CITY OF CHARLES TOWN
PLANNING COMMISSION
AGENDA • FEBRUARY 27, 2023

Committee Meeting **CITY HALL** **7:00 PM**
101 E Washington Street, Charles Town, WV 25414

1. CALL TO ORDER

2. APPROVAL OF MINUTES

: 2022-247: Approval of Planning Commission Meeting Minutes - November 28, 2022

Approval of Planning Commission Meeting Minutes - December 27, 2022
Planning Commission Meeting Minutes - November 28, 2022.doc
Planning Commission Meeting Minutes - December 27, 2022.doc

3. UNFINISHED BUSINESS

4. NEW BUSINESS

: SLD2023-01 Flowing Springs Subdivision - COMPLETION CHECK
Approval.
Staff Report.docx
Application.PDF
230202 - First Charles Town Sketch Plan.pdf

: SLD2022-04 Hillside - COMPLETION CHECK
Staff Report.docx
Sketch Plan Application.pdf
2023-02-10 Elec Meter Wavier Application.pdf
2023-01-19 Sketch Plan Set.pdf

: SLD2022-02 Norborne-Glebe Phase 15 - Preliminary Plan
Staff Report.docx
Phase 15 Prelim Application.pdf
2022-10-03 Norborne Glebe PH 15 Plan.pdf

5. ADJOURNMENT

6. NOTICE: The Public May View the Meeting Live by Clicking on the Event Link at:

https://www.charlestownwv.us/government/agendas-and-minutes/

Planning Commission
101 East Washington Street
Charles Town, WV 25414

SCHEDULED

Meeting: 02/27/23
Department: Planning Commission
Category: Information Only
Initiator:

AGENDA ITEM (ID #)

2022-247: Approval of Planning Commission Meeting Minutes - November 28, 2022

Approval of Planning Commission Meeting Minutes - December 27, 2022

ATTACHMENTS:

- Planning Commission Meeting Minutes - November 28, 2022.doc
- Planning Commission Meeting Minutes - December 27, 2022.doc

CITY OF CHARLES TOWN

PLANNING COMMISSION

MINUTES • NOVEMBER 28, 2022

Regular Meeting **Council Chambers** **7:00 PM**

101 East Washington Street, Charles Town, WV 25414

I. CALL TO ORDER

Attendee Name	Title	Status	Arrived
Ann Paonessa	Chairman	Present	
Kevin Long	Vice-Chairman	Absent	
Jeff Hynes	Councilmember	Present	
Angie Cummings	Commissioner	Absent	
Jessica Derr	Commissioner	Present	

Alissa Meeks, James Newman, and Kyle French were also in attendance.

II. APPROVAL OF MINUTES

1. 5853: Planning Commission Meeting Minutes - October 24, 2022

   Ms. Derr moved the approve the October 24, 2022, Planning Commission meeting. Mr. Hynes seconded the motion, and is passed unanimously.

RESULT:	**APPROVED [UNANIMOUS]**
MOVER:	Jessica Derr, Commissioner
SECONDER:	Jeff Hynes, Councilmember
AYES:	Paonessa, Hynes, Derr
ABSENT:	Long, Cummings

III. DISCUSSION

1. 5855: 2022-175: Codified Ordinance Part 13, Articles 1321 -1325 Zoning Ordinance for the City

   The Commission discussed how medical cannabis dispensaries should be classified in the Codified Ordinance Part 13, Articles 1321-1325. No vote was needed.

IV. NEW BUSINESS

1. 5850: 01 SLD-2022-03-BE-Norborne Glebe Phase 15- Bond Initiation

   Mr. Hynes moved to approve the Land Disturbance Bond in the amount of $272,159.22 and the Performance Bond in the amount of $3,086,207.27. Ms. Derr seconded the motion, and it passed unanimously.

RESULT:	**APPROVED [UNANIMOUS]**
MOVER:	Jeff Hynes, Councilmember
SECONDER:	Jessica Derr, Commissioner
AYES:	Paonessa, Hynes, Derr
ABSENT:	Long, Cummings

2. 5851: 01 SLD-2022-06-SP- Norborne Glebe 10B-13 Sketch Plan (Completeness)

Mr. Hynes moved to find the application "complete" and schedule a public hearing for December 27, 2022. Ms. Derr seconded the motion, and it passed unanimously.

RESULT:	**APPROVED [UNANIMOUS]**
MOVER:	Jeff Hynes, Councilmember
SECONDER:	Jessica Derr, Commissioner
AYES:	Paonessa, Hynes, Derr
ABSENT:	Long, Cummings

V. ADJOURNMENT

Mr. Hynes moved to adjourn the meeting. Ms. Derr seconded the motion, and it passed unanimously.

CITY OF CHARLES TOWN

PLANNING COMMISSION

MINUTES • DECEMBER 27, 2022

Regular Meeting **Council Chambers** **7:00 PM**

101 East Washington Street, Charles Town, WV 25414

I. CALL TO ORDER

Attendee Name	Title	Status	Arrived
Ann Paonessa	Chairman	Present	
Kevin Long	Vice-Chairman	Present	
Jeff Hynes	Councilmember	Absent	
Angie Cummings	Commissioner	Present	
Jessica Derr	Commissioner	Present	

James Newman and Alissa Meeks were also in attendance.

II. APPROVAL OF MINUTES

1. Planning Commission - Regular Meeting - Oct 24, 2022 7:00 PM

The following changes will be made to the October 24, 2022, Planning Commission meeting minutes.

- Agenda Item 5828: SLD-2022-05-SP - Huyett Road Self Storage - Sketch Plan - the vote block will be changed to reflect Angie Cummings' "Nay" vote.
- In the first paragraph of Agenda Item 5828 the word "ascetics" will be replaced with "**aesthetics**".

Mr. Long moved to approve the minutes as amended. Ms. Derr seconded the motion, and it passed unanimously.

RESULT:	**ACCEPTED [UNANIMOUS]**
MOVER:	Kevin Long, Vice-Chairman
SECONDER:	Jessica Derr, Commissioner
AYES:	Paonessa, Long, Cummings, Derr
ABSENT:	Hynes

III. PUBLIC PORTION

1. 5859: Waiver for Tri-State Investments re: 248 Cherry Tree Drive

Mr. Long moved to open the public hearing for the Waiver for Tri-State Investments re: 248 Cherry Tree Drive. Ms. Cummings seconded the motion, and there were no objections.

There was no one signed up for the public hearing.

Ms. Derr moved to close the public hearing. Mr. Long seconded the motion, and there were no objections.

Ms. Derr moved to approve the waiver as requested. Mr. Long seconded the motion, and it was approved unanimously.

Only the final vote is reflected in the box below.

RESULT:	**APPROVED [UNANIMOUS]**
MOVER:	Jessica Derr, Commissioner
SECONDER:	Kevin Long, Vice-Chairman
AYES:	Paonessa, Long, Cummings, Derr
ABSENT:	Hynes

IV. NEW BUSINESS

1. 5864: Norborne Glebe Phase 6 Bond Reduction

It was noted that the City has a signed Bond Request and Reduction Application from Arcadia Land, Inc.

Mr. Long moved to recommend to City Council the bond reduction of $1,098,629.92 for Norborne Glebe Phase 6. Ms. Derr seconded the motion, and it passed unanimously.

RESULT:	**APPROVED [UNANIMOUS]**
MOVER:	Kevin Long, Vice-Chairman
SECONDER:	Jessica Derr, Commissioner
AYES:	Paonessa, Long, Cummings, Derr
ABSENT:	Hynes

2. 5865: Tate Manor Bond Extention

Mr. Long moved to approve the one year bond extension for Tate Manor. Ms. Derr seconded the motion, and it passed unanimously.

RESULT:	**APPROVED [UNANIMOUS]**
MOVER:	Kevin Long, Vice-Chairman
SECONDER:	Jessica Derr, Commissioner
AYES:	Paonessa, Long, Cummings, Derr
ABSENT:	Hynes

3. 5863: 2023-Planning-Commission Calendar

Ms. Derr moved to approve the 2023 Planning Commission Calendar. Mr. Long seconded the motion, and it passed unanimously.

RESULT:	**APPROVED [UNANIMOUS]**
MOVER:	Jessica Derr, Commissioner
SECONDER:	Kevin Long, Vice-Chairman
AYES:	Paonessa, Long, Cummings, Derr
ABSENT:	Hynes

V. ADJOURNMENT

Ms. Derr moved to adjourn the meeting. Ms. Cummings seconded the motion, and it passed unanimously.

