF TRANSPORTATION (NYSDOT) TRAFFIC DATA VIEWER AVERAGE WEEKDAY VOLUMES

NYSDOT CLASSIFICATION DATA SUMMARY

ROADWAY: NYS ROUTE 9D
SEGMENT: FROM PUTNAM/ DUTCH CO LINE - CHESTER TO CITY OF BEACON
LOCATION: 102' S OF CORIS LANE
START DATE OF COUNT: Tuesday, April 19, 2016
NYSDOT COUNT STATION: 820632
FUNCTIONAL CLASS: 16 - URBAN MINOR ARTERIAL
FACTOR GROUP: 30

VEHICLE CLASS	DIRECTIONAL VOLUMES		TOTAL VEHICLES	TOTAL AXLES
	NORTHBOUND	SOUTHBOUND		
F1	17	21	38	76
F2	2563	2368	4931	9862
F3	289	314	603	1206
F4	11	9	20	50
F5	41	58	99	198
F6	5	5	10	30
F7	0	0	0	0
F8	4	3	7	25
F9	6	2	8	40
F10	0	0	0	0
F11	0	0	0	0
F12	0	0	0	0
F13	0	0	0	0
AVERAGE WEEKDAY TOTAL	**2936**	**2780**	**5716**	**11487**

	NORTHBOUND	SOUTHBOUND	TOTAL
% HEAVY VEHICLES (F4 - F13)	12%	14%	13%
% TRUCKS & BUSES (F3 - F13)	2%	3%	3%
% F3 - F7	2%	3%	2%
% F8 - F13	0%	0%	0%
% F1	1%	1%	1%
% F2	87%	85%	86%
% F3	10%	11%	11%
% F4	0%	0%	0%
% F5 - F7	2%	2%	2%

VEHICLE CLASSIFICATION CODES:

- **F1** MOTORCYCLES
- **F2** AUTOS (INCLUDING THOSE HAULING TRAILERS)
- **F3** 2 AXLE, 4-TIRE PICKUPS, VANS, MOTORHOMES (INCLUDING THOSE HAULING TRAILERS)
- **F4** BUSES
- **F5** 2 AXLE, 6-TIRE SINGLE UNIT TRUCKS
- **F6** 3 AXLE SINGLE UNIT TRUCKS
- **F7** 4 OR MORE AXLE SINGLE UNIT TRUCKS
- **F8** 4 OR LESS AXLE VEHICLES, ONE UNIT IS A TRUCK
- **F9** 5 AXLE DOUBLE UNIT VEHICLES, ONE UNIT IS A TRUCK
- **F10** 6 OR MORE AXLE DOUBLE UNIT VEHICLES, ONE UNIT IS A TRUCK
- **F11** 5 OR LESS AXLE MULTI-UNIT TRUCKS
- **F12** 6 AXLE MULTI UNIT TRUCKS
- **F13** 7 OR MORE AXLE MULTI-UNIT TRUCKS

NOTES:

1) DATA SOURCE: NEW YORK STATE DEPARTMENT OF TRANSPORTATION (NYSDOT) TRAFFIC DATA VIEWER AVERAGE WEEKDAY VOLUMES

NYSDOT SPEED DATA SUMMARY

ROADWAY: NYS ROUTE 9D
SEGMENT: FROM PUTNAM/ DUTCH CO LINE - CHESTER TO CITY OF BEACON
LOCATION: 102' S OF CORIS LANE
START DATE OF COUNT: Tuesday, April 19, 2016
NYSDOT COUNT STATION: 820632
FUNCTIONAL CLASS: 16 - URBAN MINOR ARTERIAL
POSTED SPEED LIMIT: 55
FACTOR GROUP: 30

SPEEDS (MPH)	DIRECTIONAL VOLUMES		TOTAL VOLUME
	NORTHBOUND	SOUTHBOUND	
0 - 20.0	2	4	6
20.1 - 25.0	0	7	7
25.1 - 30.0	4	5	9
30.1 - 35.0	16	10	26
35.1 - 40.0	85	36	121
40.1 - 45.0	428	220	648
45.1 - 50.0	1087	750	1837
50.1 - 55.0	942	980	1922
55.1 - 60.0	302	570	872
60.1 - 65.0	55	163	218
65.1 - 70.0	18	25	43
70.1 - 75.0	1	8	9
75.1 - 80.0	0	1	1
80.1+	0	0	0
UNCLASSIFIED	0	0	0
AVERAGE SPEED (MPH)	**49**	**51**	**50**
50TH PERCENTILE SPEED (MPH)	**49**	**52**	**51**
85TH PERCENTILE SPEED (MPH)	**55**	**58**	**57**

NOTES:

1) DATA SOURCE: NEW YORK STATE DEPARTMENT OF TRANSPORTATION (NYSDOT) TRAFFIC DATA VIEWER AVERAGE WEEKDAY VOLUMES

NYSDOT VOLUME DATA SUMMARY

ROADWAY: NYS ROUTE 9D
SEGMENT: FROM CITY OF BEACON - TELLER AVENUE
LOCATION: 380' S OF GRANDVIEW AVE
START DATE OF COUNT: Tuesday, April 19, 2016
NYSDOT COUNT STATION: 820306
FUNCTIONAL CLASS: 16 - URBAN MINOR ARTERIAL
FACTOR GROUP: 30
SEASONAL FACTOR: 1.052

TIME PERIOD		DIRECTIONAL VOLUMES		TOTAL VOLUME
START	FINISH	NORTHBOUND	SOUTHBOUND	
12:00 AM	1:00 AM	26	16	42
1:00 AM	2:00 AM	18	10	28
2:00 AM	3:00 AM	11	8	19
3:00 AM	4:00 AM	7	9	16
4:00 AM	5:00 AM	15	42	57
5:00 AM	6:00 AM	24	154	178
6:00 AM	7:00 AM	69	268	337
7:00 AM	8:00 AM	151	284	435
8:00 AM	9:00 AM	180	242	422
9:00 AM	10:00 AM	147	198	345
10:00 AM	11:00 AM	138	157	295
11:00 AM	12:00 PM	142	152	294
12:00 PM	1:00 PM	141	144	285
1:00 PM	2:00 PM	172	146	318
2:00 PM	3:00 PM	194	168	362
3:00 PM	4:00 PM	284	200	484
4:00 PM	5:00 PM	376	222	598
5:00 PM	6:00 PM	390	211	601
6:00 PM	7:00 PM	278	152	430
7:00 PM	8:00 PM	182	110	292
8:00 PM	9:00 PM	152	114	266
9:00 PM	10:00 PM	106	76	182
10:00 PM	11:00 PM	66	64	130
11:00 PM	12:00 AM	44	30	74
AVERAGE WEEKDAY DAILY TRAFFIC		**3313**	**3177**	**6490**
	AADT	**3149**	**3020**	**6169**

NOTES:

1) DATA SOURCE: NEW YORK STATE DEPARTMENT OF TRANSPORTATION (NYSDOT) TRAFFIC DATA VIEWER AVERAGE WEEKDAY VOLUMES

NYSDOT CLASSIFICATION DATA SUMMARY

ROADWAY: NYS ROUTE 9D
SEGMENT: FROM CITY OF BEACON - TELLER AVENUE
LOCATION: 380' S OF GRANDVIEW AVE
START DATE OF COUNT: Tuesday, April 19, 2016
NYSDOT COUNT STATION: 820306
FUNCTIONAL CLASS: 16 - URBAN MINOR ARTERIAL
FACTOR GROUP: 30

VEHICLE CLASS	DIRECTIONAL VOLUMES		TOTAL VEHICLES	TOTAL AXLES
	NORTHBOUND	SOUTHBOUND		
F1	20	19	39	78
F2	2796	2760	5556	11112
F3	385	337	722	1444
F4	19	10	29	73
F5	71	45	116	232
F6	7	6	13	39
F7	0	0	0	0
F8	4	2	6	21
F9	4	2	6	30
F10	0	0	0	0
F11	0	0	0	0
F12	0	0	0	0
F13	0	0	0	0
AVERAGE WEEKDAY TOTAL	**3306**	**3181**	**6487**	**13029**

	NORTHBOUND	SOUTHBOUND	TOTAL
% HEAVY VEHICLES (F4 - F13)	15%	13%	14%
% TRUCKS & BUSES (F3 - F13)	3%	2%	3%
% F3 - F7	3%	2%	2%
% F8 - F13	0%	0%	0%
% F1	1%	1%	1%
% F2	85%	87%	86%
% F3	12%	11%	11%
% F4	1%	0%	0%
% F5 - F7	2%	2%	2%

VEHICLE CLASSIFICATION CODES:

- **F1** MOTORCYCLES
- **F2** AUTOS (INCLUDING THOSE HAULING TRAILERS)
- **F3** 2 AXLE, 4-TIRE PICKUPS, VANS, MOTORHOMES (INCLUDING THOSE HAULING TRAILERS)
- **F4** BUSES
- **F5** 2 AXLE, 6-TIRE SINGLE UNIT TRUCKS
- **F6** 3 AXLE SINGLE UNIT TRUCKS
- **F7** 4 OR MORE AXLE SINGLE UNIT TRUCKS
- **F8** 4 OR LESS AXLE VEHICLES, ONE UNIT IS A TRUCK
- **F9** 5 AXLE DOUBLE UNIT VEHICLES, ONE UNIT IS A TRUCK
- **F10** 6 OR MORE AXLE DOUBLE UNIT VEHICLES, ONE UNIT IS A TRUCK
- **F11** 5 OR LESS AXLE MULTI-UNIT TRUCKS
- **F12** 6 AXLE MULTI UNIT TRUCKS
- **F13** 7 OR MORE AXLE MULTI-UNIT TRUCKS

NOTES:

1) DATA SOURCE: NEW YORK STATE DEPARTMENT OF TRANSPORTATION (NYSDOT) TRAFFIC DATA VIEWER AVERAGE WEEKDAY VOLUMES

NYSDOT SPEED DATA SUMMARY

ROADWAY: NYS ROUTE 9D
SEGMENT: FROM CITY OF BEACON - TELLER AVENUE
LOCATION: 380' S OF GRANDVIEW AVE
START DATE OF COUNT: Tuesday, April 19, 2016
NYSDOT COUNT STATION: 820306
FUNCTIONAL CLASS: 16 - URBAN MINOR ARTERIAL
POSTED SPEED LIMIT: 30
FACTOR GROUP: 30

SPEEDS (MPH)	DIRECTIONAL VOLUMES		TOTAL VOLUME
	NORTHBOUND	SOUTHBOUND	
0 - 20.0	0	2	2
20.1 - 25.0	3	4	7
25.1 - 30.0	38	15	53
30.1 - 35.0	277	265	542
35.1 - 40.0	793	920	1713
40.1 - 45.0	1084	1290	2374
45.1 - 50.0	783	552	1335
50.1 - 55.0	285	113	398
55.1 - 60.0	44	18	62
60.1 - 65.0	4	2	6
65.1 - 70.0	1	0	1
70.1 - 75.0	0	0	0
75.1 - 80.0	0	0	0
80.1+	0	0	0
UNCLASSIFIED	0	0	0
AVERAGE SPEED (MPH)	**42**	**41**	**41**
50TH PERCENTILE SPEED (MPH)	**43**	**42**	**42**
85TH PERCENTILE SPEED (MPH)	**49**	**47**	**48**

NOTES:

1) DATA SOURCE: NEW YORK STATE DEPARTMENT OF TRANSPORTATION (NYSDOT) TRAFFIC DATA VIEWER AVERAGE WEEKDAY VOLUMES

NYSDOT VOLUME DATA SUMMARY

ROADWAY: HOWLAND AVENUE
SEGMENT: FROM WOLCOTT AVE - E. MAIN ST.
LOCATION: 15' N OF CHIUSANO DR
START DATE OF COUNT: Monday, May 13, 2019
NYSDOT COUNT STATION: 825220
FUNCTIONAL CLASS: 19 - URBAN LOCAL ROAD
FACTOR GROUP: 30
SEASONAL FACTOR: 1.089

TIME PERIOD		DIRECTIONAL VOLUMES		TOTAL VOLUME
START	FINISH	NORTHBOUND	SOUTHBOUND	
12:00 AM	1:00 AM	4	2	6
1:00 AM	2:00 AM	2	2	4
2:00 AM	3:00 AM	2	0	2
3:00 AM	4:00 AM	3	4	7
4:00 AM	5:00 AM	8	19	27
5:00 AM	6:00 AM	60	56	116
6:00 AM	7:00 AM	72	56	128
7:00 AM	8:00 AM	60	55	115
8:00 AM	9:00 AM	69	47	116
9:00 AM	10:00 AM	58	41	99
10:00 AM	11:00 AM	49	49	98
11:00 AM	12:00 PM	62	53	115
12:00 PM	1:00 PM	53	52	105
1:00 PM	2:00 PM	54	55	109
2:00 PM	3:00 PM	72	62	134
3:00 PM	4:00 PM	106	82	188
4:00 PM	5:00 PM	133	70	203
5:00 PM	6:00 PM	129	58	187
6:00 PM	7:00 PM	91	48	139
7:00 PM	8:00 PM	48	38	86
8:00 PM	9:00 PM	30	43	73
9:00 PM	10:00 PM	16	13	29
10:00 PM	11:00 PM	15	12	27
11:00 PM	12:00 AM	8	6	14
AVERAGE WEEKDAY DAILY TRAFFIC		**1204**	**923**	**2127**
	AADT	**1106**	**848**	**1954**

NOTES:

1) DATA SOURCE: NEW YORK STATE DEPARTMENT OF TRANSPORTATION (NYSDOT) TRAFFIC DATA VIEWER AVERAGE WEEKDAY VOLUMES

NYSDOT VOLUME DATA SUMMARY

ROADWAY: SLOCUM ROAD
SEGMENT: FROM RT 9D - BEACON C/L
LOCATION: 150 FEET NW OF CR40
START DATE OF COUNT: Monday, June 08, 2015
NYSDOT COUNT STATION: 821101
FUNCTIONAL CLASS: 19 - URBAN LOCAL ROAD
FACTOR GROUP: 30
SEASONAL FACTOR: 1.1

TIME PERIOD		DIRECTIONAL VOLUMES		TOTAL VOLUME
START	FINISH	NORTHBOUND	SOUTHBOUND	
12:00 AM	1:00 AM	0	0	0
1:00 AM	2:00 AM	1	0	1
2:00 AM	3:00 AM	0	0	0
3:00 AM	4:00 AM	0	0	0
4:00 AM	5:00 AM	1	3	4
5:00 AM	6:00 AM	6	12	18
6:00 AM	7:00 AM	24	28	52
7:00 AM	8:00 AM	15	17	32
8:00 AM	9:00 AM	20	20	40
9:00 AM	10:00 AM	15	14	29
10:00 AM	11:00 AM	14	12	26
11:00 AM	12:00 PM	14	12	26
12:00 PM	1:00 PM	16	12	28
1:00 PM	2:00 PM	9	9	18
2:00 PM	3:00 PM	20	16	36
3:00 PM	4:00 PM	21	15	36
4:00 PM	5:00 PM	16	9	25
5:00 PM	6:00 PM	23	12	35
6:00 PM	7:00 PM	22	12	34
7:00 PM	8:00 PM	14	8	22
8:00 PM	9:00 PM	9	4	13
9:00 PM	10:00 PM	8	2	10
10:00 PM	11:00 PM	3	1	4
11:00 PM	12:00 AM	2	0	2
AVERAGE WEEKDAY DAILY TRAFFIC		**273**	**218**	**491**
	AADT	**248**	**198**	**446**

NOTES:

1) DATA SOURCE: NEW YORK STATE DEPARTMENT OF TRANSPORTATION (NYSDOT) TRAFFIC DATA VIEWER AVERAGE WEEKDAY VOLUMES

NYSDOT CLASSIFICATION DATA SUMMARY

ROADWAY: SLOCUM ROAD
SEGMENT: FROM RT 9D - BEACON C/L
LOCATION: 150 FEET NW OF CR40
START DATE OF COUNT: Monday, June 08, 2015
NYSDOT COUNT STATION: 821101
FUNCTIONAL CLASS: 19 - URBAN LOCAL ROAD
FACTOR GROUP: 30

VEHICLE CLASS	DIRECTIONAL VOLUMES		TOTAL VEHICLES	TOTAL AXLES
	NORTHBOUND	SOUTHBOUND		
F1	0	0	0	0
F2	140	181	321	642
F3	10	12	22	44
F4	1	0	1	3
F5	1	5	6	12
F6	0	1	1	3
F7	0	0	0	0
F8	0	0	0	0
F9	0	0	0	0
F10	0	0	0	0
F11	0	0	0	0
F12	0	0	0	0
F13	0	0	0	0
AVERAGE WEEKDAY TOTAL	**152**	**199**	**351**	**704**

	NORTHBOUND	SOUTHBOUND	TOTAL
% HEAVY VEHICLES (F4 - F13)	8%	9%	9%
% TRUCKS & BUSES (F3 - F13)	1%	3%	2%
% F3 - F7	1%	3%	2%
% F8 - F13	0%	0%	0%
% F1	0%	0%	0%
% F2	92%	91%	91%
% F3	7%	6%	6%
% F4	1%	0%	0%
% F5 - F7	1%	3%	2%

VEHICLE CLASSIFICATION CODES:

- **F1** MOTORCYCLES
- **F2** AUTOS (INCLUDING THOSE HAULING TRAILERS)
- **F3** 2 AXLE, 4-TIRE PICKUPS, VANS, MOTORHOMES (INCLUDING THOSE HAULING TRAILERS)
- **F4** BUSES
- **F5** 2 AXLE, 6-TIRE SINGLE UNIT TRUCKS
- **F6** 3 AXLE SINGLE UNIT TRUCKS
- **F7** 4 OR MORE AXLE SINGLE UNIT TRUCKS
- **F8** 4 OR LESS AXLE VEHICLES, ONE UNIT IS A TRUCK
- **F9** 5 AXLE DOUBLE UNIT VEHICLES, ONE UNIT IS A TRUCK
- **F10** 6 OR MORE AXLE DOUBLE UNIT VEHICLES, ONE UNIT IS A TRUCK
- **F11** 5 OR LESS AXLE MULTI-UNIT TRUCKS
- **F12** 6 AXLE MULTI UNIT TRUCKS
- **F13** 7 OR MORE AXLE MULTI-UNIT TRUCKS

NOTES:

1) DATA SOURCE: NEW YORK STATE DEPARTMENT OF TRANSPORTATION (NYSDOT) TRAFFIC DATA VIEWER AVERAGE WEEKDAY VOLUMES

NYSDOT SPEED DATA SUMMARY

ROADWAY: SLOCUM ROAD
SEGMENT: FROM RT 9D - BEACON C/L
LOCATION: 150 FEET NW OF CR40
START DATE OF COUNT: Monday, June 08, 2015
NYSDOT COUNT STATION: 821101
FUNCTIONAL CLASS: 19 - URBAN LOCAL ROAD
POSTED SPEED LIMIT: 30
FACTOR GROUP: 30

SPEEDS (MPH)	DIRECTIONAL VOLUMES		TOTAL VOLUME
	NORTHBOUND	SOUTHBOUND	
0 - 20.0	30	34	64
20.1 - 25.0	72	90	162
25.1 - 30.0	51	68	119
30.1 - 35.0	3	6	9
35.1 - 40.0	0	0	0
40.1 - 45.0	0	0	0
45.1 - 50.0	0	0	0
50.1 - 55.0	0	0	0
55.1 - 60.0	0	0	0
60.1 - 65.0	0	0	0
65.1 - 70.0	0	0	0
70.1 - 75.0	0	0	0
75.1 - 80.0	0	0	0
80.1+	0	0	0
UNCLASSIFIED	0	0	0
AVERAGE SPEED (MPH)	**21**	**22**	**21**
50TH PERCENTILE SPEED (MPH)	**23**	**24**	**24**
85TH PERCENTILE SPEED (MPH)	**28**	**28**	**28**

NOTES:

1) DATA SOURCE: NEW YORK STATE DEPARTMENT OF TRANSPORTATION (NYSDOT) TRAFFIC DATA VIEWER AVERAGE WEEKDAY VOLUMES

Colliers Engineering & Design

Traffic Impact Study

Appendix F | Public Transportation Data

System Map

ROUTE LIST

- A — Poughkeepsie Transit Hub to Fishkill / Walmart & Dutchess Mall
- B — Poughkeepsie Transit Hub to Beacon
- C — Poughkeepsie Transit Hub to Tivoli
- D — Poughkeepsie Transit Hub to Wassaic
- E — Poughkeepsie Transit Hub to Pawling
- F — Beacon to Hopewell Junction
- G — Beacon Free Loop
- H — College Connection Shuttle
- J — Northside Shuttle
- K — Southside Shuttle
- L — Main Street Shuttle
- M — Eastside Shuttle
- P — Westside Shuttle
- PRL — Poughkeepsie RailLink
- NHRL — New Hamburg RailLink

LEGEND

- Bus Route / Ruta de Autobús
- Transfer Point / Punto de Traslado
- Connecting Routes / Rutas que conectan (A,B,C)
- Transit Hub / Centro de Traslado
- Train Station / Centro de Traslado
- Point of Interest / Punto de Interés
- Hospital / Hospital

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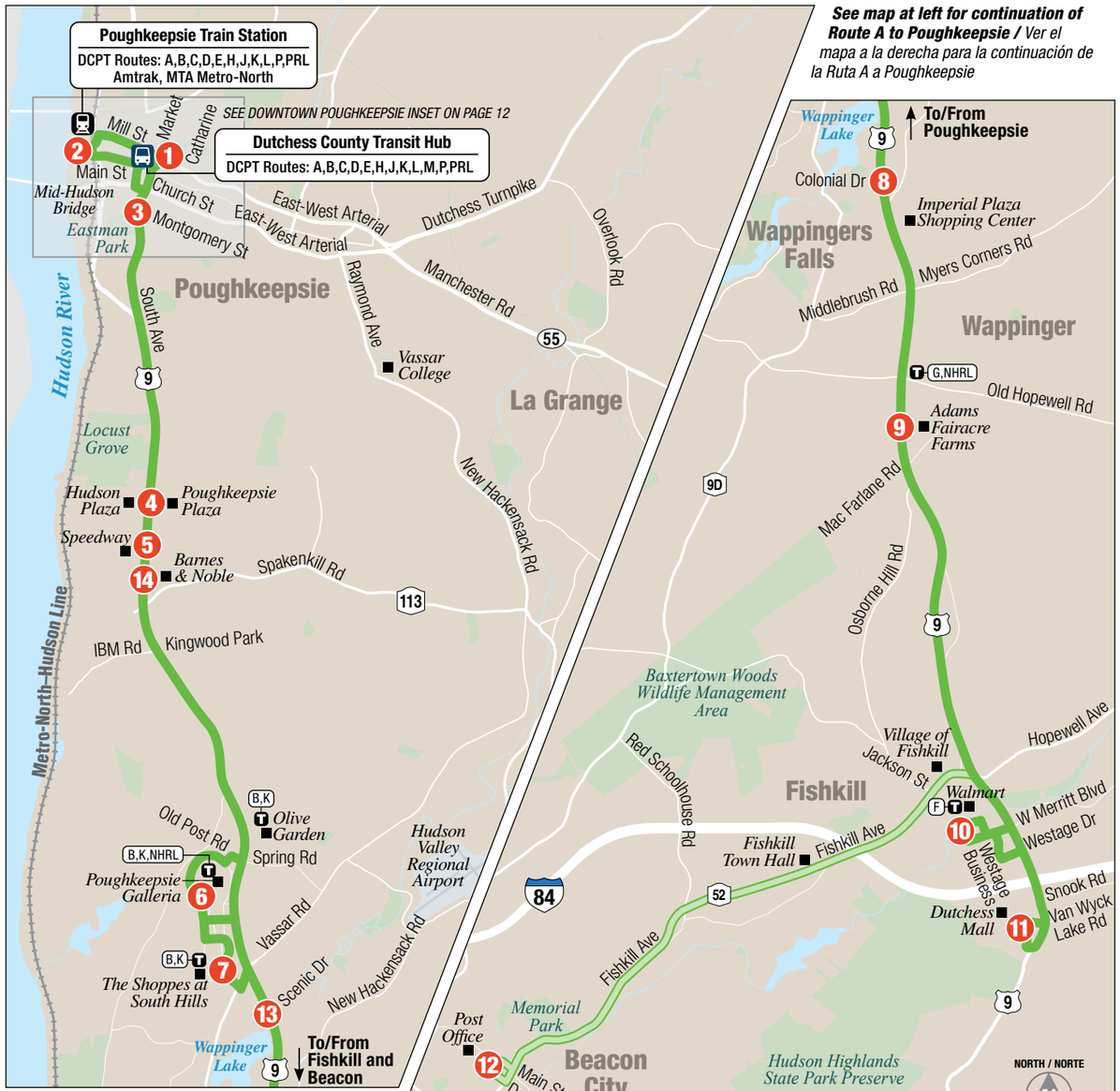
Design by Smartmaps, Inc., Knoxville, TN

Tivoli Free Library · Monument Hill · Village of Tivoli Hall · TIVOLI · RED HOOK · Cruger Island Rd · Budds Corners Rd · Bard College · Annandale Rd · RED HOOK VILLAGE · Market St · Village of Red Hook Hall · Red Hook Public Library · Broadway · Hudson River · Museum of Rhinebeck History · Stone Church Rd · Northern Dutchess Hospital · Rhinecliff · Starr Library · Village of Rhinebeck Hall · Town of Rhinebeck Hall · Astor Services for Children & Families · RHINEBECK VILLAGE · RHINEBECK · Haggerty Hill Rd · Staatsburg · ULSTER COUNTY · N Cross Rd · S Cross Rd · Anderson Center for Autism · Albany Post Rd · HYDE PARK · Town of Hyde Park Hall · Hyde Park Free Library · Mill Rd · E Market St · Violet Ave · Haviland · Franklin D. Roosevelt Presidential Library · Stop & Shop · St Andrews Rd · W Dorsey Ln · Cottage Rd · Fairview · Fulton St · North Rd · Midhudson Regional Hospital · Poughkeepsie Train Station · Mid-Hudson Bridge · DOWNTOWN POUGHKEEPSIE (See Inset Page 12) · Arlington · Salt Point Turnpike · Dutchess Community College · Dutchess Turnpike · Overlook · Commerce St · LaGrange Association Library · LAGRANGE · Manchester Rd · Taconic State Parkway · Skidmore Rd · Freedom Plains · Tops Market · Town of LaGrange Hall · E Noxon Rd · Jon J Wagner Way · UNION VALE · St Simeon Apts · POUGHKEEPSIE · Hudson Plaza · Poughkeepsie Plaza · Speedway · Barnes & Noble · Spackenkill Rd · Titusville · Red Oaks Mill · IBM Rd · Spackenkill · Crown Heights · Olive Garden · Poughkeepsie Galleria · Lowes · Vassar Rd · Hudson Valley Regional Airport · The Shoppes at South Hills · Imperial Plaza Shopping Center · WAPPINGERS FALLS VILLAGE · Myers Corners · Myers Corner · All Angels Hill Rd · New Hamburg Train Station · WAPPINGER · New Hamburg Rd · Old Hopewell · Town of Wappinger Hall · Adams Fairacre Farms · ORANGE COUNTY · Metro-North–Hudson Line · Hudson River · VA Medical Center · Village of Fishkill Hall · Brinckerhoff · ShopRite · Hopewell Ave · Unity St · Unity Plaza · Town of East Fishkill Hall · EAST FISHKILL · GlobalFoundries · W Merritt Blvd · Merritt Park · West Dr · Fishkill Town Hall · Ramada by Wyndham · Walmart · Castle Point · Fishkill Ave · Dutchess Stadium · Dutchess Marketplace · FISHKILL · City of Beacon Hall · Beacon Train Station · BEACON CITY · Main St · Wolcott Ave · Post Office · Howland Public Library · Hillside Lake · Jon J Wagner Way · Haggerty Hill Rd · Unity St

COLUMBIA COUNTY · MILAN · PINE PLAINS · NORTH EAST · STANFORD · CLINTON · AMENIA · Wassaic Train Station · WASHINGTON · MILLBROOK VILLAGE · Village of Millbrook Hall · Millbrook Free Library · Town of Washington Hall · Oak Summit Rd · Eastern Dutchess Government Center · Franklin Ave · Chestnut Ridge Rd · Bretti Ln · Tenmile River Train Station · Taconic Developmental Services · Tinker Town Rd · Dover Plains Train Station · Dover Plains · DUTCHESS COUNTY · Pleasant Valley · Pleasant Valley Library · Town of Pleasant Valley Hall · Washington Hollow Plaza · Sharon Turnpike · Metro-North–Harlem Line · DOVER · Dover Plains Library · Pleasant Ridge Rd · Harlem Valley-Wingdale Train Station · Cousins Cafe · Big W's · Clove Valley Rd · Beekman Library · Town of Beekman Hall · Hall Dr · BEEKMAN · Pleasant Ridge Rd · Old Route 55 · Appalachian Trail Train Station · Town of Pawling Hall · Coulter Ave · Kings Apts · Village of Pawling Hall · Pawling Train Station · PAWLING VILLAGE · PAWLING · Akindale Rd · Hannaford Supermarket · PUTNAM COUNTY

Route A: Poughkeepsie Transit Hub to Fishkill / Walmart & Dutchess Mall

Please see map on page 14 / Favor ver el mapa en la página 14



See map at left for continuation of Route A to Poughkeepsie / *Ver el mapa a la derecha para la continuación de la Ruta A a Poughkeepsie*

See map at right for continuation of Route A to Beacon City / *Ver el mapa a la derecha para la continuación de la Ruta A a Beacon City*

MONDAY–FRIDAY / LUNES–VIERNES

SOUTHBOUND: Poughkeepsie to Fishkill (Beacon on last trip) / HACIA EL SUR: Poughkeepsie a Fishkill (Beacon en el último viaje)

Stop #		Dutchess County Transit Hub **POUGHKEEPSIE** 1	Poughkeepsie Train Station **POUGHKEEPSIE** 2	South Ave/Market St & Montgomery St **POUGHKEEPSIE** 3	Route 9 S & Hudson Plaza **POUGHKEEPSIE** 4	Route 9 S & Speedway **POUGHKEEPSIE** 5	Galleria Food Court **POUGHKEEPSIE** 6	The Shoppes at South Hills **POUGHKEEPSIE** 7	Route 9 S & Colonial Drive **WAPPINGERS FALLS** 8	Route 9 S (across from Adams) **WAPPINGERS** 9	Fishkill Walmart **FISHKILL** 10	Dutchess Mall **FISHKILL** 11	Beacon Post Office **BEACON** 12
		1	3	6	9	10	15	16	27	44	33	34	35
AM		6:00	6:05	6:09	6:13	6:14	—	—	6:25	6:33	6:44	6:53	—
		6:45	—	—	—	— EXPRESS —		—	—	—	7:30	—	—
		7:00	7:05	7:09	7:13	7:14	—	—	7:25	7:33	7:44	7:53	—
		9:00	9:05	9:09	9:13	9:14	9:24	9:27	—	—	—	—	—
		9:15	9:20	9:24	9:28	9:29	9:39	9:42	9:47	9:55	10:06	10:15	—
		10:00	10:05	10:09	10:13	10:14	10:24	10:27	10:32	10:40	10:51	11:00	—
		11:17	11:22	11:26	11:30	11:31	11:41	11:44	11:49	11:57	**12:08**	**12:17**	—
PM		**1:00**	**1:05**	**1:09**	**1:13**	**1:14**	**1:24**	**1:27**	**1:32**	**1:40**	**1:51**	**2:00**	—
		2:50	**2:55**	**2:59**	**3:03**	**3:04**	**3:14**	**3:17**	**3:22**	**3:30**	**3:41**	**3:50**	—
		4:30	**4:35**	**4:39**	**4:43**	**4:44**	**4:54**	**4:57**	**5:02**	**5:10**	**5:21**	**5:30**	—
		5:30	**5:35**	**5:39**	**5:43**	**5:44**	**5:54**	**5:57**	**6:02**	**6:10**	**6:21**	**6:30**	—
		7:00	**7:05**	**7:09**	**7:13**	**7:14**	**7:24**	**7:27**	**7:32**	**7:40**	**7:51**	**8:00**	—
		8:30	**8:35**	**8:39**	**8:43**	**8:44**	**8:54**	**8:57**	**9:02**	**9:10**	**9:21**	**9:30**	—
		9:30	**9:35**	**9:39**	**9:43**	**9:44**	**9:54**	**9:57**	**10:02**	**10:10**	**10:21**	**10:30**	**10:45**

NORTHBOUND: Fishkill (Beacon on last trip) to Poughkeepsie / HACIA EL NORTE: Fishkill (Beacon en el último viaje) a Poughkeepsie

Stop #		Beacon Post Office **BEACON** 12	Dutchess Mall **FISHKILL** 11	Fishkill Walmart **FISHKILL** 10	Route 9 N & Adams Fairacre Farms **WAPPINGERS** 9	Route 9 N & Scenic Drive **WAPPINGERS FALLS** 13	The Shoppes at South Hills **POUGHKEEPSIE** 7	Galleria Food Court **POUGHKEEPSIE** 6	Route 9 N & Barnes & Noble **POUGHKEEPSIE** 14	Route 9 N & Poughkeepsie Plaza **POUGHKEEPSIE** 4	South Ave/Market St & Montgomery St **POUGHKEEPSIE** 3	Dutchess County Transit Hub **POUGHKEEPSIE** 1	Poughkeepsie Train Station **POUGHKEEPSIE** 2
		35	34	33	45	42	16	15	21	22	25	1	3
AM		—	7:15	7:23	7:31	7:41	—	—	7:52	7:53	7:57	8:01	8:07
		—	8:00	8:08	8:16	8:26	—	—	8:37	8:38	8:42	8:46	—
		—	—	—	—	—	9:27	9:30	9:37	9:38	9:42	9:46	—
		—	10:17	10:25	10:33	10:43	10:47	10:51	11:05	11:06	11:13	11:17	11:22
		—	11:00	11:08	11:16	11:26	11:30	11:31	11:38	11:39	11:43	11:47	11:53
PM		—	**1:00**	**1:08**	**1:16**	**1:26**	**1:30**	**1:31**	**1:38**	**1:39**	**1:43**	**1:47**	—
		—	**2:00**	**2:08**	**2:16**	**2:26**	**2:30**	**2:31**	**2:38**	**2:39**	**2:43**	**2:47**	—
		—	—	**3:20**	**3:28**	**3:38**	**3:42**	**3:45**	**3:55**	**3:56**	**4:01**	**4:05**	—
		—	**4:00**	**4:08**	**4:16**	**4:26**	**4:30**	**4:31**	**4:38**	**4:39**	**4:43**	**4:47**	**4:53**
		—	**5:45**	**5:53**	**6:01**	**6:11**	**6:15**	**6:16**	**6:23**	**6:24**	**6:28**	**6:32**	**6:38**
		—	**6:45**	**5:53**	**7:01**	**7:11**	**7:15**	**7:16**	**7:23**	**7:24**	**7:28**	**7:32**	**7:38**
		—	**8:30**	**8:38**	**8:46**	**8:56**	**9:00**	**9:01**	**9:08**	**9:09**	**9:13**	**9:17**	**9:23**
		—	**10:00**	**10:08**	**10:16**	**10:26**	**10:30**	**10:31**	**10:38**	**10:39**	**10:43**	**10:47**	**10:53**
		10:45	**11:00**	**11:08**	**11:16**	**11:26**	**11:30**	**11:31**	**11:38**	**11:39**	**11:43**	**11:47**	**11:53**

Only key points along the route are listed. Read the timetable from left to right. /
Solo se enumeran las paradas claves a lo largo de la ruta. Lee el horario de izquierda a derecha.

Route A: Poughkeepsie Transit Hub to Fishkill / Walmart & Dutchess Mall

Please see map on page 14 / Favor ver el mapa en la página 14

SATURDAY / SABADO

SOUTHBOUND: Poughkeepsie to Fishkill & Beacon / HACIA EL SUR: Poughkeepsie a Fishkill y Beacon

Stop #	Dutchess County Transit Hub POUGHKEEPSIE	Poughkeepsie Train Station POUGHKEEPSIE	South Ave/Market St Montgomery St POUGHKEEPSIE	Route 9 S & Hudson Plaza POUGHKEEPSIE	Route 9 S & Speedway POUGHKEEPSIE	Galleria Food Court POUGHKEEPSIE	The Shoppes at South Hills POUGHKEEPSIE	Route 9 S & Colonial Drive WAPPINGERS FALLS	Route 9 S (across from Adams) WAPPINGERS	Fishkill Walmart FISHKILL	Dutchess Mall FISHKILL	Beacon Post Office BEACON
	1	2	3	4	5	6	7	8	9	10	11	12
	1	3	6	9	10	15	16	27	44	33	34	35
AM	6:00	6:05	6:09	6:13	6:14	—	—	6:25	6:33	6:44	6:53	—
AM	7:00	7:05	7:09	7:13	7:14	—	—	7:25	7:33	7:44	7:53	—
AM	9:15	9:20	9:24	9:28	9:29	9:39	9:42	9:47	9:55	10:06	10:15	—
AM	10:00	10:05	10:09	10:13	10:14	10:24	10:27	10:32	10:40	10:51	—	11:15
AM	11:17	11:22	11:26	11:30	11:31	11:41	11:44	11:49	11:57	**12:08**	**12:17**	—
PM	—	—	—	—	—	**12:35**	**12:38**	**12:43**	**12:51**	**1:02**	**1:11**	—
PM	**2:50**	**2:55**	**2:59**	**3:03**	**3:04**	**3:14**	**3:17**	**3:22**	**3:30**	**3:41**	**3:50**	—
PM	**4:30**	**4:35**	**4:39**	**4:43**	**4:44**	**4:54**	**4:57**	**5:02**	**5:10**	**5:21**	**5:30**	—
PM	**5:30**	**5:35**	**5:39**	**5:43**	**5:44**	**5:54**	**5:57**	**6:02**	**6:10**	**6:21**	**6:30**	—
PM	**7:00**	**7:05**	**7:09**	**7:13**	**7:14**	**7:24**	**7:27**	**7:32**	**7:40**	**7:51**	**8:00**	—
PM	**8:30**	**8:35**	**8:39**	**8:43**	**8:44**	**8:54**	**8:57**	**9:02**	**9:10**	**9:21**	**9:30**	—
PM	**9:30**	**9:35**	**9:39**	**9:43**	**9:44**	**9:54**	**9:57**	**10:02**	**10:10**	**10:21**	**10:30**	**10:45**

NORTHBOUND: Beacon & Fishkill to Poughkeepsie / HACIA EL NORTE: Beacon y Fishkill a Poughkeepsie

Stop #	Beacon Post Office BEACON	Dutchess Mall FISHKILL	Fishkill Walmart FISHKILL	Route 9 N & Adams Fairacre Farms WAPPINGERS	Route 9 N & Scenic Drive WAPPINGERS FALLS	The Shoppes at South Hills POUGHKEEPSIE	Galleria Food Court POUGHKEEPSIE	Route 9 N & Barnes & Noble POUGHKEEPSIE	Route 9 N & Poughkeepsie Plaza POUGHKEEPSIE	South Ave/Market St & Montgomery St POUGHKEEPSIE	Dutchess County Transit Hub POUGHKEEPSIE	Poughkeepsie Train Station POUGHKEEPSIE
	12	11	10	9	13	7	6	14	4	3	1	2
	35	34	33	45	42	16	15	21	22	25	1	3
AM	—	7:15	7:23	7:31	7:41	—	—	7:52	7:52	7:57	8:01	8:07
AM	—	8:00	8:08	8:16	8:26	—	—	8:37	8:37	8:42	8:46	8:52
AM	—	10:17	10:25	10:33	10:43	10:47	10:51	11:05	11:06	11:13	11:17	—
AM	—	—	**12:00**	**12:08**	**12:16**	**12:20**	**12:21**	—	—	—	—	—
PM	—	**1:00**	**1:08**	**1:16**	**1:26**	**1:30**	**1:31**	**1:38**	**1:38**	**1:43**	**1:47**	—
PM	—	**2:00**	**2:08**	**2:16**	**2:26**	**2:30**	**2:31**	**2:38**	**2:38**	**2:43**	**2:47**	**2:53**
PM	—	**4:00**	**4:08**	**4:16**	**4:26**	**4:30**	**4:31**	**4:38**	**4:38**	**4:43**	**4:47**	**4:53**
PM	—	**5:45**	**5:53**	**6:01**	**6:11**	**6:15**	**6:16**	**6:23**	**6:23**	**6:28**	**6:32**	**6:38**
PM	—	**6:45**	**6:53**	**7:01**	**7:11**	**7:15**	**7:16**	**7:23**	**7:23**	**7:28**	**7:32**	**7:38**
PM	—	**8:30**	**8:38**	**8:46**	**8:56**	**9:00**	**9:01**	**9:08**	**9:08**	**9:13**	**9:17**	**9:23**
PM	—	**10:00**	**10:08**	**10:16**	**10:26**	**10:30**	**10:30**	**10:38**	**10:38**	**10:43**	**10:47**	**10:53**
PM	**10:45**	**11:00**	**11:08**	**11:16**	**11:26**	**11:30**	**11:31**	**11:38**	**11:38**	**11:43**	**11:47**	**11:53**

Only key points along the route are listed. Read the timetable from left to right. /
Solo se enumeran las paradas claves a lo largo de la ruta. Lee el horario de izquierda a derecha.

SUNDAY / DOMINGO

SOUTHBOUND: Poughkeepsie to Fishkill / HACIA EL SUR: Poughkeepsie a Fishkill

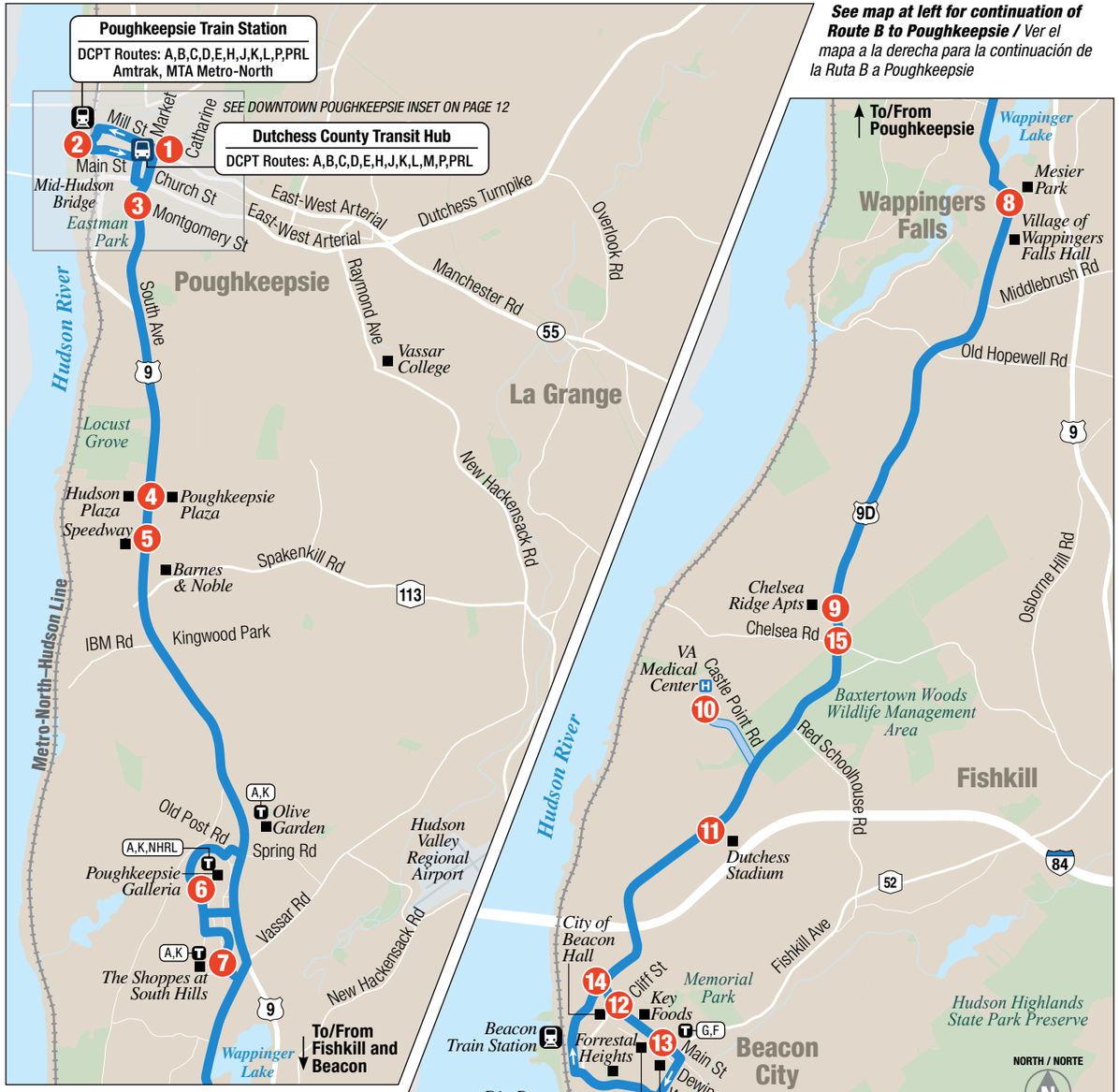
Stop #	Dutchess County Transit Hub POUGHKEEPSIE	Poughkeepsie Train Station POUGHKEEPSIE	South Ave/Market St Montgomery St POUGHKEEPSIE	Route 9 S & Hudson Plaza POUGHKEEPSIE	Route 9 S & Speedway POUGHKEEPSIE	Galleria Food Court POUGHKEEPSIE	The Shoppes at South Hills POUGHKEEPSIE	Route 9 S & Colonial Drive WAPPINGERS FALLS	Route 9 S (across from Adams) WAPPINGERS	Fishkill Walmart FISHKILL	Dutchess Mall FISHKILL
	1	2	3	4	5	6	7	8	9	10	11
	1	3	6	9	10	15	16	27	44	33	34
AM	10:15	10:21	10:25	10:31	10:32	10:41	10:47	10:53	10:59	11:07	11:15
PM	**12:30**	**12:36**	**12:40**	**12:46**	**12:47**	**12:56**	**1:02**	**1:08**	**1:14**	**1:22**	**1:30**
PM	**2:45**	**2:51**	**2:55**	**3:01**	**3:02**	**3:11**	**3:17**	**3:23**	**3:29**	**3:37**	**3:45**
PM	**5:30**	**5:36**	**5:40**	**5:46**	**5:47**	**5:56**	**6:02**	**6:08**	**6:14**	**6:22**	**6:30**

NORTHBOUND: Fishkill to Poughkeepsie / HACIA EL NORTE: Fishkill a Poughkeepsie

Stop #	Dutchess Mall FISHKILL	Fishkill Walmart FISHKILL	Route 9 N & Adams Fairacre Farms WAPPINGERS	Route 9 N & Scenic Drive WAPPINGERS FALLS	The Shoppes at South Hills POUGHKEEPSIE	Galleria Food Court POUGHKEEPSIE	Route 9 N & Barnes & Noble POUGHKEEPSIE	Route 9 N & Poughkeepsie Plaza POUGHKEEPSIE	South Ave/Market St & Montgomery St POUGHKEEPSIE	Dutchess County Transit Hub POUGHKEEPSIE
	11	10	9	13	7	6	14	4	3	1
	34	33	45	42	16	15	21	22	2	1
AM	11:20	11:26	11:36	11:44	11:51	11:56	**12:07**	**12:08**	**12:15**	**12:19**
PM	**1:35**	**1:41**	**1:51**	**1:59**	**2:06**	**2:11**	**2:22**	**2:23**	**2:30**	**2:34**
PM	**3:50**	**3:56**	**4:06**	**4:14**	**4:21**	**4:26**	**4:37**	**4:38**	**4:45**	**4:49**
PM	**6:35**	**6:41**	**6:51**	**6:59**	**7:06**	**7:11**	**7:22**	**7:23**	**7:30**	**7:34**

Route B: Poughkeepsie Transit Hub to Beacon

Please see map on page 18 / Favor ver el mapa en la página 18



***See map at left for continuation of Route B to Poughkeepsie** / Ver el mapa a la derecha para la continuación de la Ruta B a Poughkeepsie*

***See map at right for continuation of Route B to Beacon City** / Ver el mapa a la derecha para la continuación de la Ruta B a Beacon City*

MONDAY–FRIDAY / LUNES–VIERNES

SOUTHBOUND: Poughkeepsie to Beacon / HACIA EL SUR: Poughkeepsie a Beacon

Stop #	1	2	3	4	5	6	7	8	9	10	11	12	13
	Dutchess County Transit Hub **POUGHKEEPSIE**	Poughkeepsie Train Station **POUGHKEEPSIE**	South Ave/Market St Montgomery St **POUGHKEEPSIE**	Route 9 S & Hudson Plaza **POUGHKEEPSIE**	Route 9 S & Speedway **POUGHKEEPSIE**	Galleria Food Court **POUGHKEEPSIE**	The Shoppes at South Hills **POUGHKEEPSIE**	Mesier Park (Southbound) **WAPPINGERS FALLS**	Route 9D S & Chelsea Ridge Apts **WAPPINGER**	Castle Point **FISHKILL**	Route 9D (across from Dutchess Stadium) **BEACON**	Main St & Cliff St **BEACON**	Beacon Post Office **BEACON**
	1	3	6	9	10	15	16	50	55	56	57	71	35
AM	5:30	5:35	5:39	5:43	5:44	—	—	5:57	6:07	6:15	6:17	6:20	6:22
	6:30	6:35	6:39	6:43	6:44	—	—	6:57	7:07	7:15	7:17	7:20	7:22
	7:45	7:50	7:54	7:58	7:59	8:09	8:12	8:19	8:29	8:37	8:39	8:42	8:44
	8:45	8:50	8:54	8:58	8:59	9:09	9:12	9:19	9:29	9:37	9:39	9:42	9:44
	10:45	10:50	10:54	10:58	10:59	11:09	11:12	11:19	11:29	11:37 *	11:39	11:42	11:44
PM	**12:00**	**12:05**	**12:09**	**12:13**	**12:14**	**12:25**	**12:28**	**12:34**	**12:44**	**12:52 ***	**12:54**	**12:57**	**12:59**
	1:00	**1:05**	**1:09**	**1:13**	**1:14**	**1:25**	**1:28**	**1:34**	**1:44**	**1:52**	**1:54**	**1:57**	**1:59**
	2:00	**2:05**	**2:09**	**2:13**	**2:14**	**2:25**	**2:28**	**2:34**	**2:44**	**2:52**	**2:54**	**2:57**	**2:59**
	3:30	**3:35**	**3:39**	**3:43**	**3:44**	**3:55**	**3:58**	**4:04**	**4:14**	**4:22**	**4:24**	**4:27**	**4:29**
	5:15	**5:20**	**5:24**	**5:28**	**5:29**	**5:40**	**5:43**	**5:49**	**5:59**	—	**6:04**	**6:07**	**6:09**
	6:00	**6:05**	**6:09**	**6:13**	**6:14**	**6:25**	**6:28**	**6:34**	**6:44**	**6:52 ***	**6:54**	**6:57**	**6:59**
	8:00	**8:05**	**8:09**	**8:13**	**8:14**	**8:25**	**8:28**	**8:34**	**8:44**	**8:52 ***	**8:54**	**8:57**	**8:59**

*** Demand service only stops /** El servicio de demanda se detiene

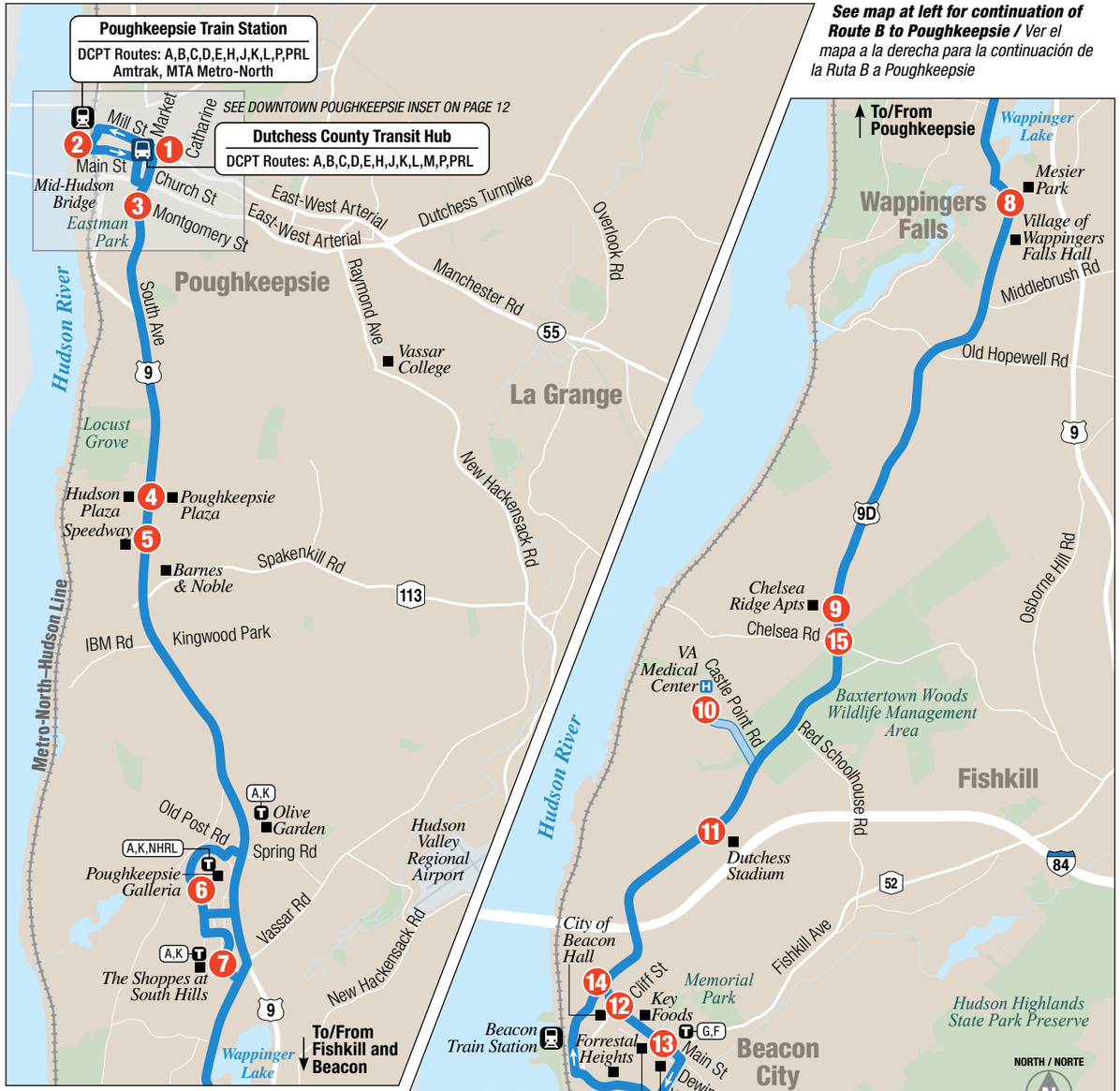
NORTHBOUND: Beacon to Poughkeepsie / HACIA EL NORTE: Beacon a Poughkeepsie

Stop #	13	14	15	8	7	6	5	4	3	1	2
	Beacon Post Office **BEACON**	Route 9D & Main St **BEACON**	Route 9D N & Chelsea Rd **FISHKILL**	Route 9D & Spring St (Mesier Park) **WAPPINGER**	The Shoppes at South Hills **POUGHKEEPSIE**	Galleria Food Court **POUGHKEEPSIE**	Route 9 N & Barnes & Noble **POUGHKEEPSIE**	Route 9 N & Poughkeepsie Plaza **POUGHKEEPSIE**	South Ave/Market St Montgomery St **POUGHKEEPSIE**	Dutchess County Transit Hub **POUGHKEEPSIE**	Poughkeepsie Train Station **POUGHKEEPSIE**
	35	59	64	68	16	15	21	22	25	1	3
AM	6:45	6:50	7:01	7:10	—	—	7:24	7:25	7:31	7:36	7:42
	7:45	7:50	8:01	8:10	—	—	8:24	8:25	8:31	8:36	8:42
	9:00	9:05	9:16	9:25	9:31	9:36	9:45	9:46	9:52	9:57	10:03
	10:00	10:05	10:16	10:25	10:31	10:36	10:45	10:46	10:52	10:57	11:03
PM	**12:00**	**12:05**	**12:16**	**12:25**	**12:31**	**12:36**	**12:45**	**12:46**	**12:52**	**12:57**	**1:05**
	1:00	**1:05**	**1:16**	**1:25**	**1:31**	**1:36**	**1:45**	**1:46**	**1:52**	**1:57**	**2:03**
	2:00	**2:05**	**2:16**	**2:25**	**2:31**	**2:36**	**2:45**	**2:46**	**2:52**	**2:57**	**3:03**
	3:00	**3:05**	**3:16**	**3:25**	**3:31**	**3:36**	**3:45**	**3:46**	**3:52**	**3:57**	**4:03**
	4:30	**4:35**	**4:46**	**4:55**	**5:01**	**5:06**	**5:15**	**5:16**	**5:22**	**5:27**	**5:33**
	6:20	**6:25**	**6:36**	**6:45**	**6:51**	**6:56**	**7:05**	**7:06**	**7:12**	**7:17**	**7:23**
	7:00	**7:05**	**7:16**	**7:25**	**7:31**	**7:36**	**7:45**	**7:46**	**7:52**	**7:57**	**8:03**
	9:00	**9:05**	**9:16**	**9:25**	**9:31**	**9:36**	**9:45**	**9:46**	**9:52**	**9:57**	**10:03**

Only key points along the route are listed. Read the timetable from left to right. /
Solo se enumeran las paradas claves a lo largo de la ruta. Lee el horario de izquierda a derecha.

Route B: Poughkeepsie Transit Hub to Beacon

Please see map on page 20 / Favor ver el mapa en la página 20



***See map at left for continuation of Route B to Poughkeepsie** / Ver el mapa a la derecha para la continuación de la Ruta B a Poughkeepsie*

***See map at right for continuation of Route B to Beacon City** / Ver el mapa a la derecha para la continuación de la Ruta B a Beacon City*

SATURDAY / SABADO

SOUTHBOUND: Poughkeepsie to Beacon / HACIA EL SUR: Poughkeepsie a Beacon

	Stop #	1	3	6	9	10	15	16	50	55	56	57	71	35
		Dutchess County Transit Hub **POUGHKEEPSIE**	Poughkeepsie Train Station **POUGHKEEPSIE**	South Ave/Market St Montgomery St **POUGHKEEPSIE**	Route 9 S & Hudson Plaza **POUGHKEEPSIE**	Route 9 S & Speedway **POUGHKEEPSIE**	Galleria Food Court **POUGHKEEPSIE**	The Shoppes at South Hills **POUGHKEEPSIE**	Mesier Park (Southbound) **WAPPINGERS FALLS**	Route 9D S & Chelsea Ridge Apts **WAPPINGER**	Castle Point **FISHKILL**	Route 9D (across from Dutchess Stadium) **BEACON**	Main St & Cliff St **BEACON**	Beacon Post Office (Arrives) **BEACON**
AM		5:30	5:35	5:39	5:43	5:44	—	—	5:57	6:07	6:15*	6:17	6:20	6:22
AM		6:30	6:35	6:39	6:43	6:44	—	—	6:57	7:07	7:15*	7:17	7:20	7:22
AM		7:45	7:50	7:54	7:58	7:59	8:09	8:12	8:19	8:29	8:37*	8:39	8:42	8:44
AM		—	—	—	—	—	9:25	9:28	9:34	9:43	9:48*	9:50	9:53	9:55
AM		10:45	10:50	10:54	10:58	10:59	11:09	11:12	11:19	11:29	11:37*	11:39	11:42	11:44
PM		**12:00**	**12:05**	**12:09**	**12:13**	**12:14**	**12:25**	**12:28**	**12:34**	**12:44**	**12:52***	**12:54**	**12:57**	**12:59**
PM		**1:00**	**1:05**	**1:09**	**1:13**	**1:14**	**1:25**	**1:28**	**1:34**	**1:44**	**1:52***	**1:54**	**1:57**	**1:59**
PM		**2:00**	**2:05**	**2:09**	**2:13**	**2:14**	**2:25**	**2:28**	**2:34**	**2:44**	**2:52***	**2:54**	**2:57**	**2:59**
PM		**3:30**	**3:35**	**3:39**	**3:43**	**3:44**	**3:55**	**3:58**	**4:04**	**4:14**	**4:22***	**4:24**	**4:27**	**4:29**
PM		**5:15**	**5:20**	**5:24**	**5:28**	**5:29**	**5:40**	**5:43**	**5:49**	**5:59**	—	**6:04**	**6:07**	**6:09**
PM		—	—	—	—	—	**6:06**	**6:09**	**6:15**	**6:25**	**6:33***	**6:35**	**6:38**	**6:40**
PM		**8:00**	**8:05**	**8:09**	**8:13**	**8:14**	**8:25**	**8:28**	**8:34**	**8:44**	**8:52***	**8:54**	**8:57**	**8:59**

*** Demand service only stops /** El servicio de demanda se detiene

NORTHBOUND: Beacon to Poughkeepsie / HACIA EL NORTE: Beacon a Poughkeepsie

	Stop #	13	14	15	8	7	6	5	4	3	1	2
		Beacon Post Office **BEACON**	Route 9D & Main St **BEACON**	Route 9D N & Chelsea Rd **FISHKILL**	Route 9D & Spring St (Mesier Park) **WAPPINGER**	The Shoppes at South Hills **POUGHKEEPSIE**	Galleria Food Court **POUGHKEEPSIE**	Route 9 N & Barnes & Noble **POUGHKEEPSIE**	Route 9 N & Poughkeepsie Plaza **POUGHKEEPSIE**	South Ave/Market St Montgomery St **POUGHKEEPSIE**	Dutchess County Transit Hub **POUGHKEEPSIE**	Poughkeepsie Train Station **POUGHKEEPSIE**
		35	59	64	68	16	15	21	22	25	1	3
AM		6:45	6:50	7:01	7:10	—	—	7:24	7:25	7:31	7:36	7:42
AM		8:45	8:50	9:01	9:10	9:16	9:21	—	—	—	—	—
AM		9:00	9:05	9:16	9:25	9:31	9:36	9:45	9:46	9:52	9:57	10:03
AM		10:00	10:05	10:16	10:25	10:31	10:36	10:45	10:46	10:52	10:57	11:03
PM		**12:00**	**12:05**	**12:16**	**12:25**	**12:31**	**12:36**	**12:45**	**12:46**	**12:52**	**12:57**	**1:05**
PM		**1:00**	**1:05**	**1:16**	**1:25**	**1:31**	**1:36**	**1:45**	**1:46**	**1:52**	**1:57**	**2:03**
PM		**2:00**	**2:05**	**2:16**	**2:25**	**2:31**	**2:36**	**2:45**	**2:46**	**2:52**	**2:57**	—
PM		**3:00**	**3:05**	**3:16**	**3:25**	**3:31**	**3:36**	**3:45**	**3:46**	**3:52**	**3:57**	**4:03**
PM		**5:30**	**5:35**	**5:46**	**5:55**	**6:01**	**6:06**	—	—	—	—	—
PM		**6:20**	**6:25**	**6:36**	**6:45**	**6:51**	**6:56**	**7:05**	**7:06**	**7:12**	**7:17**	**7:23**
PM		**7:00**	**7:05**	**7:16**	**7:25**	**7:31**	**7:36**	**7:45**	**7:46**	**7:52**	**7:57**	—
PM		**9:00**	**9:05**	**9:16**	**9:25**	**9:31**	**9:36**	**9:45**	**9:46**	**9:52**	**9:57**	**10:03**

Only key points along the route are listed. Read the timetable from left to right. /
Solo se enumeran las paradas claves a lo largo de la ruta. Lee el horario de izquierda a derecha.

Route B: Poughkeepsie Transit Hub to Beacon

Please see map on page 22 / Favor ver el mapa en la página 22



***See map at left for continuation of Route B to Poughkeepsie** / Ver el mapa a la derecha para la continuación de la Ruta B a Poughkeepsie*

***See map at right for continuation of Route B to Beacon City** / Ver el mapa a la derecha para la continuación de la Ruta B a Beacon City*

SUNDAY / DOMINGO

SOUTHBOUND: Poughkeepsie to Beacon / HACIA EL SUR: Poughkeepsie a Beacon

Stop #	1	2	3	4	5	6	7	8	9	10	11	12
	Dutchess County Transit Hub **POUGHKEEPSIE**	Poughkeepsie Train Station **POUGHKEEPSIE**	South Ave/Market St Montgomery St **POUGHKEEPSIE**	Route 9 S & Hudson Plaza **POUGHKEEPSIE**	Route 9 S & Speedway **POUGHKEEPSIE**	Galleria Food Court **POUGHKEEPSIE**	The Shoppes at South Hills **POUGHKEEPSIE**	Route 9D & Mesier Park **WAPPINGERS FALLS**	Route 9D & Chelsea Ridge Apts **WAPPINGER**	Castle Point VA Hospital **FISHKILL**	Route 9D S (across from Dutchess Stadium) **BEACON**	Main St & Cliff St **BEACON**
	1	3	6	9	10	15	16	54	55	56	57	71
AM	9:15	9:20	9:24	9:30	9:31	9:40	9:46	9:53	9:57	10:01	10:03	10:09
	11:45	11:50	11:54	**12:00**	**12:01**	**12:10**	**12:16**	**12:23**	**12:27**	**12:31**	**12:33**	**12:39**
PM	**2:15**	**2:20**	**2:24**	**2:30**	**2:31**	**2:40**	**2:46**	**2:53**	**2:57**	**3:01**	**3:03**	**3:09**
	4:45	**4:50**	**4:54**	**5:00**	**5:01**	**5:10**	**5:16**	**5:23**	**5:27**	**5:31**	**5:33**	**5:39**

Stop #	12	13
	Beacon Train Station (Arrives) **BEACON**	
	13	
	201	
AM	10:14	
	12:44	
PM	**3:14**	
	5:44	

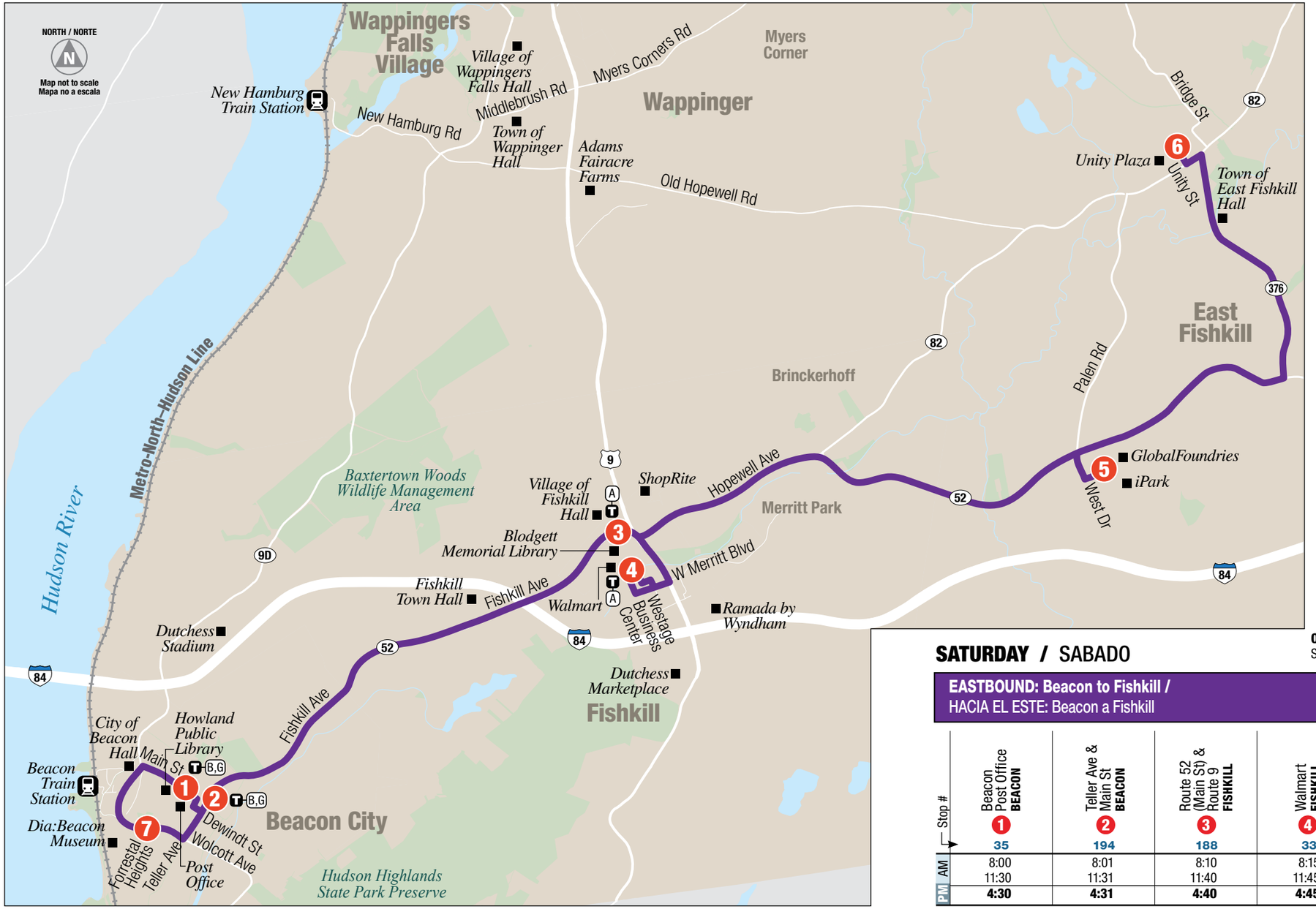
NORTHBOUND: Beacon to Poughkeepsie / HACIA EL NORTE: Beacon a Poughkeepsie

Stop #	13	14	11	16	15	8	7	6	5	4	3	1
	Beacon Train Station (Departs) **BEACON**	Route 9D & Beekman St **BEACON**	Route 9D N & Dutchess Stadium **BEACON**	Route 9D N (across from Castle Point VA entrance) **FISHKILL**	Route 9D N & Chelsea Rd **FISHKILL**	Route 9D & Spring St (across from Mesier Park) **WAPPINGER**	The Shoppes at South Hills **POUGHKEEPSIE**	Galleria Food Court **POUGHKEEPSIE**	Route 9 N & Barnes & Noble **POUGHKEEPSIE**	Route 9 N & Poughkeepsie Plaza **POUGHKEEPSIE**	South Ave/Market St Montgomery St **POUGHKEEPSIE**	Dutchess County Transit Hub **POUGHKEEPSIE**
	201	70	62	-	64	68	16	15	21	22	25	1
AM	10:17	10:22	10:28	10:31	10:34	10:43	10:51	10:56	11:07	11:08	11:15	11:19
	12:47	**12:52**	**12:58**	**1:01**	**1:04**	**1:13**	**1:21**	**1:26**	**1:37**	**1:38**	**1:45**	**1:49**
PM	**3:17**	**3:22**	**3:28**	**3:31**	**3:34**	**3:43**	**3:51**	**3:56**	**4:07**	**4:08**	**4:15**	**4:19**
	5:47	**5:52**	**5:58**	**6:01**	**6:04**	**6:13**	**6:21**	**6:26**	**6:37**	**6:38**	**6:45**	**6:49**

Only key points along the route are listed. Read the timetable from left to right. /
Solo se enumeran las paradas claves a lo largo de la ruta. Lee el horario de izquierda a derecha.

Route F: Beacon to Hopewell Junction

Please see map on page 34 & 35 / Favor ver el mapa en la página 34 y 35



MONDAY–FRIDAY / LUNES–VIERNES

EASTBOUND: Beacon to Hopewell Junction / HACIA EL ESTE: Beacon a Hopewell Junction

Stop #	Beacon Post Office BEACON 1	Teller Ave & Main St BEACON 2	Route 52 (Main St) & Route 9 FISHKILL 3	Walmart FISHKILL 4	iPark EAST FISHKILL 5	Unity Plaza HOPEWELL JUNCTION 6
	35	194	188	33	186	185
AM	8:00	8:01	8:10	8:15	8:25	8:30
	10:00	10:01	10:10	10:15	10:25	10:30
	11:45	11:46	11:55	**12:00**	—	—
	1:00	**1:01**	**1:10**	**1:15**	**1:25**	**1:30**
PM	—	—	—	**1:45**	**1:55**	**2:00**
	3:05	**3:06**	**3:15**	**3:20**	—	—

WESTBOUND: Hopewell Junction to Beacon / HACIA EL OESTE: Hopewell Junction a Beacon

Stop #	Unity Plaza HOPEWELL JUNCTION 6	iPark EAST FISHKILL 5	Walmart FISHKILL 4	Route 52 (Main St) & Church St FISHKILL 3	Beacon Post Office BEACON 1
	185	186	33	192	35
AM	—	—	7:30	7:35	8:00
	9:15	9:20	9:30	9:35	10:00
	10:45	10:50	11:00	11:05	11:30
	—	—	**12:30**	**12:35**	**1:00**
PM	**1:30**	**1:35**	**1:45**	—	—
	2:20	**2:25**	**2:35**	**2:40**	**3:05**

Only key points along the route are listed. Read the timetable from left to right. / Solo se enumeran las paradas claves a lo largo de la ruta. Lee el horario de izquierda a derecha.

SATURDAY / SABADO

EASTBOUND: Beacon to Fishkill / HACIA EL ESTE: Beacon a Fishkill

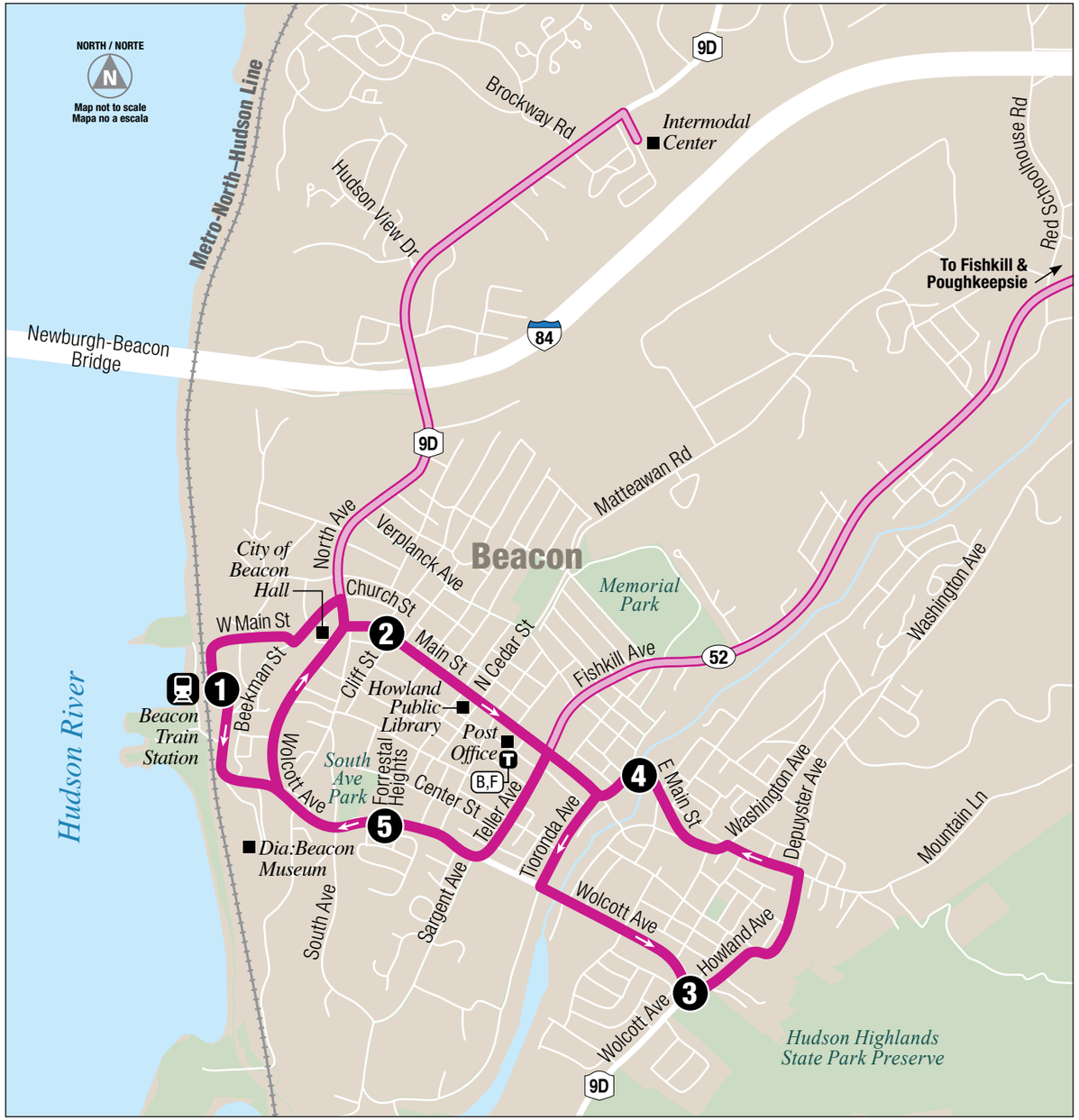
Stop #	Beacon Post Office BEACON 1	Teller Ave & Main St BEACON 2	Route 52 (Main St) & Route 9 FISHKILL 3	Walmart FISHKILL 4
	35	194	188	33
AM	8:00	8:01	8:10	8:15
	11:30	11:31	11:40	11:45
PM	**4:30**	**4:31**	**4:40**	**4:45**

WESTBOUND: Fishkill to Beacon / HACIA EL OESTE: Fishkill a Beacon

Stop #	Walmart FISHKILL 4	Route 52 (Main St) & Church St FISHKILL 3	Fishkill Ave & Main St BEACON 2	Forrestal Heights BEACON 7	Beacon Post Office BEACON 1
	33	192	193	70	35
AM	8:15	8:19	8:26	8:29	8:30
	11:00	11:04	11:11	11:14	11:15
PM	**5:00**	**5:04**	**5:11**	**5:14**	**5:15**

Route G: Beacon Free Loop

Please see map on page 36 / Favor ver el mapa en la página 36



MONDAY–SATURDAY / LUNES–SABADO

Beacon Free Loop

Stop #	1 Beacon Train Station (Departs) BEACON 201	2 Main St & Cliff St BEACON 71	3 Route 9D (Wolcott Ave) & Howland Ave BEACON 212	4 East Main St & Main St BEACON 205	5 Forrestal Heights BEACON 70	1 Beacon Train Station (Arrives) BEACON 201
AM	6:00*	6:06	6:12	6:16	6:21	6:25
AM	6:26	6:32	6:38	6:42	6:47	6:51
AM	6:52	6:58	7:04	7:08	7:13	7:17
AM	7:20	7:26	7:32	7:36	7:41	7:45
AM	7:48	7:54	8:00	8:04	8:09	8:13
AM	8:40	8:46	8:55	8:59	9:04	9:08
AM	9:15	9:21	9:25	9:29	9:34	9:38
AM	10:25	10:31	10:37	10:41	10:46	10:50
AM	10:50	10:56	11:02	11:06	11:11	11:15
AM	11:18	11:24	11:30	11:34	11:39	11:43
AM	11:45	11:51	11:57	**12:01**	**12:06**	**12:10**
PM	**12:10****	**12:16**	**12:22**	**12:26**	**12:31**	**12:35**
PM	**12:30***	**12:36**	**12:44**	**12:48**	**12:53**	**12:57**
PM	**1:10**	**1:16**	**1:24**	**1:28**	**1:33**	**1:37**
PM	**1:40**	**1:46**	**1:54**	**1:58**	**2:03**	**2:07**
PM	**2:10**	**2:16**	**2:24**	**2:28**	**2:33**	**2:37**
PM	**3:35**	**3:41**	**3:51**	**3:55**	**4:00**	**4:04**
PM	**4:15**	**4:21**	**4:29**	**4:33**	**4:38**	**4:42**
PM	**4:42**	**4:48**	**4:54**	**4:58**	**5:03**	**5:07**
PM	**5:15**	**5:21**	**5:27**	**5:31**	**5:36**	**5:40**
PM	**5:42**	**5:48**	**5:54**	**5:58**	**6:03**	**6:07**
PM	**6:27**	**6:33**	**6:39**	**6:43**	**6:48**	**6:52**
PM	**7:00**	**7:06**	**7:13**	**7:17**	**7:22**	**7:26**
PM	**7:30**	**7:36**	**7:43**	**7:47**	**7:52**	**7:56**
PM	**7:56**	**8:02**	**8:09**	**8:13**	**8:18**	**8:22**
PM	**8:22**	**8:28**	**8:35**	**8:39**	**8:44**	**8:48**
PM	**8:48****	**8:54**	**9:01**	**9:05**	**9:10**	**9:14**

* **The 6:00 am and 12:30 pm trips depart the Intermodal Center at 5:22 am and 12:13 pm respectively. /** Los viajes de las 6:00 am y 12:30 pm salen de Intermodal Center a las 5:22 y 12:13 respectivamente.

** **The 12:10 pm and 8:48 pm trips will return to Poughkeepsie via Route 9 North and Vassar Road. /** Los viajes de las 12:10 pm y 8:48 pm regresarán a Poughkeepsie via Route 9 North y Vassar Road.

Only key points along the route are listed. Read the timetable from left to right. /
Solo se enumeran las paradas claves a lo largo de la ruta. Lee el horario de izquierda a derecha.



Photo by Janelle Felder

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THE Mirbeau COMPANIES

May 25, 2022

Chairman John Gunn
City of Beacon Planning Board
City of Beacon
1 Municipal Plaza
Beacon, NY 12508

Re: Mirbeau Beacon Special Use Permit/ Site Plan Application
John Clarke Planning & Design Comments

Chairman Gunn,

We are pleased to provide our responses and supporting documents to address John Clarke's April 7 comments regarding our submission to the Planning Board. We have thoroughly reviewed all of the respective issues with our professional design team will be prepared to discuss these in detail at the June 14th Planning Board meeting. Please consider the following:

1. The revised LRC Landscape Plans are consistent with the original submittals and have been further refined nearest the Route 9D entrance to screen the new Chateau addition and at the same time maintain or enhance the view of the historic Howland Mansion. Please refer to the Arrowstreet Route 9D View, drawing number A0.01.

2. The revised Site Plan has shown the elimination of the 11 space lot closest to the Bennet Cottage. Additionally, the landscape median in the entrance drive has been widened to 10 feet which offers a softening of the viewshed. The Arrowstreet architectural viewshed also provides an accurate view of the existing Mansion and the propose viewshed with landscaping in place. The inclusion of modest fill and low plantings between Route 9D but sited mostly closer to the Spa parking area mitigates the visibility of parked cars. It is important to maintain adequate parking areas near the Spa and Main entrances to allow for Guest convenience and Handicap parking spaces while also avoiding and preserving notable legacy trees. Please refer to the LRC Landscape Sections which includes the landscape berm that screens the parking areas closest to Route 9D, drawing number FY-1.

3. The response to Comment 2 above also addresses the view from Route 9D. The revised Site Plan has minimized the parking near the legacy trees to enhance the view from the Main Entrance of the Mansion looking to the North. Regarding the view south from the south porch of the Mansion, we have enclosed the Arrowstreet site line detail that depicts this which identifies the Cottages to the far west, page numbered A3.01.

THE Mirbeau COMPANIES

4. The Colliers parking analysis is included for review. The number of parking spaces has been reduced by close to 10% and is now 251 spaces. The demand for parking is dictated by the Guest uses and convenience, as well as that for Employees. The majority of the parking areas are at the west side of the Mansion and will be used primarily for staff parking. While there may be an opportunity for shared parking, the layout of the Resort still has minimum demands that are informed by the brand's other resort properties. Additionally, because of the isolated location of the site, there is no public parking in close proximity.

5.The crescent parking has been redesigned moving it north and west behind the grove of weeping beech trees to minimize the view from the Mansion and provide for a sweeping view of the North Meadow. The trees themselves offer excellent screening for the new parking orientation.

6. A connection from the site's sidewalk system to the Route 9D sidewalk has been added in the redesigned layout. The connection to the recreation area across the street via crosswalk is not critical to the Resort uses and all safety issues must be considered for pedestrian use. We are open to working with the City to provide for this.

7. The inclusion of sidewalks leading from 9D down Grandview and South Avenue appears to be feasible within the City right of way. We would need to understand the requirements of the City for an improvement and the responsible parties. Regarding a potential trail on the East side of the Creek, the Master Plan provided for a trail on the West side on properties already accessible. The primary obstacle to any trail on the East side is lack of access due to no bridge crossing that exists. Additionally, the topography of the area around the Tioranda School, the significant wetlands along the creek where the City Sewer line lies, and the connection to the residential area to the north create several challenges. We also have concerns over safety and security. We will need a more thorough understanding of the trail plans.

8. The survey of the legacy trees and trees greater than 6" caliper to be removed has been completed for the areas affected by the proposed project. The trees to be removed are identified on the submitted Tree Removal and Protection Plans The site and building design have taken these into account to the greatest extent possible and practical when weighing the requirements of the site design standards as well as the age and condition and quality of existing trees.

THE Mirbeau COMPANIES

9. The Lighting Plan has been revised to provide a revised fixture cut sheets, base installation details for post top fixtures, photometry grid of calculated light levels, fixture locations and references optical patterns as shown on the schedules and cut sheets. The Color Rendering index requirement will be 80 or greater for all fixtures (and is so noted on the cut sheets) and the manufacturer has confirmed this can be provided. There are a few very minor trespasses on the Route 9 frontage that can be addressed with a subseuqnet adjustment to fixture location and/or optical adjustments or shields.

10. Arrowstreet has included detailed floor plans, elevations, colors, and building service requirements. Refer to drawings A2.01, A2.02, A3.00A, and A3.00B. Site improvements including trash enclosure, delivery station, and transformer locations are included on the revised Hudson Site Plan. Regarding the Archeological analysis, all of the improvements have been designed to avoid any impact to identified Archeologically sensitive areas. The complete Hartgen Archaeological Report dated July, 2006 has been filed with and reviewed by the NYS OPRHP. This report is available for the City's review.

11. All requirements for historic buildings will be provided during the course of the approval process to receive a Certificate of Appropriateness.

12. In order to comply with SEQRA, we have provided a conceptual layout of the Tioranda School/Pond recreation area, the proposed future subdivision to include 19 rental cottages, and the proposed Resort Farm at the southeast corner of the site. All access and utility connections will be integrated with the overall Resort. We look forward to discussing all of these comments and responses at the next meeting.

Thank you.

Regards,

Edward A. Kellogg

Mirbeau of Beacon, LLC

HUDSON
LAND DESIGN

Civil & Environmental Engineering Consultants
174 Main Street, Beacon, New York 12508 (Main Office and Mailing Address)
13 Chambers Street, Newburgh, NY 12550 (Satellite Office)
Phone: 845-440-6926 Fax: 845-440-6637
www.HudsonLandDesign.com

May 25, 2022

Hon. John Gunn, Chairman
City of Beacon Planning Board
1 Municipal Plaza
Beacon, NY 12508

Re: Mirbeau Subdivision, Site Plan and Special Use Permit
7 Craig House Lane
Tax Parcel: 6054-13-001258, ±64.39 ac.
City of Beacon, NY

Dear Chairman Gunn and Members of the Planning Board:

On behalf of the Applicant for the above referenced project, Hudson Land Design (HLD) has revised the plan set in response to Lanc & Tully's (L&T) April 8, 2022 comment letter. Below is a point-by-point response to the comments received. Please note that Mirbeau of Beacon, LLC has responded to John Clarke Planning and Design April 7, 2022 comments, and Colliers Engineering has responded to Creighton Manning May 10, 2022 comments under separate cover. Below is a point-by-point response to the L&T comments received.

Lanc & Tully June 8, 2022 Comment Letter

General Comments

1. Comment noted. Plans will be submitted to the DCDBCH for review and approval in a future submission.
2. Comment noted. Creighton Manning will be conducting the review and approval of the Route 9D improvements. Please refer to the Colliers response no. 9 to the Creighton Manning comments.
3. Profiles and tables for the proposed water, sewer and stormwater infrastructure as well as stationing are now provided on the plans. Refer to sheets 7, 8 and 9 for plan view and stationing and sheets 12 through 15 for profiles.
4. The project surveyor is currently updating the survey to include the sewer and water work completed within South and Grandview Avenue, and improvements along the site's frontage on Route 9D. The plans will be updated once they become available.

5. The sewer system is to remain private within the site; however, the portion of proposed sewer within Grandview and South Avenue will be offered for dedication to the City of Beacon. The DCDBCH may prefer that the sewer main be extended into the site up to the last manhole that the new subdivided lot will tie into the sewer main to avoid private sewer agreements between private properties. We intend to involve the DCDBCH in this project as early as possible to work out the details of the proposed sewer and water infrastructure with the City.
6. A preliminary engineering report for water and sewer is included with this submission.
7. Preliminary on-site traffic signage is shown on the plans. Additional signage specific to the Inn & Spa will be added in the future.
8. The SWPPP has been updated to include hydrologic modeling of the proposed stormwater management system as well as water quality and runoff reduction calculations for SWPPP compliance.

The following items submitted for review:

- Five (5) copies of a full set of revised plans;
- Three (3) copies of the revised SWPPP, and
- Three (3) copies of the preliminary Water and Sewer Report.

Additional materials are being submitted by other project consultants under separate cover. We look forward to discussing this project at your June 14, 2022 planning board agenda. Should you have any questions, please feel free to contact me at 845-440-6926.

Sincerely,

Michael A. Bodendorf, P.E.
Principal

cc: Mirabeau Beacon, LLC
Dan Leary, Esq.
Henry Thomas, RLA
David Bios, AIA
Richard D'Andrea, P.E., PTOE
Daniel G. Koehler, P.E. (HLD file)

Preliminary Stormwater Pollution Prevention Plan for Mirbeau Beacon Inn & Spa

Prepared for:
Mirbeau Beacon, LLC.
433 Broadway STE 203
Saratoga Springs, NY 12866

March 29, 2022
Revised May 25, 2022

PRELIMINARY

Prepared by:
Hudson Land Design Professional Engineering, P.C.
174 Main Street
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1.0 INTRODUCTION

1.1 Overview

This preliminary Stormwater Pollution Prevention Plan (SWPPP) has been developed in accordance with New York State Department of Environmental Conservation (NYSDEC) State Pollutant Discharge Elimination System (SPDES) General Permit for Stormwater Discharges from Construction Activity Permit No. GP-0-20-001, which authorizes stormwater discharges to surface waters of the State from the following construction activities identified within 40 CFR Parts 122.26(b)(14)(x), 122.26(b)(15)(i) and 122.26(b)(15)(ii), provided all of the eligibility provisions of this permit are met:

1. Construction activities involving soil disturbances of one (1) or more acres; including disturbances of less than one acre that are part of a larger common plan of development or sale that will ultimately disturb one or more acres of land; excluding routine maintenance activity that is performed to maintain the original line and grade, hydraulic capacity or original purpose of a facility;
2. Construction activities involving soil disturbances of less than one (1) acre where the Department has determined that a SPDES permit is required for stormwater discharges based on the potential for contribution to a violation of a water quality standard or for significant contribution of pollutants to surface waters of the State.
3. Construction activities located in the New York City, East of Hudson watershed, that involve soil disturbances between five thousand (5,000) square feet and one (1) acre of land.

This project qualifies for SPDES coverage under provision 1 as stated above.

The objectives of this SWPPP are as follows:

- To develop a sediment and erosion control plan in accordance with the most current version of the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, which implements best management practices to stabilize disturbed areas, protect off site areas and sensitive areas and minimize the transport of sediment.
- To demonstrate that the resulting stormwater runoff from the development exiting the site will not adversely impact offsite properties, stormwater conveyance systems or receiving water bodies, and that temporary and permanent stormwater systems and facilities are designed in accordance with the latest revision to the New York State Stormwater Management Design Manual (SDM), January 2015.
- To demonstrate that runoff reduction measures have been implemented into the design of the site.
- To demonstrate that the required runoff from the development is captured and treated through approved water quality measures.

Construction activities are not permitted to begin until such time that authorization is obtained under the General Permit. This project is not located within a Municipal Separate Storm Sewer System (MS4) area. Authorization to commence construction activities may commence seven (7) days following receipt of the Notice of Intent (NOI).

A copy of the General Permit, SWPPP, NOI, NOI acknowledgment letter, inspection reports and accompanying plans shall be maintained on-site from the date of initiation of construction activities until final stabilization of all disturbed areas has been achieved and the Notice of Termination (NOT) has been submitted.

1.2 Land Disturbance

Per the General Permit, no more than five (5) acres of land disturbance may occur at any one time without written approval from the NYSDEC. At a minimum, the owner or operator must comply with the following requirements in order to be authorized to disturb greater than five (5) acres of soil at any one time:

a. The owner or operator shall have a qualified inspector conduct at least two (2) site inspections every seven (7) calendar days, for as long as greater than five (5) acres of soil remain disturbed. The two (2) inspections shall be separated by a minimum of two (2) full calendar days.

b. In areas where soil disturbance activity has been temporarily or permanently ceased, temporary and/or permanent soil stabilization measures shall be installed and/or implemented within seven (7) days from the date the soil disturbance activity ceased. The soil stabilization measures selected shall be in conformance with the most current version of the technical standard, New York State Standards and Specifications for Erosion and Sediment Control.

c. The owner or operator shall prepare a phasing plan that defines maximum disturbed area per phase and shows required cuts and fills.

d. The owner or operator shall install any additional site-specific practices needed to protect water quality.

Disturbance of more than five (5) acres at any one time is not anticipated for this project. Phasing of the construction activities is planned to limit the amount of disturbance at any one time.

1.2.1 Special Habitat Considerations

The NYSDEC EAF Mapper identifies the following species as a species of concern, threatened or endangered: Atlantic Sturgeon, Timber Rattlesnake, Spongy-Leaved Arrowhead, Bald Eagle, Pied-billed Grebe, Short nose Sturgeon. An onsite habitat assessment was conducted on the site. No species were identified on the site, nor was any habitat found; however, suitable habitat was found for the Northern Long Eared Bat and Indiana Bat.

1.2.1.1 Northern Long Eared Bat and Indiana Bat

The NYSDEC Environmental Resource Mapper indicated that endangered species reside within the site but are not specific on the particular species present. Need to contact the local NYSDEC Regional Office for information.
The NYSDEC Environmental Resource Mapper does not indicate Northern Long Eared Bat or Indiana Bat on or near the property. Therefore, there will be no impact to their habitat.

In the unlikely event that either bat is discovered on the site, tree removal shall consider the habitat of the Northern Long Eared Bat and the Indiana Bat. To protect these bats from unintentional harm,

forest management practices shall take place during the hibernation period, November 1 through April 1, when bats are not expected to be present. However, the DEC places no restrictions on tree cutting unless a project is located within 5 miles of a known hibernation site or 1.5 miles of a documented summer occurrence. For projects requiring the removal of trees, the DEC recommends the following actions:

- Leave snag and cavity trees uncut unless their removal is necessary for protection of human life and property.
- If any bats are observed flying from a tree, or on a tree that has been cut, tree management activities in the area should be suspended and DEC Wildlife staff notified as soon as possible. A permit may be required to continue work, or you may have to wait until November 1 to resume activities.

Information in regard to the Long Eared Bat and Indiana Bat can be found within Appendix C.

2.0 PROJECT DESCRIPTION

2.1 Project Location

The project site is located at 7 Craig House Lane, in the City of Beacon, Dutchess County, New York and consists of 64.35 acres. The project site is located on the west side of Wolcott Avenue (NYS Route 9D) and is bounded by Grandview and South Avenue on its southerly property line. The Dutchess County Parcel viewer website lists the parcel's tax parcel number is 6054-13-001258.

The project site is previously improved and consists of the former Howland Mansion, the former Tioranda School, two gate houses and a building that was constructed in 1978 to serve the former mental health use when it was the Craig House, as well as related parking areas. The Craig House psychiatric facility closed in 1999, and all of the buildings on the premises have remained vacant and unused since that time.

The remaining existing site cover consists of a mixture of forested areas, open grass fields, specimen trees, some ponds with wetlands and Fishkill Creek binds its westerly property line.

2.2 Project Scope and Description

The scope of the project will be limited only to the 7 Craig House Lane Lot. No work is proposed on the parcel east of Wolcott Avenue (NYS Route 9D). Specifically, the project as proposed by the Applicant will revitalize this long dormant property through adaptive re-use and restoration of existing buildings, and by adding new buildings and improvements, including a hotel with accessory uses, a spa, fine dining restaurant, event facilities, estate-caliber gardens, water features and other site amenities (the "Project"). The Project will consist of the restoration, renovation and expansion of the existing mansion to principally provide amenities associated with the spa and a restaurant. The Project includes five (5) hotel rooms in the mansion, seven (7) grotto hotel rooms within the proposed mansion expansion and sixty-three (63) hotel rooms to be located in a newly constructed, spa chateau building, which includes a proposed spa at the garden level, and five (5) resort-related 2-bedroom rental cottages. New asphalt parking areas will be constructed to serve

the proposed use. A new maintenance building will be constructed which will provide storage of equipment and offices for buildings and grounds staff.

Future uses include Resort Rental Cottages: The 7.0 acre parcel delineated on the site plan will be subdivided from the Premises for future related development by an affiliated entity, and will have a density limited to a maximum of nineteen (19) resort-related rental cottages, with two (2) to three (3) bedrooms in each cottage. Resort Farm: A passive, resort-servicing micro-farm will be constructed at the Southeast corner of the Premises along Grandview Ave. This will include lavender and spice fields and production of on-site farm to table products. The proposed future farm area is shown on the accompanying site plan drawings. The Tioranda school will also be renovated in a future phase that will include recreation areas and parking.

The proposed project at full build-out will disturb approximately ±10.5 acres. The total drainage study area is ±193 square miles. The proposed development will increase impervious area ±0.91 acres in comparison to the pre-developed area.

2.3 Surface Water Bodies

2.3.1 Wetlands

The NYSDEC Resource Mapper indicates that there are no State regulated wetlands on the site. The database also indicates that the nearest State regulated wetland is located about 1,114 feet west of the site's westernmost boundary, this places the site well beyond the nearest State wetland's 100-foot buffer.

The NWI website indicates there are NWI freshwater wetlands, ponds and riverines present on and adjacent to the site. Of the two (2) freshwater ponds on the site's western side near its border with the Fishkill Creek, the DEC map indicates that that southern pond is a C class waterbody under regulation 862-237. The northern pond is classified by the NWI database as a PUBFh freshwater pons with an area of 0.83 acres. No disturbances are proposed to the on-site wetlands

2.3.2 Streams

NWI mapping and the NYSDEC mapper indicates no streams located on the premises. However, Fishkill Creek borders the westerly property line of the parcel. The DEC map indicates that the Fishkill Creek as a Class C stream under regulation 862-237. No disturbances are proposed to the bed or banks of the Fishkill Creek.

2.3.3 Floodplains

Based upon review of the National Flood Insurance Program Flood Insurance Rate Map panels 36027C0576E and 36027C0577E, dated May 2, 2012, for the City of Beacon, New York, it was found that the western portion of the site (along the Fishkill Creek and on-site ponds) is situated along a Zone AE Floodway. The remainder, eastern portion of the site was found to be on an area of minimal flood hazard (Zone X). Please refer to Appendix C for supporting information and details regarding flood hazard zones on site (FEMA FIRMette).

2.4 State Historic Preservation Office (SHPO)

2.4.1 Archaeological Sensitive Area

This project is located within and is adjacent to survey archaeologic area according to the SHPO CRIS website. The site is also adjacent to National Register Building sites along its west and north boundaries according to the SHPO CRIS website. The CRIS site indicates that the existing gates houses, Tioranda School building and Hasbrook Mansion are eligible for historic status. The archaeologic sensitive area origin is approximately 1,865 feet northwest of the project's north boundary. A phase environmental site assessment has been submitted to SHPO for review.

3.0 NOTICE OF INTENT

Prior to commencement of construction activities, the Owner/Operator shall submit a Notice of Intent (NOI) to the NYSDEC for authorization. The NYSDEC authorization schedule is as follows:

For construction activities that are not subject to the requirements of a regulated, traditional land use control MS4:

- Five (5) business days from the date the NYSDEC receives a complete NOI for construction activities with a SWPPP that has been prepared in conformance with the technical standards, or
- Sixty (60) business days from the date the NYSDEC receives a complete NOI for construction activities with a SWPPP that has not been prepared in conformance with the technical standards.

For construction activities that are subject to the requirements of a regulated, traditional land use control MS4:

- Five (5) business days from the date the NYSDEC receives a complete NOI and signed "MS4 SWPPP Acceptance" form.

The project area is under the control of a regulated MS4, therefore the NOI shall be submitted directly to the NYSDEC along with the MS4 SWPPP Acceptance Form. A draft completed NOI is included in Appendix A of this SWPPP.

4.0 SOILS

The hydrologic soil characteristics of the watershed areas were obtained from Web Soil Survey Mapping of Dutchess County, New York, and available Geographical Information Systems (GIS) and are as follows:

Symbol	Description	Hydrologic Soil Group
BeC	Bernardston silt loam, 8 to 15 percent slopes	C/D
ChB	Charlton fine sandy loam, 3 to 8 percent slopes	B
DwB	Dutchess-Cardigan complex, undulating, rocky	B/C
HsA	Hoosic gravelly loam, nearly level	A
HsB	Hoosic gravelly loam, undulating	A

NwC	Nassau-Cardigan complex, rolling, very rocky	C/D
NwD	Nassau-Cardigan complex, hilly, very rocky	C/D

SOIL PROPERTIES

Symbol	Erosion Hazard (k)
BeC	0.32 - Slight
ChB	0.24 - Slight
DwB	0.32 - Slight
HsA	0.10 - Slight
HsB	0.10 - Slight
NwC	0.17 - Slight
NwD	0.17 - Slight

Supporting soils information is provided in Appendix B of this SWPPP.

5.0 RAINFALL

5.1 Overview

The rainfall data utilized in the analysis of the watershed was obtained from Extreme Precipitation Tables from the Northeast Regional Climate Center. Supporting information is provided in Appendix C of this SWPPP. The storm events are as follows:

Storm Event	24-Hour Rainfall (in)
1 - year	2.61
10 - year	4.72
25 - year	5.93
100 - year	8.40

Rainfall data is provided in Appendix C of this SWPPP.

5.2 Rainfall Event Sizing Criteria

The stream channel protection volume (Cpv) criteria, intended to protect stream banks from erosion, will be demonstrated by providing 24 hour extended detention of the Type III 1-year, 24-hour storm event, or by infiltrating the entire volume. When providing extended detention, the channel protection volume criterion is not required where the resulting diameter of the stormwater management basin orifice is less than three (3) inches with a trash rack. Cpv can be met by use of green infrastructure treatment practices described in greater detail in Section 6 of this report.

The overbank flood control (Qp) criteria, intended to prevent an increase in frequency and magnitude of out of bank flooding generated by new development, will be demonstrated by attenuating the Type III 10-year, 24-hour peak discharge rate to pre-development conditions. The overbank flood criteria can be waived if the project site discharges to a tidal water or fifth order stream.

The extreme flood control (Qf) criteria, intended to prevent the increased risk of flood damage from large storm events, maintain the boundaries of pre-development conditions, and protect the physical integrity of stormwater management practices, will be demonstrated by attenuating the Type III 100-year, 24 hour peak discharge rate to pre-development conditions. The extreme flood control criteria can be waived if the project site discharges to a tidal water or fifth order stream. The use of on-site green infrastructure stormwater treatment practices can mitigate post-developed Qp and Qf rates and volumes.

The pre and post-development runoff rates will be compared utilizing the Type III 1-year (channel protection), 10-year (overbank flood control), and 100-year (extreme flood control) year, 24-hour storm events. The pre- versus post-development analysis will include the analysis of the Qp and Qf storm events.

6.0 STORMWATER ANALYSIS AND MANAGEMENT

6.1 Methodology

6.1.1 Hydrologic Analysis

The HydroCAD stormwater modeling system computer program by Applied Microcomputer Systems will be used to analyze, design and document the complete drainage system. The program uses standard hydrograph generation and routing techniques based on the USDA-NRCS Technical Releases TR-20 and TR-55 to develop stormwater runoff rates and volumes.

The program determines the rate and volume of runoff based on inputs of the watershed area, and characteristics of the land including vegetative coverage, slope, soil type, and impervious area.

6.1.2 Stormwater Design Points

Design Points represent the location where the majority of runoff from an area exits the site. The same design points are identified in post-development conditions so that a comparison can be made between the pre-development and post-development conditions. Three design points for the project were selected, as follows:

Stormwater Discharge Points	
SDP	**Description**
1	Fishkill Creek at the Tioranda Bridge.

6.2 Pre-Development Watershed Conditions

The pre-developed site is broken into one overall Fishkill Creek watershed to the design point located at the Tioranda bridge which is summarized below:

Subcatchment 1 is comprised of approximately 193 square miles of Fishkill Creek watershed area including off-site and on-site areas tributary to DP 1. The offsite area consists of mostly wooded areas, open field areas, residential area and the City of Beacon. The on-site area is undeveloped wooded areas, wetlands, existing buildings and open grass fields. The subcatchment area contains soils in hydrologic soil groups A, B, C, & D. Runoff from the site travels via sheet flow, shallow concentrated flow and stream flow to DP 1. All flow from the site discharges to the Fishkill Creek and ultimately to DP 1.

Detailed stormwater calculations and routing for the pre-development conditions have been included in Appendix D.

The following table summarizes the pre-development watershed conditions:

Pre-Development Watershed Conditions					
Subcatchment	**Area (sq. mi.)**	**Cover**	**Average Curve #**	**Hydrologic Soil Group(s)**	**Time of Concentration**
1	193	Wooded, open fields, developed areas and water surface areas	N/A	A, B C, & D	N/A

6.3 Post-Development Watershed Conditions

6.3.1 Downstream Analysis

The project site is located at the mouth of the Fishkill Creek as it enters the Hudson River. The creek is a fourth order stream at this point with a 193 square mile watershed contributing to the design point. The 64.35 acre site is less than a fraction of a percent of the overall watershed of Fishkill creek. The overall Fishkill Creek watershed peak discharge rates occur at a much later time that the on-site peak discharge rates due to the much larger sized overall watershed. Therefore, the goal is to perform a downstream analysis to demonstrate that on-site peak "beats the peak" of the Fishkill Creek by occurring at earlier times than the Fishkill Creek, thereby not increasing the overall peak discharge of the Creek because they don't occur at the same time.

This project meets the downstream analysis criteria as defined in Section 4.10 of the NYS Stormwater Design Manual. Therefore Qp and Qf can be waived. The post-developed subcatchment areas are broken up to determine WQv, RRv and CPv only. Peak discharge rates of the site are not required.

6.3.2 Onsite Analysis

The post-developed site is broken into six (6) on-site subcatchments. Stormwater treatment will be provided through two proposed bioretention areas, an underground infiltration/detention storage chamber system, two rain gardens, and green roofs. The following is a description of the subcatchments:

Subcatchment 11 is comprised of ±5.23 acres of onsite area. Land cover consists of open grass field area with mature trees, proposed hotel/spa development and impervious areas. The subcatchment area contains soils in hydrologic soil group B. Runoff from the subcatchment travels via sheet flow, shallow concentrated flow and pipe flow to a proposed underground infiltration

chamber system A. Discharge from the chamber system flows westerly through existing drainage ditches on the site to SDP1.

Subcatchment 12 is comprised of ±3.12 acres of onsite area. Land cover consists of open grass field area with mature trees, hotel/spa development and impervious areas. There is a portion of green roof in this area, it has been considered to be lawn in the hydrologic calculations. The subcatchment area contains soils in hydrologic soil groups A and B. Runoff from the subcatchment travels via sheet flow, shallow concentrated flow and pipe flow to proposed bioretention area A. Discharge from the bioretention area flows westerly through an existing drainage ditch on the site to Fishkill Creek, and ultimately to SDP1.

Subcatchment 13 is comprised of ±0.29 acres of onsite area. Land cover consists of open grass field area with mature trees, 3 rental cottages and impervious areas. The subcatchment area contains soils in hydrologic soil group B. Runoff from the subcatchment travels via sheet flow and shallow concentrated flow to proposed rain garden A. Discharge from the rain garden flows westerly through an existing drainage ditch on the site to Fishkill Creek, and ultimately to SDP1.

Subcatchment 14 is comprised of ±0.40 acres of onsite area. Land cover consists of open grass field area with mature trees, 2 rental cottages and impervious areas. The subcatchment area contains soils in hydrologic soil group A. Runoff from the subcatchment travels via sheet flow and shallow concentrated flow to proposed rain garden B. Discharge from the bioretention flows westerly through an existing drainage ditch on the site to Fishkill Creek, and ultimately to SDP1.

Subcatchment 15 is comprised of ±1.90 acres of future re-developed onsite area. Land cover consists of open grass field area with mature trees, the former Tioranda School building and impervious parking areas. The subcatchment area contains soils in hydrologic soil groups A & C. Runoff from the subcatchment travels via sheet flow and shallow concentrated flow to proposed bioretention area B. Discharge from the bioretention flows westerly through an existing drainage ditch on the site to Fishkill Creek, and ultimately to SDP1.

Subcatchment P is comprised of ±1.48 acres of self-contained onsite water garden area. The proposed water garden is a tiered recirculating waterbody system. Contributing drainage is the garden itself which does contain a small amount of impervious walkways and a small portion of building. The land cover consists of open grass area, landscaped areas, open water and impervious areas. There is a portion of green roof in this area, it has been considered to be lawn in the hydrologic calculations. The subcatchment area contains soils in hydrologic soil group B. Runoff from the subcatchment travels via sheet flow and shallow concentrated flow to the water garden system. The water garden is a closed recirculating pump system that will only overflow during rain events. Overflow from the garden flows westerly through an existing drainage ditch on the site to Fishkill Creek, and ultimately to SDP1.

Detailed stormwater calculations and routing for the post-development condition have been included in Appendix E.

The following table summarizes the post-development watershed conditions:

Post-Development Watershed Conditions					
Subcatchment	**Area (ac)**	**Cover**	**Average Curve #**	**Hydrologic Soil Group(s)**	**Time of Concentration**
11	5.23	Developed lawn, landscaped areas, main parking, and hotel	78	B	11.5 min.
12	3.12	Developed lawn, landscaped areas, parking, and hotel	75	A & B	6.1 min.
13	0.29	Developed lawn, landscaped areas, and cottages	72	B	2.8 min.
14	0.40	Developed lawn, landscaped areas, and cottages	45	A	4.3 min.
15	1.90	Developed lawn, landscaped areas, parking and school	54	A & C	11.1 min.
P	1.48	Developed lawn, landscaped areas, and water feature	73	B	3.3 min.

6.4 Hydrologic Review

The stormwater CPv computations are summarized below.

Post-Development Watershed Conditions		
Subcatchment	**Required CPv Runoff Volume (cf)**	**Provided CPv structure**
11	14,854	30” outlet pipe
12	7,318	2” dia. orifice
13	-	-
14	-	-
15	479	No outflow

6.5 Stormwater Management System

The stormwater management system will consist of an onsite closed pipe network that will collect site runoff from impervious and pervious surfaces and convey it to the various stormwater practices prior to discharge to stormwater discharge points under overflow conditions.

6.6 Green Infrastructure for Stormwater Management

The SDM encourages the use of green infrastructure (GI) practices for stormwater management. Green infrastructure approach for stormwater management reduces a site’s impact on an aquatic ecosystem through the use of site planning techniques, runoff reduction techniques, and certain standard stormwater management practices. The objective is to replicate the pre-development hydrology by maintaining pre-construction infiltration, peak runoff flow, discharge volume, and

minimizing concentrated runoff by use of runoff control techniques. When implemented, green infrastructure can reduce volume, peak flow, and flow duration, promote infiltration and evapotranspiration, improve groundwater recharge, reduce downstream flooding, and protect downstream water and wetlands.

6.6.1 Green Infrastructure Practices

Green infrastructure consists of implementing several techniques during the site planning process which are:

- Preservation of Natural Resources – Preservation of undisturbed areas; preservation of buffers; reduction of clearing and grading; locating development in less sensitive areas; open space (park) design; soil restoration.
- Reduction of Impervious Cover – Roadway reduction; sidewalk reduction; driveway reduction; building footprint reduction; parking reduction.
- Runoff Reduction Techniques – Conservation of natural areas; sheet flow to riparian buffers or filter strips; vegetated open swale; tree planting/tree box; disconnection of roof runoff; stream daylighting for redevelopment projects; bioretention areas; rain gardens; green roofs; stormwater planters; rain tank/cistern; pervious pavement.

During the planning process, the above techniques are implemented to the greatest extent possible to reduce runoff developed by the site. The following summarizes the GI techniques implemented on the site:

- Conservation of natural areas
- Sheet flow to riparian buffers
- Impervious cover has been reduced wherever possible.
- Bioretention basins are proposed to provide quantity and quality treatment of stormwater runoff.

6.6.1.1 Conservation of Natural Areas

No conservation easements are proposed on the subject premises; however, all of the forest area between the existing developed area will remain undisturbed as part of the project. Therefore, runoff to this area will continue to be filtered through undisturbed forest surface and allowed to infiltrate where possible prior to discharging to the onsite and offsite waterbodies.
Runoff from areas of the project area that are directed to riparian buffers can treated for water quality by flowing through the vegetated buffer area. If no riparian buffers exist, a level spreader and vegetated filter strip may be constructed to mimic the riparian buffer. Runoff must be directed to the buffers or filter strip through sheet flow and may require the construction of a level spreader.

6.6.1.2 Bioretention Areas and Rain Gardens

Runoff from the proposed development will be directed to rain gardens, bioretention areas with infiltration capacity, and an underground infiltration/detention system thereby providing RRv capacity.

6.6.2 Five Step Process for Stormwater Site Planning and Selection Design

Stormwater management using GI is summarized in the five-step process described below.

Step 1: Site Planning
The site design will incorporate the preservation of natural resources including protection of natural areas, avoidance of sensitive areas, minimizing grading and soil disturbance, minimizing impervious areas on roads, driveways and parking lots. The site layout will avoid wetlands, waterways, buffers, areas of highly erodible soils and critical areas. The site design will also maintain natural drainage design points.

Step 2: Determine Water Quality Volume (WQv)
The WQv will be calculated for the site prior to implementation of GI practices. The calculated WQv must be reduced by implementation of GI & SMP's.

Step 3: Runoff Reduction by Applying Green Infrastructure Techniques
Green infrastructure practices will be implemented wherever possible to reduce runoff from the site. GI for this site will consist of reduction of roadway widths, providing parking beneath buildings and the use of infiltration practices.

Step 4: Apply Standard SMP's to Address Remaining WQv
Standard SMP's such as ponds, filtering practices or stormwater wetlands to meet additional water quality volume requirements. It is not anticipated that additional standard SMP's will be required for this project based upon the reduction of impervious surfaces.

Step 5: Apply Volume and Peak Rate Control Practices (if needed)
Cpv, Qp and Qf must also be met, either by standard practices, or other accepted techniques such as meeting criteria set forth in the NYS SWDM, where Cpv, Qp and Qf are required. Cpv, Qp and Qf are met by the installation of the stormwater pond with an outlet control structure on the east side and bioretention basin with outlet control structure on the west side which reduce the peak flows associated with each criterion.

6.7 Qualitative Practices

Small sized, frequently occurring storms account for the majority of runoff events that generate stormwater runoff. As a result, the runoff from these storms is recognized as a major contributor of pollutants. Therefore, treating these frequently occurring smaller rainfall events and a portion of the larger events offers an opportunity to minimize the water quality impacts associated with developed areas.

The water quality volume, denoted as WQ_v, specifies a treatment volume required to be captured and treated by intercepting 90% of the average annual stormwater runoff volume. This criterion strives to achieve an 80% Total Suspended Solids (TSS) removal and 40% Total Phosphorous (TP) removal on an annual basis.

In numerical terms, it is calculated using the formula below which was obtained from Section 4.2 of the New York State Stormwater Management Design Manual, January 2015:

$$WQ_v = (P \times R_v \times A) / 12$$

Where:

WQ_v = Water Quality Volume (acre-feet)

P = 90% Rainfall Event Number

$R_v = 0.05+0.009 \times I$, where I is percent impervious (minimum $R_v = 0.2$)

A = Site area in acres (contributing area)

The following table has been developed summarizing the pre-treatment volume, water quality volume and treatment practices for the main project area. Areas 11, 12 and 31 are mainly undeveloped portions of the site that are diverted around treatment areas.

Watershed	Total Required WQv (cf)	Required Pre-Treatment Volume (cf)	Pre-Treatment Practice	Treatment Practice	WQv Provided (cf)
11	12,352	3,088	Isolator Row X 2	Underground Detention/Infiltration A	13,523
12	7,288	1,822	Plunge Pool	Bioretention A	12,394
13	485	-	-	Rain Garden A	1,080
14	407	-	-	Rain Garden B	1,980
15	3,694	923	Plunge Pool	Bioretention B*	To be provided
Green Roof	1,059	-	-	Green Roof	1,059
Total	**25,285**				**30,036**

*Bioretention area B is located near the Tioranda School in a future phase. Preliminary Design calculations are included for this bioretention area that will be finalized during the future phase.

A major concern with runoff into waterbodies is phosphorus loading. Phosphorus, like nitrogen, is an essential nutrient for aquatic life in waterbodies. However, increased amounts of phosphorus entering surface waters promotes excessive algae growth, which decreases water clarity, causes variations in dissolved oxygen, disagreeable odors, habitat loss and fish kills. The protection of waterbodies from the harmful effects of phosphorus can be accomplished from reducing the runoff volume entering surface waters. Reduction of runoff volume reduces the concentrations of pollutants entering the surface water and thus decreases harmful effects. The removal of enhanced phosphorus can be accomplished using stormwater management practices. Whether in particulate or dissolved speciation, phosphorus can be removed using unit operations. Particulate phosphorus in particular can be removed using bioretention areas and through sedimentation of runoff before entering surface water. Primarily, reducing the WQv entering a surface water body will lower phosphorus pollutant loading.

6.7.2 Pre-Treatment Practices

The following pre-treatment practices have been incorporated into the design of this project. Preventative and corrective maintenance measures to provide long-term effectiveness of stormwater attenuation practices if properly implemented will be included in Appendix L.

6.7.2.1 Forebays and Plunge Pools

Forebays and plunge pools are depressions located within a drainage path, adjacent to an inlet, which are designed to promote the deposition of sediment from the runoff, prior to entering the stormwater management facility. Tow (2) forebays have been incorporated into the design – one each at bioretention area A & B.

6.7.2.2 Overland Flow

A significant portion of the runoff will flow overland to receiving water bodies or offsite properties. Much of the site's existing natural vegetation is proposed to remain, and the post developed land cover will be restored to turf grass and landscaped areas. The meadow and landscaped areas will capture sediment and floatables prior to discharge at the stormwater discharge point.

6.7.3 Treatment Practices

The following treatment practices have been incorporated into the design of this project. Preventative and corrective maintenance measures to provide long-term effectiveness of stormwater attenuation practices if properly implemented are included in Appendix L.

6.7.3.1 Bioretention Areas

Bioretention areas are shallow landscaped stormwater basins which utilize engineered soils and vegetation to capture and treat runoff. A standard profile would show an aged shredded hardwood mulch layer above 30 to 48 inches of planting media, with underdrain in gravel jacket below. Native plants (grasses, shrubs, trees) are provided in the bioretention area. Bioretention areas provide water quality treatment, and in cases with soils exhibiting high infiltrative rates, are capable of handling the CPv. In most cases, flows from larger storms are diverted to other practices more suited to attenuate flows for larger storm events. Underdrains are required elements in HSG C & D, but may not be necessary in those soil types if infiltration testing proves adequate infiltrative capacity exists. All bioretention areas are located in A & B soils. Therefore, they are equipped with underdrains and provide 40% runoff reduction.

6.7.3.2 Underground Infiltration

Stormwater infiltration practices capture and temporarily store the water quality volume before allowing it to infiltrate through the floor of each practice into the soil over a two-day period. In areas where the subsurface soils exhibit high infiltration rates, the channel protection volume may also be infiltrated. Infiltration facilities are not typically capable of infiltrating the overbank flood or extreme flood volumes. Adequate outflows are required for these larger storm events. Soil testing to obtain infiltration rates are required as part of the design of infiltration facilities. Varying degrees of pre-treatment of the water quality are required based on the field determined infiltration rate of the subsurface soils. 100% of the water quality volume is required where the infiltration rate exceeds 5 inches per hour, 50% for infiltration rates between 2 and 5 inches per hour, and 25% for infiltration rates less than 2 inches per hour. Pre-treatment is typically accomplished through installation of plunge pools and other filtering methods. Infiltration practices must be isolated and protected from stormwater run-off during construction. The contributory drainage area shall be completely constructed and stabilized before connection of the stormwater conveyance system to the infiltration practice. Infiltration basins are typically landscaped by providing a hardy, drought tolerant grass species that is capable of tolerating periodic inundation. The established grass requires mowing twice annually (or as needed). Proper maintenance of the contributing conveyance system and pre-treatment practice are important in maintaining infiltration rates.

6.7.3.3 Rain Gardens

Rain gardens are a green infrastructure technique intended to manage and treat small volumes of stormwater runoff from impervious surfaces using a conditioned planting soil bed and planting materials to filter runoff stored within a shallow depression. This practice is most commonly used in residential land use settings. The method is a variation on bioretention and combines physical filtering and adsorption with bio-geochemical processes to remove pollutants. Rain gardens are a simplified version of bioretention and are designed as a passive filter system without an underdrain connected to the storm drain system.

6.7.3.4 Green Roofs

Green roofs are a green infrastructure technique that consist of a layer of vegetation and soil installed on top of a conventional flat or sloped roof. The rooftop vegetation captures rainwater allowing evaporation and evapotranspiration processes to reduce the amount of runoff entering downstream systems, effectively reducing stormwater runoff volumes and attenuating peak flows. Green roof designs are characterized as extensive or intensive, depending on storage depth. Extensive green roofs have a thin soil layer and are lighter, less expensive and generally require low maintenance. Intensive green roofs often have pedestrian access and are characterized by a deeper soil layer with greater weight, higher capital cost, increased plant diversity and more maintenance requirements.

6.8 Runoff Reduction Volume (RRv)

RRv is not required for re-development projects. Typically, RRv is met with the use of individual treatment practices since the re-development project meets the criteria set forth in the NYS SWDM §9.3.3. A bioretention area, infiltration basin, underground infiltration area, and rooftop disconnects are proposed to manage and treat the runoff generated from the sites impervious areas.

RRv (measured in acre-feet) is reduction of the total WQv by application of GI techniques and SMP's to replicate the pre-development hydrology. The minimum required RRv is defined as the specified Reduction Factor (S), provided objective technical justification is documented.

RRv must be achieved by infiltration, groundwater recharge, reuse, recycle, evaporation/evapotranspiration of 100% of the post-developed WQv's to replicate pre-development hydrology by maintaining pre-construction infiltration, peak runoff flow, discharge volume, as well as minimizing concentrated flow by using runoff control techniques to provide treatment in a distributed manner before runoff reaches the collection system.

RRv is calculated based upon three methods:

1. Reduction of the practice contributing area in WQv computation.
2. Reduction of runoff volume by storage capacity of the practice.
3. Reduction using standard SMP's with runoff reduction capacity.

Projects that cannot meet 100% of the runoff reduction requirement must provide a justification that evaluates each of the GI planning and reduction techniques and identify the specific limitations of the site according to which application of this criterion is technically infeasible. Projects that do not achieve runoff reduction to pre-construction must, at a minimum, reduce a percentage of the runoff from impervious areas to be constructed on the site. The percent reduction is based on the Hydrologic Soil Group(s) (HSG) of the site and is defined as Specific Reduction Factor (S).

The following lists the specific reduction factors for the HSG's.

HSG A = 0.55

HSG B = 0.40

HSG C = 0.30

HSG D = 0.20

The specific reduction factor (S) is based on the HSG's present at the site. The values are defined based on a hydrology analysis of low, medium, and high imperviousness. The reduction is achieved when runoff from a percentage of the impervious area on a site is captured, routed through GI or an SMP, infiltrated to the ground, reused, reduced by evapotranspiration, and eventually removed from the stormwater discharge from the site.

The following equation is used to determine the minimum RRv:

RRv (in acre-feet of storage) = [(P)(Rv*)(Ai)]/12

Ai = (S)(Aic)

Ai = impervious cover targeted for runoff reduction

(Aic) = total area of new impervious cover

Rv * = 0.05+0.009(I) where I is 100% impervious

S = Hydrologic Soil Group (HSG) Specific Reduction Factor (S)

The goal of the SWPPP is to utilize as many runoff reduction methods as possible on a site. All GI practices will be quantified and compared to the overall WQv for the site. If the RRv is greater than or equal to the WQv, then standard SMP's can be implemented to control peak rate leaving the site if applicable.

The following table summarizes required 100% RRv, minimum RRv, RRv reduced by use of runoff reduction techniques, RRv provided by standard SMP's with RRv and provided RRv for the main project area. The table will be completed after calculation of RRv for the approved layout.

Watershed	Required Total RRv (cf)	Required Minimum RRv (cf)	RRv reduced by use of runoff reduction techniques (cf)	RRv provided by standard SMP with RRv (cf)*	RRv (cf) Provided*
11	12,352	4,654	-	12,352	12,352
12	7,288	3,085	-	7,288	7,288
13	485	174	485	-	485
14	407	106	407	-	407

15	3,694	1,779	-	To be provided**	To be provided
Green Roof	1,059	583	1,059	-	1,059
Total	**25,285**	**10,381**	**-**	**To be provided**	**To be provided**

* Treatment practices can be oversized to provide additional runoff reduction (RRv); however, they can only be oversized to provide up to 100% of the RRv. No additional credit can be taken for RRv for practices that provide greater than 100% RRv.

**Bioretention area B is located near the Tioranda School in a future phase. Preliminary Design calculations are included for this bioretention area that will be finalized during the future phase.

6.9 Soil Restoration

Soils within disturbed areas tend to over compact as a result of heavy construction traffic; thus, limiting their infiltrative capacity. Under the GP-0-020-001 permit, soil restoration is required in disturbed areas that will be vegetated in order to recover the original properties and porosity of the soil, especially in areas that receive high construction traffic, or areas that have soils that are poorly drained.

Many runoff reduction practices need Soil Restoration measures applied over and adjacent to the practice to achieve runoff reduction performance. Some key benefits of soil restoration are less runoff, better water quality; healthier, aesthetically pleasing landscapes; increased porosity on redevelopment sites where impervious cover is converted to pervious; decreases runoff volume generated and lowers the demand on runoff control structures; enhances direct groundwater recharge; promotes successful long-term re-vegetation by restoring soil organic matter, permeability, drainage and water holding capacity for healthy root system development of trees, shrubs and deep-rooted ground covers, minimizing lawn chemical requirements, plant drowning during wet periods, and burnout during dry periods.

Soil restoration is required on redevelopment projects in areas where existing impervious area will be converted to pervious area.

6.9.1 Soil Restoration Methods

- Topsoil Application – Applying 6” of topsoil in soils with an HSG of A & B and have only been stripped, cut or filled. Soils with HSG of C or D that have only been stripped require aeration in addition to topsoil.
- Aeration - Aeration includes the use of machines such as tractor-drawn implements with coulters making a narrow slit in the soil, a roller with many spikes making indentations in the soil, or prongs which function like a mini-subsoiler.
- Tilling – Tilling includes the use of a cat-mounted ripper, tractor mounted disc, or tiller in order to expose the compacted soil devoid of oxygen to air an recreates temporary air space which allows for infiltration.
- Full Soil Restoration - Consists of Deep Ripping and De-Compaction, Compost Enhancement, and/or Deep Subsoiling. Deep Ripping includes the use of a cat mounted ripper, and is typically done at 12” to 24” depths. Compost Enhancement is done by using a deep subsoiler after topsoil has been applied. The goal is to alleviate the

compaction that may have occurred during the placement of topsoil. This method mixes the topsoil and compost with subsoils.

Restoration techniques shall not be done until construction is complete and traffic will not travel through green areas. It is expected that full soil restoration will be required in areas around residential dwellings where undisturbed soil existed proposed to landscaped. These areas are shown on the erosion and sediment control plan. Other soil restoration techniques are shown where light grading, or minor cuts and fills are proposed. The type of soil restoration in these areas depends on the hydrologic soil group.

7.0 EROSION AND SEDIMENT CONTROL

7.1 Overview

The most sensitive stage of the development cycle is the period when vegetation is cleared and a site is graded. The potential impacts to on-site and off-site receiving waters and adjoining properties are particularly high at this stage. For example, trees and topsoil are removed, soils are exposed to erosion, and natural topography and drainage patterns are altered. Control of erosion and sediment during these periods is an essential function of this SWPPP and accompanying plans.

Effective and practical measures employed to minimize the erosion potential and prevent sediment from leaving the construction site and reaching streams or other water bodies have been recommended in accordance with:

- New York State Standards and Specifications for Erosion and Sediment Control, November, 2016

In order to ensure the effectiveness of the measures recommended herein, routine inspections and documentation, along with procedures for monitoring the findings, maintenance, and corrective actions resulting from each inspection are outlined within this section of the SWPPP.

7.2 Temporary Erosion and Sediment Control Measures

The following temporary measures have been incorporated into the erosion and sediment control plans for the site construction activities. These measures are also detailed on the site plans.

7.2.1 Silt Fence

A silt fence is a temporary sediment barrier consisting of a filter fabric stretched across and attached to supporting posts, entrenched, and supported with woven wire fence. Silt fences are installed on the contours across a slope and used to trap sediment by intercepting and detaining sediment laden runoff from disturbed areas in order to promote sedimentation on the uphill side of the fence.

Silt fences are suitable for perimeter and interior control, placed below areas where runoff may occur in the form of sheet flow. It should not be placed in channels or areas where flow is concentrated. In addition to interior and perimeter control a silt fence can be applied in the following applications:

- Below the toe or down slope of exposed and erodible slopes.

- Along streams and channels banks.
- Around temporary spoil area and stockpiles.

7.2.2 Stabilized Construction Entrance

A stabilized construction entrance consists of a pad of aggregate overlaying a geotextile fabric located at a point where construction vehicles enter or exit a site to reduce or eliminate the tracking of sediment onto public right of ways, street, alleys or parking areas, thereby preventing the transportation of sediment into local stormwater collection systems. Efficiency is greatly increased when a washing area is included as part of a stabilized construction entrance.

Stabilized construction entrances shall be a minimum of fifty (50) feet long and twelve (12) feet wide, but not less than the full width of points where vehicles enter and exit the site. Where there is only one access point to the site, the stabilized construction entrance shall be a minimum of twenty-four (24) feet wide. Stabilized construction entrances shall be a minimum of six (6) inches in depth consisting of one (1) to four (4) inch stone or reclaimed or recycled equivalent.

7.2.3 Check Dams

Check dams shall be placed in channels to reduce scour and erosion by reducing flow velocity and promoting sediment settlement. Check dams shall be spaced in the channel so that the crest of the downstream dam is at the elevation of the toe of the upstream dam. Check dams, consisting of a well-graded stone two (2) – nine (9) inches in size (NYSDOT – Light Stone) shall maintain a height of two (2) feet with side slopes of 2:1 extending beyond the bank of the channel by a minimum of one and a half (1.5) feet. Check dams shall be anchored in the channel by a cutoff trench of one and a half (1.5) feet in width by a half (0.5) foot in depth.

7.2.4 Inlet Protection

Inlet protection consists of a filtering measure placed around or upstream of a storm drain used to trap sediment by temporary ponding runoff before it enters the storm drain. Inlet protection is not considered to be a primary means of sediment control and should be used with an overall integrated sediment control program. There are four types of storm drain inlet protection consisting of: excavated drop inlet protection, fabric drop inlet protection, stone and block drop inlet protection and curb drop inlet protection.

Inlet protection shall be implemented for all inlets that could potentially be impacted by sediment laden runoff.

7.2.5 Temporary Channels

Temporary channels in the form of diversion swales or berms may be used to intercept and direct runoff under the following applications:

- Above disturbed areas in order to direct and prevent clean runoff from flowing over disturbed areas until the area is permanently stabilized.
- Below disturbed areas to convey sediment laden runoff to sediment traps.
- Across disturbed slopes to reduce slope lengths.

Where used to convey sediment laden runoff, temporary channels shall be equipped with check dams.

7.2.6 Sediment Traps & Sediment Basins

A sediment trap or basin is a containment area, where sediment laden runoff collected from disturbed areas is temporarily detained allowing sediment to settle out before the runoff is discharged. Sediment traps and basins are formed by excavating an area or constructing an earthen embankment where sediment control is needed.

There are several types of sediment traps. The outlet of a rip rap outlet sediment traps shall be through a partially excavated channel through the embankment lined with rip rap. Pipe outlet sediment traps are equipped with an outlet structure including a perforated riser. The pipe outlet typically is installed through the embankment.

Sediment traps and basins are designed to treat 3,600 cubic feet per acre of drainage area collected. Pipe outlet sediment traps are limited to drainage areas of less than five (5) acres, rip rap outlet sediment traps are limited to fifteen (15) acres of drainage area, and sediment basins can accommodate upwards of one hundred (100) acres.

Sediment shall be removed, and the trap or basin shall be restored to the original dimensions when the sediment has accumulated to ½ of the design depth. The required and provided storage/cleanout elevations have been provided on the plan set. Calculations for sizing the facilities will be provided in the final SWPPP if necessary.

7.2.7 Water Bars

Water bars are temporary earth barriers constructed across construction roads used to intercept and divert roadway runoff toward temporary sediment traps or channels, prevent runoff from concentrating, and minimize the potential of gullies from forming. Spacing of water bars is dependent upon the road slope and shall be installed in accordance with the schedule depicted on the Erosion and Sediment Control detail sheet.

7.2.8 Straw Bale Barriers

Straw bale barriers are used to intercept and contain sediment from disturbed areas of limited size in order to prevent sediment from exiting the site. Bales should be placed in a single row lengthwise along the contour, with ends abutting one another. Straw bales shall be bound and installed so that the bindings are oriented around the sides. Straw bales shall be entrenched a minimum of four (4) inches, backfilled, and anchored using either two stakes or rebar driven through the straw bales to a depth of one and a half (1.5) to two (2) feet below grade.

Straw bales shall be used where no other measure is feasible. They shall not be used where there is a concentration of flow within a channel or other area.

The useful life of a straw bale barrier is three (3) months.

7.2.9 Temporary Soil Stockpiles

Stockpiling of soil is a method of preserving soil and topsoil for regrading and vegetating disturbed areas. Stockpiles shall be located away from environmentally sensitive areas (i.e. wetlands and associated buffers, streams, water bodies) and shall be protected with a peripheral silt fence.

Slopes of stockpiles shall not exceed 2:1. Temporary stabilization measures shall be completed within fourteen (14) days of stockpile formation.

7.2.10 Dust Control

Dust control measures reduce the surface and air transport of dust, thereby preventing pollutants from mixing into stormwater. Dust control measures for the construction activities associated within this project consist of windbreaks, minimization of soil disturbance (preserving buffer areas of vegetation where practical), mulching, temporary and permanent vegetation cover, barriers (i.e. geotextile on driving surfaces) and water spraying.

Construction activities shall be scheduled to minimize the amount of area disturbed at any one time.

7.2.11 Temporary Soil Stabilization Practices

Stabilization practices reduce the potential for soil detachment by shielding the soil surface from the impact of rainfall and reducing overland flow velocity.

The Contractor shall initiate stabilization measures as soon as possible in portions of the site where construction activities have temporarily or permanently ceased, but in no case more than 14 days after the construction activity in that portion of the site has temporarily or permanently ceased. This requirement does not apply where the initiation of stabilization measures by the 14th day after construction activity temporarily or permanently ceased is precluded by snow cover or frozen ground conditions.

Temporary stabilization practices may include:

7.2.11.1 Mulching

Mulching is a temporary soil stabilization practice. Mulching prevents erosion by protecting soil from raindrop impact and by reducing the velocity of overland flow. Mulching also retains moisture within the soil surface and prevents germination. Where mulching consists of wood chips or shavings, it shall be applied at a rate of 500-900 lbs per 1000 s.f. Where mulching consists of straw, it shall be applied at a rate of 90-100 lbs. per 1000 s.f. All temporary grass areas shall receive a standard application of mulch consisting of straw, unless the area is hydroseeded.

7.2.11.2 Temporary Seeding

Temporary seeding provides additional benefits over other stabilization practices by creating a vegetation system holding soil particles in place with root systems and maintaining the soils capacity to absorb runoff. Temporary vegetation shall be placed in accordance with project plans. Irrigation shall be used when the soil is dry or when summer plantings are done.

7.2.11.3 Temporary Erosion Control Blanket

A temporary erosion control blanket is a degradable erosion control blanket used to hold seed and soil in place until vegetation is established in disturbed areas. Temporary erosion control blankets insulate and conserve seed moisture thus reducing evaporation and increasing germination rates and protect seeds from birds. Temporary erosion control blankets may consist of straw blankets, excelsior blankets (curled wood excelsior), coconut fiber blankets, or wood fiber blankets (reprocessed wood fibers which do not possess or contain any growth or germination inhibiting factors).

7.3 Permanent Erosion and Sediment Control Measures

The following permanent measures have been incorporated into the erosion and sediment control plans for the site construction activities.

7.3.1 Outlet Protection

Outlet protection is used to reduce stormwater velocity and dissipate the energy of flow exiting a culvert before discharging into receiving channels. Rip-rap treatment extends between the point where flows exit the culvert and where the velocity and/or energy from runoff is dissipated to a degree where there is minimal erosion downstream of the discharge point.

A geotextile fabric shall be placed beneath the rip-rap to prevent soil movement into and through the rip-rap.

7.3.2 Permanent Soil Stabilization Practices

Stabilization practices reduce the potential for soil detachment by shielding the soil surface from the impact of rainfall and reducing overland flow velocity.

The Contractor shall initiate stabilization measures as soon as possible in portions of the site where construction activities have permanently ceased, but in no case more than 14 days after the construction activity in that portion of the site has permanently ceased.

Permanent stabilization practices may include:

7.3.2.1 Sod

Where exposed soils have the potential to generate off-site sediment loading, sod can provide a immediate form of stabilization and extra protection to a disturbed area. Where applied, sod shall be blue grass or a bluegrass/red fescue mixture or a perennial ryegrass and machine cut with a uniform soil thickness of ¾ inch, plus or minus ¼ inch. Sod shall be used at the discretion of the Owner, unless specifically required by the plans.

7.3.2.2 Permanent Vegetation

Permanent vegetation shall be used to provide a protective cover for exposed areas that have received final grading. Permanent stabilization shall be applied where topsoil has been placed or returned and incorporated into the soil surface. When used, this process shall be followed with the application of straw mulch to protect soil from erosion and seed from drying out. Irrigation shall be used when the soil is dry or when summer plantings are done. Permanent vegetation shall be placed in accordance with project plans.

7.3.2.3 Hydroseeding

Hydroseeding is the hydraulic application of seed and fertilizer onto prepared seed beds. When used, this process shall be followed with the application of straw mulch to protect soil from erosion and seed from drying out. Irrigation shall be used when the soil is dry or when summer plantings are done. Hydroseeding shall be used at the discretion of the Contractor, unless specifically required by the plans.

7.3.2.4 Permanent Erosion Control Blankets

Permanent erosion control blankets are comprised of synthetic materials that form a high strength mat that helps prevent soil erosion in channels and on steep slopes. Stems and roots become intertwined within the matrix, thus reinforcing the vegetation and anchoring the mat. Permanent erosion control blankets insulate and conserve seed moisture thus reducing evaporation and increasing germination rates and protect seeds from birds. When used within channels, permanent erosion control blankets can aid in the establishment of vegetation and increase the maximum permissible velocity of the given channel by reinforcing the soil and vegetation to resist the forces of erosion during runoff events.

7.4 Erosion and Sediment Control Sequencing Schedule

Implementation schedules for the installation of erosion and sediment control measures prior to and during the course of construction will depend greatly on the actual construction schedule and the varying field conditions that may warrant temporary construction stops and/or work commencing in other locations. A construction sequence is provided demonstrating how the project will be phased to limit to soil disturbance to less than 5-acres at any one time.

Erosion control measures shall be inspected and repaired as needed during construction activities and based on the maintenance schedule. Additional erosion control measures based on site conditions shall be provided as necessary in order to protect adjacent parcels and waters.

7.5 Maintenance Schedules

Maintenance of the erosion and sediment controls incorporated into this project shall be performed on a regular basis to assure continued effectiveness. This includes repairs and replacement to all erosion and sediment control practices, including cleanout of all sediment retaining measures. Those measures found to be ineffective during routine inspections shall be repaired or replaced and cleaned out (where applicable) before the next anticipated storm event or within 24-hours of being notified, whichever comes first. A more detailed description of the maintenance procedures for the site-specific erosion and sediment control practices has been provided on the plan set.

7.6 Construction Staging Areas

Construction staging areas are areas designated within construction sites where most equipment and materials are stored. The locations of the construction staging areas for this project have been shown on the plan set.

7.7 Site Assessments, Inspections and Reporting

Regular inspections of the construction site shall be performed by a qualified professional who is familiar with all aspects of the SWPPP and the implemented control practices. Inspections are intended to identify areas where the pollutant control measures at the site are ineffective and have the potential to allow pollutants to enter water bodies or adjoining properties.

7.7.1 Prior to Construction

Prior to the commencement of construction, a qualified professional shall conduct an inspection of the site and certify in an inspection report that the appropriate erosion and sediment control measures have been installed as indicated by the project plan set and SWPPP. This certification

shall be forwarded to the Owner's Representative and Contractor for filing in the construction logbook.

A copy of the "Pre-Construction Site Assessment Checklist" has been provided in Appendix G.

7.7.2 During Construction

Following the commencement of construction, a qualified professional shall perform inspections of site construction activities in accordance with the SPDES General Permit. Inspections shall occur every seven (7) calendar days. Refer to Section 1.2 of this SWPPP for additional inspection requirements associated with disturbance of greater than five (5) acres at any time.

For project areas where soil disturbance activities have been temporarily suspended (e.g. winter shutdown) and temporary stabilization measures have been applied to all disturbed areas, the qualified inspector shall conduct a site inspection at least once every thirty (30) calendar days. The owner or operator shall notify the Regional Office stormwater contact person in writing prior to reducing the frequency of inspections.

For project areas where soil disturbance activities have been shut down with partial project completion, the qualified inspector can stop conducting inspections if all areas disturbed as of the project shutdown date have achieved final stabilization and all post-construction stormwater management practices required for the completed portion of the project have been constructed in conformance with the SWPPP and are operational. The owner or operator shall notify the Regional Office stormwater contact person in writing prior to the shutdown.

The inspections shall include observation of installed and maintained erosion and sediment control measures for consistency with project specifications and documentation of items to be corrected and recommendations for mitigating concerns. The following information, at minimum, shall be recorded during each inspection:

- Date and time of inspection;
- Name and title of person(s) performing inspection;
- A description of the weather and soil conditions (e.g. dry, wet, saturated) at the time of the inspection;
- A description of the condition of the runoff at all points of discharge from the construction site. This shall include identification of any discharges of sediment from the construction site. Include discharges from conveyance systems (i.e. pipes, culverts, ditches, etc.) and overland flow;
- A description of the condition of all-natural surface waterbodies located within, or immediately adjacent to, the property boundaries of the construction site which receive runoff from disturbed areas. This shall include identification of any discharges of sediment to the surface waterbody.
- Identification of all erosion and sediment control practices that need repair or maintenance.

- Identification of all erosion and sediment control practices that were not installed properly or are not functioning as designed and need to be reinstalled or replaced;

- Description and sketch of areas that are disturbed at the time of the inspection and areas that have been stabilized (temporary and/or final) since the last inspection;

- Current phase of construction of all post-construction stormwater management practices and identification of all construction that is not in conformance with the SWPPP and technical standards;

- Inspect all erosion and sediment control practices and record all maintenance requirements such as verifying the integrity of barrier or diversion systems (earthen berms or silt fencing) and containment systems (sediment basins and sediment traps). Identify any evidence of rill or gully erosion occurring on slopes and any loss of stabilizing vegetation or seeding/mulching. Document any excessive deposition of sediment or ponding water along barrier or diversion systems. Record the depth of sediment within containment structures, any erosion near outlet and overflow structures, and verify the ability of rock filters around perforated riser pipes to pass water (where applicable);

- Inspect all sediment control practices and record the approximate degree of sediment accumulation as a percentage of the sediment storage volume;

- Corrective action(s) that must be taken to install, repair, replace or maintain erosion and sediment control practices; and to correct deficiencies identified with the construction of the post-construction stormwater management practice(s);

- Digital photographs, with date stamp, that clearly show the condition of all practices that have been identified as needing corrective actions. The qualified inspector shall attach paper color copies of the digital photographs to the inspection report being maintained on site within seven (7) calendar days of the date of the inspection. The qualified inspector shall also take digital photographs, with date stamp, that clearly show the condition of the practice(s) after the corrective action has been completed. The qualified inspector shall attach paper color copies of the digital photographs to the inspection report that documents the completion of the corrective action work within seven (7) calendar days of that inspection;

- A brief description of any erosion and sediment control practice repairs, maintenance or installations made as a result of previous inspection; and

- All deficiencies that are identified with the implementation of the SWPPP.

Summary reports shall be forwarded to the Owner's Representative and Contractor. Reports shall be incorporated into the construction logbook. Within one business day of the completion of an inspection, the qualified inspector shall notify the owner or operator and appropriate contractor or subcontractor of any corrective actions that need to be taken. The contractor or subcontractor shall

begin implementing the corrective actions within one business day of this notification and shall complete the corrective actions in a reasonable time frame.

A copy of the "Construction" inspection report has been provided in Appendix M.

7.7.3 Quarterly Report

The Owner shall prepare a written summary of its status with respect to compliance with the SPDES General Permit at a minimum frequency of every three months during which coverage under the permit exists. The summary should address the status of achieving each component of the SWPPP. The report shall include the overall performance of the stormwater facilities, average, minimum and maximum depths of sediment within the stormwater facilities, the physical condition of all drainage structures, maintenance reports from the previous year, and any recommendations for any repairs, modifications or adjustments to the stormwater facilities.

7.7.4 End of Term

Termination of coverage under SPDES General Permit is accomplished by filing a Notice of Termination with the NYSDEC. Prior to the filing of the Notice of Termination (NOT), the Owner shall have a qualified professional perform a final site inspection. The qualified professional shall certify that the site has undergone final stabilization using either vegetative or structural stabilization methods, that all temporary erosion and sediment control structures have been removed, and that all permanent erosion control and stormwater facilities have been installed and are operational in conformance with the SWPPP by signing the "Final Stabilization" and "Post-Construction Stormwater Management Practice" certification statements on the NOT. The owner or operator shall then submit the completed NOT form to the NYSDEC. "Final stabilization" means that all soil disturbing activities at the site have been completed and a uniform, perennial vegetative cover with a density of eighty (80) percent has been established or equivalent stabilization measures (such as the use of mulches or geotextile) have been employed on all unpaved areas and area not covered by permanent structures.

A NOT is provided in Appendix N.

7.8 Construction Logbook

The construction logbook shall be maintained on-site from the date of initiation of construction activities to the date of final stabilization and shall be made available to the permitting authority upon request. The construction logbook shall contain a record of all inspections; preparer's, qualified professional's, owner's/operator's, contractor's, and sub-contractor's (if applicable) certifications; and weekly and quarterly reports.

7.9 Long Term Operation and Maintenance Plan of Stormwater System and Landscape Areas

7.9.1 Catch Basins and Piping

Catch basins shall be inspected after every storm event and remove trash and debris that may be blocking the flow capability of the structure. The owner should pay close attention during the fall months where leave debris will be heavy. The catch basins and piping shall be inspected for sediment accumulation at least once a year, and utilize vacuum trucks as necessary to remove the accumulated sediment.

7.9.2 Hydrodynamic Separators (Contech CDS® Units)

The manufacture recommends that the CDS units be inspect bi-annually (once in the spring and once in the fall). The structure shall be visually inspected for blockages or obstructions in the inlet or separation screen. The inspection should also quantify accumulation of hydrocarbons, sediment and trash within the system. Inspections and maintenance shall be performed by qualified personnel with adequate training in these types of units. A record of inspections and scheduled cleanings shall be kept on site at all times. Manufacture's inspection recommendations and a sample report is provided in Appendix H.

7.9.3 Infiltration Basins

Infiltration basins shall be inspected monthly for sediment and debris accumulation. Inflow pipes, outlet structures and spillways should also be inspected for sediment and debris monthly. Any accumulated sediment or debris should be removed as necessary. After storm events, the infiltration basin's dewatering duration should also be monitored. The basin floor shall be mowed when the grass reaches a height of 18". Sediment shall be cleaned out of the basin annually.

7.9.4 Bioretention Areas

Bioretention areas shall be inspected monthly for sediment and debris accumulation. Inflow pipes, outlet structures and spillways should also be inspected for sediment and debris monthly. Any accumulated sediment or debris should be removed as necessary. Plantings shall be inspected monthly for height, fertilizer, quantity and unauthorized invasive or inappropriate species. Grass height shall be kept below 6" in height. After storm events, the bioretention's dewatering duration should also be monitored. Sediment shall be cleaned out of the bioretention area annually.

7.9.5 Pre-treatment Forebays and Plunge Pools

Pre-treatment forebays or plunge pools shall be inspected annually for overall performance and sediment accumulation. Sediment shall be removed when sediment accumulation reaches 50% of the design capacity volume. Inspection checklists for infiltration, bioretention and sediment forebays are included in Appendix R.

8.0 GOOD HOUSEKEEPING AND MATERIAL MANAGEMENT PRACTICES

The following good housekeeping and material management practices shall be followed to reduce the risk of spills or exposure of materials to stormwater runoff.

8.1 Waste Materials

All waste material, including but not limited to trash and construction debris, generated during construction shall be collected and stored in a proper receptacle in accordance with Federal, State, County and Local regulations. No waste material shall be buried on-site. All collected waste material shall be hauled to an approved waste disposal facility.

8.2 Chemical

Chemicals used on-site shall be kept in small quantities and stored in closed watertight containers undercover in a neat and orderly manner and kept out of direct contact with stormwater. Chemical products shall not be mixed with one another unless recommended by manufacturer.

All on-site personnel shall have access to material safety data sheets (MSDS) and National Institute for Occupational Safety and Health (NIOSH) Guide to Chemical Hazards (latest edition) for all chemicals stored and used on-site.

Manufacturer's and/or Federal, State, County and Local guidelines for proper use and disposal shall be followed. Any spills or contamination of runoff with chemicals shall be contained, collected, cleaned up immediately and disposed of in accordance with Federal, State, County and Local regulations.

8.3 Fuels and Oil

All on-site vehicles, tools, and construction equipment shall be monitored for leaks and receive regular preventive maintenance to reduce the chance of leakage. On-site vehicle and equipment refueling shall be conducted at a location away from access to surface waters and runoff. Any on-site storage tanks shall have a means of secondary containment. Oil products shall be kept in their original containers with original manufacturer's label. In the event of a spill, it shall be contained, cleaned up immediately and the material, including any contaminated soil, shall be disposed of in accordance with Federal, State, County and Local regulations.

Fuel and oil spills in excess of reportable quantities shall be reported to the NYSDEC as soon as the discharge is discovered.

8.4 Fertilizers

Fertilizers used on-site shall be stored in closed watertight containers undercover in a neat orderly manner and kept out of direct contact with stormwater. Manufacturer's and/or Federal, State, County and Local guidelines for proper use and disposal shall be followed. Any spills or contamination of runoff with fertilizers shall be contained, collected, cleaned up immediately, and disposed of in accordance with Federal, State, County and Local regulations.

8.5 Paint

Paints used on-site shall be stored in closed, watertight containers undercover in a neat and orderly manner and kept out of direct contact with stormwater. Manufacturer's and/or Federal, State, County and Local guidelines for proper use and disposal shall be followed. Any spills or contamination of runoff with paint shall be contained, collected, cleaned up immediately, and disposed of in accordance with Federal, State, County and Local regulations.

8.6 Sanitary Waste Facilities

Should portable units be located on-site, they shall be placed in upland areas away from direct contact with surface waters. They shall be serviced and cleaned on a weekly basis by a licensed portable toilet and septic disposal service. Any spills occurring during service shall be cleaned up immediately and disposed of in accordance with Federal, State, County, and Local regulations.

8.7 Container Disposal

All of a product shall be used up before disposal of the container. Empty containers that may contain chemical residue shall be disposed of in accordance with Federal, State, County and Local regulations.

8.8 Concrete and Asphalt Trucks

Concrete and asphalt trucks shall not be allowed to wash out or discharge surplus material on-site.

8.9 Site Supervisor

It shall be the responsibility of the Contractor's Site Supervisor to inspect daily and ensure the proper use, storage and disposal of all on-site materials.

9.0 SWPPP AMENDMENT

The SWPPP shall be updated by a licensed professional engineer whenever any of the following apply:

1) There is a significant change in design, construction, operation or maintenance which may have a significant effect on the potential for the discharge of pollutants to the waters of the United States and which has not otherwise been addressed in the SWPPP.
2) The SWPPP proves to be ineffective in:
    - Eliminating or significantly minimizing pollutants from sources identified in the SWPPP required by the SPDES Permit; or
    - Achieving the general objective of controlling pollutants in stormwater discharges from permitted construction activity.
3) Identify any new contractor or subcontractor that will implement any measure of the SWPPP.
4) NYSDEC notifies the Permittee that the SWPPP does not meet one or more of the minimum requirements of the SPDES Permit. Within seven (7) days of such notification or as provided for by the NYSDEC, the Permittee shall make amendments to the SWPPP and submit to the NYSDEC a written certification that the requested changes have been made.

Since this project is subject to the requirements of a regulated, traditional land use control MS4, the owner or operator shall notify the MS4 in writing of any planned amendments or modifications to the post-construction stormwater management practice component of the SWPPP. Unless otherwise notified by the MS4, the owner or operator shall have the SWPPP amendments or modifications reviewed and accepted by the MS4 prior to commencing construction of the post-construction stormwater management practice.

10.0 CONTRACTOR CERTIFICATIONS

All contractors and subcontractors that have any responsibility to install, inspect or maintain erosion or sediment control measures shall sign a copy of the certification statement included in Appendix I before undertaking any construction activity at the site identified in the SWPPP.

11.0 OWNER/OPERATOR CERTIFICATION

The Owner/Operator must review and sign the owner/operator certification statement included in Appendix K.

12.0 CONCLUSIONS

This SWPPP demonstrates that the proposed project generally meets the requirements of SPDES GP-0-20-001, as follows:

- An erosion and sediment control plan in accordance with the latest revision to the New York State Standards and Specifications for Erosion and Sediment Control, November 2016, has been developed for the project and is included in the site plan set.
- Hydrologic and Hydraulic calculations for all storm events modeled will demonstrate that the resulting stormwater runoff from the development, exiting the site will not adversely impact offsite properties, stormwater conveyance systems or receiving water bodies. Temporary and permanent stormwater systems and facilities are designed in accordance with the latest revision to the New York State Stormwater Management Design Manual, January 2015.
- The project has been designed to capture and treat 90% of the average annual stormwater runoff from the development through approved water quality measures in all available areas.
- The standard stormwater management practices provide more than the required minimum runoff reduction volume (RRv).

APPENDIX A

NOTICE OF INTENT & MS4 ACCEPTANCE FORM

(to be provided)

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

NYS Department of Environmental Conservation
Division of Water
625 Broadway, 4th Floor
Albany, New York 12233-3505

MS4 Stormwater Pollution Prevention Plan (SWPPP) Acceptance Form

for

Construction Activities Seeking Authorization Under SPDES General Permit

*(NOTE: Attach Completed Form to Notice Of Intent and Submit to Address Above)

I. Project Owner/Operator Information	
1. Owner/Operator Name:	The Mirbeau Companies, LLC.
2. Contact Person:	Jonathan T. Dal Pos
3. Street Address:	433 Broadway STE 203
4. City/State/Zip:	Saratoga Springs, New York, 12866
II. Project Site Information	
5. Project/Site Name:	Mirbeau Inn & Spa at Beacon
6. Street Address:	7 Craig House Lane
7. City/State/Zip:	Beacon, New York, 12508
III. Stormwater Pollution Prevention Plan (SWPPP) Review and Acceptance Information	
8. SWPPP Reviewed by:	
9. Title/Position:	
10. Date Final SWPPP Reviewed and Accepted:	
IV. Regulated MS4 Information	
11. Name of MS4:	City of Beacon
12. MS4 SPDES Permit Identification Number: NYR20A	040
13. Contact Person:	Michael Manzi
14. Street Address:	1 Municipal Plaza
15. City/State/Zip:	Beacon, New York, 12508
16. Telephone Number:	(845) 831-0932

MS4 SWPPP Acceptance Form - continued

V. Certification Statement - MS4 Official (principal executive officer or ranking elected official) or Duly Authorized Representative

I hereby certify that the final Stormwater Pollution Prevention Plan (SWPPP) for the construction project identified in question 5 has been reviewed and meets the substantive requirements in the SPDES General Permit For Stormwater Discharges from Municipal Separate Storm Sewer Systems (MS4s). Note: The MS4, through the acceptance of the SWPPP, assumes no responsibility for the accuracy and adequacy of the design included in the SWPPP. In addition, review and acceptance of the SWPPP by the MS4 does not relieve the owner/operator or their SWPPP preparer of responsibility or liability for errors or omissions in the plan.

Printed Name:

Title/Position:

Signature:

Date: June 14, 2022

VI. Additional Information

(NYS DEC - MS4 SWPPP Acceptance Form - January 2015)

APPENDIX B

SOILS DATA

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Dutchess County, New York



March 23, 202

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.


73° 58' 38" W
73° 57' 40" W
41° 29' 33" N
41° 29' 5" N
585400
585500
585600
585700
585800
585900
586000
586100
586200
586300
586400
586500
586600
586700
4593900
4593800
4593700
4593600
4593500
4593400
4593300
4593200
4593100
Cherry St
South Ave
Fishkill Creek
High Goal Ln
ESB
HsA
ChB
DwB
W
NwC
NwD
HsB
BeC
9d
Soil Map may not be valid at this scale.
Map Scale: 1:6,090 if printed on A landscape (11" x 8.5") sheet.
N
Meters
0 50 100 200 300
Feet
0 250 500 1000 1500
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Dutchess County, New York
Survey Area Data: Version 18, Sep 1, 2021

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Oct 8, 2020—Oct 14, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BeC	Bernardston silt loam, 8 to 15 percent slopes	5.6	7.7%
ChB	Charlton fine sandy loam, 3 to 8 percent slopes	8.4	11.5%
DwB	Dutchess-Cardigan complex, undulating, rocky	15.5	21.3%
HsA	Hoosic gravelly loam, nearly level	11.5	15.9%
HsB	Hoosic gravelly loam, undulating	10.3	14.2%
NwC	Nassau-Cardigan complex, rolling, very rocky	2.7	3.7%
NwD	Nassau-Cardigan complex, hilly, very rocky	13.6	18.8%
W	Water	4.9	6.8%
Totals for Area of Interest		**72.4**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a

given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Dutchess County, New York

BeC—Bernardston silt loam, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 9rdn
Elevation: 0 to 1,000 feet
Mean annual precipitation: 41 to 47 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 115 to 195 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Bernardston and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Bernardston

Setting

Landform: Till plains, hills, drumlinoid ridges
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Crest
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy, acid, dense till derived mainly from phyllite, shale, slate, and schist

Typical profile

H1 - 0 to 8 inches: silt loam
H2 - 8 to 27 inches: silt loam
H3 - 27 to 80 inches: silt loam

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: 15 to 30 inches to densic material
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 18 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 4.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C/D
Ecological site: F144AY007CT - Well Drained Dense Till Uplands
Hydric soil rating: No

Minor Components

Punsit

Percent of map unit: 5 percent
Hydric soil rating: No

Pittstown
Percent of map unit: 5 percent
Hydric soil rating: No

Stockbridge
Percent of map unit: 5 percent
Hydric soil rating: No

Unnamed soils, fine-loamy
Percent of map unit: 3 percent
Hydric soil rating: No

Sun
Percent of map unit: 1 percent
Landform: Depressions
Hydric soil rating: Yes

Canandaigua
Percent of map unit: 1 percent
Landform: Depressions
Hydric soil rating: Yes

ChB—Charlton fine sandy loam, 3 to 8 percent slopes

Map Unit Setting
National map unit symbol: 2wh0n
Elevation: 0 to 1,440 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: All areas are prime farmland

Map Unit Composition
Charlton and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Charlton

Setting
Landform: Ridges, ground moraines, hills
Landform position (two-dimensional): Backslope, shoulder, summit
Landform position (three-dimensional): Side slope, crest, nose slope
Down-slope shape: Convex, linear
Across-slope shape: Convex
Parent material: Coarse-loamy melt-out till derived from granite, gneiss, and/or schist

Typical profile
Ap - 0 to 7 inches: fine sandy loam
Bw - 7 to 22 inches: gravelly fine sandy loam

C - 22 to 65 inches: gravelly fine sandy loam

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 6.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: B
Ecological site: F144AY034CT - Well Drained Till Uplands
Hydric soil rating: No

Minor Components

Sutton

Percent of map unit: 8 percent
Landform: Hills, ground moraines
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Paxton

Percent of map unit: 5 percent
Landform: Ground moraines, hills, drumlins
Landform position (two-dimensional): Backslope, summit, shoulder
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Convex, linear
Across-slope shape: Convex
Hydric soil rating: No

Chatfield

Percent of map unit: 1 percent
Landform: Ridges, hills
Landform position (two-dimensional): Backslope, shoulder, summit
Landform position (three-dimensional): Crest, side slope, nose slope
Down-slope shape: Convex
Across-slope shape: Linear, convex
Hydric soil rating: No

Leicester

Percent of map unit: 1 percent
Landform: Depressions, drainageways
Down-slope shape: Linear
Across-slope shape: Concave
Hydric soil rating: Yes

DwB—Dutchess-Cardigan complex, undulating, rocky

Map Unit Setting

National map unit symbol: 9rfn
Elevation: 0 to 1,330 feet
Mean annual precipitation: 41 to 47 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 115 to 195 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Dutchess and similar soils: 40 percent
Cardigan and similar soils: 30 percent
Minor components: 30 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Dutchess

Setting

Landform: Ridges, hills
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Crest
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy till derived mainly from phyllite, slate, schist, and shale

Typical profile

H1 - 0 to 8 inches: silt loam
H2 - 8 to 28 inches: silt loam
H3 - 28 to 86 inches: channery silt loam

Properties and qualities

Slope: 1 to 6 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: High (about 9.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: B
Ecological site: F144AY034CT - Well Drained Till Uplands
Hydric soil rating: No

Description of Cardigan

Setting

Landform: Ridges, hills
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Crest
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy till or colluvium derived from phyllite, slate, shale, and schist

Typical profile

H1 - 0 to 8 inches: channery silt loam
H2 - 8 to 20 inches: channery loam
H3 - 20 to 30 inches: channery silt loam
H4 - 30 to 34 inches: unweathered bedrock

Properties and qualities

Slope: 1 to 6 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 4.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C
Ecological site: F144AY034CT - Well Drained Till Uplands
Hydric soil rating: No

Minor Components

Georgia

Percent of map unit: 10 percent
Hydric soil rating: No

Nassau

Percent of map unit: 9 percent
Hydric soil rating: No

Massena

Percent of map unit: 9 percent
Hydric soil rating: No

Sun

Percent of map unit: 1 percent
Landform: Depressions
Hydric soil rating: Yes

Rock outcrop

Percent of map unit: 1 percent
Hydric soil rating: Unranked

HsA—Hoosic gravelly loam, nearly level

Map Unit Setting

National map unit symbol: 9rgj
Elevation: 100 to 1,100 feet
Mean annual precipitation: 41 to 47 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 115 to 195 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Hoosic and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hoosic

Setting

Landform: Terraces, outwash plains, deltas
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Sandy and gravelly glaciofluvial deposits

Typical profile

H1 - 0 to 9 inches: gravelly loam
H2 - 9 to 24 inches: very gravelly sandy loam
H3 - 24 to 70 inches: extremely gravelly loamy sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): High to very high (1.98 to 19.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 3.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3s
Hydrologic Soil Group: A
Ecological site: F144AY022MA - Dry Outwash
Hydric soil rating: No

Minor Components

Knickerbocker
Percent of map unit: 5 percent
Hydric soil rating: No

Copake
Percent of map unit: 5 percent
Hydric soil rating: No

Haven
Percent of map unit: 5 percent
Hydric soil rating: No

Fredon
Percent of map unit: 4 percent
Landform: Depressions
Hydric soil rating: Yes

Halsey
Percent of map unit: 1 percent
Landform: Depressions
Hydric soil rating: Yes

HsB—Hoosic gravelly loam, undulating

Map Unit Setting
National map unit symbol: 9rgk
Elevation: 100 to 1,100 feet
Mean annual precipitation: 41 to 47 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 115 to 195 days
Farmland classification: Farmland of statewide importance

Map Unit Composition
Hoosic and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hoosic

Setting
Landform: Terraces, outwash plains, deltas
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Sandy and gravelly glaciofluvial deposits

Typical profile
H1 - 0 to 9 inches: gravelly loam

H2 - 9 to 24 inches: very gravelly sandy loam
H3 - 24 to 70 inches: extremely gravelly loamy sand

Properties and qualities

Slope: 1 to 6 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): High to very high (1.98 to 19.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 3.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3s
Hydrologic Soil Group: A
Ecological site: F144AY022MA - Dry Outwash
Hydric soil rating: No

Minor Components

Knickerbocker

Percent of map unit: 5 percent
Hydric soil rating: No

Haven

Percent of map unit: 5 percent
Hydric soil rating: No

Copake

Percent of map unit: 5 percent
Hydric soil rating: No

Fredon

Percent of map unit: 4 percent
Landform: Depressions
Hydric soil rating: Yes

Halsey

Percent of map unit: 1 percent
Landform: Depressions
Hydric soil rating: Yes

NwC—Nassau-Cardigan complex, rolling, very rocky

Map Unit Setting

National map unit symbol: 9rhd
Elevation: 0 to 1,800 feet
Mean annual precipitation: 41 to 47 inches
Mean annual air temperature: 45 to 50 degrees F

Frost-free period: 115 to 195 days
Farmland classification: Not prime farmland

Map Unit Composition

Nassau and similar soils: 45 percent
Cardigan and similar soils: 35 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Nassau

Setting

Landform: Till plains, ridges, benches
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Crest
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Channery loamy till derived mainly from local slate or shale

Typical profile

H1 - 0 to 5 inches: channery silt loam
H2 - 5 to 16 inches: very channery silt loam
H3 - 16 to 20 inches: unweathered bedrock

Properties and qualities

Slope: 5 to 15 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very low (about 1.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: D
Ecological site: F144AY033MA - Shallow Dry Till Uplands
Hydric soil rating: No

Description of Cardigan

Setting

Landform: Ridges, hills
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Crest
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy till or colluvium derived from phyllite, slate, shale, and schist

Typical profile

H1 - 0 to 8 inches: channery silt loam
H2 - 8 to 20 inches: channery loam
H3 - 20 to 30 inches: channery silt loam

H4 - 30 to 34 inches: unweathered bedrock

Properties and qualities

Slope: 5 to 15 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 4.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: C
Ecological site: F144AY034CT - Well Drained Till Uplands
Hydric soil rating: No

Minor Components

Dutchess

Percent of map unit: 9 percent
Hydric soil rating: No

Rock outcrop

Percent of map unit: 5 percent
Hydric soil rating: Unranked

Unnamed soils, very shallow

Percent of map unit: 5 percent
Hydric soil rating: No

Sun

Percent of map unit: 1 percent
Landform: Depressions
Hydric soil rating: Yes

NwD—Nassau-Cardigan complex, hilly, very rocky

Map Unit Setting

National map unit symbol: 9rhf
Elevation: 0 to 1,800 feet
Mean annual precipitation: 41 to 47 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 115 to 195 days
Farmland classification: Not prime farmland

Map Unit Composition

Nassau and similar soils: 45 percent

Cardigan and similar soils: 30 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Nassau

Setting

Landform: Till plains, ridges, benches
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Channery loamy till derived mainly from local slate or shale

Typical profile

H1 - 0 to 5 inches: channery silt loam
H2 - 5 to 16 inches: very channery silt loam
H3 - 16 to 20 inches: unweathered bedrock

Properties and qualities

Slope: 15 to 30 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very low (about 1.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: D
Ecological site: F144AY033MA - Shallow Dry Till Uplands
Hydric soil rating: No

Description of Cardigan

Setting

Landform: Ridges, hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy till or colluvium derived from phyllite, slate, shale, and schist

Typical profile

H1 - 0 to 8 inches: channery silt loam
H2 - 8 to 20 inches: channery loam
H3 - 20 to 30 inches: channery silt loam
H4 - 30 to 34 inches: unweathered bedrock

Properties and qualities

Slope: 15 to 30 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained

Capacity of the most limiting layer to transmit water (Ksat): Low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 4.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: C
Ecological site: F144AY034CT - Well Drained Till Uplands
Hydric soil rating: No

Minor Components

Dutchess

Percent of map unit: 10 percent
Hydric soil rating: No

Sun

Percent of map unit: 10 percent
Landform: Depressions
Hydric soil rating: Yes

Rock outcrop

Percent of map unit: 5 percent
Hydric soil rating: Unranked

W—Water

Map Unit Setting

National map unit symbol: 9rjc
Mean annual precipitation: 41 to 47 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 115 to 195 days
Farmland classification: Not prime farmland

Map Unit Composition

Water: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Soil Information for All Uses

Soil Properties and Qualities

The Soil Properties and Qualities section includes various soil properties and qualities displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each property or quality.

Soil Erosion Factors

Soil Erosion Factors are soil properties and interpretations used in evaluating the soil for potential erosion. Example soil erosion factors can include K factor for the whole soil or on a rock free basis, T factor, wind erodibility group and wind erodibility index.

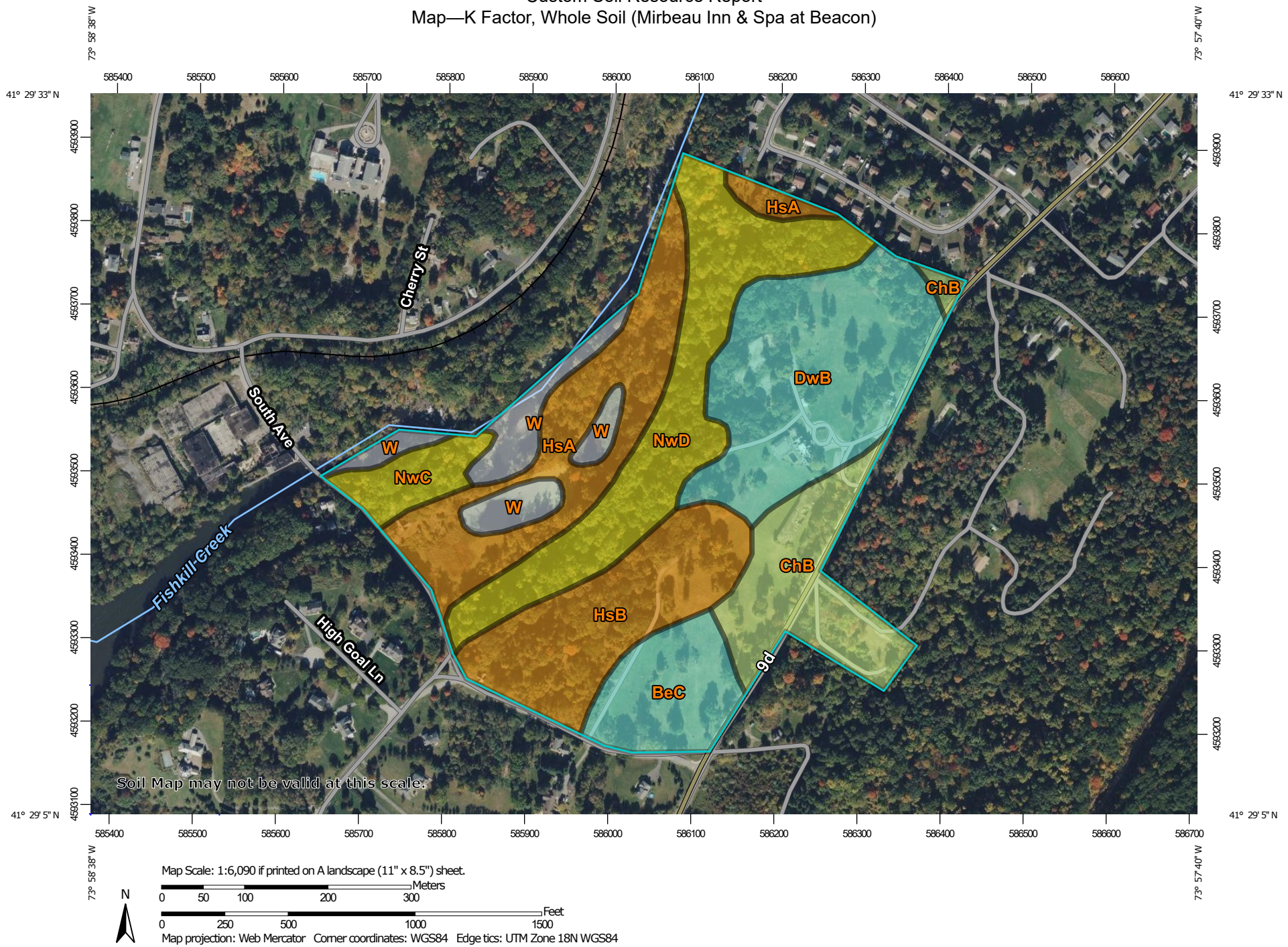
K Factor, Whole Soil (Mirbeau Inn & Spa at Beacon)

Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and saturated hydraulic conductivity (Ksat). Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

"Erosion factor Kw (whole soil)" indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.

Factor K does not apply to organic horizons and is not reported for those layers.

Map—K Factor, Whole Soil (Mirbeau Inn & Spa at Beacon)



MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

.02
.05
.10
.15
.17
.20
.24
.28
.32
.37
.43
.49
.55
.64
Not rated or not available

Soil Rating Lines

.02
.05
.10
.15
.17
.20
.24
.28
.32
.37
.43
.49
.55
.64
Not rated or not available

Soil Rating Points

.02
.05
.10
.15
.17
.20
.24
.28
.32
.37
.43
.49
.55
.64
Not rated or not available

Water Features

Streams and Canals

Transportation

Rails
Interstate Highways
US Routes
Major Roads
Local Roads

Background

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Dutchess County, New York
Survey Area Data: Version 18, Sep 1, 2021

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Oct 8, 2020—Oct 14, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Table—K Factor, Whole Soil (Mirbeau Inn & Spa at Beacon)

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
BeC	Bernardston silt loam, 8 to 15 percent slopes	.32	5.6	7.7%
ChB	Charlton fine sandy loam, 3 to 8 percent slopes	.24	8.4	11.5%
DwB	Dutchess-Cardigan complex, undulating, rocky	.32	15.5	21.3%
HsA	Hoosic gravelly loam, nearly level	.10	11.5	15.9%
HsB	Hoosic gravelly loam, undulating	.10	10.3	14.2%
NwC	Nassau-Cardigan complex, rolling, very rocky	.17	2.7	3.7%
NwD	Nassau-Cardigan complex, hilly, very rocky	.17	13.6	18.8%
W	Water		4.9	6.8%
Totals for Area of Interest			**72.4**	**100.0%**

Rating Options—K Factor, Whole Soil (Mirbeau Inn & Spa at Beacon)

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Layer Options (Horizon Aggregation Method): Surface Layer (Not applicable)

Soil Qualities and Features

Soil qualities are behavior and performance attributes that are not directly measured, but are inferred from observations of dynamic conditions and from soil properties. Example soil qualities include natural drainage, and frost action. Soil features are attributes that are not directly part of the soil. Example soil features include slope and depth to restrictive layer. These features can greatly impact the use and management of the soil.

Hydrologic Soil Group (Mirbeau Inn & Spa at Beacon)

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

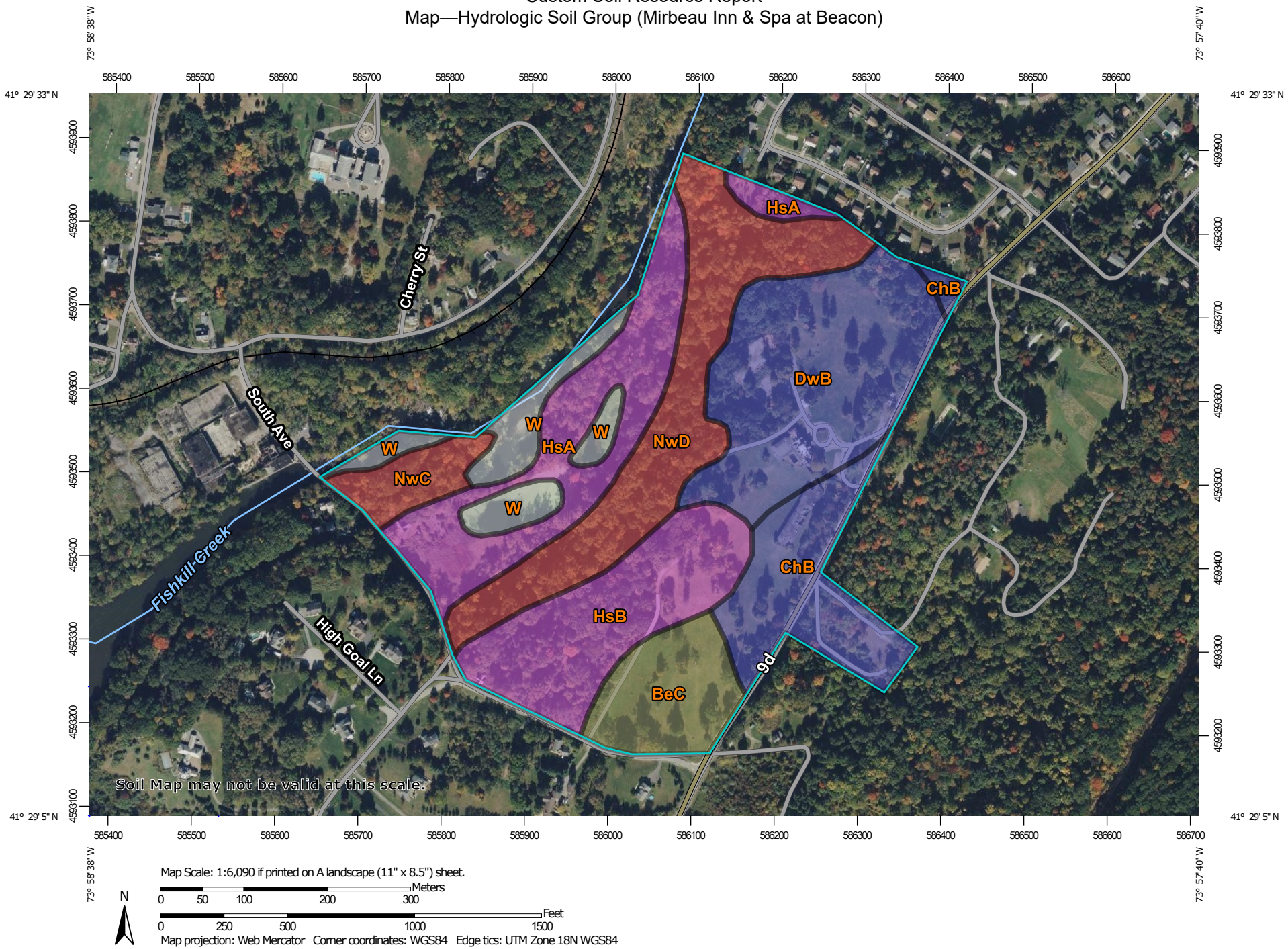
Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Custom Soil Resource Report
Map—Hydrologic Soil Group (Mirbeau Inn & Spa at Beacon)



MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Dutchess County, New York
Survey Area Data: Version 18, Sep 1, 2021

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Oct 8, 2020—Oct 14, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Table—Hydrologic Soil Group (Mirbeau Inn & Spa at Beacon)

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
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ChB	Charlton fine sandy loam, 3 to 8 percent slopes	B	8.4	11.5%
DwB	Dutchess-Cardigan complex, undulating, rocky	B	15.5	21.3%
HsA	Hoosic gravelly loam, nearly level	A	11.5	15.9%
HsB	Hoosic gravelly loam, undulating	A	10.3	14.2%
NwC	Nassau-Cardigan complex, rolling, very rocky	D	2.7	3.7%
NwD	Nassau-Cardigan complex, hilly, very rocky	D	13.6	18.8%
W	Water		4.9	6.8%
Totals for Area of Interest			**72.4**	**100.0%**

Rating Options—Hydrologic Soil Group (Mirbeau Inn & Spa at Beacon)

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

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APPENDIX C

RAINFALL DATA, NYSDEC ERM, FLOOD MAP, WETLAND MAP, AND SHPO INFORMATION

Extreme Precipitation Tables

Northeast Regional Climate Center

Data represents point estimates calculated from partial duration series. All precipitation amounts are displayed in inches.

Smoothing	Yes
State	New York
Location	
Longitude	73.967 degrees West
Latitude	41.489 degrees North
Elevation	0 feet
Date/Time	Tue, 22 Mar 2022 11:31:04 -0400

Extreme Precipitation Estimates

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.33	0.50	0.62	0.82	1.02	1.27	**1yr**	0.88	1.20	1.45	1.77	2.15	2.61	2.96	**1yr**	2.31	2.85	3.30	3.96	4.60	**1yr**
2yr	0.39	0.60	0.74	0.98	1.23	1.53	**2yr**	1.06	1.43	1.76	2.15	2.62	3.17	3.58	**2yr**	2.80	3.44	3.94	4.65	5.29	**2yr**
5yr	0.46	0.71	0.89	1.19	1.52	1.92	**5yr**	1.32	1.77	2.20	2.71	3.29	3.98	4.53	**5yr**	3.52	4.36	5.01	5.79	6.55	**5yr**
10yr	0.51	0.80	1.02	1.38	1.79	2.27	**10yr**	1.55	2.07	2.62	3.22	3.92	4.72	5.42	**10yr**	4.18	5.21	6.01	6.84	7.70	**10yr**
25yr	0.60	0.95	1.21	1.67	2.23	2.85	**25yr**	1.92	2.56	3.30	4.07	4.94	5.93	6.88	**25yr**	5.25	6.62	7.65	8.53	9.54	**25yr**
50yr	0.68	1.09	1.39	1.95	2.62	3.38	**50yr**	2.26	3.01	3.93	4.85	5.88	7.06	8.24	**50yr**	6.25	7.93	9.19	10.09	11.22	**50yr**
100yr	0.77	1.24	1.60	2.27	3.10	4.02	**100yr**	2.67	3.53	4.68	5.79	7.02	8.40	9.88	**100yr**	7.43	9.50	11.04	11.93	13.22	**100yr**
200yr	0.87	1.42	1.85	2.65	3.66	4.79	**200yr**	3.16	4.15	5.58	6.91	8.37	10.00	11.85	**200yr**	8.85	11.39	13.27	14.12	15.58	**200yr**
500yr	1.05	1.73	2.25	3.27	4.58	6.02	**500yr**	3.95	5.15	7.04	8.72	10.57	12.61	15.07	**500yr**	11.16	14.49	16.95	17.66	19.37	**500yr**

Lower Confidence Limits

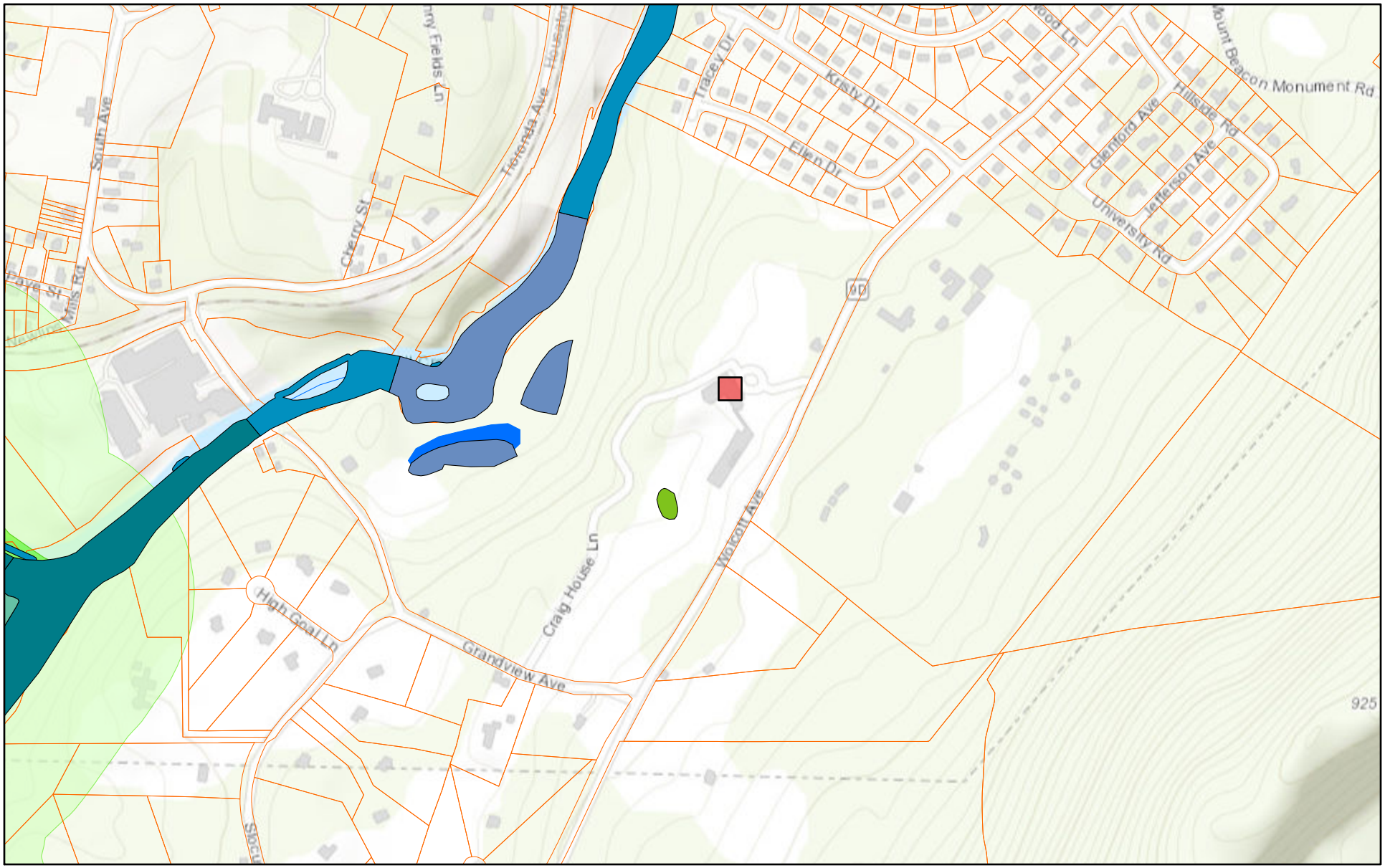
	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.28	0.44	0.53	0.72	0.88	1.09	**1yr**	0.76	1.07	1.25	1.60	2.01	2.08	2.36	**1yr**	1.84	2.27	2.64	3.38	4.15	**1yr**
2yr	0.37	0.58	0.71	0.97	1.19	1.42	**2yr**	1.03	1.39	1.61	2.06	2.59	3.08	3.46	**2yr**	2.73	3.33	3.79	4.49	5.15	**2yr**
5yr	0.42	0.65	0.81	1.11	1.41	1.66	**5yr**	1.22	1.62	1.89	2.42	3.02	3.68	4.19	**5yr**	3.26	4.03	4.60	5.33	6.10	**5yr**
10yr	0.47	0.72	0.89	1.25	1.62	1.86	**10yr**	1.39	1.81	2.12	2.72	3.39	4.18	4.84	**10yr**	3.70	4.66	5.30	6.05	6.93	**10yr**
25yr	0.54	0.82	1.02	1.46	1.93	2.14	**25yr**	1.66	2.09	2.46	3.07	3.95	4.92	5.86	**25yr**	4.36	5.63	6.39	7.16	8.23	**25yr**
50yr	0.60	0.92	1.14	1.64	2.21	2.39	**50yr**	1.91	2.33	2.78	3.43	4.45	5.59	6.77	**50yr**	4.94	6.51	7.37	8.13	9.38	**50yr**
100yr	0.68	1.03	1.29	1.86	2.55	2.68	**100yr**	2.20	2.62	3.14	3.83	5.04	6.31	7.84	**100yr**	5.58	7.54	8.49	9.23	10.70	**100yr**
200yr	0.77	1.16	1.47	2.13	2.97	3.00	**200yr**	2.56	2.93	3.54	4.30	5.69	7.09	9.11	**200yr**	6.27	8.76	9.81	10.47	12.23	**200yr**
500yr	0.92	1.37	1.76	2.55	3.63	3.49	**500yr**	3.13	3.41	4.19	5.01	6.73	8.28	11.11	**500yr**	7.33	10.69	11.87	12.37	14.60	**500yr**

Upper Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.36	0.56	0.68	0.92	1.13	1.36	**1yr**	0.97	1.33	1.53	1.97	2.43	2.81	3.21	**1yr**	2.49	3.09	3.58	4.25	4.95	**1yr**
2yr	0.40	0.62	0.77	1.04	1.28	1.54	**2yr**	1.11	1.51	1.75	2.25	2.80	3.34	3.71	**2yr**	2.96	3.57	4.10	4.82	5.47	**2yr**
5yr	0.49	0.76	0.94	1.29	1.65	1.96	**5yr**	1.42	1.91	2.26	2.89	3.66	4.27	4.88	**5yr**	3.78	4.69	5.41	6.28	7.01	**5yr**
10yr	0.58	0.89	1.11	1.55	2.00	2.37	**10yr**	1.73	2.32	2.74	3.54	4.49	5.21	6.01	**10yr**	4.61	5.78	6.69	7.67	8.48	**10yr**
25yr	0.72	1.10	1.37	1.95	2.57	3.05	**25yr**	2.22	2.98	3.57	4.73	5.88	6.81	7.92	**25yr**	6.03	7.61	8.89	10.01	10.92	**25yr**
50yr	0.85	1.29	1.61	2.32	3.12	3.71	**50yr**	2.69	3.62	4.35	5.83	7.20	8.35	9.75	**50yr**	7.39	9.38	11.04	12.26	13.22	**50yr**
100yr	1.01	1.52	1.91	2.75	3.78	4.50	**100yr**	3.26	4.40	5.30	7.19	8.83	10.24	12.00	**100yr**	9.06	11.54	13.71	15.03	16.01	**100yr**
200yr	1.19	1.79	2.27	3.28	4.57	5.46	**200yr**	3.95	5.34	6.47	8.84	10.81	12.58	14.80	**200yr**	11.13	14.23	17.03	18.42	19.41	**200yr**
500yr	1.49	2.22	2.85	4.14	5.89	7.06	**500yr**	5.08	6.91	8.40	11.67	14.15	16.53	19.49	**500yr**	14.63	18.74	22.72	24.14	25.01	**500yr**

Powered by ACIS Northeast Regional Climate Center

NYSDEC Wetland Mapper-DEC & NWI Wetlands near 7 Craig House Ln., Beacon NY



March 22, 2022

1:9,028

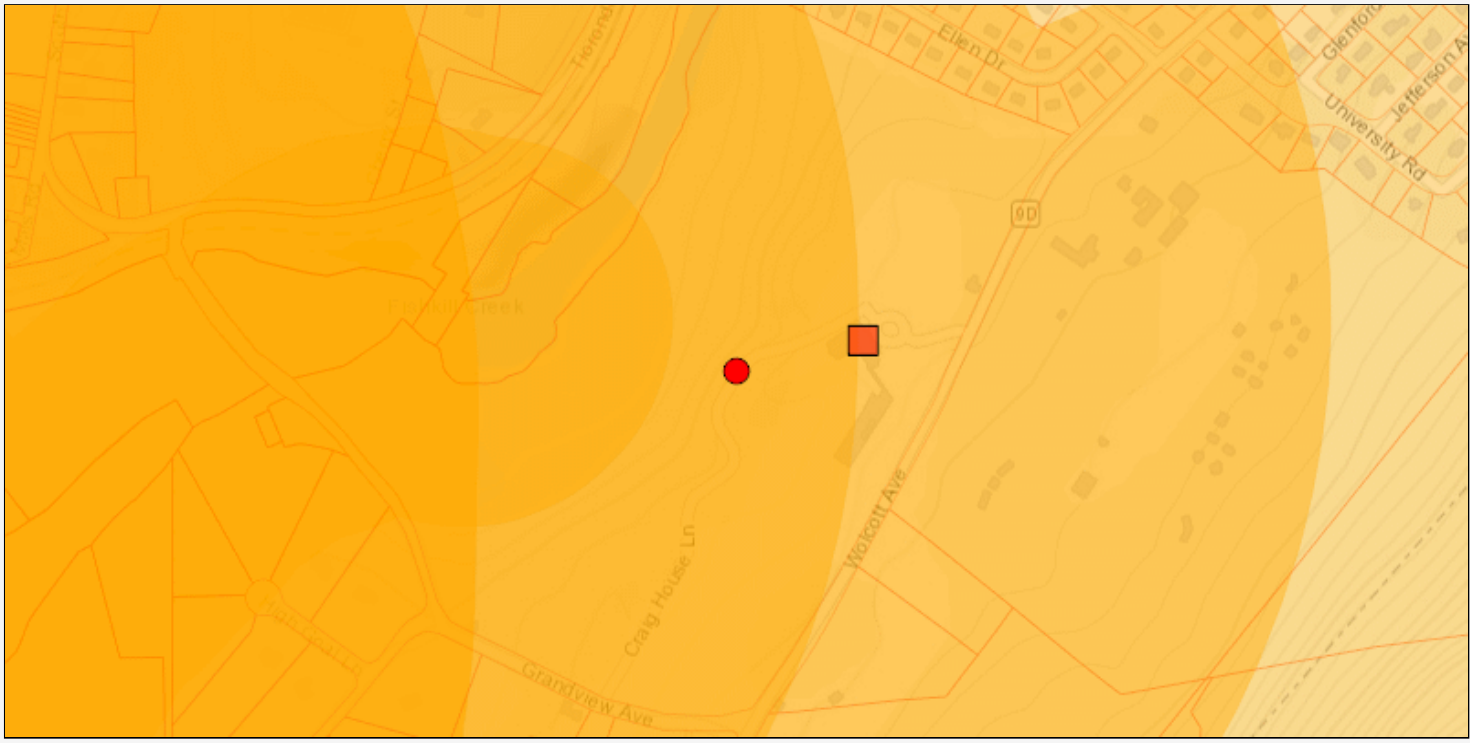
0 0.05 0.1 0.2 mi

0 0.07 0.15 0.3 km

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri

NYS Department of Environmental Conservatio
Not a legal documer

Environmental Resource Mapper



The coordinates of the point you clicked on are:

UTM 18	**Easting:**	586101.2766505829	**Northing:**	4593511.069399186
Longitude/Latitude	**Longitude:**	-73.96857643571313	**Latitude:**	41.48859965420632

The approximate address of the point you clicked on is:
1-53 Craig House Ln, Beacon, New York, 12508

County: Dutchess
City: Beacon
USGS Quad: WEST POINT

Natural Communities in the Vicinity

Natural Community Name: Appalachian oak-hickory forest
Location: Breakneck Scofield Fishkill Ridge
Significance: High Quality Occurrence

Natural Community Name: Brackish intertidal mudflats
Location: Fishkill Creek Mouth
Significance: Rare Community Type

Natural Community Name: Brackish tidal marsh
Location: Fishkill Creek Mouth
Significance: High Quality Occurrence of Rare Community Type

Natural Community Name: Tidal river
Location: Hudson River Estuary

Significance: High Quality Occurrence of Uncommon Community Type

Rare Plants and Rare Animals

This location is in the vicinity of Rare Plants Listed as Endangered, Threatened, or Rare by NYS

This location is in the vicinity of Significant Anadromous Fish Concentration Area – Contact NYSDEC

This location is in the vicinity of Animals Listed as Endangered or Threatened - Contact NYSDEC Regional Office

If your project or action is within or near an area with a rare animal, a permit may be required if the species is listed as endangered or threatened and the department determines the action may be harmful to the species or its habitat.

