COURTROOM
1 MUNICIPAL PLAZA
BEACON, NY 12508

Len Warner
Karen Quiana
Kevin Byrne
Donna Francis
J. Randall Williams
David Jensen
Chair John Gunn

March 12, 2024
7:00 PM
Planning Board Agenda

The Planning Board will meet on Tuesday, March 12, 2024, at 7:00 PM, in the Municipal Center Courtroom. A work session will take place at 7:00 PM, 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 not later than 7:30 PM.

Regular Meeting

1. Approval of February 14, 2024, minutes
2. Public hearing of applications for Site Plan approval, Subdivision approval, and Special Use Permit, place of worship, 409 Fishkill Avenue, Fishkill Avenue, and Mead Avenue, submitted by Soka Gakkai International â€“ USA.
3. Public hearing of application for Subdivision approval, internal property subdivision, 18-30 Edgewater Place, submitted by Scenic Beacon Developments, LLC.
4. Review of application for Amended Site Plan approval, 11 Mirbeau Lane, submitted by Edward Kellog.
5. Review of application for Site Plan approval and Special Use Permit, car dealership, 410 Fishkill Avenue, submitted by Carvana, LLC c/o Jenn Roldan.
6. Review of application for Amended Site Plan approval, 248 Tioronda Avenue, submitted by Beacon 248 Holdings LLC (Bernard Kohn).

Architectural Review

1. Certificate of Appropriateness â€“ 209-211 Main Street; Sign

Miscellaneous Business

1. Consider request for two (2) 90-day extensions of Preliminary & Final Subdivision Plat, 152-158 Fishkill Avenue, Mixed-Use Commercial and Residential, submitted 152-158 Fishkill Avenue, LLC.
2. Consider appointment to the City of Beacon Traffic and Safety Planning Committee.

City of Beacon Planning Board Agenda
03/12/2024

Title:

Approval of February 14, 2024, minutes

ATTACHMENTS

City of Beacon Planning Board Agenda
03/12/2024

Title:

Public hearing of applications for Site Plan approval, Subdivision approval, and Special Use Permit, place of worship, 409 Fishkill Avenue, Fishkill Avenue, and Mead Avenue, submitted by Soka Gakkai International – USA.

ATTACHMENTS

409 Fishkill PB 3.12.24 Cover Letter_2024-0227.pdf

409 Fishkill PB 3.12.24 SUP App (executed).pdf

409 Fishkill PB 3.12.24 BLED10YW_spec_sheet.pdf

409 Fishkill PB 3.12.24 RAB Ivelot.pdf

409 Fishkill PB 3.12.24 Schematic Design 2-26-24 proposed sheets.pdf

409 Fishkill PB 3.12.24 WAC Aether.pdf

409 Fishkill PB 3.12.24 WAC Endurance.pdf

409 Fishkill PB 3.12.204 Site Plan Set -2024-0227.pdf

Lanc Tully 409 Fishkill Ave 03-06-24 review.pdf

KARC Review PB_409 Fishkill Ave_3.8.2024.pdf

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
www.HudsonLandDesign.com

February 27, 2024

Hon. John Gunn, Chairman and Members of the City of Beacon Planning Board
1 Municipal Plaza
Beacon, NY 12508

Re: SGI-USA Site Plan and Special Use Permit, and Lotline Merger (Subdivision)
409 Fishkill Avenue
Tax Parcels: 6055-80-403061 (±0.23 acre)
6055-80-399053 (±0.16 acre)
6055-80-406047 (±0.23 acre)
6055-80-411056 (±0.22 acre)
6055-80-416064 (±0.22 acre)
6055-80-418071 (±0.11 acre); 1.17 acres total
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 pleased to submit five (5) copies of the following documents in support of the Project:

- Application for Special Use Permit
- Civil Site Plan Set (Sheets 1 through 9 of 9)
- Building elevations and floorplan (2 sheets)
- Light fixture cut sheets

These items have been revised based on consultants' comments and are being submitted to the City of Beacon Planning Board for continued review. The following are point-by-point responses to each comment contained within the consultant review letters:

Lanc & Tully review letter dated February 9, 2024:

General Comments:

1. Colliers has confirmed that the City of Beacon has approval authority for work in this area of Fishkill Avenue. Email correspondence between Colliers and the New York State Department of Transportation was forwarded to the City Engineer on February 11, 2024.
2. Comment noted.
3. Comment noted. A description of the dedication area will be provided.

Engineering Plans:

1. Sheet SP-1 has been revised with a callout stating a minimum 5-foot width for the sidewalk along Fishkill Avenue.
2. The lighting plan has been revised with a combination of lower wattage lights and the addition of the fence to the lighting model to verify light levels along the property boundaries.
3. The light pole noted has a forward throw fixture and is directed into the project area. Light levels along this property line are below 0.5 footcandles.

KARC review letter dated February 12, 2024:

1. The SUP application has been updated to clarify that there are special use permits for both the parking in the residential district (per §223-26(C)(8) and for the parking on GB properties per the Schedule of Use Regulations. In addition, Site Plan Note 1 on Sheet SP-1 has been expanded to describe the two special uses associated with the project.
2. Scrub oaks have been replaced with red oaks.
3. Lighting
    a. The lighting plan has been revised in several ways to decrease the light levels at the property boundaries. The wattage of the wall mounts has been decreased and a light at the left rear of the building was removed, the proposed 5' tall fence was added to the lighting model to more accurately determine light levels behind the fence, and the wattage of the two lights in the grass island of the parking area have been reduced. The lighting model was expanded to show light levels beyond the property boundaries.
    b. The pole mounted and building mounted lights are full cutoff. The bollard lights have been replaced with lower wattage models with full cutoff. The lighting under the front overhand above the building entry are recessed and therefore are not capable of lighting upward. Cut sheets for the proposed lights are attached.
    c. The revised lighting model has an average light level of 1.22 for the exterior areas within the property boundaries.
    d. The construction detail has been revised to focus on the light pole and not the luminaire.

At the February 2024 meeting, the Planning Board resolved to set the public hearing for this project at the March meeting. Kindly contact us for required signage, mailings and advertising materials.

Should you have any questions, please feel free to contact me at my direct line 845-766-8955.

Sincerely,



Daniel G. Koehler, P.E.
Principal

cc: SGI-USA (via email)
Robert Scarpa, R.A., NCARB, LEED AP BD+C (via email)
Michael A. Bodendorf, P.E. (HLD file)

APPLICATION FOR SPECIAL USE PERMIT

Submit to Planning Board Secretary, One Municipal Plaza, Suite One, Beacon, New York 12508

IDENTIFICATION OF APPLICANT

Name: Soka Gakkai International - USA

Address: 606 Wilshire Boulevard, Santa Monica, CA 09401

c/o Allen Okazaki-Freeney

Signature: Mike Bynum Digitally signed by Mike Bynum Date: 2024.01.24 10:41:39 -08'00'

Date: 1/24/2024

Phone: 310-260-8954

(For Official Use Only)	Date	Initials
Application & Fee Rec'd		
Initial Review		
PB Public Hearing		
Sent to City Council		
City Council Workshop		
City Council Public Hearing		
City Council Approve/Disapprove		

IDENTIFICATION OF REPRESENTATIVE / DESIGN PRFESSIONAL

Name: Daniel Koehler, P.E.

Address: 174 Main Street

Beacon, NY 12508

Phone: 845-440-6926

Fax:

Email address: dkoehler@hudsonlanddesign.com

IDENTIFICATION OF SUBJECT PROPERTY:

Property Address: 409 Fishkill Avenue, Beacon, NY 12508

Tax Map Designation: Section 6055 Block 80 Lot(s) 403061, 399053, 406047, 411056, 416064 & 418071

Land Area: +/- 1.18 acres

Zoning District(s) GB (General Business) & R1-5 (see * below)

DESCRIPTION OF PROPOSED DEVELOPMENT:

Proposed Use: Place of worship

Gross Non-Residential Floor Space: Existing 5,454 sqft Proposed No additional

TOTAL: 5,454 sqft

Dwelling Units (by type): Existing None Proposed

TOTAL:

ITEMS TO ACCOMPANY THIS APPLICATION

a. Five (5) **folded** copies and One (1) digital copy of a site location sketch showing the location of the subject property and the proposed development with respect to neighboring properties and developments.

b. Five (5) **folded** copies and One (1) digital copy 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. Five (5) **folded** copies and One (1) digital copy 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.

*Parking on parcels 399053 and 403061(R1-5 district) subject to special use permit pursuant to City code §223-26(C)(8). Parking on parcels 418071 and 406047 (GB District) subject to special use permit per schedule of use regulations.

INFORMATION TO BE SHOWN ON SITE LOCATION SKETCH

a. Property lines, zoning district boundaries and special district boundaries affecting all adjoining strets 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

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)	$ 3,000	$ 1,000	Current bills + $1,200
6-15	$ 9,000	$ 2,500	Current bills + $1,200
Over 15	$ 18,000	$ 5,000	Current bills + $6,000

NON-RESIDENTIAL SITE PLAN AND SUP APPLICATIONS

	Initial Deposit	Depleted to	Replenishment
Existing Buildings/Change of Use with no site development	$ 1,800	$ 1,000	Current bills + $600
Up to 3,000 s.f. gross floor area	$ 3,125	$ 1,000	Current bills + $1,200
3,000 to 10,000 s.f. gross floor area	$ 3,000 + $0.50 per sq.ft. over 3,000	$ 2,500	Current bills + $3,000
Over 10,000 s.f. gross floor area	$ 9,000 + $0.50 per sq.ft. over 10,000	$ 2,500	Current bills + $3,000

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: DKH Realty, LLC

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: PO Box 859, Goshen NY 10924

Project Address: 409 Fishkill Avenue, Beacon NY 12508

Project Tax Grid # 6055-80-403061, 399053, 406047, 411056, 416064 & 418071

Type of Application Site Plan, Special Use Permit, 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, Dwight Healey, 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 ✓
2. Violations are pending on a parcel or parcels owned by me situated within the City of Beacon N/A
3. ALL tax payments due to the City of Beacon are current ✓
4. Tax delinquencies exist on a parcel or parcels owned by me within the City of Beacon N/A
5. Special Assessments are outstanding on a parcel or parcels owned by me in the City of Beacon N/A
6. ALL Special Assessments due to the City of Beacon on any parcel owned by me are current ✓

Signature of Owner

MEMBER

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: 409 Fishkill Ave

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:	X	
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.	n/a	
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.	n/a	
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.	n/a	
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.	n/a	
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.	n/a	

For all items marked "NO" above, please explain below why the required information has not been provided:

Applicant/Sponsor Name: Cliff Sawyer

Signature: Cliff Sawyer

Date: 12/14/23

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
Place where such business entity was created	Official Registrar's or Clerk's office where the documents and papers creating entity were filed
Date such business entity or partnership was created	Telephone Contact Information

IF AFFIANT IS A CORPORATION:

Name of Entity Soka Gakkai International – USA (entity is a religious corporation)	Telephone Contact Information (310) 260-8900
Principal Place of Business of Entity 606 Wilshire Blvd. Santa Monica, CA 90401	Place and Date of incorporation State of California, County of Los Angeles November 22, 1991
Method of Incorporation Articles of Incorporation	Official place where the documents and papers of incorporation were filed California Secretary of State's Office

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
Not applicable for SGI-USA			

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.
Not applicable for SGI-USA				

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

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
Not applicable for SGI-USA	

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 has leased subject property. Applicant is a Tenant of the record Owner of the subject property.

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. Not applicable for SGI-USA

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**
Not applicable		

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, Cliff Sawyer being first duly sworn, according to law, deposes and says that I am (Title) V.P., an active and qualified member of the SGI-USA, 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) Cliff Sawyer

(Signature) Cliff Sawyer

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
Place where such business entity was created	Official Registrar's or Clerk's office where the documents and papers creating entity were filed
Date such business entity or partnership was created	Telephone Contact Information

IF AFFIANT IS A CORPORATION:

Name of Entity DKH Realty LLC	Telephone Contact Information 845-291-1998
Principal Place of Business of Entity 409 Fishkill Ave Beacon NY 12508	Place and Date of incorporation Albany NY 06-26-2000
Method of Incorporation Dept of State Filing	Official place where the documents and papers of incorporation were filed State of NY Albany

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

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.
Dwight Hurley	409 Fishkill Ave Beacon NY 12508	914-474-3305	06-26-2000	City of Beacon NYS Library

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

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

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.

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, _____ being first duly sworn, according to law, deposes and says that I am (Title) _____, an active and qualified member of the _____, 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) DWIGHT HEATLEY

(Signature) _____

BLED10YW



42" high rectangular Bollard with (1) 10 Watt (equivalent to a 70 Watt HPS) LED fixture for low level lighting applications. Great for pathway lighting! IESNA Full Cutoff, Fully Shielded optics. 5-year, no-compromise warranty.

Color: White

Weight: 15.1 lbs

Project:	**Type:**
Prepared By:	**Date:**

Driver Info

Type	Constant Current
120V	0.09A
208V	0.05A
240V	0.05A
277V	0.04A
Input Watts	12.1W

LED Info

Watts	10W
Color Temp	3000K (Warm)
Color Accuracy	71 CRI
L70 Lifespan	100,000 Hours
Lumens	1,297 lm
Efficacy	107.2 lm/W

Technical Specifications

Compliance

UL Listed:
Suitable for wet locations

IESNA LM-79 & LM-80 Testing:
RAB LED luminaires and LED components have been tested by an independent laboratory in accordance with IESNA LM-79 and LM-80.

Performance

Lifespan:
100,000-Hour LED lifespan based on IES LM-80 results and TM-21 calculations

Wattage Equivalency:
Equivalent to 32W CFL

Electrical

Driver:
Constant Current, Class 2, 120-277V, 50/60Hz, 120V: 0.09A, 208V: 0.05A, 240V: 0.05A, 277V 0.04A

Dimming Driver:
Driver includes dimming control wiring for 0-10V dimming systems. Requires separate 0-10V DC dimming circuit. Dims down to 10%.

THD:
6.51% at 120V, 13.57% at 277V

Power Factor:
99% at 120V, 90.6% at 277V

Construction

Junction Box:
Junction Box Not Included

Cold Weather Starting:
The minimum starting temperature is -40°C (-40°F)

Maximum Ambient Temperature:
Suitable for use in up to 40°C (104°F)

Housing:
Precision die-cast aluminum housing, lens frame

Mounting:
42" Bollard

Gaskets:
High-temperature silicone

Finish:
Formulated for high durability and long-lasting color

Anchor Bolt:
The anchor bolts for the BLED's have the following dimensions 1/2 - 13 x 12 1/4" long with 2 3/4" hook.Available online in pdf file.

Green Technology:
Mercury and UV free. RoHS-compliant components.

Other

Patents:
The design of the BLED is protected by patents in Canada Pat. 135,163, U.S. Pat. D599,050 and patents pending in China and Taiwan.

Warranty:
RAB warrants that our LED products will be free from defects in materials and workmanship for a period of five (5) years from the date of delivery to the end user, including coverage of light output, color stability, driver performance and fixture finish. RAB's warranty is subject to all terms and conditions found at rablighting.com/warranty.

Buy American Act Compliance:
RAB values USA manufacturing! Upon request, RAB may be able to manufacture this product to be compliant with the Buy American Act (BAA). Please contact customer service to request a quote for the product to be made BAA compliant.

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Technical Specifications (continued)

LED Characteristics

Lumen Maintenance:
The LED will deliver 70% of its initial lumens at 100,000 hours of operation

Color Consistency:
3-step MacAdam Ellipse binning to achieve consistent fixture-to-fixture color

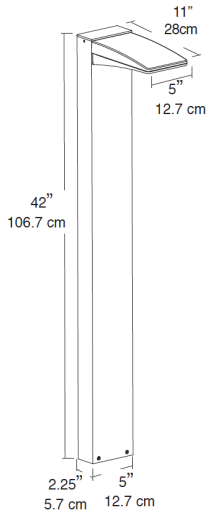
Color Stability:
LED color temperature is warrantied to shift no more than 200K in color temperature over a 5-year period

Color Uniformity:
RAB's range of Correlated Color Temperature follows the guidelines of the American National Standard for Specifications for the Chromaticity of Solid State Lighting (SSL) Products, ANSI C78.377-2017.

Optical

BUG Rating:
B0 U0 G0

Dimensions



Features

- High output LED
- 100,000-hour life
- Superior heat sinking with die cast aluminum housing
- Meets ADA requirements
- Cutting-edge, heat-dissipating design
- 5-Year, No-Compromise Warranty

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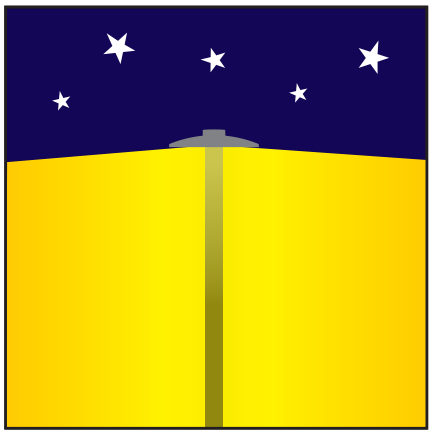
Low profile, low glare.
Edge-lit technology unlike any other.
IVELOT™
RAB Outdoor

IVELOT™

- Available in 4,500lm (38W), 7,500lm (67W), 10,000lm (94W) and 13,000lm (117W) models
- Offered with 3 mounting options: universal pole adapter, wall or slipfitter
- Type II, III, IV, VS and Forward Throw distributions
- 0-10V Dimming, standard
- Motion sensor, photocell and Lightcloud® Controller options available
- 100,000-Hour LED lifespan

RAB's warranty is subject to all terms and conditions found at rablighting.com/warranty.

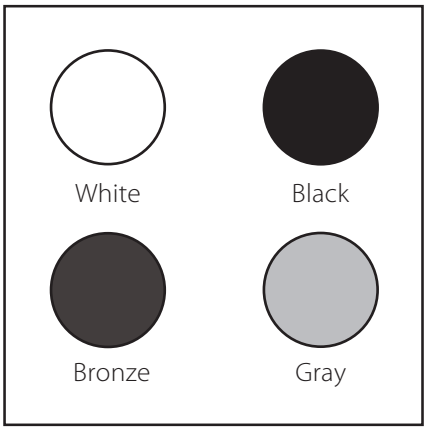
Visit rablighting.com to see which models are DLC listed.



The IVELOT is a complete cutoff, fully shielded area light that minimizes glare, while reducing light trespass.



IVELOT offers several mounting options to support a variety of applications. *(Universal Pole Adapter shown)*



Available in four color finishes: bronze, black, white and gray. *(gray has no texture)*



Available with Lightcloud Controller.



Lightweight, low-profile design, and a low EPA help reduce the load on a pole.



Available with an optional, integrated motion sensor or photocell.

UL:
Suitable for wet locations

LEDs:
Long-life, high-efficiency, micro-power, surface-mount LEDs

Drivers(s):
Class 2, 50/60Hz. 120 - 277V, 347-480V, 4kV standard, 10kV optional surge protection

Dimming Driver:
Driver includes dimming control wiring for 0-10V dimming systems. Requires separate 0-10V DC dimming circuit. Dims as low as 10%.

Lifespan:
100,000-hour LED lifespan based on IES LM-80 results & TM-21 calculations at 25°C

IP Rating:
Ingress Protection rating of IP66 for dust and water

Color Weather Starting:
Minimum starting temperature is -40°C (-40°F)

Maximum Ambient Temperature:
Suitable for use in 40°C (104°F) temperatures

Housing:
Die-cast aluminum housing

Mounting:
Universal pole adapter, slipfitter or wall mount options available

Lens:
Diffused Polymethyl Methacrylate (PMMA)

Vibration Rating:
3G vibration tested per ANSI C136.31

Effective Projected Area:
EPA = 0.61

Color Stability:
LED color temperature is warrantied to shift no more than 200K in CCT over a 5-year period

Color Uniformity:
RAB's range of CCT (Correlated Color Temperature) follows the guidelines of the American National Standard for Specifications for the Chromaticity of Solid State Lighting (SSL) Products, ANSI C78.377-2017.

Title 24 Compliant:
An IVELOT edge-lit area light can be used with a motion sensor or photocell control option to comply with 2016 Title 24 Part 6 Section 130.2 (a,b,c).

Finish:
Formulated for high durability and long-lasting color

Green Technology:
Mercury and UV free. RoHS-compliant components

IESNA LM-79 Testing:
RAB LED luminaires have been tested by an independent laboratory in accordance with IESNA LM-79

Type II

	IVAT2 - 100L			IVAT2 - 75L			IVAT2 - 45L		
Color Temperature	**5000K**	**4000K**	**3000K**	**5000K**	**4000K**	**3000K**	**5000K**	**4000K**	**3000K**
Input Watts	92	93	93	66	67	67	37	38	38
Output Lumens	10,739	10,095	10,167	7,961	7,484	7,537	4,340	4,080	4,109
Efficacy (lm/W)	117	109	110	120	112	112	117	109	110
Color Accuracy (CRI)	75	73	80	75	73	80	75	73	81
	(Replaces 400W PSMH)			*(Replaces 320W PSMH)*			*(Replaces 175W PSMH)*		

Type III

	IVAT3 - 100L			IVAT3 - 75L			IVAT3 - 45L		
Color Temperature	**5000K**	**4000K**	**3000K**	**5000K**	**4000K**	**3000K**	**5000K**	**4000K**	**3000K**
Input Watts	96	96	91	70	70	66	40	40	38
Output Lumens	11,359	9,939	9,588	7,608	6,657	6,422	4,963	4,342	4,189
Efficacy (lm/W)	118	103	105	110	96	98	124	109	111
Color Accuracy (CRI)	75	73	81	75	73	80	75	73	80
	(Replaces 400W PSMH)			*(Replaces 320W PSMH)*			*(Replaces 175W PSMH)*		

Type IV

	IVAT4 - 130L			IVAT4 - 100L			IVAT4 - 75L			IVAT4 - 45L		
Color Temperature	**5000K**	**4000K**	**3000K**	**5000K**	**4000K**	**3000K**	**5000K**	**4000K**	**3000K**	**5000K**	**4000K**	**3000K**
Input Watts	117	116	117	95	95	93	66	66	66	37	37	37
Output Lumens	14,322	14,174	13,232	11,361	10,832	10,207	7,429	7,353	6,864	4,906	4,856	4,533
Efficacy (lm/W)	123	122	113	120	115	109	113	112	104	132	131	121
Color Accuracy (CRI)	75	72	80	90	90	90	75	72	80	75	72	80
	(Replaces 450W PSMH)			*(Replaces **250**W PSMH)*			*(Replaces **150**W PSMH)*			*(Replaces **100**W PSMH)*		

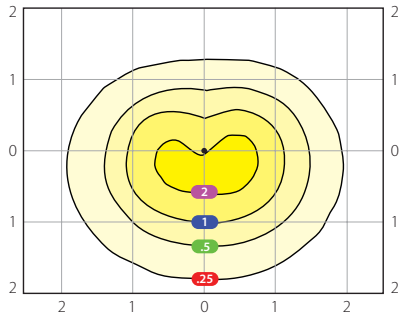
Type VS

	IVAT5S - 130L			IVAT5S - 100L			IVAT5S - 75L			IVAT5S - 45L		
Color Temperature	**5000K**	**4000K**	**3000K**	**5000K**	**4000K**	**3000K**	**5000K**	**4000K**	**3000K**	**5000K**	**4000K**	**3000K**
Input Watts	118	115	116	97	95	95	66	64	65	38	37	38
Output Lumens	14,494	13,357	12,659	11,577	11,508	10,032	8,434	7,772	7,366	5,210	4,801	4,550
Efficacy (lm/W)	123	116	109	119	122	106	129	122	114	136	128	120
Color Accuracy (CRI)	74	72	80	90	90	90	74	72	80	74	72	80
	(Replaces 450W PSMH)			*(Replaces 400W PSMH)*			*(Replaces 300W PSMH)*			*(Replaces 320W PSMH)*		

Type FT (Forward Throw)

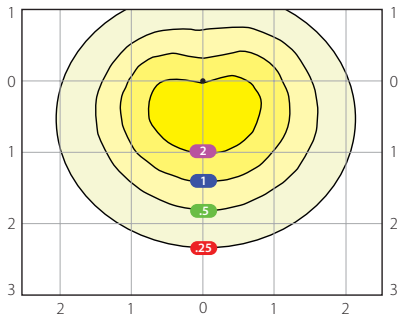
	IVAFT - 100L			IVAFT - 75L			Type FT - 45L		
Color Temperature	**5000K**	**4000K**	**3000K**	**5000K**	**4000K**	**3000K**	**5000K**	**4000K**	**3000K**
Input Watts	95	91	93	68	65	67	39	37	38
Output Lumens	10,594	9,999	9,970	7,927	7,482	7,460	4,928	4,651	4,638
Efficacy (lm/W)	111	110	108	116	115	112	127	125	122
Color Accuracy (CRI)	75	73	80	74	72	80	74	72	80
	(Replaces 400W PSMH)			*(Replaces 320W PSMH)*			*(Replaces 175W PSMH)*		

IVAT2-100L (Type II)
25' Mounting Ht.
Photometric Report #DLF1810114-11A.IES



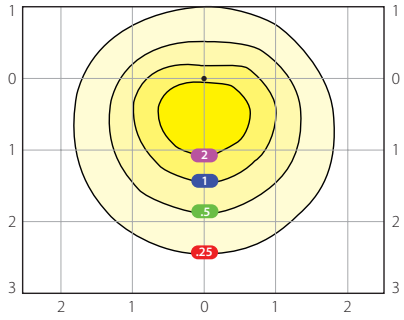
Mounting Height	15	20	25	30	35
Multiplier	2.8	1.6	1.0	0.7	0.5

IVAT3-100L (Type III)
25' Mounting Ht.
Photometric Report #DLF1810114-14A.IES



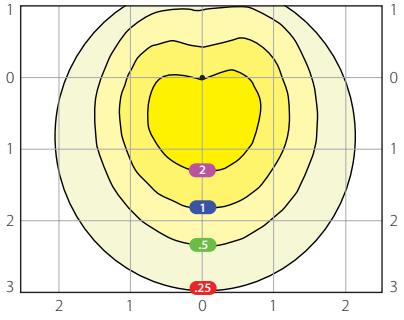
Mounting Height	15	20	25	30	35
Multiplier	2.8	1.6	1.0	0.7	0.5

IVAFT-100L (Forward Throw)
25' Mounting Ht.
Photometric Report #DLF1810114-17A.IES



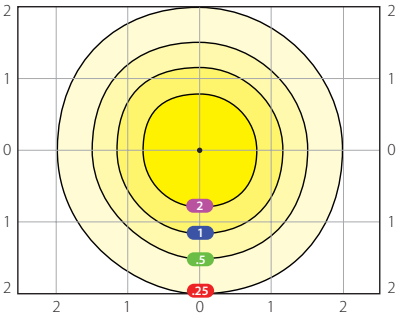
Mounting Height	15	20	25	30	35
Multiplier	2.8	1.6	1.0	0.7	0.5

IVAT4-130L (Type IV)
25' Mounting Ht.
Photometric Report #DLF1810114-20A.IES



Mounting Height	15	20	25	35	30
Multiplier	2.8	1.6	1.0	0.5	0.7

IVAT5S-130L (Type V Square)
25' Mounting Ht.
Photometric Report #DLF1810114-23A.IES



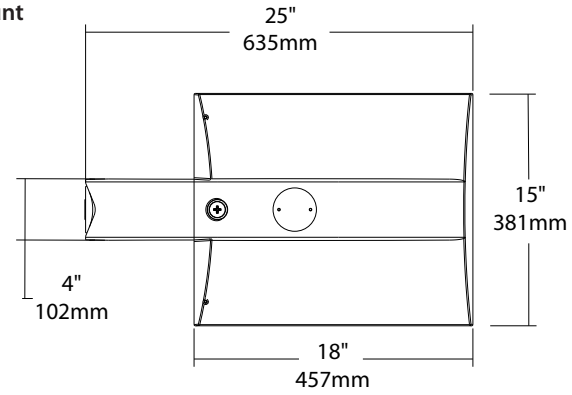
Mounting Height	15	20	25	35	30
Multiplier	2.8	1.6	1.0	0.5	0.7

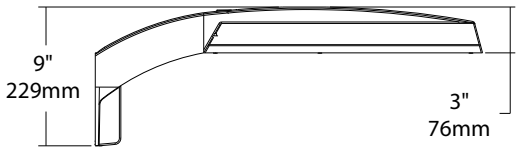
Grid Scales: Multiples of Mounting Height Values Shown in Footcandles

Watts	Lumens Based on 5000K CCT @ 120Vac					Avg Lumens Across All Dist Types
	Type II	Type III	Type IV	Type VS	Forward Throw	
38W	4,340	4,963	4,906	5,210	4,928	4,869
67W	7,961	7,608	7,429	8,434	7,927	7,872
94W	10,739	11,359	10,832	11,577	10,594	10,897
117W	n/a	n/a	14,322	14,494	n/a	14,408

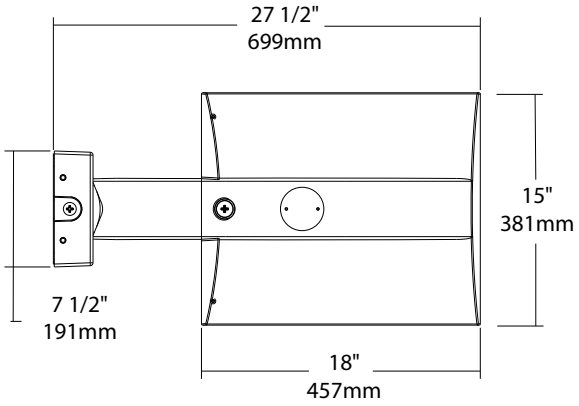
Mountings, Dimensions & Weights

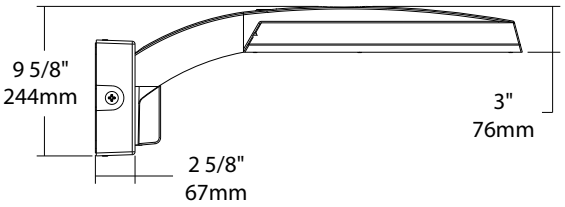
PA - Universal Pole Mount
Weight: 15.0 lbs (7kg)



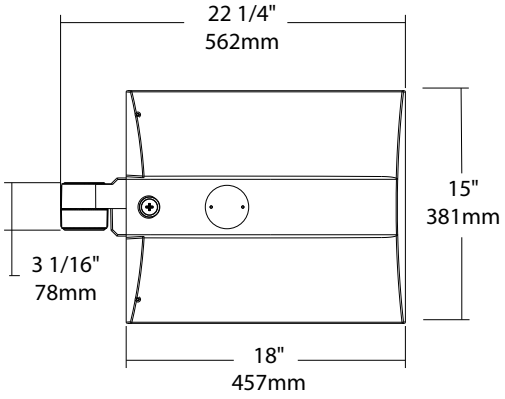


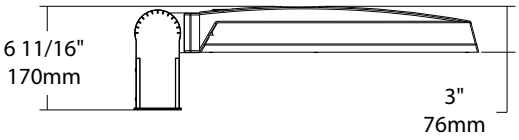
WM - Wall Mount
Weight: 20.0 lbs (9kg)





SF - Slipfitter Mount
Weight: 13.5 lbs (6kg)





Ordering information

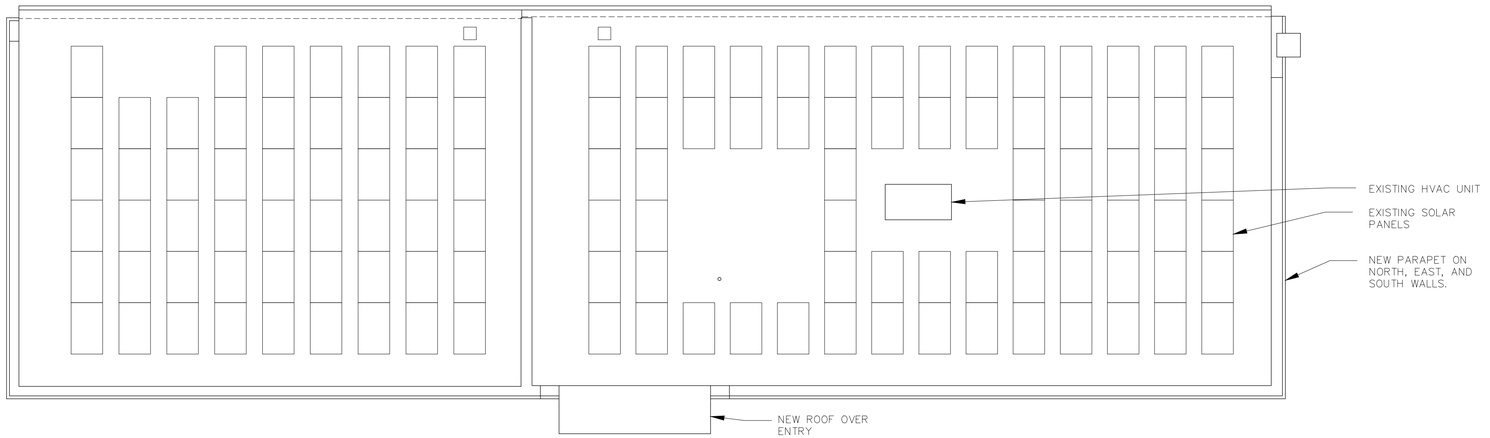
Product Family	Optics /Distribution		Lumen Output		Mounting		CCT/CRI		Finish		Voltage/Driver		Sensor Options		Lightcloud Option	
IVA	–		–		–		–		–		–		–		–	
	T2	Type II	**45L**	4500 lumens (38W)	**PA**	Universal Pole Adapter	**750**	5000K (Cool), 70 CRI	**Z**	Bronze	**U**	120-277V, 0-10V Dimming	**Blank**	No Sensor	**Blank**	No Lightcloud
	T3	Type III	**75L**	7500 lumens (67W)	**WM**	Wall Mount	**740**	4000K (Neutral), 70 CRI	**W**	White	**H**	347-480V, 0-10V Dimming	**/WS**	Multi-Level Motion Sensor, 8ft mounting	**/LC**	Lightcloud Controller[2]
	T4	Type IV	**130L**	13000 lumens (117W)[1]	**SF**	Slipfitter	**730**	3000K (Warm), 70 CRI	**G**	Roadway Gray			**/WS2**	Multi-Level Motion Sensor, 20ft mounting		
	T5S	Type V Sq							**K**	Black			**/WS4**	Multi-Level Motion Sensor, 40ft mounting		
	FT	Forward Throw											**/7PR**	7-Pin Receptacle		

ACCESSORIES (SOLD SEPARATELY)

IVA-SF	Single Fuse (120V, 277V)
IVA-DF	Double Fuse (208V, 240V, 480V)
RSP10GI-277	10kV Surge Protector (120V & 277V)
RSP10GI-480	10kV Surge Protector (480V)

1. Applies to TYPE IV, V Square | 2.Applies to 120-277V





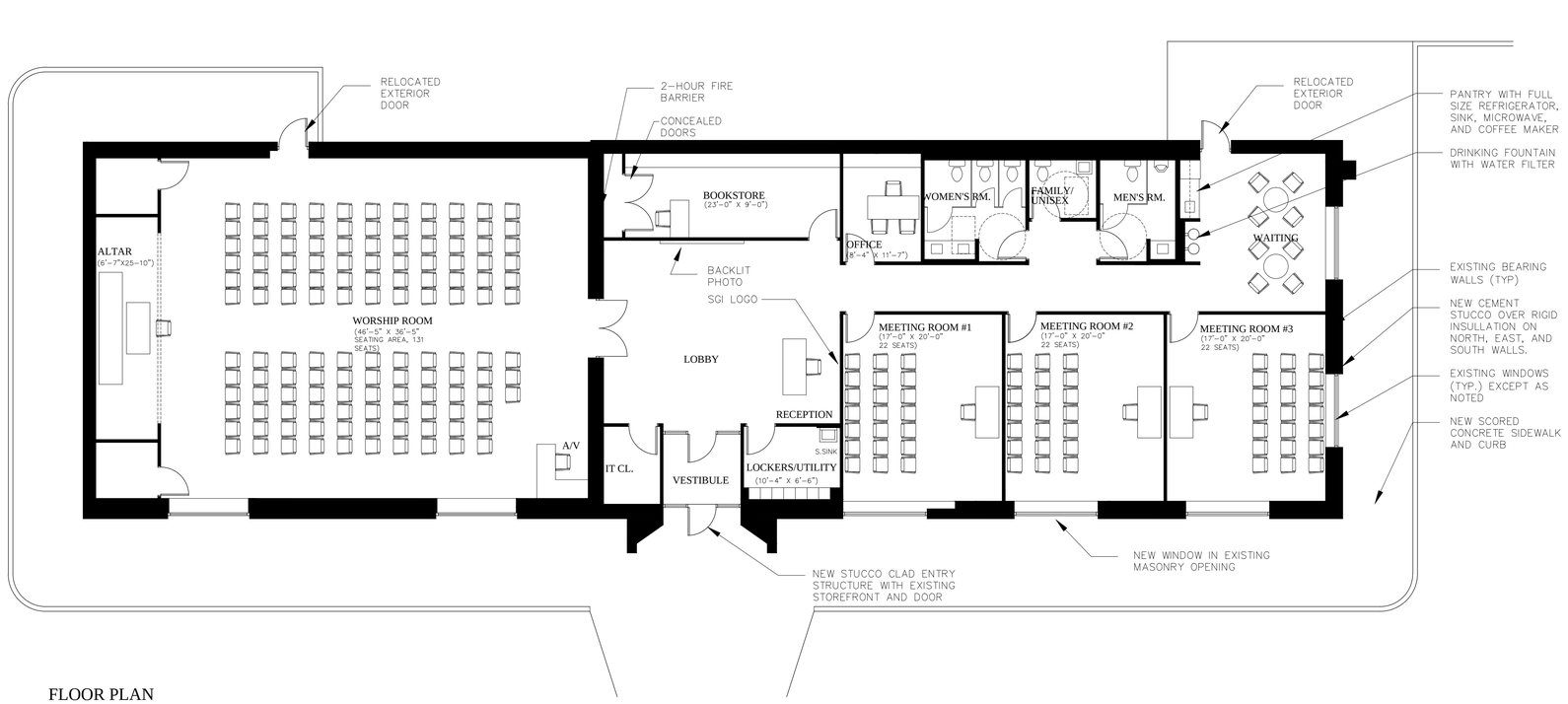
ROOF PLAN

OCCUPANCY CALCULATIONS:

ALTAR 121 SQ. FT. X 15 =	8
WORSHIP ROOM 1691 SQ.FT./7=	242
RECEPTION DESK	1
BOOKSTORE	1
OFFICE	1
MEETING ROOM #1 340 SQ. FT./7 =	49
MEETING ROOM #2 340 SQ. FT./7 =	49
MEETING ROOM #3 340 SQ. FT./7 =	49

TOTAL (FOR EGRESS & PLUMB. FIXT.) = 400

NOTE:
ACTUAL SEATING FOR PARKING PURPOSES =197



FLOOR PLAN

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NOTE: ALL CONDITIONS TO BE FIELD VERIFIED

OWNER:
SGI-USA
606 WILSHIRE BOULEVARD
SANTA MONICA, CA 90401

ARCHITECT:
ROBERT W SCARPA JR ARCHITECT
345 EAST 73RD STREET
NEW YORK, NY 10021
TEL 212 988 5209 FAX 212 320 0646

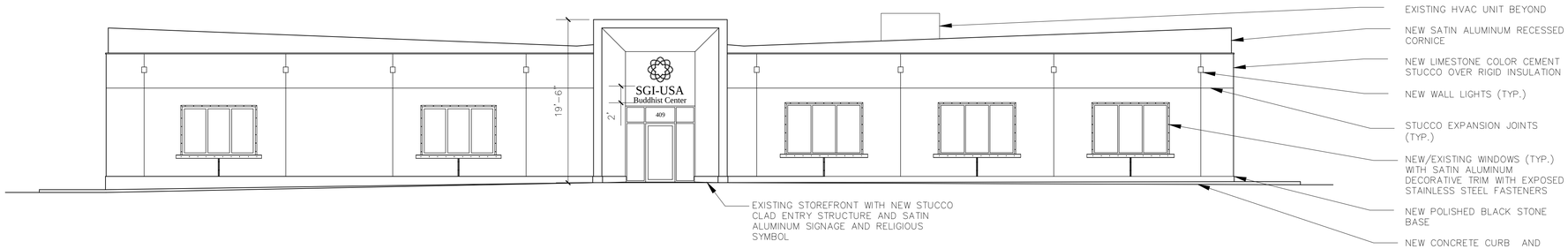
REVISIONS:

PROJECT:
RENOVATION OF
COMMERCIAL BUILDING
409 FISHKILL AVENUE
BEACON, NY

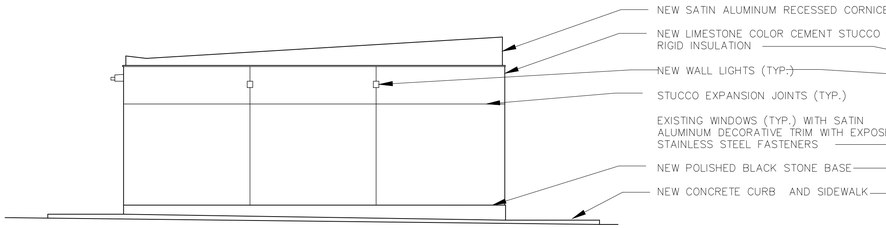
DRAWING TITLE:
PROPOSED DESIGN
FLOOR AND ROOF PLAN

SCALE: 1/8" = 1'-0"
SEAL @SIGNATURE

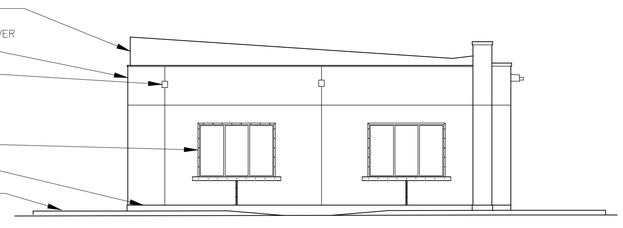
DATE: 2-26-24
PROJECT NO. 2402
DRAWN BY: RWS
CHK. BY:
DWG.NO.
SD-101



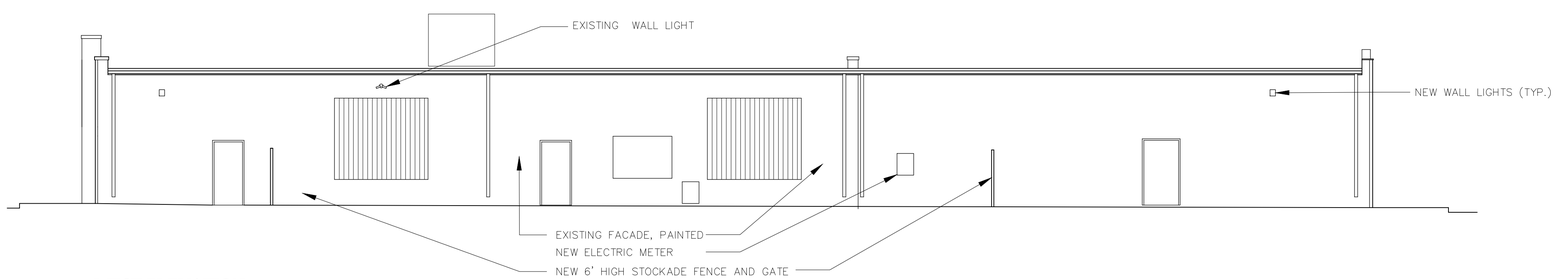
EAST ELEVATION



SOUTH ELEVATION



NORTH ELEVATION



WEST ELEVATION

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NOTE: ALL CONDITIONS TO BE FIELD VERIFIED

OWNER:
SGI-USA
606 WILSHIRE BOULEVARD
SANTA MONICA, CA 90401

ARCHITECT:
ROBERT W SCARPA JR ARCHITECT
345 EAST 73RD STREET
NEW YORK, NY 10021
TEL 212 988 5209 FAX 212 320 0646

REVISIONS:

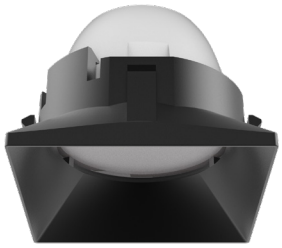
PROJECT:
RENOVATION OF
COMMERCIAL BUILDING
409 FISHKILL AVENUE
BEACON, NY

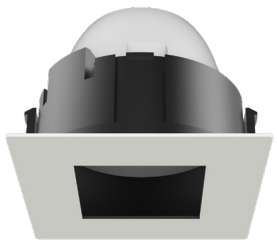
DRAWING TITLE:
PROPOSED DESIGN
EXTERIOR ELEVATIONS

SCALE: 1/8" = 1'-0"	DATE: 2-24-24
SEAL @SIGNATURE	PROJECT NO. 2402
	DRAWN BY: RWS
	CHK. BY:
	DWG.NO. SD-201
	PAGE: 3 0F 3

AETHER ATOMIC

R1ASDL, R1ASPL - Square Downlight and Pinhole Trimless





Fixture Type:

Catalog Number:

Project:

Location:

PRODUCT DESCRIPTION

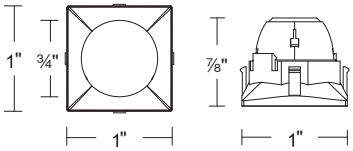
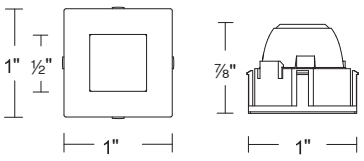
Minuscule and mighty, peerless and powerful, the new potent Aether Atomic launches into the light. An engineering recessed marvel for next generation futurists. Sublime and serviceable, it's an icon for the ages. Atomic breaks the mold with robust illumination from a diminutive aperture, for a clean, quiet ceiling.

FEATURES

- Robust lumen output from 1" or ½" aperture
- Low glare for good visual comfort
- Field changeable beam angle with reflectors provided
- Low profile housing for installation in shallow plenums
- 5 year warranty

SPECIFICATIONS

Construction:	Injection molded polycarbonate low glare trim
Dimming:	100% - 1% ELV, TRIAC and 0-10V
Input Power:	11W
Light Source:	High output COB LED rated life of 50,000 hours
Finish:	Black, Gold, Haze, White
Ceiling thickness:	½" - 2"
Standards:	ETL & cETL Wet location listed, IC rated Airtight Title 24 JA8 Compliant

Trims (Order Housing and Power Supply Separately)	*Model*	*Beam*	*Color Temp*	*CRI*	*Lumens*	*CBCP*	*Finishes*	
	**R1ASDL** *Square Downlight Trimless* *(N, F, W beam reflectors included)*	*N 26°*	*2700K* *3000K* *3500K* *4000K*	*90*	*850* *910* *975* *1040*	*2735* *2940* *3145* *3350*	**BK** **GL** **HZ** **WT**	*Black* *Gold* *Haze* *White*
		F 36°	*2700K* *3000K* *3500K* *4000K*	*90*	*885* *950* *1020* *1085*	*2275* *2445* *2620* *2790*		
		W 55°	*2700K* *3000K* *3500K* *4000K*	*90*	*770* *830* *885* *945*	*725* *780* *835* *890*		
	**R1ASPL** *Square Pinhole Trimless* *(N, F beam reflectors included)*	*N 26°*	*2700K* *3000K* *3500K* *4000K*	*90*	*515* *550* *590* *630*	*2210* *2375* *2545* *2710*	**BK** **WT**	*Black* *White*
		F 32°	*2700K* *3000K* *3500K* *4000K*	*90*	*545* *585* *625* *665*	*1830* *1965* *2105* *2240*		

R1A ___ - ___

Example: **R1ASDL-WT**

Please see next page for housing and power supply units (required)

waclighting.com
Phone (800) 526.2588
Fax (800) 526.2585

Headquarters, East Manufacturing Facility
44 Harbor Park Drive
Port Washington, NY 11050

South East Manufacturing Facility
1600 Distribution Ct
Lithia Springs, GA 30122

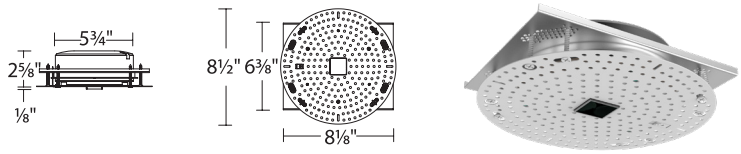
Central Manufacturing Facility
1700 South J Elmer Freeway, Ste 100
Cedar Hill, TX 75104

West Manufacturing Facility
1750 S Archibald Ave
Ontario, CA 91761

WAC Lighting retains the right to modify the design of our products at any time as part of the company's continuous improvement program.

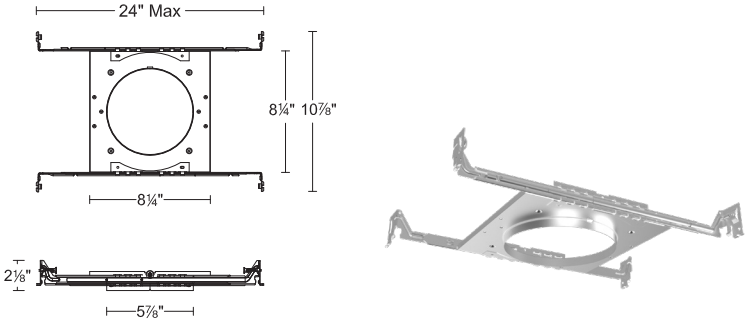
AETHER ATOMIC

R1ASDL, R1ASPL - Square Downlight and Pinhole Trimless

Housing (Required) - Order separately from trims	*Model*	*Power*	*Color Temp*	*CRI*
	**R1ASRL** *Square Trimless* *IC-Rated, Airtight*	*11W*	**927** *2700K* **930** *3000K* **935** *3500K* **940** *4000K*	*90*

R1ASRL-____

Example: **R1ASRL-930**

Frame-In Kit (Optional) - Order separately from housings	*Model*	*Description*
	**R1ABFL**	*Frame-In kit for new construction installations*

Example: **R1ABFL**

Remote Power Supply (Required) - Order separately from trims and housings	*Model*	*Input*	*Output*	*Dimmable*	
	**PS-0600A-UR1**	*120V - 277V*	*1 Channel UL Class 2*	*100%-1% ELV, TRIAC, 0-10V*	*8 3/4" x 2" x 1 3/8"*
	**PS-0600A-UR6**	*120V - 277V*	*6 Channels UL Class 2*	*100%-1% ELV, TRIAC, 0-10V*	*10 7/8" x 3 7/8" x 1 3/8"*

Example: **PS-0600A-UR6**

Home-run wiring. Recommended maximum distance between power supply and compatible light fixture is shown in below table:

	18 AWG	16 AWG	14 AWG	12 AWG
Maximum distance between power supply and light fixture	100 ft	150 ft	200 ft	250 ft

Accessory (Sold Separately)	*Model*	*Description*
	**R1A-TOOL**	*Service tool for removing trim and light engine*

Example: **R1A-TOOL**

waclighting.com
Phone (800) 526.2588
Fax (800) 526.2585

Headquarters, East Manufacturing Facility
44 Harbor Park Drive
Port Washington, NY 11050

South East Manufacturing Facility
1600 Distribution Ct
Lithia Springs, GA 30122

Central Manufacturing Facility
1700 South J Elmer Freeway, Ste 100
Cedar Hill, TX 75104

West Manufacturing Facility
1750 S Archibald Ave
Ontario, CA 91761

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Endurance™ Fin Wallpack Luminaire









Specifications Features Line Drawing Accessories

SPEC SHEET

WHERE TO BUY

DOWNLOADS

-->

SPEC SHEET INSTRUCTIONS IES FILES

Specifications

MODEL & VOLTAGE	COLOR TEMP & CRI	FINISH	LUMENS
WP-LED119 - 120-277 VAC	3000K - 85	ABZ - Architectural Bronze	1390
WP-LED127 - 120-277 VAC		AGH - Architectural Graphite	2075
WP-LED135 - 120-277 VAC		AWT - Architectural White	2750

Order Number: WP-LED119-30-ABZ

Features

Delivered Lumens: Up to 2750lm

CBCP: Up to 1930

3000K

CRI: 85

Chat

ELV Dimming: 100-15%

0-10V Dimming: 100-30%

Rated Life: 100000 Hours

Construction: Die-cast aluminum

Factory sealed LED Light Engine

20° forward throw illumination

Photo/motion sensor compatible (sold separately)

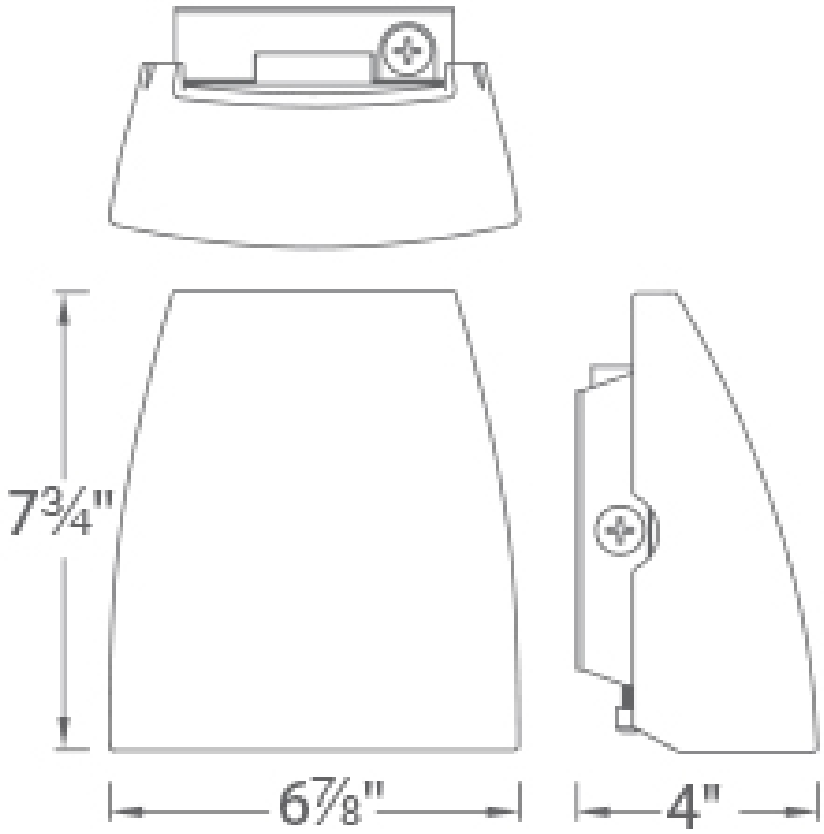
Built-in level for easy adjustment

Suitable to install in all directions

Driver concealed within the fixture



Line Drawing



Accessories



Endurance™ Series Motion Sensor

WHERE TO BUY



Endurance™ Series Photo Sensor

Available Finishes:

409 FISHKILL AVE
SITE DEVELOPMENT

409 FISHKILL AVE
CITY OF BEACON
DUTCHESS COUNTY, NEW YORK

PARCEL INFORMATION:
TAX ID: 6055-80-403061 (±0.23 AC), 399053 (±0.16 AC),
406047 (±0.23 AC), 411056 (±0.22 AC), 416064 (±0.22 AC) & 418071 (±0.11 AC)
TOTAL LOT AREA: ±1.183 ACRES
ZONING DISTRICT: GB (GENERAL BUSINESS) – PARCELS 406047, 411056, 416064 & 418071
ZONING DISTRICT: R1-5 (RESIDENTIAL) – PARCELS 403061 & 399053

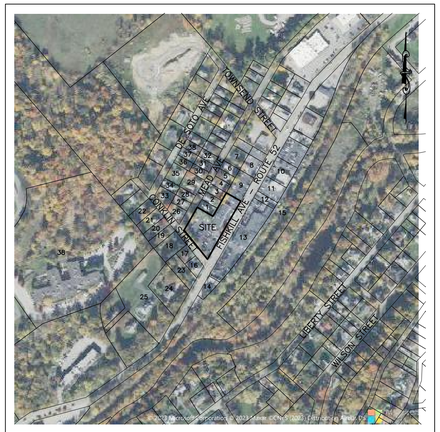
SIGHT DISTANCE NOTES:

1. REFER TO OCTOBER 30TH 2023 TRAFFIC EVALUATION PREPARED BY COLLIERS ENGINEERING & DESIGN.
2. VEGETATION IN THE SIGHT DISTANCE TRIANGLE AREA TO BE MAINTAINED SO THAT MINIMUM SIGHT DISTANCE IS CONTINUALLY PROVIDED. SIGHT DISTANCE TRIANGLES ARE SHOWN ON SHEET SP-1.
3. SIGHT DISTANCE SUMMARY::

	AVAILABLE SIGHT DISTANCE	AASHTO STOPPING SIGHT DISTANCE	AASHTO INTERSECTION SIGHT DISTANCE
SOUTH DRIVEWAY			
LEFT TURN FROM SITE ACCESS			
LOOKING LEFT (NORTH)	525'	305'	445'
LOOKING RIGHT (SOUTH)	1,000'	305'	445'
LEFT TURN FROM MAJOR ROAD			
LEFT TURN ENTRY (AHEAD)	1,000'	305'	325'
LEFT TURN ENTRY (REAR END)	560'	305'	---
NORTH DRIVEWAY			
LEFT TURN FROM SITE ACCESS			
LOOKING LEFT (NORTH)	650'	305'	445'
LOOKING RIGHT (SOUTH)	850'	305'	445'
LEFT TURN FROM MAJOR ROAD			
LEFT TURN ENTRY (AHEAD)	850'	305'	325'
LEFT TURN ENTRY (REAR END)	700'	305'	---

ADA CONSTRUCTION NOTES:

1. ADA ACCESSIBLE COMPONENTS AND ACCESS ROUTES FOR THE SITE MUST COMPLY WITH ALL APPLICABLE STATE AND LOCAL ACCESSIBILITY LAWS AND REGULATIONS AND THE CURRENT ADA STANDARDS. FINISHED SURFACES ALONG THE ACCESSIBLE ROUTE FROM PARKING SPACE OR PEDESTRIAN ACCESS TO POINTS OF ACCESSIBLE BUILDING INGRESS/OR EGRESS, MUST COMPLY WITH ADA REQUIREMENTS. THESE INCLUDE, BUT ARE NOT LIMITED TO THE FOLLOWING:
   - 1.1. PARKING SPACES AND PARKING AISLES – SLOPE SHALL NOT EXCEED 1:48 IN ANY DIRECTION.
   - 1.2. CURB RAMPS – SLOPE MUST NOT EXCEED 1:12 (8.3%) FOR A MAXIMUM OF SIX (6) FEET.
   - 1.3. LANDINGS – MUST BE PROVIDED AT EACH END OF RAMPS, MUST PROVIDE POSITIVE DRAINAGE, AND MUST NOT EXCEED 1:48 IN ANY DIRECTION.
   - 1.4. PATH OF TRAVEL ALONG ACCESSIBLE ROUTE – MUST PROVIDE A 36-INCH OR GREATER UNOBSTRUCTED WIDTH OF TRAVEL. THE SLOPE MUST BE NO GREATER THAN 1:20 IN THE DIRECTION OF TRAVEL, AND MUST NOT EXCEED 1:48 IN CROSS SLOPE. WHERE PATH OF TRAVEL WILL BE GREATER THAN 1:20, ADA RAMP STANDARDS MUST BE MET WITH A MAXIMUM SLOPE OF 1:12, FOR A MAXIMUM RISE OF 30 INCHES. RAMPS MUST HAVE ADA HAND RAILS AND LANDINGS AT BOTH THE TOP AND BOTTOM OF EACH RAMP, WITH CROSS SLOPES NO MORE THAN 1:48 IN ANY DIRECTION.
   - 1.5. DOORWAYS – MUST HAVE A LANDING AREA ON THE EXTERIOR SIDE OF THE DOOR THAT IS SLOPED AWAY FROM THE DOOR NO MORE THAN 1:48 AND MUST BE NO LESS THAN 60 INCHES LONG.
2. WHEN THE PROPOSED CONSTRUCTION INCLUDES CONNECTION TO EXISTING ADA COMPONENTS, CONTRACTOR MUST VERIFY EXISTING ELEVATIONS SHOWN. NOTIFY THE DESIGN ENGINEER IMMEDIATELY IF THERE ARE ANY DISCREPANCIES OR FIELD CONDITIONS THAT DIFFER FROM WHAT IS SHOWN BEFORE COMMENCING WORK. CONSTRUCTED IMPROVEMENTS MUST COMPLY WITH THE MAXIMUM AND MINIMUM ADA REQUIREMENTS.
3. THE CONTRACTOR MUST VERIFY THE SLOPES OF THE FORMWORK PRIOR TO POURING CONCRETE. CONTRACTOR IS RESPONSIBLE FOR ALL COSTS TO REMOVE, REPAIR AND REPLACE NON-CONFORMING CONCRETE.



SITE LOCATION MAP SCALE: 1" = 400'

ADJOINING OWNERS WITHIN 200':

PARCEL: OWNER & ADDRESS
1. LAURIE GONZALEZ, 14 MEAD AVE, BEACON NY 12508
2. HOWARD BANICK, 18 MEAD AVE, BEACON NY 12508
3. AUDREY HENDERSON, 22 MEAD AVE, BEACON NY 12508
4. AARON YERKS, 26 MEAD AVE, BEACON NY 12508
5. BRENT STAPLETON, 30 MEAD AVE, BEACON NY 12508
6. PETER NETTLETON, 34 MEAD AVE, BEACON NY 12508
7. JOSEPH POWERS, 40 MEAD AVE, BEACON NY 12508
8. DKH REALTY LLC, PO BOX 859, GOSHEN NY 10924
9. DKH REALTY LLC, PO BOX 859, GOSHEN NY 10924
10. DKH REALTY LLC, 2528 ROUTE 17M, GOSHEN NY 10924
11. DKH REALTY LLC, 2528 ROUTE 17M, GOSHEN NY 10924
12. DKH REALTY LLC, PO BOX 859, GOSHEN NY 10924
13. DKH REALTY LLC, PO BOX 859, GOSHEN NY 10924
14. LANK'S AUTOMOTIVE INC, 394 FISHKILL AVE, BEACON NY 12508
15. METROPOLITAN TRANSPORTATION, 2 BROADWAY, NEW YORK NY 10004
16. 397 FISHKILL AVENUE, LLC., 397 FISHKILL AVE UNIT A, BEACON NY 12508
17. 397 FISHKILL AVENUE, LLC., 397 FISHKILL AVE UNIT A, BEACON NY 12508
18. IRMGARD DI CASTRO, 21 CONKLIN STREET, BEACON NY 12508
19. IRMGARD DI CASTRO, 21 CONKLIN STREET, BEACON NY 12508
20. IRMGARD DI CASTRO, 21 CONKLIN STREET, BEACON NY 12508
21. FANNY SHEFFIELD, 31 CONKLIN STREET, BEACON NY 12508
22. CRAIG CHISOLM, 33 CONKLIN STREET, BEACON NY 12508
23. 393 FISHKILL AVENUE, LLC., 397 FISHKILL AVE UNIT A, BEACON NY 12508
24. JOSHUA KOGAN, 389 FISHKILL AVE, BEACON NY 12508
25. DAVID W. ALLIS, 20 DALLIS PLACE, BEACON NY 12508
26. BARBARA WINTHER, 7 MEAD AVE, BEACON NY 12508
27. AMANDA CARDONI, 6 ROUNDTREE COURT, BEACON NY 12508
28. DARYL EMBRY, 11 MEAD AVE, BEACON NY 12508
29. DENNIS SCHNETZLER, 19 MEAD AVE, BEACON NY 12508
30. MICHAL MART, 49 SYCAMORE DRIVE, BEACON NY 12508
31. MICHAEL ALLGOOD, 506 SANTIGUAY STREET, PUNTA GORDA FL 33983
32. MIRJAN CURMA, 47 QUAIL RUN ROAD, HOPEWELL JUNCTION, NY 12533
33. MARIE A. LEGER, 30 CONKLIN STREET, BEACON NY 12508
34. GLENN ROY, 8 DESOTO AVE, BEACON NY 12508
35. MONIQUE QUIGLEY, 12 DESOTO AVE, BEACON NY 12508
36. MICHAEL TANCREDI, 16 DESOTO AVE, BEACON NY 12508
37. STEVEN GARCIA, 20 DESOTO AVE, BEACON NY 12508
38. JOSEPH PORPEGLIA, 44-27 PURVES STREET APT 4A, LONG ISLAND CITY NY 11101

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 AND DRAINAGE 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 EXISTING BUILDING AND SHALL BE SERVED BY THE CITY OF BEACON MUNICIPAL WATER AND SEWER SERVICES VIA EXISTING WATER AND SANITARY SEWER SERVICE LINES.
4. STREET CLOSURE FOR DRIVEWAY CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH CITY OF BEACON REQUIREMENTS. A PLAN SHALL BE IN PLACE FOR MAINTENANCE AND PROTECTION OF TRAFFIC.
5. ALL EROSION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO CONSTRUCTION. FISHKILL AVENUE & CONKLIN STREET SHALL BE KEPT CLEAN AND SWEPT DURING CONSTRUCTION.
6. 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. AN INFLOW & INFILTRATION (I&I) STUDY HAS BEEN CONDUCTED FOR THE PROJECT. REFER TO I&I NOTES FOR MITIGATION PROCEDURES.

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.

APPLICANT'S CONSENT:

THE UNDERSIGNED APPLICANT 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.

_____ _____
SGI – USA 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.

DRAWING INDEX:

SHEET 1: COVER SHEET (CV-1)
SHEET 2: EXISTING CONDITIONS & REMOVALS PLAN (XC-1)
SHEET 3: SITE PLAN (SP-1)
SHEET 4: GRADING PLAN (GD-1)
SHEET 5: EROSION & SEDIMENT CONTROL PLAN (ESC-1)
SHEET 6: UTILITY PLAN (UT-1)
SHEET 7: LANDSCAPING PLAN (LS-1)
SHEET 8: LIGHTING PLAN (LT-1)
SHEET 9: CONSTRUCTION DETAILS (CD-1)

PROJECT ENGINEER:
HUDSON LAND DESIGN
PROFESSIONAL ENGINEERING P.C.
174 MAIN STREET
BEACON, NEW YORK 12508
PH: 845-440-6926

PROPERTY OWNER:
DKH REALTY, LLC
PO BOX 859
GOSHEN, NY 10924
PH: 845-291-1998

APPLICANT:
SGI – USA.
606 WILSHIRE BLVD.
SANTA MONICA, CA 90401
PH: 914-649-9534

PROJECT SURVEYOR:
BADEY & WATSON SURVEYING & ENGINEERING
3063 ROUTE 9
COLD SPRING NY 10516
PH: 845-265-9217

PROJECT ARCHITECT:
ROBERT W SCARPA JR ARCHITECT
345 EAST 73RD ST
NEW YORK NY 10021
PH: 212-988-5209

DRAWN BY: CMB				CHECKED BY: DGK			
REVISIONS:				REVISIONS:			
NO.	DATE	DESCRIPTION	BY	NO.	DATE	DESCRIPTION	BY
1	12/16/23	PER PLANNING BOARD COMMENTS	CMB				
2	1/30/24	PER PLANNING BOARD COMMENTS	CMB				
3	2/27/24	PER PLANNING BOARD COMMENTS	CMB				

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

COVER SHEET

409 FISHKILL AVE

409 FISHKILL AVE
CITY OF BEACON
DUTCHESS COUNTY, NEW YORK
TAX ID: 6055-80-403061, 399053, 406047, 411056, 416064 & 418071

JOB #: 2023:032
DATE: 11/28/23
SCALE: AS SHOWN
TITLE: CV-1
SHEET: 1 OF 9

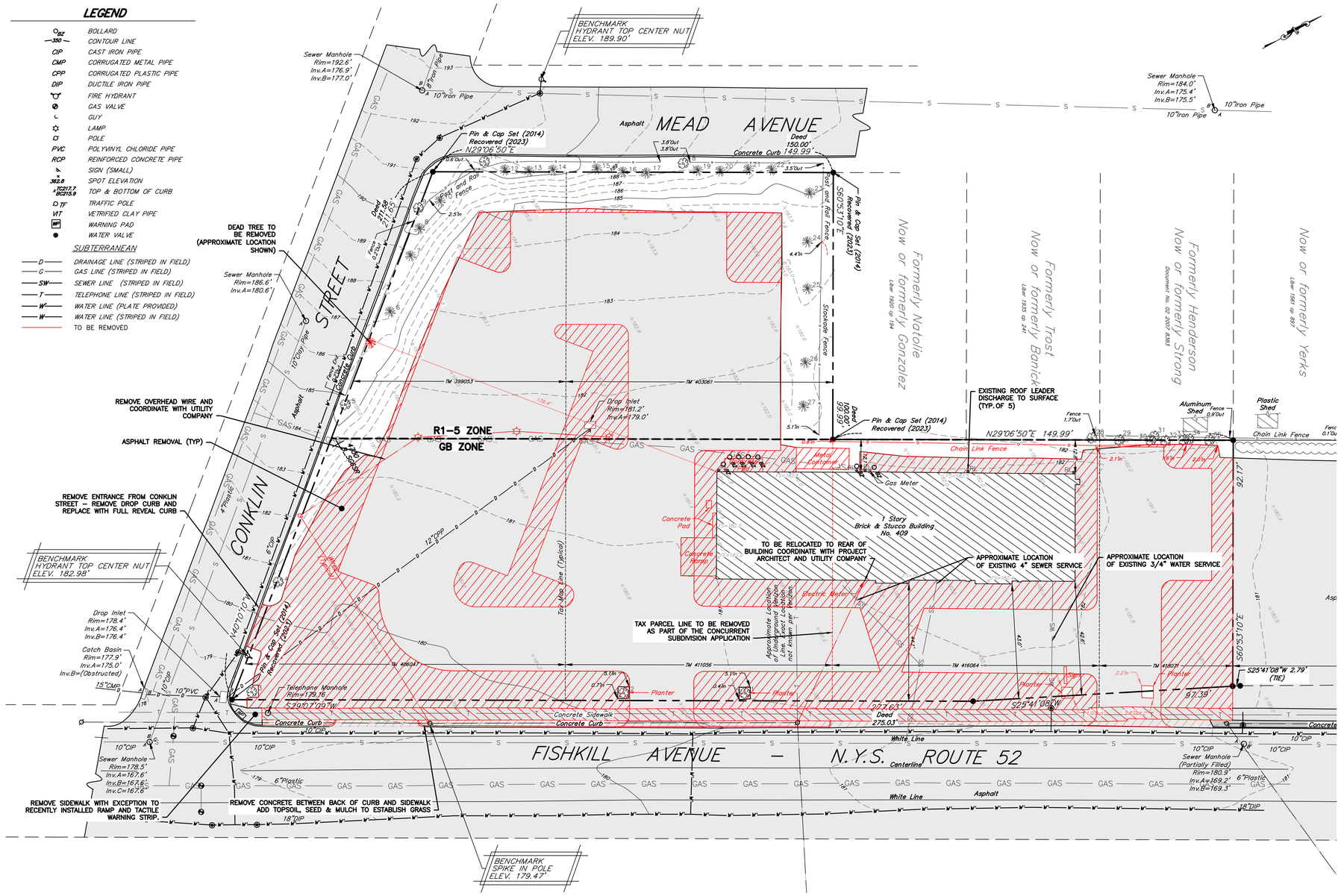
UNAUTHORIZED ALTERATIONS OR ADDITIONS TO THIS DRAWING IS A VIOLATION OF SECTION 7209.2 OF THE NEW YORK EDUCATION LAW

LEGEND

- BOLLARD
- CONTOUR LINE
- CIP — CAST IRON PIPE
- CMP — CORRUGATED METAL PIPE
- CPP — CORRUGATED PLASTIC PIPE
- DIP — DUCTILE IRON PIPE
- FIRE HYDRANT
- GAS VALVE
- GUY
- LAMP
- POLE
- PVC — POLYVINYL CHLORIDE PIPE
- RCP — REINFORCED CONCRETE PIPE
- SIGN (SMALL)
- 362.8 — SPOT ELEVATION
- TC217.7 / BC215.9 — TOP & BOTTOM OF CURB
- TF — TRAFFIC POLE
- VT — VERIFIED CLAY PIPE
- WARNING PAD
- WATER VALVE

SUBTERRANEAN

- D — DRAINAGE LINE (STRIPED IN FIELD)
- G — GAS LINE (STRIPED IN FIELD)
- SW — SEWER LINE (STRIPED IN FIELD)
- T — TELEPHONE LINE (STRIPED IN FIELD)
- W — WATER LINE (PLATE PROVIDED)
- W — WATER LINE (STRIPED IN FIELD)
- TO BE REMOVED



EXISTING TREE & REMOVAL SCHEDULE:

1.	16" APPLE	19.	12" PINE
2.	12" APPLE	20.	14" PINE
3.	10" APPLE	21.	4" PINE
4.	22" SYCAMORE	22.	4" PINE
5.	20" SYCAMORE	23.	22" PINE
6.	14" PINE	24.	10" PINE
7.	14" PINE	25.	16" PINE
8.	10" PINE	26.	12" PINE
9.	24" SYCAMORE	27.	18" PINE
10.	14" PINE	28.	16" MAPLE
11.	24" SYCAMORE	29.	8" MAPLE TWIN
12.	4" PINE	30.	8" MAPLE
13.	6" PINE	31.	6" HACKBERRY
14.	6" PINE	32.	8" MAPLE
15.	6" PINE TWIN	33.	10" MAPLE TRIPLE
16.	6" PINE	34.	8" MAPLE
17.	4" PINE	35.	8" MAPLE CLUMP
18.	24" SYCAMORE		

NOTES:
1. TREE LOCATIONS BY BADEY & WATSON SURVEYING.
2. SPECIES ID PER BADEY & WATSON SURVEYING.
3. **TBR** = TO BE REMOVED

SURVEY REFERENCE:

1. REFERENCE IS HEREBY MADE TO "SURVEY OF PROPERTY PREPARED FOR SOKA GOKKAI INTERNATIONAL – USA" DATED SEPTEMBER 26, 2023 AND PREPARED BY BADEY & WATSON SURVEYING & ENGINEERING DPC.

SURVEY NOTES:

1. COPYRIGHT "2023" 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, SUBDIVISION 2 OF THE NEW YORK STATE EDUCATION LAW.
3. ALL CERTIFICATIONS ARE VALID FOR THIS MAP AND COPIES THEREOF ONLY IF SAID MAP OR COPIES BEAR THE EMBOSSED SEAL OF THE SURVEYOR WHOSE SIGNATURE APPEARS HEREON.
4. IF UNDERGROUND IMPROVEMENTS, EASEMENTS, OR ENCROACHMENTS EXIST AND ARE NEITHER VISIBLE DURING NORMAL FIELD SURVEY OPERATIONS NOR DESCRIBED IN INSTRUMENTS PROVIDED TO THESE SURVEYORS, THEY MAY NOT BE SHOWN ON THIS MAP.
5. THIS PROPERTY MAY BE AFFECTED BY INSTRUMENTS WHICH HAVE NOT BEEN PROVIDED TO THESE SURVEYORS. USERS OF THIS MAP SHOULD VERIFY TITLE WITH THEIR ATTORNEY OR A QUALIFIED TITLE EXAMINER.
6. THIS SURVEY IS A PORTION OF PARCEL I DESCRIBED IN THE DUTCHESS COUNTY CLERK'S DOCUMENT NUMBER 02-2000-8802 (HEALEY TO DKH REALTY LLC.).
7. THE VERTICAL DATUM HEREON IS NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88).
8. THE MERIDIAN AND COORDINATE VALUES HEREON REFER TO THE NEW YORK STATE COORDINATE SYSTEM, EAST ZONE (NAS 83) EXPRESSED IN U.S. SURVEY FEET. THE DISTANCES SHOWN ON THIS SURVEY ARE GRID DISTANCES. THEY HAVE BEEN SCALED BY A GRID FACTOR (SCALE FACTOR X SEA LEVEL FACTOR) OF 0.99991662. TO OBTAIN GROUND DISTANCES, DIVIDE THE DISTANCES ON THIS MAP BY THE GRID FACTOR. TO OBTAIN GROUND AREA DIVIDE THE AREA ON THIS MAP BY THE SQUARE OF THE GRID FACTOR.
9. THE TOPOGRAPHIC DATA HEREON WAS COMPILED FROM AN ACTUAL FIELD SURVEY CONDUCTED BY BADEY & WATSON ON SEPTEMBER 26, 2023.
10. THE NORTHWESTERLY LINE OF FISHKILL AVENUE WAS REPRODUCED FROM THAT CERTAIN MAP ENTITLED "PLAN AND PROFILE OF CURB AND SIDEWALK ON NORTH SIDE OF FISHKILL AVENUE ...," WHICH WAS FILED IN THE DUTCHESS COUNTY CLERK'S OFFICE ON AUGUST 1, 1922 AS MAP NO. 1243.

APPLICANT'S CONSENT:

THE UNDERSIGNED APPLICANT 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.

_____ _____
SGI – USA 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.

DRAWN BY: CMB				CHECKED BY: DGK			
REVISIONS:				REVISIONS:			
NO.	DATE	DESCRIPTION	BY	NO.	DATE	DESCRIPTION	BY
1	12/16/23	PER PLANNING BOARD COMMENTS	CMB				
2	1/30/24	PER PLANNING BOARD COMMENTS	CMB				
3	2/27/24	PER PLANNING BOARD COMMENTS	CMB				

EXISTING CONDITIONS & REMOVALS PLAN
SCALE: 1" = 20'
GRAPHIC SCALE
20 0 10 20 40 80
(IN FEET)
1 inch = 20 ft.

STATE OF NEW YORK — DANIEL G. ROBERTS — 082716 — 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

EXISTING CONDITIONS & REMOVALS PLAN

409 FISHKILL AVE

409 FISHKILL AVE
CITY OF BEACON
DUTCHESS COUNTY, NEW YORK
TAX ID: 6055-80-403061, 399053, 406047, 411056, 416064 & 418071

JOB #:	2023:032
DATE:	11/28/23
SCALE:	1" = 20'
TITLE:	XC-1
SHEET:	2 OF 9

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
- 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

- PROPOSED PROPERTY LINE
- PROPOSED SET BACK LINE
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- 252 PROPOSED MINOR CONTOUR
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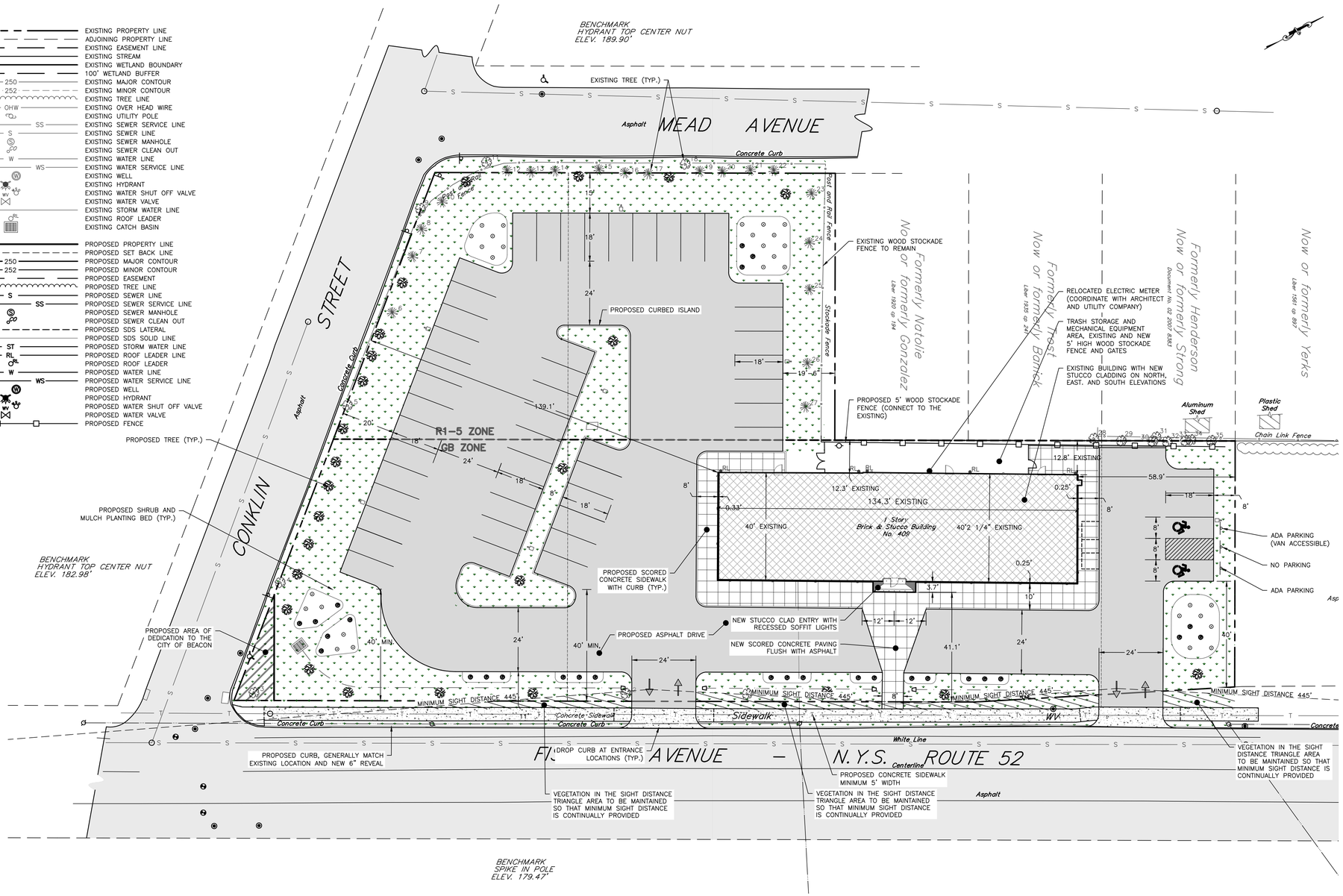

SCHEDULE OF REGULATIONS (GB ZONING DISTRICT) AND LOT CONFORMANCE TABLE:

PARAMETER	REQUIREMENT	EXISTING	PROVIDED
LOT AREA:	N/A	±34,543 SQFT	±34,543 SQFT
LOT WIDTH:	N/A	N/A	N/A FEET
LOT DEPTH:	100 FEET MINIMUM	±98 FEET*	±98 FEET*
YARD SETBACKS:			
FRONT YARD:	15 FEET MINIMUM	±41.1 FEET	±41.1 FEET
SIDE YARD:	20 FEET MINIMUM	±58.9 FEET	±58.9 FEET
REAR YARD:	25 FEET MINIMUM	±12.3 FEET*	±12.3 FEET*
MAX. BUILDING HEIGHT:	35 FT MAX.	±20 FEET	±20 FEET

*EXISTING NON-CONFORMING

SCHEDULE OF REGULATIONS (R1-5 ZONING DISTRICT) AND LOT CONFORMANCE TABLE:

PARAMETER	REQUIREMENT	EXISTING	PROVIDED
LOT AREA:	5,000 SQFT	±16,988 SQFT	±16,988 SQFT
LOT AREA PER UNIT:	5,000 SQFT MINIMUM	N/A	N/A
LOT WIDTH:	50	±100 FEET	±100 FEET
LOT DEPTH:	100 FEET MINIMUM	±150 FEET	±150 FEET
YARD SETBACKS:			
FRONT YARD:	10 FEET MINIMUM	N/A	N/A
SIDE YARD:	10 FEET MINIMUM	N/A	N/A
REAR YARD:	20 FEET MINIMUM	N/A	N/A
MAX. BUILDING HEIGHT:	35 FT MAX.	N/A	N/A

SITE PLAN NOTES:

1. THE PROJECT PROPOSES AN ADAPTIVE REUSE OF THE EXISTING AUTOMOBILE DEALERSHIP LOCATED ON THE SUBJECT PROPERTY, WITH NO INCREASE TO THE BUILDING SIZE. THE APPLICANT, SGI-USA WILL UTILIZE THE BUILDING FOR RELIGIOUS ASSEMBLY AND GATHERINGS OF UP TO 200 PERSONS. SITE IMPROVEMENTS TO THE PARKING AREAS ARE ALSO PROPOSED AS PART OF THE PROJECT THAT WILL PROVIDE A TOTAL OF 50 PARKING SPACES ON THE SITE INCLUDING TWO (2) ADA ACCESSIBLE PARKING SPACES. ADDITIONAL IMPROVEMENTS INCLUDE ARCHITECTURAL ALTERATIONS TO THE BUILDING FACADE, NEW SIDEWALK AROUND THE EXISTING BUILDING, REDUCTION IN PAVED AREAS, ELIMINATION OF EXISTING SITE ENTRY POINTS ON CONKLIN STREET AND FISHKILL AVENUE, NEW LIGHTING, AND ADDITIONAL LANDSCAPING. PLACES OF WORSHIP ARE PERMITTED USES IN THE GENERAL BUSINESS AND THE R1-5 ZONING DISTRICTS, AND REQUIRE SITE PLAN APPROVAL FROM THE PLANNING BOARD. PARKING ON PARCELS 398053 AND 403061(R1-5 DISTRICT) SUBJECT TO SPECIAL USE PERMIT PURSUANT TO CITY CODE §223-26(C)(8). PARKING ON PARCELS 418071 AND 406047 (GB DISTRICT) SUBJECT TO SPECIAL USE PERMIT PER SCHEDULE OF USE REGULATIONS.
2. THE FACILITY WILL OPERATE MONDAY THROUGH WEDNESDAY BETWEEN 6:00 PM – 9:30 PM AND ON SATURDAYS & SUNDAYS BETWEEN 7:00 AM – 6:00 PM. THE WEEKNIGHT (MONDAY THROUGH WEDNESDAY) OPERATIONS WILL CONSIST OF GATHERINGS OF BETWEEN 30–50 ATTENDEES OCCURRING BETWEEN 7:00 PM – 8:30 PM. SATURDAY OPERATIONS WILL CONSIST OF TWO (2) GATHERINGS WITH A TOTAL OF 50 – 100 ATTENDEES OVER THE COURSE OF THE DAY. THE GATHERINGS WILL BE HELD BETWEEN 11:00 AM – 12:30 PM AND BETWEEN 1:00 PM – 3:00 PM. SUNDAY OPERATIONS WILL CONSIST OF THREE (3) GATHERINGS ALSO WITH A TOTAL OF 50 – 100 ATTENDEES OVER THE COURSE OF THE DAY. THE SUNDAY GATHERING TIMES WILL BE 8:00 AM – 9:30 AM, 10:00 AM – 12:00 PM AND 1:00 PM – 3:00 PM. IN ADDITION, A LARGER MONTHLY GATHERING WILL BE HELD ONCE A MONTH ON A SUNDAY MORNING THAT WILL HAVE 150 – 200 ATTENDEES.
3. THERE ARE NO WETLANDS OR FLOODPLAINS ASSOCIATED WITH THE PROJECT SITE.
4. INDIANA BAT WAS IDENTIFIED AS AN ENDANGERED SPECIES NEAR THE PROJECT SITE. THE PLAN CALLS FOR LIMITED REMOVAL OF EXISTING TREES; HOWEVER, A RESTRICTION FOR THE REMOVAL OF ANY TREES HAS BEEN INCLUDED IN THE DEMOLITION NOTES.
5. TOTAL SITE IMPERVIOUS REDUCED FROM 86% TO 68%.
6. REFUSE TO BE ROLLED OUT. NO DUMPSTER ENCLOSURE IS PROPOSED.
7. THERE ARE NO PROPOSED FREE STANDING SIGNS. SIGNAGE WILL BE BUILDING MOUNTED PER THE ARCHITECTURAL PLANS.

PARKING NOTES:

1. PER §223-26, 1 SPACE IS REQUIRED FOR EVERY 4 SEATS FOR PLACE OF WORSHIP. THE MAXIMUM SEAT COUNT IS 200, REQUIRING 50 PARKING SPACES. THE PLAN CALLS FOR 50 PARKING SPACES, INCLUDING 2 ADA ACCESSIBLE PARKING SPACES.

APPLICANT'S CONSENT:

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SITE PLAN
SCALE: 1" = 20'
GRAPHIC SCALE
20 0 10 20 40 80
(IN FEET)
1 inch = 20 ft.

STATE OF NEW YORK DANIEL G. ROBERTS 098216 LICENSED PROFESSIONAL ENGINEER
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

SITE PLAN

409 FISHKILL AVE

409 FISHKILL AVE
CITY OF BEACON
DUTCHESS COUNTY, NEW YORK
TAX ID: 6055-80-403061, 399053, 406047, 411056, 416064 & 418071

JOB #:	2023:032
DATE:	11/28/23
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TITLE:	SP-1
SHEET:	3 OF 9

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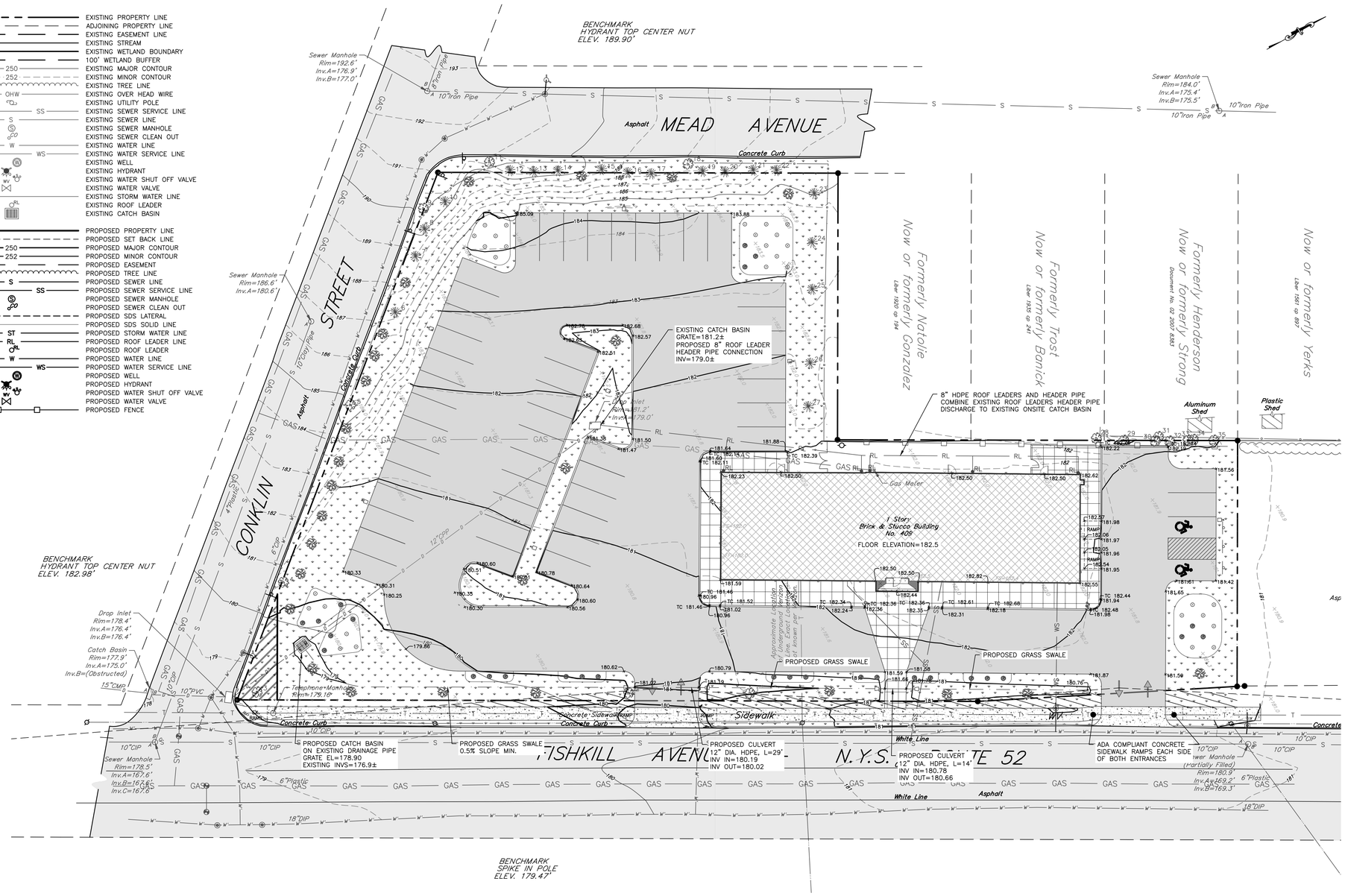

GRADING NOTES:

1. ALL PROPOSED SPOT ELEVATIONS REPRESENT BOTTOM CURB ELEVATION UNLESS OTHERWISE NOTED. TC REPRESENTS TOP CURB ELEVATION.
2. CONTRACTOR SHALL ENSURE POSITIVE SURFACE WATER FLOW TO THE INTENDED DRAINAGE FACILITIES.
3. SEE ALSO ADA CONSTRUCTION NOTES ON SHEET CV-1.

APPLICANT'S CONSENT:

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GRADING PLAN
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GRAPHIC SCALE

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STATE OF NEW YORK
DANIEL G. KOSTENBADER
082716
LICENSED PROFESSIONAL ENGINEER
SEAL

HUDSON LAND DESIGN
PROFESSIONAL ENGINEERING P.C.
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GRADING PLAN

409 FISHKILL AVE

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CITY OF BEACON
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TAX ID: 6055-80-403061, 399053, 406047, 411056, 416064 & 418071

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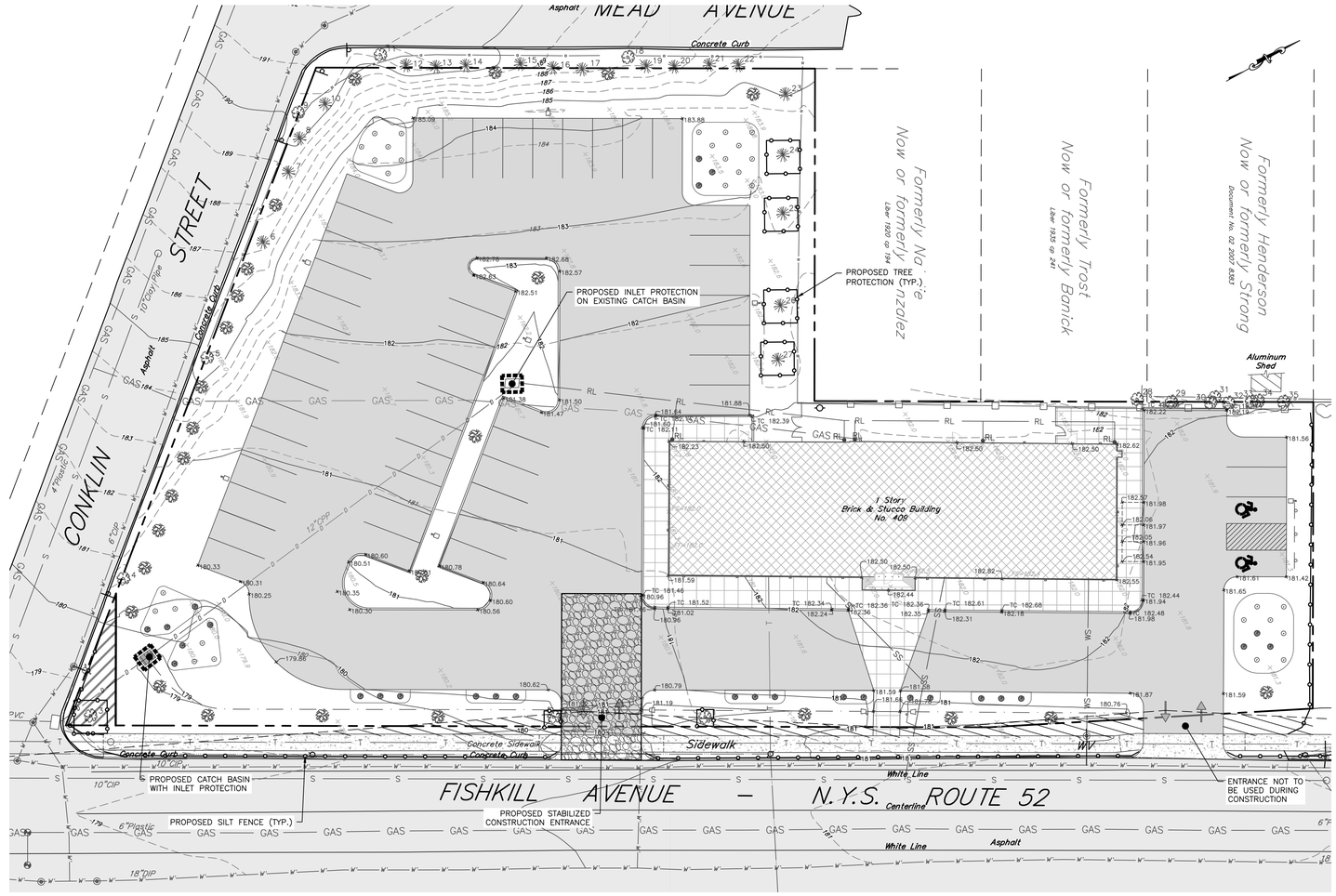
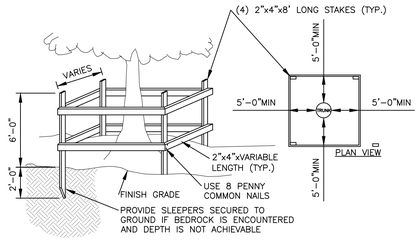
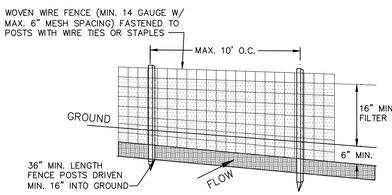
- PROPOSED WATER VALVE
- PROPOSED FENCE
- PROPOSED SILT FENCE
- LOD PROPOSED LIMIT OF DISTURBANCE
- PROPOSED CATCH BASIN INLET PROTECTION
- PROPOSED CONSTRUCTION ENTRANCE

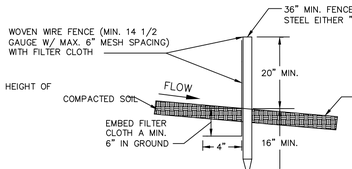




NOTES:
1. TREES TO REMAIN NOTED ON EXISTING CONDITIONS PLAN.
2. NOT ALL TREES TO REMAIN REQUIRE PROTECTION. TREE PROTECTION TO BE UTILIZED ON TREES WHERE CONSTRUCTION TRAFFIC WOULD COMPACT THE ROOT ZONE OF THE TREE.

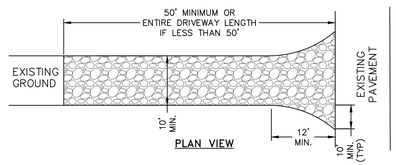
TEMPORARY TREE PROTECTION DETAIL
NOT TO SCALE





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. 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

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.

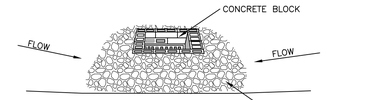
SILT FENCE:
INSPECT FOR DAMAGE EVERY SEVEN DAYS AND AFTER EVERY STORM EVENT WITH RAINFALL THAT EQUALS OR EXCEEDS 0.5 INCH. MAKE ALL REPAIRS IMMEDIATELY. REMOVE SEDIMENT FROM THE UP-SLOPE FACE OF THE FENCE BEFORE IT ACCUMULATES TO A HEIGHT EQUAL TO ONE-QUARTER THE HEIGHT OF THE FENCE. IF FENCE FABRIC 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.

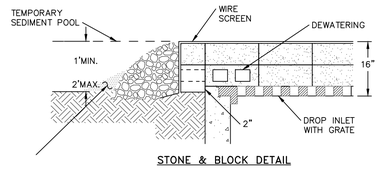
DUST CONTROL:
SCHEDULE CONSTRUCTION OPERATIONS TO MINIMIZE THE AMOUNT OF DISTURBED AREAS AT ANY ONE TIME DURING THE COURSE OF WORKS. APPLY TEMPORARY SOIL STABILIZATION PRACTICES SUCH AS MULCHING, SEEDING, AND SPRAYING (WATER). STRUCTURAL MEASURES (MULCH, SEEDING) SHALL BE INSTALLED IN DISTURBED AREAS 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.

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.

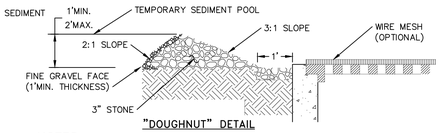
CATCH BASINS:
ALL CATCH BASINS SHALL BE INSPECTED AFTER EACH STORM EVENT FOR SEDIMENT ACCUMULATION, AND DEBRIS, AND REMOVE AS NECESSARY. THE INLET PROTECTION SHALL BE INSPECTED FOR SEDIMENT ACCUMULATION AND REPLACED AS NECESSARY. WHEN SEDIMENT ACCUMULATION WITHIN THE CATCH BASIN SUMP REACHES 1/2 OF THE SUMP DEPTH, IT SHALL BE REMOVED.



STONE & BLOCK PLAN VIEW



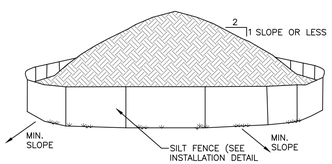
STONE & BLOCK DETAIL



"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



NOTES:
1. 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

APPLICANT'S CONSENT:

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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	12/16/23	PER PLANNING BOARD COMMENTS	CMB				
2	1/30/24	PER PLANNING BOARD COMMENTS	CMB				
3	2/27/24	PER PLANNING BOARD COMMENTS	CMB				

EROSION & SEDIMENT CONTROL
SCALE: 1" = 20'
GRAPHIC SCALE
20 0 10 20 40 80
(IN FEET)
1 inch = 20 ft.

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

EROSION & SEDIMENT CONTROL PLAN

409 FISHKILL AVE

409 FISHKILL AVE
CITY OF BEACON
DUTCHESS COUNTY, NEW YORK
TAX ID: 6055-80-403061, 399053, 406047, 411056, 416064 & 418071

JOB #:	2023:032
DATE:	11/28/23
SCALE:	AS SHOWN
TITLE:	ESC-1
SHEET:	5 OF 9

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
- 250 EXISTING MAJOR CONTOUR
- 252 EXISTING MINOR CONTOUR
- EXISTING TREE LINE
- OHW EXISTING OVER HEAD WIRE
- EXISTING UTILITY POLE
- SS SS EXISTING SEWER SERVICE LINE
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- EXISTING SEWER MANHOLE
- EXISTING SEWER CLEAN OUT
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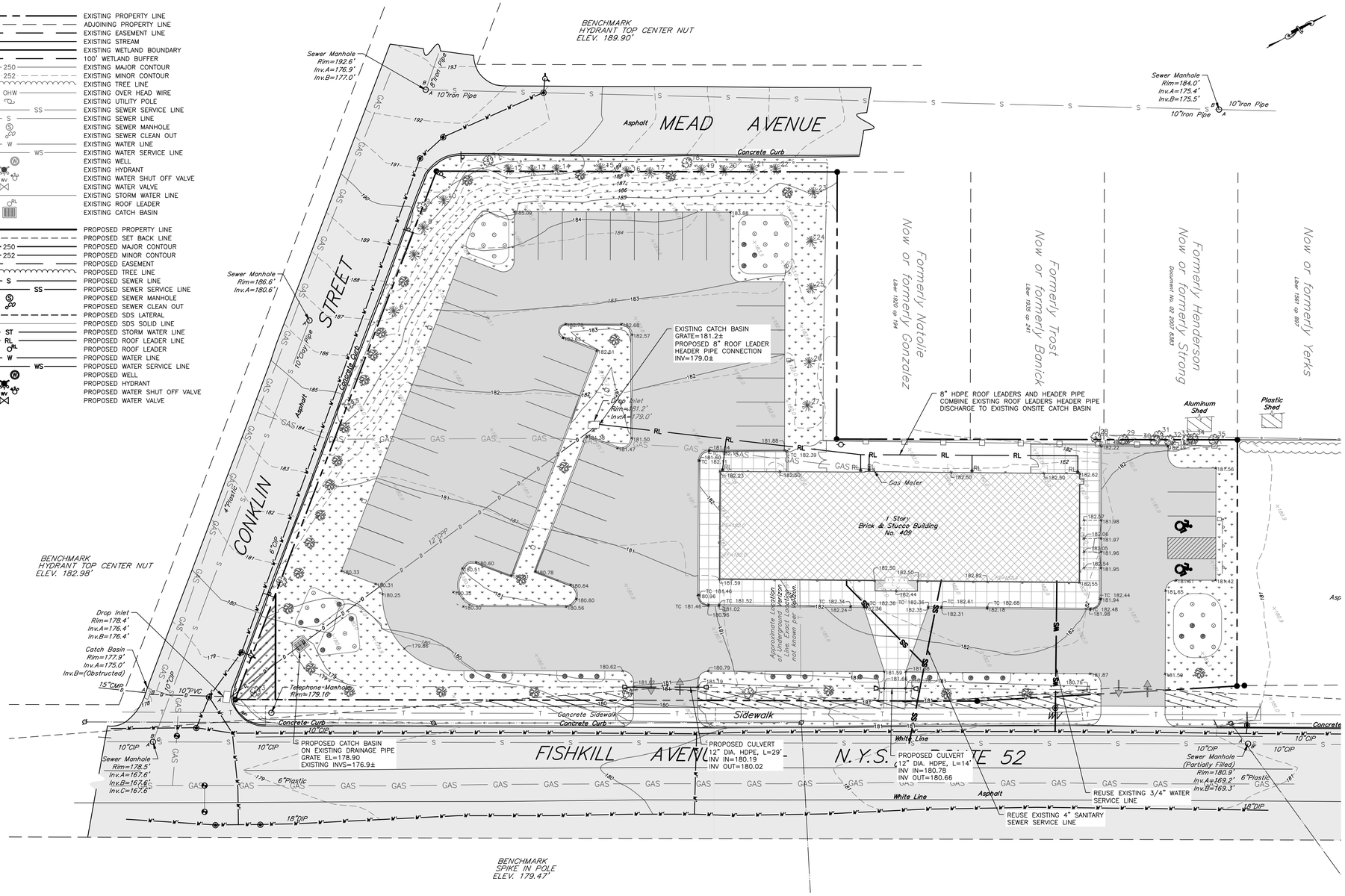

I&I NOTES:

1. A FLOOR DRAIN WAS FOUND DURING THE INSPECTION BY HUDSON LAND DESIGN PERSONNEL, LOCATED GENERALLY ALONG THE SOUTHEAST PORTION OF THE GARAGE AREA. THE FLOOR DRAIN CONVEYS FLOW TO A TRAP IN THE FLOOR, AND IS ASSUMED TO DRAIN TO THE BUILDING'S SANITARY SEWER LINE. ALL COMPONENTS OF THE FLOOR DRAIN SHALL BE REMOVED AND THE DISCHARGE PIPE SHALL BE CAPPED.

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UTILITY PLAN
SCALE: 1" = 20'
GRAPHIC SCALE
20 0 10 20 40 80
(IN FEET)
1 inch = 20 ft.

STATE OF NEW YORK
DANIEL G. KOEPPEL
082716
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

UTILITY PLAN

409 FISHKILL AVE

409 FISHKILL AVE
CITY OF BEACON
DUTCHESS COUNTY, NEW YORK
TAX ID: 6055-80-403061, 399053, 406047, 411056, 416064 & 418071

JOB #:	2023:032
DATE:	11/28/23
SCALE:	1" = 20'
TITLE:	UT-1
SHEET:	6 OF 9

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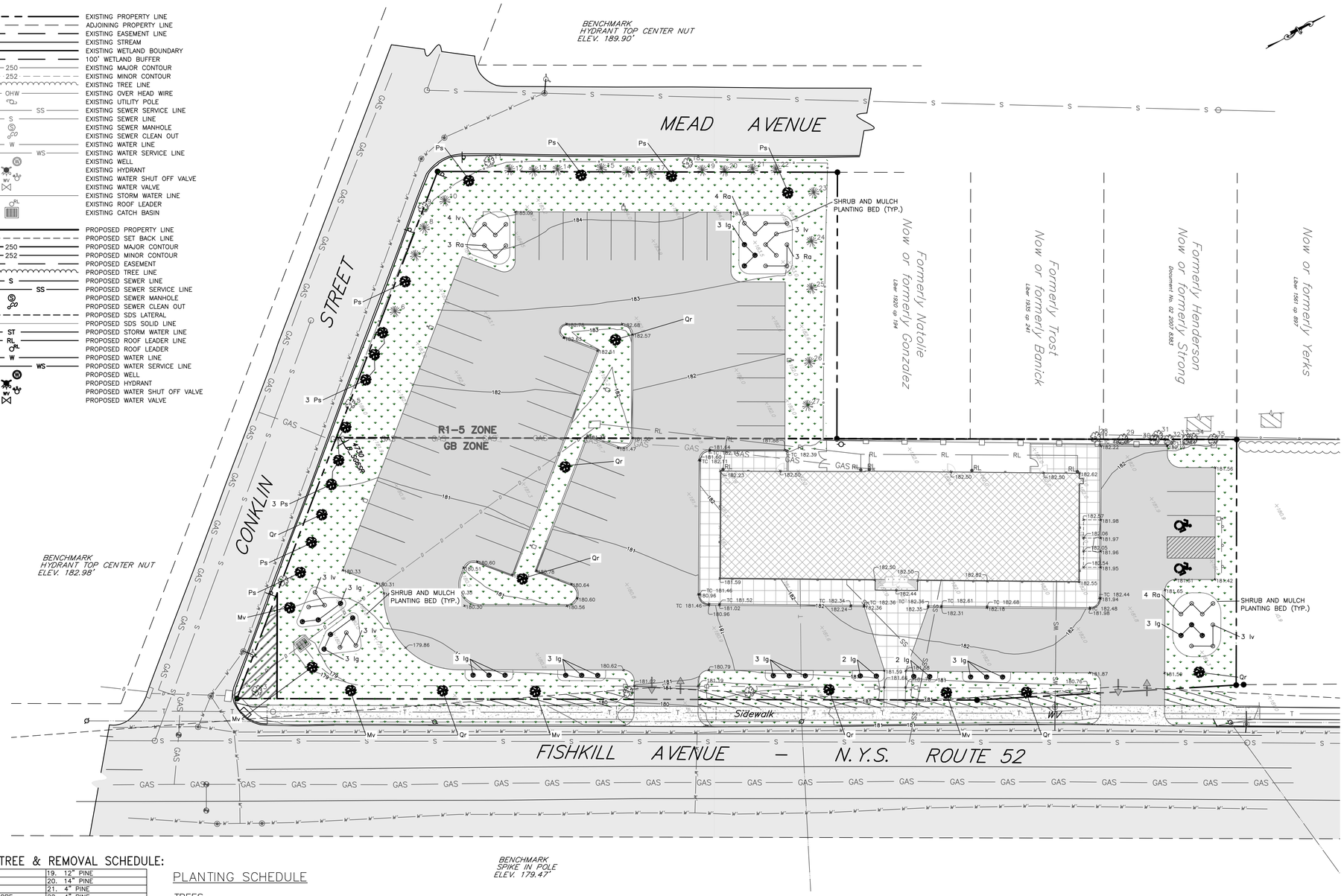


EXISTING TREE & REMOVAL SCHEDULE:

1. 16" APPLE	19. 12" PINE
2. 12" APPLE	20. 14" PINE
3. 10" APPLE	21. 4" PINE
4. 22" SYCAMORE	22. 4" PINE
5. 20" SYCAMORE	23. 22" PINE
6. 14" PINE	24. 10" PINE
7. 14" PINE	25. 16" PINE
8. 10" PINE	26. 12" PINE
9. 24" SYCAMORE	27. 18" PINE
10. 14" PINE	28. 16" MAPLE
11. 24" SYCAMORE	29. 8" MAPLE TWIN
12. 4" PINE	30. 8" MAPLE
13. 6" PINE	31. 6" HACKBERRY
14. 6" PINE	32. 8" MAPLE
15. 6" PINE TWIN	33. 10" MAPLE TRIPLE
16. 6" PINE	34. 8" MAPLE
17. 4" PINE	35. 8" MAPLE CLUMP
18. 24" SYCAMORE	

NOTES:
1. TREE LOCATIONS BY BADEY & WATSON SURVEYING.
2. SPECIES ID PER BADEY & WATSON SURVEYING.
3. **TBR** = TO BE REMOVED

PLANTING SCHEDULE

TREES

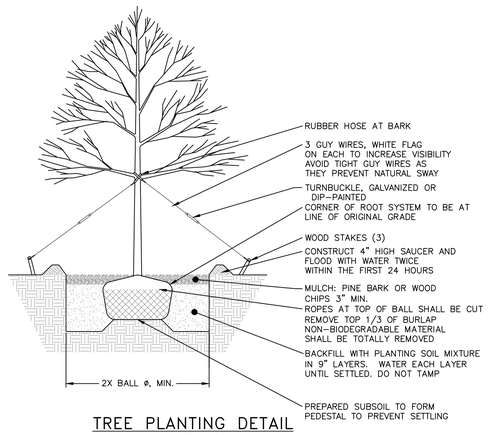
KEY	QTY	BOTANICAL NAME	COMMON NAME	CALIPER	SPACING
Mv	5	MAGNOLIA VIRGINIANA	SWEETBAY MAGNOLIA	3 INCH (DBH)	AS SHOWN
Qr	8	QUERCUS RUBRA	RED OAK	3 INCH (DBH)	AS SHOWN
Ps	13	PINUS STROBUS	WHITE PINE	3 INCH (DBH)	AS SHOWN

TREES

KEY	QTY	BOTANICAL NAME	COMMON NAME	CALIPER	SPACING
Iv	16	ILEX VERTICILLATA	WINTERBERRY	3 GALLON	6 FT
Ig	28	ILEX GLABRA	INKBERRY	3 GALLON	6 FT
Ro	14	RHUS AROMATICA	AROMATIC SUMAC	3 GALLON	6 FT

LANDSCAPE NOTES:

1. THE LANDSCAPE CONTRACTOR SHALL CAREFULLY COORDINATE CONSTRUCTION ACTIVITIES WITH THAT OF THE EARTHWORK CONTRACTOR AND OTHER SITE DEVELOPMENT.
2. THE CONTRACTOR SHALL VERIFY DRAWING DIMENSIONS WITH ACTUAL FIELD CONDITIONS AND INSPECT RELATED WORK AND ADJACENT SURFACES. THE CONTRACTOR SHALL VERIFY THE ACCURACY OF ALL FINISH GRADES WITHIN THE WORK AREA. THE CONTRACTOR SHALL REPORT TO THE ENGINEER AND OWNER ALL CONDITIONS WHICH PREVENT PROPER EXECUTION OF THIS WORK.
3. THE EXACT LOCATION OF ALL EXISTING UTILITIES, STRUCTURES AND UNDERGROUND UTILITIES, WHICH MAY NOT BE INDICATED ON THE DRAWINGS, SHALL BE DETERMINED BY THE CONTRACTOR. THE CONTRACTOR SHALL PROTECT EXISTING STRUCTURES AND UTILITY SERVICES AND IS RESPONSIBLE FOR THEIR REPLACEMENT IF DAMAGED.
4. THE CONTRACTOR SHALL KEEP THE PREMISES FREE FROM RUBBISH AND ALL DEBRIS AT ALL TIMES AND SHALL ARRANGE MATERIAL STORAGE SO AS NOT TO INTERFERE WITH THE OPERATION OF THE PROJECT. ALL UNUSED MATERIALS, RUBBISH AND DEBRIS SHALL BE REMOVED FROM THE SITE.
5. NO TREES OR SHRUBS SHALL BE PLANTED ON EXISTING OR PROPOSED UTILITY LINES.
6. QUALITY ASSURANCE:
   A. PLANT NAMES SHALL CONFORM TO THE LATEST EDITION OF "STANDARDIZED PLANT NAMES" AS ADOPTED BY THE AMERICAN JOINT COMMITTEE ON HORTICULTURAL NOMENCLATURE.
   B. SIZE AND GRADING: PLANT SIZES AND GRADING SHALL CONFORM TO THE LATEST EDITION OF "AMERICAN STANDARD FOR NURSERY STOCK" AS SPONSORED BY THE AMERICAN ASSOCIATION OF NURSERYMEN, INC (AAN), UNLESS OTHERWISE SPECIFIED.
   C. NURSERY SOURCE: OBTAIN FRESHLY DUG, HEALTHY, VIGOROUS PLANTS NURSERY GROWN UNDER CLIMACTIC CONDITIONS SIMILAR TO THOSE IN THE LOCALITY OF THE PROJECT FOR A MINIMUM OF 2 YEARS. PLANTS SHALL HAVE BEEN LINED OUT IN ROWS, ANNUALLY CULTIVATED, SPRAYED, PRUNED AND FERTILIZED IN ACCORDANCE WITH GOOD HORTICULTURAL PRACTICE. ALL PLANTS SHALL HAVE BEEN TRANSPLANTED OR ROOT PRUNED AT LEAST ONCE IN THE PAST 3 YEARS. BALLED AND BURLAPPED PLANTS MUST COME FROM SOIL WHICH WILL HOLD A FIRM ROOT BALL. HEELED IN PLANTS AND PLANTS FROM COLD STORAGE ARE NOT ACCEPTABLE.
   D. SUBSTITUTIONS: DO NOT MAKE SUBSTITUTIONS OF TREES AND/OR SHRUB MATERIALS. IF REQUIRED LANDSCAPE MATERIAL IS NOT OBTAINABLE, SUBMIT PROOF OF NON-AVAILABILITY AND PROPOSAL FOR USE OF EQUIVALENT MATERIAL.
7. SEEDING & PLANTING SEASONS AND TIMING CONDITIONS:
   A. UNLESS OTHERWISE DIRECTED IN WRITING, SEED LAWNS FROM MARCH 15 TO JUNE 15, AND FROM AUGUST 15 TO OCTOBER 15.
   B. UNLESS OTHERWISE DIRECTED IN WRITING PLANT TREES AND SHRUBS FROM MARCH 15 TO JUNE 1, AND FROM AUGUST 15 TO OCTOBER 30.
8. ALL LANDSCAPING SHALL BE MAINTAINED THROUGHOUT THE LIFE OF THE SITE.



TREE PLANTING DETAIL
NOT TO SCALE

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LANDSCAPING PLAN
SCALE: 1" = 20'
GRAPHIC SCALE
20 0 10 20 40 80
(IN FEET)
1 inch = 20 ft.

STATE OF NEW YORK DANIEL G. KOEPPEL 082715 LICENSED PROFESSIONAL ENGINEER
SEAL

HUDSON LAND DESIGN
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PROFESSIONAL ENGINEERING P.C.
174 MAIN ST., BEACON, NEW YORK 12508
13 CHAMBERS ST., NEWBURGH, NEW YORK 12550
PH: 845-440-6926

LANDSCAPING PLAN

409 FISHKILL AVE

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CITY OF BEACON
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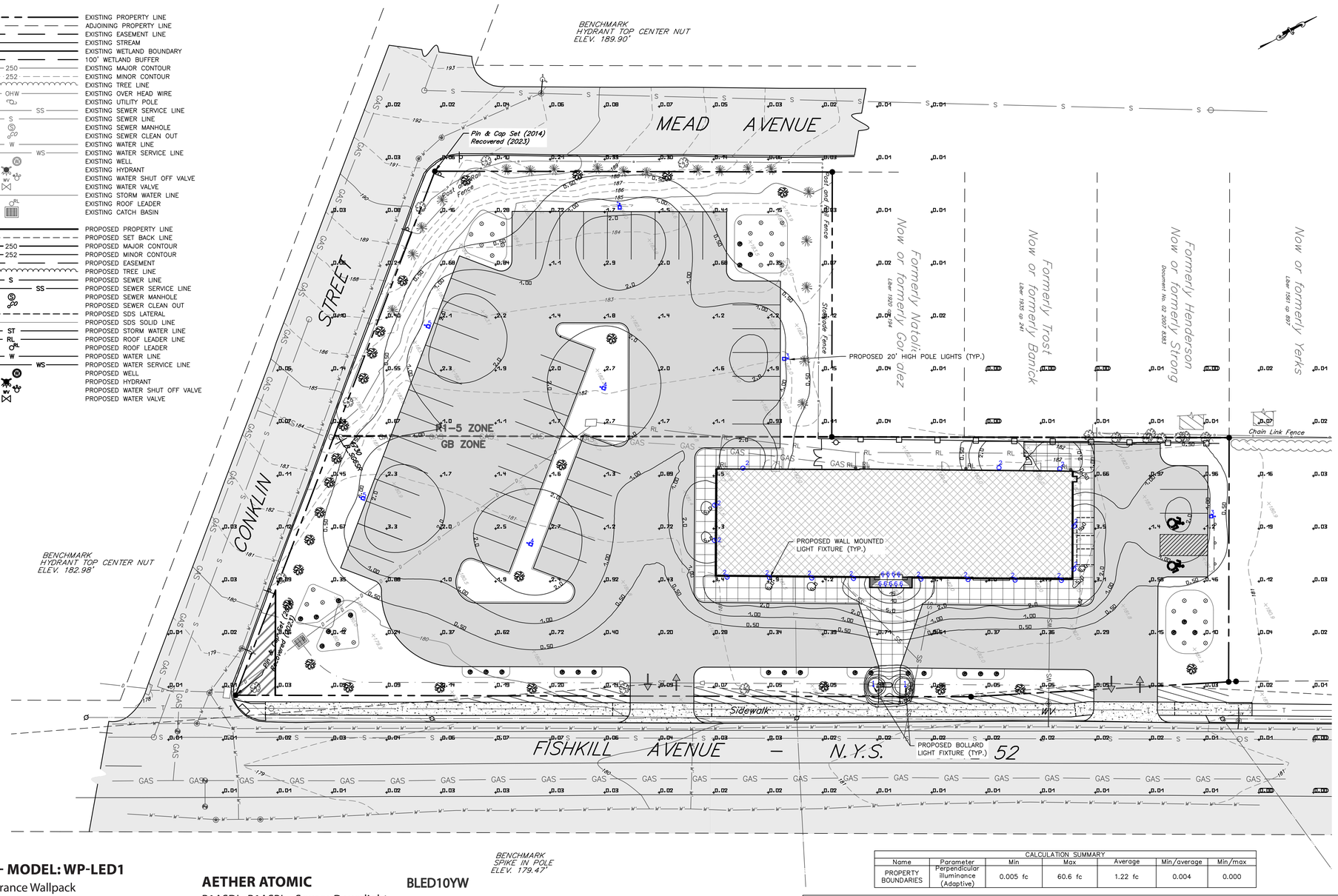
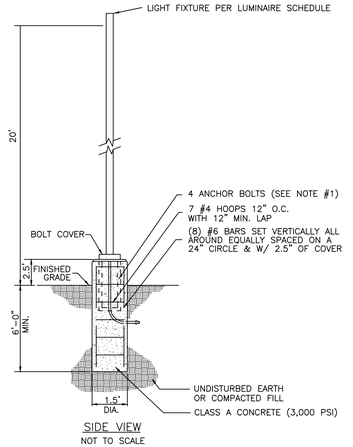


LIGHTING NOTES:

1. ALL LIGHTING SHALL BE DARK SKY COMPLIANT WITH CUTOFF SHIELDS AS NOTED.
2. ILLUMINATION IN FOOT-CANDLES, ONLY CONSIDERS PROPOSED LIGHTING, AND WILL BE PROVIDED IN FUTURE SUBMITTALS.
3. EXISTING LIGHTING LEVELS ALONG CONKLIN STREET AND FISHKILL AVENUE NOT MODELED.
4. LIGHTING SHALL BE FROM DUSK TO DAWN.





SIDE VIEW
NOT TO SCALE

NOTES
1. LIGHT FIXTURE SHALL BE DIRECTED AND/OR SHADED AS NECESSARY TO PREVENT LIGHT FROM SPILLING OFF-SITE AND TO PREVENT UNREASONABLE GLARE FROM BEING OBSERVED ON ADJACENT ROADWAY OR PROPERTY.

LIGHT POLE DETAIL
NOT TO SCALE

CALCULATION SUMMARY						
Name	Parameter	Min	Max	Average	Min/average	Min/max
PROPERTY BOUNDARIES	Perpendicular Illuminance (Adaptive)	0.005 fc	60.6 fc	1.22 fc	0.004	0.000

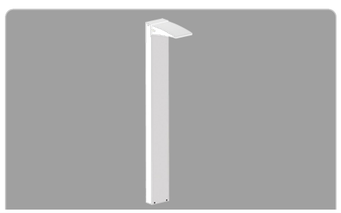
FIN - MODEL: WP-LED1
Endurance Wallpack



AETHER ATOMIC
R1ASDL, R1ASPL - Square Downlight



BLED10YW



LUMINAIRE SCHEDULE									
Index	MANUFACTURER	NAME	ITEM NUMBER	COLOR TEMPERATURE	Luminous flux	LUM WATTS	Connected load	QUANTITY	MOUNTING HEIGHT
1	RAB LIGHTING	BLED BOLLARD	BLED10YW	3000K	1665 lm	10 W	14.7 W	2	3.5'
2	WAC LIGHTING	ENDURANCE WALLPACK	WP-LED 119	3000K	1388 lm	19 W	19.0 W	15	13'
3	RAB LIGHTING	IVELOT FORWARD THROW	IVATFT-45L730U	3000K	4640 lm	45 W	37.9 W	2	20'
4	RAB LIGHTING	IVELOT TYPE V SQUARE	IVAT5S-100L730U	3000K	10036 lm	100 W	94.5 W	2	20'
5	RAB LIGHTING	IVELOT FORWARD THROW	IVATFT-75L730U	3000K	7463 lm	75 W	66.5 W	3	20'
6	WAC LIGHTING	AETHER ATOMIC SQUARE DOWNLIGHT	R1ASDL-WT(W-3000K)	3000K	825 lm	11 W	13 W	9	15'-7" TO 18'-5"

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_____ 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	12/16/23	PER PLANNING BOARD COMMENTS	CMB				
2	1/30/24	PER PLANNING BOARD COMMENTS	CMB				
3	2/27/24	PER PLANNING BOARD COMMENTS	CMB				

LIGHTING PLAN
SCALE: 1" = 20'
GRAPHIC SCALE

20 0 10 20 40 80
(IN FEET)
1 inch = 20 ft.

STATE OF NEW YORK DANIEL G. KOSTER 082716 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

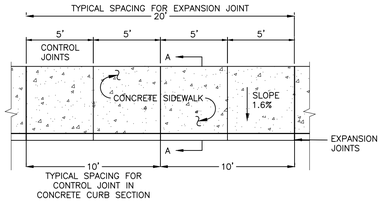
LIGHTING PLAN

409 FISHKILL AVE

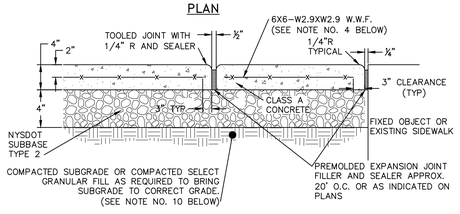
409 FISHKILL AVE
CITY OF BEACON
DUTCHESS COUNTY, NEW YORK
TAX ID: 6055-80-403061, 399053, 406047, 411056, 416064 & 418071

JOB #:	2023:032
DATE:	11/28/23
SCALE:	AS SHOWN
TITLE:	LT-1
SHEET:	8 OF 9

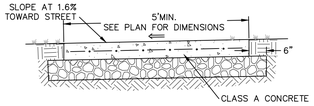
UNAUTHORIZED ALTERATIONS OR ADDITIONS TO THIS DRAWING IS A VIOLATION OF SECTION 7209.2 OF THE NEW YORK EDUCATION LAW



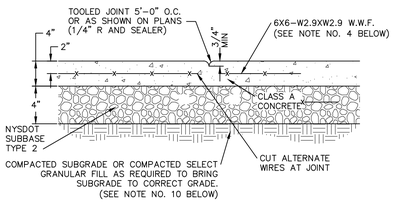
PLAN



EXPANSION JOINT



SECTION A–A

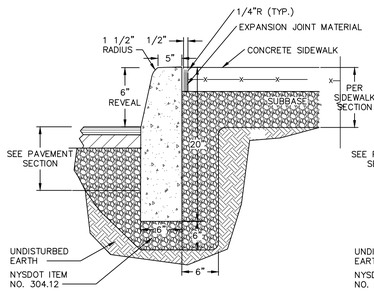


CONTROL JOINT

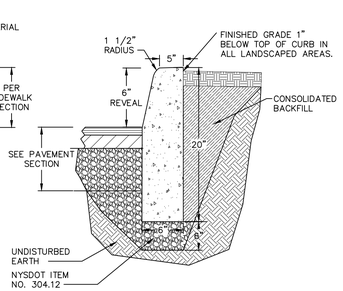
NOTES:

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 4,000 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 MANUFACTURE'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.
12. CONCRETE SHALL BE SEALED WITH A SALT RESISTANT SEALER.

CONCRETE SIDEWALK DETAIL
NOT TO SCALE



ABUTTING SIDEWALK

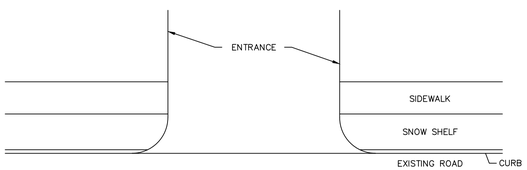


ABUTTING GRASS OR LANDSCAPE

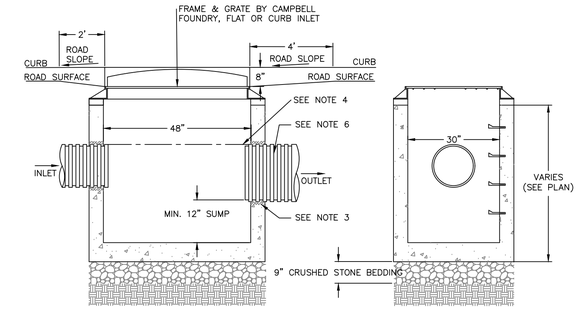
NOTES:

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.
4. CONCRETE SHALL BE SEALED WITH A SALT RESISTANT SEALER.

CAST–IN–PLACE CONCRETE CURB DETAIL
NOT TO SCALE



DOT ENTRANCE DETAIL
NOT TO SCALE

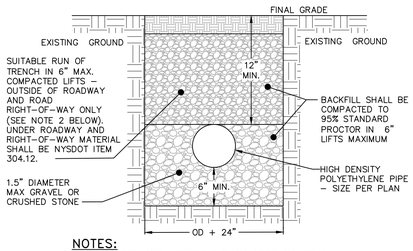


FRONT VIEW SIDE VIEW

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.

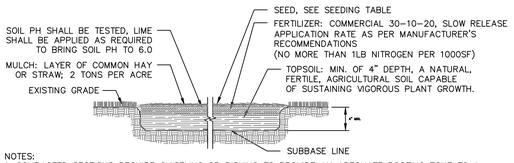
CATCH BASIN DETAIL
NOT TO SCALE



NOTES:

1. EXCAVATION AND TRENCHING SHALL MEET ALL OSHA REQUIREMENTS.

STORM LINE TRENCH DETAIL
NOT TO SCALE



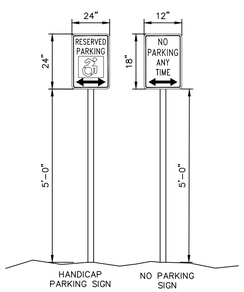
NOTES:

1. COMPACTED SECTIONS REQUIRE CHISELING OR DISKING TO PROVIDE AN ADEQUATE ROOTING ZONE TO A MINIMUM DEPTH OF 12"
2. SOIL AMENDMENTS SHOULD BE INCORPORATED INTO THE UPPER 2" OF SOILS BASED ON SOIL TESTING. IF SOIL MUST BE FERTILIZED BEFORE RESULTS OF A SOIL TEST CAN BE OBTAINED TO DETERMINE FERTILIZER NEEDS, APPLY COMMERCIAL FERTILIZER AT 600 POUNDS PER ACRE 5–5–10 OR EQUIVALENT.
3. PERMANENT SEEDINGS MAY BE MADE ANY TIME OF YEAR IF PROPERLY MULCHED AND ADEQUATE MOISTURE IS PROVIDED. LATE JUNE THROUGH EARLY AUGUST IS NOT OPTIMAL SEEDING PERIOD AS PORTIONS OF THE SEEDING MAY FAIL DUE TO DROUGHT AND HEAT. THESE AREAS MAY NEED RESEEDING IN LATE SUMMER/FALL OR THE FOLLOWING SPRING.
4. WATERING MAY BE ESSENTIAL TO ESTABLISH A NEW SEEDING WHEN A DROUGHT CONDITION OCCURS SHORTLY AFTER A NEW SEEDING EMERGES. DO NOT EXCEED THE APPLICATION RATE FOR THE SEED OR SUBSOIL.
5. SEEDING OPTION A FOR A SUNNY SITE TO BE USED, UNLESS OTHERWISE NOTED.

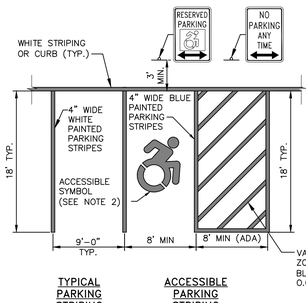
SEEDING TABLE

TYPE	SUNNY SITE:	SUNNY DROUGHTY SITE:	SHADY DRY SITE:	SHADY WET SITE:
OPTION A	65% CREEPING RED FESCUE 20% PERENNIAL RYE GRASS 15% FINE FESCUE 175 LBS PER ACRE	65% FINE FESCUE 15% PERENNIAL RYE GRASS 20% CREEPING FESCUE 220 LBS PER ACRE	65% FINE FESCUE 15% PERENNIAL RYE GRASS 20% CREEPING FESCUE 220 LBS PER ACRE	70% CREEPING RED FESCUE 30% BLEND OF SHADE–TOLERANT HARD FESCUE 130 POUNDS PER ACRE
OPTION B	100% CREEPING RED FESCUE 200 LBS PER ACRE	100% CREEPING RED FESCUE 200 LBS PER ACRE	80% BLEND OF SHADE–TOLERANT CEREAL RYE 20% PERENNIAL RYE 175 LBS PER ACRE	100% CHEWINGS FESCUE 200 LBS PER ACRE
OPTION C			100% CREEPING RED FESCUE 200 LBS PER ACRE	

TOPSOIL SEED, FERTILIZER AND MULCH DETAIL
NOT TO SCALE



SIGN DETAILS
NOT TO SCALE

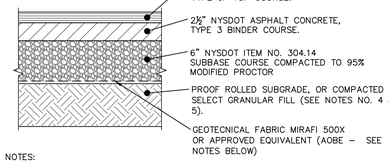


TYPICAL PARKING STRIPING ACCESSIBLE PARKING STRIPING

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.
4. PARALLEL SPACES SHALL BE 10'W X 20'L.

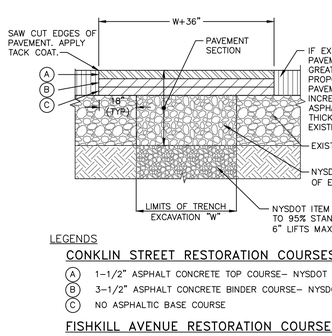
PARKING AND STRIPING DETAIL
NOT TO SCALE



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



LEGENDS

CONKLIN STREET RESTORATION COURSES:

- (A) 1–1/2" ASPHALT CONCRETE TOP COURSE– NYSDOT TYPE 6F
- (B) 3–1/2" ASPHALT CONCRETE BINDER COURSE– NYSDOT TYPE 3
- (C) NO ASPHALTIC BASE COURSE

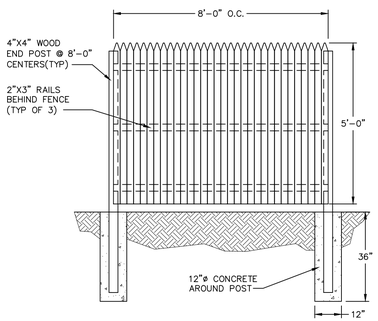
FISHKILL AVENUE RESTORATION COURSES:

- (A) 1–1/2" ASPHALT CONCRETE TOP COURSE– NYSDOT TYPE 6F
- (B) 2–1/2" ASPHALT CONCRETE BINDER COURSE– NYSDOT TYPE 3
- (C) 8" ASPHALTIC BASE COURSE– NYSDOT TYPE 1 (4" LIFTS)

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 IN TWO 4" LIFTS.
3. TACK COAT IN ACCORDANCE WITH NYSDOT STANDARD SPEC.
4. FURNISH AND PLACE ASPHALT CONCRETE PAVEMENT AS SPECIFIED.
5. PROVIDE 10" GRANULAR SUBBASE COURSE – NYSDOT ITEM 304.12 FOR CONKLIN STREET RESTORATION.

PAVEMENT RESTORATION DETAIL
NOT TO SCALE



WOOD STOCKADE FENCE DETAIL
NOT TO SCALE

APPLICANT'S CONSENT:

THE UNDERSIGNED APPLICANT 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.

_____ _____
SGI – USA 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.

DRAWN BY: CMB				CHECKED BY: DGK			
REVISIONS:				REVISIONS:			
NO.	DATE	DESCRIPTION	BY	NO.	DATE	DESCRIPTION	BY
1	12/16/23	PER PLANNING BOARD COMMENTS	CMB				
2	1/30/24	PER PLANNING BOARD COMMENTS	CMB				
3	2/27/24	PER PLANNING BOARD COMMENTS	CMB				

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

CONSTRUCTION DETAILS

409 FISHKILL AVE

409 FISHKILL AVE
CITY OF BEACON
DUTCHESS COUNTY, NEW YORK
TAX ID: 6055–80–403061, 399053, 406047, 411056, 416064 & 418071

JOB #:	2023:032
DATE:	11/28/23
SCALE:	AS SHOWN
TITLE:	CD–1
SHEET:	9 OF 9

UNAUTHORIZED ALTERATIONS OR ADDITIONS TO THIS DRAWING IS A VIOLATION OF SECTION 7209.2 OF THE NEW YORK EDUCATION LAW

LANC & TULLY
Engineering and Surveying, P.C.

March 6, 2024

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

RE: 409 Fishkill Ave.
SGI-USA Site Plan
Tax Nos. 6055-80-399053,
403061,406047, 411056, 416064 &
418071
City of Beacon

Dear Mr. Gunn:

My office has received the following regarding the proposed re-use of the building located at 409 Fishkill Avenue:

- Response correspondence dated February 27, 2024, from Hudson Land Design.
- Application for Special Use Permit dated December 14, 2023.
- 4 Luminaire cut sheets for proposed lighting on the site.
- Floor and Exterior Elevation plans, dated February 26, 2024, as prepared by Robert Scarpa, Jr., Architect.
- Engineering plan set titled "409 Fishkill Avenue", consisting of sheets 1 of 9 through 9 of 9, with the latest revision date of February 27, 2024, as prepared by Hudson Land Design.

The proposed project, located at the intersection of Fishkill Avenue and Conklin Street, entails the re-use of the existing car dealership building located at 409 Fishkill Avenue as a place of worship. The project site consists of 6 different parcels, with two (2) of the parcels located in the R1-5 Zone and 4 of the parcels located in the GB (General Business) Zone, with the 6 parcels combined having a total area of ±1.183 acres. It should be noted that a "Place of worship" is allowed in all R1 zones, as well as the GB zone.

Based on our review of the above documents and plans, we would like to offer the following comments:

General Comments:

1. The applicant will be required to obtain a highway work permit for the project from the City of Beacon for work within the road right-of-way. A note shall be included on the plans stating this.

2. We have reviewed the submitted construction cost estimate for the project, in the amount of $57,925.00, and find it to be acceptable. The Applicant will need to post the Performance bond prior to any work within the right-of-way, as well as establishing a construction inspection escrow in the amount of 6% of the bond value, or $3,475.50 for inspection of work to be performed within the public right-of-way.

3. The Consolidation & Dedication Plat was found to be acceptable. A written description shall be prepared for the 298 square foot area to be dedicated to the City of Beacon at the intersection of Fishkill Avenue and Conklin Street. ***Applicant's consultant has noted that a description of the area to be dedicated will be prepared and submitted.***

Engineering Plans:

1. The applicant has made strides in reducing the light spillage on to the neighboring properties since the previous submission, with a very minimal amount of spillage onto the neighboring residential parcel. As previously noted, Section 223-14, Paragraph B(1), states "The type, location, and shading of such lighting shall prevent the spillover of light onto any adjacent residential or multifamily property or direct glare onto any public sidewalk or street." Although the spillage onto the neighbor is only 0.04 at the worst point, has the applicant looked at adjusting the height of the light poles and/or adding additional shielding to reduce any spillage further?

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: Natalie Quinn, Planner
Jennifer Gray, Esq.
Bruce Flower, Building Inspector

KARC
PLANNING CONSULTANTS, INC.

TO: John Gunn, Chair, and the City of Beacon Planning Board

FR: KARC Planning Consultants, Inc.

DATE: March 8, 2024

RE: 409 Fishkill Avenue Site Plan, Soka Gakkai International - USA

I have reviewed the following revised and additional materials regarding the proposed re-use of the building located at 409 Fishkill Avenue:

- Cover letter by Hudson Land Design, dated February 27, 2024
- Revised Special Use Permit Application, dated January 24, 2024
- Proposed floor plans dated February 26, 2024, and proposed elevations dated February 24, 2024 (2 sheets) by Robert W Scarpa Jr, Architect
- Site Plan Set (9 sheets) by Hudson Land Design, with all plans dated November 28, 2023, last revised February 27, 2024.
- Light fixture specification sheets for RAB BLED10YW (2 sheets), RAB IVELOT (6 sheets), WAC Aether Atomic (2 sheets), and WAC Endurance Fin Wallpack (4 sheets)

Project Description:

The applicant is proposing to convert an existing one-story auto dealer building, having a total of 5,454 square feet, into a place of worship with 50 parking spaces. The 1.183-acre site includes four parcels in the General Business (GB) district and two rear parcels in the R1-5 Residential district. The applicant is proposing to consolidate two parcels within the GB district (Parcels No.411056 and No.416064) so that the building structure no longer straddles two separate lots of record. Place of worship is a permitted use within the GB district. A special use permit has been submitted to seek approval for off-street parking as a primary use within the GB district and as an accessory use within the R1-5 district.

Comments & Recommendations:

At the Planning Board meeting on January 8, 2024 the Board indicated that they are satisfied with the parking layout as proposed. Our recommendations regarding layout have therefore been removed.

1. **Lighting Plan:**
   Section 223-14B requires that lighting plans be designed to prevent the spillover of light onto any adjacent residential parcels and should average approximately one footcandle. The average footcandle for the proposed lighting plan has been reduced to 1.22 fc. Light levels at the property boundaries have also been significantly reduced but are still displaying ground light levels ranging from 0.10 to 0.33 on adjacent properties. The Planning Board should confirm whether they believe the above lighting standards of Section 223-14B to have been met.

2. All other previous comments have been addressed.

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

Natalie Quinn
Beacon Planning Consultant

Cc: Bruce Flower, Building Inspector
Jennifer L. Gray, Esq., City Attorney
John Russo, P.E., City Engineer
Daniel Koehler, P.E., Project Engineer

City of Beacon Planning Board Agenda
03/12/2024

Title:

Public hearing of application for Subdivision approval, internal property subdivision, 18-30 Edgewater Place, submitted by Scenic Beacon Developments, LLC.

ATTACHMENTS

18-30 Edgewater PB 3.12.24 Supplemental Submission(5976844.1).pdf

Lanc Tully 18-30 Edgewater 03-08-24 review.pdf

KARC Review PB_18-30 Edgewater_3.8.2024.pdf

Edgewater PB 3.12.24 Internal Lot Subdivision Approval Resolution (4857-5576-8491.3).pdf

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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

February 27, 2024

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: Scenic Beacon Developments, LLC – Application for Internal Property Subdivision
Supplemental Submission
Premises: 18-30 Edgewater Place Beacon, New York
Tax Parcel ID: 5955-19-590022

Dear Chairman Gunn and Members of the Planning Board:

On behalf of Scenic Beacon Developments, LLC (the "Applicant"), the owner of the above-referenced Premises, we respectfully submit this letter in furtherance of an Application for an Internal Property Subdivision (the "Application") relating to the Applicant's previously approved Edgewater project ("Edgewater").

As you know, at the February 14, 2024 meeting, the Planning Board set the Subdivision Public Hearing for this Board's March 12th meeting Agenda. Consistent with the City Consultant comments at the February 14th meeting, the Applicant is currently drafting a declaration of easements, agreements, covenants and restrictions (commonly referred to as reciprocal easement agreements or "REAS"). The Applicant anticipates the declaration will *inter alia* establish easements in favor of Lots 2-7 for non-exclusive pedestrian and vehicular access and parking, access to resident amenities located on Lot 1, access to drainage, water, and sewer lines, and electric and other utilities, in addition to establishing management, maintenance, and enforcement obligations to ensure Edgewater continues to operate as a cohesive development pursuant to the conditions contained in the underlying Preliminary & Final Subdivision, Site Plan and related approvals.

The Applicant looks forward to appearing at the Planning Board's March 12th meeting for the Subdivision Public Hearing and the continued review of the Application. In the meantime, should the Planning Board or City Staff have any questions, please do not hesitate to contact me.

5976497.v3

Thank you in advance for your consideration.

Very truly yours,



Taylor M. Palmer

cc: Bruce Flower, City Building Inspector
Jennifer L. Gray, Esq., Planning Board Attorney
Natalie Quinn, KARC Planning Consultants, Inc.
John Russo, P.E., Lanc & Tully Engineering & Surveying, P.C.
Michael A. Bodendorf, P.E., Hudson Land Design Professional Engineering, P.C.
Brendan Johnson, PLS, Johnson Surveying, LLC
The Community Preservation Corporation
Allison Fausner, Esq.

LANC & TULLY
Engineering and Surveying, P.C.

March 8, 2024

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

RE: Edgewater
Internal Subdivision
Tax No. 5955-19-590022
City of Beacon

Dear Mr. Gunn:

My office has received the following regarding the proposed internal subdivision of the Edgewater project:

- Correspondence dated February 27, 2024, from Cuddy & Feder.

The applicant is proposing an internal subdivision of the buildings in accordance with Section 223-25, Paragraph C(3) of the City of Beacon Code. Based upon the submitted correspondence the applicant's consultant notes that they are currently drafting a declaration of easements, agreements, covenants and restrictions that will establish easements in favor of Lots 2-7.

In a recent email received from the Dutchess County Department of Health (DCDOH) dated February 23, 2024 (copy attached), the DCDOH has stated that they will not approve the subdivision plan unless there are satisfactory arrangements for the water supply and sewage disposal systems. The DCDOH goes on to state that due to the proposed subdivision the applicant will be required to either form a transportation corporation for the sewage collection system on site or have the sewer collection system dedicated to the City of Beacon, in turn having a municipally owned sewage collection system through the site. During the original approvals of the project the water distribution system throughout the site was, and will be, dedicated to the City of Beacon, but the sewage collection system remained private. As the DCDOH is now requiring a transportation corporation, or dedication of the sewage collection system to the City of Beacon, has the applicant approached the City of Beacon with regards to possible dedication?

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: Natalie Quinn, Planner
Jennifer Gray, Esq.
Bruce Flower, Building Inspector
Ed Balicki, Water & Sewer Superintendent

John Russo

From: Upright, James <jupright@dutchessny.gov>
Sent: Friday, February 23, 2024 5:09 PM
To: Michael A. Bodendorf, P.E.
Cc: Rodney Weber (rodney@weberprojectsllc.com); John Russo; Ed Balicki (ebalicki@cityofbeacon.org); bflower@beaconny.gov; Gieseler, Jay
Subject: RE: Edgewater Subdivision

Mike,

I replied to your request for the field change as a separate email.

We have not received a formal SEQR submission from the planning board on the subdivision yet. However, this department will not approve a plan (or permission to file) unless there is satisfactory arrangements for a water supply and sewage disposal arrangements. Per the NYS Transportation Law for water and sewer works, sewage can be discharged to only a municipally owned sewage collection system or sewage collection system owned and operated by a duly formed sewage works transportation corporation. Based on my review of the proposed subdivision plat for Edgewater, the water mains are to be owned and operated by the City of Beacon which is acceptable. However, the sewage collection system is currently privately owned. In order for the proposed plat to be approved, the sewer mains will need to be dedicated to the City of Beacon or to a duly authorized sewer transportation corporation.

When we receive the formal SEQR submission, we will include the above in our formal response but I wanted to notify all involved parties our position so that there is appropriate time to respond.

Please let me know if you need any additional information.

Jim Upright

James A. Upright, P.E., P.G.
Senior Public Health Engineer
Dutchess County Department of Behavioral & Community Health
85 Civic Center Plaza - Suite 106
Poughkeepsie, NY 12601
Phone: (845) 486-3404 - Fax: (845) 486-3545
Email: jupright@dutchessny.gov
www.dutchessny.gov/DBCH

NOTICE TO RECIPIENT: THIS E-MAIL IS MEANT FOR ONLY THE INTENDED RECIPIENT OF THE TRANSMISSION, AND MAY BE A COMMUNICATION PRIVILEGED BY LAW. IF YOU RECEIVED THIS E-MAIL IN ERROR, ANY REVIEW, USE, DISSEMINATION, DISTRIBUTION, OR COPYING OF THIS E-MAIL IS STRICTLY PROHIBITED. PLEASE NOTIFY US IMMEDIATELY OF THE ERROR BY RETURN E-MAIL AND PLEASE DELETE THIS MESSAGE FROM YOUR SYSTEM. THANK YOU IN ADVANCE FOR YOUR COOPERATION.

From: Michael A. Bodendorf, P.E. <mbodendorf@hudsonlanddesign.com>
Sent: Friday, February 23, 2024 4:31 PM
To: Upright, James <jupright@dutchessny.gov>
Cc: Rodney Weber (rodney@weberprojectsllc.com) <rodney@weberprojectsllc.com>; John Russo <jdr@lanctully.com>; Ed Balicki (ebalicki@cityofbeacon.org) <ebalicki@cityofbeacon.org>; bflower@beaconny.gov
Subject: Edgewater Subdivision

ATTENTION: This email came from an external source. Do not open attachments or click on links from unknown senders or unexpected emails.

Jim,

Thanks for speaking to Tanya regarding the Edgewater subdivision this morning.
We spoke to John Russo regarding the water main field change, and impacts that the proposed subdivision have on the previously approved private sewer mains. The owner prefers to petition the City to take ownership and maintenance of the Edgewater sewer mains by dedication rather than forming a Transportation Corporation.

In order to facilitate discussions with the City regarding the subdivision and sewer mains, the City will require a statement in writing from your department requiring a TO or for the City to take over ownership of the sewer mains. This may already be forthcoming with your response to SEQR, as we have already made a submission to the planning board.

Would you also be able to provide a short letter or reply to this email stating that the water main revision can be handled as field change and reflected in our certification of completed works with the required as-built survey?
Let me know if you have any questions or comments.
Thanks, and have a good weekend.

HUDSON LAND DESIGN

Michael A. Bodendorf, P.E.
Principal
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)
Phone: 845.440.6926
Direct: 845.765.8956
Fax: 845.440.6637

mbodendorf@HudsonLandDesign.com
www.HudsonLandDesign.com

Please consider the environment before printing this email and attachments

KARC
PLANNING CONSULTANTS, INC.

TO: John Gunn, Chair, and the City of Beacon Planning Board

FR: KARC Planning Consultants, Inc.

DATE: March 8, 2024

RE: 18-30 Edgewater Place Subdivision, Scenic Beacon Developments, LLC

I have reviewed the following materials regarding the proposed internal property subdivision at 18-30 Edgewater Place:

- Supplemental submission letter by Taylor M. Palmer, Cuddy + Feder LLP, dated February 27, 2024
- Materials previous reviewed as noted in my comment letter dated February 13, 2024

Project Description:
The Applicant is proposing to internally subdivide the Edgewater property into a total of seven (7) lots for financing purposes. Specifically, the Applicant proposes to place Buildings 1, 2, 5, 6 and 7 on their own lots, and Buildings 3 & 4 on a single lot. The Applicant is currently drafting a declaration of easements, agreements, covenants, and restrictions ("REAS") for shared access to amenities, parking, utilities, and management across all lots.

Comments & Recommendations:

All previous comments have been addressed.

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

Natalie Quinn
Beacon Planning Consultant

Cc: Bruce Flower, Building Inspector
Jennifer L. Gray, Esq., City Attorney
John Russo, P.E., City Engineer
Taylor M Palmer, Esq., Attorney for the Applicant

RESOLUTION

PLANNING BOARD
BEACON, NEW YORK

PRELIMINARY AND FINAL INTERNAL PROPERTY SUBDIVISION PLAT APPROVAL
FOR SCENIC BEACON DEVELOPMENTS, LLC (18-30 Edgewater Place)

Parcel ID# 5955-19-590022

WHEREAS, the Beacon Planning Board received from Scenic Beacon Developments, LLC ("Applicant") an application for Internal Property Subdivision Approval pursuant to City of Beacon Zoning Code §223-25.C(3) (the "Applicant"), for a 7-lot internal property subdivision ("Project"), on property located at 18-30 Edgewater Place in the Designed Residence Zoning District ("RD-1.7") and designated on the Tax Map of the City of Beacon as Parcel ID# **5955-19-590022** (the "Property"); and

WHEREAS, by Resolution dated September 11, 2018 the Applicant received Site Plan and Subdivision (lot merger) approvals for the construction of seven buildings containing 246 apartments including 25 workforce housing units (350 bedrooms total) (the "Approvals"); and

WHEREAS, the Approvals were preceded by the Planning Board's issuance of a consistency determination pursuant to the Local Waterfront Revitalization Program ("LWRP") on July 10, 2018, the Planning Board's adoption of an Amended Negative Declaration pursuant to the State Environmental Quality Review Act ("SEQRA") on July 10, 2018, the City Council's approval of a Special Use Permit to allow multifamily housing, and the approval of several area variances by the Zoning Board of Appeals; and

WHEREAS, pursuant to Zoning Code §223-25.C(3), the Applicant now proposes to place Buildings 1, 2, 5, 6, and 7 on individual lots, and Buildings 3 and 4 would be on a single lot because the buildings are integrated structures; and

WHEREAS, Proposed Lot 1 would consist of 453,387 square feet (10.408 acres) consisting of common and/or shared areas, facilities, and amenities, Proposed Lot 2 would consist of 10,200 square feet (0.234 acres) containing one building, Proposed Lot 3 would consist of 10,200 square feet (0.234 acres) containing one building, Proposed Lot 4 would consist of 20,195 square feet (0.464 acres) containing Buildings 3 and 4 which are integrated structures, Proposed Lot 5 would consist of 8,500 square feet (0.195 acres) containing one building, Proposed Lot 6 would consist of 10,200 square feet (0.234 acres) containing one building, and Proposed Lot 7 would consist of 8,500 square feet (0.195 acres) containing one building; and

WHEREAS, the Planning Board is the approval authority for the Internal Property Subdivision pursuant to the City of Beacon Code §195-2 and Zoning Code §223-25.C(3); and

WHEREAS, Zoning Code §223-25.C(3) authorizes the Planning Board, after completion of Site Plan review, to subdivide one or more of the lots or buildings within a project that will continue to be controlled by an approved Site Plan; and

WHEREAS, the proposed Internal Property Subdivision will not change the scope of development on the Property which will continue to be controlled by the Approved Site Plan, which was approved by the Planning Board by Resolution dated September 11, 2018; and

WHEREAS, informal comments received from the Dutchess County Department of Behavioral & Community Health ("DCDOH") note that due to the proposed subdivision the sewage collection system for the property which was previously proposed to remain private will now be required to be public (i.e. dedicated to the City of Beacon) or a transportation corporation will need to be formed by the Applicant pursuant to the provisions of the NYS Transportation Corporation Law; and

WHEREAS, the application consists of application forms, correspondence and plans submitted to the Planning Board; and

WHEREAS, the proposed Internal Property Subdivision is shown on the drawings entitled "Edgewater – Preliminary Subdivision Plat prepared for Edgewater," prepared by Brendan Johnson, PLS, Johnson Surveying, LLC, dated January 24, 2024, and "Preliminary Subdivision Plat Edgewater," prepared by Hudson Land Design Professional Engineering, P.C., dated December 27, 2023; and

WHEREAS, the development of the Property as set forth on the approved Site Plan was the subject of an environmental review conducted by the Planning Board as Lead Agency pursuant to the New York State Environmental Quality Review Act ("SEQRA") which concluded with the Planning Board's adoption of a Negative Declaration on December 12, 2017, amended July 10, 2018; and

WHEREAS, the requested Internal Property Subdivision is an additional permit/approval sought as part of the Proposed Action previously evaluated by the Planning Board under SEQRA, and does not create new or different adverse environmental impacts, therefore the Planning Board's Amended Negative Declaration dated July 10, 2018 fully addresses the whole action, including the proposed subdivision approval, and no further SEQRA review is required; and

WHEREAS, the Planning Board reviewed the application at its meetings on February 14, 2024 and March 12, 2024 and considered comments by its consulting engineer and planner; and

WHEREAS, on March 12, 2024 the Planning Board opened a duly noticed public hearing on the application for Subdivision approval concerning the Proposed Action, at which time all those interested were given an opportunity to be heard and the public hearing was closed on March 12, 2024; 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 of Beacon Code.

NOW, THEREFORE, BE IT RESOLVED, that the Planning Board hereby grants Preliminary Internal Property 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 Internal Property 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 Internal Property Subdivision Plat 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 Internal Property Subdivision Plat by the Chairperson 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 Behavioral & Community 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 March 8, 2024, and all comments in any subsequent letter(s) issued, shall be fulfilled to the satisfaction of the City Engineer.

4. The Applicant shall either (i) form a Transportation Corporation for sewer works pursuant to the provisions of the NYS Transportation Law, or (ii) submit to the City an Offer of Cession and Dedication for the sewer infrastructure in a form acceptable to the City Attorney, to be recorded in the Dutchess County Clerk's Office, and satisfactory assurance delivered to the City Attorney that those documents shall be recorded in the Dutchess County Clerk's Office in appropriate order in relationship to the timing of the filing of the Internal Property Subdivision Plat, and that a copy of the

documents with proof of their recording will be promptly submitted to the Planning Board Secretary for filing with a copy to the City Attorney. In the event the City of Beacon City Council declines to accept dedication of the sewer infrastructure, the Applicant shall form a Transportation Corporation, unless otherwise required by the DCDOH.

5. All existing and proposed easements, restrictive covenants and related notes, as applicable, shall be shown on the Final Internal Property Subdivision Plat 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 Internal Property Subdivision Plat shall be prepared, as applicable, and submitted to the City Attorney for review as to form, and satisfactory assurance delivered to the City Attorney that those documents shall be recorded in the Dutchess County Clerk's Office in appropriate order in relationship to the timing of the filing of the Internal Property Subdivision Plat, and that a copy of the documents with proof of their recording will be promptly submitted to the Planning Board Secretary for filing with a copy to the City Attorney.

6. The Applicant shall post a performance guaranty with the City of Beacon for any public sanitary sewer improvements. The Applicant's engineer shall prepare a cost estimate for the work and provide to the City Engineer for review.

7. The Applicant shall establish an escrow with the City of Beacon for the City's construction inspection of any public sanitary sewer installation.

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 Chairperson. 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. All conditions, set forth in the any previous Planning Board Resolution related to the Property, and not explicitly superseded herein, shall remain in full force and effect. Proposed Lots 1 through 7 shall continue to be controlled by the Site Plan approved by the Planning Board on September 11, 2018 and any approved amendment thereof. The approval granted herein does not authorize any development within any Lot other than what is shown on the Approved Site Plan.

2. Pursuant to Zoning Code §223-25.C(3), the Zoning Code's Schedule of Dimensional Regulations shall apply to the overall site area covered by the Approved Site Plan, whether or not the same is or will continue to be under one ownership.

3. 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.

4. 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.

5. 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.

6. 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.

7. The approval granted by this resolution does not supersede the authority of any other entity.

8. 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.

9. Conditional approval of the Final Internal Property 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 Chairperson, or unless a written request for an extension of

Final Internal Property Subdivision Plat Approval is granted. The Planning Board may grant ninety (90) day extensions to said time period.

10. Once the Final Internal Property Subdivision Plat has been endorsed by the Planning Board Chairperson, 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 and showing the assigned Filed Map number shall be submitted by the Applicant 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(s) and other documents described above.

Resolution Adopted: March 12, 2024
Beacon, New York

_____ _____, 2024
John Gunn, Chairperson Dated
City of Beacon Planning Board

Motion by_____, seconded by _____:

Kevin Byrne	Voting	Leonard Warner	Voting
Karen Quiana	Voting	J. Randall Williams	Voting
Donna Francis	Voting	John Gunn, Chairperson	Voting
David Jensen	Voting		

Approved:
Denied:

City of Beacon Planning Board Agenda
03/12/2024

Title:

Review of application for Amended Site Plan approval, 11 Mirbeau Lane, submitted by Edward Kellog.

ATTACHMENTS

Mirbeau PB 3.12.24 Site Plan Amend App 022324.pdf

Mirbeau PB 3.12.24 Amended SWPPP.pdf

Mirbeau PB 3.12.24 Amended Site Plan Set.pdf

Mirbeau PB 3.12.24 SUP, Site Plan Architectural.pdf

Mirbeau PB 3.12.24 AmendedSitePlanEAFMarch122024.pdf

MirbeauPB 3.12.24 AmendedSitePlanComparisonMarch122024.pdf

Lanc Tully Mirbeau 03-07-24 review.pdf

KARC Review PB_11 Mirbeau Ln_3.11.2024.pdf

THE Mirbeau COMPANIES

February 23, 2024

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

Re: Mirbeau Inn & Spa, Beacon, N.Y. ("Mirbeau Beacon")
Proposed Site Plan Amendment Application

Chairman Gunn,

On behalf of Mirbeau of Beacon, LLC, enclosed please find a proposed Amended Site Plan for your review and consideration.

Because of the significant construction costs related to material costs and subcontractor availability, we are now proposing to retain the existing dining wing structure for renovation in order to serve as the Food & Beverage operation for the resort, and to create an attractive, ground-floor Banquet Room.

This change will minimize the impact of the structure on the Mansion and improve the viewshed of the Mansion from the south lawn area. Another proposed change is the removal of the ground-floor Grotto rental rooms which will be incorporated into the balance of the buildings. The overall size will thus be slightly smaller than the previous design. The Main Floor will be primarily the Banquet Room and Kitchen. The Ground Floor will be service areas and Back of House.

In addition, we have addressed pavement surfaces and now propose to defer paving in various outer parking lots. We have also introduced chip seal pavement in the front entrance drive, to be more in line with the historic nature of surfaces.

There will be no changes to the Route 9D view shed, Chateau addition, the Mansion, or the Cottages. The one proposed building change will only be visible from within the resort, and on the west side of the Dining Wing facing the ravine. Arrowstreet elevations are included in this submission.

The Building Permit that was fully approved and issued last month includes demolition, which we are planning to commence next week. The original proposal was to demolish the Dining Wing. . We now propose to limit this to the mechanical and electrical systems being removed, along with the southern half of the Main floor, to allow for a vaulted ceiling in the Banquet Room.

THE Mirbeau COMPANIES

The enclosed Amended Site Plan and Elevations identify the changes to the Site Plans, as enumerated below. These are for your consideration.

Proposed Site Plan Amendments:

1. Retain the Dining wing structure
2. Eliminate the 7 Grotto rooms
3. Add an elevator and exterior Walk In Cooler & Freezer adjacent to the existing structure
4. Eliminate 2 of the 4 Monet garden ponds
5. Defer the western employee lots paving and provide gravel lots
6. Replace the pavement with chip seal surface on the main entrance drive.
7. Replace various Redi-Rock walls with large diameter landscape boulders.
8. Eliminate the curb adjacent to the Redi-Rock walls along the eastern edge of the Chateau eastern lot and install concrete curb stops at each space.
9. Eliminate the walking path from the Front Circular drive over to the Spa entrance.
10. Change Bioretention Area B to an Infiltration Basin
11. Installing a second dumpster enclosure at the bottom of the drive leading to the Laundry Room.
12. Defer the pavement on Mirbeau Lane Mirbeau Lane from Cottage 3 to Grandview until the future development of the cottages in the triangular parcel. The existing roadway will be completely removed with the construction of the water and sewer line.

There are no changes proposed to the room count, parking, stormwater, and water & sewer calculations. These changes are not material relative to the overall site plan and design of the project, as previously reviewed and approved by the Planning Board.

Enclosed please find the following:

1. Hudson Land Design Site Plans dated 2/27/24and SWPPP. The changes are noted on the key tables on each Site Plan.
2. LRC Landscaping and Lighting plans dated 2/27/24.
3. Arrowstreet elevations dated 2/23/24.
4. Application.
5. Fee: Check No. 1218.

THE Mirbeau COMPANIES

In closing, Mirbeau Beacon believes that all of the above-referenced changes will conform to the substantive provisions of the previously adopted SEQRA Negative Declaration, as well as the Subdivision Plat, Special Permit and Site Plan Approvals Resolution, dated 12/14/22. Including all of the findings and conclusions made by the Planning Board relative to the approved project.

We respectfully request to be placed on the March 12, 2024 Planning Board agenda to present and discuss the changes proposed by Mirbeau Beacon herein.

Thank you for your consideration.

Edward A. Kellogg
Owner

APPLICATION FOR SITE PLAN APPROVAL

Submit to Planning Board Secretary, One Municipal Plaza, Suite One, Beacon, New York 12508

IDENTIFICATION OF APPLICANT

Name: Mirbeau of Beacon, LLC
Address: 53 Spring St.
Saratoga Springs NY 12866
Signature: Edward C. Kellogg
Date: 3/23/24
Phone: 914-475-5623

(For Official Use Only)

	Date	Initials
Application & Fee Rec'd		
Initial Review		
Public Hearing		
Conditional Approval		
Final Approval		

IDENTIFICATION OF REPRESENTATIVE / DESIGN PRFESSIONAL

Name: Edward Kellogg
Address: 46 West Market St.
Rhinebeck, NY 12572
Phone: 914-475-5623
Fax:
Email address: ekellogg@mirbeau.com

IDENTIFICATION OF SUBJECT PROPERTY:

Property Address: 11 Mirbeau Lane
Tax Map Designation: Section 6054-13-001258 Block Lot(s)
Land Area: 65 Acres ± Zoning District(s)

DESCRIPTION OF PROPOSED DEVELOPMENT:

Proposed Use: Mirbeau Inn Spa Resort - Site Plan Amendment
Gross Non-Residential Floor Space: Existing 61,282 Proposed 101,500 SF
TOTAL:
Dwelling Units (by type): Existing 0 Proposed 0
TOTAL: 0

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**

CITY OF BEACON
SITE PLAN SPECIFICATION FORM

Name of Application: Mirbeau Beacon Site Plan Amendment

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:	X	
LEGAL DATA		
Name and address of the owner of record.	X	
Name and address of the applicant (if other than the owner).	X	
Name and address of person, firm or organization preparing the plan.	X	
Date, north arrow, and written and graphic scale.	X	
NATURAL FEATURES		
Existing contours with intervals of two (2) feet, referred to a datum satisfactory to the Planning Board.	X	
Approximate boundaries of any areas subject to flooding or stormwater overflows.	X	
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.	X	
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.	X	
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.	X	
Other existing development, including fences, retaining walls, landscaping, and screening.	X	
Sufficient description or information to define precisely the boundaries of the property.	X	
The owners of all adjoining lands as shown on the latest tax records.	X	
The locations, names, and existing widths of adjacent streets and curb lines.	X	
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	X	

properties.		
PROPOSED DEVELOPMENT	**YES**	**NO**
The location, use and design of proposed buildings or structural improvements.	X	
The location and design of all uses not requiring structures, such as outdoor storage (if permitted), and off-street parking and unloading areas.	X	
Any proposed division of buildings into units of separate occupancy.	X	
The location, direction, power, and time of use for any proposed outdoor lighting.	X	
The location and plans for any outdoor signs.	X	
The location, arrangement, size(s) and materials of proposed means of ingress and egress, including sidewalks, driveways, or other paved areas.	X	
Proposed screening and other landscaping including a planting plan and schedule prepared by a qualified individual or firm.	X	
The location, sizes and connection of all proposed water lines, valves, and hydrants and all storm drainage and sewer lines, culverts, drains, etc.	X	
Proposed easements, deed restrictions, or covenants and a notation of any areas to be dedicated to the City.	X	
Any contemplated public improvements on or adjoining the property.	X	
Any proposed new grades, indicating clearly how such grades will meet existing grades of adjacent properties or the street.	X	
Elevations of all proposed principal or accessory structures.	X	
Any proposed fences or retaining walls.	X	
MISCELLANEOUS		
A location map showing the applicant's entire property and adjacent properties and streets, at a convenient scale.	X	
Erosion and sedimentation control measures.	X	
A schedule indicating how the proposal complies with all pertinent zoning standards, including parking and loading requirements.	X	
An indication of proposed hours of operation.	X	
If the site plan only indicates a first stage, a supplementary plan shall indicate ultimate development.	X	

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: 2/23/24

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: 53 Sping Street, 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.)	X		MP
ALL taxes are current for properties in the City of Beacon are current (Tax Dept.)		X	KLM
ALL Special Assessments, i.e. water, sewer, fines, etc. are current (Water Billing)		X	KLM

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: 53 Spring Street, 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	53 Spring Street, 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) _____

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
July 26, 2022
September 27, 2022
October 25, 2022
Amended February 27, 2024



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 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. Soil testing for the proposed stormwater treatment facilities can be found in Appendix O.

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 three proposed bioretention areas, and an underground infiltration/detention storage chamber system. The following is a description of the subcatchments:

Subcatchment 11 is comprised of ±6.40 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 ±3.75 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 infiltration basin B. 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 ±0.33 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 bioretention C. 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 bioretention D. 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 E. 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 ±0.85 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. 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	6.40	Developed lawn, landscaped areas, main parking, and hotel	73	B	12.2 min.
12	3.75	Developed lawn, landscaped areas, parking, and hotel	73	A & B	6.1 min.
13	0.33	Developed lawn, landscaped areas, and cottages	71	B	2.8 min.
14	0.40	Developed lawn, landscaped areas, and cottages	46	A	4.3 min.
15	1.90	Developed lawn, landscaped areas, parking and school	57	A & C	11.1 min.
P	0.85	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	13,068	No outflow[1]
12	7,710	No outflow
13	610	No outflow
14	0	No outflow
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

[1] The entire inflow from 1-year storm is either infiltrated or captured within the facility with no outflow.

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 Infiltration

Runoff from the proposed development will be directed to bioretention areas with infiltration capacity, and an underground infiltration/detention system thereby providing 100% 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	11,483	11,483	Hydrodynamic Device	Underground Detention/Infiltration A	18,260
12	8,230	8,230	Plunge Pool	Infiltration Basin B	15,185
13	492	492	Grass Filter Strip	Bioretention C	1,502
14	326	326	Grass Filter Strip	Bioretention D	2,214
15	3,694	923	Plunge Pool	Bioretention E*	4,448*
Green Roof	536	-	-	Green Roof	536
Total	**24,761**				**42,145**

*Bioretention area D 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.

6.7.2.3 Grass Filter Strips

Grass filter strips are gently sloped vegetated areas designed to treat sheet flow runoff from adjacent impervious areas. Filter strips (also known as vegetated filter strips and grassed filters) function by slowing runoff velocities, filtering out sediment and other pollutants, and providing some infiltration into underlying soils. Because they use sheet flow and not channelized flow, filter strips are often more effective than swales at removing suspended solids and trash from runoff.

6.7.2.4 Hydrodynamic Devices

Hydrodynamic devices are designed to intercept and store pollutants such as sediment and floatables for later removal and safe disposal.

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 and Infiltration Basins

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 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	11,483	4,162	-	11,483	11,483
12	8,230	3,457	-	8,230	8,230
13	492	172	-	492	492
14	326	130	-	326	326
15	3,694	1,779	-	3,694	3,694
Green Roof	536	295	536	-	536
Total	**24,761**	**9,995**	**-**	**-**	**24,761**

* 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 D 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.

7.8 Long Term Operation and Maintenance Plan of Stormwater System and Landscape Areas

All stormwater facilities and infrastructure shall be inspected on a yearly basis by a licensed professional engineer. A copy of the inspection report, along with findings and recommendations, shall be submitted to the Beacon Building Department and City Engineer's office.

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

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
Division of Water, Bureau of Water Permits
625 Broadway, Albany, New York 12233-3505
P: (518) 402-8111 F: (518) 402-9029
www.dec.ny.gov

10/24/2023

Mirbeau of Beacon, LLC.
Edward Kellogg Kellogg
53 Spring Street
Saratoga Springs, New York 12866

RE: ACKNOWLEDGMENT of NOTICE OF INTENT for Coverage Under SPDES General Permit for Storm Water Discharges from CONSTRUCTION ACTIVITY – General Permit No. GP-0-20-001

Dear Prospective Permittee:

This is to acknowledge that the New York State Department of Environmental Conservation (Department) has received a complete Notice of Intent (NOI) for coverage under General Permit No. GP-0-20-001 for the construction activities located at:

Mirbeau Beacon Inn & Spa
11 Mirbeau Lane
City of Beacon, NY 12508 **County: DUTCHESS**

Pursuant to Environmental Conservation Law (ECL) Article 17, Titles 7 and 8, and ECL Article 70, coverage under GP-0-20-001 for the above construction site is effective five (5) business days from **10/12/2023**, which is the date the Department received your complete eNOI.

The permit identification number for this site is: **NYR11L797**. Be sure to include this permit identification number on any forms or correspondence you send the Department. When coverage under GP-0-20-001 is no longer needed, you must submit a Notice of Termination to the Department.

Additionally, authorization to discharge under GP-0-20-001 is conditioned upon compliance with Part II.C. of GP-0-20-001, specifically the following:

1. A final Storm Water Pollution Prevention Plan has been prepared;

2. When applicable, project review pursuant to the State Environmental Quality Review Act (SEQRA) has been satisfied;

3. Where required, all necessary Department permits subject to the Uniform Procedures Act (UPA) (see 6 NYCRR Part 621), or the equivalent from another New York State agency, have been obtained, unless otherwise notified by the Department pursuant to 6 NYCRR 621.3(a)(4).

If other UPA permits, or the equivalent, are required, you must submit a preliminary SWPPP to the appropriate Permit Administrator at the Regional Office listed in Appendix F to GP-0-20-001. The preliminary SWPPP must be submitted at the time that the applications for all other UPA permits, or the equivalent, are submitted to the Department.

Note: Construction cannot commence until all of the above have been satisfied.

Please be advised that there is an annual regulatory fee of $110, which is billed by the Department in the late fall. The regulatory fee covers a period of one calendar year. In addition, since September 1, 2004, construction stormwater permittees have been assessed an initial authorization fee which is now $110 per acre of land disturbed and $675 per acre of future impervious area. The initial authorization fee covers the duration of the authorized disturbance.

Should you have any questions regarding any aspect of the requirements specified in GP-0-20-001, please contact me at (518) 402-8114.

Sincerely,

David Gasper

David Gasper
Environmental Engineer

cc: RWE - **3**
SWPPP Preparer
Hudson Land Design
Bodendorf Michael
174 Main Street
Beacon , New York 12508

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:	Mirbeau of Beacon, LLC.
2. Contact Person:	Edward Kellogg
3. Street Address:	53 Spring Street
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:	11 Mirbeau Lane
7. City/State/Zip:	Beacon, New York, 12508
III. Stormwater Pollution Prevention Plan (SWPPP) Review and Acceptance Information	
8. SWPPP Reviewed by:	John Russo, P.E.
9. Title/Position:	City Engineer
10. Date Final SWPPP Reviewed and Accepted:	04/14/2023
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

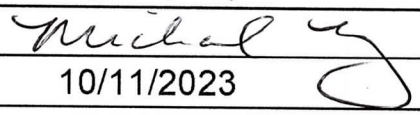
MS4 SWPPP Acceptance Form - continued

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: Michael Manzi

Title/Position: Highway Superintendent/Stormwater Management Officer

Signature: 

Date: 10/11/2023

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



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.

Custom Soil Resource Report
Soil Map



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.

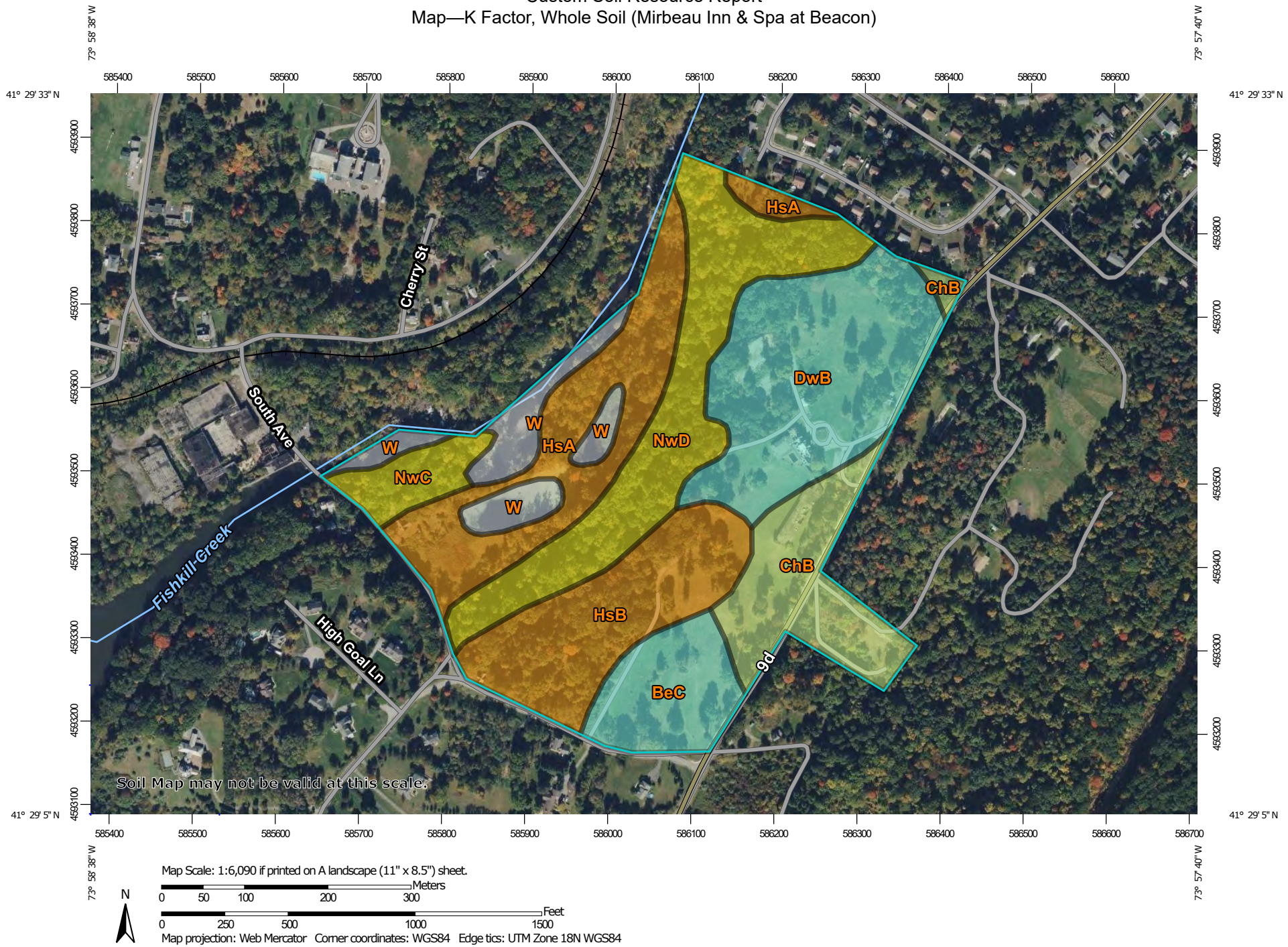
K Factor, Whole Soil (Mirbeau Inn & Spa at Beacon)

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.

Custom Soil Resource Report
Map—K Factor, Whole Soil (Mirbeau Inn & Spa at Beacon)



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 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.

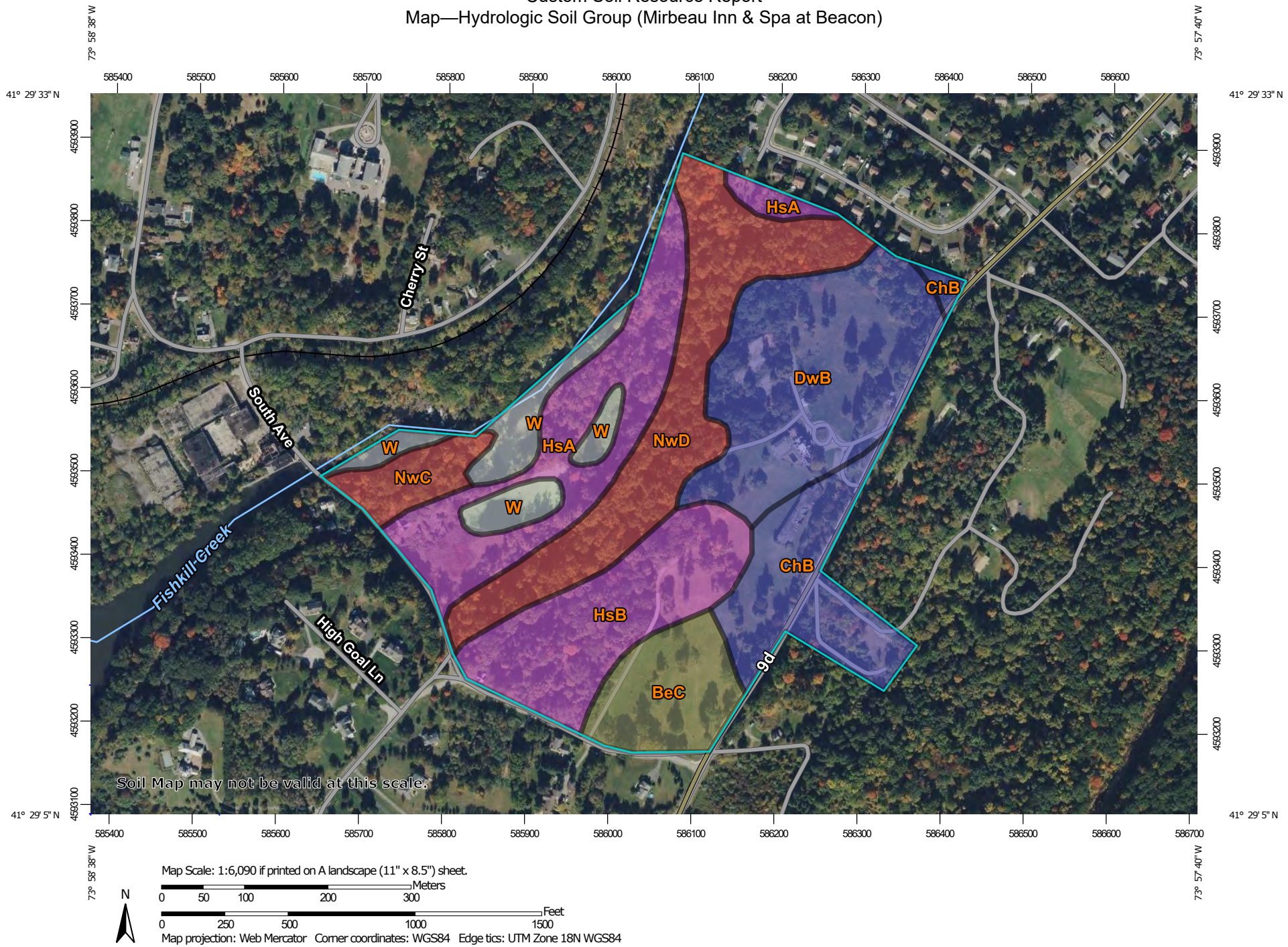
Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

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.

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

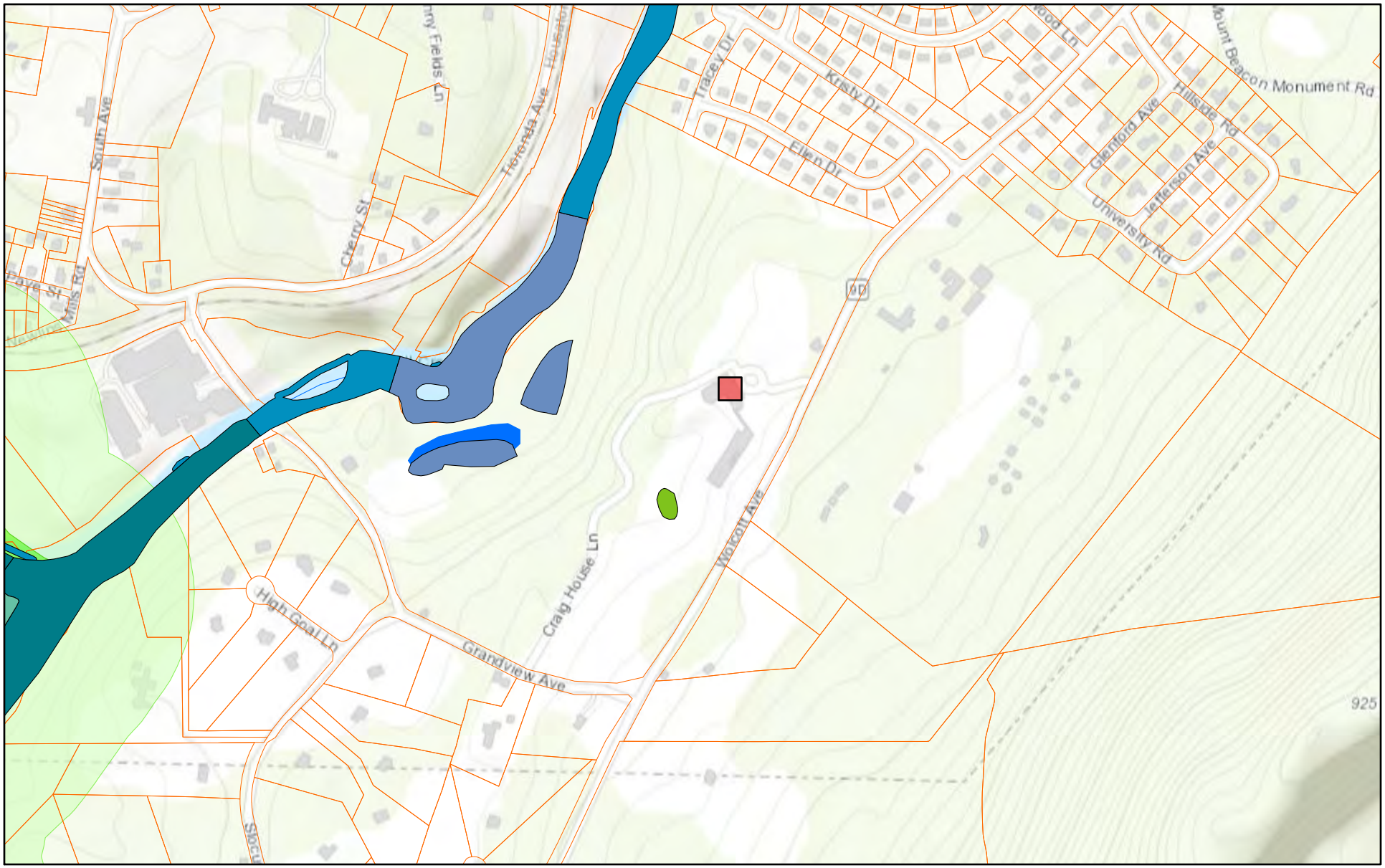
	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.28	0.44	0.53	0.72	0.88	1.09	**1yr**	0.76	1.07	1.25	1.60	2.01	2.08	2.36	**1yr**	1.84	2.27	2.64	3.38	4.15	**1yr**
2yr	0.37	0.58	0.71	0.97	1.19	1.42	**2yr**	1.03	1.39	1.61	2.06	2.59	3.08	3.46	**2yr**	2.73	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

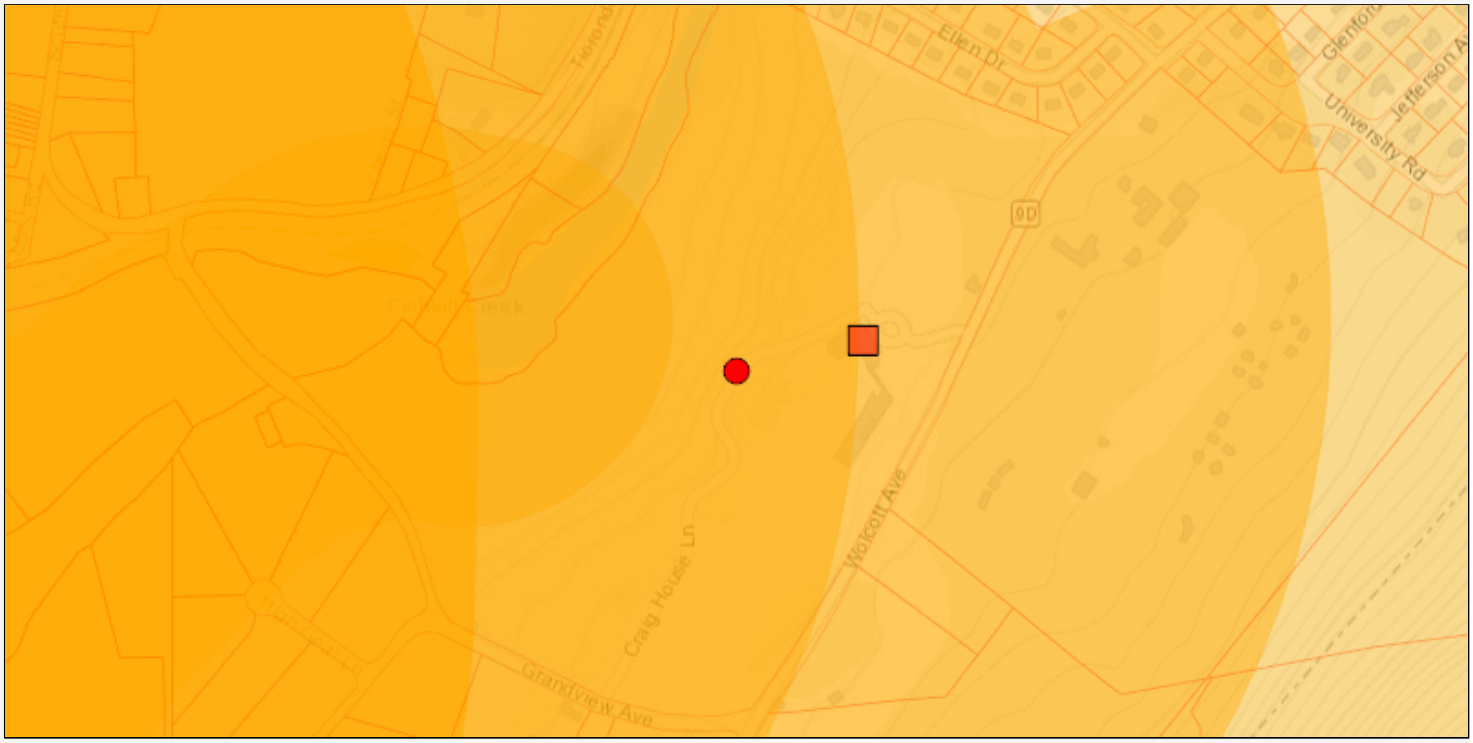
0 0.05 0.1 0.2 mi

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.

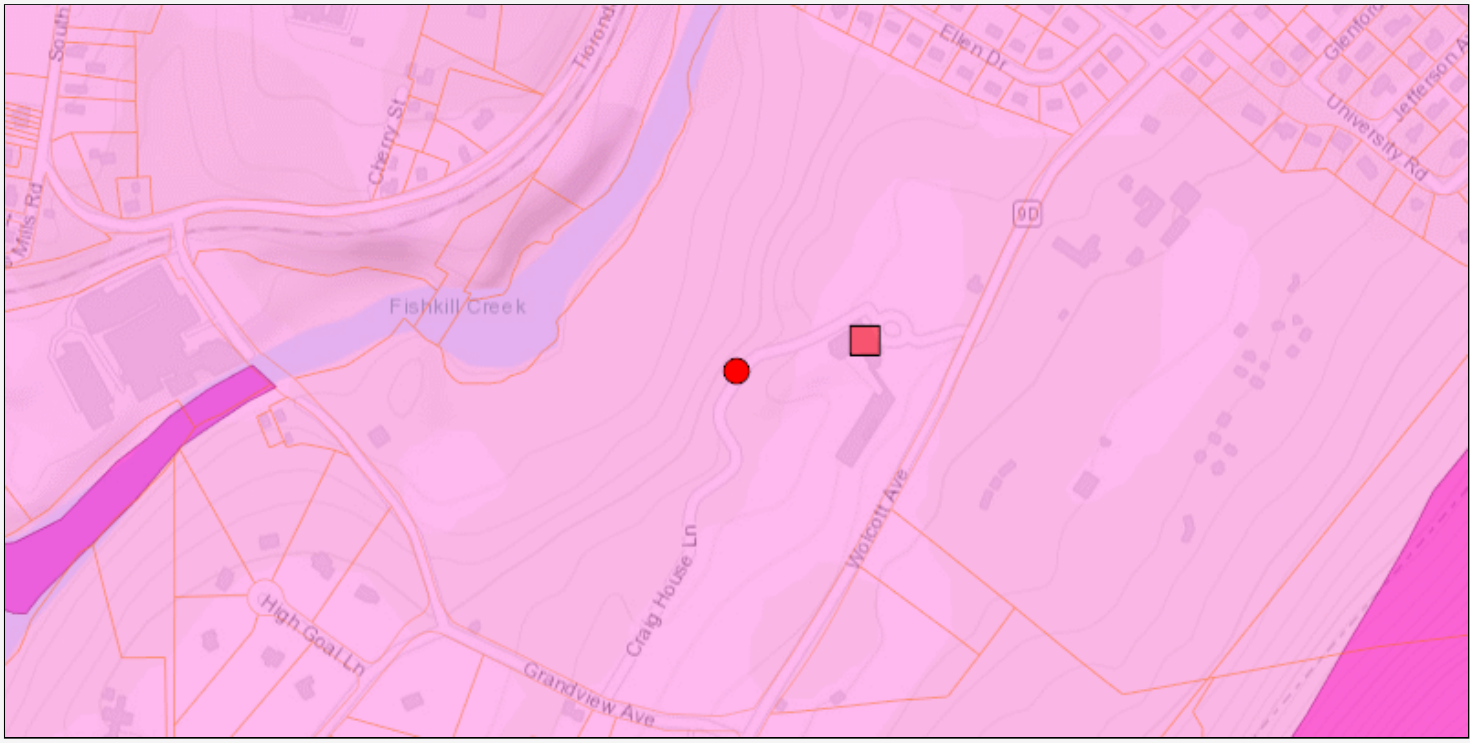
If your project or action is within or near an area with rare plants and/or significant natural communities, the environmental impacts may need to be addressed.