Planning Commission
101 East Washington Street
Charles Town, WV 25414

SCHEDULED

Meeting: 02/27/23
Department: Planning Commission
Category: Report
Initiator:

AGENDA ITEM (ID #)

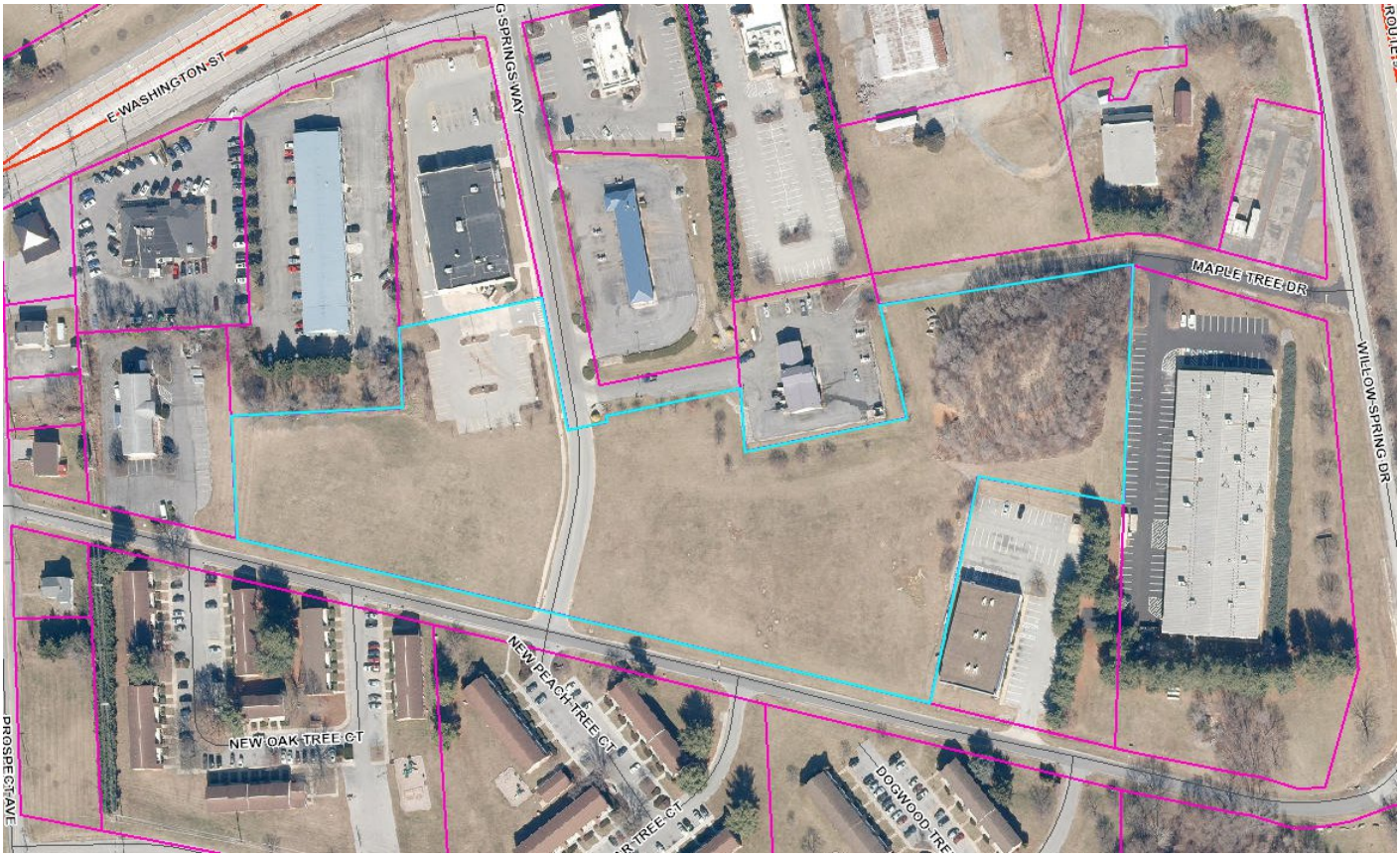
SLD2023-01 Flowing Springs Subdivision - COMPLETION CHECK

ATTACHMENTS:

- Staff Report.docx
- Application.PDF
- 230202 - First Charles Town Sketch Plan.pdf

Sketch Plan Completeness Review
SLD2023-01/200401

Date: For the February 27th, 2023 Planning Commission meeting
Applicant: First Charles Town Group, Inc.
Property Owner: First Charles Town Group, Inc.
Report by: James Newman, City Planner, Zoning/Subdivision Administrator.
Proposal: Subdivision of one parcel into two
Property Location: TD 03 / Map: 15 / Pcl: 0009.0002, located on Flowing Springs Way, and Maple Tree Drive.
Current Zoning: General Commercial (GC).



PROJECT OVERVIEW

The subdivision of one 6.5 acre parcel into two separate parcels: lot 1, comprised of 1.7230 acres, and Lot 2 (residue tract) comprised of 4.8666 acres.

There is no proposed development as part of this subdivision process.

SKETCH PLAN

Because this parcel has been subdivided before, this subdivision must be considered a major subdivision, per Subdivision Ordinance Section 1332.02.A.1.A.

The sketch plan meets the requirement of being a complete application as stated in Subdivision Ordinance Section 1332.03.C.2.C. This does not mean the subdivision application meets the criteria for approval; it merely means that the application is deemed complete by staff.

ZONING REVIEW

The property is zoned General Commercial. There is no minimum lot size. The proposed setbacks conform to the Zoning ordinance requirements.

CONCLUSION

Staff deems the application complete; the Planning Commission should vote to determine the application is complete. If deemed complete, a public hearing would be scheduled for March 27th, 2023.

S/LD Application No._____

SUBDIVISION AND LAND DEVELOPMENT APPLICATION

SUBDIVISION AND LAND DEVELOPMENT ORDINANCE
ARTICLE 1332, SUBDIVISION AND LAND DEVELOPMENT APPLICATION & APPROVAL REQUIREMENTS

To assist the Subdivision Administrator in the review of a Subdivision and Land Development (S/LD) Application, the Applicant must utilize this form to supply the City with the information prescribed under Section 1332.03 of the Charles Town Subdivision Ordinance. The submission of this form, along with the prescribed information and required fees, shall serve as the Applicant's S/LD Application as required by Ordinance Section 1332.03.

1. DATE January 3, 2023

2. APPLICATION TYPE

☑ Minor Subdivision | Final S/LD Plan

☐ Major Subdivision Development*
- Preliminary S/LD Plan and Final Plat

☐ Major Land Development**
- Preliminary S/LD Plan

☐ Major Subdivision and Land Development***
- Preliminary S/LD Plan and Final Plat

*Conventional Subdivision – A Preliminary Plan and Plat Approval and a Final Plan and Plat Approval is required.

**No Division/Merger of Land – A Preliminary Plan and Plat Approval is required for the submission of a building or multiple buildings on one lot where there is no subdivision of land (commonly referred to as a site plan).

***A Preliminary Plan and Plat Approval and a Final Plan and Plat Approval is required for the submission of a building or multiple buildings that will require the merger, adjustment or subdivision of land.

3. APPLICANT'S NAME* First Charles Town Group, Inc.

Address: P. O. Box 183, Charles Town, WV 25414

Telephone Number 304 725-8250 Fax Number 304 725-8989

Email Address maria@fctwv.com

4. PROPERTY OWNER'S NAME same as applicant listed above

Address: _____

Telephone Number ( ) _____ Fax Number ( ) _____

Email Address _____

5. LEGAL DESCRIPTION OF THE SUBJECT PROPERTY (list all parcels that apply)

Property Address: N/A - vacant

Tax Map # and Parcel: TM 15; Parcel 9.2

Deed Book and Page #: DB 953, Page 563

Property Area in Square Feet or Acres: Tract A 1.72 acres; Tract B 4.86 acres

6. DESCRIPTION OF PROJECT AND PROPOSED USE(S) OF THE PROPERTY:

Separating property into 2 parcels that are currently divided by Flowing Springs Way.

Proposed use of Tract A is an Apartment Building by a different Developer. Proposed use of Tract B is undetermined at this time.

7. DESCRIPTION OF THE EXISTING (OR FORMER) USE(S) OF THE PROPERTY AND CURRENT ZONING:

vacant land

*Applicants include: Property owner(s), Engineer(s), Surveyor(s), or Consultant(s)

8. ARE THERE ANY ANTICIPATED WAIVERS OR VARIANCES? IF YES, PROVIDE DETAILS.

No

9. PARCEL HISTORY (List all pending or previously approved applications on the subject parcels inventoried above, including previous site plan applications if this application is a site plan amendment)

Application No.	Project Name and Phase	Status	Approval Date

See Attached Email from Mr. Chakmakian

10. HAS THE PROPERTY BEEN THE SUBJECT OF ANY COURT ACTION?

☐ Yes (Please specify nature of all proceedings and current status and attach any documents showing court decisions, etc.)