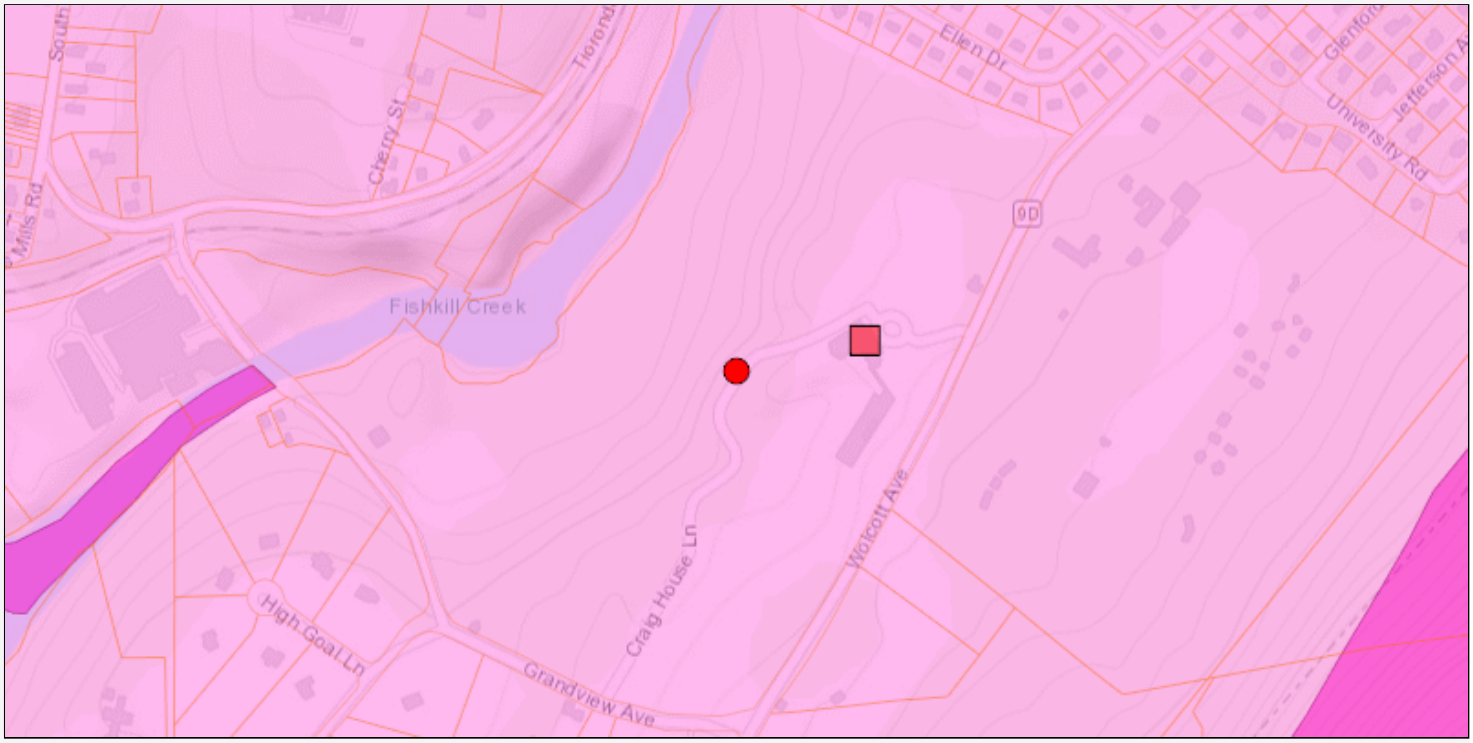
If your project or action is within or near an area with rare plants and/or significant natural communities, the environmental impacts may need to be addressed.

The presence of a unique geological feature or landform near a project, unto itself, does not trigger a requirement for a NYS DEC permit. Readers are advised, however, that there is the chance that a unique feature may also show in another data layer (ie. a wetland) and thus be subject to permit jurisdiction.

Please refer to the "Need a Permit?" tab for permit information or other authorizations regarding these natural resources.

Disclaimer: If you are considering a project or action in, or near, a wetland or a stream, a NYS DEC permit may be required. The Environmental Resources Mapper does not show all natural resources which are regulated by NYS DEC, and for which permits from NYS DEC are required. For example, Regulated Tidal Wetlands, and Wild, Scenic, and Recreational Rivers, are currently not included on the maps.

Environmental Resource Mapper



The coordinates of the point you clicked on are:

UTM 18	**Easting:**	586099.4853840459	**Northing:**	4593511.048035164
Longitude/Latitude	**Longitude:**	-73.96859789338525	**Latitude:**	41.48859965420632

The approximate address of the point you clicked on is:
1-53 Craig House Ln, Beacon, New York, 12508

County: Dutchess
City: Beacon
USGS Quad: WEST POINT

Natural Communities in the Vicinity

Natural Community Name: Appalachian oak-hickory forest
Location: Breakneck Scofield Fishkill Ridge
Significance: High Quality Occurrence

Natural Community Name: Brackish intertidal mudflats
Location: Fishkill Creek Mouth
Significance: Rare Community Type

Natural Community Name: Brackish tidal marsh
Location: Fishkill Creek Mouth
Significance: High Quality Occurrence of Rare Community Type

Natural Community Name: Tidal river
Location: Hudson River Estuary

Significance: High Quality Occurrence of Uncommon Community Type

Rare Plants and Rare Animals

This location is in the vicinity of Rare Plants Listed as Endangered, Threatened, or Rare by NYS

This location is in the vicinity of Significant Anadromous Fish Concentration Area – Contact NYSDEC

This location is in the vicinity of Animals Listed as Endangered or Threatened - Contact NYSDEC Regional Office

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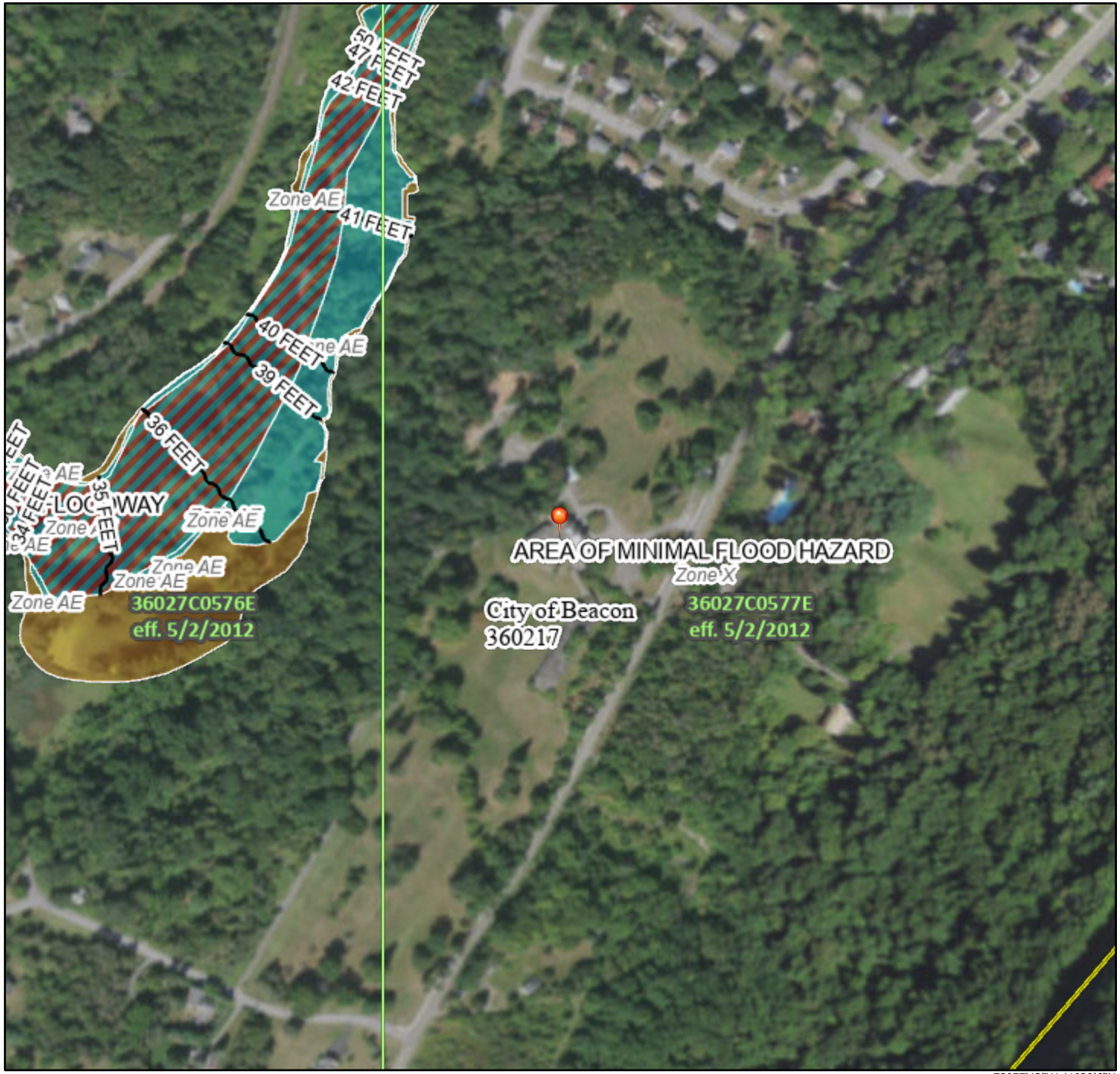
Disclaimer: If you are considering a project or action in, or near, a wetland or a stream, a NYS DEC permit may be required. The Environmental Resources Mapper does not show all natural resources which are regulated by NYS DEC, and for which permits from NYS DEC are required. For example, Regulated Tidal Wetlands, and Wild, Scenic, and Recreational Rivers, are currently not included on the maps.

National Flood Hazard Layer FIRMette

FEMA

73°58'20"W 41°29'33"N



73°57'43"W 41°29'6"N

0 250 500 1,000 1,500 2,000 Feet

1:6,000

Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 / 17.5 Cross Sections with 1% Annual Chance / Water Surface Elevation
- Coastal Transect
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 3/22/2022 at 11:36 AM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

U.S. Fish and Wildlife Service

National Wetlands Inventory

Mirbeau Inn & Spa at Beacon



March 22, 2022

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

CRIS Cultural Resource Information System

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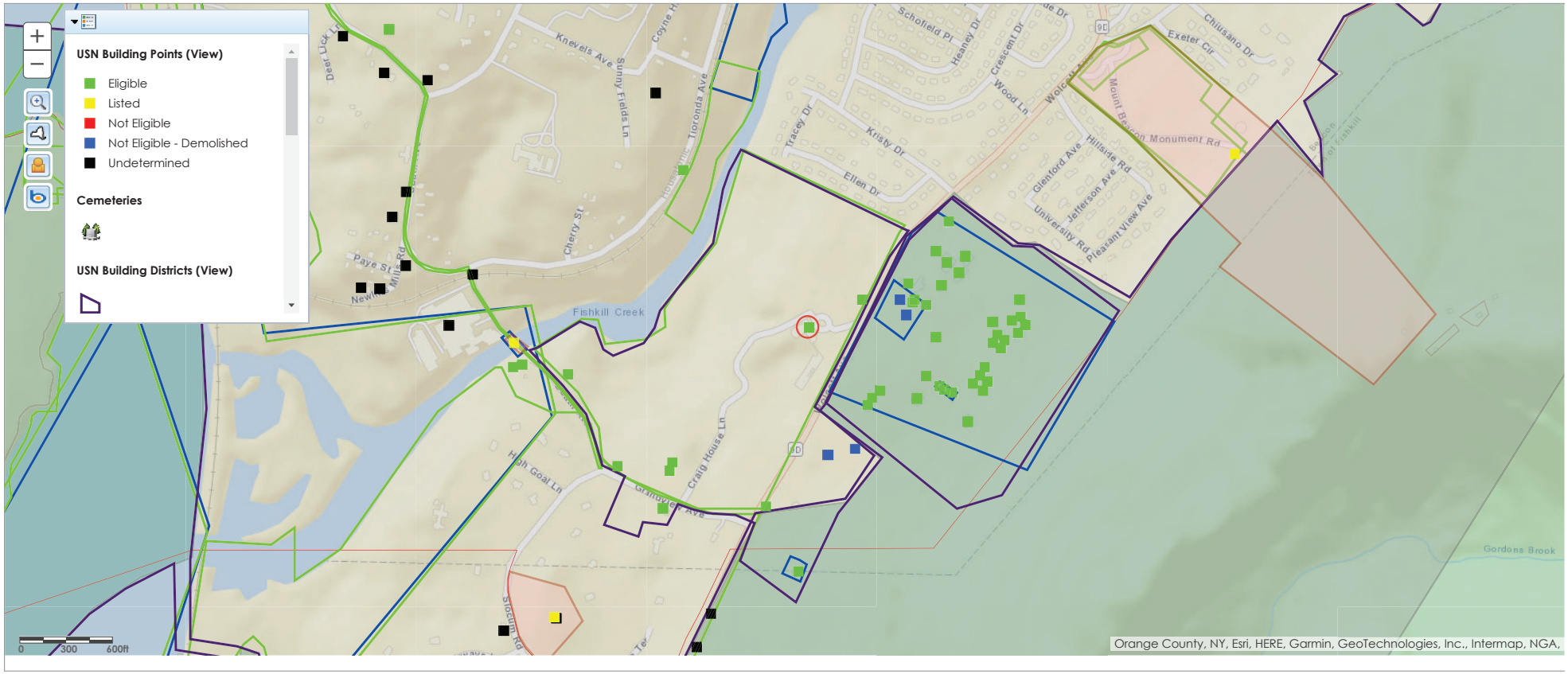

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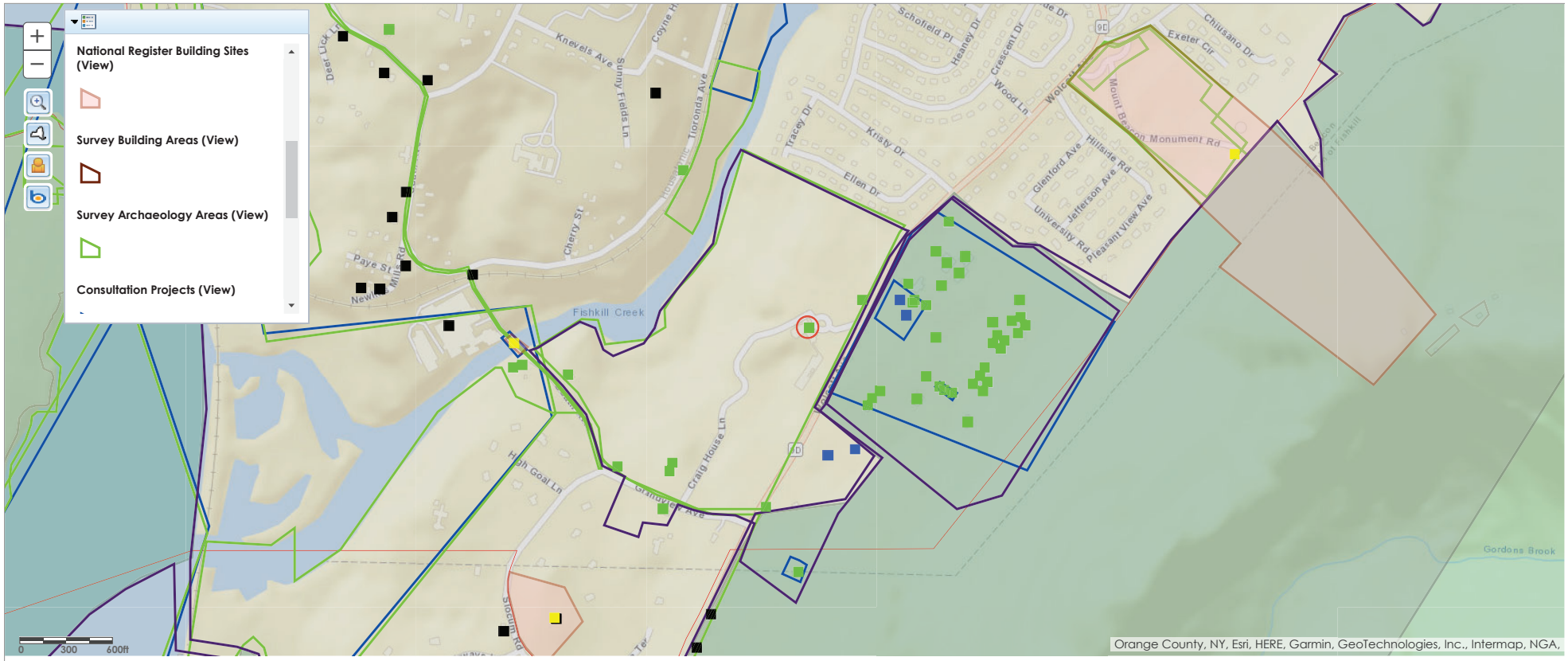

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946

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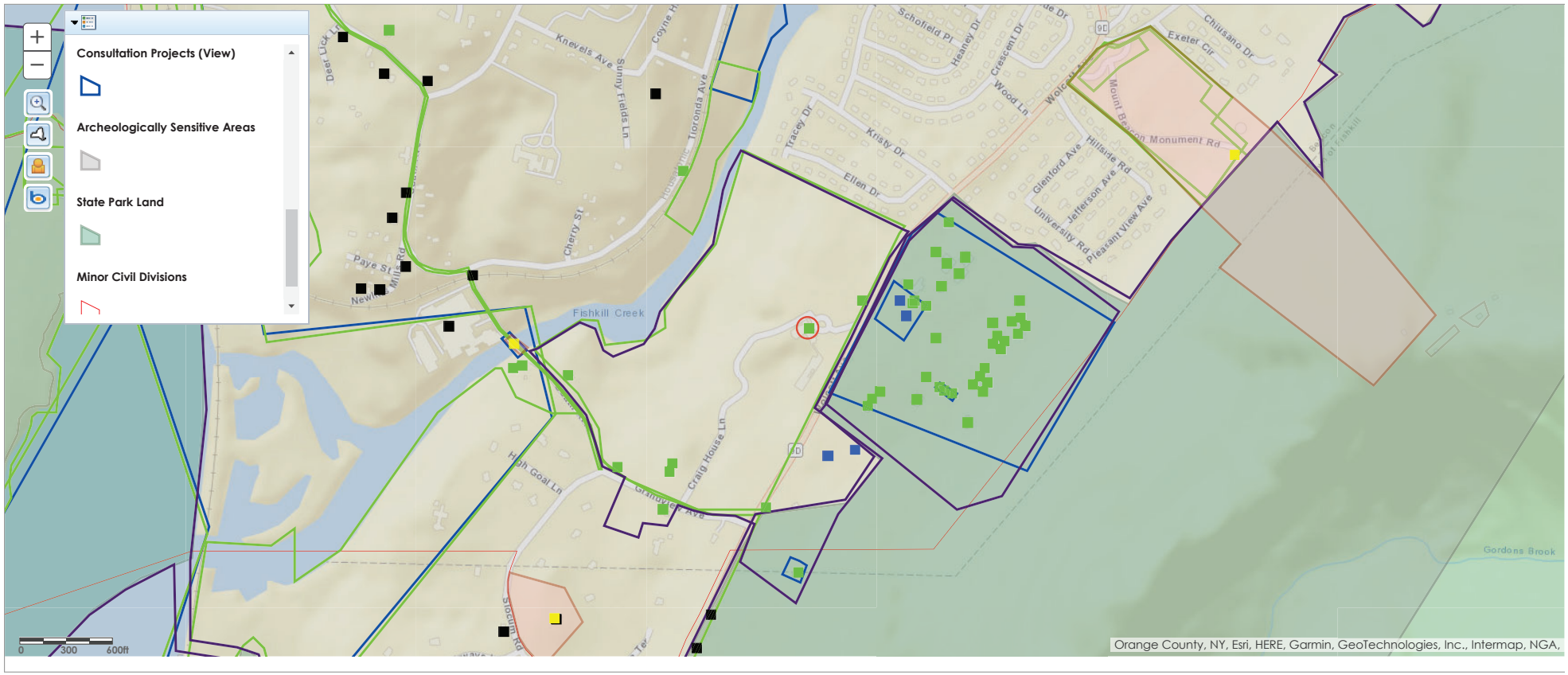

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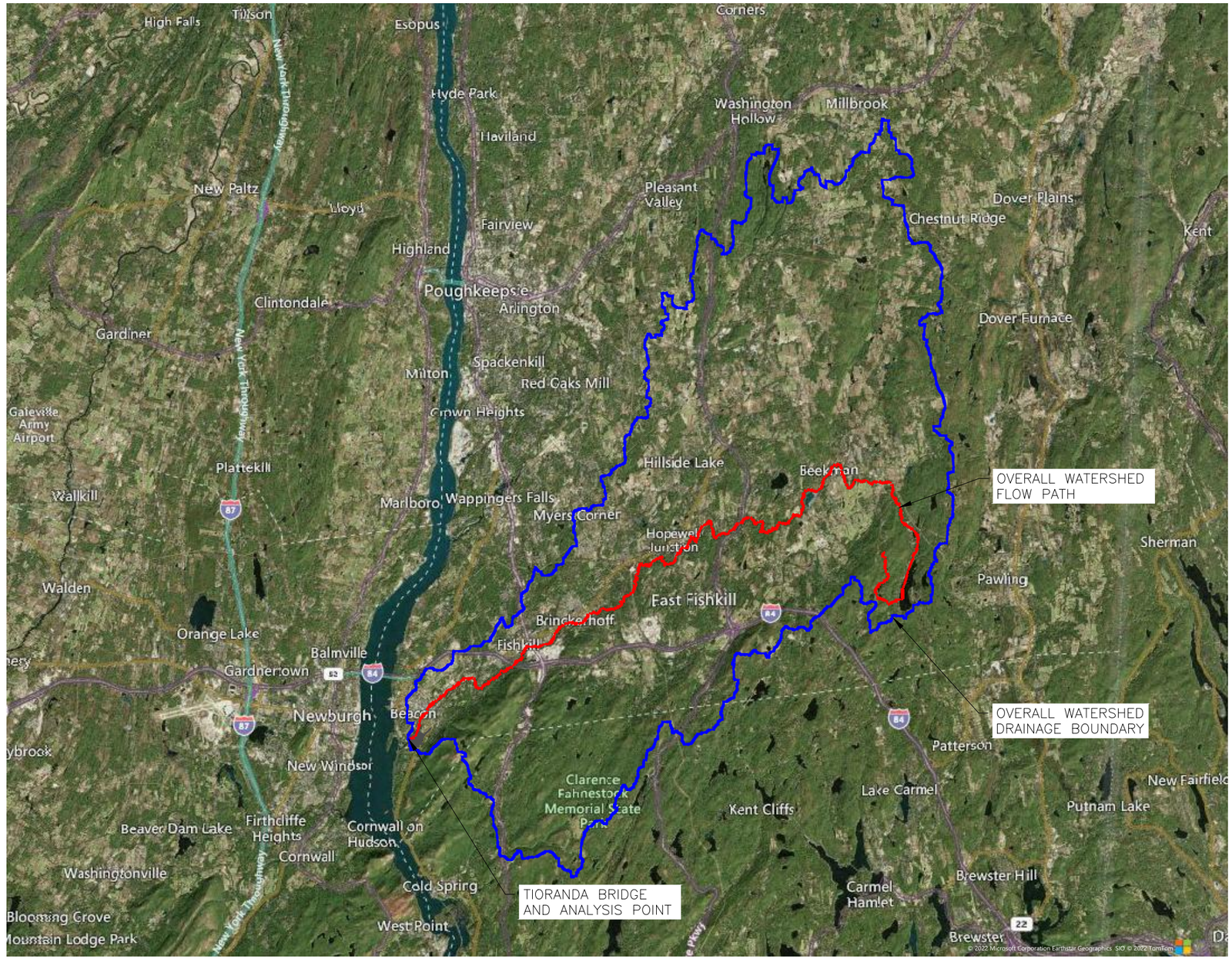
APPENDIX D

FISHKILL CREEK OVERALL WATERSHED



74:30° West Longitude

True North at

DRAWN BY: ESR CHECKED BY: MAB

REVISIONS:

NO.	DATE	DESCRIPTION	BY
1	5/25/22	PER PLANNING BOARD COMMENTS	ESR

SEAL

HUDSON LAND DESIGN
HUDSON LAND DESIGN
PROFESSIONAL ENGINEERING P.C.
174 MAIN ST., BEACON, NEW YORK 12508
13 CHAMBERS ST., NEWBURGH, NEW YORK 12550
PH: 845-440-6926
F: 845-440-6637

OVERALL WATERSHED MAP

MIRBEAU INN & SPA BEACON

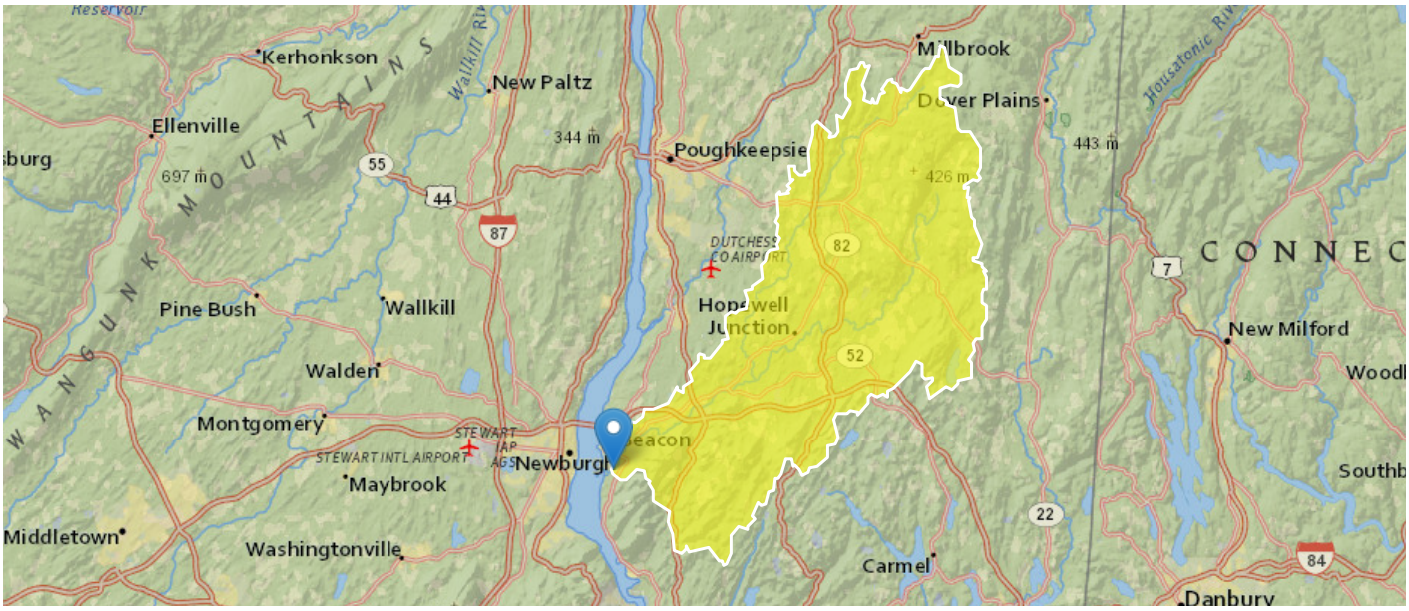
7 CRAIG HOUSE LANE
CITY OF BEACON
DUTCHESS COUNTY, NEW YORK
TAX ID: 6054-13-001258

JOB #: 2021:051
DATE: 3/29/2022
SCALE: 1" = 20,000'
TITLE: DR-1
SHEET: 1 OF 2

UNAUTHORIZED ALTERATIONS OR ADDITIONS TO THIS DRAWING IS A VIOLATION OF SECTION 7209.2 OF THE NEW YORK EDUCATION L

Mirbeau - Fishkill Creek Drainage Area

Region ID: NY
Workspace ID: NY20220323210841193000
Clicked Point (Latitude, Longitude): 41.48859, -73.97408
Time: 2022-03-23 17:09:03 -0400



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	193	square miles
LAGFACTOR	Lag Factor as defined in SIR 2006-5112	1.99	dimensionless
STORAGE	Percentage of area of storage (lakes ponds reservoirs wetlands)	4.86	percent
MAR	Mean annual runoff for the period of record in inches	21.6	inches
BSLOPCM	Mean basin slope determined by summing lengths of all contours in basin mulitplying by contour interval and dividing product by drainage area	586	feet per mi
CENTROIDX	Basin centroid horizontal (x) location in state plane coordinates	601893.5	meters
CENTROIDY	Basin centroid vertical (y) location in state plane units	4605697.8	meters
CONTOUR	Total length of all elevation contours in drainage area in miles	1133.67	miles
CSL1085LO	10-85 slope of lower half of main channel in feet per mile.	8.16	feet per mi
CSL1085UP	10-85 slope of upper half of main channel in feet per mile.	34.9	feet per mi
CSL10_85	Change in elevation divided by length between points 10 and 85 percent of distance along main channel to basin divide - main channel method not known	18.7	feet per mi
EL1200	Percentage of basin at or above 1200 ft elevation	1.62	percent
FOREST	Percentage of area covered by forest	67.7	percent
JULAVPRE	Mean July Precipitation	4.61	inches
JUNAVPRE	Mean June Precipitation	4.18	inches
JUNMAXTMP	Maximum June Temperature, in degrees F	78.4	degrees F
LC11DEV	Percentage of developed (urban) land from NLCD 2011 classes 21-24	20.4	percent

Parameter Code	Parameter Description	Value	Unit
LC11IMP	Average percentage of impervious area determined from NLCD 2011 impervious dataset	5.47	percent
LENGTH	Length along the main channel from the measuring location extended to the basin divide	36.1	miles
MAYAVPRE	Mean May Precipitation	4.53	inches
MXSNO	50th percentile of seasonal maximum snow depth from Northeast Regional Climate Center atlas by Cember and Wilks, 1993	12.8	inches
OUTLETX	Basin outlet horizontal (x) location in state plane coordinates	585645	feet
OUTLETY	Basin outlet vertical (y) location in state plane coordinates	4593505	feet
PRECIP	Mean Annual Precipitation	42.5	inches
PRJUNAUG00	Basin average mean precip for June to August from PRISM 1971-2000	13.1	inches
SLOPERATIO	Ratio of main channel slope to basin slope as defined in SIR 2006-5112	0.0319	dimensionless
SSURGOA	Percentage of area of Hydrologic Soil Type A from SSURGO	9.45	percent
SSURGOB	Percentage of area of Hydrologic Soil Type B from SSURGO	36.7	percent

Peak-Flow Statistics Parameters [2006 Full Region 2]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	193	square miles	1.93	996
LAGFACTOR	Lag Factor	1.99	dimensionless	0.014	6.997
STORAGE	Percent Storage	4.86	percent	0	11.88
MAR	Mean Annual Runoff in inches	21.6	inches	16.03	33.95

Peak-Flow Statistics Flow Report [2006 Full Region 2]

PII: Prediction Interval-Lower, PIu: Prediction Interval-Upper, ASEp: Average Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	SE	ASEp	Equiv. Yrs.
80-percent AEP flood	2350	ft^3/s	25.5	25.5	4.8
66.7-percent AEP flood	2790	ft^3/s	25.6	25.6	4.3
50-percent AEP flood	3430	ft^3/s	25.8	25.8	4.4
20-percent AEP flood	5290	ft^3/s	27	27	7.3
10-percent AEP flood	6830	ft^3/s	28.2	28.2	10.1
4-percent AEP flood	9080	ft^3/s	29.9	29.9	13.6
2-percent AEP flood	11000	ft^3/s	31.5	31.5	15.8
1-percent AEP flood	13100	ft^3/s	33.3	33.3	17.6
0.5-percent AEP flood	15500	ft^3/s	35.3	35.3	18.9
0.2-percent AEP flood	19000	ft^3/s	38.4	38.4	20.1

Peak-Flow Statistics Citations

Lumia, Richard, Freehafer, D.A., and Smith, M.J.,2006, Magnitude and Frequency of Floods in New York: U.S. Geological Survey Scientific Investigations Report 2006–5112, 152 p. (http://pubs.usgs.gov/sir/2006/5112/)

USGS Data Disclaimer: Unless otherwise stated, all data, metadata and related materials are considered to satisfy the quality standards relative to the purpose for which the data were collected. Although these data and associated metadata have been reviewed for accuracy and completeness and approved for release by the U.S. Geological Survey (USGS), no warranty expressed or implied is made regarding the display or utility of the data for other purposes, nor on all computer systems, nor shall the act of distribution constitute any such warranty.

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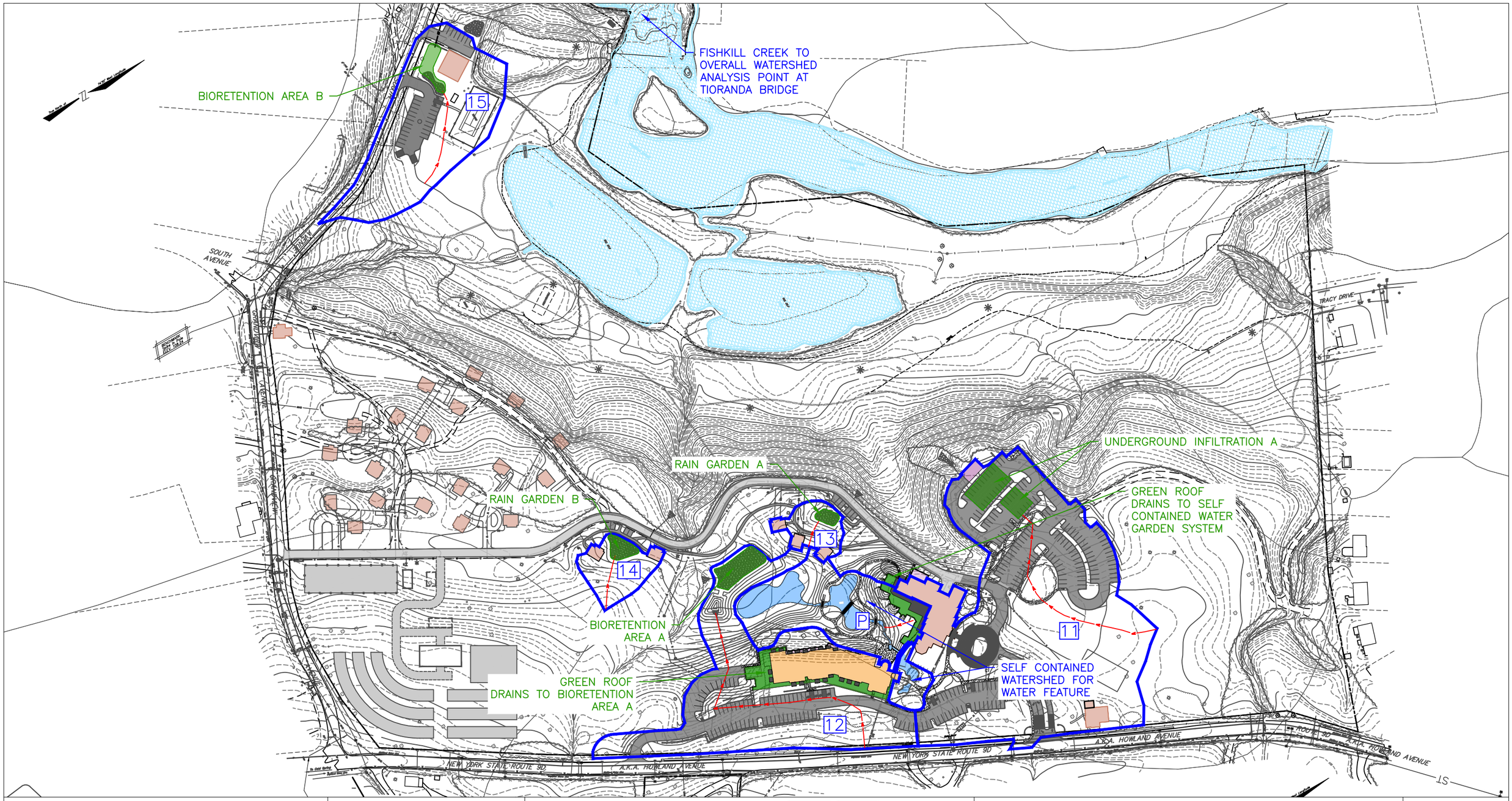
Application Version: 4.7.0
StreamStats Services Version: 1.2.22
NSS Services Version: 2.1.2

APPENDIX E

POST-DEVELOPMENT HYDROCAD MODEL



DRAWN BY: ESR		CHECKED BY: DGK	
REVISIONS:			
NO.	DATE	DESCRIPTION	BY
1	5/25/22	PER PLANNING BOARD COMMENTS	ESR

HUDSON LAND DESIGN
PROFESSIONAL ENGINEERING P.C.
174 MAIN ST., BEACON, NEW YORK 12508
13 CHAMBERS ST., NEWBURGH, NEW YORK 12550
PH: 845-440-6926
F: 845-440-6637

SEAL

POST-DEVELOPMENT CONDITIONS MAP (DETAILED)

MIRBEAU BEACON INN & SPA

7 CRAIG HOUSE LANE
CITY OF BEACON
DUTCHESS COUNTY, NEW YORK
TAX ID: 6054-13-001258

JOB #:	2021:051
DATE:	3/29/2022
SCALE:	1" = 200'
TITLE:	DR-2
SHEET:	2 OF 2

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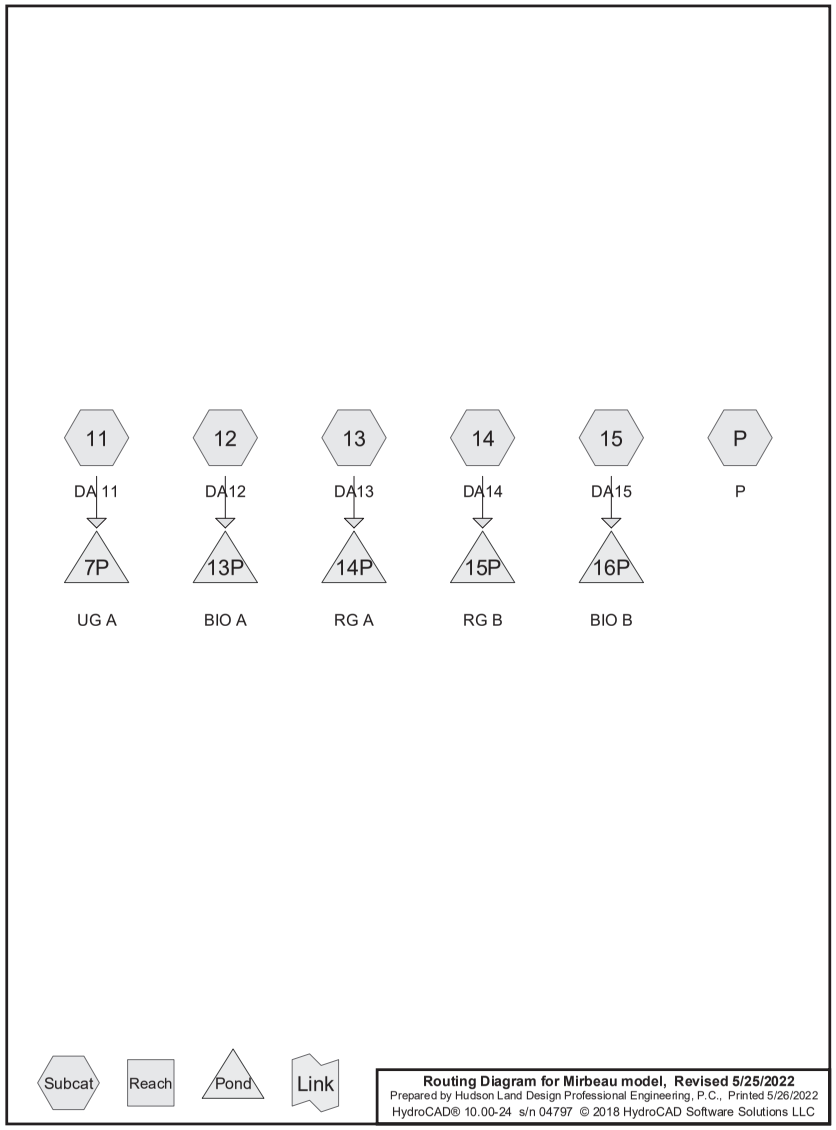


Summary for Subcatchment 11: DA 11

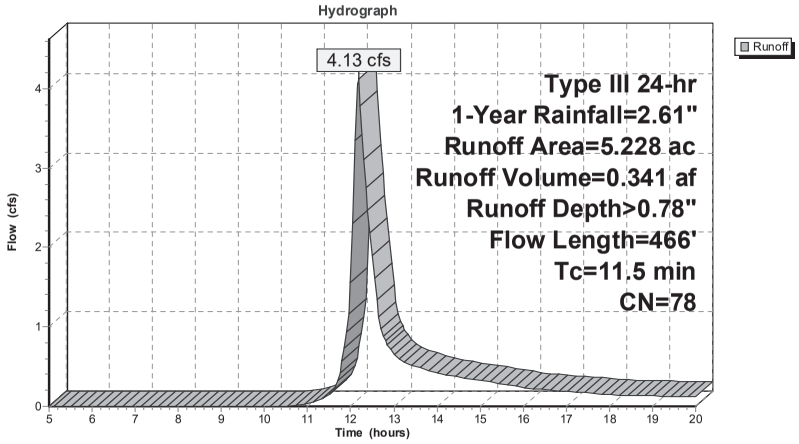
Runoff = 4.13 cfs @ 12.17 hrs, Volume= 0.341 af, Depth> 0.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-Year Rainfall=2.61"

Area (ac)	CN	Description
0.345	98	Roofs, HSG B
2.067	98	Paved parking, HSG B
2.816	61	>75% Grass cover, Good, HSG B
5.228	78	Weighted Average
2.816		53.86% Pervious Area
2.412		46.14% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.4	100	0.0225	0.18		**Sheet Flow, S1** Grass: Short n= 0.150 P2= 3.16"
1.5	224	0.0250	2.55		**Shallow Concentrated Flow, S2** Unpaved Kv= 16.1 fps
0.5	116	0.0430	4.21		**Shallow Concentrated Flow, S3** Paved Kv= 20.3 fps
0.1	26	0.0100	5.70	7.00	**Pipe Channel, S4** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012
11.5	466	Total			

Subcatchment 11: DA 11



Summary for Subcatchment 12: DA12

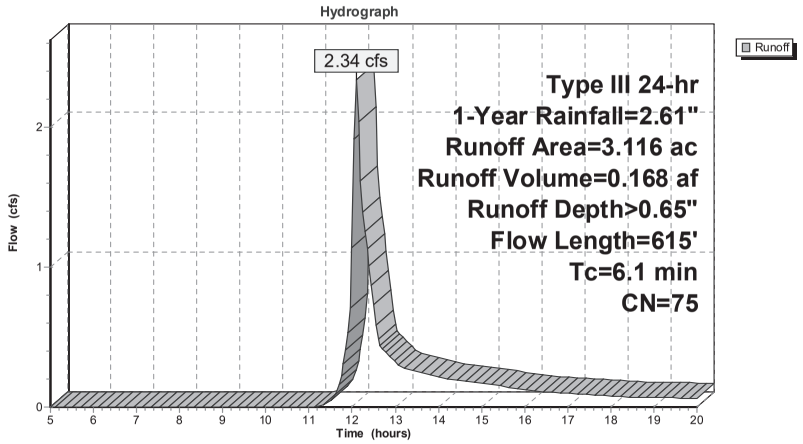
Runoff = 2.34 cfs @ 12.10 hrs, Volume= 0.168 af, Depth> 0.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-Year Rainfall=2.61"

Area (ac)	CN	Description
0.576	98	Roofs, HSG B
0.845	98	Paved parking, HSG B
0.383	39	>75% Grass cover, Good, HSG A
1.312	61	>75% Grass cover, Good, HSG B
3.116	75	Weighted Average
1.695		54.40% Pervious Area
1.421		45.60% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	100	0.1100	0.33		**Sheet Flow, S1** Grass: Short n= 0.150 P2= 3.16"
0.8	138	0.0180	2.72		**Shallow Concentrated Flow, S2** Paved Kv= 20.3 fps
0.3	377	0.0990	21.53	26.42	**Pipe Channel, S3** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.010
6.1	615	Total			

Subcatchment 12: DA12



Summary for Subcatchment 13: DA13

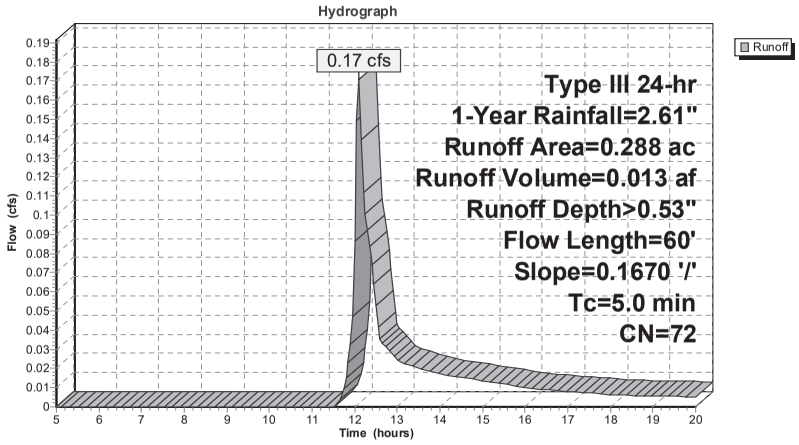
Runoff = 0.17 cfs @ 12.10 hrs, Volume= 0.013 af, Depth> 0.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-Year Rainfall=2.61"

Area (ac)	CN	Description
0.059	98	Roofs, HSG B
0.028	98	Paved parking, HSG B
0.201	61	>75% Grass cover, Good, HSG B
0.288	72	Weighted Average
0.201		69.79% Pervious Area
0.087		30.21% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.8	60	0.1670	0.36		**Sheet Flow, S1** Grass: Short n= 0.150 P2= 3.16"
2.8	60	Total, Increased to minimum Tc = 5.0 min			

Subcatchment 13: DA13



Summary for Subcatchment 14: DA14

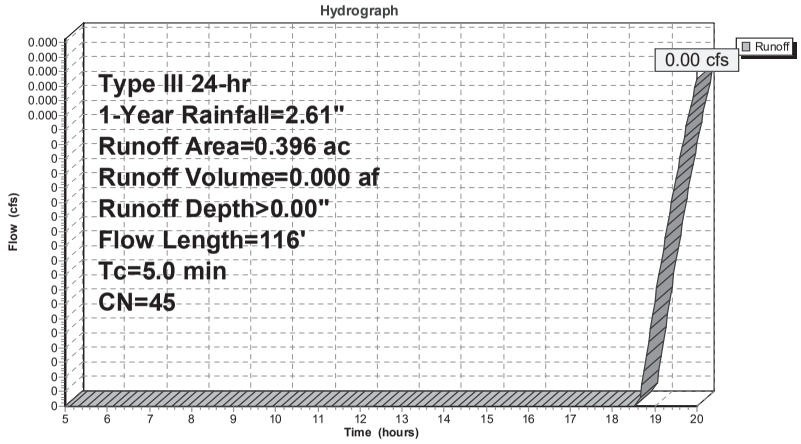
Runoff = 0.00 cfs @ 20.00 hrs, Volume= 0.000 af, Depth> 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-Year Rainfall=2.61"

Area (ac)	CN	Description
0.039	98	Roofs, HSG A
0.357	39	>75% Grass cover, Good, HSG A
0.396	45	Weighted Average
0.357		90.15% Pervious Area
0.039		9.85% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	100	0.1600	0.39		**Sheet Flow, S1** Grass: Short n= 0.150 P2= 3.16"
0.0	16	0.2000	7.20		**Shallow Concentrated Flow, S2** Unpaved Kv= 16.1 fps
4.3	116	Total, Increased to minimum Tc = 5.0 min			

Subcatchment 14: DA14



Summary for Subcatchment 15: DA15

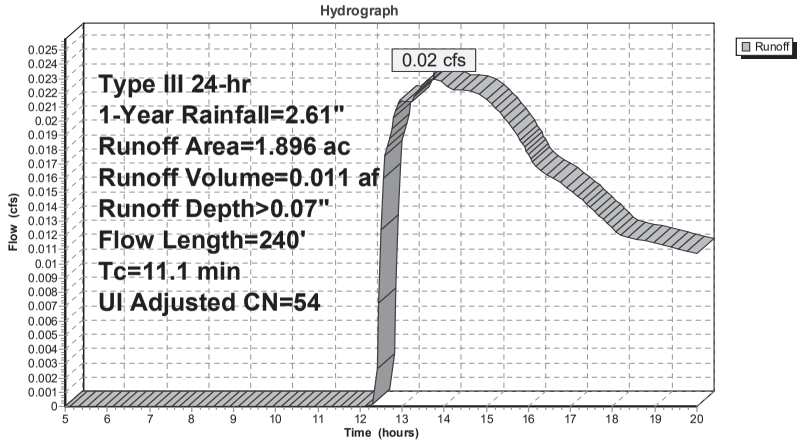
Runoff = 0.02 cfs @ 13.76 hrs, Volume= 0.011 af, Depth> 0.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-Year Rainfall=2.61"

Area (ac)	CN	Adj	Description
0.063	98		Roofs, HSG A
0.309	98		Paved parking, HSG A
0.165	98		Unconnected pavement, HSG A
1.095	39		>75% Grass cover, Good, HSG A
0.029	74		>75% Grass cover, Good, HSG C
0.154	30		Woods, Good, HSG A
0.081	70		Woods, Good, HSG C
1.896	57	54	Weighted Average, UI Adjusted
1.359			71.68% Pervious Area
0.537			28.32% Impervious Area
0.165			30.73% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.9	100	0.0200	0.17		**Sheet Flow, S1** Grass: Short n= 0.150 P2= 3.16"
1.2	140	0.0140	1.90		**Shallow Concentrated Flow, S2** Unpaved Kv= 16.1 fps
11.1	240	Total			

Subcatchment 15: DA15



Summary for Subcatchment P: P

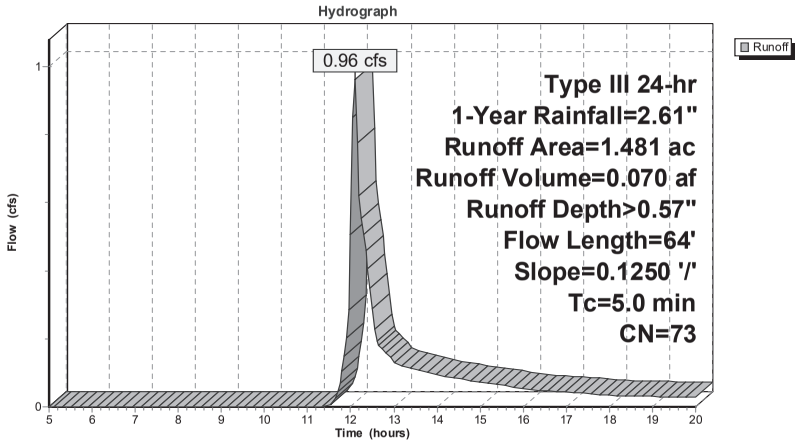
Runoff = 0.96 cfs @ 12.09 hrs, Volume= 0.070 af, Depth> 0.57"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-Year Rainfall=2.61"

Area (ac)	CN	Description
0.332	98	Water Surface, HSG B
0.151	98	Paved parking, HSG B
0.998	61	>75% Grass cover, Good, HSG B
1.481	73	Weighted Average
0.998		67.39% Pervious Area
0.483		32.61% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.3	64	0.1250	0.32		**Sheet Flow, S1** Grass: Short n= 0.150 P2= 3.16"
3.3	64	Total, Increased to minimum Tc = 5.0 min			

Subcatchment P: P



Summary for Pond 7P: UG A

Inflow Area = 5.228 ac, 46.14% Impervious, Inflow Depth > 0.78" for 1-Year event
Inflow = 4.13 cfs @ 12.17 hrs, Volume= 0.341 af
Outflow = 0.23 cfs @ 16.05 hrs, Volume= 0.107 af, Atten= 94%, Lag= 232.7 min
Discarded = 0.08 cfs @ 11.65 hrs, Volume= 0.060 af
Primary = 0.15 cfs @ 16.05 hrs, Volume= 0.047 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 150.16' @ 16.05 hrs Surf.Area= 7,179 sf Storage= 10,603 cf

Plug-Flow detention time= 252.8 min calculated for 0.106 af (31% of inflow)
Center-of-Mass det. time= 155.3 min (977.1 - 821.8)

Volume	Invert	Avail.Storage	Storage Description
#1A	148.00'	6,522 cf	**52.00'W x 91.03'L x 5.75'H Field A** 27,219 cf Overall - 10,914 cf Embedded = 16,305 cf x 40.0% Voids
#2A	148.75'	10,914 cf	**Cultec R-902HD** x 168 Inside #1 Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap 168 Chambers in 7 Rows Cap Storage= +2.8 cf x 2 x 7 rows = 38.6 cf
#3B	148.00'	3,435 cf	**52.00'W x 47.03'L x 5.75'H Field B** 14,063 cf Overall - 5,476 cf Embedded = 8,587 cf x 40.0% Voids
#4B	148.75'	5,476 cf	**Cultec R-902HD** x 84 Inside #3 Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap 84 Chambers in 7 Rows Cap Storage= +2.8 cf x 2 x 7 rows = 38.6 cf
		26,347 cf	Total Available Storage

Storage Group A created with Chamber Wizard
Storage Group B created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	150.00'	**30.0" Round Culvert** L= 64.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 150.00' / 138.00' S= 0.1875 '/' Cc= 0.900 n= 0.012, Flow Area= 4.91 sf
#2	Discarded	148.00'	**0.500 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.08 cfs @ 11.65 hrs HW=148.06' (Free Discharge)
↑**2=Exfiltration** (Exfiltration Controls 0.08 cfs)

Primary OutFlow Max=0.15 cfs @ 16.05 hrs HW=150.16' (Free Discharge)
↑**1=Culvert** (Inlet Controls 0.15 cfs @ 1.09 fps)

Pond 7P: UG A - Chamber Wizard Field A

Chamber Model = Cultec R-902HD (Cultec Recharger® 902HD)
Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf
Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap
Cap Storage= +2.8 cf x 2 x 7 rows = 38.6 cf

78.0" Wide + 9.0" Spacing = 87.0" C-C Row Spacing

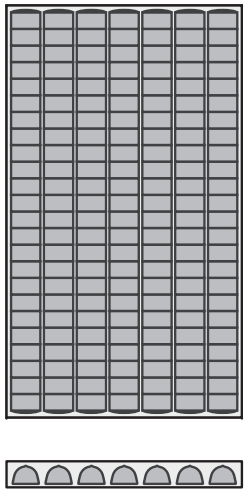
24 Chambers/Row x 3.67' Long +0.52' Cap Length x 2 = 89.03' Row Length +12.0" End Stone x 2 = 91.03' Base Length
7 Rows x 78.0" Wide + 9.0" Spacing x 6 + 12.0" Side Stone x 2 = 52.00' Base Width
9.0" Base + 48.0" Chamber Height + 12.0" Cover = 5.75' Field Height

168 Chambers x 64.7 cf + 2.8 cf Cap Volume x 2 x 7 Rows = 10,914.1 cf Chamber Storage

27,219.0 cf Field - 10,914.1 cf Chambers = 16,304.8 cf Stone x 40.0% Voids = 6,521.9 cf Stone Storage

Chamber Storage + Stone Storage = 17,436.1 cf = 0.400 af
Overall Storage Efficiency = 64.1%
Overall System Size = 91.03' x 52.00' x 5.75'

168 Chambers
1,008.1 cy Field
603.9 cy Stone



Pond 7P: UG A - Chamber Wizard Field B

Chamber Model = Cultec R-902HD (Cultec Recharger® 902HD)
Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf
Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap
Cap Storage= +2.8 cf x 2 x 7 rows = 38.6 cf

78.0" Wide + 9.0" Spacing = 87.0" C-C Row Spacing

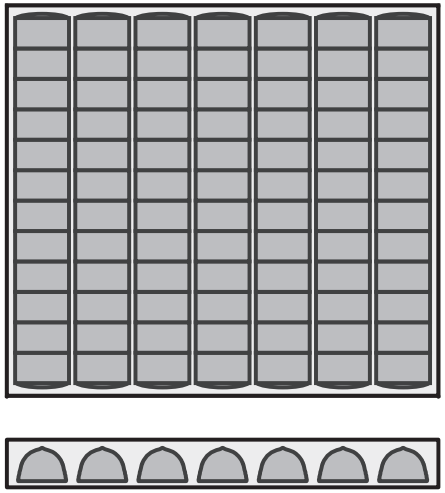
12 Chambers/Row x 3.67' Long +0.52' Cap Length x 2 = 45.03' Row Length +12.0" End Stone x 2 = 47.03' Base Length
7 Rows x 78.0" Wide + 9.0" Spacing x 6 + 12.0" Side Stone x 2 = 52.00' Base Width
9.0" Base + 48.0" Chamber Height + 12.0" Cover = 5.75' Field Height

84 Chambers x 64.7 cf + 2.8 cf Cap Volume x 2 x 7 Rows = 5,476.4 cf Chamber Storage

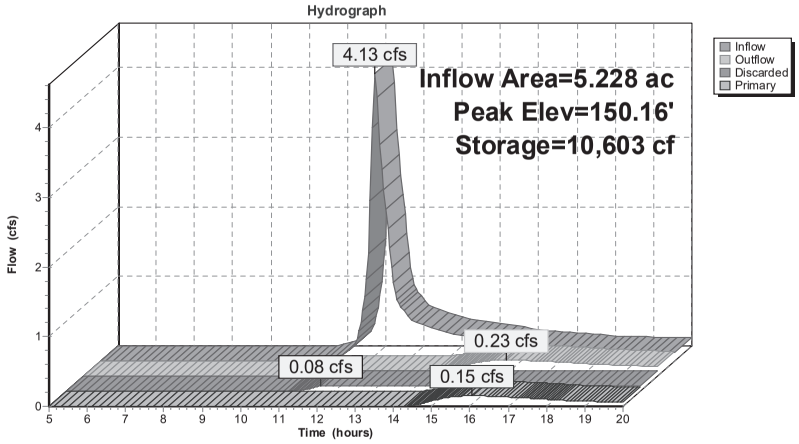
14,063.0 cf Field - 5,476.4 cf Chambers = 8,586.6 cf Stone x 40.0% Voids = 3,434.6 cf Stone Storage

Chamber Storage + Stone Storage = 8,911.0 cf = 0.205 af
Overall Storage Efficiency = 63.4%
Overall System Size = 47.03' x 52.00' x 5.75'

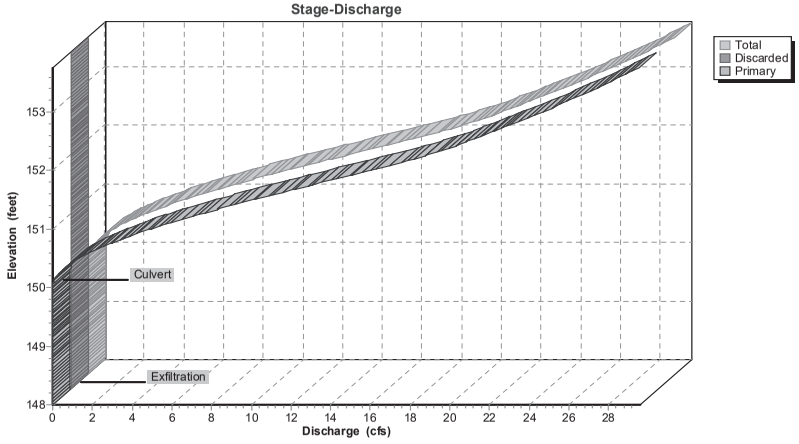
84 Chambers
520.9 cy Field
318.0 cy Stone



Pond 7P: UG A



Pond 7P: UG A



Summary for Pond 13P: BIO A

Inflow Area = 3.116 ac, 45.60% Impervious, Inflow Depth > 0.65" for 1-Year event
Inflow = 2.34 cfs @ 12.10 hrs, Volume= 0.168 af
Outflow = 0.07 cfs @ 18.91 hrs, Volume= 0.039 af, Atten= 97%, Lag= 408.1 min
Primary = 0.07 cfs @ 18.91 hrs, Volume= 0.039 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 137.03' @ 18.91 hrs Surf.Area= 6,020 sf Storage= 5,657 cf

Plug-Flow detention time= 274.4 min calculated for 0.039 af (23% of inflow)
Center-of-Mass det. time= 168.7 min (994.6 - 825.9)

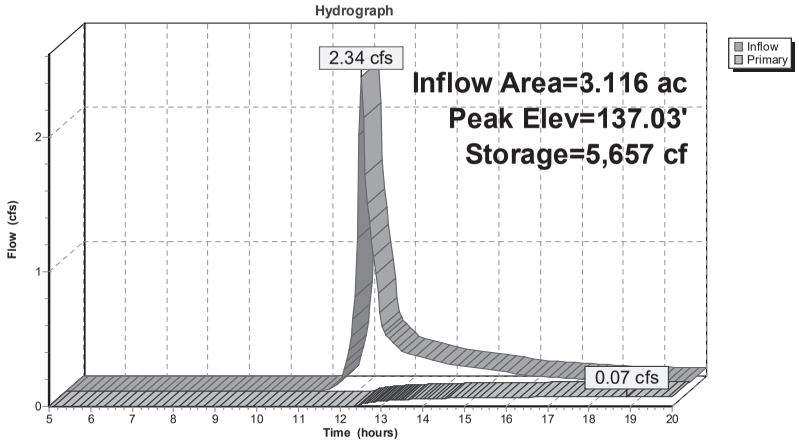
Volume	Invert	Avail.Storage	Storage Description
#1	136.00'	11,989 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
136.00	5,009	0	0
138.00	6,980	11,989	11,989

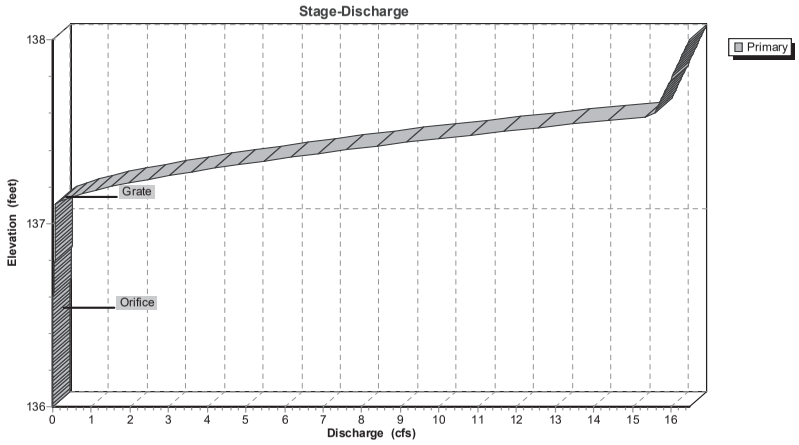
Device	Routing	Invert	Outlet Devices
#1	Primary	133.50'	**18.0" Round Culvert** L= 23.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 133.50' / 133.00' S= 0.0217 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Device 1	136.50'	**2.0" Vert. Orifice** C= 0.600
#3	Device 1	137.10'	**42.0" x 42.0" Horiz. Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.07 cfs @ 18.91 hrs HW=137.03' (Free Discharge)
└**1=Culvert** (Passes 0.07 cfs of 14.18 cfs potential flow)
└**2=Orifice** (Orifice Controls 0.07 cfs @ 3.20 fps)
└**3=Grate** (Controls 0.00 cfs)

Pond 13P: BIO A



Pond 13P: BIO A



Summary for Pond 14P: RG A

Inflow Area = 0.288 ac, 30.21% Impervious, Inflow Depth > 0.53" for 1-Year event
Inflow = 0.17 cfs @ 12.10 hrs, Volume= 0.013 af
Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 140.41' @ 20.00 hrs Surf.Area= 1,471 sf Storage= 550 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

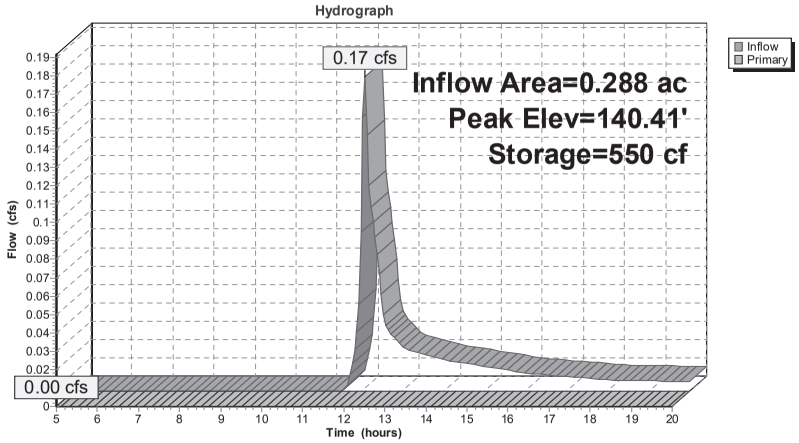
Volume	Invert	Avail.Storage	Storage Description
#1	140.00'	1,526 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
140.00	1,231	0	0
141.00	1,821	1,526	1,526

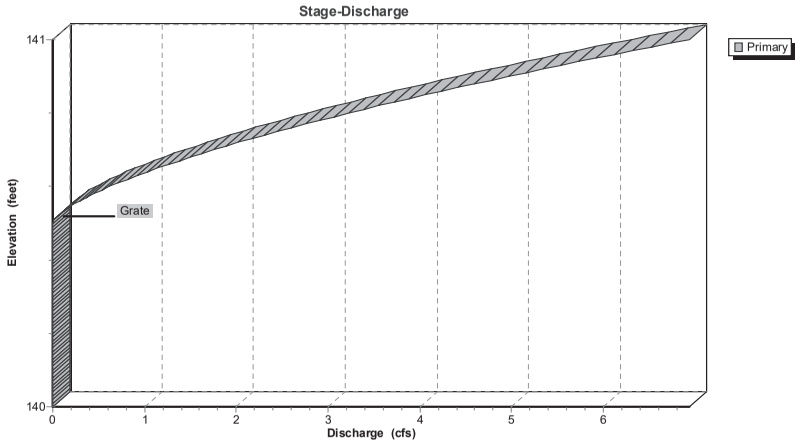
Device	Routing	Invert	Outlet Devices
#1	Primary	140.50'	**18.0" x 18.0" Horiz. Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=140.00' (Free Discharge)
↑**1=Grate** (Controls 0.00 cfs)

Pond 14P: RG A



Pond 14P: RG A



Summary for Pond 15P: RG B

Inflow Area = 0.396 ac, 9.85% Impervious, Inflow Depth > 0.00" for 1-Year event
Inflow = 0.00 cfs @ 20.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 138.00' @ 20.00 hrs Surf.Area= 2,247 sf Storage= 0 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

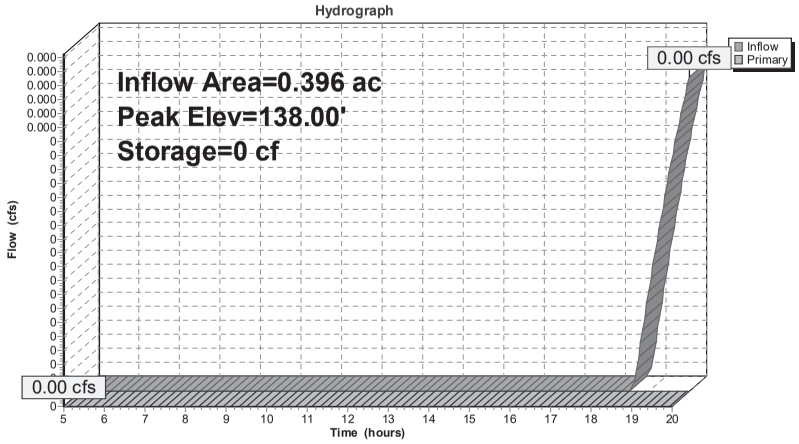
Volume	Invert	Avail.Storage	Storage Description
#1	138.00'	2,658 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
138.00	2,247	0	0
139.00	3,068	2,658	2,658

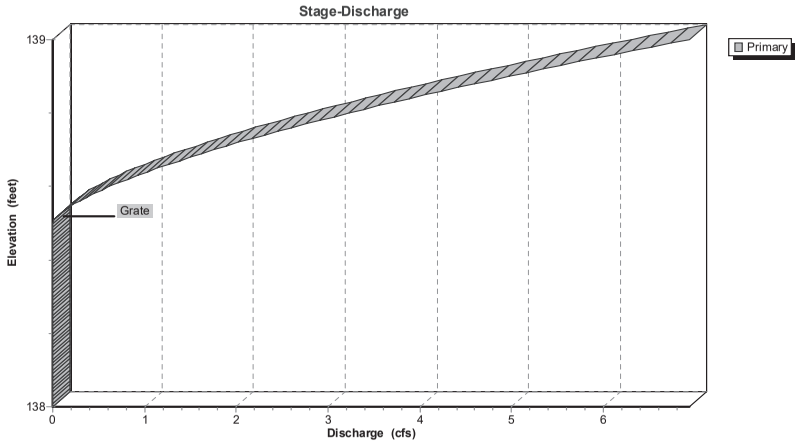
Device	Routing	Invert	Outlet Devices
#1	Primary	138.50'	**18.0" x 18.0" Horiz. Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=138.00' (Free Discharge)
↑**1=Grate** (Controls 0.00 cfs)

Pond 15P: RG B



Pond 15P: RG B



Summary for Pond 16P: BIO B

Inflow Area = 1.896 ac, 28.32% Impervious, Inflow Depth > 0.07" for 1-Year event
Inflow = 0.02 cfs @ 13.76 hrs, Volume= 0.011 af
Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 34.17' @ 20.00 hrs Surf.Area= 2,759 sf Storage= 459 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

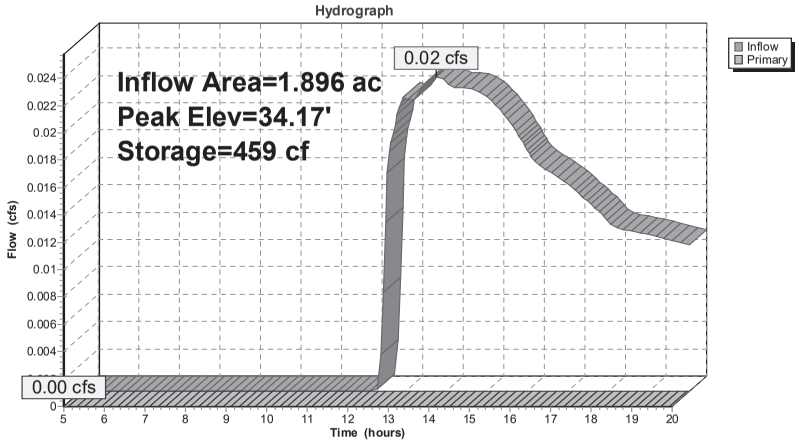
Volume	Invert	Avail.Storage	Storage Description
#1	34.00'	7,056 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
34.00	2,600	0	0
36.00	4,456	7,056	7,056

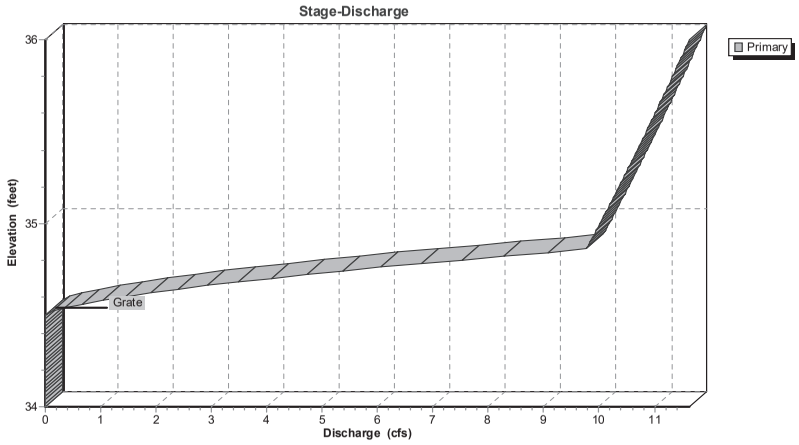
Device	Routing	Invert	Outlet Devices
#1	Primary	31.50'	**15.0" Round Culvert** L= 62.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 31.50' / 30.00' S= 0.0242 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#2	Device 1	34.50'	**42.0" x 42.0" Horiz. Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=34.00' (Free Discharge)
↑**1=Culvert** (Passes 0.00 cfs of 8.09 cfs potential flow)
↑**2=Grate** (Controls 0.00 cfs)

Pond 16P: BIO B



Pond 16P: BIO B



Summary for Subcatchment 11: DA 11

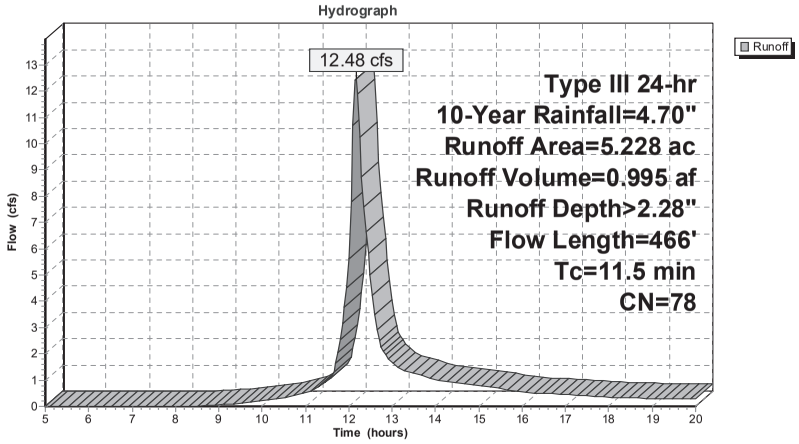
Runoff = 12.48 cfs @ 12.16 hrs, Volume= 0.995 af, Depth> 2.28"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.70"

Area (ac)	CN	Description
0.345	98	Roofs, HSG B
2.067	98	Paved parking, HSG B
2.816	61	>75% Grass cover, Good, HSG B
5.228	78	Weighted Average
2.816		53.86% Pervious Area
2.412		46.14% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.4	100	0.0225	0.18		**Sheet Flow, S1** Grass: Short n= 0.150 P2= 3.16"
1.5	224	0.0250	2.55		**Shallow Concentrated Flow, S2** Unpaved Kv= 16.1 fps
0.5	116	0.0430	4.21		**Shallow Concentrated Flow, S3** Paved Kv= 20.3 fps
0.1	26	0.0100	5.70	7.00	**Pipe Channel, S4** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012
11.5	466	Total			

Subcatchment 11: DA 11



Summary for Subcatchment 12: DA12

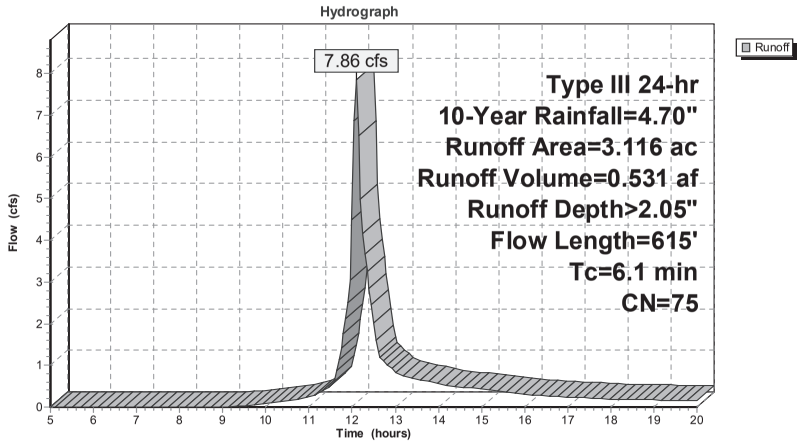
Runoff = 7.86 cfs @ 12.10 hrs, Volume= 0.531 af, Depth> 2.05"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.70"

Area (ac)	CN	Description
0.576	98	Roofs, HSG B
0.845	98	Paved parking, HSG B
0.383	39	>75% Grass cover, Good, HSG A
1.312	61	>75% Grass cover, Good, HSG B
3.116	75	Weighted Average
1.695		54.40% Pervious Area
1.421		45.60% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	100	0.1100	0.33		**Sheet Flow, S1** Grass: Short n= 0.150 P2= 3.16"
0.8	138	0.0180	2.72		**Shallow Concentrated Flow, S2** Paved Kv= 20.3 fps
0.3	377	0.0990	21.53	26.42	**Pipe Channel, S3** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.010
6.1	615	Total			

Subcatchment 12: DA12



Summary for Subcatchment 13: DA13

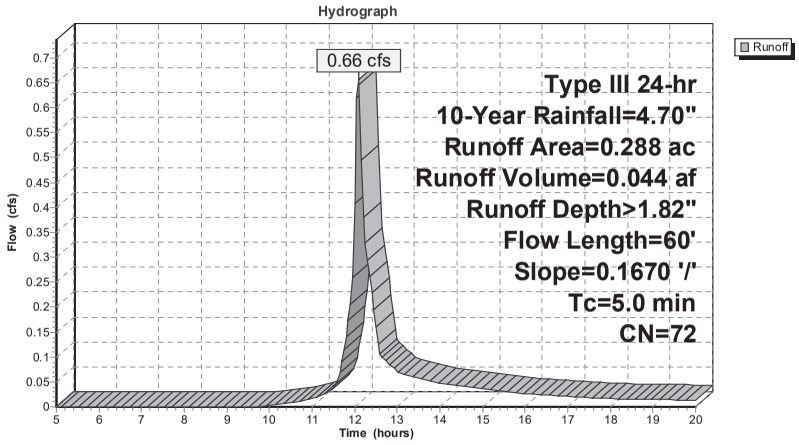
Runoff = 0.66 cfs @ 12.08 hrs, Volume= 0.044 af, Depth> 1.82"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.70"

Area (ac)	CN	Description
0.059	98	Roofs, HSG B
0.028	98	Paved parking, HSG B
0.201	61	>75% Grass cover, Good, HSG B
0.288	72	Weighted Average
0.201		69.79% Pervious Area
0.087		30.21% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.8	60	0.1670	0.36		**Sheet Flow, S1** Grass: Short n= 0.150 P2= 3.16"
2.8	60	Total, Increased to minimum Tc = 5.0 min			

Subcatchment 13: DA13



Summary for Subcatchment 14: DA14

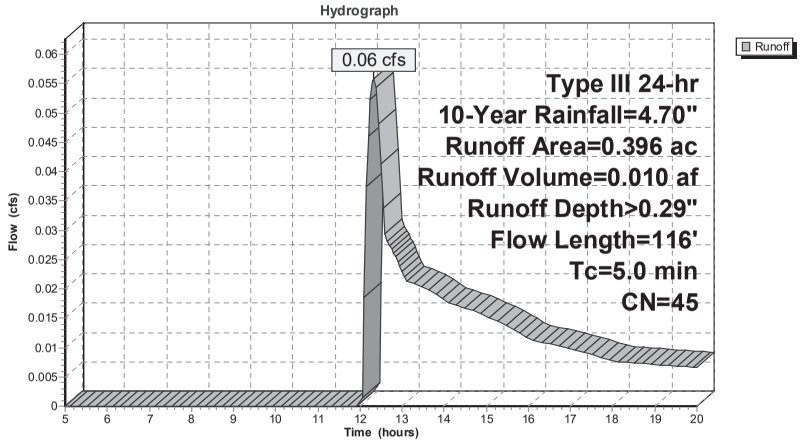
Runoff = 0.06 cfs @ 12.33 hrs, Volume= 0.010 af, Depth> 0.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.70"

Area (ac)	CN	Description
0.039	98	Roofs, HSG A
0.357	39	>75% Grass cover, Good, HSG A
0.396	45	Weighted Average
0.357		90.15% Pervious Area
0.039		9.85% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	100	0.1600	0.39		**Sheet Flow, S1** Grass: Short n= 0.150 P2= 3.16"
0.0	16	0.2000	7.20		**Shallow Concentrated Flow, S2** Unpaved Kv= 16.1 fps
4.3	116	Total, Increased to minimum Tc = 5.0 min			

Subcatchment 14: DA14



Summary for Subcatchment 15: DA15

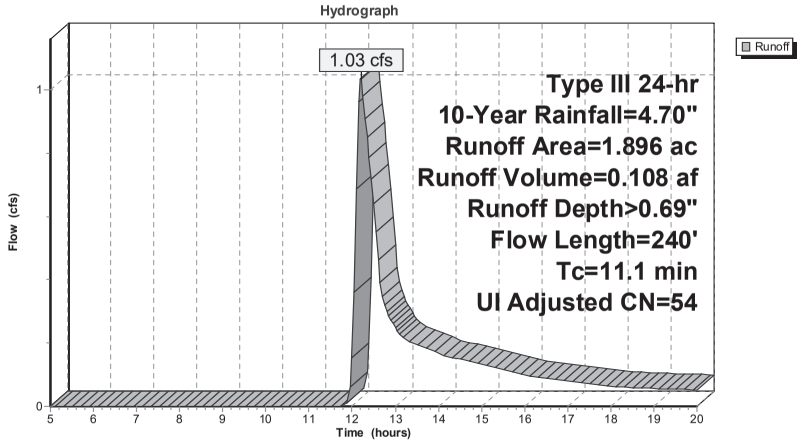
Runoff = 1.03 cfs @ 12.20 hrs, Volume= 0.108 af, Depth> 0.69"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.70"

Area (ac)	CN	Adj	Description
0.063	98		Roofs, HSG A
0.309	98		Paved parking, HSG A
0.165	98		Unconnected pavement, HSG A
1.095	39		>75% Grass cover, Good, HSG A
0.029	74		>75% Grass cover, Good, HSG C
0.154	30		Woods, Good, HSG A
0.081	70		Woods, Good, HSG C
1.896	57	54	Weighted Average, UI Adjusted
1.359			71.68% Pervious Area
0.537			28.32% Impervious Area
0.165			30.73% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.9	100	0.0200	0.17		**Sheet Flow, S1** Grass: Short n= 0.150 P2= 3.16"
1.2	140	0.0140	1.90		**Shallow Concentrated Flow, S2** Unpaved Kv= 16.1 fps
11.1	240	Total			

Subcatchment 15: DA15



Summary for Subcatchment P: P

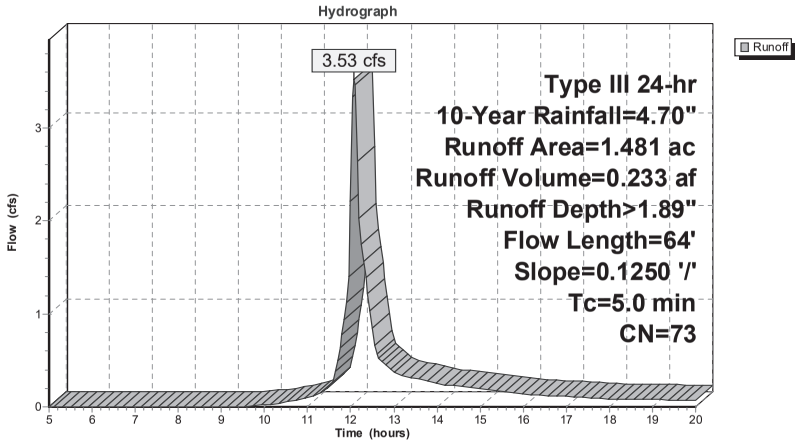
Runoff = 3.53 cfs @ 12.08 hrs, Volume= 0.233 af, Depth> 1.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.70"

Area (ac)	CN	Description
0.332	98	Water Surface, HSG B
0.151	98	Paved parking, HSG B
0.998	61	>75% Grass cover, Good, HSG B
1.481	73	Weighted Average
0.998		67.39% Pervious Area
0.483		32.61% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.3	64	0.1250	0.32		**Sheet Flow, S1** Grass: Short n= 0.150 P2= 3.16"
3.3	64	Total, Increased to minimum Tc = 5.0 min			

Subcatchment P: P



Summary for Pond 7P: UG A

Inflow Area = 5.228 ac, 46.14% Impervious, Inflow Depth > 2.28" for 10-Year event
Inflow = 12.48 cfs @ 12.16 hrs, Volume= 0.995 af
Outflow = 6.45 cfs @ 12.42 hrs, Volume= 0.747 af, Atten= 48%, Lag= 15.2 min
Discarded = 0.08 cfs @ 9.70 hrs, Volume= 0.074 af
Primary = 6.37 cfs @ 12.42 hrs, Volume= 0.673 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 151.15' @ 12.42 hrs Surf.Area= 7,179 sf Storage= 16,182 cf

Plug-Flow detention time= 108.3 min calculated for 0.747 af (75% of inflow)
Center-of-Mass det. time= 47.8 min (845.7 - 797.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	148.00'	6,522 cf	**52.00'W x 91.03'L x 5.75'H Field A** 27,219 cf Overall - 10,914 cf Embedded = 16,305 cf x 40.0% Voids
#2A	148.75'	10,914 cf	**Cultec R-902HD** x 168 Inside #1 Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap 168 Chambers in 7 Rows Cap Storage= +2.8 cf x 2 x 7 rows = 38.6 cf
#3B	148.00'	3,435 cf	**52.00'W x 47.03'L x 5.75'H Field B** 14,063 cf Overall - 5,476 cf Embedded = 8,587 cf x 40.0% Voids
#4B	148.75'	5,476 cf	**Cultec R-902HD** x 84 Inside #3 Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap 84 Chambers in 7 Rows Cap Storage= +2.8 cf x 2 x 7 rows = 38.6 cf
		26,347 cf	Total Available Storage

Storage Group A created with Chamber Wizard
Storage Group B created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	150.00'	**30.0" Round Culvert** L= 64.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 150.00' / 138.00' S= 0.1875 '/' Cc= 0.900 n= 0.012, Flow Area= 4.91 sf
#2	Discarded	148.00'	**0.500 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.08 cfs @ 9.70 hrs HW=148.06' (Free Discharge)
↑**2=Exfiltration** (Exfiltration Controls 0.08 cfs)

Primary OutFlow Max=6.33 cfs @ 12.42 hrs HW=151.15' (Free Discharge)
↑**1=Culvert** (Inlet Controls 6.33 cfs @ 2.88 fps)

Pond 7P: UG A - Chamber Wizard Field A

Chamber Model = Cultec R-902HD (Cultec Recharger® 902HD)
Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf
Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap
Cap Storage= +2.8 cf x 2 x 7 rows = 38.6 cf

78.0" Wide + 9.0" Spacing = 87.0" C-C Row Spacing

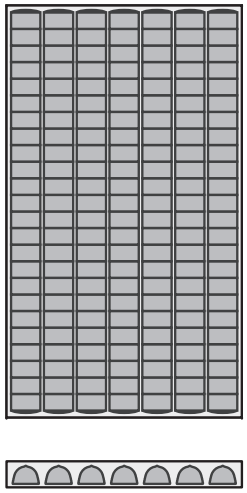
24 Chambers/Row x 3.67' Long +0.52' Cap Length x 2 = 89.03' Row Length +12.0" End Stone x 2 = 91.03' Base Length
7 Rows x 78.0" Wide + 9.0" Spacing x 6 + 12.0" Side Stone x 2 = 52.00' Base Width
9.0" Base + 48.0" Chamber Height + 12.0" Cover = 5.75' Field Height

168 Chambers x 64.7 cf + 2.8 cf Cap Volume x 2 x 7 Rows = 10,914.1 cf Chamber Storage

27,219.0 cf Field - 10,914.1 cf Chambers = 16,304.8 cf Stone x 40.0% Voids = 6,521.9 cf Stone Storage

Chamber Storage + Stone Storage = 17,436.1 cf = 0.400 af
Overall Storage Efficiency = 64.1%
Overall System Size = 91.03' x 52.00' x 5.75'

168 Chambers
1,008.1 cy Field
603.9 cy Stone



Pond 7P: UG A - Chamber Wizard Field B

Chamber Model = Cultec R-902HD (Cultec Recharger® 902HD)
Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf
Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap
Cap Storage= +2.8 cf x 2 x 7 rows = 38.6 cf

78.0" Wide + 9.0" Spacing = 87.0" C-C Row Spacing

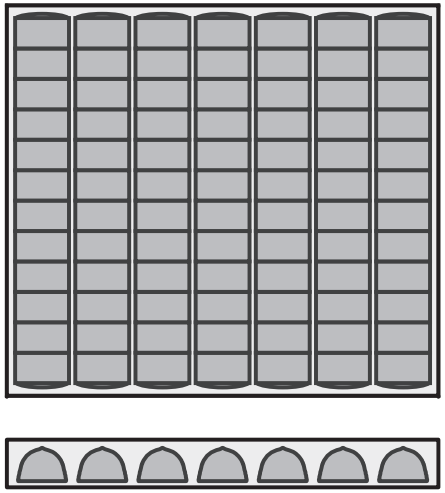
12 Chambers/Row x 3.67' Long +0.52' Cap Length x 2 = 45.03' Row Length +12.0" End Stone x 2 = 47.03' Base Length
7 Rows x 78.0" Wide + 9.0" Spacing x 6 + 12.0" Side Stone x 2 = 52.00' Base Width
9.0" Base + 48.0" Chamber Height + 12.0" Cover = 5.75' Field Height

84 Chambers x 64.7 cf + 2.8 cf Cap Volume x 2 x 7 Rows = 5,476.4 cf Chamber Storage

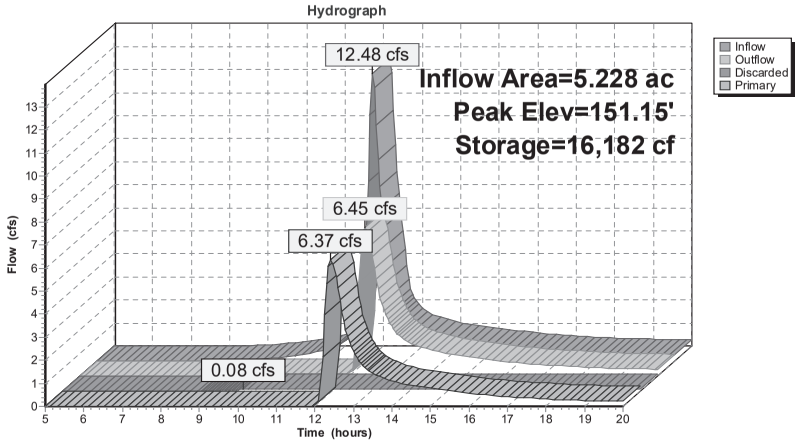
14,063.0 cf Field - 5,476.4 cf Chambers = 8,586.6 cf Stone x 40.0% Voids = 3,434.6 cf Stone Storage

Chamber Storage + Stone Storage = 8,911.0 cf = 0.205 af
Overall Storage Efficiency = 63.4%
Overall System Size = 47.03' x 52.00' x 5.75'

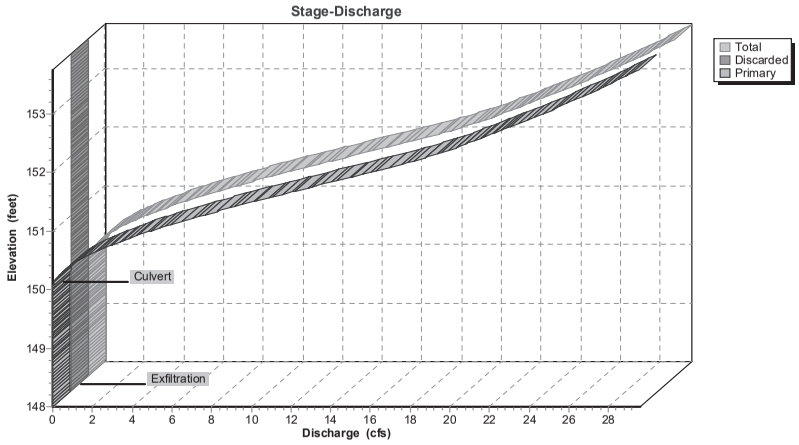
84 Chambers
520.9 cy Field
318.0 cy Stone



Pond 7P: UG A



Pond 7P: UG A



Summary for Pond 13P: BIO A

Inflow Area = 3.116 ac, 45.60% Impervious, Inflow Depth > 2.05" for 10-Year event
Inflow = 7.86 cfs @ 12.10 hrs, Volume= 0.531 af
Outflow = 5.22 cfs @ 12.21 hrs, Volume= 0.389 af, Atten= 34%, Lag= 6.8 min
Primary = 5.22 cfs @ 12.21 hrs, Volume= 0.389 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 137.33' @ 12.21 hrs Surf.Area= 6,322 sf Storage= 7,548 cf

Plug-Flow detention time= 104.3 min calculated for 0.388 af (73% of inflow)
Center-of-Mass det. time= 41.2 min (841.2 - 800.0)

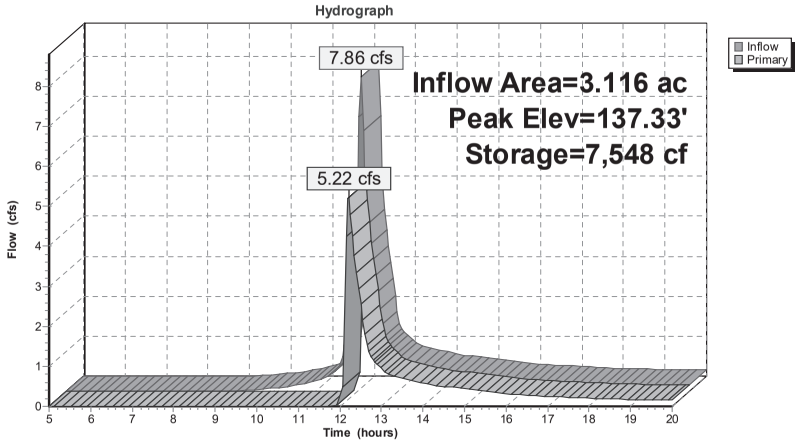
Volume	Invert	Avail.Storage	Storage Description
#1	136.00'	11,989 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
136.00	5,009	0	0
138.00	6,980	11,989	11,989

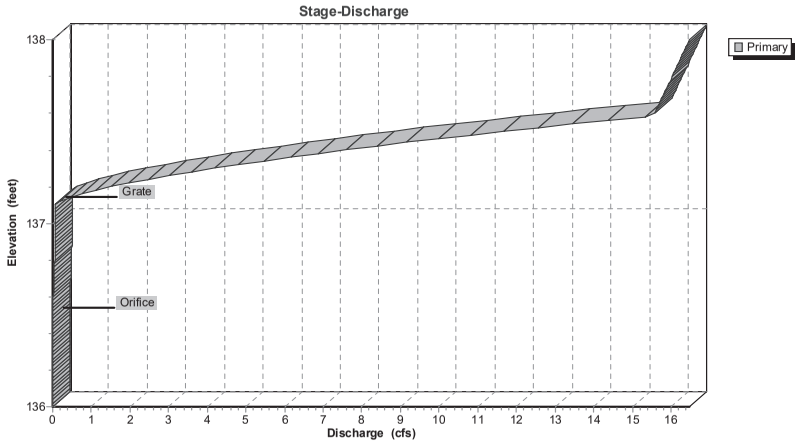
Device	Routing	Invert	Outlet Devices
#1	Primary	133.50'	**18.0" Round Culvert** L= 23.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 133.50' / 133.00' S= 0.0217 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Device 1	136.50'	**2.0" Vert. Orifice** C= 0.600
#3	Device 1	137.10'	**42.0" x 42.0" Horiz. Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=5.11 cfs @ 12.21 hrs HW=137.33' (Free Discharge)
└**1=Culvert** (Passes 5.11 cfs of 14.93 cfs potential flow)
└**2=Orifice** (Orifice Controls 0.09 cfs @ 4.16 fps)
└**3=Grate** (Weir Controls 5.02 cfs @ 1.56 fps)

Pond 13P: BIO A



Pond 13P: BIO A



Summary for Pond 14P: RG A

Inflow Area = 0.288 ac, 30.21% Impervious, Inflow Depth > 1.82" for 10-Year event
Inflow = 0.66 cfs @ 12.08 hrs, Volume= 0.044 af
Outflow = 0.27 cfs @ 12.35 hrs, Volume= 0.028 af, Atten= 59%, Lag= 16.3 min
Primary = 0.27 cfs @ 12.35 hrs, Volume= 0.028 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 140.56' @ 12.35 hrs Surf.Area= 1,560 sf Storage= 777 cf

Plug-Flow detention time= 134.7 min calculated for 0.027 af (63% of inflow)
Center-of-Mass det. time= 59.0 min (864.2 - 805.2)

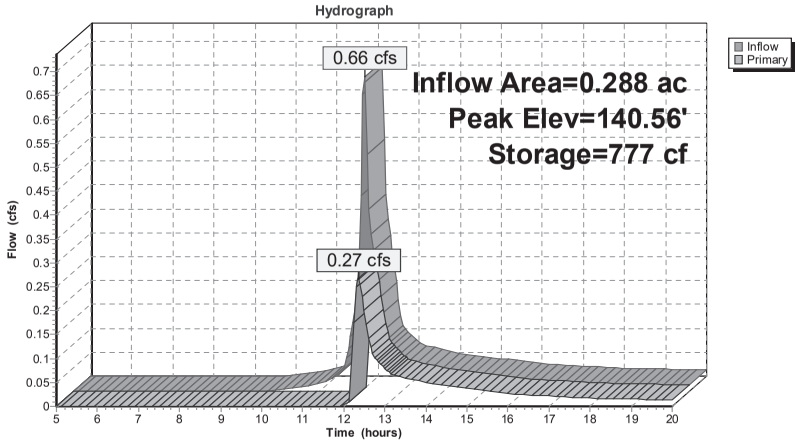
Volume	Invert	Avail.Storage	Storage Description
#1	140.00'	1,526 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
140.00	1,231	0	0
141.00	1,821	1,526	1,526

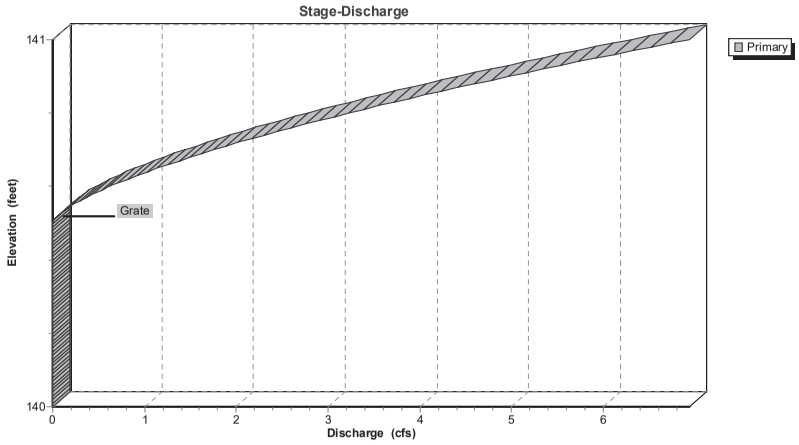
Device	Routing	Invert	Outlet Devices
#1	Primary	140.50'	**18.0" x 18.0" Horiz. Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.26 cfs @ 12.35 hrs HW=140.56' (Free Discharge)
↑**1=Grate** (Weir Controls 0.26 cfs @ 0.78 fps)

Pond 14P: RG A



Pond 14P: RG A



Summary for Pond 15P: RG B

Inflow Area = 0.396 ac, 9.85% Impervious, Inflow Depth > 0.29" for 10-Year event
Inflow = 0.06 cfs @ 12.33 hrs, Volume= 0.010 af
Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 138.18' @ 20.00 hrs Surf.Area= 2,396 sf Storage= 423 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

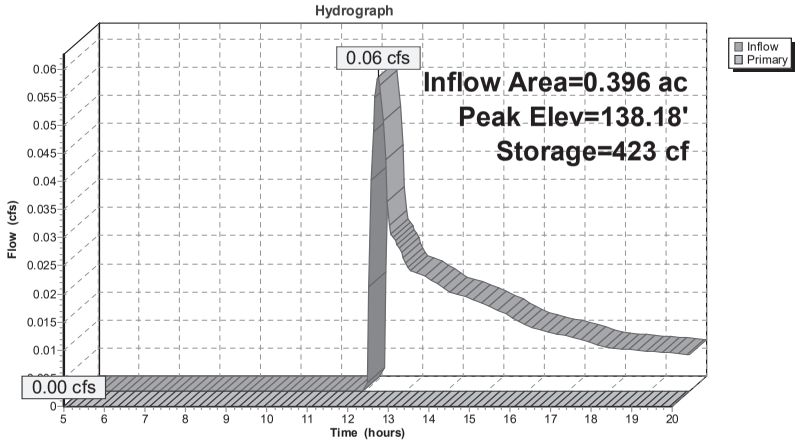
Volume	Invert	Avail.Storage	Storage Description
#1	138.00'	2,658 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
138.00	2,247	0	0
139.00	3,068	2,658	2,658

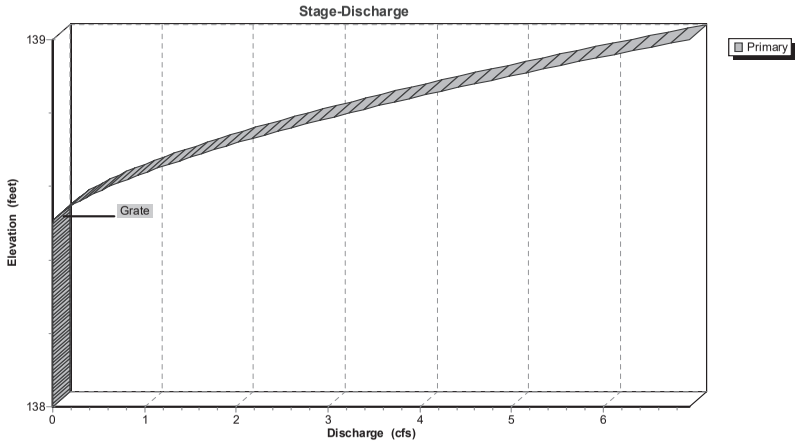
Device	Routing	Invert	Outlet Devices
#1	Primary	138.50'	**18.0" x 18.0" Horiz. Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=138.00' (Free Discharge)
↑**1=Grate** (Controls 0.00 cfs)

Pond 15P: RG B



Pond 15P: RG B



Summary for Pond 16P: BIO B

Inflow Area = 1.896 ac, 28.32% Impervious, Inflow Depth > 0.69" for 10-Year event
Inflow = 1.03 cfs @ 12.20 hrs, Volume= 0.108 af
Outflow = 0.40 cfs @ 12.66 hrs, Volume= 0.075 af, Atten= 61%, Lag= 27.3 min
Primary = 0.40 cfs @ 12.66 hrs, Volume= 0.075 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 34.54' @ 12.66 hrs Surf.Area= 3,103 sf Storage= 1,546 cf

Plug-Flow detention time= 129.1 min calculated for 0.075 af (69% of inflow)
Center-of-Mass det. time= 54.7 min (906.8 - 852.0)

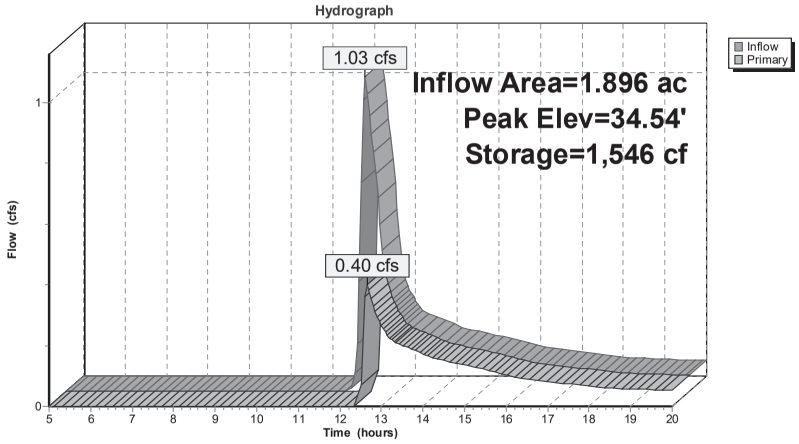
Volume	Invert	Avail.Storage	Storage Description
#1	34.00'	7,056 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
34.00	2,600	0	0
36.00	4,456	7,056	7,056

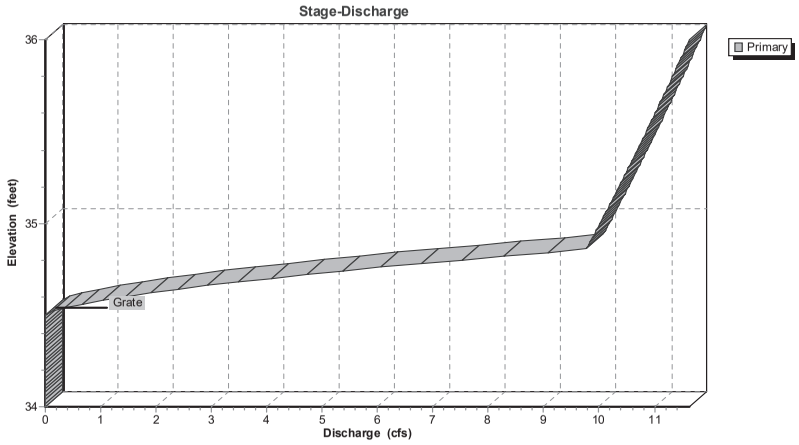
Device	Routing	Invert	Outlet Devices
#1	Primary	31.50'	**15.0" Round Culvert** L= 62.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 31.50' / 30.00' S= 0.0242 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#2	Device 1	34.50'	**42.0" x 42.0" Horiz. Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.39 cfs @ 12.66 hrs HW=34.54' (Free Discharge)
↑**1=Culvert** (Passes 0.39 cfs of 9.19 cfs potential flow)
↑**2=Grate** (Weir Controls 0.39 cfs @ 0.67 fps)

Pond 16P: BIO B



Pond 16P: BIO B



Summary for Subcatchment 11: DA 11

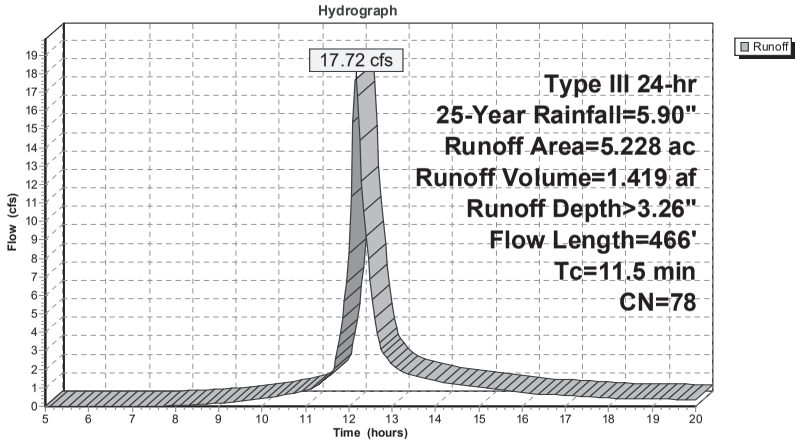
Runoff = 17.72 cfs @ 12.16 hrs, Volume= 1.419 af, Depth> 3.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.90"

Area (ac)	CN	Description
0.345	98	Roofs, HSG B
2.067	98	Paved parking, HSG B
2.816	61	>75% Grass cover, Good, HSG B
5.228	78	Weighted Average
2.816		53.86% Pervious Area
2.412		46.14% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.4	100	0.0225	0.18		**Sheet Flow, S1** Grass: Short n= 0.150 P2= 3.16"
1.5	224	0.0250	2.55		**Shallow Concentrated Flow, S2** Unpaved Kv= 16.1 fps
0.5	116	0.0430	4.21		**Shallow Concentrated Flow, S3** Paved Kv= 20.3 fps
0.1	26	0.0100	5.70	7.00	**Pipe Channel, S4** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012
11.5	466	Total			

Subcatchment 11: DA 11



Summary for Subcatchment 12: DA12

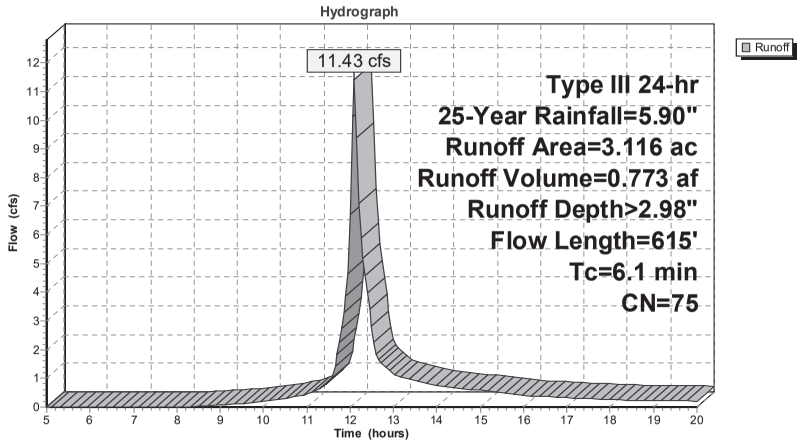
Runoff = 11.43 cfs @ 12.09 hrs, Volume= 0.773 af, Depth> 2.98"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.90"

Area (ac)	CN	Description
0.576	98	Roofs, HSG B
0.845	98	Paved parking, HSG B
0.383	39	>75% Grass cover, Good, HSG A
1.312	61	>75% Grass cover, Good, HSG B
3.116	75	Weighted Average
1.695		54.40% Pervious Area
1.421		45.60% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	100	0.1100	0.33		**Sheet Flow, S1** Grass: Short n= 0.150 P2= 3.16"
0.8	138	0.0180	2.72		**Shallow Concentrated Flow, S2** Paved Kv= 20.3 fps
0.3	377	0.0990	21.53	26.42	**Pipe Channel, S3** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.010
6.1	615	Total			

Subcatchment 12: DA12



Summary for Subcatchment 13: DA13

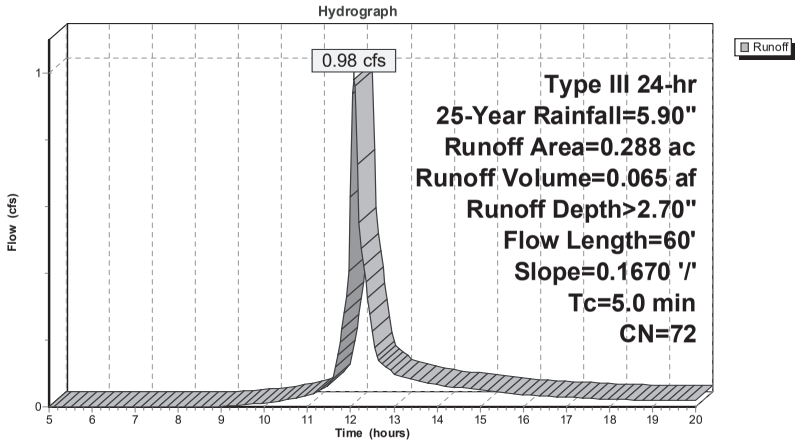
Runoff = 0.98 cfs @ 12.08 hrs, Volume= 0.065 af, Depth> 2.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.90"

Area (ac)	CN	Description
0.059	98	Roofs, HSG B
0.028	98	Paved parking, HSG B
0.201	61	>75% Grass cover, Good, HSG B
0.288	72	Weighted Average
0.201		69.79% Pervious Area
0.087		30.21% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.8	60	0.1670	0.36		**Sheet Flow, S1** Grass: Short n= 0.150 P2= 3.16"
2.8	60	Total, Increased to minimum Tc = 5.0 min			

Subcatchment 13: DA13



Summary for Subcatchment 14: DA14

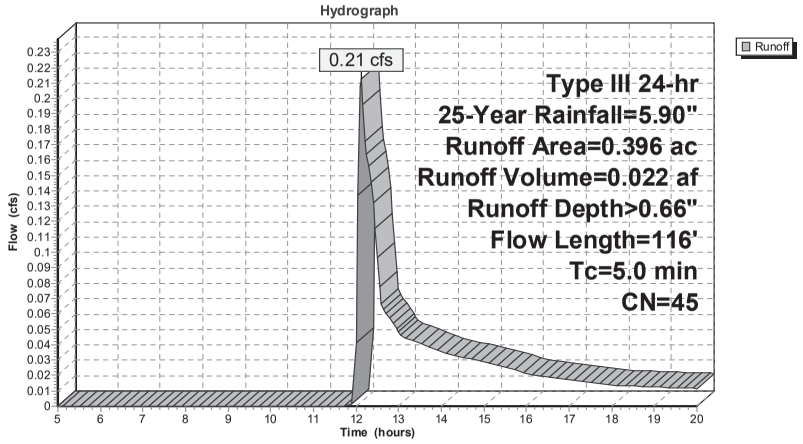
Runoff = 0.21 cfs @ 12.12 hrs, Volume= 0.022 af, Depth> 0.66"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.90"

Area (ac)	CN	Description
0.039	98	Roofs, HSG A
0.357	39	>75% Grass cover, Good, HSG A
0.396	45	Weighted Average
0.357		90.15% Pervious Area
0.039		9.85% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	100	0.1600	0.39		**Sheet Flow, S1** Grass: Short n= 0.150 P2= 3.16"
0.0	16	0.2000	7.20		**Shallow Concentrated Flow, S2** Unpaved Kv= 16.1 fps
4.3	116	Total, Increased to minimum Tc = 5.0 min			

Subcatchment 14: DA14



Summary for Subcatchment 15: DA15

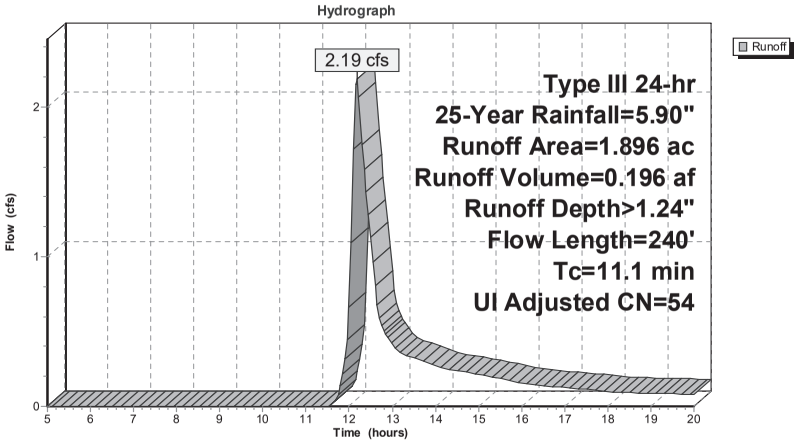
Runoff = 2.19 cfs @ 12.18 hrs, Volume= 0.196 af, Depth> 1.24"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.90"

Area (ac)	CN	Adj	Description
0.063	98		Roofs, HSG A
0.309	98		Paved parking, HSG A
0.165	98		Unconnected pavement, HSG A
1.095	39		>75% Grass cover, Good, HSG A
0.029	74		>75% Grass cover, Good, HSG C
0.154	30		Woods, Good, HSG A
0.081	70		Woods, Good, HSG C
1.896	57	54	Weighted Average, UI Adjusted
1.359			71.68% Pervious Area
0.537			28.32% Impervious Area
0.165			30.73% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.9	100	0.0200	0.17		**Sheet Flow, S1** Grass: Short n= 0.150 P2= 3.16"
1.2	140	0.0140	1.90		**Shallow Concentrated Flow, S2** Unpaved Kv= 16.1 fps
11.1	240	Total			

Subcatchment 15: DA15



Summary for Subcatchment P: P

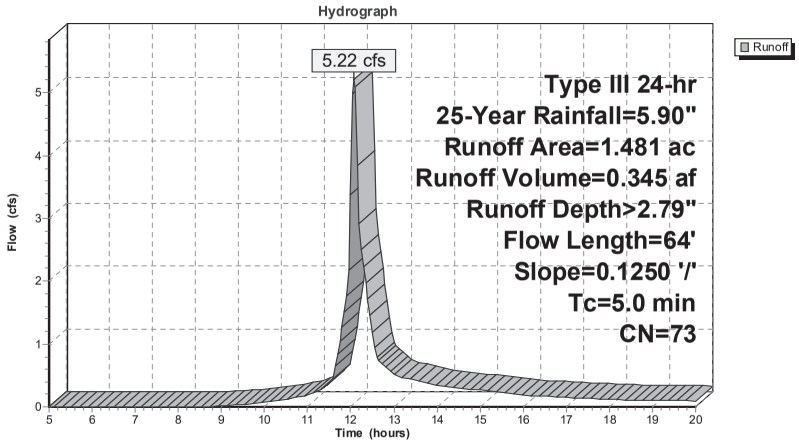
Runoff = 5.22 cfs @ 12.08 hrs, Volume= 0.345 af, Depth> 2.79"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.90"

Area (ac)	CN	Description
0.332	98	Water Surface, HSG B
0.151	98	Paved parking, HSG B
0.998	61	>75% Grass cover, Good, HSG B
1.481	73	Weighted Average
0.998		67.39% Pervious Area
0.483		32.61% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.3	64	0.1250	0.32		**Sheet Flow, S1** Grass: Short n= 0.150 P2= 3.16"
3.3	64	Total, Increased to minimum Tc = 5.0 min			

Subcatchment P: P



Summary for Pond 7P: UG A

Inflow Area = 5.228 ac, 46.14% Impervious, Inflow Depth > 3.26" for 25-Year event
Inflow = 17.72 cfs @ 12.16 hrs, Volume= 1.419 af
Outflow = 12.55 cfs @ 12.30 hrs, Volume= 1.167 af, Atten= 29%, Lag= 8.3 min
Discarded = 0.08 cfs @ 8.85 hrs, Volume= 0.080 af
Primary = 12.47 cfs @ 12.30 hrs, Volume= 1.086 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 151.70' @ 12.30 hrs Surf.Area= 7,179 sf Storage= 19,082 cf

Plug-Flow detention time= 86.4 min calculated for 1.167 af (82% of inflow)
Center-of-Mass det. time= 37.6 min (827.4 - 789.8)

Volume	Invert	Avail.Storage	Storage Description
#1A	148.00'	6,522 cf	**52.00'W x 91.03'L x 5.75'H Field A** 27,219 cf Overall - 10,914 cf Embedded = 16,305 cf x 40.0% Voids
#2A	148.75'	10,914 cf	**Cultec R-902HD** x 168 Inside #1 Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap 168 Chambers in 7 Rows Cap Storage= +2.8 cf x 2 x 7 rows = 38.6 cf
#3B	148.00'	3,435 cf	**52.00'W x 47.03'L x 5.75'H Field B** 14,063 cf Overall - 5,476 cf Embedded = 8,587 cf x 40.0% Voids
#4B	148.75'	5,476 cf	**Cultec R-902HD** x 84 Inside #3 Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap 84 Chambers in 7 Rows Cap Storage= +2.8 cf x 2 x 7 rows = 38.6 cf
		26,347 cf	Total Available Storage

Storage Group A created with Chamber Wizard
Storage Group B created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	150.00'	**30.0" Round Culvert** L= 64.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 150.00' / 138.00' S= 0.1875 '/' Cc= 0.900 n= 0.012, Flow Area= 4.91 sf
#2	Discarded	148.00'	**0.500 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.08 cfs @ 8.85 hrs HW=148.06' (Free Discharge)
↑**2=Exfiltration** (Exfiltration Controls 0.08 cfs)

Primary OutFlow Max=12.46 cfs @ 12.30 hrs HW=151.70' (Free Discharge)
↑**1=Culvert** (Inlet Controls 12.46 cfs @ 3.50 fps)

Pond 7P: UG A - Chamber Wizard Field A

Chamber Model = Cultec R-902HD (Cultec Recharger® 902HD)
Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf
Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap
Cap Storage= +2.8 cf x 2 x 7 rows = 38.6 cf

78.0" Wide + 9.0" Spacing = 87.0" C-C Row Spacing

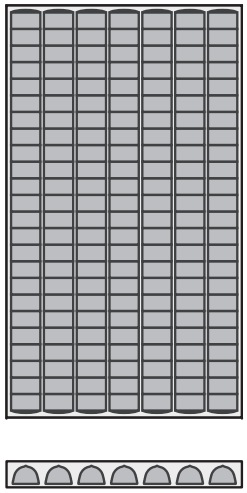
24 Chambers/Row x 3.67' Long +0.52' Cap Length x 2 = 89.03' Row Length +12.0" End Stone x 2 = 91.03' Base Length
7 Rows x 78.0" Wide + 9.0" Spacing x 6 + 12.0" Side Stone x 2 = 52.00' Base Width
9.0" Base + 48.0" Chamber Height + 12.0" Cover = 5.75' Field Height

168 Chambers x 64.7 cf + 2.8 cf Cap Volume x 2 x 7 Rows = 10,914.1 cf Chamber Storage

27,219.0 cf Field - 10,914.1 cf Chambers = 16,304.8 cf Stone x 40.0% Voids = 6,521.9 cf Stone Storage

Chamber Storage + Stone Storage = 17,436.1 cf = 0.400 af
Overall Storage Efficiency = 64.1%
Overall System Size = 91.03' x 52.00' x 5.75'

168 Chambers
1,008.1 cy Field
603.9 cy Stone



Pond 7P: UG A - Chamber Wizard Field B

Chamber Model = Cultec R-902HD (Cultec Recharger® 902HD)
Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf
Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap
Cap Storage= +2.8 cf x 2 x 7 rows = 38.6 cf

78.0" Wide + 9.0" Spacing = 87.0" C-C Row Spacing

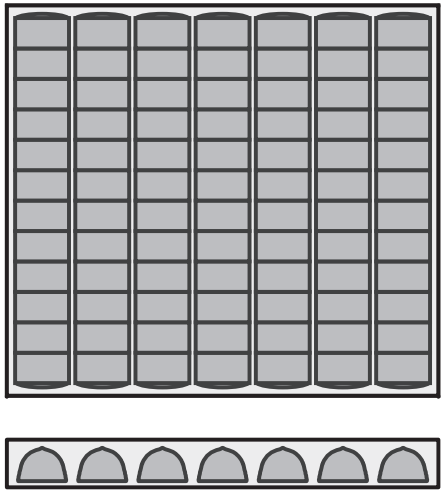
12 Chambers/Row x 3.67' Long +0.52' Cap Length x 2 = 45.03' Row Length +12.0" End Stone x 2 = 47.03' Base Length
7 Rows x 78.0" Wide + 9.0" Spacing x 6 + 12.0" Side Stone x 2 = 52.00' Base Width
9.0" Base + 48.0" Chamber Height + 12.0" Cover = 5.75' Field Height

84 Chambers x 64.7 cf + 2.8 cf Cap Volume x 2 x 7 Rows = 5,476.4 cf Chamber Storage

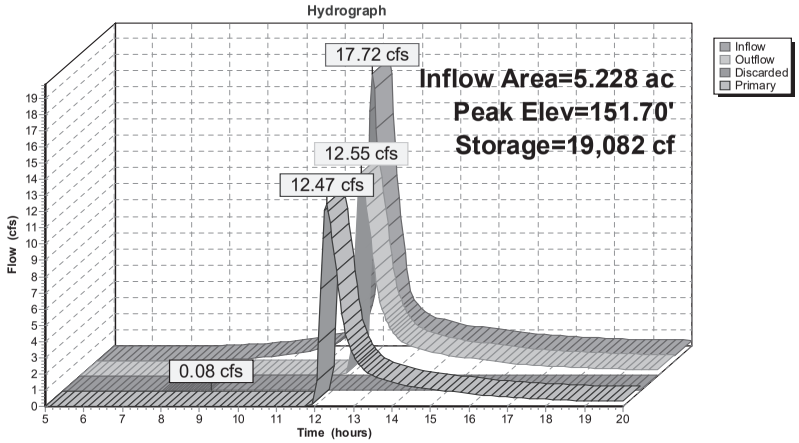
14,063.0 cf Field - 5,476.4 cf Chambers = 8,586.6 cf Stone x 40.0% Voids = 3,434.6 cf Stone Storage

Chamber Storage + Stone Storage = 8,911.0 cf = 0.205 af
Overall Storage Efficiency = 63.4%
Overall System Size = 47.03' x 52.00' x 5.75'

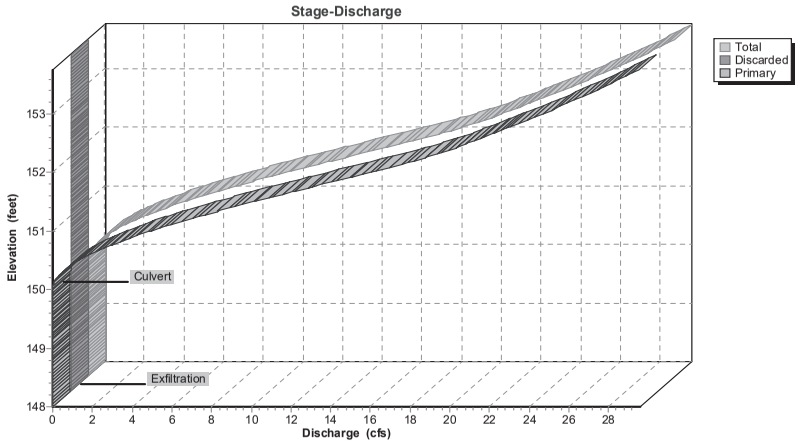
84 Chambers
520.9 cy Field
318.0 cy Stone



Pond 7P: UG A



Pond 7P: UG A



Summary for Pond 13P: BIO A

Inflow Area = 3.116 ac, 45.60% Impervious, Inflow Depth > 2.98" for 25-Year event
Inflow = 11.43 cfs @ 12.09 hrs, Volume= 0.773 af
Outflow = 10.14 cfs @ 12.14 hrs, Volume= 0.630 af, Atten= 11%, Lag= 2.9 min
Primary = 10.14 cfs @ 12.14 hrs, Volume= 0.630 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 137.46' @ 12.14 hrs Surf.Area= 6,451 sf Storage= 8,387 cf

Plug-Flow detention time= 79.9 min calculated for 0.628 af (81% of inflow)
Center-of-Mass det. time= 30.3 min (821.7 - 791.5)

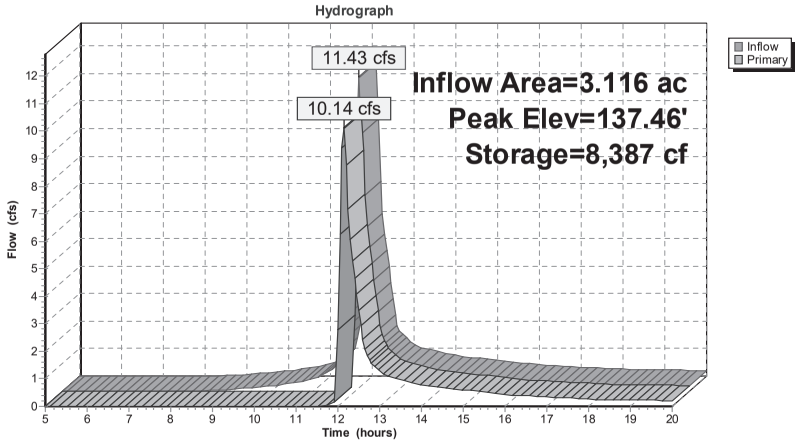
Volume	Invert	Avail.Storage	Storage Description
#1	136.00'	11,989 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
136.00	5,009	0	0
138.00	6,980	11,989	11,989

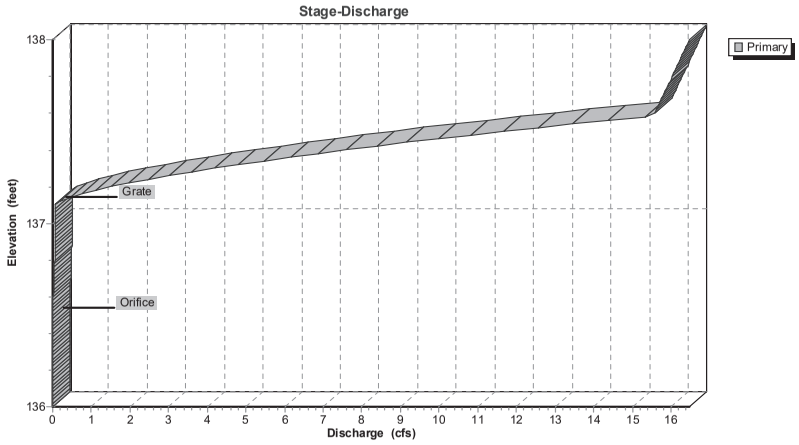
Device	Routing	Invert	Outlet Devices
#1	Primary	133.50'	**18.0" Round Culvert** L= 23.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 133.50' / 133.00' S= 0.0217 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Device 1	136.50'	**2.0" Vert. Orifice** C= 0.600
#3	Device 1	137.10'	**42.0" x 42.0" Horiz. Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=10.00 cfs @ 12.14 hrs HW=137.46' (Free Discharge)
└**1=Culvert** (Passes 10.00 cfs of 15.25 cfs potential flow)
└**2=Orifice** (Orifice Controls 0.10 cfs @ 4.51 fps)
└**3=Grate** (Weir Controls 9.90 cfs @ 1.96 fps)

Pond 13P: BIO A



Pond 13P: BIO A



Summary for Pond 14P: RG A

Inflow Area = 0.288 ac, 30.21% Impervious, Inflow Depth > 2.70" for 25-Year event
Inflow = 0.98 cfs @ 12.08 hrs, Volume= 0.065 af
Outflow = 0.77 cfs @ 12.16 hrs, Volume= 0.049 af, Atten= 22%, Lag= 4.8 min
Primary = 0.77 cfs @ 12.16 hrs, Volume= 0.049 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 140.62' @ 12.16 hrs Surf.Area= 1,594 sf Storage= 869 cf

Plug-Flow detention time= 98.9 min calculated for 0.049 af (75% of inflow)
Center-of-Mass det. time= 37.7 min (834.0 - 796.3)

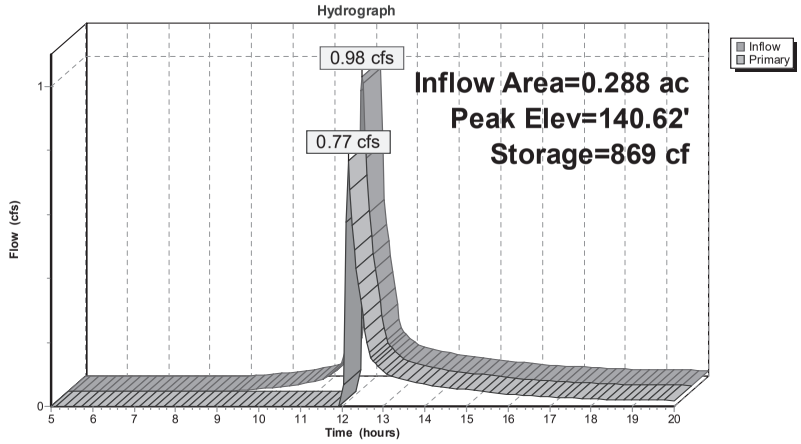
Volume	Invert	Avail.Storage	Storage Description
#1	140.00'	1,526 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
140.00	1,231	0	0
141.00	1,821	1,526	1,526

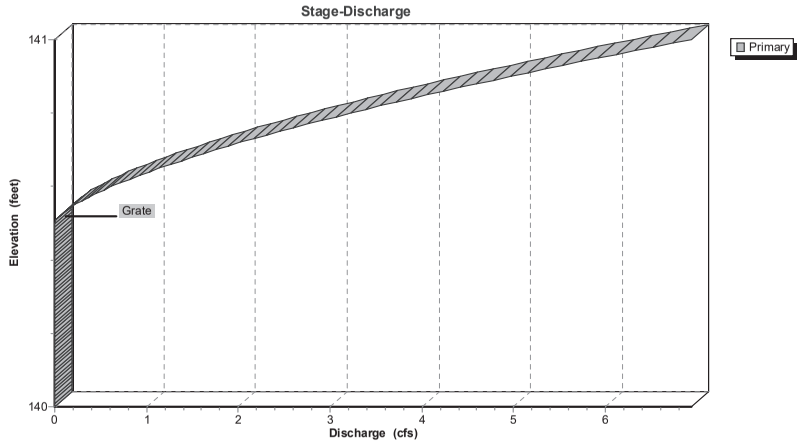
Device	Routing	Invert	Outlet Devices
#1	Primary	140.50'	**18.0" x 18.0" Horiz. Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.75 cfs @ 12.16 hrs HW=140.61' (Free Discharge)
↑**1=Grate** (Weir Controls 0.75 cfs @ 1.10 fps)

Pond 14P: RG A



Pond 14P: RG A



Summary for Pond 15P: RG B

Inflow Area = 0.396 ac, 9.85% Impervious, Inflow Depth > 0.66" for 25-Year event
Inflow = 0.21 cfs @ 12.12 hrs, Volume= 0.022 af
Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 138.40' @ 20.00 hrs Surf.Area= 2,571 sf Storage= 952 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

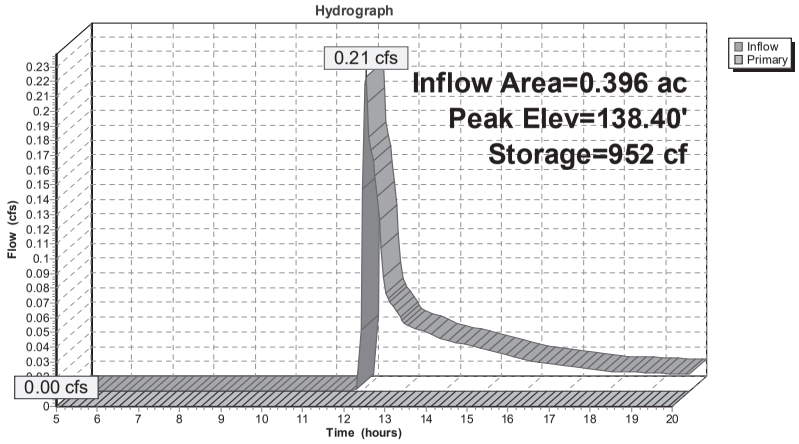
Volume	Invert	Avail.Storage	Storage Description
#1	138.00'	2,658 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
138.00	2,247	0	0
139.00	3,068	2,658	2,658

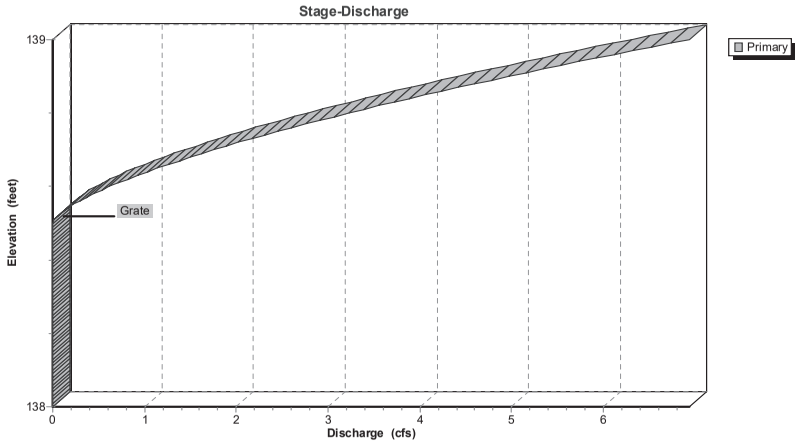
Device	Routing	Invert	Outlet Devices
#1	Primary	138.50'	**18.0" x 18.0" Horiz. Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=138.00' (Free Discharge)
↑**1=Grate** (Controls 0.00 cfs)

Pond 15P: RG B



Pond 15P: RG B



Summary for Pond 16P: BIO B

Inflow Area = 1.896 ac, 28.32% Impervious, Inflow Depth > 1.24" for 25-Year event
Inflow = 2.19 cfs @ 12.18 hrs, Volume= 0.196 af
Outflow = 1.75 cfs @ 12.32 hrs, Volume= 0.163 af, Atten= 20%, Lag= 8.6 min
Primary = 1.75 cfs @ 12.32 hrs, Volume= 0.163 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 34.61' @ 12.32 hrs Surf.Area= 3,169 sf Storage= 1,769 cf

Plug-Flow detention time= 74.0 min calculated for 0.162 af (83% of inflow)
Center-of-Mass det. time= 26.1 min (862.6 - 836.5)

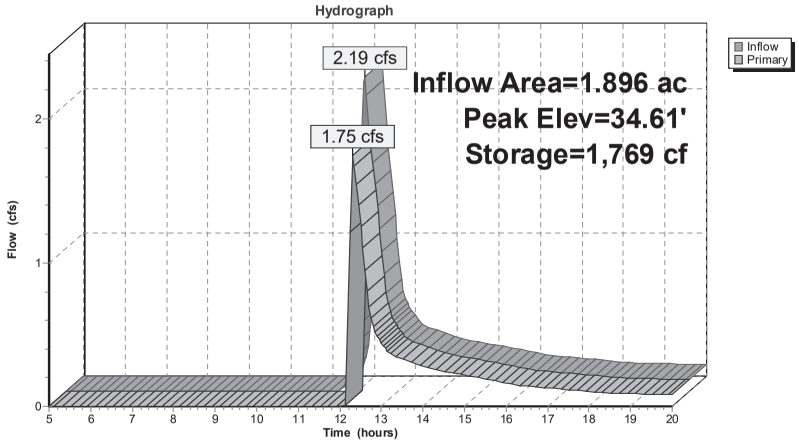
Volume	Invert	Avail.Storage	Storage Description
#1	34.00'	7,056 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
34.00	2,600	0	0
36.00	4,456	7,056	7,056

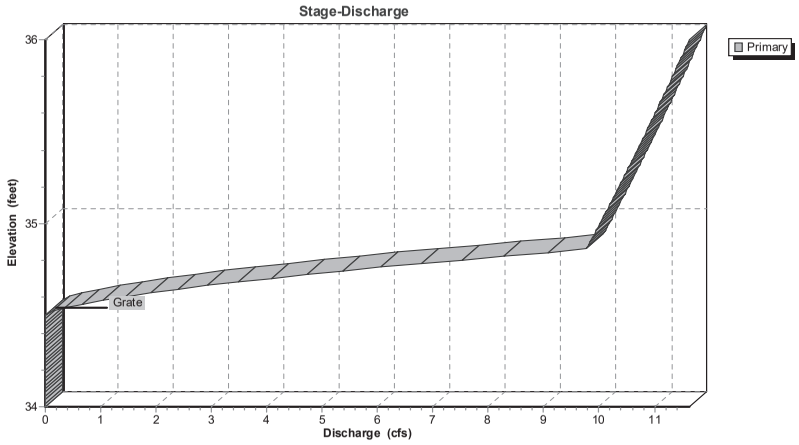
Device	Routing	Invert	Outlet Devices
#1	Primary	31.50'	**15.0" Round Culvert** L= 62.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 31.50' / 30.00' S= 0.0242 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#2	Device 1	34.50'	**42.0" x 42.0" Horiz. Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=1.68 cfs @ 12.32 hrs HW=34.61' (Free Discharge)
↑**1=Culvert** (Passes 1.68 cfs of 9.32 cfs potential flow)
↑**2=Grate** (Weir Controls 1.68 cfs @ 1.09 fps)

Pond 16P: BIO B



Pond 16P: BIO B



Summary for Subcatchment 11: DA 11

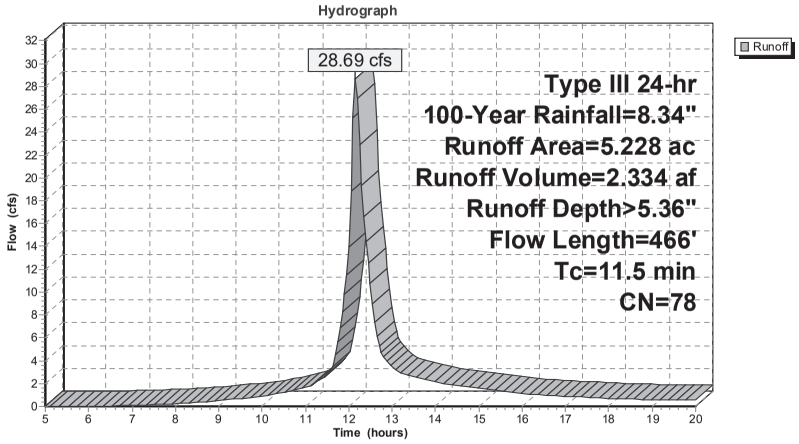
Runoff = 28.69 cfs @ 12.16 hrs, Volume= 2.334 af, Depth> 5.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=8.34"

Area (ac)	CN	Description
0.345	98	Roofs, HSG B
2.067	98	Paved parking, HSG B
2.816	61	>75% Grass cover, Good, HSG B
5.228	78	Weighted Average
2.816		53.86% Pervious Area
2.412		46.14% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.4	100	0.0225	0.18		**Sheet Flow, S1** Grass: Short n= 0.150 P2= 3.16"
1.5	224	0.0250	2.55		**Shallow Concentrated Flow, S2** Unpaved Kv= 16.1 fps
0.5	116	0.0430	4.21		**Shallow Concentrated Flow, S3** Paved Kv= 20.3 fps
0.1	26	0.0100	5.70	7.00	**Pipe Channel, S4** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012
11.5	466	Total			

Subcatchment 11: DA 11



Summary for Subcatchment 12: DA12

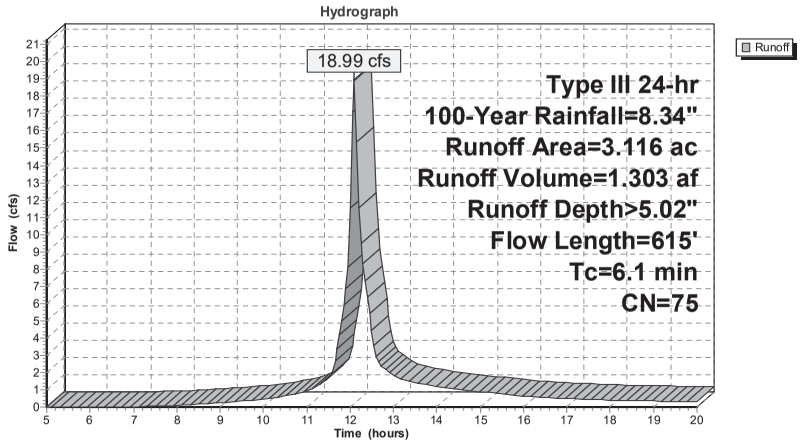
Runoff = 18.99 cfs @ 12.09 hrs, Volume= 1.303 af, Depth> 5.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=8.34"

Area (ac)	CN	Description
0.576	98	Roofs, HSG B
0.845	98	Paved parking, HSG B
0.383	39	>75% Grass cover, Good, HSG A
1.312	61	>75% Grass cover, Good, HSG B
3.116	75	Weighted Average
1.695		54.40% Pervious Area
1.421		45.60% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	100	0.1100	0.33		**Sheet Flow, S1** Grass: Short n= 0.150 P2= 3.16"
0.8	138	0.0180	2.72		**Shallow Concentrated Flow, S2** Paved Kv= 20.3 fps
0.3	377	0.0990	21.53	26.42	**Pipe Channel, S3** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.010
6.1	615	Total			

Subcatchment 12: DA12



Summary for Subcatchment 13: DA13

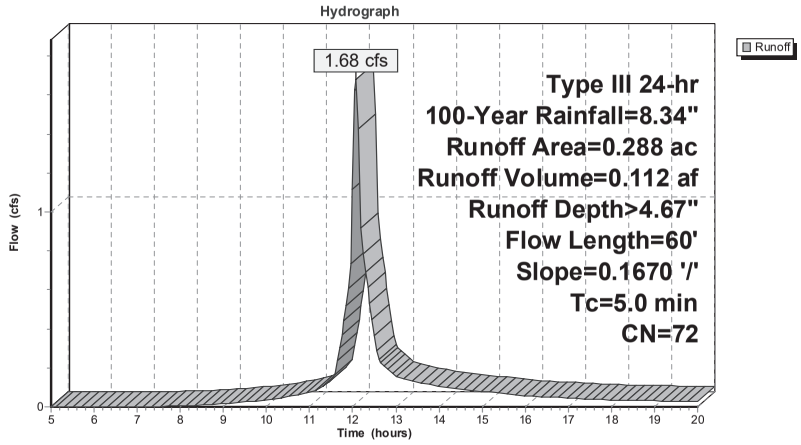
Runoff = 1.68 cfs @ 12.08 hrs, Volume= 0.112 af, Depth> 4.67"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=8.34"

Area (ac)	CN	Description
0.059	98	Roofs, HSG B
0.028	98	Paved parking, HSG B
0.201	61	>75% Grass cover, Good, HSG B
0.288	72	Weighted Average
0.201		69.79% Pervious Area
0.087		30.21% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.8	60	0.1670	0.36		**Sheet Flow, S1** Grass: Short n= 0.150 P2= 3.16"
2.8	60	Total, Increased to minimum Tc = 5.0 min			

Subcatchment 13: DA13



Summary for Subcatchment 14: DA14

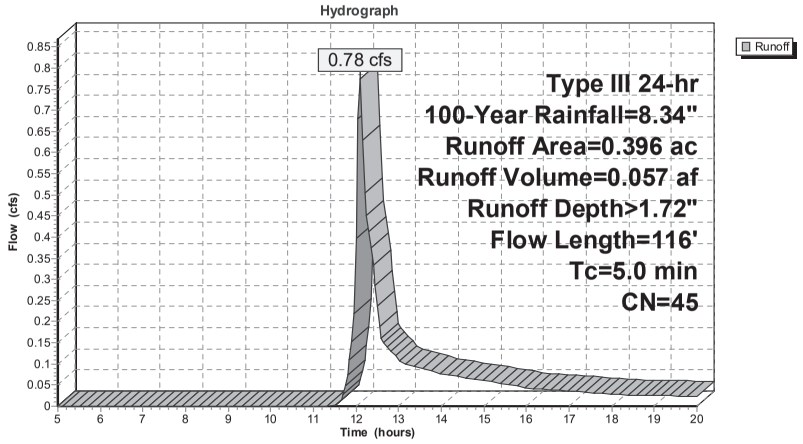
Runoff = 0.78 cfs @ 12.09 hrs, Volume= 0.057 af, Depth> 1.72"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=8.34"

Area (ac)	CN	Description
0.039	98	Roofs, HSG A
0.357	39	>75% Grass cover, Good, HSG A
0.396	45	Weighted Average
0.357		90.15% Pervious Area
0.039		9.85% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	100	0.1600	0.39		**Sheet Flow, S1** Grass: Short n= 0.150 P2= 3.16"
0.0	16	0.2000	7.20		**Shallow Concentrated Flow, S2** Unpaved Kv= 16.1 fps
4.3	116	Total, Increased to minimum Tc = 5.0 min			

Subcatchment 14: DA14



Summary for Subcatchment 15: DA15

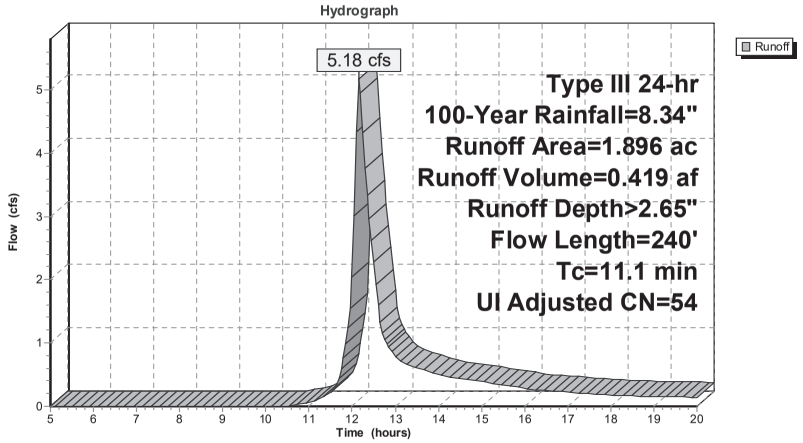
Runoff = 5.18 cfs @ 12.17 hrs, Volume= 0.419 af, Depth> 2.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=8.34"

Area (ac)	CN	Adj	Description
0.063	98		Roofs, HSG A
0.309	98		Paved parking, HSG A
0.165	98		Unconnected pavement, HSG A
1.095	39		>75% Grass cover, Good, HSG A
0.029	74		>75% Grass cover, Good, HSG C
0.154	30		Woods, Good, HSG A
0.081	70		Woods, Good, HSG C
1.896	57	54	Weighted Average, UI Adjusted
1.359			71.68% Pervious Area
0.537			28.32% Impervious Area
0.165			30.73% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.9	100	0.0200	0.17		**Sheet Flow, S1** Grass: Short n= 0.150 P2= 3.16"
1.2	140	0.0140	1.90		**Shallow Concentrated Flow, S2** Unpaved Kv= 16.1 fps
11.1	240	Total			

Subcatchment 15: DA15



Summary for Subcatchment P: P

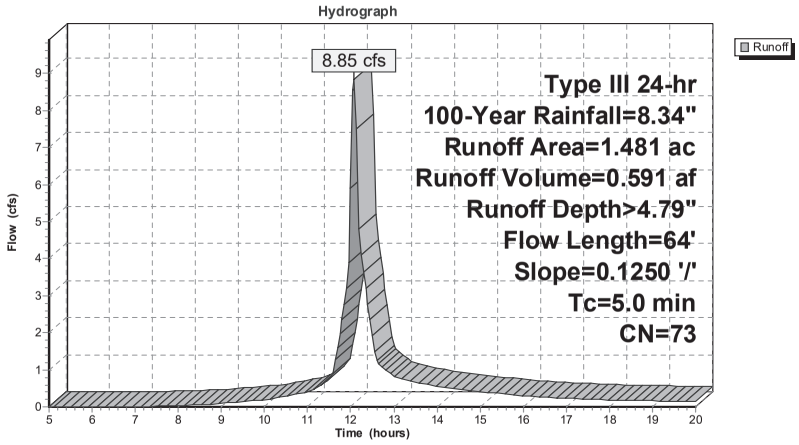
Runoff = 8.85 cfs @ 12.08 hrs, Volume= 0.591 af, Depth> 4.79"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=8.34"

Area (ac)	CN	Description
0.332	98	Water Surface, HSG B
0.151	98	Paved parking, HSG B
0.998	61	>75% Grass cover, Good, HSG B
1.481	73	Weighted Average
0.998		67.39% Pervious Area
0.483		32.61% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.3	64	0.1250	0.32		**Sheet Flow, S1** Grass: Short n= 0.150 P2= 3.16"
3.3	64	Total, Increased to minimum Tc = 5.0 min			

Subcatchment P: P



Summary for Pond 7P: UG A

Inflow Area = 5.228 ac, 46.14% Impervious, Inflow Depth > 5.36" for 100-Year event
Inflow = 28.69 cfs @ 12.16 hrs, Volume= 2.334 af
Outflow = 23.16 cfs @ 12.25 hrs, Volume= 2.073 af, Atten= 19%, Lag= 5.7 min
Discarded = 0.08 cfs @ 7.40 hrs, Volume= 0.090 af
Primary = 23.07 cfs @ 12.25 hrs, Volume= 1.983 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 152.78' @ 12.25 hrs Surf.Area= 7,179 sf Storage= 23,559 cf

Plug-Flow detention time= 65.6 min calculated for 2.066 af (89% of inflow)
Center-of-Mass det. time= 30.8 min (808.9 - 778.1)

Volume	Invert	Avail.Storage	Storage Description
#1A	148.00'	6,522 cf	**52.00'W x 91.03'L x 5.75'H Field A** 27,219 cf Overall - 10,914 cf Embedded = 16,305 cf x 40.0% Voids
#2A	148.75'	10,914 cf	**Cultec R-902HD** x 168 Inside #1 Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap 168 Chambers in 7 Rows Cap Storage= +2.8 cf x 2 x 7 rows = 38.6 cf
#3B	148.00'	3,435 cf	**52.00'W x 47.03'L x 5.75'H Field B** 14,063 cf Overall - 5,476 cf Embedded = 8,587 cf x 40.0% Voids
#4B	148.75'	5,476 cf	**Cultec R-902HD** x 84 Inside #3 Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap 84 Chambers in 7 Rows Cap Storage= +2.8 cf x 2 x 7 rows = 38.6 cf
		26,347 cf	Total Available Storage

Storage Group A created with Chamber Wizard
Storage Group B created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	150.00'	**30.0" Round Culvert** L= 64.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 150.00' / 138.00' S= 0.1875 '/' Cc= 0.900 n= 0.012, Flow Area= 4.91 sf
#2	Discarded	148.00'	**0.500 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.08 cfs @ 7.40 hrs HW=148.06' (Free Discharge)
↑**2=Exfiltration** (Exfiltration Controls 0.08 cfs)

Primary OutFlow Max=23.01 cfs @ 12.25 hrs HW=152.77' (Free Discharge)
↑**1=Culvert** (Inlet Controls 23.01 cfs @ 4.69 fps)

Pond 7P: UG A - Chamber Wizard Field A

Chamber Model = Cultec R-902HD (Cultec Recharger® 902HD)
Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf
Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap
Cap Storage= +2.8 cf x 2 x 7 rows = 38.6 cf

78.0" Wide + 9.0" Spacing = 87.0" C-C Row Spacing

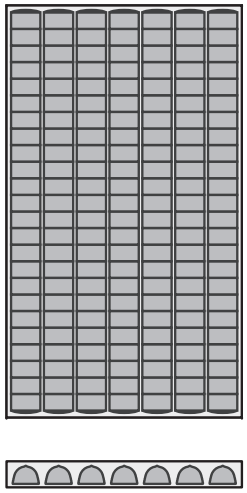
24 Chambers/Row x 3.67' Long +0.52' Cap Length x 2 = 89.03' Row Length +12.0" End Stone x 2 = 91.03' Base Length
7 Rows x 78.0" Wide + 9.0" Spacing x 6 + 12.0" Side Stone x 2 = 52.00' Base Width
9.0" Base + 48.0" Chamber Height + 12.0" Cover = 5.75' Field Height

168 Chambers x 64.7 cf + 2.8 cf Cap Volume x 2 x 7 Rows = 10,914.1 cf Chamber Storage

27,219.0 cf Field - 10,914.1 cf Chambers = 16,304.8 cf Stone x 40.0% Voids = 6,521.9 cf Stone Storage

Chamber Storage + Stone Storage = 17,436.1 cf = 0.400 af
Overall Storage Efficiency = 64.1%
Overall System Size = 91.03' x 52.00' x 5.75'

168 Chambers
1,008.1 cy Field
603.9 cy Stone



Pond 7P: UG A - Chamber Wizard Field B

Chamber Model = Cultec R-902HD (Cultec Recharger® 902HD)
Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf
Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap
Cap Storage= +2.8 cf x 2 x 7 rows = 38.6 cf

78.0" Wide + 9.0" Spacing = 87.0" C-C Row Spacing

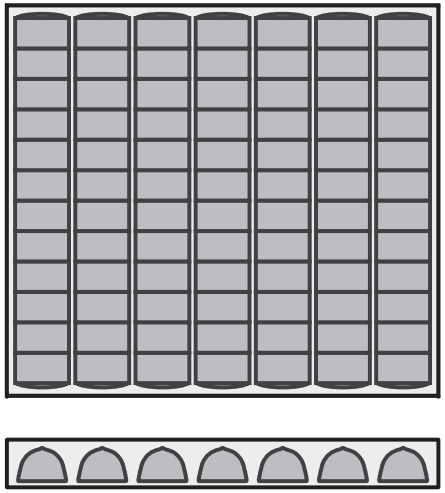
12 Chambers/Row x 3.67' Long +0.52' Cap Length x 2 = 45.03' Row Length +12.0" End Stone x 2 = 47.03' Base Length
7 Rows x 78.0" Wide + 9.0" Spacing x 6 + 12.0" Side Stone x 2 = 52.00' Base Width
9.0" Base + 48.0" Chamber Height + 12.0" Cover = 5.75' Field Height

84 Chambers x 64.7 cf + 2.8 cf Cap Volume x 2 x 7 Rows = 5,476.4 cf Chamber Storage

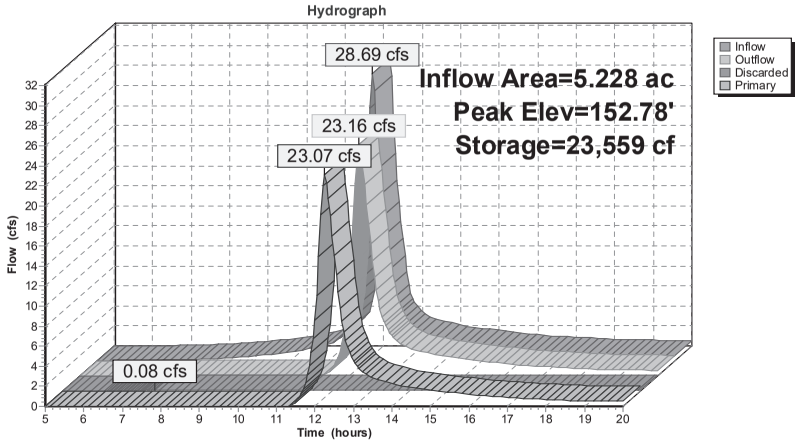
14,063.0 cf Field - 5,476.4 cf Chambers = 8,586.6 cf Stone x 40.0% Voids = 3,434.6 cf Stone Storage

Chamber Storage + Stone Storage = 8,911.0 cf = 0.205 af
Overall Storage Efficiency = 63.4%
Overall System Size = 47.03' x 52.00' x 5.75'

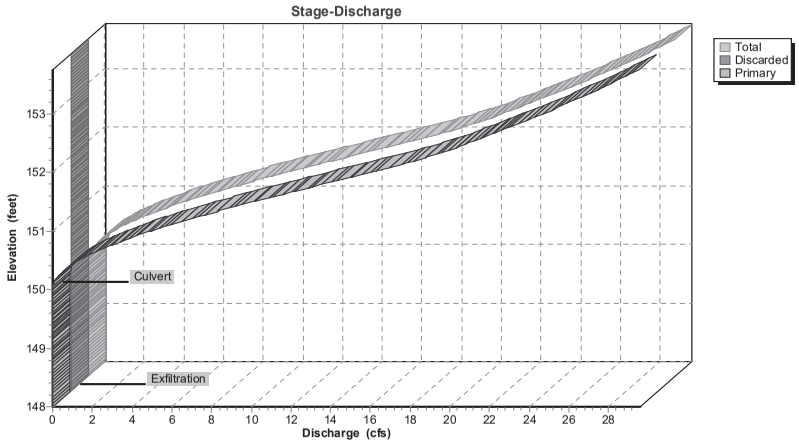
84 Chambers
520.9 cy Field
318.0 cy Stone



Pond 7P: UG A



Pond 7P: UG A



Summary for Pond 13P: BIO A

Inflow Area = 3.116 ac, 45.60% Impervious, Inflow Depth > 5.02" for 100-Year event
Inflow = 18.99 cfs @ 12.09 hrs, Volume= 1.303 af
Outflow = 15.73 cfs @ 12.14 hrs, Volume= 1.159 af, Atten= 17%, Lag= 3.2 min
Primary = 15.73 cfs @ 12.14 hrs, Volume= 1.159 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 137.67' @ 12.14 hrs Surf.Area= 6,654 sf Storage= 9,736 cf

Plug-Flow detention time= 59.0 min calculated for 1.159 af (89% of inflow)
Center-of-Mass det. time= 24.0 min (803.4 - 779.3)

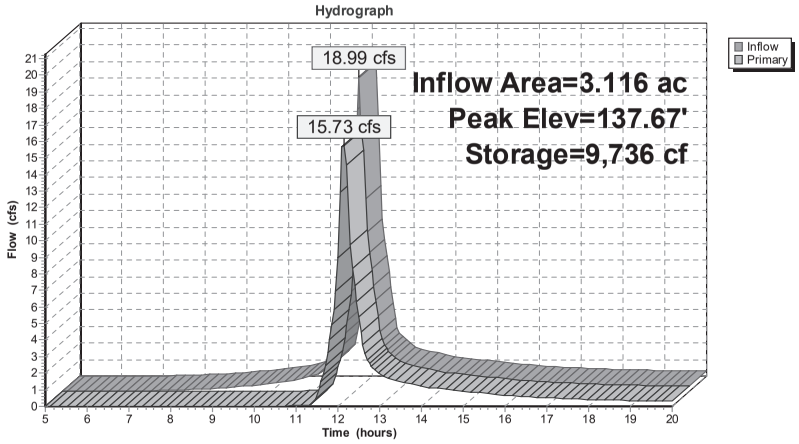
Volume	Invert	Avail.Storage	Storage Description
#1	136.00'	11,989 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
136.00	5,009	0	0
138.00	6,980	11,989	11,989

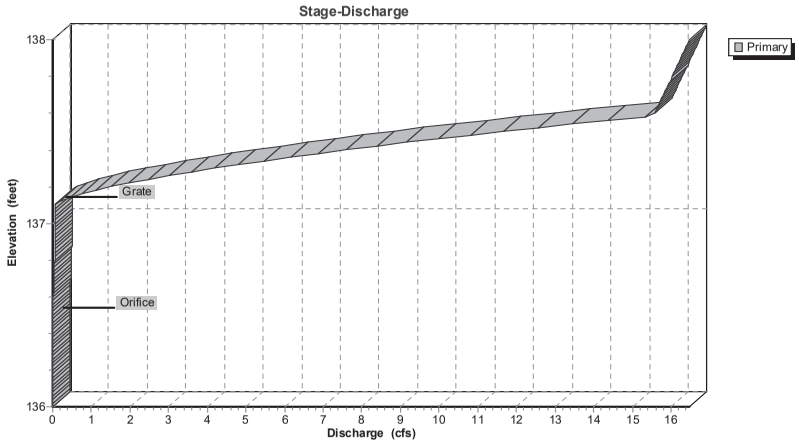
Device	Routing	Invert	Outlet Devices
#1	Primary	133.50'	**18.0" Round Culvert** L= 23.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 133.50' / 133.00' S= 0.0217 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Device 1	136.50'	**2.0" Vert. Orifice** C= 0.600
#3	Device 1	137.10'	**42.0" x 42.0" Horiz. Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=15.72 cfs @ 12.14 hrs HW=137.66' (Free Discharge)
└**1=Culvert** (Inlet Controls 15.72 cfs @ 8.90 fps)
└**2=Orifice** (Passes < 0.11 cfs potential flow)
└**3=Grate** (Passes < 19.43 cfs potential flow)

Pond 13P: BIO A



Pond 13P: BIO A



Summary for Pond 14P: RG A

Inflow Area = 0.288 ac, 30.21% Impervious, Inflow Depth > 4.67" for 100-Year event
Inflow = 1.68 cfs @ 12.08 hrs, Volume= 0.112 af
Outflow = 1.57 cfs @ 12.11 hrs, Volume= 0.096 af, Atten= 7%, Lag= 2.2 min
Primary = 1.57 cfs @ 12.11 hrs, Volume= 0.096 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 140.69' @ 12.11 hrs Surf.Area= 1,636 sf Storage= 983 cf

Plug-Flow detention time= 69.0 min calculated for 0.096 af (86% of inflow)
Center-of-Mass det. time= 26.5 min (810.2 - 783.8)

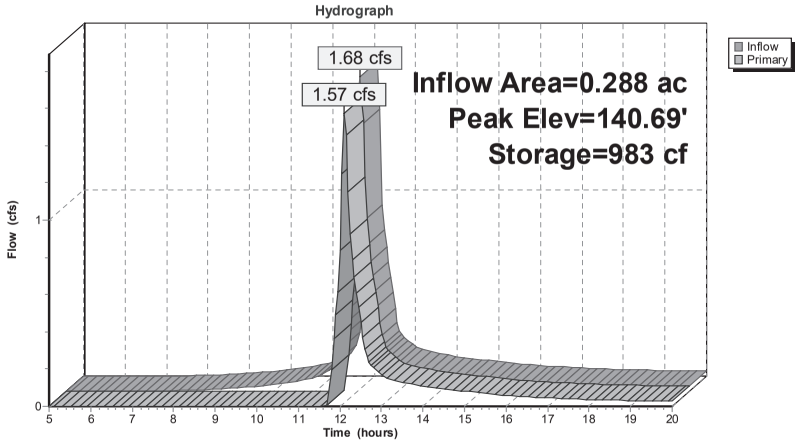
Volume	Invert	Avail.Storage	Storage Description
#1	140.00'	1,526 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
140.00	1,231	0	0
141.00	1,821	1,526	1,526

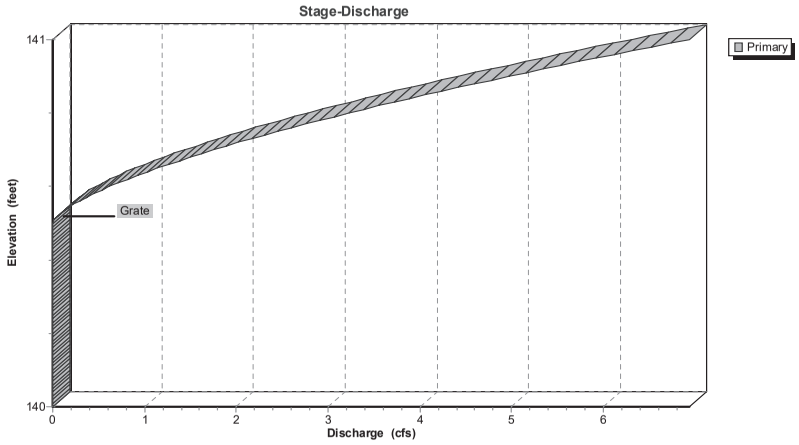
Device	Routing	Invert	Outlet Devices
#1	Primary	140.50'	**18.0" x 18.0" Horiz. Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=1.53 cfs @ 12.11 hrs HW=140.68' (Free Discharge)
↑**1=Grate** (Weir Controls 1.53 cfs @ 1.40 fps)

Pond 14P: RG A



Pond 14P: RG A



Summary for Pond 15P: RG B

Inflow Area = 0.396 ac, 9.85% Impervious, Inflow Depth > 1.72" for 100-Year event
Inflow = 0.78 cfs @ 12.09 hrs, Volume= 0.057 af
Outflow = 0.09 cfs @ 13.47 hrs, Volume= 0.028 af, Atten= 88%, Lag= 82.3 min
Primary = 0.09 cfs @ 13.47 hrs, Volume= 0.028 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 138.53' @ 13.47 hrs Surf.Area= 2,680 sf Storage= 1,301 cf

Plug-Flow detention time= 203.2 min calculated for 0.028 af (49% of inflow)
Center-of-Mass det. time= 105.4 min (938.3 - 832.9)

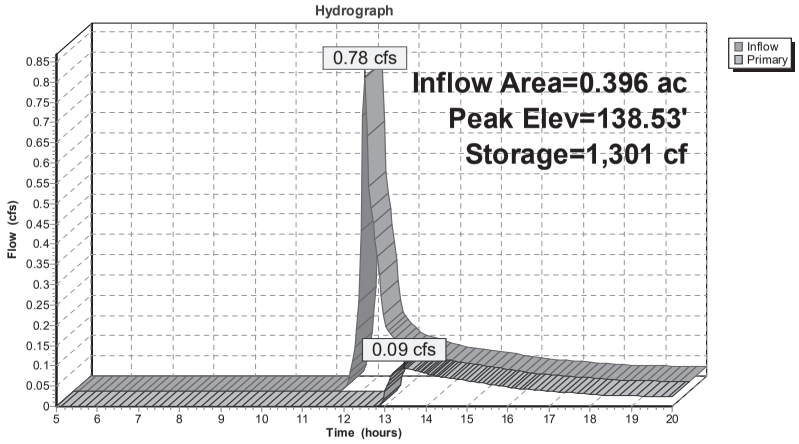
Volume	Invert	Avail.Storage	Storage Description
#1	138.00'	2,658 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
138.00	2,247	0	0
139.00	3,068	2,658	2,658

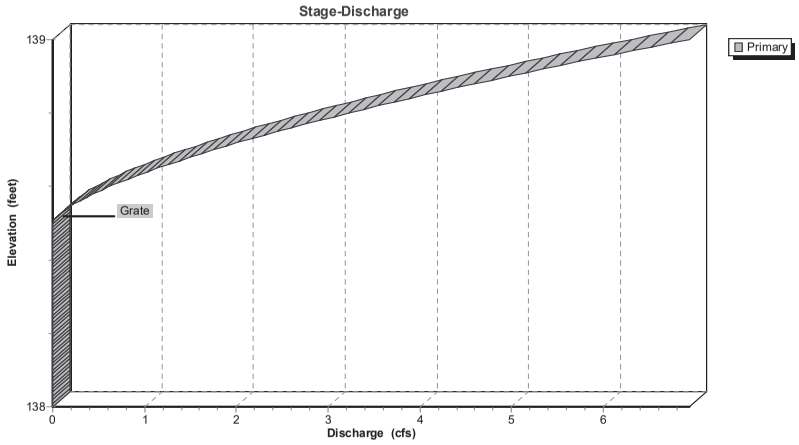
Device	Routing	Invert	Outlet Devices
#1	Primary	138.50'	**18.0" x 18.0" Horiz. Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.09 cfs @ 13.47 hrs HW=138.53' (Free Discharge)
1=Grate (Weir Controls 0.09 cfs @ 0.55 fps)

Pond 15P: RG B



Pond 15P: RG B



Summary for Pond 16P: BIO B

Inflow Area = 1.896 ac, 28.32% Impervious, Inflow Depth > 2.65" for 100-Year event
Inflow = 5.18 cfs @ 12.17 hrs, Volume= 0.419 af
Outflow = 5.02 cfs @ 12.20 hrs, Volume= 0.385 af, Atten= 3%, Lag= 2.1 min
Primary = 5.02 cfs @ 12.20 hrs, Volume= 0.385 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 34.73' @ 12.20 hrs Surf.Area= 3,276 sf Storage= 2,142 cf

Plug-Flow detention time= 39.3 min calculated for 0.385 af (92% of inflow)
Center-of-Mass det. time= 12.7 min (831.6 - 818.9)

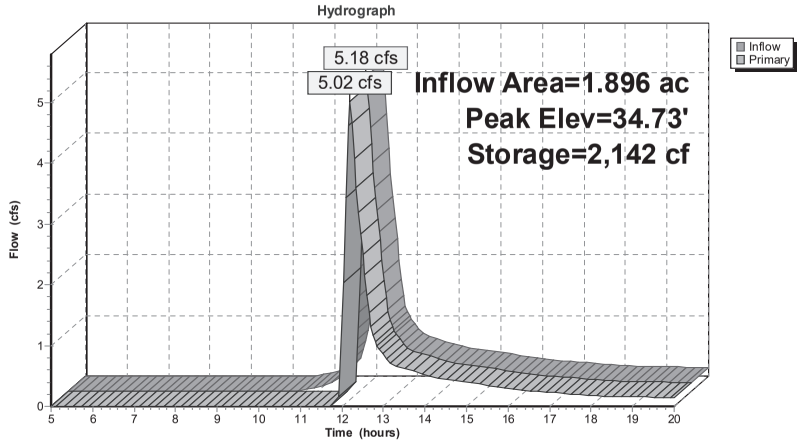
Volume	Invert	Avail.Storage	Storage Description
#1	34.00'	7,056 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
34.00	2,600	0	0
36.00	4,456	7,056	7,056

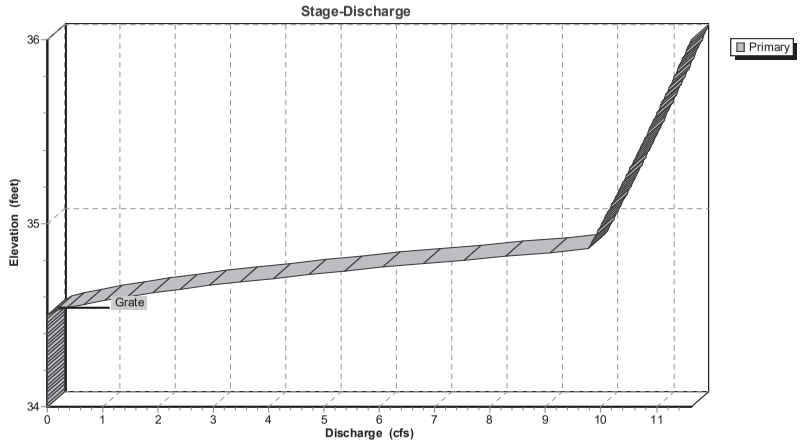
Device	Routing	Invert	Outlet Devices
#1	Primary	31.50'	**15.0" Round Culvert** L= 62.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 31.50' / 30.00' S= 0.0242 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#2	Device 1	34.50'	**42.0" x 42.0" Horiz. Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=5.01 cfs @ 12.20 hrs HW=34.73' (Free Discharge)
↑**1=Culvert** (Passes 5.01 cfs of 9.53 cfs potential flow)
↑**2=Grate** (Weir Controls 5.01 cfs @ 1.56 fps)

Pond 16P: BIO B



Pond 16P: BIO B



APPENDIX F

STORMWATER MANAGEMENT PRACTICE DESIGN

Project:	Mirbeau			
Description:	Stormwater Quality Design			
By/Date:	ESR	5/25/2022	Reviewed/Date:	MAB

Hudson Land Design, P.C.
174 Main Street
Beacon, NY 12508
845-440-6926

Underground Infiltration A

1) Determine Water Quality Volume

Water quality volume to be treated will be calculated using the 90% rule from Section 4.2 of the New York State Storm Water Design Manual (January 2015), hereinafter referred to as NYSSDM.

$WQ_V = 43,560 \times [P \times Rv \times A] / 12$

Where:
WQ_V = Water quality volume (cf)
P = 90 % Rainfall Event Number (in), per Figure 4.1
Rv = 0.05 + 0.009 x I , where I is % impervious area
A = Watershed (ac)

Watershed	P (in)	Impervious Area (ac)	Impervious (Coverage %)	Rv	Total Area (ac)	WQv (cf)	Pre-Treatment Practice	Treatment Practice
11	1.40	2.41	46	0.46	5.23	12,352	Separator Row x 2	Infiltration

2) Determine Required Pre-Treatment Volume

Determine Pre-Treatment Volume

Watershed	Required WQv (cf)	Required Pre-Treatment Volume (cf)	Pre-Treatment Practice	Provided Pre-Treatment Volume (cf)	
11	12,352	3,088	Separator Row x 2	3,868	27.05 ft^3/ft x 176 LF

2) Determine Minimum Runoff Reduction Volume (RR_V)

Goal: Provide 100% RR_V by implementing Green Infrastructure techniques and Stormwater Management Practices

$RR_V = 43,560 \times [P \times Rv \times A] / 12$

Where:
RR_V = Runoff Reduction Volume (cf)
P = 90 % Rainfall Event Number (in), per Figure 4.1
Rv = 0.05 + 0.009 x I , where I is % impervious area — R_V: 0.46
A = Watershed (ac)

100% RR_V: 12,352 cf

* Minimum Rv of of 0.2 not applicable to RR_V calculations (use actual calculated Rv).

For projects that cannot meet 100% RR_V: Implement Specific Reduction Factor (S), which provides an absoulte minimum acceptable RR_V.

Drainage Area with Hydrologic Soil Group A:	0.000 acres	Corresponding S: 0.55
Drainage Area with Hydrologic Soil Group B:	5.230 acres	Corresponding S: 0.40
Drainage Area with Hydrologic Soil Group C:	0.000 acres	Corresponding S: 0.30
Drainage Area with Hydrologic Soil Group D:	0.000 acres	Corresponding S: 0.20
Total Area:	5.230 acres	
Total Area Matches		Calculated S: 0.4

Minimum RR_V (acre-feet) = [(P)(Rv*)(Ai)]/12

Calculated Ai: 0.9640
Calculated Rv*: 0.95
Calculated Minimum RR_V: 4,654 cf

Where:
P = 90 % Rainfall Event Number (in), per Figure 4.1
Rv* = 0.05 + 0.009 x I , where I is % impervious area (100%)
Ai = (S)(Aic)
Aic = Total area of new impervious cover

Project:	Mirbeau			
Description:	Stormwater Quality Design			
By/Date:	ESR	5/25/2022	Reviewed/Date:	MAB

Hudson Land Design, P.C.
174 Main Street
Beacon, NY 12508
845-440-6926

Underground Infiltration A

4) Stormwater Management Practice Design

Design Infiltration Basin

WQ_V = Remaining Water Quality Volume (cf) =	9,264 cf	(equals 75% WQ_V, which only accounts for the min. WQ_V required in the plunge pool and does not take into account the other pre-treatment)
◆ Storage volume within infiltration bed: (from HydroCad Model)	9,655 cf	(volume below lowest outlet)
◆ Infiltration rate for design:	0.5 inches/hour	(use half the rate of adjacent percolation tests for septic system design)
		Percolation rate: TBD
◆ Infiltration area :	20,931 sf	
◆ Calculated exfiltration rate:	0.03 cfs	(during 100-year storm)
◆ Calculated time to infiltrate WQv:	114.37 hours	

5) Tabulate Provided Runoff Reduction Volume (RR_V)

Infiltration Basin

Storage provided within practice:	**13,523 cf**	(including pretreatment)
For infiltration practices:	100% reduction	(from Table 3.5 Runoff Reduction Capacity for Standard SMPs)
		RR_V Reduction Factor: 100%
RR_V Provided by implementing infiltration:	13,523 cf	
TOTAL RR_V PROVIDED:	**12,352 cf**	
Calculated 100%RR_V:	12,352 cf	
Is 100% RR_V met:	Yes	acceptable
If 100% RR_V is not met, is Minimum RR_V met:	N/A	
WQ_V TREATED:	**1171 cf**	

6) Channel Protection Volume (CPv) Design

Determine Stream Channel Protection Volume (CPv)

1-Year Storm Runoff Volume	14,854 cf	From HydroCAD Model

Compute the CPv Release Rate

The Stream Channel Protection Volume (Cpv) shall be released over 24 hours

Q(CPv)=CPv/(24 hrs X 3,600 sec/hr)	0.17	cfs

Determine Required Orifice Size To Release CPv over 24-hours

CPv orifice elevation	150.00	feet
CPv orifice diameter	30	inches
1-Year Storm Release Rate	0.15 cfs	From HydroCAD Model
Is CPv 100% controlled?	yes - acceptable	

7) See HydroCAD model for Overbank Flood Control (Qp) and Extreme Flood Control (Qf) computations

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Bioretention Area A

1) Determine Water Quality Volume

Water quality volume to be treated will be calculated using the 90% rule from Section 4.2 of the New York State Storm Water Design Manual (January 2015), hereinafter referred to as NYSSDM.

$WQ_V = 43,560 \times [P \times Rv \times A] / 12$

Where:
WQ_V = Water quality volume (cf)
P = 90 % Rainfall Event Number (in), per Figure 4.1
Rv = 0.05 + 0.009 x I , where I is % impervious area
A = Watershed (ac)

Watershed	P (in)	Impervious Area (ac)	Impervious (Coverage %)	Rv	Total Area (ac)	WQv (cf)	Pre-Treatment Practice	Treatment Practice
12	1.40	1.42	46	0.46	3.12	7,288	Forebays	Bioretention

2) Determine Required Pre-Treatment Volume

Determine Pre-Treatment Volume

Watershed	Required WQv (cf)	Required Pre-Treatment Volume (cf)	Pre-Treatment Practice
12	7,288	1,822	Forebays

Size Pre-Treatment Practice: Plunge Pools

Forebay Contour	Area (sf)	Volume (cf)	Cumulative Volume (cf)
130	69	0	0
136	1,162	3,693	3,693

3,693 cf > 1,822 cf (Remaining Required WQv Pre-Treatment Volume)
acceptable

2) Determine Minimum Runoff Reduction Volume (RR_V)

Goal: Provide 100% RR_V by implementing Green Infrastructure techniques and Stormwater Management Practices

$RR_V = 43,560 \times [P \times Rv \times A] / 12$

Where:
RR_V = Runoff Reduction Volume (cf)
P = 90 % Rainfall Event Number (in), per Figure 4.1
Rv = 0.05 + 0.009 x I , where I is % impervious area — R_V: 0.46
A = Watershed (ac)

100% RR_V: 7,288 cf

* Minimum Rv of of 0.2 not applicable to RR_V calculations (use actual calculated Rv).

For projects that cannot meet 100% RR_V: Implement Specific Reduction Factor (S), which provides an absoulte minimum acceptable RR_V.

Drainage Area with Hydrologic Soil Group A:	1.040 acres	Corresponding S: 0.55
Drainage Area with Hydrologic Soil Group B:	2.080 acres	Corresponding S: 0.40
Drainage Area with Hydrologic Soil Group C:	0.000 acres	Corresponding S: 0.30
Drainage Area with Hydrologic Soil Group D:	0.000 acres	Corresponding S: 0.20
Total Area:	3.120 acres	
	Total Area Matches	Calculated S: 0.45

Minimum RR_V (acre-feet) = [(P)(Rv*)(Ai)]/12 — Calculated Ai: 0.6390

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Bioretention Area A

Calculated Rv*: 0.95
Calculated Minimum RR_V: 3,085 cf

Where:
P = 90 % Rainfall Event Number (in), per Figure 4.1
Rv* = 0.05 + 0.009 x I , where I is % impervious area (100%)
Ai = (S)(Aic)
Aic = Total area of new impervious cover

4) Stormwater Management Practice Design

Design Bioretention Area Filter Bed

$A_{FR} = WQ_V \times D_F / [K \times (H_F + D_F) \times (T_F)]$

Where:
WQ_V = Remaining Water Quality Volume (cf) = 5,466 cf (equals 75% WQ_V, which only accounts for the min. WQ_V required in the plunge pool and does not take into account the other pre-treatment)
D_F = Filter Bed Depth (ft) = 2.5 ft
K = Coefficient Permeability (0.5 ft/day per § 6.4.4 of NYSSDM) = 0.5 ft/day
H_F = Average Height Water Above Filter Bed (ft) = 0.25 ft (maximum ponding depth of 6")
T_F = Filter Bed Drain Time (2 days per § 6.4.4 of NYSSDM) = 2 days
A_{FR} = Required Surface Area of Filter Bed (sf) = 4,969 sf
A_F = Surface Area of Filter Bed Provided (sf) = 5,008 sf acceptable

Confirm Storage Capability of Practice

- Confirm system can hold 75% of water quality volume

75% Water Quality Volume (cf) = 5,466 cf (excludes pre-treatment volume)

- Volume Within Filter Bed:

$V_F = A_F \times D_F \times N$
N = Porosity (0.20 per Table 10.5.5 of the NYSSDM)= 0.2

V_F = Storage volume within filter bed (cf) = 2,504 cf

- Volume Above Filter Bed:

$V_{F\text{-}TEMP} = 2 \times A_F \times H_F$

$V_{F\text{-}TEMP}$ = Storage volume above filter bed (cf) = 2,504 cf

- Volume Within Drainage Layer:

$V_{DL} = A_{DL} \times D_{DL} \times N$
N = Porosity (0.40 standard porosity for stone reservoirs, see also NYSSDM § 6.3.4)= 0.4
A_{DL} = Underdrain Length * Underdain Stone Jacket Width Underdrain Stone Jacket Width: 3 ft Underdrain Length: (see Required Underdrain Length section)
D_{DL} = Drainage Layer Depth (stone jacket depth): 10 inches

V_{DL} = Storage volume within drainage layer (cf) = 0 cf

- Total storage within practice only, not including pre-treatment (cf) = 5,008 cf < 5,466 cf (75% WQv Storage Volume)
insufficient

- Total storage within practice and pre-treatment (cf) = 8,701 cf > 7,288 cf (100% WQv Storage Volume)
acceptable

Required Underdrain Length

Length of underdrain should be based on 10% of the provided filter bed area per § 8.5 of NYSSDM.