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

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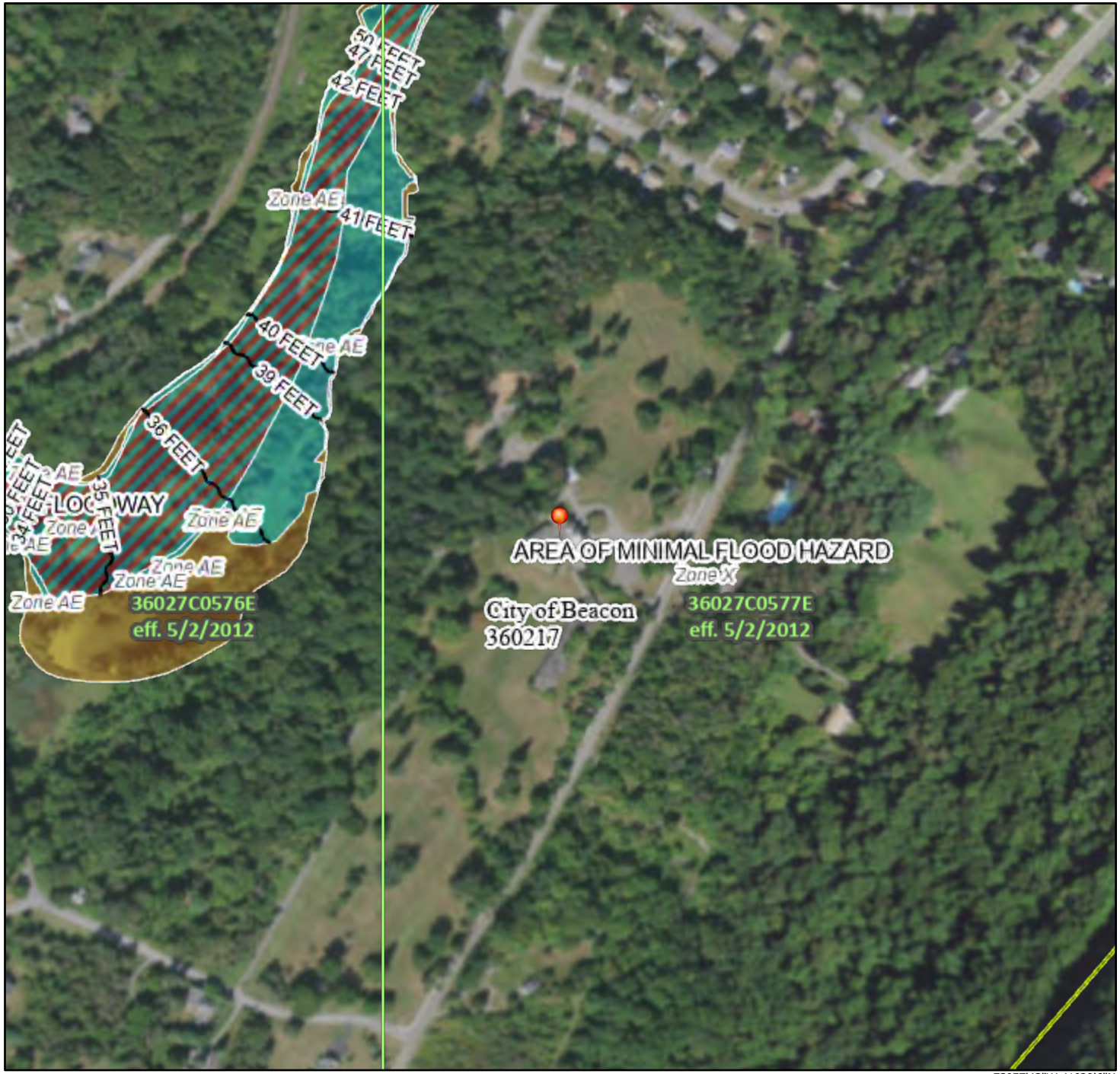
National Flood Hazard Layer FIRMette

FEMA

73°58'20"W 41°29'33"N



0 250 500 1,000 1,500 2,000 Feet

1:6,000

73°57'43"W 41°29'6"N

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 Cross Sections with 1% Annual Chance
- 17.5 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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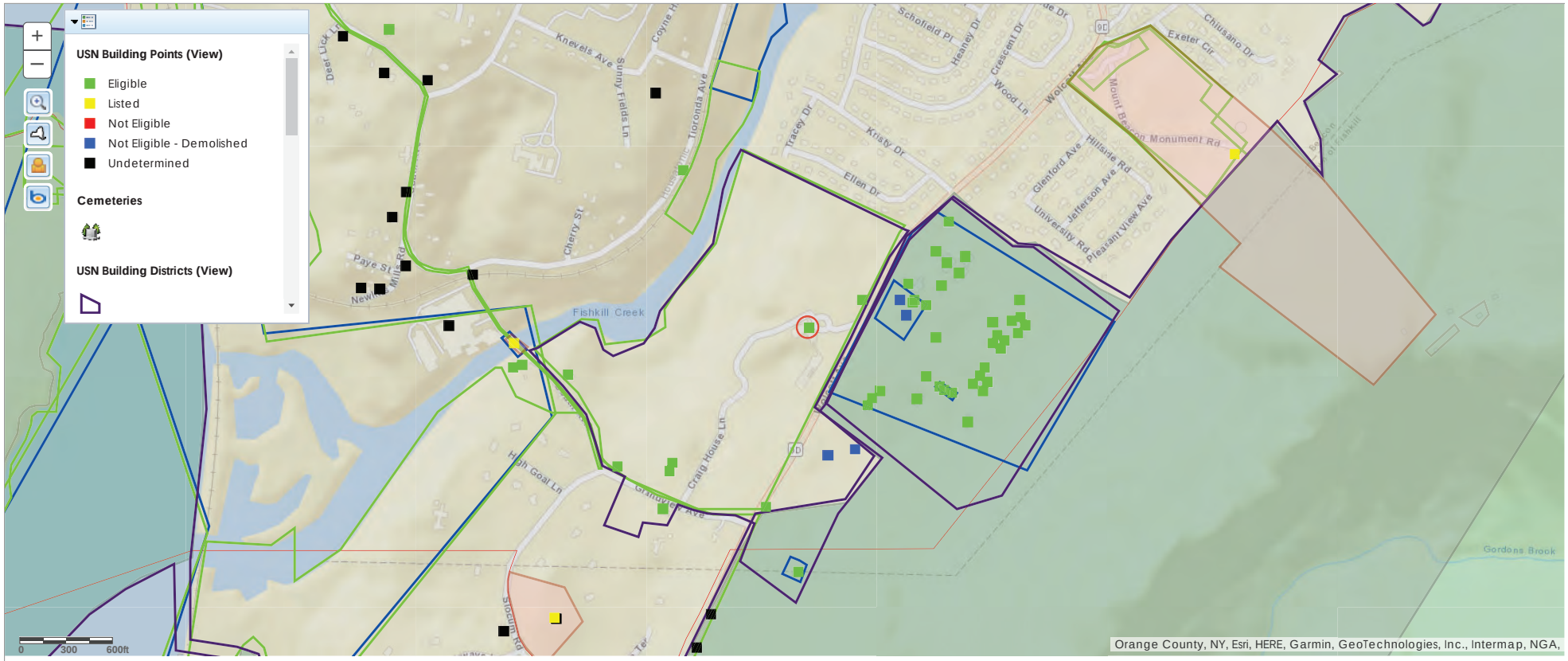

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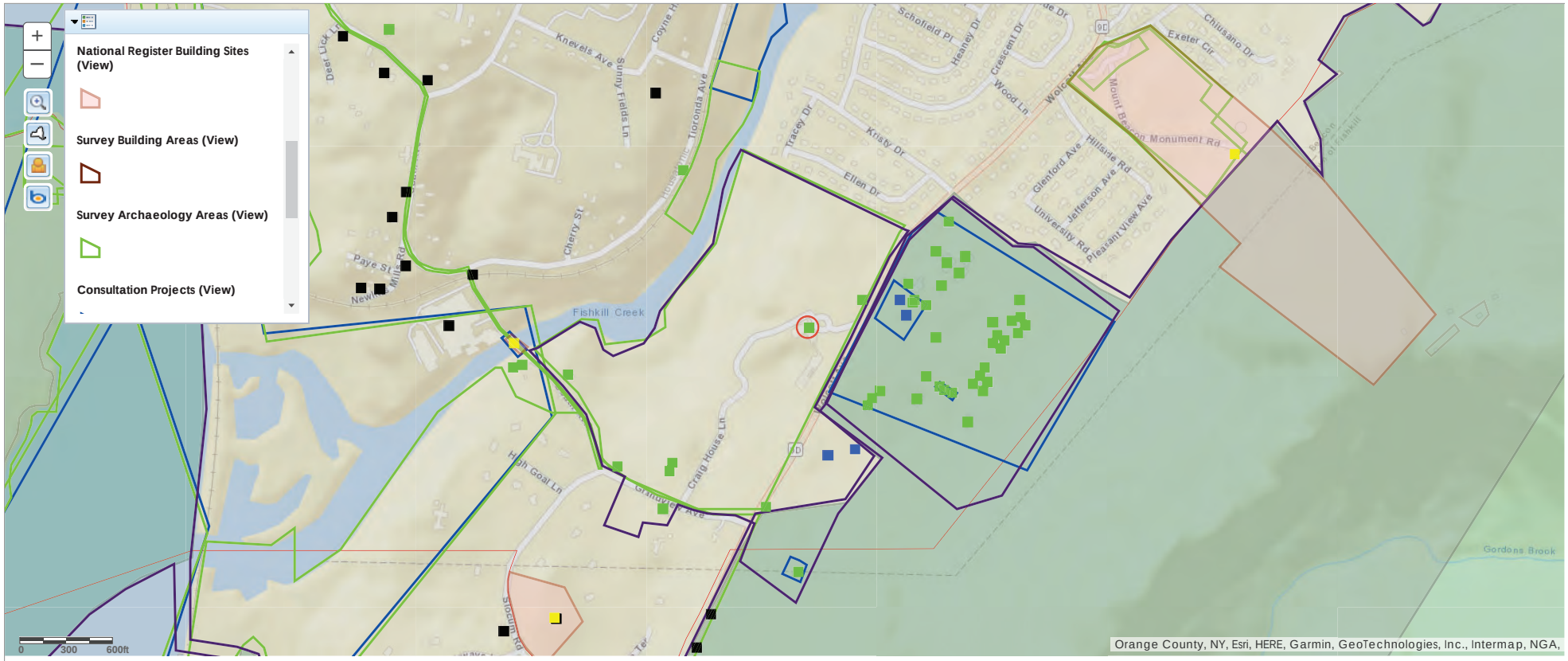

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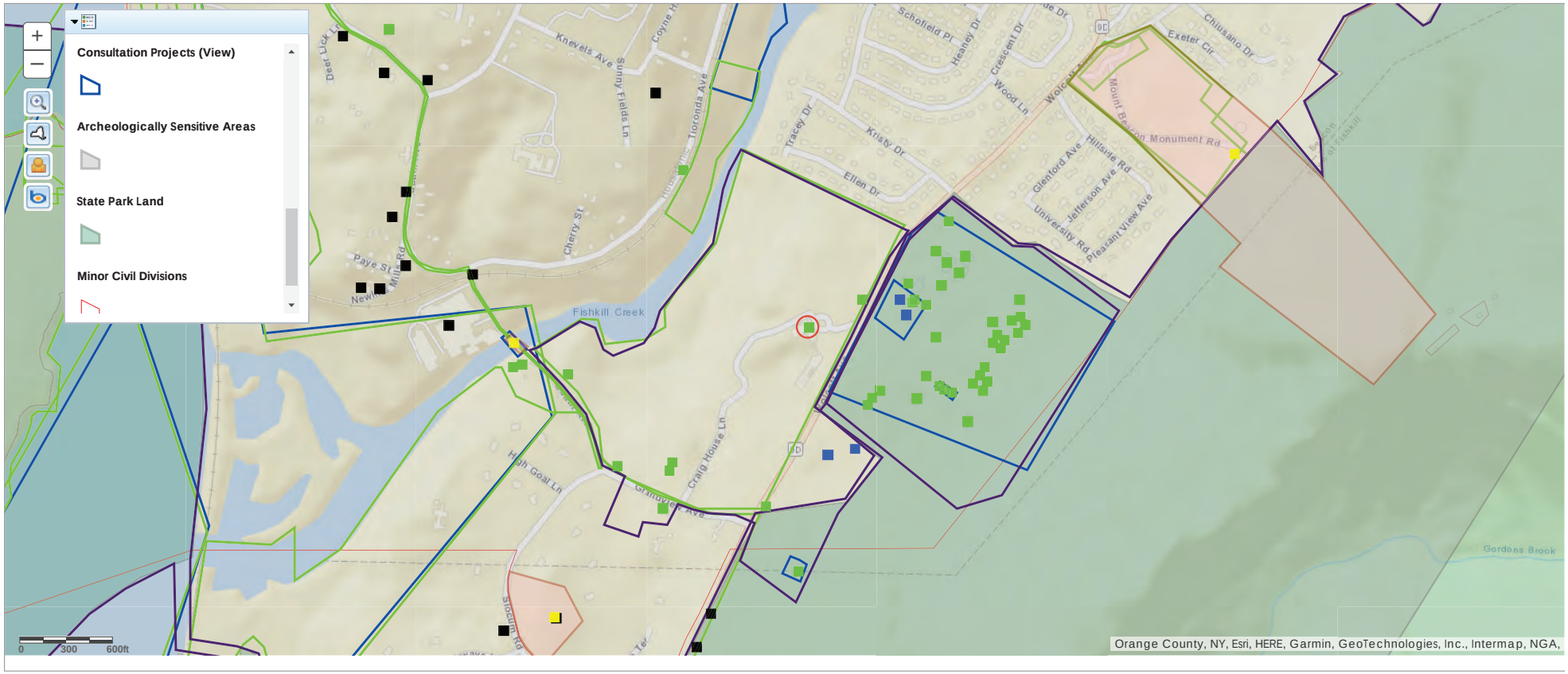

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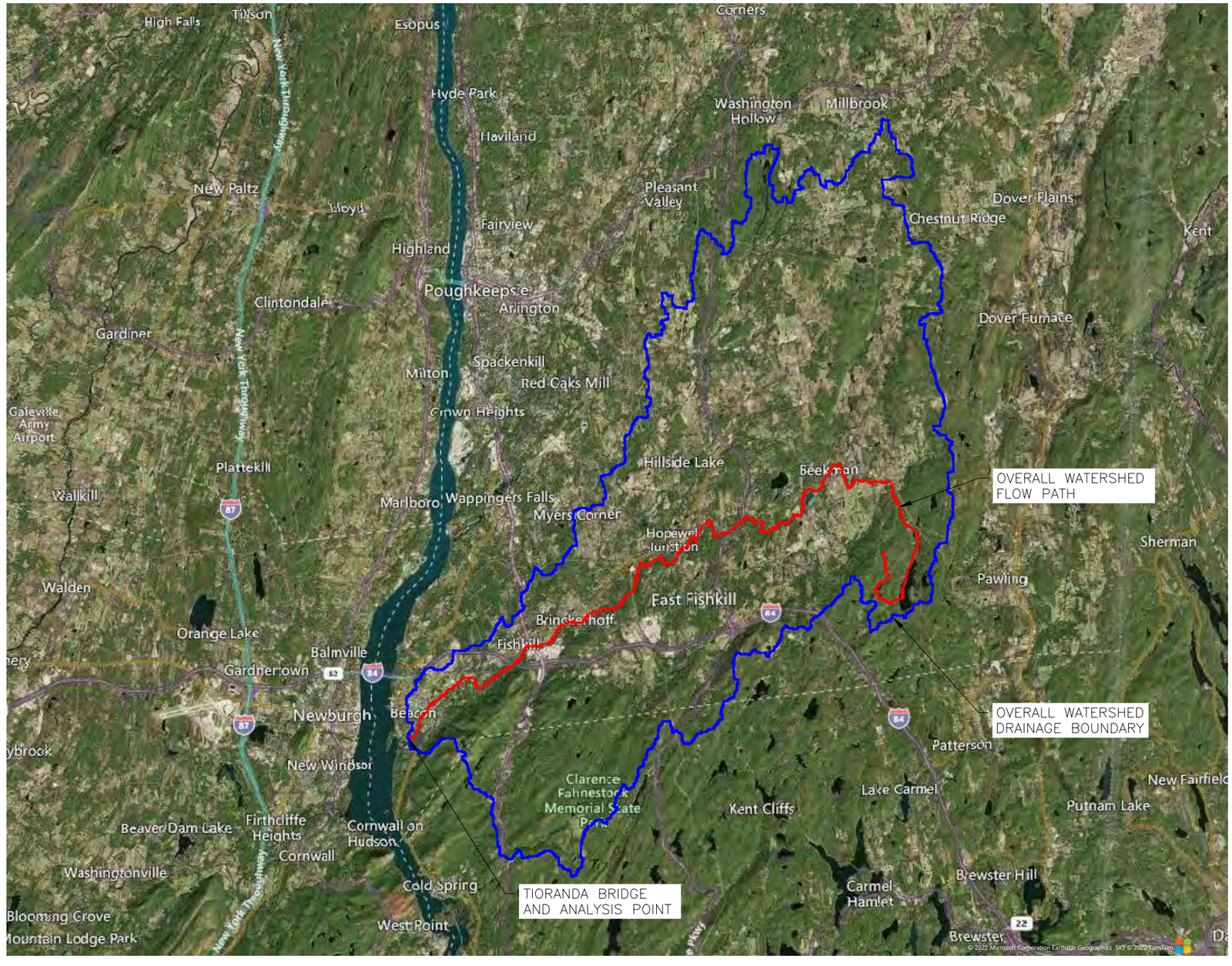
APPENDIX D

FISHKILL CREEK OVERALL WATERSHED



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

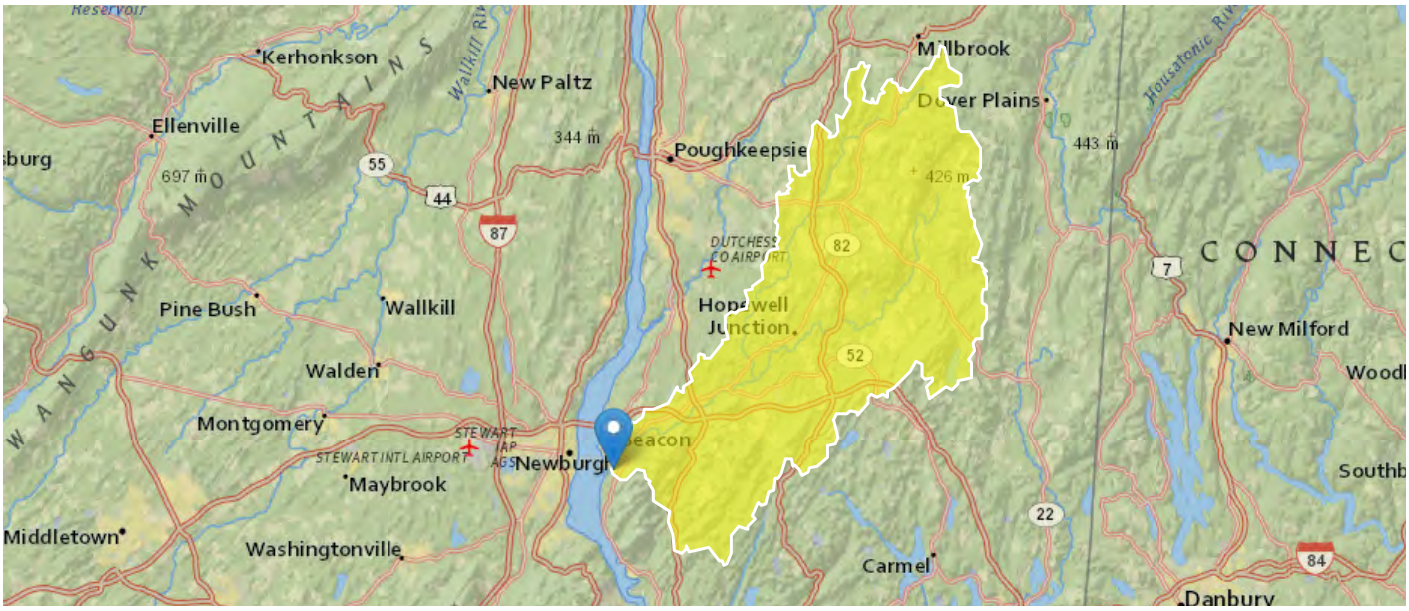
7 CRAIG HOUSE LANE
CITY OF BEACON
DUTCHESS COUNTY, NEW YORK
TAX ID: 6054-13-001258

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/)

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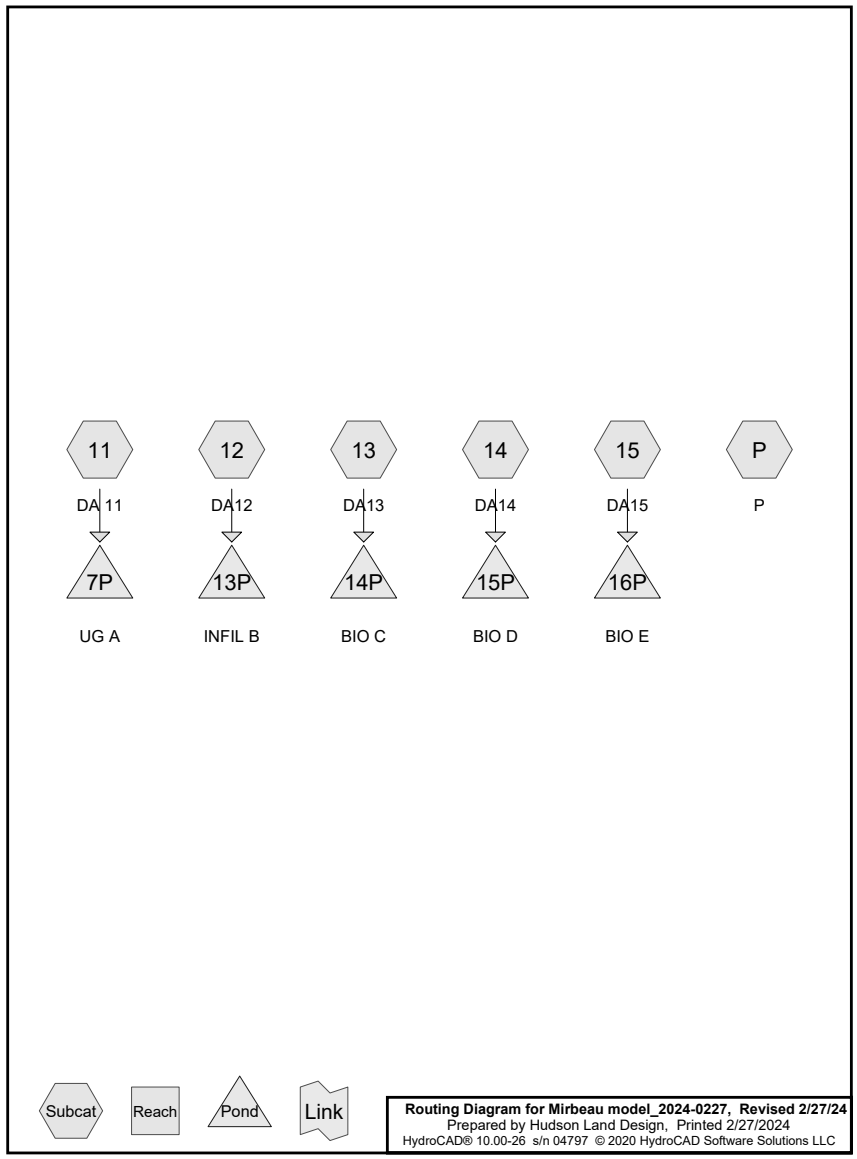
Application Version: 4.7.0
StreamStats Services Version: 1.2.22
NSS Services Version: 2.1.2

APPENDIX E

POST-DEVELOPMENT HYDROCAD MODEL



Summary for Subcatchment 11: DA 11

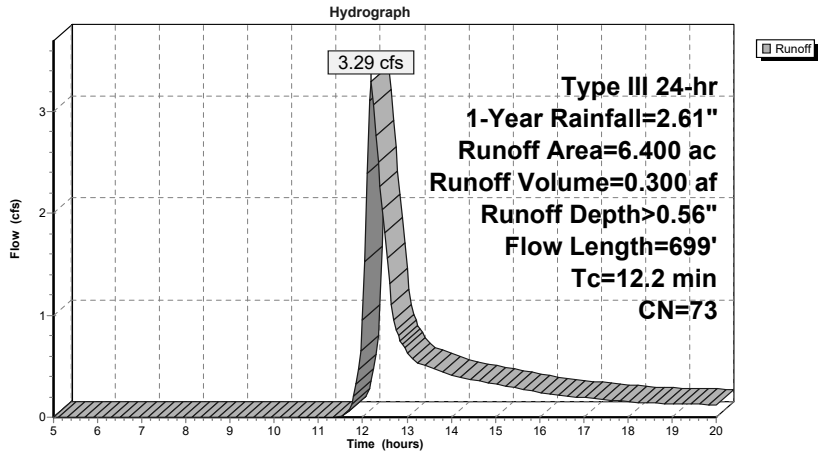
Runoff = 3.29 cfs @ 12.20 hrs, Volume= 0.300 af, Depth> 0.56"

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
0.320	98	Roofs, HSG B
1.835	98	Paved parking, HSG B
4.245	61	>75% Grass cover, Good, HSG B
6.400	73	Weighted Average
4.245		66.33% Pervious Area
2.155		33.67% 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
0.6	150	0.0430	4.21		**Shallow Concentrated Flow, S3** Paved Kv= 20.3 fps
0.7	225	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
12.2	699	Total			

Subcatchment 11: DA 11



Summary for Subcatchment 12: DA12

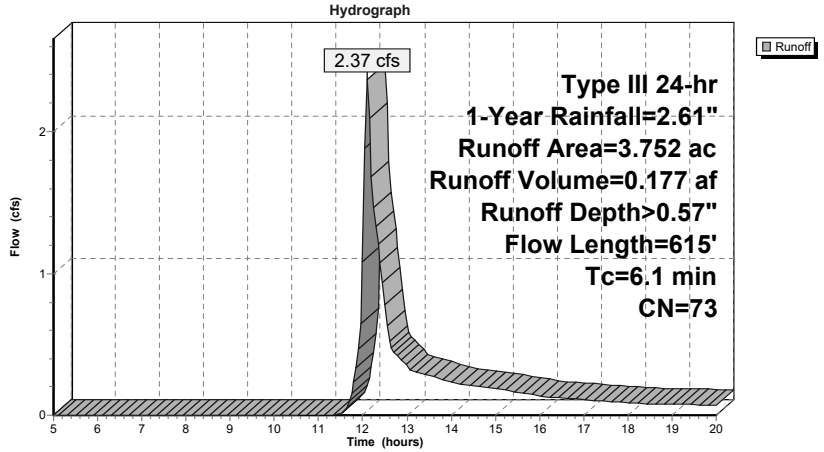
Runoff = 2.37 cfs @ 12.11 hrs, Volume= 0.177 af, Depth> 0.57"

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
0.712	98	Roofs, HSG B
0.879	98	Paved parking, HSG B
0.616	39	>75% Grass cover, Good, HSG A
1.545	61	>75% Grass cover, Good, HSG B
3.752	73	Weighted Average
2.161		57.60% Pervious Area
1.591		42.40% 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

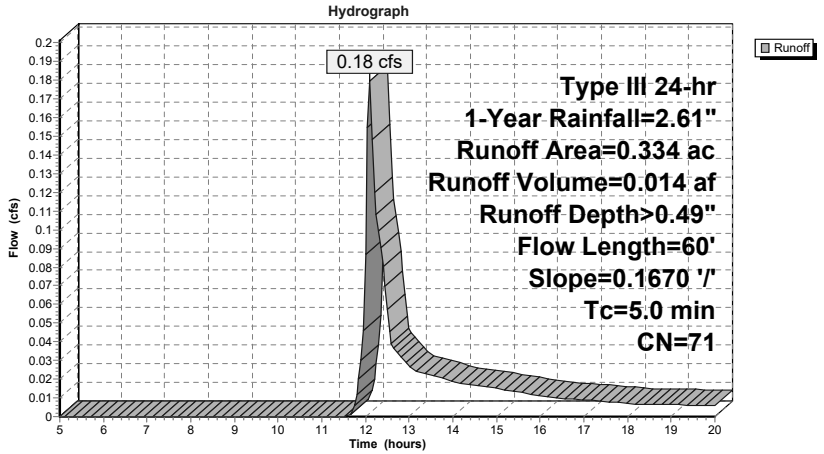
Runoff = 0.18 cfs @ 12.10 hrs, Volume= 0.014 af, Depth> 0.49"

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
0.089	98	Roofs, HSG B
0.245	61	>75% Grass cover, Good, HSG B
0.334	71	Weighted Average
0.245		73.35% Pervious Area
0.089		26.65% 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

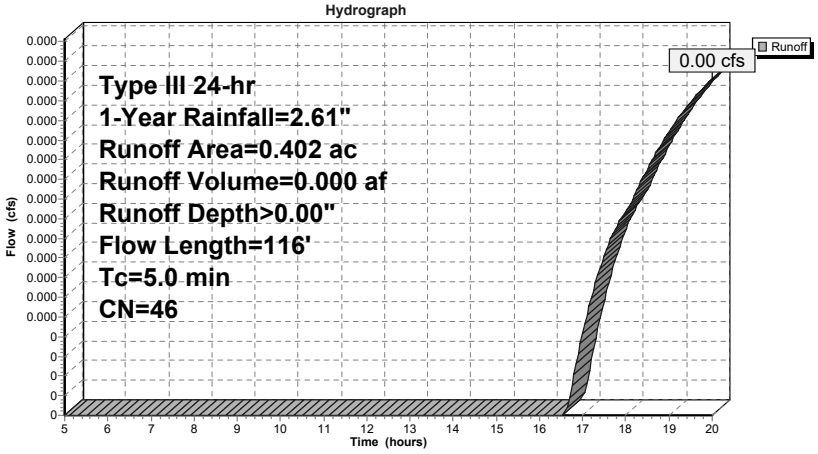
Runoff = 0.00 cfs @ 20.00 hrs, Volume= 0.000 af, Depth> 0.00"

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
0.049	98	Roofs, HSG A
0.353	39	>75% Grass cover, Good, HSG A
0.402	46	Weighted Average
0.353		87.81% Pervious Area
0.049		12.19% 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

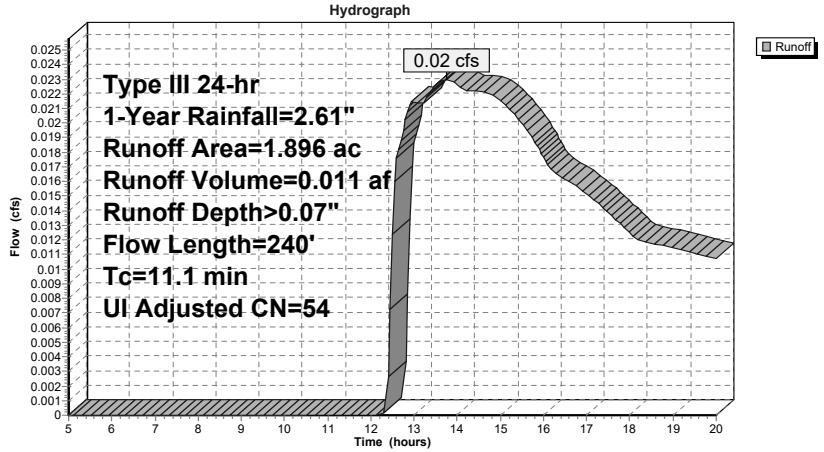
Runoff = 0.02 cfs @ 13.76 hrs, Volume= 0.011 af, Depth> 0.07"

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

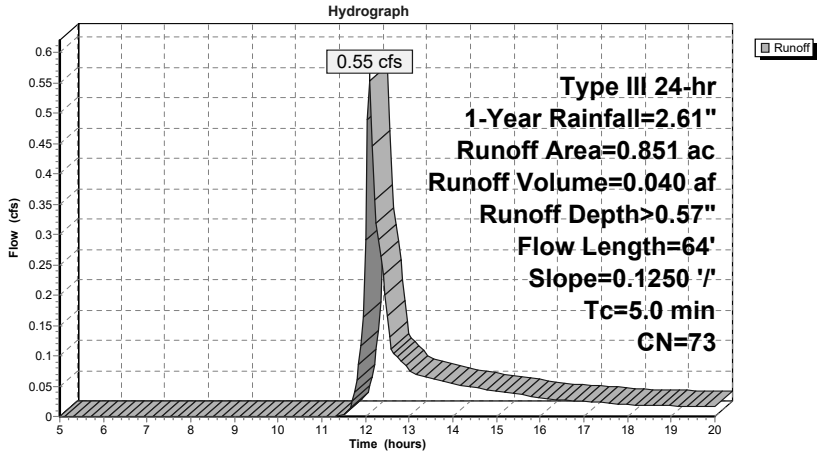
Runoff = 0.55 cfs @ 12.09 hrs, Volume= 0.040 af, Depth> 0.57"

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
0.121	98	Water Surface, HSG B
0.151	98	Paved parking, HSG B
0.579	61	>75% Grass cover, Good, HSG B
0.851	73	Weighted Average
0.579		68.04% Pervious Area
0.272		31.96% 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 = 6.400 ac, 33.67% Impervious, Inflow Depth > 0.56" for 1-Year event
Inflow = 3.29 cfs @ 12.20 hrs, Volume= 0.300 af
Outflow = 0.40 cfs @ 11.95 hrs, Volume= 0.268 af, Atten= 88%, Lag= 0.0 min
Discarded = 0.40 cfs @ 11.95 hrs, Volume= 0.268 af
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= 145.76' @ 14.15 hrs Surf.Area= 3,417 sf Storage= 5,302 cf

Plug-Flow detention time= 152.4 min calculated for 0.268 af (89% of inflow)
Center-of-Mass det. time= 119.1 min (955.3 - 836.2)

Volume	Invert	Avail.Storage	Storage Description
#1A	143.50'	4,740 cf	**44.75'W x 76.37'L x 5.75'H Field A** 19,650 cf Overall - 7,801 cf Embedded = 11,849 cf x 40.0% Voids
#2A	144.25'	7,801 cf	**Cultec R-902HD** x 120 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 120 Chambers in 6 Rows Cap Storage= +2.8 cf x 2 x 6 rows = 33.1 cf
		12,541 cf	Total Available Storage

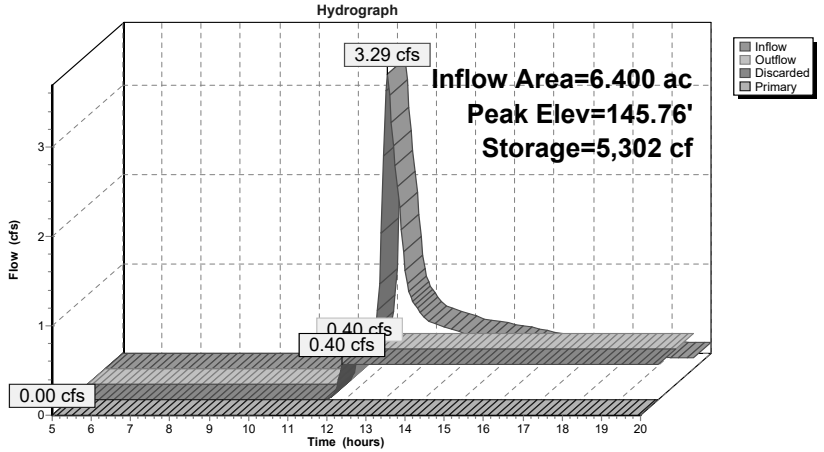
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	146.30'	**24.0" Round Culvert X 2.00** L= 64.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 146.30' / 138.50' S= 0.1219 '/' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf
#2	Discarded	143.50'	**5.000 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.40 cfs @ 11.95 hrs HW=143.57' (Free Discharge)
└**2=Exfiltration** (Exfiltration Controls 0.40 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=143.50' (Free Discharge)
└**1=Culvert** (Controls 0.00 cfs)

Pond 7P: UG A



Summary for Pond 13P: INFIL B

Inflow Area = 3.752 ac, 42.40% Impervious, Inflow Depth > 0.57" for 1-Year event
Inflow = 2.37 cfs @ 12.11 hrs, Volume= 0.177 af
Outflow = 0.30 cfs @ 13.23 hrs, Volume= 0.168 af, Atten= 87%, Lag= 67.5 min
Discarded = 0.30 cfs @ 13.23 hrs, Volume= 0.168 af
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= 134.59' @ 13.23 hrs Surf.Area= 2,617 sf Storage= 2,908 cf

Plug-Flow detention time= 121.2 min calculated for 0.168 af (95% of inflow)
Center-of-Mass det. time= 103.4 min (935.1 - 831.7)

Volume	Invert	Avail.Storage	Storage Description
#1	133.00'	20,758 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

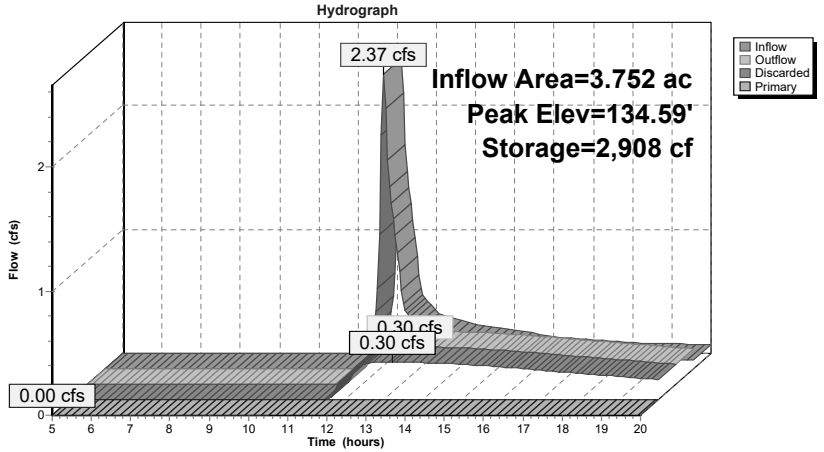
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
133.00	1,092	0	0
134.00	2,003	1,548	1,548
136.00	4,089	6,092	7,640
138.00	5,910	9,999	17,639
138.50	6,567	3,119	20,758

Device	Routing	Invert	Outlet Devices
#1	Primary	135.00'	**18.0" Round Culvert** L= 23.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 135.00' / 133.00' S= 0.0870 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Device 1	135.00'	**6.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	137.00'	**42.0" x 42.0" Horiz. Grate** C= 0.600 Limited to weir flow at low heads
#4	Primary	137.50'	**8.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#5	Discarded	133.00'	**5.000 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.30 cfs @ 13.23 hrs HW=134.59' (Free Discharge)
└**5=Exfiltration** (Exfiltration Controls 0.30 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=133.00' (Free Discharge)
└**1=Culvert** (Controls 0.00 cfs)
└**2=Orifice/Grate** (Controls 0.00 cfs)
└**3=Grate** (Controls 0.00 cfs)
└**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 13P: INFIL B



Summary for Pond 14P: BIO C

Inflow Area = 0.334 ac, 26.65% Impervious, Inflow Depth > 0.49" for 1-Year event
Inflow = 0.18 cfs @ 12.10 hrs, Volume= 0.014 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= 140.44' @ 20.00 hrs Surf.Area= 1,488 sf Storage= 593 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

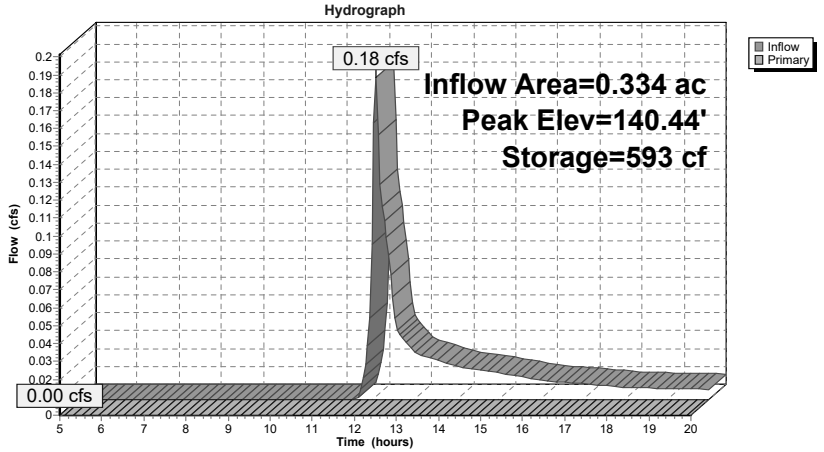
Volume	Invert	Avail.Storage	Storage Description
#1	140.00'	1,526 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

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: BIO C



Summary for Pond 15P: BIO D

Inflow Area = 0.402 ac, 12.19% 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= 2,248 sf Storage= 3 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

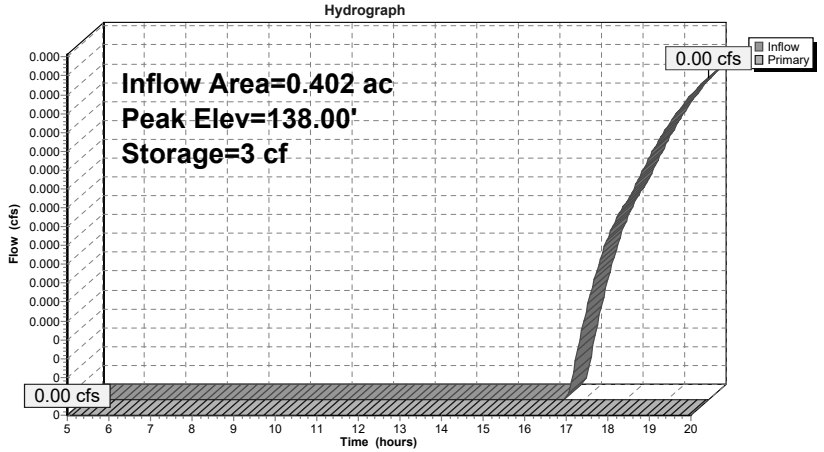
Volume	Invert	Avail.Storage	Storage Description
#1	138.00'	2,658 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

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: BIO D



Summary for Pond 16P: BIO E

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)

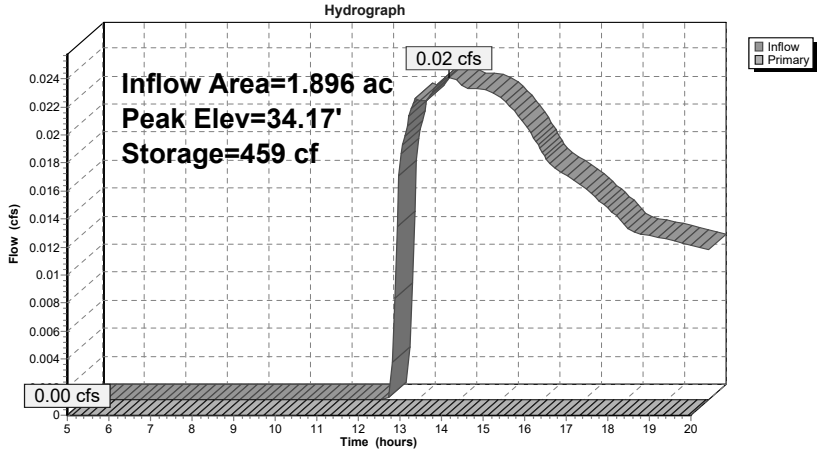
Volume	Invert	Avail.Storage	Storage Description
#1	34.00'	7,056 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

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 E



Summary for Subcatchment 11: DA 11

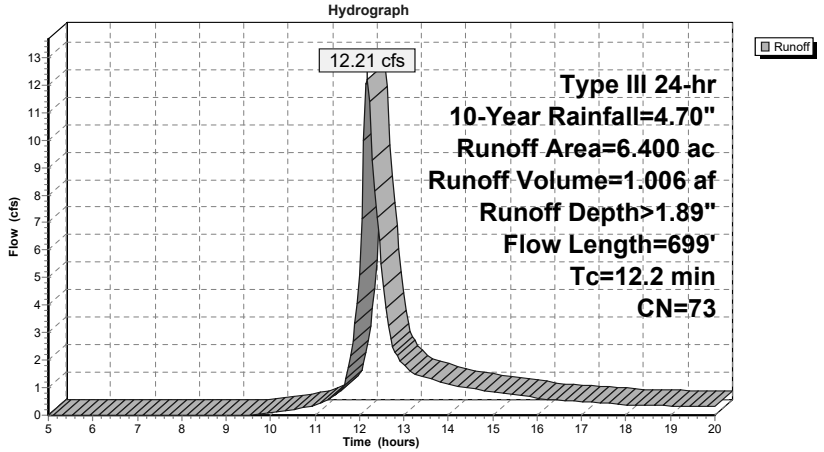
Runoff = 12.21 cfs @ 12.18 hrs, Volume= 1.006 af, Depth> 1.89"

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
0.320	98	Roofs, HSG B
1.835	98	Paved parking, HSG B
4.245	61	>75% Grass cover, Good, HSG B
6.400	73	Weighted Average
4.245		66.33% Pervious Area
2.155		33.67% 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
0.6	150	0.0430	4.21		**Shallow Concentrated Flow, S3** Paved Kv= 20.3 fps
0.7	225	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
12.2	699	Total			

Subcatchment 11: DA 11



Summary for Subcatchment 12: DA12

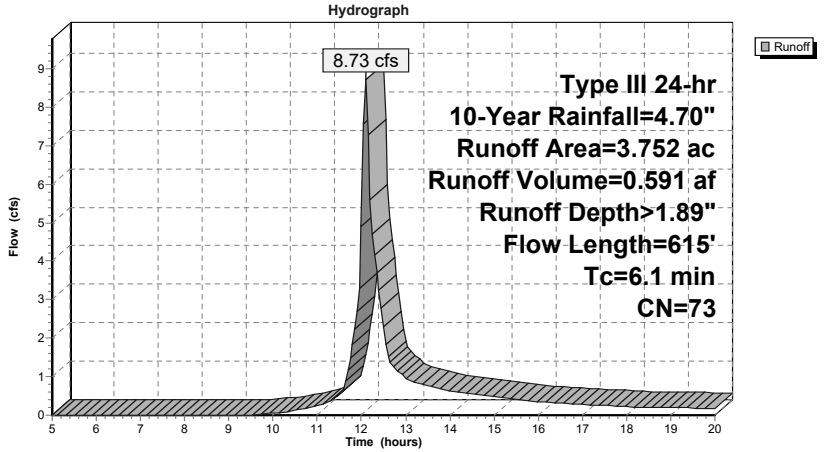
Runoff = 8.73 cfs @ 12.10 hrs, Volume= 0.591 af, Depth> 1.89"

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
0.712	98	Roofs, HSG B
0.879	98	Paved parking, HSG B
0.616	39	>75% Grass cover, Good, HSG A
1.545	61	>75% Grass cover, Good, HSG B
3.752	73	Weighted Average
2.161		57.60% Pervious Area
1.591		42.40% 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

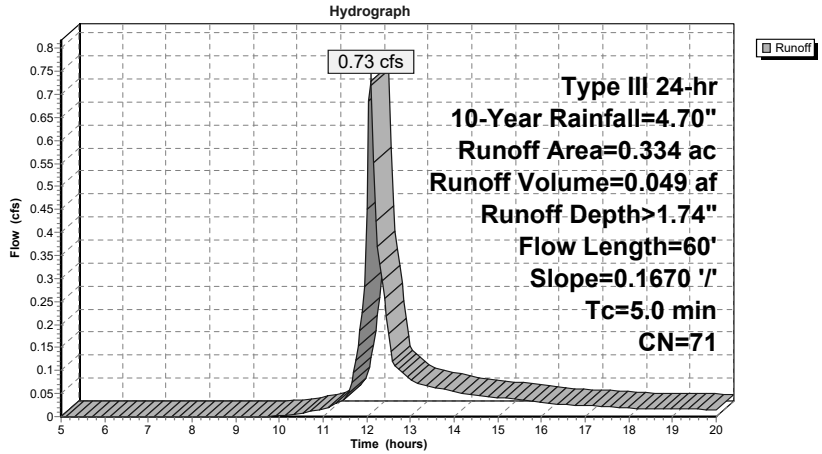
Runoff = 0.73 cfs @ 12.08 hrs, Volume= 0.049 af, Depth> 1.74"

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
0.089	98	Roofs, HSG B
0.245	61	>75% Grass cover, Good, HSG B
0.334	71	Weighted Average
0.245		73.35% Pervious Area
0.089		26.65% 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

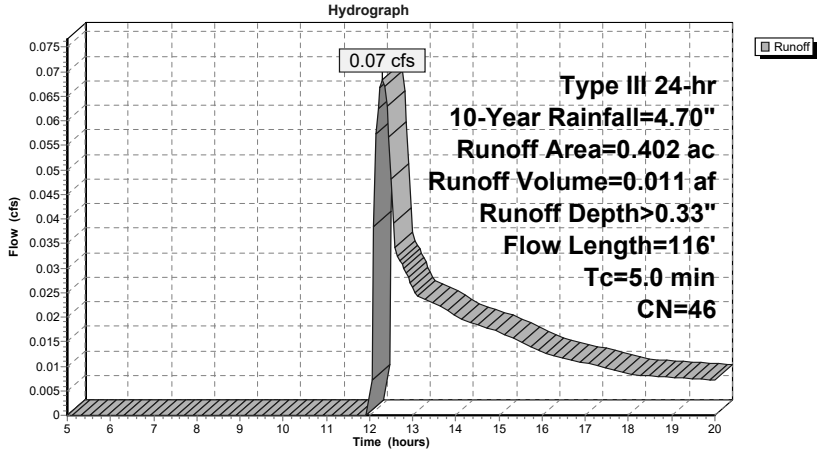
Runoff = 0.07 cfs @ 12.30 hrs, Volume= 0.011 af, Depth> 0.33"

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
0.049	98	Roofs, HSG A
0.353	39	>75% Grass cover, Good, HSG A
0.402	46	Weighted Average
0.353		87.81% Pervious Area
0.049		12.19% 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

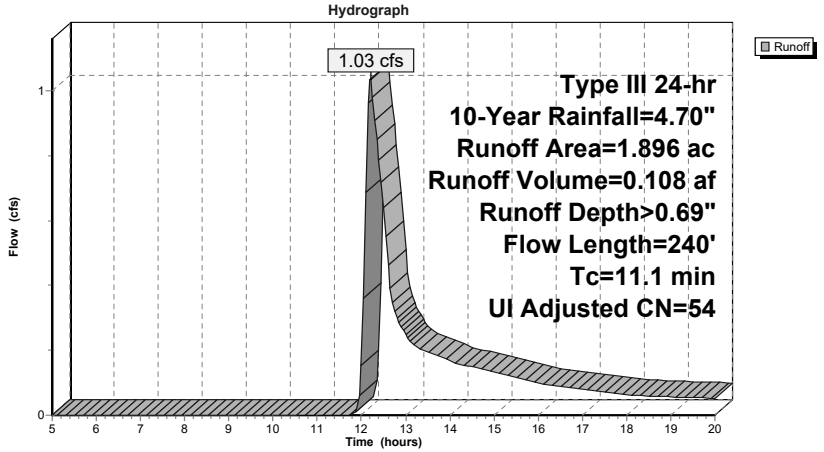
Runoff = 1.03 cfs @ 12.20 hrs, Volume= 0.108 af, Depth> 0.69"

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

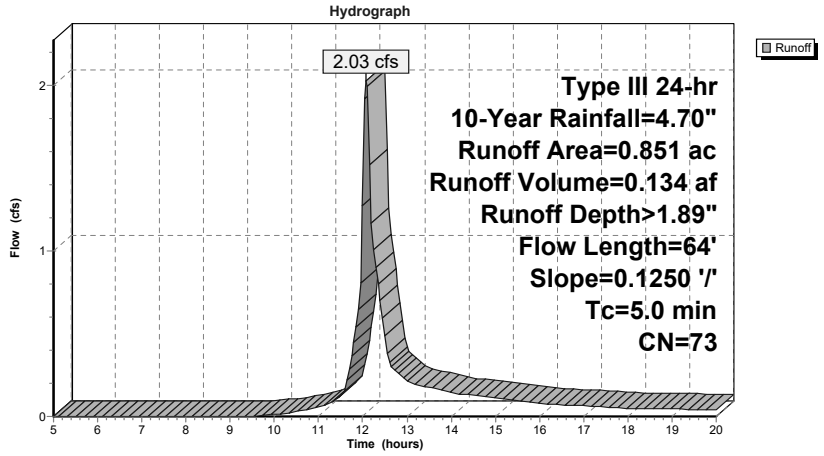
Runoff = 2.03 cfs @ 12.08 hrs, Volume= 0.134 af, Depth> 1.89"

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
0.121	98	Water Surface, HSG B
0.151	98	Paved parking, HSG B
0.579	61	>75% Grass cover, Good, HSG B
0.851	73	Weighted Average
0.579		68.04% Pervious Area
0.272		31.96% 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 = 6.400 ac, 33.67% Impervious, Inflow Depth > 1.89" for 10-Year event
Inflow = 12.21 cfs @ 12.18 hrs, Volume= 1.006 af
Outflow = 10.56 cfs @ 12.27 hrs, Volume= 0.858 af, Atten= 14%, Lag= 5.8 min
Discarded = 0.40 cfs @ 11.15 hrs, Volume= 0.311 af
Primary = 10.16 cfs @ 12.27 hrs, Volume= 0.546 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 147.41' @ 12.27 hrs Surf.Area= 3,417 sf Storage= 9,580 cf

Plug-Flow detention time= 69.3 min calculated for 0.855 af (85% of inflow)
Center-of-Mass det. time= 26.9 min (835.7 - 808.8)

Volume	Invert	Avail.Storage	Storage Description
#1A	143.50'	4,740 cf	**44.75'W x 76.37'L x 5.75'H Field A** 19,650 cf Overall - 7,801 cf Embedded = 11,849 cf x 40.0% Voids
#2A	144.25'	7,801 cf	**Cultec R-902HD** x 120 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 120 Chambers in 6 Rows Cap Storage= +2.8 cf x 2 x 6 rows = 33.1 cf
		12,541 cf	Total Available Storage

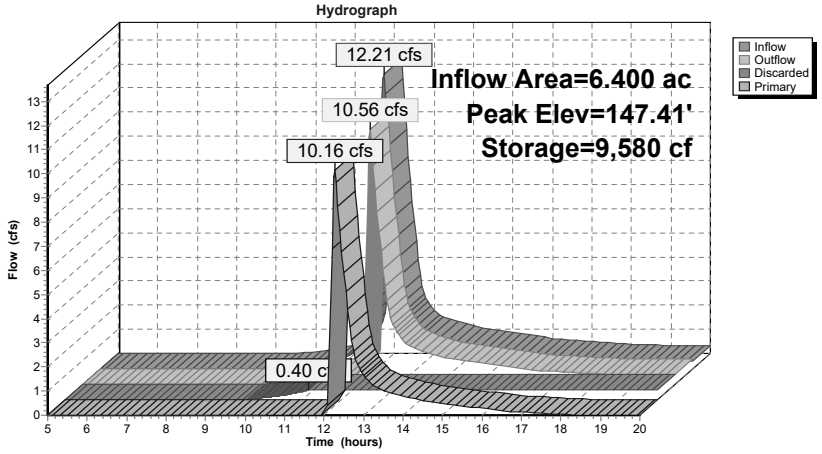
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	146.30'	**24.0" Round Culvert X 2.00** L= 64.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 146.30' / 138.50' S= 0.1219 '/' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf
#2	Discarded	143.50'	**5.000 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.40 cfs @ 11.15 hrs HW=143.56' (Free Discharge)
↑**2=Exfiltration** (Exfiltration Controls 0.40 cfs)

Primary OutFlow Max=9.77 cfs @ 12.27 hrs HW=147.39' (Free Discharge)
↑**1=Culvert** (Inlet Controls 9.77 cfs @ 2.80 fps)

Pond 7P: UG A



Summary for Pond 13P: INFIL B

Inflow Area = 3.752 ac, 42.40% Impervious, Inflow Depth > 1.89" for 10-Year event
Inflow = 8.73 cfs @ 12.10 hrs, Volume= 0.591 af
Outflow = 1.65 cfs @ 12.58 hrs, Volume= 0.523 af, Atten= 81%, Lag= 29.0 min
Discarded = 0.54 cfs @ 12.58 hrs, Volume= 0.290 af
Primary = 1.11 cfs @ 12.58 hrs, Volume= 0.233 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 136.62' @ 12.58 hrs Surf.Area= 4,656 sf Storage= 10,363 cf

Plug-Flow detention time= 104.7 min calculated for 0.523 af (88% of inflow)
Center-of-Mass det. time= 68.5 min (872.6 - 804.1)

Volume	Invert	Avail.Storage	Storage Description
#1	133.00'	20,758 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

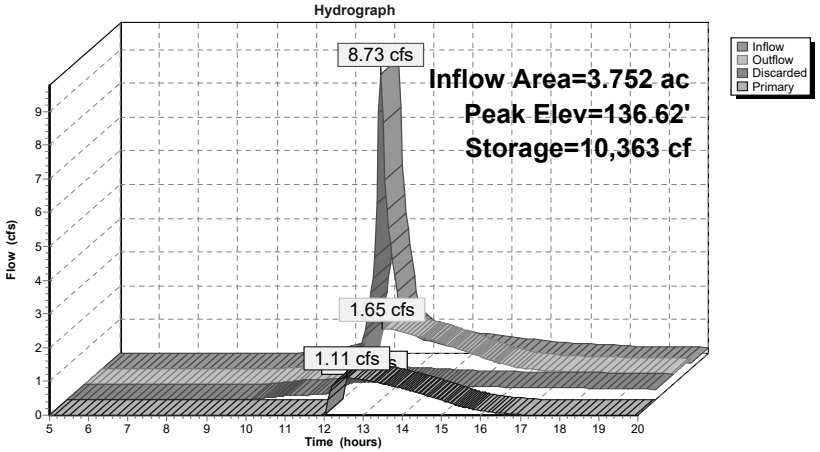
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
133.00	1,092	0	0
134.00	2,003	1,548	1,548
136.00	4,089	6,092	7,640
138.00	5,910	9,999	17,639
138.50	6,567	3,119	20,758

Device	Routing	Invert	Outlet Devices
#1	Primary	135.00'	**18.0" Round Culvert** L= 23.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 135.00' / 133.00' S= 0.0870 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Device 1	135.00'	**6.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	137.00'	**42.0" x 42.0" Horiz. Grate** C= 0.600 Limited to weir flow at low heads
#4	Primary	137.50'	**8.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#5	Discarded	133.00'	**5.000 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.54 cfs @ 12.58 hrs HW=136.62' (Free Discharge)
└**5=Exfiltration** (Exfiltration Controls 0.54 cfs)

Primary OutFlow Max=1.11 cfs @ 12.58 hrs HW=136.62' (Free Discharge)
└**1=Culvert** (Passes 1.11 cfs of 7.94 cfs potential flow)
└**2=Orifice/Grate** (Orifice Controls 1.11 cfs @ 5.64 fps)
└**3=Grate** (Controls 0.00 cfs)
└**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 13P: INFIL B



Summary for Pond 14P: BIO C

Inflow Area = 0.334 ac, 26.65% Impervious, Inflow Depth > 1.74" for 10-Year event
Inflow = 0.73 cfs @ 12.08 hrs, Volume= 0.049 af
Outflow = 0.33 cfs @ 12.31 hrs, Volume= 0.032 af, Atten= 54%, Lag= 13.6 min
Primary = 0.33 cfs @ 12.31 hrs, Volume= 0.032 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 140.57' @ 12.31 hrs Surf.Area= 1,565 sf Storage= 791 cf

Plug-Flow detention time= 125.1 min calculated for 0.032 af (67% of inflow)
Center-of-Mass det. time= 51.8 min (859.0 - 807.3)

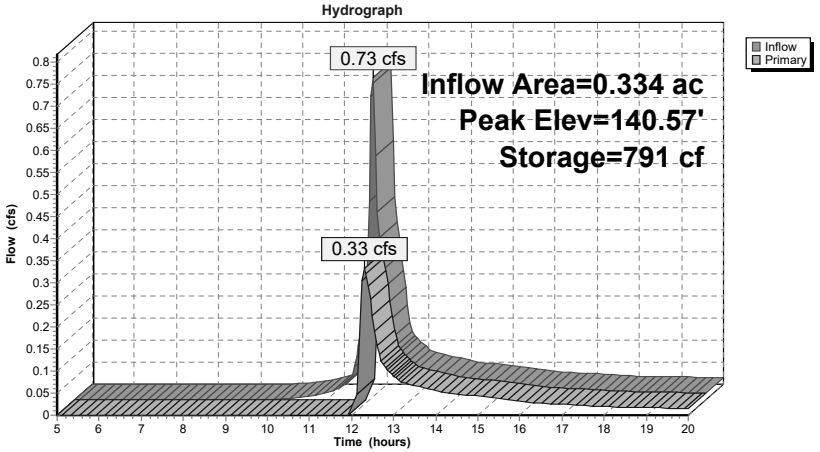
Volume	Invert	Avail.Storage	Storage Description
#1	140.00'	1,526 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

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=0.33 cfs @ 12.31 hrs HW=140.57' (Free Discharge)
↑**1=Grate** (Weir Controls 0.33 cfs @ 0.84 fps)

Pond 14P: BIO C



Summary for Pond 15P: BIO D

Inflow Area = 0.402 ac, 12.19% Impervious, Inflow Depth > 0.33" for 10-Year event
Inflow = 0.07 cfs @ 12.30 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= 138.21' @ 20.00 hrs Surf.Area= 2,417 sf Storage= 484 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

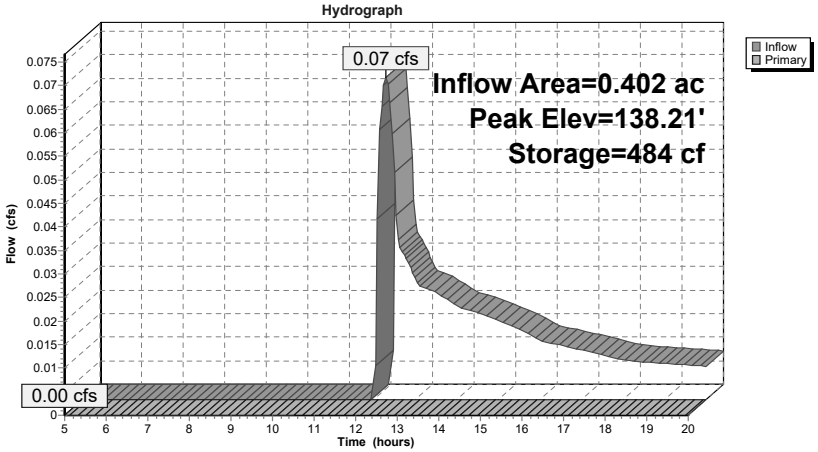
Volume	Invert	Avail.Storage	Storage Description
#1	138.00'	2,658 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

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: BIO D



Summary for Pond 16P: BIO E

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)

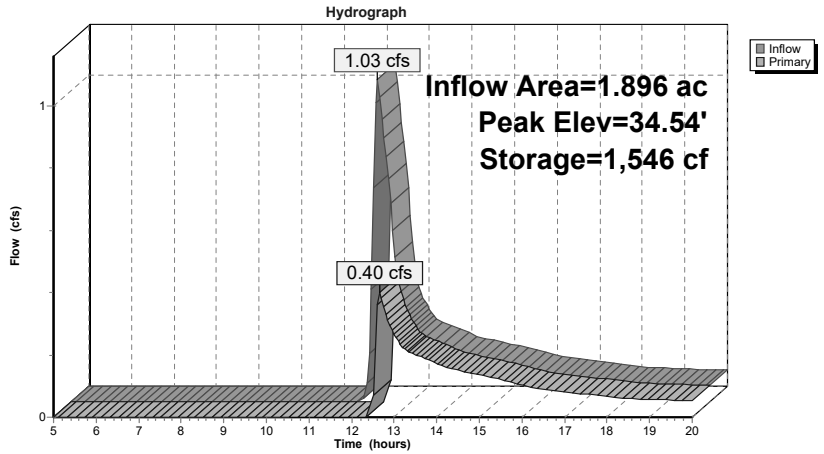
Volume	Invert	Avail.Storage	Storage Description
#1	34.00'	7,056 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

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 E



Summary for Subcatchment 11: DA 11

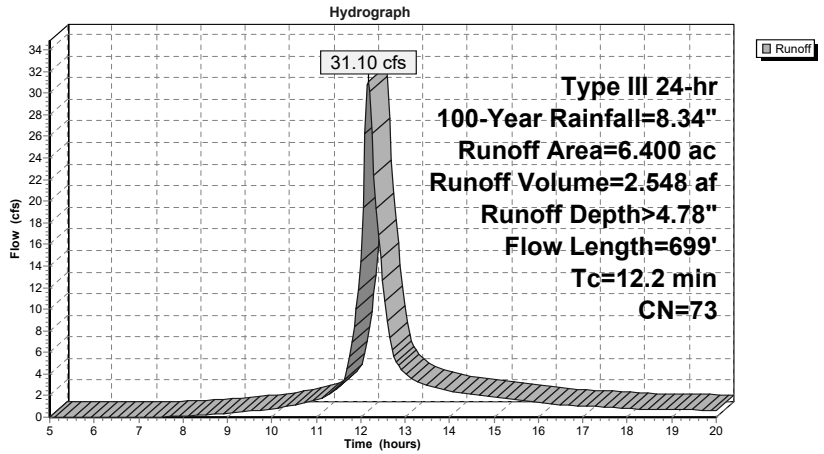
Runoff = 31.10 cfs @ 12.17 hrs, Volume= 2.548 af, Depth> 4.78"

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 100-Year Rainfall=8.34"

Area (ac)	CN	Description
0.320	98	Roofs, HSG B
1.835	98	Paved parking, HSG B
4.245	61	>75% Grass cover, Good, HSG B
6.400	73	Weighted Average
4.245		66.33% Pervious Area
2.155		33.67% 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
0.6	150	0.0430	4.21		**Shallow Concentrated Flow, S3** Paved Kv= 20.3 fps
0.7	225	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
12.2	699	Total			

Subcatchment 11: DA 11



Summary for Subcatchment 12: DA12

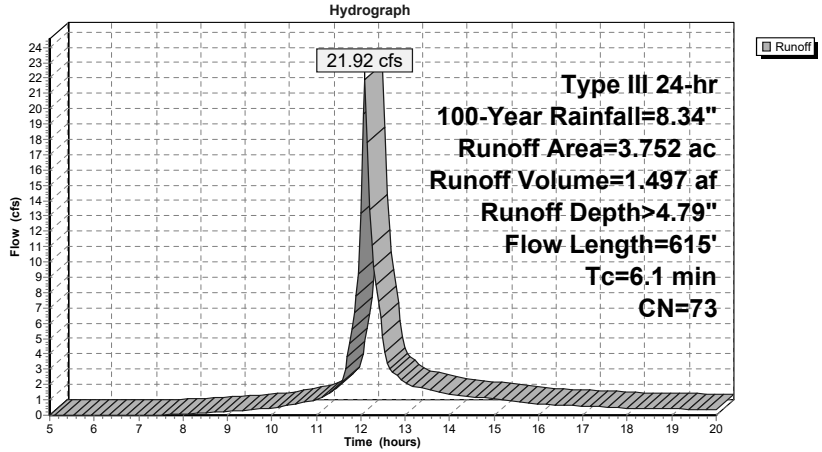
Runoff = 21.92 cfs @ 12.09 hrs, Volume= 1.497 af, Depth> 4.79"

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
0.712	98	Roofs, HSG B
0.879	98	Paved parking, HSG B
0.616	39	>75% Grass cover, Good, HSG A
1.545	61	>75% Grass cover, Good, HSG B
3.752	73	Weighted Average
2.161		57.60% Pervious Area
1.591		42.40% 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

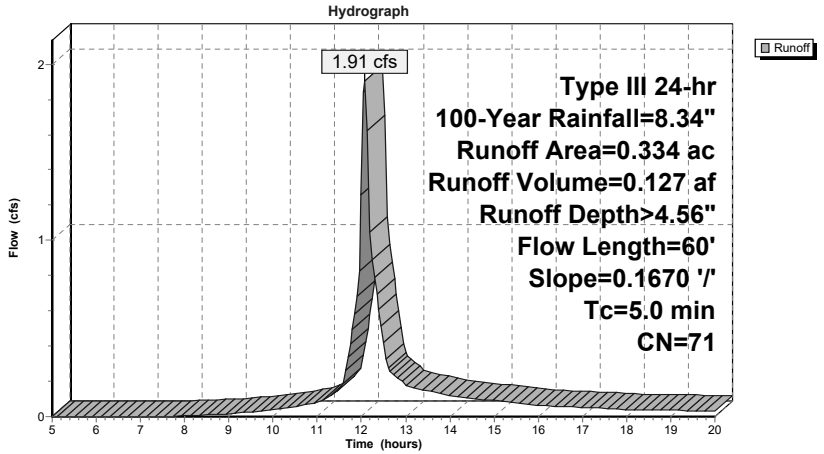
Runoff = 1.91 cfs @ 12.08 hrs, Volume= 0.127 af, Depth> 4.56"

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
0.089	98	Roofs, HSG B
0.245	61	>75% Grass cover, Good, HSG B
0.334	71	Weighted Average
0.245		73.35% Pervious Area
0.089		26.65% 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

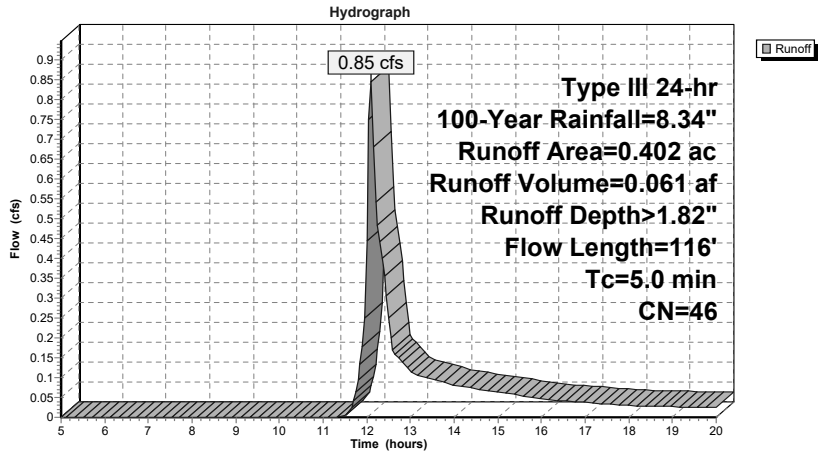
Runoff = 0.85 cfs @ 12.09 hrs, Volume= 0.061 af, Depth> 1.82"

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 100-Year Rainfall=8.34"

Area (ac)	CN	Description
0.049	98	Roofs, HSG A
0.353	39	>75% Grass cover, Good, HSG A
0.402	46	Weighted Average
0.353		87.81% Pervious Area
0.049		12.19% 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

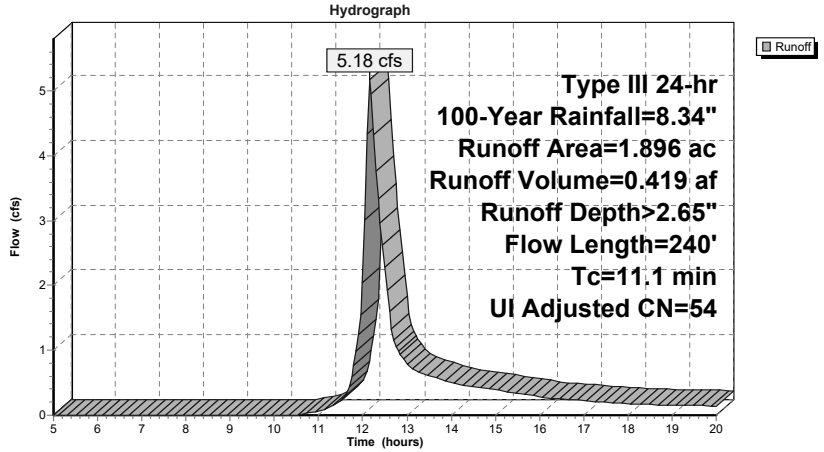
Runoff = 5.18 cfs @ 12.17 hrs, Volume= 0.419 af, Depth> 2.65"

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

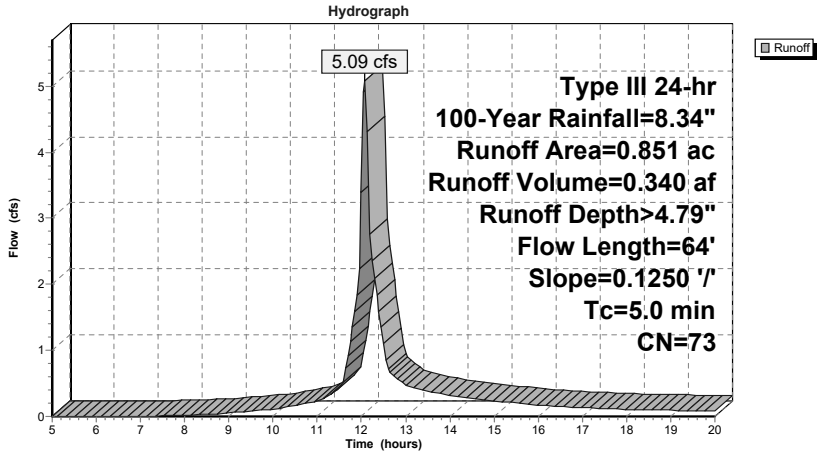
Runoff = 5.09 cfs @ 12.08 hrs, Volume= 0.340 af, Depth> 4.79"

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
0.121	98	Water Surface, HSG B
0.151	98	Paved parking, HSG B
0.579	61	>75% Grass cover, Good, HSG B
0.851	73	Weighted Average
0.579		68.04% Pervious Area
0.272		31.96% 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 = 6.400 ac, 33.67% Impervious, Inflow Depth > 4.78" for 100-Year event
Inflow = 31.10 cfs @ 12.17 hrs, Volume= 2.548 af
Outflow = 29.87 cfs @ 12.21 hrs, Volume= 2.383 af, Atten= 4%, Lag= 2.3 min
Discarded = 0.40 cfs @ 9.15 hrs, Volume= 0.381 af
Primary = 29.48 cfs @ 12.21 hrs, Volume= 2.002 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 148.82' @ 12.21 hrs Surf.Area= 3,417 sf Storage= 11,957 cf

Plug-Flow detention time= 35.4 min calculated for 2.375 af (93% of inflow)
Center-of-Mass det. time= 13.0 min (800.8 - 787.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	143.50'	4,740 cf	**44.75'W x 76.37'L x 5.75'H Field A** 19,650 cf Overall - 7,801 cf Embedded = 11,849 cf x 40.0% Voids
#2A	144.25'	7,801 cf	**Cultec R-902HD** x 120 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 120 Chambers in 6 Rows Cap Storage= +2.8 cf x 2 x 6 rows = 33.1 cf
		12,541 cf	Total Available Storage

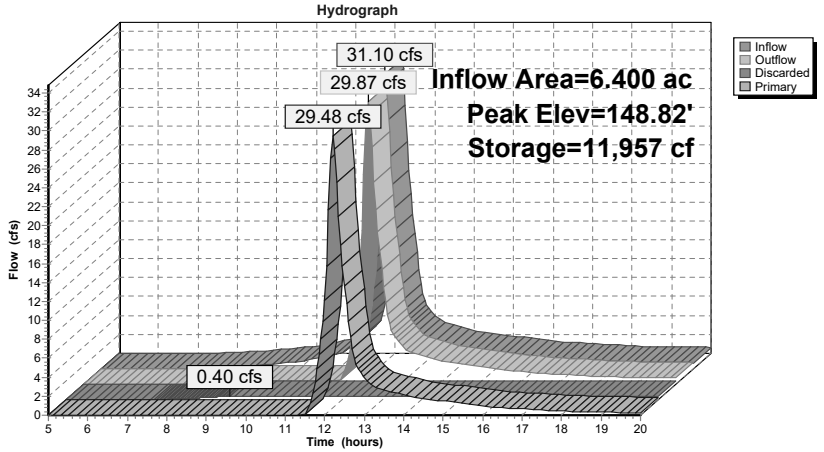
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	146.30'	**24.0" Round Culvert X 2.00** L= 64.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 146.30' / 138.50' S= 0.1219 '/' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf
#2	Discarded	143.50'	**5.000 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.40 cfs @ 9.15 hrs HW=143.56' (Free Discharge)
└**2=Exfiltration** (Exfiltration Controls 0.40 cfs)

Primary OutFlow Max=29.27 cfs @ 12.21 hrs HW=148.80' (Free Discharge)
└**1=Culvert** (Inlet Controls 29.27 cfs @ 4.66 fps)

Pond 7P: UG A



Summary for Pond 13P: INFIL B

Inflow Area = 3.752 ac, 42.40% Impervious, Inflow Depth > 4.79" for 100-Year event
Inflow = 21.92 cfs @ 12.09 hrs, Volume= 1.497 af
Outflow = 16.26 cfs @ 12.17 hrs, Volume= 1.394 af, Atten= 26%, Lag= 4.8 min
Discarded = 0.66 cfs @ 12.17 hrs, Volume= 0.395 af
Primary = 15.59 cfs @ 12.17 hrs, Volume= 0.999 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 137.81' @ 12.17 hrs Surf.Area= 5,735 sf Storage= 16,519 cf

Plug-Flow detention time= 67.3 min calculated for 1.394 af (93% of inflow)
Center-of-Mass det. time= 43.2 min (826.1 - 782.9)

Volume	Invert	Avail.Storage	Storage Description
#1	133.00'	20,758 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

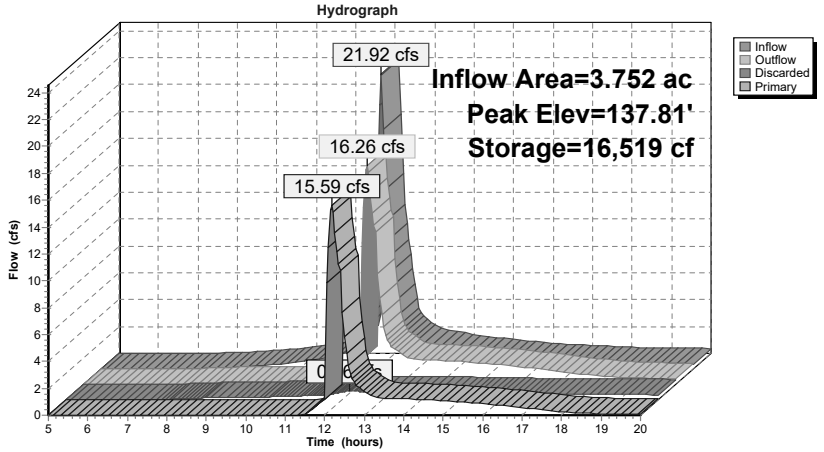
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
133.00	1,092	0	0
134.00	2,003	1,548	1,548
136.00	4,089	6,092	7,640
138.00	5,910	9,999	17,639
138.50	6,567	3,119	20,758

Device	Routing	Invert	Outlet Devices
#1	Primary	135.00'	**18.0" Round Culvert** L= 23.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 135.00' / 133.00' S= 0.0870 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Device 1	135.00'	**6.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	137.00'	**42.0" x 42.0" Horiz. Grate** C= 0.600 Limited to weir flow at low heads
#4	Primary	137.50'	**8.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#5	Discarded	133.00'	**5.000 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.66 cfs @ 12.17 hrs HW=137.79' (Free Discharge)
└**5=Exfiltration** (Exfiltration Controls 0.66 cfs)

Primary OutFlow Max=15.22 cfs @ 12.17 hrs HW=137.79' (Free Discharge)
└**1=Culvert** (Inlet Controls 12.14 cfs @ 6.87 fps)
  └**2=Orifice/Grate** (Passes < 1.51 cfs potential flow)
  └**3=Grate** (Passes < 31.89 cfs potential flow)
└**4=Broad-Crested Rectangular Weir** (Weir Controls 3.08 cfs @ 1.35 fps)

Pond 13P: INFIL B



Summary for Pond 14P: BIO C

Inflow Area = 0.334 ac, 26.65% Impervious, Inflow Depth > 4.56" for 100-Year event
Inflow = 1.91 cfs @ 12.08 hrs, Volume= 0.127 af
Outflow = 1.79 cfs @ 12.11 hrs, Volume= 0.111 af, Atten= 6%, Lag= 2.1 min
Primary = 1.79 cfs @ 12.11 hrs, Volume= 0.111 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 140.70' @ 12.11 hrs Surf.Area= 1,645 sf Storage= 1,010 cf

Plug-Flow detention time= 62.3 min calculated for 0.110 af (87% of inflow)
Center-of-Mass det. time= 23.9 min (809.4 - 785.5)

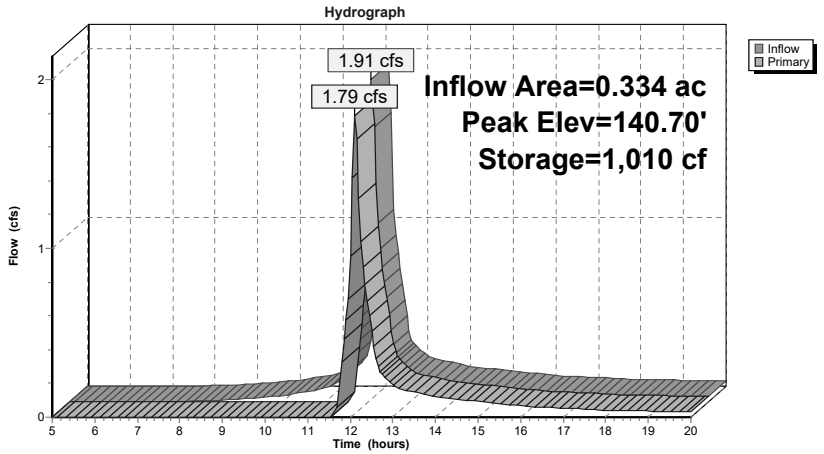
Volume	Invert	Avail.Storage	Storage Description
#1	140.00'	1,526 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

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=1.74 cfs @ 12.11 hrs HW=140.70' (Free Discharge)
↳**1=Grate** (Weir Controls 1.74 cfs @ 1.46 fps)

Pond 14P: BIO C



Summary for Pond 15P: BIO D

Inflow Area = 0.402 ac, 12.19% Impervious, Inflow Depth > 1.82" for 100-Year event
Inflow = 0.85 cfs @ 12.09 hrs, Volume= 0.061 af
Outflow = 0.11 cfs @ 13.06 hrs, Volume= 0.032 af, Atten= 87%, Lag= 58.2 min
Primary = 0.11 cfs @ 13.06 hrs, Volume= 0.032 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 138.53' @ 13.06 hrs Surf.Area= 2,684 sf Storage= 1,311 cf

Plug-Flow detention time= 187.2 min calculated for 0.032 af (53% of inflow)
Center-of-Mass det. time= 94.0 min (924.5 - 830.5)

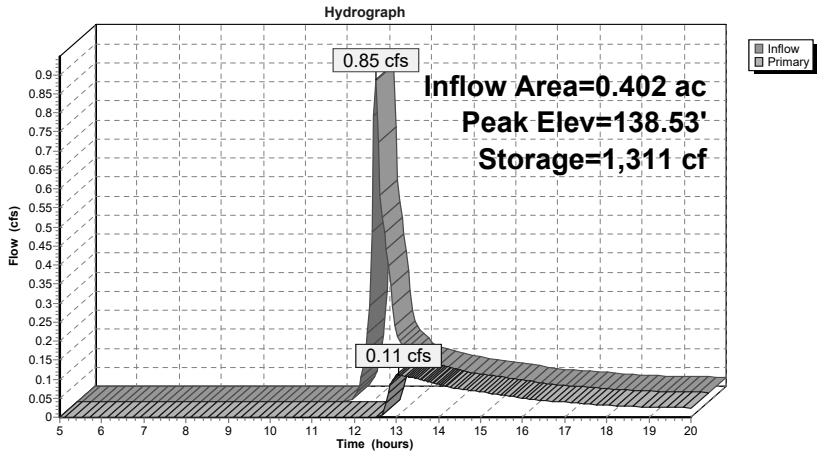
Volume	Invert	Avail.Storage	Storage Description
#1	138.00'	2,658 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

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=0.11 cfs @ 13.06 hrs HW=138.53' (Free Discharge)
↳**1=Grate** (Weir Controls 0.11 cfs @ 0.58 fps)

Pond 15P: BIO D



Summary for Pond 16P: BIO E

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)

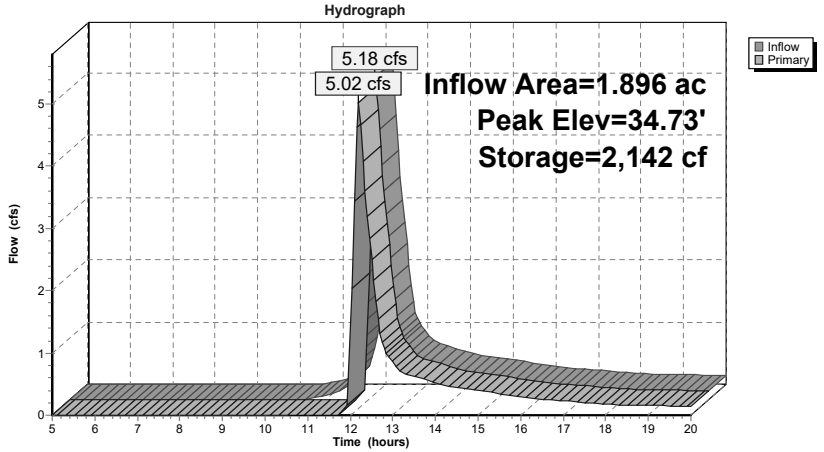
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
34.00	2,600	0	0
36.00	4,456	7,056	7,056

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)

Mirbeau Amended 2024-0227
Mirbeau model_2024-0227 *Type III 24-hr 100-Year Rainfall=8.34"*
Prepared by Hudson Land Design Revised 2/27/24 Printed 2/27/2024

Pond 16P: BIO E



APPENDIX F

STORMWATER MANAGEMENT PRACTICE DESIGN

Project:	Mirbeau			
Description:	Stormwater Quality Design			
By/Date:	ESR	2/27/2024	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	2.16	34	0.35	6.40	11,483	Hydrodynamic Device	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	11,483	11,483	Hydrodynamic Device	11,483

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: 0.35
A = Watershed (ac)
100% RR_V: 11,483 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:	6.400 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:	6.400 acres	
	Total Area Matches	Calculated S: 0.4

Minimum RR_V (acre-feet) = [(P)(Rv*)(Ai)]/12 — Calculated Ai: 0.8620
Calculated Rv*: 0.95
Where: — Calculated Minimum RR_V: 4,162 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

Project:	Mirbeau			
Description:	Stormwater Quality Design			
By/Date:	ESR	2/27/2024	Reviewed/Date:	MAB

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Underground Infiltration A

4) Stormwater Management Practice Design

Design Infiltration Basin

WQ_V = Remaining Water Quality Volume (cf) =	11,483 cf	
◆ Storage volume within infiltration bed:	6,777 cf	(volume below lowest outlet)
(from HydroCad Model)		
◆ Infiltration rate for design:	5.0 inches/hour	
	Observed infiltration rate:	24.0 inches/hour
◆ Infiltration area :	3,340 sf	
◆ Calculated exfiltration rate:	0.40 cfs	(during all storms)
◆ Calculated time to infiltrate WQv:	7.97 hours	

5) Tabulate Provided Runoff Reduction Volume (RR_V)

Infiltration Basin

Storage provided within practice:	**18,260 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:	18,260 cf	
TOTAL RR_V PROVIDED:	**11,483 cf**	
Calculated 100%RR_V:	11,483 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:	**6,777 cf**	

6) Channel Protection Volume (CPv) Design

Determine Stream Channel Protection Volume (CPv)

1-Year Storm Runoff Volume	13,068 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)	0.15	cfs

Determine Required Orifice Size To Release CPv over 24-hours

CPv orifice elevation	N/A	feet
CPv orifice diameter	N/A	inches
1-Year Storm Release Rate	0.00 cfs	From HydroCAD Model - 1 Year Storm is Infiltrated
Is CPv 100% controlled?	yes - acceptable	

7) See HydroCAD model for Overbank Flood Control (Qp) and Extreme Flood Control (Qf) computations

Project:	Mirbeau			
Description:	Stormwater Quality Design			
By/Date:	ESR	2/27/2024	Reviewed/Date:	MAB

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Infiltration Basin B

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	1.59	42	0.43	3.75	8,230	Forebays	Infiltration

2) Determine Required Pre-Treatment Volume

Determine Pre-Treatment Volume

Watershed	Required WQv (cf)	Required Pre-Treatment Volume (cf)	Pre-Treatment Practice
12	8,230	8,230	Forebays

Size Pre-Treatment Practice: Plunge Pools

Forebay Contour	Area (sf)	Volume (cf)	Cumulative Volume (cf)
130	98	0	0
137	3,077	11,113	11,113

11,113 cf > 8,230 cf (Remaining Required WQv Pre-Treatment Volume)
acceptable

Project:	Mirbeau			
Description:	Stormwater Quality Design			
By/Date:	ESR	2/27/2024	Reviewed/Date:	MAB

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Infiltration Basin B

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: 0.43
A = Watershed (ac)
100% RR_V: 8,230 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:	1.251 acres	Corresponding S: 0.55
Drainage Area with Hydrologic Soil Group B:	2.501 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:	3.752 acres	
	Total Area Matches	Calculated S: 0.45

Minimum RR_V (acre-feet) = [(P)(Rv*)(Ai)]/12

Calculated Ai: 0.7160
Calculated Rv*: 0.95
Calculated Minimum RR_V: 3,457 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 Infiltration Basin

WQ_V = Remaining Water Quality Volume (cf) = 8,230 cf

- Storage volume within infiltration bed: 4,072 cf (volume below lowest outlet)

(from HydroCad Model)

- Infiltration rate for design: 5.0 inches/hour

Observed infiltration rate: 23.0 inches/hour

- Infiltration area : 5,910 sf
- Calculated exfiltration rate: 0.68 cfs infiltration area x infiltration rate
- Calculated time to infiltrate WQv: 3.34 hours WQv / calculated exfiltration rate

Project:	Mirbeau			
Description:	Stormwater Quality Design			
By/Date:	ESR	2/27/2024	Reviewed/Date:	MAB

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Infiltration Basin B

5) Tabulate Provided Runoff Reduction Volume (RR_V)

Infiltration Basin

Storage provided within practice:	**15,185 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:	15,185 cf	
TOTAL RR_V PROVIDED:	**8,230 cf**	
Calculated 100%RR_V:	8,230 cf	
Minimum RR_V:	3457 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:	**6,954 cf**	

6) Channel Protection Volume (CPv) Design

Determine Stream Channel Protection Volume (CPv)

1-Year Storm Runoff Volume	7,710 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)	0.09	cfs

Determine Required Orifice Size To Release CPv over 24-hours

CPv orifice elevation	N/A	feet
CPv orifice diameter	N/A	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

Project:	Mirbeau			
Description:	Stormwater Quality Design			
By/Date:	ESR	2/27/2024	Reviewed/Date:	MAB

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Bioretention Area C

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
13	1.40	0.09	27	0.29	0.33	492	Grass Filter Strip	Bioretention

2) Determine Required Pre-Treatment Volume

Determine Pre-Treatment Volume

Watershed	Required WQv (cf)	Required Pre-Treatment Volume (cf)	Pre-Treatment Practice
13	492	492	Grass Filter Strip

486 cf > 492 cf (Remaining Required WQv Pre-Treatment Volume)
insufficient

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: 0.29
A = Watershed (ac)

100% RR_V: 0,492 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:	0.334 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:	0.334 acres	
Total Area Matches		Calculated S: 0.4

Minimum RR_V (acre-feet) = [(P)(Rv*)(Ai)]/12 — Calculated Ai: 0.0356
Calculated Rv*: 0.95
Where: — Calculated Minimum RR_V: 0,172 cf

Project:	Mirbeau			
Description:	Stormwater Quality Design			
By/Date:	ESR	2/27/2024	Reviewed/Date:	MAB

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845-440-6926

Bioretention Area C

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) =	0,369 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) =	335	sf	
A_F = Surface Area of Filter Bed Provided (sf) =	530	sf	acceptable

Confirm Storage Capability of Practice

- Confirm system can hold 75% of water quality volume

75% Water Quality Volume (cf) = 369 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) = 265 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) = 265 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) = 530 cf > 369 cf (75% WQv Storage Volume) — acceptable

- Total storage within practice and pre-treatment (cf) = 1,016 cf > 492 cf (100% WQv Storage Volume) — acceptable

Required Underdrain Length

Project:	Mirbeau			
Description:	Stormwater Quality Design			
By/Date:	ESR	2/27/2024	Reviewed/Date:	MAB

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845-440-6926

Bioretention Area C

- Length of underdrain should be based on 10% of the provided filter bed area per § 8.5 of NYSSDM.

Length of underdrain required =	18	lf	
Length of underdrain provided =	0	lf	(No underdrains provided in HSG B 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 =	140	ft	
Outlet control structure lowest elevation =	140.5	ft	
Ponding depth.=	6	in	acceptable

5) Tabulate Provided Runoff Reduction Volume (RR_V)

Bioretention Area

Storage provided within practice:	**1,502 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:	B	RR_V Reduction Factor: 100%
RR_V Provided by implementing bioretention:	1,502 cf	
WQ_V REDUCED (RRV):	**0,492 cf**	
Calculated 100% RR_V:	0,492 cf	
Minimum RR_V:	172 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:	**1010 cf**	

6) Channel Protection Volume (CPv) Design

Determine Stream Channel Protection Volume (CPv)

1-Year Storm Runoff Volume	0,610 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	140.5	feet
CPv orifice diameter	-	inches
1-Year Storm Release Rate	0.00 cfs	From HydroCAD Model - Entire 1-Year Storm is Infiltrated
Is CPv 100% controlled?	yes - acceptable	

7) See HydroCAD model for Overbank Flood Control (Qp) and Extreme Flood Control (Qf) computations

Project:	Mirbeau			
Description:	Stormwater Quality Design			
By/Date:	ESR	2/27/2024	Reviewed/Date:	MAB

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Bioretention Area D

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
14	1.40	0.05	12	0.16	0.40	326	Grass Filter Strip	Bioretention

2) Determine Required Pre-Treatment Volume

Determine Pre-Treatment Volume

Watershed	Required WQv (cf)	Provided Pre-Treatment Volume (cf)	Pre-Treatment Practice
14	326	327	Grass Filter Strip

327 cf > 326 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: 0.16
A = Watershed (ac)

100% RR_V: 0,326 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:	0.402 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:	0.402 acres	
Total Area Matches		Calculated S: 0.55

Minimum RR_V (acre-feet) = [(P)(Rv*)(Ai)]/12 — Calculated Ai: 0.0270
Calculated Rv*: 0.95
Where: Calculated Minimum RR_V: 0,130 cf

Project:	Mirbeau			
Description:	Stormwater Quality Design			
By/Date:	ESR	2/27/2024	Reviewed/Date:	MAB

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845-440-6926

Bioretention Area D

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) =	0,245 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) =	222	sf	
A_F = Surface Area of Filter Bed Provided (sf) =	1,562	sf	acceptable

Confirm Storage Capability of Practice

- Confirm system can hold 75% of water quality volume

75% Water Quality Volume (cf) = 245 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) = 781 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) = 781 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) = 1,562 cf > 245 cf (75% WQv Storage Volume) — acceptable

- Total storage within practice and pre-treatment (cf) = 1,889 cf > 326 cf (100% WQv Storage Volume) — acceptable

Required Underdrain Length

Project:	Mirbeau			
Description:	Stormwater Quality Design			
By/Date:	ESR	2/27/2024	Reviewed/Date:	MAB

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845-440-6926

Bioretention Area D

- Length of underdrain should be based on 10% of the provided filter bed area per § 8.5 of NYSSDM.

Length of underdrain required =	52	lf	
Length of underdrain provided =	0	lf	(No underdrains provided in HSG B 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 =	138	ft	
Outlet control structure lowest elevation =	138.5	ft	
Ponding depth.=	6	in	acceptable

5) Tabulate Provided Runoff Reduction Volume (RR_V)

Bioretention Area

Storage provided within practice:	**2,216 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:	2,216 cf	

WQ_V REDUCED (RRV):	**0,326 cf**	
Calculated 100% RR_V:	0,326 cf	
Minimum RR_V:	130 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:	**1890 cf**	

6) Channel Protection Volume (CPv) Design

Determine Stream Channel Protection Volume (CPv)

1-Year Storm Runoff Volume	0,000 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)	0.00	cfs

Determine Required Orifice Size To Release CPv over 24-hours

CPv orifice elevation	140.5	feet
CPv orifice diameter	-	inches
1-Year Storm Release Rate	0.00 cfs	From HydroCAD Model - Entire 1-Year Storm is Infiltrated
Is CPv 100% controlled?	yes - acceptable	

7) See HydroCAD model for Overbank Flood Control (Qp) and Extreme Flood Control (Qf) computations

Project:	Mirbeau			
Description:	Stormwater Quality Design			
By/Date:	ESR	2/27/2024	Reviewed/Date:	MAB

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Bioretention Area 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

924 cf > 923 cf (Remaining Required WQv Pre-Treatment Volume)
acceptable

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

Project: Mirbeau
Description: Stormwater Quality Design
By/Date: ESR 2/27/2024 Reviewed/Date: MAB

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Bioretention Area E

Total Area: 1.900 acres
Total Area Matches

Calculated S: 0.525
Calculated Ai: 0.3686
Calculated Rv*: 0.95
Calculated Minimum RR_V: 1,779 cf

Minimum RR_V (acre-feet) = [(P)(Rv*)(Ai)]/12

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) = 3,524 cf < 3,694 cf (100% WQv Storage Volume)

Project:	Mirbeau			
Description:	Stormwater Quality Design			
By/Date:	ESR	2/27/2024	Reviewed/Date:	MAB

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Bioretention Area E

insufficient

Required Underdrain Length

- 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:	**4,448 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:	4,448 cf	

WQ_V REDUCED (RRV):	**3,694 cf**	
Calculated 100% RR_V:	3,694 cf	
Minimum RR_V:	1779 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:	**754 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

Project:	Mirbeau			
Description:	Stormwater Quality Design			
By/Date:	ESR	5/25/2022	Reviewed/Date:	MAB

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845-440-6926

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	0.111	0.111	100	0.95	1.4	0.0123	536	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	4,835 sf
Total Runoff Reduction	**0,536 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: 536 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:	0.111 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:	0.111 acres	
	Total Area Matches	Calculated S: 0.55

Minimum RR_V (acre-feet) = [(P)(Rv*)(Ai)]/12

Calculated Ai: 0.0611

Calculated Rv*: 0.95

Where:

Calculated Minimum RR_V: 295 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

Hydro International

First Defense®

Advanced Hydrodynamic Separator



Product Summary

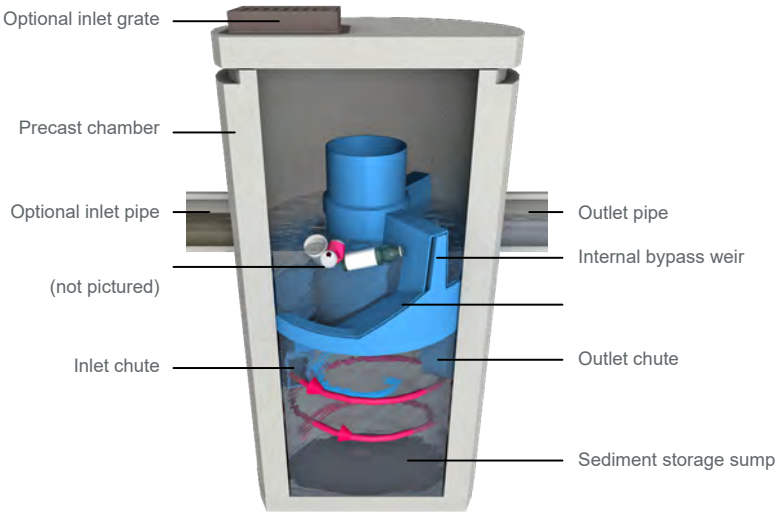
A Simple Solution for the Trickiest Sites

First Defense is a versatile stormwater separator with some of the highest

site space and reduce project costs by using the smallest possible footprint. It works with single or multiple inlet pipes and inlet grates. An internal bypass

pollutants and preventing washouts.

Features



Contaminated stormwater runoff enters the inlet chute from a surface grate and/or inlet pipe. The inlet chute introduces flow into the chamber tangentially to create a low energy vortex flow regime (magenta arrow) that directs sediment into the sump while oils, floating trash and debris rise to the surface.

Treated stormwater exits through a submerged outlet chute located opposite to the direction of the rotating flow (blue arrow). Enhanced vortex separation is provided by forcing the rotating flow within the vessel to follow the longest path possible rather than directly from inlet to outlet.

Higher flows bypass the treatment chamber to prevent turbulence and washout of captured pollutants. An internal bypass conveys infrequent peak flows directly to the outlet eliminating the need for, and expense of, external bypass control structures. A floatables draw off slot functions to convey floatables into the treatment chamber prior to bypass.

Applications

- Areas requiring a minimum of 50% TSS removal
- Stormwater treatment at the point of entry into the drainage line
- slope and depth of cover
- Highways, parking lots, industrial areas and urban developments
- Pre-treatment to ponds, storage systems, green infrastructure

Benefits

Highest Flow Through the Smallest Footprint

- **Smaller Footprint, Lower Costs**
  First Defense provides space-saving, easy-to-install surface water treatment in standard size chambers/manholes.
- **Adapt to Site Limitations**
  V
  slip First Defense into a tight spot. It also works well with large pipes, multiple inlet pipes and inlet grates.
- **Reduce Installation Time & Costs**
  Every First Defense unit is delivered to site pre-assembled and ready for install.
- **Online System Configuration**
  First Defense eliminates the need for separate structures with its integrated internal bypass.
- **Designed with Maintenance in Mind**
  Easy vactor hose access through the center shaft of the system makes for quick sump cleanout, saving time and reducing long-term operational cost.



Sizing & Specifications

First Defense units are available in **six diameters** sizes. The dimensions below are common across all model numbers.

Diameter	Peak Online Flow Rate	Maximum Pipe Diameter[1]	Typical Sediment Storage Capacity[2]	Minimum Distance from Outlet Invert to Top of Rim[3]	Standard Distance from Outlet Invert to Sump Floor
(ft / m)	(cfs / L/s)	(in / mm)	(yd^3 / m^3)	(ft / m)	(ft / m)
3 / 0.9	15 / 424	18 / 450	0.4 / 0.3	2.0 - 2.5 / 0.61 - 0.76	3.71 / 1.13
4 / 1.2	18 / 510	24 / 600	0.7 / 0.5	2.0 - 3.0 / 0.61 - 0.91	4.97 / 1.5
5 / 1.5	20 / 566	24 / 600	1.1 / .84	2.0 - 3.7 / 0.61 - 1.13	5.83 / 1.5
6 / 1.8	32 / 906	30 / 750	1.6 / 1.2	2.0 - 4.1 / 0.61 - 1.25	5.97 / 1.8
8 / 2.4	50 / 1415	48 / 1200	2.8 / 2.1	2.4 - 5.4 / 0.73 -1.65	7.40 / 2.2
10 / 3.0	50 / 1415	48 / 1200	4.4 / 3.3	2.4 - 6.8 / 0.73 - 2.07	10.25 / 3.12

two versions that conform to the water quality regulations.[4]

First Defense High Capacity Model Number	Typical TSS Treatment Flow Rates	
	NJDEP [4]	110µm
	(cfs / L/s)	(cfs / L/s)
FDHC-3	0.84 / 23.7	1.06 / 30.0
FDHC-4	1.50 / 42.4	1.88 / 53.2
FDHC-5	2.35 / 66.2	2.94 / 83.2
FDHC-6	3.38 / 95.7	4.23 / 119.8
FDHC-8	6.00 / 169.9	7.52 / 212.9
FDHC-10	9.38 / 265.6	11.75 / 332.7

First Defense Optimum Model Number	NJDEP Treatment Flow Rates[4]
	(cfs / L/s)
FDO-3	1.02 / 28.9
FDO-4	1.81 / 51.3
FDO-5	2.83 / 80.0
FDO-6	4.07 / 115.2
FDO-8	7.23 / 204.7
FDO-10	11.33 / 320.6

[1]Contact Hydro International when larger pipe sizes are required.
[2]Contact Hydro International when custom sediment storage capacity is required.
[3]These are guidlines only
contact Hydro for detailed design.
[4]NJDEP NJCAT V, based on one inlet pipe and no inlet grate.

Also available in a screened configuration for Full Trash Capture!



Free Online Design Tool

This free online sizing tool will recommend the best separator, model

entered by the user.

Upon completion, users have the option to submit the design to Hydro International for a free review by our engineering team.

Go to hydro-int.com/sizing to access the tool.

Hydro International

Hydro International, 94 Hutchins Drive, Portland, ME 04102
Tel: (207) 756-6200
Email: stormwaterinquiry@hydro-int.com
Web: www

FD_SS_B_2203

Download Drawings:
→ hydro-int.com/fddrawings

Operation & Maintenance Manual:
→ hydro-int.com/fd-om

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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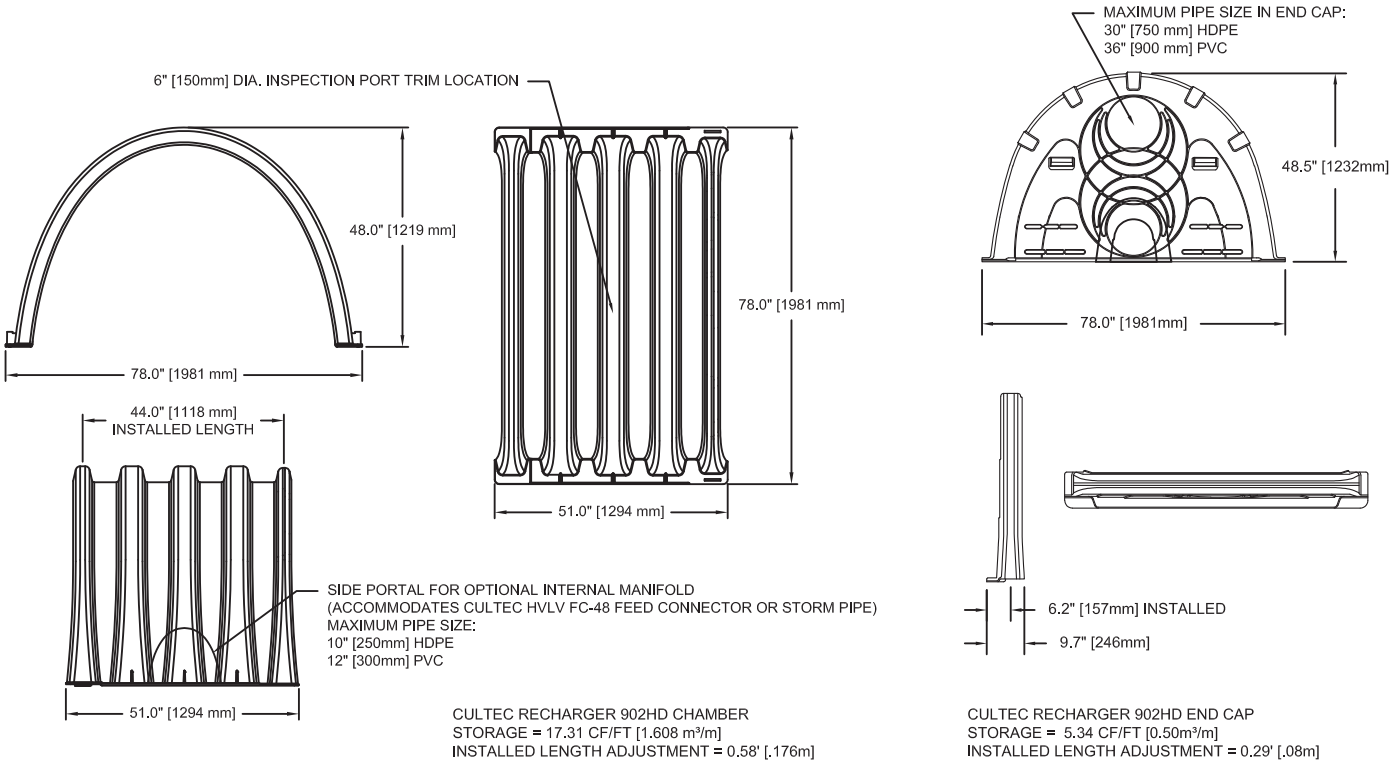
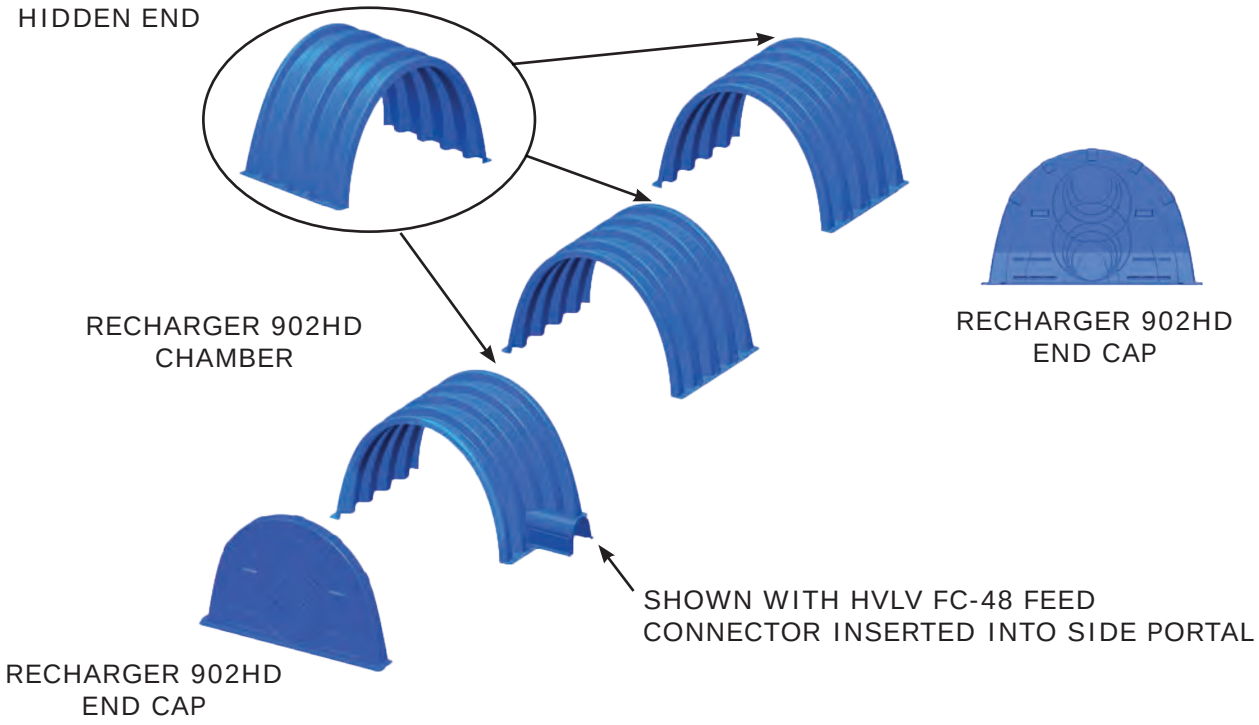
Three View Drawing



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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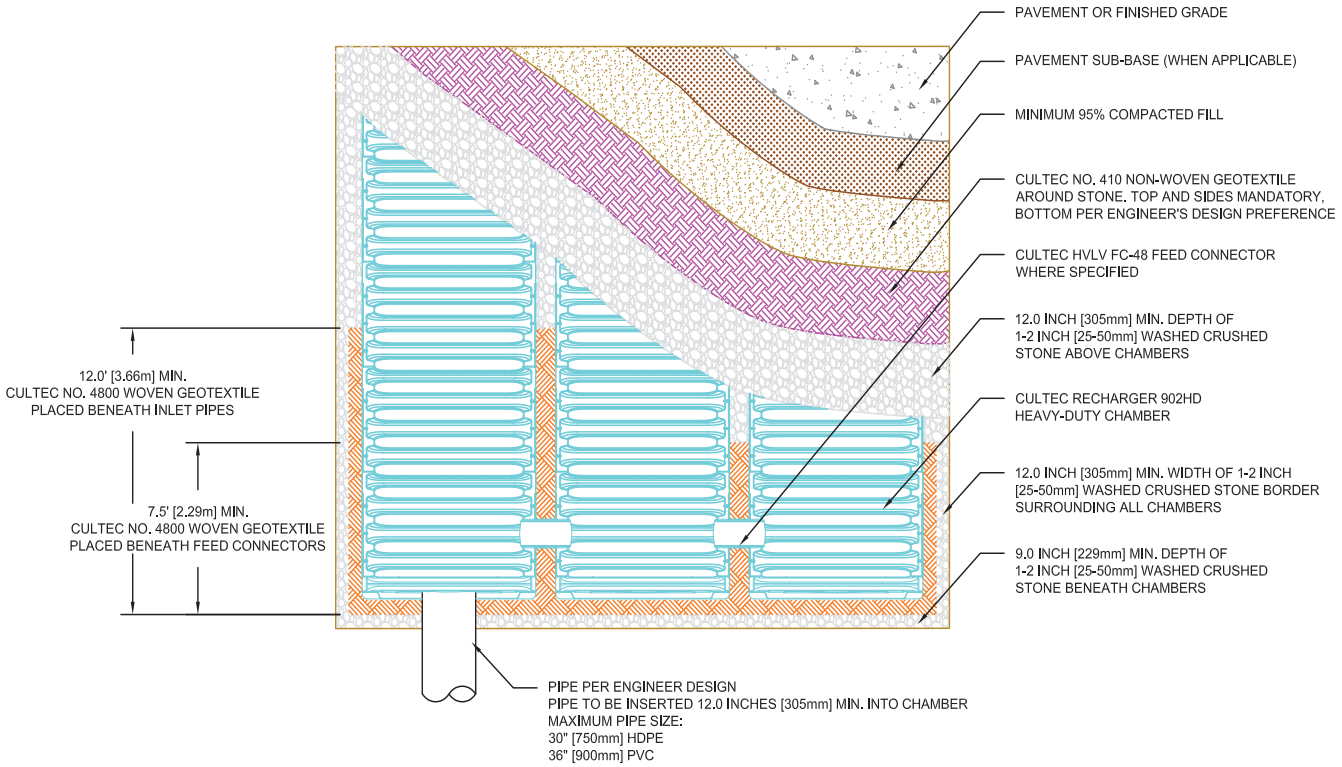
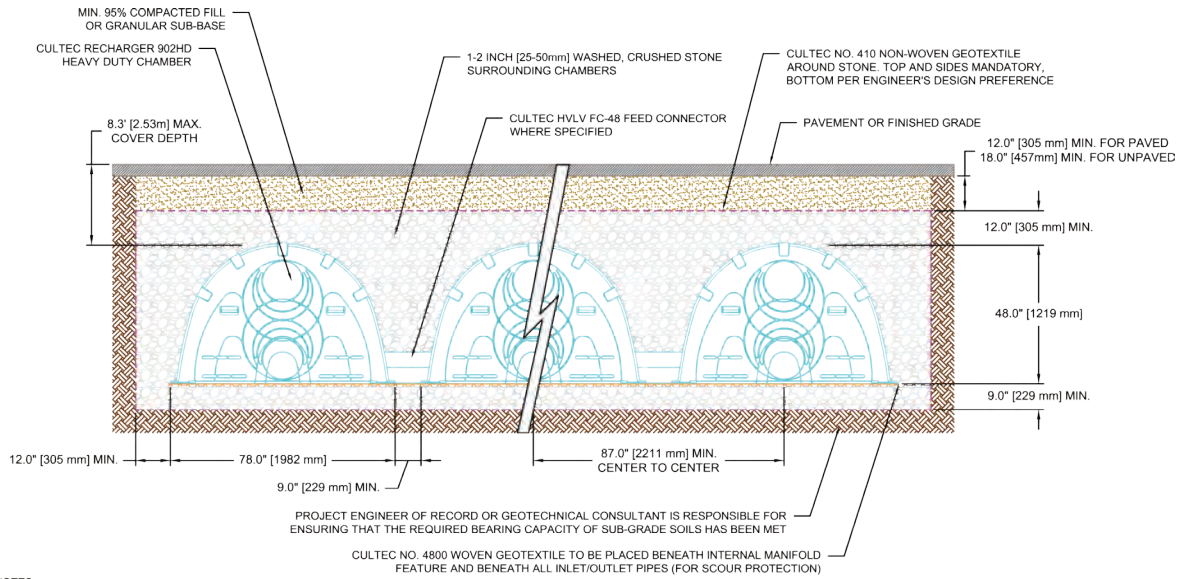
Plan View Drawing



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

For more information, contact CULTEC at (203) 775-4416 or visit www.cultec.com.

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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		

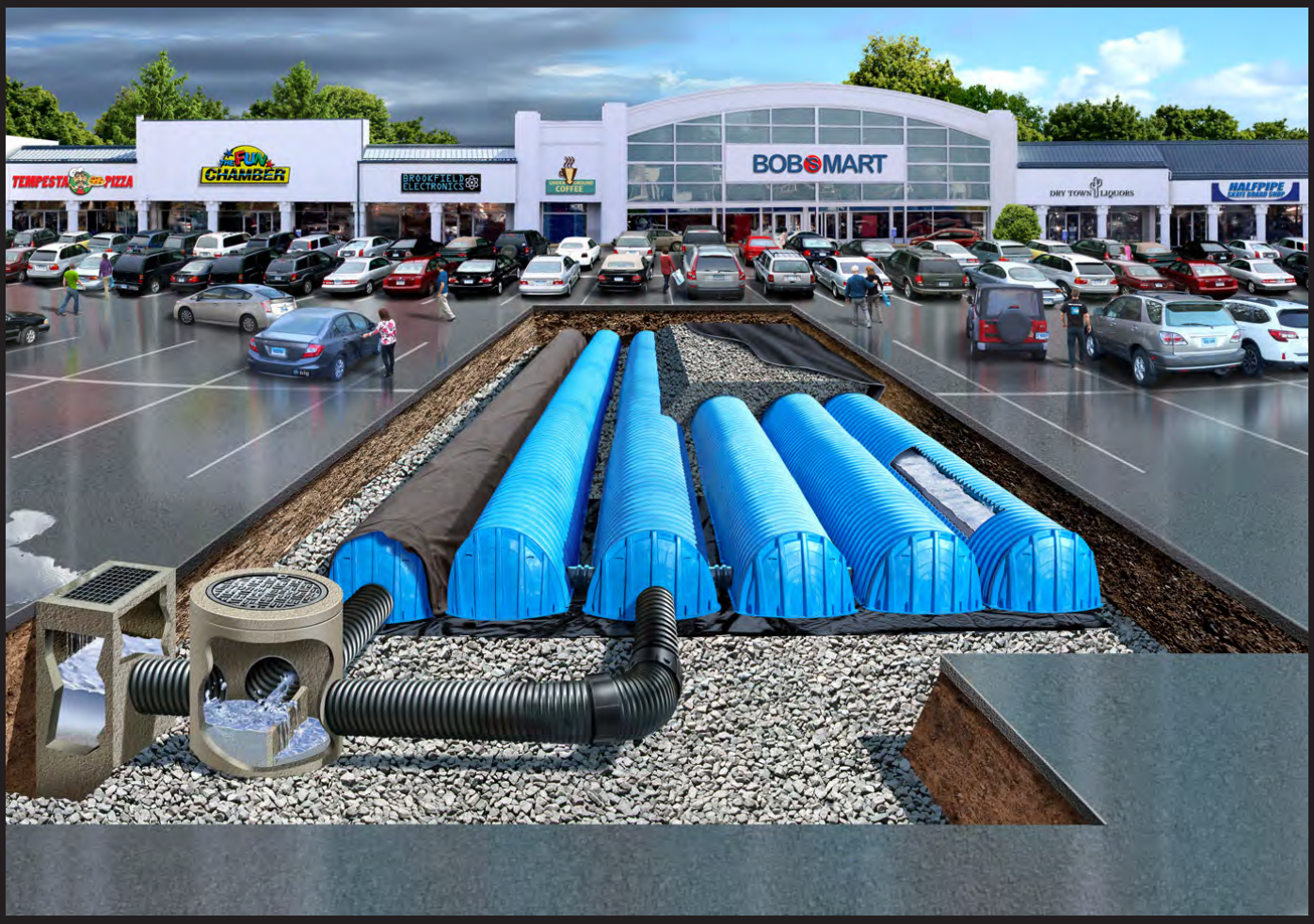
CONSTRUCTION SEQUENCE	SATISFACTORY/ UNSATISFACTORY	COMMENTS
4. Final Excavation		
Drainage area stabilized		
Sediment removed from facility		
Basin floor tilled		
Facility stabilized		
5. Final Inspection		
Pretreatment facility in place		
Inlets / outlets		
Contributing watershed stabilized before flow is routed to the factility		

Comments:

Actions to be Taken:

CULTEC SEPARATOR™ ROW

WATER QUALITY SYSTEM



OPERATION & MAINTENANCE GUIDE

FOR CULTEC STORMWATER MANAGEMENT SYSTEMS

GLOBE VERIFIED VÉRIFIÉ

Published by
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Brookfield, Connecticut 06804 USA
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For technical support, please call (203)775-4416 ext. 203 or e-mail tech@cultec.com.

Visit www.cultec.com/downloads.html for Product Downloads and CAD details.

Doc ID: CLT043 02-22
Feb 2022

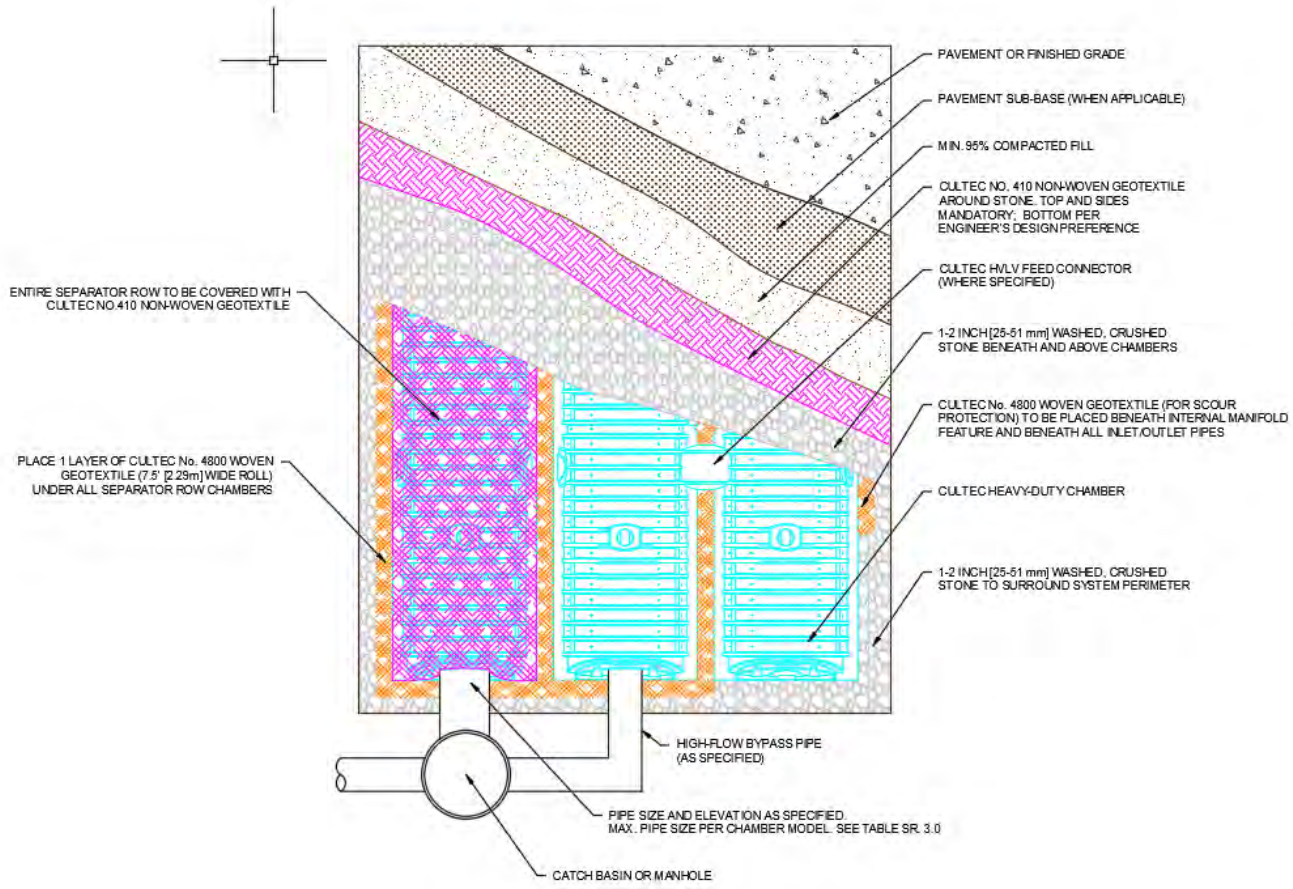
Introduction

CULTEC's Separator™ Row is an inexpensive means of removing Total Suspended Solids from the CULTEC chamber system, as well as providing easier access for inspection and maintenance. The Separator Row is designed to capture the First Flush of a rain event and is typically included as part of the "Treatment Train" for water quality.

The CULTEC Separator Row is a row of CULTEC Contactor or Recharger Chambers that are surrounded on all sides by filter fabric. One layer of CULTEC No. 4800™ Woven Geotextile are placed between the clean foundation stone and the chamber feet. The chambers are then completely wrapped with CULTEC No. 410™ non-woven geotextile. This configuration is designed to trap any sediment and/or debris that may pass through the upstream water-quality structures and into the chamber system.

A manhole is typically located adjacent to the separator row for ease of inspection and maintenance. This manhole is placed upstream of the system and can include a high-flow bypass pipe to pass peak-flows onto adjacent rows of chambers. The upstream manhole is designed with a sump to trap heavier sediment and allow for proper cleaning of the Separator Row. A JetVac process with a high pressure water nozzle is introduced down the Separator Row via the access manhole to clean all sediment and debris from the Separator Row. Captured pollutants are flushed into the sumped access manhole for vacuuming, and the process is repeated until the Separator Row is completely free of sediment and debris.

The Separator Row performance has been tested and verified to the protocols and procedures as defined by Environmental Technology Verification (ETV) Canada to achieve 80% TSS removal.



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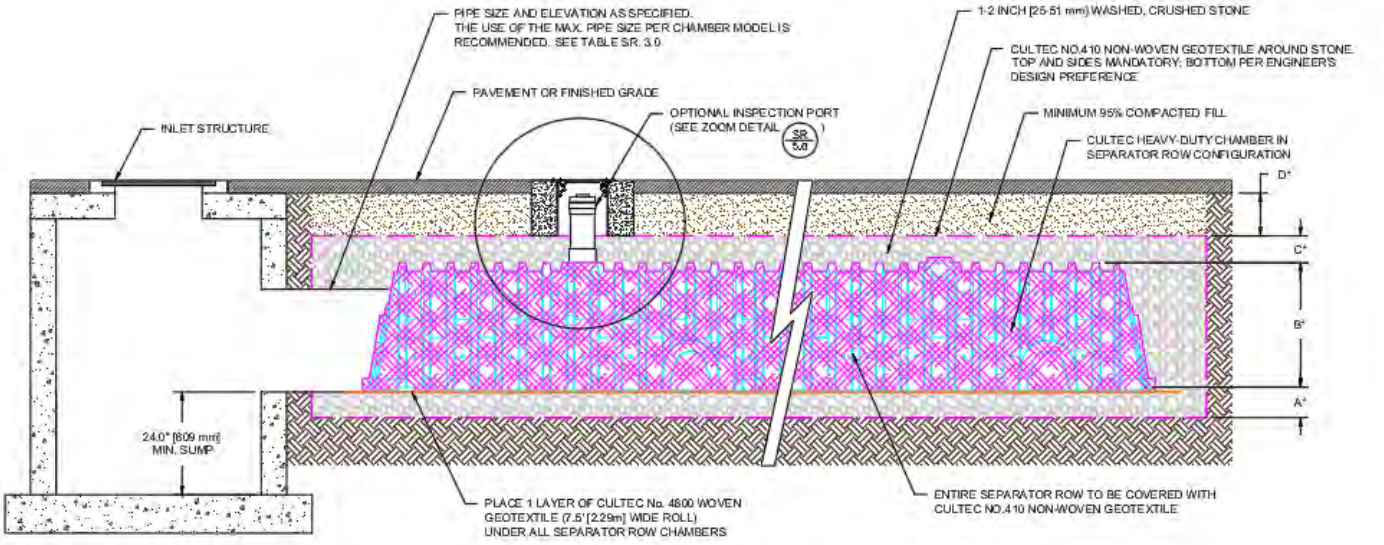
Design

There is no single design to achieve a high level of water quality. The CULTEC Separator Row should be designed as part of an overall best management practices water quality system. Pre-treatment devices such as sump catch basins, inlet baffles and proprietary oil-grit separators and filter systems can all be incorporated upstream of the CULTEC Separator Row. Sumped access/diversion manholes should be installed directly upstream of the Separator Row.

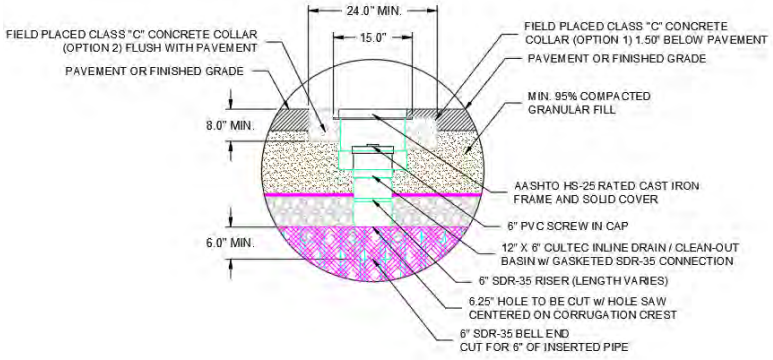
The following is a list of recommended design practices to ensure proper maintenance for the life of the system:

- Install sumped access/diversion manholes, including a minimum 24” (600 mm) sump, directly upstream of the Separator Row.
- Include a high-flow bypass pipe to divert peak flows that exceed the capacity of the Separator Row to adjacent rows.
- Connect the access manhole to the Separator Row with the largest diameter pipe allowable based on the CULTEC chamber model used.
- Maintain a minimum distance between the access manhole and the Separator Row to promote efficient maintenance.
- Include at least one inspection port per Separator Row for periodic inspection.

Note: Typical JetVac maintenance reels have a maximum of 400 feet (121.9 m) of available hose. Consider this when designing the length of the CULTEC Separator Rows.



*SEE SR 3.0 - CROSS SECTION TABLE REFERENCE



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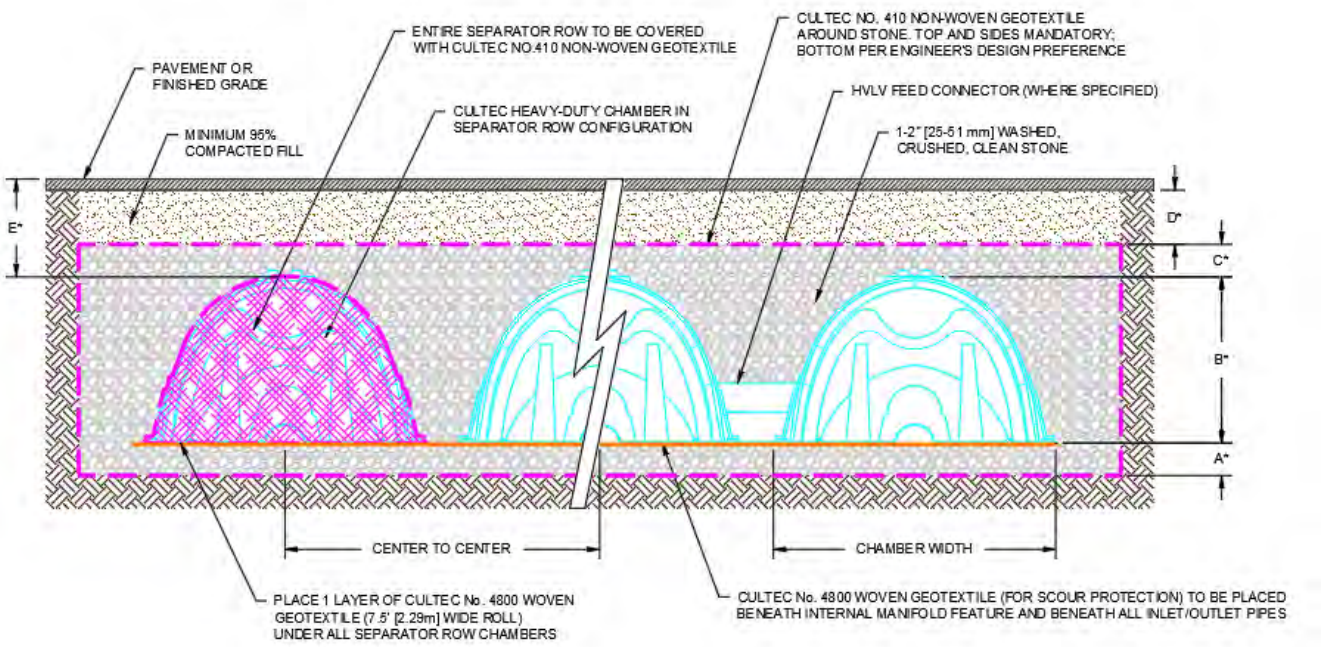

*SEE SR 3.0 - CROSS SECTION TABLE REFERENCE

Table SR 3.0

	Description	Contactor 100HD	Recharger 150XLHD	Recharger 280HD	Recharger 330XLHD	Recharger 360HD	Recharger 902HD
A	Min. depth of stone base	6″ 152 mm	6″ 152 mm	6″ 152 mm	6″ 152 mm	6″ 152 mm	9″ 229 m
B	Chamber height	12.5″ 318 mm	18.5″ 470 mm	26.5″ 673 mm	30.5″ 775 mm	36″ 914 mm	48″ 1219 mm
C	Min. depth of stone required above units for traffic applications	6″ 152 mm	6″ 152 mm	6″ 152 mm	6″ 152 mm	6″ 152 mm	12″ 305 mm
D	Min. depth required of 95% compacted fill for paved traffic application	8″ 203 mm	8″ 203 mm	8″ 203 mm	10″ 254 mm	12″ 305 mm	12″ 305 mm
E	Max. depth of cover allowed above crown of chamber	12′ 3.65 m	12′ 3.65 m	12′ 3.65 m	12′ 3.65 m	12′ 3.65 m	8.5′ 2.59 m
	Max. allowable pipe size into chamber end wall/end cap	10″ 250 mm	12″ 300 mm	18″ 450 mm	24″ 600 mm	24″ 600 mm	24″ 600 mm

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Inspection and Maintenance

CULTEC recommends inspection of the Separator Row to be performed every six months for the first year of service. Future inspection frequency can be adjusted based upon previous inspection observations. However annual inspections are recommended. Inspection of the Separator Row can be achieved via an inspection port riser installed during construction. This inspection port riser will connect the top of the Separator Row chambers to finished grade with a removable lid. Alternatively the Separator Row may be inspected via the manhole(s) located at the end(s) of the Separator Row. However this method of inspection requires confined space entry. If entry into the manhole is required, all local and OSHA rules for confined space entries must be strictly followed.

To inspect:

- Remove the inspection port lid from the floor box frame.
- Remove the riser pipe cap.
- With a flashlight and stadia rod, measure the depth of sediment.
- Record results in a maintenance log.
- When depth of sediment exceeds 3” (76 mm), use the JetVac procedure described below.

The JetVac process utilizes a high pressure water nozzle controlled from the surface. The high pressure nozzle is introduced down the Separator Row via the access manhole(s). The high pressure water cleans all sediment and debris from the Separator Row as the nozzle is retrieved. Captured pollutants are flushed into the sumped access manhole for vacuuming. This process is repeated until the Separator Row is completely free of sediment and debris. A small diameter culvert cleaning nozzle is recommended for this procedure.



High pressure water nozzle



Cleaning Separator Row and pipes with high pressure water nozzle



SEPARATOR ROW: Separator Row prior to cleaning



ADJACENT ROW: When the Separator Row is working properly, the adjacent rows will not show signs of sediment.

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Inspection and Maintenance Record

Date	Mode of Access	Frequency	Depth of Sediment	Actions	Expenses	Inspector	Notes
Ex.	Inspection Port	Semi-annually	2″	Measure sediment depth with stadia rod. Visually inspect	$100	DPG	Depth of Sediment was measured via Northeast Inspection Port Adjacent to MH-1. Sediment depth was found to be 2″. No further action required at this time.
Ex.	Access Manhole	Annually					

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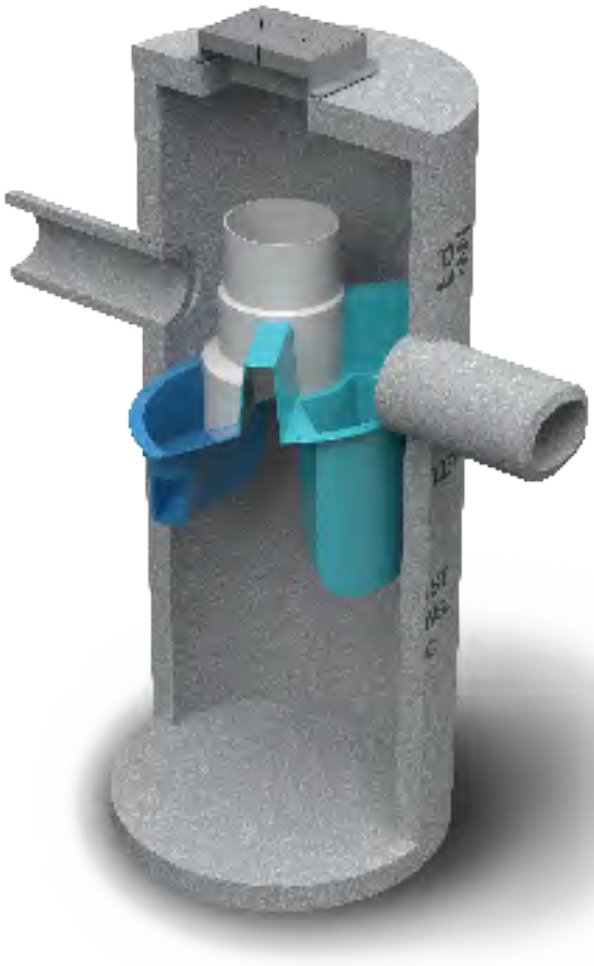

Operation and Maintenance Manual

First Defense® High Capacity and First Defense®Optimum

Vortex Separator for Stormwater Treatment

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- Introduction
- Operation
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- Floatables and Sediment Clean Out

8 First Defense® Installation Log

9 First Defense® Inspection and Maintenance Log

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DISCLAIMER: Information and data contained in this manual is exclusively for the purpose of assisting in the operation and maintenance of Hydro International plc's First Defense®. No warranty is given nor can liability be accepted for use of this information for any other purpose. Hydro International

Hydro International (Stormwater), 94 Hutchins Drive, Portland ME 04102
Tel: (207) 756-6200 Fax: (207) 756-6212 Web: www.hydro-int.com

I. First Defense® by Hydro International

Introduction

The First Defense® is an enhanced vortex separator that combines an and economical stormwater treatment chamber with an integral peak bypass. It removes total suspended solids (TSS), trash and hydrocarbons from stormwater without washing out previously captured pollutants. The First Defense® is available in several model to accommodate a wide range of pipe sizes,

The two product models described in this guide are the First Defense® High Capacity and the First Defense® Optimum; they are inspected and maintained identically.

Operation

The First Defense® operates on simple hydraulics. It is self-activating, has no moving parts, no external power requirement and is fabricated with durable non-corrosive components. No manual procedures are required to operate the unit and maintenance is limited to monitoring accumulations of stored pollutants and periodic clean-outs. The First Defense® has been designed to allow for easy and safe access for inspection, monitoring and clean-out procedures. Neither entry into the unit nor removal of the internal components is necessary for maintenance, thus safety concerns related to entry are avoided.

Pollutant Capture and Retention

The internal components of the First Defense® have been designed to optimize pollutant capture. Sediment is captured and retained in the base of the unit, while oil and are stored on the water surface in the inner volume (Fig.1).

The pollutant storage volumes are isolated from the built-in bypass chamber to prevent washout during storm events. The sump of the First Defense® retains a standing water level between storm events. This ensures a quiescent regime at the onset of a storm, preventing resuspension and washout of pollutants captured during previous events.

Accessories such as oil absorbent pads are available for enhanced oil removal and storage. Due to the separation of the oil and storage volume from the outlet, the potential for washout of stored pollutants between clean-outs is minimized.

Applications

- Stormwater treatment at the point of entry into the drainage line
- with limited slope and depth of cover
- tied into an existing storm drain line
-

Advantages

- Inlet options include surface grate or multiple inlet pipes
- manholes
- time within the treatment chamber, enhancing pollutant settling
- Delivered to site pre-assembled and ready for installation

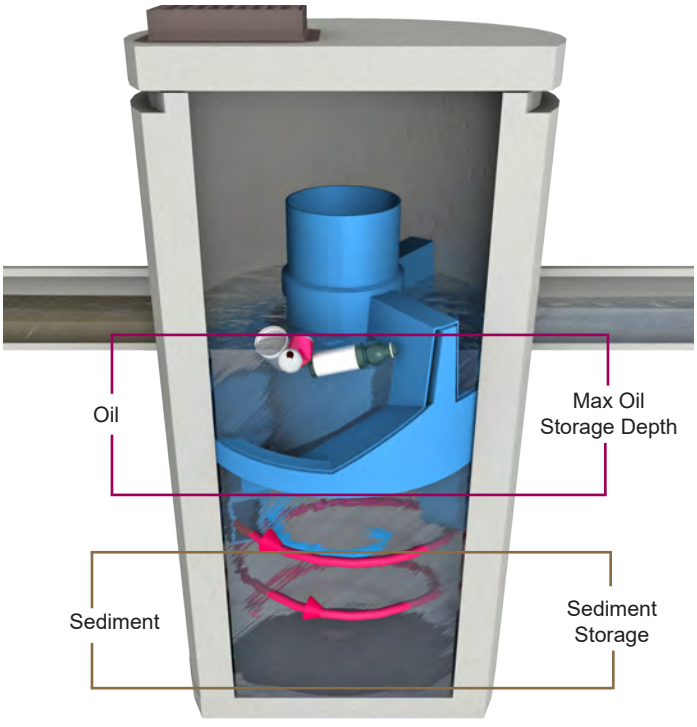

Fig.1 Pollutant storage volumes in the First Defense®.

The First Defense® inlet and internal bypass arrangements are available in several model sizes and The components

All First Defense® models include the internal components that are designed to remove and retain total suspended solids (TSS), ® model sizes (diameter) are shown in Table 1.

III. Maintenance

First Defense® Components

1. **Built-In Bypass**
2. **Inlet Pipe**
3. **Inlet Chute**
4. **Floatables Draw-off Port**
5. **Outlet Pipe**
6. **Floatables Storage**
7. **Sediment Storage**
8. **Inlet Grate or Cover**

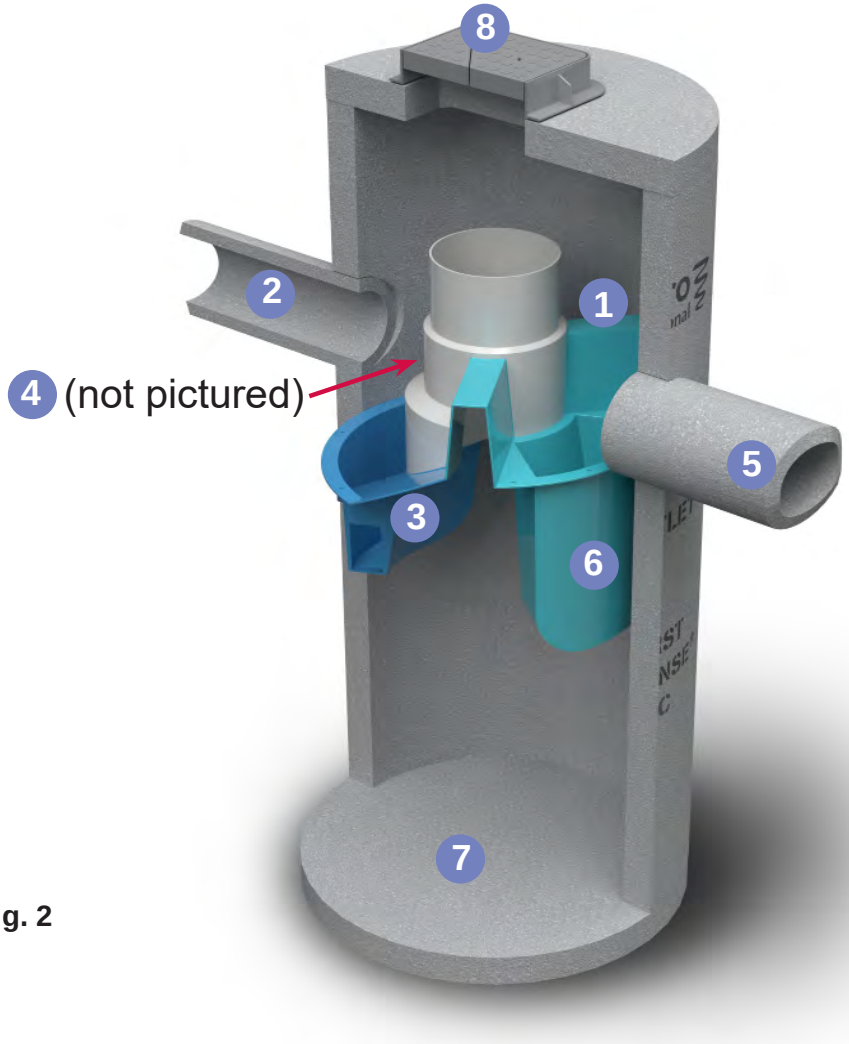

Fig. 2

Table 1

First Defense® Model Sizes
(ft / m) diameter
3 / 0.9
4 / 1.2
5 / 1.5
6 / 1.8
7 / 2.1
8 / 2.4
10 / 3.0

Overview

The First Defense® protects the environment by removing a wide range of pollutants from stormwater Periodic removal of these captured pollutants is essential to the continuous, long-term functioning of the First Defense®. The First Defense® will capture and retain sediment and oil until the sediment and oil storage volumes are full to capacity. When sediment and oil storage capacities are reached, the First Defense® will no longer be able to store removed sediment and oil.

The First Defense® allows for easy and safe inspection, monitoring and clean-out procedures. A commercially or municipally owned Access ports are located in the top of the manhole.

Maintenance events may include Inspection, Oil & Floatables Removal, and Sediment Removal. Maintenance events do not require entry into the First Defense®, nor do they require the internal components of the First Defense® to be removed. In the case of inspection and removal, a vactor truck is not required. However, a vactor truck is required if the maintenance event is to include oil removal and/or sediment removal.

Maintenance Equipment Considerations

The internal components of the First Defense® have a centrally located circular shaft through which the sediment storage sump can be accessed with a sump vac hose. The open diameter of this access shaft is 15 inches in diameter (Fig.3). Therefore, the nozzle .

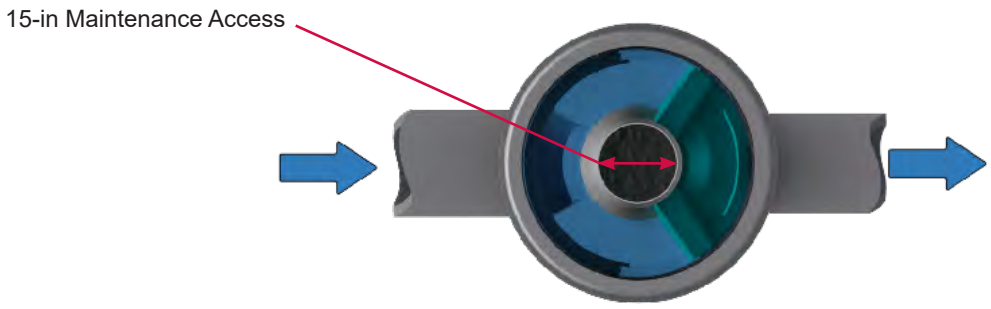

Fig.3 The central opening to the sump of the First Defense®is 15 inches in diameter.

Determining Your Maintenance Schedule

The frequency of clean out is determined in the after installation. During the year of operation, the unit should be inspected every six months to determine the rate of sediment and s accumulation. A simple probe such as a Sludge-Judge® can be used to determine the level of accumulated solids stored in the sump. This information can be recorded in the maintenance log (see page 9) to establish a routine maintenance schedule.

The vactor procedure, including both sediment and oil / removal, for First Defense® typically takes less than 30 minutes and removes a combined water/oil volume of about 765 gallons.

Inspection Procedures

1. Set up any necessary safety equipment around the access port or grate of the First Defense® as stipulated by local ordinances. Safety equipment should notify passing

2. Remove the grate or lid to the manhole.

3. Without entering the vessel, look down into the chamber to inspect the inside. Make note of any irregularities. Fig.4 shows the standing water level that should be observed.

4. Without entering the vessel, use the pole with the skimmer net

   and water surface.

5. Using a sediment probe such as a Sludge Judge®, measure the depth of sediment that has collected in the sump of the vessel.

6. On the Maintenance Log (see page 9), record the date, unit

   removed, and the depth of sediment measured. Also note any apparent irregularities such as damaged components or blockages.

7. Securely replace the grate or lid.

8. Take down safety equipment.

9. Notify Hydro International of any irregularities noted during inspection.

Floatables and Sediment Clean Out

Floatables clean out is typically done in conjunction with sediment removal. A commercially or municipally owned sump-

Floatables and loose debris can also be netted with a skimmer and pole. The access port located at the top of the manhole provides unobstructed access for a vactor hose to be lowered to the base of the sump.

Scheduling

- Floatables and sump clean out are typically conducted once a year during any season.

- Floatables and sump clean out should occur as soon as possible following a spill in the contributing drainage area.



Fig.4 Floatables are removed with a vactor hose

Recommended Equipment

-

- Crow bar or other tool to remove grate or lid

-

- Sediment probe (such as a Sludge Judge®)

- V

- First Defense® Maintenance Log

Floatables and Sediment Clean Out Procedures

1. Set up any necessary safety equipment around the access port or grate of the First Defense® as stipulated by local ordinances. Safety equipment should notify passing
2. Remove the grate or lid to the manhole.
3. Without entering the vessel, look down into the chamber to inspect the inside. Make note of any irregularities.
4. with the vactor hose or with the skimmer or net
5. Using a sediment probe such as a Sludge Judge®, measure the depth of sediment that has collected in the sump of the vessel and record it in the Maintenance Log (page 9).
6. to the base of the sump. Vactor out the sediment and gross
7. Retract the vactor hose from the vessel.
8. On the Maintenance Log provided by Hydro International,

   and gross debris removed, and the depth of sediment measured. Also note any apparent irregularities such as damaged components, blockages, or irregularly high or low water levels.
9. Securely replace the grate or lid.

Maintenance at a Glance

Inspection	
Oil and Floatables Removal	- Once per year, with sediment removal - Following a spill in the drainage area
Sediment Removal	- Once per year or as needed - Following a spill in the drainage area
NOTE: For most clean outs the entire volume of liquid does not need to be removed from the manhole. Only remove the	

First Defense® Installation Log

HYDRO INTERNATIONAL REFERENCE NUMBER:	
SITE NAME:	
SITE LOCATION:	
OWNER:	CONTRACTOR:
CONTACT NAME:	CONTACT NAME:
COMPANY NAME:	COMPANY NAME:
ADDRESS:	ADDRESS:
TELEPHONE:	TELEPHONE:
FAX:	FAX:

INSTALLATION DATE: / /

MODEL SIZE (CIRCLE ONE): [3-FT] [4-FT] [5-FT] [6-FT] [7-FT] [8-FT] [10-FT]

INLET (CIRCLE ALL THAT APPLY): GRATED INLET (CATCH BASIN) INLET PIPE (FLOW THROUGH)

Hydro International (Stormwater), 94 Hutchins Drive, Portland ME 04102
Tel: (207) 756-6200 Fax: (207) 756-6212 Web: www.hydro-int.com

First Defense® Inspection and Maintenance Log

Date	Initials	Depth of Floatables and Oils	Sediment Depth Measured	Volume of Sediment Removed	Site Activity and Comments

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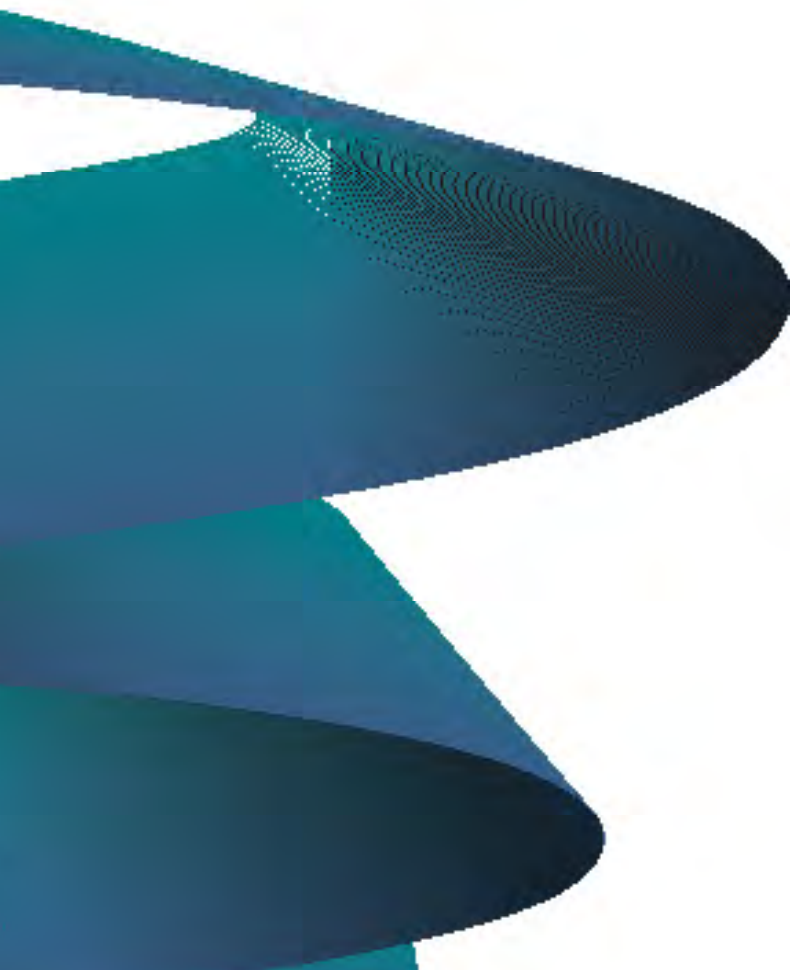

Stormwater Solutions

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Portland, ME 04102

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Fax: (207) 756-6212
stormwaterinquiry@hydro-int.com

www.hydro-int.com

Turning Water Around...®

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

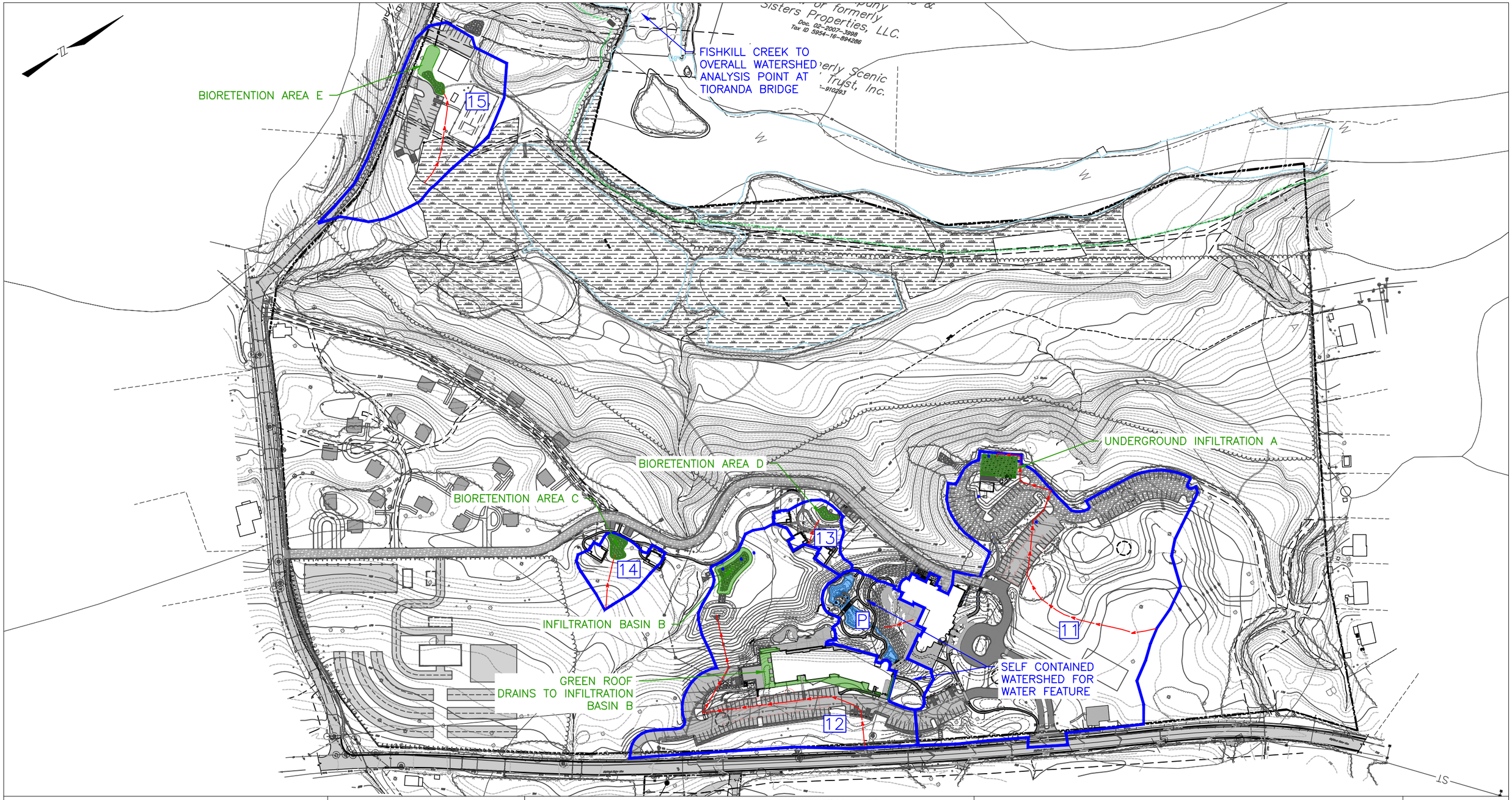
I hereby certify that this document was prepared by me or under my direction or supervision. My determination, based upon my inquiry of the person(s) who managed the construction activity, or those persons directly responsible for gathering the information, is that the information provided in this document 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)

APPENDIX O

DRAINAGE MAPS & SOIL TEST MAPS



DRAWN BY: ESR	CHECKED BY: MAB

REVISIONS:

NO.	DATE	DESCRIPTION	BY
1	5/25/22	PER PLANNING BOARD COMMENTS	ESR
2	7/26/22	PER PLANNING BOARD COMMENTS	ESR
3	9/27/22	PER PLANNING BOARD COMMENTS	MAB
4	2/27/24	PER AMENDED SITE PLAN	MAB

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

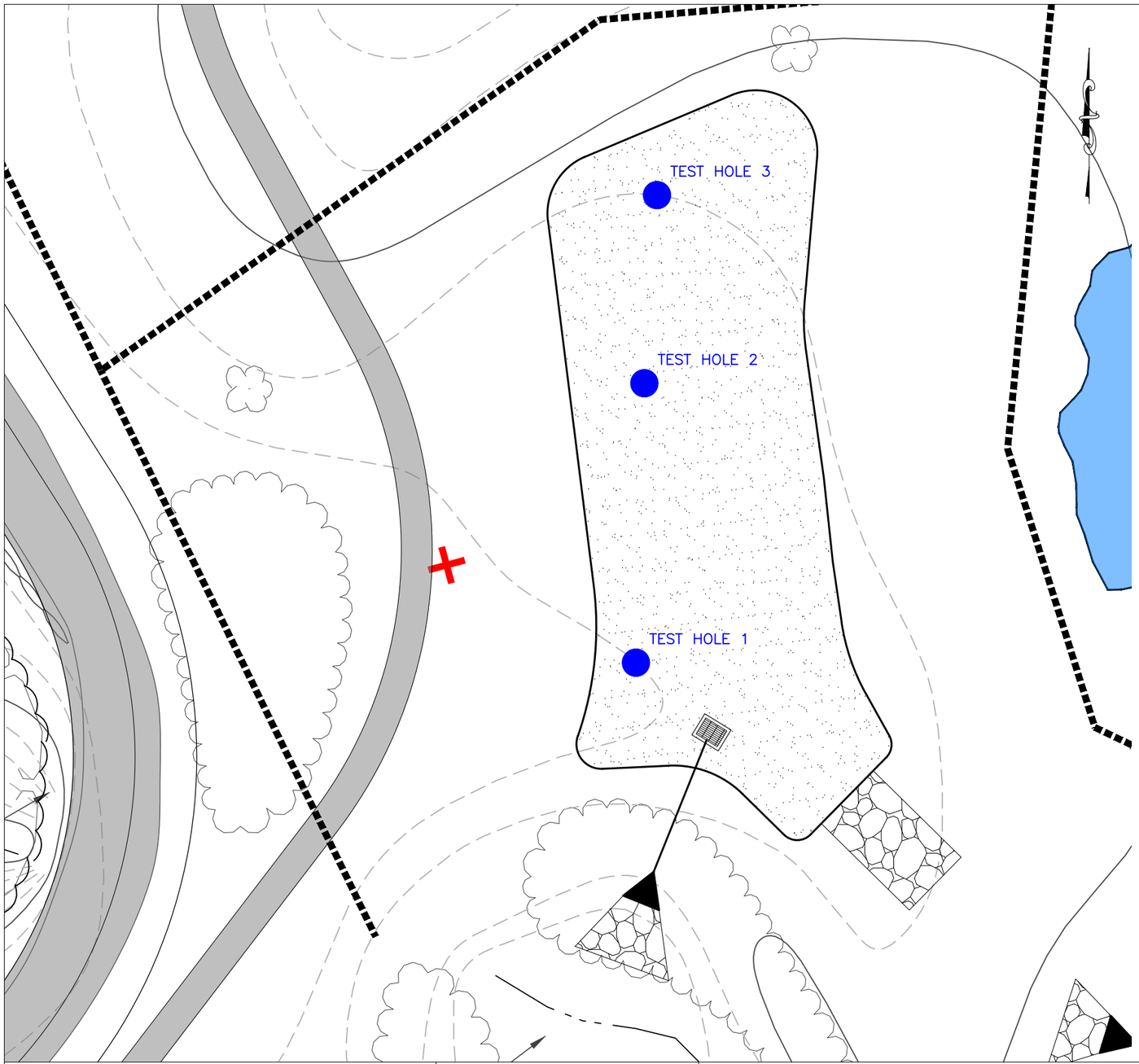
POST-DEVELOPMENT CONDITIONS MAP (DETAILED)

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

UNAUTHORIZED ALTERATIONS OR ADDITIONS TO THIS DRAWING IS A VIOLATION OF SECTION 7209.2 OF THE NEW YORK EDUCATION L



DEEP TEST HOLE TABLE:

TEST HOLES WERE COMPLETED ON JUNE 8, 2022

HOLE #	TOTAL DEPTH	SOIL DESCRIPTION
1	7'-0"	0"-4" TOPSOIL; 4"-72" SILTY LOAM WITH SAND AND GRAVEL
2	8'-0"	0"-4" TOPSOIL; 4"-84" SILTY LOAM WITH SAND AND GRAVEL
3	8'-6"	0"-4" TOPSOIL; 4"-90" SILTY LOAM WITH SAND AND GRAVEL

INFILTRATION TESTS

PRESOAKED 6/8/2022 AND PERFORMED ON 6/9/2022
WITNESSED BY LANC & TULLY ENGINEERING & SURVEYING, PC.

TEST HOLE NO.	START TIME	END TIME	DROP (INCHES)
1 3.9' DEEP	11:41	11:45	24"
1	11:46	11:50	24"
1	12:10	12:14	24"
1	12:15	12:20	24"
2 5.0' DEEP	12:35	13:01	24"
2	13:02	13:46	24"
2	13:48	14:39	24"
2	14:40	15:40	23"
3 4.85' DEEP	12:51	13:43	24"
3	13:44	14:44	26.5"
3	14:48	15:48	24"
3	15:50	16:50	23"

GRAPHIC SCALE

20 0 10 20 40

(IN FEET)
1 inch = 20 ft.

DRAWN BY: CMB CHECKED BY: MAB

REVISIONS:

NO.	DATE	DESCRIPTION	BY

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

INFILTRATION TESTING

MIRBEAU BEACON

7 CRAIG HOUSE LANE
CITY OF BEACON
DUTCHESS COUNTY, NEW YORK
6054-13-001258

JOB #: 2021:051
DATE: 06/07/2022
SCALE: 1" = 20'
TITLE: INFIL-1
SHEET: 1 OF 2

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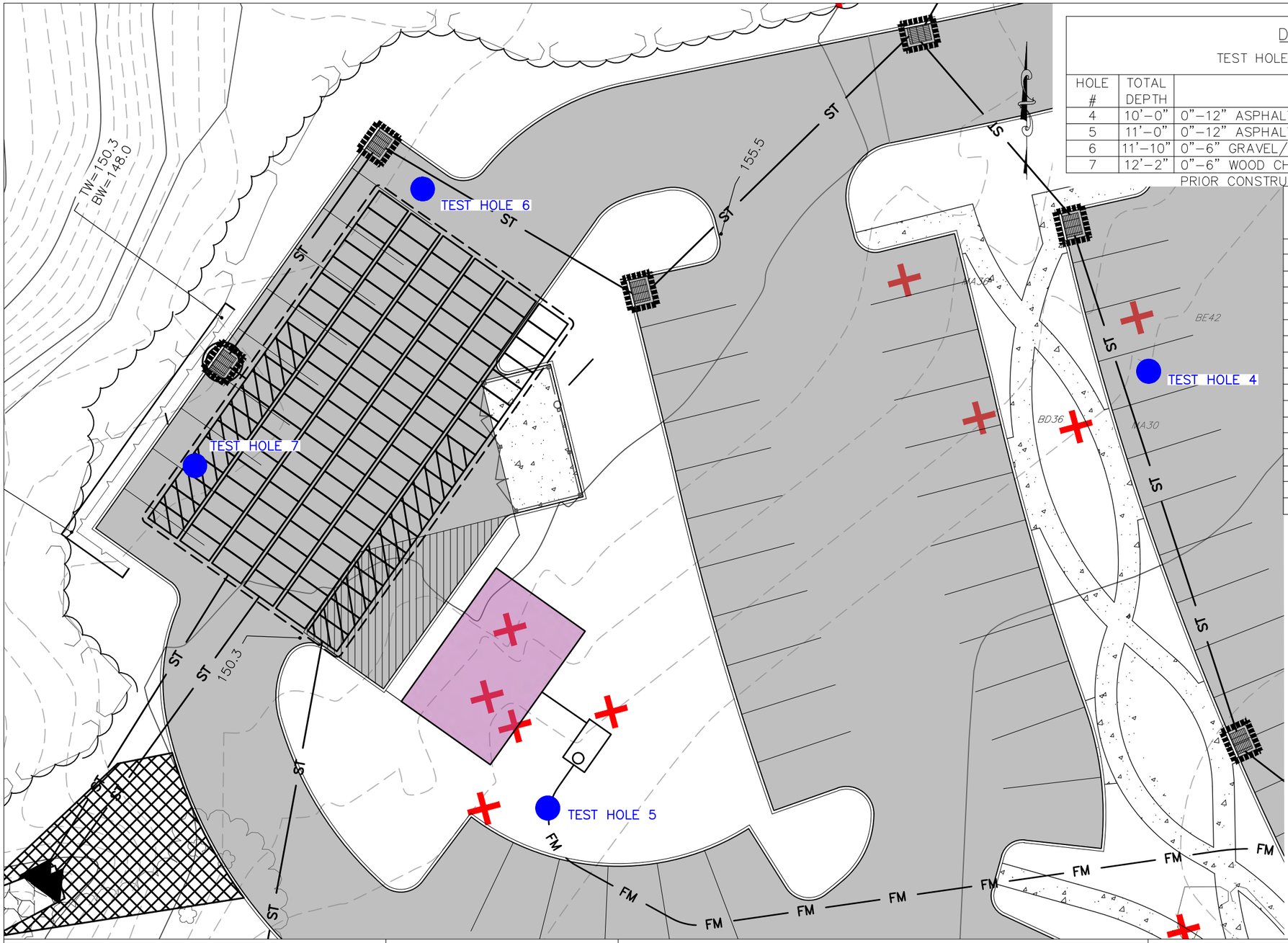

DEEP TEST HOLE TABLE:

TEST HOLES WERE COMPLETED ON JUNE 8, 2022

HOLE #	TOTAL DEPTH	SOIL DESCRIPTION
4	10'–0"	0"–12" ASPHALT/SUB BASE SECTION 12"–120" SAND AND GRAVELLY LOAM
5	11'–0"	0"–12" ASPHALT/SUB BASE SECTION 12"–120" SAND AND GRAVELLY LOAM
6	11'–10"	0"–6" GRAVEL/ASPHALT REMAINS; 6"–120" SAND AND GRAVELLY LOAM
7	12'–2"	0"–6" WOOD CHIPS; 6–120" SAND AND GRAVEL LOAM WITH COBBLES AND PRIOR CONSTRUCTION DEBRIS IN UPPER 30".

INFILTRATION TESTS

PRESOAKED 6/8/2022 AND PERFORMED ON 6/9/2022
WITNESSED BY LANC & TULLY ENGINEERING & SURVEYING, PC.

TEST HOLE NO.	START TIME	END TIME	DROP (INCHES)
4 8.77' DEEP	9:41	9:45	24"
4	9:48	10:10	24"
4	10:11	10:15	24"
4	10:18	10:22	24"
5 8.27' DEEP	9:35	9:50	24"
5	9:59	10:02	24"
5	10:03	10:04	24"
5	10:06	10:07	24"
6 9.57' DEEP	9:30	10:30	24"
6	10:32	10:36	24"
6	10:37	10:47	24"
6	10:48	10:48	24"
7 9.71' DEEP	9:24	10:24	24"
7	10:25	11:00	24"
7	11:00	12:00	24"
7	12:27	13:28	6.6"

GRAPHIC SCALE

20 0 10 20 40

(IN FEET)
1 inch = 20 ft.

DRAWN BY: CMB CHECKED BY: MAB

REVISIONS:

NO.	DATE	DESCRIPTION	BY

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

INFILTRATION TESTING

MIRBEAU BEACON

7 CRAIG HOUSE LANE
CITY OF BEACON
DUTCHESS COUNTY, NEW YORK
6054-13-001258

JOB #: 2021:051
DATE: 06/07/2022
SCALE: 1" = 20'
TITLE: INFIL-1
SHEET: 2 OF 2

UNAUTHORIZED ALTERATIONS OR ADDITIONS TO THIS DRAWING IS A VIOLATION OF SECTION 7209.2 OF THE NEW YORK EDUCATION LAW

APPLICATION FOR AMENDED SITE PLAN

MIRBEAU BEACON INN & SPA

11 MIRBEAU 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'

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

DUTCHESS COUNTY DEPARTMENT OF BEHAVIORAL & COMMUNITY HEALTH

STANDARD NOTES FOR PROJECTS W/CENTRAL WATER & SEWER

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."

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.

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.

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.

NO CELLAR, FOOTING, FLOOR, GARAGE, COOLER OR ROOF DRAINS SHALL BE DISCHARGED INTO THE SEWAGE COLLECTION SYSTEM.

ALL BUILDINGS SHALL BE CONSTRUCTED AT AN ELEVATION HIGH ENOUGH TO ENSURE GRAVITY FLOW TO THE SEWAGE COLLECTION SYSTEM.

ALL REQUIRED EROSION & SEDIMENT CONTROL AND STORMWATER POLLUTION PREVENTION WATER QUALITY & QUANTITY CONTROL STRUCTURES, PERMANENT AND TEMPORARY, ARE SHOWN ON THE PLANS.

THE DC EHSD SHALL BE NOTIFIED SIXTY DAYS PRIOR TO ANY CHANGE IN USE; USE CHANGES MAY REQUIRE RE-APPROVAL BY THE DC EHSD.

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).

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.

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.

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.

ADDITIONAL NOTES FOR RETAINING WALLS AND/OR SLOPE STABILIZATION

THE RETAINING WALL/SLOPE STABILIZATION DETAILS SHOWN ON THESE PLANS ARE NOT CERTIFIED FOR STRUCTURAL INTEGRITY BY THE DC EHSD.

BACK FLOW PREVENTION WITHIN BUILDINGS NOTES

INDIVIDUAL REDUCED PRESSURE ZONE (RPZ) BACK FLOW PREVENTION DEVICES SHALL BE PROVIDED ON THE SERVICE LINES WITHIN THE BUILDINGS.

SITE PLAN DRAWING INDEX:

SHEET 1: COVER SHEET: CV-1
SHEET 2: EXISTING CONDITIONS AND REMOVALS PLAN: XC-1
SHEET 3: OVERALL AMENDED MASTER PLAN: SP-1
SHEET 4: AMENDED SITE PLAN - NORTH: SP-2
SHEET 5: AMENDED SITE PLAN - SOUTH: SP-3
SHEET 6: AMENDED 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
SHEET 12: PROFILES: PR-1
SHEET 13: PROFILES: PR-2
SHEET 14: PROFILES: PR-3
SHEET 15: PROFILES: PR-4
SHEET 16: DETAILS: CD-1
SHEET 17: DETAILS: CD-2
SHEET 18: DETAILS: CD-3
SHEET 19: DETAILS: CD-4
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
SHEET 29: OVERALL MASTER PLAN WITH FUTURE PHASE CONCEPTUAL IMPROVEMENTS

REFERENCE DRAWING SET INDEX:

SHEET 1 OF 1: "SUBDIVISION PLAT PREPARED FOR MIRBEAU BEACON, LLC" BY BADEY & WATSON SURVEYING & ENGINEERING, D.P.C.
SHEETS 1 - 12: "HIGHWAY IMPROVEMENT PLANS FOR MIRBEAU BEACON" BY COLLIERS ENGINEERING & DESIGN
ARCHITECTURAL ELEVATION PLAN SET BY ARROWSTREET ARCHITECTURE & DESIGN
SHEET A3.00A: OVERALL ELEVATIONS
SHEET A3.00B: OVERALL ELEVATIONS
SHEET A3.00C: COTTAGE ELEVATIONS

AMENDED SITE PLAN NOTES:

1. SEE SHEET 3 "OVERALL AMENDED MASTER PLAN" FOR A LIST OF SITE PLAN CHANGES. LABELS HAVE BEEN ADDED TO THE OVERALL MASTER PLAN THAT CORRESPOND TO EACH CHANGE.

DCDBCH APPROVAL BLOCK

DUTCHESS COUNTY DEPARTMENT OF
BEHAVIORAL AND COMMUNITY HEALTH
POUGHKEEPSIE, NEW YORK

RECOMMENDED FOR APPROVAL BY:

_____

DATE: _____

PROJECT: _____

_____

_____

_____
SUPERVISING PUBLIC HEALTH ENGINEER

THE DUTCHESS COUNTY DEPARTMENT OF HEALTH ONLY REVIEWED SHEETS 1 THROUGH 19 OF THE SITE PLAN SET. THIS APPROVAL IS FOR SITE WATER AND SEWER INFRASTRUCTURE ONLY.

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.

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

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
12	2/27/24	AMENDED SITE PLAN	CMB				

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COVER SHEET

MIRBEAU BEACON

11 MIRBEAU LANE
CITY OF BEACON
DUTCHESS COUNTY, NEW YORK
TAX ID: 6054-13-001258

JOB #:	2021:051
DATE:	3/29/2022
SCALE:	AS SHOWN
TITLE:	CV-1
SHEET:	1 OF 29

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 YEAR FLOODPLAIN LINE
- 250 — EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- EXISTING TREE LINE
- OHW — EXISTING OVER HEAD WIRE
- EXISTING UTILITY POLE
- SS — SS — EXISTING SEWER SERVICE LINE
- EXISTING SEWER LINE
- EXISTING SEWER MANHOLE
- EXISTING SEWER CLEAN OUT
- W — EXISTING WATER LINE
- WS — 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 UPDATED BY BADEY & WATSON SURVEYING & ENGINEERING, P.C. IN JANUARY 2023.
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.

FUTURE PHASE ON-SITE UTILITY POLES AND OVERHEAD WIRES TO BE REMOVED (TYP)

FUTURE PHASE ON-SITE UTILITY POLES AND OVERHEAD WIRES TO BE REMOVED (TYP)

EXISTING SANITARY SERVICE LATERAL SHALL BE CUT JUST OUTSIDE THE MANHOLE AND PLUGGED

EXISTING SUMP PUMP WITHIN MANSION SHALL BE DISCONNECTED FROM THE INTERIOR SANITARY SEWER PLUMBING AND RE-DIRECTED TO THE ONSITE DRAINAGE SYSTEM

TREE TO BE REMOVED (TYP)

EXISTING 1970'S ERA CAFETERIA WING TO REMAIN

EXISTING PAVED AREA TO BE REMOVED AND RECYCLED TO BE RE-USED ON SITE (TYP)

EXISTING UNDERGROUND UTILITIES TO BE REMOVED (TYP)

ALL EXISTING ON-SITE UTILITY POLES AND OVERHEAD WIRES TO BE REMOVED (TYP)

EXISTING HOSPITAL WING TO BE DEMOLISHED

Now or formerly Anthony J DiBrita, Jr. Tax ID 5954-20-828209

Now or formerly Emil D. Alzamora Tax ID 5954-20-840230

Now or formerly Jennifer McCauley Tax ID 5954-20-

Now or formerly Scenic Hudson Land Trust, Inc. Liber 1991 Pg 324 Tax ID 5954-16-938070

Formerly Central Hudson Gas & Electric Company Now or formerly Sisters Properties, LLC. Dec. 02-2007-39958 Tax ID 5954-16-894286

Now or formerly Scenic Hudson Land Trust, Inc. Tax ID 5954-16-910293

Now or formerly Sisters Properties, LLC. Tax ID 5954-16-951357

Now or formerly Rocco M. Bianchi Tax ID 5954-20-866178

Now or formerly Kenneth R. Straub Tax ID 5954-20-881147

Now or formerly John McNiff Tax ID 5954-20-910139

Now or formerly Tonyes Tax ID 5954-20-926118

Now or formerly Harold V. Owens, Jr. Tax ID 5954-20-937123

Now or formerly Tiorondo Company Now or formerly Scenic Hudson Land Trust, Inc. Now or formerly State of New York Document No. 02-2002-10928 Tax ID 6054-7-1725.15

Now or formerly Fleming & Landstreet Liber 2427 Pg 555 Tax ID 6054-13-323161

Now or formerly Amanda Robinson Tax ID 5954-16-940215

Now or formerly Robert Rodriguez, Jr. Tax ID 6054-13-013367

Now or formerly Robert F. Elmwood, Jr. Tax ID 6054-13-022364

Now or formerly Kiah Miller Tax ID 6054-13-030361

Now or formerly Mathew George Tax ID 6054-13-037356

Now or formerly Hubert Jordan Tax ID 6054-13-045352

Now or formerly Andrew Sparling Tax ID 6054-13-055348

Now or formerly Roberta MacLean Tax ID 6054-13-063342

Now or formerly Donald J Van Buren, Jr. Tax ID 6054-13-072338

Now or formerly Patrick D. Barry, Trustee Tax ID 6054-13-084335

Now or formerly Judy Galarza-Rodriguez Tax ID 6054-13-092338

Formerly Beacon School District See "Subdivision Plat Section II Eastview Estates..." Filed in the Dutchess County Clerk's office on May 20, 1965 as Map No. 2259

Formerly University Settlement Society of New York Now or formerly State of New York Document No. 02-2008-109 Tax ID 6054-13-126252

SOUTH AVENUE — NEW YORK STATE ROUTE 9D — A.K.A. HOMLAND AVENUE — FISHKILL CREEK — POND — WETLAND LINE — 100' WETLAND BUFFER — PROPERTY LINE — OHW — WHO — MHO

EXISTING CONDITIONS AND REMOVALS PLAN

SCALE: 1" = 100'

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)

1 inch = 100 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.

Dig Safely. New York. Call 811 before you dig

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REVISIONS:				REVISIONS:			
NO.	DATE	DESCRIPTION	BY	NO.	DATE	DESCRIPTION	BY
12	2/27/24	AMENDED SITE PLAN	CMB				

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STATE OF NEW YORK — MICHAEL A. BADEWITZ — 084486 — LICENSED PROFESSIONAL ENGINEER
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EXISTING CONDITIONS & REMOVALS PLAN

MIRBEAU BEACON

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CITY OF BEACON
DUTCHESS COUNTY, NEW YORK
TAX ID: 6054-13-001258

JOB #:	2021:051
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SCALE:	1" = 100'
TITLE:	XC-1
SHEET:	2 OF 29

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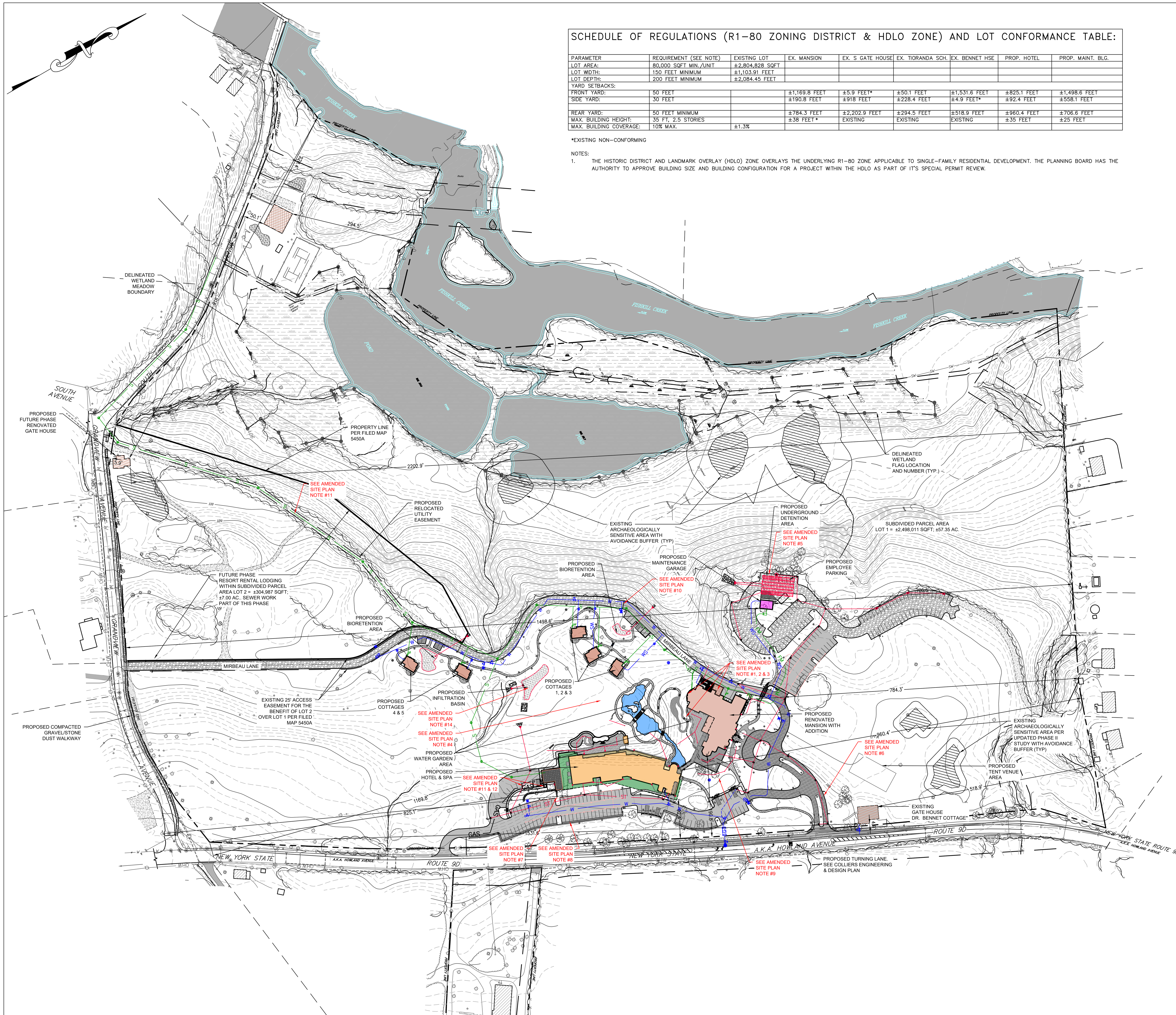

SCHEDULE OF REGULATIONS (R1–80 ZONING DISTRICT & HDLO ZONE) AND LOT CONFORMANCE TABLE:

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	±1,103.91 FEET						
LOT DEPTH:	200 FEET MINIMUM	±2,084.45 FEET						
YARD SETBACKS:								
FRONT YARD:	50 FEET		±1,169.8 FEET	±5.9 FEET*	±50.1 FEET	±1,531.6 FEET	±825.1 FEET	±1,498.6 FEET
SIDE YARD:	30 FEET		±190.8 FEET	±918 FEET	±228.4 FEET	±4.9 FEET*	±92.4 FEET	±558.1 FEET
REAR YARD:	50 FEET MINIMUM		±784.3 FEET	±2,202.9 FEET	±294.5 FEET	±518.9 FEET	±960.4 FEET	±706.6 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. UTILTY 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: 245 SPACES

PARKING NOTES:
1. PARKING FOR THE COTTAGES IS PROPOSED TO BE PROVIDED AT A RATE OF 2 SPACES PER COTTAGE.
2. DUE TO SHIFT OVERLAP, THERE COULD BE UP TO 80 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.

PHASE 1 ARCHAEOLOGICAL STUDY NOTES:
1. A PHASE IA LITERATURE REVIEW ARCHAEOLOGICAL SENSITIVITY ASSESSMENT AND A PHASE IB ARCHAEOLOGICAL FIELD INVESTIGATION STUDY WAS COMPLETED BY HARTGEN ARCHEOLOGIAL ASSOCIATES, INC IN JULY OF 2006. THE STUDY IDENTIFIED SEVERAL PRE–CONTACT AND HISTORICAL SENSITIVE AREAS.
2. FOUR (4) PRE–CONTACT ZONES WERE DISCOVERED DURING THE STUDY IDENTIFIED AS SITES #1, #3, #4 AND #5 ON THE PLAN.
3. THREE (3) HISTORIC ZONES WERE DISCOVERED DURING THE STUDY IDENTIFIED AS SITE #2, #6 AND #7 ON THE PLAN.
4. THE NEW YORK STATE HISTORICAL PRESERVATION OFFICE HAS DETERMINED THAT THE SENSITIVE ZONES AND ASSOCIATED 50' BUFFERS WITHIN THESE AREAS SHOULD BE AVOIDED TO THE GREATEST EXTENT POSSIBLE. NO EXCAVATION SHALL TAKE PLACE WITHIN THE SENSITIVE ZONES, AND LIMITED WORK CAN BE PROPOSED WITHIN THE 50' BUFFERS.
5. FILLING ONLY WITHIN THE 50' BUFFERS WILL NOT REQUIRE A PHASE II STUDY TO BE PREPARED. ALL EXCAVATION WORK WITHIN THE SENSITIVE AREA OR BUFFER WILL REQUIRE A PHASE II STUDY TO BE PREPARED WITHIN THOSE AREAS.
6. A SMALL PORTION OF FILLING WILL TAKE PLACE WITHIN THE WESTERN 50' BUFFER WITHIN SITE #1 WHICH IS PERMITTED. THE TENT VENUE AREA IS PARTIALLY WITHIN THE SOUTHEASTERLY 50' BUFFER OF SITE #1. NO GRADING OR EXCAVATION IS PROPOSED WITHIN THIS AREA.
7. THERE IS A SMALL AMOUNT OF AT–GRADE ROAD WIDENING WITHIN THE 50' BUFFER ASSOCIATED WITH SITE #5. THE SHPO OFFICE RECOMMENDS THE USE OF GEOTEXTILE SEPARATION REINFORCEMENT OVER TOPSOIL FOR PLACEMENT OF PAVEMENT WITHIN A BUFFER AREA. NO TOPSOIL IS TO BE REMOVED.
8. SEE GRADING PLANS FOR PROPOSED WORK WITHIN THESE AREAS.

UNITED STATES ARMY CORPS OF ENGINEERS NOTES:
1. A USACE PERMIT WILL BE REQUIRED FOR FUTURE WALKING TRAILS THROUGH WETLAND MEADOWS.
2. A USACE PERMIT HAS BEEN GRANTED FOR WETLAND BUFFER DISTURBANCE. A SNAKE BARRIER SHALL BE ERECTED FOR ALL CONSTRUCTION WORK BEING CONDUCTED DURING THE TIMBER RATTLESNAKE ACTIVE PERIOD.

GENERAL NOTES:
1. THE DR. BENNET COTTAGE, SOUTH GATE HOUSE AND TIORANDA SCHOOL SHALL HAVE THEIR EXTERIORS SECURED AND STABILIZED TO PROTECT THEM FOR FUTURE USES IN SUBSEQUENT PHASES.

AMENDED SITE PLAN NOTES:

THE AMENDED SITE PLANS AND ELEVATIONS IDENTIFY THE FOLLOWING CHANGES TO THE APPROVED SITE PLANS.

1. RETAIN THE DINING WING STRUCTURE WITHIN THE MANSION.
2. ELIMINATE THE 7 GROTTO ROOMS WITHIN THE MANSION.
3. ADD AN ELEVATOR AND EXTERIOR WALK IN COOLER & FREEZER ADJACENT TO THE WEST SIDE OF THE MANSION ALONG MIRBEAU LANE.
4. ELIMINATE 2 OF THE 4 MONET GARDEN PONDS.
5. DEFER THE WESTERN EMPLOYEE LOTS PAVING AND PROVIDE GRAVEL LOTS.
6. REPLACE THE PAVEMENT WITH CHIP SEAL SURFACE ON THE MAIN ENTRANCE DRIVE.
7. REPLACE VARIOUS REDI–ROCK WALLS WITH LARGE DIAMETER LANDSCAPE BOULDERS.
8. ELIMINATE THE CURB ADJACENT TO THE REDI–ROCK WALLS ALONG THE EASTERN EDGE OF THE CHATEAU EASTERN LOT AND INSTALL CONCRETE CURB STOPS AT EACH SPACE.
9. ELIMINATE THE WALKING PATH FROM THE FRONT CIRCULAR DRIVE OVER TO THE SPA ENTRANCE.
10. DEFER THE PAVEMENT ON MIRBEAU LANE FROM COTTAGE 3 TO GRANDVIEW UNTIL THE FUTURE DEVELOPMENT OF THE COTTAGES IN THE TRIANGULAR PARCEL.
11. RELOCATE THE SEWER MAIN LINE TO RUN ALONG GATEHOUSE LANE INSTEAD OF BISECTING THE SUBDIVISION PARCEL.
12. INSTALLING A SECOND PRIMARY TRANSFORMER ADJACENT TO THE LAUNDRY ROOM WITHIN THE CHATEAU HOTEL.
13. INSTALLING A SECOND DUMPSTER ENCLOSURE AT THE BOTTOM OF THE DRIVE LEADING TO THE LAUNDRY ROOM WITHIN THE CHATEAU HOTEL.
14. CHANGED BIORETENTION AREA B TO AN INFILTRATION BASIN.

LEGEND:

EXISTING PROPERTY LINE
ADJOINING PROPERTY LINE
EXISTING EASEMENT LINE
EXISTING STREAM
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100 YEAR FLOODPLAIN LINE
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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 PROPOSED WATER SHUT OFF VALVE
PROPOSED WATER VALVE

OVERALL MASTER PLAN
SCALE: 1" = 100'

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1 inch = 100 ft.

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

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SIGNED THIS __________________ DAY OF _______________, 20_____, BY

_____________________________ CHAIRMAN

_____________________________ SECRETARY

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STATE OF NEW YORK · MICHAEL A. BODENDORF · 084466 · LICENSED PROFESSIONAL ENGINEER
SEAL

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OVERALL AMENDED MASTER PLAN
MIRBEAU BEACON

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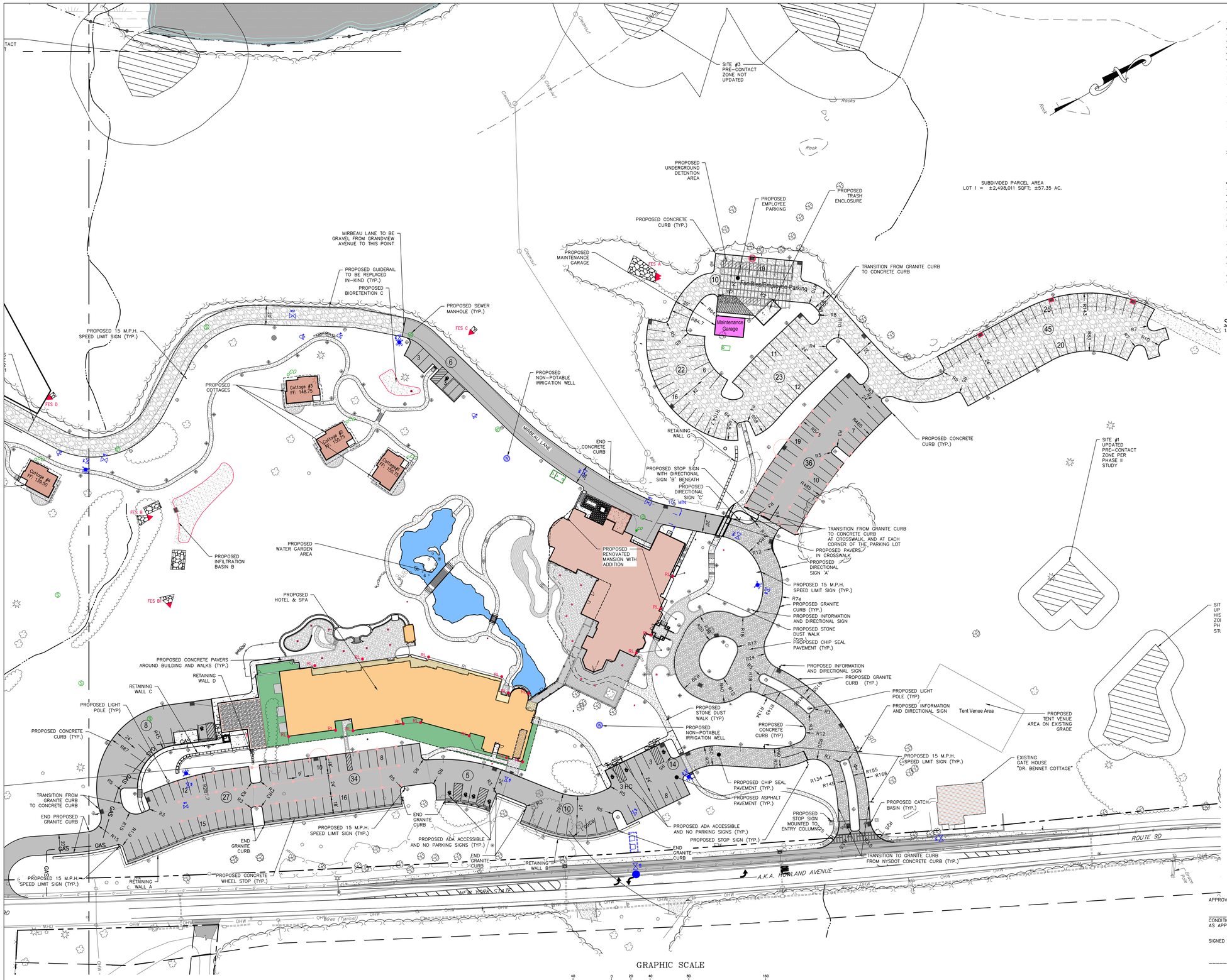

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- PROPOSED WATER SERVICE LINE
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- PROPOSED HYDRANT
- PROPOSED WATER SHUT OFF VALVE
- PROPOSED WATER VALVE

SIGHT DISTANCE NOTES:

1. THE AVAILABLE SIGHT DISTANCE ON MIRBEAU LANE AT THE PROPOSED PARKING SPACES FOR COTTAGE #1, #2 AND #3 MEETS OR EXCEEDS 130 FEET AT EACH PARKING SPACE. THE PROPOSED SPEED LIMIT FOR MIRBEAU LANE IS 15 MPH WHICH REQUIRES A STOPPING SIGHT DISTANCE OF 80 FEET. THE AVAILABLE STOPPING SIGHT DISTANCE OF A MINIMUM OF 130 FEET SATISFIES SPEED LIMITS GREATER THAN 20 MPH. THEREFORE THE SIGHT DISTANCE IS ADEQUATE.



SIGN A | SIGN B | SIGN C

DIRECTIONAL SIGNAGE DETAILS
NOT TO SCALE

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11. RELOCATE THE SEWER MAIN LINE TO RUN ALONG GATEHOUSE LANE INSTEAD OF BISECTING THE SUBDIVISION PARCEL.
12. INSTALLING A SECOND PRIMARY TRANSFORMER ADJACENT TO THE LAUNDRY ROOM WITHIN THE CHATEAU HOTEL.
13. INSTALLING A SECOND DUMPSTER ENCLOSURE AT THE BOTTOM OF THE DRIVE LEADING TO THE LAUNDRY ROOM WITHIN THE CHATEAU HOTEL.
14. CHANGED BIORETENTION AREA B TO AN INFILTRATION BASIN.

SITE 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

IN ABSENCE OF THE CHAIRMAN OR SECRETARY, THE ACTING CHAIRMAN OR ACTING SECRETARY RESPECTIVELY MAY SIGN IN THIS PLACE.

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DRAWN BY: CMB				CHECKED BY: MAB			
REVISIONS:				REVISIONS:			
NO.	DATE	DESCRIPTION	BY	NO.	DATE	DESCRIPTION	BY
12	2/27/24	AMENDED SITE PLAN	CMB				

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AMENDED SITE PLAN – NORTH
MIRBEAU BEACON

11 MIRBEAU LANE
CITY OF BEACON
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 29

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 YEAR FLOODPLAIN LINE
- 250 EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- EXISTING TREE LINE
- OHW EXISTING OVER HEAD WIRE
- EXISTING UTILITY POLE
- SS SS EXISTING SEWER SERVICE LINE
- S EXISTING SEWER LINE
- EXISTING SEWER MANHOLE
- EXISTING SEWER CLEAN OUT
- W EXISTING WATER LINE
- WS 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
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- PROPOSED TREE LINE
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- 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 WS PROPOSED WATER SERVICE LINE
- PROPOSED WELL
- PROPOSED HYDRANT
- PROPOSED WATER SHUT OFF VALVE
- PROPOSED WATER VALVE

SIGHT DISTANCE NOTES:

1. THE AVAILABLE SIGHT DISTANCE ON MIRBEAU LANE AT THE PROPOSED PARKING SPACES FOR COTTAGE #4 AND #5 MEETS OR EXCEEDS 130 FEET AT EACH PARKING SPACE. THE PROPOSED SPEED LIMIT FOR MIRBEAU LANE IS 15 MPH WHICH REQUIRES A STOPPING SIGHT DISTANCE OF 80 FEET. THE AVAILABLE STOPPING SIGHT DISTANCE OF A MINIMUM OF 130 FEET SATISFIES SPEED LIMITS GREATER THAN 20 MPH. THEREFORE THE SIGHT DISTANCE IS ADEQUATE.
2. CLEARING WILL BE REQUIRED TO ACHIEVE SIGHT DISTANCE AT THE EXISTING MIRBEAU LANE ENTRANCE AT GRANDVIEW AVENUE. THE CLEARING AREA IS SHOWN ON THIS PLAN.

AMENDED SITE PLAN NOTES:

THE AMENDED SITE PLANS AND ELEVATIONS IDENTIFY THE FOLLOWING CHANGES TO THE APPROVED SITE PLANS.

1. RETAIN THE DINING WING STRUCTURE WITHIN THE MANSION.
2. ELIMINATE THE 7 GROTTO ROOMS WITHIN THE MANSION.
3. ADD AN ELEVATOR AND EXTERIOR WALK IN COOLER & FREEZER ADJACENT TO THE WEST SIDE OF THE MANSION ALONG MIRBEAU LANE.
4. ELIMINATE 2 OF THE 4 MONET GARDEN PONDS.
5. DEFER THE WESTERN EMPLOYEE LOTS PAVING AND PROVIDE GRAVEL LOTS.
6. REPLACE THE PAVEMENT WITH CHIP SEAL SURFACE ON THE MAIN ENTRANCE DRIVE.
7. REPLACE VARIOUS REDI-ROCK WALLS WITH LARGE DIAMETER LANDSCAPE BOULDERS.
8. ELIMINATE THE CURB ADJACENT TO THE REDI-ROCK WALLS ALONG THE EASTERN EDGE OF THE CHATEAU EASTERN LOT AND INSTALL CONCRETE CURB STOPS AT EACH SPACE.
9. ELIMINATE THE WALKING PATH FROM THE FRONT CIRCULAR DRIVE OVER TO THE SPA ENTRANCE.
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SITE PLAN – SOUTH

SCALE: 1" = 40'

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

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AMENDED SITE PLAN – SOUTH

MIRBEAU BEACON

11 MIRBEAU LANE
CITY OF BEACON
DUTCHESS COUNTY, NEW YORK
TAX ID: 6054-13-001258

JOB #:	2021:051
DATE:	3/29/2022
SCALE:	1" = 40'
TITLE:	SP-3
SHEET:	5 OF 29

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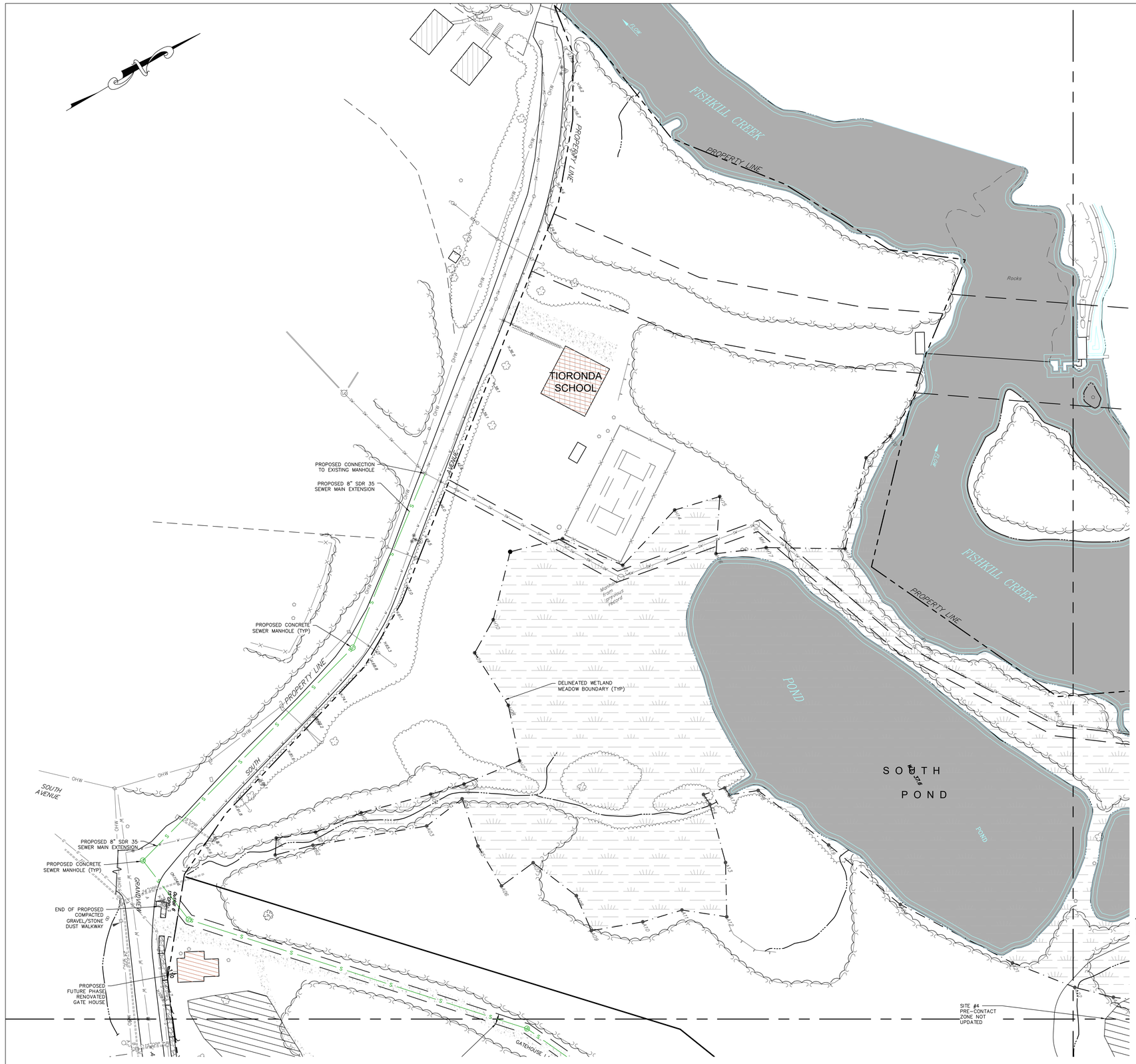

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SITE PLAN – SOUTH WEST

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GRAPHIC SCALE

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AMENDED SITE PLAN – SOUTHWEST

MIRBEAU BEACON

11 MIRBEAU LANE
CITY OF BEACON
DUTCHESS COUNTY, NEW YORK
TAX ID: 6054-13-001258

JOB #:	2021:051
DATE:	3/29/2022
SCALE:	1" = 40'
TITLE:	SP-4
SHEET:	6 OF 29

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STORM SEWER STRUCTURE TABLE	
STRUCTURE	STRUCTURE DETAILS
CB 1B	RIM = 157.50 SUMP = 153.40 CB1B–CB1A INV OUT = 154.40
CB1A	RIM = 154.86 SUMP = 150.70 CB1B–CB1A INV IN = 151.80 CB1A–DET INV OUT = 151.70
CB2	RIM = 150.91 SUMP = 144.04 CB2A–CB1 INV IN = 145.14 CB2–CB1 INV OUT = 145.04
CB2A	RIM = 155.09 SUMP = 144.58 CB3–CB2 INV IN = 145.68 CB2A–CB1 INV OUT = 145.58
CB3	RIM = 157.26 SUMP = 145.34 CB7–CB3 INV IN = 153.50 CB4–CB3 INV IN = 146.34 CB3–CB2 INV OUT = 146.34
CB4	RIM = 155.25 SUMP = 146.30 CB5–CB4 INV IN = 147.40 CB4–CB3 INV OUT = 147.30
CB5	RIM = 153.75 SUMP = 147.06 CB6–CB5 INV IN = 148.06 CB5–CB4 INV OUT = 148.38

STORM SEWER STRUCTURE TABLE	
STRUCTURE	STRUCTURE DETAILS
CB6	RIM = 151.50 SUMP = 147.48 CB6–CB5 INV OUT = 148.48
CB7	RIM = 160.65 SUMP = 154.58 CB8–CB7 INV IN = 156.75 CB7–CB3 INV OUT = 155.58
CB8	RIM = 164.64 SUMP = 159.65 CB9–CB8 INV IN = 160.75 CB8–CB7 INV OUT = 160.65
CB9	RIM = 169.65 SUMP = 162.08 CB10–CB9 INV IN = 165.60 CB9A TO CB9 INV IN = 163.33 CB9–CB8 INV OUT = 163.08
CB9A	RIM = 167.33 SUMP = 163.50 CB9A TO CB9 INV OUT = 164.50
CB10	RIM = 177.50 SUMP = 173.14 CB11–CB10 INV IN = 174.24 CB10A–CB10 INV IN = 174.24 CB10–CB9 INV OUT = 174.14
CB10A	RIM = 177.50 SUMP = 173.24 CB16–CB10A INV IN = 174.24 CB10A–CB10 INV OUT = 174.45

STORM SEWER STRUCTURE TABLE	
STRUCTURE	STRUCTURE DETAILS
CB11	RIM = 178.20 SUMP = 173.99 CB12–CB11 INV IN = 175.10 CB11–CB10 INV OUT = 174.99
CB12	RIM = 183.52 SUMP = 177.04 CB13–CB12 INV IN = 178.14 CB12–CB11 INV OUT = 178.04
CB13	RIM = 182.32 SUMP = 178.20 CB14–CB13 INV IN = 179.30 CB13–CB12 INV OUT = 179.20
CB14	RIM = 182.71 SUMP = 178.51 CB14–CB13 INV OUT = 179.51
CB16	RIM = 180.78 SUMP = 175.84 CB17–CB16 INV IN = 176.94 CB16–CB10A INV OUT = 176.84
CB17	RIM = 180.12 SUMP = 176.10 CB17–CB16 INV OUT = 177.10
FES A	RIM = 141.30 SUMP = ??? DET–FES A INV IN = 138.50

STORM SEWER STRUCTURE TABLE	
STRUCTURE	STRUCTURE DETAILS
CB18	RIM = 164.65 SUMP = 157.09 CB19–CB18 INV IN = 158.50 CB18–FES B1 INV OUT = 158.00
CB19	RIM = 173.61 SUMP = 167.02 CB20–CB19 INV IN = 168.02 CB19A–CB19 INV IN = 168.02 CB19–CB18 INV OUT = 168.02
CB19A	RIM = 171.84 SUMP = 167.52 CB19A–CB19 INV OUT = 168.52
CB20	RIM = 178.30 SUMP = 173.22 CB21–CB20 INV IN = 174.22 CB20–CB19 INV OUT = 174.10
CB21	RIM = 179.10 SUMP = 175.08 CB21–CB20 INV OUT = 176.08
FES B1	RIM = 0.00 SUMP = ???

STORM SEWER STRUCTURE TABLE	
STRUCTURE	STRUCTURE DETAILS
FES A1	RIM = 140.74 SUMP = ??? DET–FES A1 INV IN = 138.50
WQ11	RIM = 149.10 SUMP = 143.55 CB2–CB1 INV IN = 144.65 CB1–DET INV OUT = 144.55

SANITARY SEWER STRUCTURE TABLE	
STRUCTURE	STRUCTURE DETAILS
	SMH10–SMH9 INV OUT = 129.80
SMH11	RIM = 138.24 SMH12–SMH11 INV IN = 133.10 SMH11–SMH10 INV OUT = 133.00
SMH12	RIM = 146.83 SMH13–SMH12 INV IN = 139.00 SMH12–SMH11 INV OUT = 138.00
SMH13	RIM = 167.21 SMH13–SMH12 INV OUT = 162.00
SMH14	RIM = 146.00 SMH17–SMH16 INV IN = 138.50 SMH16–SMH9 INV OUT = 137.90
SMH15	RIM = 151.55 SMH18–SMH17 INV IN = 146.55 SMH17–SMH16 INV OUT = 145.00
SMH16	RIM = 166.10 SPA–SMH18 INV IN = 160.30 SMH18–SMH17 INV OUT = 160.20

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SANITARY SEWER PIPE TABLE			
PIPE NAME	LENGTH	SIZE AND MATERIAL	SLOPE
SMH11–SMH10	212 LF	8 inch PVC	1.46%
SMH12–SMH11	133 LF	8 inch PVC	3.68%
SMH13–SMH12	176 LF	8 inch PVC	13.08%
SMH16–SMH9	164 LF	8 inch PVC	5.91%
SMH17–SMH16	95 LF	8 inch PVC	6.86%
SMH18–SMH17	80 LF	8 inch PVC	17.05%
SPA–SMH18	80 LF	8 inch PVC	2.00%

STORM SEWER PIPE TABLE			
PIPE NAME	LENGTH	SIZE AND MATERIAL	SLOPE
CB1–DET	5 LF	15" ø CORR HDPE	1.00%
CB1A–DET	75 LF	15" ø CORR HDPE	6.92%
CB1B–CB1A	90 LF	15" ø CORR HDPE	2.88%
CB2–CB1	49 LF	15" ø CORR HDPE	0.80%
CB2A–CB1	55 LF	15" ø CORR HDPE	0.80%
CB3–CB2	70 LF	15" ø CORR HDPE	0.95%
CB4–CB3	120 LF	15" ø CORR HDPE	0.80%
CB5–CB4	82 LF	15" ø CORR HDPE	1.20%
CB6–CB5	85 LF	15" ø CORR HDPE	0.50%
CB7–CB3	45 LF	15" ø CORR HDPE	4.61%
CB8–CB7	99 LF	15" ø CORR HDPE	3.92%
CB9–CB8	99 LF	15" ø CORR HDPE	2.36%
CB9A TO CB9	115 LF	12" ø CORR HDPE	1.02%
CB10–CB9	112 LF	15" ø CORR HDPE	7.60%
CB10A–CB10	54 LF	15" ø CORR HDPE	0.39%
CB11–CB10	75 LF	15" ø CORR HDPE	1.00%
CB12–CB11	86 LF	15" ø CORR HDPE	3.42%
CB13–CB12	106 LF	15" ø CORR HDPE	1.00%
CB14–CB13	21 LF	15" ø CORR HDPE	1.00%
CB16–CB10A	73 LF	15" ø CORR HDPE	3.58%

STORM SEWER PIPE TABLE			
PIPE NAME	LENGTH	SIZE AND MATERIAL	SLOPE
CB17–CB16	28 LF	15" ø CORR HDPE	0.56%
DET–FES A	62 LF	24" ø CORR HDPE	12.67%
DET–FES A1	61 LF	24" ø CORR HDPE	12.69%

STORM SEWER PIPE TABLE			
PIPE NAME	LENGTH	SIZE AND MATERIAL	SLOPE
CB18–FES B1	102 LF	15" ø CORR HDPE	23.51%
CB19–CB18	110 LF	15" ø CORR HDPE	8.69%
CB19A–CB19	50 LF	15" ø CORR HDPE	1.00%
CB20–CB19	179 LF	15" ø CORR HDPE	3.40%
CB21–CB20	186 LF	15" ø CORR HDPE	1.00%

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.

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.

BUILDING SPRINKLER NOTES:

1. THE MANSION AND THE CHATEAU HOTEL SHALL BE PROVIDED WITH A FIRE SUPPRESSION SPRINKLING SYSTEM.
2. THE FIVE PROPOSED COTTAGES AS PART OF PHASE I SHALL ALSO BE PROVIDED WITH FIRE SUPPRESSION SPRINKLING SYSTEMS.

WATER METER NOTES:

1. THE APPLICANT/APPLICANT'S PLUMBER SHALL ACQUIRE WATER METERS AND MXU UNITS (SIGNAL SENDING AND RECEIVING UNIT) FOR ADVANCED METERING INFRASTRUCTURE (AMI) SYSTEM FROM THE CITY OF BEACON WATER DEPARTMENT. THE MXU UNIT SHALL BE INSTALLED ON THE EXTERIOR OF THE BUILDING AND SHALL BE LOCATED 2 TO 3 FEET ABOVE THE EXTERIOR GROUND ELEVATION. IN CASE OF A METER LOCATED WITHIN AN UNDERGROUND CHAMBER, THE WIRING FOR THE MXU UNIT SHALL BE RUN UP THROUGH THE VENT PIPING AND THE MXU UNIT MOUNTED TO THE EXTERIOR OF THE VENT PIPE.

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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GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)

1 inch = 40 ft.

GRADING & UTILITY PLAN – NORTH

SCALE: 1" = 40'

DRAWN BY: CMB			CHECKED BY: MAB			
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NO.	DATE	DESCRIPTION	BY	NO.	DATE	DESCRIPTION	BY
12	2/27/24	AMENDED SITE PLAN	CMB				

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GRADING & UTILITY PLAN – NORTH

MIRBEAU BEACON

11 MIRBEAU 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–1
SHEET:	7 OF 29

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SANITARY SEWER STRUCTURE TABLE	
STRUCTURE	STRUCTURE DETAILS
SMH3	RIM = 107.10 SMH4–SMH3 INV IN = 100.91 SMH3–SMH2 INV OUT = 100.80
SMH4	RIM = 108.20 SMH5–SMH4 INV IN = 103.10 SMH4–SMH3 INV OUT = 103.00
SMH5	RIM = 120.83 SMH6–SMH5 INV IN = 115.30 SMH5–SMH4 INV OUT = 115.19
SMH8	RIM = 134.78 SMH9–SMH8 INV IN = 127.04 SMH6–SMH5 INV OUT = 126.90
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

SANITARY SEWER PIPE TABLE			
PIPE NAME	LENGTH	SIZE AND MATERIAL	SLOPE
SMH3–SMH2	73 LF	8 inch PVC	3.42%
SMH4–SMH3	348 LF	8 inch PVC	0.60%
SMH5–SMH4	302 LF	8 inch PVC	4.00%
SMH6–SMH5	185 LF	8 inch PVC	6.27%
SMH9–SMH8	218 LF	8 inch PVC	0.50%
SMH10–SMH9	157 LF	8 inch PVC	1.00%
SMH11–SMH10	212 LF	8 inch PVC	1.46%
SMH12–SMH11	133 LF	8 inch PVC	3.68%

LEGEND:

- EXISTING PROPERTY LINE
- ADJOINING PROPERTY LINE
- EXISTING EASEMENT LINE
- EXISTING STREAM
- EXISTING WETLAND BOUNDARY
- 100 YEAR FLOODPLAIN LINE
- 250 EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- EXISTING TREE LINE
- OHW EXISTING OVER HEAD WIRE
- EXISTING UTILITY POLE
- SS SS EXISTING SEWER SERVICE LINE
- S EXISTING SEWER LINE
- EXISTING SEWER MANHOLE
- EXISTING SEWER CLEAN OUT
- W EXISTING WATER LINE
- WS 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 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 WS PROPOSED WATER SERVICE LINE
- PROPOSED WELL
- PROPOSED HYDRANT
- PROPOSED WATER SHUT OFF VALVE
- PROPOSED WATER VALVE

GRADING & UTILITY PLAN – SOUTH
SCALE: 1" = 40'

GRAPHIC SCALE
40 0 20 40 80 160
(IN FEET)
1 inch = 40 ft.

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GRADING & UTILITY PLAN – SOUTH

MIRBEAU BEACON

11 MIRBEAU 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-2
SHEET:	8 OF 29

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SANITARY SEWER STRUCTURE TABLE	
STRUCTURE	STRUCTURE DETAILS
EX. SMH	RIM = 46.26 SMH1–EX. SMH INV IN = 39.00
SMH 1	RIM = 68.93 SMH2–SMH1 INV IN = 63.60 SMH1–EX. SMH INV OUT = 63.50
SMH2	RIM = 104.79 SMH3–SMH2 INV IN = 98.30 SMH2–SMH1 INV OUT = 96.80
SMH3	RIM = 107.10 SMH4–SMH3 INV IN = 100.91 SMH3–SMH2 INV OUT = 100.80

SANITARY SEWER PIPE TABLE			
PIPE NAME	LENGTH	SIZE AND MATERIAL	SLOPE
SMH1–EX. SMH	185 LF	8 inch PVC	13.27%
SMH2–SMH1	293 LF	8 inch PVC	11.34%
SMH3–SMH2	73 LF	8 inch PVC	3.42%

LEGEND:

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- EXISTING STREAM
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- 100 YEAR FLOODPLAIN LINE
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- 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 VALVE
- EXISTING STORM WATER LINE
- CB_50 EXISTING CATCH BASIN

- PROPOSED PROPERTY LINE
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- CO PROPOSED SEWER CLEAN OUT
- PROPOSED SDS LATERAL
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- 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.

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GRADING & UTILITY PLAN – SOUTHWEST

MIRBEAU BEACON

11 MIRBEAU 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 29

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LEGEND:

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- EXISTING STREAM
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- 100 YEAR FLOODPLAIN LINE
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- EXISTING WATER SERVICE LINE
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- EXISTING HYDRANT
- EXISTING WATER VALVE
- EXISTING STORM WATER LINE
- EXISTING CATCH BASIN

- PROPOSED PROPERTY LINE
- PROPOSED SET BACK LINE
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
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- PROPOSED WATER SERVICE LINE
- PROPOSED WELL
- PROPOSED HYDRANT
- PROPOSED WATER SHUT OFF VALVE
- PROPOSED WATER VALVE
- PROPOSED SILT FENCE
- PROPOSED LIMIT OF DISTURBANCE
- PROPOSED CONSTRUCTION PHASING LINE
- 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)
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EROSION & SEDIMENT CONTROL PLAN – NORTH

MIRBEAU BEACON

11 MIRBEAU 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 29

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 YEAR FLOODPLAIN LINE
- 250 — EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- EXISTING TREE LINE
- OHW — EXISTING OVER HEAD WIRE
- EXISTING UTILITY POLE
- SS — SS — EXISTING SEWER SERVICE LINE
- S — EXISTING SEWER LINE
- EXISTING SEWER MANHOLE
- EXISTING SEWER CLEAN OUT
- W — EXISTING WATER LINE
- WS — WS — EXISTING WATER SERVICE LINE
- EXISTING WELL
- EXISTING HYDRANT
- EXISTING WATER VALVE
- EXISTING STORM WATER LINE
- CB SO — 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 — 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 — 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 PHASING LINE
- PROPOSED CATCH BASIN INLET PROTECTION
- PROPOSED CONSTRUCTION ENTRANCE

EROSION & SEDIMENT CONTROL PLAN – SOUTH

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

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
12	2/27/24	AMENDED SITE PLAN	CMB				

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ARCHITECTURE & DESIGN
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HUDSON LAND DESIGN

STATE OF NEW YORK MICHAEL A. BOCKOVEN 084466 LICENSED PROFESSIONAL ENGINEER

SEAL

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PROFESSIONAL ENGINEERING P.C.
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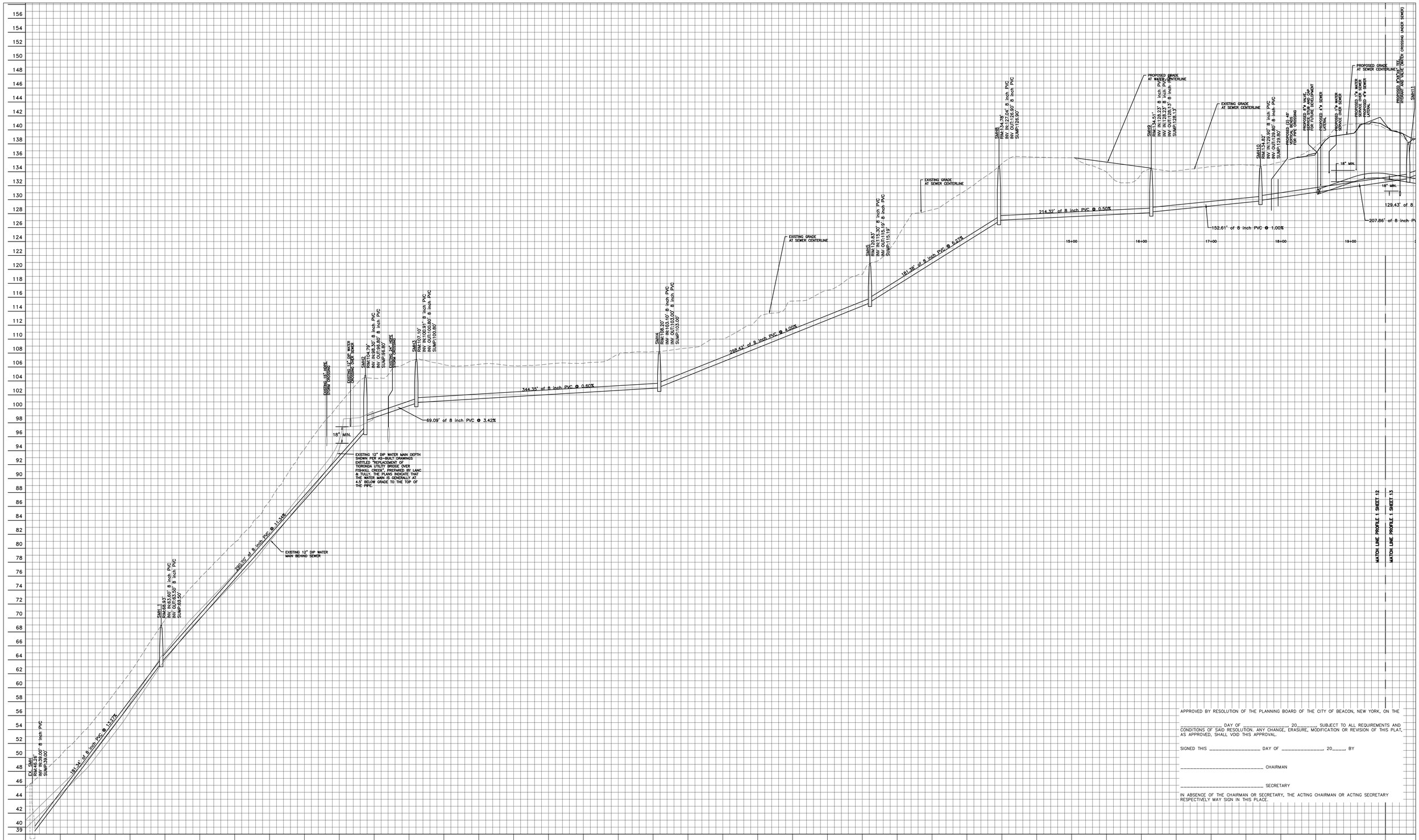
EROSION & SEDIMENT CONTROL PLAN – SOUTH

MIRBEAU BEACON

11 MIRBEAU 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-2
SHEET:	11 OF 29

UNAUTHORIZED ALTERATIONS OR ADDITIONS TO THIS DRAWING IS A VIOLATION OF SECTION 7209.2 OF THE NEW YORK EDUCATION LAW



SEWER PROFILE 1 EX SMH TO SMH 10 DISTANCE ALONG BASELINE (FT)

SCALE: 1" = 50' H
1" = 5' 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

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DRAWN BY: CMB				CHECKED BY: MAB			
REVISIONS:				REVISIONS:			
NO.	DATE	DESCRIPTION	BY	NO.	DATE	DESCRIPTION	BY
12	2/27/24	AMENDED SITE PLAN	CMB				

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HUDSON LAND DESIGN

STATE OF NEW YORK
MICHAEL A. BOCCHERI
084484
LICENSED PROFESSIONAL ENGINEER
SEAL

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174 MAIN ST., BEACON, NEW YORK 12508
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F: 845-440-6637

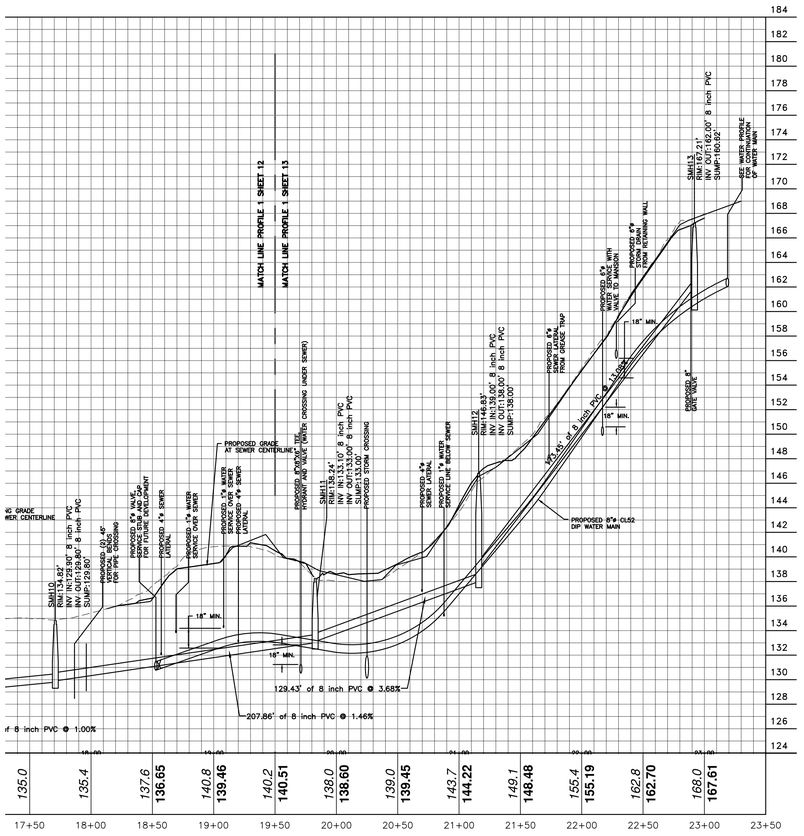
PROFILES 1

MIRBEAU BEACON

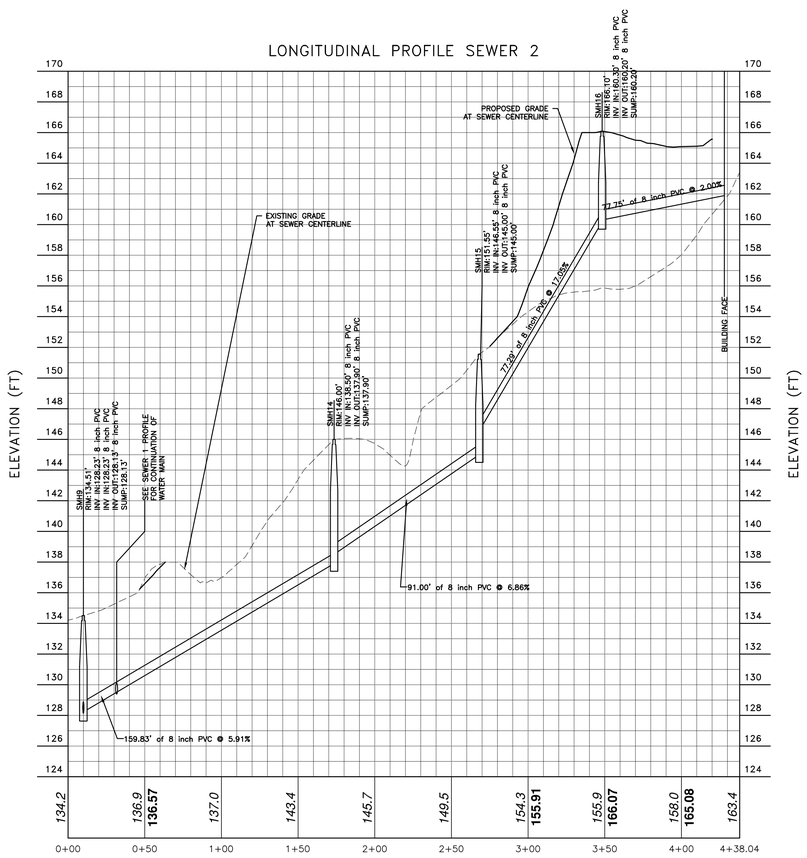
11 MIRBEAU LANE
CITY OF BEACON
DUTCHESS COUNTY, NEW YORK
TAX ID: 6054-13-001258

JOB #:	2021:051
DATE:	3/29/2022
SCALE:	AS SHOWN
TITLE:	PR-1
SHEET:	12 OF 29

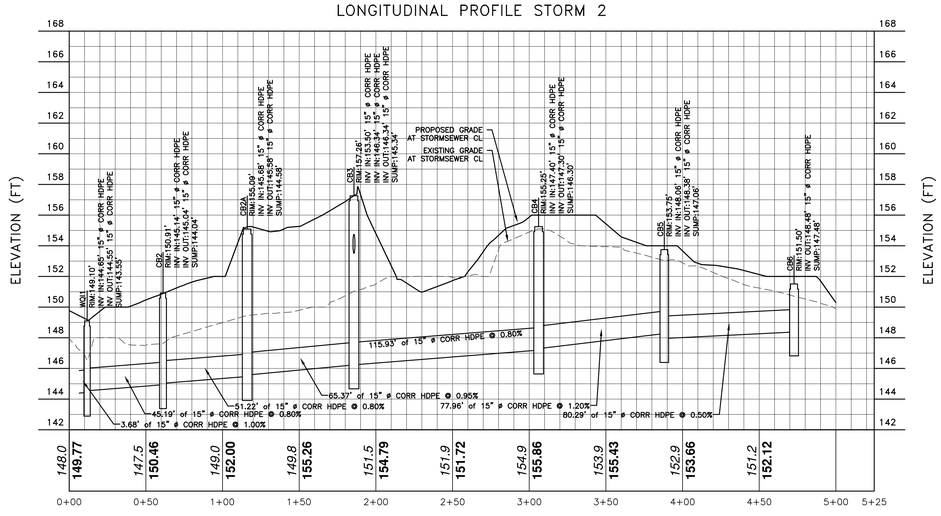
UNAUTHORIZED ALTERATIONS OR ADDITIONS TO THIS DRAWING IS A VIOLATION OF SECTION 7209.2 OF THE NEW YORK EDUCATION LAW



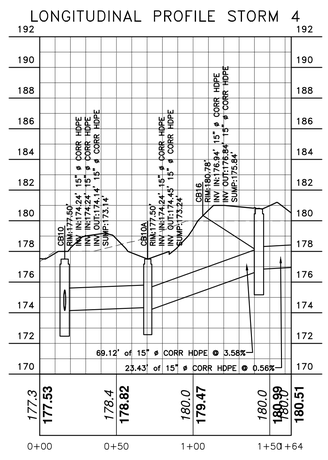
SEWER 1 PROFILE SMH 8 TO SMH 13
SCALE: 1" = 50' H
1" = 5' V



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
SCALE: 1" = 40' H
1" = 4' V

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SIGNED THIS _____ DAY OF _____, 20_____, BY

_____ CHAIRMAN

_____ SECRETARY

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DRAWN BY: CMB				CHECKED BY: MAB			
REVISIONS:				REVISIONS:			
NO.	DATE	DESCRIPTION	BY	NO.	DATE	DESCRIPTION	BY
12	2/27/24	AMENDED SITE PLAN	CMB				

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STATE OF NEW YORK — MICHAEL A. BOCCUZZI — 084484 — LICENSED PROFESSIONAL ENGINEER
SEAL

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F: 845-440-6637

PROFILES 2

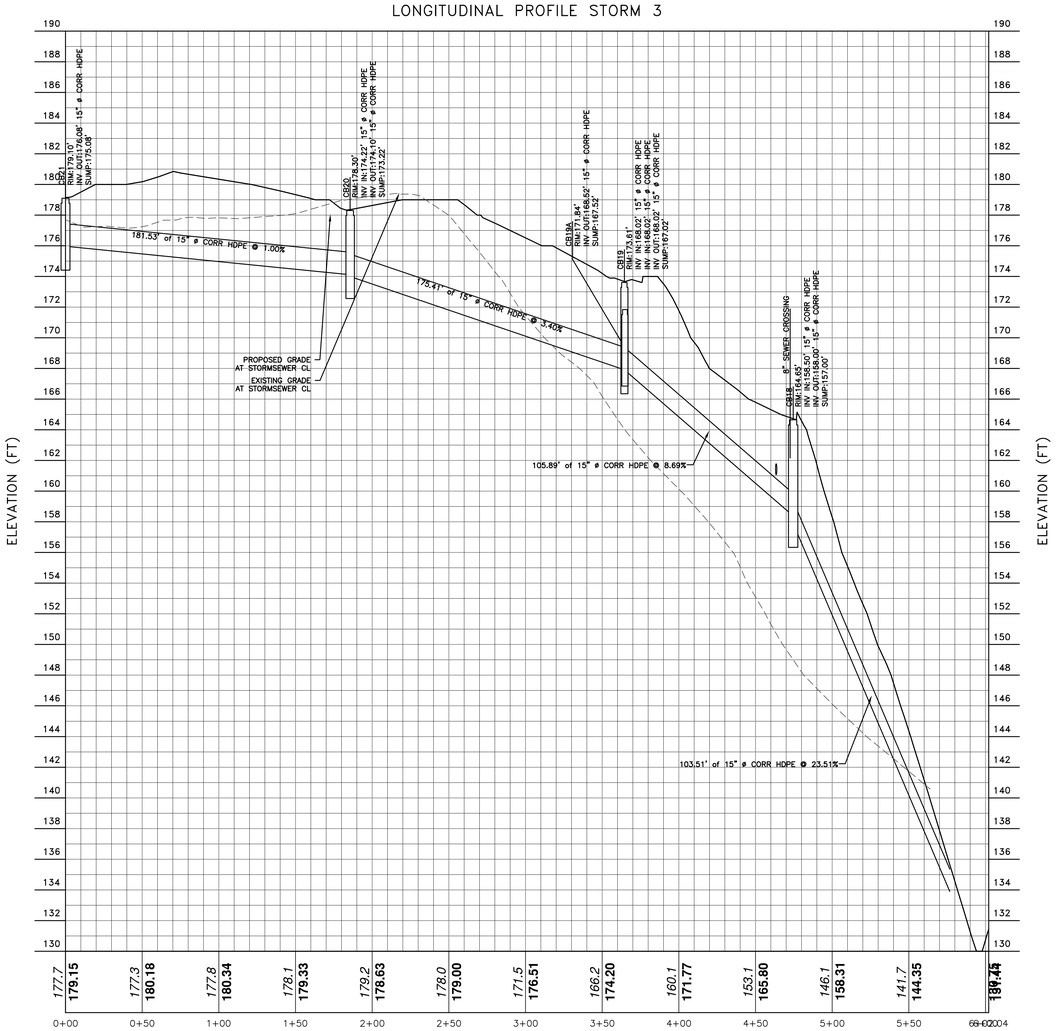
MIRBEAU BEACON

11 MIRBEAU 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-2
SHEET:	13 OF 29

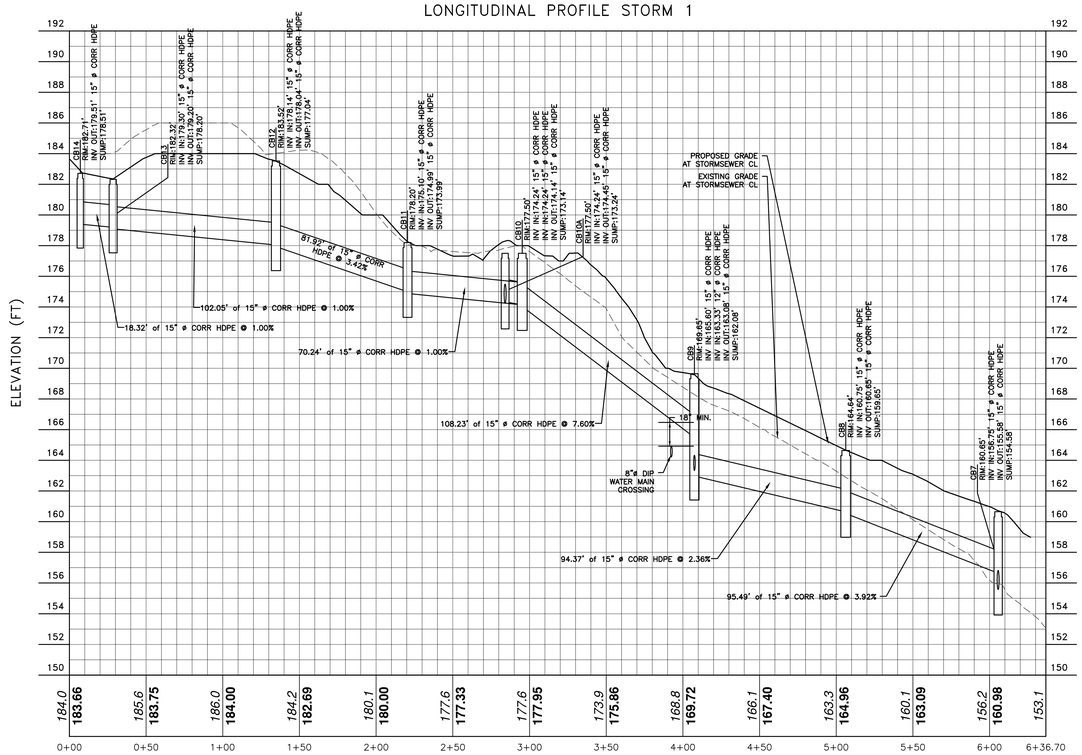
UNAUTHORIZED ALTERATIONS OR ADDITIONS TO THIS DRAWING IS A VIOLATION OF SECTION 7209.2 OF THE NEW YORK EDUCATION LAW

LONGITUDINAL PROFILE STORM 3



STORM PROFILE CB18 TO CB20
SCALE: 1" = 40' H
1" = 4' V

LONGITUDINAL PROFILE STORM 1



STORM PROFILE CB7 TO CB14
SCALE: 1" = 40' H
1" = 4' V

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_____ SECRETARY

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REVISIONS:				REVISIONS:			
NO.	DATE	DESCRIPTION	BY	NO.	DATE	DESCRIPTION	BY
12	2/27/24	AMENDED SITE PLAN	CMB				

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HUDSON LAND DESIGN

STATE OF NEW YORK MICHAEL A. BRADDOCK 084455 LICENSED PROFESSIONAL ENGINEER
SEAL

HUDSON LAND DESIGN
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F: 845-440-6637

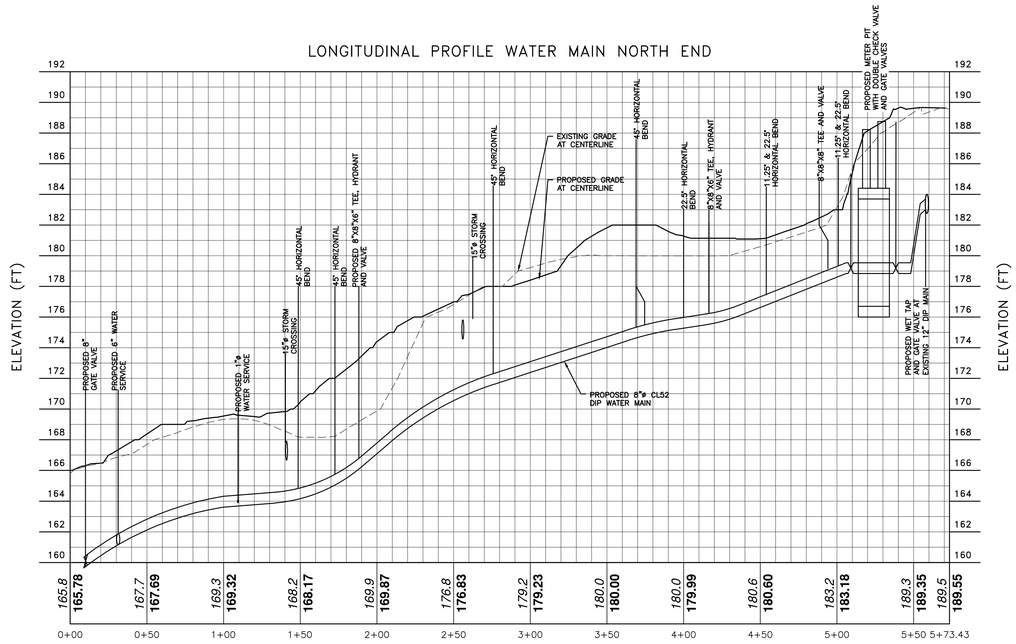
PROFILES 3

MIRBEAU BEACON

11 MIRBEAU 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 29

UNAUTHORIZED ALTERATIONS OR ADDITIONS TO THIS DRAWING IS A VIOLATION OF SECTION 7209.2 OF THE NEW YORK EDUCATION LAW



WATER PROFILE NORTH END
SCALE: 1" = 40' H
1" = 4' V

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REVISIONS:				REVISIONS:			
NO.	DATE	DESCRIPTION	BY	NO.	DATE	DESCRIPTION	BY
12	2/27/24	AMENDED SITE PLAN	CMB				

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HUDSON LAND DESIGN

STATE OF NEW YORK
MICHAEL A. BOCKHORST
084486
LICENSED PROFESSIONAL ENGINEER
SEAL

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F: 845-440-6637

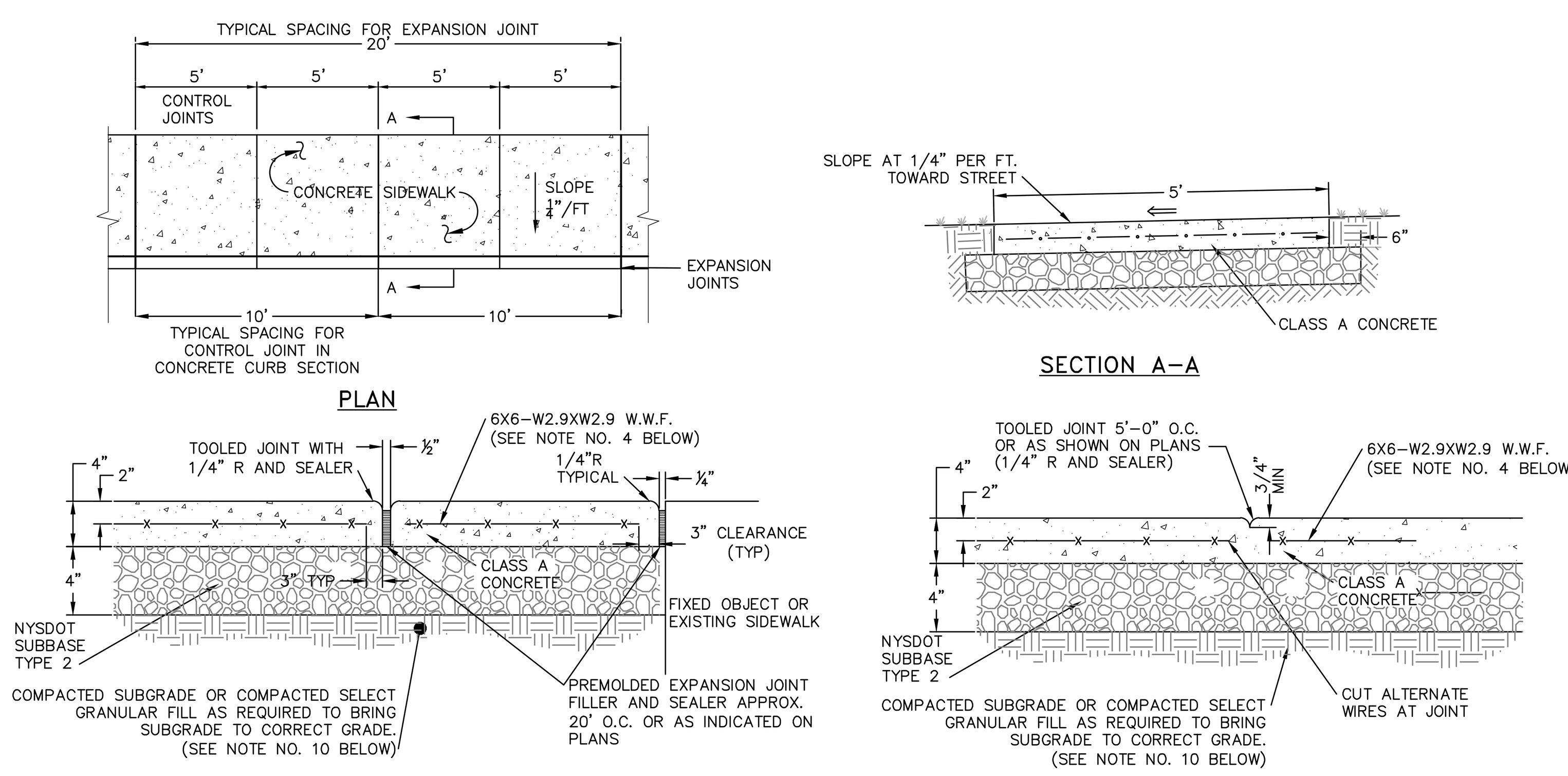
PROFILES 4

MIRBEAU BEACON

11 MIRBEAU 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 29

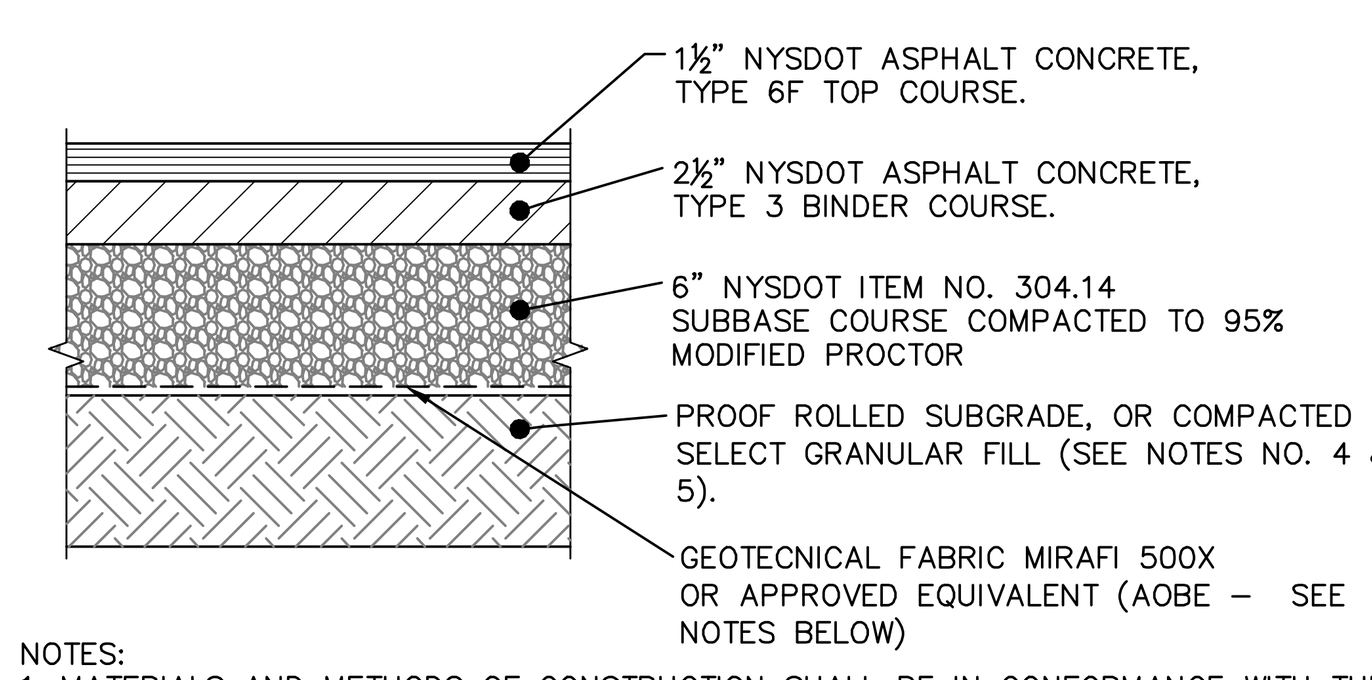
UNAUTHORIZED ALTERATIONS OR ADDITIONS TO THIS DRAWING IS A VIOLATION OF SECTION 7209.2 OF THE NEW YORK EDUCATION LAW



NOTES:

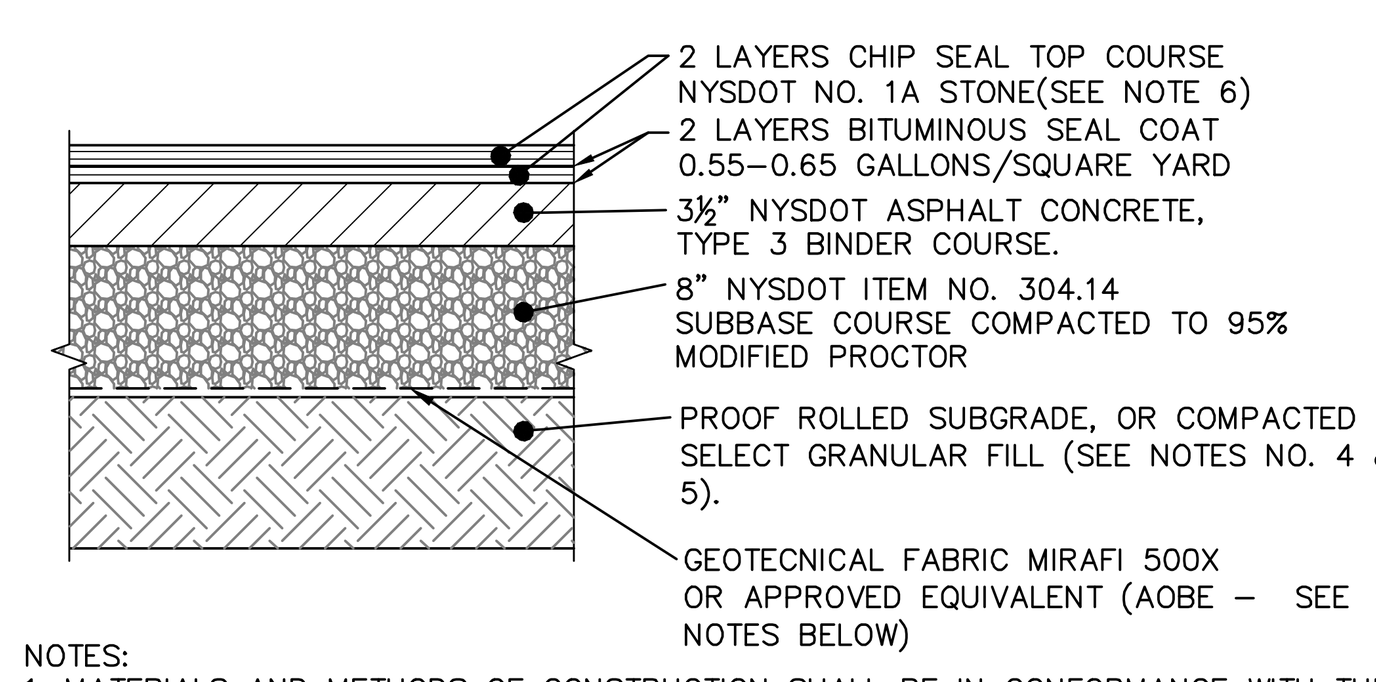
1. 10' SPACING OF CONTROL JOINTS SHALL BE USED FOR CAST IN PLACE CONCRETE CURBS.
2. MATERIAL AND METHODS OF CONSTRUCTION SHALL BE IN CONFORMANCE WITH THE NEW YORK STATE DEPARTMENT OF TRANSPORTATION (NYSDOT) STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, DATED JANUARY 2, 2002, AND ALL ADDENDA 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



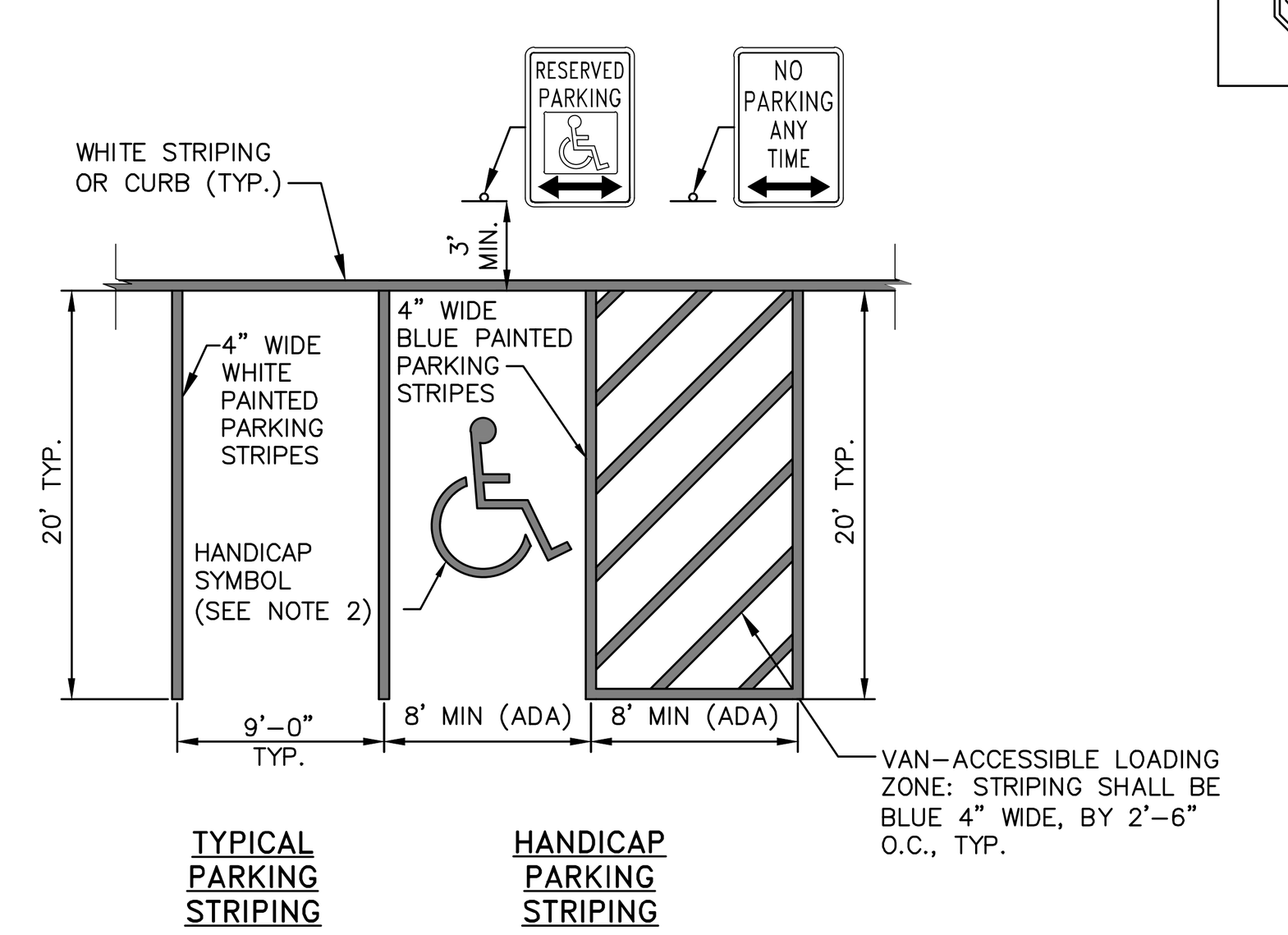
NOTES:
1. MATERIALS AND METHODS OF CONSTRUCTION SHALL BE IN CONFORMANCE WITH THE NEW YORK STATE DEPARTMENT OF TRANSPORTATION (NYSDOT) STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, DATED JANUARY 2, 2002.
2. SUBGRADE SHALL NOT INCLUDE FROZEN MATERIALS, DEBRIS, ORGANIC MATERIALS, LARGE STONES 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



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, LATEST EDITION.
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.
6. CHIP AGGREGATE COLOR SHALL MATCH THE COLOR OF THE DECOMPOSED GRANITE WALKWAYS AS SHOWN AND DETAILED ON THE LANDSCAPE SHEETS. SAMPLES OF THE AGGREGATE SHALL BE PROVIDED TO THE PROJECT OWNER FOR APPROVAL PRIOR TO CONSTRUCTION.
7. SEE SHEET C8.1 FOR CHIP SEAL SPECIFICATIONS.