☑ No

11. PLAN/PLAT SUBMISSION TO OTHER AGENCIES (Documentation of all required approvals must be attached to this Application or submitted prior to Preliminary S/LD Application approval)

Agency (Specify others as applicable)	Submittal Date	Approval/Permit Issued	Date of Approval/Issuance
City of Charles Town			
City of Charles Town Utility Board	N/A		
Jefferson County Planning and Zoning Department			
Jefferson County Addressing Office	N/A		
Jefferson County Board of Education			
WV Department of Environmental Protection	N/A		
WV Department of Transportation, Division of Highways			
WV State Historic Preservation Office	N/A		
WV Office of Environmental Health Services			
U.S. Army Corps of Engineers	N/A		

12. FEE CALCULATION (Per Fee Schedule) _____

_____

_____

_____

AMOUNT PAID $_____

APPLICANT CERTIFICATION

I certify that, to the best of my knowledge, the submitted information and statements are true and correct. I also certify that I have received and read Section 1332.03 of the Charles Town S/LD Ordinance and relevant provisions of the Charles Town City Code.

Signature of Applicant

_____ Date _____

Signature of Property Owner (If different than Applicant)

_____ Date _____

Please submit an original completed Application and specified number of Plan/Plat (Three (3) copies at 24" x 36", Adobe PDF format, and Five (5) copies at 11" x 17") copies to the following:

Subdivision Administrator
City of Charles Town
101 E. Washington Street
Charles Town, WV 25414

FOR CITY USE ONLY

Application Number:_____ Date Application Received:_____

Fee: $_____ Paid:$_____ Check No._____

Receipt No._____

Subdivision Administrator Approval:_____ Date:_____

Planning Commission Approval:_____ Date:_____

Comments/Conditions:_____

_____

_____

_____

_____

_____

Kim Coomler

From: Peter Chakmakian <peter@chakmakianlawwv.com>
Sent: Thursday, December 22, 2022 12:17 PM
To: Kim Coomler
Cc: 'Richard Klein'; 'maria@fctwv.com'
Subject: [EXTERNAL] RE: First Charles Town Group Subdivision
Attachments: 20221222121453385.pdf

Importance: High

This is in response to your request that we furnish "History of the Parcel" to be subdivided. The larger tract from which the subject parcel is a part was originally acquired in 1981. Since then, there have been numerous out sales and developments. They are as follows, not necessarily in chronological order:

Tax Map/Parcel	Identification
9.4	Originally Howard Johnson, now Mountain View Restaurant
9.15	Office Building
9.5	Originally Sportsman Motor Lodge
9.17	Originally Pizza Hut, now Walgreen Drug Store
9.18	Originally Hardee's, now Burger King Restaurant
9.19 and 9.25	340 Wash and Lube Car Wash
9.24	Ruby Tuesday Restaurant
9.27	Formerly Merchant Noland Chevrolet, now a vacant building
9.26	A vacant lot
9.13	Kingdom Hall Church and Elite Excursions
9.12	A vacant lot
9.16	Office Building
9.23	Office Building
9.8	52 Unit Apartment Project
9.9	40 Unit Apartment Project
9.14	40 Unit Apartment Project

All of these came out of the original Hassan Tract. The piece that is subject to subdivision, is Parcel 9.2, 6.88 Acres and will be divided in two by Flowing Springs Way. This tract of land has been subdivided and developed many times, either in commercial use or multi-family apartments. I am attaching a portion of the tax map so that you can better understand what I am providing.

Peter L. Chakmakian

From: Kim Coomler <kim.coomler@thinkalphafirst.com>
Sent: Tuesday, December 20, 2022 4:13 PM
To: Peter Chakmakian <peter@chakmakianlawwv.com>
Cc: 'Richard Klein' <richard.klein@thinkalphafirst.com>
Subject: First Charles Town Group Subdivision

Hello Peter, we need your assistance in filling out Section 9 "History of Parcel" of the attached subdivision application. Please let us know if you have any questions. Maria gave us some information but we need additional information specific to previous applications as requested on the form. Please fill in and email back to us. Thank you, Kim

From: Maria Weese <maria@fctwv.com>
Sent: Tuesday, December 20, 2022 3:21 PM
To: Kim Coomler <kim.coomler@thinkalphafirst.com>
Subject: Re: [EXTERNAL] Re: First Charles Town Group Subdivision

I think we purchesed it in the early 80's it was vacant land that years ago had been an orchard.
For a short time we opened a Family Fun Park and that portion was a driving range.

That's about all I know...

On Tue, Dec 20, 2022 at 3:02 PM Kim Coomler <kim.coomler@thinkalphafirst.com> wrote:

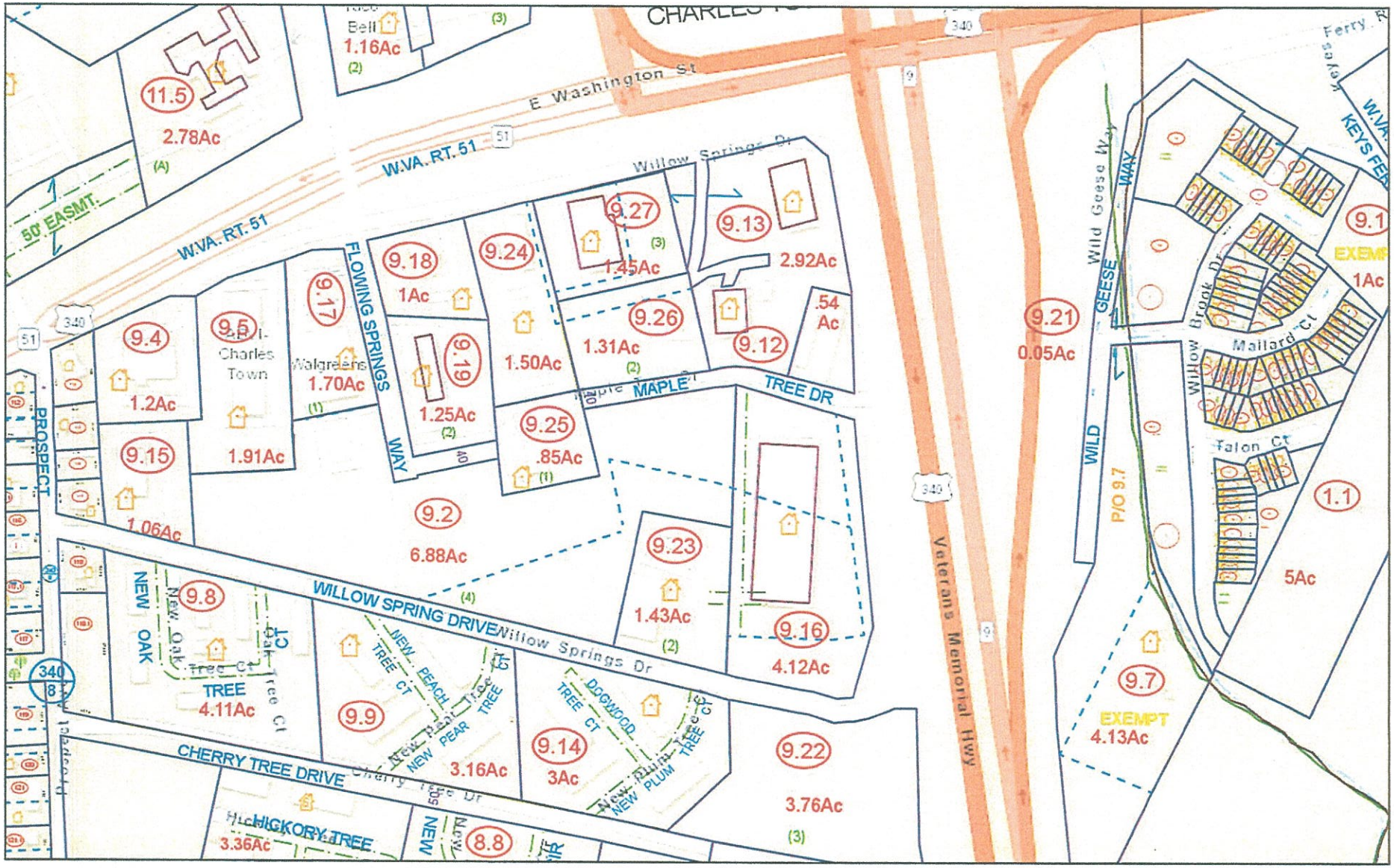
> Thank Maria, still need your help with no. 9 titled Parcel History as we do not know what the history of the property is, such as any previously approved application, etc. as stated. Thanks again, Kim

From: Maria Weese <maria@fctwv.com>
Sent: Tuesday, December 20, 2022 2:56 PM
To: Kim Coomler <kim.coomler@thinkalphafirst.com>
Subject: [EXTERNAL] Re: First Charles Town Group Subdivision

Hi Kim,

I have filled out what I can...Hope this helps.