1000

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Bioretention Area A

Length of underdrain required =	167	lf	
Length of underdrain provided =	0	lf	(No underdrains provided in HSG A soils)

Verify Ponding Depth Over Filter Bed

- No more than 6" of ponding is required per section 6.4.4 of NYSSDM.

Top of filter bed elevation =	136	ft	
Outlet control structure lowest elevation =	136.5	ft	
Ponding depth.=	6	in	acceptable

5) Tabulate Provided Runoff Reduction Volume (RR_V)

Bioretention Area

Storage provided within practice:	**12,394 cf**	(includes pre-treatment)
For Bioretention in Hydrologic Soil Group A & B:	100% reduction	(without underdrains, although underdrains with closed valve may be provided for future maintenance purposes)
For Bioretention in Hydrologic Soil Group C & D:	40% reduction	(with underdrains)
HSG at the Bioretention Area:	A	RR_V Reduction Factor: 100%
RR_V Provided by implementing bioretention:	12,394 cf	
WQ_V REDUCED (RRV):	**7,288 cf**	
Calculated 100% RR_V:	7,288 cf	
Minimum RR_V:	3085 cf	
Is 100% RR_V met:	Yes	acceptable
If 100% RR_V is not met, is Minimum RR_V met:	N/A	
WQ_V TREATED:	**5106 cf**	

6) Channel Protection Volume (CPv) Design

Determine Stream Channel Protection Volume (CPv)

1-Year Storm Runoff Volume	7,318 cf	From HydroCAD Model

Compute the CPv Release Rate

The Stream Channel Protection Volume (Cpv) shall be released over 24 hours

Q(CPv)=CPv/(24 hrs X 3,600 sec/hr)	0.08	cfs

Determine Required Orifice Size To Release CPv over 24-hours

CPv orifice elevation	136.5	feet
CPv orifice diameter	2	inches
1-Year Storm Release Rate	0.07 cfs	From HydroCAD Model
Is CPv 100% controlled?	yes - acceptable	

7) See HydroCAD model for Overbank Flood Control (Qp) and Extreme Flood Control (Qf) computations

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Rain Garden

1) Determine Water Quality Volume

Stormwater Quality will be accomplished by treating the runoff volume generated by the 90% rainfall of the average annual stormwater runoff volume (January 2015 NYS Stormwater Design Manual).

Volume Generated By 90 % Rule (Per Ch. 4 of the NYS Stormwater Management Design Manual):

WQv = [P x Rv x A] / 12

WQv = Water quality volume (in acre-feet)
Rv = 0.05+0.009(I) = Minimum Rv = 0.2
I = Impervious Cover (Percentage)
P = 90 % Rainfall Event Number
A = Site area in acres

Water Quality Volume For The Development Conveyed to Treatment Practice

Area	Total Area (acres)	Impervious Area (acres)	Impervious Cover (%)	Rv	P	WQv (ac-ft)	WQv (cf)	Method of Treatment
13	0.290	0.090	31	0.33	1.4	0.0111	485	Rain Garden

Rain Garden Design

Step 1 - Calculate Water Quality Volume

Water quality volume 485 cubic feet (see Sheet 1)

Step 2 - Solve for drainage layer & soil media storage volume (per Ch. 5 of the NYS Stormwater Management Design Manual)

		Provided:
V_{SM} =	Volume of the soil media (cf) = $(A_{RG})(D_{SM})(P_{SM})$	
V_{DL} =	Volume of the drainage layer (cf) = $(A_{RG})(D_{DL})(P_{DL})$	
where A_{RG} =	Rain garden surface area (sf)	1200 sf
D_{SM} =	Depth of the soil media, typically 1.0 to 1.5 feet (ft)	1.0 feet
D_{DL} =	Depth of the drainage layer, typically 0.05 to 1.0 feet (ft)	0.50 feet
P_{SM} =	Porosity of the soil media (≥20%)	20%
P_{DL} =	Porsity of the drainage layer (≥40%)	40%
D_P =	Depth of ponding above surface, maximum 0.5 feet (ft)	0.5 feet

$WQ_V \leq V_{SM} + V_{DL} + (D_P \times A_{RG})$

V_{SM}= 240 cubic feet

V_{DL}= 240 cubic feet

W_{QV}= 1080 cubic feet

Water Quality Volur	Provided:		Required:	
	1080 cf	>	**485 cubic feet**	meets min. requirement

General Notes:
1) Rain gardens shall be located downgradient and a minimum of 10 feet from basement foundations
2) Rain gardens shall not be located in areas with steep slopes. However, design modifications can be implemented on moderate slopes.
3) In compacted soils and clay, additional excavation is necessary, along with gravel bed, and, under some circumstances, an underdrain system.
4) The length to width ratio should be 2:1 with the long axis perpendicular to the slope.

Determine Minimum Runoff Reduction Volume (RR_V)

Goal: Provide 100% RR_V by implementing Green Infrastructure techniques and Stormwater Management Practices

$RR_V = 43{,}560 \times [P \times Rv \times A] / 12$

Where:
RR_V = Runoff Reduction Volume (cf)
P = 90 % Rainfall Event Number (in), per Figure 4.1
Rv = 0.05 + 0.009 x I , where I is % impervious area
A = Watershed (ac)

R_V: 0.33

100% RR_V: 485 cf

* Minimum Rv of of 0.2 not applicable to RR_V calculations (use actual calculated Rv).

For projects that cannot meet 100% RR_V: Implement Specific Reduction Factor (S), which provides an absoulte minimum acceptable RR_V.

Drainage Area with Hydrologic Soil Group A:	0.000 acres	Corresponding S: 0.55
Drainage Area with Hydrologic Soil Group B:	0.290 acres	Corresponding S: 0.40
Drainage Area with Hydrologic Soil Group C:	0.000 acres	Corresponding S: 0.30
Drainage Area with Hydrologic Soil Group D:	0.000 acres	Corresponding S: 0.20
Total Area:	0.290 acres	
	Total Area Matches	Calculated S: 0.4

Minimum RR_V (acre-feet) = [(P)(Rv*)(Ai)]/12

Calculated Ai: 0.0360

Calculated Rv*: 0.95

Where:

Calculated Minimum RR_V: 174 cf

P = 90 % Rainfall Event Number (in), per Figure 4.1
Rv* = 0.05 + 0.009 x I , where I is % impervious area (100%)
Ai = (S)(Aic)
Aic = Total area of new impervious cover

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Rain Garden

1) Determine Water Quality Volume

Stormwater Quality will be accomplished by treating the runoff volume generated by the 90% rainfall of the average annual stormwater runoff volume (January 2015 NYS Stormwater Design Manual).

Volume Generated By 90 % Rule (Per Ch. 4 of the NYS Stormwater Management Design Manual):

WQv = [P x Rv x A] / 12

WQv = Water quality volume (in acre-feet)
Rv = 0.05+0.009(I) = Minimum Rv = 0.2
I = Impervious Cover (Percentage)
P = 90 % Rainfall Event Number
A = Site area in acres

Water Quality Volume For The Development Conveyed to Treatment Practice

Area	Total Area (acres)	Impervious Area (acres)	Impervious Cover (%)	Rv	P	WQv (ac-ft)	WQv (cf)	Method of Treatment
14	0.400	0.040	10	0.20	1.4	0.0093	407	Rain Garden

Rain Garden Design

Step 1 - Calculate Water Quality Volume

Water quality volume 407 cubic feet (see Sheet 1)

Step 2 - Solve for drainage layer & soil media storage volume (per Ch. 5 of the NYS Stormwater Management Design Manual)

		Provided:
V_{SM} =	Volume of the soil media (cf) = $(A_{RG})(D_{SM})(P_{SM})$	
V_{DL} =	Volume of the drainage layer (cf) = $(A_{RG})(D_{DL})(P_{DL})$	
where A_{RG} =	Rain garden surface area (sf)	2200 sf
D_{SM} =	Depth of the soil media, typically 1.0 to 1.5 feet (ft)	1.0 feet
D_{DL} =	Depth of the drainage layer, typically 0.05 to 1.0 feet (ft)	0.50 feet
P_{SM} =	Porosity of the soil media (≥20%)	20%
P_{DL} =	Porsity of the drainage layer (≥40%)	40%
D_P =	Depth of ponding above surface, maximum 0.5 feet (ft)	0.5 feet

$WQ_V \leq V_{SM} + V_{DL} + (D_P \times A_{RG})$

V_{SM}= 440 cubic feet

V_{DL}= 440 cubic feet

W_{QV}= 1980 cubic feet

Water Quality Volur	Provided:		Required:	
	1980 cf	>	**407 cubic feet**	meets min. requirement

General Notes:
1) Rain gardens shall be located downgradient and a minimum of 10 feet from basement foundations
2) Rain gardens shall not be located in areas with steep slopes. However, design modifications can be implemented on moderate slopes.
3) In compacted soils and clay, additional excavation is necessary, along with gravel bed, and, under some circumstances, an underdrain system.
4) The length to width ratio should be 2:1 with the long axis perpendicular to the slope.

Determine Minimum Runoff Reduction Volume (RR_V)

Goal: Provide 100% RR_V by implementing Green Infrastructure techniques and Stormwater Management Practices

$RR_V = 43{,}560 \times [P \times Rv \times A] / 12$

Where:
RR_V = Runoff Reduction Volume (cf)
P = 90 % Rainfall Event Number (in), per Figure 4.1
Rv = 0.05 + 0.009 x I , where I is % impervious area
A = Watershed (ac)

R_V: 0.14

100% RR_V: 285 cf

* Minimum Rv of of 0.2 not applicable to RR_V calculations (use actual calculated Rv).

For projects that cannot meet 100% RR_V: Implement Specific Reduction Factor (S), which provides an absoulte minimum acceptable RR_V.

Drainage Area with Hydrologic Soil Group A:	0.400 acres	Corresponding S: 0.55
Drainage Area with Hydrologic Soil Group B:	0.000 acres	Corresponding S: 0.40
Drainage Area with Hydrologic Soil Group C:	0.000 acres	Corresponding S: 0.30
Drainage Area with Hydrologic Soil Group D:	0.000 acres	Corresponding S: 0.20
Total Area:	0.400 acres	
	Total Area Matches	Calculated S: 0.55

Minimum RR_V (acre-feet) = [(P)(Rv*)(Ai)]/12

Calculated Ai: 0.0220

Calculated Rv*: 0.95

Where:

Calculated Minimum RR_V: 106 cf

P = 90 % Rainfall Event Number (in), per Figure 4.1
Rv* = 0.05 + 0.009 x I , where I is % impervious area (100%)
Ai = (S)(Aic)
Aic = Total area of new impervious cover

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Bioretention Area D & E

1) Determine Water Quality Volume

Water quality volume to be treated will be calculated using the 90% rule from Section 4.2 of the New York State Storm Water Design Manual (January 2015), hereinafter referred to as NYSSDM.

$WQ_V = 43{,}560 \times [P \times Rv \times A] / 12$

Where:
WQ_V = Water quality volume (cf)
P = 90 % Rainfall Event Number (in), per Figure 4.1
Rv = 0.05 + 0.009 x I , where I is % impervious area
A = Watershed (ac)

Watershed	P (in)	Impervious Area (ac)	Impervious (Coverage %)	Rv	Total Area (ac)	WQv (cf)	Pre-Treatment Practice	Treatment Practice
15	1.40	0.70	37	0.38	1.90	3,694	Forebays	Bioretention

2) Determine Required Pre-Treatment Volume

Determine Pre-Treatment Volume

Watershed	Required WQv (cf)	Required Pre-Treatment Volume (cf)	Pre-Treatment Practice
15	3,694	923	Forebays

Size Pre-Treatment Practice: Plunge Pools

Forebay Contour	Area (sf)	Volume (cf)	Cumulative Volume (cf)
329		0	0
331		0	0

Forebay B Contour	Area (sf)	Volume (cf)	Cumulative Volume (cf)
329		0	0
331		0	0

0 cf > 923 cf (Remaining Required WQv Pre-Treatment Volume)
insufficient

3) Determine Minimum Runoff Reduction Volume (RR_V)

Goal: Provide 100% RR_V by implementing Green Infrastructure techniques and Stormwater Management Practices

$RR_V = 43{,}560 \times [P \times Rv \times A] / 12$

Where:
RR_V = Runoff Reduction Volume (cf)
P = 90 % Rainfall Event Number (in), per Figure 4.1
Rv = 0.05 + 0.009 x I , where I is % impervious area — R_V: 0.38
A = Watershed (ac)

100% RR_V: 3,694 cf

* Minimum Rv of of 0.2 not applicable to RR_V calculations (use actual calculated Rv).

For projects that cannot meet 100% RR_V: Implement Specific Reduction Factor (S), which provides an absoulte minimum acceptable RR_V.

Drainage Area with Hydrologic Soil Group A:	1.710 acres	Corresponding S: 0.55
Drainage Area with Hydrologic Soil Group B:	0.000 acres	Corresponding S: 0.40
Drainage Area with Hydrologic Soil Group C:	0.190 acres	Corresponding S: 0.30
Drainage Area with Hydrologic Soil Group D:	0.000 acres	Corresponding S: 0.20
Total Area:	1.900 acres	

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Bioretention Area D & E

Total Area Matches

Calculated S: 0.525

Minimum RR_V (acre-feet) = [(P)(Rv*)(Ai)]/12

Calculated Ai: 0.3686
Calculated Rv*: 0.95
Calculated Minimum RR_V: 1,779 cf

Where:
P = 90 % Rainfall Event Number (in), per Figure 4.1
Rv* = 0.05 + 0.009 x I , where I is % impervious area (100%)
Ai = (S)(Aic)
Aic = Total area of new impervious cover

4) Stormwater Management Practice Design

Design Bioretention Area Filter Bed

$A_{FR} = WQ_V \times D_F / [K \times (H_F + D_F) \times (T_F)]$

Where:
WQ_V = Remaining Water Quality Volume (cf) = 2,770 cf (equals 75% WQ_V, which only accounts for the min. WQ_V required in the plunge pool and does not take into account the other pre-treatment)
D_F = Filter Bed Depth (ft) = 2.5 ft
K = Coefficient Permeability (0.5 ft/day per § 6.4.4 of NYSSDM) = 0.5 ft/day
H_F = Average Height Water Above Filter Bed (ft) = 0.25 ft (maximum ponding depth of 6")
T_F = Filter Bed Drain Time (2 days per § 6.4.4 of NYSSDM) = 2 days
A_{FR} = Required Surface Area of Filter Bed (sf) = 2,518 sf
A_F = Surface Area of Filter Bed Provided (sf) = 2,600 sf acceptable

Confirm Storage Capability of Practice

- Confirm system can hold 75% of water quality volume
  75% Water Quality Volume (cf) = 2,770 cf (excludes pre-treatment volume)

- Volume Within Filter Bed:

$V_F = A_F \times D_F \times N$
N = Porosity (0.20 per Table 10.5.5 of the NYSSDM)= 0.2

V_F = Storage volume within filter bed (cf) = 1,300 cf

- Volume Above Filter Bed:

$V_{F\text{-}TEMP} = 2 \times A_F \times H_F$

$V_{F\text{-}TEMP}$ = Storage volume above filter bed (cf) = 1,300 cf

- Volume Within Drainage Layer:

$V_{DL} = A_{DL} \times D_{DL} \times N$
N = Porosity (0.40 standard porosity for stone reservoirs, see also NYSSDM § 6.3.4)= 0.4
A_{DL} = Underdrain Length * Underdain Stone Jacket Width Underdrain Stone Jacket Width: 3 ft Underdrain Length: (see Required Underdrain Length section)
D_{DL} = Drainage Layer Depth (stone jacket depth): 10 inches

V_{DL} = Storage volume within drainage layer (cf) = 0 cf

- Total storage within practice only, not including pre-treatment (cf) = 2,600 cf < 2,770 cf (75% WQv Storage Volume)
  insufficient

- Total storage within practice and pre-treatment (cf) = 2,600 cf < 3,694 cf (100% WQv Storage Volume)
  insufficient

Required Underdrain Length

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Bioretention Area D & E

- Length of underdrain should be based on 10% of the provided filter bed area per § 8.5 of NYSSDM.

Length of underdrain required =	87	lf	
Length of underdrain provided =	0	lf	(No underdrains provided in HSG A soils)

Verify Ponding Depth Over Filter Bed

- No more than 6" of ponding is required per section 6.4.4 of NYSSDM.

Top of filter bed elevation =	34	ft	
Outlet control structure lowest elevation =	34.5	ft	
Ponding depth.=	6	in	acceptable

5) Tabulate Provided Runoff Reduction Volume (RR_V)

Bioretention Area

Storage provided within practice:	**2,600 cf**	(includes pre-treatment)
For Bioretention in Hydrologic Soil Group A & B:	100% reduction	(without underdrains, although underdrains with closed valve may be provided for future maintenance purposes)
For Bioretention in Hydrologic Soil Group C & D:	40% reduction	(with underdrains)
HSG at the Bioretention Area:	A	RR_V Reduction Factor: 100%
RR_V Provided by implementing bioretention:	2,600 cf	

WQ_V REDUCED (RRV):	**2,600 cf**	
Calculated 100% RR_V:	3,694 cf	
Minimum RR_V:	1779 cf	
Is 100% RR_V met:	No	Provide justification in SWPPP
If 100% RR_V is not met, is Minimum RR_V met:	Yes	
WQ_V TREATED:	**0 cf**	

6) Channel Protection Volume (CPv) Design

Determine Stream Channel Protection Volume (CPv)

1-Year Storm Runoff Volume	479 cf	From HydroCAD Model

Compute the CPv Release Rate

The Stream Channel Protection Volume (Cpv) shall be released over 24 hours

Q(CPv)=CPv/(24 hrs X 3,600 sec/hr)	0.01	cfs

Determine Required Orifice Size To Release CPv over 24-hours

CPv orifice elevation	36.5	feet
CPv orifice diameter	-	inches
1-Year Storm Release Rate	0.00 cfs	From HydroCAD Model
Is CPv 100% controlled?	yes - acceptable	

7) See HydroCAD model for Overbank Flood Control (Qp) and Extreme Flood Control (Qf) computations

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Green Roof

1) Determine Water Quality Volume

Stormwater Quality will be accomplished by treating the runoff volume generated by the 90% rainfall of the average annual stormwater runoff volume (January 2015 NYS Stormwater Design Manual).

Volume Generated By 90 % Rule (Per Ch. 4 of the NYS Stormwater Management Design Manual):

WQv = [P x Rv x A] / 12

WQv = Water quality volume (in acre-feet)
Rv = 0.05+0.009(I) = Minimum Rv = 0.2
I = Impervious Cover (Percentage)
P = 90 % Rainfall Event Number
A = Site area in acres

Water Quality Volume For The Development Conveyed to Treatment Practice

Area	Total Area (acres)	Impervious Area (acres)	Impervious Cover (%)	Rv	P	WQv (ac-ft)	WQv (cf)	Method of Treatment
Hotel Green Roof	0.219	0.219	100	0.95	1.4	0.0243	1,059	Green Roof

Rain Garden Design

Green Roof Design to be provided by the Landscape Architect
Green Roof Area considered to be lawn cover in hydrologic modeling

Total Green Roof Area	9,559 sf
Total Runoff Reduction	**1,059 cf**

Determine Minimum Runoff Reduction Volume (RR_V)

Goal: Provide 100% RR_V by implementing Green Infrastructure techniques and Stormwater Management Practices

$RR_V = 43{,}560 \times [P \times Rv \times A] / 12$

Where:
RR_V = Runoff Reduction Volume (cf)
P = 90 % Rainfall Event Number (in), per Figure 4.1
Rv = 0.05 + 0.009 x I , where I is % impervious area
A = Watershed (ac)

R_V: 0.95

100% RR_V: 1059 cf

* Minimum Rv of of 0.2 not applicable to RR_V calculations (use actual calculated Rv).

For projects that cannot meet 100% RR_V: Implement Specific Reduction Factor (S), which provides an absoulte minimum acceptable RR_V.

Drainage Area with Hydrologic Soil Group A:	0.219 acres	Corresponding S: 0.55
Drainage Area with Hydrologic Soil Group B:	0.000 acres	Corresponding S: 0.40
Drainage Area with Hydrologic Soil Group C:	0.000 acres	Corresponding S: 0.30
Drainage Area with Hydrologic Soil Group D:	0.000 acres	Corresponding S: 0.20
Total Area:	0.219 acres	
Area Does Not Match…Re-Calculate		Calculated S: 0.55

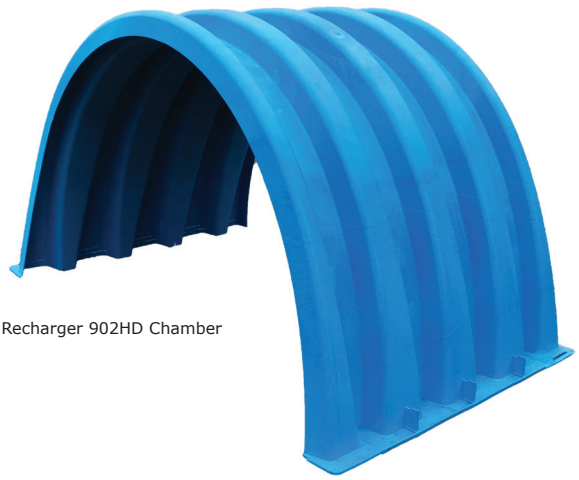
Minimum RR_V (acre-feet) = [(P)(Rv*)(Ai)]/12

Calculated Ai: 0.1207
Calculated Rv*: 0.95
Calculated Minimum RR_V: 583 cf

Where:
P = 90 % Rainfall Event Number (in), per Figure 4.1
Rv* = 0.05 + 0.009 x I , where I is % impervious area (100%)
Ai = (S)(Aic)
Aic = Total area of new impervious cover

CULTEC RECHARGER® 902HD STORMWATER CHAMBER

The Recharger® 902HD is a 48" (1219 mm) tall, high capacity chamber. Typically when using this model, fewer chambers are required resulting in less labor and a smaller installation area. The Recharger® 902HD has the side portal internal manifold feature. HVLV® FC-48 Feed Connectors are inserted into the side portals to create the internal manifold.



Recharger 902HD Chamber



Recharger 902HD End Cap

Recharger 902HD Chamber	
Size (L x W x H)	4.25' x 78" x 48"
	1.30 m x 1981 mm x 1219 mm
Installed Length	3.67'
	1.12 m
Length Adjustment per Row - with two end caps installed	1.03'
	0.31 m
Length Adjustment per Row - when not using end caps	0.58'
	0.18 m
Chamber Storage	17.31 ft^3/ft
	1.61 m^3/m
	63.47 ft^3/unit
	1.80 m^3/unit
Min. Installed Storage	27.06 ft^3/ft
	2.53 m^3/m
	99.28 ft^3/unit
	2.81 m^3/unit
Min. Area Required	26.58 ft^2
	2.47 m^2
Chamber Weight	83.0 lbs
	37.65 kg
Shipping	15 chambers/skid
	1,370 lbs/skid
	14 skids/48' flatbed
Min. Center-to-Center Spacing	7.25'
	2.21 m
Max. Allowable Cover	8.3'
	2.53 m
Max. Allowable O.D. in Side Portal	10" HDPE, 12" PVC
	250 mm HDPE, 300 mm PVC
Compatible Feed Connector	HVLV FC-48 Feed Connector

Calculations are based on installed chamber length.
All above values are nominal.
Includes 12" (305 mm) stone above crown of chamber and typical stone surround at 7.25' (2.21 m) center-to-center spacing and stone foundation depth as listed in table.
Stone void calculated at 40%.

	Stone Foundation Depth		
	9"	12"	18"
	229 mm	305 mm	457 mm
Chamber and Stone Storage Per Chamber	99.28 ft^3	101.94 ft^3	107.26 ft^3
	2.81 m^3	2.89 m^3	3.04 m^3
Min. Effective Depth	5.75'	6.00'	6.5'
	1.75 m	1.83 m	1.98 m
Stone Required Per Chamber	3.32 yd^3	3.56 yd^3	4.05 yd^3
	2.54 m^3	2.72 m^3	3.06 m^3

Recharger 902HD End Cap	
Size (L x W x H)	9.7" x 78" x 48.5"
	246 mm x 1982 mm x 1231 mm
Installed Length	6.2"
	157 mm
End Cap Storage	5.34 ft^3/ft
	0.50 m^3/m
	2.76 ft^3/unit
	0.08 m^3/unit
Min. Installed Storage	19.88 ft^3/ft
	1.85 m^3/m
	10.28 ft^3/unit
	0.29 m^3/unit
End Cap Weight	52.0 lbs
	23.59 kg
Shipping	7 end caps/skid
	638 lbs/skid
	14 skids/48' flatbed
Max. Inlet Opening in End Cap	30" HDPE, 36" PVC
	750 mm HDPE, 900 mm PVC

Calculations are based on installed chamber length.
All above values are nominal.
Min. installed storage includes 9" (229 mm) stone base, 12" (305 mm) stone above crown of chamber and typical stone surround at 7.25' (2.21 m) center-to-center spacing.

For more information, contact CULTEC at (203) 775-4416 or visit www.cultec.com.

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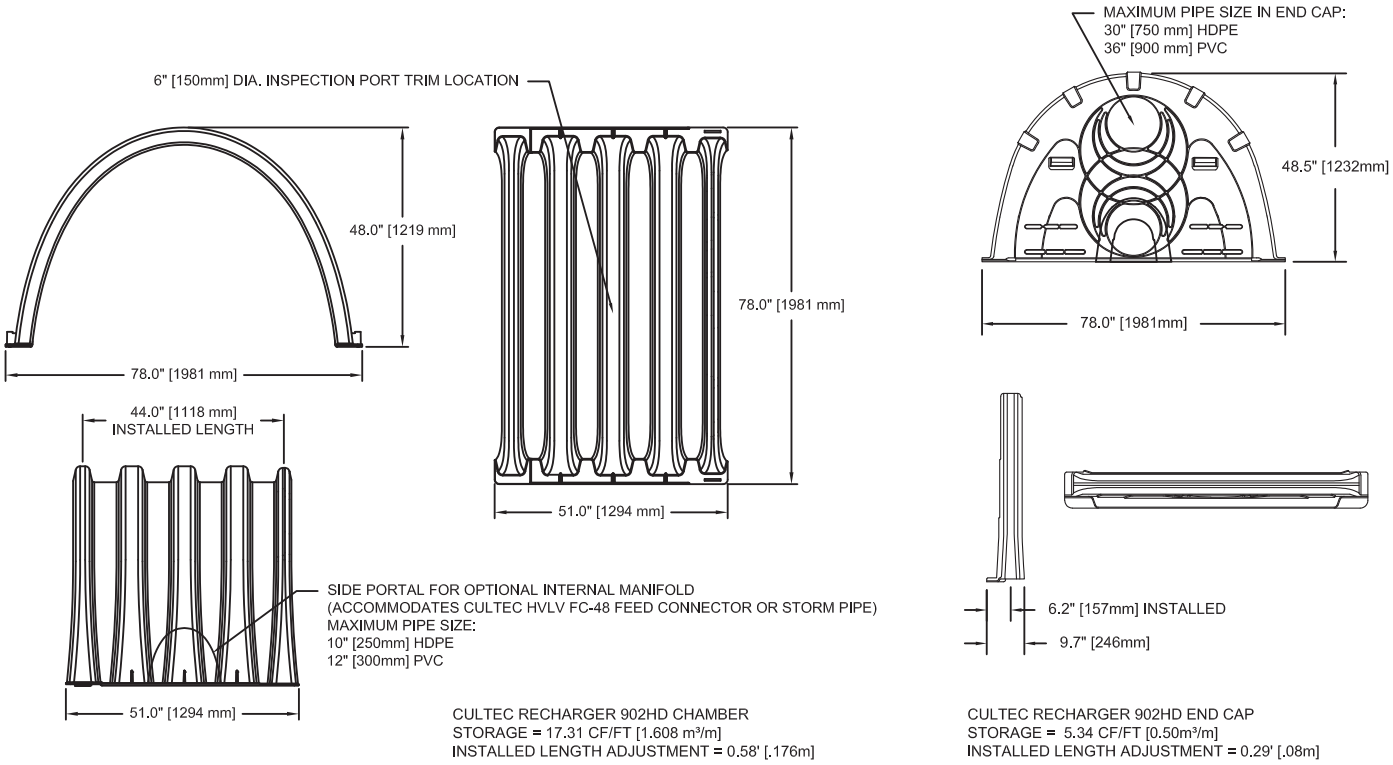
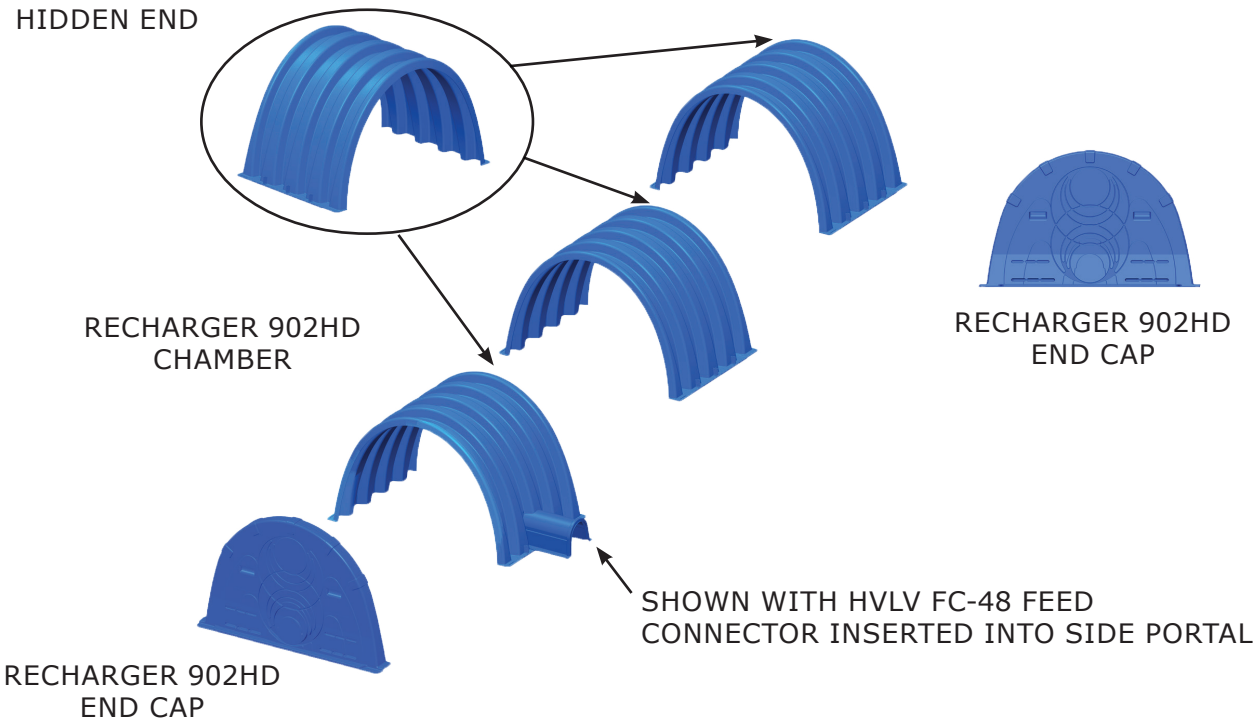
Three View Drawing



CULTEC RECHARGER 902HD CHAMBER
STORAGE = 17.31 CF/FT [1.608 m³/m]
INSTALLED LENGTH ADJUSTMENT = 0.58' [.176m]

CULTEC RECHARGER 902HD END CAP
STORAGE = 5.34 CF/FT [0.50m³/m]
INSTALLED LENGTH ADJUSTMENT = 0.29' [.08m]

Typical Interlock Installation



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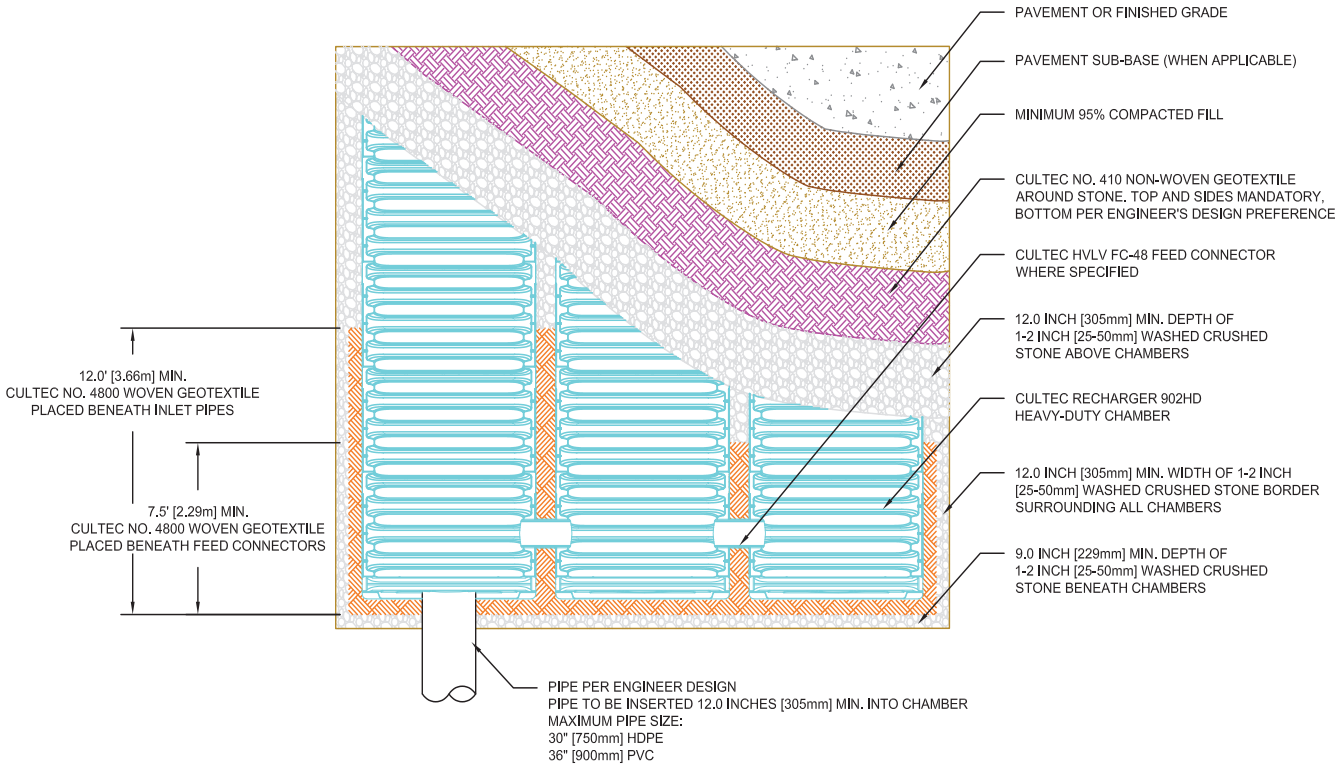
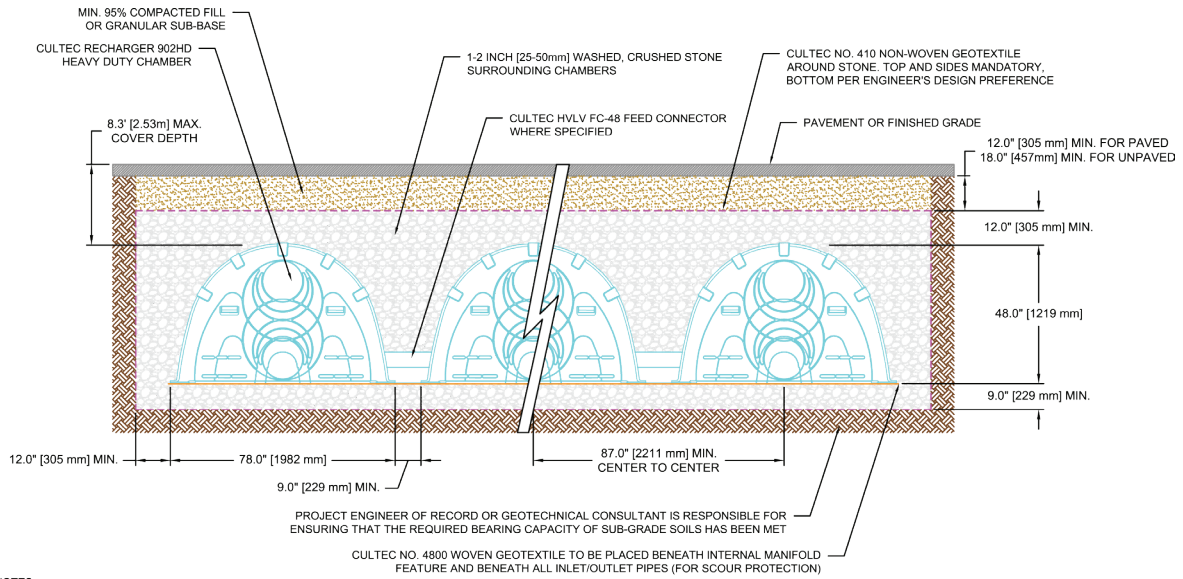
Plan View Drawing



Typical Cross Section for Traffic Application



NOTES:

1. THE CHAMBERS SHALL BE DESIGNED AND TESTED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS." THE LOAD CONFIGURATION SHALL INCLUDE:
   - 1.a. INSTANTANEOUS AASHTO DESIGN TRUCK LIVE LOAD AT MINIMUM COVER
   - 1.b. MAXIMUM PERMANENT (50-YEAR) COVER LOAD
   - 1.c. 1-WEEK PARKED AASHTO DESIGN TRUCK LOAD
2. THE CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F3430-20 "STANDARD SPECIFICATION FOR CELLULAR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS"
3. THE INSTALLED CHAMBER SYSTEM SHALL PROVIDE RESISTANCE TO THE LOADS AND LOAD FACTORS AS DEFINED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS SECTION 12.12, WHEN INSTALLED ACCORDING TO CULTEC'S RECOMMENDED INSTALLATION INSTRUCTIONS. THE STRUCTURAL DESIGN OF THE CHAMBERS SHALL INCLUDE THE FOLLOWING:
   - 3.a. THE CREEP MODULUS SHALL BE 50-YEAR AS SPECIFIED IN ASTM F3430
   - 3.b. THE MINIMUM SAFETY FACTOR FOR LIVE LOADS SHALL BE 1.75
   - 3.c. THE MINIMUM SAFETY FACTOR FOR DEAD LOADS SHALL BE 1.95

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CULTEC RECHARGER® 902HD STORMWATER CHAMBER

Recharger® 902HD Bare Chamber Storage Volumes

Elevation		Incremental Storage Volume				Cumulative Storage	
in.	mm	ft³/ft	m³/m	ft³	m³	ft³	m³
48	1219	0.020	0.002	0.073	0.002	63.470	1.797
47	1194	0.050	0.005	0.183	0.005	63.397	1.795
46	1168	0.070	0.007	0.257	0.007	63.213	1.790
45	1143	0.120	0.011	0.440	0.012	62.957	1.783
44	1118	0.160	0.015	0.587	0.017	62.517	1.770
43	1092	0.200	0.019	0.733	0.021	61.930	1.754
42	1067	0.220	0.020	0.807	0.023	61.197	1.733
41	1041	0.240	0.022	0.880	0.025	60.390	1.710
40	1016	0.270	0.025	0.990	0.028	59.510	1.685
39	991	0.270	0.025	0.990	0.028	58.520	1.657
38	965	0.290	0.027	1.063	0.030	57.530	1.629
37	940	0.300	0.028	1.100	0.031	56.467	1.599
36	914	0.310	0.029	1.137	0.032	55.367	1.568
35	889	0.330	0.031	1.210	0.034	54.230	1.536
34	864	0.340	0.032	1.247	0.035	53.020	1.502
33	838	0.350	0.033	1.283	0.036	51.773	1.466
32	813	0.350	0.033	1.283	0.036	50.490	1.430
31	787	0.360	0.033	1.320	0.037	49.207	1.394
30	762	0.370	0.034	1.357	0.038	47.887	1.356
29	737	0.380	0.035	1.393	0.039	46.530	1.318
28	711	0.390	0.036	1.430	0.040	45.137	1.278
27	686	0.390	0.036	1.430	0.040	43.707	1.238
26	660	0.400	0.037	1.467	0.042	42.277	1.197
25	635	0.400	0.037	1.467	0.042	40.810	1.156
24	610	0.410	0.038	1.503	0.043	39.343	1.114
23	584	0.410	0.038	1.503	0.043	37.840	1.072
22	559	0.410	0.038	1.503	0.043	36.337	1.029
21	533	0.420	0.039	1.540	0.044	34.833	0.986
20	508	0.420	0.039	1.540	0.044	33.293	0.943
19	483	0.420	0.039	1.540	0.044	31.753	0.899
18	457	0.430	0.040	1.577	0.045	30.213	0.856
17	432	0.430	0.040	1.577	0.045	28.637	0.811
16	406	0.440	0.041	1.613	0.046	27.060	0.766
15	381	0.440	0.041	1.613	0.046	25.447	0.721
14	356	0.450	0.042	1.650	0.047	23.833	0.675
13	330	0.450	0.042	1.650	0.047	22.183	0.628
12	305	0.450	0.042	1.650	0.047	20.533	0.582
11	279	0.450	0.042	1.650	0.047	18.883	0.535
10	254	0.460	0.043	1.687	0.048	17.233	0.488
9	229	0.460	0.043	1.687	0.048	15.547	0.440
8	203	0.460	0.043	1.687	0.048	13.860	0.393
7	178	0.460	0.043	1.687	0.048	12.173	0.345
6	152	0.470	0.044	1.723	0.049	10.487	0.297
5	127	0.470	0.044	1.723	0.049	8.763	0.248
4	102	0.480	0.045	1.760	0.050	7.040	0.199
3	76	0.480	0.045	1.760	0.050	5.280	0.150
2	51	0.480	0.045	1.760	0.050	3.520	0.100
1	25	0.480	0.045	1.760	0.050	1.760	0.050
Total		**17.310**	**1.608**	**63.470**	**1.797**	**63.470**	**1.797**

Calculations are based on installed chamber length of 3.67' (1.12 m).

Recharger® 902HD Bare End Cap Storage Volumes

Elevation		Incremental Storage Volume				Cumulative Storage	
in.	mm	ft³/ft	m³/m	ft³	m³	ft³	m³
48	1219	0.039	0.004	0.020	0.0006	2.758	0.0781
47	1194	0.058	0.005	0.030	0.0008	2.738	0.0775
46	1168	0.058	0.005	0.030	0.0008	2.780	0.0767
45	1143	0.077	0.007	0.040	0.0011	2.678	0.0758
44	1118	0.097	0.009	0.050	0.0014	2.638	0.0747
43	1092	0.077	0.007	0.040	0.0011	2.588	0.0733
42	1067	0.097	0.009	0.050	0.0014	2.548	0.0722
41	1041	0.097	0.009	0.050	0.0014	2.498	0.0707
40	1016	0.097	0.009	0.050	0.0014	2.448	0.0693
39	991	0.097	0.009	0.050	0.0014	2.398	0.0679
38	965	0.097	0.009	0.050	0.0014	2.348	0.0665
37	940	0.116	0.011	0.060	0.0017	2.299	0.0651
36	914	0.097	0.009	0.050	0.0014	2.239	0.0634
35	889	0.097	0.009	0.050	0.0014	2.189	0.0620
34	864	0.116	0.011	0.060	0.0017	2.139	0.0606
33	838	0.097	0.009	0.050	0.0014	2.079	0.0589
32	813	0.097	0.009	0.050	0.0014	2.029	0.0574
31	787	0.116	0.011	0.060	0.0017	1.979	0.0560
30	762	0.097	0.009	0.050	0.0014	1.919	0.0543
29	737	0.135	0.013	0.070	0.0020	1.869	0.0529
28	711	0.097	0.009	0.050	0.0014	1.799	0.0509
27	686	0.116	0.011	0.060	0.0017	1.749	0.0495
26	660	0.116	0.011	0.060	0.0017	1.689	0.0478
25	635	0.097	0.009	0.050	0.0014	1.629	0.0461
24	609	0.116	0.011	0.060	0.0017	1.579	0.0447
23	584	0.116	0.011	0.060	0.0017	1.519	0.0430
22	559	0.135	0.013	0.070	0.0020	1.459	0.0413
21	533	0.116	0.011	0.060	0.0017	1.389	0.0393
20	508	0.116	0.011	0.060	0.0017	1.329	0.0376
19	483	0.116	0.011	0.060	0.0017	1.269	0.0359
18	457	0.116	0.011	0.060	0.0017	1.209	0.0342
17	432	0.116	0.011	0.060	0.0017	1.149	0.0325
16	406	0.135	0.013	0.070	0.0020	1.089	0.0308
15	381	0.116	0.011	0.060	0.0017	1.019	0.0289
14	356	0.116	0.011	0.060	0.0017	0.959	0.0272
13	330	0.116	0.011	0.060	0.0017	0.899	0.0255
12	305	0.135	0.013	0.070	0.0020	0.839	0.0238
11	279	0.116	0.011	0.060	0.0017	0.770	0.0218
10	254	0.135	0.013	0.070	0.0020	0.710	0.0201
9	229	0.135	0.013	0.070	0.0020	0.640	0.0181
8	203	0.135	0.013	0.070	0.0020	0.570	0.0161
7	178	0.135	0.013	0.070	0.0020	0.500	0.0141
6	152	0.116	0.011	0.060	0.0017	0.430	0.0122
5	127	0.135	0.013	0.070	0.0020	0.370	0.0105
4	102	0.135	0.013	0.070	0.0020	0.300	0.0085
3	76	0.155	0.014	0.080	0.0023	0.230	0.0065
2	51	0.135	0.013	0.070	0.0020	0.150	0.0042
1	25	0.155	0.014	0.080	0.0023	0.080	0.0023
Total		**5.338**	**0.496**	**2.758**	**0.0781**	**2.758**	**0.0781**

Calculations are based on installed chamber length of 6.2" (157 mm).

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CULTEC Recharger® 902HD Specifications

GENERAL

CULTEC Recharger® 902HD chambers are designed for underground stormwater management. The chambers may be used for retention, recharging, detention or controlling the flow of on-site stormwater runoff.

CHAMBER PARAMETERS

1. The chambers shall be manufactured in the U.S.A. or Canada by CULTEC, Inc. of Brookfield, CT (cultec.com, 203-775-4416).
2. The chambers shall be designed and tested in accordance with ASTM F2787 "Standard Practice for Structural Design of Thermoplastic Corrugated Wall Stormwater Collection Chambers". The load configuration shall include:
    a. Instantaneous AASHTO Design Truck live load at minimum cover
    b. Maximum permanent (50-year) cover load
    c. 1-week parked AASHTO design truck load
3. The chambers shall meet the requirements of ASTM F3430-20 "Standard Specification for Cellular Polypropylene (PP) Corrugated Wall Stormwater Collection Chambers".
4. The installed chamber system shall provide resistance to the loads and load factors as defined in the AASHTO LRFD Bridge Design Specifications Section 12.12, when installed according to CULTEC's recommended installation instructions. The structural design of the chambers shall include the following:
    a. The Creep Modulus shall be 50-year as specified in ASTM F3430
    b. The minimum safety factor for live loads shall be 1.75
    c. The minimum safety factor for dead loads shall be 1.95
5. The chamber shall be structural foam injection molded of blue virgin high molecular weight impact-modified polypropylene.
6. The chamber shall be arched in shape.
7. The chamber shall be open-bottomed.
8. The chamber shall be joined using an interlocking overlapping rib method. Connections must be fully shouldered overlapping ribs, having no separate couplings.
9. The nominal chamber dimensions of the CULTEC Recharger® 902HD shall be 48 inches (1219 mm) tall, 78 inches (1981 mm) wide and 4.25 feet (1.30 m) long. The installed length of a joined Recharger 902HD shall be 3.67 feet (1.12 m).
10. Multiple chambers may be connected to form different length rows. Each row shall begin and end with a separately formed CULTEC Recharger® 902HD End Cap. Maximum inlet opening on the end cap is 30 inches (750 mm) HDPE or 36 inches (900 mm) PVC.
11. The chamber shall have two side portals to accept CULTEC HVLV™ FC-48 Feed Connectors to create an internal manifold. Maximum allowable pipe size in the side portal is 10 inches (250 mm) HDPE and 12 inches (300 mm) PVC.
12. The nominal chamber dimensions of the CULTEC HVLV™ FC-48 Feed Connector shall be 12 inches (305 mm) tall, 16 inches (406 mm) wide and 49 inches (1245 mm) long.
13. The nominal storage volume of the Recharger 902HD chamber shall be 17.31 ft^3 / ft (1.61 m^3 / m) - without stone. The nominal storage volume of a joined Recharger 902HD shall be 63.47 ft^3 / unit (1.80 m^3 / unit) - without stone.
14. The nominal storage volume of the HVLV™ FC-48 Feed Connector shall be 0.913 ft^3 / ft (0.085 m^3 / m) - without stone.
15. The Recharger 902HD chamber shall have 5 corrugations.
16. The chamber shall be capable of accepting a 6 inch (150 mm) inspection port opening at the top center of each chamber, centered on the corrugation crest.
17. The units may be trimmed to custom lengths by cutting back to any corrugation.
18. The chamber shall be manufactured in a facility employing CULTEC's Quality Control and Assurance Procedures.
19. Maximum allowable cover over the top of the chamber shall be 8.3 feet (2.53 m).

END CAP PARAMETERS

1. The CULTEC Recharger® 902HD End Cap (referred to as 'end cap') shall be manufactured in the U.S.A. by CULTEC, Inc. of Brookfield, CT (cultec.com, 203-775-4416).
2. The end cap shall be twin-sheet thermoformed of virgin high molecular weight polyethylene.
3. The end cap shall be joined at the beginning and end of each row of chambers using an interlocking overlapping rib method. Connections must be fully shouldered overlapping ribs, having no separate couplings.
4. The nominal dimensions of the end cap shall be 48.5 inches (1231 mm) tall, 78 inches (1982 mm) wide and 9.7 inches (246 mm) long. When joined with a Recharger 902HD Chamber, the installed length of the end cap shall be 6.2 inches (157 mm).
5. The nominal storage volume of the end cap shall be 5.34 ft^3 / ft (0.50 m^3 / m) - without stone. The nominal storage volume of an interlocked end cap shall be 2.76 ft^3 / unit (0.08 m^3 / unit) - without stone.
6. Maximum inlet opening on the end cap is 30 inches (750 mm) HDPE or 36 inches (900 mm) PVC.
7. The end cap shall provide resistance to the loads and load factors as defined in the AASHTO LRFD Bridge Design Specifications Section 12.12.

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APPENDIX G

PRE-CONSTRUCTION SITE ASSESSMENT CHECKLIST

I. **PRE-CONSTRUCTION MEETING DOCUMENTS**

Project Name _____

Permit No. _____ **Date of Authorization** _____

Name of Operator _____

Prime Contractor _____

a. **Preamble to Site Assessment and Inspections**

The Following Information To Be Read By All Person's Involved in The Construction of Stormwater Related Activities:

The Operator agrees to have a qualified inspector[1] conduct an assessment of the site prior to the commencement of construction[2] and certify in this inspection report that the appropriate erosion and sediment controls described in the SWPPP have been adequately installed or implemented to ensure overall preparedness of the site for the commencement of construction.

Prior to the commencement of construction, the Operator shall certify in this site logbook that the SWPPP has been prepared in accordance with the State's standards and meets all Federal, State and local erosion and sediment control requirements. A preconstruction meeting should be held to review all of the SWPPP requirements with construction personnel.

When construction starts, site inspections shall be conducted by the qualified inspector at least every 7 calendar days. The Operator shall maintain a record of all inspection reports in this site logbook. The site logbook shall be maintained on site and be made available to the permitting authorities upon request.

Prior to filing the Notice of Termination or the end of permit term, the Operator shall have a qualified inspector perform a final site inspection. The qualified inspector shall certify that the site has undergone final stabilization[3] using either vegetative or structural stabilization methods and that all temporary erosion and sediment controls (such as silt fencing) not needed for long-term erosion control have been removed. In addition, the Operator must identify and certify that all permanent structures described in the SWPPP have been constructed and provide the owner(s) with an operation and maintenance plan that ensures the structure(s) continuously functions as designed.

1 Refer to "Qualified Inspector" inspection requirements in the current SPDES General Permit for Stormwater Discharges from Construction Activity for complete list of inspection requirements.
2 "Commencement of construction" means the initial removal of vegetation and disturbance of soils associated with clearing, grading or excavating activities or other construction activities.
3 "Final stabilization" means that all soil-disturbing activities at the site have been completed and a uniform, perennial vegetative cover with a density of eighty (80) percent has been established or equivalent stabilization measures (such as the use of mulches or geotextiles) have been employed on all unpaved areas and areas not covered by permanent structures.

b. Pre-construction Site Assessment Checklist
(NOTE: Provide comments below as necessary)

1. Notice of Intent, SWPPP, and Contractors Certification:

Yes No NA

[ ] [ ] [ ] Has a Notice of Intent been filed with the NYS Department of Conservation?
[ ] [ ] [ ] Is the SWPPP on-site? Where?_____
[ ] [ ] [ ] Is the Plan current? What is the latest revision date?_____
[ ] [ ] [ ] Is a copy of the NOI (with brief description) onsite? Where?_____
[ ] [ ] [ ] Have all contractors involved with stormwater related activities signed a contractor's certification?

2. Resource Protection

Yes No NA

[ ] [ ] [ ] Are construction limits clearly flagged or fenced?
[ ] [ ] [ ] Important trees and associated rooting zones, on-site septic system absorption fields, existing vegetated areas suitable for filter strips, especially in perimeter areas, have been flagged for protection.
[ ] [ ] [ ] Creek crossings installed prior to land-disturbing activity, including clearing and blasting.

3. Surface Water Protection

Yes No NA

[ ] [ ] [ ] Clean stormwater runoff has been diverted from areas to be disturbed.
[ ] [ ] [ ] Bodies of water located either on site or in the vicinity of the site have been identified and protected.
[ ] [ ] [ ] Appropriate practices to protect on-site or downstream surface water are installed.
[ ] [ ] [ ] Are clearing and grading operations divided into areas <5 acres?

4. Stabilized Construction Access

Yes No NA

[ ] [ ] [ ] A temporary construction entrance to capture mud and debris from construction vehicles before they enter the public highway has been installed.
[ ] [ ] [ ] Other access areas (entrances, construction routes, equipment parking areas) are stabilized immediately as work takes place with gravel or other cover.
[ ] [ ] [ ] Sediment tracked onto public streets is removed or cleaned on a regular basis.

5. Sediment Controls

Yes No NA

[ ] [ ] [ ] Silt fence material and installation comply with the standard drawing and specifications.
[ ] [ ] [ ] Silt fences are installed at appropriate spacing intervals
[ ] [ ] [ ] Sediment/detention basin was installed as first land disturbing activity.
[ ] [ ] [ ] Sediment traps and barriers are installed.

6. Pollution Prevention for Waste and Hazardous Materials

Yes No NA

[ ] [ ] [ ] The Operator or designated representative has been assigned to implement the spill prevention avoidance and response plan.
[ ] [ ] [ ] The plan is contained in the SWPPP on page _____
[ ] [ ] [ ] Appropriate materials to control spills are onsite. Where? _____

APPENDIX H

STORMWATER CONSTRUCTION INSPECTION CHECKLISTS

Bioretention Construction Inspection Checklist

Project:
Location:
Site Status:

Date:

Time:

Inspector:

CONSTRUCTION SEQUENCE	SATISFACTORY/ UNSATISFACTORY	COMMENTS
1. Pre-Construction		
Pre-construction meeting		
Runoff diverted		
Facility area cleared		
If designed as exfilter, soil testing for permeability		
Facility location staked out		
2. Excavation		
Size and location		
Lateral slopes completely level		
If designed as exfilter, ensure that excavation does not compact susoils.		
Longitudinal slopes within design range		

CONSTRUCTION SEQUENCE	SATISFACTORY / UNSATISFACTORY	COMMENTS
3. Structural Components		
Stone diaphragm installed correctly		
Outlets installed correctly		
Underdrain		
Pretreatment devices installed		
Soil bed composition and texture		
4. Vegetation		
Complies with planting specs		
Topsoil adequate in composition and placement		
Adequate erosion control measures in place		
5. Final Inspection		
Dimensions		
Proper stone diaphragm		
Proper outlet		
Soil/ filter bed permeability testing		
Effective stand of vegetation and stabilization		
Construction generated sediments removed		
Contributing watershed stabilized before flow is diverted to the practice		

Comments:

Actions to be Taken:

Open Channel System Construction Inspection Checklist

Project:
Location:
Site Status:

Date:

Time:

Inspector:

CONSTRUCTION SEQUENCE	SATISFACTORY / UNSATISFACTORY	COMMENTS
1. Pre-Construction		
Pre-construction meeting		
Runoff diverted		
Facility location staked out		
2. Excavation		
Size and location		
Side slope stable		
Soil permeability		
Groundwater / bedrock		
Lateral slopes completely level		
Longitudinal slopes within design range		
Excavation does not compact subsoils		
3. Check dams		
Dimensions		
Spacing		
Materials		

CONSTRUCTION SEQUENCE	SATISFACTORY / UNSATISFACTORY	COMMENTS
4. Structural Components		
Underdrain installed correctly		
Inflow installed correctly		
Pretreatment devices installed		
5. Vegetation		
Complies with planting specifications		
Topsoil adequate in composition and placement		
Adequate erosion control measures in place		
6. Final inspection		
Dimensions		
Check dams		
Proper outlet		
Effective stand of vegetation and stabilization		
Contributing watershed stabilized before flow is routed to the factility		

Comments:

Actions to be Taken:

Infiltration Basin Construction Inspection Checklist

Project:
Location:
Site Status:

Date:

Time:

Inspector:

CONSTRUCTION SEQUENCE	SATISFACTORY/ UNSATISFACTORY	COMMENTS
1. Pre-Construction		
Runoff diverted		
Soil permeability tested		
Groundwater / bedrock depth		
2. Excavation		
Size and location		
Side slopes stable		
Excavation does not compact subsoils		
3. Embankment		
Barrel		
Anti-seep collar or Filter diaphragm		
Fill material		

CONSTRUCTION SEQUENCE	SATISFACTORY/ UNSATISFACTORY	COMMENTS
4. Final Excavation		
Drainage area stabilized		
Sediment removed from facility		
Basin floor tilled		
Facility stabilized		
5. Final Inspection		
Pretreatment facility in place		
Inlets / outlets		
Contributing watershed stabilized before flow is routed to the factility		

Comments:

Actions to be Taken:

APPENDIX I

CONTRACTOR AND SUBCONTRACTOR CERTIFICATIONS

CERTIFICATION STATEMENT

"I hereby certify that I understand and agree to comply with the terms and conditions of the SWPPP and agree to implement any corrective actions identified by the *qualified inspector* during a site inspection. I also understand that the *owner or operator* must comply with the terms and conditions of the most current version of the New York State Pollutant Discharge Elimination System ("SPDES") general permit for stormwater discharges from construction activities and that it is unlawful for any person to cause or contribute to a violation of water quality standards. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings."

Contractor:

Name:_____

Signature:_____

Title:_____

Company Name:_____

Company Address:_____

_____

_____

_____

Company Phone Number:_____

Site Address:_____

_____

_____

_____

Specific SWPPP Responsibilities:

_____

_____

_____

_____

_____

Date of Certification: _____

Name and Title of Trained Contractor for SWPPP Implementation:_____

_____

CERTIFICATION STATEMENT

"I hereby certify that I understand and agree to comply with the terms and conditions of the SWPPP and agree to implement any corrective actions identified by the *qualified inspector* during a site inspection. I also understand that the *owner or operator* must comply with the terms and conditions of the most current version of the New York State Pollutant Discharge Elimination System ("SPDES") general permit for stormwater discharges from construction activities and that it is unlawful for any person to cause or contribute to a violation of water quality standards. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings."

Sub-Contractor:

Name:_____

Signature:_____

Title:_____

Company Name:_____

Company Address:_____

_____

_____

_____

Company Phone Number:_____

Site Address:_____

_____

_____

_____

Specific SWPPP Responsibilities:

_____

_____

_____

_____

_____

Date of Certification: _____

Name and Title of Trained Contractor for SWPPP Implementation:_____

_____

APPENDIX J

QUALIFIED PROFESSIONAL'S CERTIFICATION

QUALIFIED PROFESSIONAL'S CERTIFICATION

"I hereby certify that I meet the criteria set forth in the General Permit to conduct site inspections for this project and that the appropriate erosion and sediment controls described in the SWPPP and as described in the Pre-Construction Site Assessment Checklist have been adequately installed or implemented, ensuring the overall preparedness of this site for the commencement of construction."

Name (Print):_____

Title:_____

Date:_____

Company Name:_____

Company Address:_____

_____

_____

_____

Company Phone Number:_____

Company Email:_____

Signature:_____

APPENDIX K

OWNER/OPERATOR CERTIFICATION

CERTIFICATION STATEMENT

"I have read or been advised of the permit conditions and believe that I understand them. I also understand that, under the terms of the permit, there may be reporting requirements. I also certify under penalty of law that that this document and the corresponding documents were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. Further, I am acknowledging that this SWPPP has been developed and will be implemented as the first element of construction and agree to comply with all the terms and conditions of the general permit for which the NOI is being submitted."

Name (Print):_____

Title:_____

Date:_____

Company Name:_____

Company Address:_____

_____

_____

_____

Company Phone Number:_____

Company Email:_____

Signature:_____

APPENDIX L

POST-DEVELOPMENT MAINTENANCE AND INSPECTION CHECKLIST

Bioretention Operation, Maintenance and Management Inspection Checklist

Project:
Location:
Site Status:

Date:

Time:

Inspector:

MAINTENANCE ITEM	SATISFACTORY / UNSATISFACTORY	COMMENTS
1. Debris Cleanout (Monthly)		
Bioretention and contributing areas clean of debris		
No dumping of yard wastes into practice		
Litter (branches, etc.) have been removed		
2. Vegetation (Monthly)		
Plant height not less than design water depth		
Fertilized per specifications		
Plant composition according to approved plans		
No placement of inappropriate plants		
Grass height not greater than 6 inches		
No evidence of erosion		
3. Check Dams/Energy Dissipaters/Sumps (Annual, After Major Storms)		
No evidence of sediment buildup		

MAINTENANCE ITEM	SATISFACTORY / UNSATISFACTORY	COMMENTS
Sumps should not be more than 50% full of sediment		
No evidence of erosion at downstream toe of drop structure		
4. Dewatering (Monthly)		
Dewaters between storms		
No evidence of standing water		
5. Sediment Deposition (Annual)		
Swale clean of sediments		
Sediments should not be > 20% of swale design depth		
6. Outlet/Overflow Spillway (Annual, After Major Storms)		
Good condition, no need for repair		
No evidence of erosion		
No evidence of any blockages		
7. Integrity of Filter Bed (Annual)		
Filter bed has not been blocked or filled inappropriately		

Comments:

Actions to be Taken:

Open Channel Operation, Maintenance, and Management Inspection Checklist

Project:
Location:
Site Status:

Date:

Time:

Inspector:

MAINTENANCE ITEM	SATISFACTORY/ UNSATISFACTORY	COMMENTS
1. Debris Cleanout (Monthly)		
Contributing areas clean of debris		
2. Check Dams or Energy Dissipators (Annual, After Major Storms)		
No evidence of flow going around structures		
No evidence of erosion at downstream toe		
Soil permeability		
Groundwater / bedrock		
3. Vegetation (Monthly)		
Mowing done when needed		
Minimum mowing depth not exceeded		
No evidence of erosion		
Fertilized per specification		
4. Dewatering (Monthly)		
Dewaters between storms		

MAINTENANCE ITEM	SATISFACTORY/ UNSATISFACTORY	COMMENTS
5. Sediment deposition (Annual)		
Clean of sediment		
6. Outlet/Overflow Spillway (Annual)		
Good condition, no need for repairs		
No evidence of erosion		

Comments:

Actions to be Taken:

Infiltration Trench Operation, Maintenance, and Management Inspection Checklist

Project:
Location:
Site Status:

Date:

Time:

Inspector:

MAINTENANCE ITEM	SATISFACTORY / UNSATISFACTORY	COMMENTS
1. Debris Cleanout (Monthly)		
Trench surface clear of debris		
Inflow pipes clear of debris		
Overflow spillway clear of debris		
Inlet area clear of debris		
2. Sediment Traps or Forebays (Annual)		
Obviously trapping sediment		
Greater than 50% of storage volume remaining		
3. Dewatering (Monthly)		
Trench dewaters between storms		
4. Sediment Cleanout of Trench (Annual)		
No evidence of sedimentation in trench		
Sediment accumulation doesn't yet require cleanout		
5. Inlets (Annual)		

MAINTENANCE ITEM	SATISFACTORY / UNSATISFACTORY	COMMENTS
Good condition		
No evidence of erosion		
6. Outlet/Overflow Spillway (Annual)		
Good condition, no need for repair		
No evidence of erosion		
7. Aggregate Repairs (Annual)		
Surface of aggregate clean		
Top layer of stone does not need replacement		
Trench does not need rehabilitation		

Comments:

Actions to be Taken:

APPENDIX M

CONSTRUCTION INSPECTION REPORT

II. CONSTRUCTION DURATION INSPECTIONS

a. Directions:

Inspection Forms will be filled out during the entire construction phase of the project.

Required Elements:

1) On a site map, indicate the extent of all disturbed site areas and drainage pathways. Indicate site areas that are expected to undergo initial disturbance or significant site work within the next 14-day period;

2) Indicate on a site map all areas of the site that have undergone temporary or permanent stabilization;

3) Indicate all disturbed site areas that have not undergone active site work during the previous 14-day period;

4) Inspect all sediment control practices and record the approximate degree of sediment accumulation as a percentage of sediment storage volume (for example, 10 percent, 20 percent, 50 percent);

5) Inspect all erosion and sediment control practices and record all maintenance requirements such as verifying the integrity of barrier or diversion systems (earthen berms or silt fencing) and containment systems (sediment basins and sediment traps). Identify any evidence of rill or gully erosion occurring on slopes and any loss of stabilizing vegetation or seeding/mulching. Document any excessive deposition of sediment or ponding water along barrier or diversion systems. Record the depth of sediment within containment structures, any erosion near outlet and overflow structures, and verify the ability of rock filters around perforated riser pipes to pass water; and

6) Immediately report to the Operator any deficiencies that are identified with the implementation of the SWPPP.

SITE PLAN/SKETCH

Inspector (print name)	**Date of Inspection**
Qualified Inspector (print name)	**Qualified Inspector Signature**

The above signed acknowledges that, to the best of his/her knowledge, all information provided on the forms is accurate and complete.

Maintaining Water Quality

Yes No NA

[ ] [ ] [ ] Is there an increase in turbidity causing a substantial visible contrast to natural conditions at the outfalls?
[ ] [ ] [ ] Is there residue from oil and floating substances, visible oil film, or globules or grease at the outfalls?
[ ] [ ] [ ] All disturbance is within the limits of the approved plans.
[ ] [ ] [ ] Have receiving lake/bay, stream, and/or wetland been impacted by silt from project?

Housekeeping

1. General Site Conditions

Yes No NA

[ ] [ ] [ ] Is construction site litter, debris and spoils appropriately managed?
[ ] [ ] [ ] Are facilities and equipment necessary for implementation of erosion and sediment control in working order and/or properly maintained?
[ ] [ ] [ ] Is construction impacting the adjacent property?
[ ] [ ] [ ] Is dust adequately controlled?

2. Temporary Stream Crossing

Yes No NA

[ ] [ ] [ ] Maximum diameter pipes necessary to span creek without dredging are installed.
[ ] [ ] [ ] Installed non-woven geotextile fabric beneath approaches.
[ ] [ ] [ ] Is fill composed of aggregate (no earth or soil)?
[ ] [ ] [ ] Rock on approaches is clean enough to remove mud from vehicles & prevent sediment from entering stream during high flow.

3. Stabilized Construction Access

Yes No NA

[ ] [ ] [ ] Stone is clean enough to effectively remove mud from vehicles.
[ ] [ ] [ ] Installed per standards and specifications?
[ ] [ ] [ ] Does all traffic use the stabilized entrance to enter and leave site?
[ ] [ ] [ ] Is adequate drainage provided to prevent ponding at entrance?

Runoff Control Practices

1. Excavation Dewatering

Yes No NA

[ ] [ ] [ ] Upstream and downstream berms (sandbags, inflatable dams, etc.) are installed per plan.
[ ] [ ] [ ] Clean water from upstream pool is being pumped to the downstream pool.
[ ] [ ] [ ] Sediment laden water from work area is being discharged to a silt-trapping device.
[ ] [ ] [ ] Constructed upstream berm with one-foot minimum freeboard.

Runoff Control Practices (continued)

2. Flow Spreader

Yes No NA

[ ] [ ] [ ] Installed per plan.
[ ] [ ] [ ] Constructed on undisturbed soil, not on fill, receiving only clear, non-sediment laden flow.
[ ] [ ] [ ] Flow sheets out of level spreader without erosion on downstream edge.

3. Interceptor Dikes and Swales

Yes No NA

[ ] [ ] [ ] Installed per plan with minimum side slopes 2H:1V or flatter.
[ ] [ ] [ ] Stabilized by geotextile fabric, seed, or mulch with no erosion occurring.
[ ] [ ] [ ] Sediment-laden runoff directed to sediment trapping structure

4. Stone Check Dam

Yes No NA

[ ] [ ] [ ] Is channel stable? (flow is not eroding soil underneath or around the structure).
[ ] [ ] [ ] Check is in good condition (rocks in place and no permanent pools behind the structure).
[ ] [ ] [ ] Has accumulated sediment been removed?.

5. Rock Outlet Protection

Yes No NA

[ ] [ ] [ ] Installed per plan.
[ ] [ ] [ ] Installed concurrently with pipe installation.

Soil Stabilization

1. Topsoil and Spoil Stockpiles

Yes No NA

[ ] [ ] [ ] Stockpiles are stabilized with vegetation and/or mulch.
[ ] [ ] [ ] Sediment control is installed at the toe of the slope.

2. Revegetation

Yes No NA

[ ] [ ] [ ] Temporary seedings and mulch have been applied to idle areas.
[ ] [ ] [ ] 4 inches minimum of topsoil has been applied under permanent seedings

Sediment Control Practices

1. Silt Fence and Linear Barriers

Yes No NA

[ ] [ ] [ ] Installed on Contour, 10 feet from toe of slope (not across conveyance channels).
[ ] [ ] [ ] Joints constructed by wrapping the two ends together for continuous support.
[ ] [ ] [ ] Fabric buried 6 inches minimum.
[ ] [ ] [ ] Posts are stable, fabric is tight and without rips or frayed areas.
Sediment accumulation is ___% of design capacity.

Sediment Control Practices (continued)

2. Storm Drain Inlet Protection (Use for Stone & Block; Filter Fabric; Curb; or, Excavated; Filter Sock or Manufactured practices)

Yes No NA

[ ] [ ] [ ] Installed concrete blocks lengthwise so open ends face outward, not upward.
[ ] [ ] [ ] Placed wire screen between No. 3 crushed stone and concrete blocks.
[ ] [ ] [ ] Drainage area is 1acre or less.
[ ] [ ] [ ] Excavated area is 900 cubic feet.
[ ] [ ] [ ] Excavated side slopes should be 2:1.
[ ] [ ] [ ] 2" x 4" frame is constructed and structurally sound.
[ ] [ ] [ ] Posts 3-foot maximum spacing between posts.
[ ] [ ] [ ] Fabric is embedded 1 to 1.5 feet below ground and secured to frame/posts with staples at max 8-inch spacing.
[ ] [ ] [ ] Posts are stable, fabric is tight and without rips or frayed areas.
[ ] [ ] [ ] Manufactured insert fabric is free of tears and punctures.
[ ] [ ] [ ] Filter Sock is not torn or flattened and fill material is contained within the mesh sock.

Sediment accumulation ___% of design capacity.

3. Temporary Sediment Trap

Yes No NA

[ ] [ ] [ ] Outlet structure is constructed per the approved plan or drawing.
[ ] [ ] [ ] Geotextile fabric has been placed beneath rock fill.
[ ] [ ] [ ] Sediment trap slopes and disturbed areas are stabilized.

Sediment accumulation is ___% of design capacity.

4. Temporary Sediment Basin

Yes No NA

[ ] [ ] [ ] Basin and outlet structure constructed per the approved plan.
[ ] [ ] [ ] Basin side slopes are stabilized with seed/mulch.
[ ] [ ] [ ] Drainage structure flushed and basin surface restored upon removal of sediment basin facility.
[ ] [ ] [ ] Sediment basin dewatering pool is dewatering at appropriate rate.

Sediment accumulation is ___% of design capacity.

Note: Not all erosion and sediment control practices are included in this listing. Add additional pages to this list as required by site specific design. All practices shall be maintained in accordance with their respective standards.

Construction inspection checklists for post-development stormwater management practices can be found in Appendix F of the New York Stormwater Management Design Manual.

CONSTRUCTION DURATION INSPECTIONS

b. Modifications to the SWPPP (To be completed as described below)

The Operator shall amend the SWPPP whenever:

1. There is a significant change in design, construction, operation, or maintenance which may have a significant effect on the potential for the discharge of pollutants to the waters of the United States and which has not otherwise been addressed in the SWPPP; or
2. The SWPPP proves to be ineffective in:
   a. Eliminating or significantly minimizing pollutants from sources identified in the SWPPP and as required by this permit; or
   b. Achieving the general objectives of controlling pollutants in stormwater discharges from permitted construction activity; and
3. Additionally, the SWPPP shall be amended to identify any new contractor or subcontractor that will implement any measure of the SWPPP.

Modification & Reason:

APPENDIX N

NOTICE OF TERMINATION

New York State Department of Environmental Conservation
Division of Water
625 Broadway, 4th Floor
Albany, New York 12233-3505
(NOTE: Submit completed form to address above)

NOTICE OF TERMINATION for Storm Water Discharges Authorized under the SPDES General Permit for Construction Activity

Please indicate your permit identification number: NYR ___ ___ ___ ___ ___ ___

I. Owner or Operator Information

1. Owner/Operator Name: The Mirbeau Companies, LLC.

2. Street Address:

3. City/State/Zip:

4. Contact Person: | 4a.Telephone:

4b. Contact Person E-Mail:

II. Project Site Information

5. Project/Site Name: Mirbeau Inn & Spa at Beacon

6. Street Address: 7 Craig House Lane

7. City/Zip:

8. County:

III. Reason for Termination

9a. □ All disturbed areas have achieved final stabilization in accordance with the general permit and SWPPP. ***Date final stabilization completed** (month/year): _____

9b. □ Permit coverage has been transferred to new owner/operator. Indicate new owner/operator's permit identification number: NYR ___ ___ ___ ___ ___ ___
(Note: Permit coverage can not be terminated by owner identified in I.1. above until new owner/operator obtains coverage under the general permit)

9c. □ Other (Explain on Page 2)

IV. Final Site Information:

10a. Did this construction activity require the development of a SWPPP that includes post-construction stormwater management practices? □ yes □ no (If no, go to question 10f.)

10b. Have all post-construction stormwater management practices included in the final SWPPP been constructed? □ yes □ no (If no, explain on Page 2)

10c. Identify the entity responsible for long-term operation and maintenance of practice(s)?

_____

NOTICE OF TERMINATION for Storm Water Discharges Authorized under the SPDES General Permit for Construction Activity - continued

10d. Has the entity responsible for long-term operation and maintenance been given a copy of the operation and maintenance plan required by the general permit? □ yes □ no

10e. Indicate the method used to ensure long-term operation and maintenance of the post-construction stormwater management practice(s):

□ Post-construction stormwater management practice(s) and any right-of-way(s) needed to maintain practice(s) have been deeded to the municipality.

□ Executed maintenance agreement is in place with the municipality that will maintain the post-construction stormwater management practice(s).

□ For post-construction stormwater management practices that are privately owned, a mechanism is in place that requires operation and maintenance of the practice(s) in accordance with the operation and maintenance plan, such as a deed covenant in the owner or operator's deed of record.

□ For post-construction stormwater management practices that are owned by a public or private institution (e.g. school, university or hospital), government agency or authority, or public utility; policy and procedures are in place that ensures operation and maintenance of the practice(s) in accordance with the operation and maintenance plan.

10f. Provide the total area of impervious surface (i.e. roof, pavement, concrete, gravel, etc.) constructed within the disturbance area? _____ (acres)

11. Is this project subject to the requirements of a regulated, traditional land use control MS4? □ yes □ no

(If Yes, complete section VI - "MS4 Acceptance" statement

V. Additional Information/Explanation:

(Use this section to answer questions 9c. and 10b., if applicable)

VI. MS4 Acceptance - MS4 Official (principal executive officer or ranking elected official) or Duly Authorized Representative (Note: Not required when 9b. is checked -transfer of coverage)

I have determined that it is acceptable for the owner or operator of the construction project identified in question 5 to submit the Notice of Termination at this time.

Printed Name:

Title/Position:

Signature:	Date:

NOTICE OF TERMINATION for Storm Water Discharges Authorized under the SPDES General Permit for Construction Activity - continued

VII. Qualified Inspector Certification - Final Stabilization:

I hereby certify that all disturbed areas have achieved final stabilization as defined in the current version of the general permit, and that all temporary, structural erosion and sediment control measures have been removed. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

Printed Name:	
Title/Position:	
Signature:	Date:

VIII. Qualified Inspector Certification - Post-construction Stormwater Management Practice(s):

I hereby certify that all post-construction stormwater management practices have been constructed in conformance with the SWPPP. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

Printed Name:	
Title/Position:	
Signature:	Date:

IX. Owner or Operator Certification

I hereby certify that this document was prepared by me or under my direction or supervision. My determination, based upon my inquiry of the person(s) who managed the construction activity, or those persons directly responsible for gathering the information, is that the information provided in this document is true, accurate and complete. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

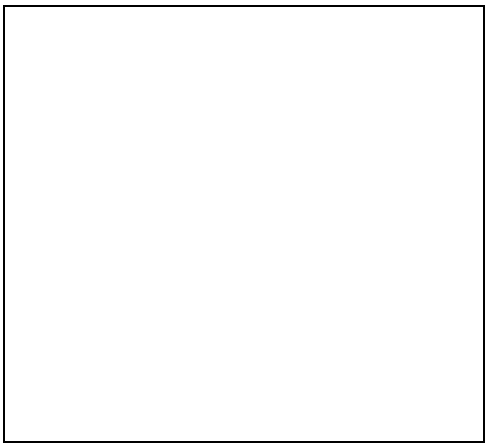
Printed Name:	
Title/Position:	
Signature:	Date:

(NYS DEC Notice of Termination - January 2015)

Preliminary Water and Sewer Engineer's Report: for Mirbeau Inn & Spa Beacon

Prepared for:
Mirbeau Beacon, LLC
433 Broadway, Suite 203
Saratoga Springs, NY 12866

May 25, 2022



Prepared by:
Hudson Land Design Professional Engineering, P.C.
174 Main Street
Beacon, NY 12508 (Main Office and Mailing Address)
13 Chambers Street
Newburgh, NY 12550 (Satellite Office)

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1.0 PROJECT LOCATION

The Mirbeau Inn & Spa project sits on approximately 64.35 acres of land situated on the northwest corner of the intersection of Grandview Avenue and Wolcott Avenue (NYS Route 9D) in the City of Beacon, Dutchess County, New York. The property is identified as parcel number 6054-13-001258 on the City of Beacon Tax Maps, and is the former Howland Estate in Beacon.

2.0 PROJECT DESCRIPTION

The project consists of the renovation and adaptive re-use of several existing buildings located on the property, and the construction of new buildings to accommodate a proposed Inn & Spa. New water and sewer infrastructure will be constructed in addition to landscaping and other general improvements. The proposed improvements to new and existing buildings are as follows:

1. Mansion

The Mansion will be thoughtfully restored while brought to 21st century building standards. The initial project scope includes demolition of the two 1970s era buildings attached to the historic Mansion – a prior cafeteria and mechanical spaces at the north-west and the former two-level multi-room Craig House sanitarium facility with an enclosed walkway to the south. At the lower and ground-levels, the Mirbeau Inn & Spa Howland Mansion program incorporates hotel guest services, food & beverage venues and required back-of-house, and corporate offices and a meeting room. Guest suites will be on levels two and three.

The Mansion Addition will reconstruct the former at-grade rear porch while it connects to the historic Mansion and adjacent new Spa Château building at both ground and lower, garden levels. The program includes the new grade-level enclosed porch, glass conservatory restaurant and kitchen and a function room. At the lower level, the Mansion Addition consists of seven "Grotto" guest suites, a private wine tasting room, food & beverage support, storage, vertical circulation and mechanical spaces. Buried at the garden-level, the "Grotto" suites are integrated within the landscape with fully vegetated roofs with direct Monet Pond Garden access.

For water and sewer use purposes, the Mansion will consist of 7 grotto guest rooms, 5 upper floor guest rooms, a 125 seat restaurant with a 20 seat within a bar area and a 50-person multifunction room.

2. New Château Hotel & Spa Building

The Spa Château building has a full-service garden-level health spa with women's and men's lockers, changing rooms and showers; massage and facial treatment rooms; nail

salon; state-of-the art fitness center with private and group fitness programs; interior and exterior terrace resting areas; staff support, storage, and mechanical space.

For water and sewer use purposes, there are three levels of guest rooms located above the spa for a total of 63 rooms. The Spa will have 20 treatment areas.

3. Cottages

Five (5) new cottages for guest accommodations will be constructed south of the renovated Mansion building, along the west side of Mirbeau Lane. Each cottage will consist of a 2-bedrooms with a kitchenette.

4. Employees

The Mirbeau Inn & Spa is expected to have up to 60 employees on the premises at any one time per shift.

5. Maintenance Garage & Offices

A new building will be constructed for maintenance and office space associated with the Mirbeau Inn & Spa. The building will be located west of the north parking area. Design flows associated with the employees within this building are included within the employee flow calculations. The building sits lower than the proposed on-site sewer system. Therefore, a sewage pump station will be required to pump sewage from the building to the on-site sewage conveyance system.

Future Phases

1. Resort Rental Lodging

Nineteen (19) resort rental lodging buildings are proposed for a future phase of the project along a subdivided area on the southern boundary of the existing lot. The bedroom distribution will be 2-3 bedroom units. This future phase is in the early planning stages, and therefore, not included within the water and sewer calculations of this report.

2. Future Resort Farm

The future resort farm will consist of a vegetable garden for hotel and spa use, as well as other growing areas for sunflowers and other flora. There will be a barn for storage of equipment as well as a greenhouse. There will be one bathroom proposed within the barn. The bathroom will only be used by Mirbeau employees; therefore, there is no additional flow associated with farm.

3. Tioranda School Renovation and Recreation Facilities Area

The former Tioranda school building located at the southwest corner of the site will be renovated in the future. The outside grounds will be improved to provide walking paths, and outdoor recreation. . This future phase is in the early planning stages, and therefore, not included within the water and sewer calculations of this report.

4. North and South Gate Houses

The north and south Gate houses will be renovated in the future. This future phase is in the early planning stages, and therefore, not included within the water and sewer calculations of this report.

2.1 Design Standards

Water for the project will be obtained by making a connection to the existing City of Beacon water supply system. Wastewater generated by the project will be disposed of by means of a new sewer main that will convey wastewater flows to the existing City of Beacon sewer collection system.

This report summarizes all data and information necessary for the design of the water and sewer infrastructure that will serve the project.

The project has been designed in accordance with the following:

- New York State Department of Health (NYSDOH) Standards for Individual Water Supply and Individual Sewage Treatment Systems Appendix 75-A
- Dutchess County Department of Health (DCDOH) Water and Wastewater Systems Design and Construction Standards
- New York State Department of Environmental Conservation (NYSDEC) "Design Standards for Wastewater Treatment Works" for Intermediate Sized Sewage Facilities.
- Recommended Standards For Wastewater Facilities (Ten States Standards)

3.0 ESTIMATED WATER & WASTEWATER QUANTITIES

Water and wastewater generation rates are taken from the NYSDEC "Design Standards for Intermediate Sized Wastewater Treatment Systems, 2014 Edition"

Flow Component	# of Units	Flow Rate per Unit - gallons per day (gpd)	Total Component Flow (gpd)	Total Reduced Component Flow (gpd)
Hotel Rooms	80	110	8,800[1]	8,800[1]
Cottages	5 (2-bedroom units)	220	1,100[1]	1,100[1]
Spa Stations	20	190[2]	3,800	3,800
Meeting Hall Seats	50	10	500	400
Restaurant Seats	125	35	4,375	3,500
Bar Seats	20	20	400	320
Employees[3]	70	15	1,050	840

Total Flow with 20% Reduction for Water Saving Fixtures: 18,760 gpd[4]

[1] The 20% reduction is already figured into the flowrate. No further reduction can be taken.

[2] Flowrate is based upon usage at existing Mirbeau Spa locations. There is no NYSDEC comparable value.

[3] Employee count is base upon 70 8-hour employee shifts per day.

[4] 20% reduction taken for Meeting Hall, Restaurant, Bar and employees only.

3.1 Existing City Sewer Infrastructure

The City's Water and Sewer Superintendent has stated that the existing water and sewer systems have sufficient capacity for the proposed project per a letter dated November 17, 2021. The sewage treatment plant has capacity for up to 6 million gallons/day (MGD) and is currently operating at 3.2 MGD to 3.5 MGD. In the past, there have been reported sewer surcharges during unique storm events on the South Sewer Interceptor (SSI) located at the Fishkill Creek

near the intersection of South Avenue and Tioronda Avenue. Specifically, this would occur during significant springtime storm events when the ground is saturated. Occasionally in the past, during these storm events, the sewage flow overtops the manhole cover and discharges untreated sewage/water into the Fishkill Creek. This is likely due to infiltration and inflow (I&I) problems upstream. This sewer trunk line receives flow from much of Beacon and a large portion of the Town of Fishkill.

Much of the City of Beacon's sewer infrastructure is old and has many old sewer service connections from buildings and residential homes. In addition, there are likely illegal stormwater and sump pump discharges to the city sewer from both commercial and residential properties. As such, during these storm events, and the ground being saturated, the City's sewer system is overburdened with these additional flows. The City has been working for some time smoke testing the sewer lines in order to identify where illicit connections are. Whenever an illicit connection has been found involving City-owned stormwater/roof leader/sump pump connections to the sewer system, they have been eliminated. The City has also been mandating that these types of connections be eliminated from any existing developed property seeking a building permit. The City continues to work toward eliminating all illicit connections, and infiltration problems with their existing infrastructure. Before the improvements began, the City sewer plant would receive upwards of 12 MGD during storm events. Currently, the City's efforts in correcting the problem have reduced the flow during storm events to between 6 and 8 MGD. The City has been working extensively to eliminate I&I problems within it's sewer system through Capital Improvement Projects, and has recently reconstructed the dividing weir at the plant where the North Interceptor and the South Interceptor sewers meet at the plant.

3.2 Inflow and Infiltration on the Site

There are four existing buildings on the Mirbeau project that are proposed to remain. These buildings were built in the 1800's and have old water and sewer service connections. The sewer service connections likely experience infiltration problems during times when the ground is saturated. An infiltration inflow will be conducted to determine if the building's roof leaders are directly connected to the City's sewer system. As part of this project, all of the existing water and sewer service lines will be removed and replaced. Specifically, all existing sewer lines will be removed and capped at the ROW or removed completely and sealed at the manhole. All existing roof leaders that are connected to the sewer system will be disconnected from the sewer system and re-directed to the stormwater management system. In doing so, all on-site I&I problems that currently contribute to the City-wide I&I problem will be eliminated. There is also a long sewer service line located just west of the Mansion that ties directly into to the City's South Interceptor sewer main that runs through the west end of the property from north to south. This line will be abandoned and disconnected from the sewer manhole that it connects to and sealed at the manhole.

This section of the report will be updated with the on-site I&I data once completed.

4.0 WATER SUPPLY

As shown above, the project is expected to require 18,760 gallons of water per day. The anticipated increase in daily water demand is readily available per the November 17, 2021 letter from the City's Water and Sewer Superintendent. According to the 2021 City of Beacon Annual Water Quality Report, the entire water district currently consumes an average of 2.28 million gallons per day (MGD). The total capacity of the water supply system is approximately 4 MGD. Therefore, after full build-out, the City's water supply will still have an excess of 1.7 MGD capacity.

Approximately 2,600 lf of 8" diameter class 52 ductile iron private water main will be installed to serve the project. There is an existing 12" ductile iron (DI) water main located within 9D and another 12" DI water main located within Grandview Avenue. Both water mains will be connected with internal private watermain system forming a lopped connection. Meter pits will be required at each connection point as the internal system will remain private.

Water supply to each building will be provided by the internal water main with the exception of the north & south gate houses and the Tioranda School. Individual connections to these buildings will be via new connections to existing City water mains. Individual meters and backflow prevention will be provided at all buildings.

The new water main shall have gate valves and hydrants as shown on the plan set. Seven (7) gate valves and seven (7) hydrants are proposed. The new water main shall be disinfected and pressure tested in accordance with the requirements on the subdivision plan set.

There are several individual water service lines proposed from the proposed water main to serve each building. The mansion and the Chateau hotel wing will receive 6" class 52 ductile iron service lines to provide adequate water for sprinkler systems. The maintenance garage, and 5 cottages will received 1" K-copper water service lines. If it is determined that the Cottages shall be sprinkled, larger service connections will be provided. The water service lines for suppression will split within the buildings for domestic service. A minimum pressure of 20 pounds per square inch shall be maintained at the furthest point in the distribution.

5.0 SEWAGE CONVEYANCE

The project is expected to generate 18,760 gallons of wastewater per day. Per the November 17, 2021 City of Beacon Sewer Superintendent, the City's existing sewer infrastructure and sewer treatment plant have sufficient capacity to handle the anticipated increase in daily sewage load. An extension of the City's sewer main is proposed to collect the sewage generated by the project and convey it to the City's sewer collection system.

The City sewer main will be extended up Grandview Avenue to a proposed manhole in front of the south Gate House. From there, the sewer will remain private into the site. Approximately 420 lf of 8" SDR 35 PVC sewer main will be extended from a City manhole located near the Tioranda School up to the proposed manhole at the south Gate House. The private 8" sewer main

will be continued into the property to convey the on-site sewage to the City's municipal main. Approximately 2,600 LF of 8" SDR 35 private sewer main will be constructed on site.

Most of the site's sewer service connections are old and experience infiltration and inflow (I&I) problems. Several of the existing building's roof drains are tied into the sewer service connections. During rain storms, the flow into the City's sewer mains increases dramatically, which is a common problem in cities with old buildings. The increase in flow adds unnecessary strain to the existing sewer mains and sewer plant. Therefore, new sewer service connections will be provided at all of the buildings and all existing service connections on site will be disconnected from the City's mains and capped in place or removed. In addition, all roof drains will be disconnected from the building sewer and re-directed to a storm water management system. This will eliminate (I&I) problems that currently occur on site; thus reducing I&I flow surges to the City's municipal system during rain storms.

Both the Mansion and Chateau hotel will be provided with a new 6" SDR 35 PVC sewer service connection to the private on-site sewer main. All other buildings will be provided with 4" SDR 35 PVC service lines. Minimum pitch on the 4" individual sewer laterals shall be ¼" per foot. Raw line inverts that will provide for acceptable pitch from the proposed buildings to the sewer collection system have been provided on the plans. The minimum slope on the 6" sewer lines shall be 1.0%.

Eighteen (18) sanitary manholes are proposed at changes of direction and pipe slope. Three (3) of the manholes will be part of the City sewer extension and the remaining fifteen will remain private. The minimum slope on 8-inch sewer main shall be 0.40%. Sewer mains shall be laid in straight alignment. The sewer main shall be tested for alignment and exfiltration and the sanitary manholes shall be hydrostatically tested in accordance with the requirements on the subdivision plan set.

5.1 Grease Trap

Based upon the proposed restaurant with the Mansion which will serve food, a grease trap is recommended. An external buried grease trap will be installed just outside the service entrance to the Mansion at its northwestern corner. A 2,000-gallon heavy-duty grease trap is provided on the plans once the internal plumbing is known, the grease trap will be sized in accordance with Table D-1 of the NYSDEC design manual, and provided within this report.

5.2 Forcemain

A 2" flexible HDPE DR-11 (128 psi rating) forcemain will be used to transmit the sewer effluent from the pump chamber to the on-site sewer main. Flexible HDPE is chosen because it can be flexed with 25' radius sweeps instead of using fittings where the forcemain alignment changes directions. The 2" HPDE flex pipe is available in 500' lengths thereby reducing the need for couplings. There will be a weep hole provided within pump chamber, however the forcemain will be placed at a minimum of 4 ½ feet below grade. SDR 21 PVC force main may be used as a

substitute for HDPE. Pump calculations along with head-loss calculations will be provided within an updated report in the future.

5.3 Pump Chamber for Cabins

The Maintenance Garage & Offices will require a pump to convey its sewer to the on-site sewer main. The sewer pump station will be located just outside the south end of the garage within a 1,500-gallon heavy-duty septic tank.

The pumps will be single phase 230 volt with an electrical disconnect box located at the control panel. The control panel shall be located within the Maintenance Garage. All electrical equipment will be designed and installed to comply with the National Electric Code for Class I, Group C or D, Division I locations.

Two days design flow storage is provided above the high water alarm in case of power failure. Three (3) float switches are to be installed: low-level pump off alarm, high-level pump on alarm, and high-level alarm/lag pump on. The alarms shall be located on the pump station in a clearly visible and audible location. Sizing calculations will be provided in the future updated report.

PROJECT INFORMATION:

PARCEL OWNER:	THE MIRBEAU COMPANIES, LLC., 433 BROADWAY STE 203, SARATOGA SPRINGS NY 12866
PROJECT ENGINEER:	HUDSON LAND DESIGN P.C., 174 MAIN STREET, BEACON NY 12508
PARCEL LOCATION:	7 CRAIG HOUSE LANE, BEACON NY 12508
TAX PARCEL ID:	6054-13-001258 (±64.39 ACRES) & 6054-17-047180 (±2.24 ACRES)
PARCEL AREA:	±66.63-ACRES TOTAL
WATER SUPPLY:	CITY OF BEACON MUNICIPAL WATER
SEWAGE DISPOSAL:	CITY OF BEACON MUNICIPAL SEWER

SCHEDULE OF REGULATIONS (R1-80 ZONING DISTRICT & HDLO ZONE) AND LOT CONFORMANCE TABLE:

PARAMETER	REQUIREMENT (SEE NOTE)	EXISTING LOT	LOT 1	LOT 2
LOT AREA:	80,000 SQFT MIN./UNIT	±2,804,828 SQFT	±2,499,841.5 SQFT	±304,986.5 SQFT
LOT WIDTH:	150 FEET MINIMUM	±2,084.45 FEET	±2,084.45 FEET	±403.1 FEET
LOT DEPTH:	200 FEET MINIMUM	±1,103.91 FEET	±1,103.91 FEET	±753.4 FEET

LEGEND:

- EXISTING PROPERTY LINE
- ADJOINING PROPERTY LINE
- EXISTING EASEMENT LINE
- EXISTING STREAM
- EXISTING WETLAND BOUNDARY
- 100' WETLAND BUFFER
- 100 YEAR FLOOD PLAINE
- 250 EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- EXISTING TREE LINE
- OHW EXISTING OVER HEAD WIRE
- EXISTING UTILITY POLE
- SS EXISTING SEWER SERVICE LINE
- EXISTING SEWER LINE
- S EXISTING SEWER MANHOLE
- CO EXISTING SEWER CLEAN OUT
- W EXISTING WATER LINE
- WS EXISTING WATER SERVICE LINE
- EXISTING WELL
- Wv EXISTING WATER VALVE
- EXISTING STORM WATER LINE
- CB 50 EXISTING CATCH BASIN
- PROPOSED PROPERTY LINE

MAP REFERENCES:

1. "UPDATED TOPOGRAPHIC SURVEY PREPARED OF 3 MONELL PLACE" DATED NOVEMBER 5, 2020 AS PREPARED BY TOM E. CERCHIARA, LAND SURVEYOR, N.Y.S. LICENSE NO. 50732.


N/F SCENIC HUDSON LAND TRUST INC. 5954-16-830270
N/F ALZAMORA, EMIL 5954-20-840230
N/F DIBRITA, ANTHONY 5954-20-828209
N/F MCGUIRE, JENNIFER 5954-20-852196
N/F BIANCHI, ROCCO 5954-20-866178
N/F STRAUS, KENNETH 5954-20-881147
N/F MCNIFF, JOHN 5954-20-910139
N/F TONYES, VINCENT 5954-20-926118
N/F OWENS, HAROLD 5954-20-957123
N/F FLEMING, STEPHEN 6054-17-025161
N/F SISTERS PROPERTIES LLC 5954-16-894286
N/F SCENIC HUDSON LAND TRUST INC. 5954-16-910293
N/F SISTERS PROPERTIES LLC 5954-16-951357
N/F N.Y.S. 6054-13-126252
N/F ROBINSON, AMANDA 5954-16-992372
N/F RODRIGUEZ, ROBERT 6054-13-013367
N/F ELWOOD, ROBERT 6054-13-022364
N/F MILLER, KIAH 6054-13-030061
N/F GEORGE, MATHEW 6054-13-037356
N/F JORDAN, HUBERT 6054-13-045352
N/F SPARLING, ANDREW 6054-13-055348
N/F MACLEAN, ROBERTA 6054-13-063342
N/F MACLEAN, ROBERTA 6054-13-063342
N/F BARRY, PATRICK 6054-13-084335
SOUTH AVENUE
NEW YORK STATE ROUTE 9D
A.K.A. HOWLAND AVENUE
TRACY DRIVE
LOT 2 = 304,986 SQFT / 7.0 AC
LOT 1 = 2,499,841.5 SQFT / 57.4 AC
Delineated wetland boundary
Asphalt drive
12" cmp into 18" blcr culvert
Drainage channel
Stone wall
N 72° 43' 40" W 59.43'
N 81° 16' 30" W 50.29'
N 59° 48' 00" W 64.83'
N 50° 14' 00" W 81.81'
N 37° 30' 30" W 75.29'
S 37° 22' 20" E 98.90'
N 64° 53' 50" E 223.10'
N 25° 32' 00" E 361.73'
N 45° 39' 20" E 235.65'
PROPERTY N 26° 15' 00" E 304.24'
N 7° 34' 50" E 214.54'
N 23° 25' 08" E 275.05'
N 50° 51' 10" W 104.02'
S 47° 07' 45" W 506.66'
N 29° 26' 23" E 515.11'
L=111.78' R=104.00' Δ=61° 34' 55"
L=55.28' R=96.00' Δ=32° 59' 25"
N 74° 12' 30" W 72.95'
S 24° 20' 20" W 396.50'
S 46° 27' 20" W 150.80'
S 32° 18' 20" W 367.76'
S 30° 27' 20" W 87.60'
S 28° 38' 20" W 266.80'
S 27° 40' 20" W 133.00'
S 26° 59' 20" W 534.20'
S 25° 48' 20" W 379.20'
N 28° 38' 20" E 149.62'
S 27° 40' 20" W 58.95'
S 35° 35' 50" W 184.99'
S 20° 38' 40" W 146.20'
S 87° 53' 00" W 138.38'
S 87° 53' 00" W 126.28'
S 87° 53' 00" W 12.33'
S 87° 53' 00" W 76.41'
N 87° 53' 00" E 76.41'
N 87° 53' 00" E 126.28'
N 87° 53' 00" E 12.33'
N 87° 53' 00" E 138.38'
N 87° 53' 00" E 146.20'
N 87° 53' 00" E 506.66'
N 87° 53' 00" E 545.51'
N 87° 53' 00" E 552.06'
N 87° 53' 00" E 552.06'
N 87° 53' 00" E 545.51'
N 87° 53' 00" E 506.66'
N 87° 53' 00" E 146.20'
N 87° 53' 00" E 138.38'
N 87° 53' 00" E 76.41'
N 87° 53' 00" E 12.33'
N 87° 53' 00" E 126.28'
N 87° 53' 00" E 76.41'
N 87° 53' 00" E 12.33'
N 87° 53' 00" E 126.28

APPLICATION FOR SITE PLAN & SPECIAL USE PERMIT

MIRBEAU BEACON INN & SPA

7 CRAIG HOUSE LANE
CITY OF BEACON, DUTCHESS COUNTY, NEW YORK
TAX ID: 6054-13-001258
LOT AREA: ±64.35
R1-80 ZONING DISTRICT

OWNER & APPLICANT:
MIRBEAU BEACON, LLC;
433 BROADWAY STE 203,
SARATOGA SPRINGS, NY 12866



AREA MAP SCALE: 1" = 500'

SITE PLAN DRAWING INDEX:

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SHEET 2: EXISTING CONDITIONS AND REMOVALS PLAN: XC-1
SHEET 3: OVERALL MASTER PLAN: SP-1
SHEET 4: SITE PLAN - NORTH: SP-2
SHEET 5: SITE PLAN - SOUTH: SP-3
SHEET 6: SITE PLAN - SOUTHWEST: SP-4
SHEET 7: GRADING & UTILITY PLAN - NORTH: GU-1
SHEET 8: GRADING & UTILITY PLAN - SOUTH: GU-2
SHEET 9: GRADING & UTILITY PLAN - SOUTHWEST GU-3
SHEET 10: EROSION & SEDIMENT CONTROL PLAN - NORTH: ESC-1
SHEET 11: EROSION & SEDIMENT CONTROL PLAN - SOUTH: ESC-2
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SHEET 15: PROFILES: PR-4
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SHEET 17: DETAILS: CD-2
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SHEET 20: TREE REMOVAL & PROTECTION PLAN - NORTH: TP-1
SHEET 21: TREE REMOVAL & PROTECTION PLAN - SOUTH: TP-2
SHEET 22: PRELIMINARY PLANTING PLAN - NORTH: LL-2
SHEET 23: PRELIMINARY PLANTING PLAN - SOUTH: LL-3
SHEET 24: PRELIMINARY PLANTING PLAN - HOTEL/SPA AREA: LL-4
SHEET 25: PRELIMINARY PLANTING PLAN - PARKING: LL-5
SHEET 26: PRELIMINARY PLANTING PLAN - SOUTH/COTTAGES: LL-6
SHEET 27: SITE LIGHTING PLAN - NORTH: LP-2
SHEET 28: SITE LIGHTING PLAN - SOUTH: LP-3

PROJECT ENGINEER:
HUDSON LAND DESIGN
PROFESSIONAL ENGINEERING P.C.
174 MAIN STREET
BEACON, NEW YORK 12508
PH: 845-440-6926
F: 845-440-6637

PROJECT ARCHITECT:
ARROWSTREET
10 POST OFFICE SQUARE
SUITE 700N
BOSTON, MA 02109
PH: 617-623-5555

PROJECT LANDSCAPE ARCHITECT:
THE LRC GROUP
85 CIVIC CENTER PLAZA
SUITE 204
POUGHKEEPSIE, NY 12601
PH: 845-243-2880

PROJECT WETLAND & WIDLIFE BIOLOGIST:
ECOLOGICAL SOLUTIONS, LLC
121 LEON STOCKER DRIVE
STRATTON, VT 05360
(203) 910-4716

PROJECT SURVEYOR:
BADEY & WATSON
SURVEYING & ENGINEERING D.P.C.
3063 U.S. 9
COLD SPRING, NY 10516
PH: 845-265-9217

PROJECT TRAFFIC CONSULTANT:
COLLIERS ENGINEERING & DESIGN P.C.
400 COLUMBUS AVENUE,
SUITE 108E
VALHALLA, NY 10595
PH: 914-347-7500

PROJECT ATTORNEY:
BERLANDI NUSSBAUM & REITZAS LLP.
527 ROUTE 22, SUITE #2
PAWLING, NY 12564
PH: 212-804-6329

OWNER'S CONSENT:
THE UNDERSIGNED OWNER OF THE PROPERTY HEREON STATES THAT HE IS FAMILIAR WITH THIS MAP, ITS CONTENTS AND ITS LEGENDS AND HEREBY CONSENTS TO ALL SAID TERMS AND CONDITIONS AS STATED HEREON.

_____ _____
MIRBEAU BEACON, LLC DATE

APPROVED BY RESOLUTION OF THE PLANNING BOARD OF THE CITY OF BEACON, NEW YORK, ON THE

_____ DAY OF _____, 20_____ SUBJECT TO ALL REQUIREMENTS AND CONDITIONS OF SAID RESOLUTION. ANY CHANGE, ERASURE, MODIFICATION OR REVISION OF THIS PLAT, AS APPROVED, SHALL VOID THIS APPROVAL.

SIGNED THIS _____ DAY OF _____, 20_____ BY

_____ CHAIRMAN

_____ SECRETARY

IN ABSENCE OF THE CHAIRMAN OR SECRETARY, THE ACTING CHAIRMAN OR ACTING SECRETARY RESPECTIVELY MAY SIGN IN THIS PLACE.

Dig Safely. New York. Call 811 before you dig

DRAWN BY: CMB				CHECKED BY: MAB			
REVISIONS:				REVISIONS:			
NO.	DATE	DESCRIPTION	BY	NO.	DATE	DESCRIPTION	BY
1	5/25/22	PER PLANNING BOARD COMMENTS	CMB				

ARROWSTREET
ARCHITECTURE & DESIGN
10 POST OFFICE SQUARE
SUITE 700N
BOSTON MA 02109
617.623.5555
arrowstreet.com

Mirbeau INN & SPA

LANDSCAPE ARCHITECTS:
LRC GROUP
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Cromwell, CT 06416
Tel: 860.635.2877
www.lrcconsult.com
LRC Engineering & Surveying, DPC
LRC Engineering & Surveying, LLC
LRC Environmental Services, Inc.
LRC Proj. No. 21-2809
• Landscape Architecture
• Civil Engineering
• Environmental Services
• Land Surveying
• Land Planning

HUDSON LAND DESIGN

STATE OF NEW YORK MICHAEL A. BERLANDI 084455 LICENSED PROFESSIONAL ENGINEER
SEAL

HUDSON LAND DESIGN
PROFESSIONAL ENGINEERING P.C.
174 MAIN ST., BEACON, NEW YORK 12508
13 CHAMBERS ST., NEWBURGH, NEW YORK 12550
PH: 845-440-6926
F: 845-440-6637

COVER SHEET

MIRBEAU BEACON

7 CRAIG HOUSE LANE
CITY OF BEACON
DUTCHESS COUNTY, NEW YORK
TAX ID: 6054-13-001258

JOB #:	2021:051
DATE:	3/29/2022
SCALE:	AS SHOWN
TITLE:	XC-1
SHEET:	1 OF 28

UNAUTHORIZED ALTERATIONS OR ADDITIONS TO THIS DRAWING IS A VIOLATION OF SECTION 7209.2 OF THE NEW YORK EDUCATION LAW



LEGEND:

- EXISTING PROPERTY LINE
- ADJOINING PROPERTY LINE
- EXISTING EASEMENT LINE
- EXISTING STREAM
- EXISTING WETLAND BOUNDARY
- 100' WETLAND BUFFER
- 100 YEAR FLOOD PLANE
- 250 EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- EXISTING TREE LINE
- OHW EXISTING OVER HEAD WIRE
- EXISTING UTILITY POLE
- SS EXISTING SEWER SERVICE LINE
- S EXISTING SEWER LINE
- EXISTING SEWER MANHOLE
- SCO EXISTING SEWER CLEAN OUT
- W EXISTING WATER LINE
- WS EXISTING WATER SERVICE LINE
- EXISTING WELL
- EXISTING HYDRANT
- EXISTING WATER VALVE
- EXISTING STORM WATER LINE
- CB 50 EXISTING CATCH BASIN

PROJECT INFORMATION:

PARCEL OWNER:	THE MIRBEAU COMPANIES, LLC., 433 BROADWAY STE 203, SARATOGA SPRINGS NY 12866
PROJECT ENGINEER:	HUDSON LAND DESIGN P.C., 174 MAIN STREET, BEACON NY 12508
PARCEL LOCATION:	7 CRAIG HOUSE LANE, BEACON NY 12508
TAX PARCEL ID:	6054-13-001258 (±64.39 ACRES) & 6054-17-047180 (±2.24 ACRES)
PARCEL AREA:	±66.63-ACRES TOTAL
WATER SUPPLY:	CITY OF BEACON MUNICIPAL WATER
SEWAGE DISPOSAL:	CITY OF BEACON MUNICIPAL SEWER

MAP REFERENCES:

1. "TOPOGRAPHIC MAP PREPARED FOR MIRBEAU INN & SPA RHINEBECK" DATED OCTOBER 21, 2003 AS PREPARED BY BADEY & WATSON SURVEYING & ENGINEERING D.P.C., N.Y.S. LICENSE NO. 48167 AND REVISED ON MARCH 17, 2022.

SURVEY NOTES:

1. COPYRIGHT "2003 & 2022" BY BADEY & WATSON, SURVEYING & ENGINEERING, D.P.C. ALL RIGHTS RESERVED. UNAUTHORIZED DUPLICATION IS A VIOLATION OF APPLICABLE LAWS.
2. UNAUTHORIZED ALTERATION OR ADDITION TO A DOCUMENT PREPARED BY A LICENSED LAND SURVEYOR IS A VIOLATION OF SECTION 7209 , SUB-DIVISION 2 OF THE NEW YORK STATE EDUCATION LAW.
3. THE TOPOGRAPHIC DATA HEREON WAS COMPILED PHOTOGRAMMETRICALLY FROM AERIAL PHOTOGRAPHS DATED APRIL 14, 2003. THE PHOTO SCALE WAS 1 INCH TO 500 FEET. THE COMPILATION SCALE WAS 1 INCH TO 40 FEET.
4. THE MERIDIAN AND COORDINATE VALUES HEREON REFER TO THE NEW YORK STATE COORDINATE SYSTEM, EAST ZONE (NAVD-1983).
5. THE VERTICAL DATUM HEREON IS THE NORTH AMERICAN VERTICAL DATUM OF 1988.
6. PROPERTY LINE TAKEN FROM 2003 SURVEY BY PETER A. HUSTIS, L.S. IT IS NOT THE PRODUCT OF A SURVEY BY BADEY & WATSON SURVEYING & ENGINEERING, P.C.
7. REVISED ON MARCH 17, 2022 AS FOLLOWS
   A. UPDATED LOGO,
   B. ADDED GRAPHIC SCALE,
   C. REMOVED 2003 WETLANDS BOUNDARY FLAGGING.
   C. ADDED WETLAND FLAGGING BY MICHAEL NOWICKI AND RELATED DATA.
   D. VERIFIED MH273 LOCATION AND INVERTS, AND SEWER LINE NORTH ALONG SOUTH AVENUE, AND RELATED DATA.
8. WETLANDS FLAGS A29, B13 AND H11 WERE NOT FOUND IN FIELD. APPROXIMATE LOCATION BASED ON SKETCH BY MICHAEL NOWICKI.

APPROVED BY RESOLUTION OF THE PLANNING BOARD OF THE CITY OF BEACON, NEW YORK, ON THE

_____ DAY OF _____, 20_____, SUBJECT TO ALL REQUIREMENTS AND CONDITIONS OF SAID RESOLUTION. ANY CHANGE, ERASURE, MODIFICATION OR REVISION OF THIS PLAT, AS APPROVED, SHALL VOID THIS APPROVAL.

SIGNED THIS _____ DAY OF _____, 20_____ BY

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_____ SECRETARY

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EXISTING CONDITIONS & REMOVALS PLAN
MIRBEAU BEACON

7 CRAIG HOUSE LANE
CITY OF BEACON
DUTCHESS COUNTY, NEW YORK
TAX ID: 6054-13-001258

JOB #:	2021:051
DATE:	3/29/2022
SCALE:	1" = 100'
TITLE:	XC-1
SHEET:	2 OF 28

UNAUTHORIZED ALTERATIONS OR ADDITIONS TO THIS DRAWING IS A VIOLATION OF SECTION 7209.2 OF THE NEW YORK EDUCATION LAW

SCHEDULE OF REGULATIONS (R1–80 ZONING DISTRICT & HDLO ZONE) AND LOT CONFORMANCE TABLE:

PARAMETER	REQUIREMENT (SEE NOTE)	EXISTING LOT	EX. MANSION	EX. S GATE HOUSE	EX. TIORANDA SCH.	EX. BENNET HSE	PROP. HOTEL	PROP. MAINT. BLG.
LOT AREA:	80,000 SQFT MIN./UNIT	±2,804,828 SQFT						
LOT WIDTH:	150 FEET MINIMUM	±2,084.45 FEET						
LOT DEPTH:	200 FEET MINIMUM	±1,103.91 FEET						
YARD SETBACKS:								
FRONT YARD:	50 FEET		±189.5 FEET	±4.1 FEET*	±50.1 FEET	±5.4 FEET*	±108.2 FEET	±476.8 FEET
SIDE YARD:	30 FEET		±783.0 FEET	±745.8 FEET	±226.8 FEET	±521.8 FEET	±806.1 FEET	±754.24 FEET
REAR YARD:	50 FEET MINIMUM		±731.6 FEET	±745.8 FEET	±296.3 FEET	±1042.4 FEET	±958.8 FEET	±568.8 FEET
MAX. BUILDING HEIGHT:	35 FT, 2.5 STORIES		±38 FEET*	EXISTING	EXISTING	EXISTING	±35 FEET	±25 FEET
MAX. BUILDING COVERAGE:	10% MAX.	±1.3%						

*EXISTING NON-CONFORMING

NOTES:

1. THE HISTORIC DISTRICT AND LANDMARK OVERLAY (HDLO) ZONE OVERLAYS THE UNDERLYING R1–80 ZONE APPLICABLE TO SINGLE–FAMILY RESIDENTIAL DEVELOPMENT. THE PLANNING BOARD HAS THE AUTHORITY TO APPROVE BUILDING SIZE AND BUILDING CONFIGURATION FOR A PROJECT WITHIN THE HDLO AS PART OF IT'S SPECIAL PERMIT REVIEW.

PARKING CONFORMANCE TABLE:

LAND USE	CODE REQUIREMENT	REQUIRED
HOTEL (75 ROOMS)	1 SPACE/ROOM	75 SPACES
COTTAGES (5)	2 SPACES/COTTAGE	10 SPACES
RESTAURANT (110 SEATS/2,364 SQFT)	1 SPACE/3 PERSONS	37 SPACES
	OR	OR
	1 SPACE/150 SQFT GROSS	16 SPACES
	FLR. AREA EXCL. UTILITY AREAS	
SPA (21 ROOMS/6,125 SQFT)	1 SPACE/200 SQFT OF GROSS	31 SPACES
	FLR. AREA EXCL. UTILITY AREAS	
EMPLOYEES (80 AT ANY ONE TIME)	1 SPACE/EMPLOYEE	80 SPACES

TOTAL REQUIRED: 233 SPACES
TOTAL PROVIDED: 251 SPACES

NOTES:

1. PARKING FOR THE COTTAGES IS PROPOSED TO BE PROVIDED AT A RATE OF 2 SPACES PER COTTAGE.
2. 60 EMPLOYEES IS THE ANTICIPATED NUMBER OF EMPLOYEES ONSITE AT ANY ONE TIME TO SERVICE THE HOTEL, RESTAURANT AND SPA AS WELL AS OTHER PORTIONS OF THE PROJECT.
3. SPA SQUARE FOOTAGE INCLUDES ALL PUBLICLY AVAILABLE SPA SPACE. BACK–OF–HOUSE OR SUPPORT SPACE HAS BEEN EXCLUDED FROM THIS CALCULATION.
4. THE FUTURE TIORANDA RECREATION AREA PROVIDES AN ADDITIONAL 38 PARKING SPACES.
5. 7 ADA PARKING SPACES ARE PROVIDED.

LEGEND:

- EXISTING PROPERTY LINE
- ADJOINING PROPERTY LINE
- EXISTING EASEMENT LINE
- EXISTING STREAM
- EXISTING WETLAND BOUNDARY
- 100' WETLAND BUFFER
- 100 YEAR FLOOD PLANE
- 250 — EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- EXISTING TREE LINE
- OHW — EXISTING OVER HEAD WIRE
- EXISTING UTILITY POLE
- SS — EXISTING SEWER SERVICE LINE
- EXISTING SEWER LINE
- EXISTING SEWER MANHOLE
- EXISTING SEWER CLEAN OUT
- WS — EXISTING WATER LINE
- EXISTING WATER SERVICE LINE
- EXISTING WELL
- EXISTING HYDRANT
- EXISTING WATER VALVE
- EXISTING STORM WATER LINE
- CB 50 — EXISTING CATCH BASIN
- PROPOSED PROPERTY LINE
- PROPOSED SET BACK LINE
- 250 — PROPOSED MAJOR CONTOUR
- 252 — PROPOSED MINOR CONTOUR
- PROPOSED EASEMENT
- PROPOSED TREE LINE
- S — PROPOSED SEWER LINE
- SS — PROPOSED SEWER SERVICE LINE
- PROPOSED SEWER MANHOLE
- PROPOSED SEWER CLEAN OUT
- PROPOSED SDS LATERAL
- PROPOSED SDS SOLID LINE
- ST — PROPOSED STORM WATER LINE
- RL — PROPOSED ROOF LEADER LINE
- PROPOSED ROOF LEADER
- W — PROPOSED WATER LINE
- WS — PROPOSED WATER SERVICE LINE
- PROPOSED WELL
- PROPOSED HYDRANT
- PROPOSED WATER SHUT OFF VALVE
- PROPOSED WATER VALVE

MAP REFERENCES:

1. "UPDATED TOPOGRAPHIC SURVEY PREPARED OF 3 MONELL PLACE" DATED NOVEMBER 5, 2020 AS PREPARED BY TOM E. CERCHIARA, LAND SURVEYOR, N.Y.S. LICENSE NO. 50732.

OVERALL MASTER PLAN
SCALE: 1" = 100'
GRAPHIC SCALE
100 0 50 100 200 400
(IN FEET)
1 inch = 100 ft.

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OVERALL MASTER PLAN

MIRBEAU BEACON

7 CRAIG HOUSE LANE
CITY OF BEACON
DUTCHESS COUNTY, NEW YORK
TAX ID: 6054-13-001258

JOB #:	2021:051
DATE:	3/29/2022
SCALE:	1" = 100'
TITLE:	SP-1
SHEET:	3 OF 28

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LEGEND:

- EXISTING PROPERTY LINE
- ADJOINING PROPERTY LINE
- EXISTING EASEMENT LINE
- EXISTING STREAM
- EXISTING WETLAND BOUNDARY
- 100' WETLAND BUFFER
- 100 YEAR FLOOD PLANE
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- EXISTING TREE LINE
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- EXISTING WATER LINE
- EXISTING WATER SERVICE LINE
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- EXISTING HYDRANT
- EXISTING WATER VALVE
- EXISTING STORM WATER LINE
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- PROPOSED PROPERTY LINE
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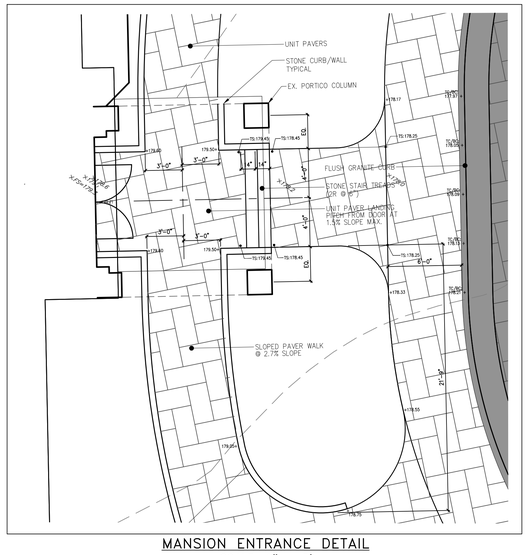
- PROPOSED WELL
- PROPOSED HYDRANT
- PROPOSED WATER SHUT OFF VALVE
- PROPOSED WATER VALVE

SUBDIVIDED PARCEL AREA
LOT 1 = ±2,498,011 SQFT; ±57.35 AC.

Delineated wetland boundary
PROPOSED FUTURE PHASE FENICULAR HILL CLIMB
PROPOSED UNDERGROUND DETENTION AREA
PROPOSED EMPLOYEE PARKING
PROPOSED TRASH ENCLOSURE
PROPOSED MAINTENANCE GARAGE & OFFICES
Garage & Offices
PROPOSED GUIDERAIL TO BE REPLACED IN-KIND (TYP.)
PROPOSED RAIN GARDEN A
PROPOSED SEWER MANHOLE (TYP.)
PROPOSED GUIDERAIL TO BE REPLACED IN-KIND (TYP.)
PROPOSED PAVED WALK (TYP.)
Cottage #3 FF: 148.25
Cottage #2 FF: 150.25
Cottage #1 FF: 152.25
Cottage #4 FF: 139.50
MIRBEAU LANE
END CONCRETE CURB
PROPOSED RETAINING WALL
PROPOSED 5 - COTTAGES
into 18" box culvert
PROPOSED WATER GARDEN AREA
PROPOSED BIO-RETENTION AREA
PROPOSED CHATEAU HOTEL & SPA
PROPOSED CONCRETE SIDEWALK (TYP.)
PROPOSED RENOVATED MANSION WITH ADDITION
PROPOSED CONCRETE WALK (TYP.)
PROPOSED CONCRETE PAVERS (TYP.)
PROPOSED TENT VENUE AREA
Tent Venue Area
PROPOSED SEWER MANHOLE (TYP.)
EXISTING GATE HOUSE "DR. BENNET HOUSE"
PROPOSED CONCRETE CURB (TYP.)
PROPOSED CONCRETE SIDEWALK (TYP.)
PROPOSED CATCH BASIN (TYP.)
PROPOSED ADA ACCESSIBLE AND NO PARKING SIGNS (TYP.)
PROPOSED ADA ACCESSIBLE AND NO PARKING SIGNS (TYP.)
PROPOSED STOP SIGN (TYP.)
PROPOSED STOP SIGN (TYP.)
Drainage channel
AQUA TERRACE
PROPERTY LINE
A.K.A. HOWLAND AVENUE
NEW YORK STATE ROUTE 9D
HOWLAND AVENUE
ROCKS
ROCK
TRAIL

SITE PLAN – NORTH
SCALE: 1" = 40'

GRAPHIC SCALE
40 0 20 40 80 160
(IN FEET)
1 inch = 40 ft.



MANSION ENTRANCE DETAIL
SCALE: 1" = 5'

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SITE PLAN – NORTH

MIRBEAU BEACON

7 CRAIG HOUSE LANE
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DUTCHESS COUNTY, NEW YORK
TAX ID: 6054-13-001258

JOB #:	2021:051
DATE:	3/29/2022
SCALE:	1" = 40'
TITLE:	SP-2
SHEET:	4 OF 28

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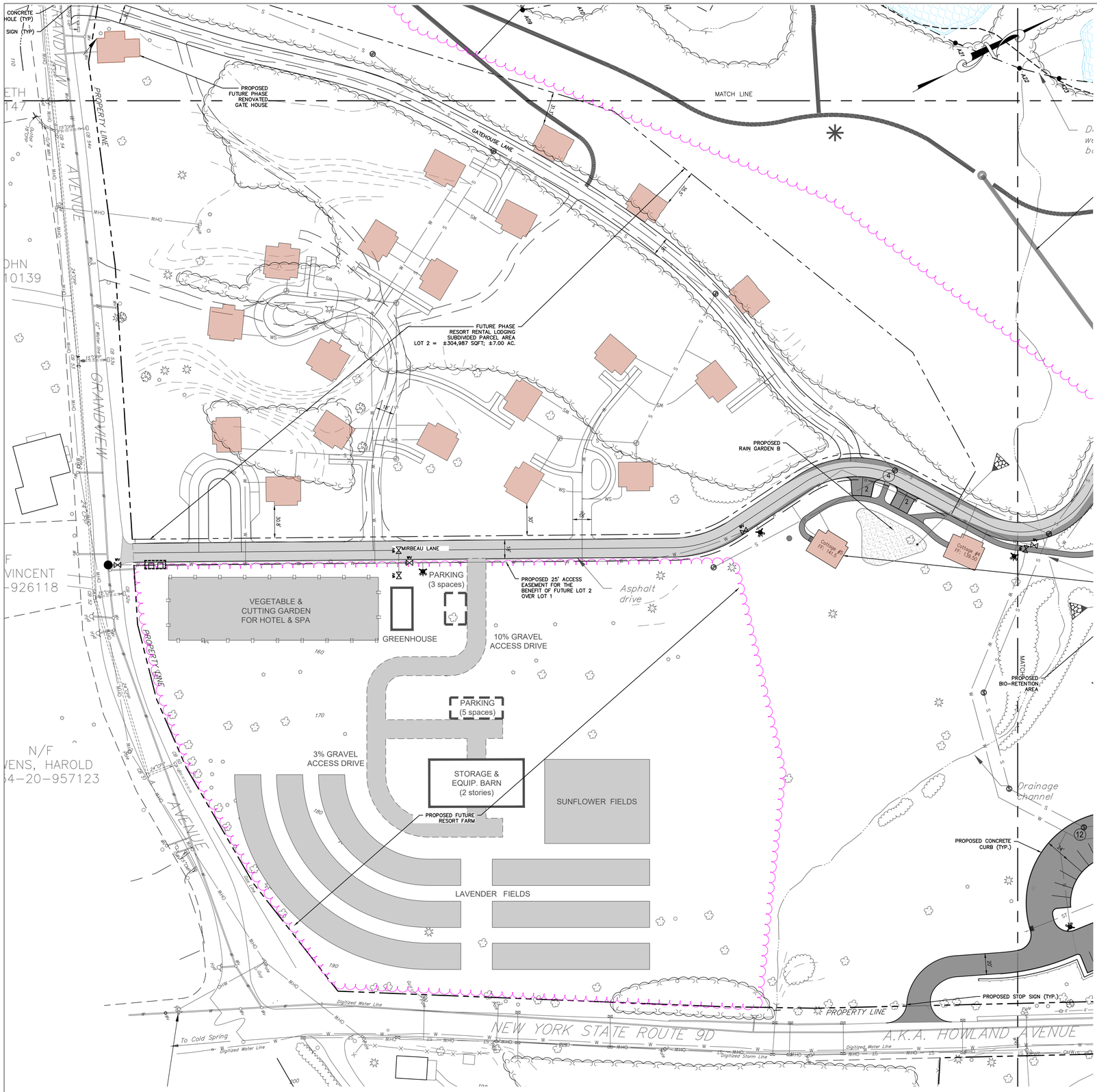

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SITE PLAN – SOUTH
SCALE: 1" = 40'
GRAPHIC SCALE
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(IN FEET)
1 inch = 40 ft.

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SITE PLAN – SOUTH

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TITLE:	SP-3
SHEET:	5 OF 28

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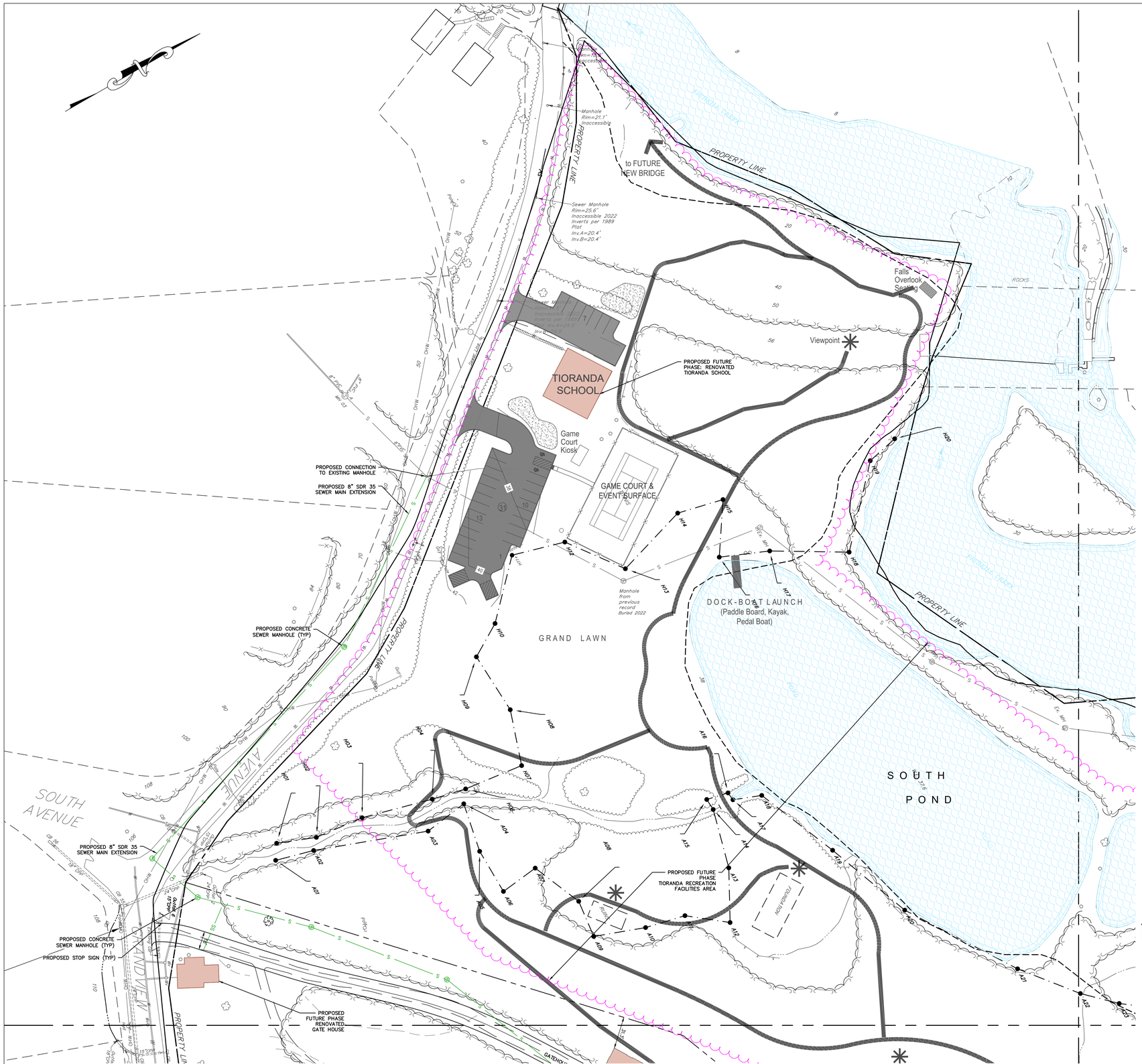

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- PROPOSED WATER VALVE

SITE PLAN – SOUTH WEST

SCALE: 1" = 40'

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
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DUTCHESS COUNTY, NEW YORK
TAX ID: 6054-13-001258

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SHEET:	6 OF 28

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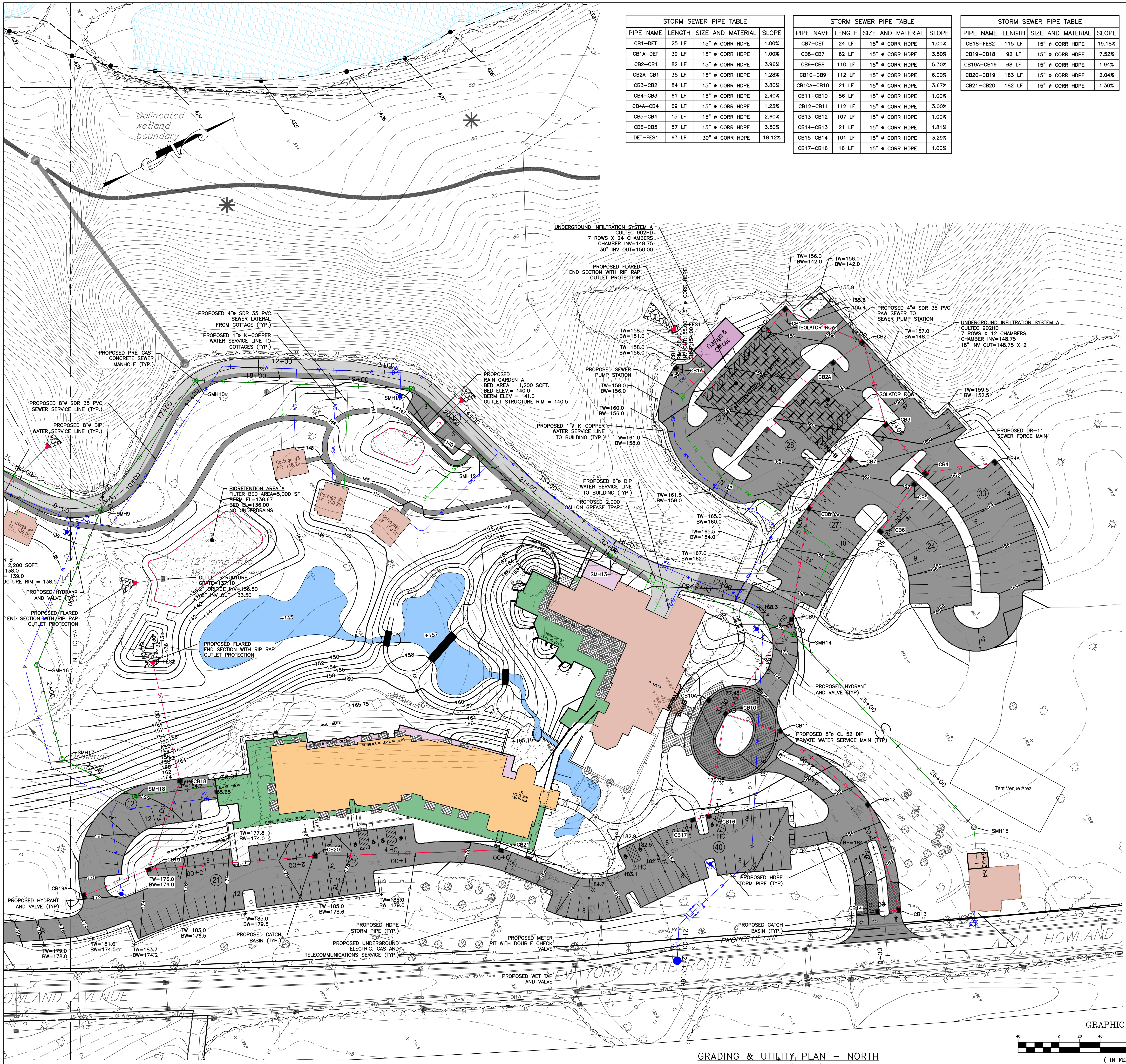

STORM SEWER PIPE TABLE			
PIPE NAME	LENGTH	SIZE AND MATERIAL	SLOPE
CB1–DET	25 LF	15" ø CORR HDPE	1.00%
CB1A–DET	39 LF	15" ø CORR HDPE	1.00%
CB2–CB1	82 LF	15" ø CORR HDPE	3.96%
CB2A–CB1	35 LF	15" ø CORR HDPE	1.28%
CB3–CB2	84 LF	15" ø CORR HDPE	3.80%
CB4–CB3	61 LF	15" ø CORR HDPE	2.40%
CB4A–CB4	69 LF	15" ø CORR HDPE	1.23%
CB5–CB4	15 LF	15" ø CORR HDPE	2.60%
CB6–CB5	57 LF	15" ø CORR HDPE	3.50%
DET–FES1	63 LF	30" ø CORR HDPE	18.12%

STORM SEWER PIPE TABLE			
PIPE NAME	LENGTH	SIZE AND MATERIAL	SLOPE
CB7–DET	24 LF	15" ø CORR HDPE	1.00%
CB8–CB7	62 LF	15" ø CORR HDPE	3.50%
CB9–CB8	110 LF	15" ø CORR HDPE	5.30%
CB10–CB9	112 LF	15" ø CORR HDPE	6.00%
CB10A–CB10	21 LF	15" ø CORR HDPE	3.67%
CB11–CB10	56 LF	15" ø CORR HDPE	1.00%
CB12–CB11	112 LF	15" ø CORR HDPE	3.00%
CB13–CB12	107 LF	15" ø CORR HDPE	1.00%
CB14–CB13	21 LF	15" ø CORR HDPE	1.81%
CB15–CB14	101 LF	15" ø CORR HDPE	3.29%
CB17–CB16	16 LF	15" ø CORR HDPE	1.00%

STORM SEWER PIPE TABLE			
PIPE NAME	LENGTH	SIZE AND MATERIAL	SLOPE
CB18–FES2	115 LF	15" ø CORR HDPE	19.18%
CB19–CB18	92 LF	15" ø CORR HDPE	7.52%
CB19A–CB19	68 LF	15" ø CORR HDPE	1.94%
CB20–CB19	163 LF	15" ø CORR HDPE	2.04%
CB21–CB20	182 LF	15" ø CORR HDPE	1.36%

STORM SEWER STRUCTURE TABLE	
STRUCTURE	STRUCTURE DETAILS
CB1	RIM = 153.00 SUMP = 148.82 CB2–CB1 INV IN = 149.92 CB1–DET INV OUT = 149.82
CB1A	RIM = 158.00 SUMP = 154.00 CB1A–DET INV OUT = 155.00
CB2	RIM = 156.51 SUMP = 152.17 CB3–CB2 INV IN = 153.47 CB2A–CB1 INV IN = 153.27 CB2–CB1 INV OUT = 153.17
CB2A	RIM = 156.74 SUMP = 152.72 CB2A–CB1 INV OUT = 153.72
CB3	RIM = 159.81 SUMP = 155.65 CB4–CB3 INV IN = 156.75 CB3–CB2 INV OUT = 156.65
CB4	RIM = 161.36 SUMP = 157.23 CB5–CB4 INV IN = 158.33 CB4A–CB4 INV IN = 158.33 CB4–CB3 INV OUT = 158.23
CB4A	RIM = 162.20 SUMP = 158.17 CB4A–CB4 INV OUT = 159.17
CB5	RIM = 161.84 SUMP = 157.72 CB6–CB5 INV IN = 158.82 CB5–CB4 INV OUT = 158.72
CB6	RIM = 163.82 SUMP = 159.80 CB6–CB5 INV OUT = 160.80
FES1	RIM = 141.30 SUMP = ??? DET–FES1 INV IN = 138.50

STORM SEWER STRUCTURE TABLE	
STRUCTURE	STRUCTURE DETAILS
CB7	RIM = 161.54 SUMP = 157.37 CB8–CB7 INV IN = 158.47 CB7–DET INV OUT = 158.37
CB8	RIM = 163.83 SUMP = 159.65 CB9–CB8 INV IN = 160.75 CB8–CB7 INV OUT = 160.65
CB9	RIM = 169.81 SUMP = 165.56 CB10–CB9 INV IN = 166.66 CB9–CB8 INV OUT = 166.56
CB10	RIM = 177.14 SUMP = 172.41 CB11–CB10 INV IN = 173.51 CB10A–CB10 INV IN = 173.51 CB15–CB14 INV IN = 173.51 CB10–CB9 INV OUT = 173.41
CB10A	RIM = 177.30 SUMP = 173.28 CB10A–CB10 INV OUT = 174.28
CB11	RIM = 177.47 SUMP = 173.07 CB12–CB11 INV IN = 174.17 CB11–CB10 INV OUT = 174.07
CB12	RIM = 183.30 SUMP = 176.53 CB13–CB12 INV IN = 177.63 CB12–CB11 INV OUT = 177.53
CB13	RIM = 181.82 SUMP = 177.70 CB14–CB13 INV IN = 178.80 CB13–CB12 INV OUT = 178.70
CB14	RIM = 182.20 SUMP = 178.18 CB14–CB13 INV OUT = 179.18
CB16	RIM = 180.08 SUMP = 175.84 CB17–CB16 INV IN = 176.94 CB15–CB14 INV OUT = 176.84
CB17	RIM = 180.12 SUMP = 176.10 CB17–CB16 INV OUT = 177.10

STORM SEWER STRUCTURE TABLE	
STRUCTURE	STRUCTURE DETAILS
CB18	RIM = 164.12 SUMP = 157.00 CB19–CB18 INV IN = 161.09 CB18–FES2 INV OUT = 158.00
CB19	RIM = 174.59 SUMP = 167.00 CB20–CB19 INV IN = 171.25 CB19A–CB19 INV IN = 171.25 CB19–CB18 INV OUT = 168.00
CB19A	RIM = 175.60 SUMP = 171.57 CB19A–CB19 INV OUT = 172.57
CB20	RIM = 177.83 SUMP = 173.56 CB21–CB20 INV IN = 174.66 CB20–CB19 INV OUT = 174.56
CB21	RIM = 180.17 SUMP = 176.14 CB21–CB20 INV OUT = 177.14

SANITARY SEWER STRUCTURE TABLE	
STRUCTURE	STRUCTURE DETAILS
SMH9	RIM = 134.51 SMH10–SMH9 INV IN = 128.23 SMH16–SMH9 INV IN = 128.23 SMH9–SMH8 INV OUT = 128.13
SMH10	RIM = 134.82 SMH11–SMH10 INV IN = 129.90 SMH10–SMH9 INV OUT = 129.80
SMH11	RIM = 138.24 SMH12–SMH11 INV IN = 133.10 SMH11–SMH10 INV OUT = 133.00
SMH12	RIM = 140.64 SMH13–SMH12 INV IN = 135.70 SMH12–SMH11 INV OUT = 135.60
SMH13	RIM = 161.59 SMH14–SMH13 INV IN = 156.69 SMH13–SMH12 INV OUT = 154.60
SMH14	RIM = 170.50 SMH15–SMH14 INV IN = 165.60 SMH14–SMH13 INV OUT = 165.50
SMH15	RIM = 173.17 SMH15–SMH14 INV OUT = 168.67
SMH16	RIM = 146.86 SMH17–SMH16 INV IN = 139.50 SMH16–SMH9 INV OUT = 137.90
SMH17	RIM = 151.55 SMH18–SMH17 INV IN = 146.55 SMH17–SMH16 INV OUT = 145.00
SMH18	RIM = 166.08 SPA–SMH18 INV IN = 161.10 SMH18–SMH17 INV OUT = 161.00

SANITARY SEWER PIPE TABLE			
PIPE NAME	LENGTH	SIZE AND MATERIAL	SLOPE
SMH9–SMH8	159 LF	8 inch PVC	1.00%
SMH10–SMH9	157 LF	8 inch PVC	1.00%
SMH11–SMH10	212 LF	8 inch PVC	1.46%
SMH12–SMH11	94 LF	8 inch PVC	2.67%
SMH13–SMH12	161 LF	8 inch PVC	11.77%
SMH14–SMH13	194 LF	8 inch PVC	4.55%
SMH15–SMH14	258 LF	8 inch PVC	1.19%
SMH16–SMH9	164 LF	8 inch PVC	5.91%
SMH17–SMH16	95 LF	8 inch PVC	5.81%
SMH18–SMH17	80 LF	8 inch PVC	18.05%
SPA–SMH18	80 LF	8 inch PVC	1.00%

LEGEND:

- EXISTING PROPERTY LINE
- ADJOINING PROPERTY LINE
- EXISTING EASEMENT LINE
- EXISTING STREAM
- EXISTING WETLAND BOUNDARY
- 100' WETLAND BUFFER
- 100 YEAR FLOOD PLANE
- 250 EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- EXISTING TREE LINE
- OHW EXISTING OVER HEAD WIRE
- EXISTING UTILITY POLE
- SS EXISTING SEWER SERVICE LINE
- S EXISTING SEWER LINE
- EXISTING SEWER MANHOLE
- CO EXISTING SEWER CLEAN OUT
- W EXISTING WATER LINE
- WS EXISTING WATER SERVICE LINE
- EXISTING WELL
- EXISTING HYDRANT
- WV EXISTING WATER VALVE
- EXISTING STORM WATER LINE
- CB 50 EXISTING CATCH BASIN
- PROPOSED PROPERTY LINE
- PROPOSED SET BACK LINE
- 250 PROPOSED MAJOR CONTOUR
- 252 PROPOSED MINOR CONTOUR
- PROPOSED EASEMENT
- PROPOSED TREE LINE
- S PROPOSED SEWER LINE
- SS PROPOSED SEWER SERVICE LINE
- PROPOSED SEWER MANHOLE
- CO PROPOSED SEWER CLEAN OUT
- PROPOSED SDS LATERAL
- PROPOSED SDS SOLID LINE
- ST PROPOSED STORM WATER LINE
- RL PROPOSED ROOF LEADER LINE
- RL PROPOSED ROOF LEADER
- W PROPOSED WATER LINE
- WS PROPOSED WATER SERVICE LINE
- PROPOSED WELL
- PROPOSED HYDRANT
- WV SO PROPOSED WATER SHUT OFF VALVE
- PROPOSED WATER VALVE

INSPECTION SCHEDULE & LONG TERM MAINTENANCE OF STORMWATER STRUCTURES

CATCH BASINS PIPING AND FLARED END SECTIONS:

ALL CATCH BASINS, PIPING AND FLARED END SECTIONS SHALL BE INSPECTED EVERY SPRING AND FALL. LOOK FOR OBSTRUCTIONS, VEGETATION, DEBRIS, LITTER, SEDIMENT, ETC. BLOCKING THE STRUCTURES OR PIPES. UTILIZE VACUUM TRUCK IF NECESSARY. OBSERVE THE FLOW OF WATER AFTER A RAINFALL EVENT. ANY EVIDENCE OF PONDING IN THE STRUCTURE INDICATES A POTENTIAL BLOCKAGE. WHEN SEDIMENT ACCUMULATION WITHIN THE CATCH BASIN SUMP REACHES 1/2 OF THE SUMP DEPTH, IT SHALL BE REMOVED.

RIP RAP OUTLET PROTECTION AND EMERGENCY OVERFLOW WEIR:

RIP RAP OUTLET PROTECTION AND THE EMERGENCY OVERFLOW WEIR SHALL BE INSPECTED QUARTERLY FOR SEDIMENT BUILD-UP, VEGETATION, DEBRIS, LITTER, AND OBSTRUCTIONS. IF SEDIMENT BUILDS UP ENOUGH TO FILL IN THE VOID SPACE BETWEEN THE STONES OR GRASS PAVERS, THEN THE RIP RAP OR PAVERS SHALL BE CLEANED OR REPLACED.

HYDRODYNAMIC DEVICES:

THE HYDRODYNAMIC PRETREATMENT DEVICES (HPD) REQUIRE REGULAR INSPECTION AND MAINTENANCE TO ENSURE OPTIMAL PERFORMANCE. MAINTENANCE FREQUENCY WILL BE DRIVEN BY UPSTREAM CONDITIONS (CONTRIBUTING DRAINAGE AREA STABILIZATION) AND PROPER MAINTENANCE OF UPSTREAM STRUCTURES AND CULVERT PIPES. THE MANUFACTURER RECOMMENDS THAT THE HPD UNITS BE INSPECTED QUARTERLY (AT EACH CHANGE OF SEASON). THE STRUCTURE SHALL BE VISUALLY INSPECTED FOR BLOCKAGES OR OBSTRUCTIONS IN THE INLET OR SEPARATION SCREEN. THE INSPECTION SHOULD ALSO QUANTIFY ACCUMULATION OF HYDROCARBONS, SEDIMENT AND TRASH WITHIN THE SYSTEM. INSPECTIONS AND MAINTENANCE SHALL BE PERFORMED BY QUALIFIED PERSONNEL WITH ADEQUATE TRAINING IN THESE TYPES OF UNITS. THE UNITS SHALL BE CLEANED BY VACUUM TRUCK ONCE A YEAR (EXCEPT FOR THE FIRST YEAR WHERE MORE FREQUENT CLEANINGS MAY BE REQUIRED).

BIORETENTION AREA:

THE BIORETENTION AREA SHALL BE INSPECTED MONTHLY FOR SEDIMENT AND DEBRIS ACCUMULATION. ANY ACCUMULATED SEDIMENT OR DEBRIS SHOULD BE REMOVED AS NECESSARY. AFTER STORM EVENTS, THE BIORETENTION AREA'S DEWATERING DURATION SHOULD ALSO BE MONITORED. THE BIORETENTION AREA'S FLOOR SHALL BE MOWED WHEN THE GRASS REACHES A HEIGHT OF 18"(ONLY IF LAWN GRASS IS PRESENT). CUT ORNAMENTAL GRASSES ANNUALLY IN THE LATE FALL. SEDIMENT SHALL BE CLEANED OUT OF THE BASIN ANNUALLY. IN THE SPRING AND FALL, INSPECT INFLOW AND OUTFLOW POINTS FOR EROSION OR CLOGGING. INSPECT TREES, SHRUBS AND OTHER VEGETATION TO EVALUATE THEIR HEALTH AND REPLACE ANY DEAD OR DISEASED VEGETATION. INSPECT SURROUNDING DRAINAGE AREA FOR EROSION OR SIGNS OF SEDIMENT DELIVERY TO THE BIORETENTION AREA. REMOVE ANY INVASIVE PLANT SPECIES. REMOVE CLOGS FROM THE STORMWATER SYSTEM INFLOW AND OUTFLOW COMPONENTS. CHECK FOR SIGNS OF VEGETATION OVERGROWTH, OBSERVE DEWATERING CAPABILITY, CHECK FERTILIZER, AND TEST SOILS FOR PH ANNUALLY. HARVEST OVERGROWN VEGETATION AND REMOVE FROM THE BIORETENTION AREA. IF IT TAKES LONGER THAN 24 HOURS TO DEWATER THE BIORETENTION AREA, THE VALVE ON THE UNDERDRAIN SHALL BE OPENED SLIGHTLY TO PROVIDE FULL DEWATERING IN 24 HOURS. IF THE PH IS BELOW 5.2, LIME SHOULD BE APPLIED. IF THE PH IS ABOVE 7.0 TO 8.0, IRON SULFATE PLUS SULFUR CAN BE APPLIED TO REDUCE THE PH. REPLACE MULCH OVER ENTIRE AREA EVERY TWO TO THREE YEARS. IF DEWATERING IS A PROBLEM, CORE AERATION OF CULTIVATING UN-VEGETATED AREAS MAY BE REQUIRED TO ENSURE ADEQUATE FILTRATION.

UNDERGROUND DETENTION/INFILTRATION SYSTEM:

INFILTRATION BASINS SHALL BE INSPECTED MONTHLY FOR SEDIMENT AND DEBRIS ACCUMULATION DURING THE FIRST YEAR OF OPERATION. AFTER 50 YEARS OF SERVICE LIFE THE SYSTEM SHOULD BE EVALUATED, IF THE SYSTEM IS NO LONGER FUNCTIONING IN ACCORDANCE WITH THE ORIGINAL DESIGN, THE SYSTEM SHALL BE RESTORED OR REPLACED. THERE ARE FOUR INSPECTION PORTS AT THE CORNERS OF THE SYSTEM TO PROVIDE FOR VISUAL INSPECTION, AND A MEANS OF CLEANING SYSTEM WITH A VACUUM TRUCK. IN THE SPRING AND FALL, INSPECT THE INLET AND OUTLET FOR CLOGGING AND DEBRIS. REMOVE OBSTRUCTIONS, DEBRIS, ETC.. INSPECT THE INTERIOR OF THE STORMWATER MANAGEMENT CHAMBERS THROUGH INSPECTION PORT FOR DEBRIS EVERY FIVE YEARS. CLEAN DEBRIS FROM CHAMBERS AND FEED CONNECTORS.

EXISTING UNDERGROUND UTILITY NOTES:

1. CONTRACTOR SHALL DIG TEST PITS TO VERIFY LOCATION, SIZE AND PIPE MATERIAL OF EXISTING UNDERGROUND UTILITIES. IF ANY EXISTING UTILITIES ARE NOT IN THE LOCATION WHERE THEY ARE SHOWN ON THE PLAN, IT SHALL BE BROUGHT TO THE ENGINEER'S ATTENTION IMMEDIATELY.

GENERAL CONSTRUCTION NOTES:

1. ALL OTHER UTILITIES (TELEPHONE, ELECTRIC, GAS, CABLE, ETC.) SHALL BE INCORPORATED PRIOR TO CONSTRUCTION. ALL SUCH UTILITY DESIGNS SHALL BE DEVELOPED IN COOPERATION WITH THE RESPECTIVE UTILITY COMPANIES.
2. THE CONTRACTOR SHALL PERFORM A UTILITIES CALL-OUT PRIOR TO CONSTRUCTION TO VERIFY ALL UNDERGROUND UTILITY LOCATIONS BY CONTACTING UFPO @ 1-800-962-7962.
3. THE CONTRACTOR SHALL FIELD VERIFY THE LOCATIONS AND INVERTS OF ALL CATCH BASINS & STORM SEWER LINES, SANITARY MANHOLES & SEWER LINES, WATERLINES AND OTHER UNDERGROUND UTILITY LINES PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL NOT ASSUME THAT ALL LOCATIONS AS SHOWN ON THE PLAN ARE CORRECT. INVESTIGATIVE TEST PITS MAY BE REQUIRED TO VERIFY LOCATIONS.
4. PIPE CONNECTIONS TO ALL CATCH BASINS SHALL BE MADE WATERTIGHT, WITH PARTICULAR ATTENTION BEING PAID TO CONNECTIONS LOCATED WITHIN 10 FEET OF SEWER MAINS (AND SERVICE LATERALS).

POST CONSTRUCTION NOTES:

1. UPON COMPLETION OF CONSTRUCTION OF THE STORMWATER FACILITIES, AS-BUILT DRAWINGS OF ALL STORMWATER PRACTICES AND AN OPERATION AND MAINTENANCE PLAN MANUAL SHALL BE PROVIDED TO THE CITY OF BEACON.

GRADING & UTILITY PLAN – NORTH
SCALE: 1" = 40'

GRAPHIC SCALE
40 0 20 40 80 160
(IN FEET)
1 inch = 40 ft.

APPROVED BY RESOLUTION OF THE PLANNING BOARD OF THE CITY OF BEACON, NEW YORK, ON THE

____________ DAY OF ______________, 20______, SUBJECT TO ALL REQUIREMENTS AND CONDITIONS OF SAID RESOLUTION. ANY CHANGE, ERASURE, MODIFICATION OR REVISION OF THIS PLAT, AS APPROVED, SHALL VOID THIS APPROVAL.

SIGNED THIS _______________ DAY OF ____________, 20____, BY

__________________________ CHAIRMAN

__________________________ SECRETARY

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GRADING & UTILITY PLAN – NORTH
MIRBEAU BEACON
7 CRAIG HOUSE LANE
CITY OF BEACON
DUTCHESS COUNTY, NEW YORK
TAX ID: 6054-13-001258

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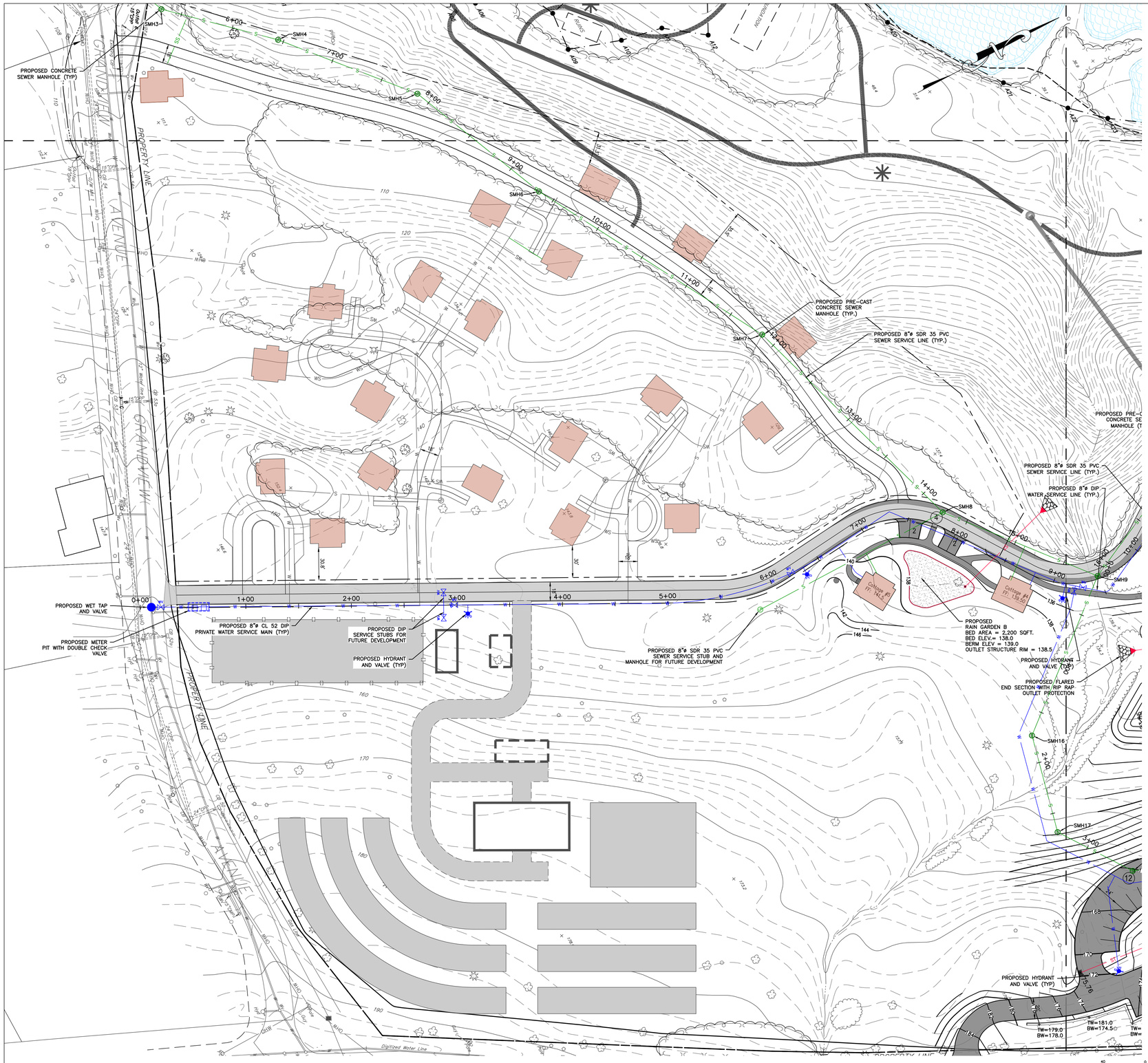

GRADING & UTILITY PLAN – SOUTH
SCALE: 1" = 40'

SANITARY SEWER STRUCTURE TABLE	
STRUCTURE	STRUCTURE DETAILS
SMH3	RIM = 102.87 SMH4–SMH3 INV IN = 91.23 SMH3–SMH2 INV OUT = 91.23
SMH4	RIM = 96.80 SMH5–SMH4 INV IN = 91.90 SMH4–SMH3 INV OUT = 91.80
SMH5	RIM = 102.00 SMH6–SMH5 INV IN = 97.10 SMH5–SMH4 INV OUT = 97.00
SMH6	RIM = 109.28 SMH7–SMH6 INV IN = 104.28 SMH6–SMH5 INV OUT = 104.18
SMH7	RIM = 120.83 SMH8–SMH7 INV IN = 115.50 SMH7–SMH6 INV OUT = 115.40
SMH8	RIM = 136.12 SMH9–SMH8 INV IN = 126.54 SMH8–SMH7 INV OUT = 126.44
SMH9	RIM = 134.51 SMH10–SMH9 INV IN = 128.23 SMH16–SMH9 INV IN = 128.23 SMH9–SMH8 INV OUT = 128.13

SANITARY SEWER PIPE TABLE			
PIPE NAME	LENGTH	SIZE AND MATERIAL	SLOPE
SMH3–SMH2	58 LF	8 inch PVC	0.50%
SMH4–SMH3	114 LF	8 inch PVC	0.50%
SMH5–SMH4	142 LF	8 inch PVC	3.60%
SMH6–SMH5	148 LF	8 inch PVC	4.79%
SMH7–SMH6	251 LF	8 inch PVC	4.42%
SMH8–SMH7	240 LF	8 inch PVC	4.56%
SMH9–SMH8	159 LF	8 inch PVC	1.00%
SMH10–SMH9	157 LF	8 inch PVC	1.00%

LEGEND:

- EXISTING PROPERTY LINE
- ADJOINING PROPERTY LINE
- EXISTING EASEMENT LINE
- EXISTING STREAM
- EXISTING WETLAND BOUNDARY
- 100' WETLAND BUFFER
- 100 YEAR FLOOD PLANE
- 250 EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- EXISTING TREE LINE
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- EXISTING WATER VALVE
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- CB 50 EXISTING CATCH BASIN
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- PROPOSED ROOF LEADER
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- PROPOSED HYDRANT
- PROPOSED WATER SHUT OFF VALVE
- PROPOSED WATER VALVE

GRAPHIC SCALE
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1 inch = 40 ft.

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_____ SECRETARY

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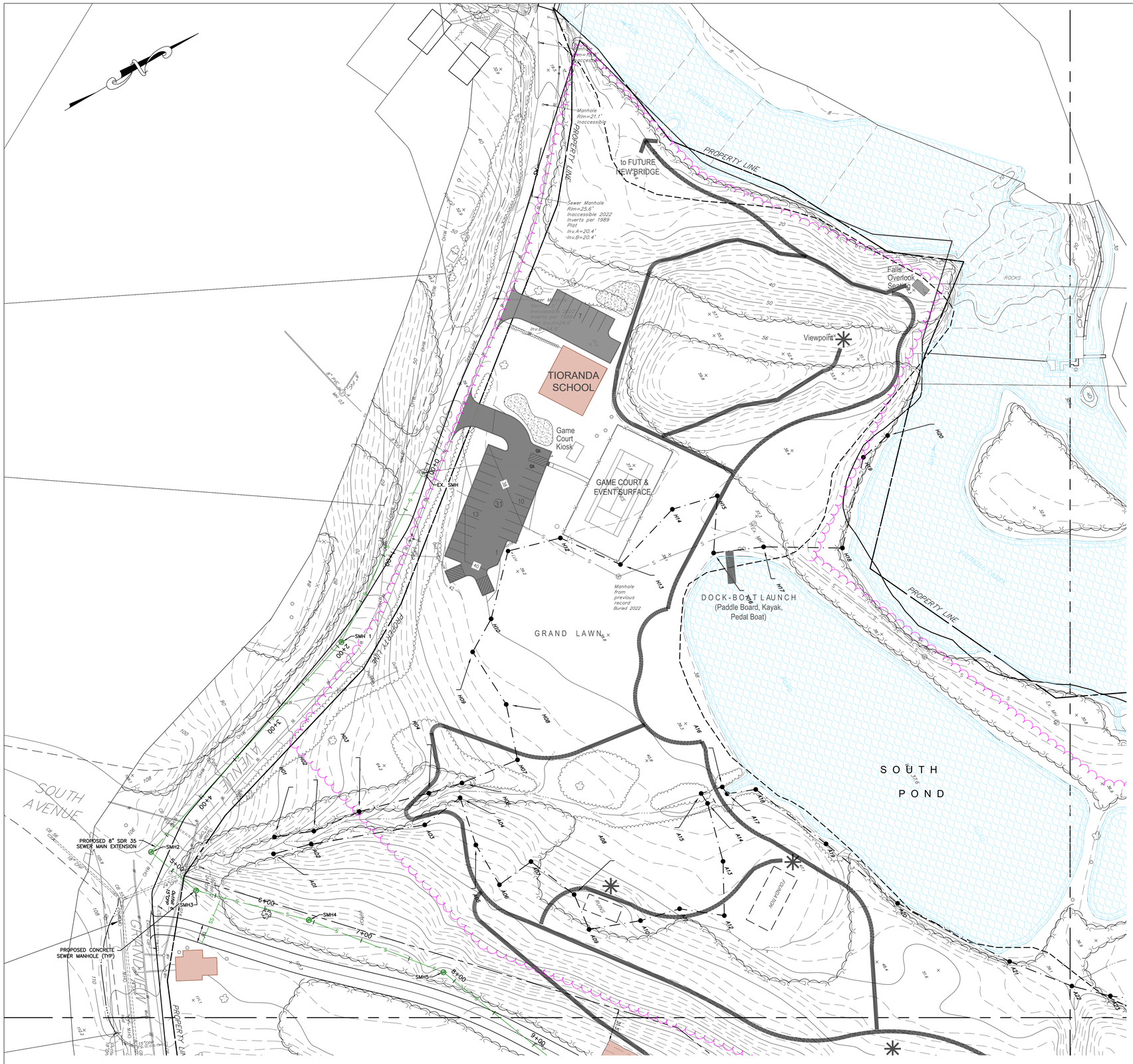
SANITARY SEWER STRUCTURE TABLE	
STRUCTURE	STRUCTURE DETAILS
EX. SMH	RIM = 46.13 SMH1–EX. SMH INV IN = 39.00
SMH 1	RIM = 68.51 SMH2–SMH1 INV IN = 63.60 SMH1–EX. SMH INV OUT = 63.50
SMH2	RIM = 102.93 SMH3–SMH2 INV IN = 90.94 SMH2–SMH1 INV OUT = 90.84
SMH3	RIM = 102.87 SMH4–SMH3 INV IN = 91.23 SMH3–SMH2 INV OUT = 91.23
SMH4	RIM = 96.80 SMH5–SMH4 INV IN = 91.90 SMH4–SMH3 INV OUT = 91.80
SMH5	RIM = 102.00 SMH6–SMH5 INV IN = 97.10 SMH5–SMH4 INV OUT = 97.00

SANITARY SEWER PIPE TABLE			
PIPE NAME	LENGTH	SIZE AND MATERIAL	SLOPE
SMH1–EX. SMH	184 LF	8 inch PVC	13.30%
SMH2–SMH1	278 LF	8 inch PVC	9.80%
SMH3–SMH2	58 LF	8 inch PVC	0.50%
SMH4–SMH3	114 LF	8 inch PVC	0.50%
SMH5–SMH4	142 LF	8 inch PVC	3.60%
SMH6–SMH5	148 LF	8 inch PVC	4.79%

LEGEND:

- EXISTING PROPERTY LINE
- ADJOINING PROPERTY LINE
- EXISTING EASEMENT LINE
- EXISTING STREAM
- EXISTING WETLAND BOUNDARY
- 100' WETLAND BUFFER
- 100 YEAR FLOOD PLANE
- 250 EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- EXISTING TREE LINE
- OHW EXISTING OVER HEAD WIRE
- EXISTING UTILITY POLE
- SS EXISTING SEWER SERVICE LINE
- S EXISTING SEWER LINE
- EXISTING SEWER MANHOLE
- SCO EXISTING SEWER CLEAN OUT
- W EXISTING WATER LINE
- WS EXISTING WATER SERVICE LINE
- EXISTING WELL
- EXISTING HYDRANT
- EXISTING WATER VALVE
- EXISTING STORM WATER LINE
- CB_50 EXISTING CATCH BASIN

- PROPOSED PROPERTY LINE
- PROPOSED SET BACK LINE
- 250 PROPOSED MAJOR CONTOUR
- 252 PROPOSED MINOR CONTOUR
- PROPOSED EASEMENT
- PROPOSED TREE LINE
- S PROPOSED SEWER LINE
- SS PROPOSED SEWER SERVICE LINE
- PROPOSED SEWER MANHOLE
- SCO PROPOSED SEWER CLEAN OUT
- PROPOSED SDS LATERAL
- PROPOSED SDS SOLID LINE
- ST PROPOSED STORM WATER LINE
- RL PROPOSED ROOF LEADER LINE
- PROPOSED ROOF LEADER
- W PROPOSED WATER LINE
- WS PROPOSED WATER SERVICE LINE
- PROPOSED WELL
- PROPOSED HYDRANT
- WV PROPOSED WATER SHUT OFF VALVE
- PROPOSED WATER VALVE



GRADING & UTILITY PLAN – SOUTH WEST

SCALE: 1" = 40'

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

APPROVED BY RESOLUTION OF THE PLANNING BOARD OF THE CITY OF BEACON, NEW YORK, ON THE _____ DAY OF _____, 20_____, SUBJECT TO ALL REQUIREMENTS AND CONDITIONS OF SAID RESOLUTION. ANY CHANGE, ERASURE, MODIFICATION OR REVISION OF THIS PLAT, AS APPROVED, SHALL VOID THIS APPROVAL.

SIGNED THIS _____ DAY OF _____ 20_____ BY

_____ CHAIRMAN

_____ SECRETARY

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GRADING & UTILITY PLAN – SOUTHWEST

MIRBEAU BEACON

7 CRAIG HOUSE LANE
CITY OF BEACON
DUTCHESS COUNTY, NEW YORK
TAX ID: 6054-13-001258

JOB #:	2021:051
DATE:	3/29/2022
SCALE:	1" = 40'
TITLE:	GU-3
SHEET:	9 OF 28

UNAUTHORIZED ALTERATIONS OR ADDITIONS TO THIS DRAWING IS A VIOLATION OF SECTION 7209.2 OF THE NEW YORK EDUCATION LAW



LEGEND:

- EXISTING PROPERTY LINE
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- 100' WETLAND BUFFER
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- EXISTING UTILITY POLE
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- EXISTING SEWER MANHOLE
- EXISTING SEWER CLEAN OUT
- W EXISTING WATER LINE
- WS EXISTING WATER SERVICE LINE
- EXISTING WELL
- EXISTING HYDRANT
- EXISTING WATER VALVE
- EXISTING STORM WATER LINE
- CB 50 EXISTING CATCH BASIN

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- 250 PROPOSED MAJOR CONTOUR
- 252 PROPOSED MINOR CONTOUR
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- PROPOSED WELL
- PROPOSED HYDRANT
- PROPOSED WATER SHUT OFF VALVE
- PROPOSED WATER VALVE
- PROPOSED SILT FENCE
- LOD PROPOSED LIMIT OF DISTURBANCE
- PROPOSED CATCH BASIN INLET PROTECTION
- PROPOSED CONSTRUCTION ENTRANCE

EROSION AND SEDIMENT CONTROL NOTES:

1. ALL EROSION CONTROL MEASURES EMPLOYED DURING THE CONSTRUCTION PROCESS SHALL BE INSPECTED BY THE CONTRACTOR IN ACCORDANCE WITH THE MAINTENANCE SCHEDULE. ALL EROSION CONTROL STRUCTURES SHALL BE REPAIRED AND MAINTAINED AS NECESSARY BY THE CONTRACTOR.
2. ALL STORMWATER MANAGEMENT STRUCTURES (E.G. CATCH BASINS) SHALL BE REGULARLY INSPECTED FOR SEDIMENT ACCUMULATIONS. CATCH BASINS SHALL BE CLEANED WHEN SEDIMENT DEPTH REACHES A MAXIMUM OF ONE-HALF THE AVAILABLE SUMP DEPTH.
3. ALL EROSION CONTROL INSTALLATION AND MAINTENANCE MEASURES SHALL MEET THE REQUIREMENTS OF THE NEW YORK STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL.
4. ANY PILE OF POTENTIALLY EROSIVE MATERIAL TEMPORARILY STOCKPILED ON THE SITE DURING THE CONSTRUCTION PROCESS SHALL BE LOCATED IN AN AREA AWAY FROM STORM DRAINAGE AND SHALL BE PROPERLY PROTECTED FROM EROSION BY A SURROUNDING SILT FENCE.
5. PERMANENT SEEDED AREAS FOR EROSION CONTROL SHALL BE IN ACCORDANCE WITH DETAIL AND SPECIFICATIONS ON THE DETAILS SHEET.
6. AREAS UNDERGOING CLEARING OR GRADING AND WHERE WORK IS DELAYED OR COMPLETED AND WILL NOT BE REDISTURBED FOR A PERIOD OF 21 DAYS OR MORE SHALL BE STABILIZED WITH TEMPORARY OR PERMANENT VEGETATIVE COVER WITHIN 14 DAYS.
7. ON-SITE DUST CONTROL SHALL BE ACCOMPLISHED BY STANDARD METHODS OF LIGHTLY WATERING ALL EXPOSED SOIL AND RAPIDLY STABILIZING THE REGRADED AREAS WITH TOPSOIL, LOAM AND/OR SEEDING.
8. THE TOWN ENGINEER AND PROJECT ENGINEER SHALL BE NOTIFIED NO LESS THAN 48 HOURS PRIOR TO THE START OF ANY SITE WORK, AND BY SUCH NOTIFICATION, SHALL BE PROVIDED WITH THE NAME AND TELEPHONE NUMBER OF THE GENERAL CONTRACTOR RESPONSIBLE FOR SUCH WORK.
9. THE TOWN AND/OR ITS REPRESENTATIVES MAY INSPECT EROSION AND SEDIMENT CONTROL PRACTICES ON THE SITE DURING CONSTRUCTION AND RECOMMEND THAT THE CONTRACTOR INSTALL ADDITIONAL EROSION CONTROL MEASURES IF DEEMED NECESSARY TO PROTECT ANY UNDISTURBED AREAS OF THE SITE. ANY SUCH REQUESTS SHALL BE MADE DIRECTLY TO THE CONTRACTOR AND QUALIFIED PROFESSIONAL AND FOLLOWED UP WITH A WRITTEN NOTIFICATION TO THE DEVELOPER. IN ADDITION, THE PROJECT ENGINEER SHALL BE CONSULTED ON ANY SPECIAL ADDITIONS OR DELETIONS OF EROSION CONTROL MEASURES WARRANTED BY CHANGING FIELD CONDITIONS. THE NOTICE OF INTENT (NOI) MAY NEED TO BE UPDATED AS A RESULT OF THE CHANGES.
10. THE CONTRACTOR/OWNER SHALL MAINTAIN A RECORD OF ALL EROSION AND SEDIMENT CONTROL INSPECTION REPORTS AT THE SITE IN A LOG BOOK. THE SITE LOG BOOK SHALL BE MAINTAINED ON SITE AND BE MADE AVAILABLE TO THE PERMITTING AUTHORITY. THE OWNER/CONTRACTOR SHALL, ON A MONTHLY BASIS, POST AT THE SITE A SUMMARY OF THE SITE INSPECTION ACTIVITIES IN A PUBLICLY ACCESSIBLE LOCATION.
11. THE OWNER SHALL FILE A NOI WITH THE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION (NYSDEC) PRIOR TO COMMENCING CONSTRUCTION ACTIVITIES AND A NOTICE OF TERMINATION (NOT) WITH THE NYSDEC FOLLOWING CONSTRUCTION ACTIVITIES.
12. IF GROUNDWATER IS ENCOUNTERED DURING CONSTRUCTION ACTIVITIES, THE CONTRACTOR SHALL CONSTRUCT A DEWATERING PIT IN ACCORDANCE WITH NEW YORK STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL TO FILTER WATER FOR PUMPING TO A SUITABLE LOCATION.
13. WHEN ALL DISTURBED AREAS ARE STABLE, ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED PER THE APPROVAL OF THE TOWN ENGINEER AND QUALIFIED PROFESSIONAL.

EROSION & SEDIMENT CONTROL PLAN – NORTH

SCALE: 1" = 40'

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

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EROSION & SEDIMENT CONTROL PLAN – NORTH

MIRBEAU BEACON

7 CRAIG HOUSE LANE
CITY OF BEACON
DUTCHESS COUNTY, NEW YORK
TAX ID: 6054-13-001258

JOB #:	2021:051
DATE:	3/29/2022
SCALE:	1" = 40'
TITLE:	ESC-1
SHEET:	10 OF 28

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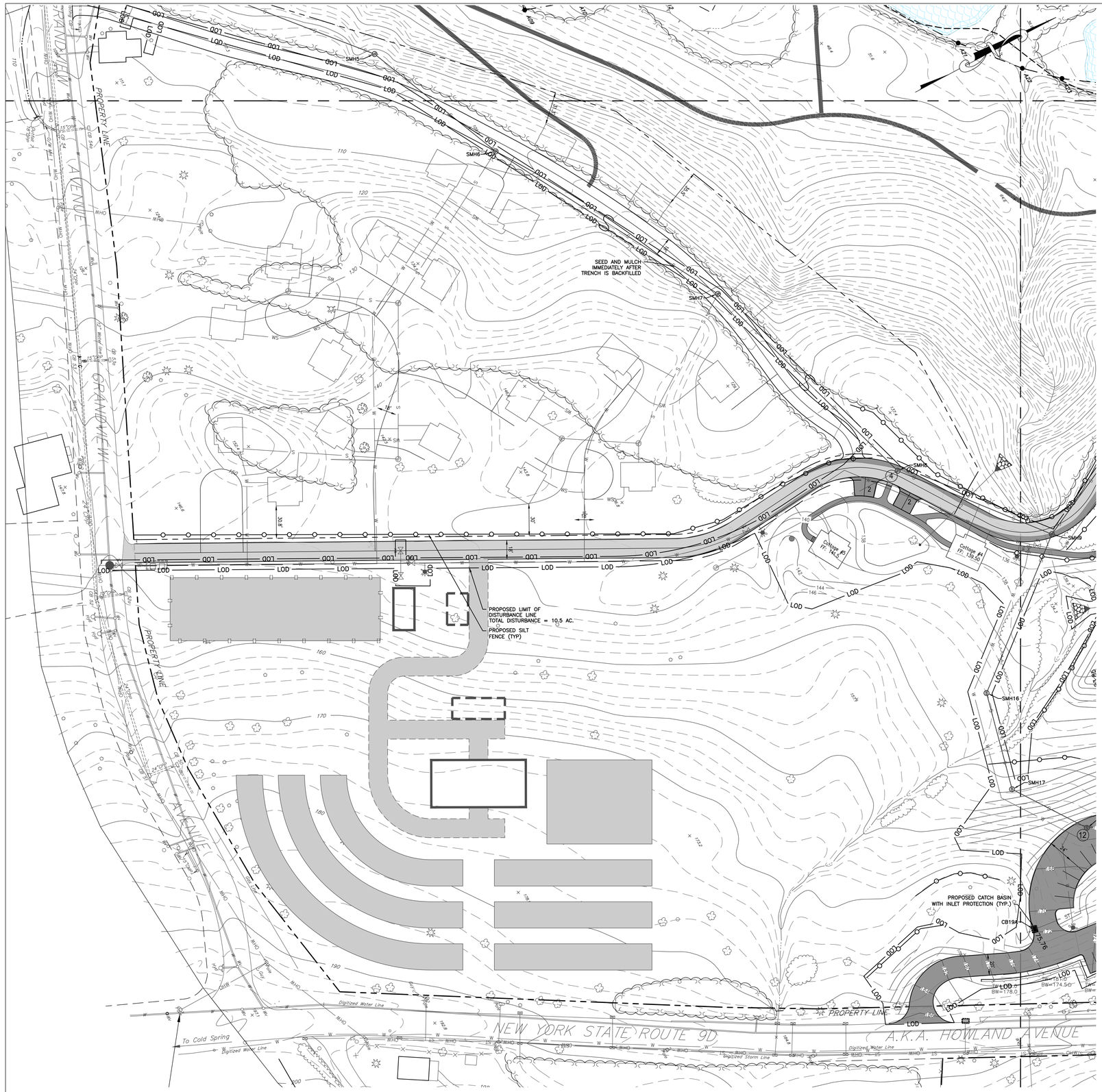

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EROSION & SEDIMENT CONTROL PLAN – SOUTH
SCALE: 1" = 40'
GRAPHIC SCALE

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(IN FEET)
1 inch = 40 ft.

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EROSION & SEDIMENT CONTROL PLAN – SOUTH

MIRBEAU BEACON

7 CRAIG HOUSE LANE
CITY OF BEACON
DUTCHESS COUNTY, NEW YORK
TAX ID: 6054-13-001258

JOB #:	2021:051
DATE:	3/29/2022
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TITLE:	ESC-2
SHEET:	11 OF 28

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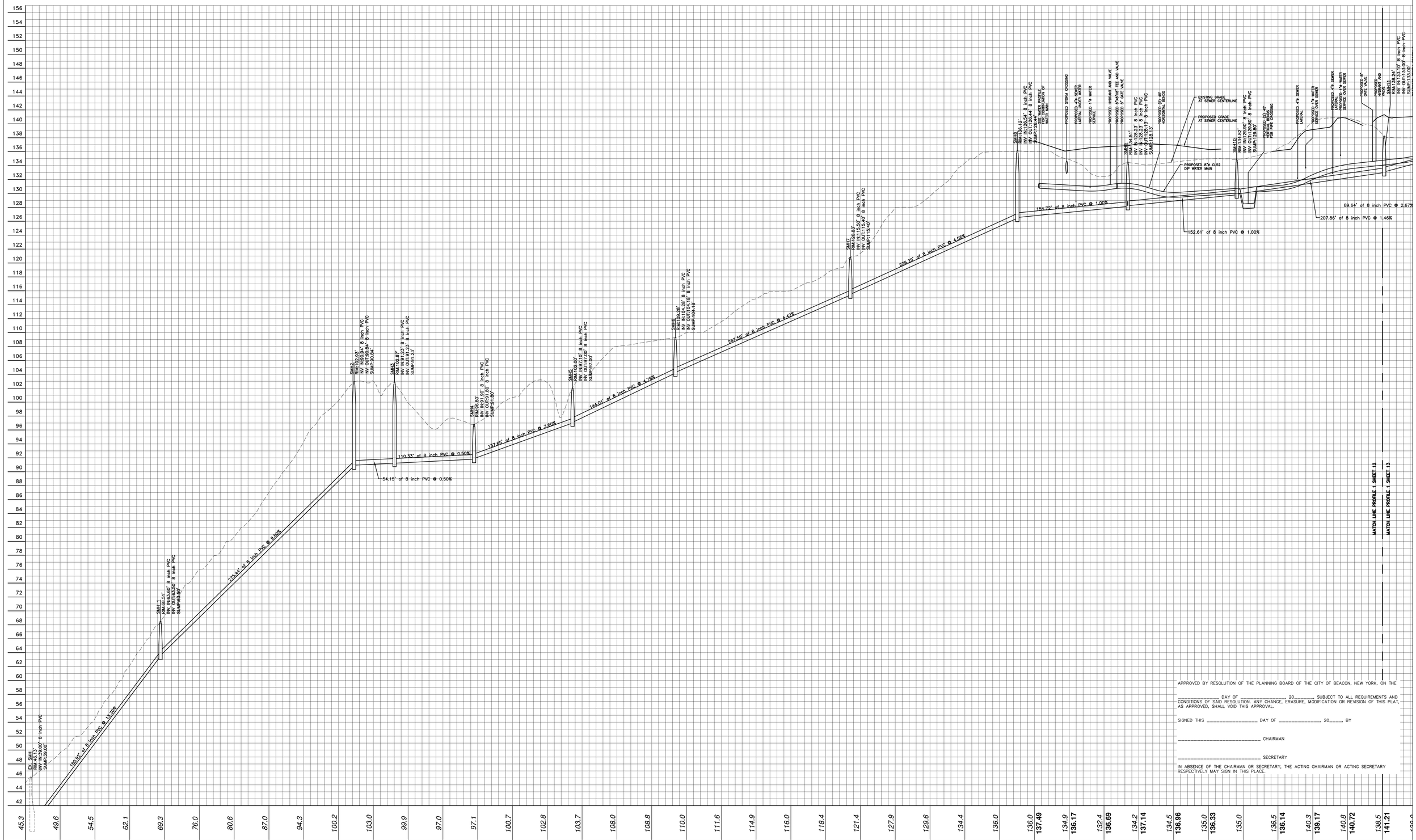

SEWER PROFILE 1 EX SMH TO SMH 10

SCALE: 1" = 50' H
1" = 5' V

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PROFILES 1

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TAX ID: 6054-13-001258

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SHEET:	12 OF 28

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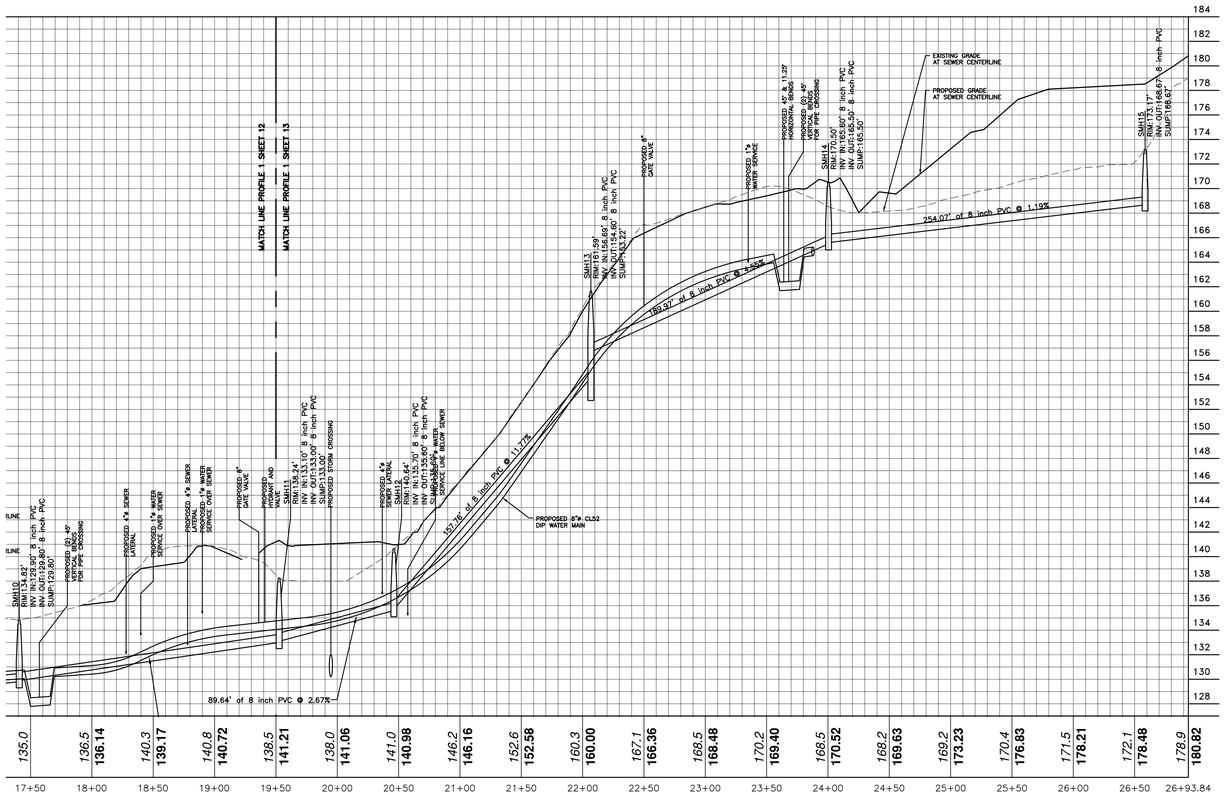
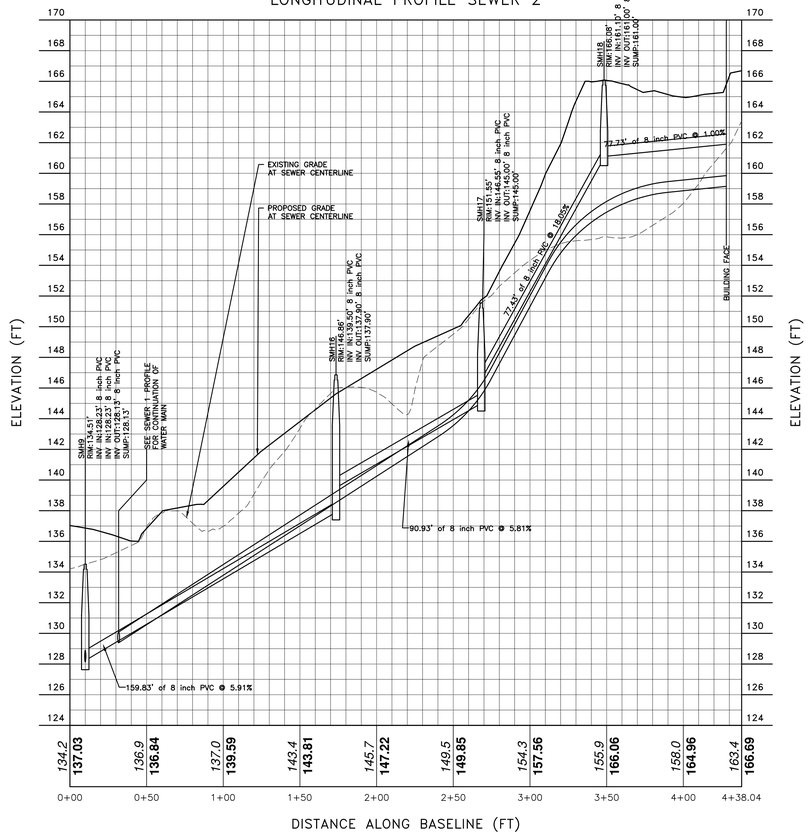
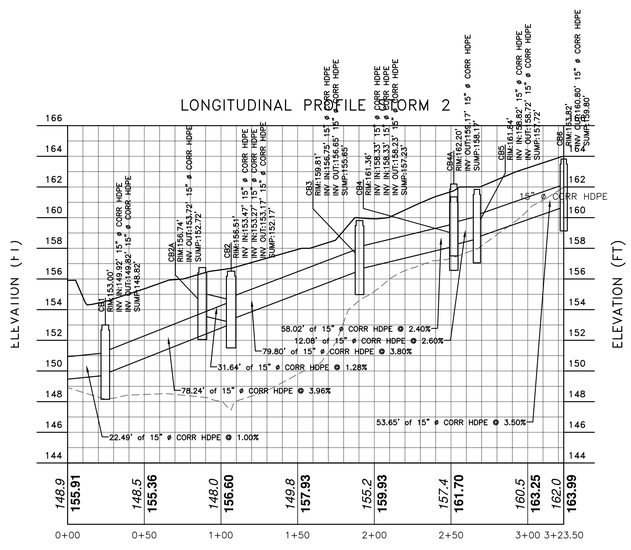


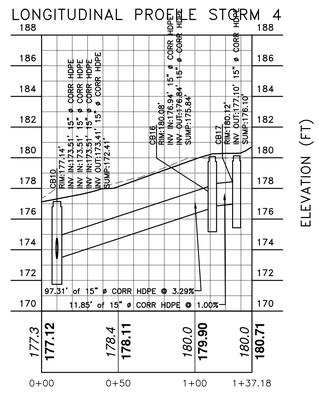
SEWER 1 PROFILE SMH 10 TO SMH 15
SCALE: 1" = 50' H
1" = 5' V



SEWER 2 PROFILE
SCALE: 1" = 40' H
1" = 4' V



STORM PROFILE CB1 TO CB6
SCALE: 1" = 40' H
1" = 4' V



STORM PROFILE CB10 TO CB17
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PROFILES 2

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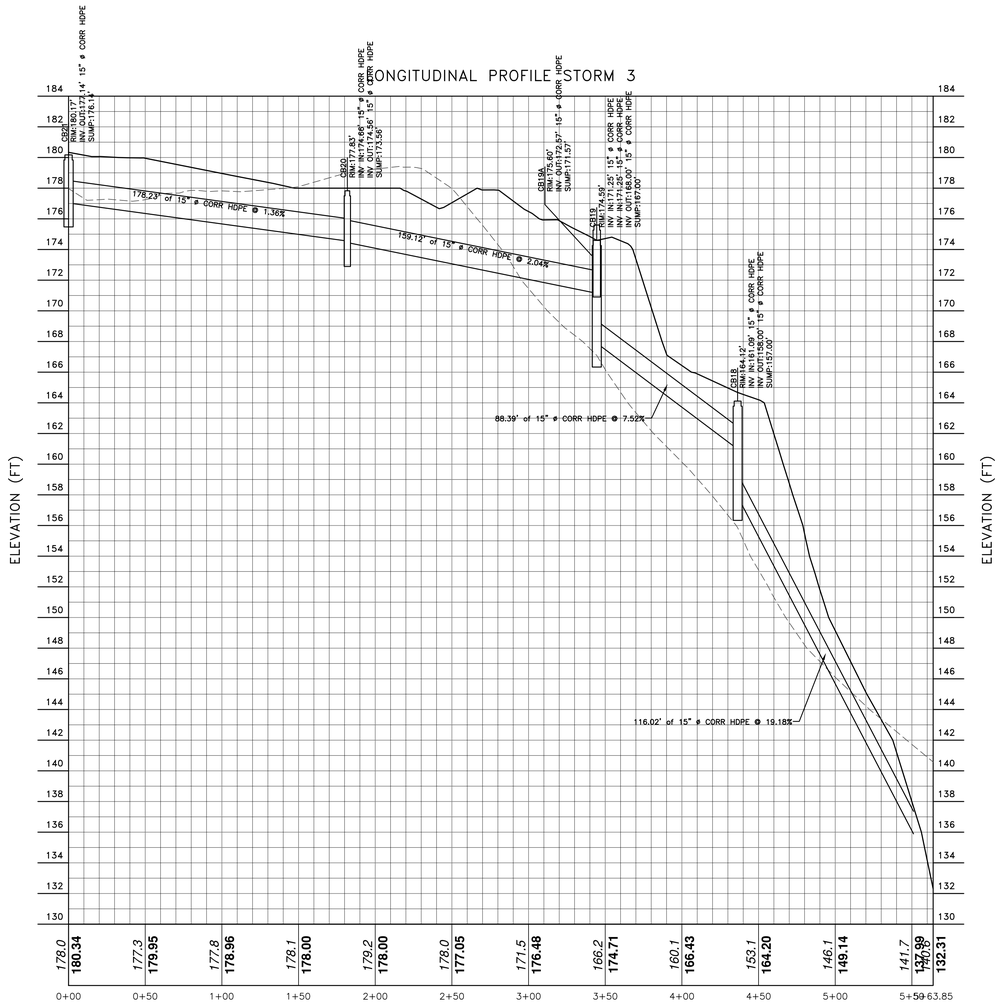
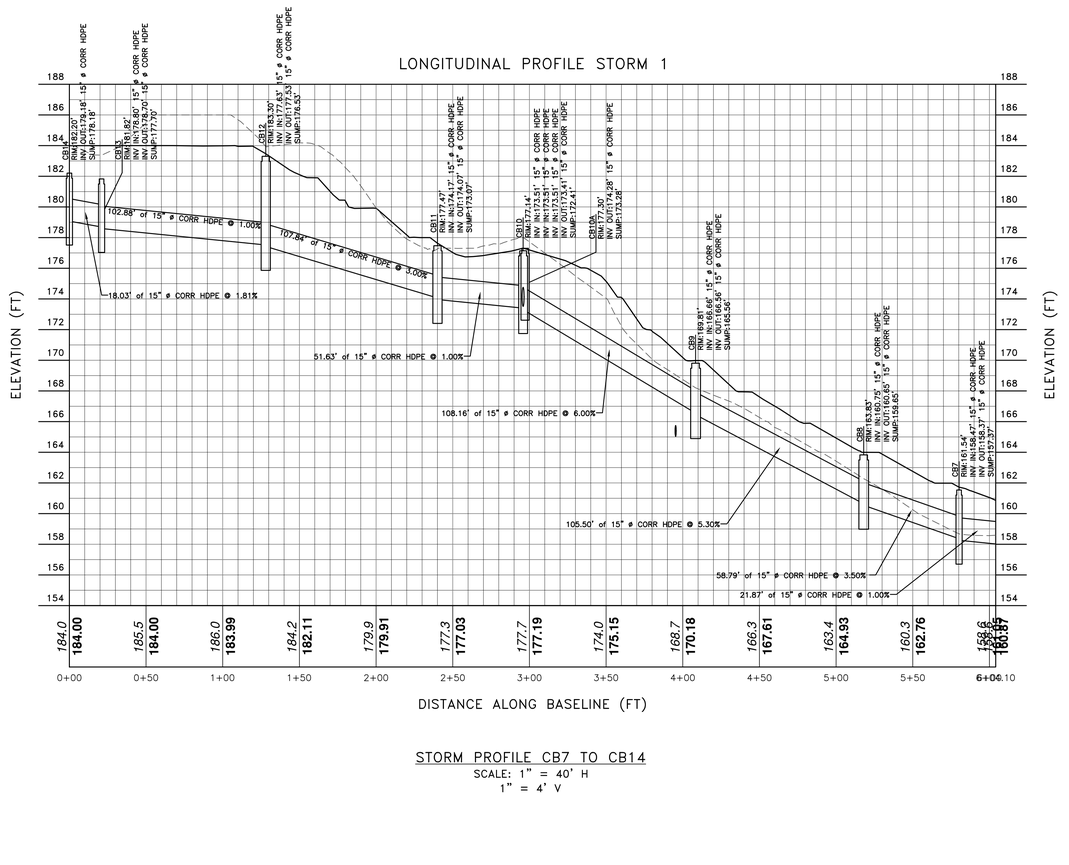


STORM PROFILE CB18 TO CB20
SCALE: 1" = 40' H
1" = 4' V



STORM PROFILE CB7 TO CB14
SCALE: 1" = 40' H
1" = 4' V

APPROVED BY RESOLUTION OF THE PLANNING BOARD OF THE CITY OF BEACON, NEW YORK, ON THE _____ DAY OF _____, 20_____, SUBJECT TO ALL REQUIREMENTS AND CONDITIONS OF SAID RESOLUTION. ANY CHANGE, ERASURE, MODIFICATION OR REVISION OF THIS PLAT, AS APPROVED, SHALL VOID THIS APPROVAL.