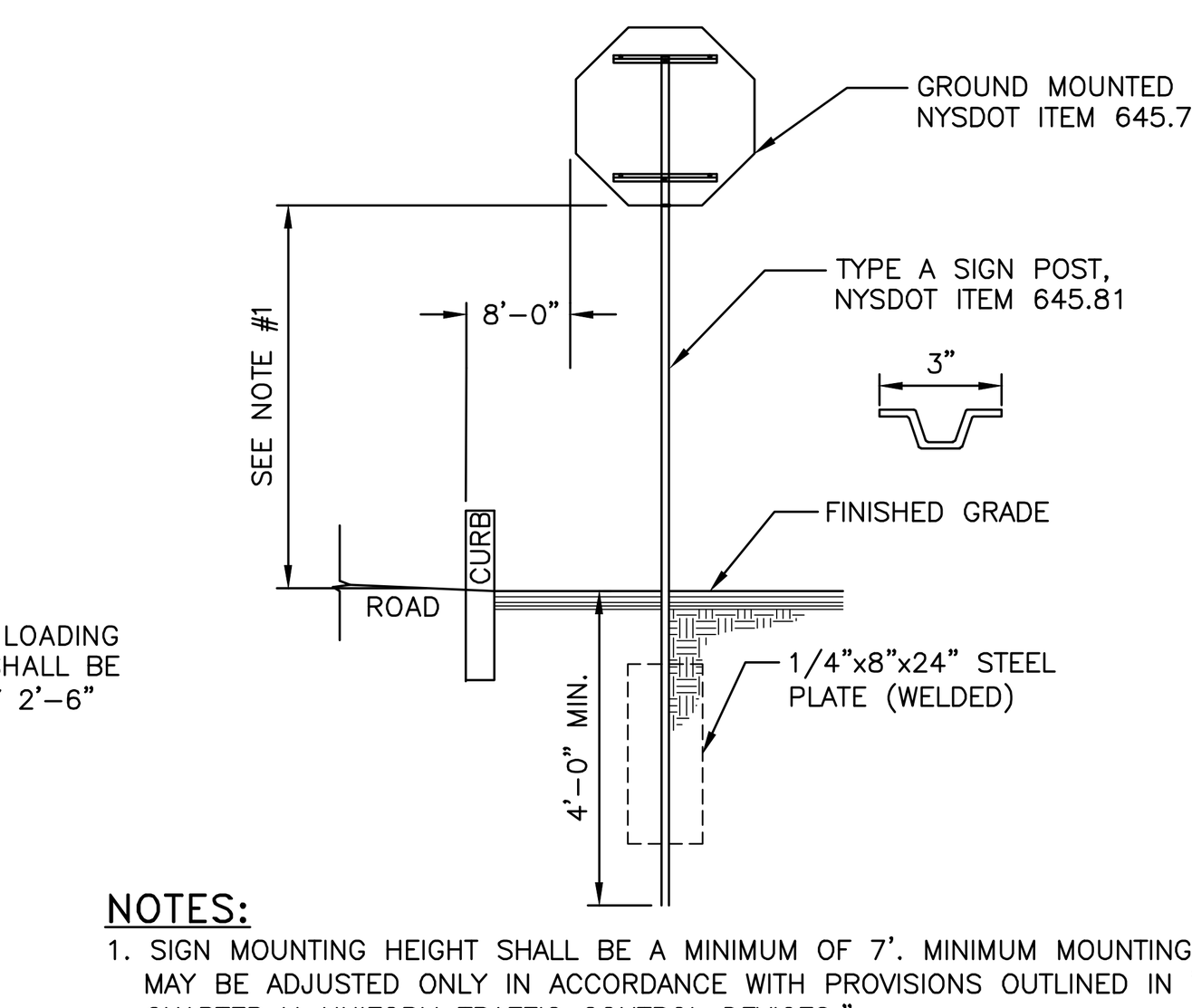
CHIP SEAL PAVEMENT SECTION DETAIL
NOT TO SCALE



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.

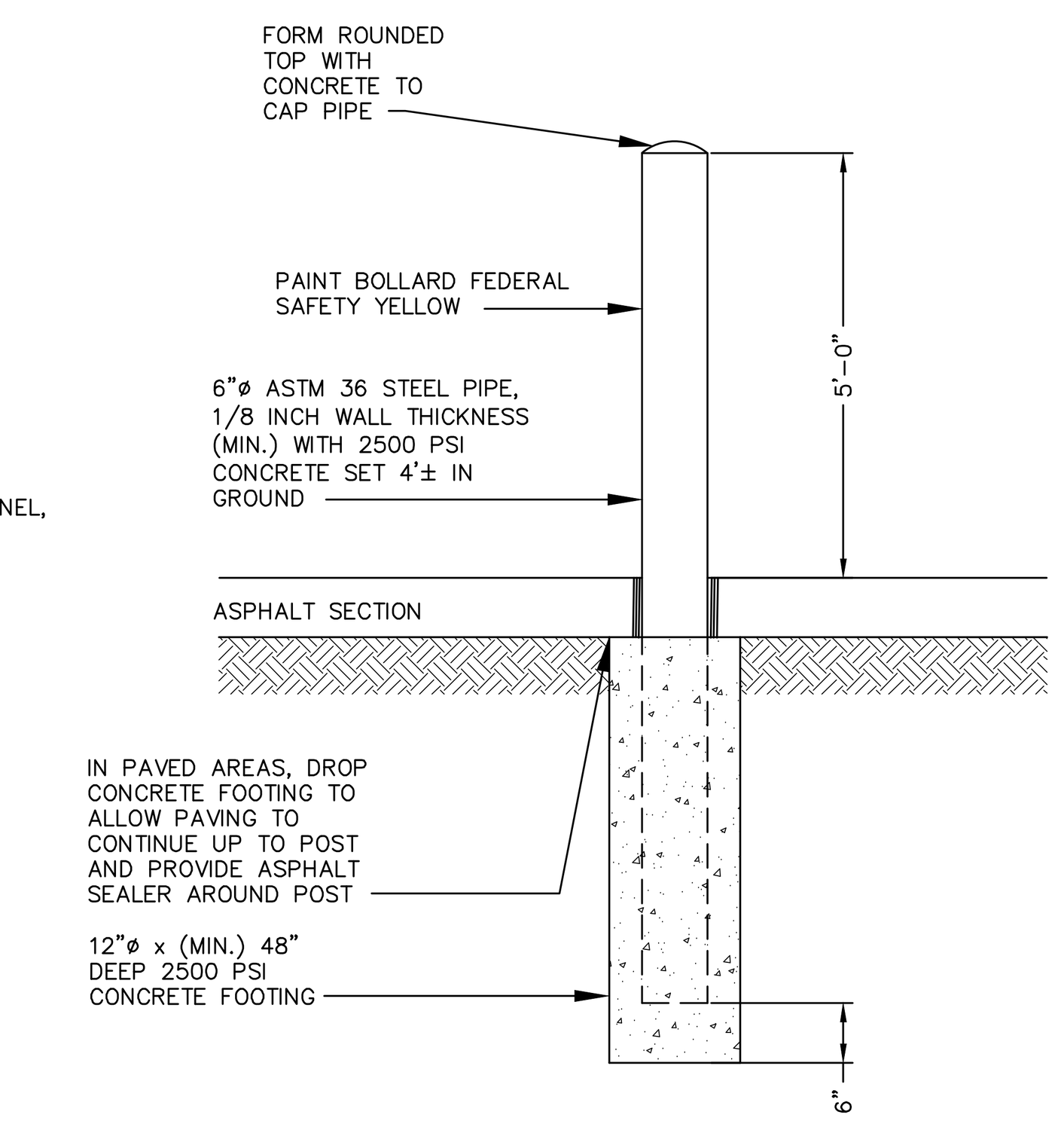
PARKING AND STRIPING DETAIL
NOT TO SCALE

TEXT	APPROXIMTE SIZE OF SIGN	MUTCD NO.	COLOR BACKGROUND	COLOR LEGEND	TYPE OF MOUNTING
STOP	30"x30"	R1-1	RED	WHITE	POST MOUNT

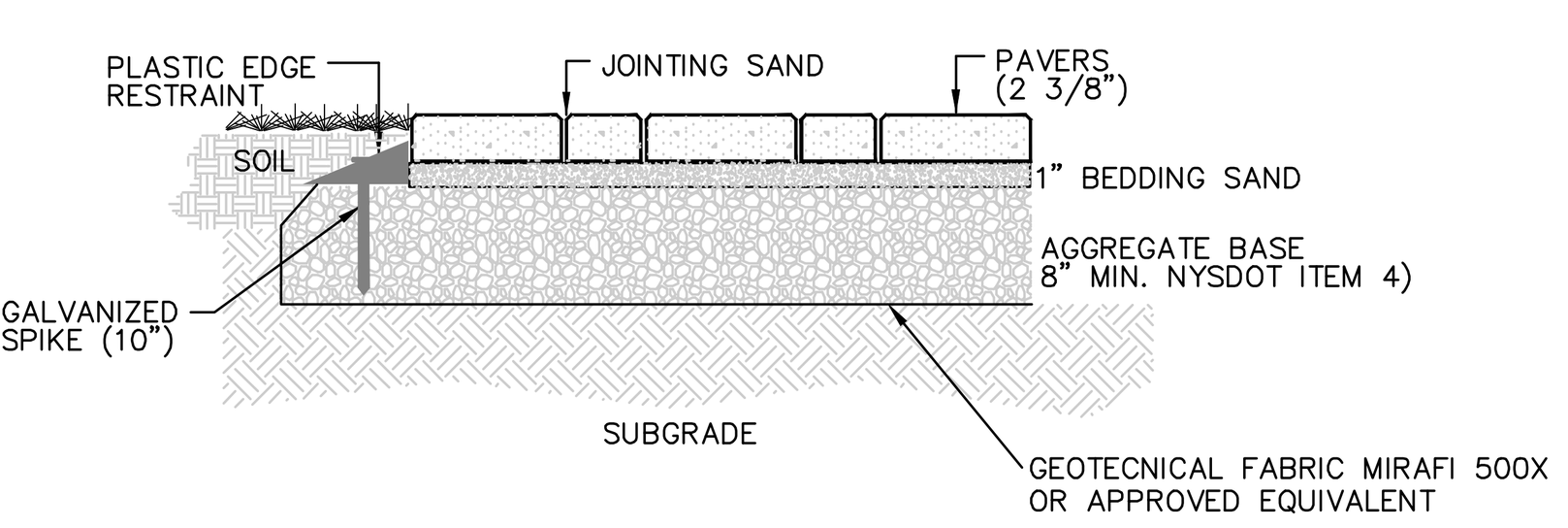


NOTES:
1. SIGN MOUNTING HEIGHT SHALL BE A MINIMUM OF 7'. MINIMUM MOUNTING HEIGHT MAY BE ADJUSTED ONLY IN ACCORDANCE WITH PROVISIONS OUTLINED IN "NYCRR, CHAPTER V–UNIFORM TRAFFIC CONTROL DEVICES."
2. SIGN POST SHALL BE IN ACCORDANCE W/ NYSDOT STANDARD SPECS SECTION 730.
3. SIGN BRACING PER NYSDOT STANDARD SHEETS.
4. SIGN POSTS WITHIN THE COUNTY RIGHT-OF-WAY SHALL BE BREAKAWAY TYPE MEETING THE REQUIREMENTS OF THE NYSDOT.

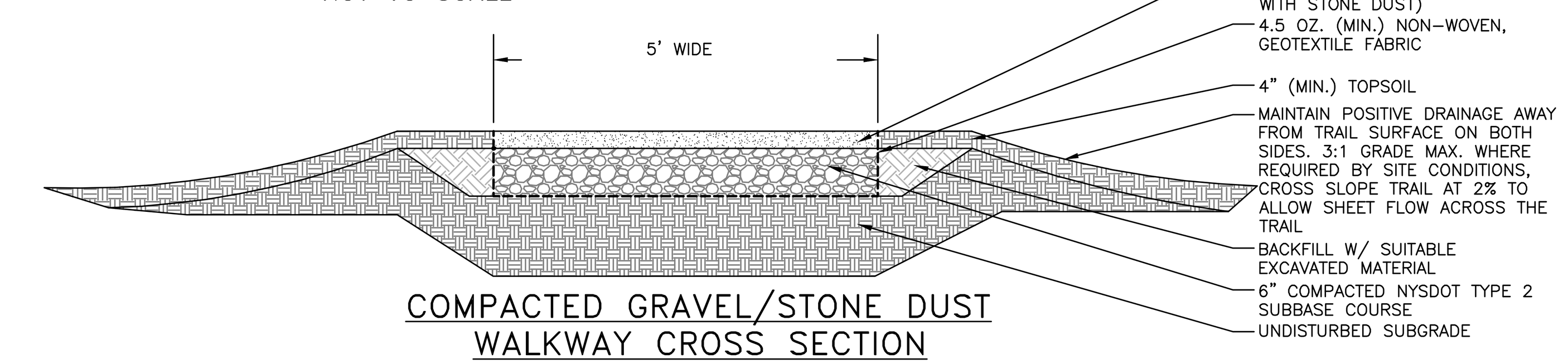
SINGLE POST SIGN DETAIL
NOT TO SCALE



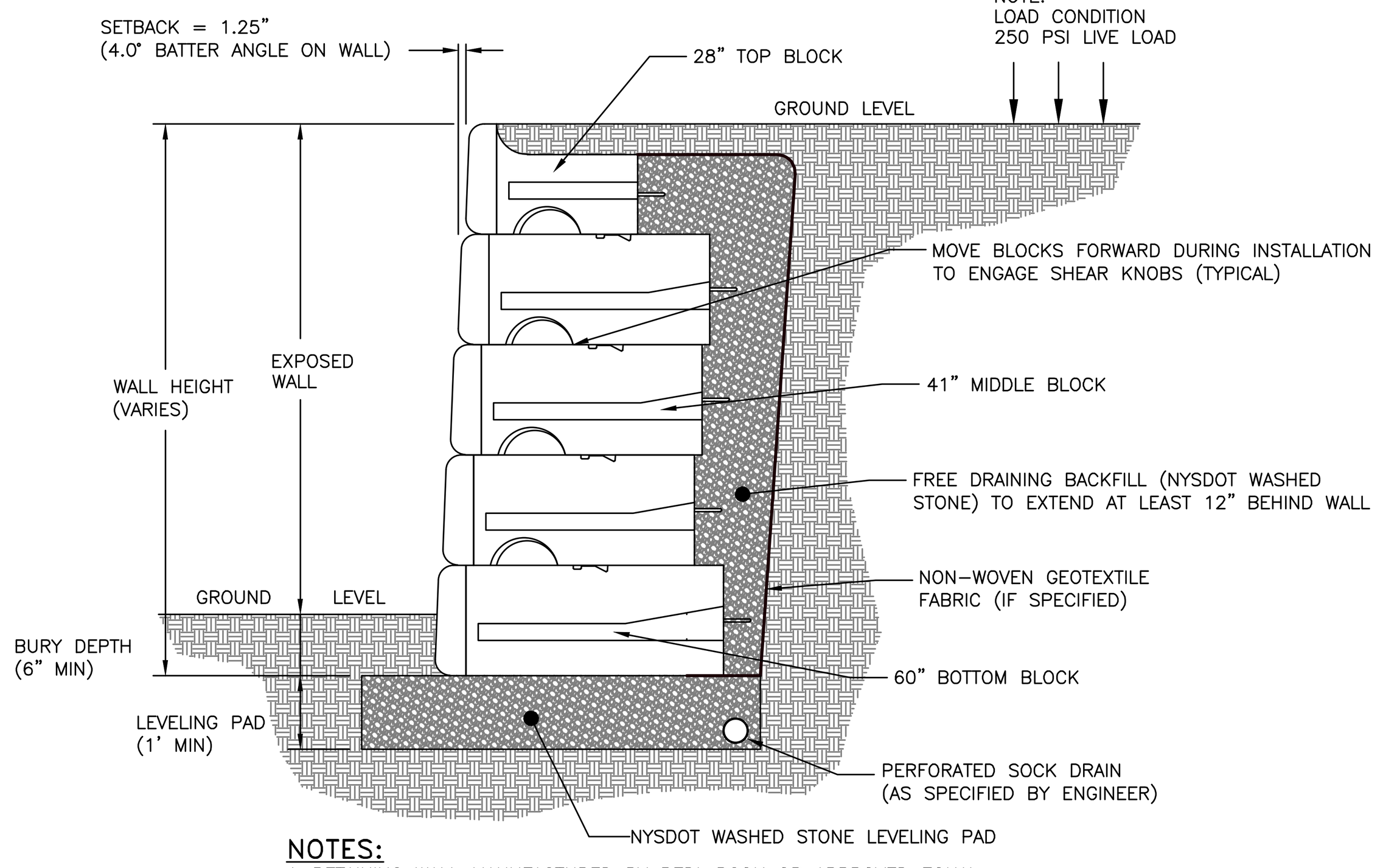
CONCRETE BOLLARD DETAIL
NOT TO SCALE



CONCRETE PAVER DETAIL
NOT TO SCALE

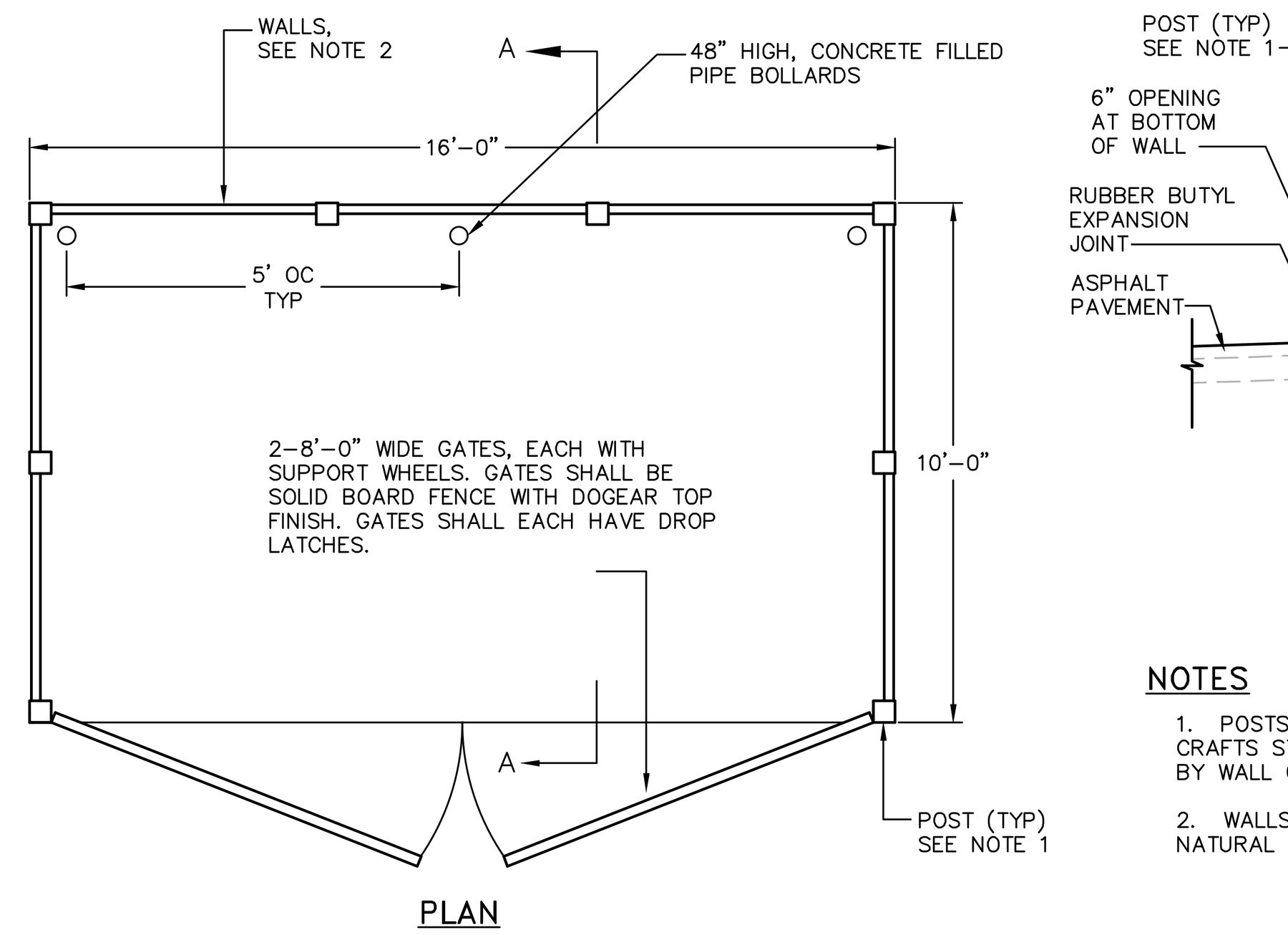


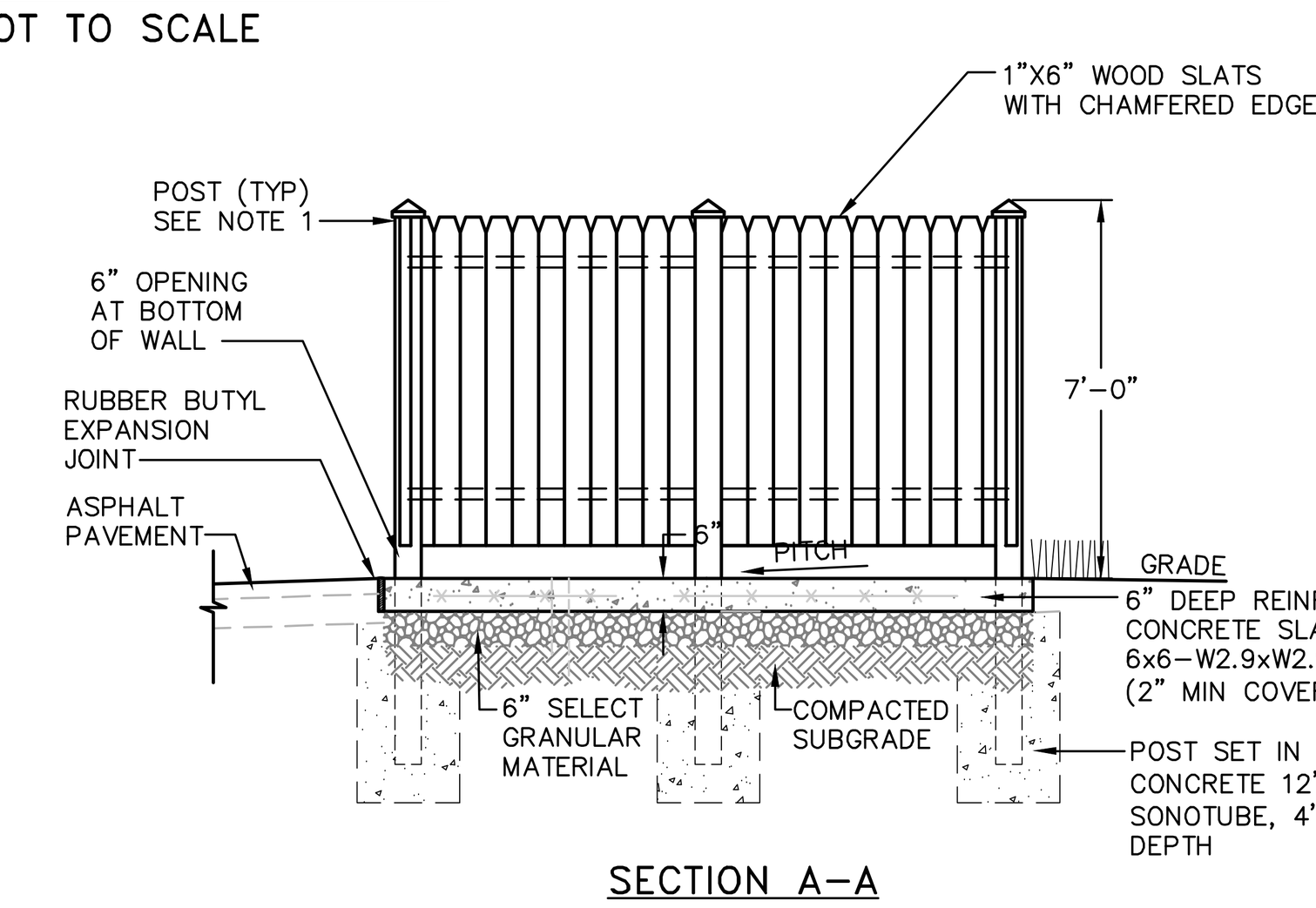
COMPACTED GRAVEL/STONE DUST WALKWAY CROSS SECTION
NOT TO SCALE



NOTES:
1. RETAINING WALL MANUFACTURED BY REDI-RCOK 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.

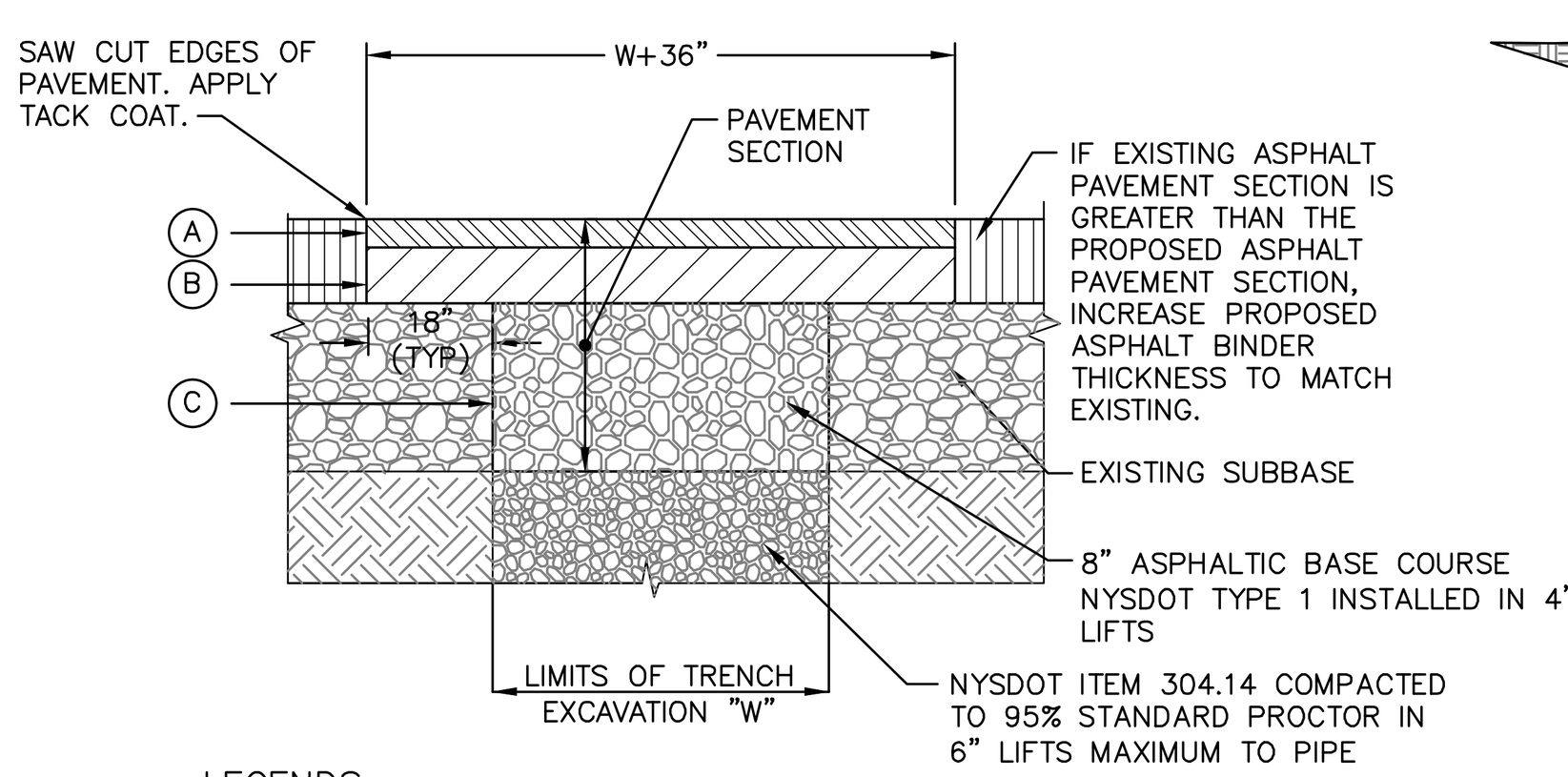
TYPICAL REDI-ROCK GRAVITY WALL WITH 41" BLOCKS
NOT TO SCALE





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



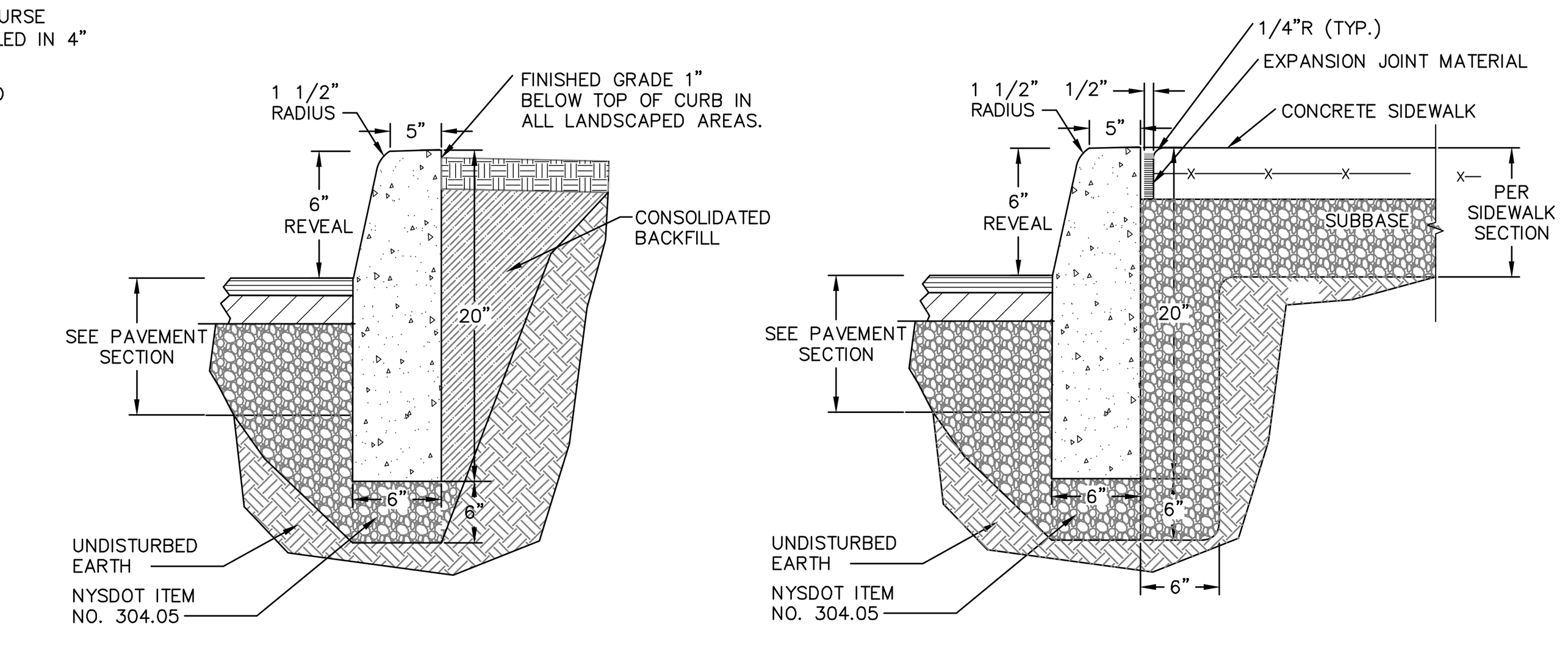
LEGENDS

SOUTH AVENUE RESTORATION COURSES:
- (A) 1-1/2" ASPHALT CONCRETE TOP COURSE– NYSDOT TYPE 6F
- (B) 3-1/2" ASPHALT CONCRETE BINDER COURSE– NYSDOT TYPE 3
- (C) 3-1/2" ASPHALTIC BASE COURSE– NYSDOT TYPE 1 (4" LIFTS)

HOWLAND AVENUE RESTORATION COURSES:
- (A) 1-1/2" ASPHALT CONCRETE TOP COURSE– NYSDOT TYPE 6F
- (B) 2-1/2" ASPHALT CONCRETE BINDER COURSE– NYSDOT TYPE 3
- (C) 8" ASPHALTIC BASE COURSE– NYSDOT TYPE 1 (4" LIFTS)

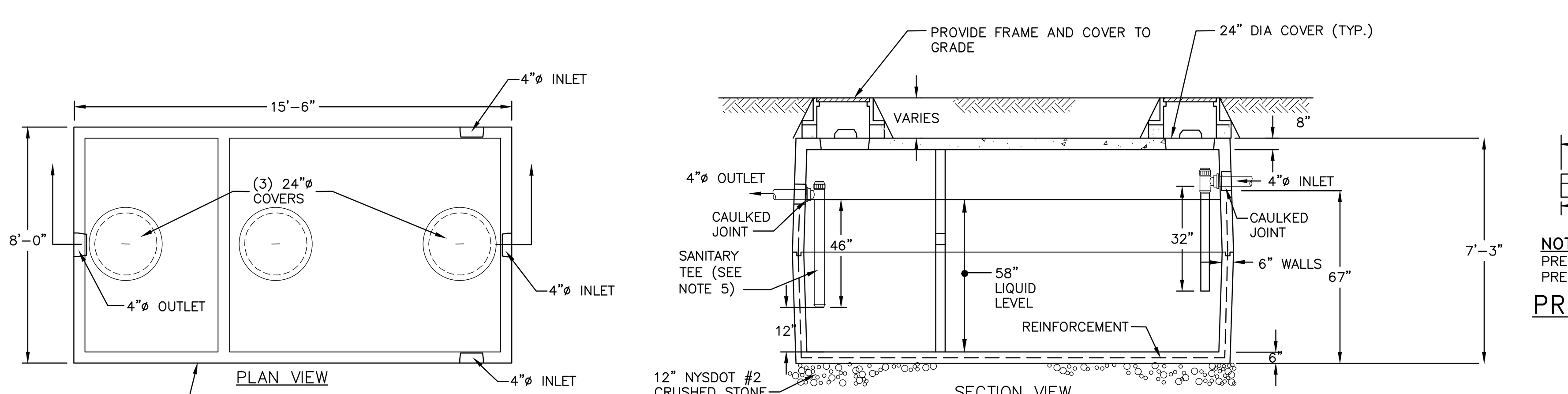
NOTES:
1. SAW CUT MIN. 18" BEYOND EXCAVATION WITH SMOOTH EDGES. 18" JOINT BETWEEN EXISTING AND NEW TOP COURSE TO BE MILLED. JOINT TO BE SEALED WITH POLYMER MODIFIED SEALER.
2. FURNISH, PLACE, AND COMPACT SUBBASE IN TWO 4" LIFTS.
3. TACK COAT IN ACCORDANCE WITH NYSDOT STANDARD SPEC.
4. FURNISH AND PLACE ASPHALT CONCRETE PAVEMENT AS SPECIFIED.
5. USE SOUTH AVENUE RESTORATION DETAIL FOR WORK WITHIN GRANDVIEW AVENUE.

PAVEMENT RESTORATION DETAIL
NOT TO SCALE



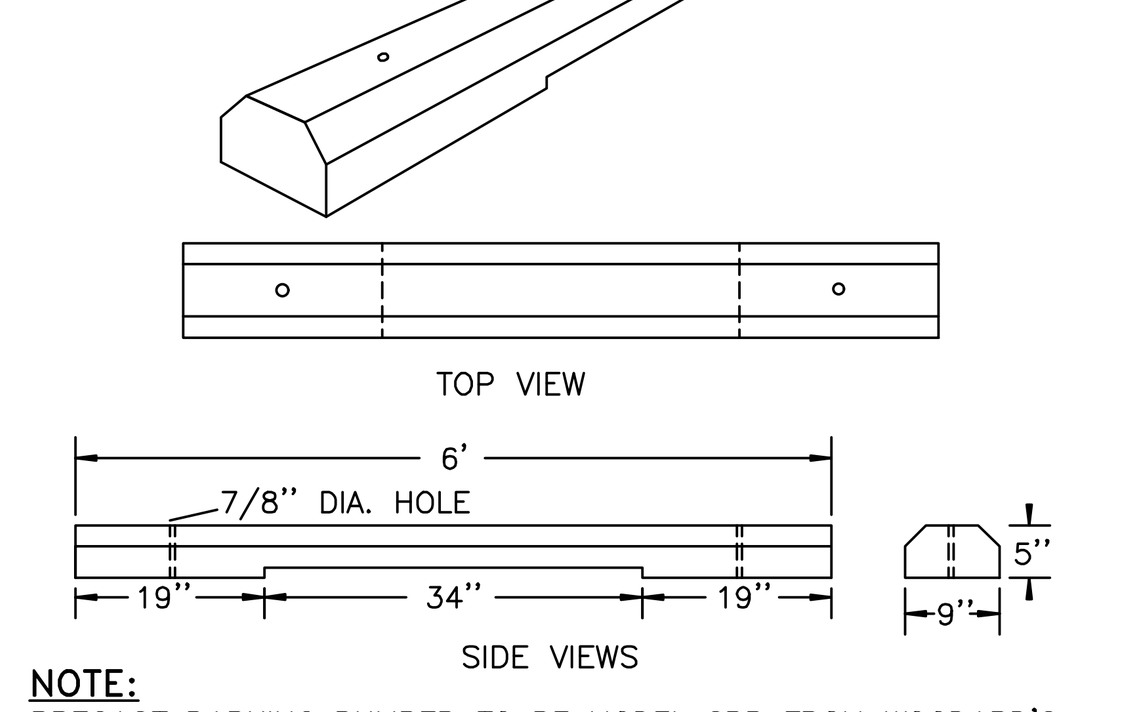
NOTES:
1. CONCRETE CURB SHALL BE 4,000 PSI CAST-IN-PLACE, AND IN ACCORDANCE WITH NYSDOT STANDARD SPECIFICATION SECTION 609.
2. EXPANSION JOINTS OF 1/2" CELLULOSE OR SIMILAR MATERIAL SHALL BE PLACED AT 10 FOOT INTERVALS.
3. FOR MOUNTABLE CURBS ABUTTING SIDEWALK OR OTHER HARDSCAPE, REFER TO "ABUTTING SIDEWALK" DETAIL.

CAST-IN-PLACE CONCRETE CURB DETAIL
NOT TO SCALE



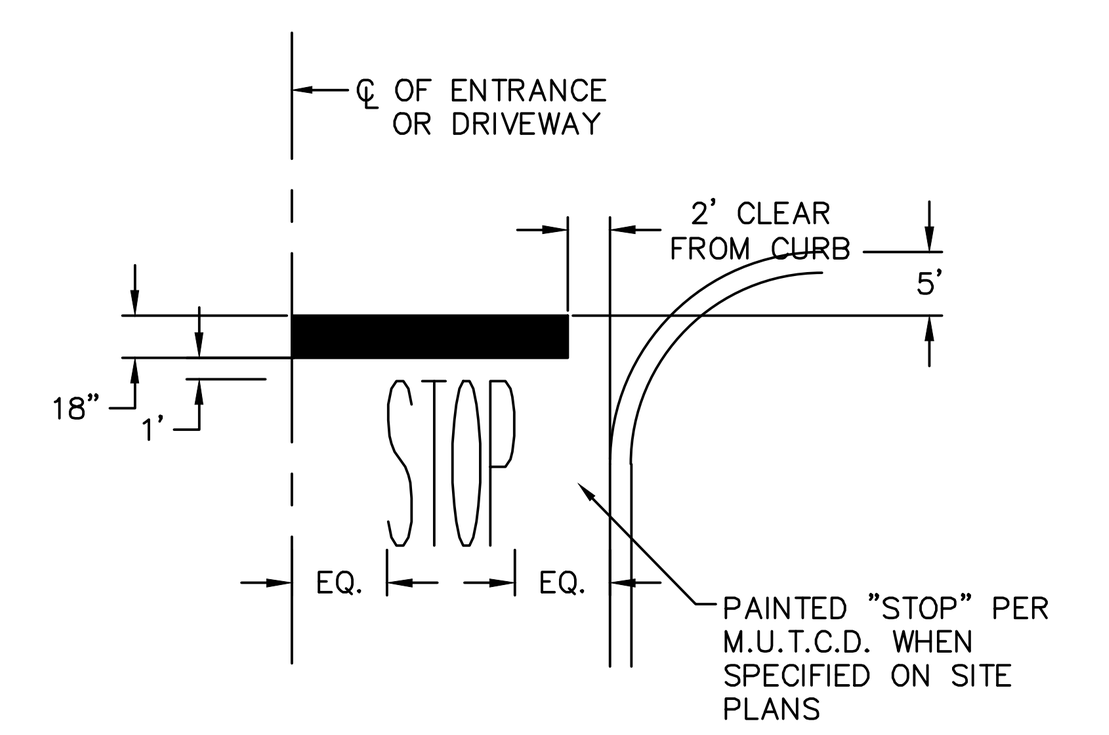
NOTES:
1. TANK SHALL BE RATED FOR H20 VEHICLE LOADING.
2. A WATER TIGHTNESS TEST SHALL BE COMPLETED BY THE CONTRACTOR, WITNESSED BY THE ENGINEER AND REGULATORY AGENCY, AND SHALL INCLUDE FILLING THE TANK AND MEASURING WATER LEVEL OVER A 24-HOUR PERIOD OR OTHER ACCEPTABLE METHOD.
3. ALL JOINTS SHALL BE 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 3,500 GALLON GREASE INTERCEPTOR DETAIL (H20 LOAD RATED)
NOT TO SCALE

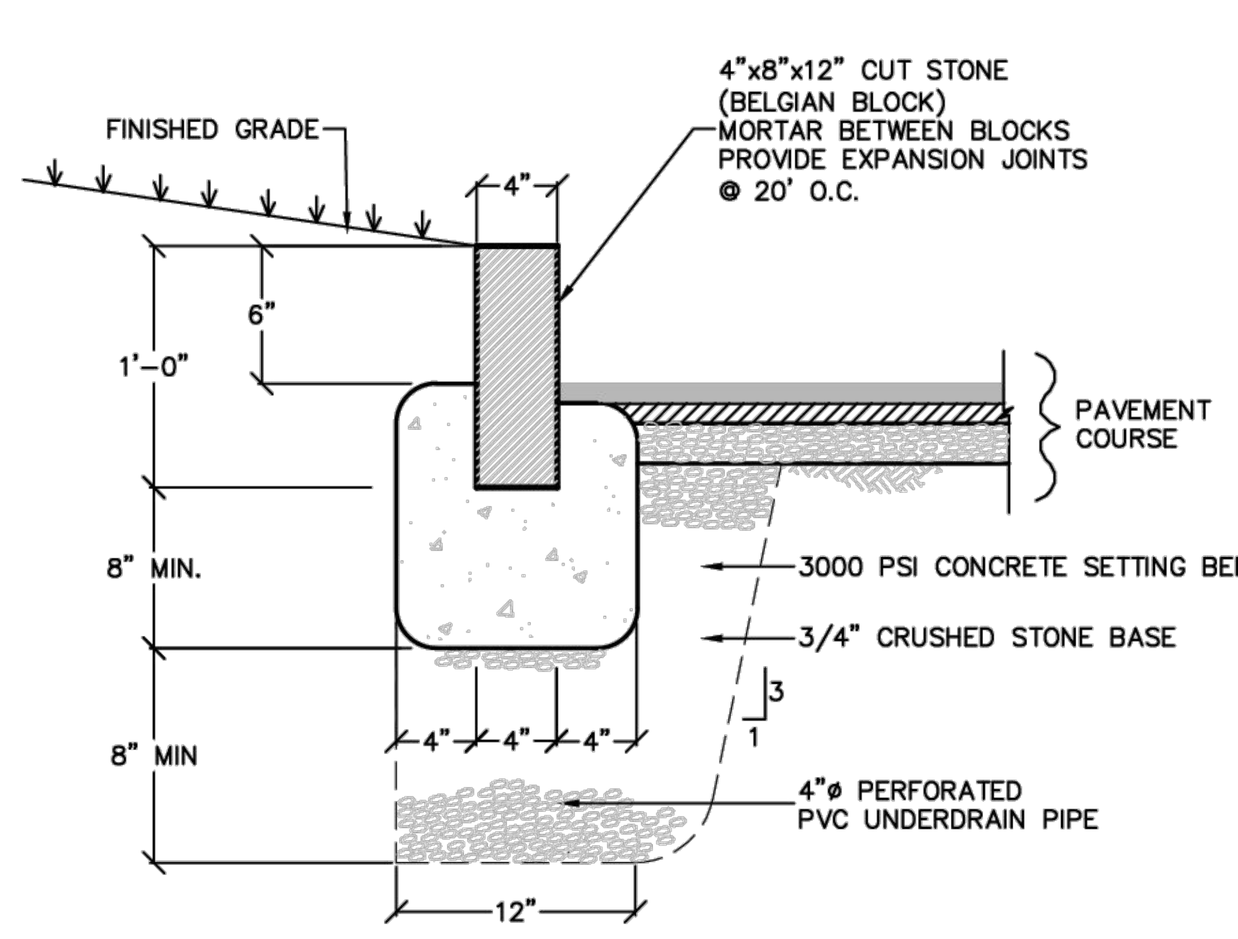


NOTE:
PRECAST PARKING BUMPER TO BE MODEL SBB FROM WOODARD'S PRECAST CONCRETE PRODUCTS OR APPROVED EQUAL.

PRECAST PARKING BUMPER DETAIL
NOT TO SCALE

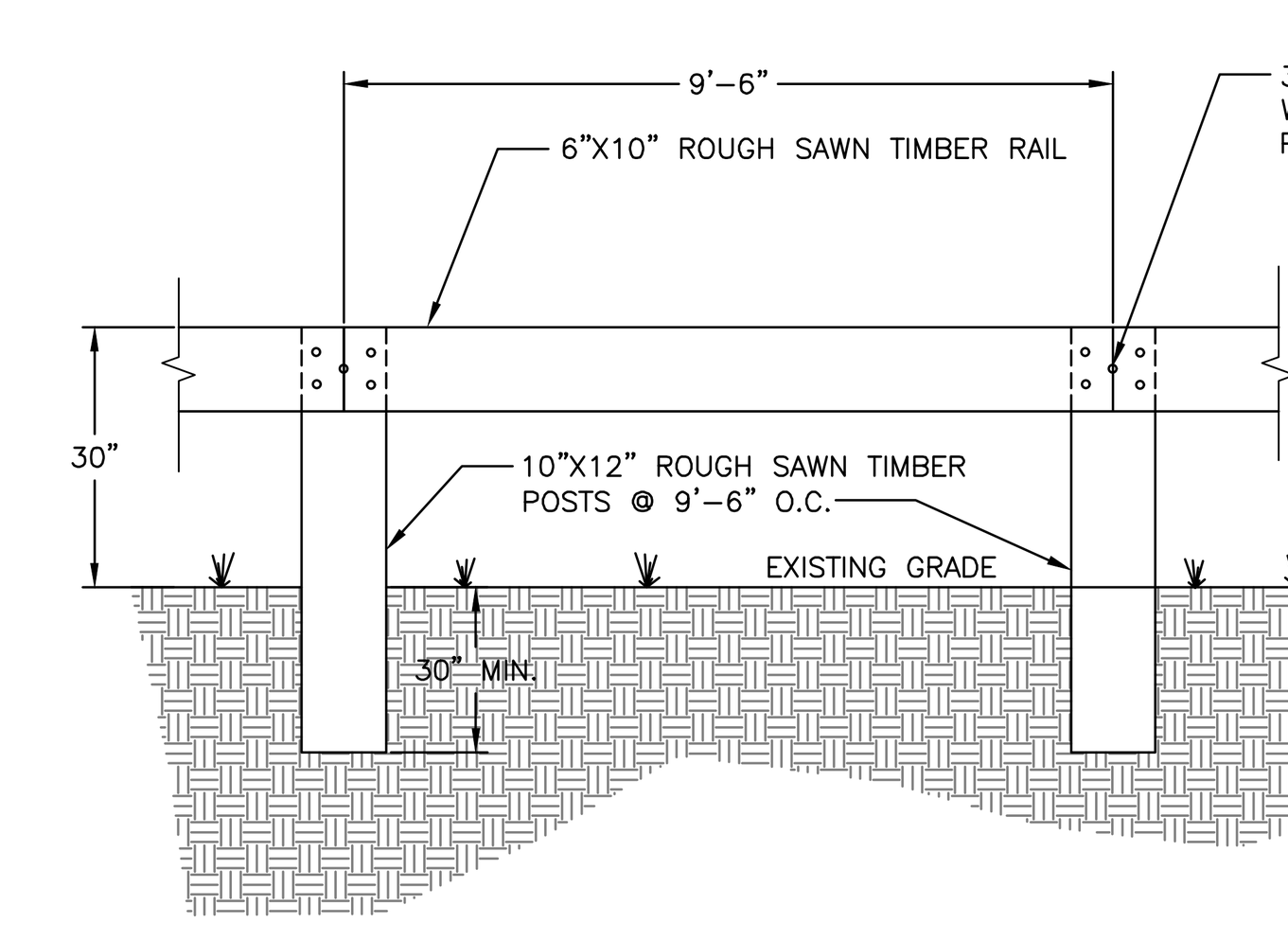


STOP BAR DETAIL
NOT TO SCALE



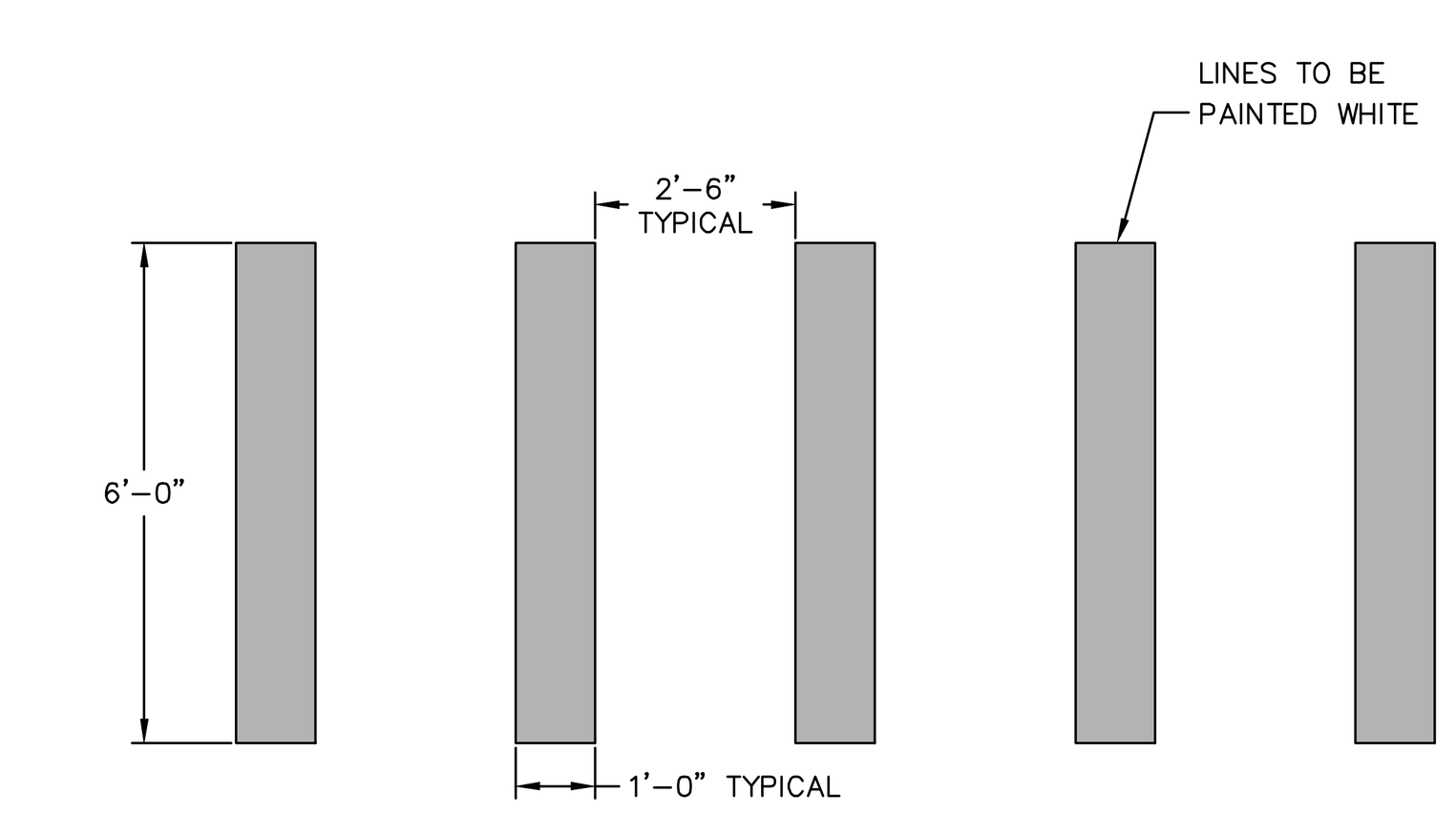
NOTES:
1. EXPANSION JOINTS OF 3/16" CELLULOSE OR SIMILAR MATERIAL SHALL BE PLACED AT TEN FOOT INTERVALS, TO FULL DEPTH OF CURB.
2. UNDERDRAIN MAY BE ELIMINATED IN PARKING LOTS AND OTHER NON-PUBLIC FACILITIES.

BELGIAN BLOCK CURB DETAIL
N.T.S.



NOTES:
1. STEEL-BACKED TIMBER GUIDERAIL SHALL BE IN ACCORDANCE WITH FHWA STANDARD SHEET 617-20. REFER STANDARD SHEET FOR ADDITIONAL DETAILS.

STEEL-BACKED TIMBER GUIDERAIL DETAIL
NOT TO SCALE



PAINTED CROSSWALK 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

NO.	DATE	DESCRIPTION	BY	NO.	DATE	DESCRIPTION	BY
12	2/27/24	AMENDED SITE PLAN	CMB				

ARROWSTREET
ARCHITECTURE & DESIGN
10 POST OFFICE SQUARE
SUITE 700N
BOSTON MA 02109
617.623.5555
arrowstreet.com

Mirbeau INN & SPA

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HUDSON LAND DESIGN

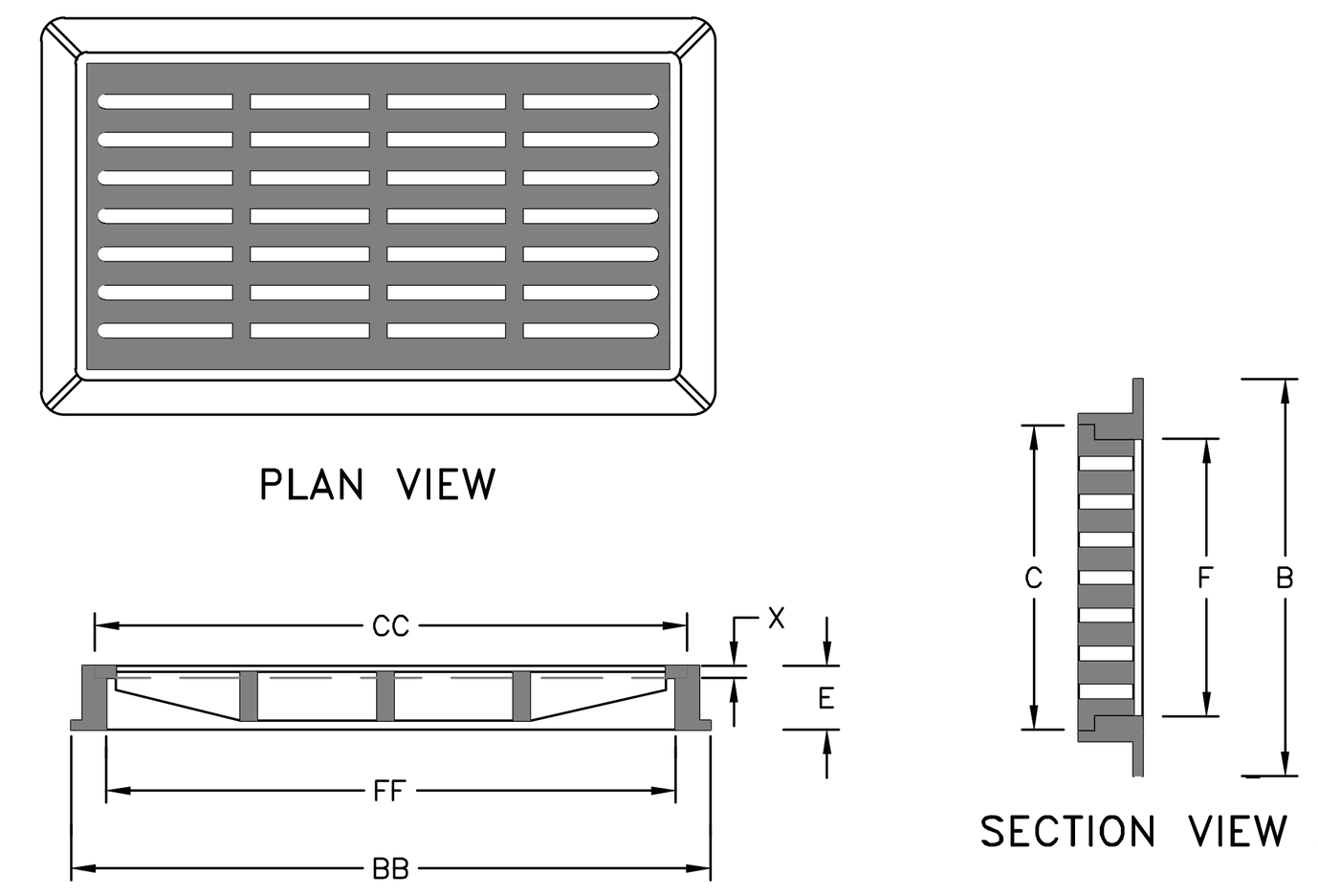
STATE OF NEW YORK — MICHAEL A. BODENDORF — LICENSED PROFESSIONAL ENGINEER — 084466
SEAL

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

CONSTRUCTION DETAILS
MIRBEAU BEACON
11 MIRBEAU 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 29

UNAUTHORIZED ALTERATIONS OR ADDITIONS TO THIS DRAWING IS A VIOLATION OF SECTION 7209.2 OF THE NEW YORK EDUCATION LAW



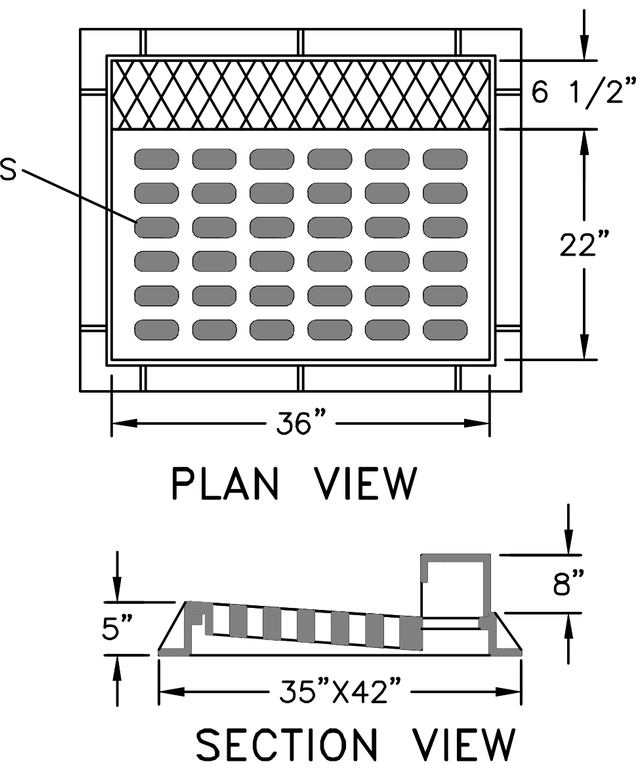
DIMENSION TABLE:

B	C	E	F	X	BB	CC	FF
30½"	24⅜"	4"	22"	1⅛"	41⅛"	36⅞"	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

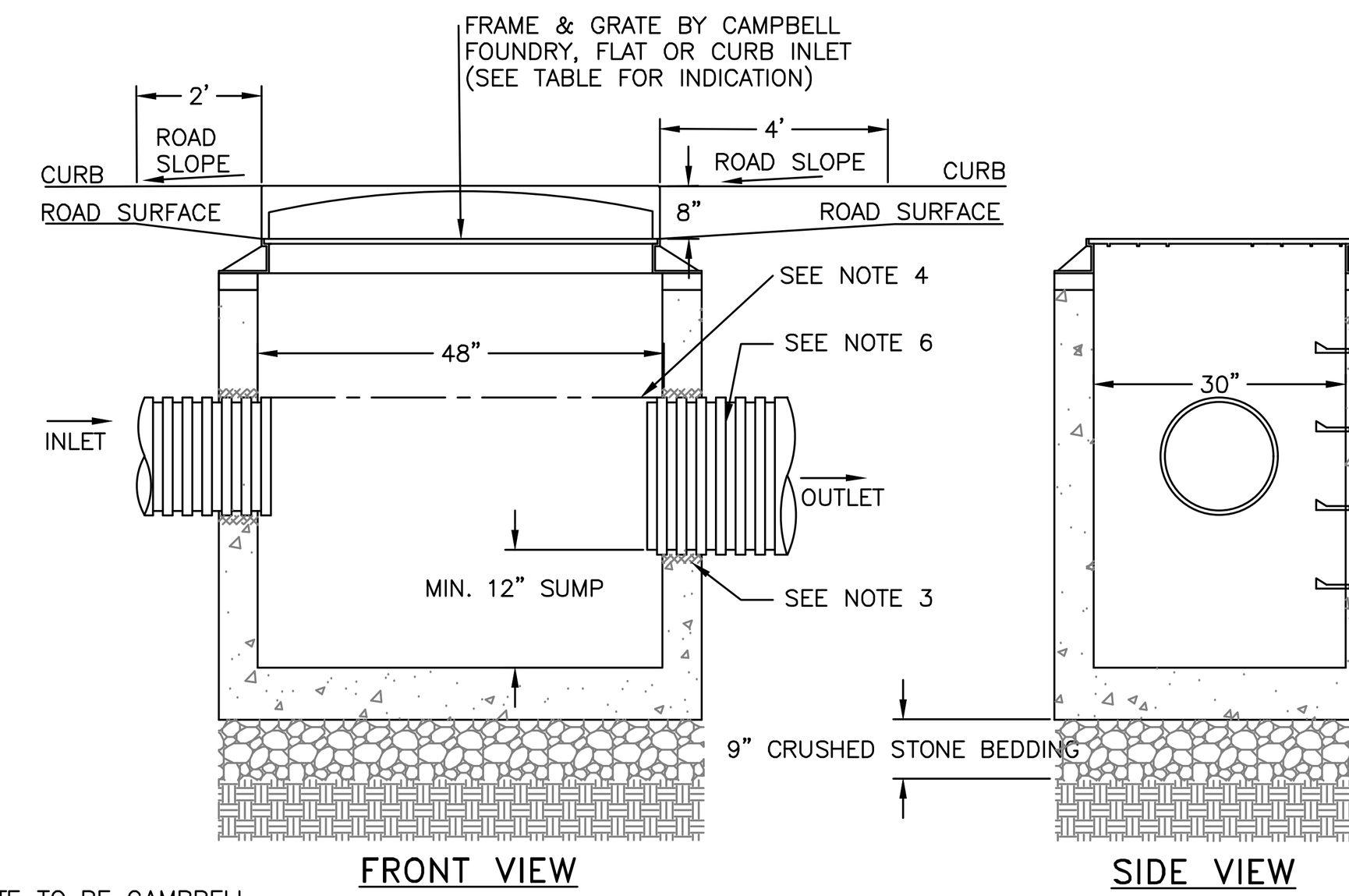
CAST IRON STORMWATER FLAT INLET GRATE DETAIL
NOT TO SCALE



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.

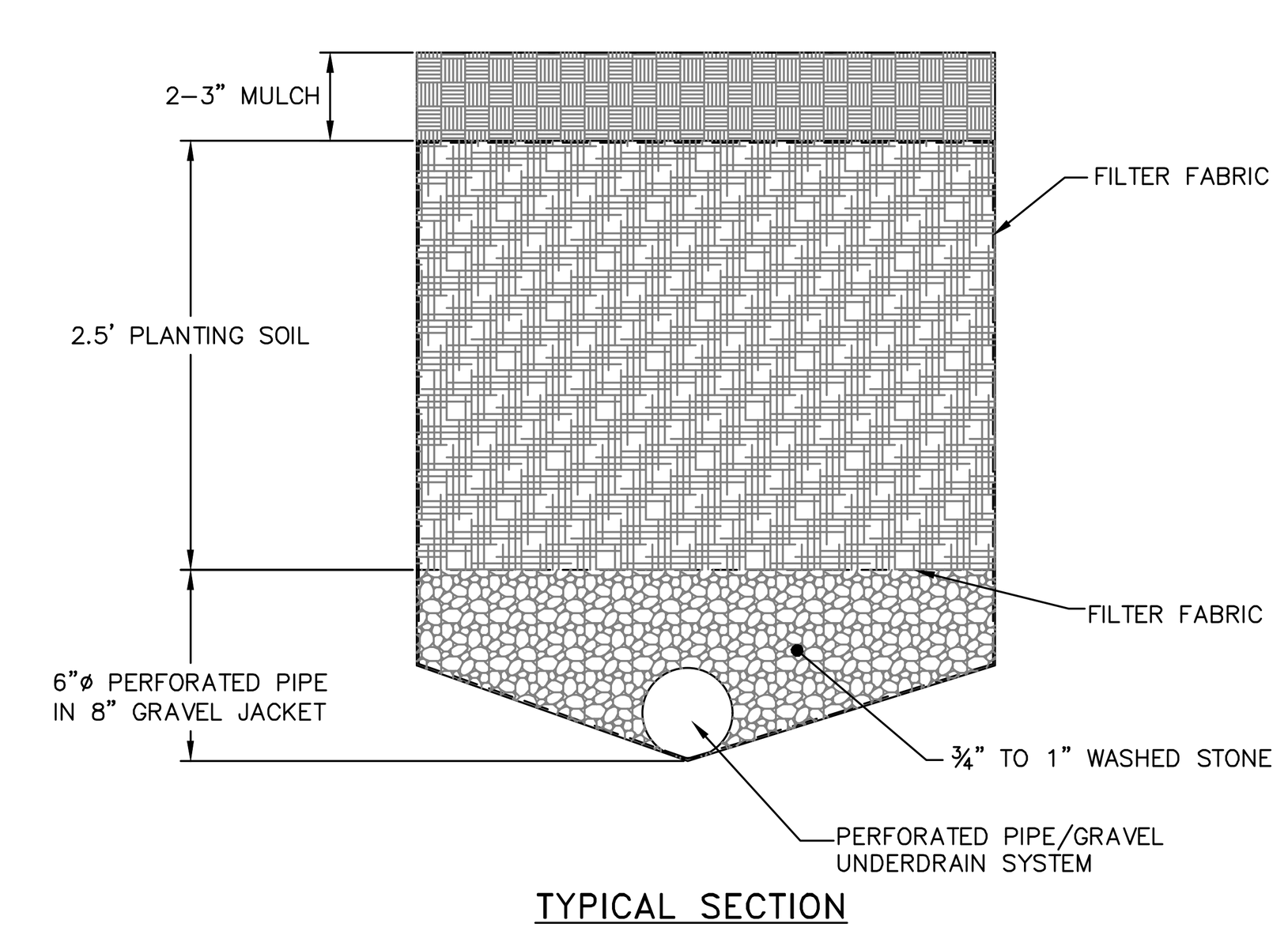
CAST IRON STORMWATER CURB INLET GRATE DETAIL
NOT TO SCALE

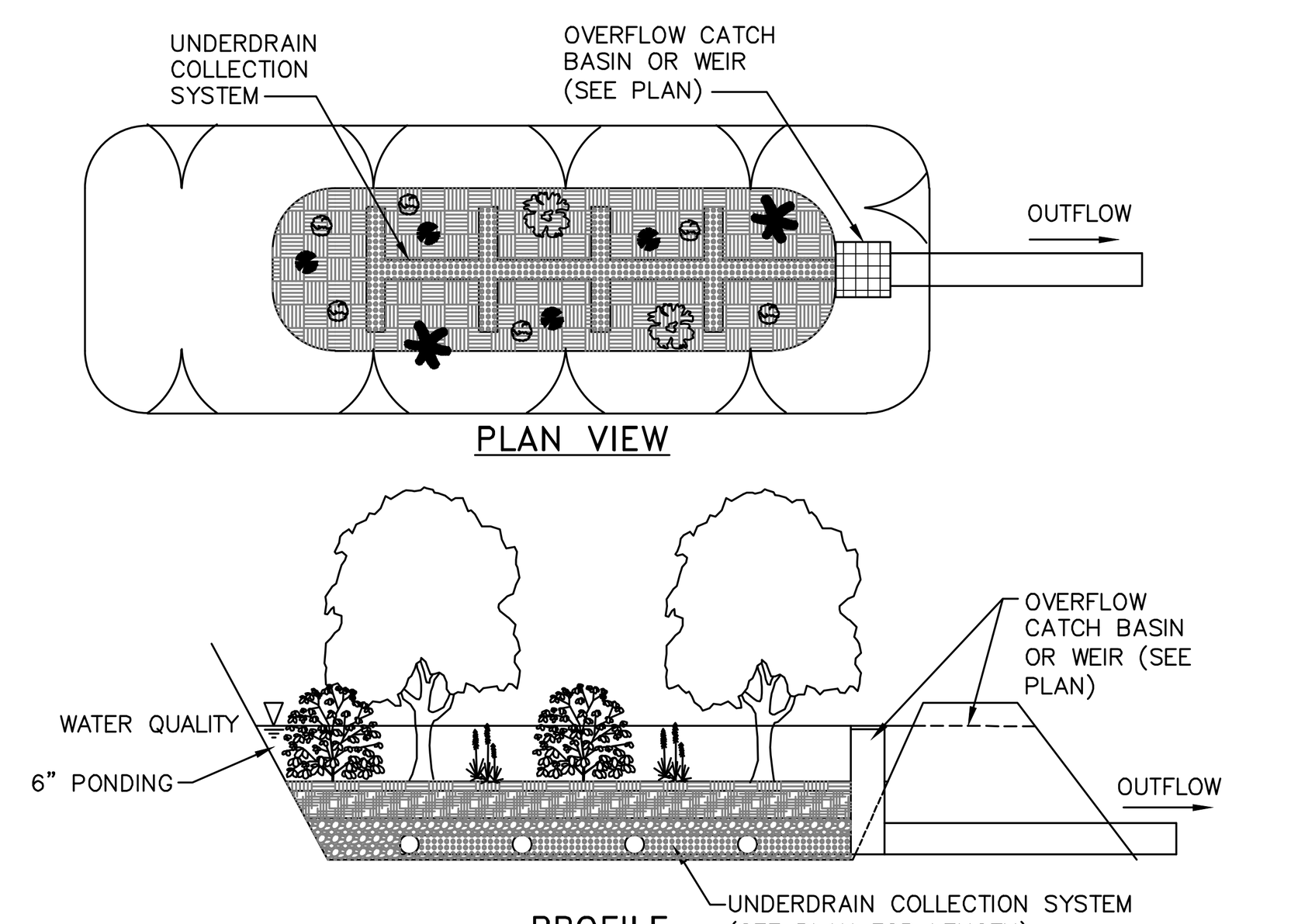


NOTES:

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

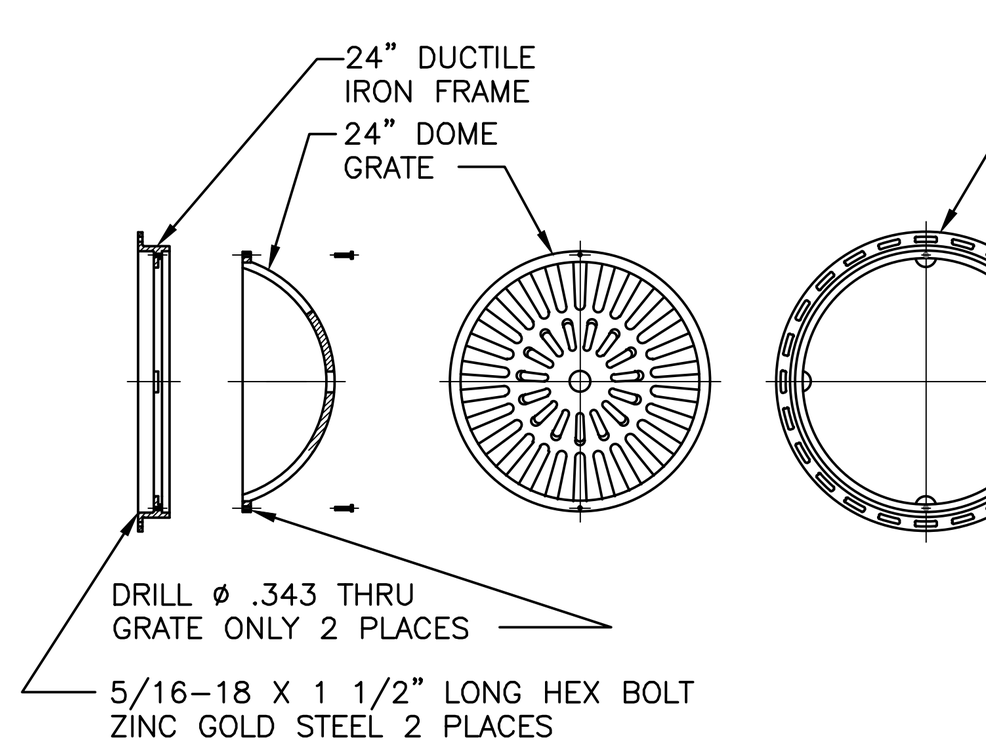


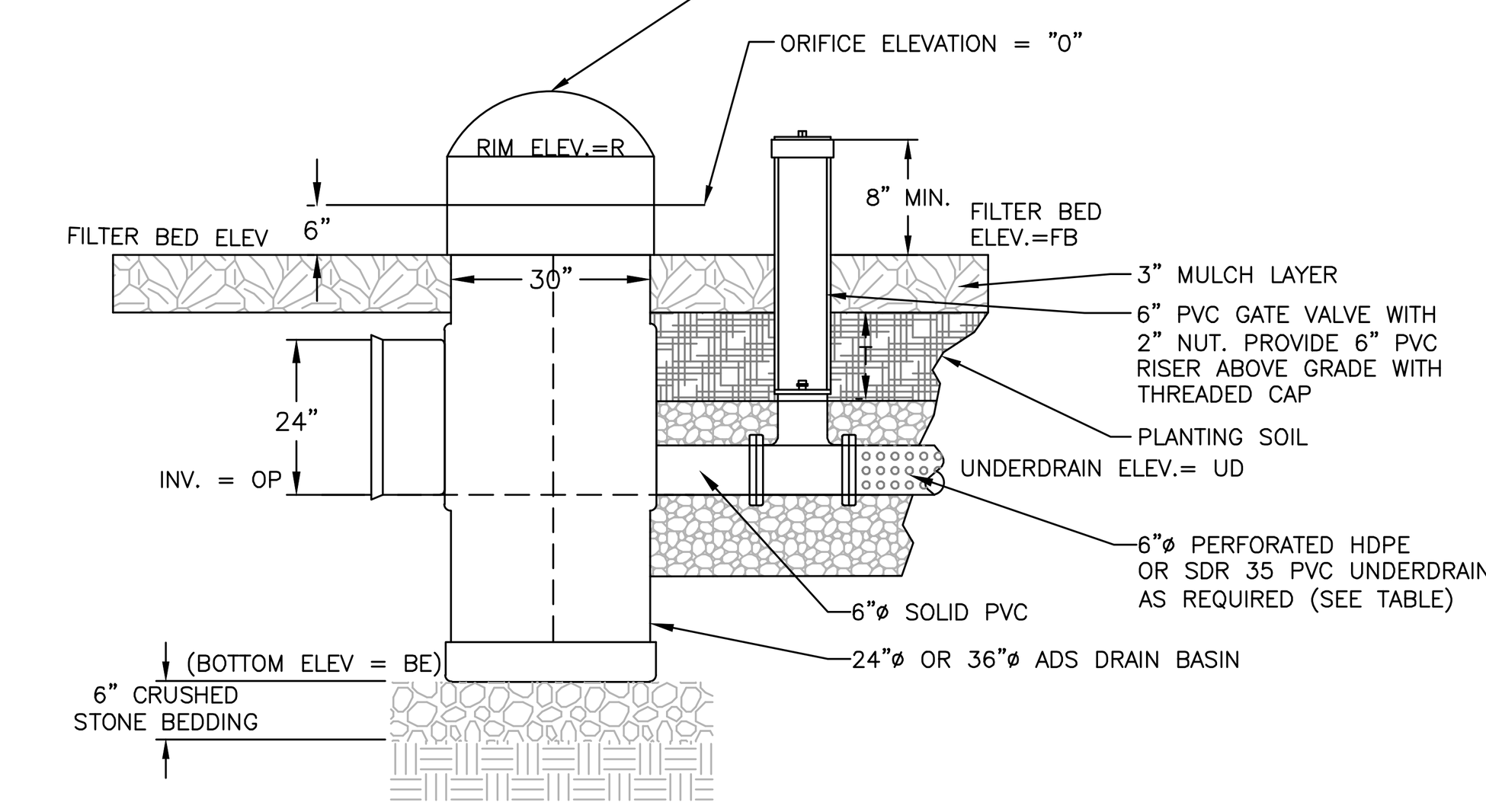


NOTES:

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





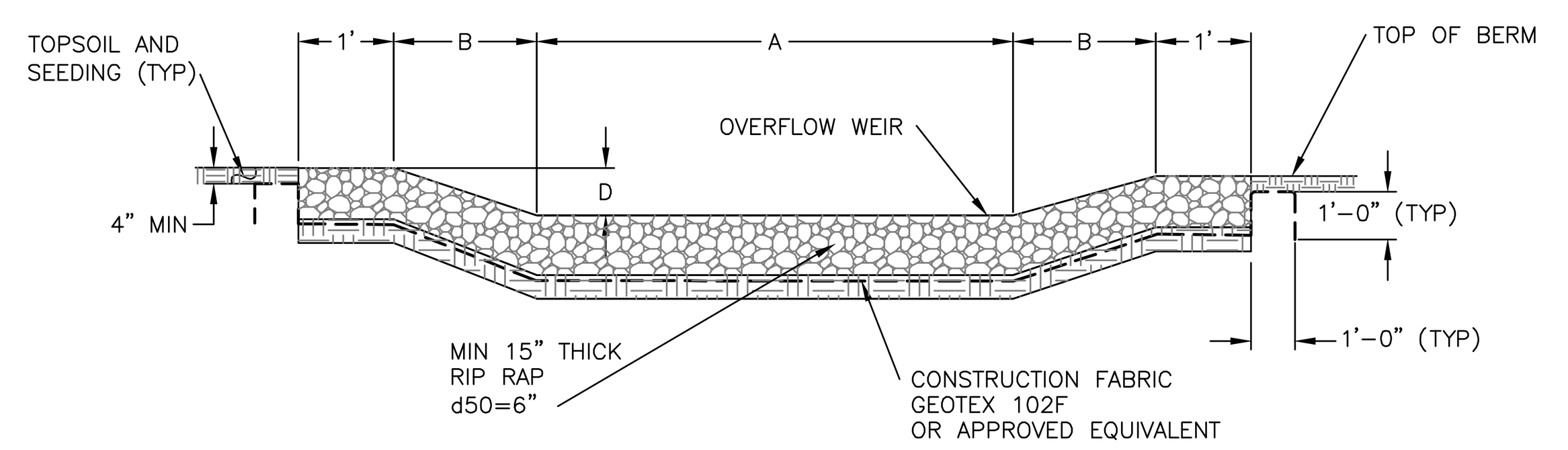
NOTES:

* UNDERDRAIN PIPE TO BE PROVIDED FOR DEWATERING PURPOSES ONLY. GATE VALVE TO REMAIN CLOSED.

OUTLET CONTROL STRUCTURE DATA

BIO ID	STRUCTURE DIMENSIONS	UNDERDRAIN PIPE REQ'D	"UD" (FT)	R (FT)	"T" (FT)	"FB" (FT)	OUTLET PIPE ø (IN)	"OP" (FT)	"O"	MIN. BERM ELEV. (FT)
B	30"X24" I.D.	YES*	134.75	138.50	2.5	138.0	15	134.75	N/A	139.00
C	30"X24" I.D.	YES*	136.75	140.5	2.5	140.00	15	136.75	N/A	141.00

ADS DRAIN BASIN OUTLET CONTROL STRUCTURE DETAIL
NOT TO SCALE



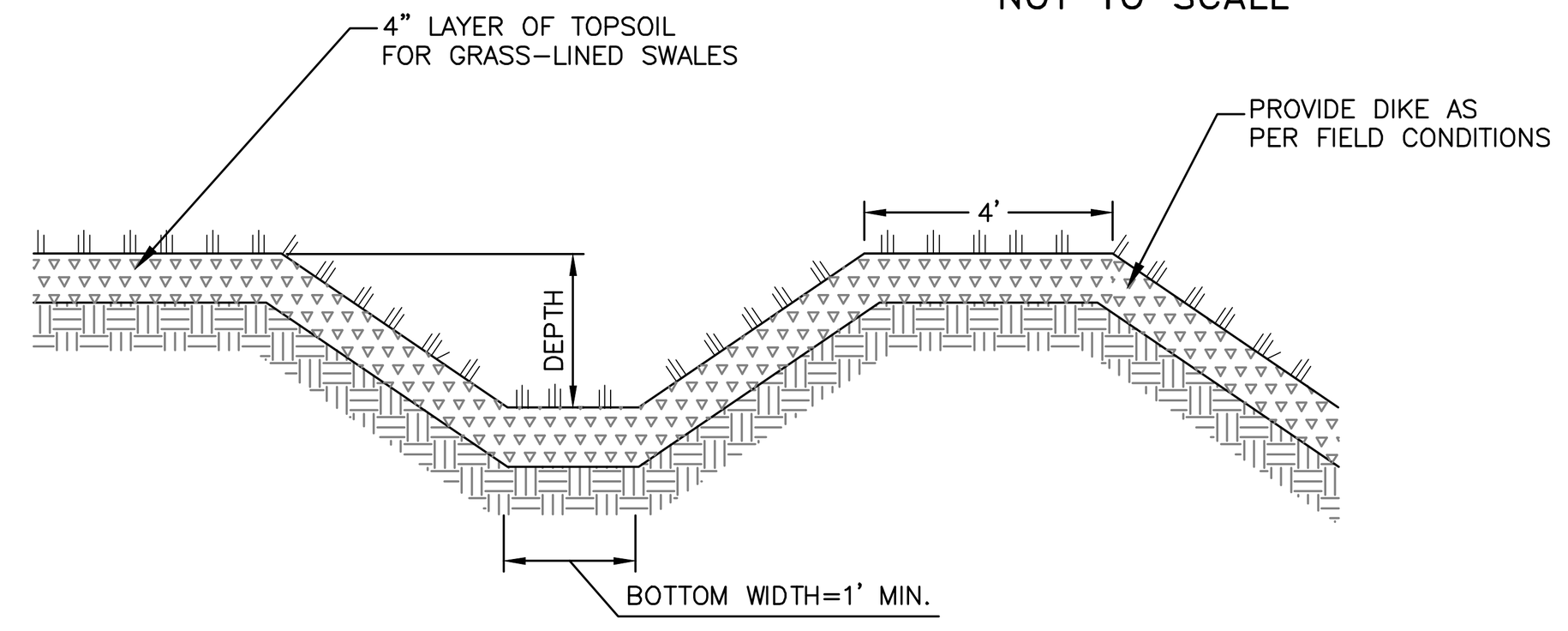
EMERGENCY OVERFLOW WEIR TABLE

SWM ID	OVERFLOW WEIR ELEVATION (FT)	DIMENSION A (FT)	DIMENSION B (FT)	DIMENSION D (IN)
INFILTRATION BASIN B FOREBAY	136.5	10	2	12
INFILTRATION BASIN B OVERFLOW WEIR	137.5	4	2	12

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.

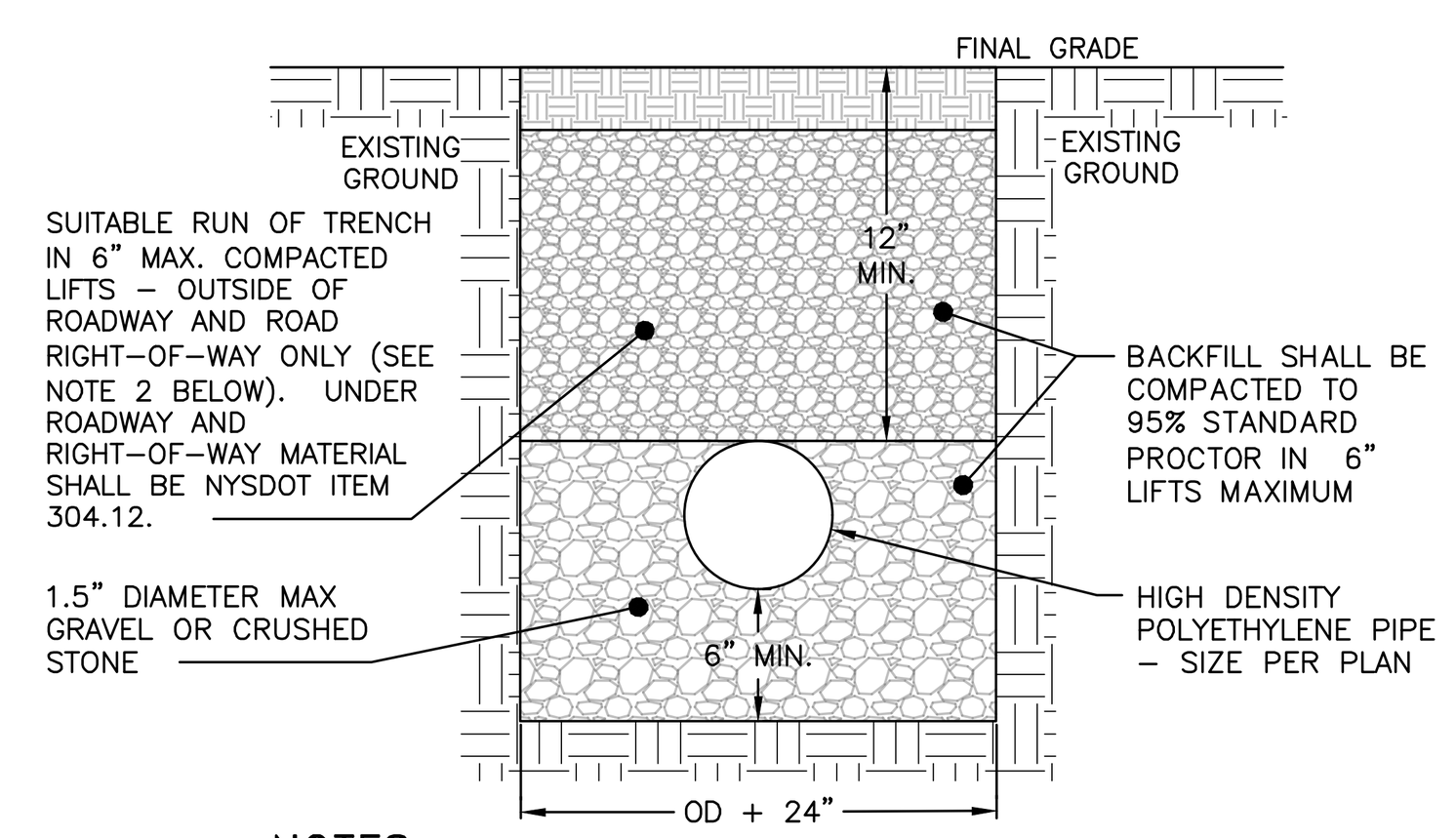
EMERGENCY OVERFLOW WEIR DETAIL
NOT TO SCALE



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.

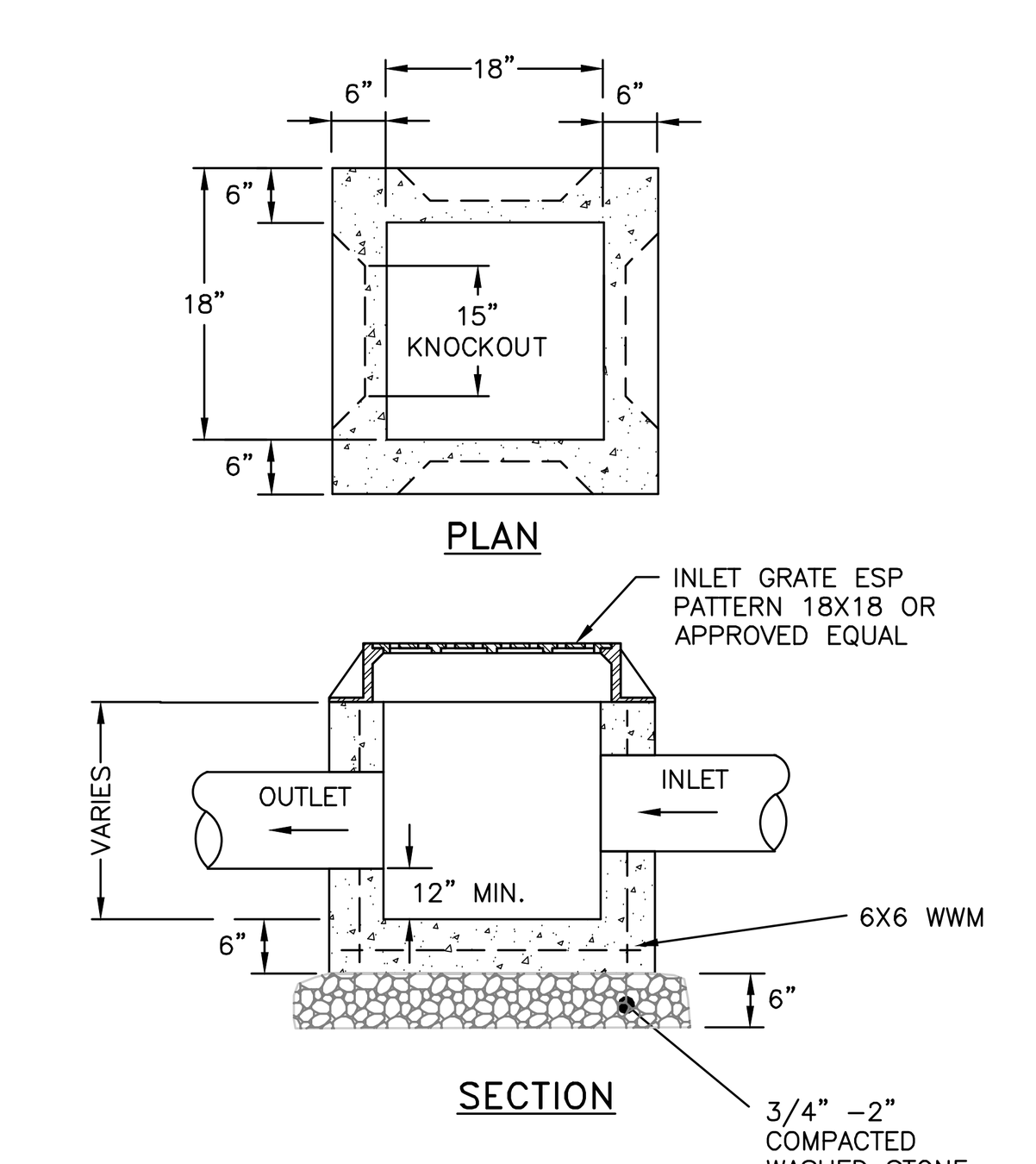
TEMPORARY GRASS LINED SWALE/DIKE DETAIL
NOT TO SCALE



NOTES:

1. EXCAVATION AND TRENCHING SHALL MEET ALL OSHA REQUIREMENTS.

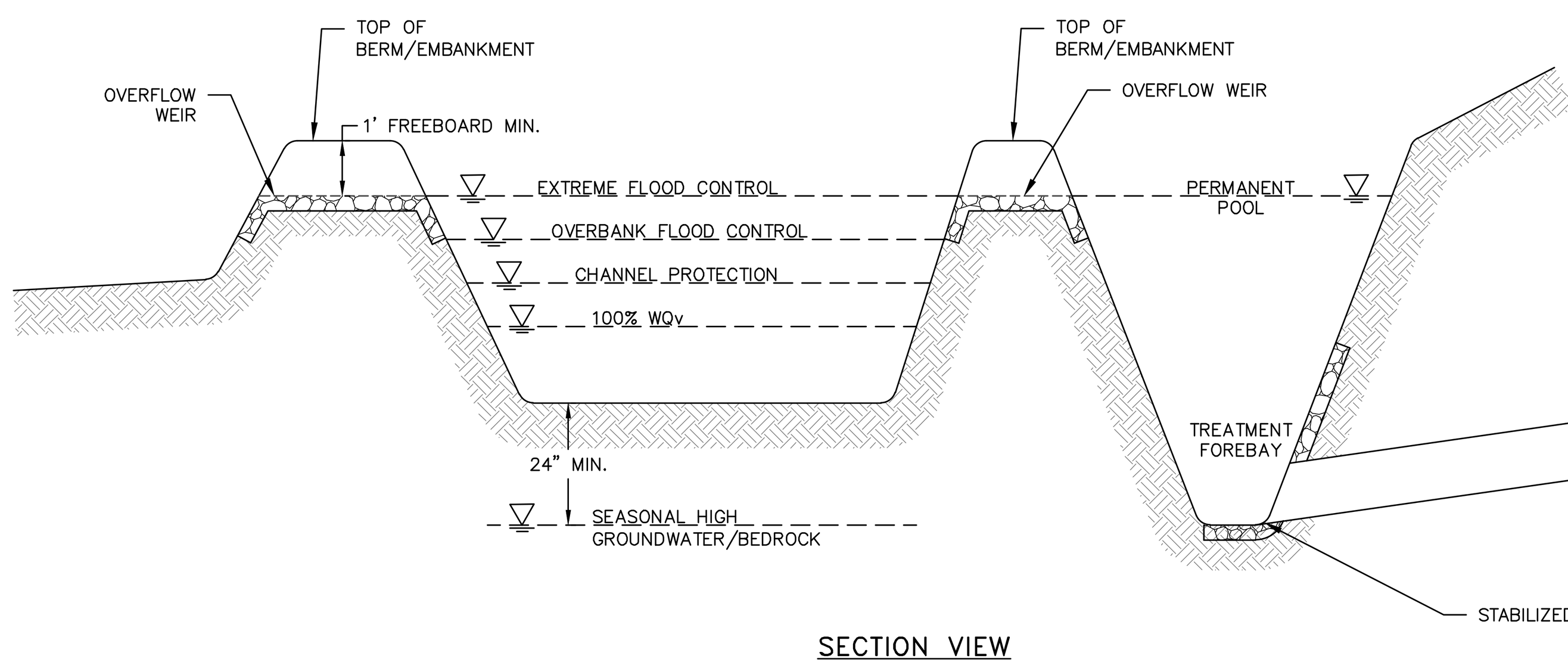
STORM LINE TRENCH DETAIL
NOT TO SCALE



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.

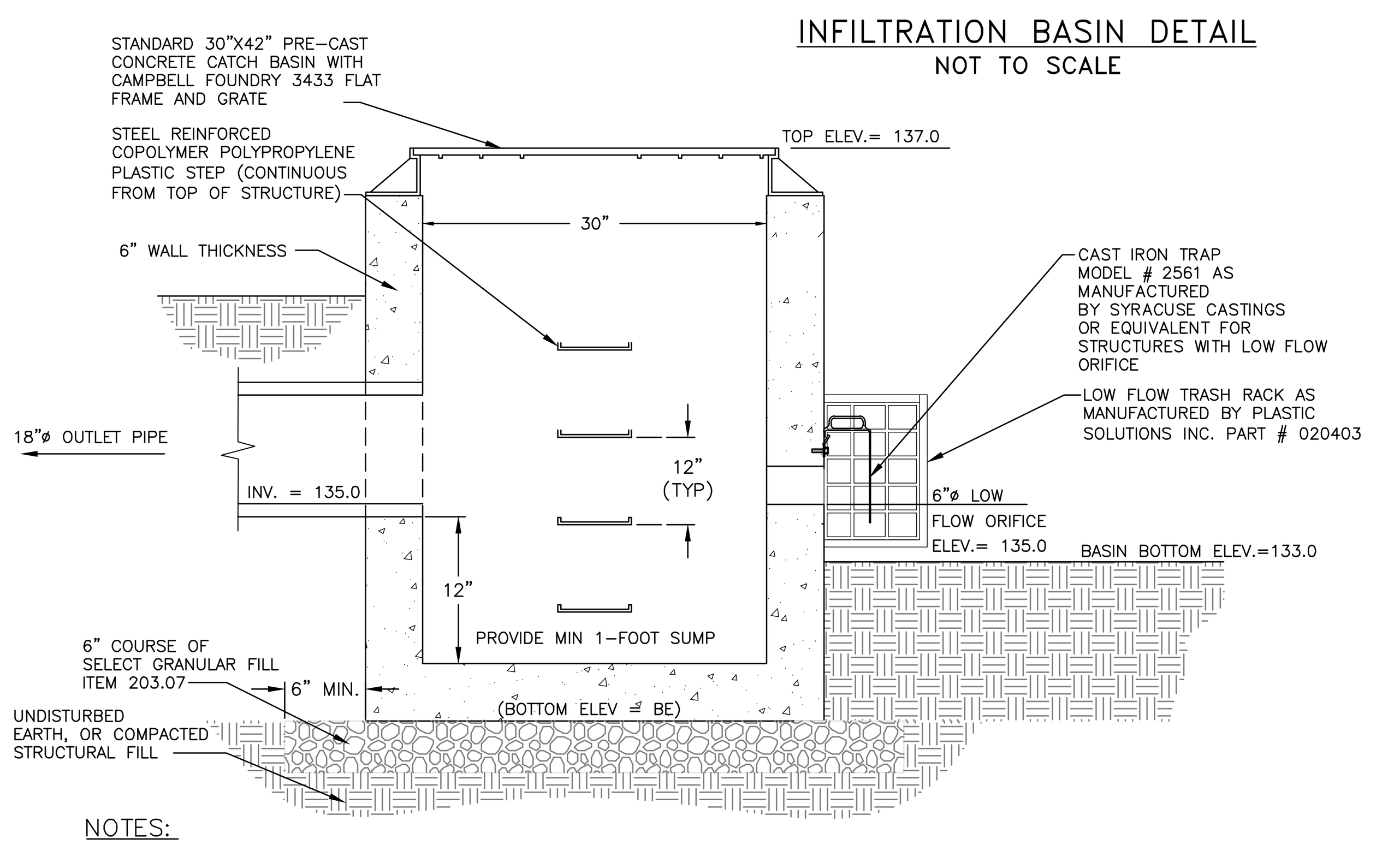
PRE-CAST CONCRETE YARD INLET DETAIL
NOT TO SCALE



INFILTRATION BASIN NOTES

1. THE INFILTRATION BASIN SHALL NOT SERVE AS A SEDIMENT TRAP DURING CONSTRUCTION AND SHALL BE PROTECTED FROM CONSTRUCTION ACTIVITY.
2. RELATIVELY LIGHT TRACKED EQUIPMENT IS RECOMMENDED FOR CONSTRUCTION PURPOSES TO AVOID COMPACTION OF THE BASIN FLOOR.
3. A HIGHLY POROUS SURFACE TEXTURE SHALL BE RETAINED ALONG THE BASIN FLOOR, ESPECIALLY WITHIN THE AREA IDENTIFIED AS BEING USED FOR INFILTRATION.
4. ESTABLISH DENSE VEGETATION ON THE BASIN SIDE SLOPES AND FLOOR TO PREVENT EROSION AND SLOUGHING AND TO PROVIDE A NATURAL MEANS OF MAINTAINING RELATIVELY HIGH INFILTRATION RATES. GRASSES OF THE FESCUE FAMILY (ALTAI FESCUE, WESTERN FESCUE OR RED FESCUE) ARE SPECIFIED ON THIS PLAN, PRIMARILY DUE TO THEIR ADAPTABILITY TO DRY SANDY SOILS, DROUGHT RESISTANCE, HARDINESS, AND ABILITY TO WITHSTAND BRIEF INUNDATIONS. FESCUE WILL ALSO ALLOW FOR LONG INTERVALS BETWEEN MOWINGS. WHICH SHALL OCCUR TWICE PER YEAR MINIMUM, TYPICALLY IN JUNE AND SEPTEMBER IS SATISFACTORY.
5. THE BERMS SHALL BE SUFFICIENTLY COMPACTED AND OF SUCH MATERIAL TO PREVENT SEEPAGE.

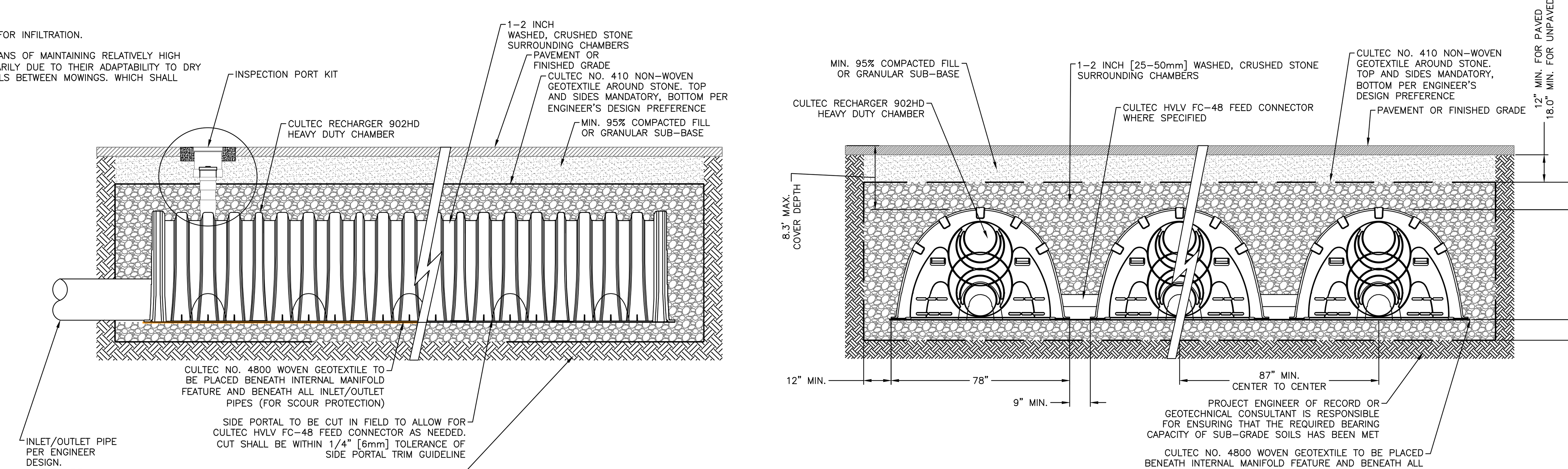
INFILTRATION BASIN DETAIL
NOT TO SCALE



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.

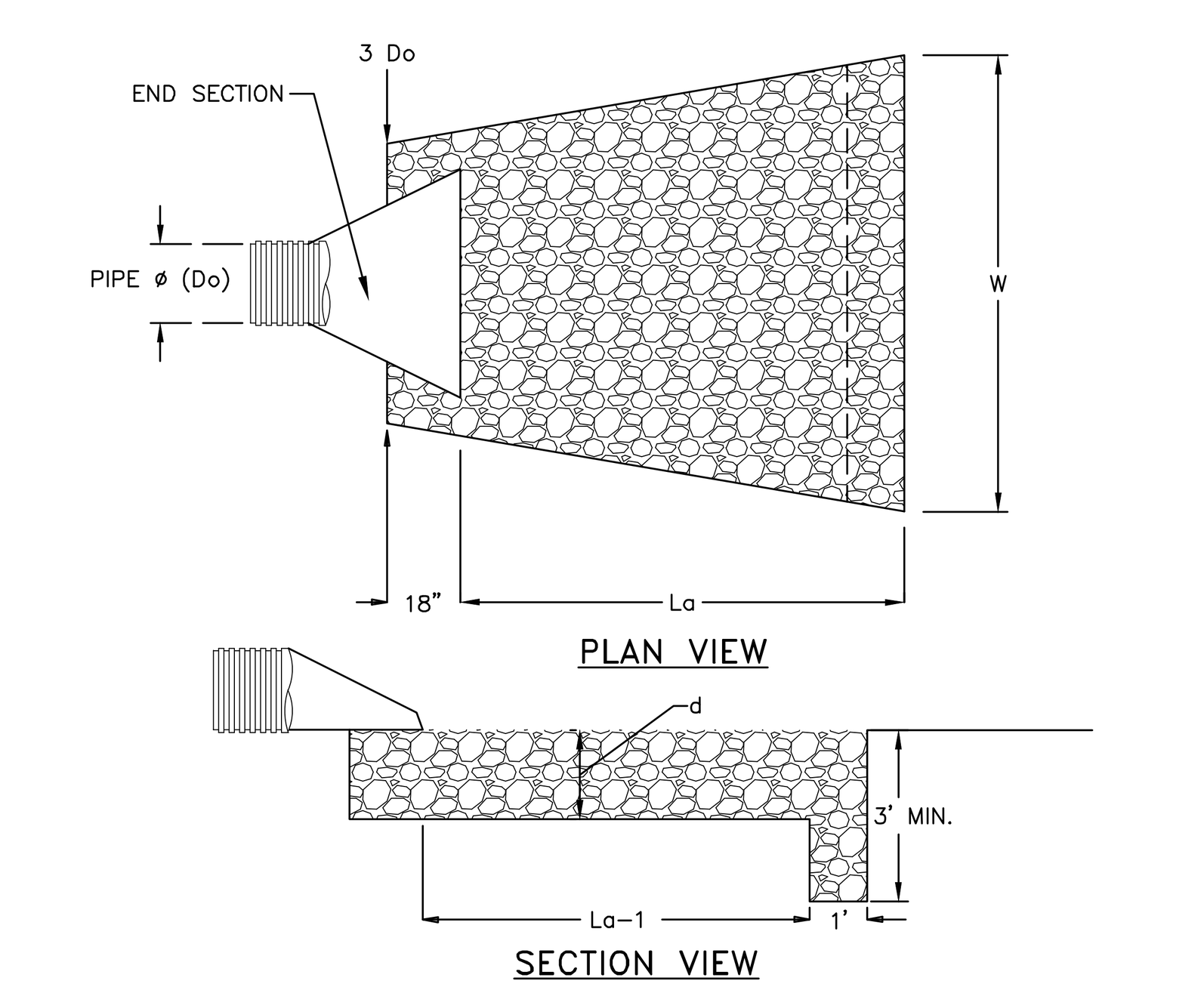
INFILTRATION BASIN B OUTLET CONTROL STRUCTURE DETAIL
NOT TO SCALE



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

UNDERGROUND DETENTION/INFILTRATION SYSTEM DETAIL
NOT TO SCALE



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.

OUTLET ID	PIPE ø	3Do	W	La	d	d50 RIPRAP SIZE
FES A1	24 INCH X 2	12 FEET	18 FEET	30 FEET	20 INCHES	9 INCHES
FES B	18 INCH	54 INCHES	11.5 FEET	10 FEET	20 INCHES	9 INCHES
FES B1	15 INCH	45 INCHES	15.25 FEET	14 FEET	20 INCHES	9 INCHES
FES C	15 INCH	45 INCHES	5 FEET	5 FEET	14 INCHES	6 INCHES
FES D	15 INCH	45 INCHES	5 FEET	5 FEET	14 INCHES	6 INCHES

ROCK OUTLET 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:				REVISIONS:			
NO.	DATE	DESCRIPTION	BY	NO.	DATE	DESCRIPTION	BY
12	2/27/24	AMENDED SITE PLAN	CMB				

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SEAL

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PROFESSIONAL ENGINEERING P.C.
174 MAIN ST., BEACON, NEW YORK 12508
13 CHAMBERS ST., NEWBURGH, NEW YORK 12550
PH: 845-440-6926
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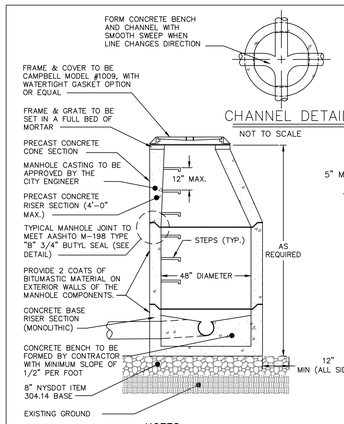
CONSTRUCTION DETAILS

MIRBEAU BEACON

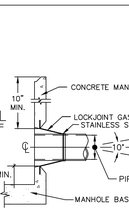
11 MIRBEAU LANE
CITY OF BEACON
DUTCHESS COUNTY, NEW YORK
TAX ID: 6054-13-001258

JOB #:	2021:051
DATE:	3/29/2022
SCALE:	AS SHOWN
TITLE:	CD-2
SHEET:	17 OF 29

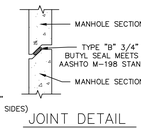
UNAUTHORIZED ALTERATIONS OR ADDITIONS TO THIS DRAWING IS A VIOLATION OF SECTION 7209.2 OF THE NEW YORK EDUCATION LAW



CHANNEL DETAIL
NOT TO SCALE



BOOT DETAIL
NOT TO SCALE

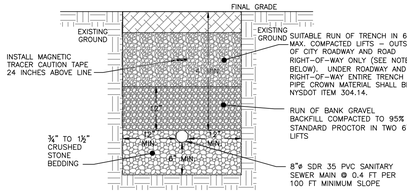


JOINT DETAIL
NOT TO SCALE

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.

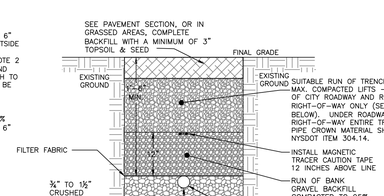
PRE-CAST CONCRETE SANITARY MANHOLE DETAIL
NOT TO SCALE



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.

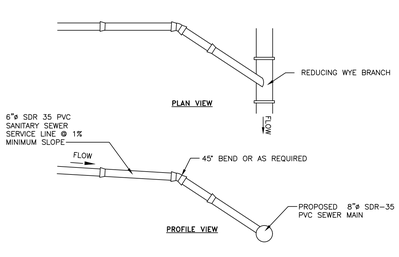
SANITARY SEWER MAIN TRENCH DETAIL
NOT TO SCALE



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.

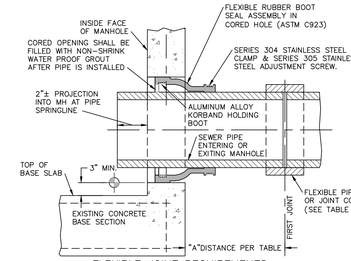
SANITARY SEWER SERVICE LINE TRENCH DETAIL
NOT TO SCALE



NOTES:

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



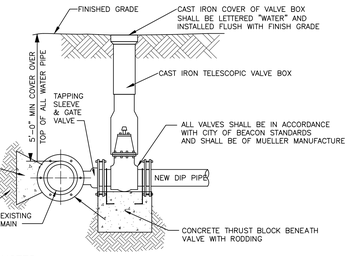
FLEXIBLE JOINT REQUIREMENTS

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

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.

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 WLL 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.

NOTES:

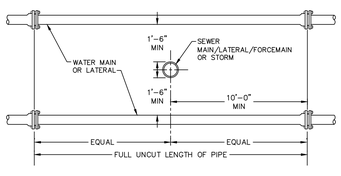
1. EXCAVATION AND TRENCHING SHALL MEET ALL OSHA REQUIREMENTS.
2. SUITABLE RUN OF TRENCH SHALL NOT INCLUDE FROZEN MATERIALS, DEBRIS, ORGANIC MATERIALS, LARGE STONES OR OTHER UNSUITABLE MATERIALS. IF THE RUN OF TRENCH MATERIAL IS FOUND TO BE UNSUITABLE, A SUITABLE BACKFILL MATERIAL SHALL BE IMPORTED AND USED.
3. 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

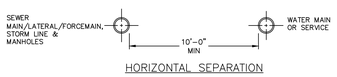
NOTES:

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

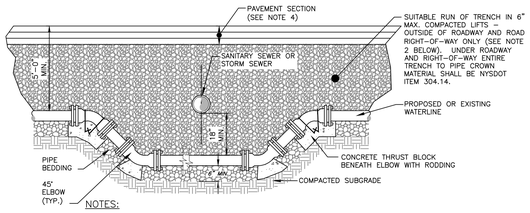


HORIZONTAL SEPARATION

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

WATER MAIN 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.
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.

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'

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.

TAPPING SLEEVE DETAIL
NOT TO SCALE

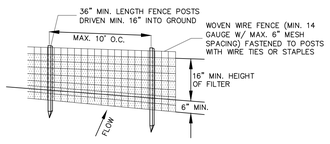
APPROVED BY RESOLUTION OF THE PLANNING BOARD OF THE CITY OF BEACON, NEW YORK, ON THE _____ DAY OF _____, 20_____ SUBJECT TO ALL REQUIREMENTS AND CONDITIONS OF SAID RESOLUTION. ANY CHANGE, ERASURE, MODIFICATION OR REVISION OF THIS PLAT, AS APPROVED, SHALL VOID THIS APPROVAL.

SIGNED THIS _____ DAY OF _____, 20_____, BY

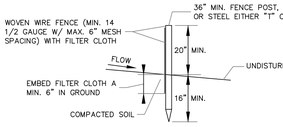
_____ CHAIRMAN

_____ SECRETARY

IN



PERSPECTIVE VIEW

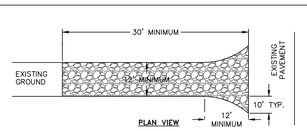


SECTION VIEW

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 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.

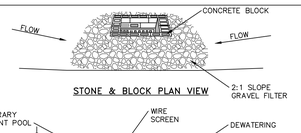
6) SURFACE WATER – ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED BENEATH THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.

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.

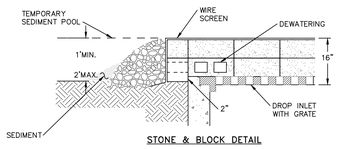
8) WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.

9) PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.

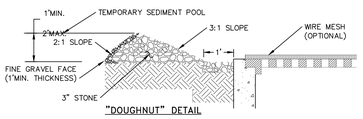
STABILIZED CONSTRUCTION ENTRANCE DETAIL
NOT TO SCALE



STONE & BLOCK PLAN VIEW



STONE & BLOCK DETAIL

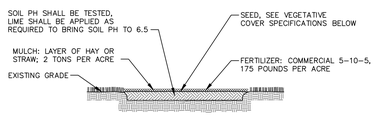


"DOUGHNUT" DETAIL

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



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:

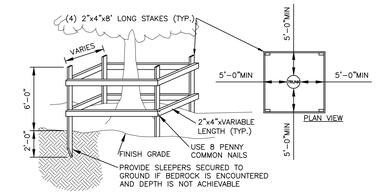
65% KENTUCKY BLUE GRASS BLEND	114 POUNDS PER ACRE
20% PERENNIAL RYEGRASS	35 POUNDS PER ACRE
15% FINE FESCUE	26 POUNDS PER ACRE
	175 POUNDS PER ACRE

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.

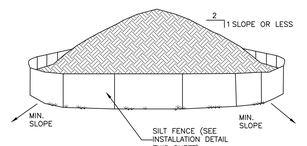
TOPSOIL, SEED AND MULCH DETAIL
NOT TO SCALE



NOTES:

1. 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.

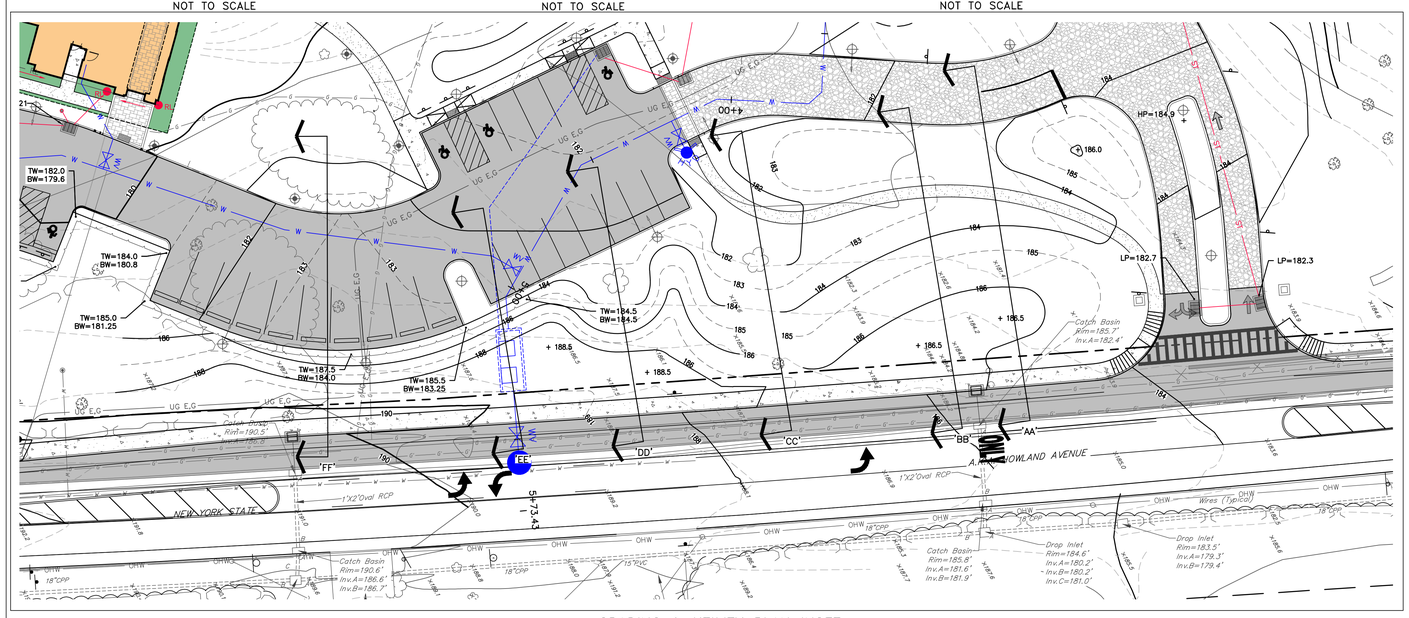
TEMPORARY TREE PROTECTION DETAIL
NOT TO SCALE



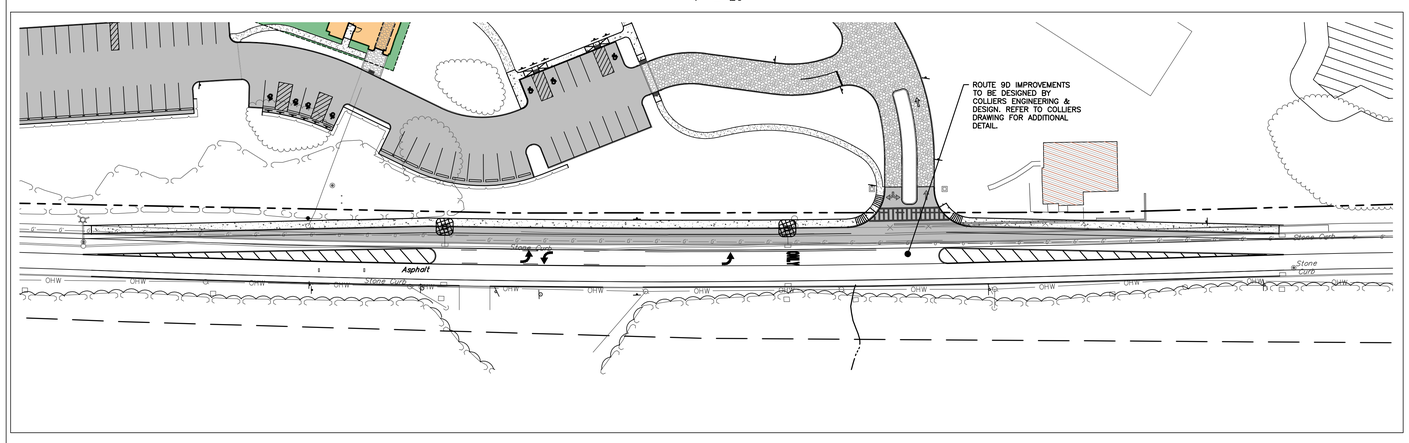
NOTES:

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.

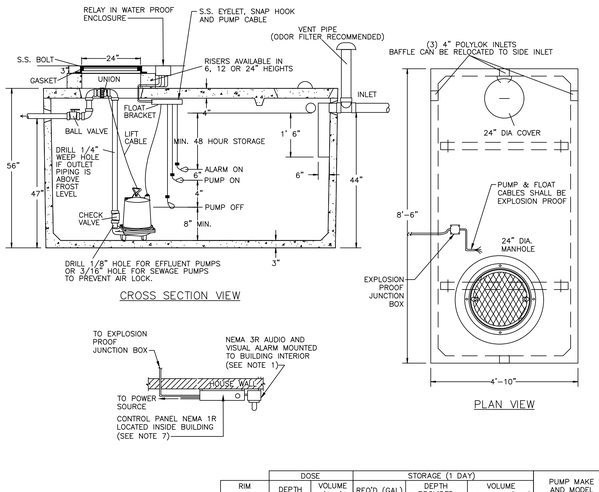
TEMPORARY SOIL STOCKPILE DETAIL
NOT TO SCALE



GRADING & UTILITY PLAN INSET
1" = 20'



NYS DOT ENTRANCE DETAIL
1" = 40'



CROSS SECTION VIEW

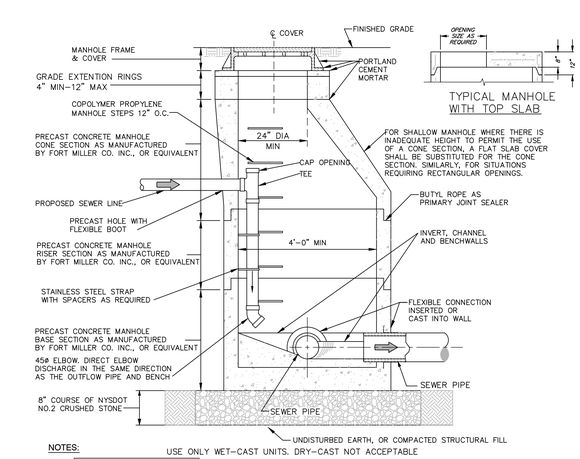
PLAN VIEW

PUMP CHAMBER NOTES

1. THREE FLOAT SWITCHES SHALL BE INSTALLED: PUMP ON, PUMP OFF, AND HIGH ALARM. VISIBLE AND AUDIBLE ALARMS SHALL BE PROVIDED. THE ALARMS SHALL BE LOCATED INSIDE THE HOUSE, CLEARLY VISIBLE AND AUDIBLE.
2. ALL ELECTRICAL WORK AND MATERIAL FOR PUMP INSTALLATION SHALL COMPLY WITH THE NATIONAL ELECTRICAL CODE.
3. AN ELECTRICAL UNDERWRITER'S CERTIFICATE FOR THE PUMP CHAMBER MUST BE PROVIDED TO THE ORANGE COUNTY DEPARTMENT OF HEALTH PRIOR TO THE ORANGE COUNTY DEPARTMENT OF HEALTH CONDUCTING A FINAL INSPECTION ON THE PUMP CHAMBER.
4. THERE SHALL BE A MINIMUM OF 2.5' COVER OVER THE CONDUIT CONVEYING THE FLOAT PUMP CABLES AND CONTROL WIRING. CONDUITS FROM ALARM BOX AND CONTROL PANEL TO RELAY PANEL AT PUMP CHAMBER SHALL SHARE THE SAME TRENCH.
5. PROVIDE ADDITIONAL CONDUIT FOR CONTROL WIRING AS PER THE MANUFACTURERS RECOMMENDATIONS. MINIMUM COVER SHALL BE 2.5'.
6. AN ALUMINUM WARNING PLATE SHALL BE RIVETED OR OTHERWISE PERMANENTLY ATTACHED TO THE CHAMBER 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".
7. CONTROL PANELS SHALL BE LOCATED WITHIN THE BUILDING.
8. 4" ø SDR PVC SCREENED VENT SHALL EXTEND TO BUILDING ROOF LINE (REFER TO NOTE 12).
9. A WATER TIGHTNESS TEST SHALL BE COMPLETED BY THE CONTRACTOR, WITNESSED BY THE ENGINEER, AND SHALL INCLUDE FILLING THE TANK AND MEASURING WATER LEVEL.
10. CONTRACTOR SHALL CAULK INLET AND OUTLET JOINTS AND OTHER CONDUIT PENETRATIONS.
11. INSTALL STAINLESS STEEL GUIDE RAIL FOR PUMP REMOVAL AND MAINTENANCE.
12. LOCATION OF 4" DIA. SDR PVC VENTILATION PIPE SHALL BE APPROVED BY THE OWNER AND SHALL PROVIDE POSITIVE SLOPE TO SURFACE (IE: NO DIPS OR SAGS ALLOWED). THE INVERT OF THE VENT PIPE SHALL MATCH INLET INVERT. THE VENT PIPE SHALL BE SECURELY MOUNTED TO THE EXTERIOR OF THE BUILDING AND SHALL VENT A MINIMUM OF 12" ABOVE ROOF LINE. VENT PIPE AND BRACKETS TO MATCH EXTERIOR HOUSE COLOR. BUILDING OWNER HAS THE OPTION TO TIE VENT TO INTERIOR VENTING PIPING.
13. ALL ELECTRICAL WORK AND MATERIAL FOR PUMP INSTALLATION SHALL COMPLY WITH THE NATIONAL ELECTRICAL CODE.
14. AN ELECTRICAL UNDERWRITER'S CERTIFICATE FOR THE PUMP CHAMBER MUST BE PROVIDED TO THE DEPARTMENT PRIOR TO THE DEPARTMENT CONDUCTING A FINAL INSPECTION ON THE PUMP CHAMBER.
15. A PROFESSIONAL ENGINEER SHALL CERTIFY INSTALLATION AND TESTING OF PUMP CHAMBER TO PUTNAM COUNTY DEPARTMENT OF HEALTH.
16. PRE–CAST PUMP CHAMBER SHOWN IS GT–750, 750 GALLON RESIDENTIAL PUMP CHAMBER BY EXPANDED SUPPLY PRODUCTS, INC. 3330 ROUTE 9, COLD SPRING, NY 10516 (845) 265–3771.
17. PROVIDE AN ALL WEATHER JUNCTION BOX WITH AN OUTLET AND SCREWED COVER AT OR ABOVE GRADE AT THE PUMP CHAMBER TO ALLOW FOR A PLUG IN CONNECTION FOR THE PUMP.

RIM ELEVATION	DOSE DEPTH	DOSE VOLUME (GAL)	STORAGE (1 DAY) REQ'D (GAL)	STORAGE (1 DAY) DEPTH PROVIDED	STORAGE (1 DAY) VOLUME PROVIDED (GAL)	PUMP MAKE AND MODEL	FORCE MAIN SIZE	NO. OF PUMPS	PUMP TANK MODEL
153.5	4"	86.4	120	26"	562.3	GOULDS, MODEL 2WD 3/4 HP	2"	1	GT–750 PUMP CHAMBER

PUMP CHAMBER DETAIL
NOT TO SCALE



TYPICAL MANHOLE WITH TOP SLAB

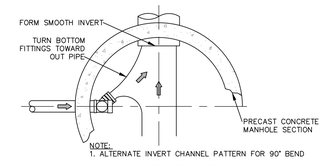
NOTES: USE ONLY WET–CAST UNITS. DRY–CAST NOT ACCEPTABLE

1.

CONE DIMENSIONS	
DIAM. OPENING	HEIGHT
24"	24" OR 42"
30"	34"

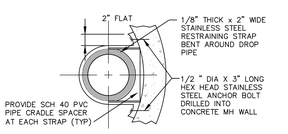
2. INVERT SHALL BE FILLETED.
3. REINFORCEMENT FOR MANHOLE AND SLAB TOP SHALL BE DESIGNED BY A LICENSED NEW YORK STATE PROFESSIONAL ENGINEER PRIOR TO CONSTRUCTION. SHOP DRAWINGS SHALL BE SUBMITTED FOR REVIEW. STRUCTURE SHALL BE DESIGNED FOR HS20–44 VEHICULAR LOADING PLUS 25% IMPACT.
4. CONCRETE TO TEST 4000 P.S.I. AT 28 DAYS IN CONFORMANCE WITH A.S.T.M. C–478–68.
5. BENCH SHALL BE BUILT FOR FLOW BETWEEN INLET AND OUTLET.
6. EACH MANHOLE EXTERIOR SHALL RECEIVE TWO BITUMINOUS COATS.

FORCE MAIN CONNECTION TO SEWER MANHOLE DETAIL
NOT TO SCALE



NOTE:
1. ALTERNATE INVERT CHANNEL PATTERN FOR 90° BEND
2 INLET AND OUTLET OF PIPE SHOWN ON PLAN VIEW OF BASE ARE NOT TYPICAL FOR ALL MANHOLES. REFER TO UTILITY PLAN FOR INLET AND OUTLET DIRECTION.

SECTION



RESTRAINING STRAP

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
12	2/27/24	AMENDED SITE PLAN	CMB

REVISIONS:

NO.	DATE	DESCRIPTION	BY

ARROWSTREET
ARCHITECTURE & DESIGN
10 POST OFFICE SQUARE
SUITE 700N
BOSTON MA 02109
617.623.5555
arrowstreet.com

Mirbeau INN & SPA

LANDSCAPE ARCHITECTS:
LRC GROUP
85 Civic Center Plaza, Suite 204, Poughkeepsie NY 12601, Tel: 845.243.2880
160 West Street, Suite E, Cromwell, CT 06416, Tel: 860.635.2877
www.lrcconsult.com
LRC Engineering & Surveying, DPC
LRC Engineering & Surveying, LLC
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● Landscape Architecture
● Civil Engineering
● Environmental Services
● Land Surveying
● Land Planning

HUDSON LAND DESIGN

STATE OF NEW YORK MICHAEL A. BROOKINS 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

CONSTRUCTION DETAILS

MIRBEAU BEACON

11 MIRBEAU 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 29

UNAUTHORIZED ALTERATIONS OR ADDITIONS TO THIS DRAWING IS A VIOLATION OF SECTION 7209.2 OF THE NEW YORK EDUCATION LAW

LEGEND:

STANDING STUMP (BEECH)	EXISTING TREE TO BE REMOVED
12" NORWAY MAPLE	EXISTING TREE TO BE REMOVED (IDENTIFIED, BUTNOT SHOWN ON BACKGROUND SURVEY)
30" SUGAR MAPLE	EXISTING TREE TO REMAIN AND PROTECT
18" LARCH	EXISTING TREE TO REMAIN AND PROTECT (IDENTIFIED, BUT NOT SHOWN ON BACKGROUND SURVEY).

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 EXCEPTING EQUIPMENT REQUIRED TO REMOVE IMMEDIATELY ADJACENT TREES OR CLUMPS OF VEGETATION. IN THOSE CASES, CARE SHALL BE TAKEN TO MINIMIZE IMPACT ON THE ROOTS ZONE OF THE EXISTING TREE TO REMAIN.
5. NO STOCKPILING OF MATERIALS OR EQUIPMENT SHALL OCCUR WITHIN THE TREE PROTECTION ZONES.
6. TREES MAY BE PROTECTED WITH FENCING INDIVIDUALLY OR IN MASS DEPENDING ON THE PARTICULAR CIRCUMSTANCES ENCOUNTERDED.
7. TREE REMOVAL CONTRACTOR SHALL TAKE EXTREME CARE WITH TREES IDENTIFIED FOR SPECIAL CARE OR CONSIDERATION. FOR THOSE TREES, AN ARBORIST SHALL BE RETAINED AND CONSULTED PRIOR TO COMMENCING CLEARING OR EARTHWORK ACTTIVIES TO ADVISE ON SPECIAL MEASURES NECESSARY TO PROTECT THESE TREES. THE ARBORIST SHALL REMAIN AVAILABLE TO CONSULT ON ONGOING ACTIVITIES PAST CLEARING AND SHALL MAKE PERIODIC VISITS TO THE SITE TO ADVISE ON THE MAINTENANCE OR NECESSARY ENHANCEMENT OF PROTECTION MEASURES IN PLACE.
8. COVER EXPOSED ROOT SYSTEMS OF TREES TO REMAIN WITH 8–10" OF WOOD CHIPS AND KEEP MOIST AT ALL TIMES.
9. TREES TO REMAIN WITHIN ACTIVE CONSTRUCTION ZONE SHALL BE WATERED THE EQUIVALENT OF 1" OF WATER FOR EVERY 10 DAYS FROM MAY THROUGH SEPTEMBER EXCEPTING ACCOUNTING FOR NATURAL RAINFALL.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MITIGATING CONSTRUCTION RELATED DUST ACCUMULATION ON ALL TREES BY SPRAYING THE TRUNKS, LIMBS, AND FOLIAGE WITH WATER TO A MAXIMUM HEIGHT OF 30 FEET DURING THE MONTHS OF APRIL THROUGH NOVEMBER AT MONTHLY INTERVALS.

GRAPHIC SCALE
40 20 0 40
SCALE IN FEET

Dig Safely. New York. Call 811 before you dig

DRAWN BY: HT/CH/DW	CHECKED BY: HT

REVISIONS:

NO.	DATE	DESCRIPTION	BY
1	2/27/24	AMENDED SITE PLAN	

REVISIONS:

NO.	DATE	DESCRIPTION	BY

ARROWSTREET
ARCHITECTURE & DESIGN
10 POST OFFICE SQUARE
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REGISTERED LANDSCAPE ARCHITECT HENRY THOMAS NO. 002094 STATE OF NEW YORK
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

TREE REMOVAL & PROTECTION PLAN – NORTH

MIRBEAU BEACON

11 MIRBEAU LANE
CITY OF BEACON
DUTCHESS COUNTY, NEW YORK
TAX ID: 6054-13-001258

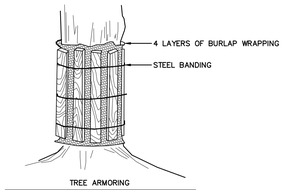
JOB #:	2021:051
DATE:	5/25/2022
SCALE:	1" = 40'
TITLE:	TP-2
SHEET:	20 OF 28

UNAUTHORIZED ALTERATIONS OR ADDITIONS TO THIS DRAWING IS A VIOLATION OF SECTION 7209.2 OF THE NEW YORK EDUCATION LAW

MATCH LINE

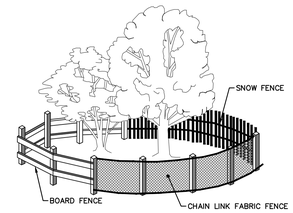
FUTURE PHASE CLEARING & PROTECTION

18" BLACK CHERRY
10" BLACK CHERRY
13" TREE OF HEAVEN
20" BLACK CHERRY
10" BLACK CHERRY (POOR FORM)
8" RED OAK
10" BITTERNUT HICKORY
LARGE YEWS
28" LARCH
29" LARCH
27" LARCH (DEADWOOD)
TREE NOT THERE
BIG STUMP - REMOVE
24" TULIP TREE
33" NORWAY SPRUCE
9" YELLOW BUCKEYE
13" BLA
17"
8" CAT
MATCH LINE
FALLEN TREE
NOT THERE
STANDING STUMPS
39" NOR. SPRUCE (FULL) (ARMOR) -AVOID IMPACT TO TREE AND ROOT SYSTEMS AT ALL TIMES. IF ROOTS ARE ENCOUNTERED, AIRSPADE AT LIMITS OF ADJACENT CONSTRUCTION AND ROOT PRUNE BY HAND.
24" BLACK CHERRY (FAIR CONDITION)
28" UMBRELLA MAGNOLIA
6" HEMLOCK
37" AM. LINDEN
DO NOT STORE MATERIA EQUIPMENT IN THIS WOODED YARD AREA. THIS AREA SHOU RESERVED FOR ONLY CLEARIN LANDSCAPE IMPROVEMENT ACTI
39" SARGENTS WEEPING HEMLOCK
41" EUROPEAN BEECH
17" NORWAY MAPI
16" NORWAY MA
15" NORWAY
38" W (CRITI
38" SWEETGUM
12" NORWAY MAPLE
18" NORWAY MAPLE
TREE NOT THERE
26" NORWAY MAPLE (CRITICAL CONDITION)
30" GINKGO
20" AM. LINDEN
34" NOR (POOR C
Digitized Water Line
To Cold Spring
formerly Owens, Jr. -7123



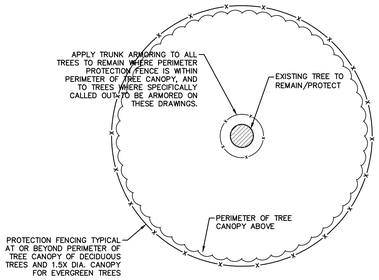
TREE ARMORING

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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40 20 0 40
SCALE IN FEET

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NO.	DATE	DESCRIPTION	BY	NO.	DATE	DESCRIPTION	BY
1	2/27/24	AMENDED SITE PLAN					

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TREE PROTECTION & REMOVAL PLAN - SOUTH
MIRBEAU BEACON

11 MIRBEAU LANE
CITY OF BEACON
DUTCHESS COUNTY, NEW YORK
TAX ID: 6054-13-001258

JOB #:	2021:051
DATE:	5/22/2022
SCALE:	1" = 40'
TITLE:	TP-3
SHEET:	21 OF 28

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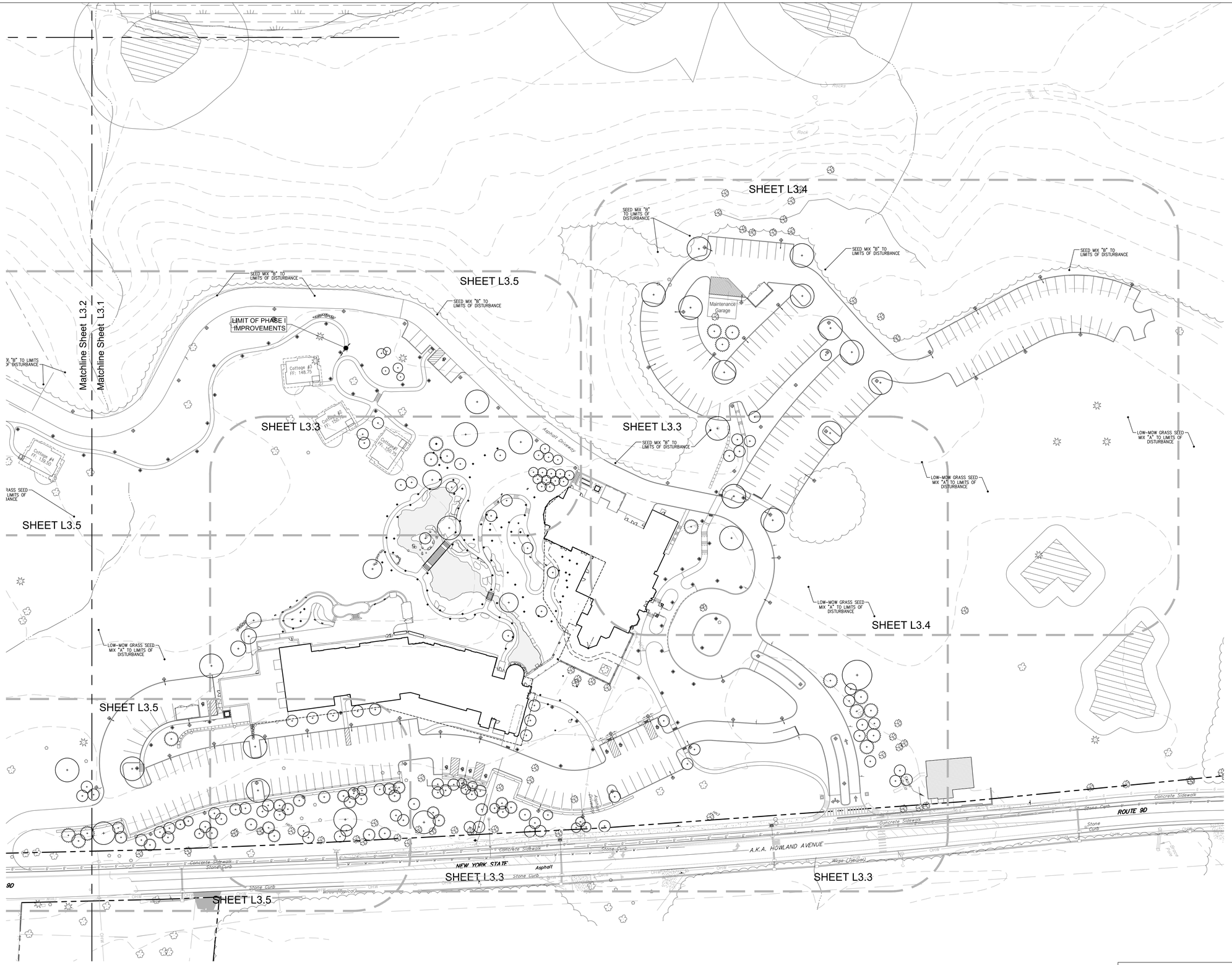

LEGEND:

- Existing 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	=	SHADED ROADSIDE MIEX
SEED MIX C	=	RAIN GARDEN GRASS MIX
SEED MIX D	=	LOW-GROWING WILDFLOWER & GRASS 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)
   - MYCORRHIZA 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 RED AND 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.
14. SEED MIX B:
    "PARTIALLY SHADED AREA ROADSIDE MIX" – ERNMX–140 AS BLENDED BY ERNST CONSERVATION SEEDS, MEADVILLE, PA; 1–800–873–3321.
    SEEDING RATE: 20 LBS PER ACRE WITH 30 LBS/AC OF A COVER CROP.
    SEEDING DATE: AUGUST 15–OCTOBER 1 (GRAIN RYE COVER) AND APRIL 15–JUNE 15 (GRAIN OATS COVER) UNLESS OTHERWISE APPROVED BY THE OWNER OR LANDSCAPE ARCHITECT.
15. 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 WITH COVER CROP OF GRAIN RYE AT 30 LBS/AC.
    SEEDING DATE: AUGUST 15–OCTOBER 1 AND APRIL 15–JUNE 15 UNLESS OTHERWISE APPROVED BY THE OWNER OR LANDSCAPE ARCHITECT.
16. SEED MIX D:
    "LOW–GROWING WILDFLOWER & GRASS MIX" – ERNMX–156 AS BLENDED BY ERNST CONSERVATION SEEDS, MEADVILLE, PA; 1–800–873–3321.
    SEEDING RATE: 30–40 LBS PER ACRE
    SEEDING DATE: AUGUST 15–OCTOBER 1 AND APRIL 15–JUNE 15 UNLESS OTHERWISE APPROVED BY THE OWNER OR LANDSCAPE ARCHITECT.
17. SOD FOR LAWNS:
    SOD SHALL BE A BLEND OF CREEPING RED, CHEWNGS AND HARD FESCUES. CONTRACTOR SHALL SUBMIT CERTIFIED BLEND FOR APPROVAL PRIOR TO DELIVERY AND INSTALLATION.
18. ALL SLOPES GREATER THAN 3:1 RECEIVING A GRASS SEEDING MIXTURE SHALL BE COVERED WITH AN EROSION CONTROL BLANKET.

GRAPHIC SCALE
40 20 0 40
SCALE IN FEET

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See sheet LL-3 for Plant List & sheet LL-5 for Planting Details.

DRAWN BY: HT/CH/DW				CHECKED BY: HT			
REVISIONS:				REVISIONS:			
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1	2/27/24	AMENDED SITE PLAN	HT				

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PLANTING PLAN – OVERALL NORTH

MIRBEAU BEACON

11 MIRBEAU LANE
CITY OF BEACON
DUTCHESS COUNTY, NEW YORK
TAX ID: 6054-13-001258

JOB #:	2021:051
DATE:	3/29/2022
SCALE:	1" = 40'
TITLE:	LL-2
SHEET:	22 OF 28

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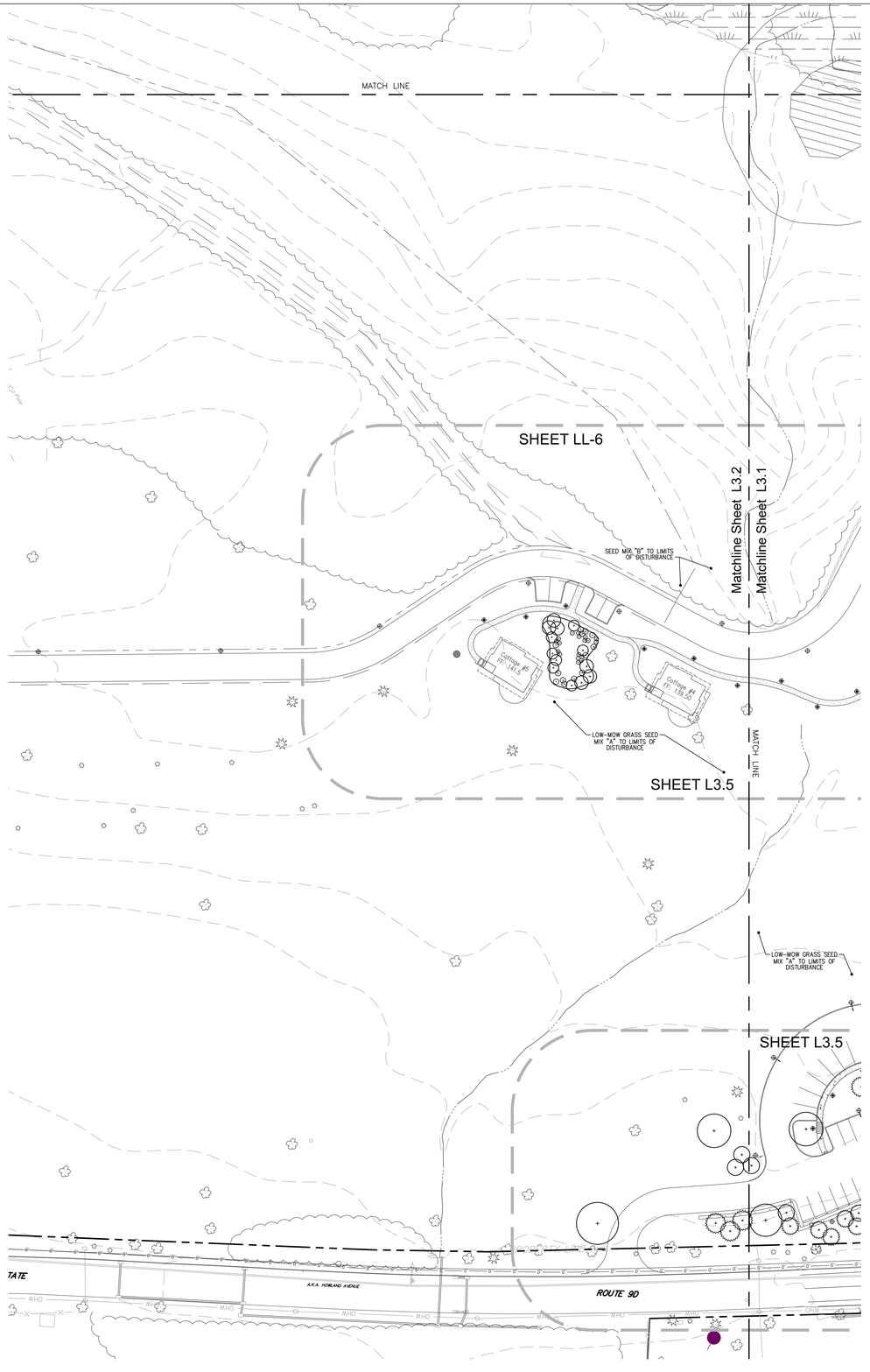

PLANT LIST cont'd:

GREEN ROOF AND ON-GRADE PERENNIALS & ORNAMENTAL GRASSES:	APM	24	ADANTUM PEDATUM 'MISS SHARPLES'	MISS SHARPLES MAIDENHAIR FERN	POT	#1	24–30" ht.	
	ADK	183	ASTER DUMOSUS 'PROF. KIPPENBURG'	PROFESSOR KIPPENBERG ASTER	CONT.	#SP4	20" ht.	18" o.c.; Lav–Blue Late Sum.
	ANB	208	ASTER NOVAE–BELGII 'MARIE BALLARD'	MARIE BALLARD (NY) ASTER	POT	#SP4	30" ht.	18" o.c.; Vio–blue Late Sum.
	ANW	596	ASTER NOVAE–BELGII 'WIN. CHURCHILL'	WINSTON CHURCHILL (NY) ASTER	POT	#SP4	36" ht.	18" o.c.; Deep Red Fall
	CP	**1680**	**CAREX PENSYLVANICA**	**PENNSYLVANIA SEDGE**	**CONT.**	**#1 PINT**	**6–10" ht**	**12–18" w**
	CJS	6	CLEMATIS JACKMANII 'SUPERBA'	SUPERBA CLEMATIS	CONT.	#SP5	9–10' ht.	3' o.c.; Dark Purple Blue
	CLS	3	CLEMATIS 'SALLY'	SALLY CLEMATIS	CONT.	#SP5	4–5' ht.	3' o.c.; Pink
	CJO	3	CLEMATIS 'SAMARITAN JO'	SAMARITAN JO CLEMATIS	CONT.	#SP5	4–5' ht.	3' o.c.; White–Pink
	DCR	8	DRYOPTERIS CRISTATA	CRESTED WOOD FERN	POT	#1	to 3' ht.	
	ECH	70	ECHINACAEA 'B'S KNEES'	B'S KNEES ECHINACEA	CONT.	#SP4	30" ht.	18" o.c.
	HRA	25	HEMMEROCALLIS 'RUFFLED APRICOT'	RUFFLED APRICOT DAYLILY	CONT.	#SP4	28" ht.	Deep Apricot
	HSB	20	HEMMEROCALLIS 'SPELLBINDER'	SPELLBINDER DAYLILY	CONT.	#SP4	30" ht.	Bright Gold
	LAH	15	LAVENDULA ANGUSTIFOLIA 'HIDCOTE'	HIDCOTE VARIETY ENGLISH LAVENDER	POT	#SP5	24" ht.	18" O.C.
	LAP	20	LAVENDULA X INTERMEDIA 'PROVENCE'	PROVENCE LAVENDER	POT	#SP5	24" ht.	18" O.C.
	LSB	45	LEUCANTHEMUM SUP. 'BECKY'	SHASTA DAISY	CONT.	#SP4	30" ht.	White
	MCS	45	MOLINA CAER. 'STRAHLENQUELLE'	PURPLE MOOR GRASS	CONT.	#SP4	24" o.c.;	24" Blades, 2–4' Plumes
	PAH	190	PENNISETUM ALOPCUROIDES 'HAMELN'	HAMELN DWARF FOUNTAIN GRASS	CONT.	#SP4	24" ht.	18" o.c.
	PAP	529	PENNISETUM ALOPCUROIDES 'PIGLET'	PIGLET DWARF FOUNTAIN GRASS		#SP4	18" ht.	2' o.c.
	RVF	370	RUDBECKIA FULGIDA var. 'FULGIDA'	CONEFLOWER (Black Eyed Susan)	POT	#SP4	24–30" HT.	15" o.c.; July–Oct.
	SH	**140**	**SPOROBOLUS HETEROLEPSIS**	**PRAIRIE DROPSEED**	**CONT**	**#1**	**12–36"ht.**	**SEEDED FESCUE AREA INFILL**
	SNB	165	SALVIA NEMEROSA 'BLUE HILL'	BLUE HILL SALVIA	POT	#SP4	24" ht.	15" o.c.; Blue.
	SNM	268	SALVIA NEMEROSA 'MAY NIGHT'	BLUE MAY NIGHT	POT	#SP4	24" ht.	15" o.c.; Violet.
BIO–RETENTION PERENNIALS & GRASSES:	CXS	120	CAREX STRICTA	TUSSOCK SEDGE	PLUG	2"	1–3"x2' ht.	
	IVC	90	IRIS VERSICOLOR	BLUE FLAG IRIS	PLUG	2"	2–3"x2–3'	
	JEF	120	JUNCUS EFFUSUS	SOFT RUSH	PLUG	2"	3'x1–2' ht.	
	LOC1	160	LOBELIA CARDINALIS	CARDINAL FLOWER	PLUG	2"	30–36" ht.	18" O.C.
SEDUM PLUGS FOR ROOFTOP PLANTING:	SED	2330	SEDUM VARIETIES – DISTRIBUTE TOTAL QTY AMONG VARIETIES BELOW:		PLUG	2"		8" O.C.
		20%	SEDUM ALBUM					MID SUM. WHITE
		10%	SEDUM FLORIFERUM					MID – LATE SUM. YELLOW
		10%	SEDUM FORIFERUM 'WEIHENSTEPHANER'					LATE SP. YELLOW
		10%	SEDUM REFLEXUM 'BLUE SPRUCE'					MID–SUM. YELLOW
		15%	SEDUM SPURIUM 'FULDAGLUT'					EARLY SUM. RED
		15%	SEDUM SPURIUM 'RED CARPET'					MID SUM. RED
		20%	SEDUM SIEBOLDII					MID FALL PINK
BULBS:	NA	500	NARCISSUS SP.	DAFFODIL	BULB	MED		9" o.c., IN DRIFTS
	TU	500	TULIP SP.	SPECIES TULIP, PINKS, MAUVES, PURPLES	BULB	MED		9" o.c., IN DRIFTS

PLANT LIST:

	CODE	QTY.	BOTANICAL NAME	COMMON NAME	ROOT	SIZE INSTALLED	SIZE MATURE	COMMENTS
SPECIMEN & SHADE TREES:	APT	4	ACER PLATANOIDES x TRUNCATUM 'C.S."	CRIMSON SUNSET MAPLE	B&B	2.5–3" cal.	35'h 25'w	Purple leaf tolerates HOT sun
	ARO	4	ACER RUBRUM 'OCTOBER GLORY'	OCTOBER GLORY RED MAPLE	B&B	2.5–3" cal.	40'h 25'w	Upright pyramidal crown
	ARR	3	ACER RUBRUM 'RED SUNSET'	RED SUNSET RED MAPLE	B&B	2.5–3" cal.	50'h 30'w	Upright rounded crown
	ASG	1	ACER SACCHARUM 'GREEN MOUNTAIN'	GREEN MOUNTAIN SUGAR MAPLE	B&B	2.5–3" cal.	55' ht.	Upright oval crown
	BA	3	BETULA x AVALANCHE	AVALANCHE BIRCH	B&B	6–8' ht.	45'h 35'w	MULTI–STEM
	BPW	18	BETULA POPULIFOLIA 'WHITESPIRE'	WHITESPIRE GRAY BIRCH	B&B	12–14' ht.	30'h 25'w	MULTI–STEM
	BPW1	15	BETULA POPULIFOLIA 'WHITESPIRE'	WHITESPIRE GRAY BIRCH	B&B	5–6' ht.	30'h 25'w	MULTI–STEM
	LSA	1	LIQUIDAMBAR STYRACIFLUA	AMERICAN SWEETGUM	B&B	2.5–3" cal.	60' ht.	HVY.
	LT	2	LIRIODENDRON TULIPIFERA	TULIP TREE	B&B	2.5–3" cal.	80' ht.	
	NSR	2	NYSSA SYLVATICA 'RED SPLYNDOR'	RED SPLYNDOR BLACK GUM	B&B	2.5–3" cal.	25'x45' ht.	
	PAB	2	PLATANUS ACERIFOLIA 'BLOODGOOD'	LONDON PLANE TREE	B&B	2.5–3" cal.	50' ht.	Rounded crown
	PSP	1	PRUNUS SUB. 'PENDULA'	WEEPING HIGAN CHERRY	B&B	2.5–3" cal.	20–25' ht.	Pink–White bloom April–May
	QP	1	QUERCUS PALUSTRIS	PIN OAK	B&B	2.5–3" cal.	50–75' ht.	Orange–Scarlet fall
	QR	7	QUERCUS RUBRA	NORTHERN RED OAK	B&B	2.5–3" cal.	75' ht.	
	SAT	1	SALIX ALBA 'TRISTIS'	GOLDEN WEEPING WILLOW	B&B	3.5–4" cal.	50' ht.	HVY.
	SGC	1	SALIX MATSUDANA 'GOLDEN CURLS'	GOLDEN CURLS CORKSCREW WILLOW	B&B	2.5–3" cal.	20'x30' ht.	
	UA	2	ULMUS AMERICANA 'VALLEY FORGE'	VALLEY FORGE AMERICAN ELM	B&B	2.5–3" cal.	70' h/w	
SMALL SCALE TREES:	AMC1	8	AMELANCHIER CANADENSIS	SHADBLOW	B&B	5–6' ht.	25' ht.	Clump Form
	AMC	10	AMELANCHIER CANADENSIS	SHADBLOW	B&B	8–10' ht.	25' ht.	Clump Form
	AMA	2	AMELANCHIER x AUTUMN BRILLIANCE	AUTUMN BRILLIANCE SHADBLOW	B&B	6–8' ht.	15–25' h/w	Clump Form
	CFF	5	CARPINUS BET. 'FRANS FONTAINE'	FRANS FONTAINE HORNBEAM	B&B	2.5–3" cal.	35'h/15'w	
	CC	1	CARPINUS CAROLINIANA	AMERICAN HORNBEAM	B&B	2–2.5" cal.	25–35' ht.	
	CCR	1	CERCIS CANADENSIS 'RISING SUN'	RISING SUN REDBUD	B&B	2–2.5" cal.	12–15' ht.	
	CFC	13	CORNUS FLORIDA 'CHEROKEE PRINCESS'	WHITE FLOWERING DOGWOOD	B&B	2–2.5" cal.	20–25' ht.	White
	CFR	18	CORNUS FLORIDA 'RUBRA'	PINK FLOWERING DOGWOOD	B&B	2–2.5" cal.	20–25' ht.	Pink
	CR	10	CORNUS RACEMOSA	GRAY DOGWOOD	Cont.	5–6'ht.	8'x8'	White
	MSJ	4	MAGNOLIA STELLATA 'JANE PLATT'	JANE PLATT STAR MAGNOLIA	Cont.	5–6' ht.	12'h/8'w	Pink
	SPC	1	STEWARTIA PSEUDOCAMELLIA	JAPANESE STEWARTIA	B&B	2.5–3" cal.	25'h/15w	July Flowers
EVERGREEN TREES:	AF	9	ABIES FRASERI	FRASIER FIR	B&B	7–8' ht.	30–50' ht.	
	IO	2	ILEX OPACA	AMERICAN HOLLY	B&B	7–8' ht.	40–50' ht.	20–40'w
	IJP	7	ILEX OPACA 'JERSEY PRINCESS'	JERSEY PRINCESS AMERICAN HOLLY	B&B	7–8' ht.	30–35' ht.	
	PA	16	PICEA ABIES	NORWAY SPRUCE	B&B	8–10' ht.	40–60' ht.	
	PAS	7	PICEA OMORIKA	SERBIAN SPRUCE	B&B	8–10' ht.	50–60' ht.	20–25'w
	PG	13	PICEA GLAUCA	WHITE OR CANADIAN SPRUCE	B&B	8–10' ht.	20'x60' ht.	
	PPG	5	PICEA PUNGENS GLAUCA	COLORADO BLUE SPRUCE	B&B	9–10' ht.	60' ht.	
LARGE SHRUBS:	AZ1	20	RHODENDRON 'ROBLEX' PP25073	AUTUMN LILY ENCORE AZALEA	CONT.	#7	4–5'h, 4'w	White bloom
	AZ2	19	RHODENDRON 'CONLEC' PP19899	AUTUMN ROYALTY ENCORE AZALEA	CONT.	#7	4.5'h x 4'w	Light Purple bloom
	AZV	35	AZALEA VISCOSUM	SWAMP AZALEA	CONT.	#3	4–6' ht.	
	CXP	5	CALLICARPA x PEARL GLAM	PEARL GLAM BEAUTYBERRY	B&B	#7	4–5' ht.	3–4'w
	CLP	6	CHAEMACYPARIS L. 'PEMBURY BLUE'	PEMBURY BLUE LAWSON CYPRESS	B&B	3–4' ht.	8–10' ht.	4–5'w
	CLG	5	CHAEMACYPARIS L. 'PIN. BLUE & GOLD'	PINPOINT BLUE & GOLD LAWSON CYPRESS	B&B	3–4' ht.	6–8' ht.	5–6'w
	CPS	3	CHAEMACYPARIS PISIFERA 'SOFT SERVE'	SOFT SERVE SAWARA CYPRESS	B&B	30" min.ht.	6–8' ht.	5–6'w; fern like foliage
	CAH	11	CLETHRA ALNIFOLIA 'HUMMINGBIRD'	HUMMINGBIRD SUMMERSWEET	CONT.	#5	3–4' ht.	
	CVS	**4**	**CLETHRA ALNIFOLIA 'VANILLA SPICE'**	**VANILLA SPICE SUMMERSWEET**	**CONT.**	**#3**	**3–6' ht.**	**3–6'w**
	FMB	4	FOTHERGILLA MAJOR 'BLUE SHADOW	BLUE SHADOW FOTHERGILLA	CONT.	36" min.ht.	8–10' ht.	
	HAA	**3**	**HYDRANGEA ARBOR. 'ANNABELLE'**	**ANNABELLE SMOOTH HYDRANGEA**	**CONT.**	**#7**	**3–5' ht.**	**12" dia. White Flowers**
	HQR	5	HYDRANGEA QUERC. 'RUBY SLIPPERS'	RUBY SLIPPERS OAKLEAF HYDRANGEA	CONT.	#7	6–8' ht.	White to Pink
	IGS	31	ILEX GLABRA 'SHAMROCK'	INKBERRY	CONT.	24–30" ht.	3–5' ht.	Compact
	IVG	15	ILEX VERTICILLATA 'LITTLE GOBLIN'	LITTLE GOBLIN WINTERBERRY	CONT.	#5	3–5' ht.	
	IVJ	1	ILEX VERTICILLATA 'JIM DANDY'	JIM DANDY (MALE) WINTERBERRY	CONT.	#5	6–8' ht.	
	IVR	10	ILEX VERTICILLATA 'RED SPRITE'	RED SPRITE WINTERBERRY	CONT.	#5	3–4' ht.	
	KLC	**5**	**KALMIA LATIFOLIA 'CAROL'**	**CAROL MOUNTAIN LAUREL**	**CONT.**	**#3**	**6–10' ht.**	**8–10'w**
	MPS	54	MORELLA PENSYLVANICA 'SILVER SPRITE'	SILVER SPRITE BAYBERRY	CONT.	30" min.ht.	4–5'h/5'w	
	PM	11	PINUS MUGO VAR. 'PUMILIO'	DWARF MUGO PINE	CONT.	24" min.ht.	4–5'h/6'w	
	RXD	**4**	**RHODODENDRON x DANDY MAN**	**DANDY MAN RHODODENDRON**	**CONT.**	**#5**	**6–8' h/w**	
	TMG	15	TAXUS x MEDIA 'GREENWAVE'	GREEN WAVE YEW	CONT.	24–30" ht.	4'x4'	
	VDB	5	VIBURNUM DENTATUM 'BLUE MUFFIN'	BLUE MUFFIN ARROWWOOD VIBURNUM	CONT.	#7	4–6' ht.	
SMALL SHRUBS:	AZ3	18	RHODODENRON 'ROBLEN' PP16248	AUTUMN SUNSET ENCORE AZALEA	CONT.	#5	3' h/w	Salmon–Red blooms
	CXC	33	CARYOPTERIS x CLAN. 'BEYOND MIDNIGHT'	BEYOND MIDNIGHT BLUEBEARD	CONT.	24" min.ht.	24–30" ht.	
	CSC	**12**	**CLETHRA ALNIFOLIA 'SUGARTINA C'**	**SURGARTINA CRYSTALINA SUMMERSWEET**	**CONT.**	**#3**	**30–36" ht.**	**36–48"w**
	CSA	86	CORNUS SERICEA 'ARCTIC FIRE'	ARCTIC FIRE REDTWG DOGWOOD	CONT.	24" min.ht.	3–4' ht.	
	FGA	38	FOTHERGILLA GARDENII 'APPALACHIA'	DWARF FOTHERGILLA	CONT.	24" min.ht.	2–3' ht.	
	FGB	11	FOTHERGILLA GARDENII 'BLUE MIST'	BLUE MIST DWARF FOTHERGILLA	CONT.	24" min.ht.	2–3' ht.	
	ICH	47	ILEX CRENATA 'HELLERI'	DWARF JAPANESE HOLLY	CONT.	#7	2–3'h, 4'w	
	IGB	10	ILEX GLABRA 'GEM BOX'	GEM BOX INKBERRY HOLLY	CONT.	#7	2.5'x2.5'	Compact – DO NOT SHEAR
	IVB	**8**	**ITEA VIRTICILLATA 'BERRY POPPINS'**	**BERRY POPPINS WINTERBERRY**	**CONT.**	**#3**	**3'h x 4'w**	
	IVL	37	ITEA VIRGINICA 'LITTLE HENRY'	LITTLE HENRY SWEETSPIRE	CONT.	#5	3'h x 4'w	
	KLT	**18**	**KALMIA LAT. 'TIDDLYWINKS'**	**TIDDLYWINKS MOUNTAIN LAUREL**	**CONT.**	**#3**	**2–3' ht.**	
	PO1	60	PHYSOCARPUS OPULIFOLIUS 'TINY WINE'	TINY WINE NINEBARK	CONT.	#5	3–4' ht.	
GROUNDCOVERS:	AML	173	ARONIA MEL. LOW SCAPE MOUND	LOW SCAPE MOUND CHOKEBERRY	CONT.	#1	12–24" ht.	
	AMG	**140**	**ARONIA MEL. GROUND HUG**	**GROUND HUG CHOKEBERRY**	**CONT.**	**#1**	**8–14" h**	**30–36" w**
	CRO	70	CROCUS SPECIES – MIXED	CROCUS	BULB	SMALL		
	JCB	**27**	**JUNIPERUS CONFERTA 'BLUE PACIFIC'**	**BLUE PACIFIC JUNIPER**	**CONT.**	**#1**	**6–12" ht.**	
	LST	220	LIRIOPE SPICATA	LILYTURF	POT	#SP2	10–12"ht	12" o.c.
	NA	500	NARCISSUS SPECIES – MIXED	DAFFODILS	BULB	MEDIUM		
	TT	500	TULIPA TURKESTANICA	SPECIES TULIP, PINK, MAUVES, PURPLES	BULB	MEDIUM	8"	9" o.c., IN DRIFTS
	VCL	18	VIBURNUM CASSINOIDES 'LIL DITTY'	LIL DITTY WITHEROD VIBURNUM	CONT.	#3	12–24" ht.	
	VM	967	VINCA MINOR	PERIWINKLE	CONT.	FLATS		Plant at 9" o.c.

GRAPHIC SCALE
40 20 0 40
SCALE IN FEET

See sheet LL-2 for Planting Notes & sheet LL-5 for Planting Details.

Dig Safely. New York Call 811 before you dig

DRAWN BY: HT/CH/DW			CHECKED BY: HT		
REVISIONS:			REVISIONS:		
NO.	DATE	DESCRIPTION	BY	NO.	DATE	DESCRIPTION	BY
1	2/27/24	AMENDED SITE PLAN	HT				

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PLANTING PLAN – OVERALL SOUTH

MIRBEAU BEACON

11 MIRBEAU LANE
CITY OF BEACON
DUTCHESS COUNTY, NEW YORK
TAX ID: 6054–13–001258

JOB #:	2021:051
DATE:	3/29/2022
SCALE:	1" = 40'
TITLE:	LL–3
SHEET:	23 OF 28

UNAUTHORIZED ALTERATIONS OR ADDITIONS TO THIS DRAWING IS A VIOLATION OF SECTION 7209.2 OF THE NEW YORK EDUCATION LAW



See sheet LL-2 for Planting Notes, LL-3 for Plant List & sheet LL-5 for Planting Details.

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REVISIONS:				REVISIONS:			
NO.	DATE	DESCRIPTION	BY	NO.	DATE	DESCRIPTION	BY
1	2/27/24	AMENDED SITE PLAN	HT				

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PLANTING PLAN – ENLARGEMENT 1
MIRBEAU BEACON

11 MIRBEAU LANE
CITY OF BEACON
DUTCHESS COUNTY, NEW YORK
TAX ID: 6054-13-001258

JOB #:	2021:051
DATE:	3/29/2022
SCALE:	1" = 20'
TITLE:	LL-4
SHEET:	24 OF 28

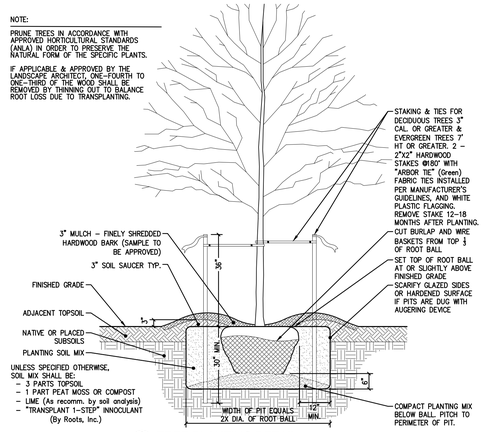
UNAUTHORIZED ALTERATIONS OR ADDITIONS TO THIS DRAWING IS A VIOLATION OF SECTION 7209.2 OF THE NEW YORK EDUCATION LAW

PLANTING DETAILS:

NOTE:

PRUNE TREES IN ACCORDANCE WITH APPROVED HORTICULTURAL STANDARDS (ANLA) IN ORDER TO PRESERVE THE NATURAL FORM OF THE SPECIFIC PLANTS.

IF APPLICABLE & APPROVED BY THE LANDSCAPE ARCHITECT, ONE-FOURTH TO ONE-THIRD OF THE WOOD SHALL BE REMOVED BY THINNING OUT TO BALANCE ROOT LOSS DUE TO TRANSPLANTING.

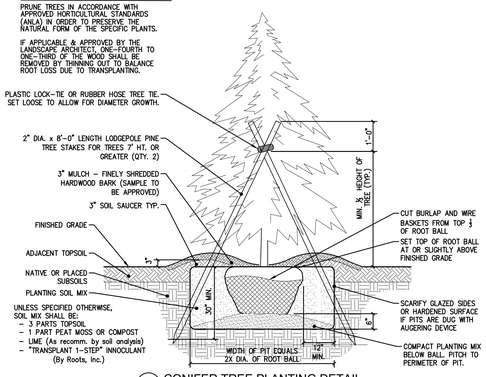


1 TREE PLANTING DETAIL
SCALE: 1/2" = 1'-0"

NOTE:

PRUNE TREES IN ACCORDANCE WITH APPROVED HORTICULTURAL STANDARDS (ANLA) IN ORDER TO PRESERVE THE NATURAL FORM OF THE SPECIFIC PLANTS.

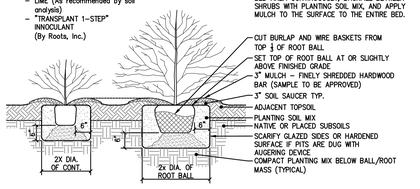
IF APPLICABLE & APPROVED BY THE LANDSCAPE ARCHITECT, ONE-FOURTH TO ONE-THIRD OF THE WOOD SHALL BE REMOVED BY THINNING OUT TO BALANCE ROOT LOSS DUE TO TRANSPLANTING.



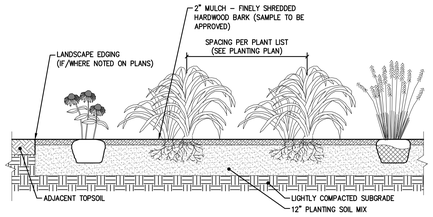
2 CONIFER TREE PLANTING DETAIL
SCALE: 1/2" = 1'-0"

UNLESS SPECIFIED OTHERWISE, SOIL MIX SHALL BE:
- 3 PARTS TOPSOIL
- 1 PART PEAT MOSS OR COMPOST
- LIME (As recommended by soil analysis)
- "TRANSPLANT 1-STEP" INNOCULANT (By Roots, Inc.)

NOTE: IN AREAS OF MASS PLANTING, EXCAVATE BED AREA CONTINUOUSLY, BACKFILL BETWEEN SHRUBS WITH PLANTING SOIL MIX, AND APPLY MULCH TO THE SURFACE TO THE ENTIRE BED.



3 SHRUB PLANTING DETAIL
SCALE: 1/2" = 1'-0"

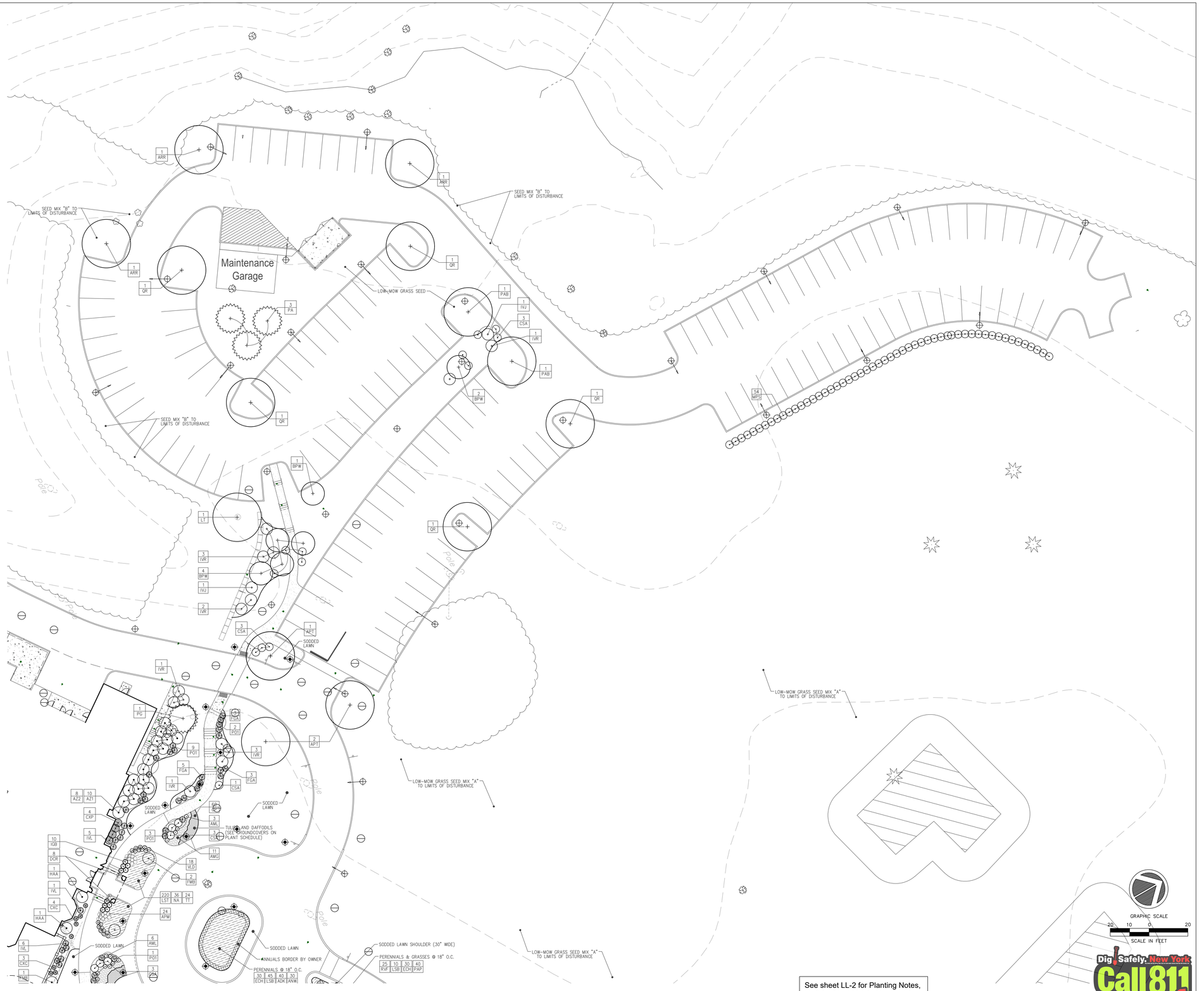


SECTION THROUGH PERENNIAL BED

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"



See sheet LL-2 for Planting Notes, LL-3 for Plant List & this sheet for Planting Details.

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PLANTING PLAN - ENLARGEMENT 2

MIRBEAU BEACON

11 MIRBEAU LANE
CITY OF BEACON
DUTCHESS COUNTY, NEW YORK
TAX ID: 6054-13-001258

JOB #:	2021:051
DATE:	3/29/2022
SCALE:	1" = 20'
TITLE:	LL-5
SHEET:	25 OF 28

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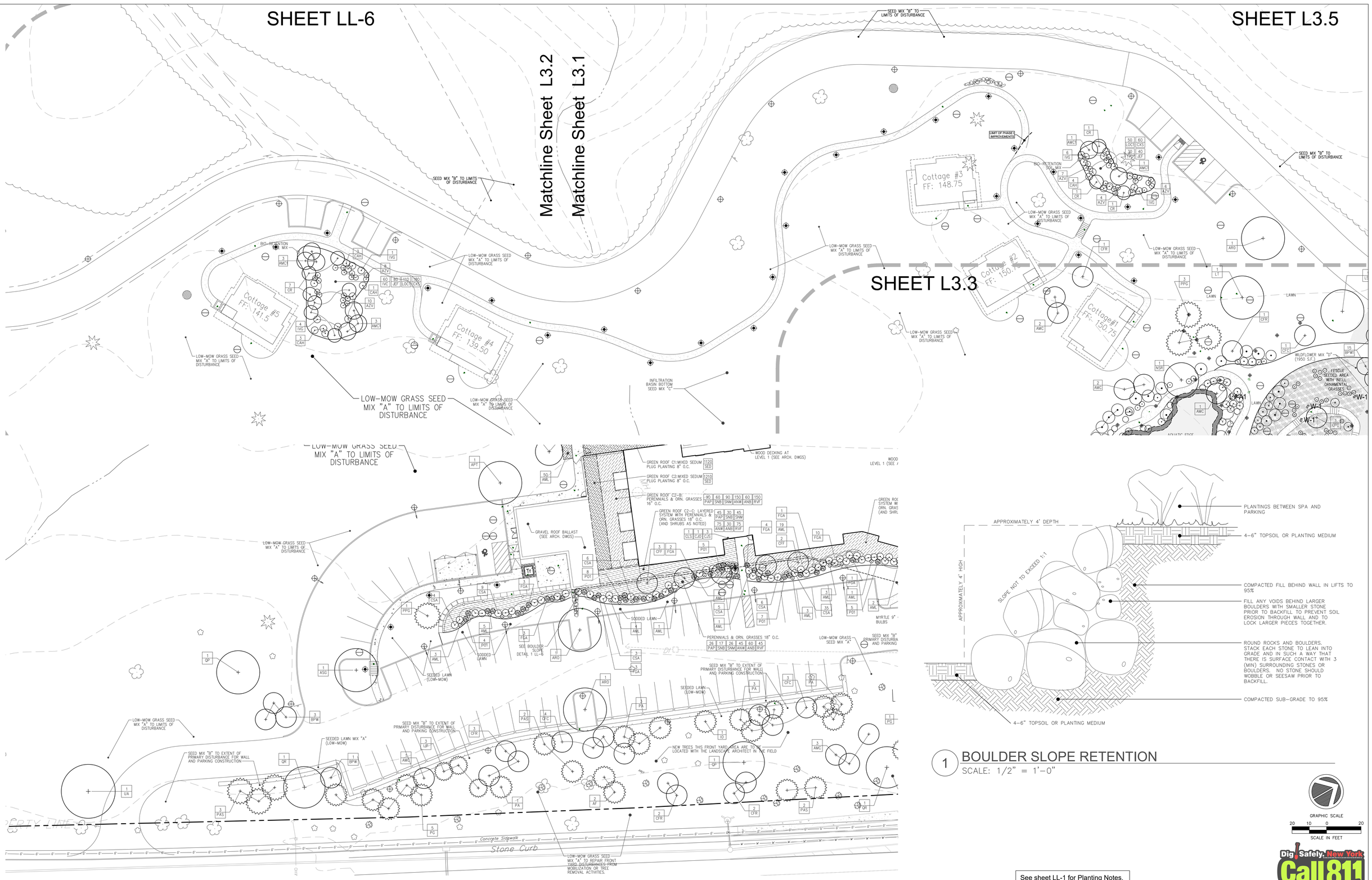
SHEET LL-6

SHEET L3.5

Matchline Sheet L3.2

Matchline Sheet L3.1

SHEET L3.3



1 BOULDER SLOPE RETENTION

SCALE: 1/2" = 1'-0"

GRAPHIC SCALE

20 10 0 20

SCALE IN FEET

Dig Safely. New York Call 811 before you dig

See sheet LL-1 for Planting Notes, LL-2 for Plant List & sheet LL-3 for Planting Details.

DRAWN BY: HT/CH/DW				CHECKED BY: HT			
REVISIONS:				REVISIONS:			
NO.	DATE	DESCRIPTION	BY	NO.	DATE	DESCRIPTION	BY
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PLANTING PLAN – ENLARGEMENT 3

MIRBEAU BEACON

11 MIRBEAU LANE
CITY OF BEACON
DUTCHESS COUNTY, NEW YORK
TAX ID: 6054-13-001258

JOB #:	2021:051
DATE:	3/29/2022
SCALE:	1" = 20'
TITLE:	LL-6
SHEET:	26 OF 28

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LIGHTING SCHEDULE:

Luminaire Schedule

Symbol	Qty	Label	Arrangement	Description	LLF	Luminaire Lumens	Luminaire Watts	Total Watts	BUG Rating	Mounting Height
⊕	11	P2-S	Single	PROS-Y2-2030	1.000	1792	25.1	276.1	B1-U0-G1	10'
⊕	11	P3-S	Single	PROS-Y3-2030	1.000	1829	25.1	276.1	B1-U0-G1	10'
⊕	10	P4-S	Single	PROS-Y4-2030	1.000	1793	25.1	251	B1-U0-G1	10'
⊕	7	P5-S	Single	PROS-Y5-2030	1.000	1735	25.1	175.7	B1-U0-G1	10'
⊕	12	P2-M	Single	PROV2-36L-295-3K7-2	1.000	3597	34.1	409.2	B1-U0-G1	16'
⊕	12	P3-M	Single	PROV2-36L-295-3K7-3	1.000	3471	34.1	409.2	B1-U0-G1	16'
⊕	7	P4-M	Single	PROV2-36L-295-3K7-4W	1.000	3501	34.1	238.7	B1-U0-G1	16'
⊕	9	P5-M	Single	PROV2-36L-295-3K7-5Q	1.000	3818	34.1	306.9	B2-U0-G1	16'
⊕	5	B2	Single	PROB-Y2-3030	1.000	2975	43.2	216	B1-U0-G1	2.5'
⊕	37	B3	Single	PROB-Y3-3030	1.000	3030	43.7	1616.9	B1-U0-G1	2.5'
⊕	16	B5	Single	PROB-Y5-3030	1.000	2892	43.2	691.2	B2-U0-G1	2.5'

KEY TO LIGHT FIXTURES:

P2-S, P2-M,
P3-S, P3-M,
P4-S, P4-M,
P5-S & P5-M

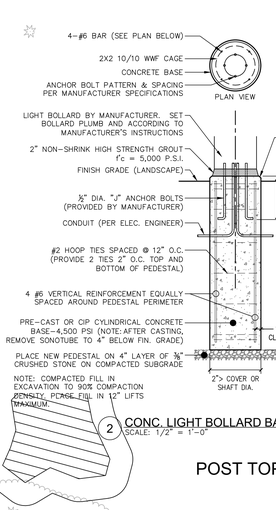
POLE MOUNTED LIGHTS: "PROVIDENCE" BY ARCHITECTURAL AREA LIGHTING WITH LED LAMP TYPE WITH COLOR TEMPERATURE OF 3000K. LAMP IS FITTED IN CAP OF FIXTURE WITH POLE HEIGHTS TO SET FACE DOWNWARD AT A 10' OR 16' HEIGHT ABOVE GRADE PER PLAN. OPTICAL DISTRIBUTION PATTERNS TYPE 2, 3, 4 ND 5 AS NOTED ON PLAN. LED 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.



POST TOP FIXTURE IMAGERY:



GRAPHIC SCALE
40 20 0 40
SCALE IN FEET

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SITE LIGHTING PLAN - NORTH

MIRBEAU BEACON

11 MIRBEAU 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-2
SHEET:	27 OF 28

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LIGHT FIXTURE SPEC SHEETS:
"B" - BOLLARD FIXTURE:

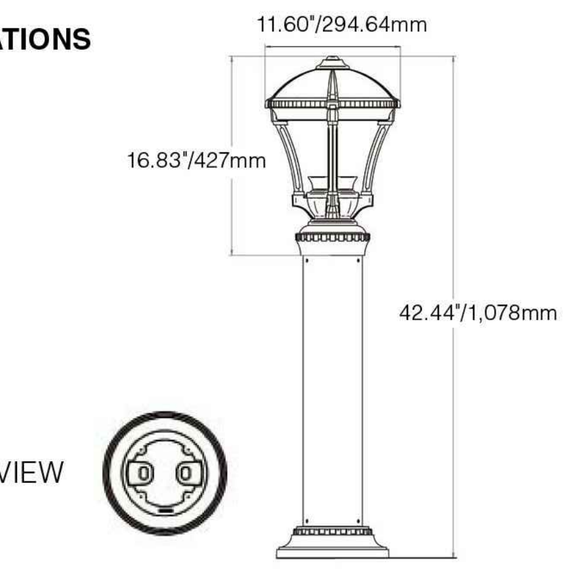
Providence® LED™ – Bollard PROB (B2, B3, B5) | TYPE



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



- 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 Delivered Lumens	Efficacy (Lm/W)	B	U	G	4000K CCT Delivered Lumens	Efficacy (Lm/W)	B	U	G	3000K CCT Delivered Lumens	Efficacy (Lm/W)	B	U	G	Average System Watts
				3050					3040					3030					
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	

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JOB
TYPE
NOTES

"M" - MEDIUM POST TOP FIXTURE:

DATE: 5-11-22 | LOCATION: BEACON, NY
TYPE: 2,3,4,5Q | PROJECT: MIRBEAU SPA AT HOWLAND ESTATE
CATALOG #:

(P2-16, P3-16, P4W-16, P5Q-16)

PROV2
ARCHITECTURAL AREA/SITE

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

3000K and warmer CCTs only | See Certification Specifications

RELATED PRODUCTS
PROL2 | PROL2-LK | PROS | PROB

PHOTOMETRY | DELIVERED LUMENS | DIMENSIONAL DRAWINGS | ARMS | COLOR CHART

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	Efficancy (Lm/W)	4000K 70CRI Lumen	B	U	G	Efficancy (Lm/W)	5000K 70CRI Lumen	B	U	G	Efficancy (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

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HUBBELL Lighting

DATE: 5-11-22 | LOCATION: BEACON, NY
TYPE: 2,3,4,5Q | PROJECT: MIRBEAU SPA AT HOWLAND ESTATE
CATALOG #:

PROV2
ARCHITECTURAL AREA/SITE

ORDERING GUIDE

CATALOG #

Example: PROV2-36L-325-3K7-4W-BL-SLA1-DF-HS-AD5-UNV

HOUSING

PROV2

Housing: PROV2 — Providence Medium 2.0

LED Quantity: 36L — 36 LED

Lumen output:
295 — 450mA Microcore Equivalent
325 — 325mA, 4500 Lumens
510 — 510mA, 6500 Lumens
525 — 700mA Microcore Equivalent
615 — 615mA, 7500 Lumens

CCT/CRI:
AMB [1] — Amber-595nm Peak
3K7 — 3000K, 70 CRI
4K7 — 4000K, 70 CRI
5K7 — 5000K, 70 CRI
Contact factory for options listed below
27K8 — 2700K, 80 CRI
80 or 90 CRI for standard color temperatures

MANUFACTURER TO PROVIDE 80 CRI.

Distribution:
1 — Type I
2 — Type II
3 — Type III
4W — Type IV Wide
5Q — Type V Square
5W — Type V Wide

Finish:
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
Color Option
CC [2] — Custom Color

Mounting
Pole Mount
STND_MNT [6] — Standard Mount
PT23 — 2 3/8" tenon
PT3 — 3" tenon
PT4 — 4" tenon
Arm Mount
SLA1 — 4" pole or tenon
SLA8U-4 — 4" pole or tenon
SLA8U-5 — 4" 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

Optional Lens
CL — Clear Lens
DL [2] — Diffused Lens

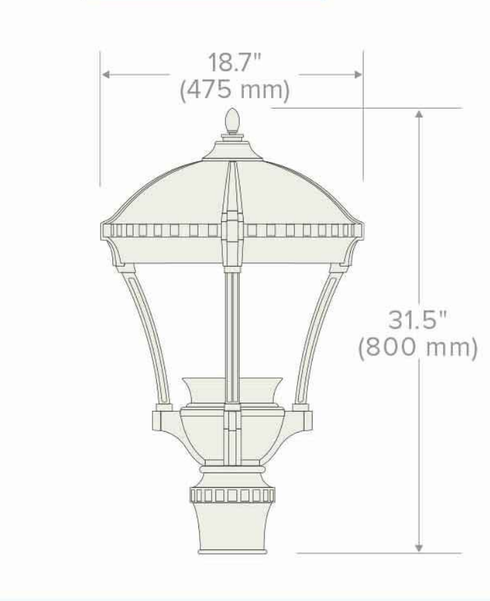
Options
HS [3,5] — House Side Shield
PFN — Brass Colored Finish
SPK — Cast Spikes
BPS — Brass Colored Struts
SF — Single Fuse (120, 277)
DF — Double Fuse (208, 240)

BRASS SPIKES & BRASS FINIALS.

Mounting Options
AD5 — Adaptor-5" OD Pole
PCA-C — Photocontrol Adapter Contemporary
EPA-C — Egress Adapter Contemporary

Voltage
UNV — 120-277V

DIMENSIONS



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. Slide over 4" OD Pole

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HUBBELL Lighting

"S" - SMALL POST TOP FIXTURE:

DATE: 5-11-22 | LOCATION: BEACON, NY
TYPE: 3,4,5Q | PROJECT: MIRBEAU SPA AT HOWLAND ESTATE
CATALOG #:

(P3-10, P4-10, P5-10)

PROS
ARCHITECTURAL AREA/SITE

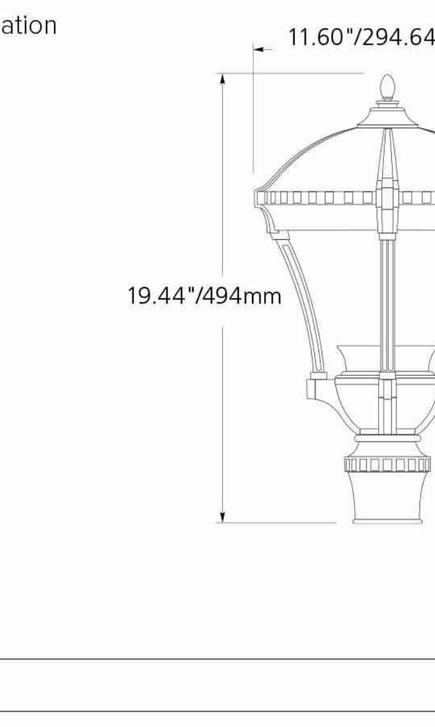
PROS ON 4" FLUTED ALUM. POLES W/ LENS HEIGHT OF 10' ABOVE GRADE.

PROVIDENCE®

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

3000K and warmer CCTs only

DIMENSIONS




Providence Small

RELATED PRODUCTS
PROL2 | PROV2

PHOTOMETRY | DELIVERED LUMENS | DIMENSIONAL DRAWINGS | ARMS | COLOR CHART

ORDERING GUIDE

Example: PROS-Y3-3030-BLS-BPS-WMA59D

CATALOG #

HOUSING

PROS

Housing: PROS — Providence Small LED

Distribution:
Y2 — Type II
Y3 — Type III
Y4 — Type IV
Y5 — Type V

Lumen Package:
2030 — 3000K CCT 25 watts
2040 — 4000K CCT 25 watts
2050 — 5000K CCT 25 watts
3030 — 3000K CCT 43 watts
3040 — 4000K CCT 43 watts
3050 — 5000K CCT 43 watts

Finish:
BLS — Black Gloss Smooth
BLT — Black Matte Textured
DBS — Dark Bronze Gloss Smooth
DBT — Dark Bronze Matte Textured
GTT — Graphite Matte Textured
LGS — Light Gray Gloss Smooth
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]

Options:
FS1 — Fusing
PFN — Brass Painted Finial
SPK — Brass Painted Spike
BPS — Brass Painted Struts
LDL — Lightly diffused lens
AD4 — Adapter used only with standard AAL arms and post top mount fixtures to slip over a 4"/100mm O.D. pole

Mounting:
Standard Mount
Slips over a 3"/75mm pole or may choose one
Wall Mount
WMA59D — Mount down
WMA59U — Mount up
Pole Mount/Side Mounts
TRA59D — Mount down
TRA59U — Mount up

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	Efficancy (Lm/W)	4000K 70CRI Lumen	B	U	G	Efficancy (Lm/W)	5000K 70CRI Lumen	B	U	G	Efficancy (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

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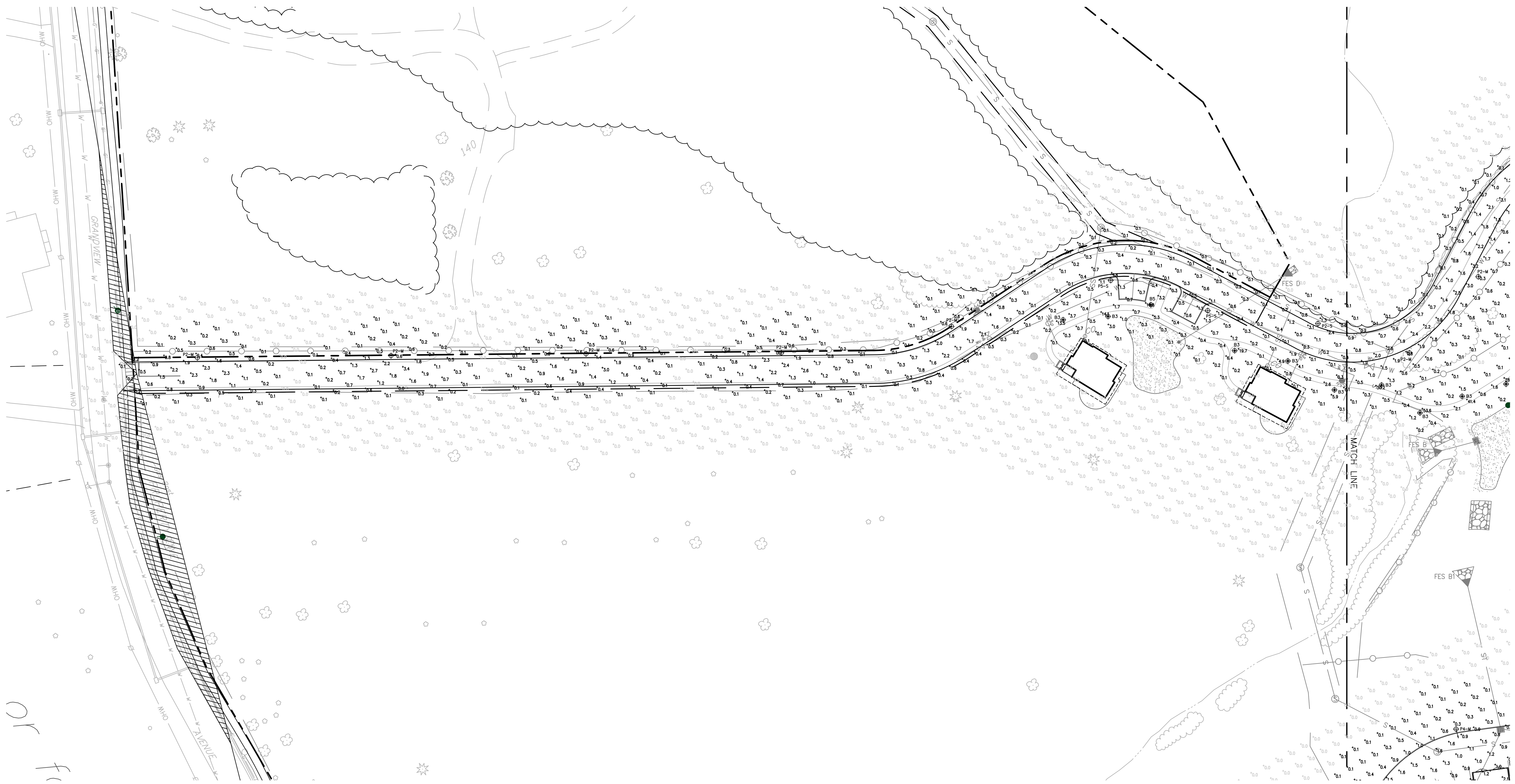


POST TOP FIXTURES POLE:

DB1 – Decorative Pole | TYPE POST TOP FIXTURES (P1, P2, P3, P4 and P5) | TYPE

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

DIMENSIONS

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.

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 twistlock 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 twistlock photocell receptacle with cast pole cap top. Secures to the top of the pole with three stainless steel set 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.)

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.

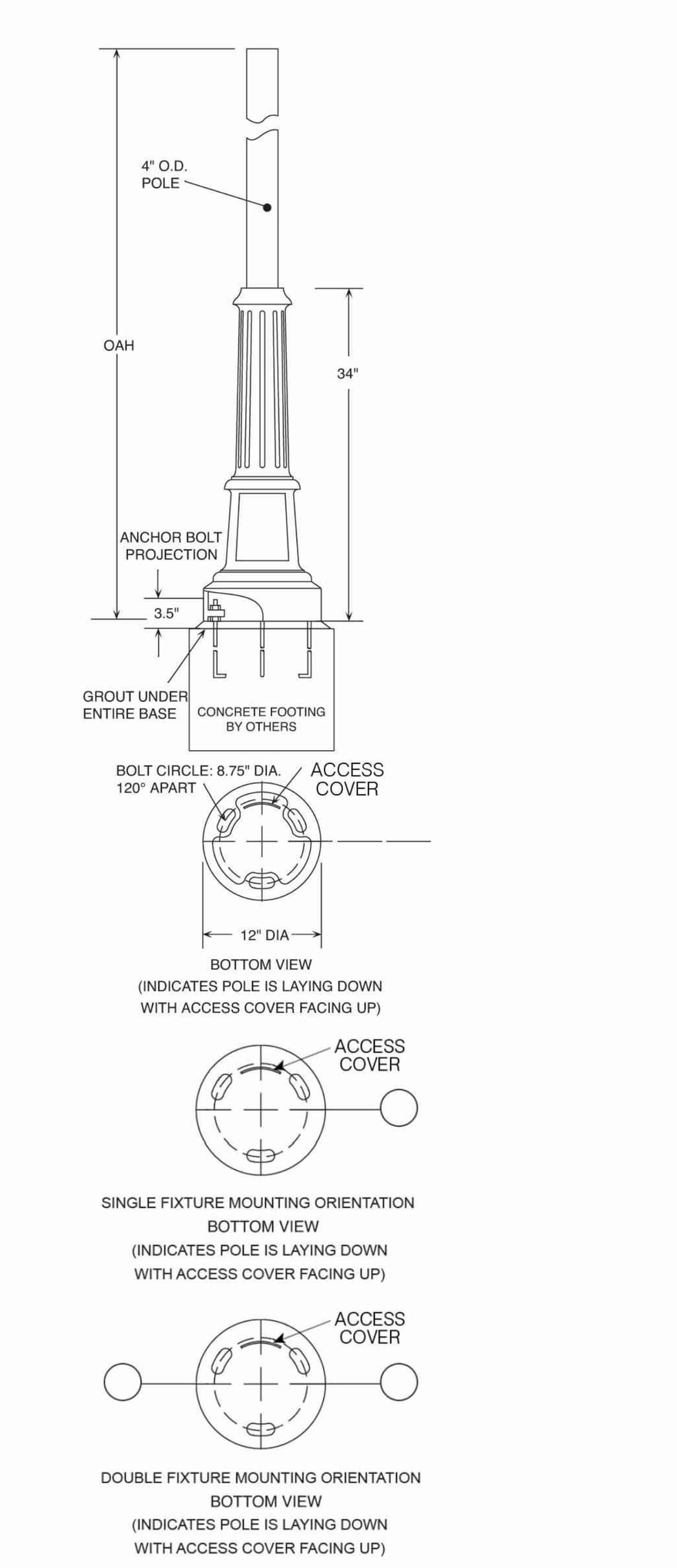
The use of banners or other appendages can severely affect the loading of a pole. No banner or other appendage should be attached to an AAL pole unless approved by AAL.

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.



JOB
TYPE
NOTES

ARCHITECTURAL AREA LIGHTING
17760 Rowland Street | City of Industry | CA 91748
P 626.968.5666 | F 626.369.2695 | www.aal.net
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See Sheet LP-2 for Lighting Schedule/Computations and Light Pole Base Detail.

GRAPHIC SCALE
40 20 0 40
SCALE IN FEET

Dig Safely. New York
Call 811 before you dig

DRAWN BY: HT/CH/DW				CHECKED BY: HT			
REVISIONS:				REVISIONS:			
NO.	DATE	DESCRIPTION	BY	NO.	DATE	DESCRIPTION	BY
1	2/27/24	AMENDED SITE PLAN	HT				

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ARCHITECTURE & DESIGN
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617.623.5555
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Mirbeau INN & SPA

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SEAL

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PROFESSIONAL ENGINEERING P.C.
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13 CHAMBERS ST., NEWBURGH, NEW YORK 12550
PH: 845-440-6926
F: 845-440-6637

SITE LIGHTING PLAN – SOUTHEAST

MIRBEAU BEACON

11 MIRBEAU 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

UNAUTHORIZED ALTERATIONS OR ADDITIONS TO THIS DRAWING IS A VIOLATION OF SECTION 7209.2 OF THE NEW YORK EDUCATION LAW

GENERAL NOTES:

1. THE FUTURE PHASE CONCEPTUAL IMPROVEMENTS ARE SHOWN FOR STATE ENVIRONMENTAL QUALITY REVIEW (SEQR) PURPOSES ONLY. SUCH IMPROVEMENTS ARE SUBJECT TO SITE PLAN REVIEW BY THE CITY OF BEACON PLANNING BOARD.

LEGEND:

- EXISTING PROPERTY LINE
- ADJOINING PROPERTY LINE
- EXISTING EASEMENT LINE
- EXISTING STREAM
- EXISTING WETLAND BOUNDARY
- 100 YEAR FLOODPLAIN LINE
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- EXISTING TREE LINE
- EXISTING OVER HEAD WIRE
- EXISTING UTILITY POLE
- EXISTING SEWER SERVICE LINE
- EXISTING SEWER LINE
- EXISTING SEWER MANHOLE
- EXISTING SEWER CLEAN OUT
- EXISTING WATER LINE
- EXISTING WATER SERVICE LINE
- EXISTING WELL
- EXISTING HYDRANT
- EXISTING WATER VALVE
- EXISTING STORM WATER LINE
- EXISTING CATCH BASIN

- PROPOSED PROPERTY LINE
- PROPOSED SET BACK LINE
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- PROPOSED EASEMENT
- PROPOSED TREE LINE
- PROPOSED SEWER LINE
- PROPOSED SEWER SERVICE LINE
- PROPOSED SEWER MANHOLE
- PROPOSED SEWER CLEAN OUT
- PROPOSED SDS LATERAL
- PROPOSED SDS SOLID LINE
- PROPOSED STORM WATER LINE
- PROPOSED ROOF LEADER LINE
- PROPOSED ROOF LEADER
- PROPOSED WATER LINE
- PROPOSED WATER SERVICE LINE
- PROPOSED WELL
- PROPOSED HYDRANT
- PROPOSED WATER SHUT OFF VALVE
- PROPOSED WATER VALVE

AMENDED SITE PLAN NOTES:

THE AMENDED SITE PLANS AND ELEVATIONS IDENTIFY THE FOLLOWING CHANGES TO THE APPROVED SITE PLANS.

1. RETAIN THE DINING WING STRUCTURE WITHIN THE MANSION.
2. ELIMINATE THE 7 GROTTO ROOMS WITHIN THE MANSION.
3. ADD AN ELEVATOR AND EXTERIOR WALK IN COOLER & FREEZER ADJACENT TO THE WEST SIDE OF THE MANSION ALONG MIRBEAU LANE.
4. ELIMINATE 2 OF THE 4 MONET GARDEN PONDS.
5. DEFER THE WESTERN EMPLOYEE LOTS PAVING AND PROVIDE GRAVEL LOTS.
6. REPLACE THE PAVEMENT WITH CHIP SEAL SURFACE ON THE MAIN ENTRANCE DRIVE.
7. REPLACE VARIOUS REDI-ROCK WALLS WITH LARGE DIAMETER LANDSCAPE BOULDERS.
8. ELIMINATE THE CURB ADJACENT TO THE REDI-ROCK WALLS ALONG THE EASTERN EDGE OF THE CHATEAU EASTERN LOT AND INSTALL CONCRETE CURB STOPS AT EACH SPACE.
9. ELIMINATE THE WALKING PATH FROM THE FRONT CIRCULAR DRIVE OVER TO THE SPA ENTRANCE.
10. DEFER THE PAVEMENT ON MIRBEAU LANE FROM COTTAGE 3 TO GRANDVIEW UNTIL THE FUTURE DEVELOPMENT OF THE COTTAGES IN THE TRIANGULAR PARCEL.
11. RELOCATE THE SEWER MAIN LINE TO RUN ALONG GATEHOUSE LANE INSTEAD OF BISECTING THE SUBDIVISION PARCEL.
12. INSTALLING A SECOND PRIMARY TRANSFORMER ADJACENT TO THE LAUNDRY ROOM WITHIN THE CHATEAU HOTEL.
13. INSTALLING A SECOND DUMPSTER ENCLOSURE AT THE BOTTOM OF THE DRIVE LEADING TO THE LAUNDRY ROOM WITHIN THE CHATEAU HOTEL.
14. CHANGED BIORETENTION AREA B TO AN INFILTRATION BASIN.

OVERALL MASTER PLAN WITH FUTURE PHASE CONCEPTUAL IMPROVEMENTS

SCALE: 1" = 100'
GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1 inch = 100 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.

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
12	2/27/24	AMENDED SITE PLAN	CMB				

ARROWSTREET
ARCHITECTURE & DESIGN
10 POST OFFICE SQUARE
SUITE 700N
BOSTON MA 02109
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Mirbeau INN & SPA

LANDSCAPE ARCHITECTS:
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85 Civic Center Plaza, Suite 204
Poughkeepsie NY 12601
Tel: 845.243.2880

160 West Street, Suite E
Cromwell, CT 06416
Tel: 860.635.2877

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LRC Engineering & Surveying, DPC
LRC Engineering & Surveying, LLC
LRC Environmental Services, Inc.
LRC Proj. No. 21-2809

HUDSON LAND DESIGN

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

OVERALL AMENDED MASTER PLAN WITH FUTURE PHASE CONCEPTUAL IMPROVEMENTS
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-1A
SHEET:	29 OF 29

UNAUTHORIZED ALTERATIONS OR ADDITIONS TO THIS DRAWING IS A VIOLATION OF SECTION 7209.2 OF THE NEW YORK EDUCATION LAW

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MANSION REAR PORCH VIEW FILED MAY 26, 2022



NOTE:
Mansion rear porch FF elevation: 179.75
Cottage #1 + #2 FF elevation: 150.25; Roof peak elevation: 175.
Cottage #3 FF elevation: 148.25
Cottage #4 FF elevation: 139.50
Cottage #5 FF elevation: 141.5
Cottage #4 is 600’ away from Mansion rear porch.



CURRENT VIEW



NEW VIEW

5/17/2022 4:17:40 PM

CLIENT:

Mirbeau INN & SPA

ARCHITECT:

ARROWSTREET
ARCHITECTURE & DESIGN

10 POST OFFICE SQUARE
SUITE 700N
BOSTON MA 02109
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CONSULTANT:

PROJECT INFORMATION:

MIRBEAU BEACON

7 CRAIG HOUSE LANE
BEACON, NY 12508

ISSUANCE:

SPECIAL USE PERMIT APPLICATION

REVISIONS:

No.	Date	Description

DRAWING TITLE:
MANSION PORCH VIEW RENDERING

11/29/22

DRAWING NUMBER:
A 0.04

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MANSION REAR PORCH VIEW / AMENDED FEBRUARY 23, 2024

DRAWING CHANGES:

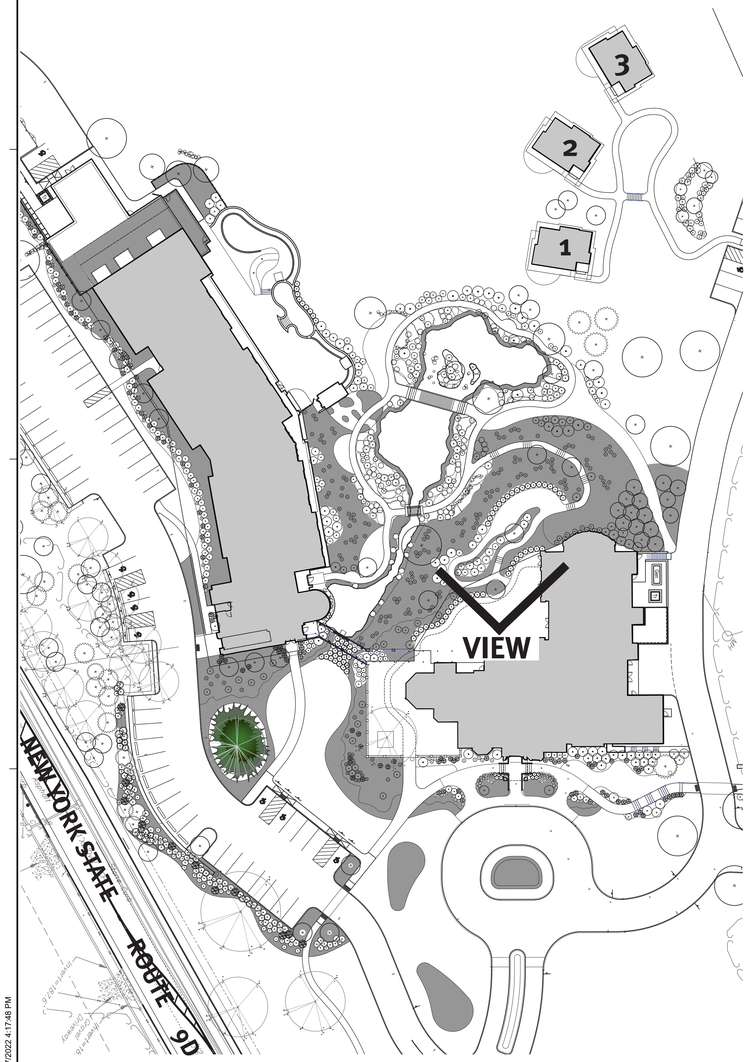
Dining wing has been adjusted to utilize the existing structure. The back patio area, grading, and landscaping has been redesigned to accommodate this change.

NOTE:

Mansion rear porch FF elevation: 179.75
Cottage #1 + #2 FF elevation: 150.25; Roof peak elevation: 175.
Cottage #3 FF elevation: 148.25
Cottage #4 FF elevation: 139.50
Cottage #5 FF elevation: 141.5
Cottage #4 is 600' away from Mansion rear porch.



CURRENT VIEW





NEW VIEW

5/17/2022 4:17:48 PM

CLIENT:

Mirbeau INN & SPA

ARCHITECT:

ARROWSTREET
ARCHITECTURE & DESIGN

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BOSTON MA 02109
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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:

MANSION PORCH VIEW RENDERING

2/23/24

DRAWING NUMBER:

A 0.04

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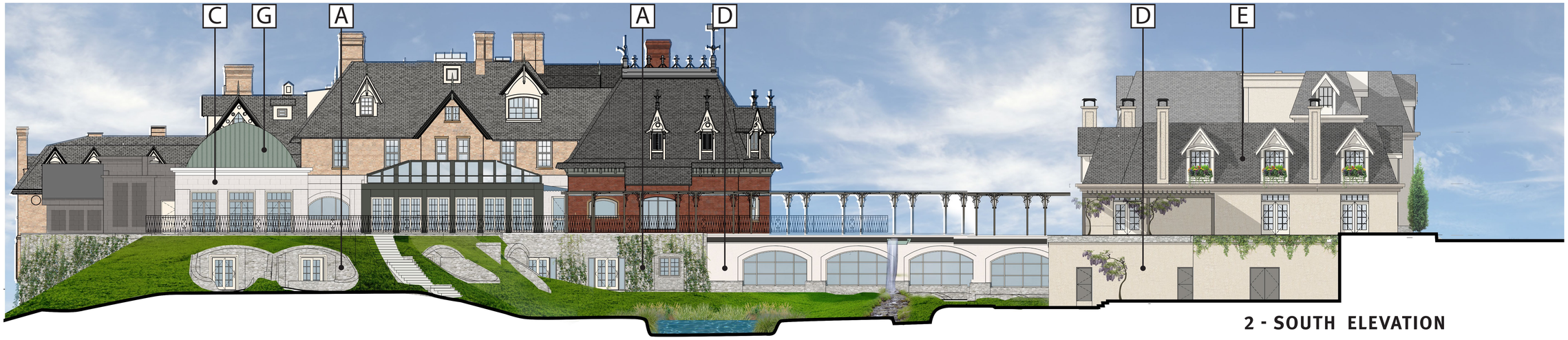
FILED MAY 25, 2022 FOR ARB / SEPTEMBER 27, 2022 FOR SITE PLAN REVIEW

ELEVATIONS



1 - NORTH ELEVATION



2 - SOUTH ELEVATION

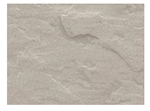
MATERIAL KEY



A: STONE VENEER



B: FULL DIMENSION INDIVIDUALLY SET BRICK



C: TEXTURED FIBER CEMENT



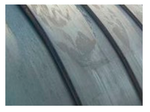
D: STUCCO



E: SYNTHETIC SLATE



F: ARCHITECTURAL SHINGLE



G: METAL ROOFING



H: SMOOTH FIBER CEMENT

5/19/2022 2:06:44

CLIENT:
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ARCHITECT:
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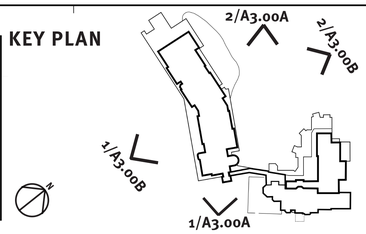
CONSULTANT:

PROJECT INFORMATION:
MIRBEAU BEACON
7 CRAIG HOUSE LANE
BEACON, NY 12508

ISSUANCE:
SPECIAL USE PERMIT APPLICATION

KEY PLAN



REVISIONS:

No.	Date	Description

DRAWING TITLE:
OVERALL ELEVATIONS

Project No.	21047	Drawn By	---
Date	11/29/2022	Scale	

DRAWING NUMBER:
A3.00A

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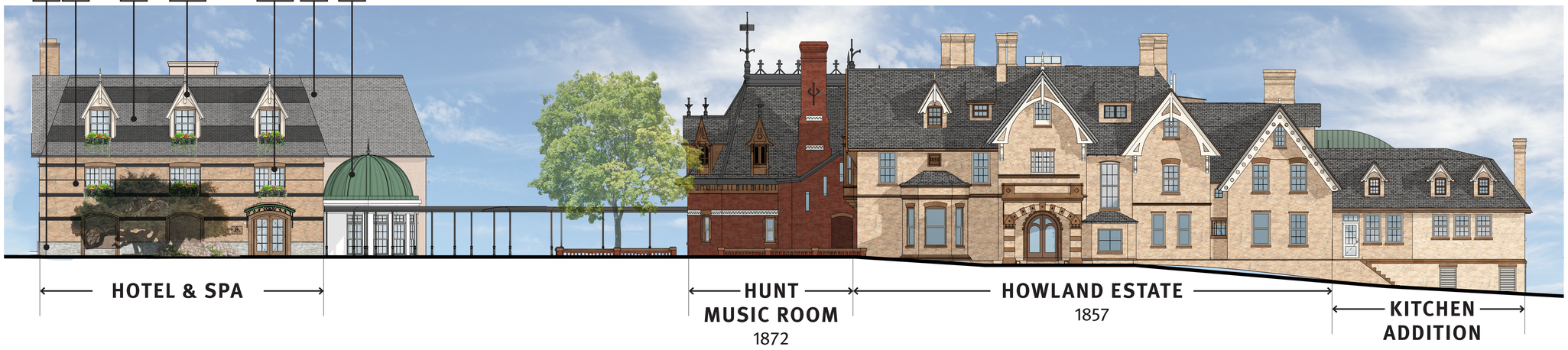
AMENDED FEBRUARY 23, 2024

ELEVATIONS A B F W1 W1 E G

1 - NORTH ELEVATION





2 - SOUTH ELEVATION

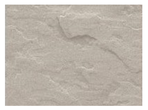
MATERIAL KEY



A: STONE VENEER



B: FULL DIMENSION INDIVIDUALLY SET BRICK



C: TEXTURED FIBER CEMENT



D: STUCCO



E: SYNTHETIC SLATE



F: ARCHITECTURAL SHINGLE



G: METAL ROOFING



H: SMOOTH FIBER CEMENT

DRAWING CHANGES:

South Elevation: Dining wing has been adjusted to utilize the existing structure. The back patio area, grading, and landscaping has been redesigned to accommodate this change. The lower level connector has been removed, while the level 1 connector remains.

8/25/2022 12:47:08 PM

CLIENT:

Mirbeau INN & SPA

ARCHITECT:

ARROWSTREET
ARCHITECTURE & DESIGN

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SUITE 700N
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CONSULTANT:

PROJECT INFORMATION:

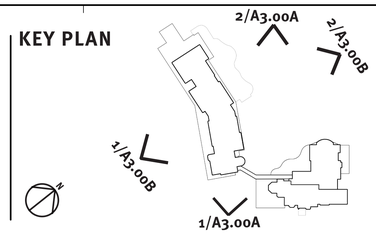
MIRBEAU BEACON

7 CRAIG HOUSE LANE
BEACON, NY 12508

ISSUANCE:

SPECIAL USE PERMIT APPLICATION

KEY PLAN



REVISIONS:

No.	Date	Description

DRAWING TITLE:

OVERALL ELEVATIONS

Project No.	21047	Drawn By	Author
Date	02/23/2024	Scale	

DRAWING NUMBER:

A3.00A

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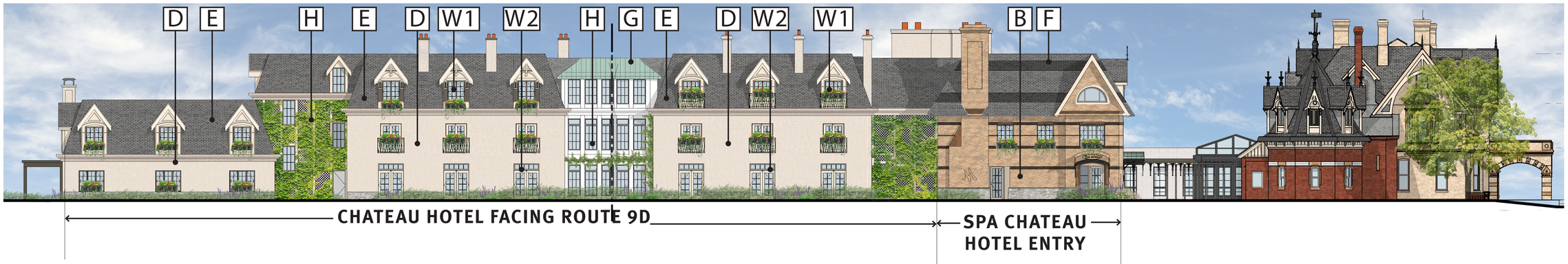
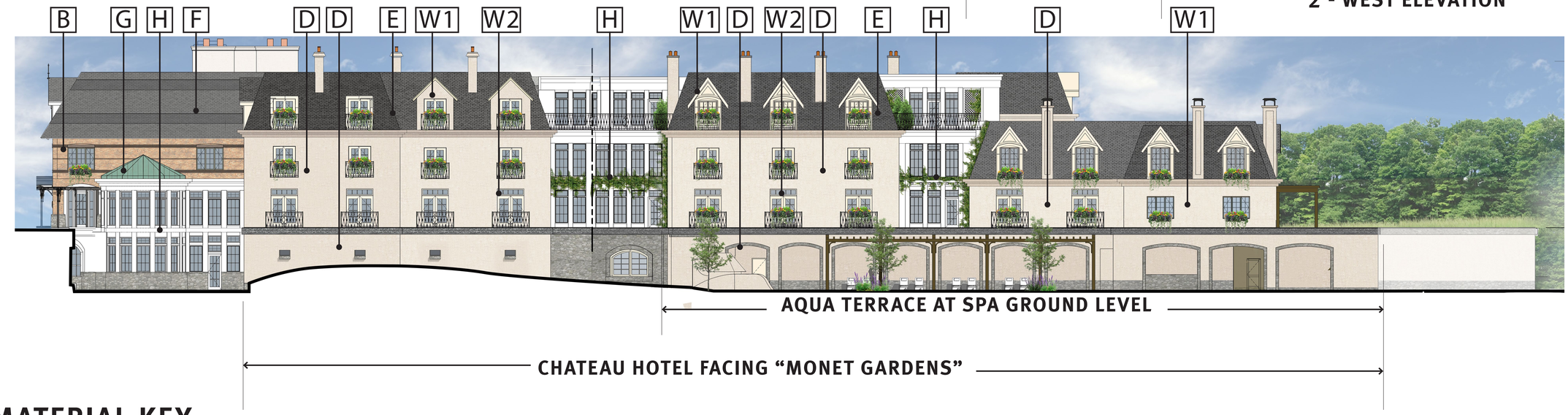
FILED MAY 25, 2022 FOR ARB / SEPTEMBER 27, 2022 FOR SITE PLAN REVIEW

ELEVATIONS

1 - EAST ELEVATION



2 - WEST ELEVATION



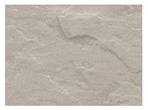
MATERIAL KEY



A: STONE VENEER



B: FULL DIMENSION INDIVIDUALLY SET BRICK



C: TEXTURED FIBER CEMENT



D: STUCCO



E: SYNTHETIC SLATE



F: ARCHITECTURAL SHINGLE



G: METAL ROOFING



H: SMOOTH FIBER CEMENT

8/25/2022 4:28:04 PM

CLIENT:

Mirbeau INN & SPA

ARCHITECT:

ARROWSTREET
ARCHITECTURE & DESIGN

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SUITE 700N
BOSTON MA 02109
617.623.5555
arrowstreet.com

CONSULTANT:

PROJECT INFORMATION:

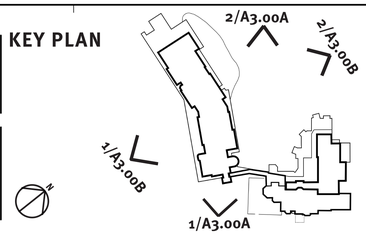
MIRBEAU BEACON

7 CRAIG HOUSE LANE
BEACON, NY 12508

ISSUANCE:

SPECIAL USE PERMIT APPLICATION

KEY PLAN



REVISIONS:

No.	Date	Description

DRAWING TITLE:

OVERALL ELEVATIONS

Project No.	21047	Drawn By	Author
Date	11/29/2022	Scale	

DRAWING NUMBER:

A3.00B

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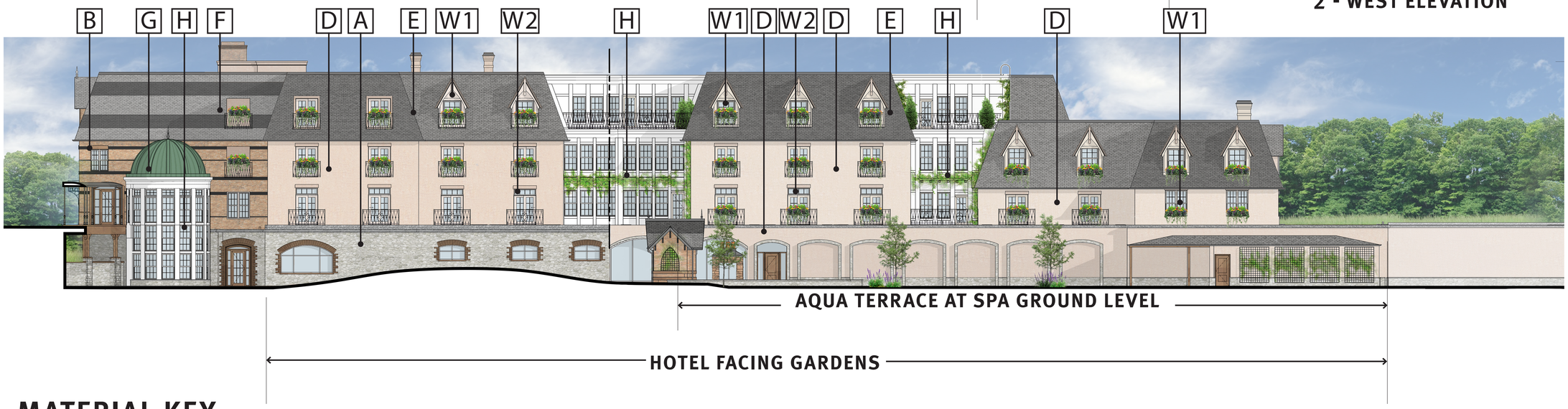
AMENDED FEBRUARY 23, 2024

ELEVATIONS

1 - EAST ELEVATION



2 - WEST ELEVATION



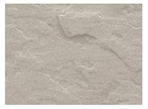
MATERIAL KEY



A: STONE VENEER



B: FULL DIMENSION INDIVIDUALLY SET BRICK



C: TEXTURED FIBER CEMENT



D: STUCCO



E: SYNTHETIC SLATE



F: ARCHITECTURAL SHINGLE



G: METAL ROOFING



H: SMOOTH FIBER CEMENT

DRAWING CHANGES:

East Elevation: The lower level guestroom patio doors on the East elevation have been changed to single hung operable windows.
West Elevation: The aqua terrace bar is now a freestanding structure on the aqua terrace deck. The trellis at the façade along the aqua terrace deck as been removed. A portion of the level o façade has been changed from stucco to a stone veneer.