Viewer Map



December 20, 2022

1:4,514

0 162.5 325 650 ft

0 45 90 180 m

County of Loudoun, VITA, Esri, HERE, Garmin, INCREMENT P, Intermap, NGA, USGS

Me

Copyright 2014



VICINITY MAP SCALE 1" = 500'

NOTES:

1. THIS PLAT WAS PREPARED WITHOUT THE BENEFIT OF A TITLE REPORT AND MAY BE SUBJECT TO RECORDED OR UNRECORDED RIGHT-OF-WAYS, EASEMENTS, RESTRICTIONS OR EXEMPTIONS NOT SHOWN HEREON.
2. THIS PROPERTY IS NOT IN AN AREA DESIGNATED AS A SPECIAL FLOOD AREA, AS SHOWN ON FEMA MAP # 54037C0137E, EFFECTIVE DATE 12/18/2009, .
3. THERE ARE NO WETLANDS LOCATED ON THIS PROPERTY PER THE NATIONAL WETLAND INVENTORY.
4. THE PARENT TRACT CREATED ON PLAT DATED FEB. 2004, AND APPROVED MAY 14TH, 2004 (PLAT BOOK 20, PAGES 92-92C) BY THE JEFFERSON COUNTY DEPARTMENT OF PLANNING, ZONING, AND ENGINEERING, ALONG WITH A MERGER PLAT (PLAT BOOK 25 PAGE 338) ALTERING THE PROPERTY SIZE WHICH WAS APPROVED BY THE CITY PLANNER ON 4/24/2012, BOTH OF WHICH PREDATE THE ADOPTION OF THE CHARLES TOWN SUBDIVISION ORDINANCE ENACTED IN JUNE 2012.
5. THE PARENT PROPERTY IS ZONED: GENERAL COMMERCIAL.
6. THE SETBACKS ARE AS FOLLOWS:
   FRONT: 40' MIN. SIDE: 10' MIN. (OR 25' WHEN ADJOINING RESIDENTIAL) REAR: 30' MIN.
7. MAX BUILDING HEIGHT = 55'; MAX STORIES= 5; MAX COVERAGE 90%
8. PUBLIC WATER AND SANITARY SEWER ARE AVAILABLE FOR THESE PROPERTIES AND WILL BE PROVIDED BY CITY OF CHARLES TOWN UTILITY BOARD.
9. A BLANKET EASEMENT IS GRANTED TO THE APPROPRIATE PUBLIC UTILITIES IN ALL ROAD RIGHT-OF-WAY FOR CONSTRUCTION AND MAINTENANCE OF WATER AND SEWER LINES.
10. ALL RESIDENTIAL AND NON-RESIDENTIAL BUILDING LOTS SHALL HAVE A STABILIZED CONSTRUCTION ENTRANCE INSTALLED PRIOR TO BEGINNING CONSTRUCTION ON THE LOT.
11. FOR DRIVEWAYS THAT REQUIRE A CULVERT FOR DITCH DRAINAGE, THE MINIMUM CULVERT SIZE SHALL BE 15" IN DIAMETER.
12. FLOWING SPRING WAY IS AN EXISTING CITY STREET, THEREFORE A WEST VIRGINIA DOH PERMIT IS NOT NEEDED.

NAD83 WVSP NORTH (4701)

0 30 60 120 Feet
1" = 60'

CITY OF CHARLES TOWN, LIST OF WAIVERS			
ORDINANCE	SECTION OF ORDINANCE	DESCRIPTION OF WAIVER OR VARIANCE	DATE GRANTED
NONE REQUESTED			

AREA TABLE

EXISTING PARCEL	± 6.8799 ACRES
PARCEL A	± 1.7230 ACRES
PARCEL B	± 4.8666 ACRES
RIGHT OF WAY	± 0.2903 ACRES

CURVE TABLE					
CURVE	LENGTH	RADIUS	DELTA	CHORD LENGTH	CHORD BEARING
C1	107.90	262.95	23°30'38"	107.14	S00°30'08"W
C2	45.66	284.96	9°10'50"	45.61	N81°33'44"E
C3	128.41	312.94	23°30'39"	127.51	N00°30'08"E

ALPHA ASSOCIATES, INC.
535 W. KING STREET
MARTINSBURG, WV 25401
PHONE: 304-264-0051
TOLLFREE: 877-264-0051
www.thinkALPHAfirst.com

LEGEND

T.M.	TAX MAP NUMBER	T	TELEPHONE MANHOLE
PAR.	PARCEL NUMBER		WATER VALVE
D.B.	DEED BOOK	W	WATER METER
PG.	PAGE NUMBER		FIRE HYDRANT
N/F	NOW OR FORMERLY	S	SANITARY SEWER MANHOLE
P.O.B.	POINT OF BEGINNING	W	WATER LINE (AS PAINTED IN FIELD)
EX.	EXSISTING		PROPERTY LINE
	5/8" REBAR WITH CAP FOUND		ADJOINER LINE
	5/8"X30" REBAR WITH ORANGE CAP SET	E	UNDERGROUND ELECTRIC LINE (AS PAINTED IN FIELD)
	POINT	T	TELEPHONE LINE (AS PAINTED IN FIELD)
	5/8" REBAR FOUND		
IPF	IRON PIPE FOUND		
C.I.	CURB INLET		

N/F
FIRST CHARLES TOWN GROUP, INC.
CHARLES TOWN CORPORATION
T.M. 15 PAR. 9.26
P.B. 20 PG. 92
ZONE:
USE: VACANT

MAPLE TREE DR. EXTENDED
(40' RIGHT OF WAY)
N 81°18'21" E 281.16'

N/F
FIRST CHARLES TOWN GROUP, INC.
CHARLES TOWN DISTRICT
T.M. 10 PAR. 9.16
D.B. 948 PG. 260
ZONE: GENERAL COMMERCIAL
USE: COMMERCIAL

S 02°27'22" W 303.76'

STORM DRAIN EASEMENT
PER PB: 20 PG 92-92C

N 13°25'14" W 147.86'

GRADING AND STORM
DRAINAGE EASEMENT
PB: 20 PG. 92-92C

N/F
FIRST CHARLES TOWN GROUP, INC.
CHARLES TOWN DISTRICT
T.M. 10 PAR. 9.19
D.B. 596 PG. 187
ZONE: GENERAL COMMERCIAL
USE: COMMERCIAL

WATER LINE EASEMENT
(TO BE ADJUSTED ON
AS-BUILT LOCATION)
PB: 20 PG. 92-92C

N/F
FIRST CHARLES TOWN GROUP, INC.
CHARLES TOWN DISTRICT
T.M. 10 PAR. 9.25
P.B. 20 PG. 92
ZONE: GENERAL COMMERCIAL
USE: COMMERCIAL

FLOWING SPRINGS WAY
(50' RIGHT-OF-WAY)
EXISTING CITY STREET

STORM DRAINAGE &
GRADING EASEMENT
P.B 20 PG. 92-92C

40' RIGHT-OF-WAY

N 78°43'11" E 175.29'

S 04°32'19" E 79.72'

N 78°33'12" E 210.14'

EX. 20' STORM
DRAINAGE EASEMENT
P.B. 18 PG. 126

N 79°12'18" W 186.82'

N: 293073.44
E: 2437826.24

N/F
40 FLOWING SPRINGS
REALTY LLC
CHARLES TOWN CORPORATION
T.M. 15 PAR. 9.17
D.B. 1137 PG. 119
P.B. 25 PG. 338
ZONE: GENERAL COMMERCIAL
USE: COMMERCIAL

C.I.

N 78°49'12" E 50.00'

N 11°15'11" W 14.88'

EXISTING CURB AND GUTTER

N/F
KARMA 4U HOSPITALITY
GROUP INC.
CHARLES TOWN DISTRICT
T.M. 10 PAR. 9.5
D.B. 1201 PG. 218
ZONE: GENERAL
COMMERCIAL
USE: COMMERCIAL

1" IPF

S 09°32'19" E 39.91'

N 78°45'11" E 171.66'

S 11° 15' 10" E 6.95'

C1

C3

N: 293165.66
E: 2436968.50

N 87°23'45" E 221.80'

N 04°49'12" W 158.17'

EX. 10' SANITARY
EASEMENT
D.B. 562 PG. 392

LOT 1
AREA = ± 1.7230 ACRES

50' RIGHT-OF-WAY
EXTENSION
AREA = ± 0.2903 ACRES

S 12°15'28" W 127.91'

N 12°15'28" E 127.86'

RESIDUE
AREA = ± 4.8666 ACRES

EX. 10' SANITARY
EASEMENT
D.B. 562 PG. 392

S 12°35'09" W 290.04'

N/F
AIKENS INVESTMENTS LIMITED PARTNERSHIP
CHARLES TOWN DISTRICT
T.M. 10 PAR. 9.23
D.B. 948 PG. 397
ZONE: GENERAL COMMERCIAL
USE: COMMERCIAL

N/F
TRI-STATE INVESTMENT
PROPERTIES LLC
CHARLES TOWN DISTRICT
T.M. 10 PAR. 9.15
D.B. 1217 PG. 100
ZONE: GENERAL
COMMERCIAL
USE: APARTMENTS

SETBACK (TYP.)
SEE NOTE #6

P.O.B.

N 77°47'34" W 364.77'

C.I.

P.O.B.