SIGNED THIS _____ DAY OF _____, 20_____, BY

_____ CHAIRMAN

_____ SECRETARY

IN ABSENCE OF THE CHAIRMAN OR SECRETARY, THE ACTING CHAIRMAN OR ACTING SECRETARY RESPECTIVELY MAY SIGN IN THIS PLACE.

DRAWN BY: CMB				CHECKED BY: MAB			
REVISIONS:				REVISIONS:			
NO.	DATE	DESCRIPTION	BY	NO.	DATE	DESCRIPTION	BY
1	5/25/22	ADDED SHEET	CMB				

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ARCHITECTURE & DESIGN
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SUITE 700N
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Mirbeau INN & SPA

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HUDSON LAND DESIGN

STATE OF NEW YORK MICHAEL A. BOCCIERI 084484 LICENSED PROFESSIONAL ENGINEER
SEAL

HUDSON LAND DESIGN
PROFESSIONAL ENGINEERING P.C.
174 MAIN ST., BEACON, NEW YORK 12508
13 CHAMBERS ST., NEWBURGH, NEW YORK 12550
PH: 845-440-6926
F: 845-440-6637

PROFILES 3

MIRBEAU BEACON

7 CRAIG HOUSE LANE
CITY OF BEACON
DUTCHESS COUNTY, NEW YORK
TAX ID: 6054-13-001258

JOB #:	2021:051
DATE:	3/29/2022
SCALE:	AS SHOWN
TITLE:	PR-3
SHEET:	14 OF 28

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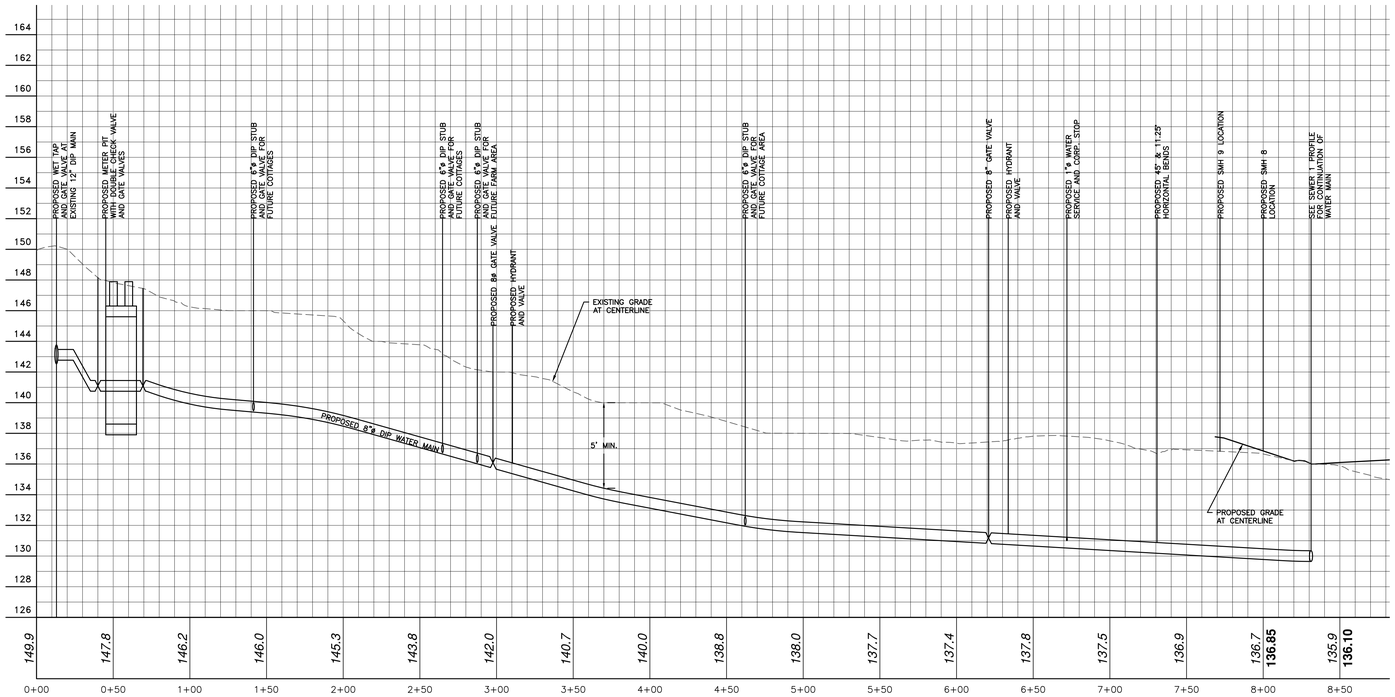
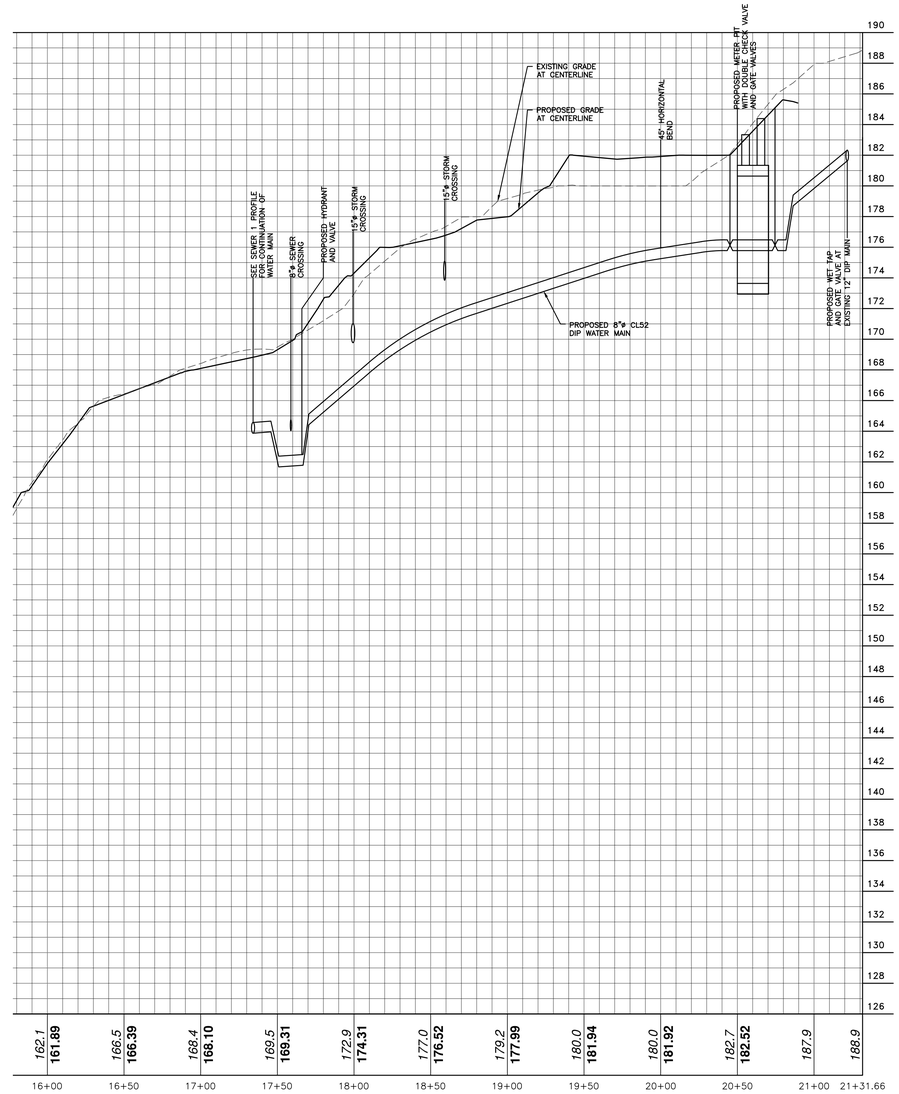


WATER PROFILE STA 0+00 TO STA 8+50
SCALE: 1" = 40' H
1" = 4' V



WATER PROFILE STA 16+00 TO STA 21+31.66
SCALE: 1" = 40' H
1" = 4' V

APPROVED BY RESOLUTION OF THE PLANNING BOARD OF THE CITY OF BEACON, NEW YORK, ON THE _____ DAY OF _____, 20_____ SUBJECT TO ALL REQUIREMENTS AND CONDITIONS OF SAID RESOLUTION. ANY CHANGE, ERASURE, MODIFICATION OR REVISION OF THIS PLAT, AS APPROVED, SHALL VOID THIS APPROVAL.

SIGNED THIS _____ DAY OF _____, 20_____, BY

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_____ SECRETARY

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DRAWN BY: CMB				CHECKED BY: MAB			
REVISIONS:				REVISIONS:			
NO.	DATE	DESCRIPTION	BY	NO.	DATE	DESCRIPTION	BY
1	5/25/22	ADDED SHEET	CMB				

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PROFILES 4

MIRBEAU BEACON

7 CRAIG HOUSE LANE
CITY OF BEACON
DUTCHESS COUNTY, NEW YORK
TAX ID: 6054-13-001258

JOB #:	2021:051
DATE:	3/29/2022
SCALE:	AS SHOWN
TITLE:	PR-4
SHEET:	15 OF 28

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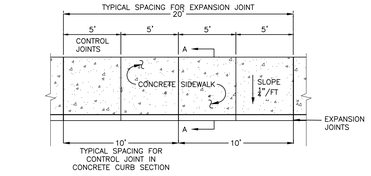
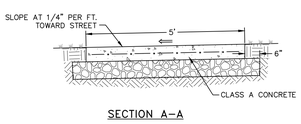
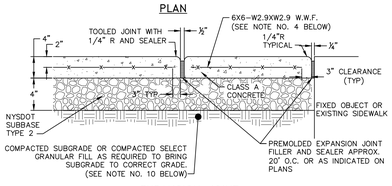


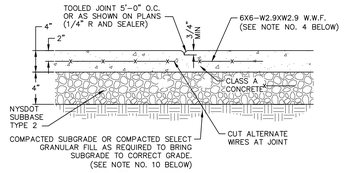


SECTION A–A

PLAN



EXPANSION JOINT

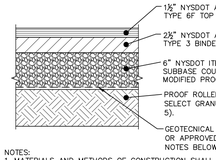


CONTROL JOINT

NOTES:

1. 10' SPACING OF CONTROL JOINTS SHALL BE USED FOR CAST IN PLACE CONCRETE CURBS.
2. MATERIAL AND METHODS OF CONSTRUCTION SHALL BE IN CONFORMANCE WITH THE NEW YORK STATE DEPARTMENT OF TRANSPORTATION (NYSDOT) STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, DATED JANUARY 2, 2002, AND ALL ADDENDA THERETO; THE ONLY EXCEPTION BEING THAT THE WORK OF THIS CONTRACT SHALL BE MEASURED IN ENGLISH UNITS.
3. ALL CONCRETE SHALL BE 3,500 PSI CLASS A CONCRETE. CONCRETE MATERIALS, PLACEMENT, AND CONSTRUCTION SHALL CONFORM WITH SECTION 500 OF THE ABOVE REFERENCED NYSDOT STANDARD SPECIFICATIONS.
4. REINFORCING STEEL FOR CONCRETE SHALL CONFORM WITH SECTION 556 – REINFORCING STEEL FOR CONCRETE STRUCTURES OF THE ABOVE REFERENCED NYSDOT STANDARD SPECIFICATIONS AND AS SPECIFICALLY CALLED OUT IN THE DRAWINGS.
5. ALL EXPOSED SURFACED SHALL HAVE A BROOM TEXTURED FINISH.
6. EXPANSION JOINTS SHALL BE LOCATED A MAXIMUM OF 20' ON CENTER, OR AS INDICATED ON PLANS.
7. JOINTS SHALL NOT BE SAW CUT.
8. EXPOSED CONCRETE SURFACES SHALL BE TREATED WITH "SUREBOND"/"SAFEBOND"SB–7000 INTENSIFIER BRIGHT PROTECTOR AND SIDEWALK SEALER, OR EQUAL. RATE AND METHOD OF APPLICATION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
9. SUBBASE MATERIAL SHALL CONFORM WITH SECTION 304 OF THE ABOVE REFERENCED NYSDOT STANDARD.
10. WHERE IT IS NECESSARY TO PLACE FILL FOR PURPOSE OF BRINGING THE SUBGRADE ELEVATION UP TO A SPECIFIED GRADE, THE FILL MATERIAL PLACED SHALL BE IN CONFORMATION WITH SECTION 203–EXCAVATION AND EMBANKMENT OF THE ABOVE REFERENCED NYSDOT STANDARD SPECIFICATIONS.
11. ALL WORK SHALL CONFORM WITH SECTION 608–SIDEWALK, DRIVEWAYS, AND BICYCLE PATHS OF THE ABOVE REFERENCED NYSDOT STANDARD SPECIFICATIONS.

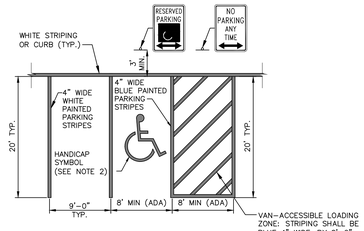
CONCRETE SIDEWALK DETAIL
NOT TO SCALE



NOTES:

1. MATERIALS AND METHODS OF CONSTRUCTION SHALL BE IN CONFORMANCE WITH THE NEW YORK STATE DEPARTMENT OF TRANSPORTATION (NYSDOT) STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, DATED JANUARY 2, 2002.
2. SUBGRADE SHALL NOT INCLUDE FROZEN MATERIALS, DEBRIS, ORGANIC MATERIALS, LARGE STONES OR OTHER UNSUITABLE MATERIALS.
3. TACK COAT WHEN SPECIFIED OR CALLED OUT IN THESE DRAWINGS OR REQUIRED BY THE REFERENCED SPECIFICATIONS SHALL CONFORM WITH SECTION 407–TACK COAT OF THE ABOVE REFERENCED NYSDOT STANDARD SPECIFICATIONS.
4. WHERE IT IS NECESSARY TO PLACE FILL FOR PURPOSES OF BRINGING THE SUBGRADE ELEVATION UP TO A SPECIFIED GRADE, THE FILL MATERIAL PLACED SHALL BE IN CONFORMANCE WITH SECTION 203–EXCAVATION AND EMBANKMENT OF THE ABOVE REFERENCED NYSDOT STANDARD SPECIFICATIONS.
5. IT IS EXPECTED THAT THE EXISTING SITE SUB–SOILS ARE SAND AND GRAVEL IN NATURE (CALIFORNIA BEARING RATIO RANGE BETWEEN 40 AND 80) . IF UNSUITABLE SOILS ARE ENCOUNTERED DURING CONSTRUCTION, THE CONTRACTOR SHALL CONTACT THE ENGINEER FOR POSSIBLE MODIFICATIONS TO THE PAVEMENT DETAIL.

PAVEMENT SECTION DETAIL
NOT TO SCALE



TYPICAL PARKING STRIPING

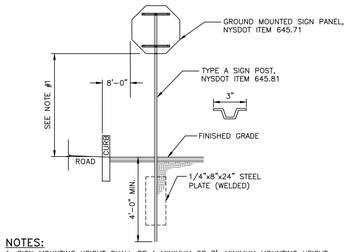
HANDICAP PARKING STRIPING

NOTES:

1. ALL DIMENSIONS SUBJECT TO CURRENT MUNICIPALITY ZONING AND SITE REGULATIONS.
2. PAINTED HANDICAP SYMBOL TO BE IN ACCORDANCE WITH NYSDOT AND ADA STANDARDS.
3. IF PARKING ABUTS A SIDEWALK, THEN THE REGULATORY SIGNS SHALL BE PLACED BEHIND THE SIDEWALK.

PARKING AND STRIPING DETAIL
NOT TO SCALE

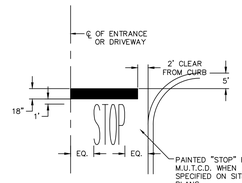
TEXT	APPROXIMTE SIZE OF SIGN	MUTCD NO.	COLOR		TYPE OF MOUNTING
			BACKGROUND	LEGEND	
STOP	30"x30"	R1–1	RED	WHITE	POST MOUNT



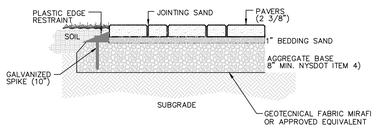
NOTES:

1. SIGN MOUNTING HEIGHT SHALL BE A MINIMUM OF 7'. MINIMUM MOUNTING HEIGHT MAY BE ADJUSTED ONLY IN ACCORDANCE WITH PROVISIONS OUTLINED IN "NYCRR, CHAPTER V–UNIFORM TRAFFIC CONTROL DEVICES."
2. SIGN POST SHALL BE IN ACCORDANCE W/ NYSDOT STANDARD SPECS SECTION 730.
3. SIGN BRACING PER NYSDOT STANDARD SHEETS.
4. SIGN POSTS WITHIN THE COUNTY RIGHT–OF–WAY SHALL BE BREAKAWAY TYPE MEETING THE REQUIREMENTS OF THE NYSDOT.

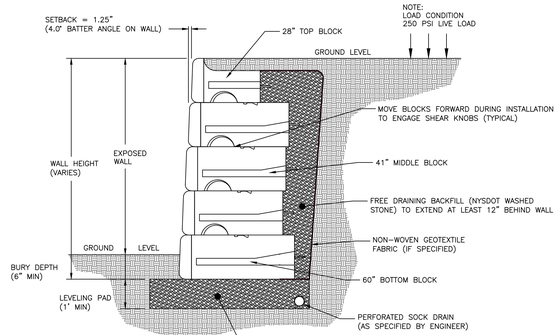
SINGLE POST SIGN DETAIL
NOT TO SCALE



STOP BAR DETAIL
NOT TO SCALE



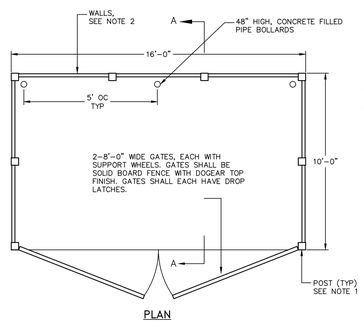
CONCRETE PAVER DETAIL
NOT TO SCALE



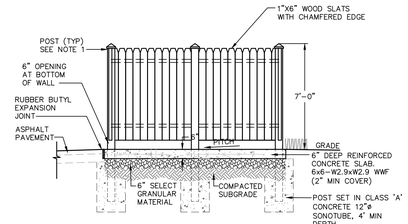
NOTES:

1. RETAINING WALL MANUFACTURED BY REDI–ROCK OR APPROVED EQUAL.
2. REDI–ROCK WALLS ARE PROPOSED AT THE PARKING AREA NEAR BUILDINGS 1 AND 2, BEHIND BUILDING 5 & 6 AND AT THE WEST SIDE OF THE SITE ENTRANCE DRIVEWAY OFF BRANCH STREET. THE RETAINING WALL AT BUILDING 4 IS A CAST–IN–PLACE CONCRETE WALL DESIGNED BY OTHERS.
3. THE RETAINING WALL SHALL BE DESIGNED BY A NEW YORK STATE LICENSED ENGINEER AND PLANS SHALL BE SUBMITTED TO THE BEACON BUILDING DEPARTMENT PRIOR TO CONSTRUCTION.
4. SEE MANUFACTURER'S DETAILS AND INSTALLATION GUIDELINES FOR FURTHER REQUIREMENTS.

TYPICAL REDI–ROCK GRAVITY WALL WITH 41" BLOCKS
NOT TO SCALE



PLAN

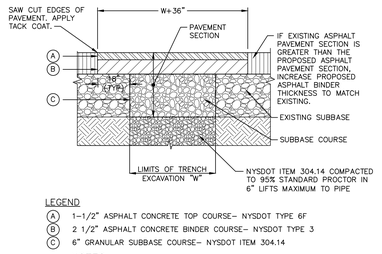


SECTION A–A

NOTES

1. POSTS SHALL HAVE A DECORATIVE CAP, CONSISTENT WITH THE ARTS & CRAFTS STYLE, AS APPROVED BY OWNER. POST SPACING SHALL BE AS REQUIRED BY WALL CONSTRUCTION.
2. WALLS OF DUMPSTER ENCLOSURE SHALL BE A SOLID WOOD PRIVACY FENCING NATURAL STAIL OR PAINT TO COMPLEMENT BUILDING.

TRASH ENCLOSURE DETAILS
NOT TO SCALE



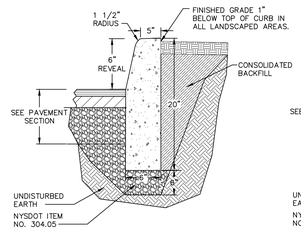
LEGEND

(A) 1–1/2" ASPHALT CONCRETE TOP COURSE– NYSDOT TYPE 6F
(B) 2 1/2" ASPHALT CONCRETE BINDER COURSE– NYSDOT TYPE 3
(C) 6" GRANULAR SUBBASE COURSE– NYSDOT ITEM 304.14

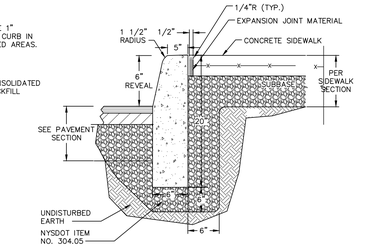
NOTES:

1. SAW CUT MIN. 18" BEYOND EXCAVATION WITH SMOOTH EDGES. 18" JOINT BETWEEN EXISTING AND NEW TOP COURSE TO BE MILLED. JOINT TO BE SEALED WITH POLYMER MODIFIED SEALER.
2. FURNISH, PLACE, AND COMPACT SUBBASE.
3. TACK COAT IN ACCORDANCE WITH NYSDOT STANDARD SPEC.
4. FURNISH AND PLACE ASPHALT CONCRETE PAVEMENT AS SPECIFIED.

PAVEMENT RESTORATION DETAIL
NOT TO SCALE



ABUTTING GRASS OR LANDSCAPE

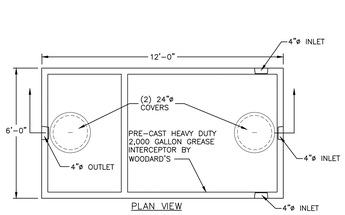


ABUTTING SIDEWALK

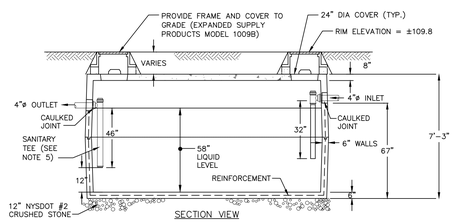
NOTES:

1. CONCRETE CURB SHALL BE 4,000 PSI CAST–IN–PLACE, AND IN ACCORDANCE WITH NYSDOT STANDARD SPECIFICATION SECTION 609.
2. EXPANSION JOINTS OF 1/2" CELLULOSE OR SIMILAR MATERIAL SHALL BE PLACED AT 10 FOOT INTERVALS.
3. FOR MOUNTABLE CURBS ABUTTING SIDEWALK OR OTHER HARDSCAPE, REFER TO "ABUTTING SIDEWALK" DETAIL.

CAST–IN–PLACE CONCRETE CURB DETAIL
NOT TO SCALE



PLAN VIEW

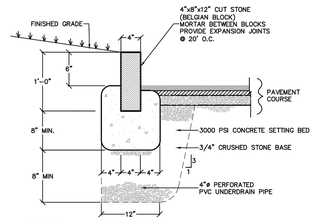


SECTION VIEW

NOTES:

1. TANK SHALL BE RATED FOR H20 VEHICLE LOADING.
2. A WATER TIGHTNESS TEST SHALL BE COMPLETED BY THE CONTRACTOR, WITNESSED BY THE ENGINEER AND REGULATORY AGENCY, AND SHALL INCLUDE FILLING THE TANK AND MEASURING WATER LEVEL OVER A 24–HOUR PERIOD OR OTHER ACCEPTABLE METHOD.
3. ALL JOINTS SHALL BE WATER TIGHT.
4. CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI AT 28 DAYS.
5. SANITARY TEES ON OUTLET SIDE SHALL BE EXTENDED TO THE BOTTOM 1/3 OF THE TANK, BUT NO CLOSER THAN 12" TO THE TANK BOTTOM.
6. A RECORD OF MAINTENANCE OF THE GREASE INTERCEPTOR SHALL BE KEPT AND SHALL BE MADE AVAILABLE TO THE MUNICIPALITY AND/OR ITS CONSULTANTS.

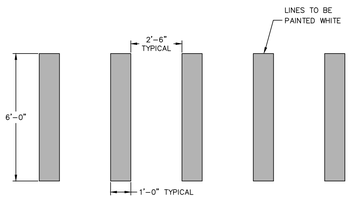
PRECAST CONCRETE 2,000 GALLON GREASE INTERCEPTOR DETAIL (H20 LOAD RATED)
NOT TO SCALE



NOTES:

1. EXPANSION JOINTS OF 3/16" CELLULOSE OR SIMILAR MATERIAL SHALL BE PLACED AT TEN FOOT INTERVALS, TO FULL DEPTH OF CURB.
2. UNDERDRAIN MAY BE ELIMINATED IN PARKING LOTS AND OTHER NON–PUBLIC FACILITIES.

BELGIAN BLOCK CURB DETAIL
N.T.S.



PAINTED CROSSWALK DETAIL
NOT TO SCALE

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DRAWN BY: CMB				CHECKED BY: MAB			
REVISIONS:				REVISIONS:			
NO.	DATE	DESCRIPTION	BY	NO.	DATE	DESCRIPTION	BY
1	5/25/22	PER PLANNING BOARD COMMENTS	CMB				

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● Land Planning

HUDSON LAND DESIGN

STATE OF NEW YORK MICHAEL A. BOGDANOS 084486 LICENSED PROFESSIONAL ENGINEER
SEAL

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F: 845–440–6637

CONSTRUCTION DETAILS

MIRBEAU BEACON

7 CRAIG HOUSE LANE
CITY OF BEACON
DUTCHESS COUNTY, NEW YORK
TAX ID: 6054–13–001258

JOB #:	2021:051
DATE:	3/29/2022
SCALE:	AS SHOWN
TITLE:	CD–1
SHEET:	16 OF 28

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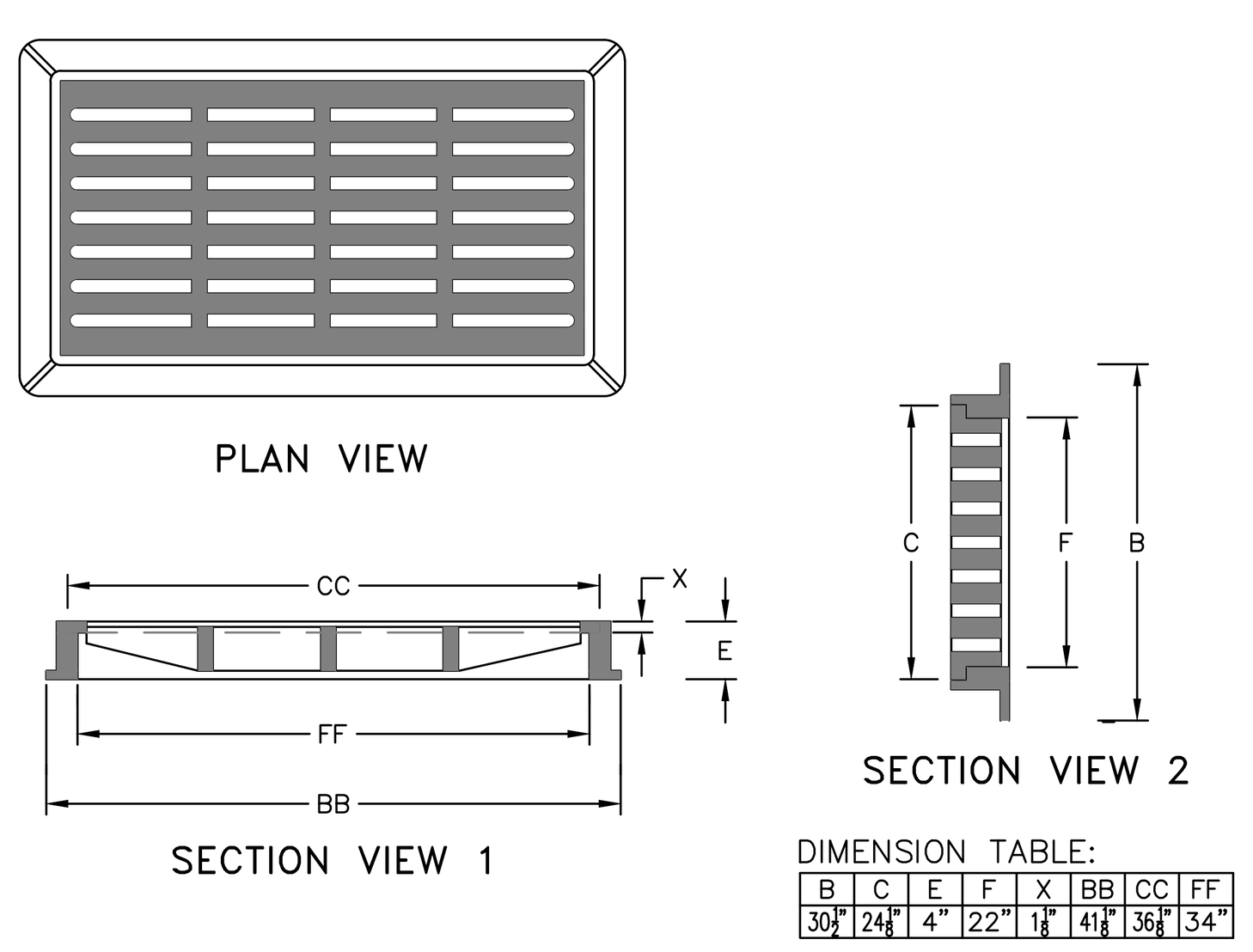


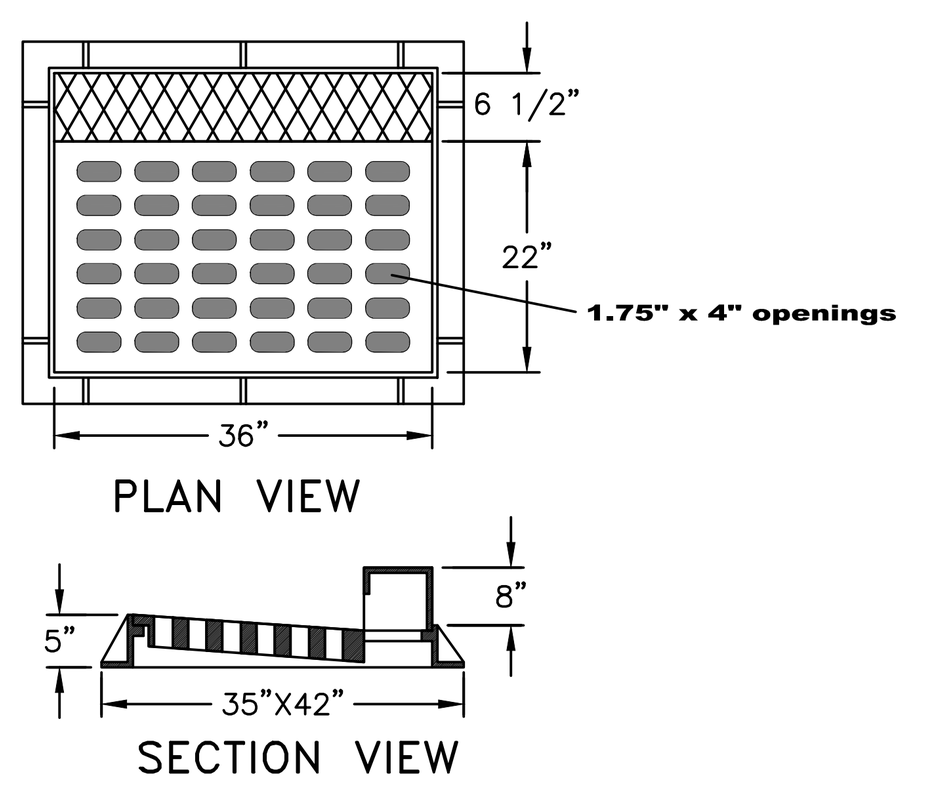
DIMENSION TABLE:

B	C	E	F	X	BB	CC	FF
30½"	24⅜"	4"	22"	1⅛"	41⅛"	36⅜"	34"

NOTES:

1. HEAVY DUTY RECTANGULAR STORMWATER INLET GRATE TO BE CAMPBELL FOUNDRY MODEL 3433, OR APPROVED EQUAL.
2. CATCH BASINS TO RECEIVE FLAT INLETS ARE: TBD

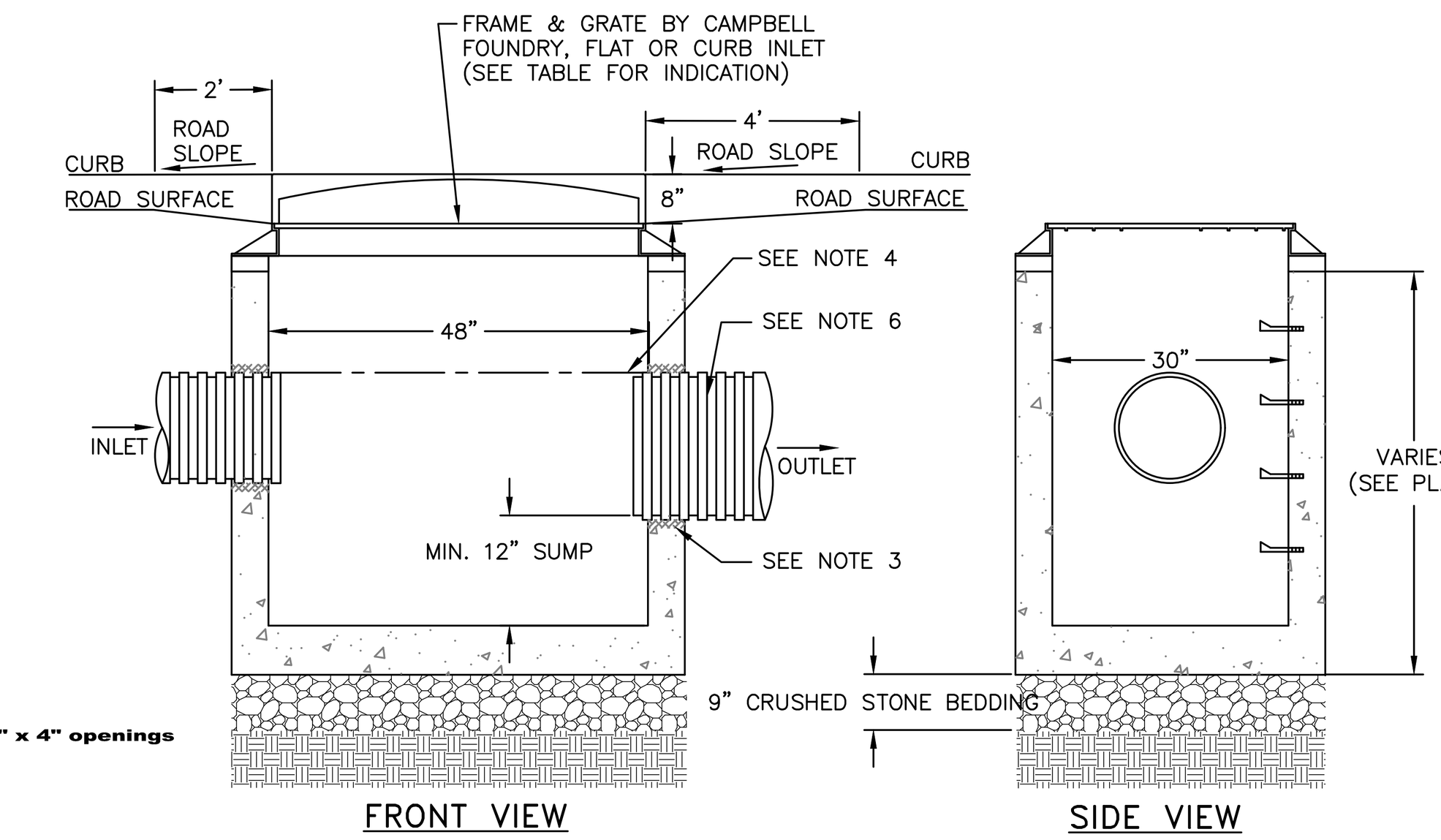
CAST IRON STORMWATER FLAT INLET GRATE DETAIL
NOT TO SCALE



NOTES:

1. HEAVY DUTY RECTANGULAR STORMWATER INLET GRATE TO BE CAMPBELL FOUNDRY MODEL 2541, OR APPROVED EQUAL.
2. ALL CATCH BASINS TO RECEIVE CURB INLETS UNLESS OTHERWISE NOTED.

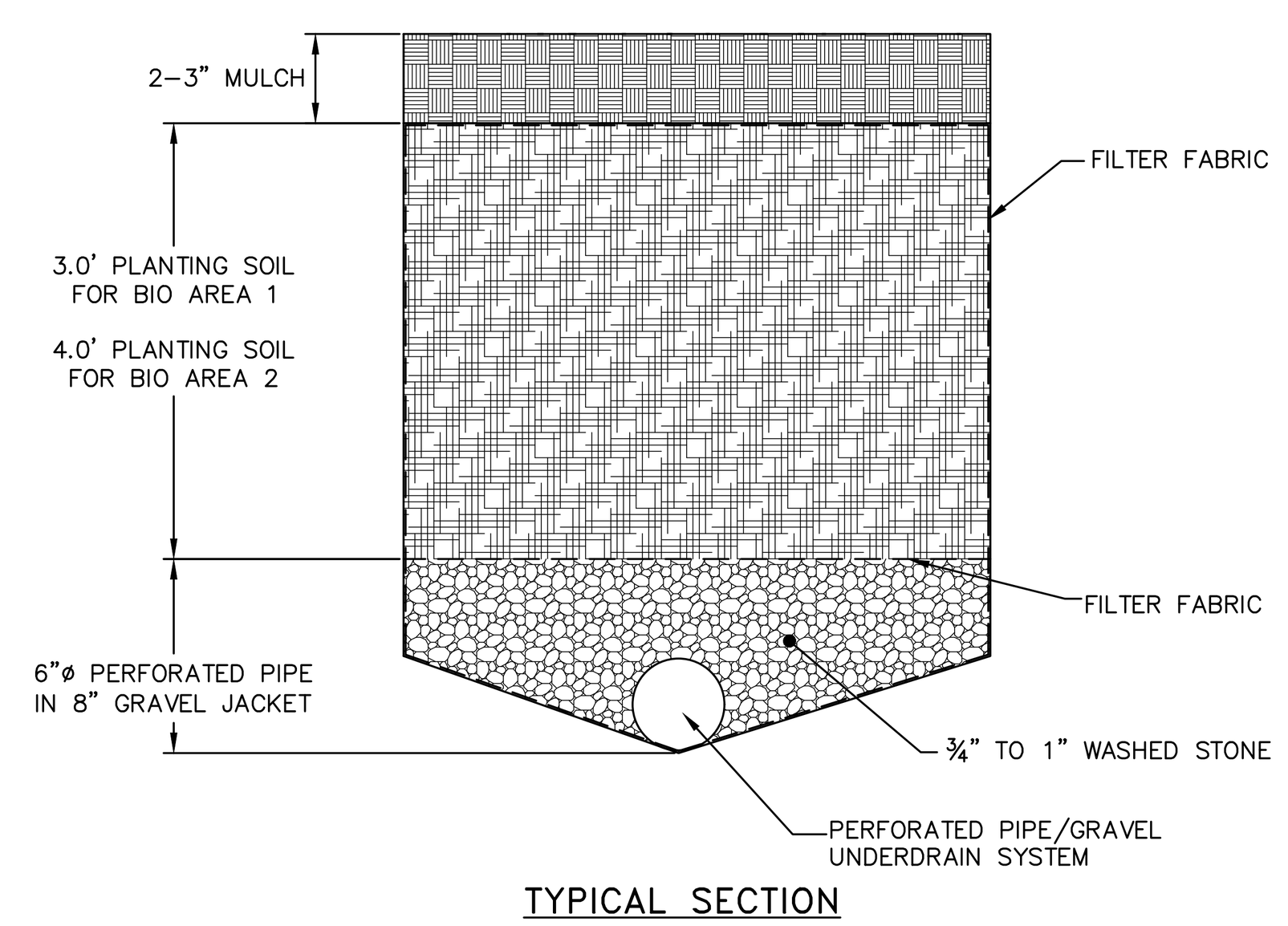
CAST IRON STORMWATER
CURB INLET GRATE DETAIL
NOT TO SCALE

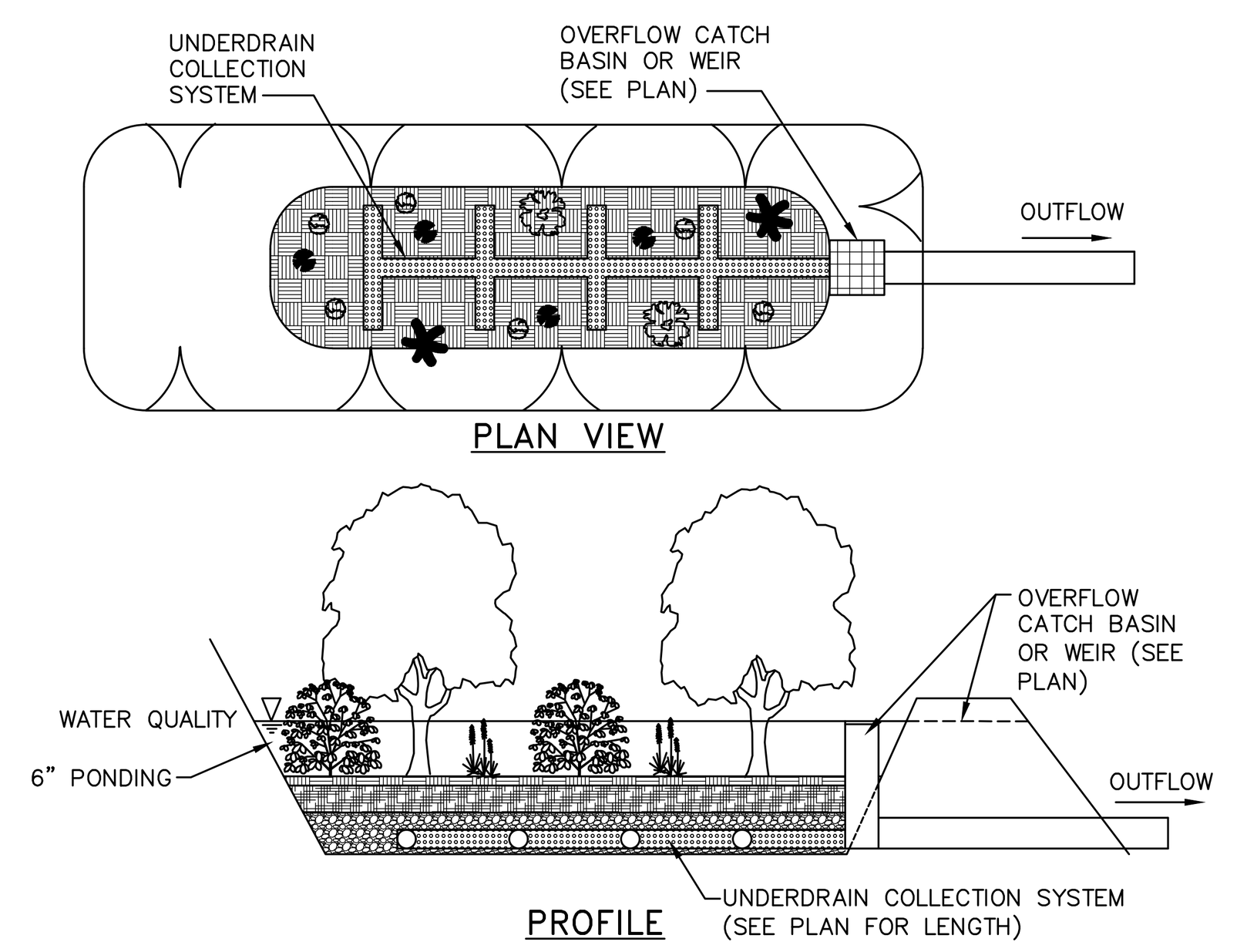


NOTES:

1. PRECAST CONCRETE CATCH BASIN WITH CONCRETE STRENGTH OF 4,000 PSI @ 28 DAYS.
2. THE ENDS OF ALL PIPES SHALL BE CUT OFF FLUSH WITH THE INSIDE SURFACE OF THE CATCH BASIN AND PARGED AROUND.
3. PIPES SHALL BE PARGED AROUND INTERIOR AND EXTERIOR PRIOR TO BACKFILLING OF STRUCTURE. CONNECTIONS MADE WITHIN 10 FEET OF A WATER MAIN (OR SERVICE LINE) OR A SEWER MAIN (OR SERVICE LATERAL) SHALL BE MADE WATERTIGHT.
4. PROVIDE A MINIMUM 0.1' DROP BETWEEN INLET AND OUTLET INVERTS (MATCH CROWNS FOR PIPES WITH DIFFERENT SIZE) UNLESS OTHERWISE NOTED ON THE PLAN.
5. CATCH BASINS WITH AN INTERIOR DEPTH OF 4' AND GREATER SHALL BE FURNISHED WITH STEEL REINFORCED POLYPROPYLENE PLASTIC STEPS AT 12" INTERVALS.
6. HDPE PIPE SHALL BE PROVIDED WITH WATERTIGHT CONNECTIONS. ADS MODEL N12 WT IB OR APPROVED EQUAL.

CATCH BASIN DETAIL
NOT TO SCALE

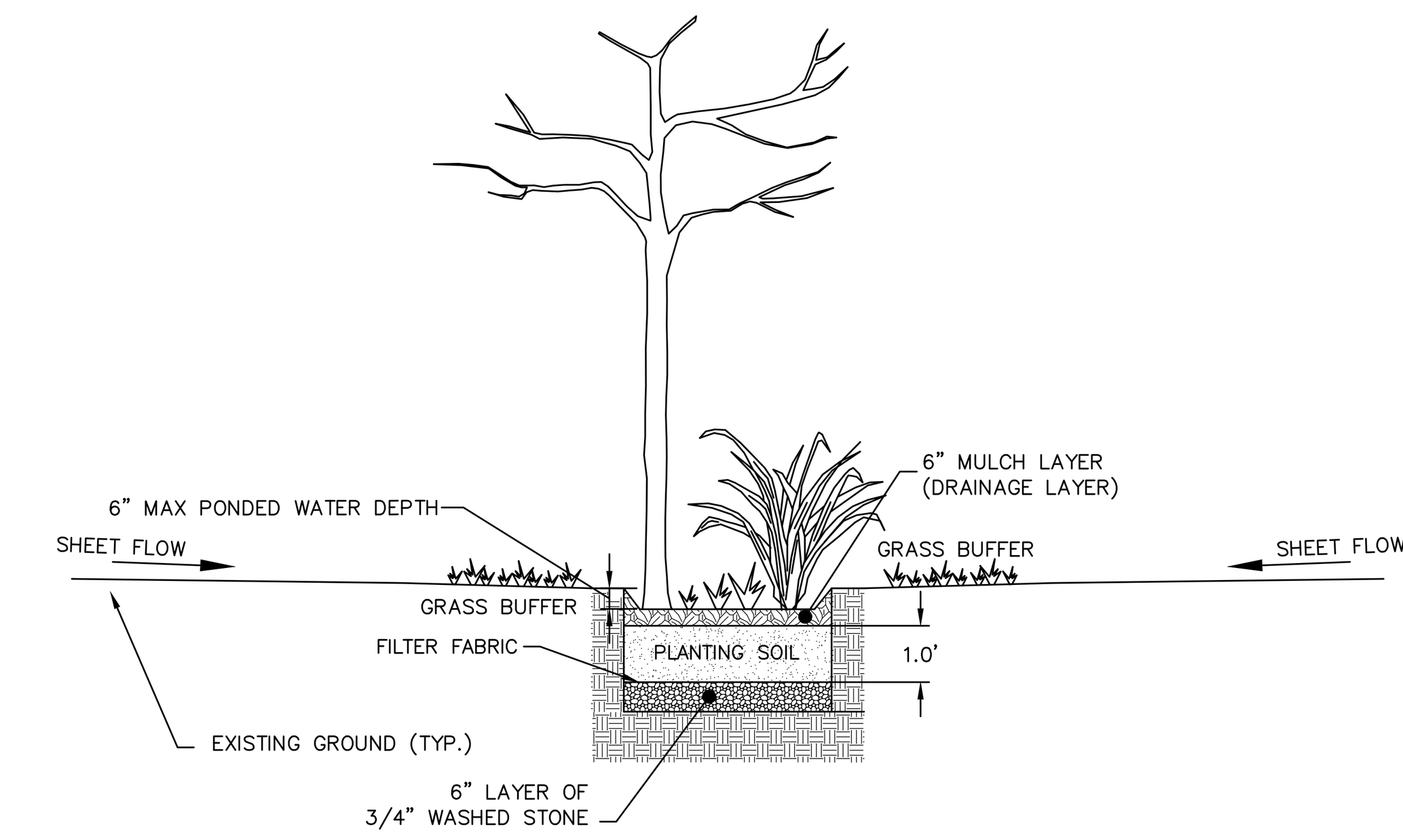




NOTES:

1. NO RUNOFF IS TO ENTER THE BIORETENTION AREA UNTIL ALL CONTRIBUTING DRAINAGE AREAS HAVE BEEN STABILIZED.
2. LANDSCAPING TO BE PROVIDED BY THE PROJECT LANDSCAPE ARCHITECT AND AS FOLLOWS:
   - NATIVE PLANT SPECIES SHOULD BE SPECIFIED BASED ON SPECIFIED ZONE OF HYDRIC TOLERANCE
   - SELECTIONS OF TREES WITH AN UNDERSTORY OF SHRUBS AND HERBACEOUS MATERIALS SHOULD BE PROVIDED.
   - WOODY VEGETATION SHOULD NOT BE SPECIFIED AT INFLOW LOCATIONS.
   - TREES SHOULD BE PLANTED PRIMARILY ALONG THE PERIMETER OF THE FACILITY.
   - A TREE DENSITY OF 1 TREE PER 100 SQUARE FEET IS RECOMMENDED, AND SHRUBS/HERBACEOUS VEGETATION SHOULD GENERALLY BE PLANTED AT HIGHER DENSITIES (FIVE FEET ON CENTER AND 2.5 FEET ON CENTER, RESPECTIVELY).
3. SEE PLAN FOR PRETREATMENT.

TYPICAL BIORETENTION DETAIL
NOT TO SCALE



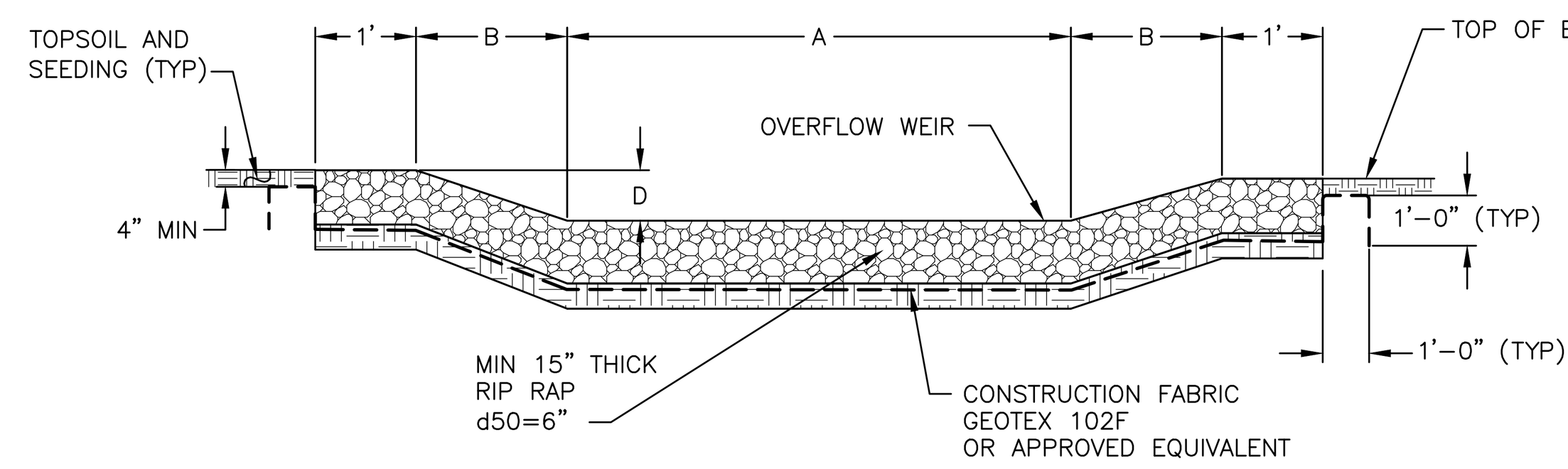
RAIN GARDEN PLANT SCHEDULE

TAG	BOTANICAL NAME	COMMON NAME	SIZE	SPACING	QTY
SP	CLETHRA ALNIFOLIA	SWEET PEPPERBRUSH	8" CONTAINER	18" O.C.	3
RD	CORNUS STOLONIFERA	RED–OSIER DOGWOOD	8" CONTAINER	18" O.C.	2
LV	LLEX VERTICILLATA	WINTERBERRY	8" CONTAINER	18" O.C.	2
VD	VIBURNUM DENTATUM	ARROWWOOD	8" CONTAINER	18" O.C.	2
SC	SCIRPUS CYPERNIUS	WOOLGRASS	8" CONTAINER	18" O.C.	5
NA	ASTER NOVAE–ANGLIAE	NEW ENGLAND ASTER	8" CONTAINER	18" O.C.	4

NOTES

1. RAIN GARDEN TO HAVE A MINIMUM FOOTPRINT OF 240 SQUARE FEET WITH 10:1 SIDE SLOPES AT 0.5' DEEP; 1.0' SOIL MEDIA DEPTH; 0.5' DRAINAGE LAYER DEPTH; AND 0.5' PONDING DEPTH.
2. DIRECT ROOF LEADER DISCHARGE TO RAIN GARDEN.
3. PLANTS SHALL BE PLACED IN AREA SHOWN ON THE PLAN.

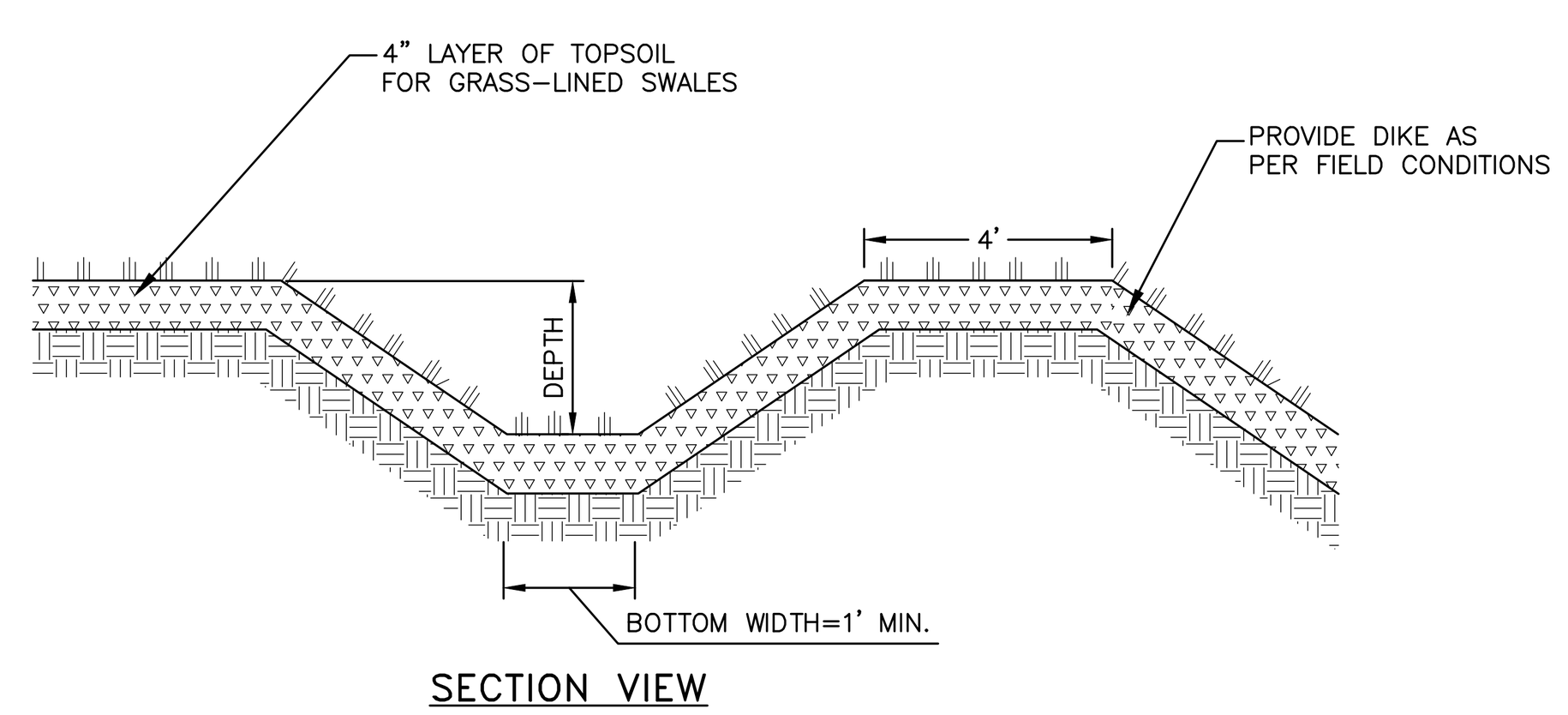
TYPICAL RAIN GARDEN DETAIL
NOT TO SCALE



NOTES:

1. RIP RAP OUTLET PROTECTION SHALL BE 15" OF LIGHT STONE FILLING. STONE FILLING SIZE d50=6", RIVER ROCK MAY BE SUBSTITUTED FOR ANGULAR STONE.

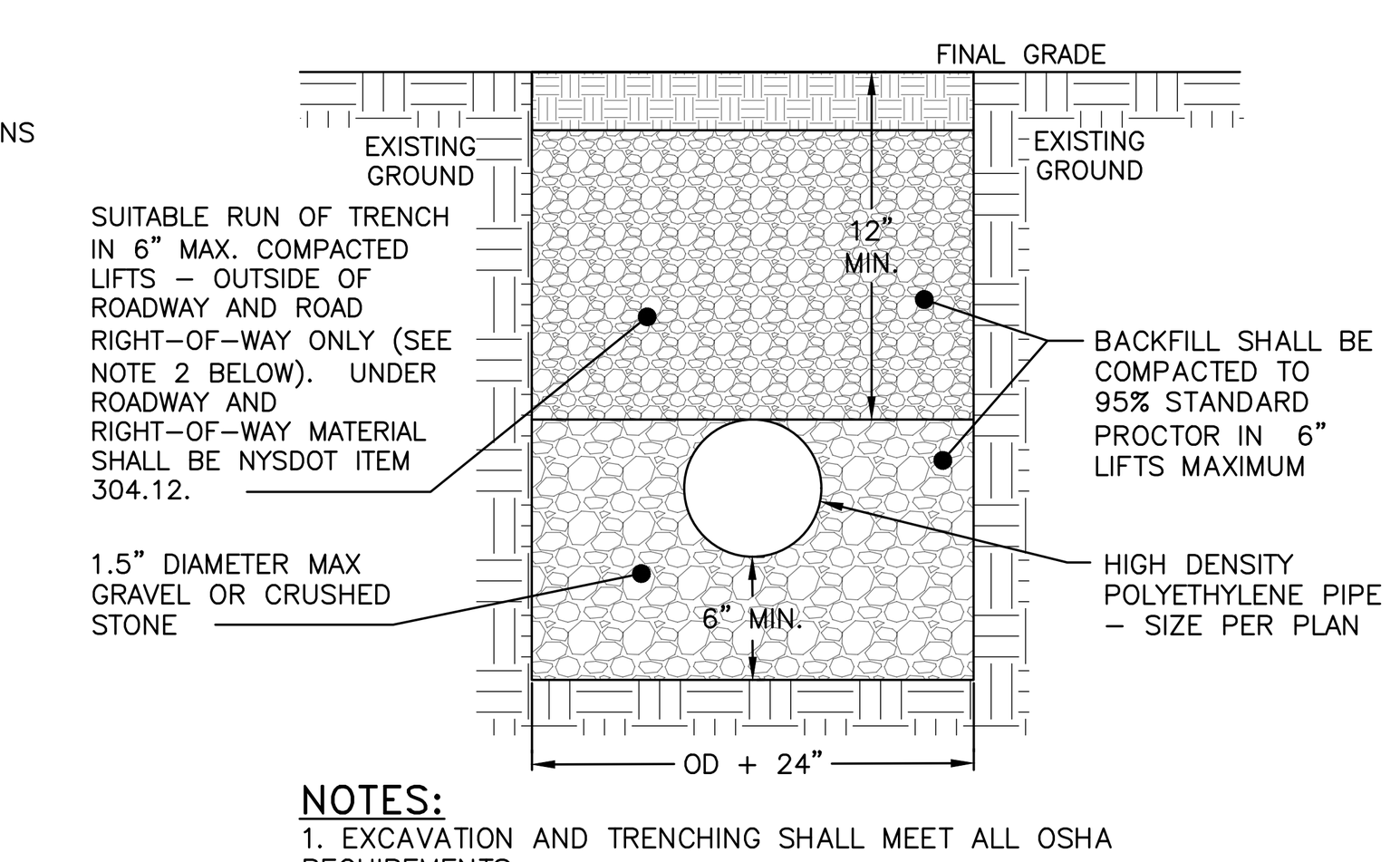
EMERGENCY OVERFLOW WEIR DETAIL
NOT TO SCALE



NOTES:

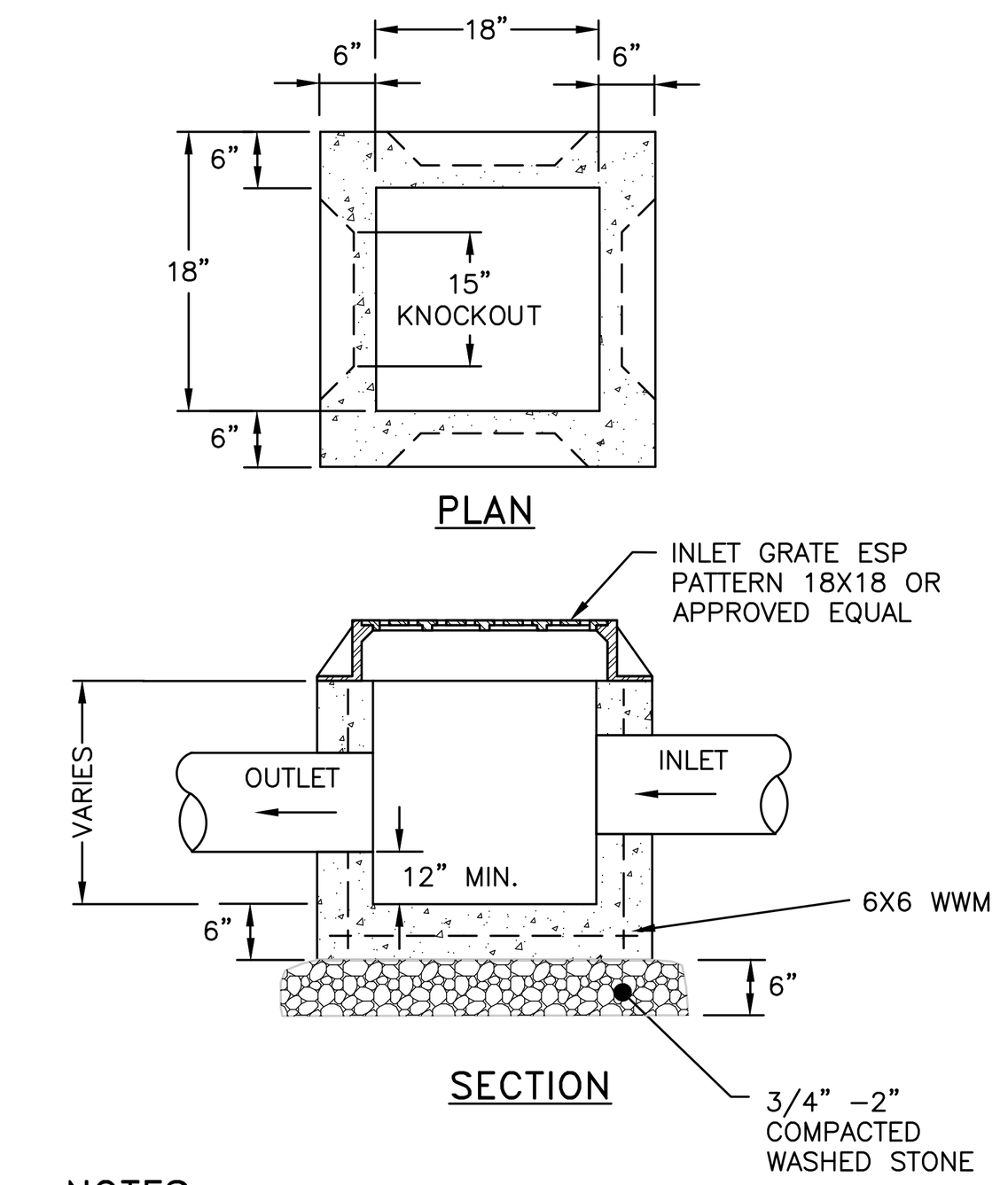
1. MINIMUM 1' DEPTH AND 1' WIDTH FOR ALL SWALES.
2. SWALE SHALL BE SEEDED WITH FAST GERMINATING RYE 15 TO 25 POUNDS PER 1,000 SQUARE FEET AND MULCHED.

TEMPORARY GRASS LINED SWALE/DIKE DETAIL
NOT TO SCALE



NOTES:
1. EXCAVATION AND TRENCHING SHALL MEET ALL OSHA REQUIREMENTS.

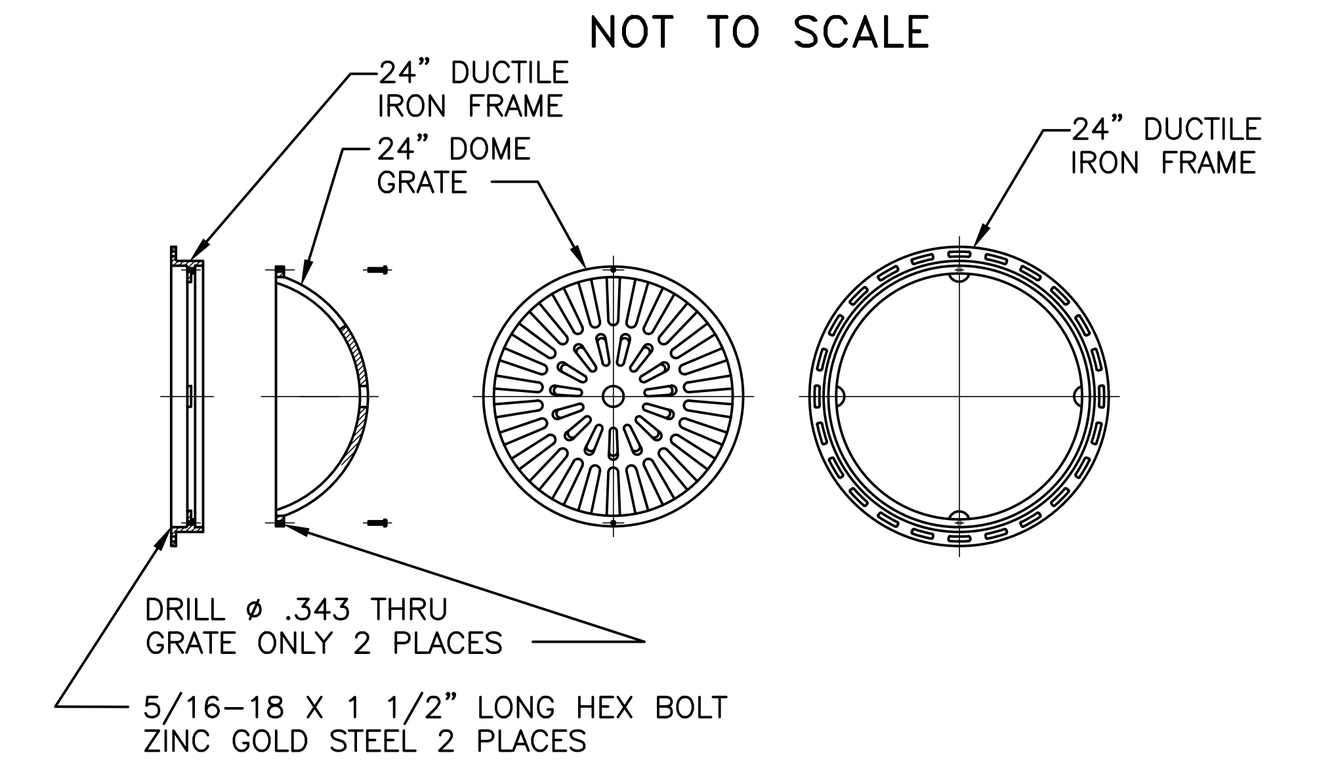
STORM LINE TRENCH DETAIL
NOT TO SCALE

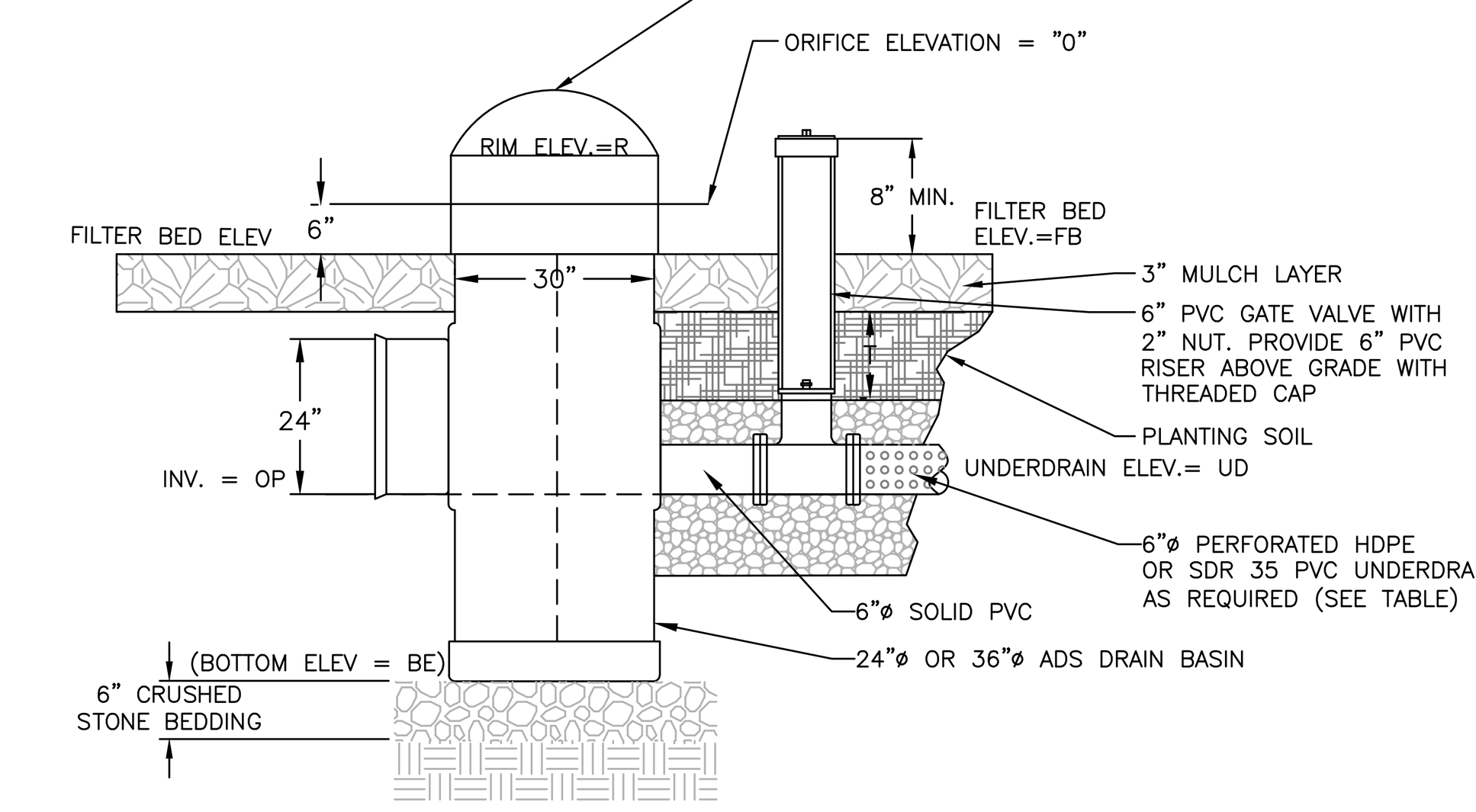


NOTES:

1. YARD INLET BASINS SHALL BE PRE CAST REINFORCED CONCRETE SHALL HAVE A MINIMUM 28–DAY COMPRESSIVE STRENGTH OF 4,000 PSI AND SHALL BE IN CONFORMANCE WITH ASTM 478–68. WALLS AND BASE SHALL BE ONE PIECE CONSTRUCTION. YARD INLET BASIN SHOWN BY EXPANDED SUPPLY PRODUCTS (ESP), 3330 ROUTE 9, COLD SPRING, NY (845) 265–3771.
2. BACKFILL USING SELECT MATERIAL, COMPACTED IN 6" LIFTS.
3. SUMP SHALL BE 12".
4. FRAMES AND GRATES SHALL BE SET IN A FULL BED OF MORTAR.

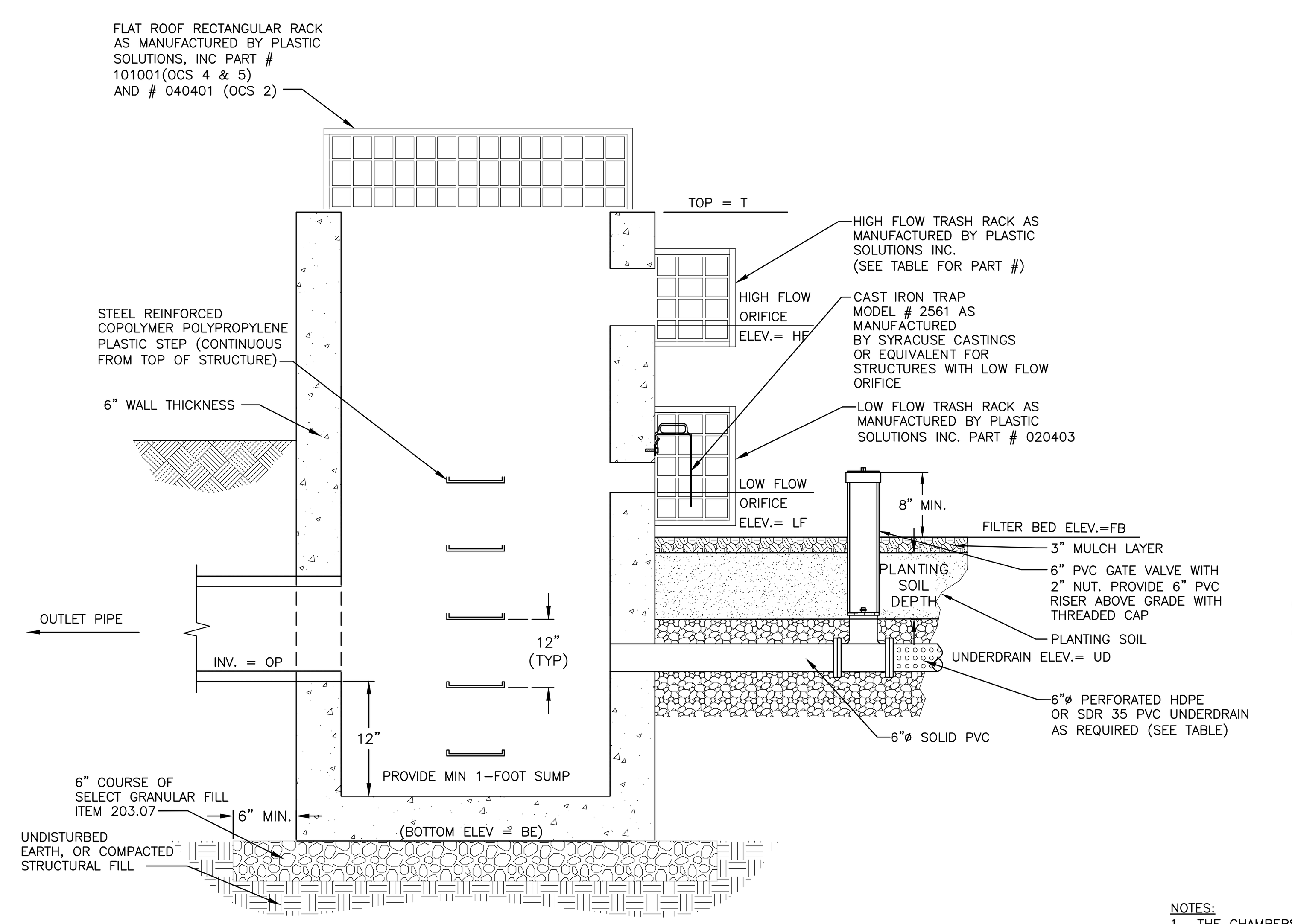
PRE–CAST CONCRETE YARD INLET DETAIL
NOT TO SCALE





NOTES:
* UNDERDRAIN PIPE TO BE PROVIDED FOR DEWATERING PURPOSES ONLY. GATE VALVE TO REMAIN CLOSED.

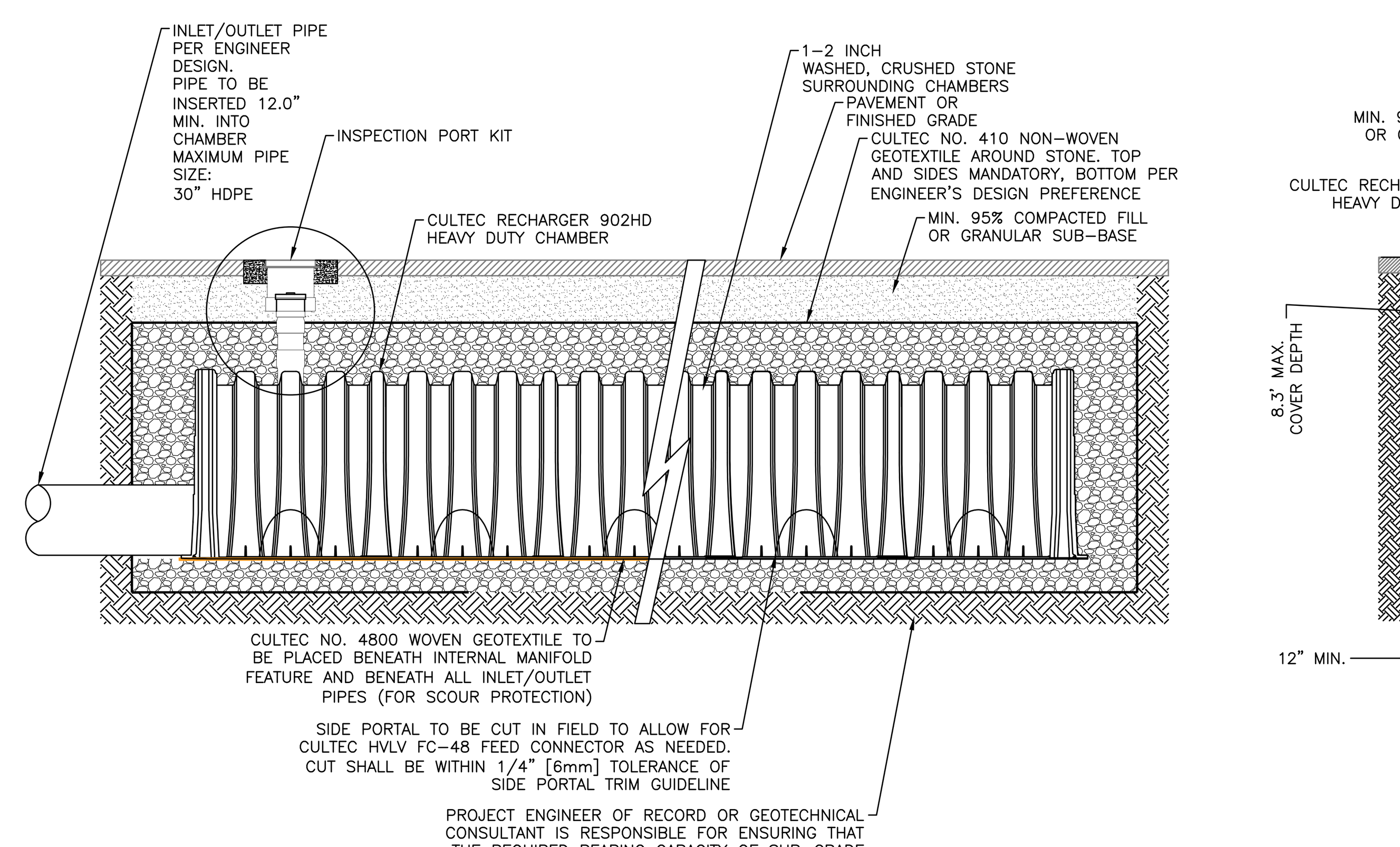
ADS DRAIN BASIN OUTLET
CONTROL STRUCTURE DETAIL
NOT TO SCALE



NOTES:

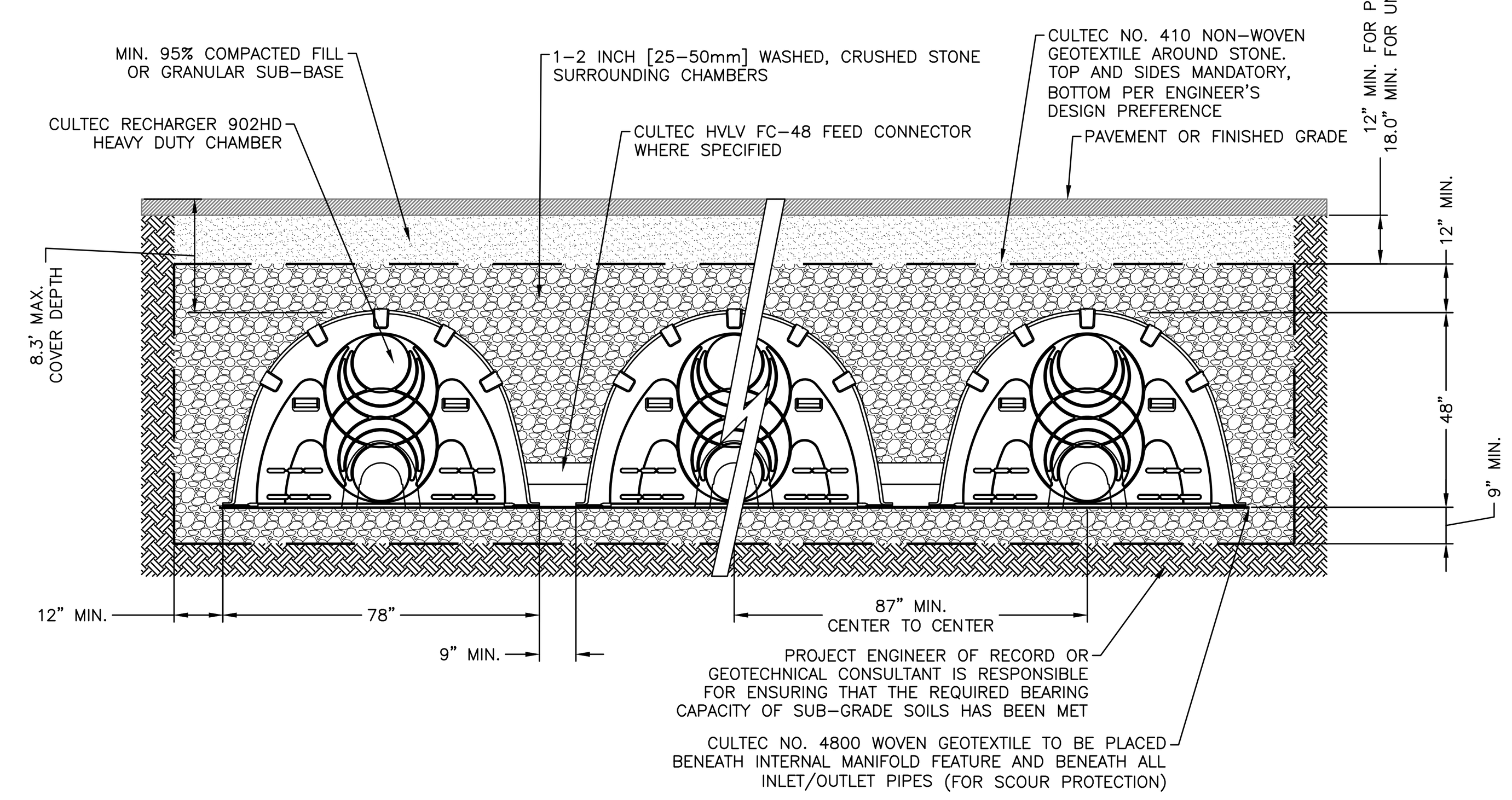
1. ALL TRASH RACKS SHALL HAVE UV PROTECTION MEETING OR EXCEEDING THE REQUIREMENTS OF ASTM D2565–99.
2. TRASH RACKS SHALL BE SECURED PER THE MANUFACTURER'S RECOMMENDATIONS.
3. WHERE HIGH FLOW ORIFICE EXTENDS TO TOP OF STRUCTURE, THE MAXIMUM ALLOWABLE GAP BETWEEN THE TRASH RACKS SHALL BE 4".

BIORETENTION OUTLET CONTROL STRUCTURE DETAIL
NOT TO SCALE



NOTES:

1. THE CHAMBERS SHALL BE DESIGNED AND TESTED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS." THE LOAD CONFIGURATION SHALL INCLUDE:
   1.a. INSTANTANEOUS AASHTO DESIGN TRUCK LIVE LOAD AT MINIMUM COVER
   1.b. MAXIMUM PERMANENT (50–YEAR) COVER LOAD
   1.c. 1–WEEK PARKED AASHTO DESIGN TRUCK LOAD
2. THE CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F3430–20 "STANDARD SPECIFICATION FOR CELLULAR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS"
3. THE INSTALLED CHAMBER SYSTEM SHALL PROVIDE RESISTANCE TO THE LOADS AND LOAD FACTORS AS DEFINED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS SECTION 12.12, WHEN INSTALLED ACCORDING TO CULTEC'S RECOMMENDED INSTALLATION INSTRUCTIONS. THE STRUCTURAL DESIGN OF THE CHAMBERS SHALL INCLUDE THE FOLLOWING:
   3.a. THE CREEP MODULUS SHALL BE 50–YEAR AS SPECIFIED IN ASTM F3430
   3.b. THE MINIMUM SAFETY FACTOR FOR LIVE LOADS SHALL BE 1.75
   3.c. THE MINIMUM SAFETY FACTOR FOR DEAD LOADS SHALL BE 1.95



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UNDERGROUND DETENTION/INFILTRATION SYSTEM DETAIL
NOT TO SCALE

APPROVED BY RESOLUTION OF THE PLANNING BOARD OF THE CITY OF BEACON, NEW YORK, ON THE

______________ DAY OF ________________, 20_______, SUBJECT TO ALL REQUIREMENTS AND CONDITIONS OF SAID RESOLUTION. ANY CHANGE, ERASURE, MODIFICATION OR REVISION OF THIS PLAT, AS APPROVED, SHALL VOID THIS APPROVAL.

SIGNED THIS __________________ DAY OF ______________, 20_____, BY

_____________________________ CHAIRMAN

_____________________________ SECRETARY

IN ABSENCE OF THE CHAIRMAN OR SECRETARY, THE ACTING CHAIRMAN OR ACTING SECRETARY RESPECTIVELY MAY SIGN IN THIS PLACE.

DRAWN BY: CMB				CHECKED BY: MAB			
REVISIONS:				REVISIONS:			
NO.	DATE	DESCRIPTION	BY	NO.	DATE	DESCRIPTION	BY
1	5/25/22	PER PLANNING BOARD COMMENTS	CMB				

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ARCHITECTURE & DESIGN

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Cromwell, CT 06416
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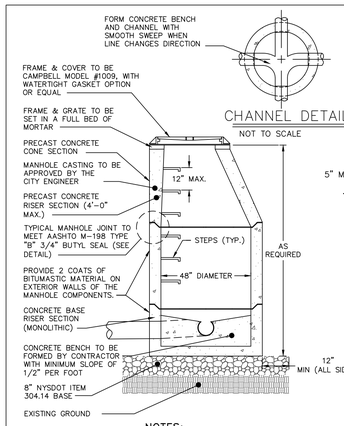
F: 845–440–6637

CONSTRUCTION DETAILS
MIRBEAU BEACON
7 CRAIG HOUSE LANE
CITY OF BEACON
DUTCHESS COUNTY, NEW YORK
TAX ID: 6054–13–001258

JOB #:	2021:051
DATE:	3/29/2022
SCALE:	AS SHOWN
TITLE:	CD–2
SHEET:	17 OF 28

UNAUTHORIZED ALTERATIONS OR ADDITIONS TO THIS DRAWING IS A VIOLATION OF SECTION 7209.2 OF THE NEW YORK EDUCATION LAW



CHANNEL DETAIL
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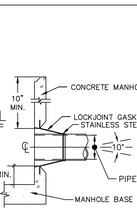
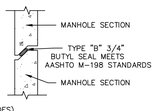


BOOT DETAIL
NOT TO SCALE

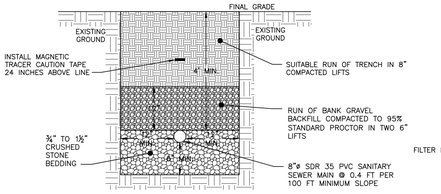


JOINT DETAIL
NOT TO SCALE

NOTES:

1. PIPE CONNECTION TO BE STANDARD "LOCKJOINT" BOOT 5" OFF BASE OF MANHOLE (SEE DETAIL).
2. CONCRETE STRENGTH OF MANHOLE COMPONENTS TO BE 4000 PSI @ 28 DAYS IN ACCORDANCE WITH ASTM C-478-86.
3. STEEL REINFORCEMENT OF MANHOLE COMPONENTS TO MEET ASTM A615-A497 REQUIREMENTS.
4. LOADING OF MANHOLE COMPONENTS TO MEET H-20 REQUIREMENTS.
5. CONCRETE USED IN MANHOLE COMPONENTS TO CONTAIN 6% AIR ENTRAINMENT.
6. 4" MAXIMUM FROM MANHOLE TO PIPE JOINT.

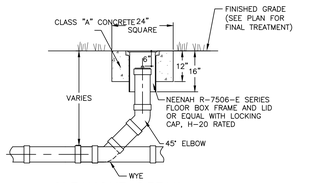
PRE-CAST CONCRETE SANITARY MANHOLE DETAIL
NOT TO SCALE



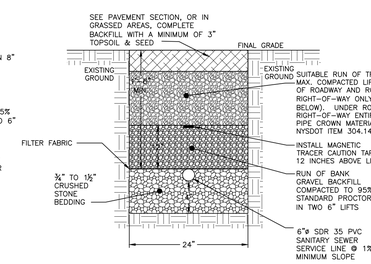
NOTES:

1. EXCAVATION AND TRENCHING SHALL MEET ALL OSHA REQUIREMENTS.
2. SUITABLE RUN OF TRENCH SHALL NOT INCLUDE FROZEN MATERIALS, DEBRIS, ORGANIC MATERIALS, LARGE STONES OR OTHER UNSUITABLE MATERIALS. IF THE RUN OF TRENCH MATERIAL IS FOUND TO BE UNSUITABLE, A SUITABLE BACKFILL MATERIAL SHALL BE IMPORTED AND USED.
3. SEWER MAIN MATERIAL SHALL BE 8" DIAMETER SDR-26 PVC BELL AND SPIGOT GRAVITY SEWER PIPE, WITH GASTIGHT AND WATERTIGHT JOINTS.

SANITARY SEWER MAIN TRENCH DETAIL
NOT TO SCALE



CLEANOUT DETAIL
NOT TO SCALE



NOTES:

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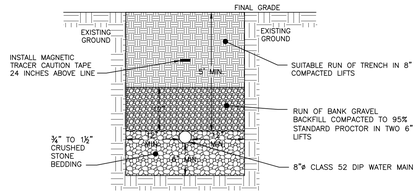
2. SUITABLE RUN OF TRENCH SHALL NOT INCLUDE FROZEN MATERIALS, DEBRIS, ORGANIC MATERIALS, LARGE STONES OR OTHER UNSUITABLE MATERIALS. IF THE RUN OF TRENCH MATERIAL IS FOUND TO BE UNSUITABLE, A SUITABLE BACKFILL MATERIAL SHALL BE IMPORTED AND USED.

SANITARY SEWER SERVICE LINE TRENCH DETAIL
NOT TO SCALE



NOTES:

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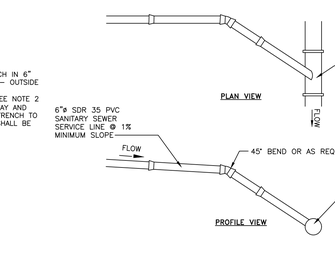
2. SUITABLE RUN OF TRENCH SHALL NOT INCLUDE FROZEN MATERIALS, DEBRIS, ORGANIC MATERIALS, LARGE STONES OR OTHER UNSUITABLE MATERIALS. IF THE RUN OF TRENCH MATERIAL IS FOUND TO BE UNSUITABLE, A SUITABLE BACKFILL MATERIAL SHALL BE IMPORTED AND USED.
3. WATER MAIN MATERIAL SHALL BE CLASS 52 CEMENT LINED DUCTILE IRON PIPE WITH MECHANICAL JOINTS AND SHALL MEET THE REQUIREMENTS OF AWWA C150 AND ANSI A21.50.

WATER MAIN TRENCH DETAIL
NOT TO SCALE



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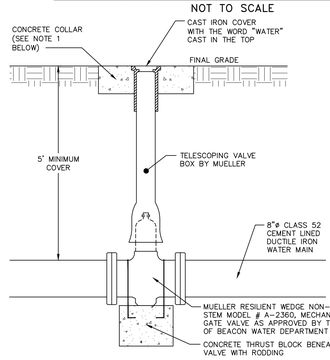
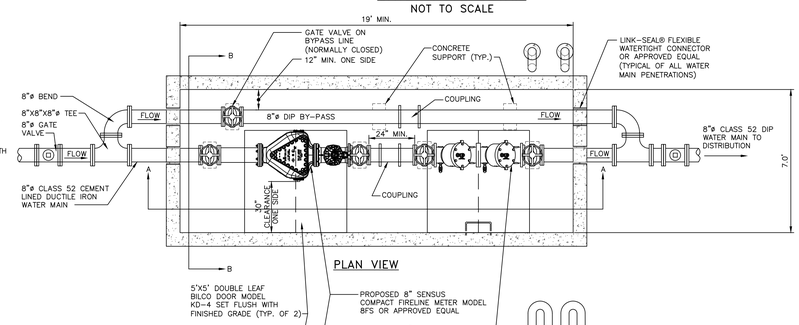
SANITARY SEWER SERVICE CONNECTION DETAIL
NOT TO SCALE



NOTES:

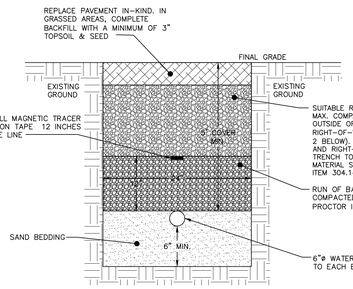
1. CONCRETE COLLAR TO BE PROVIDED IN AREAS THAT ARE NOT PAVED. THE COLLAR SHALL BE 6" FROM THE COVER AND SHALL EXTEND 6" BELOW FINAL GRADE.

GATE VALVE DETAIL
NOT TO SCALE



1. WATER METER PIT AND ASSEMBLY AND SHOP DRAWING SHALL BE SUBJECT TO REVIEW AND FINAL APPROVAL BY THE CITY OF BEACON WATER DEPARTMENT.
2. WATER METER SHALL BE PROVIDED WITH A REMOTE READING SYSTEM WITH BRONZE WATERTIGHT ENCLOSURE. WATER PROOF REGISTERS SHALL BE PROVIDED. LOCATION SHALL BE APPROVED BY THE CITY OF BEACON WATER DEPARTMENT PRIOR TO CONSTRUCTION.
3. AN ALUMINUM WARNING PLATE SHALL BE RIVETED OR OTHERWISE PERMANENTLY ATTACHED TO THE MANHOLE COVER. THE PLATE SHALL BE A MINIMUM OF 12"x12" AND SHALL BE ENGRAVED WITH THE FOLLOWING LANGUAGE: "WARNING: CONFINED SPACE – ENTRY PROHIBITED WITHOUT AUTHORIZATION – CALL OWNER FOR APPROVAL TO ACCESS". VENTILATION SHALL CONFORM TO EXISTING LOCAL AND/OR STATE CODES AND AS PER SECTION 6.2.5 OF "RECOMMENDED STANDARDS FOR WATER WORKS – 1997" (TEN STATES STANDARDS).
4. PREPARED SURFACE (I.E., BOTTOM) OF EXCAVATION FOR PLACEMENT OF WATER METER PIT SHALL CONSIST OF A MINIMUM 9" DEPTH OF 3/4" CRUSHED STONE, LEVELED AND LAID OVER STABLE NATIVE SOIL. IF EXCAVATION REVEALS UNSTABLE SOIL MATERIAL, THIS BEDDING REQUIREMENT SHALL BE MODIFIED BY THE PROJECT ENGINEER.
5. WHEN INSTALLING FIRELINE METERS WITH A STRAINER, A MINIMUM OF TWO AND A HALF (2 1/2) PIPE DIAMETERS OF STRAIGHT RUN PIPE OR EQUIVALENT FULL OPEN COMPONENTS IS REQUIRED UPSTREAM AND DOWNSTREAM OF THE METER INLET FLANGE.
6. METER PIT TO BE PROVIDED WITH STEPS.

METER PIT DETAIL
SCALE: 1"=±3'



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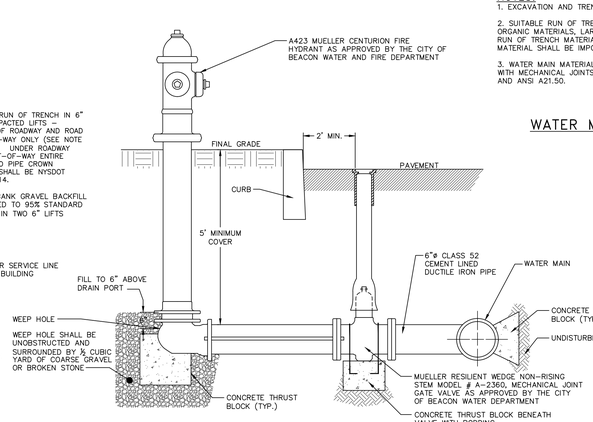
3. IN AREAS WHERE 5' COVER REQUIREMENT CANNOT BE MET, THE CONTRACTOR SHALL PROVIDE PIPE INSULATION TO PREVENT FREEZING.

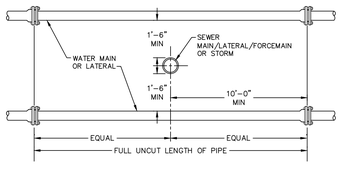
WATER SERVICE LINE TRENCH DETAIL
NOT TO SCALE



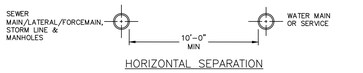
NOTES:

1. THE GATE VALVE SHALL BE LOCATED THIRTY SIX (36) INCHES FROM THE HYDRANT CENTER LINE.
2. ½" STEEL TIE RODS TO BE PROVIDED BETWEEN THE GATE VALVE AND THE HYDRANT.
3. ALL HYDRANTS SHALL BE PAINTED RED IN ACCORDANCE WITH NFPA AND CITY OF BEACON SPECIFICATIONS.

HYDRANT DETAIL
NOT TO SCALE



VERTICAL SEPARATION

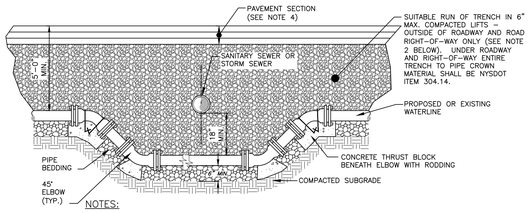


HORIZONTAL SEPARATION

NOTE:

1. NO DEVIATION IN THE SEPARATION REQUIREMENTS WILL BE PERMITTED WITHOUT THE EXPRESS APPROVAL OF THE DUTCHESS COUNTY DEPARTMENT OF HEALTH AND THE CITY OF BEACON. CONCRETE ENCASEMENT OF WATERLINE OR OFFSETTING OF WATERLINE SHALL BE REQUIRED WHERE SEPARATION DISTANCES CANNOT BE MAINTAINED.

WATER LINE SEPARATION DETAIL
NOT TO SCALE



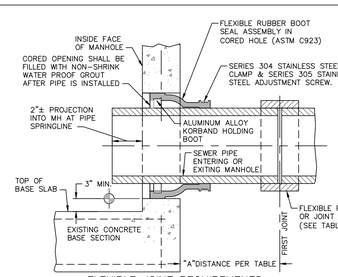
NOTES:

1. WHEN THE ELEVATION OF THE SANITARY OR STORM SEWER CAN NOT BE VARIED TO MEET THE ABOVE REQUIREMENTS, THE WATER SERVICE LINE OR MAIN SHALL BE RELOCATED TO PROVIDE THIS REQUIRED SEPARATION OR RECONSTRUCTED WITH MECHANICAL JOINT PIPE FOR A DISTANCE OF TEN (10) FEET ON EACH SIDE OF THE SEWER. ONE FULL LENGTH OF WATERMAIN SHALL BE CENTERED OVER THE SEWER SO THAT BOTH JOINTS WILL BE AS FAR AWAY FROM THE SEWER AS POSSIBLE.
2. SUITABLE RUN OF TRENCH SHALL NOT INCLUDE FROZEN MATERIALS, DEBRIS, ORGANIC MATERIALS, ENLOGATED PARTICLES, LARGE STONES OR OTHER UNSUITABLE MATERIALS. IF THE RUN OF TRENCH MATERIAL IS FOUND TO BE UNSUITABLE, A SUITABLE BACKFILL MATERIAL SHALL BE IMPORTED AND USED.
3. THE RELOCATED WATER MAIN/SERVICE LINE SHALL BE DISINFECTED IN ACCORDANCE WITH AWWA, NYSDOH AND DCDOH STANDARDS.
4. PAVEMENT RESTORATION SHALL BE IN ACCORDANCE WITH THE PAVEMENT RESTORATION DETAIL.
5. ALL REPLACED WATERMAIN SHALL BE 12"ø CLASS 52 DUCTILE IRON.

WATER LINE OFFSET DETAIL
NOT TO SCALE

SANITARY SEWER NOTES:

1. THE PROPOSED APARTMENTS ARE TO BE SERVED BY THE CITY OF BEACON MUNICIPAL SEWER SYSTEM. INSTALLATION OF ALL COMPONENTS SHALL BE PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS OF THE CITY CODE, CHAPTER 179.
2. REFER TO THE DUTCHESS COUNTY DEPARTMENT OF HEALTH STANDARD NOTES FOR ADDITIONAL PERTINENT INFORMATION.
3. THE DUTCHESS COUNTY DEPARTMENT OF HEALTH, CITY OF BEACON CHIEF SEWER OPERATOR, AND THE CERTIFYING PROFESSIONAL ENGINEER SHALL BE NOTIFIED PRIOR TO COMMENCEMENT OF THE SEWER MAIN INSTALLATION.
4. SEWER MAIN MATERIAL SHALL BE 8" DIAMETER SDR-35 OR SDR-26 PVC BELL AND SPIGOT GRAVITY SEWER PIPE, WITH GASTIGHT AND WATERTIGHT JOINTS.
5. SEWER MAIN SHALL BE LAID IN STRAIGHT ALIGNMENT. MANHOLES SHALL BE CONSTRUCTED AT ALL CHANGES IN SLOPE, ALIGNMENT OR AT INTERVALS NOT EXCEEDING 400 LINEAR FEET. STRAIGHT ALIGNMENT SHALL BE VERIFIED BY DEFLECTION TESTING.
6. THE SEWER MAIN SHALL BE INSTALLED AND TESTED FOR EXFILTRATION PRIOR TO BEING PERMITTED TO OPERATE. ALL NEW SANITARY SEWER GRAVITY LINES SHALL PASS A LOW PRESSURE AIR TEST IN ACCORDANCE WITH ASTM C-828 AT A PRESSURE OF 3.5 PSI.
7. MANHOLES SHALL BE VACUUM TESTED IN ACCORDANCE WITH ASTM C-1244. IF PRESSURE DROP EXCEEDS THE SPECIFIED AMOUNT, THE NECESSARY REPAIRS OR REPLACEMENTS REQUIRED SHALL BE MADE TO REDUCE THE PRESSURE DROP TO WITHIN THE SPECIFIED LIMIT, AND THE TESTS SHALL BE REPEATED UNTIL THE REQUIREMENT IS MET.
8. SERVICE LATERALS SHALL BE 6" DIAMETER SDR-35 PVC WITH A MINIMUM SLOPE OF 1%, UNLESS OTHERWISE NOTED ON THE PLAN.
9. ALL SANITARY SEWER MAINS AND MANHOLES UP TO, BUT NOT INCLUDING, THE EXISTING CONNECTION MANHOLE ON BRANCH STREET SHALL BE OWNED, OPERATED AND MAINTAINED BY THE HOMEOWNERS ASSOCIATION.



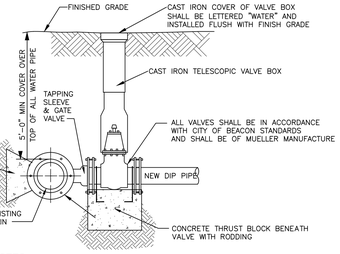
FLEXIBLE JOINT REQUIREMENTS

SEWER PIPE TYPE	FLEXIBLE JOINT TYPE IN & OUT	"A"DISTANCE (FEET)
DUCTILE IRON	STD RUBBER GASKET PIPE JOINT ONLY	10' MAX
PVC	STD RUBBER GASKET PIPE JOINT ONLY	3' MAX

NOTE:

REFERENCE MANHOLE DETAIL(S) FOR REQUIRED INVERT CHANNEL CONFIGURATION.

CORED HOLE AND INSERTED BOOT DETAIL
NOT TO SCALE



NOTES:

1. ALL VALVES SHALL OPEN BY TURNING LEFT (COUNTERCLOCKWISE) AND HAVE A 2-INCH SQUARE-OPERATING NUT PAINTED RED.
2. ALL VALVES SHALL BE M.J. RESILIENT WEDGE TYPE WITH "O" RING PACKING, DESIGNED FOR A WORKING PRESSURE OF 150 PSI AND BE IN FULL CONFORMANCE WITH AWWA C500.
3. TAPPING SLEEVE AND GATE VALVE SHOWN ARE MUELLER H-615, AND T-2630 RESPECTIVELY.

TAPPING SLEEVE DETAIL
NOT TO SCALE

WATER NOTES:

1. THE PROPOSED APARTMENT BUILDINGS ARE TO BE SERVED BY THE CITY OF BEACON MUNICIPAL WATER SYSTEM. INSTALLATION OF ALL COMPONENTS SHALL BE PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS OF THE CITY CODE, CHAPTER 219.
2. REFER TO THE DUTCHESS COUNTY DEPARTMENT OF HEALTH STANDARD NOTES FOR ADDITIONAL PERTINENT INFORMATION.
3. THE WATER MAIN SHALL BE INSTALLED, PRESSURE TESTED AND LEAKAGE TESTED IN ACCORDANCE WITH THE LATEST EDITION OF AWWA C600 (SEE NOTES BELOW).
4. THE DUTCHESS COUNTY DEPARTMENT OF HEALTH, CITY OF BEACON WATER OPERATOR, AND THE CERTIFYING PROFESSIONAL ENGINEER SHALL BE NOTIFIED PRIOR TO COMMENCEMENT OF THE WATER MAIN INSTALLATION.
5. THE WATER MAIN SHALL BE DISINFECTED IN ACCORDANCE WITH THE LATEST EDITION OF AWWA C651 (SEE NOTES BELOW).
6. WATER MAIN MATERIAL SHALL BE CLASS 52 CEMENT LINED DUCTILE IRON PIPE WITH MECHANICAL JOINTS AND SHALL MEET THE REQUIREMENTS OF AWWA C150 AND ANSI A21.51.
7. MEGALUG RESTRAINING SYSTEMS SHALL BE USED AT ALL FITTINGS, VALVES AND HYDRANTS (SEE SCHEDULE ON SHEET 14).
8. GATE VALVES SHALL BE MUELLER RESILIENT WEDGE, NON-RISING STEM, MECHANICAL JOINT.
9. HYDRANTS SHALL BE A-423 MUELLER CENTURION, WITH A MUELLER GATE VALVE BEFORE THE HYDRANT.
10. SERVICE LINES SHALL BE 6"ø CL 52 DIP, UNLESS OTHERWISE NOTED ON THE PLAN.
11. THE CONTRACTOR SHALL VERIFY THE EXISTING WATER MAIN MATERIAL AND BE PREPARED TO PROVIDE A SPECIAL COUPLING FOR CONNECTION OF THE PROPOSED DUCTILE IRON WATER MAIN.
12. A PRESSURE REDUCING VALVE SHALL BE INSTALLED FOR EACH NEW TOWNHOME, WATTS MODEL 25AUB-Z3 OR EQUAL AS APPROVED BY THE CITY OF BEACON WATER DEPARTMENT.
13. THE CITY OF BEACON SHALL OWN, OPERATE AND MAINTAIN THE WATER MAIN THROUGHOUT THE SITE, INCLUDING ALL APPURTENANCES.
14. THE HOA OR OWNER SHALL ANNUALLY EXERCISE ALL WATER VALVES.

WATER MAIN PRESSURE & LEAKAGE TESTING

GENERAL: ALL PIPING SHALL BE TESTED IN ACCORDANCE WITH THE REQUIREMENTS OF THE LATEST EDITION OF AWWA C600, EXCEPT AS ADDED OR AMENDED BELOW:
1. THE CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS AND EQUIPMENT NECESSARY FOR ANY AND ALL REQUIRED PIPE TAPS FOR TESTING, AND AS NECESSARY FOR TESTING AS SPECIFIED. EQUIPMENT WILL BE SUCH THAT THE ENGINEER MAY INSTALL HIS OWN PRESSURE GAUGE.
2. A PRESSURE TEST AND LEAKAGE TEST ARE REQUIRED FOR ALL PIPE.
3. TESTING TO BE PERFORMED ONLY AFTER PARTIAL OR COMPLETE BACKFILL AND RESTRAINT BLOCKING (USING HIGH EARLY CEMENT) HAS HAD 36 HOURS TO CURE OR BLOCKING USING STANDARD CEMENT HAS HAD 7 DAYS TO CURE.
4. THE MAIN SHALL BE PARTIALLY BACKFILLED OR BRACED AGAINST MOVEMENT DURING THE TEST. ALL AIR MUST BE BLED OUT OF THE SECTION TO BE TESTED. IF NECESSARY, CONTRACTOR SHALL INSTALL CORPORATION STOPS AT THE HIGH POINTS, FOR BLOW-OFFS. AFTER ALL AIR HAS BEEN EXPELLED, THE CORPORATION COCKS SHALL BE CLOSED AND THE PRESSURE TEST APPLIED. AFTER EXAMINATION OF EXPOSED PARTS OF THE SYSTEM, THE TEST PRESSURE SHALL BE INCREASED TO 1 1/2 TIMES THE NORMAL PRESSURE, BASED UPON THE ELEVATION OF THE LOWEST POINT IN THE LINE OR SECTION UNDER THE TEST, BUT SUCH PRESSURE SHALL NOT BE LESS THAN 150 PSI NOR MORE THAN 200 PSI, AND EXPOSED PARTS AGAIN EXAMINED. THE MINIMUM DURATION OF THE LEAKAGE TEST SHALL BE TWO (2) HOURS.
5. ALLOWABLE SYSTEM LEAKAGE AS SPECIFIED IN THE REFERENCED STANDARDS. IF LEAKAGE IN SYSTEM IS GREATER THAN ALLOWABLE, CONTRACTOR WILL LOCATE AND REPAIR SYSTEM AT HIS EXPENSE AND RETEST, CONTINUE TO TEST AND REPAIR THE SYSTEM UNTIL LEAKAGE IS WITHIN ACCEPTABLE LIMITS.
6. NO DUCTILE IRON PIPE INSTALLATION WILL BE ACCEPTED IF THE LEAKAGE IS GREATER THAN THAT DETERMINED BY THE FOLLOWING FORMULA:

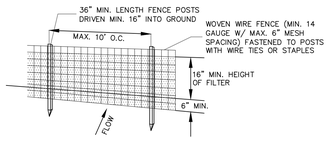
$$L = \frac{SD\sqrt{P}}{148{,}000}$$

WHERE
L = LEAKAGE IN GALLONS PER HOUR
S = LENGTH OF PIPE TESTED, IN FEET
D = NOMINAL DIAMETER OF PIPE IN INCHES
P = AVERAGE TEST PRESSURE DURING LEAKAGE TEST, IN PSI (GAUGE)

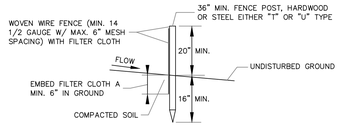
WATERMAIN DISINFECTION & TESTING

1. THE CONTRACTOR SHALL NOTIFY THE CITY OF BEACON WATER DEPARTMENT PRIOR TO TESTING AND SHALL ALSO COORDINATE HIS ACTIONS WITH THE CITY ENGINEER SO AS TO AVOID UNDUE DISTURBANCE OF THE WATER SUPPLY TO ANY EXISTING USERS.
2. THE CONTRACTOR SHALL INFORM THE DESIGN ENGINEER'S AND CITY ENGINEER'S OFFICE A MINIMUM OF 24 HOURS PRIOR TO TESTING SUCH THAT WITNESSING CAN TAKE PLACE AND PROPER CERTIFICATIONS CAN BE ISSUED.
3. ALL NEWLY INSTALLED WATER MAINS SHALL BE FLUSHED AT A MINIMUM VELOCITY OF 2.5 FT/SECOND BEFORE AND AFTER DISINFECTION.
4. ALL WATER LINES SHALL BE DISINFECTED USING THE PROCEDURES DESCRIBED IN THE LATEST EDITION OF AWWA C651 SPECIFICATIONS FOR DISINFECTION OF WATER LINES (WITH THE EXCEPTION OF THE TABLET METHOD). WATER ENTERING THE NEW MAIN SHALL RECEIVE A DOSE OF CHLORINE FED AT A CONSTANT RATE SUCH THAT THE WATER WILL HAVE NOT LESS THAN 25 MG/L FREE CHLORINE. CHLORINE APPLICATION SHALL NOT CEASE UNTIL THE ENTIRE MAIN IS FILLED WITH HEAVILY CHLORINATED WATER.
5. DISINFECTED WATER SHALL REMAIN IN THE NEWLY INSTALLED WATER LINE FOR A MINIMUM OF 24 HOURS. AFTER THIS RETENTION PERIOD, THE HEAVILY CHLORINATED WATER SHALL BE FLUSHED FROM THE MAIN UNTIL CHLORINE MEASUREMENTS SHOW A CONCENTRATION IN THE WATER LEAVING THE MAIN HAS NO HIGHER THAN THAT GENERALLY PREVAILING IN THE SYSTEM. AT SUCH TIME, BACTERIOLOGICAL SAMPLING FOR SUBMITTAL TO STATE HEALTH LABORATORIES SHALL BE PERFORMED BY THE CONTRACTOR.
6. WATER SAMPLES SHALL BE TESTED FOR TOTAL COLIFORM, TPC (HETEROTROPHIC PLATE COUNT), TURBIDITY & COLOR.
7. CONTRACTOR WILL CONTINUE FLUSHING AND DISINFECTION OPERATION UNTIL ACCEPTABLE BACTERIOLOGICAL RESULTS ARE OBTAINED. TWO (2) SUCCESSIVE SAMPLES ARE TO BE TAKEN AT TWENTY-FOUR (24) HOUR INTERVALS.
8. THE ENVIRONMENT INTO WHICH THE HEAVILY CHLORINATED WATER IS TO BE DISCHARGED SHALL BE INSPECTED, AND IF THERE IS ANY LIKELIHOOD THAT THE CHLORINATED DISCHARGE WILL CAUSE DAMAGE, THEN A REDUCING AGENT SHALL BE APPLIED TO THE WATER TO BE WASTED TO THOROUGHLY NEUTRALIZE THE CHLORINE RESIDUAL IN THE WATER. PERMITS MAY BE REQUIRED. THE CITY ENGINEER SHALL BE NOTIFIED PRIOR TO DISPOSAL OF HIGHLY CHLORINATED WATER.

APPROVED BY RESOLUTION OF THE PLANNING BOARD OF THE CITY O



PERSPECTIVE VIEW

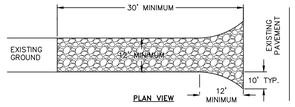


SECTION VIEW

NOTES:

1. FILTER CLOTH TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION.
2. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVER-LAPPED BY SIX INCHES AND FOLDED. FILTER CLOTH SHALL BE EITHER FILTER X, MIRAFI 100X, STABILINKA T140N OR APPROVED EQUAL.
3. PREFABRICATED UNITS SHALL BE GEOFAB, ENVIROFENCE OR APPROVED EQUAL.
4. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.

SILT FENCE DETAIL
NOT TO SCALE



PLAN VIEW

NOTES:

1) STONE SIZE – USE 1-4 INCH STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.

2) LENGTH – NOT LESS THAN 30 FEET FOR A SINGLE RESIDENCE LOT.

3) THICKNESS – NOT LESS THAN SIX (6) INCHES.

4) WIDTH – 12 FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. 24 FOOT MINIMUM IF SINGLE ENTRANCE TO SITE.

5) GEOTEXTILE – WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.

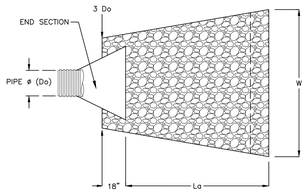
6) SURFACE WATER – ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED BENEATH THE ENTRANCE, IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.

7) MAINTENANCE – THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURE USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACTED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.

8) WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.

9) PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.

STABILIZED CONSTRUCTION ENTRANCE DETAIL
NOT TO SCALE



PLAN VIEW

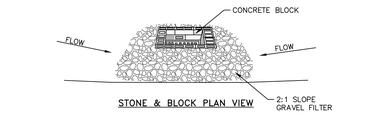
SECTION VIEW

NOTES:

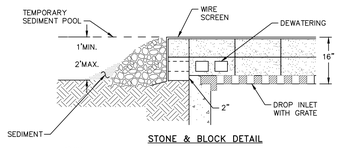
1. SIZING INFORMATION TAKEN FROM FIGURE 5B.12 (PAGE 5B.25) AND/OR FIGURE 5B.13 (PAGE 5B.26) OF THE "NEW YORK STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL" 2016 EDITION.
2. RIPRAP SHALL BE COMPOSED OF A WELL-GRADED MIXTURE OF STONE SIZE SO THAT 50% OF THE PIECES SHALL BE LARGER, BY WEIGHT, THAN THE SPECIFIED d50. THE LARGEST STONE SIZE SHALL BE 1.5 TIMES d50.
3. THE MINIMUM THICKNESS OF THE RIPRAP LAYER SHALL BE 1.5 TIMES THE MAXIMUM STONE DIAMETER FOR d50 OF 15 INCHES OR LESS; AND 1.2 TIMES THE MAXIMUM STONE SIZE FOR d50 GREATER THAN 15 INCHES.
4. A LAYER OF FILTER FABRIC (THICKNESS 20-60 MILS, GRAB STRENGTH 90-120 LBS, SHALL CONFORM TO ASTM D-1777 AND ASTM D-1682) SHALL BE PLACED BETWEEN THE RIPRAP AND THE UNDERLYING SOIL SURFACE. FILTER FABRIC SHALL HAVE A MINIMUM 1' OVERLAP AT ALL SEEMS.

ROCK OUTLET PROTECTION DETAIL
NOT TO SCALE

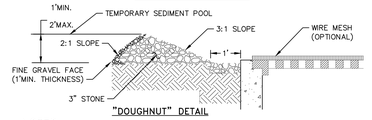
ROCK OUTLET PROTECTION TABLE
NOT TO SCALE



STONE & BLOCK PLAN VIEW



STONE & BLOCK DETAIL



"DOUGHNUT" DETAIL

NOTES:

1. LAY ONE BLOCK ON EACH SIDE OF THE STRUCTURE ON ITS SIDE FOR DEWATERING. FOUNDATION SHALL BE 2 INCHES MINIMUM BELOW REST OF INLET AND BLOCKS SHALL BE PLACED AGAINST INLET FOR SUPPORT.
2. HARDWARE CLOTH OR 1/2" WIRE MESH SHALL BE PLACED OVER BLOCK OPENINGS TO SUPPORT STONE.
3. USE CLEAN STONE OR GRAVEL 1/2-3/4 INCH IN DIAMETER PLACED 2 INCHES BELOW TOP OF THE BLOCK ON A 2:1 SLOPE OR FLATTER.
4. FOR STONE STRUCTURES ONLY, A 1 FOOT THICK LAYER OF THE FILTER STONE WILL BE PLACED AGAINST THE 3 INCH STONE AS SHOWN ON THE DRAWINGS. MAXIMUM DRAINAGE AREA 1 ACRE

CATCH BASIN INLET PROTECTION DETAIL
NOT TO SCALE

SOIL PH SHALL BE TESTED, LIME SHALL BE APPLIED AS REQUIRED TO BRING SOIL PH TO 6.5

SEED, SEE VEGETATIVE COVER SPECIFICATIONS BELOW

MULCH: LAYER OF HAY OR STRAW; 2 TONS PER ACRE

FERTILIZER: COMMERCIAL 5-10-5, 175 POUNDS PER ACRE

EXISTING GRADE

NOTES:

1. TOPSOIL, SEED, MULCH, AND FERTILIZE DISTURBED SOIL AREAS THAT WILL BE LEFT EXPOSED FOR 14 DAYS OR MORE.
2. SEED MIXTURE FOR USE ON LAWNS IN SUNNY AREAS:

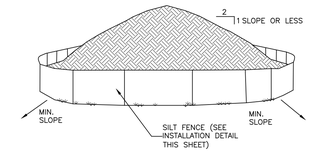
65% KENTUCKY BLUE GRASS BLEND	114 POUNDS PER ACRE
20% PERENNIAL RYEGRASS	35 POUNDS PER ACRE
15% FINE FESCUE	26 POUNDS PER ACRE
	175 POUNDS PER ACRE

3. SEED MIXTURE FOR USE IN SHADY AREAS:

80% BLEND OF SHADE TOLERANT KENTUCKY BLUEGRASS	138 POUNDS PER ACRE
20% FINE FESCUE	37 POUNDS PER ACRE
	175 POUNDS PER ACRE

4. SEED BETWEEN APRIL 1ST AND MAY 15TH OR AUGUST 15TH AND OCTOBER 15TH. SEEDING MAY OCCUR BETWEEN MAY 15TH AND AUGUST 15TH IF ADEQUATE IRRIGATION IS PROVIDED.
5. TOPSOIL SHALL HAVE AT LEAST 6% BY WEIGHT OF FINE TEXTURED STABLE ORGANIC MATERIAL, AND NO GREATER THAN 20%. TOPSOIL SHALL HAVE NOT LESS THAN 20% FINE TEXTURED MATERIAL (PASSING THE NO. 200 SIEVE) AND NOT MORE THAN 15% CLAY.

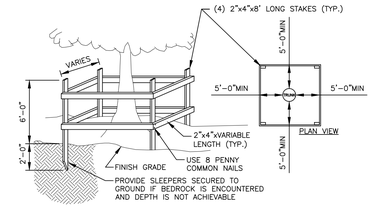
TOPSOIL, SEED AND MULCH DETAIL
NOT TO SCALE



NOTES:

1. AREA CHOSEN FOR STOCKPILING OPERATIONS SHALL BE DRY AND STABLE.
2. EACH PILE SHALL BE SURROUNDED WITH SILT FENCING, THEN STABILIZED WITH VEGETATION OR COVERED.

TEMPORARY SOIL STOCKPILE DETAIL
NOT TO SCALE



NOTES:

1. TREES TO REMAIN NOTED ON EXISTING CONDITIONS PLAN.
2. NOT ALL TREES TO REMAIN REQUIRE PROTECTION. TREE PROTECTION TO BE UTILIZED ON TREES WHERE CONSTRUCTION TRAFFIC WOULD COMPACT THE ROOT ZONE OF THE TREE.

TEMPORARY TREE PROTECTION DETAIL
NOT TO SCALE

APPROVED BY RESOLUTION OF THE PLANNING BOARD OF THE CITY OF BEACON, NEW YORK, ON THE _____ DAY OF _____, 20_____ SUBJECT TO ALL REQUIREMENTS AND CONDITIONS OF SAID RESOLUTION. ANY CHANGE, ERASURE, MODIFICATION OR REVISION OF THIS PLAT, AS APPROVED, SHALL VOID THIS APPROVAL.

SIGNED THIS _____ DAY OF _____, 20_____, BY

_____ CHAIRMAN

_____ SECRETARY

IN ABSENCE OF THE CHAIRMAN OR SECRETARY, THE ACTING CHAIRMAN OR ACTING SECRETARY RESPECTIVELY MAY SIGN IN THIS PLACE.

DRAWN BY: CMB | CHECKED BY: MAB

REVISIONS:

NO.	DATE	DESCRIPTION	BY
1	5/25/22	PER PLANNING BOARD COMMENTS	CMB

REVISIONS:

NO.	DATE	DESCRIPTION	BY

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CONSTRUCTION DETAILS

MIRBEAU BEACON

7 CRAIG HOUSE LANE
CITY OF BEACON
DUTCHESS COUNTY, NEW YORK
TAX ID: 6054-13-001258

JOB #:	2021:051
DATE:	3/29/2022
SCALE:	AS SHOWN
TITLE:	CD-4
SHEET:	19 OF 28

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LEGEND:

STANDING STUMP (BEECH) — EXISTING TREE TO BE REMOVED

30" SUGAR MAPLE — EXSTING TREE TO REMAIN AND PROTECT

Delineated wetland boundary

N29°47'34"W 27.63'

S8°21'53"W 127.29'

MATCH LINE

12" cmp into 18" box culvert

Drainage channel

NEW YORK STATE ROUTE 9D

A.K.A. HOWLAND AVENUE

HOWLAND AVENUE

36" BUCKEYE
42" SWEETGUM
24" SPRUCES (NARROW)
24" SPRUCE (NARROW)
48" TULIP TREE (PRUNE BROKEN SIDE)
30" BEECH
60"+ BEECH
36" & 42" TWIN
24" BASSWOOD
10" BL. LOCUST
8 & 10" BUCKEYES
48" BUCKEYE
15" SPRUCE (ROUGH)
8" & 10" RED CEDAR (VERY ROUGH SHAPE)
36" BUCKEYE (LOPSIDED)
24" HEMLOCK (V. NARROW)
DEAD
MOSTLY STUMPS & BRUSH
BRUSH MASS – REMOVE
NOT THERE
24" TULIP TREE

36" MAPLE POOR FORM & CONDITION
NOT THERE
30" BASSWOOD V. POOR FORM & CONDITION
24" MAPLE V. POOR FORM & CONDITION
30" BEECH
TWIN 18" WALNUT
48" MAPLE V. POOR FORM & CONDITION
MAJOR DOWNED BEECH STUMP – REMOVE
GROUP OF 7 BEECHES AT 24–30" AROUND STUMP OF MOTHER w/ GROUP OF 6–8" DIA. CHERRIES FACING OUT TO MEADOW
60" WHITE PINE
60" LARCH
60" LARCH
60" LARCH
8" DIA. SPRUCE
30" BEECH W/SMALLER BEECHES
30" BEECH W/SMALLER BEECHES
STANDING STUMP (BEECH)
60" TULIP TREE
BEECH STUMP

6" GOLDEN RAIN TREE
18" AILANTHUS – INVASIVE (GROWING INTO WALL)
30" HONEYLOCUST
4" MULTI-STEM KOUSA DOGWOOD (OVERGROWN)
10" KOUSA DOGWOOD & 10" SUGAR MAPLE (OVERGROWN)
10" KOUSA DOGWOOD (GROWING INTO WALL)
8" SUGAR MAPLE
6" NORWAY MAPLE & 10" AILANTHUS (INVASIVE)
THE SARGENT WEEPING HEMLOCK
42" HORSECHESTNUT W/6" DOGWOOD ADJACENT
6" NORWAY & SUGAR MAPLES
36" HORSECHESTNUT
30" SPRUCE (DEAD)
60" GINGKO W/ SUGAR MAPLE CLUSTER BELOW

TWIN 8" BOX ELDER
30" DEAD CEDAR w/ 60" STUMP
12" RED CEDAR
15" TULIP TREE (w/ BROKEN TOP)
15" AILANTHUS (INVASIVE)
TRIPLE 24&30" SPRUCE w/ADD'L. BROKEN MAIN BRANCH
DEAD WHITE PINE
42" Spruce
42" BASSWOOD
6" DOGWOODS (4) (DISFIGURED & NEARLY DEAD)
18" BASSWOOD
28" SPRUCE (VERY TIRED)
24" TWIN LARCH (1 STANDING STUMP)
42" SPRUCE (DEAD & BITTERSWEET COVERED)
42" NORWAY MAPLE
YEWS (LARGE SHRUBS)
MS 6–8" JAPANESE MAPLE
15" TULIP TREE
48" SILVER MAPLE
TWIN FIRS 48" & 30"
TWIN TULIP TREE 8–10" ACROSS
TWIN 10" BLACK WALNUT
BLACK WALNUT CLUSTER 4–6"

48" SPRUCE (FULL)
8–10" HEMLOCKS (TYP. OF 10)
8–10" HEMLOCKS (TYP. OF 3)
10" HEMLOCK (ONE–SIDED)
6" & 8" HEMLOCK (FULL)
12" HEMLOCKS (FULL)
12" SWEETGUM
60" STUMP w/12" BRANCH
6" FL. DOGWOODS (TYP. OF 3)
42" SWEETGUM
35" SWEETGUM
LARGE YEW
20" SUGAR MAPLE
20" SWEETGUM
8" TULIP TREE
12" MAPLE
LG. YEWS
14" DOGWOOD

GRAPHIC SCALE
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SCALE IN FEET

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TREE REMOVAL & PROTECTION PLAN – NORTH

MIRBEAU BEACON

7 CRAIG HOUSE LANE
CITY OF BEACON
DUTCHESS COUNTY, NEW YORK
TAX ID: 6054-13-001258

JOB #:	2021:051
DATE:	3/29/2022
SCALE:	1" = 40'
TITLE:	TP–2
SHEET:	20 OF 28

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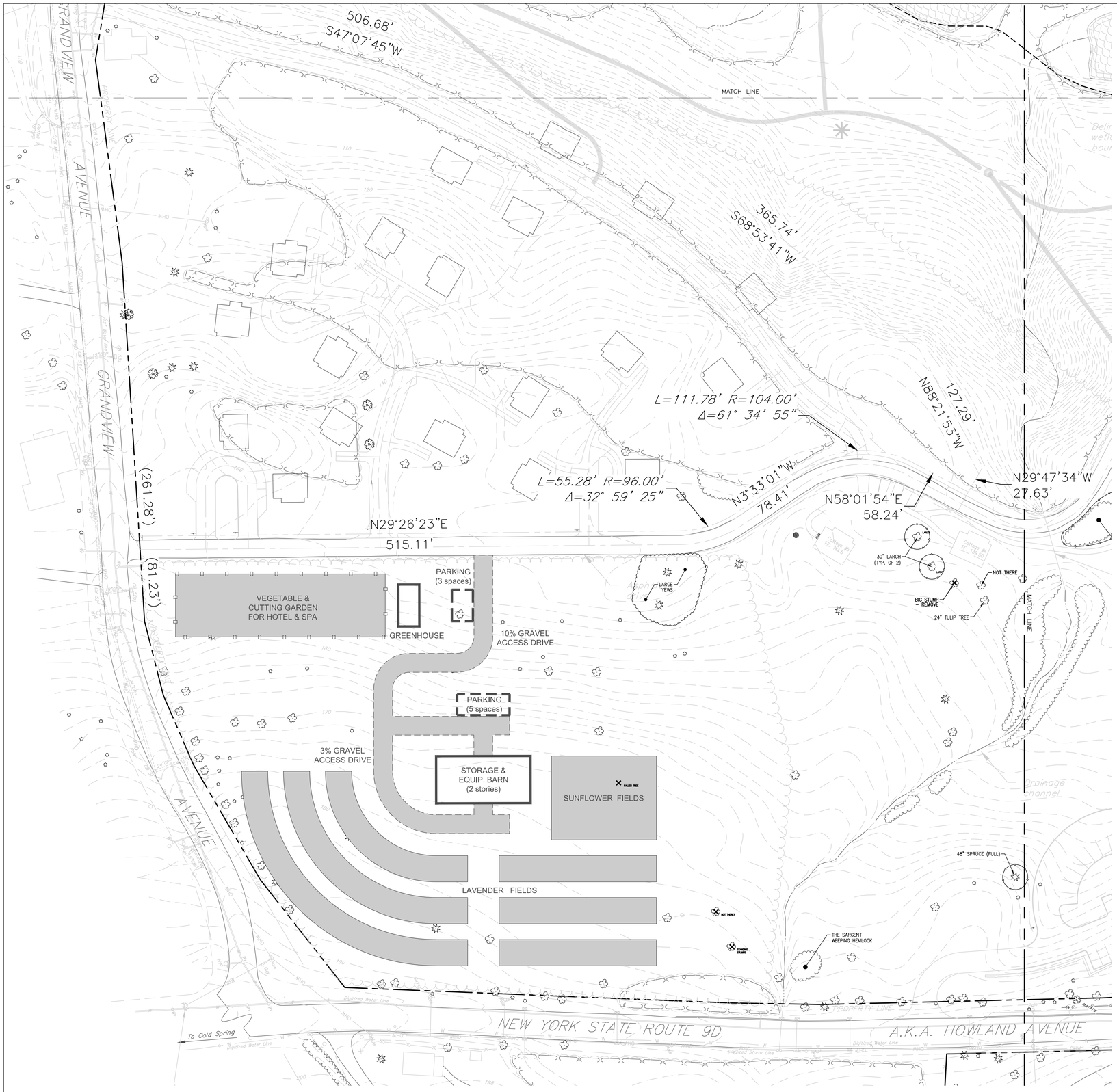
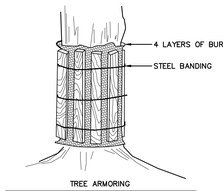
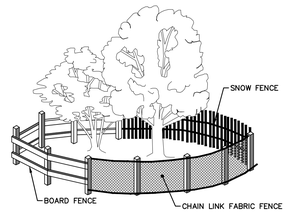




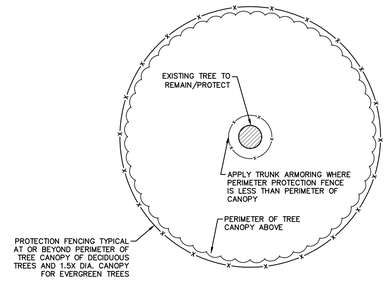
TREE ARMORING

CONSTRUCTION AREA WHERE PAVED SURFACES MAKE IT IMPRACTICAL TO ESTABLISH TREE PROTECTION ZONE.



FENCING AT TREE PROTECTION ZONES

INSTALL ONE OF THE FENCE TYPES (MIN. FENCE HT. 42") NOTED ABOVE UNLESS SPECIFICALLY INDICATED ON PLANS. MAY BE INSTALLED CONTINUOUSLY AROUND GROUPS OF TREES TO REMAIN.



X TREE PROTECTION DETAIL
SCALE: N.T.S.

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TREE REMOVAL & PROTECTION PLAN – SOUTH

MIRBEAU BEACON

7 CRAIG HOUSE LANE
CITY OF BEACON
DUTCHESS COUNTY, NEW YORK
TAX ID: 6054-13-001258

JOB #:	2021:051
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SHEET:	21 OF 28

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LEGEND:

- Existing Signficant Deciduous & Evergreen Trees
- Deciduous Shade / Major Trees
- Ornamental and Flowering Trees (Understory Scale)
- Evergreen Trees (Major & Minor)
- Low Shrub Mass - 3-4' ht.
- Groundcovers
- Perennials and Grasses

SEEDING LEGEND:

SEED MIX A = LOW - MOW LAWN
SEED MIX B = FUZZ & BUZZ MIX
SEED MIX C = RAIN GARDEN GRASS MIX
SEED MIX D = CONTRACTOR'S LAKEVIEW CONSERVATION MIX

PLANTING NOTES:

1. THE LANDSCAPE PLAN AND DETAIL SHEET ARE FOR LANDSCAPING INFORMATION ONLY. PLEASE REFER TO THE SITE LAYOUT PLAN, LIGHTING PLAN, GRADING PLAN AND UTILITIES PLAN FOR ALL OTHER INFORMATION.
2. THE CONTRACTOR SHALL GUARANTEE THAT ALL PLANTS, TREES, AND SHRUBS SHALL BE HEALTHY AND FREE OF DISEASE FOR A PERIOD OF ONE YEAR AFTER SUBSTANTIAL COMPLETION AND ACCEPTANCE BY OWNER OR LANDSCAPE ARCHITECT. CONTRACTOR SHALL REPLACE ANY DEAD OR UNHEALTHY PLANTS AT CONTRACTOR'S EXPENSE. PLANT MATERIAL REPLACEMENTS SHALL BE GUARANTEED FOR ONE FULL YEAR FROM DATE OF REPLACEMENT. FINAL ACCEPTANCE SHALL BE MADE IF ALL PLANTS MEET THE GUARANTEE REQUIREMENTS INCLUDING MAINTENANCE. MAINTENANCE RESPONSIBILITIES INCLUDE CULTIVATING, SPRAYING, WEEDING, WATERING, TIGHTENING GUYS, PRUNING, FERTILIZING, MULCHING, AND ANY OTHER OPERATIONS NECESSARY TO MAINTAIN PLANT VIABILITY. MAINTENANCE SHALL BEGIN IMMEDIATELY AFTER PLANTING AND CONTINUE UNTIL THE END OF THE ONE YEAR GUARANTEE PERIOD.
3. THE CONTRACTOR SHALL SUPPLY ALL LABOR, PLANTS, AND MATERIALS IN QUANTITIES SUFFICIENT TO COMPLETE THE WORK SHOWN ON THE DRAWINGS AND LISTED IN THE PLANT SCHEDULE. IN THE EVENT OF A DISCREPANCY BETWEEN QUANTITIES SHOWN IN THE PLANT SCHEDULE AND THOSE REQUIRED BY THE DRAWINGS, THE LARGER SHALL APPLY.
4. ALL SHRUB MASSINGS SHALL BE MULCHED TO A DEPTH OF 3". ANNUAL AND PERENNIAL BEDS SHALL BE MULCHED TO A DEPTH OF 2" WITH SHREDDED HARDWOOD BARK MULCH.
5. NO PLANT SHALL BE PLACED IN THE GROUND BEFORE ROUGH GRADING HAS BEEN COMPLETED AND APPROVED BY ENGINEER. STAKING THE LOCATION OF ALL TREES AND SHRUBS SHALL BE COMPLETED PRIOR TO PLANTING FOR APPROVAL BY THE OWNER OR LANDSCAPE ARCHITECT. STAKING OF THE INSTALLED TREE MUST BE COMPLETED THE SAME DAY AS IT IS INSTALLED. ALL TREES SHALL BE STAKED OR GUYED PER DETAIL. SEE SHEET 38 FOR PLANTING DETAILS.
6. COORDINATE PLANT MATERIAL LOCATIONS WITH SITE UTILITIES. SEE SITE LAYOUT, GRADING AND UTILITY DRAWINGS FOR STORM, SANITARY AND WATER LINES. SEE LIGHTING PLAN FOR ELECTRICAL AND LIGHTING LAYOUT AND DETAILS. UTILITY LOCATIONS ARE APPROXIMATE. EXERCISE CARE WHEN DIGGING IN AREAS OF POTENTIAL CONFLICT WITH UNDERGROUND OR OVERHEAD UTILITIES. THE CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE DUE TO CONTRACTOR'S NEGLIGENCE AND SHALL REPLACE OR REPAIR ANY DAMAGE AT CONTRACTOR'S EXPENSE.
7. LANDSCAPE PLANTING PITS MUST BE FREE DRAINING. PAVEMENT, COMPACTED SUBGRADE, AND BLASTED ROCK SHALL BE REMOVED FROM WITHIN TRAFFIC ISLANDS TO BE LANDSCAPED TO A DEPTH OF 2' OR TO A GREATER DEPTH IF REQUIRED BY PLANTING DETAILS OR SPECIFICATIONS. REPLACE SOIL WITHIN ISLANDS WITH MODERATELY COMPACTED LOAM OR SANDY LOAM FREE FROM STONES AND RUBBISH 1" OR GREATER IN DIAMETER AND ANY OTHER MATERIAL HARMFUL TO PLANT GROWTH AND DEVELOPMENT. PLANTING INSTALLATION WITHIN ISLANDS SHALL BE AS DETAILED AND CONTAIN PLANTING MIX AS SPECIFIED.
8. PLANTING SOIL MIXTURE FOR TREES AND SHRUBS:
   - 1 PART PEAT MOSS
   - 3 PARTS TOPSOIL
   - FERTILIZER/LIME (APPLY AS RECOMMENDED BY SOIL ANALYSIS)
   - MYCORHIZA INOCULANT – "TRANSPLANT 1–STEP" AS MANUFACTURED BY ROOTS, INC. OR APPROVED EQUAL. USE PER MANUFACTURER'S RECOMMENDATIONS FOR TREES AND SHRUBS.
9. PLANTING SOIL MIXTURE FOR PERENNIAL AND ORNAMENTAL GRASS BEDS:
   - 1 PART PEAT MOSS
   - 1 PART MANURE (WEED FREE)
   - 3 PARTS TOPSOIL
   - FERTILIZER/LIME (APPLY AS RECOMMENDED BY SOIL ANALYSIS)
   - MILORGANITE APPLIED AT 5 LBS. PER 100 S.F.
10. TIME OF PLANTING: NEW PLANT MATERIALS SHALL BE INSTALLED BETWEEN APRIL 1 AND JUNE 1, OR AFTER SEPTEMBER 15TH AND NO LATER THAN OCTOBER 31ST.
11. TOPSOIL SHALL BE INSTALLED AT A MINIMUM DEPTH OF 6". CONTRACTOR SHALL SUBMIT TOPSOIL TO A CERTIFIED TESTING LABORATORY TO DETERMINE PH, FERTILITY, ORGANIC CONTENT AND MECHANICAL COMPOSITION. THE CONTRACTOR SHALL SUBMIT THE TEST RESULTS FROM REGIONAL EXTENSION OFFICE OF USDA TO THE OWNER OR LANDSCAPE ARCHITECT FOR REVIEW AND APPROVAL. CONTRACTOR SHALL INCORPORATE AMENDMENTS FOR GOOD PLANT GROWTH AND PROPER SOIL ACIDITY RECOMMENDED FROM THE TOPSOIL TEST.
12. SEED MIX A:
    "LOW–MOW SEED MIX" – BLEND OF 3–5 CREEPING RED FESCUES.
    SEEDING RATE: 4.5 LBS PER 1,000 S.F. (ADD 10% TO QUANTITY IF HYDROSEEDED).
    SEEDING DATE: AUGUST 15–OCTOBER 1 AND APRIL 15–JUNE 15 UNLESS OTHERWISE APPROVED BY THE OWNER OR LANDSCAPE ARCHITECT.
13. SEED MIX B:
    "FUZZ & BUZZ MIX–PREMIUM" – ERNMX–147 AS BLENDED BY ERNST CONSERVATION SEEDS, MEADVILLE, PA; 1–800–873–3321.
    SEEDING RATE: 42 LBS PER ACRE
    SEEDING DATE: AUGUST 15–OCTOBER 1 AND APRIL 15–JUNE 15 UNLESS OTHERWISE APPROVED BY THE OWNER OR LANDSCAPE ARCHITECT.
14. SEED MIX C:
    "RAIN GARDEN GRASS MIX" – ERNMX–180–1 AS BLENDED BY ERNST CONSERVATION SEEDS, MEADVILLE, PA; 1–800–873–3321.
    SEEDING RATE: 15 LBS PER ACRE
    SEEDING DATE: AUGUST 15–OCTOBER 1 AND APRIL 15–JUNE 15 UNLESS OTHERWISE APPROVED BY THE OWNER OR LANDSCAPE ARCHITECT.
15. SEED MIX D:
    "CONTRACTOR'S LAKEVIEW CONSERVATION MIX" – ERNMX–116–AS BLENDED BY ERNST CONSERVATION SEEDS, MEADVILLE, PA; 1–800–873–3321.
    SEEDING RATE: 75–150 LBS PER ACRE (3LBS PER 1,000 S.F.)
    SEEDING DATE: AUGUST 15–OCTOBER 1 AND APRIL 15–JUNE 15 UNLESS OTHERWISE APPROVED BY THE OWNER OR LANDSCAPE ARCHITECT.
16. ALL SLOPES GREATER THAN 3:1 RECEIVING A GRASS SEEDING MIXTURE SHALL BE COVERED WITH AN EROSION CONTROL BLANKET.

GRAPHIC SCALE
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See sheet LL-3 for Plant List & sheet LL-5 for Planting Details.

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PRELIMINARY PLANTING PLAN – NORTH
MIRBEAU BEACON

7 CRAIG HOUSE LANE
CITY OF BEACON
DUTCHESS COUNTY, NEW YORK
TAX ID: 6054-13-001258

JOB #:	2021:051
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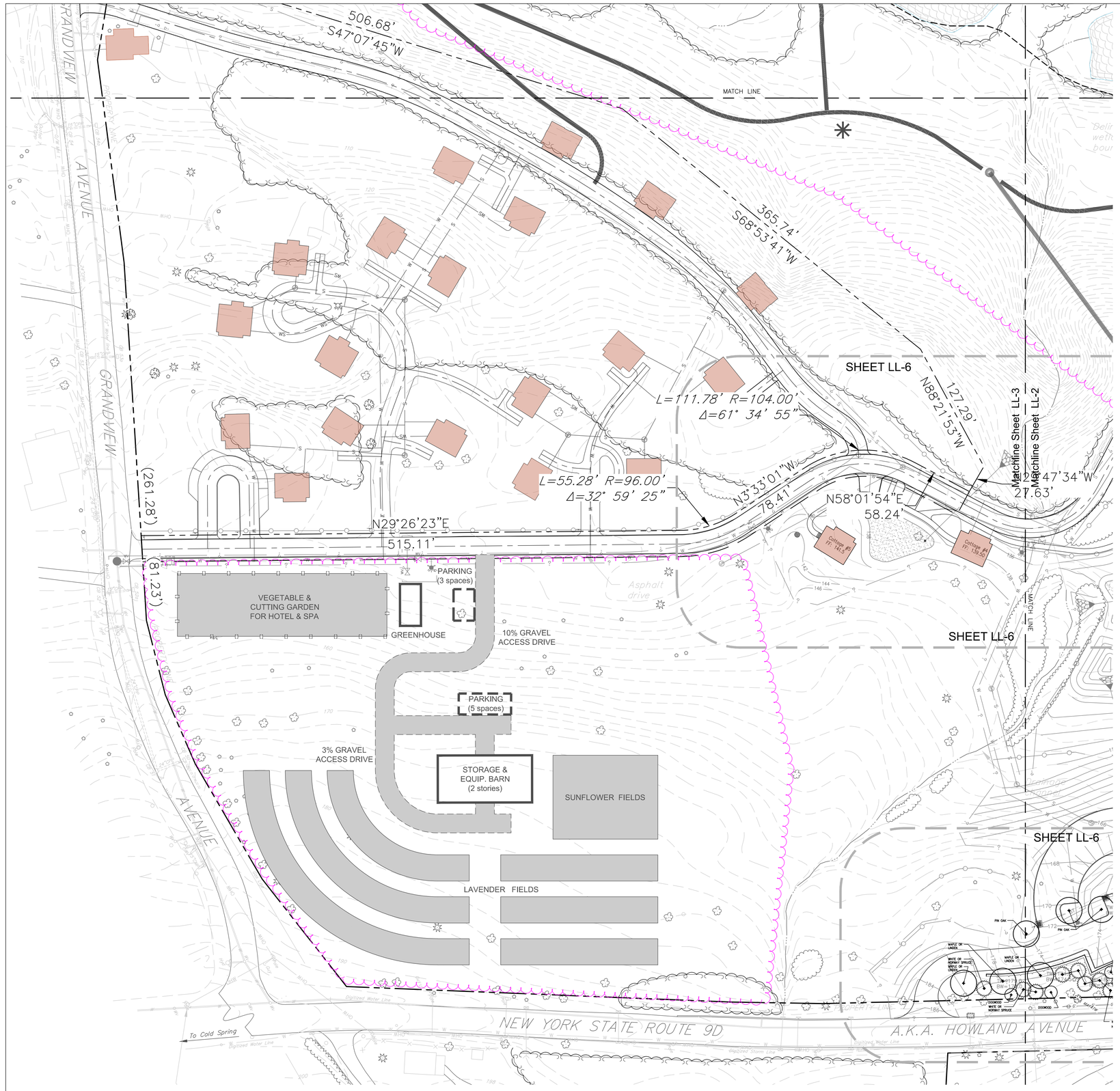

PLANT LIST:

	CODE	QTY.	BOTANICAL NAME	COMMON NAME	ROOT	SIZE INSTALLED	SIZE MATURE	COMMENTS
SPECIMEN & SHADE TREES:	AFA	–	ACER x FREEMANII 'ARMSTRONG'	ARMSTRONG RED MAPLE	B&B	2.5–3" cal.	20x50' ht.	Narrow Upright habit
	ARK	–	ACER RUBRUM 'KARPICK'	KARPICK RED MAPLE	B&B	2.5–3" cal.	20x40' ht.	Narrow Pyramidal crown
	ARR	–	ACER RUBRUM 'RED SUNSET'	RED SUNSET RED MAPLE	B&B	3.5–4" cal.	40' ht.	Upright ovcl crown
	ASG	–	ACER SACCHARUM 'GREEN MOUNTAIN'	GREEN MOUNTAIN SUGAR MAPLE	B&B	2.5–3" cal.	55' ht.	Upright ovcl crown
	ASF	–	ACER SACCHARUM 'FLAX HILL'	FLAX HILL MAJESTY SUGAR MAPLE	B&B	2.5–3" cal.	50'	Ovate crown
	ACB	–	AESCULUS CARNEA 'BRIOTTI'	RED HORSECHESTNUT	B&B	2.5–3" cal.	40' ht.	
	BPW	–	BETULA PLATYPHYLLA 'JEFPARK'	PARKLAND PILLAR BIRCH	B&B	2.5–3" cal.	35–40' ht.	6–7' WIDE
	LS	–	LIQUIDAMBAR STYRACIFLUA	AMERICAN SWEETGUM	B&B	3.5–4" cal.	60' ht.	SPECIMEN GRADE
	LT	–	LIRIODENDRON TULIPIFERA	TULIP TREE	B&B	2–2.5" cal.	80' ht.	
	MG	–	METASEQUOIA GLYPTOSTROBOIDES	DAWN REDWOOD	B&B	12–14' ht.	60' ht.	Deciduous Conifer
	PAB	–	PLATANUS ACERIFOLIA 'BLOODGOOD'	LONDON PLANE TREE	B&B	2.5–3" cal.	50' ht.	Rounded crown
	PCC	–	PYRUS CALLERYANA 'CHANTICLEER'	CHANTICLEER FLOWERING PEAR	B&B	2.5–3" cal.	30' ht.	15' WIDE
	PSA	–	PRUNUS SARGENTII	SARGENT CHERRY	B&B	2.5–3" cal.	35' ht.	
	QP	–	QUERCUS PALUSTRIS	PIN OAK	B&B	2–2.5" cal.	50–75' ht.	Orange–Scarlet fall
	QRA	–	QUERCUS ROBUR x ALBA 'CRIMSCHMIDT'	CRIMSON SPIRE OAK	B&B	2.5–3" cal.	40–45' ht.	15–20' WIDE
	QR	–	QUERCUS RUBRA	NORTHERN RED OAK	B&B	2.5–3" cal.	75' ht.	
	TAR	–	TILIA AMERICANA 'REDMOND'	REDMOND LINDEN	B&B	3–3.5" cal.	70' ht.	
	UPA	–	ULMUS PARVIFOLIA 'ALLEE'	ALLEE LACEBARK ELM	B&B	2.5–3" cal.	35x50' ht.	
SMALL SCALE TREES:	AMC	–	AMELANCHIER CANDENSIS	SHADBLOW	B&B	6–7' ht.	25' ht.	Clump Form
	BPW	–	BETULA POPULIFOLIA 'WHITESPIRE'	WHITESPIRE GRAY BIRCH	B&B	8–10' ht.	20–40'	MULTI–STEM
	CFF	–	CARPINUS BET. 'FRANS FONTAINE'	FRANS FONTAINE HORNMBEAM	B&B	2.5–3" cal.	20–30' ht.	MATCHED
	CC	–	CARPINUS CAROLINIANA	AMERICAN HORNMBEAM	B&B	2–2.5" cal.	25–35' ht.	
	CC	–	CERCIS CANADENSIS	EASTERN REDBUD	B&B	2.5–3" cal.	25–30' ht.	
	CF	–	CORNUS FLORIDA	FLOWERING DOGWOOD	B&B	2–2.5" cal.	20–25' ht.	White
	CFR	–	CORNUS FLORIDA 'RUBRA'	PINK FLOWERING DOGWOOD	B&B	2–2.5" cal.	20–25' ht.	Pink
	CR	–	CORNUS RACEMOSA	GRAY DOGWOOD	Cont.	7 Gal.	8'x8'	White
	QR	–	QUERCUS ROBUR x ALBA 'CRIMSCHMIDT'	CRIMSON SPIRE RED OAK	B&B	2.5–3" cal.	20x45' ht.	
EVERGREEN TREES:	AF	–	ABIES FRASERI	FRASIER FIR	B&B	7–8' ht.	30–50' ht.	
	IO	–	ILEX OPACA	AMERICAN HOLLY	B&B	7–8' ht.	40–50' ht.	20–40'w
	IJP	–	ILEX OPACA 'JERSEY PRINCESS'	JERSEY PRINCESS AMERICAN HOLLY	B&B	7–8' ht.	30–35' ht.	
	PA	–	PICEA ABIES	NORWAY SPRUCE	B&B	8–10' ht.	40–60' ht.	
	PG	–	PICEA GLAUCA	WHITE OR CANADIAN SPRUCE	B&B	8–10' ht.	20'x60' ht.	
	PS	–	PINUS STROBUS	EASTERN WHITE PINE	B&B	8–10' ht.	50–80' ht.	
	TSC	–	TSUGA CANADENSIS 'PENDULA'	SARGENT'S WEEPING HEMLOCK	B&B	4–6' HT.	5–8'x10–12'	
LARGE SHRUBS:	CAH	–	CLETHRA ALNIFOLIA	SUMMERSWEET	CONT.	18–24" ht.	6–8' ht.	
	CAH	–	CLETHRA ALNIFOLIA 'HUMMINGBIRD'	HUMMINGBIRD SUMMERSWEET	CONT.	18–24" ht.	4–6' ht.	
	CSB	–	CORNUS SERICEA 'BAILEYI'	BAILEY'S RED TWIG DOGWOOD	CONT.	18–24" ht.	8–10' ht.	
	CSF	–	CORNUS SERICEA 'FLAVIRAMEA'	YELLOW TWG DOGWOOD	CONT.	18–24" ht.	6–8' ht.	
	HSA	–	HIBISCUS SYRIACUS 'ARDENS'	ROSE OF SHARON	B&B	36–42" ht.	8–10' ht.	Double Rosy Purple
	HSB	–	HIBISCUS SYRIACUS 'BLUE SATIN'	ROSE OF SHARON	B&B	36–42" ht.	8–10' ht.	Single Royal Blue
	HQR	–	HYDRANGEA QUERC. 'RUBY SLIPPERS'	RUBY SLIPPERS OAKLEAF HYDRANGEA	CONT.	#5	6–8' ht.	White to Pink
	IGD	–	ILEX GLABRA 'DENSA'	INKBERRY	CONT.	18–24" ht.	6–8' ht.	
	IVJ	–	ILEX VERTICILLATA 'JIM DANDY'	JIM DANDY (MALE) WINTERBERRY	CONT.	#5	6–8' ht.	
	IVR	–	ILEX VERTICILLATA 'RED SPRITE'	RED SPRITE WINTERBERRY	CONT.	#5	6' ht.	
	KLR	–	KALMIA LATIFOLIA 'RASPBERRY GLOW'	RASPBERRY GLOW MOUNTAIN LAUREL	CONT.	18–24" ht.	6–8' ht.	Burgundy to Pink
	MPM	–	MORELLA PENSYLVANICA 'MORTON MALE'	MALE SILVER SPRITE BAYBERRY	CONT.	24" min.ht.	3–5' ht.	
	MPS	–	MORELLA PENSYLVANICA 'SILVER SPRITE'	SILVER SPRITE BAYBERRY	CONT.	24" min.ht.	3–5' ht.	
	PO3	–	PHYSOCARPUS OPULIFOLIOUS 'DIABLO'	DIABLO NINEBARK	CONT.	24" min.ht.	5–8' ht.	
	RCA	–	RHODODENDRON CATAWBIENSE 'ALBA'	WHITE CATAWBA RHODODENDRON	CONT.	18–24" ht.	8' ht.	
	RC	–	RHODODENDRON CATAWBIENSE	CATAWBA RHODODENDRON	CONT.	18–24" ht.	8' ht.	
	RPJ	–	RHODODENDRON 'PJM'	PJM RHODODENDRON	CONT.	24–30" ht.	8' ht.	
	RAL	–	RHUS AROMATICA 'LACETTE'	LACY FRAGRANT SUMAC	CONT.	#5	6x3–4' ht.	Red Fall; White Bloom
	VCO	–	VACCINEUM CORYMBOSUM	HIGHBUSH BLUEBERY	CONT.	18–24" ht.	8–10' ht.	
	VD	–	VIBURNUM DENTATUM	ARROWWOOD VIBURNUM	CONT.	#7	8–10' ht.	
	VP	–	VIBURNUM PLICATUM TOM. 'SHASTA'	SHASTA DOUBLEFILE VIBURNUM	CONT.	#7	6–8' ht.	
	VR	–	VIBURNUM RHYTIDOPHYLLUM	LEATHERLEAF VIBURNUM	CONT.	#7	8–10' ht.	evergreen
SMALL SHRUBS:	AMH	–	ARONIA MELANOCARPA 'UCONNAM166'	LOW SCAPE HEDGER CHOKEBERRY	CONT.	#5	2–3x3–5'	2–3' o.c.; Red–Or Fall
	FGA	–	FOTHERGILLA GARDENII 'APPALACHIA'	DWARF FOTHERGILLA	CONT.	24" min.ht.	2–3' ht.	
	CAV	–	CLETHRA ALNIFOLIA 'VANILLA SPICE'	VANILLA SPICE SUMMERSWEET	CONT.	24–30" ht.	3–4' ht.	
	FG	–	FOTHERGILLA GARDENII	DWARF FOTHERGILLA	CONT.	#3	3–4' ht.	
	HQP	–	HYDRANGEA QUEROFOLIA 'PEEWEE'	PEE WEE OAKLEAF HYDRANGEA	CONT.	#5	3–5' ht.	White; Burgundy fall
	KLE	–	KALMIA LATIFOLIA 'ELF'	ELF MIN. MOUNTAIN LAUREL	CONT.	18–24" ht.	3–4' ht.	White
	KLL	–	KALMIA LATIFOLIA 'LITTLE LINDA'	LITTLE LINDA MIN. MOUNTAIN LAUREL	CONT.	18–24" ht.	3–4' ht.	Red to Pink
	MG	–	MYRICA GALE	SWEET GALE	CONT.	18" min.spd.	2–4' ht.	
	PO1	–	PHYSOCARPUS OPULIFOLIUS 'TINY WINE'	TINY WINE NINEBARK	CONT.	18–24" ht.	3–4' ht.	
	PO2	–	PHYSOCARPUS OP. 'TINY WINE GOLD'	GOLD TINY WINE NINEBARK	CONT.	18–24" ht.	3–4' ht.	
	VDB	–	VIBURNUM DENTATUM 'BLUE MUFFIN'	BLUE MUFFIN ARROWWOOD VIBURNUM	CONT.	#7	4–6' ht.	
GROUND COVER SHRUBS:	AML	–	ARONIA MEL. LOW SCAPE MOUND	LOW SCAPE MOUND CHOKEBERRY	CONT.	12" min.spd.	12–24" ht.	
	JHB	–	JUNIPERUS HORIZ. 'BLUE CHIP'	BLUE CHIP JUNIPER	CONT.	18–24" spd.	18–24" ht.	Gray–Green to Bronze–Purple
	VA	–	VACCINEUM ANGUSTIFOLIUM	LOWBUSH BLUEBERY	CONT.	15–18" ht.	12" ht.x2'	
	VCL	–	VIBURNUM CASSINOIDES 'LIL DITTY'	LIL DITTY WITHEROD VIBURNUM	CONT.	15" min.ht.	12–24" ht.	
PERENNIALS:	AAB	–	ACHILLEA MILLE. 'APPLE BLOSSOM'	APPLE BLOSSOM YARROW	CONT.	#SP4	24" ht.	15" o.c.; Lilac Pink
	AST	–	ACHILLEA MILLE. 'STRAWBERY SEDUCTION'	STRAWBERRY SEDUCTION YARROW	CONT.	#SP4	18–20" ht.	15" o.c.; Dk. Red
	ADK	–	ASTER DUMOSUS 'PROF. KIPPENBURG'	PROFESSOR KIPPENBERG ASTER	CONT.	#SP4	20" ht.	18" o.c.; Lav–Blue Late Sum.
	ANB	–	ASTER NOVAE–BELGII 'MARIE BALLARD'	MARIE BALLARD (NY) ASTER	POT	#SP5	30" ht.	18" o.c.; Vio–blue Late Sum.
	ANW	–	ASTER NOVAE–BELGII 'WIN. CHURCHILL'	WINSTON CHURCHILL (NY) ASTER	POT	#SP5	36" ht.	18" o.c.; Deep Red Fall
	ECH	–	ECHINACAEA 'B'S KNEES'	B'S KNEES ECHINACEA	CONT.	#SP5	30" ht.	18" o.c.
	EDB	–	EUPATORIUM DUBIUM 'BABY JOE'	BABY JOE PIEWEED	POT	#SP5	16–24" ht.	24" o.c.; Lav–Rose
	GSR	–	GERANIUM 'ROZANNE'	ROZANNE GERANIUM	CONT.	#SP5	20–24" ht.	18" o.c.; Deep Blue; Ju–Oct.
	GSH	–	GERANIUM 'SWEET HEIDI'	SWEET HEIDI GERANIUM	CONT.	#SP5	14–18" ht.	18" o.c.; Lav blue; Sp–Fall
	IVC	–	IRIS VERSICOLOR	NORTHERN BLUE FLAG	POT	#SP5	36" ht.	Red–Purple
	NN	–	NIPPONANTHEMUM NIPPONICUM	MONTAUK DAISY	CONT.	#2	30–36" ht.	
	PVR	–	PANICUM VIRGATUM 'RUBY RIBBONS'	RUBY RIBBONS SWITCHGRASS	CONT.	#2	3' ht.	Red Blades; 2' o.c.
	PAL	–	PENNISETUM ALOPCUROIDES	FOUNTAIN GRASS	POT	#3	2–4' Blades	3–5' Tassels; 2' o.c.
	PAH	–	PENNISETUM ALOPCUROIDES 'HAMELN'	HAMELN DWARF FOUNTAIN GRASS	CONT.	#2	24" ht.	18" o.c.
	POA	–	POLYSTICHUM ACROSTICHOIDES	CHRISTMAS FERN	CONT.	#1	1–3' ht.	Dark leathery fronds
	RFF	–	RUDBECKIA FULGIDA var. 'FULGIDA'	CONFLOWER (Black Eyed Susan)	POT	#SP5	24–30" HT.	15" o.c.; July–Oct.
	SAL	–	SALVIA NEMEROSA 'BLUE HILL'	BLUE HILL SALVIA	POT	#SP5	24" ht.	15" o.c.; Blue.
	SNM	–	SALVIA NEMEROSA 'MAY NIGHT'	BLUE MAY NIGHT	POT	#SP5	24" ht.	15" o.c.; Violet.

GRAPHIC SCALE

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See sheet LL-2 for Planting Notes & sheet CD-1 for Planting Details.

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PRELIMINARY PLANTING PLAN – SOUTHEAST

MIRBEAU BEACON

7 CRAIG HOUSE LANE
CITY OF BEACON
DUTCHESS COUNTY, NEW YORK
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JOB #:	2021:051
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SCALE:	1" = 40'
TITLE:	LL-3
SHEET:	23 OF 28

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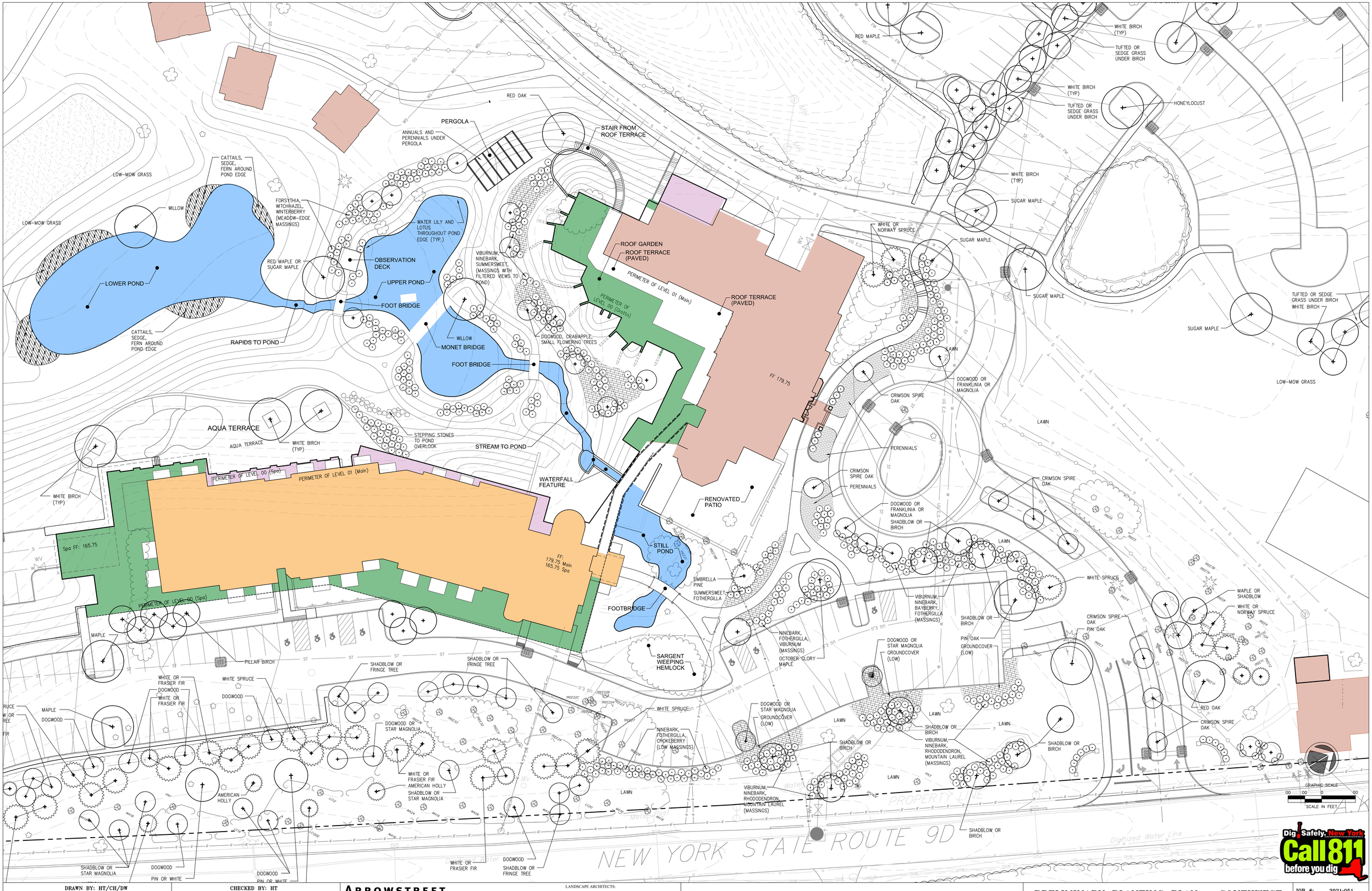

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PRELIMINARY PLANTING PLAN – SOUTHWEST

MIRBEAU BEACON

7 CRAIG HOUSE LANE
CITY OF BEACON
DUTCHESS COUNTY, NEW YORK
TAX ID: 6054-13-001258

JOB #:	2021:051
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SHEET:	24 OF 28

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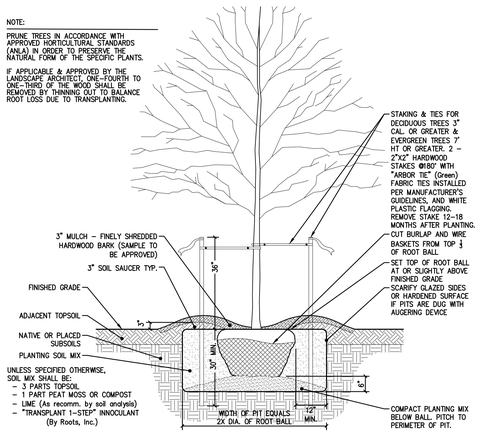
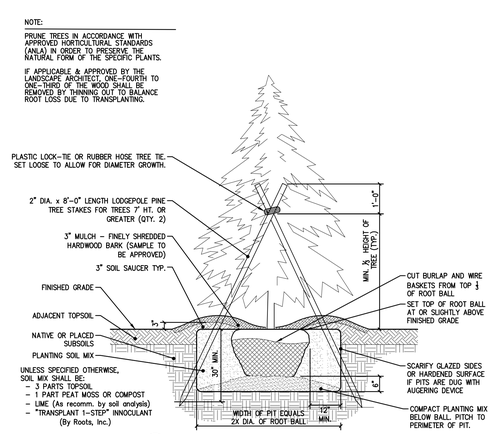
PLANTING DETAILS:



1 TREE PLANTING DETAIL
SCALE: 1/2" = 1'–0"



2 CONIFER TREE PLANTING DETAIL
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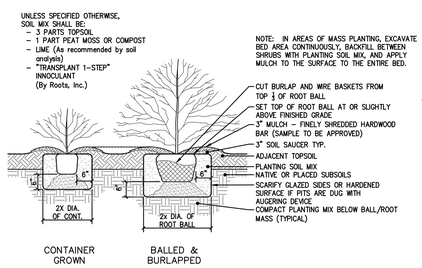

3 SHRUB PLANTING DETAIL
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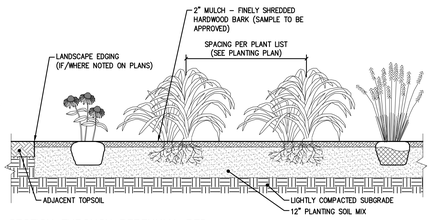

SECTION THROUGH PERENNIAL BED

PERENNIAL NOTES:
1. BULB/CORM PERENNIALS TO BE PLANTED IN FALL. POTTED PERENNIALS MAY BE PLANTED APRIL 15 TO OCTOBER 1.
2. ROTOTILL FERTILIZER AND LIME INTO SOIL PRIOR TO PLANTING AND IN ACCORDANCE TO SOIL ANALYSIS RECOMMENDATIONS.
3. DO NOT OVER COMPACT PLANTING BED. WATER THOROUGHLY AFTER PLANTING BULBS.
4. ADJUST PLANTING DEPTH AS RECOMMENDED BY BULB SUPPLIER.
5. PROVIDE DRAINAGE AS REQUIRED (PERF PIPE 4" ADS) WHEN SUBGRADE IS CLASSIFIED AS A HEAVY SOIL OR EXCESSIVELY COMPACTED.

UNLESS SPECIFIED OTHERWISE, PERENNIAL BED SOIL MIX SHALL BE:
– 3 PARTS TOPSOIL
– 1 PART MANURE (WEED FREE)
– 1 PART PEAT MOSS OR COMPOST
– LIME (As recommended by soil analysis)
– "MILORGANITE" AT 5 LBS. PER 100 SF.

4 ANNUAL/PERENNIAL AND GROUND COVER BEDS DETAIL
SCALE: 1/2" = 1'–0"



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MIRBEAU BEACON

7 CRAIG HOUSE LANE
CITY OF BEACON
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PRELIMINARY PLANTING PLAN – SOUTHWEST

MIRBEAU BEACON

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TAX ID: 6054-13-001258

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TITLE:	LL-6
SHEET:	26 OF 28

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LIGHTING SCHEDULE:

Luminaire Schedule

Symbol	Lable	Qty	Lum. Watts	Lum. Lumens	LLF	Arrangement	Description
⊕	B2	13	43.2	2975	0.850	Single	PROB-Y2-3030
⊕	B3	24	43.7	3030	0.850	Single	PROB-Y3-3030
⊕	B5	17	43.2	2892	0.850	Single	PROB-Y5-3030
⊕	P2 - 16	15	34.1	3597	0.773	Single	PROV2-36L-295-3K7-2 (Mod K8)
⊕	P3 - 10	1	25.1	1829	0.773	Single	PROS-Y3-2030 (Mod K8)
⊕	P3 - 16	5	34.1	3471	0.773	Single	PROV2-36L-295-3K7-3 (Mod K8)
⊕	P4 - 10	18	25.1	1793	0.773	Single	PROS-Y4W-2030 (Mod K8)
⊕	P4W - 16	9	34.1	3501	0.773	Single	PROV2-36L-295-3K7-4W (Mod K8)
⊕	P5 - 10	6	25.1	1735	0.773	Single	PROS-Y5-2030 (Mod K8)
⊕	P5Q - 16	17	34.1	3818	0.773	Single	PROV2-36L-295-3K7-5Q (Mod K8)

KEY TO LIGHT FIXTURES:

P2, P3, P4, P4W, P5 & P5Q — POLE MOUNTED LIGHTS: "PROVIDENCE" BY ARCHITECTURAL AREA LIGHTING WITH LED LAMP TYPE WITH COLOR TEMPERATURE OF 3000K. LAMP IS FITTED IN CAP OF FIXTURE WITH POLE HEIGHTS TO SET FACE DOWNWARD AT A 10' OR 16' HEIGHT ABOVE GRADE PER PLAN. OPTICAL DISTRIBUTION PATTERNS TYPE 2, 3, 4 ND 5 AS NOTED ON PLAN. LED FIXTURE PERFORMANCE IS FULL CUT-OFF. ALL LAMPS SHALL HAVE A CRI OF 80 OR GREATER.

B2, B3 & B5 — BOLLARD LIGHTS: "PROVIDENCE" BOLLARD BY ARCHITECTURAL AREA LIGHTING WITH LED LAMP TYPE WITH COLOR TEMPERATURE OF 3000K. HEIGHT TO BASE OF LAMP HEAD IS 42" ABOVE GRADE. OPTICAL DISTRIBUTION PATTERNS ARE TYPE 2, 3 OR 5 AS NOTED ON PLAN AND SHOWN ON CUT SHEET. ALL LAMPS SHALL HAVE A CRI OF 80 OR GREATER.

NOTE: ALL BOLLARD LIGHTS TO BE EQUIPPED WITH DIMMER CONTROLS TO ALLOW FOR REDUCING LIGHT OUTPUT TO 50% OF FULL LIGHT LEVELS SHOWN ON THE PHOTOMETRIC PLAN.

See sheet LP-3 for Fixture Specification Order Sheets.

LIGHT POLE BASE DETAIL:

1 CONC. LIGHT POLE BASE-ROUND
SCALE: 1/2" = 1'-0"

POST TOP FIXTURE IMAGERY:



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SITE LIGHTING PLAN - NORTH

MIRBEAU BEACON

7 CRAIG HOUSE LANE
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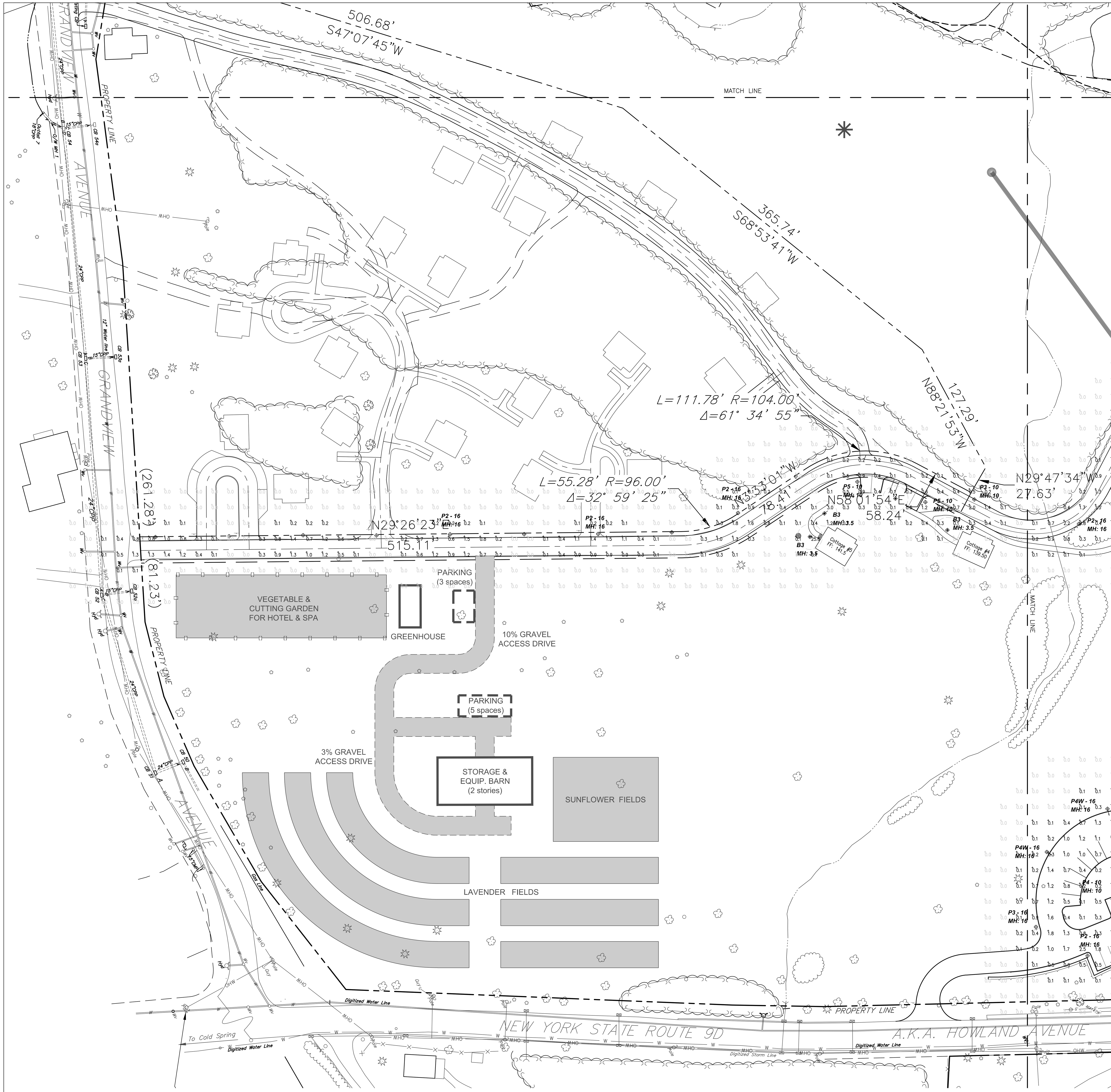

LIGHT FIXTURE SPEC SHEETS:

"B" - BOLLARD FIXTURE:

Providence® LED™ – Bollard PROB (B2, B3, B5) | TYPE

FEATURES

- Reliable uniform illumination
- Types II, III, IV and V distributions
- 3000K, 4000K, 5000K CCT
- 0-10V dimmable
- 20kV/10kA surge suppression
- Thermal Protection
- 13 standard powder coat finishes
- Die-Cast housing
- Full Cutoff optical system

SPECIFICATIONS

11.60"/294.64mm; 16.83"/427mm; 42.44"/1,078mm; BOTTOM VIEW

- Diameter: 11.60" / 294.64 mm
- Height: 42.44" / 1,078 mm
- Weight: 27 lbs / 12kg
- IP Rating: 66

3000K and warmer CCTs only

ORDERING INFORMATION

1	2	3	4	5	6
PROB	Y2, Y3, Y5	3030	BLT		
Model	Distribution	Lumen Package	Color	Options	Mounting

1. MODEL
PROB — Providence Bollard LED

2. DISTRIBUTION
Y2 Type 2
Y3 Type 3
Y4 Type 4
Y5 Type 5

3. LUMEN PACKAGE
3050 5000K CCT, 43 watts
3040 4000K CCT, 43 watts
3030 3000K CCT, 43 watts
2050 5000K CCT, 25 watts
2040 4000K CCT, 25 watts
2030 3000K CCT, 25 watts

4. COLOR
BLS Black Gloss Smooth
BLT Black Matte Textured
DBS Dark Bronze Gloss Smooth
DBT Dark Bronze Matte Textured
GTT Graphite Matte Textured
LGS Light Grey Gloss Smooth
LGT Light Grey Matte Textured
PSS Platinum Silver Gloss Smooth
VGT Verde Green Matte Textured
WHS White Gloss Smooth
WHT White Matte Textured
CC[1] Custom Color

[1] Consult factory for custom color, marine and corrosive finish

5. OPTIONS
FS1 Fusing
DSC Dark Sky Cap
PFC Brass Painted Finial
BPS Brass Painted Struts
LDL Lightly Diffused Lens

6. MOUNTING
FL Fluted Shaft 5" DIA.
RD Round Shaft 5" DIA.
PM Pier Mount

MANUFACTURER TO PROVIDE 80 CRI.