8/25/2022 4:28:04 PM

CLIENT:
Mirbeau INN & SPA

ARCHITECT:
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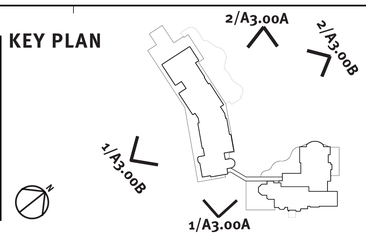
arrowstreet.com

CONSULTANT:

PROJECT INFORMATION:
MIRBEAU BEACON
7 CRAIG HOUSE LANE
BEACON, NY 12508

ISSUANCE:
SPECIAL USE PERMIT APPLICATION

KEY PLAN



REVISIONS:

No.	Date	Description

DRAWING TITLE:
OVERALL ELEVATIONS

Project No.	21047	Drawn By	Author
Date	02/23/2024	Scale	

DRAWING NUMBER:
A3.00B

Full Environmental Assessment Form
Part 1 - Project and Setting

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 applicant or project sponsor to verify that the information contained in Part 1is accurate and complete.

A. Project and Applicant/Sponsor Information.

Name of Action or Project: Mirbeau Inn & Spa Beacon		
Project Location (describe, and attach a general location map): 7 Craig House Lane, Beacon NY 12508		
Brief Description of Proposed Action (include purpose or need): Adaptive re-use of an existing estate for a proposed 75-room hotel with accessory uses including a spa, fine dining restaurant, event facilities, estate-like gardens, water features and site amenities. The project consists of renovation and expansion of an existing mansion to accommodate amenities associated with the spa, and a restaurant. There will be a number of grotto hotel rooms within the mansion, and the remainder of the hotel rooms will be located in a newly constructed Spa Château building which includes the spa at garden level. Other site improvements include restoration of an existing gate house located in the northeast portion of the site and the former Tioranda School located in the southwest portion of the site. A 6.5 acre parcel will be subdivided from the parent parcel for future rental lodging. Future site improvements include renovation of a gate house located in the southern portion of the property along South Street and a resort farm with lavender fields. Please see attached project narrative for additional information. 2024 Amended Site Plan Update: 1. The dining wing within the mansion will be retained and renovated. 2. The seven ground floor grotto rooms have been removed from the design; however, the overall guest room count remains by reconfiguration of certain rooms within the mansion and hotel wing. 3. Addition of an elevator and walk-in cooler/freezer to the mansion. 4. Two of the four Monet garden ponds have been eliminated. 5. Employee parking lots to be gravel. 6. Main drive pavement replaced with chip seal. 7. Various Redi Rock walls have been replaced with boulders. 8. The curb in front of Redi Rock walls along the eastern edge of the Chateau has been replaced with curb stops. 9. Eliminate walking path from the front circular drive to the spa entrance. 10. Change Bioretention B to an Infiltration Basin. 11. Providing a second dumpster location at the south end of the hotel adjacent to the laundry entrance. 12. Defer pavement on Mirbeau Lane from Cottage 3 to Grandview until the future development of the cottage in the new parcel created as part of the original approval.		
Name of Applicant/Sponsor: Mirbeau of Beacon, LLC	Telephone: 315-217-4164 E-Mail: jdalpos@mirbeau.com	
Address: 433 Broadway, Suite 203		
City/PO: Saratoga Springs	State: NY	Zip Code: 12866
Project Contact (if not same as sponsor; give name and title/role): Edward Kellogg	Telephone: 845-516-7357 E-Mail: ekellogg@mirbeau.com	
Address: 46 West Market Street		
City/PO: Rhinebeck	State: NY	Zip Code: 12572
Property Owner (if not same as sponsor): Same	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 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 - Amended Site plan, Special Use Permit and Certificate of Appropriateness.	3/29/2022; Amended 5/25/2022; Amended 2/27/2024
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; Negative Declaration Adopted on 12/22/2022. Amended 2/27/2024.
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; Negative Declaration Adopted on 12/22/2022. Amended 2/27/2024
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):

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?
R1-80 (One -Family, 80,000 square feet dwelling), Historic District and Landmark Overlay Zone

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? City of Beacon School Distrcit

b. What police or other public protection forces serve the project site?
City of Beacon Police Department

c. Which fire protection and emergency medical services serve the project site?
City of Beacon Fire Department

d. What parks serve the project site?
Mount Beacon; Hudson Highlands State Park; Madam Brett Park

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)? Commercial - Hotel, Spa & Restaurant

b. a. Total acreage of the site of the proposed action? +/- 64.39 acres
b. Total acreage to be physically disturbed? 15.2 acres
c. Total acreage (project site and any contiguous properties) owned or controlled by the applicant or project sponsor? +/- 66.59 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 the proposed action be constructed in multiple phases? ☑ Yes ☐ No
i. If No, anticipated period of construction: _____ months
ii. If Yes:
- Total number of phases anticipated 4
- Anticipated commencement date of phase 1 (including demolition) June month 2024 year
- Anticipated completion date of final phase Dec month 2029 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 1
ii. Dimensions (in feet) of largest proposed structure: 36'-4" height; 85' width; and 311' length
iii. Approximate extent of building space to be heated or cooled: 104,722 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: Stormwater Management and Aesthetic Water Feature
ii. If a water impoundment, the principal source of the water: ☑ Ground water ☐ Surface water streams ☑ Other specify: Groundwater for aesthetic water feature and stormwater runoff for stormwater management
iii. If other than water, identify the type of impounded/contained liquids and their source. N/A
iv. Approximate size of the proposed impoundment. Volume: 0.15 million gallons; surface area: 0.3 acres
v. Dimensions of the proposed dam or impounding structure: 1 ft height; 100 ft length
vi. Construction method/materials for the proposed dam or impounding structure (e.g., earth fill, rock, wood, concrete): Earth fill for water feature and proposed bioretention areas

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? Removal of existing hospital wing
ii. How much material (including rock, earth, sediments, etc.) is proposed to be removed from the site?
- Volume (specify tons or cubic yards): 0
- Over what duration of time? 1 month

iii. Describe nature and characteristics of materials to be excavated or dredged, and plans to use, manage or dispose of them.
General building debris to be crushed re-used on site.
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? 0.5 acres For building demo only.
vi. What is the maximum area to be worked at any one time? 5 acres
vii. What would be the maximum depth of excavation or dredging? 4-5 feet
viii. Will the excavation require blasting? ☐ Yes ☑ No
ix. Summarize site reclamation goals and plan:
To be used on-site as subbase material or general fill.

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 the proposed action cause or result in disturbance to bottom sediments? ☐Yes ☐No
If Yes, describe:

iv. Will the 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: 16,380 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: City of Beacon Water District
- 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), what is the 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: 16,380 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):
Sanitary wastewater

iii. Will the proposed action use any existing public wastewater treatment facilities? ☑Yes ☐No
If Yes:

- Name of wastewater treatment plant to be used: City of Beacon Wastewater Treatment Plant
- Name of district: City of Beacon Sewer 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? ☑ Yes ☐ No
- Will a 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):

N/A

vi. Describe any plans or designs to capture, recycle or reuse liquid waste:

None

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 1.11 acres (impervious surface) Reflects additional impervious. Total post development impervious is 4.57 ac.

_____ Square feet or 64.35 acres (parcel size)

ii. Describe types of new point sources. New point sources created from proposed stormwater outfalls on the site. All outfalls discharge to the Fishkill Creek through existing on-site drainage conveyance ditches as preconditions.

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)?

On-site stormwater management facilities prior to discharge to on-site drainage ditches into on-site wetlands which overflow to the Fishkill Creek

- If to surface waters, identify receiving water bodies or wetlands:

Fishkill Creek

- Will stormwater runoff flow to adjacent properties? ☑ Yes ☐ No

iv. Does the 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)

Delivery vehicles

ii. Stationary sources during construction (e.g., power generation, structural heating, batch plant, crushers)

Potential concrete slab crushing

iii. Stationary sources during operations (e.g., process emissions, large boilers, electric generation)

Normal boilers appropriate for use within the Spa building and hotel wing. No on-site power generation or processing is proposed.

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 truck trips/day and type (e.g., semi trailers and dump trucks): N/A

iii. Parking spaces: Existing 37 Proposed 245 Net increase/decrease +208

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: The proposed project utilizes existing curb cuts and internal circulation roads and parking areas with minor modifications.

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: _____

ii. Anticipated sources/suppliers of electricity for the project (e.g., on-site combustion, on-site renewable, via grid/local utility, or other):
Central Hudson Gas & Electric; Geothermal closed system

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: 7 am to 5 pm
- Saturday: 7 am to 5 pm
- Sunday: N/A
- Holidays: N/A/

ii. During Operations:
- Monday - Friday: 7 am - 10 pm
- Saturday: 7 am - 11 pm
- Sunday: 7 am - 11 pm
- Holidays: 7 am - 11 pm

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:

Heavy equipment and other construction operations.

ii. Will the 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:

12' high light poles will be provided at parking areas and internal roadways, along with bollard lighting at walking paths and building mounted fixtures at buildings. All site lighting will be Dark Sky compliant.

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 the 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):

Lawn Maintenance

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: 60 cubic yards ~~tons~~ per week (unit of time)
- Operation : 30 cubic yards ~~tons~~ per week (unit of time)

ii. Describe any proposals for on-site minimization, recycling or reuse of materials to avoid disposal as solid waste:

- Construction: Re-use of materials wherever possible
- Operation: Recyclable materials will be separated from refuse and recycled.

iii. Proposed disposal methods/facilities for solid waste generated on-site:

- Construction: Open top containers will be used for disposal of construction debris to be hauled off-site to a licensed landfill.
- Operation: Enclosed trash receptacles & recycle bins provided with a contracted sanitation company.

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 the 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): _____

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	3.46	4.57	+ 1.11
• Forested	23.86	23.59	- 0.27
• Meadows, grasslands or brushlands (non-agricultural, including abandoned agricultural)	27.08	26.12	- 0.96
• Agricultural (includes active orchards, field, greenhouse etc.)	0.00	0.00	0.00
• Surface water features (lakes, ponds, streams, rivers, etc.)	3.66	3.78	+ 0.12
• Wetlands (freshwater or tidal)	6.29	6.29	-0.00
• Non-vegetated (bare rock, earth or fill)			
• Other Describe: Meadows, grasslands and brushlands includes landscaping and lawns			

c. Is the project site presently used by members of the community for public recreation? ☐Yes ☑No
i. If Yes: explain: _____

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:
Sargent Elementary School

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): 9416681; 9800433; 9813516 & 9415355*
☑ Yes – Environmental Site Remediation database — Provide DEC ID number(s): 546031 Hudson River PCB Cleanup
☐ Neither database

*Indicates 4 on-site spill incidents associated with a petroleum tank. All incidents were closed by the NYSDEC. Follow up soil testing was conducted in February of 2022 as part of a Phase I ESA. No hydrocarbons were identified.

ii. If site has been subject of RCRA corrective activities, describe control measures: _____
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): C314117, 314044, 546031
iv. If yes to (i), (ii) or (iii) above, describe current status of site(s):
C314117 - 555 South Avenue - Ongoing monitoring
314044 - Tuck Industries, Tioranda Ave. - Delisted in 2003
546031 - Hudson River PCB - On going, current status - no action

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? 1.5 to greater than 6.7 feet

b. Are there bedrock outcroppings on the project site? ☑ Yes ☐ No
If Yes, what proportion of the site is comprised of bedrock outcroppings? <1 %

c. Predominant soil type(s) present on project site:

Hoosic	31 %
Dutchess Cardigan	22 %
Nassau Cardigan	23 %

d. What is the average depth to the water table on the project site? Average: 0 to > 6.7 feet

e. Drainage status of project site soils:

☑ Well Drained:	32 % of site
☑ Moderately Well Drained:	33 % of site
☑ Poorly Drained	31 % of site

f. Approximate proportion of proposed action site with slopes:

☑ 0-10%:	46 % of site
☑ 10-15%:	14 % of site
☑ 15% or greater:	40 % 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 862-237 Classification C
- Lakes or Ponds: Name 862-241 Classification C
- Wetlands: Name Federal Waters, Federal Waters, Federal Waters,... Approximate Size _____
- 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: Principal Aquifer

m. Identify the predominant wildlife species that occupy or use the project site:
White Tail Deer, Groundhog
Raccoon
Squirrel

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): Oak-Tulip Tree Forest, Brackish Tidal Marsh, Brackish Intertidal Mudflats, Appalachian Oak-Hickory Forest
ii. Source(s) of description or evaluation: Provided by NYSDEC EAF Mapper
iii. Extent of community/habitat:
- Currently: 2768.0, 14.72, 10.37, 2334.0 acres
- Following completion of project as proposed: Same acres
- Gain or loss (indicate + or -): 0 acres

All listed communities are not present on site.

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
If Yes:
i. Species and listing (endangered or threatened): Atlantic Sturgeon, Timber Rattlesnake, Davis' Sedge, Bald Eagle, Pied-billed Grebe, Shortnose Sturgeon
A threatened and Endangered Species Habitat Suitability Assessment study has been conducted by ecological Solutions for the site. A report dated March 25, 2022 inddicates that there will be no impact to the listed species.

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
If Yes:
i. Species and listing:

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:

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 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? ☑ Yes ☐ No

If Yes:

i. Nature of historic/archaeological resource: ☑ Archaeological Site ☑ Historic Building or District

ii. Name: Eligible property:WALZ RESIDENCE, Eligible property:Tuck Industries (DEMOLISHED 2005), Eligible property:Gymnasium/Na...

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): Historic and Prehistoric

ii. Basis for identification: Phase I & II Archaeological Study

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: Hudson River and Hudson Highlands State Park

ii. Nature of, or basis for, designation (e.g., established highway overlook, state or local park, state historic trail or scenic byway, etc.): State Park

iii. Distance between project and resource: 1 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.

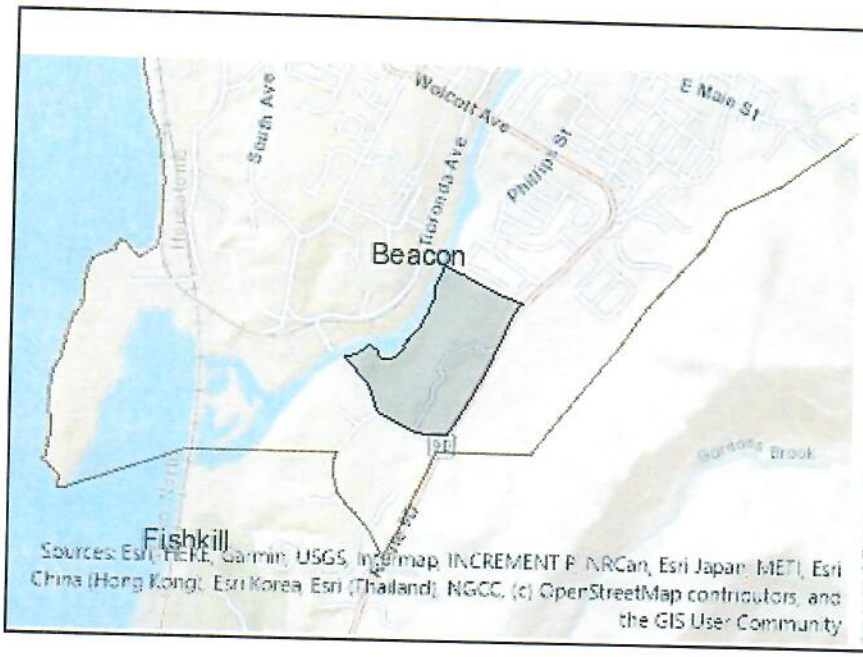
Applicant/Sponsor Name Ed Kellogg Date 3/12/2024

Signature Edward C. Kellogg Title Partner

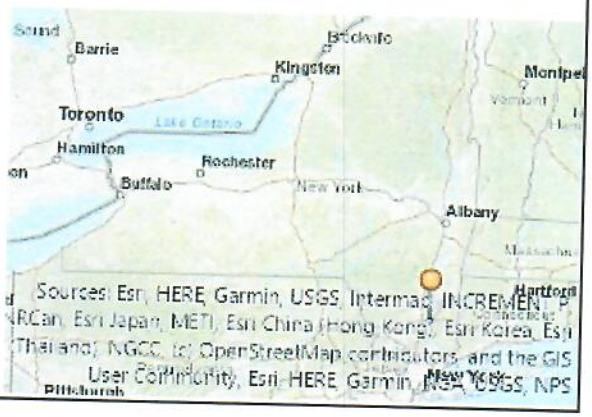
PRINT FORM

EAF Mapper Summary Report

Monday, March 11, 2024 8:53 PM



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.



B.i.i [Coastal or Waterfront Area]	Yes
B.i.ii [Local Waterfront Revitalization Area]	Yes
C.2.b. [Special Planning District]	Yes - Digital mapping data are not available for all Special Planning Districts. Refer to EAF Workbook.
C.2.b. [Special Planning District - Name]	Remediaton Sites:546031
E.1.h [DEC Spills or Remediation Site - Potential Contamination History]	Yes - Digital mapping data for Spills Incidents are not available for this location. Refer to EAF Workbook.
E.1.h.i [DEC Spills or Remediation Site - Listed]	Yes
E.1.h.i [DEC Spills or Remediation Site - Environmental Site Remediation Database]	Yes
E.1.h.i [DEC Spills or Remediation Site - DEC ID Number]	546031
E.1.h.iii [Within 2,000' of DEC Remediation Site]	Yes
E.1.h.iii [Within 2,000' of DEC Remediation Site - DEC ID]	C314117, 314044, 546031
E.2.g [Unique Geologic Features]	No
E.2.h.i [Surface Water Features]	Yes
E.2.h.ii [Surface Water Features]	Yes
E.2.h.iii [Surface Water Features]	Yes - Digital mapping information on local and federal wetlands and waterbodies is known to be incomplete. Refer to EAF Workbook.
E.2.h.iv [Surface Water Features - Lake/Pond Name]	862-241
E.2.h.iv [Surface Water Features - Lake/Pond Classification]	C
E.2.h.iv [Surface Water Features - Wetlands Name]	Federal Waters

E.2.h.v [Impaired Water Bodies]	Yes
E.2.h.v [Impaired Water Bodies - Name and Basis for Listing]	Name - Pollutants - Uses:Hudson River (Class B) – Priority Organics – Fish Consumption
E.2.i. [Floodway]	Yes
E.2.j. [100 Year Floodplain]	Yes
E.2.k. [500 Year Floodplain]	Yes
E.2.l. [Aquifers]	Yes
E.2.l. [Aquifer Names]	Principal Aquifer
E.2.n. [Natural Communities]	Yes
E.2.n.i [Natural Communities - Name]	Oak-Tulip Tree Forest, Brackish Tidal Marsh, Brackish Intertidal Mudflats, Appalachian Oak-Hickory Forest
E.2.n.i [Natural Communities - Acres]	2768.0, 14.72, 10.37, 2334.0
E.2.o. [Endangered or Threatened Species]	Yes
E.2.o. [Endangered or Threatened Species - Name]	Atlantic Sturgeon, Timber Rattlesnake, Davis' Sedge, Bald Eagle, Pied-billed Grebe, Shortnose Sturgeon
E.2.p. [Rare Plants or Animals]	No
E.3.a. [Agricultural District]	No
E.3.c. [National Natural Landmark]	No
E.3.d [Critical Environmental Area]	No
E.3.e. [National or State Register of Historic Places or State Eligible Sites]	Yes - Digital mapping data for archaeological site boundaries are not available. Refer to EAF Workbook.
E.3.e.ii [National or State Register of Historic Places or State Eligible Sites - Name]	Eligible property:WALZ RESIDENCE, Eligible property:Tuck Industries (DEMOLISHED 2005), Eligible property:Gymnasium/Nature Center, Eligible property:White House, Eligible property:Infirmary, Eligible property:Workshop, Eligible property:Public Restroom, Eligible property:Cabin 42, Eligible property:Chapel, Eligible property:Shed, Eligible property:Cabin 45, Eligible property:Cabin 44, Eligible property:Office-Studio-Shop Bldg, Eligible property:Caretaker's Residence, Eligible property:Pavilion, Tioronda Bridge, Tioronda Estate–Craig House Historic District
E.3.f. [Archeological Sites]	Yes
E.3.i. [Designated River Corridor]	No

Mirbeau of Beacon LLC
Site Plan Amendment
Site Plan Comparison
3/12/2024

		Proposed		
Item	**Signed Site Plan**	**Amended Site Plan**	**Change**	**Notes**
Application submitted	3/29/2022	2/23/2024	NA	
EAF	3/29/2022	3/12/2024	NA	
Resolution Adopted	12/13/2022		TBD	
SEQRA NegDec Adopted	12/13/2022		TBD	
Site Plans signed	5/19/2023		TBD	
Total Number of Rental Rooms	75	75	0	Chateau, Mansion
Total Number of Cottage Rooms	10	10	0	5 Cottages
Dining Seats	4/19/1900	110	0	
Spa Treatment Rooms	1/21/1900	21	0	
Building Permit Issued	1/9/2024		TBD	Submit revised Dining Wing Building Plans for record
Required Parking Spaces	233	233	0	
Provided Parking Spaces	245	245	0	
Gross Floor Area	104,722	99,028	-5694	Retain existing Dining Wing
Building Footprint	42,325	36,146	-6179	Retain existing Dining Wing
Area of Disturbance	12.37	15.21	2.96	Temporary disturbance for fill excavation at north end of North Lawn
Impervious Surface	4.63	4.57	-0.06	
Traffic Generation			0	No change to Use
Water/Wastewater			0	No change to Use

Amended Site Plan
Retain existing Dining Wing
Change employee parking and Mirbeau Lane from Mansion to Grandview surfaces to gravel
Replace paved entrance road with chip seal
Replace redi rock walls with landscape boulders at locations noted on plan
Add Elevator and WalkIn Cooler & Freezer on west side of Mansion at Service Area
Add second Electrical Transformer at south end of Chateau
Add second dumpster enclosure at south end of Chateau

LANC & TULLY
Engineering and Surveying, P.C.

March 7, 2024

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

RE: Mirbeau of Beacon, LLC
Site Plan Amendment
City of Beacon
Tax Map No. 6054-13-001258

Dear Mr. Gunn:

My office has received the following in regard to the above application:

- Correspondence from The Mirbeau Companies dated February 23, 2024, in which they outline the proposed changes to the site plan.
- Application for Site Plan Approval dated February 23, 2024.
- Report titled "Stormwater Pollution Prevention Plan for Mirbeau Beacon Inn & Spa", with the latest revision date of February 27, 2024, as prepared by Hudson Land Design.
- Approval letter from Dutchess County Department of Health dated March 17, 2023.
- Architectural rendering and view plans dated November 29, 2022, and February 23, 2024, as prepared by Arrowstreet Architecture & Design.
- Plan set titled "Mirbeau Beacon Inn & Spa", with the latest revision date of February 27, 2024, and consisting of Sheets 1 of 29 through 29, as prepared by Hudson Land Design, Arrow Street Architecture, and LRC Group.

The project was previously approved by the Planning Board in April of 2023 to develop a Spa and Inn at the Craig House property located on the southerly side of the City along Howland Avenue, which is 64.39 acres in size. At that time, the applicant also proposed 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. As there are proposed changes to the water distribution system and sewer collection system previously approved by the Dutchess County Department of Health, the applicant will need to seek re-approval from the department of health for the revised systems.

2. A Performance Bond shall be posted for all public improvements proposed along Walcott Avenue, Grandview and South Avenue. Based upon the two (2) cost estimates submitted, the total cost of the work is valued at $710,321.25, therefore a Performance Bond at this value shall be submitted to the City of Beacon, prior to the signing of the plans by the Planning Board Chair.

3. Sheets 20 through 28 should note that they are of 29 total. Presently the page number notes that they are from a set of 28 sheets.

Sheet 2 of 29:

1. As the plan indicates things in red that are to be removed, it is recommended that the items that are not to remain be revised in color so that they no longer appear in red indicating their removal.

Sheet 3 of 29:

1. As Mirbeau Lane was serving as a secondary emergency access to the site, the elimination of the surfacing of this roadway should be further discussed with the Building Department to ensure that the proposed changes will comply with the state fire code.

2. The amended site plan notes state that the paving of the western employee parking lots. When is this being deferred to?

Sheet 7 of 29:

1. As there are a number of geothermal wells proposed around the site, which are in close proximity to other proposed utilities (water, sewer, etc.), the details for these geothermal systems shall be provided on the plans to allow for review in relationship to the other proposed utilities and structures proposed on the site.

2. The location of the water line in front of CB-21 should be shifted to provide the proper 10-foot horizontal separation required.

Sheet 8 of 29:

1. The connection of the hydrant to the water main, at the end of the run on Mirbeau Lane, should be shown on the plan.

Sheet 14 of 29:

1. The stormwater profile from CB18 to CB20 should be revised to reflect the hydrant crossing between CB19 and CB20. This profile shall also be revised to reflect the flared end outlet.

2. The stormwater profile from CB7 to CB14 should be revised to reflect the water crossing between CB10 and CB11.

SWPPP Comments:

1. Section 6.0 of the report should include a pre & post analysis table of the flows from the site and show how the proposed infiltration systems are reducing off-site impacts and helping to recharge the groundwater system within the area.

2. The Hydrocad modeling pages in Appendix "E" have been cut off so that information is missing. Please revise the pages so that all information shows.

3. The calculation pages in Appendix "F" have been cut off so that information is missing. Please revise the pages so that all information shows.

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** 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: Jennifer Gray, Esq.
Natalie Quinn, Planner
Bruce Flower, Building Inspector

KARC
PLANNING CONSULTANTS, INC.

TO: John Gunn, Chair, and the City of Beacon Planning Board

FR: KARC Planning Consultants, Inc.

DATE: March 11, 2024

RE: 11 Mirbeau Lane Site Plan Amendment, Mirbeau of Beacon, LLC

I have reviewed the following materials regarding the proposed re-use of the building located at 410 Fishkill Avenue:

- Cover letter by Edward A. Kellogg of the Mirbeau Companies, dated February 23, 2024
- Application for Site Plan Approval, dated February 23, 2024
- Site Plan Set (29 sheets) by Hudson Land Design and LRC Group, last revised 2/27/24
- Architectural Renderings and view plans (6 sheets) by Arrowstreet Architecture & Design, comparing approved drawings dated November 29, 2022 to proposed drawings dated February 23, 2024 (sheets A 0.04, A3.00A, and A3.00B)
- Stormwater Pollution Prevention Plan for Mirbeau Beacon Inn & Spa by Hudson Lan Design, last revised February 27, 2024
- Planning review letters submitted by the Board's previous planning consultant, John Clarke Planning & Design, dated 4/7/22, 6/10/22, 7/7/22, 8/5/22, 9/9/22, 10/7/22, 11/6/22, 12/9/22, 4/11/23, and 4/12/23.

Project Description:
The applicant is proposing amendments to a site plan previously approved by the Board in April of 2023. The approved site plan includes conversion of 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 additional rental cottages. The 64.39-acre site is in the R1-80 zoning district and in the Historic District and Landmark Overlay (HDLO) zone. Proposed amendments to the approved site plan are listed in the applicant's cover letter and on Site Plan Sheet SP-1 (Sheet 3 of 39) and include retention of the existing dining wing structure, relocation of seven Grotto rooms, addition of elevator and exterior walk in cooler, elimination of two proposed garden ponds, changes in proposed paving materials, and deferred improvements, amongst others.

Comments & Recommendations:

1. **Public Viewpoints of Historic Manor**
   During the original site plan review, two clear public viewpoints toward the historic Mansion from Route 9D were identified for protection; View 1 - from just south of the proposed main

entrance and View 2 - from just south of the large Gingko tree. 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. View 1 is not impacted by any of the proposed amendments besides the proposed change in material for the main entrance drive. A portion of the retained dining wing may be visible from View 2, but the impact to the public viewpoint is immaterial as the structure is existing and does not impede view of the historic Mansion from Route 9D.

2. **Retention of Existing Dining Wing:**
   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. Proposed changes to the exterior façade of the existing dining wing, as well as the addition of an exterior elevator and walk in cooler, should be referred to the Architectural Review Subcommittee.

3. **Paving of Employee Parking:**
   The applicant is seeking approval to defer paving of the western employee parking lots and provide gravel lots. The Planning Board may wish to clarify if the proposal to pave is deferred or eliminated. If deferred, it should be clarified at what point the applicant anticipates paving to occur.

4. **Second Dumpster Enclosure:**
   A note on Sheet SP-1 points to the southern portion of the new spa facility and states "See Amended Site Plan Note #11 & 12." We believe this note should be corrected to "…Note #12 & 13" to correctly identify the proposed location of the second dumpster enclosure and second primary transformer.

5. **Paving of Mirbeau Lane:**
   The applicant is seeking to defer paving of Mirbeau Lane from Cottage 3 to Grandview Avenue. The applicant should provide clarification regarding how guest vehicles will access the parking for Cottages 4 & 5.

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

Natalie Quinn
Beacon Planning Consultant

Cc: Bruce Flower, Building Inspector
Jennifer L. Gray, Esq., City Attorney
John Russo, P.E., City Engineer
Edward A Kellogg, Applicant Representative

City of Beacon Planning Board Agenda
03/12/2024

Title:

Review of application for Site Plan approval and Special Use Permit, car dealership, 410 Fishkill Avenue, submitted by Carvana, LLC c/o Jenn Roldan.

ATTACHMENTS

410 Fishkill PB 3.12.24 Carvana Cover Letter_2024-0227.pdf

410 Fishkill PB 3.12.24 Site Plan App Carvana (executed).pdf

410 Fishkill PB 3.12.24 SUP App Carvana (executed).pdf

410 Fishkill PB 3.12.24 DEED.pdf

410 Fishkill PB 3.12.24 Carvana - Site Plan.pdf

Lanc Tully 410 Fishkill Ave 03-07-24 review.pdf

KARC Review PB_410 Fishkill Ave_3.8.2024.pdf

410 Fishkill PB 3.12.24 public comment CAC.pdf

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
www.HudsonLandDesign.com

February 27, 2024

John Gunn, Chairman and Members of the City of Beacon Planning Board
1 Municipal Plaza
Beacon, NY 12508

Re: Carvana Site Plan
410 Fishkill Avenue
Tax Parcels: 6055-80-424048
6055-80-439071
±1.373 acres total
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 pleased to submit five (5) copies of the following documents in support of the Project:

- Application for Site Plan Approval executed by the Applicant, Carvana, LLC, including:
  - Application Processing Restriction Law – executed by the Owner, DKH Realty, LLC
  - Entity Disclosure Form – executed by both Owner and Applicant
- Application for Special Use Permit executed by the Applicant, Carvana, LLC, including:
  - Application Processing Restriction Law – executed by the Owner, DKH Realty, LLC
  - Entity Disclosure Form – executed by both Owner and Applicant
- Site Plan Application Fee of $500 (HLD Check #2239)
- Special Use Permit Fee of $500 (HLD Check #2240)
- Initial Escrow of $1,800 for Site Plan with Existing Building (HLD Check #2241)
- Property Deed
- Civil Site Plan Set (Sheets 1 through 3 of 3)

These items are being submitted to the City of Beacon Planning Board for initial review. The proposed Project is located at 410 Fishkill Avenue, and consists of 2 parcels totaling 1.373 acres. The parcels lie within the City of Beacon's GB General Business Zoning District, and within established water and sewer districts. The property currently contains a commercial building used as a car dealership, and the applicant (Carvana) is proposing to continue the use of the building at a much-reduced scale than the Healey Hyundai. The owner, DKH Realty, LLC, will be leasing the property to Carvana for the Project. Carvana provided correspondence regarding their operation in the attached correspondence to the City of Beacon Building Inspector dated January 25, 2024. Vehicle Sales is a specially permitted use within the GB zoning district per the Schedule of Use Regulations. In addition, Offstreet Parking on the parcel to the north is a specially permitted use per the Schedule of Use Regulations. Unless it is determined that the Project does not need to go through the Planning Board process, the Project will require Site Plan and Special Use Permit approvals.

We believe that this application, should it go forward, should be deemed a Type II action under SEQRA Part 617.5(c)(18), which states: reuse of a residential or commercial structure, or of a structure containing mixed residential and commercial uses, where the residential or commercial use is a permitted use under the applicable zoning law or ordinance, including permitted by special use permit, and the action does not meet or exceeds any of the thresholds in section 617.4. Therefore, no Environmental Assessment Form is being provided with this submittal.

We look forward to discussing this project at your March 2024 Planning Board meeting. Should you have any questions, please feel free to contact me on my direct line 845-765-8955.

Sincerely,



Daniel G. Koehler, P.E.
Principal

Att: Carvana correspondence dated January 25, 2024

cc: Jenn Roldan, Sr. Project Manager, Development, Carvana LLC, Applicant (via email)
DKH Realty, LLC, Owner (via email)
Michael A. Bodendorf, P.E. (HLD file)

January 25, 2024

City of Beacon
1 Municipal Plaza
Beacon, NY 12508

Re: 410 Fishkill Avenue
Request for Administrative Amendment

Mr. Flower,

As a follow-up to your conversation with Mr. Healey on Friday, we are providing you a summary of Carvana's activities planned for the Dealership located at 410 Fishkill Avenue. The site was approved for use as an auto sales dealership in 1995. Carvana's planned activities are consistent with the approved operation and do not represent a change in or an expansion of land use from the previously approved site plan. We are writing this letter to request an administrative amendment to the existing site plan to memorialize Carvana's planned operation.

Previously approved Site Plan

The 1995 approved site plan, denoted parking requirements as follows:

1 space per employee;
1 parking space per 150sf of Gross Building Area.

36 employees proposed;
Approximately 15,900sf Gross Building Area (not inclusive of covered parking)

This equates to a total of 142 spaces; of which 34 spaces are provided on a lot across the street at 409 Fishkill Ave.

Carvana Activities

As stated above, Carvana's proposed operations are consistent with the current operation but at a much smaller scale. Carvana is an online used automotive dealer offering pre-owned vehicles for sale. Carvana.com allows potential purchasers the opportunity to view interior and exterior photos of the vehicles prior to purchase. Once a customer finalizes their vehicle purchase online, they can select to pick up from a location or accept delivery directly to them. Should a customer choose to pick up their purchased vehicle, an on-site pick up event will be scheduled.

Pick up events are typically 15 minutes or less conducted during regular business hours and are scheduled. By scheduling these on-site pick up events Carvana is able to control the amount of customers on site at one time. This drastically reduces the need for customer parking spaces that traditional dealership operations often require. The proposed operations will not change the onsite traffic circulation, approved loading area or require the construction of new buildings. Carvana's proposed use will not result in an increase in traffic or noise and will, in fact, result in a decrease in noise and traffic.

Carvana will not be conducting retail service/repair operations. Carvana is proposing to utilize existing repair bays for detailing and readying purchased vehicles for pick up, including state inspection activities. These operations are exclusively for Carvana use and will not be open to the public. Since there will be no retail service/repair operations open to the public the need for parking spaces to queue vehicles for repair services is drastically reduced.

Carvana's projected employee count will be one-third of the previous dealership - an expected 12-15 employees at this location. Reducing the required number of employee parking by more than half.

With the reduction of proposed employees, scheduled on-site pick up events and non-public service/repair operations Carvana is confident there is ample and adequate parking space utilizing the 108 parking spaces provided on site without the need for additional offsite parking. Based on one of our facilities within the area we're anticipating 10 - 20 purchased vehicles on site daily.

It is our understanding that City Code allows for continued use of a site without the need to appear before the Planning Board. Therefore, since the use is the same but in a significantly reduced sale, we respectfully request that his minor administrative amendment be processed by the Building Department. The owners of the property, from which Carvana will be leasing, agree to the administrative amendment and dissolution of the previously required use of parking from 360 Fishkill Avenue (now 409 Fishkill Avenue for the record), and would be willing to prepare a letter in support of the same.

Sincerely,

Jenn Roldan

Jenn Roldan
Sr. Project Manager, Development - Real Estate

APPLICATION FOR SITE PLAN APPROVAL

Submit to Planning Board Secretary, One Municipal Plaza, Suite One, Beacon, New York 12508

IDENTIFICATION OF APPLICANT

Name: Carvana, LLC c/o Jenn Roldan

Address: 300 E Rio Salado Parkway
Tempe, AZ 85281

Signature: Jenn Roldan

Date: 2/26/2024

Phone: (602) 403-9140

(For Official Use Only)

	Date	Initials
Application & Fee Rec'd		
Initial Review		
Public Hearing		
Conditional Approval		
Final Approval		

IDENTIFICATION OF REPRESENTATIVE / DESIGN PRFESSIONAL

Name: Hudson Land Design, P.C.

Address: c/o Daniel G. Koehler, P.E.
174 Main Street, Beacon, NY 12508

Phone: (845) 440-6926

Fax: n/a

Email address: dkoehler@hudsonlanddesign.com

IDENTIFICATION OF SUBJECT PROPERTY:

Property Address: 410 Fishkill Avenue, Beacon NY 12508

Tax Map Designation: Section 6055 Block 80 Lot(s) 424048 & 439071

Land Area: 1.373 acres total

Zoning District(s) GB - General Business

DESCRIPTION OF PROPOSED DEVELOPMENT:

Proposed Use: Automobile Dealership

Gross Non-Residential Floor Space: Existing +/- 16,870 Sq.Ft. Proposed No new

TOTAL: +/- 16,870 Sq.Ft.

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**

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)	$ 3,000	$ 1,000	Current bills + $1,200
6-15	$ 9,000	$ 2,500	Current bills + $1,200
Over 15	$ 18,000	$ 5,000	Current bills + $6,000

NON-RESIDENTIAL SITE PLAN AND SUP APPLICATIONS

	Initial Deposit	Depleted to	Replenishment
Existing Buildings/Change of Use with no site development	$ 1,800	$ 1,000	Current bills + $600
Up to 3,000 s.f. gross floor area	$ 3,125	$ 1,000	Current bills + $1,200
3,000 to 10,000 s.f. gross floor area	$ 3,000 + $0.50 per sq.ft. over 3,000	$ 2,500	Current bills + $3,000
Over 10,000 s.f. gross floor area	$ 9,000 + $0.50 per sq.ft. over 10,000	$ 2,500	Current bills + $3,000

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: D K H Realty, LLC

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: PO Box 859, Goshen NY 10924

Project Address: 410 Fishkill Avenue, Beacon NY 12508

Project Tax Grid # 6055-80-424048 & 439071

Type of Application Site Plan

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, Dwight Healey, 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 ✓
2. Violations are pending on a parcel or parcels owned by me situated within the City of Beacon n/a
3. ALL tax payments due to the City of Beacon are current ✓
4. Tax delinquencies exist on a parcel or parcels owned by me within the City of Beacon n/a
5. Special Assessments are outstanding on a parcel or parcels owned by me in the City of Beacon n/a
6. ALL Special Assessments due to the City of Beacon on any parcel owned by me are current ✓

Signature of Owner

Member

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: Carvana - 410 Fishkill Avenue

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.	X	
Name and address of the applicant (if other than the owner).	X	
Name and address of person, firm or organization preparing the plan.	X	
Date, north arrow, and written and graphic scale.	X	
NATURAL FEATURES		
Existing contours with intervals of two (2) feet, referred to a datum satisfactory to the Planning Board.		X
Approximate boundaries of any areas subject to flooding or stormwater overflows.		none
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.		none
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.	X	
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.		X
Other existing development, including fences, retaining walls, landscaping, and screening.	X	
Sufficient description or information to define precisely the boundaries of the property.	X	
The owners of all adjoining lands as shown on the latest tax records.	X	
The locations, names, and existing widths of adjacent streets and curb lines.	X	
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		X

properties.		
PROPOSED DEVELOPMENT	**YES**	**NO**
The location, use and design of proposed buildings or structural improvements.	X	
The location and design of all uses not requiring structures, such as outdoor storage (if permitted), and off-street parking and unloading areas.	X	
Any proposed division of buildings into units of separate occupancy.		none
The location, direction, power, and time of use for any proposed outdoor lighting.		Exist
The location and plans for any outdoor signs.		Exist
The location, arrangement, size(s) and materials of proposed means of ingress and egress, including sidewalks, driveways, or other paved areas.	X	
Proposed screening and other landscaping including a planting plan and schedule prepared by a qualified individual or firm.		Exist
The location, sizes and connection of all proposed water lines, valves, and hydrants and all storm drainage and sewer lines, culverts, drains, etc.		X
Proposed easements, deed restrictions, or covenants and a notation of any areas to be dedicated to the City.		none
Any contemplated public improvements on or adjoining the property.		none
Any proposed new grades, indicating clearly how such grades will meet existing grades of adjacent properties or the street.		none
Elevations of all proposed principal or accessory structures.		Exist
Any proposed fences or retaining walls.		Exist
MISCELLANEOUS		
A location map showing the applicant's entire property and adjacent properties and streets, at a convenient scale.	X	
Erosion and sedimentation control measures.		none
A schedule indicating how the proposal complies with all pertinent zoning standards, including parking and loading requirements.	X	
An indication of proposed hours of operation.	X	
If the site plan only indicates a first stage, a supplementary plan shall indicate ultimate development.		n/a

For all items marked "NO" above, please explain below why the required information has not been provided:

Applicant/Sponsor Name: Jenn Roldan, Sr. Project Manager, Development for Carvana, LLC

Signature: Jenn Roldan

Date: 2/26/2024

FOR OFFICE USE ONLY
Application #

CITY OF BEACON
1 Municipal Plaza, Beacon, NY
Telephone (845) 838-5000 • http://beaconny.gov/

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
Place where such business entity was created	Official Registrar's or Clerk's office where the documents and papers creating entity were filed
Date such business entity or partnership was created	Telephone Contact Information

IF AFFIANT IS A CORPORATION:

Name of Entity Carvana, LLC	Telephone Contact Information (602) 403-9140
Principal Place of Business of Entity 300 E Rio Salado Parkway Tempe, AZ 85281	Place and Date of incorporation Arizona, March 9, 2012
Method of Incorporation converted to a single member LLC in 2022	Official place where the documents and papers of incorporation were filed Arizona

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
NOT APPLICABLE FOR CARVANA			

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.
NOT APPLICABLE FOR CARVANA				

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**

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
NOT APPLICABLE FOR CARVANA	

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 has leased the subject property. Applicant is a tenant to the Record Owner of the subject property.

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 NOT APPLICABLE FOR CARVANA	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**
NOT APPLICABLE FOR CARVANA		

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, _____ being first duly sworn, according to law, deposes and says that I am (Title) _____, an active and qualified member of the _____, 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) Jenn Roldan

(Signature) Jenn Roldan

FOR OFFICE USE ONLY
Application #

CITY OF BEACON
1 Municipal Plaza, Beacon, NY
Telephone (845) 838-5000 • http://beaconny.gov/

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SECTION A.

IF AFFIANT IS A PARTNERSHIP, JOINT VENTURE OR OTHER BUSINESS ENTITY, EXCEPT A CORPORATION:

Name of Entity	Address of Entity
Place where such business entity was created	Official Registrar's or Clerk's office where the documents and papers creating entity were filed
Date such business entity or partnership was created	Telephone Contact Information

IF AFFIANT IS A CORPORATION:

Name of Entity D K H Realty, LLC	Telephone Contact Information (845) 291-1998
Principal Place of Business of Entity 794 Route 52, Fishkill NY 12524	Place and Date of incorporation Albany, NY 06/26/2000
Method of Incorporation Department of State filing	Official place where the documents and papers of incorporation were filed State of NY, Albany

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

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.
Dwight Healey	794 Route 52 Fishkill NY 12524	(914) 474-3305	08-04-2000 Deed	10-02-2000 DC Clerk

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

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

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.

_____

_____

_____

_____

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.

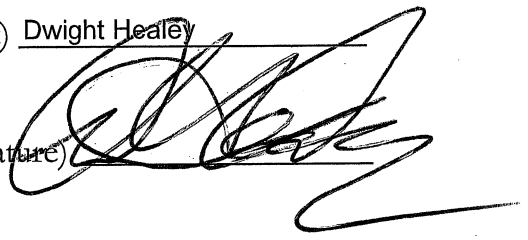
Name	**Address**

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, Dwight Healey being first duly sworn, according to law, deposes and says that I am (Title) Member, an active and qualified member of the DKH Realty LLC, 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) Dwight Healey

(Signature) 

APPLICATION FOR SPECIAL USE PERMIT

Submit to Planning Board Secretary, One Municipal Plaza, Suite One, Beacon, New York 12508

IDENTIFICATION OF APPLICANT

Name: Carvana, LLC c/o Jenn Roldan

Address: 300 E Rio Salado Parkway
Tempe, AZ 85281

Signature: Jenn Roldan Digitally signed by Jenn Roldan Date: 2024.02.26 14:39:52 -07'00'

Date: 2/26/2004

Phone: (602) 403-9140

(For Official Use Only)	Date	Initials
Application & Fee Rec'd		
Initial Review		
PB Public Hearing		
Sent to City Council		
City Council Workshop		
City Council Public Hearing		
City Council Approve/Disapprove		

IDENTIFICATION OF REPRESENTATIVE / DESIGN PRFESSIONAL

Name: Hudson Land Design, P.C.

Address: c/o Daniel G. Koehler, P.E.
174 Main Street, Beacon, NY 12508

Phone: (845) 440-6926

Fax:

Email address: dkoehler@hudsonlanddesign.com

IDENTIFICATION OF SUBJECT PROPERTY:

Property Address: 410 Fishkill Avenue, Beacon, NY 12508

Tax Map Designation: Section 6055 Block 80 Lot(s) 424048 & 439071

Land Area: +/- 1.373 acres Zoning District(s) GB (General Business)

SUP: 1. Per Schedule of Use Regulations - Vehicle Sales (424048) 2. Per Schedule of Use Regulations - Offstreet Parking (439071)

DESCRIPTION OF PROPOSED DEVELOPMENT:

Proposed Use: Vehicle Sales on parcel 424048; Offstreet Parking on parcel 439071

Gross Non-Residential Floor Space: Existing +/- 16,870 Sq.Ft. Proposed No additional

TOTAL: +/- 16,870 Sq.Ft.

Dwelling Units (by type): Existing n/a Proposed n/a

TOTAL: n/a

ITEMS TO ACCOMPANY THIS APPLICATION

a. Five (5) **folded** copies and One (1) digital copy of a site location sketch showing the location of the subject property and the proposed development with respect to neighboring properties and developments.

b. Five (5) **folded** copies and One (1) digital copy 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. Five (5) **folded** copies and One (1) digital copy 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 strets 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

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)	$ 3,000	$ 1,000	Current bills + $1,200
6-15	$ 9,000	$ 2,500	Current bills + $1,200
Over 15	$ 18,000	$ 5,000	Current bills + $6,000

NON-RESIDENTIAL SITE PLAN AND SUP APPLICATIONS

	Initial Deposit	Depleted to	Replenishment
Existing Buildings/Change of Use with no site development	$ 1,800	$ 1,000	Current bills + $600
Up to 3,000 s.f. gross floor area	$ 3,125	$ 1,000	Current bills + $1,200
3,000 to 10,000 s.f. gross floor area	$ 3,000 + $0.50 per sq.ft. over 3,000	$ 2,500	Current bills + $3,000
Over 10,000 s.f. gross floor area	$ 9,000 + $0.50 per sq.ft. over 10,000	$ 2,500	Current bills + $3,000

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: D K H Realty, LLC

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: PO Box 859, Goshen NY 10924

Project Address: 410 Fishkill Avenue, Beacon NY 12508

Project Tax Grid # 6055-80-424048 & 439071

Type of Application Site Plan

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, Dwight Healey, 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 ✓
2. Violations are pending on a parcel or parcels owned by me situated within the City of Beacon n/a
3. ALL tax payments due to the City of Beacon are current ✓
4. Tax delinquencies exist on a parcel or parcels owned by me within the City of Beacon n/a
5. Special Assessments are outstanding on a parcel or parcels owned by me in the City of Beacon n/a
6. ALL Special Assessments due to the City of Beacon on any parcel owned by me are current ✓

Signature of Owner

Member

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: Carvana - 410 Fishkill Avenue

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.	X	
Name and address of the applicant (if other than the owner).	X	
Name and address of person, firm or organization preparing the plan.	X	
Date, north arrow, and written and graphic scale.	X	
NATURAL FEATURES		
Existing contours with intervals of two (2) feet, referred to a datum satisfactory to the Planning Board.		X
Approximate boundaries of any areas subject to flooding or stormwater overflows.		none
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.		none
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.	X	
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.		X
Other existing development, including fences, retaining walls, landscaping, and screening.	X	
Sufficient description or information to define precisely the boundaries of the property.	X	
The owners of all adjoining lands as shown on the latest tax records.	X	
The locations, names, and existing widths of adjacent streets and curb lines.	X	
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		X

properties.		
PROPOSED DEVELOPMENT	**YES**	**NO**
The location, use and design of proposed buildings or structural improvements.	X	
The location and design of all uses not requiring structures, such as outdoor storage (if permitted), and off-street parking and unloading areas.	X	
Any proposed division of buildings into units of separate occupancy.		none
The location, direction, power, and time of use for any proposed outdoor lighting.		Exist
The location and plans for any outdoor signs.		Exist
The location, arrangement, size(s) and materials of proposed means of ingress and egress, including sidewalks, driveways, or other paved areas.	X	
Proposed screening and other landscaping including a planting plan and schedule prepared by a qualified individual or firm.		Exist
The location, sizes and connection of all proposed water lines, valves, and hydrants and all storm drainage and sewer lines, culverts, drains, etc.		X
Proposed easements, deed restrictions, or covenants and a notation of any areas to be dedicated to the City.		none
Any contemplated public improvements on or adjoining the property.		none
Any proposed new grades, indicating clearly how such grades will meet existing grades of adjacent properties or the street.		none
Elevations of all proposed principal or accessory structures.		Exist
Any proposed fences or retaining walls.		Exist
MISCELLANEOUS		
A location map showing the applicant's entire property and adjacent properties and streets, at a convenient scale.	X	
Erosion and sedimentation control measures.		none
A schedule indicating how the proposal complies with all pertinent zoning standards, including parking and loading requirements.	X	
An indication of proposed hours of operation.	X	
If the site plan only indicates a first stage, a supplementary plan shall indicate ultimate development.		n/a

For all items marked "NO" above, please explain below why the required information has not been provided:

Applicant/Sponsor Name: Jenn Roldan, Sr. Project Manager, Development for Carvana, LLC

Signature: Jenn Roldan

Date: 2/26/2024

FOR OFFICE USE ONLY
Application #

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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
Place where such business entity was created	Official Registrar's or Clerk's office where the documents and papers creating entity were filed
Date such business entity or partnership was created	Telephone Contact Information

IF AFFIANT IS A CORPORATION:

Name of Entity Carvana, LLC	Telephone Contact Information (602) 403-9140
Principal Place of Business of Entity 300 E Rio Salado Parkway Tempe, AZ 85281	Place and Date of incorporation Arizona, March 9, 2012
Method of Incorporation converted to a single member LLC in 2022	Official place where the documents and papers of incorporation were filed Arizona

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
NOT APPLICABLE FOR CARVANA			

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.
NOT APPLICABLE FOR CARVANA				

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**

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
NOT APPLICABLE FOR CARVANA	

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 has leased the subject property. Applicant is a tenant to the Record Owner of the subject property.

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 NOT APPLICABLE FOR CARVANA	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**
NOT APPLICABLE FOR CARVANA		

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, _____ being first duly sworn, according to law, deposes and says that I am (Title) _____, an active and qualified member of the _____, 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) Jenn Roldan

(Signature) Jenn Roldan

FOR OFFICE USE ONLY
Application #

CITY OF BEACON
1 Municipal Plaza, Beacon, NY
Telephone (845) 838-5000 • http://beaconny.gov/

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
Place where such business entity was created	Official Registrar's or Clerk's office where the documents and papers creating entity were filed
Date such business entity or partnership was created	Telephone Contact Information

IF AFFIANT IS A CORPORATION:

Name of Entity D K H Realty, LLC	Telephone Contact Information (845) 291-1998
Principal Place of Business of Entity 794 Route 52, Fishkill NY 12524	Place and Date of incorporation Albany, NY 06/26/2000
Method of Incorporation Department of State filing	Official place where the documents and papers of incorporation were filed State of NY, Albany

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

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.
Dwight Healey	794 Route 52 Fishkill NY 12524	(914) 474-3305	08-04-2000 Deed	10-02-2000 DC Clerk

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

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

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.

_____

_____

_____

_____

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.

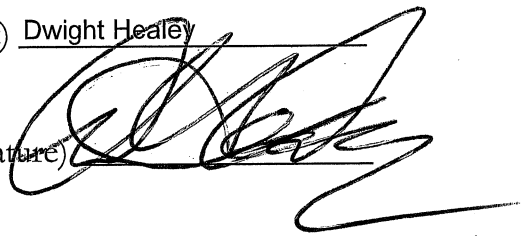
Name	**Address**

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, Dwight Healey being first duly sworn, according to law, deposes and says that I am (Title) Member, an active and qualified member of the DKH Realty LLC, 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) Dwight Healey

(Signature) 

Dutchess County Clerk

DUTCHESS COUNTY CLERK RECORDING PAGE

RECORD & RETURN TO:

ROBERT FINK
POB 900
GOSHEN NY 10924

RECORDED: 10/02/2000

AT: 11:24:56

DOCUMENT #: 02 2000 8802

RECEIVED FROM: COMMONWEALTH

GRANTOR: HEALEY DWIGHT K
GRANTEE: DKH REALTY LLC

RECORDED IN: DEED
INSTRUMENT TYPE:

TAX
DISTRICT: CITY OF BEACON

EXAMINED AND CHARGED AS FOLLOWS:

RECORDING CHARGE: 60.00

NUMBER OF PAGES: 6

TRANSFER TAX AMOUNT:

TRANSFER TAX NUMBER: #001694

E & A FORM: Y

TP-584: Y

*** DO NOT DETACH THIS PAGE
*** THIS IS NOT A BILL

COUNTY CLERK BY: DAP /____
RECEIPT NO: R55674
BATCH RECORD: A00085

RICHARD M. ANDERSON
County Clerk

0 2 2 0 0 0 8 8 0 2

tom@c Doc #: 0220008802 Printed Page 1 of 6

LR001192(NI)

NY005 - Bargain and Sale Deed with Covenant against Grantor's Acts Individual or Corporation (Single Sheet) (NYBTU 8002)

CONSULT YOUR LAWYER BEFORE SIGNING THIS INSTRUMENT – THIS INSTRUMENT SHOULD BE USED BY LAWYERS ONLY

51 6' 6' 30' 60'

THIS INDENTURE, made the 4 day of August, in the year Two Thousand

BETWEEN DWIGHT K. HEALEY, 5 Andrea Court, Goshen, New York

party of the first part, and DKH REALTY LLC, 409-410 Fishkill Avenue, Beacon, New York

party of the second part,

WITNESSETH, that the party of the first part, in consideration of Ten Dollars and other valuable consideration paid by the party of the second part, does hereby grant and release unto the party of the second part, the heirs or successors and assigns of the party of the second part forever,

ALL that certain plot, piece or parcel of land, with the buildings and improvements thereon erected, situate, lying and being in the

See Schedule "A" Annexed.

Tax Map Designation

Dist.

Sec. 055

Blk. 80

Lot(s)

9053
6047
3061
1056
6064
6071
5080
4048

This conveyance is made and accepted subject to an indebtedness secured by certain mortgages upon said premises more fully set forth on Schedule "B", upon which there is an unpaid principal balance of $1,215,703.60, with interest from 7/1/00, in the amount of $8905.82, a total sum of $1,224,609.42 which said mortgage debt the party of the second part hereby assumes and agrees to pay, as part of the purchase price of the above described premises, and the party of the second part hereby executes and acknowledges this instrument for the purpose of complying with the provisions of Section 5-705 of the General Obligations Law.

TOGETHER with all right, title and interest, if any, of the party of the first part of, in and to any streets and roads abutting the above-described premises to the center lines thereof; **TOGETHER** with the appurtenances and all the estate and rights of the party of the first part in and to said premises; **TO HAVE AND TO HOLD** the premises herein granted unto the party of the second part, the heirs or successors and assigns of the party of the second part forever.

AND the party of the first part covenants that the party of the first part has not done or suffered anything whereby the said premises have been incumbered in any way whatever, except as aforesaid.

AND the party of the first part, in compliance with Section 13 of the Lien Law, covenants that the party of the first part will receive the consideration for this conveyance and will hold the right to receive such consideration as a trust fund to be applied first for the purpose of paying the cost of the improvement and will apply the same first to the payment of the cost of the improvement before using any part of the total of the same for any other purpose.

The word "party" shall be construed as if it read "parties" whenever the sense of this indenture so requires.

IN WITNESS WHEREOF, the party of the first part has duly executed this deed the day and year first above written.

IN PRESENCE OF:

DWIGHT K. HEALEY

DKH REALTY LLC

By: DWIGHT K. HEALEY CEO

tom@c Doc #: 0220008802 Printed Page 2 of 6

USE ACKNOWLEDGMENT FORM BELOW WITHIN NEW YORK STATE ONLY:

State of New York, County of Orange **} ss.:**

On the 4 day of August in the year 2000 before me, the undersigned, personally appeared Dwight K. Healey,

personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name(s) is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), and that by his/her/their signature(s) on the instrument, the individual(s), or the person upon behalf of which the individual(s) acted, executed the instrument.

ROBERT W. FINK
NOTARY PUBLIC, State of New York
No. 02FI4502806
Qualified in Orange County
Commission Expires April 10, 2001

ACKNOWLEDGMENT FORM FOR USE WITHIN NEW YORK STATE ONLY:
{New York Subscribing Witness Acknowledgment Certificate}

State of New York, County of **} ss.:**

On the day of in the year before me, the undersigned, personally appeared

,

the subscribing witness to the foregoing instrument, with whom I am personally acquainted, who, being by me duly sworn, did depose and say that he/she/they reside(s) in

(if the place of residence is in a city, include the street and street number, if any, thereof); that he/she/they know(s)

to be the individual described in and who executed the foregoing instrument; that said subscribing witness was present and saw said

execute the same; and that said witness at the same time subscribed his/her/their name(s) as a witness thereto.

USE ACKNOWLEDGMENT FORM BELOW WITHIN NEW YORK STATE ONLY:

State of New York, County of Orange **} ss.**

On the 4 day of August, 2000 in the year before me, the undersigned, personally appeared Dwight K. Healey,

personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name(s) is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), and that by his/her/their signature(s) on the instrument, the individual(s), or the person upon behalf of which the individual(s) acted, executed the instrument.

ROBERT W. FINK
NOTARY PUBLIC, State of New York
No. 02FI4502806
Qualified in Orange County
Commission Expires April 10, 2001

ACKNOWLEDGMENT FORM FOR USE OUTSIDE NEW YORK STATE ONLY:
{Out of State or Foreign General Acknowledgment Certificate}

. . . . . **} ss.:**
{Complete Venue with State, Country, Province or Municipality}

On the day of in the year before me, the undersigned, personally appeared

,

personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name(s) is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), that by his/her/ their signature(s) on the instrument, the individual(s), or the person upon behalf of which the individual(s) acted, executed the instrument, and that such individual made such appearance before the undersigned in the

(Insert the city or other political subdivision and the state or country or other place the acknowledgment was taken).

BARGAIN & SALE DEED
WITH COVENANTS AGAINST GRANTOR'S ACTS

TITLE NO.

DWIGHT K. HEALEY

TO

DKH REALITY LLC

DISTRICT
SECTION
BLOCK
LOT
COUNTY OR TOWN

RECORDED AT REQUEST OF
Fidelity National Title Insurance Company of New York
RETURN BY MAIL TO

FIDELITY NATIONAL TITLE INSURANCE COMPANY OF NEW YORK
INCORPORATED 1928
"Appreciate the Fidelity Difference"
Member New York State Land Title Association

ROBERT W. FINK
P.O. BOX 900
Goshen, NY 10924-0900

RESERVE THIS SPACE FOR USE OF RECORDING OFFICE

tom@c Doc #: 0220008802 Printed Page 3 of 6

Dutchess County Clerk

LEGAL DESCRIPTION

PARCEL I

ALL THAT TRACT OR PARCEL OF LAND SITUATED IN THE CITY OF BEACON, COUNTY OF DUTCHESS, STATE OF NEW YORK BOUNDED AND DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT, SAID BEING THE INTERSECTION OF THE EASTERLY LINE OF CONKLIN STREET WITH THE NORTHERLY LINE OF FISHKILL AVENUE AND RUNNING THENCE ALONG SAID CONKLIN STREET; NORTH 31°12'02" WEST 211.58 FEET, THENCE ALONG THE SOUTHERLY LINE OF MEAD AVENUE NORTH 38°05'00" EAST 150.00 FEET; THENCE ALONG LANDS NOW OR FORMERLY NATOLIE (LIBER 656 CP 318) SOUTH 51°55'00" EAST 100.00 FEET; THENCE STILL ALONG LANDS OF SAID NATOLIE, AND ALONG LANDS NOW OR FORMERLY TROST (LIBER 1247 CP 357) HENDERSON (LIBER 616 CP 104) YERKS (LIBER 1135 CP 74) FREDERICKS (LIBER 866 CP 29) AND OLIVIER (LIBER 1473 CP 426) NORTH 38°05'00" EAST 300.00 FEET; THENCE ALONG LANDS NOW OR FORMERLY INCORVAIA (LIBER 1546 CP 519) SOUTH 51°55'00" EAST 90.88 FEET; THENCE ALONG SAID NORTHERLY LINE OF FISHKILL AVENUE THE FOLLOWING; SOUTH 37°38'09" WEST 150.00 FEET SOUTH 34°40'21" WEST 100 FEET AND SOUTH 18°06'14" WEST 275.03 FEET TO THE POINT OF BEGINNING.

PARCEL II

ALL THAT TRACT OR PARCEL OF LAND SITUATED IN THE CITY OF BEACON, COUNTY OF DUTCHESS, STATE OF NEW YORK BOUNDED AND DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT, SAID BEING THE INTERSECTION OF THE NORTHERLY LINE OF LANDS NOW OR FORMERLY REINOEHL NORTH (LIBER 433 CP 924) WITH EASTERLY LINE OF FISHKILL AVENUE AND THENCE RUNNING ALONG SAID EASTERLY LINE OF FISHKILL AVENUE NORTH 29°38'30" EAST 537.00 FEET THENCE ALONG THE SOUTHERLY LINE OF LANDS NOW OR FORMERLY FREEDOM FORD (BROWNELL) SOUTH 60°21'30" EAST, 136.38 FEET; THENCE ALONG THE WESTERLY LINE OF LANDS NOW OR FORMERLY CONN RAIL CORPORATION, ALONG A CURVE TO THE RIGHT HAVING A RADIUS OF 3224.17 FEET AND BEING DISTANT SOUTHERLY 541.60 FEET; THENCE ALONG SAID LANDS OF REINOEHL NORTH 60°21'30" WEST 71.00 FEET TO THE POINT OF BEGINNING.

CLERK'S NOTE VARIATION IN TYPE OR OTHER MATERIAL: SAME AS IN ORIGINAL

tom@c Doc #: 0220008802 Printed Page 4 of 6

Dutchess County Clerk

SCHEDULE "B"

Mortgagor: WILLIAM S. HEALEY AND ELLY O. HEALEY
Mortgagee: GENERAL MOTORS ACCEPTANCE CORP.

Amount: $290,000.00
Dated: 12/19/91
Recorded: 6/22/92
Liber: 2085 mp 111

Mortgagor: WILLIAM S. HEALEY AND ELLY O. HEALEY
Mortgagee: GENERAL MOTORS ACCEPTANCE CORP.

Amount: $726,041.49
Dated: 6/28/96
Recorded: 7/10/96
Liber: 2273 mp 216

This mortgage and mortgage in Liber 2085 Page 111 consolidated to form a single lien in the amount of $952,000.00 by Consolidation, Modification, Extension Agreement dated 6/28/96 recorded 7/10/96 in Liber 2273 mp 217.

ASSIGNMENT OF MORTGAGE
General Motors Acceptance Corp. to First National Bank of the Hudson Valley (now herein known as Premier National Bank)

Dated: 8/12/98
Recorded: 8/28/98
Liber: 101 mp 542

Mortgagor: WILLIAM S. HEALEY AND ELLY O. HEALEY
Mortgagee: WILLIAM T. SHAW JR. AND FRANCES A. SHAW

Amount: $250,000.00
Dated: 1/5/93
Recorded: 1/11/93
Liber: 2140 mp 170

Mortgagor: WILLIAM S. HEALEY AND ELLY O. HEALEY
Mortgagee: WILLIAM T. SHAW JR. AND FRANCES A. SHAW

Amount: $51,249.95
Dated: 6/1/94
Recorded: 6/9/94
Liber: 2207 MP 76

tom@c Doc #: 0220008802 Printed Page 5 of 6

Dutchess County Clerk

This mortgage and mortgage in L 2140 P 170 consolidated to form a single lien in the amount of $270,000.00 by Consolidation, Modification, Extension Agreement dated 6/1/94 recorded 6/9/94 in Liber 2207 mp 77.

ASSIGNMENT OF MORTGAGE
William T. Shaw Jr. and Frances A. Shaw to Premier National Bank

Dated: 8/10/98
Recorded: 8/28/98
Liber: 101 mp 540

Mortgagor: WILLIAM S. HEALEY AND ELLY O. HEALEY
Mortgagee: PREMIER NATIONAL BANK

Amount: $389,666.75
Dated: 8/10/98
Recorded: 8/28/98
Liber: 2360 MP 210

This mortgage and mortgages in Liber 2085 mp 111; Liber 2273 mp 216; Liber 2140 mp 170 and Liber 2207 mp 76 consolidated to form a single lien in the amount of $1,400,000.00 by Consolidation, Modification, Extension Agreement dated 8/10/98 recorded 8/28/98 in Liber 2360 mp 213.

TOGETHER with the Bond(s) or Note(s) or Obligation(s) described in said Mortgage(s), and the monies due and to grow due thereon with interest.

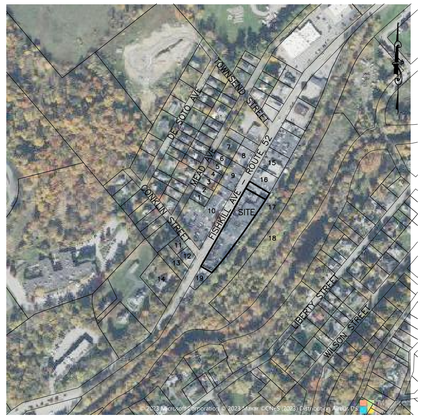
tom@c Doc #: 0220008802 Printed Page 6 of 6

CARVANA

SITE DEVELOPMENT

410 FISHKILL AVE
CITY OF BEACON
DUTCHESS COUNTY, NEW YORK

PARCEL INFORMATION:
TAX ID: 6055-80-424048 & 6055-80-439071
TOTAL LOT AREA: ±1.373 ACRES
ZONING DISTRICT: GB (GENERAL BUSINESS)



SITE LOCATION MAP SCALE: 1" = 400'

ADJOINING OWNERS WITHIN 200':

PARCEL: OWNER & ADDRESS
1. LAURIE GONZALEZ, 14 MEAD AVE, BEACON NY 12508
2. HOWARD BANICK, 18 MEAD AVE, BEACON NY 12508
3. AUDREY HENDERSON, 22 MEAD AVE, BEACON NY 12508
4. AARON YERKS, 26 MEAD AVE, BEACON NY 12508
5. BRENT STAPLETON, 30 MEAD AVE, BEACON NY 12508
6. PETER NETTLETON, 34 MEAD AVE, BEACON NY 12508
7. JOSEPH POWERS, 40 MEAD AVE, BEACON NY 12508
8. DKH REALTY LLC, PO BOX 859, GOSHEN NY 10924
9. DKH REALTY LLC, PO BOX 859, GOSHEN NY 10924
10. DKH REALTY LLC, 2528 ROUTE 17M, GOSHEN NY 10924
11. 397 FISHKILL AVENUE, LLC., 397 FISHKILL AVE UNIT A, BEACON NY 12508
12. 397 FISHKILL AVENUE, LLC., 397 FISHKILL AVE UNIT A, BEACON NY 12508
13. 393 FISHKILL AVENUE, LLC., 397 FISHKILL AVE UNIT A, BEACON NY 12508
14. JOSHUA KOGAN, 389 FISHKILL AVE, BEACON NY 12508
15. DKH REALTY LLC, 2528 ROUTE 17M, GOSHEN NY 10924
16. DKH REALTY LLC, 2528 ROUTE 17M, GOSHEN NY 10924
17. METROPOLITAN TRANSPORTATION, 2 BROADWAY, NEW YORK NY 10004
18. LANDGROVE REALTY INC, 29 LYDIA DRIVE, BEACON NY 12508
19. LANK'S AUTOMOTIVE INC, 394 FISHKILL AVE, BEACON NY 12508

APPLICANT'S CONSENT:
THE UNDERSIGNED APPLICANT 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.

_____ _____
CARVANA, 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.

DRAWING INDEX:
SHEET 1: COVER SHEET (CV-1)
SHEET 2: EXISTING CONDITIONS PLAN (XC-1)
SHEET 3: SITE PLAN (SP-1)

PROJECT ENGINEER:
HUDSON LAND DESIGN
PROFESSIONAL ENGINEERING P.C.
174 MAIN STREET
BEACON, NEW YORK 12508
PH: 845-440-6926

PROPERTY OWNER:
DKH REALTY, LLC
PO BOX 859
GOSHEN, NY 10924
PH: 845-291-1998

APPLICANT:
CARVANA, LLC
300 E RIO SALADA PARKWAY
TEMPE AZ 85281
PH: 602-403-9140

PROJECT SURVEYOR:
BADEY & WATSON SURVEYING & ENGINEERING
3063 ROUTE 9
COLD SPRING NY 10516
PH: 845-265-9217

DRAWN BY: CMB				CHECKED BY: DGK			
REVISIONS:				REVISIONS:			
NO.	DATE	DESCRIPTION	BY	NO.	DATE	DESCRIPTION	BY

STATE OF NEW YORK
DANIEL G. KOGAN
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

COVER SHEET

CARVANA

410 FISHKILL AVE
CITY OF BEACON
DUTCHESS COUNTY, NEW YORK
TAX ID: 6055-80-424048 & 439071

JOB #:	2024:007
DATE:	2/27/24
SCALE:	AS SHOWN
TITLE:	CV-1
SHEET:	1 OF 3

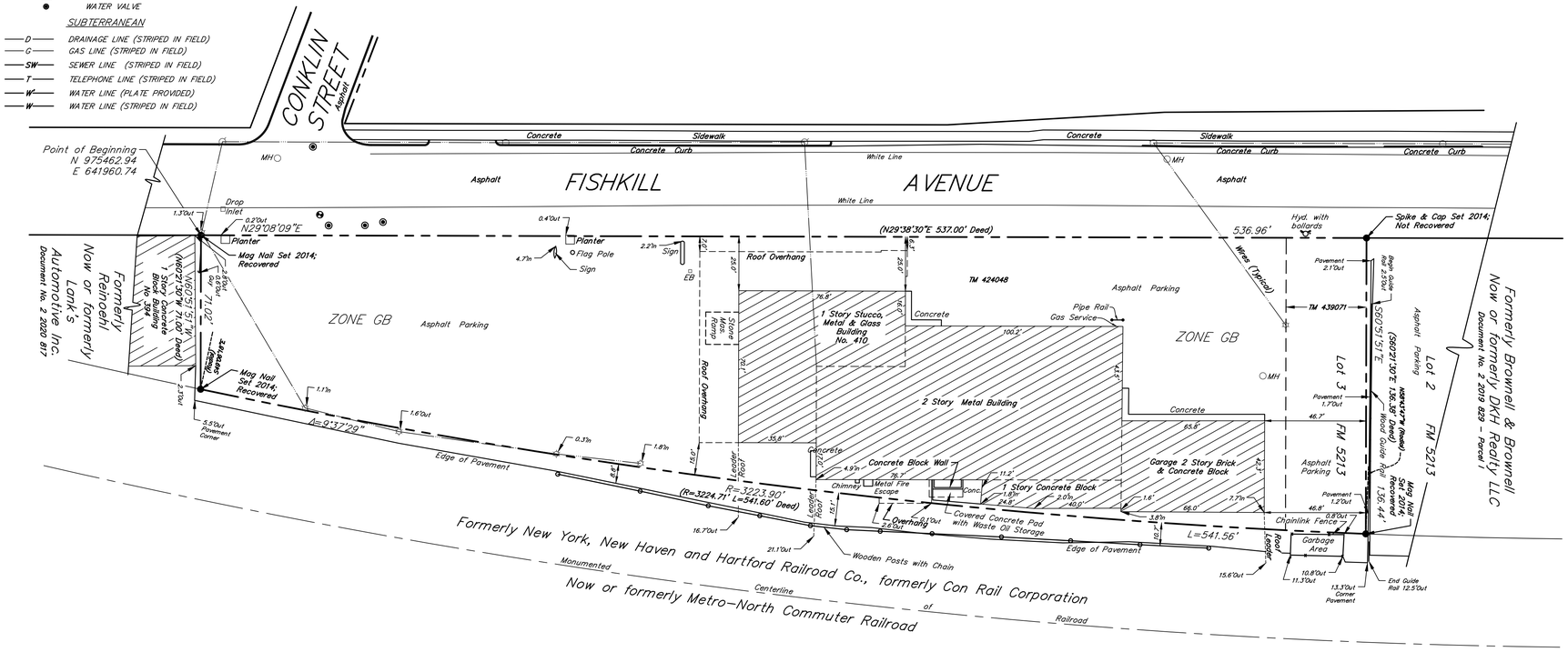
UNAUTHORIZED ALTERATIONS OR ADDITIONS TO THIS DRAWING IS A VIOLATION OF SECTION 7209.2 OF THE NEW YORK EDUCATION LAW

LEGEND

BZ	BOLLARD
350	CONTOUR LINE
CIP	CAST IRON PIPE
CMP	CORRUGATED METAL PIPE
CPP	CORRUGATED PLASTIC PIPE
DIP	DUCTILE IRON PIPE
	FIRE HYDRANT
	GAS VALVE
	GUY
	LAMP
	POLE
PVC	POLYVINYL CHLORIDE PIPE
RCP	REINFORCED CONCRETE PIPE
	SIGN (SMALL)
362.8	SPOT ELEVATION
TC217.7 BC215.9	TOP & BOTTOM OF CURB
TF	TRAFFIC POLE
VT	VETRIFIED CLAY PIPE
WP	WARNING PAD
	WATER VALVE

SUBTERRANEAN

D	DRAINAGE LINE (STRIPED IN FIELD)
G	GAS LINE (STRIPED IN FIELD)
SW	SEWER LINE (STRIPED IN FIELD)
T	TELEPHONE LINE (STRIPED IN FIELD)
W	WATER LINE (PLATE PROVIDED)
W	WATER LINE (STRIPED IN FIELD)



SURVEY REFERENCE:

1. REFERENCE IS HEREBY MADE TO "SURVEY OF PROPERTY PREPARED FOR CARVANA" DATED FEBRUARY 14, 2024 AND PREPARED BY BADEY & WATSON SURVEYING & ENGINEERING DPC.

SURVEY NOTES:

1. COPYRIGHT "2024" 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, SUBDIVISION 2 OF THE NEW YORK STATE EDUCATION LAW.
3. ALL CERTIFICATIONS ARE VALID FOR THIS MAP AND COPIES THEREOF ONLY IF SAID MAP OR COPIES BEAR THE EMBOSSED SEAL OF THE SURVEYOR WHOSE SIGNATURE APPEARS HEREON.
4. IF UNDERGROUND IMPROVEMENTS, EASEMENTS, OR ENCROACHMENTS EXIST AND ARE NEITHER VISIBLE DURING NORMAL FIELD SURVEY OPERATIONS NOR DESCRIBED IN INSTRUMENTS PROVIDED TO THESE SURVEYORS, THEY MAY NOT BE SHOWN ON THIS MAP.
5. THIS PROPERTY MAY BE AFFECTED BY INSTRUMENTS WHICH HAVE NOT BEEN PROVIDED TO THESE SURVEYORS. USERS OF THIS MAP SHOULD VERIFY TITLE WITH THEIR ATTORNEY OR A QUALIFIED TITLE EXAMINER.
6. THIS SURVEY IS OF PARCEL II DESCRIBED IN THE DUTCHESS COUNTY CLERK'S DOCUMENT NUMBER 02-2000-8802, PARCEL II (HEALEY TO DKH REALTY LLC).
7. THE MERIDIAN AND COORDINATE VALUES HEREON REFER TO THE NEW YORK STATE COORDINATE SYSTEM, EAST ZONE (NAD 83) EXPRESSED IN U.S. SURVEY FEET. THE DISTANCES SHOWN ON THIS SURVEY ARE GRID DISTANCES. THEY HAVE BEEN SCALED BY A GRID FACTOR (SCALE FACTOR X SEA LEVEL FACTOR) OF 0.99991662. TO OBTAIN GROUND DISTANCES, DIVIDE THE DISTANCES ON THIS MAP BY THE GRID FACTOR. TO OBTAIN GROUND AREA DIVIDE THE AREA ON THIS MAP BY THE SQUARE OF THE GRID FACTOR.

APPLICANT'S CONSENT:

THE UNDERSIGNED APPLICANT 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.

_____ _____
CARVANA, 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.

DRAWN BY: CMB				CHECKED BY: DGK			
REVISIONS:				REVISIONS:			
NO.	DATE	DESCRIPTION	BY	NO.	DATE	DESCRIPTION	BY

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

STATE OF NEW YORK DANIEL G. KOGERT 090716 LICENSED PROFESSIONAL ENGINEER

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

EXISTING CONDITIONS PLAN

CARVANA

410 FISHKILL AVE
CITY OF BEACON
DUTCHESS COUNTY, NEW YORK
TAX ID: 6055-80-424048 & 439071

JOB #:	2024:007
DATE:	2/27/24
SCALE:	1" = 30'
TITLE:	XC-1
SHEET:	2 OF 3

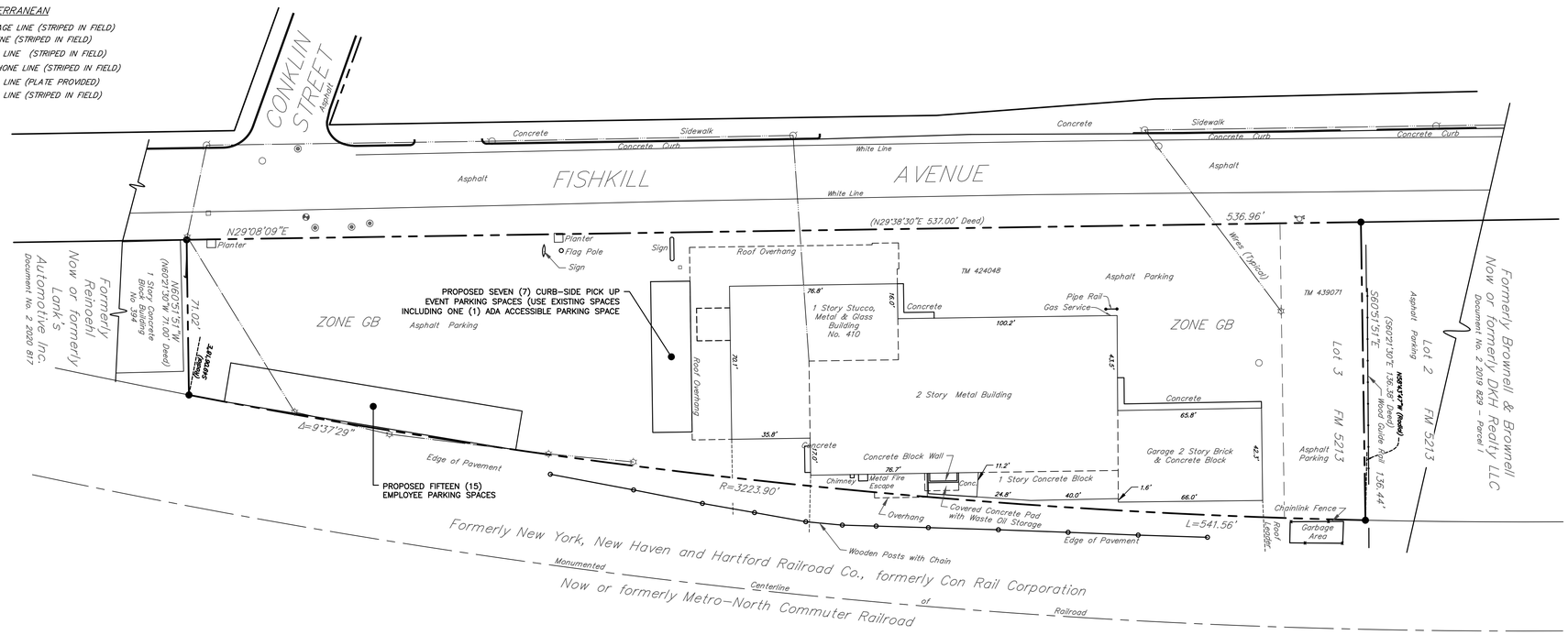
UNAUTHORIZED ALTERATIONS OR ADDITIONS TO THIS DRAWING IS A VIOLATION OF SECTION 7209.2 OF THE NEW YORK EDUCATION LAW

LEGEND

BZ	BOLLARD
350	CONTOUR LINE
CIP	CAST IRON PIPE
CMP	CORRUGATED METAL PIPE
CPP	CORRUGATED PLASTIC PIPE
DIP	DUCTILE IRON PIPE
	FIRE HYDRANT
	GAS VALVE
	GUY
	LAMP
	POLE
PVC	POLYVINYL CHLORIDE PIPE
RCP	REINFORCED CONCRETE PIPE
	SIGN (SMALL)
362.8	SPOT ELEVATION
TC217.7 BC215.9	TOP & BOTTOM OF CURB
TF	TRAFFIC POLE
VT	VETRIFIED CLAY PIPE
WP	WARNING PAD
	WATER VALVE

SUBTERRANEAN

D	DRAINAGE LINE (STRIPED IN FIELD)
G	GAS LINE (STRIPED IN FIELD)
SW	SEWER LINE (STRIPED IN FIELD)
T	TELEPHONE LINE (STRIPED IN FIELD)
W	WATER LINE (PLATE PROVIDED)
W	WATER LINE (STRIPED IN FIELD)



SCHEDULE OF REGULATIONS (GB ZONING DISTRICT) AND LOT CONFORMANCE TABLE:

PARAMETER	REQUIREMENT	EXISTING	PROVIDED
LOT AREA:	N/A	±59,799 SQFT	
LOT WIDTH:	N/A	±536.96 FEET	
LOT DEPTH:	100 FEET MINIMUM	±136.44 FEET	
YARD SETBACKS:			
FRONT YARD:	15 FEET MINIMUM	±24.99 FEET	
SIDE YARD:	20 FEET MINIMUM	±46.84 FEET	
REAR YARD:	25 FEET MINIMUM	±1.82 FEET*	
MAX. BUILDING HEIGHT:	35 FT MAX.	2 STORIES	

*EXISTING NON-CONFORMING

SITE PLAN NOTES:

1. THE PROJECT PROPOSES CONTINUED USE OF VEHICLE SALES. HEALEY HYUNDAI RECENTLY VACATED THE PREMISES, AND CARVANA IS SEEKING TO LEASE THE PROPERTY FOR A VEHICLE SALES USE BUT AT A MUCH REDUCED SCALE. VEHICLE PURCHASES ARE COMPLETED ONLINE, AND THIS FACILITY WILL BE USED AS A TRANSACTION POINT WHERE THE CUSTOMER MAY PICK THE VEHICLE UP (THERE IS AN OPTION TO HAVE THE VEHICLE DELIVERED DIRECTLY TO THE CUSTOMER, THEREBY BYPASSING USE OF THIS FACILITY FOR PICK UP). THE SCHEDULED PICK UP EVENTS TYPICALLY LAST 15 MINUTES, AND TAKE PLACE DURING NORMAL BUSINESS HOURS. CARVANA WILL NOT BE CONDUCTING RETAIL SERVICE/REPAIR OPERATIONS. CARVANA IS PROPOSING TO UTILIZE EXISTING REPAIR BAYS FOR DETAILING AND READYING PURCHASED VEHICLES FOR PICK UP, INCLUDING STATE INSPECTION ACTIVITIES. THESE OPERATIONS ARE EXCLUSIVELY FOR CARVANA USE AND WILL NOT BE OPEN TO THE PUBLIC. CARVANA ANTICIPATES 12 TO 15 EMPLOYEES AT THIS LOCATION.
2. THE FACILITY WILL OPERATE 7 DAYS PER WEEK, FROM 7 AM TO 7 PM. THESE HOURS MAY ADJUST UPON OPERATION BASED ON DEMAND.
3. THERE ARE NO WETLANDS OR FLOODPLAINS ASSOCIATED WITH THE PROJECT SITE.
4. INDIANA BAT WAS IDENTIFIED AS AN ENDANGERED SPECIES NEAR THE PROJECT SITE. THE PLAN CALLS FOR NO REMOVAL OF EXISTING TREES.
5. CARVANA ANTICIPATES ADDING SITE SIGNAGE, TO BE DETAILED ON FUTURE SUBMITTALS. THE ANTICIPATED SITE SIGNAGE WILL CONSIST OF RE-USE OF THE EXSITING MOUNUMENT SIGNS AND NEW BUILDING MOUNTED SIGNS.

PARKING NOTES:

1. PER §223-26(F), FOR MOTOR VEHICLE SALES AND SERVICE, 1 SPACE IS REQUIRED PER EMPLOYEE, PLUS 1 SPACE PER 150 SQUARE FEET OF GROSS FLOOR AREA. USING 15 EMPLOYEES, AND 16,870 SQUARE FEET OF GROSS FLOOR AREA, THE CALCULATED REQUIRED PARKING IS 127 PARKING SPACES. THIS GROSSLY EXCEEDS THE ANTICIPATED PARKING USAGE FOR THIS OPERATION DUE TO THE LIMITED NUMBER OF EMPLOYEES, IN COMBINATION WITH THE SCHEDULED ON-SITE PICK UP EVENTS AND THE SERVICE AND REPAIR OPERATIONS BEING CLOSED TO THE PUBLIC. CARVANA ANTICIPATES NEEDING THE 15 EMPLOYEE PARKING SPACES, PLUS AN ADDITIONAL 7 SPACES FOR CURBSIDE PICK UP EVENTS.
2. THERE IS AN EXSITING ADA ACCESSIBLE PARKING SPACE ON THE SOUTHWEST CORNER OF THE BUILDING.
3. THE PREVIOUS APPROVED SITE PLAN AND SPECIAL USE PERMIT FOR THIS PROJECT UTILIZED APRKING AT 360 FISHKILL AVENUE (NOW 409 FISHKILL AVENUE), WHICH IS NO LONGER NEEDED.

APPLICANT'S CONSENT:

THE UNDERSIGNED APPLICANT 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.

_____ _____
CARVANA, 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.

DRAWN BY: CMB				CHECKED BY: DGK			
REVISIONS:				REVISIONS:			
NO.	DATE	DESCRIPTION	BY	NO.	DATE	DESCRIPTION	BY

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

STATE OF NEW YORK DANIEL G. KOERNER 082716 LICENSED PROFESSIONAL ENGINEER

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

SITE PLAN

CARVANA

410 FISHKILL AVE
CITY OF BEACON
DUTCHESS COUNTY, NEW YORK
TAX ID: 6055-80-424048 & 439071

JOB #:	2024:007
DATE:	2/27/24
SCALE:	1" = 30'
TITLE:	SP-1
SHEET:	3 OF 3

UNAUTHORIZED ALTERATIONS OR ADDITIONS TO THIS DRAWING IS A VIOLATION OF SECTION 7209.2 OF THE NEW YORK EDUCATION LAW

LANC & TULLY
Engineering and Surveying, P.C.

March 7, 2024

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

RE: 410 Fishkill Ave.
Carvana Site Plan
Tax Nos. 6055-80-424048 & 439071
City of Beacon

Dear Mr. Gunn:

My office has received the following regarding the proposed re-use of the building located at 410 Fishkill Avenue for a Carvana dealership:

- Cover letter dated February 27, 2024, from Hudson Land Design.
- Application for Site Plan approval dated February 26, 2024.
- Application for Special Use Permit dated February 26, 2024.
- Plan set titled "Carvana Site Development – 410 Fishkill Avenue", dated February 27, 2024, and consisting of 3 sheets as prepared by Hudson Land Design.

The proposed project, located at 410 Fishkill Avenue, entails the re-use of the existing Healey Hyundai car dealership as a Carvana car dealership. The project site consists of 2 parcels located in the GB (General Business) Zone, with the 2 parcels combined having a total area of ±1.373 acres. It should be noted that a Special Use Permit is required for vehicle sales or a rental lot in the GB zone.

Based on our review of the above documents and plans, we would like to offer the following comments:

General Comments:

1. The plans should show all utilities that may be crossing the site, as well as those utilities currently servicing the existing building on site.

2. The plans should show all proposed improvements to the site. At present, the plans do not reflect any changes occurring on the site. Are any changes proposed to the site or building? If the operations are going to be at a much-reduced scale in relationship to the previous dealership, will the entire building be used by the proposed applicant? Will vehicle repairs, oil changes, or other repair/maintenance operations occur at this facility?

3. The "Existing Conditions Plan" shows a number of encroachments (garbage dumpster area, pavement, a light pole, building overhang, roof leaders) on to the railroad property. How are these encroachments to be handled?

4. Any proposed signage for the site should be provided on the plans, as to the proposed location and sizing.

5. As the operations at the proposed site are at a much-reduced scale, is all the pavement presently on the site necessary, or can it be reduced to reduce stormwater runoff from the site?

6. The applicant should consider providing landscaping along the front of the lot where possible, as well as possibly installing curbing along the front of the lot, to provide controlled access in and out of the site.

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: Natalie Quinn, Planner
Jennifer Gray, Esq.
Bruce Flower, Building Inspector

KARC
PLANNING CONSULTANTS, INC.

TO: John Gunn, Chair, and the City of Beacon Planning Board

FR: KARC Planning Consultants, Inc.

DATE: March 8, 2024

RE: 410 Fishkill Avenue Site Plan and Special Use Permit, Carvana, LLC c/o Jenn Roldan

---

I have reviewed the following materials regarding the proposed re-use of the building located at 410 Fishkill Avenue:

- Cover letter by Hudson Land Design, dated February 27, 2024, including Request for Administrative Amendment Letter by Jenn Roldan, Carvana, dated January 25, 2024
- Site Plan Application, dated February 26, 2024
- Special Use Permit Application, dated February 26, 2024
- Site Plan Set (3 sheets) by Hudson Land Design, with all plans dated February 27, 2024
- Property Deed (6 sheets), recorded October 2, 2000

Project Description:

The applicant is proposing to utilize an existing 1 to 2-story auto dealer building, having a total of 16,870 square feet, for continued use as commercial vehicle sales. The 1.373-acre site includes two parcels (6055-80-424048 and 6055-80-439071) in the General Business (GB) district. Vehicle sales is permitted by Special Use Permit within the GB district. The applicant's cover letter states that 108 parking spaces are provided on site.

Comments & Recommendations:

1. **Planning Board Review:**
   Regarding Special Permit Uses, Section 223-18(A) states that "all such uses are declared to possess characteristics of such unique and special forms that each specific use shall be considered as an individual case." Thus, even though the proposed project may not be a change in use, site plan review appears to be required due to classification as a special permit use.

2. **Incomplete Site Plan:**
   Per Section 223-18(C) – all applications for special permit uses shall include a site plan and "shall show all buildings, parking areas, traffic access and circulation drives, open space, landscaping, topography, type and location of lighting, [and] drainage improvements." The submitted site plan references parking but does not provide details on stall dimensions, total number of spaces, or circulation layout. These details should be provided so the Board can adequately review the proposed parking layout on site.

3. **Parking Requirement:**
   Pursuant to Section 223-26(F), the parking requirement for Motor Vehicle Sales and Service is one (1) space per employee, plus one (1) space per every 150 square feet of gross floor space. The applicant's cover letter states that the proposed operation will require 12-15 employees and the provided application form states that +/- 16,870 sq. ft. of existing floor space will be utilized. Based on these numbers, approximately 125-128 parking spaces are required onsite by code. The applicant claims that 108 spaces are provided. These spaces should be clearly indicated, including location and dimensions, on the proposed site plan.

4. **Reduced Scale of Use:**
   In the provided letter dated January 25, 2024, the applicant states that the proposed Carvana operations will be "at a much smaller scale" than the existing Healy Hyundai Car Dealership. It is noted that the provision of retail service/repair operations will be discontinued under the proposed use, which in our opinion does have the ability to reduce the scale and impact of the proposed use. However, it would be helpful for the applicant to submit proposed floor plans to indicate how the existing structure will be utilized, and to indicate the anticipated maximum number of for sale vehicles to be stored onsite at any one time. This information would help the Board determine if a reduced parking requirement is appropriate for the proposed use.

5. **Frontage and Landscaping:**
   The proposed project site has a 500-foot frontage on Fishkill Avenue that is currently devoid of curbing, landscaping, or sidewalk facilities. In essence, the front property line is one long curb cut. The Board may wish to discuss possible improvements such as the installation of curbing or landscaping that would screen parking and restrict access points to and from the site as a means to improve safety for pedestrians and traffic along Fishkill Avenue.

6. **Rear Yard:**
   It appears that the building onsite is existing non-conforming with regards to the GB District's required 25 feet rear yard setback requirement, and that a number of improvements including pavement, fencing, and refuse are located beyond the rear property line. The applicant should note whether easements or agreements exist to permit these encroachments. If not, the Board may wish to discuss potential modifications to the proposed site plan to eliminate existing encroachments.

7. **Proposed Beacon-Hopewell Rail Trail:**
   It should be noted that the proposed project site abuts an abandoned rail bed currently being considered by Dutchess County and the City of Beacon as the future site of the Beacon-Hopewell Rail Trail, which will provide pedestrian and bike connection from the Beacon Riverfront Trail to the Dutchess Rail Trail and Empire State Trail in Hopewell Junction. The Planning Board may wish to discuss with the applicant how the proposed project can/will interface with and support this planning initiative.

KARC
PLANNING CONSULTANTS, INC.

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

Natalie Quinn
Beacon Planning Consultant

Cc: Bruce Flower, Building Inspector
Jennifer L. Gray, Esq., City Attorney
John Russo, P.E., City Engineer
Daniel G. Koehler, P.E., Project Engineer

March 5, 2024

To: Planning Board
From: Beacon Conservation Advisory Committee

CAC would like to bring up for discussion several points regarding a recent Site Plan and Special Use Permit application by Carvana, LLC for 410 Fishkill Avenue.

1. Through the years CAC members have observed Healey Brothers employees and/or contractors plowing snow over the hill onto the old railroad. Snow is often embedded with garbage that ends up in the woods behind the properties. CAC is requesting the Planning Board to expressly forbid plowing snow off the properties onto the hill above future rail-trail.

2. Similarly CAC members have observed garbage from open garbage containers and from the surface blown by wind towards the riparian buffer and the creek. CAC is requesting the Planning Board to mandate Carvana, LLC to build garbage enclosures designed to prevent wind from blowing debris into the woods along the creek. Plans submitted by Carvana, LLC to the Planning Board indicate a chain link fence along the eastern property edge. CAC is asking the Planning Board to ensure that fencing along the east side of the properties does get installed to capture wind blown surface litter.

3. Current lamp post lights at the properties appear to be in violation of § 223-14 (B) Landscaping, lighting, and miscellaneous regulations that state that all exterior lights should have no the spillover of light onto any adjacent residential or multifamily property or direct glare onto any public sidewalk or street and average one footcandle, or two to five in high security areas. Current lights cause a lot of light pollution as far as Liberty Street across the creek when foliage is down. CAC is requesting the Planning Board to mandate Carvana, LLC to make sure light output meets code requirements and have light shielding on the lamp posts to minimize light pollution and disturbance for wildlife and residents of nearby streets.

Respectfully,
Sergei Krasikov
Chair, Conservation Advisory Committee

City of Beacon Planning Board Agenda
03/12/2024

Title:

Review of application for Amended Site Plan approval, 248 Tioronda Avenue, submitted by Beacon 248 Holdings LLC (Bernard Kohn).

ATTACHMENTS

248 Tioronda PB 3.12.24 Amended-Site-Plan-App_81750-00.pdf

248 Tioronda PB 3.12.24 SEQR Comparison.pdf

248 Tioronda PB 3.12.24 amended SWPPP_81750-00.pdf

284 Tioronda PB 3.12.24 Amended-Site-Plans_81750-00.pdf

Lanc Tully 248 Tioromda Ave 03-08-24 review.pdf

APPLICATION FOR SITE PLAN APPROVAL

Submit to Planning Board Secretary, One Municipal Plaza, Suite One, Beacon, New York 12508

IDENTIFICATION OF APPLICANT

Name: Beacon 248 Holdings LLC (Bernard Kohn)

Address: 147 Union Street, Suite 101

Poughkeepsie, NY 12601

Signature: _____

Date: _____

Phone: 917-696-4402

(For Official Use Only)

	Date	Initials
Application & Fee Rec'd		
Initial Review		
Public Hearing		
Conditional Approval		
Final Approval		

IDENTIFICATION OF REPRESENTATIVE / DESIGN PRFESSIONAL

Name: LaBella Associates (Kyle Ahearn, PE), F/K/A The Chazen Companies

Address: 21 Fox Street

Poughkeepsie, NY 12601

Phone: 845-454-3980

Fax: 845-454-4026

Email address: kahearn@labellapc.com

IDENTIFICATION OF SUBJECT PROPERTY:

Property Address: 248 Tioronda Avenue, City of Beacon

Tax Map Designation: Section 6054 Block 45 Lot(s) 012574

Land Area: 9.18 acres

Zoning District(s) Fishkill Creek Development (FCD) District

DESCRIPTION OF PROPOSED DEVELOPMENT:

Proposed Use: 64-unit multifamily development and 23,124 SF office building

Gross Non-Residential Floor Space: Existing 0 Proposed 23,124 SF

TOTAL: 23,124 SF

Dwelling Units (by type): Existing 0 Proposed 64

TOTAL: 64 units (29 1-bedroom, 28 2-bedroom, 6 3-bedroom, 1 4-bedroom)

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**

Calculated fee for amendment of mixed use site plan with no increase in residential units or commercial sq ft = $500

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: Beacon 248 Holdings LLC

If owned by a corporation, partnership or organization, please list names of persons holding over 5% interest.

Bernard Kohn

List all properties in the City of Beacon that you hold a 5% interest in:

Project parcels = 5954-16-993482 & 6054-45-012574

Applicant Address: 147 Union Street, Suite 101, Poughkeepsie, NY 12601

Project Address: 248 Tioronda Avenue, City of Beacon

Project Tax Grid # 6054-45-012574

Type of Application Amended Site Plan 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, Bernard Kohn of 248 Beacon Holdings LLC, 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 — NA
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 — NA
5. Special Assessments are outstanding on a parcel or parcels owned by me in the City of Beacon — NA
6. ALL Special Assessments due to the City of Beacon on any parcel owned by me are current — X

Signature of Owner

Partner

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: Proposed Multifamily Development and Office Building

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:	X	
LEGAL DATA		
Name and address of the owner of record.	X	
Name and address of the applicant (if other than the owner).	X	
Name and address of person, firm or organization preparing the plan.	X	
Date, north arrow, and written and graphic scale.	X	
NATURAL FEATURES		
Existing contours with intervals of two (2) feet, referred to a datum satisfactory to the Planning Board.	X	
Approximate boundaries of any areas subject to flooding or stormwater overflows.	X	
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.	X	
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.	X	
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.	X	
Other existing development, including fences, retaining walls, landscaping, and screening.	X	
Sufficient description or information to define precisely the boundaries of the property.	X	
The owners of all adjoining lands as shown on the latest tax records.	X	
The locations, names, and existing widths of adjacent streets and curb lines.	X	
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.	X	

PROPOSED DEVELOPMENT	YES	NO
The location, use and design of proposed buildings or structural improvements.	X	
The location and design of all uses not requiring structures, such as outdoor storage (if permitted), and off-street parking and unloading areas.	X	
Any proposed division of buildings into units of separate occupancy.	X	
The location, direction, power, and time of use for any proposed outdoor lighting.	X	
The location and plans for any outdoor signs.	X	
The location, arrangement, size(s) and materials of proposed means of ingress and egress, including sidewalks, driveways, or other paved areas.	X	
Proposed screening and other landscaping including a planting plan and schedule prepared by a qualified individual or firm.	X	
The location, sizes and connection of all proposed water lines, valves, and hydrants and all storm drainage and sewer lines, culverts, drains, etc.	X	
Proposed easements, deed restrictions, or covenants and a notation of any areas to be dedicated to the City.	X	
Any contemplated public improvements on or adjoining the property.	X	
Any proposed new grades, indicating clearly how such grades will meet existing grades of adjacent properties or the street.	X	
Elevations of all proposed principal or accessory structures.	X	
Any proposed fences or retaining walls.	X	
MISCELLANEOUS		
A location map showing the applicant's entire property and adjacent properties and streets, at a convenient scale.	X	
Erosion and sedimentation control measures.	X	
A schedule indicating how the proposal complies with all pertinent zoning standards, including parking and loading requirements.	X	
An indication of proposed hours of operation.		X
If the site plan only indicates a first stage, a supplementary plan shall indicate ultimate development.	NA	

For all items marked "NO" above, please explain below why the required information has not been provided:

Hours of operation for the office use will be determined based on individual tenant(s).

Applicant/Sponsor Name: Beacon 248 Holdings LLC

Signature:

Date: 2/27/24

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: Beacon 248 Holdings LLC (Bernard Kohn)

Address of Applicant: 147 Union St Suite 101, Poughkeepsie, NY 12601

Telephone Contact Information: 917-696-4402

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.
Beacon 248 Holdings LLC	147 Union St, Ste 101, Poughkeepsie, NY 12601	917-696-4402	12-10-2018	01-18-2019 at DC Clerk's Office

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, Bernard Kohn being first duly sworn, according to law, deposes and says that the statements made herein are true, accurate, and complete.

(Print) Bernard Kohn

(Signature) _____

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 223-62 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, JOIN VENTURE OR OTHER BUSINESS ENTITY, EXCEPT A CORPORATION:

Name of Entity	Address of Entity
Place where such business entity was created	Official Registrar's or Clerk's office where the documents and papers creating entity were filed
Date such business entity or partnership was created	Telephone Contact Information

IF AFFIANT IS A CORPORATION:

Name of Entity Beacon 248 Holdings LLC	Telephone Contact Information 917-696-4402
Principal Place of Business of Entity 147 Union St, Suite 101 Poughkeepsie, NY 12601	Place and date of incorporation Rockland County 03-29-2017
Method of Incorporation Limited Liability Corporation (LLC)	Official place where the documents and papers of incorporation were filed Rockland County

SECTION B. List all persons, officers, limited or general partners, directors, members, shareholders, managers, and any others with any interest 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
Bernard Kohn	15 Sumter Road Airmont, NY 10952		100%

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.
Beacon 248 Holdings LLC	147 Union St, Ste 101 Poughkeepsie, NY 12601	917-696-4402	12-10-2018	01/18/2019 at DC Clerk's Office

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**

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
Beacon 248 Development LLC	147 Union St, Suite 101, Poughkeepsie, NY 12601

SECTION H. 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 I. 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, Bernard Kohn being first duly sworn, according to law, deposes and says that I am (Title) Partner, an active and qualified member of the Beacon 248 Holdings LLC, 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) Bernard Kohn

(Signature) _____

BEACON 248 HOLDINGS, LLC, Proposed Multifamily Development and Office Building

STATE ENVIRONMENTAL QUALITY REVIEW COMPARISON OF IMPACTS
Previously-Approved Amended Site Plan vs Proposed Amended Site Plan

On September 14, 2021, the City of Beacon Planning Board, as Lead Agency for State Environmental Quality Review (SEQR), determined that the proposed Multifamily Development and Office Building in the City of Beacon would not have a significant adverse environmental impact and that a Draft Environmental Impact Statement would not be prepared. The related Amended Site Plan was signed by the Planning Board Chair on November 15, 2023. A handful of field changes are proposed as part of the on-going construction of Buildings 200 & 300 and the beginning of construction for Building 100; those proposed changes are the subject of a new proposed Amended Site Plan. There are no proposed changes to the building uses at this time. Table 1 provides a comparison of the signed Amended Site Plan to the proposed Amended Site Plan.

Table 1: Comparison of Signed Amended Site Plan to Proposed Amended Site Plan

Parameter	Signed Amended Site Plan	Proposed Amended Site Plan	Change
Total # of apartments	64 units	64 units	No change
1-bedroom units	29 units	29 units	No change
2-bedroom units	28 units	28 units	No change
3-bedroom units	6 units	6 units	No change
4-bedroom units	1 unit	1 unit	No change
Total # of bedrooms	107 bedrooms[1]	107 bedrooms	No change
Required Parking Spaces (1 space for each dwelling unit plus 1/4 space for each bedroom)	207 required parking spaces[1]	207 required parking spaces	No change
Gross floor area	76,202 SF	76,202 SF	No change
Building footprint	39,705 SF	39,705 SF	No change
Area of disturbance	6.49 acres	6.75 acres	+0.26 ac
Impervious surface	3.32 acres	3.18 acres	-0.14 ac
Water usage/wastewater generation (110 gpd per bedroom)	13,620 gpd[1]	13,620 gpd	No change
Traffic Generation (added to adjacent street)	23 trips during weekday am peak hour and 28 trips during weekday pm peak hour[1]	23 trips during weekday am peak hour and 28 trips during weekday pm peak hour[1]	No change
Public School Children	9.48 new public school children[1]	9.48 new public school children[1]	No change
* Residential component unless otherwise indicated.			

Note:

1. Bedroom mix per the Building Permit/signed Amended Site Plan. Following the Negative Declaration and prior to the Building Permit application/final signed Amended Site Plan, the bedroom mix of the 64 units was revised from 28 1-bedrooms and 36 2-bedrooms to the mix shown above per the final building plans.

Therefore, the revised site plan results in no or insignificant change in environmental impacts as shown in Table 1.

LaBella Associates
February 27, 2024

Amended Stormwater Pollution Prevention Plan
for
248 Tioronda Ave

248 Tioronda Ave
City of Beacon
Dutchess County, New York

Issued: December 2019
Last Revised: February 2024

Prepared for:
CHAI Builders
120 Route 59, Suite 201
Suffern, NY 10901

Prepared by:
LaBella Associates
21 Fox Street
Poughkeepsie, NY 12601
(845) 454-3980
www.labellapc.com

LaBella Project No. CZ81750.00

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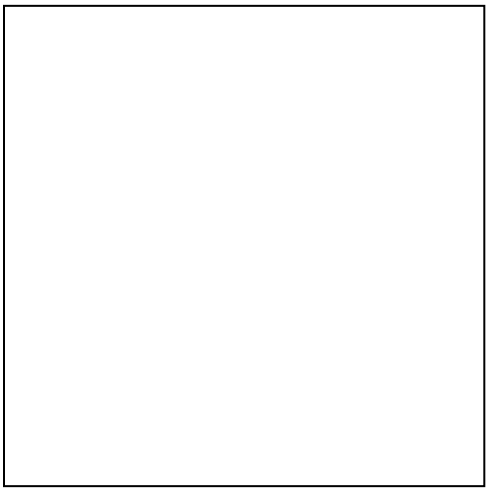
PREPARER OF THE SWPPP

"I hereby certify that the Stormwater Pollution Prevention Plan (SWPPP) for this project has been prepared in accordance with the terms and conditions of the GP-0-20-001. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of this permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings."

Name and Title[1]: Chris Lapine, P.E. - Director

Date: Issued: December 2019
Amended: February 2024



[1] *This is a signature of a New York State licensed Professional Engineer employed by LaBella Associates that is duly authorized to sign and seal Stormwater Pollution Prevention Plans (SWPPPs), NOIs, and NOTs prepared under their direct supervision. Refer to Appendix H for the LaBella Certifying Professionals Letter.*

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APPENDICES

Appendix A: NYSDEC SPDES General Permit GP-0-20-001

Appendix B: NYSDEC Forms

- Notice of Intent (NOI) form to be filled out
- MS4 SWPPP Acceptance Form if applicable, form to be filled out
- Notice of Termination (NOT)

Appendix C: Contractor and Subcontractor Certification Forms

Appendix D: SWPPP Inspection Report (Sample Form)

Appendix E: NYSDEC "Deep-Ripping and Decompaction," April 2008

Appendix F: Post-Construction Inspections and Maintenance

Appendix G: Figures

- Figure 1: Site Location Map
- Figure 2: Soils Map
- Figure 3: Historic Places Screening Map
- Figure 4: Environmental Resource Map
- Figure 5: FEMA Firm Map if applicable
- Figure 6: Pre-Development Watershed Delineation Map (Pocket)
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Appendix H: LaBella Certifying Professionals Letter

Appendix I: Pre-Development Stormwater Modeling

Appendix J: Post-Development Stormwater Modeling

Appendix K: Soil Testing Results

Appendix L: Flood Insurance Study, Volume 1 of 4

1.0 EXECUTIVE SUMMARY

This Stormwater Pollution Prevention Plan (SWPPP) has been prepared for major activities associated with construction of 248 Tioronda Ave in the City of Beacon. This SWPPP includes the elements necessary to comply with the national baseline general permit for construction activities enacted by the U.S. Environmental Protection Agency (EPA) under the National Pollutant Discharge Elimination System (NPDES) program and all local governing agency requirements. This SWPPP must be implemented at the start of construction.

This SWPPP has been developed in accordance with the "New York State Department of Environmental Conservation (NYSDEC) State Pollution Discharge Elimination System (SPDES) General Permit for Stormwater Discharges from Construction Activity" General Permit Number GP-0-20-001, effective January 29, 2015 through January 28, 2020. The SWPPP and accompanying plans identify and detail stormwater management, pollution prevention, and erosion and sediment control measures necessary during and following completion of construction.

This SWPPP and the accompanying plans entitled "248 Tioronda Ave" have been submitted as a set. These engineering drawings are considered an integral part of this SWPPP. Therefore, this SWPPP is not considered complete without them. References made herein to "the plans" or to a specific "sheet" refer to these drawings.

This report considers the impacts associated with the intended development with the purpose of:

1. Maintaining existing drainage patterns as much as possible while continuing the conveyance of upland watershed runoff;
2. Controlling increases in the rate of stormwater runoff resulting from the proposed development so as not to adversely alter downstream conditions; and
3. Mitigating potential stormwater quality impacts and preventing soil erosion and sedimentation resulting from stormwater runoff generated both during and after construction.

The analysis and design completed and documented in this report is intended to be part of the application made for a mixed use multifamily and non-residential commercial development. Redevelopment project completed on behalf of the Owner/Operator.

1.1 Project Description

CHAI Builders is proposing a Redevelopment with increase in impervious surface. A location map of the site has been provided in Appendix G, as Figure 1.

This type of project is included in Table 2 of Appendix B of GP-0-20-001; and the project site is not located in one of the watersheds listed in Appendix C of GP-0-20-001. Therefore, this SWPPP includes post-construction stormwater management practices, as well as erosion and sediment controls.

This project is located within the City of Beacon regulated, traditional land use control Municipal Separate Stormwater Sewer System (MS4). Therefore, an MS4 SWPPP Acceptance Form is required to accompany NOIs submitted to the NYSDEC.

Runoff from the project site will discharge to the Fishkill Creek, which is not included in the list of Section 303(d) water bodies included in Appendix E of GP-0-20-001.

Project construction activities will consist primarily of site grading, paving, building construction, and the installation of storm drainage necessary to support the proposed Redevelopment. Construction phase pollutant sources anticipated at the site are disturbed (exposed) soil, vehicle fuels and lubricants, chemicals associated with building construction, and building materials. Without adequate control there is the potential for each type of pollutant to be transported by stormwater.

1.2 Stormwater Pollution Controls

The stormwater pollution controls outlined herein have been designed and evaluated in accordance with the following standards and guidelines:

- New York State Stormwater Management Design Manual, dated January 2015 (Design Manual).
- New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016 (SSESC).

Stormwater quality will be enhanced through the implementation of temporary and permanent erosion and sediment control measures, the proposed stormwater management facilities, and other construction-phase pollution controls outlined herein.

The proposed stormwater collection system consisting of pipes, open drainage ways, and on-site stormwater management facilities will adequately collect, treat, and convey the stormwater runoff.

Bioretention ponds and a hydrodynamic separator will be used to manage and treat stormwater runoff generated by the proposed Redevelopment.

Pre- and post-development surface runoff rates have been evaluated for the 1-, 10-, and 100-year 24-hour storm events. Comparison of pre- and post-development watershed conditions demonstrates that the peak rate of runoff from the project site will not be increased.

The post-construction stormwater management practice(s) will be privately owned by the Applicant Deed restrictions will be in place, which require operation and maintenance of the practice(s) in accordance with the operation and maintenance plan.

1.3 Conclusion

This project is subject to the requirements of the City of Beacon regulated MS4, and this SWPPP has been prepared in conformance with the current Design Manual and SSESC. As such, GP-0-20-001 coverage will be effective five (5) business days from the date the NYSDEC receives the electronically submitted eNOI and signed "MS4 SWPPP Acceptance" form, or ten (10) business days from the date the NYSDEC receives the complete paper NOI and signed "MS4 SWPPP Acceptance" form.

2.0 SWPPP IMPLEMENTATION RESPONSIBILITIES

A summary of the responsibilities and obligations of all parties involved with compliance with the NYSDEC SPDES General Permit GP-0-20-001 conditions is outlined in the subsequent sections. For a complete listing of the definitions, responsibilities, and obligations, refer to the SPDES General Permit GP-0-20-001 presented in Appendix A.

2.1 Definitions

1. "General SPDES Permit" means a SPDES permit issued pursuant to 6 NYCRR Part 750-1.21 authorizing a category of discharges.

2. "Owner" or "Operator" means the person, persons, or legal entity which owns or leases the property on which the *construction activity* is occurring; and/or an entity that has operational control over the construction plans and specifications, including the ability to make modifications to the plans and specifications. There may be occasions during the course of a project in which there are multiple Owners/Operators, all of which will need to file and maintain the appropriate SWPPP documents and plans, including without limitation, the Notice of Intent (NOI) and Notice of Termination (NOT).

3. "Owner's/Operator's Engineer" means the person or entity retained by an Owner/Operator to design and oversee the implementation of the SWPPP.

4. "Contractor" means the person or entity identified as such in the construction contract with the Owner/Operator. The term "Contractor" shall also include the Contractor's authorized representative, as well as any and all subcontractors retained by the Contractor.

5. "Qualified Inspector" means a person that is knowledgeable in the principles and practices of erosion and sediment control, such as licensed Professional Engineer, Certified Professional in Erosion and Sediment Control (CPESC), Registered Landscape Architect, or other Department endorsed individual(s).

   It can also mean someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape Architect, provided that person has training in the principles and practices of erosion and sediment control. Training in the principles and practices of erosion and sediment control means that an individual working under the direct supervision of the licensed Professional Engineer or Registered Landscape Architect has received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity. After receiving the initial training, the individual working under the direct supervision of the licensed Professional Engineer or Registered Landscape Architect shall receive four (4) hours of training every three (3) years.

   It can also mean a person that meets the *Qualified Professional* qualifications in addition to the *Qualified Inspector* qualifications.

   Note: Inspections of any post-construction stormwater management practices that include structural components, such as a dam for an impoundment, shall be performed by a licensed Professional Engineer.

6. "Qualified Professional" means a person that is knowledgeable in the principles and practices of stormwater management and treatment, such as a licensed Professional Engineer, Registered Landscape Architect, or other Department endorsed individual(s). Individuals preparing SWPPPs that require the post-construction stormwater management practice component must have an understanding of the principles of hydrology, water quality management practice design, water quantity control design, and, in many cases, the principles of hydraulics. All components of the SWPPP that involve the practice of engineering, as defined by the NYS Education Law (see Article 145), shall be prepared by, or under the direct supervision of, a professional engineer licensed to practice in the State of New York.

7. "Trained Contractor" means an employee from a contracting (construction) company, identified in Part III.A.6., that has received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity. After receiving the initial training, the *Trained Contractor* shall receive four (4) hours of training every three (3) years.

   It can also mean an employee from a contracting (construction) company, identified in Part III.A.6.,that meets the *Qualified Inspector* qualifications (e.g. licensed Professional Engineer, Certified Professional in Erosion and Sediment Control (CPESC), Registered Landscape Architect, or someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape Architect, provided they have received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity.

   The "Trained Contractor(s)" will be responsible for the day to day implementation of the SWPPP.

2.2 Owner's/Operator's Responsibilities

1. Ensure that control measures are selected, designed, installed, implemented and maintained to minimize the discharge of pollutants and prevent a violation of the water quality standards, meeting the non-numeric effluent limitations in Part I.B.1.(a)-(f) of the SPDES General Permit and in accordance with the New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016.

2. Ensure that practices are selected, designed, installed, and maintained to meet the performance criteria in the Design Manual. Practices must be designed to meet the applicable sizing criteria in Part I.C.2.a., b., c. or d. of GP-0-20-001.

3. Retain the services of a "Qualified Inspector" or "Qualified Professional" as defined under Section 2.1, to provide the services outlined in Section 2.5 "Qualified Inspector's/Qualified Professional's Responsibilities."

4. Retain the services of a "Qualified Professional," as defined under Section 2.1, to provide the services outlined in Section 2.3 "Owner's/Operator's Engineers Responsibilities."

5. Have an authorized corporate officer sign the completed NOI. A copy of the completed NOI is included in Appendix B.

6. Submit the electronic version of the NOI (eNOI) along with the MS4 SWPPP acceptance form using the NYSDEC's website (http://www.dec.ny.gov/chemical/43133.html) or submit the signed NOI along with the MS4 SWPPP acceptance form to the following:

   NOTICE OF INTENT
   NYS DEC, Bureau of Water Permits
   625 Broadway, 4th Floor
   Albany, New York 12233-3505

   City of Beacon
   1 Municipal Plaza
   Beacon, NY 12508

7. Pay the required initial and annual fees upon receipt of invoices from NYSDEC. These invoices are generally issued in the fall of each year. The initial fee is calculated as $110.00 per acre disturbed plus $675.00 per acre of net increase in impervious cover, and the annual fee is $110.00.

8. Prior to the commencement of construction activity, identify the contractor(s) and subcontractor(s) that will be responsible for implementing the erosion and sediment control measures and stormwater management practices described in this SWPPP. Have each of these contractors and subcontractors identify at least one "Trained Contractor", as defined under Section 2.1 that will be responsible for the implementation of the SWPPP. Ensure that the Contractor has at least one "Trained Contractor" on site on a daily basis when soil disturbance activities are being performed.

9. Schedule a pre-construction meeting which shall include the City of Beacon representative, Owner's/Operator's Engineer, Contractor, and their sub-contractors to discuss responsibilities as they relate to the implementation of this SWPPP.

10. Retain the services of an independent certified materials testing and inspection firm operating under the direction of a licensed Professional Engineer to perform regular tests, inspections, and certifications of the construction materials used in the construction of all post-construction stormwater management practices.

11. Retain the services of a NYS licensed land surveyor to perform an as-built topographic survey of the completed post-construction stormwater management facilities.

12. Require the Contractor to fully implement the SWPPP prepared for the site by the Owner/Operator's Engineer to ensure that the provisions of the SWPPP are implemented from the commencement of construction activity until all areas of disturbance have achieved final stabilization and the Notice of Termination (NOT) has been submitted to the NYSDEC.

13. Forward a copy of the NOI Acknowledgement Letter received from the regulatory agency to the Owner's/Operator's Engineer for project records, and to the Contractor for display at the construction site.

14. Maintain a copy of the General Permit (GP-0-20-001), NOI, NOI Acknowledgement Letter, SWPPP, MS4 SWPPP Acceptance Form, inspection reports, Spill Prevention, Countermeasures, Cleanup ("SPCC") Plan, and all documentation in accordance with Part I.F.8.a.-d of GP-0-20-001 necessary to demonstrate eligibility with the permit at the construction site, until all disturbed areas have achieved final stabilization and the NOT has been submitted to the NYSDEC. Place documents in a secure location that must be accessible during normal business hours to an individual performing a compliance inspection.

15. Prior to submitting a Notice of Termination, ensure for post-construction stormwater management practice(s) that are privately owned, the Owner/Operator has a deed restriction in place that requires operation and maintenance of the practice(s) in accordance with the operation and maintenance plan.

16. Submit a Notice of Termination (NOT) form (see Appendix B) within 48 hours of receipt of the Owner's/Operator's Engineer's certification of final site stabilization to the following:

    NOTICE OF TERMINATION
    NYS DEC, Bureau of Water Permits

625 Broadway, 4th Floor
Albany, New York 12233-3505

City of Beacon
1 Municipal Plaza
Beacon, NY 12508

17. Request and receive all SWPPP records from the Owner's/Operator's Engineer and archive those records for a minimum of five (5) years after the NOT is filed.

18. Implement the Post-Construction Inspections and Maintenance procedures outlined in Appendix F.

19. The NOI, SWPPP, and inspection reports required by GP-0-20-001 are public documents that the Owner/Operator must make available for review and copying by any person within five (5) business days of the Owner/Operator receiving a written request by any such person to review the NOI, SWPPP, or inspection reports. Copying of documents will be done at the requester's expense.

20. The Owner/Operator must keep the SWPPP current at all times. At a minimum, the Owner/Operator shall amend the SWPPP:
    a) Whenever the current provisions prove to be ineffective in minimizing pollutants in stormwater discharges from the project site;
    b) Whenever there is a change in design, construction, or operation at the construction site that has or could have an effect on the discharge of pollutants; and
    c) To address issues or deficiencies identified during an inspection by the "Qualified Inspector," the Department, or other Regulatory Authority.

2.3 Owner's/Operator's Engineer's Responsibilities

1. Prepare the SWPPP using good engineering practices, best management practices, and in compliance with all federal, state, and local regulatory requirements.

2. Prepare the Notice of Intent (NOI) form (see Appendix B), sign the "SWPPP Preparer Certification" section of the NOI, and forward to Owner/Operator for signature.

3. Provide copies of the SWPPP to the City of Beacon once all signatures and attachments are complete.

4. Enter Contractor's information in Section 2.5 "SWPPP Participants" once a Contractor is selected by the Owner/Operator.

5. Update the SWPPP each time there is a significant modification to the pollution prevention measures or a change of the principal Contractor working on the project who may disturb site soil.

2.4 Contractor's Responsibilities

1. Sign the SWPPP Contractor's Certification Form contained within Appendix C and forward to the Owner's/Operator's Engineer for inclusion in the Site Log Book.

2. Identify at least one Trained Contractor that will be responsible for implementation of this SWPPP. Ensure that at least one Trained Contractor is on site on a daily basis when soil disturbance activities are being performed. The Trained Contractor shall inspect the erosion and sediment control practices and pollution prevention measures being implemented within the active work area daily to ensure that they are being maintained in effective operating conditions at all times. If deficiencies are identified, the contractor shall begin implementing corrective actions within one business day and shall complete the corrective actions in a reasonable time frame.

3. Provide the names and addresses of all subcontractors working on the project site. Require all subcontractors who will be involved with construction activities that will result in soil disturbance to identify at least one Trained Contractor that will be on site on a daily basis when soil disturbance activities are being performed; and to sign a copy of the Subcontractor's Certification Form contained within Appendix C, then forward to the Owner's/Operator's Engineer for inclusion into the Site Log Book. This information must be retained as part of the Site Log Book.

4. Maintain a Spill Prevention and Response Plan in accordance with requirements outlined in Section 5.4 of this SWPPP. This plan shall be provided to the Owner's/Operator's Engineer for inclusion in the Site Log Book, prior to mobilization on-site.

5. Participate in a pre-construction meeting which shall include the City of Beacon representative, Owner/Operator, Owner's/Operator's Engineer, and all subcontractors to discuss responsibilities as they relate to the implementation of this SWPPP.

6. If Contractor plans on utilizing adjacent properties for material, waste, borrow, or equipment storage areas, or if Contractor plans to engage in industrial activity other than construction (such as operating asphalt and/or concrete plants) at the site, Contractor shall submit appropriate documentation to the Owner's/Operator's Engineer so that the SWPPP can be modified accordingly.

7. Implement site stabilization, erosion and sediment control measures, and other requirements of the SWPPP.

8. In accordance with the requirements in the most current version of the NYS Standards and Specifications for Erosion and Sediment Control, conduct inspections of erosion and sediment control measures installed at the site to ensure that they remain in effective operating condition at all times. Prepare and retain written documentation of inspections as well as of all repairs/maintenance activities performed. This information must be retained as part of the Site Log Book.

9. Begin implementing corrective actions within one (1) business day of receipt of notification by the Qualified Inspector/Qualified Professional that deficiencies exist with the erosion and sediment control measures employed at the site. Corrective actions shall be completed within a reasonable time frame.

10. Maintain a record of the date(s) and location(s) that soil restoration is performed in accordance with the accompanying plans and NYSDEC Division of Water's publication "Deep-Ripping and Decompaction," dated April 2008. A copy of this is publication is provided in Appendix E. The record that is to be maintained shall be a copy of the overall site grading plan delineating the area(s) and date(s) that the soil was restored.

11. Upon completion of all construction at the site, the contractor responsible for overall SWPPP Compliance shall sign the certification on their Contractor Certification Form indicating that: a.) all temporary erosion and sediment control measures have been removed from the site, b.) the on-site soils disturbed by construction activity have been restored in accordance with the SWPPP and the NYSDEC Division of Water's publication "Deep-Ripping and Decompaction," and c.) all permanent stormwater management practices required by the SWPPP have been installed in accordance with the contract documents.

2.5 Qualified Inspector's/Qualified Professional's Responsibilities

1. Participate in a pre-construction meeting with the City of Beacon representative, Owner/Operator, Contractor, and their subcontractors to discuss responsibilities as they relate to the implementation of this SWPPP.

2. Conduct an initial assessment of the site prior to the commencement of construction and certify in an inspection report that the appropriate erosion and sediment control measures described within this SWPPP have been adequately installed and implemented to ensure overall preparedness of the site.

3. Provide on-site inspections to determine compliance with the SWPPP. Site inspections shall occur at an interval of at least once every seven calendar days or, if at times, this project involves the disturbance of greater than five acres of soil at any one time, site inspections shall occur at an interval of at least twice every seven calendar days, with the inspections separated by a minimum of at least two full calendar days. A written inspection report shall be provided to the Owner/Operator and general contractor within one business day of the completion of the inspection, with any deficiencies identified. A sample inspection form is provided in Appendix D.

4. Prepare an inspection report subsequent to each and every inspection that shall include/address the items listed in Part IV.C.4.a-k of GP-0-20-001. Sign all inspection reports and maintain on site with the SWPPP.

5. Notify the owner/operator and appropriate contractor or subcontractor of any corrective actions that need to be taken.

6. Prepare a construction Site Log Book to be used as a record of all inspection reports generated throughout the duration of construction. Ensure that the construction Site Log Book is maintained and kept up-to-date throughout the duration of construction.

7. Review the Contractor's SWPPP records on a periodic basis to ensure compliance with the requirements for daily reports, soil restoration, inspections, and maintenance logs.

8. Based on the as-built survey and material testing certifications performed by others, perform evaluations of the completed stormwater management practices to determine whether they were constructed in accordance with this SWPPP.

9. Conduct a final site assessment and prepare a certification letter to the Owner/Operator indicating that, upon review of the material testing and inspection reports prepared by the firm retained by the Owner/Operator, review of the completed topographic survey, and evaluation of the completed stormwater management facilities, the stormwater management facilities have been constructed substantially in accordance with the contract documents and should function as designed.

10. Prepare the Notice of Termination (NOT). Sign the NOT Certifications VI (Final Stabilization) and VII (Post-construction Stormwater Management Practices), and forward the NOT to the Owner/Operator for signature on Certification VIII (Owner/Operator Certification).

11. Transfer the SWPPP documents, along with all NOI's, permit certificates, NOT's, construction Site Log Book, and written records required by the General Permit to the Owner/Operator for archiving.

2.6 SWPPP Participants

1. Owner's/Operator's Engineer:

Chris Lapine, P.E. - Director
LaBella Associates
21 Fox Street
Poughkeepsie, NY 12601
Phone: (845) 454-3980

2. Owner/Operator:

CHAI Builderes
120 Route 59, Suite 201
Suffern, NY 10901
Phone: 917-6964402

3. Contractor:

Name and Title: Pete Coon

Company Name: AW Coon and Sons, Inc

Mailing Address: 412 NY-199

Red Hook, NY 12571

Phone: (845) 758-8727

3.0 SITE CHARACTERISTICS

3.1 Land Use and Topography

The project parcel is in the Fishkill Creek Development (FCD) zone. It was previously the site of a Tuck Tape manufacturing facility. The facility was shuttered in the 1990's and has remained vacant since that time. In the late 2000's, the crumbling warehouse buildings were raized. There has also been an environmental cleanup at the site, which was monitored and approved by the NYSDEC.

Site elevations range from approximately 40 feet above mean sea level (MSL) to 120 feet MSL. The project site is quite narrow, approximately 1900 feet in length from north to south and 100-300 feet in width from west to east. The western portion of the site runs along an MTA railroad easement along Tioronda Avenue and is moderately sloped, with typical slopes of approximately 20-30%. The eastern portion of the site runs along the Fishkill Creek and is extremely sloped, with slopes in the range of 20-80%. The central portion of the site is relatively flat, with average slopes of 10-15%.

3.2 Soils and Groundwater

The United States Department of Agriculture (USDA) Soil Conservation Service (SCS) Soil Survey for Dutchess County was reviewed and provided surficial soil conditions for the study area.

The soils within the overall watershed are of the Udorthents classification. They fall into hydrologic soil groups A and D. According to the Soil Survey of Dutchess County, Udorthents typically range from being very deep to shallow, somewhat excessively drained to moderately well drained. They are found in disturbed areas and typically associated with areas that were subject to previous earthwork operations.

In an effort to ascertain a better understanding of the hydrologic nature of the on-site soils, LaBella (formerly Chazen) observed deep tests at 11 locations at the site. We brought an excavator on site to investigate soil conditions and determine limiting factors such as groundwater, bedrock, and existing utilities. See Appendix K for the soil testing results. Our findings were consistent with the Soil Survey of Dutchess County. Layers consisted of fill material from the previous use on site, and a variety of clayey material.

Soil data as provided by the SCS is presented in Table 1.

Table 1: USDA Soil Data

Map Symbol & Description	Hydrologic Soil Group	Permeability (inches/hour)	Erosion Factor K	Depth to Water Table (feet)	Depth to Bedrock (inches)
Ud - Udorthents	A/D	0.06-20	0.37	>3.0	>60

Upon review of the soil data presented in Table 1, the project site does not contain soils with a soil slope phase of E or F.

The Soil Conservation Service defines the hydrologic soil groups as follows:

- Type A Soils: Soils having a high infiltration rate and low runoff potential when thoroughly wet. These soils consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a moderate rate of water transmission.

The soils map for the study area is presented in Appendix G, as Figure 2.

3.3 Watershed Designation

The project site is not located in a restricted watershed identified in Appendix C of GP-0-20-001.

3.4 Receiving Water Bodies

The nearest natural classified water body into which runoff from the project site will discharge is the Fishkill Creek.

The Fishkill Creek is classified by NYSDEC as a Class C water course, and is not included in the Section 303(d) list of impaired waters found in Appendix E of GP-0-20-001.

3.5 Aquifer Designation

The project site is not located over a US EPA designated Sole Source aquifer; nor is it located over a Primary or Principal aquifer listed in the NYSDEC Technical and Operational Guidance Series (TOGS) 2.1.3 (1980).

3.6 Wetlands

A search on the NYSDEC Environmental Resource Mapper on June 5, 2019, and a review of GIS data, determined that no state-regulated wetlands are located on or in the vicinity of the project site.

The Fishkill Creek is a federally-regulated stream. The Ordinary High Water Line shown on the project plans was marked on July 10, 2019 by LaBella (formerly Chazen) and was located on July 25, 2019 by LaBella (formerly Chazen).

3.7 Flood Plains

According to the National Flood Insurance Program Flood Insurance Rate Map (FIRM), City of Beacon, New York, Community Panel Number 36027C0576E, the project site lies within Flood Zone X, areas determined to be outside 500-year floodplain.

3.8 Listed, Endangered, or Threatened Species

A search was performed on the NYSDEC Environmental Resource Mapper on June 5, 2019, and determined that the project site does contain threatened or endangered species, or critical habitat. An endangered, threatened, and rare species assessment, as prepared by LaBella (formerly Chazen), indicates that the hardwood/floodplain forest habitat on site could potentially support two threatened or endangered species, the Indiana Bat and the Bald Eagle. The proposed

project will impact 0.6 acre of the upland hardwood forest habitat. The remaining 2.9 acres of upland riparian forest/floodplain wetlands on the site will be left undisturbed.

The NYSDEC New York Natural Heritage Program Letter dated July 24, 2013 indicated the presence of non-breeding bald eagle. By email dated August 8, 2013 from the NYSDEC, the Department indicated that the non-breeding occurrence is associated with wintering eagles and known roosting location, and that this roosting location is at the mouth of Fishkill Creek at the Hudson River at Denning's Point. This location is approximately 0.77 miles from the project site. According to the NYSDEC, there is no record of a breeding nest site within one mile of the project, but this should be reassessed annually until the project is constructed. The National Bald Eagle Management Guidelines would also recommend that the project minimize disruptive activities and development in the flight paths between nests, roost sites and important foraging areas; locate water dependent facilities away from foraging areas, avoid boating near foraging areas, and protect and preserve potential roost and nest sites by retaining, to the extent practicable, mature trees and old growth stands within 0.5 miles of the water. In this case, the project does not propose any marina or boating activities. The project will retain much of the wooded vegetation along Fishkill Creek. The activities proposed on the site are less disruptive than previous on-site activities associated with the Metro-North railroad. The project site will be reviewed annually for any nests until construction is completed. The US Fish and Wildlife Service did not have any concerns regarding possible use of the site by Bald Eagle. While the NYSDEC indicated that the closest occurrence of Indiana bat is more than 2.5 miles away, the USFWS requested that the project limit tree clearing to October 1 to March 31, minimize removal of large trees, use cut-off lighting, and not use pesticides or herbicides in any stormwater basins.

The stormwater discharges from the project site will not adversely impact listed, endangered or threatened species so long as the stormwater management practices have been constructed in accordance with this SWPPP.

An Environmental Resource Map has been provided in Appendix G, as Figure 4.

3.9 Historic Places

A search on the New York State Cultural Resource Information System (CRIS) database, performed on June 5, 2019, revealed that the property is not located within an archeologically sensitive area, and is not located on or immediately adjacent to a property listed or determined to be eligible for listing on the National or State Registers of Historic Places. Additionally, the construction activity does not include the construction of a new building within 50 feet 20-feet for 1-5 acres disturbance; 50-feet for 5-20 acres disturbance; 100-feet for 20+ acres of disturbance of any structure more than 50 years old. A printout of the historic places screening map is presented in Appendix G, as Figure 3.

3.10 Rainfall Data

Rainfall data utilized in the modeling and analysis was obtained from the Cornell University online Extreme Precipitation in New York & New England website (http://precip.eas.cornell.edu/). Rainfall data specific to the portion of Dutchess County under consideration, for various 24-hour storm events, is presented in the following Table:

Table 2: Rainfall Data

Storm Event Return Period	24-Hour Rainfall (inches)
1-year	2.80
10-year	5.20
100-year	7.81

These values were used to evaluate the pre- and post-development stormwater runoff characteristics.

4.0 CONSTRUCTION SEQUENCE

This project has not received written approval from City of Beacon allowing the disturbance of more than five acres of land at any one time. Therefore, if the Contractor's construction sequence requires the disturbance of more than five acres at any one time, written approval must be obtained from NYSDEC prior to disturbing more than five acres at once.

Should the waiver request be denied, the contractor shall limit the area of disturbance to less than five acres of disturbance at any given time. The Contractor shall prepare and submit to the Owner's/Operator's Engineer a sequencing plan that identifies the progression of construction through the site. This sequencing plan must be retained as part of the Site Log Book.

The "Erosion and Sediment Control Plan" and the "Erosion and Sediment Control Plan Prior to Construction" in the accompanying drawings and waiver request identifies the major construction activities that are the subject of this SWPPP. The order (or sequence) in which the major activities are expected to begin is presented on the accompanying drawings, though each activity will not necessarily be completed before the next begins. In addition, these activities could occur in a different order if necessary to maintain adequate erosion and sediment control. If this is the case, the contractor shall notify the Owner's/Operator's Engineer overseeing the implementation of the SWPPP.

The Contractor will be responsible for implementing the erosion and sediment control measures identified on the plans. The Contractor may designate these tasks to certain subcontractors as they see fit, but the ultimate responsibility for implementing these controls and ensuring their proper function remains with the Contractor.

Refer to the accompanying plans for details and specifications regarding the construction sequencing schedule.

5.0 CONSTRUCTION-PHASE POLLUTION CONTROL

The SWPPP and accompanying plans identify the temporary and permanent erosion and sediment control measures that have been incorporated into the design of this project. These measures will be implemented during construction, to minimize soil erosion and control sediment transport off-site, and after construction, to control the quality and quantity of stormwater runoff from the developed site.

Erosion control measures, designed to minimize soil loss, and sediment control measures, intended to retain eroded soil and prevent it from reaching water bodies or adjoining properties, have been developed in accordance with the following documents:

- NYSDEC SPDES General Permit for Stormwater Discharges From Construction Activity, Permit No. GP-0-20-001 (effective January 29, 2015 through January 28, 2020)
- New York State Standards and Specifications for Erosion and Sediment Control, NYSDEC (November 2016)

The SWPPP and accompanying plans outline the construction scheduling for implementing the erosion and sediment control measures. These documents include limitations on the duration of soil exposure, criteria and specifications for placement and installation of the erosion and sediment control measures, a maintenance schedule, and specifications for the implementation of erosion and sediment control practices and procedures.

Temporary and permanent erosion and sediment control measures that shall be applied during construction generally include:

1. Minimizing soil erosion and sedimentation by stabilization of disturbed areas and by removing sediment from construction site discharges.
2. Preservation of existing vegetation to the greatest extent practical. Following the completion of construction activities in any portion of the site, permanent vegetation shall be established on all exposed soils.
3. Site preparation activities to minimize the area and duration of soil disruption.
4. Establishment of permanent traffic corridors to ensure that “routes of convenience” are avoided.

5.1 Temporary Erosion and Sediment Control Measures

The temporary erosion and sediment control measures described in the following sections are included as part of the construction documents.

5.1.1 Stabilized Construction Access

Prior to construction, stabilized construction access(es) will be installed, per accompanying plans, to reduce the tracking of sediment onto public roadways.

Construction traffic must enter and exit the site at the stabilized construction access(es). The intent is to trap dust and mud that would otherwise be carried off-site by construction traffic.

The access(es) shall be maintained in a condition, which will control tracking of sediment onto public rights-of-way or streets. When necessary, additional aggregate will be placed atop the filter fabric to assure the minimum thickness is maintained. All sediment and/or soil spilled, dropped, or washed onto public rights-of-way must be removed immediately. Periodic inspection and needed maintenance shall be provided after each substantial rainfall event.

5.1.2 Dust Control

Water trucks shall be used as needed during construction to reduce dust generated on-site. Dust control must be provided by the Contractor(s) to a degree that is acceptable to the Owner, and in compliance with the applicable local and state dust control requirements.

5.1.3 Temporary Soil Stockpile

Materials, such as topsoil, will be temporarily stockpiled (if necessary) on the site during the construction process. Stockpiles shall be located in an area away from storm drainage, water bodies and/or courses, and will be properly protected from erosion by a surrounding silt fence barrier.

5.1.4 Silt Fencing

Prior to the initiation of and during construction activities, a geotextile filter fabric (or silt fence) will be established downgradient of all disturbed areas. These barriers may extend into non-impact areas to provide adequate protection of adjacent lands.

Clearing and grubbing will be performed only as necessary for the installation of the sediment control barrier. To facilitate effectiveness of the silt fencing, daily inspections and inspections immediately after significant storm events will be performed by the Contractor(s). Maintenance of the fence will be performed as needed.

5.1.5 Temporary Seeding

For areas undergoing clearing, grading, and disturbance as part of construction activities, where work has temporarily ceased, temporary soil stabilization measures must be initiated by the end of the next business day and completed within fourteen (14) days from the date the soil disturbance activity has temporarily ceased.

5.1.6 Stone and Block Drop Inlet Protection

Concrete blocks surrounded by wire mesh and crushed stone will be placed around both existing catch basins, and proposed catch basins once they have been installed, to prevent sediment from entering the catch basins and storm sewer system. During construction, crushed stone shall be replaced as necessary to ensure proper function.

5.1.7 Erosion Control Blanket

Erosion control blankets shall be installed in accordance with manufacturer's requirements on all slopes exceeding 3:1. Erosion control blankets provide temporary erosion protection, rapid vegetative establishment, and long-term erosion resistance to shear stresses generated by high runoff flow velocities associated with steep slopes.

5.1.8 Stone Check Dams

Stone check dams will be installed within drainage ditches to reduce the velocity of stormwater runoff, promote settling of sediment, and reduce sediment transport off-site.

Sediment accumulated behind the stone check dam will be removed as needed to maintain flow through the stone check dam and prevent large flows from carrying sediment over or around the dam. Stones shall be replaced as needed to maintain the design cross section of the structures.

5.1.9 Temporary Diversion Swales

Temporary diversion swales shall be used to divert off-site runoff around the construction site and divert runoff from stabilized areas around disturbed areas.

5.1.10 Dewatering Operations

Dewatering will be used to intercept sediment-laden stormwater or pumped groundwater and allow it to settle out of the pumped discharge prior to being discharged from the site. Water from dewatering operations shall be treated to eliminate the discharge of sediment and other pollutants. Water resulting from dewatering operations shall be directed to temporary sediment traps or dewatering devices. Temporary sediment traps and dewatering bags will be provided, installed, and maintained at downgradient locations to control sediment deposits to downstream surfaces.

5.2 Permanent Erosion and Sediment Control Measures

The permanent erosion and sediment control measures described in the following sections are included as part of the construction documents.

5.2.1 Establishment of Permanent Vegetation

Disturbed areas that will be vegetated must be seeded in accordance with the contract documents. The type of seed, mulch, and maintenance measures as described in the contract documents shall also be followed.

Permanent soil stabilization measures must be initiated by the end of the next business day and completed within fourteen (14) days from the date the soil disturbance activity has permanently ceased.

Final site stabilization is achieved when all soil-disturbing activities at the site have been completed and a uniform, perennial vegetative cover with a density of 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.

5.2.2 Rock Outlet Protection

Rock outlet protection shall be installed at the locations as indicated and detailed on the accompanying plans. The installation of rock outlet protection will reduce the velocity and energy of water, such that the flow will not erode downstream surfaces.

5.2.3 Permanent Turf Reinforcement

Permanent turf reinforcement mats (TRMs) provide long-term erosion protection and vegetation establishment assistance while permanently reinforcing vegetation. TRMs shall be installed on slopes/channels where specified. TRM's provide two key advantages. First, their unique fiber shape and 3-D pattern create a thick matrix of voids that trap seed, soil, and water in place for quicker, thicker vegetation growth. Secondly, they provide additional reinforcement that doubles the vegetation's natural erosion protection abilities by remaining a permanent part of the application and anchoring mature plants to the soil for superior, long-term erosion resistance.

5.3 Other Pollutant Controls

Other necessary pollutant controls are listed below:

5.3.1 Solid and Liquid Waste Disposal

No solid or liquid waste materials, including building materials, shall be discharged from the site with stormwater. All solid waste, including disposable materials incidental to any construction activities, must be collected and placed in containers. The containers shall be emptied periodically by a licensed trash disposal service and hauled away from the site.

Substances that have the potential for polluting surface and/or groundwater must be controlled by whatever means necessary in order to ensure that they do not discharge from the site. As an example, special care must be exercised during equipment fueling and servicing operations. If a spill occurs, it must be contained and disposed of so that it will not flow from the site or enter groundwater, even if this requires removal, treatment, and disposal of soil. In this regard, potentially polluting substances should be handled in a manner consistent with the impact they represent.

5.3.2 Sanitary Facilities

Temporary sanitary facilities will be provided by the Contractor throughout the construction phase. They must be utilized by all construction personnel and will be serviced by a licensed commercial Contractor. These facilities must comply with state and local sanitary or septic system regulations.

5.3.3 Water Source

Non-stormwater components of site discharge must be clean water. Water used for construction, which discharges from the site, must originate from a public water supply or private well approved by the Health Department. Water used for construction that does not originate from an approved public supply must not discharge from the site; such water can be retained in temporary ponds/sediment traps until it infiltrates and/or evaporates.

5.4 Construction Housekeeping Practices

During the construction phase, the Contractor(s) will implement the following measures:

5.4.1 Material Stockpiles

Material resulting from clearing and grubbing operations that will be stockpiled on-site, must be adequately protected with downgradient erosion and sediment controls.

5.4.2 Equipment Cleaning and Maintenance

The Contractor(s) will designate areas for equipment cleaning, maintenance, and repair. The Contractor(s) and subcontractor(s) will utilize those areas. The areas will be protected by a temporary perimeter berm.

5.4.3 Detergents

The use of detergents for large-scale washing is prohibited (i.e., vehicles, buildings, pavement surfaces, etc.)

5.4.4 Spill Prevention and Response

A Spill Prevention and Response Plan shall be developed for the site by the Contractor(s). The plan shall detail the steps required in the event of an accidental spill and shall identify contact names and phone numbers of people and agencies that must be notified.

The plan shall include Safety Data Sheets (SDS) for all materials to be stored on-site. All workers on-site will be required to be trained on safe handling and spill prevention procedures for all materials used during construction. Regular tailgate safety meetings shall be held and all workers that are expected on the site during the week shall be required to attend.

5.4.5 Concrete Wash Areas

Concrete trucks will be allowed to wash out or discharge surplus concrete or drum wash water on the site, but only in specifically designated diked and impervious washout areas, which have been prepared to prevent contact between the concrete wash and stormwater. Waste generated from concrete wash water shall not be allowed to flow into drainage ways, inlets, receiving waters, or highway right of ways, or any location other than the designated concrete wash areas. Proper signage designating the "Concrete Wash Areas" shall be placed near the facility. Concrete wash areas shall be located at minimum 100 linear feet from drainage ways, inlets, and surface waters.

The hardened residue from the concrete wash areas will be disposed of in the same manner as other non-hazardous construction waste materials. Maintenance of the wash area is to include removal of hardened concrete. Facility shall have sufficient volume to contain all the concrete waste resulting from washout and a minimum freeboard of 12 inches. Facility shall not be filled beyond 95% capacity and shall be cleaned out once 75% full unless a new facility is constructed. The Contractor will be responsible for seeing that these procedures are followed.

Sawcut Portland Cement Concrete (PCC) slurry shall not be allowed to enter drainage ways, inlets, and/or surface waters. Sawcut residue should not be left on the surface of pavement or be allowed to flow over and off pavement.

The Project may require the use of multiple concrete wash areas. All concrete wash areas will be located in an area where the likelihood of the area contributing to stormwater discharges is negligible. If required, additional BMPs must be implemented to prevent concrete wastes from contributing to stormwater discharges.

5.4.6 Material Storage

Construction materials shall be stored in a dedicated staging area. The staging area shall be located in an area that prevents negative impacts of construction materials on stormwater quality.

Chemicals, paints, solvents, fertilizers, and other toxic material must be stored in waterproof containers. Except during application, the contents must be kept in trucks or within storage facilities. Runoff containing such material must be collected, removed from the site, treated, and disposed of at an approved solid waste or chemical disposal facility.

6.0 STORMWATER MANAGEMENT PLANNING

Chapter 3 of the Design Manual outlines a six-step planning process for site planning and selection of stormwater management practices that must be implemented for both new development and redevelopment projects. This process is intended to develop a design that maintains pre-construction hydrologic conditions through the application of environmentally sound development principles, as well as treatment and control of runoff discharges from the site. The following sections outline the step-by-step process and how it has been applied to this project.

The goals of this Stormwater Management Plan are to analyze the peak rate of runoff under pre- and post-development conditions, to maintain the pre-development rate of runoff in order to minimize impacts to adjacent or downstream properties, and to minimize the impact to the quality of runoff exiting the site.

The Design Manual provides both water quality and water quantity objectives to be met by projects requiring a "Full SWPPP". These objectives will be met by applying stormwater control practices to limit peak runoff rates and improve the quality of runoff leaving the developed site.

6.1 STEP 1 – Site Planning

During the Site Planning process, the project site is evaluated for implementation of the green infrastructure planning measures identified in Table 3.1 of the Design Manual, in order to preserve natural resources and reduce impervious cover. Table A of Appendix K provides a description of each green infrastructure planning measure, along with a project specific evaluation.

6.2 STEP 2 - Determine Water Quality Treatment Volume (WQv)

Stormwater runoff from impervious surfaces is recognized as a significant contributor of pollution that can adversely affect the quality of receiving water bodies. Therefore, treatment of stormwater runoff is important since most runoff related water quality contaminants are transported from land, particularly the impervious surfaces, during the initial stages of storm events.

6.2.1 NYSDEC Requirements for New Development

The Design Manual requires that water quality treatment be provided for the initial flush of runoff from every storm. The NYSDEC refers to the amount of runoff to be treated as the "Water Quality Volume" (WQv). Section 4.2 of the Design Manual defines the Water Quality Volume as follows:

$$WQv = \frac{[(P)(R_v)(A)]}{12}$$

Where: P = 90% Rainfall Event Number
R_v = 0.05 + 0.009 (I), minimum R_v = 0.2
I = Impervious Cover (Percent)
A = Contributing Area in Acres

This definition ensures that, all other things being equal, the Water Quality Volume will increase along with the impervious cover percentage. This project will implement bioretention areas to meet the water quality volume associated with new development.

6.2.2 NYSDEC Requirements for Redevelopment Projects

Chapter 9 of the Design Manual outlines alternative WQv treatment objectives for redevelopment projects.

According to Section 9.2.1.B.II., redevelopment activities can achieve the water quality treatment objective if 75% of the water quality volume associated with the disturbed, impervious area is captured and treated by alternate stormwater management practices. In this case, 100% of any new impervious area must be treated. This project will implement hydrodynamic separators to meet the water quality objective associated with redevelopment.

The Water Quality Volume equation has been applied to the drainage area tributary to each of the stormwater quality practices proposed for this project. The practices have been sized to accommodate the Water Quality Volume, as per the performance criteria presented in Chapter 6 and/or Chapter 9 of the Design Manual. Water quality volume calculations for each of the proposed practices are presented in Table B of Appendix K.

6.3 STEP 3 – Apply Runoff Reduction Techniques and Standard SMPs with RRv Capacity to Reduce Total WQv

Land use change and development in the watershed increases the volume of runoff. As such, reductions in the amount of runoff from new development, accomplished through the implementation of a stormwater management plan for the site, will play an important role in the success or failure of the watershed-wide stormwater management plan. Runoff reduction techniques can be applied to manage, reduce, and treat stormwater, while maintaining and restoring natural hydrology through infiltration, evapo-transpiration, and the capture and reuse of stormwater. Volume reduction techniques by themselves typically are not sufficient to provide adequate attenuation of stormwater runoff, but they can decrease the size of the peak runoff rate reduction facilities.

6.3.1 NYSDEC Requirements for New Development

The Design Manual states that runoff reduction shall be achieved through infiltration, groundwater recharge, reuse, recycle, and/or evaporation/evapotranspiration of 100-percent of the post-development water quality volume to replicate pre-development hydrology. Runoff control techniques provide treatment in a distributed manner before runoff reaches the collection system, by maintaining pre-construction infiltration, peak runoff flow, discharge volume, as well as minimizing concentrated flow. This can be accomplished by applying a combination of Runoff Reduction Techniques, standard Stormwater Management Practices (SMPs) with RRv capacity, and good operation and maintenance.

6.3.2 NYSDEC Requirements for Redevelopment Projects

Section 3.2 of the Design Manual indicates, "Although encouraged, meeting the RRv criteria is not required for redevelopment activities that meet the criteria in Chapter 9 of this manual." This project involves the reconstruction of existing impervious area on a site that has adequate space for controlling stormwater runoff from the reconstructed area.

Although not required, bioretention ponds are proposed for this project and will provide both WQv and RRv at the site.

6.3.3 Methodology

In order to reduce the required WQv, a site-specific evaluation must be performed to determine the most practical means of reducing runoff volume. The Design Manual strongly encourages implementation of a combination of RR techniques and standard SMPs with RRv capacity. The following Table demonstrates a summary of the RRv practices being applied, and both the water quality and runoff reduction volumes they provide. The RR Technique(s) have been designed in accordance with Chapter 5 of the Design Manual. The standard SMP(s) with RRv capacity have been designed in accordance with Chapter 6 of the Design Manual. Refer to the contract drawings for practice dimensions, material specifications, and installation details. Practice specific calculations are presented in Table E of Appendix K.

Table 3: Summary of RR Techniques and Standard SMPs with RRv Capacity

RR Technique or Standard SMP with RRv Capacity	NYSDEC Design Variant	Pretreatment Volume Required (% of WQv)	Pretreatment Volume Provided (% of WQV)	WQv Required (CF)	WQv Provided (CF)	RRv Capacity	RRv Provided (CF)
Bioretention 1 & 2 (with underdrain) New Development	F-5	25	100	3,805	3,946	40%	1,578
Stormwater Planters	RR-7	N/A	N/A	944	2,164	0%[1]	0
Green Roof (Ext.)	RR-10	N/A	N/A	338	338	100%	338
						Total WQv Provided (CF)	**6,448**
						Total RRv Provided (CF)	**1,916**

Note:

1. No runoff reduction volume credit applied to the proposed stormwater planter because a liner is proposed due to inadequate separation to the proposed sanitary sewer line.

6.3.4 Application of Standard Stormwater Management Practices (SMPs) with RRv Capacity

The standard SMPs with RRv capacity, described in the following section, have been incorporated into the stormwater management plan for this project. Design calculations for each measure have been included in Table E of Appendix K.

6.3.4.1 Bioretention (F-5)

Bioretention filters are shallow landscaped depressions commonly located in parking lot islands or within small pockets in residential areas that receive stormwater runoff. Stormwater flows into the bioretention area, ponds on the surface, and is gradually infiltrated into the soil bed. Pollutants are removed by a number of processes, such as adsorption, filtration, volatilization, ion exchange, and decomposition. Filtered runoff can either be allowed to infiltrate into the surrounding soil, functioning as an infiltration basin or rainwater garden or collected by an under drain system and discharged to the storm sewer system or directly to receiving waters, functioning like a surface sand filter. Runoff from larger storms is generally diverted past the bioretention area to the stormwater collection and conveyance system.

The Bioretention filters (F-5) were designed according to the criteria set forth in Section 6.4 "Stormwater Filtering Systems" of the Design Manual.

6.3.5 RRv Performance Summary

According to Section 3.6 of the Design Manual, "If the RRv calculated in this step is greater than or equal to the WQv calculated in Step 2, the designer has met the RRv requirement and may proceed to Step 6." A summary of the RRv provided is presented in the following table:

Table 4: Summary of RRv Provided

100% RRv = New Development WQv Required (CF)	RRv Provided (CF)	% RRv Provided
4,211	1,916	45%

As indicated in the above table, the RRv provided is not greater than or equal to the full RRv required for the project site. A good faith effort has been made to reduce runoff to the greatest extent practical. However, the project site has been developed previously and has urban fill throughout, limiting the ability to provide infiltration practices that meet the requirements of the Design Manual, which prevents reduction of the total WQv. As such, Table D of Appendix K provides a project specific evaluation for each RR technique and standard SMP with RRv capacity, demonstrating why these practices are infeasible.

6.4 STEP 4 – Determine the Minimum RRv Required

Projects that cannot achieve 100% of the runoff reduction requirement due to site limitations, shall provide a minimum runoff reduction volume as calculated by the following equation:

$$RRv_{min} = \frac{[(P)(R_V*)(Aic)(S)]}{12}$$

Where:

RRv_{min} = Runoff Reduction Volume (in acre-feet)
P = 90% Rainfall Event Number
Aic = Total area of new impervious cover (acres)
Rv* = 0.05+0.009(I), where I is 100% impervious
S = Hydrologic Soil Group (HSG) Specific Reduction Factor where:
HSG A = 0.55 HSG C = 0.30
HSG B = 0.40 HSG D = 0.20

Based upon the soil survey data, the majority of the site consists of soils having a hydrologic soil type A. As such, a specific reduction factor of 0.55 has been applied. Calculation of the required minimum RRv is presented in Table C of Appendix K.

Table 5: Minimum RRv Summary

Minimum RRv Required (CF)	RRv Provided (CF)	% of Minimum RRv Provided
1,499	1,916	127%

Note: %Min RRv Provided=RRv Provided ÷ Min RRv Required

As indicated in the above table, the RRv provided is greater than the minimum RRv required for the project site. Therefore, the runoff reduction volume criteria has been met for the project and the design can proceed to Step 5.

6.5 STEP 5 – Apply Standard Stormwater Management Practices to Address Remaining Water Quality Volume

If the entire Water Quality Volume is not reduced through implementation of RR techniques and standard SMPs with RRv capacity, then the design must achieve the remaining WQv through the standard SMPs listed in Table 3.3 of the Design Manual.

Table 6: Summary of WQv Provided

Step 2 WQv Required (CF)	Step 3 WQv Reduction by RR Techniques & Standard SMPs w/ RRv Capacity (CF)	Step 5 Reduced WQv to be Treated by Standard SMPs (CF) on Alternative SMP's for Redevelopment
12,669	6,448	6,221

WQv associated with redevelopment based upon the results listed in Tables 5, 100% of the required RRv and WQv have not been met through implementation of RR techniques and standard SMPs with RRv capacity. As such, the stormwater quality control systems (without RRv capacity) described in the following sections, have been incorporated into the stormwater management plan for this project, to meet the WQv objective.

6.5.1 Hydrodynamic Separators

Hydrodynamic separators accelerate the separation of floating and settling pollutants from stormwater through the use of a vortex. These pre-fabricated devices come in the form of an underground manhole or vault. The devices have no moving parts and are typically fabricated from concrete and marine grade aluminum.

During operation, stormwater runoff enters the unit tangentially to promote a gentle swirling motion in a treatment chamber. As stormwater circles within the chamber, settable solids fall into a sump and are retained. Buoyant debris, oil, and grease rise to the surface and are separated from the water as it flows under a baffle wall. Finally, treated water exits the treatment chamber through a flow control orifice located behind the baffle wall.

During low-flow conditions all runoff is diverted into the treatment chamber by a flow partition. At higher flow rates, a portion of the runoff spills over the flow partition and is diverted around the treatment chamber to prevent re-suspension and washout of previously trapped pollutants. Water that spills over the partition flows into a head equalization chamber above the treatment chamber outlet. As the head equalization chamber fills, the head differential driving flow through the treatment chamber collapses. The result is that flow rates in the treatment chamber remain relatively constant even as total flow rates increase substantially. This configuration further reduces the potential for re-suspension or washout.

According to Chapter 9 of the Design Manual, hydrodynamic separators of the type proposed for this project have been approved for use as a pretreatment system in new and redevelopment projects or as a primary treatment system on redevelopment projects.

STEP 6 - Table 7: Summary of WQ Practices

SWM Practice ID	NYSDEC Design Variant	Calculated WQv (CF)	Treatment Volume Required (% of WQv)	Treatment Volume Provided (CF)
Hydrodynamic Separator 2	HYDRO	3,465	75	3,465 (100%)
Hydrodynamic Separator 3	HYDRO	3,594	75	3,594 (100%)
Hydrodynamic Separator 5	HYDRO	3,159	75	3,159 (100%)
Total Treatment from Hydrodynamic Separators				**9,372**

Hydrodynamic separators 2, 3, and 5 provide 10,218 cf of WQv, which is greater than the remaining 7,930cf. Hydrodynamic separator 1 and 4 are not included in the Summary of WQ Practices, because they are for pretreatment only.

6.6 Apply Volume and Peak Rate Control

This report presents the pre-development and post-development features and conditions associated with the rate of surface water runoff within the study area. For both cases, the drainage patterns, drainage structures, soil types, and ground cover types are considered in this study.

6.6.1 NYSDEC Requirements for New Development

Chapter 4 of the Design Manual requires that projects meet three separate stormwater quantity criteria:

1. The Channel Protection (CPv) requirement is designed to protect stream channels from erosion. This is accomplished by providing 24 hours of extended detention for the 1-year, 24-hour storm event. The Manual defines the CPv detention time as the center of mass detention time through each stormwater management practice.

2. The Overbank Flood Control (Qp) requirement is designed to prevent an increase in the frequency and magnitude of flow events that exceed the bank-full capacity of a channel, and therefore must spill over into the floodplain. This is accomplished by providing detention storage to ensure that, at each design point, the post-development 10-year 24-hour peak discharge rate does not exceed the corresponding pre-development rate.

3. The Extreme Flood Control (Qf) requirement is designed to prevent the increased risk of flood damage from large storm events, to maintain the boundaries of the pre-development 100-year floodplain, and to protect the physical integrity of stormwater management practices. This is accomplished by providing detention storage to ensure that, at each design point, the post-development 100-year 24-hour peak discharge rate does not exceed the corresponding pre-development rate.

Downstream analysis has been prepared for the project. Therefore, as described in Chapter 4 of the Design Manual, the stormwater quantity criteria described above do not apply to this project. However, a hydrologic and hydraulic analysis of the post-development project site has been performed in order to evaluate the performance of the proposed stormwater collection system.

6.6.2 Methodology

In order to demonstrate that the NYSDEC detention requirements are being met, the Design Manual requires that a hydrologic and hydraulic analysis of the pre- and post-development conditions be performed using the Natural Resources Conservation Service Technical Release 20 (TR-20) and Technical Release 55 (TR-55) methodologies. HydroCAD, developed by HydroCAD Software Solutions LLC of Tamworth, New Hampshire, is a Computer-Aided-Design (CAD) program for analyzing the hydrologic and hydraulic characteristics of a given watershed and associated stormwater management facilities. HydroCAD uses the TR-20 algorithms and TR-55 methods to create and route runoff hydrographs.

HydroCAD has the capability of computing hydrographs (which represent discharge rates characteristic of specified watershed conditions, precipitation, and geologic factors) combining hydrographs and routing flows though pipes, streams and ponds. HydroCAD can also calculate the center of mass detention time for various hydraulic features. Documentation for HydroCAD can be found on their website: http://www.hydrocad.net/.

For this analysis, the watershed and drainage system was broken down into a network consisting of two types of components as described below:

1. Subcatchment: A relatively homogeneous area of land, which produces a volume and rate of runoff unique to that area.
2. Pond: Natural or man-made impoundment, which temporarily stores stormwater runoff and empties in a manner determined by its geometry and the hydraulic structure located at its outlets.

Subcatchments and ponds are represented by hexagons and squares, respectively, on the watershed routing diagrams provided with the computations included in Appendix I and Appendix J.

The analysis of hydrologic and hydraulic conditions and proposed stormwater management facilities, servicing the study area, was performed by dividing the tributary watershed into relatively homogeneous subcatchments. The separation of the watershed into subcatchments was dictated by watershed conditions, methods of collection, conveyance, and points of discharge. Watershed characteristics for each subcatchment were then assessed from United States Geological Service (USGS) 7.5-minute topographic maps, aerial photographs, a topographical survey, soil surveys, site investigations, and land use maps.

Proposed stormwater management facilities were designed and evaluated in accordance with the Design Manual and local regulatory requirements. The hydrologic and hydraulic analysis considered the SCS, Type III 24-hour storm events identified in Table 8.

Table 8: Design Events

Facility	24-hour Storm Event
Storm Sewer	10-year
Detention Basin (pond)	1-year
	10-year
	100-year
Flood Conditions	100-year

6.6.3 Description of Design Points

The study area consists of an overall watershed that encompasses approximately 11.9 acres and contains the 5.93 acre project site. The overall watershed was broken down into smaller watersheds, or subcatchments, to allow for analysis of runoff conditions at several locations throughout the study area. Each of these locations was defined as a Design Point (DP) in order to compare the effects resulting from stormwater management facilities proposed as part of the project. Descriptions of each of the selected design points are provided below.

- Design Point 1: Off-site discharge to the Fishkill Creek downstream. Runoff enters the Fishkill Creek on the West side of the Creek and flows down to the Design Point.

6.6.4 Pre-development Watershed Conditions

The pre-development project site is covered predominantly by a combination of grass/woods and impervious surfaces. Analysis of pre-development conditions considered existing drainage patterns, soil types, ground cover, and topography. The Pre-Development Watershed Delineation Map has been provided in Appendix G, as Figure 4.

The results of the computer modeling used to analyze the overall watershed under pre-development conditions are presented in Appendix I. A summary of the pre-development watershed runoff rates at each design point is presented in Table 9.

6.6.5 Post-development Watershed Conditions

The post-development project site is covered predominantly by grass and impervious surfaces. The analysis of post-development conditions considered existing drainage patterns, soil types, ground cover to remain, planned site development, site grading and, stormwater management facilities proposed as part of site improvements. The Post-Development Watershed Delineation Map has been provided in Appendix G, as Figure 5.

The results of the computer modeling used to analyze the overall watershed under post-development conditions are presented in Appendix J. A summary of the post-development watershed runoff rates at each design point is presented in Table 9.

There are numerous locations and methods for providing controls of off-site discharge of stormwater from the project site. Each has been designed to provide the above quantity controls by attenuating stormwater runoff and releasing runoff to off-site locations at a rate equal to or less than that which existed prior to development of the site. Each device is detailed on the accompanying plans.

6.6.6 Performance Summary

A comparison of the pre- and post-development watershed conditions was performed for the design point and storm events evaluated herein. For the design point and design storms, this comparison demonstrates that the peak rate of runoff will not be increased. Therefore, the project will not have a significant adverse impact on the adjacent or downstream properties or receiving water courses.

The results of the computer modeling used to analyze the pre- and post-development watersheds are presented in Appendix I and Appendix J, respectively. The following Table summarizes the results of this analysis.

6.6.7 Downstream Analysis

The hydrologic evaluation and subsequent stormwater management design for this project evaluates the impact of site runoff on the peak flows of the Fishkill Creek. The design intent is to manage the peak rate of run-off during post-development conditions from the site in a manner that does not increase the peak flow rate or flood elevations of the Fishkill Creek. The point of interest for this project is where the Fishkill Creek crosses the eastern property line.

Information from the Flood Insurance Study (FIS) prepared for the Fishkill Creek was used to generate runoff hydrographs for the off-site, upstream watershed and the site watershed. The hydrographs were then reviewed to compare the timing of the off-site peak rate of runoff with the timing of the site watershed. A study location in the FIS was within or adjacent to the project site. Please see the FIS attached in Appendix L.

The FIS used various hydrologic analyses to establish the peak discharge frequency relationships for floods at locations along the creek. These methods included statistical analysis of stream gaging stations using several methods based on the available data, methods to regional frequency studies prepared by ACOE and methodologies developed by the Soil Conservation Service.

Subcatchment ES1 is made up of approximately 122,300-acres (+/-) of off-site and on-site drainage area, which encompasses the Fishkill Creek watershed northeast of the proposed site. This watershed drainage area generally consists of woods with light underbrush, meadows, residential, and impervious surfaces. Runoff from this subcatchment travels overland and is ultimately conveyed to the Fishkill Creek.

The computer model used to evaluate this project uses SCS methods TR-55 and TR-20 and generates hydrographs to compare the timing and flow rates from watersheds. Information from the FIS was incorporated into the model to provide a reasonable analysis of the site and upstream watershed runoff characteristics.

The results of the computer modeling used to analyze the pre- and post-development watersheds are presented in Appendix I and Appendix J, respectively. Table 5 summarizes the results of this analysis:

Table 9: Summary of Pre- and Post-Development Peak Discharge Rates

	Pre- vs. Post-Development Discharge Rate (cfs)					
Design Point (DP)	1-year 24-hour storm event		10-year 24-hour storm event		100-year 24-hour storm event	
	Pre	Post	Pre	Post	Pre	Post
1	1,349.72	1,349.72	6,047.51	6,047.51	12,834.86	12,834.86

As the table above shows, the proposed redevelopment project will not increase the post development peak discharge rates within the Fishkill Creek, during the 10-year or 100-year storm event by 5% or more. In fact, the table indicates that the proposed redevelopment project will not increase the post development peak discharge rates at all. This is most likely a result of the peak discharge from upstream areas being at a delay as compared to onsite conditions. Additionally, based on the hydrologic study, it is not anticipated that downstream structures will be adversely impacted by the redevelopment.

7.0 INSPECTIONS, MAINTENANCE, AND REPORTING

7.1 Inspection and Maintenance Requirements

7.1.1 Pre-Construction Inspection and Certification

Prior to the commencement of construction, the Qualified Inspector/Qualified Professional shall conduct an assessment of the site and certify that the appropriate erosion and sediment control measures have been adequately installed and implemented. The Contractor shall contact the Qualified Inspector/Qualified Professional once the erosion and sediment control measures have been installed.

7.1.2 Construction Phase Inspections and Maintenance

A Qualified Inspector/Qualified Professional, as defined in Appendix A of the General Permit GP-0-20-001, shall conduct regular site inspections between the time this SWPPP is implemented and final site stabilization. Site inspections shall occur at an interval of at least once every seven (7) calendar days.

The purpose of site inspections is to assess performance of pollutant controls. Based on these inspections, the Qualified Inspector/Qualified Professional will decide whether it is necessary to modify this SWPPP, add or relocate sediment barriers, or whatever else may be needed in order to prevent pollutants from leaving the site via stormwater runoff. The general contractor has the duty to cause pollutant control measures to be repaired, modified, maintained, supplemented, or whatever else is necessary in order to achieve effective pollutant control.

Examples of particular items to evaluate during site inspections are listed below. This list is not intended to be comprehensive. During each inspection the inspector must evaluate overall pollutant control system performance as well as particular details of individual system components. Additional factors should be considered as appropriate to the circumstances.

1. Locations where vehicles enter and exit the site must be inspected for evidence of off-site sediment tracking. A stabilized construction entrance will be constructed where vehicles enter and exit. This entrance will be maintained or supplemented as necessary to prevent sediment from leaving the site on vehicles.
2. Sediment barriers must be inspected and, if necessary, they must be enlarged or cleaned in order to provide additional capacity. All material from behind sediment barriers will be stockpiled on the up slope side. Additional sediment barriers must be constructed as needed.
3. Inspections will evaluate disturbed areas and areas used for storing materials that are exposed to rainfall for evidence of, or the potential for, pollutants entering the drainage system. If necessary, the materials must be covered or original covers must be repaired or supplemented. Also, protective berms must be constructed, if needed, in order to contain runoff from material storage areas.
4. Grassed areas will be inspected to confirm that a healthy stand of grass is maintained. The site has achieved final stabilization once all areas are covered with building foundation or pavement, or have a stand of grass with at least 80 percent density. The density of 80 percent or greater must be maintained to be considered as stabilized. Areas must be watered, fertilized, and reseeded as needed to achieve this goal.
5. All discharge points must be inspected to determine whether erosion control measures are effective in preventing significant impacts to receiving waters.

The inspection reports must be completed entirely and additional remarks should be included if needed to fully describe a situation. An important aspect of the inspection report is the description of additional measures that need to be taken to enhance plan effectiveness. The inspection report must identify whether the site was in compliance with the SWPPP at the time of inspection and specifically identify all incidents of non-compliance.

Within one (1) business day of the completion of an inspection, the *Qualified Inspector/Qualified Professional* shall notify the Owner/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 (1) business day of the notification and shall complete the corrective actions in a reasonable time frame.

In addition to the inspections performed by the *Qualified Inspector/Qualified Professional*, the Contractor shall perform routine inspections that include a visual check of all erosion and sediment control measures. All inspections and maintenance shall be performed in accordance with the inspection and maintenance schedule provided on the accompanying plans. Sediment removed from erosion and sediment control measures will be exported from the site, stockpiled for later use, or used immediately for general non-structural fill.

It is the responsibility of the general contractor to assure the adequacy of site pollutant discharge controls. Actual physical site conditions or contractor practices could make it necessary to install more structural controls than are shown on the accompanying plans. (For example, localized concentrations of runoff could make it necessary to install additional sediment barriers, sediment traps, etc.) Assessing the need for additional controls and implementing them or adjusting existing controls will be a continuing aspect of this SWPPP until the site achieves final stabilization.

7.1.3 Temporary Suspension of Construction Activities

For construction sites where soil disturbance activities have been temporarily suspended (e.g. Winter shutdown) and temporary stabilization measures have been applied to all disturbed areas, the frequency of Qualified Inspector/Qualified Professional inspections can be reduced to once every 30 calendar days. Prior to reducing the frequency of inspections, the Owner/Operator shall notify the NYSDEC Region 3 stormwater contact person and the City of Beacon in writing.

7.1.4 Partial Project Completion

For construction sites where soil disturbance activities have been shut down with partial project completion, 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 inspections by the Qualified Inspector/Qualified Professional can stop. Prior to the shutdown, the Owner/Operator shall notify the NYSDEC Region 3 stormwater contact person and the City of Beacon in writing.

If soil disturbance activities have not resumed within two years from the date of shutdown, a Notice of Termination (NOT) shall be properly completed and submitted to the NYSDEC.

7.1.5 Post-Construction Inspections and Maintenance

Inspections and maintenance of final stabilization measures and post-construction stormwater management practices shall be performed in accordance with Appendix F, once all disturbed areas are stabilized and all stormwater management systems are in place and operable.

7.2 Reporting Requirements

7.2.1 Inspection and Maintenance Reports

Inspection/maintenance reports shall be prepared prior to and during construction in accordance with the schedule outlined herein and in the SPDES General Permit GP-0-20-001 Part IV.C. The reports shall be prepared to identify and document the maintenance of the erosion and sediment control measures. A sample inspection form is provided in Appendix D.

Specifically, each inspection shall record the following information:

1. Date and time of inspection.

2. Name and title of person(s) performing inspection.

3. A description of the weather and soil conditions (e.g. dry, wet, saturated) at the time of the inspection.

4. 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.

5. 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 water body.

6. Identification of all erosion and sediment control practices and pollution prevention measures that need repair or maintenance.

7. Identification of all erosion and sediment control practices and pollution prevention measures that were not installed properly or are not functioning as designed and need to be reinstalled or replaced.

8. Description and sketch of areas with active soil disturbance activity, areas that have been disturbed but are inactive at the time of the inspection, and areas that have been stabilized (temporary and/or final) since the last inspection.

9. Indication of the 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.

10. Corrective action(s) that must be taken to install, repair, replace or maintain erosion and sediment control practices and pollution prevention measures; and to correct deficiencies identified with the construction of the post-construction stormwater management practice(s).

11. Identification and status of all corrective actions that were required by previous inspection.

12. Color photographs, with date stamp, that clearly show the condition of all practices that have been identified as needing corrective actions. The *Qualified Inspector/Qualified Professional* shall attach paper color copies of the digital photographs to the inspection report being maintained onsite within seven (7) calendar days of the date of the inspection. The *Qualified Inspector/Qualified Professional* 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/Qualified Professional* shall attach the 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.

All inspection reports shall be signed by the *Qualified Inspector/Qualified Professional*. Pursuant to Part II.C.2 of GP-0-20-001, the inspection reports shall be maintained on site with the SWPPP.

7.2.2 Site Log Book

The Owner/Operator shall retain a copy of the SWPPP required by GP-0-20-001 at the construction site from the date of initiation of construction activities to the date of final stabilization.

During construction, the Owner's/Operator's Engineer shall maintain a record of all SWPPP inspection reports at the site in the Site Log Book. The Site Log Book shall be maintained on-site and made available to the permitting authority, if necessary.

7.2.3 Post Construction Records and Archiving

Following construction, the Owner/Operator shall retain copies of the SWPPP, the complete construction Site Log Book, and records of all data used to complete the NOI to be covered by this permit, for a period of at least five years from the date that the site is finally stabilized. This period may be extended by the NYSDEC, at its sole discretion, at any time upon written notification.

Records shall be maintained of all post construction inspections and maintenance work performed in accordance with the requirements outlined in Appendix F.

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Appendix A:
NYSDEC SPDES General Permit GP-0-20-001

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NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SPDES GENERAL PERMIT
FOR STORMWATER DISCHARGES

From

CONSTRUCTION ACTIVITY

Permit No. GP- 0-20-001

Issued Pursuant to Article 17, Titles 7, 8 and Article 70

of the Environmental Conservation Law

Effective Date: January 29, 2020 Expiration Date: January 28, 2025

John J. Ferguson

Chief Permit Administrator

1-23-20

Authorized Signature Date

Address: NYS DEC
Division of Environmental Permits
625 Broadway, 4th Floor
Albany, N.Y. 12233-1750

PREFACE

Pursuant to Section 402 of the Clean Water Act ("CWA"), stormwater *discharges* from certain *construction activities* are unlawful unless they are authorized by a *National Pollutant Discharge Elimination System ("NPDES")* permit or by a state permit program. New York administers the approved State Pollutant Discharge Elimination System (SPDES) program with permits issued in accordance with the New York State Environmental Conservation Law (ECL) Article 17, Titles 7, 8 and Article 70.

An *owner or operator* of a *construction activity* that is eligible for coverage under this permit must obtain coverage prior to the *commencement of construction activity*. Activities that fit the definition of "*construction activity*", as defined under 40 CFR 122.26(b)(14)(x), (15)(i), and (15)(ii), constitute construction of a *point source* and therefore, pursuant to ECL section 17-0505 and 17-0701, the *owner or operator* must have coverage under a SPDES permit prior to *commencing construction activity*. The *owner or operator* cannot wait until there is an actual *discharge* from the *construction site* to obtain permit coverage.

***Note: The italicized words/phrases within this permit are defined in Appendix A.**

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
SPDES GENERAL PERMIT FOR STORMWATER DISCHARGES FROM CONSTRUCTION ACTIVITIES

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Part 1. PERMIT COVERAGE AND LIMITATIONS

A. Permit Application

This permit 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 watershed(s) identified in Appendix D that involve soil disturbances between five thousand (5,000) square feet and one (1) acre of land.

B. Effluent Limitations Applicable to Discharges from Construction Activities

*Discharge*s authorized by this permit must achieve, at a minimum, the effluent limitations in Part I.B.1. (a) – (f) of this permit. These limitations represent the degree of effluent reduction attainable by the application of best practicable technology currently available.

1. Erosion and Sediment Control Requirements - The *owner or operator* must select, design, install, implement and maintain control measures to *minimize* the *discharge* of *pollutants* and prevent a violation of the *water quality standards*. The selection, design, installation, implementation, and maintenance of these control measures must meet the non-numeric effluent limitations in Part I.B.1.(a) – (f) of this permit and be in accordance with the New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016, using sound engineering judgment. Where control measures are not designed in conformance with the design criteria included in the technical standard, the *owner or operator* must include in the *Stormwater Pollution Prevention Plan* (“SWPPP”) the reason(s) for the

deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the technical standard.

a. **Erosion and Sediment Controls.** Design, install and maintain effective erosion and sediment controls to *minimize* the *discharge* of *pollutants* and prevent a violation of the *water quality standards*. At a minimum, such controls must be designed, installed and maintained to:

   (i) *Minimize* soil erosion through application of runoff control and soil stabilization control measure to *minimize pollutant discharge*s;

   (ii) Control stormwater *discharge*s, including both peak flowrates and total stormwater volume, to *minimize* channel and *streambank* erosion and scour in the immediate vicinity of the *discharge* points;

   (iii) *Minimize* the amount of soil exposed during *construction activity*;

   (iv) *Minimize* the disturbance of *steep slopes*;

   (v) *Minimize* sediment *discharge*s from the site;

   (vi) Provide and maintain *natural buffer*s around surface waters, direct stormwater to vegetated areas and maximize stormwater infiltration to reduce *pollutant discharge*s, unless *infeasible*;

   (vii) *Minimize* soil compaction. Minimizing soil compaction is not required where the intended function of a specific area of the site dictates that it be compacted;

   (viii) Unless *infeasible*, preserve a sufficient amount of topsoil to complete soil restoration and establish a uniform, dense vegetative cover; and

   (ix) *Minimize* dust. On areas of exposed soil, *minimize* dust through the appropriate application of water or other dust suppression techniques to control the generation of pollutants that could be discharged from the site.

b. **Soil Stabilization**. In areas where soil disturbance activity has temporarily or permanently ceased, the application of soil stabilization measures must be initiated by the end of the next business day and completed within fourteen (14) days from the date the current soil disturbance activity ceased. For construction sites that *directly discharge* to one of the 303(d) segments

listed in Appendix E or is located in one of the watersheds listed in Appendix C, the application of soil stabilization measures must be initiated by the end of the next business day and completed within seven (7) days from the date the current soil disturbance activity ceased. See Appendix A for definition of *Temporarily Ceased*.

c. **Dewatering**. *Discharge*s from *dewatering* activities, including *discharge*s from *dewatering* of trenches and excavations, must be managed by appropriate control measures.

d. **Pollution Prevention Measures**. Design, install, implement, and maintain effective pollution prevention measures to *minimize* the *discharge* of *pollutants* and prevent a violation of the *water quality standards*. At a minimum, such measures must be designed, installed, implemented and maintained to:

(i) *Minimize* the *discharge* of *pollutants* from equipment and vehicle washing, wheel wash water, and other wash waters. This applies to washing operations that use clean water only. Soaps, detergents and solvents cannot be used;

(ii) *Minimize* the exposure of building materials, building products, construction wastes, trash, landscape materials, fertilizers, pesticides, herbicides, detergents, sanitary waste, hazardous and toxic waste, and other materials present on the site to precipitation and to stormwater. Minimization of exposure is not required in cases where the exposure to precipitation and to stormwater will not result in a *discharge* of *pollutants*, or where exposure of a specific material or product poses little risk of stormwater contamination (such as final products and materials intended for outdoor use) ; and

(iii) Prevent the *discharge* of *pollutants* from spills and leaks and implement chemical spill and leak prevention and response procedures.

e. **Prohibited *Discharge*s.** The following *discharge*s are prohibited:

(i) Wastewater from washout of concrete;

(ii) Wastewater from washout and cleanout of stucco, paint, form release oils, curing compounds and other construction materials;

(iii) Fuels, oils, or other *pollutants* used in vehicle and equipment operation and maintenance;

(iv) Soaps or solvents used in vehicle and equipment washing; and

(v) Toxic or hazardous substances from a spill or other release.

f. Surface Outlets. When discharging from basins and impoundments, the outlets shall be designed, constructed and maintained in such a manner that sediment does not leave the basin or impoundment and that erosion at or below the outlet does not occur.

C. Post-construction Stormwater Management Practice Requirements

1. The *owner or operator* of a *construction activity* that requires post-construction stormwater management practices pursuant to Part III.C. of this permit must select, design, install, and maintain the practices to meet the *performance criteria* in the New York State Stormwater Management Design Manual ("Design Manual"), dated January 2015, using sound engineering judgment. Where post-construction stormwater management practices ("SMPs") are not designed in conformance with the *performance criteria* in the Design Manual, the *owner or operator* must include in the SWPPP the reason(s) for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the technical standard.

2. The *owner or operator* of a *construction activity* that requires post-construction stormwater management practices pursuant to Part III.C. of this permit must design the practices to meet the applicable *sizing criteria* in Part I.C.2.a., b., c. or d. of this permit.

a. Sizing Criteria for New Development

(i) Runoff Reduction Volume ("RRv"): Reduce the total Water Quality Volume ("WQv") by application of RR techniques and standard SMPs with RRv capacity. The total WQv shall be calculated in accordance with the criteria in Section 4.2 of the Design Manual.

(ii) Minimum RRv and Treatment of Remaining Total WQv: Construction activities that cannot meet the criteria in Part I.C.2.a.(i) of this permit due to site limitations shall direct runoff from all newly constructed impervious areas to a RR technique or standard SMP with RRv capacity unless infeasible. The specific site limitations that prevent the reduction of 100% of the WQv shall be documented in the SWPPP.

For each impervious area that is not directed to a RR technique or standard SMP with RRv capacity, the SWPPP must include documentation which demonstrates that all options were considered and for each option explains why it is considered infeasible.

In no case shall the runoff reduction achieved from the newly constructed impervious areas be less than the Minimum RRv as calculated using the criteria in Section 4.3 of the Design Manual. The remaining portion of the total WQv that cannot be reduced shall be treated by application of standard SMPs.

(iii) Channel Protection Volume ("Cpv"): Provide 24 hour extended detention of the post-developed 1-year, 24-hour storm event; remaining after runoff reduction. The Cpv requirement does not apply when:
(1) Reduction of the entire Cpv is achieved by application of runoff reduction techniques or infiltration systems, or
(2) The site discharges directly to tidal waters, or fifth order or larger streams.

(iv) *Overbank* Flood Control Criteria ("Qp"): Requires storage to attenuate the post-development 10-year, 24-hour peak discharge rate (Qp) to predevelopment rates. The Qp requirement does not apply when:
(1) the site discharges directly to tidal waters or fifth order or larger streams, or
(2) A downstream analysis reveals that *overbank* control is not required.

(v) Extreme Flood Control Criteria ("Qf"): Requires storage to attenuate the post-development 100-year, 24-hour peak discharge rate (Qf) to predevelopment rates. The Qf requirement does not apply when:
(1) the site discharges directly to tidal waters or fifth order or larger streams, or
(2) A downstream analysis reveals that *overbank* control is not required.

b. *Sizing Criteria* for *New Development* in Enhanced Phosphorus Removal Watershed

(i) Runoff Reduction Volume (RRv): Reduce the total Water Quality Volume (WQv) by application of RR techniques and standard SMPs with RRv capacity. The total WQv is the runoff volume from the 1-year, 24 hour design storm over the post-developed watershed and shall be

calculated in accordance with the criteria in Section 10.3 of the Design Manual.

(ii) Minimum RRv and Treatment of Remaining Total WQv: *Construction activities* that cannot meet the criteria in Part I.C.2.b.(i) of this permit due to *site limitations* shall direct runoff from all newly constructed *impervious areas* to a RR technique or standard SMP with RRv capacity unless *infeasible*. The specific *site limitations* that prevent the reduction of 100% of the WQv shall be documented in the SWPPP. For each *impervious area* that is not directed to a RR technique or standard SMP with RRv capacity, the SWPPP must include documentation which demonstrates that all options were considered and for each option explains why it is considered *infeasible.*

In no case shall the runoff reduction achieved from the newly constructed *impervious areas* be less than the Minimum RRv as calculated using the criteria in Section 10.3 of the Design Manual. The remaining portion of the total WQv that cannot be reduced shall be treated by application of standard SMPs.

(iii) Channel Protection Volume (Cpv): Provide 24 hour extended detention of the post-developed 1-year, 24-hour storm event; remaining after runoff reduction. The Cpv requirement does not apply when:
(1) Reduction of the entire Cpv is achieved by application of runoff reduction techniques or infiltration systems, or
(2) The site *discharge*s directly to tidal waters, or fifth order or larger streams.

(iv) *Overbank* Flood Control Criteria (Qp): Requires storage to attenuate the post-development 10-year, 24-hour peak *discharge* rate (Qp) to predevelopment rates. The Qp requirement does not apply when:
(1) the site *discharge*s directly to tidal waters or fifth order or larger streams, or
(2) A downstream analysis reveals that *overbank* control is not required.

(v) Extreme Flood Control Criteria (Qf): Requires storage to attenuate the post-development 100-year, 24-hour peak *discharge* rate (Qf) to predevelopment rates. The Qf requirement does not apply when:
(1) the site *discharge*s directly to tidal waters or fifth order or larger streams, or
(2) A downstream analysis reveals that *overbank* control is not required.

c. Sizing Criteria for Redevelopment Activity

(i) Water Quality Volume (WQv): The WQv treatment objective for *redevelopment activity* shall be addressed by one of the following options. *Redevelopment activities* located in an Enhanced Phosphorus Removal Watershed (see Part III.B.3. and Appendix C of this permit) shall calculate the WQv in accordance with Section 10.3 of the Design Manual. All other *redevelopment activities* shall calculate the WQv in accordance with Section 4.2 of the Design Manual.

(1) Reduce the existing *impervious cover* by a minimum of 25% of the total disturbed, *impervious area*. The Soil Restoration criteria in Section 5.1.6 of the Design Manual must be applied to all newly created pervious areas, or

(2) Capture and treat a minimum of 25% of the WQv from the disturbed, *impervious area* by the application of standard SMPs; or reduce 25% of the WQv from the disturbed, *impervious area* by the application of RR techniques or standard SMPs with RRv capacity., or

(3) Capture and treat a minimum of 75% of the WQv from the disturbed, *impervious area* as well as any additional runoff from tributary areas by application of the alternative practices discussed in Sections 9.3 and 9.4 of the Design Manual., or

(4) Application of a combination of 1, 2 and 3 above that provide a weighted average of at least two of the above methods. Application of this method shall be in accordance with the criteria in Section 9.2.1(B) (IV) of the Design Manual.

If there is an existing post-construction stormwater management practice located on the site that captures and treats runoff from the *impervious area* that is being disturbed, the WQv treatment option selected must, at a minimum, provide treatment equal to the treatment that was being provided by the existing practice(s) if that treatment is greater than the treatment required by options 1 – 4 above.

(ii) Channel Protection Volume (Cpv): Not required if there are no changes to hydrology that increase the *discharge* rate from the project site.

(iii) *Overbank* Flood Control Criteria (Qp): Not required if there are no changes to hydrology that increase the *discharge* rate from the project site.

(iv) Extreme Flood Control Criteria (Qf): Not required if there are no changes to hydrology that increase the *discharge* rate from the project site

d. Sizing Criteria for Combination of Redevelopment Activity and New Development

Construction projects that include both New Development and Redevelopment Activity shall provide post-construction stormwater management controls that meet the sizing criteria calculated as an aggregate of the Sizing Criteria in Part I.C.2.a. or b. of this permit for the New Development portion of the project and Part I.C.2.c of this permit for Redevelopment Activity portion of the project.

D. Maintaining Water Quality

The Department expects that compliance with the conditions of this permit will control *discharge*s necessary to meet applicable *water quality standards*. It shall be a violation of the *ECL* for any discharge to either cause or contribute to a violation of *water quality standards* as contained in Parts 700 through 705 of Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York, such as:

1. There shall be no increase in turbidity that will cause a substantial visible contrast to natural conditions;

2. There shall be no increase in suspended, colloidal or settleable solids that will cause deposition or impair the waters for their best usages; and

3. There shall be no residue from oil and floating substances, nor visible oil film, nor globules of grease.

If there is evidence indicating that the stormwater *discharge*s authorized by this permit are causing, have the reasonable potential to cause, or are contributing to a violation of the *water quality standards*; the *owner or operator* must take appropriate corrective action in accordance with Part IV.C.5. of this general permit and document in accordance with Part IV.C.4. of this general permit. To address the *water quality standard* violation the *owner or operator* may need to provide additional information, include and implement appropriate controls in the SWPPP to correct the problem, or obtain an individual SPDES permit.

If there is evidence indicating that despite compliance with the terms and conditions of this general permit it is demonstrated that the stormwater *discharge*s authorized by this permit are causing or contributing to a violation of *water quality standards*, or if the Department determines that a modification of the permit is necessary to prevent a violation of *water quality standards*, the authorized *discharge*s will no longer be eligible for coverage under this permit. The Department may require the *owner or operator* to obtain an individual SPDES permit to continue discharging.

E. Eligibility Under This General Permit

1. This permit may authorize all *discharges* of stormwater from *construction activity* to *surface waters of the State* and *groundwaters* except for ineligible *discharges* identified under subparagraph F. of this Part.

2. Except for non-stormwater *discharges* explicitly listed in the next paragraph, this permit only authorizes stormwater *discharge*s; including stormwater runoff, snowmelt runoff, and surface runoff and drainage, from *construction activities*.

3. Notwithstanding paragraphs E.1 and E.2 above, the following non-stormwater discharges are authorized by this permit: those listed in 6 NYCRR 750-1.2(a)(29)(vi), with the following exception: "Discharges from firefighting activities are authorized only when the firefighting activities are emergencies/unplanned"; waters to which other components have not been added that are used to control dust in accordance with the SWPPP; and uncontaminated *discharge*s from *construction site* de-watering operations. All non-stormwater discharges must be identified in the SWPPP. Under all circumstances, the *owner or operator* must still comply with *water quality standards* in Part I.D of this permit.

4. The *owner or operator* must maintain permit eligibility to *discharge* under this permit. Any *discharges* that are not compliant with the eligibility conditions of this permit are not authorized by the permit and the *owner or operator* must either apply for a separate permit to cover those ineligible *discharges* or take steps necessary to make the *discharge* eligible for coverage.

F. Activities Which Are Ineligible for Coverage Under This General Permit

All of the following are **not** authorized by this permit:

1. *Discharge*s after *construction activities* have been completed and the site has undergone *final stabilization*;

2. *Discharge*s that are mixed with sources of non-stormwater other than those expressly authorized under subsection E.3. of this Part and identified in the SWPPP required by this permit;

3. *Discharges* that are required to obtain an individual SPDES permit or another SPDES general permit pursuant to Part VII.K. of this permit;

4. *Construction activities* or *discharges* from *construction activities* that may adversely affect an *endangered or threatened species* unless the *owner or*

operator has obtained a permit issued pursuant to 6 NYCRR Part 182 for the project or the Department has issued a letter of non-jurisdiction for the project. All documentation necessary to demonstrate eligibility shall be maintained on site in accordance with Part II.D.2 of this permit;

5. *Discharges* which either cause or contribute to a violation of *water quality standards* adopted pursuant to the *ECL* and its accompanying regulations;

6. *Construction activities* for residential, commercial and institutional projects:

   a. Where the *discharge*s from the *construction activities* are tributary to waters of the state classified as AA or AA-s; and

   b. Which are undertaken on land with no existing *impervious cover*; and

   c. Which disturb one (1) or more acres of land designated on the current United States Department of Agriculture ("USDA") Soil Survey as Soil Slope Phase "D", (provided the map unit name is inclusive of slopes greater than 25%), or Soil Slope Phase "E" or "F" (regardless of the map unit name), or a combination of the three designations.

7. *Construction activities* for linear transportation projects and linear utility projects:

   a. Where the *discharge*s from the *construction activities* are tributary to waters of the state classified as AA or AA-s; and

   b. Which are undertaken on land with no existing *impervious cover*; and

   c. Which disturb two (2) or more acres of land designated on the current USDA Soil Survey as Soil Slope Phase "D" (provided the map unit name is inclusive of slopes greater than 25%), or Soil Slope Phase "E" or "F" (regardless of the map unit name), or a combination of the three designations.

8. *Construction activities* that have the potential to affect an *historic property*, unless there is documentation that such impacts have been resolved. The following documentation necessary to demonstrate eligibility with this requirement shall be maintained on site in accordance with Part II.D.2 of this permit and made available to the Department in accordance with Part VII.F of this permit:

   a. Documentation that the *construction activity* is not within an archeologically sensitive area indicated on the sensitivity map, and that the *construction activity* is not located on or immediately adjacent to a property listed or determined to be eligible for listing on the National or State Registers of Historic Places, and that there is no new permanent building on the *construction site* within the following distances from a building, structure, or object that is more than 50 years old, or if there is such a new permanent building on the *construction site* within those parameters that NYS Office of Parks, Recreation and Historic Preservation (OPRHP), a Historic Preservation Commission of a Certified Local Government, or a qualified preservation professional has determined that the building, structure, or object more than 50 years old is not historically/archeologically significant.

      - 1-5 acres of disturbance - 20 feet
      - 5-20 acres of disturbance - 50 feet
      - 20+ acres of disturbance - 100 feet, or

   b. DEC consultation form sent to OPRHP, and copied to the NYS DEC Agency Historic Preservation Officer (APO), and
      (i) the State Environmental Quality Review (SEQR) Environmental Assessment Form (EAF) with a negative declaration or the Findings Statement, with documentation of OPRHP's agreement with the resolution; or
      (ii) documentation from OPRHP that the *construction activity* will result in No Impact; or
      (iii) documentation from OPRHP providing a determination of No Adverse Impact; or
      (iv) a Letter of Resolution signed by the owner/operator, OPRHP and the DEC APO which allows for this *construction activity* to be eligible for coverage under the general permit in terms of the State Historic Preservation Act (SHPA); or

   c. Documentation of satisfactory compliance with Section 106 of the National Historic Preservation Act for a coterminous project area:

      (i) No Affect
      (ii) No Adverse Affect
      (iii) Executed Memorandum of Agreement, or

   d. Documentation that:

      (i) SHPA Section 14.09 has been completed by NYS DEC or another state agency.

9. *Discharges* from *construction activities* that are subject to an existing SPDES individual or general permit where a SPDES permit for *construction activity* has been terminated or denied; or where the *owner or operator* has failed to renew an expired individual permit.

Part II. PERMIT COVERAGE

A. How to Obtain Coverage

1. An *owner or operator* of a *construction activity* that is not subject to the requirements of a regulated, traditional land use control MS4 must first prepare a SWPPP in accordance with all applicable requirements of this permit and then submit a completed Notice of Intent (NOI) to the Department to be authorized to discharge under this permit.

2. An *owner or operator* of a *construction activity* that is subject to the requirements of a *regulated, traditional land use control MS4* must first prepare a SWPPP in accordance with all applicable requirements of this permit and then have the SWPPP reviewed and accepted by the *regulated, traditional land use control MS4* prior to submitting the NOI to the Department. The *owner or operator* shall have the "MS4 SWPPP Acceptance" form signed in accordance with Part VII.H., and then submit that form along with a completed NOI to the Department.

3. The requirement for an *owner or operator* to have its SWPPP reviewed and accepted by the *regulated, traditional land use control MS4* prior to submitting the NOI to the Department does not apply to an *owner or operator* that is obtaining permit coverage in accordance with the requirements in Part II.F. (Change of *Owner or Operator*) or where the *owner or operator* of the *construction activity* is the *regulated, traditional land use control MS4* . This exemption does not apply to *construction activities* subject to the New York City Administrative Code.

B. Notice of Intent (NOI) Submittal

1. Prior to December 21, 2020, an owner or operator shall use either the electronic (eNOI) or paper version of the NOI that the Department prepared. Both versions of the NOI are located on the Department's website (http://www.dec.ny.gov/). The paper version of the NOI shall be signed in accordance with Part VII.H. of this permit and submitted to the following address:

   NOTICE OF INTENT
   NYS DEC, Bureau of Water Permits
   625 Broadway, 4th Floor
   Albany, New York 12233-3505

2. Beginning December 21, 2020 and in accordance with EPA's 2015 NPDES Electronic Reporting Rule (40 CFR Part 127), the *owner or operator* must submit the NOI electronically using the *Department's* online NOI.

3. The *owner or operator* shall have the SWPPP preparer sign the "SWPPP Preparer Certification" statement on the NOI prior to submitting the form to the Department.

4. As of the date the NOI is submitted to the Department, the *owner or operator* shall make the NOI and SWPPP available for review and copying in accordance with the requirements in Part VII.F. of this permit.

C. Permit Authorization

1. An *owner or operator* shall not *commence construction activity* until their authorization to *discharge* under this permit goes into effect.

2. Authorization to *discharge* under this permit will be effective when the *owner or operator* has satisfied <u>all</u> of the following criteria:

   a. project review pursuant to the State Environmental Quality Review Act ("SEQRA") have been satisfied, when SEQRA is applicable. See the Department's website (http://www.dec.ny.gov/) for more information,

   b. where required, all necessary Department permits subject to the *Uniform Procedures Act ("UPA")* (see 6 NYCRR Part 621), or the equivalent from another New York State agency, have been obtained, unless otherwise notified by the Department pursuant to 6 NYCRR 621.3(a)(4). *Owners or operators* of *construction activities* that are required to obtain *UPA* permits

must submit a preliminary SWPPP to the appropriate DEC Permit Administrator at the Regional Office listed in Appendix F at the time all other necessary *UPA* permit applications are submitted. The preliminary SWPPP must include sufficient information to demonstrate that the *construction activity* qualifies for authorization under this permit,

   c. the final SWPPP has been prepared, and

   d. a complete NOI has been submitted to the Department in accordance with the requirements of this permit.

3. An *owner or operator* that has satisfied the requirements of Part II.C.2 above will be authorized to *discharge* stormwater from their *construction activity* in accordance with the following schedule:

   a. For *construction activities* that are <u>not</u> subject to the requirements of a *regulated, traditional land use control MS4*:

      (i) Five (5) business days from the date the Department receives a complete electronic version of the NOI (eNOI) for *construction activities* with a SWPPP that has been prepared in conformance with the design criteria in the technical standard referenced in Part III.B.1 and the *performance criteria* in the technical standard referenced in Parts III.B., 2 or 3, for *construction activities* that require post-construction stormwater management practices pursuant to Part III.C.; or

      (ii) Sixty (60) business days from the date the Department receives a complete NOI (electronic or paper version) for *construction activities* with a SWPPP that has <u>not</u> been prepared in conformance with the design criteria in technical standard referenced in Part III.B.1. or, for *construction activities* that require post-construction stormwater management practices pursuant to Part III.C., the *performance criteria* in the technical standard referenced in Parts III.B., 2 or 3, or;

      (iii) Ten (10) business days from the date the Department receives a complete paper version of the NOI for *construction activities* with a SWPPP that has been prepared in conformance with the design criteria in the technical standard referenced in Part III.B.1 and the *performance criteria* in the technical standard referenced in Parts III.B., 2 or 3, for *construction activities* that require post-construction stormwater management practices pursuant to Part III.C.

b. For *construction activities* that are subject to the requirements of a *regulated, traditional land use control MS4*:

(i) Five (5) business days from the date the Department receives both a complete electronic version of the NOI (eNOI) and signed "*MS4* SWPPP Acceptance" form, or

(ii) Ten (10) business days from the date the Department receives both a complete paper version of the NOI and signed "MS4 SWPPP Acceptance" form.

4. Coverage under this permit authorizes stormwater *discharges* from only those areas of disturbance that are identified in the NOI. If an *owner or operator* wishes to have stormwater *discharges* from future or additional areas of disturbance authorized, they must submit a new NOI that addresses that phase of the development, unless otherwise notified by the Department. The *owner or operator* shall not *commence construction activity* on the future or additional areas until their authorization to *discharge* under this permit goes into effect in accordance with Part II.C. of this permit.

D. General Requirements For Owners or Operators With Permit Coverage

1. The *owner or operator* shall ensure that the provisions of the SWPPP are implemented from the *commencement of construction activity* until all areas of disturbance have achieved *final stabilization* and the Notice of Termination ("NOT") has been submitted to the Department in accordance with Part V. of this permit. This includes any changes made to the SWPPP pursuant to Part III.A.4. of this permit.

2. The *owner or operator* shall maintain a copy of the General Permit (GP-0-20-001), NOI, *NOI Acknowledgment Letter*, SWPPP, MS4 SWPPP Acceptance form, inspection reports, responsible contractor's or subcontractor's certification statement (see Part III.A.6.), and all documentation necessary to demonstrate eligibility with this permit at the *construction site* until all disturbed areas have achieved *final stabilization* and the NOT has been submitted to the Department. The documents must be maintained in a secure location, such as a job trailer, on-site construction office, or mailbox with lock. The secure location must be accessible during normal business hours to an individual performing a compliance inspection.

3. The *owner or operator* of a *construction activity* shall not disturb greater than five (5) acres of soil at any one time without prior written authorization from the Department or, in areas under the jurisdiction of a *regulated, traditional land*

use control MS4, the *regulated, traditional land use control MS4* (provided the *regulated, traditional land use control MS4* is not the *owner or operator* of the *construction activity*). 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 in accordance with Part IV.C. of this permit 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 temporarily or permanently ceased, the application of soil stabilization measures must be initiated by the end of the next business day and completed within seven (7) days from the date the current soil disturbance activity ceased. The soil stabilization measures selected shall be in conformance with the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016.

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.

e. The *owner or operator* shall include the requirements above in their SWPPP.

4. In accordance with statute, regulations, and the terms and conditions of this permit, the Department may suspend or revoke an *owner's or operator's* coverage under this permit at any time if the Department determines that the SWPPP does not meet the permit requirements or consistent with Part VII.K..

5. Upon a finding of significant non-compliance with the practices described in the SWPPP or violation of this permit, the Department may order an immediate stop to all activity at the site until the non-compliance is remedied. The stop work order shall be in writing, describe the non-compliance in detail, and be sent to the *owner or operator*.

6. For *construction activities* that are subject to the requirements of a *regulated, traditional land use control MS4*, the *owner or operator* shall notify the

regulated, traditional land use control MS4 in writing of any planned amendments or modifications to the post-construction stormwater management practice component of the SWPPP required by Part III.A. 4. and 5. of this permit. Unless otherwise notified by the *regulated, traditional land use control MS4*, the *owner or operator* shall have the SWPPP amendments or modifications reviewed and accepted by the *regulated, traditional land use control MS4* prior to commencing construction of the post-construction stormwater management practice.

E. Permit Coverage for Discharges Authorized Under GP-0-15-002

1. Upon renewal of SPDES General Permit for Stormwater Discharges from *Construction Activity* (Permit No. GP-0-15-002), an *owner or operator* of *a construction activity* with coverage under GP-0-15-002, as of the effective date of GP- 0-20-001, shall be authorized to *discharge* in accordance with GP- 0-20-001, unless otherwise notified by the Department.

   An *owner or operator* may continue to implement the technical/design components of the post-construction stormwater management controls provided that such design was done in conformance with the technical standards in place at the time of initial project authorization. However, they must comply with the other, non-design provisions of GP-0-20-001.

F. Change of Owner or Operator

1. When property ownership changes or when there is a change in operational control over the construction plans and specifications, the original *owner or operator* must notify the new *owner or operator*, in writing, of the requirement to obtain permit coverage by submitting a NOI with the Department. For *construction activities* subject to the requirements of a *regulated, traditional land use control MS4,* the original *owner or operator* must also notify the MS4, in writing, of the change in ownership at least 30 calendar days prior to the change in ownership.

2. Once the new *owner or operator* obtains permit coverage, the original *owner or operator* shall then submit a completed NOT with the name and permit identification number of the new *owner or operator* to the Department at the address in Part II.B.1. of this permit. If the original *owner or operator* maintains ownership of a portion of the *construction activity* and will disturb soil, they must maintain their coverage under the permit.

3. Permit coverage for the new *owner or operator* will be effective as of the date the Department receives a complete NOI, provided the original *owner or*

operator was not subject to a sixty (60) business day authorization period that has not expired as of the date the Department receives the NOI from the new *owner or operator*.

Part III. STORMWATER POLLUTION PREVENTION PLAN (SWPPP)

A. General SWPPP Requirements

1. A SWPPP shall be prepared and implemented by the *owner or operator* of each *construction activity* covered by this permit. The SWPPP must document the selection, design, installation, implementation and maintenance of the control measures and practices that will be used to meet the effluent limitations in Part I.B. of this permit and where applicable, the post-construction stormwater management practice requirements in Part I.C. of this permit. The SWPPP shall be prepared prior to the submittal of the NOI. The NOI shall be submitted to the Department prior to the *commencement of construction activity*. A copy of the completed, final NOI shall be included in the SWPPP.

2. The SWPPP shall describe the erosion and sediment control practices and where required, post-construction stormwater management practices that will be used and/or constructed to reduce the *pollutants* in stormwater *discharges* and to assure compliance with the terms and conditions of this permit. In addition, the SWPPP shall identify potential sources of pollution which may reasonably be expected to affect the quality of stormwater *discharges*.

3. All SWPPPs that require the post-construction stormwater management practice component shall be prepared by a *qualified professional* that is knowledgeable in the principles and practices of stormwater management and treatment.

4. The *owner or operator* must keep the SWPPP current so that it at all times accurately documents the erosion and sediment controls practices that are being used or will be used during construction, and all post-construction stormwater management practices that will be constructed on the site. At a minimum, the *owner or operator* shall amend the SWPPP, including construction drawings:

   a. whenever the current provisions prove to be ineffective in minimizing *pollutants* in stormwater *discharges* from the site;

b. whenever there is a change in design, construction, or operation at the *construction site* that has or could have an effect on the *discharge* of *pollutants*;

c. to address issues or deficiencies identified during an inspection by the *qualified inspector,* the Department or other regulatory authority; and

d. to document the final construction conditions.

5. The Department may notify the *owner or operator* at any time that the SWPPP does not meet one or more of the minimum requirements of this permit. The notification shall be in writing and identify the provisions of the SWPPP that require modification. Within fourteen (14) calendar days of such notification, or as otherwise indicated by the Department, the *owner or operator* shall make the required changes to the SWPPP and submit written notification to the Department that the changes have been made. If the *owner or operator* does not respond to the Department's comments in the specified time frame, the Department may suspend the *owner's or operator's* coverage under this permit or require the *owner or operator* to obtain coverage under an individual SPDES permit in accordance with Part II.D.4. of this permit.

6. Prior to the *commencement of construction activity*, the *owner or operator* must identify the contractor(s) and subcontractor(s) that will be responsible for installing, constructing, repairing, replacing, inspecting and maintaining the erosion and sediment control practices included in the SWPPP; and the contractor(s) and subcontractor(s) that will be responsible for constructing the post-construction stormwater management practices included in the SWPPP. The *owner or operator* shall have each of the contractors and subcontractors identify at least one person from their company that will be responsible for implementation of the SWPPP. This person shall be known as the *trained contractor.* The *owner or operator* shall ensure that at least one *trained contractor* is on site on a daily basis when soil disturbance activities are being performed.

   The *owner or operator* shall have each of the contractors and subcontractors identified above sign a copy of the following certification statement below before they commence any *construction activity*:

   "I hereby certify under penalty of law 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 *discharge*s from *construction activities* and that it is unlawful for any person to cause or contribute to a violation of *water quality standards*. Furthermore, I am aware that there are significant penalties for submitting false information, that I do not believe to be true, including the possibility of fine and imprisonment for knowing violations"

   In addition to providing the certification statement above, the certification page must also identify the specific elements of the SWPPP that each contractor and subcontractor will be responsible for and include the name and title of the person providing the signature; the name and title of the *trained contractor* responsible for SWPPP implementation; the name, address and telephone number of the contracting firm; the address (or other identifying description) of the site; and the date the certification statement is signed. The *owner or operator* shall attach the certification statement(s) to the copy of the SWPPP that is maintained at the *construction site*. If new or additional contractors are hired to implement measures identified in the SWPPP after construction has commenced, they must also sign the certification statement and provide the information listed above.

7. For projects where the Department requests a copy of the SWPPP or inspection reports, the *owner or operator* shall submit the documents in both electronic (PDF only) and paper format within five (5) business days, unless otherwise notified by the Department.

B. Required SWPPP Contents

1. Erosion and sediment control component - All SWPPPs prepared pursuant to this permit shall include erosion and sediment control practices designed in conformance with the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016. Where erosion and sediment control practices are not designed in conformance with the design criteria included in the technical standard, the *owner or operator* must demonstrate *equivalence* to the technical standard. At a minimum, the erosion and sediment control component of the SWPPP shall include the following:

   a. Background information about the scope of the project, including the location, type and size of project

b. A site map/construction drawing(s) for the project, including a general location map. At a minimum, the site map shall show the total site area; all improvements; areas of disturbance; areas that will not be disturbed; existing vegetation; on-site and adjacent off-site surface water(s); floodplain/floodway boundaries; wetlands and drainage patterns that could be affected by the *construction activity*; existing and final contours ; locations of different soil types with boundaries; material, waste, borrow or equipment storage areas located on adjacent properties; and location(s) of the stormwater *discharge*(s);

c. A description of the soil(s) present at the site, including an identification of the Hydrologic Soil Group (HSG);

d. A construction phasing plan and sequence of operations describing the intended order of *construction activities*, including clearing and grubbing, excavation and grading, utility and infrastructure installation and any other activity at the site that results in soil disturbance;

e. A description of the minimum erosion and sediment control practices to be installed or implemented for each *construction activity* that will result in soil disturbance. Include a schedule that identifies the timing of initial placement or implementation of each erosion and sediment control practice and the minimum time frames that each practice should remain in place or be implemented;

f. A temporary and permanent soil stabilization plan that meets the requirements of this general permit and the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016, for each stage of the project, including initial land clearing and grubbing to project completion and achievement of *final stabilization*;

g. A site map/construction drawing(s) showing the specific location(s), size(s), and length(s) of each erosion and sediment control practice;

h. The dimensions, material specifications, installation details, and operation and maintenance requirements for all erosion and sediment control practices. Include the location and sizing of any temporary sediment basins and structural practices that will be used to divert flows from exposed soils;

i. A maintenance inspection schedule for the contractor(s) identified in Part III.A.6. of this permit, to ensure continuous and effective operation of the erosion and sediment control practices. The maintenance inspection

schedule shall be in accordance with the requirements in the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016;

j. A description of the pollution prevention measures that will be used to control litter, construction chemicals and construction debris from becoming a *pollutant* source in the stormwater *discharges*;

k. A description and location of any stormwater *discharges* associated with industrial activity other than construction at the site, including, but not limited to, stormwater *discharges* from asphalt plants and concrete plants located on the *construction site*; and

l. Identification of any elements of the design that are not in conformance with the design criteria in the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016. Include the reason for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the technical standard.

2. Post-construction stormwater management practice component – The *owner or operator* of any construction project identified in Table 2 of Appendix B as needing post-construction stormwater management practices shall prepare a SWPPP that includes practices designed in conformance with the applicable *sizing criteria* in Part I.C.2.a., c. or d. of this permit and the *performance criteria* in the technical standard, New York State Stormwater Management Design Manual dated January 2015

   Where post-construction stormwater management practices are not designed in conformance with the *performance criteria* in the technical standard, the *owner or operator* must include in the SWPPP the reason(s) for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the technical standard.

   The post-construction stormwater management practice component of the SWPPP shall include the following:

   a. Identification of all post-construction stormwater management practices to be constructed as part of the project. Include the dimensions, material specifications and installation details for each post-construction stormwater management practice;

b. A site map/construction drawing(s) showing the specific location and size of each post-construction stormwater management practice;

c. A Stormwater Modeling and Analysis Report that includes:
   (i) Map(s) showing pre-development conditions, including watershed/subcatchments boundaries, flow paths/routing, and design points;

   (ii) Map(s) showing post-development conditions, including watershed/subcatchments boundaries, flow paths/routing, design points and post-construction stormwater management practices;

   (iii) Results of stormwater modeling (i.e. hydrology and hydraulic analysis) for the required storm events. Include supporting calculations (model runs), methodology, and a summary table that compares pre and post-development runoff rates and volumes for the different storm events;

   (iv) Summary table, with supporting calculations, which demonstrates that each post-construction stormwater management practice has been designed in conformance with the *sizing criteria* included in the Design Manual;

   (v) Identification of any *sizing criteria* that is not required based on the requirements included in Part I.C. of this permit; and

   (vi) Identification of any elements of the design that are not in conformance with the *performance criteria* in the Design Manual. Include the reason(s) for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the Design Manual;

d. Soil testing results and locations (test pits, borings);

e. Infiltration test results, when required; and

f. 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.

3. Enhanced Phosphorus Removal Standards - 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 applicable *sizing criteria* in Part I.C.2. b., c. or d. of this permit and the *performance criteria,* Enhanced Phosphorus Removal Standards included in the Design Manual. At a minimum, the post-construction stormwater management practice component of the SWPPP shall include items 2.a - 2.f. above.

C. Required SWPPP Components by Project Type

Unless otherwise notified by the Department, *owners or operators* of *construction activities* identified in Table 1 of Appendix B are required to prepare a SWPPP that only includes erosion and sediment control practices designed in conformance with Part III.B.1 of this permit. *Owners or operators* of the *construction activities* identified in Table 2 of Appendix B shall prepare a SWPPP that also includes post-construction stormwater management practices designed in conformance with Part III.B.2 or 3 of this permit.

Part IV. INSPECTION AND MAINTENANCE REQUIREMENTS

A. General Construction Site Inspection and Maintenance Requirements

1. The *owner or operator* must ensure that all erosion and sediment control practices (including pollution prevention measures) and all post-construction stormwater management practices identified in the SWPPP are inspected and maintained in accordance with Part IV.B. and C. of this permit.

2. The terms of this permit shall not be construed to prohibit the State of New York from exercising any authority pursuant to the ECL, common law or federal law, or prohibit New York State from taking any measures, whether civil or criminal, to prevent violations of the laws of the State of New York or protect the public health and safety and/or the environment.

B. Contractor Maintenance Inspection Requirements

1. The *owner or operator* of each *construction activity* identified in Tables 1 and 2 of Appendix B shall have a *trained contractor* inspect the erosion and sediment control practices and pollution prevention measures being implemented within the active work area daily to ensure that they are being maintained in effective operating condition at all times. If deficiencies are identified, the contractor shall

begin implementing corrective actions within one business day and shall complete the corrective actions in a reasonable time frame.

2. For construction sites where soil disturbance activities have been temporarily suspended (e.g. winter shutdown) and *temporary stabilization* measures have been applied to all disturbed areas, the *trained contractor* can stop conducting the maintenance inspections. The *trained contractor* shall begin conducting the maintenance inspections in accordance with Part IV.B.1. of this permit as soon as soil disturbance activities resume.

3. For construction sites where soil disturbance activities have been shut down with partial project completion, the *trained contractor* can stop conducting the maintenance 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.

C. Qualified Inspector Inspection Requirements

The *owner or operator* shall have a *qualified inspector* conduct site inspections in conformance with the following requirements:

[Note: The *trained contractor* identified in Part III.A.6. and IV.B. of this permit **cannot** conduct the *qualified inspector* site inspections unless they meet the *qualified inspector* qualifications included in Appendix A. In order to perform these inspections, the *trained contractor* would have to be a:

- licensed Professional Engineer,
- Certified Professional in Erosion and Sediment Control (CPESC),
- New York State Erosion and Sediment Control Certificate Program holder
- Registered Landscape Architect, or
- someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape Architect, provided they have received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity].

1. A *qualified inspector* shall conduct site inspections for all *construction activities* identified in Tables 1 and 2 of Appendix B, with the exception of:

   a. the construction of a single family residential subdivision with 25% or less *impervious cover* at total site build-out that involves a soil disturbance of one (1) or more acres of land but less than five (5) acres and is not located

in one of the watersheds listed in Appendix C and not directly discharging to one of the 303(d) segments listed in Appendix E;

   b. the construction of a single family home that involves a soil disturbance of one (1) or more acres of land but less than five (5) acres and is not located in one of the watersheds listed in Appendix C and not directly discharging to one of the 303(d) segments listed in Appendix E;

   c. construction on agricultural property that involves a soil disturbance of one (1) or more acres of land but less than five (5) acres; and

   d. *construction activities* located in the watersheds identified in Appendix D that involve soil disturbances between five thousand (5,000) square feet and one (1) acre of land.

2. Unless otherwise notified by the Department, the *qualified inspector* shall conduct site inspections in accordance with the following timetable:

   a. For construction sites where soil disturbance activities are on-going, the *qualified inspector* shall conduct a site inspection at least once every seven (7) calendar days.

   b. For construction sites where soil disturbance activities are on-going and the *owner or operator* has received authorization in accordance with Part II.D.3 to disturb greater than five (5) acres of soil at any one time, the *qualified inspector* shall conduct at least two (2) site inspections every seven (7) calendar days. The two (2) inspections shall be separated by a minimum of two (2) full calendar days.

   c. For construction sites 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 DOW Water (SPDES) Program contact at the Regional Office (see contact information in Appendix F) or, in areas under the jurisdiction of a *regulated, traditional land use control MS4,* the *regulated, traditional land use control MS4* (provided the *regulated, traditional land use control MS4* is not the *owner or operator* of the *construction activity*) in writing prior to reducing the frequency of inspections.

d. For construction sites 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 DOW Water (SPDES) Program contact at the Regional Office (see contact information in Appendix F) or, in areas under the jurisdiction of a *regulated, traditional land use control MS4,* the *regulated, traditional land use control MS4* (provided the *regulated, traditional land use control MS4* is not the *owner or operator* of the *construction activity*) in writing prior to the shutdown. If soil disturbance activities are not resumed within 2 years from the date of shutdown, the *owner or operator* shall have the *qualified inspector* perform a final inspection and certify that all disturbed areas have achieved *final stabilization,* and all temporary, structural erosion and sediment control measures have been removed*;* and that all post-construction stormwater management practices have been constructed 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 address in Part II.B.1 of this permit.

e. For construction sites that directly *discharge* to one of the 303(d) segments listed in Appendix E or is located in one of the watersheds listed in Appendix C, the *qualified inspector* shall conduct at least two (2) site inspections every seven (7) calendar days. The two (2) inspections shall be separated by a minimum of two (2) full calendar days.

3. At a minimum, the *qualified inspector* shall inspect all erosion and sediment control practices and pollution prevention measures to ensure integrity and effectiveness, all post-construction stormwater management practices under construction to ensure that they are constructed in conformance with the SWPPP, all areas of disturbance that have not achieved *final stabilization,* all points of *discharge* to natural surface waterbodies located within, or immediately adjacent to, the property boundaries of the *construction site*, and all points of *discharge* from the *construction site*.

4. The *qualified inspector* shall prepare an inspection report subsequent to each and every inspection. At a minimum, the inspection report shall include and/or address the following:

a. Date and time of inspection;

b. Name and title of person(s) performing inspection;

c. A description of the weather and soil conditions (e.g. dry, wet, saturated) at the time of the inspection;

d. 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;

e. 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;

f. Identification of all erosion and sediment control practices and pollution prevention measures that need repair or maintenance;

g. Identification of all erosion and sediment control practices and pollution prevention measures that were not installed properly or are not functioning as designed and need to be reinstalled or replaced;

h. Description and sketch of areas with active soil disturbance activity, areas that have been disturbed but are inactive at the time of the inspection, and areas that have been stabilized (temporary and/or final) since the last inspection;

i. 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;

j. Corrective action(s) that must be taken to install, repair, replace or maintain erosion and sediment control practices and pollution prevention measures; and to correct deficiencies identified with the construction of the post-construction stormwater management practice(s);

k. Identification and status of all corrective actions that were required by previous inspection; and

l. 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 onsite 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.

5. Within one business day of the completion of an inspection, the *qualified inspector* shall notify the *owner or operator* and appropriate contractor or subcontractor identified in Part III.A.6. of this permit 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.

6. All inspection reports shall be signed by the *qualified inspector.* Pursuant to Part II.D.2. of this permit, the inspection reports shall be maintained on site with the SWPPP.

Part V. TERMINATION OF PERMIT COVERAGE

A. Termination of Permit Coverage

1. An *owner or operator* that is eligible to terminate coverage under this permit must submit a completed NOT form to the address in Part II.B.1 of this permit. The NOT form shall be one which is associated with this permit, signed in accordance with Part VII.H of this permit.

2. An *owner or operator* may terminate coverage when one or more the following conditions have been met:

   a. Total project completion - All *construction activity* identified in the SWPPP has been completed; and all areas of disturbance have achieved *final stabilization*; and all temporary, structural erosion and sediment control measures have been removed; and all post-construction stormwater management practices have been constructed in conformance with the SWPPP and are operational;

   b. Planned shutdown with partial project completion - All soil disturbance activities have ceased; and all areas disturbed as of the project shutdown date have achieved *final stabilization*; and all temporary, structural erosion and sediment control measures have been removed; 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;

   c. A new *owner or operator* has obtained coverage under this permit in accordance with Part II.F. of this permit.

   d. The *owner or operator* obtains coverage under an alternative SPDES general permit or an individual SPDES permit.