WATER
VAULT

N 77°47'34" W 449.22'

N: 292825.36
E: 2437826.24

VERIZON
TELEPHONE BOX

UNDERGROUND ELEC.
(MARKED IN FIELD)

VERIZON LINE
(MARKED IN FIELD)

CONCRETE
PAD

S 77°47'34" E 50.00'

WILLOW SPRINGS DR.
(40' RIGHT-OF-WAY)
EXISTING CITY STREET

I, RICHARD W. KLEIN, A WEST VIRGINIA LICENSED PROFESSIONAL SURVEYOR, DO HEREBY CERTIFY, THAT THIS PLAT SHOWN AND DESCRIBED HEREON IS A TRUE AND CORRECT SURVEY TO THE ACCURACY REQUIRED BY THE CITY OF CHARLES TOWN AND THAT THE MONUMENTS HAVE BEEN PLACED AS SHOWN HEREON.

RICHARD W. KLEIN, P.S. 1427 DATE:

CITY FINAL PLAT NO. _____

THIS PLAT WAS APPROVED FOR RECORDATION BY THE CITY OF CHARLES TOWN, ON THE _____ DAY OF _____, 2022, SUBJECT TO ANY CONDITIONS SPECIFIED HEREON.

ALL EXPENSES INCURRED WITH RESPECT TO IMPROVEMENTS FOR ALL UTILITY SERVICES, PAVING, GRADING, LANDSCAPING, CURBS, GUTTERS, SIDEWALKS, ROAD LIGHTING, ROAD SIGNS, FLOOD PROTECTION DEVICES, DRAINAGE STRUCTURES, AND ALL OTHER IMPROVEMENTS THAT MAY BE REQUIRED SHALL BE THE RESPONSIBILITY OF THE SUBDIVIDER AND NOT THE CITY.

SECRETARY OF THE PLANNING COMMISSION DATE:

ACCEPTANCE STATEMENT:

THE DEVELOPER, IN SIGNING THIS PLAT, AGREES TO ABIDE BY ALL CONDITIONS, TERMS AND SPECIFICATIONS PROVIDED HEREON.

OWNER DATE:

SKETCH PLAN OF SUBDIVISION

FOR

FIRST CHARLES TOWN GROUP, INC.

CHARLES TOWN CORPORATION
T.M. 15 PAR. 9.2 D.B. 953 PG. 563
JEFFERSON COUNTY, WEST VIRGINIA

OWNER/DEVELOPER:
FIRST CHARLES TOWN GROUP, INC.

ADDRESS:
PO BOX 183,
CHARLES TOWN, WV 25414

PHONE:
304-725-8250

ATTN:
MARIA V. WEESE

PROJ. NO.: 2210118.00
DATE: 1/30/2023

SHEET NO.:
1 OF 1

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z:\projects\2022_jobs\2210118\00\drawings\survey\current\221118 xv-base.dwg 2/2/2023

Planning Commission
101 East Washington Street
Charles Town, WV 25414

SCHEDULED

Meeting: 02/27/23
Department: Planning Commission
Category: Report
Initiator:

AGENDA ITEM (ID #)

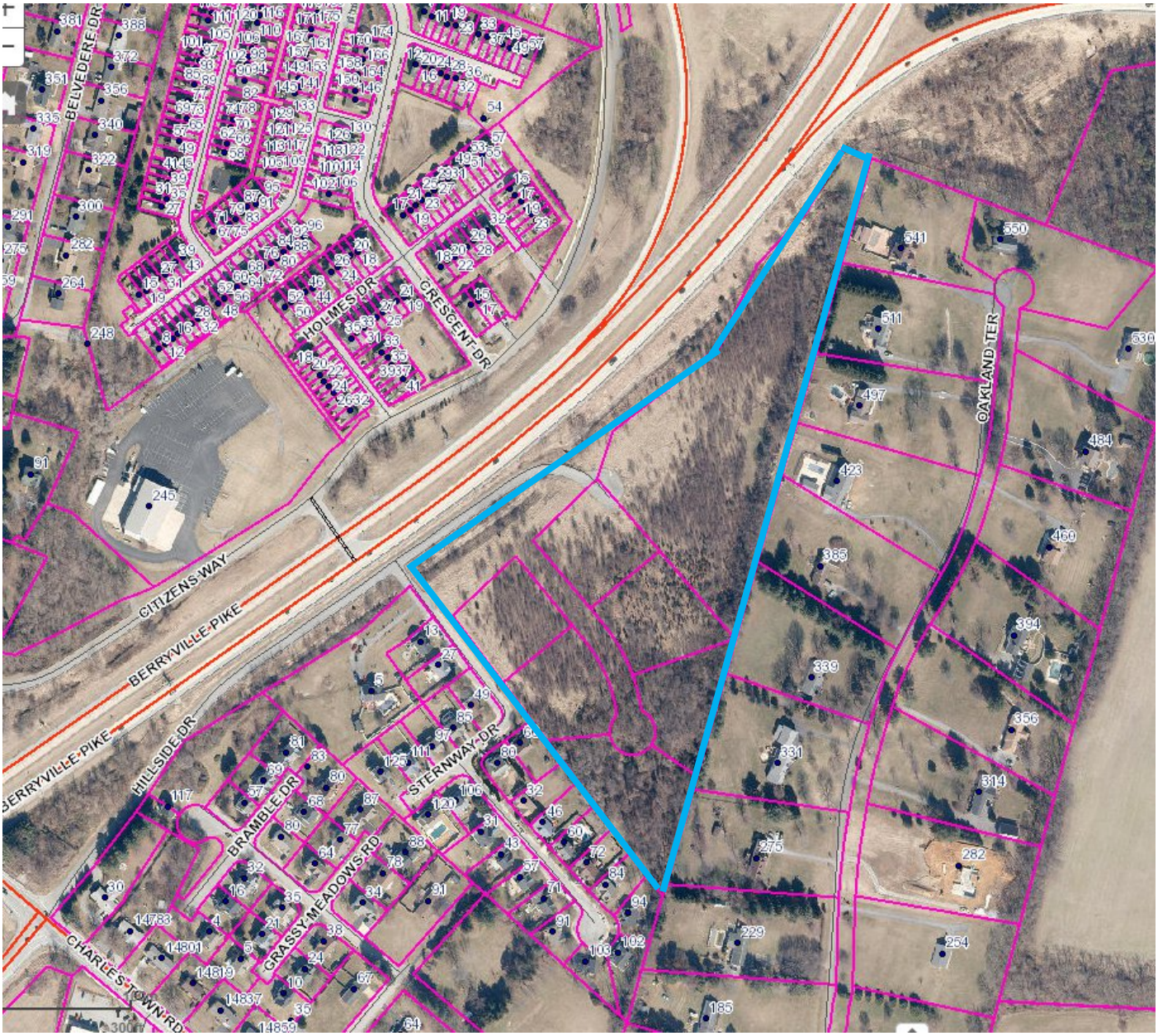
SLD2022-04 Hillside - COMPLETION CHECK

ATTACHMENTS:

- Staff Report.docx
- Sketch Plan Application.pdf
- 2023-02-10 Elec Meter Wavier Application.pdf
- 2023-01-19 Sketch Plan Set.pdf

Sketch Plan Completeness Review
SLD2022-04/200185

Date: For the February 27th, 2023 Planning Commission meeting
Applicant: Christopher Consultants Ltd.
Property Owner: Hillside Investments LLC.
Report by: James Newman, City Planner, Zoning/Subdivision Administrator.
Proposal: Major Subdivision and Land Development.
Property Location: TD 03 / Map: 9 / Parcel 67, Lots 2A & 2B. Located on Hillside Drive.
Current Zoning: Residential Medium-High Density (R-15). Property roughly outlined in blue below.



PROJECT OVERVIEW

The development of 13.71 acres into 128 townhouses.

SKETCH PLAN

The sketch plan meets the requirement of being a complete application as stated in Subdivision Ordinance Section 1332.03.C.2.C. This does not mean the subdivision application meets the criteria for approval; it merely means that the application is deemed complete by staff.

ZONING REVIEW

Residential Medium-High Density (R-15). Maximum density is 15 units per acre, with minimum lot size for townhomes set at 2,000 sq. ft. Maxim height is 3 stories. Required parking for townhomes is 1.8 spaces per unit, which would total 230 spaces. Applicant is proposing 276 spaces.

WAIVER

The applicant, based on dialogue with electricity provider Potomac Edison Company, is also requesting a waiver from Subdivision Section 1333.20 K, which requires that "*All electric meters shall be located in the rear of dwelling units, except where a waiver may be granted by the Planning Commission*."

CONCLUSION

Staff deems the application complete; the Planning Commission should vote to determine the application is complete. If deemed complete, a public hearing for both the sketch plan and the waiver will be scheduled for March 27th, 2023.