LUMINAIRE PERFORMANCE

Light Engine	Lensing	Distribution	Ordering Code	5000K CCT (3050) Delivered Lumens	Efficacy (Lm/W)	B	U	G	4000K CCT (3040) Delivered Lumens	Efficacy (Lm/W)	B	U	G	3000K CCT (3030) Delivered Lumens	Efficacy (Lm/W)	B	U	G	Average System Watts
3000 Series	Clear Lens (Standard)	TYPE 2	Y2	3238	75	1	0	1	3247	76	1	0	1	2975	69	1	0	1	43
		TYPE 3	Y3	3261	75	1	0	1	3270	76	1	0	1	3038	70	1	1	1	
		TYPE 4	Y4	3253	75	1	0	1	3262	76	1	0	1	2988	69	1	0	1	
		TYPE 5	Y5	3148	73	2	0	1	3157	73	2	0	1	2892	67	2	0	1	
	Lightly Diffused Lens	TYPE 2	Y2...LDL	2386	56	1	1	1	2342	54	1	1	1	2092	49	1	1	1	
		TYPE 3	Y3...LDL	2385	57	1	1	1	2341	56	1	1	1	2091	50	1	1	1	
		TYPE 4	Y4...LDL	2295	53	1	2	1	2252	52	1	2	1	2012	47	1	2	1	
		TYPE 5	Y5...LDL	2234	52	1	1	1	2193	51	1	1	1	1959	46	1	1	1	

architectural area lighting — ARCHITECTURAL AREA LIGHTING, 16555 East Gale Ave. | City of Industry | CA 91745, P 626.968.5666 | F 626.369.2695 | www.aal.net, Copyright © 2015 Rev 9.15
JOB / TYPE / NOTES

"P" - MEDIUM POST TOP FIXTURE:

architectural area lighting **PROV2** ARCHITECTURAL AREA/SITE — (P2-16, P3-16, P4W-16, P5Q-16)

DATE: 5-11-22 | LOCATION: BEACON, NY
TYPE: 2,3,4,5Q | PROJECT: MIRBEAU SPA AT HOWLAND ESTATE
CATALOG #:

PROV2 ON 4" FLUTED ALUM. POLES W/ LENS HEIGHT OF 16' ABOVE GRADE.

PROVIDENCE® — Providence Medium

FEATURES

- Reliable, uniform, glare free illumination
- Types 1, 2, 3, 4W, 5Q, and 5W distributions
- Amber, 3000K, 4000K, 5000K CCT
- 0-10V dimming ready
- Integral Surge protection: 10k in parallel, 20k in series
- Upgrade Kits

RELATED PRODUCTS: PROL2, PROL2-LK, PROS, PROB

DELIVERED LUMENS

The table below shows the delivered lumens for the various lumen outputs and beam distributions. Use this chart in connection with the lumen factor (LF) capability to deliver any output required.

LED #	Drive Current	Lumen Package	Lens	Distribution	3000K 70CRI Lumen	B	U	G	Efficacy (Lm/W)	4000K 70CRI Lumen	B	U	G	Efficacy (Lm/W)	5000K 70CRI Lumen	B	U	G	Efficacy (Lm/W)
36	295	450mA Microcore Equivalent	None	1	3807	1	0	1	111.6	3960	1	0	1	116.1	4128	1	0	1	121.0
				2	3596	1	0	1	105.4	3740	1	0	1	109.7	3899	1	0	1	114.3
				3	3471	1	0	1	101.8	3611	1	0	1	105.9	3764	1	0	1	110.4
				4W	3501	1	0	1	102.7	3642	1	0	1	106.8	3796	1	0	1	111.3
				1-HS	2355	0	0	1	69.1	2450	0	0	1	71.8	2554	0	0	1	74.9
				2-HS	2049	0	0	1	60.1	2132	0	0	1	62.5	2222	0	0	1	65.2
				3-HS	1981	0	0	1	58.1	2061	0	0	1	60.4	2148	0	0	1	63.0
				4W-HS	2044	0	0	1	59.9	2126	0	0	1	62.3	2216	0	0	1	65.0
				5Q	3818	2	0	1	112.0	3971	2	0	1	116.5	4140	2	0	1	121.4
				5W	3529	2	0	1	103.5	3670	2	0	1	107.6	3826	2	0	1	112.2
			Clear	1-CL	3242	1	0	1	95.0	3373	1	0	1	98.8	3516	1	0	1	103.0
				2-CL	3062	1	0	1	89.7	3186	1	0	1	93.3	3321	1	0	1	97.3
				3-CL	2957	1	0	1	86.6	3075	1	0	1	90.1	3206	1	0	1	93.9
				4W-CL	2982	1	0	1	87.4	3102	1	0	1	90.9	3233	1	0	1	94.7
				1-CL-HS	2006	0	0	1	58.8	2087	0	0	1	61.1	2175	0	0	1	63.7
				2-CL-HS	1746	0	0	1	51.1	1816	0	0	1	53.2	1893	0	0	1	55.5
				3-CL-HS	1688	0	0	1	49.4	1755	0	0	1	51.4	1830	0	0	1	53.6
				4W-CL-HS	1740	0	0	1	51.0	1810	0	0	1	53.0	1887	0	0	1	55.3
				5Q-CL	3252	2	0	1	95.3	3382	2	0	1	99.1	3526	2	0	1	103.3
				5W-CL	3005	2	0	1	88.1	3126	2	0	1	91.6	3259	2	0	1	95.5
			Diffused	3-DL	2243	1	0	1	65.8	2334	1	0	1	68.4	2433	1	0	1	71.3
				5W-DL	2280	1	0	1	66.9	2372	1	0	1	69.6	2473	1	0	1	72.5

PHOTOMETRY | DELIVERED LUMENS | DIMENSIONAL DRAWINGS | ARMS | COLOR CHART

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architectural area lighting **PROV2** ARCHITECTURAL AREA/SITE

DATE: 5-11-22 | LOCATION: BEACON, NY
TYPE: 2,3,4,5Q | PROJECT: MIRBEAU SPA AT HOWLAND ESTATE
CATALOG #:

ORDERING GUIDE

CATALOG #
Example: PROV2-36L-325-3K7-4W-BL-SLA1-DF-HS-AD5-UNV

HOUSING

PROV2

Housing	LED Quantity	Lumen output	CCT/CRI	Distribution	Finish
PROV2 Providence Medium 2.0	36L 36 LED	295 450mA Microcore Equivalent	AMB[1] Amber-595nm Peak	1 Type I	BLS Black Gloss Smooth
		325 325mA, 4500 Lumens	3K7 3000K, 70 CRI	2 Type II	BLT Black Matte Textured
		510 510mA, 6500 Lumens	4K7 4000K, 70 CRI	3 Type III	DBS Dark Bronze Gloss Smooth
		525 700mA Microcore Equivalent	5K7 5000K, 70 CRI	4W Type IV Wide	DBT Dark Bronze Matte Textured
		615 615mA, 7500 Lumens	Contact factory for options listed below	5Q Type V Square	GTT Graphite Matte Textured
			27K8 2700K, 80 CRI	5W Type V Wide	LGS Light Grey Gloss Smooth
			80 or 90 CRI for standard color temperatures		LGT Light Grey Matte Textured
					PSS Platinum Silver Gloss Smooth
					VGT Verde Green Matte Textured
					WHS White Gloss Smooth
					WHT White Matte Textured
					Color Option: CC[2] Custom Color

MANUFACTURER TO PROVIDE 80 CRI.

Mounting	Optional Lens	Options	Mounting Options	Voltage
Pole Mount: STND_MNT[4] Standard Mount	CL Clear Lens	HS[3,5] House Side Shield	AD5 Adaptor-5" OD Pole	UNV 120-277V
PT23 2 3/8" tenon	DL[2] Diffused Lens	PFN Brass Colored Finish	PCA-C Photocontrol Adapter Contemporary	
PT3 3" tenon		SPK Cast Spikes	EPA-C Egress Adapter Contemporary	
PT4 4" tenon		BPS Brass Colored Struts		
Arm Mount: SLA1 4" pole or tenon		SF Single Fuse (120, 277)		
SLA8U-4 4" pole or tenon		DF Double Fuse (208, 240)		
SLA8U-5 5" pole or tenon				
TRA5U-4 4" pole or tenon				
TRA6U-4 4" pole or tenon				
TRA5U-5 5" pole or tenon				
TRA6U-5 5" pole or tenon				
TRA8U-5 5" pole or tenon				
TRA55-5 5" pole or tenon				
TRA56-5 5" pole or tenon				
Wall Mount: WMA55 Wall Mount				
WMA56 Wall Mount				
Pier Mount: PM1 Pier Mount 1				
PM2 Pier Mount 2				
PM3 Pier Mount 3				

BRASS SPIKES & BRASS FINIALS.

DIMENSIONS
18.7" (475 mm); 31.5" (800 mm)

Notes:
1. Turtle Friendly
2. Diffused Lens is available only with T3 and T5W distribution
3. House side Shield is available only with T1, T2, T3 and T4W distributions
4. Consult factory for custom color, marine and corrosive finish options
5. Contact Factory for additional glare shield options
6. Slice over 4" OD Pole

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See Sheet LP-2 for Lighting Schedule/Computations and Light Pole Base Detail.

POST TOP FIXTURES POLE:

DB1 – Decorative Pole | TYPE POST TOP FIXTURES (P1, P2, P3, P4 and P5)
4" ROUND (RD) & FLUTED (FL) DECORATIVE BASE
Note: Adjust pole heights on site to set lenses at heights per plan (10' & 16')

1. BASE	2. POLE	3. OAH	4. COLOR	5. OPTIONS/ACCESSORIES

DB1

MAXIMUM ALLOWABLE EPA (MPH)

1. BASE	2. POLE	3. OAH	SHAFT	WT	85	90	100	110	120	130	140	150
DB1	4R10-125	10' (3.1m)	4" RD x .125"	44	19.4	17.1	13.5	10.8	8.9	7.4	6.3	5.5
DB1	4R12-125	12' (3.7m)	4" RD x .125"	48	15.3	13.4	10.5	8.3	6.7	5.6	4.7	4.0
DB1	4R14-125	14' (4.3m)	4" RD x .125"	51	12.3	10.7	8.2	6.3	5.0	4.1	3.4	2.9
DB1	4R16-125	16' (4.9m)	4" RD x .125"	55	10.0	8.6	6.4	4.8	3.6	2.9	2.4	2.0
DB1	4R10-226	10' (3.1m)	4" RD x .226"	55	23.8	21.0	16.7	13.5	11.1	9.3	8.0	6.9
DB1	4R12-226	12' (3.7m)	4" RD x .226"	61	19.2	16.9	13.3	10.6	8.6	7.2	6.1	5.3
DB1	4R14-226	14' (4.3m)	4" RD x .226"	67	15.9	13.9	10.8	8.4	6.8	5.6	4.7	4.0
DB1	4R16-226	16' (4.9m)	4" RD x .226"	74	12.4	12.3	9.4	7.3	5.7	4.7	4.0	3.3
DB1	4F10-188	10' (3.1m)	4" FL x .188"	51	22.1	19.5	15.4	12.4	10.2	8.5	7.1	6.1
DB1	4F12-188	12' (3.7m)	4" FL x .188"	56	17.6	15.4	12.1	9.6	7.7	6.4	5.3	4.4
DB1	4F14-188	14' (4.3m)	4" FL x .188"	61	14.3	12.5	9.6	7.5	5.9	4.8	3.9	3.2
DB1	4F16-188	16' (4.9m)	4" FL x .188"	67	11.7	10.1	7.6	5.8	4.4	3.5	2.7	2.2

Note: Overall height is measured to top of pole.

SPECIFICATIONS
Base shall be cast aluminum #356 alloy, free of any porosity, foreign materials, or cosmetic fillers. Base casting shall be heat treated to a T-6 condition, and of uniform wall thickness, with no warping or mold shifting.

WARNINGS
Caution must be exercised in the selection of a design wind speed when the pole is to be installed in a special wind region (as indicated by the wind map) or in an area where wind speed is unpredictable.

AAL recommends consulting a local engineer when the pole is to be installed in an area that may be subject to extreme weather and exposure.

Poles installed on structures such as buildings and bridges may be subjected to vibration, oscillations, and other fatigue effects which are not covered by the AAL warranty.

The use of banners or other appendages can severely affect the loading of a pole. No banner or other appendage should be attached to an AAL pole unless approved by AAL.

If the products are to be used on an existing foundation or on other structures, the customer assumes all responsibility for the structural integrity of the existing foundation, anchorage or structures and all the consequences arising therefrom

CAUTION
Poles should never be erected without the luminaire installed.

Anchor bolts shall be hot dip galvanized steel. Six galvanized hex nuts and flat washers, and a bolt circle template shall be provided. Anchor bolt for poles are 3/4" x 24" x 3".

CERTIFICATION
Certified UL 1598 in accordance with Article 410 of ANSI/NFPA 70, National Electrical Code.

2. COLOR
BLS Black Gloss Smooth
BLT Black Matte Textured
DBS Dark Bronze Gloss Smooth
DBT Dark Bronze Matte Textured
GTT Graphite Matte Textured
LGS Light Grey Gloss Smooth
LGT Light Grey Matte Textured
PSS Platinum Silver Smooth
VGT Verde Green Textured
WHS White Gloss Smooth
WHT White Matte Textured
Color Option
CC* Custom Color
* Consult factory for custom color, marine and corrosive finish options

3. OPTIONS / ACCESSORIES
FH (Flag holder. Specify location on pole)
FS1 (Single weatherproof fuse holder. Fuse by others.)
FS2 (Double weatherproof fuse holder. Fuse by others.)
LR (Ladder rest. Slips over a 4" O.D. pole.)
PCA-T (Rotatable photocell housing. The housing slips over a 4"/100mm o.d. pole a fixture slips over the 4"/100mm O.D. tenon. Includes an internal twist lock receptacle, and an access cover with integral lens and stainless steel tether. Adds 5"/125mm to the overall height of the pole/fixture assembly. Prewired on the load side and line side for easy installation. Photocell by others.)
PCR (Low profile twist lock photocell receptacle with cast pole cap top. Secures to the top of the pole with three stainless steel screws. Photocell by others.)
PLT (Plant Hanger. For 4" O.D. poles. Specify location on pole)
RBC (Cast aluminum receptacle housing, integrally welded to the pole. Includes a NEC approved clear weatherproof cover. Does not include a receptacle or internal wiring.)

JOB / TYPE / NOTES

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DB1 – Decorative Pole | TYPE
4" ROUND (RD) & FLUTED (FL) DECORATIVE BASE

DIMENSIONS
4" O.D. POLE; OAH; 34"; ANCHOR BOLT PROJECTION; 3.5"; GROUT UNDER ENTIRE BASE; CONCRETE FOOTING BY OTHERS; BOLT CIRCLE: 8.75" DIA. 120° APART; ACCESS COVER; 12" DIA
BOTTOM VIEW (INDICATES POLE IS LAYING DOWN WITH ACCESS COVER FACING UP)
SINGLE FIXTURE MOUNTING ORIENTATION BOTTOM VIEW (INDICATES POLE IS LAYING DOWN WITH ACCESS COVER FACING UP)
DOUBLE FIXTURE MOUNTING ORIENTATION BOTTOM VIEW (INDICATES POLE IS LAYING DOWN WITH ACCESS COVER FACING UP)

"P" - SMALL POST TOP FIXTURE:

architectural area lighting **PROS** ARCHITECTURAL AREA/SITE — (P3-10, P4-10, P5-10)

DATE: 5-11-22 | LOCATION: BEACON, NY
TYPE: 3,4,5Q | PROJECT: MIRBEAU SPA AT HOWLAND ESTATE
CATALOG #:

PROS ON 4" FLUTED ALUM. POLES W/ LENS HEIGHT OF 10' ABOVE GRADE.

PROVIDENCE® — Providence Small

FEATURES
- Reliable, uniform, glare free illumination
- Types II, III, IV and V distributions
- 3000K, 4000K, 5000K CCT
- 0-10V dimming ready
- Integral surge suppression
- 15 standard powder coat finishes
- Upgrade Kits

DIMENSIONS
11.60"/294.64mm; 19.44"/494mm

RELATED PRODUCTS: PROL2, PROV2

ORDERING GUIDE
CATALOG #
Example: PROS-Y3-3030-BLS-BPS-WMA59D

HOUSING
PROS

Housing	Distribution	Lumen Package	Finish	Options	Mounting
PROS Providence Small LED	Y2 Type II	2030 3000K CCT 25 watts	BLS Black Gloss Smooth	FS1 Fusing	Standard Mount: Slips over a 3"/75mm pole or may choose one
	Y3 Type III	2040 4000K CCT 25 watts	BLT Black Matte Textured	PFN Brass Painted Finial	Wall Mount: WMA59D Mount down
	Y4 Type IV	2050 5000K CCT 25 watts	DBS Dark Bronze Gloss Smooth	SPK Brass Painted Spike	WMA59U Mount up
	Y5 Type V	3030 3000K CCT 43 watts	DBT Dark Bronze Matte Textured	BPS Brass Painted Struts	Pole Mount/Side Mounts: TRA59D Mount down
		3040 4000K CCT 43 watts	GTT Graphite Matte Textured	LDL Lightly diffused lens	TRA59U Mount up
		3050 5000K CCT 43 watts	LGS Light Gray Gloss Smooth	AD4 Adapter used only with standard AAL arms and post top mount fixtures to slip over a 4"/100mm O.D. pole	
			LGT Light Gray Matte Textured		
			PSS Platinum Silver Gloss Smooth		
			VGT Verde Green Matte Textured		
			WHS White Gloss Smooth		
			WHT White Matte Textured		
			Color Options: CC Custom Color[1]		

MANUFACTURER TO PROVIDE 80 CRI.

DELIVERED LUMENS

The table below shows the delivered lumens for the various lumen outputs and beam distributions. Use this chart in connection with the lumen factor (LF) capability to deliver any output required.

System Watts	Lumen Package	Lens	Distribution	3000K 70CRI Lumen	B	U	G	Efficacy (Lm/W)	4000K 70CRI Lumen	B	U	G	Efficacy (Lm/W)	5000K 70CRI Lumen	B	U	G	Efficacy (Lm/W)
25	2000	Clear Lens (Standard)	Type 2	1792	1	0	1	72	1957	1	0	1	78	1951	1	0	1	78
			Type 3	1830	1	0	1	73	1970	1	0	1	79	1958	1	0	1	78
			Type 4W	1793	0	0	1	72	1957	0	0	1	78	1960	0	0	1	78
			Type 5	1735	1	0	1	69	1894	1	0	1	76	1889	1	0	1	76
		Lightly Diffused Lens	Type 2	1216	1	1	1	49	1361	1	1	1	54	1387	1	1	1	55
			Type 3	1216	1	1	1	49	1361	1	1	1	54	1386	1	1	1	55
			Type 4W	1298	1	1	1	52	1417	1	1	1	57	1419	1	1	1	57
			Type 5	1139	1	1	1	46	1275	1	1	1	51	1299	1	1	1	52

PHOTOMETRY | DELIVERED LUMENS | DIMENSIONAL DRAWINGS | ARMS | COLOR CHART

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GRAPHIC SCALE
40 20 0 40
SCALE IN FEET

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DRAWN BY: HT/CH/DW				CHECKED BY: HT			
REVISIONS:				REVISIONS:			
NO.	DATE	DESCRIPTION	BY	NO.	DATE	DESCRIPTION	BY
1	5/25/22	PER PLANNING BOARD COMMENTS					

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ARCHITECTURE & DESIGN
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Mirbeau INN & SPA

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HUDSON LAND DESIGN

SEAL

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174 MAIN ST., BEACON, NEW YORK 12508
13 CHAMBERS ST., NEWBURGH, NEW YORK 12550
PH: 845-440-6926
F: 845-440-6637

SITE LIGHTING PLAN – SOUTHEAST

MIRBEAU BEACON

7 CRAIG HOUSE LANE
CITY OF BEACON
DUTCHESS COUNTY, NEW YORK
TAX ID: 6054-13-001258

JOB #:	2021:051
DATE:	3/29/2022
SCALE:	1" = 40'
TITLE:	LP-3
SHEET:	28 OF 28

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AR - NY SHPO Archaeological Report

DIGITAL ARCHIVE DOCUMENTATION

NY SHPO SHELVING REFERENCE

ID #	County	Report Number
6596	DUTCHESS	332

PR Number	ELECTRONIC VERSION	STATUS	Page Count
06PR4507	☐	Scan On-Site	

Report Title

Phase IA and IB Tioronda Subdivision, Grandview Ave and NY Route 9D, City of Beacon, Dutchess Co

Report Type IA/B **Author** HARTGEN ARCHEOLOGICAL ASSOCIATES, INC.

Month	Year	Date	Survey Sponsor
7	2006		DEC

(FED/STATE/SEQRA/CEQRA/CLG SUBGRANT/OTHE

Survey Acreage (IB ONLY) 60 **Survey Square Footage** 0 **Underwater Survey Area - Acres**

Stripped Area - SqFt (II and III ONLY) **Surface Exam Area(Acres)**

MULTIPLE COUNTIES CROSS REFERENCE:

County 1		Report 1		County 3		Report 3	
County 2		Report 2		County 4		Report 4	

MINOR CIVIL DIVISION

County	Town 1	Town 2	Town 3	Town 4
DUTCHESS	/C/BEACON			

REVIEW

		Log Month	Log Year	Log Date	Date Reviewed
Number of Archaeological Sites Identified	7				10/18/2006
Number of Architectural Sites Identified					

UNIQUE SITE NUMBER(S) REPORTED : IA, IB, II AND III SURVEY

Site 1 #	A02741.000408	Site Type 1	P	Quad 1	WEST POINT	Site 8 #		Site Type 8	Quad 8
Site 2 #	A02741.000409	Site Type 2	H	Quad 2	WEST POINT	Site 9 #		Site Type 9	Quad 9
Site 3 #	A02741.000410	Site Type 3	P	Quad 3	WEST POINT	Site 10 #		Site Type 10	Quad 10
Site 4 #	A02741.000411	Site Type 4	P	Quad 4	WEST POINT	Site 11 #		Site Type 11	Quad 11
Site 5 #	A02741.000412	Site Type 5	H	Quad 5	WEST POINT	Site 12 #		Site Type 12	Quad 12
Site 6 #	A02741.000413	Site Type 6	P	Quad 6	WEST POINT	Site 13 #		Site Type 13	Quad 13
Site 7 #	A02741.000414	Site Type 7	H	Quad 7	WEST POINT	Site 14 #		Site Type 14	Quad 14

DIGITAL FILE NAME **BOX** **LOCATION** **BAR CODE**

#332 06PR4507 ID 6596

PHASE IA LITERATURE REVIEW
ARCHEOLOGICAL SENSITIVITY ASSESSMENT
AND
PHASE IB ARCHEOLOGICAL FIELD INVESTIGATION

TIORONDA SUBDIVISION
GRANDVIEW AVENUE AND NY ROUTE 9D
CITY OF BEACON, DUTCHESS COUNTY, NEW YORK

HAA #3084 and #3134

Prepared for:

TIORONDA, LLC
520 83RD STREET
BROOKLYN, NEW YORK 11209

Submitted to:

MATHEWS NIELSEN LANDSCAPE ARCHITECTS, P.C.
184 DUANE STREET
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Prepared by:

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Management Summary

OPRHP Project Review Number:

Involved State or Federal Agencies: New York State Department of Environmental Conservation (DEC) and the New York State Department of Transportation (DOT).

Phase of Survey: Phase IA/IB Archeological Investigation.

Location Information

Location: Grandview Avenue and NY Route 9D
Minor Civil Division: (02741) City of Beacon
County: Dutchess

Survey Area: 60 acres (24.3 hectares)

USGS 7.5 Minute Quadrangle Map: West Point.

Archeological Overview

Number and Interval of Shovel Test Pits (STPs); 401 shovel tests at 50 ft (15 m) intervals.

Results of Archeological Survey

Number and Name of Prehistoric Sites Identified: (4) Tioronda Precontact Sites 1, 3, 4, and 6
Number and Name of Historic Sites Identified: (3) Tioronda Historic Sites 2, 5, and 7
Number and Name of Sites Recommended for Phase II or Avoidance: (7)
Tioronda Precontact Site 1(2 acres)(0.8 hectare)
Tioronda Historic Site 2 (1 acre)(0.4 hectare)
Tioronda Precontact Site 3 (2 acres)(0.8 hectare)
Tioronda Precontact Site 4 (1 acre)(0.4 hectare)
Tioronda Historic Site 5(0.5 acre)(0.2 hectare)
Tioronda Precontact Site 6(0.5 acres)(0.2 hectare)
Tioronda Historic Site 7(0.5 acre)(0.2 hectare)

Report Author: Andre Krievs

Date of Report: July 2006

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APPENDIX 6: OPRHP Project Review Cover Form

MAP LIST

1. 1989 NYSDOT *7.5' Series West Point Topographic Quadrangle.*
2. 2003 Mathews Nielsen Landscape Architects *Project Map.*
3. 1798 Livingston *Map of the Town of Fishkill, Dutchess County.*
4. 1850 Sidney *Map of Dutchess County, New York.*
5. 1858 Gillette *Map of Dutchess County, New York.*
6. 1867 Beers *Atlas of Dutchess County, New York.*
7. 1876 O.W. Gray & Son and F.A. Davis *New Illustrated Atlas of Dutchess County, New York.*
8. 1892 USGS *New York West Point Sheet.*
9. 1927 Sanborn *Beacon, including Fishkill Village and Glenham, Dutchess County, New York.*
10. 1941 USGS *West Point Quadrangle.*
11. 1946 Sanborn *Beacon, including Fishkill Village and Glenham, Dutchess County, New York.*
12. 1962 Sanborn *Beacon, including Fishkill Village and Glenham, Dutchess County, New York.*
13. 1981 USGS *West Point Quadrangle 7.5 Minute Series (Topographic).*

PHOTOGRAPH LIST

1. View southeast of the north gate cottage situated within Lot 3 of the subdivision plan. The two story structure lies along the eastern perimeter of the property near the front entrance.

2. View north of the moderate to gently sloping wooded and grass covered knolls situated at the north end of the property. The area includes Lots 18, 19A, 19B, 20, and 21 of the subdivision plan.

3. View west of the wooded northwestern portion of the project area. The area occupies Lots 15, 16, and 17 and slopes westward towards a level to moderately sloping lower terrace situated adjacent to the Fishkill.

4. View north of the general surface conditions found along the lower terrace. The level to gradually sloping terrace runs parallel to the Fishkill.

5. View southeast of the bedrock outcrops that separate the lower and upper terraces. The bedrock was examined for chert or quartzite outcrops (precontact lithic sources) and none were encountered.

6. View south of the central portion of the lower terrace. The terrace gradually slopes westward towards the Fishkill floodplain.

7. View southwest of the two mill ponds situated within the western portion of the project area. The ponds lie within the Fishkill floodplain and no impacts are proposed for this section of the project area.

8. View northwest of the partially buried remains of a swimming pool located within the northeastern portion of Lot 9.

9. View northwest of a concrete block rectangular building located near the western border of Lots 9 and 10. The building was probably used as a storage shed.

10. View northwest of one of two square concrete block structures located adjacent to the rectangular shed.

11. View southwest of the Tioronda school building, a small brick outbuilding and a tennis court. The building is situated along the western portion of Lot 8.

12. View north of Lot 8 and the northern portion of Lot 9. The field is situated along the lower terrace adjacent to the Fishkill flood plain.

13. View southwest of the mortared cut stone railroad bridge abutment situated within Lot 8 of the development plan. The abutment lies north of the Tioronda school building.

14. View north of the remaining section of the railroad berm situated southwest of the bridge abutment.

15. View north of the northern railroad bridge abutment located on the opposite side of the Fishkill.

16. View west of the National Register listed South Avenue bridge over the Fishkill. The bridge lies outside the project area.

17. View south of two similar two story brick buildings located south of the bridge over the Fishkill. The two buildings lie outside the project area.

18. View north of the southern portion of the project area encompassing sections of Lots 4, 5, and 11. The area consists mostly of moderately sloping open area with a paved access road.

19. View west of the south central portion of Lot 1. The area has a gently to moderately sloping topography consisting mostly of fields separated by small ravines.

20. View north of the wooded western portion of Lot 10. The lot encompasses the edge of the upper terrace.

21. View northeast of the south gate cottage located within Lot 7 of the subdivision plan. The cottage lies adjacent to the access road.

22. View south of the brick workshop building located within Lot 6 of the development plan. The building dates from the mid- to late 19th century.

23. View southwest of the concrete block workshop located within Lot 6 of the development plan. The building dates from the mid 20th-century.

24. View southeast of another workshop situated within Lot 5 of the development plan. The building probably dates from the 19th century and has experienced several 20th-century modifications.

25. View west of the garden cottage situated within Lot 4 of the development plan. The building is contemporaneous with the other structures and dates from the mid 19th century.

26. View west of the central portion of Lot 1 south of the main building. The area has a moderately sloping topography.

27. View northeast of the central portion of Lot 1. The area has experienced extensive prior disturbance resulting from the construction of the 20th-century dormitory addition.

28. View southwest of the main Tioronda building situated within the east central portion of the project area. The area around the building has experienced prior disturbance.

29. View west of the carriage house situated along the western edge of the upper terrace. The area around the building has experienced prior disturbance.

30. View north of the central portion of the Sargent's Glenhurst Lawn area situated within the northeastern portion of the property. Shovel Tests 1-101 were excavated across the lawn area.

31. View northeast of the general location of Precontact Site 1. The precontact artifacts were retrieved from the central portion of the ridge within the northern portion of Lot 1 and the western portion of Lot 21. The site encompasses between one and two acres.

32. View south of the general location of Historic Site 2 situated within the central portion of Lot 21. Artifacts dating from the 18th century were recovered from two shovel tests. The site encompasses less than one acre.

33. View north of the general location of Tests 102-105 excavated along the edge of a wooded terrace overlooking a seasonal drainage. No precontact or historic cultural resources were recovered from the terrace.

34. View north of the eastern portion of Lot 20 situated within the northeastern corner of the project area. Shovel Tests 106-109 were excavated along the least sloping and undisturbed section of Lot 20.

35. View north of a large barrow pit situated within the central portion of Lot 20. Apparently, sections of Lot 20 were mined for gravel and the mined areas were excluded from the field investigation.

36. View south of the western portion of Lot 18 providing an example of the sloping terrain. No subsurface testing was conducted along the steep sloping sections of the project area APE.

37. View north of Lot 19B located within the north central portion of the project area. The lot slopes sharply southward into a seasonal drainage and no testing was conducted.

38. View southwest of the parking lot surrounding the carriage house. The areas surrounding the carriage house have experienced prior disturbance and were eliminated from the field investigation.

39. View south of the western portion of Lot 2. The property slopes sharply toward the lower terrace and no testing was conducted along the slope.

40. View northeast of the mortared stone arch bridge located at the north end of the project area between Lots 19B and 20. Avoidance of the bridge is recommended.

41. View south of the general location of Tests 110-204 excavated along the lower terrace. The lower terrace lies runs parallel to the Fishkill and two mill ponds.

42. View north of the general location of Precontact Site 3 situated within the central portion of the lower terrace. The site lies within Lot 14 and encompasses between one and two acres.

43. View south of Precontact Site 4 located along the lower terrace adjacent to a small seasonal drainage that flows west into the Fishkill. The site encompasses less than one acre and is situated at the south end of Lot 13.

44. View northwest of the general location of Tests 205-207. The presence of a varied and mottled soil stratigraphy indicated evidence for prior disturbance.

45. View northwest of the general location of shovel Tests 245-252 excavated along a sloping ridge situated at the south end of the property within Lot 9. No precontact or historic cultural materials were recovered from the eight shovel tests.

46. View northwest of the general location of Tests 253-257 excavated along the level portions of a sloping ridge situated at the westernmost edge of the project area within Lot 8. No precontact or historic materials were retrieved from the five shovel tests.

47. View southeast of the eastern portion of Lot 8 and the northwestern portion of Lot 9.Note the wetland limits identified by the pink flagging near the tennis court. No testing was conducted due to prior disturbance and wetness.

48. View north of the western portion of Lot 8. The area slopes sharply toward the Fishkill No testing is recommended due to excessive slope.

49. View south of the eastern portion of Lot 17. The lot slopes sharply towards the lower terrace. The area was excluded from the field study due to excessive slope.

50. View north of Lot 16 located within the northwestern corner of the property. The lot slopes sharply towards the Fishkill and was excluded from the subsurface field investigation.

51. View southwest of the general location of Tests 208-234 excavated in Lots 4 and 12 situated along the western edge of the southern upper terrace and near the garden cottage.

52. View west of the general location of Test 210 excavated along the edge of the upper terrace. An extensive historic artifact assemblage was recovered from Test 210 indicating the presence of a midden.

53. View south of the general location of Tests 335-344 and 258-263 excavated along the edge of two small terraces encompassing the level and undisturbed portions of Lots 6, 7, and 10.

54. View north of Precontact Site 6 located along the edge of the southern upper terrace overlooking a small seasonal drainage. The site encompasses between one and two acres and is situated along the northern edge of Lot 7 and the south end of Lot 10.

55. View north of Historic Site 7 located north of the south gate house. The site encompasses less than one acre and the 19th century domestic items recovered from the site are probably associated with the gate house occupation.

56. View east of the south central portion of Lot 1. Tests 265-380 were excavated across the level and moderately sloping portions of the large field.

57. View east of the southern portion of Lot 1. Tests 265-380 were excavated across the level and moderately sloping portions of the large field.

58. View north of the general location of Tests 381-391 excavated along the level to moderately sloping sections of a narrow ridge situated along the west central portion of Lot 1.

59. View south of the general location of Tests 398-402 excavated within the south central portion of the project area parallel to the access road.

60. View north of the western portions of the southern upper terrace which slopes sharply towards the lower terrace. The area was excluded from the field survey due to excessive slope.

61. View south of the western edge of Lot 11 and southernmost portion of Lot 1. The area slopes sharply towards the central access road and was excluded from the field survey.

62. View east of the area west of the dormitory facility. The area was impacted by dormitory construction followed by extensive landscaping activities. No testing was conducted due to prior disturbance.

63. View southeast of the soil berm located along the seasonal drainage situated within the central portion of Lot 1. The landscaping activities associated with the construction of the soil berm and the dormitory facility have impact the area. No testing was conducted due to prior disturbance.

64. View southwest of the south end of Lot 5. The area has experienced soil disturbance resulting from road construction and utility line installation. The area was excluded from the field survey due to prior disturbance.

65. View southeast of northern portion of Lot 6 and the eastern portion of Lot 10. The area contains several barrow pits indicating the terraces were mined for gravel for use during construction of Howland Estate or the Craig House sanitarium facility. No testing was conducted in these areas due to prior disturbance.

66. View southeast of the eastern portion of Lot 12 indicating a barrow pit. The soils were probably removing from several small terraces and used during construction of the Howland Estate and later the Craig House sanitarium complex. No testing was conducted due to prior disturbance.

PHASE IA REPORT FOR ARCHEOLOGICAL POTENTIAL

Hartgen Archeological Associates, Inc. (HAA, Inc.) was retained by Tioronda LLC to conduct a Phase IA literature review and archeological sensitivity assessment for the proposed Tioronda subdivision located in the City of Beacon, Dutchess County, New York. The study was conducted according to New York Archeological Council (NYAC) 1994 standards, in compliance with Section 14.09 of the State Historic Preservation Act (SHPA), and under permit requirements of the New York State Department of Environmental Conservation (DEC).

The Phase IA work scope included a review of the site file information for all recorded sites within one mile and all National Register properties located within or adjacent to the property. The site file information was combined with the historical map review, environmental information, and site visit information to provide a sensitivity assessment for the project area.

PROJECT INFORMATION

Location

Based on the information provided, the property encompasses approximately 60 acres. The project area is bounded by the Fishkill Creek on the west, South Avenue and Grand Avenue on the south and NY Route 9D on the east (Map 1). Several structures exist within the study area, including Tioronda, a mid-19th-century villa built for Joseph Howland. Other structures include a carriage house, the north gate cottage, garden cottage, two workshops, the south gate cottage and the Tioronda school. These structures are inventoried at the Office of Parks, Recreation and Historic Preservation, and have been determined eligible for listing on the State and National Registers of Historic Places (Appendix 2).

Description

The project involves subdividing the property into 24 lots, of which 21 will contain single family residences (Map 2). The existing structures are all intended to remain and be renovated into single family homes, unless engineering or structural conditions prohibit it. New buildings will be constructed on fourteen of the lots. Anticipated impacts will result from landscape modifications associated with construction of new residences and roadways, rehabilitation of existing structures, and installation of utilities.

ENVIRONMENTAL INFORMATION

Topography and Bedrock Geology

The 60-acre parcel occupies a moderate to steep partially wooded upland terrace that slopes westward towards a lower terrace that parallels the Fishkill floodplain. The elevations generally range from 190 feet above mean sea level along the eastern boundary to about 8 feet above mean sea level along the western boundary.

According to the Lower Hudson Sheet of the Geologic Map of New York (Fisher, Isachsen and Rickard. 1970), the project area is underlaid by Middle Ordovician Austin Glen Formation graywacke and shale. Bedrock outcrops were noted in the northwest portion of the project area.

Soil and Drainage

The project area is situated along the east side of the Fishkill just east of its confluence with the Hudson River. According to the county soil survey (USDA 1955), most of the soil found within the project area consists of Hoosic gravelly loam (0-8% slopes, 15-25% slopes, and 25-45% slopes) and Hoosic gravelly sandy loam (0-8% slopes). Several other soil types occupy smaller portions of the project area including Gloucester gravelly loam (5-15% slopes), Troy

gravelly loam (0-8% slopes), Staatsburg gravelly loam (15-30% slopes). The Hoosic soils are described as deep, well drained soils. The moderately deep Gloucester and very deep Troy gravelly loams are both characterized as well drained. The Staatsburg soils are very shallow, well drained with numerous outcrops of bedrock (Map 3; USDA 1955).

Table 1: County Soil Descriptions for the Project Area

Name	Soil Horizon Depth	Color	Texture/Inclusions	Slope %	Drainage	Landform
Hoosic Gravelly Loam	0-20 cm (0-8 in) 20-36 cm (8-14 in) 36-61 cm (14-24 in) 61-91 cm (24-36 in) 91-152 cm (36-60 in)	Dk Br Br Yell Br Lt Yell Br Gr Br	Gravelly Loam Gravelly Loam Gravelly loam Gravelly Loam Fine Sand and Gravel	0-8%	Well Drained	Glacial Outwash Terrace
Hoosic Gravelly Loam	0-18 cm (0-7 in) 18-71 cm (7-28 in) 71-102 cm (28-40 in)	Dk Br Yell Br Gr Br	Gravelly loam Gravelly Loam Gravelly Loam	15-45%	Well Drained	Glacial Outwesh Terrce
Hoosic Sandy Loam	0-28 cm (0-11 in) 28-43 cm (11-17 in) 43-112 cm (17-44 in)	Dk Br Yell Br Gr Br	Sandy Loam Sandy Loam Sandy Loam	0-8%	Well Drained	Glacial Outwash Terrace
Troy Gravelly Loam	0-25 cm (0-10 in) 25-41 cm (10-16 in) 41-76 cm (16-30 in)	Br Yell Br Gr Br	Gravelly Loam Gravelly Loam Gravelly Loam	0-8%	Well Drained	Drumlin
Staatsburg Gravelly Loam	0-46 cm (0-18 in) Bedrock	Br	Gravelly Loam	15-30%	Well Drained	Eroded Bedrock

Vegetation and Forest Zone

Environmental information concerning the project area and vicinity is useful in order to assess its archeological potential. Several forest types have been proposed that are likely to have existed in New York before land modifications, deforestation, and the introduction of foreign species (Küchler 1964). The forest type within which the project area is located is therefore described through the concept of "potential natural vegetation" which infers its past forest environment, not necessarily that which is current.

The project area is located in a zone of transition between the Appalachian Oak Forest and Northern Hardwoods natural vegetation regions. This forest type exists as several discrete zones located in eastern New York within the Hudson River watershed and extending eastward to northern Connecticut and Massachusetts. A continuous band of this transition zone lines both sides of the Connecticut River to northern Vermont. This natural vegetation zone consists primarily of broad-leaved deciduous trees with northern red oak and white oak representing the most populous varieties Sugar maple, Yellow birch, Beech, and Hemlock are also found (Küchler 1964).

This forest type provided abundant natural resources to precontact cultural groups who inhabited this region. Beech and oak forests supplied mast seeds for white-tailed deer and turkey which provided the major source of animal protein for Native Americans who hunted them. Additionally, acorns and other seeds were processed by these same groups into ground meal for winter provisioning.

Currently, the eastern and southern portions of the property contain lawn and fields. The western and central sections primarily along the slope and near the Fishkill are wooded.

Manmade Features and Alterations

The project are consists of a former 19th-century estate that was subsequently used as a sanitarium. Both these complexes contained several structures scattered throughout the property as well as associated features such as driveways, parking, and utilities.

DOCUMENTARY RESEARCH

Office of Parks, Recreation and Historic Preservation (OPRHP)

Archeological Sites

An examination of the archeological files of the OPRHP and NYSM identified 24 archeological sites within one mile of the project area. The general site location and a brief description of each recorded site is presented below.

Table 2: Archeological Sites Within One Mile of the Project Area

OPRHP/NYSM#	Site Type	Time Period	Site location
A027.06.000046	Hammond Brickyard Ruins.	19th century brickyard.	1677 m. (5500 ft) southwest of project area near Dutchess Junction.
A027.41.0009	Burns Mill Sites.	18th- century map-documented mills.	North site of the Fishkill opposite Denning's Point, possibly buried beneath railroad tracks 305 m. (1000 ft) west.
A027.41.0010	Verplanck Site.	18th-century map-documented structure.	Denning's Point near the confluence of the Fishkill and Hudson River 1159 m (3800 ft) west.
A027.41.0011	Wiltsie Site.	18th-century map-documented residence and store.	City of Beacon on the west side of Hudson Avenue beneath the railroad tracks 1098 m. (3600 ft) northwest.
A027.41.0012	School Site.	18th-century map-documented school.	City of Beacon between Sargent Avenue and South Avenue 762 m. (2500 ft) northwest.
A027.41.0013	Schenck Mill Site.	18th-century map-documented mill.	On the Fishkill opposite the intersection of Tioronda Avenue and Wolcott Avenue 610 m. (2000 ft) north.
A027.41.0015	Jarvis Site.	18th-century map-documented house.	Near Beacon High School 1463 m. (4800 ft) north.
A027.41.0341	Madame Brett's Grist Mill.	18th-century mill site.	North side of the Fishkill east of the railroad tracks 610 m. (2000 ft) west.
A027.41.0345	Matteawan Company.	Early 19th-century mill site.	Located along both sides of the Fishkill near the Main Street Bridge 1128 m. (3700 ft) north.
A027.41.0346	Schenck Grist Mill.	18th to 19th century mill site.	West side of the Fishkill just north of the Churchill Street bridge 915 m. (3000 ft) north.

OPRHP/NYSM#	Site Type	Time Period	Site location
A027.41.0347	Frankfort Storehouse.	18th-century storehouse.	Dennings Road 915 m. (3000 ft) northwest.
A027.41.0349	Polo Field Precontact Site.	Middle Archaic to Late Woodland precontact site. **National Register Eligible**	Upland terrace overlooking the confluence of the Fishkill and Hudson River just south of the project area.
A027.41.000391	Precontact Site 1/ Scenic Hudson Land Trust, Inc.	Late Archaic precontact site.	North side of the Fishkill near confluence with the Hudson River 366 m. (1200 ft) west.
A027.41.000392	18th-century house site/Scenic Hudson Land Trust, Inc.	18th-century house site.	South end of Tioronda Avenue 305 m. (1000 ft) west.
A027.41.000393	19th-century historic site/Scenic Hudson Land Trust, Inc.	Mid-19th-century historic site.	South end of Tioronda Avenue 549 m. (1800 ft) west.
A027.41.000397	Scenic Hudson's Mount Beacon Gateway Park.	Site findings include chert debitage and quartzite debitage.	Located 366 m. (1200 ft) northeast of the project area.
A027.41..000398	Scenic Hudson's Mount Beacon Gateway Park Prehistoric Site.	Site findings include chert debitage and quartzite debitage.	Located 305 m. (1000 ft) northeast of the project area.
552	Dennings Point.	No information; presumed to be precontact.	On Dennings Point 1220 m. (4000 ft) west. Possibly same as #6861.
3146	Parker Site 14.	Precontact village site.	Near the confluence of the Fishkill and Hudson River 915 m. (3000 ft) west.
3148	Parker Site.	Precontact campsites with burials.	Along the Hudson River at Dennings Point 1220 m. (4000 ft) west.
6621	Parker Site.	Traces of precontact occupation.	The east side of the Fishkill near its confluence with the Hudson River within or adjacent to the project area.
6861	Dennings Point.	No information; presumed to be precontact.	On Dennings Point 1200 m (4000 ft) west. Possibly same as #552.
7259	Parker Site 16A.	Precontact occupations.	Along the Hudson River from Dennings Point to Croton Point 610 m. (2000 ft) west.
7856	Parker Site.	Precontact Burial Site.	City of Beacon near the high school 1463 m. (4800 ft) north.

Building-Structure Inventory

The computer inventory of the OPRHP was examined for buildings and structures located in the project area. Several of the structures located within the project area have been inventoried. The OPRHP inventory forms for the structures are presented in Appendix 1.

Table 3: Inventoried Structures Located in the Project Area

OPRHP #	Structure Name	Description/Location
027.41.000004	Tioronda-Craig House Sanitarium	Constructed in 1859 with the eastern wing built in 1868. Was the residence of Gen. Joseph Howland. West side of Howland Ave.
027.41.0147	Tioronda (Craig House) Carriage House	Former dairy barn; burned in 1930. On north side of Grandview Ave east of South Ave.
027.41.0148	Tioronda Greenhouse (Garden Cottage)	Built c. 1870. North side of Grandview Ave.
027.41.0149	Tioronda Gatehouse (Southgate Cottage)	Built c. 1860 as a gatehouse to the Tioronda estate. North side of Grandview Ave. at South Ave.
027.41.0152	Tioronda Gate House (North Gate Cottage)	Possibly 19th-century structure with 20th-century alterations. On west side of Howland Ave.
027.41.0177	Tioronda School	Built in 1864 by Gen. Joseph Howland. On north side of South Ave. at Fishkill Creek.

State and National Registers

The OPRHP files were examined for inventoried structures and archeological sites in or adjacent to the project area that are listed or have been determined to be eligible for listing on the State and National Registers of Historic Places.

Based on correspondence from J. Winthrop Aldrich, Deputy Commissioner of Historic Preservation, OPRHP to Clara Lou Gould , Mayor of the City of Beacon, Tioronda and its grounds have been "determined to be eligible for listing on the State and National Registers of Historic Places." Tioronda was identified to be significant in the area of architecture and landscape (Appendix 2).

The Tioronda Bridge carrying South Avenue over the Fishkill Creek is listed on the State and National Registers. The bridge, constructed 1869-1873, is located adjacent to the southwest corner of the project area.

The Polo Fields Precontact Site located south of the project area on a terrace overlooking the confluence of the Fishkill and Hudson River has been determined eligible for the State/National Registers. Precontact occupations ranging from the Middle Archaic to Late Woodland times (7000 B.C. to A.D. 1600) were identified at the site.

The former Wiccopee Cotton Mill located at the rear of 248 Tioronda Avenue has been determined eligible for the State/National Registers. The mill building is located on the west side of the Fishkill opposite the northwest corner of the project area.

Previous Surveys

The library at the OPRHP contained references to several previously conducted archeological surveys in the general vicinity of the City of Beacon. The location, date, and results of the archeological investigations are presented below.

A Phase I cultural resources investigation was conducted in 1987 by the New York State Museum Division for Historical and Anthropological Services (NYSM) for the replacement of the Beekman Street bridge over the Conrail tracks within the City of Beacon. The field investigation included a surface reconnaissance for structural remains and the excavation of shovel tests. No precontact or significant historic cultural resources were identified within the bridge replacement impact area and no further archeological investigations were recommended (NYSM 1987).

A Phase I archeological investigation was conducted in 1989 by Hartgen Archeological Associates, Inc. (HAA, Inc.) for the proposed Polo Fields housing development project located to the south of the current project area. The investigation resulted in the identification of five precontact sites Areas A-F. Late Archaic and Transitional Period projectile points (3000 to 1000 B.C.) and a precontact feature were identified during the field investigation. Further Phase II study was recommended (HAA. Inc. 1989).

A Phase I cultural resources survey was conducted by the Institute for Long Island Archaeology (SUNY Stony Brook) in 1997 and 1998 for road improvements along NY Route 9D in the City of Beacon adjacent to and north of the current project area. The field investigation included structure survey and the excavation of screened shovel tests. No significant cultural resources were identified within the proposed construction corridor and no further testing was recommended (SUNY Stony Brook 1997 and 1998).

A Stage I archeological historical sensitivity evaluation and survey was conducted in 1999 by Greenhouse Consultants for the Beacon waterfront development located along the City of Beacon waterfront west of the project area. The archeological investigation included documentary research and backhoe testing to search for buried precontact and historic cultural resources. No precontact or historical cultural resources were retrieved from the trench excavations. Based on the field investigation results, no potentially significant precontact or historical archeological resources were present and no further work was recommended (Greenhouse Consultants, Inc. 1999).

Phase I and II archeological investigations were conducted in 2002 by Christopher Lindner, Consulting Archaeologist for the Mount Beacon Gateway located northeast of the project area, in the City of Beacon. The Phase I archeological survey included the excavation of screened shovel tests and a small precontact site (lithic scatter) was identified at the location of the proposed parking lot. A Phase II study was conducted and only a few additional lithic fragments were recovered. The site was not determined National Register Eligible and no further study was recommended (Christopher Lindner, Consulting Archaeologist 2002).

New York State Museum (NYSM)

The New York State Museum (NYSM) site files indicate seven precontact archeological sites within one mile of the project area. The site generally lie south and north of the project area along the Hudson River and the Fishkill. A general description of each site is presented in Table 1.

Precontact Overview

Lower Hudson Valley archeology has been well-documented by numerous archeological investigations (Funk 1976; Ritchie and Funk 1973; Ritchie 1969). Evidence of human occupation in the region ranges from Paleo-Indian to Late Woodland times (10,500 B.C. to A.D. 1600)(Funk 1976). Throughout the precontact period, the Hudson River estuary and its surrounding tributary valleys have provided an extraordinary variety and abundance of food and lithic resources and also served as a major transportation corridor connecting coastal areas with the upper Hudson and Mohawk River valleys. General descriptions of the site types encountered in the region are provided below.

The Paleo-Indian period (10,500 to 7000 B.C.) is represented by the Clovis projectile point. The Clovis point type is a fluted lanceolate with parallel or slightly convex sides and concave base. Other items found in the tool kit include steep-edged scrapers, blades, and utilized flakes. The sites are generally found along moraines, hilltops, and

ridges located along major waterways, as well as along the edges of marshes and the margins of glacial lakes (Ritchie 1969:1). The opinion prevails that early populations migrated into the area following migrating caribou herds onto the newly deglaciated river valleys of the northeast (Ritchie and Funk 1973:6). Regional Paleo-Indian sites include the West Athens Hill and Kings Road Sites both situated near the extensive Normanskill chert outcrops that prevail along the west side of the Hudson River in Greene County, the Port Mobil Site on Staten Island, and the Dutchess Quarry Cave in Orange County (Funk 1976:205-206).

The Early Archaic period (7000 to 5000 B.C.) in the Northeast is viewed as the beginning of moderate climatic conditions resulting in a wider range of exploitable resources. The lanceolate points of the Paleo-Indian period are generally replaced by smaller notched and stemmed Kirk, Kanawha, and LeCroy type points that were used by small bands in the pursuit of smaller game, such as deer and elk (Dragoo 1976). The Kirk-stemmed type is a broad-stemmed form with a long blade exhibiting deep serrations. LeCroy and Kanawha types are identified by their bifurcate base and straight-edged triangular blade that is often deeply serrated. In the lower Hudson Valley, the Early Archaic is sparsely represented by various bifurcated base points observed mainly in surface collections and obtained from various multi component site excavations (Funk 1976:231). Several Early Archaic components have been identified within the lower Hudson Valley, specifically on Staten Island. Early Archaic projectile points including Kanawha and Kirk types were retrieved from the Hollowell and Old Place Sites located on Staten Island (Ritchie 1969:145-146).

The Middle Archaic period (5000 to 3000 B.C.) is a continuation of improved climatic conditions leading to greater diversity in the availability of resources. There appears to be a diversification of subsistence-related activities with increased emphasis on the exploitation of seasonal forest and riverine resources (Funk 1976:232). The bifurcate points of the Early Archaic are replaced by cruder side-notched and stemmed varieties to include Neville and Stark points. There is also an increase in the use of polished and ground stone tools, including grooved axes, pendants, and winged and cylindrical bannerstones (Funk 1976:235ff). Reported sites within the lower Hudson Valley containing Middle Archaic components include the Mohonk Rockshelter in southern Ulster County, Dugan Point, and the Piping Rock sites in Westchester County (Eisenberg 1991). A Middle Archaic LeCroy projectile point was recovered from Polo Fields Precontact Site located near the confluence or the Fishkill and Hudson River. Another manifestation of the Middle Archaic was uncovered from the lower strata of the Sylvan Lake Rockshelter located in south-central Dutchess County. Side-notched Vosburg projectile points of the Laurentian manifestation were recovered from the lower strata along with a 4030 B.C. +/- 120 radiocarbon date (Funk 1976:166).

Late Archaic period sites (3000 to 1000 B.C.) are far more common than earlier period sites and their increased presence is probably due to a far more stable environment. This period correlates with modern climatic conditions with vegetational cover similar to what it is today. The forests were dominated by oak, hickory, walnut, and various seed producers. The stabilization of the sea level encouraged the creation of rich riverine habitats with many species of anadromous fish and the proliferation of shellfish. The rich concentration of seasonally predictable food resources flourished along the streams in the region making river floodplains and adjacent land forms very attractive for human settlement. The pattern of seasonal resource procurement reached its peak efficiency, and procurement strategies were implemented by groups dispersed from base camps situated along alluvial terraces near major streams and valleys. Groups also focused on the exploitation of more diffuse or seasonally restricted resources generally located near small streams, adjacent to marshes or large swamps, and near large springs situated in the remote uplands (Ritchie and Funk 1973:337-338).

Numerous Late Archaic sites have been identified throughout the lower Hudson Valley. Diagnostic projectile points generally associated with the Late Archaic include Sylvan Lake side-notched and stemmed projectile points, Beekman triangle points, and Polar Island points. These are followed by later River Phase Normanskill, and Snook Kill projectile points. Sites containing significant Late Archaic components within the lower to mid-Hudson Valley include the Sylvan Lake Rockshelter, Dugan Point, Polo Fields Site, and the Bannerman Site (Funk 1976:247-263).

The Transitional period (c.1000 B.C.) is marked by the introduction of steatite (soapstone) containers followed by the introduction of pottery. The Transitional period applies almost entirely to cultural manifestations within the northeast and mid-Atlantic provinces. Settlement patterns and food procurement activities are generally similar to the preceding Late Archaic where hunting, fishing, and the collecting of various seasonally available resources are generally implied (Ritchie and Funk 1973:344-346). Cultural components within the lower Hudson Valley are represented by Susquehanna Broad and Orient Fishtail projectile points and steatite vessel fragments (Ritchie and Funk 1973:73). Sites containing Transitional period components within the lower Hudson Valley include the Sylvan Lake Rockshelter, Dogan Point, the Dunderberg Site, Polo Fields Site, and the Nicoll Farm Site (Funk 1976:264-267)(Hartgen 1989).

The Woodland period (1000 B.C. to A.D. 1600) is divided into sequential subperiods (Early, Middle, and Late) based on the appearance of various cultural manifestations. The Early Woodland period within the mid-Hudson Valley is represented by the Meadowood Phase (1000 to 0 B.C.). The occupations are generally light, and their manifestations consist mainly of side-notched Meadowood projectile points, cache blades, and Vinette 1 pottery. Although sporadic, sites in the mid-Hudson Valley are generally found along major waterways and on terraces overlooking marshlands and small streams (Funk 1976:277-278). Early Woodland populations were exploiting the many abundant resources found along the area's rich riverine habitats. Sites in the lower Hudson Valley containing Meadowood components include the Bannerman Site, Nicoll Farm Site, and the O'Rourke Burial Site. (Funk 1976:xiii).

The succeeding Middle Woodland period (0 B.C to 1000 A.D.) is marked by significant alterations to the settlement and technological strategies of the area's Native American inhabitants. Although the Early Woodland and Early Middle Woodland subsistence strategies suggest a continuation of the Late Archaic and Transitional hunting, fishing, and gathering patterns, there appears to be a significant change in the settlement subsistence strategy from transient hunter-gatherer camps to more sedentary occupations. Some of the predominate projectile point types associated with this period from sites in the lower Hudson Valley include Jack's Reef, Fox Creek, Greene, and Levanna. Pottery becomes more prevalent, and multiple decoration techniques and patterns are developed. Some of the more common decorative techniques include dentate-stamping, rocker-stamping, complex dentate-stamping, pseudo-scallop shell stamping, cord-impressed, and net-marked impressed decorations. Early vessels are generally small with conoidal bases and thin pointed or rounded lips. Later vessels increase in size and the bodies became more globular, the bases semiconoidal, and the lips rounder or flatter (Ritchie and Funk1973:117-122). Sites with Middle Woodland components include the Parham Ridge Site, Crawbuckie 1 Site, and Dogan Point (Funk 1976:xiii). All are situated along the Hudson River.

Agriculture flourishes during the Late Woodland period (A.D. 1000 to 1600) in the northeast. The reliance on the cultivation of corn, beans, and squash resulted in significant changes in settlement patterns including increased sedentism and accelerated population growth. Villages become larger with many occupying defensive fortifications, although none have been documented within the lower to mid-Hudson Valley. Ceramic technology becomes more refined, and decorative techniques and patterns including collars and incised linear patterns are adopted. The projectile point types generally associated with the Late Woodland consist primarily of small, triangular Levanna and Madison points. Sites within the lower Hudson Valley containing Late Woodland components include the Tiorati Rockshelter and the Nicoll Farm Site (Funk 1976:300-301).

When Europeans arrived in the lower Hudson Valley, the area was populated by the Delaware tribe. The Delaware were not a political unit. They were called the Delaware by the Europeans after the tribe began to migrate west due to pressure from European settlement. The Delaware spoke two closely related Algonquian languages, Munsee and Unami. These languages were distinctly different from the Mahican and other languages spoken by people to the north and east. The relationship between the Delaware and the original European settlers in the region, the Dutch, was often hostile. The Delaware did trade with the Dutch exchanging beavers pelts for a variety of European goods, such as metal kettles and tools, glass beads, and bells. Pressure from the settlement of ever greater numbers of Europeans caused the consolidation of the Delaware into fewer and fewer villages and their eventual westward migration (Goddard 1978).

Historical Overview

The area of Fishkill Landing (Beacon)was originally part of the 85,000 acre Rombout Parent purchased from the Wappinger Indians by Francis Rombout and Gulian Ver Planck in 1683. One of the firsts settlers at Fishkill Landing was Peche Dewall a squatter who cleared approximately three acres of land in 1688. During the early 18th century, Roger Brett a New York merchant and his wife Catherina gained title to approximately 300 acres of land near the Fishkill and established a grist mill. Madam Brett's mill as it was familiarly called was located at the mouth of the Fishkill on it's north bank (Smith 1882). Several other mills were constructed along the Fishkill by Brinkerhoff and Schenck and homesteads were established along the ridges overlooking the Fishkill and Hudson River.

The Revolutionary War resulted in increased migration from New York City north into the Fishkill area. Several merchants established store houses along the Hudson at Fishkill Landing and it became an important transfer point for the movement of troops and supplies between the Army's headquarters at Newburgh and its major supply encampment at Fishkill Depot.

The early 19th century saw an increase in industrial development along the Fishkill and Hudson River. The areas first cotton mill was built along the Fishkill at Matawan in 1811 by Peter Schenck. He constructed another factory for the manufacture of cotton machinery in 1825. Other 19th century manufacturers that began operating in the area included the Fishkill Landing Machine Company and the Dutchess Hat Works (Smith 1882). The village was incorporated in 1864 and had a population of over 1500.

Tioronda and Craig House

Tioronda was built for Joseph Howland in 1859. Mr. Howland was a general in the Civil War, a local philanthropist and New York State Treasurer from 1865 to 1867 (Dutchess County Planning Board 1969:198). According to the OPRHP inventory form, Howland purchased the property in 1858 and commissioned Frederick C. Withers to design the mansion in 1859. Howland died in 1886. His widow died some years later, leaving the property to the University Settlement. In 1915, Dr. Jonathan Slocum purchased the main house along with 99 acres of adjoining property. Dr. Slocum converted the property into a private sanitarium called Craig House. Due to the need for patient housing and grounds, several additional residences and another 500 acres were acquired (Appendix 1).

Craig House was owned and operated as a private hospital by Dr. Jonathan Slocum from the time of purchase from the Howland estate until around 1980. After Slocum sold it, the hospital was operated by Putnam County Hospital (Mathews Nielsen Landscape Architects, personal communication 2004).

Historical Map Review

Several historical maps were examined for this property. These include late 18th-and 19th-century landowner maps, 19th-and 20th-century Sanborn insurance maps, and 20th-century topographic maps. The general vicinity of the project area is indicated on each map. A general description of the historical development of the project area is presented below.

The earliest map examined is the 1798 Livingston *Map of the Town of Fishkill, Dutchess County* (Map 3). It shows 18th century development along the Fishkill Landing waterfront. During the Revolutionary War, the landing was an important transfer point for the movement of troops and supplies between the Army's headquarters at Newburgh and its major supply encampment at Fishkill Depot. No structures are indicated within the limits of the project area.

The earliest 19th-century landowner map examined is the 1850 Sidney *Map of Dutchess County* (Map 4). By the mid-19th century, the major roads in the area resemble those of today and there is a significant increase in historic development throughout the area. The map shows three structures near the south end of the property along the north side

of what is now Grandview Avenue. The westernmost structure is identified as a school. The central structure is in the general vicinity of the existing South Gate Cottage. It's not clear if this and the third structure are both associated with the name J. Freeland.

The portion of the1858 Gillette *Map of Dutchess County* (Map 5) is not as clear a copy as the previous map. One structure associated with the name D.B. Lent is indicated in the southern portion of the project area in the general vicinity of the current South Gate Cottage. Another, unidentified structure may be indicated in the southeast corner of the project area just as on the 1850 map. The town line is dark enough to obscure the southwestern corner of the project area.

The 1867 Beers map (Map 6) shows several structures within the project boundaries. In the southern portion of the project area is a school and an unnamed structure. Along the west side of what is now Howland Avenue are two structures associated with the name Gen. L.J. Howland. A structures identified as Res(idence) is along the east shore of the Fishkill in the western part of the project area. The Howland property is called Glenhurst.

The 1876 Gray *New Illustrated Atlas of Dutchess County* shows the vicinity of the project area in detail (Map 7). The project area is encompassed by a large parcel belonging to Joseph Howland. The residence called Tioronda Residence is along the west side of what is now Howland Avenue. Two barns are shown to its west. In the southeastern portion of the property is a large Greenhouse and an unidentified structure to its southwest. A network of roadways traverses the eastern half of the property. A school is located in the southwestern corner of the property. A railroad crosses this corner of the property to the immediate west of the school.

Map 8 is a portion of 1892 topographic quadsheet. The map greatly resembles the 19th-century maps in that three structures are shown along the north side of what are now South and Grandview Avenues. New features include a railroad spur crossing through the southwest corner of the project area near the school building. A fourth structures is shown in the northeastern portion of the project area in the general vicinity of the North Gate Cottage although it may represent the Tioronda estate house.

A series of insurance maps dating from the 19th century to the late 20th century were reviewed for this report. The earliest insurance map on which the project area is shown dates to 1927. The 1927 insurance map (Map 9) shows two distinct areas of what is now the project area. The buildings are numbered and most are identified as to their function. The northern portion of the project area contains the Craig House Sanitarium (No.18), a garage/laundry (No.19) ice house (No.20) with an associated shed, and the "helps cottage" (No.21, now known as the North Gate Cottage). The southern portion of the project area is occupied by several structures including the Garden Cottage, identified as No. 22, several outbuildings (Nos. 23, 24, and 26), a silo (No.25), a gas tank near No.23, an ice house (No. 27), servants' residence (No.28), the South Gate Cottage (No.30), a milk house (No. 29), and the swimming pool building (No. 17).

Map 10 is a portion of the 1941 topographic quadsheet. By this time, the project area is shown to be occupied by several structures connected by a series of roadways. There is no railroad shown crossing the southwestern corner of the property.

The 1946 insurance map (Map 11) does not indicate that the northern portion of the project area has undergone any noticeable changes other than no ice house, a re-numbering of structures, and a change in name of the Sanitarium to Tioronda. The southern portion of the project area, however, is marked by the removal of buildings Nos. 25 and 26, labeled silo and shavings on the previous map, and the addition of a tool house near the hydrotherapy building (formerly identified as the swimming pool).

The 1962 edition of the insurance map does not show any significant changes in the structures shown in the northern portion of the project area (Map 12). In the southern portion of the property, the servants residence adjacent to the South Gate Cottage is gone and an additional storage building has been constructed.

The 1981 USGS and 1989 NYSDOT topographic maps show the project area pretty much as it exists today (Maps 13 and 1). Several structures are shown within the project boundaries. These structures are connected by a series of private roadways. Two large ponds are indicated in the western portion of the project area.

Site Visit

The site visit was conducted on January 14, 2004. The surface reconnaissance focused on documenting current ground cover and surface soil conditions, identify current and past land uses, document visible historic structures and associated features, and assess the extent of previous disturbances. The archeological potential of the property was evaluated based on several factors including bedrock geology, proximity to the Fishkill and Hudson River, general topography, and historic development.

The 60-acre property lies along a terrace overlooking the confluence of the Fishkill and Hudson River. Howland Drive (NY Route 9D) borders the eastern edge of the property and Grandview and South Avenues lie to the south. The 19th-century property owner maps and 20th-century topographic maps indicate development beginning during the early to mid 19th century and into the 20th century. The surface reconnaissance documentation will begin at the north end of the parcel, continue west towards the Fishkill, then south along the lower terrace adjacent to the Fishkill, east towards NY Route 9D, and then north ending at the main Tioronda building.

The northeastern portion of the property contains the North Gate Cottage (Map 2; Photo 1). The two-story 19th-century structure occupies Lot 3 of the development plan and is situated adjacent to NY Route 9D. The northern portion of the property, encompassing Lots 18, 19A, 19B, 20 and 21 contain several small moderately sloping wooded and grass covered knolls overlooking a seasonal drainage (Map 2; Photo 2). The northwestern portion of the property, including most of Lots 15, 16, and 17 is wooded and slopes westward towards a level to moderately sloping lower terrace situated adjacent to the Fishkill (Map 2; Photos 3 and 4). Several large bedrock outcrops with sharply sloping rock faces separate the upper and lower terraces (Map 2; Photo 5). The bedrock was examined for chert or quartzite outcrops that could have used as a lithic source for tool manufacture by the areas Native American inhabitants and none were encountered.

The west central portion of the property, encompassing most of Lots 13 and 14, occupy a sloping to moderately sloping and level section of the lower terrace (Map 2; Photo 6). The central portion of the lower terrace overlooks two large ponds (Map 2; Photo 7). Adjacent to the south pond within Lot 9 is the partially buried remains of a swimming pool (Map 2; Photo 8). Located south of the swimming pool is a rectangular concrete block building with two small adjacent square-shaped concrete block structures (Map 2; Photos 9 and 10). The rectangular concrete block building may have been used as a storage shed.

Located within Lot 8 is the Tioronda school building. The two-story brick building dates from the mid to late 19th century and has an adjacent brick outbuilding, and a tennis court (Map 2; Photo 11). The building lies adjacent to a field that extends east to the south encompassing sections of Lots 8 and 9 (Map 2; Photo 12). A terrace overlooking the Fishkill occupies the northern portion of Lot 8. The terrace contains features associated with the railroad that crossed the Fishkill including the mortared cut stone remains of the southern bridge abutment and a portion of the railroad berm (Map 2; Photos 13 and 14). The northern bridge abutment lies on the opposite side of the Fishkill (Map 2; Photo 15).

The National Register listed South Avenue bridge over the Fishkill lies west of the project area (Map 2; Photo 16). A pair of two story brick structures dating from the mid 19th-century lie south of the bridge (Map 2; Photo 17). The bridge and the two buildings lie outside the project area.

The southern portion of the property includes Lots 5, 6, 7, 10, 11, and 12. The property slopes sharply from the edge of the upper terrace towards the lower terrace and the Fishkill. The topography and surface conditions along the upper terrace include moderately sloping wooded sections along the edge of the terrace as well as moderate sloping to level grass covered knolls and hillsides along the interior (Map 2; Photos 18, 19 and 20). Several buildings were encountered along the upper terrace including the South Gate Cottage which is situated at the south end of Lot 7 (Map 2; Photo 21). The two-story brick building is contemporaneous with the other brick structures and dates from the mid- to late 19th century. Located within the central portion of Lot 6 are two rectangular building identified as workshops (Map 2; Photos 22 and 23). One of the shops (Photo 22) is constructed of brick and dates from the mid to late 19th century and the other was built with concrete block (Photo 23) and dates from the mid 20th century.

Another building identified as a workshop lies within the northern corner of Lot 5 (Map 2; Photo 24). The building has experienced several 20th-century modifications. This structure is most likely the building identified as No. 23 on the 1927 insurance map and No.25 on the 1946 and 1962 maps. A closer examination may suggest a 19th-century construction date.

The Garden Cottage is situated within the west central portion of Lot 4 (Map 2; Photo 25). The building is contemporaneous with the other buildings and probably dates from the mid-19th century.

The east central portion of the property includes Lot 1 and the Tioronda main building. The area contains a gradually sloping field and a large excavated area (Map 2; Photos 26 and 27). The disturbed area lies south of the main building and west of the dormitory facility. The main building occupies the east central portion of the property adjacent to NY Route 9D (Map 2; Photo 28). The three-story brick and stone building dates from the mid-19th century. The 20th-century dormitory facility is connected to the main building by an enclosed corridor. Situated west of the main building within Lot 2 is the carriage house (Map 2; Photo 29). The building sits along the edge of the upper terrace and is contemporaneous with the other 19th-century structures.

Precontact Archeological Sensitivity

The combined site file information at OPRHP and the NYSM revealed several precontact sites within one mile of the project area. These include the Polo Fields Site located just to the south of the project area that has been determined eligible for the National Register of Historic Places. The presence of these sites suggests a high sensitivity for precontact cultural resources.

Historical Archeological Sensitivity

The examination of historical maps indicates that portions of the project area were developed as early as the first half of the 19th century. In the mid- 19th century, the property was developed as the estate of Joseph Howland, an influential resident of Beacon. The property was subsequently used as a sanitarium and private hospital into the late 20th century. The property is considered as having a high sensitivity for historic cultural resources.

RECOMMENDATIONS

The proximity of the project area to the confluence of the Fishkill and Hudson River and the presence of several recorded precontact sites within or directly adjacent to the project area indicates a high sensitivity for precontact cultural resources. Several 19th-century structures lie within the project area. The presence of these structures suggests a high sensitivity for 19th-century historic remains.

Because of the high archeological potential for precontact and historic cultural deposits, subsurface archeological testing is recommended for the level, dry, and undisturbed sections of the project area. Screened shovel

tests placed at 15 meter (50 ft) intervals or less should be excavated along the archeologically sensitive portions of the project area that fall into the areas of potential effect.

Tioronda and its grounds have been determined to be eligible for listing on the State and National Registers of Historic Places" (correspondence from J. Winthrop Aldrich to Mayor Clara Lou Gould, September 23, 2003 [see Appendix 2]). Its areas of significance include standing structures as well as landscape features. Any proposed impacts to Tioronda or its grounds, therefore, must be reviewed by the New York State Office of Parks Recreation and Historic Preservation.

PHASE IB ARCHEOLOGICAL FIELD INVESTIGATION

INTRODUCTION

The proposed 60-acre Tioronda subdivision project area is situated between the Fishkill Creek to the west and NY Route 9D to the east. Several structures exist within the study area including Tioronda, a mid 19th century villa built for Joseph Howland. Other associated buildings include a carriage house, the north gate cottage, garden cottage, two workshops, the south gate cottage, and the Tioronda school. The structures have been inventoried and were determined eligible for listing on the State and National Registers of Historic Places (Appendix 2).

According to the development plan, the project involves subdividing the property into 24 lots, of which 21 will contain single family residences (Map 2). The existing structures are all intended to remain and be renovated into single family homes, unless engineering or structural conditions prohibit it. New buildings will be constructed on fourteen of the lots. Anticipated impacts will result from landscape modifications associated with construction of new residences and roadways, rehabilitation of existing structures, and installation of utilities.

The Phase IB field investigation focused on the new building lots, access roads, and the areas surrounding but not directly adjacent to the existing National Register eligible listed structures. The field investigation was conducted during April beginning on April 12 and end of April 21, 2004. The field crew consisted of Lisa Cartwright, Patrick Sabol, Darrell Pinckney, and Kathy Johnson, under the direction of Andre Krievs. Karen S. Hartgen, RPA, was the Principal Investigator. The archeological investigation was conducted at the request of Tioronda, LLC. The survey was conducted in compliance with Section 14.09 of the State Historic Preservation Act (SHPA) under Department of Environmental Conservation (NYDEC) wetland permits and building permit requirements by the City of Beacon.

The site file information revealed the presence of numerous precontact and early historic sites north, south, and west of the project area indicating a high sensitivity for precontact and historic cultural resources. Therefore, subsurface testing was recommended for the level to moderately sloping, dry, and undisturbed sections of the project area APE.

WORK SCOPE

The 60-acre project area lies along several upland terraces overlooking the Fishkill. The county soil maps indicate a mixture of glacially derived silt, sand, and gravel, over Middle Ordovician Austin Glen Formation graywacke and shale. It was anticipated that any cultural materials will be recovered from the Stratum I topsoil or the upper portions of the Stratum II subsoil.

The field investigation consisted of a surface reconnaissance of the 60-acre property to identify the archeologically sensitive areas within the proposed area of potential effect (APE). This was followed by the excavation of shovel tests within the archeologically sensitive areas. Each shovel test was 40 centimeters (16 in) in diameter and placed at 15 meter (50 ft) intervals or less. The soils from the shovel tests were screened through 0.64 centimeter (0.25 in) hardware cloth and carefully examined for precontact and historic cultural materials. The location and depth of each shovel test was recorded including the depth and description of each soil level (Munsell 2000).

FIELD INVESTIGATION

The project area APE was subdivided into three geographic zones; the northern upper terrace, the lower terrace, and the southern upper terrace. In all, 402 screened shovel tests were excavated along the level to least sloping, dry, and undisturbed sections of the project area APE (Map 2).

The northern upper terrace included Lots 2, 3, 18, 19A, 19B, 20, 21 and the northern portion of Lot 1 (Map 2). Shovel Tests 1-109 and 392-395 were excavated along this section of the project area APE.

The lower terrace includes Lots 8, 9, 13, 14, 15, 16, and 17 (Map 2). Shovel Tests 110-207 were excavated along the western edge of the project area APE adjacent to the Fishkill Creek. Tests 245-257 were excavated at the south end of the APE within Lots 8 and 9.

The southern upper terrace includes Lots 4, 5, 6, 7, 10, 11, 12, and the southern portion of Lot 1 (Map 2). Shovel Tests 235-244 and Tests 258-264 were excavated at the south end of the APE within Lots 6, 7, and 10. Tests 208-234 were excavated along the south central portion of the APE within Lots 4 and 12. Tests 265-391 and 396-402 were excavated within the southeastern and south central portion of the project area APE within Lots 4, 5, 11, 12 and the southern portion of Lot 1.

Several areas were excluded from the field investigation due to prior disturbance, excessive slope and wetness, and each excluded area is indicated on the project map. A detailed description of the field investigation is presented below.

Northern Upper Terrace

Shovel Tests 1-101 were excavated within the Sargent's Glenhurst Lawn situated within the northeastern portion of the property (Map 2; Photo 30). The lawn area lies along an upland terrace adjacent to a small seasonal drainage that flows west into the Fishkill Creek. The tests were excavated along the northern portion of Lot 1 and in Lots 3, 18, 19A, and 21. The soil stratigraphy generally consisted of a dark grayish brown to dark yellowish brown silty sand and silty clay ranging from 14 to 41 centimeters (6 to 16 in) in depth underlaid by a dark yellowish brown to yellowish brown silty sand to silty clay subsoil that continued to depths greater than 65 centimeters (26 in) below the surface (Appendix 3).

Precontact artifacts were recovered from four of the shovel tests (Tests 31, 37, 50, and 53). The artifacts were retrieved from the central portion of the ridge within the northern portion of Lot 1 and the western portion of Lot 21 (Map 2; Photo 31). The artifact assemblage included a chert flake, three chert trim flakes, and a chert block flake all recovered from the Stratum 1 surface soil (Table 4, Appendix 4). **Precontact Site 1** encompasses between one and two acres and is situated along the top of a small terrace overlooking a seasonal drainage.

Historic artifacts were retrieved from four shovel tests (Tests 44, 49, 70, and 89) with most of the artifacts recovered from Test 44 situated within the central portion of Lot 21 (Map 2; Photo 32). Historic artifact assemblage included items dating from the mid to late 18th century included a Spanish silver reales coin with a 1762 manufacturing date, two 18th century redware fragments, a wine bottle fragment, and a white salt-glazed stoneware fragment (Appendix 4). The 18th century items were recovered from Tests 44 and 49 Stratum 1, situated within Lot 21. Additional items retrieved from Test 44 included mammal bone, clam shell, cut nail, and a metal fragment. The 18th century historic items (**Historic Site 2**) are concentrated with a central portion of Lot 21 and encompass less than an acre.

Three tobacco pipe fragments (mended) were recovered from Test 70 and a metal fragment was recovered from Test 89 (Appendix 4). The historic items were recovered from Stratum 1 in Lot 18 and 19A and considered singular finds.

Shovel Tests 102-105 were excavated along a wooded terrace situated at the north end of the project area in Lot 19B (Map 2; Photo 33). The soil stratigraphy consisted of a very dark grayish brown to very dark gray silty humus ranging from 4 to 15 centimeters (2 to 6 in) in depth underlaid by a dark yellowish brown silty clay that continued to depths ranging from 23 to 30 centimeters (9 to 12 in) below the surface. This was followed by a yellowish brown clayey silt that continued to depths greater than 45 centimeters (18 in) below the surface (Appendix 3). No precontact or historic cultural materials were recovered from the wooded terrace.

TABLE 4: Artifact Type and Quantity From Precontact Sites 1, 3, 4, and 6 and Historic Sites 2, 5, and 7

Artifact Types	Site and Artifact Quantity							Total
	Site 1	Site 2	Site 3	Site 4	Site 5	Site 6	Site 7	
Net Sinker			1					1
Biface Fragment			1					1
Flake	1		2			3		6
Trim Flake	3		1			2		6
Block Flake	1					1		2
Fire-cracked Rock			1	2		8		11
Total Precontact Artifacts	**5**		**6**	**2**		**13**		**26**
Silver Reales Coin		1						1
Wine Bottle Fragment		1						1
White Salt-glazed Stoneware		1						1
Redware		2			1		1	4
Whiteware					5		2	7
Gray Salt-glazed Stoneware					5			5
Porcelain (Jar fragments)					43			43
Bottle Glass					46		4	50
Lamp Chimney Glass							2	2
Mammal Bones					8			8
Oyster Shell							1	1
Window Glass							3	3
Cut Nail					2			2
Wire Nail					6			6
Total Historic Artifacts		**5**			**116**		**13**	**134**

Shovel Tests 106-109 were excavated within the undisturbed sections of a wooded terrace situated within the northeastern corner of the property (Map 2; Photo 34). The terrace encompasses most of Lot 20 and is situated adjacent to a seasonal drainage. The soil stratigraphy consisted of a very dark grayish brown to dark brown silty sand ranging from 7 to 15 centimeters (3 to 6 in) in depth underlaid by a dark yellowish brown to yellowish brown sandy silt that continued to depths greater than 44 centimeters (17 in) below the surface (Appendix 3). No precontact or historic resources were retrieved from Tests 106-109.

Several sections of the upper terrace were excluded from the field investigation due to prior disturbance and

slope. The northern and central portions of Lot 20 have experienced prior disturbance resulting from previous soil mining activities and were eliminated from the field investigation (Map 2; Photo 35). Several sections of the terrace exhibited mining pits.

The northern portion of Lot 18 lies along the slope that separates the upper from the lower terrace (Map 2; Photo 36). The area contains slopes greater than 15% and no testing was conducted on the slope.

Lot 19B is a very small parcel that is situated at the north central portion of the property (Map 2; Photo 37). The lot slopes sharply southward into a seasonal drainage. The area contains slopes greater than 15% and no testing was conducted.

Lot 2 is situated within the central portion of the property along the western edge of the upper terrace. The central and eastern portion of the lot contains the carriage house that is surrounding by parking lot (Map 2; Photo 38). No testing was conducted in this area due to prior disturbance. The western and southern portions of the lot slope sharply towards the lower terrace (Map 2; Photo 39). No testing was conducted due to excessive slope.

A small mortared stone arched bridge over the seasonal drainage was identified between Lots 19B and 20 (Map 2; Photo 40). The bridge was constructed as part of Howland Estate. Avoidance of the bridge is recommended.

The upper northern terrace contains several structures associated with the Howland Estate and the later Craig House sanitarium complex. The structures include the Howland Estate Main Building and the attached dormitory facility in Lot 1, the carriage house in Lot 2, and the north gate house in Lot 3 (Photos 1, 27, 28, and 29). The areas surrounding the buildings have experienced prior disturbance resulting from construction of the building, installation of access road and parking areas, as well as general landscaping activities. According to the construction plan, the existing structures are to remain and be renovated into single family homes, unless engineering or structural conditions prohibit it.

Lower Terrace

Shovel Tests 110-204 were excavated along a wooded lower terrace situated adjacent to the Fishkill (Map 2; Photo 41). The terrace lies along the base of the upper ridge and runs parallel to a pair of ponds. The tests were excavated along the proposed access road, within Lots 13, 14, 15, 16, 17 and the Lot A cull de sac. The soil stratigraphy generally consisted of a very dark grayish brown to dark yellowish brown silty sand with humus ranging from 14 to 60 centimeters (6 to 24 in) in depth underlaid by a dark yellowish brown to light olive brown silty sand with gravel and silty clay that continued to depths greater than 80 centimeters (31 in) below the surface (Appendix 3). Several tests contained mottled strata indicating areas of prior disturbance. The disturbances can be attributed to grading associated with the construction of access roads and installation of several monitoring wells. Several soil piles containing concentrations of coal ash were evident near the central portion of the terrace indicating use as a disposal area.

Precontact cultural resources were recovered from four of the shovel tests (Tests 139, 143, 155, and 189) excavated along the lower terrace. Three of the tests (Tests 139, 143, and 155) lie within Lot 14 and one (Test 189) is situated at the south end of Lot 13 (Map 2; Photo 42). The artifacts retrieved from the Lot 14 tests included a net sinker, a broken biface, two flakes, a chert trim flake, and a fire cracked rock fragment (Table 4; Appendix 4) . All were recovered from the Stratum 1 surface soil. **Precontact Site 3** encompasses between one and two acres and lies along a narrow terrace parallel to the Fishkill.

Two fire cracked rock fragments were recovered from Test 189, Stratum 1 situated with the southwestern corner of Lot 13 (Table 4; Map 2; Photo 43; Appendix 4). **Precontact Site 4** encompasses less than an acre and is situated along the lower terrace adjacent to a seasonal drainage that flows west into the Fishkill.

Historic artifacts were recovered from three of the shovel tests (Tests 138, 155, and 165). The artifacts were

recovered from the north end of Lot 14 and included one whiteware fragment, a porcelain fragment, and three bottle glass fragments (Appendix 4). The materials generally date from the mid to late 19th to early 20th century. All of the historic items were recovered from Stratum 1 surface soils and none appear to be associated with any field or map documented structural remains.

Shovel Tests 205-207 were excavated west of Lot 12 along the edge of the pond (Map 2; Photo 44). The presence of thick brush and recent forest growth suggests the area has experienced ground disturbance. The soil stratigraphy consisted of a very dark grayish brown to dark brown silt and silty sand ranging from 8 to 30 centimeters (3 to 12 in) in depth underlaid by a light olive brown clayey silt in Test 205 to a dark yellowish brown to yellowish brown sandy silt and gravel in Tests 206 and 207 (Appendix 3). The varied soil stratigraphy indicates prior disturbance. No precontact or historic cultural resources were recovered from the three shovel tests.

Shovel Tests 245-252 were excavated along a sloping ridge situated at the south end of the property within Lot 9 (Map 2; Photo 45). The soil stratigraphy consisted of a very dark gray to olive brown silty clay ranging from 7 to 18 centimeters (3 to 7 in) in depth underlaid by a dark yellowish brown to light yellowish brown clay subsoil that continued to depths greater than 40 centimeters (16 in) below the surface (Appendix 3). No precontact or historic cultural resources were recovered from shovel tests excavated in Lot 9.

Shovel Tests 253-257 were excavated along a sloping ridge situated at the westernmost edge of the project area within Lot 8 (Map 2; Photo 46). The ridge is situated north of the Tioronda school. The shovel tests were excavated along the east side of the abandoned railroad easement. The soil stratigraphy within the undisturbed sections of the ridge consisted of a very dark grayish brown to very dark gray silty humus ranging from 5 to 13 centimeters (2 to 5 in) in depth underlaid by a dark yellowish brown to yellowish brown silty clay that continued to depths greater than 30 centimeters (12 in) below the surface (Appendix 3). Disturbed soils consisting of yellowish brown to light yellowish brown sand and gravel deposits up to 50 centimeters (20 in) in depth were encountered along a flat area situated at the south end of the ridge. The area was probably used as a recreation area by the school. No precontact or historic cultural resources were encountered in the five shovel tests excavated in Lot 8.

Several sections of the lower terrace were excluded from the field investigation due to prior disturbance, wetness, and slope. The northern portion of Lot 9 slopes sharply northward into a wetland area that surrounds the south pond (Map 2; Photos 45 and 47). No testing was conducted due to prior disturbance, slope, and wetness.

The western portion of Lot 8 slopes sharply towards the Fishkill Creek (Map 2; Photo 48). This area was eliminated from the field investigation due to excessive slope. The southern and eastern portions of Lot 8 surrounding the Tioronda school have experienced prior disturbance resulting from general landscaping activities and the construction of a tennis court (Map 2; Photo 47). The lot also extends into a wetland area. No testing was conducted in the area around the building due to prior disturbance and wetness.

The eastern portion of Lot 17 lies along the slope that separates the upper and lower terraces (Map 2; Photo 49). The area contains slopes greater than 15% and no testing was conducted along the slope. The slope contains two areas of exposed bedrock. Each was examined for possible chert, quartzite, or quartz veins that may have been used as a lithic source by the area's precontact Native American inhabitants. No chert, quartzite, or quartz veins were identified within the bedrock outcrops.

Lot 16 is situated within the northeastern corner of the property (Map 2; Photo 50). This small lot lies along the edge of a terrace than slopes sharply towards the Fishkill. The lot was eliminated from the field investigation due to excessive slope.

The Tioronda school and a railroad bridge and track easement are situated within Lot 8 (Map 2; Photos 11, 13, and 14). The areas surrounding the building have experienced prior disturbance resulting from construction of the

building, installation of access road and parking areas, as well as general landscaping activities. According to the construction plan, the existing structure will remain and be renovated into single family home. Avoidance of the railroad features situated along the top of the hill are recommended.

Historic features dating from the mid 20th century including an abandoned swimming pool and two concrete block outbuilding lie north of Lot 10 and are associated with the Tioronda school (Map 2; Photos 8, 9, and 10). The structures lie outside the APE and are situated within a designated wetland area.

Southern Upper Terrace

The southern upper terrace encompasses Lots 4, 5, 6, 7, 10, 11, 12, and the southern portion of Lot 1 (Map 2). Shovel Tests 208-234 were excavated within Lot 4 and along the northeastern portion of Lot 12 (Map 2; Photo 51). The area is situated along the edge of the upper terrace. The soil stratigraphy consisted of a very dark grayish brown to dark brown silty sand to silty clay ranging from 10 to 28 centimeters (4 to 11 in) in depth underlaid by a dark yellowish brown to yellowish brown silty clay that continued to depths greater than 80 centimeters (31 in) below the surface (Appendix 3). Several of the shovel tests (Tests 227-229, 231, and 232) located near the Garden Cottage within Lot 4 had disturbed soils. The soil disturbances lie along the road and are probably the result previous landscaping and road construction activities. No precontact cultural resources were recovered from this area.

Three of the shovel tests (Test 210, 222, and 233) contained historic materials. Test 210 is situated along the edge of the terrace before it slopes sharply towards the lower terrace and Tests 222 and 233 lie north of the Garden Cottage. The artifact recovered from Tests 222 and 233 included two whiteware fragments, a window glass fragment, and a green bottle fragment. The artifacts generally date from the mid to late 19th and early 20th centuries and are probably associated with the Garden Cottage occupation. The historic artifacts area considered singular finds and do not appear to be associated with any intact historic features.

An extensive historic artifact assemblage dating from the late 19th to 20th centuries was recovered from Test 210 (Map 2; Photo 52). The assemblage included five whiteware fragments, one redware fragment, five gray salt-glaze stoneware fragments, 43 porcelain (jar) fragments, 46 bottle glass fragments, eight mammal bones, two cut nails, and six wire nails (Table 4; Appendix 4). The assemblage appears to be a midden (**Historic Site 5**) probably associated with the Howland Estate occupation. The household materials generated from the estate were dumped along the edge of the terrace, covered with soil, thus creating the midden site.

Shovel Tests 335-344 and Tests 258-263 were excavated along the edge of two small terraces encompassing the level and undisturbed portions of Lots 6, 7, and 10 (Map 2; Photo 53). The soil stratigraphy generally consisted of a very dark grayish brown to brown silty sand ranging from 14 to 50 centimeters (6 to 20 in) in depth underlaid by a dark yellowish brown to light olive brown sandy silty to silty clay with occasional gravel that continued to depths greater than 75 centimeters (30 in) below the surface (Appendix 3).

Precontact artifact were retrieved from five of the shovel tests (Tests 236-239, and 258) excavated along the edge of the upper terrace (Map 2; Photo 54). The artifacts were recovered from the north edge of Lot 7 and the southeastern portion of Lot 10. The artifact assemblage included three chert flakes, two chert trim flakes, a chert block flake, and eight fire-cracked rock fragments (Table 4; Appendix 4). The precontact artifacts recovered from Tests 237 and 238 came from the upper portions of the Stratum 2 subsoil. The chert flake retrieved from Test 258 came from a buried topsoil. The artifacts recovered from Tests 236 and 239 came from the Stratum 1 surface soil. **Precontact Site 6** encompasses between one and two acres and is situated along the edge of the upper terrace opposite a seasonal drainage that flows north into the Fishkill.

Historic artifacts were retrieved from shovel Tests 237, 258, 259, and 260. The artifact assemblage included two whiteware fragments, one redware fragment, four bottle glass fragments, two lamp chimney glass fragments, three

window glass, and an oyster shell fragment (Table 4; Appendix 4). Most of the artifacts were recovered from tests excavated adjacent to the Lot 7 gate house (Map 2; Photo 55). A surface inspection conducted north of the gate house revealed a triangular indentation along the ground surface indicating evidence of a possible well or privy. The historic artifacts generally date from the mid to late 19th and early 20th centuries and are probably associated with the south gate house occupation. **Historic Site 7** encompasses less than an acre and is situated north of the south gate house.

Shovel Tests 265-380 were excavated within Lot 11 and along the southern portion of Lot 1 (Map 2; Photos 56 and 57). The tests were excavated across the level and moderately sloping portions of a large field. The soil stratigraphy generally consisted of a very dark gray to dark yellowish brown silt to silty clay with occasional gravel ranging from 15 to 36 centimeters (6 to 14 in) in depth underlaid by a dark yellowish brown to yellowish brown silty clay to clay with occasional gravel that continued to depths greater than 58 centimeters (23 in) below the surface (Appendix 3). No precontact or significant historic cultural resources were recovered from the 116 shovel tests excavated within Lot 11 and the southern portion of Lot 1.

Shovel Tests 381-391 were excavated along the level to gradually sloping sections of a narrow ridge situated along the west central portion of Lot 1 (Map 2; Photo 58). The soil stratigraphy consisted of a dark grayish brown silty to sandy silt 10 to 24 centimeters (4 to 9 in) in depth underlaid by a dark yellowish brown to yellowish brown silty sand to silty clay that continued to depths greater than 50 centimeters (20 in) below the surface (Appendix 3). Disturbed soils consisting of sand and gravel deposits were encountered in Test 382 and 386 indicating sections of the ridge were graded during construction of the central access road or during construction of the dormitory facility located within the east central portion of Lot 1. No precontact or historic cultural resources were recovered from the eleven shovel tests excavated along the ridge.

Shovel Tests 398-402 were excavated within the south central portion of the project area parallel to the access road (Map 2; Photo 59). The soil stratigraphy consisted of a brown silty sand to silty clay with gravel ranging from 35 to 56 centimeters (14 to 22 in) in depth underlaid by a dark yellowish brown to yellowish brown clayey silt that continued to depths greater than 66 centimeters (26 in) below the surface (Appendix 3). No precontact or historic cultural resources were recovered from the five shovel tests.

Sections of the southern upper terrace were excluding from the field investigation due to prior disturbance and excessive slope. The western portions of Lots 7, 10, and 12 slope sharply towards the lower terrace (Map 2; Photo 60). The western edge of Lot 11 and southernmost portion of Lot 1 slope sharply towards the central access road (Map 2; Photo 61). No testing was conducted along the sloping sections of Lots1, 7, 10, and 12.

Areas containing prior disturbance were encountered within the central portion of Lot 1, the southern and eastern portions of Lot 5, the northern portion of Lot 6, the east central portion of Lot 10, and the southern and east central portions of Lot 12. The soil disturbances observed within the central portion of Lot 1 were incurred during construction of the Craig House dormitory facility, and associated landscaping including the construction of several soil berms along the seasonal drainage the transects the central portion of the property (Map 2; Photo 62 and 63). The southern and eastern portion of Lot 5 has experienced soil disturbance resulting from road construction and utility line installation (Map 2; Photo 64). The northern portion of Lot 6, the eastern portion of Lot 10, and the southern portion of Lot 12 have experienced prior disturbance resulting from previous soil mining activities (Map 2; Photos 65 and 66). Several large gravel mining pits were encountered along this section of the property. The soil was removed from several small terraces and used during construction of the Howland Estate and later the Craig House sanitarium complex.

The southern upper terrace area contains several structures associated with the Howland Estate (Map 2; Photos 21-25). The areas surrounding the buildings have experienced prior disturbance resulting from construction of the buildings, installation access roads, and general landscaping activities. According to the construction plan, the existing structures are all intended to remain and be renovated into single family homes, unless engineering or structural conditions prohibit it.

RECOMMENDATIONS

The Phase IB archeological investigations for the Tioronda subdivision project included the excavation of 402 screened shovel tests along the undisturbed, least sloping and dry section of the 60-acre project area. The field investigation resulted in the identification of four precontact sites and three significant historic deposits. Recommendations for the precontact sites followed by the historic sites are presented separately.

Precontact Site 1 lies within the northeastern portion of the property within the northern portion of Lot 1 and the western portion of Lot 21. The site encompasses between one and two acres and is situated along the top of a small terrace overlooking a seasonal drainage that flows west into the Fishkill. Artifacts retrieved from the site included flakes and trim flakes. **Precontact Site 3** lies within the northwestern portion of the property within the northern and central portions of Lot 14. The Site encompasses between 1 and 2 acres and is situated along the lower terrace overlooking the Fishkill. A net sinker, biface fragment, and flakes were recovered from the site. **Precontact Site 4** lies within the west central portion of property within the southern portion of Lot 13. It also lies along the lower terrace overlooking the Fishkill. The site contained two fire-cracked rock fragments. **Precontact Site 6** lies at the south end of the property within the eastern portion of Lot 7 and southern portion of Lot 10. It encompasses between one and two acres and is situated along the edge of the upper terrace opposite a seasonal drainage that flows north into the Fishkill. The artifact assemblage consisted mostly of flakes and trim flakes. Avoidance or Phase II study is recommended for the four precontact sites (**Precontact Sites 1,3, 4, and 6**).

Three significant historic cultural deposits were encountered during the Phase IB field survey. **Historic Site 2** was identified at the north end of the property within the central portion of Lot 21. The site encompasses less than an acre. The artifact assemblage included a Spanish silver reales coin with a 1764 manufacturing date, two late 18th century redware fragments, a wine bottle fragment, and a white salt-glazed stoneware fragment.

Historic Site 5 was encountered along the eastern edge of Lot 12 and encompasses less than an acre. An extensive historic artifact assemblage dating from the late 19th to 20th centuries was recovered from Test 210. The assemblage included five whiteware fragments, one redware fragment, five gray salt-glaze stoneware fragments, 43 porcelain (jar) fragments, 46 bottle glass fragments, eight mammal bones, two cut nails, and six wire nails. The assemblage appears to be a midden probably associated with the Howland Estate occupation. The household materials generated from the estate were dumped along the edge of the terrace, covered with soil, thus creating the midden site.

Historic Site 7 is located at the south end of the property within the eastern portion of Lot 7 and along the western edge of Lot 6. The site encompasses less than one acre. The artifact assemblage included two whiteware fragments, one redware fragment, four bottle glass fragments, two lamp chimney glass fragments, three window glass, and an oyster shell fragment. Most of the artifacts were recovered from tests excavated north of the Lot 7 gate house. A surface inspection conducted north of the gate house revealed a triangular indentation along the ground surface indicating evidence of a possible well or privy. The historic artifacts generally date from the mid to late 19th and early 20th centuries and are probably associated with the gate house occupation. Avoidance or Phase II investigations are recommended for the three historic artifact concentrations (**Historic Sites 2, 5, and 7**).

Single historic items dating from the mid to late 19th century were recovered from shovel Tests 70 and 89 located in Lots 18 and 19A, Test 13 and 155 situated in Lot 14, and Tests 222 and 233 situated in Lot 4. the historic items were recovered from Stratum 1 and none appear to be associated with any field or map documented structural remains. The historic items are considered singular finds and no further investigation is warranted.

Several sections of the project area were excluded from the field investigation due to prior disturbance, excessive slope, and wetness. The wet areas primarily lie along the western edge of the property near the Fishkill. Most are designated wetlands and will not be impacted. The areas excluded from the field survey due to excessive slope lie within the central portion of the property between the lower and upper terrace. Areas containing prior disturbance are

found throughout the property. Each area excluded from the field investigation is indicated on the project map. No further investigation is recommended for these areas.

Buildings associated with the Howland Estate and Craig House sanitarium occupy eight of the building lots. According to the construction plan, the existing structures are all intended to remain and be renovated into single family homes, unless engineering or structural conditions prohibit it. The Phase IB excavations were generally placed around the structures but none were excavated directly adjacent to the buildings. Since several of the Howland estate buildings have been determined National Register eligible, discussion with OPRHP may be necessary to determine what types of impacts will occur to the land surrounding the buildings if any, and if further archeological investigation is necessary.

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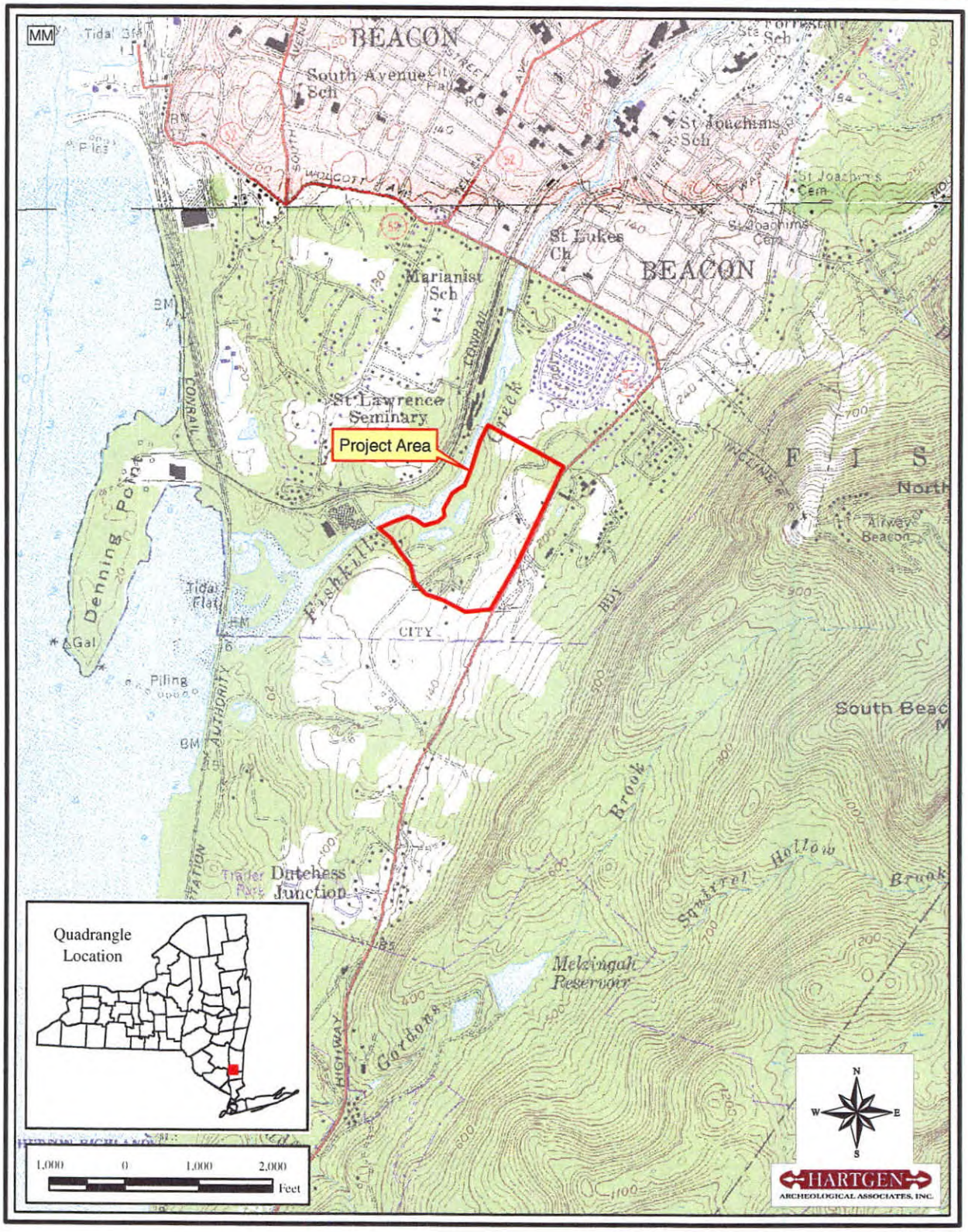
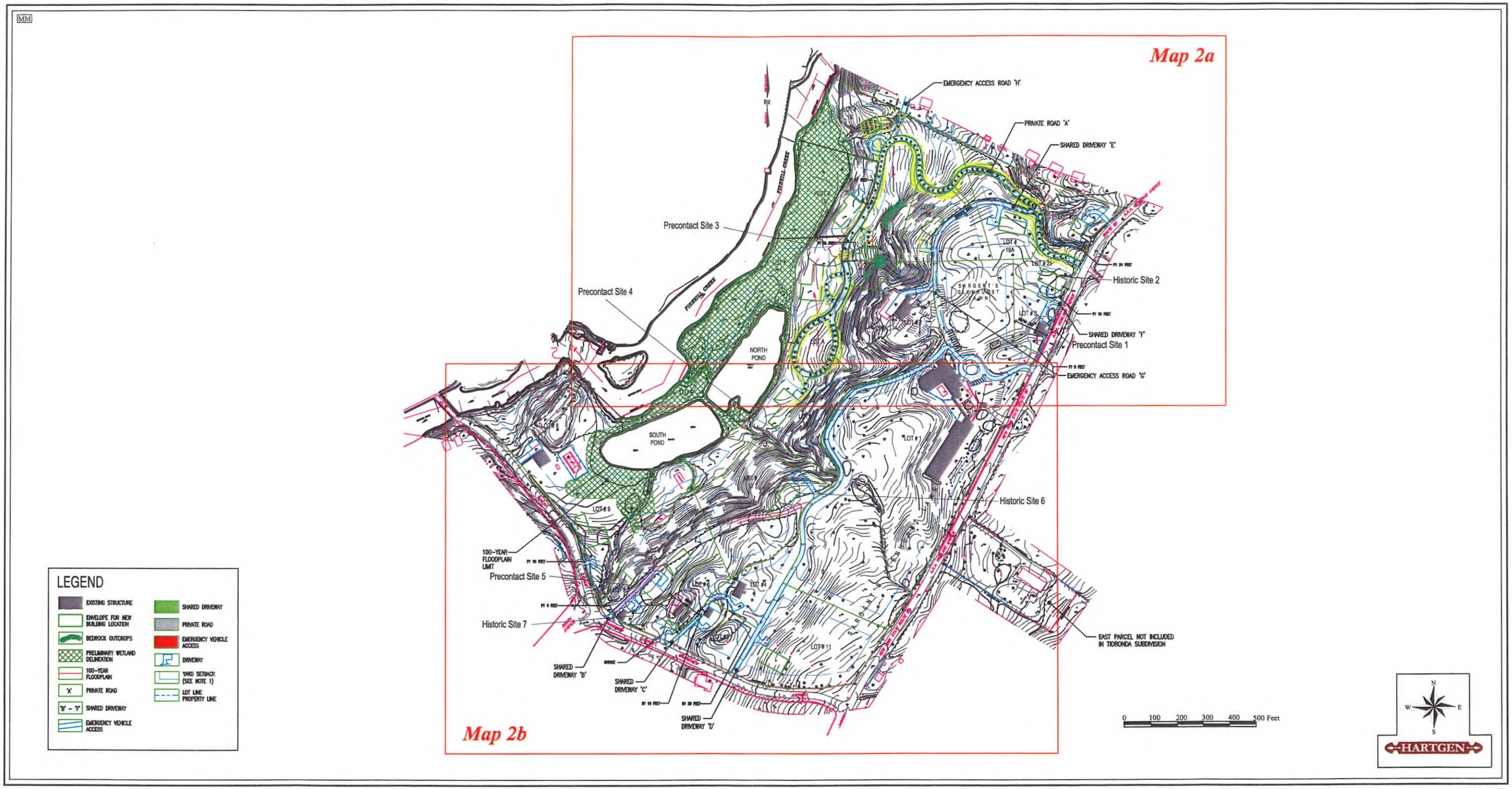
MAPS



Map 1

1981 USGS *Wappingers Falls* and *West Point 7.5' Topographic Quadrangles, New York*



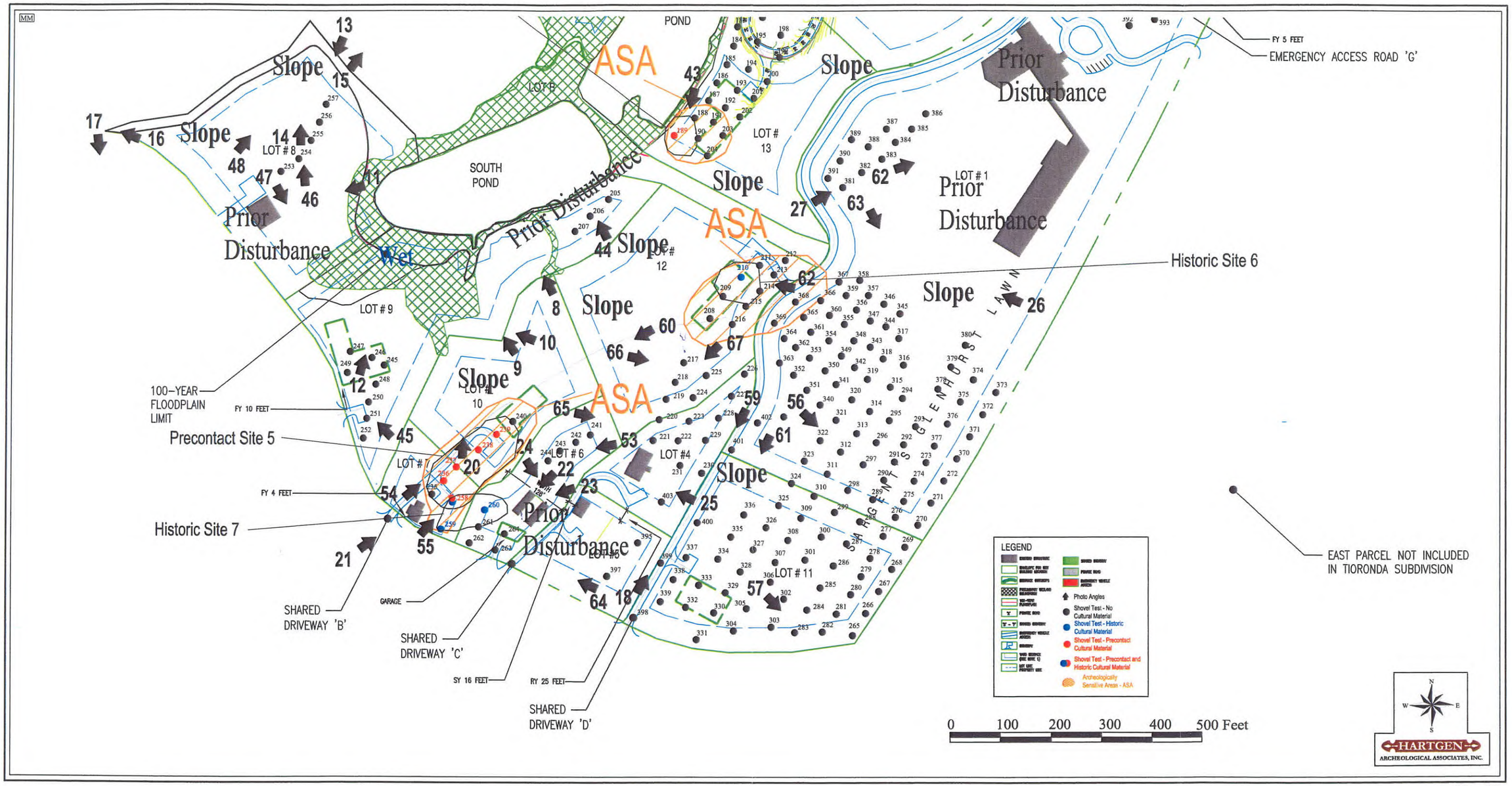
Map 2

2003 Mathews Nielsen Landscape Architects, *Sketch Plan*



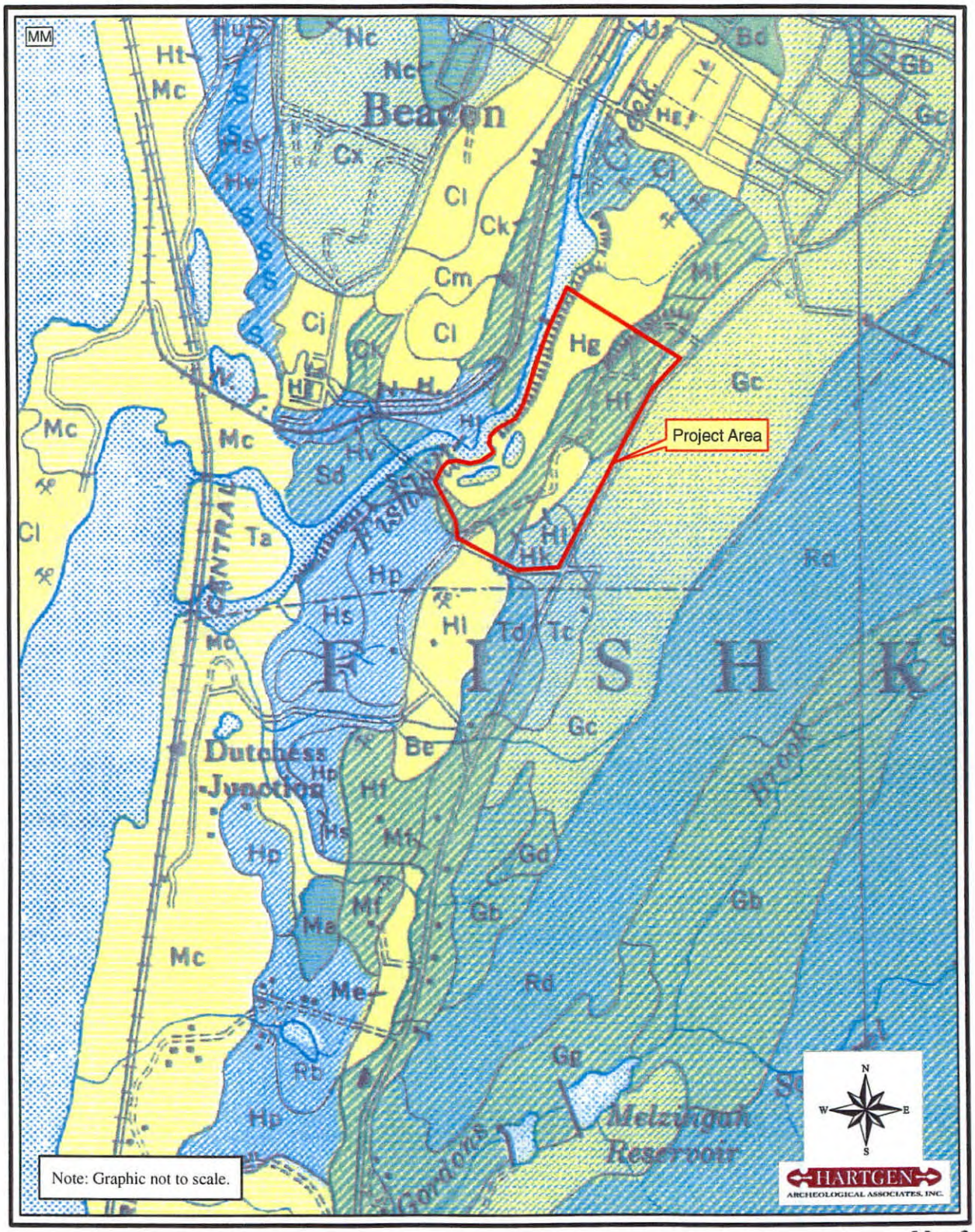
Map 2a

2003 Mathews Nielsen Landscape Architects, *Sketch Plan* with Shovel Tests, Photographic Angles and Archeologically Sensitive Areas



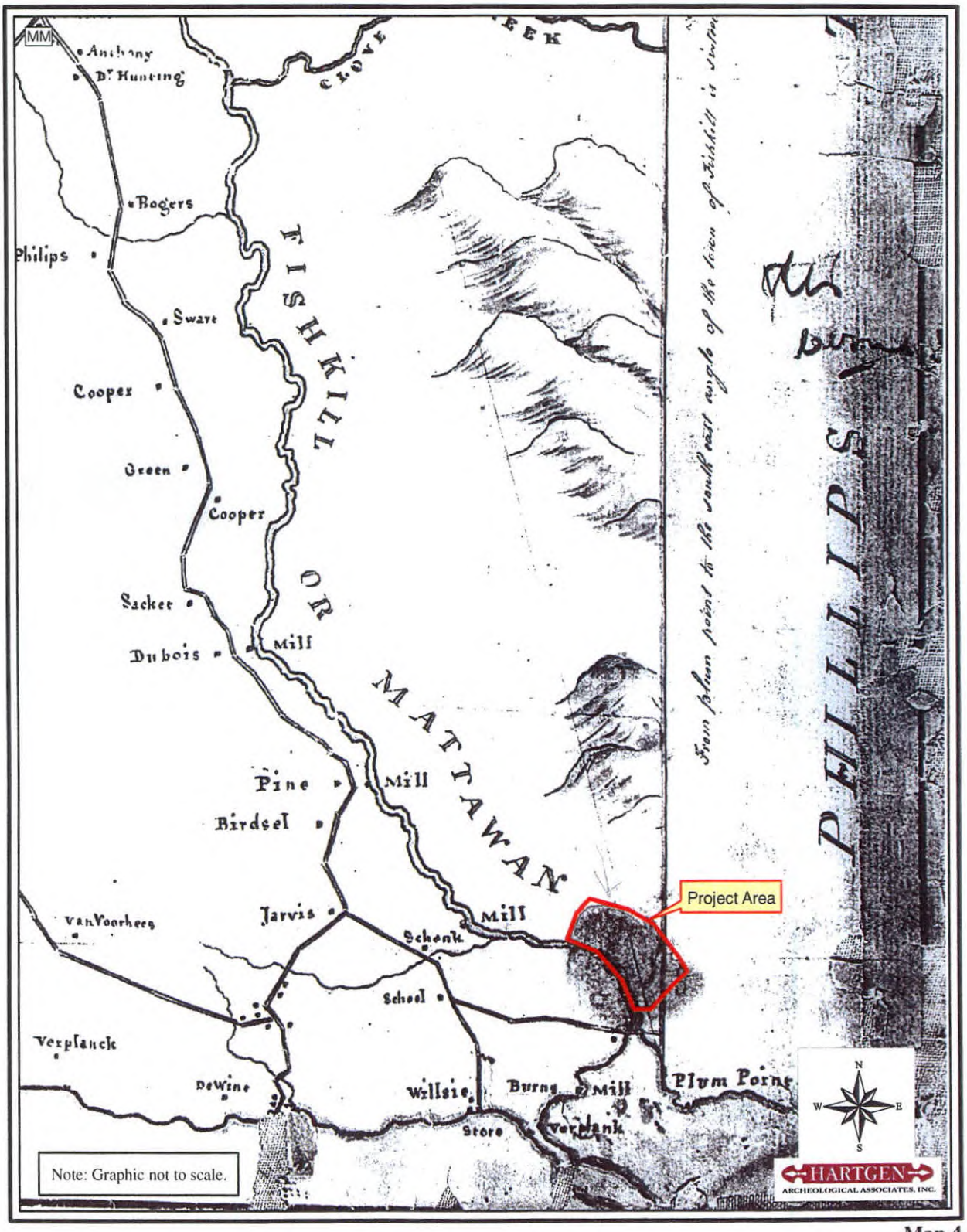
Map 2b

2003 Mathews Nielsen Landscape Architects, *Sketch Plan* with Shovel Tests, Photographic Angles and Archeologically Sensitive Areas



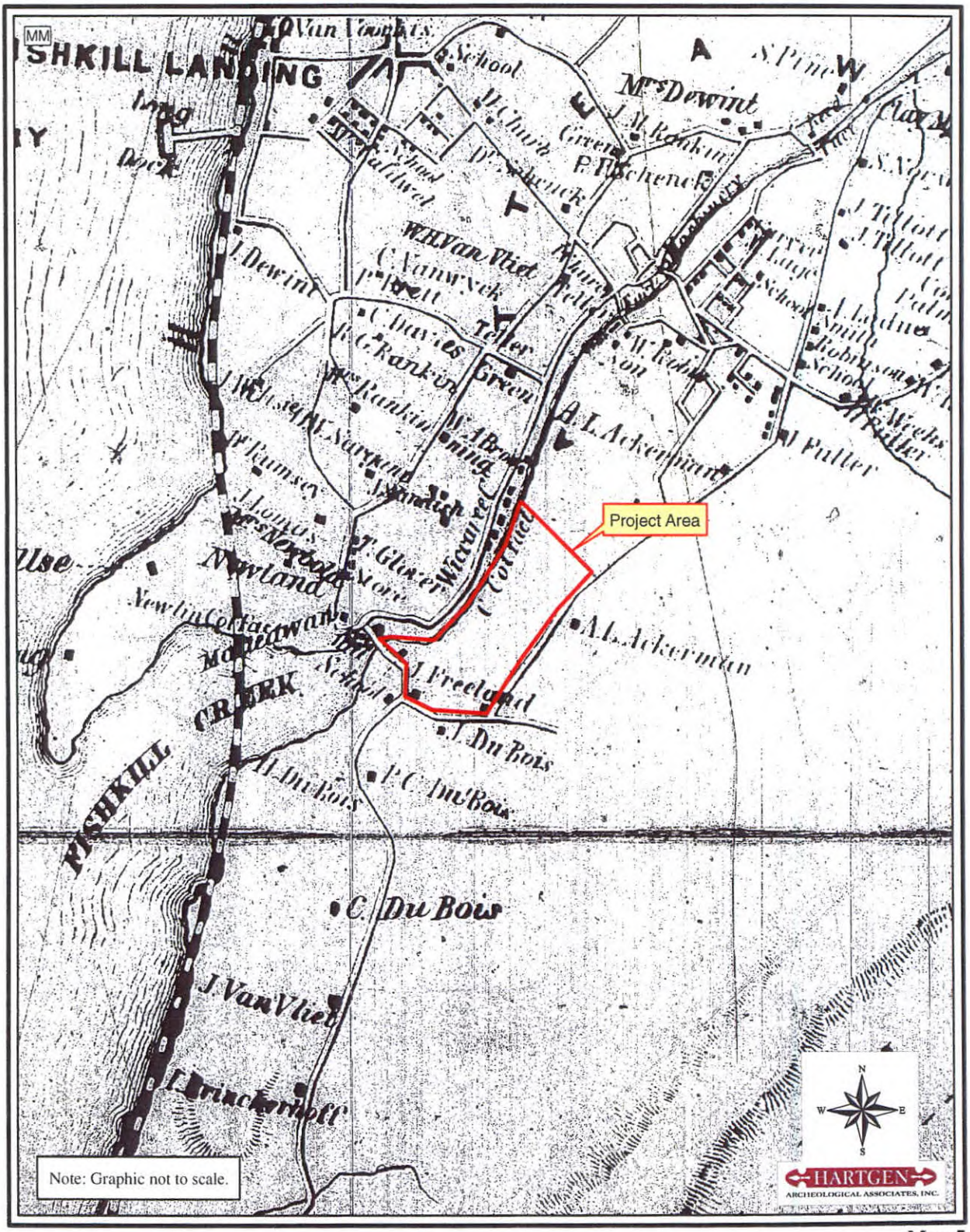
Map 3

1955 USDA *Soil Survey for Dutchess County, New York*



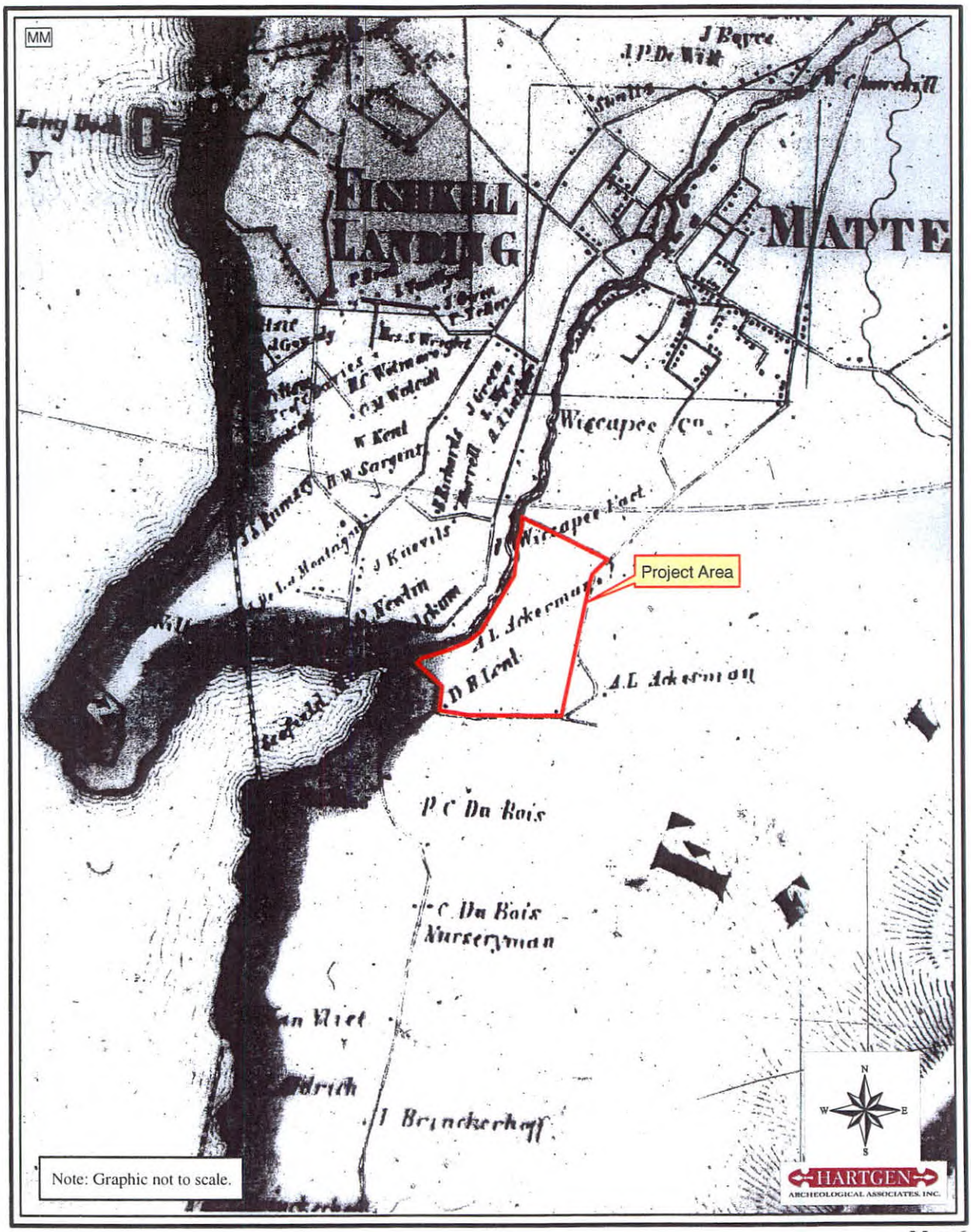
Map 4

1798 Livingston *Map of the Town of Fishkill, Dutchess County*



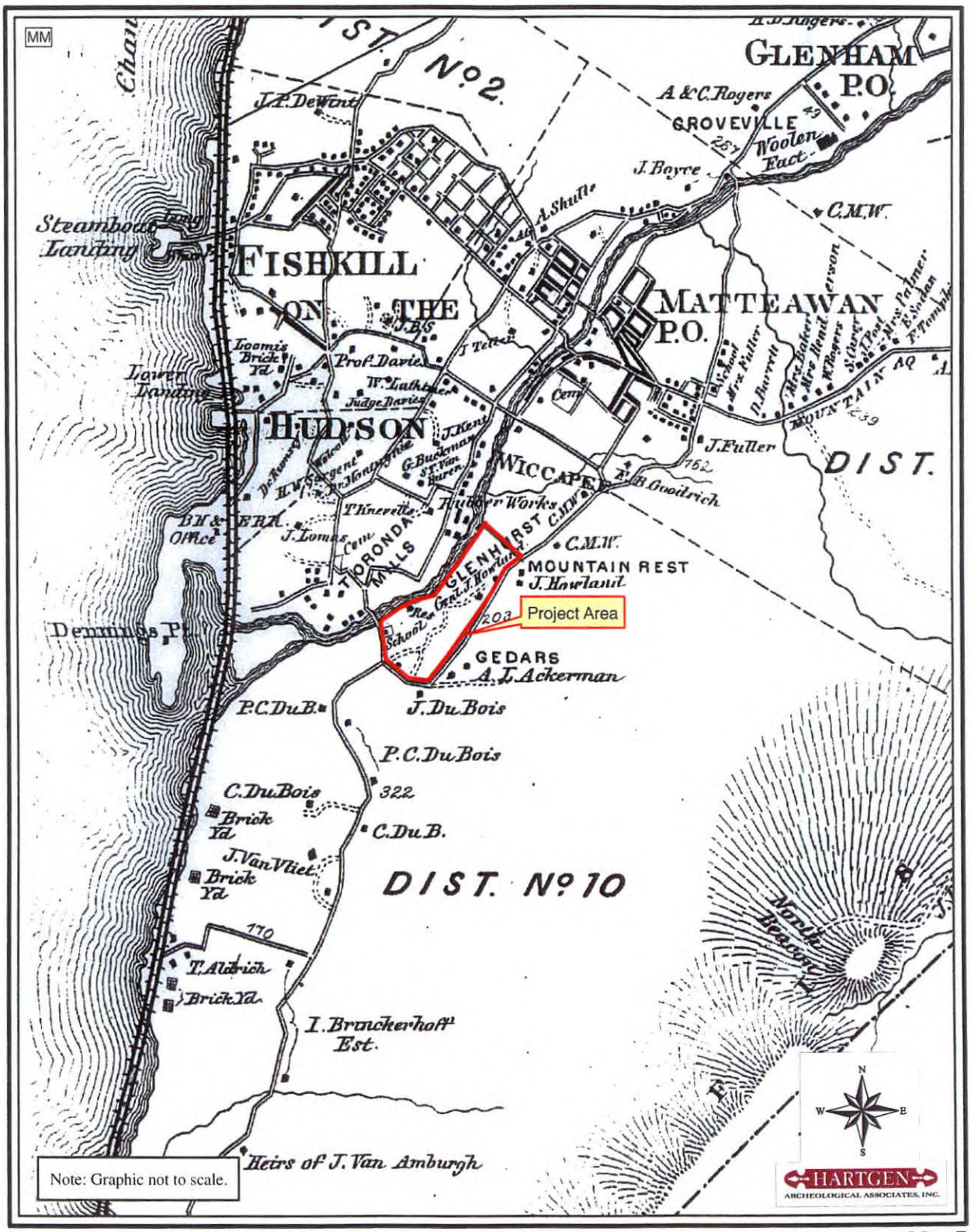
Map 5

1850 Sidney *Map of Dutchess County, New York*



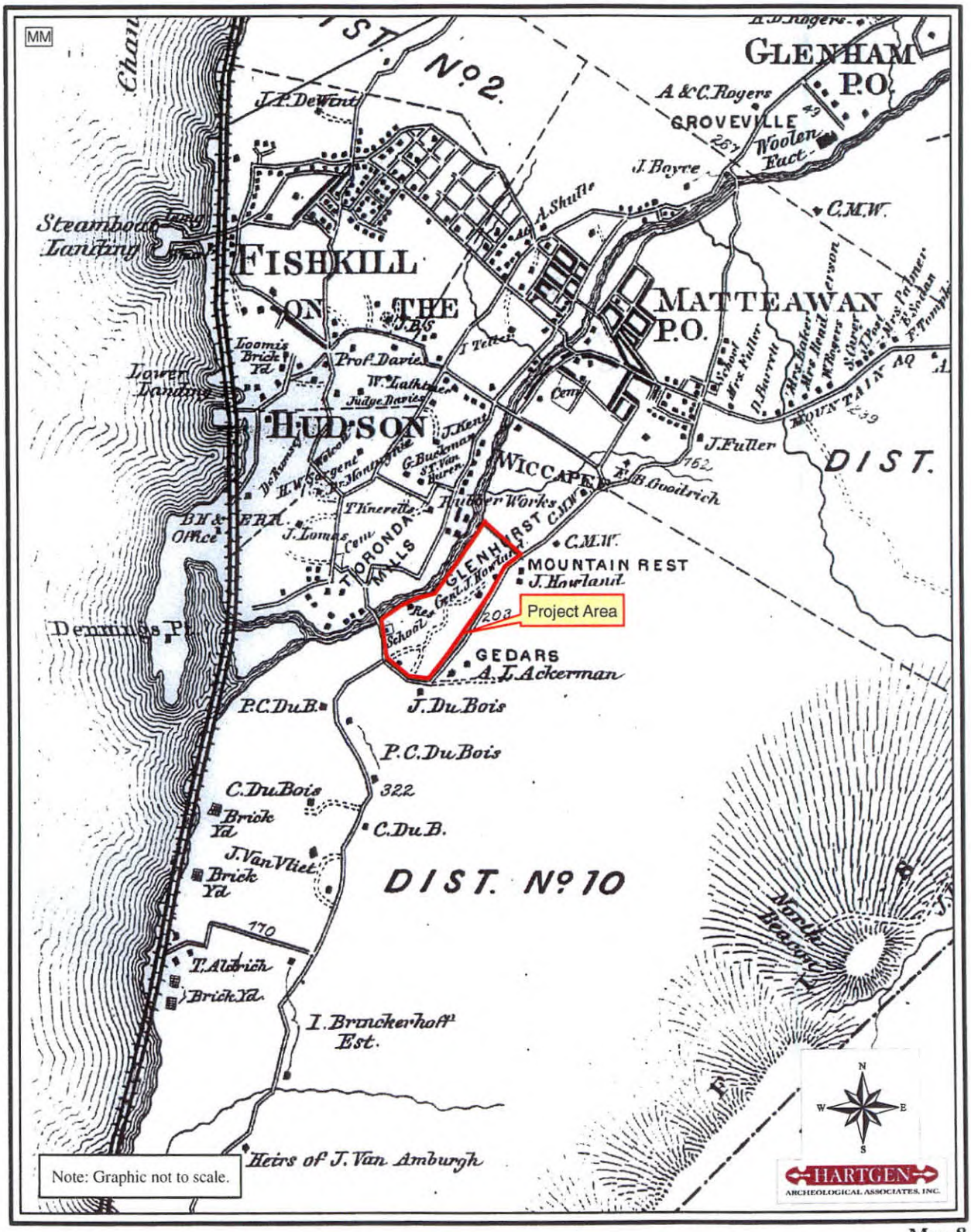
Map 6

1858 Gillette *Map of Dutchess County, New York*



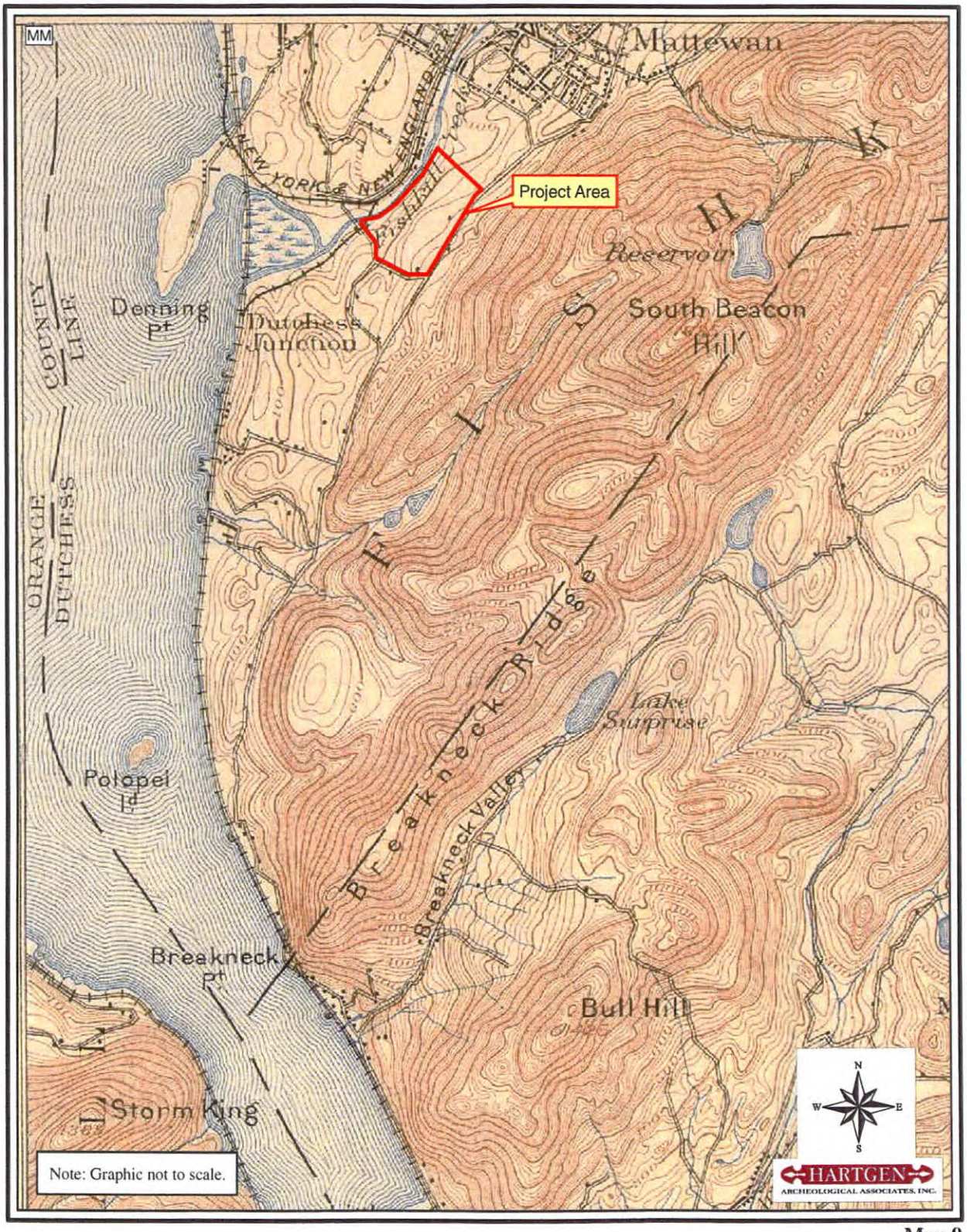
Map 7

1867 Beers *Atlas of Dutchess County, New York*



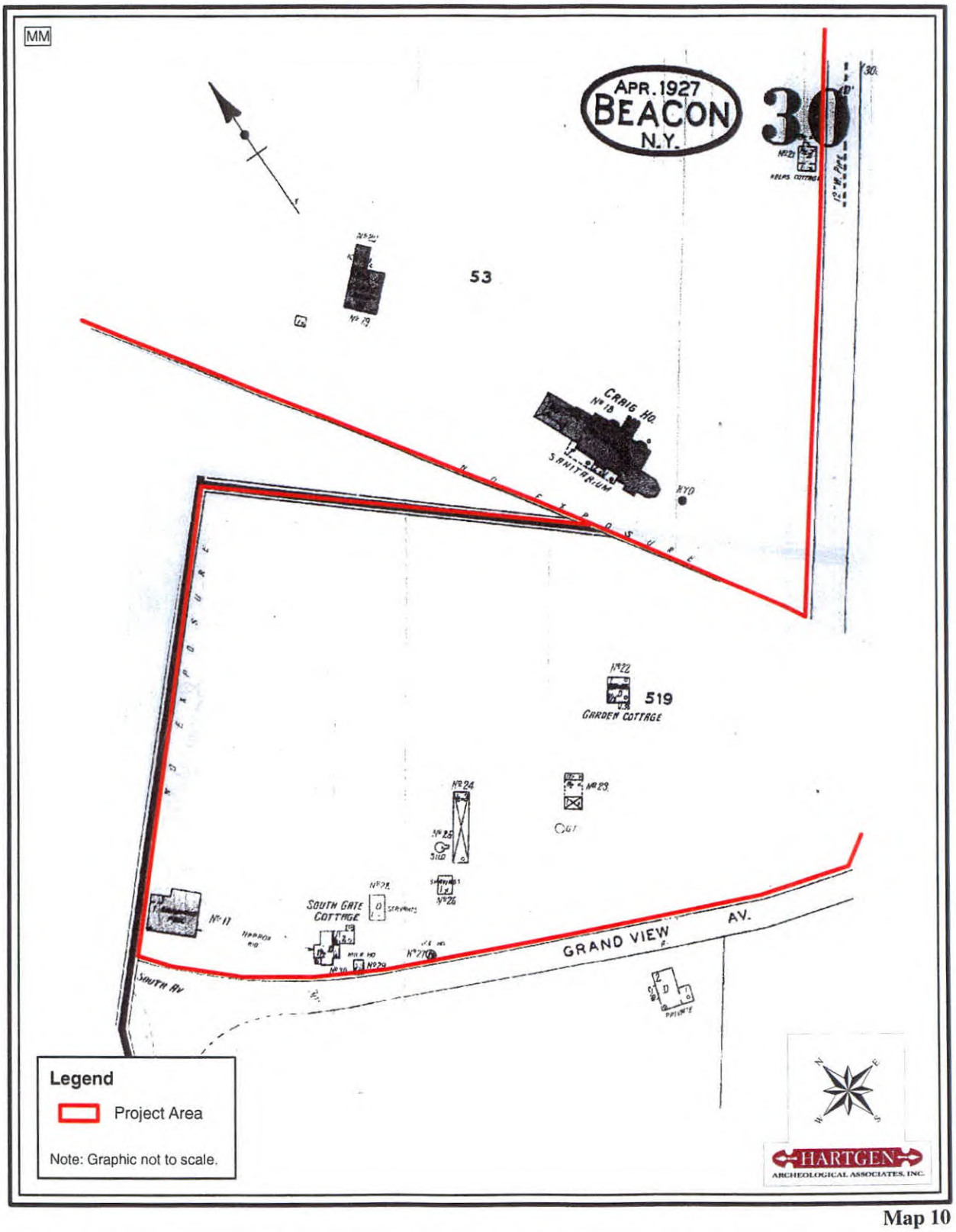
Map 8

1876 O.W. Gray & Son and F.A. Davis *New Illustrated Atlas of Dutchess County, New York*



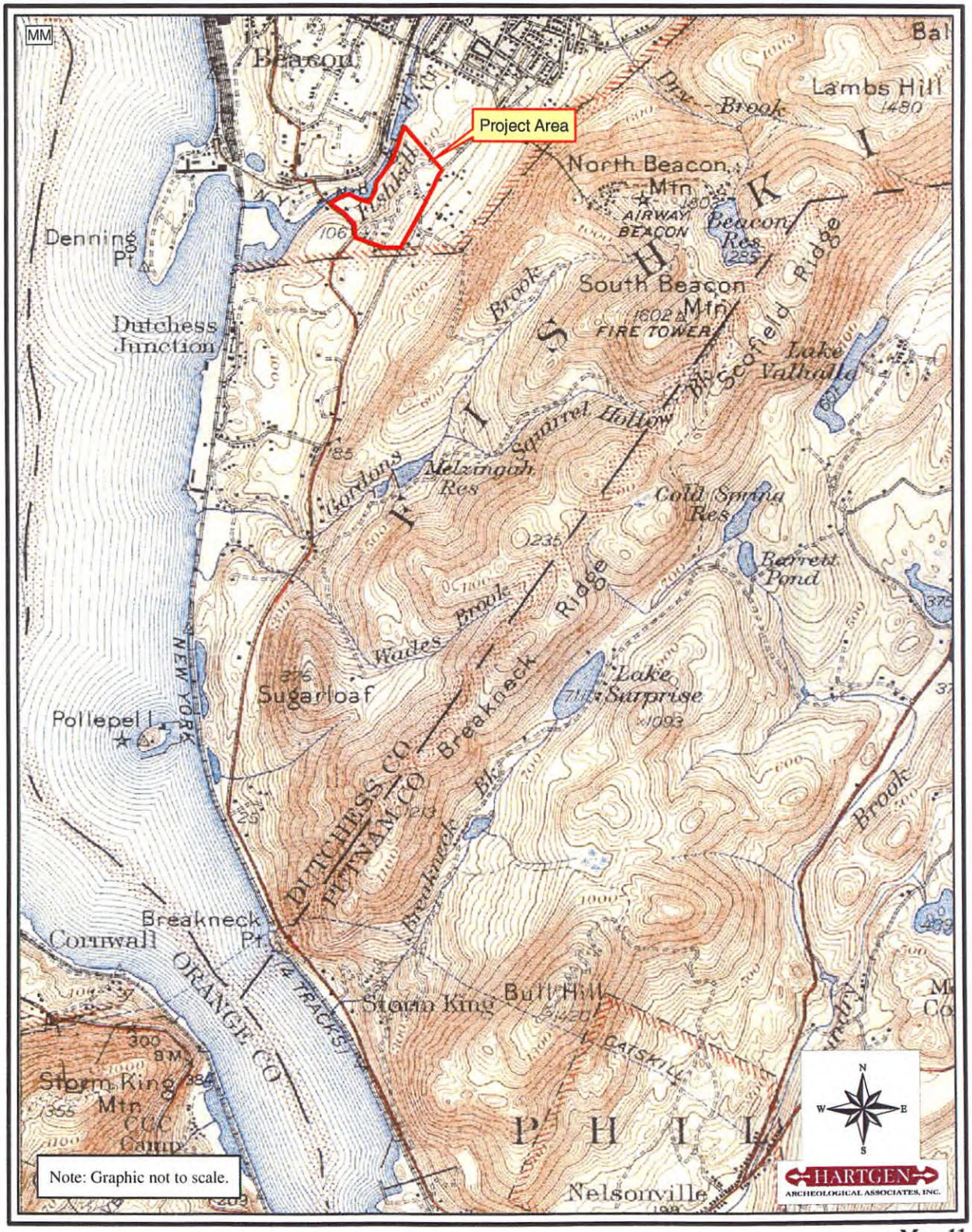
Map 9

1892 USGS *West Point 15' Topographic Quadrangle, New York*



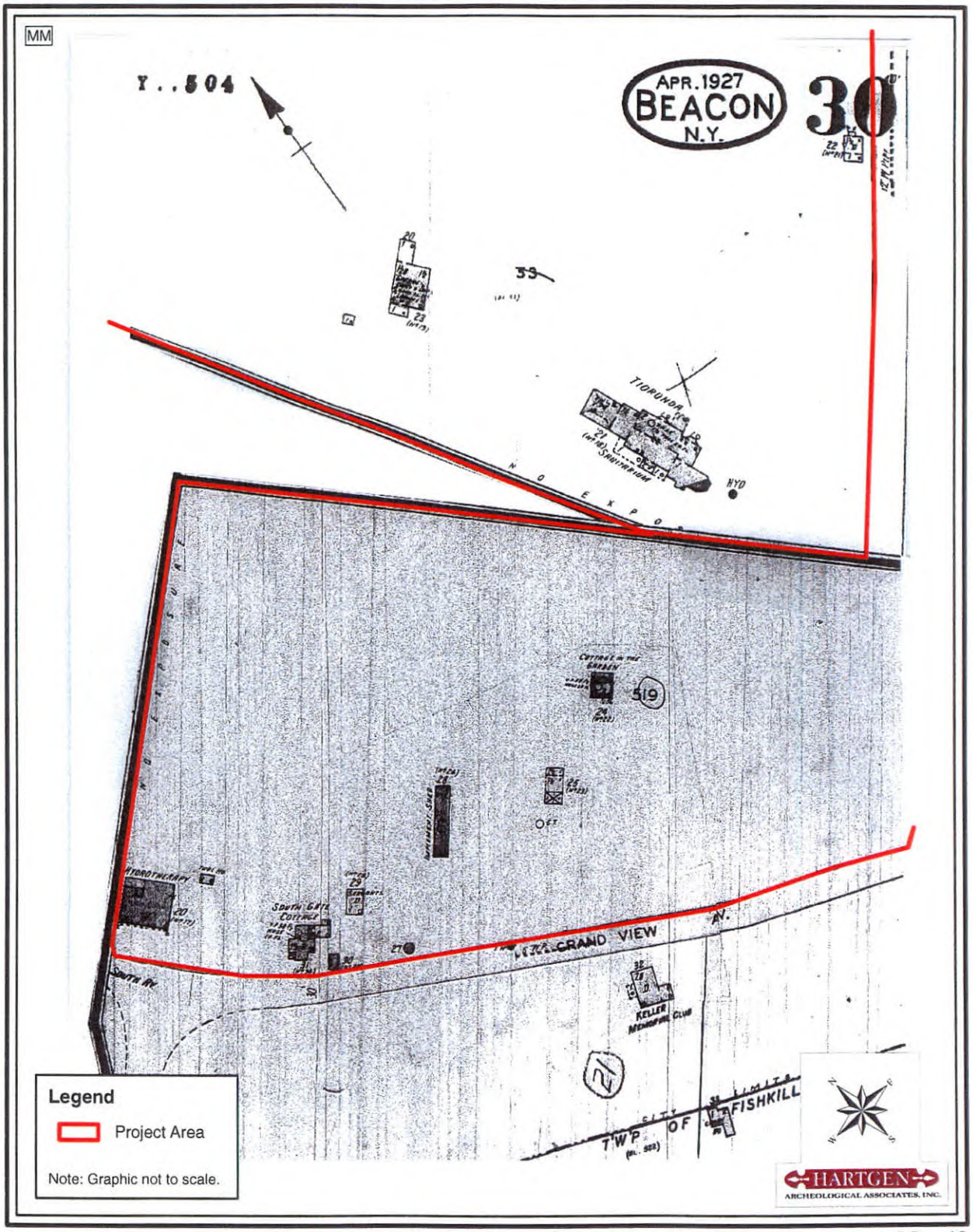
Map 10

1927 Sanborn Fire Insurance Co. *Beacon, including Fishkill Village and Glenham, Dutchess County, New York*



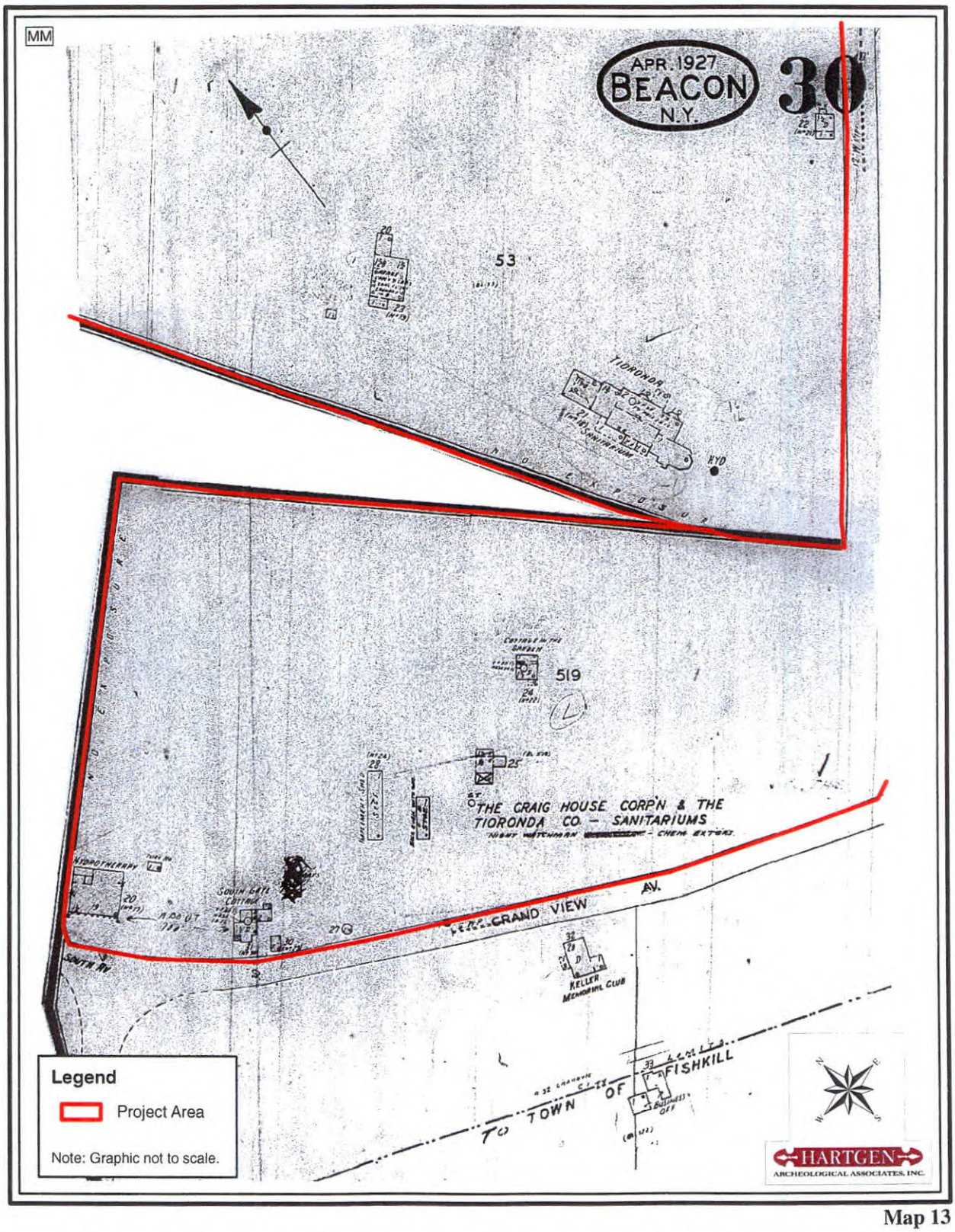
Map 11

1941 USGS *West Point 15' Topographic Quandrangle, New York*



Map 12

1946 Sanborn Fire Insurance Co. *Beacon, including Fishkill Village and Glenham, Dutchess County, New York*



Map 13

1962 Sanborn Fire Insurance Co. *Beacon, including Fishkill Village and Glenham, Dutchess County, New York*

PHOTOGRAPHS



PHOTO 1: View east of the north gate cottage situated within Lot 3 of the subdivision plan. The two story structure lies along the eastern perimeter of the property near the front entrance.



PHOTO 2: View north of the moderate to gently sloping wooded and grass covered knolls situated at the north end of the property. The area includes Lots 18, 19A, 19B, 20, and 21 of the subdivision plan.



PHOTO 3: View west of the wooded northwestern portion of the project area. The area occupies Lots 15, 16, and 17 and slopes westward towards a level to moderately sloping lower terrace situated adjacent to the Fishkill.



PHOTO 4: View north of the general surface conditions found along the lower terrace. The level to gradually sloping terrace runs parallel to the Fishkill.



PHOTO 5: View south of the bedrock outcrops that separate the lower and upper terraces. The bedrock was examined for chert or quartzite outcrops (precontact lithic sources)and none were found.



PHOTO 6: View south of the central portion of the lower terrace. The terrace gradually slopes westward towards the Fishkill floodplain.



PHOTO 7: View south of the two mill ponds situated within the western portion of the project area. The ponds lie within the Fishkill flood plain and no impacts are proposed for this section of the project area.



PHOTO 8: View west of the partially buried remains of a swimming pool located within the northeastern portion of Lot 9.



PHOTO 9: View northwest of a concrete block rectangular building located near the western border of Lots 9 and 10. The building was probably used as a storage shed.



PHOTO 10: View northwest of one of two square concrete block structures located adjacent to the rectangular shed.



PHOTO 11: View south of the Tioronda school building, a small brick outbuilding and a tennis court. The building is situated along the western portion of Lot 8.



PHOTO 12: View northwest of Lot 8 and the northern portion of Lot 9. The field is situated along the lower terrace adjacent to the Fishkill flood plain.



PHOTO 13: View southwest of the mortared cut stone railroad bridge abutment situated within Lot 8 of the development plan. The abutment lies north of the Tioronda school building.



PHOTO 14: View north of the remaining section of the railroad berm situated southwest of the bridge abutment.



PHOTO 15: View north of the northern railroad bridge abutment located on the opposite side of the Fishkill.



PHOTO 16: View southwest of the National Register listed South Avenue bridge over the Fishkill. The bridge lies outside the project area.



PHOTO 17: View south of two similar two story brick buildings located south of the bridge over the Fishkill. The two buildings lie outside the project area.



PHOTO 18: View north of the southern portion of the project area encompassing sections of Lots 4, 5, and 11. The area consists mostly of moderately sloping open area with a paved access road.



PHOTO 19: View west of the south central portion of Lot 1. The area has a gently to moderately sloping topography consisting mostly of fields separated by small ravines.



PHOTO 20: View north of the wooded western portion of Lot 10. The lot encompasses the edge of the upper terrace.



PHOTO 21: View north of the south gate cottage located within Lot 7 of the subdivision plan. The cottage lies adjacent to the access road.



PHOTO 22: View south of the brick workshop building located within Lot 6 of the development plan. The building dates from the mid to late 19th century.



PHOTO 23: View south of the concrete block workshop located within Lot 6 of the development plan. The building dates from the mid 20th century.



PHOTO 24: View north of another workshop situated within Lot 5 of the development plan. The building probably dates from the 19th century and has experienced several 20th century modifications.



PHOTO 25: View west of the garden cottage situated within Lot 4 of the development plan. The building is contemporaneous with the other structures and dates from the mid 19th century.



PHOTO 26: View west of the central portion of Lot 1 south of the main building. The area has a moderately sloping topography.



PHOTO 27: View north of the central portion of Lot 1. The area has experienced extensive prior disturbance resulting from the construction of the 20th century dormitory addition.



PHOTO 28: View south of the main Tioronda building situated within the east central portion of the project area. The area around the building has experienced prior disturbance.



PHOTO 29: View west of the carriage house situated along the western edge of the upper terrace. The area around the building has experienced prior disturbance.



PHOTO 30: View north of the central portion of the Sargent's Glenhurst Lawn area situated within the northeastern portion of the property. Shovel Tests 1-101 were excavated across the lawn area.



PHOTO 31: View northeast of the general location of Precontact Site 1. The precontact artifacts were retrieved from the central portion of the ridge within the northern portion of Lot 1 and the western portion of Lot 21. The site encompasses between one and two acres.



PHOTO 32: View south of the general location of Historic Site 2 situated within the central portion of Lot 21. Artifacts dating from the 18th century were recovered from two shovel tests. The site encompasses less than one acre.



PHOTO 33: View north of the general location of Tests 102-105 excavated along the edge of a wooded terrace overlooking a seasonal drainage. No precontact or historic cultural resources were recovered from the terrace.



PHOTO 34: View north of the eastern portion of Lot 20 situated within the northeastern corner of the project area. Shovel Tests 106-109 were excavated along the least sloping and undisturbed section of Lot 20.



PHOTO 35: View north of a large barrow pit situated within the central portion of Lot 20. Apparently, sections of Lot 20 were mined for gravel and the mined areas were excluded from the field investigation.



PHOTO 36: View south of the western portion of Lot 18 providing an example of the sloping terrain. No subsurface testing was conducted along the steep sloping sections of the project area APE.



PHOTO 37: View north of Lot 19B located within the north central portion of the project area. The lot slopes sharply southward into a seasonal drainage and no testing was conducted.



PHOTO 38: View southwest of the parking lot surrounding the carriage house. The areas surrounding the carriage house have experienced prior disturbance and were eliminated from the field investigation.



PHOTO 39: View south of the western portion of Lot 2. The property slopes sharply toward the lower terrace and no testing was conducted along the slope.



PHOTO 40: View northeast of the mortared stone arch bridge located at the north end of the project area between Lots 19B and 20. Avoidance of the bridge is recommended.



PHOTO 41: View south of the general location of Tests 110-204 excavated along the lower terrace. The lower terrace lies runs parallel to the Fishkill and two mill ponds.



PHOTO 42: View north of the general location of Precontact Site 3 situated within the central portion of the lower terrace. The site lies within Lot 14 and encompasses between one and two acres.



PHOTO 43: View south of Precontact Site 4 located along the lower terrace adjacent to a small seasonal drainage that flows west into the Fishkill. The site encompasses less than one acre and is situated at the south end of Lot 13.



PHOTO 44: View northwest of the general location of Tests 205-207. The presence of a varied and mottled soil stratigraphy indicated evidence for prior disturbance.



PHOTO 45: View northwest of the general location of shovel Tests 245-252 excavated along a sloping ridge situated at the south end of the property within Lot 9. No precontact or historic cultural materials were recovered from the eight shovel tests.



PHOTO 46: View northwest of the general location of Tests 253-257 excavated along the level portions of a sloping ridge situated at the westernmost edge of the project area within Lot 8. No precontact or historic materials were retrieved from the five shovel tests.



PHOTO 47: View southeast of the eastern portion of Lot 8 and the northwestern portion of Lot 9. Note the wetland limits identified by the pink flagging near the tennis court. No testing was conducted due to prior disturbance and wetness.



PHOTO 48: View north of the western portion of Lot 8. The area slopes sharply toward the Fishkill No testing is recommended due to excessive slope.



PHOTO 49: View south of the eastern portion of Lot 17. The lot slopes sharply towards the lower terrace. The area was excluded from the field study due to excessive slope.



PHOTO 50: View north of Lot 16 located within the northwestern corner of the property. The lot slopes sharply towards the Fishkill and was excluded from the subsurface field investigation.



PHOTO 51: View southwest of the general location of Tests 208-234 excavated in Lots 4 and 12 situated along the western edge of the southern upper terrace and near the garden cottage.



PHOTO 52: View west of the general location of Test 210 excavated along the edge of the upper terrace. An extensive historic artifact assemblage was recovered from Test 210 indicating the presence of a midden.



PHOTO 53: View south of the general location of Tests 335-344 and 258-263 excavated along the edge of two small terraces encompassing the level and undisturbed portions of Lots 6, 7, and 10.



PHOTO 54: View north of Precontact Site 6 located along the edge of the southern upper terrace overlooking a small seasonal drainage. The site encompasses between one and two acres and is situated along the northern edge of Lot 7 and the south end of Lot 10.



PHOTO 55: View north of Historic Site 7 located north of the south gate house. The site encompasses less than one acre and the 19th century domestic items recovered from the site are probably associated with the gate house occupation.



PHOTO 56: View east of the south central portion of Lot 1. Tests 265-380 were excavated across the level and moderately sloping portions of the large field.



PHOTO 57: View east of the southern portion of Lot 1. Tests 265-380 were excavated across the level and moderately sloping portions of the large field.



PHOTO 58: View north of the general location of Tests 381-391 excavated along the level to moderately sloping sections of a narrow ridge situated along the west central portion of Lot 1.



PHOTO 59: View south of the general location of Tests 398-402 excavated within the south central portion of the project area parallel to the access road.



PHOTO 60: View north of the western portions of the southern upper terrace which slopes sharply towards the lower terrace. The area was excluded from the field survey due to excessive slope.



PHOTO 61: View south of the western edge of Lot 11 and southernmost portion of Lot 1. The area slopes sharply towards the central access road and was excluded from the field survey.



PHOTO 62: View east of the area west of the dormitory facility. The area was impacted by dormitory construction followed by extensive landscaping activities. No testing was conducted due to prior disturbance.



PHOTO 63: View southeast of the soil berm located along the seasonal drainage situated within the central portion of Lot 1. The landscaping activities associated with the construction of the soil berm and the dormitory facility have impact the area. No testing was conducted due to prior disturbance.



PHOTO 64: View southwest of the south end of Lot 5. The area has experienced soil disturbance resulting from road construction and utility line installation. The area was excluded from the field survey due to prior disturbance.



PHOTO 65: View southeast of northern portion of Lot 6 and the eastern portion of Lot 10. The area contains several barrow pits indicating the terraces were mined for gravel for use during construction of Howland Estate or the Craig House sanitarium facility. No testing was conducted in these areas due to prior disturbance.



PHOTO 66: View southeast of the eastern portion of Lot 12 indicating a barrow pit. The soils were probably removing from several small terraces and used during construction of the Howland Estate and later the Craig House sanitarium complex. No testing was conducted due to prior disturbance.

APPENDIX 1: OPRHP Building Structure Inventory Forms In The Project Area

Glen Hoagland Scenic Hudson

80 Red/Blue

93PR0331

BUILDING-STRUCTURE INVENTORY FORM

DIVISION FOR HISTORIC PRESERVATION
NEW YORK STATE PARKS AND RECREATION
ALBANY, NEW YORK (518) 474-0479

FOR OFFICE USE ONLY
UNIQUE SITE NO. 02741-0004
QUAD
SERIES
NEG. NO.

YOUR NAME: Jessica Kemm DATE: July 10, 1979

YOUR ADDRESS: 31 Green St., Kingston, N.Y. TELEPHONE: 914-331-3096

ORGANIZATION (if any): HADAC, Box 274, Hurley, N.Y. 914-331-8944

* *

IDENTIFICATION

John ~~Sclocum~~ Slocum

1. BUILDING NAME(S): Tioronda/Craig House
2. COUNTY: Dutchess TOWN/CITY: Beacon VILLAGE:
3. STREET LOCATION: Howland Avenue West Side
4. OWNERSHIP: a. public ☐ b. private ☒
5. PRESENT OWNER The Tioronda Co., Inc. ADDRESS: Howland Ave.
6. USE: Original: residence Present: sanitarium
7. ACCESSIBILITY TO PUBLIC: Exterior visible from public road: Yes ☐ No ☒
   Interior accessible: Explain No

831-1200

DESCRIPTION

8. BUILDING MATERIAL: a. clapboard ☐ b. stone ☐ c. brick ☒ d. board and batten ☐ e. cobblestone ☐ f. shingles ☐ g. stucco ☐ other:

Newburgh 565-215

9. STRUCTURAL SYSTEM: (if known)
   a. wood frame with interlocking joints ☐
   b. wood frame with light members ☐
   c. masonry load bearing walls ☒
   d. metal (explain)
   e. other

Dr. Vardopoulos 831-1200

Craig House after 9:30 Fr.

10. CONDITION: a. excellent ☐ b. good ☒ c. fair ☐ d. deteriorated ☐
11. INTEGRITY: a. original site ☒ b. moved ☐ if so, when?
    c. list major alterations and dates (if known):

Craig Hse Hospital Howland Av

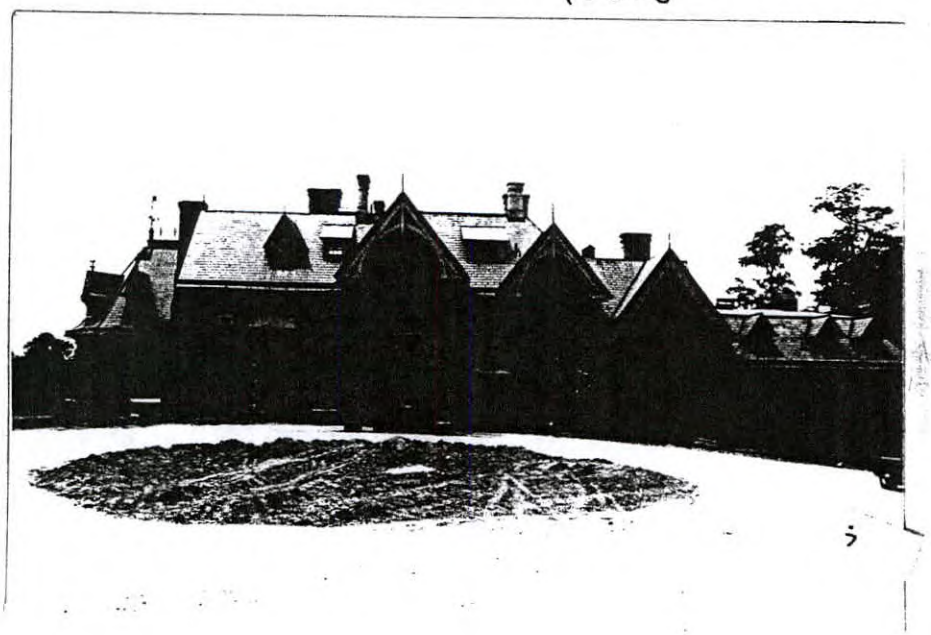
Administrator Paul Hochenberg

Grandview Ave off ice - first road past hospital

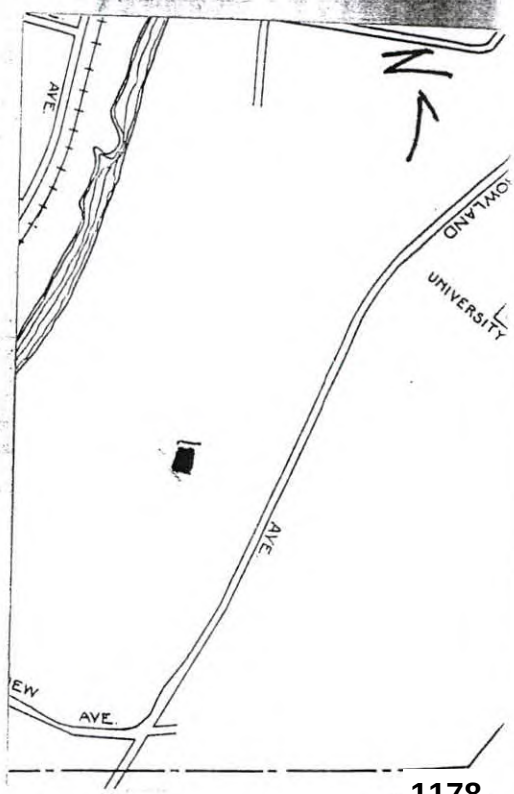
53

12. PHOTO:

12508



13. MAP:



HP-1

14. THREATS TO BUILDING: a. none known ☒ b. zoning ☐ c. roads ☐
d. developers ☐ e. deterioration ☐
f. other: _____

15. RELATED OUTBUILDINGS AND PROPERTY:
a. barn ☒ b. carriage house ☐ c. garage ☐
d. privy ☐ e. shed ☐ f. greenhouse ☐
g. shop ☐ h. gardens ☐
i. landscape features: _____
j. other: _____

16. SURROUNDINGS OF THE BUILDING (check more than one if necessary):
a. open land ☒ b. woodland ☒
c. scattered buildings ☒
d. densely built-up ☐ e. commercial ☐
f. industrial ☐ g. residential ☐
h. other: _____

17. INTERRELATIONSHIP OF BUILDING AND SURROUNDINGS:
(Indicate if building or structure is in an historic district)

Facade faces northeast, lawn opposite.
Northwest: woodland.
Southeast, southwest: lawns.

18. OTHER NOTABLE FEATURES OF BUILDING AND SITE (including interior features if known):
1 1/2 and 2 1/2 stories. Gabled slate roofs; gabled dormers, 6/6 windows, pinnacles, pendants. Numerous chimneys. Three cross gables over bays, bargeboard trim, pinnacles, pendants. 6/6, 6/9, 4/4 windows; some with arched radiating voussoirs, some with straight stone lintels, all with stone sills. Porte-cochere with arches, keystones and decorative stonework; arched, glass-panelled doors flanked by bay windows. Southeast elevation:

SIGNIFICANCE

19. DATE OF INITIAL CONSTRUCTION: ~~c. 1854 and~~ 1859 & 1868
Withers designed main block 1859
ARCHITECT: Richard M. Hunt designed eastern wing.

BUILDER: _____

20. HISTORICAL AND ARCHITECTURAL IMPORTANCE:
This large, rambling, Gothic residence was the home of Gen. Joseph Howland a Civil War officer and noted philanthropist. Originally known as Tioronda, the stately mansion retains its original elements, including the 1 1/2 story, eastern wing that was added by Richard M. Hunt in 18~~5~~68. A new wing being added is somewhat obtrusive in views from two sides, but the residence continues to be the most outstanding one of its period in the city.

21. SOURCES: American Guide Series: Dutchess County, 1937, p. 71; American Guide Series: New York; Guide to the Empire State, 1940, p. 576; Landmarks of Dutchess County, 1683-1867, 1969, p. 202.

22. THEME:
Early-mid 19th c. residential estate architecture.

17. The building faces northeast onto broad lawn just off Howland Ave. To the northwest is woodland. Additional lawns stretch off to the southeast and southwest.

18. This building is a ~~one and a half to~~ two-and-a-half story brick structure with several ~~intersecting~~ gable roofs. The facade is complex and is comprised of ~~many~~ bays of differing size, design and orientation. The main entrance is ~~through~~ a ~~rock-faced~~ porte-cochere ~~which has arches, keystones, and decorative stonework~~. The porte-cochere is surmounted by an enclosed balcony which falls under a cross gable decorated with moulded bargeboard, ~~and capped with a finial/pendil~~. To the left of the porte-cochere is a tripartite bay with hipped slate roof. To the right of the entrance is another small bay with slate roof under a multi-paned second floor window. Directly to the right of this bay is another cross gable with moulded bargeboard, finial/pendil, gable and second story windows and paired first floor windows. At this point the facade receeds and is connected to another cross gable by a short expanse of gable roof parallel to the main block. This cross gable differs from the earlier two by having pierced rather than moulded bargeboards. (Another set-back in the facade to the right of the above mentioned cross gable forms a one-and-a-half story wing with four bays.) All roof are characterized by the use of slate and the presence of gabled dormers with decorative bargeboards and central finials. Two shed dormers appear on the central block. Several chimneys both single and grouped appear across the facade. (The southeast elevation is a continuation of the facade connected by a faceted hyphen. This elevation is one-and-a-half stories in height and has a tall gable roof with crest railing, weathervane and massive chimney. There are several attenuated dormers on this elevation which are gabled and have bargeboard decoration along with leaded glass. Windows throughout the structure are six-over-six, six-over-nine, and four-over-four, some with radiating voussoirs, some with straight stone lintels, all with stone sills. A modern designed brick addition has been added to the rear and southeast elevations.

19. Builder: unknown

20. The ~~P~~property on which Tioronda/Craig House now sits was bought by General Joseph Howland in 1858 after he and his wife had returned from their wedding trip to Europe. Joseph Howland was the son of Samuel F. Howland of New York City who was a partner in the international shipping firm of Howland and Aspinwall. ~~Apparently Joseph inherited considerable wealth from his father and~~ In 1859 commissioned Frederick C. Withers to design the mansion which was first called 'Glenfields'. The ~~music room or~~ ballroom, as it was originally called, was added to the main block in 1872-1873. This section was designed by William Morris Hunt, a noted American

. cont.

Keep history in chronological order

architect and close personal friend of Howland. In 1864 Withers was again commissioned by Howland to design the Tioronda School (site 281) which is also on the Craig House property and part of this nomination. The grounds for Tioronda were designed by another close friend of Howland, the horticulturist John Winthrop Sargent.

for whom

other outbldgs from Tioronda period.

Howland was a major figure in the Mid-Hudson community and was influential in the organization and construction of the Matteawan Presbyterian Church, now demolished, the Howland Library (both designed by William Morris Hunt), and the Hudson River Hospital in Poughkeepsie (designed by Frederick C. Withers). He was treasurer of the State of New York under Governor Ruben Fenton and served a manager of the Hudson River Hospital and treasurer of the Highland Hospital. In addition he was a trustee of the First National Bank of Matteawan.

Joseph Howland died in 1886 in France while seeking a cure for continuing ailments related to wounds he received in the War of Northern Aggression. His wife died some years later and left the property to the University Settlement. The main house was unoccupied for many years until it was purchased along with 99 acres of adjoining property in 1915 by Dr. Jonathan Slocum and his wife. The site immediately commenced operation as a private mental hospital. Dr. Slocum based his philosophy of operation and in fact the name Craig House on a hospital he had visited some years earlier in Edinburgh, Scotland. This hospital, called Craig House, was a private mental institution which operated under the principle that mentally disturbed people should not be caged but rather cared for in open surroundings with no locked doors. This idea was based on the assumption that to a large measure individuals were driven mad by their environment and that, if the patient could be removed to a tranquil and recouprative setting, eventually there would be at least a partial cure. Craig House, in Beacon, New York, under Dr. Slocum's direction, was the first institution in this country to operate under this belief.

In 1915 Dr. Slocum began the hospital with two patients and soon acquired a license to house and care for six individuals. By 1921, the need for patient housing and grounds had grown to such an extent that several additional cottages were purchased along with another 500 acres of property. The present Dr. Slocum, who is the son of the founder, continues to operate under the guidelines established by his father. To better care for the patients, the overall size of the hospital operation has been reduced with fewer buildings are now used for direct patient care. The original intention of setting up the different cottages for different types of mental illnesses has proved to be less than totally effective in regard to modern medical techniques and procedures. Consequently, in the late 1970s Dr. Slocum had a modern brick addition attached to the main house to centralize

1181

20. cont.

Although the scale and design of the addition is not compatible with the historic structure, an effort was made in

~~locate the~~ patients near the treatment areas. ~~[illegible]~~ ~~and thought has gone into the sensitive~~ joining ~~of~~ the new structure to the old ~~resulting~~ which has resulted in ~~a~~ minimal ~~detrimental effect~~ physical impact to Tioran. All of the seventeen individual structures are in a good state of preservation and have a high degree of integrity of location, design, setting, materials, workmanship and feeling.

Additional significance is added to this site by the evidence of many plantings installed in an overall design by John Winthrop Sargent. Sargent, who was a friend and business associate of Andrew Jackson Downing, became associated with Howland shortly after Joseph and his wife arrived in the mid-Hudson Valley. Many of the unusual trees and shrubs planted by Sargent are now in their mature state and are nationally recognized in horticultural circles as some of the rarest and finest ~~XXXXXXX~~ specimens of their type in existence.

inc. this earlier in chronology

BUILDING LIST

Tioronda/Craig House

Bldg. #	Address	Date	Architectural and Historic data
A3	West side, Craig House Road	c.1820	Two story, five bay brick structure with slate gable roof. Six-over-six windows and a classical vestibule. extensive 20c alterations 20c alterations frame addition on south?
A4	East side, Craig House Road	c. 1835	~~A substantial three story~~ orig. 2-story, five bay structure of brick. Gable roof with pedimented pent eaves, and end chimneys. Six-over-six windows, classical doorway. also 20+ century alterations 20c alterations 3rd story added
A5	West side, Craig House Road	c.1900	Two story wooden barn complex on stone foundation; some six-over-six windows.
A6	Corner of Budd Lane and Craig House Road	c.1900	Large, one story, frame storage barn on concrete foundation. Numerous loading and entry doors.
51	South side of Grandview Ave.	c.1800	Two story, 'L' shaped frame structure with gable roof and pent eaves. Six-over-six and nine-over-nine windows. Updated in the early twentieth century. how?
52	North side of Grandview Ave.	c.1860	One story brick structure which served as a carriage house. Gable roof, numerous doors, some six-over-six windows with radiating voussoirs.
53	North side of Grandview Ave.	c.1870	Two story Swiss influenced frame and brick structure. Jerkin headed roof and cross gable. Once part of Tioronda greenhouse complex. half timbering
54	North side of Grandview Ave.	c.1860	One-and-a-half story brick building with cross gabled roof. ~~Vaguely~~ Gothic. Some six-over-six and casement windows. Once a Tioronda gatehouse.
77	West side of Howland Ave.	c.1860	One-and-a-half story frame house with projecting cross gable and dormers. Once the major gatehouse for Tioronda updated early twentieth century. how?

BUILDING-STRUCTURE INVENTORY FORM

DIVISION FOR HISTORIC PRESERVATION
NEW YORK STATE PARKS AND RECREATION
ALBANY, NEW YORK (518) 474-0479

FOR OFFICE USE ONLY
UNIQUE SITE NO. 027-41-0147
QUAD
SERIES
NEG. NO.

52
Yellow

YOUR NAME: Jessica Kemm DATE: July 10, 1979

YOUR ADDRESS: 31 Green St. Kingston, N.Y. TELEPHONE: 914-331-3096

ORGANIZATION (if any): HADAC, Box 274, Hurley, N. Y. 914-331-8944

* * * *

14. THREATS TO BUILDING: a. none known ☒ b. zoning ☐ c. roads ☐
d. developers ☐ e. deterioration ☐
f. other: _____

15. RELATED OUTBUILDINGS AND PROPERTY:
a. barn ☐ b. carriage house ☐ c. garage ☐
d. privy ☐ e. shed ☐ f. greenhouse ☐
g. shop ☐ h. gardens ☐
i. landscape features: _____
j. other: _____

16. SURROUNDINGS OF THE BUILDING (check more than one if necessary):
a. open land ☒ b. woodland ☒
c. scattered buildings ☒
d. densely built-up ☐ e. commercial ☐
f. industrial ☐ g. residential ☐
h. other: _____

17. INTERRELATIONSHIP OF BUILDING AND SURROUNDINGS:
(Indicate if building or structure is in an historic district)

Facade faces east: crafts building opposite.
South: lawn and road.
West: woodland.
North: woodland and open land.

18. OTHER NOTABLE FEATURES OF BUILDING AND SITE (including interior features if known):

1 story. Rectangular. Gabled roof with clapboard gables. Two single doorways, two large carriage doors, two large entrances encompassing windows and single doorways. Windows with arched radiating voussoirs, stone sills; one is 6/6.

SIGNIFICANCE

19. DATE OF INITIAL CONSTRUCTION: c. 1860

ARCHITECT: _____

BUILDER: _____

20. HISTORICAL AND ARCHITECTURAL IMPORTANCE:
This carriage house was part of the mid-19th century Tioronda estate, which was built in the 1830's and remodelled in 1859. It retains its original decorative features; its modern alterations could be reversed. It is one of the better carriage houses in the city and it gains importance as an original support structure for the extant Tioronda/Craig House estate.

21. SOURCES: Ms. Lang, secretary to Dr. Slocum, telephone conversation, August 24, 1979.

22. THEME:

Mid-19th c. support structure.

BUILDING-STRUCTURE INVENTORY FORM

DIVISION FOR HISTORIC PRESERVATION
NEW YORK STATE PARKS AND RECREATION
ALBANY, NEW YORK (518) 474-0479

FOR OFFICE USE ONLY
UNIQUE SITE NO. 027-41-0148
QUAD
SERIES
NEG. NO.

53
Red

YOUR NAME: Jessica Kemm DATE: July 10, 1979

YOUR ADDRESS: 31 Green St., Kingston, N. Y. TELEPHONE: 914-331-3096

ORGANIZATION (if any): HADAC, Box 274, Hurley, N. Y. 914-331-8944

* *

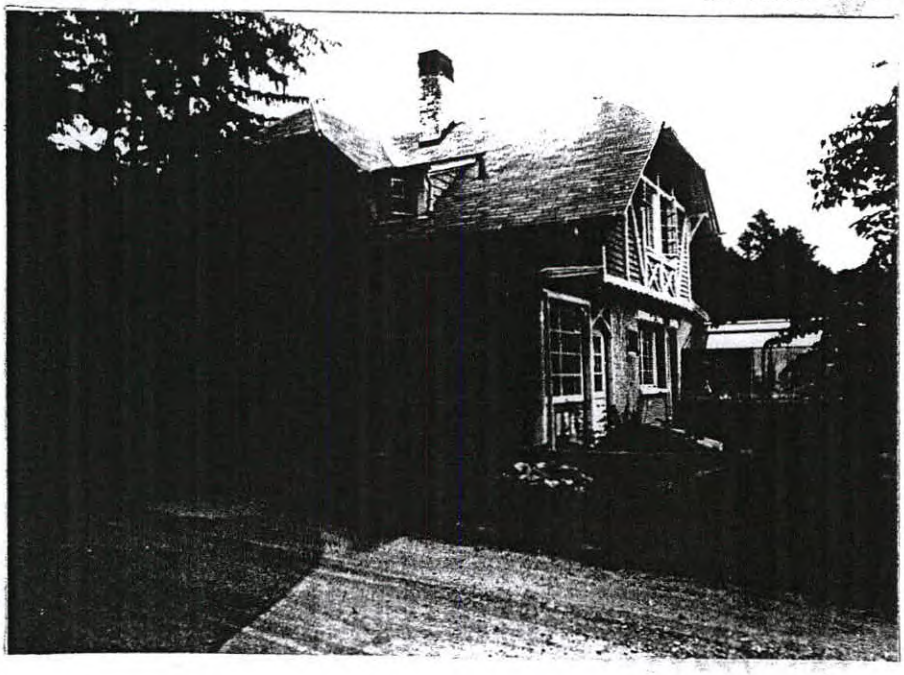
IDENTIFICATION

1. BUILDING NAME(S): Tioranda/Craig House--greenhouse (Garden Cottage)
2. COUNTY: Dutchess TOWN (CITY) Beacon VILLAGE:
3. STREET LOCATION: GRANDVIEW AVE; N. SIDE, EAST OF SOUTH AVE.
4. OWNERSHIP: a. public ☐ b. private ☒
5. PRESENT OWNER The Tioranda, Co, Inc. ADDRESS: Howland Avenue
6. USE: Original: residence Present: institutional/greenhouse
7. ACCESSIBILITY TO PUBLIC: Exterior visible from public road: Yes ☐ No ☒
   Interior accessible: Explain No

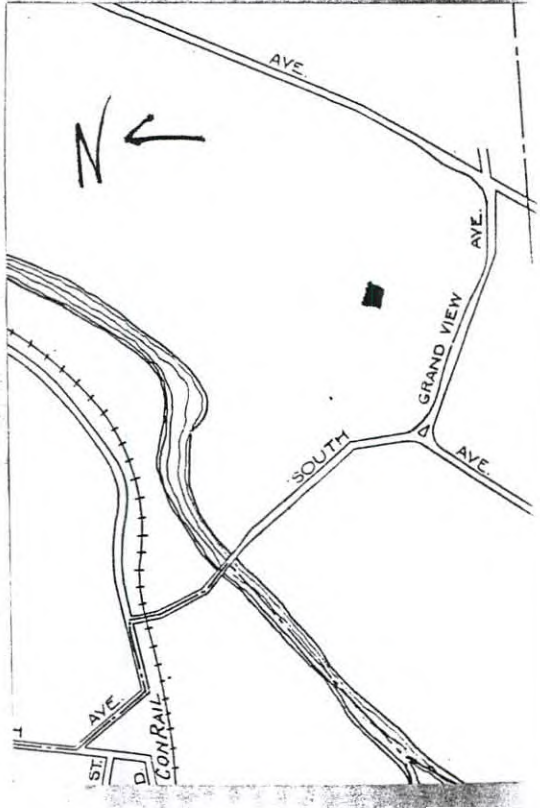
DESCRIPTION

8. BUILDING MATERIAL: a. clapboard ☒ b. stone ☐ c. brick ☒ d. board and batten ☐
   e. cobblestone ☐ f. shingles ☐ g. stucco ☐ other:
9. STRUCTURAL SYSTEM: (if known)
   a. wood frame with interlocking joints ☐
   b. wood frame with light members ☒
   c. masonry load bearing walls ☒
   d. metal (explain)
   e. other
10. CONDITION: a. excellent ☐ b. good ☒ c. fair ☐ d. deteriorated ☐
11. INTEGRITY: a. original site ☒ b. moved ☐ if so, when?
    c. list major alterations and dates (if known):

12. PHOTO:



13. MAP:



HP-1

14. THREATS TO BUILDING: a. none known ☒ b. zoning ☐ c. roads ☐
d. developers ☐ e. deterioration ☐
f. other: _____

15. RELATED OUTBUILDINGS AND PROPERTY:
a. barn ☐ b. carriage house ☒ c. garage ☐
d. privy ☐ e. shed ☐ f. greenhouse ☐
g. shop ☐ h. gardens ☐
i. landscape features: _____
j. other: _____

16. SURROUNDINGS OF THE BUILDING (check more than one if necessary):
a. open land ☒ b. woodland ☒
c. scattered buildings ☒
d. densely built-up ☐ e. commercial ☐
f. industrial ☐ g. residential ☐
h. other: _____

17. INTERRELATIONSHIP OF BUILDING AND SURROUNDINGS:
(Indicate if building or structure is in an historic district)
Facade faces south, carriage house (now craft shop) opposite.
East, north: open land.
West: woodland

18. OTHER NOTABLE FEATURES OF BUILDING AND SITE (including interior features if known):
1 1/2 stories. Jerkin-headed roof. Second story is clapboard with half-timbering and projects over brick, first story. Central chimney. Facade: Jerkin-headed cross gable; shed-type dormer; enclosed porch. East and west elevations: gable ends; casement windows. West elevation: second story entrance with modern, metal stairs.

SIGNIFICANCE

19. DATE OF INITIAL CONSTRUCTION: c.1870

ARCHITECT: _____

BUILDER: _____

20. HISTORICAL AND ARCHITECTURAL IMPORTANCE:
On the 1876 Gray and Davis map, this structure appears on the site of the Tioronda greenhouse. The small, quaint, Swiss-influenced building retains its original decorative features; except for the installation of fire escape stairs on the west elevation, there have been no obtrusive alterations. The enclosed porch was probably added not long after the initial construction; it is a complementary addition. This is the only building of its style in the city; it gains importance as part of the Tioronda estate.

21. SOURCES: Gray and Davis, Illustrated Atlas of Dutchess County, 1876; Beers, Atlas of New York and Vicinity, 1867; telephone conversation with Ms. Lang, Secretary to Dr. Slocum, July 24, 1979.