3. For *construction activities* meeting subdivision 2a. or 2b. of this Part, the *owner or operator* shall have the *qualified inspector* perform a final site inspection prior to submitting the NOT. The *qualified inspector* shall, by signing the "*Final Stabilization*" and "Post-Construction Stormwater Management Practice certification statements on the NOT, certify that all the requirements in Part V.A.2.a. or b. of this permit have been achieved.

4. For *construction activities* that are subject to the requirements of a *regulated, traditional land use control MS4* and meet subdivision 2a. or 2b. of this Part, the *owner or operator* shall have the *regulated, traditional land use control MS4* sign the "MS4 Acceptance" statement on the NOT in accordance with the requirements in Part VII.H. of this permit. The *regulated, traditional land use control MS4* official, by signing this statement, has determined that it is acceptable for the *owner or operator* to submit the NOT in accordance with the requirements of this Part. The *regulated, traditional land use control MS4* can make this determination by performing a final site inspection themselves or by accepting the *qualified inspector*'s final site inspection certification(s) required in Part V.A.3. of this permit.

5. For *construction activities* that require post-construction stormwater management practices and meet subdivision 2a. of this Part, the *owner or operator* must, prior to submitting the NOT, ensure one of the following:

   a. the post-construction stormwater management practice(s) and any right-of-way(s) needed to maintain such practice(s) have been deeded to the municipality in which the practice(s) is located,

b. an executed maintenance agreement is in place with the municipality that will maintain the post-construction stormwater management practice(s),

c. for post-construction stormwater management practices that are privately owned, the *owner or operator* has a mechanism 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,

d. for post-construction stormwater management practices that are owned by a public or private institution (e.g. school, university, hospital), government agency or authority, or public utility; the *owner or operator* has policy and procedures in place that ensures operation and maintenance of the practices in accordance with the operation and maintenance plan.

Part VI. REPORTING AND RETENTION RECORDS

A. Record Retention

The *owner or operator* shall retain a copy of the NOI, NOI Acknowledgment Letter, SWPPP, MS4 SWPPP Acceptance form and any inspection reports that were prepared in conjunction with this permit for a period of at least five (5) years from the date that the Department receives a complete NOT submitted in accordance with Part V. of this general permit.

B. Addresses

With the exception of the NOI, NOT, and MS4 SWPPP Acceptance form (which must be submitted to the address referenced in Part II.B.1 of this permit), all written correspondence requested by the Department, including individual permit applications, shall be sent to the address of the appropriate DOW Water (SPDES) Program contact at the Regional Office listed in Appendix F.

Part VII. STANDARD PERMIT CONDITIONS

A. Duty to Comply

The *owner or operator* must comply with all conditions of this permit. All contractors and subcontractors associated with the project must comply with the terms of the SWPPP. Any non-compliance with this permit constitutes a violation of the Clean Water

Act (CWA) and the ECL and is grounds for an enforcement action against the *owner or operator* and/or the contractor/subcontractor; permit revocation, suspension or modification; or denial of a permit renewal application. Upon a finding of significant non-compliance with this permit or the applicable SWPPP, the Department may order an immediate stop to all *construction activity* at the site until the non-compliance is remedied. The stop work order shall be in writing, shall describe the non-compliance in detail, and shall be sent to the *owner or operator*.

If any human remains or archaeological remains are encountered during excavation, the *owner or operator* must immediately cease, or cause to cease, all *construction activity* in the area of the remains and notify the appropriate Regional Water Engineer (RWE). *Construction activity* shall not resume until written permission to do so has been received from the RWE.

B. Continuation of the Expired General Permit

This permit expires five (5) years from the effective date. If a new general permit is not issued prior to the expiration of this general permit, an *owner or operator* with coverage under this permit may continue to operate and *discharge* in accordance with the terms and conditions of this general permit, if it is extended pursuant to the State Administrative Procedure Act and 6 NYCRR Part 621, until a new general permit is issued.

C. Enforcement

Failure of the *owner or operator,* its contractors, subcontractors, agents and/or assigns to strictly adhere to any of the permit requirements contained herein shall constitute a violation of this permit. There are substantial criminal, civil, and administrative penalties associated with violating the provisions of this permit. Fines of up to $37,500 per day for each violation and imprisonment for up to fifteen (15) years may be assessed depending upon the nature and degree of the offense.

D. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for an *owner or operator* in an enforcement action that it would have been necessary to halt or reduce the *construction activity* in order to maintain compliance with the conditions of this permit.

E. Duty to Mitigate

The *owner or operator* and its contractors and subcontractors shall take all reasonable steps to *minimize* or prevent any *discharge* in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

F. Duty to Provide Information

The *owner or operator* shall furnish to the Department, within a reasonable specified time period of a written request, all documentation necessary to demonstrate eligibility and any information to determine compliance with this permit or to determine whether cause exists for modifying or revoking this permit, or suspending or denying coverage under this permit, in accordance with the terms and conditions of this permit. The NOI, SWPPP and inspection reports required by this permit are public documents that the *owner or operator* must make available for review and copying by any person within five (5) business days of the *owner or operator* receiving a written request by any such person to review these documents. Copying of documents will be done at the requester's expense.

G. Other Information

When the *owner or operator* becomes aware that they failed to submit any relevant facts, or submitted incorrect information in the NOI or in any of the documents required by this permit , or have made substantive revisions to the SWPPP (e.g. the scope of the project changes significantly, the type of post-construction stormwater management practice(s) changes, there is a reduction in the sizing of the post-construction stormwater management practice, or there is an increase in the disturbance area or *impervious area*), which were not reflected in the original NOI submitted to the Department, they shall promptly submit such facts or information to the Department using the contact information in Part II.A. of this permit. Failure of the *owner or operator* to correct or supplement any relevant facts within five (5) business days of becoming aware of the deficiency shall constitute a violation of this permit.

H. Signatory Requirements

1. All NOIs and NOTs shall be signed as follows:

    a. For a corporation these forms shall be signed by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means:

(i) a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation; or

(ii) the manager of one or more manufacturing, production or operating facilities, provided the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures;

b. For a partnership or sole proprietorship these forms shall be signed by a general partner or the proprietor, respectively; or

c. For a municipality, State, Federal, or other public agency these forms shall be signed by either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a Federal agency includes:

(i) the chief executive officer of the agency, or

(ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of EPA).

2. The SWPPP and other information requested by the Department shall be signed by a person described in Part VII.H.1. of this permit or by a duly authorized representative of that person. A person is a duly authorized representative only if:

    a. The authorization is made in writing by a person described in Part VII.H.1. of this permit;

    b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a well or a well field,

superintendent, position of *equivalent* responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position) and,

c. The written authorization shall include the name, title and signature of the authorized representative and be attached to the SWPPP.

3. All inspection reports shall be signed by the *qualified inspector* that performs the inspection.

4. The MS4 SWPPP Acceptance form shall be signed by the principal executive officer or ranking elected official from the *regulated, traditional land use control MS4,* or by a duly authorized representative of that person.

   It shall constitute a permit violation if an incorrect and/or improper signatory authorizes any required forms, SWPPP and/or inspection reports.

I. Property Rights

The issuance of this permit does not convey any property rights of any sort, nor any exclusive privileges, nor does it authorize any injury to private property nor any invasion of personal rights, nor any infringement of Federal, State or local laws or regulations. *Owners or operators* must obtain any applicable conveyances, easements, licenses and/or access to real property prior to *commencing construction activity*.

J. Severability

The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit shall not be affected thereby.

K. Requirement to Obtain Coverage Under an Alternative Permit

1. The Department may require any owner or operator authorized by this permit to apply for and/or obtain either an individual SPDES permit or another SPDES general permit. When the Department requires any discharger authorized by a general permit to apply for an individual SPDES permit, it shall notify the discharger in writing that a permit application is required. This notice shall

include a brief statement of the reasons for this decision, an application form, a statement setting a time frame for the owner or operator to file the application for an individual SPDES permit, and a deadline, not sooner than 180 days from owner or operator receipt of the notification letter, whereby the authorization to discharge under this general permit shall be terminated. Applications must be submitted to the appropriate Permit Administrator at the Regional Office. The Department may grant additional time upon demonstration, to the satisfaction of the Department, that additional time to apply for an alternative authorization is necessary or where the Department has not provided a permit determination in accordance with Part 621 of this Title.

2. When an individual SPDES permit is issued to a discharger authorized to *discharge* under a general SPDES permit for the same *discharge*(s), the general permit authorization for outfalls authorized under the individual SPDES permit is automatically terminated on the effective date of the individual permit unless termination is earlier in accordance with 6 NYCRR Part 750.

L. Proper Operation and Maintenance

The *owner or operator* shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the *owner or operator* to achieve compliance with the conditions of this permit and with the requirements of the SWPPP.

M. Inspection and Entry

The *owner or operator* shall allow an authorized representative of the Department, EPA, applicable county health department, or, in the case of a *construction site* which *discharges* through an *MS4*, an authorized representative of the *MS4* receiving the discharge, upon the presentation of credentials and other documents as may be required by law, to:

1. Enter upon the owner's or operator's premises where a regulated facility or activity is located or conducted or where records must be kept under the conditions of this permit;

2. Have access to and copy at reasonable times, any records that must be kept under the conditions of this permit; and

3. Inspect at reasonable times any facilities or equipment (including monitoring and control equipment), practices or operations regulated or required by this permit.

4. Sample or monitor at reasonable times, for purposes of assuring permit compliance or as otherwise authorized by the Act or ECL, any substances or parameters at any location.

N. Permit Actions

This permit may, at any time, be modified, suspended, revoked, or renewed by the Department in accordance with 6 NYCRR Part 621. The filing of a request by the *owner or operator* for a permit modification, revocation and reissuance, termination, a notification of planned changes or anticipated noncompliance does not limit, diminish and/or stay compliance with any terms of this permit.

O. Definitions

Definitions of key terms are included in Appendix A of this permit.

P. Re-Opener Clause

1. If there is evidence indicating potential or realized impacts on water quality due to any stormwater discharge associated with construction activity covered by this permit, the owner or operator of such discharge may be required to obtain an individual permit or alternative general permit in accordance with Part VII.K. of this permit or the permit may be modified to include different limitations and/or requirements.

2. Any Department initiated permit modification, suspension or revocation will be conducted in accordance with 6 NYCRR Part 621, 6 NYCRR 750-1.18, and 6 NYCRR 750-1.20.

Q. Penalties for Falsification of Forms and Reports

In accordance with 6NYCRR Part 750-2.4 and 750-2.5, any person who knowingly makes any false material statement, representation, or certification in any application, record, report or other document filed or required to be maintained under this permit, including reports of compliance or noncompliance shall, upon conviction, be punished in accordance with ECL §71-1933 and or Articles 175 and 210 of the New York State Penal Law.

R. Other Permits

Nothing in this permit relieves the *owner or operator* from a requirement to obtain any other permits required by law.

APPENDIX A – Acronyms and Definitions

Acronyms

APO – Agency Preservation Officer
BMP – Best Management Practice
CPESC – Certified Professional in Erosion and Sediment Control
Cpv – Channel Protection Volume
CWA – Clean Water Act (or the Federal Water Pollution Control Act, 33 U.S.C. §1251 et seq)
DOW – Division of Water
EAF – Environmental Assessment Form
ECL - Environmental Conservation Law
EPA – U. S. Environmental Protection Agency
HSG – Hydrologic Soil Group
MS4 – Municipal Separate Storm Sewer System
NOI – Notice of Intent
NOT – Notice of Termination
NPDES – National Pollutant Discharge Elimination System
OPRHP – Office of Parks, Recreation and Historic Places
Qf – Extreme Flood
Qp – Overbank Flood
RRv – Runoff Reduction Volume
RWE – Regional Water Engineer
SEQR – State Environmental Quality Review
SEQRA - State Environmental Quality Review Act
SHPA – State Historic Preservation Act
SPDES – State Pollutant Discharge Elimination System
SWPPP – Stormwater Pollution Prevention Plan
TMDL – Total Maximum Daily Load
UPA – Uniform Procedures Act
USDA – United States Department of Agriculture
WQv – Water Quality Volume

Definitions

All definitions in this section are solely for the purposes of this permit.

Agricultural Building – a structure designed and constructed to house farm implements, hay, grain, poultry, livestock or other horticultural products; excluding any structure designed, constructed or used, in whole or in part, for human habitation, as a place of employment where agricultural products are processed, treated or packaged, or as a place used by the public.

Agricultural Property –means the land for construction of a barn, *agricultural building*, silo, stockyard, pen or other structural practices identified in Table II in the "Agricultural Management Practices Catalog for Nonpoint Source Pollution in New York State" prepared by the Department in cooperation with agencies of New York Nonpoint Source Coordinating Committee (dated June 2007).

Alter Hydrology from Pre to Post-Development Conditions - means the post-development peak flow rate(s) has increased by more than 5% of the pre-developed condition for the design storm of interest (e.g. 10 yr and 100 yr).

Combined Sewer - means a sewer that is designed to collect and convey both "sewage" and "stormwater".

Commence (Commencement of) Construction Activities - means the initial disturbance of soils associated with clearing, grading or excavation activities; or other construction related activities that disturb or expose soils such as demolition, stockpiling of fill material, and the initial installation of erosion and sediment control practices required in the SWPPP. See definition for "*Construction Activity(ies)*" also.

Construction Activity(ies) - means any clearing, grading, excavation, filling, demolition or stockpiling activities that result in soil disturbance. Clearing activities can include, but are not limited to, logging equipment operation, the cutting and skidding of trees, stump removal and/or brush root removal. Construction activity does not include routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of a facility.

Construction Site – means the land area where *construction activity(ies)* will occur. See definition for "*Commence (Commencement of) Construction Activities"* and "*Larger Common Plan of Development or Sale" also.*

Dewatering – means the act of draining rainwater and/or groundwater from building foundations, vaults or excavations/trenches.

Direct Discharge (to a specific surface waterbody) - means that runoff flows from a *construction site* by overland flow and the first point of discharge is the specific surface waterbody, or runoff flows from a *construction site* to a separate storm sewer system

and the first point of discharge from the separate storm sewer system is the specific surface waterbody.

Discharge(s) - means any addition of any pollutant to waters of the State through an outlet or *point source*.

Embankment –means an earthen or rock slope that supports a road/highway.

Endangered or Threatened Species – see 6 NYCRR Part 182 of the Department's rules and regulations for definition of terms and requirements.

Environmental Conservation Law (ECL) - means chapter 43-B of the Consolidated Laws of the State of New York, entitled the Environmental Conservation Law.

Equivalent (Equivalence) – means that the practice or measure meets all the performance, longevity, maintenance, and safety objectives of the technical standard and will provide an equal or greater degree of water quality protection.

Final Stabilization - means that all soil disturbance activities have ceased and a uniform, perennial vegetative cover with a density of eighty (80) percent over the entire pervious surface has been established; or other equivalent stabilization measures, such as permanent landscape mulches, rock rip-rap or washed/crushed stone have been applied on all disturbed areas that are not covered by permanent structures, concrete or pavement.

General SPDES permit - means a SPDES permit issued pursuant to 6 NYCRR Part 750-1.21 and Section 70-0117 of the ECL authorizing a category of discharges.

Groundwater(s) - means waters in the saturated zone. The saturated zone is a subsurface zone in which all the interstices are filled with water under pressure greater than that of the atmosphere. Although the zone may contain gas-filled interstices or interstices filled with fluids other than water, it is still considered saturated.

Historic Property – means any building, structure, site, object or district that is listed on the State or National Registers of Historic Places or is determined to be eligible for listing on the State or National Registers of Historic Places.

Impervious Area (Cover) - means all impermeable surfaces that cannot effectively infiltrate rainfall. This includes paved, concrete and gravel surfaces (i.e. parking lots, driveways, roads, runways and sidewalks); building rooftops and miscellaneous impermeable structures such as patios, pools, and sheds.

Infeasible – means not technologically possible, or not economically practicable and achievable in light of best industry practices.

Larger Common Plan of Development or Sale - means a contiguous area where multiple separate and distinct *construction activities* are occurring, or will occur, under one plan. The term "plan" in "larger common plan of development or sale" is broadly defined as any announcement or piece of documentation (including a sign, public notice or hearing, marketing plan, advertisement, drawing, permit application, State Environmental Quality Review Act (SEQRA) environmental assessment form or other documents, zoning request, computer design, etc.) or physical demarcation (including boundary signs, lot stakes, surveyor markings, etc.) indicating that *construction activities* may occur on a specific plot.

For discrete construction projects that are located within a larger common plan of development or sale that are at least 1/4 mile apart, each project can be treated as a separate plan of development or sale provided any interconnecting road, pipeline or utility project that is part of the same "common plan" is not concurrently being disturbed.

Minimize – means reduce and/or eliminate to the extent achievable using control measures (including best management practices) that are technologically available and economically practicable and achievable in light of best industry practices.

Municipal Separate Storm Sewer (MS4) - a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains):

(i) Owned or operated by a State, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, stormwater, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under section 208 of the CWA that discharges to surface waters of the State*;*
(ii) Designed or used for collecting or conveying stormwater;
(iii) Which is not a *combined sewer*; and
(iv) Which is not part of a Publicly Owned Treatment Works (POTW) as defined at 40 CFR 122.2.

National Pollutant Discharge Elimination System (NPDES) - means the national system for the issuance of wastewater and stormwater permits under the Federal Water Pollution Control Act (Clean Water Act).

Natural Buffer –means an undisturbed area with natural cover running along a surface water (e.g. wetland, stream, river, lake, etc.).

New Development – means any land disturbance that does not meet the definition of Redevelopment Activity included in this appendix.

New York State Erosion and Sediment Control Certificate Program – a certificate program that establishes and maintains a process to identify and recognize individuals who are capable of developing, designing, inspecting and maintaining erosion and sediment control plans on projects that disturb soils in New York State. The certificate program is administered by the New York State Conservation District Employees Association.

NOI Acknowledgment Letter - means the letter that the Department sends to an owner or operator to acknowledge the Department's receipt and acceptance of a complete Notice of Intent. This letter documents the owner's or operator's authorization to discharge in accordance with the general permit for stormwater discharges from *construction activity.*

Nonpoint Source - means any source of water pollution or pollutants which is not a discrete conveyance or *point source* permitted pursuant to Title 7 or 8 of Article 17 of the Environmental Conservation Law (see ECL Section 17-1403).

Overbank –means flow events that exceed the capacity of the stream channel and spill out into the adjacent floodplain.

Owner or Operator - means the person, persons or legal entity which owns or leases the property on which the *construction activity* is occurring; an entity that has operational control over the construction plans and specifications, including the ability to make modifications to the plans and specifications; and/or an entity that has day-to-day operational control of those activities at a project that are necessary to ensure compliance with the permit conditions.

Performance Criteria – means the design criteria listed under the "Required Elements" sections in Chapters 5, 6 and 10 of the technical standard, New York State Stormwater Management Design Manual, dated January 2015. It does not include the Sizing Criteria (i.e. WQv, RRv, Cpv, Qp and Qf) in Part I.C.2. of the permit.

Point Source - means any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, vessel or other floating craft, or landfill leachate collection system from which *pollutants* are or may be discharged.

Pollutant - means dredged spoil, filter backwash, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand and industrial, municipal, agricultural waste and ballast discharged into water; which may cause or might reasonably be expected to cause pollution of the waters of the state in contravention of the standards or guidance values adopted as provided in 6 NYCRR Parts 700 et seq .

Qualified Inspector - means a person that is knowledgeable in the principles and practices of erosion and sediment control, such as a licensed Professional Engineer, Certified Professional in Erosion and Sediment Control (CPESC), Registered Landscape Architect, New York State Erosion and Sediment Control Certificate Program holder or other Department endorsed individual(s).

It can also mean someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape Architect, provided that person has training in the principles and practices of erosion and sediment control. Training in the principles and practices of erosion and sediment control means that the individual working under the direct supervision of the licensed Professional Engineer or Registered Landscape Architect has received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity. After receiving the initial training, the individual working under the direct supervision of the licensed Professional Engineer or Registered Landscape Architect shall receive four (4) hours of training every three (3) years.

It can also mean a person that meets the *Qualified Professional* qualifications in addition to the *Qualified Inspector* qualifications.

Note: Inspections of any post-construction stormwater management practices that include structural components, such as a dam for an impoundment, shall be performed by a licensed Professional Engineer.

Qualified Professional - means a person that is knowledgeable in the principles and practices of stormwater management and treatment, such as a licensed Professional Engineer, Registered Landscape Architect or other Department endorsed individual(s). Individuals preparing SWPPPs that require the post-construction stormwater management practice component must have an understanding of the principles of hydrology, water quality management practice design, water quantity control design, and, in many cases, the principles of hydraulics. All components of the SWPPP that involve the practice of engineering, as defined by the NYS Education Law (see Article 145), shall be prepared by, or under the direct supervision of, a professional engineer licensed to practice in the State of New York.

Redevelopment Activity(ies) – means the disturbance and reconstruction of existing impervious area, including impervious areas that were removed from a project site within five (5) years of preliminary project plan submission to the local government (i.e. site plan, subdivision, etc.).

Regulated, Traditional Land Use Control MS4 - means a city, town or village with land use control authority that is authorized to discharge under New York State DEC's

SPDES General Permit For Stormwater Discharges from Municipal Separate Stormwater Sewer Systems (MS4s) or the City of New York's Individual SPDES Permit for their Municipal Separate Storm Sewer Systems (NY-0287890).

Routine Maintenance Activity - means *construction activity* that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of a facility, including, but not limited to:

- Re-grading of gravel roads or parking lots,
- Cleaning and shaping of existing roadside ditches and culverts that maintains the approximate original line and grade, and hydraulic capacity of the ditch,
- Cleaning and shaping of existing roadside ditches that does not maintain the approximate original grade, hydraulic capacity and purpose of the ditch if the changes to the line and grade, hydraulic capacity or purpose of the ditch are installed to improve water quality and quantity controls (e.g. installing grass lined ditch),
- Placement of aggregate shoulder backing that stabilizes the transition between the road shoulder and the ditch or *embankment*,
- Full depth milling and filling of existing asphalt pavements, replacement of concrete pavement slabs, and similar work that does not expose soil or disturb the bottom six (6) inches of subbase material,
- Long-term use of equipment storage areas at or near highway maintenance facilities,
- Removal of sediment from the edge of the highway to restore a previously existing sheet-flow drainage connection from the highway surface to the highway ditch or *embankment*,
- Existing use of Canal Corp owned upland disposal sites for the canal, and
- Replacement of curbs, gutters, sidewalks and guide rail posts.

Site limitations – means site conditions that prevent the use of an infiltration technique and or infiltration of the total WQv. Typical site limitations include: seasonal high groundwater, shallow depth to bedrock, and soils with an infiltration rate less than 0.5 inches/hour. The existence of site limitations shall be confirmed and documented using actual field testing (i.e. test pits, soil borings, and infiltration test) or using information from the most current United States Department of Agriculture (USDA) Soil Survey for the County where the project is located.

Sizing Criteria – means the criteria included in Part I.C.2 of the permit that are used to size post-construction stormwater management control practices. The criteria include; Water Quality Volume (WQv), Runoff Reduction Volume (RRv), Channel Protection Volume (Cpv), *Overbank* Flood (Qp), and Extreme Flood (Qf).

State Pollutant Discharge Elimination System (SPDES) - means the system established pursuant to Article 17 of the ECL and 6 NYCRR Part 750 for issuance of permits authorizing discharges to the waters of the state.

Steep Slope – means land area designated on the current United States Department of Agriculture ("USDA") Soil Survey as Soil Slope Phase "D", (provided the map unit name is inclusive of slopes greater than 25%) , or Soil Slope Phase E or F, (regardless of the map unit name), or a combination of the three designations.

Streambank – as used in this permit, means the terrain alongside the bed of a creek or stream. The bank consists of the sides of the channel, between which the flow is confined.

Stormwater Pollution Prevention Plan (SWPPP) – means a project specific report, including construction drawings, that among other things: describes the construction activity(ies), identifies the potential sources of pollution at the *construction site*; describes and shows the stormwater controls that will be used to control the pollutants (i.e. erosion and sediment controls; for many projects, includes post-construction stormwater management controls); and identifies procedures the *owner or operator* will implement to comply with the terms and conditions of the permit. See Part III of the permit for a complete description of the information that must be included in the SWPPP.

Surface Waters of the State - shall be construed to include lakes, bays, sounds, ponds, impounding reservoirs, springs, rivers, streams, creeks, estuaries, marshes, inlets, canals, the Atlantic ocean within the territorial seas of the state of New York and all other bodies of surface water, natural or artificial, inland or coastal, fresh or salt, public or private (except those private waters that do not combine or effect a junction with natural surface waters), which are wholly or partially within or bordering the state or within its jurisdiction. Waters of the state are further defined in 6 NYCRR Parts 800 to 941.

Temporarily Ceased – means that an existing disturbed area will not be disturbed again within 14 calendar days of the previous soil disturbance.

Temporary Stabilization - means that exposed soil has been covered with material(s) as set forth in the technical standard, New York Standards and Specifications for Erosion and Sediment Control, to prevent the exposed soil from eroding. The materials can include, but are not limited to, mulch, seed and mulch, and erosion control mats (e.g. jute twisted yarn, excelsior wood fiber mats).

Total Maximum Daily Loads (TMDLs) - A TMDL is the sum of the allowable loads of a single pollutant from all contributing point and *nonpoint source*s. It is a calculation of the maximum amount of a pollutant that a waterbody can receive on a daily basis and still meet *water quality standard*s, and an allocation of that amount to the pollutant's sources. A TMDL stipulates wasteload allocations (WLAs) for *point source* discharges, load allocations (LAs) for *nonpoint source*s, and a margin of safety (MOS).

Trained Contractor - means an employee from the contracting (construction) company, identified in Part III.A.6., that has received four (4) hours of Department endorsed

training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity. After receiving the initial training, the *trained contractor* shall receive four (4) hours of training every three (3) years.

It can also mean an employee from the contracting (construction) company, identified in Part III.A.6., that meets the *qualified inspector* qualifications (e.g. licensed Professional Engineer, Certified Professional in Erosion and Sediment Control (CPESC), Registered Landscape Architect, New York State Erosion and Sediment Control Certificate Program holder, or someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape Architect, provided they have received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity).

The *trained contractor* is responsible for the day to day implementation of the SWPPP.

Uniform Procedures Act (UPA) Permit - means a permit required under 6 NYCRR Part 621 of the Environmental Conservation Law (ECL), Article 70.

Water Quality Standard - means such measures of purity or quality for any waters in relation to their reasonable and necessary use as promulgated in 6 NYCRR Part 700 et seq.

APPENDIX B – Required SWPPP Components by Project Type

Table 1
Construction Activities that Require the Preparation of a SWPPP That Only Includes Erosion and Sediment Controls

The following construction activities that involve soil disturbances of one (1) or more acres of land, but less than five (5) acres: • Single family home <u>not</u> located in one of the watersheds listed in Appendix C or <u>not</u> *directly discharging* to one of the 303(d) segments listed in Appendix E • Single family residential subdivisions with 25% or less impervious cover at total site build-out and <u>not</u> located in one of the watersheds listed in Appendix C and <u>not</u> directly discharging to one of the 303(d) segments listed in Appendix E • Construction of a barn or other *agricultural building*, silo, stock yard or pen.
The following construction activities that involve soil disturbances between five thousand (5000) square feet and one (1) acre of land: All construction activities located in the watersheds identified in Appendix D that involve soil disturbances between five thousand (5,000) square feet and one (1) acre of land.
The following construction activities that involve soil disturbances of one (1) or more acres of land: • Installation of underground, linear utilities; such as gas lines, fiber-optic cable, cable TV, electric, telephone, sewer mains, and water mains • Environmental enhancement projects, such as wetland mitigation projects, stormwater retrofits and stream restoration projects • Pond construction • Linear bike paths running through areas with vegetative cover, including bike paths surfaced with an impervious cover • Cross-country ski trails and walking/hiking trails • Sidewalk, bike path or walking path projects, surfaced with an impervious cover, that are not part of residential, commercial or institutional development; • Sidewalk, bike path or walking path projects, surfaced with an impervious cover, that include incidental shoulder or curb work along an existing highway to support construction of the sidewalk, bike path or walking path. • Slope stabilization projects • Slope flattening that changes the grade of the site, but does not significantly change the runoff characteristics

Table 1 (Continued) CONSTRUCTION ACTIVITIES THAT REQUIRE THE PREPARATION OF A SWPPP THAT ONLY INCLUDES EROSION AND SEDIMENT CONTROLS

The following construction activities that involve soil disturbances of one (1) or more acres of land:

- Spoil areas that will be covered with vegetation
- Vegetated open space projects (i.e. recreational parks, lawns, meadows, fields, downhill ski trails) excluding projects that *alter hydrology from pre to post development* conditions,
- Athletic fields (natural grass) that do not include the construction or reconstruction of *impervious area* and do not *alter hydrology from pre to post development* conditions
- Demolition project where vegetation will be established, and no redevelopment is planned
- Overhead electric transmission line project that does not include the construction of permanent access roads or parking areas surfaced with *impervious cover*
- Structural practices as identified in Table II in the "Agricultural Management Practices Catalog for Nonpoint Source Pollution in New York State", excluding projects that involve soil disturbances of greater than five acres and construction activities that include the construction or reconstruction of impervious area
- Temporary access roads, median crossovers, detour roads, lanes, or other temporary impervious areas that will be restored to pre-construction conditions once the construction activity is complete

Table 2
CONSTRUCTION ACTIVITIES THAT REQUIRE THE PREPARATION OF A SWPPP THAT INCLUDES POST-CONSTRUCTION STORMWATER MANAGEMENT PRACTICES

The following construction activities that involve soil disturbances of one (1) or more acres of land:

- Single family home located in one of the watersheds listed in Appendix C or *directly discharging* to one of the 303(d) segments listed in Appendix E
- Single family home that disturbs five (5) or more acres of land
- Single family residential subdivisions located in one of the watersheds listed in Appendix C or *directly discharging* to one of the 303(d) segments listed in Appendix E
- Single family residential subdivisions that involve soil disturbances of between one (1) and five (5) acres of land with greater than 25% impervious cover at total site build-out
- Single family residential subdivisions that involve soil disturbances of five (5) or more acres of land, and single family residential subdivisions that involve soil disturbances of less than five (5) acres that are part of a larger common plan of development or sale that will ultimately disturb five or more acres of land
- Multi-family residential developments; includes duplexes, townhomes, condominiums, senior housing complexes, apartment complexes, and mobile home parks
- Airports
- Amusement parks
- Breweries, cideries, and wineries, including establishments constructed on agricultural land
- Campgrounds
- Cemeteries that include the construction or reconstruction of impervious area (>5% of disturbed area) or *alter the hydrology from pre to post development* conditions
- Commercial developments
- Churches and other places of worship
- Construction of a barn or other *agricultural building* (e.g. silo) and structural practices as identified in Table II in the "Agricultural Management Practices Catalog for Nonpoint Source Pollution in New York State" that include the construction or reconstruction of *impervious area*, excluding projects that involve soil disturbances of less than five acres.
- Golf courses
- Institutional development; includes hospitals, prisons, schools and colleges
- Industrial facilities; includes industrial parks
- Landfills
- Municipal facilities; includes highway garages, transfer stations, office buildings, POTW's, water treatment plants, and water storage tanks
- Office complexes
- Playgrounds that include the construction or reconstruction of impervious area
- Sports complexes
- Racetracks; includes racetracks with earthen (dirt) surface
- Road construction or reconstruction, including roads constructed as part of the construction activities listed in Table 1

Table 2 (Continued)

CONSTRUCTION ACTIVITIES THAT REQUIRE THE PREPARATION OF A SWPPP THAT INCLUDES POST-CONSTRUCTION STORMWATER MANAGEMENT PRACTICES

The following construction activities that involve soil disturbances of one (1) or more acres of land:

- Parking lot construction or reconstruction, including parking lots constructed as part of the construction activities listed in Table 1
- Athletic fields (natural grass) that include the construction or reconstruction of impervious area (>5% of disturbed area) or *alter the hydrology from pre to post development* conditions
- Athletic fields with artificial turf
- Permanent access roads, parking areas, substations, compressor stations and well drilling pads, surfaced with *impervious cover,* and constructed as part of an over-head electric transmission line project, wind-power project, cell tower project, oil or gas well drilling project, sewer or water main project or other linear utility project
- Sidewalk, bike path or walking path projects, surfaced with an impervious cover, that are part of a residential, commercial or institutional development
- Sidewalk, bike path or walking path projects, surfaced with an impervious cover, that are part of a highway construction or reconstruction project
- All other construction activities that include the construction or reconstruction of *impervious area* or *alter the hydrology from pre to post development* conditions, and are not listed in Table 1

APPENDIX C – Watersheds Requiring Enhanced Phosphorus Removal

Watersheds where *owners or operators* of construction activities identified in Table 2 of Appendix B must prepare a SWPPP that includes post-construction stormwater management practices designed in conformance with the Enhanced Phosphorus Removal Standards included in the technical standard, New York State Stormwater Management Design Manual ("Design Manual").

- Entire New York City Watershed located east of the Hudson River - Figure 1
- Onondaga Lake Watershed - Figure 2
- Greenwood Lake Watershed -Figure 3
- Oscawana Lake Watershed – Figure 4
- Kinderhook Lake Watershed – Figure 5

Figure 1 - New York City Watershed East of the Hudson

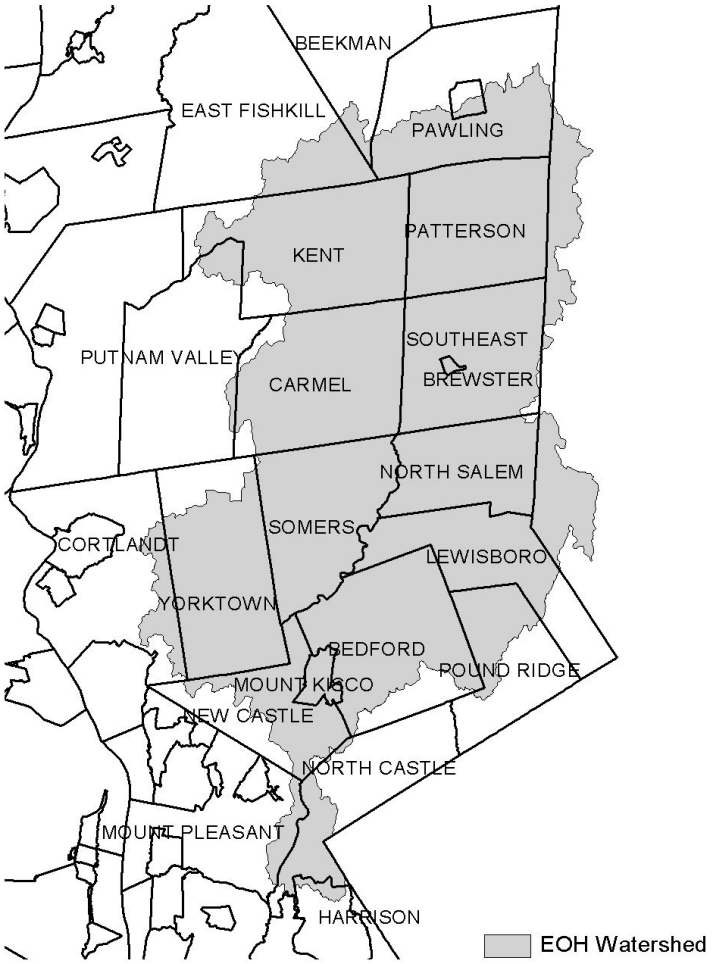


Figure 2 - Onondaga Lake Watershed



Figure 3 - Greenwood Lake Watershed

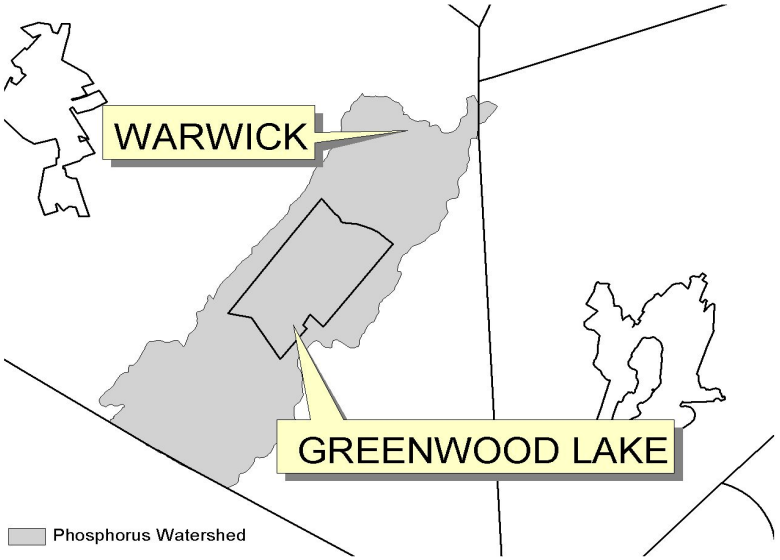


Figure 4 - Oscawana Lake Watershed

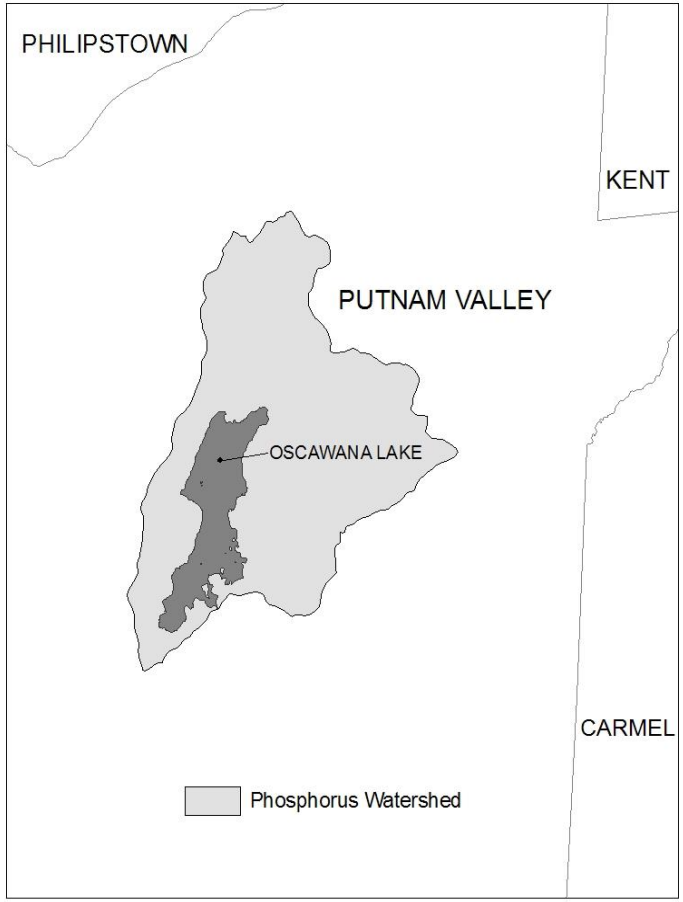
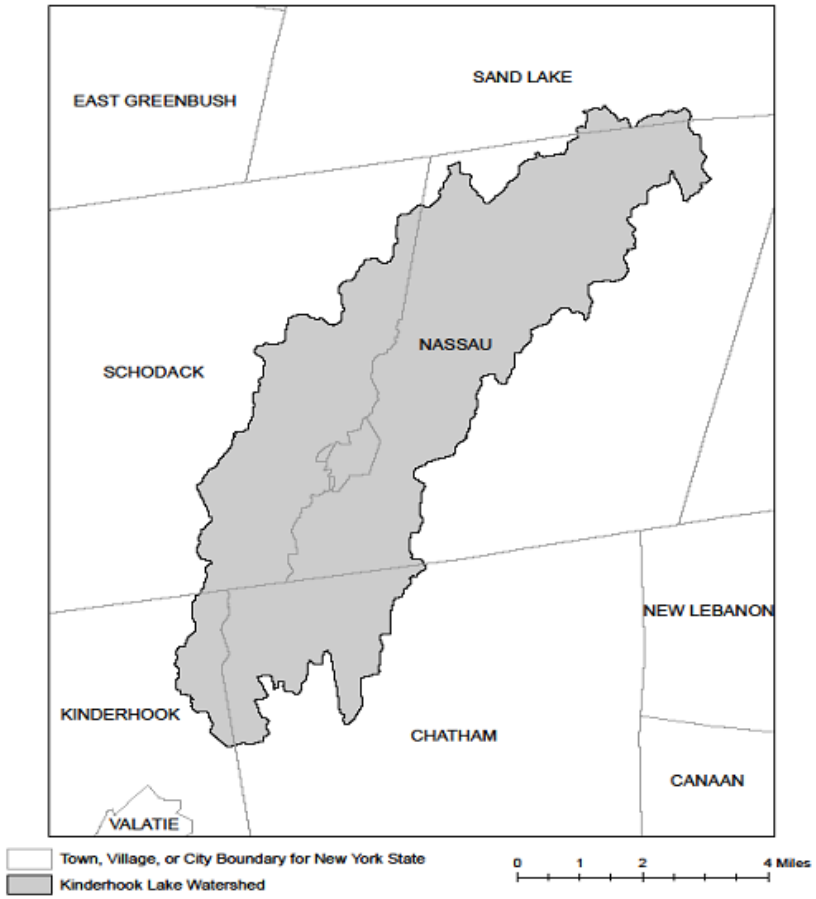


Figure 5 - Kinderhook Lake Watershed



APPENDIX D – Watersheds with Lower Disturbance Threshold

Watersheds where *owners or operators* of construction activities that involve soil disturbances between five thousand (5000) square feet and one (1) acre of land must obtain coverage under this permit.

Entire New York City Watershed that is located east of the Hudson River - See Figure 1 in Appendix C

APPENDIX E – 303(d) Segments Impaired by Construction Related Pollutant(s)

List of 303(d) segments impaired by pollutants related to *construction activity* (e.g. silt, sediment or nutrients). The list was developed using "The Final New York State 2016 Section 303(d) List of Impaired Waters Requiring a TMDL/Other Strategy" dated November 2016. *Owners or operators* of single family home and single family residential subdivisions with 25% or less total impervious cover at total site build-out that involve soil disturbances of one or more acres of land, but less than 5 acres, and *directly discharge* to one of the listed segments below shall prepare a SWPPP that includes post-construction stormwater management practices designed in conformance with the New York State Stormwater Management Design Manual ("Design Manual"), dated January 2015.

COUNTY	WATERBODY	POLLUTANT
Albany	Ann Lee (Shakers) Pond, Stump Pond	Nutrients
Albany	Basic Creek Reservoir	Nutrients
Allegany	Amity Lake, Saunders Pond	Nutrients
Bronx	Long Island Sound, Bronx	Nutrients
Bronx	Van Cortlandt Lake	Nutrients
Broome	Fly Pond, Deer Lake, Sky Lake	Nutrients
Broome	Minor Tribs to Lower Susquehanna (north)	Nutrients
Broome	Whitney Point Lake/Reservoir	Nutrients
Cattaraugus	Allegheny River/Reservoir	Nutrients
Cattaraugus	Beaver (Alma) Lake	Nutrients
Cattaraugus	Case Lake	Nutrients
Cattaraugus	Linlyco/Club Pond	Nutrients
Cayuga	Duck Lake	Nutrients
Cayuga	Little Sodus Bay	Nutrients
Chautauqua	Bear Lake	Nutrients
Chautauqua	Chadakoin River and tribs	Nutrients
Chautauqua	Chautauqua Lake, North	Nutrients
Chautauqua	Chautauqua Lake, South	Nutrients
Chautauqua	Findley Lake	Nutrients
Chautauqua	Hulburt/Clymer Pond	Nutrients
Clinton	Great Chazy River, Lower, Main Stem	Silt/Sediment
Clinton	Lake Champlain, Main Lake, Middle	Nutrients
Clinton	Lake Champlain, Main Lake, North	Nutrients
Columbia	Kinderhook Lake	Nutrients
Columbia	Robinson Pond	Nutrients
Cortland	Dean Pond	Nutrients

Dutchess	Fall Kill and tribs	Nutrients
Dutchess	Hillside Lake	Nutrients
Dutchess	Wappingers Lake	Nutrients
Dutchess	Wappingers Lake	Silt/Sediment
Erie	Beeman Creek and tribs	Nutrients
Erie	Ellicott Creek, Lower, and tribs	Silt/Sediment
Erie	Ellicott Creek, Lower, and tribs	Nutrients
Erie	Green Lake	Nutrients
Erie	Little Sister Creek, Lower, and tribs	Nutrients
Erie	Murder Creek, Lower, and tribs	Nutrients
Erie	Rush Creek and tribs	Nutrients
Erie	Scajaquada Creek, Lower, and tribs	Nutrients
Erie	Scajaquada Creek, Middle, and tribs	Nutrients
Erie	Scajaquada Creek, Upper, and tribs	Nutrients
Erie	South Branch Smoke Cr, Lower, and tribs	Silt/Sediment
Erie	South Branch Smoke Cr, Lower, and tribs	Nutrients
Essex	Lake Champlain, Main Lake, South	Nutrients
Essex	Lake Champlain, South Lake	Nutrients
Essex	Willsboro Bay	Nutrients
Genesee	Bigelow Creek and tribs	Nutrients
Genesee	Black Creek, Middle, and minor tribs	Nutrients
Genesee	Black Creek, Upper, and minor tribs	Nutrients
Genesee	Bowen Brook and tribs	Nutrients
Genesee	LeRoy Reservoir	Nutrients
Genesee	Oak Orchard Cr, Upper, and tribs	Nutrients
Genesee	Tonawanda Creek, Middle, Main Stem	Nutrients
Greene	Schoharie Reservoir	Silt/Sediment
Greene	Sleepy Hollow Lake	Silt/Sediment
Herkimer	Steele Creek tribs	Silt/Sediment
Herkimer	Steele Creek tribs	Nutrients
Jefferson	Moon Lake	Nutrients
Kings	Hendrix Creek	Nutrients
Kings	Prospect Park Lake	Nutrients
Lewis	Mill Creek/South Branch, and tribs	Nutrients
Livingston	Christie Creek and tribs	Nutrients
Livingston	Conesus Lake	Nutrients
Livingston	Mill Creek and minor tribs	Silt/Sediment
Monroe	Black Creek, Lower, and minor tribs	Nutrients
Monroe	Buck Pond	Nutrients
Monroe	Cranberry Pond	Nutrients

Monroe	Lake Ontario Shoreline, Western	Nutrients
Monroe	Long Pond	Nutrients
Monroe	Mill Creek and tribs	Nutrients
Monroe	Mill Creek/Blue Pond Outlet and tribs	Nutrients
Monroe	Minor Tribs to Irondequoit Bay	Nutrients
Monroe	Rochester Embayment - East	Nutrients
Monroe	Rochester Embayment - West	Nutrients
Monroe	Shipbuilders Creek and tribs	Nutrients
Monroe	Thomas Creek/White Brook and tribs	Nutrients
Nassau	Beaver Lake	Nutrients
Nassau	Camaans Pond	Nutrients
Nassau	East Meadow Brook, Upper, and tribs	Silt/Sediment
Nassau	East Rockaway Channel	Nutrients
Nassau	Grant Park Pond	Nutrients
Nassau	Hempstead Bay	Nutrients
Nassau	Hempstead Lake	Nutrients
Nassau	Hewlett Bay	Nutrients
Nassau	Hog Island Channel	Nutrients
Nassau	Long Island Sound, Nassau County Waters	Nutrients
Nassau	Massapequa Creek and tribs	Nutrients
Nassau	Milburn/Parsonage Creeks, Upp, and tribs	Nutrients
Nassau	Reynolds Channel, west	Nutrients
Nassau	Tidal Tribs to Hempstead Bay	Nutrients
Nassau	Tribs (fresh) to East Bay	Nutrients
Nassau	Tribs (fresh) to East Bay	Silt/Sediment
Nassau	Tribs to Smith/Halls Ponds	Nutrients
Nassau	Woodmere Channel	Nutrients
New York	Harlem Meer	Nutrients
New York	The Lake in Central Park	Nutrients
Niagara	Bergholtz Creek and tribs	Nutrients
Niagara	Hyde Park Lake	Nutrients
Niagara	Lake Ontario Shoreline, Western	Nutrients
Niagara	Lake Ontario Shoreline, Western	Nutrients
Oneida	Ballou, Nail Creeks and tribs	Nutrients
Onondaga	Harbor Brook, Lower, and tribs	Nutrients
Onondaga	Ley Creek and tribs	Nutrients
Onondaga	Minor Tribs to Onondaga Lake	Nutrients
Onondaga	Ninemile Creek, Lower, and tribs	Nutrients
Onondaga	Onondaga Creek, Lower, and tribs	Nutrients
Onondaga	Onondaga Creek, Middle, and tribs	Nutrients

303(d) Segments Impaired by Construction Related Pollutant(s)

Onondaga	Onondaga Lake, northern end	Nutrients
Onondaga	Onondaga Lake, southern end	Nutrients
Ontario	Great Brook and minor tribs	Silt/Sediment
Ontario	Great Brook and minor tribs	Nutrients
Ontario	Hemlock Lake Outlet and minor tribs	Nutrients
Ontario	Honeoye Lake	Nutrients
Orange	Greenwood Lake	Nutrients
Orange	Monhagen Brook and tribs	Nutrients
Orange	Orange Lake	Nutrients
Orleans	Lake Ontario Shoreline, Western	Nutrients
Orleans	Lake Ontario Shoreline, Western	Nutrients
Oswego	Lake Neatahwanta	Nutrients
Oswego	Pleasant Lake	Nutrients
Putnam	Bog Brook Reservoir	Nutrients
Putnam	Boyd Corners Reservoir	Nutrients
Putnam	Croton Falls Reservoir	Nutrients
Putnam	Diverting Reservoir	Nutrients
Putnam	East Branch Reservoir	Nutrients
Putnam	Lake Carmel	Nutrients
Putnam	Middle Branch Reservoir	Nutrients
Putnam	Oscawana Lake	Nutrients
Putnam	Palmer Lake	Nutrients
Putnam	West Branch Reservoir	Nutrients
Queens	Bergen Basin	Nutrients
Queens	Flushing Creek/Bay	Nutrients
Queens	Jamaica Bay, Eastern, and tribs (Queens)	Nutrients
Queens	Kissena Lake	Nutrients
Queens	Meadow Lake	Nutrients
Queens	Willow Lake	Nutrients
Rensselaer	Nassau Lake	Nutrients
Rensselaer	Snyders Lake	Nutrients
Richmond	Grasmere Lake/Bradys Pond	Nutrients
Rockland	Congers Lake, Swartout Lake	Nutrients
Rockland	Rockland Lake	Nutrients
Saratoga	Ballston Lake	Nutrients
Saratoga	Dwaas Kill and tribs	Silt/Sediment
Saratoga	Dwaas Kill and tribs	Nutrients
Saratoga	Lake Lonely	Nutrients
Saratoga	Round Lake	Nutrients
Saratoga	Tribs to Lake Lonely	Nutrients

Schenectady	Collins Lake	Nutrients
Schenectady	Duane Lake	Nutrients
Schenectady	Mariaville Lake	Nutrients
Schoharie	Engleville Pond	Nutrients
Schoharie	Summit Lake	Nutrients
Seneca	Reeder Creek and tribs	Nutrients
St.Lawrence	Black Lake Outlet/Black Lake	Nutrients
St.Lawrence	Fish Creek and minor tribs	Nutrients
Steuben	Smith Pond	Nutrients
Suffolk	Agawam Lake	Nutrients
Suffolk	Big/Little Fresh Ponds	Nutrients
Suffolk	Canaan Lake	Silt/Sediment
Suffolk	Canaan Lake	Nutrients
Suffolk	Flanders Bay, West/Lower Sawmill Creek	Nutrients
Suffolk	Fresh Pond	Nutrients
Suffolk	Great South Bay, East	Nutrients
Suffolk	Great South Bay, Middle	Nutrients
Suffolk	Great South Bay, West	Nutrients
Suffolk	Lake Ronkonkoma	Nutrients
Suffolk	Long Island Sound, Suffolk County, West	Nutrients
Suffolk	Mattituck (Marratooka) Pond	Nutrients
Suffolk	Meetinghouse/Terrys Creeks and tribs	Nutrients
Suffolk	Mill and Seven Ponds	Nutrients
Suffolk	Millers Pond	Nutrients
Suffolk	Moriches Bay, East	Nutrients
Suffolk	Moriches Bay, West	Nutrients
Suffolk	Peconic River, Lower, and tidal tribs	Nutrients
Suffolk	Quantuck Bay	Nutrients
Suffolk	Shinnecock Bay and Inlet	Nutrients
Suffolk	Tidal tribs to West Moriches Bay	Nutrients
Sullivan	Bodine, Montgomery Lakes	Nutrients
Sullivan	Davies Lake	Nutrients
Sullivan	Evens Lake	Nutrients
Sullivan	Pleasure Lake	Nutrients
Tompkins	Cayuga Lake, Southern End	Nutrients
Tompkins	Cayuga Lake, Southern End	Silt/Sediment
Tompkins	Owasco Inlet, Upper, and tribs	Nutrients
Ulster	Ashokan Reservoir	Silt/Sediment
Ulster	Esopus Creek, Upper, and minor tribs	Silt/Sediment
Warren	Hague Brook and tribs	Silt/Sediment

Warren	Huddle/Finkle Brooks and tribs	Silt/Sediment
Warren	Indian Brook and tribs	Silt/Sediment
Warren	Lake George	Silt/Sediment
Warren	Tribs to L.George, Village of L George	Silt/Sediment
Washington	Cossayuna Lake	Nutrients
Washington	Lake Champlain, South Bay	Nutrients
Washington	Tribs to L.George, East Shore	Silt/Sediment
Washington	Wood Cr/Champlain Canal and minor tribs	Nutrients
Wayne	Port Bay	Nutrients
Westchester	Amawalk Reservoir	Nutrients
Westchester	Blind Brook, Upper, and tribs	Silt/Sediment
Westchester	Cross River Reservoir	Nutrients
Westchester	Lake Katonah	Nutrients
Westchester	Lake Lincolndale	Nutrients
Westchester	Lake Meahagh	Nutrients
Westchester	Lake Mohegan	Nutrients
Westchester	Lake Shenorock	Nutrients
Westchester	Long Island Sound, Westchester (East)	Nutrients
Westchester	Mamaroneck River, Lower	Silt/Sediment
Westchester	Mamaroneck River, Upper, and minor tribs	Silt/Sediment
Westchester	Muscoot/Upper New Croton Reservoir	Nutrients
Westchester	New Croton Reservoir	Nutrients
Westchester	Peach Lake	Nutrients
Westchester	Reservoir No.1 (Lake Isle)	Nutrients
Westchester	Saw Mill River, Lower, and tribs	Nutrients
Westchester	Saw Mill River, Middle, and tribs	Nutrients
Westchester	Sheldrake River and tribs	Silt/Sediment
Westchester	Sheldrake River and tribs	Nutrients
Westchester	Silver Lake	Nutrients
Westchester	Teatown Lake	Nutrients
Westchester	Titicus Reservoir	Nutrients
Westchester	Truesdale Lake	Nutrients
Westchester	Wallace Pond	Nutrients
Wyoming	Java Lake	Nutrients
Wyoming	Silver Lake	Nutrients

APPENDIX F – List of NYS DEC Regional Offices

Region	Covering the following counties:	DIVISION OF ENVIRONMENTAL PERMITS (DEP) Permit Administrators	DIVISION OF WATER (DOW) Water (SPDES) Program
1	Nassau and Suffolk	50 Circle Road Stony Brook, NY 11790 Tel. (631) 444-0365	50 Circle Road Stony Brook, NY 11790-3409 Tel. (631) 444-0405
2	Bronx, Kings, New York, Queens and Richmond	1 Hunters Point Plaza, 47-40 21st St. Long Island City, NY 11101-5407 Tel. (718) 482-4997	1 Hunters Point Plaza, 47-40 21st St. Long Island City, NY 11101-5407 Tel. (718) 482-4933
3	Dutchess, Orange, Putnam, Rockland, Sullivan, Ulster and Westchester	21 South Putt Corners Road New Paltz, NY 12561-1696 Tel. (845) 256-3059	100 Hillside Avenue, Suite 1w White Plains, NY 10603 Tel. (914) 428 - 2505
4	Albany, Columbia, Delaware, Greene, Montgomery, Otsego, Rensselaer, Schenectady and Schoharie	1150 North Westcott Road Schenectady, NY 12306-2014 Tel. (518) 357-2069	1130 North Westcott Road Schenectady, NY 12306-2014 Tel. (518) 357-2045
5	Clinton, Essex, Franklin, Fulton, Hamilton, Saratoga, Warren and Washington	1115 State Route 86, Po Box 296 Ray Brook, NY 12977-0296 Tel. (518) 897-1234	232 Golf Course Road Warrensburg, NY 12885-1172 Tel. (518) 623-1200
6	HERKIMER, JEFFERSON, LEWIS, ONEIDA AND ST. LAWRENCE	STATE OFFICE BUILDING 317 WASHINGTON STREET WATERTOWN, NY 13601-3787 TEL. (315) 785-2245	STATE OFFICE BUILDING 207 GENESEE STREET UTICA, NY 13501-2885 TEL. (315) 793-2554
7	BROOME, CAYUGA, CHENANGO, CORTLAND, MADISON, ONONDAGA, OSWEGO, TIOGA AND TOMPKINS	615 ERIE BLVD. WEST SYRACUSE, NY 13204-2400 TEL. (315) 426-7438	615 ERIE BLVD. WEST SYRACUSE, NY 13204-2400 TEL. (315) 426-7500
8	CHEMUNG, GENESEE, LIVINGSTON, MONROE, ONTARIO, ORLEANS, SCHUYLER, SENECA, STEUBEN, WAYNE AND YATES	6274 EAST AVON-LIMA ROADAVON, NY 14414-9519 TEL. (585) 226-2466	6274 EAST AVON-LIMA RD. AVON, NY 14414-9519 TEL. (585) 226-2466
9	ALLEGANY, CATTARAUGUS, CHAUTAUQUA, ERIE, NIAGARA AND WYOMING	270 MICHIGAN AVENUE BUFFALO, NY 14203-2999 TEL. (716) 851-7165	270 MICHIGAN AVENUE BUFFALO, NY 14203-2999 TEL. (716) 851-7070

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Appendix B:
NYSDEC Forms

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NOI for coverage under Stormwater General Permit for Construction Activity

version 1.29

(Submission #: HP6-TD89-CR09C, version 2)

Details

Submitted	3/3/2021 (0 days ago) by Long Nguyen
Alternate ID	248 Tioronda
Submission ID	HP6-TD89-CR09C
Submission Reason	New
Status	Submitted
Active Steps	Under Review

Form Input

Owner/Operator Information

Owner/Operator Name (Company/Private Owner/Municipality/Agency/Institution, etc.)
Beacon 248 Holdings LLC

Owner/Operator Contact Person Last Name (NOT CONSULTANT)
Kohn

Owner/Operator Contact Person First Name
Berry

Owner/Operator Mailing Address
147 Union Street, Suite 101

City
Poughkeepsie

State
NY

Zip
12601

Phone
917-696-4402

Email
berry@chaibuilders.com

Federal Tax ID
82-0995024

Project Location

Project/Site Name
248 Tioronda

Street Address (Not P.O. Box)
248 Tioronda Ave

Side of Street
East

City/Town/Village (THAT ISSUES BUILDING PERMIT)
Beeacon

State
NY

Zip
12508-4022

County
DUTCHESS

DEC Region
3

Name of Nearest Cross Street
Knevels Ave

Distance to Nearest Cross Street (Feet)
100

Project In Relation to Cross Street
North

Tax Map Numbers Section-Block-Parcel
5954-10-993482

Tax Map Numbers
6054-45-012574

1. Coordinates

Provide the Geographic Coordinates for the project site. The two methods are:
- Navigate to the project location on the map (below) and click to place a marker and obtain the XY coordinates.
- The "Find Me" button will provide the lat/long for the person filling out this form. Then pan the map to the correct location and click the map to place a marker and obtain the XY coordinates.

Navigate to your location and click on the map to get the X,Y coordinates
586100,4594101

Project Details

2. What is the nature of this project?
Redevelopment with increase in impervious area

3. Select the predominant land use for both pre and post development conditions.

Pre-Development Existing Landuse
Other: Vacant Parcel

Post-Development Future Land Use
Other: Mixed Use

3a. If Single Family Subdivision was selected in question 3, enter the number of subdivision lots.
NONE PROVIDED

4. In accordance with the larger common plan of development or sale, enter the total project site acreage, the acreage to be disturbed and the future impervious area (acreage)within the disturbed area.

*** ROUND TO THE NEAREST TENTH OF AN ACRE. ***

Total Site Area (acres)
9.2

Total Area to be Disturbed (acres)
5.0

Existing Impervious Area to be Disturbed (acres)
2.5

Future Impervious Area Within Disturbed Area (acres)
4.7

5. Do you plan to disturb more than 5 acres of soil at any one time?
No

---

6. Indicate the percentage (%) of each Hydrologic Soil Group(HSG) at the site.

A (%)
100

B (%)
0

C (%)
0

D (%)
0

7. Is this a phased project?
No

8. Enter the planned start and end dates of the disturbance activities.

Start Date
02/22/2021

End Date
02/22/2022

9. Identify the nearest surface waterbody(ies) to which construction site runoff will discharge.
Fishkill Creek

9a. Type of waterbody identified in question 9?
Stream/Creek Off Site

Other Waterbody Type Off Site Description
NONE PROVIDED

9b. If "wetland" was selected in 9A, how was the wetland identified?
Regulatory Map

10. Has the surface waterbody(ies in question 9 been identified as a 303(d) segment in Appendix E of GP-0-20-001?
No

11. Is this project located in one of the Watersheds identified in Appendix C of GP-0-20-001?
No

12. Is the project located in one of the watershed areas associated with AA and AA-S classified waters?
No

If No, skip question 13.

13. Does this construction activity disturb land with no existing impervious cover and where the Soil Slope Phase is identified as an E or F on the USDA Soil Survey?
NONE PROVIDED

If Yes, what is the acreage to be disturbed?
NONE PROVIDED

14. Will the project disturb soils within a State regulated wetland or the protected 100 foot adjacent area?
No

15. Does the site runoff enter a separate storm sewer system (including roadside drains, swales, ditches, culverts, etc)?
No

16. What is the name of the municipality/entity that owns the separate storm sewer system?
N/A

17. Does any runoff from the site enter a sewer classified as a Combined Sewer?
No

18. Will future use of this site be an agricultural property as defined by the NYS Agriculture and Markets Law?
No

19. Is this property owned by a state authority, state agency, federal government or local government?
No

20. Is this a remediation project being done under a Department approved work plan? (i.e. CERCLA, RCRA, Voluntary Cleanup Agreement, etc.)
No

Required SWPPP Components

21. Has the required Erosion and Sediment Control component of the SWPPP been developed in conformance with the current NYS Standards and Specifications for Erosion and Sediment Control (aka Blue Book)?
Yes

22. Does this construction activity require the development of a SWPPP that includes the post-construction stormwater management practice component (i.e. Runoff Reduction, Water Quality and Quantity Control practices/techniques)?
Yes

If you answered No in question 22, skip question 23 and the Post-construction Criteria and Post-construction SMP Identification sections.

23. Has the post-construction stormwater management practice component of the SWPPP been developed in conformance with the current NYS Stormwater Management Design Manual?
Yes

24. The Stormwater Pollution Prevention Plan (SWPPP) was prepared by:
Professional Engineer (P.E.)

SWPPP Preparer
Christopher P. Lapine

Contact Name (Last, Space, First)
Lapine, Christopher

Mailing Address
21 Fox Street

City
Poughkeepsie

State
NY

Zip
12601-4724

Phone
845-454-3980

Email
clapinee@chazencompanies.com

Download SWPPP Preparer Certification Form
Please take the following steps to prepare and upload your preparer certification form:

1) Click on the link below to download a blank certification form
2) The certified SWPPP preparer should sign this form
3) Scan the signed form
4) Upload the scanned document
Download SWPPP Preparer Certification Form

Please upload the SWPPP Preparer Certification

> SWPPP Preparer Certification Form (GP-0-20-001).pdf - 02/26/2021 11:03 AM
> **Comment**
> NONE PROVIDED

Erosion & Sediment Control Criteria

25. Has a construction sequence schedule for the planned management practices been prepared?
Yes

26. Select all of the erosion and sediment control practices that will be employed on the project site:

Temporary Structural
Dust Control
Silt Fence
Stabilized Construction Entrance
Storm Drain Inlet Protection
Straw/Hay Bale Dike

Biotechnical
None

Vegetative Measures
Brush Matting
Mulching
Seeding
Topsoiling

Permanent Structural
Diversion
Land Grading
Rock Outlet Protection

Other
NONE PROVIDED

Post-Construction Criteria

*** IMPORTANT: Completion of Questions 27-39 is not required if response to Question 22 is No.**

27. Identify all site planning practices that were used to prepare the final site plan/layout for the project.
Reduction of Clearing and Grading
Sidewalk Reduction
Parking Reduction

27a. Indicate which of the following soil restoration criteria was used to address the requirements in Section 5.1.6("Soil Restoration") of the Design Manual (2010 version).
All disturbed areas will be restored in accordance with the Soil Restoration requirements in Table 5.3 of the Design Manual (see page 5-22).

28. Provide the total Water Quality Volume (WQv) required for this project (based on final site plan/layout). (Acre-feet)
0.318

29. Post-construction SMP Identification
Use the Post-construction SMP Identification section to identify the RR techniques (Area Reduction), RR techniques(Volume Reduction) and Standard SMPs with RRv Capacity that were used to reduce the Total WQv Required (#28).

Identify the SMPs to be used by providing the total impervious area that contributes runoff to each technique/practice selected. For the Area Reduction Techniques, provide the total

contributing area (includes pervious area) and, if applicable, the total impervious area that contributes runoff to the technique/practice.

Note: Redevelopment projects shall use the Post-Construction SMP Identification section to identify the SMPs used to treat and/or reduce the WQv required. If runoff reduction techniques will not be used to reduce the required WQv, skip to question 33a after identifying the SMPs.

30. Indicate the Total RRv provided by the RR techniques (Area/Volume Reduction) and Standard SMPs with RRv capacity identified in question 29. (acre-feet)
0.055

31. Is the Total RRv provided (#30) greater than or equal to the total WQv required (#28)?
No

If Yes, go to question 36. If No, go to question 32.

32. Provide the Minimum RRv required based on HSG. [Minimum RRv Required = (P) (0.95) (Ai) / 12, Ai=(s) (Aic)] (acre-feet)
0.052

32a. Is the Total RRv provided (#30) greater than or equal to the Minimum RRv Required (#32)?
Yes

If Yes, go to question 33.
Note: Use the space provided in question #39 to summarize the specific site limitations and justification for not reducing 100% of WQv required (#28). A detailed evaluation of the specific site limitations and justification for not reducing 100% of the WQv required (#28) must also be included in the SWPPP.

If No, sizing criteria has not been met; therefore, NOI can not be processed. SWPPP preparer must modify design to meet sizing criteria.

33. SMPs
Use the Post-construction SMP Identification section to identify the Standard SMPs and, if applicable, the Alternative SMPs to be used to treat the remaining total WQv (=Total WQv Required in #28 - Total RRv Provided in #30).

Also, provide the total impervious area that contributes runoff to each practice selected.

NOTE: Use the Post-construction SMP Identification section to identify the SMPs used on Redevelopment projects.

33a. Indicate the Total WQv provided (i.e. WQv treated) by the SMPs identified in question #33 and Standard SMPs with RRv Capacity identified in question #29. (acre-feet)
0.298

Note: For the standard SMPs with RRv capacity, the WQv provided by each practice = the WQv calculated using the contributing drainage area to the practice - provided by the practice. (See Table 3.5 in Design Manual)

34. Provide the sum of the Total RRv provided (#30) and the WQv provided (#33a).
0.353

35. Is the sum of the RRv provided (#30) and the WQv provided (#33a) greater than or equal to the total WQv required (#28)?
Yes

If Yes, go to question 36.

If No, sizing criteria has not been met; therefore, NOI can not be processed. SWPPP preparer must modify design to meet sizing criteria.

36. Provide the total Channel Protection Storage Volume (CPv required and provided or select waiver (#36a), if applicable.

CPv Required (acre-feet)
NONE PROVIDED

CPv Provided (acre-feet)
NONE PROVIDED

36a. The need to provide channel protection has been waived because:
Site discharges directly to tidal waters or a fifth order or larger stream.

37. Provide the Overbank Flood (Qp) and Extreme Flood (Qf) control criteria or select waiver (#37a), if applicable.

Overbank Flood Control Criteria (Qp)

Pre-Development (CFS)
0

Post-Development (CFS)
0

Total Extreme Flood Control Criteria (Qf)

Pre-Development (CFS)
0

Post-Development (CFS)
0

37a. The need to meet the Qp and Qf criteria has been waived because:
Downstream analysis reveals that the Qp and Qf controls are not required.

38. Has a long term Operation and Maintenance Plan for the post-construction stormwater management practice(s) been developed?
Yes

If Yes, Identify the entity responsible for the long term Operation and Maintenance
Berry Kohn

39. Use this space to summarize the specific site limitations and justification for not reducing 100% of WQv required (#28). (See question #32a) This space can also be used for other pertinent project information.
Regarding 36a, down stream analysis shows no flood control devices are needed.

Post-Construction SMP Identification

Runoff Reduction (RR) Techniques, Standard Stormwater Management Practices (SMPs) and Alternative SMPs
Identify the Post-construction SMPs to be used by providing the total impervious area that contributes runoff to each technique/practice selected. For the Area Reduction Techniques, provide the total contributing area (includes pervious area) and, if applicable, the total impervious area that contributes runoff to the technique/practice.

RR Techniques (Area Reduction)

Round to the nearest tenth

Total Contributing Acres for Conservation of Natural Area (RR-1)
NONE PROVIDED

Total Contributing Impervious Acres for Conservation of Natural Area (RR-1)
NONE PROVIDED

Total Contributing Acres for Sheetflow to Riparian Buffers/Filter Strips (RR-2)
NONE PROVIDED

Total Contributing Impervious Acres for Sheetflow to Riparian Buffers/Filter Strips (RR-2)
NONE PROVIDED

Total Contributing Acres for Tree Planting/Tree Pit (RR-3)
NONE PROVIDED

Total Contributing Impervious Acres for Tree Planting/Tree Pit (RR-3)
NONE PROVIDED

Total Contributing Acres for Disconnection of Rooftop Runoff (RR-4)
NONE PROVIDED

RR Techniques (Volume Reduction)

Total Contributing Impervious Acres for Disconnection of Rooftop Runoff (RR-4)
NONE PROVIDED

Total Contributing Impervious Acres for Vegetated Swale (RR-5)
NONE PROVIDED

Total Contributing Impervious Acres for Rain Garden (RR-6)
NONE PROVIDED

Total Contributing Impervious Acres for Stormwater Planter (RR-7)
NONE PROVIDED

Total Contributing Impervious Acres for Rain Barrel/Cistern (RR-8)
NONE PROVIDED

Total Contributing Impervious Acres for Porous Pavement (RR-9)
NONE PROVIDED

Total Contributing Impervious Acres for Green Roof (RR-10)
NONE PROVIDED

Standard SMPs with RRv Capacity

Total Contributing Impervious Acres for Infiltration Trench (I-1)
NONE PROVIDED

Total Contributing Impervious Acres for Infiltration Basin (I-2)
NONE PROVIDED

Total Contributing Impervious Acres for Dry Well (I-3)
NONE PROVIDED

Total Contributing Impervious Acres for Underground Infiltration System (I-4)
NONE PROVIDED

Total Contributing Impervious Acres for Bioretention (F-5)
1.1

Total Contributing Impervious Acres for Dry Swale (O-1)
NONE PROVIDED

Standard SMPs

Total Contributing Impervious Acres for Micropool Extended Detention (P-1)
NONE PROVIDED

Total Contributing Impervious Acres for Wet Pond (P-2)
NONE PROVIDED

Total Contributing Impervious Acres for Wet Extended Detention (P-3)
NONE PROVIDED

Total Contributing Impervious Acres for Multiple Pond System (P-4)
NONE PROVIDED

Total Contributing Impervious Acres for Pocket Pond (P-5)
NONE PROVIDED

Total Contributing Impervious Acres for Surface Sand Filter (F-1)
NONE PROVIDED

Total Contributing Impervious Acres for Underground Sand Filter (F-2)
NONE PROVIDED

Total Contributing Impervious Acres for Perimeter Sand Filter (F-3)
NONE PROVIDED

Total Contributing Impervious Acres for Organic Filter (F-4)
NONE PROVIDED

Total Contributing Impervious Acres for Shallow Wetland (W-1)
NONE PROVIDED

Total Contributing Impervious Acres for Extended Detention Wetland (W-2)
NONE PROVIDED

Total Contributing Impervious Acres for Pond/Wetland System (W-3)
NONE PROVIDED

Total Contributing Impervious Acres for Pocket Wetland (W-4)
NONE PROVIDED

Total Contributing Impervious Acres for Wet Swale (O-2)
NONE PROVIDED

Alternative SMPs (DO NOT INCLUDE PRACTICES BEING USED FOR PRETREATMENT ONLY)

Total Contributing Impervious Area for Hydrodynamic
1.9

Total Contributing Impervious Area for Wet Vault
NONE PROVIDED

Total Contributing Impervious Area for Media Filter
NONE PROVIDED

"Other" Alternative SMP?
NONE PROVIDED

Total Contributing Impervious Area for "Other"
NONE PROVIDED

Provide the name and manufaturer of the alternative SMPs (i.e. proprietary practice(s)) being used for WQv treatment.

Note: Redevelopment projects which do not use RR techniques, shall use questions 28, 29, 33 and 33a to provide SMPs used, total WQv required and total WQv provided for the project.

Manufacturer of Alternative SMP
Contech

Name of Alternative SMP
CDS

Other Permits

40. Identify other DEC permits, existing and new, that are required for this project/facility.
None

If SPDES Multi-Sector GP, then give permit ID
NONE PROVIDED

If Other, then identify
NONE PROVIDED

41. Does this project require a US Army Corps of Engineers Wetland Permit?
No

If "Yes," then indicate Size of Impact, in acres, to the nearest tenth
NONE PROVIDED

42. If this NOI is being submitted for the purpose of continuing or transferring coverage under a general permit for stormwater runoff from construction activities, please indicate the former SPDES number assigned.
NONE PROVIDED

MS4 SWPPP Acceptance

43. Is this project subject to the requirements of a regulated, traditional land use control MS4?
Yes - Please attach the MS4 Acceptance form below

If No, skip question 44

44. Has the "MS4 SWPPP Acceptance" form been signed by the principal executive officer or ranking elected official and submitted along with this NOI?
NONE PROVIDED

MS4 SWPPP Acceptance Form Download
Download form from the link below. Complete, sign, and upload.
MS4 SWPPP Acceptance Form

MS4 Acceptance Form Upload

> 3_App B_MS4 SWPPP Acceptance_GP-0-15-002 Signed Owner.pdf - 02/26/2021 11:43 AM
> **Comment**
> NONE PROVIDED

Owner/Operator Certification

Owner/Operator Certification Form Download
Download the certification form by clicking the link below. Complete, sign, scan, and upload the form.

Owner/Operator Certification Form (PDF, 45KB)

Upload Owner/Operator Certification Form

3_App B__NOI_81750-00_GP-0-15-002 Signed Owner.pdf - 03/03/2021 06:09 PM

Comment

NONE PROVIDED

Attachments

Date	Attachment Name	Context	User
3/3/2021 6:09 PM	3_App B__NOI_81750-00_GP-0-15-002 Signed Owner.pdf	Attachment	Long Nguyen
2/26/2021 11:43 AM	3_App B_MS4 SWPPP Acceptance_GP-0-15-002 Signed Owner.pdf	Attachment	Long Nguyen
2/26/2021 11:03 AM	SWPPP Preparer Certification Form (GP-0-20-001).pdf	Attachment	Long Nguyen

Status History

	User	Processing Status
3/3/2021 6:08:02 PM	Long Nguyen	Draft
3/3/2021 6:13:33 PM	Long Nguyen	Submitting
3/3/2021 6:13:47 PM	Long Nguyen	Submitted

Processing Steps

Step Name	Assigned To/Completed By	Date Completed
Form Submitted	Long Nguyen	3/3/2021 6:13:47 PM
Under Review	DAVID GASPER	

Revisions

Revision	Revision Date	Revision By
Revision 1	2/26/2021 10:20 AM	Long Nguyen

Revision	Revision Date	Revision By
Revision 2	3/3/2021 6:08 PM	Long Nguyen

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NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
Division of Water, Bureau of Water Permits
625 Broadway, Albany, New York 12233-3505
P: (518) 402-8111 F: (518) 402-9029
www.dec.ny.gov

3/11/2021

Beacon 248 Holdings LLC
Berry Kohn
147 Union Street, Suite 101
Poughkeepsie, NY 12601

RE: ACKNOWLEDGMENT of NOTICE OF INTENT for Coverage Under SPDES General Permit for Storm Water Discharges from CONSTRUCTION ACTIVITY – General Permit No. GP-0-20-001

Dear Prospective Permittee:

This is to acknowledge that the New York State Department of Environmental Conservation (Department) has received a complete Notice of Intent (NOI) for coverage under General Permit No. GP-0-20-001 for the construction activities located at:

248 Tioronda
248 Tioronda Ave
Beeacon, NY 12508-4022 County: **DUTCHESS**

Pursuant to Environmental Conservation Law (ECL) Article 17, Titles 7 and 8, and ECL Article 70, discharges in accordance with GP-0-20-001 from the above construction site will be authorized **5** business days from **3/3/2021,** which is the date we received your final NOI, unless notified differently by the Department.

The permit identification number for this site is: **NYR11H777**. Be sure to include this permit identification number on any forms or correspondence you send us. When coverage under the permit is no longer needed, you must submit a Notice of Termination to the Department.

This authorization is conditioned upon the following:

1. The information submitted in the NOI received by the Department on **3/3/2021** is accurate and complete.

2. You have developed a Stormwater Pollution Prevention Plan (SWPPP) that complies with GP-0-20 -001 which must be implemented as the first element of construction at the above-noted construction site.

3. Activities related to the above construction site comply with all other requirements of GP-0-20-001.

4. Payment of the annual $110 regulatory fee, which is billed separately by the Department in the late fall. The regulatory fee covers a period of one calendar year. In addition, since September 1, 2004, construction stormwater permittees have been assessed an initial authorization fee which is now $110 per acre of land disturbed and $675 per acre of future impervious area. The initial authorization fee covers the duration of the authorized disturbance.

5. Your SWPPP has been reviewed by the regulated, traditional land use control MS4 where your project is located and has been determined to be in substantive conformance with the requirements in the SPDES General Permit for Stormwater Discharges from MS4s.

6. When applicable, project review pursuant to the State Environmental Quality Review Act (SEQRA) has been satisfied.

7. You have obtained all necessary Department permits subject to the Uniform Procedures Act (UPA). You should check with your Regional Permit Administrator for further information.

***Note: Construction activities cannot commence until project review pursuant to SEQRA has been satisfied, when SEQRA is applicable; and, where required, all necessary Department permits subject to the UPA have been obtained.**

Please be advised that the Department may request a copy of your SWPPP for review.

Should you have any questions regarding any aspect of the requirements specified in GP-0-20-001, please contact Dave Gasper at (518) 402-8114.

Sincerely,

David Gasper

David Gasper
Environmental Engineer

cc: RWE - **3**
SWPPP Preparer
Christopher P. Lapine
Lapine, Christopher
21 Fox Street
Poughkeepsie, NY 12601-4724

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: Chai Builders

2. Street Address: 120 Route 59, Suite 201

3. City/State/Zip: Suffern, NY, 10901-4908

4. Contact Person: Berry Kohn | 4a.Telephone: 917-696-4402

4b. Contact Person E-Mail: berry@chaibuilders.com

II. Project Site Information

5. Project/Site Name: Chai Builders

6. Street Address: 248 Tioronda Ave

7. City/Zip: Beacon, 12508-4022

8. County: Dutchess

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)

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Appendix C:
Contractor's Certification Form
Subcontractor's Certification Form

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Stormwater Pollution Prevention Plan
Contractor Certification Statement
(Responsible for overall SWPPP Compliance)

248 Tioronda Ave.,
248 Tioronda Ave., City of Beacon, Dutchess County, New York

This is to certify that the following contracting firm will be responsible for installing, constructing, repairing, inspecting and/or maintaining the erosion and sediment control practices and post-construction stormwater management control practices required by the SWPPP.

Contracting Firm Information

Name: _____

Address: _____

Telephone & Fax: _____

Trained Contractor(s) [1] Responsible for SWPPP Implementation (Provide name, title, and date of last training)

_____

_____

Prior to commencement of construction activity, the following certification shall be issued:

I hereby certify under penalty of law 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 am aware that there are significant penalties for submitting false information, that I do not believe to be true, including the possibility of fine and imprisonment for knowing violations.

Printed Name: _____

Title/Position: _____

Signature: _____ Date: _____

Upon completion of construction activities, the following certification shall be issued, prior to issuance of the NOT:

I hereby certify that that all permanent stormwater management practices required by the SWPPP have been installed in accordance with the contract documents. I further certify that all temporary erosion and sediment control measures have been removed from the site, and that the on-site soils disturbed by construction activity have been restored in accordance with the SWPPP and the NYSDEC Division of Water's publication "Deep-Ripping and Decompaction".

Printed Name: _____

Title/Position: _____

Signature: _____ Date: _____

[1] "Trained Contractor" means an employee from a contracting (construction) company that has received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity. After receiving the initial training, the "trained contractor" shall receive four (4) hours of training every three (3) years. It can also mean an employee from the contracting (construction) company that meets the "qualified inspector" qualifications (e.g. licensed Professional Engineer, Certified Professional in Erosion and Sediment Control (CPESC), Registered Landscape Architect, or someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape Architect, provided they have received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity). The "Trained Contractor" will be responsible for the day to day implementation of the SWPPP.

[2] Signatory Requirements:

a. For a corporation, this form shall be signed by (i) a president, secretary, treasurer, or vice-president of the corporation in charge of a principle business function, or any other person who performs similar policy or decision-making functions for the corporation; or (ii) the manager of one or more manufacturing, production or operating facilities, provided the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.

b. For a partnership or sole proprietorship, this form shall be signed by a general partner or the proprietor, respectively.

c. For a municipality, State, Federal, or other public agency, this form shall be signed by either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a Federal agency includes (i) the chief executive officer of the agency, or (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g. Regional Administrators of EPA).

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Stormwater Pollution Prevention Plan
Subcontractor Certification Statement
(whose work involves soil disturbance)

248 Tioronda Ave.,

248 Tioronda Ave., City of Beacon, Dutchess County, New York

Each Subcontractor whose work will involve soil disturbance of any kind is required to complete and sign this Certification Statement before commencing any construction activity at the site. This completed Certification Statement(s) shall be maintained at the construction site in the Site Log Book.

Subcontracting Firm Information

Name: _____

Address: _____

_____

Telephone & Fax: _____

Trained Contractor(s)[2] Responsible for SWPPP Implementation (Provide name, title, and date of last training)

_____

_____

Prior to commencement of construction activities, the following certification shall be issued:

I hereby certify under penalty of law 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 am aware that there are significant penalties for submitting false information, that I do not believe to be true, including the possibility of fine and imprisonment for knowing violations.

Printed Name: _____

Title/Position: _____

Signature: _____ Date: _____

[2] "Trained Contractor" means an employee from a contracting (construction) company that has received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity. After receiving the initial training, the "trained contractor" shall receive four (4) hours of training every three (3) years. It can also mean an employee from the contracting (construction) company that meets the "qualified inspector" qualifications (e.g. licensed Professional Engineer, Certified Professional in Erosion and Sediment Control (CPESC), Registered Landscape Architect, or someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape Architect, provided they have received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity). The "Trained Contractor" will be responsible for the day to day implementation of the SWPPP.

[2] Signatory Requirements:

a. For a corporation, this form shall be signed by (i) a president, secretary, treasurer, or vice-president of the corporation in charge of a principle business function, or any other person who performs similar policy or decision-making functions for the corporation; or (ii) the manager of one or more manufacturing, production or operating facilities, provided the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.
b. For a partnership or sole proprietorship, this form shall be signed by a general partner or the proprietor, respectively.
c. For a municipality, State, Federal, or other public agency, this form shall be signed by either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a Federal agency includes (i) the chief executive officer of the agency, or (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g. Regional Administrators of EPA).

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Appendix D:
SWPPP Inspection Report
(Sample Form)

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Stormwater Pollution Prevention Plan
Inspection Report

248 Tioronda Ave.

248 Tioronda Ave.

Beacon, Dutchess, NY

A Qualified Inspector[1] shall prepare an inspection report subsequent to each and every inspection, as required in Part IV.C of the SPDES General Permit GP-0-15-002. All sections of this report are to be completed.

1. Inspection Information

Inspection number: _____

Date and Time of Inspection: _____

Weather Conditions: Snowing

Soil Conditions (e.g. dry, wet, saturated): Snow Covered _____

2. Inspector Information

Qualified Inspector[1]

Printed Name: _____ Date: _____

Signature: _____

Qualified Professional[1]

Printed Name _____ Date: _____

Signature: _____

3. On the included site plan, provide a 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. Provide additional descriptions below if necessary.

[1] *A Qualified Inspector means a person that is knowledgeable in the principles and practices of erosion and sediment control, such as licensed Professional Engineer, Certified Professional in Erosion and Sediment Control (CPESC), Registered Landscape Architect, or other Department endorsed individual(s). It can also mean someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape Architect, provided that person has training in the principles and practices of erosion and sediment control. Training in the principles and practices of erosion and sediment control means that the individual working under the direct supervision of the licensed Professional Engineer or Registered Landscape Architect has received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity. After receiving the initial training, the individual working under the direct supervision of the licensed Professional Engineer or Registered Landscape Architect shall receive four (4) hours of training every three (3) years. It can also mean a person that meets the Qualified Professional qualifications in addition to the Qualified Inspector qualifications. Note: Inspections of any post-construction stormwater management practices that include structural components, such as a dam for an impoundment, shall be performed by a licensed Professional Engineer.*

4. In the following table, provide a description of the condition of the runoff at all points of discharge from the construction site, including conveyance systems (pipes, culverts, ditches, etc.) and overland flow. Identify any discharges of sediment from the construction site. Use additional sheets if necessary.

Description of Discharge Point	Condition of Runoff	Sediment Discharge Noted
		☐ yes / no ☐ Estimated Quantity:
		☐ yes / no ☐ Estimated Quantity:
		☐ yes / no ☐ Estimated Quantity:
		☐ yes / no ☐ Estimated Quantity:

5. For all discharge points where sediment discharge has been noted in the above table, provide detailed corrective actions that are required. Use additional sheets if necessary.

6. **In the following table, provide checkmarks in the appropriate columns to indicate the condition of all erosion and sediment control practices at the site.**

Erosion & Sediment Control Practice	Not Applicable	Functioning as Designed	Needs Repair or Maintenance	Not Installed Properly	Date Deficiency First Reported (If Applicable)	Deficiency Corrected? Y/N (If Applicable)
Stabilized construction entrance						
Temporary parking areas						
Construction vehicle wash areas						
Silt fence						
Temporary swales and berms						
Stone check dams						
Slope protection measures						
Dewatering operations						
Sediment traps						
Inlet protection measures						
Soil stockpiles						
Dust control measures						
Pavement sweeping						
Other:						
Other:						

7. **For all erosion and sediment control practices identified in the above table as "needs repair or maintenance" or "not installed properly", provide detailed corrective actions that are required. Use additional sheets if necessary.**

8. In the following table, indicate the current phase of construction of all post-construction stormwater management practices and identify all construction that is not in conformance with the SWPPP and technical standards.

SWM Practice	Current Phase of Construction	Items not in conformance with the SWPPP

9. For all post-construction stormwater management practices which are identified in the above table as including "items not in conformance with the SWPPP", provide detailed corrective action(s) that are required to correct the deficiencies. Use additional sheets if necessary.

Photo Log

Date – Item in need of repair or maintenance:	*Date – Corrected Action:*
Date – Item in need of repair or maintenance:	*Date – Corrected Action:*

Photo Log

Date – Item in need of repair or maintenance:	*Date – Corrected Action:*
Date – Item in need of repair or maintenance:	*Date – Corrected Action:*

Appendix E:
NYSDEC “Deep-Ripping and Decompaction,” April 2008

New York State
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Water

Deep-Ripping and Decompaction

April 2008

Document Prepared by:

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Land Resource Consultant and Environmental Compliance Monitor
(Formerly with the Division of Agricultural Protection and Development Services,
NYS Dept. of Agriculture & Markets)

New York State
Department of Environmental Conservation

Alternative Stormwater Management
Deep-Ripping and Decompaction

Description

The two-phase practice of 1) “Deep Ripping;” and 2) “Decompaction” (deep subsoiling), of the soil material as a step in the cleanup and restoration/landscaping of a construction site, helps mitigate the physically induced impacts of soil compression; i.e.: soil compaction or the substantial increase in the bulk density of the soil material.

Deep Ripping and Decompaction are key factors which help in restoring soil pore space and permeability for water infiltration. Conversely, the physical actions of cut-and-fill work, land grading, the ongoing movement of construction equipment and the transport of building materials throughout a site alter the architecture and structure of the soil, resulting in: the mixing of layers (horizons) of soil materials, compression of those materials and diminished soil porosity which, if left unchecked, severely impairs the soil’s water holding capacity and vertical drainage (rainfall infiltration), from the surface downward.

In a humid climate region, compaction damage on a site is virtually guaranteed over the duration of a project. Soil in very moist to wet condition when compacted, will have severely reduced permeability. Figure 1 displays the early stage of the deep-ripping phase (Note that all topsoil was stripped prior to construction access, and it remains stockpiled until the next phase – decompaction – is complete). A heavy-duty tractor is pulling a three-shank ripper on the first of several series of incrementally deepening passes through the construction access corridor's densely compressed subsoil material. Figure 2 illustrates the approximate volumetric composition of a loam surface soil when conditions are good for plant growth, with adequate natural pore space for fluctuating moisture conditions.



Fig. 1. A typical deep ripping phase of this practice, during the first in a series of progressively deeper “rips” through severely compressed subsoil.

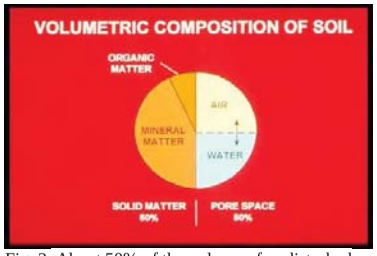

Fig. 2. About 50% of the volume of undisturbed loam surface soil is pore space, when soil is in good condition for plant growth. Brady, 2002.

Recommended Application of Practice

The objective of Deep Ripping and Decompaction is to effectively fracture (vertically and laterallly) through the thickness of the physically compressed subsoil material (see Figure 3), restoring soil porosity and permeability and aiding infiltration to help reduce runoff. Together with topsoil stripping, the “two-phase” practice of Deep Ripping and Decompaction first became established as a “best management practice” through ongoing success on commercial farmlands affected by heavy utility construction right-of-way projects (transmission pipelines and large power lines).



Fig. 3. Construction site with significant compaction of the deep basal till subsoil extends 24 inches below this exposed cut-and-fill work surface.

Soil permeability, soil drainage and cropland productivity were restored. For broader construction application, the two-phase practice of Deep Ripping and Decompaction is best adapted to areas impacted with significant soil compaction, on contiguous open portions of large construction sites and inside long, open construction corridors used as temporary access over the duration of construction. Each mitigation area should have minimal above-and-below-ground obstructions for the easy avoidance and maneuvering of a large tractor and ripping/decompacting implements. Conversely, the complete two-phase practice is not recommended in congested or obstructed areas due to the limitations on tractor and implement movement.

Benefits

Aggressive “deep ripping” through the compressed thickness of exposed subsoil before the replacement/respreading of the topsoil layer, followed by “decompaction,” i.e.: “sub-soiling,” through the restored topsoil layer down into the subsoil, offers the following benefits:

- Increases the project (larger size) area’s direct surface infiltration of rainfall by providing the open site’s mitigated soil condition and lowers the demand on concentrated runoff control structures
- Enhances direct groundwater recharge through greater dispersion across and through a broader surface than afforded by some runoff-control structural measures
- Decreases runoff volume generated and provides hydrologic source control
- May be planned for application in feasible open locations either alone or in

conjunction with plans for structural practices (e.g., subsurface drain line or infiltration basin) serving the same or contiguous areas

- Promotes successful long-term revegetation by restoring soil permeability, drainage and water holding capacity for healthy (rather than restricted) root-system development of trees, shrubs and deep rooted ground cover, minimizing plant drowning during wet periods and burnout during dry periods.

Feasibility/Limitations

The effectiveness of Deep Ripping and Decompaction is governed mostly by site factors such as: the original (undisturbed) soil's hydrologic characteristics; the general slope; local weather/timing (soil moisture) for implementation; the space-related freedom of equipment/implement maneuverability (noted above in **Recommended Application of Practice**), and by the proper selection and operation of tractor and implements (explained below in **Design Guidance**). The more notable site-related factors include:

Soil
In the undisturbed condition, each identified soil type comprising a site is grouped into one of four categories of soil hydrology, Hydrologic Soil Group A, B, C or D, determined primarily by a range of characteristics including soil texture, drainage capability when thoroughly wet, and depth to water table. The natural rates of infiltration and transmission of soil-water through the undisturbed soil layers for Group A is "high" with a low runoff potential while soils in Group B are moderate in infiltration and the transmission of soil-water with a moderate runoff potential, depending somewhat on slope. Soils in Group C have slow rates of infiltration and transmission of soil-water and a moderately high runoff potential influenced by soil texture and slope; while soils in Group D have exceptionally slow rates of infiltration and transmission of soil-water, and high runoff potential.

In Figure 4, the profile displays the undisturbed horizons of a soil in Hydrologic Soil Group C and the naturally slow rate of infiltration through the subsoil. The slow rate of infiltration begins immediately below the topsoil horizon (30 cm), due to the limited amount of macro pores, e.g.: natural subsoil fractures, worm holes and root channels. Infiltration after the construction-induced mixing and compression of such subsoil material is virtually absent; but can be restored back to this natural level with the two-phase practice of deep ripping and decompaction, followed by the permanent establishment of an appropriate, deep taproot

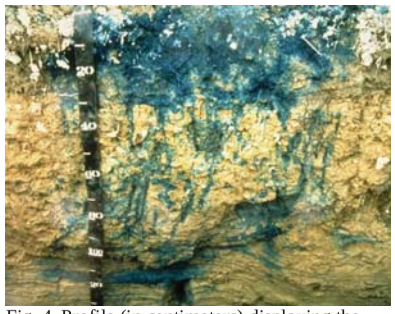

Fig. 4. Profile (in centimeters) displaying the infiltration test result of the natural undisturbed horizons of a soil in Hydrologic Soil Group C.

lawn/ground cover to help maintain the restored subsoil structure. Infiltration after construction-induced mixing and compression of such subsoil material can be notably rehabilitated with the Deep Ripping and Decompaction practice, which prepares the site for the appropriate long-term lawn/ground cover mix including deep taproot plants such as clover, fescue or trefoil, etc. needed for all rehabilitated soils.

Generally, soils in Hydrologic Soil Groups A and B, which respectively may include deep, well-drained, sandy-gravelly materials or deep, moderately well-drained basal till materials, are among the easier ones to restore permeability and infiltration, by deep ripping and decompaction. Among the many different soils in Hydrologic Soil Group C are those unique glacial tills having a natural fragipan zone, beginning about 12 to 18 inches (30 – 45cm), below surface. Although soils in Hydrologic Soil Group C do require a somewhat more carefully applied level of the Deep Ripping and Decompaction practice, it can greatly benefit such affected areas by reducing the runoff and fostering infiltration to a level equal to that of pre-disturbance.

Soils in Hydrologic Soil Group D typically have a permanent high water table close to the surface, influenced by a clay or other highly impervious layer of material. In many locations with clay subsoil material, the bulk density is so naturally high that heavy trafficking has little or no added impact on infiltration; and structural runoff control practices rather than Deep Ripping and Decompaction should be considered.

The information about Hydrologic Soil Groups is merely a general guideline. Site-specific data such as limited depths of cut-and-fill grading with minimal removal or translocation of the inherent subsoil materials (as analyzed in the county soil survey) or, conversely, the excavation and translocation of deeper, unconsolidated substratum or consolidated bedrock materials (unlike the analyzed subsoil horizons' materials referred to in the county soil survey) should always be taken into account.

Sites made up with significant quantities of large rocks, or having a very shallow depth to bedrock, are not conducive to deep ripping and decompation (subsoiling); and other measures may be more practical.

Slope
The two-phase application of 1) deep ripping and 2) decompaction (deep subsoiling), is most practical on flat, gentle and moderate slopes. In some situations, such as but not limited to temporary construction access corridors, inclusion areas that are moderately steep along a project's otherwise gentle or moderate slope may also be deep ripped and decompacted. For limited instances of moderate steepness on other projects, however, the post-construction land use and the relative alignment of the potential ripping and decompaction work in relation to the lay of the slope should be reviewed for safety and practicality. In broad construction areas predominated by moderately steep or steep slopes, the practice is generally not used.

Local Weather/Timing/Soil Moisture
Effective fracturing of compressed subsoil material from the exposed work surface, laterally and vertically down through the affected zone is achieved only when the soil material is moderately dry to moderately moist. Neither one of the two-phases, deep ripping nor decompaction (deep

subsoiling), can be effectively conducted when the soil material (subsoil or replaced topsoil) is in either a “plastic” or “liquid” state of soil consistency. Pulling the respective implements legs through the soil when it is overly moist only results in the “slicing and smearing” of the material or added “squeezing and compression” instead of the necessary fracturing. Ample drying time is needed for a “rippable” soil condition not merely in the material close to the surface, but throughout the material located down to the bottom of the physically compressed zone of the subsoil.

The “poor man’s Atterberg field test” for soil plasticity is a simple “hand-roll” method used for quick, on-site determination of whether or not the moisture level of the affected soil material is low enough for: effective deep ripping of subsoil; respreading of topsoil in a friable state; and final decompaction (deep subsoiling). Using a sample of soil material obtained from the planned bottom depth of ripping, e.g.: 20 - 24 inches below exposed subsoil surface, the sample is hand rolled between the palms down to a 1/8-inch diameter thread. (Use the same test for stored topsoil material before respreading on the site.) If the respective soil sample crumbles apart in segments no greater than 3/8 of an inch long, by the time it is rolled down to 1/8 inch diameter, it is low enough in moisture for deep ripping (or topsoil replacement), and decompaction. Conversely, as shown in Figure 5, if the rolled sample stretches out in increments greater than 3/8 of an inch long before crumbling, it is in a “plastic” state of soil consistency and is too wet for subsoil ripping (as well as topsoil replacement) and final decompaction.



Fig. 5. Augered from a depth of 19 inches below the surface of the replaced topsoil, this subsoil sample was hand rolled to a 1/8-inch diameter. The test shows the soil at this site stretches out too far without crumbling; it indicates the material is in a plastic state of consistence, too wet for final decompaction (deep subsoiling) at this time.

Design Guidance

Beyond the above-noted site factors, a vital requirement for the effective Deep Ripping and Decompaction (deep subsoiling), is implementing the practice in its distinct, two-phase process:

1) Deep rip the affected thickness of exposed subsoil material (see Figure 10 and 11), aggressively fracturing it before the protected topsoil is reapplied on the site (see Figure 12); and

2) Decompact (deep subsoil), simultaneously through the restored topsoil layer and the upper half of the affected subsoil (Figure 13). The second phase, “decompaction,” mitigates the partial recompaction which occurs during the heavy process of topsoil spreading/grading. Prior to deep ripping and decompacting the site, all construction activity, including construction equipment and material storage, site cleanup and trafficking (Figure 14), should be finished; and the site closed off to further disturbance. Likewise, once the practice is underway and the area’s soil permeability and

rainfall infiltration are being restored, a policy limiting all further traffic to permanent travel lanes is maintained.

The other critical elements, outlined below, are: using the proper implements (deep, heavy-duty rippers and subsoilers), and ample pulling-power equipment (tractors); and conducting the practice at the appropriate speed, depth and pattern(s) of movement.

Note that an appropriate plan for the separate practice of establishing a healthy perennial ground cover, with deep rooting to help maintain the restored soil structure, should be developed in advance. This may require the assistance of an agronomist or landscape horticulturist.

Implements

Avoid the use of all undersize implements. The small-to-medium, light-duty tool will, at best, only “scarify” the uppermost surface portion of the mass of compacted subsoil material. The term “chisel plow” is commonly but incorrectly applied to a broad range of implements. While a few may be adapted for the moderate subsoiling of non-impacted soils, the majority are less durable and used for only lighter land-fitting (see Figure 6).



Fig. 6. A light duty chisel implement, not adequate for either the deep ripping or decompaction (deep subsoiling) phase.



Fig. 7. One of several variations of an agricultural ripper. This unit has long, rugged shanks mounted on a steel V-frame for deep, aggressive fracturing through Phase 1.

Use a “heavy duty” agricultural-grade, deep ripper (see Figures 7,9,10 and 11) for the first phase: the lateral and vertical fracturing of the mass of exposed and compressed subsoil, down and through, to the bottom of impact, prior to the replacement of the topsoil layer. (Any oversize rocks which are uplifted to the subsoil surface during the deep ripping phase are picked and removed.) Like the heavy-duty class of implement for the first phase, the decompaction (deep subsoiling) of Phase 2 is conducted with the heavy-duty version of the deep subsoiler. More preferable is the angled-leg variety of deep subsoiler (shown in Figures 8 and 13). It minimizes the inversion of the subsoil and topsoil layers while laterally and vertically fracturing the upper half of the previously ripped subsoil layer and all of the topsoil layer by delivering a momentary, wave-like “lifting and shattering” action up through the soil layers as it is pulled.

Pulling-Power of Equipment
Use the following rule of thumb for tractor horsepower (hp) whenever deep ripping and decompacting a significantly impacted site: For both types of implement, have at least 40 hp of tractor pull available for each mounted shank/ leg.

Using the examples of a 3-shank and a 5-shank implement, the respective tractors should have 120 and 200 hp available for fracturing down to the final depth of 20-to-24 inches per phase. Final depth for the deep ripping in Phase 1 is achieved incrementally by a progressive series of passes (see Depth and Patterns of Movement, below); while for Phase 2, the full operating depth of the deep subsoiler is applied from the beginning.

The operating speed for pulling both types of implement should not exceed 2 to 3 mph. At this slow and managed rate of operating speed, maximum functional performance is sustained by the tractor and the implement performing the soil fracturing. Referring to Figure 8, the implement is the 6-leg version of the deep angled-leg subsoiler. Its two outside legs are "chained up" so that only four legs will be engaged (at the maximum depth), requiring no less than 160 hp, (rather than 240 hp) of pull. The 4-wheel drive, articulated-frame tractor in Figure 8 is 174 hp. It will be decompacting this unobstructed, former construction access area simultaneously through 11 inches of replaced topsoil and the upper 12 inches of the previously deep-ripped subsoil. In constricted areas of Phase 1) Deep Ripping, a medium-size tractor with adequate hp, such as the one in Figure 9 pulling a 3-shank deep ripper, may be more maneuverable.


Fig. 8. A deep, angled-leg subsoiler, ideal for Phase 2 decompaction of after the topsoil layer is graded on top of the ripped subsoil.


Fig. 9. This medium tractor is pulling a 3-shank deep ripper. The severely compacted construction access corridor is narrow, and the 120 hp tractor is more maneuverable for Phase 1 deep ripping (subsoil fracturing), here.

Some industrial-grade variations of ripping implements are attached to power graders and bulldozers. Although highly durable, they are generally not recommended. Typically, the shanks or "teeth" of these rippers are too short and stout; and they are mounted too far apart to achieve the well-distributed type of lateral and vertical fracturing of the soil materials necessary to restore soil permeability and infiltration. In addition, the power graders and bulldozers, as pullers, are far less maneuverable for turns and patterns than the tractor.

Depth and Patterns of Movement
As previously noted both Phase 1 Deep Ripping through significantly compressed, exposed subsoil and Phase 2 Decompaction (deep subsoiling) through the replaced topsoil and upper subsoil need to be performed at maximum capable depth of each implement. With an implement's guide wheels attached, some have a "normal" maximum operating depth of 18 inches, while others may go deeper. In many situations, however, the tractor/implement operator must first remove the guide wheels and other non essential elements from the implement. This adapts the ripper or the deep subsoiler for skillful pulling with its frame only a few inches above surface, while the shanks or legs, fracture the soil material 20-to-24 inches deep.

There may be construction sites where the depth of the exposed subsoil's compression is moderate, e.g.: 12 inches, rather than deep. This can be verified by using a ¾ inch cone penetrometer and a shovel to test the subsoil for its level of compaction, incrementally, every three inches of increasing depth. Once the full thickness of the subsoil's compacted zone is finally "pieced" and there is a significant drop in the psi measurements of the soil penetrometer, the depth/thickness of compaction is determined. This is repeated at several representative locations of the construction site. If the thickness of the site's subsoil compaction is verified as, for example, ten inches, then the Phase 1 Deep Ripping can be correspondingly reduced to the implement's minimum operable depth of 12 inches. However, the Phase 2 simultaneous Decompation (subsoiling) of an 11 inch thick layer of replaced topsoil and the upper subsoil should run at the subsoiling implements full operating depth.


Fig. 10. An early pass with a 3-shank deep ripper penetrating only 8 inches into this worksite's severely compressed subsoil.


Fig. 11. A repeat run of the 3-shank ripper along the same patterned pass area as Fig. 9; here, incrementally reaching 18 of the needed 22 inches of subsoil fracture.

Typically, three separate series (patterns) are used for both the Phase 1 Deep Ripping and the Phase 2 Decompaction on significantly compacted sites. For Phase 1, each series begins with a moderate depth of rip and, by repeat-pass, continues until full depth is reached. Phase 2 applies the full depth of Decompation (subsoiling), from the beginning.

Every separate series (pattern) consists of parallel, forward-and-return runs, with each progressive

pass of the implement's legs or shanks evenly staggered between those from the previous pass. This compensates for the shank or leg-spacing on the implement, e.g., with 24-to-30 inches between each shank or leg. The staggered return pass ensures lateral and vertical fracturing actuated every 12 to 15 inches across the densely compressed soil mass.

Large, Unobstructed Areas
For larger easy areas, use the standard patterns of movement:

- The first series (pattern) of passes is applied lengthwise, parallel with the longest spread of the site; gradually progressing across the site's width, with each successive pass.

- The second series runs obliquely, crossing the first series at an angle of about 45 degrees.

- The third series runs at right angle (or 90 degrees), to the first series to complete the fracturing and shattering on severely compacted sites, and avoid leaving large unbroken blocks of compressed soil material. (In certain instances, the third series may be optional, depending on how thoroughly the first two series loosen the material and eliminate large chunks/blocks of material as verified by tests with a ¾-inch cone penetrometer.)



Fig. 12. Moderately dry topsoil is being replaced on the affected site now that Phase 1 deep ripping of the compressed subsoil is complete.



Fig. 13. The same deep, angled-leg subsoiler shown in Fig. 7 is engaged at maximum depth for Phase 2, decompaction (deep soiling), of the replaced topsoil and the upper subsoil materials.

Corridors
In long corridors of limited width and less maneuverability than larger sites, e.g.: along compacted areas used as temporary construction access, a modified series of pattern passes are used.

- First, apply the same initial lengthwise, parallel series of passes described above.

- A second series of passes makes a broad "S" shaped pattern of rips, continually and gradually alternating the "S" curves between opposite edges inside the compacted corridor.

- The third and final series again uses the broad, alternating S pattern, but it is "flip-flopped" to continually cross the previous S pattern along the corridor's centerline. This final series of the S pattern curves back along the edge areas skipped by the second series.

Maintenance and Cost

Once the two-phase practice of Deep Ripping and Decompation is completed, two items are essential for maintaining a site's soil porosity and permeability for infiltration. They are: planting and maintaining the appropriate ground cover with deep roots to maintain the soil structure (see Figure 15); and keeping the site free of traffic or other weight loads.

Note that site-specific choice of an appropriate vegetative ground-cover seed mix, including the proper seeding ratio of one or more perennial species with a deep taproot system and the proper amount of lime and soil nutrients (fertilizer mix) adapted to the soil-needs, are basic to the final practice of landscaping, i.e: surface tillage, seeding/planting/fertilizing and culti-packing or mulching is applied. The "maintenance" of an effectively deep-ripped and decompacted area is generally limited to the successful perennial (long-term) landscape ground cover; as long as no weight-bearing force of soil compaction is applied.



Fig. 14. The severely compacted soil of a temporary construction yard used daily by heavy equipment for four months; shown before deep ripping, topsoil replacement, and decompaction.



Fig. 15. The same site as Fig. 14 after deep ripping of the exposed subsoil, topsoil replacement, decompaction through the topsoil and upper subsoil and final surface tillage and revegetation to maintain soil permeability and infiltration.

The Deep Ripping and Decompaction practice is, by necessity, more extensive than periodic subsoiling of farmland.The cost of deep ripping and decompacting (deep subsoiling), will vary according to the depth and severity of soil-material compression and the relative amount of tractor and implement time that is required. In some instances, depending on open maneuverability, two-to-three acres of compacted project area may be deep-ripped in one day. In other situations of more severe compaction and - or less maneuverability, as little as one acre may be fully ripped in a day. Generally, if the Phase 1) Deep Ripping is fully effective, the Phase 2) Decompaction should be completed in 2/3 to 3/4 of the time required for Phase 1.

Using the example of two acres of Phase 1) Deep Ripping in one day, at $1800 per day, the net cost is $900 per acre. If the Phase 2) Decompacting or deep subsoiling takes 3/4 the time as Phase 1, it costs $675 per acre for a combined total of $1575 per acre to complete the practice (these figures do not include the cost of the separate practice of topsoil stripping and replacement). Due to the many variables, it must be recognized that cost will be determined by the specific conditions or constraints of the site and the availability of proper equipment.

Resources

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- Soil penetrometer information. Access by internet searches of: *Diagnosing Soil Compaction using a Penetrometer (soil compaction tester), PSU Extension;* as well as *Dickey-john Soil Compaction Tester.* http://www.dickey-johnproducts.com/pdf/SoilCompactionTest.pdf and http://cropsoil.psu.edu/Extension/Facts/uc178pdf Last visited Sept. 07

Appendix F:
Post-Construction Inspections and Maintenance

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POST CONSTRUCTION INSPECTIONS AND MAINTENANCE

1. SITE COVER

a. Inspections

Site cover and associated structures and embankments should be inspected periodically for the first few months following construction and then on a biannual basis. Site inspections should also be performed following all major (i.e., intense storms, thunder storms, cloud burst, etc.) storm events. Items to check for include (but are not limited to):

i. Differential settlement of embankments, cracking or erosion.

ii. Lack of vigor and density of grass turf.

iii. Accumulation of sediments or litter on lawn areas, paved areas, or within catch basin sumps.

iv. Accumulation of pollutants, including oils or grease, in catch basin sumps.

v. Damage or fatigue of storm sewer structures or associated components.

b. Mowing and Sweeping

Vegetated areas and landscaping should be maintained to promote vigorous and dense growth. Lawn areas should be mowed at least three times a year (more frequent mowing may be desired for aesthetic reasons). Resultant yard waste shall be collected and disposed of off-site.

Paved areas should be swept at least twice a year. Additional sweeping may be appropriate in the early spring for removal of deicing materials

c. Debris and Litter Removal

Accumulation of litter and debris should be removed during each mowing or sweep operation.

d. Structural Repair or Replacement

Components of the system which require repair or replacement should be addressed immediately following identification.

e. Catch Basins

The frequency for cleanout of catch basin sumps will depend on the efficiency of mowing, sweeping, and debris and litter removal. Sumps should be cleaned when accumulation of sediments are within six inches of the catch basin outlet pipe.

Disposal of material from catch basins sumps, drainage manholes, and trench drains shall be in accordance with local, state, and federal guidelines.

f. Rip-rap Dissipation structures

Rip-rap used to dissipate energy from pipe outfalls shall be cleaned or replaced when it becomes overburdened with silt or sediment.

g. Winter Maintenance

To prevent impacts to storm water management facilities, the following winter maintenance limitations, restrictions, or requirements are recommended:

i. Remove snow and ice from inlet structures, basin inlet and outlet structures and away from culvert end sections.

ii. Snow removed from paved areas should not be piled at inlets/outlets of the storm water management basin.

iii. Use of deicing materials should be limited to sand and "environmentally friendly" chemical products. Use of salt mixtures should be kept to a minimum.

iv. Sand used for deicing should be clean, course material free of fines, silt, and clay.

v. Materials used for deicing should be removed during the early spring by sweeping and/ or vacuuming.

2. BIORETENTION FILTERS

a. Inspection Schedule

Bioretention filters should be inspected periodically for the first few months after construction and then on a monthly basis. Bioretention filters should be inspected after all major storm events.

b. Inspection of Uphill Drainage Area

Inspect areas that are uphill from the Bioretention filter.

i. Bare soil and/or erosion of the ground should be seeded and mulches to establish vegetation. Areas of erosion should be filled with soil, compacted, and seeded and strawed to establish vegetation.

ii. If a small channel(s) is forming, try to redirect water flowing to this area by creating a small berm or adding topsoil to areas that are heavily compacted.

iii. Piles of grass clippings, mulch, dirt, salt or other materials should be removed.

iv. Open containers of oil, grease, paint, or other substances should be covered and properly disposed of.

c. Inspection of Inlets

Stand in the Bioretention filter itself and inspect each location where water flows in.

i. Inlets should have a clear pathway for water to flow into the filter. Grit and debris or grass/weeds should be removed at curb inlets or openings.

ii. Clumps of growing grass or weeds and the associated soil or grit should be removed.

iii. Grass clippings, leaves, sticks, and other debris collecting at inlets should be removed.

iv. For pipes and ditches, sediment and debris partially blocking the pipe or ditch opening into the Bioretention filter should be removed.

v. All materials removed should be properly disposed in such a way that it may not re-enter the Bioretention filter.

vi. Small areas of erosion should be smoothed out and rock or stone applied to prevent further erosion. Reseeding and applying erosion-control matting can be used to prevent further erosion.

d. Inspection of Ponding Area

Examine the entire Bioretention surface and side slopes:

i. In areas where the mulch layer has decomposed or is less than 1-inch thick, new mulch should be added to a total depth of 2 to 3 inches. The mulch should be a shredded hardwood mulch that is less likely to float away during rainstorms. Avoid adding too much mulch so that inlets are obstructed, or certain areas become higher than the rest of the Bioretention surface.

ii. Excess sediment, grit, trash, or other debris that has accumulated on the bottom should be removed and disposed of in such a way that it cannot re-enter the Bioretention filter. If removing the material creates a hole or low area, fill in with a soil mix that matches the original mix and cover with mulch to create a flat surface.

iii. Eroded areas in the bottom or on the side slopes should be filled with clean topsoil or sand and covered with mulch. If the problem reoccurs, stone can be used to fill in the areas. If the erosion is on a side slope, fill in with clay that can be compacted and seed and mulch the area.

iv. The bottom of the Bioretention filter should be flat. The surface should be raked or mulch added to low spots to create a more level surface.

e. Inspection of Vegetation

Examine all Bioretention filter vegetation:

i. Weeds and dead and/or diseased plants should be removed and the mulch surrounding these replaced. Plants should be added to fill in areas that are not well vegetated.

ii. If bioretention filter utilized a vegetated seed mix, then grass areas shall be mowed to ensure that grass height does not exceed 6-inches.

iii. Undesirable trees and shrubs should be removed. Resultant yard wastes shall be collected and disposed of off-site

f. Inspection of Outlets

Examine the outlets that release water out of the Bioretention filter:

i. Stone should be added in areas of erosion at the outlet to reduce the impact from the water flowing out of the outlet pipe or weir during storms.

ii. Outlet obstructions should be removed and disposed of where it cannot re-enter the Bioretention filter.

g. Debris, Trash and Litter Control

Removal of debris and litter shall be accomplished during mowing operations. Inlet structures should be cleared of all debris and litter.

h. Structural Repairs and Replacement

Components of the bioretention filter, which require repair or replacement, should be addressed immediately following identification. This includes treating and or replacing diseased trees and shrub, fertilizing as necessary, replacing tree stakes and wires, replacing mulch where bare spots appear, replacing clogged underdrains, filter beds, and pea gravel diaphragm.

i. Erosion and Sediment Control

Sources of sedimentation, specifically eroded areas in upland drainage areas, should be stabilized immediately upon identification. Stabilization should be with vegetative practices or other erosion control practices when vegetative measures do not prove effective.

Soil slumpage, erosion of the embankments or around inlets/outlets, and cracking should be stabilized and repaired immediately upon identification.

j. Sediment Removal

Sediments that accumulate in the bioretention filter should be removed annually to prevent clogging of inlet or outlet structures. Disposal of material removed from bioretention filter shall be in accordance with local, state, and federal guidelines.

3. HYDRODYNAMIC DEVICE

The hydrodynamic device is a confined space environment and only properly trained personnel possessing the necessary safety equipment should enter the unit to perform maintenance or inspection.

a. Inspection Schedule

The hydrodynamic device shall be inspected every four months.

b. Inspection Items

The unit's internal components should be inspected for any signs of damage or any loosening of the bolts used to fasten the various components to the manhole structure and to each other.

Refer to attached Operations and Maintenance Guidelines, for the Hydrodynamic Device, for the manufacturer's detailed inspection and maintenance requirements.

c. Debris, Trash and Litter Control

The screen shall be power washed for the inspection. The floatables shall be removed and the sump cleaned when it has reached 50% capacity. The unit may require cleaning in the event of a spill of a toxic or foreign substance. At a minimum, the hydrodynamic device shall be pumped out at least once a year if the sump does not reach its 50% capacity.

d. Sediment removal

Disposal of material from the hydrodynamic device shall be in accordance with local, state, and federal guidelines.

CONTECH®
ENGINEERED SOLUTIONS

CDS Guide
Operation, Design, Performance and Maintenance



CDS®

Using patented continuous deflective separation technology, the CDS system screens, separates and traps debris, sediment, and oil and grease from stormwater runoff. The indirect screening capability of the system allows for 100% removal of floatables and neutrally buoyant material without blinding. Flow and screening controls physically separate captured solids, and minimize the re-suspension and release of previously trapped pollutants. Inline units can treat up to 6 cfs, and internally bypass flows in excess of 50 cfs (1416 L/s). Available precast or cast-in-place, offline units can treat flows from 1 to 300 cfs (28.3 to 8495 L/s). The pollutant removal capacity of the CDS system has been proven in lab and field testing.

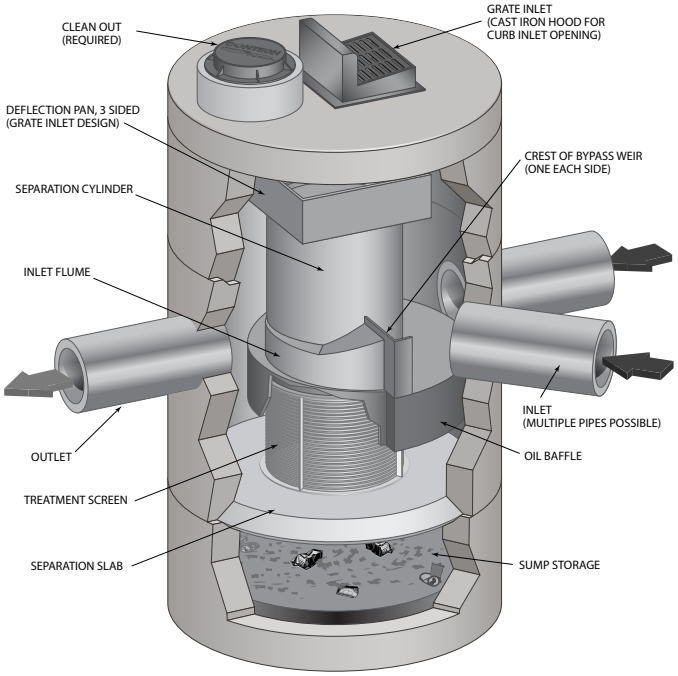
Operation Overview

Stormwater enters the diversion chamber where the diversion weir guides the flow into the unit's separation chamber and pollutants are removed from the flow. All flows up to the system's treatment design capacity enter the separation chamber and are treated.

Swirl concentration and screen deflection force floatables and solids to the center of the separation chamber where 100% of floatables and neutrally buoyant debris larger than the screen apertures are trapped.

Stormwater then moves through the separation screen, under the oil baffle and exits the system. The separation screen remains clog free due to continuous deflection.

During the flow events exceeding the treatment design capacity, the diversion weir bypasses excessive flows around the separation chamber, so captured pollutants are retained in the separation cylinder.



Design Basics

There are three primary methods of sizing a CDS system. The Water Quality Flow Rate Method determines which model size provides the desired removal efficiency at a given flow rate for a defined particle size. The Rational Rainfall Method™ or the and Probabilistic Method is used when a specific removal efficiency of the net annual sediment load is required.

Typically in the Unites States, CDS systems are designed to achieve an 80% annual solids load reduction based on lab generated performance curves for a gradation with an average particle size (d50) of 125 microns (μm). For some regulatory environments, CDS systems can also be designed to achieve an 80% annual solids load reduction based on an average particle size (d50) of 75 microns (μm) or 50 microns (μm).

Water Quality Flow Rate Method

In some cases, regulations require that a specific treatment rate, often referred to as the water quality design flow (WQQ), be treated. This WQQ represents the peak flow rate from either an event with a specific recurrence interval, e.g. the six-month storm, or a water quality depth, e.g. 1/2-inch (13 mm) of rainfall.

The CDS is designed to treat all flows up to the WQQ. At influent rates higher than the WQQ, the diversion weir will direct most flow exceeding the WQQ around the separation chamber. This allows removal efficiency to remain relatively constant in the separation chamber and eliminates the risk of washout during bypass flows regardless of influent flow rates.

Treatment flow rates are defined as the rate at which the CDS will remove a specific gradation of sediment at a specific removal efficiency. Therefore the treatment flow rate is variable, based on the gradation and removal efficiency specified by the design engineer.

Rational Rainfall Method™

Differences in local climate, topography and scale make every site hydraulically unique. It is important to take these factors into consideration when estimating the long-term performance of any stormwater treatment system. The Rational Rainfall Method combines site-specific information with laboratory generated performance data, and local historical precipitation records to estimate removal efficiencies as accurately as possible.

Short duration rain gauge records from across the United States and Canada were analyzed to determine the percent of the total annual rainfall that fell at a range of intensities. US stations' depths were totaled every 15 minutes, or hourly, and recorded in 0.01-inch increments. Depths were recorded hourly with 1-mm resolution at Canadian stations. One trend was consistent at all sites; the vast majority of precipitation fell at low intensities and high intensity storms contributed relatively little to the total annual depth.

These intensities, along with the total drainage area and runoff coefficient for each specific site, are translated into flow rates using the Rational Rainfall Method. Since most sites are relatively small and highly impervious, the Rational Rainfall Method is appropriate. Based on the runoff flow rates calculated for each intensity, operating rates within a proposed CDS system are

determined. Performance efficiency curve determined from full scale laboratory tests on defined sediment PSDs is applied to calculate solids removal efficiency. The relative removal efficiency at each operating rate is added to produce a net annual pollutant removal efficiency estimate.

Probabilistic Rational Method

The Probabilistic Rational Method is a sizing program Contech developed to estimate a net annual sediment load reduction for a particular CDS model based on site size, site runoff coefficient, regional rainfall intensity distribution, and anticipated pollutant characteristics.

The Probabilistic Method is an extension of the Rational Method used to estimate peak discharge rates generated by storm events of varying statistical return frequencies (e.g. 2-year storm event). Under the Rational Method, an adjustment factor is used to adjust the runoff coefficient estimated for the 10-year event, correlating a known hydrologic parameter with the target storm event. The rainfall intensities vary depending on the return frequency of the storm event under consideration. In general, these two frequency dependent parameters (rainfall intensity and runoff coefficient) increase as the return frequency increases while the drainage area remains constant.

These intensities, along with the total drainage area and runoff coefficient for each specific site, are translated into flow rates using the Rational Method. Since most sites are relatively small and highly impervious, the Rational Method is appropriate. Based on the runoff flow rates calculated for each intensity, operating rates within a proposed CDS are determined. Performance efficiency curve on defined sediment PSDs is applied to calculate solids removal efficiency. The relative removal efficiency at each operating rate is added to produce a net annual pollutant removal efficiency estimate.

Treatment Flow Rate

The inlet throat area is sized to ensure that the WQQ passes through the separation chamber at a water surface elevation equal to the crest of the diversion weir. The diversion weir bypasses excessive flows around the separation chamber, thus preventing re-suspension or re-entrainment of previously captured particles.

Hydraulic Capacity

The hydraulic capacity of a CDS system is determined by the length and height of the diversion weir and by the maximum allowable head in the system. Typical configurations allow hydraulic capacities of up to ten times the treatment flow rate. The crest of the diversion weir may be lowered and the inlet throat may be widened to increase the capacity of the system at a given water surface elevation. The unit is designed to meet project specific hydraulic requirements.

Performance

Full-Scale Laboratory Test Results

A full-scale CDS system (Model CDS2020-5B) was tested at the facility of University of Florida, Gainesville, FL. This CDS unit was evaluated under controlled laboratory conditions of influent flow rate and addition of sediment.

Two different gradations of silica sand material (UF Sediment & OK-110) were used in the CDS performance evaluation. The particle size distributions (PSDs) of the test materials were analyzed using standard method "Gradation ASTM D-422 "Standard Test Method for Particle-Size Analysis of Soils" by a certified laboratory.

UF Sediment is a mixture of three different products produced by the U.S. Silica Company: "Sil-Co-Sil 106", "#1 DRY" and "20/40 Oil Frac". Particle size distribution analysis shows that the UF Sediment has a very fine gradation (d50 = 20 to 30 μm) covering a wide size range (Coefficient of Uniformity, C averaged at 10.6). In comparison with the hypothetical TSS gradation specified in the NJDEP (New Jersey Department of Environmental Protection) and NJCAT (New Jersey Corporation for Advanced Technology) protocol for lab testing, the UF Sediment covers a similar range of particle size but with a finer d50 (d50 for NJDEP is approximately 50 μm) (NJDEP, 2003).

The OK-110 silica sand is a commercial product of U.S. Silica Sand. The particle size distribution analysis of this material, also included in Figure 1, shows that 99.9% of the OK-110 sand is finer than 250 microns, with a mean particle size (d50) of 106 microns. The PSDs for the test material are shown in Figure 1.

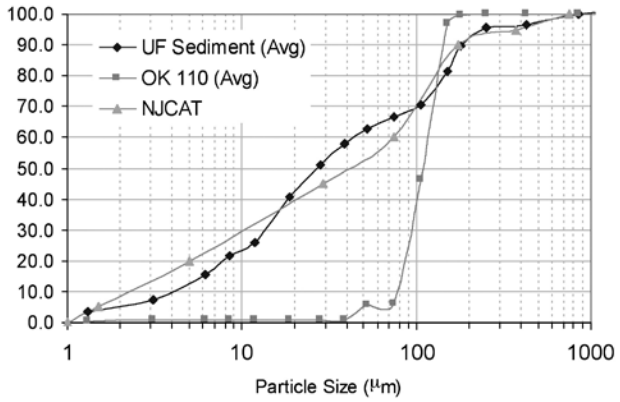


Figure 1. Particle size distributions

Tests were conducted to quantify the performance of a specific CDS unit (1.1 cfs (31.3-L/s) design capacity) at various flow rates, ranging from 1% up to 125% of the treatment design capacity of the unit, using the 2400 micron screen. All tests were conducted with controlled influent concentrations of approximately 200 mg/L. Effluent samples were taken at equal time intervals across the entire duration of each test run. These samples were then processed with a Dekaport Cone sample splitter to obtain representative sub-samples for Suspended Sediment Concentration (SSC) testing using ASTM D3977-97 "Standard Test Methods for Determining Sediment Concentration in Water Samples", and particle size distribution analysis.

Results and Modeling

Based on the data from the University of Florida, a performance model was developed for the CDS system. A regression analysis was used to develop a fitting curve representative of the scattered data points at various design flow rates. This model, which demonstrated good agreement with the laboratory data, can then be used to predict CDS system performance with respect

to SSC removal for any particle size gradation, assuming the particles are inorganic sandy-silt. Figure 2 shows CDS predictive performance for two typical particle size gradations (NJCAT gradation and OK-110 sand) as a function of operating rate.

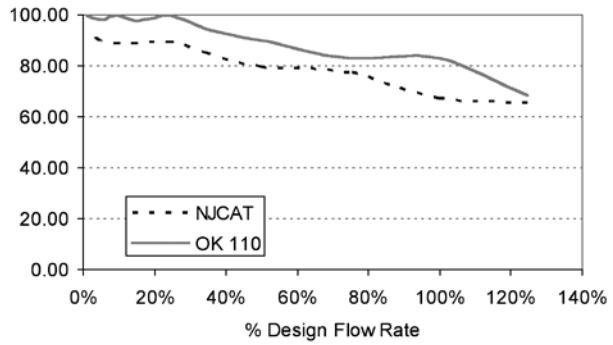


Figure 2. CDS stormwater treatment predictive performance for various particle gradations as a function of operating rate.

Many regulatory jurisdictions set a performance standard for hydrodynamic devices by stating that the devices shall be capable of achieving an 80% removal efficiency for particles having a mean particle size (d50) of 125 microns (e.g. Washington State Department of Ecology — WASDOE - 2008). The model can be used to calculate the expected performance of such a PSD (shown in Figure 3). The model indicates (Figure 4) that the CDS system with 2400 micron screen achieves approximately 80% removal at the design (100%) flow rate, for this particle size distribution (d50 = 125 μm).

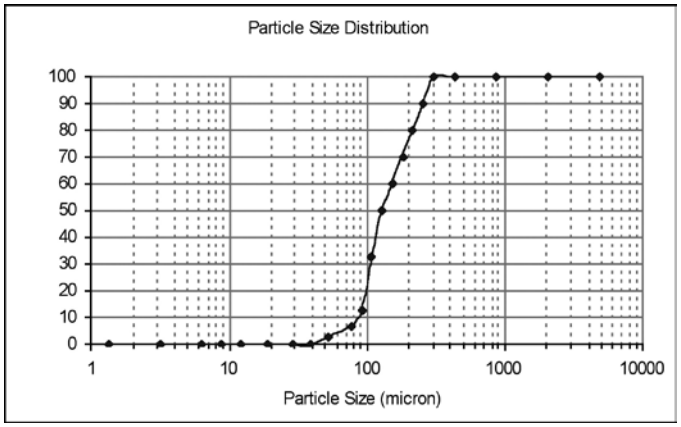


Figure 3. WASDOE PSD

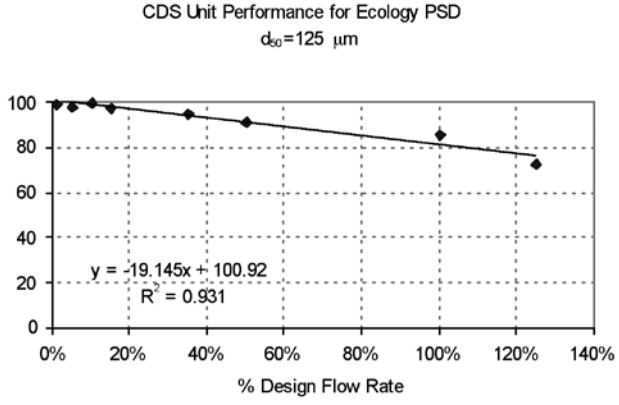


Figure 4. Modeled performance for WASDOE PSD.

Maintenance

The CDS system should be inspected at regular intervals and maintained when necessary to ensure optimum performance. The rate at which the system collects pollutants will depend more heavily on site activities than the size of the unit. For example, unstable soils or heavy winter sanding will cause the grit chamber to fill more quickly but regular sweeping of paved surfaces will slow accumulation.

Inspection

Inspection is the key to effective maintenance and is easily performed. Pollutant transport and deposition may vary from year to year and regular inspections will help ensure that the system is cleaned out at the appropriate time. At a minimum, inspections should be performed twice per year (e.g. spring and fall) however more frequent inspections may be necessary in climates where winter sanding operations may lead to rapid accumulations, or in equipment washdown areas. Installations should also be inspected more frequently where excessive amounts of trash are expected.

The visual inspection should ascertain that the system components are in working order and that there are no blockages or obstructions in the inlet and separation screen. The inspection should also quantify the accumulation of hydrocarbons, trash, and sediment in the system. Measuring pollutant accumulation can be done with a calibrated dipstick, tape measure or other measuring instrument. If absorbent material is used for enhanced removal of hydrocarbons, the level of discoloration of the sorbent material should also be identified



during inspection. It is useful and often required as part of an operating permit to keep a record of each inspection. A simple form for doing so is provided.

Access to the CDS unit is typically achieved through two manhole access covers. One opening allows for inspection and cleanout of the separation chamber (cylinder and screen) and isolated sump. The other allows for inspection and cleanout of sediment captured and retained outside the screen. For deep units, a single manhole access point would allows both sump cleanout and access outside the screen.

The CDS system should be cleaned when the level of sediment has reached 75% of capacity in the isolated sump or when an appreciable level of hydrocarbons and trash has accumulated. If absorbent material is used, it should be replaced when significant discoloration has occurred. Performance will not be impacted until 100% of the sump capacity is exceeded however it is recommended that the system be cleaned prior to that for easier removal of sediment. The level of sediment is easily determined by measuring from finished grade down to the top of the sediment pile. To avoid underestimating the level of sediment in the chamber, the measuring device must be lowered to the top of the sediment pile carefully. Particles at the top of the pile typically offer less resistance to the end of the rod than consolidated particles toward the bottom of the pile. Once this measurement is recorded, it should be compared to the as-built drawing for the unit to determine weather the height of the sediment pile off the bottom of the sump floor exceeds 75% of the total height of isolated sump.

Cleaning

Cleaning of a CDS systems should be done during dry weather conditions when no flow is entering the system. The use of a vacuum truck is generally the most effective and convenient method of removing pollutants from the system. Simply remove the manhole covers and insert the vacuum hose into the sump. The system should be completely drained down and the sump fully evacuated of sediment. The area outside the screen should also be cleaned out if pollutant build-up exists in this area.

In installations where the risk of petroleum spills is small, liquid contaminants may not accumulate as quickly as sediment. However, the system should be cleaned out immediately in the event of an oil or gasoline spill. Motor oil and other hydrocarbons that accumulate on a more routine basis should be removed when an appreciable layer has been captured. To remove these pollutants, it may be preferable to use absorbent pads since they are usually less expensive to dispose than the oil/water emulsion that may be created by vacuuming the oily layer. Trash and debris can be netted out to separate it from the other pollutants. The screen should be cleaned to ensure it is free of trash and debris.

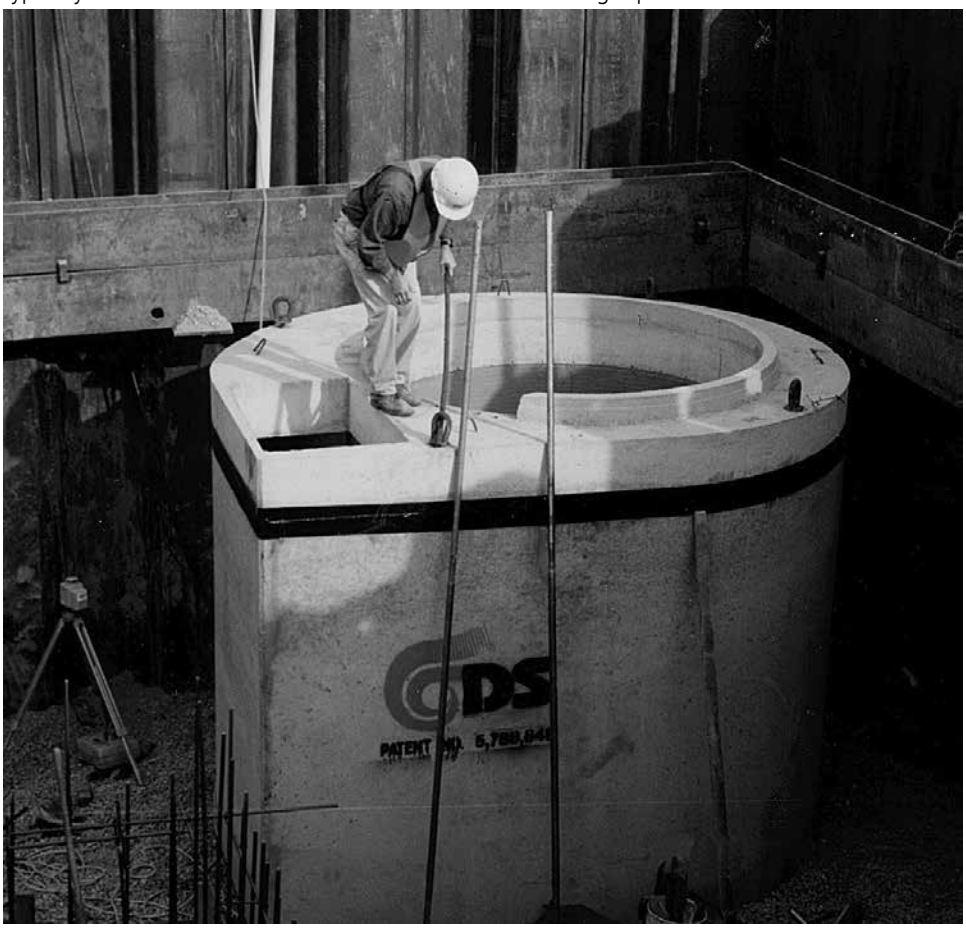
Manhole covers should be securely seated following cleaning activities to prevent leakage of runoff into the system from above and also to ensure that proper safety precautions have been followed. Confined space entry procedures need to be followed if physical access is required. Disposal of all material removed from the CDS system should be done in accordance with local regulations. In many jurisdictions, disposal of the sediments may be handled in the same manner as the disposal of sediments removed from catch basins or deep sump manholes. Check your local regulations for specific requirements on disposal.



CDS Model	Diameter		Distance from Water Surface to Top of Sediment Pile		Sediment Storage Capacity	
	ft	m	ft	m	y^3	m^3
CDS1515	3	0.9	3.0	0.9	0.5	0.4
CDS2015	4	1.2	3.0	0.9	0.9	0.7
CDS2015	5	1.5	3.0	0.9	1.3	1.0
CDS2020	5	1.5	3.5	1.1	1.3	1.0
CDS2025	5	1.5	4.0	1.2	1.3	1.0
CDS3020	6	1.8	4.0	1.2	2.1	1.6
CDS3025	6	1.8	4.0	1.2	2.1	1.6
CDS3030	6	1.8	4.6	1.4	2.1	1.6
CDS3035	6	1.8	5.0	1.5	2.1	1.6
CDS4030	8	2.4	4.6	1.4	5.6	4.3
CDS4040	8	2.4	5.7	1.7	5.6	4.3
CDS4045	8	2.4	6.2	1.9	5.6	4.3
CDS5640	10	3.0	6.3	1.9	8.7	6.7
CDS5653	10	3.0	7.7	2.3	8.7	6.7
CDS5668	10	3.0	9.3	2.8	8.7	6.7
CDS5678	10	3.0	10.3	3.1	8.7	6.7

Table 1: CDS Maintenance Indicators and Sediment Storage Capacities

Note: To avoid underestimating the volume of sediment in the chamber, carefully lower the measuring device to the top of the sediment pile. Finer silty particles at the top of the pile may be more difficult to feel with a measuring stick. These finer particles typically offer less resistance to the end of the rod than larger particles toward the bottom of the pile.



CDS Inspection & Maintenance Log

CDS Model: _____ Location: _____

Date	Water depth to sediment[1]	Floatable Layer Thickness[2]	Describe Maintenance Performed	Maintenance Personnel	Comments

1. The water depth to sediment is determined by taking two measurements with a stadia rod: one measurement from the manhole opening to the top of the sediment pile and the other from the manhole opening to the water surface. If the difference between these measurements is less than the values listed in table 1 the system should be cleaned out. **Note: to avoid underestimating the volume of sediment in the chamber, the measuring device must be carefully lowered to the top of the sediment pile**.

2. For optimum performance, the system should be cleaned out when the floating hydrocarbon layer accumulates to an appreciable thickness. In the event of an oil spill, the system should be cleaned immediately.

SUPPORT

- Drawings and specifications are available at www.ContechES.com.
- Site-specific design support is available from our engineers.

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RECYCLED PAPER

CDS® Models and Capacities

	CDS MODEL	Treatment Flow Rates[1]			Estimated Maximum Peak Conveyance Flow[3] (cfs)/(L/s)	Minimum Sump Storage Capacity[4] (yd^3)/(m^3)	Minimum Oil Storage Capacity[4] (gal)/(L)
		75 microns (cfs)/(L/s)	125 microns[2] (cfs)/(L/s)	Trash & Debris (cfs)/(L/s)			
PRECAST	CDS2015-4	0.5 (14.2)	0.7 (19.8)	1.0 (28.3)	10 (283)	0.9 (0.7)	61 (232)
	CDS2015-5	0.5 (14.2)	0.7(19.8)	1.0 (28.3)	10 (283)	1.5 (1.1)	83 (313)
	CDS2020-5	0.7 (19.8)	1.1 (31.2)	1.5 (42.5)	14 (396)	1.5 (1.1)	99 (376)
	CDS2025-5	1.1 (31.2)	1.6 (45.3)	2.2 (62.3)	14 (396)	1.5 (1.1)	116 (439)
	CDS3020-6	1.4 (39.6)	2.0 (56.6)	2.8 (79.3)	20 (566)	2.1 (1.6)	184 (696)
	CDS3025-6	1.7 (48.1)	2.5 (70.8)	3.5 (99.2)	20 (566)	2.1 (1.6)	210 (795)
	CDS3030-6	2.0 (56.6)	3.0 (85.0)	4.2 (118.9)	20 (566)	2.1 (1.6)	236 (895)
	CDS3035-6	2.6 (73.6)	3.8 (106.2)	5.3 (150.0)	20 (566)	2.1 (1.6)	263 (994)
	CDS4030-8	3.1 (87.7)	4.5 (127.4)	6.3 (178.3)	30 (850)	5.6 (4.3)	426 (1612)
	CDS4040-8	4.1 (116.1)	6.0 (169.9)	8.4 (237.8)	30 (850)	5.6 (4.3)	520 (1970)
	CDS4045-8	5.1 (144.4)	7.5 (212.4)	10.5 (297.2)	30 (850)	5.6 (4.3)	568 (2149)
	CDS5640-10	6.1 (172.7)	9.0 (254.9)	12.6 (356.7)	50 (1416)	8.7 (6.7)	758 (2869)
	CDS5653-10	9.5 (268.9)	14.0 (396.5)	19.6 (554.8)	50 (1416)	8.7 (6.7)	965 (3652)
	CDS5668-10	12.9 (365.1)	19.0 (538.1)	26.6 (752.9)	50 (1416)	8.7 (6.7)	1172 (4435)
	CDS5678-10	17.0 (481.2)	25.0 (708.0)	35.0 (990.7)	50 (1416)	8.7 (6.7)	1309 (4956)
	CDS9280-12	27.2 (770.2)	40.0 (1132.7)	56.0 (1585.7)	Offline	16.8 (12.8)	N/A
	CDS9290-12	35.4 (1002.4)	52.0 (1472.5)	72 (2038.8)		16.8 (12.8)	
	CDS92100-12	42.8 (1212.0)	63.0 (1783.9)	88 (2491.9)		16.8 (12.8)	
CAST-IN-PLACE	CDS150134-22	100.7 (2851.5)	148.0 (4190.9)	270 (7645.6)		56.3 (43.0)	
	CDS200164-26	183.6 (5199.0)	270.0 (7645.6)	378.0 (10703.8)		78.7 (60.2)	
	CDS240160-32	204 (5776.6)	300.0 (8495.1)	420.0 (11893.0)		119.1 (91.1)	
	Additional Cast-in-Place models available upon request.						

1. Alternative PSD/D_{50} sizing is available upon request.
2. 125 micron flows are based on the CDS Washington State Department of Ecology approval for 80% removal of a particle size distribution (PSD) having a mean particle size (D_{50}) of 125 microns.
3. Estimated maximum peak conveyance flow is calculated using conservative values and may be exceeded on sites with lower inflow velocities and sufficient head over the weir.
4. Sump and oil capacities can be customized to meet site needs.

Appendix G:
Figures

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FIG 1



THE Chazen COMPANIES

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547 River Street, Troy, NY 12180
Phone: (518) 273-0055

Glens Falls Office:
100 Glen Street, Glens Falls, NY 12801
Phone: (518) 812-0513

Beacon 248 Development LLC
Proposed Residential Development

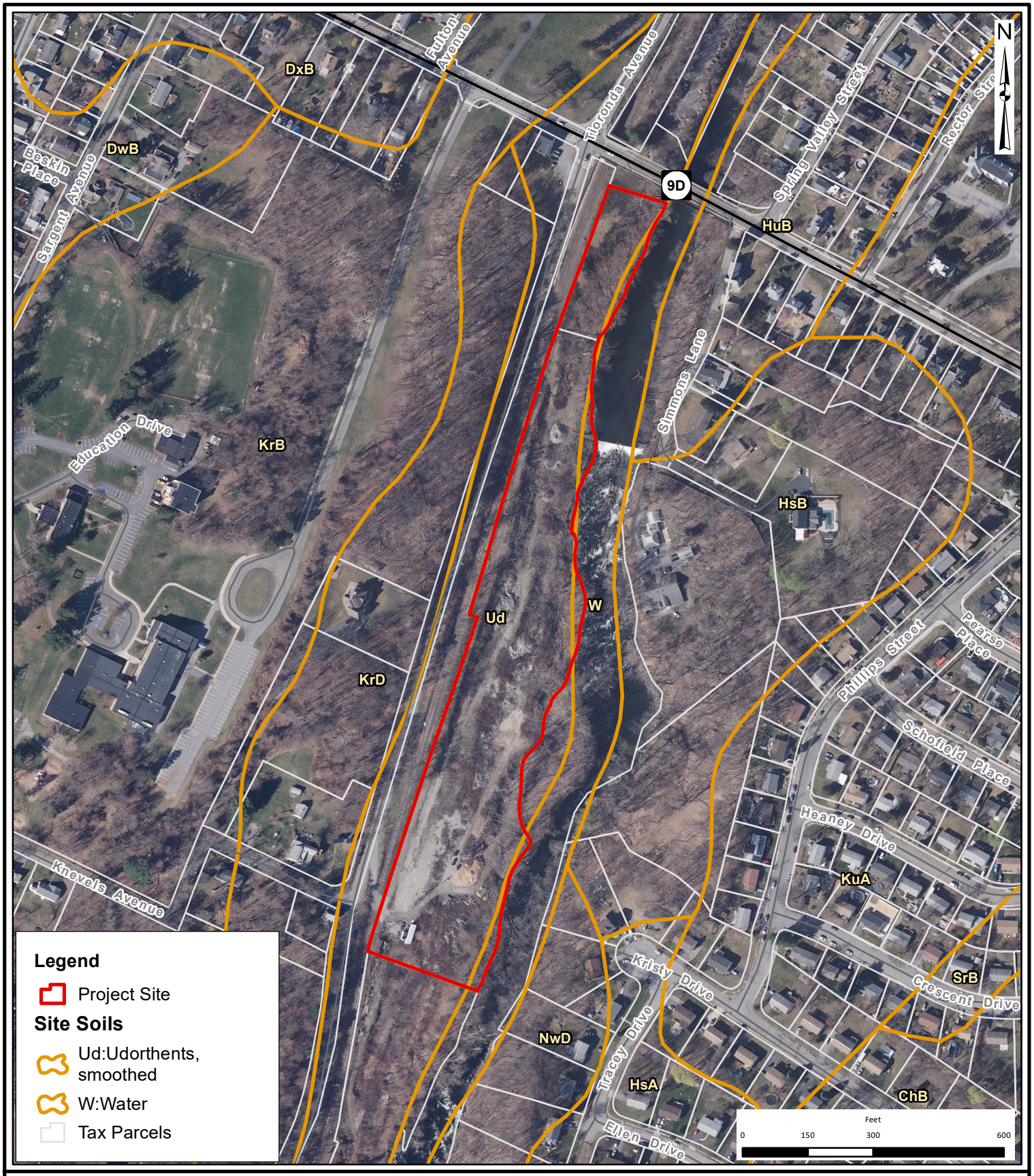
Orthophoto Map

104 Rochelle Avenue
City of Beacon
Dutchess County, New York

Drawn:	CLC
Date:	01/23/2011
Scale:	1:3,600
Project:	81056.00
Figure:	X

Map Document: (R:\8\81000-81999\81056_00_Beacon\GIS\maps\81056_00_Orthophoto_8x11.mxd)
1/23/2011 -- 1:07:07 PM

FIG 2



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North Country Office:
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Phone: (518) 812-0513

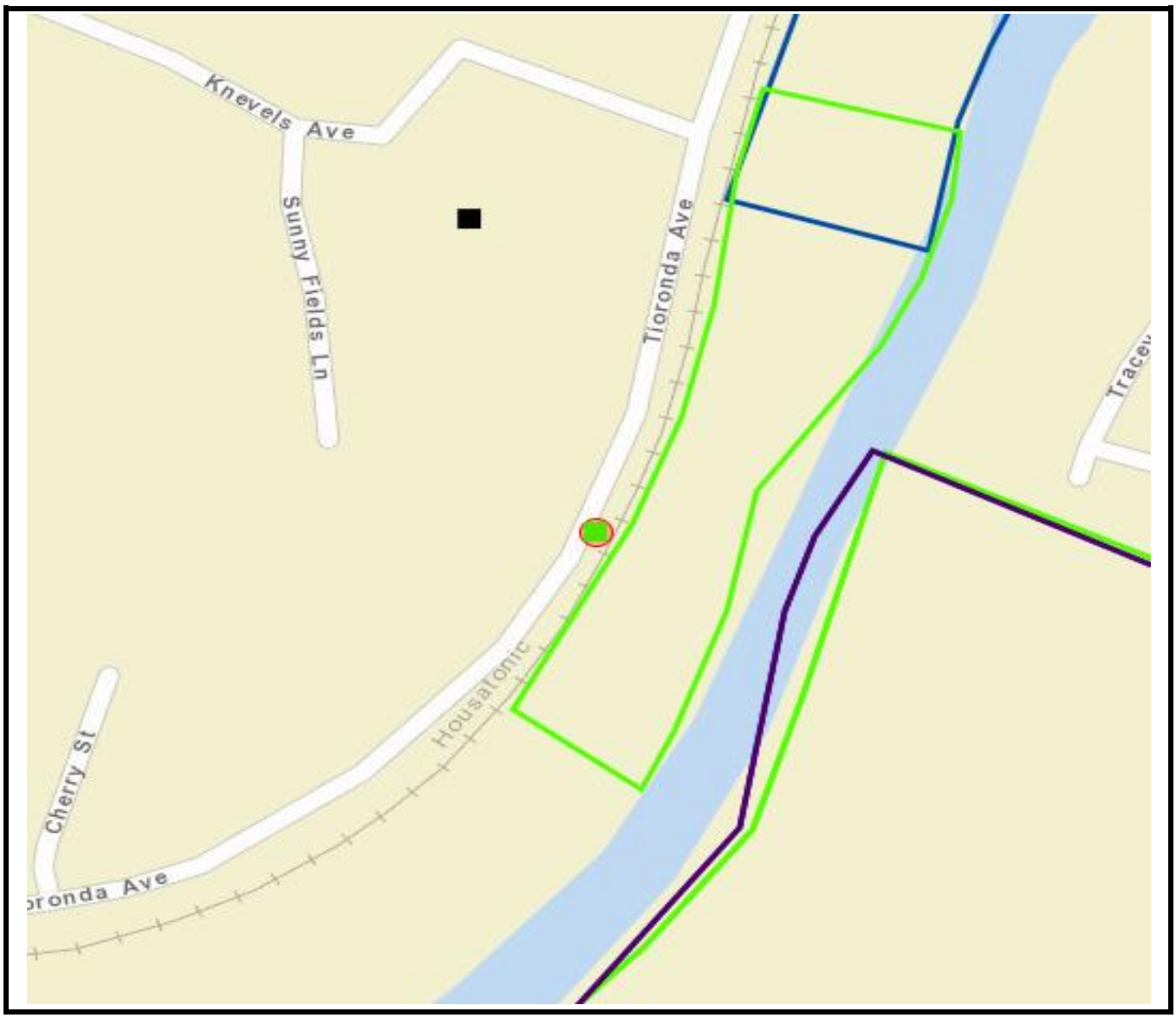
Proposed Fishkill Creek Development (FCD) Site Plan

Soils Map

Tioronda Avenue, City of Beacon - Dutchess County, NY

Drawn:	RLB
Date:	09/06/2018
Scale:	1 in = 300 feet
Project:	81750.00
Figure:	4

FIG 3



LEGEND

Consultation Projects (View)

Survey Archaeology Areas (View)

Survey Building Areas (View)

LPC Historic Districts

Archeologically Sensitive Areas

National Register Building Sites (View)

USN Building Districts (View)

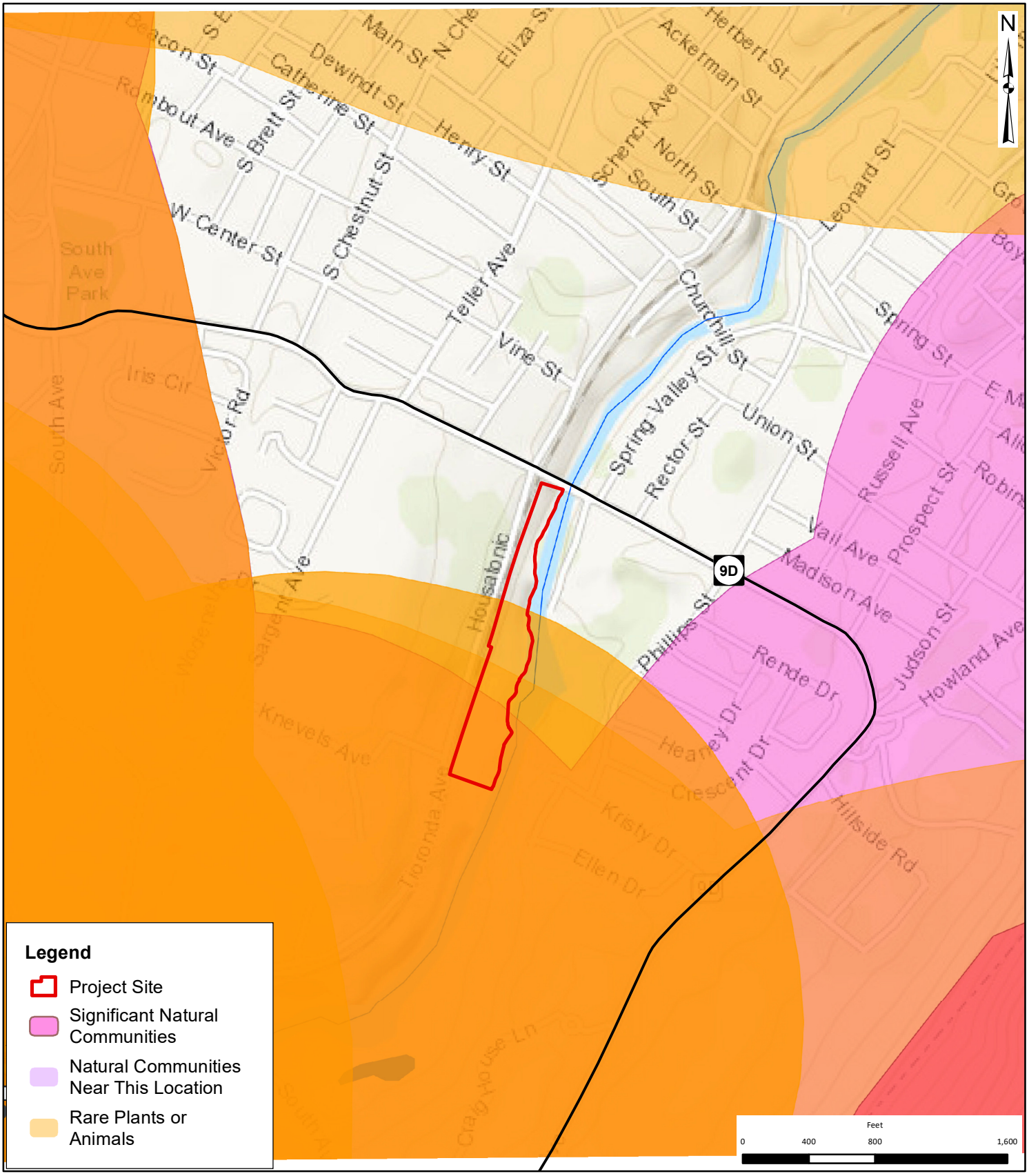
LPC Landmarks

USN Building Points (View)

- Eligible
- Listed
- Not Eligible
- Not Eligible - Demolished
- Undetermined

Cemeteries

FIG 4



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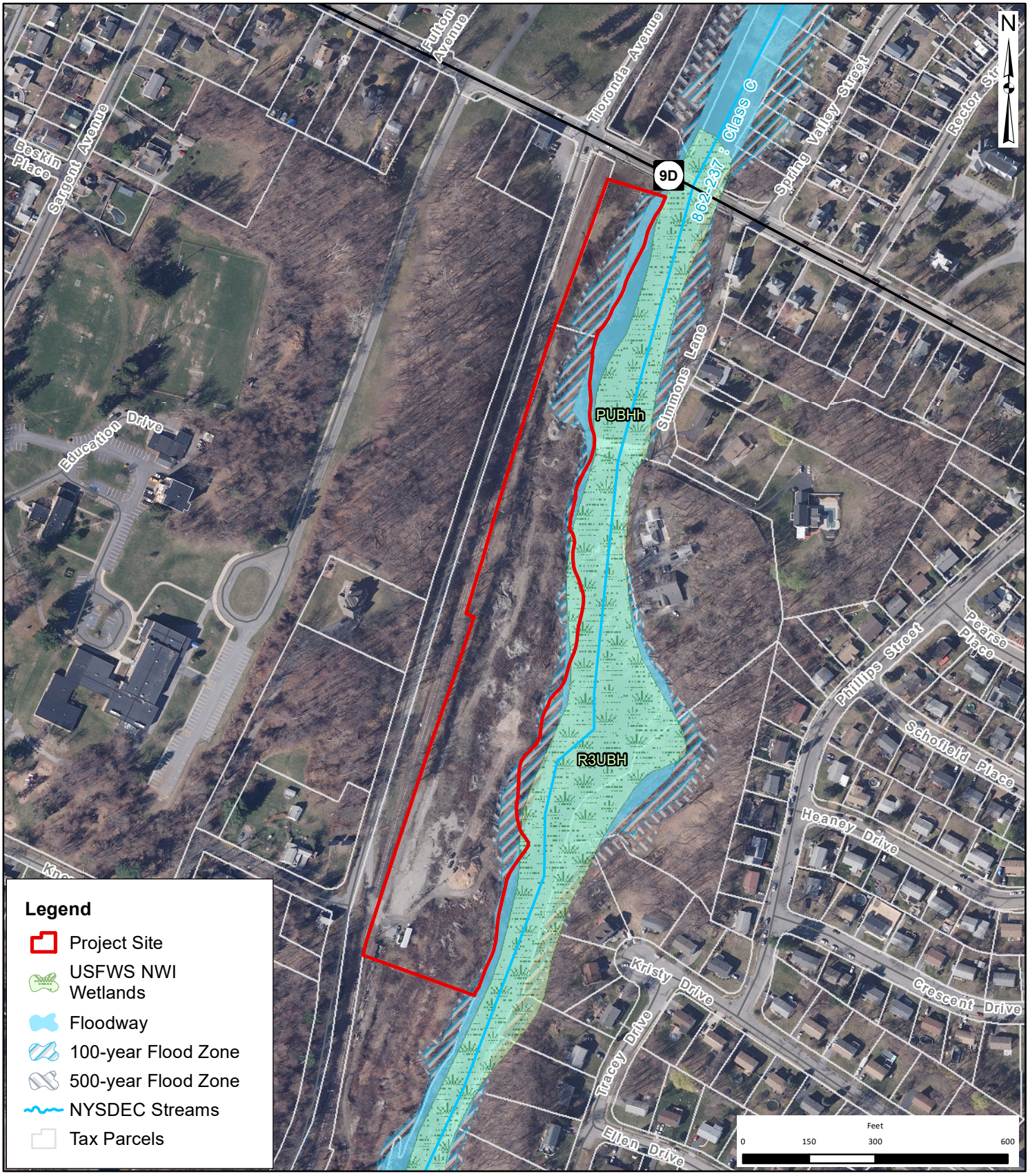
Proposed Fishkill Creek Development (FCD) Site Plan

NYSDEC Environmental Resource Map

Tioronda Avenue, City of Beacon - Dutchess County, NY

Drawn:	RLB
Date:	09/07/2018
Scale:	1 in = 800 feet
Project:	81750.00
Figure:	7

FIG 5



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Proposed Fishkill Creek Development (FCD) Site Plan

Wetland, Streams and Floodplain Map

Tioronda Avenue, City of Beacon - Dutchess County, NY

Drawn:	RLB
Date:	09/06/2018
Scale:	1 in = 300 feet
Project:	81750.00
Figure:	6

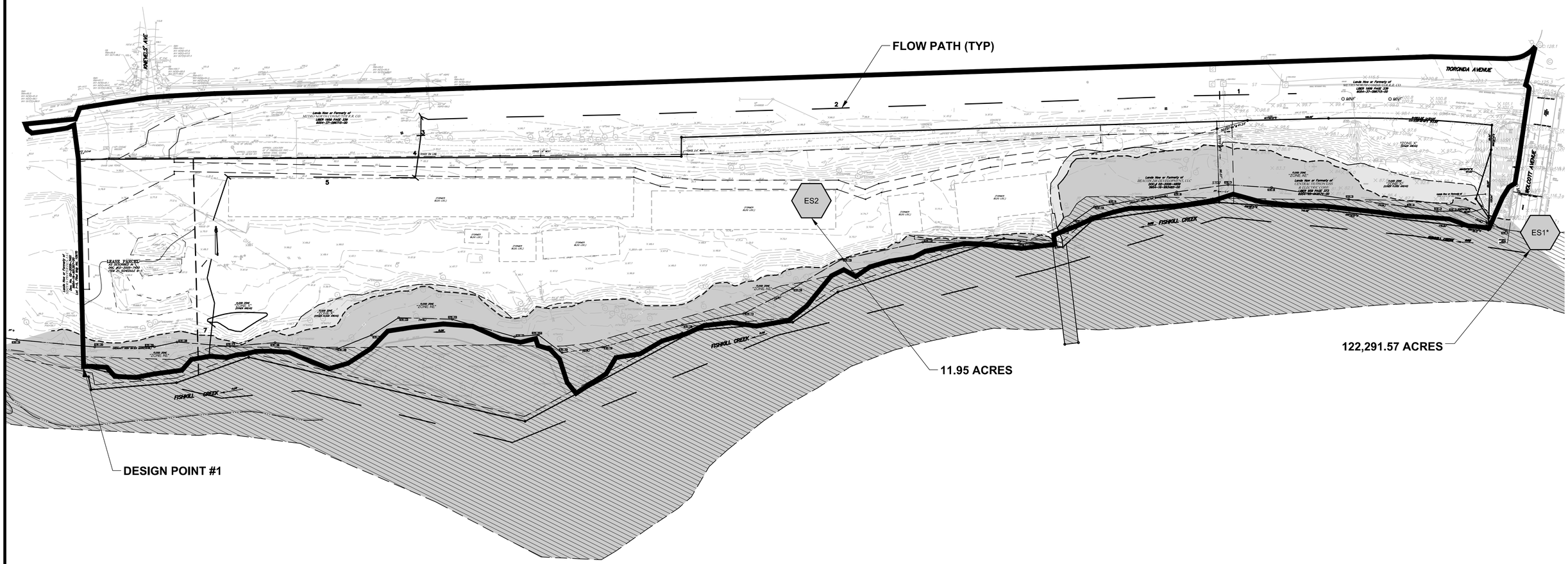
TIME OF CONCENTRATION

SUB CATCHMENT ES1
Subcatchment ES1 encompasses 191.10 square miles upstream from Design Point 1. The time of concentration has been approximated from area and flow rate found in Federal Emergency Management Agency Flood Insurance Study Numbers 36027CV002A and 36027CV001A

SUB CATCHMENT ES2 - 9.78 ACRES			
TIME OF CONCENTRATION - 44.3 MINUTES			
NUMBER	LENGTH (FT)	TYPE OF FLOW	SLOPE (%)
1	100	SHEET	1
2	1045	SHALLOW CONCENTRATED	1
3	25	CHANNEL (PIPE)	5.6
4	56	SHALLOW CONCENTRATED	7.9
5	245	CHANNEL (GUTTER)	1
6	200	SHALLOW CONCENTRATED	9.4

STORM WATER LEGEND

- WATERSHED BOUNDARY
- TIME OF CONCENTRATION / FLOW PATH
- # – SUBCATCHMENT #



1 / FIG 6 **PRE-DEVELOPMENT DRAINAGE MAP**
SCALE: 1"=60'

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0 1 2 3
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rev.	date	description
3	2/26/24	NO REVISIONS THIS SHEET PER AMENDED SWPPP
2	08/31/21	REVISED PER CITY SUBMISSION
1	12/20/19	REVISED PER TOWN COMMENTS

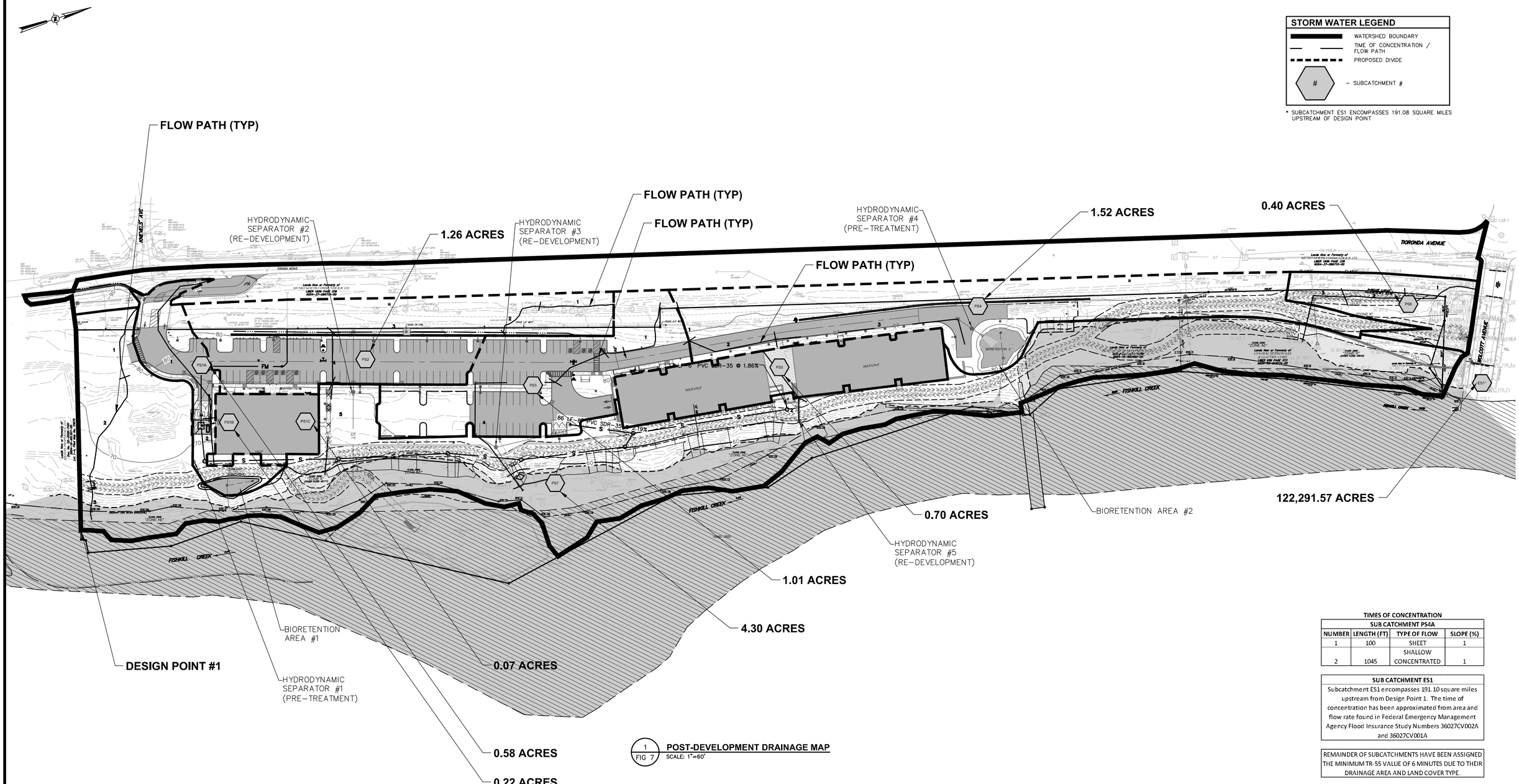
TIORONDA AVENUE & 465 WOLCOTT AVENUE
CHAI BUILDERS

PRE-DEVELOPMENT DRAINAGE MAP

CITY OF BEACON, DUTCHESS COUNTY, NEW YORK

designed	checked
CJL	LAB
date	scale
01/16/19	AS NOTED
project no.	
81750.00	
sheet no.	
FIG 6	

Drawing Name: \\cosh.lob\u\Legacy\Chazen\Projects\81700-81799\81750.00 CHAI Builders B-248\DWG\11_STMF-FIG4-FIG5_81750_PRE-POST-WATERSHED-MAPS.dwg
Xref's Attached: XBASE-ENG_81750-00; XSTORM_81750-00; XTB_81750-00_24x36; XLAYOUT_81750-00; XGRADING_81750-00; XUTIL_81750-00
Date Printed: Feb 26, 2024, 10:39pm



1 / FIG 7 **POST-DEVELOPMENT DRAINAGE MAP**
SCALE: 1"=60'

TIMES OF CONCENTRATION

SUB CATCHMENT PS4A

NUMBER	LENGTH (FT)	TYPE OF FLOW	SLOPE (%)
1	100	SHEET	1
2	1045	SHALLOW CONCENTRATED	1

SUB CATCHMENT ES1

Subcatchment ES1 encompasses 191.10 square miles upstream from Design Point 1. The time of concentration has been approximated from area and flow rate found in Federal Emergency Management Agency Flood Insurance Study Numbers 36027CV002A and 36027CV001A

REMAINDER OF SUBCATCHMENTS HAVE BEEN ASSIGNED THE MINIMUM TR-55 VALUE OF 6 MINUTES DUE TO THEIR DRAINAGE AREA AND LAND COVER TYPE.

ORIGINAL SCALE IN INCHES

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rev.	date	description
3	2/24/24	REVISED PER AMENDED SWPPP
2	08/31/21	REVISED PER CITY SUBMISSION
1	12/20/19	REVISED PER TOWN COMMENTS

TIORONDA AVENUE & 465 WOLCOTT AVENUE
CHAI BUILDERS

POST-DEVELOPMENT DRAINAGE MAP

CITY OF BEACON, DUTCHESS COUNTY, NEW YORK

designed	checked
CJL	LAB
date	scale
01/16/19	AS NOTED
project no.	
81750.00	
sheet no.	
FIG 7	

Drawing Name: \\cash.lab\u\Legacy\Chazen\Projects\81700-81799\81750.00 CHAI Builders B-248\DWG\11_STMF-FIG4-FIG5_81750_PRE-POST-WATERSHED-MAPS.dwg
Xref's Attached: XBASE-ENG_81750-00; XSTORM_81750-00; XTB_81750-00_24x36; XLAYOUT_81750-00; XGRADING_81750-00; XUTIL_81750-00
Date Printed: Feb 26, 2024, 10:38pm

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Appendix H:
Chazen Certifying Professionals Letter

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Landscape Architects

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P: (845) 454-3980 F: (845) 454-4026
www.chazencompanies.com

Capital District Office (518) 273-0055
North Country Office (518) 812-0513

April 7, 2016

To Whom it May Concern:

In accordance with the NYSDEC SPDES General Permit GP-0-15-002, part VII.H.2, the New York State licensed Professional Engineers employed by The Chazen Companies and listed on the attachment to this letter are duly authorized to sign and seal Stormwater Pollution Prevention Plans (SWPPPs), NOIs, and NOTs prepared under their direct supervision.

Sincerely,

Mark Kastner, P.E.
President

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www.chazencompanies.com

Capital District Office (518) 273-0055
North Country Office (518) 812-0513

Chazen Professional Engineers duly authorized to sign and seal SWPPPs, NOIs, and NOTs:

Name:	Position:	Signature:	Date:
Richard Chazen, P.E.	Senior Principal		9/23/13
Daniel Stone, P.E.	Senior Principal		9/25/13
Joseph Lanaro, P.E.	Vice President of Engineering		9/18/13
James Connors, P.E.	Senior Director		9/18/13
Chris Lapine, P.E.	Director		9/23/13
Roger Keating, P.E.	Director		9/18/13
Peter Romano, P.E.	Director		9/18/13
Walter Kubow, P.E.	Senior Project Manager		9/18/13
Eric Johnson, P.E.	Director		9/18/13
George Cronk, P.E.	Project Manager		9/23/13
Sean Doty, P.E.	Manager		4/6/2016
Michael Flanagan, P.E.	Project Manager		4/6/16

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Appendix I:
Pre-Development Stormwater Modeling

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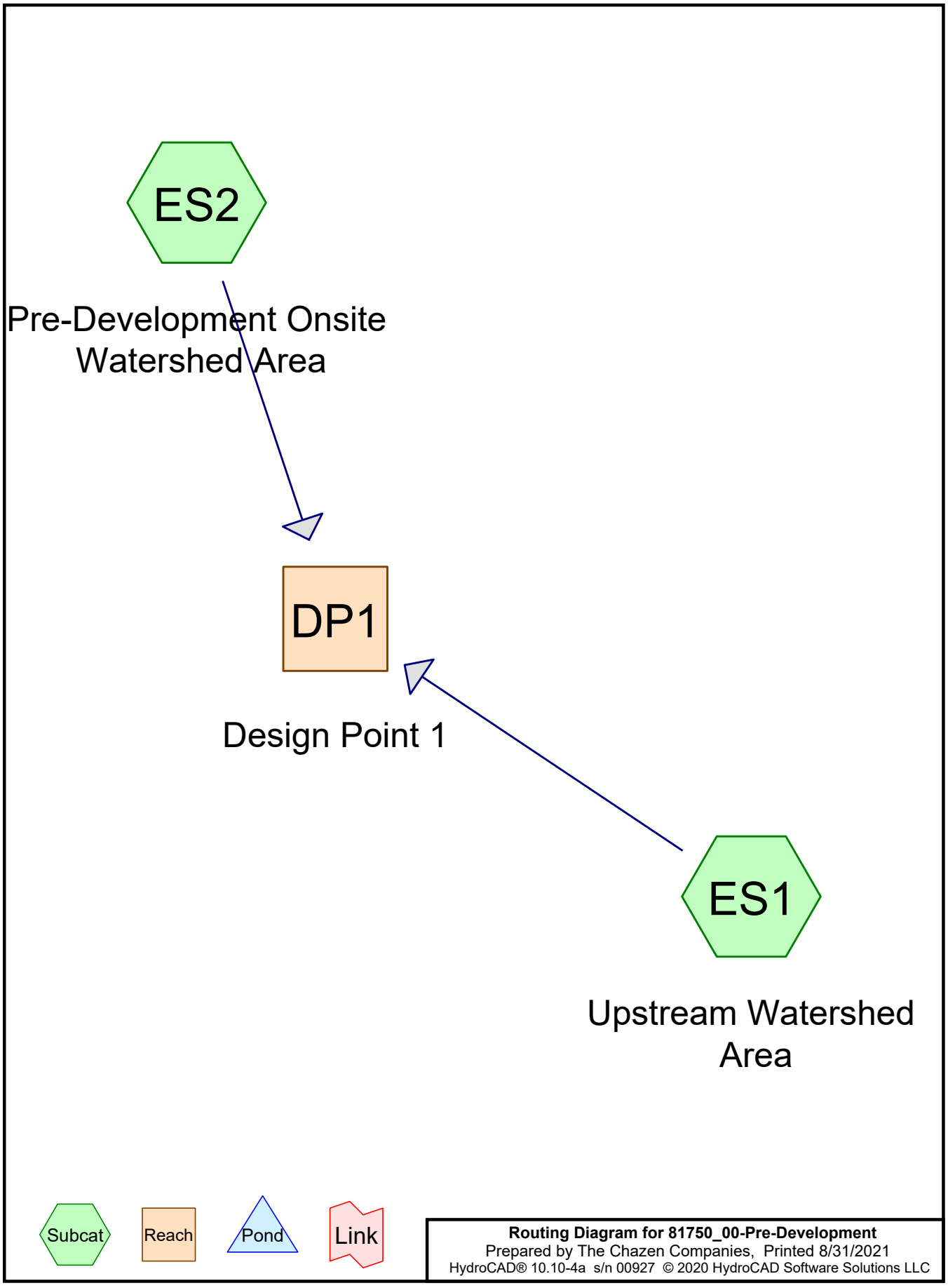

ES2
Pre-Development Onsite Watershed Area
DP1
Design Point 1
ES1
Upstream Watershed Area
Subcat
Reach
Pond
Link
Routing Diagram for 81750_00-Pre-Development
Prepared by The Chazen Companies, Printed 8/31/2021
HydroCAD® 10.10-4a s/n 00927 © 2020 HydroCAD Software Solutions LLC

Rainfall Events Listing

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	1-Year	Type III 24-hr		Default	24.00	1	2.80	2
2	10-Year	Type III 24-hr		Default	24.00	1	5.20	2
3	100-Year	Type III 24-hr		Default	24.00	1	7.81	2

Summary for Subcatchment ES1: Upstream Watershed Area

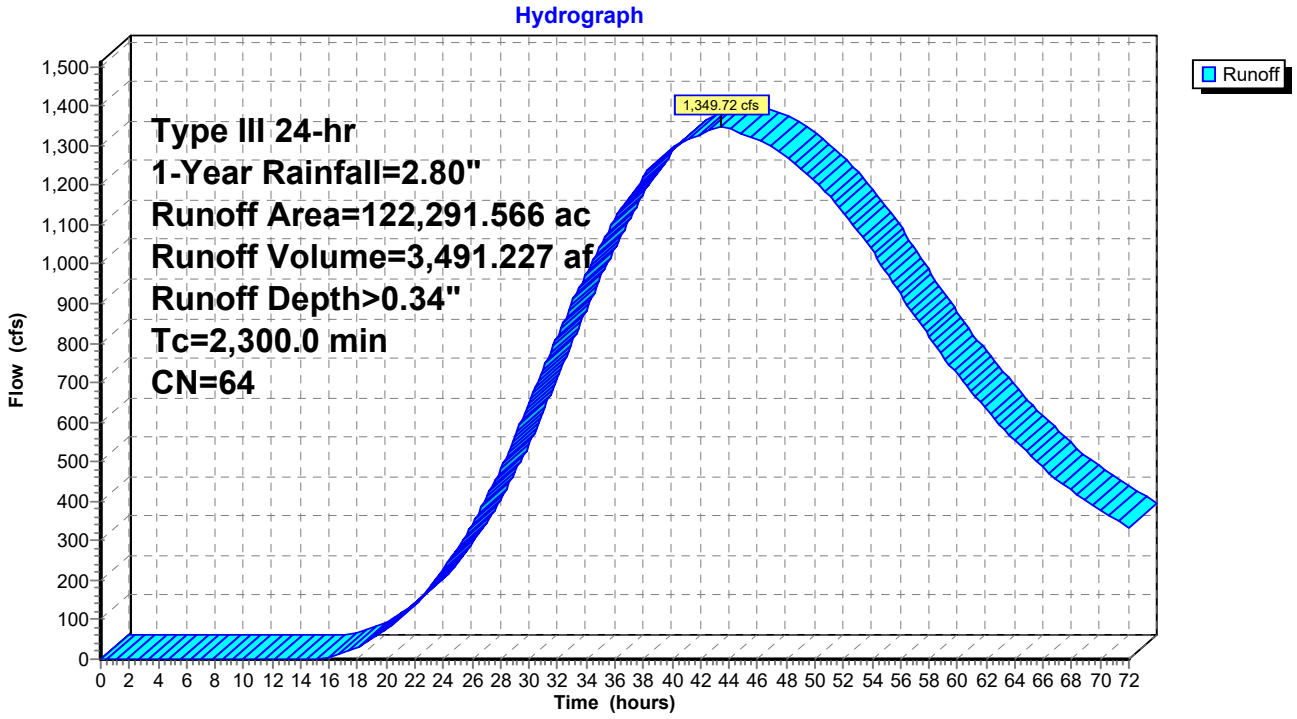
Runoff = 1,349.72 cfs @ 43.44 hrs, Volume= 3,491.227 af, Depth> 0.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
Type III 24-hr 1-Year Rainfall=2.80"

Area (ac)	CN	Description
*122,291.566	64	
122,291.566		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2,300.0					**Direct Entry, Time of Concentration**

Subcatchment ES1: Upstream Watershed Area



Summary for Subcatchment ES2: Pre-Development Onsite Watershed Area

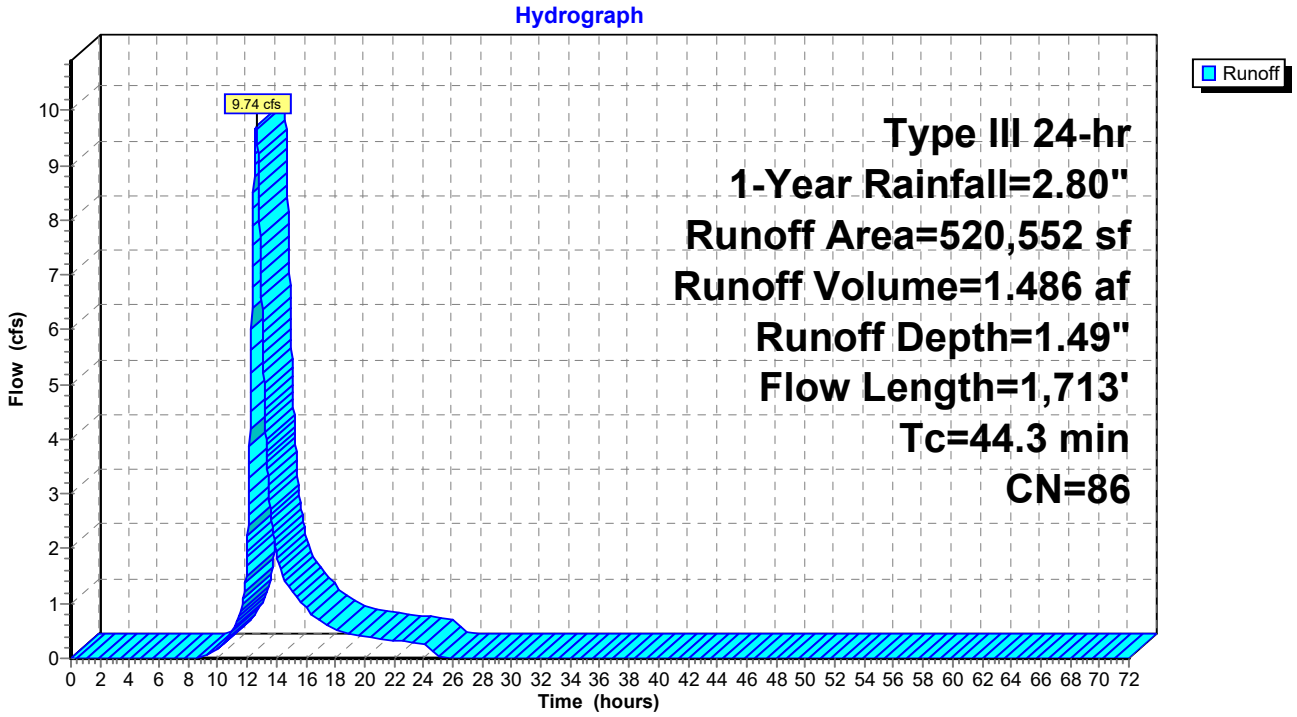
Runoff = 9.74 cfs @ 12.62 hrs, Volume= 1.486 af, Depth= 1.49"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
Type III 24-hr 1-Year Rainfall=2.80"

Area (sf)	CN	Description
172,059	98	Unconnected pavement, HSG D
234,058	80	>75% Grass cover, Good, HSG D
114,435	79	Woods/grass comb., Good, HSG D
520,552	86	Weighted Average
348,493		66.95% Pervious Area
172,059		33.05% Impervious Area
172,059		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.0	100	0.0100	0.09		**Sheet Flow, 100' Sheet Grass @ .01** Grass: Dense n= 0.240 P2= 3.50"
24.9	1,045	0.0100	0.70		**Shallow Concentrated Flow, 1,045' Shallow Grass @ .01** Short Grass Pasture Kv= 7.0 fps
0.0	25	0.0560	10.73	8.43	**Pipe Channel, 25' 12" CIP @ .056** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Cast iron, coated
0.2	56	0.0790	5.71		**Shallow Concentrated Flow, 56' Shallow Paved @ .079** Paved Kv= 20.3 fps
0.5	245	0.0100	8.74	43.71	**Channel Flow, 245' Channel Gutter Flow @ .01** Area= 5.0 sf Perim= 5.0' r= 1.00' n= 0.017 Concrete, unfinished
0.5	200	0.0940	6.22		**Shallow Concentrated Flow, 200' Shallow Paved @ .094** Paved Kv= 20.3 fps
0.2	42	0.4380	3.31		**Shallow Concentrated Flow, 42' Shallow Woods @ .438** Woodland Kv= 5.0 fps
44.3	1,713	Total			

Subcatchment ES2: Pre-Development Onsite Watershed Area

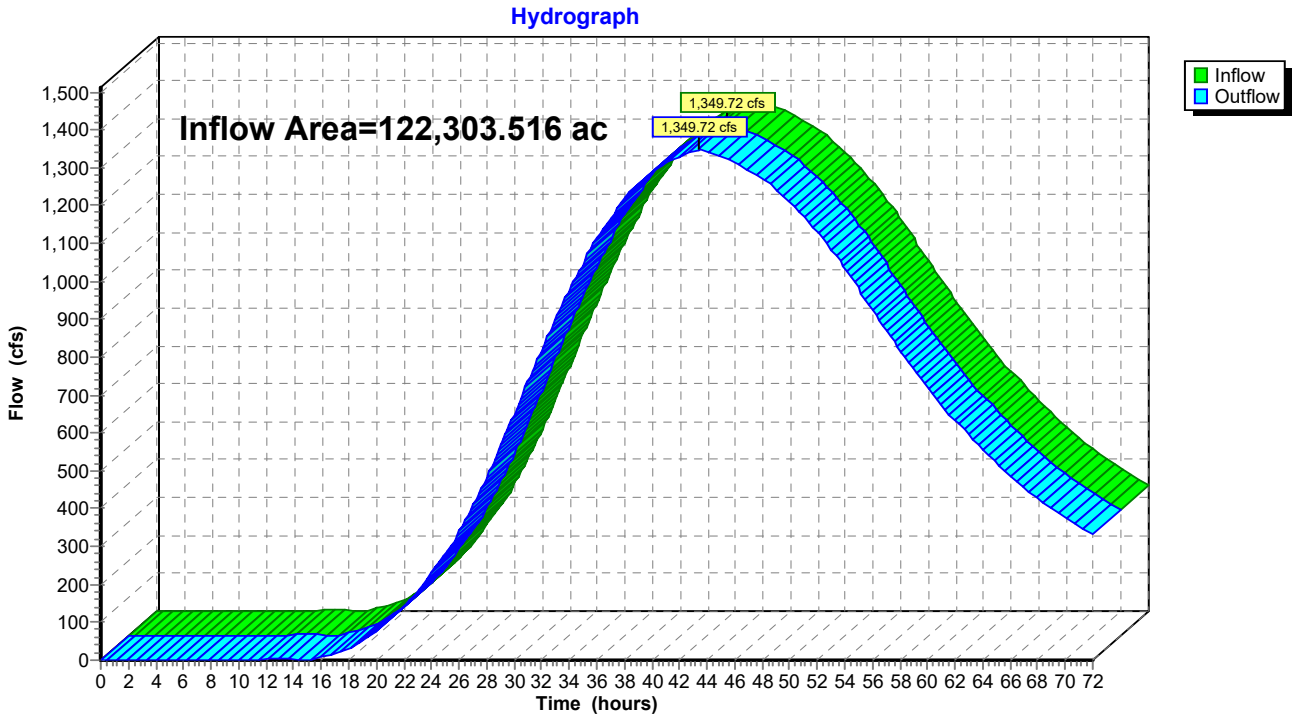


Summary for Reach DP1: Design Point 1

Inflow Area =122,303.516 ac, 0.00% Impervious, Inflow Depth > 0.34" for 1-Year event
Inflow = 1,349.72 cfs @ 43.44 hrs, Volume= 3,492.714 af
Outflow = 1,349.72 cfs @ 43.44 hrs, Volume= 3,492.714 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs

Reach DP1: Design Point 1



Summary for Subcatchment ES1: Upstream Watershed Area

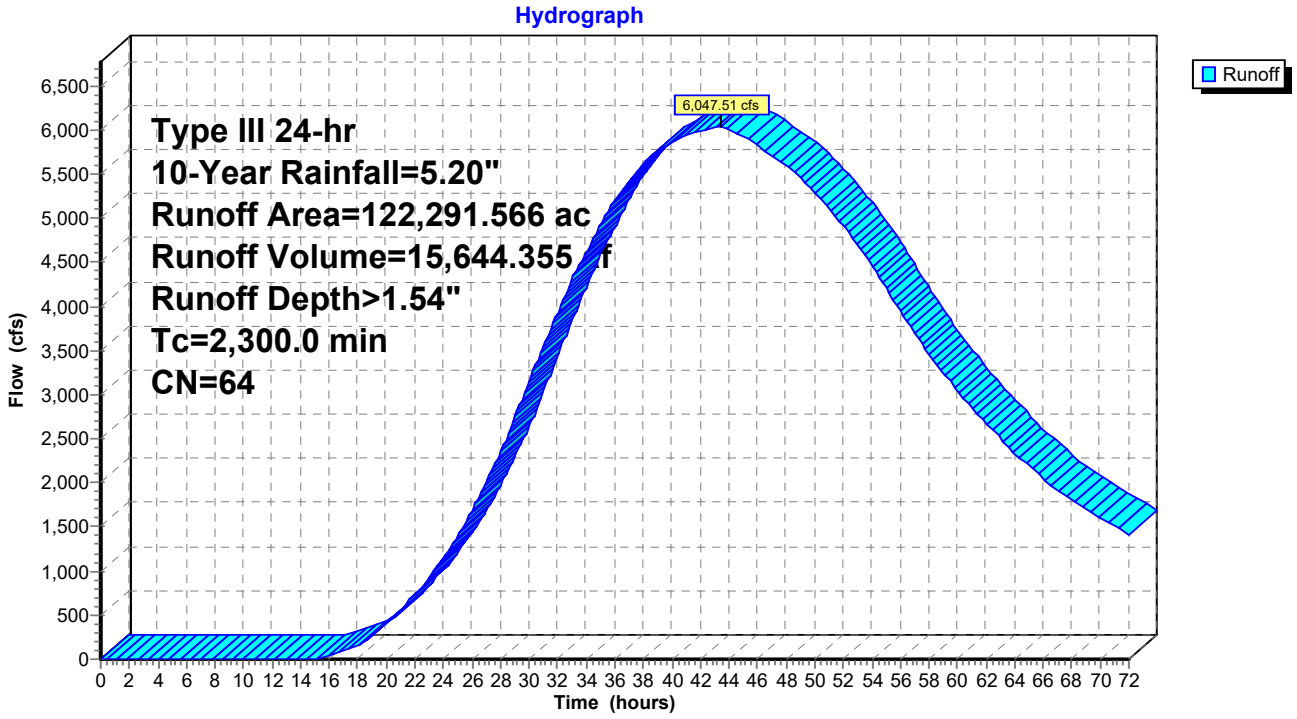
Runoff = 6,047.51 cfs @ 43.44 hrs, Volume= 15,644.355 af, Depth> 1.54"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
Type III 24-hr 10-Year Rainfall=5.20"

Area (ac)	CN	Description
*122,291.566	64	
122,291.566		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2,300.0					**Direct Entry, Time of Concentration**

Subcatchment ES1: Upstream Watershed Area



Summary for Subcatchment ES2: Pre-Development Onsite Watershed Area

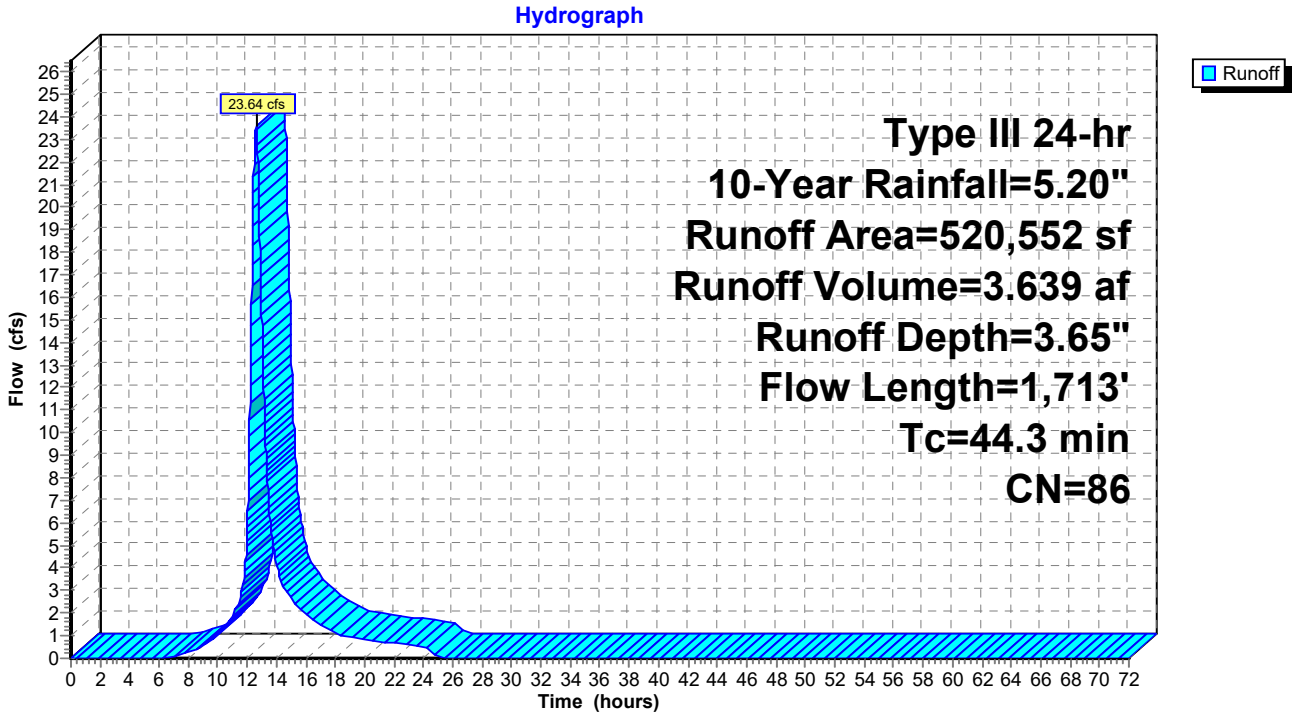
Runoff = 23.64 cfs @ 12.59 hrs, Volume= 3.639 af, Depth= 3.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
Type III 24-hr 10-Year Rainfall=5.20"

Area (sf)	CN	Description
172,059	98	Unconnected pavement, HSG D
234,058	80	>75% Grass cover, Good, HSG D
114,435	79	Woods/grass comb., Good, HSG D
520,552	86	Weighted Average
348,493		66.95% Pervious Area
172,059		33.05% Impervious Area
172,059		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.0	100	0.0100	0.09		**Sheet Flow, 100' Sheet Grass @ .01** Grass: Dense n= 0.240 P2= 3.50"
24.9	1,045	0.0100	0.70		**Shallow Concentrated Flow, 1,045' Shallow Grass @ .01** Short Grass Pasture Kv= 7.0 fps
0.0	25	0.0560	10.73	8.43	**Pipe Channel, 25' 12" CIP @ .056** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Cast iron, coated
0.2	56	0.0790	5.71		**Shallow Concentrated Flow, 56' Shallow Paved @ .079** Paved Kv= 20.3 fps
0.5	245	0.0100	8.74	43.71	**Channel Flow, 245' Channel Gutter Flow @ .01** Area= 5.0 sf Perim= 5.0' r= 1.00' n= 0.017 Concrete, unfinished
0.5	200	0.0940	6.22		**Shallow Concentrated Flow, 200' Shallow Paved @ .094** Paved Kv= 20.3 fps
0.2	42	0.4380	3.31		**Shallow Concentrated Flow, 42' Shallow Woods @ .438** Woodland Kv= 5.0 fps
44.3	1,713	Total			

Subcatchment ES2: Pre-Development Onsite Watershed Area

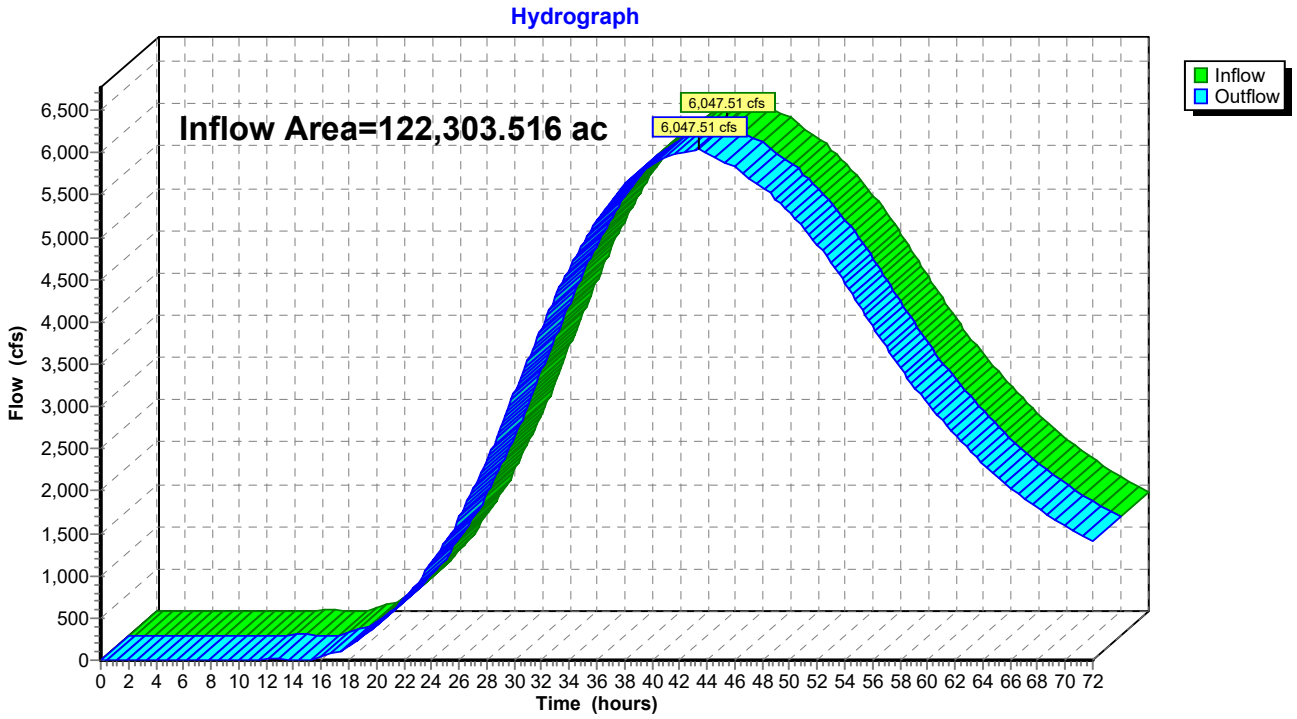


Summary for Reach DP1: Design Point 1

Inflow Area =122,303.516 ac, 0.00% Impervious, Inflow Depth > 1.54" for 10-Year event
Inflow = 6,047.51 cfs @ 43.44 hrs, Volume= 15,647.994 af
Outflow = 6,047.51 cfs @ 43.44 hrs, Volume= 15,647.994 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs

Reach DP1: Design Point 1



Summary for Subcatchment ES1: Upstream Watershed Area

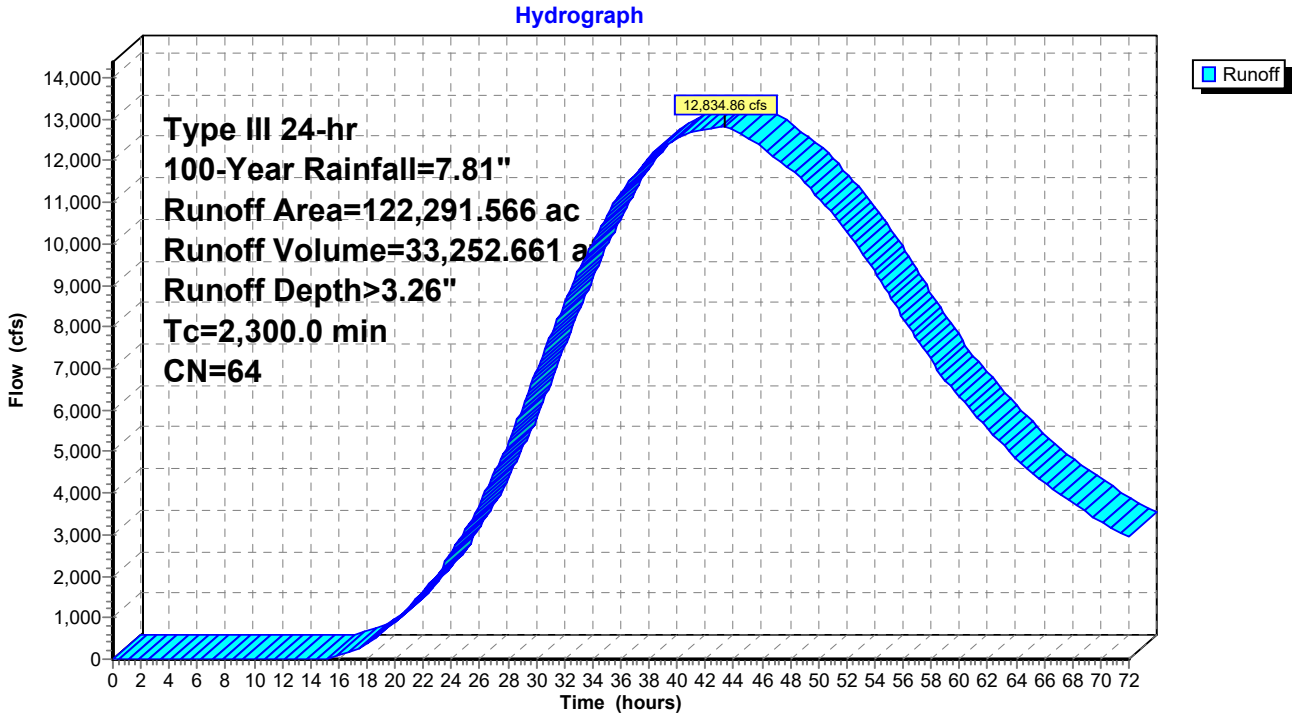
Runoff = 12,834.86 cfs @ 43.44 hrs, Volume= 33,252.661 af, Depth> 3.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
Type III 24-hr 100-Year Rainfall=7.81"

Area (ac)	CN	Description
*122,291.566	64	
122,291.566		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2,300.0					**Direct Entry, Time of Concentration**

Subcatchment ES1: Upstream Watershed Area



Summary for Subcatchment ES2: Pre-Development Onsite Watershed Area

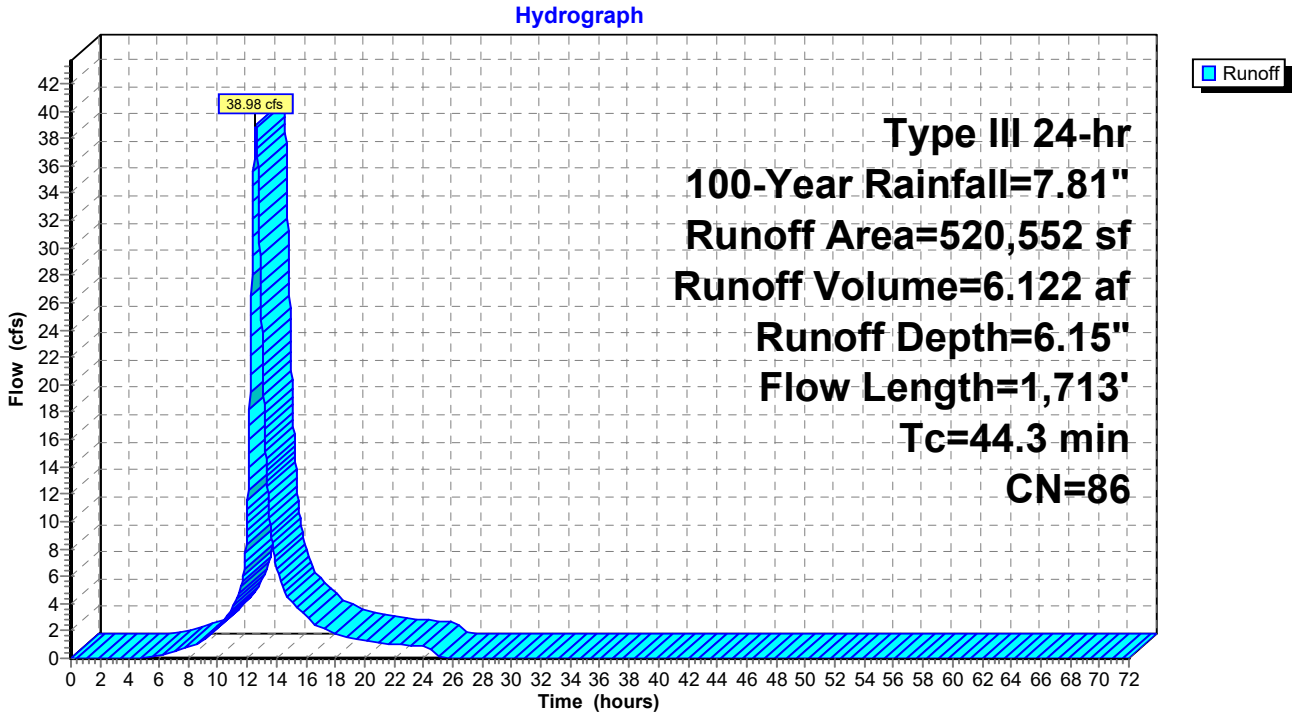
Runoff = 38.98 cfs @ 12.57 hrs, Volume= 6.122 af, Depth= 6.15"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
Type III 24-hr 100-Year Rainfall=7.81"

Area (sf)	CN	Description
172,059	98	Unconnected pavement, HSG D
234,058	80	>75% Grass cover, Good, HSG D
114,435	79	Woods/grass comb., Good, HSG D
520,552	86	Weighted Average
348,493		66.95% Pervious Area
172,059		33.05% Impervious Area
172,059		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.0	100	0.0100	0.09		**Sheet Flow, 100' Sheet Grass @ .01** Grass: Dense n= 0.240 P2= 3.50"
24.9	1,045	0.0100	0.70		**Shallow Concentrated Flow, 1,045' Shallow Grass @ .01** Short Grass Pasture Kv= 7.0 fps
0.0	25	0.0560	10.73	8.43	**Pipe Channel, 25' 12" CIP @ .056** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Cast iron, coated
0.2	56	0.0790	5.71		**Shallow Concentrated Flow, 56' Shallow Paved @ .079** Paved Kv= 20.3 fps
0.5	245	0.0100	8.74	43.71	**Channel Flow, 245' Channel Gutter Flow @ .01** Area= 5.0 sf Perim= 5.0' r= 1.00' n= 0.017 Concrete, unfinished
0.5	200	0.0940	6.22		**Shallow Concentrated Flow, 200' Shallow Paved @ .094** Paved Kv= 20.3 fps
0.2	42	0.4380	3.31		**Shallow Concentrated Flow, 42' Shallow Woods @ .438** Woodland Kv= 5.0 fps
44.3	1,713	Total			

Subcatchment ES2: Pre-Development Onsite Watershed Area

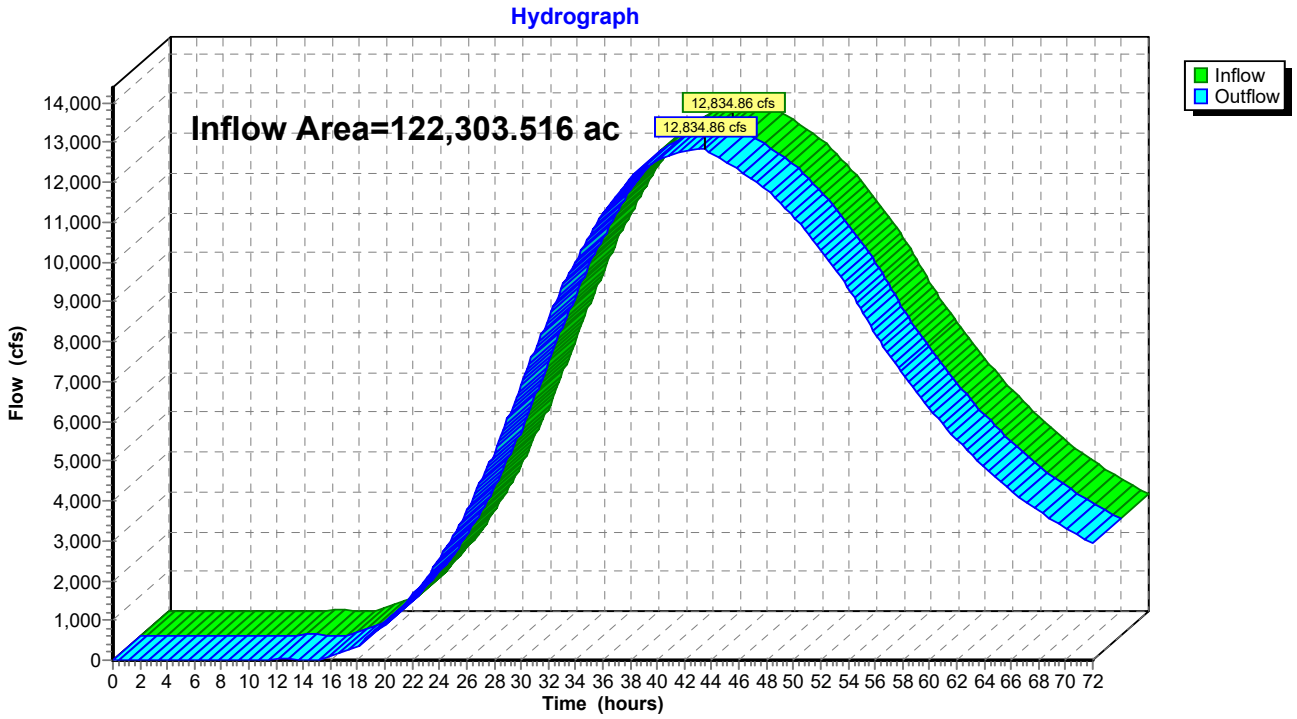


Summary for Reach DP1: Design Point 1

Inflow Area =122,303.516 ac, 0.00% Impervious, Inflow Depth > 3.26" for 100-Year event
Inflow = 12,834.86 cfs @ 43.44 hrs, Volume= 33,258.783 af
Outflow = 12,834.86 cfs @ 43.44 hrs, Volume= 33,258.783 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs

Reach DP1: Design Point 1



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Appendix J:
Post-Development Stormwater Modeling

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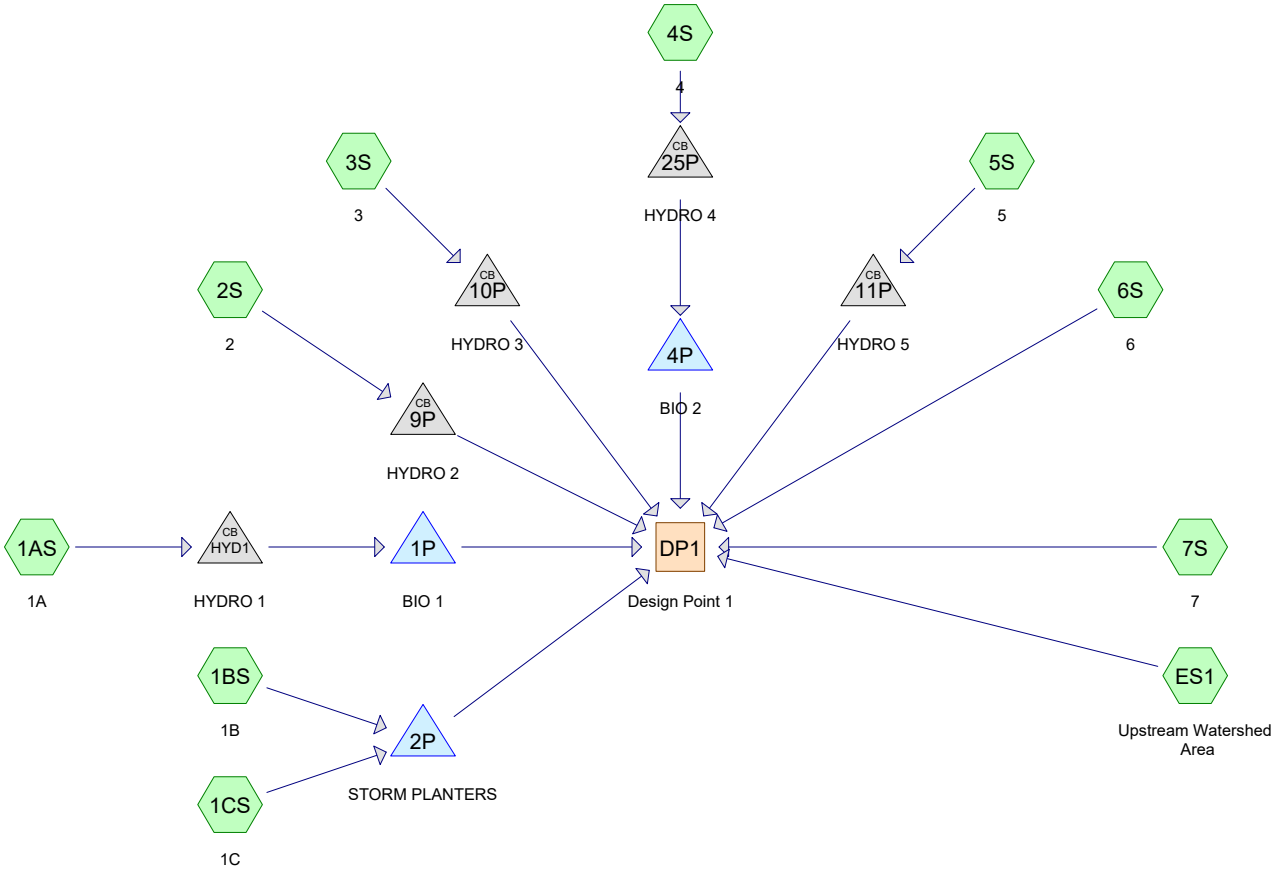

Subcat Reach Pond Link

Routing Diagram for 81750_00-Post-Development
Prepared by Labella Associates, Printed 2/26/2024
HydroCAD® 10.20-2g s/n 09581 © 2022 HydroCAD Software Solutions LLC

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Summary for Subcatchment 1AS: 1A

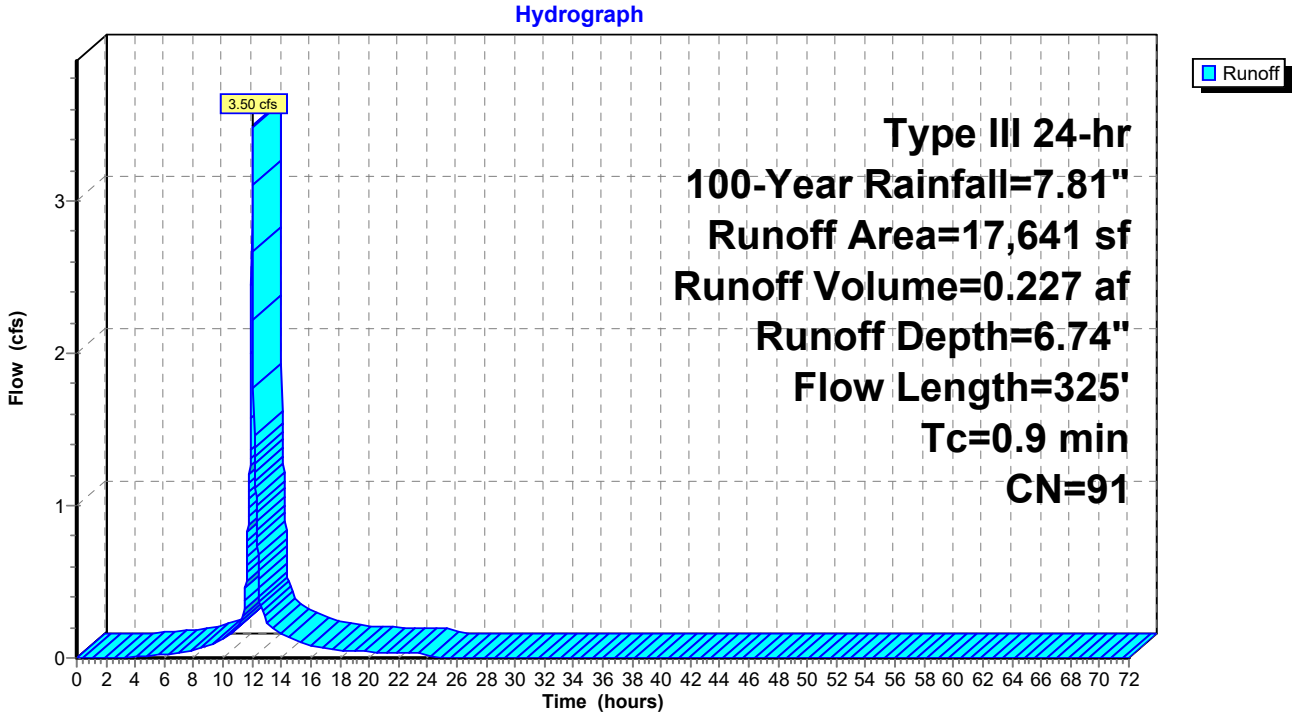
Runoff = 3.50 cfs @ 12.02 hrs, Volume= 0.227 af, Depth= 6.74"
Routed to Pond HYD1 : HYDRO 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
Type III 24-hr 100-Year Rainfall=7.81"

Area (sf)	CN	Description
11,238	98	Paved parking, HSG D
6,403	80	>75% Grass cover, Good, HSG D
17,641	91	Weighted Average
6,403		36.30% Pervious Area
11,238		63.70% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	262	0.0734	5.50		**Shallow Concentrated Flow, 262 LF SCF @ 7.34% PAVED** Paved Kv= 20.3 fps
0.1	63	0.1500	17.57	13.80	**Pipe Channel, 63 LF @ 15%** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Corrugated PE, smooth interior
0.9	325	Total			

Subcatchment 1AS: 1A



Summary for Subcatchment 1BS: 1B

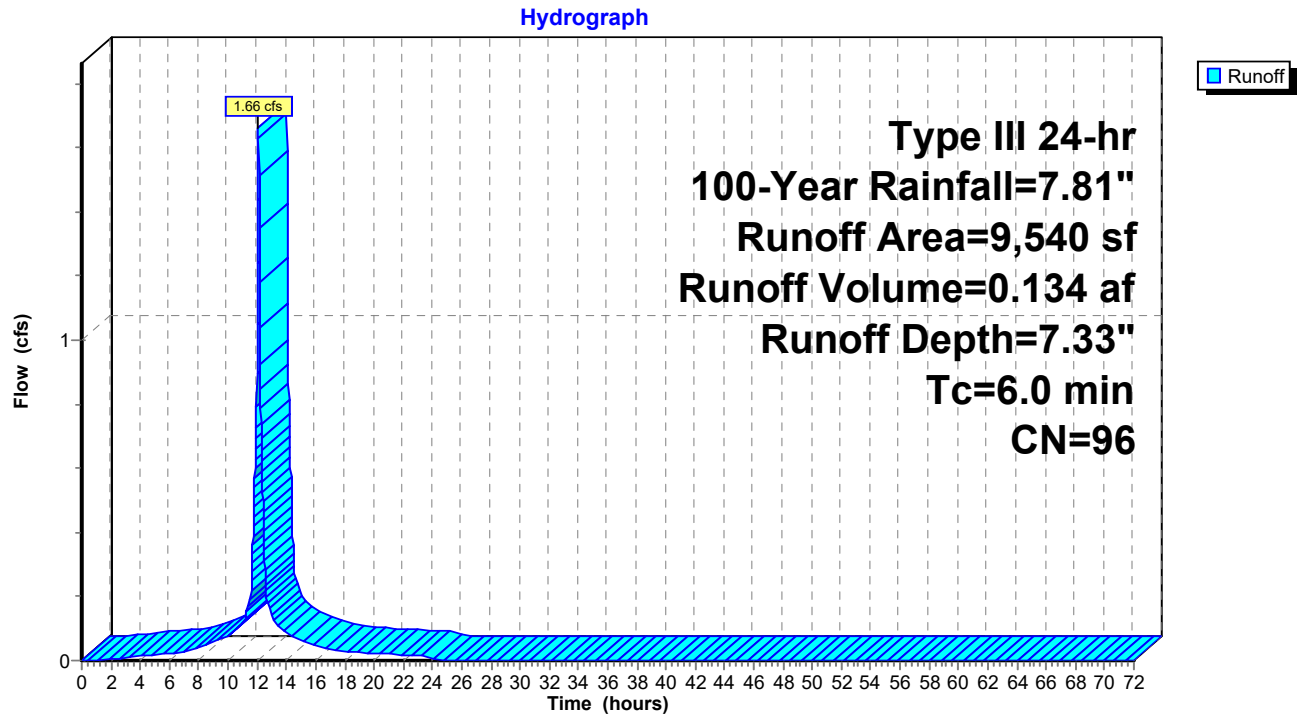
Runoff = 1.66 cfs @ 12.08 hrs, Volume= 0.134 af, Depth= 7.33"
Routed to Pond 2P : STORM PLANTERS

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
Type III 24-hr 100-Year Rainfall=7.81"

Area (sf)	CN	Description
8,451	98	Paved parking, HSG D
1,089	80	>75% Grass cover, Good, HSG D
9,540	96	Weighted Average
1,089		11.42% Pervious Area
8,451		88.58% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 1BS: 1B



Summary for Subcatchment 1CS: 1C

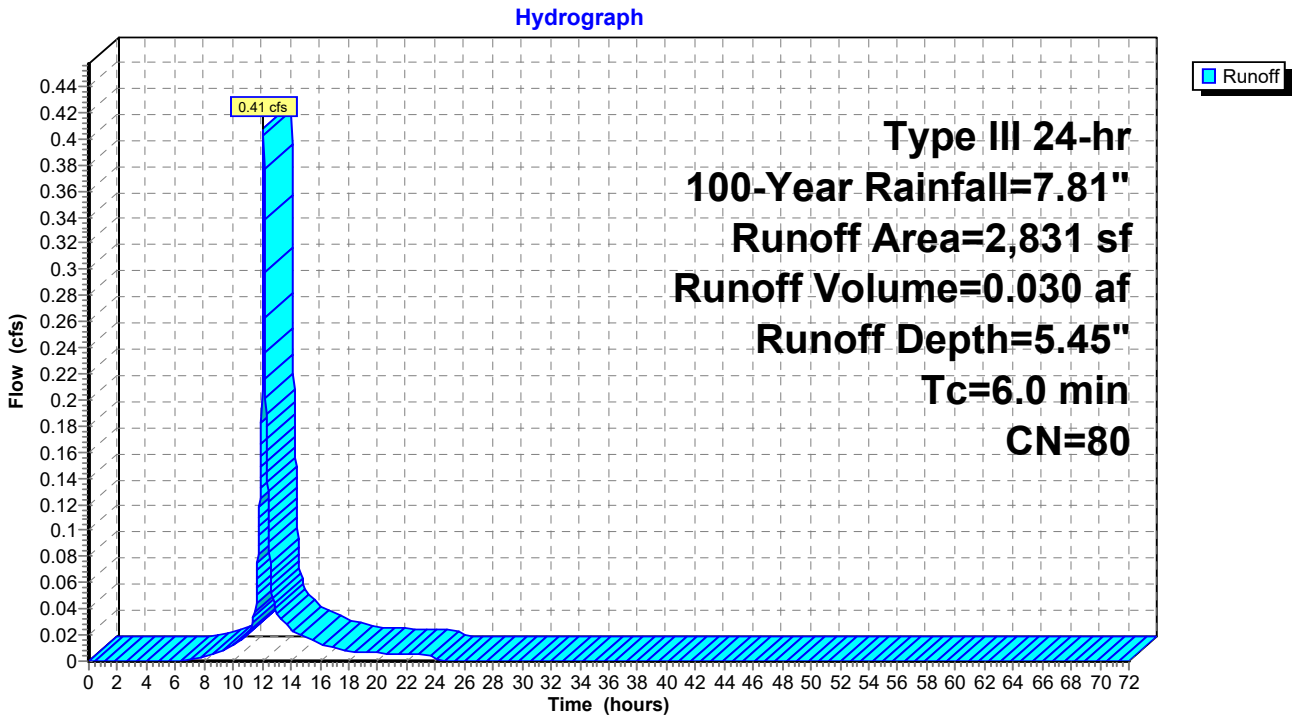
Runoff = 0.41 cfs @ 12.09 hrs, Volume= 0.030 af, Depth= 5.45"
Routed to Pond 2P : STORM PLANTERS

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
Type III 24-hr 100-Year Rainfall=7.81"

	Area (sf)	CN	Description
*	2,831	80	Green Roof
	2,831		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 1CS: 1C