CHARLES TOWN, WEST VIRGINIA
Department of Community Development
Division of Planning and Zoning
101 East Washington Street, P.O. Box 14
Charles Town, West Virginia 25414

Phone: (304) 725-2311 **Fax (304) 725-1014**

File Number: _____
Staff Initials: _____
Fees Paid: _____

https://goo.gl/KGzDMZ

Sketch Plan Review Checklist
Amended 2017 Subdivsion Ordinance

(please check one) ___✓___**Major S/LD Application** or
_____**Zoning Use Permit, Special Exception Use, or Sketch Plan (requirements found in the Supplemental Regulations of the Zoning Ordinance)**

Project Name: _____

Property Owner Information					
Property Owner:	Hillside Investment LLC				
Mailing Address:	175 John J Thomas Way				
City:	Charles Town	State:	WV	Zip Code:	25414
Phone Number:	304)283-2601	Email:			
Signature:				Date:	6-2-22

Applicant's Registered Engineer or Surveyor or Design Consultant					
Name:	Christopher Consultants Ltd - Attn. Sylke Knuppel				
Mailing Address:	4601 Forbes Boulevard # 140				
City:	Lanham	State:	MD	Zip Code:	20706
Phone Number:	240) 296-1574	Email:	sylkeknuppel@ccl-eng.com		

Physical Property Details					
Physical Address:					
City:	Charles Town	State:	WV	Zip Code:	25414
Tax District:		Map No:	9	Parcel No:	67
Parcel Size:	13.71 Acres	Deed Book:	691	Page No:	432

Zoning of Subject Property			**Is the Project to Be:**	**Is Property In:**
Urban Reserve (UR)	Residential Medium-High Density (R-15)	Neighborhood Commercial (NC)	Planned Unit Development (PUD)	Historic Overlay District (HOD)
General Commercial (GC)	Old Town Residential (OT-R)			Floodplain Overlay District (FOD)
Old Town Mixed Use Commercial (OT-MUC)	Neighborhood Residential (NR)			

City Use Only	1st Review	2nd Review	3rd Review	4th Review
Submittal Date				
Zoning Administrator				
City Planner				
GIS/Addressing				
Return Date				

Sketch Plan Application No._____

SKETCH PLAN APPLICATION

SUBDIVISION AND LAND DEVELOPMENT ORDINANCE
ARTICLE 1332, SUBDIVISION AND LAND DEVELOPMENT APPLICATION & APPROVAL REQUIREMENTS

To assist the Subdivision Administrator in the review of a Sketch Plan Application, the Applicant must utilize this form to supply the City with the information prescribed under Section 1332.03 of the Charles Town S/LD Ordinance. The submission of this form, along with the prescribed information and required fees, shall serve as the Applicant's Sketch Plan Application as required by Ordinance Section 1332.03. Applicant is responsible to ensure the standards of Ordinance Section 1332.04, Sketch Plan Requirements, are met and provided herein is a checklist of the Sketch Plan requirements.

1. DATE _____ 5/26, 2022

2. APPLICATION TYPE*

☐ Zoning Use Permit, Special Exception Use and Sketch Plan requirements found in the Supplemental Regulations of the Zoning Ordinance
- Submit Three (3) 11" x 17" copies of the Sketch Plan shall be submitted and in Adobe PDF format

☑ Major S/LD Development
- Submit Three (3) 18" x 24" copies of the Sketch Plan shall be submitted and in Adobe PDF format

*There are two types of Sketch Plan submissions:

1. For Zoning Use Permit, Special Exception Use and Sketch Plan requirements found in the Supplemental Regulations of the Zoning Ordinance. Submission standards are found in Section 1332.04(D).
2. For a Sketch Plan for a Major S/LD application, submission standards are found in Section 1332.04(E)

3. APPLICANT'S NAME* Christopher Consultants Ltd - Attn. Sylke Knuppel

Address: 4601 Forbes Boulevard # 140, Lanham, MD 20706

Telephone Number (240) 296-1574 Fax Number ( )

Email Address sylkeknuppel@ccl-eng.com

4. PROPERTY OWNER'S NAME Hillside Investment LLC

Address: 175 John J Thomas Way, Charles Town, WV 25414

Telephone Number (304)283-2601 Fax Number ( )

Email Address

5. LEGAL DESCRIPTION OF THE SUBJECT PROPERTY (list all parcels that apply)

Property Address:

Tax Map # and Parcel: Tax Map#: 9 Parcel#: 67

Deed Book and Page #: Deed Book: 691 Page#: 432

Property Area in Square Feet or Acres: 13.71 Acres

6. DESCRIPTION OF PROJECT AND PROPOSED USE(S) OF THE PROPERTY:

The project proposes a Subdivision, Parcel 67, Lots 2A and 2B, and consists of 126 Townhouse lots. The acreage to be developed is approximately 13.71 acres. Each townhouse unit is three(3) stories, 20' x 40', and 2,400 SF.

7. DESCRIPTION OF THE EXISTING (OR FORMER) USE(S) OF THE PROPERTY AND CURRENT ZONING:

The property is located south of Berryville Pike and is accessible from Hillside Drive. They are currently vacant and are designated as General Commercial in the City of Charles Town Zoning Map. The property is in Neighborhood Residential (NR) Zone.

*Applicants Include: Property owner(s), Engineer(s), Surveyor(s), or Consultant(s)

8. ARE THERE ANY ANTICIPATED WAIVERS OR VARIANCES? IF YES, PROVIDE DETAILS.

n/a

9. HAS THE PROPERTY BEEN THE SUBJECT OF ANY COURT ACTION?

☐ Yes (Please specify nature of all proceedings and current status and attach any documents showing court decisions, etc.)

☑ No

10. PARCEL HISTORY (List all pending or previously approved applications on the subject parcels inventoried above, including previous site plan applications if this application is a site plan amendment)

Application No.	Project Name and Phase	Status	Approval Date

11. INTERESTED PARTY ADDRESSES, FOR PUBLIC NOTICE (including across street)
(Interested parties are defined as adjacent properties within 100 feet).

Owner	# and Street	City, State, Zip

APPLICANT CERTIFICATION

I certify that, to the best of my knowledge, the submitted information and statements are true and correct. I also certify that I have received and read Section 1332.02 of the Charles Town S/LD Ordinance and relevant provisions of the Charles Town City Code.

Signature of Applicant

_____ Date 6-2-22

Signature of Property Owner (If different than Applicant)

_____ Date _____

Please submit an original completed Application and specified number of Site Plan copies to the following:

Subdivision Administrator
City of Charles Town
101 E. Washington Street
Charles Town, WV 25414

FOR CITY USE ONLY

Application Number:_____ Date Application Received:_____

Fee: $_____ Paid:$_____ Check No._____

Receipt No._____

Subdivision Administrator Approval:_____ Date:_____

Planning Commission Approval:_____ Date:_____

Comments:_____

_____

_____

_____

_____

_____

Conditions of Approval (Attach Additional Comments As Needed)

Instructions

1. This checklist is provided as a quick reference guide only. The Consultant/Developer is responsible for reading the regulations and fully complying with all the requirements. All references to the Subdivision Ordinance and Zoning Ordinance are cited for informational purposes only.

2. The checklist shall be completed by the Engineer/Surveyor or Design Consultant and attached to the Sketch Plan review submission.

Requried Submittal Information

_____ 1 Check for Application Fees

_____ 1 Completed Application and Checklist (Signed by owner)

_____ 3 Sets of Sketch Plans and Adobe PDF Format

Sub-Section	*Ordinance Requirements: (See instructions on page 2)*	Engineer /Surveyor	1st Review	2nd Review	3rd Review	4th Review	Review Key
							✓ Ok
							O Incomplete
							N/A Not Applicable
							X Unacceptable
Sub-Section	**SUBDIVISION ORDINANCE Section 1332.04, Sketch Plan Requirements**						
A	**THERE ARE TWO TYPES OF SKETCH PLAN SUBMISSIONS:** **Sections in Red and Blue are depict the different types.**						
A1 and D	For: **• Zoning Use Permit** **• Special Exception Use** **• Sketch Plan requirements found in the Supplemental Regulations of the Zoning Ordinance** The following information shall be provided for Sketch Plan review:						
D1	Three (3) 11" x 17" copies of the Sketch Plan shall be submitted and in Adobe PDF format.						
D2	The Sketch Plan shall be drawn to a 1"=50' scale						
D2	The Sketch Plan must illustrate the following elements in such a way that the Subdivision Administrator or authorized designee can determine if the proposed Subdivision or Land Development meets the criteria of this Ordinance, **as applicable:**						
D2a	Existing conditions, including boundary lines of the property						
D2b	A land use plan, showing the location, arrangement and approximate boundaries of all proposed land uses						
D2c	Vicinity map, north arrow, scale (written and graphic) and date						
D2d	Name of proposed project or other identifying title and date plan was prepared. Name and address of the Engineer, Surveyor, Architect, Landscape Architect, Land Planner or Property Owner who prepared the plan						
D2e	Current zoning and total area of the property						
D2f	Maximum and proposed density						
D2g	Available utilities						
D2h	All existing sanitary sewer facilities and combined sewer facilities						
D2i	Depict location or statement of proposed water and sewer supply and other utility improvements						
D2j	Existing covenants						
D2k	General layout of any proposed number of Lots, average Lot sizes and any proposed commercial uses, including any associated parking. Include proposed height of structures						
D2l	Statement of total acreage of the tract being subdivided or developed						
D2m	Location of proposed Street layout, including connections to adjoining streets or vacant lots						
D2n	The location of sidewalks, trails and crosswalks						
D2o	Proposed open space and/or recreation areas, including notes on the plan describing the proposed use, activity area and/or improvement						
D2p	Any other information requested by the Subdivision Administrator in order for the Subdivision Administrator to make an accurate determination.						
A2 and E	For a **Major S/LD Application.** The following information shall be provided for Sketch Plan review:						
E1	Three (3) 18" x 24" copies of the Sketch Plan shall be submitted and in Adobe PDF format.	✓					
E2	The Sketch Plan shall be drawn to a 1"=50' scale	✓					
E2	The Sketch Plan must illustrate the following elements in such a way that the Subdivision Administrator or authorized designee can determine if the proposed Subdivision or Land Development meets the criteria of this Ordinance:						
E2a	Existing conditions, including boundary lines of the property	✓					
E2b	A land use plan, showing the location, arrangement and approximate boundaries of all proposed land uses	✓					