22. THEME:
Late-19th c. support structure,

BUILDING-STRUCTURE INVENTORY FORM

DIVISION FOR HISTORIC PRESERVATION
NEW YORK STATE PARKS AND RECREATION
ALBANY, NEW YORK (518) 474-0479

FOR OFFICE USE ONLY
UNIQUE SITE NO. 02741-0149
QUAD
SERIES
NEG. NO.

54
Red

YOUR NAME: Jessica Kemm DATE: July 10, 1979

YOUR ADDRESS: 31 Green St., Kingston, N.Y. TELEPHONE: 914-331-3096

ORGANIZATION (if any): HADAC, Box 274, Hurley, N. Y. 914-331-8944

* * * \

14. THREATS TO BUILDING: a. none known ☒ b. zoning ☐ c. roads ☐
d. developers ☐ e. deterioration ☐
f. other: _____

15. RELATED OUTBUILDINGS AND PROPERTY:
a. barn ☐ b. carriage house ☐ c. garage ☐
d. privy ☐ e. shed ☒ f. greenhouse ☐
g. shop ☐ h. gardens ☐
i. landscape features: _____
j. other: _____

16. SURROUNDINGS OF THE BUILDING (check more than one if necessary):
a. open land ☒ b. woodland ☒
c. scattered buildings ☐
d. densely built-up ☐ e. commercial ☐
f. industrial ☐ g. residential ☐
h. other: _____

17. INTERRELATIONSHIP OF BUILDING AND SURROUNDINGS:
(Indicate if building or structure is in an historic district)
Facade faces west, woodland opposite.
East and north: woodland.
South: open land.

18. OTHER NOTABLE FEATURES OF BUILDING AND SITE (including interior features if known):
1 1/2 stories. Gabled roof; cross gable on facade; pinnacles. 6/6 windows. Facade: shed-type dormer; entrance. South elevation: casement window on first story. Rear, brick, lean-to section has same cornice as found on rest of house.

SIGNIFICANCE

19. DATE OF INITIAL CONSTRUCTION: c. 1860

ARCHITECT: _____

BUILDER: _____

20. HISTORICAL AND ARCHITECTURAL IMPORTANCE:
This small Gothic Revival residence was built as a gatehouse to the Tioronda estate. Though it does not appear on the 19th c. maps that show the area, not all the dependancies of any of the estates are shown. Stylistically, the restrained residence dates from the period that Gen. Howland was building his estate. It has received no major alterations and the few minor changes are reversible. It is not the most notable gatehouse in the city, but it gains importance as part of the Tioronda estate.

Dr Slocum lived here before he acquired Howland's house
the very first bldg associated w/ Slocum's operation

21. SOURCES:
Beers, Atlas of New York and Vicinity, 1867; Gray and Davis, Illustrated Atlas of Dutchess County, 1876; Sanborn, Map of Fishkill, New York 1889
Telephone conversation with Ms. Lang, secretary to Dr. Slocum, August 24,1979.

22. THEME:
Mid 19th c. estate **support structure.**

BUILDING-STRUCTURE INVENTORY FORM

DIVISION FOR HISTORIC PRESERVATION
NEW YORK STATE PARKS AND RECREATION
ALBANY, NEW YORK (518) 474-0479

FOR OFFICE USE ONLY
UNIQUE SITE NO. 027·41·0152
QUAD
SERIES
NEG. NO.

77
Yellow
93PR0331

YOUR NAME: Jessica Kemm DATE: July 10, 1979

YOUR ADDRESS: 31 Green St., Kingston, N.Y. TELEPHONE: 914-331-3096

ORGANIZATION (if any): HADAC, Box 274, Hurley, N. Y. 914-331-8944

* *

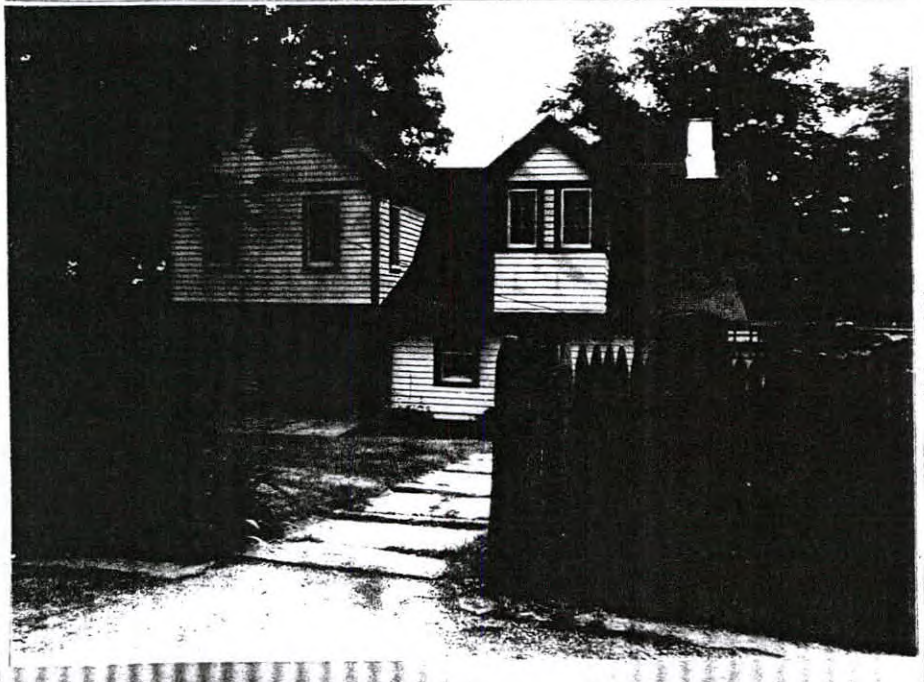
IDENTIFICATION

1. BUILDING NAME(S): Toronda Gate House (II) Northgate Cottage
2. COUNTY: Dutchess TOWN/CITY: Beacon VILLAGE:
3. STREET LOCATION: Howland Ave.; WEST SIDE; NORTH OF GRANDVIEW AVE.
4. OWNERSHIP: a. public ☐ b. private ☒
5. PRESENT OWNER: The Toronda Co Inc ADDRESS: Howland Ave.
6. USE: Original: residence Present: residence/sanitarium
7. ACCESSIBILITY TO PUBLIC: Exterior visible from public road: Yes ☒ No ☐
   Interior accessible: Explain No

DESCRIPTION

8. BUILDING MATERIAL: a. clapboard ☒ b. stone ☐ c. brick ☐ d. board and batten ☐
   e. cobblestone ☐ f. shingles ☐ g. stucco ☐ other:
9. STRUCTURAL SYSTEM: (if known)
   a. wood frame with interlocking joints ☐
   b. wood frame with light members ☒
   c. masonry load bearing walls ☐
   d. metal (explain)
   e. other
10. CONDITION: a. excellent ☐ b. good ☒ c. fair ☐ d. deteriorated ☐
11. INTEGRITY: a. original site ☒ b. moved ☐ if so, when?
    c. list major alterations and dates (if known):

12. PHOTO:



13. MAP:



14. THREATS TO BUILDING: a. none known ☒ b. zoning ☐ c. roads ☐
d. developers ☐ e. deterioration ☐
f. other: _____

15. RELATED OUTBUILDINGS AND PROPERTY:
a. barn ☐ b. carriage house ☐ c. garage ☐
d. privy ☐ e. shed ☐ f. greenhouse ☐
g. shop ☐ h. gardens ☐
i. landscape features: _____
j. other: _____

16. SURROUNDINGS OF THE BUILDING (check more than one if necessary):
a. open land ☒ b. woodland ☒
c. scattered buildings ☒
d. densely built-up ☐ e. commercial ☐
f. industrial ☐ g. residential ☐
h. other: _____

17. INTERRELATIONSHIP OF BUILDING AND SURROUNDINGS:
(Indicate if building or structure is in an historic district)

Facade faces southwest, open land and Craig House opposite.
Southeast: woodland.
Northwest, northeast: open land and woodland.

18. OTHER NOTABLE FEATURES OF BUILDING AND SITE (including interior features if known):
1 1/2 stories. Gabled roof. Casement windows. Facade: gabled dormer; entrance; porch formed by overhang of cross gable and projecting second story. Southeast elevation: gable end, 4/4 gable windows; 6/6 windows on first story. Northeast elevation: cross gable; bracketed canopy over entrance.

SIGNIFICANCE

19. DATE OF INITIAL CONSTRUCTION: c. 1860, c. 1920

ARCHITECT: _____

BUILDER: _____

20. HISTORICAL AND ARCHITECTURAL IMPORTANCE:

On the 1867 Beers map, a building appears on this site; it was a gatehouse for the Tioronda estate. This is reportedly that same structure. If it is the same building, it has received early-20th century alterations that disguise its 19th century origins. Its importance lies in its position as one of a number of institutional buildings on Craig House grounds that show elements of various revival styles.

Slocum converted into doctors' quarters

21. SOURCES: Beers, Atlas of New York and Vicinity, 1867; telephone conversation with Ms. Lang, secretary to Dr. Slocum, August 24, 1979.

22. THEME: Early-20th c. institutional (hospital) architecture.

BUILDING-STRUCTURE INVENTORY FORM

DIVISION FOR HISTORIC PRESERVATION
NEW YORK STATE PARKS AND RECREATION
ALBANY, NEW YORK (518) 474-0479

FOR OFFICE USE ONLY
UNIQUE SITE NO. 027-41-0177
QUAD
SERIES
NEG. NO.

281
Red

YOUR NAME: Jessica Kemm DATE: July 10, 1979

YOUR ADDRESS: 31 Green St., Kingston, N. Y. TELEPHONE: 914-331-3096

ORGANIZATION (if any): HADAC, Box 274, Hurley, N. Y. 914-331-8944

* *

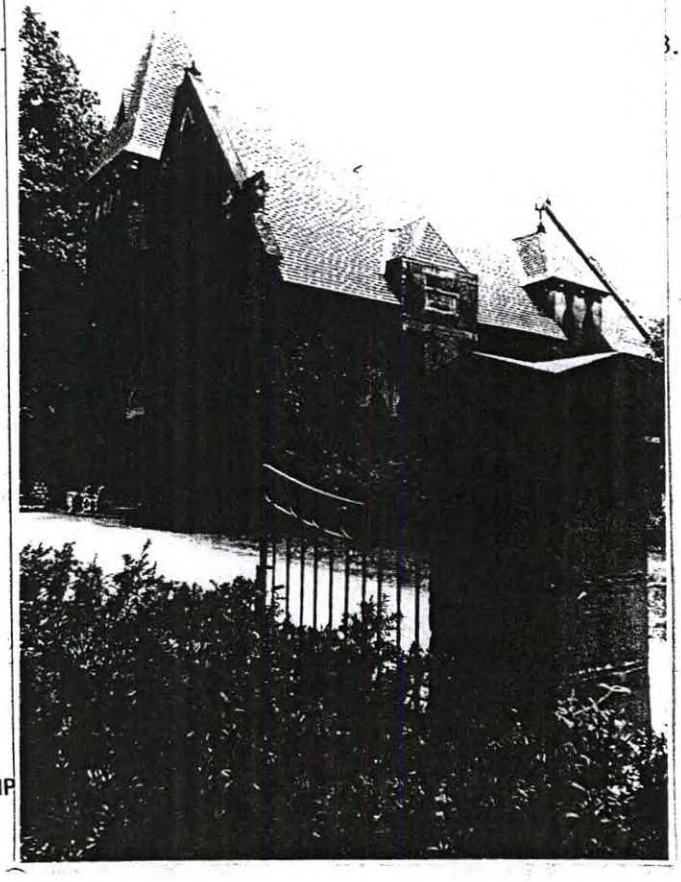
IDENTIFICATION

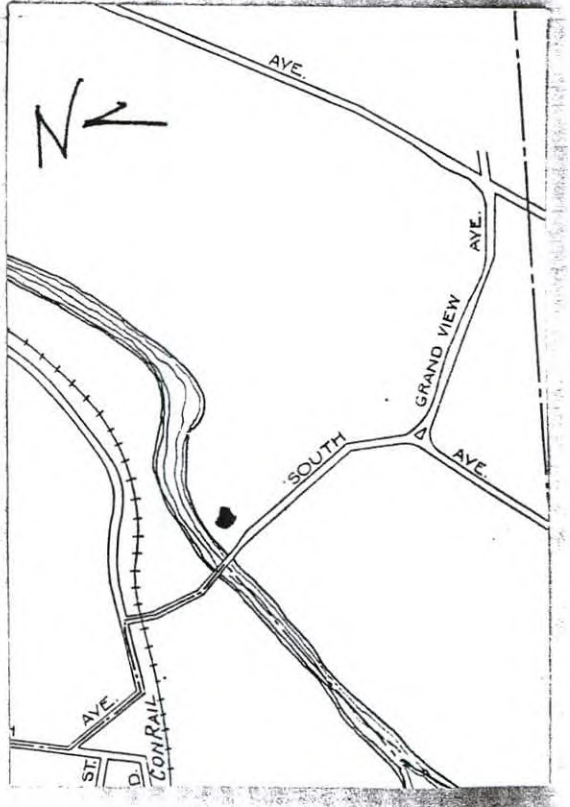
1. BUILDING NAME(S): Tioronda School
2. COUNTY: Dutchess TOWN/CITY: Beacon VILLAGE
3. STREET LOCATION: South Avenue; N. SIDE; AT FISHKILL CR; E. SIDE
4. OWNERSHIP: a. public ☐ b. private ☒
5. PRESENT OWNER: The Tioronda Co., Inc. ADDRESS: Howland Ave.
6. USE: Original: school Present: sanitarium-gym
7. ACCESSIBILITY TO PUBLIC: Exterior visible from public road: Yes ☒ No ☐
   Interior accessible: Explain no

DESCRIPTION

8. BUILDING MATERIAL: a. clapboard ☐ b. stone ☐ c. brick ☒ d. board and batten ☐
   e. cobblestone ☐ f. shingles ☐ g. stucco ☐ other:
9. STRUCTURAL SYSTEM: (if known)
   a. wood frame with interlocking joints ☐
   b. wood frame with light members ☐
   c. masonry load bearing walls ☒
   d. metal (explain)
   e. other
10. CONDITION: a. excellent ☐ b. good ☒ c. fair ☐ d. deteriorated ☐
11. INTEGRITY: a. original site ☒ b. moved ☐ if so, when?
    c. list major alterations and dates (if known):

12. [illegible]. MAP:





HP

14. THREATS TO BUILDING: a. none known ☒ b. zoning ☐ c. roads ☐
d. developers ☐ e. deterioration ☐
f. other: _____

15. RELATED OUTBUILDINGS AND PROPERTY:
a. barn ☐ b. carriage house ☐ c. garage ☐
d. privy ☐ e. shed ☐ f. greenhouse ☐
g. shop ☐ h. gardens ☐
i. landscape features: tennis court
j. other: brick well house

16. SURROUNDINGS OF THE BUILDING (check more than one if necessary):
a. open land ☒ b. woodland ☒
c. scattered buildings ☐
d. densely built-up ☐ e. commercial ☐
f. industrial ☐ g. residential ☐
h. other: _____

17. INTERRELATIONSHIP OF BUILDING AND SURROUNDINGS:
(Indicate if building or structure is in an historic district)
Facade faces northwest: woodland opposite.
Southwest, northeast: woodland.
Southeast: open land and woodland.

18. OTHER NOTABLE FEATURES OF BUILDING AND SITE (including interior features if known):
2 1/2 stories. Gabled roof. Belt courses. Arched windows have keystones with stone panels with incised flower designs between them. Facade: tower with pyramidal roof, bracketed cornice; gable end with windows on three stories; stained glass; large entrance with pointed arched overdoor. Southeast elevation: gable end, windows on three sides, some with stained glass.

SIGNIFICANCE

19. DATE OF INITIAL CONSTRUCTION: 1864

ARCHITECT: Frederick C. Withers

BUILDER: _____

20. HISTORICAL AND ARCHITECTURAL IMPORTANCE:
This Victorian Gothic building was built by Gen. Joseph Howland in 1864. The stately building retains it original decorative features and has received no modern alterations. Originally used as a school and for religious services, it is now a gym for the Craig House Sanitorium. It is one of the most exceptional buildings of it speriod in the city.

21. SOURCES:
Souvenir Program, Beacon Golden Jubilee, June 1-8, 1963; Spencer Barnett and Joan VanVoorhis, interview, July 24, 1979. F.R.Kowsky, "Architecture of Frederick C. Withers," Journal of the Society of Architectural Historians (May, 1976), p.90.

22. THEME:
Mid-19th c. educational architecture.

APPENDIX 2: Correspondence From J. Winthrop Aldrich to Major Clara Lou Gould

New York State Office of Parks, Recreation and Historic Preservation
The Governor Nelson A. Rockefeller Empire State Plaza
Agency Building 1, Albany, New York 12238

518-474-0456
Human Resources
518-474-0453
Fiscal Management
518-474-0061
TDD: 518-406-1899

September 23, 2002

The Honorable Clara Lou Gould
Mayor, City of Beacon
Municipal Center
One Municipal Plaza, Suite 1
Beacon, New York 12508

Dear Mayor Gould:

It was a pleasure to see you at Craig House a few weeks ago. This letter responds to your inquiry as to the status of the property with regard to the State and National Registers of Historic Places.

Craig House, or "Tioranda," was one of only two properties in the city of Beacon chosen to be recorded in the first statewide inventory of historic resources in 1968. In the early 1980's, the full acreage of the property was determined to be eligible for listing on the State and National Registers of Historic Places. It was identified to be significant in the area of architecture and landscape.

Being eligible for listing on the Registers provides a certain level of protection for the property should there be state or federal grants or permits involved in its redevelopment. If the current or future owner can be encouraged to proceed with listing Craig House on the Registers, it would be a candidate for grants if the owner is a not-for-profit entity or municipality. If privately owned, the property would qualify for the federal historic preservation tax incentive program to help with the cost of a rehabilitation that is sensitive to the historic qualities of the buildings and property.

We continue to share you enthusiasm and concern for Craig House and its landscaped and open space grounds and hope we can help with its preservation and redevelopment.

Very truly yours,

J. Winthrop Aldrich
Deputy Commissioner for Historic Preservation

cc: Antonia Adezio, Exec. Dir., The Garden Conservancy
Ned Sullivan, President, Scenic Hudson, Inc.
Joseph Martens, President, The Open Space Institute

An Equal Opportunity/Affirmative Action Agency
printed on recycled paper

APPENDIX 3: Shovel Test Records

Phase IA/IB Archeological Investigation, Tioronda Subdivision
Shovel Test Records

Level	Depth (cm)	Soil Type	Soil Inclusions	Munsell Color		Termination Reason
1						
1	0 - 25	silt		10YR 4/3	brown	
2	25 - 47	clayey silt		10YR 5/4	yellowish brown	subsoil
2						
1	0 - 38	sandy loam		10YR 4/3	brown	
2	38 - 48	sandy loam		10YR 4/6	dark yellowish brown	subsoil
3						
1	0 - 33	silt		10YR 4/3	brown	
2	33 - 46	clayey silt		10YR 5/6	yellowish brown	subsoil
4						
1	0 - 32	sandy loam		10YR 4/3	brown	
2	32 - 43	sandy clay	gravel	10YR 4/6	dark yellowish brown	subsoil
5						
1	0 - 40	silt		10YR 3/3	dark brown	
2	40 - 54	sandy silt		10YR 4/6	dark yellowish brown	subsoil
6						
1	0 - 15	sandy clay	gravel	10YR 3/2	very dark grayish brown	
				10YR 4/6	dark yellowish brown	
2	15 - 31	sandy loam	gravel	10YR 4/3	brown	
3	31 - 41	sandy clay		10YR 4/6	dark yellowish brown	subsoil
7						
1	0 - 27	silt		10YR 4/3	brown	
2	27 - 42	clayey silt		10YR 5/6	yellowish brown	subsoil
8						
1	0 - 10	loamy silt		10YR 3/2	very dark grayish brown	
2	10 - 30	silt		10YR 3/4	dark yellowish brown	
3	30 - 42	sandy silt		10YR 5/6	yellowish brown	subsoil
9						
1	0 - 31	sandy loam		10YR 4/3	brown	roots
10						
1	0 - 26	silt		10YR 3/4	dark yellowish brown	
2	26 - 40	sandy silt		10YR 5/6	yellowish brown	subsoil
11						
1	0 - 33	silt		10YR 4/3	brown	
2	33 - 47	clayey silt		10YR 5/6	yellowish brown	subsoil
12						
1	0 - 30	silt		10YR 3/4	dark yellowish brown	
2	30 - 44	sandy silt		10YR 5/6	yellowish brown	subsoil
13						
1	0 - 34	sandy loam		10YR 4/3	brown	
2	34 - 44	sandy clay		10YR 4/6	dark yellowish brown	subsoil

Level	Depth (cm)	Soil Type	Soil Inclusions	Munsell Color		Termination Reason
14						
1	0 - 38	loam		10YR 4/3	brown	
2	38 - 48	sandy silt		10YR 4/6	dark yellowish brown	subsoil
15						
1	0 - 27	silt	cobbles	10YR 3/4	dark yellowish brown	
2	27 - 38	sandy silt		10YR 5/6	yellowish brown	subsoil
16						
1	0 - 27	sandy loam	gravel	10YR 4/3	brown	
2	27 - 40	sand		10YR 4/6	dark yellowish brown	subsoil
17						
1	0 - 28	sandy silt		10YR 3/3	dark brown	
				10YR 4/3	brown	
2	37 - 50	silt	gravel	10YR 5/6	yellowish brown	subsoil
				10YR 4/6	dark yellowish brown	subsoil
19						
1	0 - 27	silt		10YR 3/4	dark yellowish brown	
2	27 - 40	sandy silt		10YR 4/6	dark yellowish brown	subsoil
20						
1	0 - 38	sandy loam		10YR 4/3	brown	
2	38 - 48	sandy loam	gravel	10YR 4/6	dark yellowish brown	subsoil
21						
1	0 - 10	silt		10YR 3/2	very dark grayish brown	
2	10 - 30	silt		10YR 4/4	dark yellowish brown	
3	30 - 47	silt		10YR 5/4	yellowish brown	subsoil
22						
1	0 - 28	loam		10YR 4/3	brown	
2	28 - 44	silt	gravel	10YR 5/6	yellowish brown	subsoil
23						
1	0 - 42	silt		10YR 3/4	dark yellowish brown	
2	42 - 54	sandy silt		10YR 4/6	dark yellowish brown	subsoil
24						
1	0 - 41	sandy loam		10YR 4/3	brown	
2	41 - 51	sandy clay		10YR 4/6	dark yellowish brown	subsoil
25						
1	0 - 14	loam		10YR 3/2	very dark grayish brown	
2	14 - 36	clayey silt	gravel	10YR 5/6	yellowish brown	subsoil
26						
1	0 - 8	silty loamy humus		10YR 2/2	very dark brown	
2	8 - 30	silt		10YR 3/4	dark yellowish brown	
3	30 - 41	sandy silt		10YR 5/6	yellowish brown	subsoil
27						
1	0 - 30	silt		10YR 3/4	dark yellowish brown	
2	30 - 42	sandy silt		10YR 3/6	dark yellowish brown	subsoil

Level	Depth (cm)	Soil Type	Soil Inclusions	Munsell Color		Termination Reason
28						
1	0 - 33	silt		10YR 4/2	dark grayish brown	
2	33 - 44	clayey silt		10YR 5/6	yellowish brown	subsoil
29						
1	0 - 29	sandy loam		10YR 4/3	brown	
2	29 - 39	sandy clay		10YR 4/6	dark yellowish brown	subsoil
30						
1	0 - 33	silt		10YR 3/4	dark yellowish brown	
2	33 - 45	sandy silt		10YR 5/6	yellowish brown	subsoil
31						
1	0 - 18	sandy loam	fill	10YR 4/3	brown	
2	18 - 31	sandy loam		10YR 4/3	brown	
3	31 - 41	sandy clay		10YR 4/6	dark yellowish brown	subsoil
32						
1	0 - 20	silt		10YR 4/3	brown	
2	20 - 41	clayey silt		10YR 5/6	yellowish brown	subsoil
33						
1	0 - 27	silt		10YR 3/4	dark yellowish brown	
2	27 - 40	coarse silty sand		10YR 4/6	dark yellowish brown	subsoil
34						
1	0 - 27	sandy silt		10YR 3/2	very dark grayish brown	
2	27 - 50	coarse sand	gravel	10YR 5/6	yellowish brown	subsoil
35						
1	0 - 43	silt		10YR 3/4	dark yellowish brown	
2	43 - 55	sandy silt		10YR 4/6	dark yellowish brown	subsoil
36						
1	0 - 24	sandy clay		10YR 3/2	very dark grayish brown	
				10YR 4/2	dark grayish brown	
2	24 - 44	sandy clay	gravel	10YR 4/3	brown	
3	44 - 60	sand		10YR 4/6	dark yellowish brown	subsoil
37						
1	0 - 44	silt		10YR 3/4	dark yellowish brown	
2	44 - 54	sandy silt	gravel	10YR 4/6	dark yellowish brown	subsoil
38						
1	0 - 30	loam		10YR 4/4	dark yellowish brown	
2	30 - 46	silty sand		10YR 5/6	yellowish brown	subsoil
39						
1	0 - 33	loam		10YR 4/3	brown	
				10YR 3/4	dark yellowish brown	
2	33 - 49	sandy silt		10YR 5/6	yellowish brown	subsoil
				10YR 5/6	yellowish brown	subsoil
40						
1	0 - 36	sandy loam		10YR 4/3	brown	
2	36 - 46	sandy clay		10YR 4/6	dark yellowish brown	subsoil

Level	Depth (cm)	Soil Type	Soil Inclusions	Munsell Color		Termination Reason
42						
1	0 - 33	silt		10YR 4/2	dark grayish brown	
				10YR 3/4	dark yellowish brown	
2	33 - 45	sandy silt		10YR 5/6	yellowish brown	subsoil
				10YR 5/6	yellowish brown	subsoil
44						
1	0 - 46	silt	gravel	10YR 3/3	dark brown	
2	46 - 65	silt	gravel	10YR 4/4	dark yellowish brown	subsoil
45						
1	0 - 10	silt		10YR 3/2	very dark grayish brown	
2	10 - 31	sandy silt	gravel	10YR 5/6	yellowish brown	subsoil
46						
1	0 - 40	silty clay		10YR 4/6	dark yellowish brown	subsoil
47						
1	0 - 12	sandy silt	gravel	10YR 4/2	dark grayish brown	
2	12 - 34	silty sand		10YR 4/6	dark yellowish brown	subsoil
48						
1	0 - 20	loamy silt		10YR 4/2	dark grayish brown	
2	20 - 39	sandy silt	gravel	10YR 4/4	dark yellowish brown	
3	39 - 50	silty sand		10YR 4/6	dark yellowish brown	subsoil
49						
1	0 - 36	loam		10YR 4/3	brown	
2	36 - 50	clayey silt		10YR 5/6	yellowish brown	subsoil
50						
1	0 - 11	sandy loam		10YR 3/4	dark yellowish brown	
2	11 - 40	sandy clay		10YR 5/2	grayish brown	
3	40 - 50	sandy clay		10YR 4/6	dark yellowish brown	subsoil
51						
1	0 - 24	silt		10YR 4/3	brown	
2	24 - 48	fine sandy silt		10YR 5/4	yellowish brown	subsoil
52						
1	0 - 31	silt		10YR 3/4	dark yellowish brown	
2	31 - 44	sandy silt		10YR 4/6	dark yellowish brown	subsoil
53						
1	0 - 31	loam		10YR 4/4	dark yellowish brown	
2	31 - 46	silt		10YR 5/6	yellowish brown	subsoil
54						
1	0 - 33	silt		10YR 4/4	dark yellowish brown	
2	33 - 48	sandy silt		10YR 5/6	yellowish brown	subsoil
55						
1	0 - 27	silt		10YR 4/3	brown	
2	27 - 50	fine sandy silt		10YR 5/4	yellowish brown	subsoil

Level	Depth (cm)	Soil Type	Soil Inclusions	Munsell Color		Termination Reason
56						
1	0 - 38	sandy clayey loam	fill	10YR 4/3	brown	
				10YR 4/6	dark yellowish brown	
2	38 - 52	sandy loam		10YR 3/2	very dark grayish brown	
3	52 - 62	sandy clay		10YR 4/6	dark yellowish brown	subsoil
57						
1	0 - 24	clayey silt		10YR 4/2	dark grayish brown	
2	24 - 40	clayey sand		10YR 5/4	yellowish brown	subsoil
58						
1	0 - 45	silt	gravel	10YR 3/4	dark yellowish brown	
2	45 - 60	silty sand	gravel	10YR 4/4	dark yellowish brown	
3	60 - 71	silty sand		10YR 4/6	dark yellowish brown	subsoil
59						
1	0 - 26	silt	gravel	10YR 4/3	brown	
2	26 - 48	silt	gravel	10YR 5/4	yellowish brown	subsoil
60						
1	0 - 28	sandy loam		10YR 4/3	brown	
2	28 - 38	sandy clay	cobbles and rock	10YR 4/6	dark yellowish brown	subsoil
61						
1	0 - 15	silt		10YR 4/3	brown	
2	15 - 33	coarse silty sand	gravel	10YR 5/8	yellowish brown	subsoil
62						
1	0 - 26	silty clay	gravel	10YR 4/3	brown	
2	26 - 48	silty clay	gravel	10YR 5/4	yellowish brown	subsoil
63						
1	0 - 26	sandy silt		10YR 3/4	dark yellowish brown	
2	26 - 38	sandy silt	cobbles	10YR 4/6	dark yellowish brown	subsoil
64						
1	0 - 34	sandy loam	rock	10YR 5/3	brown	
2	34 - 44	sandy clay	rock	10YR 4/6	dark yellowish brown	subsoil
65						
1	0 - 31	silt		10YR 4/3	brown	
2	31 - 47	sandy silt		10YR 4/6	dark yellowish brown	subsoil
66						
1	0 - 20	silt		10YR 4/3	brown	
2	20 - 40	silty clay		10YR 5/4	yellowish brown	subsoil
67						
1	0 - 13	sandy loam		10YR 3/3	dark brown	
2	13 - 27	sandy clay		10YR 4/4	dark yellowish brown	
3	27 - 37	sandy clay	rock	10YR 4/6	dark yellowish brown	subsoil
68						
1	0 - 31	sandy silt		10YR 3/4	dark yellowish brown	
2	31 - 43	sandy silt	cobbles	10YR 5/6	yellowish brown	subsoil

Level	Depth (cm)	Soil Type	Soil Inclusions	Munsell Color		Termination Reason
69						
1	0 - 32	silt		10YR 4/3	brown	
2	32 - 45	clayey silt		10YR 5/6	yellowish brown	subsoil
70						
1	0 - 17	sandy loam		10YR 3/3	dark brown	
2	17 - 34	sandy clay		10YR 4/4	dark yellowish brown	
3	34 - 44	sandy clay	rock	10YR 4/6	dark yellowish brown	subsoil
71						
1	0 - 24	silt		10YR 4/3	brown	
2	24 - 50	silt		10YR 5/4	yellowish brown	subsoil
72						
1	0 - 23	sandy silt		10YR 4/2	dark grayish brown	
2	23 - 40	sandy silt	cobbles	10YR 5/6	yellowish brown	subsoil
73						
1	0 - 16	clayey silt		10YR 3/2	very dark grayish brown	
2	16 - 26	clayey silt	gravel	10YR 5/6	yellowish brown	rock
74						
1	0 - 25	silt		10YR 4/3	brown	
2	25 - 50	silt		10YR 5/4	yellowish brown	subsoil
75						
1	0 - 9	silty loam		10YR 3/2	very dark grayish brown	
2	9 - 34	sandy silt		10YR 5/6	yellowish brown	subsoil
76						
1	0 - 5	silty loam		10YR 2/1	black	
2	5 - 35	silty clay		10YR 6/6	brownish yellow	subsoil
77						
1	0 - 4	loamy humus	roots	7.5YR 3/1	very dark gray	
2	4 - 16	coarse sand	gravel	10YR 4/2	dark grayish brown	
3	16 - 40	sandy silt		2.5Y 5/3	light olive brown	subsoil
78						
1	0 - 24	silt		10YR 4/3	brown	
2	24 - 47	silt		10YR 5/4	yellowish brown	subsoil
79						
1	0 - 24	sandy silt		10YR 4/3	brown	
2	24 - 36	sandy silt		10YR 5/6	yellowish brown	subsoil
80						
1	0 - 15	sandy loam		10YR 4/4	dark yellowish brown	
2	15 - 32	coarse sand	glacial till	10YR 4/6	dark yellowish brown	subsoil
81						
1	0 - 27	silt		10YR 4/3	brown	
2	27 - 50	silt		10YR 5/4	yellowish brown	subsoil

Level	Depth (cm)	Soil Type	Soil Inclusions	Munsell Color		Termination Reason
82						
1	0 - 20	silt		10YR 4/3	brown	
2	20 - 38	clayey silt	gravel	10YR 5/6	yellowish brown	subsoil
83						
1	0 - 32	sandy silt		10YR 4/4	dark yellowish brown	
2	32 - 45	sandy silt		10YR 5/6	yellowish brown	subsoil
84						
1	0 - 21	sandy loam		10YR 3/3	dark brown	
2	21 - 38	sandy clayey loam		10YR 4/4	dark yellowish brown	
3	38 - 48	sandy clay		10YR 4/6	dark yellowish brown	subsoil
85						
1	0 - 34	silt		10YR 4/3	brown	
2	34 - 46	clayey silt		10YR 5/6	yellowish brown	subsoil
86						
1	0 - 20	silt		10YR 4/3	brown	
2	20 - 45	silty clay		10YR 5/4	yellowish brown	subsoil
87						
1	0 - 38	sandy clay		10YR 4/4	dark yellowish brown	
2	38 - 45	sandy clay	cobbles and rock	10YR 4/6	dark yellowish brown	subsoil
88						
1	0 - 24	sandy silt		10YR 3/4	dark yellowish brown	
2	24 - 36	sandy silt	cobbles	10YR 4/6	dark yellowish brown	subsoil
89						
1	0 - 26	silt		10YR 4/3	brown	
2	26 - 40	clayey silt	gravel	10YR 5/6	yellowish brown	subsoil
90						
1	0 - 24	silty clay		10YR 4/3	brown	
2	24 - 47	silty clay		10YR 5/4	yellowish brown	subsoil
91						
1	0 - 26	sandy loam		10YR 4/4	dark yellowish brown	
2	26 - 36	sandy clay		10YR 4/6	dark yellowish brown	subsoil
92						
1	0 - 28	sandy silt		10YR 3/4	dark yellowish brown	
2	28 - 40	sandy silt		10YR 5/6	yellowish brown	subsoil
93						
1	0 - 20	silt		10YR 4/3	brown	
2	20 - 36	clayey silt	gravel	10YR 5/6	yellowish brown	subsoil
94						
1	0 - 8	silty humus		10YR 3/2	very dark grayish brown	
2	8 - 26	silty clay		10YR 4/4	dark yellowish brown	
3	26 - 45	silty clay		10YR 5/4	yellowish brown	subsoil

Level	Depth (cm)	Soil Type	Soil Inclusions	Munsell Color		Termination Reason
95						
1	0 - 16	silty loam		10YR 3/3	dark brown	
2	16 - 34	silty sand		10YR 4/6	dark yellowish brown	subsoil
96						
1	0 - 24	sandy clay		10YR 4/4	dark yellowish brown	
2	24 - 34	sandy clay		10YR 4/6	dark yellowish brown	subsoil
97						
1	0 - 10	silty humus		10YR 3/2	very dark grayish brown	
2	10 - 40	silty clay		10YR 4/4	dark yellowish brown	
3	40 - 57	silty clay		10YR 5/4	yellowish brown	subsoil
98						
1	0 - 6	sandy loamy humus		10YR 2/1	black	
2	6 - 23	sandy clay		10YR 4/4	dark yellowish brown	
3	23 - 30	sandy clay		10YR 4/6	dark yellowish brown	roots
99						
1	0 - 3	loamy humus		7.5YR 3/1	very dark gray	
2	3 - 12	clayey silt		10YR 4/2	dark grayish brown	
3	12 - 33	clayey silt		10YR 4/6	dark yellowish brown	subsoil
100						
1	0 - 22	sandy silt		10YR 3/4	dark yellowish brown	
2	22 - 36	sandy silt		10YR 5/6	yellowish brown	subsoil
101						
1	0 - 25	silty clay		10YR 4/3	brown	
2	25 - 47	silty clay		10YR 5/4	yellowish brown	subsoil
102						
1	0 - 4	loamy humus		7.5YR 3/1	very dark gray	
2	4 - 23	clayey silt		10YR 4/2	dark grayish brown	
3	23 - 40	clayey silt		10YR 5/6	yellowish brown	subsoil
103						
1	0 - 6	silty humus		10YR 3/2	very dark grayish brown	
2	6 - 25	silty clay		10YR 4/4	dark yellowish brown	
3	25 - 45	silty clay		10YR 5/4	yellowish brown	subsoil
104						
1	0 - 15	sandy loam		10YR 4/4	dark yellowish brown	
2	15 - 30	sandy clay		10YR 4/6	dark yellowish brown	subsoil
105						
1	0 - 12	sandy silty loam		10YR 3/2	very dark grayish brown	
2	12 - 35	sandy silt		10YR 5/6	yellowish brown	subsoil
106						
1	0 - 14	silty loam		10YR 3/3	dark brown	
2	14 - 36	sandy silt		10YR 4/6	dark yellowish brown	subsoil

Level	Depth (cm)	Soil Type	Soil Inclusions	Munsell Color		Termination Reason
107						
1	0 - 7	sandy loam		10YR 3/3	dark brown	
2	7 - 14	sandy clay		10YR 4/4	dark yellowish brown	
3	14 - 30	sandy clay		10YR 4/6	dark yellowish brown	subsoil
108						
1	0 - 14	silty humus		10YR 3/2	very dark grayish brown	
2	14 - 35	sand	gravel	10YR 5/4	yellowish brown	subsoil
109						
1	0 - 15	sandy loam		10YR 3/2	very dark grayish brown	
2	15 - 44	coarse sand	gravel	10YR 4/6	dark yellowish brown	subsoil
110						
1	0 - 50	coarse sand	glacial till	10YR 4/4	dark yellowish brown	
111						
1	0 - 49	silt		10YR 3/4	dark yellowish brown	
2	49 - 59	sandy silt		2.5Y 5/6	light olive brown	subsoil
112						
1	0 - 9	silty loam		10YR 3/2	very dark grayish brown	
2	9 - 25	silt		2.5Y 4/2	dark grayish brown	roots
113						
1	0 - 9	sandy loamy humus		10YR 3/2	very dark grayish brown	
2	9 - 32	sandy clay		10YR 5/4	yellowish brown	
3	32 - 42	sandy clay	glacial till	10YR 4/6	dark yellowish brown	subsoil
114						
1	0 - 9	loam		10YR 3/2	very dark grayish brown	
2	9 - 24	silt		2.5Y 4/2	dark grayish brown	
3	24 - 42	clayey silt		2.5Y 5/3	light olive brown	subsoil
115						
1	0 - 36	silt		10YR 4/4	dark yellowish brown	
2	36 - 50	sandy silt		2.5Y 6/6	olive yellow	subsoil
116						
1	0 - 28	sandy clayey loam		10YR 5/4	yellowish brown	
2	28 - 38	sandy clay		10YR 4/6	dark yellowish brown	subsoil
117						
1	0 - 28	silt		10YR 4/4	dark yellowish brown	
2	28 - 40	sandy silt		10YR 5/6	yellowish brown	subsoil
118						
1	0 - 5	loam		10YR 3/2	very dark grayish brown	
2	5 - 33	silt		2.5Y 4/2	dark grayish brown	
3	33 - 47	silty clay	gravel	2.5Y 5/6	light olive brown	subsoil
119						
1	0 - 6	loam		10YR 3/2	very dark grayish brown	
2	6 - 33	silt		2.5Y 4/2	dark grayish brown	
3	33 - 53	clayey silt		2.5Y 6/4	light yellowish brown	subsoil

Level	Depth (cm)	Soil Type	Soil Inclusions	Munsell Color		Termination Reason
120						
1	0 - 27	silt		10YR 3/3	dark brown	
2	27 - 40	sandy silt		10YR 5/6	yellowish brown	subsoil
121						
1	0 - 28	silty clayey loam		10YR 4/3	brown	
2	28 - 38	silty clay		10YR 4/6	dark yellowish brown	subsoil
122						
1	0 - 20	silty clayey loam		10YR 4/3	brown	
2	20 - 30	silty clay		10YR 4/6	dark yellowish brown	subsoil
123						
1	0 - 4	loam		10YR 3/2	very dark grayish brown	
2	4 - 20	silt		2.5Y 4/3	olive brown	
3	20 - 30	clayey silt		2.5Y 5/4	light olive brown	subsoil
124						
1	0 - 6	silty humus		10YR 3/1	very dark gray	
2	6 - 34	silty clay		10YR 4/3	brown	
3	34 - 50	silty clay		10YR 5/4	yellowish brown	subsoil
125						
1	0 - 24	silt		10YR 3/4	dark yellowish brown	
2	24 - 36	sandy silt		2.5Y 5/6	light olive brown	subsoil
126						
1	0 - 4	silty humus		10YR 3/1	very dark gray	
2	4 - 26	silty clay		10YR 4/3	brown	
3	26 - 47	silty clay		10YR 5/4	yellowish brown	subsoil
127						
1	0 - 4	loam		10YR 3/2	very dark grayish brown	
2	4 - 38	sandy silt		2.5Y 4/3	olive brown	rock
128						
1	0 - 29	silt		10YR 4/4	dark yellowish brown	
2	29 - 40	sandy silt		2.5Y 5/6	light olive brown	subsoil
129						
1	0 - 26	silt		10YR 4/3	brown	
2	26 - 38	sandy silt		10YR 5/6	yellowish brown	subsoil
130						
1	0 - 4	silty loamy humus		10YR 2/1	black	
2	4 - 32	silty loam		10YR 4/3	brown	
3	32 - 42	silty clay		10YR 4/6	dark yellowish brown	subsoil
131						
1	0 - 5	silty humus		10YR 3/1	very dark gray	
2	5 - 23	silty clay		10YR 4/3	brown	
3	23 - 44	silty clay		10YR 5/4	yellowish brown	subsoil

Level	Depth (cm)	Soil Type	Soil Inclusions	Munsell Color		Termination Reason
132						
1	0 - 6	loam		10YR 3/2	very dark grayish brown	
2	6 - 36	silt		2.5Y 4/3	olive brown	
3	36 - 46	clayey silt		2.5Y 7/4	pale yellow	subsoil
133						
1	0 - 28	silty loam		10YR 5/4	yellowish brown	
2	28 - 36	silty clay		10YR 7/6	yellow	subsoil
134						
1	0 - 14	silty humus		10YR 3/2	very dark grayish brown	
2	14 - 65	silt		10YR 4/3	brown	
3	65 - 80	silty clay		10YR 5/4	yellowish brown	subsoil
135						
1	0 - 3	silty loam		10YR 3/2	very dark grayish brown	
2	3 - 16	clayey silt		2.5Y 4/2	dark grayish brown	
3	16 - 45	silt	gravel	2.5Y 6/4	light yellowish brown	subsoil
136						
1	0 - 13	silt		10YR 4/4	dark yellowish brown	
2	13 - 30	sandy silt		10YR 5/6	yellowish brown	
3	30 - 55	coarse sand		10YR 4/6	dark yellowish brown	
4	55 - 65	clay	cobbles	2.5Y 5/6	light olive brown	subsoil
137						
1	0 - 12	silty loam		10YR 4/3	brown	
2	12 - 32	silty clay	gravel	10YR 4/6	dark yellowish brown	
3	32 - 55	coarse sand	rock	10YR 4/6	dark yellowish brown	boulders
138						
1	0 - 9	loam		2.5Y 3/2	very dark grayish brown	
2	9 - 23	clayey silt		2.5Y 4/2	dark grayish brown	
3	23 - 53	coarse clayey sand	gravel	2.5Y 6/6	olive yellow	subsoil
139						
1	0 - 20	silty humus		10YR 3/2	very dark grayish brown	
2	20 - 60	silt	gravel	10YR 5/4	yellowish brown	subsoil
140						
1	0 - 20	silt		10YR 4/4	dark yellowish brown	
2	20 - 36	coarse silty sand	gravel	10YR 3/6	dark yellowish brown	
3	36 - 49	sandy silt		2.5Y 5/6	light olive brown	subsoil
141						
1	0 - 34	silty loam		10YR 5/4	yellowish brown	
2	34 - 44	silty clay	gravel	10YR 4/6	dark yellowish brown	subsoil
142						
1	0 - 5	silty loam		10YR 3/2	very dark grayish brown	
2	5 - 26	clayey silt		2.5Y 4/3	olive brown	
3	26 - 42	clayey silt	gravel	2.5Y 6/4	light yellowish brown	subsoil

Level	Depth (cm)	Soil Type	Soil Inclusions	Munsell Color		Termination Reason
143						
1	0 - 25	silty humus		10YR 3/2	very dark grayish brown	
2	25 - 40	silt	gravel	10YR 5/4	yellowish brown	subsoil
144						
1	0 - 28	sandy silt		10YR 4/4	dark yellowish brown	
2	28 - 40	sandy silt		2.5Y 5/6	light olive brown	subsoil
145						
1	0 - 8	silty loamy humus		10YR 2/1	black	
2	8 - 28	silty clayey loam	coal	10YR 4/6	dark yellowish brown	
				10YR 5/4	yellowish brown	
3	28 - 38	silty clay		10YR 4/6	dark yellowish brown	subsoil
146						
1	0 - 24	sand	gravel	10YR 5/4	yellowish brown	
2	24 - 40	sand	gravel	10YR 4/3	brown	
3	40 - 55	sand	gravel	10YR 5/4	yellowish brown	subsoil
147						
1	0 - 4	loam		10YR 3/2	very dark grayish brown	
2	4 - 35	sandy silt		2.5Y 4/3	olive brown	
3	35 - 47	clayey silt	gravel	10YR 4/4	dark yellowish brown	subsoil
148						
1	0 - 15	silt	gravel	10YR 3/2	very dark grayish brown	
2	15 - 60	sand	gravel	10YR 4/3	brown	subsoil
149						
1	0 - 18	silty clay		10YR 4/6	dark yellowish brown	
				10YR 4/3	brown	
2	18 - 60	coarse sand		10YR 4/6	dark yellowish brown	buried pipe
				10YR 6/2	light brownish gray	buried pipe
				10YR 5/4	yellowish brown	buried pipe
150						
1	0 - 24	sandy silt		10YR 3/4	dark yellowish brown	
2	24 - 38	sandy silt		10YR 4/6	dark yellowish brown	subsoil
151						
1	0 - 23	silt		10YR 3/2	very dark grayish brown	
2	23 - 48	silt		10YR 5/4	yellowish brown	subsoil
152						
1	0 - 4	silty loam		10YR 3/2	very dark grayish brown	
2	4 - 18	clayey silt		2.5Y 4/3	olive brown	
3	18 - 60	clayey silt	gravel	10YR 5/6	yellowish brown	subsoil
153						
1	0 - 27	sandy silt		10YR 4/4	dark yellowish brown	
2	27 - 56	sandy silt		10YR 5/6	yellowish brown	subsoil
154						
1	0 - 40	silty loam		10YR 5/4	yellowish brown	
2	40 - 50	silty clay		10YR 4/6	dark yellowish brown	subsoil

Level	Depth (cm)	Soil Type	Soil Inclusions	Munsell Color		Termination Reason
155						
1	0 - 14	silty loam		10YR 3/2	very dark grayish brown	
				10YR 3/2	very dark grayish brown	
2	28 - 55	silty clay		10YR 5/4	yellowish brown	subsoil
				10YR 5/4	yellowish brown	
3	38 - 48	silty clay		10YR 4/6	dark yellowish brown	subsoil
156						
1	0 - 4	loam		10YR 3/2	very dark grayish brown	
2	4 - 43	sandy silt		2.5Y 3/3	dark olive brown	
3	43 - 54	clayey silt		10YR 4/6	dark yellowish brown	subsoil
158						
1	0 - 21	sandy silt		10YR 4/4	dark yellowish brown	
				10YR 4/3	brown	
2	38 - 52	silty sand	gravel	10YR 5/4	yellowish brown	subsoil
				10YR 3/6	dark yellowish brown	
3	38 - 49	sandy silt		2.5Y 5/6	light olive brown	subsoil
159						
1	0 - 4	silty loam		10YR 3/2	very dark grayish brown	
2	4 - 36	silt		2.5Y 4/3	olive brown	
3	36 - 46	clayey silt		2.5Y 6/6	olive yellow	subsoil
161						
1	0 - 32	silt		10YR 4/3	brown	
2	32 - 45	silty clay	cobbles	10YR 5/4	yellowish brown	subsoil
162						
1	0 - 4	silty loam		10YR 3/2	very dark grayish brown	
2	4 - 35	silt		2.5Y 4/2	dark grayish brown	
3	35 - 49	silty clay		2.5Y 5/4	light olive brown	subsoil
163						
1	0 - 31	sandy silt		10YR 4/3	brown	
2	31 - 42	sandy silt		10YR 5/6	yellowish brown	subsoil
164						
1	0 - 46	coarse sand	gravel	10YR 5/4	yellowish brown	
2	46 - 56	silty clay		10YR 4/6	dark yellowish brown	subsoil
165						
1	0 - 50	sand	fill	10YR 4/3	brown	
2	50 - 70	sand	fill and gravel	10YR 4/4	dark yellowish brown	subsoil
166						
1	0 - 4	silty loam		10YR 3/2	very dark grayish brown	
2	4 - 25	silty sand		2.5Y 4/3	olive brown	
3	25 - 43	coarse sand	gravel	10YR 4/6	dark yellowish brown	subsoil
167						
1	0 - 22	sandy silt		10YR 4/4	dark yellowish brown	
2	22 - 58	coarse silty sand		10YR 3/6	dark yellowish brown	rock

Level	Depth (cm)	Soil Type	Soil Inclusions	Munsell Color		Termination Reason
168						
1	0 - 27	silt		10YR 4/3	brown	
2	27 - 56	silty clay		10YR 5/4	yellowish brown	subsoil
169						
1	0 - 42	silty loam		10YR 5/4	yellowish brown	
2	42 - 52	silty clay		10YR 4/6	dark yellowish brown	subsoil
170						
1	0 - 4	loam		10YR 3/2	very dark grayish brown	
2	4 - 31	coarse silty sand		2.5Y 4/3	olive brown	
3	31 - 46	coarse sand	gravel	10YR 4/6	dark yellowish brown	subsoil
171						
1	0 - 24	sandy silt		10YR 4/4	dark yellowish brown	
2	24 - 40	coarse silty sand	gravel	10YR 3/6	dark yellowish brown	
3	40 - 51	sandy silt		2.5Y 5/6	light olive brown	subsoil
172						
1	0 - 38	silty loam		10YR 4/3	brown	
2	38 - 48	silty clay		10YR 4/6	dark yellowish brown	subsoil
173						
1	0 - 4	silty loam		10YR 3/2	very dark grayish brown	
2	4 - 50	silty sand	fill	2.5Y 4/2	dark grayish brown	
3	50 - 65	coarse sand	gravel	10YR 4/6	dark yellowish brown	subsoil
174						
1	0 - 12	silty loam		10YR 5/3	brown	
2	12 - 42	silty loam	cobbles	10YR 4/3	brown	
3	42 - 52	silty clay	cobbles	10YR 4/6	dark yellowish brown	subsoil
175						
1	0 - 25	sandy silt		10YR 3/4	dark yellowish brown	
2	25 - 30	coarse silty sand		10YR 3/6	dark yellowish brown	
3	30 - 42	sandy silt		2.5Y 5/6	light olive brown	subsoil
176						
1	0 - 3	silty loam		10YR 2/2	very dark brown	
2	3 - 23	silty sand		10YR 3/2	very dark grayish brown	
3	23 - 50	coarse sand	gravel	10YR 5/6	yellowish brown	subsoil
177						
1	0 - 21	sandy silt		10YR 3/4	dark yellowish brown	
2	21 - 33	silty sand	gravel	10YR 3/6	dark yellowish brown	
3	33 - 46	sandy silt		2.5Y 5/6	light olive brown	subsoil
178						
1	0 - 4	silty loam		2.5Y 3/1	very dark gray	
2	4 - 19	silty sand		2.5Y 4/2	dark grayish brown	
3	19 - 45	coarse sand	gravel	10YR 4/6	dark yellowish brown	subsoil

Level	Depth (cm)	Soil Type	Soil Inclusions	Munsell Color		Termination Reason
179						
1	0 - 14	silty loam		10YR 3/3	dark brown	
2	14 - 40	silty loam		10YR 4/3	brown	
3	40 - 50	silty clay		10YR 4/6	dark yellowish brown	subsoil
180						
1	0 - 13	sandy silt		10YR 4/4	dark yellowish brown	
2	13 - 26	silty sand	gravel	10YR 3/6	dark yellowish brown	
3	26 - 40	sandy silt		2.5Y 5/6	light olive brown	subsoil
181						
1	0 - 4	silty loam		10YR 3/2	very dark grayish brown	
2	4 - 19	silt		10YR 4/3	brown	
3	19 - 48	clayey silt		10YR 4/6	dark yellowish brown	subsoil
182						
1	0 - 40	sand	gravel	10YR 3/2	very dark grayish brown	
2	40 - 60	sand	gravel	10YR 5/4	yellowish brown	subsoil
183						
1	0 - 37	sand	gravel	10YR 3/2	very dark grayish brown	
2	37 - 50	sand	gravel	10YR 5/4	yellowish brown	subsoil
184						
1	0 - 30	silt	gravel	10YR 3/2	very dark grayish brown	
2	30 - 50	silt	gravel	10YR 5/4	yellowish brown	subsoil
185						
1	0 - 27	silt	gravel	10YR 3/2	very dark grayish brown	
2	27 - 46	silt	gravel	10YR 5/4	yellowish brown	subsoil
186						
1	0 - 3	loam		2.5Y 3/2	very dark grayish brown	
2	3 - 35	silt		10YR 4/3	brown	
3	35 - 50	silt	gravel	2.5Y 6/4	light yellowish brown	subsoil
187						
1	0 - 38	sandy silt		10YR 4/4	dark yellowish brown	
2	38 - 50	sandy silt		2.5Y 6/6	olive yellow	subsoil
188						
1	0 - 28	silty loam		10YR 5/4	yellowish brown	
2	28 - 38	silty clay	rock	10YR 6/6	brownish yellow	subsoil
189						
1	0 - 10	silty humus		10YR 3/2	very dark grayish brown	
2	10 - 27	silt	gravel	10YR 4/4	dark yellowish brown	
3	27 - 40	silt	gravel	10YR 5/4	yellowish brown	subsoil
190						
1	0 - 11	loam		2.5Y 3/1	very dark gray	
2	11 - 43	silt	gravel	2.5Y 5/3	light olive brown	subsoil
191						
1	0 - 29	sandy silt		10YR 3/4	dark yellowish brown	
2	29 - 40	sandy silt		2.5Y 5/6	light olive brown	subsoil

Level	Depth (cm)	Soil Type	Soil Inclusions	Munsell Color		Termination Reason
192						
1	0 - 20	silty loam		10YR 4/3	brown	
2	20 - 29	silty clay		10YR 3/3	dark brown	
3	29 - 43	silty clay		10YR 5/6	yellowish brown	subsoil
193						
1	0 - 31	silty loam		2.5Y 3/1	very dark gray	
2	31 - 47	clayey silt		2.5Y 5/4	light olive brown	subsoil
194						
1	0 - 18	silty loam		10YR 5/4	yellowish brown	
2	18 - 28	silty clay		10YR 4/6	dark yellowish brown	
3	28 - 39	coarse sand	gravel	10YR 4/6	dark yellowish brown	subsoil
195						
1	0 - 18	silt	gravel	10YR 3/2	very dark grayish brown	
2	18 - 40	sand	gravel	10YR 5/4	yellowish brown	subsoil
196						
1	0 - 31	sandy silt		10YR 3/4	dark yellowish brown	
2	31 - 46	silty sand		10YR 5/6	yellowish brown	subsoil
197						
1	0 - 4	loam		2.5Y 3/2	very dark grayish brown	
2	4 - 44	silt	gravel	10YR 4/3	brown	
3	44 - 55	coarse silty sand	gravel	10YR 4/6	dark yellowish brown	subsoil
198						
1	0 - 60	sand	gravel	10YR 3/2	very dark grayish brown	
2	60 - 80	sand	gravel	10YR 5/4	yellowish brown	subsoil
199						
1	0 - 52	silty sand		10YR 3/3	dark brown	
2	52 - 64	sandy silt		2.5Y 5/6	light olive brown	subsoil
200						
1	0 - 62	silty loam	gravel	10YR 4/2	dark grayish brown	
2	62 - 70	silty clay	rock	10YR 4/6	dark yellowish brown	subsoil
201						
1	0 - 4	loam		10YR 3/2	very dark grayish brown	
2	4 - 23	sandy silt		2.5Y 3/3	dark olive brown	
3	23 - 46	coarse sand	gravel	10YR 5/6	yellowish brown	subsoil
202						
1	0 - 20	silt	gravel	10YR 3/2	very dark grayish brown	
2	20 - 42	silty sand	gravel	10YR 4/4	dark yellowish brown	
3	42 - 60	sand	gravel	10YR 5/4	yellowish brown	subsoil
203						
1	0 - 32	silty sand		10YR 3/3	dark brown	
2	32 - 45	sandy silt		10YR 5/6	yellowish brown	subsoil
204						
1	0 - 26	silty loam		10YR 4/3	brown	
2	26 - 38	silty clay		10YR 7/6	yellow	subsoil

Level	Depth (cm)	Soil Type	Soil Inclusions	Munsell Color		Termination Reason
205						
1	0 - 8	loam		2.5Y 3/2	very dark grayish brown	
2	8 - 40	clayey silt		2.5Y 5/4	light olive brown	subsoil
206						
1	0 - 30	silt		10YR 3/2	very dark grayish brown	
2	30 - 50	gravel		10YR 4/4	dark yellowish brown	subsoil
207						
1	0 - 24	silty sand		10YR 3/3	dark brown	
2	24 - 36	sandy silt		10YR 5/6	yellowish brown	subsoil
208						
1	0 - 20	silty loam		10YR 3/2	very dark grayish brown	
2	20 - 35	sandy silt	gravel	10YR 5/8	yellowish brown	subsoil
209						
1	0 - 28	silty loam		2.5Y 3/2	very dark grayish brown	
2	28 - 43	silt	gravel	2.5Y 5/4	light olive brown	subsoil
210						
1	0 - 11	silty loam	fill	10YR 2/1	black	
2	11 - 22	silty loam	fill	10YR 4/6	dark yellowish brown	
3	22 - 39	silty clayey loam		10YR 4/3	brown	
4	39 - 60	silty clay		10YR 4/6	dark yellowish brown	subsoil
211						
1	0 - 3	loam		2.5Y 3/2	very dark grayish brown	
2	3 - 15	clayey silt		2.5Y 4/3	olive brown	
3	15 - 33	clayey silt		10YR 5/6	yellowish brown	subsoil
212						
1	0 - 18	sandy silt		10YR 3/4	dark yellowish brown	
2	18 - 30	clayey silt		10YR 5/8	yellowish brown	subsoil
213						
1	0 - 10	silty loam		10YR 3/2	very dark grayish brown	
2	10 - 40	sandy silt		10YR 5/6	yellowish brown	subsoil
214						
1	0 - 14	silt		10YR 3/2	very dark grayish brown	
2	14 - 30	silty clay		10YR 4/4	dark yellowish brown	
3	30 - 50	silty clay		10YR 5/4	yellowish brown	subsoil
215						
1	0 - 3	loam		10YR 3/2	very dark grayish brown	
2	3 - 10	silt		2.5Y 4/2	dark grayish brown	
3	10 - 40	silty sand	gravel	10YR 5/6	yellowish brown	subsoil
216						
1	0 - 16	silty sand		10YR 3/3	dark brown	
2	16 - 38	silty sand		10YR 5/8	yellowish brown	subsoil

Level	Depth (cm)	Soil Type	Soil Inclusions	Munsell Color		Termination Reason
217						
1	0 - 10	silt		10YR 3/2	very dark grayish brown	
2	10 - 36	silt	gravel	10YR 4/4	dark yellowish brown	
3	36 - 50	silty clay	gravel	10YR 5/4	yellowish brown	subsoil
218						
1	0 - 28	silty loam		10YR 4/3	brown	
2	28 - 38	silty clay		10YR 5/4	yellowish brown	
3	38 - 48	silty clay		10YR 4/6	dark yellowish brown	subsoil
219						
1	0 - 10	silty loam		10YR 3/2	very dark grayish brown	
2	10 - 44	sandy silt		10YR 5/6	yellowish brown	subsoil
220						
1	0 - 31	sandy silt		10YR 3/4	dark yellowish brown	
2	31 - 42	silty sand		10YR 3/6	dark yellowish brown	subsoil
221						
1	0 - 15	sand	gravel	10YR 3/4	dark yellowish brown	
2	15 - 40	sand	gravel	10YR 4/4	dark yellowish brown	subsoil
222						
1	0 - 32	silty loam		10YR 5/3	brown	
2	32 - 42	silty clay		10YR 4/6	dark yellowish brown	subsoil
223						
1	0 - 15	silty loam		10YR 4/3	brown	
2	15 - 48	clayey silt		10YR 5/6	yellowish brown	subsoil
224						
1	0 - 26	silty sand		10YR 4/4	dark yellowish brown	
2	26 - 40	clayey silt		10YR 5/6	yellowish brown	subsoil
225						
1	0 - 15	silt		10YR 3/2	very dark grayish brown	
2	15 - 40	silt		10YR 4/4	dark yellowish brown	
3	40 - 60	silt		10YR 5/4	yellowish brown	subsoil
226						
1	0 - 9	silty loam		10YR 3/2	very dark grayish brown	
2	9 - 31	silt		10YR 5/6	yellowish brown	subsoil
227						
1	0 - 55	silty loam	fill and gravel	10YR 3/2	very dark grayish brown	fill
228						
1	0 - 50	silty sand	fill and gravel	10YR 3/3	dark brown	rock
229						
1	0 - 24	silt		10YR 3/2	very dark grayish brown	
2	24 - 80	silt	coal ash	10YR 3/4	dark yellowish brown	fill
230						
1	0 - 28	silty loam		10YR 4/3	brown	
2	28 - 43	silt	gravel	2.5Y 5/4	light olive brown	subsoil

Level	Depth (cm)	Soil Type	Soil Inclusions	Munsell Color		Termination Reason
231						
1	0 - 40	silty sand	gravel	10YR 3/3	dark brown	fill
232						
1	0 - 30	silty loam	gravel	10YR 3/3	dark brown	fill
233						
1	0 - 36	silty sand	brick and coal	10YR 3/3	dark brown	
2	36 - 48	sandy silt		2.5Y 5/6	light olive brown	subsoil
234						
1	0 - 10	sandy loam		10YR 3/2	very dark grayish brown	
2	10 - 22	ash	charcoal			
3	22 - 39	sandy clay		10YR 4/6	dark yellowish brown	subsoil
235						
1	0 - 50	silt		10YR 4/3	brown	
2	50 - 70	silty clay		10YR 5/4	yellowish brown	subsoil
236						
1	0 - 48	sandy silt		10YR 4/2	dark grayish brown	
2	48 - 64	sandy silt				subsoil
237						
1	0 - 30	silt		2.5Y 4/3	olive brown	
2	30 - 56	sandy silt		10YR 5/6	yellowish brown	subsoil
238						
1	0 - 28	silty loam		10YR 4/2	dark grayish brown	
2	28 - 39	silt		10YR 4/4	dark yellowish brown	
3	39 - 52	silty clay		10YR 4/6	dark yellowish brown	subsoil
239						
1	0 - 50	silt		10YR 4/3	brown	
				10YR 5/4	yellowish brown	
2	50 - 60	silt	gravel	10YR 3/3	dark brown	
3	60 - 75	silt		10YR 5/4	yellowish brown	subsoil
240						
1	0 - 36	silty sand	gravel	10YR 4/3	brown	
2	36 - 55	sandy silt		10YR 3/2	very dark grayish brown	
3	55 - 66	sandy silt		2.5Y 5/6	light olive brown	subsoil
241						
1	0 - 14	sandy silt	gravel	10YR 2/2	very dark brown	
2	14 - 30	silty sand	gravel	10YR 3/6	dark yellowish brown	subsoil
242						
1	0 - 4	loamy humus		10YR 3/2	very dark grayish brown	
2	4 - 19	sandy silt		2.5Y 4/2	dark grayish brown	
3	19 - 46	clayey silt		2.5Y 5/4	light olive brown	subsoil
243						
1	0 - 3	silty loam	humus	10YR 2/1	black	
2	3 - 20	coarse sand	glacial till	10YR 4/6	dark yellowish brown	subsoil

Level	Depth (cm)	Soil Type	Soil Inclusions	Munsell Color		Termination Reason
244						
1	0 - 4	humus		10YR 3/2	very dark grayish brown	
2	4 - 30	coarse sand	glacial till	10YR 4/6	dark yellowish brown	subsoil
245						
1	0 - 18	silty clay		10YR 5/3	brown	
2	18 - 30	silty clay		10YR 5/6	yellowish brown	subsoil
246						
1	0 - 16	silty sand	gravel	10YR 3/3	dark brown	
2	16 - 35	clayey silt		10YR 4/6	dark yellowish brown	subsoil
247						
1	0 -	silty clay	gravel	10YR 4/3	brown	
2	-	silty clay	gravel	10YR 4/4	dark yellowish brown	subsoil
248						
1	0 - 7	clayey silt		2.5Y 4/3	olive brown	
2	7 - 33	clay		2.5Y 6/4	light yellowish brown	subsoil
249						
1	0 - 10	clayey silt		2.5Y 3/1	very dark gray	
2	10 - 40	clay		2.5Y 5/2	grayish brown	subsoil
				2.5Y 6/3	light yellowish brown	subsoil
250						
1	0 - 15	silty clay		10YR 4/3	brown	
2	15 - 35	clay		10YR 5/4	yellowish brown	subsoil
251						
1	0 - 21	clay		10YR 4/3	brown	
2	21 - 32	clay		10YR 5/6	yellowish brown	
3	32 - 50	clay		10YR 7/1	light gray	subsoil
				10YR 5/6	yellowish brown	subsoil
252						
1	0 - 11	silty sand	gravel	10YR 4/4	dark yellowish brown	
2	11 - 30	clayey silt	gravel	10YR 4/6	dark yellowish brown	subsoil
253						
1	0 - 8	loamy sand	humus	10YR 4/4	dark yellowish brown	
2	8 - 47	sand		2.5Y 6/3	light yellowish brown	
3	47 - 58	sandy silt		2.5Y 5/6	light olive brown	subsoil
254						
1	0 - 34	fine silty sand	fill	2.5Y 6/3	light yellowish brown	
2	34 - 50	silty clay		2.5Y 5/3	light olive brown	subsoil
255						
1	0 - 5	clay	humus	10YR 3/2	very dark grayish brown	
2	5 - 29	clay		10YR 4/6	dark yellowish brown	subsoil
256						
1	0 - 13	silty humus		10YR 3/1	very dark gray	
2	13 - 26	clay		10YR 5/4	yellowish brown	subsoil

Level	Depth (cm)	Soil Type	Soil Inclusions	Munsell Color		Termination Reason
257						
1	0 - 10	silty humus		10YR 3/1	very dark gray	
2	10 - 30	clay	rock	10YR 5/4	yellowish brown	subsoil
258						
1	0 - 30	silt	gravel	10YR 3/3	dark brown	
2	30 - 45	silt		10YR 3/2	very dark grayish brown	
3	45 - 65	silty clay		10YR 5/4	yellowish brown	subsoil
259						
1	0 - 25	clayey loam	brick and coal	10YR 3/2	very dark grayish brown	
2	25 - 60	clayey silt		10YR 5/6	yellowish brown	subsoil
260						
1	0 - 63	silty sand	fill and gravel	10YR 3/4	dark yellowish brown	
				10YR 3/4	dark yellowish brown	
2	63 - 78	sandy silt		2.5Y 5/6	light olive brown	subsoil
261						
1	0 - 7	sandy loam	fill	10YR 3/2	very dark grayish brown	
2	7 - 40	coarse sand	gravel and cobbles	10YR 4/6	dark yellowish brown	subsoil
262						
1	0 - 23	sandy loam	fill	10YR 3/2	very dark grayish brown	
2	23 - 50	coarse sand	gravel and cobbles	10YR 4/6	dark yellowish brown	subsoil
263						
1	0 - 36	clayey silt	fill	10YR 4/3	brown	
2	36 - 46	sandy silt		2.5Y 5/4	light olive brown	subsoil
264						
1	0 - 40	silt	gravel	10YR 3/3	dark brown	
2	40 - 50	silt		10YR 3/2	very dark grayish brown	
3	50 - 65	silty clay		10YR 5/4	yellowish brown	subsoil
265						
1	0 - 30	sandy loam		10YR 3/2	very dark grayish brown	
2	30 - 44	clayey silt		10YR 6/6	brownish yellow	subsoil
266						
1	0 - 22	sandy silt		10YR 3/3	dark brown	
2	22 - 41	silty sand	cobbles	10YR 4/6	dark yellowish brown	subsoil
267						
1	0 - 20	silty loam		10YR 4/3	brown	
2	20 - 40	silty clay		10YR 5/6	yellowish brown	subsoil
268						
1	0 - 23	silt	cobbles	10YR 4/3	brown	
2	23 - 30	silty clay		10YR 5/4	yellowish brown	rock
269						
1	0 - 24	loam		2.5Y 4/3	olive brown	
2	24 - 40	clayey silt		2.5Y 5/4	light olive brown	subsoil

Level	Depth (cm)	Soil Type	Soil Inclusions	Munsell Color		Termination Reason
270						
1	0 - 25	sandy silt		10YR 3/4	dark yellowish brown	
2	25 - 40	sandy silt		2.5Y 5/6	light olive brown	subsoil
271						
1	0 - 13	sandy loam		10YR 3/2	very dark grayish brown	
2	13 - 32	sandy clay		10YR 5/3	brown	
3	32 - 42	sandy clay		10YR 7/6	yellow	subsoil
272						
1	0 - 24	silt	gravel and cobbles	10YR 4/3	brown	
2	24 - 40	silty clay	gravel	10YR 5/4	yellowish brown	subsoil
273						
1	0 - 34	clayey loam		2.5Y 4/3	olive brown	
2	34 - 48	clayey silt		10YR 5/6	yellowish brown	subsoil
274						
1	0 - 47	silt		10YR 4/3	brown	
2	47 - 60	silty clay		10YR 5/4	yellowish brown	subsoil
275						
1	0 - 18	sandy loam		10YR 3/2	very dark grayish brown	
2	18 - 38	sandy clay		10YR 5/3	brown	
3	38 - 48	sandy clay		10YR 7/6	yellow	subsoil
276						
1	0 - 27	sandy silt		10YR 3/4	dark yellowish brown	
2	27 - 40	sandy silt		10YR 4/6	dark yellowish brown	subsoil
277						
1	0 - 30	sandy silt	coal	10YR 3/4	dark yellowish brown	
2	30 - 50	clayey silt		2.5Y 6/6	olive yellow	subsoil
278						
1	0 - 23	silt	rock	10YR 3/4	dark yellowish brown	
2	23 - 60	clayey silt	gravel and rock	10YR 4/6	dark yellowish brown	subsoil
279						
1	0 - 20	silty loam		10YR 4/3	brown	
2	20 - 32	silty clay		10YR 5/6	yellowish brown	subsoil
280						
1	0 - 26	sandy silt	coal	10YR 3/4	dark yellowish brown	
2	26 - 40	clayey silt	cobbles	10YR 6/6	brownish yellow	subsoil
281						
1	0 - 30	silt		10YR 4/3	brown	
2	30 - 55	silt		10YR 5/6	yellowish brown	subsoil
282						
1	0 - 35	silty loam	rock	10YR 4/3	brown	rock

Level	Depth (cm)	Soil Type	Soil Inclusions	Munsell Color		Termination Reason
283						
1	0 - 30	silt	rock	10YR 3/4	dark yellowish brown	
				10YR 3/2	very dark grayish brown	
2	30 - 51	clayey silt	gravel and rock	10YR 4/6	dark yellowish brown	subsoil
				10YR 5/4	yellowish brown	disturbed
284						
1	0 - 25	sandy silt		10YR 3/4	dark yellowish brown	
2	25 - 40	clayey silt	cobbles	10YR 3/6	dark yellowish brown	subsoil
285						
1	0 - 30	silt	gravel	10YR 4/3	brown	
				10YR 3/4	dark yellowish brown	
2	19 - 40	sandy silt	gravel and rock	10YR 4/6	dark yellowish brown	subsoil
				10YR 5/6	yellowish brown	subsoil
286						
1	0 - 22	silty loam		10YR 4/3	brown	
2	22 - 32	silty clay		10YR 5/6	yellowish brown	subsoil
287						
1	0 - 30	silt		10YR 3/4	dark yellowish brown	
2	30 - 60	clayey silt		10YR 3/4	dark yellowish brown	subsoil
288						
1	0 - 26	sandy silt		10YR 3/4	dark yellowish brown	
2	26 - 40	clayey silt		10YR 4/6	dark yellowish brown	subsoil
289						
1	0 - 27	silty loam		10YR 4/3	brown	
2	27 - 37	silty clay		10YR 5/6	yellowish brown	subsoil
290						
1	0 - 15	silt	gravel	10YR 3/3	dark brown	
				10YR 3/4	dark yellowish brown	
2	15 - 30	sandy silt	gravel	10YR 4/6	dark yellowish brown	roots
				10YR 4/6	dark yellowish brown	subsoil
291						
1	0 - 23	silt	gravel	10YR 4/3	brown	
2	23 - 40	silty sand	gravel	10YR 5/6	yellowish brown	subsoil
292						
1	0 - 29					
2	29 - 40					roots and rock
293						
1	0 - 28	silt	gravel	10YR 4/3	brown	
2	28 - 53	sand	gravel and cobbles	10YR 5/6	yellowish brown	subsoil
294						
1	0 - 22	silty loam		10YR 4/3	brown	
2	22 - 32	silty clay		10YR 5/6	yellowish brown	subsoil

Level	Depth (cm)	Soil Type	Soil Inclusions	Munsell Color		Termination Reason
295						
1	0 - 37	silty sand	gravel	10YR 3/4	dark yellowish brown	
2	37 - 48	clayey silt	cobbles	10YR 5/6	yellowish brown	subsoil
296						
1	0 - 31	silt	rock	10YR 3/4	dark yellowish brown	
2	31 - 60	clayey silt	rock	10YR 4/4	dark yellowish brown	subsoil
297						
1	0 - 37	sandy silt		10YR 3/4	dark yellowish brown	
2	37 - 54	clayey silt		10YR 4/6	dark yellowish brown	subsoil
298						
1	0 - 33	silt		10YR 4/3	brown	
2	33 - 58	silt		10YR 5/6	yellowish brown	subsoil
299						
1	0 - 36	silty loam		10YR 4/3	brown	
2	36 - 46	silty clay		10YR 4/6	dark yellowish brown	subsoil
300						
1	0 - 27	silt	gravel	10YR 3/4	dark yellowish brown	
2	27 - 50	clayey silt	gravel	10YR 4/6	dark yellowish brown	subsoil
301						
1	0 - 27	silt	rock	10YR 3/4	dark yellowish brown	
2	27 - 40	clayey silt	gravel and cobbles	10YR 4/6	dark yellowish brown	cobble
302						
1	0 - 24	silty loam		10YR 4/3	brown	
2	24 - 34	silty clay	rock	10YR 4/6	dark yellowish brown	subsoil
303						
1	0 - 24	sandy silt	gravel	10YR 4/6	dark yellowish brown	
				10YR 3/4	dark yellowish brown	
2	24 - 36	clayey silt	cobbles	10YR 4/6	dark yellowish brown	subsoil
304						
1	0 - 15	silt		10YR 4/3	brown	
2	15 - 35	silty clay		10YR 5/6	yellowish brown	subsoil
305						
1	0 - 30	silt	gravel	10YR 3/4	dark yellowish brown	cobble
306						
1	0 - 36	silty loam		10YR 4/3	brown	
2	36 - 46	silty clay		10YR 5/6	yellowish brown	subsoil
307						
1	0 - 24	silt		10YR 4/3	brown	
2	24 - 45	silt		10YR 5/6	yellowish brown	subsoil
308						
1	0 - 25	sandy silt		10YR 3/4	dark yellowish brown	
2	25 - 46	clayey silt		10YR 4/6	dark yellowish brown	subsoil

Level	Depth (cm)	Soil Type	Soil Inclusions	Munsell Color		Termination Reason
309						
1	0 - 25	silt	gravel	10YR 3/4	dark yellowish brown	
2	25 - 48	clayey silt	gravel and cobbles	10YR 4/6	dark yellowish brown	subsoil
310						
1	0 - 31	silty loam		10YR 4/3	brown	
2	31 - 41	silty clay		10YR 5/6	yellowish brown	subsoil
311						
1	0 - 29	sandy silt		10YR 3/3	dark brown	
2	29 - 42	clayey silt		10YR 4/6	dark yellowish brown	subsoil
312						
1	0 - 31	silt	gravel	10YR 3/4	dark yellowish brown	
2	31 - 50	clayey silt	gravel	10YR 4/6	dark yellowish brown	subsoil
313						
1	0 - 26	silty sand	gravel	10YR 4/3	brown	
2	26 - 36	compact sand	gravel	10YR 5/6	yellowish brown	subsoil
314						
1	0 - 25	silty sand	gravel	10YR 3/4	dark yellowish brown	
2	25 - 42	clayey silt		10YR 4/6	dark yellowish brown	subsoil
315						
1	0 - 31	silty loam		10YR 4/3	brown	
2	31 - 41	silty clay		10YR 5/6	yellowish brown	subsoil
316						
1	0 - 35	silt	gravel and cobbles	10YR 3/4	dark yellowish brown	cobble
317						
1	0 - 30	silty sand	gravel	10YR 4/3	brown	
2	30 - 45	silty sand	gravel and cobbles	10YR 5/6	yellowish brown	subsoil
318						
1	0 - 32	sandy silt	gravel	10YR 3/4	dark yellowish brown	
2	32 - 50	clayey silt		10YR 3/6	dark yellowish brown	subsoil
319						
1	0 - 30	silt	gravel	10YR 3/4	dark yellowish brown	
2	30 - 50	clayey silt	gravel	10YR 5/4	yellowish brown	subsoil
320						
1	0 - 29	silty loam		10YR 4/3	brown	
2	29 - 39	silty clay		10YR 5/6	yellowish brown	subsoil
321						
1	0 - 27	silt	gravel	10YR 4/3	brown	
2	27 - 48	silt	gravel	10YR 5/6	yellowish brown	subsoil
322						
1	0 - 27	silt	gravel	10YR 3/4	dark yellowish brown	
2	27 - 35	clayey silt	gravel	10YR 4/6	dark yellowish brown	roots and rock

Level	Depth (cm)	Soil Type	Soil Inclusions	Munsell Color		Termination Reason
323						
1	0 - 20	sandy silt		10YR 3/4	dark yellowish brown	
2	20 - 31	silty clay		10YR 4/6	dark yellowish brown	subsoil
324						
1	0 - 30	silt		10YR 4/3	brown	
2	30 - 50	silt		10YR 5/6	yellowish brown	subsoil
325						
1	0 - 25	silty loam		10YR 4/3	brown	
2	25 - 35	silty clay		10YR 5/6	yellowish brown	subsoil
326						
1	0 - 23	sandy silt		10YR 3/4	dark yellowish brown	
2	23 - 45	clayey silt		10YR 3/6	dark yellowish brown	subsoil
327						
1	0 - 27	silt	gravel	10YR 3/4	dark yellowish brown	
2	27 - 46	clayey silt	gravel	10YR 4/6	dark yellowish brown	subsoil
328						
1	0 - 20	silt	gravel	10YR 4/3	brown	
2	20 - 37	sand	gravel	10YR 5/6	yellowish brown	subsoil
329						
1	0 - 27	silty loam		10YR 4/3	brown	
2	27 - 42	silty clay		10YR 4/6	dark yellowish brown	subsoil
330						
1	0 - 25	sandy silt		10YR 3/2	very dark grayish brown	roots
331						
1	0 - 33	sandy silt		10YR 4/4	dark yellowish brown	
2	33 - 50	silty clay		10YR 4/6	dark yellowish brown	subsoil
332						
1	0 - 21	clayey silt	gravel	10YR 2/2	very dark brown	
2	21 - 45	silty clay	gravel	10YR 4/6	dark yellowish brown	subsoil
333						
1	0 - 15	silty loam		10YR 4/3	brown	
2	15 - 30	silty clay		10YR 5/6	yellowish brown	subsoil
334						
1	0 - 31	sandy silt		10YR 4/4	dark yellowish brown	
2	31 - 42	silty clay		10YR 4/6	dark yellowish brown	subsoil
335						
1	0 - 20	silty sand	gravel	10YR 3/4	dark yellowish brown	
2	20 - 40	sand	gravel	10YR 4/4	dark yellowish brown	subsoil
336						
1	0 - 30	coarse sand	gravel and cobbles	10YR 4/3	brown	rock
337						
1	0 - 26	silty loam	gravel	10YR 4/3	brown	
2	26 - 36	coarse sand	gravel	10YR 5/6	yellowish brown	subsoil

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Shovel Test Records

Level	Depth (cm)	Soil Type	Soil Inclusions	Munsell Color		Termination Reason
338						
1	0 - 26	sandy silt	gravel	10YR 3/3	dark brown	rock
339						
1	0 - 15	clayey silt	gravel	10YR 3/4	dark yellowish brown	
2	15 - 35	clay	gravel	10YR 4/6	dark yellowish brown	roots and rock
340						
1	0 - 12	silty loam		10YR 4/1	dark gray	
2	12 - 37	silty loam		10YR 4/3	brown	
3	37 - 47	coarse sand	gravel	10YR 5/6	yellowish brown	subsoil
341						
1	0 - 28	silty loam		10YR 4/3	brown	
2	28 - 38	silty clay	gravel and cobbles	10YR 5/6	yellowish brown	subsoil
342						
1	0 - 31	sandy silt		10YR 3/4	dark yellowish brown	
2	31 - 42	clayey silt		10YR 3/6	dark yellowish brown	subsoil
343						
1	0 - 30	clayey silt	gravel	10YR 3/4	dark yellowish brown	
2	30 - 55	silty clay	gravel and cobbles	10YR 4/6	dark yellowish brown	subsoil
344						
1	0 - 28	sandy silt	gravel	10YR 4/4	dark yellowish brown	
2	28 - 40	silty clay		10YR 3/6	dark yellowish brown	subsoil
345						
1	0 - 31	clayey silt	gravel and cobbles	10YR 3/3	dark brown	
2	31 - 55	silty clay	gravel and cobbles	10YR 4/6	dark yellowish brown	subsoil
346						
1	0 - 31	sandy silt	gravel	10YR 3/4	dark yellowish brown	
2	31 - 51	sand	gravel and rock	10YR 4/6	dark yellowish brown	subsoil
347						
1	0 - 43	silty sand	gravel	10YR 4/4	dark yellowish brown	
2	43 - 55	sandy clay	gravel	10YR 6/6	brownish yellow	subsoil
348						
1	0 - 21	silty loam		10YR 4/3	brown	
2	21 - 31	silty clay	rock	10YR 5/6	yellowish brown	subsoil
349						
1	0 - 28	clayey silt	gravel	10YR 3/4	dark yellowish brown	
2	28 - 64	silty clay	gravel	10YR 4/6	dark yellowish brown	subsoil
350						
1	0 - 21	silty loam		10YR 4/3	brown	
2	21 - 31	silty clay		10YR 5/6	yellowish brown	subsoil
351						
1	0 - 31	sandy silt	gravel	10YR 3/4	dark yellowish brown	
2	31 - 42	silty clay		10YR 3/6	dark yellowish brown	subsoil

Level	Depth (cm)	Soil Type	Soil Inclusions	Munsell Color		Termination Reason
352						
1	0 - 40	sandy silt	gravel	10YR 4/3	brown	
2	40 - 51	clayey silt		10YR 3/6	dark yellowish brown	subsoil
353						
1	0 - 24	clayey silt	gravel and rock	10YR 3/4	dark yellowish brown	
2	24 - 50	silty clay	gravel and rock	10YR 4/6	dark yellowish brown	subsoil
354						
1	0 - 22	silty loam		10YR 4/3	brown	
2	22 - 32	silty clay	rock	10YR 5/6	yellowish brown	subsoil
355						
1	0 - 40	silty loam		10YR 4/3	brown	
2	40 - 50	silty clay		10YR 5/6	yellowish brown	subsoil
356						
1	0 - 30	silt	gravel	10YR 3/4	dark yellowish brown	
2	30 - 35	sandy silt	gravel	10YR 4/6	dark yellowish brown	cobble
357						
1	0 - 38	sandy silt	gravel	10YR 4/3	brown	
2	38 - 49	sandy clay		10YR 3/6	dark yellowish brown	subsoil
358						
1	0 - 23	silt		10YR 3/3	dark brown	
2	23 - 40	silt		10YR 5/6	yellowish brown	subsoil
359						
1	0 - 33	sandy silt	gravel	10YR 4/4	dark yellowish brown	
2	33 - 45	clayey silt	cobbles	10YR 3/6	dark yellowish brown	subsoil
360						
1	0 - 24	silt	gravel	10YR 3/3	dark brown	
2	24 - 43	clayey silt	gravel	10YR 4/6	dark yellowish brown	subsoil
361						
1	0 - 15	silty loam		10YR 4/3	brown	
2	15 - 28	silty clay	gravel	10YR 5/6	yellowish brown	subsoil
362						
1	0 - 26	silt	gravel	10YR 3/3	dark brown	
2	26 - 40	silty sand	gravel	10YR 5/6	yellowish brown	subsoil
363						
1	0 - 33	silty loam		10YR 4/3	brown	
2	33 - 43	silty clay	rock	10YR 5/6	yellowish brown	subsoil
364						
1	0 - 20	silt	gravel	10YR 3/4	dark yellowish brown	
2	20 - 38	silt	gravel	10YR 4/6	dark yellowish brown	subsoil
365						
1	0 - 43	sandy silt	gravel	10YR 4/4	dark yellowish brown	
2	43 - 55	clayey silt		10YR 3/6	dark yellowish brown	subsoil

Phase IA/IB Archeological Investigation, Tioronda Subdivision
Shovel Test Records

Level	Depth (cm)	Soil Type	Soil Inclusions	Munsell Color		Termination Reason
366						
1	0 - 20	silt		10YR 3/3	dark brown	
2	20 - 85	silt		10YR 4/4	dark yellowish brown	subsoil
367						
1	0 - 13	silty loam	fill	10YR 2/1	black	
				10YR 3/2	very dark grayish brown	
2	13 - 42	silty loam	roots	10YR 4/3	brown	
3	42 - 52	silty clay	gravel and cobbles	10YR 5/6	yellowish brown	subsoil
368						
1	0 - 30	silt	cobbles and rock	10YR 3/3	dark brown	
2	30 - 55	silt	cobbles and rock	10YR 4/6	dark yellowish brown	subsoil
369						
1	0 - 34	sandy silt	gravel	10YR 3/4	dark yellowish brown	
2	34 - 51	clayey silt		10YR 6/6	brownish yellow	subsoil
370						
1	0 - 20	silt	gravel	10YR 3/2	very dark grayish brown	
2	20 - 38	silty sand	gravel	10YR 4/4	dark yellowish brown	subsoil
371						
1	0 - 27	sandy silt		10YR 3/4	dark yellowish brown	
2	27 - 40	clayey silt		10YR 6/6	brownish yellow	subsoil
372						
1	0 - 18	silt	gravel and rock	10YR 3/4	dark yellowish brown	
2	18 - 42	clayey silt	gravel and rock	10YR 4/6	dark yellowish brown	subsoil
373						
1	0 - 18	silty loam		10YR 4/3	brown	
2	18 - 28	silty clay	gravel and cobbles	10YR 5/6	yellowish brown	subsoil
374						
1	0 - 21	silty loam		10YR 4/3	brown	
2	21 - 31	silty clay		10YR 5/6	yellowish brown	subsoil
375						
1	0 - 18	sandy silt		10YR 3/4	dark yellowish brown	
2	18 - 30	clayey silt		10YR 4/6	dark yellowish brown	subsoil
376						
1	0 - 27	silt	gravel and rock	10YR 3/3	dark brown	
2	27 - 43	clayey silt	gravel and rock	10YR 5/4	yellowish brown	subsoil
377						
1	0 - 22	silty clay	gravel	10YR 3/2	very dark grayish brown	
2	22 - 40	silty clay	gravel	10YR 4/4	dark yellowish brown	subsoil
378						
1	0 - 17	sandy silt	gravel	10YR 4/4	dark yellowish brown	
2	17 - 30	silty sand	gravel	10YR 7/6	yellow	
3	30 - 44	silty sand	gravel	10YR 3/4	dark yellowish brown	rock

Phase IA/IB Archeological Investigation, Tioronda Subdivision
Shovel Test Records

Level	Depth (cm)	Soil Type	Soil Inclusions	Munsell Color		Termination Reason
379						
1	0 - 10	humus		10YR 2/1	black	
2	10 - 17	silty loam		10YR 4/3	brown	
3	17 - 27	silty clay		10YR 5/6	yellowish brown	subsoil
380						
1	0 - 5	silt	gravel	10YR 3/3	dark brown	
2	5 - 15	sand	gravel	10YR 4/6	dark yellowish brown	gravel
381						
1	0 - 10	silt		10YR 3/3	dark brown	
2	10 - 37	silt		10YR 5/6	yellowish brown	subsoil
382						
1	0 - 46	silty sand	fill	10YR 4/4	dark yellowish brown	disturbed
				10YR 3/4	dark yellowish brown	disturbed
385						
1	0 - 15	silty loam		10YR 4/3	brown	
2	15 - 32	coarse sand	gravel	10YR 5/6	yellowish brown	subsoil
386						
1	0 - 24	sandy silt	gravel	10YR 3/4	dark yellowish brown	
2	24 - 60	silty sand	fill	10YR 4/4	dark yellowish brown	disturbed
387						
1	0 - 14	silt	gravel	10YR 3/3	dark brown	
2	14 - 35	silt	gravel	10YR 5/6	yellowish brown	subsoil
388						
1	0 - 10	silty loam		10YR 3/2	very dark grayish brown	
2	10 - 21	silty loam	rock	10YR 5/4	yellowish brown	
3	21 - 31	silty clay	rock	10YR 4/6	dark yellowish brown	subsoil
389						
1	0 - 10	silt		10YR 3/2	very dark grayish brown	
2	10 - 35	silt	gravel	10YR 5/6	yellowish brown	subsoil
391						
1	0 - 24	sandy silt		10YR 4/4	dark yellowish brown	roots
392						
1	0 - 24	silt	gravel	10YR 3/3	dark brown	
2	24 - 45	silty sand	gravel and cobbles	10YR 5/6	yellowish brown	subsoil
393						
1	0 - 20	sandy silt		10YR 4/3	brown	
2	20 - 31	silty sand	gravel and cobbles	10YR 4/6	dark yellowish brown	subsoil
394						
1	0 - 5	coarse sand	gravel	10YR 4/3	brown	
2	5 - 35	coarse sand	gravel	10YR 5/6	yellowish brown	subsoil
395						
1	0 - 10	silt	gravel and rock	10YR 3/3	dark brown	
2	10 - 30	sandy silt	gravel	10YR 5/4	yellowish brown	subsoil

Phase IA/IB Archeological Investigation, Tioronda Subdivision
Shovel Test Records

Level	Depth (cm)	Soil Type	Soil Inclusions	Munsell Color		Termination Reason
396						
1	0 - 50	sandy silt		10YR 4/4	dark yellowish brown	
2	50 - 70	clayey silt		10YR 5/6	yellowish brown	subsoil
397						
1	0 - 60	sand	fill	10YR 4/4	dark yellowish brown	fill
				10YR 3/4	dark yellowish brown	fill
398						
1	0 - 24	silty clay	fill	10YR 4/6	dark yellowish brown	
				10YR 4/3	brown	
2	24 - 56	silty loam		10YR 4/3	brown	
3	56 - 66	silty clay		10YR 6/6	brownish yellow	subsoil
399						
1	0 - 43	silt	gravel	10YR 4/3	brown	
2	43 - 62	clayey silt		10YR 5/6	yellowish brown	subsoil
400						
1	0 - 35	silty sand	gravel	10YR 3/4	dark yellowish brown	
2	35 - 51	clayey silt		10YR 6/8	brownish yellow	subsoil
401						
1	0 - 36	sandy loam	gravel	10YR 4/3	brown	
2	36 - 46	coarse sand	gravel	10YR 5/6	yellowish brown	subsoil
402						
1	0 - 35	silt	rock	10YR 3/4	dark yellowish brown	
2	35 - 55	silty clay	rock	10YR 4/6	dark yellowish brown	subsoil

APPENDIX 4: Artifact Inventory

Phase IA/IB Archeological Investigation, Tioronda Subdivision
Artifact Inventory, Shovel Tests

STP	Feature	Level	Cxt #	Bag #	Item	Count	Artifact Description	Weight
31		2	0	1	1	1	debitage, thinning flake, chert	2.6 g
31		2	0	1	2	1	debitage, trim, chert	0.2 g
37		1	0	2	1	1	debitage, block flake, chert	22.3 g
44		1	0	3	1	1	redware, coarse earthenware, body, copper glazed, green	2.3 g
44		1	0	3	2	1	redware, coarse earthenware, body, lead glaze	0.9 g
44		1	0	3	3	1	buff bodied, hollowware, coarse earthenware, body, combed	1.4 g
44		1	0	3	4	1	buff bodied, hollowware, coarse earthenware, body, slip decorated	0.9 g
44		1	0	3	5	1	bottle, wine, glass, body, dark green	44.7 g
44		1	0	3	6	1	faunal bone, mammal	2.5 g
44		1	0	3	7	3	shell, clam	6.4 g
44		1	0	3	8	1	coin, reales, silver, complete, C-774, Spanish "pieces of eight", minted in Mexico City, no tare for soil	3.1 g
44		1	0	3	9	2	sheet metal, iron alloy	9.6 g
44		1	0	3	10	4	nail, iron alloy, cut	20.6 g
49		1	0	4	1	1	white salt-glazed, hollowware, stoneware, base, hand painted underglaze, scratch blue, blue	2.9 g
50		2	0	5	1	1	debitage, trim, chert	0.1 g
53		1	0	25	1	1	debitage, trim, chert	0.1 g
70		1	0	6	1	3	tobacco pipe, ball clay-white, stem, 5/64, fragments mend	1 g
89		1	0	7	1	1	unidentified hardware, iron alloy	107.8 g
138		2	0	8	1	3	whiteware, refined earthenware, body, undecorated	2.1 g
138		2	0	8	2	1	hard paste, flatware, porcelain, base, undecorated	3.8 g
139		1	0	9	1	1	rough stone tool, netsinker, siltstone	52.9 g
139		1	0	9	2	1	debitage, thinning flake, slate	0.3 g
139		1	0	9	3	1	debitage, thinning flake, siliceous shale	0.9 g
143		1	0	10	1	1	debitage, trim, chert	0.1 g
143		1	0	10	2	1	fire-cracked rock, conglomerate	13.6 g
155		1	0	12	1	1	chipped stone tool, biface, chert, midsection	4.8 g
155		1	0	12	2	1	bottle, wine, glass, body, green	19.6 g
165		1	0	11	1	1	bottle, wine, glass, heel, dark green, dip molded	20.9 g
165		1	0	11	2	3	bottle, glass, body, pale aqua	8.4 g
189		1	0	13	1	1	fire-cracked rock, quartzite	144.3 g
189		1	0	13	2	1	fire-cracked rock, conglomerate	216.9 g

STP	Feature	Level	Cxt #	Bag #	Item	Count	Artifact Description	Weight
210		2	0	14	1	1	whiteware, flatware, refined earthenware, base, undecorated	11 g
210		2	0	14	2	1	whiteware, hollowware, refined earthenware, body, banded, blue	1.9 g
210		2	0	14	3	1	whiteware, refined earthenware, rim, decal, polychrome	1.1 g
210		2	0	14	4	1	redware, coarse earthenware, body, unglazed	9.2 g
210		2	0	14	5	5	buff/pink bodied, hollowware, stoneware, body, Albany slip	57.7 g
210		2	0	14	6	10	jar, jelly jar, porcelain, body, transfer printed underglaze, impressed, black, "POT MADE IN ENGLAND/ OF MERIT/ JAMES KEILLER &.../ ...UNDE.../ ONLY PRIZE MEDAL FOR MARMALADE/ LONDON/ CO, fragments mend	130.5 g
210		2	0	14	7	1	jar, jelly jar, porcelain, base, transfer printed underglaze, impressed, black, "FMF/ POT MADE IN ENGLAND/ ONLY PRIZE MEDAL FOR.../ LONDON./ CONTENTS 1 LB. NET.", fragments mend	121.2 g
210		2	0	14	8	4	jar, jelly jar, porcelain, body, transfer printed underglaze, impressed, black, "...E.../ ONLY PRIZE FOR MARM.../ ...ON. 1862/.... 1 LB. NE...", fragments mend	15.2 g
210		2	0	14	9	5	jar, jelly jar, porcelain, body, transfer printed underglaze, impressed, black, "FMF/ POT MADE IN ENGLAND/ 1 LB....", fragments mend	81.9 g
210		2	0	14	10	2	jar, jelly jar, porcelain, body, transfer printed underglaze, impressed, black, illegible, fragments mend	3.7 g
210		2	0	14	11	3	jar, jelly jar, porcelain, base, impressed, "FMF/ POT MADE IN ENGLAND", fragments mend	32.8 g
210		2	0	14	12	6	jar, jelly jar, porcelain, rim, some fragments mend	28.2 g
210		2	0	14	13	12	jar, jelly jar, porcelain, body, undecorated	70.9 g
210		2	0	14	14	1	container, glass, lid with finial, colorless, multi-piece mold, "CORNING PYREX/ MADE IN U.S.A./ PAT. MAY 27 19"	88.3 g
210		2	0	14	15	3	vessel, glass, base, colorless, "PYREX", fragments mend	25.7 g
210		2	0	14	16	3	vessel, pitcher, glass, handle, colorless, fragments mend	63.2 g
210		2	0	14	17	1	bottle, pharmaceutical, glass, finish, colorless, stopper finish	27.2 g
210		2	0	14	18	1	bottle, glass, base, light green	19.6 g
210		2	0	14	19	7	bottle, glass, body, light green	41.4 g
210		2	0	14	20	1	bottle, glass, body, faceted, colorless	15.9 g
210		2	0	14	21	1	vessel, glass, rim, coggled/piecrust edge, manganese solarized	5.5 g
210		2	0	14	22	2	bottle, glass, body, green, melted	16.3 g
210		2	0	14	23	2	bottle, glass, body, brown, multi-piece mold	6.4 g
210		2	0	14	24	25	bottle, glass, body, colorless	50.5 g
210		2	0	14	25	4	window, glass	17.4 g
210		2	0	14	26	1	faunal bone, cow, tibia, sawn	39.2 g
210		2	0	14	27	1	faunal bone, small or medium mammal, long bone, sawn	7.4 g
210		2	0	14	28	6	faunal bone, mammal	29.6 g
210		2	0	14	29	12	can/can part, iron alloy	32.5 g
210		2	0	14	30	7	unidentified synthetic, compound, red, possible paint	30.7 g

Phase IA/IB Archeological Investigation, Tioronda Subdivision

Artifact Inventory, Shovel Tests

STP	Feature	Level	Cxt #	Bag #	Item	Count	Artifact Description	Weight
210		2	0	14	31	1	slag	7 g
210		2	0	14	32	2	nail, iron alloy, cut	8 g
210		2	0	14	33	6	nail, iron alloy, wire	17.4 g
222		1	0	15	1	1	whiteware, flatware, refined earthenware, base, flow transfer print, blue	3.2 g
222		1	0	15	2	1	window, glass	3.3 g
233		1	0	16	1	1	whiteware, flatware, refined earthenware, rim, flow transfer print, blue	9.1 g
233		1	0	16	2	3	bottle, wine, glass, body, green	9.2 g
236		1	0	17	1	1	debitage, block flake with cortex, chert	73.4 g
237		2	0	18	1	2	debitage, trim, chert	0.5 g
237		2	0	18	2	5	fire-cracked rock, conglomerate	328.2 g
237		2	0	18	3	2	fire-cracked rock, quartzite	102.7 g
237		2	0	18	4	1	window, glass	1.7 g
237		2	0	18	5	1	coal	0.2 g
238		2	0	19	1	1	debitage, thinning flake, chert, red	5 g
238		2	0	19	2	1	fire-cracked rock, conglomerate	153.9 g
239		1	0	20	1	1	debitage, thinning flake, chert	1 g
239		1	0	20	2	2	mineral sample, shale, fragments mend	35.1 g
258		1	0	21	1	1	whiteware, hollowware, refined earthenware, base	1.5 g
258		1	0	21	2	1	whiteware, hollowware, refined earthenware, body, undecorated	3.4 g
258		1	0	21	3	2	bottle, liquor, glass, mamelon, dark green, dip molded, fragments mend	25.8 g
258		2	0	22	1	1	debitage, thinning flake, chert	1 g
258		2	0	22	2	1	mineral sample, shale	1.3 g
259		1	0	23	1	1	vessel, glass, body, diamond pattern, colorless	2.3 g
259		1	0	23	2	1	bottle, pharmaceutical, glass, finish, pale aqua, stopper finish	17.1 g
259		1	0	23	3	1	bottle, glass, body, cobalt blue	2.8 g
259		1	0	23	4	2	lamp chimney, glass, body, colorless	0.7 g
259		1	0	23	5	2	window, glass	4.1 g
259		1	0	23	6	1	shell, indeterminate type	3.1 g
259		1	0	23	7	1	plaster	1.2 g
260		1	0	24	1	1	redware, coarse earthenware, body, unglazed	5.8 g
260		1	0	24	2	1	shell, oyster	9.9 g

APPENDIX 5: OPRHP Site Forms

NEW YORK STATE PREHISTORIC ARCHAEOLOGICAL SITE INVENTORY FORM

For Office Use Only--Site Identifier A02741.000408

Date July 2004

Project Identifier Tioronda

Your Name Andre Krievs Phone (518) 283-0534
Address 1744 Washington Ave.Ext.
Rensselaer, New York 12144
Organization (if any) Hartgen Archeological Associates, Inc.

1. SITE IDENTIFIER(S) Precontact Site 1

2. COUNTY Dutchess

One of the following:
CITY Beacon
TOWNSHIP
INCORPORATED VILLAGE
INCORPORATED VILLAGE OR HAMLET

3. PRESENT OWNER Tioronda LLC
Address 520 83rd Street
Brooklyn, New York 10013

4. SITE DESCRIPTION (check all appropriate categories):

Site

__Stray Find	__Cave/Rockshelter	__Workshop
__Pictograph	__Quarry	__Mound
__Burial	__Shell Midden	__Village
__Surface Evidence	x Camp	x Material in plow zone
__Material below plow zone	__Buried evidence	__Intact Occupation flr
__Single component	__Features	__Stratified
	__Multicomponent	

Location

__Under cultivation	__Never cultivated	x Previously cultivated
x Pastureland	__Woodland	__Floodplain
x Upland		__Sustaining erosion

Soil Drainage: excellent __ good x fair __ poor__
Slope: flat __ gentle x moderate __ steep__
Distance to nearest water from site (approx.) 200 ft.
Elevation: 100 ft. msl

5. SITE INVESTIGATION (append additional sheets, if necessary):
Surface--date(s)_____
Site map (Submit with form) __
Collection __

Subsurface--date(s) April 2004
Testing: shovel x coring __ other_____ unit size 40 cm. dia.
no. of units _____ (Submit plan of units with form)

Excavation: unit size _____ no. of units _____

Investigator Hartgen Archeological Associates, Inc.

Manuscript or published report(s) (reference fully):

Phase IA Literature Review Archeological Sensitivity Assessment
Phase IB Archeological Field Reconnaissance
Tioronda Subdivision
City of Beacon, Dutchess County, New York
July 2004

Present repository of materials Hartgen Archeological Associates, Inc.

6. COMPONENT(S) (cultural affiliation/dates):

7. LIST OF MATERIAL REMAINS (be specific as possible in identifying object and material):

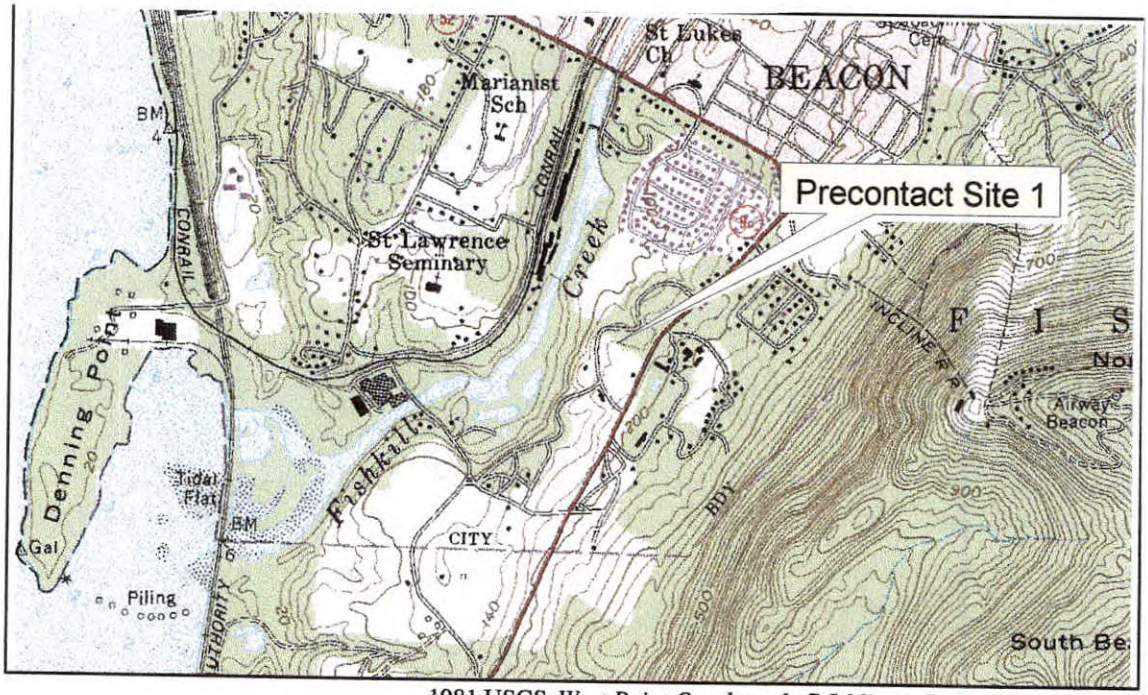
Chert Flakes and Trim Flakes

If historic materials are evident, check here and fill out historic site form _

8. MAP REFERENCES

USGS 7.5 Minute Series Quad. Name West Point

UTM Coordinates N - 4593440
E - 586220



1981 USGS *West Point Quadrangle 7.5 Minute Series (Topographic)*

ARCHEOLOGICAL SITE INVENTORY FORM

Division for Historic Preservation
New York State Parks and Recreation
New York (518) 474-0479
Albany, New York

(518) 474-0479

FOR OFFICE USE ONLY

UNIQUE SITE NO A02741.000409
QUAD _____

Reported by: Andre Krievs **Your Address:** 1744 Washington Ave. Ext. Rensselaer, New York 12144
Telephone: (518) 283-0534 **Organization (if any):** Hartgen Archeological Associates, Inc.

Date: July 2004

* * * \

9. HISTORICAL DOCUMENTATION OF SITE:

Phase IA Literature Review Archeological Sensitivity Assessment
Phase IB Archeological Field Reconnaissance
Tioronda Subdivision
City of Beacon, Dutchess County, New York
July 2004

10. POSSIBILITY OF SITE DESTRUCTION OR DISTURBANCE:

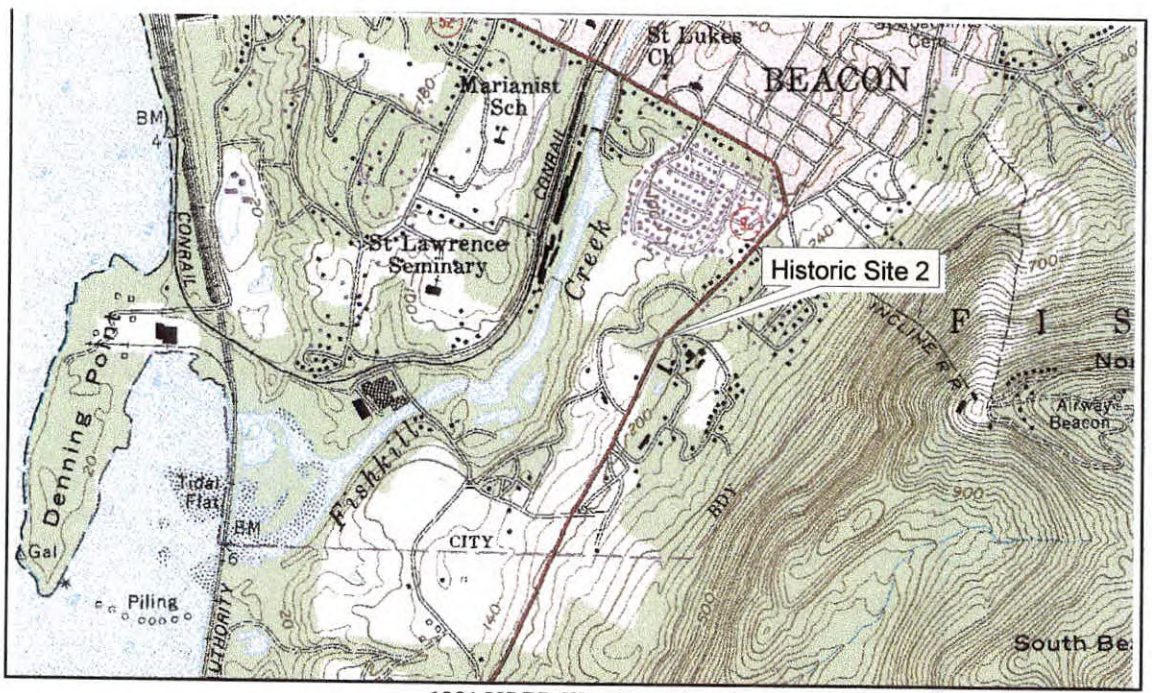
Residential subdivision

11. REMARKS:

12. MAP LOCATION

7½ MINUTE SERIES QUAD. NAME: West Point
15 MINUTE SERIES QUAD. NAME: _____
U.T.M. COORDINATES: N - 4593470 E - 586240
D.O.T. COORDINATES: (if known) _____

ATTACH SKETCH, TRACING OR COPY OF MAP



1981 USGS *West Point Quadrangle 7.5 Minute Series (Topographic)*

NEW YORK STATE PREHISTORIC ARCHAEOLOGICAL SITE INVENTORY FORM

For Office Use Only--Site Identifier A02741.000410

Date July 2004

Project Identifier Tioronda

Your Name Andre Krievs Phone (518) 283-0534
Address 1744 Washington Ave.Ext.
Rensselaer, New York 12144
Organization (if any) Hartgen Archeological Associates, Inc.

1. SITE IDENTIFIER(S) Precontact Site 3

2. COUNTY Dutchess

One of the following:
CITY Beacon
TOWNSHIP
INCORPORATED VILLAGE
INCORPORATED VILLAGE OR HAMLET

3. PRESENT OWNER Tioronda LLC
Address 520 83rd Street
Brooklyn, New York 10013

4. SITE DESCRIPTION (check all appropriate categories):

Site

__Stray Find	__Cave/Rockshelter	__Workshop
__Pictograph	__Quarry	__Mound
__Burial	__Shell Midden	__Village
__Surface Evidence	x Camp	x Material in plow zone
__Material below plow zone	__Buried evidence	__Intact Occupation flr
__Single component	__Features	__Stratified
	__Multicomponent	

Location

__Under cultivation	__Never cultivated	x Previously cultivated
__Pastureland	x Woodland	__Floodplain
x Upland		__Sustaining erosion

Soil Drainage: excellent __ good x fair __ poor__
Slope: flat x gentle __ moderate __ steep__
Distance to nearest water from site (approx.) 100ft
Elevation: 50 ft. msl

5. SITE INVESTIGATION (append additional sheets, if necessary):
Surface--date(s)
Site map (Submit with form) __
Collection __

Subsurface--date(s) April 2004
Testing: shovel x coring __ other____ unit size 40 cm. dia.
no. of units 402 (Submit plan of units with form)

Excavation: unit size _____ no. of units _____

Investigator Hartgen Archeological Associates, Inc.

Manuscript or published report(s) (reference fully):

Phase IA Literature Review Archeological Sensitivity Assessment
Phase IB Archeological Field Reconnaissance
Tioronda Subdivision
City of Beacon, Dutchess County, New York
July 2004

Present repository of materials Hartgen Archeological Associates, Inc.

6. COMPONENT(S) (cultural affiliation/dates):

7. LIST OF MATERIAL REMAINS (be specific as possible in identifying object and material):

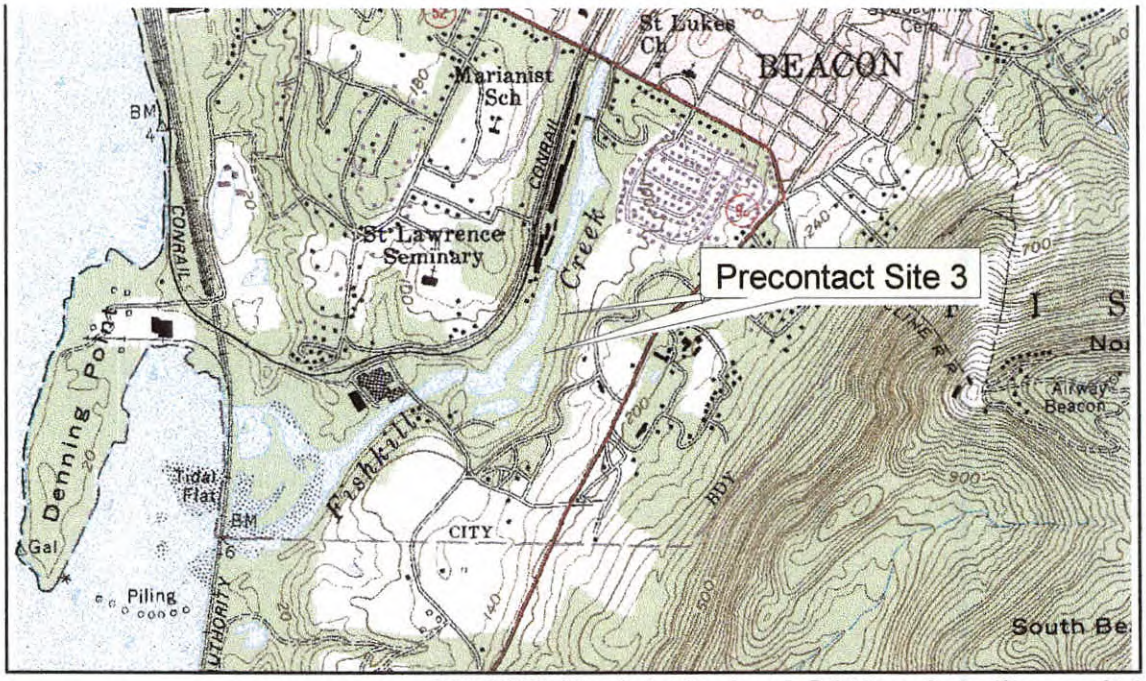
Net sinker, biface fragment, flakes, fire-cracked rock

If historic materials are evident, check here and fill out historic site form _

8. MAP REFERENCES

USGS 7.5 Minute Series Quad. Name West Point

UTM Coordinates	N - 4593400	N - 4593500
	E - 586020	E - 586060



1981 USGS *West Point Quadrangle 7.5 Minute Series (Topographic)*

NEW YORK STATE PREHISTORIC ARCHAEOLOGICAL SITE INVENTORY FORM

For Office Use Only--Site Identifier A02741.000411

Date July 2004

Project Identifier Tioronda

Your Name Andre Krievs Phone (518) 283-0534
Address 1744 Washington Ave.Ext.
Rensselaer, New York 12144
Organization (if any) Hartgen Archeological Associates, Inc.

1. SITE IDENTIFIER(S) Precontact Site 4

2. COUNTY Dutchess

One of the following:
CITY Beacon
TOWNSHIP
INCORPORATED VILLAGE
INCORPORATED VILLAGE OR HAMLET

3. PRESENT OWNER Tioronda LLC
Address 520 83rd Street
Brooklyn, New York 10013

4. SITE DESCRIPTION (check all appropriate categories):

Site

__Stray Find	__Cave/Rockshelter	__Workshop
__Pictograph	__Quarry	__Mound
__Burial	__Shell Midden	__Village
__Surface Evidence	x Camp	x Material in plow zone
__Material below plow zone	__Buried evidence	__Intact Occupation flr
__Single component	__Features	__Stratified
	__Multicomponent	

Location

__Under cultivation	__Never cultivated	x Previously cultivated
__Pastureland	x Woodland	__Floodplain
x Upland		__Sustaining erosion

Soil Drainage: excellent __ good x fair __ poor__
Slope: flat __ gentle x moderate __ steep__
Distance to nearest water from site (approx.) 50 ft
Elevation: 40 ft. msl

5. SITE INVESTIGATION (append additional sheets, if necessary):
Surface--date(s)
Site map (Submit with form) __
Collection __

Subsurface--date(s) April 2004
Testing: shovel x coring __ other____ unit size 40 cm. dia.
no. of units 402 (Submit plan of units with form)

Excavation: unit size _____ no. of units _____

Investigator Hartgen Archeological Associates, Inc.

Manuscript or published report(s) (reference fully):

Phase IA Literature Review Archeological Sensitivity Assessment
Phase IB Archeological Field Reconnaissance
Tioronda Subdivision
City of Beacon, Dutchess County, New York
July 2004

Present repository of materials Hartgen Archeological Associates, Inc.

6. COMPONENT(S) (cultural affiliation/dates):

7. LIST OF MATERIAL REMAINS (be specific as possible in identifying object and material):

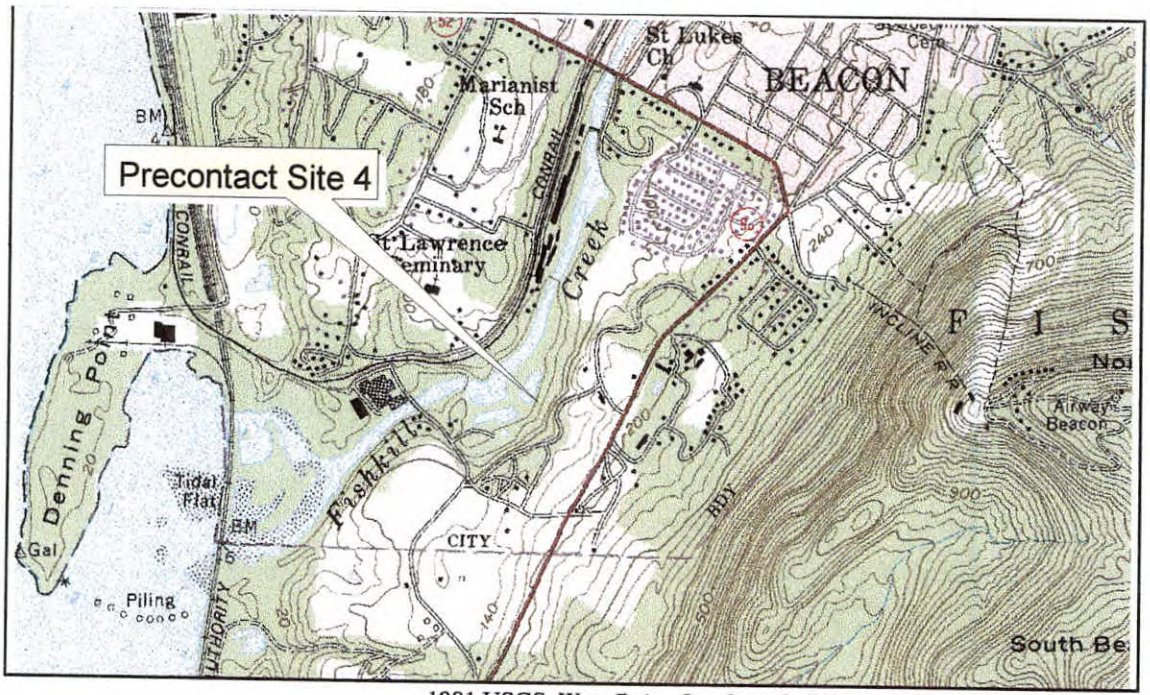
Fire-cracked rock

If historic materials are evident, check here and fill out historic site form

8. MAP REFERENCES

USGS 7.5 Minute Series Quad. Name West Point

UTM Coordinates N - 4593280
E - 586000



1981 USGS *West Point Quadrangle 7.5 Minute Series (Topographic)*

ARCHEOLOGICAL SITE INVENTORY FORM

Division for Historic Preservation
New York State Parks and Recreation
New York (518) 474-0479
Albany, New York

(518) 474-0479

FOR OFFICE USE ONLY

UNIQUE SITE NO. A02741.000412

QUAD _____

Reported by: Andre Krievs **Your Address:** 1744 Washington Ave. Ext. Rensselaer, New York 12144
Telephone: (518) 283-0534 **Organization (if any):** Hartgen Archeological Associates, Inc.

Date: July 2004

* * * \

9. HISTORICAL DOCUMENTATION OF SITE:

1867 Beers *Atlas of Dutchess County, New York.*

10. POSSIBILITY OF SITE DESTRUCTION OR DISTURBANCE:

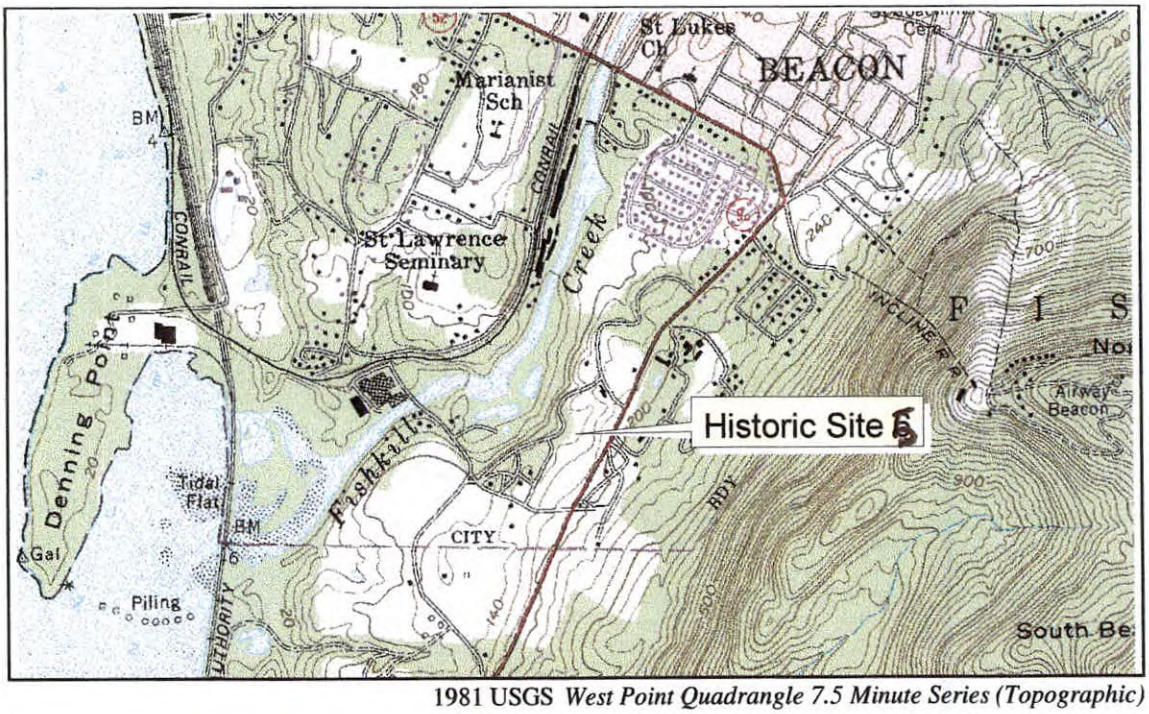
Residential Development

11. REMARKS:

12. MAP LOCATION

$7^{1}/_{2}$ MINUTE SERIES QUAD. NAME: West Point
15 MINUTE SERIES QUAD. NAME: _____
U.T.M. COORDINATES: N - 4593140 E - 586000
D.O.T. COORDINATES: (if known) _____

ATTACH SKETCH, TRACING OR COPY OF MAP



1981 USGS *West Point Quadrangle 7.5 Minute Series (Topographic)*

NEW YORK STATE PREHISTORIC ARCHAEOLOGICAL SITE INVENTORY FORM

For Office Use Only--Site Identifier A02741.000413

Date July 2004

Project Identifier Tioronda

Your Name Andre Krievs Phone (518) 283-0534
Address 1744 Washington Ave.Ext.
Rensselaer, New York 12144
Organization (if any) Hartgen Archeological Associates, Inc.

1. SITE IDENTIFIER(S) Precontact Site 6

2. COUNTY Dutchess

One of the following:
CITY Beacon
TOWNSHIP
INCORPORATED VILLAGE
INCORPORATED VILLAGE OR HAMLET

3. PRESENT OWNER Tioronda LLC
Address 520 83rd Street
Brooklyn, New York 10013

4. SITE DESCRIPTION (check all appropriate categories):

Site

__Stray Find	__Cave/Rockshelter	__Workshop
__Pictograph	__Quarry	__Mound
__Burial	__Shell Midden	__Village
__Surface Evidence	x Camp	x Material in plow zone
__Material below plow zone	__Buried evidence	__Intact Occupation flr
__Single component	__Features	__Stratified
	__Multicomponent	

Location

__Under cultivation	__Never cultivated	__Previously cultivated
__Pastureland	x Woodland	__Floodplain
x Upland		__Sustaining erosion

Soil Drainage: excellent __ good x fair __ poor__
Slope: flat x gentle __ moderate __ steep__
Distance to nearest water from site (approx.) 600 ft.
Elevation: 80 ft. msl

5. SITE INVESTIGATION (append additional sheets, if necessary):
Surface--date(s) April 2004
Site map (Submit with form) __
Collection __

Subsurface--date(s)
Testing: shovel x coring __ other unit size 40 cm. dia.
no. of units 402 (Submit plan of units with form)

Excavation: unit size no. of units

Investigator Hartgen Archeological Associates, Inc.

Manuscript or published report(s) (reference fully):

Phase IA Literature Review Archeological Sensitivity Assessment
Phase IB Archeological Field Reconnaissance
Tioronda Subdivision
City of Beacon, Dutchess County, New York
July 2004

Present repository of materials Hartgen Archeological Associates, Inc.

6. COMPONENT(S) (cultural affiliation/dates):

7. LIST OF MATERIAL REMAINS (be specific as possible in identifying object and material):

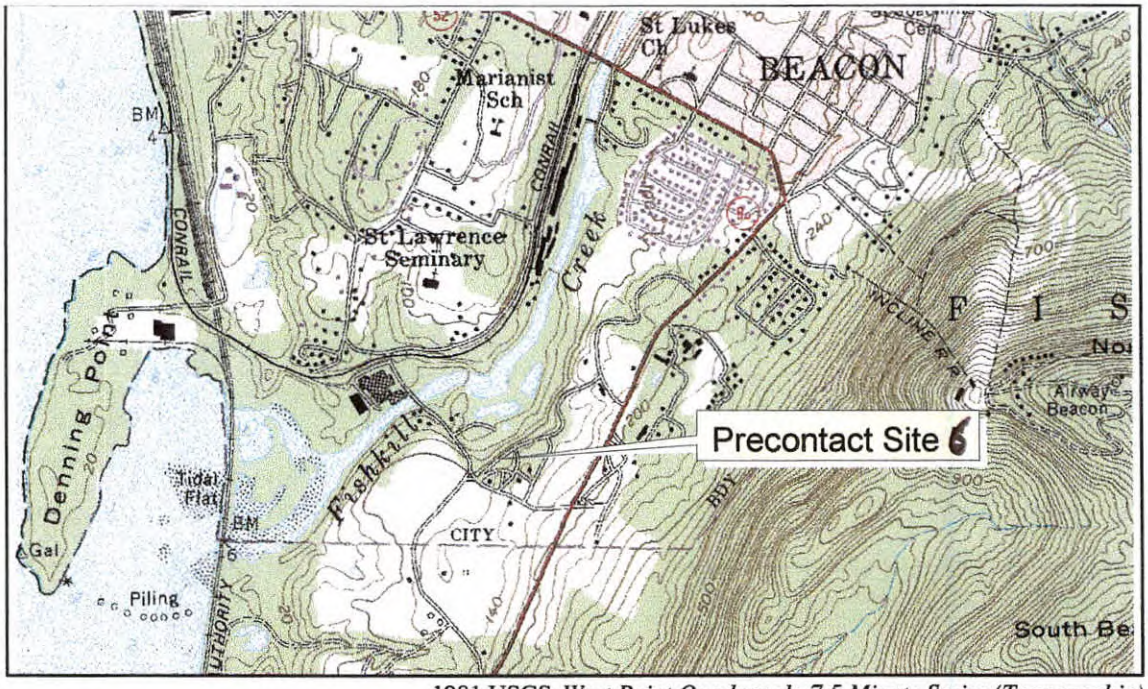
Flakes, Trim flakes, Fire-cracked rock fragments

If historic materials are evident, check here and fill out historic site form _

8. MAP REFERENCES

USGS 7.5 Minute Series Quad. Name West Point

UTM Coordinates N - 4593050
E - 585850



1981 USGS *West Point Quadrangle 7.5 Minute Series (Topographic)*

ARCHEOLOGICAL SITE INVENTORY FORM

Division for Historic Preservation
New York State Parks and Recreation
New York (518) 474-0479
Albany, New York

(518) 474-0479

FOR OFFICE USE ONLY

UNIQUE SITE NO. A02741.000414
QUAD_____

Reported by: Andre Krievs **Your Address:** 1744 Washington Ave. Ext. Rensselaer, New York 12144
Telephone: (518) 283-0534 **Organization (if any):** Hartgen Archeological Associates, Inc.

Date: July 2004

* * * \

9. HISTORICAL DOCUMENTATION OF SITE:

1867 Beers *Atlas of Dutchess County, New York*

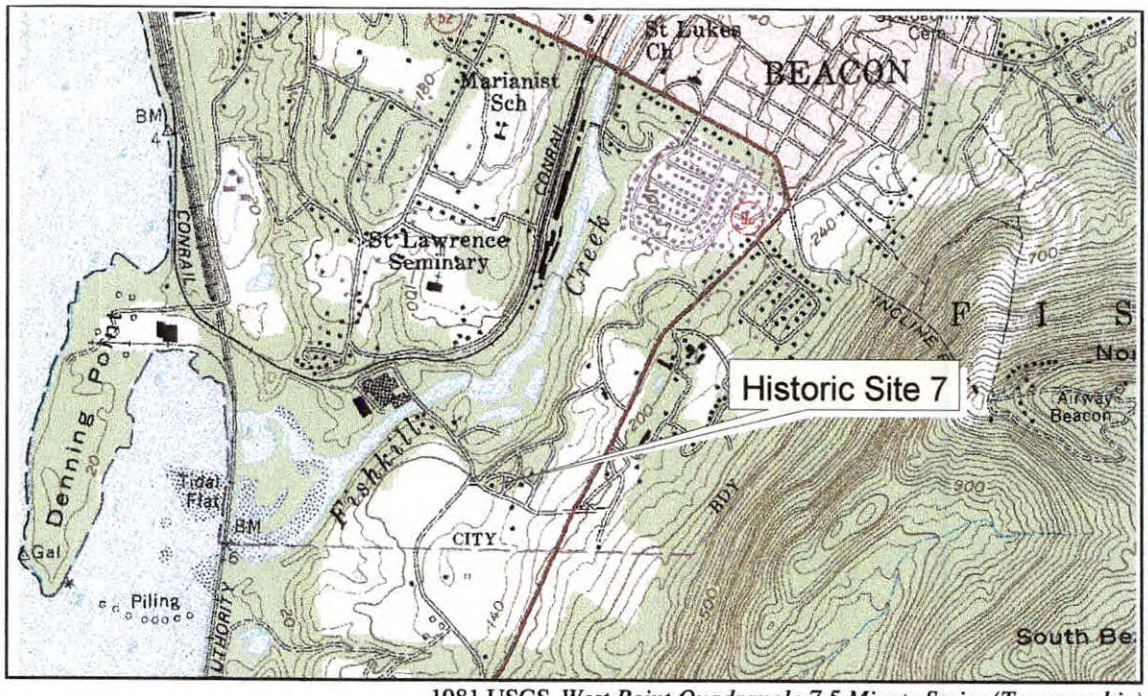
10. POSSIBILITY OF SITE DESTRUCTION OR DISTURBANCE:

11. REMARKS:

12. MAP LOCATION

$7^1/_2$ MINUTE SERIES QUAD. NAME: West Point
15 MINUTE SERIES QUAD. NAME: _____
U.T.M. COORDINATES: N - 4593000 E - 585850
D.O.T. COORDINATES: (if known) _____

ATTACH SKETCH, TRACING OR COPY OF MAP



1981 USGS *West Point Quadrangle 7.5 Minute Series (Topographic)*

APPENDIX 6: OPRHP Project Review Cover Form

New York State Office of Parks, Recreation and Historic Preservation
Historic Preservation Field Services Bureau
Peebles Island Resource Center, PO Box 189, Waterford, NY 12188-0189 (Mail)
Delaware Avenue, Cohoes 12047 (Delivery)
(518) 237-8643

PROJECT REVIEW COVER FORM

Rev. 10-04

*Please complete this form and attach it to the top of **any and all information submitted to this office** for review. Accurate and complete forms will assist this office in the timely processing and response to your request.*

This information relates to a previously submitted project.

PROJECT NUMBER ____PR_____

COUNTY Dutchess

☐ If you have checked this box and noted the previous Project Review (PR) number assigned by this office you do not need to continue unless any of the required information below has changed.

RECEIVED
JUL 25 2006
HISTORIC PRESERVATION
FIELD SERVICES BUREAU

2. This is a new project. ☐ If you have checked this box you will need to complete ALL of the following information.

Project Name Tioronda Subdivision

Location Grandview Ave. and NY Route 90
You MUST include street number, street name and/or County, State or Interstate route number if applicable

City/Town/Village City of Beacon
List the correct municipality in which your project is being undertaken. If in a hamlet you must also provide the name of the town.

County Dutchess
If your undertaking* covers multiple communities/counties please attach a list defining all municipalities/counties included.

TYPE OF REVIEW REQUIRED/REQUESTED (Please answer both questions)

A. Does this action involve a permit approval or funding, now or ultimately from any other governmental agency?

☐ No ☐ Yes

If Yes, list agency name(s) and permit(s)/approval(s)

Agency involved	Type of permit/approval	State	Federal
DEC	Wetlands	☒	☐
DOT	Road Access	☒	☐
		☐	☐

B. Have you consulted the NYSHPO web site at http://www.nysparks.state.ny.us/shpo to determine the preliminary presence or absence of previously identified cultural resources within or adjacent to the project area? If yes: ☐ Yes ☐ No

Was the project site wholly or partially included within an identified archeologically sensitive area? ☐ Yes ☐ No

Does the project site involve or is it substantially contiguous to a property listed or recommended for listing in the NY State or National Registers of Historic Places? ☐ Yes ☐ No

CONTACT PERSON FOR PROJECT

Name Jake Woland **Title** _____

Firm/Agency Mathews Nielsen Landscape Architects P.C.

Address 184 Duane St. **City** New York **STATE** NY **Zip** 10013

Phone (212) 431-3609 **Fax** (212) 941-1513 **E-Mail** _____

The Historic Preservation Review Process in New York State

In order to insure that historic preservation is carefully considered in publicly-funded or permitted undertakings*, there are laws at each level of government that require projects to be reviewed for their potential impact/effect on historic properties. At the federal level, Section 106 of the National Historic Preservation Act of 1966 (NHPA) directs the review of federally funded, licensed or permitted projects. At the state level, Section 14.09 of the New York State Parks, Recreation and Historic Preservation Law of 1980 performs a comparable function. Local environmental review for municipalities is carried out under the State Environmental Quality Review Act (SEQRA) of 1978.
(regulations on line at: www.nysparks.state.ny.us/shpo Environmental Review)

Project review is conducted in two stages. First, the Field Services Bureau assesses affected properties to determine whether or not they are listed or eligible for listing in the New York State or National Registers of Historic Places. If so, it is deemed "historic" and worthy of protection and the second stage of review is undertaken. The project is reviewed to evaluate its impact on the properties significant materials and character. Where adverse effects are identified, alternatives are explored to avoid, or reduce project impacts; where this is unsuccessful, mitigation measures are developed and formal agreement documents are prepared stipulating these measures.

ALL PROJECTS SUBMITTED FOR REVIEW SHOULD INCLUDE THE FOLLOWING MATERIAL(S).

☒ **Project Description**

Attach a full description of the nature and extent of the work to be undertaken as part of this project. Relevant portions of the project applications or environmental statements may be submitted.

☒ **Maps Locating Project**

Include a map locating the project in the community. The map must clearly show street and road names surrounding the project area as well as the location of all portions of the project. Appropriate maps include tax maps, Sanborn Insurance maps, and/or USGS quadrangle maps.

☒ **Photographs**

Photographs may be black and white prints, color prints, or color laser/photo copies; standard (black and white) photocopies are NOT acceptable.

- *If the project involves rehabilitation*, include photographs of the building(s) involved. Label each exterior view to a site map and label all interior views.

- *If the project involves new construction*, include photographs of the surrounding area looking out from the project site. Include photographs of any buildings (more than 50 years old) that are located on the project property or on adjoining property.

NOTE: Projects submissions will not be accepted via facsimile or e-mail.

* ***Undertaking*** is defined as an agency's purchase, lease or sale of a property, assistance through grants, loans or guarantees, issuing of licenses, permits or approvals, and work performed pursuant to delegation or mandate.

This is fill not cut. Not disturbing the ground.

These two area are fill not cut. Not disturbing the ground.

Precontact Site 3
AVOIDED-50'

Precontact Site 4
AVOIDED-50'

Historic Site 2
Avoided

Precontact Site 1
AVOIDED

Historic Site 6
AVOIDED-50'

Precontact Site 5
AVOIDED NEW WORK

Historic Site 7
AVOIDED NEW WORK

LOT # 15
LOT # 16
LOT # 17
LOT # 18
LOT #19
LOT # 14
LOT # 2
LOT # 3
LOT A
LOT # 13
LOT # 1
LOT # 12
LOT # 8
LOT # 9
LOT # 10
LOT # 7
LOT #5
LOT #4
LOT # 11

NORTH POND
SOUTH POND

DEED RESTRICTION AREA

SARGENT'S GLENHURST LAWN

NEW YORK STATE ROUTE 9D
A.K.A. WOLCOTT AVENUE
A.K.A. HOWLAND AVENUE

SOUTH AVENUE
GRANDVIEW AVENUE

PROPERTY LINE

LEGEND

- EXISTING STRUCTURES
- PROPOSED BUILDING ZONES
- SURVEYED HISTORIC SITES
- SURVEYED PRECONTACT SITES

AVOIDANCE STRATEGY CONCEPT

BY MATHEWS NIELSEN LANDSCAPE ARCHITECTS, PC

SUBMITTED TO HARTGEN ARCHEOLOGICAL ASSOC. INC.

AUGUST 7TH, 2006

DRAFT MAY 2006

SUBDIVISION PLAT
PREPARED FOR
TIORONDA, LLC
SITUATE IN THE
CITY OF BEACON
DUTCHESS COUNTY
NEW YORK

1250

John Clarke Planning and Design jclarkeplandesign@gmail.com
845.797.4152

To: John Gunn, Chair, and the City of Beacon Planning Board
Date: June 10, 2022
Re: **Mirbeau Howland Estate Special Permit, Site Plan, and Subdivision Plan**

I have reviewed the following:

- Two cover letters from The Mirbeau companies, dated May 26, 2022;
- Subdivision Application, dated May 31, 2022;
- Preliminary Subdivision Plat, dated May 25, 2022;
- Revised page 2 for the Full EAF parts 1 and 2, originally dated May 25, 2022;
- Response letter from The Mirbeau Companies, dated March 29, 2022;
- Parking memo and response letter from Colliers Engineering and Design, dated May 24, 2022;
- Response letter from Hudson Land Design, dated May 25, 2022;
- 7-sheet architectural and views drawings by Arrowstreet, dated May 25, 2022;
- Revised Traffic Impact Study by Colliers Engineering and Design, dated May 24, 2022, and
- 28-sheet Plan set by Arrowstreet, LRC Group, and Hudson Land Design, dated May 25, 2022.

Proposal

The applicant is proposing to convert the Howland Estate into a 75-room hotel with additions to the renovated Mansion, spa, 110-seat restaurant, five cottages, and an event space. Future phases will include restoration of the former school and south gatehouse, farming operations, recreational uses, and subdivision of 7 acres for rental cottages. The 64.39-acre site is in the R1-80 zoning district and in the Historic District and Landmark Overlay (HDLO) zone.

Comments and Recommendations

1. One of the Special Permit conditions in Section 223-24.7D considers the impacts of parking on the landscape and setting of the structure. There are two clear public viewpoints toward the historic Mansion from Route 9D, from just south of the proposed main entrance and from just south of the large Gingko tree. They are not accurately represented by the photo on Sheet A0.01. Both of these views are proposed to look through or over front yard parking lots. If, as proposed, the foreground is slightly mounded and landscaped to help block views of the parking lots, it will also diminish views of the Mansion, which is at a lower elevation. With adjustments to the new building and southerly parking lots, more screened parking could be provided south of the Weeping Hemlock tree.

2. The proposed layout provides 251 parking spaces, which is justified by comparisons with other Mirbeau locations. The closest comparison is in terms of outlying location, spa rooms, restaurant seats, and employees appears to be Skaneateles. Adding 51 spaces for the additional hotel rooms would bring that total up to 174 comparable spaces required. Since many of the restaurant, spa, and event patrons will also be hotel guests, the applicant could reduce the number of spaces to avoid overparking the historic site. The Code offers a shared parking deduction under Section 223-26C(6) or a land-banking waiver under Section 223-26E.

3. A view analysis should be provided for the Mansion's long view towards the south and how it may be affected by the removal of six trees in front of the five proposed cottages.

4. The need for a crosswalk to the park across the street should be considered by the Board.

5. The Greenway Trail Committee has requested an opportunity to discuss future trail options along the Fishkill Creek.

6. The applicant, Board, and Greenway Trail Committee should consider the possibility of a walkway along the South Avenue and Grand View Avenue frontages.

7. The Planting Plans will need to be completed, making sure that the new landscaping will not block public views of the Mansion.

8. The 2006 Archeological Report should be provided to the Board, as well as comment letters from NYS OPRHP.

9. Any new additions to the historic buildings or exterior construction must meet the standards in Chapter 134, Historic Preservation, and will require a Certificate of Appropriateness. When appropriate, the building designs should be referred to the Architectural Review Subcommittee.

10. For the Preliminary Subdivision Plat, Survey Note 4 that there no wetlands on the site should be clarified or corrected.

If you have any questions or need additional information, please feel free to contact me.

John Clarke, Beacon Planning Consultant

c: Dave Buckley, Building Inspector
Jennifer L. Gray, Esq., City Attorney
Arthur R. Tully, P.E., City Engineer
John Russo, P.E., City Engineer
Ed Kellogg, Project Representative

June 10, 2022

Mr. John Gunn, Chairman
Beacon Planning Board
City of Beacon City Hall
1 Municipal Plaza
Beacon, NY 12508

RE: Site Plan, Traffic and Parking Study Review #2 for **Mirbeau Beacon**, 7 Craig House Lane, City of Beacon, Dutchess County, New York; CM Project No. 121-295

Dear Mr. Gunn:

Creighton Manning Engineering, LLP (CM) reviewed the documents contained in the City of Beacon Planning Board Agenda Packet for the June 14, 2022 meeting. Since our initial review letter dated May 10, 2022, the full-build out of the development has been revised such that it consists of the following

- 75 hotel rooms – total of 75 "keys"
- 24 two-/three-bedroom cottages (five to be constructed in the initial phase) – total of 24 "keys"
- 21 spa rooms
- 110-seat restaurant
- Space for tented events for a maximum of 100 attendees

The 500-square-foot farm store is no longer proposed as part of the project. However, there will be farming activities onsite that will support the onsite restaurant. The development will now be supported by 251 paved parking spaces inclusive of seven ADA-accessible parking spaces. An additional 49 spaces will be located on a reinforced grass area to be utilized for events and an additional 38 parking spaces will be provided in the vicinity of Tioronda School. CM notes that the proposed reinforced grass parking area is not shown on the Overall Site Plan.

At this time, the applicant and their consultants have addressed all previous comments raised by our office in the May 10, 2022 letter. Below, please find our most recent comments for consideration by the Board.

1. CM reviewed the Parking Analysis provided in Colliers' report and the Memorandum, dated May 24, 2022, included in the submission material. The proposed development requires 233 parking spaces per the City of Beacon Code and is providing 251 paved parking spaces. There are an additional 38 parking spaces provided in the vicinity of the Tioronda School, bringing the total number of paved parking spaces to 289. There is a potential for the site to be over-parked. The applicant should consider either reducing the number of proposed spaces or land-banking these spaces to reduce unnecessary impervious surface area.
2. CM notes that Mirbeau Lane will be widened to have a typical width of 18-ft. Please confirm that this is acceptable for access by fire apparatus.
3. CM notes striping and signage for the internal roadway intersection of the eastern parking lot as it intersects the entrance driveway. CM recommends that similar traffic control measures be included at the intersection of the western parking lot and Mirbeau Lane.
4. Traffic control in and around the roundabout should be clarified.
5. Please confirm there is adequate sight distance for vehicles traveling along Mirbeau Lane to stop if a vehicle is entering or exiting the cottage parking spaces along the roadway.
6. CM recommends that the required clearing necessary to achieve sight distance looking left from the Grandview Avenue driveway be shown on the site plan. A sight distance triangle with hatched area of clearing will be sufficient.

7. Please provide a level of service assessment of the site driveway on NYS Route 9D considering one shared exit lane for left and right turns to confirm if the proposed configuration is necessary. If the assessment indicates that there are no operational issues or capacity constraints with one exit lane, one exit lane should be considered in lieu of two to avoid left-turning vehicles obstructing sight lines for right-turning vehicles.

If you have any questions about the above comments, please do not hesitate to contact our office at (914) 800-9201. In an effort to make the comment-response process as efficient as possible, we are available to attend a meeting via Zoom to discuss the project and the matters raised in this letter.

Respectfully,

Creighton Manning Engineering, LLP

Frank A. Filiciotto, PE
Associate

Starke W. Hipp, PE
Project Engineer

N:\Projects\2021\121-295 Beacon - 2021 Traffic Reviews\Working\Correspondence\Mirbeau\Mirbeau_Rev 2.docx

LANC & TULLY

ENGINEERING AND SURVEYING, P.C.

John J. O'Rourke, P.E., Principal
David E. Higgins, P.E., Principal
John Queenan, P.E., Principal
Rodney C. Knowlton, L.S., Principal
Jerry A. Woods, L.S., Principal
John D. Russo, P.E., Principal
John Lanc, P.E., L.S.
Arthur R. Tully, P.E.

June 10, 2022

Mr. John Gunn
Beacon Planning Board Chair
City of Beacon
1 Municipal Plaza
Beacon, NY 12508

RE: Mirbeau of Beacon, LLC
City of Beacon
Tax Map No. 6054-13-001258

Dear Mr. Gunn:

My office has received the following in regard to the above application:

- Cover letter from Mirbeau Companies, dated May 26, 2022, with regards to submission for subdivision.
- Application for Subdivision Approval, Affidavit of Property Owner, and Entity Disclosure Form
- Amended Page 2 of 13 of the EAF.
- Cover letter from Mirbeau Companies, dated May 26, 2022, with regards to Special Permit and Site Plan.
- Correspondence from Mirbeau Companies dated May 25, 2022, in response to Mr. Clarke's comments.
- Memorandum from Colliers Engineering & Design dated May 24, 2022, with regards to Mirbeau Beacon Parking.
- Correspondence from Colliers Engineering & Design dated May 24, 2022, along with Traffic Impact Study dated May 24, 2022.
- Correspondence from Hudson Land Design dated May 25, 2022.
- Report titled "Preliminary Water and Sewer Engineer's Report for Mirbeau Inn & Spa Beacon", dated May 25, 2022, as prepared by Hudson Land Design.
- Report titled "Preliminary Stormwater Pollution Prevention Plan for Mirbeau Beacon Inn & Spa", with the latest revision date of May 25, 2022, as prepared by Hudson Land Design.
- Plan titled "Preliminary Subdivision Plat – Mirbeau Beacon", with the latest revision date of May 25, 2022, as prepared by Hudson Land Design.
- Plan set consisting of project elevations titled "Mirbeau Beacon" dated May 25, 2022, as prepared by Arrowstreet Architecture & Design.
- Plan set titled "Mirbeau Beacon Inn & Spa", with the latest revision date of May 25, 2022, and consisting of Sheets 1 of 28 through 28, as prepared by Hudson Land Design, Arrowstreet, and LRC Group.

The applicant is looking to develop a Spa and Inn at the Craig House property located on the southerly side of the City along Wolcott Avenue, which is 64.39 acres in size. They are also proposing to subdivide 7 acres from the parent parcel, along Grandview Avenue, that will contain

Phase II of the project in the future. Based upon our review of the above referenced documents and plans, we offer the following comments:

General Comments:

1. The Application for Subdivision Approval will need to be revised, as the "Total Property Area" of the existing parcel to be subdivided is 64.39± acres based upon the preliminary subdivision plat submitted. The 2 questions above this question should also be answered appropriately.

2. The project will require Dutchess County Department of Health approval for the proposed private water system and proposed sewer collection system. As the collection both systems are private and will be traversing across more than one parcel, a Transportation Corporation will need to be formed for the water and sewer systems.

3. The sewer information shown along South Avenue is based upon information from a 1989 plat. The sewer system along the lower portion of South Avenue was replaced at with a new 30" diameter sewer line when the South Avenue utility bridge was installed, along with a new 12" ductile iron water line being installed along the length of South Avenue up to Grandview. A sewer study may be required for the additional flows proposed to the South Interceptor Sewer Line to which the project is proposed to connect to. ***Applicant's engineer states that this information is currently being updated and will be provided with a future submission.***

4. A cut and fill analysis plan should be prepared for the project.

5. A construction phasing plan should be prepared for the project. Once a phasing plan has been prepared, the erosion and sediment control plans should be revised accordingly to each respective phase.

6. Utility Profiles for water system shall be updated to call out "tee's" for hydrant connections.

7. The utility plans shall be updated to show where the drain from the proposed meter pits will flow to.

8. The utility plan and Planting plan shall be coordinated. Based upon review of the planting plan, there are several trees proposed to be planted directly over proposed utilities.

9. Construction details for the proposed pump station(s) shall be provided on the plans.

10. A guiderail construction detail shall be provided on the plan for the guiderail that is to be replaced.

Water & Sewer Engineer's Report:

1. Section 4 Project Description, titled "Employees", should be updated to reflect 70 employees based upon documentation contained in the traffic report, as well as noted in the Water Usage Table on Page 4 of the report.

2. The last sentence of paragraph 2 of the Water Supply section shall be revised to note that the meter pits will also have backflow prevention devices. Water from the private system shall not be allowed to re-enter the public water system.

3. The Water Supply section of the report should be updated to reflect water pressures in the existing water lines, along with providing for fire flows that will be available at hydrants located on the private system.

4. The Sewage Conveyance section of the report notes that there will be an extension of the City's sewer collection system. Any extension of the collection system will require approval from the City Council. The extension of the sewer main along South Avenue as currently proposed will only serve as a sewer lateral for connection of the project to the City's collection system. We would recommend that the applicant look for an alternate route within the site to allow for connection to the City's sewer collection system. If the City was willing to accept the extension of the sewer collection system, it would only be to the sewer manhole located within the intersection of South Avenue and Grandview Avenue, and the line leading from this manhole into the site would be considered part of the private system for the project.

5. Calculations for the grease trap should be included in the report once prepared.

6. Calculations for the proposed pump station(s) shall be provided within the report once they have been prepared.

SWPPP Report:

1. Preliminary soil testing was conducted at the site on June 9th with our office, with the results of the testing showing exceptional infiltration for the proposed system. In discussions with the project engineer, they are looking at modifying the current systems proposed based upon the initial infiltration testing conducted, and additional soil testing will need to be conducted at the site. All soil data from test pits and infiltration testing results shall be included in the SWPPP, with a plan showing where test pits were excavated, and infiltration test were conducted.

2. Pre and Post drainage plans shall be provided with the SWPPP for future submissions to allow for verification of drainage areas. Plans should be provided at full scale. As not plans were included with the report at this time, we were unable to verify pre and post drainage areas.

3. The "Post Development Watershed Conditions" table on page 10 notes that the areas running to the proposed rain gardens are 0.29 acres (12,632 square feet) and 0.40 acres (17,424 square feet) in size. Section 5.3, page 5-73 of the NYSDEC Stormwater Design manual states "A single rain garden system should be designed to receive sheet flow runoff or shallow concentrated flow from an impervious area or from a roof drain downspout with a total contributing drainage area equal to or less than 1,000 square feet. Treatment of larger drainage areas should incorporate the design elements of bioretention practices. Because the system works by filtration through a planting media, runoff must enter at the surface." Due to the area draining to each of the rain gardens, the project engineer shall ensure that the proposed gardens incorporate the necessary bioretention practices.

4. The "Long Term Operation and Maintenance" section of the report shall be updated to include language stating that the stormwater facilities shall be inspected on a yearly basis by a licensed engineer, and that a copy of the inspection report, along with findings and recommendations, shall be submitted to the Beacon Building Department and City Engineer's office.

Preliminary Subdivision Plat:

1. Survey Note No. 4 should be removed from the plan, as the plan shows the delineation of wetlands on the westerly (rear) portion of the site.

2. The plan shall note as to whether the delineated wetlands are Federal or NYSDEC wetlands. If they are NYSDEC wetlands, then a 100-foot buffer should also be shown.

Site Plan Sheets

Sheet 3 of 28:

1. Note No. 2 should be revised, as other submitted documentation states that there will be 70 employees on site at any one time.

Sheet 4 of 28:

1. The sidewalk on the north side of the proposed chateau, which leads out to the accessible parking stalls, should be extended to the north to allow for those in the two accessible parking stalls to access the sidewalk without having to travel around the back of vehicles in the travelled way.

2. The "Mansion Entrance Detail" on the right side of the sheet should have the hatching for the proposed surfacing lightened so text and dimensions are legible. We would also recommend that the callout text within this detail be darkened.

Sheet 5 of 28:

1. Consideration should be given to providing an access easement over Gatehouse Lane in Favor of Lot 1 over Lot 2.

Sheet 7 of 28:

1. The "Storm Sewer Structure Table" should be updated to provide information for the flared end section FES-2 that enters the bio-retention pond.

2. The information for flared end section FES-1 should be checked within the "Storm Sewer Structure Table", as it notes a rim elevation and questions the sump elevation.

3. Labeling should be corrected so that it does not overlap one another.

Sheet 13 of 28:

1. Where the water and sewer cross the drainage channel at Sta. 2+20 per Sewer 2 Profile, the utilities should be adjusted to comply with 10 State Standards, which will require the utilities to be installed at deeper depths at this location.

Sheet 16 of 28:

1. Pavement Restoration Detail shall be revised to reflect 1 ½" of top course and 3 ½" of binder course within South Avenue, and 1 ½" of top course, 2 ½" of binder course, and 8" of base course (installed in two 4" lifts) for work with Wolcott Avenue.

Sheet 17 of 28:

1. Rain garden detail shall be updated to reflect requirements of bio-retention areas based upon the area being drained to the proposed rain gardens.

Sheet 18 of 28:

1. Fire Flow meters shall also have a smaller 1 ½" or 2" bypass line with meter to allow for proper measurement of low flows. Catalog cuts of the proposed meter shall be provided.

This completes our review at this time. Further comments may be forth coming based upon future submissions. **A written response letter addressing each of the above comments should be provided with the next submission.** If you have any questions, or require any additional information, please do not hesitate to contact our office.

Very truly,

LANC & TULLY, P.C.

John Russo, P.E.

Cc: John Clarke, Planner
Jennifer Gray, Esq.
David Buckley, Building Inspector

NEW YORK STATE OF OPPORTUNITY. Department of Transportation

KATHY HOCHUL
Governor

MARIE THERESE DOMINGUEZ
Commissioner

LANCE MacMILLAN, P.E.
Regional Director

April 29, 2022

John Gunn, Planning Board Chairman
One Municipal Plaza, Suite One
Beacon, New York 12508

Re: NYSDOT SEQRA# 22-064
Mirbeau of Beacon
7 Craig House Lane
City of Beacon, Dutchess County

Dear Mr. Gunn,

The New York State Department of Transportation (NYSDOT) is in receipt of the submittal for the above referenced project which was received in our office on April 28, 2022 The NYSDOT has no objections to the City of Beacon Planning Board taking the role of Lead Agency for this project.

Please note that the proposed project does not abut the state system. However, it is anticipated that the State Highway system could be impacted and the Department would like to remain in the SEQRA review process.

It is important that the NYSDOT be kept informed of all project updates/revisions through the SEQRA process for approval. Please reference the SEQRA no. 22-064 on all correspondence.

Please submit subsequent plans and documents in electronic format to the following email address; (dot.sm.r08.HWPermits@dot.ny.gov). In addition, please send one paper copy to the address shown below:

Residency 8-3 Permit Engineer
NYS Department of Transportation
106 Ludingtonville Road
Holmes, NY 12531

Very truly yours,

Cassandra Bibbo, EIT
Assistant Engineer

RESPONSE FORM TO CITY OF BEACON PLANNING BOARD

To: City of Beacon Planning Board

From: NYS Dept. of Transportation [please insert your agency name]

Date: 4/29/22 [please insert date]

Subject: **7 Craig House Lane, Beacon, New York**
Tax Grid No. 30-6054-13-001258-00
Designation of Lead Agency in Accordance with SEQRA

With respect to the declaration that the City of Beacon Planning Board intends to serve as the Lead Agency for the environmental review for Site Plan Approval in connection with a proposal to convert the Howland Estate into a 75-room hotel with additions to the renovated mansion, spa, 100 seat restaurant, five cottages, and an event space. Future phases will include restoration of the former school and south gatehouse, a farm and farm store, recreational uses, and subdivision of 6.5 acres for rental cottages. The Planning Board is the approval authority for the Site Plan Approval.
The above identified agency:

[please check one box below]

☒ Has no objection to the Planning Board serving as Lead Agency.

☐ Takes no position with respect to the Planning Board serving as Lead Agency.

☐ Objects to the Planning Board serving as Lead Agency.

Cassandra Bibbo
Printed Name

Cassandra Bibbo
Signature

permit Engineer, Residency 8-3
Title

City of Beacon Planning Board Agenda
06/14/2022

Title:

Review application for Site Plan Approval, small cell wireless facility on an existing light pole and one antenna, 2 Red Flynn Drive, submitted by Verizon Wireless of the East, LP (dba Verizon Wireless)

ATTACHMENTS

Verizon 2 Red Flynn Application.pdf

Planners Comments PB 2 Red Flynn Small Cell 6.10.22.pdf

Engineers Comments 2 Red Flynn Small Cell Review 06-10-22.pdf

BOARD OF TRUSTEES and/or PLANNING BOARD
CITY OF BEACON, DUTCHESS COUNTY, NEW YORK

In the Matter of the Application of

VERIZON WIRELESS OF THE EAST LP
d/b/a Verizon Wireless

Existing utility pole owned by Central Hudson Gas & Electric
2 Red Flynn Drive
City of Beacon, Dutchess County, New York

APPLICATION FOR SPECIAL USE PERMIT, SITE PLAN REVIEW, ROSENBERG WAIVER RELIEF and STATEMENT OF INTENT

Submitted by:

Verizon Wireless
Kathy Pomponio, Real Estate Manager
1275 John Street, Suite 100
West Henrietta, New York 14586
(585) 321-5435

Tectonic Engineering & Surveying Consultants, P.C.
Steven Matthews, P.E.
36 British American Blvd, Suite 101
Latham, New York 12110
(518) 783-1630

Network Building + Consulting
Chris Borncamp, Program Manager
1777 Sentry Parkway W
VEVA 17, Suite 400
Blue Bell, Pennsylvania 19422
(315) 415-0369

Young/Sommer LLC
Scott P. Olson, Esq.
Executive Woods
Five Palisades Drive
Albany, New York 12205
(518) 438-9907

Dated: May 9, 2022

APPLICATION FOR SITE PLAN APPROVAL

Submit to Planning Board Secretary, One Municipal Plaza, Suite One, Beacon, New York 12508

IDENTIFICATION OF APPLICANT

Name: Verizon Wireless

Address: 1275 John Street, Suite 100
West Henrietta, NY 14586

Signature: Scott Olson, Atty for Applicant

Date: 5/6/22

Phone: 518-527-6813

(For Official Use Only)

	Date	Initials
Application & Fee Rec'd		
Initial Review		
Public Hearing		
Conditional Approval		
Final Approval		

IDENTIFICATION OF REPRESENTATIVE / DESIGN PRFESSIONAL

Name: Young Sommer LLC (Attn: Scott Olson)

Address: 5 Palisades Dr.
Albany, NY 12205

Phone: 518-527-6813

Fax: 518-438-9914

Email address: Solson@youngsommer.com

IDENTIFICATION OF SUBJECT PROPERTY:

Property Address: Adjacent to 2 Red Flynn Drive (in Right of Way)

Tax Map Designation: Section N/A Block N/A Lot(s) N/A

Land Area: Existing Utility pole

Zoning District(s) WD - Waterfront Development

DESCRIPTION OF PROPOSED DEVELOPMENT:

Proposed Use: Installation of antenna and equipment on existing utility pole

Gross Non-Residential Floor Space: Existing N/A Proposed N/A

TOTAL: N/A

Dwelling Units (by type): Existing N/A Proposed N/A

TOTAL: N/A

ITEMS TO ACCOMPANY THIS APPLICATION

a. One electronic and five (5) **folded** paper copies of a site location sketch showing the location of the subject property and the proposed development with respect to neighboring properties and developments.

b. One electronic and five (5) **folded** paper copies of the proposed site development plan, consisting of sheets, showing the required information as set forth on the back of this form and other such information as deemed necessary by the City Council or the Planning Board to determine and provide for the property enforcement of the Zoning Ordinance.

c. One electronic and five (5) **folded** paper copies of additional sketches, renderings or other information.

d. An application fee, payable to the City of Beacon, computed per the attached fee schedule.

e. An initial escrow amount, payable to the City of Beacon, as set forth in the attached fee schedule.

INFORMATION TO BE SHOWN ON SITE LOCATION SKETCH

a. Property lines, zoning district boundaries and special district boundaries affecting all adjoining streets and properties, including properties located on the opposite sides of adjoining streets.
b. Any reservations, easements or other areas of public or special use which affect the subject property.
c. Section, block and lot numbers written on the subject property and all adjoining properties, including the names of the record owners of such adjoining properties.

INFORMATION TO BE SHOWN ON THE SITE DEVELOPMENT PLAN

a. Title of development, date and revision dates if any, north point, scale, name and address of record owner of property, and of the licensed engineer, architect, landscape architect, or surveyor preparing the site plan.
b. Existing and proposed contours at a maximum vertical interval of two (2) feet.
c. Location and identification of natural features including rock outcrops, wooded areas, single trees with a caliper of six (6) or more inches measured four (4) feet above existing grade, water bodies, water courses, wetlands, soil types, etc.
d. Location and dimensions of all existing and proposed buildings, retaining walls, fences, septic fields, etc.
e. Finished floor level elevations and heights of all existing and proposed buildings.
f. Location, design, elevations, and pavement and curbing specifications, including pavement markings, of all existing and proposed sidewalks, and parking and truck loading areas, including access and egress drives thereto.
g. Existing pavement and elevations of abutting streets, and proposed modifications.
h. Location, type and design of all existing and proposed storm drainage facilities, including computation of present and estimated future runoff of the entire tributary watershed, at a maximum density permitted under existing zoning, based on a 100 year storm.
i. Location and design of all existing and proposed water supply and sewage disposal facilities.
j. Location of all existing and proposed power and telephone lines and equipment, including that located within the adjoining street right-of-way. All such lines and equipment must be installed underground.
k. Estimate of earth work, including type and quantities of material to be imported to or removed from the site.
l. Detailed landscape plan, including the type, size, and location of materials to be used.
m. Location, size, type, power, direction, shielding, and hours of operation of all existing and proposed lighting facilities.
n. Location, size, type, and design of all existing and proposed business and directional signs.
o. Written dimensions shall be used wherever possible.
p. Signature and seal of licensed professional preparing the plan shall appear on each sheet.
q. Statement of approval, in blank, as follows:

Approved by Resolution of the Beacon Planning Board
on the _____ day of _____, 20_____
subject to all conditions as stated therein

_____ _____
Chairman, City Planning Board **Date**

APPLICATION FEES

Site Plan	**Residential** $500 + $250 per dwelling unit **Commercial** $500 + $250 per 1,000 s.f.
Special Use Permit	**Residential** $500 + $250 per dwelling unit **Commercial** $500 + $250 per 1,000 s.f.
Subdivision	$ 750 for 2-4 lots + $100 per lot $1,000 for 5 or more lots + $300 per lot
Zoning Board of Appeals	Use Variance $500 Area Variance $250 Interpretation $250

ESCROW FEES

ALL SUBDIVISIONS, AND RESIDENTIAL SITE PLAN AND SUP APPLICATIONS

No. of Lots or Dwelling Units	Initial Deposit	Depleted to	Replenishment
1-5 (including lot-line realignment)	$ 2,500	$ 1,000	Current bills + $1,000
6-15	$ 7,500	$ 2,500	Current bills + $1,000
Over 15	$ 15,000	$ 5,000	Current bills + $5,000

NON-RESIDENTIAL SITE PLAN AND SUP APPLICATIONS

	Initial Deposit	Depleted to	Replenishment
Existing Buildings/Change of Use with no site development	$ 1,500	$ 1,000	Current bills + $500
Up to 3,000 s.f. gross floor area	$ 2,500	$ 1,000	Current bills + $1,000
3,000 to 10,000 s.f. gross floor area	$ 2,500 + $0.50 per sq.ft. over 3,000	$ 2,500	Current bills + $2,500
Over 10,000 s.f. gross floor area	$ 7,500 + $0.50 per sq.ft. over 10,000	$ 2,500	Current bills + $2,500

ZONING

* *if required by Chairman*	Initial Deposit	Depleted to	Replenishment
Use Variance*	$ 1,000	$500	Current bills + $500
Area Variance*	$ 1,000	$500	Current bills + $500
Interpretation*	$ 1,000	$500	Current bills + $500

ARCHITECTURAL REVIEW OR CERTIFICATE OF APPROPRIATENESS *(if not currently before PB)*

* *if required by Chairman*	Initial Deposit	Depleted to	Replenishment
Single Family House*	$500	$250	Current bills + $250
All others*	$500	$250	Current bills + $250

APPLICATION PROCESSING RESTRICTION LAW

Affidavit of Property Owner

Property Owner: Central Hudson Gas & Electric Corporation

If owned by a corporation, partnership or organization, please list names of persons holding over 5% interest.

List all properties in the City of Beacon that you hold a 5% interest in:

Applicant Address: 284 South Avenue Poughkeepsie, NY 12601

Project Address: Pole P41100 located on Red Flynn Drive

Project Tax Grid #

Type of Application

Please note that the property owner is the applicant. "Applicant" is defined as any individual who owns at least five percent (5%) interest in a corporation or partnership or other business.

I, Luke Mangels, the undersigned owner of the above referenced property, hereby affirm that I have reviewed my records and verify that the following information is true.

1. No violations are pending for ANY parcel owned by me situated within the City of Beacon x
2. Violations are pending on a parcel or parcels owned by me situated within the City of Beacon x
3. ALL tax payments due to the City of Beacon are current x
4. Tax delinquencies exist on a parcel or parcels owned by me within the City of Beacon x
5. Special Assessments are outstanding on a parcel or parcels owned by me in the City of Beacon x
6. ALL Special Assessments due to the City of Beacon on any parcel owned by me are current x

Signature of Owner

Supervisor - Real Property Services

Title if owner is corporation

Office Use Only:	NO	YES	Initial
Applicant has violations pending for ANY parcel owned within the City of Beacon (Building Dept.)	___	___	___
ALL taxes are current for properties in the City of Beacon are current (Tax Dept.)	___	___	___
ALL Special Assessments, i.e. water, sewer, fines, etc. are current (Water Billing)	___	___	___

CITY OF BEACON
SITE PLAN SPECIFICATION FORM

Name of Application: Verizon Wireless 2 Red Flynn Drive

PLEASE INDICATE WHETHER THE SITE PLAN DRAWINGS SHOW THE SUBJECT INFORMATION BY PLACING A CHECK MARK IN THE APPROPRIATE BOXES BELOW.	YES	NO
The site plan shall be clearly marked "Site Plan", it shall be prepared by a legally certified individual of firm, such as a Registered Architect or Professional Engineer, and it shall contain the following information:	✓	
LEGAL DATA		
Name and address of the owner of record.	✓	
Name and address of the applicant (if other than the owner).	✓	
Name and address of person, firm or organization preparing the plan.	✓	
Date, north arrow, and written and graphic scale.	✓	
NATURAL FEATURES		
Existing contours with intervals of two (2) feet, referred to a datum satisfactory to the Planning Board.		✓
Approximate boundaries of any areas subject to flooding or stormwater overflows.		✓
Location of existing watercourses, wetlands, wooded areas, rock outcrops, isolated trees with a diameter of eight (8) inches or more measured three (3) feet above the base of the trunk, and any other significant existing natural features.		✓
EXISTING STRUCTURES, UTILITIES, ETC.		
Outlines of all structures and the location of all uses not requiring structures. Paved areas, sidewalks, and vehicular access between the site and public streets.	✓	
Locations, dimensions, grades, and flow direction of any existing sewers, culverts, water lines, as well as other underground and above ground utilities within and adjacent to the property.		✓
Other existing development, including fences, retaining walls, landscaping, and screening.	✓	
Sufficient description or information to define precisely the boundaries of the property.	✓	
The owners of all adjoining lands as shown on the latest tax records.	✓	
The locations, names, and existing widths of adjacent streets and curb lines.	✓	
Location, width, and purpose of all existing and proposed easements, setbacks, reservations, and areas dedicated to private or public use within or adjacent to the properties.		✓

PROPOSED DEVELOPMENT	YES	NO
The location, use and design of proposed buildings or structural improvements.	✓	
The location and design of all uses not requiring structures, such as outdoor storage (if permitted), and off-street parking and unloading areas.	✓	
Any proposed division of buildings into units of separate occupancy.		✓
The location, direction, power, and time of use for any proposed outdoor lighting.		✓
The location and plans for any outdoor signs.	✓	
The location, arrangement, size(s) and materials of proposed means of ingress and egress, including sidewalks, driveways, or other paved areas.	✓	
Proposed screening and other landscaping including a planting plan and schedule prepared by a qualified individual or firm.		✓
The location, sizes and connection of all proposed water lines, valves, and hydrants and all storm drainage and sewer lines, culverts, drains, etc.		✓
Proposed easements, deed restrictions, or covenants and a notation of any areas to be dedicated to the City.		✓
Any contemplated public improvements on or adjoining the property.		✓
Any proposed new grades, indicating clearly how such grades will meet existing grades of adjacent properties or the street.		✓
Elevations of all proposed principal or accessory structures.	✓	
Any proposed fences or retaining walls.		✓
MISCELLANEOUS		
A location map showing the applicant's entire property and adjacent properties and streets, at a convenient scale.	✓	
Erosion and sedimentation control measures.		✓
A schedule indicating how the proposal complies with all pertinent zoning standards, including parking and loading requirements.		✓
An indication of proposed hours of operation.		✓
If the site plan only indicates a first stage, a supplementary plan shall indicate ultimate development.		✓

For all items marked "NO" above, please explain below why the required information has not been provided:

The proposed project involves the installation of a Verizon antenna and related equipment on an existing utility pole. As such there is no proposed grading, drainage, or utility work associated with the project. This explains most of the "no" answers above because those items are not applicable to the scope of work.

Applicant/Sponsor Name: Steven Matthews, Tectonic Engineering (engineer for applicant)

Signature: *Steven Matthews*

Date: May 9, 2022

FOR OFFICE USE ONLY
Application #

CITY OF BEACON
1 Municipal Plaza, Beacon, NY
Telephone (845) 838-5000 • http://cityofbeacon.org/

INDIVIDUAL DISCLOSURE FORM

(This form must accompany every land use application and every application for a building permit or certificate of occupancy submitted by any person(s))

Disclosure of the names and addresses of all persons) filing a land-use application with the City is required pursuant to Section 223-62 of the City Code of the City of Beacon. Applicants shall submit supplemental sheets for any additional information that does not fit within the below sections, identifying the Section being supplemented.

SECTION A

Name of Applicant: Verizon Wireless

Address of Applicant: 1275 John Street, Suite 100, West Henrietta, NY 14586

Telephone Contact Information: c/o Scott Ocker - 518-438-9907 x258

SECTION B. List all owners of record of the subject property or any part thereof. (Red Flynn Row)

Name	Residence or Business Address	Telephone Number	Date and Manner title was acquired	Date and place where the deed or document of conveyance was recorded or filed.
City of Beacon	1 Municipal Plaza Beacon, NY	845-838-5000	Unknown	Unknown

SECTION B. Is any owner of record an officer, elected or appointed, or employee of the City of Beacon or related, by marriage or otherwise, to a City Council member, planning board member, zoning board of appeals member or employee of the City of Beacon ?

☑ YES ☐ NO Red Flynn Row of Owned by City of Beacon.

If yes, list every Board, Department, Office, agency or other position with the City of Beacon with which a party has a position, unpaid or paid, or relationship and identify the agency, title, and date of hire.

Agency	Title	Date of Hire, Date Elected, or Date Appointed	Position or Nature of Relationship

SECTION C. If the applicant is a contract vendee, a duplicate original or photocopy of the full and complete contract of purchase, including all riders, modification and amendments thereto, shall be submitted with the application.

SECTION D. Have the present owners entered into a contract for the sale of all or any part of the subject property and, if in the affirmative, please provide a duplicate original or photocopy of the fully and complete contract of sale, including all riders, modifications and amendments thereto.

☑ YES ☐ NO

owner of utility pole base leased to Verizon Wireless

I, Scott Olsen being first duly sworn, according to law, deposes and says that the statements made herein are true, accurate, and complete, to the best of my knowledge.

(Print) Scott Olsen

(Signature) Scott Olsen

FOR OFFICE USE ONLY
Application #

CITY OF BEACON
1 Municipal Plaza, Beacon, NY
Telephone (845) 838-5000 · http://cityofbeacon.org/

ENTITY DISCLOSURE FORM

(This form must accompany every land use application and every application for a building permit or certificate of occupancy submitted by any entity)

Disclosure of the names and addresses of all persons or entities owning any interest or controlling position of any Limited Liability Company, Partnership, Limited Partnership, Joint Venture, Corporation or other business entity (hereinafter referred to as the "Entity") filing a land-use application with the City is required pursuant to Section 223-61.4 of the City Code of the City of Beacon. If any Member of the Entity is not a natural person, then the names and addresses as well as all other information sought herein must be supplied about the non-natural person member of that Entity, including names, addresses and Formation filing documents. Applicants shall submit supplemental sheets for any additional information that does not fit within the below sections, identifying the Section being supplemented.

SECTION A.

IF AFFIANT IS A PARTNERSHIP, JOINT VENTURE OR OTHER BUSINESS ENTITY, EXCEPT A CORPORATION:

Name of Entity	Address of Entity
Verizon Wireless of the East LP	1275 John St., Suite 100 West Henrietta, NY 14586
Place where such business entity was created Delaware	Official Registrar's or Clerk's office where the documents and papers creating entity were filed Delaware Secretary of State
Date such business entity or partnership was created	Telephone Contact Information 518-438-9907 x 258

IF AFFIANT IS A CORPORATION:

Name of Entity N/A	Telephone Contact Information
Principal Place of Business of Entity	Place and Date of incorporation
Method of Incorporation	Official place where the documents and papers of incorporation were filed

SECTION B. List all persons, officers, limited or general partners, directors, members, shareholders, managers, and any others with any interest, mortgage, encumbrance or other interest (recorded or unrecorded) in or with the above referenced

Entity. List all persons to whom corporate stock has been pledged, mortgaged or encumbered and with whom any agreement has been made to pledge, mortgage or encumber said stock. Use a supplemental sheet to list additional persons.

Name	Resident Address	Resident Telephone Number	Nature and Extent of Interest
SEE ATTACHED	DISCLOSURE STATEMENT		

SECTION C. List all owners of record of the subject property or any part thereof.

Name	Residence or Business Address	Telephone Number	Date and Manner title was acquired	Date and place where the deed or document of conveyance was recorded or filed.
City of Beacon	1 Municipal Plaza Beacon, NY	845-838-5000	UNKNOWN	UNKNOWN

SECTION D. Is any owner, of record or otherwise, an officer, director, stockholder, agent or employee of any person listed in Section B-C?

☐ YES ☑ NO

Name	Employer	Position

SECTION E. Is any party identified in Sections A- C an officer, elected or appointed, or employee of the City of Beacon or related, by marriage or otherwise, to a City Council member, planning board member, zoning board of appeals member or employee of the City of Beacon ?

☑ YES ☐ NO

If yes, list every Board, Department, Office, agency or other position with the City of Beacon with which a party has a position, unpaid or paid, or relationship and identify the agency, title, and date of hire.

Agency	Title	Date of Hire, Date Elected, or Date Appointed	Position or Nature of Relationship
City of Beacon	Owns right of way		

SECTION F. Was any person referred to in Sections A-D known by any other name within five (5) years preceding the date of the application?

☐ YES ☑ NO

Current Name	Other Names

SECTION G. List the names and addresses of each person, business entity, partnership and corporation in the chain of title of the subject premises for the five (5) years next preceding the date of the application.

Name	Address
N/A	

SECTION H. If the applicant is not a record owner of the subject property, describe the applicant's interest in the subject property and the relationship the applicant has to the record owner(s) of the subject property.

Applicant is contract vendee with right to install and operate small wireless facility on existing utility pole.

SECTION I. If the applicant is a contract vendee, a duplicate original or photocopy of the full and complete contract of purchase, including all riders, modification and amendments thereto, shall be submitted with the application. Any sensitive or confidential information may be redacted from the contract prior to production.

SECTION J.

1. Where the record owner or contract vendee is a corporation, the following additional information shall be submitted:

Name of the Corporation	Telephone Contact Information
Principal Business Address	Place and Date of Incorporation
Method of Incorporation	Official place where the documents and papers of incorporation were filed

2. Please provide the following information for every incorporator, officer, director and shareholder of the corporation.

Name	Residence or business address	Telephone number

3. Have any shares of the stock of the corporation or of any stockholder been pledged, mortgaged or encumbered?

☐ YES ☑ NO

If so, please list the name and address of each person having, holding, owning or claiming any such interest.

Name	Address

SECTION K. Have the present owners entered into a contract for the sale of all or any part of the subject property and, if in the affirmative, please provide a duplicate original or photocopy of the fully and complete contract of sale, including all riders, modifications and amendments thereto.

☐ YES ☑ NO

I, Scott Olsen being first duly sworn, according to law, deposes and says that I am (Title) Attorney for, ~~an active and qualified member of the~~ Verizon Wireless, a business duly authorized by law to do business in the State of New York, and that the statements made herein are true, accurate, and complete.

(Print) Scott Olsen

(Signature) Scott Olsen

DISCLOSURE STATEMENT

Verizon Wireless of the East LP is a Delaware limited partnership ("VZW East"), with its principal place of business at One Verizon Way, Basking Ridge, NJ 07920. The following are the two partners that hold an interest in VZW East

1. Cellco Partnership
2. Verizon Wireless Acquisition South LLC

- Cellco Partnership d/b/a Verizon Wireless is a Delaware general partnership ("Cellco") whose principal place of business is in New Jersey. Cellco has three partners in total and is indirectly, wholly owned by Verizon Communications Inc. ("Verizon"). Verizon, a publicly traded company, has its principal place of business at 1095 Avenue of the Americas, New York, New York. The following are the three partners that hold an interest in Cellco:

  Bell Atlantic Mobile Systems LLC, a Delaware limited liability company with its principal place of business in New Jersey, whose sole member is MCI Communications Services LLC, a Delaware limited liability company with its principal place of business in New Jersey.

  GTE Wireless LLC, a Delaware limited liability company with its principal place of business in New Jersey, whose sole member is Verizon Communications Inc.

  Verizon Americas LLC., a Delaware limited liability company with its principal place of business in New Jersey, whose sole member is Verizon Communications Inc.

- Verizon Wireless Acquisition South LLC ("VZW South") is a Delaware limited liability company ("VZW South") with its principal place of business in New Jersey. The following are the three partners that hold an interest in VZW South:

  BAMS Communications LLC, a Delaware limited liability company with its principal place of business in New Jersey, whose sole member is MCI Communications Services LLC.

  Bell Atlantic Mobile Systems LLC (see above).

  Cellco (see above).

BOARD of TRUSTEES and/or PLANNING BOARD of the CITY of BEACON, DUTCHESS COUNTY, NEW YORK

In the Matter of the Special Use Permit and Site Plan Review Application of

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VERIZON WIRELESS OF THE EAST LP d/b/a Verizon Wireless

Premises: 2 Red Flynn Drive
Beacon, Dutchess County, New York

STATEMENT OF INTENT and
APPLICATION FOR SPECIAL USE PERMIT and SITE PLAN REVIEW and
ROSENBERG WAIVER RELIEF

I. Introduction

VERIZON WIRELESS OF THE EAST LP d/b/a Verizon Wireless ("Verizon Wireless" or the "Applicant") proposes to install one small wireless antenna and related equipment on a replacement wooden utility pole located near the Beacon Train Station ("Project"). The existing wooden utility pole is owned by Central Hudson Gas & Electric ("CHG&E") and located near 2 Red Flynn Drive, Beacon, New York (referred to by as CHG&E as Pole No. 44106P, Beac 398, NYT 3).

Verizon Wireless is considered a public utility under New York decisional law (*Cellular Telephone Company v. Rosenberg*, 82 N.Y.2d 364 (1993)) [Exhibit 1], and a provider of "personal wireless services" under the federal Telecommunications Act of 1996 (the "TCA") [Exhibit 2]. Verizon Wireless' equipment will be in operation twenty-four (24) hours a day, seven (7) days a week, three hundred sixty-five (365) days a year. A copy of the applicable Verizon Wireless FCC licenses is included herewith Exhibit 3.

In *Rosenberg*, this State's highest Court determined that the ordinary variance standard is inapplicable to projects involving public utilities, such as a cellular telephone company. Instead, the established public utility standard is applicable and according to such standard, the Applicant need only show that (1) the proposed facility is "required to render safe and adequate service," and (2) there are "compelling reasons, economic or otherwise," for needing the variance. *Cellular Telephone Company v. Rosenberg*, 82 N.Y.2d 364, 372 (1993). Verizon Wireless respectfully submits this Statement of Intent in support of its application for Special Use Permit approval, and all necessary Town Board waivers under the *Rosenberg* standard.

The proposed Project involves installation and operation of one (1) small wireless antenna and related equipment on a replacement wooden utility pole. The improvements proposed are detailed on the Zoning/Site Plans prepared by Tectonic Engineering and Surveying included herewith as Exhibit 4. Specifically, the existing 27'7" wooden utility pole is proposed to be replaced with a similar, but slightly larger, wooden utility pole of approximately 38'5". The need for

additional height is related to the fact that the existing pole supports a primary electric line which requires a minimum separation distance.

II. Purpose of Beacon Station Communications Facility

The purpose of the Project is to provide "hotspot" coverage for Verizon Wireless' advanced wireless services to a relative small area in the City of Beacon currently not served or under-served, especially in the area surrounding the Beacon Train Station.

Enclosed in Exhibit 5 is a RF Analysis prepared by a qualified radio frequency consultant which analysis describes in detail the need for this new site at this location. This exhibit prepared by Verizon Wireless' RF Design Engineer contains the technical data and analysis which demonstrate why a new site is required in this area of the City.

III. Additional Supporting Materials

1. Public Necessity of Facility. The Applicant has provided expert proof in the form of a report from its Radio Frequency (RF) Design Engineer depicting the area within which Verizon Wireless' communications facility needs to be located (the "search area") in order to provide adequate and safe service to the City of Beacon, particularly in the area near the Beacon train station. This report clearly demonstrates that (i) there is an inadequate and unsafe level of service in the targeted area of the City of Beacon, and (ii) a new communications facility is necessary to provide an adequate and safe level of hand-held wireless service to this area. See, Exhibit 5.

   As noted above and in Exhibits 2 and 3, Verizon Wireless is recognized as a public utility under New York law and a provider of personal wireless services under the federal Telecommunications Act of 1996. This project is a public necessity in that it is required to render adequate and safe coverage (mobile and in-building) to a significant portion of the City of Beacon. This, combined with the federal mandate to expeditiously deploy advanced wireless services across the nation and Verizon Wireless' FCC licenses to provide such services in the City of Beacon, demonstrates that Verizon Wireless' facility is a public necessity. Without the construction of the communications facility proposed, the public would be deprived of an essential means of communication, which, in turn, would jeopardize the safety and welfare of the community and traveling public.

2. The Application conforms with all applicable regulations promulgated by the Federal Communications Commission, the Federal Aviation Administration and other federal agencies. The proposed facility will not increase the height of the existing utility pole and will not require FAA lighting.

3. As set forth above, Verizon Wireless and the proposed facility are considered public utilities for purposes of zoning under existing New York decisional law.

4. Operation of the facility will not involve any objectionable noise, fumes, vibration or other characteristics.

5. The facility will be operated on a 24/7 basis 365 days a year with minimal maintenance required. Adequate access and parking has been incorporated into the facility design.

6. The facility will not increase or otherwise impact any existing traffic patterns, nor will it impair pedestrian or vehicular safety or overload existing roads. Additionally, the facility will be fully accessible to fire, police and other emergency vehicles.

7. Because the facility will be unmanned, it will not involve the use of any public water, drainage or sewer system, or any other municipal facility, or degrade any act or for, natural resource or ecosystem.

8. The proposed antenna and associated equipment are proposed to be located on a replacement wooden utility pole currently owned by CHG&E. The existing pole is approximately 27' 5" tall. The replacement pole will measure approximately 38'5" in height.

9. Visibility and Design Standards:

   a. General Aesthetics: Although Verizon Wireless' antenna will result in relatively minor increase to the height of the existing structure, such increase will not result in any significant adverse visual impacts. To illustrate this point, Verizon Wireless has commissioned Tectonic Engineering to prepare a visual analysis with existing photographs and photosimulations. This analysis is provided in Exhibit 6. The visual analysis confirms that the installation of Verizon Wireless' small wireless facility will be difficult to even notice.

   b. No FAA Marking/Lighting: No tower marking and/or lighting will be required under Federal Aviation Administration (FAA) regulations.

10. A certification from a New York licensed professional engineer (SiteSafe, LLC) entitled "Site Compliance Report" is included at Exhibit 7, to document that Verizon Wireless' proposed transmissions will be: (a) in full compliance with the current FCC RF emissions guidelines (NIER); and (b) categorically excluded from local regulation under applicable federal law.

11. To assist the City fulfill its obligations under the NYS Environmental Quality Review Act ("SEQRA"), a Full Environmental Assessment Form ("EAF") has been prepared by Tectonic Engineering and is provided in Exhibit 8.

12. A Utility Pole Analysis Report signed and stamped by a NYS licensed Professional Engineer is attached hereto as Exhibit 9 which confirms that the existing pole upon which the Verizon Wireless antenna and equipment will be attached has sufficient excess capacity to accommodate the additional structural load from such antenna and equipment.

IV. Conclusion

Approval of the Project will enable Verizon Wireless to provide an adequate and safe level of wireless telephone service to the area of the City of Beacon and surrounding environs, within the confines of applicable technological and land use limitations. Such approval will also be in the public interest, in that it will allow Verizon Wireless to comply with its statutory mandate to build out its network and provide local businesses, residents and public service entities with safe and reliable wireless communications services. Based upon the foregoing, Verizon Wireless respectfully submits that this project complies in all material respects with all applicable requirements of the City of Beacon's Zoning Code, and any potential impact on the community created by this approval may properly be considered to be minimal and of no significant adverse effect.

If you should have any questions or require any additional information, I can be reached at (518) 438-9907, Ext. 258.

Thank you for your consideration.

Respectfully submitted,
VERIZON WIRELESS OF THE EAST LP d/b/a Verizon Wireless

Scott P. Olson, Esq.
Regional Local Counsel

Dated: May 6, 2022

DOCUMENTATION OF PERSONAL WIRELESS SERVICE FACILITY STATUS
and
FEDERAL TELECOMMUNICATIONS ACT OF 1996

In addition to being considered a public utility under New York decisional law, Verizon Wireless is classified as a provider of "personal wireless services" under the federal Telecommunications Act of 1996 (the "TCA").