Summary for Subcatchment 2S: 2

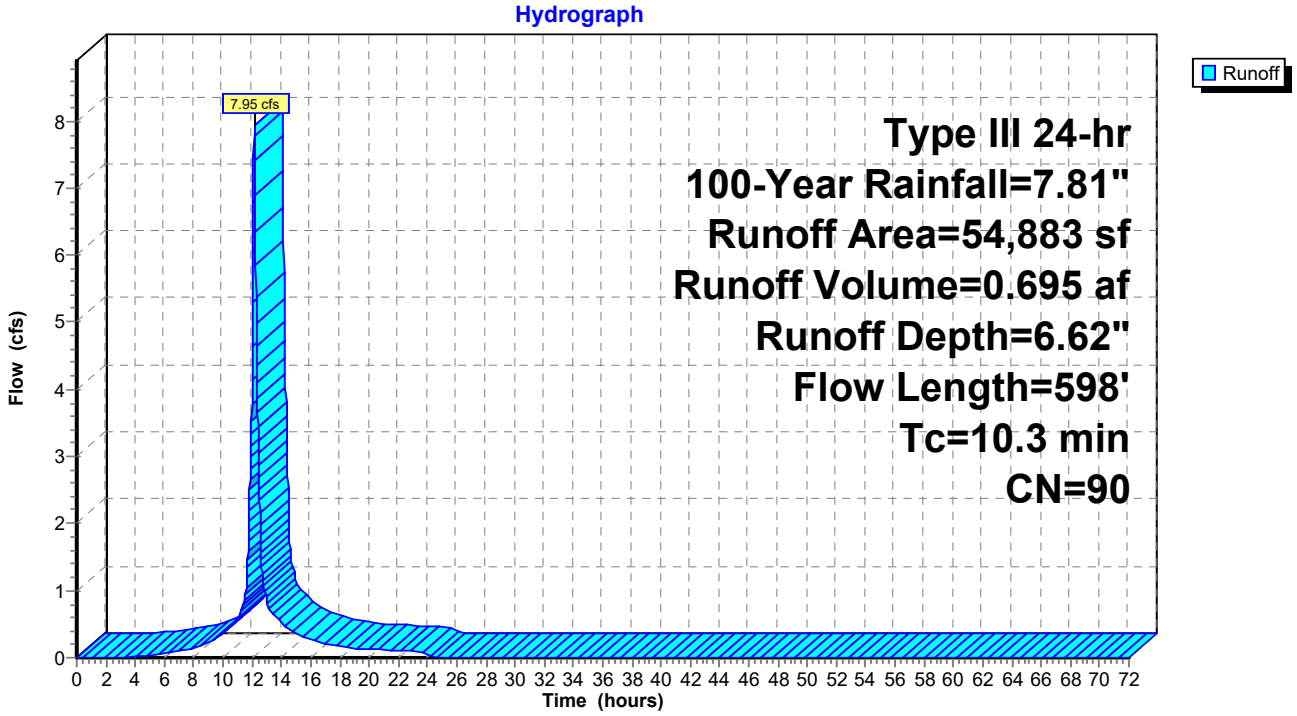
Runoff = 7.95 cfs @ 12.14 hrs, Volume= 0.695 af, Depth= 6.62"
Routed to Pond 9P : HYDRO 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
Type III 24-hr 100-Year Rainfall=7.81"

Area (sf)	CN	Description
18,336	80	>75% Grass cover, Good, HSG D
30,666	98	Paved parking, HSG D
5,881	79	Woods/grass comb., Good, HSG D
54,883	90	Weighted Average
24,217		44.12% Pervious Area
30,666		55.88% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.1	100	0.0450	0.23		**Sheet Flow, 100 LF SF @ 4.5% GRASS** Grass: Short n= 0.150 P2= 3.19"
0.4	68	0.1500	2.71		**Shallow Concentrated Flow, 69 LF SCF @ 15% GRASS** Short Grass Pasture Kv= 7.0 fps
2.6	235	0.0100	1.50		**Shallow Concentrated Flow, 235 LF SCF @ 1%** Grassed Waterway Kv= 15.0 fps
0.1	68	0.0595	8.44	2.95	**Pipe Channel, 68 LF @ 6%** 8.0" Round Area= 0.3 sf Perim= 2.1' r= 0.17' n= 0.013 Corrugated PE, smooth interior
0.1	127	0.1250	16.04	12.60	**Pipe Channel, 127 LF @ 12.5%** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Corrugated PE, smooth interior
10.3	598	Total			

Subcatchment 2S: 2



Summary for Subcatchment 3S: 3

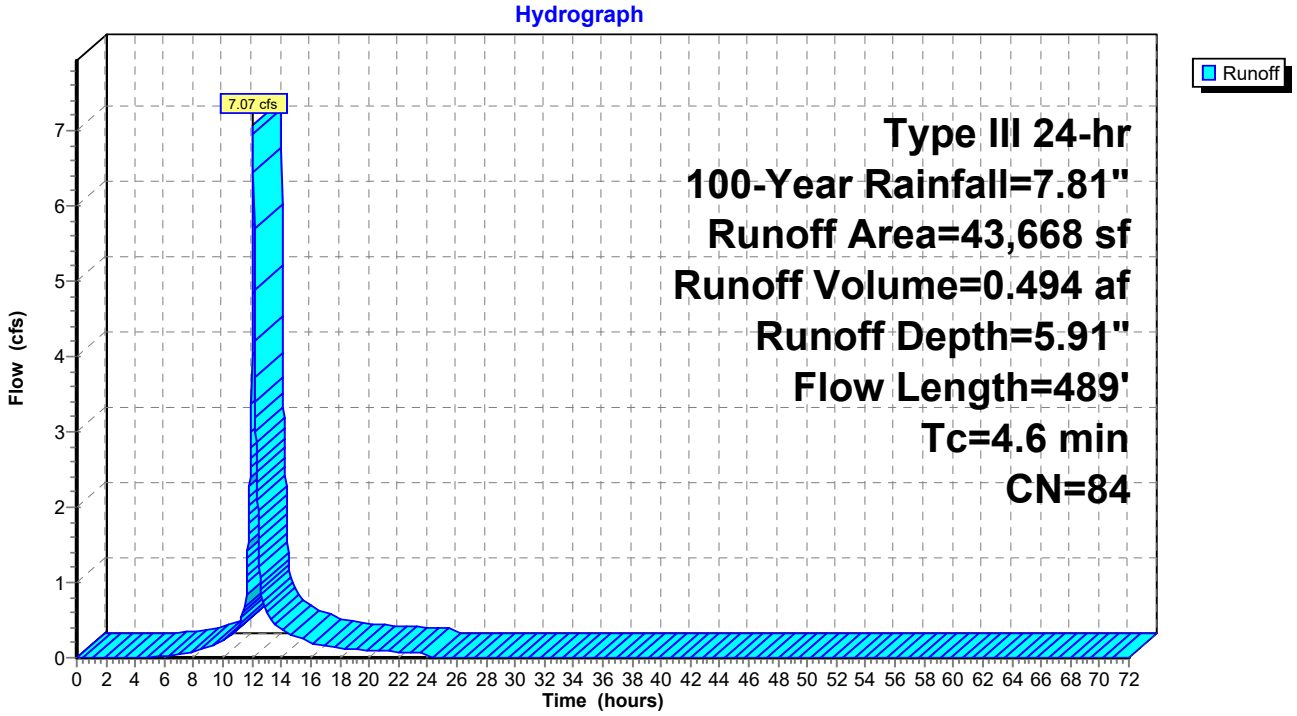
Runoff = 7.07 cfs @ 12.07 hrs, Volume= 0.494 af, Depth= 5.91"
Routed to Pond 10P : HYDRO 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
Type III 24-hr 100-Year Rainfall=7.81"

Area (sf)	CN	Description
31,832	98	Paved parking, HSG A
9,885	39	>75% Grass cover, Good, HSG A
1,951	79	Woods/grass comb., Good, HSG D
43,668	84	Weighted Average
11,836		27.10% Pervious Area
31,832		72.90% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.9	100	0.2050	0.43		**Sheet Flow, 100 LF SF @ 21% GRASS** Grass: Short n= 0.150 P2= 3.19"
0.1	27	0.0740	4.08		**Shallow Concentrated Flow, 27 LF SCF @ 7.4%** Grassed Waterway Kv= 15.0 fps
0.3	79	0.0412	4.12		**Shallow Concentrated Flow, 79 LF SF @ 4.12% PAVED** Paved Kv= 20.3 fps
0.3	283	0.0960	16.31	20.01	**Pipe Channel, 283 LF @ 9.6%** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.013 Corrugated PE, smooth interior
4.6	489	Total			

Subcatchment 3S: 3



Summary for Subcatchment 4S: 4

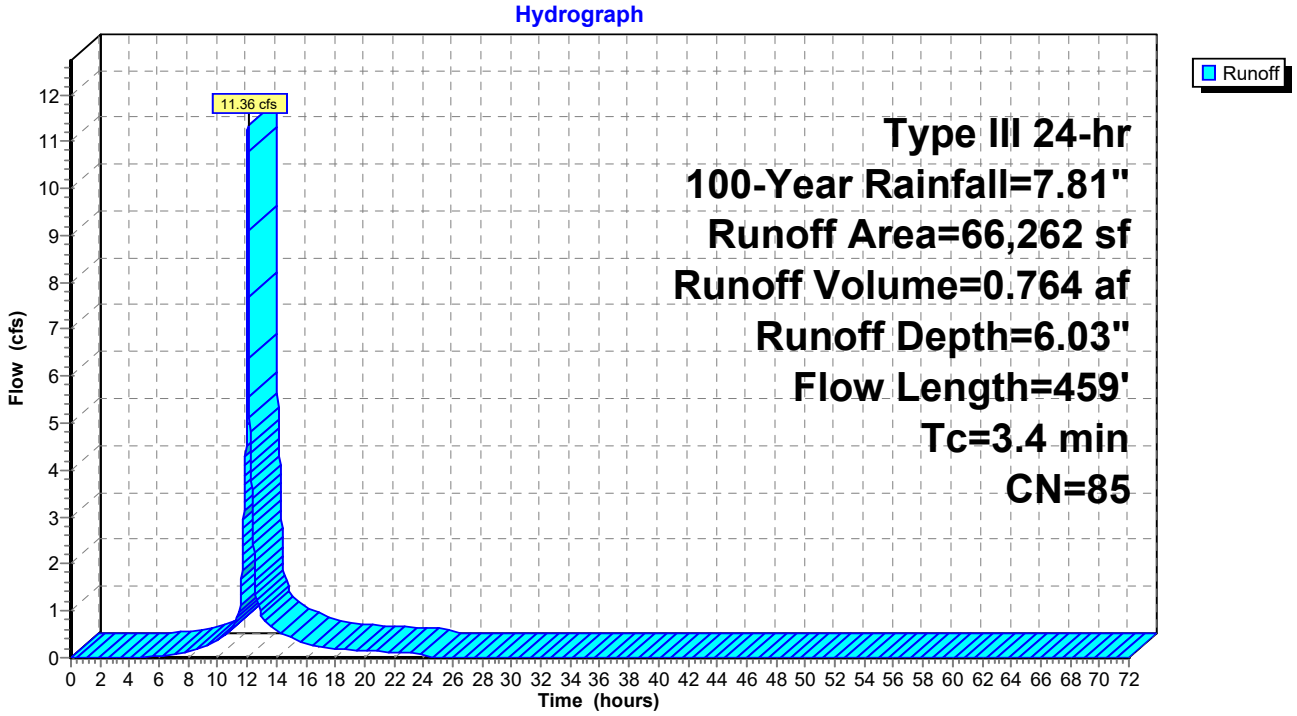
Runoff = 11.36 cfs @ 12.05 hrs, Volume= 0.764 af, Depth= 6.03"
Routed to Pond 25P : HYDRO 4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
Type III 24-hr 100-Year Rainfall=7.81"

Area (sf)	CN	Description
20,355	98	Paved parking, HSG D
37,608	80	>75% Grass cover, Good, HSG D
8,299	79	Woods/grass comb., Good, HSG D
66,262	85	Weighted Average
45,907		69.28% Pervious Area
20,355		30.72% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.1	55	0.2800	0.43		**Sheet Flow, 55 LF SF @ 28% GRASS** Grass: Short n= 0.150 P2= 3.19"
0.7	121	0.0190	2.80		**Shallow Concentrated Flow, 121 LF SCF @ 2% PAVED** Paved Kv= 20.3 fps
0.6	283	0.0270	7.45	5.85	**Pipe Channel, 283 LF @ 2.7%** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Corrugated PE, smooth interior
3.4	459	Total			

Subcatchment 4S: 4



Summary for Subcatchment 5S: 5

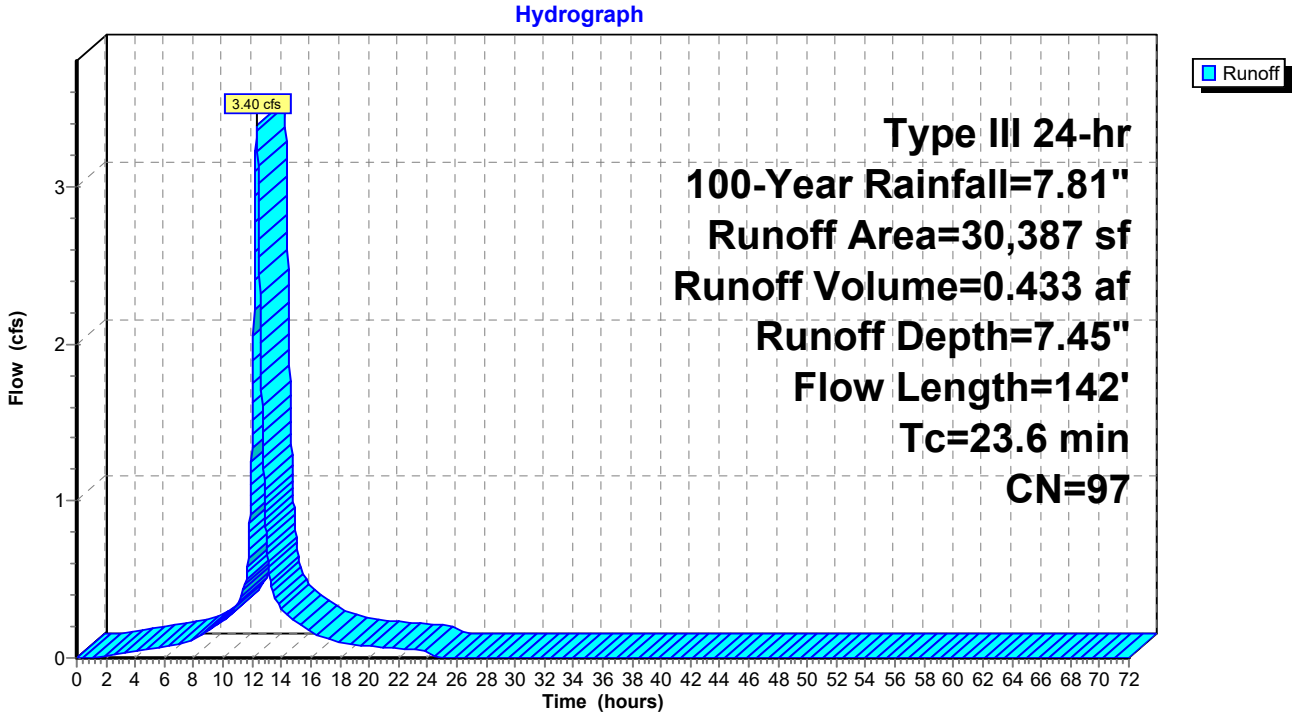
Runoff = 3.40 cfs @ 12.30 hrs, Volume= 0.433 af, Depth= 7.45"
Routed to Pond 11P : HYDRO 5

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
Type III 24-hr 100-Year Rainfall=7.81"

Area (sf)	CN	Description
28,395	98	Roofs, HSG D
1,992	80	>75% Grass cover, Good, HSG D
30,387	97	Weighted Average
1,992		6.56% Pervious Area
28,395		93.44% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.5	79	0.0100	0.06		**Sheet Flow, 79 LF SF @ 1%** Woods: Light underbrush n= 0.400 P2= 3.19"
0.1	63	0.2470	17.21	6.01	**Pipe Channel, 62.5 LF @ 25%** 8.0" Round Area= 0.3 sf Perim= 2.1' r= 0.17' n= 0.013 Corrugated PE, smooth interior
23.6	142	Total			

Subcatchment 5S: 5



Summary for Subcatchment 6S: 6

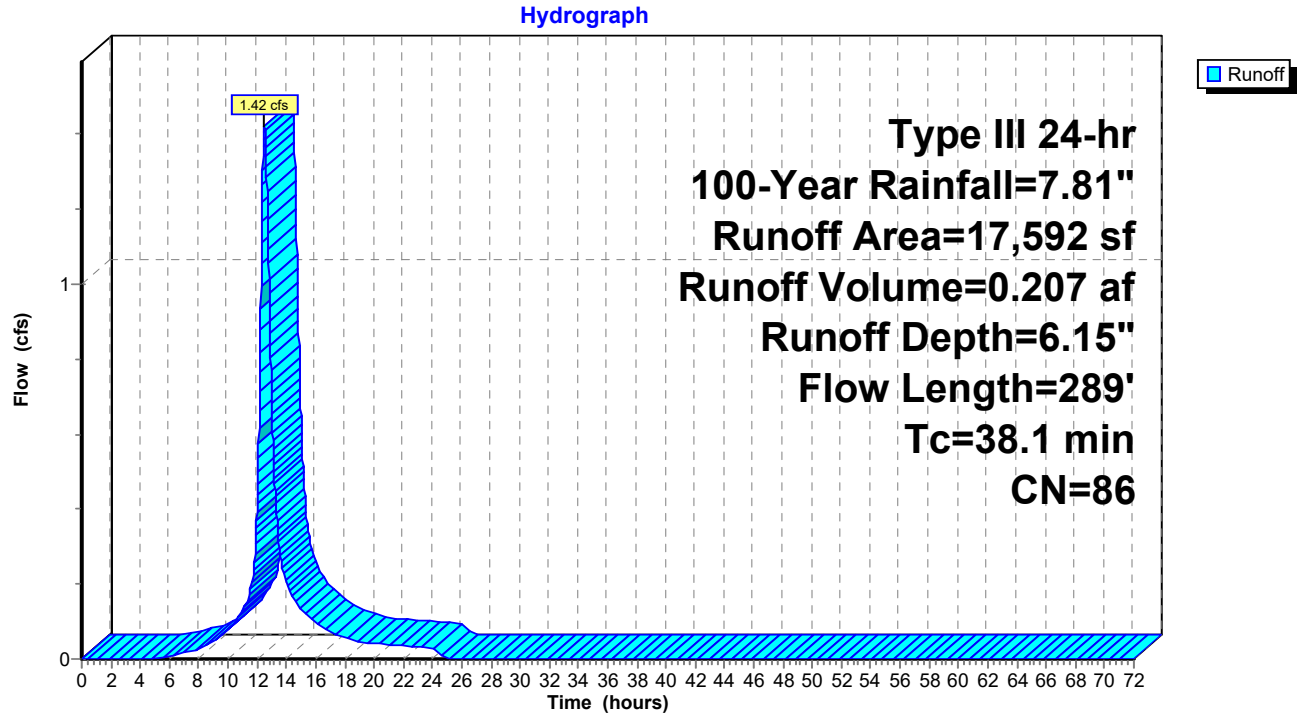
Runoff = 1.42 cfs @ 12.50 hrs, Volume= 0.207 af, Depth= 6.15"
Routed to Reach DP1 : Design Point 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
Type III 24-hr 100-Year Rainfall=7.81"

Area (sf)	CN	Description
11,755	80	>75% Grass cover, Good, HSG D
5,837	98	Paved parking, HSG D
17,592	86	Weighted Average
11,755		66.82% Pervious Area
5,837		33.18% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
37.4	100	0.0050	0.04		**Sheet Flow, 100 LF SF @ 0.5%** Woods: Light underbrush n= 0.400 P2= 3.19"
0.6	82	0.0221	2.23		**Shallow Concentrated Flow, 82 LF SCF @ 2.2% GRASS** Grassed Waterway Kv= 15.0 fps
0.1	107	0.0977	14.18	11.14	**Pipe Channel, 107 LF @ 9.8%** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Corrugated PE, smooth interior
38.1	289	Total			

Subcatchment 6S: 6



Summary for Subcatchment 7S: 7

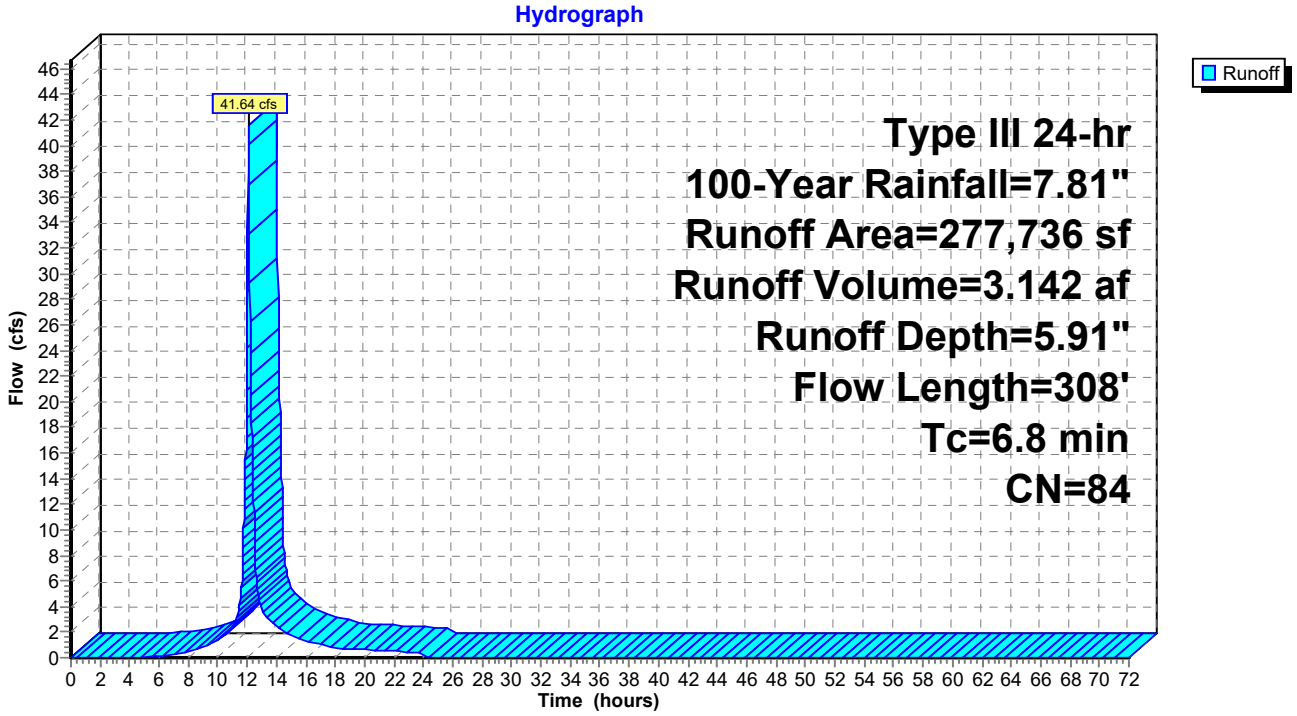
Runoff = 41.64 cfs @ 12.10 hrs, Volume= 3.142 af, Depth= 5.91"
Routed to Reach DP1 : Design Point 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
Type III 24-hr 100-Year Rainfall=7.81"

Area (sf)	CN	Description
98,287	79	Woods/grass comb., Good, HSG D
62,251	98	Paved parking, HSG D
117,198	80	>75% Grass cover, Good, HSG D
277,736	84	Weighted Average
215,485		77.59% Pervious Area
62,251		22.41% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	100	0.0875	0.31		**Sheet Flow, 100 LF SF @ 8.75% GRASS** Grass: Short n= 0.150 P2= 3.19"
1.1	155	0.1032	2.25		**Shallow Concentrated Flow, 155 LF SCF @ 10% GRASS** Short Grass Pasture Kv= 7.0 fps
0.2	9	0.0278	0.97		**Sheet Flow, 9 LF SF @ 2.8% PAVEMENT** Smooth surfaces n= 0.011 P2= 3.19"
0.0	2	0.0278	1.17		**Shallow Concentrated Flow, 2 LF SCF @ 2.8% GRASS** Short Grass Pasture Kv= 7.0 fps
0.1	42	0.3869	9.33		**Shallow Concentrated Flow, 42 LF SCF @ 39% GRASS** Grassed Waterway Kv= 15.0 fps
6.8	308	Total			

Subcatchment 7S: 7



Summary for Subcatchment ES1: Upstream Watershed Area

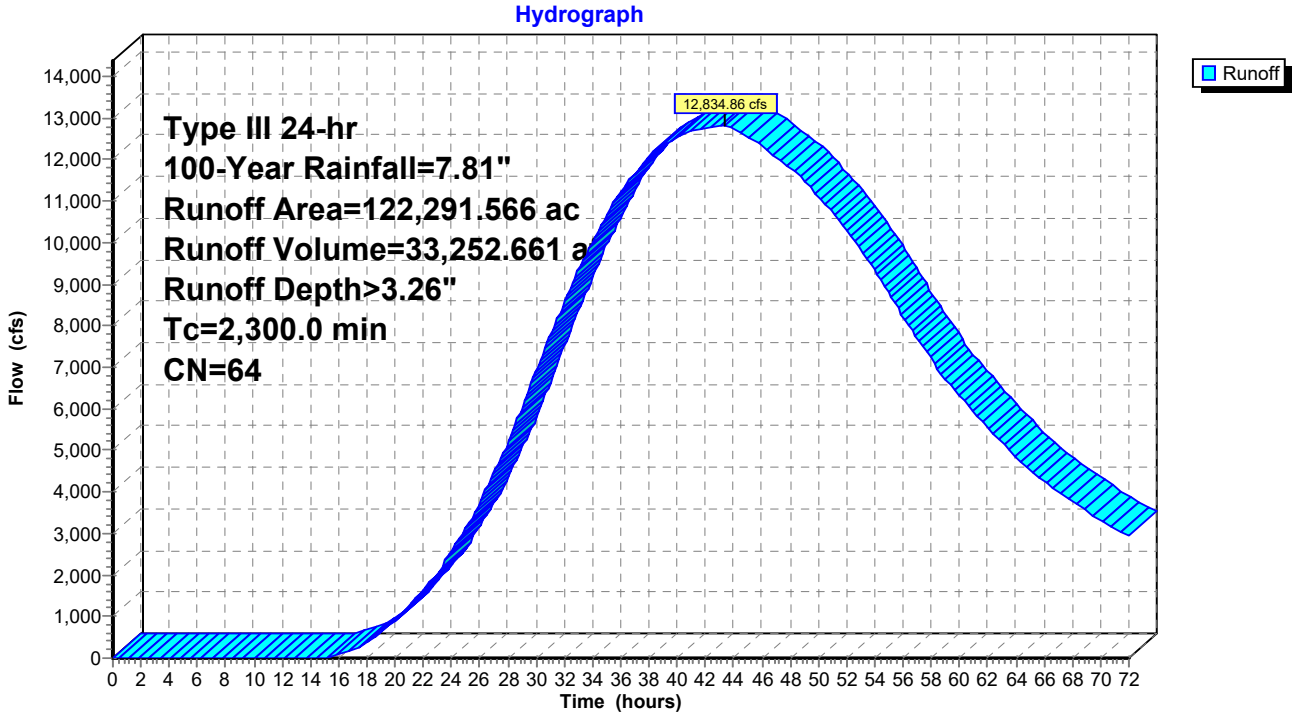
Runoff = 12,834.86 cfs @ 43.44 hrs, Volume= 33,252.661 af, Depth> 3.26"
Routed to Reach DP1 : Design Point 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
Type III 24-hr 100-Year Rainfall=7.81"

Area (ac)	CN	Description
*122,291.566	64	
122,291.566		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2,300.0					**Direct Entry, Time of Concentration**

Subcatchment ES1: Upstream Watershed Area

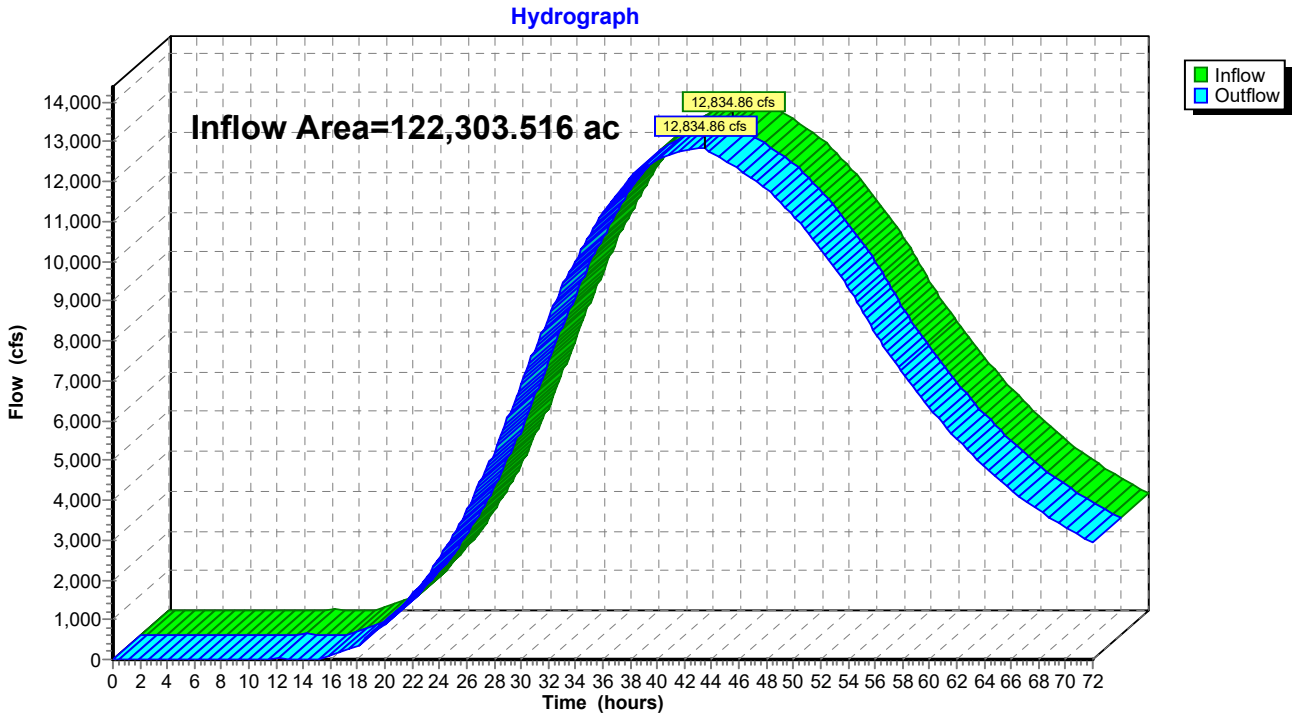


Summary for Reach DP1: Design Point 1

Inflow Area =122,303.516 ac, 0.00% Impervious, Inflow Depth > 3.26" for 100-Year event
Inflow = 12,834.86 cfs @ 43.44 hrs, Volume= 33,258.609 af
Outflow = 12,834.86 cfs @ 43.44 hrs, Volume= 33,258.609 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs

Reach DP1: Design Point 1



Summary for Pond 1P: BIO 1

Inflow Area = 0.405 ac, 63.70% Impervious, Inflow Depth = 6.74" for 100-Year event
Inflow = 3.50 cfs @ 12.02 hrs, Volume= 0.227 af
Outflow = 3.28 cfs @ 12.03 hrs, Volume= 0.227 af, Atten= 6%, Lag= 1.1 min
Discarded = 0.02 cfs @ 12.03 hrs, Volume= 0.042 af
Primary = 3.26 cfs @ 12.03 hrs, Volume= 0.185 af
Routed to Reach DP1 : Design Point 1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
Peak Elev= 59.75' @ 12.03 hrs Surf.Area= 1,497 sf Storage= 991 cf

Plug-Flow detention time= 85.0 min calculated for 0.227 af (100% of inflow)
Center-of-Mass det. time= 85.1 min (853.7 - 768.5)

Volume	Invert	Avail.Storage	Storage Description
#1	59.00'	2,261 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

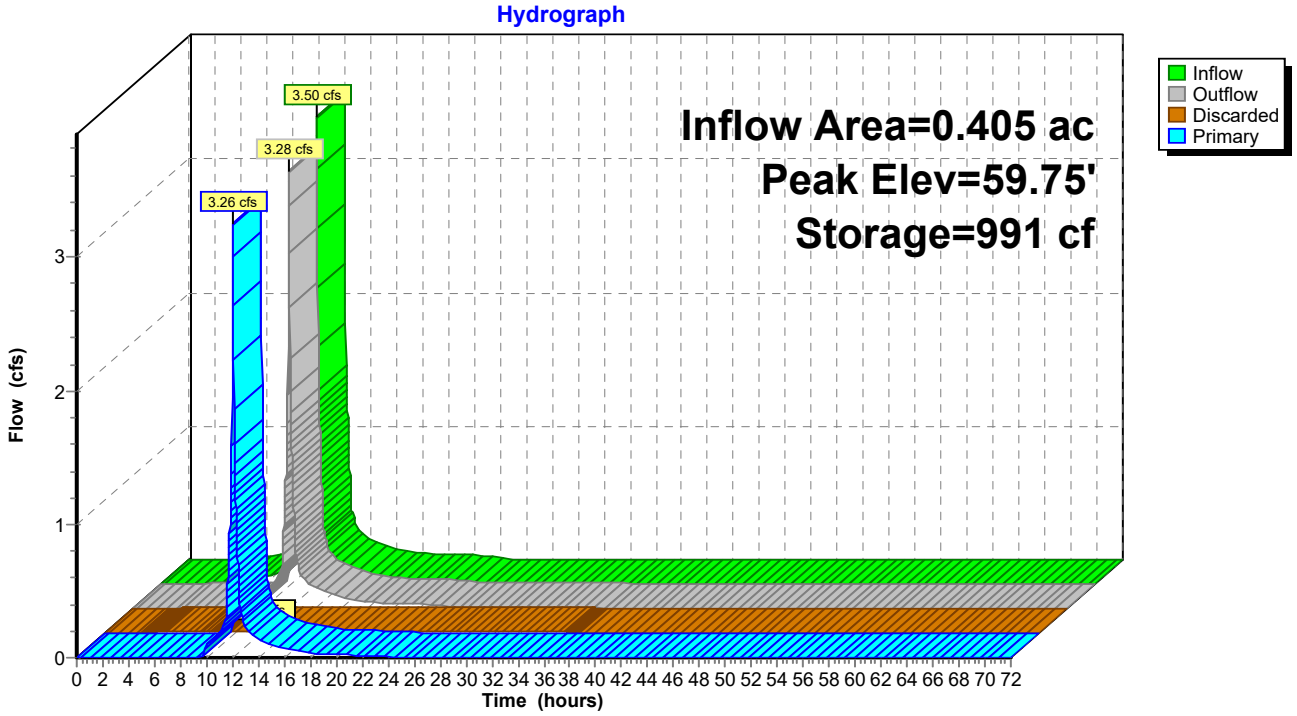
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
59.00	1,147	0	0
60.00	1,614	1,381	1,381
60.50	1,908	881	2,261

Device	Routing	Invert	Outlet Devices
#1	Discarded	59.00'	**0.500 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 52.00' Phase-In= 0.01'
#2	Primary	54.83'	**12.0" Round Culvert** L= 28.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 54.83' / 54.69' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#3	Device 2	59.50'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.02 cfs @ 12.03 hrs HW=59.75' (Free Discharge)
└**1=Exfiltration** (Controls 0.02 cfs)

Primary OutFlow Max=3.23 cfs @ 12.03 hrs HW=59.75' TW=0.00' (Dynamic Tailwater)
└**2=Culvert** (Passes 3.23 cfs of 6.28 cfs potential flow)
└**3=Orifice/Grate** (Weir Controls 3.23 cfs @ 1.63 fps)

Pond 1P: BIO 1


Hydrograph
Inflow Area=0.405 ac
Peak Elev=59.75'
Storage=991 cf
3.50 cfs
3.28 cfs
3.26 cfs
Inflow
Outflow
Discarded
Primary
Flow (cfs)
0
1
2
3
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72
Time (hours)

Summary for Pond 2P: STORM PLANTERS

Inflow Area = 0.284 ac, 68.31% Impervious, Inflow Depth = 6.90" for 100-Year event
Inflow = 2.07 cfs @ 12.08 hrs, Volume= 0.163 af
Outflow = 2.05 cfs @ 12.09 hrs, Volume= 0.163 af, Atten= 1%, Lag= 0.6 min
Discarded = 0.05 cfs @ 12.09 hrs, Volume= 0.084 af
Primary = 2.01 cfs @ 12.09 hrs, Volume= 0.080 af
Routed to Reach DP1 : Design Point 1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
Peak Elev= 63.86' @ 12.09 hrs Surf.Area= 963 sf Storage= 1,072 cf
Flood Elev= 64.25' Surf.Area= 963 sf Storage= 1,445 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 101.1 min (863.2 - 762.0)

Volume	Invert	Avail.Storage	Storage Description
#1	62.75'	1,445 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

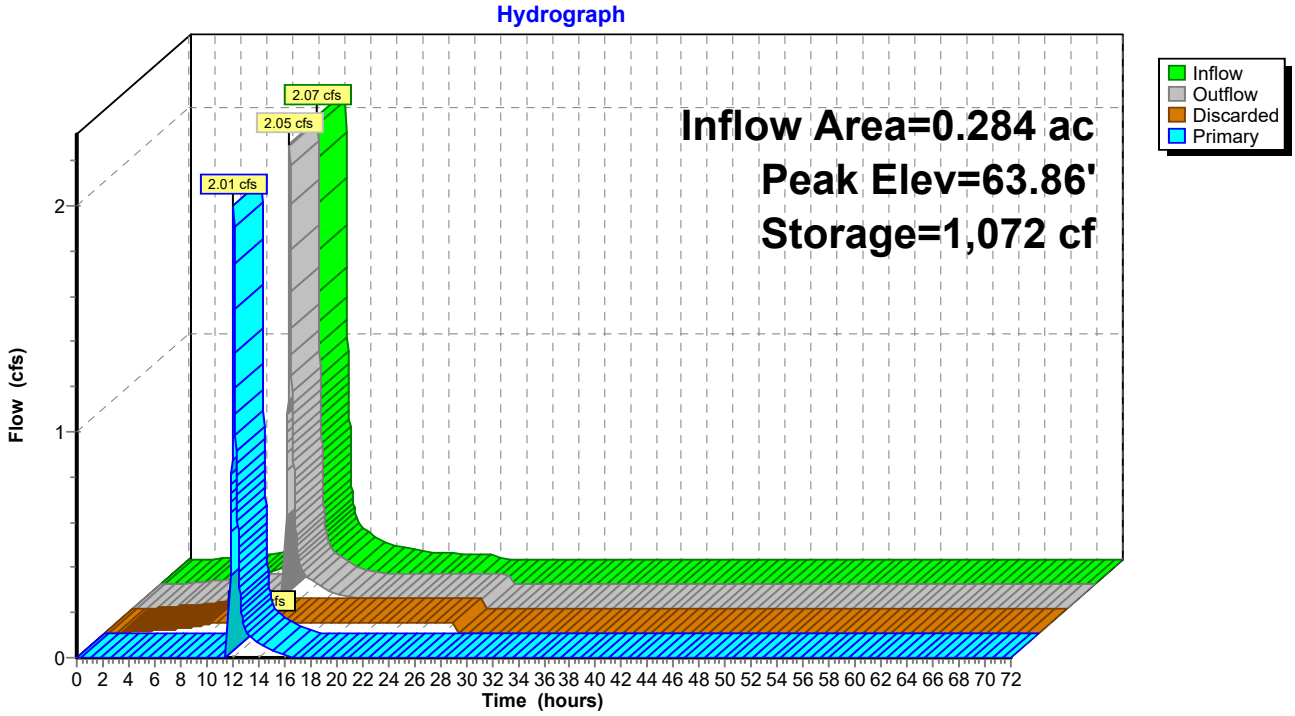
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
62.75	963	0	0
64.25	963	1,445	1,445

Device	Routing	Invert	Outlet Devices
#1	Discarded	62.75'	**2.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 52.00'
#2	Primary	58.98'	**12.0" Round Culvert** L= 29.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 58.98' / 54.83' S= 0.1431 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#3	Device 2	63.75'	**24.0" x 24.0" Horiz. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.05 cfs @ 12.09 hrs HW=63.86' (Free Discharge)
↑**1=Exfiltration** (Controls 0.05 cfs)

Primary OutFlow Max=1.99 cfs @ 12.09 hrs HW=63.86' TW=0.00' (Dynamic Tailwater)
↑**2=Culvert** (Passes 1.99 cfs of 6.25 cfs potential flow)
↑**3=Orifice/Grate** (Weir Controls 1.99 cfs @ 1.10 fps)

Pond 2P: STORM PLANTERS



Summary for Pond 4P: BIO 2

Inflow Area = 1.521 ac, 30.72% Impervious, Inflow Depth = 6.03" for 100-Year event
Inflow = 11.36 cfs @ 12.05 hrs, Volume= 0.764 af
Outflow = 6.43 cfs @ 12.14 hrs, Volume= 0.764 af, Atten= 43%, Lag= 5.5 min
Discarded = 0.02 cfs @ 12.14 hrs, Volume= 0.053 af
Primary = 6.41 cfs @ 12.14 hrs, Volume= 0.712 af
Routed to Reach DP1 : Design Point 1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
Peak Elev= 79.51' @ 12.14 hrs Surf.Area= 2,996 sf Storage= 3,989 cf

Plug-Flow detention time= 65.7 min calculated for 0.764 af (100% of inflow)
Center-of-Mass det. time= 66.1 min (855.0 - 788.9)

Volume	Invert	Avail.Storage	Storage Description
#1	78.00'	5,521 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

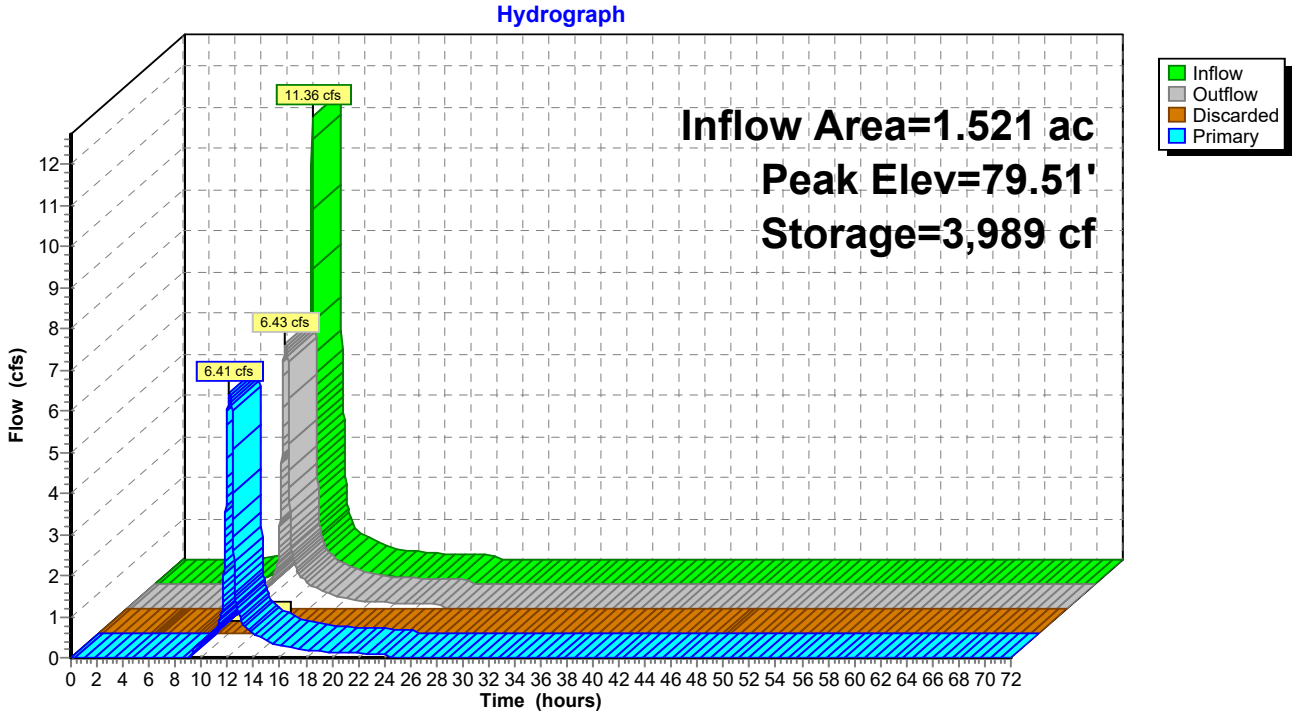
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
78.00	2,296	0	0
80.00	3,225	5,521	5,521

Device	Routing	Invert	Outlet Devices
#1	Discarded	78.00'	**0.250 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 66.00'
#2	Primary	74.40'	**12.0" Round Culvert** L= 41.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 74.40' / 74.00' S= 0.0098 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#3	Device 2	78.50'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.02 cfs @ 12.14 hrs HW=79.51' (Free Discharge)
↑**1=Exfiltration** (Controls 0.02 cfs)

Primary OutFlow Max=6.41 cfs @ 12.14 hrs HW=79.51' TW=0.00' (Dynamic Tailwater)
↑**2=Culvert** (Inlet Controls 6.41 cfs @ 8.16 fps)
↑**3=Orifice/Grate** (Passes 6.41 cfs of 19.32 cfs potential flow)

Pond 4P: BIO 2


Hydrograph
Inflow Area=1.521 ac
Peak Elev=79.51'
Storage=3,989 cf
11.36 cfs
6.43 cfs
6.41 cfs
Inflow
Outflow
Discarded
Primary
Flow (cfs)
Time (hours)

Summary for Pond 9P: HYDRO 2

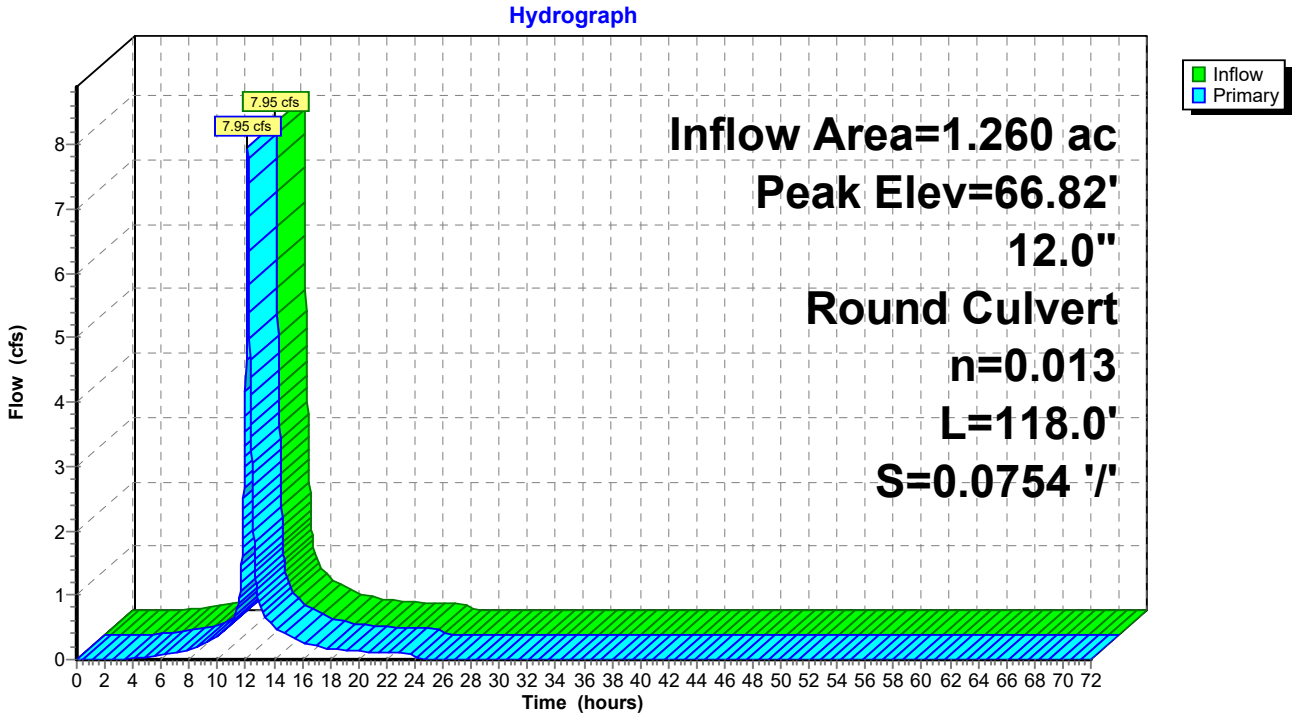
Inflow Area = 1.260 ac, 55.88% Impervious, Inflow Depth = 6.62" for 100-Year event
Inflow = 7.95 cfs @ 12.14 hrs, Volume= 0.695 af
Outflow = 7.95 cfs @ 12.14 hrs, Volume= 0.695 af, Atten= 0%, Lag= 0.0 min
Primary = 7.95 cfs @ 12.14 hrs, Volume= 0.695 af
Routed to Reach DP1 : Design Point 1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
Peak Elev= 66.82' @ 12.14 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	61.90'	**12.0" Round Culvert** L= 118.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 61.90' / 53.00' S= 0.0754 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=7.94 cfs @ 12.14 hrs HW=66.80' TW=0.00' (Dynamic Tailwater)
1=Culvert (Inlet Controls 7.94 cfs @ 10.10 fps)

Pond 9P: HYDRO 2



Summary for Pond 10P: HYDRO 3

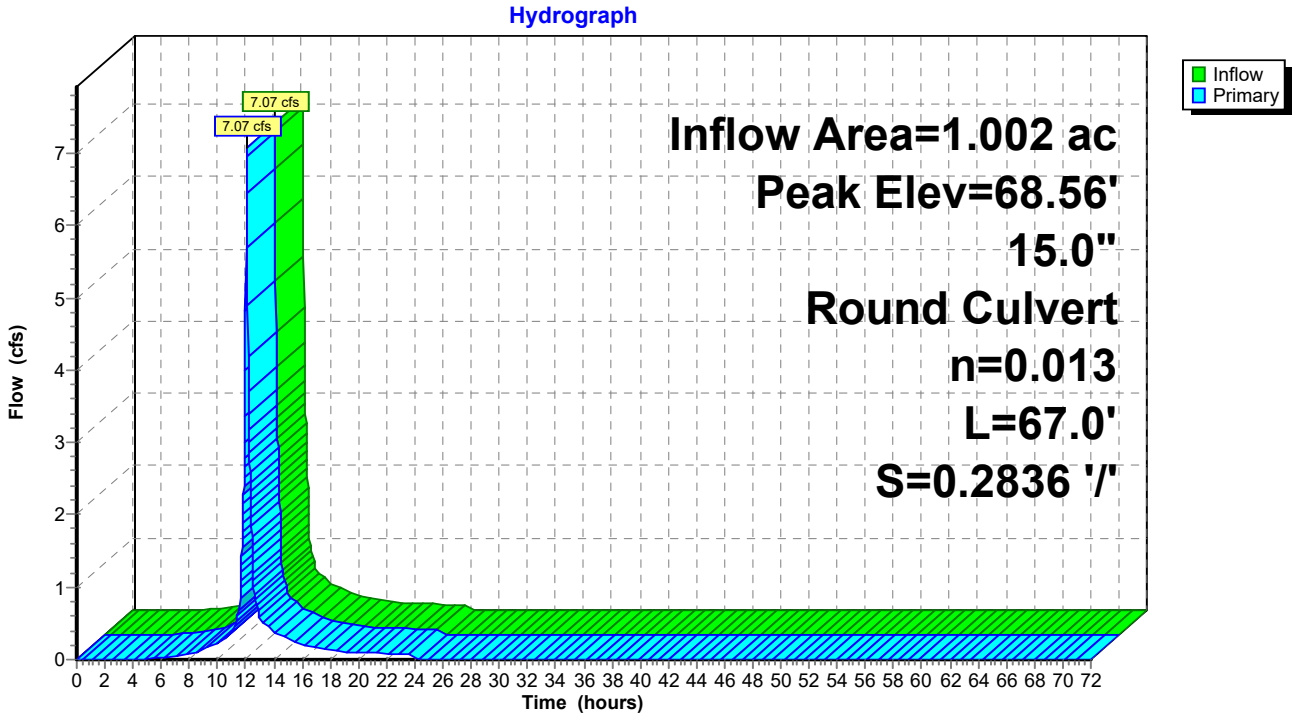
Inflow Area = 1.002 ac, 72.90% Impervious, Inflow Depth = 5.91" for 100-Year event
Inflow = 7.07 cfs @ 12.07 hrs, Volume= 0.494 af
Outflow = 7.07 cfs @ 12.07 hrs, Volume= 0.494 af, Atten= 0%, Lag= 0.0 min
Primary = 7.07 cfs @ 12.07 hrs, Volume= 0.494 af
Routed to Reach DP1 : Design Point 1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
Peak Elev= 68.56' @ 12.07 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	66.50'	**15.0" Round Culvert** L= 67.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 66.50' / 47.50' S= 0.2836 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf

Primary OutFlow Max=7.01 cfs @ 12.07 hrs HW=68.53' TW=0.00' (Dynamic Tailwater)
1=Culvert (Inlet Controls 7.01 cfs @ 5.72 fps)

Pond 10P: HYDRO 3



Summary for Pond 11P: HYDRO 5

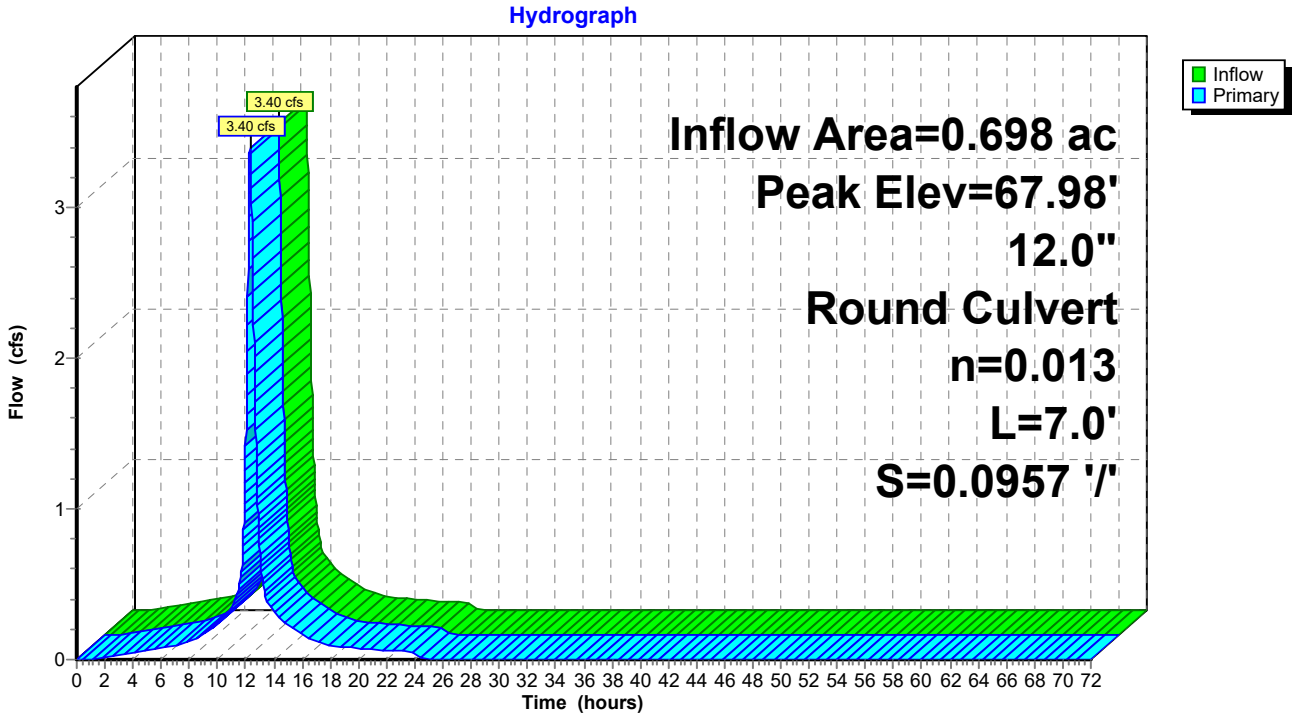
Inflow Area = 0.698 ac, 93.44% Impervious, Inflow Depth = 7.45" for 100-Year event
Inflow = 3.40 cfs @ 12.30 hrs, Volume= 0.433 af
Outflow = 3.40 cfs @ 12.30 hrs, Volume= 0.433 af, Atten= 0%, Lag= 0.0 min
Primary = 3.40 cfs @ 12.30 hrs, Volume= 0.433 af
Routed to Reach DP1 : Design Point 1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
Peak Elev= 67.98' @ 12.30 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	66.67'	**12.0" Round Culvert** L= 7.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 66.67' / 66.00' S= 0.0957 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=3.40 cfs @ 12.30 hrs HW=67.98' TW=0.00' (Dynamic Tailwater)
1=Culvert (Inlet Controls 3.40 cfs @ 4.32 fps)

Pond 11P: HYDRO 5



Summary for Pond 25P: HYDRO 4

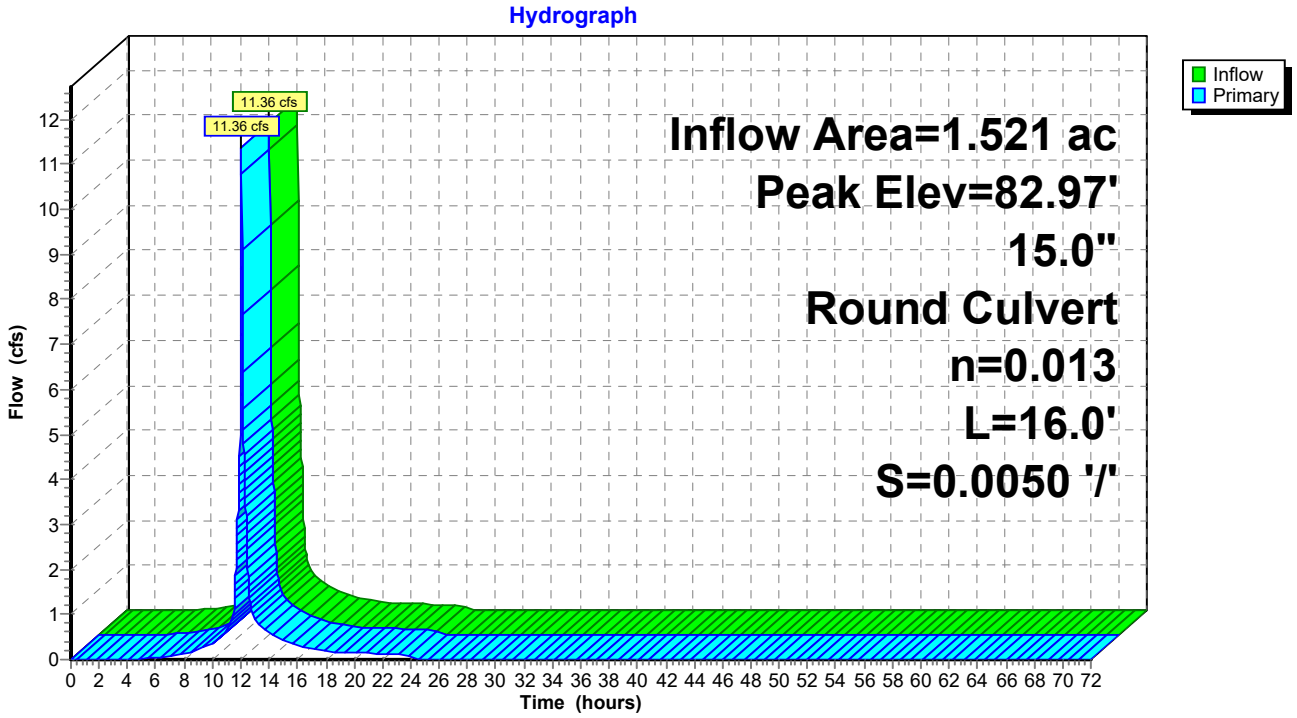
Inflow Area = 1.521 ac, 30.72% Impervious, Inflow Depth = 6.03" for 100-Year event
Inflow = 11.36 cfs @ 12.05 hrs, Volume= 0.764 af
Outflow = 11.36 cfs @ 12.05 hrs, Volume= 0.764 af, Atten= 0%, Lag= 0.0 min
Primary = 11.36 cfs @ 12.05 hrs, Volume= 0.764 af
Routed to Pond 4P : BIO 2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
Peak Elev= 82.97' @ 12.05 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	78.65'	**15.0" Round Culvert** L= 16.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 78.65' / 78.57' S= 0.0050 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf

Primary OutFlow Max=11.23 cfs @ 12.05 hrs HW=82.89' TW=79.19' (Dynamic Tailwater)
1=Culvert (Inlet Controls 11.23 cfs @ 9.15 fps)

Pond 25P: HYDRO 4



Summary for Pond HYD1: HYDRO 1

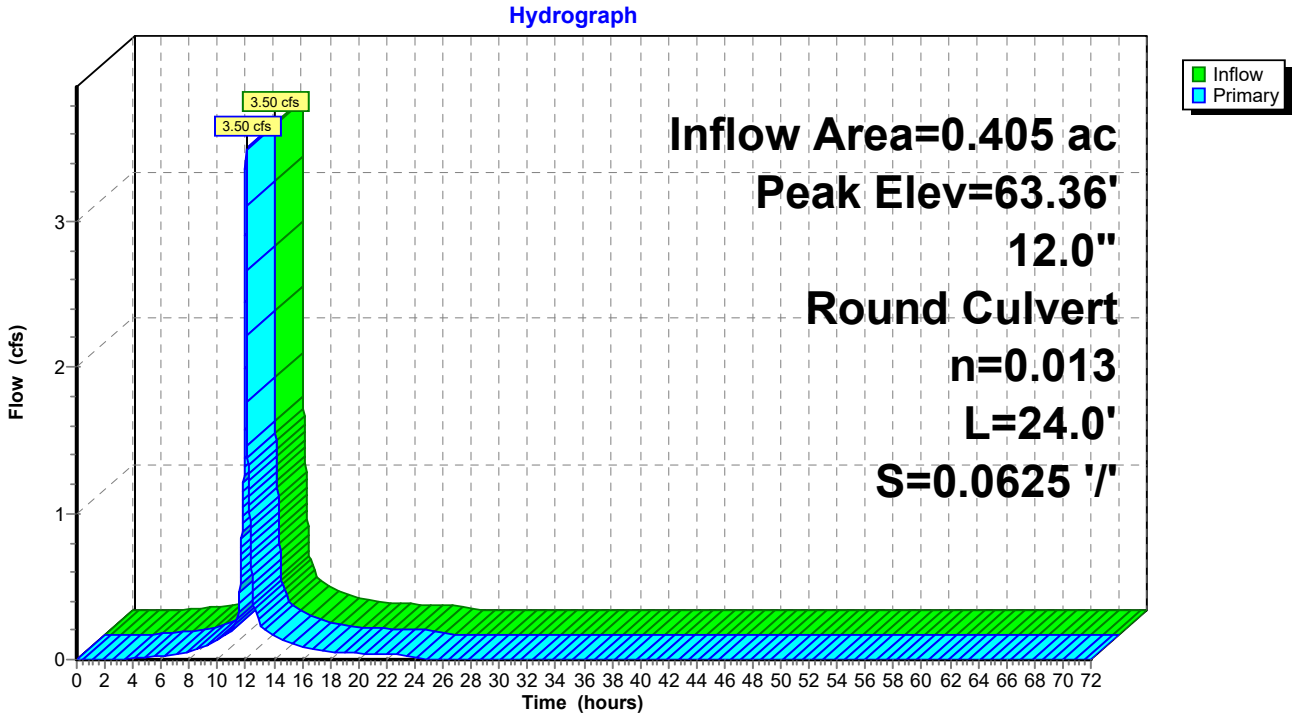
Inflow Area = 0.405 ac, 63.70% Impervious, Inflow Depth = 6.74" for 100-Year event
Inflow = 3.50 cfs @ 12.02 hrs, Volume= 0.227 af
Outflow = 3.50 cfs @ 12.02 hrs, Volume= 0.227 af, Atten= 0%, Lag= 0.0 min
Primary = 3.50 cfs @ 12.02 hrs, Volume= 0.227 af
Routed to Pond 1P : BIO 1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
Peak Elev= 63.36' @ 12.02 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	62.00'	**12.0" Round Culvert** L= 24.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 62.00' / 60.50' S= 0.0625 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=3.46 cfs @ 12.02 hrs HW=63.34' TW=59.74' (Dynamic Tailwater)
1=Culvert (Inlet Controls 3.46 cfs @ 4.40 fps)

Pond HYD1: HYDRO 1



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Appendix K:
Project Evaluation and Design Calculations

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Appendix K - Table A
Step 1 - Evaluation of Green Infrastructure Planning Measures

Group	Practice	Description	Applicable	Project Specific Evaluation
Preservation of Natural Resources	**Preservation of Undisturbed Areas**	Delineate and place into permanent conservation undisturbed forests, native vegetated areas, riparian corridors, wetlands, and natural terrain.	**No**	The proposed site layout has been designed to limit land disturbance to the greatest extent practical. Approximately 102 +/- acres of the 155.9 acre project site will remain undisturbed, in its natural state. The project does not propose permanent conservation of this area at this time.
	Preservation of Buffers	Define, delineate and preserve naturally vegetated buffers along perennial streams, rivers, shorelines and wetlands.	**N/A**	There are no perennial streams, rivers, shorelines, or wetlands on or adjacent to the project site. As such, this green planning measure does not apply.
	Reduction of Clearing and Grading	Limit clearing and grading to the minimum amount needed for roads, driveways, foundations, utilities and stormwater management facilities.	**Yes**	Clearing and grading will be limited to the area of disturbance and will be minimized to the greatest extent practical. As a Redevelopment Project, the majority of the land in question had been previously cleared or graded for construction of the existing buildings, roadways, etc. Site clearing and grading required for redevelopment will be minor in nature. Approximately 102 +/- acres of the 155.9 acre project site will remain undisturbed, in its natural state.
	Locating Development in Less Sensitive Areas	Avoid sensitive resource areas such as floodplains, steep slopes, erodible soils, wetlands, mature forests and critical habitats by locating development to fit the terrain in areas that will create the least impact.	**Yes**	The site layout has been designed to avoid sensitive resource areas to the greatest extent practical. Furthermore, there are no floodplains, highly erodible soils, wetlands, mature forests and critical habitats located on the project site.
	Open Space Design	Use clustering, conservation design or open space design to reduce impervious cover, preserve more open space and protect water resources.	**Yes**	The site layout has been designed to maximize open space. Impervious surfaces have been minimized to the greatest extent practical and approximately 65% of the project sitewill be maintained as vegetated open space.
	Soil Restoration	Restore the original properties and porosity of the soil by deep till and amendment with compost to reduce the generation of runoff and enhance the runoff reduction performance of practices such as downspout disconnections, grass channels, filter strips, and tree clusters.	**Yes**	Full soil restoration is proposed for all areas of disturbance that will not become hardscape. All areas will be stabilized with seed & mulch, and landscaped areas will be provided.
Reduction of Impervious Cover	**Roadway Reduction**	Minimize roadway widths and lengths to reduce site impervious area	**N/A**	No new roadways are proposed as part of this project.
	Sidewalk Reduction	Minimize sidewalk lengths and widths to reduce site impervious area	**Yes**	Sidewalk widths and lengths have been minimized to the greatest extent practical while alsoensuring comfortable and safe pedestrian access throughout the site.
	Driveway Reduction	Minimize driveway lengths and widths to reduce site impervious area	**Yes**	Driveway widths and lengths have been minimized to the greatest extent practical while maintaining access for emergency vehicles throughout the site.
	Cul-de-sac Reduction	Minimize the number of cul-de-sacs and incorporate landscaped areas to reduce their impervious cover.	**N/A**	No cul-de-sacs are proposed as part of this project.
	Building Footprint Reduction	Reduce the impervious footprint of residences and commercial buildings by using alternate or taller buildings while maintaining the same floor to area ratio.	**No**	All new building area has been allocated to efficiently implement the intended use, be architecturally appropriate for the surrounding neighborhood, and meet proposed zoning requirements consistent with other areas in the Town.
	Parking Reduction	Reduce imperviousness on parking lots by eliminating unneeded spaces, providing compact car spaces and efficient parking lanes, minimizing stall dimensions, using porous pavement surfaces in overflow parking areas, and using multi-storied parking decks where appropriate.	**Yes**	Porous pavement has been proposed at the project site.

Appendix K - Table B
Step 2 - Determine Water Quality Treatment Volume (WQv)

Determine Pre- and Post-Development Impervious Cover Areas				
Watershed Pre-Development Impervious Area:	172,059	sf =	3.95	ac
Watershed Post-Development Impervious Area:	196,654	sf =	4.51	ac
Total Area Within Work Limits:	279,209	sf =	6.41	ac
Existing Disturbed Impervious Area:	107,395	sf =	2.47	ac
New Development Impervious Area:	24,595	sf =	**0.56**	**ac**
Redevelopment Impervious % (based on proposed treatment practice)	75	%		
Redevelopment Impervious Area:	80,546	sf =	**1.85**	**ac**

Determine the Initial Water Quality Volume (WQv)				
WQv(acre-feet) = [(P)(Rv)(A)] /12				
Rv = 0.05+0.009(I)				
I = Impervious Cover (%)				
P=	1.40	*inch*		
I=	38%			
Rv=	0.389			
Initial WQv=	**12,669**	cf =	**0.291**	**ac-ft**

Determine Individual Practice Water Quality Volume (WQv)							
Subcatchment Area	**Development Type**	**Total Area** *(Acres)*	**Impervious Area*** *(Acres)*	**Percent Impervious** *%*	**Rv**	**WQv** *(ft^3)*	**Description**
1A	New Development	0.405	0.258	64%	0.62	1,283	Bioretention
1B	New Development	0.219	0.194	89%	0.85	944	Stormwater Planter
1C	New Development	0.065	0.065	100%	0.95	314	Green Roof (Ext)
2	Redevelopment	1.394	0.801	57%	0.57	4,016	Hydrodynamic Separator
3	Redevelopment	1.002	0.730	73%	0.71	3,594	Hydrodynamic Separator
4	New Development	1.521	0.467	31%	0.33	2,522	Bioretention
5	Redevelopment	0.698	0.652	93%	0.89	3,159	Hydrodynamic Separator
Total		10.00	3.70	37%	0.38	**15,832**	

** As per Section 9.3.2 of Chapter 9: Redevelopment of the NYSDEC Stormwater Design Manual, the plan proposes use of either standard practices to treat 25% or alternative practices to treat 75% of the WQv from existing disturbed, impervious area as well as any additional runoff from tributary areas that are not within the disturbed, impervious area.*

Appendix K - Table C

Step 3 - Determine Minimum Required Runoff Reduction Volume (RRv)

Section 4.3 of the NYSDEC Stormwater Management Design Manual describes the Runoff Reduction Volume equation as:

RRv = (P x Rv* x Ai) / 12

where: RRv = Runoff Reduction Volume (acre-feet)
P = 90% Rainfall Event Number (inches) (interpolated from Design Manual Fig 4.1)
Rv = 0.05 + 0.009 (I), where I is 100% impervious = 0.95 constant
Ai = (S x Aic) = Impervious cover targeted for runoff reduction
Aic = Total area of new impervious cover (acres)
S = Hydrologic Soil Group (HSG) Specific Reduction Factor
where:

HSG A=	0.55	HSG C=	0.30
HSG B=	0.40	HSG D=	0.20

The following table presents the RRv calculations for each of the proposed stormwater management practices (SMPs).

Enter the Soils Data for the site

Soil Group	Acres	S
A	5.93	0.55
B	0.00	0.40
C	0.00	0.30
D	0.00	0.20
Total Area	5.93	acres

Calculate the Minimum RRv

S =	**0.55**	
Impervious =	0.56	acre
Precipitation =	1.40	in
Rv	0.95	
Minimum RRv	**1,499**	**ft^3**
	0.034	ac-ft

Appendix K - Table D
Step 3 - Evaluation of Green Infrastructure Techniques

Design Variant	Practice	Description	Applicable	Project Specific Evaluation/Justification
RR-1	**Conservation of Natural Areas**	Retain the pre-development hydrologic and water quality characteristics of undisturbed natural areas, stream and wetland buffers by restoring and/or permanently conserving these areas on a site.	**No**	The project site does not contain any significant natural resources. The majority of the site has been previously disturbed. Approximately 102 +/- Acres will remain undisturbed, in its natural state. The project does not propose permanent conservation of these areas at this time.
RR-2	**Sheet flow to Riparian Buffers or Filter Strips**	Undisturbed natural areas such as forested conservation areas and stream buffers or vegetated filter strips and riparian buffers can be used to treat and control stormwater runoff from some areas of a development project.	**No**	No impervious areas flow to Design Point 1. Due to Design Point 2 being located within Raymond Avenue and an existing piped stormwater conyenace system, this technique is not feasible.
RR-3	**Tree Planting / Tree Box**	Plant or conserve trees to reduce stormwater runoff, increase nutrient uptake, and provide bank stabilization. Trees can be used for applications such as landscaping, stormwater management practice areas, and conservation areas.	**No**	The project proposes the preservation of existing mature trees, as well as the planting of numerous trees throughout the site, in order to reduce stormwater runoff, increase nutrient uptake, and provide bank stabilization. However, credit for these trees will not be taken toward an area reduction in the RRv calculations.
RR-4	**Disconnection of Rooftop Runoff**	Direct runoff from residential rooftop areas and upland overland runoff flow to designated pervious areas to reduce runoff volumes and rates.	**No**	Disconnected rooftop downspouts are proposed at a number of locations. However, no areas contain a long enough flow path before reconnecting with impervious areas to qualify for the rooftop disconnection credit.
RR-5	**Vegetated Swale**	The natural drainage paths, or properly designed vegetated channels, can be used instead of constructing underground storm sewers or concrete open channels to increase time of concentration, reduce the peak discharge, and provide infiltration.	**No**	The site has been designed to place greater emphasis on sheet flow instead of channeled flow. Stormwater practices have been designed to provide management and treatment at the source. A vegetated swale is proposed along the western edge of the project site to divert clean runoff from impervious area. However, credit for this practice will not be taken in the RRv calculations.
RR-6	**Rain Garden**	Manage and treat small volumes of stormwater runoff using a conditioned planting soil bed and planting materials to filter runoff stored within a shallow depression.	**No**	Due to the limited tributary area to rain gardens (less than or equal to 1,000SF), a rain garden is not practical at this site.
RR-7	**Stormwater Planter**	Small landscaped stormwater treatment devices that can be designed as infiltration or filtering practices. Stormwater planters use soil infiltration and biogeochemical processes to decrease stormwater quantity and improve water quality.	**Yes**	Stormwater planters have been proposed to treat rooftop runoff from Building 100 in order to provide a buffer between the building and Greenway Trail.
RR-8	**Rain Barrels/ Cisterns**	Capture and store stormwater runoff to be used for irrigation systems or filtered and reused for non-contact activities.	**No**	Rain Barrels/Cisterns are not proposed on-site due to the need for active management/maintenance and initial capital cost. In addition, the cold climate of the project area would require additional protection measures from freezing.
RR-9	**Porous Pavement**	Pervious types of pavements that provide an alternative to conventional paved surfaces, designed to infiltrate rainfall through the surface, thereby reducing stormwater runoff from a site and providing some pollutant uptake in the underlying soils.	**No**	Porous pavement is not proposed at this site.
RR-10	**Green Roof**	Capture runoff by a layer of vegetation and soil installed on top of a conventional flat or sloped roof. The rooftop vegetation allows evaporation and evapotranspiration processes to reduce volume and discharge rate of runoff entering conveyance system.	**No**	Green roofs are not proposed at this site.
	Stream Daylighting	Stream Daylight previously-culverted/piped streams to restore natural habitats, better attenuate runoff by increasing the storage size, promoting infiltration, and help reduce pollutant loads.	**No**	No stream daylighting opportunities are present on this site.

Appendix K - Table E							
Summary Table: Runoff Reduction Volume and Treated volumes							
	Runoff Reduction Techiques/Standard SMPs		**Total Contributing Area**	**Total Contributing Impervious Area**	**WQv Reduced (RRv)**	**WQv Treated**	
			(acres)	**(acres)**	**cf**	**cf**	
Area/Volume Reduction	Conservation of Natural Areas	RR-1	0.00	0.00			
	Sheetflow to Riparian Buffers/Filter Strips	RR-2	0.00	0.00			
	Tree Planting/Tree Pit	RR-3	0.00	0.00			
	Disconnection of Rooftop Runoff	RR-4		0.00			
	Vegetated Swale	RR-5	0.00	0.00	0		
	Rain Garden	RR-6	0.00	0.00	0		
	Stormwater Planter	RR-7	0.22	0.19	0	2,164	
	Rain Barrel/Cistern	RR-8	0.00	0.00	0		
	Porous Pavement	RR-9	0.00	0.00	0		
	Green Roof (Intensive & Extensive)	RR-10	0.07	0.07	338		
Standard SMPs w/RRv Capacity	Infiltration Trench	I-1	0.00	0.00	0	0	
	Infiltration Basin	I-2	0.00	0.00	0	0	
	Dry Well	I-3	0.00	0.00	0	0	
	Underground Infiltration System	I-4	0.00	0.00	0	0	
	Bioretention	F-5	1.93	0.72	1,578	2,368	
	Dry Swale	O-1			0	0	
Standard SMPs	Micropool Extended Detention (P-1)	P-1	0.00	0.00		0	
	Wet Pond (P-2)	P-2	0.00	0.00		0	
	Wet Extended Detention (P-3)	P-3	0.00	0.00		0	
	Multiple Pond System (P-4)	P-4	0.00	0.00		0	
	Pocket Pond (P-5)	P-5	0.00	0.00		0	
	Surface Sand Filter (F-1)	F-1	0.00	0.00		0	
	Underground Sand Filter (F-2)	F-2	0.00	0.00		0	
	Perimeter Sand Filter (F-3)	F-3	0.00	0.00		0	
	Organic Filter (F-4)	F-4	0.00	0.00		0	
	Shallow Wetland (W-1)	W-1	0.00	0.00		0	
	Extended Detention Wetland (W-2)	W-2	0.00	0.00		0	
	Pond/Wetland System (W-3)	W-3	0.00	0.00		0	
	Pocket Wetland (W-4)	W-4	0.00	0.00		0	
	Wet Swale (O-2)	O-2	0.00	0.00		0	
Alternative Practices	Hydrodynamic Separator		1.39	0.51		10,768	
	Filterra Bioretention System		0.00	0.00		0	
	Wet Vault		0.00	0.00		0	
	Media Filter		0.00	0.00		0	
	Underground Infiltration System		0.00	0.00		0	
Totals by Area Reduction →			1.39	0.51	0		
Totals by Volume Reduction →			0.28	0.26	338		
Totals by Standard SMP w/RRV →			1.93	0.72	1,578	2,368	
Totals by Standard SMP →			0.00	0.00		0	
Totals by Alternative Practices →			1.39	0.51		10,768	
Totals (Area + Volume + all SMPs) →			5.00	2.00	**1,916**	**13,136**	15,052

Appendix A - Table F
Practice Specific Sizing Calculation Worksheet

BIORETENTION NO. 1 (BIO-1)

Practice Proposed?	Yes

Enter Site Data For Drainage Area to be Treated by Practice

Catchment Number	Total Area *(Acres)*	Impervious Area *(Acres)*	Percent Impervious *%*	Rv	WQv *(ft^3)*	Precipitation *(in)*	Description
1A	0.41	0.26	64%	0.62	1,283	1.40	Bioretention
Enter Impervious Area Reduced by Disconnection of Rooftops Within this Catchment:		0.00	64%	0.62	1,283	<<WQv after adjusting for Disconnected Rooftops	
Reduced by Tree Planting:	0.011	0.011	63%	0.61	1,263	<<WQv after adjusting for Tree Planting	
Enter the portion of the WQv that is not reduced for all practices routed to this practice:					0	ft^3	

Determine Required Water Quality Volume

WQv = (P/12) * Rv * A

where: WQv = Water Quality Volume (acre-feet)
P = 1-year 24-hour design storm (inches)
Rv = 0.05 + 0.009 (I); min Rv = 0.2
I = Impervious Cover (%) within the drainage area contributing to the SWM practice
A = Drainage area (square feet) contributing to the SWM practice

WQv =	**1,263**	**CF**

**Value taken from Appendix K - Table B*

Calculate Required Filter Bed Area

Af=(WQv)*(df)/[(k)*(hf+df)*(tf)]

where: Af = Surface area of filter bed (SF)
WQv = Required Water Quality Volume (CF)
df = Filter bed depth (ft)
k = Coefficient of permeability of filter media (ft/day)
hf = Average height of water above filter bed (ft)
tf = Design filter bed drain time (days)

SMP ID	WQv (cubic feet)	df (feet)	k (ft/day)	hf (feet)	tf (days)	Minimum Af (sq-ft)	Provided Af (sq-ft)
BIO-1	1,263	2.5	0.5	0.25	2.0	1,148	1,150

Calculate Provided Water Quality Volume

WQv Provided Within Practice = Total volumes of soil media, mulch, and ponding

WQv = $V_{SM} + V_M + V_{pond}$

V_{SM} = Af * df * P_{SM}	=	575	cf.
V_M = Af * dm * P_M	=	115	cf.
V_{POND} = (Af * hf * 2) + (2 * S * hf^2 * Pf)	=	665	cf.

where:

P_{SM} = Porosity of soil media - 0.20	0.20	
P_M = Porosity of mulch - 0.40	0.40	
S = Bioretention Side Slopes	3.00	:1
Pf = Bioretention Perimeter	241	LF

WQv =	**1,355**	**CF**

Calculate Provided Runoff Reduction Volume

Using Underdrains? Yes

RRv =	**542**	CF
RRv Applied =	**542**	**CF**

This is 40% of the storage provided or WQv, whichever is less.

Appendix A - Table F
Practice Specific Sizing Calculation Worksheet

BIORETENTION NO. 2 (BIO-2)

Practice Proposed?	Yes

Enter Site Data For Drainage Area to be Treated by Practice

Catchment Number	Total Area *(Acres)*	Impervious Area *(Acres)*	Percent Impervious *%*	Rv	WQv *(ft^3)*	Precipitation *(in)*	Description
4	1.52	0.47	31%	0.33	2,522	1.40	Bioretention
Enter Impervious Area Reduced by Disconnection of Rooftops Within this Catchment:		0.00	31%	0.33	2,522	<<WQv after adjusting for Disconnected Rooftops	
Reduced by Tree Planting:	0.00	0.00	31%	0.33	2,522	<<WQv after adjusting for Tree Planting	
Enter the portion of the WQv that is not reduced for all practices routed to this practic					0	ft^3	

Determine Required Water Quality Volume

WQv = (P/12) * Rv * A

where: WQv = Water Quality Volume (acre-feet)
P = 1-year 24-hour design storm (inches)
Rv = 0.05 + 0.009 (I); min Rv = 0.2
I = Impervious Cover (%) within the drainage area contributing to the SWM practice
A = Drainage area (square feet) contributing to the SWM practice

WQv = 2,522 CF **Value taken from Appendix K - Table B*

Calculate Required Filter Bed Area

Af=(WQv)*(df)/[(k)*(hf+df)*(tf)]

where: Af = Surface area of filter bed (SF)
WQv = Required Water Quality Volume (CF)
df = Filter bed depth (ft)
k = Coefficient of permeability of filter media (ft/day)
hf = Average height of water above filter bed (ft)
tf = Design filter bed drain time (days)

SMP ID	WQv (cubic feet)	df (feet)	k (ft/day)	hf (feet)	tf (days)	Minimum Af (sq-ft)	Provided Af (sq-ft)
BIO-1	2,522	2.5	0.5	0.25	2.0	2,293	2,296

Calculate Provided Water Quality Volume

ed Within Practice = Total volumes of soil media, mulch, and ponding

WQv = V_{SM} + V_M + Vpond

V_{SM} =	Af * df * P_{SM}	=	1,148 cf.
V_M =	Af * dm * P_M	=	230 cf.
V_{POND} =	(Af * hf * 2) + (2 * S * hf^2 * Pf)	=	1,213 cf.

where:

P_{SM} =	Porosity of soil media - 0.20	0.20	
P_M =	Porosity of mulch - 0.40	0.40	
S =	Bioretention Side Slopes	3.00	:1
Pf =	Bioretention Perimeter	174	LF

WQv = 2,591 CF

Calculate Provided Runoff Reduction Volume

Using Underdrains? Yes

RRv = **1,036** CF

RRv Applied = 1,036 CF *This is 40% of the storage provided or WQv, whichever is less.*

Appendix K - Table E
Practice Specific Sizing Calculation Worksheet

STORMWATER PLANTER (PTR-C1)

Practice Provided?	Yes

Enter Site Data For Drainage Area to be Treated by Practice

Catchment Number	Total Area *(Acres)*	Impervious Area *(Acres)*	Percent Impervious *%*	Rv	WQv *(ft^3)*	Precipitation *(in)*	Description
1B	0.22	0.19	89%	0.85	944	1.40	Stormwater Planter

Calculate Required Filter Bed Area

Af=(WQv)*(df)/[(k)*(hf+df)*(tf)]

where: Af = Surface area of filter bed (SF)
WQv = Required Water Quality Volume (CF)
df = Filter bed depth (ft)
k = Coefficient of permeability of filter media (ft/day)
hf = Average height of water above filter bed (ft)
tf = Design filter bed drain time (days)

SMP ID	WQv (cubic feet)	df (feet)	k (ft/day)	hf (feet)	tf (days)	Minimum Af (sq-ft)	Provided Af (sq-ft)
PTR-C1	944	1.5	4	0.5	0.17	1,041	1,050

Calculate Provided Water Quality Volume PTR-C1

Provided WQv = Vf + Vs + Vp

where: Vf = Volume of Filter (CF) = Af * df * n-filter
Vs = Volume of Stone Drainage Course (CF) = Af * ds * n-stone
Vp = Volume of Ponding (CF)

df =	1.5	ft			
n-filter =	0.35				
ds =	0.67	ft			
n-stone =	0.40				

Vf =	551	CF
Vs =	563	CF
Vp =	1050	CF
Provided WQv =	**2164**	**CF**

Calculate Provided Runoff Reduction Volume

Soil Type =	A
Underdrain?	Yes

RRv =	0	CF	Liner
RRv Applied =	**0**	**CF**	Liner

Appendix K - Table G
Practice Specific Sizing Calculation Worksheet

GREEN ROOF NO. 1 (GR1)

Practice Proposed?	Yes

Enter Site Data For Drainage Area to be Treated by Practice

Catchment Number	Total Area *(Acres)*	Impervious Area *(Acres)*	Percent Impervious *%*	Rv	WQv *(ft^3)*	Precipitation *(in)*	Description
1C	0.07	0.07	100%	0.95	338	1.40	Green Roof (Ext)

Enter Parameters for Proposed Green Roof

Green Roof Surface Area	AGR	**2831**	ft^2	
Depth of Soil Media	DSM	**0.25**	ft	0.25-0.5
Depth of Drainage Layer	DDL	**0.00**	ft	
Depth of Ponding Above Surface	DP	**0.02**	ft	
Porosity of Soil Media	nSM	**40%**		
Porosity of Drainage Layer	nDL	**25%**		

Calculate Storage Volume and Runoff Reduction Volume

Volume Provided in Soil Media	VSM	**283**	ft^3
Volume Provided in Drainage Layer	VDL	**0**	ft^3
Volume in Ponding Layer		**57**	ft^3
Storage Volume Provided in Green Roof		**340**	ft^3
Runoff Reduction Volume	RRv	**338**	ft^3

Date: 12/19/2019
Project: City of Beacon Water Quality
Location: Beacon, NY
Prepared For: Chazen Companies

Purpose: To calculate the water quality flow rate (Qwq) over a given site area. In this situation the WQv to be analyzed is the runoff produced by the first 1.4 inch(es) of rainfall, per Fig 4.1 of the New York State Stormwater Management Design Manual

Reference: United States Department of Agriculture Natural Resources Conservation Service TR-55 Manual, New York State Stormwater Management Design Manual - 2015

Formulas:

$$WQv = \frac{(P)(R_v)(A)}{12}$$

$$R_v = (0.05+0.009(I)$$

$$CN = 1000/[10+5P+10Qa-10(Qa^2+1.25QaP)^{1/2}]$$

$$Qwq = (q_u)*(A)*(Qa)$$

Structure:	Unit 1		**Structure:**	Unit 2		**Structure:**	Unit 3	
P	1.40	in.	P	1.40	in.	P	1.40	in.
A	0.645	ac	A	1.236	ac	A	1.003	ac
I	71.63	%	I	38.51	%	I	66.40	%
t_c	6.0	min.	t_c	10.3	min.	t_c	6.0	min.
t_c	0.100	hr.	t_c	0.172	hr.	t_c	0.100	hr.
R_v	0.695		R_v	0.397		R_v	0.648	
90% WQv	0.052	ac-ft	90% WQv	0.057	ac-ft	90% WQv	0.076	ac-ft
90% WQv	2278.19	ft^3	90% WQv	2491.63	ft^3	90% WQv	3301.85	ft^3
Qa	0.973	in.	Qa	0.555	in.	Qa	0.907	in.
CN	95.67		CN	88.98		CN	94.82	
I_a	0.090		I_a	0.248		I_a	0.109	
I_a/P	0.064		I_a/P	0.177		I_a/P	0.078	
qu	650	(csm/in)	qu	560	(csm/in)	qu	650	(csm/in)
A	0.00101	$miles^2$	A	0.00193	$miles^2$	A	0.00157	$miles^2$
Qwq	0.64	cfs	Qwq	0.60	cfs	Qwq	0.92	cfs

Date: 12/19/2019
Project: City of Beacon Water Quality
Location: Beacon, NY
Prepared For: Chazen Companies

Purpose: To calculate the water quality flow rate (Qwq) over a given site area. In this situation the WQv to be analyzed is the runoff produced by the first 1.4 inch(es) of rainfall, per Fig 4.1 of the New York State Stormwater Management Design Manual

Reference: United States Department of Agriculture Natural Resources Conservation Service TR-55 Manual, New York State Stormwater Management Design Manual - 2015

Formulas:

$$WQv = \frac{(P)(R_v)(A)}{12}$$

$$R_v = (0.05+0.009(I)$$

$$CN = 1000/[10+5P+10Qa-10(Qa^2+1.25QaP)^{1/2}]$$

$$Qwq = (q_u)*(A)*(Qa)$$

Structure:	Unit 4		**Structure:**	Unit 5	
P	1.40	in.	P	1.40	in.
A	1.505	ac	A	0.698	ac
I	35.22	%	I	97.13	%
t_c	6.0	min.	t_c	23.6	min.
t_c	0.100	hr.	t_c	0.393	hr.
R_v	0.367		R_v	0.924	
90% WQv	0.064	ac-ft	90% WQv	0.075	ac-ft
90% WQv	2805.26	ft^3	90% WQv	3275.71	ft^3
Qa	0.513	in.	Qa	1.293	in.
CN	88.07		CN	99.07	
I_a	0.271		I_a	0.041	
I_a/P	0.194		I_a/P	0.029	
qu	625	(csm/in)	qu	450	(csm/in)
A	0.00235	$miles^2$	A	0.00109	$miles^2$
Qwq	0.75	cfs	Qwq	0.63	cfs

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Appendix K:
Soil Testing Results

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TIORONDA AVENUE
KNEALES AVE
Lands Now or Formerly of
METRO-NORTH COMMUTER R.R. CO.
LIBER 1926 PAGE 338
6004-37-086703-00
DT1
DT2
DT3
DT4
DT5
DT6
DT7
DT8
DT9
DT10
DT11
LEASE PARCEL
(TO BECOME A
DOC #02-2005-7450
ITEM 37 SCHEDULE B-I)
Lands Now or Formerly of
BEACON 248 DEVELOPMENT, LLC
DOC# 02-2006-4888
6004-18-863462-00
Lands now or Formerly of
GENERAL HOSPITAL
DOC# 02-2001-5
LIBER 1647 PAGE 197
6004-37-2181-00
WOLCOTT AVENUE
U.S. ROUTE 9D
FISHKILL CREEK
ZONE AE
ZONE VE
ZONE X
ZONE X (SHADED)
ZONE X NOT
ZONE AE
ZONE VE (EL 13)
ZONE AE
ZONE X (SHADED)
ZONE AE
ZONE X (SHADED)
ZONE AE
ZONE X (SHADED

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Appendix L:
Flood Insurance Study, Volume 1 of 4

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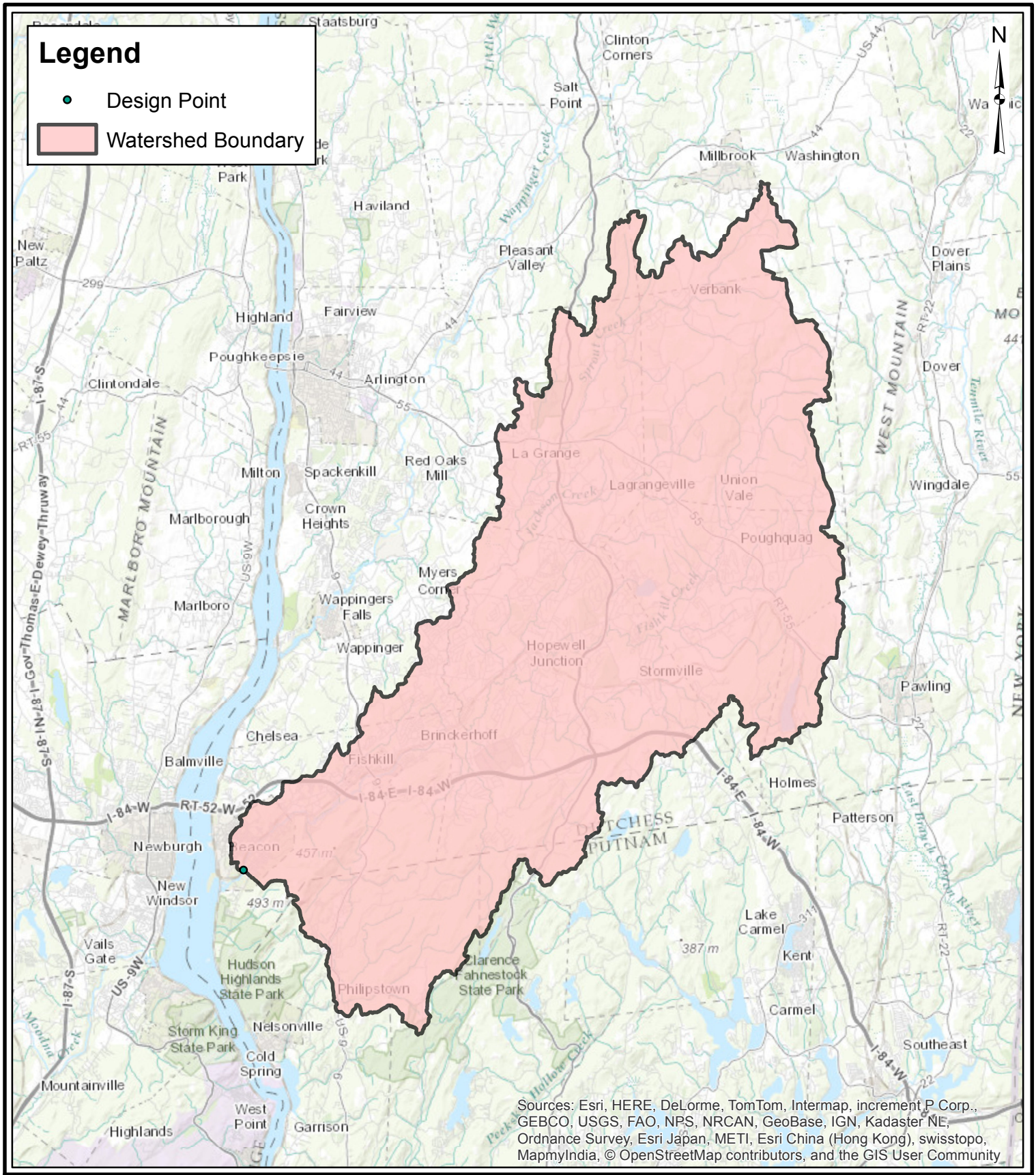

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21 Fox Street, Poughkeepsie, NY 12601
Phone: (845) 454-3980

Capital District Office:
547 River Street, Troy, NY 12180
Phone: (518) 273-0055

North Country Office:
375 Bay Road, Queensbury, NY 12804
Phone: (518) 812-0513

Beacon 248 Development

Fishkill Creek at Beacon 248 Development Watershed Map

City of Beacon, Dutchess County, New York

Drawn:	KGA
Date:	10/14/14
Scale:	1 " = 20,000 '
Project:	81056.00
Figure:	FIG 7

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FLOOD INSURANCE STUDY



VOLUME 1 OF 4



DUTCHESS COUNTY, NEW YORK
(ALL JURISDICTIONS)

COMMUNITY NAME	COMMUNITY NUMBER	COMMUNITY NAME	COMMUNITY NUMBER
AMENIA, TOWN OF	361332	PAWLING, VILLAGE OF	361517
BEACON, CITY OF	360217	PINE PLAINS, TOWN OF	361141
BEEKMAN, TOWN OF	361333	PLEASANT VALLEY, TOWN OF	360221
CLINTON, TOWN OF	361334	POUGHKEEPSIE, CITY OF	360222
DOVER, TOWN OF	361335	POUGHKEEPSIE, TOWN OF	361142
EAST FISHKILL, TOWN OF	361336	RED HOOK, TOWN OF	361143
FISHKILL, TOWN OF	361337	RED HOOK, VILLAGE OF	361614
FISHKILL, VILLAGE OF	360218	RHINEBECK, TOWN OF	361144
HYDE PARK, TOWN OF	361338	RHINEBECK, VILLAGE OF	361999
LAGRANGE, TOWN OF	361011	STANFORD, TOWN OF	361145
MILAN, TOWN OF	361339	TIVOLI, VILLAGE OF	361507
MILLBROOK, VILLAGE OF	360219	UNION VALE, TOWN OF	361146
MILLERTON, VILLAGE OF	360220	WAPPINGER, TOWN OF	361387
NORTHEAST, TOWN OF	361340	WAPPINGERS FALLS, VILLAGE OF	360223
PAWLING, TOWN OF	361341	WASHINGTON, TOWN OF	361147

EFFECTIVE:
May 2, 2012

Federal Emergency Management Agency

FLOOD INSURANCE STUDY NUMBER
36027CV001A

NOTICE TO
FLOOD INSURANCE STUDY USERS

Communities participating in the National Flood Insurance Program have established repositories of flood hazard data for floodplain management and flood insurance purposes. This Flood Insurance Study (FIS) may not contain all data available within the repository. It is advisable to contact the community repository for any additional data.

Part or all of this FIS may be revised and republished at any time. In addition, part of this FIS may be revised by the Letter of Map Revision process, which does not involve republication or redistribution of the FIS. It is, therefore, the responsibility of the user to consult with community officials and to check the community repository to obtain the most current FIS components.

Selected Flood Insurance Rate Map panels for this community contain information that was previously shown separately on the corresponding Flood Boundary and Floodway Map panels (e.g., floodways and cross sections). In addition, former flood hazard zone designations have been changed as follows.

Old Zone(s)	New Zone
A1 through A30	AE
V1 through V30	VE
B	X
C	X

Initial Countywide FIS Effective Date: May 2, 2012

Revised Countywide FIS Date:

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FLOOD INSURANCE STUDY
DUTCHESS COUNTY, NEW YORK (ALL JURISDICTIONS)

1.0 INTRODUCTION

1.1 Purpose of Study

This countywide Flood Insurance Study (FIS) investigates the existence and severity of flood hazards in, or revises and updates previous FISs/Flood Insurance Rate Maps (FIRMs) for the geographic area of Dutchess County, New York, including: the Cities of Beacon and Poughkeepsie; the Towns of Amenia, Beekman, Clinton, Dover, East Fishkill, Fishkill, Hyde Park, LaGrange, Milan, Northeast, Pawling, Pine Plains, Pleasant Valley, Poughkeepsie, Red Hook, Rhinebeck, Stanford, Union Vale, Wappinger, and Washington; and the Villages of Fishkill, Millbrook, Millerton, Pawling, Red Hook, Rhinebeck, Tivoli, and Wappingers Falls (hereinafter referred to collectively as Dutchess County).

This FIS aids in the administration of the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973. This FIS has developed flood risk data for various areas of the county that will be used to establish actuarial flood insurance rates. This information will also be used by Dutchess County to update existing floodplain regulations as part of the Regular Phase of the National Flood Insurance Program (NFIP), and will also be used by local and regional planners to further promote sound land use and floodplain development. Minimum floodplain management requirements for participation in the NFIP are set forth in the Code of Federal Regulations at 44 CFR§ 60.3.

In some States or communities, floodplain management criteria or regulations may exist that are more restrictive or comprehensive than the minimum Federal requirements. In such cases, the more restrictive criteria take precedence and the State (or other jurisdictional agency) will be able to explain them.

1.2 Authority and Acknowledgments

The sources of authority for this FIS are the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973.

This FIS was prepared to include all jurisdictions within Dutchess County into a countywide format. Information on the authority and acknowledgments for each jurisdiction included in this countywide FIS, as compiled from their previously printed FIS reports, is shown below.

Amenia, Town of: the hydrologic and hydraulic analyses from the FIS report dated November 15, 1989, were performed by Edwards and Kelcey Engineers, Inc., for the Federal Emergency Management Agency (FEMA), under Contract No. EMW-85-

C-1887. That work was completed in November 1987.

Beacon, City of: the hydrologic and hydraulic analyses from the FIS report dated September 1, 1983, were prepared by Kozma Associates for FEMA, under Contract No. EMW-C-0777. That work was completed in August 1982.

Beekman, Town of: the hydrologic and hydraulic analyses from the FIS report dated March 5, 1984, were prepared by Kozma Associates for FEMA, under Contract No. EMW-C-0733. That work was completed in February 1983.

Clinton, Town of: the hydrologic and hydraulic analyses from the FIS report dated January 5, 1984, were prepared by Kozma Associates for FEMA, under Contract No. EMW-C-0733. That work was completed in December 1982.

Dover, Town of: the hydrologic and hydraulic analyses from the FIS report dated July 4, 1988, were prepared by Kozma Associates for FEMA, under Contract No. EMW-C-0733. That work was completed in December 1982.

East Fishkill, Town of: the hydrologic and hydraulic analyses from the FIS report dated December 15, 1983, were prepared by Kozma Associates for FEMA, under Contract No. EMW-C-0733. That work was completed in December 1982.

Fishkill, Town of: the hydrologic and hydraulic analyses from the FIS report dated December 1, 1983, were prepared by Kozma Associates for FEMA, under Contract No. EMW-C-0733. That work was completed in October 1982.

Fishkill, Village of: the hydrologic and hydraulic analyses from the FIS report dated September 15, 1983, were prepared by Kozma Associates for FEMA, under Contract No. EMW-C-0733. That work was completed in October 1982.

Hyde Park, Town of: the hydrologic and hydraulic analyses from the FIS report dated December 15, 1983, were prepared by Kozma Associates for FEMA, under

Contract No. EMW-C-0733. That work was completed in November 1982.

LaGrange, Town of: the hydrologic and hydraulic analyses for the original FIS, dated September 28, 1979, were performed by Harris-Toups Associates for the Federal Insurance Administration (FIA) under Contract No. H-3962. That work, which was completed in September 1977, covered all significant flooding sources in the Town of LaGrange. The hydrologic and hydraulic analyses for the November 5, 1986, FIS for Branch 3 Wappinger Creek were performed by Dewberry and Davis. The topographic data were obtained from Barger, Campbell, Gray and Rarling, Engineers and Surveyors.

For the FIS report dated September 8, 1999, updated hydrologic and hydraulic analyses for Wappinger Creek were prepared by Leonard Jackson Associates for FEMA, under Contract No. 93-C-4145. That work was completed in March 1997. Planimetric base map files for this revision were derived by digitizing U.S. Geological Survey 7.5-Minute Series Topographic Maps. These files were compiled at a scale of 1:24,000.

Millerton, Village of: the hydrologic and hydraulic analyses from the FIS report dated July 3, 1984, were prepared by Kozma Associates for FEMA, under Contract No. EMW-C-0733. That work was completed in February 1983.

Northeast, Town of: the hydrologic and hydraulic analyses from the FIS report dated March 5, 1984, were prepared by Kozma Associates for FEMA, under Contract No. EMW-C-0733. That work was completed in February 1983.

Pawling, Town of: the hydrologic and hydraulic analyses from the FIS report dated July 3, 1984, were prepared by Kozma Associates for FEMA, under Contract No. EMW-C-0733. That work was completed in March 1983.

Pawling, Village of: the hydrologic and hydraulic analyses from the FIS report dated February 1, 1984, were prepared

by Kozma Associates for FEMA, under Contract No. EMW-C-0733. That work was completed in March 1983.

Pleasant Valley, Town of: the hydrologic and hydraulic analyses from the FIS report dated July 1979 were performed by Harris-Toups Associates for the FIA under Contract No. H-3962. That work, which was completed in October 1977, covered all significant flooding sources in the Town of Pleasant Valley.

Poughkeepsie, City of: the hydrologic and hydraulic analyses from the FIS report dated July 5, 1983, were prepared by Kozma Associates for FEMA, under Contract No. EMW-C-0733. That work was completed in July 1982.

Poughkeepsie, Town of: the hydrologic and hydraulic analyses from the original FIS report dated May 1978 and FIRM dated November 15, 1978 (hereinafter referred to as the 1978 FIS) were prepared for the FIA by Harris-Toups Associates, under Contract No. H-3962. That work was completed in August 1977.

For the August 2, 1990, revision, the hydrologic and hydraulic analyses were prepared by Edwards and Kelcey Engineers, Inc., for FEMA, under Contract No. EMW-85-C-1887. That work was completed in January 1988.

For the FIS report dated September 8, 1999, revised hydrologic and hydraulic analyses were prepared by Leonard Jackson Associates for FEMA, under Contract No. 93-C-4145. That work was completed in March 1997.

Red Hook, Town of: the hydrologic and hydraulic analyses from the FIS report dated April 16, 1984, were prepared by Kozma Associates for FEMA, under Contract No. EMW-C-0733. That work was completed in March 1983.

Rhinebeck, Town of: the hydrologic and hydraulic analyses from the FIS report dated March 5, 1984, were prepared by Kozma Associates for FEMA, under Contract No. EMW-C-0733. That work was completed in December 1982.

Rhinebeck, Village of:	the hydrologic and hydraulic analyses from the FIS report dated August 1, 1984, were prepared by Kozma Associates for FEMA, under Contract No. EMW-C-0733. That work was completed in December 1982.
Stanford, Town of:	the hydrologic and hydraulic analyses from the FIS report dated December 17, 1991, were prepared by Kozma Associates Consulting Engineers, P.C. (the study contractor), for FEMA, under Contract No. EMW-86-C-2244. That work was completed in December 1989.
Tivoli, Village of:	the hydrologic and hydraulic analyses from the FIS report dated February 1, 1984, were prepared by Kozma Associates for FEMA, under Contract No. EMW-C-0733. That work was completed in February 1983.
Union Vale, Town of:	the hydrologic and hydraulic analyses from the FIS report dated September 2, 1988, were prepared by McCoy-Jackson Associates for FEMA, under Contract No. EMW-84-C-1603. That work was completed in February 1987.
Wappinger, Town of:	the hydrologic and hydraulic analyses from the original FIS report dated December 1978 and FIRM dated June 15, 1979 (hereinafter referred to as the 1979 FIS), were performed by Harris-Toups Associates for the FIA, under Contract No. H-3962. That work was completed in July 1977. The hydrologic and hydraulic analyses from the FIS report dated September 22, 1999, were prepared by Leonard Jackson Associates for FEMA, under Contract No. 93-C-4145. That work was completed in March 1997.
Wappingers Falls, Village of:	the hydrologic and hydraulic analyses from the original FIS report dated March 1978 and FIRM dated September 1, 1978 (hereinafter referred to as the 1978 FIS), were performed by Harris-Toups Associates for the FIA, under Contract No. H-3962. That work was completed in June 1977.

Wappingers Falls, Vill. (cont.)	The hydrologic and hydraulic analyses from the FIS report dated September 22, 1999, were prepared by Leonard Jackson Associates for FEMA, under Contract No. 93-C-4145. That work was completed in March 1997.

There are no previous FISs or FIRMs for the Village of Red Hook, and no previous FISs for the Towns of Milan, Pine Plains, and Washington, and for the Village of Millbrook; therefore, the previous authority and acknowledgment information for these communities is not included in this FIS.

For this countywide FIS, dated September 29, 2011 revised hydrologic and hydraulic analyses for Fishkill Creek, Maritje Kill and the Tenmile River were prepared by Dewberry for the New York State Department of Environmental Conservation (NYS DEC) under its Cooperating Technical Partner agreement with FEMA. This work was completed in June 2008. Additionally, floodplain boundaries for all unrevised flooding sources previously studied using detailed methodology were updated using topographic data provided to NYS DEC by Dutchess County. This work for also completed by Dewberry in June 2008. Flood hazard areas previously assessed using approximate methods were re-analyzed throughout the county and results were then mapped using the Dutchess County topographic data. This work was completed in May 2008.

Base map information for this FIRM was developed from digital orthoimagery provided by the New York State Office of Cyber Security & Critical infrastructure Coordination. This imagery was derived for 1- and 2- foot resolution natural color orthoimagery from photography dated April 2006.

The coordinate system used for the production of this FIRM is Universal Transverse Mercator (UTM), North American Datum of 1983 (NAD 83), GRS80 spheroid. Corner coordinates shown on the FIRM are in latitude and longitude referenced to the UTM projection, NAD 83. Differences in the datum, spheroid, projection or UTM zones used in the production of FIRMs for adjacent counties may result in slight positional differences in map features at the county boundaries. These differences do not affect the accuracy of information shown on the FIRM.

1.3 Coordination

Consultation Coordination Officer's (CCO) meetings may be held for each jurisdiction in this countywide FIS. An initial CCO meeting is held typically with representatives of FEMA, the community, and the study contractor to explain the nature and purpose of a FIS, and to identify the streams to be studied by detailed methods. A final CCO meeting is held typically with representatives of FEMA, the community, and the study contractor to review the results of the study.

The dates of the initial and final CCO meetings held for jurisdictions within Dutchess County are shown in Table 1, "Initial and Final CCO Meetings."

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TABLE 1 – INITIAL AND FINAL CCO MEETINGS

Community	Initial CCO Date	Final CCO Date
Town of Amenia	September 18, 1984	October 20, 1988
City of Beacon	March 1978	April 4, 1983
Town of Beekman	March 1978	October 11, 1983
Town of Clinton	*	August 8, 1983
Town of Dover	March 1978	October 6, 1983
Town of East Fishkill	March 1978	August 11, 1983
Town of Fishkill	March 1978	June 6, 1983
Village of Fishkill	March 1978	May 9, 1983
Town of Hyde Park	March 1978	June 27, 1983
Town of Lagrange	November 1976	November 16, 1977
Town of Milan	*	*
Village of Millbrook	*	*
Village of Millerton	March 1978	October 12, 1983
Town of Northeast	March 1978	October 13, 1983
Town of Pawling	March 1978	November 16, 1983
Village of Pawling	March 1978	October 3, 1983
Town of Pine Plains	*	*
Town of Pleasant Valley	November 1976	December 8, 1977
City of Poughkeepsie	March 1978	January 20, 1983
Town of Poughkeepsie	September 19, 1984	March 1, 1989
Town of Red Hook	March 1978	December 13, 1983
Village of Red Hook	*	*
Town of Rhinebeck	March 1978	September 16, 1983
Village of Rhinebeck	March 1978	March 13, 1984
Town of Stanford	October 11, 1990	February 1, 1991
Village of Tivoli	March 1978	September 12, 1983
Town of Union Vale	March 1984	October 15, 1987
Town of Wappinger	October 1976	March 31, 1998[1]
Village of Wappingers Falls	October 1976	March 31, 1998[1]
Town of Washington	*	*

[1]Notified by letter
*Data not available

Three initial CCO meetings for this revision were held. The first was held for communities within the Fishkill Creek watershed in February 2002, which was attended by representatives of communities within the watershed as well as NYS DEC and FEMA staff. The second was held for communities within the Wappinger Creek watershed in March 2003, which was attended by representatives

of communities within the watershed as well as NYS DEC and FEMA staff. At the third meeting, in August 2006, the remaining communities in the county were invited to discuss flood hazards within their jurisdiction in the context of the planned flood map update. The final CCO meeting was held October 6 and 7, 2008.

2.0 AREA STUDIED

2.1 Scope of Study

This FIS covers the geographic area of Dutchess County, New York.

The areas studied by detailed methods were selected with priority given to all known flood hazard areas and areas of projected development and proposed construction. All or portions of the flooding sources listed in Table 2, "Flooding Sources Studied by Detailed Methods," were studied by detailed methods. Limits of detailed study are indicated on the Flood Profiles (Exhibit 1) and on the FIRM (Exhibit 2). The areas studied were selected with priority given to all known flood hazard areas and areas of projected development and proposed construction.

TABLE 2 - FLOODING SOURCES STUDIED BY DETAILED METHODS

Amenia Stream
Branch 1 Great Spring Creek
Branch 1 Sprout Creek #1
Branch 1 Wappinger Creek Reach 1
Branch 10 Wappinger Creek Reach 1
Branch 11 Wappinger Creek Reach 1
Branch 1A Hudson River
Branch 2 Sprout Creek #1
Branch 2 Wappinger Creek Reach 1
Branch 2A Wappinger Creek Reach 1
Branch 2B Wappinger Creek Reach 1
Branch 3 Wappinger Creek Reach 1
Branch 4 Wappinger Creek Reach 1
Branch 5 Wappinger Creek Reach 1
Branch 6 Wappinger Creek Reach 1
Branch 7 Wappinger Creek Reach 1
Branch 8 Wappinger Creek Reach 1
Branch 9 Wappinger Creek Reach 1
Casper Kill Creek
Clove Brook
Clove Creek
Clove Mountain Creek
Crum Elbow Creek
East Branch Croton River
East Branch Wappinger Creek Reach 1
Eighmy Ville Creek
Fall Kill
Fall Kill Creek
Fishkill Creek
Frog Hollow Brook
Great Spring Creek
Hudson River
Indian Lake
Jackson Creek Reach 1
Jackson Creek Reach 2
Kelsey Brook
Landsman Kill
Little Wappinger Creek Reach 1
Long Pond
Maritje Kill
Rhinebeck Kill
Saw Kill
Seeley Creek
Silver Lake
Sprout Creek #1
Sprout Creek #2
Stony Creek
Swamp River Reach 1
Swamp River Reach 2
Sweezy Creek
Sylvan Lake
Sylvan Lake Outlet
Tenmile River
Tributary 1 to Fishkill Creek
Tributary 2 to Fishkill Creek
Tributary to Amenia Stream
Tributary to East Branch Croton River
Walsh Creek

TABLE 2 - FLOODING SOURCES STUDIED BY DETAILED METHODS - continued

Wappinger Creek Reach 1	Webatuck Creek Reach 2	Whortlekill Creek Reach 1
Wappinger Creek Reach 2	Webatuck Creek Reach 3	Whortlekill Creek Reach 2
Wassaic Creek	Wells Brook	Willow Brook
Webatuck Creek Reach 1	Whaley Lake Stream	

Riverine flooding sources throughout the county have been studied by detailed methods at different times and prior to this countywide FIS, dated September 29, 2011 often on a community-by-community basis. Table 3, "Model Dates for Riverine Flooding Sources," below represents the hydraulic modeling dates for the detailed study flooding sources in the county.

TABLE 3 – MODEL DATES FOR RIVERINE FLOODING

STREAM NAME	COMMUNITY	MOST RECENT MODEL DATE
Amenia Stream	Town of Amenia	November 1987
Branch 1 Great Spring	Town of Pleasant Valley	October 1977
Branch 1 Sprout Creek #1	Town of LaGrange	September 1977
Branch 1 Wappinger Creek Reach 1	Town of Wappinger	March 1997
	Village of Wappingers Falls	March 1997
Branch 10 Wappinger Creek Reach 1	Town of Pleasant Valley	October 1977
Branch 11 Wappinger Creek Reach 1	Town of Pleasant Valley	October 1977
Branch 1A Hudson River	Town of Wappinger	July 1977
Branch 2 Sprout Creek #2	Town of LaGrange	September 1977
Branch 2 Wappinger Creek Reach 1	Town of Wappinger	July 1977
Branch 2A Wappinger Creek Reach 1	Town of Wappinger	July 1977
Branch 2B Wappinger Creek Reach 1	Town of Wappinger	July 1977
Branch 3 Wappinger Creek Reach 1	Town of Poughkeepsie	August 1977
Branch 4 Wappinger Creek Reach 1	Town of Poughkeepsie	January 1988
Branch 5 Wappinger Creek Reach 1	Town of LaGrange	September 1977
Branch 6 Wappinger Creek Reach 1	Town of Poughkeepsie	August 1977
Branch 7 Wappinger Creek Reach 1	Town of LaGrange	September 1977

TABLE 3 – MODEL DATES FOR RIVERINE FLOODING-continued

STREAM NAME	COMMUNITY	MOST RECENT MODEL DATE
Branch 8 Wappinger Creek Reach 1	Town of Poughkeepsie	August 1977
Branch 9 Wappinger Creek Reach 1	Town of Pleasant Valley	October 1977
Casper Kill Creek	Town of Poughkeepsie	January 1988
	City of Poughkeepsie	July 1982
Clove Creek	Town of Fishkill	October 1982
Clove Mountain Creek	Town of Union Vale	February 1987
Crum Elbow Creek	Town of Hyde Park	November 1982
	Town of Rhinebeck	December 1982
	Town of Clinton	December 1982
East Branch Croton River	Town of Pawling	March 1983
	Village of Pawling	March 1983
East Branch Wappinger Creek Reach 1	Town of Clinton	December 1982
	Town of Pleasant Valley	October 1977
Eighmy Ville Creek	Town of Rhinebeck	December 1982
Fall Kill	Town of Hyde Park	November 1982
Fall Kill Creek	Town of Poughkeepsie	January 1988
	City of Poughkeepsie	July 1982
Fishkill Creek	City of Beacon	July 2008
	Town of Beekman	July 2008
	Town of Fishkill	July 2008
	Village of Fishkill	July 2008
	Town of East Fishkill	July 2008
	Town of Union Vale	July 2008
Frog Hollow Creek	Town of Beekman	February 1983
Great Spring Creek	Town of Pleasant Valley	October 1977
Jackson Creek Reach 1	Town of LaGrange	September 1977
Jackson Creek Reach 2	Town of LaGrange	February 1987
Kelsey Brook	Village of Millerton	February 1983
	Town of Northeast	February 1983
Landsman Kill	Town of Rhinebeck	December 1982
	Village of Rhinebeck	December 1982
Little Wappinger Creek Reach 1	Town of Clinton	December 1982
	Town of Pleasant Valley	October 1977
Maritje Kill	Town of Hyde Park	July 2008
Rhinebeck Kill	Town of Red Hook	March 1983
	Town of Rhinebeck	December 1982
	Village of Rhinebeck	December 1982
Saw Kill	Town of Red Hook	March 1983
	Village of Red Hook	March 1983

TABLE 3 – MODEL DATES FOR RIVERINE FLOODING-continued

STREAM NAME	COMMUNITY	MOST RECENT MODEL DATE
Seeley Creek	Town of Union Vale	February 1987
Sprout Creek #1	Town of East Fishkill	December 1982
	Town of Fishkill	October 1982
	Town of LaGrange	September 1977
	Town of Wappinger	July 1977
Sprout Creek #2	Town of Union Vale	February 1987
	Town of Washington	February 1987
Stony Creek	Town of Red Hook	March 1983
	Village of Tivoli	February 1983
Swamp River Reach 1	Town of Dover	December 1982
Swamp River Reach 2	Town of Pawling	March 1983
	Village of Pawling	March 1983
Sweezy Creek	Town of Union Vale	February 1987
Sylvan Lake Outlet	Town of Beekman	February 1983
	Town of East Fishkill	December 1982
Tenmile River	Town of Amenia	July 2008
	Town of Beekman	July 2008
Tributary 1 to Fishkill Creek	Town of Fishkill	October 1982
	Village of Fishkill	October 1982
Tributary 2 to Fishkill Creek	Town of Beekman	February 1983
Tributary to Amenia Stream	Town of Amenia	November 1987
Tributary to East Branch Croton River	Town of Pawling	March 1983
Walsh Creek	Town of Union Vale	February 1983
Wappinger Creek Reach 1	Town of Clinton	December 1982
	Town of LaGrange	March 1997
	Town of Pleasant Valley	October 1997
	Town of Poughkeepsie	March 1997
	Town of Wappinger	March 1997
	Village of Wappinger Falls	March 1997
Wappinger Creek Reach 2	Town of Stanford	December 1989
	Town of Pine Plains	December 1989
Wassaic Creek	Town of Northeast	February 1983
Webatuck Creek Reach 1	Town of Amenia	November 1987
Webatuck Creek Reach 2	Town of Amenia	November 1987
	Village of Millerton	February 1983
	Town of Northeast	February 1983
Webatuck Creek Reach 2	Village of Millerton	February 1983
	Town of Northeast	February 1983
Wells Brook	Town of Dover	December 1982
Whortlekill Creek Reach 1	Town of East Fishkill	December 1982
Whortlekill Creek Reach 2	Town of LaGrange	September 1977
Willow Brook	Town of Stanford	December 1989

As part of the countywide FIS dated September 29, 2011, updated analysis were included for the flooding sources in Table 4, "Scope of Revision."

TABLE 4 - SCOPE OF REVISION

Stream	Limits of Revised or New Detailed Study
Fishkill Creek	From confluence with Hudson River to approximately 2,945 feet upstream of Clubhouse Lane
Maritje Kill	From confluence with Hudson River to approximately 4,255 feet upstream of Crum Elbow Road
Tenmile River	From county boundary to approximately 5,453 feet upstream of Mill Street

Table 5, "Stream Name Changes," lists streams that have names in this countywide FIS dated September 29, 2011 other than those used in previously printed FISs for the communities in which they are located.

TABLE 5 – STREAM NAME CHANGES

Community	Old Name	New Name
Town of Wappinger Village of Wappinger	Branch 1 Wappinger Creek	Branch 1 Wappinger Creek Reach 1
Town of Wappinger	Branch 2 Wappinger Creek	Branch 2 Wappinger Creek Reach 1
Town of Wappinger	Branch 2A Wappinger Creek	Branch 2A Wappinger Creek Reach 1
Town of Wappinger	Branch 2B Wappinger Creek	Branch 2B Wappinger Creek Reach 1
Town of LaGrange	Branch 3 Sprout Creek	Branch 1 Sprout Creek #1
Town of LaGrange	Branch 4 Sprout Creek	Branch 2 Sprout Creek #1
Town of Poughkeepsie	Branch 3 Wappinger Creek	Branch 3 Wappinger Creek Reach 1
Town of Poughkeepsie	Branch 4 Wappinger Creek	Branch 4 Wappinger Creek Reach 1
Town of LaGrange	Branch 3 Wappinger Creek	Branch 5 Wappinger Creek Reach 1

TABLE 5 – STREAM NAME CHANGES-continued

Community	Old Name	New Name
Town of LaGrange	Branch 3 Wappinger Creek	Branch 5 Wappinger Creek Reach 1
Town of Poughkeepsie	Branch 5 Wappinger Creek	Branch 6 Wappinger Creek Reach 1
Town of LaGrange	Branch 4 Wappinger Creek	Branch 7 Wappinger Creek Reach 1
Town of Poughkeepsie	Branch 6 Wappinger Creek	Branch 8 Wappinger Creek Reach 1
Town of Pleasant Valley	Branch 2 Wappinger Creek	Branch 9 Wappinger Creek Reach 1
Town of Pleasant Valley	Branch 3 Wappinger Creek	Branch 10 Wappinger Creek Reach 1
Town of Pleasant Valley	Branch 4 Wappinger Creek	Branch 11 Wappinger Creek Reach 1
Town of Clinton	East Branch Wappinger Creek	East Branch Wappinger Creek Reach 1
Town of LaGrange	Jackson Creek	Jackson Creek Reach 1
Town of Union Vale	Jackson Creek	Jackson Creek Reach 2
Town of Clinton Town of Pleasant Valley	Little Wappinger Creek	Little Wappinger Creek Reach 1
Town of East Fishkill Town of LaGrange	Sprout Creek	Sprout Creek #1
Town of Union Vale	Sprout Creek	Sprout Creek #2
Town of Dover	Swamp River	Swamp River Reach 1
Town of Dover Town of Pawling	Swamp River	Swamp River Reach 2
Town of Fishkill	Tributary to Fishkill Creek	Tributary 1 to Fishkill Creek
Town of Beekman	Tributary to Fishkill Creek	Tributary 2 to Fishkill Creek

TABLE 5 – STREAM NAME CHANGES-continued

Community	Old Name	New Name
Town of Clinton Town of LaGrange Town of Pleasant Valley Town of Poughkeepsie Town of Wappinger Village of Wappinger	Wappinger Creek	Wappinger Creek Reach 1
Town of Stanford	Wappinger Creek	Wappinger Creek Reach 2
Town of Amenia	Webatuck Creek	Webatuck Creek Reach 1
Town of Amenia Town of Northeast Village of Millerton	Webatuck Creek	Webatuck Creek Reach 2
Town of Northeast	Webatuck Creek	Webatuck Creek Reach 3
Town of East Fishkill	Whortle Kill Creek	Whortle Kill Creek Reach 1
Town of LaGrange	Whortle Kill Creek	Whortle Kill Creek Reach 2

All or portions of numerous flooding sources in the county were studied by approximate methods. Approximate analyses were used to study those areas having a low development potential or minimal flood hazards, or where resources were unavailable to conduct more refined and detailed analyses. For this revision, dated September 29, 2011 all areas of approximate flood hazard analyses were updated using the topography provided by Dutchess County and the flood frequency estimation techniques developed by the U.S. Geological Survey (USGS).

This FIS incorporates the determinations of the following LOMRs issued by FEMA. Case 03-02-029P on January 1, 2004, for Swamp River-River Valley Estates, and Case 07-02-0707P on October 15, 2007 for Furnia Site-NYS Route 22 both in the Town of Dover.

2.2 Community Description

Dutchess County is located in the southeastern portion of the State of New York. It is bordered on the north by Columbia County; on the east by Litchfield County, Connecticut; on the south by Putnam County; and to the west by Ulster and Orange Counties.

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The climate of the area is characterized as humid continental. Summer and winter temperatures range from 74.7 degrees Fahrenheit (°F) to 26.2°F, respectively. The average annual precipitation is 38 inches, with a recorded annual snowfall of 42.2 inches. The precipitation is fairly evenly distributed throughout the year (U.S. Department of Commerce, 1972)

According to the 2000 U.S. Census Bureau, the population for Dutchess County was 280,150 and the land area was 801.6 square miles.

For ease of use, information on various flooding sources in Dutchess County was organized based on its 11-digit Hydrologic Unit Code (HUC). The USGS has developed the 8-digit HUC system as a hierarchial classification system of hydrologic drainage basins in the United States. NYS DEC, in conjunction with the USGS, and the Natural Resources Conservation Service (NRCS) of the United States Department of Agriculture, developed 11- digit HUCs for classification at the subwatershed level.
The HUC hierarchy corresponds to codes with 2, 4, 6, 8 and 11 digits. In decreasing area (increasing number of digits in the HUC) order each is made up by several of the contiguous watersheds of lower hierarchy. The first two digits of the HUC are the code for the Regional Boundary (e.g. 02, for the Mid-Atlantic Region). The next two digits of the HUC are the code for the Subregional boundary (e.g. 0202, Upper Hudson). The next two digits are the code for the Accounting Unit (e.g. 020200, the Upper Hudson basin). The next two digits of the HUC are the Cataloging Unit (e.g. 02020004, Mohawk). The last three digits of the HUC are the code for the NRCS Watershed Boundary (e.g. 02020004390, Stony Clove).

HUC 2020008060 Wappingers Creek to Castle Point is located in the center of Dutchess County. In the town of Clinton, Wappinger Creek meanders through a flat, wide floodplain for approximately 2 miles as it flows through the southeastern portion of the community. Wappinger Creek and its tributaries drain approximately one quarter of Dutchess County, forming the Wappinger Creek drainage basin with a watershed area of approximately 210 square miles.

East Branch Wappinger Creek enters Pleasant Valley from the Town of Washington, crossing the eastern town line north of the hamlet of Washington Hollow, flowing northward. East Branch Wappinger Creek then flows north through the Town of Clinton to its confluence with Wappinger Creek near Hibernia. The drainage area of East Branch Wappinger Creek is approximately 33 square miles, with a length of 11 miles and an average width of 3 miles. The floodplain of East Branch Wappinger Creek is undeveloped, but has encroaching residential developments.

Little Wappinger Creek originates in the Town of Milan. It flows south through Clinton and continues southeasterly into Pleasant Valley, crossing Salt Point Turnpike before joining the main channel of Wappinger Creek Reach 1. The creek has a drainage area of 32 square miles at its confluence with Wappinger Creek at

Salt Point. The stream has an average gradient of 16 feet per mile and meanders through relatively flat terrain with wide floodplains (Dutchess County Department of Planning, 1978; Hazen and Sawyer, 1980).

Great Spring Creek is a tributary to Wappinger Creek Reach 1 originating in Clinton and crossing into the Town of Pleasant Valley in the area northeast of Ward and Marshall Roads.

Branch 1 Great Spring Creek originates in the area west of Smith Road in Pleasant Valley and flows southward into a lake.

HUC 1100005480 Ten Mile River is situated in the western portion of Dutchess County. The Tenmile River flows through the Town of Dover and is a tributary of the Housatonic River in Connecticut. Its drainage basin ranges from 5 to 8 miles wide over a length of approximately 32 miles. It drains approximately 210 square miles, from Columbia County in the north to the Town of Pawling in the south.

Wells Brook originates in the southern portion of the Town of Washington and flows east to its confluence with the Tenmile River near Dover Plains. Wells Brook has a drainage area of approximately 6 square miles at its confluence.

In the Village of Millerton, Webatuck Creek, which is a tributary of the Tenmile River, flows south through the village. Its watershed drains approximately 81 square miles, with a length of 20 miles and an average width of 4 miles.

Kelsey Brook originates in Connecticut and flows west to its confluence with Webatuck Creek in Millerton. The watershed of Kelsey Brook is approximately 4 square miles at its confluence.

HUC 2020008070 Castle Point to Fishkill is located in the southwestern portion of the county. In the Town of East Fishkill, Fishkill Creek, a tributary of the Hudson River, flows southwest through the town. It has a drainage area of approximately 194 square miles and a total length of 28 miles.

Sprout Creek flows south to its confluence with Fishkill Creek near Lomala. It has a drainage area of 56 square miles at its confluence, with a length of 18 miles.

Whortlekill Creek also flows south to its confluence with Fishkill Creek. It has a drainage area of approximately 8 square miles.

In the Town of Union Vale, Clove Brook flows in a southern direction for a distance approximately 4.0 miles to its confluence with Pray Pond. Clove Brook has an average slope of 140 feet per mile and a drainage area of approximately 6.7 square miles.

Clove Mountain Creek flows in a western direction for a distance of approximately 1.8 miles to its confluence with Pray Pond. Clove Mountain Creek

has an average slope of 190 feet per mile and a drainage area of approximately 2.1 square miles.

HUC 2030101080 Upper Croton River includes the East Branch Croton River, which flows south through the southern portion of the Town of Pawling. Its watershed drains approximately 1.5 square miles at the corporate limits with the Village of Pawling and increases to 16.5 square miles where it crosses the Dutchess Creek/Putnam County boundary. Tributary to East Branch Croton River originates in the Pawling Mountains in the western portion of the Town of Pawling. It flows southeast to its confluence in the Town of Patterson, Putnam County, NY. The watershed of the tributary drains approximately 35 squares miles at the Dutchess County/Putnam County boundary.

HUC 2020006200 Jansen Kill to Rhinecliff contains the Town of Red Hook, the Village of Red Hook, and the Village of Tivoli.

Landsman Kill flows southwest through the Town of Rhinebeck from its origin in the Town of Milan to its confluence with the Hudson River at Vanderburgh Cove. Its drainage area encompasses approximately 23 square miles with a length of 9 miles and average width of 2.5 miles.

Stony Creek, which flows south through the Village of Tivoli, and has a drainage area of approximately 22 square miles. The eastern half of Tivoli is in the Stony Creek drainage basin, while the western half drains directly into the Hudson River (Hazen and Sawyer, 1980).

HUC 2020008010 Rhinecliff to Wappingers Creek includes the Towns of Rhinebeck, Hyde Park and Poughkeepsie, the Village of Rhinebeck, and the City of Poughkeepsie.

In the Town of Hyde Park, Fall Kill is a tributary of the Hudson River which flows south through the town. Fall Kill has a drainage area of 13.2 square miles at Creek Street and a length of approximately 6.5 miles.

Rhinebeck Kill, a tributary of Landsman Kill, flows south from its origin in the Town of Red Hook to its confluence in the vicinity of Mill Road in the Town of Rhinebeck. Its watershed covers approximately 9 square miles, with a length of 6 miles and average width of 1.5 miles.

Crum Elbow Creek, which flows along the western border of the Town of Clinton, has a drainage area of approximately 19 square miles with a watershed which is approximately 1.5 miles wide and 12 miles long.

Maritje Kill is a tributary of the Hudson River which originates in central Hyde Park and flows southwest through the town to its confluence with the Hudson River.

2.3 Principal Flood Problems

In the Fishkill Creek basin, the flood of record occurred in April 2007. A storm that developed in Texas moved eastward, off the coast of Virginia, before turning northward. The storm reached the New York City area on April 15th and produced discharges on Fishkill Creek that surpassed the previous peak of October 2005. USGS New York estimated the peak discharge at gage 01372800, Fishkill Creek at Hopewell Junction, NY to be 3,910 cubic feet per second (cfs). The previous peak from the October 2005 event was 2,830 cfs. Other major events in the basin include September 1938, August 1955, and October 1955. In addition to coastal storms, rain events on melting snow, can also contribute to heavy runoff volumes.

In the Tenmile River basin, the three greatest floods occurred in September 1938, August 1955, and October 1955. The highest discharge recorded on the Tenmile River at USGS gage 01200000 (Gaylordsville, Connecticut) was 17,400 cfs. This peak discharge was a result of Hurricane Diane (FEMA, 1988). Other major floods include the ones that occurred in 1984 and April 2007, with discharges recorded at 10,400 cfs and 9,650 cfs, respectively.

In the City of Beacon, there have been a number of major storms resulting in high river stages along the Hudson River, including those of February 1875, October 1903, March 1913, November 1950, October 1955, and September 1960 (W. G. Hoyt, 1955; USACE, 1975).

In the Town of Beekman, seasonal residential homes have been subject to flooding from Sylvan Lake Outlet. The most highly flood-prone areas along Frog Hollow Brook extend from the Hamlet of Greenhaven to the confluence with Fishkill Creek. Along Whaley Lake Stream, the downstream areas between its confluence and the Hamlet of Poughquag are subject to inundation (Hazen and Sawyer, 1980).

In the Town of Clinton, the Wappinger Creek basin has been subject to significant flooding in the past. In much of New York State, major floods are usually caused by spring rain in combination with snowmelt. In Dutchess County, floods are usually the result of severe coastal storms and hurricanes. During the past 50 years, the three most severe floods occurred in September 1938, August 1955, and April 2007.

After a 3-day deluge which dropped nearly eight inches of rain in May 1984 Dutchess County was declared a disaster area by Governor Mario Cuomo (Poughkeepsie Journal, 1984). More recently, a Federal Disaster declaration was made in April 2007 after a severe flooding event.

In the Town of East Fishkill, areas adjacent to Sprout Creek, Whortlekill Creek, and Sylvan Lake Outlet are also subject to inundation. This includes residential areas near Sprout Creek in Lomala. Industrial and residential developments near the low-lying floodplain of Whortlekill Creek in the vicinity of Hopewell Junction can be inundated. Areas which are currently being developed along Sylvan Lake Outlet are also subject to flooding.

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In the Village of Millerton, highly flood-prone areas exist along Webatuck Creek throughout its entire length. The steep overbanks of Webatuck Creek produce very rapid runoff and place a heavy burden on low-lying channel areas.

In the Town of Pawling, near the corporate limits with the Town of Dover, a number of industrial and commercial establishments have suffered flood damage from rising waters of the Swamp River.
In the Village of Pawling, both the East Branch Croton River and the Swamp River have wide and relatively poorly drained floodplains. These flat areas, which are subject to frequent inundation, contain primarily residential developments that have suffered flood damage in the past after heavy rainfalls.

In the Town of Pleasant Valley, peak flows have been recorded for Wappinger Creek since 1934, with the highest volume of flow occurring in August 1955. There have been complaints that local silt deposits in Wappinger Creek have created additional flooding hazards for adjoining properties. This condition is alleged to exist north of the U.S. Route 44 bridge crossing.

At Wappinger Creek, near Wappinger Falls gage (01372500), the record extends from 1929 to 2007. The 3 highest recorded flows at the gage were August 1955, September 1938 and April 2007. The 1955 flood had a return period of 80 years and a discharge of 18,600 cfs; the 1938 flood had a discharge of approximately 7,810 cfs; and the 2007 flood had a discharge of 7,640 cfs (U.S. Department of the Interior, 2008). These discharge-frequency estimates for Wappinger Creek and Little Wappinger Creek were based on records kept by the USGS at the gaging stations shown in Table 6, "Stream Gages."

TABLE 6 – STREAM GAGES

STREAM GAGE AND LOCATION	DRAINAGE AREA (sq. miles)	PERIOD OF RECORD
WAPPINGER CREEK		
Near Wappinger Falls, in Town of LaGrange, approximately 700 feet downstream of Red Oak Mill Dam and approximately 4.5 miles northeast of the Village of Wappingers Falls	181.0	1929-2008
Near Clinton Corners, in Town of Clinton, approximately 1,900 feet downstream of confluence of East Wappinger Creek and approximately 1 mile south of Clinton	92.4	1956-1990
LITTLE WAPPINGER CREEK		
In Town of Pleasant Valley, on the right bank at Salt Point, and approximately 0.6 mile upstream of confluence with Wappinger Creek	32.9	1956-1990

At the southeastern corner of the Town of Rhinebeck, Crum Elbow Creek flows through a low-lying area that has been flooded in the past. Residential development in this area along State Route 9G is most susceptible to flooding.

The principal flooding areas along Landsman Kill are located in low-lying areas adjacent to the Village of Rhinebeck. To the west of the village is a low swampy area that is frequently inundated and remains undeveloped. East of the village along State Route 308, development is subject to inundation from Landsman Kill.

Flooding from Rhinebeck Kill occurs along U.S. Route 9 in the northern portion of the Town of Rhinebeck near Weys Corners. Residential development along Old Post Road is also subject to inundation.

Stony Creek was identified by community representatives of the Village of Tivoli as having caused flood damage. Stony Creek creates a highly flood-prone area as it passes through the village.

Flooding can occur in the Town of Union Vale during all seasons, but generally the most notable floods have occurred between the months of February and April when snowmelt adds to heavy spring rains to produce increased runoff. Summer and fall floods also occur due to hurricane activity.

2.4 Flood Protection Measures

Sylvan Lake is located along the western corporate limits of the Town of Beekman. The dam at the lake does not afford any flood protection to the town.

In the Town of East Fishkill, Fishkill Creek, Sprout Creek, and Whortlekill Creek each have two dams located in East Fishkill.

There are two dams on Fishkill Creek within the Town of Fishkill and numerous dams located along the creek within the City of Beacon; however, these dams are not used as flood control structures.

Wappinger Creek is dammed at 3 locations between its confluence with the Hudson River and the upstream corporate limits of the Town of Poughkeepsie. Wappinger Falls Dam is the extreme downstream dam. Little Falls Dam is approximately 0.7 mile upstream of U.S. Route 9, and Red Oaks Mill Dam is just upstream of State Route 376.

The US Army Corps of Engineers, New York District, in 1961 and again in 1968 (USACE, 1961; USACE, 1968) studied the feasibility of constructing a large impounding structure across Wappinger Creek at a point north of the hamlet of Pleasant Valley which would have provided sufficient storage to achieve lower river stages in Wappinger Creek below the proposed dam site during times of severe floods. This scheme met with strong local opposition from officials and residents in Pleasant Valley since it would require inundation of a substantial part of Pleasant Valley. As a consequence, this proposal was shelved.

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The Town of LaGrange, during this same 60s period,asked the USACE for local protection works along Wappinger Creek consisting of channel clearing, dredging, and straightening. Specifically, two local protection works within the town were considered by the USACE:

Overlook Road: The USACE considered that a local protection project consisting of levees would only substantially benefit the drive-in theatre at this location and felt that it would not be in the public interest to expend public funds for this purpose.
A protective dike in the general area was approved in 1974 by Dutchess County as a result of more frequently reported flooding at Milano Drive, allegedly caused by the building of the County bridge at DeGarmo Road.
Red Oaks Mill-Romca Road: The USACE considered a 1,500-foot wall and dike at this location but found that the costs of this project could not be justified by benefits accrued from the prevention of flood damages of a magnitude such as those that occurred in 1955.

In the Village of Wappingers Falls, the lake created by Wappinger Dam has no substantial impounding capacity, and is not effective in reducing large flood volume inflows. In 1976, the village passed a resolution which adopted the FIS requirements for floodplain management and designated as flood zones the special flood hazard areas delineated under the emergency program.

In the City of Poughkeepsie, the bank of the Hudson River has a non-continuous line of bulkheads that do not provide significant protection against flooding.

The Town of Wappinger initiated a drainage study designed to identify culvert locations which have inadequate drainage capacity. Streams included in this study include parts of Branches 1, 2, 2A, and 2B Wappinger Creek Reach 1. The report makes recommendations for either enlarging inadequate structures or alternately providing sufficient upstream detention pond storage to upgrade the conveyance capacity of the structure to the 4-percent annual chance (25-year) storm level (Rudolph Laper, 1975).

The National Oceanic and Atmospheric Administration (NOAA) maintains year-round surveillance of weather conditions at the Poughkeepsie Airport. Constant surveillance of stream flow gages at Red Oaks Mill and Clinton Corners has provided additional flood warning information. Flood warnings are transmitted by the National Warning System to civil defense facilities located in the sheriff's office and the emergency operating center. This information is then relayed from Civil Defense headquarters to responsible agencies as outlined in the County Natural Disaster Plan. Additional warning is provided by the Mid-Hudson Area Flood Group.

In the Town of Dover, along Tenmile River (right descending bank) there is a floodwall in the Powell Mobile Home Park area constructed by C.T. Male Associates that does not provide protection against flooding.

Non-structural measures of flood protection are being utilized to aid in the prevention of future flood damage. These measures are in the form of land-use regulations which control building within areas that have a high risk of flooding.

3.0 ENGINEERING METHODS

For the flooding sources studied in detail in the county, standard hydrologic and hydraulic study methods were used to determine the flood hazard data required for this FIS. Flood events of a magnitude which are expected to be equaled or exceeded once on the average during any 10-, 50-, 100-, or 500-year period (recurrence interval) have been selected as having special significance for floodplain management and for flood insurance rates. These events, commonly termed the 10-, 50-, 100-, and 500-year floods, have a 10-, 2-, 1-, and 0.2-percent chance, respectively, of being equaled or exceeded during any year. Although the recurrence interval represents the long term average period between floods of a specific magnitude, rare floods could occur at short intervals or even within the same year. The risk of experiencing a rare flood increases when periods greater than 1 year are considered. For example, the risk of having a flood which equals or exceeds the 100-year flood (1-percent chance of annual exceedence) in any 50-year period is approximately 40 percent (4 in 10), and, for any 90-year period, the risk increases to approximately 60 percent (6 in 10). The analyses reported herein reflect flooding potentials based on conditions existing in the county at the time of completion of this FIS. Maps and flood elevations will be amended periodically to reflect future changes.

3.1 Hydrologic Analyses

Hydrologic analyses were carried out to establish peak discharge-frequency relationships for each riverine flooding source studied by detailed methods affecting the county.

For each community within Dutchess County that had a previously printed FIS report, the unrevised hydrologic analyses described in those reports have been compiled and are summarized below.

Precountywide Analyses

On ungaged streams having tributary drainage areas between 20 and 1,750 square miles, an analysis was made using the methodology outlined in "Regional Frequency Study, Upper Delaware and Hudson River Basins, New York District" published by the Hydrologic Engineering Center, USACE (USACE, 1974). Log-Pearson Type III frequency analyses were made on the basis of regional data developed for mean annual flows, standard deviations and skews, all of which have been mapped for the study region. According to FIA practice, adjustment for expected probability was not made.
The equations derived from this study are:

$$\log Q_m = C_m - 0.05 \log A$$

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$$S = C_s - 0.05 \log A$$

$$\log [Q(p)] = \log Q_m + K(p,g)S$$

Where Q_m = geometric mean of annual flood peaks

C_m = a map coefficient for mean log of annual peaks

A = area in square miles

S = standard deviation of the logs of annual flood peaks

C_s = a map coefficient for standard deviation of logs of annual peaks (S)

log [Q (p)] = log of the discharges for a given exceedence frequency (p)

K (p,g) = log of standard deviation for a given exceedence frequency (p) and skew coefficient (g)

g = skew coefficient for annual flood peaks

When the drainage area tributary to a point of interest is relatively small, between one and three square miles, a detailed investigation of stream flows from the drainage area was made according to the methodology given by SCS-TP-149, U.S. Soil Conservation Service (SCS) in their publication, "A Method for Estimation Volume and Rate Runoff in Small Watersheds" (Soil Conservation Service, 1973).

Input parameters included the following:

a. Soil type distribution within the drainage area obtained from county soil maps (Soil Conservation Service, 1955).

b. Existing land use patterns obtained from Dutchess County land use and generalized zoning maps.

c. County and local road and street maps.

d. Twenty-four hour rainfall obtained from U.S. Weather Bureau Technical Paper 40 (U.S. Weather Bureau, Rainfall Frequency Areas of the United States).

e. Average watershed land slope obtained from analysis of USGS topographic quadrangle sheets.

For ungaged streams with drainage areas falling in the range of 3 to 20 square miles, the flood discharges for varying return periods were obtained on a regional

basis for the drainage area covering Wappinger, Wappingers Falls, Poughkeepsie, LaGrange, and Pleasant Valley, New York. This became a regional analysis for the southwestern portion of Dutchess County. First, a regression analysis was made to determine the appropriate discharge-area relationship using input data from all small drainage areas studied within the five communities by the method outlined above. Next, the discharge-frequency relationships for large drainage areas (up to 1,000 square miles) were established on a regional basis by selecting a single representative value for the parameters of mean annual flow, standard deviation, and skew for Dutchess County. The values used were mean log coefficient, C_m = 1.45; standard deviation coefficient, C_s = 0.34; skew coefficient, g = 0.6. Finally, the interpolated discharge-frequency curves for the drainage areas between 3 and 20 square miles were smoothly fitted between the previously determined curves for large and small drainage areas.

Neither of these statistical computational methods are applicable to basins smaller than one square mile because of the lack of gage data available to incorporate into the regression analyses. The Rational Method of analysis was therefore used to compute peak discharges for upstream portions of streams with drainage basins smaller than one square mile.

HUC 2020006200 Jansen Kill to Rhinecliff

The calculated peak discharge as calculated by the regression equation for the USGS gaging station (No. 01372200) at Clinton Corners was used to adjust the peak discharge calculated by the regression equation at the ungaged site in accordance with the equation:

$$Qw = Qs[(Kg-1)(2As-Ag)/Ag + 1]$$

where Qw is the weighted discharge at the ungaged site, Qs is the discharge calculated by the regression equation for the ungaged site, As and Ag are the drainage areas at the site and the gage respectively, whereas Kg is the ratio of the weighted peak discharge to the peak discharge calculated by the regression equation at the gage.

For Stony Creek, the values of K were calculated to be 266, 458, 569, and 793, and the values of x were 0.61, 0.62, 0.63, and 0.69 for the 10-, 2-, 1-, and 0.2-percent annual chance flood discharges, respectively.

For Saw Kill, the values of K were determined to be 293, 464, 598, and 864, whereas values for x were found to be 0.58, 0.61, 0.61, and 0.66 for the 10-, 2-, 1-, and 0.2-percent annual chance flood discharges, respectively.

HUC 1100005480 TenMile River:
In the Town of Amenia, the hydrologic analyses for Wassaic Creek, Amenia Stream, and Tributary to Amenia Stream followed a procedure presented in Water Resources Investigations 79-93, Techniques for Estimating the Magnitude and Frequency of Floods on Rural Unregulated Streams in New York State Excluding

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Long Island (U.S. Department of the Interior, 1979). This procedure relates drainage area and storage percent to a series of regression equations for the southeastern region. Discharges were computed for specific recurrence intervals by substituting the applicable values into the corresponding regression equations.

Discharges for Webatuck Creek Reach 1 were determined from the two separate log-Pearson Type III distributions for gaged streams published in the FISs for the Towns of Dover and Northeast (FEMA, August 1984; FEMA, September 1984). The discharges were transferred from the Amenia-Dover corporate limits to USGS stream gage No. 1199400, located on Webatuck Creek, applying the data from the Dover study to the transfer equation. Peak discharges at locations upstream of the gage were determined by using the transfer coefficients from the FIS for the Town of Northeast (FEMA, September 1984).

The above analyses conform with the techniques described in the USGS Bulletin 17B and Water Resources Investigations 79-83 (U.S. Department of the Interior, 1979; U.S. Department of the Interior, 1981).

The peak discharges were determined by the following transfer equation:

$$Q_2/Q_1 = (DA_2/DA_1)^x$$

where Q_1 is the peak discharge at a known location, DA_1 is the drainage area at a known location, Q_2 is the peak discharge at desired location, DA_2 is the drainage area at desired location, and x is the transfer coefficient.

The recurrence intervals and corresponding transfer coefficients used in the transfer equation are presented in the following tabulation:

Information Source	Recurrence Interval (years)	Transfer Coefficient
Flood Insurance Study for the Town of Dover	10	1.03
	50	1.25
	100	1.29
	500	1.48

Information Source	Recurrence Interval (years)	Transfer Coefficient
Flood Insurance Study for the Town of Northeast	10	0.67
	50	0.67
	100	0.67
	500	0.67

For Webatuck Creek Reach 2, the gage (No. 01199400, 14 years of record, at the time of the analysis) is located near South Amenia, New York, and has a drainage area of 81 square miles, and the transfer coefficient, "x" was calculated to be 0.67 for the 10-, 2-, 1-, and 0.2-percent annual chance floods.

HUC 2030101080 Upper Croton River:

For the East Branch Croton River, the values of K were determined to be 305, 534, 665, and 982, and the values for x were found to be 0.40, 0.39, 0.39, and 0.43 for the 10-, 2-, 1-, and 0.2-percent annual chance floods, respectively. For Tributary to East Branch Croton River, the values of K were determined to be 304, 529, 656, and 969, and the values of x were found to be 0.37, 0.35, 0.35, and 0.38. The values of K for the Swamp River were 290, 513, 624, and 911, and 0.41, 0.40, 0.41, and 0.44 for x. For Whaley Lake Stream, the values of K were 275, 462, 567, and 811, and the values of x were 0.44, 0.45, 0.46, and 0.50.

HUC 202000810 Rhinecliff to Wappingers Creek:

Discharges for Crum Elbow Creek were determined using a log-Pearson Type III analysis of data from a discontinued USGS gage (Water Resources Council, 1977). This gage (No. 01372040) is located at Hyde Park, New York. The transfer coefficients were determined to be 0.73, 0.74, 0.74, 0.77, and 0.76 for the 10-, 2-, 1-, and 0.2-percent annual chance recurrence interval floods.

Peak discharges at other locations were determined by the following transfer equation:

$$Q_2/Q_1 = (DA_2/DA_1)^x$$

where Q_1 and DA_1 are the discharge and drainage area at a gaged location; Q_2 and DA_2 are the discharge and drainage area at an ungaged location; and "x" is the transfer coefficient which was calculated to be 0.82, 0.89, 0.91, and 0.96 for the 10-, 2-, 1-, and 0.2-percent annual chance floods.

For Fall Kill, the values of K were determined to be 179, 283, 372, and 534, whereas for x they were found to be 0.060, 0.63, 0.61, and 0.65 for the 10-, 2-, 1-, and 0.2-percent annual chance flood discharges, respectively.

Casper Kill Creek, log-Pearson Type III analyses of two discontinued USGS gaging stations were used to determine peak discharges for the selected recurrence intervals. One of the USGS gages (No. 01372800) is located near Hopewell Junction, New York, and has a drainage area of 57.3 square miles; the other (No. 01373500) is located at Beacon, with a drainage area of 190 square miles.

For Landsman Kill, the values of K were determined to be 259, 415, 491, and 682, and the values for x were found to be 0.47, 0.49, 0.51, and 0.57 for the 10-, 2-, 1-, and 0.2-percent annual chance floods, respectively. For Rhinebeck Kill, the values of K were determined to be 319, 552, 687, and 1,013, and the values of x were

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found to be 0.36, 0.34, 0.35, and 0.37 for the 10-, 2-, 1-, and 0.2-percent annual chance floods, respectively.

HUC 2020008060 Wappingers Creek to Castle Point:

For the Town of LaGrange, on gaged streams that were studied for the 1979 FIS, the flood flow frequency at that particular gaging station was determined by a log-Pearson Type III analysis without correcting for expected probability. Adjustments for inadequate number of years of record, regional skew, historical records, high and low outliers, as applicable, were made according to procedures outlined in the Water Resources Council Bulletin No. 17 (Water Resources Council, 1976).

East Branch Wappinger Creek - data from a discontinued USGS gage (No. 01372100, drainage area 33.6 square miles) located at Clinton Corners, New York was used (Water Resources Council, 1977). For Little Wappinger Creek, information was used from discontinued USGS gage No. 01372300 located at Salt Point, New York. The transfer coefficient used for Little Wappinger Creek was 0.79 for floods of each of the recurrence intervals. For Wappinger Creek, data from USGS gage No. 01372200 at Clinton Corners, with a drainage area of 92.4 square miles was used. Peak discharges determined at this gaging station were used for the portion of Wappinger Creek within Clinton due to the close proximity of the gaging station. The values of K for Wells Brook were determined to be 294, 539, 650, and 935, and the values for x were found to be 0.40, 0.35, 0.37, and 0.41 for the 10-, 2-, 1-, and 0.2-percent annual chance floods, respectively. The values of K for Kelsey Brook were determined to be 317, 564, 692, and 1,009, and the values for x were found to be 0.31, 0.29, 0.29, and 0.32 for the 10-, 2-, 1-, and 0.2-percent annual chance floods, respectively. The analyses followed procedures outlined by the Water Resources Council and were published by the USGS (Water Resources Council, 1977; U.S. Department of the Interior, 1979).

Wappinger Creek Reach 1 – Discharge-frequency estimates developed for the Town of Pleasant Valley FIS were based on gage records recorded by the USGS at the following gaging stations:

Stream Gage	Location	Drainage Area (Square Miles)	Period of Record
Wappinger Creek Reach 1 near Wappingers Falls, NY	In Town of LaGrange, on left bank, 700 feet downstream of the Red Oak Mill dam and 4.5 miles northeast of The Village of Wappingers Falls, NY	181	1929-1979

Stream Gage	Location	Drainage Area (Square Miles)	Period of Record
Wappinger Creek Reach 1 near Clinton Corners, NY	In Town of Clinton, on left bank, 1,900 feet downstream of confluence of East Wappinger Creek and 1 mile south of Clinton, NY	92.4	1956-1979
Little Wappinger Creek Reach 1 at Salt Point, NY	In Town of Pleasant Valley on right bank at Salt Point, NY, and 0.6 mile from confluence with Wappinger Creek	32.9	1956-1979

While additional gage record is available at all these gages, the discharges compiled from the effective FIS and used for the hydraulic analyses reflect the period presented above.

Branch 1 Wappinger Creek Reach 1 - discharge-frequency estimates for this stream were made at its confluence with Wappinger Creek, based on the method developed for intermediate sized stream drainage areas in Dutchess County. Discharge-frequency estimates were also made at the confluence with a subbranch located adjacent to Old Hopewell Road according to the method described for small drainage areas.

Branch 2 Wappinger Creek Reach 1 - discharge-frequency estimates for were made at its confluence with Wappinger Creek and at a point upstream of the confluence of Branch 2B Wappinger Creek Reach 1 based on the method developed for intermediate sized stream drainage areas in Dutchess County. Discharge-frequency estimates were also made at a point upstream of the confluence of Branch 2A Wappinger Creek Reach 1 according to the method developed for small drainage areas.

Branch 2A Wappinger Creek Reach 1 - discharge-frequency estimates were made at its confluence with Branch 2 using the method developed for small drainage areas.

Branch 2B Wappinger Creek Reach 1 - discharge-frequency estimates for were made at its confluence with Branch 2 Wappinger Creek Reach 1 according to the analysis developed for intermediate-sized stream drainage areas in Dutchess County.

Branch 3 Wappinger Creek Reach 1 - flood frequency-discharge values were determined at its confluence with Wappinger Creek according to the method developed for small drainage areas.

Branch 4 Wappinger Creek Reach 1 - flood frequency-discharge values were determined for the August 2, 1990, FIS using a procedure developed by the Federal Highway Administration (U.S. Department of Transportation, 1977). This procedure relates basin characteristics such as drainage area, storage area, and precipitation to a series of regression equations for a given region. Discharges were computed for specific recurrence intervals by substituting the appropriate values into the corresponding regression equations.

Branch 5 Wappinger Creek Reach 1 – discharge-frequency estimates were made at the downstream limit of the detailed study adjacent to the CONRAIL tracks (drainage area = 1.62 sq. mi.) according to the method described for small drainage areas.

Branch 6 Wappinger Creek Reach 1 - flood frequency-discharge values for were made at its confluence with Wappinger Creek according to the method developed for small drainage areas.

Branch 7 Wappinger Creek Reach 1 – discharge-frequency estimates were made at the confluence with Wappinger Creek (drainage area = 3.20 sq. mi.) and also at the confluence with a subranch upstream of Overlook Road (drainage area = 2.08 sq. mi.). At the downstream location, the discharge-frequency estimate was made according to the method described above for intermediate-sized drainage areas. At the second location, the estimates were made according to the method described above for small drainage areas.

Branch 8 Reach 1 Wappinger Creek - flood frequency-discharge values for were determined at its confluence with Wappinger Creek according to the analysis developed for intermediate-sized drainage areas. Because of large swampy areas upstream of the study limit, the original discharge-frequency estimate used in the computer model was not consistent with data obtained from a flooding event that occurred in July 1975. The discharge-frequency estimates were revised by application of data from a regional publication which uses a surface storage index using lake and swamp areas as one of the parameters (U.S. Department of the Interior, 1974).

Branch 9 Wappinger Creek Reach 1 – the discharge-frequency estimates for this branch was made at the confluence with the main channel (Drainage Area = 11.1 sq. mi.) based on the regression analysis developed for intermediate sized ungaged drainage areas in Dutchess County.

Branch 10 Wappinger Creek Reach 1 – the discharge-frequency estimates for this branch were made at its confluence with the main channel (Drainage Area = 1.7 sq. mi.) according to the method described for small ungaged drainage areas.

Branch 11 Wappinger Creek Reach 1 – the discharge-frequency estimates for this branch were made at its confluence with the main channel (Drainage Area = 1.6 sq. mi.) according to the method described for small ungaged drainage areas.

Great Spring Creek – discharge-frequency estimates for this stream were made at the confluence with Wappinger Creek and at the mouth of Branch 1 Great Spring Creek. Great Spring had a USGS gage located on it from 1960 to 1965 at a point near its confluence with Wappinger Creek. The gage was discontinued in December 1965. The maximum discharge readings, however, were always affected by high water in Wappinger Creek and are not considered reliable. No statistical analysis of concurrent gage records between this gage and the nearby gage on Little Wappinger Creek at Salt Point is therefore possible. However, since the two basins are adjacent and have similar characteristics, a comparison was made with the Salt Point gaging station's frequency-discharge estimates using an area relationship to the 0.75 power. The discharge-frequency estimates for this creek were made on this basis for both locations. The maximum recorded discharge of 260 cfs in the 5-year gaging period would have a return period of less than 10 years according to the adopted discharge-frequency relationships.

Branch 1 Great Spring Creek – discharge-frequency estimates were made at the confluence of this stream with the main channel (Drainage Area = 1.8 sq. mi.) according to the method described for small ungaged drainage areas.

Wappinger Creek Reach 1 – the hydrologic analysis for Wappinger Creek Reach 1 was prepared using a drainage area transposition equation. This equation relates gaged site data and drainage areas to compute discharges at other locations.

Little Wappinger Creek Reach 1 – the discharge-frequency estimates were based on the gaging records for the creek at Salt Point (Drainage Area = 32.4 sq. mi.). A log-Pearson Type III analysis was performed using the regional skew obtained from the Regional Frequency Study, Upper Delaware and Hudson River Basins instead of the station skew in conformance with Bulletin No. 17. The flow at the gaging station was transferred to the confluence with Wappinger Creek using an area relationship to the 0.75 power.

East Branch Wappinger Creek Reach 1 – the discharge-frequency estimates were made at the town line with Clinton (Discharge Area = 34 sq. mi.) based on the "Regional Frequency Study" (USACE, 1974). A log-Pearson Type III analysis of the USGS gaging records could not be made due to the limited years of record. The USGS gage on this stream was in operation from 1956 to 1963. The maximum flood of record, 1,340 cfs recorded in 1961, would have a return period of somewhat less than 10 years according to the adopted discharge-frequency relationships.

Wappinger Creek Reach 2 - the peak discharge of the selected recurrence interval was determined using the procedures and regression equations outlined in USGS Water Resources Investigations 79-83 for ungaged sites on gaged streams (U.S. Department of the Interior, 1979; Water Resources Council, 1977). For the southern region of New York, the following equation was used:

$$Q = K(DA)^{x}(S)^{y}(P-20)^{z}$$

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where Q is the stream discharge; DA is the drainage area; S is the main-channel slope; P is the mean annual precipitation; and K, x, y, and z are functions of the frequency. A value of 0.138 was used for K, 1.06 for x, 0.447 for y, and 1.57 for z, for the 1-percent annual chance discharge.

Sprout Creek No. 1 - discharge-frequency estimates for the ungaged Sprout Creek No. 1 were made at the downstream corporate limits and upstream of the confluence with Jackson Creek Reach 1 using the "Regional Frequency Study" (USACE, 1974). The following parameters were used: mean log coefficient, Cm equal to 1.35; a standard deviation coefficient, Cs equal to 0.33; and a skew coefficient, g equal to 0.65.

HUC 202000870 Castle Point to Fishkill:

The resulting values were connected by smooth curves, represented by the following equation:

$$Q = K(DA)^z$$

The values of K for Whortlekill Creek were determined to be 521, 734, 871, and 1,296, and the values of x were found to be 0.25, 0.27, 0.29, and 0.31 for the 10-, 2-, 1-, and 0.2-percent annual chance floods, respectively. For Sylvan Lake Outlet, the values of K were calculated to be 310, 540, 670, and 990, and the values of x were 0.36, 0.34, 0.34, and 0.36.

For Clove Brook, extrapolation resulted in the values of 132, 215, 246, and 359 for K and 0.84, 0.86, 0.87, and 0.88 for x.

For Tributary 1 to Fishkill Creek, the values of K were determined to be 309, 532, 668, and 974, and the values for x were found to be 0.36, 0.35, 0.35, and 0.38 for the 10-, 2-, 1-, and 0.2-percent annual chance floods, respectively.

Tributary 2 to Fishkill Creek, log-Pearson Type III analyses of two discontinued USGS gaging stations were used to determine peak discharges for the selected recurrence intervals. One of the USGS gages (No. 01372800) is located near Hopewell Junction, New York, and has a drainage area of 57.3 square miles; the other (No. 01373500) is located at Beacon, with a drainage area of 186 square miles.

For the Town of LaGrange, on gaged streams that were studied for the 1979 FIS, the flood flow frequency at that particular gaging station was determined by a log-Pearson Type III analysis without correcting for expected probability. Adjustments for inadequate number of years of record, regional skew, historical records, high and low outliers, as applicable, were made according to procedures outlined in the Water Resources Council Bulletin No. 17 (Water Resources Council, 1976). Sprout Creek # 1 – Discharge-frequency estimates for this ungaged stream were based on the "Regional Frequency Study" (USACE, 1974) for ungaged areas

described above. The following parameters were used: mean log coefficient, C_m = 1.35, a standard deviation coefficient, C_s = 0.33, and a skew coefficient, g = 0.65.

Jackson Creek Reach 1 – discharge-frequency estimates for this stream were determined according to the method described above for the intermediate-sized stream drainage areas.

Branch 1 Sprout Creek #1 – discharge-frequency estimates along this stream were made according to the methods described above for intermediate and small-sized drainage areas depending on the drainage area at the point in question.

Branch 2 Sprout Creek #1 – discharge-frequency estimates were made at the confluence with Sprout Creek (drainage area = 3.69 sq. mi.) according to the method described above for intermediate-sized drainage areas.

Whortle Kill Creek Reach 2 – discharge-frequency estimates for this creek were made at the town line with East Fishkill (drainage area = 2.38 sq. mi.) according to the method described above for small drainage areas.

Branch 1A Hudson River - discharge-frequency estimates were made at its confluence with the Hudson River according to the method described above for small drainage areas.

The streams within the Town of Union Vale are small, rural, ungaged basins: Clove Brook, Clove Mountain Creek, Fishkill Creek, Jackson Creek Reach 2, Selly Creek, Sprout Creek, Walsh Creek, and Willow Brook. For the streams studied by detailed methods, two regional analysis methods were used to compute peak discharges. a USGS analysis, Techniques for Estimating Magnitude and Frequency of Floods on Rural Unregulated Streams in New York State, utilized gage data throughout New York State to formulate regression equations for use on ungaged streams (U.S. Department of the Interior, 1979). A USACE analysis, Regional Frequency Study, Upper Delaware and Hudson River Basins, New York District, utilized gage data throughout the upper Delaware and Hudson River basins to formulate regression equations for use on ungaged streams (USACE, 1974). The two methods produced similar peak discharges, and the results were averaged together.

The Hudson River is tidal in nature in the study area; therefore, discharge-frequency relationships are not meaningful for determining flood stages. Instead, a stage-frequency relationship was established based on information available from the USACE (USACE, 1975). An analysis of stage-frequency relationships at Albany, Catskill, and Spuyten Duyvil indicated that the simplest method of straight-lining would not represent true conditions at intermediate locations. The rising and falling of mean tides have been found to correlate with the width of the river. Hence, the expectation of a similar effect on high river stages led to the establishment of maximum and minimum slopes of water-surface profiles between Spuyten Duyvil and Catskill (U.S. Department of Housing and Urban

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Development, 1978). Stage-frequency relationships for the Hudson River at Beacon were then extracted from these water-surface profiles.

Countywide Analyses

Techniques provided in *Magnitude and Frequency of Floods in New York,* USGS SIR 2006-5112 (USGS 2006) formed the basis of the revised hydrologic analyses conducted for this countywide study. Details on techniques used for each of the 3 revised streams are presented below.

HUC 1100005480 Tenmile River:

The 10%, 2%, 1%, and 0.2% annual chance peak discharges were developed for the Tenmile River at twelve locations along the studied reach. Log-Pearson Type III statistical analysis was conducted for the lone gage location and the resulting discharges were weighted with the ones that were computed using New York State regression equations as presented in SIR 2006-5112 (USGS 2006).

At ungaged locations, discharges were computed based on the regression equations and if the gage had drainage area within the 50% to 150% of that of a gage, the regression discharges were weighted with log-Pearson Type III discharges. The log-Pearson Type III method consists of fitting the logarithms of annual peak flows to a log-Pearson Type III distribution. The equation provided below forms the basis for the log-Pearson Type III analysis.

$\text{Log } Q = X + KS$

Where, X is the mean of logarithms of annual peak flows, S is standard deviation of logarithms of annual peak flows and K is a factor that is a function of the skew coefficient.

Following are the equations used for computing the regression estimate:

$Q\ 10 = 3.4\ (A)^{0.810}\ (ST+0.5)^{-0.218}\ (RUNF)^{0.600}\ (EL12+1)^{0.133}\ (SR)^{0.268}$

$Q\ 50 = 39.0\ (A)^{0.819}\ (ST+0.5)^{-0.188}\ (RUNF)^{0.528}\ (EL12+1)^{0.157}\ (SR)^{0.305}$

$Q\ 100 = 46.0\ (A)^{0.823}\ (ST+0.5)^{-0.177}\ (RUNF)^{0.505}\ (EL12+1)^{0.166}\ (SR)^{0.318}$

$Q\ 500 = 62.7\ (A)^{0.834}\ (ST+0.5)^{-0.155}\ (RUNF)^{0.466}\ (EL12+1)^{0.183}\ (SR)^{0.345}$

Where,

A is drainage area, in square miles.

SR is slope ratio, which is defined as the ratio of main-channel slope to basin slope within the drainage basin.

EL12 is percentage of drainage basin at or greater than 1,200 feet above sea level.

ST is basin storage, which is the percentage of total drainage area shown as lakes, ponds, and swamps (wetlands).

RUNF is Mean annual runoff, in inches.

The equation used for computing the weighted-average discharges at the gage is:

$$Q_{T(w)} = \frac{Q_{T(g)}\,(N) + Q_{T(r)}\,(E)}{N+E}$$

Where,

QT(w) is weighted peak discharge at the gaged site, in cfs, for T-year recurrence interval

QT(g) is the peak discharge at the gage, in cfs, calculated by Log-Pearson Type III frequency analysis of the station's peak discharge record, for the T-year recurrence interval

N is the number of years of annual peak-discharge record used to calculate QT(g) at the gaging station

QT(r) is the regional regression estimate of the peak discharge at the gaged site, in cfs, for the T-year recurrence interval

E is the average equivalent years of record associated with the regression equation (Table 2 in SIR 2006-5112) that was used to calculate QT(r)

Following are the equations used for computing discharges at the locations influenced by the gage.

$$Q_{T(U)w} = \frac{2\Delta A}{A_g}\,Q_{T(U)r} + (1 - \frac{2\Delta A}{A_g})Q_{T(U)g}$$

$$Q_{T(U)g} = \left(\frac{Au}{A_g}\right) b\ Q_{T(w)}$$

Where,

$Q_{T(U)w}$ is the weighted estimate of discharge QT for recurrence interval T at the ungaged site

ΔA is the absolute value of difference between the drainage areas of the streamflow-gaging station, (Ag) and the ungaged site, (Au)

$Q_{T(U)r}$ is the peak flow estimate for recurrence interval T at the ungaged site, derived from applicable regional equations

$Q_{T(U)g}$ is the peak flow estimate for recurrence interval T at the ungaged site, derived from the weighted estimate of peak discharge at the streamflow-gaging station QT(U)w

b is the exponent from the appropriate drainage area-only equation for Hydrologic Region, Region 2 in the case of Tenmile River.

HUC 2020008010 Maritje Kill:

The 10%, 2%, 1%, and 0.2% annual chance peak discharges were developed for the Maritje Kill River at 8 locations along the studied reach. Since there are no flows gages located on the stream, the discharges were computed based on flood frequency regression equations presented in SIR 2006-5112. The drainage-area only equations were used rather than the full parameter equation based on the observation that in this hydrologic region, for basins with smaller amounts of storage, the full parameter regression equations may underestimate discharges. The equations used for calculating the discharges follow:

$Q\ 10 = 197\ (A)^{0.695}$

$Q\ 50 = 378\ (A)^{0.666}$

$Q\ 100 = 480\ (A)^{0.656}$

$Q\ 500 = 782\ (A)^{0.638}$

Where,

A is drainage area, in square miles.

HUC 2020008070 Fishkill Creek:

The 10%, 2%, 1%, and 0.2% annual chance peak discharges were developed for Fishkill Creek at thirty locations along the studied reach. Log-Pearson Type III statistical analysis was conducted for the two gage locations and the resulting discharges were weighted with the ones that were computed using the regression equations. Before conducting the Log-Pearson Type III analysis, in order to optimize the available gage data and leverage the presence of 2 gages with substantial historical records, MOVE 2, a record extension technique was used to fill gaps in the historical gage data record.

At ungaged locations, discharges were computed based on the full parameter regression equations as presented in USGS SIR 2006-5112. For ungaged locations along Fishkill Creek where the drainage area is between 50% and 150% of the drainage area at the gaged location, the regression equation results were weighted with the Log-Pearson Type III calculated discharge transferred to the ungaged location.

The log-Pearson Type III method consists of fitting the logarithms of annual peak flows to a log-Pearson Type III distribution. The equation provided below forms the basis for the log-Pearson Type III analysis.

$\text{Log } Q = X + KS$

Where, X is the mean of logarithms of annual peak flows, S is standard deviation of logarithms of annual peak flows and K is a factor that is a function of the skew coefficient.

The full parameter equations used for computing the regression estimate (USGS 2006):

$Q\ 10 = 3.4\ (A)^{0.810}\ (ST+0.5)^{-0.218}\ (RUNF)^{0.600}\ (EL12+1)^{0.133}\ (SR)^{0.268}$

$Q\ 50 = 39.0\ (A)^{0.819}\ (ST+0.5)^{-0.188}\ (RUNF)^{0.528}\ (EL12+1)^{0.157}\ (SR)^{0.305}$

$Q\ 100 = 46.0\ (A)^{0.823}\ (ST+0.5)^{-0.177}\ (RUNF)^{0.505}\ (EL12+1)^{0.166}\ (SR)^{0.318}$

$Q\ 500 = 62.7\ (A)^{0.834}\ (ST+0.5)^{-0.155}\ (RUNF)^{0.466}\ (EL12+1)^{0.183}\ (SR)^{0.345}$

Where,

A is drainage area, in square miles.

SR is slope ratio, which is defined as the ratio of main-channel slope to basin slope within the drainage basin.

EL12 is percentage of drainage basin at or greater than 1,200 feet above sea level.

ST is basin storage, which is the percentage of total drainage area shown as lakes, ponds, and swamps (wetlands).

RUNF is Mean annual runoff, in inches.

The equation used for computing the weighted-average discharges at the gage is:

$$Q_{T(w)} = \frac{Q_{T(g)}\ (N) + Q_{T(r)}\ (E)}{N + E}$$

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Where,
QT(w) is weighted peak discharge at the gaged site, in cfs, for T-year recurrence interval

QT(g) is the peak discharge at the gage, in cfs, calculated by Log-Pearson Type III frequency analysis of the station's peak discharge record, for the T-year recurrence interval

N is the number of years of annual peak-discharge record used to calculate QT(g) at the gaging station

QT(r) is the regional regression estimate of the peak discharge at the gaged site, in cfs, for the T-year recurrence interval

E is the average equivalent years of record associated with the regression equation (Table 2 in SIR 2006-5112) that was used to calculate QT(r)

Following are the equations used for computing discharges at the locations influenced by the gage.

$$Q_{T(U)w} = \frac{2\Delta A}{A_g} Q_{T(U)r} + (1 - \frac{2\Delta A}{A_g}) Q_{T(U)g}$$

$$Q_{T(U)g} = \left(\frac{Au}{A_g}\right) b Q_{T(w)}$$

Where,

$Q_{T(U)w}$ is the weighted estimate of discharge QT for recurrence interval T at the ungaged site

ΔA is the absolute value of difference between the drainage areas of the streamflow-gaging station, (Ag) and the ungaged site, (Au)

$Q_{T(U)r}$ is the peak flow estimate for recurrence interval T at the ungaged site, derived from applicable regional equations

$Q_{T(U)g}$ is the peak flow estimate for recurrence interval T at the ungaged site, derived from the weighted estimate of peak discharge at the streamflow-gaging station QT(U)w

b is the exponent from the appropriate drainage area-only equation for Hydrologic Region.

A summary of the drainage area-peak discharge relationships for all the streams studied by detailed methods is shown in Table 7, "Summary of Discharges."

TABLE 7 – SUMMARY OF DISCHARGES

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq. miles)	PEAK DISCHARGES (cfs) 10-PERCENT	2-PERCENT	1-PERCENT	0.2-PERCENT
AMENIA STREAM					
Immediately upstream of confluence with Wassaic Creek	11.2	601	975	1,166	*
Immediately downstream of Lake Road	7.7	525	866	1,041	*
Immediately upstream of confluence of Tributary to Amenia Stream	3.3	206	333	396	*
BRANCH 1 GREAT SPRING CREEK					
Mouth of Great Spring Creek	1.8	360	520	660	960
BRANCH 1A HUDSON RIVER					
At confluence with Hudson River	1.7	393	565	700	975
BRANCH 1 SPROUT CREEK #1					
Mouth at Sprout Creek	4.07	650	940	1,180	1,800
BRANCH 2 SPROUT CREEK #1					
Mouth at Sprout Creek	3.69	610	900	1,120	1,720
BRANCH 1 WAPPINGER CREEK REACH 1					
At confluence with Wappinger Creek Reach 1	8.2	850	1,280	1,650	2,520
At Cross Section H	3.2	580	800	1,000	1,500
BRANCH 2 WAPPINGER CREEK REACH 1					
At confluence with Wappinger Creek Reach 1	11.8	990	1,520	1,930	3,000
At confluence of Branch 2B Wappinger Creek Reach 1	3.8	620	910	1,140	1,740
At confluence of Branch 2A Wappinger Creek Reach 1	1.5	440	610	780	1,200

*Data not available

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TABLE 7 – SUMMARY OF DISCHARGES - continued

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq. miles)	PEAK DISCHARGES (cfs) 10-PERCENT	2-PERCENT	1-PERCENT	0.2-PERCENT
BRANCH 2A WAPPINGER CREEK REACH 1					
At confluence with Branch 2 Wappinger Creek Reach 1	1.1	300	420	550	900
BRANCH 2B WAPPINGER CREEK REACH 1					
At confluence with Branch 2 Wappinger Creek Reach 1	7.9	840	1,260	1,600	2,490
BRANCH 3 WAPPINGER CREEK REACH 1					
At confluence with Wappinger Creek Reach 1	1.23	600	800	900	1,350
BRANCH 4 WAPPINGER CREEK REACH 1					
At confluence with Wappinger Creek Reach 1	0.80	85	138	159	*
BRANCH 5 WAPPINGER CREEK REACH 1					
Cross section A	1.62	450	650	875	1,300
BRANCH 6 WAPPINGER CREEK REACH 1					
At confluence with Wappinger Creek Reach 1	0.83	460	600	710	970
BRANCH 7 WAPPINGER CREEK REACH 1					
Mouth at Wappinger Creek	3.20	580	840	1,060	1,600
Cross section L	2.08	510	800	1,000	1,550
BRANCH 8 WAPPINGER CREEK REACH 1					
At confluence with Wappinger Creek Reach 1	5.30	391	646	788	1,140

*Data not available

TABLE 7 – SUMMARY OF DISCHARGES - continued

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq. miles)	PEAK DISCHARGES (cfs) 10-PERCENT	2-PERCENT	1-PERCENT	0.2-PERCENT
BRANCH 9 WAPPINGER CREEK REACH 1					
Mouth of Wappinger Creek Reach 1	11.1	980	1,420	1,820	3,000
BRANCH 10 WAPPINGER CREEK REACH 1					
Mouth of Wappinger Creek Reach 1	1.7	300	430	545	810
BRANCH 11 WAPPINGER CREEK REACH 1					
Mouth of Wappinger Creek Reach 1	1.6	357	514	657	950
CASPER KILL CREEK					
At confluence with the Hudson River	12.22	1,000	1,530	1,950	3,070
Approximately 1,600 feet downstream of Hagen Drive	7.88	840	1,260	1,600	2,450
At downstream face of State Route 55	2.70	549	784	990	*
CLOVE BROOK					
At confluence with Pray Pond	6.7	430	800	1,010	1,690
Upstream of confluence of Sweezy Creek	4.9	340	630	790	1,320
Upstream of Tributary 1	3.8	280	530	660	1,110
Upstream of Tributary 2	3.2	240	450	570	960
CLOVE CREEK					
At its confluence with Fishkill Creek	20.0	1,630	2,830	3,330	5,010
At the upstream corporate limits	15.7	1,300	2,240	2,640	3,940
CLOVE MOUNTAIN CREEK					
At confluence with Jackson Creek Reach 2	2.1	240	340	430	690
Upstream of confluence of Walsh Creek	1.1	190	280	320	390

*Data not available

TABLE 7 – SUMMARY OF DISCHARGES - continued

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq. miles)	PEAK DISCHARGES (cfs) 10-PERCENT	2-PERCENT	1-PERCENT	0.2-PERCENT
CLOVE MOUNTAIN CREEK (continued)					
Approximately 100 feet downstream of lower West Clove Mountain Road culvert	0.98	180	260	300	390
Approximately 2,100 feet downstream of upper West Clove Mountain Road culvert	0.83	160	230	260	340
Upstream of confluence of Tributary	0.53	130	170	200	260
Approximately 1,000 feet upstream of upper West Clove Mountain Road culvert	0.40	110	140	160	210
Approximately 2,000 feet upstream of upper West Clove Mountain Road culvert	0.27	80	100	120	160
CRUM ELBOW CREEK					
At confluence with Hudson River	18.9	500	840	1,020	1,440
At South Cross Road	15.4	460	780	950	1,340
At Mills Cross Road	10.7	300	500	620	870
At Browns Pond Road	6.0	230	390	480	680
At Sipe Barracks Road	1.4	80	130	150	220
EAST BRANCH CROTON RIVER					
At the downstream Town of Pawling corporate limits	16.5	940	1,600	2,010	3,240
At the CONRAIL crossing	11.8	820	1,400	1,760	2,810
At the upstream corporate limits of Town of Pawling	1.5	350	620	770	1,150
At State Route 22	0.9	320	550	690	1,020

TABLE 7 – SUMMARY OF DISCHARGES - continued

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq. miles)	PEAK DISCHARGES (cfs) 10-PERCENT	2-PERCENT	1-PERCENT	0.2-PERCENT
EAST BRANCH WAPPINGER CREEK REACH 1					
Downstream Town of Pleasant Valley corporate limit	34	1,514	2,914	3,741	6,400
EIGHMY VILLE CREEK					
At White Schoolhouse Road	6.9	640	1,060	1,320	2,050
FALL KILL					
At Creek Road	13.2	790	1,330	1,660	2,660
Just upstream of Roosevelt Road	10.0	680	1,140	1,440	2,250
FALL KILL CREEK					
At downstream Town of Poughkeepsie corporate limits	17.40	1,150	1,820	2,300	*
FISHKILL CREEK					
Downstream of Pray Pond	6.9	544	937	1,140	1,730
Upstream of Tributary 1	7.0	548	943	1,150	1,740
Downstream of Tributary 1	8.6	709	1,210	1,480	2,230
Upstream of Tributary 3	11.1	740	1,260	1,540	2,310
At downstream corporate limits of Town of Union Vale	12.9	808	1,380	1,680	2,550
Downstream of Furnace Pond	12.9	818	1,400	1,710	2,590
Upstream of confluence of Whaley Lake Stream	17.8	1,190	2,030	2,460	3,710
Downstream of confluence of Whaley Lake Stream	35.6	1,976	3,375	4,109	6,218
Upstream of confluence of Frog Hollow Brook	38.5	2,013	3,430	4,172	6,291
Downstream of confluence of Frog Hollow Brook	43.4	2,181	3,713	4,520	6,805
At downstream corporate limits of Town of Beekman	47.9	2,212	3,768	4,586	6,905

*Data not available

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TABLE 7 – SUMMARY OF DISCHARGES - continued

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq. miles)	PEAK DISCHARGES (cfs) 10-PERCENT	2-PERCENT	1-PERCENT	0.2-PERCENT
FISHKILL CREEK (continued)					
Upstream of confluence of Sylvan Lake Outlet	50.1	2,212	3,768	4,586	6,905
Downstream of confluence of Sylvan Lake Outlet	53.6	2,214	3,768	4,580	6,880
Downstream of Dam 1	55.2	2,223	3,786	4,601	6,912
USGS gage No. 01372800	57.2	2,258	3,849	4,679	7,029
Downstream of Fishkill CreekCreek_t12	74.4	2,812	4,708	5,698	8,509
Upstream of confluence of Whortle Kill Creek	75.4	2,812	4,708	5,698	8,509
Downstream of confluence of Whortle Kill Creek	81.9	3,098	5,140	6,213	9,245
Downstream of confluence of unnamed tributary	86.3	3,220	5,330	6,430	9,580
Downstream of confluence of Sprout Creek	144.4	5,109	8,645	10,493	15,880
At downstream corporate limits of Town of East Fishkill Creek	156.2	5,419	9,220	11,216	17,041
Downstream of confluence of Clove Creek	180.9	5,859	10,101	12,359	18,939
At a point approximately 1,090 feet upstream of unnamed tributary at Glenham	184.7	5,915	10,223	12,519	19,219
At upstream corporate limits of City of Beacon	187.1	5,956	10,310	12,633	19,416
USGS gage No. 01373500	188.2	5,976	10,353	12,688	19,512
At the confluence with Hudson River	192.8	6,116	10,545	12,907	19,786
LITTLE WAPPINGER CREEK REACH 1					
Mouth of Wappinger Creek	35	1,120	1,980	2,465	3,960
At corporate limits of Town of Pleasant Valley	32.3	1,510	1,860	2,320	3,720
At Hollow Road	27.4	910	1,620	2,020	3,230
At Nine Partners Road	22.6	840	1,490	1,860	2,980

TABLE 7 – SUMMARY OF DISCHARGES - continued

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq. miles)	PEAK DISCHARGES (cfs) 10-PERCENT	2-PERCENT	1-PERCENT	0.2-PERCENT
MARITJE KILL					
Upstream of Crum Elbow Drive	1.24	229	436	553	897
Upstream of Hidden Brook Drive	2.05	323	605	766	1,232
Downstream of State Route 9G (Violet Avenue)	2.17	336	628	796	1,278
Downstream of Unnamed Dam 1	2.52	282	371	421	860
Downstream of New Bold	2.86	316	431	497	978
Downstream of St. Andrews Road	3.40	369	523	612	1,157
Downstream of U. S. Route 9	3.78	403	583	687	1,273
Downstream of bridge at confluence with Hudson	4.08	431	631	748	1,367
SAW KILL					
At confluence with Hudson River	26.4	1,970	3,460	4,460	7,460
At Linden Avenue	21.1	1,730	3,020	3,890	6,440
At County Route 199	16.1	1,480	2,560	3,300	5,400
SEELEY CREEK					
At confluence with Clove Brook	0.69	210	280	330	420
SPROUT CREEK #1					
At its confluence with Fishkill Creek	55.3	1,550	2,790	3,480	5,720
At the upstream corporate limits	54.8	1,550	2,790	3,480	5,720
At the confluence of Jackson Creek Reach 1	35.8	1,070	1,980	2,500	4,200
Downstream Town of LaGrange corporate limits	35.56	1,072	1,982	2,498	4,198
Cross section J	28.72	912	1,698	2,148	3,639
At State Route 55	23.93	790	1,486	1,888	3,221

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TABLE 7 – SUMMARY OF DISCHARGES - continued

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq. miles)	PEAK DISCHARGES (cfs) 10-PERCENT	2-PERCENT	1-PERCENT	0.2-PERCENT
SPROUT CREEK #2					
At downstream Town of Union Vale corporate limits	11.6	580	1,060	1,340	2,210
Upstream of confluence of Tributary 1	10.3	530	970	1,230	2,020
Upstream of confluence of Willow Brook	6.8	380	700	890	1,490
Upstream of confluence of Tributary 2	6.0	340	640	810	1,350
Downstream of Verbank Village Road culvert	5.6	330	600	770	1,290
STONY CREEK					
At the downstream Village of Tivoli corporate limits	22.0	1,750	3,060	3,970	6,580
At the upstream Village of Tivoli corporate limits	17.8	1,540	2,690	3,480	5,700
SWAMP RIVER REACH 1					
At a point approximately 0.2 mile upstream of its confluence with Tenmile River	48.0	*	*	5,077	*
SWAMP RIVER REACH 2					
At the downstream Town of Pawling corporate limits	13.5	850	1,440	1,810	2,870
At Swamp Road	7.5	670	1,140	1,420	2,220
At the upstream corporate limits of Town of Pawling	2.5	430	740	910	1,370
SYLVAN LAKE OUTLET					
At confluence with Fishkill Creek	3.4	480	820	1,020	1,540
At Sylvan Drive	1.0	310	540	670	990
SWEEZY CREEK					
At confluence with Clove Brook	1.1	250	340	390	500
Approximately 1,000 feet upstream of confluence with Clove Brook	0.91	220	300	340	440

*Data not available

TABLE 7 – SUMMARY OF DISCHARGES - continued

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq. miles)	PEAK DISCHARGES (cfs) 10-PERCENT	2-PERCENT	1-PERCENT	0.2-PERCENT
SWEEZY CREEK (continued)					
Approximately 100 feet downstream of County Route 9 culvert	0.73	180	250	290	370
TENMILE RIVER					
At the upstream Town of Dover corporate limit	133.25	4,532	7,038	8,328	11,978
Upstream of an Unknown Tributary	133.32	4,537	7,048	8,340	11,997
Upstream of an Unknown Tributary	143.02	4569	7106	8413	12109
Upstream from the confluence of Swamp River	143.49	4797	7503	8897	12835
Downstream from the confluence of Swamp River	190.01	6878	12443	15558	15040
At South Dover Bridge	194.82	6999	12652	15815	25443
Downstream of removed weir	195.43	7014	12679	15847	25493
At USGS Gage Number 1200000	203.62	7217	13030	16280	26170
At the county boundary	209.77	7368	13291	16601	26672
TRIBUTARY TO AMENIA STREAM					
Immediately upstream of confluence with Amenia Stream	2.5	179	292	349	*
TRIBUTARY TO EAST BRANCH CROTON RIVER					
At county boundary	3.5	480	820	1020	1550
At the conrail crossing	1.3	340	580	720	1070
TRIBUTARY 1 TO FISHKILL CREEK					
At confluence with Fishkill Creek	3.4	480	820	1020	1550
At a point approximately 2.75 miles upstream of confluence with Fishkill Creek	1.1	320	550	690	1010

*Data not available

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TABLE 7 – SUMMARY OF DISCHARGES - continued

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq. miles)	PEAK DISCHARGES (cfs) 10-PERCENT	2-PERCENT	1-PERCENT	0.2-PERCENT
TRIBUTARY 2 TO FISHKILL CREEK					
At the Town of Beekman upstream corporate limits	15.9	750	1200	14400	2550
WAPPINGER CREEK REACH 1					
At confluence with the Hudson River	210	7,825	14,980	19,228	32,866
Approximately 1,600 feet downstream of U.S. Route 9	197	7,459	14,279	18,328	31,328
At USGS gaging station	181	7,000	13,400	17,200	29,400
Approximately 2,900 feet downstream of Titus Road	169	6,650	12,728	16,337	27,925
Downstream Town of Pleasant Valley corporate limit	167	6,770	13,450	17,530	31,100
At mouth of Branch 9 Wappinger Creek Reach 1	161	6,430	12,640	16,420	28,860
Mouth of Great Spring Creek	146	5,590	10,630	13,630	23,310
Hurley Road bridge	134	4,950	9,000	11,360	18,700
Mouth of Little Wappinger Creek	99	3,790	7,020	8,890	14,830
USGS gaging station near Clinton Corners, New York	92.4	3,970	7,100	8,790	13,400
WAPPINGER CREEK REACH 2					
At Salt Point Turnpike	50.2	*	*	3,490	*
Approximately 1,500 feet upstream from Salt Point Turnpike	40.3	*	*	2,780	*
Approximately 500 feet upstream from Depot Lane	35.1	*	*	2,220	*

*Data not available

TABLE 7 – SUMMARY OF DISCHARGES - continued

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq. miles)	PEAK DISCHARGES (cfs) 10-PERCENT	2-PERCENT	1-PERCENT	0.2-PERCENT
WALSH CREEK					
At confluence with Clove Mountain Creek	1.00	240	330	380	480
Approximately 2,280 feet upstream of confluence with Clove Mountain Creek	0.85	210	290	340	420
Approximately 1,700 feet downstream of Bloomer Road culvert	0.68	180	250	290	360
Upstream of confluence of Tributary	0.47	140	190	220	280
Approximately 400 feet upstream of Bloomer Road	0.42	130	170	200	260
WASSAIC CREEK					
At Wassaic State School boundary	37.3	2,018	3,340	4,040	*
WEBATUCK CREEK REACH 1					
At a point approximately 670 feet upstream of confluence with the Tenmile River	80.0	2,808	4,139	4,912	*
Immediately upstream of County Route 3	74.8	2,667	3,931	4,666	*
WEBATUCK CREEK REACH 2					
At a point approximately 2.0 miles downstream of County Route 2	57.6	2,238	3,298	3,915	*
WEBATUCK CREEK REACH 3					
At the downstream Town of Northeast corporate limits	31.9	1,460	2,340	2,840	4,050
At Indian Lake Road	25.0	1,240	1,990	2,410	3,440
Downstream of the confluence of Kelsey Brook	16.2	920	1,480	1,790	2,560
Upstream of the confluence of Kelsey Brook	12.4	770	1,240	1,500	2,140
At a point approximately 8 miles upstream of the downstream Town of Northeast corporate limits	8.1	580	930	1,120	1,610

*Data not available

TABLE 7 – SUMMARY OF DISCHARGES - continued

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq. miles)	PEAK DISCHARGES (cfs) 10-PERCENT	2-PERCENT	1-PERCENT	0.2-PERCENT
WELLS BROOK					
At confluence with the Tenmile River	6.1	610	1,010	1,270	1,960
At a point approximately 0.8 mile upstream of its confluence with the Tenmile River	2.6	430	750	930	1,380
WHALEY LAKE STREAM					
At confluence with Fishkill Creek	17.8	990	1,670	2,120	3,430
At the confluence of Gardner Hollow Stream at State Route 55	14.1	870	1,470	1,850	2,950
At State Route 55	8.1	680	1,140	1,420	2,210
At Whaley Lake	4.1	520	870	1,090	1,650
WHORTLEKILL CREEK REACH 1					
At confluence with Fishkill Creek	7.6	870	1,270	1,560	2,430
At Creamery Road	5.0	760	1,090	1,330	2,030
At Taconic State Parkway	2.4	650	930	1,120	1,700
WHORTLEKILL CREEK REACH 2					
Downstream Town of LaGrange corporate limits	2.38	298	420	471	583
Upstream of confluence with tributary	1.35	194	274	307	380
WILLOW BROOK					
At confluence with Sprout Creek	3.2	200	380	490	850
Approximately 500 feet downstream of Tompkins Road culvert	2.6	170	320	410	720
Upstream of confluence of Tributary	2.3	150	290	380	660
Approximately 1,200 feet downstream of Waterbury Hill Road	1.9	140	260	340	580
Upstream of Waterbury Hill Road	1.4	100	200	260	470

The stillwater elevations have been determined for the 10-, 2-, 1-, and 0.2-percent annual chance floods for the flooding sources studied by detailed methods and are summarized in Table 8, "Summary of Stillwater Elevations."

TABLE 8 - SUMMARY OF STILLWATER ELEVATIONS

FLOODING SOURCE AND LOCATION	ELEVATION (feet NAVD*) 10-PERCENT	2-PERCENT	1-PERCENT	0.2-PERCENT
HUDSON RIVER				
Entire shoreline within the Village of Tivoli	6.1	7.7	8.5	10.5
Entire shoreline affecting Rhinebeck	6.1	7.5	8.3	10.5
At Red Hook, New York	6.1	7.7	8.5	10.5
HUDSON RIVER (continued)				
Entire shoreline within City of Poughkeepsie	5.9	7.1	8.0	9.7
At Hyde Park, New York	5.8	7.2	7.9	9.7
At the Town of Wappinger	5.7	7.0	7.6	9.3
Entire shoreline within the City of Beacon	5.5	6.6	7.2	8.7
Entire shoreline affecting Town of Fishkill	5.5	6.6	7.2	8.7
INDIAN LAKE				
Entire shoreline affecting Northeast	628.3	628.3	628.3	628.37
LONG POND				
Entire shoreline within the county	344.5	344.7	344.8	345.17
SILVER LAKE				
Entire shoreline within the county	375.4	375.5	375.5	375.66
SYLVAN LAKE				
Entire shoreline within Beekman	323.8	324.2	324.4	324.8

*North American Vertical Datum of 1988

3.2 Hydraulic Analyses

Analyses of the hydraulic characteristics of flooding from the source studied were carried out to provide estimates of the elevations of floods of the selected recurrence intervals. Users should be aware that flood elevations shown on the FIRM represent rounded whole-foot elevations and may not exactly reflect the elevations shown on the Flood Profiles or in the Floodway Data tables in the FIS report. For construction

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and/or floodplain management purposes, users are encouraged to use the flood elevation data presented in this FIS in conjunction with the data shown on the FIRM.

Cross sections for the flooding sources studied by detailed methods were obtained from field surveys. All bridges, dams, and culverts were field surveyed to obtain elevation data and structural geometry.

Locations of selected cross sections used in the hydraulic analyses are shown on the Flood Profiles (Exhibit 1). For stream segments for which a floodway was computed (Section 4.2), selected cross section locations are also shown on the FIRM (Exhibit 2). Flood profiles were drawn showing computed water-surface elevations for floods of the selected recurrence intervals.

Each incorporated community within Dutchess County, has a previously printed FIS report. The hydraulic analyses described in those reports have been compiled and are summarized below.

Pre-Countywide Analyses

Cross sections for the backwater analyses of Amenia Stream, Tributary to Amenia Stream, Wassaic Creek, Webatuck Creek Reach 1 were obtained from aerial photographs at a scale of 1:7,200 (Quinn and Associates, Inc.).

Water-surface elevations of floods of the selected recurrence intervals for Amenia Stream, Branch 1 Great Spring Creek, Branch 1 Wappinger Creek Reach 1, Branch 3 Wappinger Creek Reach 1, Branch 4 Wappinger Creek Reach 1, Branch 5 Wappinger Creek Reach 1, Branch 6 Wappinger Creek Reach 1, Branch 7 Wappinger Creek Reach 1, Branch 8 Wappinger Creek Reach 1, Branch 9 Wappinger Creek Reach 1, Branch 10 Wappinger Creek Reach 1, Branch 11 Wappinger Creek Reach 1, Casper Kill Creek, Clove Brook, Clove Mountain Creek, Crum Elbow Creek, East Branch Croton River, East Branch Wappinger Creek Reach 1, Eighmy Ville Creek, Fall Kill Creek, Fall Kill, Frog Hollow Brook, Great Spring Creek, Jackson Creek Reach 1, Jackson Creek Reach 2, Kelsey Brook, Landsman Kill, Little Wappinger Creek Reach 1, Rhinebeck Kill, Seeley Creek, Sprout Creek No. 1, Sprout Creek No. 2, Stony Creek, Swamp River, Sweeney Creek, Sylvan Lake Outlet, Tributary 1 to Fishkill Creek, Tributary 2 to Fishkill Creek, Tributary to Amenia Stream, Tributary to East Branch Croton River, Walsh Creek, Wappinger Creek Reach 1, Wappinger Creek Reach 2, Wassaic Creek, Webatuck Creek Reach 1, Wells Brook, Whaley Lake Stream, Whortle Kill Creek Reach 1, and Willow Brook were computed using the USACE HEC-2 step-backwater computer program (USACE, 1984). Flood profiles were drawn showing computed water-surface elevations for floods of the selected recurrence intervals.

Starting water-surface elevations for Amenia Stream, Branch 1 Great Spring Creek, Branch 3 Wappinger Creek Reach 1, Branch 4 Wappinger Creek Reach 1, Branch 6 Wappinger Creek Reach 1, Branch 8 Wappinger Creek Reach 1, Branch 9 Wappinger Creek Reach 1, Branch 10 Wappinger Creek Reach 1, Branch 11 Wappinger Creek Reach 1, Casper Kill Creek, East Branch Croton River, East

Branch Wappinger Creek Reach 1, Fall Kill Creek, Fall Kill, Frog Hollow Brook, Great Spring Creek, Jackson Creek Reach 1, Kelsey Brook, Little Wappinger Creek Reach 1, Sprout Creek No. 1, Swamp River, Sylvan Lake Outlet, Tenmile River, Tributary to Amenia Stream, Wassaic Creek, Webatuck Creek Reach 1, Wells Brook, Whaley Lake Stream, and Whortle Kill Creek Reach 1 were calculated using the slope/area method.

Countywide Analyses

In Dutchess County, revised analyses were performed for the Tenmile River, Fishkill Creek and Maritje Kill.

For all revised detailed streams, field survey was obtained for both natural stream cross sections as well as hydraulic obstructions such as bridges, culverts, dams, and weirs. This information was combined with topographic data provided by Dutchess County in the form of bare earth mass points and break lines to create a bare earth surface for the stream corridor. This information was preprocessed using the HEC GeoRAS interface for ArcGIS 9.2. The interface prepared the geometry file for HEC-RAS and was eventually used to visualize results from the simulations.

Water-surface elevations of flood profiles of the selected recurrence intervals for all revised detailed streams were computed using the USACE HEC-RAS computer program, Version 3.1.3 (USACE, 2005).

Where data was available, for Fishkill Creek and the Tenmile River, flood stage for the April 2007 event was used to calibrate the revised hydraulic analyses. Flood profiles were drawn showing computed water-surface elevations for floods of the selected recurrence intervals.

Starting water-surface elevations for all 4 frequencies studied for Fishkill Creek and Maritje Kill were based on Mean Higher High Water (MHHW) elevation for the Hudson River. MHHW was determined from tidal gages on the Hudson River. For the Tenmile River, starting water-surface elevations were determined using slope-area method.

The hydraulic analyses for this FIS were based on unobstructed flow. The flood elevations shown on the profiles are thus considered valid only if channel conveyance areas and hydraulic structures remain unobstructed, operate properly, and do not fail.

Roughness factors (Manning's "n") used in the hydraulic computations were chosen by engineering judgment and were based on field observations of the streams and floodplain areas. Roughness factors for all streams studied by detailed methods are shown in Table 9, "Manning's "n" Values."

TABLE 9 - MANNING'S "n" VALUES

Stream	Channel "n"	Overbank "n"
Amenia Stream	0.029-0.050	0.030-0.100
Branch 1 Great Spring Creek	0.03-0.04	0.08-0.20
Branch 1 Sprout Creek #1	0.015-0.035	0.015-0.100
Branch 1 Wappinger Creek Reach 1	0.025-0.04	0.04-0.100
Branch 10 Wappinger Creek Reach 1	0.03-0.04	0.08-0.20
Branch 11 Wappinger Creek Reach 1	0.03-0.04	0.08-0.20
Branch 1A Hudson River	0.025-0.04	0.04-0.100
Branch 2 Sprout Creek #1	0.015-0.035	0.015-0.100
Branch 2 Wappinger Creek Reach 1	0.025-0.04	0.04-0.100
Branch 2A Wappinger Creek Reach 1	0.025-0.04	0.04-0.100
Branch 2B Wappinger Creek Reach 1	0.025-0.04	0.04-0.100
Branch 3 Wappinger Creek Reach 1	0.030-0.040	0.080-0.120
Branch 4 Wappinger Creek Reach 1	0.015-0.050	0.060-0.080
Branch 5 Wappinger Creek Reach 1	0.015-0.035	0.015-0.100
Branch 6 Wappinger Creek Reach 1	0.030-0.040	0.080-0.120
Branch 7 Wappinger Creek Reach 1	0.015-0.035	0.015-0.100
Branch 8 Wappinger Creek Reach 1	0.030-0.040	0.080-0.120
Branch 9 Wappinger Creek Reach 1	0.03-0.04	0.08-0.20
Casper Kill Creek	0.024-0.060	0.030-0.120
Clove Brook	0.025-0.050	0.070-0.500
Clove Creek	0.030-0.045	0.050-0.200
Clove Mountain Creek	0.015-0.040	0.060-0.120
Crum Elbow Creek	0.030-0.045	0.045-0.200
East Branch Croton River	0.025-0.030	0.030-0.060
East Branch Wappinger Creek Reach 1	0.03-0.04	0.055-0.20
Eighmy Ville Creek	0.035-0.040	0.055-0.075
Fall Kill	0.030-0.045	0.045-0.090
Fall Kill Creek	0.024-0.040	0.040-0.120
Fishkill Creek	0.025-0.12	0.035-0.12
Frog Hollow Brook	0.030-0.050	0.040-0.065
Great Spring Creek	0.03-0.04	0.08-0.20
Jackson Creek Reach 1	0.015-0.035	0.015-0.100
Jackson Creek Reach 2	0.020-0.045	0.050-0.500
Kelsey Brook	0.035-0.040	0.060-0.080
Landsman Kill	0.030-0.040	0.055-0.070
Little Wappinger Creek Reach 1	0.03-0.04	0.050-0.100
Maritje Kill	0.035-0.12	0.035-1.00
Rhinebeck Kill	0.030-0.045	0.055-0.080
Saw Kill	0.030-0.040	0.045-0.090

TABLE 9 - MANNING'S "n" VALUES - continued

Stream	Channel "n"	Overbank "n"
Seeley Creek	0.030-0.050	0.050-0.080
Sprout Creek #1	0.015-0.060	0.015-0.100
Sprout Creek #2	0.024-0.045	0.045-0.120
Stony Creek	0.030-0.040	0.055-0.090
Swamp River Reach 2	0.030-0.035	0.060-0.100
Sweezy Creek	0.025-0.050	0.060-0.120
Sylvan Lake Outlet	0.03	0.055-0.200
Tenmile River	0.03-0.11	0.02-0.2
Tributary 1 to Fishkill Creek	0.030-0.040	0.050-0.065
Tributary 2 to Fishkill Creek	0.030-0.035	0.050-0.065
Tributary to Amenia Stream	0.029-0.050	0.050-0.100
Tributary to East Branch Croton River	0.030-0.055	0.055-0.065
Walsh Creek	0.04	0.080-0.120
Wappinger Creek Reach 1	0.015-0.040	0.015-0.100
Wappinger Creek Reach 2	0.040-0.050	0.050-0.100
Wassaic Creek	0.04	0.060-0.090
Webatuck Creek Reach 1	0.015-0.060	0.015-0.090
Webatuck Creek Reach 2	0.015-0.060	0.015-0.090
Webatuck Creek Reach 3	0.030-0.040	0.050-0.200
Wells Brook	0.030-0.040	0.060-0.070
Whaley Lake Stream	0.030-0.040	0.050-0.100
Whortlekill Creek Reach 1	0.015-0.035	0.015-0.100
Whortlekill Creek Reach 2	0.030-0.040	0.050-0.200
Willow Brook	0.015-0.045	0.050-1.000

Qualifying bench marks within a given jurisdiction that are cataloged by the National Geodetic Survey (NGS) and entered into the National Spatial Reference System (NSRS) as First or Second Order Vertical and have a vertical stability classification of A, B, or C are shown and labeled on the FIRM with their 6-character NSRS Permanent Identifier.

Bench marks cataloged by the NGS and entered into the NSRS vary widely in vertical stability classification. NSRS vertical stability classifications are as follows:

- Stability A: Monuments of the most reliable nature, expected to hold position/elevation well (e.g., mounted in bedrock)
- Stability B: Monuments which generally hold their position/elevation well (e.g., concrete bridge abutment)

- Stability C: Monuments which may be affected by surface ground movements (e.g., concrete monument below frost line)

- Stability D: Mark of questionable or unknown vertical stability (e.g., concrete monument above frost line, or steel witness post)

In addition to NSRS bench marks, the FIRM may also show vertical control monuments established by a local jurisdiction; these monuments will be shown on the FIRM with the appropriate designations. Local monuments will only be placed on the FIRM if the community has requested that they be included, and if the monuments meet the aforementioned NSRS inclusion criteria.

To obtain current elevation, description, and/or location information for bench marks shown on the FIRM for this jurisdiction, please contact the Information Services Branch of the NGS at (301) 713-3242, or visit their Web site at www.ngs.noaa.gov.

It is important to note that temporary vertical monuments are often established during the preparation of a flood hazard analysis for the purpose of establishing local vertical control. Although these monuments are not shown on the FIRM, they may be found in the Technical Support Data Notebook associated with this FIS and FIRM. Interested individuals may contact FEMA to access this data.

3.3 Vertical Datum

All FISs and FIRMs are referenced to a specific vertical datum. The vertical datum provides a starting point against which flood, ground, and structure elevations can be referenced and compared. Until recently, the standard vertical datum in use for newly created or revised FISs and FIRMs was the National Geodetic Vertical Datum of 1929 (NGVD 29). With the finalization of the North American Vertical Datum of 1988 (NAVD 88), many FIS reports and FIRMs are being prepared using NAVD 88 as the referenced vertical datum.

All flood elevations shown in this FIS report and on the FIRM are referenced to NAVD 88. Structure and ground elevations in the community must, therefore, be referenced to NAVD 88. It is important to note that adjacent communities may be referenced to NGVD 29. This may result in differences in base flood elevations across the corporate limits between the communities.

Prior versions of the FIS report and FIRM were referenced to NGVD 29. When a datum conversion is effected for an FIS report and FIRM, the Flood Profiles, base flood elevations (BFEs) and ERMs reflect the new datum values. To compare structure and ground elevations to 1-percent annual chance flood elevations shown in the FIS and on the FIRM, the subject structure and ground elevations must be referenced to the new datum values.

As noted above, the elevations shown in the FIS report and on the FIRM for Dutchess County are referenced to NAVD 88. Ground, structure, and flood

elevations may be compared and/or referenced to NGVD 29 by applying a standard conversion factor. The conversion factor to NGVD 29 is +0.8. The conversion between the datums may be expressed as an equation:

NGVD 29 = NAVD 88 + 0.8 foot

The BFEs shown on the FIRM represent whole-foot rounded values. For example, a BFE of 102.4 will appear as 102 on the FIRM and 102.6 will appear as 103. Therefore, users that wish to convert the elevations in this FIS to NGVD 29 should apply the stated conversion factor(s) to elevations shown on the Flood Profiles and supporting data tables in the FIS report, which are shown at a minimum to the nearest 0.1 foot.

For more information on NAVD 88, see Converting the National Flood Insurance Program to the North American Vertical Datum of 1988, FEMA Publication FIA-20/June 1992, or contact the Spatial Reference System Division, National Geodetic Survey, NOAA, Silver Spring Metro Center, 1315 East-West Highway, Silver Spring, Maryland 20910 (Internet address http://www.ngs.noaa.gov).

4.0 FLOODPLAIN MANAGEMENT APPLICATIONS

The NFIP encourages State and local governments to adopt sound floodplain management programs. To assist in this endeavor, each FIS provides 1-percent annual chance floodplain data, which may include a combination of the following: 10-, 2-, 1-, and 0.2-percent annual chance flood elevations; delineations of the 1- and 0.2-percent annual chance floodplains; and 1-percent annual chance floodway. This information is presented on the FIRM and in many components of the FIS, including Flood Profiles, Floodway Data tables, and Summary of Stillwater Elevation tables. Users should reference the data presented in the FIS as well as additional information that may be available at the local community map repository before making flood elevation and/or floodplain boundary determinations.

4.1 Floodplain Boundaries

To provide a national standard without regional discrimination, the 1-percent annual chance flood has been adopted by FEMA as the base flood for floodplain management purposes. The 0.2-percent annual chance flood is employed to indicate additional areas of flood risk in the county. For the streams studied in detail, the 1- and 0.2-percent annual chance floodplain boundaries have been delineated using the flood elevations determined at each cross section. Between cross sections, the boundaries were interpolated using bare earth digital elevation data provided by Dutchess County. The topographic data was composed of bare earth mass points and 3-D breaklines. The point elevation data is comprised mostly of LiDAR with some spot heights generated from aerial photography flown within the same year in support of digital orthophotography acquisition. The 3-D breaklines were produced from 1"=1000' high precision color aerial photography collected in 2001 using photogrammetric methods. Water surface elevation triangular irregular networks (TINs) were created from the model cross sections and

intersected with the bare earth ground TIN to produce the floodplain corridor. The resulting floodplains were smoothed and incorporated in the DFIRM.

Similarly, using datum-converted effective flood profiles for non-revised, detailed streams, all flood boundaries were made current with the topography supplied by the county to FEMA.

The 1- and 0.2-percent annual chance floodplain boundaries are shown on the FIRM (Exhibit 2). On this map, the 1-percent annual chance floodplain boundary corresponds to the boundary of the areas of special flood hazards (Zones A and AE and AO), and the 0.2-percent annual chance floodplain boundary corresponds to the boundary of areas of moderate flood hazards. In cases where the 1- and 0.2-percent annual chance floodplain boundaries are close together, only the 1-percent annual chance floodplain boundary has been shown. Small areas within the floodplain boundaries may lie above the flood elevations but cannot be shown due to limitations of the map scale and/or lack of detailed topographic data.

For the streams studied by approximate methods, only the 1-percent annual chance floodplain boundary is shown on the FIRM (Exhibit 2). These boundaries were also delineated using the topographic data provided by Dutchess County.

4.2 Floodways

Encroachment on floodplains, such as structures and fill, reduces flood-carrying capacity, increases flood heights and velocities, and increases flood hazards in areas beyond the encroachment itself. One aspect of floodplain management involves balancing the economic gain from floodplain development against the resulting increase in flood hazard. For purposes of the NFIP, a floodway is used as a tool to assist local communities in this aspect of floodplain management. Under this concept, the area of the 1-percent annual chance floodplain is divided into a floodway and a floodway fringe. The floodway is the channel of a stream, plus any adjacent floodplain areas, that must be kept free of encroachment so that the 1-percent annual chance flood can be carried without substantial increases in flood heights. Minimum federal standards limit such increases to 1.0 foot, provided that hazardous velocities are not produced. The floodways in this FIS are presented to local agencies as minimum standards that can be adopted directly or that can be used as a basis for additional floodway studies.

The floodways presented in this FIS were computed for certain stream segments on the basis of equal conveyance reduction from each side of the floodplain. Floodway widths were computed at cross sections. Between cross sections, the floodway boundaries were interpolated. The results of the floodway computations are tabulated for selected cross sections (Table 10). The computed floodways are shown on the FIRM (Exhibit 2). In cases where the floodway and 1-percent annual chance floodplain boundaries are either close together or collinear, only the floodway boundary is shown.

There is no floodway data table information available for Eighmy Ville Creek and the Hudson River.

Encroachment into areas subject to inundation by floodwaters having hazardous velocities aggravates the risk of flood damage, and heightens potential flood hazards by further increasing velocities. A listing of stream velocities at selected cross sections is provided in Table 10, "Floodway Data." In order to reduce the risk of property damage in areas where the stream velocities are high, the community may wish to restrict development in areas outside the floodway.