	Ordinance Requirements: (See instructions on page 2)	Engineer /Surveyor	1st Review	2nd Review	3rd Review	4th Review	Review Key	
							✓	Ok
							O	Incomplete
							N/A	Not Applicable
							X	Unacceptable
E2c	Vicinity Map, North arrow, scale (written and graphic) and date	✓						
E2d	Names of the abutting owners, adjoining lot lines and structures on abutting lots within 100 feet of the property	✓						
E2e	Title of the proposed project; the date, month and year the plan was prepared or revised; the name of the applicant(s), owner(s), and contract owner(s) and the name and address of the Engineer, Surveyor, Architect, Landscape Architect, or Land Planner who prepared the plan, including firm name	✓						
E2f	Current zoning and total area of the property	✓						
E2g	Maximum and proposed density based on the Net Buildable Land Area	✓						
E2h	Available utilities	✓						
E2i	All existing sanitary sewer facilities and combined sewer facilities	✓						
E2j	Depict location or statement of proposed water and sewer supply and other utility improvements	✓						
E2k	Existing covenants	N/A						
E2l	General layout of any proposed number of Lots, average Lot sizes and any proposed commercial uses, including any associated parking. Include proposed height of structures	✓						
E2m	Statement of total acreage of the tract being subdivided or developed, including the Net Buildable Land Area	✓						
E2n	The approximate acreage in common open space, in each use and housing type and in roads, streets or rights-of-way for the total development	✓						
E2o	The proposed number of dwelling units of each type in each in the total development	✓						
E2p	Location of proposed Street layout, including connections to adjoining streets or vacant lots	✓						
E2q	The location of sidewalks, trails and crosswalks, as may be applicable	✓						
E2r	Proposed open space and/or recreation areas, including notes on the plan describing the proposed use, activity area and/or improvement. The amount, approximate boundaries and location of common open space, with the percentage of the total acreage of the site to be placed in common open space	✓						
E2s	The location of environmental sensitive land to be included in common open space	N/A						
E2t	Notes indicating any modifications, waivers, variances, special exceptions and/or conditional uses that are required	N/A						
E2u	The location and extent of proposed buffers	✓						
E2v	The proposed location, arrangement, and right-of-way widths of roads and streets, including roads and streets providing access to adjoining parcels. The location and arrangement of street entrances, driveways and parking areas	✓						
E2w	Calculations describing all proposed bonus factors with the location of and specifications for bonus improvements, when proposed	N/A						
E2x	Any other information requested by the Subdivision Administrator in order for the Subdivision Administrator to make an accurate determination	N/A						
Sub-Section	**SUBDIVISION ORDINANCE Section 1333.01, General Site Planning and Design Specifications**							
D1d	There is **no** requirement that a Sketch Plan or Preliminary Plat show phasing.							

Waiver Application No._____

WAIVER APPLICATION

SUBDIVISION AND LAND DEVELOPMENT ORDINANCE
SECTION 1331.12, (V) REQUIREMENTS

To assist staff in the review of a waiver application to the Planning Commission (PC), the applicant must supply all of the information contained in this application form. This application must be signed by all owners of the real estate which is the subject of the application. The owners may designate one or more professional agents to represent them in the application process using the spaces provided on this form.

Incomplete applications will be subject to scheduling delay. Applicants are encouraged to meet with staff prior to filing. A public hearing will be scheduled within 45 days of the receipt of a completed application.

Approval of a waiver by the Planning Commission does not relieve the applicant from other requirements including, but not limited to, signs(s), building, zoning and use permits or site plans.

As part of this application, the following must be provided:

1. $150.00 Application Fee.
2. A Completed Application.
3. As applicable, supporting documents included, but not limited to site plan or depiction of the requested Waiver.

It is the applicant's responsibility to make a good-faith effort to provide the Subdivision Administrator, as applicable, with a current list containing the accurate names and mailing addresses of all interested parties. For purposes of this provision, "interested parties" shall mean Landowners of Adjacent Property. The applicant shall provide the addresses in order to comply with Section 1331.12.B of the Subdivision Ordinance

Legal Notices

The following shall occur at least 15 days prior to the Public Hearing: notice of the hearing shall be advertised by the Planning Commission as a Class I legal advertisement in the local newspaper, posting of a sign upon the property, and letters to adjacent and confronting land owners within 100 feet of the subject property.

Definition of a Waiver

Adjustments that may be made to the requirements of this Ordinance to unusual site conditions in order to achieve a better design. Waivers may not be used to circumvent the process requirements of this Ordinance.

The Charles Town Subdivision Ordinance

To grant a Waiver as permitted in the Subdivision Ordinance, the Planning Commission makes findings as specified in Section 1331.12(B)(2).

In order to issue a Waiver, the Commission must make the following written findings regarding the Waiver sought and all of the following can be met:

A waiver request may be granted by the Planning Commission only when it shall be determined that:

1. That the design of the project will provide public benefit such as a reduction in City maintenance cost, greater open space, parkland consistent with the City parks plan, or benefits of a similar nature;

2. The waiver, if granted, will not adversely affect the public health, safety or welfare, or the rights of adjacent property owners or residents;

3. That the waiver, if granted, will be in keeping with the intent and purpose of this Ordinance; and

4. That the waiver, if granted, will result in a project of better quality and/or character.

Note:

Additional exhibits may be required by the Subdivision Administrator or Planning Commission such as a lot location survey or site plan showing existing and proposed Structures, easements, watercourses, curb cuts and description of the uses of adjacent property that are necessary to describe existing or proposed conditions.

1. DATE Febuary 10, 2023

2. APPLICANT'S NAME* Christopher Consultants now IMEG - Attn. Sylke Knuppel, PE

Address: 4601 Forbes Boulevard # 140, Lanham, MD 20706

Telephone Number (240) 296-1574 Fax Number ( )

Email Address sylke.s.knuppel@imegcorp.com

3. PROPERTY OWNER'S NAME Hillside Investment LLC

Address: 175 John J Thomas Way, Charles Town, WV 25414

Telephone Number (304)283-2601 Fax Number ( )

Email Address jthomas@jeffersonasphalt.net

4. LEGAL DESCRIPTION OF THE SUBJECT PROPERTY (list all parcels that apply)

Property Address:

Tax Map # and Parcel: Tax Map#: 9 Parcel#: 67

Deed Book and Page #: Deed Book: 691 Page#: 432

Property Area in Square Feet or Acres: 13.71 Acres

5. DESCRIPTION OF THE EXISTING (OR FORMER) USE(S) OF THE PROPERTY AND CURRENT ZONING:

The property area consists of 13.71 acres that is currently partially wooded with some open spaces. This property has been rezoned to Residential Medium-High Density (R-15), which permits residential townhome uses.

6. DESCRIPTION OF PROJECT AND PROPOSED USE(S) OF THE PROPERTY:

The project is Hillside Subdivision, Parcel 67, Lots 2A and 2B, and consists of 128 Townhouses. The acreage to be developed is approximately 13.71 acres at the terminus of Hillside Drive in the City of Charles Town.

*Applicants include: Property owner(s), Engineer(s), Surveyor(s), or Consultant(s)

7. DESCRIPTION OF ANY PROPOSED WORK TO BE DONE TO THE PROPERTY:

The development will include to have off-site street parking, roads and sidewalks, storm drain, stormwater management facilities, public water and sewer, landscape and lighting, and playground amenity.

8. DESCRIPTION OF THE WAIVER REQUEST:

A wavier is being request to SLDO-CTWV, Section 1333.20 Townhouse Standards to allow for the electric meters to be located in the front of the townhome units in the Hillside Development.

9. LIST THE APPLICABLE SECTION(S) OF THE SUBDIVISION ORDINANCE FROM WHICH THE WAIVER IS REQUESTED:

SLDO-CTWV, Section 1333.20 Townhouse Standards

10. JUSTIFICATION FOR THE REQUEST:

A) Explain how the design of the project will provide public benefit such as a reduction in City maintenance costs, greater open space, parkland consistent with the City Parks Plan or benefits of a similar nature;

See attached wavier statement of justification.