As stated in the long title of the Act, the goal of the TCA is to "promote competition and reduce regulation in order to secure lower prices and higher quality services for American telecommunications consumers and encourage the rapid deployment of new telecommunications technologies." *Telecommunications Act of 1996, Pub. LA. No. 104-104, 110 Stat. 56 (1996).*

The TCA mandates a process designed to achieve competitive telecommunications markets. In keeping with the central goals of the TCA, the authors specify in Section 253(a) that "[n]o State or local statute or regulation…may prohibit or have the effect of prohibiting the ability of any entity to provide any interstate or intrastate telecommunications service." *TCA Section 253(a), emphasis added.*

Section 332(c) of the TCA preserves the authority of a State or local government or instrumentality thereof over decisions regarding the placement, construction and modification of personal wireless service facilities, subject to several important limitations:

- the "regulation of the placement…of personal wireless service facilities by any State or local government or instrumentality thereof shall not unreasonably discriminate among providers of functionally equivalent services" (*TCA §332(c)(7)(B)(i)(I)*);

- the "regulation of the placement…of personal wireless service facilities by any State or local government or instrumentality thereof shall not prohibit or have the effect of prohibiting the provision of personal wireless services" (*TCA §332(c)(7)(B)(i)(II)*);

- Applications must be processed within a reasonable period of time, and any decision to deny a request for placement of personal wireless service facilities must be in writing and supported by substantial evidence contained in a written record (*TCA §§332(c)(7)(B)(ii) and (iii)*); and

- regulations based upon the perceived environmental effects of radio frequency emissions are prohibited, so long as the proposed personal wireless service facility complies with FCC regulations concerning such emissions (*TCA §332(c)(7)(B)(iv)*).

A reference copy of the Telecommunications Act of 1996 is included herewith.

104TH CONGRESS } HOUSE OF REPRESENTATIVES { REPORT
2d Session } { 104–458

TELECOMMUNICATIONS ACT OF 1996

JANUARY 31, 1996. Ordered to be printed

Mr. BLILEY, from the committee of conference, submitted the following

CONFERENCE REPORT

[To accompany S. 652]

The committee of conference on the disagreeing votes of the two Houses on the amendments of the House to the bill (S. 652), to provide for a pro-competitive, de-regulatory national policy framework designed to accelerate rapidly private sector deployment of advanced telecommunications and information technologies and services to all Americans by opening all telecommunications markets to competition, and for other purposes, having met, after full and free conference, have agreed to recommend and do recommend to their respective Houses as follows:

That the Senate recede from its disagreement to the amendment of the House to the text of the bill and agree to the same with an amendment as follows:

In lieu of the matter proposed to be inserted by the House amendment, insert the following:

SECTION 1. SHORT TITLE; REFERENCES.

(a) SHORT TITLE.—This Act may be cited as the "Telecommunications Act of 1996".

(b) REFERENCES.—Except as otherwise expressly provided, whenever in this Act an amendment or repeal is expressed in terms of an amendment to, or repeal of, a section or other provision, the reference shall be considered to be made to a section or other provision of the Communications Act of 1934 (47 U.S.C. 151 et seq.).

SEC. 2. TABLE OF CONTENTS.

The table of contents for this Act is as follows:

Sec. 1. Short title; references.
Sec. 2. Table of contents.
Sec. 3. Definitions.

22–327

Federal Communications Commission
Library

[redacted] *tity that has obtained an attachment to such conduit or right-of-way so that such entity may have a reasonable opportunity to add to or modify its existing attachment. Any entity that adds to or modifies its existing attachment after receiving such notification shall bear a proportionate share of the costs incurred by the owner in making such pole, duct, conduit, or right-of-way accessible.*

[redacted] *right-of-way shall not be required to bear any of the costs of rearranging or replacing its attachment, if such rearrangement or replacement is required as a result of an additional attachment or the modification of an existing attachment sought by any other entity*

SEC. 704. FACILITIES SITING; RADIO FREQUENCY EMISSION STANDARDS.

(a) NATIONAL WIRELESS TELECOMMUNICATIONS SITING POLICY.—Section 332(c) (47 U.S.C. 332(c)) is amended by adding at the end the following new paragraph:

"(7) PRESERVATION OF LOCAL ZONING AUTHORITY.—

"(A) GENERAL AUTHORITY.—Except as provided in this paragraph, nothing in this Act shall limit or affect the authority of a State or local government or instrumentality thereof over decisions regarding the placement, construction, and modification of personal wireless service facilities.

"(B) LIMITATIONS.—

"(i) The regulation of the placement, construction, and modification of personal wireless service facilities by any State or local government or instrumentality thereof—

"(I) shall not unreasonably discriminate among providers of functionally equivalent services; and

"(II) shall not prohibit or have the effect of prohibiting the provision of personal wireless services.

"(ii) A State or local government or instrumentality thereof shall act on any request for authorization to place, construct, or modify personal wireless service facilities within a reasonable period of time after the request is duly filed with such government or instrumentality, taking into account the nature and scope of such request.

"(iii) Any decision by a State or local government or instrumentality thereof to deny a request to place, construct, or modify personal wireless service facilities shall be in writing and supported by substantial evidence contained in a written record.

"(iv) No State or local government or instrumentality thereof may regulate the placement, construction, and modification of personal wireless service facilities on the basis of the environmental effects of radio frequency emissions to the extent that such facilities comply with the Commission's regulations concerning such emissions.

"(v) Any person adversely affected by any final action or failure to act by a State or local government or any instrumentality thereof that is inconsistent with this subparagraph may, within 30 days after such action or failure to act, commence an action in any court of competent jurisdiction. The court shall hear and decide such action on an expedited basis. Any person adversely affected by an act or failure to act by a State or local government or any instrumentality thereof that is inconsistent with clause (iv) may petition the Commission for relief.

"(C) DEFINITIONS.—For purposes of this paragraph—

"(i) the term 'personal wireless services' means commercial mobile services, unlicensed wireless services, and common carrier wireless exchange access services;

"(ii) the term 'personal wireless service facilities' means facilities for the provision of personal wireless services; and

"(iii) the term 'unlicensed wireless service' means the offering of telecommunications services using duly authorized devices which do not require individual licenses, but does not mean the provision of direct-to-home satellite services (as defined in section 303(v)).".

(b) RADIO FREQUENCY EMISSIONS.—Within 180 days after the enactment of this Act, the Commission shall complete action in ET Docket 93–62 to prescribe and make effective rules regarding the environmental effects of radio frequency emissions.

(c) AVAILABILITY OF PROPERTY.—Within 180 days of the enactment of this Act, the President or his designee shall prescribe procedures by which Federal departments and agencies may make available on a fair, reasonable, and nondiscriminatory basis, property, rights-of-way, and easements under their control for the placement of new telecommunications services that are dependent, in whole or in part, upon the utilization of Federal spectrum rights for the transmission or reception of such services. These procedures may establish a presumption that requests for the use of property, rights-of-way, and easements by duly authorized providers should be granted absent unavoidable direct conflict with the department or agency's mission, or the current or planned use of the property, rights-of-way, and easements in question. Reasonable fees may be charged to providers of such telecommunications services for use of property, rights-of-way, and easements. The Commission shall provide technical support to States to encourage them to make property, rights-of-way, and easements under their jurisdiction available for such purposes.

[redacted]

RIERS.

Section 332(c) (47 U.S.C. 332(c)) is amended by adding at the end the following new paragraph:

"(8) MOBILE SERVICES ACCESS.—A person engaged in the provision of commercial mobile services, insofar as such person is so engaged, shall not be required to provide equal access to common carriers for the provision of [illegible]

portionate share of the costs incurred by the owner in making such conduit or right-of-way accessible.

Conference agreement

The conference agreement adopts the Senate provision with modifications. The conference agreement amends section 224 of the Communications Act by adding new subsection (e)(1) to allow parties to negotiate the rates, terms, and conditions for attaching to poles, ducts, conduits, and rights-of-way owned or controlled by utilities. New subsection 224(e)(2) establishes a new rate formula charged to telecommunications carriers for the non-useable space of each pole. Such rate shall be based upon the number of attaching entities. The conferees also agree to three additional provisions from the House amendment. First, subsection (g) requires utilities that engage in the provision of telecommunications services or cable services to impute to its costs of providing such service an equal amount to the pole attachment rate for which such company would be liable under section 224. Second, new subsection 224(h) requires utilities to provide written notification to attaching entities of any plans to modify or alter its poles, ducts, conduit, or rights-of-way. New subsection 224(h) also requires any attaching entity that takes advantage of such opportunity to modify its own attachments shall bear a proportionate share of the costs of such alterations. Third, new subsection 224(i) prevents a utility from imposing the cost of rearrangements to other attaching entities if done solely for the benefit of the utility.

SECTION 704—FACILITIES SITING; RADIO FREQUENCY EMISSION STANDARDS

Senate bill

No provision.

House amendment

Section 108 of the House amendment required the Commission to issue regulations within 180 days of enactment for siting of CMS. A negotiated rulemaking committee comprised of State and local governments, public safety agencies and the affected industries were to have attempted to develop a uniform policy to propose to the Commission for the siting of wireless tower sites.

The House amendment also required the Commission to complete its pending Radio Frequency (RF) emission exposure standards within 180 days of enactment. The siting of facilities could not be denied on the basis of RF emission levels for facilities that were in compliance with the Commission standard.

The House amendment also required that to the greatest extent possible the Federal government make available to use of Federal property, rights-of-way, easements and any other physical instruments in the siting of wireless telecommunications facilities.

Conference agreement

The conference agreement creates a new section 704 which prevents Commission preemption of local and State land use decisions and preserves the authority of State and local governments over

zoning and land use matters except in the limited circumstances set forth in the conference agreement. The conference agreement also provides a mechanism for judicial relief from zoning decisions that fail to comply with the provisions of this section. It is the intent of the conferees that other than under section 332(c)(7)(B)(iv) of the Communications Act of 1934 as amended by this Act and section 704 of the Telecommunications Act of 1996 the courts shall have exclusive jurisdiction over all other disputes arising under this section. Any pending Commission rulemaking concerning the preemption of local zoning authority over the placement, construction or modification of CMS facilities should be terminated.

When utilizing the term "functionally equivalent services" the conferees are referring only to personal wireless services as defined in this section that directly compete against one another. The intent of the conferees is to ensure that a State or local government does not in making a decision regarding the placement, construction and modification of facilities of personal wireless services described in this section unreasonably favor one competitor over another. The conferees also intend that the phrase "unreasonably discriminate among providers of functionally equivalent services" will provide localities with the flexibility to treat facilities that create different visual, aesthetic, or safety concerns differently to the extent permitted under generally applicable zoning requirements even if those facilities provide functionally equivalent services. For example, the conferees do not intend that if a State or local government grants a permit in a commercial district, it must also grant a permit for a competitor's 50-foot tower in a residential district.

Actions taken by State or local governments shall not prohibit or have the effect of prohibiting the placement, construction or modification of personal wireless services. It is the intent of this section that bans or policies that have the effect of banning personal wireless services or facilities not be allowed and that decisions be made on a case-by-case basis.

Under subsection (c)(7)(B)(ii), decisions are to be rendered in a reasonable period of time, taking into account the nature and scope of each request. If a request for placement of a personal wireless service facility involves a zoning variance or a public hearing or comment process, the time period for rendering a decision will be the usual period under such circumstances. It is not the intent of this provision to give preferential treatment to the personal wireless service industry in the processing of requests, or to subject their requests to any but the generally applicable time frames for zoning decision.

The phrase "substantial evidence contained in a written record" is the traditional standard used for judicial review of agency actions.

The conferees intend section 332(c)(7)(B)(iv) to prevent a State or local government or its instrumentalities from basing the regulation of the placement, construction or modification of CMS facilities directly or indirectly on the environmental effects of radio frequency emissions if those facilities comply with the Commission's regulations adopted pursuant to section 704(b) concerning such emissions.

The limitations on the role and powers of the Commission under this subparagraph relate to local land use regulations and are not intended to limit or affect the Commission's general authority over radio telecommunications, including the authority to regulate the construction, modification and operation of radio facilities.

The conferees intend that the court to which a party appeals a decision under section 332(c)(7)(B)(v) may be the Federal district court in which the facilities are located or a State court of competent jurisdiction, at the option of the party making the appeal, and that the courts act expeditiously in deciding such cases. The term "final action" of that new subparagraph means final administrative action at the State or local government level so that a party can commence action under the subparagraph rather than waiting for the exhaustion of any independent State court remedy otherwise required.

With respect to the availability of Federal property for the use of wireless telecommunications infrastructure sites under section 704(c), the conferees generally adopt the House provisions, but substitute the President or his designee for the Commission.

It should be noted that the provisions relating to telecommunications facilities are not limited to commercial mobile radio licensees, but also will include other Commission licensed wireless common carriers such as point to point microwave in the extremely high frequency portion of the electromagnetic spectrum which rely on line of sight for transmitting communication services.

SECTION 705—MOBILE SERVICE DIRECT ACCESS TO LONG DISTANCE CARRIERS

Senate bill

Subsection (b) of section 221 of the Senate bill, as passed, states that notwithstanding the MFJ or any other consent decree, no CMS provider will be required by court order or otherwise to provide long distance equal access. The Commission may only order equal access if a CMS provider is subject to the interconnection obligations of section 251 and if the Commission finds that such a requirement is in the public interest. CMS providers shall ensure that its subscribers can obtain unblocked access to the interexchange carrier of their choice through the use of interexchange carrier identification codes, except that the unblocking requirement shall not apply to mobile satellite services unless the Commission finds it is in the public interest.

House amendment

Under section 109 of the House amendment, the Commission shall require providers of two-way switched voice CMS to allow their subscribers to access the telephone toll services provider of their choice through the use of carrier identification codes. The Commission rules will supersede the equal access, balloting and prescription requirements imposed by the MFJ and the AT&T-McCaw consent decree. The Commission may exempt carriers or classes of carriers from the requirements of this section if it is consistent with the public interest, convenience, and necessity, and the

DOCUMENTATION OF PUBLIC UTILITY STATUS
and
OVERVIEW OF ROSENBERG DECISION

In *Cellular Tel. Co. v. Rosenberg*, 82 N.Y.2d 364 (1993), the New York Court of Appeals determined that cellular telephone companies are public utilities. The Court held that proposed cellular telephone installations are to be reviewed by zoning boards pursuant to the traditional standard afforded to public utilities, rather than the standards generally required for the necessary approvals:

> It has long been held that a zoning board may not exclude a utility from a community where the utility has shown a need for its facilities. There can be no question of [the carrier's] need to erect the cell site to eliminate service gaps in its cellular telephone service area. The proposed cell site will also improve the transmission and reception of existing service. Application of our holding in *Matter of Consolidated Edison* to sitings of cellular telephone companies, such as [the applicant], permits those companies to construct structures necessary for their operation which are prohibited because of existing zoning laws and to provide the desired services to the surrounding community. . . . Moreover, the record supports the conclusion that [the applicant] sustained its burden of proving the requisite public necessity. [The applicant] established that the erection of the cell site would enable it to remedy gaps in its service area that currently prevent it from providing adequate service to its customers in the . . . area.

Rosenberg, 82 N.Y.2d at 372-74 (citing *Consolidated Edison Co. v. Hoffman*, 43 N.Y.2d 598 (1978)).

This special treatment of a public utility stems from the essential nature of its service, and the fact that a public utility transmitting facility must be located in a particular area in order to provide service. For instance, water towers, electric switching stations, water pumping stations and telephone poles must be in particular locations (including within residential districts) in order to provide the utility to a specific area:

> [Public] utility services are needed in all districts; the service can be provided only if certain facilities (for example, substations) can be located in commercial and even in residential districts. To exclude such use would result in an impairment of an essential service.

Anderson, New York Zoning Law Practice, 3d ed., p. 411 (1984) (hereafter "Anderson"). See also, *Cellular Tel. Co. v. Rosenberg*, 82 N.Y.2d 364 (1993); *Payne v. Taylor*, 178 A.D.2d 979 (4th Dep't 1991).

Accordingly, the law in New York is that a municipality may not prohibit facilities, including towers, necessary for the transmission of a public utility. In *Rosenberg*, 82 N.Y.2d at 371, the court found that "the construction of an antenna tower... to facilitate the supply of cellular telephone service is a 'public utility building' within the meaning of a zoning ordinance." See also *Long Island Lighting Co. v. Griffin*, 272 A.D. 551 (2d Dep't 1947) (a municipal corporation may not prohibit the expansion of a public utility where such expansion is necessary to the maintenance of essential services).

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Federal Communications Commission

Wireless Telecommunications Bureau

RADIO STATION AUTHORIZATION

LICENSEE: CELLCO PARTNERSHIP

CELLCO PARTNERSHIP
5055 NORTH POINT PKWY, NP2NE NETWORK ENGINEERING
ALPHARETTA, GA 30022

Call Sign	File Number
WQGA902	0009773242
Radio Service	
AW - AWS (1710-1755 MHz and 2110-2155 MHz)	

FCC Registration Number (FRN): 0003290673

Grant Date	Effective Date	Expiration Date	Print Date
12-21-2021	12-21-2021	11-29-2036	12-21-2021

Market Number	Channel Block	Sub-Market Designator
BEA005	B	5

Market Name
Albany-Schenectady-Troy, NY

1st Build-out Date	2nd Build-out Date	3rd Build-out Date	4th Build-out Date

Waivers/Conditions:

This authorization is conditioned upon the licensee, prior to initiating operations from any base or fixed station, making reasonable efforts to coordinate frequency usage with known co-channel and adjacent channel incumbent federal users operating in the 1710-1755 MHz band whose facilities could be affected by the proposed operations. See, e.g., FCC and NTIA Coordination Procedures in the 1710-1755 MHz Band, Public Notice, FCC 06-50, WTB Docket No. 02-353, rel. April 20. 2006.

AWS operations must not cause harmful interference across the Canadian or Mexican Border. The authority granted herein is subject to future international agreements with Canada or Mexico, as applicable.

Conditions:
Pursuant to §309(h) of the Communications Act of 1934, as amended, 47 U.S.C. §309(h), this license is subject to the following conditions: This license shall not vest in the licensee any right to operate the station nor any right in the use of the frequencies designated in the license beyond the term thereof nor in any other manner than authorized herein. Neither the license nor the right granted thereunder shall be assigned or otherwise transferred in violation of the Communications Act of 1934, as amended. See 47 U.S.C. § 310(d). This license is subject in terms to the right of use or control conferred by §706 of the Communications Act of 1934, as amended. See 47 U.S.C. §606.

This license may not authorize operation throughout the entire geographic area or spectrum identified on the hardcopy version. To view the specific geographic area and spectrum authorized by this license, refer to the Spectrum and Market Area information under the Market Tab of the license record in the Universal Licensing System (ULS). To view the license record. go to the ULS homepage at http://wireless.fcc.gov/uls/index.htm?job=home and select "License Search". Follow the instructions on how to search for license information.

Licensee Name: CELLCO PARTNERSHIP

Call Sign: WQGA902 **File Number:** 0009773242 **Print Date:** 12-21-2021

700 MHz Relicensed Area Information:

Market	Market Name	Buildout Deadline	Buildout Notification	Status

Reference Copy

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Federal Communications Commission

Wireless Telecommunications Bureau

RADIO STATION AUTHORIZATION

LICENSEE: CELLCO PARTNERSHIP

CELLCO PARTNERSHIP
5055 NORTH POINT PKWY, NP2NE NETWORK ENGINEERING
ALPHARETTA, GA 30022

Call Sign	File Number
WQGA903	0009773243
Radio Service AW - AWS (1710-1755 MHz and 2110-2155 MHz)	

FCC Registration Number (FRN): 0003290673

Grant Date	Effective Date	Expiration Date	Print Date
12-21-2021	12-21-2021	11-29-2036	12-21-2021

Market Number	Channel Block	Sub-Market Designator
BEA006	B	5

Market Name
Syracuse, NY-PA

1st Build-out Date	2nd Build-out Date	3rd Build-out Date	4th Build-out Date

Waivers/Conditions:

This authorization is conditioned upon the licensee, prior to initiating operations from any base or fixed station, making reasonable efforts to coordinate frequency usage with known co-channel and adjacent channel incumbent federal users operating in the 1710-1755 MHz band whose facilities could be affected by the proposed operations. See, e.g., FCC and NTIA Coordination Procedures in the 1710-1755 MHz Band, Public Notice, FCC 06-50, WTB Docket No. 02-353, rel. April 20. 2006.

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Licensee Name: CELLCO PARTNERSHIP

Call Sign: WQGA903 **File Number:** 0009773243 **Print Date:** 12-21-2021

700 MHz Relicensed Area Information:

Market	Market Name	Buildout Deadline	Buildout Notification	Status

Reference Copy

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Federal Communications Commission

Wireless Telecommunications Bureau

RADIO STATION AUTHORIZATION

LICENSEE: CELLCO PARTNERSHIP

CELLCO PARTNERSHIP
5055 NORTH POINT PKWY, NP2NE NETWORK ENGINEERING
ALPHARETTA, GA 30022

Call Sign	File Number
WQGA715	0009761393
Radio Service AW - AWS (1710-1755 MHz and 2110-2155 MHz)	

FCC Registration Number (FRN): 0003290673

Grant Date	Effective Date	Expiration Date	Print Date
12-14-2021	12-14-2021	11-29-2036	12-14-2021

Market Number	Channel Block	Sub-Market Designator
REA001	F	21

Market Name
Northeast

1st Build-out Date	2nd Build-out Date	3rd Build-out Date	4th Build-out Date

Waivers/Conditions:

This authorization is conditioned upon the licensee, prior to initiating operations from any base or fixed station, making reasonable efforts to coordinate frequency usage with known co-channel and adjacent channel incumbent federal users operating in the 1710-1755 MHz band whose facilities could be affected by the proposed operations. See, e.g., FCC and NTIA Coordination Procedures in the 1710-1755 MHz Band, Public Notice, FCC 06-50, WTB Docket No. 02-353, rel. April 20, 2006.

AWS operations must not cause harmful interference across the Canadian or Mexican Border. The authority granted herein is subject to future international agreements with Canada or Mexico, as applicable.

Conditions:
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Licensee Name: CELLCO PARTNERSHIP

Call Sign: WQGA715 **File Number:** 0009761393 **Print Date:** 12-14-2021

700 MHz Relicensed Area Information:

Market	Market Name	Buildout Deadline	Buildout Notification	Status

Reference Copy

VERIZON WIRELESS OF THE EAST LP

verizon

SITE NAME:

BEACON STATION MICRO

FUZE ID: 15010591

LOCATION CODE: 432849



VICINITY MAP

SITE ADDRESS:	2 RED FLYNN DR BEACON, NY 12508
MUNICIPALITY:	CITY OF BEACON
COUNTY:	DUTCHESS
TAX MAP NUMBER:	CITY (R.O.W.)
ZONING DISTRICT:	WD – WATERFRONT DEVELOPMENT
STRUCTURE COORDINATES:	N 41° 30' 18.70" W 73° 59' 06.32"
GROUND ELEVATION:	6'± AMSL
POLE OWNER:	CHG&E/NYT/CITY OF BEACON
POLE NUMBER:	CHG&E 44106P, BEAC. 398, NYT 3
APPLICANT:	VERIZON WIRELESS 1275 JOHN STREET, SUITE 100 WEST HENRIETTA, NY 14586
CONTACT PERSON:	KATHY POMPONIO
CONTACT PHONE:	(585) 321–5435

PROJECT SUMMARY

DIRECTIONS

DIRECTIONS TO SITE:

FROM NORTH GREENBUSH, NY NAVIGATE TO I–87 SOUTH AND FOLLOW 82.4± MILES. TAKE EXIT 17 AND MERGE ONTO I–84 EAST AND PROCEED 4.9± MILES. TAKE EXIT 11 AND TURN RIGHT ONTO NY–9D AND FOLLOW 0.7± MILES. TURN RIGHT ONTO BEEKMAN STREET AND PROCEED 0.5± MILES. TURN RIGHT ONTO BEEKMAN STREET NORTH AND FOLLOW 0.1± MILES. CONTINUE ONTO LONG DOCK ROAD AND PROCEED 0.1± MILES. CONTINUE ONTO RED FLYNN DRIVE AND SITE IS LOCATED ON THE RIGHT.

PROJECT DESCRIPTION

THE PROPOSED WORK CONSISTS OF INSTALLING (1) CELLULAR ANTENNA AND ASSOCIATED EQUIPMENT ON A EXISTING UTILITY POLE.

SHT. NO.	DESCRIPTION	REV NO	REVISION DATE
T–1	TITLE SHEET	3	4/25/22
GN–1	GENERAL NOTES	3	4/25/22
AD–1	ADJOINERS PLAN	3	4/25/22
C–1	SITE PLAN	3	4/25/22
C–2	POLE ELEVATION & DETAIL	3	4/25/22
C–3	POLE MOUNT DETAILS	3	4/25/22
E–1	ELECTRICAL DIAGRAMS & DETAILS	3	4/25/22

SHEET INDEX

THIS SET OF PLANS SHALL NOT BE UTILIZED AS CONSTRUCTION DOCUMENTS UNTIL ALL ITEMS OF CONCERN HAVE BEEN ADDRESSED AND EACH OF THE DRAWINGS HAS BEEN REVISED AND ISSUED "FOR CONSTRUCTION".

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DO NOT SCALE DRAWINGS

THESE DRAWINGS ARE FORMATTED FOR 22"x34" FULL SIZE AND 11"x17" HALF SIZE. OTHER SIZED VERSIONS ARE NOT PRINTED TO THE SCALE SHOWN. CONTRACTOR SHALL VERIFY ALL PLANS, EXISTING DIMENSIONS & CONDITIONS ON THE JOB SITE & SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

verizon

1275 JOHN STREET, SUITE 100
WEST HENRIETTA, NY 14586

Tectonic
PRACTICAL SOLUTIONS. EXCEPTIONAL SERVICE.
Tectonic Engineering Consultants, Geologists & Land Surveyors, D.P.C.
Project Contact Info
26 British American Blvd. Phone: (518) 783–1630
Suite 101 (800) 829–8531
Latham, NY 12110 www.tectonicengineering.com

WORK ORDER NUMBER	DRAWN BY
11273.019	JRF

NO.	DATE	ISSUE
0	9/12/17	FOR COMMENT
1	10/04/17	FOR ZONING
2	9/21/18	FOR ZONING
3	4/25/22	FOR ZONING

RELEASED BY	DATE

STATE OF NEW YORK
STEVEN M. MATTEO
087507
LICENSED PROFESSIONAL ENGINEER

UNAUTHORIZED ALTERATION OR ADDITIONS TO A PLAN BEARING THE SEAL OF A LICENSED ENGINEER OR LAND SURVEYOR IS A VIOLATION OF SECTION 7209 SUBDIVISION 2 OF THE NEW YORK STATE EDUCATION LAW.

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0 1
ORIGINAL SIZE IN INCHES
(22x34 FORMAT)

0 1
ORIGINAL SIZE IN INCHES
(11x17 FORMAT)

SITE INFORMATION

BEACON STATION MICRO
FUZE ID: 15010591
LC: 432849

SITE ADDRESS

2 RED FLYNN DR
CITY OF BEACON
DUTCHESS COUNTY
NY 12508

SHEET TITLE

TITLE SHEET

SHEET NUMBER

T-1

ELECTRICAL NOTES

1. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE LOCAL CODES.
2. ALL ELECTRICAL EQUIPMENT AND ACCESSORIES SHALL BE U.L. APPROVED OR LISTED.
3. CONDUIT ROUTINGS ARE SCHEMATIC. CONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED.
4. WIRING, RACEWAY AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC.
5. ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC.
6. EACH END OF EVERY POWER, POWER PHASE CONDUCTOR (I.E., HOTS), GROUNDING, AND T1 CONDUCTOR AND CABLE SHALL BE LABELED WITH COLOR–CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2 INCH PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). THE IDENTIFICATION METHOD SHALL CONFORM WITH NEC & OSHA.
7. ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED. ALL EQUIPMENT SHALL BE LABELED WITH THEIR VOLTAGE RATING, POWER OR AMPACITY RATING, AND BRANCH CIRCUIT ID NUMBERS (I.E., PANELBOARD AND CIRCUIT ID'S).
8. PANELBOARDS (ID NUMBERS) AND INTERNAL CIRCUIT BREAKERS (CIRCUIT ID NUMBERS) SHALL BE CLEARLY LABELED.
9. POWER, CONTROL, AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT SHALL BE SINGLE CONDUCTOR (#14 AWG OR LARGER), 600 V, OIL RESISTANT THHN OR THWN–2, STRANDED COPPER CABLE RATED FOR 90°C (WET AND DRY) OPERATION; LISTED OR LABELED FOR THE LOCATION AND RACEWAY SYSTEM USED, UNLESS OTHERWISE SPECIFIED.
10. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED INDOORS SHALL BE SINGLE CONDUCTOR (#6 AWG OR LARGER), 600 V, OIL RESISTANT THHN OR THWN–2 GREEN INSULATION, STRANDED COPPER CABLE RATED FOR 90°C (WET AND DRY) OPERATION; LISTED OR LABELED FOR THE LOCATION AND RACEWAY SYSTEM USED, UNLESS OTHERWISE SPECIFIED.
11. POWER AND CONTROL WIRING, NOT IN TUBING OR CONDUIT, SHALL BE MULTI–CONDUCTOR, TYPE USE–2 CABLE (#14 AWG OR LARGER), 600 V, OIL RESISTANT RHW–2 OR XHHW–2, STRANDED COPPER CABLE RATED FOR 90°C (WET AND DRY) OPERATION; WITH OUTER JACKET; LISTED OR LABELED FOR THE LOCATION USED, UNLESS OTHERWISE SPECIFIED.
12. ALL POWER AND GROUNDING CONNECTIONS SHALL BE CRIMP–STYLE, COMPRESSION WIRE LUGS AND WIRE NUTS BY THOMAS AND BETTS (OR EQUAL). LUGS AND WIRE NUTS SHALL BE RATED FOR OPERATION AT NO LESS THAN 90°C.
13. ELECTRICAL METALLIC TUBING (EMT) OR RIGID METALLIC CONDUIT (RMC) SHALL BE USED FOR EXPOSED OR CONCEALED LOCATIONS.
14. ALL OUTDOOR EXPOSED CONDUIT SHALL BE PVC SCHEDULE 80 AND SHALL BE SUPPORTED ADEQUATELY.
15. LIQUID–TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID–TITE FLEX) SHALL BE USED OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED. LFMC SHALL CONFORM TO NEC ARTICLE 350.
16. CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION–TYPE AND APPROVED FOR THE LOCATION USED. SET SCREW FITTINGS ARE NOT ACCEPTABLE.
17. CABINETS, BOXES, AND WIREWAYS SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE, AND NEC.
18. EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES, AND PULL BOXES SHALL BE GALVANIZED OR EPOXY–COATED SHEET STEEL, SHALL MEET OR EXCEED UL 50, AND RATED NEMA 3R (OR BETTER) OUTDOORS.
19. IF REQUIRED, CONTRACTOR SHALL APPLY FOR ELECTRICAL SERVICE AS SOON AS POSSIBLE AND COORDINATE REQUIREMENTS, SERVICE ROUTING, AND METER SOCKET TYPE WITH LOCAL POWER COMPANY.
20. CONTRACTOR SHALL OBTAIN ALL PERMITS, PAY PERMIT FEES, AND SCHEDULE INSPECTIONS.
21. CONTRACTOR SHALL LABEL ELECTRICAL EQUIPMENT IN ACCORDANCE WITH NEC 110.16 AND 110.24.
22. CONTRACTOR SHALL VERIFY THAT THE MAIN BONDING JUMPER AND GROUNDING ELECTRODE CONDUCTOR IS INSTALLED PROPERLY AT SERVICE ENTRANCE.
23. WHERE ELECTRICAL POWER IS TO BE SUB–FED FROM AN EXISTING DISTRIBUTION SYSTEM, THE FOLLOWING SHALL APPLY:
    A. CONTRACTOR SHALL PERFORM LOAD TESTING TO DETERMINE MAXIMUM FEEDER DEMAND PER N.E.C. ARTICLE 220.
    B. CONTRACTOR SHALL VERIFY WHETHER EXISTING FEEDER CAPACITY EXCEEDS VALUE CALCULATED PER N.E.C. ARTICLE 220.
    C. EACH BRANCH CIRCUIT PROTECTIVE DEVICE SHALL HAVE SAME INTERRUPTING RATING AS EQUIPMENT SUPPLYING IT.
    D. PREFERRED MEANS OF SUPPLY SHALL BE A BRANCH CIRCUIT PROTECTIVE DEVICE LOCATED IN EXISTING PANEL.

ANTENNA MOUNTING NOTES

1. DESIGN AND CONSTRUCTION OF ANTENNA SUPPORTS SHALL CONFORM TO ANSI/TIA–222–H–2017 "STRUCTURAL STANDARD FOR ANTENNA SUPPORTING STRUCTURES, ANTENNAS AND SMALL WIND TURBINE SUPPORT STRUCTURES". THE BUILDING CODE OF NEW YORK STATE, AND ALL OTHER APPLICABLE LOCAL, STATE, AND FEDERAL CODES.
2. ALL STEEL MATERIALS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT–DIP GALVANIZED) COATINGS ON IRON AND STEEL PRODUCTS", UNLESS OTHERWISE NOTED.
3. ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC–COATING (HOT–DIP) ON IRON AND STEEL HARDWARE", UNLESS OTHERWISE NOTED.
4. DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED BY COLD GALVANIZING IN ACCORDANCE WITH ASTM A780 "REPAIR OF DAMAGED AND UNCOATED AREAS OF HOT–DIP GALVANIZED COATINGS", USING COLD GALVANIZING COMPOUND AS MANUFACTURED BY ZINGA–USA OR ZINC KOTE, OR ENGINEER APPROVED EQUAL WITH A MINIMUM METALLIC ZINC CONTENT OF 95% BY WEIGHT IN DRY FILM. DRY FINISHED COATING THICKNESS SHALL BE 3 MILS MINIMUM.
5. ALL ANTENNA MOUNTS SHALL BE INSTALLED WITH DOUBLE NUTS AND SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
6. DESIGN OF THE ANTENNA MOUNTING BRACKETS, SUPPORTS, AND ALL COMPONENTS THEREOF AND ATTACHMENT THERETO SHALL BE THE RESPONSIBILITY OF THE MANUFACTURER. MANUFACTURER SHALL PROVIDE THE OWNER DRAWINGS DETAILING ALL COMPONENTS OF THE ASSEMBLY, INCLUDING CONNECTIONS, DESIGN LOADS, AND ALL OTHER PERTINENT DATA. MANUFACTURER SHALL ALSO PROVIDE THE OWNER WITH A STATEMENT OF COMPLIANCE, INDICATING THAT THE ANTENNA SUPPORTS HAVE BEEN DESIGNED IN ACCORDANCE WITH ANSI/TIA–222–H STANDARDS. ALL SUBMISSIONS SHALL BEAR THE SIGNATURE AND SEAL OF A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF NEW YORK.

STRUCTURAL NOTE

1. THE VERIFICATION OF STRUCTURAL ADEQUACY AND DESIGN OF THE ATTACHMENTS MUST BE PERFORMED, PRIOR TO THE COMMENCEMENT OF CONSTRUCTION, BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF NEW YORK.

GROUNDING NOTES

GROUND TESTING AFTER CONSTRUCTION:

1. AFTER COMPLETION OF CONSTRUCTION OF THE CELL SITE GROUND SYSTEM, A POST INSTALLATION GROUND TEST SHALL BE PERFORMED BY THE CONTRACTOR. THE CONTRACTOR SHALL DETERMINE THE GROUND RESISTANCE FOR ALL SITES AFTER INSTALLATION OF THE EARTH GROUND SYSTEM. A PRELIMINARY EARTH RESISTIVITY TEST (3 POLE TEST OR CLAMP–ON–METER) SHALL BE PERFORMED PRIOR TO BACK FILLING ALL TRENCHES AS SPECIFIED IN VERIZON NETWORK STANDARDS (NSTD46) AND THE NATIONAL ELECTRIC CODE.
2. APPROVED MEASUREMENT METHODS FOR POST INSTALLATION GROUND TESTING SHALL BE ONE OF THE FOLLOWING METHODS:
    A. FALL OF POTENTIAL METHOD – 3 POINT
    B. CLAMP–ON RESISTANCE TEST
    C. TOWER AND EXTERNAL CONDUCTOR TEST
3. A GROUNDING RESISTANCE TEST REPORT SHALL BE PREPARED UPON COMPLETION OF THE TESTING. THE TEST REPORT SHALL SHOW THE RESISTANCE IN OHMS AT 40%, 52%, 62%, 72% AND 82% POINTS IN 10% INTERVALS. RESISTANCE IS TO BE RECORDED AT EACH INTERVAL FOR EACH POINT FOR FOUR (4) DIFFERENT DIRECTIONS UNTIL THERE IS A PLATEAU SEEN AT THE 62% POINT. TESTING SHOULD BE COMPLETED IN A MINIMUM OF TWO (2) DIFFERENT DIRECTIONS AT 90 DEGREES APART. RECORD THE AVERAGE OR MEAN AS THE RESISTANCE OF THE SITE AND ENTER THIS ON THE POST RESISTANCE DATA CHART.
4. PROVIDE THE POST INSTALLATION – GROUND RESISTANCE TEST REPORT TO THE REGIONAL PROJECT ENGINEER ACCOMPANIED BY THE POST RESISTANCE DATE CHART.
5. USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED. ALL BENDS SHALL BE MADE WITH 12" RADIUS OR LARGER.
6. APPROVED ANTIOXIDANT COATINGS (I.E. CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
7. GROUNDING TEST SHALL BE TAKEN BEFORE A/C POWER, NEUTRAL/GROUND BOND IS CONNECTED.
8. ANTI–OXIDATION CONDUCTIVE COMPOUNDS ARE REQUIRED ON ALL GROUND CONNECTIONS. NO OX–ID (COSMOLINE GREASE BASED COMPOUND) SHALL BE USED FOR COPPER TO COPPER CONNECTIONS. ZINC BASED COMPOUND (GREY COLORED) OR APPROVED EQUAL SHALL BE USED FOR COPPER TO STEEL CONNECTIONS.
9. ALL LUG CONNECTIONS & THEIR MATING SURFACES SHALL BE CLEANED AND COATED WITH THE APPROPRIATE ANTI–OXIDIZING CONDUCTIVE COMPOUND. IF A LUG CONNECTION IS TO BE SECURED DIRECTLY TO A PAINTED SURFACE, THE PAINT SHALL BE REMOVED TO REVEAL BARE METAL AROUND THE AREA OF THE CONNECTION AND COATED WITH AN APPROPRIATE ANTI–OXIDATION CONDUCTIVE COMPOUNDS.

GENERAL NOTES

1. ALL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE NEW YORK STATE BUILDING CODE, AND ALL OTHER APPLICABLE CODES AND ORDINANCES.
2. CONTRACTOR SHALL VISIT THE JOB SITE AND FAMILIARIZE HIMSELF WITH ALL CONDITIONS AFFECTING THE PROPOSED WORK AND MAKE PROVISIONS AS TO THE COST THEREOF. CONTRACTOR SHALL BE RESPONSIBLE FOR FAMILIARIZING HIMSELF WITH ALL CONTRACT DOCUMENTS, FIELD CONDITIONS AND DIMENSIONS AND CONFIRMING THAT THE WORK MAY BE ACCOMPLISHED AS SHOWN PRIOR TO PROCEEDING WITH CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO THE COMMENCEMENT OF WORK.
3. PLANS ARE NOT TO BE SCALED. THESE PLANS ARE INTENDED TO BE A DIAGRAMMATIC OUTLINE ONLY, UNLESS OTHERWISE NOTED. THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO EFFECT ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
4. DIMENSIONS SHOWN ARE TO FINISH SURFACES, UNLESS OTHERWISE NOTED. SPACING BETWEEN EQUIPMENT IS REQUIRED CLEARANCE. THEREFORE, IT IS CRITICAL TO FIELD VERIFY DIMENSIONS. SHOULD THERE BE ANY QUESTIONS REGARDING THE CONTRACT DOCUMENTS, EXISTING CONDITIONS AND/OR DESIGN INTENT, THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING A CLARIFICATION FROM THE CARRIER'S AUTHORIZED REPRESENTATIVE OR THE ENGINEER PRIOR TO PROCEEDING WITH THE WORK.
5. DETAILS ARE INTENDED TO SHOW END RESULT OF DESIGN. MINOR MODIFICATIONS MAY BE REQUIRED TO SUIT JOB DIMENSIONS OR CONDITIONS, AND SUCH MODIFICATIONS SHALL BE INCLUDED AS PART OF THE WORK.
6. CONTRACTOR SHALL RECEIVE CLARIFICATION IN WRITING, AND SHALL RECEIVE IN WRITING AUTHORIZATION TO PROCEED BEFORE STARTING WORK ON ANY ITEMS NOT CLEARLY DEFINED OR IDENTIFIED BY THE CONTRACT DOCUMENTS.
7. CONTRACTOR SHALL NOTIFY THE CONSTRUCTION MANAGER OF ALL PRODUCTS OR ITEMS NOTED AS "EXISTING" WHICH ARE NOT FOUND TO BE IN THE FIELD.
8. CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK USING THE BEST CONSTRUCTION SKILLS AND ATTENTION. CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, PROCEDURES, AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER CONTRACT, UNLESS OTHERWISE NOTED.
9. ERECTION SHALL BE DONE IN A WORKMANLIKE MANNER BY COMPETENT EXPERIENCED WORKMEN IN ACCORDANCE WITH APPLICABLE CODES AND THE BEST ACCEPTED PRACTICE. ALL MEMBERS SHALL BE LAID PLUMB AND TRUE AS INDICATED ON THE DRAWINGS.
10. CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF THE WORK AREA, AND ADJACENT AREAS, THAT ARE LIKELY TO BE AFFECTED BY THE WORK UNDER THIS CONTRACT. WORK SHALL CONFORM TO ALL OSHA REQUIREMENTS.
11. CONTRACTOR SHALL COORDINATE HIS WORK AND SCHEDULE HIS ACTIVITIES AND WORKING HOURS IN ACCORDANCE WITH THE REQUIREMENTS OF THE OWNER.
12. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING HIS WORK WITH THE WORK OF OTHERS AS IT MAY RELATE TO RADIO EQUIPMENT, ANTENNAS AND ANY OTHER PORTIONS OF THE WORK.
13. CONTRACTOR SHALL MAINTAIN LIABILITY INSURANCE TO PROTECT THE OWNER AND CARRIER.
14. INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY INDICATED OR WHERE LOCAL CODES OR REGULATIONS TAKE PRECEDENCE.
15. MAKE NECESSARY PROVISIONS TO PROTECT EXISTING SURFACES, EQUIPMENT, IMPROVEMENTS, PIPING, ANTENNA AND ANTENNA CABLES. REPAIR ANY DAMAGE THAT OCCURS DURING CONSTRUCTION.
16. REPAIR ALL EXISTING SURFACES DAMAGED DURING CONSTRUCTION SUCH THAT THEY MATCH AND BLEND WITH ADJACENT SURFACES.
17. KEEP CONTRACT AREA CLEAN, HAZARD FREE, AND DISPOSE OF ALL DEBRIS AND RUBBISH. EQUIPMENT NOT SPECIFIED AS REMAINING ON THE PROPERTY OF THE OWNER SHALL BE REMOVED. LEAVE PREMISES IN CLEAN CONDITION AND FREE FROM PAINT SPOTS, DUST, OR SMUDGES OF ANY NATURE. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL ITEMS UNTIL COMPLETION OF CONSTRUCTION.
18. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS IN THE FIELD PRIOR TO FABRICATION AND ERECTION OF ANY MATERIAL. ANY UNUSUAL CONDITIONS SHALL BE REPORTED TO THE ATTENTION OF THE ENGINEER.
19. CONTRACTOR SHALL SECURE ALL NECESSARY BUILDING PERMITS AND INSPECTIONS AND PAY ALL REQUIRED FEES.
20. PROVIDE A PORTABLE FIRE EXTINGUISHER WITH A RATING OF NOT LESS THAN 2–A OR 2–A/10–BC WITHIN 75 FEET TRAVEL DISTANCE TO ALL PORTIONS OF THE BUILDOUT AREA DURING CONSTRUCTION.
21. ALL BROCHURES, OPERATING AND MAINTENANCE MANUALS, CATALOGS, SHOP DRAWINGS AND OTHER DOCUMENTATION SHALL BE TURNED OVER TO CARRIER AT COMPLETION OF CONSTRUCTION.
22. COMPLETE JOB SHALL BE GUARANTEED FOR A PERIOD OF ONE (1) YEAR AFTER THE DATE OF ACCEPTANCE BY CARRIER. ANY WORK, MATERIALS, OR EQUIPMENT FOUND TO BE DEFECTIVE DURING THAT PERIOD SHALL BE CORRECTED IMMEDIATELY UPON WRITTEN NOTIFICATION AT NO ADDITIONAL COST TO CARRIER.
23. RIGGING OPERATIONS SHALL BE DONE IN ACCORDANCE WITH STATE AND FEDERAL SAFETY REGULATIONS (OSHA). ENGINEER, CARRIER AND THE OWNER SHALL BE HELD HARMLESS IN THE EVENT THE CONTRACTOR DOES NOT FOLLOW SUCH SAFETY REGULATIONS.
24. CONTRACTOR SHALL PROVIDE ACCESS TO THE SITE AND ASSIST THE RADIO EQUIPMENT VENDOR AND THE ANTENNA INSTALLATION CONTRACTOR AS THEY MAY REQUIRE.

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Tectonic Engineering Consultants, Geologists & Land Surveyors, D.P.C.
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www.tectonicengineering.com

WORK ORDER NUMBER	DRAWN BY
11273.019	JRF

NO.	DATE	ISSUE
0	9/12/17	FOR COMMENT
1	10/04/17	FOR ZONING
2	9/21/18	FOR ZONING
3	4/25/22	FOR ZONING

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STATE OF NEW YORK
STEVEN M. MATTHEWS
087507
LICENSED PROFESSIONAL ENGINEER

UNAUTHORIZED ALTERATION OR ADDITIONS TO A PLAN BEARING THE SEAL OF A LICENSED ENGINEER OR LAND SURVEYOR IS A VIOLATION OF SECTION 7209 SUBDIVISION 2 OF THE NEW YORK STATE EDUCATION LAW.

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0 1
ORIGINAL SIZE IN INCHES
(22x34 FORMAT)

0 1
ORIGINAL SIZE IN INCHES
(11x17 FORMAT)

SITE INFORMATION
BEACON STATION MICRO
FUZE ID: 15010591
LC: 432849

SITE ADDRESS
2 RED FLYNN DR
CITY OF BEACON
DUTCHESS COUNTY
NY 12508

SHEET TITLE
GENERAL NOTES

SHEET NUMBER
GN-1



NORTH ORIENTATION

1. NORTH ORIENTATION ESTABLISHED BY COMPASS OBSERVATION.



1 C-1 ADJOINERS PLAN
SCALE: 1" = 200' (11 X 17)
1" = 100' (22 X 34)

NUMBER	SBL	Owner Name	OWNER ADDRESS
1	130200-5954-33-549777	CONRAIL	1700 BROADWAY NEW YORK, NY 10019
2	130200-5954-25-554890	METRO NORTH COMM RAILROAD CO.	347 MADISON AVE NEW YORK, NY 10017
3	130200-5954-33-594862	METRO NORTH COMM RAILROAD CO.	333 W. 34TH STREET NEW YORK, NY 10001
4	130200-5954-33-556840	ARMAND NINNIE	PO BOX 328 BEACON, NY 12508
5	130200-5954-33-552825	CHARLES & MARY SUE KELLY	5 BAYVIEW AVE BEACON, NY 12508
6	130200-5954-33-572806	ROSE SIMMONS	15 BAYVIEW AVE BEACON, NY 12508
7	130200-5954-33-571799	JOHN BLESSO	17 BAYVIEW AVE BEACON, NY 12508
8	130200-5954-33-570791	CAROL HEARTY	PO BOX 186 BEACON, NY 12508
9	130200-5954-33-569773	LORI JOSEPH	27 BAYVIEW AVE BEACON, NY 12508
10	130200-5954-49-574583	METROPOLITAN TRANSPORTATION	2 BROADWAY NEW YORK, NY 10004
11	130200-5954-32-490828	BEACON WATERFRONT LLC	1 CIVIC CENTER PLZ POUGHKEEPSIE, NY 12601
12	130200-5954-41-537725	SCENIC HUDSON LAND TRUST INC	1 CIVIC CENTER PLZ POUGHKEEPSIE, NY 12601
13	133089-5954-00-472672	SCENIC HUDSON LAND TRUST INC	1 CIVIC CENTER PLZ POUGHKEEPSIE, NY 12601
14	133089-5954-00-424816	SCENIC HUDSON LAND TRUST INC	1 CIVIC CENTER PLZ POUGHKEEPSIE, NY 12601
15	130200-5954-32-481840	SCENIC HUDSON LAND TRUST INC	1 CIVIC CENTER PLZ POUGHKEEPSIE, NY 12601
16	130200-5954-33-519873	CITY OF BEACON	1 MUNICIPAL PLZ BEACON, NY 12508

2 AD-1 ADJOINERS LIST
SCALE: NTS

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WEST HENRIETTA, NY 14586

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CITY OF BEACON
DUTCHESS COUNTY
NY 12508

SHEET TITLE
ADJOINERS PLAN

SHEET NUMBER
AD-1



NORTH ORIENTATION

1. NORTH ORIENTATION ESTABLISHED BY COMPASS OBSERVATION.



1 / C-1 SITE PLAN

SCALE: 1" = 100' (11 X 17)
1" = 50' (22 X 34)

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LC: 432849

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CITY OF BEACON
DUTCHESS COUNTY
NY 12508

SHEET TITLE

SITE PLAN

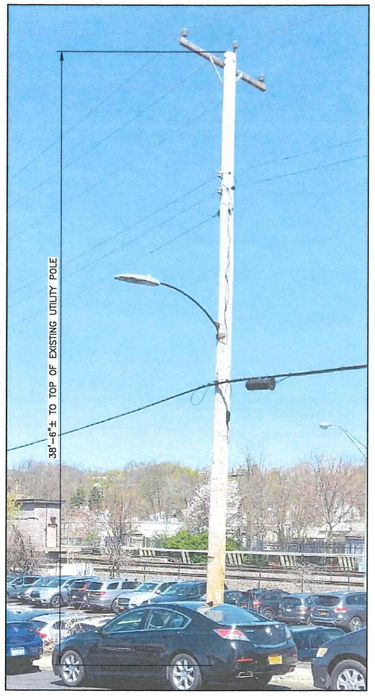
SHEET NUMBER

C-1

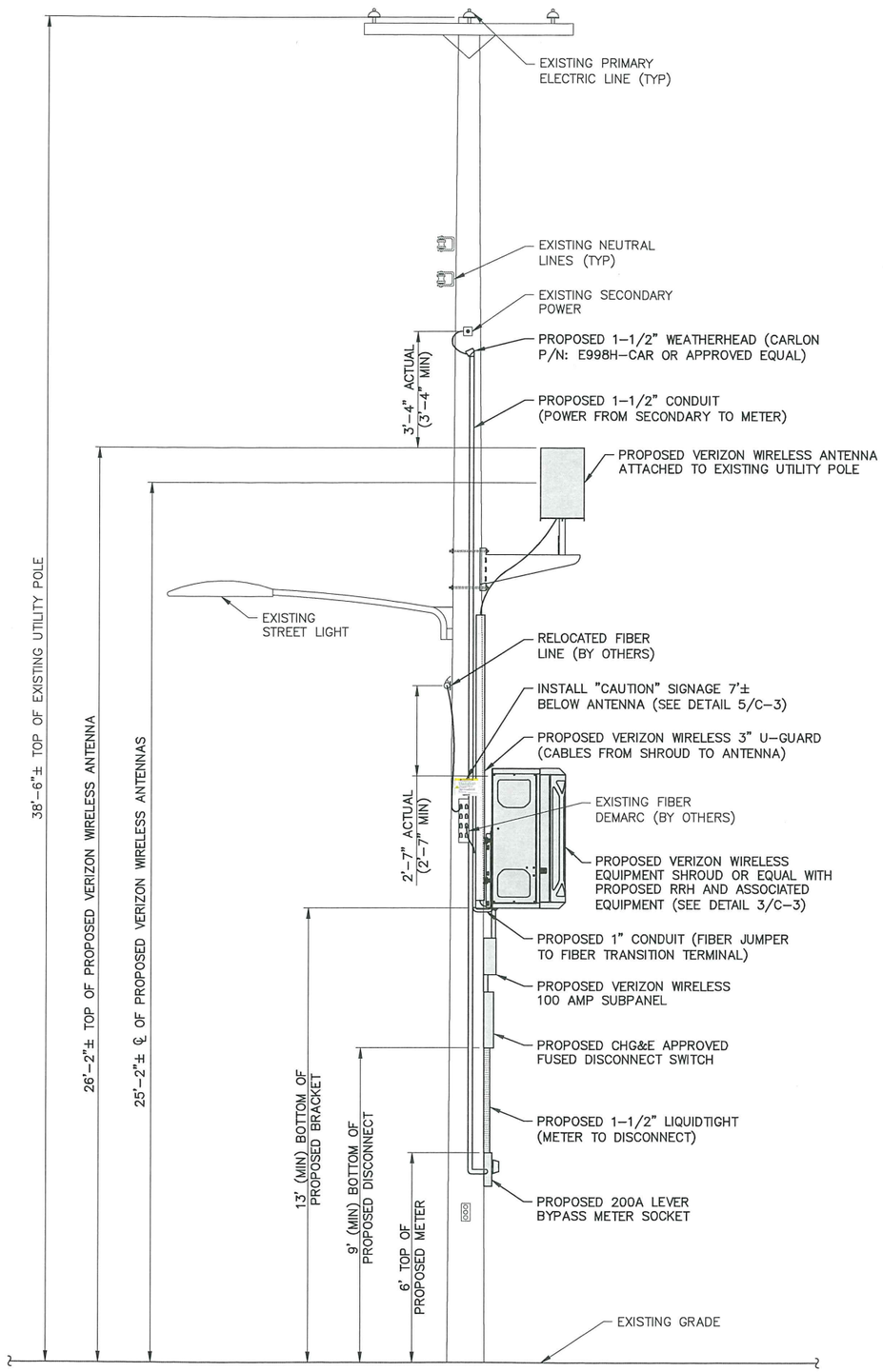




1 C-2 SITE DETAIL PLAN
SCALE: 1" = 60' (11 X 17)
1" = 30' (22 X 34)

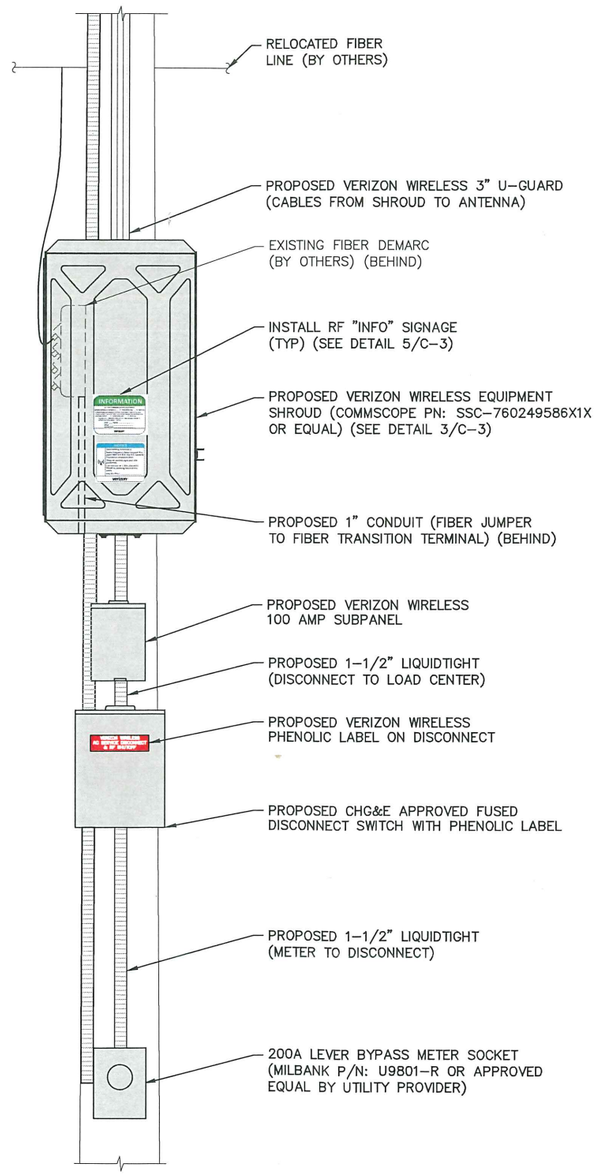


2 C-2 EXISTING POLE PHOTO
SCALE: NTS



3 C-2 UTILITY POLE ELEVATION
SCALE: 1" = 4' (11 X 17)
1" = 2' (22 X 34)

NOTE:
USE OF SCHEDULE 40/80 CONDUIT OR RIGID CONDUIT SHALL BE DETERMINED BY THE UTILITY PROVIDERS REQUIREMENTS.



4 C-2 ELEVATION DETAIL
SCALE: 1" = 2' (11 X 17)
1" = 1' (22 X 34)

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SITE INFORMATION
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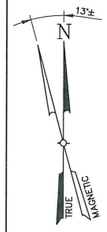
LC: 432849

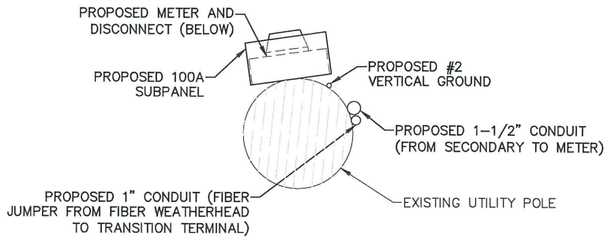
SITE ADDRESS
2 RED FLYNN DR
CITY OF BEACON
DUTCHESS COUNTY
NY 12508

SHEET TITLE
POLE ELEVATION & DETAIL

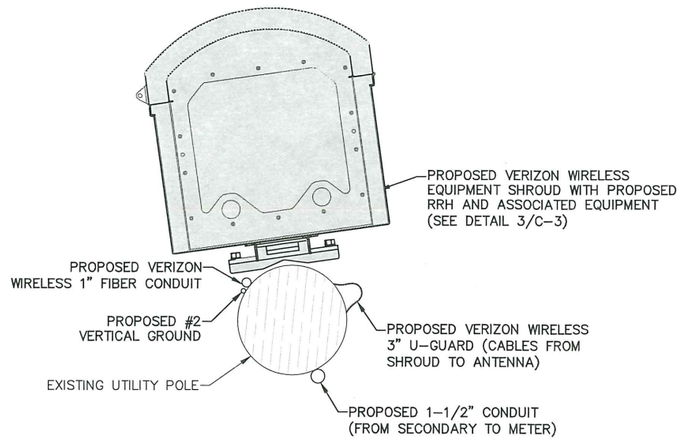
SHEET NUMBER
C-2

1303



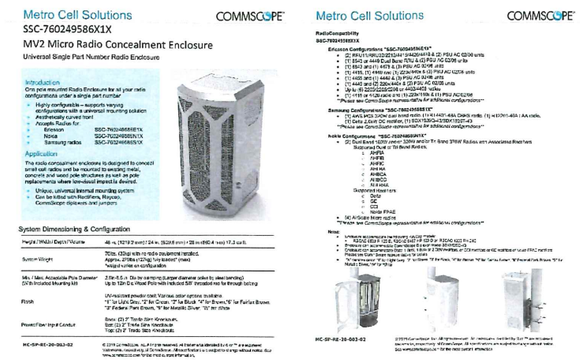


1 C–3 EQUIPMENT PLAN
SCALE: 3" = 1'–0" (11 X 17)
1–1/2" = 1'–0" (22 X 34)



2 C–3 RRH PLAN VIEW
SCALE: 3" = 1'–0" (11 X 17)
1–1/2" = 1'–0" (22 X 34)

NOTE:
USE OF SCHEDULE 40/80 CONDUIT OR RIGID CONDUIT SHALL BE DETERMINED BY THE UTILITY PROVIDERS REQUIREMENTS.


Metro Cell Solutions COMMSCOPE
SSC-760249586X1X
MV2 Micro Radio Concealment Enclosure
Universal Single Part Number Radio Enclosure

Introduction
One pole mounted Radio Enclosure for all your radio configurations under a single part number
- Highly configurable – supports varying configurations with a universal mounting solution
- Aesthetically curved front
- Accepts Radios for:
  - Ericsson SSC-760249586X1X
  - Nokia SSC-760249586X2X
  - Samsung radios SSC-760249586X9X

Application
The radio consumption enclosure is designed to conceal small cell radios and be mounted to existing metal, concrete and wood pole structures as well as pole replacements where transitional impact is desired.
- Unique, universal internal mounting system
- Can be kitted with Rectifiers, Raycap, CommScope diplexers and jumpers

System Dimensioning & Configuration

Height / Width / Depth / Volume	46 in. (1219.2 mm) / 24 in. (609.6 mm) / 28 in (660.4 mm) / 17.3 cu ft.
System Weight	70 lbs. (32kg) with no radio equipment installed. Weight will vary based on radio equipment mixed. Subject to change upon release.
Min / Max. Acceptable Pole Diameter (OD) to Included Mounting Kit	3 (in 6.5 in. Dia to accept any pole diameter sized by steel banding) Up to 120+ Dia Wood Pole with Included Kit threaded rod for through bolting
Finish	UV resistant powder coat Textured color options available: Std: (1) 2" Trade Size Conduit Hole Dia Black "A" for Brown,"E" for Fairfax Brown, "J" for Black, Pant Chocolate, "K" for Metallic Silver, "D" for White
Present Fiber Ingress Conduit	Base: (2) 2" Trade Size Knockouts Side: (2) 2" Trade Size Knockouts Top: (2) 2" Trade Size Knockouts

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MC-SP-RE-20-063-02

Metro Cell Solutions COMMSCOPE
RadioCompatibility
SSC-760249586X1X
Ericsson Configurations "SSC-760249586X1X"
- (2) 4415 B66/B66A (2) 4424 B4 (2) FSU AC 6206 units
- (1) 8843 or 4449 Dual Band B2/B4 & (2) FSU AC 6206 or 6x
- (1) 8843 (B12) 4478 & (1) FSU AC 6206 units
- (1) 4455, (1) 4449 dual (1) 4Cell B4 & (1) FSU AC 6206 units
- (1) 4415 (B25) 4449 & (1) FSU AC 6206 units
- (1) 4480 (B13) 4449 & (2) FSU AC 6206 units
- Up to (6) 2205/2206/2208 or 4402/4403 radios
- (1) 4455 or 4480 radio & (1) 2261/4356 & (1) FSU AC 6206

Samsung Configurations "SSC-760249586X9X"
- (1) 4449 MOD 2/4/66 dual band radio (1) 4Cell 4449 Quad radio (1) 4Cell 4468 1 AA radio,
- (1) Delta 2 Unit DC rectifier, (1) FSU AC 6206 or 6206+2205+4Cell

Radio Configurations "SSC-760249586X1X"
- (2) Dual Band 16200 (model 3284) and/or Tri Band 3268/ Radios with Associated Brackets
  - Band options or Tri Band Radios:
    - AWS
    - PCS
    - AWS-3
    - 700 LC
    - 850
    - AWS-4
    - CBRS
    - 700 UC
    - GC
    - 600
    - 2.5 GHz TDD
- 5G AWS radio 4478

Notes:
- Limited to accessories for radio(s) listed above.
- Weight: 4414: 68 lb, 4424: 64 lb, 4478: 57 lb, 4415: 57 lb, 4455: 57 lb
- Dimensions: 4414: 19.7" H x 13.8" W x 7.5" D, 4424: 19.7" H x 13.8" W x 7.5" D, 4478: 19.7" H x 13.8" W x 7.5" D, 4415: 19.7" H x 13.8" W x 7.5" D, 4455: 19.7" H x 13.8" W x 7.5" D
- Enclosure accommodates Size 1 with 1.5 to 4.25in Pole or 2.5in Pole to 6in Steel Riser (up to 10 total)
- Enclosure accommodates Size 2 with 1.5 to 4.25in Pole or 2.5in Pole to 6in Steel Riser (up to 10 total)
- Mount Sizes: "A" or "B" kit

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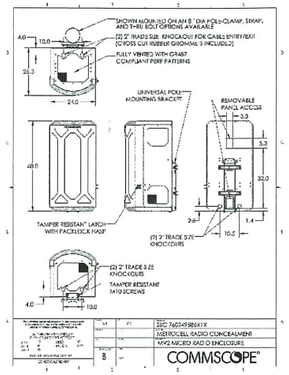
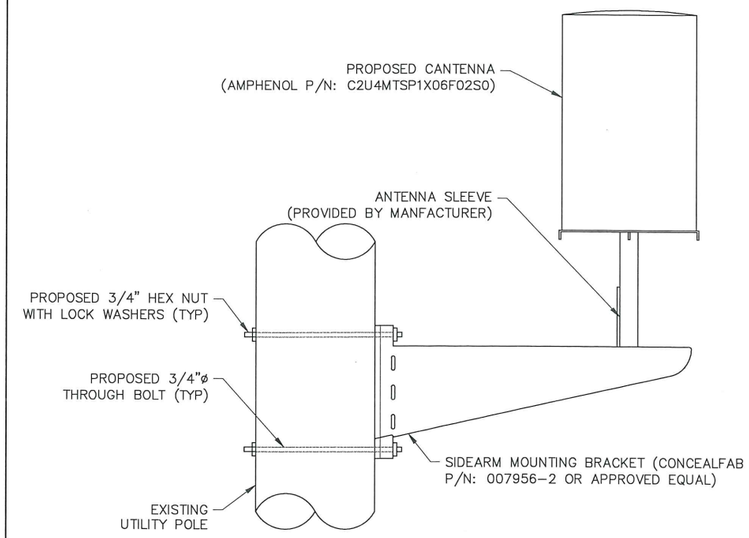
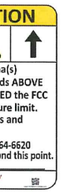
MC-SP-RE-20-063-02

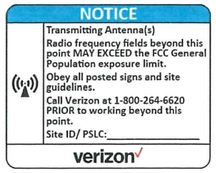


3 C–3 EQUIPMENT SHROUD DETAILS
SCALE: N.T.S



4 C–3 ANTENNA MOUNTING DETAILS
SCALE: 3" = 1'–0" (11 x 17)
1–1/2" = 1'–0" (22 x 34)





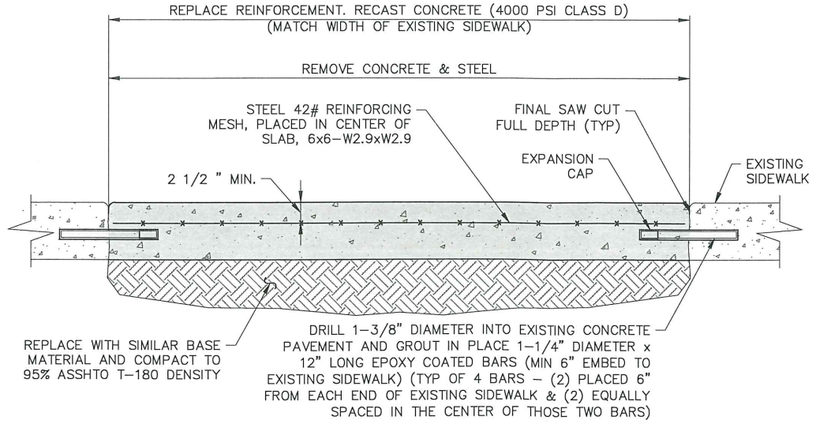


VERIZON WIRELESS
AC SERVICE DISCONNECT
& RF SHUTOFF

NOTE:
1. CONTRACTOR TO FURNISH AND INSTALL PHENOLIC LABEL APPLIED TO SUB PANEL.
2. ATTACH RF SIGNAGE TO FACE OF UTILITY POLE USING 1" WOOD SCREWS.
3. RF SIGNS ARE APPROXIMATELY 6"x7.5" IN SIZE.

SIGN SIZE MUST MEET IEEE C95–2 & OET–65 BULLETIN. PHONE NUMBER MUST BE READABLE FROM THE GROUND

5 C–3 PROPOSED SIGNAGE
SCALE: NTS



6 C–3 REPAIRING DETAIL FOR CONCRETE SIDEWALK
SCALE: NTS

verizon
1275 JOHN STREET, SUITE 100
WEST HENRIETTA, NY 14586

Tectonic
PRACTICAL SOLUTIONS. EXCEPTIONAL SERVICE.
Tectonic Engineering Consultants, Geologists & Land Surveyors, D.P.C.
Project Contact Info
36 British American Blvd. Phone: (518) 783–1630
Suite 101 (800) 829–8531
Latham, NY 12110 www.tectonicengineering.com

WORK ORDER NUMBER	DRAWN BY
11273.019	JRF

NO.	DATE	ISSUE
0	9/12/17	FOR COMMENT
1	10/04/17	FOR ZONING
2	9/21/18	FOR ZONING
3	4/25/22	FOR ZONING

RELEASED BY | DATE



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0 1
ORIGINAL SIZE IN INCHES (22x34 FORMAT)
0 1
ORIGINAL SIZE IN INCHES (11x17 FORMAT)

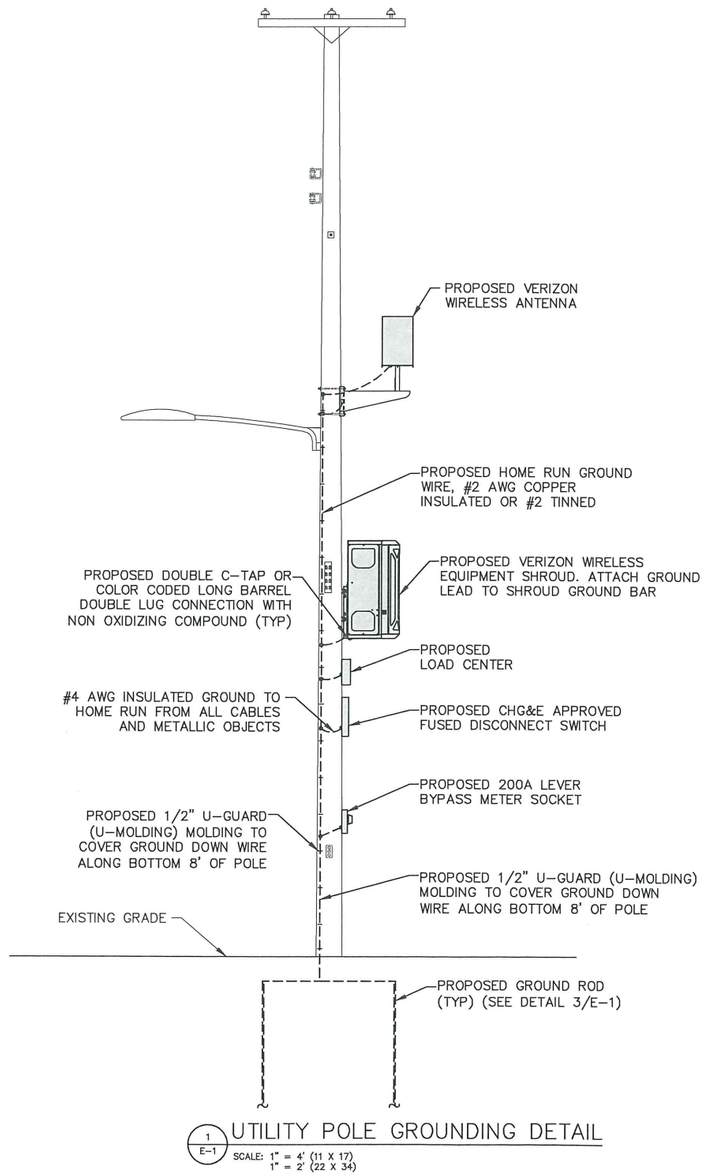
SITE INFORMATION
BEACON STATION MICRO
FUZE ID: 15010591
LC: 432849

SITE ADDRESS
2 RED FLYNN DR
CITY OF BEACON
DUTCHESS COUNTY
NY 12508

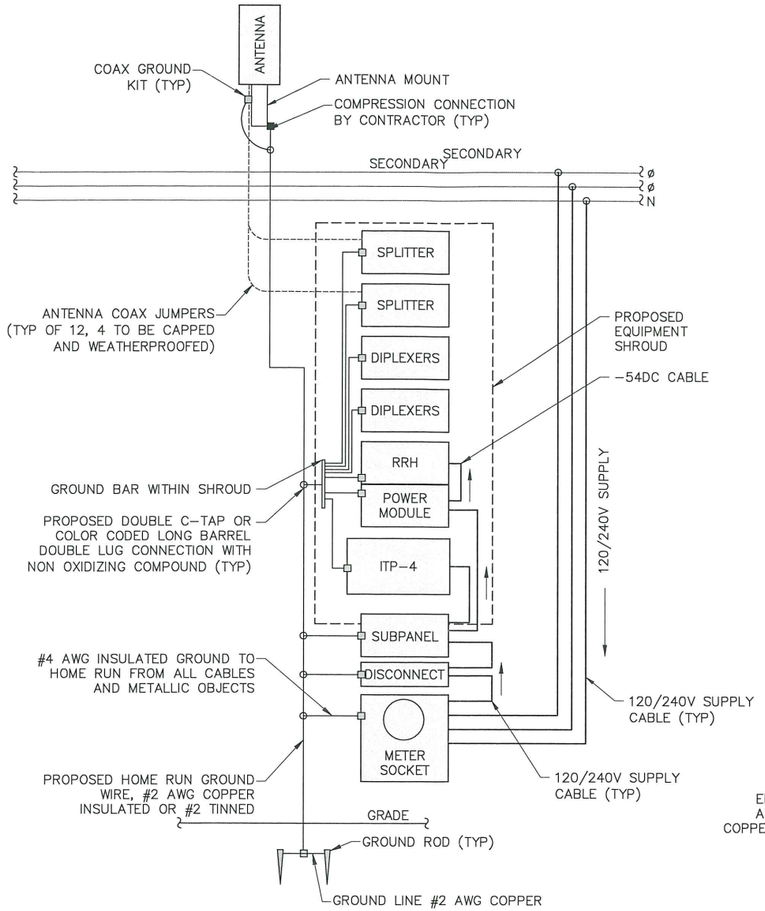
SHEET TITLE
POLE MOUNT DETAILS

SHEET NUMBER
C–3

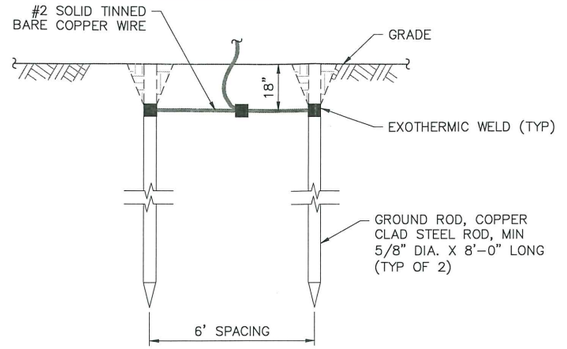
1304



1 E-1 UTILITY POLE GROUNDING DETAIL
SCALE: 1" = 4' (11 X 17)
1" = 2' (22 X 34)



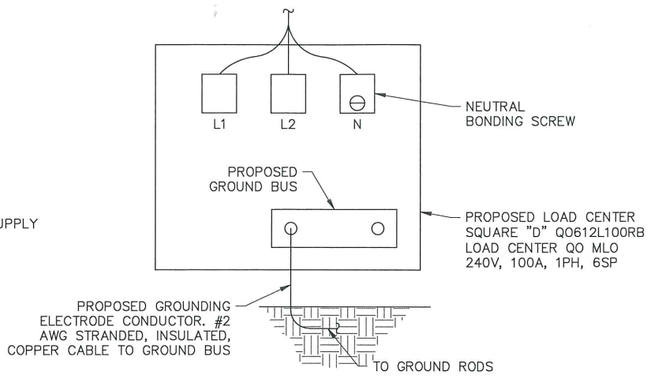
2 E-1 GROUNDING RISER DIAGRAM
SCALE: NTS



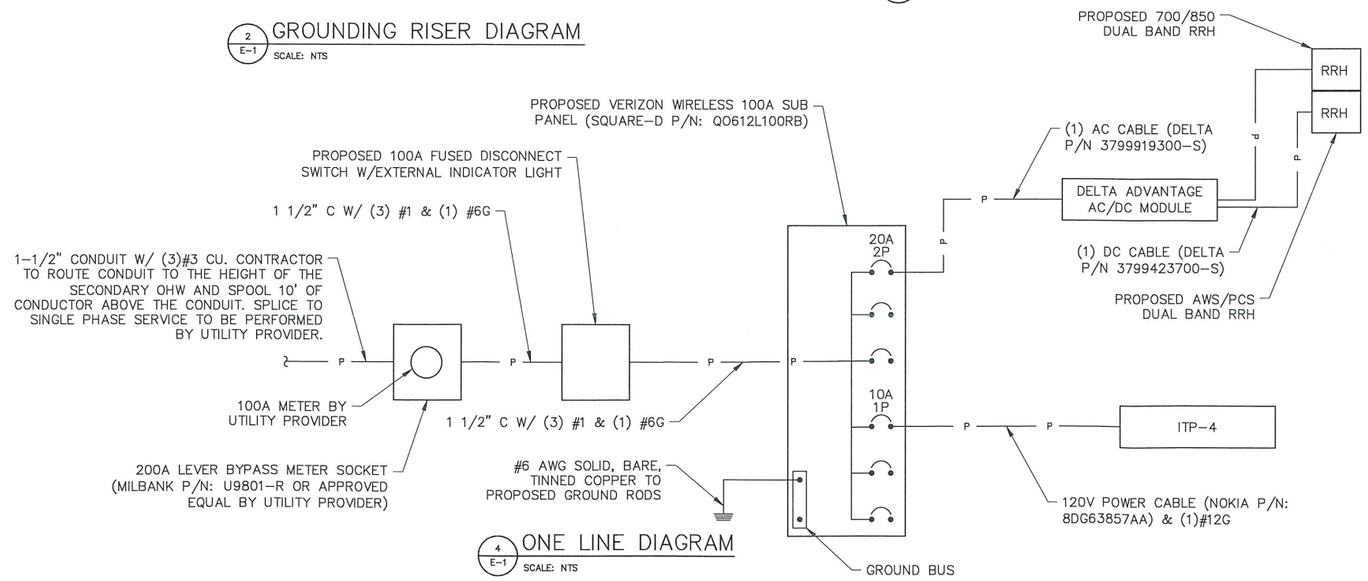
NOTE:

GROUND ROD SHALL BE DRIVEN VERTICALLY, NOT TO EXCEED 45 DEGREES FROM VERTICAL.

3 E-1 GROUND ROD DETAIL
SCALE: NTS



4 E-1 LOAD CENTER GROUNDING
SCALE: NTS



4 E-1 ONE LINE DIAGRAM
SCALE: NTS

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WEST HENRIETTA, NY 14586

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FUZE ID: 15010591
LC: 432849

SITE ADDRESS
2 RED FLYNN DR
CITY OF BEACON
DUTCHESS COUNTY
NY 12508

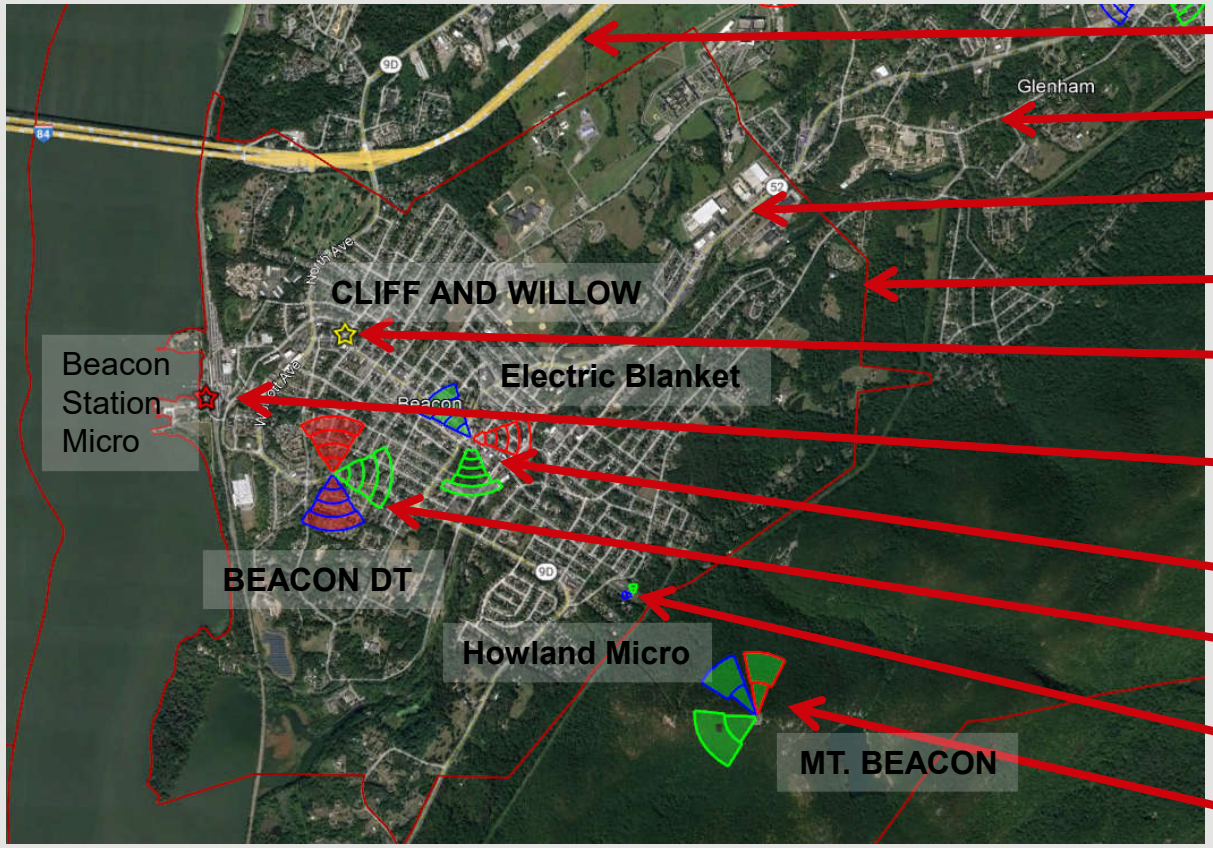
SHEET TITLE
ELECTRICAL DIAGRAMS & DETAILS

SHEET NUMBER
E-1

1305

Verizon Wireless Communications Facility

Engineering Necessity Case – "Beacon Station Micro"



Prepared by: Wasif Sharif

Project: The project is the installation and operation of a new small cell facility in the City of Beacon (the "Project Facility").

verizon

April 18th, 2022

Introduction

The purpose of this subsequent analysis is to summarize and communicate the technical radio frequency (RF) information used in the justification of this new site.

Coverage and/or capacity deficiencies are the two main drivers that prompt the need for a new wireless communications facility/site. All sites provide a mixture of both capacity and coverage for the benefit of the end user.

Coverage can be defined as the existence of signal of usable strength and quality in an area, including but not limited to in-vehicles or in-buildings.

The need for improved coverage is identified by RF Engineers that are responsible for developing and maintaining the network. RF Engineers utilize both theoretical and empirical data sets (propagation maps and real world coverage measurements). Historically, coverage improvements have been the primary justification of new sites.

Capacity can be defined as the amount of traffic (voice and data) a given site can process before significant performance degradation occurs.

When traffic volume exceeds the capacity limits of a site serving a given area, network reliability and user experience degrades. Ultimately this prevents customers from making/receiving calls, applications cease functioning, internet connections time out and data speeds fail. This critical condition is more important than just a simple nuisance for some users. Degradation of network reliability and user experience can affect emergency responders and to persons in a real emergency situation can literally mean life or death.

Project Need Overview

The project area, located in the western portion of the City of **Beacon** is primarily served by one site. This site is overloaded requiring capacity relief. Additionally the project area is subject to significant terrain and foliage challenges for RF (signal) propagation. This foliage combined with terrain and distance prevents effective propagation of Verizon's RF signals into this area compounding the capacity issue with areas of variable mid band coverage creating significant gaps in coverage.

The serving site **BEACON DT (Alpha Sector) ,** located in the City of Beacon, is approximately half mile south-east (of the project location) situated on an existing building located at **1 Forrestal Heights**. While this site provides coverage in portions of the project area, it does so from a distance and foliage challenged position making the site not capable of efficiently or effectively providing adequate coverage or capacity.

Available (mid band AWS) carriers at **BEACON DT** and other area sites are not capable of effectively serving/offloading the project area due to inherent propagation losses from distance, challenging terrain and in building coverage losses negatively impacting mid band coverage and capacity offload capabilities. There are other Verizon sites in this general area but due to distance and coverage area they also do not provide any significant overlapping coverage in the area in question that could allow for increased capacity and improved coverage from other sources.

The primary objectives for this project are to increase capacity and improve mid band coverage in the west portion of the City of Beacon, more specifically portions of Red Flynn Dr., Beacon Train Station, Scenic Hudson's Long Dock Park, Pete And Toshi Seeger Riverfront Park, Beekman St, as well as neighboring residential and commercial areas along and near these roads. In order to offload capacity from BEACON DT (Alpha Sector) a new dominant (mid band) server must be created. This new dominant coverage will effectively offload the existing overloaded site/cells as well as provide improved mid band coverage where significant gaps exist today.

Following the search for co-locatable structures to resolve the aforementioned challenges, Verizon proposes to attach the necessary antenna(s) to a new utility pole at **2 Red Flynn Drive**, **Beacon**, NY **12508**. Verizon's antenna will utilize 24' for the ACL (Antenna Center Line) with a top of 25' overall. This solution will provide the necessary coverage and capacity improvements needed.

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Wireless LTE (Voice and Data) Growth

Wireless smart city solutions are being used to track available parking and minimize pollution and wasted time.

These same solutions are being used to track pedestrian and bike traffic to help planning and minimize accidents.

Smart, wireless connected lighting enables cities to control lighting remotely, saving energy and reducing energy costs by 20%.

4G technology is utilized to track and plan vehicle deliveries to minimize travel, maximize efficiency, and minimize carbon footprint.

4G technology is also used to monitor building power usage down to the circuit level remotely, preventing energy waste and supporting predictive maintenance on machines and equipment.

Wireless sensors placed in shipments are being used to track temperature-sensitive medications, equipment, and food. This is important for preventing the spread of food-borne diseases that kill 3,000 Americans each year.

Source: Verizon Innovation Center, February. 2018

Wireless is a critical component in schools and for today's students.

20,000 learning apps are available for iPads. 72% of iTunes top selling educational apps are designed for preschoolers and elementary students.

600+ school districts replaced text books with tablets in classrooms.

77% of parents think tablets are beneficial to kids.

74% of school administrators feel digital content increases student engagement.

70% of teens use cellphones to help with homework.

Source: CTIA's Infographics Today's Wireless Family, October, 2017

The average North American smartphone user will consume 48 GB of data per month in 2023, up from just 5.2 GB per month in 2016 and 7.1 GB per month in 2017 .[1]

55% **Of American homes are wireless only.[2]**

In North America, the average household has 13 connected devices with smartphones outnumbering tablets 6 to 1.[3]

1. Ericsson Mobility Report, November 2017
2. CDC's 2018 Wireless Substitution: Early Release of Estimates From the National Health Interview Survey, January-July, 2018
3. IHS Market Connected Device Market Monitor: Q1 2016 , June 7, 2016

A wireless network is like a highway system…



US, mobile data traffic was 1.3 Exabytes per month in 2016, the equivalent of 334 million DVDs each month or 3,687 million text messages each second **according to** Cisco VNI Mobile Forecast Highlights, 2016-2021,Feb 2017

verizon

Wireless facilities and property values.

Cell service in and around the home has emerged as a critical factor in home-buying decisions.



National studies demonstrate that most home buyers value good cell service over many other factors including the proximity of schools when purchasing a home.

75% More than 75% of prospective home buyers said a good cellular connection was important to them.[1]

83% The same study showed that 83% of Millennials (those born between 1982 and 2004) said cell service was the most important fact in purchasing a home.

90% 90% of U.S. households use wireless service. Citizens need access to 911 and reverse 911 and wireless may be their only connection.[2]

1. RootMetrics/Money, The Surprising Thing Home Buyers Care About More than Schools, June 2, 2015
2. CTIA, June 2015

80%+ With over 80% of 9-1-1 calls now coming from cell phones…[1]

240 million 911 calls are made annually. In many areas, 80% or more are from wireless devices. [1]

1. National Emergency Number Association, Enhancing 9-1-1 Operations With Automated Abandoned Callback & Location Accuracy (Motorola Solutions) (August 23, 2018)

Explanation of Wireless Capacity



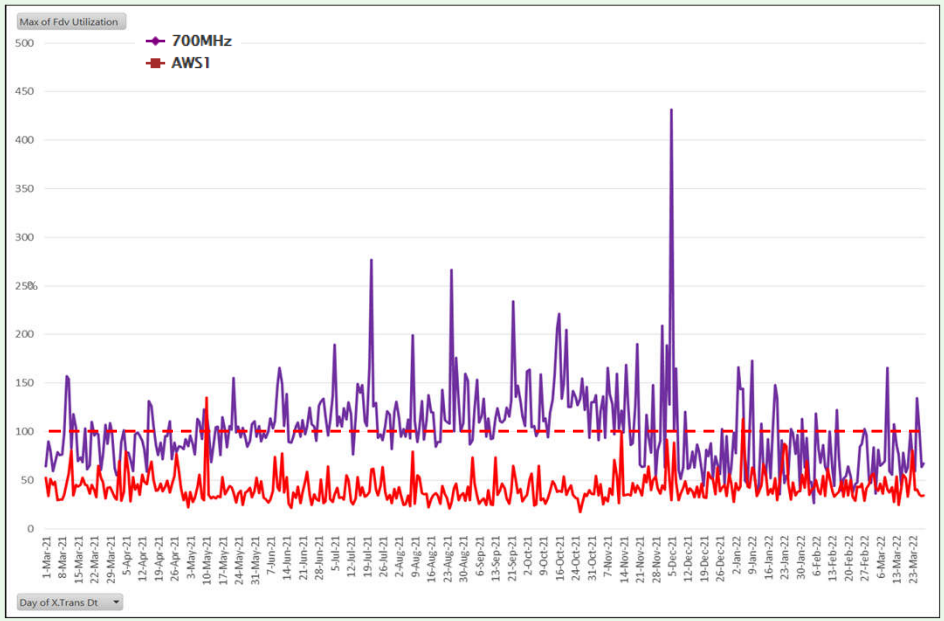
Capacity in this analysis is evaluated with up to three metrics further explained below. These metrics assist in determining actual usage for a given site as well as are used to project when a site is expected to run out of capacity (i.e. reach a point of exhaustion where it can no longer process the volume of voice and data requested by local wireless devices, thus no longer providing adequate service).

- Forward Data Volume ("**FDV**"), is a measurement of usage (data throughput) on a particular site over a given period of time.
- Average Schedule Eligible User ("**ASEU**"), is a measurement of the loading of the control channels and systems of a given site.
- Average Active Connections ("**AvgAC**") is a measurement of the number of devices actively connected to a site in any given time slot.

Verizon Wireless uses proprietary algorithms developed by a task force of engineers and computer programmers to monitor each site in the network and accurately project and identify when sites will approach their capacity limits. Using a rolling two-year window for projected exhaustion dates allows enough time, in most cases, to develop and activate a new site. It is critical that these capacity approaching sectors are identified early and the process gets started and completed in time for new solutions (sites) to be on air before network issues impact the customers.

verizon

Capacity Utilization
FDV (BEACON DT Alpha)



Summary: This graph shows FDV (**F**orward **D**ata **V**olume) which is a measurement of the customer data usage that this sector currently serves. As this limit is approached, data rates slow to unacceptable levels, potentially causing unreliable service for Verizon Wireless customers.

The purple line represents the daily max busy hour 700MHz utilization and the dark red line is daily max busy hour AWS utilization on the **Alpha** sector of the **BEACON DT** site. The red dashed line is the limit where the sector reaches exhaustion and service starts to significantly degrade. The point in time where we see the purple or dark red lines reach or exceed the red dashed line is when service quickly degrades as usage continues to increase.

Detail: The existing **BEACON DT ALPHA** sector shown above has exceeded its capability of supporting FDV requirements as shown by the purple and dark red lines exceeding the max utilization threshold (red dashed line). FDV is one of up to three metrics used in this presentation to evaluate capacity capability in this area.

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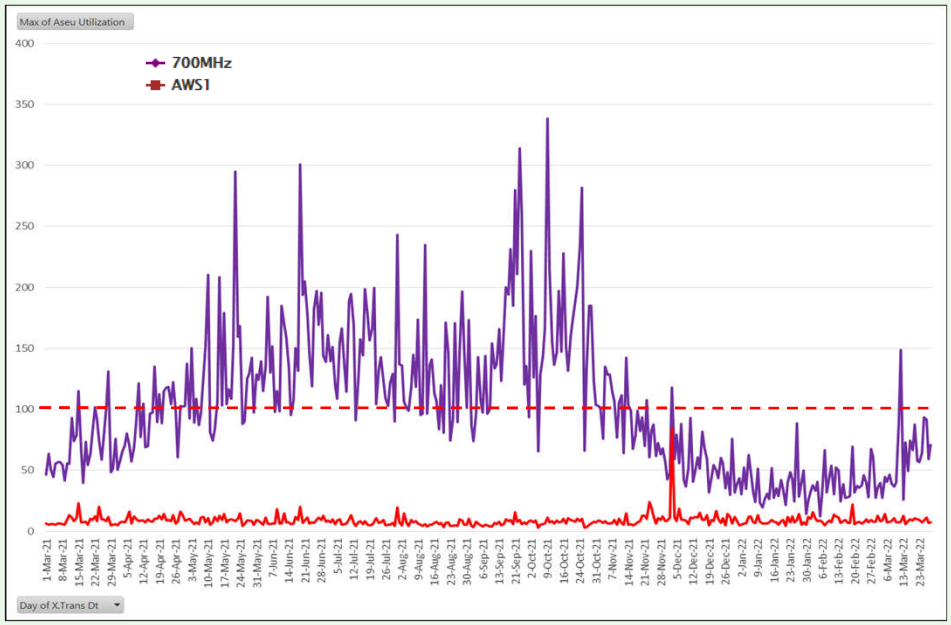
Capacity Utilization
ASEU (BEACON DT Alpha)



Summary: This graph shows ASEU (**A**verage **S**chedule **E**ligible **U**ser). ASEU is a measurement of the loading of the control channels and systems of a given site. The ASEU load is heavily impacted by distant users or those in poor RF conditions.

The purple line represents the daily max busy hour 700MHz utilization and the dark red line is daily max busy hour AWS utilization on the **Alpha** sector of the **BEACON DT** site. The red dashed line is the limit where the sector reaches exhaustion and service starts to significantly degrade. The point in time where we see the purple or dark red lines reach or exceed the red dashed line is when service quickly degrades as usage continues to increase.

Detail: The existing **BEACON DT ALPHA** sector cannot support the traffic demand throughout the extent of the relatively dense geographic area it covers. **BEACON DT ALPHA (700)** is overloaded, as shown by the purple line exceeding the red dashed exhaustion threshold. The solution is network densification.

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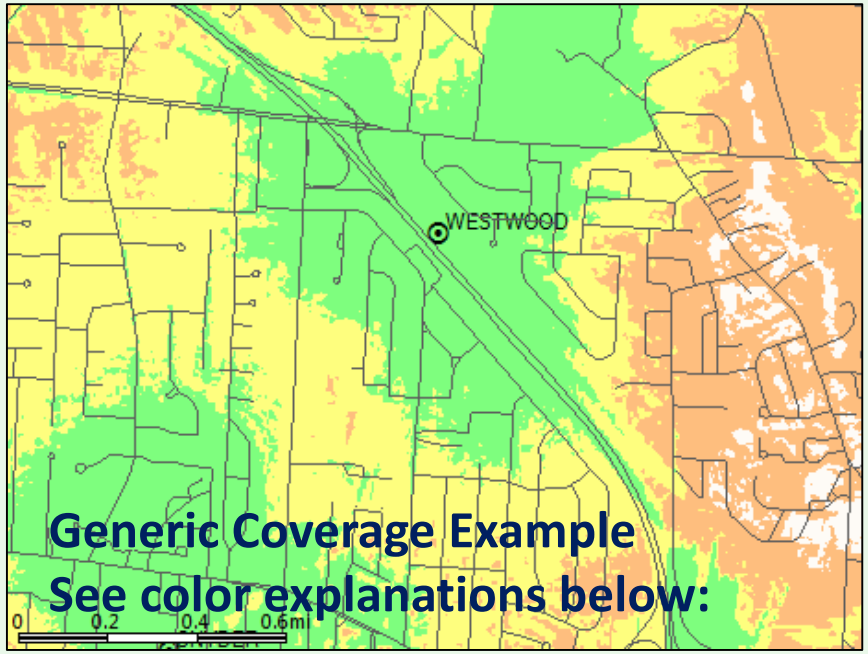
Explanation of Wireless Coverage



Coverage is best shown via coverage maps. RF engineers use computer simulation tools that take into account terrain, vegetation, building types, and site specifics to model the RF environment. This model is used to simulate the real world network and assist engineers to evaluate the impact of a proposed site (along with industry experience and other tools).

Many Verizon Wireless sites provide 3G CDMA at 850 MHz and 4G LTE at 700 MHz. As capacity requirements increase, higher frequency PCS (1900 MHz) and AWS (2100 MHz) carriers are added. In some mountaintop situations the mid band (higher frequency) AWS and PCS carriers are not fully effective due to excessive distance from the user population.

Coverage provided by a given site is affected by the frequencies used. Lower frequencies propagate further distances, and are less attenuated by clutter than higher frequencies. To provide similar coverage levels at higher frequencies, a denser network of sites is required (network densification).

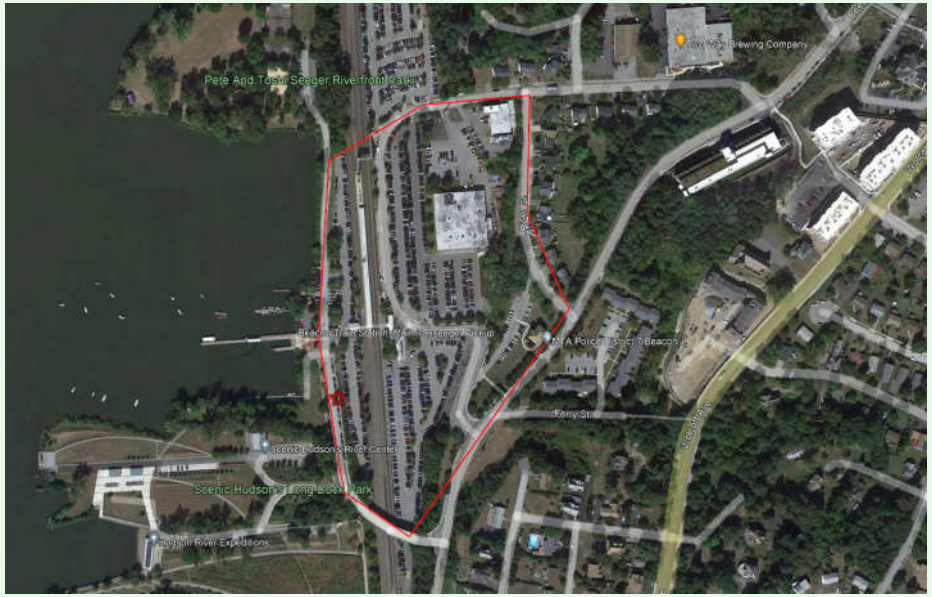
Note the affect of clutter on the predicted coverage footprint above

**Dark Green >/= -75dBm RSRP, typically serves dense urban areas as well as areas of substantial construction (colleges, hospitals, dense multi family etc.)
Green >/= -85dBm RSRP, typically serves suburban single family residential and light commercial buildings
Yellow >/= -95dBm RSRP, typically serves most rural/suburban-residential and in car applications
Orange >/= -105dBm RSRP, rural highway coverage, subject to variable conditions including fading and seasonality gaps
White = <-105dBm RSRP, variable to no reliable coverage gap area

More detailed, site-specific coverage slides are later in the presentation
*Signal strength requirements vary as dictated by specific market conditions
** Not displayed in example map, layer not used in all site justifications

verizon

Explanation of this Search Area



BEACON STATION MICRO Search Area

A **Search Area** is the geographical area within which a new site is targeted to solve a coverage or capacity deficiency. Three of the factors taken into consideration when defining a search area are topography, user density, and the existing network.

- **Topography** must be considered to minimize the obstacles between the proposed site and the target coverage area. For example, a site at the bottom of a ridge will not be able to cover the other side from a certain height.
- In general, the farther from a site the **User Population** is, the weaker the RF conditions are and the worse their experience is likely to be. These distant users also have an increased impact on the serving site's capacity. In the case of a multi sector site, centralized proximity is essential to allow users to be evenly distributed and allow efficient utilization of the site's resources.
- The existing **Network Conditions** also guide the design of a new site. Sites placed too close together create interference due to overlap and are an inefficient use of resources. Sites that are too tall or not properly integrated with existing sites cause interference and degrade service for existing users.
- Existing co-locatable structures inside the search area as well as within a reasonable distance of the search area are submitted by site acquisition and reviewed by RF Engineering. If possible, RF will make use of existing or nearby structures before proposing to build new towers.

To resolve the coverage and capacity deficiencies previously detailed, Verizon Wireless is seeking to add one new cell facility within this area to improve wireless service capacity and coverage. By offloading traffic from **BEACON DT (Alpha)** with the proposed site, adequate and reliable service will be restored. The new **BEACON STATION MICRO** site will provide dominant and dedicated signal to the identified portions of the City of **Beacon**. This helps to improve not only the **BEACON STATION MICRO** project area but will also indirectly result with significant improvements in the western portion of the City of **Beacon**.

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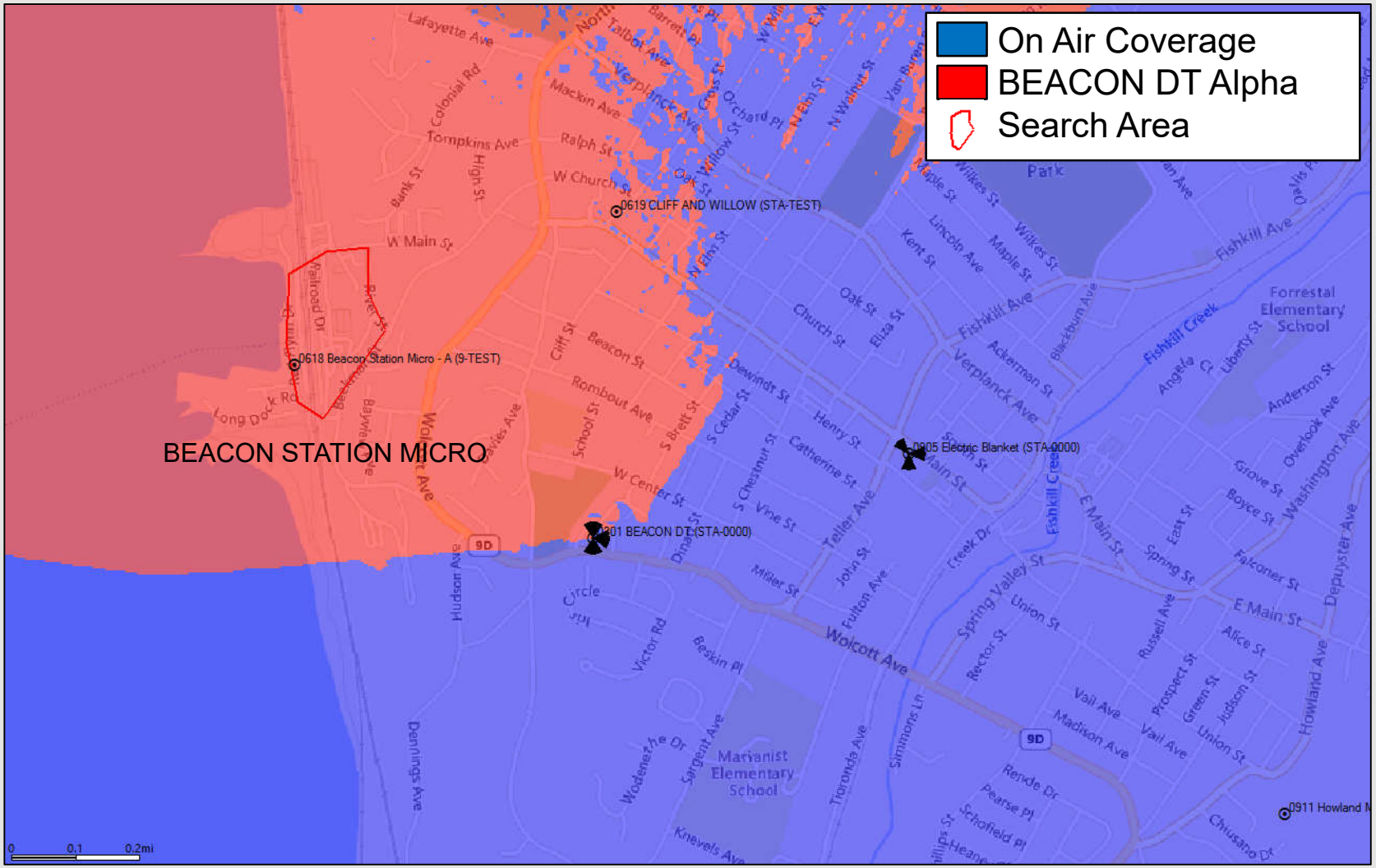
Existing 700MHz Best Server -105dBm RSRP

Best Server plots depict the actual footprint of each sector in question at one threshold so the viewer can accurately evaluate the area offloaded by the new sites dominant signal area.



The map above represents existing low band coverage from existing sites, with the sites in need of capacity offload detailed in the legend above. Blue coverage is from other on air sites. Please note the proposed site does not provide low band to prevent interference however the new dominant mid band coverage from the proposed site offloads the existing overloaded low band coverage shown in red above.

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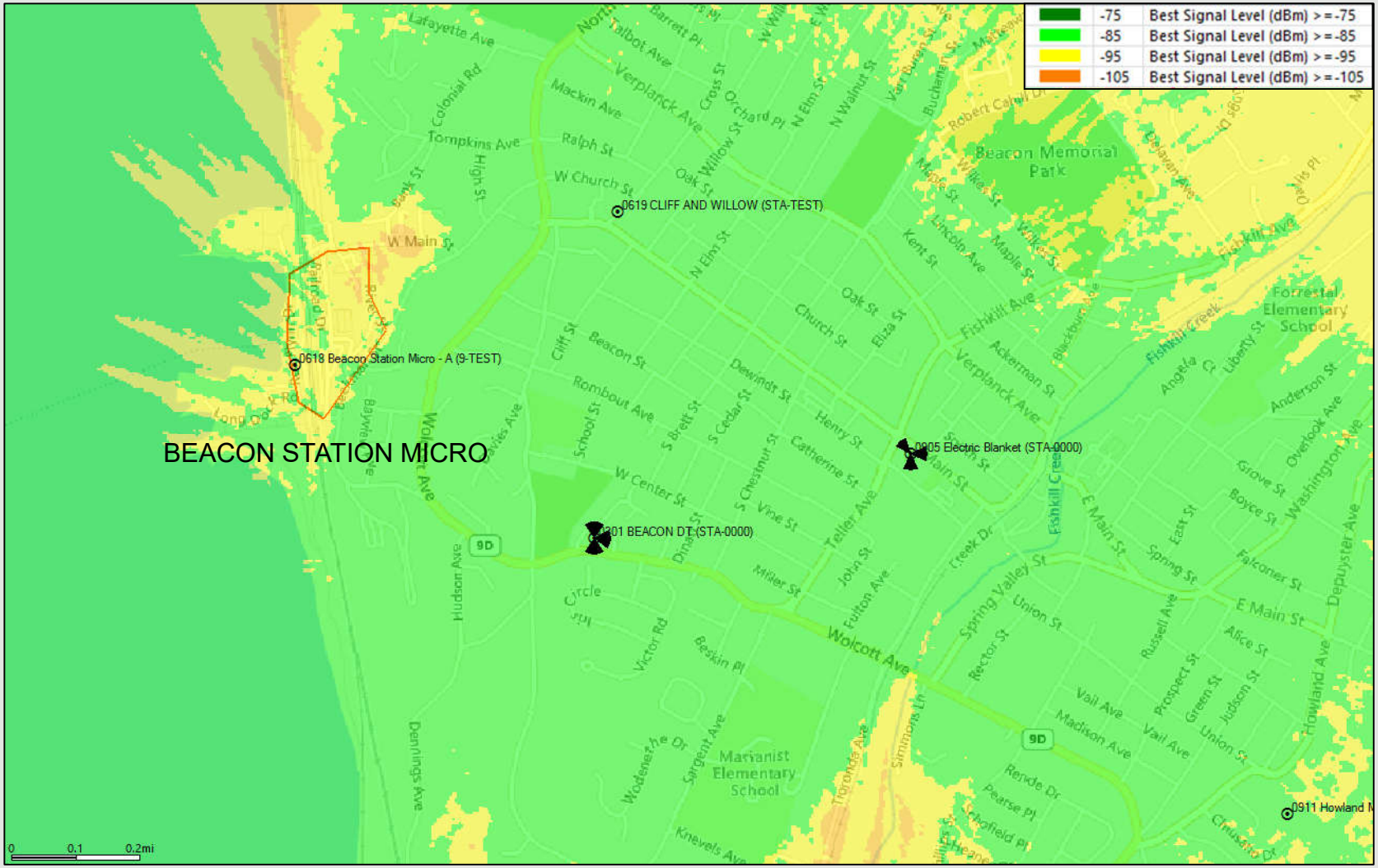
Existing 700MHz Coverage

This coverage map shows the RF conditions in and around the BEACON STATION MICRO site area.
Refer to slide 8 for further explanation of these color thresholds

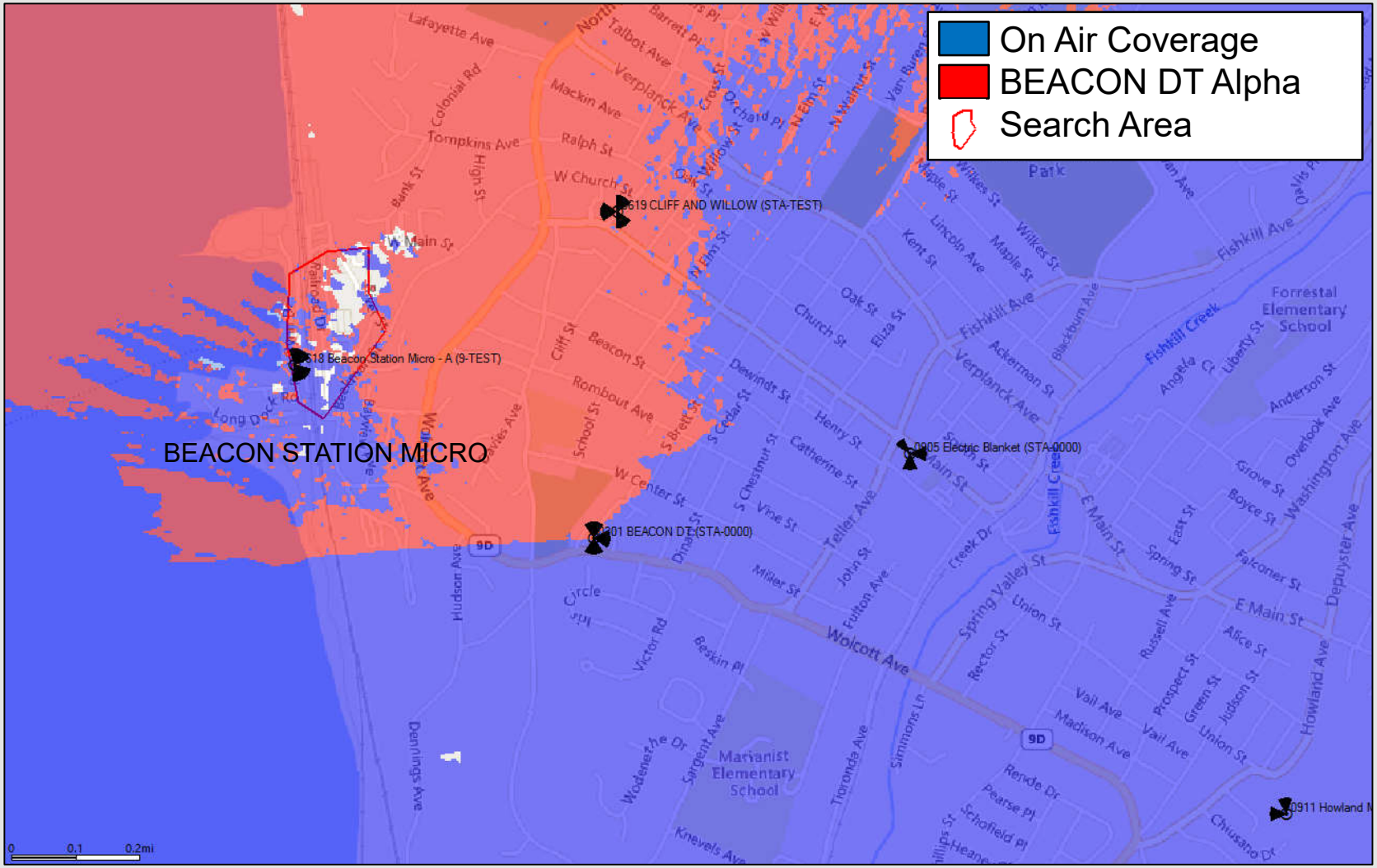


The map above represents existing low band signal strength coverage from existing sites. Please note the proposed site does not provide low band to prevent interference however the new dominant mid band coverage from the proposed site offloads the existing overloaded low band coverage shown above.

verizon

Existing 2100MHz Best Server -105dBm RSRP

Best Server plots depict the actual footprint of each sector in question at one threshold so the viewer can accurately evaluate the area offloaded by the new sites dominant signal area.

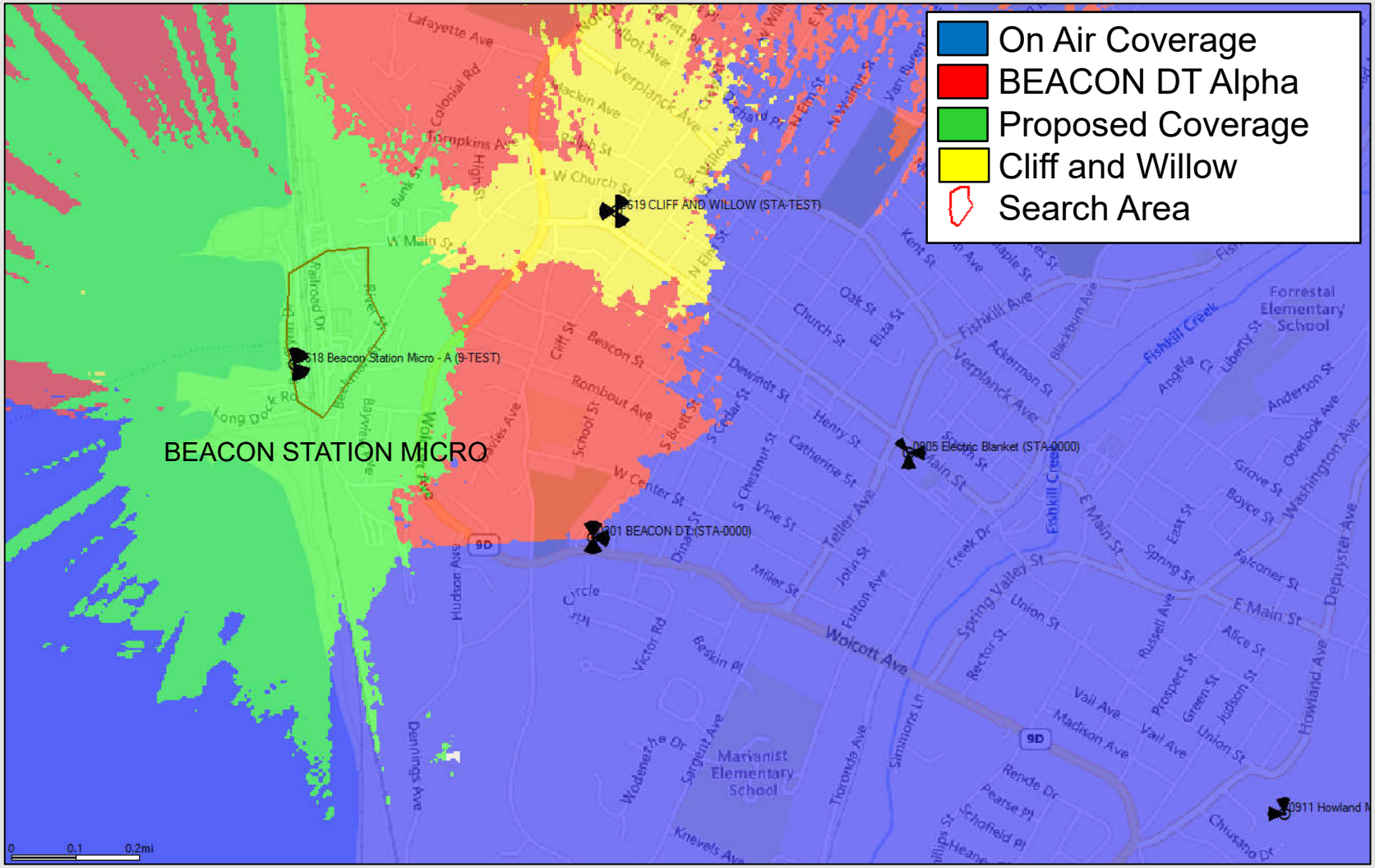


The map above represents mid band coverage from existing sites, with the sites in need of capacity offload detailed in the legend above. Blue coverage is from other on air sites.

verizon

Proposed 2100MHz Best Server -105dBm RSRP

Best Server plots depict the actual footprint of each sector in question at one threshold so the viewer can accurately evaluate the area offloaded by the new sites dominant signal area (at 24' ACL).

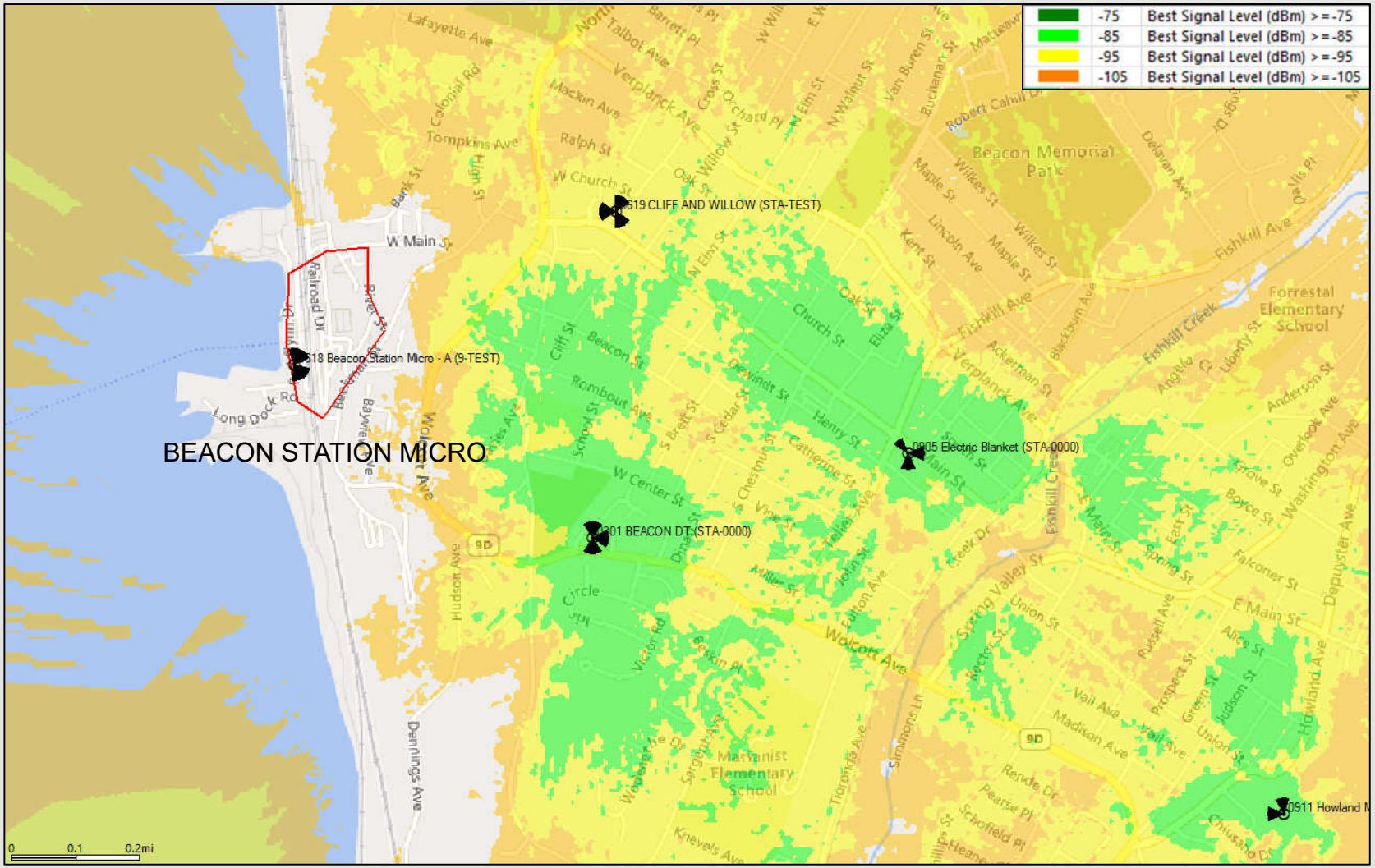


The map above adds the mid band footprint of the proposed BEACON STATION MICRO site in green. The green best server footprint provides improved coverage and capacity throughout the identified significant gap area. This will help to resolve the coverage and capacity issues impacting the BEACON DT Alpha sector. Yellow best server footprint is from another site (Cliff and Willow) in construction.

verizon

Existing 2100MHz Coverage

This coverage map shows the RF conditions in and around the BEACON STATION MICRO site area.
Refer to slide 8 for further explanation of these color thresholds



The map above represents mid band coverage from existing sites. This 2100MHz signal is below -105 dBm throughout the project area. Additional mid band network densification is required to resolve these conditions.

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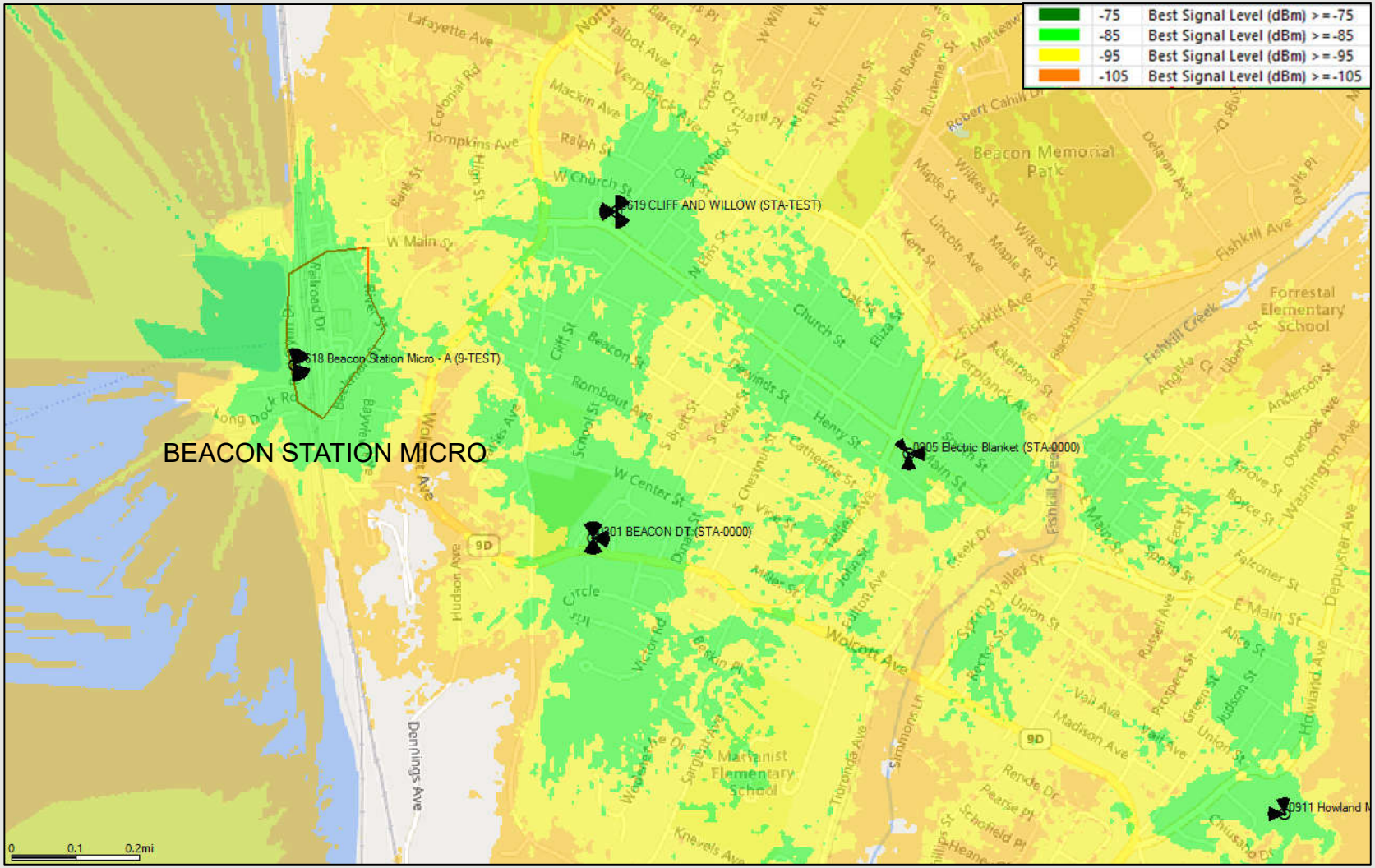
Proposed 2100MHz Coverage

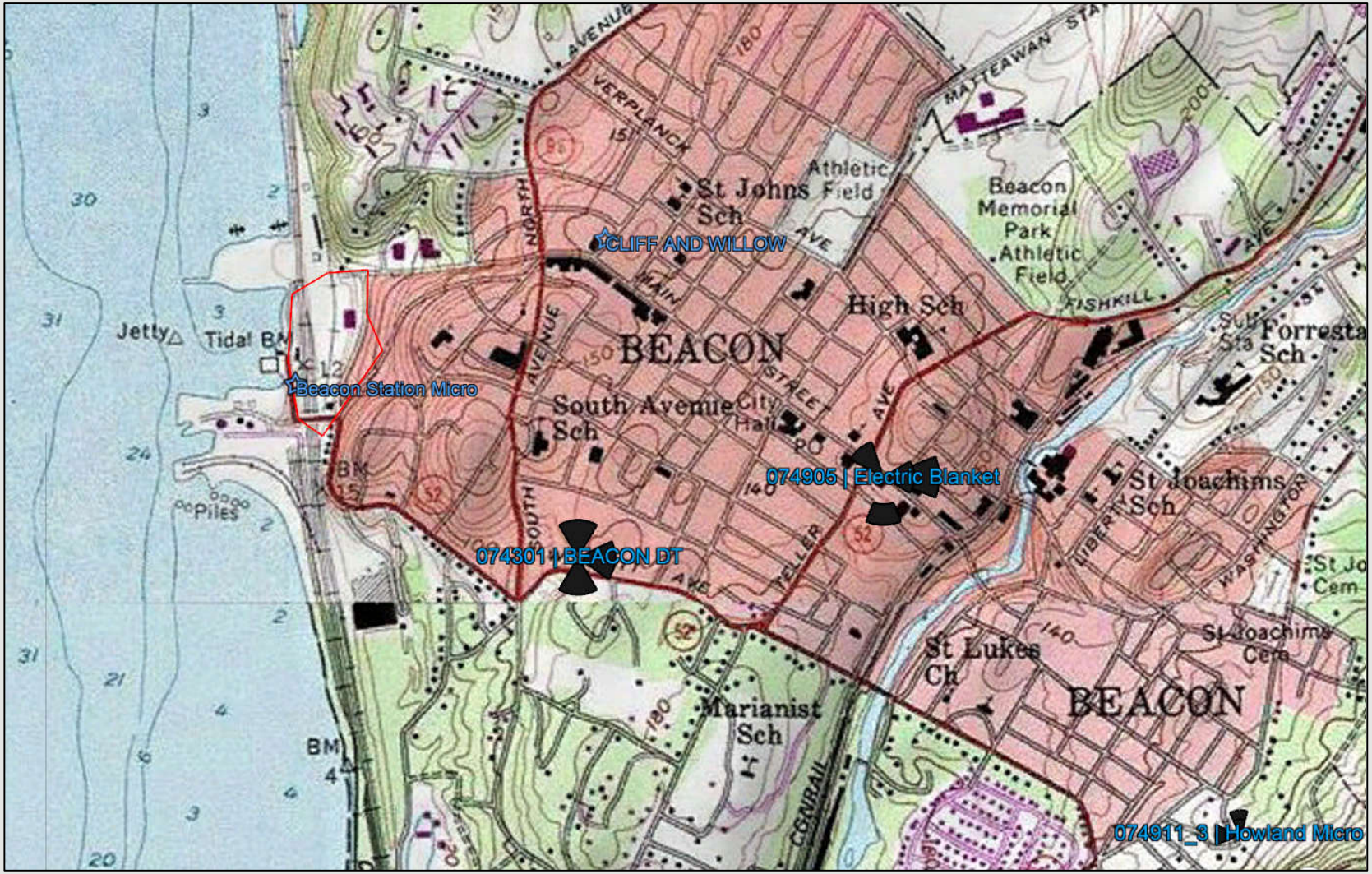
This coverage map shows how improved the RF conditions will be in and around the BEACON STATION MICRO site area (at 39’ ACL).
Refer to slide 8 for further explanation of these color thresholds



The map above adds the mid band footprint of the proposed BEACON STATION MICRO site. The improved signal strength corresponds to improved coverage and capacity throughout the identified significant gap area. This will help to resolve the coverage and capacity issues impacting the BEACON DT Alpha sector. Mid band footprint of Cliff and Willow (Site in construction) is also shown.

verizon

USGS Topo Map



verizon

RF Justification Summary



The proposed site at 24' ACL resolves the substantial and significant gaps in coverage and capacity impacting the BEACON STATION MICRO project area. This gap is shown above: The green shaded area represents the gap in coverage and capacity that the BEACON STATION MICRO (site) will resolve.

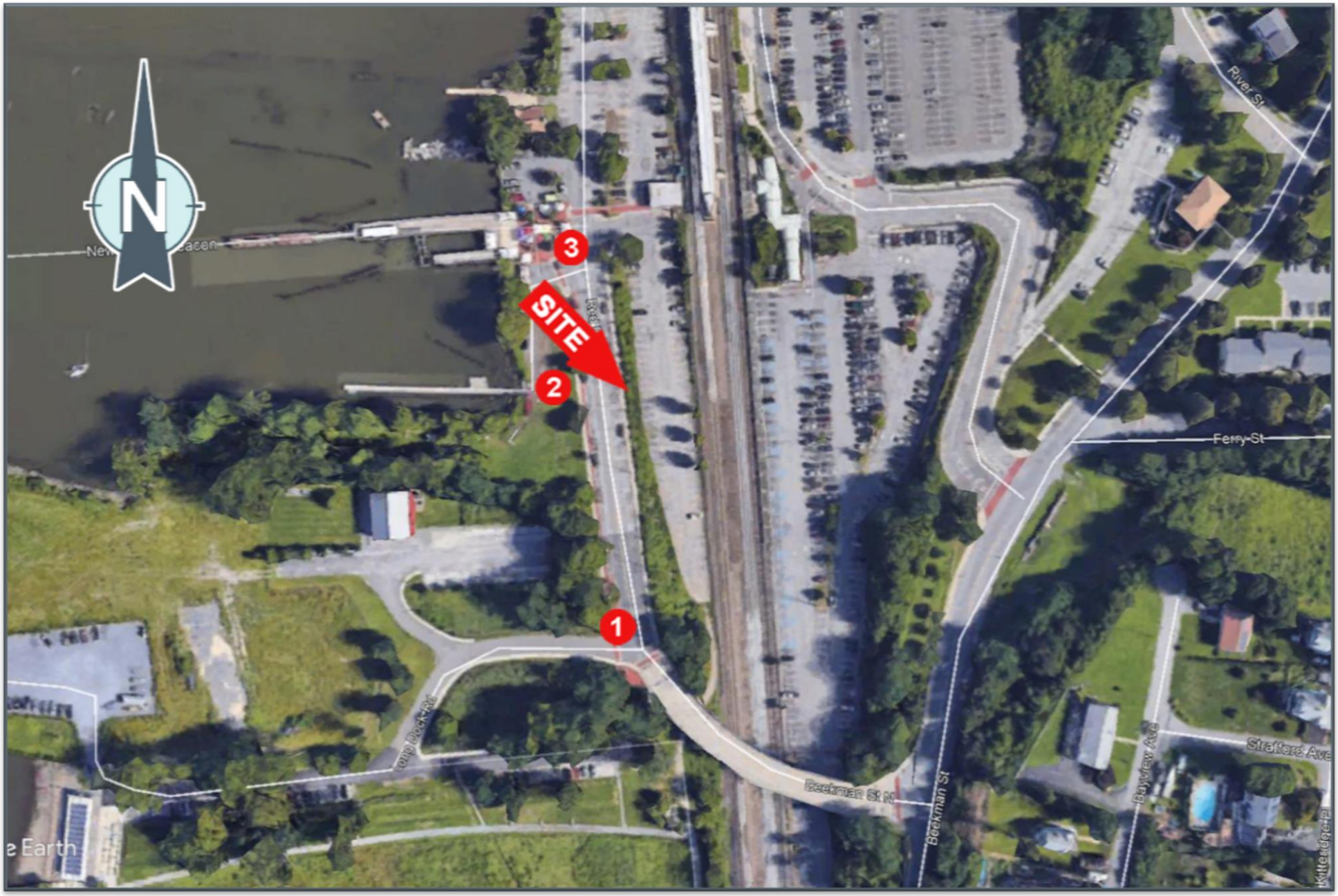
The network was analyzed to determine whether there is sufficient **RF coverage and capacity** in the **City of Beacon**. It was determined that there are significant gaps in adequate LTE service for Verizon Wireless in the 2100MHz frequency band. In addition to the coverage deficiencies, Verizon Wireless' network does not have sufficient capacity (low band or mid band) to handle the existing and projected LTE voice and data traffic in the area near and neighboring the proposed **BEACON STATION MICRO** facility ("targeted service improvement area"). Based on the need for additional coverage and capacity while considering the topography and specific area requiring service, any further addition of capacity to distant existing sites does not remedy Verizon's significant gap in reliable service. Therefore, the proposed facility is also needed to provide "**capacity relief**" to the existing nearby Verizon Wireless sites, allowing the proposed facility and those neighboring sites to adequately serve the existing and projected capacity demand in this area.

With the existing network configuration there are significant gaps in service which restricts Verizon Wireless customers from originating, maintaining or receiving reliable calls and network access. It is our expert opinion that the proposed height will satisfy the coverage and capacity needs of Verizon Wireless and its subscribers in this portion of the **CITY OF BEACON** and the **BEACON STATION MICRO** project area. The proposed location depicted herein satisfies the identified service gaps and is proposed at the minimum height necessary for adequate service.

Wasif Sharif

Wasif Sharif
Engineer III – RF Design
Verizon Wireless

verizon



Tectonic
PRACTICAL SOLUTIONS. EXCEPTIONAL SERVICE.

Beacon Station Micro
2 Red Flynn Drive
Beacon, New York 12508

PHOTO LOG
8669.09



Tectonic
PRACTICAL SOLUTIONS. EXCEPTIONAL SERVICE.

Looking north from the intersection of Red Flynn Drive & Long Dock Road.
Proposed installation will be visible from this location.

Distance from the photographic location to the proposed site is 250'±

P-1



Tectonic
PRACTICAL SOLUTIONS. EXCEPTIONAL SERVICE.

Looking north from the intersection of Red Flynn Drive & Long Dock Road.
Proposed installation is visible from this location.

Distance from the photographic location to the proposed site is 250'±

S-1

8669.09



Tectonic
PRACTICAL SOLUTIONS. EXCEPTIONAL SERVICE.

Looking east from Red Flynn Drive.
Proposed installation will be visible from this location.

Distance from the photographic location to the proposed site is 75'±

P-2



Tectonic
PRACTICAL SOLUTIONS. EXCEPTIONAL SERVICE.

Looking east from Red Flynn Drive.
Proposed installation is visible from this location.

Distance from the photographic location to the proposed site is 75'±

S-2



Tectonic
PRACTICAL SOLUTIONS. EXCEPTIONAL SERVICE.

Looking south from Red Flynn Drive.
Proposed installation will be visible from this location.

Distance from the photographic location to the proposed site is 200'±

P-3



Tectonic
PRACTICAL SOLUTIONS. EXCEPTIONAL SERVICE.

Looking south from Red Flynn Drive.
Proposed installation is visible from this location.

Distance from the photographic location to the proposed site is 200'±

S-3

SiteSafe
A QUALTEK Company

Verizon Wireless
Site Compliance Report

Site Name: Beacon Station Micro
Site Address: 2 Red Flynn Drive
Beacon, NY 12508
City of Beacon
Dutchess County
Structure Type: Utility Pole

Report generated on: April 15, 2022
Report by: Sophie Thein
Customer Contact: Wasif Sharif

Verizon Wireless will be compliant with the FCC Rules and Regulations in all publicly accessible areas.



Site Safe, LLC
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703.276.1100 • 703.276.1169 fax
info@sitesafe.com • www.sitesafe.com

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1 Executive Summary

Verizon Wireless has contracted with Site Safe, LLC (Sitesafe), an independent radiofrequency (RF) regulatory and engineering consulting firm, to determine if the proposed telecommunications facility is in compliance with the Federal Communications Commission (FCC) Rules and Regulations for RF emissions (see Appendix A of this report for further explanation of the FCC Rules and Regulations). This document and the conclusions herein are based on the information provided by representatives of Verizon Wireless which is assumed to be true and correct.

Verizon Wireless is proposing to construct a replacement 36.4' utility pole and collocate (1) dual-band canister antenna at the 24' level with (1) dual-band remote radio head at the 12' level.

The analysis evaluates the telecommunications facility with respect to the General Public maximum permissible exposure (MPE) limits ("General Public" is also referred to as "Uncontrolled Environment"; see Appendix A for further explanation of this classification). Sitesafe has taken into consideration the proposed Verizon Wireless antenna system at the subject location. No other antenna systems are currently proposed.

Based on the analysis, Sitesafe has determined that:

Verizon Wireless will comply in all publicly accessible areas with the FCC Rules and Regulations governing human exposure to RF electromagnetic fields as described in 47 CFR § 1.1307(b) and 1.1310 in accordance with the methods for evaluating compliance contained in OET Bulletin 65.

Furthermore, with the proposed Verizon Wireless antenna configuration in service, the composite exposure from this facility in all areas at ground level will be below 1% of the General Public MPE limit, or over 100 times less than the maximum allowed exposure in publicly accessible areas.

2 Analysis

In this analysis, Sitesafe has taken into consideration the proposed Verizon Wireless antenna system at the subject location. No other antenna systems are currently proposed. All proposed licensees are listed in the antenna inventory table in Section 3 of this report. I

Using this data, software modeling was performed for all transmitting antennas located at the site. Sitesafe has assumed a 100% duty cycle and maximum radiated power. The site has been modeled with these assumptions to determine the maximum potential RF energy density. Sitesafe believes this to be a worst-case analysis based on the best available data.

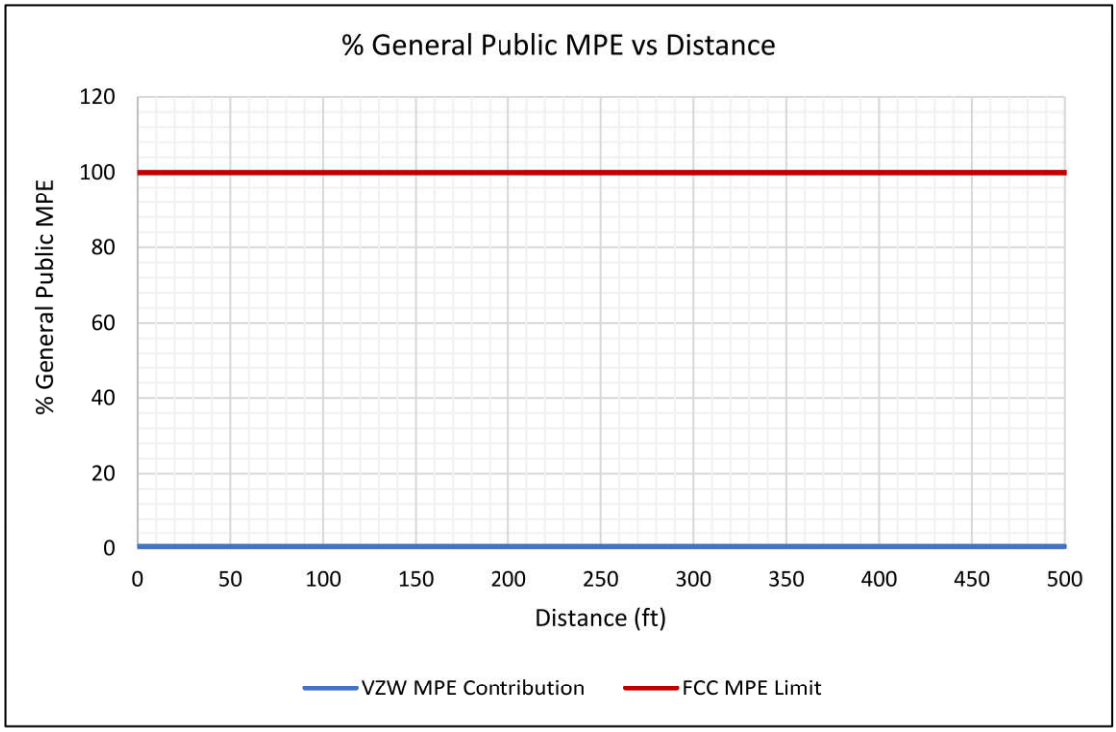
The power density calculations performed by the software tool use FCC prescribed methodologies as contained in OET Bulletin 65, which was compiled by the FCC to provide assistance in evaluating compliance with FCC guidelines for human exposure to electromagnetic fields.

As stated in Section 1, based on this analysis, the calculated ground level exposure from the Verizon Wireless antenna system alone as well as the composite exposure from all existing/proposed licensees will be below 1% of the General Public MPE limit.

Keep in mind that the FCC did not arbitrarily establish their own standards but rather adopted the recommendations of national and international organizations such as the National Council on Radiation Protection and Measurements (NCRP), the American National Standards Institute (ANSI) and the Institute of Electrical and Electronics Engineers (IEEE). These recommendations were developed by expert scientists and engineers following extensive evaluation of the potential biological effects from RF exposure. The FCC MPE limits are based on thresholds for known adverse effects, and they were designed to provide a substantial margin of safety. There is a safety factor of 50 built into the General Public MPE limits, and the predicted Verizon Wireless exposure levels are over 100 times below these very conservative limits.

In cases where such compliance exists, the subject of electromagnetic field safety is preempted by the Telecommunications Act of 1996, which states: "No state or local government or instrumentality thereof may regulate the placement, construction, and modification of personal wireless service facilities on the basis of the environmental effects of radio frequency emissions to the extent that such facilities comply with the (Federal Communication) Commission's regulations concerning such emissions."

Lastly, the graph below provides a visual depiction of the rather insignificant electromagnetic field exposure contribution from the Verizon Wireless antenna system at any distance from the base of the structure. This portrays how low the Verizon Wireless contribution is when compared to the General Public MPE limit.



3 Antenna Inventory

The following antenna inventory contains data provided by the customer and/or gathered by Sitesafe personnel which was used to perform the analysis:

Ant #	Operator	Antenna Make/Model	TX Freq (MHz)	Tech.	Az (Deg)	ERP (Watts)	AGL (ft)	MDT	EDT
1	VERIZON WIRELESS	Amphenol C2U4MTSP1X06F0ys0-6ET	1900	LTE	25	1054.61	24'	0	2
1	VERIZON WIRELESS	Amphenol C2U4MTSP1X06F0ys0-6ET	2100	LTE/AWS1	25	984.22	24'	0	2
1	VERIZON WIRELESS	Amphenol C2U4MTSP1X06F0ys0-6ET	1900	TE	145	1054.61	24'	0	2
1	VERIZON WIRELESS	Amphenol C2U4MTSP1X06F0ys0-6ET	2100	TE/AWS1	145	984.22	24'	0	2

Notes: Each row with the same number in the *Ant #* column references the same physical antenna. Power values provided by the client and used in the analysis may be greater than what is initially deployed. For additional modeling information, refer to Appendix B of this report. Antenna #1 is proposed.

4 Engineer Certification

The Professional engineer whose seal appears on the cover of this document herby certifies and affirms:

That I am registered as a Professional Engineer in the jurisdiction indicated in the professional engineering stamp on the cover of this document; and

That I am providing professional engineering services on behalf of QualTek Engineering, P.C., and am an employee of QualTek Wireless, LLC, sister company to Site Safe, LLC (both under the parent company QualTek)

That I am thoroughly familiar with the Rules and Regulations of the Federal Communications Commission (FCC) as well as the regulations of the Occupational Safety and Health Administration (OSHA), both in general and specially as they apply to the FCC Guidelines for Human Exposure to Radio Frequency Electromagnetic Fields; and

That I have thoroughly reviewed this Site Compliance Report and believe it to be true and accurate to the best of my knowledge as assembled by and attested to by Sophie Thein.

April 15, 2022

Appendix A – Technical Framework: FCC Rules and Regulations

In 1996, the FCC adopted regulations for evaluating of the effects of RF emissions in 47 CFR § 1.1307(b) and 1.1310. The guideline from the FCC Office of Engineering and Technology is Bulletin 65 (OET Bulletin 65), *Evaluating Compliance with FCC Guidelines for Human Exposure to Radio Frequency Electromagnetic Fields*, Edition 97-01, published August 1997. Since 1996, the FCC periodically reviews these rules and regulations as per its congressional mandate.

FCC regulations define two separate tiers of exposure limits: Occupational or "Controlled Environment" and General Public or "Uncontrolled Environment". The General Public limits are generally five times more conservative or restrictive than the Occupational limits.

General Public or Uncontrolled limits apply to *accessible* areas where workers or the general public may be exposed to RF electromagnetic fields.

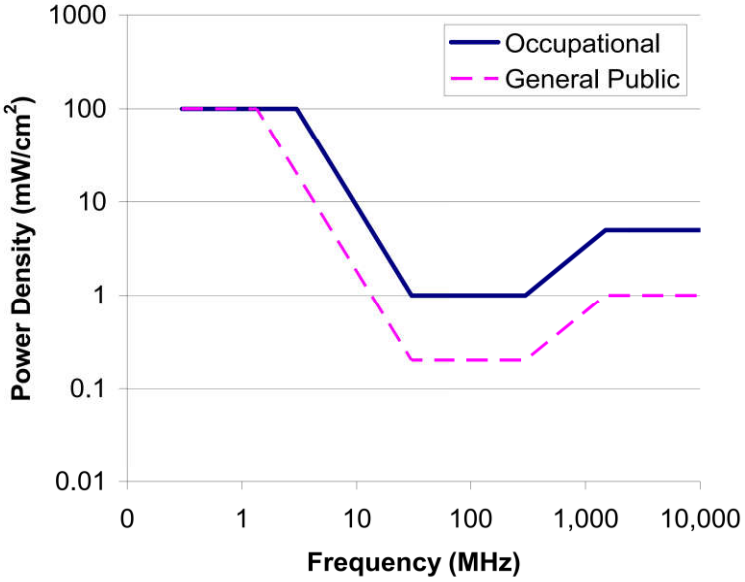
Occupational or Controlled limits apply in situations in which persons are exposed as a consequence of their employment and where those persons exposed have been made fully aware of the potential for exposure and can exercise control over their exposure. An area is considered a Controlled environment when access is limited to these aware personnel. Typical criteria are restricted access (e.g. locked or alarmed doors, barriers, etc.) to the areas where antennas are located coupled with proper RF warning signage.

A site with Controlled environments is evaluated with Occupational limits. All other areas are considered Uncontrolled environments. If a site has no access controls or no RF warning signage, it is evaluated with General Public limits.

The theoretical modeling of the RF electromagnetic fields has been performed in accordance with OET Bulletin 65. The MPE limits utilized in this analysis are outlined in the following diagram and table:

FCC Limits for Maximum Permissible Exposure (MPE)

Plane-wave Equivalent Power Density



Limits for Occupational/Controlled Exposure (MPE)

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm²)	Averaging Time |E|², |H|² or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	(900/f²)*	6
30-300	61.4	0.163	1.0	6
300-1500	--	--	f/300	6
1500-100,000	--	--	5	6

Limits for General Population/Uncontrolled Exposure (MPE)

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm²)	Averaging Time |E|², |H|² or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f²)*	30
30-300	27.5	0.073	0.2	30
300-1500	--	--	f/1500	30
1500-100,000	--	--	1.0	30

f = frequency in MHz *Plane-wave equivalent power density

Appendix B – Definitions

Compliance – The determination of whether a site complies with FCC standards with regards to Human Exposure to Radio Frequency Electromagnetic Fields from transmitting antennas.

Decibel (dB) – A unit for measuring power or strength of a signal.

Duty Cycle – The percent of pulse duration to the pulse period of a periodic pulse train. Also, may be a measure of the temporal transmission characteristic of an intermittently transmitting RF source. A duty cycle of 100% corresponds to continuous operation.

Effective (or Equivalent) Isotropic Radiated Power (EIRP) – The product of the power supplied to the antenna and the antenna gain in a given direction relative to an isotropic antenna.

Effective Radiated Power (ERP) – The product of the power supplied to the antenna and the antenna gain in a given direction relative to a half-wave dipole antenna.

Gain (of an antenna) – The ratio, usually expressed in decibels, of the power required at the input of a loss-free reference antenna to the power supplied to the input of the given antenna to produce, in a given direction, the same field strength or the same power density at the same distance. When not specified otherwise, the gain refers to the direction of maximum radiation. Gain may be considered for a specified polarization. Gain may be referenced to an isotropic antenna (dBi) or a half-wave dipole (dBd) antenna.

Generic Antenna – For the purposes of this report, the use of "Generic" as an antenna model means the antenna information was not provided. In the event of unknown information, Sitesafe will use its industry specific knowledge of antenna models to select a worst-case scenario antenna to model the site.

Maximum Permissible Exposure (MPE) – The rms and peak electric and magnetic field strength, their squares, or the plane-wave equivalent power densities associated with these fields to which a person may be exposed without harmful effect and with acceptable safety factor.

OET Bulletin 65 – Technical guideline developed by the FCC's Office of Engineering and Technology to determine the impact of RF exposure on humans. The guideline was published in August 1997.

Radio Frequency Exposure or Electromagnetic Fields – Electromagnetic waves that are propagated from antennas through space.

Appendix C – Statement of Limiting Conditions

Sitesafe will not be responsible for matters of a legal nature that affect the site or property.

Due to the complexity of some wireless sites, Sitesafe performed this analysis and created this report utilizing best industry practices and due diligence. Sitesafe cannot be held accountable or responsible for anomalies or discrepancies due to actual site conditions or information or data supplied by Verizon Wireless, the site manager, or their affiliates, subcontractors or assigns.

Sitesafe obtained information used in this Site Compliance Report from sources that Sitesafe considers reliable and believes them to be true and correct. Sitesafe does not assume any responsibility for the accuracy of such items that were furnished by other parties. When conflicts in information occur between data provided by a second party and physical data collected by Sitesafe, the physical data will be used.

Appendix D – Additional Resources

Additional RF information is available at the following sites:
https://www.fcc.gov/general/radio-frequency-safety-0
https://www.fcc.gov/engineering-technology/electromagnetic-compatibility-division/radio-frequency-safety/faq/rf-safety

Instructions for Completing Part 1

Part 1 is to be completed by the applicant or project sponsor. Responses become part of the application for approval or funding, are subject to public review, and may be subject to further verification.

Complete Part 1 based on information currently available. If additional research or investigation would be needed to fully respond to any item, please answer as thoroughly as possible based on current information; indicate whether missing information does not exist, or is not reasonably available to the sponsor; and, when possible, generally describe work or studies which would be necessary to update or fully develop that information.

Applicants/sponsors must complete all items in Sections A & B. In Sections C, D & E, most items contain an initial question that must be answered either "Yes" or "No". If the answer to the initial question is "Yes", complete the sub-questions that follow. If the answer to the initial question is "No", proceed to the next question. Section F allows the project sponsor to identify and attach any additional information. Section G requires the name and signature of the project sponsor to verify that the information contained in Part 1is accurate and complete.

A. Project and Sponsor Information.

Name of Action or Project: Verizon Wireless - Beacon Station Micro - Unmanned Wireless Communications Facility		
Project Location (describe, and attach a general location map): 2 Red Flynn Drive, City of Beacon, Dutchess County, New York 12508		
Brief Description of Proposed Action (include purpose or need): Verizon Wireless of the East LP, d/b/a Verizon Wireless ("Verizon Wireless" or the "Applicant") proposes the installation of an unmanned wireless communications facility on an existing utility pole in the right of way of Red Flynn Drive. The subject pole is located on Red Flynn Drive approximately 700' northwest of the intersection of Beekman Street and Red Flynn Drive. In general, the installation will consist of the following: One (1) antenna to be mounted at a centerline height of 23' - 9" above grade on an existing 38' - 5" tall utility pole. All accessory equipment, cabling and utility services (power and fiber) are to be mounted to the existing utility pole.		
Name of Applicant/Sponsor: Verizon Wireless of the East LP, d/b/a Verizon Wireless (attn: Kathy Pomponio)	Telephone: (585) 943-2623 E-Mail: kathy.pomponio@verizonwireless.com	
Address: 1275 John Street, Suite 100		
City/PO: West Henrietta	State: NY	Zip Code: 14586
Project Contact (if not same as sponsor; give name and title/role): Scott Olson, Esq. (Counsel at Young Sommer)	Telephone: (518) 438-9907 E-Mail: solson@youngsommer.com	
Address: 5 Palisades Drive		
City/PO: Albany	State: NY	Zip Code: 12205
Property Owner (if not same as sponsor): CHG&E/NYT/City of Beacon	Telephone: E-Mail:	
Address:		
City/PO:	State:	Zip Code:

B. Government Approvals

B. Government Approvals, Funding, or Sponsorship. ("Funding" includes grants, loans, tax relief, and any other forms of financial assistance.)

Government Entity	If Yes: Identify Agency and Approval(s) Required	Application Date (Actual or projected)
a. City Council, Town Board, or Village Board of Trustees ☑Yes ☐No	Towon Board - Special Use Permit	TBD
b. City, Town or Village Planning Board or Commission ☑Yes ☐No	Planning Board - Site Plan Approval	TBD
c. City Council, Town or Village Zoning Board of Appeals ☐Yes ☑No		
d. Other local agencies ☑Yes ☐No	Building Department - Building Permit	TBD
e. County agencies ☐Yes ☑No		
f. Regional agencies ☐Yes ☑No		
g. State agencies ☐Yes ☑No		
h. Federal agencies ☐Yes ☑No		

i. Coastal Resources.

i. Is the project site within a Coastal Area, or the waterfront area of a Designated Inland Waterway? ☑Yes ☐No

ii. Is the project site located in a community with an approved Local Waterfront Revitalization Program? ☑Yes ☐No

iii. Is the project site within a Coastal Erosion Hazard Area? ☐Yes ☑No

C. Planning and Zoning

C.1. Planning and zoning actions.

Will administrative or legislative adoption, or amendment of a plan, local law, ordinance, rule or regulation be the only approval(s) which must be granted to enable the proposed action to proceed? ☐Yes ☑No

- **If Yes,** complete sections C, F and G.
- **If No,** proceed to question C.2 and complete all remaining sections and questions in Part 1

C.2. Adopted land use plans.

a. Do any municipally- adopted (city, town, village or county) comprehensive land use plan(s) include the site where the proposed action would be located? ☑Yes ☐No

If Yes, does the comprehensive plan include specific recommendations for the site where the proposed action would be located? ☐Yes ☑No

b. Is the site of the proposed action within any local or regional special planning district (for example: Greenway Brownfield Opportunity Area (BOA); designated State or Federal heritage area; watershed management plan; or other?) ☐Yes ☑No

If Yes, identify the plan(s):

c. Is the proposed action located wholly or partially within an area listed in an adopted municipal open space plan, or an adopted municipal farmland protection plan? ☐Yes ☑No

If Yes, identify the plan(s):

C.3. Zoning

a. Is the site of the proposed action located in a municipality with an adopted zoning law or ordinance. ☑ Yes ☐ No
If Yes, what is the zoning classification(s) including any applicable overlay district?
Waterfront Development

b. Is the use permitted or allowed by a special or conditional use permit? ☑ Yes ☐ No

c. Is a zoning change requested as part of the proposed action? ☐ Yes ☑ No
If Yes,
i. What is the proposed new zoning for the site? _____

C.4. Existing community services.

a. In what school district is the project site located? Beacon City School District (10 Education Dr, Beacon, NY 12508)

b. What police or other public protection forces serve the project site?
Beacon Police Department (1 Municipal Plaza, Beacon, NY 12508)

c. Which fire protection and emergency medical services serve the project site?
City of Beacon Fire Department (13 South Ave, Beacon, NY 12508)

d. What parks serve the project site?
Long Dock Park and Pete and Toshi Seeger Riverfront Park (Red Flynn Dr, Beacon, NY 12508)

D. Project Details

D.1. Proposed and Potential Development

a. What is the general nature of the proposed action (e.g., residential, industrial, commercial, recreational; if mixed, include all components)? Unmanned telecommunication facility

b. a. Total acreage of the site of the proposed action? N/A - ROW acres
b. Total acreage to be physically disturbed? 0.0001 acres
c. Total acreage (project site and any contiguous properties) owned or controlled by the applicant or project sponsor? 0.0001 acres

c. Is the proposed action an expansion of an existing project or use? ☐ Yes ☑ No
i. If Yes, what is the approximate percentage of the proposed expansion and identify the units (e.g., acres, miles, housing units, square feet)? % _____ Units: _____

d. Is the proposed action a subdivision, or does it include a subdivision? ☐ Yes ☑ No
If Yes,
i. Purpose or type of subdivision? (e.g., residential, industrial, commercial; if mixed, specify types)
_____
ii. Is a cluster/conservation layout proposed? ☐ Yes ☐ No
iii. Number of lots proposed? _____
iv. Minimum and maximum proposed lot sizes? Minimum _____ Maximum _____

e. Will proposed action be constructed in multiple phases? ☐ Yes ☑ No
i. If No, anticipated period of construction: 1 months
ii. If Yes:
- Total number of phases anticipated _____
- Anticipated commencement date of phase 1 (including demolition) _____ month _____ year
- Anticipated completion date of final phase _____ month _____year
- Generally describe connections or relationships among phases, including any contingencies where progress of one phase may determine timing or duration of future phases: _____

f. Does the project include new residential uses? ☐Yes ☑No

If Yes, show numbers of units proposed.

	One Family	Two Family	Three Family	Multiple Family (four or more)
Initial Phase				
At completion of all phases				

g. Does the proposed action include new non-residential construction (including expansions)? ☑Yes ☐No

If Yes,

i. Total number of structures 2

ii. Dimensions (in feet) of largest proposed structure: 3' height; 1.5' width; and 1.5' length

iii. Approximate extent of building space to be heated or cooled: 0 square feet

h. Does the proposed action include construction or other activities that will result in the impoundment of any liquids, such as creation of a water supply, reservoir, pond, lake, waste lagoon or other storage? ☐Yes ☑No

If Yes,

i. Purpose of the impoundment: _____

ii. If a water impoundment, the principal source of the water: ☐ Ground water ☐ Surface water streams ☐Other specify:

_____

iii. If other than water, identify the type of impounded/contained liquids and their source.

_____

iv. Approximate size of the proposed impoundment. Volume: _____ million gallons; surface area: _____ acres

v. Dimensions of the proposed dam or impounding structure: _____ height; _____ length

vi. Construction method/materials for the proposed dam or impounding structure (e.g., earth fill, rock, wood, concrete):

_____

D.2. Project Operations

a. Does the proposed action include any excavation, mining, or dredging, during construction, operations, or both? (Not including general site preparation, grading or installation of utilities or foundations where all excavated materials will remain onsite) ☐Yes ☑No

If Yes:

i .What is the purpose of the excavation or dredging? _____

ii. How much material (including rock, earth, sediments, etc.) is proposed to be removed from the site?

- Volume (specify tons or cubic yards): _____
- Over what duration of time? _____

iii. Describe nature and characteristics of materials to be excavated or dredged, and plans to use, manage or dispose of them.

_____

_____

iv. Will there be onsite dewatering or processing of excavated materials? ☐Yes ☐No

If yes, describe. _____

_____

v. What is the total area to be dredged or excavated? _____acres

vi. What is the maximum area to be worked at any one time? _____ acres

vii. What would be the maximum depth of excavation or dredging? _____ feet

viii. Will the excavation require blasting? ☐Yes ☐No

ix. Summarize site reclamation goals and plan: _____

_____

_____

b. Would the proposed action cause or result in alteration of, increase or decrease in size of, or encroachment into any existing wetland, waterbody, shoreline, beach or adjacent area? ☐Yes ☑No

If Yes:

i. Identify the wetland or waterbody which would be affected (by name, water index number, wetland map number or geographic description): _____

_____

ii. Describe how the proposed action would affect that waterbody or wetland, e.g. excavation, fill, placement of structures, or alteration of channels, banks and shorelines. Indicate extent of activities, alterations and additions in square feet or acres:

_____

_____

_____

_____

iii. Will proposed action cause or result in disturbance to bottom sediments? ☐ Yes ☐ No

If Yes, describe: _____

iv. Will proposed action cause or result in the destruction or removal of aquatic vegetation? ☐ Yes ☐ No

If Yes:

- acres of aquatic vegetation proposed to be removed: _____
- expected acreage of aquatic vegetation remaining after project completion: _____
- purpose of proposed removal (e.g. beach clearing, invasive species control, boat access): _____

_____

- proposed method of plant removal: _____
- if chemical/herbicide treatment will be used, specify product(s): _____

v. Describe any proposed reclamation/mitigation following disturbance: _____

_____

c. Will the proposed action use, or create a new demand for water? ☐ Yes ☑ No

If Yes:

i. Total anticipated water usage/demand per day: _____ gallons/day

ii. Will the proposed action obtain water from an existing public water supply? ☐ Yes ☐ No

If Yes:

- Name of district or service area: _____
- Does the existing public water supply have capacity to serve the proposal? ☐ Yes ☐ No
- Is the project site in the existing district? ☐ Yes ☐ No
- Is expansion of the district needed? ☐ Yes ☐ No
- Do existing lines serve the project site? ☐ Yes ☐ No

iii. Will line extension within an existing district be necessary to supply the project? ☐ Yes ☐ No

If Yes:

- Describe extensions or capacity expansions proposed to serve this project: _____

_____

- Source(s) of supply for the district: _____

iv. Is a new water supply district or service area proposed to be formed to serve the project site? ☐ Yes ☐ No

If, Yes:

- Applicant/sponsor for new district: _____
- Date application submitted or anticipated: _____
- Proposed source(s) of supply for new district: _____

v. If a public water supply will not be used, describe plans to provide water supply for the project: _____

_____

vi. If water supply will be from wells (public or private), maximum pumping capacity: _____ gallons/minute.

d. Will the proposed action generate liquid wastes? ☐ Yes ☑ No

If Yes:

i. Total anticipated liquid waste generation per day: _____ gallons/day

ii. Nature of liquid wastes to be generated (e.g., sanitary wastewater, industrial; if combination, describe all components and approximate volumes or proportions of each): _____

_____

_____

iii. Will the proposed action use any existing public wastewater treatment facilities? ☐ Yes ☐ No

If Yes:

- Name of wastewater treatment plant to be used: _____
- Name of district: _____
- Does the existing wastewater treatment plant have capacity to serve the project? ☐ Yes ☐ No
- Is the project site in the existing district? ☐ Yes ☐ No
- Is expansion of the district needed? ☐ Yes ☐ No

- Do existing sewer lines serve the project site? ☐Yes ☐No
- Will line extension within an existing district be necessary to serve the project? ☐Yes ☐No

If Yes:

- Describe extensions or capacity expansions proposed to serve this project: _____

_____

_____

iv. Will a new wastewater (sewage) treatment district be formed to serve the project site? ☐Yes ☐No

If Yes:

- Applicant/sponsor for new district: _____
- Date application submitted or anticipated: _____
- What is the receiving water for the wastewater discharge? _____

v. If public facilities will not be used, describe plans to provide wastewater treatment for the project, including specifying proposed receiving water (name and classification if surface discharge, or describe subsurface disposal plans):

_____

_____

vi. Describe any plans or designs to capture, recycle or reuse liquid waste: _____

_____

_____

e. Will the proposed action disturb more than one acre and create stormwater runoff, either from new point sources (i.e. ditches, pipes, swales, curbs, gutters or other concentrated flows of stormwater) or non-point source (i.e. sheet flow) during construction or post construction? ☐Yes ☑No

If Yes:

i. How much impervious surface will the project create in relation to total size of project parcel?

_____ Square feet or _____ acres (impervious surface)

_____ Square feet or _____ acres (parcel size)

ii. Describe types of new point sources. _____

_____

iii. Where will the stormwater runoff be directed (i.e. on-site stormwater management facility/structures, adjacent properties, groundwater, on-site surface water or off-site surface waters)?

_____

_____

- If to surface waters, identify receiving water bodies or wetlands: _____

_____

_____

- Will stormwater runoff flow to adjacent properties? ☐Yes ☐No

iv. Does proposed plan minimize impervious surfaces, use pervious materials or collect and re-use stormwater? ☐Yes ☐No

f. Does the proposed action include, or will it use on-site, one or more sources of air emissions, including fuel combustion, waste incineration, or other processes or operations? ☐ Yes ☑No

If Yes, identify:

i. Mobile sources during project operations (e.g., heavy equipment, fleet or delivery vehicles)

_____

ii. Stationary sources during construction (e.g., power generation, structural heating, batch plant, crushers)

_____

iii. Stationary sources during operations (e.g., process emissions, large boilers, electric generation)

_____

g. Will any air emission sources named in D.2.f (above), require a NY State Air Registration, Air Facility Permit, or Federal Clean Air Act Title IV or Title V Permit? ☐Yes ☑No

If Yes:

i. Is the project site located in an Air quality non-attainment area? (Area routinely or periodically fails to meet ambient air quality standards for all or some parts of the year) ☐Yes ☐No

ii. In addition to emissions as calculated in the application, the project will generate:

- _____Tons/year (short tons) of Carbon Dioxide (CO_2)
- _____Tons/year (short tons) of Nitrous Oxide (N_2O)
- _____Tons/year (short tons) of Perfluorocarbons (PFCs)
- _____Tons/year (short tons) of Sulfur Hexafluoride (SF_6)
- _____Tons/year (short tons) of Carbon Dioxide equivalent of Hydroflourocarbons (HFCs)
- _____Tons/year (short tons) of Hazardous Air Pollutants (HAPs)

h. Will the proposed action generate or emit methane (including, but not limited to, sewage treatment plants, landfills, composting facilities)? ☐Yes ☑No

If Yes:

i. Estimate methane generation in tons/year (metric): _____

ii. Describe any methane capture, control or elimination measures included in project design (e.g., combustion to generate heat or electricity, flaring): _____

_____

i. Will the proposed action result in the release of air pollutants from open-air operations or processes, such as quarry or landfill operations? ☐Yes ☑No

If Yes: Describe operations and nature of emissions (e.g., diesel exhaust, rock particulates/dust):

_____

_____

j. Will the proposed action result in a substantial increase in traffic above present levels or generate substantial new demand for transportation facilities or services? ☐Yes ☑No

If Yes:

i. When is the peak traffic expected (Check all that apply): ☐ Morning ☐ Evening ☐Weekend
☐ Randomly between hours of _____ to _____.

ii. For commercial activities only, projected number of semi-trailer truck trips/day: _____

iii. Parking spaces: Existing _____ Proposed _____ Net increase/decrease _____

iv. Does the proposed action include any shared use parking? ☐Yes ☐No

v. If the proposed action includes any modification of existing roads, creation of new roads or change in existing access, describe:

_____

_____

_____

vi. Are public/private transportation service(s) or facilities available within ½ mile of the proposed site? ☐Yes ☐No

vii Will the proposed action include access to public transportation or accommodations for use of hybrid, electric or other alternative fueled vehicles? ☐Yes ☐No

viii. Will the proposed action include plans for pedestrian or bicycle accommodations for connections to existing pedestrian or bicycle routes? ☐Yes ☐No

k. Will the proposed action (for commercial or industrial projects only) generate new or additional demand for energy? ☑Yes ☐No

If Yes:

i. Estimate annual electricity demand during operation of the proposed action: _____
Minimal increase in electrical power usage as necessary to operate the facility.

ii. Anticipated sources/suppliers of electricity for the project (e.g., on-site combustion, on-site renewable, via grid/local utility, or other):
Local utility

iii. Will the proposed action require a new, or an upgrade to, an existing substation? ☐Yes ☑No

l. Hours of operation. Answer all items which apply.

i. During Construction:

- Monday - Friday: 8am-5pm
- Saturday: _____
- Sunday: _____
- Holidays: _____

ii. During Operations:

- Monday - Friday: 24 hours
- Saturday: 24 hours
- Sunday: 24 hours
- Holidays: 24 hours

m. Will the proposed action produce noise that will exceed existing ambient noise levels during construction, operation, or both? ☑ Yes ☐ No

If yes:

i. Provide details including sources, time of day and duration:

During construction, noise associated with the operation of construction equipment. Once construction of the proposed facility is complete, there will be no contributing factors to noise levels.

ii. Will proposed action remove existing natural barriers that could act as a noise barrier or screen? ☐ Yes ☑ No

Describe: _____

n.. Will the proposed action have outdoor lighting? ☐ Yes ☑ No

If yes:

i. Describe source(s), location(s), height of fixture(s), direction/aim, and proximity to nearest occupied structures:

ii. Will proposed action remove existing natural barriers that could act as a light barrier or screen? ☐ Yes ☐ No

Describe: _____

o. Does the proposed action have the potential to produce odors for more than one hour per day? ☐ Yes ☑ No

If Yes, describe possible sources, potential frequency and duration of odor emissions, and proximity to nearest occupied structures: _____

p. Will the proposed action include any bulk storage of petroleum (combined capacity of over 1,100 gallons) or chemical products 185 gallons in above ground storage or any amount in underground storage? ☐ Yes ☑ No

If Yes:

i. Product(s) to be stored _____

ii. Volume(s) _____ per unit time _____ (e.g., month, year)

iii. Generally describe proposed storage facilities: _____

q. Will the proposed action (commercial, industrial and recreational projects only) use pesticides (i.e., herbicides, insecticides) during construction or operation? ☐ Yes ☑ No

If Yes:

i. Describe proposed treatment(s):

ii. Will the proposed action use Integrated Pest Management Practices? ☐ Yes ☐ No

r. Will the proposed action (commercial or industrial projects only) involve or require the management or disposal of solid waste (excluding hazardous materials)? ☐ Yes ☑ No

If Yes:

i. Describe any solid waste(s) to be generated during construction or operation of the facility:

- Construction: _____ tons per _____ (unit of time)
- Operation : _____ tons per _____ (unit of time)

ii. Describe any proposals for on-site minimization, recycling or reuse of materials to avoid disposal as solid waste:

- Construction: _____
- Operation: _____

iii. Proposed disposal methods/facilities for solid waste generated on-site:

- Construction: _____
- Operation: _____

s. Does the proposed action include construction or modification of a solid waste management facility? ☐ Yes ☑ No

If Yes:

i. Type of management or handling of waste proposed for the site (e.g., recycling or transfer station, composting, landfill, or other disposal activities): _____

ii. Anticipated rate of disposal/processing:

- _____ Tons/month, if transfer or other non-combustion/thermal treatment, or
- _____ Tons/hour, if combustion or thermal treatment

iii. If landfill, anticipated site life: _____ years

t. Will proposed action at the site involve the commercial generation, treatment, storage, or disposal of hazardous waste? ☐ Yes ☑ No

If Yes:

i. Name(s) of all hazardous wastes or constituents to be generated, handled or managed at facility: _____

ii. Generally describe processes or activities involving hazardous wastes or constituents: _____

iii. Specify amount to be handled or generated _____ tons/month

iv. Describe any proposals for on-site minimization, recycling or reuse of hazardous constituents: _____

v. Will any hazardous wastes be disposed at an existing offsite hazardous waste facility? ☐ Yes ☐ No

If Yes: provide name and location of facility: _____

If No: describe proposed management of any hazardous wastes which will not be sent to a hazardous waste facility:

E. Site and Setting of Proposed Action

E.1. Land uses on and surrounding the project site

a. Existing land uses.

i. Check all uses that occur on, adjoining and near the project site.

☐ Urban ☐ Industrial ☑ Commercial ☑ Residential (suburban) ☐ Rural (non-farm)
☐ Forest ☐ Agriculture ☑ Aquatic ☑ Other (specify): Parkland, museum, walking trail, train station

ii. If mix of uses, generally describe:

b. Land uses and covertypes on the project site.

Land use or Covertype	Current Acreage	Acreage After Project Completion	Change (Acres +/-)
• Roads, buildings, and other paved or impervious surfaces	N/A - R.O.W	N/A - R.O.W	0
• Forested			
• Meadows, grasslands or brushlands (non-agricultural, including abandoned agricultural)			
• Agricultural (includes active orchards, field, greenhouse etc.)			
• Surface water features (lakes, ponds, streams, rivers, etc.)			
• Wetlands (freshwater or tidal)			
• Non-vegetated (bare rock, earth or fill)			
• Other Describe: _____			

c. Is the project site presently used by members of the community for public recreation? ☑ Yes ☐ No

i. If Yes: explain: Project site is located within the Pete and Toshi Seeger Riverfront Park

d. Are there any facilities serving children, the elderly, people with disabilities (e.g., schools, hospitals, licensed day care centers, or group homes) within 1500 feet of the project site? ☐ Yes ☑ No

If Yes,

i. Identify Facilities:

e. Does the project site contain an existing dam? ☐ Yes ☑ No

If Yes:

i. Dimensions of the dam and impoundment:

- Dam height: _____ feet
- Dam length: _____ feet
- Surface area: _____ acres
- Volume impounded: _____ gallons OR acre-feet

ii. Dam's existing hazard classification: _____

iii. Provide date and summarize results of last inspection:

f. Has the project site ever been used as a municipal, commercial or industrial solid waste management facility, or does the project site adjoin property which is now, or was at one time, used as a solid waste management facility? ☐ Yes ☑ No

If Yes:

i. Has the facility been formally closed? ☐ Yes ☐ No

- If yes, cite sources/documentation: _____

ii. Describe the location of the project site relative to the boundaries of the solid waste management facility:

iii. Describe any development constraints due to the prior solid waste activities: _____

g. Have hazardous wastes been generated, treated and/or disposed of at the site, or does the project site adjoin property which is now or was at one time used to commercially treat, store and/or dispose of hazardous waste? ☐ Yes ☑ No

If Yes:

i. Describe waste(s) handled and waste management activities, including approximate time when activities occurred:

h. Potential contamination history. Has there been a reported spill at the proposed project site, or have any remedial actions been conducted at or adjacent to the proposed site? ☑ Yes ☐ No

If Yes:

i. Is any portion of the site listed on the NYSDEC Spills Incidents database or Environmental Site Remediation database? Check all that apply: ☑ Yes ☐ No

☐ Yes – Spills Incidents database — Provide DEC ID number(s): _____

☑ Yes – Environmental Site Remediation database — Provide DEC ID number(s): 546031

☐ Neither database

ii. If site has been subject of RCRA corrective activities, describe control measures: GE, in accordance with the Consent Decree for the site, opted to implement Phase 2 of the remedy on 12/31/10. Phase 2 of the remedial project started in 2011, and is anticipated to be completed in 2017. Dredging was completed in fall 2015; habitat reconstruction was completed in 2016. Facility decommissioning was performed in 2016.

iii. Is the project within 2000 feet of any site in the NYSDEC Environmental Site Remediation database? ☑ Yes ☐ No

If yes, provide DEC ID number(s): V00293 , V00096 , V00299 , 314069 , C314112...

iv. If yes to (i), (ii) or (iii) above, describe current status of site(s):

Remediation measures are in place to address residual contamination.

v. Is the project site subject to an institutional control limiting property uses? ☐ Yes ☑ No

- If yes, DEC site ID number: _____
- Describe the type of institutional control (e.g., deed restriction or easement): _____
- Describe any use limitations: _____
- Describe any engineering controls: _____
- Will the project affect the institutional or engineering controls in place? ☐ Yes ☐ No
- Explain: _____

E.2. Natural Resources On or Near Project Site

a. What is the average depth to bedrock on the project site? >6 feet

b. Are there bedrock outcroppings on the project site? ☐ Yes ☑ No
If Yes, what proportion of the site is comprised of bedrock outcroppings? _____%

c. Predominant soil type(s) present on project site:

Ud - Udorthents, smoothed	100 %
	%
	%

d. What is the average depth to the water table on the project site? Average: 3-6 feet

e. Drainage status of project site soils:

☑	Well Drained:	100 % of site
☐	Moderately Well Drained:	% of site
☐	Poorly Drained	% of site

f. Approximate proportion of proposed action site with slopes:

☑	0-10%:	100 % of site
☐	10-15%:	% of site
☐	15% or greater:	% of site

g. Are there any unique geologic features on the project site? ☐ Yes ☑ No
If Yes, describe: _____

h. Surface water features.

i. Does any portion of the project site contain wetlands or other waterbodies (including streams, rivers, ponds or lakes)? ☑ Yes ☐ No

ii. Do any wetlands or other waterbodies adjoin the project site? ☑ Yes ☐ No

If Yes to either *i* or *ii*, continue. If No, skip to E.2.i.

iii. Are any of the wetlands or waterbodies within or adjoining the project site regulated by any federal, state or local agency? ☑ Yes ☐ No

iv. For each identified regulated wetland and waterbody on the project site, provide the following information:

- Streams: Name _____ Classification _____
- Lakes or Ponds: Name _____ Classification _____
- Wetlands: Name Federal Waters, Federal Waters, Federal Waters Approximate Size N/A
- Wetland No. (if regulated by DEC) _____

v. Are any of the above water bodies listed in the most recent compilation of NYS water quality-impaired waterbodies? ☑ Yes ☐ No

If yes, name of impaired water body/bodies and basis for listing as impaired: _____
Name - Pollutants - Uses:Hudson River (Class B) – Priority Organics – Fish Consumption

i. Is the project site in a designated Floodway? ☐ Yes ☑ No

j. Is the project site in the 100 year Floodplain? ☑ Yes ☐ No

k. Is the project site in the 500 year Floodplain? ☑ Yes ☐ No

l. Is the project site located over, or immediately adjoining, a primary, principal or sole source aquifer? ☐ Yes ☑ No
If Yes:

i. Name of aquifer: _____

m. Identify the predominant wildlife species that occupy or use the project site:

Rabbits | Squirrels | Skunks
Chipmunks | Opossums | Raccoons
Birds

n. Does the project site contain a designated significant natural community? ☐ Yes ☑ No

If Yes:

i. Describe the habitat/community (composition, function, and basis for designation): _____

ii. Source(s) of description or evaluation: _____

iii. Extent of community/habitat:

- Currently: _____ acres
- Following completion of project as proposed: _____ acres
- Gain or loss (indicate + or -): _____ acres

o. Does project site contain any species of plant or animal that is listed by the federal government or NYS as endangered or threatened, or does it contain any areas identified as habitat for an endangered or threatened species? ☑ Yes ☐ No

Yes entry is automatically checked by the DEC environmental resource mapper. The site is in a check zone for species, however there is no habitat present for any species, therefore this is no potential impact to same.

p. Does the project site contain any species of plant or animal that is listed by NYS as rare, or as a species of special concern? ☐ Yes ☑ No

q. Is the project site or adjoining area currently used for hunting, trapping, fishing or shell fishing? ☑ Yes ☐ No

If yes, give a brief description of how the proposed action may affect that use: The project will have no impact on recreational fishing in the area.

E.3. Designated Public Resources On or Near Project Site

a. Is the project site, or any portion of it, located in a designated agricultural district certified pursuant to Agriculture and Markets Law, Article 25-AA, Section 303 and 304? ☐ Yes ☑ No

If Yes, provide county plus district name/number: _____

b. Are agricultural lands consisting of highly productive soils present? ☐ Yes ☑ No

i. If Yes: acreage(s) on project site? _____

ii. Source(s) of soil rating(s): _____

c. Does the project site contain all or part of, or is it substantially contiguous to, a registered National Natural Landmark? ☐ Yes ☑ No

If Yes:

i. Nature of the natural landmark: ☐ Biological Community ☐ Geological Feature

ii. Provide brief description of landmark, including values behind designation and approximate size/extent: _____

d. Is the project site located in or does it adjoin a state listed Critical Environmental Area? ☐ Yes ☑ No

If Yes:

i. CEA name: _____

ii. Basis for designation: _____

iii. Designating agency and date: _____

e. Does the project site contain, or is it substantially contiguous to, a building, archaeological site, or district which is listed on, or has been nominated by the NYS Board of Historic Preservation for inclusion on, the State or National Register of Historic Places? ☐ Yes ☑ No

If Yes:

i. Nature of historic/archaeological resource: ☐ Archaeological Site ☐ Historic Building or District

ii. Name: _____

iii. Brief description of attributes on which listing is based:

_____

f. Is the project site, or any portion of it, located in or adjacent to an area designated as sensitive for archaeological sites on the NY State Historic Preservation Office (SHPO) archaeological site inventory? ☑ Yes ☐ No

g. Have additional archaeological or historic site(s) or resources been identified on the project site? ☐ Yes ☑ No

If Yes:

i. Describe possible resource(s): _____

ii. Basis for identification: _____

h. Is the project site within fives miles of any officially designated and publicly accessible federal, state, or local scenic or aesthetic resource? ☑ Yes ☐ No

If Yes:

i. Identify resource: New York State Route 9

ii. Nature of, or basis for, designation (e.g., established highway overlook, state or local park, state historic trail or scenic byway, etc.): New York State's Designated Scenic Roads

iii. Distance between project and resource: 4 miles.

i. Is the project site located within a designated river corridor under the Wild, Scenic and Recreational Rivers Program 6 NYCRR 666? ☐ Yes ☑ No

If Yes:

i. Identify the name of the river and its designation: _____

ii. Is the activity consistent with development restrictions contained in 6NYCRR Part 666? ☐ Yes ☐ No

F. Additional Information

Attach any additional information which may be needed to clarify your project.

If you have identified any adverse impacts which could be associated with your proposal, please describe those impacts plus any measures which you propose to avoid or minimize them.

G. Verification

I certify that the information provided is true to the best of my knowledge.

Applicant/Sponsor Name Steven Matthews Date 5-4-22

Signature Steven Matthews Title Director of Engineering

PRINT FORM

Tectonic
PRACTICAL SOLUTIONS. EXCEPTIONAL SERVICE.

Date: April 29, 2022

Utility Pole Analysis Report

Pole Owner:	CHG&E/NYT/City of Beacon
Carrier:	Verizon Wireless

Carrier Designation:

Fuze ID:	15010591
Location Code:	432849
Site Name:	Beacon Station Micro
Site Data:	Adjacent to 2 Red Flynn Drive, City of Beacon, Dutchess County, NY 12508 Latitude 41° 30' 18.70'', Longitude -73° 59' 06.32'' Existing 38.5 ft Tall Wood Pole

Tectonic Project Number: 11273.019

Tectonic Engineering Consultants, Geologists & Land Surveyors, D.P.C. is pleased to submit this **"Utility Pole Analysis Report"** to determine the structural integrity of the above mentioned pole.

The purpose of the analysis is to determine acceptability of the pole stress level. Based on our analysis we have determined the pole stress level to be:

Structure: **Sufficient – 62% Utilization**

This analysis has been performed in accordance with the National Electrical Safety Code - 2017 Edition.

This structural assessment is also based on a limited visual inspection from the ground. The contractor shall field verify all existing conditions and notify the design engineer of any discrepancies prior to the installation of the proposed equipment.

We appreciate the opportunity of providing our continuing professional services to you and Verizon Wireless. If you have any questions or need further assistance on this or any other projects please give us a call.

Structural analysis prepared by: Veronica Elson

Respectfully submitted by:
Tectonic Engineering Consultants, Geologists & Land Surveyors, D.P.C.

Veronica Elson
Veronica Elson
2022.04.29
18:16:09 -04'00'

STATE OF NEW YORK
VERONICA E. ELSON
LICENSED PROFESSIONAL ENGINEER
09561-1

Veronica E. Elson, PE
Project Manager

Project Contact Info

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tectonicengineering.com
Equal Opportunity Employer

1) ANALYSIS CRITERIA

NESC Criteria:	2017
NESC Load Case:	Rule 250B
Construction Grade:	B
Wood Pole Class:	2

Table 1 - Proposed Equipment Loading Information

Equipment Level (ft)	Carrier Designation	Number of Antennas	Equipment Model	**Proposed Mount Type**
25.17	Verizon Wireless	1	4G Antenna	Pole Top Antenna Mount
13.0		1	Equipment Shroud	Mounting Bracket
11.0		1	100A Subpanel	Directly to Pole
9.0		1	Electric Disconnect	
6.0		1	Electric Meter	

2) ANALYSIS PROCEDURE

Table 2 - Documents Utilized

Document	Remarks	Dated
Site Visit Photos & Notes	Tectonic	04/20/22
Construction Drawings (Rev 3)	Tectonic	04/22/22

2.1) Analysis Method

O-Calc Pro (Version 6.02), a commercially available analysis software package, was used to create a three-dimensional model of the pole to calculate the member stresses for a variety of load combinations. A summary of this analysis is attached to the end of this report.

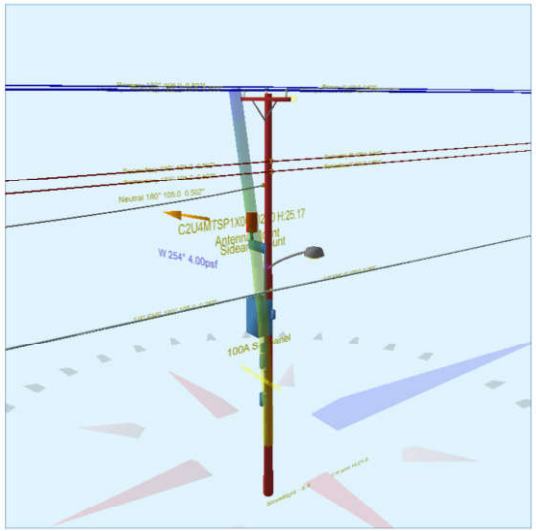
2.2) Assumptions

1) The pole was properly installed and maintained in good condition in accordance with its original design and/or manufacturer's specifications.
2) Pole wood species is similar to Southern Pine.
3) The pole is embedded into the ground as per the applicable design requirements based on its height above grade and diameter at grade.
4) The pole has been embedded sufficiently so that its soil lateral capacity meets or exceeds the moment capacity of the pole.
5) Attachment heights, spans, span lines, line sags, line angles, and appurtenances are estimated based on information obtained during the site visit referenced above or via Google Earth.
6) Line tensions are assumed to be approximately equal on either side of the line's pole connection.
7) All messenger lines are assumed to be a minimum diameter of 1/4" and meet or exceed the requirement of extra high strength (EHS) galvanized strand cable.

3) ANALYSIS RESULTS & RECOMMENDATIONS

The pole has sufficient capacity for the proposed Verizon Wireless installation. No reinforcement or modifications are required at this time.