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FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Amenia Stream								
A	792[1]	100	384	3.0	455.5	455.5	456.1	0.6
B	11,121[1]	214	643	1.8	472.3	472.3	472.8	0.5
C	16,351[1]	180	455	2.6	494.8	494.8	495.0	0.2
D	23,430[1]	100	429	2.4	541.3	541.3	541.6	0.3
E	28,682[1]	630	815	0.5	548.4	548.4	548.7	0.3
Branch 1 Great Spring Creek								
A	600[2]	64	241	2.7	212.8	211.1[3]	212.0	0.9
B	1,050[2]	176	632	1.0	212.8	211.8[3]	212.8	1.0
C	1,142[2]	77	314	2.1	212.8	212.6[3]	213.4	0.8
D	2,020[2]	207	571	1.2	213.2	213.2	214.1	0.9
E	2,081[2]	531	2,830	0.2	217.2	217.2	218.0	0.8
F	2,960[2]	137	484	1.4	217.3	217.3	218.1	0.8
G	4,070[2]	29	96	6.9	230.0	230.0	230.5	0.5
H	4,207[2]	84	551	1.2	235.8	235.8	236.7	0.9
I	4,615[2]	257	1,066	0.6	236.0	236.0	236.9	0.9
J	4,765[2]	110	481	1.4	238.5	238.5	239.3	0.8
K	5,300[2]	88	177	3.7	249.3	249.3	249.3	0.0
L	5,875[2]	217	254	2.6	279.0	279.0	279.0	0.0

[1]Feet above confluence with Wassaic Creek
[2]Feet above Great Spring Creek
[3]Elevation computed without consideration of backwater effects from Great Spring Creek

TABLE 10

FEDERAL EMERGENCY MANAGEMENT AGENCY

DUTCHESS COUNTY, NY (ALL JURISDICTIONS)

FLOODWAY DATA

AMENIA STREAM – BRANCH 1 GREAT SPRING CREEK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Branch 1 Sprout Creek #1								
A	100[1]	110	369	3.2	303.0	301.6[2]	302.5	0.9
B	2,140[1]	155	534	2.2	305.1	305.1	305.8	0.7
C	4,700[1]	203	995	1.2	308.8	308.8	309.7	0.9
D	6,200[1]	520	2,527	0.5	309.2	309.2	310.1	0.9
E	7,080[1]	362	1,552	0.8	309.3	309.3	310.2	0.9
F	7,218[1]	262	1,343	0.9	314.3	314.3	315.2	0.9
G	7,368[1]	158	1,035	1.1	314.4	314.4	315.3	0.9
H	7,420[1]	158	2,378	0.5	314.4	314.4	315.3	0.9

[1]Feet above confluence with Sprout Creek #1
[2]Elevation computed without consideration of backwater effects from Sprout Creek #1

TABLE 10

FEDERAL EMERGENCY MANAGEMENT AGENCY

DUTCHESS COUNTY, NY (ALL JURISDICTIONS)

FLOODWAY DATA

BRANCH 1 SPROUT CREEK #1

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Branch 1 Wappinger Creek Reach 1								
A	126	30	208	7.8	8.1	5.7[2]	6.3	0.6
B	500	42	220	7.4	8.1	7.2[2]	7.5	0.3
C	1,800	48	203	8.0	60.5	60.5	60.9	0.4
D	3,645	40	147	11.0	111.5	111.5	111.5	0.0
E	3,878	21	119	13.6	121.3	121.3	121.6	0.3
F	4,067	267	1,535	1.1	125.7	125.7	126.6	0.9
G	5,300	70	580	2.8	125.9	125.9	126.7	0.8
H	6,453	92	433	2.3	126.3	126.3	127.1	0.8
I	9,000	149	405	2.5	133.7	133.7	134.7	1.0
J	9,710	310	722	1.4	136.3	136.3	137.1	0.8
K	9,895	510	2,155	0.5	136.4	136.4	137.3	0.9
L	10,215	66	205	4.9	140.9	140.9	140.9	0.0
M	10,709	35	240	4.2	145.3	145.3	145.5	0.2
N	11,015	103	355	2.8	148.7	148.7	148.9	0.2
O	11,198	269	1,314	0.8	149.1	149.1	149.4	0.3
P	11,445	627	2,564	0.4	149.3	149.3	149.6	0.3
Q	11,920	554	2,603	0.4	149.3	149.3	149.6	0.3

[1]Feet above confluence with Wappinger Creek Reach 1
[2]Elevation computed without consideration of backwater effects from Wappinger Creek Reach 1

TABLE 10

FEDERAL EMERGENCY MANAGEMENT AGENCY

DUTCHESS COUNTY, NY (ALL JURISDICTIONS)

FLOODWAY DATA

BRANCH 1 WAPPINGER CREEK REACH 1

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Branch 10 Wappinger Creek Reach 1								
A	50	19	67	8.1	214.0	203.4[2]	203.9	0.5
B	1,160	31	75	7.3	218.0	218.0	218.0	0.0
C	1,323	47	89	6.1	221.5	221.5	221.5	0.0
D	1,925	25	97	5.6	227.3	227.3	227.4	0.1
E	2,112	27	312	1.7	235.3	235.3	236.3	1.0
F	2,535	364	3,013	0.2	235.4	235.4	236.4	1.0
G	2,716	343	2,919	0.2	235.4	235.4	236.4	1.0
Branch 11 Wappinger Creek Reach 1								
A	187	100	799	0.8	238.1	238.1	239.1	1.0
B	640	88	192	3.4	238.5	238.5	239.0	0.5
C	875	19	63	10.4	239.4	239.4	239.4	0.0
D	1,430	26	102	6.5	241.6	241.6	242.3	0.7
E	1,650	21	73	9.0	243.0	243.0	243.0	0.0
F	2,525	19	75	8.8	248.6	248.6	249.2	0.6
G	2,700	27	128	5.1	249.6	249.6	250.1	0.5
H	3,280	23	87	7.5	253.4	253.4	253.9	0.5

[1]Feet above confluence with Wappinger Creek Reach 1
[2]Elevation computed without consideration of backwater effects from Wappinger Creek Reach 1

TABLE 10

FEDERAL EMERGENCY MANAGEMENT AGENCY

DUTCHESS COUNTY, NY (ALL JURISDICTIONS)

FLOODWAY DATA

BRANCH 10 WAPPINGER CREEK REACH 1 - BRANCH 11 WAPPINGER CREEK REACH 1

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Branch 1A Hudson River								
A	125[1]	75	283	2.5	11.6	11.6	11.6	0.0
B	451[1]	106	312	2.2	11.6	11.6	11.8	0.2
C	612[1]	50	206	3.4	17.2	17.2	17.9	0.7
D	865[1]	70	130	5.4	20.2	20.2	21.0	0.8
E	2,010[1]	65	224	3.1	35.8	35.8	36.7	0.9
F	2,600[1]	74	154	4.5	41.5	41.5	41.5	0.0
G	3,677[1]	225	414	1.7	45.1	45.1	47.7	0.6
Branch 2 Sprout Creek #1								
A	200[2]	170	340	3.3	325.0	325.0	325.0	0.0
B	555[2]	127	634	1.8	327.8	327.8	328.8	1.0
C	690[2]	249	471	2.4	328.3	328.3	329.1	0.8
D	2,230[2]	36	165	6.8	337.5	337.5	337.5	0.0
E	3,168[2]	43	270	4.2	348.2	348.2	348.2	0.0
F	3,950[2]	153	292	3.8	353.7	353.7	353.7	0.0
G	4,600[2]	23	102	11.0	361.9	361.9	362.0	0.1
H	6,125[2]	126	364	3.1	369.2	369.2	369.8	0.6
I	6,302[2]	435	2,171	0.5	378.0	378.0	378.0	0.0
J	7,150[2]	253	947	1.2	378.1	378.1	378.0	0.0
K	7,400[2]	544	440	2.5	379.0	379.0	379.0	0.0
L	7,670[2]	321	404	2.8	383.8	383.8	383.8	0.0

[1]Feet above confluence with Hudson River
[2]Feet above Sprout Creek #1

TABLE 10

FEDERAL EMERGENCY MANAGEMENT AGENCY

DUTCHESS COUNTY, NY
(ALL JURISDICTIONS)

FLOODWAY DATA

BRANCH 1A HUDSON RIVER – BRANCH 2 SPROUT CREEK #1

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Branch 2 Wappinger Creek Reach 1								
A	236	35	269	7.2	107.9	104.3[2]	104.5	0.2
B	1,800	84	335	5.8	111.7	108.2[2]	109.1	0.9
C	2,136	67	516	3.7	112.8	112.8	112.8	0.0
D	2,300	76	394	4.9	112.8	112.8	112.8	0.0
E	2,526	477	5,004	0.2	129.5	129.5	129.5	0.0
F	2,840	37	273	4.2	129.5	129.5	129.5	0.0
G	4,100	31	107	10.7	146.6	146.6	146.8	0.2
H	6,058	300	1,113	1.0	149.5	149.5	150.5	1.0
I	6,845	109	435	2.6	150.1	150.1	150.8	0.7
J	8,000	145	609	1.9	152.6	152.6	153.3	0.7
K	9,500	357	1,299	0.9	153.1	153.1	154.0	0.9
L	11,500	70	285	4.0	155.0	155.0	155.0	0.0
M	13,000	78	329	3.5	156.7	156.7	157.7	1.0
N	13,610	201	304	2.6	159.3	159.3	159.5	0.2
O	14,048	203	613	1.3	160.3	160.3	160.7	0.4
P	15,250	22	74	10.5	171.7	171.7	172.0	0.3
Q	15,635	150	1,053	0.7	181.0	181.0	181.2	0.2
R	15,787	120	952	0.8	183.1	183.1	183.1	0.0
S	16,942	20	72	10.8	192.8	192.8	193.1	0.3
T	17,875	43	141	5.5	212.1	212.1	212.1	0.0
U	18,880	19	71	11.0	218.1	218.1	218.2	0.1
V	19,090	245	301	2.6	223.6	223.6	223.6	0.0
W	19,470	340	1,262	0.6	224.2	224.2	224.2	0.0

[1]Feet above confluence with Wappinger Creek Reach 1
[2]Elevation computed without consideration of backwater effects from Wappinger Creek Reach 1

TABLE 10

FEDERAL EMERGENCY MANAGEMENT AGENCY

DUTCHESS COUNTY, NY
(ALL JURISDICTIONS)

FLOODWAY DATA

BRANCH 2 WAPPINGER CREEK REACH 1

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Branch 2A Wappinger Creek Reach 1								
A	583	75	188	2.9	161.3	161.3	161.9	0.6
B	1,520	64	127	4.3	164.5	164.5	164.5	0.0
C	1,675	211	295	1.9	165.2	165.2	165.2	0.0
D	2,030	55	155	3.5	165.8	165.8	165.8	0.0
E	2,341	107	521	1.1	170.2	170.2	170.5	0.3
F	3,340	65	128	4.3	176.5	176.5	176.5	0.0
Branch 2B Wappinger Creek Reach 1								
A	175	100	521	3.1	130.6	130.6	131.4	0.8
B	775	74	304	5.3	131.5	131.5	132.5	1.0
C	1,090	139	703	2.3	132.8	132.8	133.8	1.0
D	2,600	147	517	3.1	135.4	135.4	135.8	0.4
E	3,129	75	361	4.4	137.6	137.6	138.0	0.4
F	4,190	41	147	10.9	142.0	142.0	142.0	0.0
G	5,046	37	167	9.6	164.9	164.9	165.2	0.3
H	5,250	75	653	2.5	169.5	169.5	169.6	0.1
I	5,418	70	555	2.9	176.2	176.2	176.3	0.1
J	6,600	68	230	7.0	179.2	179.2	179.2	0.0
K	7,998	96	513	3.1	183.9	183.9	184.3	0.4

[1]Feet above confluence with Branch 2 Wappinger Creek

TABLE 10

FEDERAL EMERGENCY MANAGEMENT AGENCY

DUTCHESS COUNTY, NY
(ALL JURISDICTIONS)

FLOODWAY DATA

BRANCH 2A WAPPINGER CREEK REACH 1 - BRANCH 2B WAPPINGER CREEK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Branch 3 Wappinger Creek Reach 1								
A	300	18	76	11.8	123.0	123.0	123.4	0.4
B	597	67	293	3.1	142.6	142.6	143.4	0.8
C	1,499	100	228	3.9	157.0	157.0	157.0	0.0
D	1,501	208	409	2.2	158.0	158.0	158.1	0.1
E	1,730	75	252	3.6	159.2	159.2	159.5	0.3
F	2,030	157	593	1.5	161.8	161.8	162.5	0.7
G	3,700	78	247	3.6	165.7	165.7	166.7	1.0
Branch 4 Wappinger Creek Reach 1								
A	930	43	112	1.4	122.5	122.5	122.5	0.0
B	3,846	30	147	1.1	158.3	158.3	159.0	0.7
Branch 5 Wappinger Creek Reach 1								
A	10,708	40	116	7.5	215.2	215.2	215.6	0.4
B	11,097	45	166	5.6	218.8	218.8	219.3	0.5
C	11,667	31	91	9.6	224.2	224.2	224.3	0.1
D	12,375	93	183	4.8	240.7	240.7	241.3	0.6
E	12,736	26	178	4.9	264.3	264.3	264.3	0.0
F	13,300	41	109	8.0	290.0	290.0	290.0	0.0
G	13,900	109	183	4.8	301.8	301.8	301.8	0.0
H	14,610	70	256	3.4	304.8	304.8	304.9	0.1
I	15,220	40	115	7.6	318.6	318.6	318.9	0.3
J	15,400	236	6,381	0.1	327.3	327.3	327.8	0.5
K	16,660	69	169	6.6	332.0	332.0	332.2	0.2
L	17,490	24	83	10.5	343.9	343.9	344.7u	0.0

[1]Feet above confluence with Wappinger Creek Reach 1

TABLE 10

FEDERAL EMERGENCY MANAGEMENT AGENCY

DUTCHESS COUNTY, NY
(ALL JURISDICTIONS)

FLOODWAY DATA

BRANCH 3 WAPPINGER CREEK REACH 1 – BRANCH 4 WAPPINGER CREEK REACH 1 – BRANCH 5 WAPPINGER CREEK REACH 1

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Branch 6 Wappinger Creek Reach 1								
A	300	120	300	2.4	166.7	160.1[2]	160.7	0.6
B	905	120	293	2.4	166.9	161.2[2]	161.4	0.2
C	1,036	84	330	2.2	167.0	162.2[2]	162.4	0.2
D	1,450	180	220	3.2	167.0	163.8[2]	163.8	0.0
E	3,400	89	360	2.0	167.0	167.0	167.7	0.7
Branch 7 Wappinger Creek Reach 1								
A	100	94	198	5.3	168.0	164.7[2]	164.8	0.1
B	950	141	238	4.5	174.4	174.4	174.4	0.0
C	2,000	45	147	7.2	186.2	186.2	186.6	0.4
D	2,300	64	240	4.4	189.1	189.1	190.0	0.9
E	2,700	120	338	3.1	194.9	194.9	195.0	0.1
F	3,220	34	109	9.8	204.2	204.2	204.2	0.0
G	4,475	37	130	8.2	245.5	245.5	245.5	0.0
H	4,655	135	1,301	0.8	257.4	257.4	258.4	1.0
I	4,900	79	350	3.0	257.4	257.4	258.4	1.0
J	5,800	21	90	11.8	284.2	284.2	284.2	0.0
K	6,730	56	138	7.7	314.9	314.9	314.9	0.0
L	7,020	150	984	1.1	325.5	325.5	326.5	1.0
M	7,890	85	165	6.1	349.8	349.8	349.8	0.0
N	8,090	168	1,221	0.8	360.9	360.9	360.9	0.0
O	8,395	100	667	1.5	361.0	361.0	361.0	0.0

[1]Feet above confluence with Wappinger Creek Reach 1
[2]Elevation computed without consideration of backwater effects from Wappinger Creek Reach 1

TABLE 10

FEDERAL EMERGENCY MANAGEMENT AGENCY

DUTCHESS COUNTY, NY
(ALL JURISDICTIONS)

FLOODWAY DATA

BRANCH 6 WAPPINGER CREEK REACH 1 -
BRANCH 7 WAPPINGER CREEK REACH 1

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Branch 8 Wappinger Creek Reach 1								
A	192	28	175	4.5	190.1	190.1	191.1	1.0
B	705	62	332	2.4	192.0	192.0	192.8	0.8
C	1,273	99	442	18.0	196.7	196.7	192.7	1.0
D	1,400	410	4,821	0.2	196.9	196.9	197.9	1.0
E	1,700	610	7,704	0.1	196.9	196.9	197.9	1.0
F	1,815	556	4,450	0.2	196.9	196.9	197.9	1.0
Branch 9 Wappinger Creek Reach 1								
A	100	37	222	8.2	207.2	199.4[2]	200.0	0.6
B	370	32	176	10.3	207.2	202.8[2]	203.1	0.3
C	1,240	37	209	8.7	207.2	206.3[2]	206.9	0.6
D	1,365	126	1,137	1.6	223.0	223.0	224.0	1.0
E	1,940	84	823	2.2	223.1	223.1	224.1	1.0
F	2,378	50	330	5.5	223.3	223.3	224.2	0.9
G	2,850	33	237	7.7	229.3	229.3	230.3	1.0
H	2,985	130	1,346	1.4	245.9	245.9	246.8	0.9
I	3,510	135	1,155	1.6	245.9	245.9	246.8	0.9
J	4,096	40	1,001	1.8	246.1	246.1	246.9	0.8
K	4,695	122	978	1.9	252.1	252.1	253.1	1.0

[1]Feet above confluence with Wappinger Creek Reach 1
[2]Elevation computed without consideration of backwater effects from Wappinger Creek Reach 1

TABLE 10

FEDERAL EMERGENCY MANAGEMENT AGENCY

DUTCHESS COUNTY, NY
(ALL JURISDICTIONS)

FLOODWAY DATA

BRANCH 8 WAPPINGER CREEK REACH 1 -
BRANCH 9 WAPPINGER CREEK REACH 1

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Casper Kill Creek								
A	184	44	349	5.6	7.9	7.1[2]	8.0	0.9
B	655	38	167	11.7	11.6	11.6	11.8	0.2
C	748	130	1,185	1.6	19.2	19.2	19.4	0.2
D	970	21	168	11.6	20.0	20.0	20.6	0.6
E	1,416	43	390	5.0	21.1	21.1	22.0	0.9
F	1,800	26	228	8.5	22.3	22.3	23.1	0.8
G	2,780	909	22,931	0.1	36.2	36.2	37.1	0.9
H	4,350	1,070	25,184	0.1	36.2	36.2	37.1	0.9
I	5,280	138	1,441	1.4	36.2	36.2	37.1	0.9
J	6,120	411	4,740	0.4	36.4	36.4	37.3	0.9
K	6,250	911	9,300	0.2	36.4	36.4	37.3	0.9
L	7,900	344	2,438	0.8	36.5	36.5	37.4	0.9
M	9,230	37	185	10.5	37.7	37.7	38.3	0.6
N	10,354	329	1,749	1.1	41.4	41.4	41.4	0.0
O	11,960	112	773	2.5	54.1	54.1	54.9	0.8
P	13,520	45	173	11.3	70.9	70.9	70.9	0.0
Q	13,990	297	1,578	1.2	83.3	83.3	83.5	0.2
R	14,925	159	1,150	1.7	88.4	88.4	89.3	0.8
S	17,620	223	1,486	1.3	89.2	89.2	90.0	0.8
T	18,668	84	605	3.2	89.6	89.6	90.3	0.7
U	19,660	40	294	6.6	90.3	90.3	91.2	0.9
V	20,370	102	806	2.4	93.3	93.3	94.0	0.7
W	21,425	60	355	4.5	93.8	93.8	94.4	0.6
X	22,420	252	600	2.7	96.9	96.9	97.3	0.4
Y	23,171	172	851	1.9	101.4	101.4	101.6	0.2
Z	24,654	481	3,107	0.5	105.5	105.5	106.1	0.6

[1]Feet above confluence with the Hudson River
[2]Elevation computed without consideration of backwater effects from the Hudson River

TABLE 10

FEDERAL EMERGENCY MANAGEMENT AGENCY

DUTCHESS COUNTY, NY
(ALL JURISDICTIONS)

FLOODWAY DATA

CASPER KILL CREEK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Casper Kill Creek (continued)								
AA	25,900	376	1,891	0.8	105.8	105.8	106.4	0.6
AB	26,450	81	239	6.7	106.2	106.2	106.7	0.5
AC	28,375	308	1,080	1.5	111.7	111.7	111.8	0.1
AD	30,000	101	375	4.3	112.9	112.9	113.5	0.6
AE	32,390	230	1,794	0.9	115.0	115.0	115.7	0.7
AF	33,044	445	3,735	0.4	121.9	121.9	121.9	0.0
AG	34,100	358	1,950	0.8	122.0	122.0	122.0	0.0
AH	35,850	231	924	1.7	122.5	122.5	122.6	0.1
AI	37,580	41	167	9.6	125.3	125.3	125.4	0.1
AJ	39,200	39	270	5.9	129.3	129.3	129.6	0.3
AK	39,550	184	960	1.2	130.7	130.7	131.2	0.5
AL	39,870	47	267	4.3	130.8	130.8	131.3	0.5
AM	40,320	23	156	7.4	133.1	133.1	133.6	0.5
AN	40,870	43	329	3.5	134.4	134.4	134.9	0.5
AO	41,830	62	327	3.5	135.1	135.1	135.6	0.5
AP	42,250	128	802	1.4	136.8	136.8	136.8	0.0
AQ	43,360	29	105	11.0	137.7	137.7	137.7	0.0
AR	45,780	520	2,681	0.4	152.2	152.2	153.0	0.8
AS	47,450	280	2,679	0.4	156.3	156.3	156.5	0.2

[1]Feet above confluence with the Hudson River

TABLE 10

FEDERAL EMERGENCY MANAGEMENT AGENCY

DUTCHESS COUNTY, NY
(ALL JURISDICTIONS)

FLOODWAY DATA

CASPER KILL CREEK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Clove Brook								
A	500[1]	459	779	1.3	496.5	496.5	497.2	0.7
B	1,148[1]	300	761	1.3	498.1	498.1	498.9	0.8
C	2,600[1]	385	388	2.6	499.8	499.8	500.6	0.8
D	3,500[1]	152	370	2.1	504.6	504.6	505.3	0.7
E	4,400[1]	180	467	1.7	507.5	507.5	508.4	0.9
F	5,400[1]	226	381	2.1	511.0	511.0	511.8	0.8
G	6,400[1]	186	517	1.5	514.9	514.9	515.8	0.9
H	7,600[1]	129	312	2.1	520.2	520.2	521.2	1.0
I	8,800[1]	180	237	2.8	525.7	525.7	526.5	0.8
J	9,600[1]	160	208	2.7	532.4	532.4	533.4	1.0
K	10,300[1]	106	198	2.9	538.7	538.7	539.7	1.0
Clove Creek								
A	1,700[2]	90	520	5.8	211.2	208.7[3]	209.7	1.0
B	3,140[2]	90	743	4.0	214.5	214.5	215.2	0.7
C	5,730[2]	90	709	4.2	217.3	217.3	218.2	0.9
D	8,440[2]	90	617	4.8	225.1	225.1	225.9	0.8
E	11,700[2]	75	378	7.9	232.6	232.6	233.2	0.6
F	13,490[2]	100	699	4.3	238.1	238.1	238.9	0.8
G	15,240[2]	75	527	5.7	244.9	244.9	245.3	0.4
H	17,180[2]	325	1,197	2.5	247.5	247.5	248.1	0.6

[1]Feet above confluence with Pray Pond
[2]Feet above confluence with Fishkill Creek
[3]Elevation computed without consideration of backwater effects from Fishkill Creek

TABLE 10

FEDERAL EMERGENCY MANAGEMENT AGENCY

DUTCHESS COUNTY, NY
(ALL JURISDICTIONS)

FLOODWAY DATA

CLOVE BROOK – CLOVE CREEK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Clove Mountain Creek								
A	170[1]	23	59	7.3	502.2	502.2	502.2	0.0
B	1,230[1]	19	62	5.2	519.2	519.2	519.9	0.7
C	2,250[1]	13	37	8.1	554.7	554.7	554.7	0.0
D	5,400[1]	46	205	1.3	665.1	665.1	665.7	0.6
E	6,015[1]	52	157	1.3	667.8	667.8	668.6	0.8
F	7,000[1]	31	67	2.4	678.2	678.2	679.2	1.0
G	7,900[1]	21	46	3.5	689.6	689.6	690.5	0.9
H	8,800[1]	11	24	5.0	702.9	702.9	703.6	0.7
Crum Elbow Creek								
A	800[2]	35	104	9.8	10.4	10.4	10.4	0.0
B	3,235[2]	55	370	2.8	108.7	108.7	108.7	0.0
C	3,745[2]	115	770	1.3	112.6	112.6	112.6	0.0
D	5,310[2]	195	324	3.1	133.1	133.1	133.1	0.0
E	7,380[2]	45	115	8.9	154.3	154.3	154.3	0.0
F	9,140[2]	50	167	6.1	177.0	177.0	177.0	0.0
G	11,430[2]	44	177	5.8	201.9	201.9	202.4	0.5
H	12,650[2]	60	246	4.1	213.8	213.8	213.9	0.1
I	15,150[2]	131	231	4.4	221.5	221.5	221.8	0.3
J	17,890[2]	264	755	1.3	230.7	230.7	230.7	0.0
K	21,180[2]	55	288	3.5	235.1	235.1	235.1	0.0
L	24,420[2]	40	286	3.6	238.0	238.0	238.2	0.2
M	25,850[2]	55	336	3.0	238.3	238.3	238.9	0.6
N	27,790[2]	70	350	2.9	239.8	239.8	240.4	0.6

[1]Feet above confluence with Jackson Creek Reach 2
[2]Feet above confluence with Hudson River

TABLE 10

FEDERAL EMERGENCY MANAGEMENT AGENCY

DUTCHESS COUNTY, NY
(ALL JURISDICTIONS)

FLOODWAY DATA

CLOVE MOUNTAIN CREEK – CRUM ELBOW CREEK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Crum Elbow Creek (continued)								
O	30,780	50	146	7.0	244.4	244.4	244.6	0.2
P	31,650	57	349	2.9	246.3	246.3	247.0	0.7
Q	33,730	70	215	4.0	248.8	248.8	249.3	0.5
R	37,330	90	376	2.3	253.7	253.7	254.6	0.9
S	39,720	100	449	1.9	256.2	256.2	256.9	0.7
T	41,990	100	399	2.1	258.1	258.1	259.1	1.0
U	45,640	80	250	3.4	268.3	268.3	268.4	0.1
V	47,170	40	225	2.8	272.6	272.6	273.0	0.4
W	49,450	30	137	4.5	275.0	275.0	275.6	0.6
X	51,470	40	179	3.5	278.6	278.6	279.1	0.5
Y	53,720	40	153	4.1	280.2	280.2	280.8	0.6
Z	54,560	35	150	4.1	281.8	281.8	282.5	0.7
AA	56,510	45	180	3.5	288.4	288.4	288.7	0.3
AB	58,220	97	286	2.2	289.7	289.7	290.5	0.8
AC	60,080	64	195	3.2	292.3	292.3	293.0	0.7
AD	63,040	27	110	2.9	297.8	297.8	298.5	0.7
AE	64,960	40	137	2.3	300.1	300.1	300.8	0.7
AF	67,060	20	71	4.5	312.0	312.0	312.7	0.7
AG	69,840	19	42	7.7	321.7	321.7	322.5	0.8
AH	71,550	17	48	6.7	344.7	344.7	345.3	0.6
AI	73,740	21	57	5.6	386.5	386.5	387.1	0.6
AJ	75,640	25	50	6.4	411.5	411.5	411.6	0.1

[1]Feet above confluence with Hudson River

TABLE 10

FEDERAL EMERGENCY MANAGEMENT AGENCY

DUTCHESS COUNTY, NY
(ALL JURISDICTIONS)

FLOODWAY DATA

CRUM ELBOW CREEK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
East Branch Croton River								
A	400[1]	318	1,369	1.4	433.7	433.7	434.7	1.0
B	1,420[1]	255	1,278	1.5	434.9	434.9	435.4	0.5
C	3,730[1]	225	1,003	1.1	436.5	436.5	436.7	0.2
D	6,250[1]	230	1,156	1.0	436.7	436.7	437.0	0.3
E	9,220[1]	210	804	1.1	437.1	437.1	437.6	0.5
F	12,000[1]	120	550	1.7	440.4	440.4	440.6	0.2
G	13,640[1]	150	796	0.9	442.7	442.7	442.9	0.2
H	15,040[1]	160	813	0.9	442.8	442.8	443.0	0.2
I	17,060[1]	90	253	2.9	449.0	449.0	449.1	0.1
East Branch Wappinger Creek Reach 1								
A	310[2]	75	612	6.1	252.8	251.1[3]	252.1	1.0
B	620[2]	55	295	12.7	253.4	253.4	254.2	0.8
C	1,600[2]	70	900	4.2	262.7	262.7	263.7	1.0
D	3,390[2]	358	2,727	1.4	263.4	263.4	264.4	1.0
E	4,400[2]	186	1,075	3.5	263.7	263.7	264.7	1.0
F	5,994[2]	156	1,228	3.0	266.2	266.2	267.0	0.8
G	6,220[2]	76	739	5.1	282.0	282.0	283.0	1.0
H	7,300[2]	167	1,064	3.5	283.1	283.1	284.0	0.9

[1]Feet above limit of detailed study (limit of detailed study is approximately 580 feet downstream of railroad)
[2]Feet above confluence with Wappinger Creek Reach 1
[3]Elevation computed without consideration of backwater effects from Wappinger Creek Reach 1

TABLE 10

FEDERAL EMERGENCY MANAGEMENT AGENCY

DUTCHESS COUNTY, NY
(ALL JURISDICTIONS)

FLOODWAY DATA

EAST BRANCH CROTON RIVER -
EAST BRANCH WAPPINGER CREEK REACH 1

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Fall Kill								
A	5,770[1]	80	361	4.6	216.9	216.9	217.1	0.2
B	8,830[1]	180	876	1.9	220.2	220.2	220.4	0.2
C	11,860[1]	120	702	2.4	222.9	222.9	223.4	0.5
D	13,970[1]	100	660	2.5	223.8	223.8	224.5	0.7
E	15,670[1]	140	1,020	1.6	224.6	224.6	225.4	0.8
F	19,570[1]	100	653	2.2	227.5	227.5	227.8	0.3
G	21,110[1]	130	598	2.4	228.3	228.3	228.8	0.5
H	23,350[1]	120	319	4.5	232.2	232.2	232.5	0.3
Fall Kill Creek								
A	14,250[2]	90	1,012	2.3	181.2	181.2	182.2	1.0
B	14,945[2]	237	2,346	1.0	181.4	181.4	182.4	1.0
C	16,200[2]	613	6,205	0.4	181.5	181.5	182.5	1.0
D	16,974[2]	390	3,712	0.6	181.7	181.7	182.6	0.9
E	17,800[2]	138	1,466	1.6	182.7	182.7	183.4	0.7
F	19,230[2]	116	1,024	2.2	182.8	182.8	183.6	0.8

[1]Feet above limit of detailed study (Limit of Detailed Study is approximately 4,477 feet downstream of East Dorsey Lane)
[2]Feet above confluence with Hudson River

TABLE 10

FEDERAL EMERGENCY MANAGEMENT AGENCY

DUTCHESS COUNTY, NY
(ALL JURISDICTIONS)

FLOODWAY DATA

FALL KILL – FALL KILL CREEK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Fishkill Creek								
A	90	308	5,004	6.7	7.2	4.1[2]	4.1	0.0
B	1,991	137	809	14.5	7.2	5.4[2]	5.4	0.0
C	2,239	118	1,431	9.0	8.3	8.3	8.6	0.3
D	2,693	141	1,902	6.8	16.5	16.5	16.5	0.0
E	3,330	194	2,319	5.6	34.3	34.3	34.3	0.0
F	4,967	117	1,017	12.7	41.5	41.5	41.9	0.4
G	5,298	97	1,177	11.0	50.6	50.6	50.9	0.3
H	6,286	150	1,029	12.6	54.3	54.3	54.3	0.0
I	6,745	177	2,153	6.0	85.0	85.0	85.7	0.7
J	7,897	111	1,422	9.1	86.4	86.4	87.1	0.7
K	9,011	150	2,114	6.1	95.1	95.1	95.1	0.0
L	11,741	135	1,397	9.2	129.0	129.0	129.2	0.2
M	12,272	92	829	15.6	132.2	132.2	132.4	0.2
N	12,895	87	954	13.5	137.1	137.1	137.6	0.5
O	13,641	185	2,616	4.9	143.2	143.2	143.6	0.4
P	15,345	178	1,896	6.7	146.1	146.1	146.1	0.0
Q	16,827	91	2,509	5.1	180.6	180.6	181.3	0.7
R	18,193	117	1,753	7.2	182.7	182.7	183.3	0.6
S	19,548	325	2,549	5.0	203.9	203.9	203.9	0.0
T	20,366	185	2,108	6.0	205.6	205.6	205.6	0.0
U	21,438	155	1,800	7.0	206.9	206.9	207.2	0.3
V	24,410	1,089	11,553	1.1	209.4	209.4	209.9	0.5
W	31,280	327	3,568	3.5	210.2	210.2	210.7	0.5
X	34,591	994	9,500	1.3	211.0	211.0	211.7	0.7
Y	37,852	363	3,269	3.8	214.5	214.5	214.6	0.1
Z	40,867	570	4,396	2.8	216.3	216.3	216.5	0.2
AA	44,662	364	3,260	3.4	218.9	218.9	219.4	0.6
AB	46,887	266	2,319	4.8	220.1	220.1	221.1	1.0

[1]Feet above confluence with Hudson River
[2]Elevation computed without consideration of backwater effects from Hudson River

TABLE 10

FEDERAL EMERGENCY MANAGEMENT AGENCY

DUTCHESS COUNTY, NY
(ALL JURISDICTIONS)

FLOODWAY DATA

FISHKILL CREEK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Fishkill Creek (continued)								
AC	48,578	329	3,598	3.1	222.1	222.1	222.9	0.8
AD	52,858	1,047	10,449	1.1	223.6	223.6	224.4	0.8
AE	60,038	1,800	12,464	0.5	224.0	224.0	225.0	1.0
AF	61,914	758	4,401	1.5	225.0	225.0	225.6	0.6
AG	65,432	1,108	6,948	0.9	225.5	225.5	226.2	0.7
AH	71,375	1,314	4,856	1.3	229.5	229.5	230.1	0.6
AI	73,334	397	2,735	2.4	233.7	233.7	233.7	0.0
AJ	78,830	129	866	6.6	236.3	236.3	236.5	0.2
AK	79,650	169	1,170	4.0	239.1	239.1	239.8	0.7
AL	81,649	460	2,602	1.8	242.2	242.2	242.5	0.3
AM	83,196	401	2,347	2.0	244.0	244.0	244.1	0.1
AN	85,284	187	1,145	4.1	247.2	247.2	247.5	0.3
AO	88,987	380	2,169	2.2	251.4	251.4	251.9	0.5
AP	90,818	282	1,631	2.9	253.5	253.5	253.9	0.4
AQ	91,906	138	1,067	4.4	254.9	254.9	255.2	0.3
AR	94,711	347	2,453	1.9	258.4	258.4	258.5	0.1
AS	96,194	59	341	13.5	269.4	269.4	269.4	0.0
AT	96,386	158	1,068	4.3	285.8	285.8	285.9	0.1
AU	99,404	810	3,996	1.2	287.2	287.2	287.5	0.3
AV	102,199	369	2,116	2.2	292.4	292.4	292.4	0.0
AW	103,380	619	2,507	1.8	292.9	292.9	293.2	0.4
AX	107,496	614	2,816	1.6	298.3	298.3	298.4	0.1
AY	110,224	385	1,815	2.5	302.4	302.4	302.4	0.0
AZ	113,199	358	2,131	2.2	306.0	306.0	306.3	0.3
BA	113,853	282	1,800	2.6	307.4	307.4	308.2	0.8
BB	116,445	776	5,495	0.8	309.6	309.6	310.1	0.5
BC	118,977	336	736	6.2	311.1	311.1	311.2	0.1
BD	119,792	558	3,118	1.5	313.7	313.7	314.5	0.8

[1]Feet above confluence with Hudson River

TABLE 10

FEDERAL EMERGENCY MANAGEMENT AGENCY

DUTCHESS COUNTY, NY
(ALL JURISDICTIONS)

FLOODWAY DATA

FISHKILL CREEK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Fishkill Creek (continued)								
BE	123,962	1,481	5,824	1.2	316.4	316.4	317.2	0.8
BF	125,972	1,342	26,059	3.5	320.9	320.9	320.9	0.0
BG	127,552	1,608	21,670	3.2	325.8	325.8	325.8	0.0
BH	129,346	178	794	5.3	331.5	331.5	331.5	0.0
BI	131,227	230	1,154	3.6	336.3	336.3	337.1	0.8
BJ	134,564	400	1,827	2.3	347.5	347.5	347.8	0.3
BK	136,939	346	1,211	2.0	351.9	351.9	352.0	0.1
BL	140,196	417	848	3.8	361.3	361.3	361.3	0.0
BM	141,008	225	866	2.8	364.8	364.8	364.9	0.1
BN	144,168	301	1,104	2.2	374.8	374.8	374.8	0.0
BO	144,945	321	718	3.4	377.3	377.3	377.4	0.1
BP	146,099	457	919	2.1	380.9	380.9	380.9	0.0
BQ	147,377	180	586	3.3	386.4	386.4	386.5	0.1
BR	148,895	42	251	7.8	395.7	395.7	395.7	0.0
BS	149,724	90	392	4.4	404.5	404.5	404.7	0.2
BT	149,876	106	1,501	1.1	424.7	424.7	424.7	0.0
BU	152,670	61	175	9.6	445.7	445.7	445.7	0.0
BV	153,301	124	460	3.7	450.0	450.0	450.2	0.2
BW	153,925	198	763	2.2	454.0	454.0	454.0	0.0
BX	154,598	80	250	6.7	455.6	455.6	455.7	0.1
BY	155,352	203	1,274	1.3	467.0	467.0	467.0	0.0
BZ	160,302	542	1,751	0.8	468.2	468.2	468.4	0.2
CA	163,849	548	1,291	1.2	471.5	471.5	471.9	0.4
CB	165,540	335	871	1.8	472.9	472.9	473.6	0.7
CC	167,435	304	857	1.8	476.1	476.1	476.6	0.5
CD	168,614	266	950	1.6	478.4	478.4	478.5	0.1
CE	171,843	131	639	2.9	486.6	486.6	486.7	0.1
CF	173,181	345	1,255	1.2	487.3	487.3	487.6	0.3

[1]Feet above confluence with Hudson River

TABLE 10

FEDERAL EMERGENCY MANAGEMENT AGENCY

DUTCHESS COUNTY, NY
(ALL JURISDICTIONS)

FLOODWAY DATA

FISHKILL CREEK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Fishkill Creek (continued)								
CG	175,637[1]	289	894	1.3	491.3	491.3	491.8	0.5
CH	177,389[1]	384	971	1.2	496.1	496.1	496.2	0.1
Frog Hollow Brook								
A	830[2]	35	138	7.0	314.3	314.3	315.3	1.0
B	2,250[2]	35	145	6.6	321.3	321.3	321.8	0.5
C	6,310[2]	28	101	9.5	370.7	370.7	371.3	0.6
D	7,960[2]	42	121	7.9	394.9	394.9	395.8	0.9
E	12,070[2]	55	188	5.1	428.2	428.2	429.2	1.0

[1]Feet above confluence with Hudson River
[2]Feet above confluence with Fishkill Creek

TABLE 10

FEDERAL EMERGENCY MANAGEMENT AGENCY

DUTCHESS COUNTY, NY
(ALL JURISDICTIONS)

FLOODWAY DATA

FISHKILL CREEK - FROG HOLLOW BROOK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Great Spring Creek								
A	500	74	212	6.6	210.8	202.4[2]	202.5	0.1
B	650	292	2,134	0.7	210.8	209.1[2]	209.2	0.1
C	2,058	48	204	6.9	210.8	209.2[2]	209.2	0.0
D	2,650	154	714	2.0	211.7	211.7	212.0	0.3
E	3,240	217	1,168	1.2	212.0	212.0	212.5	0.5
F	4,285	68	406	3.5	212.3	212.3	212.8	0.5
G	4,360	183	865	1.6	212.5	212.5	213.1	0.6
H	4,740	299	1,354	1.0	212.7	212.7	213.4	0.7
I	5,480	431	1,843	0.5	212.8	212.8	213.6	0.8
J	6,740	44	129	7.1	214.0	214.0	214.5	0.5
K	7,350	87	480	1.9	217.4	217.4	218.2	0.8
L	7,454	108	569	1.6	217.5	217.5	218.3	0.8
M	7,790	419	1,898	0.5	217.8	217.8	218.6	0.8
N	7,895	325	1,509	0.6	217.8	217.8	218.6	0.8
O	8,800	76	237	3.9	219.7	219.7	219.7	0.0
P	11,095	120	210	4.4	230.8	230.8	231.1	0.3
Q	11,265	50	242	3.8	231.8	231.8	232.4	0.6
R	13,040	200	1,468	0.6	244.3	244.3	244.8	0.5
S	13,160	103	609	1.5	244.3	244.3	244.8	0.5

[1]Feet above confluence with Wappinger Creek Reach 1
[2]Elevation computed without consideration of backwater effects from Wappinger Creek

TABLE 10

FEDERAL EMERGENCY MANAGEMENT AGENCY

DUTCHESS COUNTY, NY
(ALL JURISDICTIONS)

FLOODWAY DATA

GREAT SPRING CREEK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Jackson Creek Reach 1								
A	4,530	420	1,126	1.7	295.3	295.3	296.2	0.9
B	6,470	396	1,473	1.3	298.2	298.2	298.2	0.0
C	8,875	269	794	2.5	306.1	306.1	307.1	1.0
D	9,867	301	1,874	1.0	314.0	314.0	315.0	1.0
E	11,155	241	1,135	1.7	314.8	314.8	315.7	0.9
F	11,920	179	713	2.8	318.3	318.3	318.5	0.2
G	12,780	280	1,053	1.9	320.5	320.5	320.7	0.2
H	13,720	340	676	2.9	324.5	324.5	324.5	0.0
I	15,670	575	1,424	1.4	331.2	331.2	331.2	0.0
J	19,060	514	3,221	0.6	344.2	344.2	344.3	0.1
K	21,300	128	458	3.8	355.3	355.3	356.0	0.7
L	22,370	66	298	5.8	364.0	364.0	364.9	0.9
M	24,090	36	187	9.0	380.8	380.8	381.3	0.5
N	25,475	262	514	3.3	405.6	405.6	405.8	0.2
O	25,785	36	193	8.7	413.4	413.4	413.5	0.1
P	26,360	63	447	3.8	429.9	429.9	430.8	0.9

[1]Feet above mouth

TABLE 10

FEDERAL EMERGENCY MANAGEMENT AGENCY

DUTCHESS COUNTY, NY
(ALL JURISDICTIONS)

FLOODWAY DATA

JACKSON CREEK REACH 1

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Jackson Creek Reach 2								
A	200	24	92	9.9	423.1	423.1	423.6	0.5
B	1,250	70	196	4.6	435.7	435.7	436.1	0.4
C	2,230	40	159	5.7	443.7	443.7	444.1	0.4
D	3,180	140	350	2.6	455.2	455.2	456.2	1.0
E	3,900	245	329	2.8	461.0	461.0	461.8	0.8
F	4,600	90	255	3.3	466.4	466.4	467.3	0.9
G	5,350	37	142	5.4	471.9	471.9	472.4	0.5
H	6,400	31	96	8.0	481.0	481.0	481.0	0.0
I	7,600	36	83	9.2	496.1	496.1	496.1	0.0
J	8,824	135	131	3.4	510.3	510.3	510.5	0.2
K	9,800	25	63	7.0	522.1	522.1	522.9	0.8
L	11,100	64	87	5.1	538.2	538.2	539.2	1.0
M	11,900	24	75	5.9	546.5	546.5	546.5	0.0
N	12,950	37	92	4.0	558.2	558.2	559.2	1.0
O	14,200	21	52	7.2	573.2	573.2	573.6	0.4
P	15,150	19	41	7.5	588.2	588.2	588.5	0.3
Q	16,075	28	45	6.9	604.0	604.0	604.0	0.0
R	16,950	29	39	6.6	617.6	617.6	617.7	0.1
S	17,530	23	43	6.0	632.8	632.8	632.8	0.0
T	17,740	17	36	7.3	637.1	637.1	637.3	0.2

[1]Feet above Limit of Detailed Study (Limit of Detailed Study is approximately 3,264 feet downstream of State Route 55)

TABLE 10

FEDERAL EMERGENCY MANAGEMENT AGENCY

DUTCHESS COUNTY, NY
(ALL JURISDICTIONS)

FLOODWAY DATA

JACKSON CREEK REACH 2

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Kelsey Brook								
A	150[1]	140	731	1.3	681.5	681.5	682.3	0.8
B	900[1]	34	177	5.4	695.0	695.0	695.6	0.6
C	1,220[1]	80	350	2.7	704.7	704.7	704.7	0.0
D	1,990[1]	96	345	2.8	705.7	705.7	706.0	0.3
E	2,780[1]	84	379	2.5	706.9	706.9	707.8	0.9
F	5,420[1]	18	129	7.4	724.3	724.3	725.2	0.9
Landsman Kill								
A	1,910[2]	160	686	2.2	127.1	127.1	128.1	1.0
B	2,890[2]	110	598	2.6	129.0	129.0	129.4	0.4
C	3,900[2]	90	268	5.7	131.2	131.2	131.5	0.3
D	4,290[2]	20	115	13.3	141.1	141.1	141.7	0.6
E	5,040[2]	25	125	12.2	165.1	165.1	165.4	0.3
F	6,050[2]	100	643	2.4	184.3	184.3	184.3	0.0
G	8,960[2]	70	279	5.5	189.4	189.4	189.6	0.2
H	10,660[2]	130	578	2.6	193.0	193.0	193.4	0.4
I	11,840[2]	120	656	2.3	198.8	198.8	198.8	0.0
J	14,040[2]	50	285	5.4	202.4	202.4	203.2	0.8
K	15,890[2]	26	130	11.8	218.6	218.6	219.6	1.0
L	17,060[2]	50	233	6.6	238.8	238.8	239.8	1.0
M	19,530[2]	50	349	4.4	256.9	256.9	256.9	0.0
N	22,330[2]	100	250	6.1	292.4	292.4	292.5	0.1
O	24,550[2]	100	657	2.3	301.0	301.0	301.4	0.4
P	26,170[2]	70	351	4.4	303.3	303.3	303.6	0.3

[1]Feet above confluence with Webatuck Creek Reach 3
[2]Feet above confluence of Rhinebeck Kill

TABLE 10

FEDERAL EMERGENCY MANAGEMENT AGENCY

DUTCHESS COUNTY, NY
(ALL JURISDICTIONS)

FLOODWAY DATA

KELSEY BROOK – LANDSMAN KILL

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Little Wappinger Creek Reach 1								
A	175	101	800	3.1	230.5	230.5	230.8	0.3
B	1,680	93	434	5.7	231.3	231.3	231.8	0.5
C	2,690	87	418	5.9	233.8	233.8	234.0	0.2
D	4,040	73	260	9.5	238.1	238.1	238.1	0.0
E	4,335	65	1,519	1.6	242.9	242.9	243.0	0.1
F	5,200	126	861	2.9	250.7	250.7	250.8	0.1
G	6,600	133	820	3.0	251.2	251.2	251.4	0.2
H	7,830	74	348	6.7	251.6	251.6	252.0	0.4
I	9,910	145	861	2.7	256.3	256.3	257.0	0.7
J	12,670	70	515	4.5	260.0	260.0	260.5	0.5
K	15,850	110	528	4.9	265.1	265.1	265.9	0.8
L	18,670	100	514	4.5	273.6	273.6	274.2	0.6
M	19,790	90	454	5.1	276.9	276.9	277.7	0.8
N	23,910	90	279	6.1	289.7	289.7	290.2	0.5
O	26,450	120	510	4.0	304.0	304.0	304.0	0.0
P	28,360	90	409	4.9	308.2	308.2	308.3	0.1
Q	32,210	90	476	4.2	320.7	320.7	321.1	0.4
R	35,130	100	458	4.4	327.8	327.8	328.1	0.3
S	37,390	100	615	3.3	330.7	330.7	331.4	0.7
T	39,850	130	373	5.4	336.7	336.7	336.7	0.0

[1]Feet above confluence with Wappinger Creek Reach 1

TABLE 10

FEDERAL EMERGENCY MANAGEMENT AGENCY

DUTCHESS COUNTY, NY
(ALL JURISDICTIONS)

FLOODWAY DATA

LITTLE WAPPINGER CREEK REACH 1

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Maritje Kill								
A	670	78	798	0.9	10.0	10.0	10.0	0.0
B	1,582	47	121	6.2	53.7	53.7	53.7	0.0
C	2,273	32	144	4.8	72.4	72.4	72.4	0.0
D	3,156	110	219	3.1	93.0	93.0	93.1	0.1
E	4,344	36	110	6.2	112.9	112.9	113.2	0.3
F	5,649	45	139	4.4	150.5	150.5	150.5	0.0
G	6,433	63	104	6.0	177.0	177.0	177.0	0.0
H	6,872	61	228	2.7	187.9	187.9	188.0	0.1
I	7,705	37	157	3.9	189.7	189.7	189.8	0.1
J	9,309	107	442	1.1	193.3	193.3	193.7	0.4
K	10,952	53	161	3.1	199.2	199.2	199.4	0.2
L	12,865	155	596	0.7	220.5	220.5	220.5	0.0
M	14,951	157	184	2.3	221.2	221.2	221.2	0.0
N	16,450	205	1,539	0.5	231.4	231.4	231.4	0.0
O	16,876	144	1,324	0.6	231.4	231.4	231.4	0.0
P	19,906	296	2,524	0.3	231.4	231.4	231.5	0.1
Q	21,812	64	103	5.4	236.2	236.2	236.4	0.2
R	23,613	80	304	1.8	250.0	250.0	250.7	0.7

[1]Feet above confluence with Hudson River

TABLE 10

FEDERAL EMERGENCY MANAGEMENT AGENCY

DUTCHESS COUNTY, NY
(ALL JURISDICTIONS)

FLOODWAY DATA

MARITJE KILL

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Rhinebeck Kill								
A	1,430	163	1,095	1.3	126.1	126.1	127.1	1.0
B	2,500	191	637	2.2	126.7	126.7	127.5	0.8
C	4,510	76	365	3.9	128.5	128.5	129.2	0.7
D	7,570	94	818	1.7	136.6	136.6	137.0	0.4
E	10,320	117	929	1.5	139.0	139.0	139.1	0.1
F	11,330	88	515	2.8	139.3	139.3	139.5	0.2
G	12,880	111	694	2.0	140.3	140.3	140.8	0.5
H	13,615	30	199	7.1	140.6	140.6	141.0	0.4
I	14,900	106	886	1.3	145.0	145.0	145.1	0.1
J	17,060	98	723	1.6	145.6	145.6	145.9	0.3
K	18,850	85	559	2.1	146.3	146.3	146.6	0.3
L	21,010	53	336	3.5	147.9	147.9	148.3	0.4
M	22,830	28	176	6.6	149.2	149.2	149.7	0.5
N	25,180	120	731	1.1	156.1	156.1	156.1	0.0
O	26,340	65	349	2.4	156.4	156.4	156.4	0.0
P	28,480	50	151	5.6	159.8	159.8	160.6	0.8
Q	29,250	40	178	4.7	163.9	163.9	164.5	0.6

[1]Feet above confluence with Landsman Kill

TABLE 10

FEDERAL EMERGENCY MANAGEMENT AGENCY

DUTCHESS COUNTY, NY
(ALL JURISDICTIONS)

FLOODWAY DATA

RHINEBECK KILL

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Saw Kill								
A	130[1]	55	366	11.4	9.1	9.1	10.1	1.0
B	3,240[1]	50	319	13.1	113.6	113.6	114.6	1.0
C	4,230[1]	45	354	11.8	145.7	145.7	146.7	1.0
D	9,670[1]	90	612	6.8	167.0	167.0	168.0	1.0
E	12,940[1]	85	765	5.5	171.6	171.6	172.0	0.4
F	14,670[1]	350	2,803	1.5	173.0	173.0	173.6	0.6
G	19,150[1]	180	979	4.3	177.0	177.0	177.7	0.7
H	21,540[1]	410	3,607	1.0	182.8	182.8	183.1	0.3
I	24,050[1]	85	569	6.3	183.6	183.6	184.1	0.5
J	26,630[1]	155	1,161	3.1	202.9	202.9	202.9	0.0
K	28,820[1]	90	562	6.4	205.1	205.1	205.2	0.1
L	31,800[1]	100	809	4.5	213.0	213.0	213.5	0.5
M	33,360[1]	110	829	4.3	214.5	214.5	215.2	0.7
N	37,160[1]	140	754	4.8	220.3	220.3	220.9	0.6
O	38,140[1]	240	1,520	2.4	221.3	221.3	222.1	0.8
Seeley Creek								
A	250[2]	17	42	7.8	548.6	548.6	548.9	0.3
B	750[2]	17	41	8.0	562.8	562.8	562.8	0.0
C	1,360[2]	14	37	9.0	584.4	584.4	584.4	0.0

[1]Feet above confluence with Hudson River
[2]Feet above confluence with Clove Brook

TABLE 10

FEDERAL EMERGENCY MANAGEMENT AGENCY

DUTCHESS COUNTY, NY
(ALL JURISDICTIONS)

FLOODWAY DATA

SAW KILL – SEELEY CREEK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Sprout Creek #1								
A	1,230	175	1,240	2.8	224.3	223.7[2]	224.5	0.9
B	2,530	350	2,076	1.7	225.4	225.4	226.4	1.0
C	4,100	386	2,044	1.7	226.6	226.6	227.4	0.8
D	6,100	758	3,599	1.0	227.4	227.4	228.3	0.9
E	10,050	590	2,269	1.5	232.1	232.1	233.1	1.0
F	12,330	295	1,743	2.0	234.6	234.6	235.2	0.6
G	14,940	335	1,538	2.3	236.1	236.1	236.7	0.6
H	16,600	360	1,591	2.2	239.1	239.1	239.6	0.5
I	18,840	220	965	3.6	242.0	242.0	242.5	0.5
J	19,640	250	1,240	2.8	243.2	243.2	244.1	0.9
K	22,750	220	1,178	3.0	247.2	247.2	248.0	0.8
L	24,000	200	763	4.6	249.8	249.8	250.5	0.7
M	25,400	77	662	5.3	253.1	253.1	253.3	0.2
N	27,460	100	789	4.4	255.6	255.6	256.3	0.7
O	28,400	474	3,421	1.0	257.9	257.9	258.8	0.9
P	29,780	685	2,589	1.3	258.3	258.3	259.1	0.8
Q	31,830	546	1,129	3.1	262.8	262.8	262.8	0.0
R	33,077	96	611	5.7	265.7	265.7	266.3	0.6
S	34,480	102	841	4.1	267.2	267.2	268.0	0.8
T	34,565	300	1,526	2.3	267.5	267.5	269.2	0.9
U	36,000	720	4,191	0.8	268.2	268.2	269.2	1.0
V	37,080	182	672	5.2	270.6	270.6	270.6	0.0
W	38,390	370	1,645	2.1	272.1	272.1	272.8	0.7
X	39,000	292	1,079	3.2	273.1	273.1	273.9	0.8
Y	40,020	540	2,277	1.5	276.7	276.7	276.7	0.0
Z	41,384	168	803	4.3	278.3	278.3	278.3	0.0
AA	42,600	162	688	6.9	279.6	279.6	279.8	0.2
AB	43,900	317	1,579	2.2	282.4	282.4	282.7	0.3

[1]Feet above confluence with Fishkill Creek
[2]Elevation computed without consideration of backwater effects from Fishkill Creek

TABLE 10

FEDERAL EMERGENCY MANAGEMENT AGENCY

DUTCHESS COUNTY, NY
(ALL JURISDICTIONS)

FLOODWAY DATA

SPROUT CREEK #1

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Sprout Creek #1 (continued)								
AC	45,000	552	2,470	1.4	283.3	283.3	284.1	0.8
AD	46,270	530	2,480	1.4	285.6	285.6	286.3	0.7
AE	47,400	428	1,688	2.1	286.1	286.1	286.7	0.6
AF	48,400	263	1,070	2.3	287.3	287.3	288.1	0.8
AG	49,660	287	1,420	1.8	288.8	288.8	289.7	0.9
AH	50,042	583	2,675	1.0	289.0	289.0	290.0	1.0
AI	51,200	232	1,059	2.4	289.9	289.9	290.6	0.7
AJ	51,710	414	2,135	1.2	290.6	290.6	291.6	1.0
AK	52,330	662	2,853	0.9	290.9	290.9	291.9	1.0
AL	53,100	165	474	5.3	292.0	292.0	292.0	0.0
AM	56,210	531	2,184	1.1	296.8	296.8	297.3	0.5
AN	56,341	61	369	6.8	296.9	296.9	297.3	0.4
AO	56,790	105	1,432	1.7	298.1	298.1	298.6	0.5
AP	59,030	345	3,577	0.7	299.7	299.7	300.6	0.9
AQ	63,280	180	1,722	1.5	304.2	304.2	305.0	0.8
AR	64,100	28	944	2.6	305.9	305.9	306.7	0.8
AS	65,140	220	1,887	1.1	309.6	309.6	310.3	0.7
AT	65,266	124	713	3.0	312.2	312.2	313.0	0.8
AU	68,165	251	702	3.1	315.9	315.9	316.6	0.7
AV	68,527	58	373	5.8	318.1	318.1	318.1	0.0
AW	71,000	244	1,591	1.4	322.1	322.1	322.9	0.8
AX	71,890	87	278	7.7	324.0	324.0	324.0	0.0
AY	72,030	334	1,587	1.2	327.2	327.2	327.2	0.0
AX	73,780	436	1,405	1.3	327.5	327.5	327.9	0.4
BA	73,889	731	3,527	0.5	329.0	329.0	330.0	1.0
BB	74,020	471	2,079	0.9	329.1	329.1	330.1	1.0
BC	74,970	200	692	2.7	329.7	329.7	330.6	0.9
BD	78,390	387	1,393	1.4	336.0	336.0	336.6	0.6

[1]Feet above confluence with Fishkill Creek

TABLE 10

FEDERAL EMERGENCY MANAGEMENT AGENCY

DUTCHESS COUNTY, NY (ALL JURISDICTIONS)

FLOODWAY DATA

SPROUT CREEK #1

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Sprout Creek #2								
A	250'	*	142	9.4	433.3	433.3	433.6	0.3
B	1,250'	*	106	11.6	461.0	461.0	461.0	0.0
C	2,200'	46	286	4.3	508.6	508.6	509.4	0.8
D	2,800'	87	403	3.1	509.8	509.8	510.8	1.0
E	3,700'	28	150	8.2	515.6	515.6	516.3	0.7
F	4,800'	28	155	8.0	530.5	530.5	530.9	0.4
G	5,685'	125	305	4.0	541.0	541.0	541.7	0.7
H	6,750'	56	160	5.6	546.4	546.4	547.4	1.0
I	7,750'	85	321	2.8	552.2	552.2	553.2	1.0
J	8,750'	71	235	3.4	557.4	557.4	558.3	0.9
K	9,617'	150	256	3.2	563.4	563.4	564.3	0.9
L	9,800'	89	193	4.6	564.7	564.7	565.7	1.0
Stony Creek								
A	1,580'	110	642	5.8	83.8	83.8	84.7	0.9
B	3,200'	40	262	14.2	101.9	101.9	102.5	0.6
C	4,270'	65	356	10.5	112.4	112.4	112.5	0.1
D	6,180'	60	660	5.7	131.3	131.3	131.3	0.0

[1]Feet above Limit of Detailed Study (Limit of Detailed Study is approximately 1,820 feet downstream of Verbank Village Road)
[2]Feet above Limit of Detailed Study (Limit of Detailed Study is approximately 3,108 feet downstream of Mill Street)
*Floodway coincident with channel banks

TABLE 10

FEDERAL EMERGENCY MANAGEMENT AGENCY

DUTCHESS COUNTY, NY (ALL JURISDICTIONS)

FLOODWAY DATA

SPROUT CREEK #2 – STONY CREEK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Swamp River Reach 1								
A	979[1]	250	2,350	3.1	366.8	366.8	367.6	0.8
B	3,445[1]	254	1,380	8.0	367.7	367.7	368.7	1.0
C	4,325[1]	275	1,267	9.1	369.5	369.5	370.5	1.0
D	5,603[1]	244	1,262	5.9	372.4	372.4	372.9	0.5
Swamp River Reach 2								
A	1,860[2]	167	1,188	1.5	423.9	423.9	424.4	0.5
B	3,630[2]	298	2,153	0.8	424.1	424.1	424.6	0.5
C	5,400[2]	178	1,282	1.3	424.5	424.5	425.1	0.6
D	7,200[2]	250	1,802	1.0	425.1	425.1	425.8	0.7
E	9,120[2]	257	1,777	1.0	425.5	425.5	426.2	0.7
F	11,120[2]	212	1,194	1.4	425.9	425.9	426.6	0.7
G	13,030[2]	202	950	1.5	426.7	426.7	427.5	0.8
H	15,870[2]	176	921	1.6	427.9	427.9	428.7	0.8
I	17,690[2]	177	967	1.1	429.9	429.9	430.1	0.2
J	19,330[2]	216	956	1.1	430.3	430.3	430.6	0.3
K	21,030[2]	64	331	3.3	431.6	431.6	432.4	0.8
L	22,090[2]	140	733	1.5	434.4	434.4	434.7	0.3
M	24,280[2]	158	1,065	1.0	436.8	436.8	437.3	0.5
N	26,150[2]	139	576	1.9	437.9	437.9	438.7	0.8
O	29,780[2]	70	300	3.6	453.3	453.3	454.2	0.9

[1]Feet above confluence with Tenmile River
[2]Feet above Limit of Detailed Dtudy (Limit of Detailed Study is approximately 910 feet downstream of Kitchen Road)

TABLE 10

FEDERAL EMERGENCY MANAGEMENT AGENCY

DUTCHESS COUNTY, NY
(ALL JURISDICTIONS)

FLOODWAY DATA

SWAMP RIVER REACH 1 – SWAMP RIVER REACH 2

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Sweezy Creek								
A	230[1]	78	195	2.0	499.4	499.4	500.2	0.8
B	930[1]	58	94	3.6	507.8	507.7	508.4	0.7
C	1,680[1]	56	76	4.5	520.5	520.5	521.0	0.5
D	2,430[1]	36	60	5.6	536.3	536.3	537.1	0.8
E	3,030[1]	13	37	7.9	556.5	556.5	557.2	0.7
F	3,330[1]	15	36	8.1	572.0	572.0	572.0	0.0
G	3,630[1]	14	36	8.1	582.6	582.6	582.6	0.0
Sylvan Lake Outlet								
A	730[2]	54	168	5.1	292.8	290.9[3]	291.8	0.9
B	2,260[2]	100	273	3.1	295.5	295.5	296.0	0.5
C	3,890[2]	100	230	3.7	302.9	302.9	303.3	0.4
D	6,130[2]	40	145	5.9	309.2	309.2	310.0	0.8
E	7,580[2]	129	355	2.4	313.1	313.1	313.6	0.5
F	9,126[2]	76	322	2.6	319.8	319.8	320.7	0.9
G	10,546[2]	78	285	3.0	321.5	321.5	322.0	0.5
H	11,366[2]	20	84	10.1	323.8	323.8	324.6	0.8

[1]Feet above confluence with Clove Brook
[2]Feet above confluence with Fishkill Creek
[3]Elevation computed without consideration of backwater effects from Fish Kill Creek

TABLE 10

FEDERAL EMERGENCY MANAGEMENT AGENCY

DUTCHESS COUNTY, NY
(ALL JURISDICTIONS)

FLOODWAY DATA

SWEEZY CREEK – SYLVAN LAKE OUTLET

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
TenMile River								
A	847	132	1,044	15.8	292.6	292.6	292.6	0.0
B	2,622	187	1,615	10.3	305.3	305.3	305.3	0.0
C	4,810	224	2,074	7.9	310.8	310.8	310.9	0.1
D	6,750	264	2,341	7.0	317.8	317.8	317.8	0.0
E	8,807	275	2,475	6.4	321.1	321.1	321.6	0.5
F	10,984	128	1,796	8.8	328.8	328.8	328.9	0.1
G	12,607	126	1,696	9.3	330.4	330.4	330.8	0.4
H	14,497	306	2,482	6.4	333.3	333.3	334.0	0.7
I	16,388	205	1,965	8.1	336.5	336.5	336.8	0.3
J	17,562	211	2,113	7.5	338.1	338.1	338.8	0.7
K	18,938	112	1,759	9.0	342.9	342.9	342.9	0.0
L	21,865	259	2,213	7.1	345.4	345.4	346.3	0.9
M	24,776	432	5,735	2.7	350.6	350.6	351.5	0.9
N	26,980	520	5,410	2.9	351.2	351.2	352.1	0.9
O	29,085	541	3,501	4.4	351.9	351.9	352.9	1.0
P	31,727	508	3,801	4.1	353.4	353.4	354.3	0.9
Q	34,396	1,023	8,613	1.8	355.6	355.6	356.6	1.0
R	37,350	988	8,416	1.8	356.8	356.8	357.8	1.0
S	39,308	818	4,599	3.4	357.7	357.7	358.6	0.9
T	40,983	216	1,710	9.1	358.9	358.9	359.9	1.0
U	42,913	610	4,251	2.1	364.3	364.3	364.9	0.6
V	46,173	481	2,492	3.4	366.1	366.1	366.9	0.8
W	48,129	370	2,489	3.4	368.5	368.5	369.2	0.7
X	50,248	358	1,833	4.5	371.9	371.9	372.6	0.7
Y	54,121	171	1,121	7.4	277.0	277.0	277.1	0.1
Z	55,285	214	970	8.6	378.9	378.9	378.9	0.0
AA	57,269	310	1,742	4.8	386.3	386.3	386.3	0.0
AB	59,603	239	1,327	6.3	387.2	387.2	388.1	0.9

[1]Feet above county boundary

TABLE 10

FEDERAL EMERGENCY MANAGEMENT AGENCY

DUTCHESS COUNTY, NY
(ALL JURISDICTIONS)

FLOODWAY DATA

TENMILE RIVER

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Tributary to Amenia Stream								
A	1,836[1]	286	186	1.9	548.8	548.8	549.1	0.3
Tributary 1 to Fishkill Creek								
A	1,470[2]	16	93	9.2	209.8	205.6[4]	206.4	0.8
B	3,820[2]	85	551	1.6	213.9	213.9	213.9	0.0
C	7,180[2]	60	302	2.8	217.2	217.2	217.4	0.2
D	10,560[2]	80	690	1.2	223.5	223.5	223.6	0.1
E	14,460[2]	60	384	2.2	224.1	224.1	224.4	0.3
Tributary 2 to Fishkill Creek								
A	1,170[2]	200	297	5.1	388.4	388.4	388.4	0.0
B	3,990[2]	85	237	6.4	433.6	433.6	433.6	0.0
Tributary to East Branch Croton River								
A	395[3]	35	132	6.6	615.3	615.3	615.8	0.5
B	1,765[3]	55	134	6.5	655.2	655.2	655.6	0.4
C	3,825[3]	45	112	7.7	687.7	687.7	688.6	0.9
D	5,175[3]	35	200	4.3	703.3	703.3	704.3	1.0
E	7,725[3]	85	406	2.1	717.8	717.8	718.0	0.2

[1]Feet above confluence with Amenia Stream
[2]Feet above confluence with Fishkill Creek
[3]Feet above county boundary
[4]Elevation computed without consideration of backwater effects from Fishkill Creek

TABLE 10

FEDERAL EMERGENCY MANAGEMENT AGENCY

DUTCHESS COUNTY, NY
(ALL JURISDICTIONS)

FLOODWAY DATA

TRIBUTARY TO AMENIA STREAM – TRIBUTARY 1 TO FISHKILL CREEK - TRIBUTARY 2 TO FISHKILL CREEK – TRIBUTARY TO EAST BRANCH CROTON RIVER

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Walsh Creek								
A	300[1]	20	35	10.7	523.7	523.7	523.7	0.0
B	1,200[1]	62	98	3.9	541.7	541.7	542.7	1.0
C	2,292[1]	30	136	2.5	568.5	568.5	569.4	0.9
D	2,700[1]	18	37	9.1	576.6	576.6	576.8	0.2
E	3,200[1]	12	39	8.7	591.5	591.5	592.1	0.6
F	4,100[1]	12	40	8.5	615.2	615.2	615.6	0.4
G	5,100[1]	12	27	10.7	639.1	639.1	639.4	0.3
H	6,000[1]	12	29	7.5	664.9	664.9	664.9	0.0
I	6,540[1]	12	24	8.4	684.1	684.1	684.4	0.3
Wappinger Creek Reach 1								
A	61[2]	250	1,293	14.9	7.9	6.2[3]	6.2	0.0
B	2,591[2]	402	4,633	4.2	7.9	6.3[3]	6.3	0.0
C	5,256[2]	587	7,294	2.6	7.9	7.3[3]	7.7	0.4
D	7,061[2]	350	4,092	4.7	8.1	8.1	8.4	0.3
E	8,941[2]	204	2,365	8.1	9.1	9.1	9.3	0.2
F	9,561[2]	236	1,631	7.7	9.4	9.4	9.6	0.2
G	11,442[2]	94	1,167	16.5	70.6	70.6	70.9	0.3
H	13,602[2]	634	7,094	2.6	90.1	90.1	90.9	0.8
I	14,902[2]	1,090	10,419	1.8	90.3	90.3	91.0	0.7
J	16,991[2]	369	2,641	6.9	90.4	90.4	91.1	0.7
K	20,208[2]	607	5,506	3.3	103.1	103.1	103.6	0.5
L	21,328[2]	688	6,524	2.8	104.4	104.4	105.1	0.7
M	22,968[2]	641	7,061	2.6	107.6	107.6	107.8	0.2

[1]Feet above confluence with Clove Mountain Creek
[2]Feet above confluence with the Hudson River

TABLE 10

FEDERAL EMERGENCY MANAGEMENT AGENCY

DUTCHESS COUNTY, NY
(ALL JURISDICTIONS)

FLOODWAY DATA

WALSH CREEK – WAPPINGER CREEK REACH 1

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Wappinger Creek Reach 1 (continued)								
N	25,068	489	3,364	5.4	108.8	108.8	109.7	0.9
O	27,098	197	2,180	8.4	111.6	111.6	112.4	0.8
P	28,474	388	4,049	4.5	117.4	117.4	117.8	0.4
Q	30,474	575	7,818	2.3	118.9	118.9	119.5	0.6
R	32,774	390	6,740	2.7	119.4	119.4	120.0	0.6
S	35,037	146	2,354	7.8	120.5	120.5	121.4	0.9
T	36,632	135	1,801	9.5	121.8	121.8	122.7	0.9
U	38,912	186	2,567	6.7	128.7	128.7	129.0	0.3
V	40,618	172	2,539	6.8	139.2	139.2	139.2	0.0
W	42,358	705	9,819	1.8	143.7	143.7	143.7	0.0
X	44,848	526	6,184	2.8	144.5	144.5	144.5	0.0
Y	47,488	304	2,861	6.0	145.7	145.7	146.3	0.6
Z	49,768	311	3,957	4.3	147.2	147.2	148.0	0.8
AA	51,548	204	2,478	6.9	147.7	147.7	148.5	0.8
AB	54,008	327	3,277	5.2	149.2	149.2	149.9	0.7
AC	56,028	111	1,000	17.2	152.1	152.1	152.1	0.0
AD	58,439	560	7,267	2.4	161.2	161.2	161.4	0.2
AE	60,569	700	7,501	2.3	162.0	162.0	162.1	0.1
AF	63,149	614	3,475	4.9	165.4	165.4	165.9	0.5
AG	65,161	712	4,891	3.5	167.0	167.0	167.7	0.7
AH	66,901	685	3,849	4.5	168.6	168.6	169.5	0.9
AI	69,681	392	3,439	5.0	172.3	172.3	173.0	0.7
AJ	72,501	122	1,537	11.2	175.2	175.2	175.8	0.6
AK	74,391	191	1,371	12.5	183.2	183.2	183.3	0.1
AL	76,181	193	3,535	4.6	190.5	190.5	190.9	0.4

[1]Feet above confluence with Hudson River

TABLE 10

FEDERAL EMERGENCY MANAGEMENT AGENCY

DUTCHESS COUNTY, NY
(ALL JURISDICTIONS)

FLOODWAY DATA

WAPPINGER CREEK REACH 1

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Wappinger Creek Reach 1 (continued)								
AM	78,892	355	5,697	3.1	195.0	195.0	195.3	0.3
AN	80,846	144	2,213	7.9	195.3	195.3	195.6	0.3
AO	82,641	152	2,488	7.0	197.0	197.0	197.8	0.8
AP	84,647	552	8,281	2.1	198.9	198.9	199.8	0.9
AQ	85,492	940	13,400	1.3	199.1	199.1	200.0	0.9
AR	86,442	249	3,051	5.7	200.0	200.0	200.7	0.7
AS	88,132	135	1,803	9.7	201.7	201.7	202.1	0.4
AT	88,554	150	2,085	8.4	204.5	204.5	204.6	0.1
AU	89,610	104	1,385	12.7	205.9	205.9	205.9	0.0
AV	91,775	440	5,289	3.1	209.8	209.8	210.5	0.7
AW	94,574	180	2,013	6.8	211.3	211.3	212.1	0.8
AX	96,210	279	3,948	3.5	213.2	213.2	214.1	0.9
AY	97,425	792	9,015	1.5	213.7	213.7	214.6	0.9
AZ	99,959	338	3,023	4.5	213.7	213.7	215.4	0.9
BA	101,332	264	2,567	5.3	214.5	214.5	217.2	0.9
BB	103,444	303	3,370	4.0	219.0	219.0	219.8	0.8
BC	105,345	485	5,847	2.3	221.2	221.2	222.1	0.9
BD	106,454	500	10,939	1.2	221.5	221.5	222.4	0.9
BE	109,094	184	2,145	6.4	224.6	224.6	224.6	0.0
BF	111,417	675	5,319	2.1	228.8	228.8	228.9	0.1
BG	113,265	978	8,348	1.4	230.4	230.4	230.7	0.3
BH	113,740	203	1,713	5.2	231.2	231.2	232.1	0.9

[1]Feet above confluence with Hudson River

TABLE 10

FEDERAL EMERGENCY MANAGEMENT AGENCY

DUTCHESS COUNTY, NY
(ALL JURISDICTIONS)

FLOODWAY DATA

WAPPINGER CREEK REACH 1

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Wappinger Creek Reach 1 (continued)								
BI	115,377[1]	120	1,290	6.9	232.8	232.8	233.5	0.7
BJ	117,330[1]	165	1,081	8.2	235.1	235.1	235.7	0.6
BK	118,967[1]	216	1,472	6.0	239.4	239.4	239.6	0.2
BL	120,921[1]	381	2,645	3.4	242.0	242.0	242.4	0.4
BM	121,322[1]	400	2,885	3.0	242.4	242.4	242.8	0.4
BN	122,032[1]	450	2,612	3.4	243.0	243.0	243.4	0.4
BO	123,982[1]	220	1,270	6.9	245.1	245.1	245.6	0.5
BP	125,082[1]	250	2,074	4.2	248.2	248.2	248.9	0.7
BQ	126,082[1]	190	1,838	4.8	250.4	250.4	251.0	0.6
BR	127,732[1]	240	2,405	3.7	252.8	252.8	253.4	0.6
Wappinger Creek Reach 2								
A	0[2]	380	2,418	1.4	282.4	282.4	283.4	1.0
B	1,150[2]	190	1,060	3.3	283.9	283.9	284.8	0.9
C	3,150[2]	124	471	5.9	288.3	288.3	289.2	0.9
D	4,830[2]	69	368	7.6	294.1	294.1	294.7	0.6
E	6,980[2]	83	326	8.5	312.0	312.0	312.6	0.6
F	8,160[2]	50	352	7.9	321.9	321.9	322.5	0.6
G	10,310[2]	81	479	4.6	331.5	331.5	332.3	0.8

[1]Feet above confluence with Hudson River
[2]Feet above County Route 17 (Salt Point Turnpike)

TABLE 10

FEDERAL EMERGENCY MANAGEMENT AGENCY

DUTCHESS COUNTY, NY
(ALL JURISDICTIONS)

FLOODWAY DATA

WAPPINGER CREEK REACH 1 – WAPPINGER CREEK REACH 2

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Wassaic Creek								
A	3,590	617	2,131	1.9	420.6	420.6	421.5	0.9
B	7,990	97	643	6.3	432.4	432.4	433.1	0.7
Webatuck Creek Reach 1								
A	2,432	211	1,638	3.0	423.9	423.9	424.6	0.7
B	5,708	729	4,797	1.0	425.5	425.5	426.3	0.8
C	8,675	360	2,199	2.2	431.9	431.9	432.0	0.1
D	12,380	460	3,583	1.4	439.5	439.5	439.9	0.4
E	19,180	148	1,230	3.8	442.0	442.0	442.2	0.2
F	25,850	778	3,872	1.2	443.6	443.6	444.2	0.6
G	32,257	233	1,019	4.6	446.4	446.4	446.9	0.5
Webatuck Creek Reach 2								
A	45,035	64	518	7.6	460.7	460.7	461.7	1.0
B	48,749	170	965	4.1	469.2	469.2	469.6	0.4
C	53,768	340	1,278	3.1	480.5	480.5	481.3	0.8

[1]Feet above confluence with Tenmile River

TABLE 10

FEDERAL EMERGENCY MANAGEMENT AGENCY

DUTCHESS COUNTY, NY (ALL JURISDICTIONS)

FLOODWAY DATA

WASSAIC CREEK – WEBATUCK CREEK REACH 1 – WEBATUCK CREEK REACH 2

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Webatuck Creek Reach 3								
A	950	75	450	5.9	548.4	548.4	549.4	1.0
B	3,230	50	379	6.9	558.7	558.7	559.5	0.8
C	5,510	70	474	5.5	563.9	563.9	564.7	0.8
D	7,720	120	790	3.3	567.8	567.8	568.5	0.7
E	9,830	130	667	3.9	570.1	570.1	570.7	0.6
F	11,140	130	526	5.0	572.8	572.8	573.3	0.5
G	12,380	130	507	4.1	574.8	574.8	575.4	0.6
H	14,020	240	863	2.4	578.7	578.7	579.4	0.7
I	17,030	220	874	2.4	583.1	583.1	583.4	0.3
J	19,760	140	716	2.9	589.6	589.6	589.9	0.3
K	22,620	65	287	7.3	601.6	601.6	602.2	0.6
L	25,530	30	179	11.7	632.8	632.8	633.1	0.3
M	27,740	18	148	14.2	665.0	665.0	665.0	0.0
N	28,355	150	1,014	2.1	670.4	670.4	671.3	0.9
O	28,695	90	444	4.7	670.6	670.6	671.5	0.9
P	29,595	130	491	4.3	676.1	676.1	676.1	0.0
Q	30,975	50	156	8.4	683.7	683.7	683.7	0.0
R	33,395	110	425	3.1	699.8	699.8	699.8	0.0
S	35,110	265	1,942	0.7	710.9	710.9	710.9	0.0
T	36,250	60	198	6.6	711.4	711.4	711.8	0.4
U	38,340	21	107	12.3	725.2	725.2	725.7	0.5
V	41,020	65	251	5.2	743.8	743.8	744.4	0.6
W	42,500	50	358	3.7	754.0	754.0	754.9	0.9

[1]Feet above Limit of Detailed Study (Limit of Detailed Study is approximately 6,720 feet downstream of Reagen Road)

TABLE 10

FEDERAL EMERGENCY MANAGEMENT AGENCY

DUTCHESS COUNTY, NY (ALL JURISDICTIONS)

FLOODWAY DATA

WEBATUCK CREEK REACH 3

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Wells Brook								
A	725[1]	115	270	4.1	373.4	373.4	374.3	0.9
B	1,980[1]	28	168	6.6	379.4	379.4	379.6	0.2
C	4,280[1]	69	270	4.1	390.5	390.5	390.6	0.1
Whaley Lake Stream								
A	920[2]	35	169	11.7	352.6	352.6	352.8	0.2
B	1,685[2]	41	266	7.5	356.3	356.3	357.2	0.9
C	3,730[2]	100	282	7.1	375.4	375.4	375.4	0.0
D	5,160[2]	80	426	4.7	381.2	381.2	381.6	0.4
E	9,000[2]	80	363	5.5	404.8	404.8	405.8	1.0
F	12,480[2]	58	212	9.4	433.2	433.2	433.2	0.0
G	14,700[2]	50	209	9.5	448.1	448.1	448.4	0.3
H	17,120[2]	50	193	8.5	491.5	491.5	492.0	0.5
I	18,990[2]	31	176	7.2	517.1	517.1	518.0	0.9
J	22,500[2]	115	174	7.2	600.6	600.6	600.6	0.0
K	24,820[2]	75	186	6.8	676.7	676.7	676.7	0.0
L	27,620[2]	140	704	1.8	691.4	691.4	691.4	0.0
M	29,530[2]	70	420	3.0	692.4	692.4	693.2	0.8
N	31,220[2]	24	141	9.0	696.0	696.0	696.6	0.6

[1]Feet above confluence with Tenmile River
[2]Feet above confluence with Fishkill Creek

TABLE 10

FEDERAL EMERGENCY MANAGEMENT AGENCY

DUTCHESS COUNTY, NY (ALL JURISDICTIONS)

FLOODWAY DATA

WELLS BROOK-WHALEY LAKE STREAM

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Whortlekill Creek Reach 1								
A	1,070[1]	86	440	3.3	232.6	231.6[3]	232.5	0.9
B	2,480[1]	270	2,120	0.7	238.1	238.1	238.1	0.0
C	4,790[1]	108	685	2.1	241.3	241.3	241.4	0.1
D	5,760[1]	126	414	3.5	242.4	242.4	243.0	0.6
E	8,060[1]	139	1,367	1.1	253.7	253.7	253.7	0.0
F	9,870[1]	144	1,273	1.1	253.8	253.8	253.8	0.0
G	12,580[1]	132	613	2.4	254.1	254.1	254.4	0.3
H	14,270[1]	183	955	1.5	259.3	259.3	259.4	0.1
I	15,570[1]	55	181	8.0	264.8	264.8	265.2	0.4
J	17,390[1]	89	333	3.7	279.5	279.5	279.6	0.1
K	19,280[1]	108	511	2.4	285.7	285.7	286.6	0.9
L	21,180[1]	103	574	2.1	291.3	291.3	292.2	0.9
M	24,320[1]	76	200	6.2	298.1	298.1	298.7	0.6
N	26,820[1]	58	203	6.1	312.7	312.7	313.5	0.8
O	28,260[1]	83	250	4.9	323.6	323.6	324.0	0.4
Whortlekill Creek Reach 2								
A	0[2]	30	141	3.3	334.9	334.9	335.9	1.0
B	500[2]	31	72	4.2	338.6	338.6	338.9	0.3
C	1,000[2]	40	86	3.6	344.2	344.2	344.9	0.7
D	1,500[2]	31	77	4.0	350.1	350.1	350.4	0.3
E	2,050[2]	20	38	8.0	359.5	359.5	359.5	0.0
F	2,600[2]	20	38	8.0	368.1	368.1	368.2	0.1
G	3,000[2]	20	38	8.0	377.6	377.6	377.6	0.0
H	3,850[2]	46	93	3.3	395.3	395.3	396.3	1.0
I	4,290[2]	17	37	8.4	409.9	409.9	410.0	0.1

[1]Feet above confluence with Fishkill Creek
[2]Feet above limit of detailed study (limit of detailed study is approximately 328 feet downstream of Arthursburg Road)
[3]Elevatiuon computed without consideration of backwater effects from Fishkill Creek

TABLE 10

FEDERAL EMERGENCY MANAGEMENT AGENCY

DUTCHESS COUNTY, NY (ALL JURISDICTIONS)

FLOODWAY DATA

WHORTLEKILL CREEK REACH 1 - WHORTLEKILL CREEK REACH 2

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Willow Brook								
A	500	39	149	3.3	545.6	545.6	546.5	0.9
B	1,500	22	87	5.7	552.1	552.1	552.9	0.8
C	2,470	19	76	6.5	560.9	560.9	561.7	0.8
D	3,480	50	168	2.4	572.8	572.8	573.4	0.6
E	3,937	120	251	1.6	579.1	579.1	579.8	0.7
F	4,800	52	112	3.4	586.4	586.4	587.4	1.0
G	5,750	43	96	4.0	599.6	599.6	600.5	0.9
H	6,360	114	873	0.4	610.9	610.9	611.8	0.9
I	6,730	20	73	5.2	612.8	612.8	612.8	0.0
J	7,077	110	151	2.2	618.3	618.3	619.2	0.9
K	7,390	31	55	6.2	622.4	622.4	622.5	0.1
L	7,990	39	71	4.8	632.0	632.0	632.5	0.5
M	8,740	11	43	6.0	645.1	645.1	646.0	0.9
N	9,590	19	51	5.1	660.7	660.7	661.5	0.8
O	9,820	12	38	6.8	668.9	668.9	669.5	0.6
P	10,185	150	993	0.3	681.6	681.6	681.7	0.1
Q	10,540	23	39	6.7	684.2	684.2	684.2	0.0
R	10,890	33	177	1.1	689.0	689.0	689.8	0.8

[1]Feet above confluence with Sprout Creek #2

TABLE 10

FEDERAL EMERGENCY MANAGEMENT AGENCY

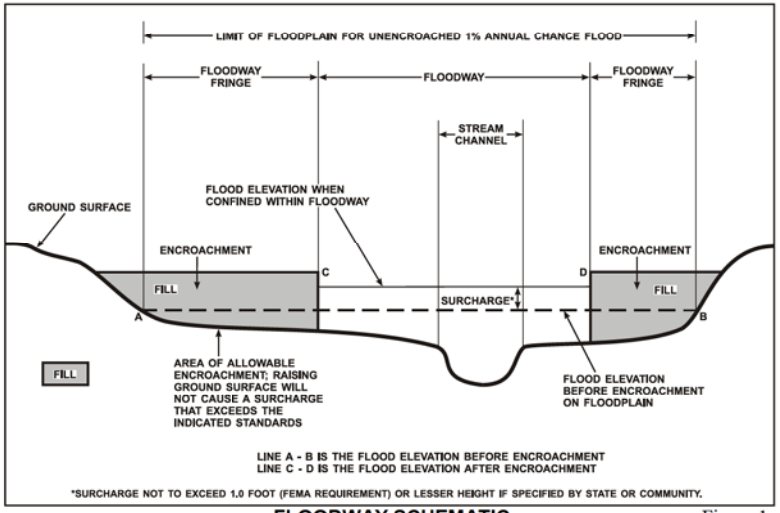
DUTCHESS COUNTY, NY (ALL JURISDICTIONS)

FLOODWAY DATA

WILLOW BROOK

Near the mouths of streams studied in detail, floodway computations are made without regard to flood elevations on the receiving water body. Therefore, "Without Floodway" elevations presented in Table 10 for certain downstream cross sections of Branch 1 Great Spring Creek, Branch 1 Sprout Creek # 1, Branch 1 Wappinger Creek Reach 1, Branch 2 Wappinger Creek Reach 1, Branch 6 Wappinger Creek Reach 1, Branch 7 Wappinger Creek Reach 1, Branch 9 Wappinger Creek Reach 1, Branch 10 Wappinger Creek Reach 1, Casper Kill Creek, Clove Creek, East Branch Wappinger Creek Reach 1, Fishkill Creek, Great Spring Creek, Sprout Creek # 1, Sylvan Lake Outlet, Tributary 1 to Fishkill Creek, Wappinger Creek Reach 1, Wells Brook, and Whortle Kill Reach 1 are lower than the regulatory flood elevations in that area, which must take into account the 1-percent annual chance flooding due to backwater from other sources.

The area between the floodway and 1-percent annual chance floodplain boundaries is termed the floodway fringe. The floodway fringe encompasses the portion of the floodplain that could be completely obstructed without increasing the water-surface elevation of the 1-percent annual chance flood by more than 1.0 foot at any point. Typical relationships between the floodway and the floodway fringe and their significance to floodplain development are shown in Figure 1.



FLOODWAY SCHEMATIC Figure 1

5.0 INSURANCE APPLICATIONS

For flood insurance rating purposes, flood insurance zone designations are assigned to a community based on the results of the engineering analyses. The zones are as follows:

Zone A

Zone A is the flood insurance rate zone that corresponds to the 1-percent annual chance floodplains that are determined in the FIS by approximate methods. Because detailed hydraulic analyses are not performed for such areas, no base flood elevations or depths are shown within this zone.

Zone AE

Zone AE is the flood insurance rate zone that corresponds to the 1-percent annual chance floodplains that are determined in the FIS by detailed methods. In most instances, whole-foot base flood elevations derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

Zone AH

Zone AH is the flood insurance rate zone that corresponds to the areas of 1-percent annual chance shallow flooding (usually areas of ponding) where average depths are between 1 and 3 feet. Whole-foot base flood elevations derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

Zone AO

Zone AO is the flood insurance rate zone that corresponds to the areas of 1-percent annual chance shallow flooding (usually sheet flow on sloping terrain) where average depths are between 1 and 3 feet. Average whole-foot depths derived from the detailed hydraulic analyses are shown within this zone.

Zone AR

Area of special flood hazard formerly protected from the 1-percent annual chance flood event by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1-percent annual chance or greater flood event.

Zone A99

Zone A99 is the flood insurance rate zone that corresponds to areas of the 1-percent annual chance floodplain that will be protected by a Federal flood protection system where construction has reached specified statutory milestones. No base flood elevations or depths are shown within this zone.

Zone V

Zone V is the flood insurance rate zone that corresponds to the 1-percent annual chance coastal floodplains that have additional hazards associated with storm waves. Because approximate hydraulic analyses are performed for such areas, no base flood elevations are shown within this zone.

Zone VE

Zone VE is the flood insurance rate zone that corresponds to the 1-percent annual chance coastal floodplains that have additional hazards associated with storm waves. Whole-foot base flood elevations derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

Zone X

Zone X is the flood insurance rate zone that corresponds to areas outside the 0.2-percent annual chance floodplain, areas within the 0.2-percent annual chance floodplain, and to areas of 1-percent annual chance flooding where average depths are less than 1 foot, areas of 1-percent annual chance flooding where the contributing drainage area is less than 1 square mile, and areas protected from the 1-percent annual chance flood by levees. No base flood elevations or depths are shown within this zone.

Zone D

Zone D is the flood insurance rate zone that corresponds to unstudied areas where flood hazards are undetermined, but possible.

6.0 FLOOD INSURANCE RATE MAP

The FIRM is designed for flood insurance and floodplain management applications.

For flood insurance applications, the map designates flood insurance rate zones as described in Section 5.0 and, in the 1-percent annual chance floodplains that were studied by detailed methods, shows selected whole-foot base flood elevations or average depths. Insurance agents use the zones and base flood elevations in conjunction with information on structures and their contents to assign premium rates for flood insurance policies.

For floodplain management applications, the map shows by tints, screens, and symbols, the 1- and 0.2-percent annual chance floodplains. Floodways and the locations of selected cross sections used in the hydraulic analyses and floodway computations are shown where applicable.

The current FIRM presents flooding information for the entire geographic area of Dutchess County. Previously, separate Flood Hazard Boundary Maps and/or FIRMs were prepared for each incorporated community with identified flood hazard areas within the county. Historical map dates relating to the pre-countywide FIRMs for each community are presented in Table 11, "Community Map History."

COMMUNITY NAME	INITIAL IDENTIFICATION	FLOOD HAZARD BOUNDARY MAP REVISIONS DATE	FIRM EFFECTIVE DATE	FIRM REVISIONS DATE
Amenia, Town of	October 18, 1974	May 21, 1976 January 21, 1977	September 24, 1984	November 15, 1989
Beacon, City of	July 26, 1974	January 30, 1976	March 1, 1984	
Beekman, Town of	October 18, 1974	August 13, 1976 April 15, 1977	September 5, 1984	
Clinton, Town of	December 20, 1974	August 20, 1976 July 1, 1977	July 5, 1984	
Dover, Town of	December 6, 1974	None	August 15, 1984	July 4, 1988
East Fishkill, Town of	November 1, 1974	July 9, 1976	June 15, 1984	
Fishkill, Town of	December 20, 1974	None	June 1, 1984	
Fishkill, Village of	June 21, 1974	June 18, 1976	March 15, 1984	
Hyde Park, Town of	December 20, 1974	October 22, 1976	June 15, 1984	
Lagrange, Town of	November 1, 1974	April 16, 1976	September 28, 1979	November 5, 1986 September 8, 1999
Milan, Town of	October 18, 1974	May 28, 1976	August 10, 1979	
Millbrook, Village of	May 31, 1974	April 30, 1976	February 27, 1984	

TABLE 11

FEDERAL EMERGENCY MANAGEMENT AGENCY

DUTCHESS COUNTY, NY (ALL JURISDICTIONS)

COMMUNITY MAP HISTORY

COMMUNITY NAME	INITIAL IDENTIFICATION	FLOOD HAZARD BOUNDARY MAP REVISIONS DATE	FIRM EFFECTIVE DATE	FIRM REVISIONS DATE
Millerton, Village of	June 21, 1974	June 25, 1976	January 3, 1985	
Northeast, Town of	October 18, 1974	January 9, 1976	September 5, 1984	
Pawling, Town of	October 25, 1974	August 6, 1976	January 3, 1985	
Pawling, Village of	February 7, 1975	None	August 1, 1984	
Pine Plains, Town of	December 20, 1974	December 19, 1975	October 5, 1984	
Pleasant Valley, Town of	July 26, 1974	November 21, 1975	January 16, 1980	
Poughkeepsie, City of	June 28, 1974	July 9, 1976	January 5, 1984	
Poughkeepsie, Town of	November 29, 1974	None	November 15, 1978	August 2, 1990 September 8, 1999
Red Hook, Town of	October 18, 1974	August 6, 1976	October 16, 1984	
Rhinebeck, Town of	October 18, 1974	February 13, 1976	September 5, 1984	
Rhinebeck, Village of	January 5, 1984	None	February 1, 1985	
Stanford, Town of	October 18, 1974	July 9, 1976	January 21, 1983	December 17, 1991
Tivoli, Village of	December 20, 1974	None	August 1, 1984	

TABLE 11

FEDERAL EMERGENCY MANAGEMENT AGENCY

DUTCHESS COUNTY, NY (ALL JURISDICTIONS)

COMMUNITY MAP HISTORY

COMMUNITY NAME	INITIAL IDENTIFICATION	FLOOD HAZARD BOUNDARY MAP REVISIONS DATE	FIRM EFFECTIVE DATE	FIRM REVISIONS DATE
Union Vale, Town of	November 15, 1974	None	September 2, 1988	
Wappinger, Town of	November 29, 1974	None	June 15, 1979	September 22, 1999
Wappinger Falls, Village of	November 21, 1975	None	September 1, 1978	September 22, 1999
Washington, Town of	November 1, 1974	July 9, 1976 April 22, 1977	August 17, 1979	

TABLE 11

FEDERAL EMERGENCY MANAGEMENT AGENCY

DUTCHESS COUNTY, NY (ALL JURISDICTIONS)

COMMUNITY MAP HISTORY

7.0 OTHER STUDIES

Information pertaining to revised and unrevised flood hazards for each jurisdiction within Dutchess County has been compiled into this FIS. Therefore, this FIS supersedes all previously printed FIS Reports, FHBMs, FBFMs, and FIRMs for all of the incorporated areas within Dutchess County.

This is a multi-volume FIS. Each volume may be revised separately, in which case it supersedes the previously printed volume. Users should refer to the Table of Contents in Volume 1 for the current effective date of each volume; volumes bearing these dates contain the most up-to-date flood hazard data.

8.0 LOCATION OF DATA

Information concerning the pertinent data used in preparation of this FIS can be obtained by contacting FEMA, Federal Insurance and Mitigation Division, 26 Federal Plaza, Room 1337, New York, New York 10278.

9.0 BIBLIOGRAPHY AND REFERENCES

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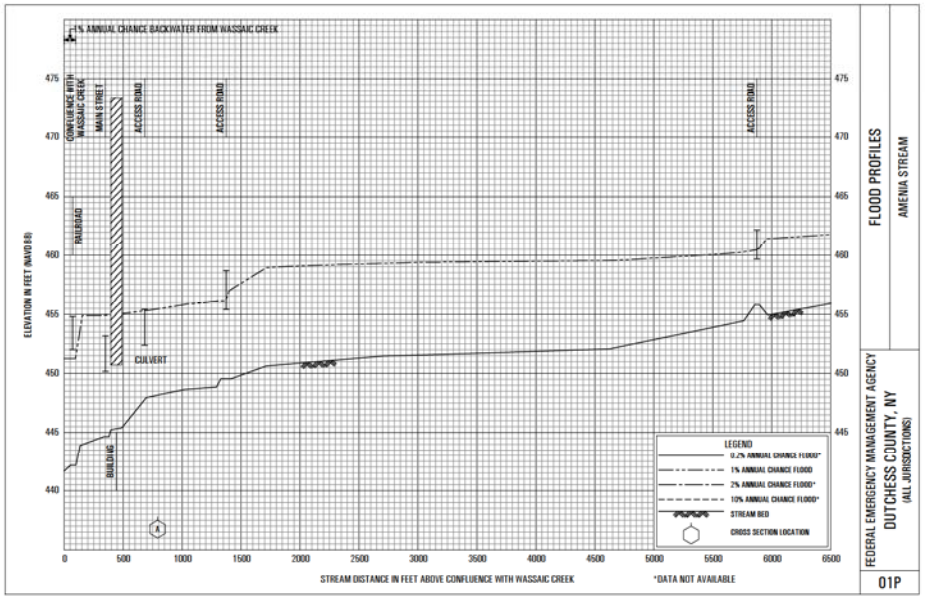
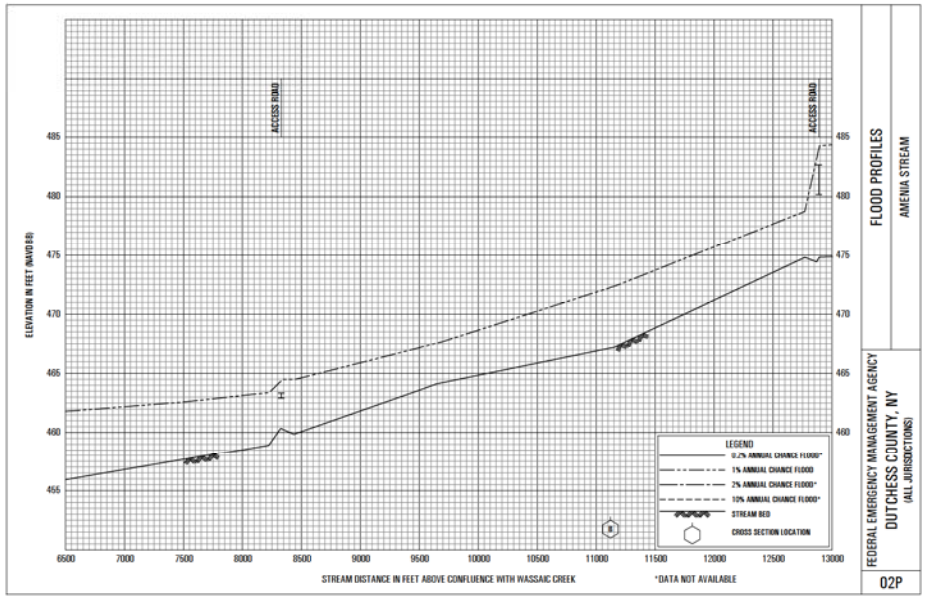
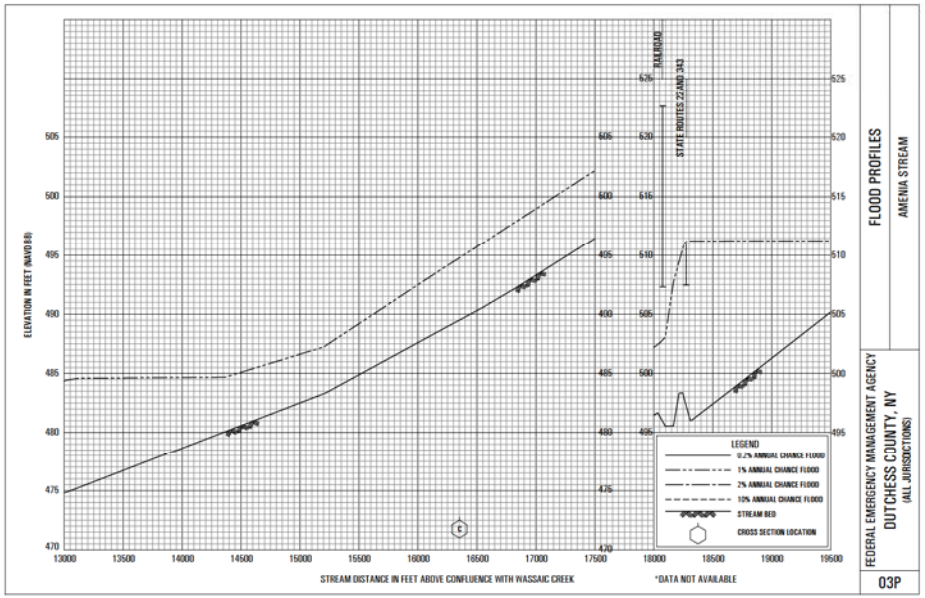
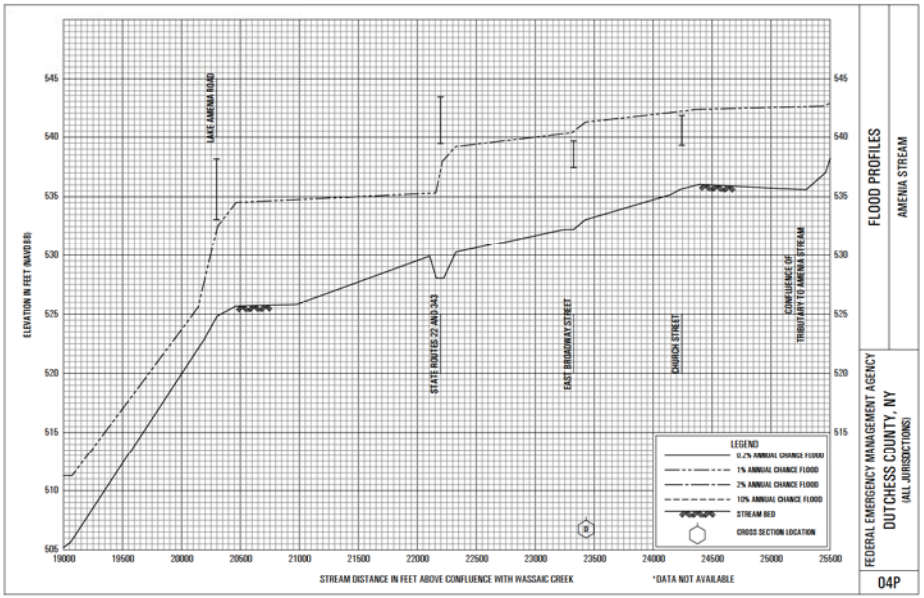
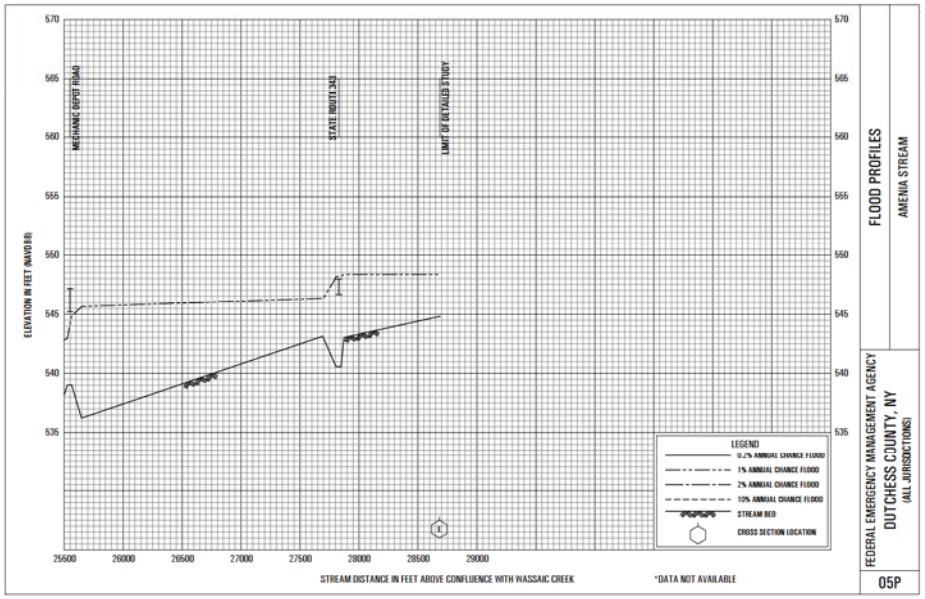
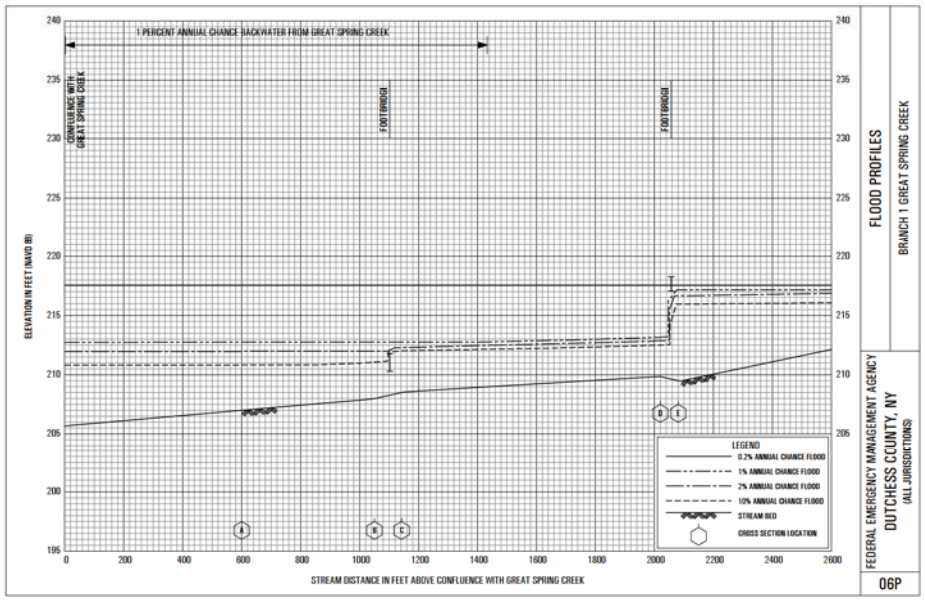

1% ANNUAL CHANCE BACKWATER FROM WASSAIC CREEK
CONFLUENCE WITH WASSAIC CREEK
RAILROAD
MAIN STREET
ACCESS ROAD
ACCESS ROAD
ACCESS ROAD
CULVERT
BUILDING
ELEVATION IN FEET (NAVD88)
STREAM DISTANCE IN FEET ABOVE CONFLUENCE WITH WASSAIC CREEK
*DATA NOT AVAILABLE
LEGEND
0.2% ANNUAL CHANCE FLOOD*
1% ANNUAL CHANCE FLOOD
2% ANNUAL CHANCE FLOOD*
10% ANNUAL CHANCE FLOOD*
STREAM BED
CROSS SECTION LOCATION
FLOOD PROFILES
AMENIA STREAM
FEDERAL EMERGENCY MANAGEMENT AGENCY
DUTCHESS COUNTY, NY
(ALL JURISDICTIONS)
01P


ACCESS ROAD
ACCESS ROAD
ELEVATION IN FEET (NAVD88)
STREAM DISTANCE IN FEET ABOVE CONFLUENCE WITH WASSAIC CREEK
*DATA NOT AVAILABLE
LEGEND
0.2% ANNUAL CHANCE FLOOD*
1% ANNUAL CHANCE FLOOD
2% ANNUAL CHANCE FLOOD*
10% ANNUAL CHANCE FLOOD*
STREAM BED
CROSS SECTION LOCATION
FLOOD PROFILES
AMENIA STREAM
FEDERAL EMERGENCY MANAGEMENT AGENCY
DUTCHESS COUNTY, NY
(ALL JURISDICTIONS)
02P


ELEVATION IN FEET (NAVD88)
STREAM DISTANCE IN FEET ABOVE CONFLUENCE WITH WASSAIC CREEK
RAILROAD
STATE ROUTES 22 AND 343
LEGEND
0.2% ANNUAL CHANCE FLOOD
1% ANNUAL CHANCE FLOOD
2% ANNUAL CHANCE FLOOD
10% ANNUAL CHANCE FLOOD
STREAM BED
CROSS SECTION LOCATION
*DATA NOT AVAILABLE
FLOOD PROFILES
AMENIA STREAM
FEDERAL EMERGENCY MANAGEMENT AGENCY
DUTCHESS COUNTY, NY
(ALL JURISDICTIONS)
03P


ELEVATION IN FEET (NAVD88)
STREAM DISTANCE IN FEET ABOVE CONFLUENCE WITH WASSAIC CREEK
LAKE AMENIA ROAD
STATE ROUTES 22 AND 343
EAST BROADWAY STREET
CHURCH STREET
CONFLUENCE OF TRIBUTARY TO AMENIA STREAM
LEGEND
0.2% ANNUAL CHANCE FLOOD
1% ANNUAL CHANCE FLOOD
2% ANNUAL CHANCE FLOOD
10% ANNUAL CHANCE FLOOD
STREAM BED
CROSS SECTION LOCATION
*DATA NOT AVAILABLE
FLOOD PROFILES
AMENIA STREAM
FEDERAL EMERGENCY MANAGEMENT AGENCY
DUTCHESS COUNTY, NY
(ALL JURISDICTIONS)
04P


MECHANIC DEPOT ROAD
STATE ROUTE 343
LIMIT OF DETAILED STUDY
ELEVATION IN FEET (NAVD88)
570
565
560
555
550
545
540
535
25500
26000
26500
27000
27500
28000
28500
29000
STREAM DISTANCE IN FEET ABOVE CONFLUENCE WITH WASSAIC CREEK
*DATA NOT AVAILABLE
LEGEND
0.2% ANNUAL CHANCE FLOOD
1% ANNUAL CHANCE FLOOD
2% ANNUAL CHANCE FLOOD
10% ANNUAL CHANCE FLOOD
STREAM BED
CROSS SECTION LOCATION
FLOOD PROFILES
AMENIA STREAM
FEDERAL EMERGENCY MANAGEMENT AGENCY
DUTCHESS COUNTY, NY
(ALL JURISDICTIONS)
05P


1 PERCENT ANNUAL CHANCE BACKWATER FROM GREAT SPRING CREEK
CONFLUENCE WITH GREAT SPRING CREEK
FOOTBRIDGE
FOOTBRIDGE
ELEVATION IN FEET (NAVD 88)
240
235
230
225
220
215
210
205
200
195
0
200
400
600
800
1000
1200
1400
1600
1800
2000
2200
2400
2600
STREAM DISTANCE IN FEET ABOVE CONFLUENCE WITH GREAT SPRING CREEK
LEGEND
0.2% ANNUAL CHANCE FLOOD
1% ANNUAL CHANCE FLOOD
2% ANNUAL CHANCE FLOOD
10% ANNUAL CHANCE FLOOD
STREAM BED
CROSS SECTION LOCATION
FLOOD PROFILES
BRANCH 1 GREAT SPRING CREEK
FEDERAL EMERGENCY MANAGEMENT AGENCY
DUTCHESS COUNTY, NY
(ALL JURISDICTIONS)
06P

FEDERAL EMERGENCY MANAGEMENT AGENCY
DUTCHESS COUNTY, NY
(ALL JURISDICTIONS)
08P
FLOOD PROFILES
BRANCH 1 GREAT SPRING CREEK
LEGEND
0.2% ANNUAL CHANCE FLOOD
1% ANNUAL CHANCE FLOOD
2% ANNUAL CHANCE FLOOD
10% ANNUAL CHANCE FLOOD
STREAM BED
CROSS SECTION LOCATION
LIMIT OF DETAILED STUDY
STREAM DISTANCE IN FEET ABOVE CONFLUENCE WITH GREAT SPRING CREEK
ELEVATION IN FEET (NAVD 88)

FEDERAL EMERGENCY MANAGEMENT AGENCY
DUTCHESS COUNTY, NY
(ALL JURISDICTIONS)
07P
FLOOD PROFILES
BRANCH 1 GREAT SPRING CREEK
LEGEND
0.2% ANNUAL CHANCE FLOOD
1% ANNUAL CHANCE FLOOD
2% ANNUAL CHANCE FLOOD
10% ANNUAL CHANCE FLOOD
STREAM BED
CROSS SECTION LOCATION
WISTERN ROAD
STATE HIGHWAY 115
SALT POINT TURNPIKE
STREAM DISTANCE IN FEET ABOVE CONFLUENCE WITH GREAT SPRING CREEK
ELEVATION IN FEET (NAVD 88)

10P
FEDERAL EMERGENCY MANAGEMENT AGENCY
DUTCHESS COUNTY, NY
(ALL JURISDICTIONS)
FLOOD PROFILES
BRANCH 1 SPROUT CREEK # 1
ELEVATION IN FEET (NAVD 88)
STREAM DISTANCE IN FEET ABOVE CONFLUENCE WITH SPROUT CREEK #1
LEGEND
0.2% ANNUAL CHANCE (500D)
1% ANNUAL CHANCE (100D)
2% ANNUAL CHANCE (50D)
10% ANNUAL CHANCE (10D)
STREAM BED
CROSS SECTION LOCATION
CULVERT
STATE ROUTE 55
FREEDOM PLAINS ROAD
OR. FINK ROAD
LIMIT OF DETAILED STUDY

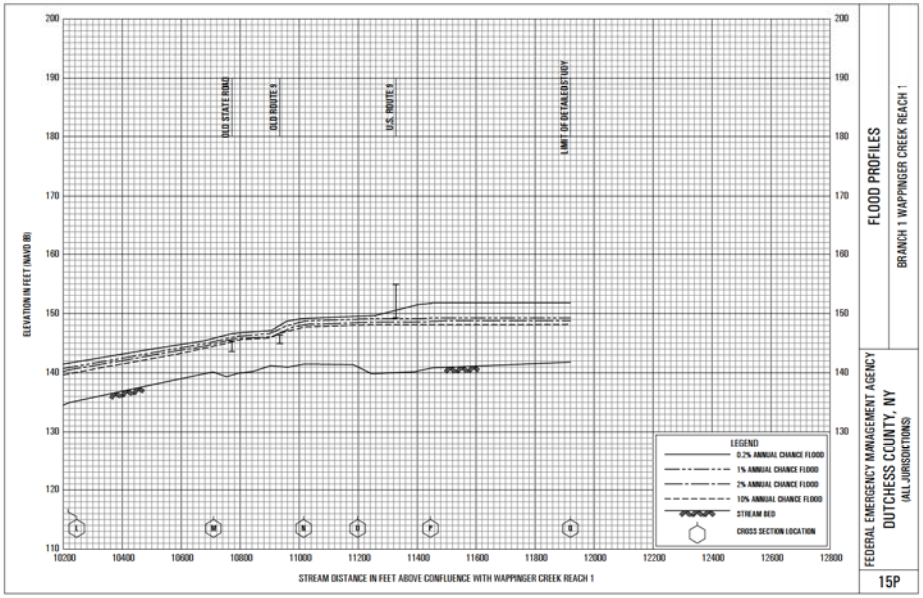
09P
FEDERAL EMERGENCY MANAGEMENT AGENCY
DUTCHESS COUNTY, NY
(ALL JURISDICTIONS)
FLOOD PROFILES
BRANCH 1 SPROUT CREEK # 1
ELEVATION IN FEET (NAVD 88)
STREAM DISTANCE IN FEET ABOVE CONFLUENCE WITH SPROUT CREEK #1
LEGEND
0.2% ANNUAL CHANCE (500D)
1% ANNUAL CHANCE (100D)
2% ANNUAL CHANCE (50D)
10% ANNUAL CHANCE (10D)
STREAM BED
CROSS SECTION LOCATION
TODD HILL ROAD
CONFLUENCE WITH SPROUT CREEK #1

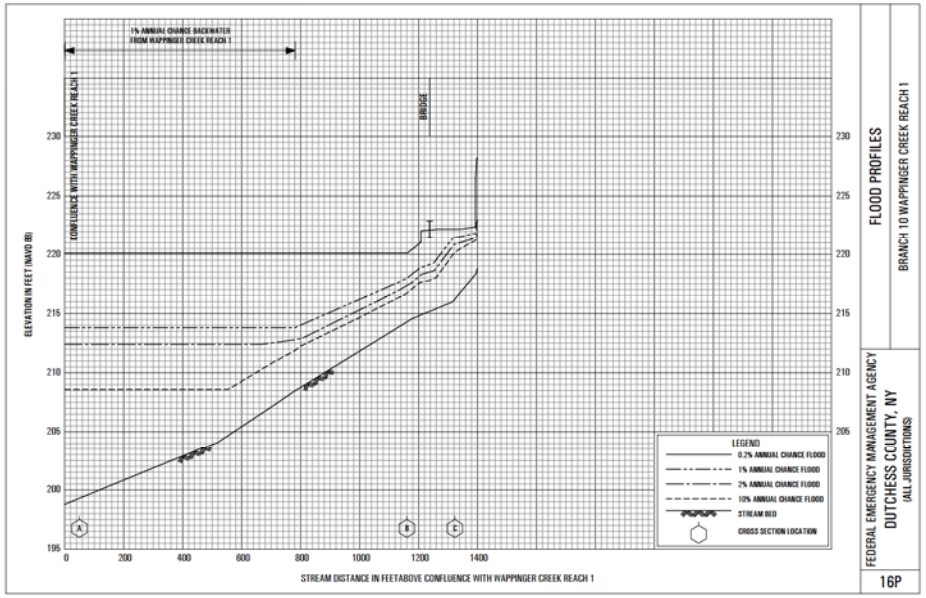
12P
FEDERAL EMERGENCY MANAGEMENT AGENCY
DUTCHESS COUNTY, NY
(ALL JURISDICTIONS)
FLOOD PROFILES
BRANCH 1 WAPPINGER CREEK REACH 1
LEGEND
0.2% ANNUAL CHANCE FLOOD
1% ANNUAL CHANCE FLOOD
2% ANNUAL CHANCE FLOOD
10% ANNUAL CHANCE FLOOD
STREAM BED
CROSS SECTION LOCATION
PRIVATE DRIVE
STATE ROUTE 9D
STREAM DISTANCE IN FEET ABOVE CONFLUENCE WITH WAPPINGER CREEK REACH 1
ELEVATION IN FEET (NAVD 88)

11P
FEDERAL EMERGENCY MANAGEMENT AGENCY
DUTCHESS COUNTY, NY
(ALL JURISDICTIONS)
FLOOD PROFILES
BRANCH 1 WAPPINGER CREEK REACH 1
LEGEND
0.2% ANNUAL CHANCE FLOOD
1% ANNUAL CHANCE FLOOD
2% ANNUAL CHANCE FLOOD
10% ANNUAL CHANCE FLOOD
STREAM BED
CROSS SECTION LOCATION
FOOTBRIDGE
CONFLUENCE WITH WAPPINGER CREEK REACH 1
CREEK ROAD
STREAM DISTANCE IN FEET ABOVE CONFLUENCE WITH WAPPINGER CREEK REACH 1
ELEVATION IN FEET (NAVD 88)

14P
FEDERAL EMERGENCY MANAGEMENT AGENCY
DUTCHESS COUNTY, NY
(ALL JURISDICTIONS)
FLOOD PROFILES
BRANCH 1 WAPPINGER CREEK REACH 1
ELEVATION IN FEET (NAVD 88)
STREAM DISTANCE IN FEET ABOVE CONFLUENCE WITH WAPPINGER CREEK REACH 1
LEGEND
0.2% ANNUAL CHANCE FLOOD
1% ANNUAL CHANCE FLOOD
2% ANNUAL CHANCE FLOOD
10% ANNUAL CHANCE FLOOD
STREAM BED
CROSS SECTION LOCATION

13P
FEDERAL EMERGENCY MANAGEMENT AGENCY
DUTCHESS COUNTY, NY
(ALL JURISDICTIONS)
FLOOD PROFILES
BRANCH 1 WAPPINGER CREEK REACH 1
ELEVATION IN FEET (NAVD 88)
STREAM DISTANCE IN FEET ABOVE CONFLUENCE WITH WAPPINGER CREEK REACH 1
CONFLUENCE OF TRIBUTARY 1 BRANCH 1 WAPPINGER CREEK
CONFLUENCE OF TRIBUTARY 2 BRANCH 1 WAPPINGER CREEK
LEGEND
0.2% ANNUAL CHANCE FLOOD
1% ANNUAL CHANCE FLOOD
2% ANNUAL CHANCE FLOOD
10% ANNUAL CHANCE FLOOD
STREAM BED
CROSS SECTION LOCATION


ELEVATION IN FEET (NAVD 88)
STREAM DISTANCE IN FEET ABOVE CONFLUENCE WITH WAPPINGER CREEK REACH 1
OLD STATE RDAD
OLD ROUTE 9
U.S. ROUTE 9
LIMIT OF DETAILED STUDY
LEGEND
0.2% ANNUAL CHANCE FLOOD
1% ANNUAL CHANCE FLOOD
2% ANNUAL CHANCE FLOOD
10% ANNUAL CHANCE FLOOD
STREAM BED
CROSS SECTION LOCATION
FLOOD PROFILES
BRANCH 1 WAPPINGER CREEK REACH 1
FEDERAL EMERGENCY MANAGEMENT AGENCY
DUTCHESS COUNTY, NY
(ALL JURISDICTIONS)
15P


ELEVATION IN FEET (NAVD 88)
STREAM DISTANCE IN FEETABOVE CONFLUENCE WITH WAPPINGER CREEK REACH 1
1% ANNUAL CHANCE BACKWATER FROM WAPPINGER CREEK REACH 1
CONFLUENCE WITH WAPPINGER CREEK REACH 1
BRIDGE
LEGEND
0.2% ANNUAL CHANCE FLOOD
1% ANNUAL CHANCE FLOOD
2% ANNUAL CHANCE FLOOD
10% ANNUAL CHANCE FLOOD
STREAM BED
CROSS SECTION LOCATION
FLOOD PROFILES
BRANCH 10 WAPPINGER CREEK REACH 1
FEDERAL EMERGENCY MANAGEMENT AGENCY
DUTCHESS COUNTY, NY
(ALL JURISDICTIONS)
16P

18P
FEDERAL EMERGENCY MANAGEMENT AGENCY
DUTCHESS COUNTY, NY
(ALL JURISDICTIONS)
FLOOD PROFILES
BRANCH 11 WAPPINGER CREEK REACH 1
LEGEND
0.2% ANNUAL CHANCE FLOOD
1% ANNUAL CHANCE FLOOD
2% ANNUAL CHANCE FLOOD
10% ANNUAL CHANCE FLOOD
STREAM BED
CROSS SECTION LOCATION
ELEVATION IN FEET (NAVD 88)
STREAM DISTANCE IN FEET ABOVE CONFLUENCE WITH WAPPINGER CREEK REACH 1
HIBERNIA ROAD
CONFLUENCE WITH WAPPINGER CREEK REACH 1
1% ANNUAL CHANCE BACKWATER FROM WAPPINGER CREEK REACH 1

17P
FEDERAL EMERGENCY MANAGEMENT AGENCY
DUTCHESS COUNTY, NY
(ALL JURISDICTIONS)
FLOOD PROFILES
BRANCH 10 WAPPINGER CREEK REACH 1
LEGEND
0.2% ANNUAL CHANCE FLOOD
1% ANNUAL CHANCE FLOOD
2% ANNUAL CHANCE FLOOD
10% ANNUAL CHANCE FLOOD
STREAM BED
CROSS SECTION LOCATION
ELEVATION IN FEET (NAVD 88)
STREAM DISTANCE IN FEET ABOVE CONFLUENCE WITH WAPPINGER CREEK REACH 1
ACCESS ROAD
ACCESS ROAD
ACCESS ROAD
ACCESS ROAD
OLD ROUTE 7C
NORTH AVENUE
LIMIT OF DETAILED STUDY

FEDERAL EMERGENCY MANAGEMENT AGENCY
DUTCHESS COUNTY, NY
(ALL JURISDICTIONS)
20P
FLOOD PROFILES
BRANCH 1A HUDSON RIVER
ELEVATION IN FEET (NAVD 88)
STREAM DISTANCE IN FEET ABOVE CONFLUENCE WITH HUDSON RIVER
LEGEND
0.2% ANNUAL CHANCE FLOOD
1% ANNUAL CHANCE FLOOD
2% ANNUAL CHANCE FLOOD
10% ANNUAL CHANCE FLOOD
STREAM BED
CROSS SECTION LOCATION
CONFLUENCE WITH HUDSON RIVER
RIVER ROAD NORTH
DAM
EASTER ROAD
CHELSEA ROAD
LIMIT OF DETAILED STUDY

FEDERAL EMERGENCY MANAGEMENT AGENCY
DUTCHESS COUNTY, NY
(ALL JURISDICTIONS)
19P
FLOOD PROFILES
BRANCH 11 WAPPINGER CREEK REACH 1
ELEVATION IN FEET (NAVD 88)
STREAM DISTANCE IN FEET ABOVE CONFLUENCE WITH WAPPINGER CREEK REACH 1
LEGEND
0.2% ANNUAL CHANCE FLOOD
1% ANNUAL CHANCE FLOOD
2% ANNUAL CHANCE FLOOD
10% ANNUAL CHANCE FLOOD
STREAM BED
CROSS SECTION LOCATION
LIMIT OF DETAILED STUDY

22P
FEDERAL EMERGENCY MANAGEMENT AGENCY
DUTCHESS COUNTY, NY
(ALL JURISDICTIONS)
FLOOD PROFILES
BRANCH 2 SPROUT CREEK #1
ELEVATION IN FEET (NAVD 88)
STREAM DISTANCE IN FEET ABOVE CONFLUENCE WITH SPROUT CREEK #1
STATE ROUTE 55
LEGEND
0.2% ANNUAL CHANCE FLOOD
1% ANNUAL CHANCE FLOOD
2% ANNUAL CHANCE FLOOD
10% ANNUAL CHANCE FLOOD
STREAM BED
CROSS SECTION LOCATION

21P
FEDERAL EMERGENCY MANAGEMENT AGENCY
DUTCHESS COUNTY, NY
(ALL JURISDICTIONS)
FLOOD PROFILES
BRANCH 2 SPROUT CREEK #1
ELEVATION IN FEET (NAVD 88)
STREAM DISTANCE IN FEET ABOVE CONFLUENCE WITH SPROUT CREEK #1
CONFLUENCE WITH SPROUT CREEK #1
VELE ROAD
DRIVEWAY
LEGEND
0.2% ANNUAL CHANCE FLOOD
1% ANNUAL CHANCE FLOOD
2% ANNUAL CHANCE FLOOD
10% ANNUAL CHANCE FLOOD
STREAM BED
CROSS SECTION LOCATION

24P
FEDERAL EMERGENCY MANAGEMENT AGENCY
DUTCHESS COUNTY, NY
(ALL JURISDICTIONS)
FLOOD PROFILES
BRANCH 2 WAPPINGER CREEK REACH 1
STREAM DISTANCE IN FEET ABOVE CONFLUENCE WITH WAPPINGER CREEK REACH 1
ELEVATION IN FEET (NAVD 88)
LEGEND
0.2% ANNUAL CHANCE FLOOD
1% ANNUAL CHANCE FLOOD
2% ANNUAL CHANCE FLOOD
10% ANNUAL CHANCE FLOOD
STREAM BED
CROSS SECTION LOCATION
CONFLUENCE WITH WAPPINGER CREEK REACH 1
JACKSON ROAD
NEW MACKENSACK ROAD
DAM
FOOTBRIDGE
CONFLUENCE OF BRANCH 2B
WAPPINGER CREEK REACH 1
DAM CREST
DRIVEWAY

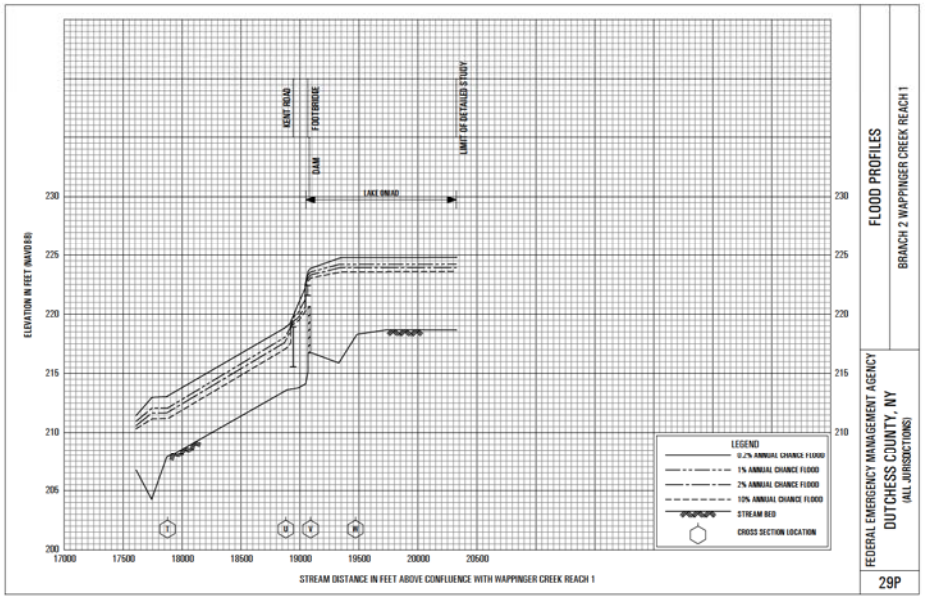
23P
FEDERAL EMERGENCY MANAGEMENT AGENCY
DUTCHESS COUNTY, NY
(ALL JURISDICTIONS)
FLOOD PROFILES
BRANCH 2 SPROUT CREEK #1
STREAM DISTANCE IN FEET ABOVE CONFLUENCE WITH SPROUT CREEK #1
ELEVATION IN FEET (NAVD 88)
LEGEND
0.2% ANNUAL CHANCE FLOOD
1% ANNUAL CHANCE FLOOD
2% ANNUAL CHANCE FLOOD
10% ANNUAL CHANCE FLOOD
STREAM BED
CROSS SECTION LOCATION
LIMIT OF DETAILED STUDY
STATE ROUTE 82
ABANDONED RAILROAD BRIDGE

FEDERAL EMERGENCY MANAGEMENT AGENCY
DUTCHESS COUNTY, NY
(ALL JURISDICTIONS)
25P
FLOOD PROFILES
BRANCH 2 WAPPINGER CREEK REACH 1
LEGEND
0.2% ANNUAL CHANCE (1/1000)
1% ANNUAL CHANCE (1/100)
2% ANNUAL CHANCE (1/50)
10% ANNUAL CHANCE (1/10)
STREAM BED
CROSS SECTION LOCATION
WOMER ROAD
ELEVATION IN FEET (NAVD 88)
STREAM DISTANCE IN FEET ABOVE CONFLUENCE WITH WAPPINGER CREEK REACH 1

FEDERAL EMERGENCY MANAGEMENT AGENCY
DUTCHESS COUNTY, NY
(ALL JURISDICTIONS)
26P
FLOOD PROFILES
BRANCH 2 WAPPINGER CREEK REACH 1
LEGEND
0.2% ANNUAL CHANCE (1/1000)
1% ANNUAL CHANCE (1/100)
2% ANNUAL CHANCE (1/50)
10% ANNUAL CHANCE (1/10)
STREAM BED
CROSS SECTION LOCATION
PRIVATE DRIVE
CONFLUENCE OF BRANCH 2A WAPPINGER CREEK REACH 1
ELEVATION IN FEET (NAVD 88)
STREAM DISTANCE IN FEET ABOVE CONFLUENCE WITH WAPPINGER CREEK REACH 1

28P
FEDERAL EMERGENCY MANAGEMENT AGENCY
DUTCHESS COUNTY, NY
(ALL JURISDICTIONS)
FLOOD PROFILES
BRANCH 2 WAPPINGER CREEK REACH 1
LEGEND
0.2% ANNUAL CHANCE FLOOD
1% ANNUAL CHANCE FLOOD
2% ANNUAL CHANCE FLOOD
10% ANNUAL CHANCE FLOOD
STREAM BED
CROSS SECTION LOCATION
ELEVATION IN FEET (NAVD 88)
STREAM DISTANCE IN FEET ABOVE CONFLUENCE WITH WAPPINGER CREEK REACH 1

27P
FEDERAL EMERGENCY MANAGEMENT AGENCY
DUTCHESS COUNTY, NY
(ALL JURISDICTIONS)
FLOOD PROFILES
BRANCH 2 WAPPINGER CREEK REACH 1
MYERS CORNERS ROAD
DAM
DAM
LEGEND
0.2% ANNUAL CHANCE FLOOD
1% ANNUAL CHANCE FLOOD
2% ANNUAL CHANCE FLOOD
10% ANNUAL CHANCE FLOOD
STREAM BED
CROSS SECTION LOCATION
ELEVATION IN FEET (NAVD 88)
STREAM DISTANCE IN FEET ABOVE CONFLUENCE WITH WAPPINGER CREEK REACH 1



FLOOD PROFILES

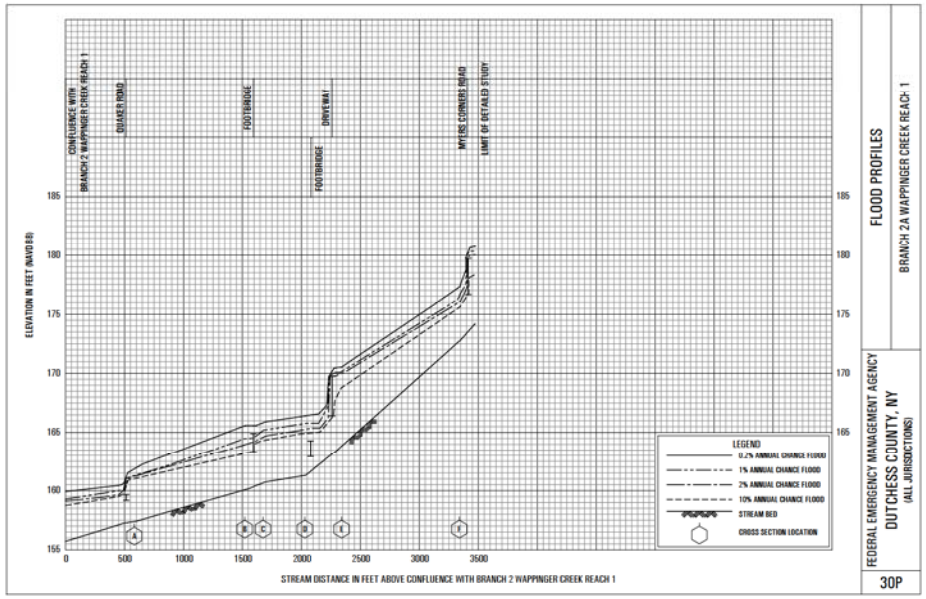
BRANCH 2 WAPPINGER CREEK REACH 1

FEDERAL EMERGENCY MANAGEMENT AGENCY

DUTCHESS COUNTY, NY

(ALL JURISDICTIONS)

29P



FLOOD PROFILES

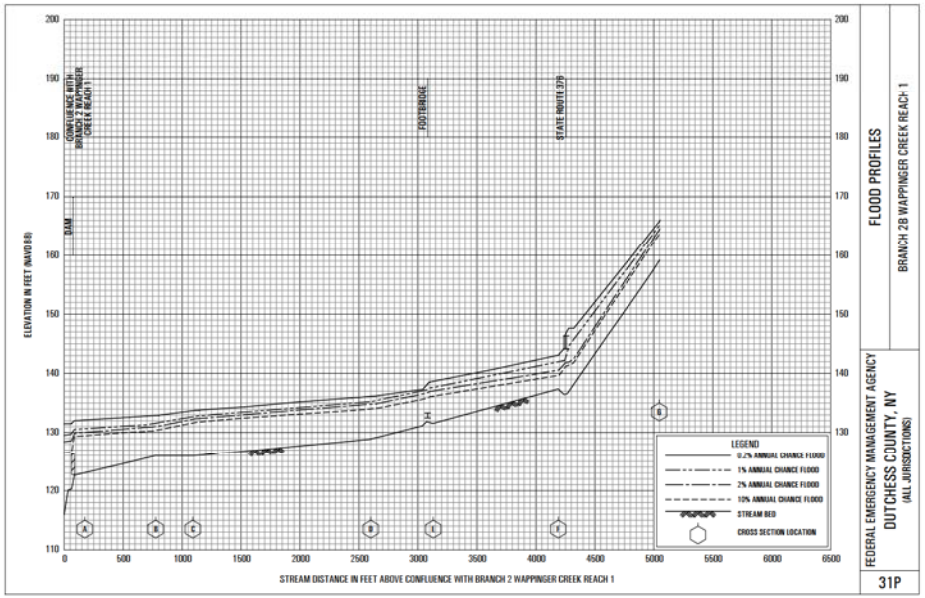
BRANCH 2A WAPPINGER CREEK REACH- 1

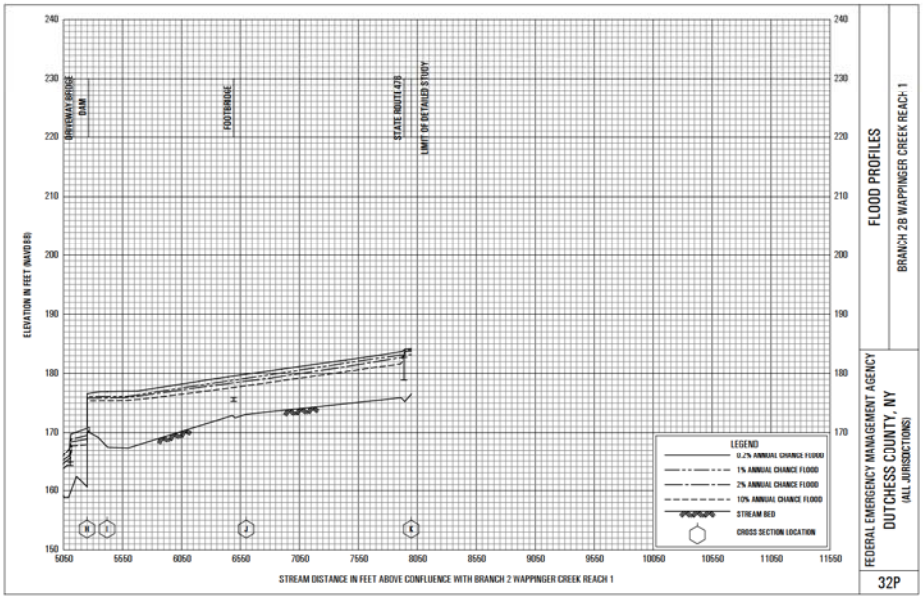
FEDERAL EMERGENCY MANAGEMENT AGENCY

DUTCHESS COUNTY, NY

(ALL JURISDICTIONS)

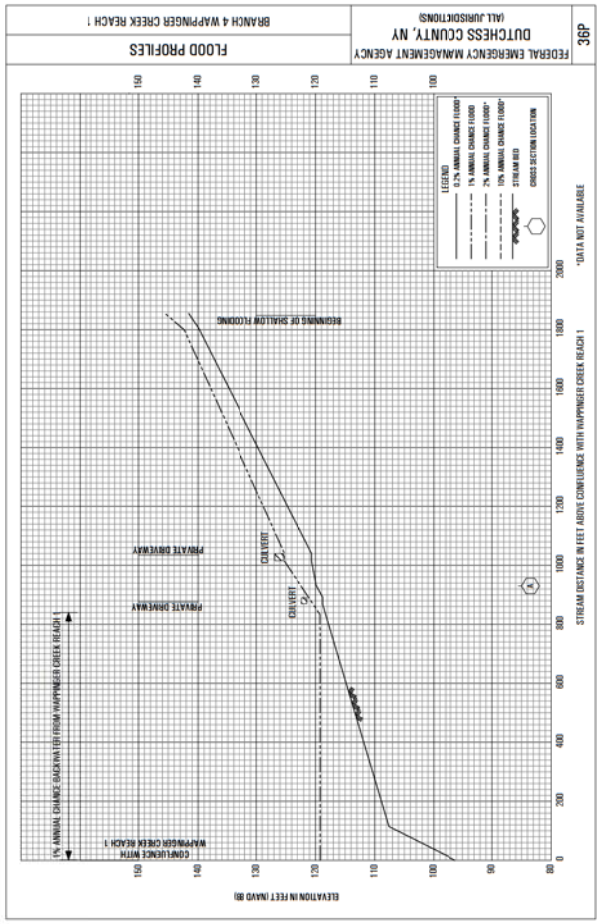
30P

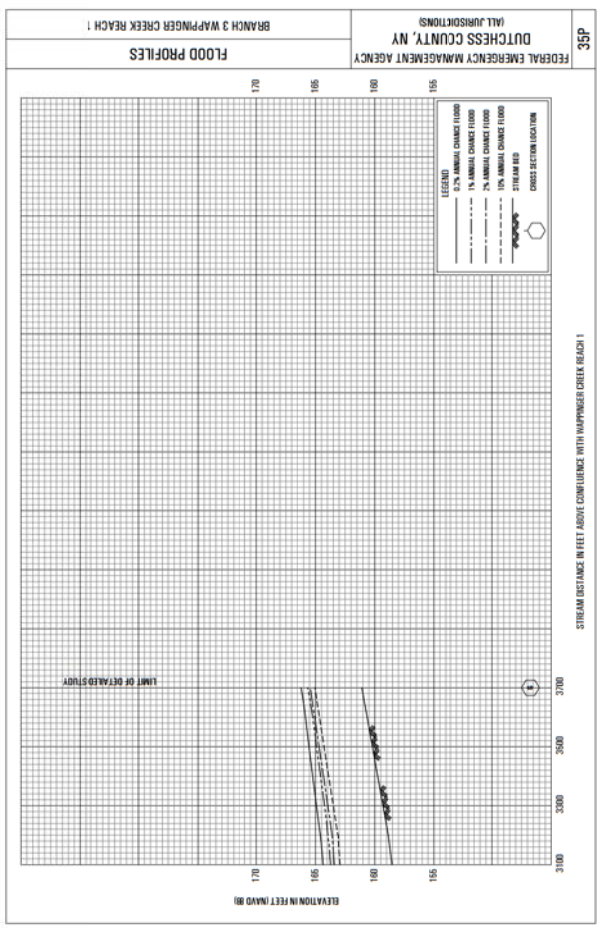

ELEVATION IN FEET (NAVD88)
STREAM DISTANCE IN FEET ABOVE CONFLUENCE WITH BRANCH 2 WAPPINGER CREEK REACH 1
CONFLUENCE WITH BRANCH 2 WAPPINGER CREEK REACH 1
DAM
FOOTBRIDGE
STATE ROUTE 376
LEGEND
0.2% ANNUAL CHANCE FLOOD
1% ANNUAL CHANCE FLOOD
2% ANNUAL CHANCE FLOOD
10% ANNUAL CHANCE FLOOD
STREAM BED
CROSS SECTION LOCATION
FLOOD PROFILES
BRANCH 2B WAPPINGER CREEK REACH 1
FEDERAL EMERGENCY MANAGEMENT AGENCY
DUTCHESS COUNTY, NY
(ALL JURISDICTIONS)
31P


ELEVATION IN FEET (NAVD88)
STREAM DISTANCE IN FEET ABOVE CONFLUENCE WITH BRANCH 2 WAPPINGER CREEK REACH 1
DRIVEWAY BRIDGE
DAM
FOOTBRIDGE
STATE ROUTE 376
LIMIT OF DETAILED STUDY
LEGEND
0.2% ANNUAL CHANCE FLOOD
1% ANNUAL CHANCE FLOOD
2% ANNUAL CHANCE FLOOD
10% ANNUAL CHANCE FLOOD
STREAM BED
CROSS SECTION LOCATION
FLOOD PROFILES
BRANCH 2B WAPPINGER CREEK REACH 1
FEDERAL EMERGENCY MANAGEMENT AGENCY
DUTCHESS COUNTY, NY
(ALL JURISDICTIONS)
32P

34P
FEDERAL EMERGENCY MANAGEMENT AGENCY
DUTCHESS COUNTY, NY
(ALL JURISDICTIONS)
FLOOD PROFILES
BRANCH 3 WAPPINGER CREEK REACH 1
ELEVATION IN FEET (NAVD 88)
STREAM DISTANCE IN FEET ABOVE CONFLUENCE WITH WAPPINGER CREEK REACH 1
LEGEND
0.2% ANNUAL CHANCE FLOOD
1% ANNUAL CHANCE FLOOD
2% ANNUAL CHANCE FLOOD
10% ANNUAL CHANCE FLOOD
STREAM BED
CROSS SECTION LOCATION
YASSAR ROAD
HILLS TERRACE
DAM
FOOT BRIDGE
CULVERT

33P
FEDERAL EMERGENCY MANAGEMENT AGENCY
DUTCHESS COUNTY, NY
(ALL JURISDICTIONS)
FLOOD PROFILES
BRANCH 3 WAPPINGER CREEK REACH 1
ELEVATION IN FEET (NAVD 88)
STREAM DISTANCE IN FEET ABOVE CONFLUENCE WITH WAPPINGER CREEK REACH 1
LEGEND
0.2% ANNUAL CHANCE FLOOD
1% ANNUAL CHANCE FLOOD
2% ANNUAL CHANCE FLOOD
10% ANNUAL CHANCE FLOOD
STREAM BED
CROSS SECTION LOCATION
CONFLUENCE WITH WAPPINGER CREEK REACH 1


FLOOD PROFILES
BRANCH 4 WAPPINGER CREEK REACH 1
FEDERAL EMERGENCY MANAGEMENT AGENCY
DUTCHESS COUNTY, NY
(ALL JURISDICTIONS)
36P
LEGEND
0.2% ANNUAL CHANCE FLOOD*
1% ANNUAL CHANCE FLOOD
2% ANNUAL CHANCE FLOOD*
10% ANNUAL CHANCE FLOOD*
STREAM BED
CROSS SECTION LOCATION
BEGINNING OF SHALLOW FLOODING
PRIVATE DRIVEWAY
PRIVATE DRIVEWAY
CULVERT
CULVERT
1% ANNUAL CHANCE BACKWATER FROM WAPPINGER CREEK REACH 1
CONFLUENCE WITH WAPPINGER CREEK REACH 1
ELEVATION IN FEET (NAVD 88)
STREAM DISTANCE IN FEET ABOVE CONFLUENCE WITH WAPPINGER CREEK REACH 1
*DATA NOT AVAILABLE


FLOOD PROFILES
BRANCH 3 WAPPINGER CREEK REACH 1
FEDERAL EMERGENCY MANAGEMENT AGENCY
DUTCHESS COUNTY, NY
(ALL JURISDICTIONS)
35P
LEGEND
0.2% ANNUAL CHANCE FLOOD
1% ANNUAL CHANCE FLOOD
2% ANNUAL CHANCE FLOOD
10% ANNUAL CHANCE FLOOD
STREAM BED
CROSS SECTION LOCATION
LIMIT OF DETAILED STUDY
ELEVATION IN FEET (NAVD 88)
STREAM DISTANCE IN FEET ABOVE CONFLUENCE WITH WAPPINGER CREEK REACH 1

FEDERAL EMERGENCY MANAGEMENT AGENCY
DUTCHESS COUNTY, NY
(ALL JURISDICTIONS)
37P
FLOOD PROFILES
BRANCH 4 WAPPINGER CREEK REACH 1
ELEVATION IN FEET (NAVD 88)
STREAM DISTANCE IN FEET ABOVE CONFLUENCE WITH WAPPINGER CREEK REACH 1
*DATA NOT AVAILABLE
LEGEND
0.2% ANNUAL CHANCE FLOOD*
1% ANNUAL CHANCE FLOOD
2% ANNUAL CHANCE FLOOD*
10% ANNUAL CHANCE FLOOD*
STREAM BED
CROSS SECTION LOCATION
BEGINNING OF SHALLOW FLOODING
LIMIT OF DETAILED STUDY

AMENDED SITE PLAN

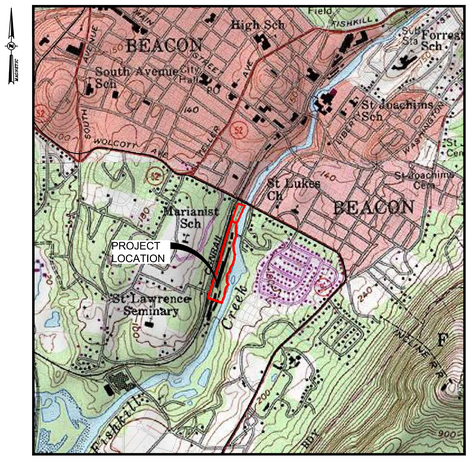
248 TIORONDA AVE, BEACON NY

PREPARED FOR

CHAI DEVELOPERS

CITY OF BEACON
DUTCHESS COUNTY, NEW YORK

FEBRUARY 14, 2024



LOCATION MAP
SCALE: 1"=1000'
SOURCE: USGS CATSKILL, NY QUADRANGLE
(USGS REF. CODE: WEST POINT-41073-D8-TF-024)

BEST MANAGEMENT PRACTICES FOR INDIANA BATS

1. THE PROJECT WILL AVOID CUTTING TREES TO THE MAXIMUM EXTENT PRACTICABLE.
2. LARGER TREES WILL BE RETAINED.
3. TREE CLEARING LIMITS WILL BE MARKED IN THE FIELD PRIOR TO ANY CLEARING, AND CONTRACTORS WILL BE INFORMED ABOUT CLEARING LIMITS PRIOR TO THE INITIATION OF WORK.
4. TREES WILL BE REMOVED BETWEEN OCTOBER 1 AND MARCH 31 IN ORDER TO AVOID ANY INCIDENTAL TAKE TO INDIANA BATS, OR OTHER BATS THAT MAY USE TREES FOR ROOSTING.
5. ALL SITE LIGHTING ON THE SITE WILL BE FULL CUT-OFF.
6. THERE WILL BE NO USE OF HERBICIDES OR PESTICIDES IN ANY STORMWATER MANAGEMENT BASINS.

CITY OF BEACON PLANNING BOARD APPROVAL CITY OF BEACON, NEW YORK

APPROVED BY RESOLUTION NUMBER _____ OF THE PLANNING BOARD OF BEACON, NEW YORK ON THE _____ DAY OF _____, 2015, 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 _____ 2015.

_____
CHAIRMAN

CITY OF BEACON PLANNING BOARD APPROVAL OWNER / APPLICANT SIGNATURE

THE UNDERSIGNED APPLICANT FOR THE PROPERTY AND THE UNDERSIGNED OWNER OF THE PROPERTY SHOWN HEREON, STATE THAT THEY ARE FAMILIAR WITH THIS MAP, ITS NOTES AND ITS CONTENTS, AND HEREBY CONSENT TO ALL SAID TERMS AND CONDITIONS AS STATED HEREON.

THE APPLICANT AND OWNER UNDERSTAND THEIR OBLIGATION TO THE CITY TO KEEP THIS SITE AS PER SITE PLAN APPROVAL BY THE CITY PLANNING BOARD UNTIL A NEW OR REVISED SITE PLAN IS APPROVED FOR THE SITE. THE APPLICANT AND OWNER UNDERSTAND THEIR OBLIGATION TO THE TOWN NOT TO OCCUPY THE PREMISES BEFORE A CO IS ISSUED BY THE TOWN CODE ENFORCEMENT OFFICER.

_____ APPLICANT DATE

_____ OWNER DATE

INDEX OF DRAWINGS

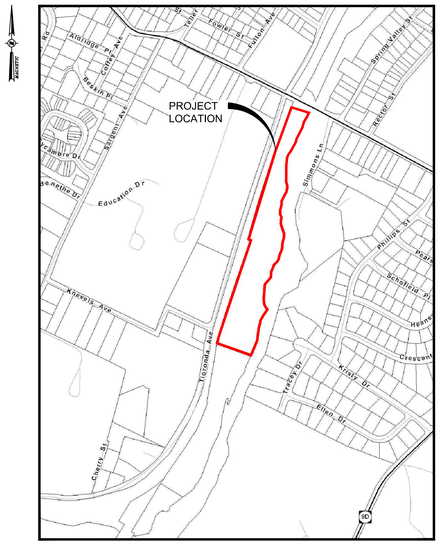
PAGE NO.	SHEET NO.	DATE	DESCRIPTION
1	G001	02/14/24	TITLE SHEET
2	C101	04/30/19	EXISTING CONDITIONS PLAN
3	C130	02/14/24	SITE PLAN
4	C140	02/14/24	GRADING PLAN
5	C150	02/14/24	EROSION & SEDIMENT CONTROL PLAN
6	C160	02/14/24	UTILITY PLAN
7	C161	08/31/21	UTILITY PROFILES
8	C162	08/31/21	UTILITY PROFILES
9	C180	02/14/24	LANDSCAPE PLAN
10	C190	02/14/24	PHOTOMETRIC LIGHTING PLAN
11	C200	08/31/21	VEHICLE MANEUVERING PLAN
12	C530	02/14/24	SITE DETAILS
13	C540	02/14/24	STORM SEWER DETAILS
14	C550	02/14/24	EROSION & SEDIMENT CONTROL DETAILS & NOTES
15	C560	08/07/20	WATER SYSTEM DETAILS & NOTES
16	C570	08/07/20	SANITARY SEWER DETAILS & NOTES
17	C580	08/07/20	LANDSCAPE DETAILS & NOTES

*PLANS IN GRAY ARE NOT INCLUDED IN THE AMENDED SITE PLAN.

OWNER'S CERTIFICATION FOR ALL SHEETS

THE UNDERSIGNED OWNER OF THE PROPERTY HEREON STATE THAT HE IS FAMILIAR WITH THIS PLAN, ITS CONTENTS AND LEGENDS AND HEREBY CONSENT TO ALL TERMS AND CONDITIONS AS STATED HEREON AND TO THE FILING OF THE PLAN IN THE OFFICE OF THE CLERK OF THE COUNTY OF DUTCHESS, IF REQUIRED.

_____ OWNER DATE



AREA PARCEL MAP
SCALE: 1"=400'

BULK TABLE

FISHKILL CREEK DEVELOPMENT DISTRICT: FCD

ZONING REQUIREMENTS:	REQUIRED	PROPOSED
MINIMUM LOT AREA	2 ACRES	9.18 ACRES
MAXIMUM # OF DWELLINGS*	68 UNITS	64 UNITS
NON-RESIDENTIAL FLOOR AREA (25% TOTAL DEVELOPMENT FLOOR AREA)	22,299 SF	23,124 SF
MAXIMUM BUILDING COVERAGE	35%	10%
MINIMUM OPEN SPACE	30%	70%
MINIMUM FRONTAGE OF OVERALL FCD SITE ON PUBLIC STREET ROW	50 FT	135'
MINIMUM BUILDING SETBACK FROM EDGE OF PAVEMENT OF PUBLIC AND PRIVATE STREETS	12 FT	700'
MINIMUM SETBACK AND BUFFER WIDTH ALONG FISHKILL CREEK	AVG 50 FT MIN 25 FT	AVG = 75 FT MIN. = 45 FT
MAXIMUM BUILDING HEIGHT	3 STORIES (40')	3 STORIES (36')
MINIMUM NUMBER OF PARKING SPACES		
RESIDENTIAL:	1 SPACE PER DWELLING UNIT PLUS 1/4 SPACE FOR EACH BEDROOM =91 SPACES	91 SPACES TOTAL (WHICH INCLUDES 17 SURFACE SPACES, AND 74 SPACES BELOW BUILDING)
NON-RESIDENTIAL:	1 SPACE PER 200 SF GROSS FLOOR AREA EXCLUDING UTILITY AREAS =116 SPACES	97 SPACES TOTAL
LAND BANKED:	0 SPACES	31 SPACES (0 ADA)
TOTAL:	207 SPACES 9 ACCESSIBLE SPACES REQUIRED	220 SPACES 13 ACCESSIBLE SPACES PROVIDED 4 OF 9 ACCESSIBLE SPACES BELOW RESIDENTIAL BUILDING

Allowable Residential Units

1	Total lot area	9.18 acres
2	Lot area with slopes over 25%, covered by surface water, within a federal regulatory floodway, or within a state or federally regulated wetland.	2.98 acres
3	Remaining lands for dwelling unit calculation (line 1 - line 2)	6.2 acres
4	Maximum dwelling units (line 3 x 11)	68 units

SITE STATISTICS FOR PROPOSED MULTIFAMILY HOUSING & NON-RESIDENTIAL

PROPOSED USE	MULTIFAMILY HOUSUING & NON-RESIDENTIAL
ZONING DISTRICT	FISHKILL CREEK DEVELOPMENT
TOTAL BUILDING FLOOR AREA (SF)	89,197 SF (64 UNITS + NON RESIDENTIAL USE)
PARKING PROVIDED	216

DEVELOPMENT SCHEDULE

BUILDING	UNITS	1-BR	2-BR	3-BR	4-BR	APPROX. SQUARE FT	% OF PROJECT AREA
RES.	64	29	28	6	1	66,073	74
NON-RES.	-	-	-	-	-	23,124	26
TOTAL	64	29	28	6	1	89,197	100

DEVELOPMENT NOTE:

THE PROJECT SHALL NOT EXCEED A TOTAL OF 64 UNITS, IN A MIX OF ONE, TWO, THREE AND FOUR BEDROOM UNITS. TEN PERCENT (10%) OF THE UNITS WILL MEET THE REQUIREMENTS OF ARTICLE 16B, AFFORDABLE- WORKFORCE HOUSING, OF THE ZONING LAW.

SITE ENGINEER:
LABELLA ASSOCIATES D.P.C.
21 FOX STREET, POUGHKEEPSIE, NY 12601
PHONE: (845) 454-3980

PROJECT ARCHITECT:
AB ARCHITEKTEN
62 ALLEN STREET, 2ND FLOOR
NEW YORK, NY 10002
PHONE: (212) 334-1232

SITE SURVEYOR:
LABELLA ASSOCIATES D.P.C.
21 FOX STREET, POUGHKEEPSIE, NY 12601
PHONE: (845) 454-3980

DEVELOPER / APPLICANT:
CHAI DEVELOPERS
147 UNION ST, SUITE 101
POUGHKEEPSIE, NY 12601
(917) 696-4402

OWNER(S) INFORMATION:
BERRY KOHN
BEACON 248 HOLDINGS, LLC.
15 SYCAMORE LANE
SUFFERN, NY 10901

TAX MAP INFORMATION:
CITY OF BEACON, NEW YORK
SECTION 6054, BLOCK 45, LOT 012574 (9.18 ACRE)

AREA:
TOTAL PROJECT AREA: 9.18± ACRES

ZONING DISTRICT:
FISHKILL CREEK DEVELOPMENT (FCD) ZONING DISTRICT

WATER & SEWER DISTRICT:
CITY OF BEACON

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Poughkeepsie, NY 12601
(845) 454-3980
labellapc.com

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EXP: ##/##/20##
EXP: ##/##/20##

CERTIFICATE OF AUTHORIZATION NUMBER:
PROFESSIONAL ENGINEERING: 018381
LAND SURVEYING: 017976
GEOLOGICAL: 018750

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248 Tioronda Avenue
248 Tioronda Avenue
Beacon, New York 12508

NO:	DATE:	DESCRIPTION:
Revisions		

PROJECT NUMBER: CZ81750.00
DRAWN BY: CJL
REVIEWED BY: KGA
ISSUED FOR: ISSUED FOR PLANNING BOARD APPROVAL
DATE: 02/14/24
DRAWING NAME: TITLE SHEET
DRAWING NUMBER: G001

2/27/2024 11:52:36 AM
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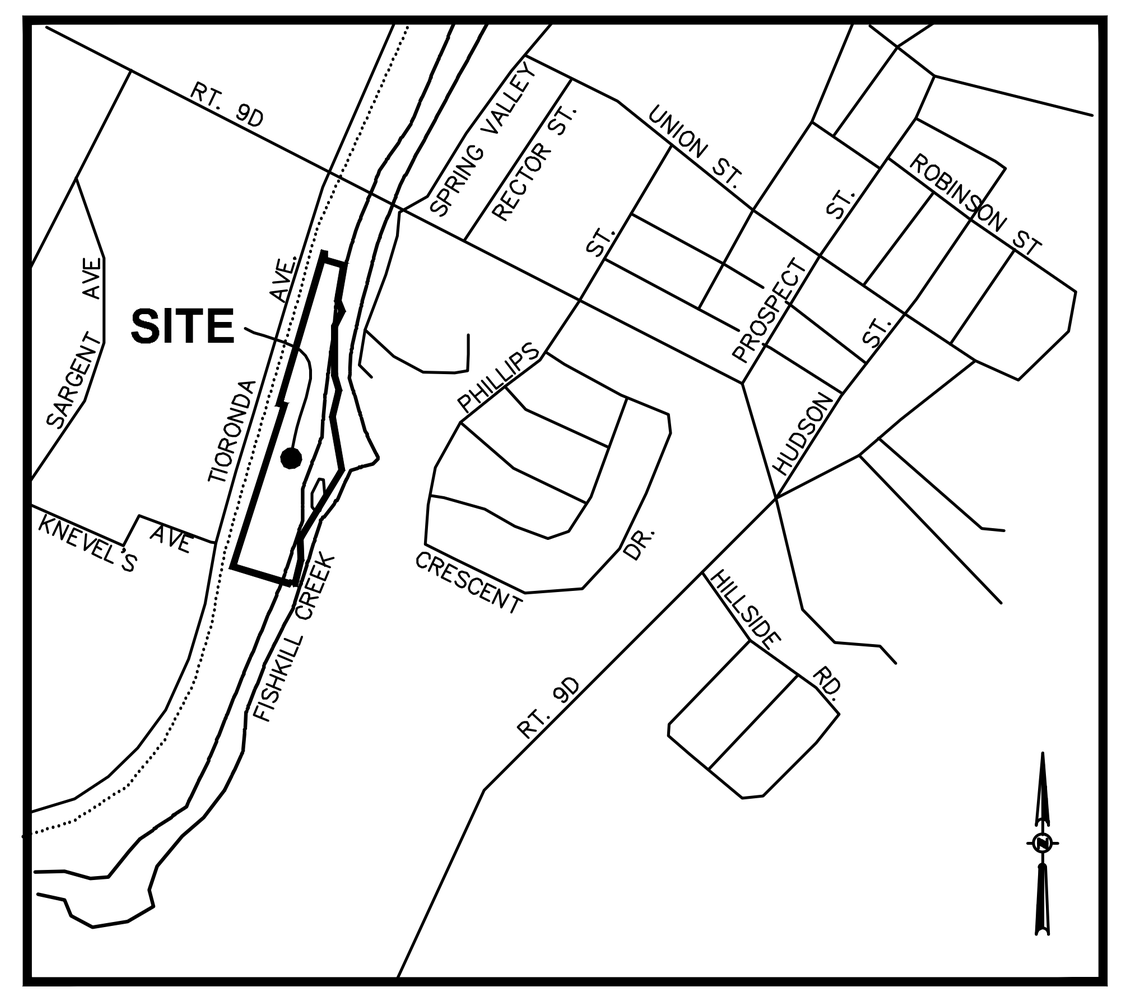

VICINITY MAP
SCALE: 1"= 1000'±
SOURCE:USGS WEST POINT QUADRANGLE

LEGEND:

- NO PHYSICAL BOUNDS
- ADJACENT PROPERTY LINE
- EDGE OF CREEK
- EXISTING BUILDING
- EXISTING FENCE
- EXISTING OVERHEAD WIRES
- EXISTING WATER LINE
- EXISTING UNDERGROUND SEWER LINE
- EXISTING UNDERGROUND STORM LINE
- EXISTING RAILROAD TRACKS
- EXISTING SIGN
- EXISTING BENCHMARK (BENCHMARK HYD-NHOA ELEV.= xxx.xx)
- EXISTING BOLLARD
- EXISTING CATCH BASIN
- EXISTING DECIDUOUS TREE
- EXISTING GUY WIRE
- EXISTING GAS VALVE
- EXISTING HYDRANT
- EXISTING MONUMENT
- EXISTING SANITARY MANHOLE
- EXISTING UNKNOWN MANHOLE
- EXISTING UTILITY POLE
- EXISTING UTILITY POLE W/ LIGHT
- EXISTING WATER VALVE
- EXISTING MONITORING WELL
- EXISTING TELEPHONE MANHOLE
- EXISTING TELEPHONE PEDESTAL

NEW YORK STATE PLANE-MERIDIAN +00°20'50" TO FILED MAP 10970 MERIDIAN

TITLE REPORT SCHEDULE B-1

REGARDING CHICAGO TITLE INSURANCE COMPANY POLICY #3706-00688, EFFECTIVE OCTOBER 15, 2006:

ITEM 14. EASEMENT GRANTED IN FAVOR OF C.H.G.& E. LIBER 959 PAGE 376. DOCUMENT STATES THAT C.H.G. &E. RESERVES A RIGHT TO HAVE CLEARANCE OF 10 FEET BETWEEN ALL WIRES AND CONDUCTORS OF ELECTRICITY AND ANY STRUCTURE HEREAFTER CONSTRUCTED. (EASEMENT SHOWN HEREON).

ITEM 15. EASEMENTS CONTAINED IN LIBER 1042 PAGE 205, AS REPEATED IN LIBER 1328 PAGE 118. (TOGETHER WITH RIGHTS RESERVED TO THE GRANTOR, (NEW YORK RUBBER COMPANY), THE RIGHT TO CONSTRUCT, MAINTAIN AND USE DRIVEWAYS AND FOOT WALKS OVER THE PARCEL HEREBY CONVEYED. (EXISTING DRIVES SHOWN HEREON). TOGETHER WITH POWER AND LIGHT SUBSTATION, TRANSFORMERS, PLUMBING, HEATING AND LIGHTING EQUIPMENT ON THE PREMISES. CANNOT IDENTIFY SUBSTATION LOCATION.)

ITEM 16. RESERVATION TO THE NEW YORK RUBBER CORPORATION IN LIBER 1328 PAGE 118. (DOCUMENT NOT INCLUDED IN SCHEDULE B-1). SEE ITEM 15 FOR SUMMATION OF EASEMENTS IN LIBER 1042 PAGE 205.

ITEM 17. EASEMENTS AND RECITALS CONTAINED IN LIBER 1936 PAGE 229:

RIGHTS OF WAY IN GRANTED TO THE NEW YORK RUBBER COMPANY BY THE DUTCHESS AND COLUMBIA RAILROAD COMPANY LIBER 257 PAGE 32, (DOCUMENT REFERS TO THE GRANTING OF MULTIPLE CROSSINGS OVER AND UNDER SAID RAILROAD. AFFECTS SUBJECT PARCEL. ACCESS EASEMENTS NOT PROTRACTIBLE).

RIGHT OF WAY GRANTED TO THE CITY OF BEACON IN LIBER 556 PAGE 508, (DOES NOT AFFECT SUBJECT PARCEL).

LIBER 959 PAGE 373,)EXCEPTS AND RESERVES FROM THE C.H.G. & E. PARCEL TO THE NORTH OF THE SUBJECT SITE, " THE SHOULDERS AND OTHER PARTS OF THE ACCESS ROAD LYING ON THE WESTERLY SIDE OF SAID PARCEL". (AFFECTS SUBJECT PARCEL AND SHOWN HEREON).

ITEM 18. PERMANENT AND TEMPORARY EASEMENTS CONTAINED IN APPROPRIATION NOTICE RECORDED IN LIBER 2002 PAGE 516. (PERMANENT EASEMENT MAP NO. 18, PARCEL NO. 26 AFFECTS SUBJECT PARCEL AND SHOWN HEREON. TEMPORARY EASEMENTS SHOWN ON MAP NO. 19 ,PARCEL NO. 27 AND 28 WERE TERMINATED ON NOVEMBER 16, 1999.)

ITEM 19. ACCESS EASEMENT OVER PARCEL 1B, (F.M. 10970), GRANTED IN FAVOR OF PARCEL 1A. (F.M. # 10970). EASEMENT IS SHOWN ON FILED MAP # 10970. AFFECTS SUBJECT PARCEL AND SHOWN HEREON.

ITEM 20. NOTES AND EASEMENTS SHOWN ON FILED MAP # 10970;

MAP DEPICTS 6 FOOT WIDE "GREENWAY EASEMENT", GRANTED IN FAVOR OF THE CITY OF BEACON FOR PUBLIC ACCESS AND IS LOCATED ALONG THE FISHKILL CREEK, (AFFECTS SUBJECT PARCEL AND SHOWN HEREON).

ACCESS EASEMENT GRANTED IN FAVOR OF PARCEL 1A, OVER PARCEL 1B. AFFECTS SUBJECT PARCEL AND SHOWN HEREON-SEE ITEM 19.

ITEM 21. LEASE AND EASEMENT RECORDED IN DOCUMENT #02-2003-9779, AS MODIFIED IN DOCUMENT #02-2005-7447, AS ASSIGNED AND ASSUMED IN DOCUMENT #02-2005-7449, AS MODIFIED IN DOCUMENT #02-2005-7448 AND AS MODIFIED IN DOCUMENT #02-2005-7450.

DOCUMENT #02-2003-9779 RESERVES TO THE LANDLORD THE RIGHT TO PASS THROUGH AND ACROSS THE LEASED PREMISES TO TIORANDA AVENUE. THE LEASE PARCEL IS SHOWN ON A PORTION OF A MAP PREPARED BY BADEY AND WATSON SURVEYING AND ENGINEERING, P.C., (BEING AN UNRECORDED MAP). (AFFECTS SUBJECT PARCEL AND SHOWN HEREON.)

DOCUMENT #02-2005-7447 DESCRIBES CONSENT TO ASSIGNMENT OF LEASE TO "SISTERS PROPERTIES, LLC" AS ASSIGNEE.

DOCUMENT #02-2005-7449 AS ASSIGNED AND ASSUMED BY "SISTERS PROPERTIES, LLC".

DOCUMENT #02-2005-7448, BEING A MODIFICATION OF THE LEASE AGREEMENT.

DOCUMENT #02-2005-7450 PROVIDES A METES AND BOUNDS DESCRIPTION OF THE LEASE PARCEL. (AFFECTS SUBJECT PARCEL AND SHOWN HEREON).

DEED REFERENCE

JOSEPH RENDEIRO
– TO –
BEACON 248 DEVELOPMENT, LLC
DOC. # 02-2006-4859
FILED JUNE 20, 2006

TAX PARCEL NUMBER

130200-5954-16-993482-00

AREA: 8.175 ACRES

356,099 SQ.FT.

MAP REFERENCE

REFERENCE IS HEREBY MADE TO A MAP ENTITLED "SUBDIVISION PLAT PREPARED FOR ADVANTAGE MORTGAGE", PREPARED BY BADEY & WATSON SURVEYING & ENGINEERING P.C., DATED APRIL 16, 1991 AND FILED IN THE DUTCHESS COUNTY CLERK'S OFFICE ON FEBRUARY 22, 2000 AS FILED MAP #10970.

MAP REFERENCE

1. SUBJECT PROPERTY IS DESIGNATED AS PARCEL 1B AS SHOWN ON A MAP ENTITLED, "SUBDIVISION PLAT PREPARED FOR ADVANTAGE MORTGAGE", PREPARED BY BADEY AND WATSON SURVEYING AND ENGINEERING, P.C., FILED IN THE DUTCHESS COUNTY CLERKS OFFICE AS FILED MAP # 10970 ON FEBRUARY 22, 2000.

2. REFERENCE IS HEREBY MADE TO A CERTAIN MAP ENTITLED "BEACON 248 DEVELOPMENT, LLC, MAP OF BOUNDARY & TOPOGRAPHIC SURVEY OF LANDS OF CENTRAL HUDSON GAS & ELECTRIC CORP." DATED 02/25/2013, PREPARED BY CHAZEN ENGINEERING, LAND SURVEYING & LANDSCAPE ARCHITECTURE CO., P.C.

FLOOD ZONE NOTE:

THE FLOODWAY LINE AND FLOOD ZONE LINE "ZONE X OTHER FLOOD AREAS" SHOWN HEREON ARE AS SCALED FROM FLOOD INSURANCE RATE MAPPING (FIRM) LISTED BELOW, THE "ZONE AE" 100 YEAR FLOOD LINE WITHIN THE SUBJECT PARCEL WAS DRAWN AT ELEVATION 85.9(NGVD29) PER THE TOPOGRAPHY SHOWN HEREON.

PARCEL SHOWN HEREON LIES WITHIN "SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD" ZONE AE, WITHIN "OTHER FLOOD AREAS, ZONE X", "OTHER AREAS, ZONE X", AND WITHIN FLOODWAY AREAS IN ZONE AE, AS SHOWN ON FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) NATIONAL FLOOD INSURANCE PROGRAM (NFIP) FLOOD INSURANCE RATE MAP (FIRM) MAPPING FOR THE CITY OF BEACON COMMUNITY NUMBER 360217 MAP NUMBER 36027C0577E, HAVING AN EFFECTIVE DATE OF MAY 2, 2012.

"ZONE AE" BEING DESCRIBED THEREON AS "BASE FLOOD ELEVATIONS DETERMINED", THE BASE FLOOD ELEVATION BEING SHOWN THEREON AS ELEVATIONS 85 NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88), WHICH TRANSLATES TO ELEVATION 85.9 NATIONAL GEODETIC VERTICAL DATUM 1929 (NGVD29) BEING THE DATUM OF TOPOGRAPHY SHOWN HEREON.

"OTHER FLOOD AREAS, ZONE X" BEING DESCRIBED THEREON AS "AREAS OF 0.2% ANNUAL CHANCE FLOOD; AREAS OF 1% ANNUAL CHANCE FLOOD WITH AVERAGE DEPTHS OF LESS THAN 1 FOOT OR WITH DRAINAGE AREAS LESS THAN 1 SQUARE MILE; AND AREAS PROTECTED BY LEVEES FROM 1% ANNUAL CHANCE FLOOD".

"OTHER AREAS, ZONE X" BEING DESCRIBED THEREON AS "AREAS DETERMINED TO BE OUTSIDE 0.2% ANNUAL CHANCE FLOODPLAIN.

"FLOODWAY AREAS IN ZONE AE" BEING DESCRIBED THEREON AS "THE FLOODWAY IS THE CHANNEL OF A STREAM PLUS ANY ADJACENT FLOODPLAIN AREAS THAT MUST BE KEPT FREE OF ENCROACHMENT SO THAT THE 1% ANNUAL CHANCE FLOOD CAN BE CARRIED WITHOUT SUBSTANTIAL INCREASES IN FLOOD HEIGHTS.".

VERTICAL DATUM NOTE

TOPOGRAPHY IS BASED REFERENCE MARK (RM 4, ELEVATION 3.92'), AS SHOWN ON FLOOD INSURANCE RATE MAP, CITY OF BEACON COMMUNITY PANEL #360217-0003-B, DATED MARCH 1, 1984. VERTICAL DATUM IS NGVD 1929. CONTOUR INTERVAL IS 2 FEET.

NOTES

UNAUTHORIZED ALTERATION OR ADDITION TO A SURVEY MAP BEARING A LICENSED LAND SURVEYOR'S SEAL IS A VIOLATION OF SECTION 7209, SUBDIVISION 2 OF THE NEW YORK STATE EDUCATION LAW.

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SURVEYED FROM RECORD DESCRIPTION AND AS IN POSSESSION.

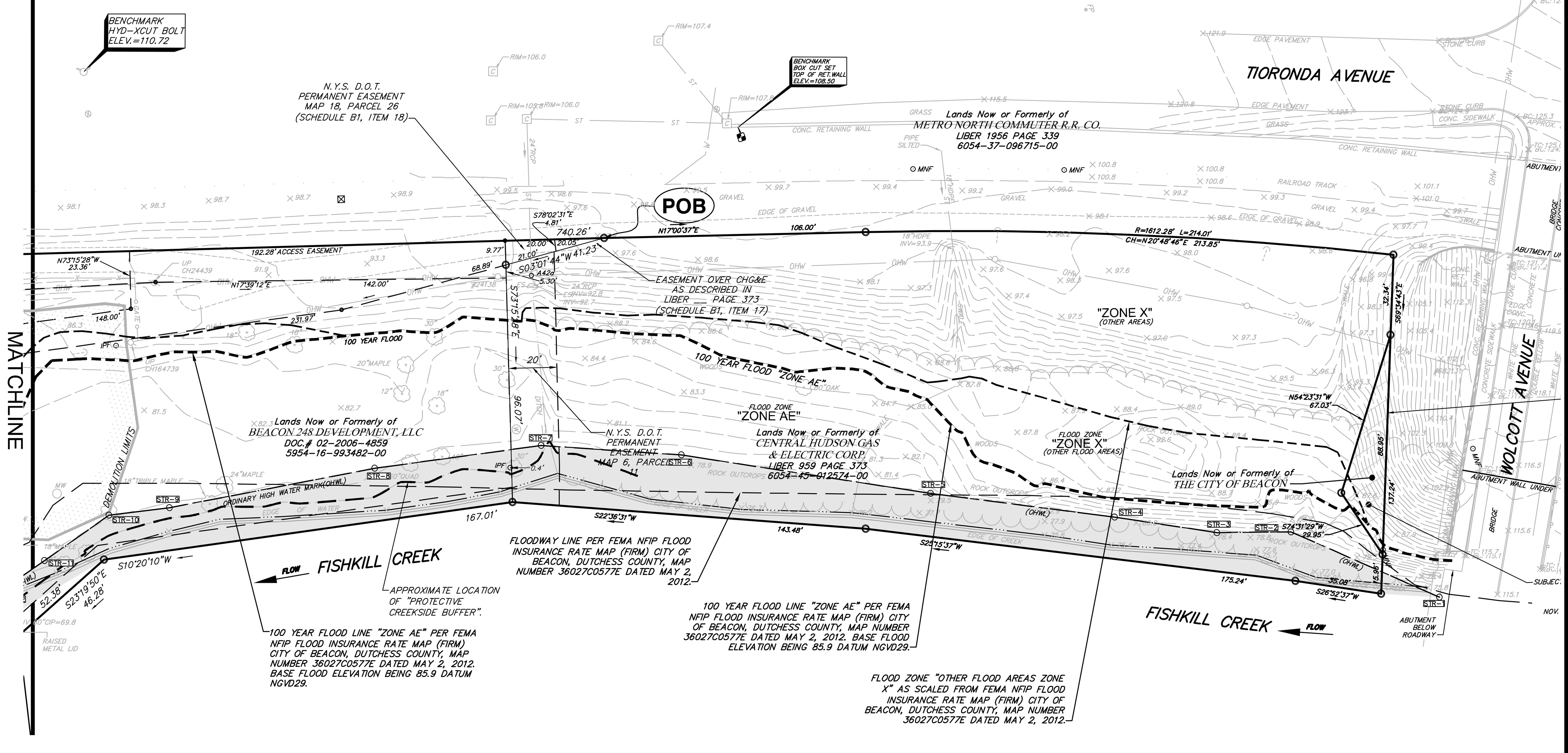
THE BOUNDARY SURVEY FOR THE SUBJECT SITE WAS COMPLETED ON DECEMBER 13, 2006.
BOUNDARY SURVEY FIELD UPDATED APRIL 6, 2011.

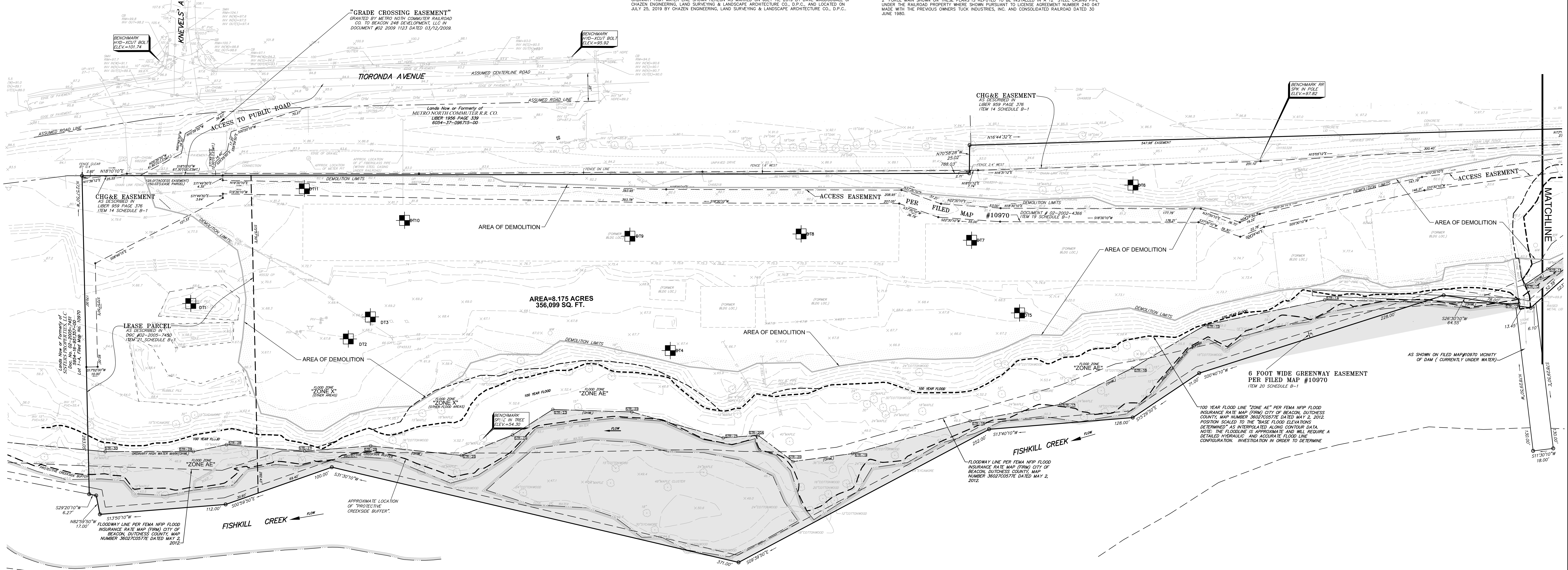
ORDINARY HIGH WATER NOTE:

ORDINARY HIGH WATER LINE SHOWN HEREON AS MARKED ON JULY 10, 2019 BY DAVE MACDOUGALL OF CHAZEN ENGINEERING, LAND SURVEYING & LANDSCAPE ARCHITECTURE CO., D.P.C., AND LOCATED ON JULY 25, 2019 BY CHAZEN ENGINEERING, LAND SURVEYING & LANDSCAPE ARCHITECTURE CO., D.P.C..

SEWER NOTE

2" FORCE MAIN SHOWN ON THESE PLANS IS REPUTED TO BE INSTALLED IN A 12" STEEL CASING PIPE UNDER THE RAILROAD PROPERTY WHERE SHOWN PURSUANT TO LICENSE AGREEMENT NUMBER 240 047 MADE WITH THE PREVIOUS OWNERS TUCK INDUSTRIES, INC. AND CONSOLIDATED RAILROAD DATED 30 JUNE 1980.





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DAVID H. DIPPEL, LS 050677

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Capital District Office: 547 River Street, Troy, New York 12180, Phone:(518) 273-0055
North Country Office: 20 Elm Street (Suite 110), Glens Falls, New York 12801, Phone:(518) 812-0513
Westchester NY Office: 1 North Broadway, Suite 803, White Plains, New York 10601, Phone: (914) 997-8510
Nashville Tennessee Office: 2416 21st Ave S. (Suite 103), Nashville, Tennessee 37212, Phone: (615) 380-1359
Chattanooga Tennessee Office: 427 E. 5TH ST. (Suite 201), Chattanooga, Tennessee 37403, Phone: (423) 241-6575

rev.	date	description
2	04/30/19	REVISED PER PLANNING BOARD COMMENTS
1	11/22/13	REVISED PER PLANNING BOARD COMMENTS DATED SEPTEMBER 2013

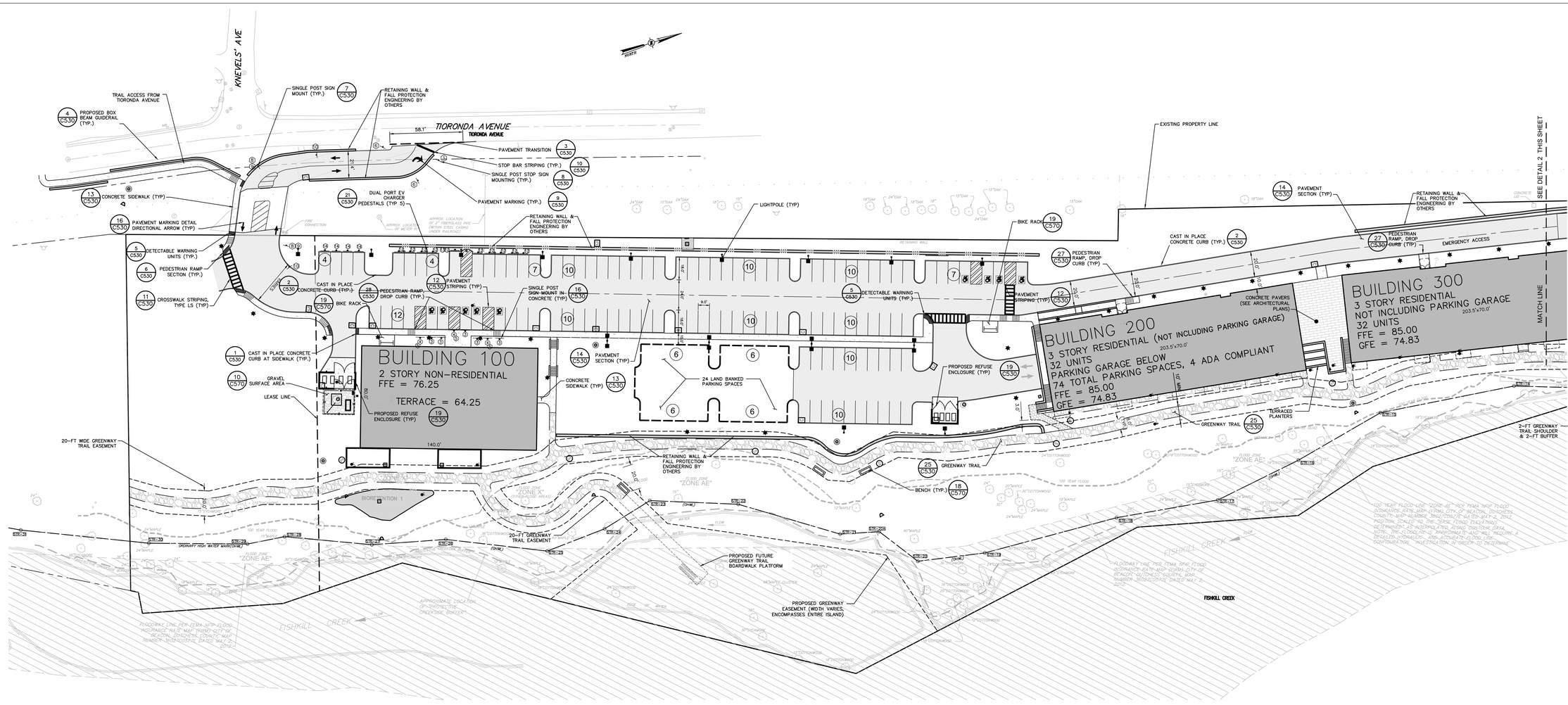
248 TIORONDA AVE., BEACON, N.Y.

EXISTING CONDITIONS

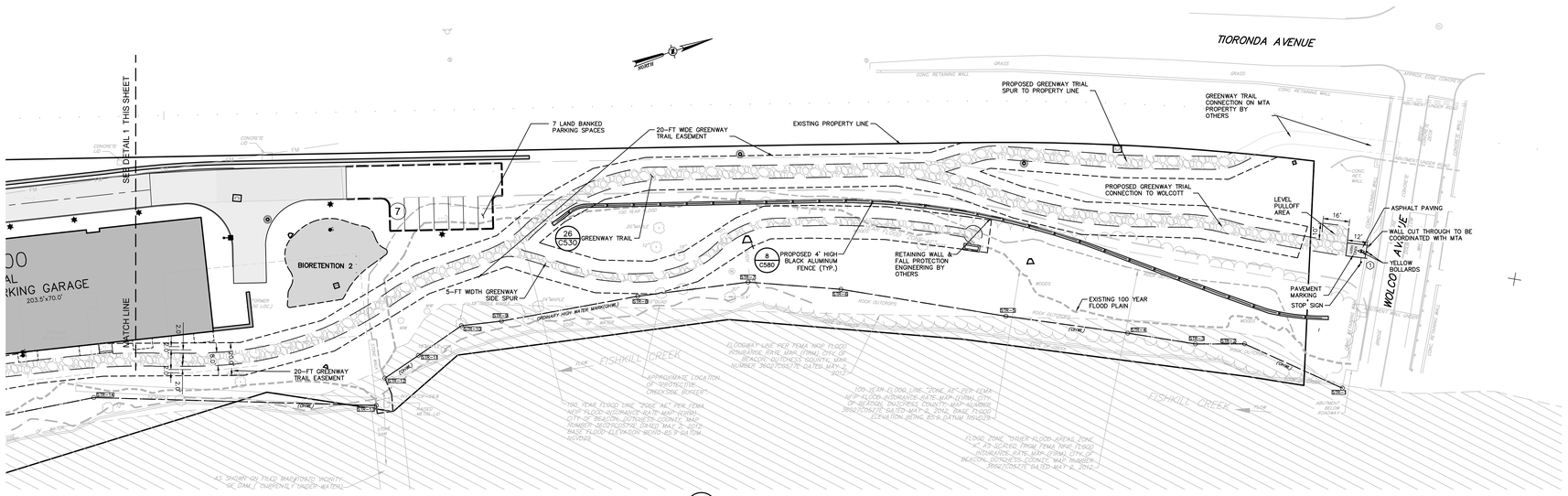
CITY OF BEACON, DUTCHESS COUNTY, NEW YORK

designed APB	checked CL
date 09/10/18	scale 1"=30'
project no. 81750.00	
sheet no. C101	2 of 17

Drawing Name: \\cash.lab\u\Legacy\Chazen\Projects\81700-81799\81750.00 CHAI Builders B-248\DWG\01_C101_81750-00_EXIST.dwg
Xref's Attached: XBASE-SVY_81056-00; XTB_81750-00_36x48; XBASE-ENG_81750-00
Date Printed: Feb 26, 2024, 11:16pm



1 C130 **SITE PLAN**
SCALE: 1"=30'



2 C130 **SITE PLAN**
SCALE: 1"=30'

SITE PLAN NOTES:

LAND BANKED PARKING SHALL BE CONSTRUCTED IF REQUIRED BY THE LANDBANKED PARKING AGREEMENT, PER SECTION 223-26E OF CITY CODE..

THE BEACON GREENWAY TRAIL COMMITTEE WILL BE ASKED TO REVIEW LAYOUT OF TRAIL PRIOR TO CONSTRUCTION.
ADDITIONALLY, THE COMMITTEE WILL DETERMINE THE FINAL LOCATION OF THE BENCHES ON THE GREENWAY TRAIL DURING FINAL REVIEW PRIOR TO CONSTRUCTION.

LEGEND:

- EXISTING 100-YEAR FLOOD PLAIN
- EXISTING PROPERTY LINE
- EASEMENT LINE
- PROPOSED BUILDING
- PROPOSED PAVEMENT
- (25) PROPOSED PARKING COUNT
- PROPOSED SIDE WALK
- EXISTING METRO-NORTH RAILROAD TRACKS (INACTIVE)
- PROPOSED CURB
- PROPOSED LIGHT POLE
- PROPOSED RETAINING WALL
- GREENWAY TRAIL

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Poughkeepsie, NY 12601
(845) 454-3980

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EXP: ##/##/20##
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CERTIFICATE OF AUTHORIZATION NUMBER:
PROFESSIONAL ENGINEERING: 018381
LAND SURVEYING: 017976
GEOLOGICAL: 018750

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NO.	DATE:	DESCRIPTION:
Revisions		

PROJECT NUMBER: C281750.00
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REVIEWED BY: KGA
ISSUED FOR: ISSUED FOR PLANNING BOARD APPROVAL
DATE: 02/14/24
DRAWING NAME:

SITE PLAN

DRAWING NUMBER:

C130

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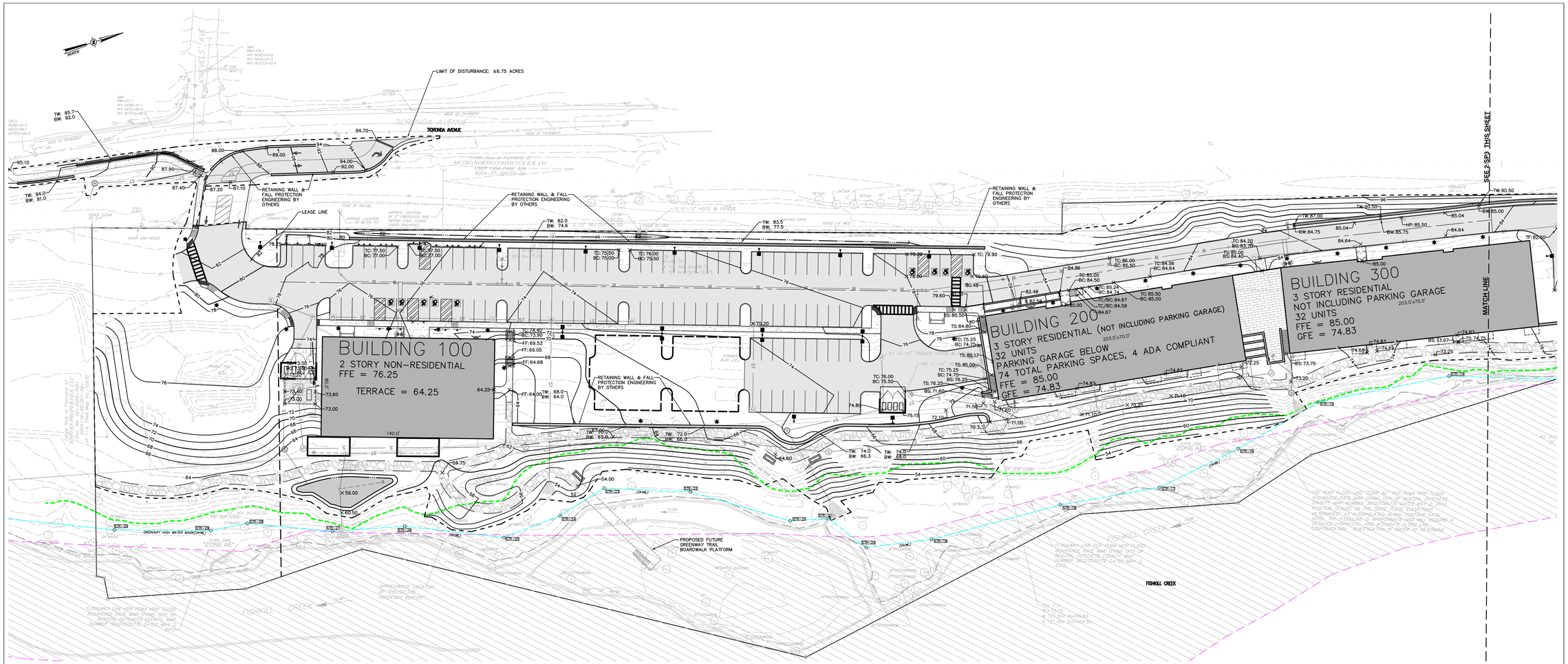
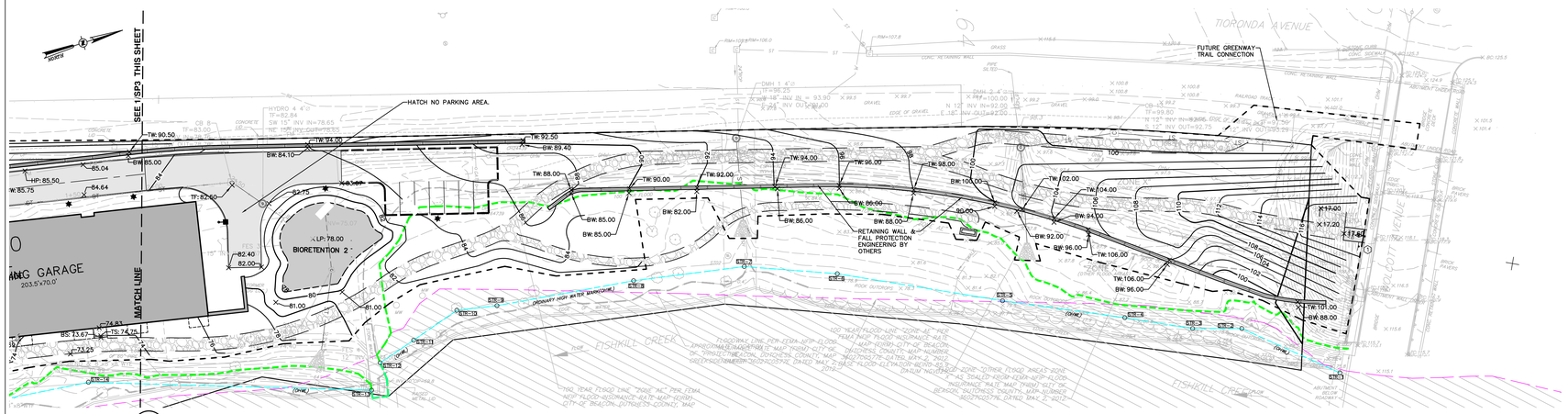


1 C140 GRADING PLAN
SCALE: 1"=30'



2 C140 GRADING PLAN
SCALE: 1"=30'

GRADING & DRAINAGE LEGEND:

- PROPOSED PROPERTY LINE
- PROPOSED BUILDING
- PROPOSED PAVEMENT
- XXX PROPOSED 10 FT CONTOUR
- XXX PROPOSED 2 FT CONTOUR
- XXX.X PROPOSED SPOT GRADE
- PROPOSED TREE LINE
- PROPOSED SHRUB LINE
- PROPOSED DRAINAGE SWALE
- PROPOSED WORK LIMIT LINE
- S PROPOSED SANITARY SEWER LINE
- FM PROPOSED FORCE MAIN
- W PROPOSED WATER LINE
- ST PROPOSED STORM DRAIN LINE
- PROPOSED HYDRANT
- PROPOSED SANITARY MANHOLE
- PROPOSED CATCH BASIN
- PROPOSED DRAINAGE MANHOLE

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Poughkeepsie, NY 12601
(845) 454-3980

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EXP: ##/##/20## EXP: ##/##/20##

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LAND SURVEYING: 017976
GEOLOGICAL: 018750

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DRAWING NUMBER:

C140

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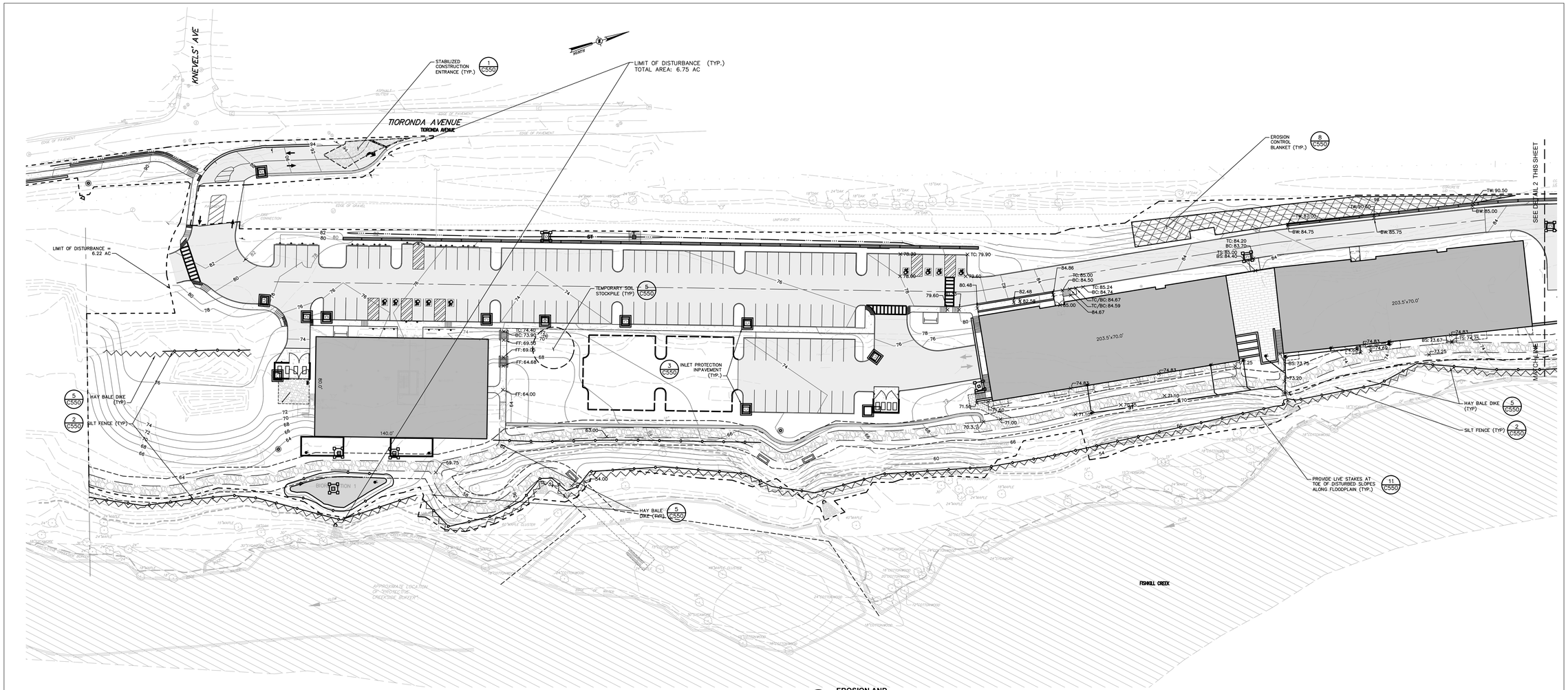
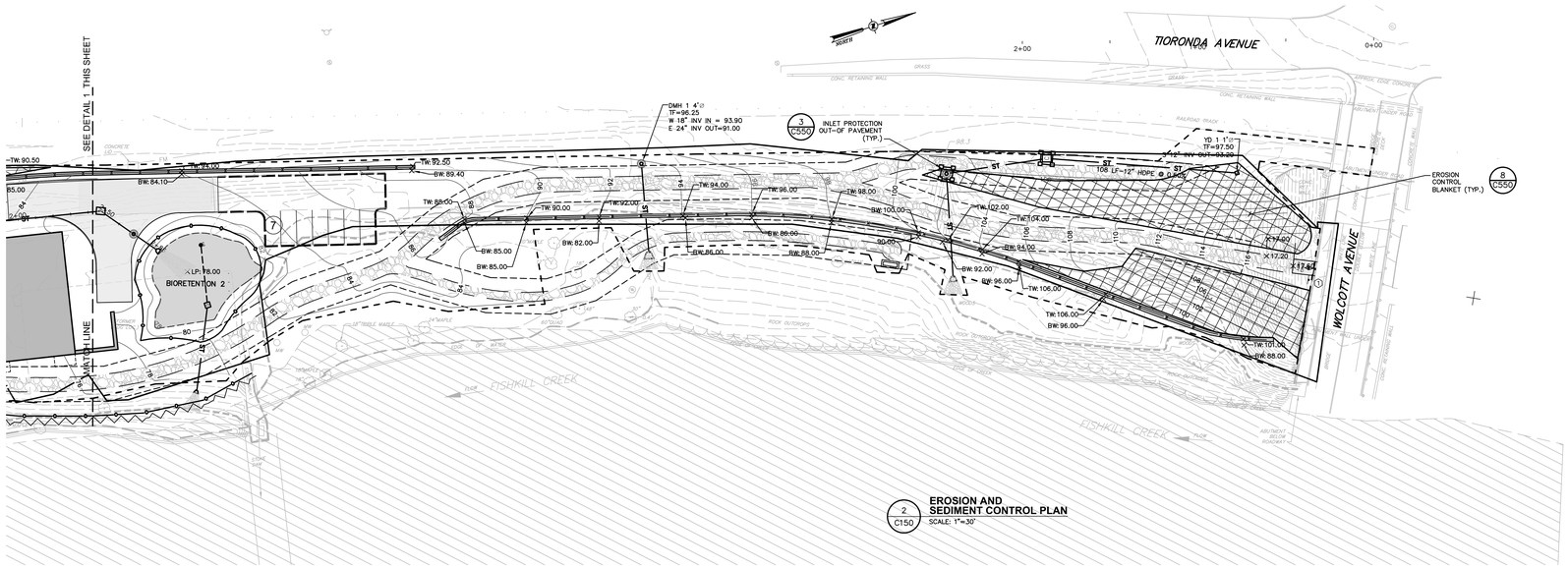


1 C150 EROSION AND SEDIMENT CONTROL PLAN
SCALE: 1"=30'



2 C150 EROSION AND SEDIMENT CONTROL PLAN
SCALE: 1"=30'

LEGEND:

- EXISTING 100-YEAR FLOOD PLAIN
- EXISTING PROPERTY LINE
- EASEMENT LINE
- PROPOSED BUILDING
- PROPOSED PAVEMENT
- (25) PROPOSED PARKING COUNT
- PROPOSED SIDE WALK
- EXISTING METRO-NORTH RAILROAD TRACKS (INACTIVE)
- PROPOSED CURB
- PROPOSED RETAINING WALL
- PROPOSED EROSION BLANKET
- PROPOSED STABILIZED CONSTRUCTION ENTRANCE
- PROPOSED OUT-OF PAVEMENT INLET PROTECTION
- PROPOSED IN-PAVEMENT INLET PROTECTION
- PROPOSED SILT FENCE
- LIMIT OF DISTURBANCE
- PROPOSED STRAW BALE DIKE
- PROPOSED TEMPORARY SOIL STOCKPILE

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CERTIFICATE OF AUTHORIZATION NUMBER:
PROFESSIONAL ENGINEERING: 016381
LAND SURVEYING: 017976
GEOLOGICAL: 018750

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NO.	DATE:	DESCRIPTION:
Revisions		

PROJECT NUMBER: C281750.00
DRAWN BY: CJL
REVIEWED BY: --
ISSUED FOR: ISSUED FOR PLANNING BOARD APPROVAL
DATE: 02/14/24
DRAWING NAME:

EROSION AND SEDIMENT CONTROL PLAN

DRAWING NUMBER:

C150

2/7/2024 12:55:07 PM
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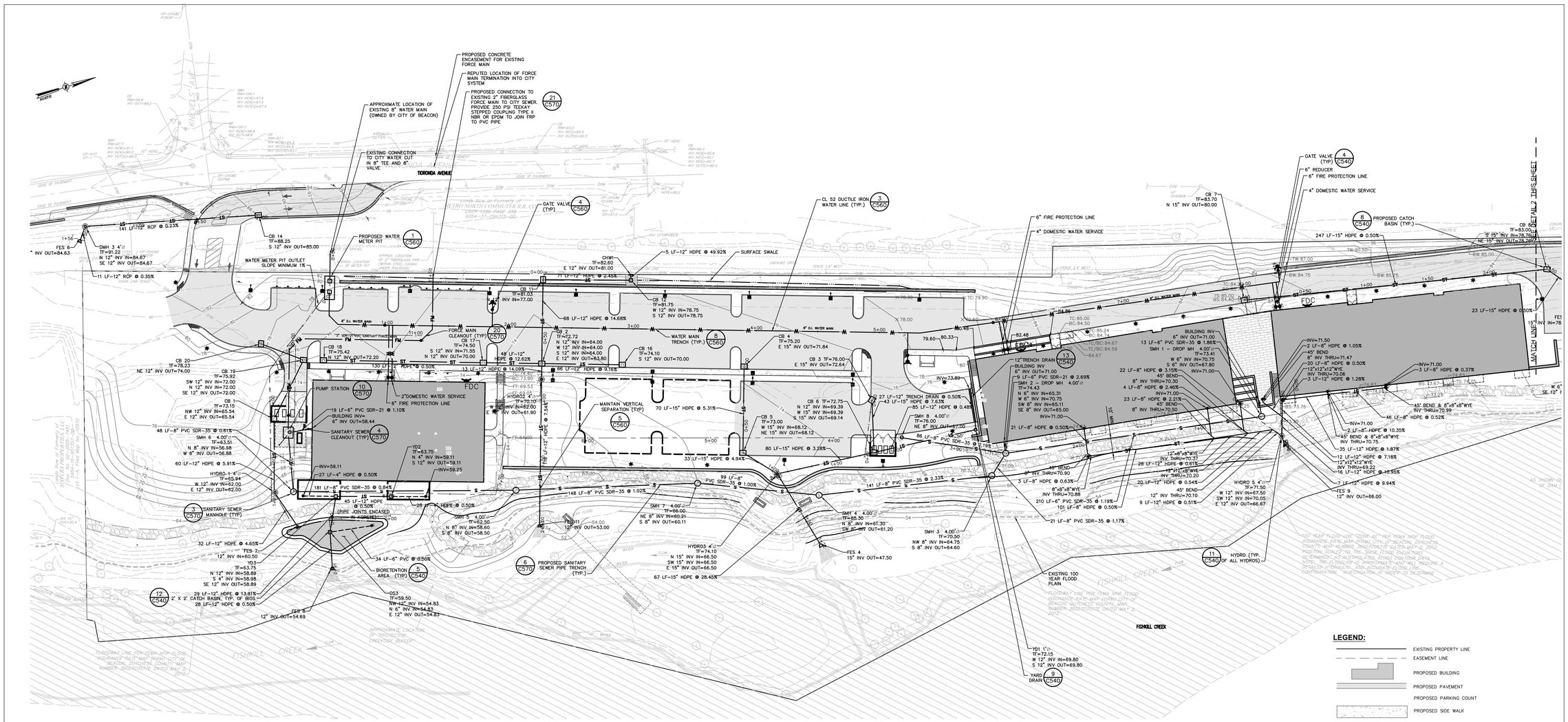

1 C160 **UTILITY PLAN**
SCALE: 1"=30'

2 C160 **UTILITY PLAN**
SCALE: 1"=30'

UTILITY PLAN NOTES:

GENERAL CONSTRUCTION:

1. ALL UNDERGROUND UTILITIES ARE SHOWN IN THEIR RELATIVE POSITION AND ARE FOR INFORMATIONAL PURPOSES ONLY. CONTRACTOR TO VERIFY THEIR ACTUAL LOCATION IN THE FIELD PRIOR TO THE COMMENCEMENT OF CONSTRUCTION.
2. ANY CONDITION ENCOUNTERED IN THE FIELD DIFFERING FROM THOSE SHOWN HEREON, SHALL BE REPORTED TO THE DESIGN ENGINEER BEFORE CONSTRUCTION IS TO PROCEED.
3. SEWER MAINS IN RELATION TO WATER MAINS: WHERE POSSIBLE, SEWERS SHALL BE LAID AT LEAST 10 (TEN) FEET HORIZONTALLY FROM ANY EXISTING OR PROPOSED WATER MAIN. VERTICAL SEPARATION SHALL BE MAINTAINED TO PROVIDE 18 (EIGHTEEN) INCHES BETWEEN TOP OF SEWER AND BOTTOM OF THE WATER MAIN AT UTILITY CROSSINGS. WHEN NOT POSSIBLE TO OBTAIN THE PROPER VERTICAL SEPARATION, SEWER PIPE SHALL BE PRESSURE RATED AND TESTED @ 150psi, 10 (TEN) FEET ON EACH SIDE OF THE WATER MAIN BEING CROSSED.
4. ALL PROPOSED UTILITIES SHALL TERMINATE 5 FEET FROM ANY PROPOSED BUILDING FACE. CONTRACTOR TO COORDINATE WITH BUILDING PLANS FOR ANY CONNECTIONS.
5. ALL STORM SEWER SHALL BE SMOOTH INTERIOR HDPE UNLESS OTHERWISE SPECIFIED.
6. ALL GRAVITY SANITARY LATERALS SHALL BE SDR 21 PVC UNLESS OTHERWISE SPECIFIED.
7. ALL WATER PIPE SHALL BE CL52 DUCTILE IRON PIPE UNLESS OTHERWISE SPECIFIED.
8. CONTRACTOR TO VERIFY STATUS OF ALL UTILITY SERVICES PRIOR TO INTERRUPTION.
9. EXPLORATORY EXCAVATIONS SHALL BE PERFORMED BY THE CONTRACTOR AT ALL UTILITY CONNECTION LOCATIONS AND AS NEEDED TO VERIFY EXISTING CONDITIONS PRIOR TO PERFORMING WORK.
10. BEFORE CONSTRUCTING LINES TO CONNECT TO EXISTING UTILITIES, VERIFY EXISTING UTILITY INVERTS AND NOTIFY THE ENGINEER IF ANY VARIATION FROM THE PLAN IS REQUIRED.
11. THE CONTRACTOR SHALL MAINTAIN ALL EXISTING UTILITIES IN SERVICE FOR THE DURATION OF THE WORK.
12. THE CONTRACTOR SHALL COMPLY WITH ALL REQUIRED PERMITS AND ASSOCIATED CONDITIONS.
13. CONTRACTOR SHALL BE RESPONSIBLE FOR DEWATERING UTILITY TRENCHES AND EXCAVATIONS AND FOR THE MAINTENANCE OF SURFACE DRAINAGE DURING THE COURSE OF THE WORK.
14. IF ROCK REMOVAL BY BLASTING IS REQUIRED, THE CONTRACTOR SHALL OBTAIN ALL NECESSARY APPROVALS AND PERMITS REQUIRED BY THE AUTHORITY HAVING JURISDICTION.
15. WATER UTILITIES BEYOND THE METER PIT AND SEWER UTILITIES INCLUDING THE EXISTING 2-INCH FIBERGLASS FORCE MAIN SHALL BE PRIVATELY OWNED AND OPERATED BY THE PROPERTY OWNER.

EMERGENCY STANDBY GENERATOR:

1. A STANDBY EMERGENCY GENERATOR SHALL BE PROVIDED TO ENSURE CONTINUOUS OPERATION OF THE PUMP STATION DURING POWER FAILURE . THE EMERGENCY GENERATOR SHALL HAVE ADEQUATE CAPACITY TO ACCOMMODATE THE FULL ELECTRICAL LOAD OF THE PROPOSED PUMP STATIONS (4) WITH ALL PUMPS RUNNING (STAGGERED STARTS). THE CONTRACTOR SHALL VERIFY AND CONFIRM THE SIZE OF THE EMERGENCY GENERATOR WITH THE MANUFACTURER PRIOR TO SHOP DRAWING SUBMITTAL BASED ON THE SELECTED PUMPS AND STATION EQUIPMENT.
2. THE EMERGENCY GENERATOR SHALL BE 30 KW DIESEL ENGINE GENERATOR SET MODEL RD030 AS MANUFACTURED BY GENERAC OR APPROVED EQUAL. THE UNIT SHALL BE EQUIPPED WITH THE FOLLOWING APPURTENANCES AND ACCESSORIES:
   - RUN–OFF AUTO SWITCH
   - RUNNING TIME METER
   - CRITICAL GRADE EXHAUST SILENCER
   - AUTOMATIC TRANSFER SWITCH
   - AUTOMATIC BATTERY CHARGER
   - GENERATOR ALARM STATUS PANEL
   - OIL PRESSURE GAUGE
   - HIGH TEMPERATURE AND LOW OIL PRESSURE SHUTDOWN
   - 61 GALLON SUBBASE FUEL TANK
3. THE EMERGENCY GENERATOR SHALL BE INSTALLED ON A REINFORCED CONCRETE PAD OF SUFFICIENT DIMENSIONS WITHIN THE PROPOSED FENCE ENCLOSURE. GENERATOR SHALL BE SETBACK A DISTANCE FROM FENCE TO ALLOW REQUIRED MAINTENANCE ON IT IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS.

WATER USAGE CALCULATIONS:

APARTMENT BUILDINGS		FLOW (GPD)
1.)	APARTMENT (96 BEDROOMS * 110 GPD/BEDROOM)	10560
	TOTALS:	10560 GPD

COMMERCIAL BUILDING		FLOW (GPD)
1.)	BLDG SF * (0.1 GPD/SF) = 25,000 * 0.1	2500
2.)	20% REDUCTION FOR WATER SAVING PLUMBING	-500
	TOTALS:	2000 GPD

COMBINED TOTAL: 12560 GPD
OR 523 GPH
OR 8.72 GPM
MAXIMUM DAILY FLOW (USING FACTOR OF 2) =
8.72 GPM x 2 = 17.44 GPM
PEAK HOURLY FLOW (USING FACTOR OF 4) =
8.72 GPM x 4 = 34.88 GPM

REFERENCE: NYSDEC DESIGN STANDARDS FOR WASTEWATER TREATMENT SYSTEMS, LATEST EDITION

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CERTIFICATE OF AUTHORIZATION NUMBER:
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NO.	DATE:	DESCRIPTION
Revisions		

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REVIEWED BY: --
ISSUED FOR: ISSUED FOR PLANNING BOARD APPROVAL
DATE: 02/14/24
DRAWING NAME:

248 Tioronda Avenue
248 Tioronda Avenue
Beacon, New York 12508

UTILITY PLAN

DRAWING NUMBER:

C160

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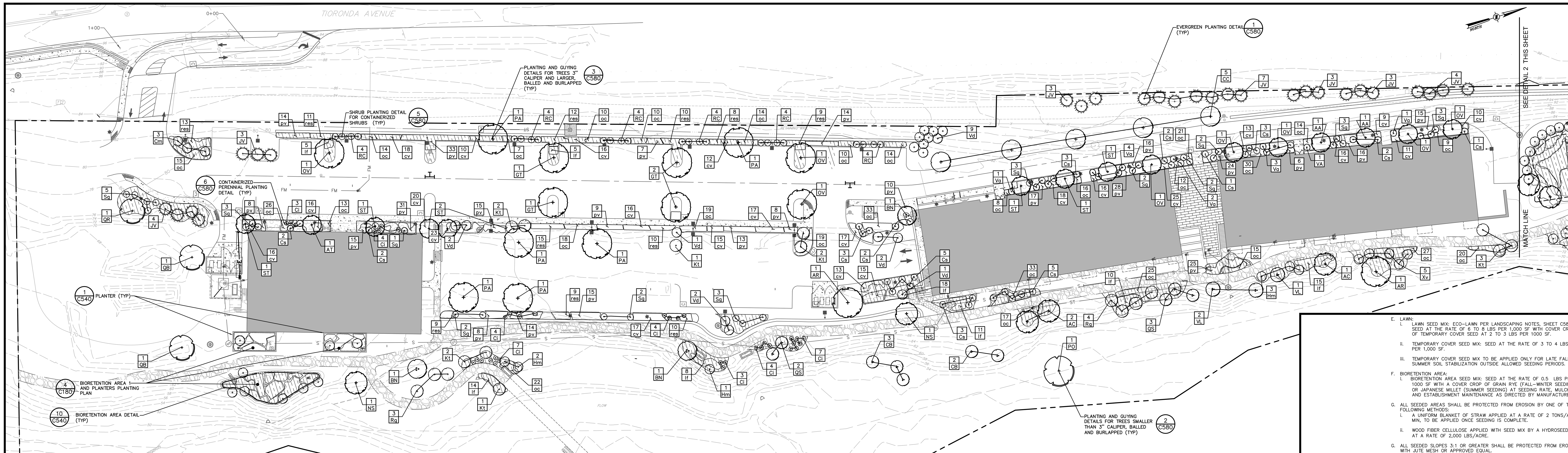
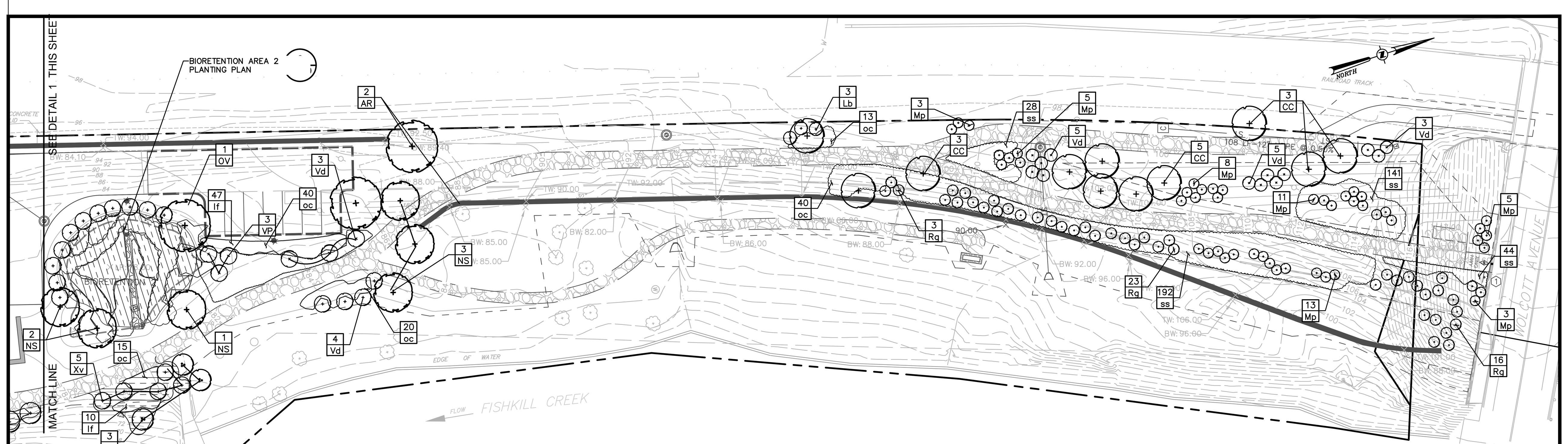


1 **LANDSCAPE PLAN**
SCALE: 1"=30'



2 **LANDSCAPE PLAN-EMERGENCY ACCESS DRIVE**
SCALE: 1"=30'

PLANT LIST

QTY	ABRV	BOTANICAL NAME	COMMON NAME	SIZE	COND	SPACING	REMARKS
TREES							
4	AR	ACER RUBRUM	RED MAPLE	3" Cal.	B&B	As Shown	
2	AA	AMELANCHIER ARBOREA	DOWNY SERVICEBERRY	4'-5' HT	B&B	As Shown	MULTISTEM CLUMP
3	AC	AMELANCHIER CANADENSIS	SERVICEBERRY	6'-8' HT	B&B	As Shown	MULTISTEM CLUMP
3	BN	Betula nigra	River Birch	8'-10' Clump	B&B	As Shown	Multi-Stemp Clump
16	CC	Crataegus crusgalli 'Inermis'	Thornless Hawthorn	10-12' Clump	B&B	As Shown	Multi-Stemp Clump
0	LT	Liriodendron tulipifera	Tuliptree	3" Cal.	B&B	As Shown	
27	JV	Juniperus virginiana	Eastern Red Cedar	8'-10'	B&B	As Shown	
4	GT	CARPINUS CAROLINIANA	AMERICAN HORNBEAM	2" CAL.	B&B	As Shown	
9	OV	OSTRYA VIRGINIANA	EASTERN HOPHORNBEAM	2" CAL.	B&B	As Shown	
11	NS	Nyssa sylvatica	Sour Gum	3" Cal.	B&B	As Shown	Fall Digging Hazard
6	PA	CHIONANTHUS VIRGINICUS	FRINGETREE	8' HT	B&B	As Shown	MULTISTEM TREE; 5 BOLES MAX.
1	PO	Plantanus occidentalis	American Sycamore	2.5" Cal.	B&B	As Shown	
0	PT	Populus tremuloides	Quaking Aspen	10-12'	B&B	As Shown	Multi-Stem
0	PY	Prunus yeodensis	Yoshino Cherry	2" Cal.	B&B	As Shown	
1	QR	Quercus rubra	Northern Red Oak	3" Cal.	B&B	As Shown	Fall Digging Hazard
2	QB	Quercus bicolor	Swamp White Oak	3" Cal.	B&B	As Shown	Fall Digging Hazard
5	QS	QUERCUS ILICIFOLIA	SCRUB OAK	4'-5' HT	CONT	AS SHOWN	
8	ST	STAPHYLEA TRIFOLIA	AMERICAN BLADDERNUT	2" CAL.	B&B	AS SHOWN	SINGLE STEM TREE FORM
0	UA	Ulmus americana 'Princeton'	Princeton Elm	3" Cal.	B&B	As Shown	
SHRUBS							
41	Ci	Comptonia peregrina	Sweet Fern	#3 Cont.		As Shown	
3	Cm	Cornus amomum	Silky Dogwood	24"-30"	Cont	As Shown	
0	Co	Cornus sericea	Red-Osier Dogwood	30"-36"	Cont.	As Shown	
35	Cs	CORNUS SERICEA 'FLAVAMIRA'	YELLOW-TWIGGED DOGWOOD	18"-24"	Cont	As Shown	
5	CB	CORYLUS CORNUTA	BEAKED HAZELNUT	30"-36" HT	CONT	AS SHOWN	
3	CA	CORYLUS AMERICANA	AMERICAN HAZELNUT	30"-36" HT	CONT	AS SHOWN	
6	Hm	Hamamelis virginiana	Witchhazel	3' - 4'	Cont.	As Shown	
11	Kt	JUNIPERUS VIRGINIANA	EASTERN RED CEDAR	30"-36"	Cont.	As Shown	
3	Lb	Lindera benzoin	Spicebush	36"	Cont.	As Shown	
48	Mp	Myrica pennsylvanica	NORTHERN BAYBERRY	#5	Cont.	As Shown	
47	Rg	Rhus typhina 'Laciniata'	Cutleaf Staghorn Sumac	36"	Cont.	As Shown	
24	RC	ROSA CAROLINIANA	CAROLINA ROSE	18"-24"	CONT.	As Shown	
31	Sg	SYMPHOROCARPUS ALBUS	SNOWBERRY	24"-30"	CONT.	As Shown	
12	Va	Viburnum acerifolium	Mapleleaf Viburnum	24"-30"	Cont.	As Shown	
37	Vd	Viburnum dentatum	Doublefile Viburnum	30"-36"	Cont.	As Shown	
3	VL	VIBURNUM LENTAGO	NANNYBERRY VIBURNUM	5'-6' HT	CONT	As Shown	
3	VP	VIBURNUM PRUNIFOLIUM	BLACKHAW VIBURNUM	30"-36" HT	CONT	As Shown	
10	Xv	Ilex verticillata 'Winter Red'	Winter Red Winterberry	18"-24"	Cont	As Shown	
PERENNIALS/ GRASSES							
359	cv	Carex Vulpinoidea	Fox Sedge		#1 Cont.	8" O.C.	
143	lf	PANICUM CLANDESTINUM	DEERTONGUE		#1 CONT	16-18" O.C.	
598	oc	Osmunda cinnamomea	Cinnamon Fern		#2 Cont.	2-3' O.C.	
347	pv	Panicum virgatum 'Shenandoah'	Shenandoah Switch Grass		#2 Cont.	2-3' O.C.	
116	res	Rudbeckia laciniata	Cutleaf Coneflower		#1 Cont	18" O.C.	
429	ss	Schizachyrium scoparium	Little Bluestem		#1 Cont	18" O.C.	

3 **OVERALL PLANT LIST**
SCALE: NTS

E. LAWN:
i. LAWN SEED MIX: ECO-LAWN PER LANDSCAPING NOTES, SHEET C580. SEED AT THE RATE OF 6 TO 8 LBS PER 1,000 SF WITH COVER CROP OF TEMPORARY COVER SEED AT 2 TO 3 LBS PER 1000 SF.
ii. TEMPORARY COVER SEED MIX: SEED AT THE RATE OF 3 TO 4 LBS PER 1,000 SF.
iii. TEMPORARY COVER SEED MIX TO BE APPLIED ONLY FOR LATE FALL OR SUMMER SOIL STABILIZATION OUTSIDE ALLOWED SEEDING PERIODS.

F. BIORETENTION AREA:
i. BIORETENTION AREA SEED MIX: SEED AT THE RATE OF 0.5 LBS PER 1000 SF WITH A COVER CROP OF GRAIN RYE (FALL-WINTER SEEDING) OR JAPANESE MILLET (SUMMER SEEDING) AT SEEDING RATE, MULCHING AND ESTABLISHMENT MAINTENANCE AS DIRECTED BY MANUFACTURER.

G. ALL SEEDED AREAS SHALL BE PROTECTED FROM EROSION BY ONE OF THE FOLLOWING METHODS:
i. A UNIFORM BLANKET OF STRAW APPLIED AT A RATE OF 2 TONS/ACRE MIN, TO BE APPLIED ONCE SEEDING IS COMPLETE.
ii. WOOD FIBER CELLULOSE APPLIED WITH SEED MIX BY A HYDROSEEDER AT A RATE OF 2,000 LBS/ACRE.

G. ALL SEEDED SLOPES 3:1 OR GREATER SHALL BE PROTECTED FROM EROSION WITH JUTE MESH OR APPROVED EQUAL.

H. ALL NEWLY PLANTED AREAS SHALL BE KEPT MOIST BY WATERING UNTIL GRASSES AND GROUND COVERS ARE WELL ESTABLISHED. THE LANDSCAPE CONTRACTOR MUST WATER PLANT MATERIAL WHEN NECESSARY FOR 60 DAYS AFTER INSTALLATION.

I. LAWNS ARE TO BE WARRANTED UNTIL THEY BECOME ESTABLISHED, UNTIL FINAL ACCEPTANCE, AND NOT LESS THAN 60 DAYS AFTER COMPLETION OF ALL WORK. TREES, SHRUBS, GROUND COVERS, AND PERENNIALS SHALL BE WARRANTED AGAINST DEFECTS INCLUDING POOR GROWTH AND DEATH, EXCEPT WHEN RESULTING FROM OWNER NEGLECT, INCIDENTS THAT ARE BEYOND THE CONTROL OF THE LANDSCAPE INSTALLER AND DAMAGE OR ABUSE BY OTHERS, FOR AT LEAST ONE FULL YEAR AFTER PROJECT COMPLETION.

ALL LANDSCAPING SHOWN ON THESE PLANS SHALL BE MAINTAINED IN A HEALTHY AND VIGOROUS GROWING CONDITION THROUGHOUT THE DURATION OF THE PROPOSED USE OF THE SITE. ALL VEGETATION NOT SO MAINTAINED SHALL BE REPLACED WITH NEW COMPARABLE VEGETATION AT THE BEGINNING OF THE NEXT GROWING SEASON.

SITE LEGEND:

- PROPOSED BUILDING
- PROPOSED PAVEMENT
- PROPOSED SIDEWALK
- PROPOSED CURB
- 80 PROPOSED 10 FT CONTOUR
- 79 PROPOSED 2 FT CONTOUR
- X 79.2 PROPOSED SPOT GRADE
- PROPOSED PERMEABLE ASPHALT PAVEMENT
- (25) PROPOSED PARKING COUNT
- PROPOSED TREES
- PROPOSED SHRUBS
- PROPOSED HERBACEOUS PLANTS
- MULCH BED
- RIVERSTONE BED
- 43 PLANT QUANTITY
- CO PLANT NAME

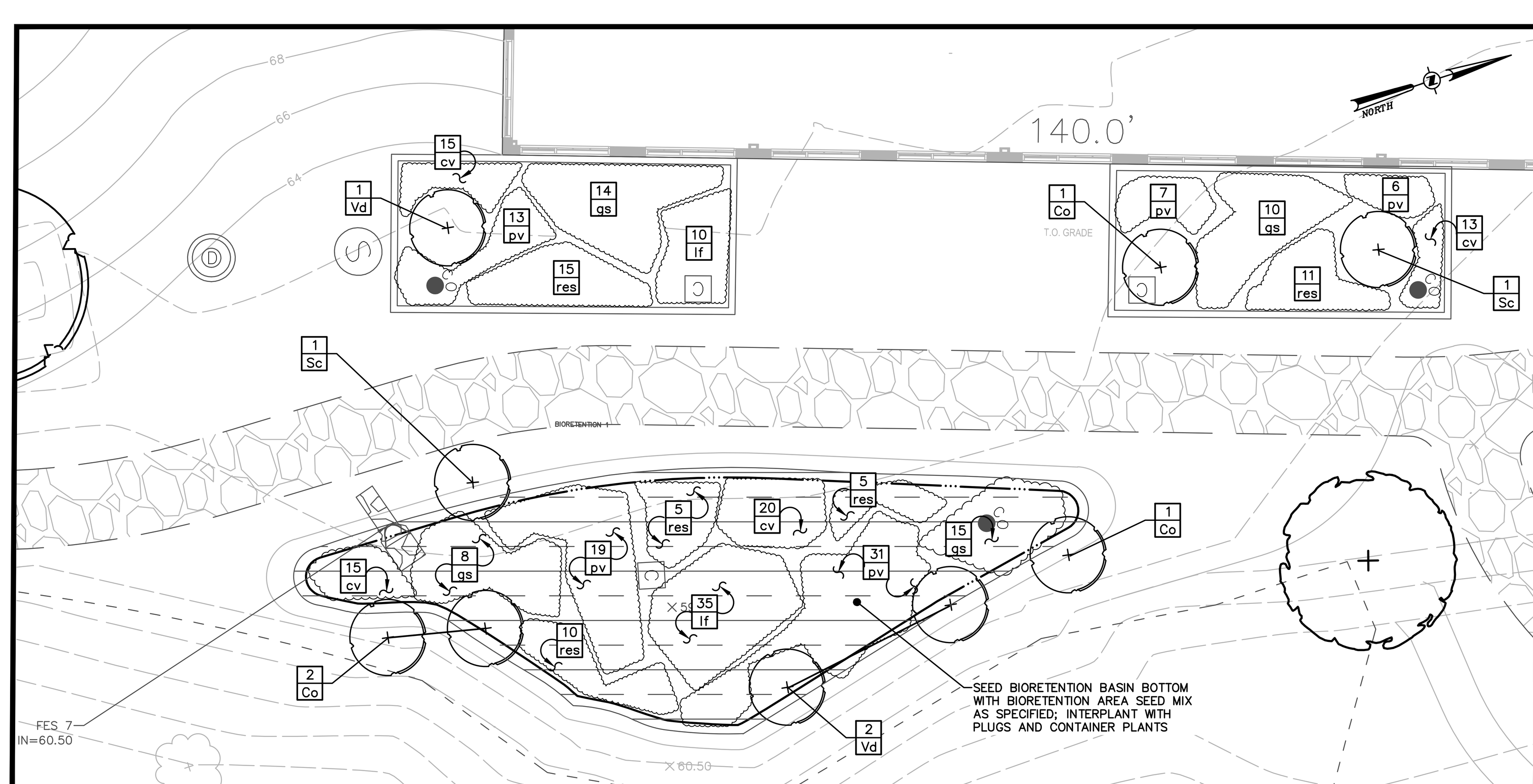
SOIL RESTORATION NOTES:

SOIL SHALL BE RESTORED IN ACCORDANCE WITH THE STORMWATER POLLUTION PREVENTION PLAN AND THE LATEST EDITION OF THE NYSDEC DEEP-RIPPING AND COMPACTION GUIDELINES.

IN AREAS WHERE SOIL DISTURBANCE HAS OCCURRED OUTSIDE OF BUILDINGS AND PAVEMENT AREAS, THE DISTURBED SUB-SOILS SHALL BE RETURNED TO ROUGH GRADE AND THE FOLLOWING SOILS RESTORATION STEPS APPLIED:

1) APPLY THREE INCHES OF COMPOST OVER SOIL. 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.
2) TILL COMPOST INTO THE 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 SUB-SOILS.
3) ROCK-PICK UNTIL UPLIFTED STONE/ROCK MATERIALS OF FOUR INCHES AND LARGER SIZE ARE CLEANED OFF THE SITE.
4) APPLY TOPSOIL TO A DEPTH OF SIX INCHES.

NOTES:
1. BROADCAST DENSITY, MULCHING, AND FIRST & SECOND SEASON MAINTENANCE TO MATCH MANUFACTURER'S RECOMMENDATIONS TO ENSURE PROPER ESTABLISHMENT.
2. OWNER TO FOLLOW GROWING SEASON MAINTENANCE RECOMMENDATIONS AFTER 1 YEAR TO ACHIEVE PROPER ESTABLISHMENT. CONTRACTOR TO INSTALL A 3"-4" SPADE CUT EDGE AT ALL LAWN/MULCH INTERFACES (TYP); CONTRACTOR TO ROUGHLY STAKE OUT AREA FOR OWNER APPROVAL PRIOR TO EDGING AND MULCHING
3. ALL AREAS DISTURBED AS A RESULT OF CONSTRUCTION ACTIVITIES AND WHICH ARE NOT OTHERWISE CALLED OUT AS HARDSCAPE OR LANDSCAPE PLANTING AREAS SHALL BE SEEDED TO ESTABLISH LAWN PER LANDSCAPING NOTES.



4 **BIORETENTION AREA 1 & PLANTERS PLANTING PLAN**
SCALE: 1"=10'

PLANT LIST

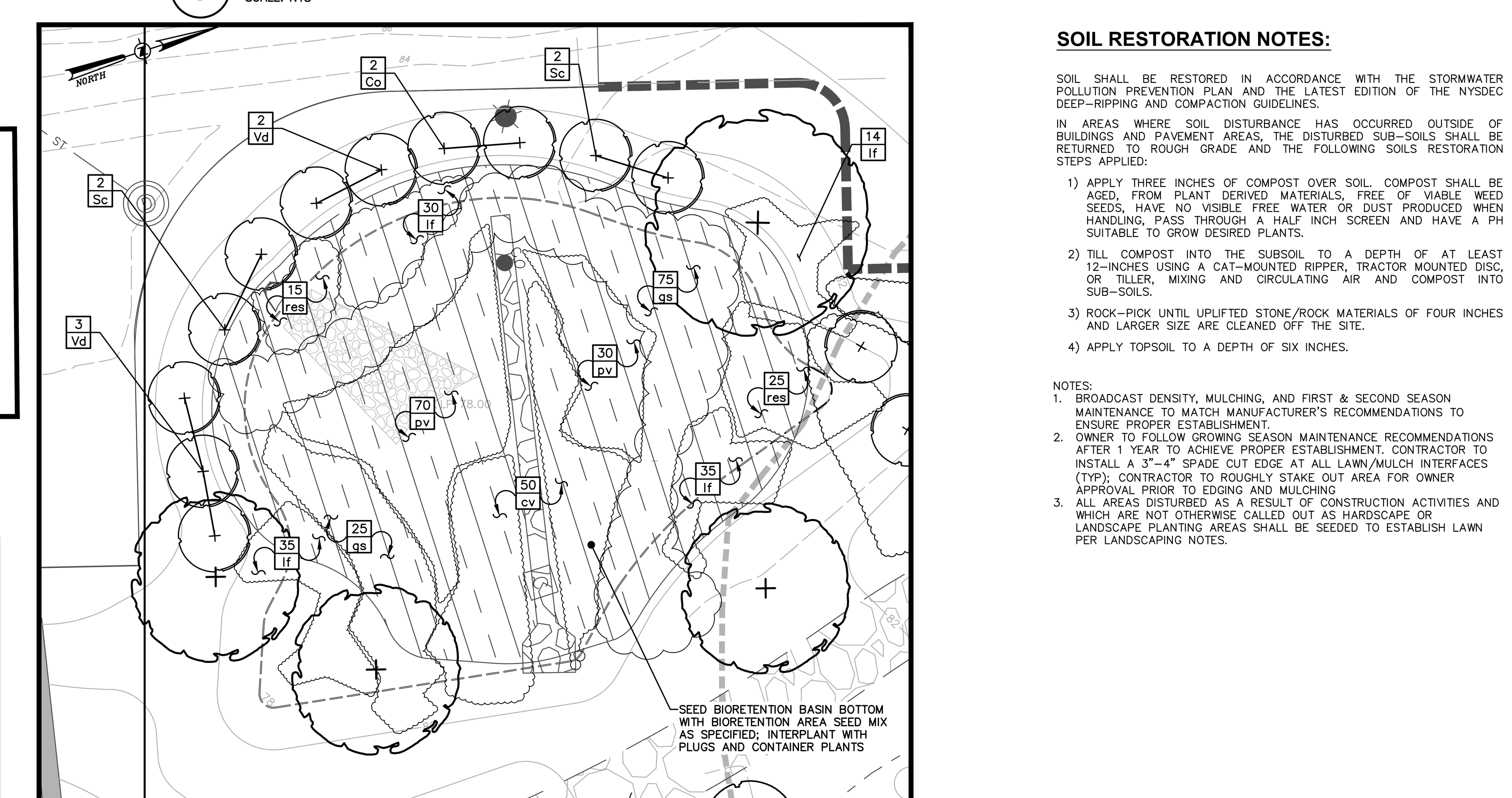
QTY	ABRV	BOTANICAL NAME	COMMON NAME	SIZE	COND	SPACING	REMARKS
SHRUBS							
4	Co	Cornus sericea	Red-Osier Dogwood	30"-36"	Cont.	As Shown	
2	Sc	Sambucus canadensis	Black Elderberry	12" - 18"	Cont.	As Shown	
3	Vd	Viburnum dentatum	Arrowwood Viburnum	30" - 36"	Cont.	As Shown	
PERENNIALS/ GRASSES							
100	cv	Carex vulpinoidea	Fox Sedge	LP50/50	2" PLUG	8" O.C.	
50	gs	Glyceria striata	Fowl Manna Grass	LP50/50	2" PLUG	16" O.C.	
50	lf	PANICUM CLANDESTINUM	DEERTONGUE	LP50/50	2" PLUG	18" O.C.	
100	pv	Panicum virgatum	Shenandoah Switch Grass	LP50/50	2" PLUG	24" O.C.	
50	res	Rudbeckia laciniata	Cutleaf Coneflower	LP50/50	2" PLUG	12" O.C.	

5 **BIORETENTION AREA 1 & PLANTERS PLANT LIST**
SCALE: NTS

PLANT LIST

QTY	ABRV	BOTANICAL NAME	COMMON NAME	SIZE	COND	SPACING	REMARKS
SHRUBS							
2	Co	Cornus sericea	Red-Osier Dogwood	30"-36"	Cont.	As Shown	
4	Sc	Sambucus canadensis	Black Elderberry	12" - 18"	Cont.	As Shown	
5	Vd	Viburnum dentatum	Arrowwood Viburnum	30" - 36"	Cont.	As Shown	
PERENNIALS/ GRASSES							
50	cv	Carex vulpinoidea	Fox Sedge	LP50/50	2" PLUG	8" O.C.	
100	gs	Glyceria striata	Fowl Manna Grass	LP50/50	2" PLUG	16" O.C.	
100	lf	Panicum clandestinum	Deertongue	LP50/50	2" PLUG	18" O.C.	
100	pv	Panicum virgatum	Shenandoah Switch Grass	LP50/50	2" PLUG	24" O.C.	
50	res	Rudbeckia laciniata	Cutleaf Coneflower	LP50/50	2" PLUG	12" O.C.	

7 **BIORETENTION AREA 2 PLANT LIST**
SCALE: NTS



6 **BIORETENTION AREA 2 PLANTING PLAN**
SCALE: 1"=10'

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248 Tioronda Avenue
248 Tioronda Avenue
Beacon, New York 12508

NO:	DATE:	DESCRIPTION:
Revisions		

PROJECT NUMBER: CZ81750.00
DRAWN BY: DP
REVIEWED BY: KA
ISSUED FOR: ISSUED FOR PLANNING BOARD APPROVAL
DATE: 02/14/24
DRAWING NAME: **LANDSCAPE PLAN**
DRAWING NUMBER: **C180**

2/27/2024 11:55:39 AM
\\cash.lab\u\Legacy\Chazen\Projects\81700-81799\81750.00 CHAI Builders B-248\DWG\01_C180_81750-00_LAND.dwg

LIGHTING STATISTICS:

Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
Stat Zone # 1 Entire Site to PL	+	0.2 fc	5.0 fc	0.0 fc	N/A	N/A
Stat Zone # 2 Onsite Drive and Parking areas	+	0.8 fc	5.0 fc	0.0 fc	N/A	N/A

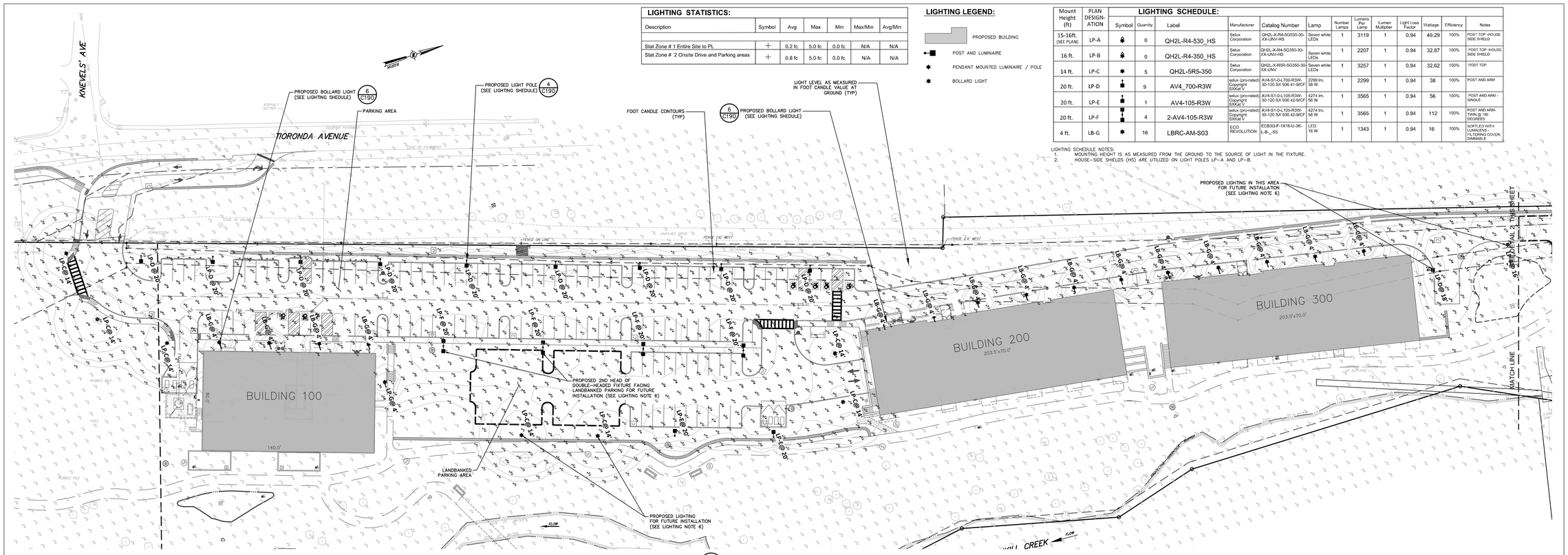
LIGHTING LEGEND:

- PROPOSED BUILDING
- POST AND LUMINAIRE
- PENDANT MOUNTED LUMINAIRE / POLE
- BOLLARD LIGHT

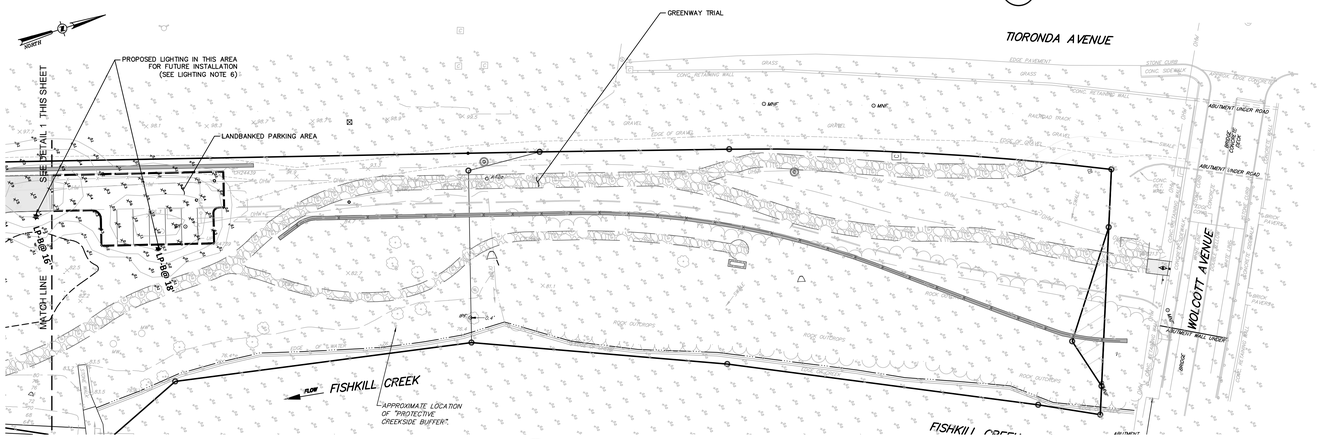
LIGHTING SCHEDULE:

Mount Height (ft)	PLAN DESIGN-ATION	Symbol	Quantity	Label	Manufacturer	Catalog Number	Lamp	Number Lamps	Lumens Per Lamp	Lumen Multiplier	Light Loss Factor	Wattage	Efficiency	Notes
15-16ft. (SEE PLAN)	LP-A		0	QH2L-R4-530_HS	Selux Corporation	QH2L-X-R4-5GS30-30-XX-UNV-HS	Seven white LEDs	1	3119	1	0.94	49.29	100%	POST TOP-HOUSE SIDE SHIELD
16 ft.	LP-B		0	QH2L-R4-350_HS	Selux Corporation	QH2L-X-R4-5GS50-30-XX-UNV-HS	Seven white LEDs	1	2207	1	0.94	32.87	100%	POST TOP-HOUSE SIDE SHIELD
14 ft.	LP-C		5	QH2L-5R5-350	Selux Corporation	QH2L-X-R5R-5GS50-30-XX-UNV	Seven white LEDs	1	3257	1	0.94	32.62	100%	POST TOP
20 ft.	LP-D		9	AV4_700-R3W	selux (pro-rated) Copyright SXKat V	AV4-S1-0-L700-R3W-30-120 SX 936 41-9/CF	2299 lm, 38 W	1	2299	1	0.94	38	100%	POST AND ARM
20 ft.	LP-E		1	AV4-105-R3W	selux (pro-rated) Copyright SXKat V	AV4-S1-0-L105-R3W-30-120 SX 936 42-9/CF	4274 lm, 56 W	1	3565	1	0.94	56	100%	POST AND ARM - SINGLE
20 ft.	LP-F		4	2-AV4-105-R3W	selux (pro-rated) Copyright SXKat V	AV4-S1-0-L105-R3W-30-120 SX 936 42-9/CF	4274 lm, 56 W	1	3565	1	0.94	112	100%	POST AND ARM-TWIN @ 180 DEGREES
4 ft.	LB-G		16	LBRC-AM-S03	ECO REVOLUTION	ECB3Q-F-1X16-U-3K-L-B-_-SS	LED 16 W	1	1343	1	0.94	16	100%	SKIRTLED WITH FROSTED FILTERING COVER, DIMMABLE

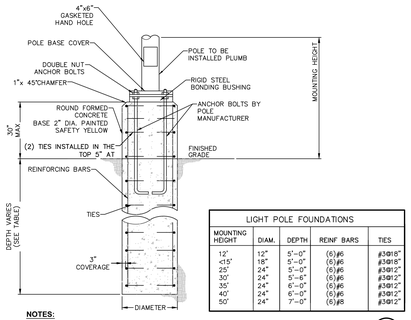
LIGHTING SCHEDULE NOTES:
1. MOUNTING HEIGHT IS AS MEASURED FROM THE GROUND TO THE SOURCE OF LIGHT IN THE FIXTURE.
2. HOUSE-SIDE SHIELDS (HS) ARE UTILIZED ON LIGHT POLES LP-A AND LP-B.



1 C190 **PHOTOMETRIC LIGHTING PLAN**
SCALE: 1"=30'



2 C190 **PHOTOMETRIC LIGHTING PLAN**
SCALE: 1"=30'

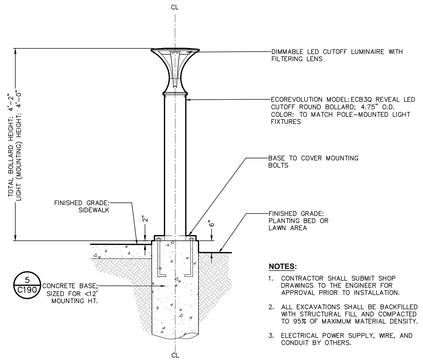


LIGHT POLE FOUNDATIONS				
MOUNTING HEIGHT	DIAM.	DEPTH	REINF BARS	TIES
12'	12"	5'-0"	(6)#6	#3@18"
<15'	18"	5'-0"	(6)#6	#3@18"
25'	24"	5'-0"	(6)#6	#3@12"
30'≤	24"	5'-6"	(6)#6	#3@12"
35'	24"	6'-0"	(6)#6	#3@12"
40'	24"	6'-0"	(6)#6	#3@12"
50'	24"	7'-0"	(6)#8	#3@12"

NOTES:
1. CONDUITS AND GROUNDING SHALL BE AS REQUIRED BY THE ELECTRICAL DESIGN.
2. ALL CONCRETE SHALL BE **4,500 PSI @** 28 DAYS.
3. ALL REINFORCING STEEL SHALL BE GRADE 60.
4. DESIGNED FOR **90 MPH** WIND WITH FIXTURE AREA OF **13 SF.**
5. FOUNDATION DIAMETER AND REINFORCING CIRCLE SHALL BE COORDINATED WITH ANCHOR BOLT LIMITS.
6. FOUNDATIONS SHALL BE AUGERED INTO UNDISTURBED NATURAL SOIL OR COMPACTED FILL PER SITE GRADING PLANS.

5 C190 **LOT LIGHTING CONCRETE BASE**
SCALE: N.T.S.

LIGHTING NOTES:
1. PROPOSED LIGHTING AS MANUFACTURED BY SELUX LIGHTING. PROPOSED POLE LENGTHS VARY, SEE LIGHTING CHART.
2. GRID NUMBERS SHOWN REPRESENT FOOT CANDLE VALUES AT GROUND PLANE.
3. THE LIGHTING FIXTURES, SURFACE LOCATIONS AND ASSOCIATED PHOTOMETRIC VALUES ARE IDENTIFIED BY THE CHAZEN COMPANIES. DETAILED DESIGN OF THE LIGHTING SPECIFICATIONS, FOUNDATION DESIGN, LIGHTING CONDUIT, WIRING, AND CONTROL CIRCUITRY SHALL BE BY OTHERS.
4. IF DISCREPANCIES EXIST BETWEEN THE LIGHTING SCHEDULE AND LIGHTING PLAN, THE PLAN SHALL DICTATE.
5. THE EXISTING STREET LIGHTS IN THE RIGHT-OF-WAYS HAVE NOT BEEN INCLUDED IN THIS PHOTOMETRIC ANALYSIS. THE LIGHT LEVELS SHOWN HEREON REFLECT THE PROPOSED LIGHTING ON SITE.
6. LIGHTING AND ELECTRICAL SERVICE WIRING SHALL ONLY BE INSTALLED IN THE EVENT OF BUILDOUT OF LANDBANKED PARKING. INSTALL ELECTRIC CONDUIT STUBS-UPS, COVER AND MARK LOCATIONS IN CURRENT WORK PHASE.

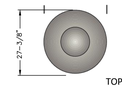


NOTES:
1. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS TO THE ENGINEER FOR APPROVAL PRIOR TO INSTALLATION.
2. ALL EXCAVATIONS SHALL BE BACKFILLED WITH STRUCTURAL FILL AND COMPACTED TO 95% OF MAXIMUM MATERIAL DENSITY.
3. ELECTRICAL POWER SUPPLY, WIRE, AND CONDUIT BY OTHERS.

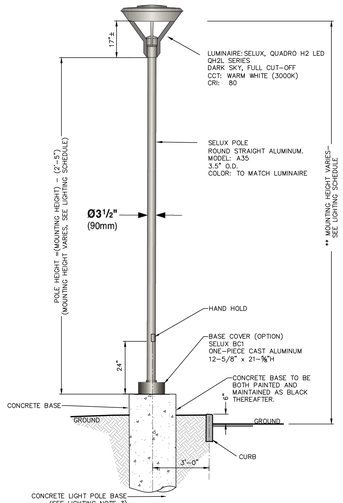
6 C190 **BOLLARD LIGHT FIXTURE DETAIL**
SCALE: N.T.S.



SECTION VIEW



TOP VIEW



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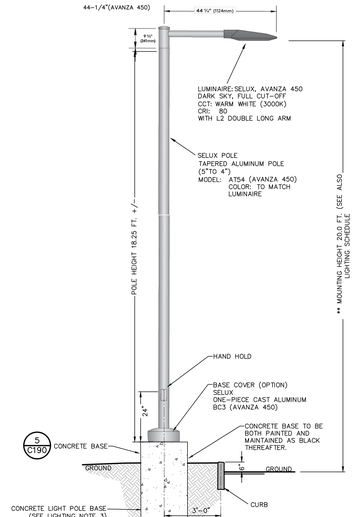
3. ELECTRICAL POWER SUPPLY, WIRE, AND CONDUIT BY OTHERS.

3 C190 **PEDESTRIAN SCALE LIGHTING FIXTURE DETAIL**
SCALE: N.T.S.





NOTES:
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2. ALL EXCAVATIONS SHALL BE BACKFILLED WITH STRUCTURAL FILL AND COMPACTED TO 95% OF MAXIMUM MATERIAL DENSITY.
3. ELECTRICAL POWER SUPPLY, WIRE, AND CONDUIT BY OTHERS.
4. WHEN LIGHT FIXTURE IS ADJACENT TO PARKING, BASE HEIGHT TO BE 30" HIGH.

4 C190 **PARKING AREA LIGHTING FIXTURE DETAIL**
SCALE: N.T.S.

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Poughkeepsie, NY 12601
(845) 454-3980
labellapc.com

NOT FOR CONSTRUCTION
EXP: ##/##/20##
EXP: ##/##/20##

CERTIFICATE OF AUTHORIZATION NUMBER:
PROFESSIONAL ENGINEERING: 018281
LAND SURVEYING: 017976
GEOLOGICAL: 018750

It is a violation of New York Education Law Art. 145 Sec. 7209 & Art. 147 Sec. 7307, for any person, unless acting under the direction of a licensed architect, professional engineer, or land surveyor, to alter an item in any way. If an item bearing the seal of an architect, engineer, or land surveyor is altered; the altering architect, engineer, or land surveyor shall affix to the item their seal and notation "altered by" followed by their signature and date of such alteration, and a specific description of the alteration.

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147 Union Street
Poughkeepsie, New York 12601

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248 Tioronda Avenue
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Beacon, New York 12508

NO.	DATE:	DESCRIPTION:
Revisions		

PROJECT NUMBER: C281750.00
DRAWN BY: DC
REVIEWED BY: KA
ISSUED FOR: ISSUED FOR PLANNING BOARD APPROVAL
DATE: 02/14/24
DRAWING NAME:

PHOTOMETRIC LIGHTING PLAN

DRAWING NUMBER:

C190

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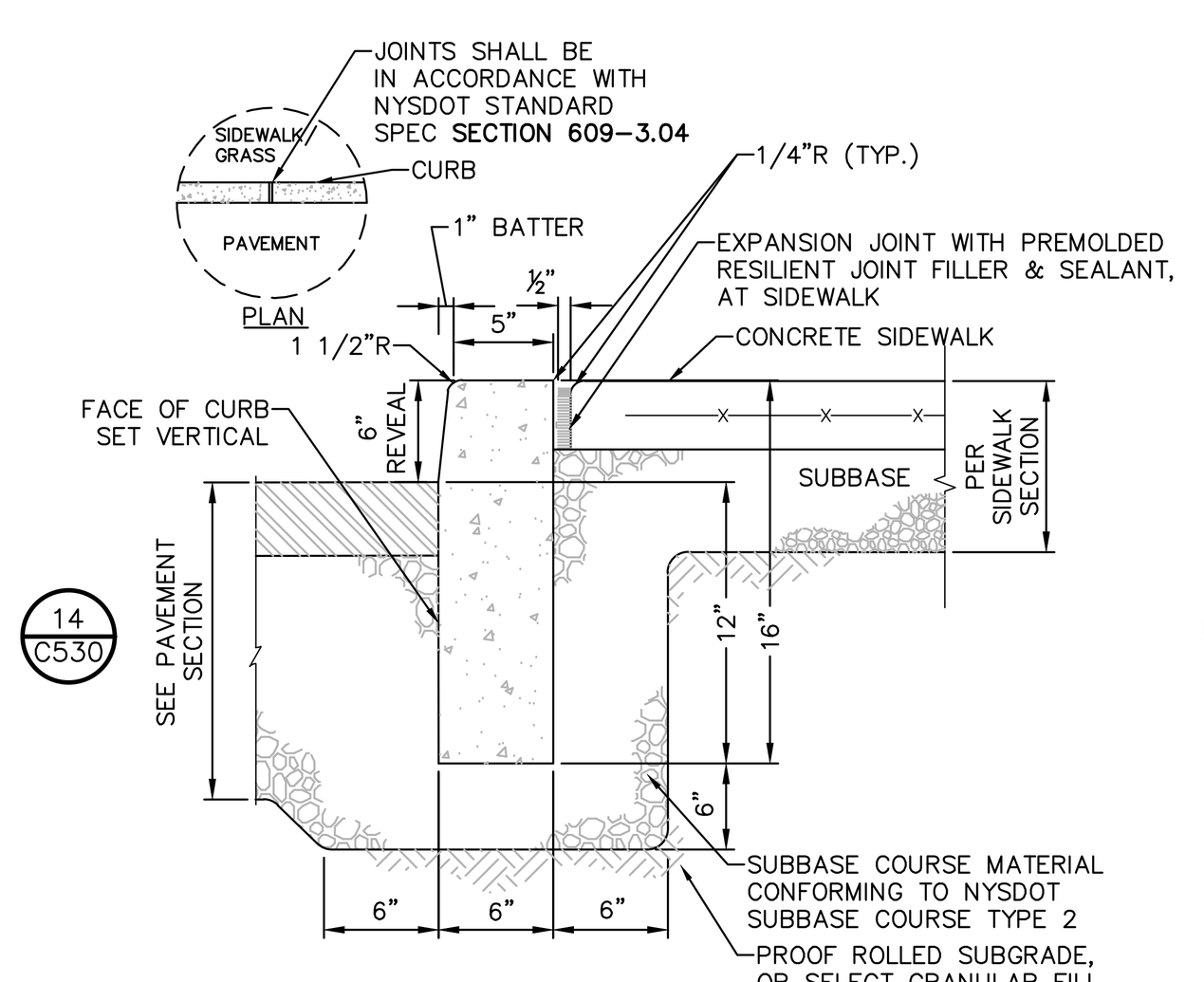
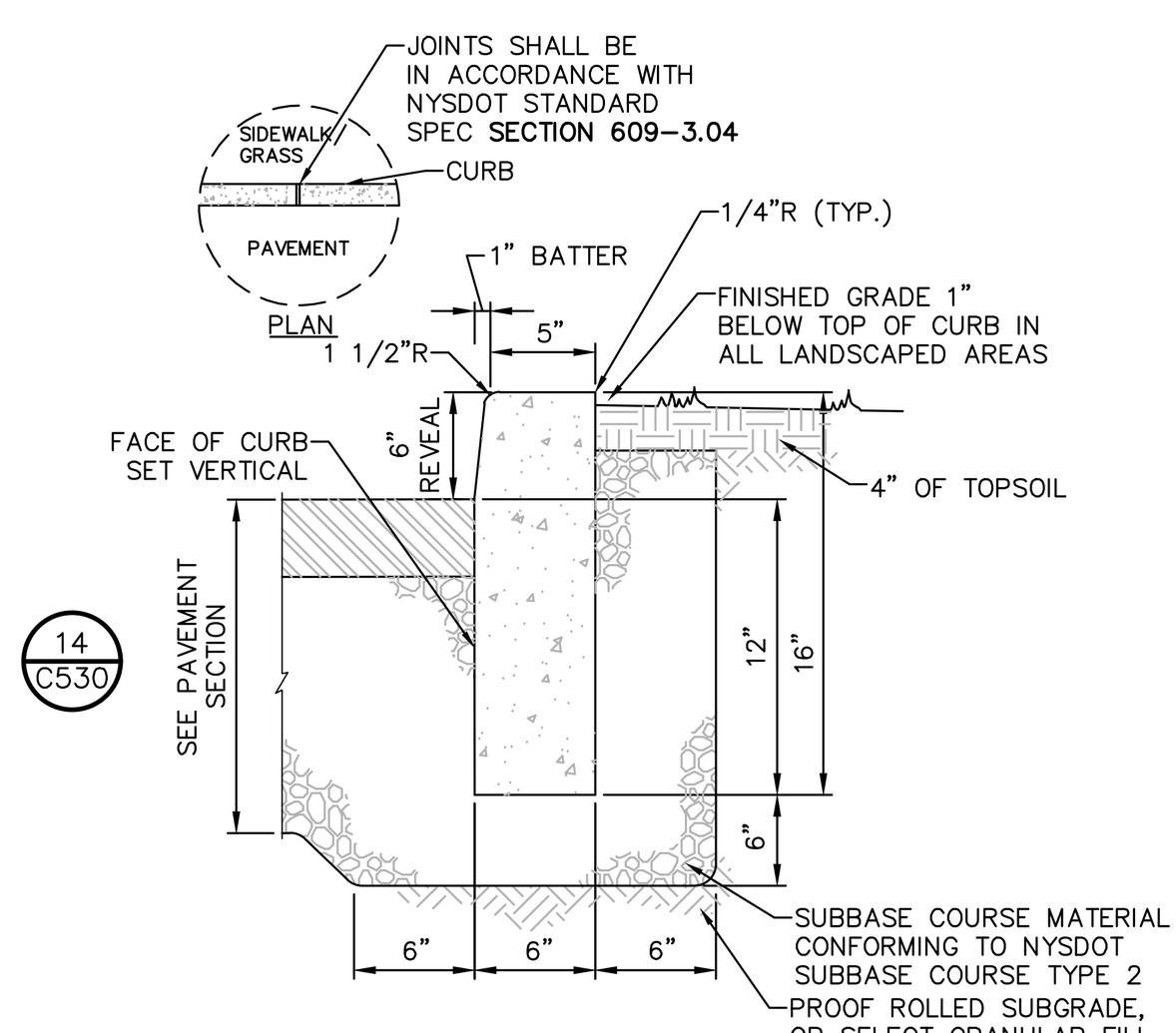


NOTES:
1. CONCRETE CURB SHALL BE INSTALLED IN ACCORDANCE WITH NYSDOT STANDARD SPECIFICATION **SECTION 609.**
2. PRECAST CONCRETE CURB MAY BE SUBSTITUTED, WHEN ALTERNATE CONSTRUCTION DETAILS ARE SUBMITTED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER. ALTERNATE CURB SHALL BE INSTALLED IN ACCORDANCE WITH NYSDOT SPEC **SECTION 609.**

1 CAST IN PLACE CONCRETE CURB AT SIDEWALK
SCALE: NOT TO SCALE



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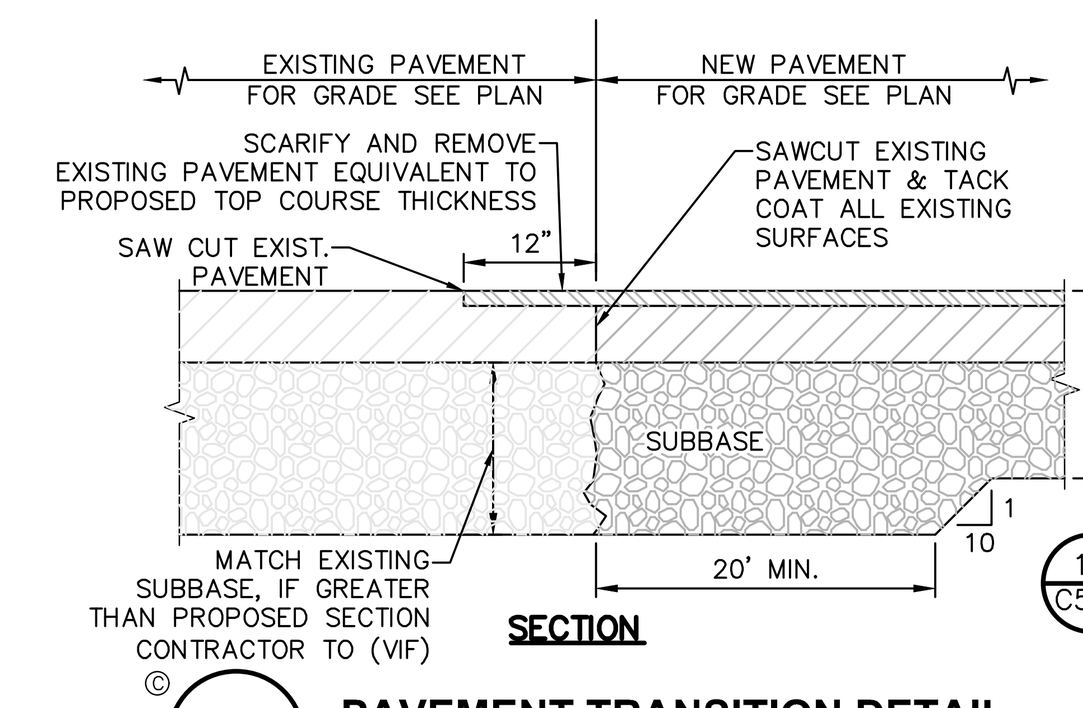
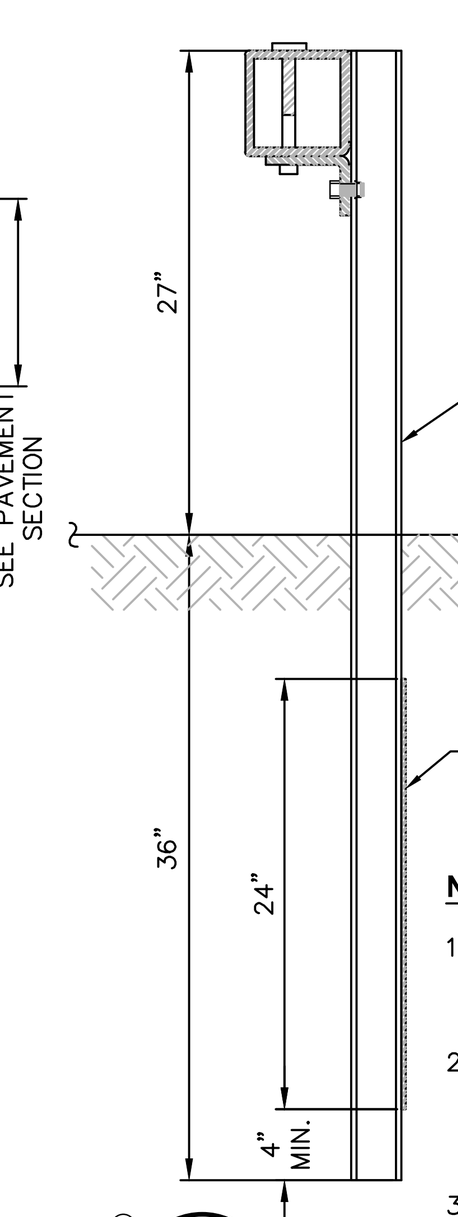
2 CAST IN PLACE CONCRETE CURB
SCALE: NOT TO SCALE

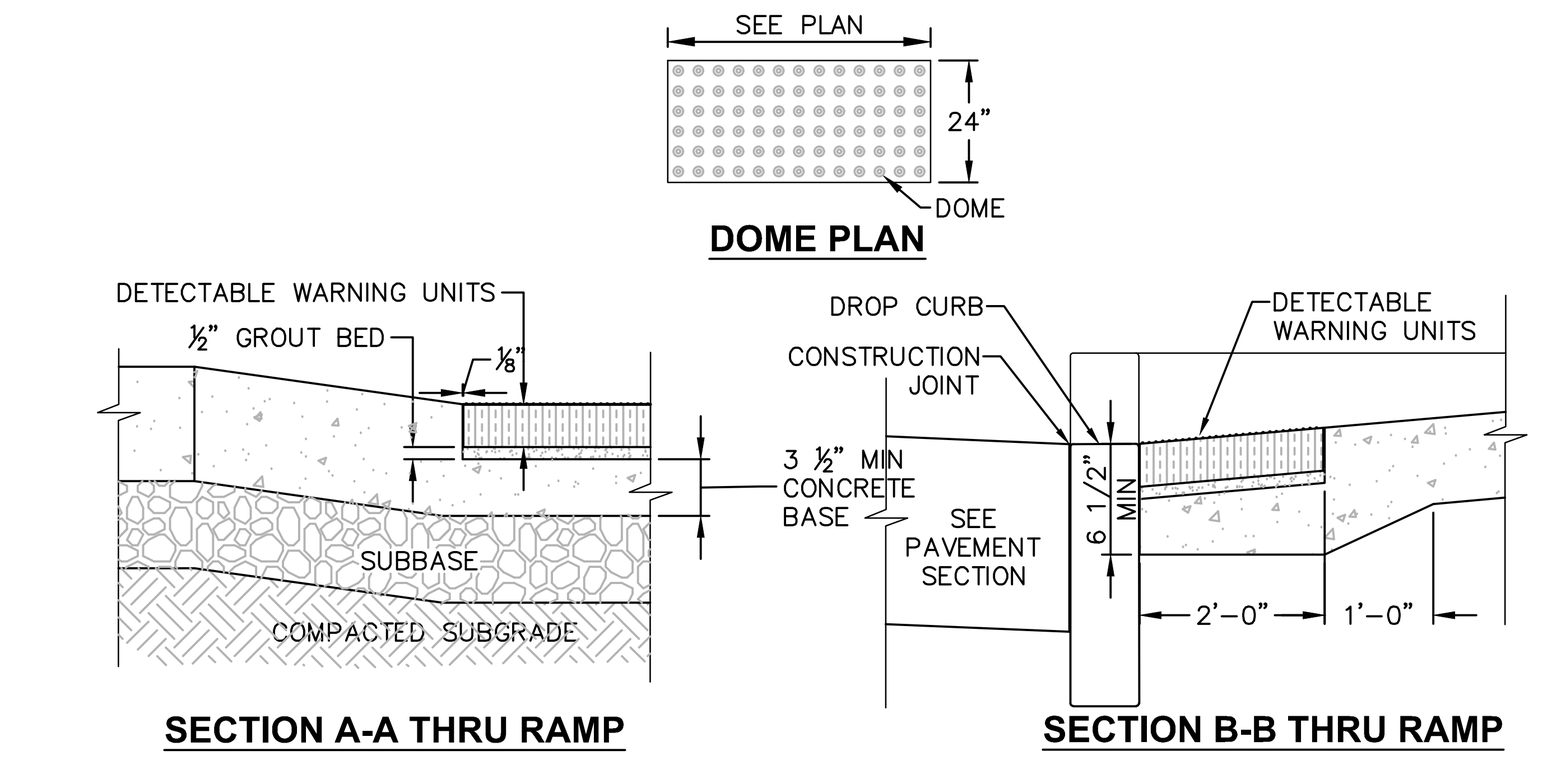


3 PAVEMENT TRANSITION DETAIL
SCALE: NOT TO SCALE



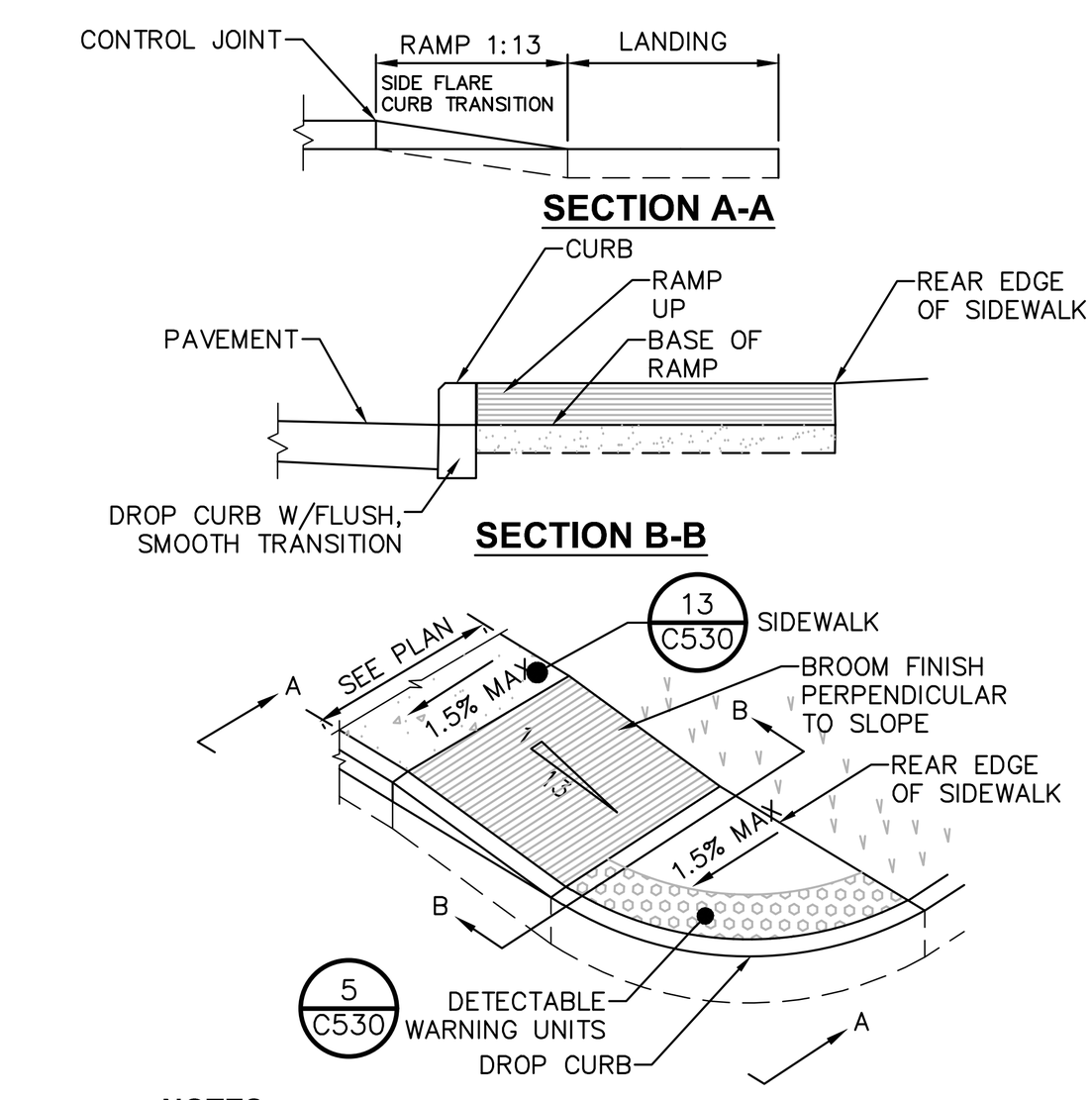
NOTES:
1. GUIDE RAIL SHALL BE IN ACCORDANCE WITH NYSDOT BOX BEAM GUIDE RAIL **STANDARD SHEET 606-04.**
2. GUIDE RAIL SHALL MEET ALL REQUIREMENTS OF THE LATEST EDITION OF THE NYSDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, **SECTION 710-21.**
3. END ASSEMBLY SHALL BE TYPE

4 BOX BEAM GUIDERAIL DETAIL
SCALE: NOT TO SCALE



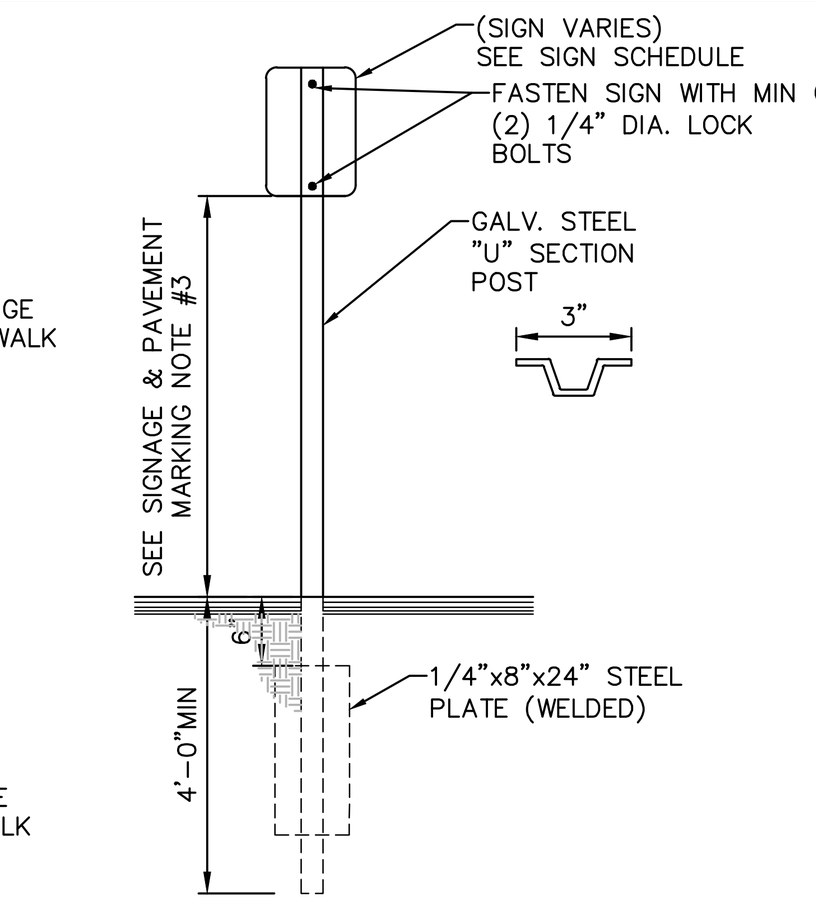
NOTES:
1. DETECTABLE WARNING UNIT SHALL BE ADA COMPLIANT, AND SHALL CONTRAST VISUALLY WITH ADJOINING SURFACES.
2. CAST IRON 2" TERRA PAVING TYPE THREE ADA COMPLIANT WARNING PAVER.
3. COORDINATE W/ OWNER FOR COLOR.

5 DETECTABLE WARNING UNITS FOR RAMPS
SCALE: NOT TO SCALE

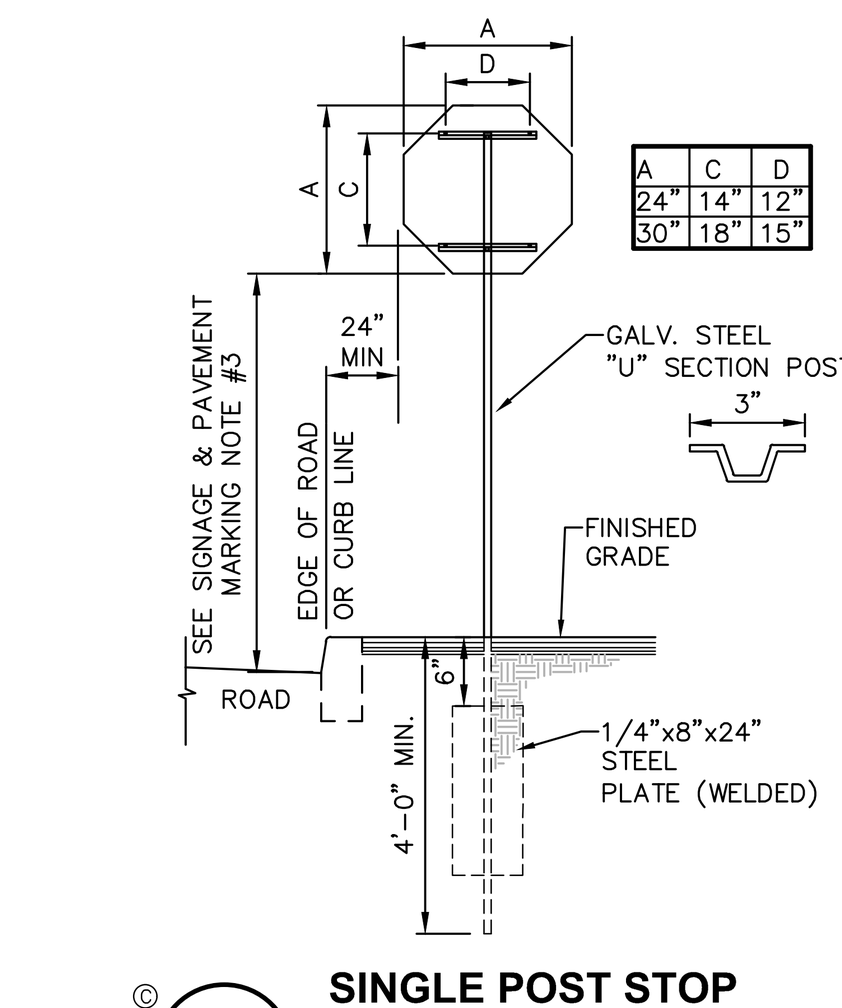


NOTES:
1. ALL WORK SHALL CONFORM WITH THE NYSDOT STANDARD SPECIFICATION FOR CONSTRUCTION AND MATERIALS DATED, **"CURRENT VERSION"**, AND ALL ADDENDA THERE TO; SPECIFICALLY **SECTION 608**- SIDEWALKS, DRIVEWAYS, AND BICYCLE PATHS.
2. SLOPE RAMP AND SIDE FLARES AS INDICATED IN THE PLANS OR AS ORDERED BY THE ENGINEER.
3. DETECTABLE WARNING UNITS SHALL BE PROVIDED ON ALL RAMPS IN ACCORDANCE W/ ADA REQUIREMENTS.

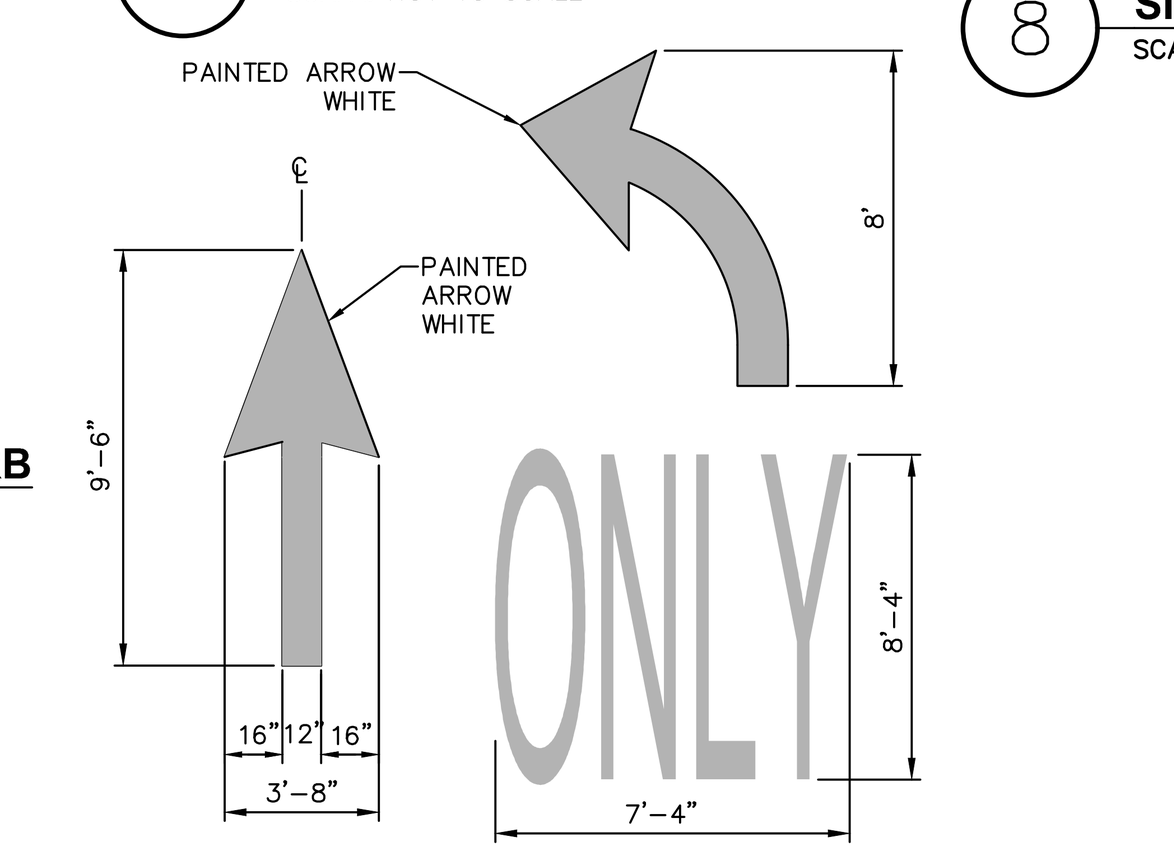
6 PEDESTRIAN RAMP SECTION - DROP CURB
SCALE: NOT TO SCALE



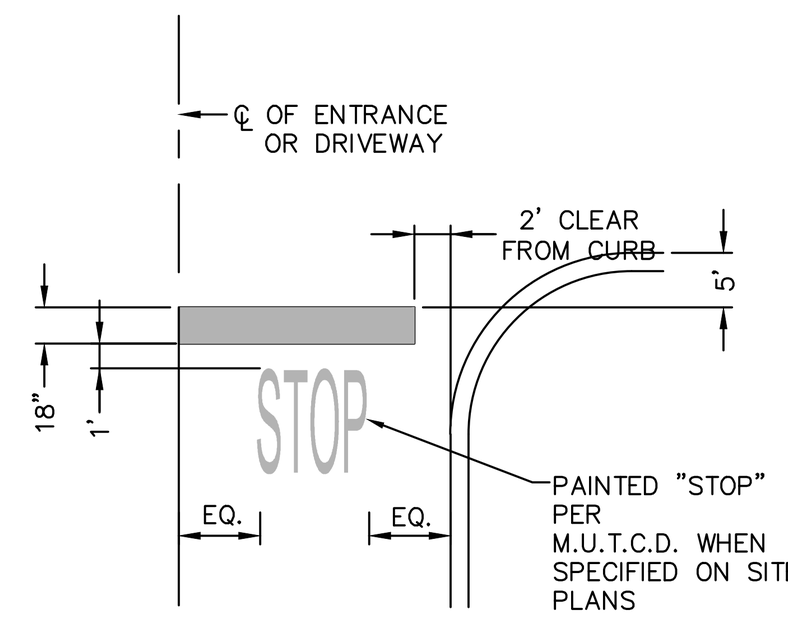
7 SINGLE POST SIGN MOUNTING DETAIL
SCALE: NOT TO SCALE



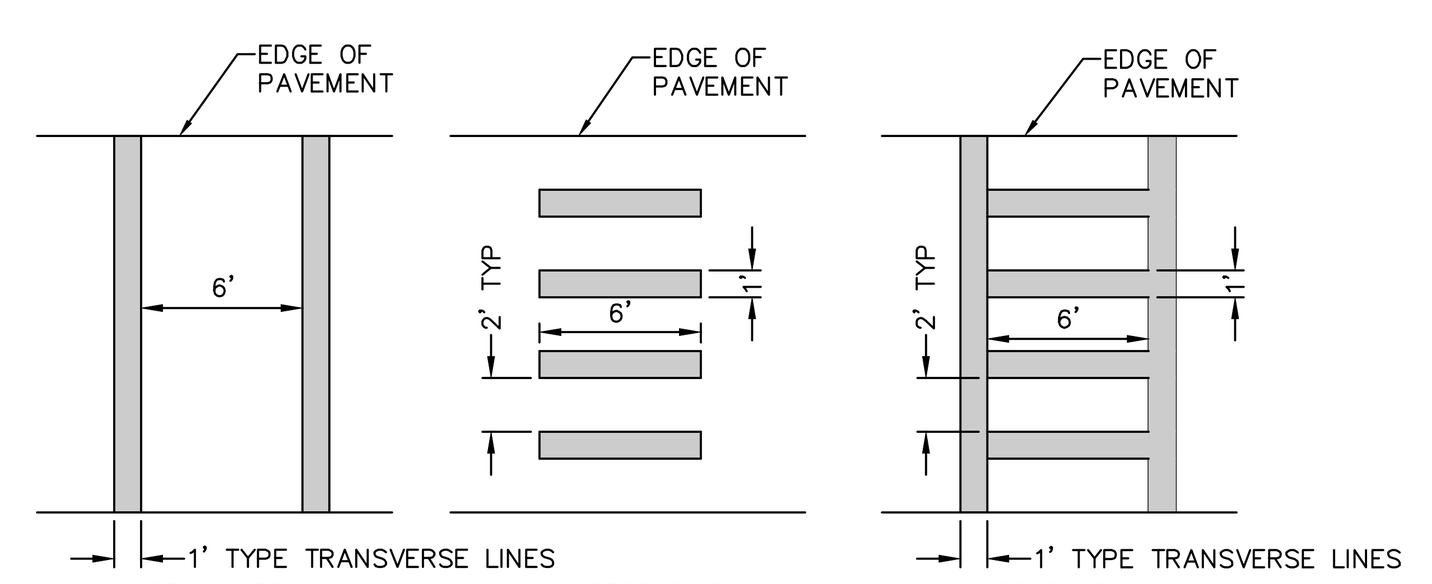
8 SINGLE POST STOP SIGN MOUNTING DETAIL
SCALE: NOT TO SCALE



9 PAVEMENT MARKING DETAIL DIRECTIONAL ARROW
SCALE: NOT TO SCALE

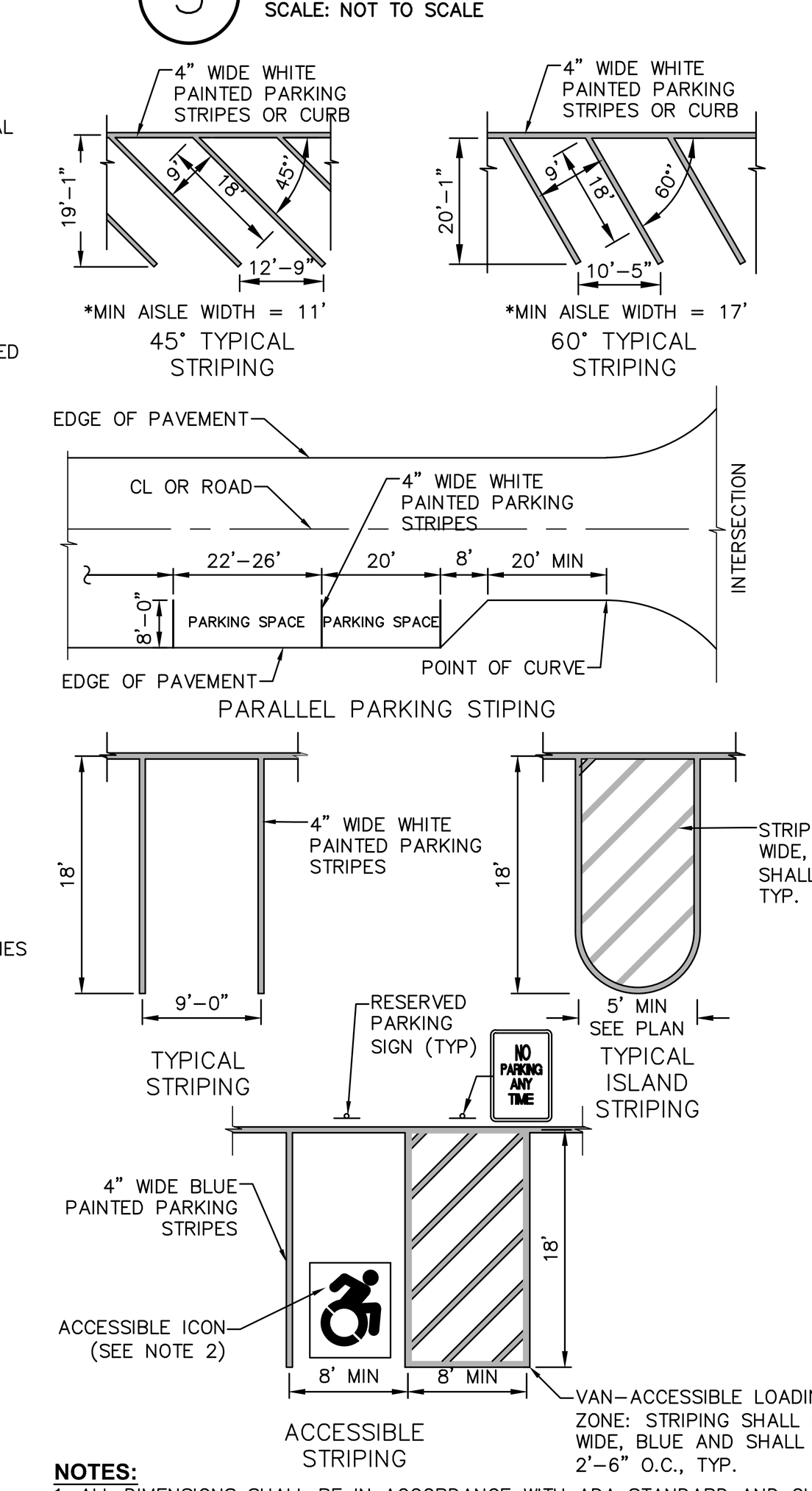


10 PAVEMENT MARKING DETAIL STOP BAR
SCALE: NOT TO SCALE



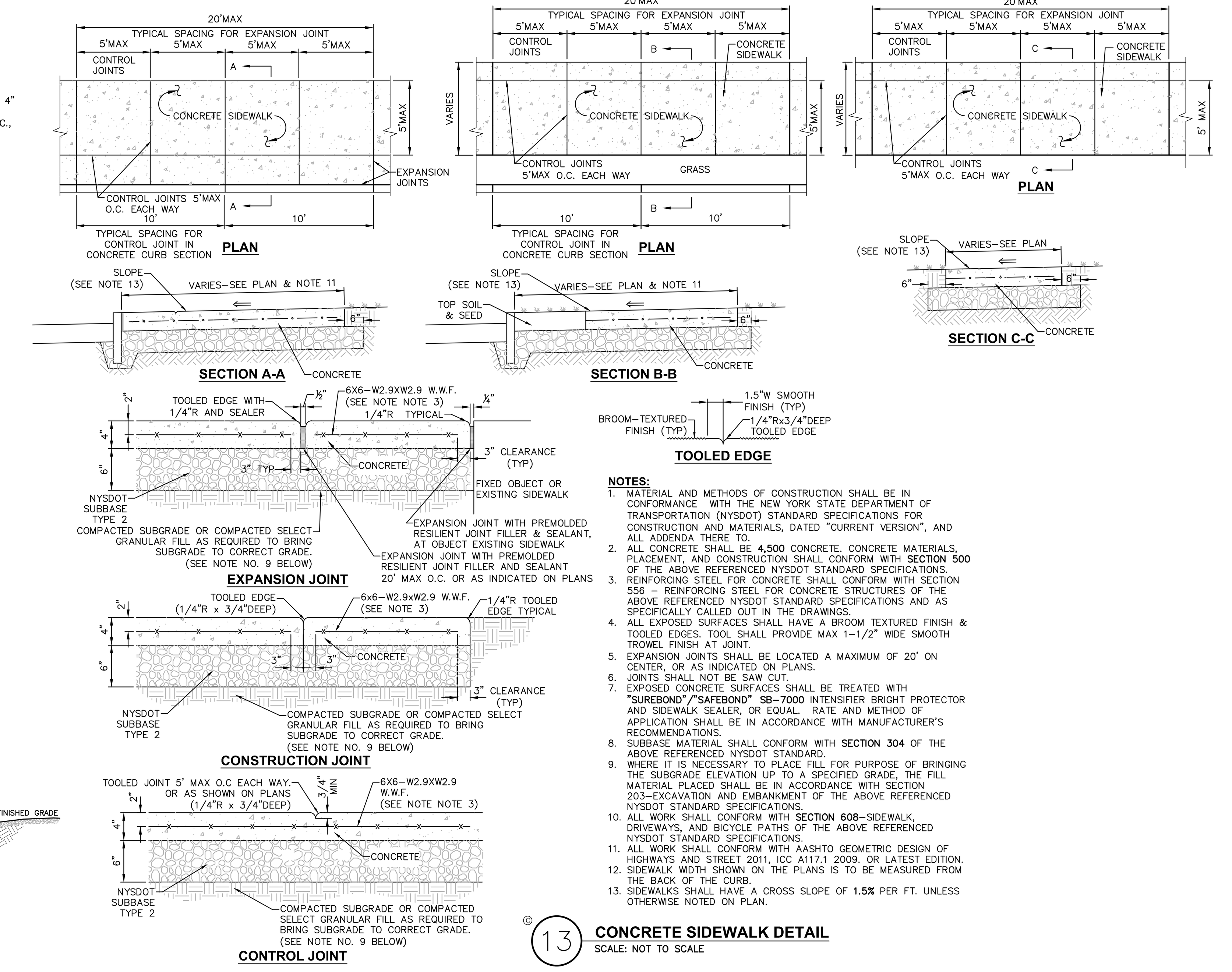
NOTES:
1. ALL CROSS WALK STRIPING SHALL BE WHITE
2. TYPE S CROSS WALK SHALL BE USED IN LOW TRAFFIC VOLUME STREET CROSSINGS.
3. TYPE L CROSS WALK SHALL BE USED IN MEDIUM TRAFFIC VOLUME STREET CROSSINGS.
4. TYPE LS CROSS WALK SHALL BE USED IN HIGH TRAFFIC VOLUME STREET CROSSINGS.

11 PAVEMENT MARKING DETAIL CROSS WALK STRIPING
SCALE: NOT TO SCALE



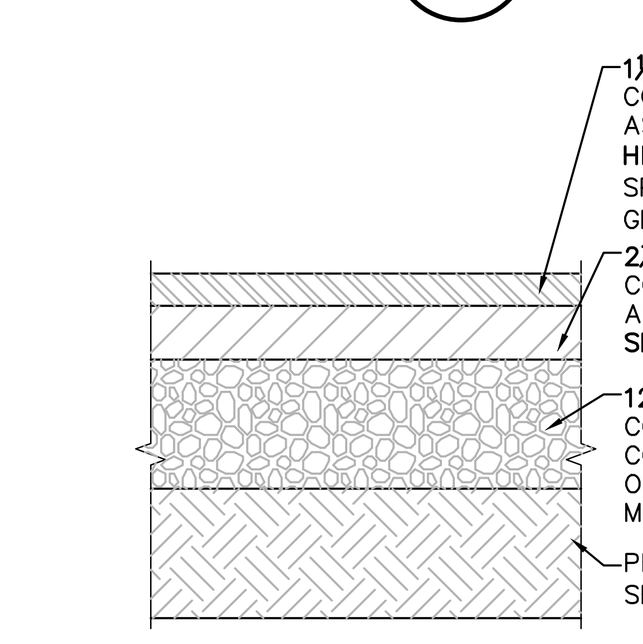
NOTES:
1. ALL DIMENSIONS SHALL BE IN ACCORDANCE WITH ADA STANDARD AND CURRENT ZONING AND SITE REGULATIONS.
2. PAINTED ACCESSIBLE LOGO TO BE IN ACCORDANCE W/ NEW YORK STATE LAW.
3. SLOPE OF PAVEMENT SURFACE IN ACCESSIBLE PARKING AREA SHALL NOT EXCEED 1.5% IN ANY DIRECTION.
4. SEE PLAN FOR ACTUAL LOCATION OF SIGNAGE

12 PAVEMENT MARKING DETAIL PARKING STRIPING
SCALE: NOT TO SCALE



NOTES:
1. 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 "CURRENT VERSION", AND ALL ADDENDA THERE TO.
2. ALL CONCRETE SHALL BE **4,500** CONCRETE. CONCRETE MATERIALS, PLACEMENT, AND CONSTRUCTION SHALL CONFORM WITH **SECTION 500** OF THE ABOVE REFERENCED NYSDOT STANDARD SPECIFICATIONS.
3. 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.
4. ALL EXPOSED SURFACES SHALL HAVE A BROOM TEXTURED FINISH & TOOLED EDGES. TOOL SHALL PROVIDE MAX 1-1/2" WIDE SMOOTH TROWEL FINISH AT JOINT.
5. EXPANSION JOINTS SHALL BE LOCATED A MAXIMUM OF 20' ON CENTER, OR AS INDICATED ON PLANS.
6. JOINTS SHALL NOT BE SAW CUT.
7. 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.
8. SUBBASE MATERIAL SHALL CONFORM WITH **SECTION 304** OF THE ABOVE REFERENCED NYSDOT STANDARD.
9. 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 ACCORDANCE WITH SECTION 203-EXCAVATION AND EMBANKMENT OF THE ABOVE REFERENCED NYSDOT STANDARD SPECIFICATIONS.
10. ALL WORK SHALL CONFORM WITH **SECTION 608**-SIDEWALK, DRIVEWAYS, AND BICYCLE PATHS OF THE ABOVE REFERENCED NYSDOT STANDARD SPECIFICATIONS.
11. ALL WORK SHALL CONFORM WITH AASHTO GEOMETRIC DESIGN OF HIGHWAYS AND STREET 2011, ICC A117.1 2009. OR LATEST EDITION.
12. SIDEWALK WIDTH SHOWN ON THE PLANS IS TO BE MEASURED FROM THE BACK OF THE CURB.
13. SIDEWALKS SHALL HAVE A CROSS SLOPE OF **1.5%** PER FT. UNLESS OTHERWISE NOTED ON PLAN.

13 CONCRETE SIDEWALK DETAIL
SCALE: NOT TO SCALE



NOTES:
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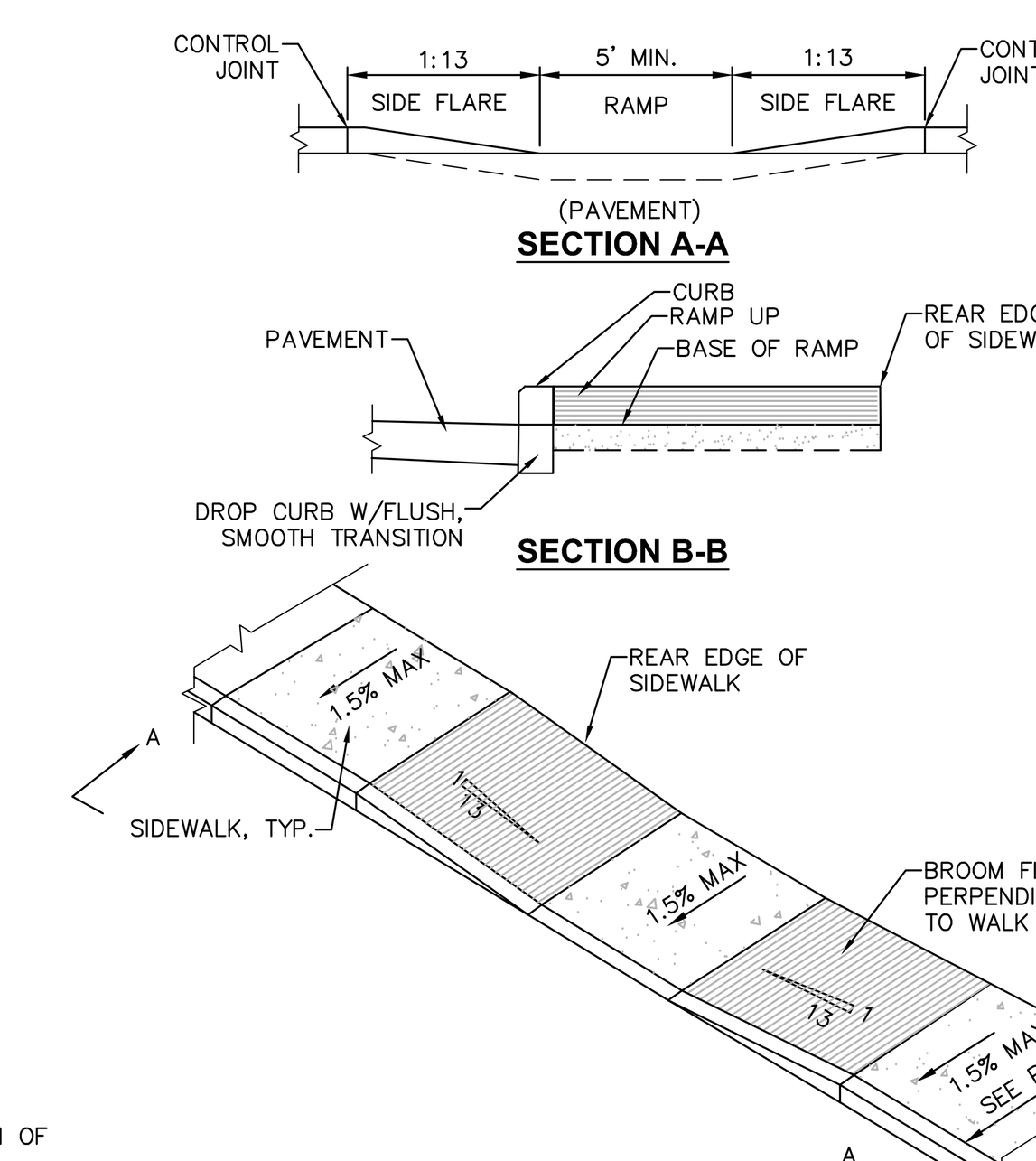
2. SUBBASE MATERIAL SHALL CONFORM WITH **SECTION 304** - SUBBASE COURSE OF THE ABOVE REFERENCED NYSDOT STANDARD SPECIFICATIONS AND THE TYPE CALLED OUT IN THESE DRAWINGS.
3. HOT MIX ASPHALT (HMA) PAVEMENT SHALL CONFORM WITH **SECTION 400**-HOT MIX ASPHALT OF THE ABOVE REFERENCED NYSDOT STANDARD SPECIFICATIONS AND THE TYPE CALLED OUT IN THESE DRAWINGS. ALTHOUGH **SECTION 400** IN ITS ENTIRETY IS REFERENCED, THE HOT MIX ASPHALT (HMA) PAVEMENT(S) SPECIFIED FOR THIS CONTRACT SHALL BE AS SPECIFIED UNDER **SECTION 402**-HOT MIX ASPHALT (HMA) PAVEMENTS.
4. 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.
5. 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.
6. PAVEMENT SECTION SHOWN IS PRELIMINARY. PRIOR TO BIDDING AND COMMENCEMENT OF CONSTRUCTION, THE FINAL DESIGN OF THE PAVEMENT SECTION MUST BE PREPARED BY A NYS LICENSED PROFESSIONAL ENGINEER AND MUST BE BASED ON A CURRENT GEOTECHNICAL REPORT PREPARED FOR THIS PROJECT.

ALT. NOTE 6:

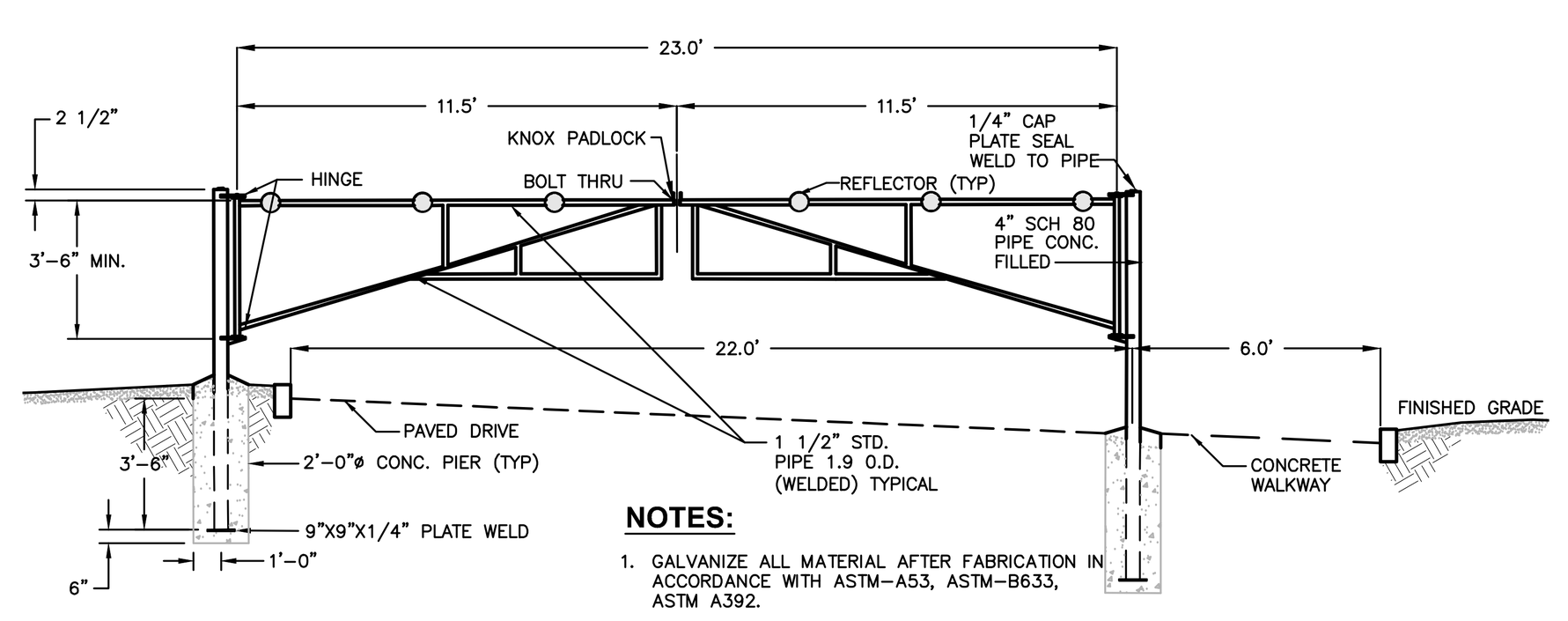
6. PAVEMENT SECTION SHOWN IS PRELIMINARY. PRIOR TO CONSTRUCTION, SHOP DRAWINGS SHOWING THE FINAL DESIGN OF THE PAVEMENT SECTION MUST BE PREPARED BY A NYS LICENSED PROFESSIONAL ENGINEER AND SUBMITTED FOR REVIEW.

14 PAVEMENT SECTION DETAIL
SCALE: NOT TO SCALE



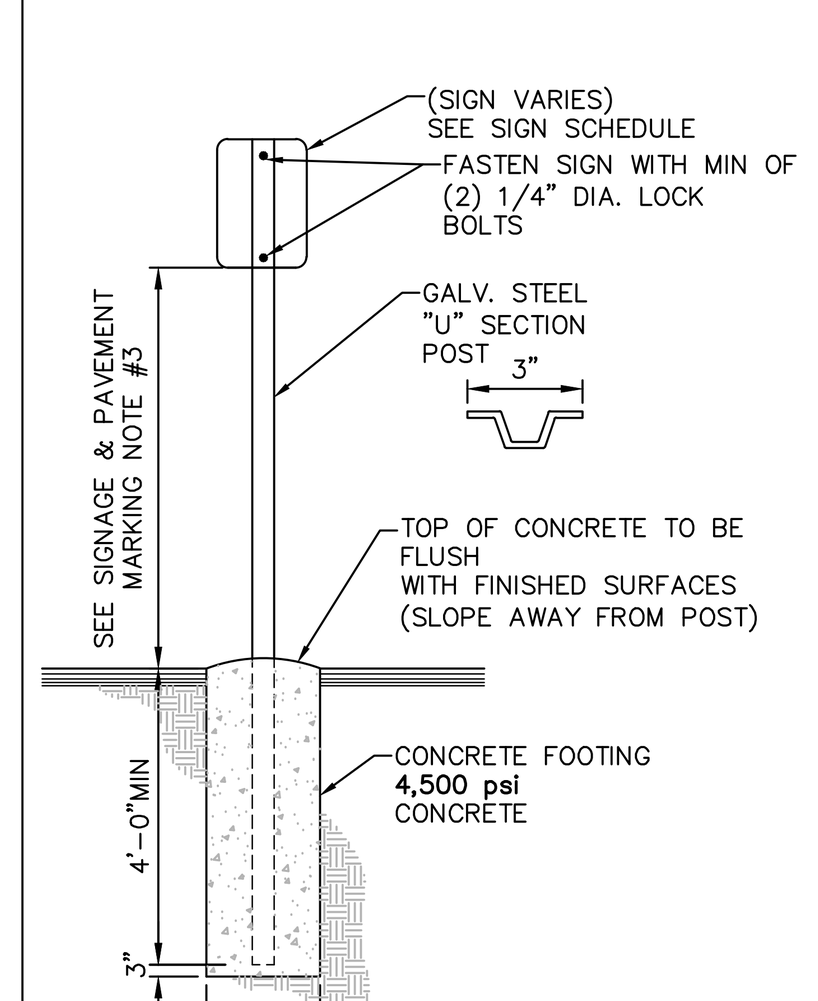
NOTES:
1. ALL WORK SHALL CONFORM WITH THE NYSDOT STANDARD SPECIFICATION FOR CONSTRUCTION AND MATERIALS DATED, **"CURRENT VERSION"**, AND ALL ADDENDA THERE TO; SPECIFICALLY **SECTION 608**- SIDEWALKS, DRIVEWAYS, AND BICYCLE PATHS.
2. SLOPE RAMP AND SIDE FLARES AS INDICATED IN THE PLANS OR AS ORDERED BY THE ENGINEER.
3. DETECTABLE WARNING UNITS SHALL BE PROVIDED ON ALL RAMPS IN ACCORDANCE W/ ADA REQUIREMENTS.

28 PEDESTRIAN RAMP SECTION - DROP CURB
SCALE: NOT TO SCALE

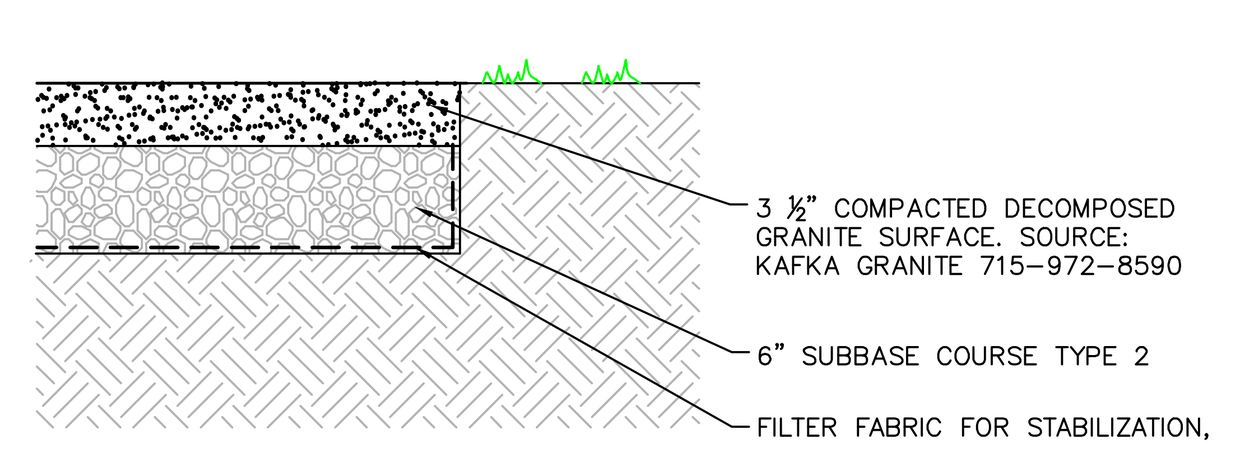


NOTES:
1. GALVANIZE ALL MATERIAL AFTER FABRICATION IN ACCORDANCE WITH ASTM-A53, ASTM-B633, ASTM A392.
2. GATES ARE TO SWING CLEAR, MAINTAINING 4" OF CLEARANCE FROM FINISHED GRADE.

20 LOCKABLE ACCESS GATE AT EMERGENCY ACCESS ENTRANCE DETAIL
SCALE: NOT TO SCALE



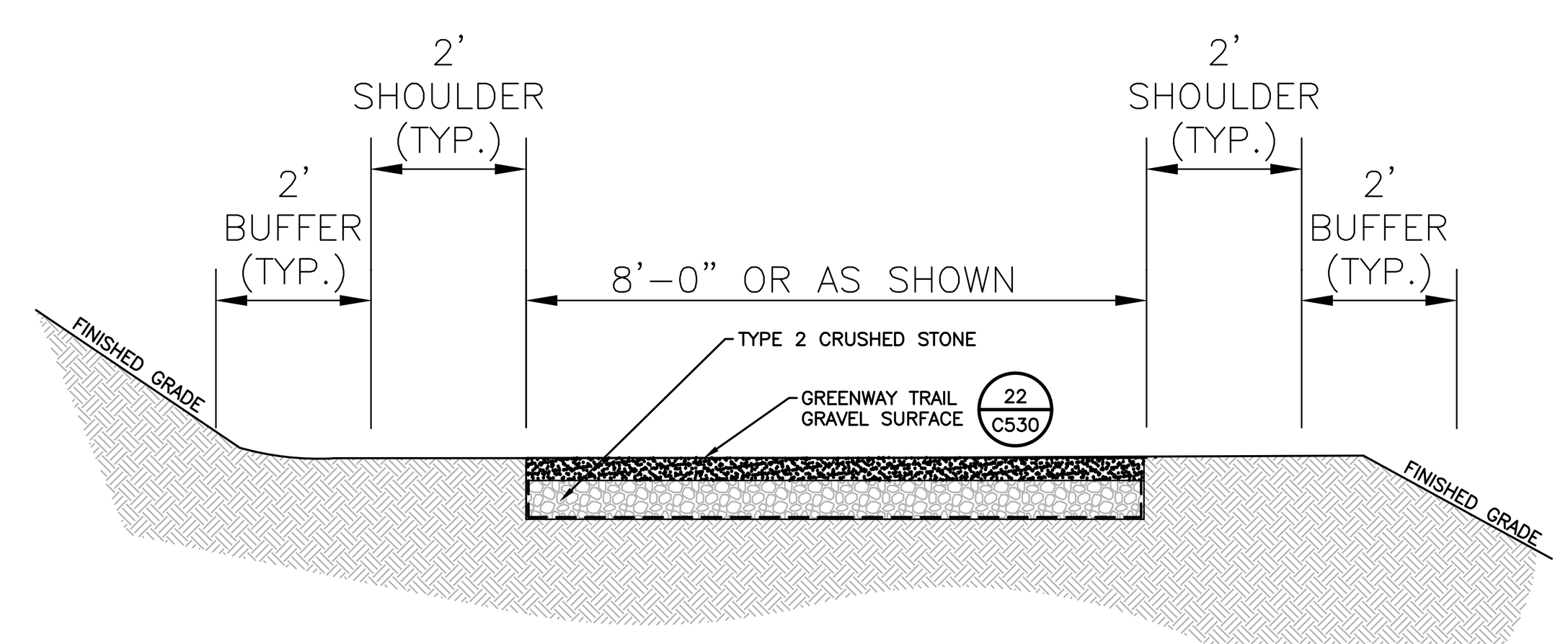
16 SINGLE POST IN CONCRETE SIGN MOUNTING DETAIL
SCALE: NOT TO SCALE



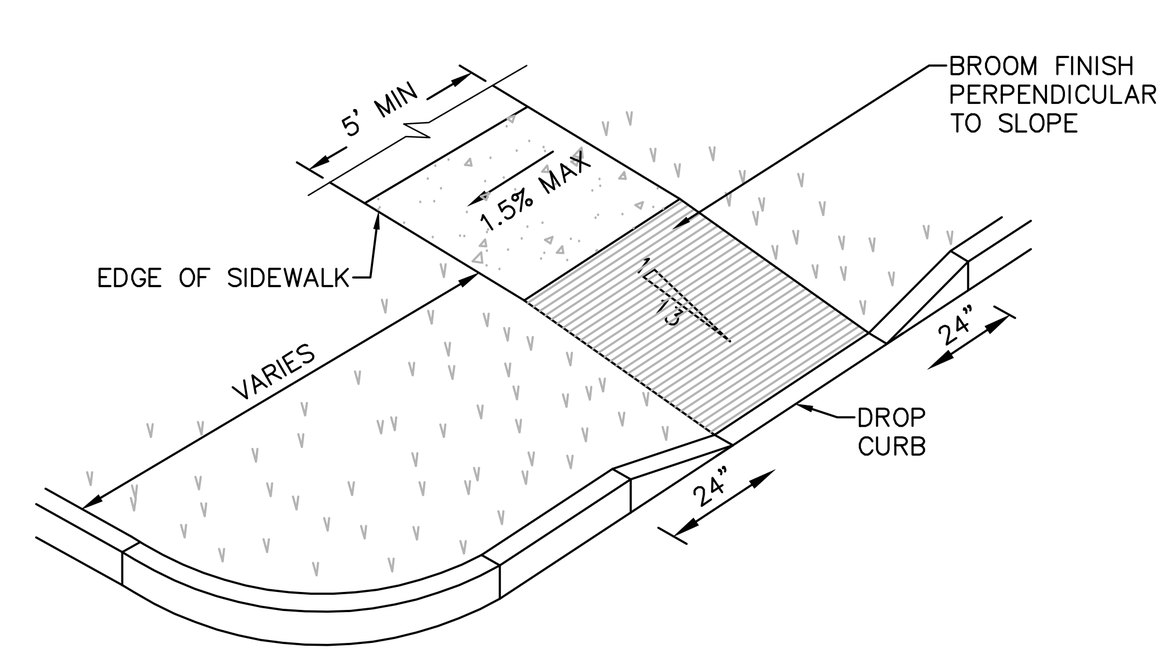
ADA TRAIL SECTION

NOTES:
1. COMPACT GRADES ADJACENT TO TRAIL TO MINIMIZE SETTLING AND EROSION.
2. DECOMPOSED GRANITE TO BE INSTALLED PER SUPPLIERS DIRECTIONS.
3. DECOMPOSED GRANITE COLOR TO BE SELECTED BY LANDSCAPE ARCHITECT.
4. REFER TO DETAIL 23/C530 FOR HAND RAIL.
5. TRAIL SURFACE SHOULD BE ADA-COMPLAINT.

26 ADA TRAIL SURFACE
SCALE: NOT TO SCALE

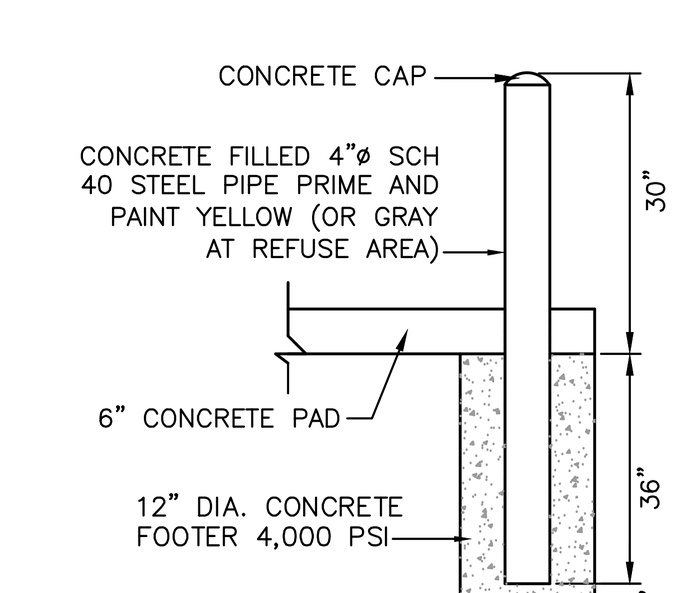


25 GREENWAY TRAIL SECTION
SCALE: NOT TO SCALE



NOTES:
1. ALL WORK SHALL CONFORM WITH THE NYSDOT STANDARD SPECIFICATION FOR CONSTRUCTION AND MATERIALS DATED, **"CURRENT VERSION"**, AND ALL ADDENDA THERE TO; SPECIFICALLY **SECTION 608**- SIDEWALKS, DRIVEWAYS, AND BICYCLE PATHS.
2. SLOPE RAMP AND SIDE FLARES AS INDICATED IN THE PLANS OR AS ORDERED BY THE ENGINEER.
3. DETECTABLE WARNING UNITS SHALL BE PROVIDED ON ALL RAMPS IN ACCORDANCE W/ ADA REQUIREMENTS.

27 PEDESTRIAN RAMP SECTION - DROP CURB
SCALE: NOT TO SCALE



NOTES
1. CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI AT 28 DAYS WITH A MINIMUM CEMENT CONTENT OF 600 POUNDS PER CUBIC YARD FOR ALL FOOTINGS.
2. ALL CONCRETE SHALL HAVE A SLUMP OF NO GREATER THAN 3"-5" TO WITHIN A TOLERANCE OF 0'-1".
3. ALL EXPOSED CONCRETE SHALL BE 5% AIR-ENTRAINED (WITHIN 1% TOLERANCES) CONFORMING TO ASTM C260.
4. ALL FORMWORK AND PLACEMENT OF CONCRETE SHALL COMPLY WITH GOOD CONSTRUCTION PRACTICES AND BE IN ACCORDANCE WITH GOVERNING CODES, AND REGULATIONS.

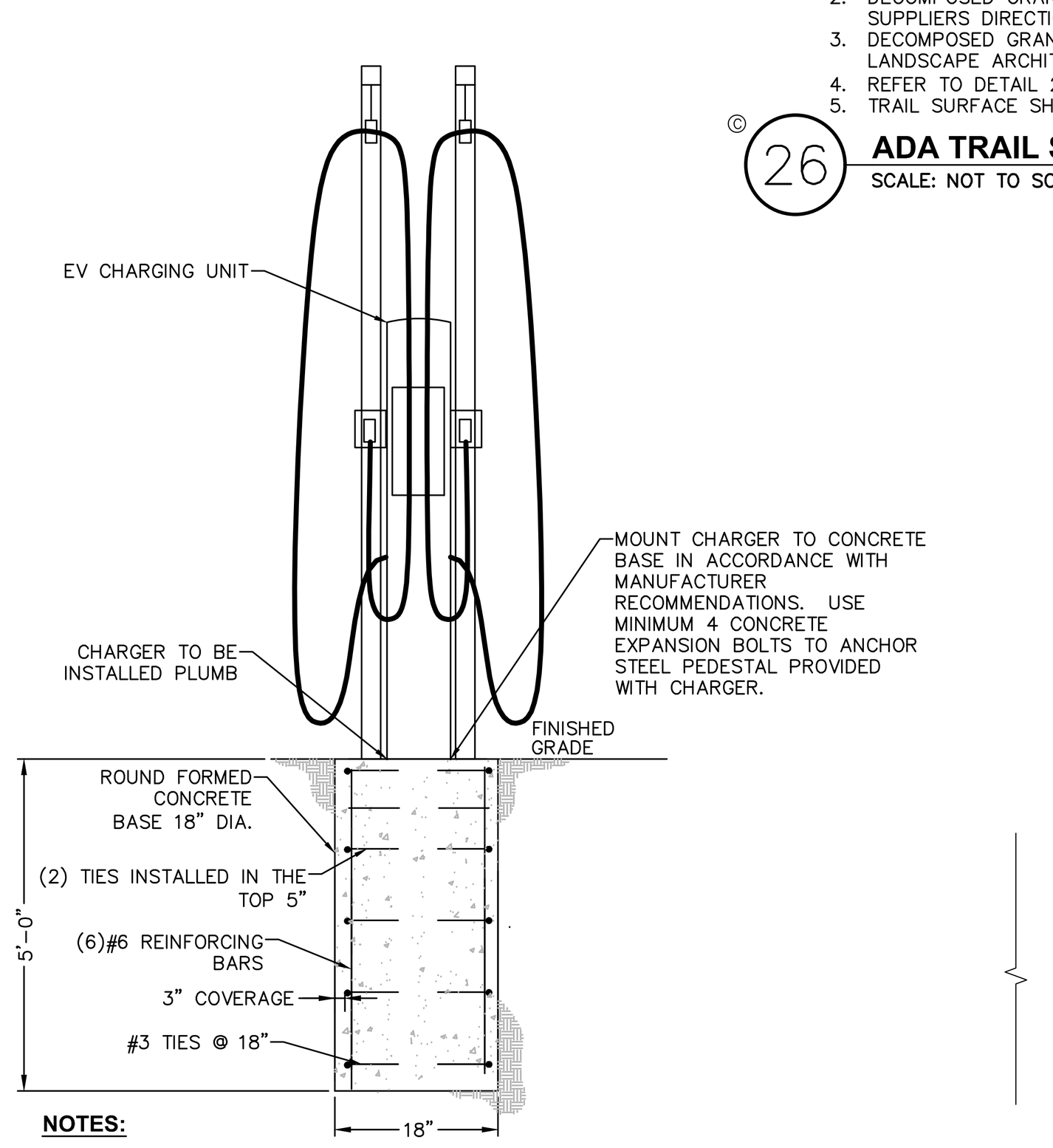
17 CONCRETE BOLLARD DETAIL
SCALE: NOT TO SCALE

STRIPING NOTES:
1. ALL STRIPING SHALL CONFORM TO THE LATEST EDITION OF THE NYSDOT STANDARD SPECIFICATIONS, **SECTION 640** AND THE "NATIONAL MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" - **2009 EDITION** AND THE "NYS SUPPLEMENT."
2. STRIPE PAVEMENT AS INDICATED ON THE PLANS AND/OR IN ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL REQUIREMENTS.
3. STRIPING WORK WILL BE REVIEWED AND ACCEPTED BY THE AUTHORITY HAVING JURISDICTION.
4. COLOR: DRIVE LANE DIVIDERS - WHITE OR AOBE
   NO PARKING ZONE WARNINGS - WHITE OR AOBE
   PARKING DIVIDERS - WHITE OR AOBE
   WALKING LINES - WHITE OR AOBE
   ACCESSIBLE PARKING LINES & SYMBOL - BLUE

SIGNAGE NOTES:
1. ALL SIGNS SHALL CONFORM TO THE LATEST EDITION OF THE NYSDOT STANDARD SPECIFICATIONS, **SECTION 645** AND THE "NATIONAL MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" - **2009 EDITION** AND THE "NYS SUPPLEMENT."
2. SIGN MOUNTING HEIGHT SHALL BE A MINIMUM OF 7'. MINIMUM MOUNTING HEIGHT MAY BE ADJUSTED ONLY IN ACCORDANCE WITH PROVISIONS OUTLINED IN THE "NATIONAL MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" - **2009 EDITION** AND THE "NYS SUPPLEMENT."
3. SIGN POST SHALL BE IN ACCORDANCE W/ NYSDOT STANDARD SPECS **SECTION 730.**

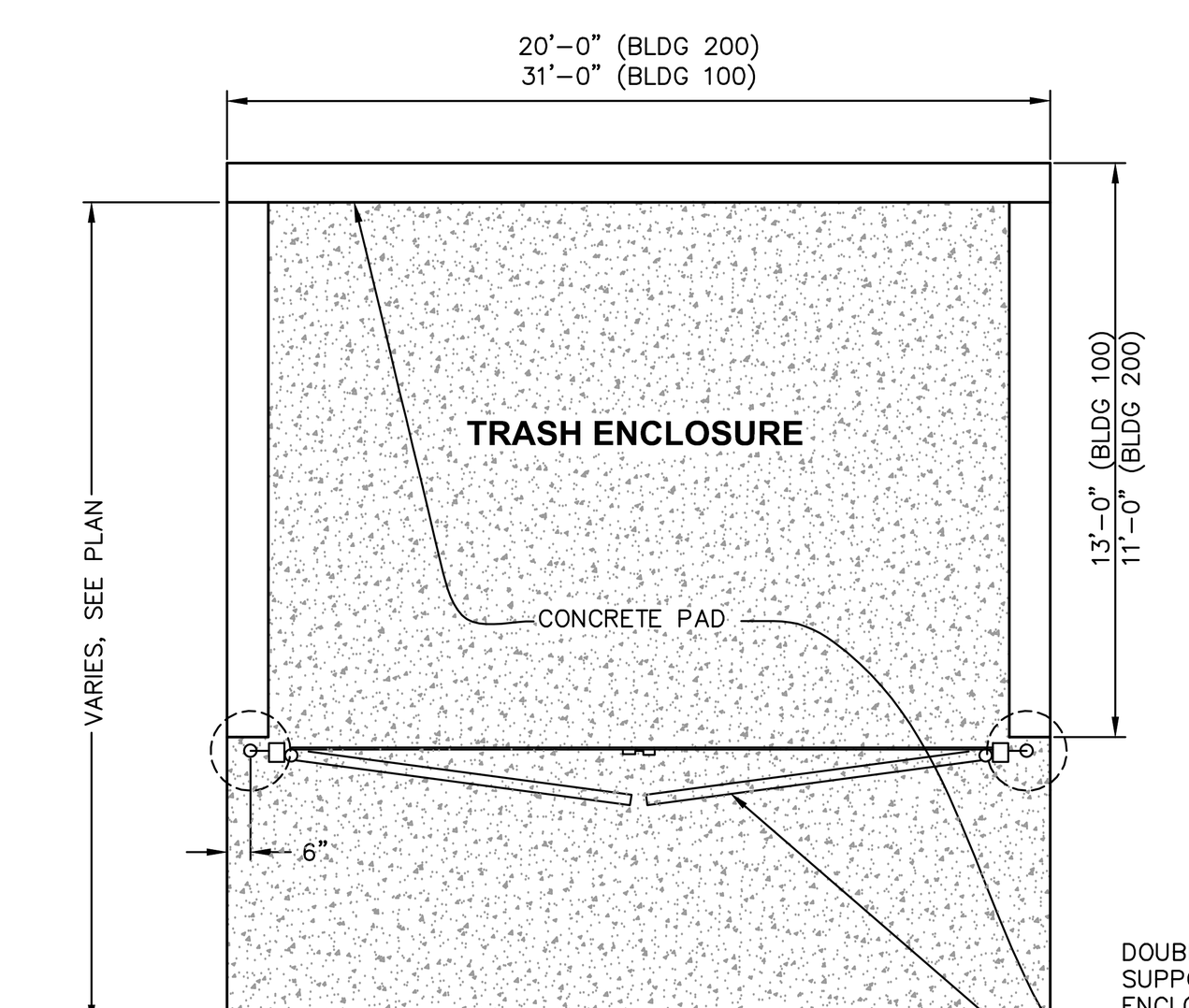
SIGN NO.	SIGN FACE	MUTCD NUMBER	MIN SIZE	COLORS BCK GRND	COLORS LEGEND	MOUNTING
1	STOP	R1-1	30"x30"	RED	WHITE	8/C530
2		W11-2	24"x24"	YELLOW/FYG	BLACK	--/C530
3	RESERVED PARKING	NY R7-8D	12"x18"	WHITE/BLUE	GREEN/WHITE	16/C530
4	VAN ACCESSIBLE	R7-8P	12"x6"	WHITE	BLUE	16/C530
5	NO PARKING ANY TIME	R7-1	12"x18"	WHITE	RED	16/C530
6		R3-2	30"x30"	WHITE	BLACK/RED	16/C530
7		R3-2	30"x30"	WHITE	BLACK/RED	16/C530
8	RAIL ROAD CROSSING	R15-1	48"x9"	WHITE	BLACK	16/C530
9	EXEMPT	R15-3P	24"x12"	WHITE	BLACK	16/C530
10	R R	W10-1	30"	YELLOW	BLACK	16/C530
11	LOOP TRAIL	CUSTOM	18"x18"	WHITE	GREEN	16/C530
12	ELECTRIC VEHICLE PARKING ONLY WHILE CHARGING	CUSTOM	12"x18"	WHITE/GREEN	GREEN/WHITE/BLUE	16/C530
13	USE LAST	CUSTOM	12"x6"	BLUE	WHITE	16/C530
14	TRAIL PARKING ONLY	CUSTOM DESIGN TO BE COORD. WITH GREENWAY COMMITTEE PRIOR TO CONSTRUCTION				16/C530

15 SIGN SCHEDULE
SCALE: NOT TO SCALE



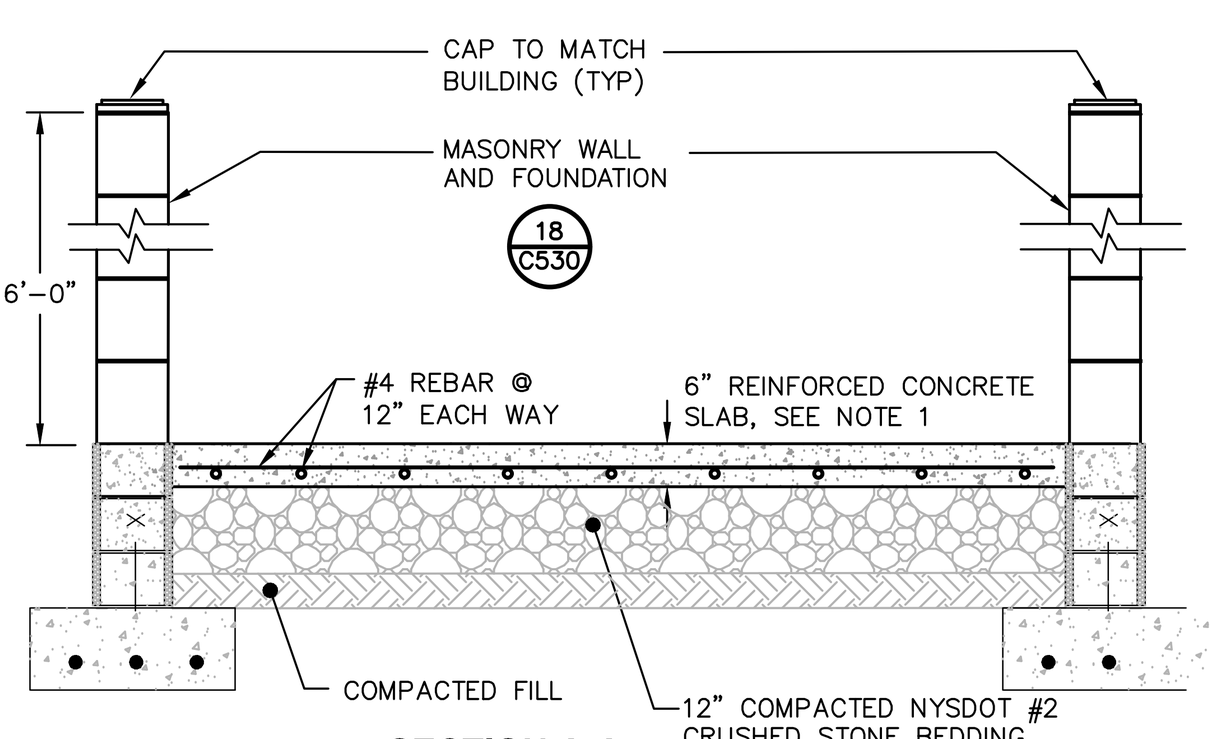
NOTES:
1. CONDUITS AND GROUNDING SHALL BE AS REQUIRED BY THE ELECTRICAL DESIGN.
2. ALL CONCRETE SHALL BE 4,500 PSI @ 28 DAYS.
3. ALL REINFORCING STEEL SHALL BE GRADE 60.
4. FOUNDATIONS SHALL BE AUGERED INTO UNDISTURBED NATURAL SOIL OR COMPACTED.

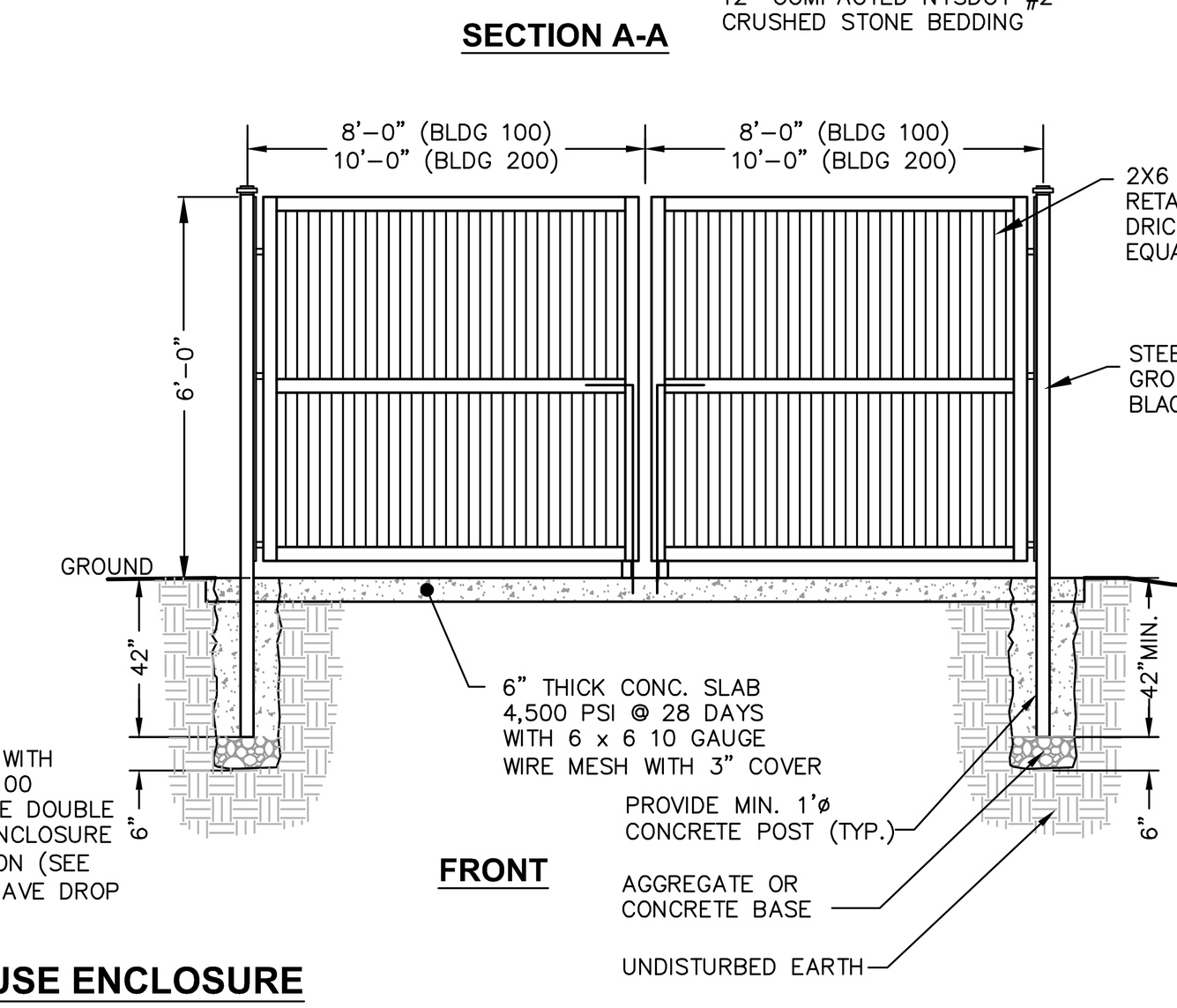
21 EV CHARGER MOUNTING & BASE DETAIL
SCALE: NOT TO SCALE



DOUBLE SWING GATES, EACH WITH SUPPORT WHEELS. BUILDING 100 ENCLOSURE SHALL ALSO HAVE DOUBLE SWING GATES ON REAR OF ENCLOSURE FOR ACCESS TO PUMP STATION (SEE PLAN). GATES SHALL EACH HAVE DROP CANE LATCHES.

NOTE:
1. CONCRETE SHALL HAVE A MINIMUM COMPRESSION STRENGTH OF 4000 PSI @ 28 DAY AND SHALL BE PLACED IN ACCORDANCE WITH ACI SPECIFICATIONS AND ITS LATEST REVISION.





19 REFUSE ENCLOSURE
SCALE: NOT TO SCALE

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NOT FOR CONSTRUCTION
EXP: ##/##/20## EXP: ##/##/20##

CERTIFICATE OF AUTHORIZATION NUMBER:
PROFESSIONAL ENGINEERING: 018281
LAND SURVEYING: 017976
GEOLOGICAL: 018750

It is a violation of New York Education Law Art. 145 Sec. 7209 & Art. 147 Sec. 7307, for any person, unless acting under the direction of a licensed architect, professional engineer, or land surveyor, to alter an item in any way. If an item bearing the seal of an architect, engineer, or land surveyor is altered; the altering architect, engineer, or land surveyor shall affix to the item their seal and notation "altered by" followed by their signature and date of such alteration, and a specific description of the alteration.

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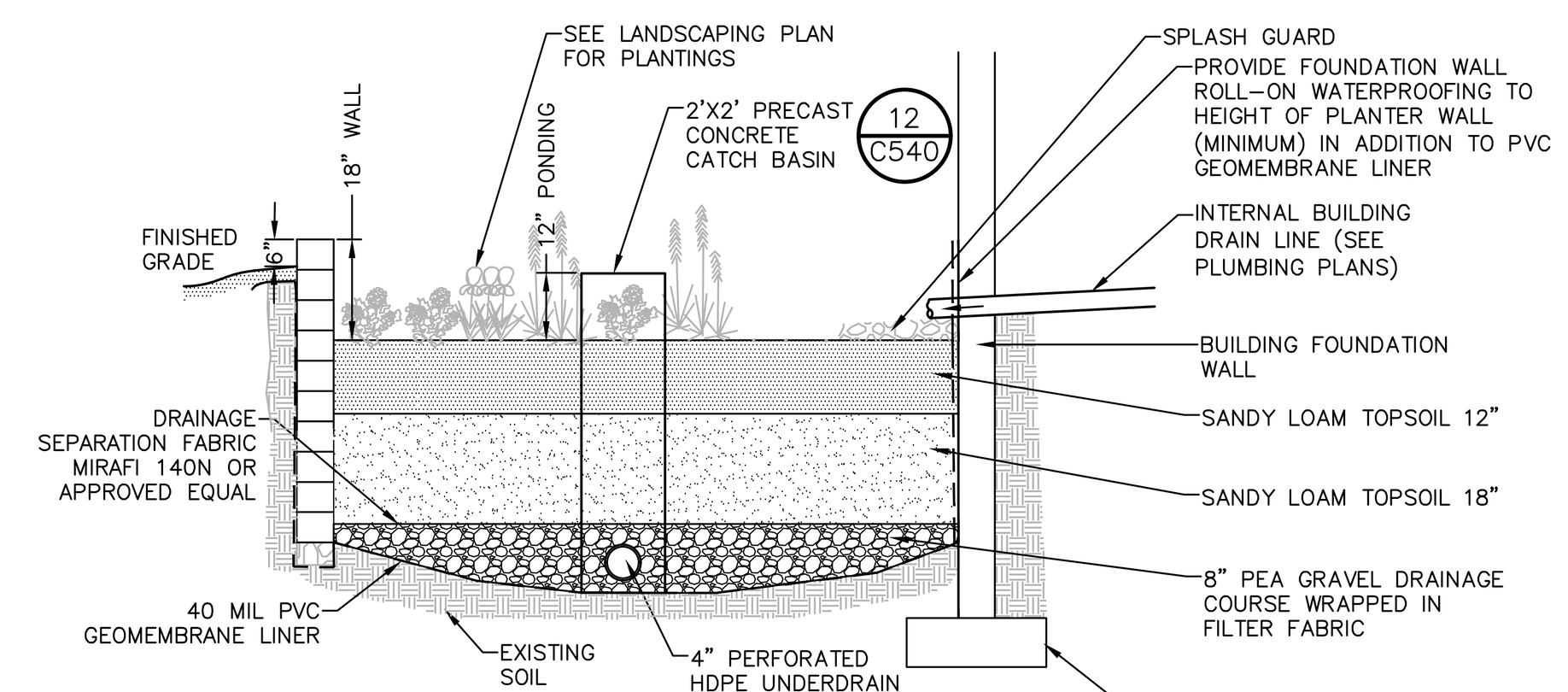
NO:	DATE:	DESCRIPTION:
Revisions		

PROJECT NUMBER: CZ81750.00
DRAWN BY: CJL
REVIEWED BY: --
ISSUED FOR: ISSUED FOR PLANNING BOARD APPROVAL
DATE: 02/14/24
DRAWING NAME:

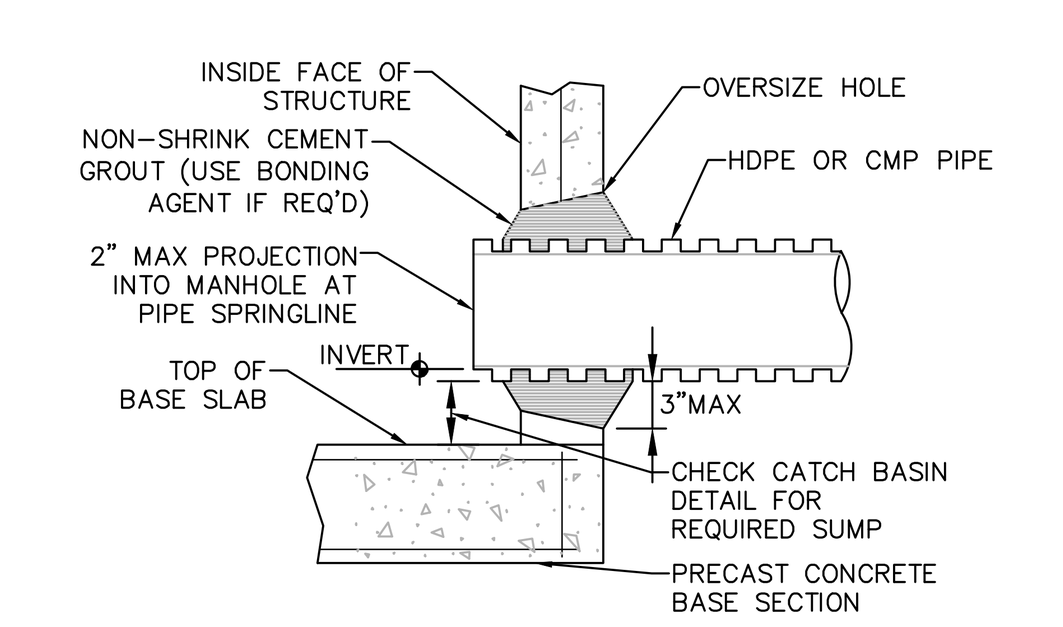
SITE DETAILS

DRAWING NUMBER:

C530



1 **STORMWATER PLANTER DETAIL**
SCALE: NOT TO SCALE

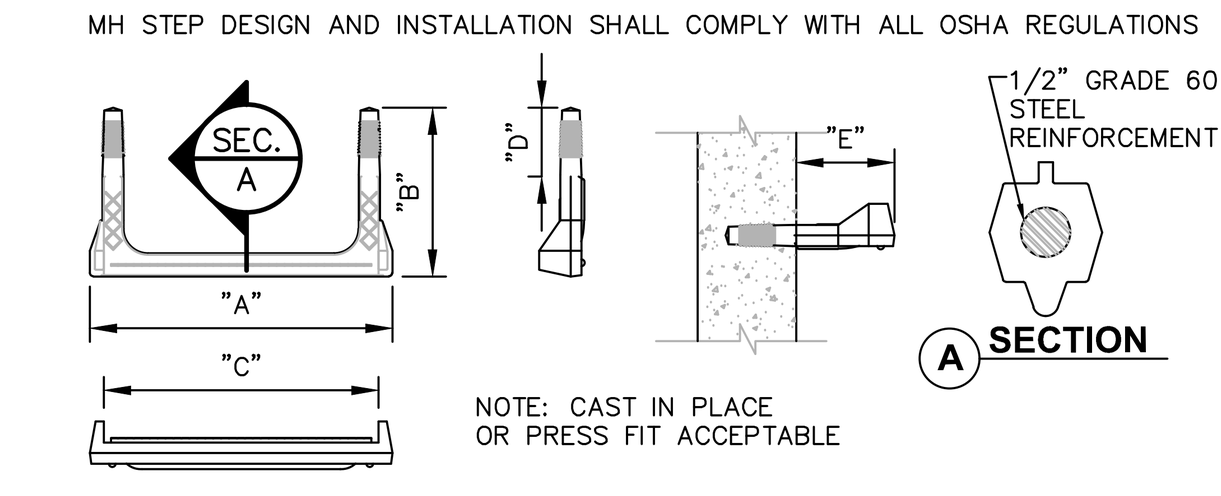


© 3 **PIPE CONNECTION TO DRAINAGE STRUCTURE-CMP OR HDPE CEMENT GROUT SEAL JOINT**
SCALE: NOT TO SCALE

ACCEPTABLE MANHOLE STEPS

MANUFACTURER	PATTERN NUMBER	"A" STEP WIDTH	"B" LEG LENGTH	"C" RUNG CLEAR	"D" EMBED-MENT	"E" RUNG CLEAR
M.A. INDUSTRIES INC*	PS2-PF	14 3/4	9 1/4	13 3/4	3 3/8	5 7/8
M.A. INDUSTRIES INC*	PS2-PFS	14 3/4	8 1/4	13 3/4	3 3/8	4 7/8

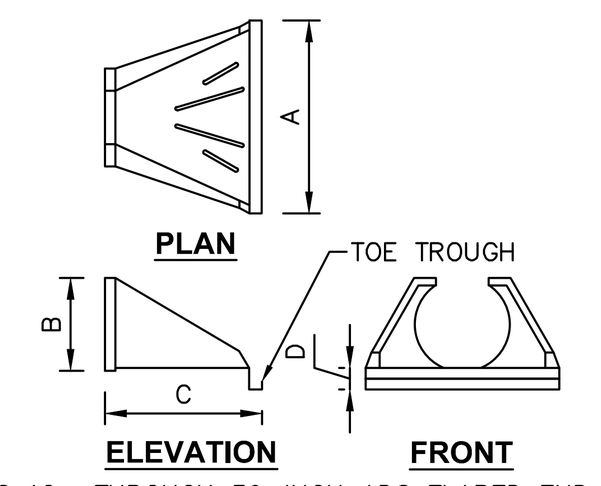
* OR EQUIVALENT
MH STEP DESIGN AND INSTALLATION SHALL COMPLY WITH ALL OSHA REGULATIONS



© 4 **COPOLYMER POLYPROPYLENE MH STEP**
SCALE: NOT TO SCALE

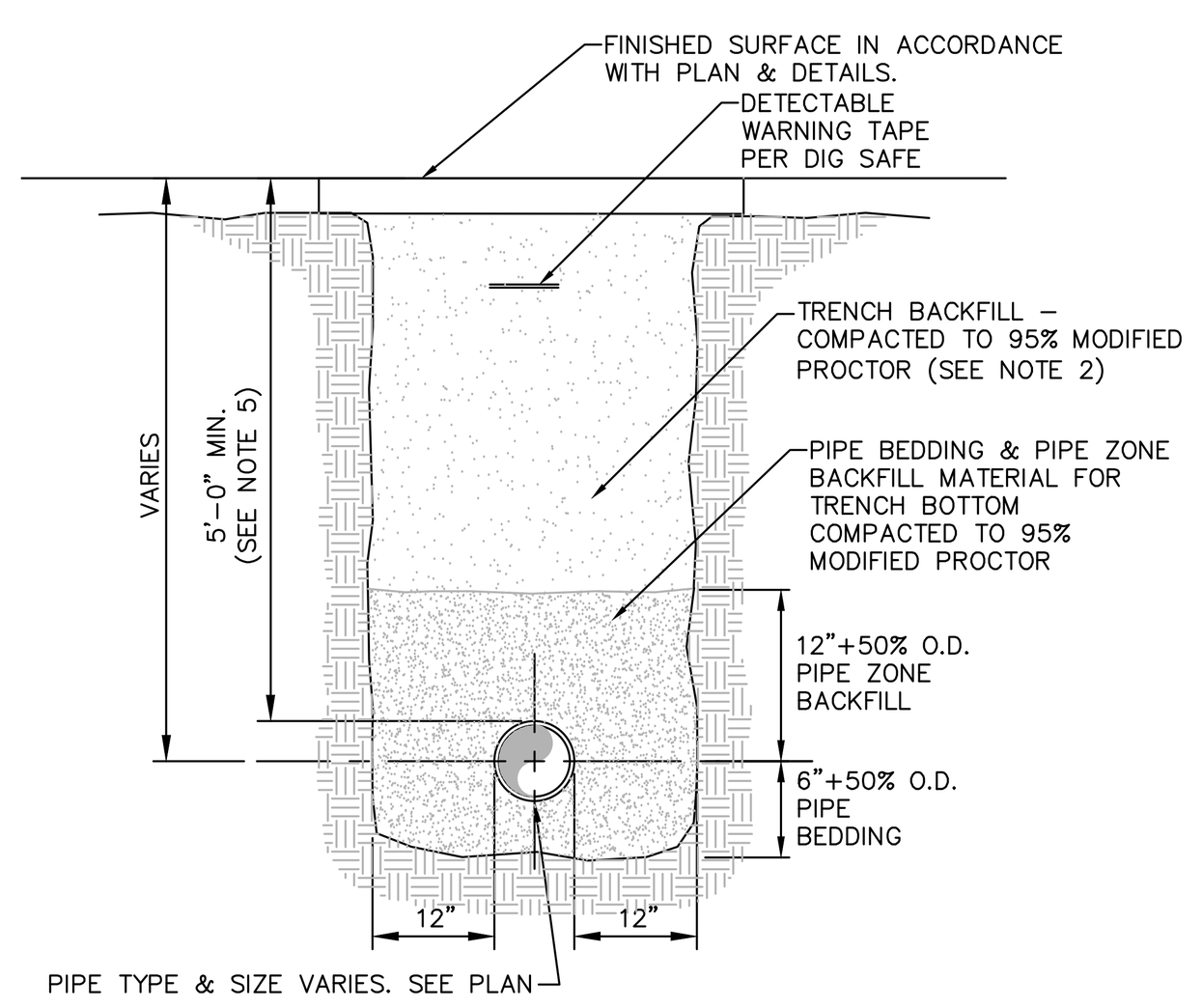
TYPICAL HDPE END SECTION

PIPE DIA.	END SECTION DIMENSIONS A	B	C	D
12"	42"	14"	34"	6"
15"	42"	17"	34"	6"
18"	59"	21"	48"	6"
24"	59"	27"	48"	6"
30"	82"	34"	58"	6"
36"	82"	41"	58"	6"



NOTES:
1. SCOPE: THIS SPECIFICATION DESCRIBES 12- THROUGH 36-INCH ADS FLARED END SECTIONS FOR USE IN CULVERT AND DRAINAGE OUTLET APPLICATIONS. FES LARGER THAN 36" SHALL USE CIRCULAR CORRUGATED METAL FLARED END SECTIONS.
2. REQUIREMENTS: THE INVERT OF THE PIPE AND THE END SECTION SHALL BE AT THE SAME ELEVATION. THE ADS FLARED END SECTION SHALL BE HIGH DENSITY POLYETHYLENE MEETING ASTM D3350 MINIMUM CELL CLASSIFICATION 213320C; CONTACT MANUFACTURER FOR ADDITIONAL CELL CLASSIFICATION INFORMATION. WHEN PROVIDED, THE METAL THREADED FASTENING ROD SHALL BE STAINLESS STEEL.
3. INSTALLATION: INSTALLATION SHALL BE IN ACCORDANCE WITH ADS INSTALLATION INSTRUCTIONS AND WITH THOSE ISSUED BY STATE OR LOCAL AUTHORITIES. CONTACT YOUR LOCAL ADS REPRESENTATIVE OR VISIT WWW.ADS-PIPE.COM FOR THE LATEST INSTALLATION INSTRUCTIONS.
4. PROVIDE TRASH RACK ONLY WHERE SPECIFIED ON SITE PLANS.

© 5 **TYPICAL END SECTION - HDPE**
SCALE: NOT TO SCALE



NOTES:
1. PIPE BEDDING & PIPE ZONE BACKFILL SHALL BE A NATURAL RUN-OF-BANK (R.O.B.) SAND OR A MIXTURE OF CRUSHED STONE AND GRAVEL, FREE OF SOFT, NONDURABLE PARTICLES, ORGANIC MATERIALS AND ELONGATED PARTICLES, AND SHALL BE WELL GRADED FROM FINE TO COARSE PARTICLES. BEDDING GRADATIONS SHALL BE APPROVED BY THE ENGINEER AND SHALL MEET THE FOLLOWING GRADATION REQUIREMENTS:

SIEVE DESIGNATION	% PASSING
3/4"	100%
NO. 40	0-70%
NO. 200	0-10%

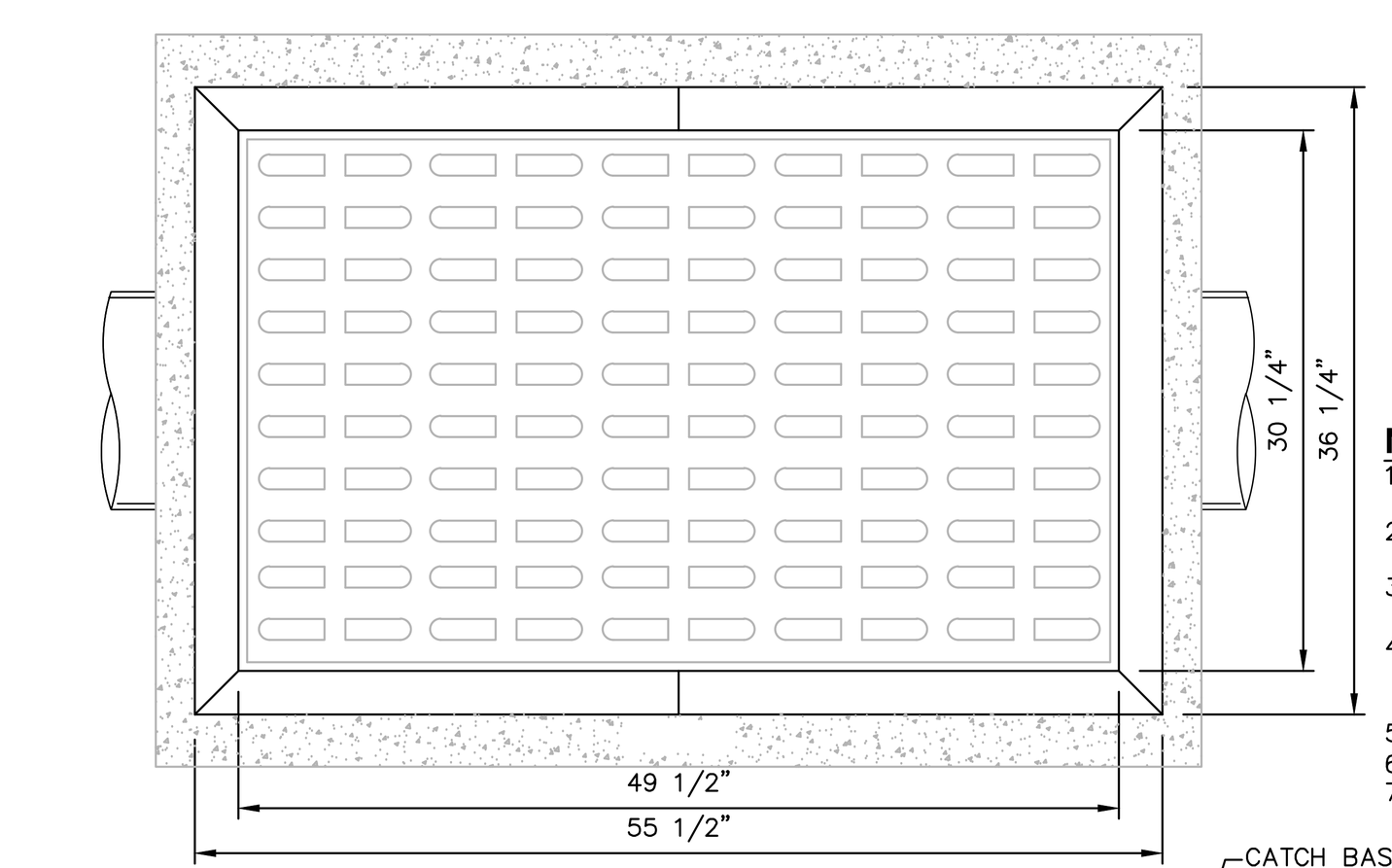
2. TRENCH BACKFILL SHALL BE A NATURAL RUN-OF-BANK (R.O.B.) OR PROCESSED GRAVEL, OR EXCAVATED MATERIAL FREE OF SOFT, NONDURABLE PARTICLES, ORGANIC MATERIALS AND ELONGATED PARTICLES, AND SHALL BE WELL GRADED FROM FINE TO COARSE PARTICLES. TRENCH BACKFILL GRADATIONS SHALL BE APPROVED BY THE ENGINEER AND SHALL MEET THE FOLLOWING GRADATION REQUIREMENTS:

SIEVE DESIGNATION	% PASSING
4"	100%
NO. 40	0-70%
NO. 200	0-10%

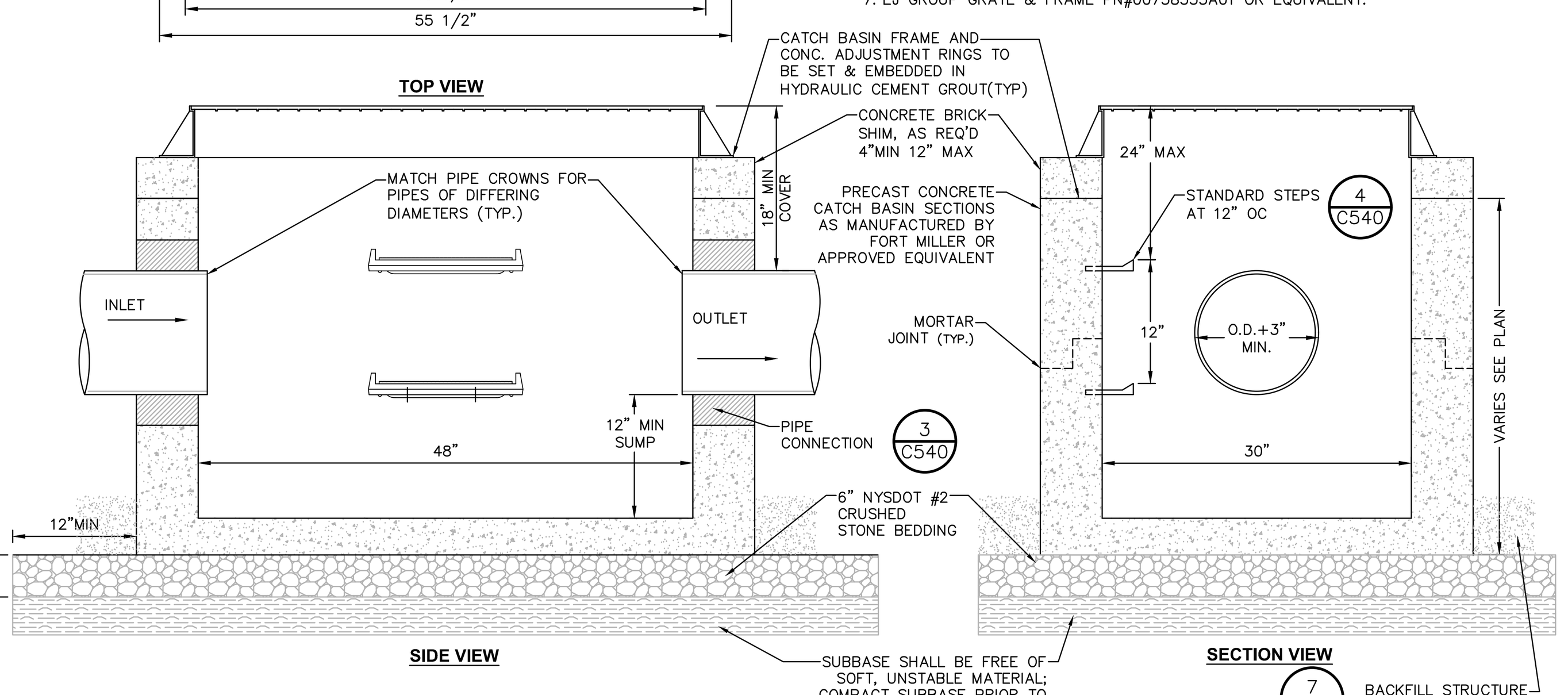
IN NON-TRAFFIC UNPAVED AREAS TRENCH BACKFILL CAN BE MATERIALS EXCAVATED FROM THE TRENCH AS APPROVED BY THE ENGINEER AND COMPACTED TO 90% MODIFIED PROCTOR.

3. INSTALL CONTINUOUS DETECTABLE MARKING TAPE DURING BACKFILLING OF TRENCH FOR UNDERGROUND PIPING. LOCATE TAPE 12" BELOW FINISHED GRADE, DIRECTLY OVER PIPING, EXCEPT 6" BELOW SUBGRADE UNDER PAVEMENTS & SLAB.
4. TRENCHING SHALL BE IMPLEMENTED IN ACCORDANCE WITH O.S.H.A. STANDARDS.
5. 5'-0" MIN COVER SHALL BE APPLIED TO WATER MAIN OR SANITARY SEWER FORCE MAINS ONLY.

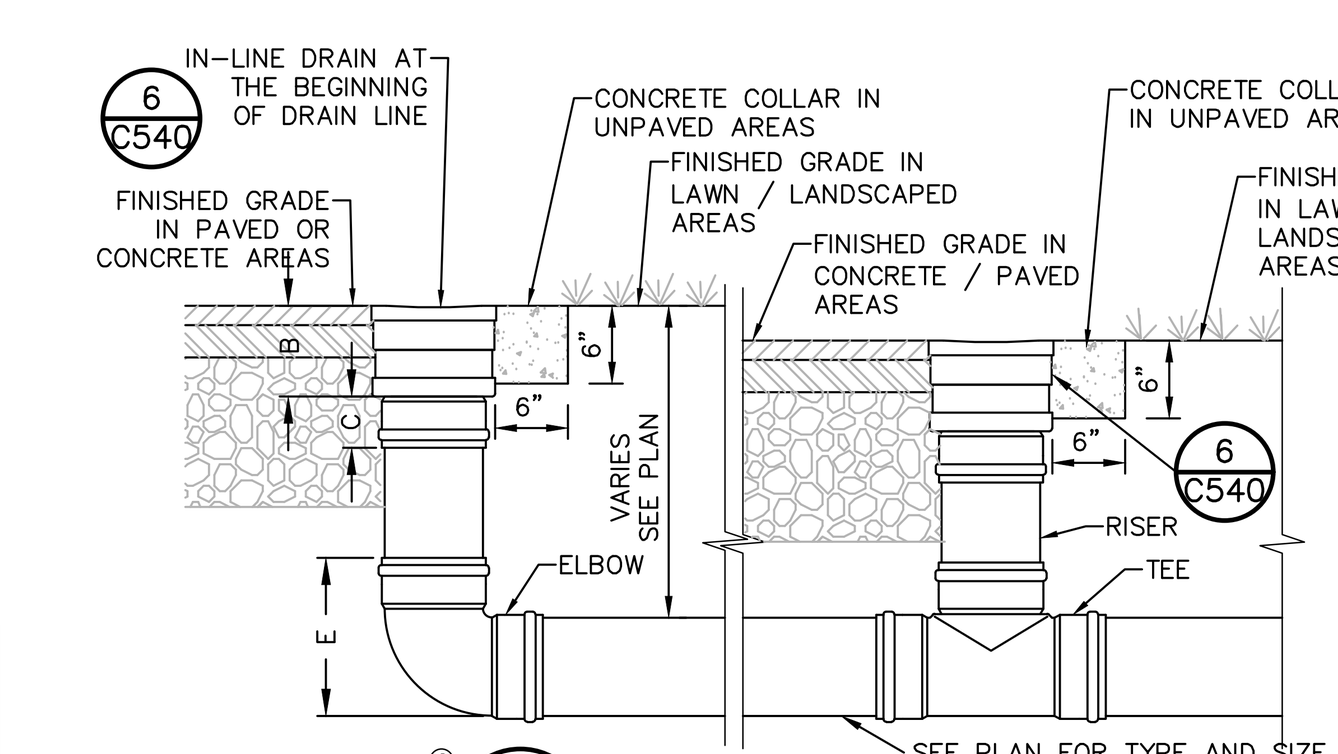
© 7 **PIPE TRENCH DETAIL (TYPICAL)**
SCALE: NOT TO SCALE



NOTES:
1. CATCH BASIN SHALL BE PRECAST CONCRETE. DESIGNED FOR HS20-44 VEHICULAR LOADING AND 25% IMPACT.
2. FRAME AND COVER SHALL BE DESIGNED FOR HS20-44 VEHICULAR LOADING & 25% IMPACT.
3. CONCRETE CATCH BASIN CASTING CLEAR OPENING DIMENSION MUST MATCH FRAME AND GRATE CLEAR OPENING DIMENSION.
4. CATCH BASINS HAVING A DEPTH GREATER THAN 48" FROM FINISHED SURFACE TO THE TOP OF THE CONCRETE BASE SHALL BE PROVIDED WITH STEPS.
5. BACKFILL USING TRENCH BACKFILL, COMPACTED IN 6" LIFTS.
6. SUMPS FOR CATCH BASINS SHALL BE 12".
7. EJ GROUP GRATE & FRAME PN#00758535A01 OR EQUIVALENT.



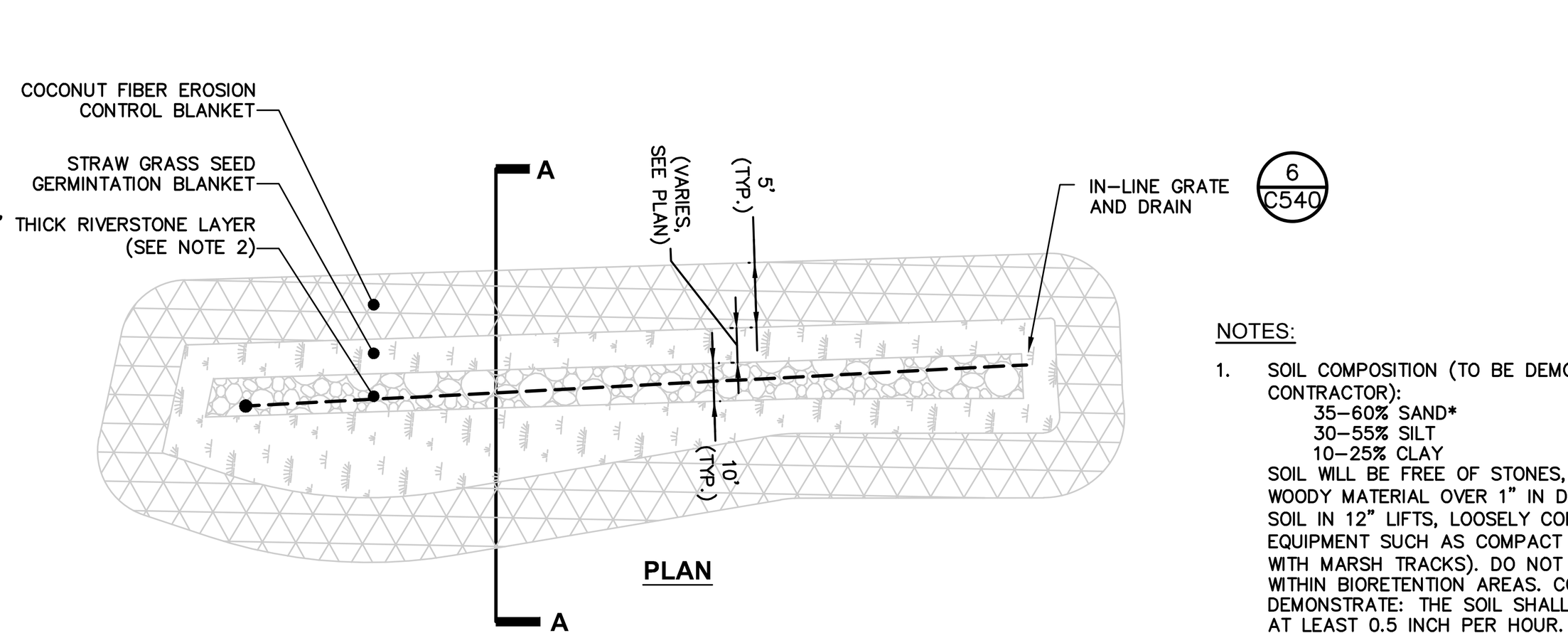
© 8 **PRECAST CONCRETE RECTANGULAR CATCH BASIN DETAIL**
SCALE: NOT TO SCALE



IN-LINE DRAIN DIMENSIONS

BODY	ADAPTOR	B	C	E	MIN INV DEPTH
8"	6"	5.25"	4.21"	12.75"	2'-0"
8"	8"	7.25"	5.25"	13.25"	2'-2"
10"	6"	8.75"	4.21"	12.75"	2'-2"
10"	8"	6.50"	5.25"	13.25"	2'-2"
10"	10"	7.75"	6.08"	21.75"	3'-0"
12"	6"	11.50"	4.21"	12.75"	2'-6"
12"	8"	11.50"	5.25"	13.25"	3'-0"
12"	10"	11.25"	6.08"	21.75"	3'-4"
12"	12"	6.00"	6.45"	23.50"	3'-6"

© 9 **YARD IN-LINE DRAIN**
SCALE: NOT TO SCALE



NOTES:

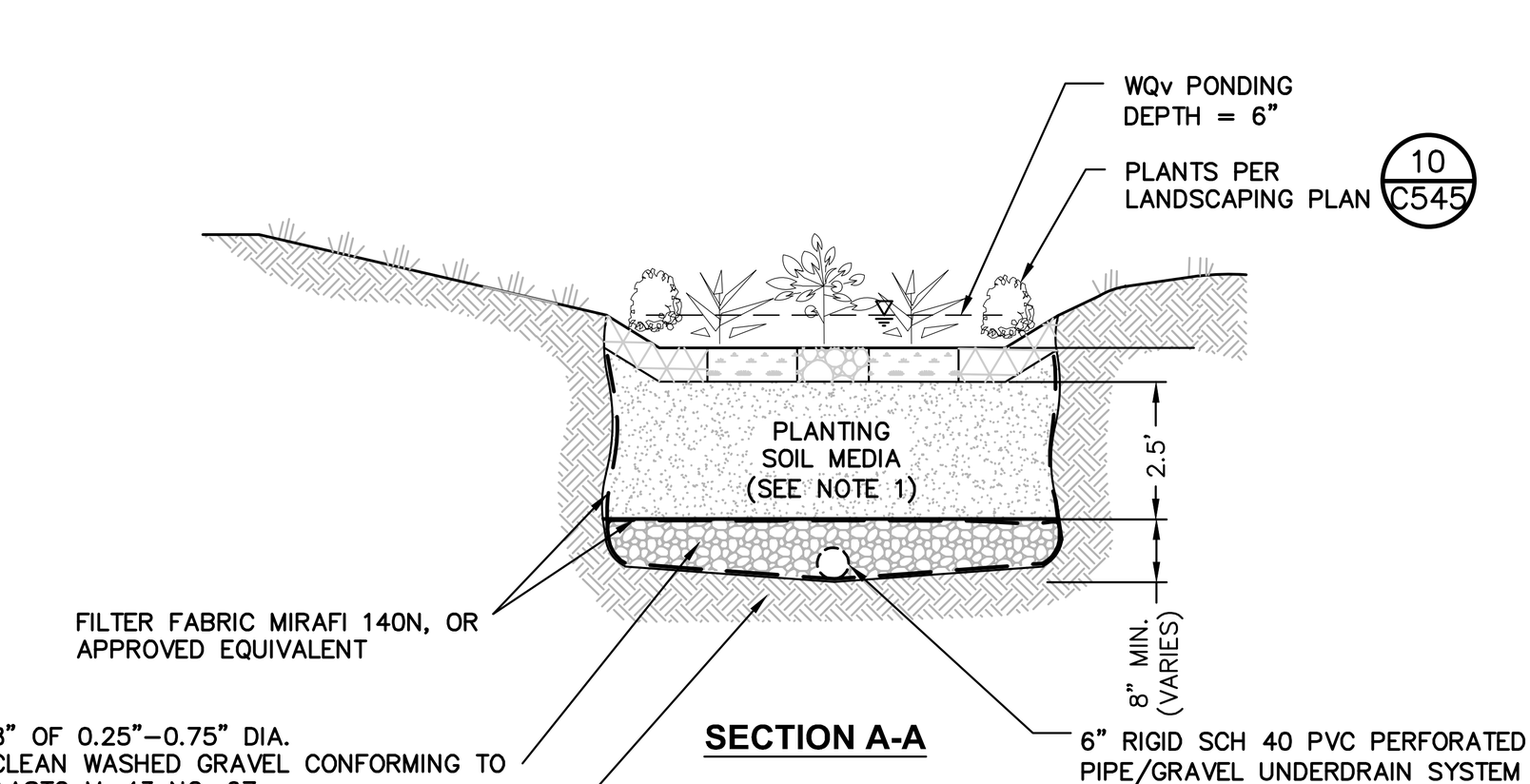
1. SOIL COMPOSITION (TO BE DEMONSTRATED BY CONTRACTOR):
   35-60% SAND*
   30-55% SILT
   10-25% CLAY
   SOIL WILL BE FREE OF STONES, STUMPS, ROOTS, OR OTHER WOODY MATERIAL OVER 1" IN DIAMETER. PLACE PLANTING SOIL IN 12" LIFTS, LOOSELY COMPACTED (USE LIGHT EQUIPMENT SUCH AS COMPACT LOADER OR DOZER/LOADER WITH MARSH TRACKS). DO NOT USE HEAVY EQUIPMENT WITHIN BIORETENTION AREAS. CONTRACTOR TO DEMONSTRATE: THE SOIL SHALL HAVE A PERMEABILITY OF AT LEAST 0.5 INCH PER HOUR.

   * SAND SUBSTITUTION SUCH AS DIABASE, GRAYSTONE #10, OR ROCK DUST ARE NOT ACCEPTABLE. NO CALCIUM CARBONATE OR DOLOMITIC SAND SUBSTITUTIONS ARE ACCEPTABLE.
2. RIVER STONE; SHALL CONFORM TO NYSDOT SECTION 620-29
3. UNDERDRAIN PIPING TO BE IN ACCORDANCE WITH ASTM D1785 OR AASHTO M-278. PIPE TO HAVE 3/8" PERFORATIONS AT 6 INCHES ON CENTER, 4 HOLES PER ROW.
4. CONTRACTOR SHALL DEMONSTRATE: SOIL FOR EACH BIORETENTION AREA SHALL MEET THE FOLLOWING CRITERIA:

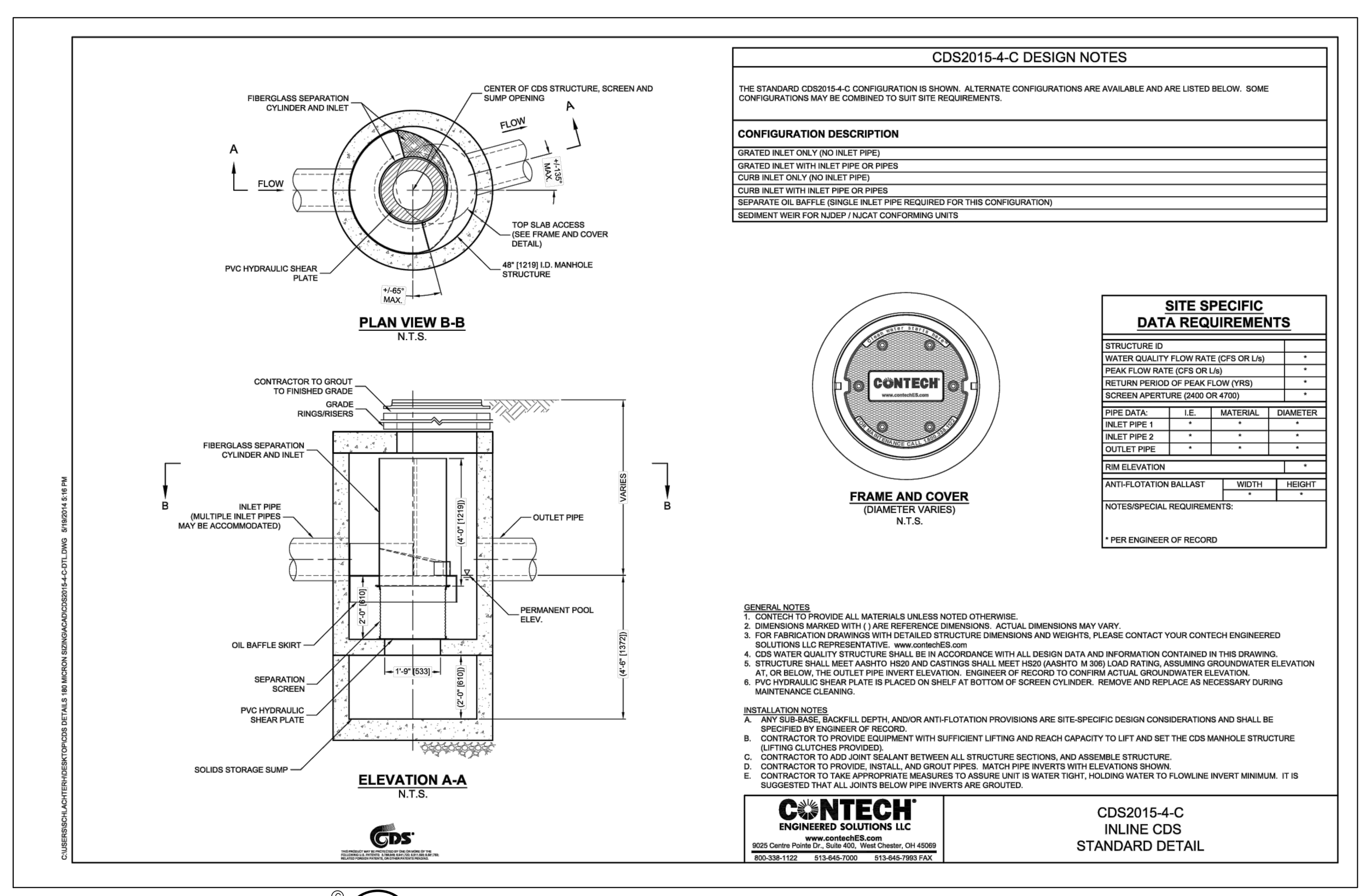
PH RANGE**	5.2 - 7.0
ORGANIC MATTER	1.5-4%
MAGNESIUM	35 LBS/ACRE
PHOSPHOROUS	75 LBS/ACRE
POTASSIUM	85 LBS/ACRE
SOLUBLE SALTS	NOT TO EXCEED 500 PPM

** IF PH FALLS OUT OF ACCEPTABLE RANGE, PH OF SOIL MAY BE MODIFIED WITH LIME (HIGHER PH), OR WITH WITH IRON SULFATE PLUS SULFUR (LOWER PH).

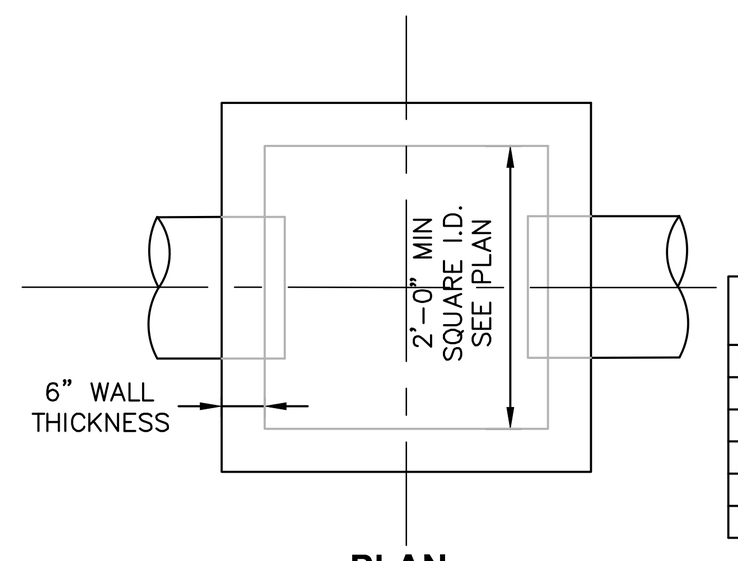
5. BIORETENTION AREA TO BE SURROUNDED WITH SILT FENCE DURING CONSTRUCTION. ONCE UPSTREAM AREA IS STABILIZED, SILT FENCE TO BE REMOVED AS APPROVED BY PROJECT ENGINEER.



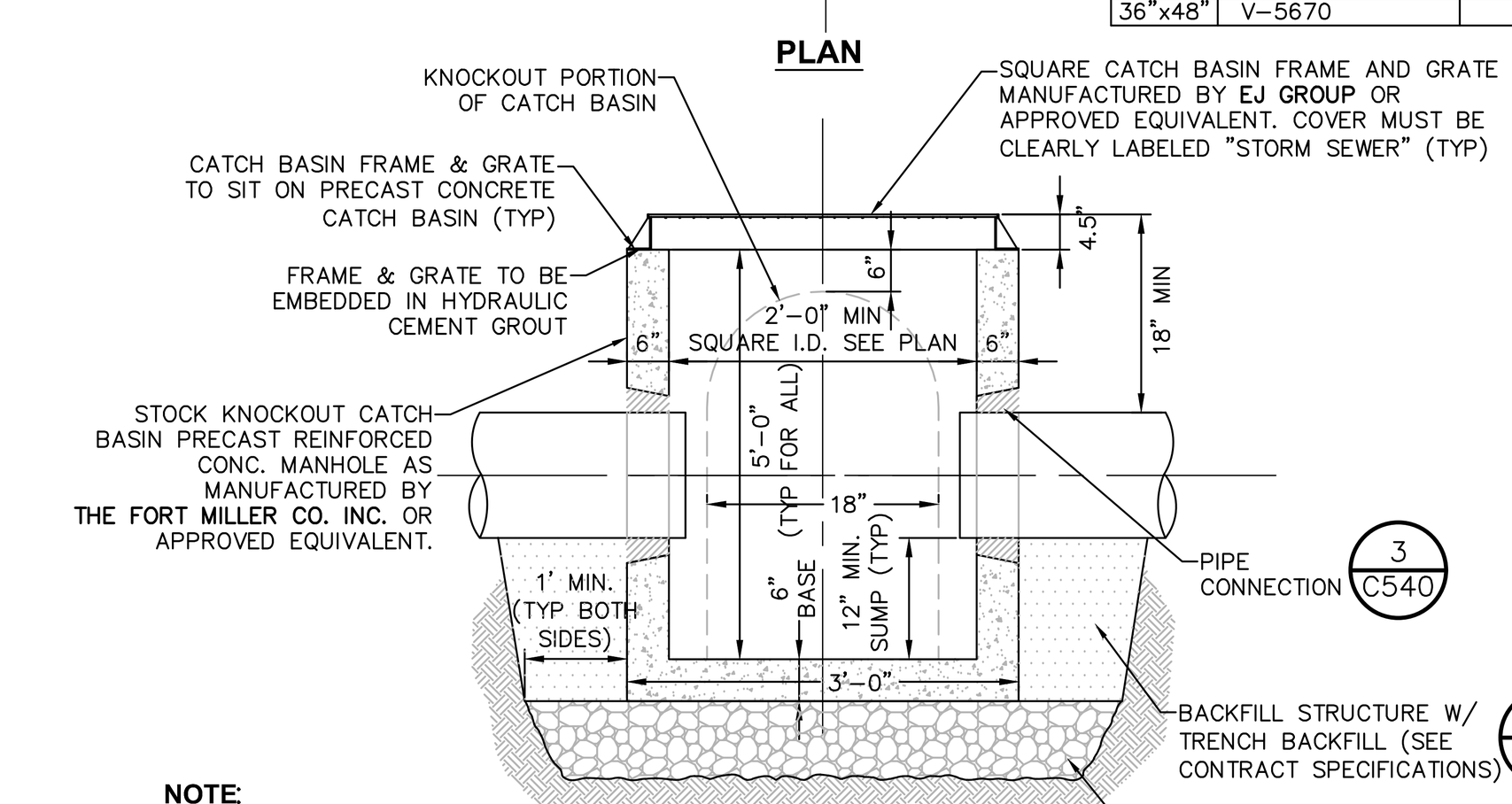
© 10 **TYPICAL BIORETENTION AREA DETAIL**
SCALE: NOT TO SCALE



11 **CONTECH HYDRODYNAMIC SEPARATOR 2015-4-C**
SCALE: NOT TO SCALE



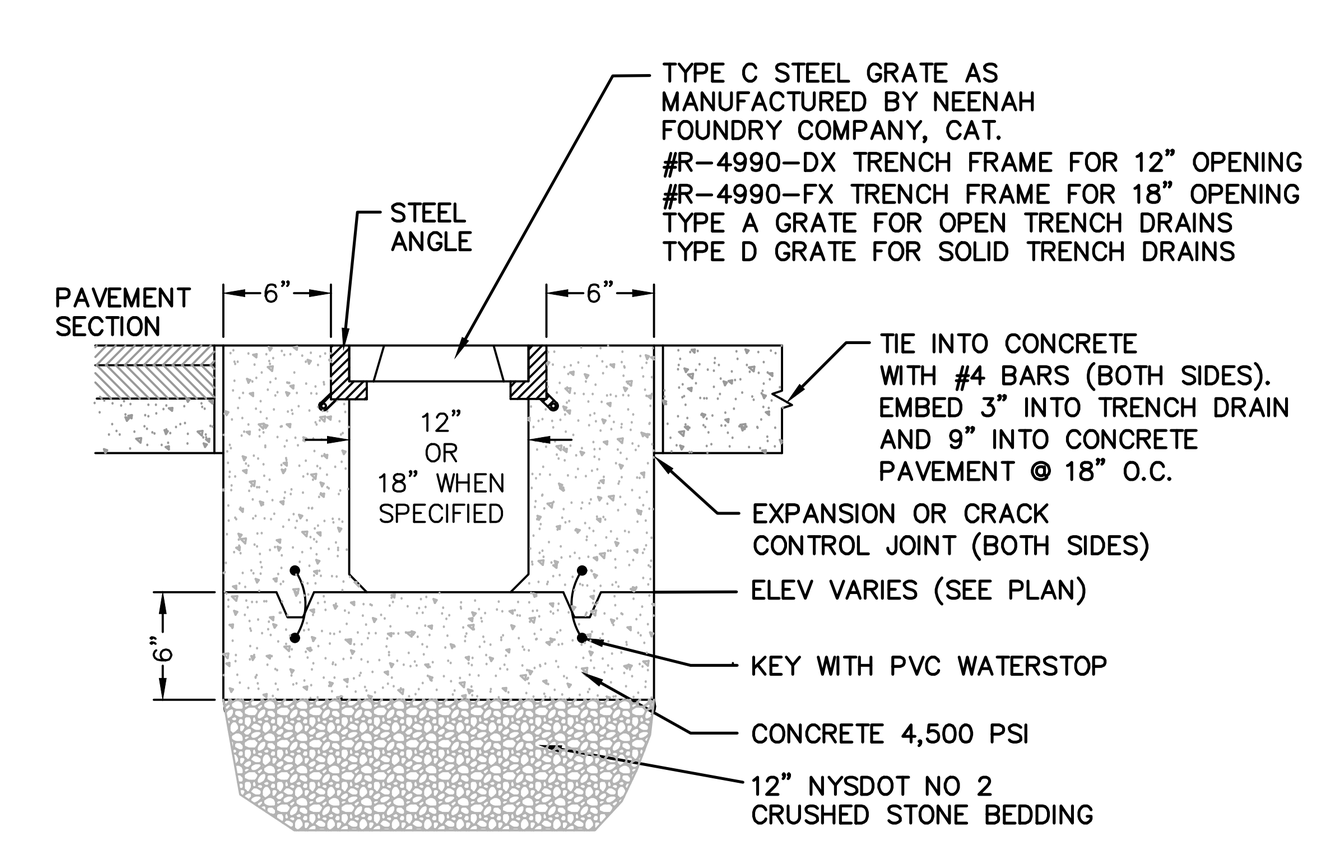
NY	FRAME & GRATE PART NUMBER	ACCESSIBLE GRATE OPTION
24"x24"	V-5624	V-5624-80
30"X30"	V-5630	V-5630-80
30"x36"	V-5668	
30"x48"	V-5669	
36"x36"	V-5636	V-5636-80
36"x48"	V-5670	



NOTE:
ALL PRECAST CONSTRUCTION IN ACCORDANCE W/ ASTM C478

NOTES:
1. CATCH BASIN INLET BASINS SHALL BE PRECAST CONCRETE. DESIGNED FOR HS20-44 VEHICULAR LOADING + 25% IMPACT AS MANUFACTURED BY FORT MILLER OR APPROVED EQUAL.
2. CATCH BASIN SHALL NOT HAVE A DEPTH GREATER THAN 60" FROM FINISHED SURFACE.
3. BACKFILL USING TRENCH BACKFILL, COMPACTED IN 6" LIFTS.
4. MAX STORM SEWER PIPE FOR SHALLOW 2' CATCH BASIN IS 15"

© 12 **PRECAST CONCRETE SHALLOW CATCH BASIN DETAIL**
SCALE: NOT TO SCALE



NOTES:
1. DEPTH OF TRENCH DRAINS VARY. SEE GRADING AND DRAINAGE PLAN FOR DIMENSIONS OF EACH INDIVIDUAL TRENCH DRAIN.
2. ALL GRATES SHALL BE "BICYCLE SAFETY" APPROVED.
3. PROVIDE HORIZONTAL OUTLET END PLATES AT DOWNSTREAM END OF EACH TRENCH DRAIN.

© 13 **TRENCH DRAIN DETAIL**
SCALE: NOT TO SCALE

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CERTIFICATE OF AUTHORIZATION NUMBER:
PROFESSIONAL ENGINEERING: 018281
LAND SURVEYING: 017976
GEOLOGICAL: 018750

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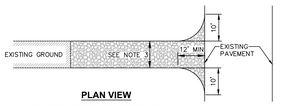
NO:	DATE:	DESCRIPTION:
Revisions		

PROJECT NUMBER: CZ81750.00
DRAWN BY: CJL
REVIEWED BY: KGA
ISSUED FOR: ISSUED FOR PLANNING BOARD APPROVAL
DATE: 02/14/24
DRAWING NAME:

STORM SEWER DETAILS

DRAWING NUMBER:

C540

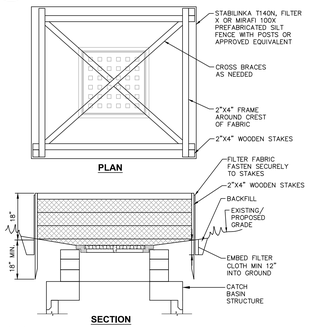


PLAN VIEW

CONSTRUCTION ENTRANCE SPECIFICATIONS:

1. STONE SIZE – USE 2" STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
2. THICKNESS – NOT LESS THAN SIX (6) INCHES.
3. WIDTH – TWELVE (12) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. TWENTY FOUR (24) FEET IF SINGLE ENTRANCE TO SITE.
4. LENGTH – NOT LESS THAN 50' (EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30' MINIMUM LENGTH WOULD APPLY).
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 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 RIGHTS-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 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. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.

① STABILIZED CONSTRUCTION ENTRANCE DETAIL
SCALE: NOT TO SCALE

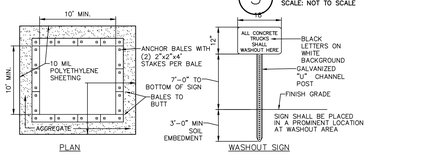


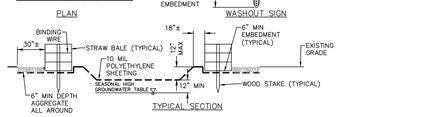
NOTES:

1. FILTER FABRIC SHALL HAVE AN EOS OF 40–85.
2. CUT FABRIC FROM CONTINUOUS ROLL TO ELIMINATE JOINTS. IF JOINTS ARE NEEDED, OVERLAP TO THE NEXT STAKE.
3. STAKE MATERIALS WILL BE STANDARD 2"x4" WOOD OR EQUIVALENT, WITH A MINIMUM LENGTH OF 3 FEET.
4. SPACE STAKES EVENLY AROUND INLET 3 FEET APART AND DRIVE MINIMUM 18" DEEP. SPANS GREATER THAN 3 FEET MAY BE BRIDGED WITH THE USE OF WIRE MESH BEHIND FABRIC FOR SUPPORT.
5. FABRIC SHALL BE EMBEDDED 1 FOOT MINIMUM BELOW GROUND AND BACKFILLED. IT SHALL BE SECURELY FASTENED TO THE STAKES AND FRAME.
6. A 2"x4" WOOD FRAME SHALL BE COMPLETED AROUND THE CREST OF THE FABRIC FOR OVERFLOW STABILITY.
7. MAXIMUM DRAINAGE AREA IS 1 ACRE.
8. INLET PROTECTION SHALL REMAIN IN–PLACE UNTIL SITE HAS BEEN STABILIZED.
9. ONCE BINDER COURSE IS PLACED INLET PROTECTION SHALL BE PROVIDED IN ACCORDANCE WITH DETAIL 6, SHEET SD3, "CATCH BASIN STONE AND BLOCK INLET PROTECTION."

OUT-OF PAVEMENT

③ INLET PROTECTION DETAIL
SCALE: NOT TO SCALE

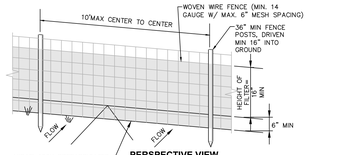




NOTES:

1. CONTAINMENT MUST BE STRUCTURALLY SOUND AND LEAK FREE AND CONTAIN ALL LIQUID WASTES.
2. CONTAINMENT DEVICES MUST BE OF SUFFICIENT QUANTITY OR VOLUME TO COMPLETELY CONTAIN THE LIQUID WASTES GENERATED.
3. WASHOUT MUST BE CLEANED OR NEW FACILITIES CONSTRUCTED AND READY TO USE ONCE WASHOUT IS 75% FULL. THIS INCLUDES REPLACEMENT OF THE 10 MIL POLYETHYLENE SHEETING.
4. WASHOUT AREA(S) SHALL BE INSTALLED IN A LOCATION EASILY ACCESSIBLE BY CONCRETE TRUCKS.
5. ONE OR MORE AREAS MAY BE INSTALLED ON THE CONSTRUCTION SITE AND MAY BE RELOCATED AS CONSTRUCTION PROGRESSES.
6. AT LEAST WEEKLY, REMOVE ACCUMULATION OF SAND AND AGGREGATE AND DISPOSE OF PROPERLY.

④ CONCRETE WASHOUT AREA DETAIL
SCALE: NOT TO SCALE

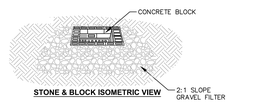


NOTES:

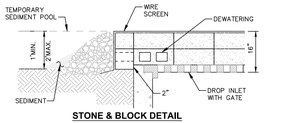
1. WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES. POSTS SHALL BE STEEL "T" OR "L" TYPE OR HARDWOOD.
2. FILTER FABRIC TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION. FENCE SHALL BE WOVEN WIRE, 6" MAX MESH OPENING.
3. WHEN TWO SECTIONS OF FILTER FABRIC ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED BY 6" AND FOLDED.
4. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIALS REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.
5. MAXIMUM DRAINAGE AREA FOR OVERLAND FLOW TO A SILT FENCE SHALL NOT EXCEED 1/4 ACRE PER 100 FEET OF FENCE.
6. SILT FENCE SHALL BE USED WHERE EROSION COULD OCCUR IN THE FORM OF SHEET EROSION.
7. SILT FENCE SHALL NOT BE USED WHEN A CONCENTRATION OF WATER IS FLOWING TO THE BARRIER.
8. MAXIMUM ALLOWABLE SLOPE LENGTHS CONTRIBUTING RUN–OFF TO A SILT FENCE ARE:

SLOPE STEEPNESS	MAXIMUM SLOPE LENGTH(FT)
2:1	25
3:1	50
4:1	75
5:1 OR FLATTER	100

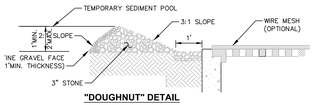
② SILT FENCE INSTALLATION DETAIL
SCALE: NOT TO SCALE



STONE & BLOCK ISOMETRIC VIEW



STONE & BLOCK DETAIL

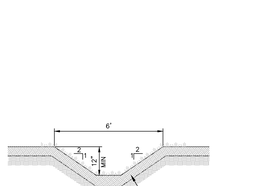


"DOUGHNUT" DETAIL

CONSTRUCTION SPECIFICATIONS:

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.
5. MAXIMUM DRAINAGE AREA IS 1 ACRE.

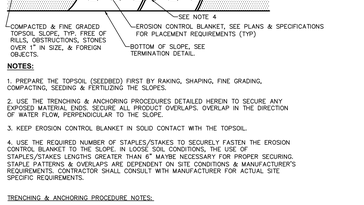
IN PAVEMENT



NOTES:

1. MINIMUM DEPTH OF SWALE SHALL BE 12".
2. SWALE SHALL BE AT LEAST 6 FEET WIDE AT TOP.
3. SWALE SHALL BE SEEDED AND MULCHED WITH FAST GERMINATING RYE 15 LBS. TO 25 LBS. PER 1,000 SQ. FT.
4. SLOPE OF SWALE SHALL BE MINIMUM 2%

⑥ TEMPORARY GRASS LINED DIVERSION SWALE DETAIL
SCALE: NOT TO SCALE



NOTES:

1. PREPARE THE TOPSOIL (SEEDBED) FIRST BY RAKING, SHAPING, FINE GRADING, COMPACTING, SEEDING & FERTILIZING THE SLOPES.
2. USE THE TRENCHING & ANCHORING PROCEDURES DETAILED HEREIN TO SECURE ANY EXPOSED MATERIAL ENDS. SECURE ALL PRODUCT OVERLAPS. OVERLAP IN THE DIRECTION OF WATER FLOW, PERPENDICULAR TO THE SLOPE.
3. KEEP EROSION CONTROL BLANKET IN SOLID CONTACT WITH THE TOPSOIL.
4. USE THE REQUIRED NUMBER OF STAPLES/STAKES TO SECURELY FASTEN THE EROSION CONTROL BLANKET TO THE SLOPE. IN LOOSE SOIL CONDITIONS, THE USE OF STAPLES/STAKES LENGTHS GREATER THAN 6" MAYBE NECESSARY FOR PROPER SECURING. STAPLE PATTERNS & OVERLAPS ARE DEPENDENT ON SITE CONDITIONS & MANUFACTURER'S REQUIREMENTS. CONTRACTOR SHALL CONSULT WITH MANUFACTURER FOR ACTUAL SITE SPECIFIC REQUIREMENTS.

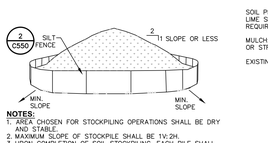
TRENCHING & ANCHORING PROCEDURE NOTES:

SIDE SEAM OVERLAP– THE EDGES OF PARALLEL BLANKETS SHALL BE STAPLED WITH A 5" OVERLAP.

TOP OF SLOPE TRENCH– BEGIN AT THE TOP OF SLOPE BY ANCHORING THE EROSION CONTROL BLANKET IN A 6"D x 6"W TRENCH WITH A 12" OVERLAP EXTENDED BEYOND THE UP–SLOPE PORTION OF THE TRENCH. ANCHOR WITH A ROW OF STAPLES/STAKES 12" O.C. IN THE BOTTOM OF THE TRENCH. BACKFILL & COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO THE COMPACTED SOIL & FOLD THE REMAINING 12" PORTION OF THE EROSION CONTROL BLANKET BACK OVER THE SEED & COMPACTED SOIL. SECURE THE EROSION CONTROL BLANKET OVER THE COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED 12" O.C. ACROSS THE ENTIRE WIDTH.

END ROLL OVERLAP– CONSECUTIVE BLANKETS SPLICED DOWN THE SLOPE SHALL BE PLACED END OVER END (SHINGLE–STYLE) WITH A 3" OVERLAP. STAPLE THRU OVERLAPPED AREAS, 12" APART ACROSS THE ENTIRE WIDTH.

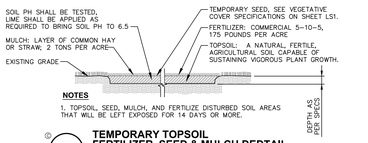
⑧ EROSION CONTROL BLANKET INSTALLATION DETAIL
SCALE: NTS



NOTES:

1. AREA CHOSEN FOR STOCKPILING OPERATIONS SHALL BE DRY AND STABLE.
2. MAXIMUM SLOPE OF STOCKPILE SHALL BE 1V:2H.
3. UPON COMPLETION OF SOIL STOCKPILING, EACH PILE SHALL BE SURROUNDED WITH SILT FENCING, THEN STABILIZED WITH VEGETATION OR COVERED.
4. SEE SPECIFICATIONS FOR INSTALLATION OF SILT FENCE.

⑤ TEMPORARY SOIL STOCKPILE DETAIL
SCALE: NOT TO SCALE



NOTES

1. TOPSOIL, SEED, MULCH, AND FERTILIZE DISTURBED SOIL AREAS THAT WILL BE LEFT EXPOSED FOR 14 DAYS OR MORE.

⑦ TEMPORARY TOPSOIL FERTILIZER, SEED & MULCH DEDTAIL
SCALE: NOT TO SCALE

SPDES GENERAL PERMIT GP-0-15-002 COMPLIANCE NOTES:

HAVE BEEN SUBMITTED AS A SET. THESE ENGINEERING DRAWINGS ARE CONSIDERED AN INTEGRAL PART OF THE SWPPP, THEREFORE THE PLAN SET IS NOT CONSIDERED COMPLETE WITHOUT THE SWPPP.

1. THIS PROJECT HAS REQUESTED WRITTEN APPROVAL FROM **(INSERT NYSDEC OR MUNICIPALITY OF MS4)** ALLOWING THE DISTURBANCE OF MORE THAN FIVE (5) ACRES OF LAND AT ANY ONE TIME. CONTRACTOR SHALL NOT DISTURB MORE THAN FIVE (5) ACRES UNTIL SUCH TIME THAT THE WAIVER IS GRANTED AND WRITTEN AUTHORIZATION IS RECEIVED FROM NYSDEC.

CONSTRUCTION SEQUENCING NOTES:

1. PRIOR TO COMMENCING ANY CLEARING, GRUBBING, EARTHWORK ACTIVITIES, ETC.AT THE SITE, THE CONTRACTOR SHALL FLAG THE WORK LIMITS AND SHALL INSTALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES (I.E. SILT FENCES, TREE PROTECTION/BARRIER FENCES, STABILIZED CONSTRUCTION ENTRANCES, STORM DRAIN SEDIMENT FILTERS, DRAINAGE DITCH SEDIMENT FILTERS, ETC.) INDICATED ON THE PROJECT DRAWINGS. TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES MUST BE CONSTRUCTED, STABILIZED, AND FUNCTIONAL BEFORE SITE DISTURBANCE BEGINS WITHIN THEIR TRIBUTARY AREAS.
2. THE CONTRACTOR SHALL CLEAR AND GRUB THE AREA OF THE STORMWATER MANAGEMENT FACILITIES. THIS AREA SHALL NOT EXCEED FIVE (5) ACRES IN EXTENT WITHOUT TEMPORARY STABILIZATION.
3. PRIOR TO COMMENCING CLEARING, GRUBBING AND/OR EARTHWORK ACTIVITIES IN ANY OTHER AREA OF THE SITE, THE CONTRACTOR SHALL INSTALL INLET AND OUTLET PROTECTION MEASURES (RIPRAP OVERFLOW WEIR(S), CULVERT INLET/OUTLET PROTECTION, ETC.) AND SHALL STABILIZE THE AREAS DISTURBED DURING THE CONSTRUCTION OF THE SEDIMENT BASIN.
4. THE CONTRACTOR SHALL INSTALL TEMPORARY DIVERSION MEASURES WITH ASSOCIATED STABILIZATION MEASURES (I.E., VEGETATIVE COVER, DRAINAGE DITCH SEDIMENT FILTERS, STORM DRAIN SEDIMENT FILTERS, ETC.)TO ASSURE THAT STORMWATER RUNOFF IS CONVEYED TO THE TEMPORARY SEDIMENT BASIN.
5. TEMPORARY DIVERSION MEASURES SHALL BE LOCATED IN A MANNER THAT WILL ASSURE THAT ANY AREA TRIBUTARY TO EACH DIVERSION DOES NOT EXCEED FIVE (5) ACRES. THESE TEMPORARY DIVERSION MEASURES SHALL BE INSPECTED DAILY AND REPAIRED/STABILIZED AS NECESSARY TO MINIMIZE EROSION.
6. THE CONTRACTOR SHALL COMMENCE SITE CONSTRUCTION ACTIVITIES INCLUDING CLEARING & GRADING OF THE PROPOSED AREA OF DISTURBANCE AS REQUIRED.
7. INSTALL PROTECTIVE MEASURES AT THE LOCATIONS OF ALL GRATE INLETS, CURB INLETS, AND AT THE ENDS OF ALL EXPOSED STORM SEWER PIPES.
8. CONSTRUCT ALL UTILITIES, CURB AND GUTTER, GUTTER INLETS, AREA INLETS, AND STORM SEWER MANHOLES, AS SHOWN ON THE PLANS. INLET PROTECTION MAY BE REMOVED TEMPORARILY FOR THIS CONSTRUCTION. PLACE REQUIRED RIP–RAP AT LOCATIONS SHOWN ON THE PLANS.
9. FINALIZE PAVEMENT SUB–GRADE PREPARATION.
10. REMOVE PROTECTIVE MEASURES AROUND INLETS AND MANHOLES NO MORE THAN 24 HOURS PRIOR TO PLACING STABILIZED BASE COURSE.
11. INSTALL SUB–BASE MATERIAL AS REQUIRED FOR PAVEMENT.
12. PRIOR TO FINALIZING CONSTRUCTION OF THE STORMWATER MANAGEMENT FACILITY, ALL CATCH BASINS AND DRAINAGE LINES SHALL BE CLEANED OF ALL SILT AND SEDIMENT.
13. UPON COMPLETION OF SITE CONSTRUCTION ACTIVITIES, THE CONTRACTOR SHALL FINALIZE CONSTRUCTION OF THE STORMWATER MANAGEMENT FACILITY. CONTRACTOR SHALL FINISH GRADE THE FORBAY(S), AQUATIC BENCHES, AND WET POOL(S) AND STABILIZE AS INDICATED IN THE PROJECT DRAWINGS.
14. THE CONTRACTOR SHALL REMOVE ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES AND IMMEDIATELY ESTABLISH PERMANENT VEGETATION ON THE AREAS DISTURBED DURING THEIR REMOVAL.

EROSION AND SEDIMENT CONTROL MEASURES:

1. DAMAGE TO SURFACE WATERS RESULTING FROM EROSION AND SEDIMENTATION SHALL BE MINIMIZED BY STABILIZING DISTURBED AREAS AND BY REMOVING SEDIMENT FROM CONSTRUCTION SITE DISCHARGES.
2. AS MUCH AS IS PRACTICAL, EXISTING VEGETATION SHALL BE PRESERVED, FOLLOWING THE COMPLETION OF CONSTRUCTION ACTIVITIES IN ANY PORTION OF THE SITE, PERMANENT VEGETATION SHALL BE ESTABLISHED ON ALL EXPOSED SOILS.
3. SITE PREPARATION ACTIVITIES SHALL BE PLANNED TO MINIMIZE THE SCOPE AND DURATION OF SOIL DISRUPTION.
4. PERMANENT TRAFFIC CORRIDORS SHALL BE ESTABLISHED AND "ROUTES OF CONVENIENCE" SHALL BE AVOIDED. STABILIZED CONSTRUCTION ENTRANCES SHALL BE INSTALLED AT ALL POINTS OF ENTRY ONTO THE PROJECT SITE.

MAINTENANCE OF EROSION AND SEDIMENT CONTROL MEASURES:

PERMANENT AND TEMPORARY VEGETATION:
INSPECT ALL AREAS THAT HAVE RECEIVED VEGETATION EVERY SEVEN DAYS & AFTER EVERY RAIN EVENT. 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 & AFTER EVERY RAIN EVENT. CHECK FOR MUD, SEDIMENT BUILD–UP AND PAD INTEGRITY. MAKE DAILY INSPECTIONS DURING WET WEATHER. RESHAPE PAD AS NEEDED FOR DRAINAGE AND 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.

SILT FENCE:
INSPECT FOR DAMAGE EVERY SEVEN DAYS & AFTER EVERY RAIN EVENT. MAKE ALL REPAIRS IMMEDIATELY. REMOVE SEDIMENT FROM THE UP–SLOPE FACE OF THE FENCE BEFORE IT ACCUMULATES TO A HEIGHT EQUAL TO 1/3 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 OR HAY BALE) AND VEGETATION FOR DAMAGE EVERY SEVEN DAYS & AFTER EVERY RAIN EVENT. MAKE ALL REPAIRS IMMEDIATELY. REMOVE SEDIMENT FROM THE UP–SLOPE FACE OF THE SEDIMENT CONTROL BARRIER BEFORE IT ACCUMULATES TO A HEIGHT EQUAL TO 1/3 THE HEIGHT OF THE SEDIMENT CONTROL BARRIER. IF SEDIMENT CONTROL BARRIER TEARS, BEGINS TO DECOMPOSE, OR IN ANYWAY BECOMES INEFFECTIVE, REPLACE THE AFFECTED SECTION OF SEDIMENT CONTROL BARRIER IMMEDIATELY. REVEGETATE DISTURBED AREA TO STABILIZE SOIL STOCK PILE. 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 WORK. APPLY TEMPORARY SOIL STABILIZATION PRACTICES SUCH AS MULCHING, SODDING, AND SPRAYING (WATER). STRUCTURAL MEASURES (MULCH, SEEDING) SHALL BE INSTALLED IN DISTURBED AREAS BEFORE SIGNIFICANT PROBLEMS DEVELOP. WATER SHALL BE SPRAYED AS NEEDED. REPEAT AS NEEDED, BUT AVOID EXCESSIVE SPRAYING, WHICH COULD CREATE RUNOFF AND EROSION PROBLEMS.

EROSION CONTROL BLANKET:
INSPECT THE BLANKET EVERY SEVEN DAYS & AFTER EVERY RAIN EVENT. 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.

TEMPORARY SWALE:
INSPECT ALL EARTH DIKES EVERY SEVEN DAYS & AFTER EVERY RAIN EVENT. ALL AREAS DAMAGED BY EROSION SHALL BE REPAIRED IMMEDIATELY.

STORM DRAIN INLET PROTECTION:
INSPECT ALL STORM DRAIN INLET PROTECTION DEVICES EVERY SEVEN DAYS & AFTER EVERY RAIN EVENT. MAKE REPAIRS AS NEEDED, REMOVE SEDIMENT FROM THE POOL AREA AS NECESSARY.

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 CONSTRUCT NEW PITS AS NEEDED.

SNOW AND ICE CONTROL:
PARKING LOTS, ROADWAYS, AND DRIVEWAYS ADJACENT TO WATER QUALITY FILTERS SHALL NOT BE SANDED DURING SNOW EVENTS DUE TO HIGH POTENTIAL FOR CLOGGING FROM SAND IN SURFACE WATER RUNOFF. USE SALT ONLY FOR SNOW AND ICE CONTROL.

GENERAL EROSION AND SEDIMENT CONTROL NOTES:

1. ALL EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE IN STRICT COMPLIANCE WITH "NEW YORK STATE STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL", NOVEMBER 2016.
2. EXCESS SOIL TO BE STOCKPILED WITHIN THE LIMITS OF SITE DISTURBANCE IF NOT USED IMMEDIATELY FOR GRADING PURPOSES. INSTALL SILT FENCE AROUND SOIL STOCKPILES.
3. APPLY SURFACE STABILIZATION AND RESTORATION MEASURES. AREAS UNDERGOING CLEARING OR GRADING AND ANY AREAS DISTURBED BY CONSTRUCTION ACTIVITIES WHERE WORK IS DELAYED, SUSPENDED, OR INCOMPLETE AND WILL NOT BE REDISTURBED FOR 21 DAYS OR MORE SHALL BE STABILIZED WITH TEMPORARY VEGETATIVE COVER WITHIN 14 DAYS AFTER CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS CEASED. (SEE SPECIFICATIONS FOR TEMPORARY VEGETATIVE COVER). AREAS UNDERGOING CLEARING OR GRADING AND ANY AREAS DISTURBED BY CONSTRUCTION ACTIVITIES WHERE WORK IS COMPLETE AND WILL NOT BE REDISTURBED SHALL BE STABILIZED AND RESTORED WITH PERMANENT VEGETATIVE COVER AS SOON AS SITE AREAS ARE AVAILABLE AND WITHIN 14 DAYS AFTER WORK IS COMPLETE. (SEE SPECIFICATIONS FOR PERMANENT VEGETATIVE COVER). SEEDING FOR PERMANENT VEGETATIVE COVER SHALL BE WITHIN THE SEASONAL LIMITATIONS. PROVIDE STABILIZATION WITH TEMPORARY VEGETATIVE COVER WITHIN 14 DAYS AFTER WORK IS COMPLETE, FOR SEEDING OUTSIDE PERMITTED SEEDING PERIODS.
4. SEEDED AREAS TO BE MULCHED WITH STRAW OR HAY MULCH IN ACCORDANCE WITH VEGETATIVE COVER SPECIFICATIONS.
5. THE CONTRACTOR IS RESPONSIBLE FOR THE INSTALLATION AND MAINTENANCE OF ALL EROSION AND SEDIMENT CONTROL MEASURES THROUGHOUT THE COURSE OF CONSTRUCTION.
6. THE CONTRACTOR IS RESPONSIBLE FOR CONTROLLING DUST BY SPRINKLING EXPOSED SOIL AREAS PERIODICALLY WITH WATER AS REQUIRED. THE CONTRACTOR IS TO SUPPLY ALL EQUIPMENT AND WATER.
7. WHEN ALL DISTURBED AREAS ARE STABLE, ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED.

TOPSOIL SPECIFICATIONS:

1. EXISTING EXCESS TOPSOIL SHALL BE REMOVED AND STORED IN TOPSOIL STOCKPILES SUFFICIENTLY REMOVED FROM OTHER EXCAVATION OR DISTURBANCE TO AVOID MIXING. SILT FENCE SHALL BE INSTALLED AROUND TOPSOIL STOCKPILE AREAS.

SITE PREPARATION:

1. COMPLETE ROUGH GRADING AND FINAL GRADE, ALLOWING FOR DEPTH OF TOPSOIL TO BE ADDED.
2. SCARIFY ALL COMPACT, SLOWLY PERMEABLE, MEDIUM AND FINE TEXTURED SUBSOIL AREAS. SCARIFY AT APPROXIMATELY RIGHT ANGLES TO THE SLOPE DIRECTION IN SOIL AREAS THAT ARE STEEPER THAN 5%.
3. REMOVE REFUSE, WOODY PLANT PARTS, STONES OVER 3 INCHES IN DIAMETER, AND OTHER LITTER.

TOPSOIL MATERIALS:

1. NEW TOPSOIL SHALL BE BETTER THAN OR EQUAL TO THE QUALITY OF THE EXISTING ADJACENT TOPSOIL. IT SHALL MEET THE FOLLOWING CRITERIA:
   A. ORIGINAL LOAM TOPSOIL, MELLOW DRAINED HOMOGENEOUS TEXTURE AND OF UNIFORM GRADE, WITHOUT THE ADMIXTURE OF SUBSOIL MATERIAL AND FREE OF DENSE MATERIAL, HARDPAN, CLAY, STONES, SOD OR OTHER OBJECTIONABLE MATERIAL.
   B. CONTAINING NOT LESS THAN 5% NOR MORE THAN 20% ORGANIC MATTER IN THAT PORTION OF A SAMPLING PASSING A 1/4" SIEVE, WHEN DETERMINED BY THE WET COMBUSTION METHOD ON A SAMPLE DRIED AT 105°C.
   C. CONTAINING A PH VALUE WITHIN THE RANGE OF 6.5 TO 7.5 ON THAT PORTION OF THE SAMPLE WHICH PASSES A 1/4" SIEVE.
   D. CONTAINING THE FOLLOWING WASHED GRADATIONS:

SIEVE DESIGNATION	% PASSING
1"	100
1/4"	97–100
NO 200	20–60

APPLICATION AND GRADING:

1. TOPSOIL SHALL BE DISTRIBUTED TO A UNIFORM DEPTH OF 4" OVER THE AREA. IT SHALL NOT BE PLACED WHEN IT IS FROZEN, FROZEN, MUDDY, OR ON FROZEN SLOPES OR OVER ICE, SNOW, OR STANDING WATER.
2. TOPSOIL PLACED SHALL BE GRADED ON SLOPES STEEPER THAN 5% SHALL BE PROMPTLY FERTILIZED, SEEDED, MULCHED AND STABILIZED BY "TRACKING" WITH SUITABLE EQUIPMENT.

VEGETATIVE COVER SPECIFICATIONS:

TEMPORARY VEGETATIVE COVER (DURING CONSTRUCTION):

1. SITE PREPARATION
   (SAME AS PERMANENT VEGETATIVE COVER)
2. SEED MIX: (APPLY AT RATE OF 3 TO 4 LBS PER 1000 SF)

AMOUNT BY:		MINIMUM %	
WEIGHT	SPECIES OR VARIETY	PURITY	GERMINATION
100%	ANNUAL RYEGRASS	98%	90%

3. SEEDING
   (SAME AS PERMANENT VEGETATIVE COVER)

PERMANENT VEGETATIVE COVER (AFTER CONSTRUCTION):

1. SITE PREPARATION:
   A. BRING AREA TO BE SEEDED TO REQUIRED GRADE. A MINIMUM OF 4" OF TOPSOIL IS REQUIRED.
   B. PREPARE SEEDBED BY LOOSENING SOIL TO A DEPTH OF 4 INCHES.
   C. REMOVE ALL STONES OVER 1 INCH IN DIAMETER, STICKS

LANC & TULLY
Engineering and Surveying, P.C.

March 8, 2024

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

RE: Beacon 248 Development
Amended Site Plan
City of Beacon
Tax Map Nos. 6054-45-012574

Dear Mr. Gunn:

Our office has reviewed the following documents as submitted for the 248 Tioronda Avenue Development amended site plan:

- Beacon 248 Holdings SEQR Comparison or Impacts, dated February 27, 2024, as prepared by LaBella Associates.
- Application for Site Plan Approval dated February 27, 2024.
- Report titled "Amended Stormwater Pollution Prevention Plan for 248 Tioronda Ave.", with the latest revision date of February 2024, as prepared by LaBella Associates.
- Plans titled "Amended Site Plan – 248 Tioronda Ave.", dated February 14, 2024, and consisting of Sheets G001, C101, C130, C140, C150, C160, C180, C190, C530, C540, and C550, as prepared by Labella Associates.

Based upon our review of the above referenced document and plans, we offer the following comments:

General Comments:

1. The applicant shall provide a detailed project narrative as to the changes currently proposed.

2. As this project previously received approval from the Dutchess County Department of Health (DCDOH) in November of 2020 for the water main extension and sewage collection system, the applicant will need to resubmit for the proposed changes to the sewer collection system.

3. Although there has been an increase in the amount of area disturbed based upon proposed changes, it is unclear how the area of impervious surface went down. The applicant's engineer shall provide a comparison of the previously approved plan to that of the proposed showing where additional disturbance occurred and where the reduction of impervious area occurred.

4. Based upon the re-alignment of the Greenway Trail in several areas, new easement agreements and descriptions will be required. We do commend the effort put into eliminating the stairs along the greenway trail that were previously proposed.

5. The greenway trail below the land banked parking should be shifted so that the easement for the trail is along the wall.

6. The 20-foot dimension label land banked parking should be shifted to its proper location.

7. The proposed refuse enclosure to the south side of Building 100 will now block access to the sewage pump station. How is the pump station to be access is work is required at the station?

8. What is the need to the access aisle across the parking Lot from Building 100? Is this for an ADA compliant stall at an EV charger? If so, the ADA compliant stall should be labeled as such.

9. It would be preferable to shift the last 4 parking stalls near the entrance further to the north. There is concern that a car backing out of one of these stalls could be impacted by a vehicle coming down and around the curve on the entrance.

10. It appears that all the EV charging stations have been located in one area of the site. Why were none located towards buildings 200 and 300 for the residents living in those buildings?

11. What are the two (2) rectangular structures shown on the backside of Building 100? These structures should be labeled as to what they represent.

12. Stationing shall be provided along the new sewer main routing, and the stationing for the previous sewer main location removed from the plan on Sheet C160.

13. As the sewer line has shifted location, it is unclear what the sewer line and manhole to the left of Building 200 is need for. Sheet C160 should be revised to eliminate this manhole and sewer run.

14. How is Building 300 connected to the sewer collection system? This should be shown on Sheet C160.

15. New utility profiles shall be prepared for the revised utilities.

16. The landscape plan shall be adjusted so that trees are not planted directly over utility lines, and shrubs are not planted directly on manholes.

17. The lighting fixture details and notes on Sheet C190 shall include notes that all lights are to be dark sky compliant.

SWPPP Comments:

We are still in the process of reviewing the SWPPP, but offer the following initial comments.

1. The "Preparer of the SWPPP" page notes that the SWPPP was prepared by Chris Lapine, P.E., but the page is signed and sealed by Kyle Ahearn, P.E. This appears to be in conflict with the correspondence included in Appendix "H" of the document.

2. Table 7 on page 26 shall be revised, as it should note the total treatment from the hydrodynamic separators as 10,218.

3. Additional clarification shall be provided at the bottom of Page 29, as it reads that the discharge rate would not be increased by more than 5% to the Fishkill Creek, but the table above (Table 9) shows zero increase.

This completes our review at this time. Further comments may be forth coming based upon future plan submissions to the City. **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: Jennifer Gray, Esq.
Natalie Quinn, Planner
Bruce Flower, Building Inspector

City of Beacon Planning Board Agenda
03/12/2024

Title:

Certificate of Appropriateness – 209-211 Main Street; Sign

ATTACHMENTS

209-211 Main PB 3.12.24 ARB app sign.pdf

741

ARCHITECTURAL REVIEW BOARD APPLICATION

Date: 2/14/23

Project Address: 209, 211 main Street Beacon NY 12508

Project Architect/Engineer: fast signs

Owner/Builder: Ryan Leoni

Contact Phone No.: 845-416-3062 Email: Ryanc45632@hotmail.co

Approval Requested: ✓ Certificate of Appropriateness (sign or façade change) _____ New Single-Family House

Color/Materials: Dark grey / PVC / Steel bracket

Siding: _____

Roofing: _____

Windows: Color: _____ Type: _____

Trim: _____

Garage Door: _____

Stone/Brick: _____

Ryan Leoni
Signature of Owner

Applications for sign approval must also submit a sign permit application & supporting documents

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





Double sided 1" PVC sign panel to be painted Benjamin Moore Hale Navy HC-154. Hair Studio and white border will be applied as cut white vinyl. The b. in the center of the sign will be painted burnt orange and will be dimensional, raised off the sign .75". The sign is 6 sq. ft.
Sign is to be attached to a new reverse scroll bracket. Scroll bracket is steel and will be powder coated black. Bracket will be anchored to the building facade with tie backs.
Overall size of bracket is 14"h x 47.5"w.

Customers Name: B Hair Studio

FASTSIGNS
PH: 845-298-5600
FAX: 845-297-0105
FASTSIGNS.COM/455
1839 South Rd Suite 2B, Wappingers Falls, NY 12590
SIGNS AND GRAPHICS REMAIN THE PROPERTY OF FASTSIGNS UNTIL PAID IN FULL

PLEASE CHECK EACH:
- ☐ FONT
- ☐ COLOR
- ☐ SPELLING
- ☐ POSITIONING
- ☐ SIZE

SIGNATURE OF APPROVAL → | DATE: 2/27/24

File Name: | Order #: 75176

COLORS OF PRINT ARE NOT EXACT • CHANGES ARE CHARGED SEPARATELY

BUILDING DEPARTMENT
City of Beacon

Approved: _____ 20 ___
Disapproved: _____ 20 ___

_____
Building Inspector

Application for Sign Permit

Date 2/14/23

Address of Sign 209 - 211 main street Beacon NY 12508

PROPERTY OWNER

Name 201-211 main St. LLC Phone 646-552-4060
Address 59 River Glen road Wallkill, NY 12589

BUSINESS OWNER

Name of Owner Beacon hairstudio LLC Phone 845-416-3062
Name of Business: b. hair studio
Type of Business: Hair Salon
Address 38 Sedgewick road Poughkeepsie NY 12603

SIGN COMPANY

Name First Signs Phone 845-237-3725
Address 1839 South rd. Suite 2B Wappingers Falls NY 12590

ELECTRICIAN – (For Illuminated Signs)

Name _____ Phone _____
Address _____

TYPE OF SIGN:

_____ Ground ($25) ✓ Wall ($15) _____ Temporary Sign ($10)

Sign Content: b. Hair Studio
Height of sign (if applicable) 7' 6" Sign Dimensions 24"H x 36"W
Type of materials to be used: PVC
Means of anchoring: Steel Scroll Bracket anchored with Tie backs

APPLICATION IS HEREBY MADE to the Building Department for the issuance of a Sign permit pursuant to the City of Beacon Code of Ordinances. The applicant agrees to comply with all applicable laws, ordinances and regulations.

_____
(Signature of Owner)

APPLICATION PROCESSING RESTRICTION LAW
Affidavit of Property Owner

Property Owner: 201-211 main St. LLC
(Applicant)
If owned by a corporation, partnership or organization please list names of persons holding over 5% interest in business.
Lendita Mavraj

List all properties in the City of Beacon that you hold a 5% interest in.
206-208 main Street
201-211 main Street
12 Davis Street

Applicant Address: 59 river Glen road Wallkill NY 12589
Project Address: 209-211 main St. Beacon NY 12508
Project Tax Grid #:
Type of Application: Sign permit

*** Please note that the property owner is the applicant. "Applicant" is defined as any individual who owns at least five percent interest in a corporation or partnership or other business.**

I, Lendita Mavraj, the undersigned owner of the above referenced property, hereby affirm that I have reviewed my records and verify that the following information is true. (Check statements that are **true**)

1. No violations are pending for ANY parcel owned by me situated within the City of Beacon. ✓
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. ✓
4. Tax delinquencies exist on a parcel or parcels owned by me in 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. ✓

Lendita Mavraj
Signature of Owner

Member
Title if owner is corporation

City of Beacon Planning Board Agenda
03/12/2024

Title:

Consider request for two (2) 90-day extensions of Preliminary & Final Subdivision Plat, 152-158 Fishkill Avenue, Mixed-Use Commercial and Residential, submitted 152-158 Fishkill Avenue, LLC.

ATTACHMENTS

152-158 Fishkill PB 3.12.24 ext request.pdf

CUDDY +FEDER LLP

Taylor M. Palmer
tpalmer@cuddyfeder.com

February 27, 2024

VIA EMAIL AND HAND DELIVERY
Hon. John Gunn, Chairman
and Members of the Planning Board
City of Beacon
One Municipal Plaza
Beacon, New York 12508

Re: 152-158 Fishkill LLC – Mixed-Use Development Project
Request for Extension – Subdivision & Site Plan Approval
Property: 152-158 Fishkill Avenue, City of Beacon, County of Dutchess, State of New York

Dear Chairman Gunn and Members of the Planning Board:

We are writing on behalf of our client, 152-158 Fishkill Avenue LLC (the "Applicant") the owner of the above-referenced Property, to request two (2) ninety (90)-day extensions of the Planning Board's Preliminary & Final Subdivision Plat and Site Plan Approval for the above-referenced matter (the "Approval"), which Approval is dated September 12, 2023 (filed in the City Clerk's Office on September 22, 2023). *See* **Exhibit A** – Copy of the Approval.[1]

The Applicant continues to work diligently toward addressing the conditions in the Approval Resolution. These efforts include, but are not limited to, preparing a stormwater control facility maintenance agreement, and having prepared a draft land-banked parking agreement that was forwarded to the City Attorney for review. *See* **Exhibit B**. At this time, the Applicant is also developing the necessary construction drawings reflective of the conditions in the Approval in preparation for submitting the forthcoming Building Permit Application once the subdivision plat is signed by the Planning Board Chairman and subsequently filed in the Office of the Dutchess County Clerk.

This request is timely as it is submitted in writing pursuant to the City of Beacon Subdivision Regulations Section 195-14(D).[2] We therefore respectfully request that the Planning Board grant two (2) ninety (90)-day extensions to begin on March 10, 2024, thus extending the Approval through to

[1] Note: The Approval identified the Applicant as "152-158 Fishkill LLC", but the Owner/Applicant is 152-158 Fishkill Avenue LLC. Furthermore, while the Site Plan component is not set to expire until September 12, 2024, for avoidance of doubt, the Applicant seeks an extension of the Site Plan timeframe to be coterminous with the Subdivision.

[2] Note: City of Beacon Subdivision Regulations Section 195-14(D). Expiration of approval. Conditional approval of a final plat shall expire within 180 days after the date of the resolution granting conditional approval, unless such requirements have been certified as completed. The Planning Board may extend by not more than two additional periods of 90 days each the time in which a conditionally approved final plat must be submitted for signature if, in the Planning Board's opinion, such extension is warranted by the particular circumstances.

September 6, 2024. Accordingly, the Applicant respectfully requests that this matter be calendared for the next available Planning Board Meeting for consideration.

In the meantime, if the Planning Board or City Staff have any questions or comments with regard to the foregoing, please do not hesitate to contact me. Thank you in advance for your consideration in this matter.

Very truly yours,

Taylor M. Palmer

Enclosures

Cc:
152-158 Fishkill LLC
Hudson Engineering and Consulting, P.C.
Nexus Creative Design

Exhibit A

Received
Office of the City Clerk
9/22/2023

RESOLUTION

PLANNING BOARD
BEACON, NEW YORK

PRELIMINARY & FINAL SUBDIVISION PLAT APPROVAL AND SITE PLAN APPROVAL FOR 152 AND 158 FISHKILL AVENUE

Parcel No. 6054-29-041801 (152 Fishkill Avenue)
Parcel No. 6054-29-042814 (158 Fishkill Avenue)

WHEREAS, the City of Beacon Planning Board received applications for Site Plan and Subdivision Plat (lot merger) Approvals from 152-158 Fishkill LLC (the "Applicant") for the construction of a 2 ½ story mixed-use building consisting of approximately 8,071 gross square feet of commercial areas on the first floor and a total of 16 residential units (8 1-bedroom units and 8 2-bedroom units), including two (2) Below Market Rate units, with associated off-street parking on a combined parcel consisting of 43,885 square feet, (the "Project" or "Proposed Action"), located at 152 Fishkill Avenue (Parcel ID No. 6054-29-041801) and 158 Fishkill Avenue (Parcel ID No. 6054-29-042814) within the Transitional (T) Zoning District (the "Property"); and

WHEREAS, the Applicant is proposing to remove two (2) exiting buildings, as well as any accessory structures and impervious surfaces thereto, and merge both lots into a single parcel, with a combined area of 43,885 square feet or approximately 1.01 acres; and

WHEREAS, the Applicant reduced the originally proposed grade changes between Fishkill Avenue sidewalk and revised the proposed first floor and the elevations so that the proposed building height does not exceed what is permitted under the City of Beacon Code; and

WHEREAS, the Planning Board is the approval authority for the Subdivision (lot merger) pursuant to the City of Beacon Code § 195-2; and

WHEREAS, the Planning Board is the approval authority for the Site Plan pursuant to the City of Beacon Code §223-25; and

WHEREAS, the application consists of application forms, correspondence, Full Environmental Assessment Form, as well as professional studies and reports submitted to the Planning Board; and

WHEREAS, the Project is shown on a (i) subdivision plat entitled "Subdivision Plat – Lot Line Consolidation Plan," dated August 16, 2023, prepared by Heritage Land Surveying, P.C., (ii) plan set entitled "Site Plan & Lot Merger for 152-158 Fishkill Avenue" dated February 27, 2023, last revised August 27, 2023, sheets 1 to 18, as prepared by Arden Consulting Engineers, PLLC, Monroe, NY, and (iii) architectural drawings entitled "Architectural Site

Plan" dated February 27, 2023, last revised August 25, 2023, as prepared by Nexus Creative Architecture Planning Design, D.P.C., Tarrytown, NY, as follows:

"Site Plan & Lot Merger for 152-158 Fishkill Avenue" dated February 27, 2023, last revised August 27, 2023, sheets 1 to 18, as prepared by Arden Consulting Engineers, PLLC, Monroe, NY:

Sheet	Title
1 of 18	*Title Sheet*
2 of 18	*Existing Conditions Map*
3 of 18	*Demolition Plan*
4 of 18	*Site Plan*
5 of 18	*Grading & Utility Plan*
6 of 18	*Vehicle Turning Diagrams*
7 of 18	*Lighting Plan*
8 of 18	*Lighting Details*
9 of 18	*Landscaping Plan*
10 of 18	*Landscaping Details*
11 of 18	*Erosion and Sediment Control Plan*
12 of 18	*Orthoimagery*
13 of 18	*Site Construction Details 1*
14 of 18	*Site Construction Details 2*
15 of 18	*Water Supply and Sewage Disposal Details*
16 of 18	*Stormwater Construction Details 01*
17 of 18	*Stormwater Construction Details 02*
18 of 18	*Construction Specifications*

"Architectural Site Plan" dated February 27, 2023, last revised August 25, 2023, as prepared by Nexus Creative Architecture Planning Design, D.P.C., Tarrytown, NY:

1 of 11	*SK0 – Conceptual Rendered Site Plan*
2 of 11	*SK1 – Conceptual First Floor Plan*
3 of 11	*SK2 – Conceptual Second Floor Plan*
4 of 11	*SK3 – Conceptual Half Story Floor Plan*
5 of 11	*SK4 – Conceptual Roof Terrance Plan*
6 of 11	*SK5 – Conceptual East and West Elevation*
7 of 11	*SK6 – Conceptual North and South Elevation*
8 of 11	*SK7 – Conceptual 3D Renderings*
9 of 11	*SK8 – Conceptual 3D Renderings and Materials*
10 of 11	*SK9 – Conceptual Streetscape Diagrams*
11 of 11	*SK10 – Average Natural Grade and Building Height*

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 March 28, 2023, April 11, 2023, May 9, 2023, June 13, 2023, July 11, 2023, August 8, 2023, and September 12, 2023; and

WHEREAS, the Planning Board referred the Project to the City of Beacon Architectural Review Board Subcommittee, which discussed the proposed design with the Applicant's Project Architects and Landscape Designers at its April 28, 2023 and July 21, 2023 meetings, and the Subcommittee thereafter provided its Recommendations and Reports to the Applicant and members of the Planning Board in advance of the Planning Board meetings on May 9, 2023 and August 8, 2023; and

WHEREAS, on July 11, 2023, after circulating its Notice of Intent to Declare Lead Agency and receiving no objections, and after taking a "hard look" at each of the relevant areas of environmental concern through review of the FEAF and all associated materials prepared in connection with the Proposed Action the Planning Board, as Lead Agency, adopted a Negative Declaration pursuant to SEQRA finding that the Proposed Action will not result in any significant adverse environmental impacts; and

WHEREAS, after referral from the Planning Board, on July 18, 2023 the City of Beacon Zoning Board of Appeals granted the Applicant's request for variances from Beacon City Code § 223-13.G(G) to allow for a maximum proposed retaining wall height ranging from seven-and-a-half feet (7.5') to fifteen and four-tenths feet (15.4') in height in the area of the parking lot located north of the newly proposed building and two (2) segments to the east of the proposed structure; and

WHEREAS, a total of sixty-three (63) off-street parking spaces are required under Beacon City Code § 223-26.F and the Applicant has proposed a total of fifty-three (53) off-street parking spaces and six (6) on-street parking spaces along the frontage of Fishkill Avenue; and

WHEREAS, Beacon City Code § 223-26.C(6) authorizes the Planning Board to approve the joint use, or shared use, of parking spaces by two or more uses on the same lot or on contiguous lots, the total capacity of which is less than the spaces required for each, provided the Board finds that the number of parking spaces provided will substantially meet the intent of the Zoning Code by reason of variation in the probable time and maximum use and provided that such approval shall be automatically terminated upon a change of use at the Property; and

WHEREAS, the Applicant submitted a Shared Parking Analysis, prepared by Colliers Engineering & Design, dated March 8, 2023, last revised April 23, 2023, which provides in relevant part that the parking needs of the residential units and commercial units are varied from each other in terms of the probable time and maximum use, and fifty-three (53) off-street parking spaces is sufficient for the proposed uses, to which the City's Traffic Consultant opined that the proposed number of off-street parking spaces is expected to accommodate the parking demand of the Proposed Action; and

WHEREAS, Section 223-26.E of the Zoning Code authorizes the Planning Board to waive the initial improvement of up to 50% of the required parking spaces provided that the property owners are able to provide for such improvements within six months being notified by Planning Board that such waived improvements are deemed necessary; and

WHEREAS, on August 8, 2023, the Planning Board opened and closed a duly noticed public hearing on the Site Plan and Subdivision (lot merger) application, 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; and

NOW THEREFORE BE IT RESOLVED, in accordance with the Beacon City Code § 223-26.C(6), the Planning Board hereby finds that the joint use of the off-street parking spaces by the proposed residential and commercial uses will substantially meet the intention of the of Beacon Zoning Code based upon the Shared Parking Analysis provided by reason of variation in the probable time of peak demand and therefore, the Applicant may provide for fifty-three (53) off-street parking spaces for joint use of the residential and commercial uses on the condition that the Planning Board's approval of such joint use shall automatically terminate upon a change of use at the Property.

BE IT FURTHER RESOLVED, pursuant to Section 223-26.E of the Zoning Code the Planning Board waives the initial improvement of four (4) of the fifty-three (53) off-street parking spaces.

BE IT FURTHER RESOLVED, the Planning Board hereby grants Preliminary Subdivision Plat (lot merger) Approval for the Project, as shown on the application materials referenced above.

BE IT FURTHER RESOLVED, the Planning Board finds that the Final Subdivision Plat will not be substantially changed from the Preliminary Subdivision Plat and hereby determines that a public hearing on the Final Plat is not required.

BE IT FURTHER RESOLVED, the Planning Board hereby grants Final Subdivision Plat (lot merger) and Site Plan Approval, as shown on the application materials referenced above, subject to the follow 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 and 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 form the appropriate agencies for the Project, and 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 September 8, 2023, and all comments in any subsequent letter(s) issued shall be fulfilled to the satisfaction of the City Planner.

4. The comments contained in the City Engineer's letter to the Planning Board dated September 8, 2023, and all comments in any subsequent letter(s) issued shall be fulfilled to the satisfaction of the City Engineer.

5. The Applicant shall submit in a form acceptable to the City Attorney, a Stormwater Control Facility Maintenance Agreement and Easement for signature of the City Administrator which shall be recorded by the Applicant in the Dutchess County Clerk's Office simultaneously with the Subdivision Plat.

6. The Applicant shall provide a revised Site Plan showing the first four (4) parking spaces at the entrance driveway at Fishkill Avenue as remaining unimproved until deemed necessary, to the satisfaction of the City Planner, City Engineer, and City Traffic Consultant. A landbanked parking agreement shall be submitted to the City Attorney for review and approval.

7. The Applicant shall review the Site Plan to determine whether the proposed ADA parking spaces can be more centrally located at the rear of the proposed building rather than on either end of the building. Any such relocation shall be to the satisfaction of the City Building Inspector and/or City Engineer.

When the above conditions have been satisfied, six (6) sets of the above references plans, revised as per the conditions above, shall be submitted for enforcement 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 Building Permit, the following conditions shall be fulfilled:

1. Pursuant to City of Beacon Code Section 223-41.10.A, the Applicant shall submit plans which indicate the location of each of the BMR unit to be provided which shows a mix of unit types in the same proportion as all other units in the development to the satisfaction of the Building Inspector.

C. 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 as prescribed under Sections 223-25.H(4) and 223-61.A(7) of the Zoning Law for each of the 12 new residential units (16 proposed units minus 4 existing residential units). The Planning Board hereby requires that, prior to the issuance of the Certificate of Occupancy for each unit, the Applicant shall pay a Recreation Fee as per the City's Fee Schedule in effect at the time of payment.

2. The Project shall comply in all respects with Article IVB, Affordable-Workforce Housing, of the City of Beacon Zoning Law Chapter 223. Such units designated as Affordable Workforce Housing shall remain affordable in accordance with Article IVB of Chapter 223 of the City of Beacon Zoning Law for a minimum of fifty (50) years from the date of issuance of the initial certificate of occupancy for rental units and/or date of the original sale for owner-occupied units. The Applicant shall be responsible for the payment of any and all fees established by the City Council now or in the future or as otherwise required for the ongoing implementation of the provisions of Article IVB, Affordable-Workforce Housing, of the City of Beacon Zoning Law as said Article applies to the Project.

3. In accordance with Section 223-26.E of the Zoning Code, the Applicant shall provide for the construction and use of the four (4) unimproved off-street parking spaces as shown on the approved site plan referenced herein within six (6) months of such spaces being deemed necessary.

4. 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.

5. 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 therefore has not been granted by the City, this Resolution shall be rendered null and void.

6. Prior to the issuance of a building permit, pursuant to the City Code § 195-15, the Applicant shall a file a performance bond with the City of Beacon to guarantee the satisfactory construction, installation, and completion of any required improvements within the City right-of-way in an amount acceptable to

the City Engineer based on review of a cost estimate to be prepared by the Applicant.

7. Prior to the issuance of a building permit, pursuant to the City Code § 195-16.F, the Applicant shall establish an escrow with the City of Beacon for the inspection of the improvements in the amount acceptable to the City Engineer based on review of a cost estimate to be prepared by the Applicant's professional engineer, which amount shall be equivalent of 6% of the amount of the estimated construction cost.

8. Prior to the issuance of a building permit, pursuant to City Code 190-13, the Applicant shall establish an escrow for stormwater inspections by the City Engineer on behalf of the City of Beacon.

9. Rock removal, if encountered, shall be done by mechanical means on weekdays (excluding State holiday) between the hours of 8 a.m. and 4 p.m. No rock processing is permitted on site. No blasting shall be permitted without the prior written approval from the City of Beacon Building Department after preparation of a blasting plan. Any blasting required shall be performed in accordance with all applicable local, state, and federal laws, regulations, and standards.

10. Pursuant to the City of Beacon Code § 223-25.J, 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.

11. As used herein, the term "Applicant" shall include 152-158 Fishkill LLC, and their successors and assigns, and where applicable, their agents, contractors and employees.

12. 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.

13. The approvals granted by this Resolution do not supersede the authority of any other entity.

14. Pursuant to City of Beacon Code § 195-14.D, 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 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.

Resolution Adopted: September 12, 2023
Beacon, New York

John Gunn, Chairman
City of Beacon

9/22, 2023
Date

Motion by Mr. Jensen, seconded by Mr. Warner:

Kevin Byrne	Voting AYE	Leonard Warner	Voting AYE
Donna Francis	Voting AYE	J. Randall Williams	Voting EXCUSED
David Jensen	Voting AYE	John Gunn, Chairman	Voting AYE
Karen Quiana	Voting EXCUSED		

Resolution: Approved

Exhibit B

DECLARATION OF LAND BANKED PARKING

This DECLARATION (the "Declaration"), is made and entered into this ____ day of _____, 2024, by **152-158 FISHKILL AVENUE LLC** (hereinafter, the "Owner"), owner of certain real property located at 152-158 Fishkill Avenue, Beacon, Dutchess County, New York, and identified as Tax Parcel IDs 6054-29-041801 and 6054-29-042814.

WITNESSETH

WHEREAS, Owner is owner in fee simple of that certain real property located at 152-158 Fishkill Avenue, Beacon, New York, and designated on the Tax Map of the City of Beacon (the "City") as Parcel IDs 6054-29-041801 and 6054-29-042814, more fully shown on a certain subdivision map entitled "Subdivision Plat – Lot Line Consolidation Plan", prepared by Heritage Land Surveying, P.C., dated August 16, 2023 and filed in the Office of the Dutchess County Clerk on _____, 2024, as Filed Map No. _____ (the "Subdivision Map"), and further described by metes and bounds in **Schedule "A"** annexed hereto (the "Property"); and

WHEREAS, this Declaration is provided in connection with a mixed-use, multi-family residential development project (the "Project"), which received Preliminary and Final Subdivision Plat Approval and Site Plan Approval from the City of Beacon Planning Board (the "Planning Board") by Resolution adopted September 12, 2023 and dated September 22, 2023 (the "Resolution"), based on Site Plan drawings consisting of 18 sheets entitled "Site Plan & Lot Meger for 152-158 Fishkill Avenue" prepared by Arden Consulting Engineers, PLLC dated February 27, 2023 and last revised August 27, 2023, and Architectural Drawings consisting of 11 sheets entitled "Architectural Site Plan" prepared by Nexus Creative Architecture Planning Design, D.P.C. dated February 27, 2023 and last revised August 25, 2023 (together, the "Approved Project Plans"); and

WHEREAS, Beacon City Code § 223-26.F requires a total of sixty-three (63) off-street parking spaces and Owner proposed a total of fifty-three (53) off-street parking spaces and six (6) on-street parking spaces along the frontage of the Property along Fishkill Avenue; and

WHEREAS, Beacon City Code § 223-26.C(6) authorizes the Planning Board to approve the joint use, or shared use, of parking spaces by two or more uses on the same lot or on contiguous

lots, the total capacity of which is less than the spaces required for each, provided the Planning Board finds that the number of parking spaces provided will substantially meet the intent of the City of Beacon Zoning Code by reason of variation in the probable time and maximum use and provided that such approval shall be automatically terminated upon a change of use at the Property; and

WHEREAS, Owner submitted a Shared Parking Analysis, prepared by Colliers Engineering & Design, dated March 8, 2023, last revised April 23, 2023, which provides in relevant part that the parking needs of the residential units and commercial units are varied from each other in terms of the probable time and maximum use, and fifty-three (53) off-street parking spaces is sufficient for the proposed uses, to which the City's Traffic Consultant opined that the proposed number of off-street parking spaces is expected to accommodate the parking demand of the Project; and

WHEREAS, the Planning Board determined that fifty-three (53) off-street parking spaces shall be sufficient for the joint use of the proposed residential and commercial uses at the Project on the condition that Planning Board's approval of such joint use shall automatically terminate upon a change of use at the Property; and

WHEREAS, City of Beacon Zoning Code §223-26.E authorizes the Planning Board to waive the initial improvement of up to 50% of the required off-street parking spaces for a development project, provided that all of the required spaces are shown on the proposed plan and suitable agreements are obtained assuring the City that the then Owner of the Property will be responsible for the construction of such waived parking spaces, or any portion thereof, within six (6) months after the Planning Board determines such parking spaces to be necessary; and

WHEREAS, in accordance with City of Beacon Zoning Code §223-26.E, the Planning Board waived the initial improvement of four (4) of the fifty-three (53) off-street parking spaces on the conditions that (a) the Owner shall provide a revised Site Plan showing the first four (4) parking spaces (the **"Land Banked Spaces"**) at the entrance driveway at Fishkill Avenue as remaining unimproved until deemed necessary, to the satisfaction of the City Planner, City Engineer, and City Traffic Consultant and (b) the Owner submit to the City Attorney a land banked parking agreement for review and approval; and

WHEREAS, the Site Plan annexed hereto as **"Schedule B"** depicts the construction of forty-nine (49) parking spaces and the Land Banked Spaces, which Land Banked Spaces will not be constructed unless and until such time as the Planning Board determines that a portion or all of such Land Banked Spaces are necessary; and

WHEREAS, the Owner wishes to record this Declaration pursuant to City of Beacon Zoning Code §223-26.E, and in satisfaction of the conditions of the Resolution, to ensure that any or all of the Land Banked Spaces shall be constructed, as shown on **Schedule "B"**, if and when the Planning Board determines the parking spaces, or a portion thereof, to be necessary.

NOW, THEREFORE, the undersigned hereby declares as follows:

1. In accordance with §223-26.E of the City of Beacon Zoning Code, Owner shall provide for the construction and use of the Land Banked Spaces depicted as "[NEED NAME OF DESCRIPTION OF AREA]" on **Schedule "B"** within six (6) months of the determination by the Planning Board that a portion or all of the Land Banked Spaces are necessary.

2. Owner further agrees to obtain from the City the administrative permits and approvals required to construct any portion of the Land Banked Spaces prior to commencing such construction.

3. Owner hereby agrees that no building or structure of any kind shall be erected over the Land Banked Spaces by or on behalf of Owner, except for the parking, landscaping and sidewalk improvements shown on **Schedule "B"** or the improvements approved by the Planning Board, unless the Planning Board approves amended Approved Project Plans relocating the spaces or otherwise determines that the spaces are not required in this location, and this Declaration is amended or superseded to evidence such modification.

4. This Declaration shall be governed and construed in accordance with the laws of the State of New York and shall not be modified, altered, or amended without the consent of the Planning Board and, if applicable, an amendment to the Approved Project Plans.

5. This Declaration shall not be amended to eliminate or otherwise reduce the requirement to set aside a portion of the Property for land banked parking associated with the Property unless such elimination or reduction is approved by the Planning Board.

6. This Declaration shall run with the land in perpetuity and is binding upon the Owner and its successors and assigns.

7. This Declaration shall be recorded in the office of the County Clerk, County of Dutchess, cross-referencing the deed for the Property.

[SIGNATURE PAGE FOLLOWS]

IN WITNESS WHEREOF, Owner has signed this Declaration as of the date first written above.

152-158 FISHKILL AVENUE LLC

By: _____

Title: _____

STATE OF NEW YORK)
COUNTY OF DUTCHESS) ss.:

On the day of _____, in the year 2024, before me, the undersigned, a Notary Public in and for said State, personally appeared _____, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name(s) is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), and that by his/her/their signature(s) on the instrument, the individual(s), or the person upon behalf of which the individual(s) acted, executed the instrument.

_____
Notary Public

Record & Return to:

Taylor M. Palmer, Esq.
Cuddy & Feder, LLP
445 Hamilton Avenue
14th Floor
White Plains, NY 10601

DRAFT

Schedule "A"

The Property

[LEGAL DESCRIPTION PENDING]

Schedule "B"

The Site Plan

[PENDING SITE PLAN SHOWING LAND BANKED PARKING SPOTS]

DRAFT

City of Beacon Planning Board Agenda
03/12/2024

Title:

Consider appointment to the City of Beacon Traffic and Safety Planning Committee.

ATTACHMENTS

Resolution Appointing Member to Traffic Safety Committee.pdf

RESOLUTION

PLANNING BOARD
BEACON, NEW YORK

APPOINTING PLANNING BOARD MEMBER TO SERVE ON THE TRAFFIC AND SAFETY PLANNING COMMITTEE

WHEREAS, the City of Beacon has a Traffic and Safety Planning Committee pursuant to Chapter 65 of the City Code; and

WHEREAS, the Committee includes one member to be a representative of the Planning Board as designated by the Planning Board.

NOW, THEREFORE, BE IT RESOLVED, that the Planning Board hereby appoints _____ to serve on the City of Beacon Traffic and Safety Planning Committee.

Resolution Adopted: March 12, 2024
Beacon, New York

_____ _____, 2024
John Gunn, Chairperson Dated
City of Beacon Planning Board

Motion by _____, seconded by _____:

Kevin Byrne	Voting	Leonard Warner	Voting
Karen Quiana	Voting	J. Randall Williams	Voting
Donna Francis	Voting	John Gunn, Chairperson	Voting
David Jensen	Voting		

Approved:
Denied:

5102/15/700074v1 3/11/24