Pole Num:	**44106P / BEAC398 / NYT3**	Pole Length / Class:	**45 / 2**	Code:	**NESC**	Structure Type:	**Unguyed Tangent**
Aux Data 1	**W.O.: 11273.019**	Species:	**SOUTHERN PINE**	NESC Rule:	**Rule 250B**	Status	**Unguyed**
Aux Data 2	**Site Name: Beacon Station Micro**	Setting Depth (ft):	**6.5**	Construction Grade:	**B**	Pole Strength Factor:	**0.65**
Aux Data 3	**Client: Verizon Wireless**	G/L Circumference (in):	**40.30**	Loading District:	**Heavy**	Transverse Wind LF:	**2.50**
Aux Data 4	**Unset**	G/L Fiber Stress (psi):	**8,000**	Ice Thickness (in):	**0.50**	Wire Tension LF:	**1.10**
Aux Data 5	**Unset**	Allowable Stress (psi):	**5,200**	Wind Speed (mph):	**39.53**	Vertical LF:	**1.50**
Aux Data 6	**Unset**	Fiber Stress Ht. Reduc:	**No**	Wind Pressure (psf):	**4.00**		
Latitude:	**41.505194**	Longitude:		**-73.958089**		Elevation:	**6'**





Pole Capacity Utilization (%)		Height (ft)	Wind Angle (deg)
Maximum	**62.1**	0.0	254.1
Groundline	**62.1**	0.0	254.1
Vertical	**8.8**	22.3	254.1

Pole Moments (ft-lb)		Load Angle (deg)	Wind Angle (deg)
Max Cap Util	**55,213**	226.8	254.1
Groundline	**55,213**	226.8	254.1
GL Allowable	**89,811**		

Groundline Load Summary - Reporting Angle Mode: Load - Reporting Angle: 226.8°

	Shear Load* (lbs)	Applied Load (%)	Bending Moment (ft-lb)	Applied Moment (%)	Pole Capacity (%)	Bending Stress (+/- psi)	Vertical Load (lbs)	Vertical Stress (psi)	Total Stress (psi)	Pole Capacity (%)
Powers	1,282	63.3	**40,673**	73.7	**45.3**	**2,359**	723	6	**2,365**	**45.5**
Comms	133	6.6	**2,337**	4.2	**2.6**	**136**	245	2	**137**	**2.6**
GenericEquipments	224	11.1	**4,748**	8.6	**5.3**	**275**	758	6	**281**	**5.4**
Pole	296	14.6	**5,726**	10.4	**6.4**	**332**	2,079	16	**348**	**6.7**
Crossarms	11	0.5	**444**	0.8	**0.5**	**26**	90	1	**26**	**0.5**
Streetlights	25	1.2	**204**	0.4	**0.2**	**12**	90	1	**13**	**0.2**
Risers	46	2.3	**839**	1.5	**0.9**	**49**	112	1	**50**	**1.0**
Insulators	7	0.3	**242**	0.4	**0.3**	**14**	58	0	**14**	**0.3**
Pole Load	2,024	100.0	**55,213**	100.0	**61.5**	**3,203**	4,156	32	**3,235**	**62.2**
Pole Reserve Capacity			**34,598**		**38.5**	**1,997**			**1,965**	**37.8**

Load Summary by Owner - Reporting Angle Mode: Load - Reporting Angle: 226.8°

	Shear Load* (lbs)	Applied Load (%)	Bending Moment (ft-lb)	Applied Moment (%)	Pole Capacity (%)	Bending Stress (+/- psi)	Vertical Load (lbs)	Vertical Stress (psi)	Total Stress (psi)	Pole Capacity (%)
<Undefined>	1,496	73.9	**44,890**	81.3	**50.0**	**2,604**	1,240	10	**2,613**	**50.3**
VZW	231	11.4	**4,597**	8.3	**5.1**	**267**	837	6	**273**	**5.3**
Pole	296	14.6	**5,726**	10.4	**6.4**	**332**	2,079	16	**348**	**6.7**
Totals:	2,024	100.0	**55,213**	100.0	**61.5**	**3,203**	4,156	32	**3,235**	**62.2**

Detailed Load Components:

Power		Owner	Height (ft)	Horiz. Offset (in)	Cable Diameter (in)	Sag at Max Temp (ft)	Cable Weight (lbs/ft)	Lead/Span Length (ft)	Span Angle (deg)	Wire Length (ft)	Tension (lbs)	Tension Moment* (ft-lb)	Offset Moment* (ft-lb)	Wind Moment* (ft-lb)	Moment at GL* (ft-lb)
Primary	ACSR 3/0 AWG 6/1 PIGEON		39.13	3.66	0.5020	0.16	0.230	100.0	0.0	100.0	3,500	-103,057	14	1,713	-101,330
Primary	ACSR 3/0 AWG 6/1 PIGEON		39.13	3.66	0.5020	0.18	0.230	105.0	180.0	105.0	3,500	103,057	15	1,799	104,871
Primary	ACSR 3/0 AWG 6/1 PIGEON		38.82	42.41	0.5020	0.16	0.230	100.0	0.0	100.0	3,500	-102,262	184	1,700	-100,378
Primary	ACSR 3/0 AWG 6/1 PIGEON		38.82	42.41	0.5020	0.18	0.230	105.0	180.0	105.0	3,500	102,262	194	1,785	104,241
Primary	ACSR 3/0 AWG 6/1 PIGEON		38.82	42.41	0.5020	0.16	0.230	100.0	0.0	100.0	3,500	-102,262	-141	1,700	-100,704
Primary	ACSR 3/0 AWG 6/1 PIGEON		38.82	42.41	0.5020	0.18	0.230	105.0	180.0	105.0	3,500	102,262	-149	1,785	103,898

Secondary	ACSR 3/0 AWG 6/1 PIGEON	32.00	6.89	0.5020	0.16	0.230	100.0	0.0	100.0	3,500	-84,245	-27	1,400	-82,871
Secondary	ACSR 3/0 AWG 6/1 PIGEON	32.00	6.89	0.5020	0.18	0.230	105.0	180.0	105.0	3,500	84,245	-28	1,470	85,687
Secondary	ACSR 3/0 AWG 6/1 PIGEON	31.00	6.95	0.5020	0.16	0.230	100.0	0.0	100.0	3,500	-81,612	-27	1,357	-80,282
Secondary	ACSR 3/0 AWG 6/1 PIGEON	31.00	6.95	0.5020	0.18	0.230	105.0	180.0	105.0	3,500	81,612	-28	1,424	83,008
Neutral	ACSR 3/0 AWG 6/1 PIGEON	29.50	7.05	0.5020	1.95	0.230	105.0	180.0	105.1	1,044	23,151	27	1,355	24,533
										Totals:	**23,151**	**34**	**17,488**	**40,673**

Comm		**Owner**	**Height (ft)**	**Horiz. Offset (in)**	**Cable Diameter (in)**	**Sag at Max Temp (ft)**	**Cable Weight (lbs/ft)**	**Lead/Span Length (ft)**	**Span Angle (deg)**	**Wire Length (ft)**	**Tension (lbs)**	**Tension Moment* (ft-lb)**	**Offset Moment* (ft-lb)**	**Wind Moment* (ft-lb)**	**Moment at GL* (ft-lb)**
Overlashed Bundle	1/4" EHS		18.50	7.74	0.2500	0.23	0.121	100.0	0.0	100.0	3,750	-52,183	-23	868	-51,338
Telco	TELE 1.0		18.45	7.74	1.0000		0.400	100.0	0.0	100.0			-33	328	295
Overlashed Bundle	1/4" EHS		18.50	7.74	0.2500	0.25	0.121	105.0	180.0	105.0	3,750	52,183	-24	911	53,070
Telco	TELE 1.0		18.45	7.74	1.0000		0.400	105.0	180.0	105.0			-35	345	310
											Totals:	**0**	**-115**	**2,452**	**2,337**

GenericEquipment		**Owner**	**Height (ft)**	**Horiz. Offset (in)**	**Offset Angle (deg)**	**Rotate Angle (deg)**	**Unit Weight (lbs)**	**Unit Height (in)**	**Unit Depth (in)**	**Unit Diameter (in)**	**Unit Length (in)**	**Offset Moment* (ft-lb)**	**Wind Moment* (ft-lb)**	**Moment at GL* (ft-lb)**
Cylinder	Weatherhead	VZW	29.00	7.58	300.0	0.0	1.50	6.00	--	6.00	--	0	64	65
Cylinder	C2U4MTSP1X06F02S0	VZW	25.17	36.12	270.0	0.0	27.50	24.00	--	14.60	--	90	543	634
Cylinder	Antenna Mount	VZW	23.50	36.42	270.0	0.0	100.00	18.00	--	4.00	--	331	112	443
Box	Sidearm Mount		22.75	23.42	270.0	0.0	32.20	12.00	4.00	--	35.00	69	847	915
Box	Fiber Demarcation Box		15.50	8.03	0.0	0.0	0.44	12.00	4.00	--	4.50	0	75	75
Box	Equipment Shroud	VZW	15.00	19.47	270.0	0.0	279.00	48.00	26.00	--	24.00	494	1,733	2,227
Box	100A Subpanel	VZW	11.50	10.48	270.0	0.0	15.00	12.65	4.27	--	8.88	14	89	103
Box	Electric Disconnect	VZW	9.83	11.09	270.0	0.0	25.00	20.00	5.50	--	8.50	25	140	165
Box	Electric Meter	VZW	5.23	10.96	270.0	0.0	25.00	18.50	4.84	--	10.00	25	97	122
											Totals:	**1,048**	**3,700**	**4,748**

Crossarm		**Owner**	**Height (ft)**	**Horiz. Offset (in)**	**Offset Angle (deg)**	**Rotate Angle (deg)**	**Unit Weight (lbs)**	**Unit Height (in)**	**Unit Depth (in)**	**Unit Length (in)**	**Offset Moment* (ft-lb)**	**Wind Moment* (ft-lb)**	**Moment at GL* (ft-lb)**
Normal	CROSSARM 3-3/4 X 4-3/4 X 8		38.00	-5.89	0.0	0.0	60.00	4.75	3.75	96.00	30	414	444
										Totals:	**30**	**414**	**444**

Streetlight		**Owner**	**Height (ft)**	**Horiz. Offset (in)**	**Offset Angle (deg)**	**Rotate Angle (deg)**	**Unit Weight (lbs)**	**Unit Height (in)**	**Unit Depth (in)**	**Unit Diameter (in)**	**Unit Length (in)**	**Offset Moment* (ft-lb)**	**Wind Moment* (ft-lb)**	**Moment at GL* (ft-lb)**
General	Streetlight - 6 ft. Arm		21.00	5.09	90.0	90.0	60.00	36.00	24.00	3.00	72.00	-324	528	204
											Totals:	**-324**	**528**	**204**

Riser		Owner	Height (ft)	Horiz. Offset (in)	Offset Angle (deg)	Rotate Angle (deg)	Unit Weight (lbs)	Unit Height (in)	Unit Depth (in)	Unit Diameter (in)	Unit Length (in)	Offset Moment* (ft-lb)	Wind Moment* (ft-lb)	Moment at GL* (ft-lb)
Power & Fiber U-Guard - 3" Max 270.0° H:23.0	Power & Fiber U-Guard - 3" Max	VZW	23.00	6.57	270.0	270.0	46.00	276.00	3.50	3.50	276.00	18	251	268
1.5" STD Secondary Conduit 300.0° H:29.0	1.5" STD Secondary Conduit	VZW	29.00	6.57	300.0	300.0	29.00	348.00	1.90	1.90	348.00	4	566	570
											Totals:	**22**	**816**	**839**

Insulator		Owner	Height (ft)	Horiz. Offset (in)	Offset Angle (deg)	Rotate Angle (deg)	Unit Weight (lbs)	Unit Diameter (in)	Unit Length (in)	Offset Moment* (ft-lb)	Wind Moment* (ft-lb)	Moment at GL* (ft-lb)
Pin	Pin Insulator - 5 kV		38.50	0.00	270.0	90.0	6.00	3.50	7.50	0	63	63
Pin	Pin Insulator - 5 kV		38.20	-42.00	262.0	0.0	6.00	3.50	7.50	0	62	62
Pin	Pin Insulator - 5 kV		38.20	42.00	98.0	0.0	6.00	3.50	7.50	0	62	62
Spool	Spool 3"		32.00	0.00	90.0	0.0	2.00	3.00	3.19	0	19	19
Spool	Spool 3"		31.00	0.00	90.0	0.0	2.00	3.00	3.19	0	18	18
Spool	Spool 3"		29.50	0.00	180.0	180.0	2.00	3.00	3.19	0	17	17
Bolt	Three Bolt		18.50	0.00	90.0	0.0	5.00	3.00	0.10	0	0	0
Bolt	Single Bolt	VZW	9.00	0.00	270.0	270.0	5.00	3.00	0.10	0	0	0
Bolt	Single Bolt	VZW	6.00	0.00	270.0	270.0	5.00	3.00	0.10	0	0	0
									Totals:	**0**	**242**	**242**

Pole Buckling

Buckling Constant	Buckling Column Height* (ft)	Buckling Section Height (% Buckling Col. Hgt.)	Buckling Section Diameter (in)	Minimum Buckling Diameter at GL (in)	Diameter at Tip (in)	Diameter at GL (in)	Modulus of Elasticity (psi)	Pole Density (pcf)	Ice Density (pcf)	Pole Tip Height (ft)	Buckling Load Capacity at Height (lbs)	Buckling Load Applied at Height (lbs)	Buckling Load Factor of Safety
2.00	22.26	33.29	11.89	7.00	7.96	12.83	2.13e+6	60.00	57.00	38.50	46,969	**472.28**	**11.36**

John Clarke Planning and Design jclarkeplandesign@gmail.com
845.797.4152

To: John Gunn, Chair, and the City of Beacon Planning Board
Date: June 10, 2022
Re: **2 Red Flynn Drive, Verizon Small Cell Site Plan Application**

I have reviewed the May 9, 2022 Application packet from Verizon Wireless, including a May 6, 2022 Site Plan Application, May 6, 2022 Statement of Intent letter from Scott Olson, Esq., April 18, 2022 Engineering Necessity Case documentation, May 4, 2022 Full EAF Part 1, 7 undated photo-simulation sheets, and a 7-sheet Site Plan set, dated April 25, 2022.

Proposal
The applicant is proposing to install a small wireless antenna and accessory equipment on a utility pole along Red Flynn Drive. The pole is part of the public right-of-way in the Waterfront Park (WP) zoning district and within the Local Waterfront Revitalization Program (LWRP) boundary.

Comments and Recommendations

1. Regarding the Full EAF:

    a. The Description of the Proposed Action states that the proposed wireless facility will be installed on an existing utility pole and the attached before and after photo-simulations represent the same pole, but the Statement of Intent letter proposes a replacement pole that would increase the height from 27' 7" to 38' 5". Please clarify.

    b. For Question B.a., no Special Permit is required.

    c. For Question C.3.a., the location is in the Waterfront Park zoning district, not the Waterfront Development district.

    d. For Question E.1.c., the project site is near the Pete and Toshi Riverfront Park and the Scenic Hudson Long Dock Park, but it is not in the park or used for recreation.

2. The applicant should be prepared at the Planning Board meeting to describe consideration of alternative locations in the area, including utility poles farther south on Red Flynn Drive that would be away from the harbor entrance to the City and higher up the hill.

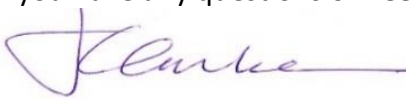
3. Section 223-26.4 K(1) requires that antennas be mounted at least 20 feet above grade. The Site Plan drawing should show the height dimension to the bottom of the antenna.

4. The proposed bypass meter socket is located on the pole less than 6 feet above grade on a very narrow sidewalk. The Planning Board's Small Cell Wireless Facility Design and Review Guideline Policy, Section III.L.3 states that mechanical equipment and devices should be a minimum of 8 feet above ground level.

5. The Guideline Policy, Section III.L.1 requires the use of stealth technology wherever possible. What measures can be proposed to make the antenna and equipment less visually intrusive?

6. The location is within the designated LWRP boundary. The applicant should complete a Coastal Assessment Form and provide a concise justification that the proposal is consistent with Beacon's LWRP policies.

If you have any questions or need additional information, please feel free to email me.



John Clarke, Beacon Planning Consultant

c: David Buckley, Building Inspector
Jennifer L. Gray, Esq., City Attorney
Arthur R. Tully, P.E., City Engineer
John Russo, P.E., City Engineer
Scott P. Olson, Esq., Project Representative

LANC & TULLY
ENGINEERING AND SURVEYING, P.C.

John J. O'Rourke, P.E., Principal
David E. Higgins, P.E., Principal
John Queenan, P.E., Principal
Rodney C. Knowlton, L.S., Principal
Jerry A. Woods, L.S., Principal
John D. Russo, P.E., Principal
John Lanc, P.E., L.S.
Arthur R. Tully, P.E.

June 10, 2022

Mr. John Gunn
Beacon Planning Board Chair
City of Beacon
1 Municipal Plaza
Beacon, NY 12508

RE: Small Cell Wireless
2 Red Flynn Drive
City of Beacon

Dear Mr. Gunn:

My office has received the following in regard to the above referenced application:

- Document titled "Verizon Wireless of the East LP (d/b/a Verizon Wireless) – 2 Red Flynn Drive – Application for Special Use Permit, Site Plan Review, Rosenberg Waiver Relief and Statement of Intent", dated May 9, 2022, as prepared by Verizon Wireless, Tectonic Engineering, Network Building 7 Consulting, and Young/Sommer LLC.

The applicant is proposing to construct a small cell wireless service on an existing wooden utility pole owned by Central Hudson located along Red Flynn Drive, with an address provided of 2 Red Flynn Drive. Based upon our review of the above document and exhibits, we offer the following comments:

1. The last paragraph on Page 1 of the Statement of Intent states "Specifically, the existing 27'7" wooden utility pole is proposed to be replaced with a similar, but slightly larger, wooden utility pole of approximately 38'5"." Sheet C-2 of the plans included in Section 4 of the document note that the existing pole is already 38'6" in height. If this is in accurate, the plans should be revised to show actual conditions and where the new pole will be located. If this is correct, then the Statement of Intent should be revised to accurately reflect current and proposed conditions. This would also need to be corrected on Page 3, paragraph 8 of the document.

2. Drawing Sheet C-2 of the plans shall be updated to reflect the distance from the pole that the equipment shroud will extend.

3. The "Equipment Shroud Details" on Sheet C-3 of the drawings shall be enlarged so that the information provided is legible. At the scale provided, the dimensions of the equipment shroud cannot be ascertained.

4. Sheet C-3 includes a detail for the replacement of sidewalk. Additional information shall be provided on the plans as to where sidewalk is to be replaced (location, length, width, etc.).

5. The response to D.1.g. on the included Full Environmental Assessment Form shall be revised, as the equipment shroud proposed is larger than the dimensional response provided for the question.

This completes our review at this time. Further comments may be forth coming based upon future submissions. If you have any questions, or require any additional information, please do not hesitate to contact our office.

Very truly,

LANC & TULLY, P.C.

John Russo, P.E.

cc: John Clarke, Planner
Jennifer Gray, Esq.
David Buckley, Building Inspector

City of Beacon Planning Board Agenda
06/14/2022

Title:

Review application for Subdivision Approval, 2-lot residential, 67 Grove Street, submitted by Dawn Brill

ATTACHMENTS

67 Grove Street Application.pdf

Short EAF_67 Grove Street_2022-0531.pdf

City of Beacon_67 Grove Street-Brill Subdivision Cover Letter_2022-0531.pdf

Sheet 01_67 Grove Street_CV-1.pdf

Sheet 02_67 Grove Street_XC-1.pdf

Sheet 03_67 Grove Street_PT-1.pdf

Sheet 04_67 Grove Street_SP-1.pdf

Sheet 05_67 Grove Street_CD-1.pdf

Sheet 06_67 Grove Street_CD-2.pdf

Planners Comments PB Grove St Sub 6.10.22.pdf

Engineers Comments 67 Grove Review 06-09-22.pdf

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APPLICATION FOR SUBDIVISION APPROVAL

Submit to Planning Board Secretary, One Municipal Plaza, Suite One, Beacon, New York 12508

IDENTIFICATION OF APPLICANT

Name: Dawn Brill

Address: 67 Grove Street,
Beacon, NY 12508

Signature: _____

Date: May 31, 2022

Phone: 845-489-2395

(For Official Use Only)

	Date	Initials
Preliminary Application Rec'd		
Application Fee:		
Public Hearing		
Preliminary Plat Approved:		
Final Plat Approved:		
Recreation Fee:		
Performance Bond:		

IDENTIFICATION OF REPRESENTATIVE / DESIGN PRFESSIONAL

Name. Michael A. Bodendorf, P.E. - Hudson Land Design Professional Engineering, P.C.

Address: 174 Main Street,
Beacon, NY 12508

Phone: (845) 440-6926

Fax: (845) 440-6637

Email address: mbodendorf@Hudsonlanddesign.com

IDENTIFICATION OF SUBJECT PROPERTY:

Subdivision name or identifying title:

Brill Subdivision

Street which property abuts: Grove Street

Current Tax Map Designation: Section 6054 Block 39 Lot(s) 314747

Property ~~(does)~~ (does not) connect directly into a (State) (County) highway.

Land in subdivision (is) ~~(is not)~~ within 500 feet of a Municipal boundary.

Total area of property is +/- 16,000 sq. feet, +/- 0.37 acres

ITEMS TO ACCOMPANY THIS APPLICATION

a. One electronic and five (5) **folded** copies of a subdivision plat showing the location of the subject property and the proposed development with respect to neighboring properties and developments.

b. An application fee, payable to the City of Beacon, computed per the attached fee schedule.

c. An initial escrow amount, payable to the City of Beacon, as set forth in the attached fee schedule.

APPLICATION FEES

Site Plan	**Residential** $500 + $250 per dwelling unit **Commercial** $500 + $250 per 1,000 s.f.
Special Use Permit	**Residential** $500 + $250 per dwelling unit **Commercial** $500 + $250 per 1,000 s.f.
Subdivision	$ 750 for 2-4 lots + $100 per lot $950 $1,000 for 5 or more lots + $300 per lot
Zoning Board of Appeals	Use Variance $500 Area Variance $250 Interpretation $250

ESCROW FEES

ALL SUBDIVISIONS, AND RESIDENTIAL SITE PLAN AND SUP APPLICATIONS

No. of Lots or Dwelling Units	Initial Deposit	Depleted to	Replenishment
1-5 (including lot-line realignment)	$ 2,500	$ 1,000	Current bills + $1,000
6-15	$ 7,500	$ 2,500	Current bills + $1,000
Over 15	$ 15,000	$ 5,000	Current bills + $5,000

NON-RESIDENTIAL SITE PLAN AND SUP APPLICATIONS

	Initial Deposit	Depleted to	Replenishment
Existing Buildings/Change of Use with no site development	$ 1,500	$ 1,000	Current bills + $500
Up to 3,000 s.f. gross floor area	$ 2,500	$ 1,000	Current bills + $1,000
3,000 to 10,000 s.f. gross floor area	$ 2,500 + $0.50 per sq.ft. over 3,000	$ 2,500	Current bills + $2,500
Over 10,000 s.f. gross floor area	$ 7,500 + $0.50 per sq.ft. over 10,000	$ 2,500	Current bills + $2,500

ZONING

* *if required by Chairman*	Initial Deposit	Depleted to	Replenishment
Use Variance*	$ 1,000	$500	Current bills + $500
Area Variance*	$ 1,000	$500	Current bills + $500
Interpretation*	$ 1,000	$500	Current bills + $500

ARCHITECTURAL REVIEW OR CERTIFICATE OF APPROPRIATENESS ***(if not currently before PB)***

* *if required by Chairman*	Initial Deposit	Depleted to	Replenishment
Single Family House*	$500	$250	Current bills + $250
All others*	$500	$250	Current bills + $250

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APPLICATION PROCESSING RESTRICTION LAW

Affidavit of Property Owner

Property Owner: Dawn Brill

If owned by a corporation, partnership or organization, please list names of persons holding over 5% interest.

List all properties in the City of Beacon that you hold a 5% interest in:

67 Grove street only.

Applicant Address: 67 Grove Street, Beacon, NY 12508

Project Address: 67 Grove Street, Beacon, NY 12508

Project Tax Grid # 6054-39-314747

Type of Application Subdivision for existing property

Please note that the property owner is the applicant. "Applicant" is defined as any individual who owns at least five percent (5%) interest in a corporation or partnership or other business.

I, Dawn Brill, the undersigned owner of the above referenced property, hereby affirm that I have reviewed my records and verify that the following information is true.

1. No violations are pending for ANY parcel owned by me situated within the City of Beacon — X
2. Violations are pending on a parcel or parcels owned by me situated within the City of Beacon —
3. ALL tax payments due to the City of Beacon are current — X
4. Tax delinquencies exist on a parcel or parcels owned by me within the City of Beacon —
5. Special Assessments are outstanding on a parcel or parcels owned by me in the City of Beacon —
6. ALL Special Assessments due to the City of Beacon on any parcel owned by me are current — X

Dawn Brill

Signature of Owner

Title if owner is corporation

Office Use Only:	NO	YES	Initial
Applicant has violations pending for ANY parcel owned within the City of Beacon (Building Dept.)	X		AL
ALL taxes are current for properties in the City of Beacon are current (Tax Dept.)		X	AL
ALL Special Assessments, i.e. water, sewer, fines, etc. are current (Water Billing)		X	AL

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CITY OF BEACON
PRELIMINARY SUBDIVISION PLAT
AND CONSTRUCTION PLANS SPECIFICATION FORM

Name of Application: Brill Subdivision

PRELIMINARY SUBDIVISION PLAT	**YES**	**NO**
The preliminary plat shall be clearly marked "Preliminary Plat", shall be drawn to a convenient scale but not less than 1" = 100', and shall contain the following information:	X	
Proposed subdivision name or identifying title, name, and address of property owner and subdivider (if other than owner), name and address of the surveyor and/or engineer preparing the plan, scale, approximate true North point, and date.	X	
The approximate location and dimensions of all property lines, the total acreage of the proposed subdivision, the location of any zoning, special district or municipal boundary lines affecting the subdivision, and the names of owners of record of properties adjoining and directly across the street from proposed subdivision.	X	
The location of all existing structures and pertinent features, including railroads, water bodies, water courses, wetlands, rock outcroppings, wooded areas, major trees, and stone walls, that may influence the design of the subdivision, plus accurate topography at a vertical contour interval of not more than two (2) feet. The topographic data shall be determined by field survey unless the Planning Board specifically waives this requirement and/or permits the substitution of topographic information obtained from other sources determined satisfactory for the particular case.	X	
The location and status of existing streets or private roads, easements and rights-of-way (if any), proposals for the layout of new streets or private roads (including widths and approximate curve radii) and any proposed easements, rights-of-way and/or reservations.	X	
The names of existing streets or private roads and proposed names for new streets or private roads.	X	
The proposed arrangement of lots, including identifying numbers and approximate area and dimensions of each.	X	
Location, size and nature of any area proposed to be reserved for park purposes.	N/A	
A site location sketch, at a scale of one inch equals 400 feet, showing the general situation within 1,000 feet of the applicant's property with respect to surrounding properties, streets and private roads.	X	
Where the preliminary plat includes only a portion of an applicant's contiguous holding, the applicant shall also indicate, on a sketch at a scale of not less than one inch equals 200 feet, the probable future street or private road system, lot arrangement and location of park and other reservations for the remaining portion of the tract. Such sketch shall be for the purpose of guiding the Planning Board in reviewing the proposed preliminary plat and shall include topographic data with a vertical contour interval of not more than five feet plus any other information determined necessary by the Planning Board.	X	
Such additional information as may be required by Chapter 195 – Subdivision of Land; Chapter 223 – Zoning; or the Planning Board.	X	

PRELIMINARY CONSTRUCTION PLANS	YES	NO
The preliminary construction plans shall be drawn at the same scale as the preliminary plat and shall include the following information:	X	
Location and sizes of any existing water, sewer storm drainage and other utility lines and structures within and nearby the proposed subdivision.	X	
The proposed system for the provision of water supply and fire protection facilities, sewage disposal, stormwater drainage, and other utility services.	X	
Proposed street or private road profiles and cross-sections showing the approximate grade of proposed streets or private roads, the relationship of existing to proposed grades, and the proposed grades, and the proposed vertical curvature along the center line of all new streets or private roads.	N/A	
Location of all existing and proposed monuments and other subdivision improvements.	X	
Such additional information as may be required by this chapter, the Zoning chapter, or the Planning Board.	X	

CITY OF BEACON
FINAL SUBDIVISION PLAT
AND CONSTRUCTION PLANS SPECIFICATION FORM

Name of Application: Brill Subdivision

FINAL SUBDIVISION PLAT	YES	NO
The final subdivision plat shall be drawn clearly and legibly on transparent tracing cloth with black waterproof ink, at a scale no smaller than one inch equals 100 feet but preferably at a scale of one inch equals 50 feet. The sheet size shall not exceed 36 inches by 48 inches. If the size of proposed subdivision required a drawing larger than this, two or more sheets may be submitted, with match lines clearly indicated, and an index map shall be prepared on the same size sheet.	X	
The final plat shall contain the following information:		
Proposed subdivision name or identifying title, name, and address of owner of record and of subdivider (if other than owner), certification and seal of the registered engineer or licensed land surveyor who prepared the plat, names of the owners of record of adjoining properties and of properties directly across the street or private road, graphic scale, approximate true North point, and date.	X	
The location and dimensions of all boundary lines of the proposed subdivision, and all existing and proposed streets, private roads, lot lines, easements and rights-of-way, with sufficient data to readily determine the location, bearing and length of all such lines and to reproduce such lines upon the ground.	X	
The names of all existing and proposed streets and private roads.	X	
The locations of all water bodies and watercourses.	N/A	
The location of all existing buildings, including identification of all buildings to be removed as a condition of plat approval.	X	
The total acreage included in the entire subdivision, and the identification number and acreage of all lots and land reservations within the proposed subdivision.	X	
Location of all existing and proposed monuments.	X	
A site location map, at a scale of one inch equals 400 feet, showing the location of the subject property with respect to neighboring properties, streets and private roads.	X	
Notations explaining any drainage, sight slope, street widening, park area or other reservations or easements, including any self-imposed restrictions or covenants.	X	
Endorsement of approval by the Dutchess County Health Department.	TBP	
Plan for the provisional delivery of mail, as approved by the local postmaster.	TBP	
Endorsement of the owner as follows: "Approved for filing: _____ _____" Owner Date	X	

FINAL SUBDIVISION PLAT *(continued)*	YES	NO
Form for endorsement by Planning Board Chairman as follows: "Approved by Resolution of the Planning Board of the City of Beacon, New York, on the _____ day of _____, 20_____, subject to All requirements and conditions of said Resolution. Any change, erasure, modification or revision of this plat, as approved, shall void this approval. Signed this _____ day of _____, 20_____, by _____, Chairman _____, Secretary In absence of the Chairman or Secretary, the Acting Chairman or Acting Secretary Respectively may sign in this place.	X	
Such additional information as may be required by Chapter 195 – Subdivision of Land; Chapter 223 – Zoning; or the Planning Board.	X	
Stormwater pollution prevention plan. A stormwater pollution prevention plan consistent with the requirements of Chapter 190 and with the terms of preliminary plan approval shall be required for final subdivision plat approval. The SWPPP shall meet the performance and design criteria and standards in Chapter 190, Article II. The approved final subdivision plat shall be consistent with the provisions of Chapter 190.	X	

FINAL CONSTRUCTION PLANS	YES	NO
Final construction plans and profiles shall be prepared for all proposed streets, private roads and other required improvements. Plans shall be drawn at the same scale as the final plat and on the same size sheets, but not on the same sheets. The following information shall be shown:	N/A	
Plans and profiles showing the location and a typical cross-section of street and/or private road pavements including curbs and gutters, sidewalks, manholes and catch basins; the location of street or private road trees, lighting and signs; the location, size and invert elevations of existing and proposed sanitary sewers, stormwater drains and fire hydrants; the location and size of all water, gas or other underground utilities or structures; and the location and design of any other required improvements.	X	
Profiles showing existing and proposed elevations along the center line of all streets and private roads. Where a proposed street or private road intersects an existing street or private road, the elevation along the center line of the existing street or private road within 100 feet of intersection, shall be shown. All elevations must be referred to established U.S. Government of approved local benchmarks, where they exist within ½ mile of the boundary of the subdivision.	N/A	
The Planning Board may require, where steep slopes exist, cross-sections showing existing and proposed elevations of all new streets and private roads every 100 feet at five points on a line at right angles to the center line of the street or private road, said elevation points to be at the center line of the street or private road, each property line, and points 30 feet inside each property line.	N/A	
Location, size, elevation and other appropriate description of any existing facilities which will be connected to proposed facilities and utilities within the subdivision.	X	

FINAL CONSTRUCTION PLANS ***(continued)***		
Where the design of the subdivision requires the regarding of land, the regarding of land, the regraded contours shall be shown along with estimates of the quantity of material to be added or removed and the proposed measures to be implemented by the subdivider to rehabilitate the disturbed area or areas.	X	
Title of all sheets, name, address, signature and seal of licensed engineer preparing the construction plans, the date prepared, including revisions dates if any, approximate true North point, scale, and consecutive numbering as sheet _____ of _____.	X	
A notation of approval, on all sheets as follows "Approved by: _____ _____ Owner Date and _____ _____ Planning Board Chairman Date"	TBP	
Such additional information as may be required by Chapter 195 – Subdivision of Land; Chapter 223 – Zoning; or the Planning Board.	X	

For all items marked "NO" above, please explain below why the required information has not been provided:

All items marked "N/A" are not applicable to this particular application.

TBP = TO BE PROVIDED; N/A = NOT APPLICABLE

Applicant/Sponsor Name: Dawn Brill

Signature: Dawn Brill

Date: May 31, 2022

1375

FOR OFFICE USE ONLY
Application #

CITY OF BEACON
1 Municipal Plaza, Beacon, NY
Telephone (845) 838-5000 · http://cityofbeacon.org/

INDIVIDUAL DISCLOSURE FORM

(This form must accompany every land use application and every application for a building permit or certificate of occupancy submitted by any person(s))

Disclosure of the names and addresses of all persons) filing a land-use application with the City is required pursuant to Section 223-62 of the City Code of the City of Beacon. Applicants shall submit supplemental sheets for any additional information that does not fit within the below sections, identifying the Section being supplemented.

SECTION A

Name of Applicant: Dawn Brill

Address of Applicant: 67 Grove Street, Beacon, NY 12508

Telephone Contact Information: 845-489-2395

SECTION B. List all owners of record of the subject property or any part thereof.

Name	Residence or Business Address	Telephone Number	Date and Manner title was acquired	Date and place where the deed or document of conveyance was recorded or filed.
Dawn Brill	67 Grove St. Beacon, NY 12508	845-489-2395	8/6/2020	Dutchess County Clerk's Office, 8/28/2020
				Book 22020 Page 3365

SECTION B. Is any owner of record an officer, elected or appointed, or employee of the City of Beacon or related, by marriage or otherwise, to a City Council member, planning board member, zoning board of appeals member or employee of the City of Beacon ?

☐ YES ☒ NO

If yes, list every Board, Department, Office, agency or other position with the City of Beacon with which a party has a position, unpaid or paid, or relationship and identify the agency, title, and date of hire.

Agency	Title	Date of Hire, Date Elected, or Date Appointed	Position or Nature of Relationship

SECTION C. If the applicant is a contract vendee, a duplicate original or photocopy of the full and complete contract of purchase, including all riders, modification and amendments thereto, shall be submitted with the application.

SECTION D. Have the present owners entered into a contract for the sale of all or any part of the subject property and, if in the affirmative, please provide a duplicate original or photocopy of the fully and complete contract of sale, including all riders, modifications and amendments thereto.

☐ YES ☒ NO

I, Dawn Brill being first duly sworn, according to law, deposes and says that the statements made herein are true, accurate, and complete.

(Print) Dawn Brill

(Signature) Dawn Brill

Short Environmental Assessment Form
Part 1 - Project Information

Instructions for Completing

Part 1 – Project Information. The applicant or project sponsor is responsible for the completion of Part 1. Responses become part of the application for approval or funding, are subject to public review, and may be subject to further verification. Complete Part 1 based on information currently available. If additional research or investigation would be needed to fully respond to any item, please answer as thoroughly as possible based on current information.

Complete all items in Part 1. You may also provide any additional information which you believe will be needed by or useful to the lead agency; attach additional pages as necessary to supplement any item.

Part 1 – Project and Sponsor Information

Name of Action or Project:

Brill Subdivision

Project Location (describe, and attach a location map):

67 Grove Street, Beacon NY 12508

Brief Description of Proposed Action:

The project site is located at 67 Grove Street in the City of Beacon, NY. The property is currently developed with an existing single-family residence and driveway with access to Grove Street.

The owner wishes to subdivide the property into two (2) residential building lots. Lot 1 will comprise of the property's northwest portion and will retain the exiting residence and horseshoe driveway. Lot 2 will comprise of the southeast portion of the property and will be developed through the establishment of a new single-family residence on the new lot along with a private driveway access to Grove Street.

Name of Applicant or Sponsor:	Telephone: 845-489-2395
Dawn Brill	E-Mail: dbrillrn@aol.com

Address:

91 Liberty Street or 67 Grove Street

City/PO:	State:	Zip Code:
Beacon	New York	12508

	NO	YES
1. Does the proposed action only involve the legislative adoption of a plan, local law, ordinance, administrative rule, or regulation? If Yes, attach a narrative description of the intent of the proposed action and the environmental resources that may be affected in the municipality and proceed to Part 2. If no, continue to question 2.	☑	☐
2. Does the proposed action require a permit, approval or funding from any other government Agency? If Yes, list agency(s) name and permit or approval: City of Beacon Planning Board- Subdivision Approval; DCDBCH - Subdivision Permission to File	☐	☑

3. a. Total acreage of the site of the proposed action? 0.37 acres
   b. Total acreage to be physically disturbed? 0.11 acres
   c. Total acreage (project site and any contiguous properties) owned or controlled by the applicant or project sponsor? 0.37 acres

4. Check all land uses that occur on, are adjoining or near the proposed action:

5. ☑ Urban ☐ Rural (non-agriculture) ☐ Industrial ☐ Commercial ☐ Residential (suburban)
   ☐ Forest ☐ Agriculture ☐ Aquatic ☐ Other(Specify):
   ☐ Parkland

	NO	YES	N/A
5. Is the proposed action,			
a. A permitted use under the zoning regulations?	☐	☑	☐
b. Consistent with the adopted comprehensive plan?	☐	☑	☐

	NO	YES
6. Is the proposed action consistent with the predominant character of the existing built or natural landscape?	☐	☑

	NO	YES
7. Is the site of the proposed action located in, or does it adjoin, a state listed Critical Environmental Area?		
If Yes, identify: _____	☑	☐

	NO	YES
8. a. Will the proposed action result in a substantial increase in traffic above present levels?	☑	☐
b. Are public transportation services available at or near the site of the proposed action?	☐	☑
c. Are any pedestrian accommodations or bicycle routes available on or near the site of the proposed action?	☐	☑

	NO	YES
9. Does the proposed action meet or exceed the state energy code requirements?		
If the proposed action will exceed requirements, describe design features and technologies:		
The proposed action will meet Sate energy code requirements. _____	☐	☑
_____		

	NO	YES
10. Will the proposed action connect to an existing public/private water supply?		
If No, describe method for providing potable water: _____	☐	☑
_____		

	NO	YES
11. Will the proposed action connect to existing wastewater utilities?		
If No, describe method for providing wastewater treatment: _____	☐	☑
_____		

	NO	YES
12. a. Does the project site contain, or is it substantially contiguous to, a building, archaeological site, or district which is listed on the National or State Register of Historic Places, or that has been determined by the Commissioner of the NYS Office of Parks, Recreation and Historic Preservation to be eligible for listing on the State Register of Historic Places?	☑	☐
b. Is the project site, or any portion of it, located in or adjacent to an area designated as sensitive for archaeological sites on the NY State Historic Preservation Office (SHPO) archaeological site inventory?	☐	☑

	NO	YES
13. a. Does any portion of the site of the proposed action, or lands adjoining the proposed action, contain wetlands or other waterbodies regulated by a federal, state or local agency?	☑	☐
b. Would the proposed action physically alter, or encroach into, any existing wetland or waterbody?	☑	☐
If Yes, identify the wetland or waterbody and extent of alterations in square feet or acres: _____		
_____		
_____		

14. Identify the typical habitat types that occur on, or are likely to be found on the project site. Check all that apply:

☐ Shoreline ☐ Forest ☐ Agricultural/grasslands ☐ Early mid-successional

☐ Wetland ☑ Urban ☐ Suburban

	NO	YES
15. Does the site of the proposed action contain any species of animal, or associated habitats, listed by the State or Federal government as threatened or endangered? Indiana Bat	☐	☑
16. Is the project site located in the 100-year flood plan?	☑	☐
17. Will the proposed action create storm water discharge, either from point or non-point sources? If Yes,	☐	☑
a. Will storm water discharges flow to adjacent properties?	☑	☐
b. Will storm water discharges be directed to established conveyance systems (runoff and storm drains)? If Yes, briefly describe: Stormwater from the proposed lot will be directed towards the City's stormwater conveyance system via an existing catch basin located on Grove Street.	☐	☑
18. Does the proposed action include construction or other activities that would result in the impoundment of water or other liquids (e.g., retention pond, waste lagoon, dam)? If Yes, explain the purpose and size of the impoundment:	☑	☐
19. Has the site of the proposed action or an adjoining property been the location of an active or closed solid waste management facility? If Yes, describe:	☑	☐
20.Has the site of the proposed action or an adjoining property been the subject of remediation (ongoing or completed) for hazardous waste? If Yes, describe: The site is located within 2,000 feet of NYSDEC remediation site C314118- Classification N (No Further Action at This Time). Please see attached Remediation Database Reports for listed sites	☐	☑

I CERTIFY THAT THE INFORMATION PROVIDED ABOVE IS TRUE AND ACCURATE TO THE BEST OF MY KNOWLEDGE

Applicant/sponsor/name: Dawn Brill Date: 5/31/2022

Signature: Dawn Brill Title: Applicant

PRINT FORM



Disclaimer: The EAF Mapper is a screening tool intended to assist project sponsors and reviewing agencies in preparing an environmental assessment form (EAF). Not all questions asked in the EAF are answered by the EAF Mapper. Additional information on any EAF question can be obtained by consulting the EAF Workbooks. Although the EAF Mapper provides the most up-to-date digital data available to DEC, you may also need to contact local or other data sources in order to obtain data not provided by the Mapper. Digital data is not a substitute for agency determinations.



Part 1 / Question 7 [Critical Environmental Area]	No
Part 1 / Question 12a [National or State Register of Historic Places or State Eligible Sites]	No
Part 1 / Question 12b [Archeological Sites]	Yes
Part 1 / Question 13a [Wetlands or Other Regulated Waterbodies]	No
Part 1 / Question 15 [Threatened or Endangered Animal]	Yes
Part 1 / Question 15 [Threatened or Endangered Animal - Name]	Indiana Bat
Part 1 / Question 16 [100 Year Flood Plain]	No
Part 1 / Question 20 [Remediation Site]	Yes

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

Environmental Site Remediation Database Search Details

Site Record

Document Repository

Site-related documents are available for review through the DECInfo Locator on line at DECInfoLocator

Administrative Information

Site Name: Churchill Mills
Site Code: C314118
Program: Brownfield Cleanup Program
Classification: N *
EPA ID Number:

Location

DEC Region: 3
Address: 1 East Main Street
City: Beacon Zip: 12508
County: Dutchess
Latitude: 41.502233333
Longitude: -73.9628
Site Type:
Estimated Size: 3.36 Acres

Site Owner(s) and Operator(s)

Current Owner Name: EAST MAIN MILLS, LLC
Current Owner(s) Address: 18 EAST 22ND STREET
NEW YORK,NY, 10010

Site Document Repository

Name: HOWLAND PUBLIC LIBRARY
Address: 313 MAIN STREET
BEACON,NY 12508

Site Description

The Church Hill Mills Site is +/- 3.36 acres, made up of 4 parcels and is located in the City of Beacon, Dutchess County. The site is bounded by Tioranda Avenue to the northeast, East Main Street to the north, the Fishkill Creek to the east and south, and Churchill Street to the southwest. The site is

currently vacant and has previously been utilized in part for various industrial uses including hat manufacturing, aluminum anodizing, woodworking and auto parts salvaging. Contaminants which are known or suspected to affect the soil, groundwater, sedimement and/or soil gases include petroleum, SVOCs, metals and PCBs. The BCP application was approved in 2007. The remedial investigation work plan was approved in December 2007. After two schedule extensions, the Volunteer has terminated the BCA without implementing the investigation work plan.

Site Environmental Assessment

Contaminants which are known or suspected to affect the soil, groundwater, sedimement and/or soil gases are petroleum, SVOCs, metals and PCBs.

---

* **Class N Sites:** "DEC offers this information with the caution that the amount of information provided for Class N sites is highly variable, not necessarily based on any DEC investigation, sometimes of unknown origin, and sometimes is many years old. Due to the preliminary nature of this information, significant conclusions or decisions should not be based solely upon this summary."

For more Information: E-mail Us

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HUDSON
LAND DESIGN

Civil & Environmental Engineering Consultants
174 Main Street, Beacon, New York 12508 (Main Office and Mailing Address)
13 Chambers Street, Newburgh, NY 12550 (Satellite Office)
Phone: 845-440-6926 Fax: 845-440-6637
www.HudsonLandDesign.com

May 31, 2022

Hon. John Gunn, Chairman
City of Beacon Planning Board
1 Municipal Plaza
Beacon, NY 12508

Re: Brill Subdivision
Dawn Brill (Applicant)
67 Grove Street
Tax Parcel: 6054-39-314747, ±0.37 ac.
City of Beacon, NY

Dear Chairman Gunn and Members of the Planning Board:

On behalf of the Applicant for the above referenced project, Hudson Land Design (HLD) is please to submit a subdivision application, short EAF and preliminary subdivisions plans to the City of Beacon planning board for initial review. The proposed project is located at 67 Grove Street, consists of 0. 37 acres and is located in the R1-5 residential zoning district, in the City of Beacon, NY. The existing property currently contains a single-family dwelling with driveway access and frontage on Grove Street.

The Applicant wishes to subdivide the lot into two residential building lots. Proposed Lot 1 will contain the existing dwelling and driveway, and proposed Lot 2 will be a new building lot. The proposed dwelling in Lot 2 has been lined up with the adjacent buildings to the east of the subject parcel as much as possible.

Five (5) hard copies of a preliminary subdivision set consisting of 6 sheets and a short EAF are provided with this submission for review. Also included with this submission is a Subdivision Application, an application check for $950, and an initial escrow check for $2,500. A full set of plans, EAF, Application and cover letter are provided with the digital submission package.

We look forward to discussing this project, establishing lead agency and setting a public hearing for July 12, 2022, at your June 14, 2022 planning board agenda. Should you have any questions, please feel free to contact me at 845-440-6926.

Sincerely,

Michael A. Bodendorf, P.E.
Principal

cc: Dawn Brill (w/ attachments)
Daniel G. Koehler, P.E. (HLD file)

BRILL SUBDIVISION

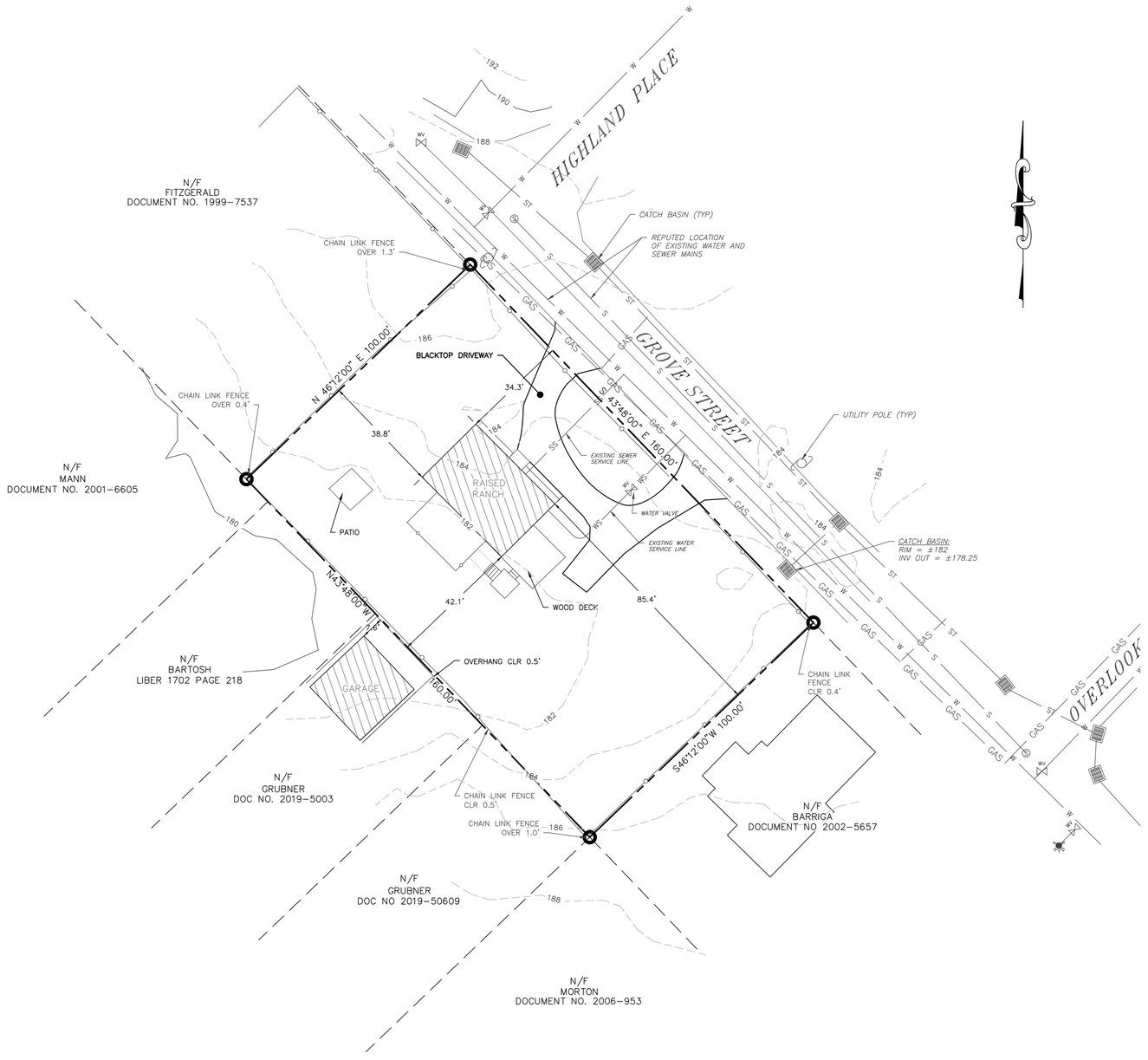
RESIDENTIAL SUBDIVISION

67 GROVE STREET
CITY OF BEACON
DUTCHESS COUNTY, NEW YORK

PARCEL INFORMATION:
TAX ID: 6054-39-314747
TOTAL LOT AREA: ±0.37 ACRES
ZONING DISTRICT: R1-5

PROJECT INFORMATION:	
PARCEL OWNER:	DAWN M. BRILL, 67 GROVE STREET, BEACON NY 12508
PROJECT ENGINEER:	HUDSON LAND DESIGN P.C., 174 MAIN STREET, BEACON NY 12508
PARCEL LOCATION:	67 GROVE STREET, BEACON NY 12508
TAX PARCEL ID:	6054-39-314747
PARCEL AREA:	±0.37-ACRES
WATER SUPPLY:	PROPOSED MUNICIPAL
SEWAGE DISPOSAL:	PROPOSED MUNICIPAL





LEGEND:

- EXISTING PROPERTY LINE
- ADJOINING PROPERTY LINE
- EXISTING EASEMENT LINE
- EXISTING STREAM
- EXISTING WETLAND BOUNDARY
- 100' WETLAND BUFFER
- 180 EXISTING MAJOR CONTOUR
- 182 EXISTING MINOR CONTOUR
- EXISTING TREE LINE
- OHW EXISTING OVER HEAD WIRE
- EXISTING UTILITY POLE
- SS EXISTING SEWER SERVICE LINE
- EXISTING SEWER LINE
- EXISTING SEWER MANHOLE
- EXISTING SEWER CLEAN OUT
- W EXISTING WATER LINE
- WS EXISTING WATER SERVICE LINE
- EXISTING WELL
- EXISTING HYDRANT
- EXISTING WATER SHUT OFF VALVE
- EXISTING WATER VALVE
- EXISTING STORM WATER LINE
- EXISTING ROOF LEADER
- EXISTING CATCH BASIN

SURVEY REFERENCE:

1. "MAP OF SURVEY FOR THE LANDS OF DAWN BRILL" DATED JANUARY 14, 2022 AS PREPARED BY ROBERT V. OSWALD LS. (845) 226-6436.

SURVEY NOTES:

1. BEING THE SAME PARCEL AS DESCRIBED IN THE LIBER DOCUMENT NUMBER 2020-3365 AND SUBJECT TO RESTRICTIONS AND CONDITIONS THEREIN.
2. TOGETHER WITH ANY RIGHT, TITLE OR INTEREST IN AND TO THE CENTER OF THE PUBLIC ROADS SHOWN HEREON.
3. BEING LOT NO. ____ AS SHOWN ON FILED MAP NO. ____.
4. UNAUTHORIZED ALTERATION OR ADDITION TO A SURVEY MAP BEARING A LICENSED LAND SURVEYORS SEAL IS A VIOLATION OF SECTION 7209, SUBDIVISION 2, OF THE NEW YORK STATE EDUCATION LAW.
5. ONLY COPIES FROM THE ORIGINAL OF THIS SURVEY MARKED WITH AN ORIGINAL OF THE LAND SURVEYOR'S EMBOSSED SEAL SHALL BE CONSIDERED TO BE VALID TRUE COPIES.
6. CERTIFICATION INDICATED HEREON SIGNIFY THAT THIS SURVEY WAS PREPARED IN ACCORDANCE WITH THE EXISTING CODE OF PRACTICE FOR LAND SURVEYS ADOPTED BY THE NEW YORK STATE ASSOCIATION OF PROFESSIONAL LAND SURVEYORS. SAID CERTIFICATIONS SHALL RUN ONLY TO THE PERSONS FOR WHOM THE SURVEY IS PREPARED, AND ON HIS BEHALF TO THE TITLE COMPANY, GOVERNMENTAL AGENCY AND LENDING INSTITUTION LISTED HEREON, AND TO THE ASSIGNEES OF THE LENDING INSTITUTION. CERTIFICATIONS ARE NOT TRANSFERABLE TO ADDITIONAL INSTITUTIONS OR SUBSEQUENT OWNERS.
7. THIS SURVEY IS SUBJECT TO ANY FINDINGS OF A TITLE SEARCH.
8. SUBSURFACE STRUCTURES AND UTILITIES WHICH WERE NOT VISIBLE AT THE TIME OF THE SURVEY HAVE NOT BEEN SHOWN.
9. © ALL RIGHTS RESERVED. COPYING OR REPRODUCTION OF THIS PLAN OR ANY PORTION THEREOF PROHIBITED WITHOUT THE WRITTEN PERMISSION OF THE DESIGN ENGINEER / SURVEYOR.

EXISTING CONDITIONS & REMOVALS PLAN

SCALE: 1" = 20'

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

APPROVED BY RESOLUTION OF THE PLANNING BOARD OF THE CITY OF BEACON, NEW YORK, ON THE

_____ DAY OF _____, 20_____, SUBJECT TO ALL REQUIREMENTS AND CONDITIONS OF SAID RESOLUTION. ANY CHANGE, ERASURE, MODIFICATION OR REVISION OF THIS PLAT, AS APPROVED, SHALL VOID THIS APPROVAL.

SIGNED THIS _____ DAY OF _____, 20_____, BY

_____ CHAIRMAN

_____ SECRETARY

IN ABSENCE OF THE CHAIRMAN OR SECRETARY, THE ACTING CHAIRMAN OR ACTING SECRETARY RESPECTIVELY MAY SIGN IN THIS PLACE.

DRAWN BY: CMB				CHECKED BY: DGK			
REVISIONS:				REVISIONS:			
NO.	DATE	DESCRIPTION	BY	NO.	DATE	DESCRIPTION	BY

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STATE OF NEW YORK MICHAEL A. BOSENKER 084468 LICENSED PROFESSIONAL ENGINEER

SEAL

HUDSON LAND DESIGN
PROFESSIONAL ENGINEERING P.C.
174 MAIN ST., BEACON, NEW YORK 12508
13 CHAMBERS ST, NEWBURGH, NEW YORK 12550
PH: 845-440-6926
F: 845-440-6637

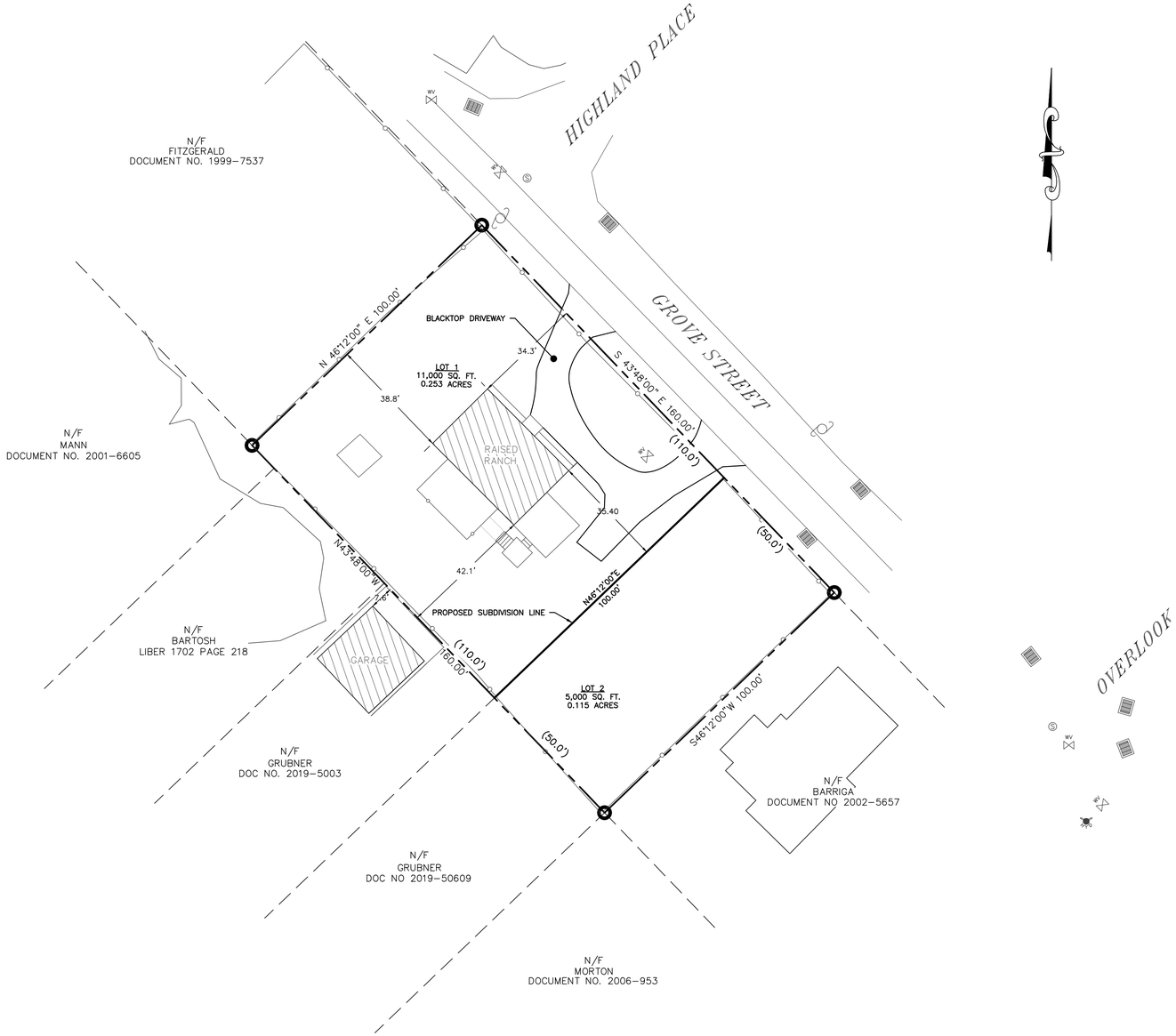
EXISTING CONDITIONS & REMOVALS PLAN

BRILL SUBDIVISION

67 GROVE STREET
CITY OF BEACON
DUTCHESS COUNTY, NEW YORK
TAX ID: 6054-39-314747

JOB #: 2022:009
DATE: 5/31/2022
SCALE: 1" = 20'
TITLE: XC-1
SHEET: 2 OF 6

UNAUTHORIZED ALTERATIONS OR ADDITIONS TO THIS DRAWING IS A VIOLATION OF SECTION 7209.2 OF THE NEW YORK EDUCATION LAW



LEGEND:

- EXISTING PROPERTY LINE
- ADJOINING PROPERTY LINE
- EXISTING WATER VALVE
- EXISTING BUILDING'S OUTLINES
- EXISTING FENCE
- PROPOSED PROPERTY LINE

SCHEDULE OF REGULATIONS (R1-5 ZONING DISTRICT) AND LOT CONFORMANCE TABLE:

PARAMETER	REQUIREMENT	LOT #1	LOT #2
LOT AREA:	5,000 SQUARE FEET MIN.	11,000 S.F.	5,000 S.F.
LOT WIDTH:	50 FEET MINIMUM	110 FEET	50 FEET
LOT DEPTH:	100 FEET MINIMUM	100 FEET	100 FEET

SURVEY REFERENCE:

1. "MAP OF SURVEY FOR THE LANDS OF DAWN BRILL" DATED JANUARY 14, 2022 AS PREPARED BY ROBERT V. OSWALD LS. (845) 226-6436.

SURVEY NOTES:

1. BEING THE SAME PARCEL AS DESCRIBED IN THE LIBER DOCUMENT NUMBER 2020-3365 AND SUBJECT TO RESTRICTIONS AND CONDITIONS THEREIN.
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9. © ALL RIGHTS RESERVED. COPYING OR REPRODUCTION OF THIS PLAN OR ANY PORTION THEREOF PROHIBITED WITHOUT THE WRITTEN PERMISSION OF THE DESIGN ENGINEER / SURVEYOR.

TOTAL PARCEL AREA:

±16,000 S.F. OR ± 0.37 ACRE

TAX MAP REFERENCE:

CITY OF BEACON 6054-39-314747

FLOOD BOUNDARY:

SUBJECT PARCEL IS LOCATED IN ZONE X (AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANGE FLOODPLAIN) PER PANEL 36027C0464E DATED MAY 2, 2012.

WETLAND NOTE:

NO NYSDEC OR FEDERAL WETLANDS WERE FOUND ONSITE.

SUBDIVISION PLAT

SCALE: 1" = 20'

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

I HEREBY CERTIFY THAT THE SURVEY SHOWN HEREON IS BASED ON AN ACTUAL FIELD SURVEY COMPLETED ON JANUARY 14, 2022.

BY:_____
Robert V. Oswald , L.L.S.

N.Y. State Lic. no. 50031

APPROVED BY RESOLUTION OF THE PLANNING BOARD OF THE CITY OF BEACON, NEW YORK, ON THE

_____ DAY OF _____, 20_____, SUBJECT TO ALL REQUIREMENTS AND CONDITIONS OF SAID RESOLUTION. ANY CHANGE, ERASURE, MODIFICATION OR REVISION OF THIS PLAT, AS APPROVED, SHALL VOID THIS APPROVAL.

SIGNED THIS _____ DAY OF _____, 20_____ BY

_____ CHAIRMAN

_____ SECRETARY

IN ABSENCE OF THE CHAIRMAN OR SECRETARY, THE ACTING CHAIRMAN OR ACTING SECRETARY RESPECTIVELY MAY SIGN IN THIS PLACE.

DRAWN BY: CMB				CHECKED BY: DGK			
REVISIONS:				REVISIONS:			
NO.	DATE	DESCRIPTION	BY	NO.	DATE	DESCRIPTION	BY

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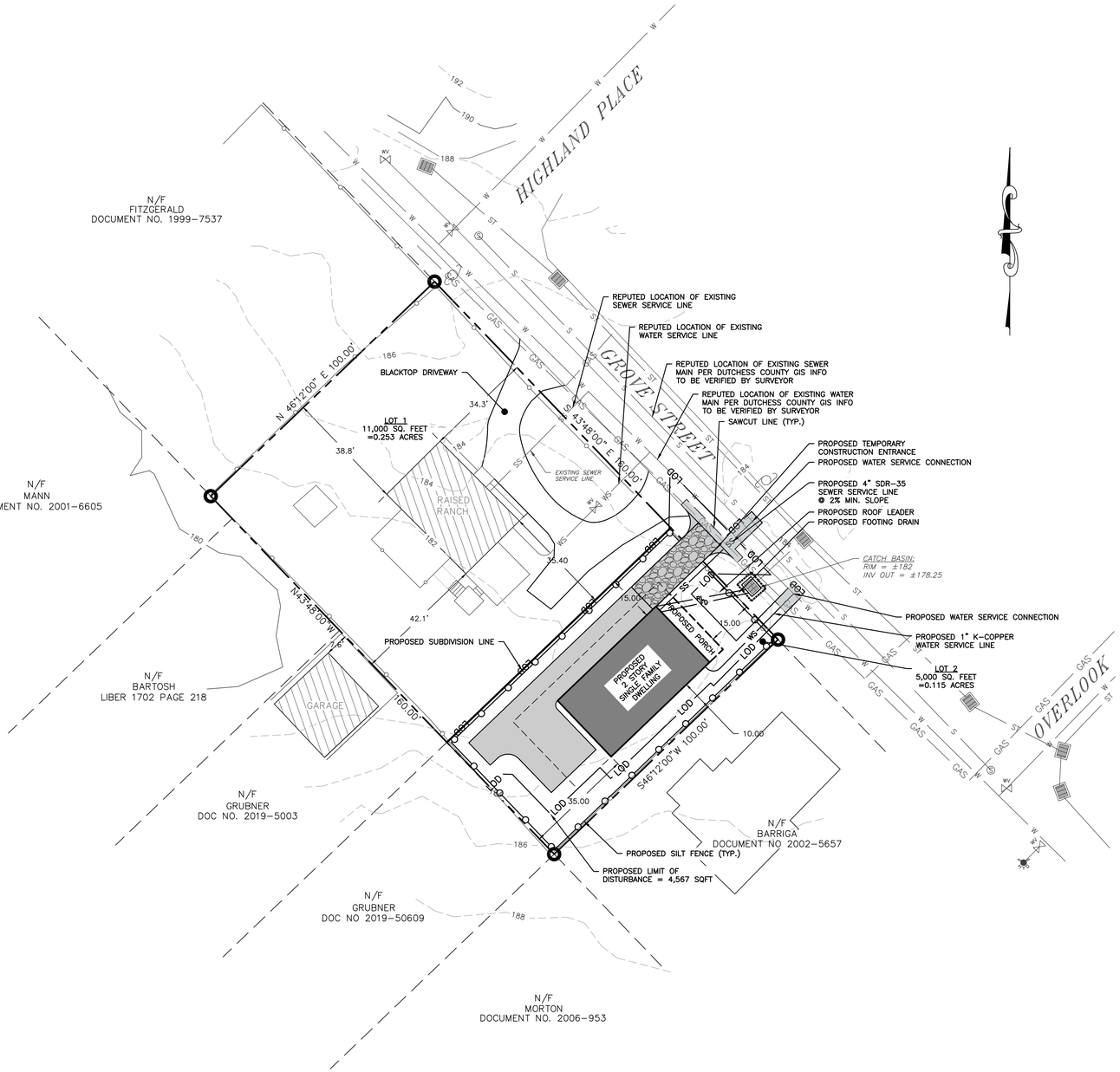
PRELIMINARY SUBDIVISION PLAT

BRILL SUBDIVISION

67 GROVE STREET
CITY OF BEACON
DUTCHESS COUNTY, NEW YORK
TAX ID: 6054-39-314747

JOB #:	2022:009
DATE:	5/31/2022
SCALE:	1" = 20'
TITLE:	PT-1
SHEET:	3 OF 6

UNAUTHORIZED ALTERATIONS OR ADDITIONS TO THIS DRAWING IS A VIOLATION OF SECTION 7209.2 OF THE NEW YORK EDUCATION LAW



LEGEND:

- EXISTING PROPERTY LINE
- ADJOINING PROPERTY LINE
- EXISTING EASEMENT LINE
- EXISTING STREAM
- EXISTING WETLAND BOUNDARY
- 100' WETLAND BUFFER
- 180 EXISTING MAJOR CONTOUR
- 182 EXISTING MINOR CONTOUR
- EXISTING TREE LINE
- OHW EXISTING OVER HEAD WIRE
- EXISTING UTILITY POLE
- SS EXISTING SEWER SERVICE LINE
- S EXISTING SEWER LINE
- EXISTING SEWER MANHOLE
- EXISTING SEWER CLEAN OUT
- W EXISTING WATER LINE
- WS EXISTING WATER SERVICE LINE
- EXISTING WELL
- EXISTING HYDRANT
- EXISTING WATER SHUT OFF VALVE
- EXISTING WATER VALVE
- EXISTING STORM WATER LINE
- EXISTING ROOF LEADER
- EXISTING CATCH BASIN

- PROPOSED PROPERTY LINE
- PROPOSED SET BACK LINE
- 250 PROPOSED MAJOR CONTOUR
- 252 PROPOSED MINOR CONTOUR
- PROPOSED EASEMENT
- PROPOSED TREE LINE
- S PROPOSED SEWER LINE
- SS PROPOSED SEWER SERVICE LINE
- PROPOSED SEWER MANHOLE
- PROPOSED SEWER CLEAN OUT
- ST PROPOSED STORM WATER LINE
- RL PROPOSED ROOF LEADER LINE
- PROPOSED ROOF LEADER
- FD PROPOSED FOOTING DRAIN
- W PROPOSED WATER LINE
- WS PROPOSED WATER SERVICE LINE
- PROPOSED WELL
- PROPOSED HYDRANT
- PROPOSED WATER SHUT OFF VALVE
- PROPOSED WATER VALVE
- LOD PROPOSED LIMIT OF DISTURBANCE
- PROPOSED SILT FENCE
- PROPOSED CATCH BASIN INLET PROTECTION
- PROPOSED CONSTRUCTION ENTRANCE

SCHEDULE OF REGULATIONS (R1-5 ZONING DISTRICT) AND LOT CONFORMANCE TABLE:

PARAMETER	REQUIREMENT	EXISTING	LOT 1	LOT 2
LOT AREA:	5,000 SQFT MIN./UNIT	±16,000 SQFT	±11,000 SQFT	±5,000 SQFT
LOT WIDTH:	50 FEET MINIMUM	±160 FEET	±110 FEET	±50 FEET
LOT DEPTH:	100 FEET MINIMUM	±100 FEET	±100 FEET	±100 FEET
YARD SETBACKS (RESIDENTIAL USE):				
FRONT YARD:	15 FEET	±34.3 FEET	±34.3 FEET	±15 FEET
SIDE YARD:	10 FEET	±38.8 FEET	±35.4 FEET	±10 FEET
REAR YARD:	20 FEET MINIMUM	±42.1 FEET	±42.1 FEET	±35 FEET
MAX. BUILDING HEIGHT:	35 FT, 2.5 STORIES	<2.5 STORIES	<2.5 STORIES	<2.5 STORIES
MAX. UNITS/BUILDING:	1 MAX	1	1	1

SUBDIVISION PLAN

SCALE: 1" = 20'

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

APPROVED BY RESOLUTION OF THE PLANNING BOARD OF THE CITY OF BEACON, NEW YORK, ON THE _____ DAY OF _____, 20_____, SUBJECT TO ALL REQUIREMENTS AND CONDITIONS OF SAID RESOLUTION. ANY CHANGE, ERASURE, MODIFICATION OR REVISION OF THIS PLAT, AS APPROVED, SHALL VOID THIS APPROVAL.

SIGNED THIS _____ DAY OF _____, 20_____, BY

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_____ SECRETARY

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DRAWN BY: CMB				CHECKED BY: DGK			
REVISIONS:				REVISIONS:			
NO.	DATE	DESCRIPTION	BY	NO.	DATE	DESCRIPTION	BY

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STATE OF NEW YORK MICHAEL A. BOSENKO 084466 LICENSED PROFESSIONAL ENGINEER

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SUBDIVISION PLAN

BRILL SUBDIVISION

67 GROVE STREET
CITY OF BEACON
DUTCHESS COUNTY, NEW YORK
TAX ID: 6054-39-314747

JOB #:	2022:009
DATE:	5/31/2022
SCALE:	1" = 20'
TITLE:	SP-1
SHEET:	4 OF 6

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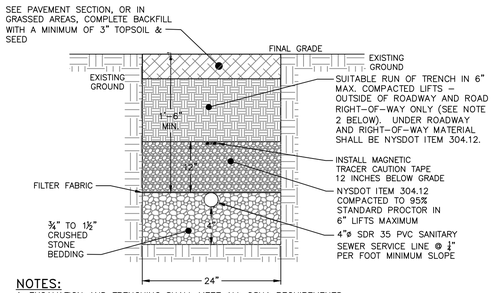
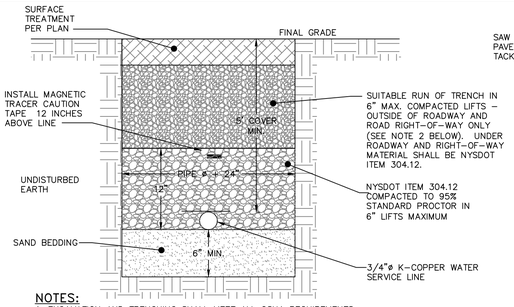


NOTES:
1. EXCAVATION AND TRENCHING SHALL MEET ALL OSHA REQUIREMENTS.
2. SUITABLE RUN OF TRENCH SHALL NOT INCLUDE FROZEN MATERIALS, DEBRIS, ORGANIC MATERIALS, LARGE STONES OR OTHER UNSUITABLE MATERIALS. IF THE RUN OF TRENCH MATERIAL IS FOUND TO BE UNSUITABLE, A SUITABLE BACKFILL MATERIAL SHALL BE IMPORTED AND USED.

SANITARY SEWER SERVICE LINE TRENCH DETAIL
NOT TO SCALE



NOTES:
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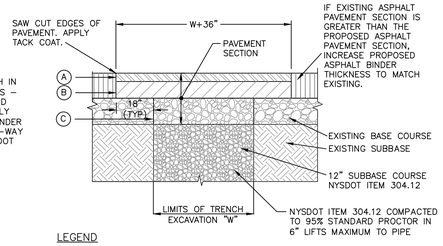
3. IN AREAS WHERE 5' COVER REQUIREMENT CANNOT BE MET, THE CONTRACTOR SHALL PROVIDE PIPE INSULATION TO PREVENT FREEZING.
4. IF WATER SERVICE AND SEWER SERVICE LINE CROSSINGS ARE NEEDED, PROVIDE 18" OF VERTICAL SEPARATION

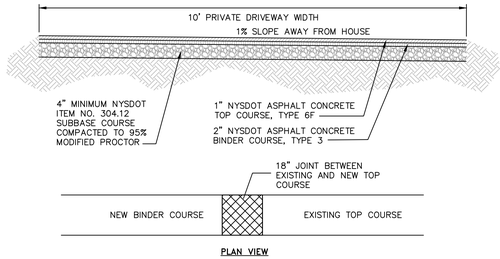
WATER SERVICE LINE TRENCH DETAIL
NOT TO SCALE



LEGEND
- (A) 1.5" ASPHALT CONCRETE TOP COURSE– NYSDOT TYPE F1
- (B) 3.0" ASPHALT CONCRETE BINDER COURSE– NYSDOT TYPE F9
- (C) 3.0" ASPHALT BASE COURSE– NYSDOT TYPE F9

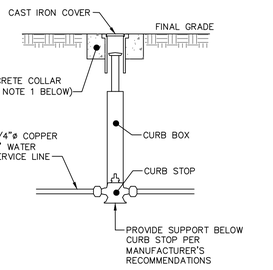
NOTES:
1. SAW CUT MIN. 18" BEYOND EXCAVATION WITH SMOOTH EDGES. 18" JOINT BETWEEN EXISTING AND NEW TOP COURSE TO BE MILLED. JOINT TO BE SEALED WITH POLYMER MODIFIED SEALER.
2. FURNISH, PLACE, AND COMPACT SUBBASE.
3. TACK COAT IN ACCORDANCE WITH NYSDOT STANDARD SPEC.
4. FURNISH AND PLACE ASPHALT CONCRETE PAVEMENT AS SPECIFIED.

PAVEMENT RESTORATION DETAIL
NOT TO SCALE



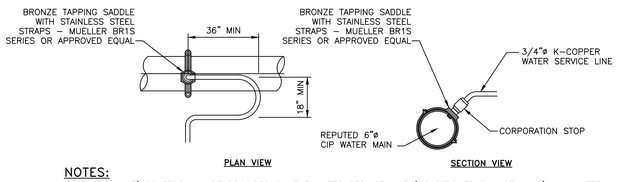
PLAN VIEW

PAVED DRIVEWAY SECTION DETAIL
NOT TO SCALE



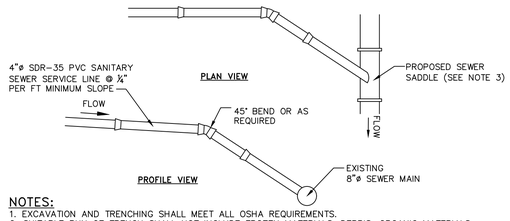
NOTES:
1. CONCRETE COLLAR TO BE PROVIDED IN AREAS THAT ARE NOT PAVED. THE COLLAR SHALL BE 6" FROM THE COVER AND SHALL EXTEND 6" BELOW FINAL GRADE.
2. CURB STOP TO BE COMPRESSION TYPE BY MUELLER.
3. AREA AROUND CURB BOX TO BE BACKFILLED WITH GRAVELLY MATERIAL.

WATER SHUT-OFF VALVE DETAIL
NOT TO SCALE



NOTES:
1. A MINIMUM 5' COVER SHALL BE PROVIDED ON THE WATER SERVICE LINE (CONDITIONED ON ACTUAL 5' MIN. WATER MAIN DEPTH).
2. CORPORATION STOP TO BE COMPRESSION TYPE BY MUELLER.
3. WATER SERVICE LINE TO HAVE A "GOOSENECK" NEAR CORPORATION STOP.
4. CORPORATION STOP TO BE INSTALLED IN THE UPPER HALF OF THE WATER MAIN AT AN ANGLE OF APPROXIMATELY 45° FROM HORIZONTAL.
5. THE CONTRACTOR SHALL INSTALL A FULL BODIED STAINLESS STEEL TAPPING SLEEVE AT THE PROPOSED WATER SERVICE LOCATION.

WATER SERVICE CONNECTION DETAIL
NOT TO SCALE



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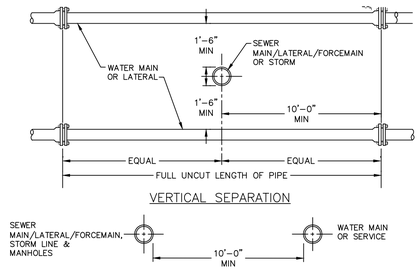
3. TAPPING SADDLE FOR CONNECTION OF THE PROPOSED SERVICE LINE TO THE EXISTING SEWER MAIN TO BE A 4" PREDCO HUB TAP SADDLE – MODEL #HTS4/E.

SANITARY SEWER SERVICE CONNECTION DETAIL
NOT TO SCALE



VERTICAL SEPARATION

HORIZONTAL SEPARATION

NOTE:
1. NO DEVIATION IN THE SEPARATION REQUIREMENTS WILL BE PERMITTED WITHOUT THE EXPRESS APPROVAL OF THE DUTCHESS COUNTY DEPARTMENT OF HEALTH AND THE CITY OF BEACON. CONCRETE ENCASEMENT OF WATERLINE OR OFFSETTING OF WATERLINE SHALL BE REQUIRED WHERE SEPARATION DISTANCES CANNOT BE MAINTAINED.

WATER LINE SEPARATION DETAIL
NOT TO SCALE

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CONSTRUCTION DETAILS

BRILL SUBDIVISION

67 GROVE STREET
CITY OF BEACON
DUTCHESS COUNTY, NEW YORK
TAX ID: 6054-39-314747

JOB #:	2022:009
DATE:	5/31/2022
SCALE:	AS SHOWN
TITLE:	CD-1
SHEET:	5 OF 6

UNAUTHORIZED ALTERATIONS OR ADDITIONS TO THIS DRAWING IS A VIOLATION OF SECTION 7209.2 OF THE NEW YORK EDUCATION LAW

EROSION AND SEDIMENT CONTROL NOTES:

1. ALL EROSION CONTROL MEASURES EMPLOYED DURING THE CONSTRUCTION PROCESS SHALL BE INSPECTED BY THE CONTRACTOR IN ACCORDANCE WITH THE MAINTENANCE SCHEDULE. ALL EROSION CONTROL STRUCTURES SHALL BE REPAIRED AND MAINTAINED AS NECESSARY BY THE CONTRACTOR.
2. ALL STORMWATER MANAGEMENT STRUCTURES (E.G. CATCH BASINS) SHALL BE REGULARLY INSPECTED FOR SEDIMENT ACCUMULATIONS. CATCH BASINS SHALL BE CLEANED WHEN SEDIMENT DEPTH REACHES A MAXIMUM OF ONE-HALF THE AVAILABLE SUMP DEPTH.
3. ALL EROSION CONTROL INSTALLATION AND MAINTENANCE MEASURES SHALL MEET THE REQUIREMENTS OF THE NEW YORK STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL.
4. ANY PILE OF POTENTIALLY EROSIVE MATERIAL TEMPORARILY STOCKPILED ON THE SITE DURING THE CONSTRUCTION PROCESS SHALL BE LOCATED IN AN AREA AWAY FROM STORM DRAINAGE AND SHALL BE PROPERLY PROTECTED FROM EROSION BY A SURROUNDING SILT FENCE.
5. PERMANENT SEEDED AREAS FOR EROSION CONTROL SHALL BE IN ACCORDANCE WITH DETAIL AND SPECIFICATIONS ON THIS PLAN.
6. AREAS UNDERGOING CLEARING OR GRADING AND WHERE WORK IS DELAYED OR COMPLETED AND WILL NOT BE REDISTURBED FOR A PERIOD OF 21 DAYS OR MORE SHALL BE STABILIZED WITH TEMPORARY OR PERMANENT VEGETATIVE COVER WITHIN 14 DAYS.
7. ON-SITE DUST CONTROL SHALL BE ACCOMPLISHED BY STANDARD METHODS OF LIGHTLY WATERING ALL EXPOSED SOIL AND RAPIDLY STABILIZING THE REGRADED AREAS WITH TOPSOIL, LOAM AND/OR SEEDING.
8. THE CITY ENGINEER AND PROJECT ENGINEER SHALL BE NOTIFIED NO LESS THAN 48 HOURS PRIOR TO THE START OF ANY SITE WORK, AND BY SUCH NOTIFICATION, SHALL BE PROVIDED WITH THE NAME AND TELEPHONE NUMBER OF THE GENERAL CONTRACTOR RESPONSIBLE FOR SUCH WORK.
9. THE CITY AND/OR ITS REPRESENTATIVES MAY INSPECT EROSION AND SEDIMENT CONTROL PRACTICES ON THE SITE DURING CONSTRUCTION AND RECOMMEND THAT THE CONTRACTOR INSTALL ADDITIONAL EROSION CONTROL MEASURES IF DEEMED NECESSARY TO PROTECT ANY UNDISTURBED AREAS OF THE SITE. ANY SUCH REQUESTS SHALL BE MADE DIRECTLY TO THE CONTRACTOR AND QUALIFIED PROFESSIONAL AND FOLLOWED UP WITH A WRITTEN NOTIFICATION TO THE DEVELOPER. IN ADDITION, THE PROJECT ENGINEER SHALL BE CONSULTED ON ANY SPECIAL ADDITIONS OR DELETIONS OF EROSION CONTROL MEASURES WARRANTED BY CHANGING FIELD CONDITIONS.
10. IF GROUNDWATER IS ENCOUNTERED DURING CONSTRUCTION ACTIVITIES, THE CONTRACTOR SHALL CONSTRUCT A DEWATERING PIT IN ACCORDANCE WITH NEW YORK STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL TO FILTER WATER FOR PUMPING TO A SUITABLE LOCATION.
11. WHEN ALL DISTURBED AREAS ARE STABLE, ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED.

INSPECTION SCHEDULE & MAINTENANCE OF EROSION AND SEDIMENT CONTROL MEASURES

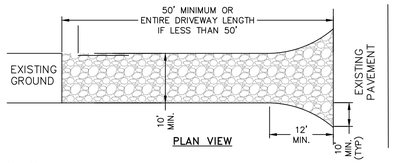
PERMANENT AND TEMPORARY VEGETATION:
INSPECT ALL AREAS THAT HAVE RECEIVED VEGETATION EVERY SEVEN DAYS AND AFTER EVERY STORM EVENT WITH RAINFALL THAT EQUALS OR EXCEEDS 0.5 INCH. ALL AREAS DAMAGED BY EROSION OR WHERE SEED HAS NOT ESTABLISHED SHALL BE REPAIRED AND RESTABILIZED IMMEDIATELY.

STABILIZED CONSTRUCTION ENTRANCE:
INSPECT THE ENTRANCE PAD EVERY SEVEN DAYS AND AFTER EVERY STORM EVENT WITH RAINFALL THAT EQUALS OR EXCEEDS 0.5 INCH. CHECK FOR MUD, SEDIMENT BUILD-UP AND PAD INTEGRITY. MAKE DAILY INSPECTIONS DURING WET WEATHER. REGRADE PAD AS NEEDED FOR RUNOFF CONTROL. WASH AND REPLACE STONE AS NEEDED. THE STONE IN THE ENTRANCE SHOULD BE WASHED OR REPLACED WHENEVER THE ENTRANCE FAILS TO REDUCE MUD BEING CARRIED OFF SITE BY VEHICLES. IMMEDIATELY REMOVE MUD AND SEDIMENT TRACKED OR WASHED ONTO PUBLIC ROADS BY BRUSHING OR SWEEPING. REMOVE TEMPORARY CONSTRUCTION ENTRANCE AS SOON AS THEY ARE NO LONGER NEEDED TO PROVIDE ACCESS TO THE SITE AS DIRECTED BY PROJECT ENGINEER.

SILT FENCE:
INSPECT FOR DAMAGE EVERY SEVEN DAYS AND AFTER EVERY STORM EVENT WITH RAINFALL THAT EQUALS OR EXCEEDS 0.5 INCH. MAKE ALL REPAIRS IMMEDIATELY. REMOVE SEDIMENT FROM THE UP-SLOPE FACE OF THE FENCE BEFORE IT ACCUMULATES TO A HEIGHT EQUAL TO ONE-QUARTER THE HEIGHT OF THE FENCE. IF FENCE FABRIC TEARS, BEGINS TO DECOMPOSE, OR IN ANY WAY BECOMES INEFFECTIVE, REPLACE THE AFFECTED SECTION OF FENCE IMMEDIATELY.

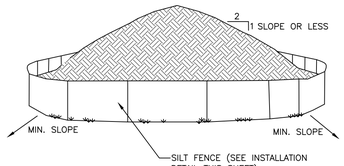
SOIL STOCKPILE:
INSPECT SEDIMENT CONTROL BARRIERS (SILT FENCE) AND VEGETATION FOR DAMAGE EVERY SEVEN DAYS AND AFTER EVERY STORM EVENT WITH RAINFALL THAT EQUALS OR EXCEEDS 0.5 INCH. MAKE ALL REPAIRS IMMEDIATELY. REMOVE SEDIMENT FROM THE UP-SLOPE FACE OF THE SEDIMENT CONTROL BARRIER BEFORE IT ACCUMULATES TO A HEIGHT EQUAL TO ONE-QUARTER THE HEIGHT OF THE SEDIMENT CONTROL BARRIER. IF SEDIMENT CONTROL BARRIER TEARS, BEGINS TO DECOMPOSE, OR IN ANY WAY BECOMES INEFFECTIVE, REPLACE THE AFFECTED SECTION OF SEDIMENT CONTROL BARRIER IMMEDIATELY. REVEGETATE DISTURBED AREA TO STABILIZE SOIL STOCKPILE. REMOVE THE SEDIMENT CONTROL BARRIER WHEN THE SOIL STOCKPILE HAS BEEN REMOVED.

DUST CONTROL:
SCHEDULE CONSTRUCTION OPERATIONS TO MINIMIZE THE AMOUNT OF DISTURBED AREAS AT ANY ONE TIME DURING THE COURSE OF WORKS. APPLY TEMPORARY SOIL STABILIZATION PRACTICES SUCH AS MULCHING, SEEDING, AND SPRAYING (WATER). STRUCTURAL MEASURES (MULCH, SEEDING) SHALL BE INSTALLED IN DISTURBED AREAS BEFORE SIGNIFICANT BLOWING PROBLEMS DEVELOP. WATER SHALL BE SPRAYED AS NEEDED. REPEAT AS NEEDED, BUT AVOID EXCESSIVE SPRAYING, WHICH COULD CREATE RUNOFF AND EROSION PROBLEMS.



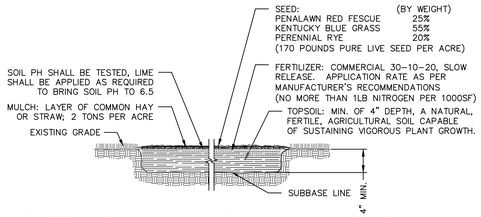
NOTES:
1. STONE SIZE - USE 1-4 INCH STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
2. THICKNESS - NOT LESS THAN SIX (6) INCHES.
3. WIDTH - 12 FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. 24 FOOT MINIMUM IF SINGLE ENTRANCE TO SITE.
4. GEOTEXTILE - WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
5. SURFACE WATER - ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED BENEATH THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
6. MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURE USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACTED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
7. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
8. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.

STABILIZED CONSTRUCTION ENTRANCE DETAIL
NOT TO SCALE

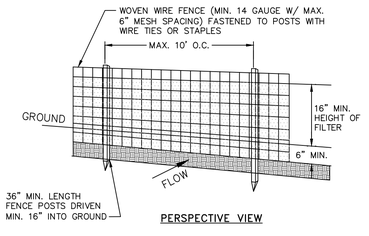


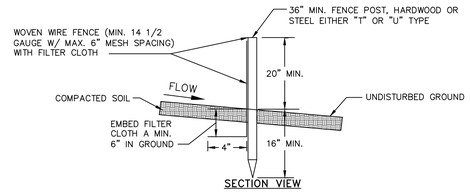
NOTES:
1. AREA CHOSEN FOR STOCKPILING OPERATIONS SHALL BE DRY AND STABLE.
2. EACH PILE SHALL BE SURROUNDED WITH SILT FENCING, THEN STABILIZED WITH VEGETATION OR COVERED.

TEMPORARY SOIL STOCKPILE DETAIL
NOT TO SCALE



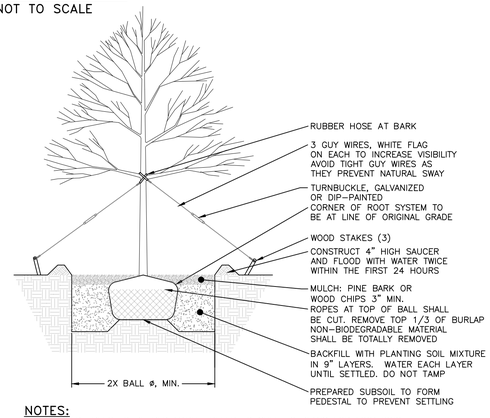
TOPSOIL SEED, FERTILIZER AND MULCH DETAIL
NOT TO SCALE





NOTES:
1. FILTER CLOTH TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION.
2. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVER-LAPPED BY SIX INCHES AND FOLDED. FILTER CLOTH SHALL BE EITHER FILTER X, MIRAFI 100X, STABILINKA T140N OR APPROVED EQUAL.
3. PREFABRICATED UNITS SHALL BE GEOFAB, ENVIROFENCE OR APPROVED EQUAL.
4. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.

SILT FENCE DETAIL
NOT TO SCALE



NOTES:
1. PROPOSED TREES TO BE RED MAPLE. REFER TO SHEET 2 PLANS FOR LOCATIONS.

TREE PLANTING DETAIL
NOT TO SCALE

APPROVED BY RESOLUTION OF THE PLANNING BOARD OF THE CITY OF BEACON, NEW YORK, ON THE

_____ DAY OF _____ 20_____, SUBJECT TO ALL REQUIREMENTS AND CONDITIONS OF SAID RESOLUTION. ANY CHANGE, ERASURE, MODIFICATION OR REVISION OF THIS PLAT, AS APPROVED, SHALL VOID THIS APPROVAL.

SIGNED THIS _____ DAY OF _____, 20_____, BY

_____ CHAIRMAN

_____ SECRETARY

IN ABSENCE OF THE CHAIRMAN OR SECRETARY, THE ACTING CHAIRMAN OR ACTING SECRETARY RESPECTIVELY MAY SIGN IN THIS PLACE.

DRAWN BY: CMB				CHECKED BY: DGK			
REVISIONS:				REVISIONS:			
NO.	DATE	DESCRIPTION	BY	NO.	DATE	DESCRIPTION	BY
1	4/26/22	PER PLANNING BOARD COMMENTS	CMB				

Dig Safely. New York Call 811 before you dig

SEAL

HUDSON LAND DESIGN
HUDSON LAND DESIGN
PROFESSIONAL ENGINEERING P.C.
174 MAIN ST., BEACON, NEW YORK 12508
13 CHAMBERS ST., NEWBURGH, NEW YORK 12550
PH: 845-440-6926
F: 845-440-6637

CONSTRUCTION DETAILS

BRILL SUBDIVISION

67 GROVE STREET
CITY OF BEACON
DUTCHESS COUNTY, NEW YORK
TAX ID: 6054-39-314747

JOB #:	2022:009
DATE:	5/31/2022
SCALE:	AS SHOWN
TITLE:	CD-2
SHEET:	6 OF 6

UNAUTHORIZED ALTERATIONS OR ADDITIONS TO THIS DRAWING IS A VIOLATION OF SECTION 7209.2 OF THE NEW YORK EDUCATION LAW

John Clarke Planning and Design jclarkeplandesign@gmail.com
845.797.4152

To: John Gunn, Chair, and the City of Beacon Planning Board
Date: June 10, 2022
Re: **67 Grove Street Subdivision**

I have reviewed the cover letter from Hudson Land Design, Subdivision Application, Short EAF Part 1, and a 6-sheet Subdivision Plan set, all dated May 31, 2022.

Proposal

The applicant is proposing to subdivide a 0.37-arcre parcel with one existing single-family house into two lots for the construction of an additional house. Lot 1 would have 11,000 square feet and Lot 2 would contain 5,000 square feet. The parcel is in the R1-5 residential zoning district.

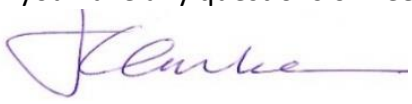
Comments and Recommendations

1. Sheet 2 should show the size and species of any existing trees over 6 inches in diameter that may be affected by the new construction and indicate if any of those trees that will be removed.

2. Sheet 2 should include the removal of the chain link fence across the front of Lot 2.

3. The plan should include a deciduous street tree near the front property line to replace the sizable tree likely to be removed on Lot 1 and to provide additional environmental and traffic calming benefits.

If you have any questions or need additional information, please feel free to contact me.



John Clarke, Beacon Planning Consultant

c: Dave Buckley, Building Inspector
Jennifer L. Gray, Esq., City Attorney
Arthur R. Tully, P.E., City Engineer
John Russo, P.E., City Engineer
Michael Bodendorf, P.E., Project Engineer

LANC & TULLY
ENGINEERING AND SURVEYING, P.C.

John J. O'Rourke, P.E., Principal
David E. Higgins, P.E., Principal
John Queenan, P.E., Principal
Rodney C. Knowlton, L.S., Principal
Jerry A. Woods, L.S., Principal
John D. Russo, P.E., Principal
John Lanc, P.E., L.S.
Arthur R. Tully, P.E.

June 9, 2022

Mr. John Gunn
Beacon Planning Board Chair
City of Beacon
1 Municipal Plaza
Beacon, NY 12508

RE: 67 Grove St. – 2 Lot Subdivision
Tax No. 6054-39-314747
City of Beacon

Dear Mr. Gunn:

My office has received the following regarding a 2-lot subdivision of the parcel located at 67 Grove Street:

- Correspondence from Hudson Land Design dated May 31, 2022
- Application for Subdivision Approval, Affidavit of Property Owner, and Individual Disclosure Form.
- Short Environmental Assessment Form dated May 31, 2022.
- Plan set titled "Brill Subdivision" as prepared by Hudson Land Design and consisting of the following sheets:
  - Sheet 1 of 6 – Cover Sheet, dated May 31, 2022.
  - Sheet 2 of 6 – Existing Conditions & Removal Plan, dated May 31,2022.
  - Sheet 3 of 6 – Preliminary Subdivision Plat, dated May 31, 2022.
  - Sheet 4 of 6 – Subdivision Plan, dated May 31, 2022.
  - Sheet 5 of 6 – Construction Details, dated May 31, 2022.
  - Sheet 6 of 6 – Construction Details, dated May 31, 2022.

The proposed project entails the subdivision of a 16,000± square foot parcel located at 67 Grove Street into 2 lots, with proposed Lot 1 being 11,000 square feet in size with an existing single-family residence, and proposed Lot 2 being 5,000 square feet in size to allow for the construction of an additional single-family residence. The project is located in the R1-5 Zone.

Based on our review of the above plans, we would like to offer the following comments:

General Comments:

1. The applicant's consultant should conduct an Inflow & Infiltration study of the existing site and building and provide certification to the City of Beacon that the site currently has no illegal cross-connections between the existing site and the City's sanitary sewer system. Possible cross-connections that should be looked at would be roof-leaders, sump pumps, existing site drains, etc. If any cross-connections are found, a report should be submitted as to the findings, the volume of I&I being introduced into the sanitary sewer collection system, and the proposed remediation for the cross-connection(s) found. The plans should also clearly show the proposed remediation as outlined in the report. A note should also be added to the plans granting the City of Beacon Building Department access to verify where the existing roof leaders and sump pump(s), if present, drain to.

Sheet 2 of 6:

1. The size and pipe material for the water, sewer, and storm drainage shown within Grove Street should be added to the plans. Copies of the construction plans for Grove Street have been provided to the applicant's engineer.

2. The topographic circular line located behind the catch basin on the east side of the parcel should be labeled as to its elevation.

3. Note No. 3 under "Survey Notes" shall have the blanks filled in. If the note is not necessary, then it should be removed.

Sheet 3 of 6:

1. Note No. 3 under "Survey Notes" shall have the blanks filled in. If the note is not necessary, then it should be removed.

Sheet 4 of 6:

1. The size and material of the water main located on Judson Street shall be noted on the plan.

2. Proposed grading on Lot 2 shall be shown on the plans. In accordance with the 2020 NYS Residential Code, Chapter 4, Paragraph R401.3, "Lots shall be graded to drain surface water away from foundation walls. The grade shall fall not fewer than 6 inches within the first 10 feet." Grading should also be done in such a manner that water from the proposed driveway on Lot 2 does not run onto neighboring lots.

3. Section 223-26, Paragraph C(1) of the City's Code states "In any residence district, no off-street parking facility shall be developed in any required front yard or in any required side or rear yard to a street line or in any other side of rear yard within five feet of the lot line." Based upon this, a portion of the existing driveway on the east side of Lot 1 would need to be removed, as the upper portion of the driveway within the lot approaching the road is less than 5 feet from the property line.

4. The first-floor elevation and lowest sewerable elevation (LSE) should be provided on the plan for the proposed residence.

5. Plan shall note as to whether a basement is proposed or if the residence is proposed to be a slab on grade.

6. A sewer clean-out shall be located on the exterior of the house if one is not to be installed on the interior at the foundation. If the house is to be a slab on grade, then a clean-out shall be provided on the exterior of the foundation wall.

7. The tie-in elevations of the roof leader and footing drain to the catch basin located within the road shall be noted on the plan. We would recommend that a backflow prevention device be installed on the footing drain if the footing drain around the house is lower than the grate elevation of the catch basin the line is proposed to connect into.

8. The last detail sheet of the plan set includes a tree planting detail. If trees are proposed to be planted, the location of the proposed plantings should be shown on the plans.

This completes our review at this time. Further comments may be provided based on future submissions. **A written response letter addressing each of the above comments should be provided with the next submission.** If you have any questions, or require any additional information, please do not hesitate to contact our office.

Very truly,

LANC & TULLY, P.C.

John Russo, P.E.

cc: John Clarke, Planner
Jennifer Gray, Esq.
David Buckley, Building Inspector

City of Beacon Planning Board Agenda
06/14/2022

Title:

Zoning Board of Appeals - June meeting

ATTACHMENTS

June Agenda.pdf

CITY OF BEACON
ONE MUNICIPAL PLAZA - SUITE 1
BEACON, NEW YORK 12508
Phone (845) 838-5002 Fax (845) 838-5026

The Zoning Board of Appeals will meet on **Wednesday, June 22, 2022** in the Municipal Center courtroom, located at One Municipal Plaza, Beacon, New York. A training work session will take place at 7:00 PM and the regular meeting and public hearings will begin immediately thereafter, but not later than 7:30 PM.

1. Review and hold public hearing on application submitted by James Petty, 146 Verplanck Avenue, Tax Grid No. 30- 6054-21-028928-00, in the R1-5 Zoning District, for relief from Section 223-17 to subdivide lot where existing home will have a proposed 4.7 ft. side yard setback *(10 ft. required)*

City of Beacon Planning Board Agenda
06/14/2022

Title:

Consider request for one 90-day extension of Site Plan and Certificate of Appropriateness Approval, 416-420 Main Street, submitted by 420 Main St. LLC

ATTACHMENTS

5-5-22 416-420 Main Street - Planning Board Extension Request w_ Exhibit A Attached(5213735.1).pdf

CUDDY +FEDER LLP

300 Westage Business Center, Suite 380
Fishkill, New York 12524
T 845 896 2229
F 845 896 3672
cuddyfeder.com

Taylor M. Palmer
tpalmer@cuddyfeder.com

May 5, 2022

BY FEDERAL EXPRESS
AND E-MAIL

Hon. John Gunn, Chairman
& Members of the Planning Board
City of Beacon
One Municipal Plaza
Beacon, New York 12508

Re: 416-420 Main Street LLC & 420 Main Street, LLC (d/b/a 420 Main St., LLC)
Request for Extension of Site Plan, Subdivision & Certificate of Appropriateness Resolution
Property: 416-420 Main Street, Beacon, New York 12508

Dear Chairman Gunn and Planning Board Members:

On behalf of 416-420 Main Street, LLC and 420 Main Street, LLC (d/b/a 420 Main St., LLC) (the "Applicant"), we are writing to request an additional 90-day extension of the May 11, 2021 Preliminary & Final Subdivision Plat, Site Plan and Certificate of Appropriateness Approval Resolution (the "Approval Resolution"). This request is timely, as 180 days (6 months) have not elapsed since the November 9, 2021 extension of the adopted Approval Resolution.[1]

At this time, the Final Subdivision Plat signed by the Planning Board Chairman, and all agreements for simultaneous recording with the filing of the subdivision plat have been approved by the City Attorney and fully executed. In the meantime, the Applicant has requested a tax certification letter from the City Tax Collector's office, which is anticipated shortly so that the plat can be filed and the above-referenced agreements can be recorded. The Applicant has otherwise satisfied all conditions of the Approval Resolution, and has already submitted an Application for a Building Permit to construct the project.

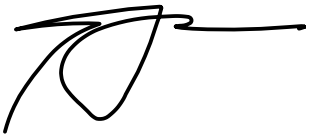
Given the particular circumstances noted above, we respectfully submit this formal request for a 90-day extension of the Final Subdivision Approval, thus extending to August 4, 2022, the date by which the Applicant must satisfy the remaining conditions – limited to filing the plat and recording of the agreements – set forth in the Approval Resolution. This Board has the authority to grant the requested extension pursuant to City of Beacon Code Section 195-14(D).

[1] A copy of the May 11, 2021 Approval Resolution and a copy of page 4 of the November 9, 2021 Planning Board Meeting minutes approving (2) two 90-day extensions of the May 11, 2021 Approval Resolution are attached to this letter as **Exhibit A**.

We respectfully request that you please place this matter on the next available Planning Board Agenda for consideration of the Applicant's request for a 90-day extension. In the event that the Applicant is able to file the plat and record the agreements prior to the May 6th expiration of the Approval Resolution, the Applicant will withdraw its application for an extension.

Thank you in advance for your consideration in this matter.

Very truly yours,



Taylor M. Palmer

Enclosures
cc: Jennifer L. Gray, Esq. – Planning Board Attorney

Exhibit A

1

RESOLUTION

PLANNING BOARD
BEACON, NEW YORK

PRELIMINARY & FINAL SUBDIVISION PLAT
SITE PLAN AND CERTIFICATE OF APPOPRIATENESS APPROVALS FOR
416-420 MAIN STREET

PARCEL ID NOS: 6054-29-056780 & 6054-29-056774

WHEREAS, the Beacon Planning Board received an application for approval of a Special Use Permit, Preliminary and Final Subdivision Plat, Site Plan and Certificate of Appropriateness from 416 Main Street Beacon, LLC & 420 Main Street, LLC, D/B/A 420 Main St. Beacon, LLC (the "Applicant") to construct an 11,715 square foot, four (4) story, mixed-use building fronting on Main Street, comprised of 4,295 square feet of ground-floor retail space, as well as 6,635 square feet of commercial office space on the second and third floors, containing one (1) apartment unit on the stepped back fourth floor and to construct a 1,017 square foot live/work building (the "Proposed Action") on property located at 416-420 Main Street in the Central Main Street (CMS) District, the Transition (T) District and the Historic District Landmark Overlay (HDLO) Zone, said premises being known and designated on the tax map of the City of Beacon as **6054-29-056780** and **6054-29-056774** (the "Property"); and

WHEREAS, the entire Property is located in the HDLO Zone, and the proposed 11,715 square foot mixed-use building is proposed for the area of the Property located in the Central Main Street (CMS) District and the proposed 1,017 square foot live/work building is proposed for the area of the Property located in the Transition (T) District; and

WHEREAS, the applicant seeks to consolidate the parcels to create one 0.245 parcel as shown on the Subdivision Plat referenced below; and

WHEREAS, the City Council is the approval authority for the Special Use Permit to allow a fourth story on a CMS parcel located in the HDLO Zone pursuant to City of Beacon Code § 223-41.18.E(7); and

WHEREAS, the Planning Board is the approval authority for the Subdivision (lot merger) and Site Plan pursuant to City of Beacon Code §§ 195-2 and 223-25; and

WHEREAS, the Proposed Action includes a request for a Certificate of Appropriateness from the Planning Board pursuant to the criteria set forth in § 134-7 of the City of Beacon Code; and

WHEREAS, the application consists of application forms, correspondence, and the Full Environmental Assessment Form ("EAF"); and

WHEREAS, the Subdivision is shown on the drawing, entitled "Preliminary Subdivision Plat - 416 Main Street," prepared Hudson Land Design Professional Engineering, P.C. and Tom Cerchiara, PLS, last revised March 30, 2021; and

WHEREAS, the Site Plan is shown the following drawings, generally entitled "Site Plan Application-416-420 Main Street," prepared by Aryeh Siegal Architect, Hudson Land Design Professional Engineering P.C. and Maser Engineering, last revised April 27, 2021:

Sheet	Title
1 of 11	*Site Plan*
2 of 11	*Existing Conditions & Demolition Plan*
3 of 11	*Landscape Plan & Planting Schedule*
4 of 11	*Building Plans*
5 of 11	*Building Elevations & Renderings*
6 of 11	*Grading & Utility Plan*
7 of 11	*Erosion and Sediment Control Plan*
8 of 11	*Utility Profiles*
9 of 11	*Construction Details*
10 of 11	*Construction Details*
11 of 11	*Signing & Striping Plan*; and

WHEREAS, the Proposed Action is an Unlisted Action, pursuant to the New York State Environmental Quality Review Act; and

WHEREAS, on August 11, 2020, the Planning Board, as Lead Agency, opened a public hearing to consider comments regarding any environmental impacts associated with the Proposed Action and continued the hearing to September 9, 2020, and October 14, 2020, at which time the (SEQRA) public hearing was closed; and

WHEREAS, after taking a "hard look" at each of the relevant areas of environmental concern through review of the Environmental Assessment Form and all associated materials prepared in connection with the Proposed Action, the Planning Board adopted a Negative Declaration on October 14, 2020; and

WHEREAS, the Planning Board issued a report to the City Council dated October 15, 2020, in support of the Special Permit; and

WHEREAS, the Proposed Action originally included 1,046 square feet of Central Public Green Space; in response to comments from the City Council, the Applicant revised the Proposed Action to include a Central Public Green Space area of approximately 2,315 square feet; and

WHEREAS, on March 1, 2021, the City Council approved the Special Use Permit application by 416 Main Street Beacon, LLC & 420 Main Street, LLC, D/B/A 420 Main St. Beacon, LLC to construct a stepped back fourth story on an 11,715 square foot mixed-use

building fronting on Main Street with 2,315 square feet of Central Public Green Space, on property located at 416-420 Main Street in the CMS District, T District and HDLO Zone after finding that the Proposed Action complies with the City of Beacon Code §§ 223-18.B, 223-41.18.E(7) and 134-7; and

WHEREAS, on March 9, 2021 the Planning Board opened a duly noticed public hearing on the application for Subdivision and Site Plan approvals concerning the Proposed Action and continued the public hearing to April 13, 2021 and May 11, 2021, at which time all those interested were given an opportunity to be heard and the public hearing was closed on May 11, 2021; and

WHEREAS, due to public health and safety concerns related to the current COVID-19 pandemic, all public meetings and hearings on this application were duly noticed in accordance with notice requirements of the Zoning Code of the City of Beacon, and held by videoconference in accordance with the Governor's Executive Orders which suspend the "in-person" requirements of the NYS Open Meetings Law and provide alternative means by which to conduct public meetings and hearings remotely; and

WHEREAS, the City of Beacon Code requires the Applicant to install three (3) on-site parking spaces for the proposed residential use and 20 parking spaces for the proposed commercial use, therefore a total of 23 on-site parking spaces are required for the site: and

WHEREAS, the Applicant proposed to provide two (2) parking spaces for the proposed residential uses and requests a waiver of the remaining 21 on-site parking spaces required; and

WHEREAS, City of Beacon Code § 223-41.18.G(3) authorizes the Planning Board to modify the minimum quantity of required on-site parking spaces where there is sufficient public parking available within 800 feet of the site and within the CMS District to meet foreseeable parking needs of the proposed use and surrounding uses for the duration of the proposed use; and

WHEREAS, the following public parking lots are located within 800 feet of the Property:

- Churchill Street Parking Lot
- Van Nydeck Avenue Parking Lot (Behind Brothers Restaurant)
- Van Nydeck Avenue Parking Lot (Behind Fire House)
- Henry Street Parking Lot; and

WHEREAS, the Planning Board is fully familiar with the Proposed Action and has reviewed the Proposed Action relative to all applicable provisions of the City Code.

NOW, THEREFORE, BE IT RESOLVED, that the Planning Board hereby finds pursuant to the City of Beacon Code § 134-7 that the proposed mixed-use building at the corner of Main Street and Schenk Avenue has been designed to be consistent with the

character of the surrounding neighborhood, including the Beacon Hotel, and the properties located in the HDLO, and will be consistent with the historic character of the surrounding area and compatible with the design standards of the Historic District Landmark Overlay Zone and accordingly, the Planning Board hereby grants a Certificate of Appropriates for the Proposed Action, as shown on the application materials referenced above.

BE IT FURTHER RESOLVED, that the Planning Board hereby grants Preliminary Subdivision Plat Approval (lot merger) for the Proposed Action, as shown on the plan entitled "Preliminary Subdivision Plat-416 Main Street," prepared Hudson Land Design Professional Engineering, P.C. and Tom Cerchiara, PLS, last revised March 30, 2021.

BE IT FURTHER RESOLVED, that the Planning Board hereby finds the Final Subdivision Plat will not be substantively changed from the Preliminary Subdivision Plat and hereby determines that a public hearing on the Final Plat is not required.

BE IT FURTHER RESOLVED, that the Planning Board hereby grants Final Subdivision Plat Approval (lot merger), as shown on the plan entitled "Preliminary Subdivision Plat-416 Main Street," prepared Hudson Land Design Professional Engineering, P.C. and Tom Cerchiara, PLS, last revised March 30, 2021, subject to the conditions and modifications set forth herein.

BE IT FURTHER RESOLVED, that the pursuant to City of Beacon Code § 223-41.18.G(3), the Planning Board finds that there is sufficient public parking available within 800 feet of the site in the CMS District to meet foreseeable parking needs of the proposed use and surrounding uses for the duration of the proposed use and accordingly, hereby waives the requirement to provide an additional 21 on-site parking spaces.

BE IT FURTHER RESOLVED, that the Planning Board hereby grants Site Plan Approval as set forth and detailed on the plans prepared by prepared by Aryeh Siegal Architect, Hudson Land Design Professional Engineering P.C. and Maser Engineering, last revised April 27, 2021, subject to the following conditions set forth below and any other requirements which must be met by law:

A. The following conditions shall be fulfilled prior to the signing of the Final Subdivision Plat by the Chairman of the Planning Board:

1. All application review fees shall be paid in full.

2. The Applicant shall seek and obtain all required permits and/or approvals from the appropriate agencies for the Project, including but not necessarily limited to approval from the Dutchess County Department of Health, and shall meet all conditions contained in such approvals, as required therein.

3. The comments contained in the City Engineer's letter to the Planning Board dated May 7, 2021, and all comments in any subsequent letter(s) issued, shall be fulfilled to the satisfaction of the City Engineer.

4. The comments contained in the City Planner's letter to the Planning Board dated May 6, 2021, and all comments in any subsequent letter(s) issued, shall be fulfilled to the satisfaction of the City Planner, except Comment No. 1.b of the City Planner's letter.

5. All existing and proposed easements and offers of dedication, as applicable, shall be shown on the Final Subdivision Plat to the satisfaction of the City Engineer and City Attorney. Proposed easement agreements, declarations of restrictive covenants, offers of dedication, or other appropriate documents corresponding with the easements and notes shown on the Final Subdivision Plat shall be prepared, as applicable, and submitted to the City Attorney for review as to form and shall be recorded in the Dutchess County Clerk's Office simultaneously with the Subdivision Plat, with a copy of the recorded documents submitted to the City Clerk for filing.

6. The Applicant shall submit a performance guaranty in a form satisfactory to the City Attorney in an amount of $119,430.00 as determined by the cost estimates submitted by the Applicant's engineer and reviewed by the City Engineer to secure the performance of all public improvements.

7. The Applicant shall return to the Planning Board for approval of a Certificate of Appropriateness for the live/work building.

When the conditions above have been satisfied, six (6) sets of the above referenced plans revised as per the conditions above shall be submitted for endorsement by the Planning Board Chairman. One set of the endorsed plans will be returned to the Applicant, one set will be retained by the City Clerk, one set will be provided to the Planning Board, and one set each will be forwarded to the Building Inspector, City Engineer and City Planner.

B. The following conditions shall be fulfilled prior to the signing of the Site Plan by the Chairman of the Planning Board.

1. All application review fees shall be paid in full.

2. The Applicant shall seek and obtain all required permits and/or approvals from the appropriate agencies for the Project, including but not necessarily limited to approval from the Dutchess County Department of Health, and shall meet all conditions contained in such approvals, as required therein.

3. The comments contained in the City Engineer's letter to the Planning Board dated May 7, 2021, and all comments in any subsequent letter(s) issued, shall be fulfilled to the satisfaction of the City Engineer.

4. The comments contained in the City Planner's letter to the Planning Board dated May 6, 2021, and all comments in any subsequent letter(s) issued, shall be fulfilled to the satisfaction of the City Planner.

5. A note shall be added to the plans to state:

All landscaping shown on the Site Plan, including any plantings located within the City right-of-way, shall be maintained in a vigorous growing condition for the duration of the use and shall be trimmed so as to not interfere with pedestrian use of the sidewalk. All plants not so maintained shall be replaced with new plants of comparable size and quality at the beginning of the next immediately following growing season in compliance with the Site Plan, at the sole cost and expense of the property owner. In the event the sidewalk adjacent to the Central Public Green Space is widened by the City and the plantings within the City right-of-way are removed, the property owner shall replace such plantings on the owner's property to the maximum extent practicable without impeding the primary public use of the Central Public Green Space, as determined by the City Building Inspector.

When the conditions above have been satisfied, six (6) sets of the above referenced plans revised as per the conditions above shall be submitted for endorsement by the Planning Board Chairman. One set of the endorsed plans will be returned to the Applicant, one set will be retained by the City Clerk, one set will be provided to the Planning Board, and one set each will be forwarded to the Building Inspector, City Engineer and City Planner.

C. Prior to the issuance of a Building Permit, the following conditions shall be fulfilled:

1. Pursuant to the City Code § 195-16.E, the Applicant shall establish an escrow with the City of Beacon for the inspection of the public improvements in the amount of $7,166.00 which is the equivalent of 6% of the amount of the required performance guaranty.

2. The Applicant shall return to the Planning Board for final approval of the signage for the Central Public Green Space.

D. The following are general conditions which shall be fulfilled:

1. Based on the current and anticipated future need for park and recreational opportunities in the City of Beacon, as set forth in the analysis provided by BFJ Planning, and the demands of the future population of the Project, the Planning Board hereby finds that additional recreation/parkland should be created as a condition of approval. The Planning Board hereby determines that Central Public Green Space which consists of approximately 20% of the overall lot area is an adequate size and in an appropriate location to satisfy the requirement for providing recreation/parkland pursuant to Section 223-25.H of the City Code. Therefore, the Applicant shall not be required to pay a

Recreation Fee for the two (2) new dwelling units as prescribed under Section 223-25.H(4) of the City Code.

2. The Building Inspector and the City Engineer shall have the right to direct the Applicant to cause the placement, cleaning and/or repair of sedimentation and erosion control devices wherever and whenever deemed necessary during construction.

3. The Applicant shall be responsible for the payment of all application review costs incurred by the City in its review and approval of this project. Such fees shall be paid by the Applicant within thirty (30) days of each notification by the City that such fees are due. If such fees are not paid within said thirty (30) day period, and an extension therefore has not been granted by the City, this resolution shall be rendered null and void.

4. As used herein, the term "Applicant" shall include its heirs, successors and assigns, and where applicable its contractors and employees.

5. The Applicant shall construct at least 2,315 feet of Central Public Green Space to serve the residents of and visitors to the City of Beacon.

6. The Central Public Green Space, as shown on the Site Plan, shall be open from dawn until dusk, seven (7) days a week.

7. The Applicant shall install a wooden sign, as shown on the Site Plan, to notify the public that it has access to that Central Public Green Space. As proposed by the Applicant, the sign shall say "welcome", shall state that the park is open dawn till dusk and shall state the park is open to the public. Such signage shall not overhang the sidewalk. No sooner than one year after the Central Public Green Space is first opened to the public, the Applicant may submit written request to the Planning Board to modify the signage to omit language stating the area is open to the public, but regardless of the signage the Central Public Green Space shall remain open to the public and be used primarily for public purposes pursuant to the City Council's Special Permit Resolution dated March 1, 2021.

8. The Applicant shall not install dedicated seating for exclusive use by businesses in the Central Public Green Space. The Applicant may only install seating for the exclusive use of the tenant businesses in the areas of the Property designated on the site plan as Main Street Building Private Area.

9. The Applicant may install sculptures in the Central Public Green Space, which sculptures may be updated from time to time.

10. Condition 10 of the Resolution adopted by the City Council on March 1, 2021 granting a Special Use Permit for the construction of a partial fourth floor on the proposed building states that the Central Public Green Space shall be used primarily for public purposes. The City Council directed the Planning Board to consider when access to the Central Public Green Space can be restricted and used solely by the private tenants of the Property. Accordingly, the

tenants in the live/work building and the mixed-use building may exclusively utilize the Central Public Green Space on a limited basis, such as for events, after providing at least ten (10) days written notice to the City of Beacon Building Inspector and City Administrator.- Upon receipt of such notice, the City of Beacon Building Inspector may, at his or her discretion, deem such exclusive use of the Central Public Green Space to be in violation of the requirement that it shall be used primarily for public purposes based on the frequency of such events, in which case the Building Inspector may invoke Condition 17 of the City Council's Special Permit Resolution.

11. If any of the conditions enumerated in this resolution upon which this approval is granted are found to be invalid or unenforceable, then the integrity of this resolution and the remaining conditions shall remain valid and intact.

12. The approvals granted by this resolution do not supersede the authority of any other entity.

13. This approval is conditioned upon compliance with all of the mitigation measures specified in the Applicant's Environmental Assessment Form and the Negative Declaration granted pursuant thereto. The Applicant shall be responsible for the funding and/or implementation of all such identified mitigation measures. Where the terms of this Resolution may be inconsistent with the EAF, the terms of this Resolution shall be controlling.

14. Conditional approval of the Final Subdivision Plat shall expire one hundred eighty (180) days from the date of the adoption of this resolution unless all items in Condition A above have been certified as completed and the Final Plat has been submitted for endorsement by the Planning Board Chairman, or unless a written request for an extension of Final Subdivision Plat Approval is granted. The Planning Board may grant ninety (90) day extensions to said time period.

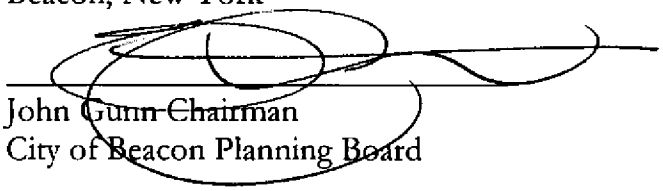
15. Once the Final Subdivision Plat has been endorsed by the Planning Board Chairman, said plat must be filed in the Dutchess County Clerk's Office within sixty-two (62) days. After said filing, two (2) copies of the Final Plat certified by Dutchess County shall be submitted to the Planning Board Secretary. One (1) certified copy of the Final Plat shall be retained by the Planning Board and the other certified copy shall be transmitted to the City Clerk along with a signed copy of this resolution and proof of recording of the easement documents described above.

16. The Site Plan Approval granted herein shall expire in the event the Applicant does not submit a bona fide building permit application to the Building Department within one year of the adoption date of this Resolution, provided however, that the Planning Board may extend such time period from time to time for good cause shown upon written request from the Applicant.

17. Any proposed revision to the approved Subdivision or Site Plan Drawings, except revisions determined by the Building Inspector and City Engineer to be

field changes, shall be submitted to the Planning Board. The Planning Board, in its discretion, shall determine the appropriate procedures for consideration of the proposed revision, and whether such revision is material enough to require further environmental analysis and/or further project review, as the Board may deem appropriate.

Resolution Adopted: May 11, 2021
Beacon, New York



John Gunn Chairman
City of Beacon Planning Board

MAY 13th, 2021
Date

Motion by Ms. Reynolds, seconded by Mr. Byrne:

Kevin Byrne	Voting: AYE	Leonard Warner	.YE
J.C. Calderon	Voting: AYE	J. Randall Willian	.XCUSED
Karen Quiana	Voting: AYE	John Gunn, Chai	ıYE
Jill Reynolds	Voting: AYE		

Received in the Office of the
City Clerk
May 13, 2021

2

will require Department of Health approval, and the main will be dedicated to the City of Beacon. He explained there are no changes to the plan that would affect the LWRP Consistency Determination previously issued.

Engineer Michael Bodendorf explained the previous approval had a private sewer line, now there will be a sewer main dedicated to the City with individual extensions to each unit. Application to the Department of Health has been made for this change.

Members reviewed the draft resolution of SEQRA Determination for Amended Subdivision Approval that was circulated prior to the meeting. After careful consideration, Mr. Williams made a motion to adopt the resolution as drafted, seconded by Mr. Warner. All voted in favor. Motion carried; 5-0.

Ms. Quiana made a motion to open the public hearing, seconded by Mr. Warner. All voted in favor. Motion carried. Mr. Gunn opened the floor for public comment.

Theresa Kraft, Liberty Street, read the following comment:

Tiny house is an understatement when you look at this project. Those units are tiny!

After careful consideration, Mr. Williams made a motion to authorize the City Attorney to draft a resolution of approval for consideration at the December meeting. Mr. Gunn confirmed the resolution will contain conditions that approvals regarding the sewer main will be obtained from the City of Beacon and Dutchess County Department of Health. Mr. Warner seconded the motion. All voted in favor. Motion carried; 5-0.

Stosh Yankowski, South Chestnut Street, suggested the "Welcome to Beacon" stones be replaced in front of the building.

There were no further comments from the public and Ms. Quiana made a motion to close the public hearing, seconded by Mr. Byrne. All voted in favor. Motion carried; 5-0.

Miscellaneous Business

Consider request for two 90-day extensions of Subdivision Approval – 416-420 Main Street, submitted by 416 Main Street Beacon, LLC and 420 Main Street, LLC, dba 420 Main St. Beacon, LLC,

Attorney Taylor Palmer explained his client continues to work with project consultants and the Dutchess County Health Department to finalize conditions of approvals granted on May 11, 2021. They are requesting two 90-day extensions of Final Subdivision Approval to allow time to complete the required outstanding items. After careful consideration, Mr. Williams made a motion to grant two 90-day extensions as requested, seconded by Ms. Quiana. All voted in favor. Motion carried; 5-0.

CONTINUE PUBLIC HEARING ON APPLICATION TO AMEND AN EXISTING SITE PLAN APPROVAL, ALTER GREENWAY TRAIL ON MIXED-USE DEVELOPMENT SITE, 23-28 CREEK DRIVE, SUBMITTED BY 23-28 CREEK DRIVE, LLC

This application was withdrawn by the applicant.

City of Beacon Planning Board Agenda
06/14/2022

Title:

Consider request for one 90-day extension of Amended Site Plan and Preliminary and Final Subdivision Approval, Ferry Landing, submitted by Ferry Landing at Beacon, Ltd.

ATTACHMENTS

6-6-22 Ferry Landing - Planning Board Extension Request with Exhibit A Attached(5244191.1).pdf

CUDDY +FEDER LLP

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F 845 896 3672
cuddyfeder.com

Taylor M. Palmer
tpalmer@cuddyfeder.com

June 6, 2022

BY E-MAIL

Hon. John Gunn, Chairman
& Members of the Planning
Board City of Beacon
One Municipal Plaza
Beacon, New York 12508

Re: Request for Extension
Amended Site Plan and Preliminary and Final Subdivision Approval Resolution
Premises: Beekman Street & Ferry Landing, Beacon, New York

Dear Chairman Gunn and Planning Board Members:

On behalf of WRJG, LLC (the "Applicant"), we are writing to request a 90-day extension of the December 14, 2021 Amended Site Plan and Preliminary & Final Subdivision Approval Resolution (the "Approval Resolution"). This request is timely, as 180 days (6 months) have not elapsed since the date of the adopted Approval Resolution of the adopted Approval Resolution.[1]

At this time, the Final Subdivision Plat, and all agreements for simultaneous recording with the filing of the subdivision plat have been approved by the City Attorney and fully executed. The Applicant has also obtained a tax certification letter from the City Tax Collector's office so that the plat can be filed and the above-referenced agreements can be recorded. We understand that the fully executed subdivision plat, which is on file with the City, is scheduled to be signed by Chairman Gunn at the upcoming Planning Board meeting on June 14th, 2022. The Applicant has otherwise satisfied all conditions of the Approval Resolution and has already submitted an Application for a Building Permit to construct the project.

Given the particular circumstances noted above, we respectfully submit this formal request for a 90-day extension of the Preliminary and Final Subdivision Approval, thus extending to September 10, 2022, the date by which the Applicant must satisfy the remaining conditions – limited to filing the plat – set forth in the Approval Resolution. This Board has the authority to grant the requested extension pursuant to City of Beacon Code Section 195-14(D).

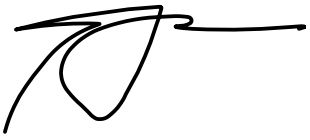
We respectfully request that you please place this matter on the next available Planning Board Agenda for consideration of the Applicant's request for a 90-day extension. In the event that the

[1] A copy of the December 14, 2021 Approval is attached to this letter as **Exhibit A**.

Applicant is able to file the plat and record the agreements prior to the June 12th expiration of the Approval Resolution, the Applicant will withdraw its application for an extension.

Thank you in advance for your consideration in this matter.

Very truly yours,



Taylor M. Palmer

Enclosures
cc: Jennifer L. Gray, Esq. – Planning Board Attorney

Exhibit A

RESOLUTION

PLANNING BOARD
BEACON, NEW YORK

AMENDED SITE PLAN AND
PRELIMINARY AND FINAL SUBDIVISION APPROVAL
FOR FERRY LANDING AT BEACON

Parcel No. 5954-33-556840

WHEREAS, on August 13, 2019 the Planning Board approved a Site Plan application submitted by Ferry Landing at Beacon, Ltd. to construct six (6) single-family townhouses on 0.56 acres, located at the intersection of Beekman Street and Ferry Street and designated on the City tax map as Parcel No. 5954-33-556840; and

WHEREAS, after that date, the Property was conveyed to WRJG, LLC and the Beacon Planning Board received applications from Cuddy & Feder LLP on behalf of the new owner, WRJG, LLC (the "Applicant"), for Subdivision and Amended Site Plan Approval based on a proposal to subdivide the six (6) approved townhouses into individual lots and extend an 8" City sanitary sewer main along Beekman Street to serve the newly created lots (the "Amended Project"); and

WHEREAS, the Property is located in the Linkage Zoning District and the Coastal Management Zone as defined by the City's Local Waterfront Revitalization Program (LWRP); and

WHEREAS, the Planning Board is the approval authority for the Subdivision and the Amended Site Plan pursuant to City of Beacon Code §§195-2 and 223-25, respectively; and

WHEREAS, the application consists of application forms, correspondence, Short Environmental Assessment Form ("SEAF") and professional studies and reports submitted to the Planning Board; and

WHEREAS, the site plan is shown on the drawings, entitled "Application for Amended Site Plan Approval," Sheets 1-3, dated October 26, 2021, as prepared by Hudson Land Design, and further red lined drawings entitled "Ferry Landing at Beacon", Sheets 1-9, as approved by the Planning Board on August 13, 2019, as follows:

Sheet	Title
1 of 9	*Site Information Plan*
2 of 9	*Existing Site Conditions*
3 of 9	*Site Development Plan*
4 of 9	*Site Grading Plan*
5 of 9	*Site Utilities Plan*

6 of 9	*Utility Profile Plan*
7 of 9	*Sight Distance Plan*
8 of 9	*Site Details Plan*
9 of 9	*Site Details Plan*; and

WHEREAS, the subdivision is shown on the drawing entitled, "Preliminary Plat – Ferry Landing at Beacon," last revised October 26, 2021, prepared by Hudson Land Design; and

WHEREAS, on June 11, 2019, after taking a "hard look" at the EAF and all of the associated materials prepared in connection with the original Project, the Planning Board adopted a Negative Declaration, finding the Project, an Unlisted Action pursuant to the State Environmental Quality Review Act (SEQRA), would not result in any significant adverse environmental impacts; and

WHEREAS, on June 11, 2019, the Planning Board also determined that the Project is entirely consistent with the LWRP policies which apply to the Project; and

WHEREAS, on November 9, 2021 in its continuing role as Lead Agency and after taking a "hard look" at each of the relevant areas of environmental concern through review of the EAF and all associated materials prepared in connection with the Amended Project, found that the Amended Project will not result in any significant adverse environmental impacts not previously reviewed and readopted and reaffirmed its June 11, 2019 SEQRA Negative Declaration, which is incorporated by reference herein; and

WHEREAS, on November 9, 2021 the Planning Board found the Amended Project to be consistent with the relevant policies of the LWRP for the reasons set forth in the June 11, 2019 LWRP Consistency Determination and readopted and reaffirmed such Determination, which is incorporated by reference herein; and

WHEREAS, on October 13, 2021, the Planning Board opened and closed the duly noticed public hearing on the application for Subdivision and Amended Site Plan Approval, at which time all those interested were given an opportunity to be heard; and

WHEREAS, the Planning Board is fully familiar with the Project and has reviewed the Project relative to all applicable provisions of the City Code.

NOW THEREFORE BE IT RESOLVED, that the Planning Board hereby grants Preliminary Subdivision Plat Approval for the Project, as shown on the application materials enumerated above.

BE IT FURTHER RESOLVED, that the Planning Board hereby finds that the Final Subdivision Plat will not be substantively changed from the Preliminary Subdivision Plat and hereby determines that a public hearing on the Final Plat is not required.

BE IT FURTHER RESOLVED, that the Planning Board hereby grants Amended Site Plan and Final Subdivision Plat Approvals for the Amended Project, as shown on the application materials enumerated above, subject to the following conditions and modifications set forth below and any other requirements which must be met by law:

A. The following conditions shall be fulfilled prior to the signing of the Final Subdivision Plat by the Chairman of the Planning Board:

1. All application review fees shall be paid in full.

2. The Applicant shall seek and obtain all required permits and/or approvals from the appropriate agencies for the Project, including but not necessarily limited to approval from the Dutchess County Department of Health, and shall meet all conditions contained in such approvals, as required therein.

3. The comments contained in the City Engineer's letter to the Planning Board dated November 5, 2021, and all comments in any subsequent letter(s) issued, shall be fulfilled to the satisfaction of the City Engineer.

4. The Applicant shall post a performance guaranty with the City of Beacon for all proposed public improvements. The Applicant's engineer shall prepare a cost estimate for the work and provide to the City Engineer for review.

5. All existing and proposed easements, as applicable, shall be shown on the Final Subdivision Plat to the satisfaction of the City Engineer and City Attorney, including:
    a. Proposed Sewer Easement to the City of Beacon
    b. Existing 20 ft. Drainage Easement, recorded in the Dutchess County Clerk's Office on June 12, 2020 as Document #02 2020 2210
    c. Existing Site Distance Easement, recorded in the Dutchess County Clerk's Office on June 12, 2020 as Document #02 2020 2209

    Proposed easement agreements, declarations of restrictive covenants or other appropriate documents corresponding with the easements and notes shown on the Final Subdivision Plat shall be prepared, as applicable, and submitted to the City Attorney for review as to form and shall be recorded in the Dutchess County Clerk's Office simultaneously with or immediately after the Subdivision Plat, with a copy of the recorded documents submitted to the City Clerk for filing.

When the conditions above have been satisfied, six (6) sets of the above referenced plans revised as per the conditions above shall be submitted for endorsement by the Planning Board Chairman. One set of the endorsed plans will be returned to the Applicant, one set will be retained by the City Clerk, one set will be provided to the Planning Board, and one set each will be forwarded to the Building Inspector, City Engineer and City Planner.

B. The following conditions shall be fulfilled prior to the signing of the Site Plan by the Chairman of the Planning Board:

1. The following plans and graphics shall be incorporated into the Site Plan set prior to the signing of the Site Plan by the Chairman of the Planning Board:

    a. "*West Elevation, East Elevation, South Elevation, North Elevation*," Drawing 1 of 1, dated June 26, 2019;

    b. "*Axonometric Diagram*," dated June 26, 2019;

    c. *Rendered West Elevation, Rendered Perspective One, Rendered Perspective Two, Rendered Perspective Three*, Drawing 1 of 1, dated June 26, 2019;

    d. "*Sight Distance Plan for Ferry Landing at Beacon*," prepared by Ferry Landing at Beacon, Ltd, dated July 29, 2019; and

2. If not already established, the Applicant shall establish an escrow pursuant to Section 223-61.1 of the Zoning Code for construction inspections by the City Engineer on behalf of the City of Beacon.

C. Prior to the issuance of a Certificate of Occupancy, the following conditions shall be fulfilled to the satisfaction of the Building Inspector:

1. The Applicant shall submit appropriate Condominium or Homeowner's Association documentation for review as to form by the City Attorney, which shall include but not be limited to (1) common access easements, (2) maintenance obligations for all common areas including landscaping, sidewalks, stormwater facilities, snow removal, and all other common elements, including reference to the aforementioned sight distance easement, (4) common utility easements, and (3) notice of the prohibitions against (i) resident rooftop access, and (ii) installation of rooftop elements, as per the above-referenced plan notation.

2. Based on the current and anticipated future need for park and recreational opportunities in the City of Beacon, as set forth in the analysis provided by BFJ Planning, and the demands of the future population of the Project, the Planning Board hereby finds that additional recreation/parkland should be created as a condition of approval. However, the Planning Board hereby determines that recreation/parkland of adequate size and location cannot be provided on the Project Site. Therefore, that Applicant shall pay a Recreation Fee as prescribed under Sections 223-25.H(4) and 223-61.A(7) of the Zoning Law.

    The Planning Board hereby requires that, prior to the issuance of a Certificate of Occupancy, the Applicant shall pay a Recreation Fee for each of the six new dwellings

transmitted to the City Clerk along with a signed copy of this Resolution and proof of recording of the easement documents described above.

9. The Applicant must return for approval from the Planning Board if any changes to the endorsed plans and/or this Resolution of approval are subsequently desired other than changes determined to be field changes by the Building Inspector or City Engineer. The Planning Board, in its discretion, shall determine the appropriate procedures for consideration of the proposed revision, and whether such revision is material enough to require further environmental analysis and/or further project review, as the Board may deem appropriate.

10. All conditions, set forth in any previous Planning Board Resolution related to the Property, and not superseded herein, shall remain in full force and effect.

Resolution Adopted: December 14, 2021
Beacon, New York

John Gunn, Chairman
City of ~~Beacon~~ Planning Board

12/29, 2021
Dated

Motion by Mr. Byrne, seconded by Mr. Calderon:

Kevin Byrne	Voting AYE	Leonard Warner	Voting AYE
J.C. Calderon	Voting AYE	J. Randall Williams	Voting EXCUSED
Karen Quiana	Voting AYE	John Gunn, Chairman	Voting AYE
Jill Reynolds	Voting AYE		

Resolution: Approved 6-0

Received in the Office of the City Clerk
December 29, 2021

City of Beacon Planning Board Agenda
06/14/2022

Title:

Consider request for one 90-day extension of Preliminary and Final Subdivision Plat Approval, 52 Dennings Avenue, submitted by Angela Ingham.

ATTACHMENTS

6-7-22 52 Dennings - PB Extension Request with Exhibits A & B Attached(5246007.1).pdf

CUDDY +FEDER LLP

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White Plains, New York 10601
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F 914 761 5372
cuddyfeder.com

Taylor M. Palmer
tpalmer@cuddyfeder.com

June 7, 2022

BY E-MAIL

Hon. John Gunn, Chairman
& Members of the Planning Board
City of Beacon
One Municipal Plaza
Beacon, New York 12508

Re: 52 Dennings Residential Subdivision
Request for Extension of Subdivision Approval Resolution
Premises: 52 Dennings Avenue, Beacon, New York (Tax ID: 5954-50-687603)

Dear Chairman Gunn and Planning Board Members:

In connection with the proposal by Angela Ingham (the "Applicant") to subdivide the existing one (1) lot found at the above-referenced Premises into two (2) lots, we are writing to request a second 90-day extension of the September 14, 2021 Preliminary & Final Subdivision Plat Approval Resolution (the "Approval Resolution").[1] This request is timely, as 90 days have not elapsed since the date of the first 90-day extension granted by the Board on April 12, 2022.[2]

As of June 1, 2022, the Applicant received the City's approval of the "check sets" of the final plans, which review was completed by the City's consultants. The Applicant also confirmed that the escrow is current and received a tax certification from the City confirming that all taxes have been paid for the Premises. Accordingly, the final plans are now in the process of being signed by the Applicant, its applicable consultants and the Dutchess County Health Department ("Health Department"). Once the plans are signed by the Health Department (who previously reviewed and approved the plans), the Applicant will submit the requisite number of copies of the plat to the Planning Board's Secretary for endorsement by the Chairman of the Planning Board.

Given the particular circumstances noted above, we respectfully submit this formal request for a second 90-day extension of the Approval Resolution, thus extending to September 9, 2022 the date by which the Applicant must obtain the Health Department's approval and have the plat endorsed by the Chairman of the Planning Board. This Board has the authority to grant the requested extension pursuant to City of Beacon Code Section 195-14(D).

We respectfully request that you please place this matter on the Planning Board's next available Agenda for consideration of the Applicant's request for a second 90-day extension. In the event that

[1] A copy of the September 14, 2021 Approval is attached to this letter as **Exhibit A**.

[2] A copy of the Planning Board's April 12, 2022 Meeting Minutes is attached to this letter as **Exhibit B**.

CUDDY +FEDER LLP

the Applicant is able to file the plat and record the agreements prior to the June 12th expiration of the Approval Resolution, the Applicant will withdraw its application for an extension.

Thank you in advance for your consideration in this matter.

Very truly yours,

Taylor M. Palmer

Enclosure
cc: Jennifer L. Gray, Esq. – Planning Board Attorney
Michael A. Morgante, P.E. – Arden Consulting

WESTCHESTER | NEW YORK CITY | HUDSON VALLEY | CONNECTICUT

Exhibit A

RESOLUTION

PLANNING BOARD
BEACON, NEW YORK

PRELIMINARY AND FINAL SUBDIVISION APPROVALS FOR 52 DENNINGS AVENUE

Parcel ID#5954-50-687603

WHEREAS, the Beacon Planning Board received applications for Preliminary and Final Subdivision Approvals from Angela Ingham, (the "Applicant") for a 2-lot residential subdivision (the "Project" or "Proposed Action") on a 1.07-acre parcel located at 52 Dennings Avenue and designated on the Tax Map of the City of Beacon as **Parcel ID# 5954-50-687603** in the R1-10 One-Family Residence ("R1-10") Zoning District (the "Property"); and

WHEREAS, the Applicant is proposing to subdivide a 1.07-acre parcel with one existing house into two lots for the construction of an additional single-family house; and

WHEREAS, Proposed Lot 1 would consist of approximately 0.404 acres and Proposed Lot 2 would consist of approximately 0.663 acres; and

WHEREAS, the Planning Board is the approval authority for the Subdivision pursuant to City of Beacon Code §195-2; and

WHEREAS, the application consists of application forms, correspondence, Short Environmental Assessment Form ("SEAF") and professional studies and reports submitted to the Planning Board; and

WHEREAS, the subdivision is shown on two sets of drawings, one entitled "Two Lot Subdivision Prepared for Angela Ingham", Sheet 1 of 1, dated July 26, 2021, last revised August 23, 2021, as prepared by Heritage Land Surveying, P.C. and another set of drawings entitled "2-Lot Subdivision For Angela Ingham" Sheets 1-6, dated June 23, 2021, last revised August 23, 2021, as prepared by Arden Consulting Engineers, PLLC, as follows:

Sheet	Title
1 of 6	*Existing Conditions*
2 of 6	*Subdivision Plan*
3 of 6	*Driveway & Utility Easements*
4 of 6	*Grading & Utility Plan*
5 of 6	*Erosion & Sediment Control Plan & Landscaping Details*
6 of 6	*Construction Details*; and

Preliminary & Final Subdivision Approval
52 Dennings Avenue

WHEREAS, the Proposed Action is an Unlisted Action pursuant to the New York State Environmental Quality Review Act ("SEQRA"); and

WHEREAS, the Planning Board reviewed the application at its meetings on July 13, 2021, August 10, 2021 and September 14, 2021; and

WHEREAS, on August 10, 2021 the Planning Board, acting as Lead Agency, adopted a Negative Declaration pursuant to SEQRA after taking a "hard look" at each of the relevant areas of environmental concern through review of the SEAF and all associated materials prepared in connection with the Proposed Action and finding that the Proposed Action will not result in any significant adverse environmental impacts; and

WHEREAS, on August 10, 2021, the Planning Board opened the duly noticed public hearing on the application for Subdivision Approval, the public hearing was continued to September 14, 2021, and was closed on September 14, 2021, at which time all those interested were given an opportunity to be heard; and

WHEREAS, the Planning Board is fully familiar with the Project and has reviewed the Project relative to all applicable provisions of the City Code.

NOW THEREFORE BE IT RESOLVED, that the Planning Board hereby grants Preliminary Subdivision Plat Approval for the Project, as shown on the application materials enumerated above.

BE IT FURTHER RESOLVED, that the Planning Board hereby finds that the Final Subdivision Plan Set will not be substantively changed from the Preliminary Subdivision Plat and hereby determines that a public hearing on the Final Subdivision Plan Set is not required.

BE IT FURTHER RESOLVED, that the Planning Board hereby grants Final Subdivision Approval to the Project, as shown on the application materials enumerated above, subject to the following conditions and modifications set forth below and any other requirements which must be met by law:

A. The following conditions shall be fulfilled prior to the signing of the Final Subdivision Plan Set by the Chairman of the Planning Board:

1. All application review fees shall be paid in full.

2. The Applicant shall seek and obtain all required permits and/or approvals from the appropriate agencies for the Project, including but not necessarily limited to approval from the Dutchess County Department of Health, and shall meet all conditions contained in such approvals, as required therein.

3. All existing and proposed easements, as applicable, shall be shown on the Final Subdivision Plan Set to the satisfaction of the City Engineer and City Attorney. Proposed easement agreements, declarations of restrictive covenants or other appropriate documents corresponding with the easements and notes shown on the Final Subdivision Plan Set shall be prepared, as applicable, and submitted to the City Attorney for review as to form and shall be recorded in the Dutchess County Clerk's Office simultaneously with the Subdivision Plan Set, with a copy of the recorded documents submitted to the City Clerk and Planning Board Secretary for filing.

When the conditions above have been satisfied, six (6) sets of the above referenced plans revised as per the conditions above shall be submitted for endorsement by the Planning Board Chairman. One set of the endorsed plans will be returned to the Applicant, one set will be retained by the City Clerk, one set will be provided to the Planning Board, and one set each will be forwarded to the Building Inspector, City Engineer and City Planner.

B. The following are general conditions which shall be fulfilled:

1. Based on the current and anticipated future need for park and recreational opportunities in the City of Beacon, as set forth in the analysis provided by BFJ Planning and the demands of the future population of the Project, the Planning Board hereby finds that additional recreation/parkland should be created as a condition of approval. However, the Planning Board hereby determines that recreation/parkland of adequate size and location cannot be provided on the Project Site. Therefore, that Applicant shall pay a Recreation Fee for the new lot as prescribed under Section 195-25.A(4) of the City Code. The Planning Board hereby requires that, prior to the issuance of the Certificate of Occupancy, the Applicant shall pay a Recreation Fee as per the City's Fee Schedule in effect at the time of payment.

2. The Building Inspector and the City Engineer shall have the right to direct the Applicant to cause the placement, cleaning and/or repair of sedimentation and erosion control devices wherever and whenever deemed necessary during construction.

3. The Applicant shall be responsible for the payment of all application review costs incurred by the City in its review and approval of this project. Such fees shall be paid by the Applicants within thirty (30) days of each notification by the City that such fees are due. If such fees are not paid within the thirty (30) day period, and an extension therefor has not been granted by the City, this Resolution shall be rendered null and void.

4. As used herein, the term "Applicant" shall include Angela Ingham, her heirs, successors and assigns.

5. If any of the conditions enumerated in this Resolution upon which this approval is granted are found to be invalid or unenforceable, then the integrity of this Resolution and the remaining conditions shall remain valid and intact.

6. The approvals granted by this Resolution do not supersede the authority of any other entity.

7. This approval is conditioned upon compliance with all of the mitigation measures specified in the Applicant's Environmental Assessment Form. The Applicant shall be responsible for the funding and/or implementation of all such identified mitigation measures. Where the terms of this Resolution may be inconsistent with the EAF, the terms of this Resolution shall be controlling.

8. Conditional approval of the Final Subdivision shall expire one hundred eighty (180) days from the date of the adoption of this Resolution unless all items in Condition A above have been certified as completed and the Final Subdivision Plan Set has been submitted for endorsement by the Planning Board Chairman, or unless a written request for an extension of Final Subdivision Approval is granted. The Planning Board may grant ninety (90) day extensions to said time period.

9. Once the Final Subdivision Plan Set has been endorsed by the Planning Board Chairman, said Plan Set must be filed in the Dutchess County Clerk's Office within sixty-two (62) days. After said filing, two (2) copies of the Final Subdivision Plan Set certified by Dutchess County shall be submitted to the Planning Board Secretary. One (1) certified copy of the Final Subdivision Plan Set shall be retained by the Planning Board and the other certified copy shall be transmitted to the City Clerk along with a signed copy of this Resolution and proof of recording of the easement documents described above.

10. The Applicant must return for approval from the Planning Board if any changes to the endorsed plans and/or this Resolution of approval are subsequently desired other than changes determined to be field changes by the Building Inspector or City Engineer. The Planning Board, in its discretion, shall determine the appropriate procedures for consideration of the proposed revision, and whether such revision is material enough to require further environmental analysis and/or further project review, as the Board may deem appropriate.

11. Approval of this Resolution does not constitute any endorsement, approval or authorization of any kind for existing or future encroachments onto the Property.

Resolution Adopted: September 14, 2021
Beacon, New York

John Gunn, Chairman
City of Beacon Planning Board

9/14, 2021
Date

Motion by Jill Reynolds, seconded by Karen Guinna:

Preliminary & Final Subdivision Approval
52 Dennings Avenue

Kevin Byrne	Voting Aye	Len Warner	Voting Aye
J.C. Calderon	Voting excused	J. Randall Williams	Voting excused
Karen Quiana	Voting Aye	John Gunn, Chairman	Voting Aye
Jill Reynolds	Voting Aye		

Resolution:

Exhibit B

Planning Board
April 12, 2022

The Planning Board meeting was held on Tuesday, April 12, 2022 in the Municipal Center Courtroom. The meeting commenced at 7:00 p.m. with Chairman John Gunn, Members Randall Williams, Len Warner, Kevin Byrne, and Jill Reynolds. Also in attendance were City Engineer John Russo and City Planner John Clarke. City Attorney Jennifer Gray appeared remotely. Members Karen Quiana and J.C. Calderon were excused.

Training Session

Mr. Clarke presented the Main Street Action Committee Advisory Report, focusing on public transit. The Beacon Free Loop Bus was discussed, along with options for improving the accessibility and comfort of the existing public transit system. The board discussed the bus agreement with Dutchess County and what changes could be made to the existing system. Mr. Clarke also discussed the plans to add more parks to Main Street and center a transportation system around the public parks.

Regular Meeting

The regular meeting began at 7:31 p.m. with Chairman John Gunn calling for corrections or a motion to approve the minutes of the March 8, 2022 meeting. Ms. Reynolds made the motion to approve the minutes for the March 8, 2022 meeting as presented, seconded by Mr. Byrne. All voted in favor. Motion carried; 5-0.

ITEM NO. 1 - CONTINUE PUBLIC HEARING FOR SEQRA ENVIRONMENTAL REVIEW ON APPLICATIONS FOR SUBDIVISION AND SITE PLAN APPROVAL "BEACON VIEWS TOWNHOUSES" 40 UNITS, CONKLIN STREET, SUBMITTED BY BEACON VIEWS, LLC

This item was postponed at the request of the applicant.

ITEM NO. 2 - CONTINUE REVIEW OF APPLICATION FOR SPECIAL USE PERMIT AND SITE PLAN APPROVAL, HOTEL AND EVENT SPACE, 1113 WOLCOTT AVENUE, SUBMITTED BY PROPHECY THEATER, LLC

This item was postponed at the request of the applicant.

ITEM NO. 3 - CONTINUE PUBLIC HEARING ON APPLICATIONS FOR SUBDIVISION (LOT MERGER) APPROVAL AND SITE PLAN APPROVAL, THREE-STORY MIXED-USE RESIDENTIAL AND COMMERCIAL DEVELOPMENT, 364 MAIN STREET, SUBMITTED BY O'DONNELL CONSTRUCTION CORP.

Attorney Taylor Palmer presented updates made to the roof design, resulting from the board's previous comments. The changes included green space and solar panel accessibility.

Architect Aryeh Siegel presented revised plans and renderings based on the Architectural Review Board (ARB) comments. He noted that the renderings are an artistic interpretation and the actual elevations are shown on the plans provided. They will provide more renderings showing surrounding buildings, including the Salvation Army church, and provide an updated

lighting plan. Mr. Siegel also addressed the board's comments on the ADA parking spot locations.

The board discussed the brick exterior of the building and the changes in window design, which is now more in line with the surrounding buildings. They discussed the cornice which was updated to wrap around the building and was made simpler. The cornice helps break up the bulk of the building and directs the focus to smaller elements.

Members had concerns about the façade of the building, including the cornice, windows, and proportions. They reviewed the light fixture options provided by architect Aryeh Siegel and preferred the first option.

City Engineer John Russo reviewed the plans to mitigate the drainage issues and attempt to prevent flooding onto adjacent properties located on Eliza Street. Mr. Gunn opened the floor for public comment.

Theresa Kraft read the following comments:

> With regards to the rooftop discussion tonight on the usable space for residents. I'm not sure how safe it will be to sit and relax amongst solar panels and the reflections of the solar rays. And regardless rooftop living space equals a fourth floor. Looking at the visuals and reading the submissions for tonight's 364 Main Street presentation I still do not see where this is beneficial to the residence of Beacon. I hope that the Main Street driveway is eliminated completely from this project. I oppose this high-density project as it will negate the historic view of the church, the carriage building and impose on the New Deal listed Post Office. As planned, it may look pretty in the pictures but in reality, we will only see a side driveway with delivery trucks and cars 24/7 negating the safety of residents and tourists walking and driving on Main Street. It is a potential disaster. And no matter how you look at it it's still a four-story building with no Hudson Valley architectural elements put into the fold. We need to be reminded it is neighboring historic buildings. In a few short years Beacon will no longer be referred to as a historic riverfront community but just another bland megatropolis. Welcome to historic brickyards of Beacon the new home of the faux bricks.

Stosh Yankowski, South Chestnut Street, wanted to ensure the full roof plan is shown, and that no more structures will be added as on other properties on Main Street. He reiterated his comments on the driveway from the previous meeting, stating that he believes it to be dangerous and expressed his surprise at the fact that the board cannot eliminate it. Chairman John Gunn emphasized the board can advocate for removal of the driveway, but cannot eliminate it.

Raymond Clary, 27 Eliza Street, resides in a neighboring building and has extensive drainage concerns. His property is downhill of the applicant's and the rain has made his backyard unusable. Mr. Clary requested that the drainage issues be addressed before any other construction begins. He also questioned whether the parking lot area will be fenced off, expressing concern for the people that walk through that area as a safer alternative to walking on Main Street. Chairman John Gunn noted that all of Mr. Clary's previous letters had been received and are public record.

Bill Irwin, 494 South Avenue, felt the rendering did not show a fourth floor which he believes will inevitably be built. Chairman John Gunn clarified that the building is three stories, not four. Mr. Irwin concluded by seconding Mr. Clary's drainage concerns.

Taylor Palmer clarified that the applicant is not proposing a four-story building and the City Engineer's drainage concerns were incorporated into their plans. The board continued to discuss drainage issues and mentioned that the City will continue to monitor drainage during construction.

A motion was made to close the public hearing by Jill Reynolds, and the motion was seconded by Len Warner. All voted in favor. Motion carried; 5-0

Board members board reviewed the draft resolution, including a condition that the applicant obtain a license agreement with the Beacon Natural Market. A motion to adopt the resolution was made by Randall Williams and seconded by Jill Reynolds. All voted in favor. Motion carried; 5-0.

ITEM NO. 4 - CONTINUE REVIEW OF APPLICATIONS FOR SITE PLAN APPROVAL (REVISED SINCE 2019) AND SUBDIVISION APPROVAL, "TWO CROSS STREET" 4 CROSS STREET/172 MAIN STREET, THREE-STORY MIXED-USE BUILDING, SUBMITTED BY HUDSON TODD, LLC

Architect Joseph Torhan described presented the changes made based on the board's comments. They reviewed modifications to the building design and off-street parking. The subdivision was questioned by the board and the applicant stated that they will do more research into how the previous subdivision occurred. The applicant was informed that he needs to submit a revised EAF reflecting the requested changes.

Mr. Clarke complimented the applicant on their rooftop plan and affordable units, but questioned whether the parking lot at 10 Cross Street was within the property lines. The applicant stated they have an incoming survey to make that determination. The board decided to recommend scheduling an ARB review. Mr. Warner made a motion to refer the applicant to the ARB, seconded by Mr. Byrne. All in favor. Motion carried; 5-0

ITEM NO. 5 - CONTINUE REVIEW OF APPLICATION FOR SITE PLAN APPROVAL, MULTI-FAMILY RESIDENTIAL (62 UNITS), 16 WEST MAIN STREET, SUBMITTED BY FARRELL BUILDING COMPANY

Engineer Diego Villareale of JMC Engineers appeared to represent the applicant. He reviewed the application and provided a recap of the project, while addressing comments from the City Engineer and City Planner. They worked with a geotechnical engineer and will now drill pilings rather than a drilled pile system, which is expected to result in less noise and vibration during construction. Mr. Villareale continued with an explanation of the changes made to the structural design, retaining walls, and stormwater management plan.

Mr. Clarke provided comments on the lighting fixtures and informed the applicant they would need more details on their site plan, along with scaled elevations and a complete rooftop plan. The current rooftop plan did not meet setback requirements. Parking requirements were also discussed.

Mr. Russo discussed the demolition plan and the need to protect pedestrian traffic on West Main Street. He informed the applicant that they need a safety plan and explain how snow removal will be addressed. Members discussed comments made in previous ARB meetings, the benefits of recessed balconies, and the color scheme of the building. They suggested that a more focused review in another ARB meeting. Ms. Reynolds made a motion schedule a SEQRA public hearing for the month of May, seconded by Mr. Warner. All voted in favor. Motion carried; 5-0.

ITEM NO. 6 - CONTINUE REVIEW OF APPLICATION FOR SPECIAL USE PERMIT AND SITE PLAN APPROVAL, MIRBEAU INN & SPA @ HOWLAND ESTATE, 7 CRAIG HOUSE LANE, SUBMITTED BY THE MIRBEAU COMPANIES

Applicant and partner Ed Kellogg introduced development team members Jonathan DalPos (Mirbeau Companies Vice President), architects David Bois and Amy Korte of Arrowstreet Architecture, Landscape Architect and Site Planner Henry Thomas of LRC Consulting, Civil Engineer Mike Bodendorf of Hudson Land Design, Traffic Consultant Rich D'Andrea of Colliers, and Attorney Dan Leary Berlandi Nussbaum & Reitzas, LLP. Mr. Bois reviewed the proposed master plan for the site. The first phase focused on the hotel and Howland Estate, with future phases to include a resort farm, rental cottages, restoration of the Tioronda School, and recreation areas. The applicant will submit a new application for each phase of the project. The applicant's traffic study is currently being reviewed by City consultants Creighton Manning. Board members discussed issues with parking in front of the main building and preferred that the main building remain visible from Route 9D.

Landscape Architect Henry Thomas presented proposed site plan details and existing conditions. He described the hotel components, mansion renovations, and hotel facilities. A new structure will be added on the east side of the mansion and special attention would be given to evaluating legacy trees. Mr. Thomas elaborated on the parking plan, explaining that different parking areas will be utilized for different uses, such as day visitors, spa guests, restaurant guests, hotel guests, venue events, and employees. He discussed curb cuts on Route 9D and explained a curb cut at the far-left side of the property will be used for emergency vehicle access only. Members discussed enhancing the rear view of the mansion and restoring the building, as they are focused on the public view from Route 9D. Mr. Gunn reported the Greenway Trail Committee has concerns with the property's vicinity to the creek. The applicant received the committee's concerns and will research them further.

After some consideration, Mr. Williams made a motion to declare the Planning Board's intent to act as Lead Agency in the SEQRA environmental review process and authorize circulation of a Notice of Intent to act as Lead Agency, seconded by Ms. Reynolds. All voted in favor. Motion carried; 5-0.

Mr. Clarke provided comments on the parking placement, stating that he does not think the parking will be invisible, and had concern that screening would obscure views of the mansion. He requested a detailed survey of the legacy trees and an archaeological analysis. The applicants stated an archaeological analysis was done by previous owners and will be provided. Mr. Clarke recommended the future buildings and phases be planned out for SEQRA analysis so there are no surprises by future phases.

Mr. Russo advised the applicant that they will need Department of Health and Department of Transportation approval.

ITEM NO. 7 - REVIEW APPLICATION FOR SPECIAL USE PERMIT AND SITE PLAN APPROVAL, ACCESSORY APARTMENT, 18 NORTH WALNUT STREET, SUBMITTED BY BRIAN DONNELLY AND SCOTT RAMSEY

Applicants Brian Donnelly and Scott Ramsey presented their plan to build an accessory apartment and partially demolish an existing garage. Mr. Gunn informed the applicants that the cumulative square footage will require a variance. Members discussed lot coverage, the rear fence, and water/sewer service utilities. The applicant was informed that water and sewer service locations must be shown on the drawings, and elevations must be provided. The applicant was informed that they must obtain a variance from the Zoning Board of Appeals before a public hearing can be scheduled.

Ms. Reynolds made a motion to refer the application to the Zoning Board of Appeals with a positive recommendation, seconded by Mr. Williams. All voted in favor. Motion carried; 5-0. Mr. Williams made a motion to set a public hearing for the next Planning Board meeting after they appear before the Zoning Board of Appeals, seconded by Ms. Reynolds. All voted in favor. Motion carried; 5-0. Ms. Reynolds made a motion to authorize the City Attorney's office to draft of approval for consideration at their next appearance, seconded by Mr. Warner. All voted in favor. Motion carried; 5-0.

ITEM NO. 8 - REVIEW APPLICATION FOR SUBDIVISION APPROVAL, 2-LOT RESIDENTIAL, 146 VERPLANCK AVENUE, SUBMITTED BY JAMES PETTY

Engineer Dan Koehler of Hudson Land Design, joined by applicant James Petty, described the plan to subdivide 146 Verplanck Avenue with one existing house into two lots for the construction of an additional house. An area variance will be needed because it will leave Lot 1 with a 4.7 ft. side yard setback where 10 ft. is required. The proposal includes new water and sewer service connections and a new driveway. Members discussed the variance and stated that they must complete SEQRA before the application can be referred to the Zoning Board of Appeals.

After some consideration, Mr. Williams made a motion to declare the Planning Board's intent to act as Lead Agency in the SEQRA environmental review process and authorize circulation of a Notice of Intent to act as Lead Agency, seconded by Ms. Reynolds. All voted in favor. Motion carried; 5-0. Ms. Reynolds made a motion to draft a Negative SEQRA Declaration resolution for consideration at the next meeting, seconded by Mr. Warner. All voted in favor. Motion carried; 5-0.

Members discussed removal of two large trees from the property, options for saving one of the trees, and driveway and turnaround options.

ITEM NO. 9 - REVIEW APPLICATION FOR SPECIAL USE PERMIT AND SITE PLAN APPROVAL, INDOOR AND OUTDOOR EVENT SPACE, 4 HANNA LANE, SUBMITTED BY JASON HUGHES

Architect Aryeh Siegel presented his client's proposal to convert an existing building into an indoor and outdoor event space. The space was temporarily permitted to host events on a case-by-case basis through the Building Department's issuance of noise and event permits. The applicant is now seeking to make this a permanent event space. The venue will host concerts, weddings, and provide food service through a re-purposed storage container. The board discussed whether the storage container will be classified as a building, and it was determined that any structure with a roof is considered a building. Members agreed that any permanent structure must comply with setback requirements, and a discussion on the placement of the food service structure and portable toilet structures took place. Applicant Jason Hughes discussed plans for a stage which can be moved and will not have one set location. Members had concern about noise that can be created with the use of a stage and event space, and considered the need for a wall to contain the space. They determined that a noise evaluation should be provided since the event space will become permanent if approved.

Mr. Russo asked what was typical traffic volume for the proposed events. The applicant stated that most attendees utilize car-pooling and walking, and that traffic flow has worked in previous events. The applicant was informed that parking requirements would have the be discussed with the Building Inspector. Additionally, details on the plans were discussed, including lighting near the stairs, extending the sidewalk from the parking lot to the main entrance, and plumbing requirements.

After some consideration, Ms. Reynolds made a motion to declare the Planning Board's intent to act as Lead Agency in the SEQRA environmental review process and authorize circulation of a Notice of Intent to act as Lead Agency, seconded by Mr. Williams. All voted in favor. Motion carried; 5-0

Miscellaneous Business

Zoning Board of Appeals – March meeting

Members had no comments on the Zoning Board of Appeals' March agenda.

Consider request for one 90-day extension of Subdivision Approval, 14 Green Street, submitted by Thomas Rigney

Dennis Lynch of MJ Engineering presented his client's request for a 90-day extension of final Subdivision Approval for the two-lot subdivision at 14 Green Street. He reported plans have been circulated for final review and a few items need to be completed. The approval expires in May so he wanted to provide ample time to complete the outstanding comments. After careful consideration, Mr. Williams made a motion to grant a 90-day extension as requested, seconded by Ms. Reynolds. All voted in favor. Motion carried; 5-0.

Consider request for one 90-day extension of Subdivision Approval, 52 Dennings Avenue, submitted by Angela Ingham

Attorney Taylor Palmer presented his client's request for a 90-day extension of final Subdivision Approval for the two-lot subdivision at 52 Dennings Avenue. He reported they completed all outstanding items and are finalizing the plat for review. After careful

consideration, Ms. Reynolds made a motion to grant a 90-day extension as requested, seconded by Mr. Williams. All voted in favor. Motion carried; 5-0.

Architectural Review

Single Family House – Shea Lane

Property owner Gary Joseph presented proposed elevations for a new house on a lot located on Shea Lane. Members reviewed the proposed elevations, color scheme and materials relative to neighboring housing stock. After careful consideration, Mr. Williams made a motion, seconded by Ms. Reynolds, to approve the elevations, color and material scheme as presented with the following: Siding – Hardiplank Board and Batten, horizontal siding and shingle in Monery Taupe and Iron Gray; Roof – Certainteed Landmarked Asphalt Shingle in Cobble Stone Gray; Windows – Double Hung Black; and Trim – Monery Taupe and Iron Gray; Garage Door – Black; and Stone in Delgato Fieldstone "mosaic". All voted in favor. Motion carried.

Certificate of Appropriateness – 473 Main Street; signage

Patricia Rothberg described her proposal to install a sign at 473 Main Street to advertise her daughter's dance studio. Only one sign is permitted per building therefore two other businesses share advertising and are listed on the sign – Berg & Moss Architects, Wanderlux, and Passion-The Adult Dance Studio. The 24" x 26" sign is double-sided and internally lit. After some discussion, Ms. Reynolds made a motion to approve the sign as presented, seconded by Mr. Byrne. All voted in favor. Motion carried; 5-0.

416-420 MAIN STREET; SIGN FOR CENTRAL GREEN SPACE

Attorney Taylor Palmer presented the revised sign that was increased from 11" x 17" to 18" x 30" with larger solid lettering. The sign will be placed at the entrance near Main Street. A lengthy discussion took place with regard to the size and height of the proposed sign. Members did not particularly care for the design, however it served the purpose and met the requirements of the board's advice from the last meeting. Mr. Byrne felt it undercut the City Council's intent. After a lengthy debate, Mr. Gunn made a motion to approve the sign as presented, seconded by Mr. Williams. On roll call Mr. Gunn, Mr. Williams, Mr. Warner and Ms. Reynolds voted in favor of the motion; Mr. Byrne voted against the motion. Motion carried; 4-1.

There was no further business to discuss and the meeting was adjourned on a motion made by Mr. Williams, seconded by Ms. Reynolds. All voted in favor. Motion carried. The meeting adjourned at 10:55 p.m.

City of Beacon Planning Board Agenda
06/14/2022

Title:

Certificate of Appropriateness - 145 Main Street; Signage

ATTACHMENTS

145 Main Signage.pdf

1441

ARCHITECTURAL REVIEW BOARD APPLICATION

Date: May 24, 2022

Project Address: 145 MAIN STREET

Project Architect/Engineer: N/A

Owner/Builder: JOE DONOVAN

Contact Phone No.: 215 510 8642

Approval Requested: ✓ Certificate of Appropriateness _____ New Single Family House

Color/Materials:

Siding: _____

Roofing: _____

Windows: Color: _____ Type: _____

Trim: _____

Garage Door: _____

Stone/Brick: _____

For LINDLEY TODD LLC

Signature of Owner

FOR OFFICE USE ONLY:

The Architectural Review Board has reviewed the plans submitted for approval for the project listed above and has determined:

Plan Denied _____
(Date)

Plan Approved _____
(Date)

Subject to the following:

_____

_____

FEE: $100.00

Paid cash


26" bracket
18x24" Sign
hunca, munca's
14" Diameter Sign
BEACON HEALING MASSAGE


26" bracket
18x24" Sign
hunca, munca's
14" Diameter Sign
BEACON HEALING MASSAGE

City of Beacon Planning Board Agenda
06/14/2022

Title:

Certificate of Appropriateness - 149 Main Street; Change façade color

ATTACHMENTS

145 Main Facade ARB Application.pdf

145 Main Facade ARB Previously Approved Application.pdf

1445

ARCHITECTURAL REVIEW BOARD APPLICATION

Date: 5-31-22

Project Address: 145 MAIN St.

Project Architect/Engineer: [redacted] JOSEPH TORHAN

Owner/Builder: _____

Contact Phone No.: 815-482-2782 / BETHANY BUILDING CONTACT

Approval Requested: X Certificate of Appropriateness _____ New Single Family House

Color/Materials:

Siding: OC-127 WHITE CHOCOLATE / PACKAGE SEE FOR DETAIL

Roofing: _____

Windows: Color: _____ Type: _____

Trim: _____

Garage Door: _____

Stone/Brick: _____

_____ - JOE DONOVAN
Signature of Owner

FOR OFFICE USE ONLY:

The Architectural Review Board has reviewed the plans submitted for approval for the project listed above and has determined:

Plan Denied _____
(Date)

Plan Approved _____
(Date)

Subject to the following:

_____

_____

FEE: $100.00

1446

SITE PLAN

Scale: 1" = 20.0'

GRAPHIC SCALE: 0' 10' 20' 50'

N

LOCATION MAP

Aerial View: Not to Scale

Joseph E. Torhan Architect
joe.torhanarchitect@gmail.com
845-475-4102

Owner
Lindley Todd LLC
4 Cross Street Beacon, NY 12508

Project PROPOSED EXTERIOR ALTERATIONS:
143 & 145 Main Street
Beacon, NY 12508

Revision Date

Drawing AERIAL LOCATION MAP AND SITE PLAN

Scale Noted

Date 14 Sept. 2021

Drawing NO. A1

1 of 4

PHOTO No.1

PHOTO No.2

PHOTO No.3

PHOTO No.4

PHOTO No.5

PHOTO KEY PLAN

Not to Scale

Joseph E. Torhan Architect
joe.torhanarchitect@gmail.com
845-475-4102

Owner
Lindley Todd LLC
4 Cross Street Beacon, NY 12508

Project PROPOSED EXTERIOR ALTERATIONS:
143 & 145 Main Street
Beacon, NY 12508

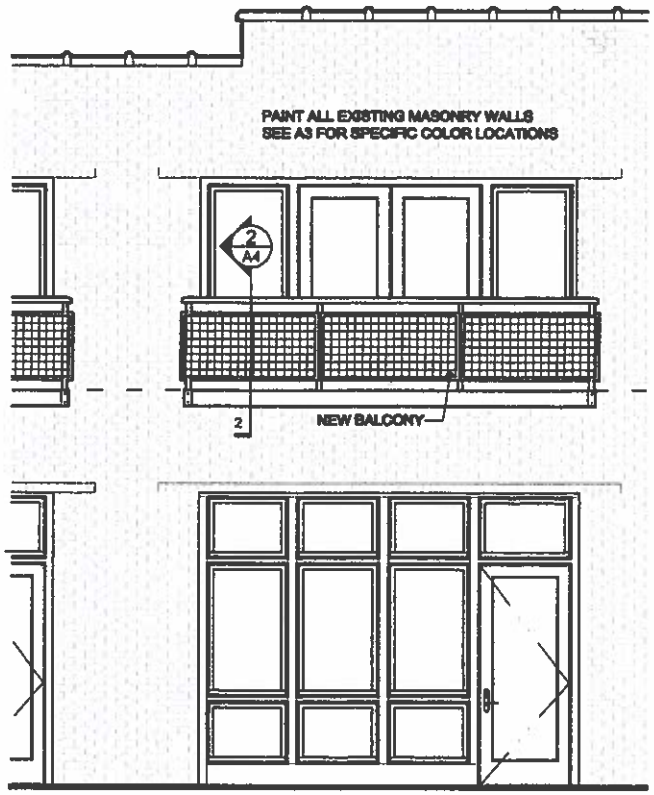
Revision Date

Drawing
PHOTOS
EXISTING CONDITIONS

Scale Not to Scale Date 14 Sept. 2021

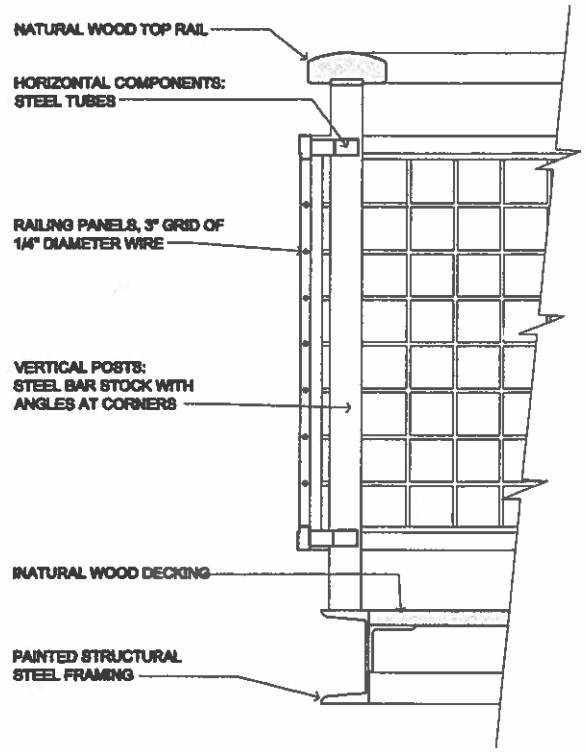
Drawing NO A2

SHEET 2 of 4



DETAIL ELEVATION No.1

Scale: 1/4" = 1'-0"



SECTION DETAIL No.2

Scale: 1 1/2" = 1'-0"

TYPICAL FINISHES

EXISTING EXTERIOR WALLS:

All existing masonry walls to be painted using Benjamin Moore paints. See Exterior Elevations on drawing A3 for specific locations of the following colors:

Historic color HC 154 Hale Navy
Historic color HC 159 Philipsburg Blue
2126 Anchor Gray
2129 SOOT

WINDOWS:

All new windows to be 'Elevate' windows as manufactured by Marvin. Color of frames to be Black.

EXTERIOR DOORS:

All new exterior doors to be 'Ultimate' doors as manufactured by Marvin. Color of frames to be Black.

BALCONY MATERIALS:

All balcony steel components to be schedule 80 hot dipped galvanized.

All natural wood top rails and decking to be reclaimed Cumaru or similar substainably resourced, weather resistant wood.

Joseph E. Torhan Architect joe.torhanarchitect@gmail.com 845-475-4102	Owner Lindley Todd LLC 4 Cross Street Beacon, NY 12508	Project PROPOSED EXTERIOR ALTERATIONS: 143 & 145 Main Street Beacon, NY 12508	Revision Date	Drawing DETAILS AND FINISH SPECIFICATIONS Scale Noted Date 14 Sept. 2021	Drawing NO A4 4 of 4

1448

COMMERCE STREET ELEVATION

Scale: 1/16" = 1'-0"

EAST ELEVATION

Scale: 1/16" = 1'-0"

WEST ELEVATION

Scale: 1/16" = 1'-0"

MAIN STREET ELEVATION

Scale: 1/16" = 1'-0"

REVISED PAINT COLORS, ISSUED TO CITY OF BEACON 31 May 2022

ALL PAINT COLORS ARE BENJAMIN MOORE WITH COLOR PALETTE AT https://www.benjaminmoore.com

Joseph E. Torhan Architect
joe.torhanarchitect@gmail.com
845-475-4102

Owner: Lindley Todd LLC
4 Cross Street Beacon, NY 12508

Project: PROPOSED EXTERIOR ALTERATIONS:
143 & 145 Main Street
Beacon, NY 12508

Revision Date

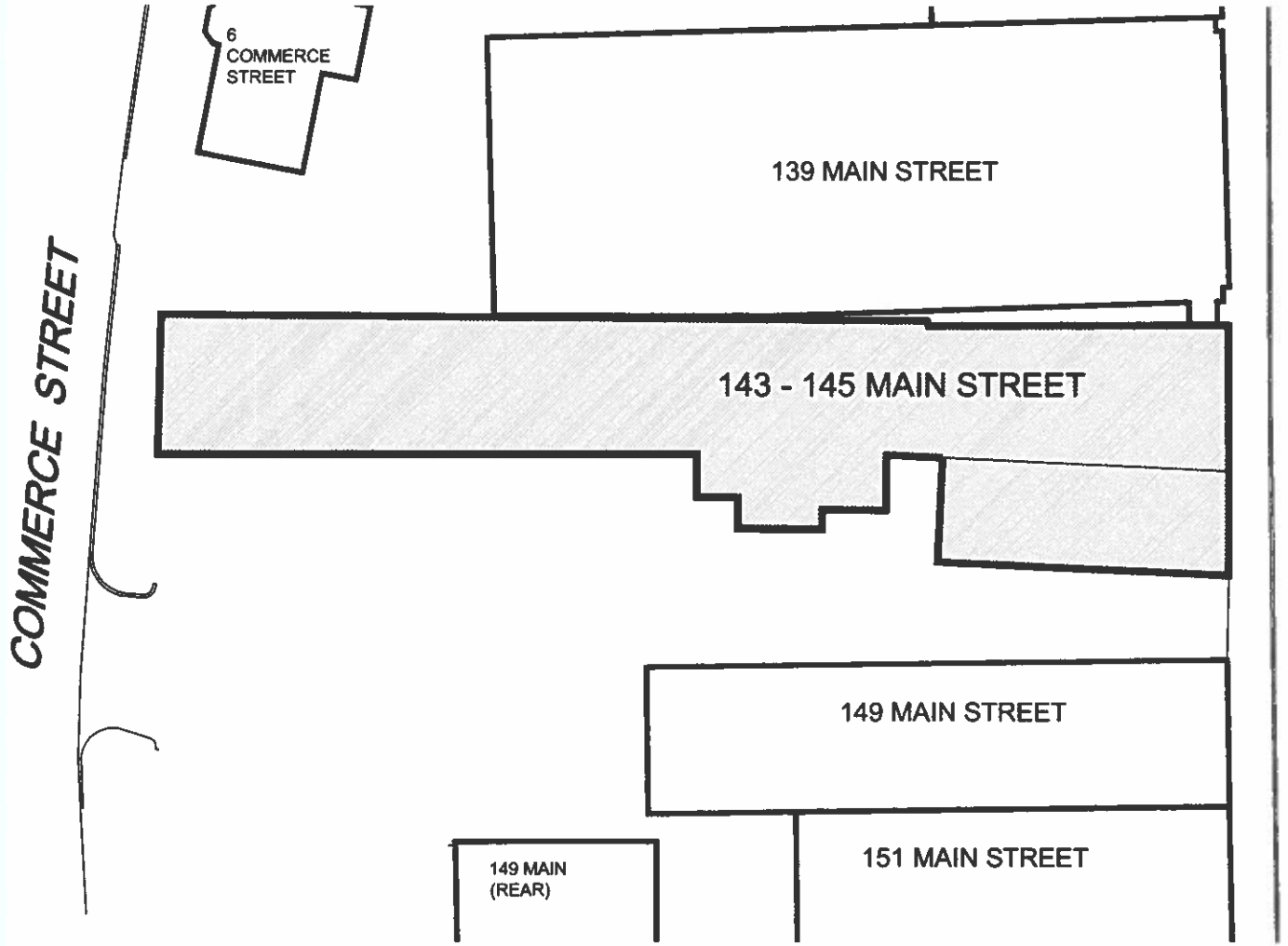
Drawing: PROPOSED EXTERIOR ELEVATIONS

Scale: Noted

Date: 14 Sept. 2021

Drawing NO. A3


SW7566 West Highland White
SW7013 Ivory Lace
SW6140 Moderate White
OC-127 White Chocolate
OC-117 Simply White
947 Navajo White



SITE PLAN

Scale: 1" = 20.0'

0' 10' 20' 50'

GRAPHIC SCALE:

N



LOCATION MAP

Aerial View: Not to Scale

Joseph E. Torhan Architect joe.torhanarchitect@gmail.com 845-475-4102	Owner Lindley Todd LLC 4 Cross Street Beacon, NY 12508	Project PROPOSED EXTERIOR ALTERATIONS: 143 & 145 Main Street Beacon, NY 12508	Revision Date	Drawing AERIAL LOCATION MAP AND SITE PLAN Scale Noted Date 14 Sept. 2021	Drawing NO. A1 1 of 4



PHOTO No.1



PHOTO No.3



PHOTO No.5



PHOTO No.2



PHOTO No.4

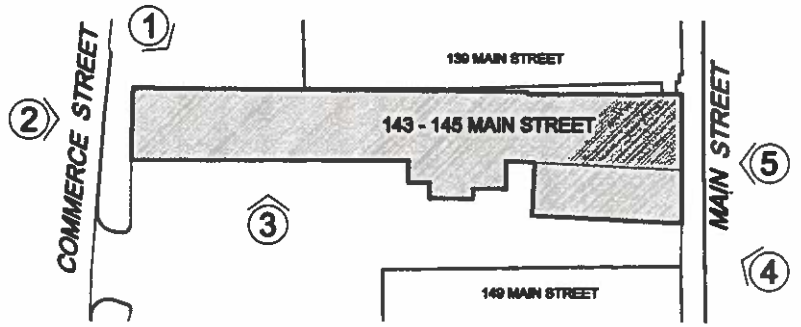


PHOTO KEY PLAN

Not to Scale

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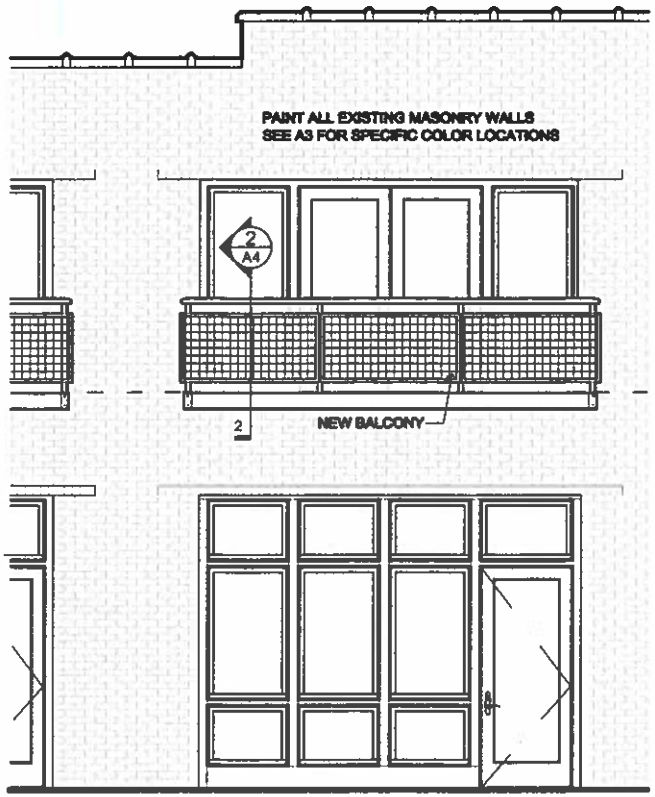
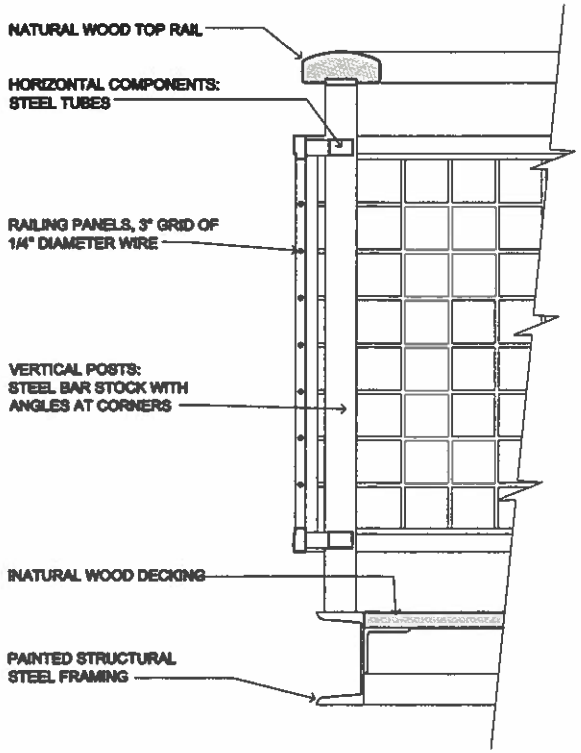
Joseph E. Torhan Architect joe.torhanarchitect@gmail.com 845-475-4102	Owner Lindley Todd LLC 4 Cross Street Beacon, NY 12508	Project PROPOSED EXTERIOR ALTERATIONS: 143 & 145 Main Street Beacon, NY 12508	Revision Date	Drawing PHOTOS EXISTING CONDITIONS Scale Not to Scale Date 14 Sept. 2021	Drawing NO. A2 SHEET 2 of 4



DETAIL ELEVATION No.1

Scale: 1/4" = 1'-0"



SECTION DETAIL No.2

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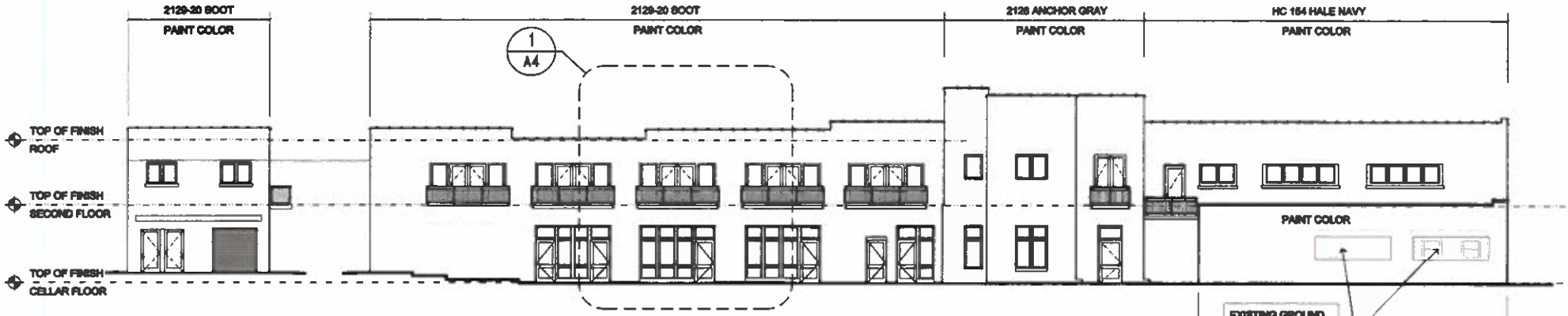
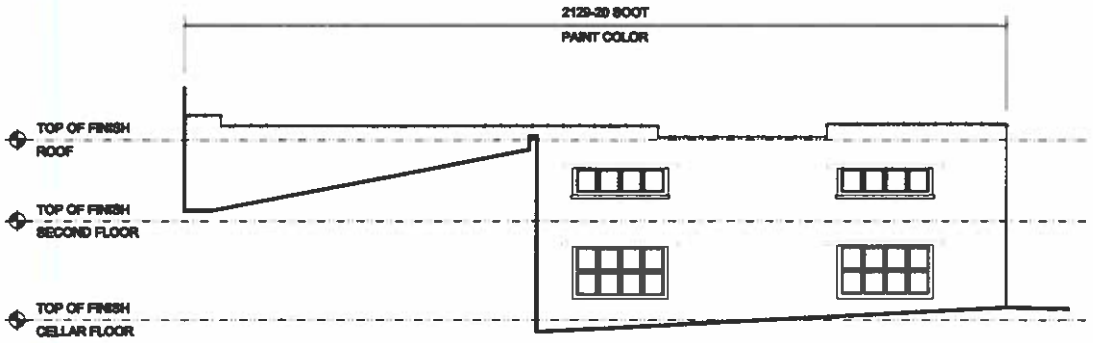


COMMERCE STREET ELEVATION

Scale: 1/16" = 1'-0"

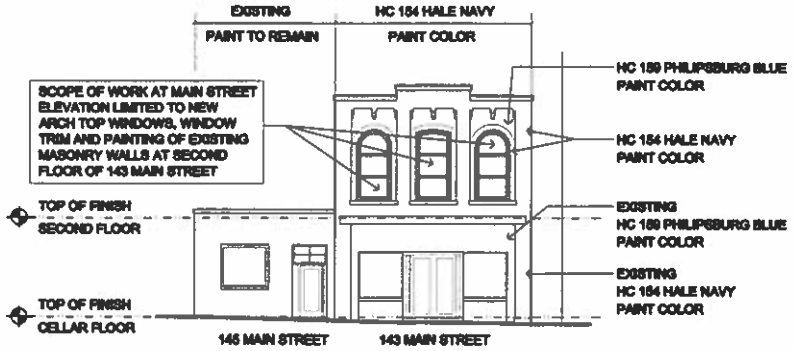
EAST ELEVATION

Scale: 1/16" = 1'-0"



WEST ELEVATION

Scale: 1/16" = 1'-0"



MAIN STREET ELEVATION

Scale: 1/16" = 1'-0"

Joseph E. Torhan Architect joe.torhanarchitect@gmail.com 845-475-4102	Owner Lindley Todd LLC 4 Cross Street Beacon, NY 12508	Project PROPOSED EXTERIOR ALTERATIONS: 143 & 145 Main Street Beacon, NY 12508	Revision Date	Drawing PROPOSED EXTERIOR ELEVATIONS Scale Noted Date 14 Sept. 2021	Drawing NO. A3 3 of 4