B) Explain how the waiver, if granted, will not adversely affect the public health, safety, welfare or the rights of adjacent property owners or residents;

See attached wavier statement of justification.

C) Explain how the waiver, if granted, will be in keeping with the intent and purpose of this Ordinance; and;

See attached wavier statement of justification.

D) Explain how the waiver, if granted, will result in a project of better quality and/or character.

See attached wavier statement of justification.

11. INTERESTED PARTY ADDRESSES, FOR PUBLIC NOTICE (including across street) (Interested parties are defined as adjacent properties within 100 feet).

Owner	# and Street	City, State, Zip
See attached adjoining parcel	summary	

12. PARCEL HISTORY (List all pending or previously approved applications on the subject parcels inventoried above, including previous site plan applications if this application is a site plan amendment)

Application No.	Project Name and Phase	Status	Approval Date
N/A			

13. HAS THE PROPERTY BEEN THE SUBJECT OF ANY COURT ACTION?

☐ Yes (Please specify nature of all proceedings and current status and attach any documents showing court decisions, etc.)

_____

_____

_____

_____

_____

☑ No

APPLICANT CERTIFICATION

I certify that, to the best of my knowledge, the submitted information and statements are true and correct. I also certify that I have received and read Section 1331.12 of the Charles Town S/LD Ordinance and relevant provisions of the Charles Town City Code.

Signature of Applicant

Sylke Knuppel, PE Digitally signed by Sylke Knuppel, PE DN: C=US, E=sylkeknuppel@ccl-eng.com, CN="Sylke Knuppel, PE" Date: 2023.02.10 14:15:10-05'00' Date 02/10/2023

Signature of Property Owner (If different than Applicant)

Date 2/10/2023

Please submit an original completed Application and specified number of Site Plan copies to the following:

Subdivision Administrator
City of Charles Town
101 E. Washington Street
Charles Town, WV 25414

FOR CITY USE ONLY

Application Number:_____ Date Application Received:_____

Fee: $_____ Paid:$_____ Check No._____

Receipt No._____

Subdivision Administrator Approval:_____ Date:_____

Planning Commission Approval:_____ Date:_____

Comments/Conditions:_____

Adjoining Parcels

Wiley & Penny Grimes
541 Oakland Terrace
Charles Town WV 25414

Paul & Robin Cenate
511 Oakland Terrace
Charles Town WV 25414

Sterling & Cathy Hawkins
497 Oakland Terrace
Charles Town WV 25414

Travis & Shelley Grenier
423 Oakland Terrace
Charles Town WV 25414

Kay Spitzer
385 Oakland Terrace
Charles Town WV 25414

Marc & Lisa Matthews
339 Oakland Terrace
Charles Town WV 25414

Barbara & John McMillan
339 Oakland Terrace
Charles Town WV 25414

Glenn & Susan Hipsley
275 Oakland Terrace
Charles Town WV 25414

John Walters
229 Oakland Terrace
Charles Town WV 25414

Anthony & Betheny Troxel
94 Edaw Court
Charles Town WV 25414

William & Nancy Clark
84 Edaw Court
Charles Town WV 25414

Peter & Leigh Owen
49 Steinway Drive
Charles Town WV 25414

Justin & Rebecca Ubert
60 Edaw Court
Charles Town WV 25414

Robert & Laurie Delaney
46 Edaw Court
Charles Town WV 25414

Susan Potter
32 Edaw Court
Charles Town WV 25414

Charles & Margaret Mayah
66 Steinway Drive
Charles Town WV 25414

Gary Smith
27 Steinway Drive
Charles Town WV 25414

Robert & Kesha Glenn
13 Steinway Drive
Charles Town WV 25414

February 10, 2023

Mr. James Newman
City Planner, Zoning/Subdivision Administrator, AICP
City of Charles Town
101 E Washington Street
Charles Town, West Virginia 25414

RE: Wavier Statement of Justification – Hillside Sketch Plan
Project #22063

Dear Mr. Newman:

On behalf of Hillside Investment LLC (Applicant) this application is for approval of Sketch Plan Major Subdivision and Land for the Residential Medium-High Density (R-15) for the Hillside Subdivision.

The Hillside Subdivision is located within the City of Charles Town in Jefferson County, West Virginia. The property area consists of 13.71 acres that is currently partially wooded with some open spaces. The proposed development is to construct 128 townhomes with a minimum lot size of 2,000 sq.ft. Access to the site will be through Hillside Drive by connecting at the current terminus of Hillside Drive. There are internal private roads proposed for internal circulation and access to the townhomes. Properties in the general vicinity of the subject property are a mix of high, mid, and low density residential zoning.

The Applicant met with City Staff to discuss the rezoning of the property for residential development. The Planning Commission approved the property rezoning to Residential Medium-High Density (R-15) from Neighborhood Commercial (NC).

A waiver is being requested to Section 1333.20 Townhouse Standards to allow the electric meters to be located in the front of the townhome units within the Hillside community, as required by the local utility provide Potomac Edison. Attached please find a letter from Potomac Edison stating as much.

In accordance with Section 1331.12 of the Subdivision Ordinance, a waiver request must be deemed to meet the four following criteria:

1. **That the design of the project will provide public benefit such as a reduction in City maintenance cost, greater open space, parkland consistent with the City parks plan, or benefits of a similar nature.**

The proposed project is neutral in this matter. There will be no additional maintenance cost to the City because no new open space or park space is created. The proposal will provide more on-lot open space

for homeowners and avoiding utility easements that would be required behind each home for meter installation. The rear of these units will be utilized for outdoor amenity improvements such as decks and patios by most homeowners which would conflict with any easements in the rear of these units and likely prohibit those improvements by homeowners.

2. The Waiver, if granted, will not adversely affect the public health safety or welfare, or the rights of adjacent property owners or residents.

The proposed project is neutral in this matter. There will be no adverse effect on the public health, safety, welfare, or rights of adjacent property owners or residents. By locating the meters in front of the units, access to the meters and maintenance of the meters will be improved and likely safer for the utility provider employees.

3. That the Waiver, if granted, will be in keeping with the intent and purpose of this Ordinance.

The rear of these units will be utilized for outdoor amenity improvements such as decks and patios by most homeowners which would conflict with any easements in the rear of these units and likely prohibit those improvements by homeowners. Fences, if installed by homeowners would limit access. The intent of the Ordinance is to allow for a waiver where rear access is not feasible for access and safety of the workers.

4. That the Waiver, if granted, will result in a project of better quality and/or character.

Due to the denial of placement of the meters to the rear of the buildings by the electric company, a Waiver request is unavoidable. Similar to other recent townhome projects, the electric provider will not install meters in the rear of the units. If granted the waiver will provide and allow for the development of the townhomes associated with the Hillside development.

Sincerely,

IMEG Corp.
Sylke S. Knuppel, PE
Project Executive
sylke.s.knuppel@imegcorp.com

SSK/ll

PotomacEdison
A FirstEnergy Company

901 Wilson Street
Martinsburg, WV 25401

August 9, 2022

RECEIVED
JAN 30 2023
BY:

Sylke Knuppel
Christopher Consultants
4035 Ridge Top Road, Suite 601
Fairfax, VA 22030

Re: Meters on rear of structures

Dear Ms. Knupple:

This letter is to inform you that the Potomac Edison Company, a First Energy Company is denying your request to install electric meters on the rear of townhomes being built in Charles Town, WV. After review with management, Potomac Edison continues to stand with its practice of requiring electric service to be taken on the fronts or nearest corning to the electric facilities available. Listed are a few reasons for this practice in the past and going forward into the future.

All electric facilities are placed on the front property corners as needed within the subdivisions being developed. Installing electric meters on the rear of structures would result in the electric service wire wrapping around the structure to get to the meter socket. The added number of sweeps in this run would increase the pulling tension on the wire and cause possible premature failure. This practice would also increase service lengths which would increase the chance of voltage flicker for those residences.

Safety of Potomac Edison workers is also a very real concern if meters were installed on the rear of structures. Many homeowners seeking a bit of privacy tend to install fencing which creates access issues for the metering employees as well as linepersons if there is trouble with a meter socket. Fencing is also used to keep dogs and other animals inside the perimeter of the rear yard which highly increases the chances of meter reading folks being bitten.

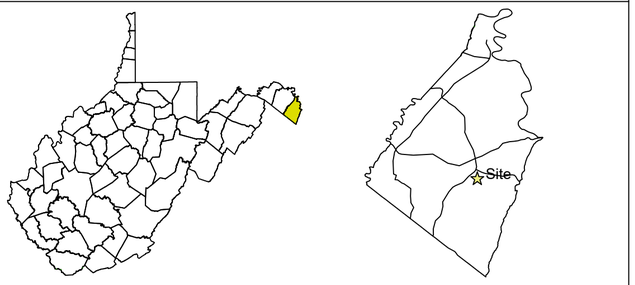
There are other reasons why the practice of taking electric service on the rear of structures is not a good practice, but safety, reliability and construction constraints are among the leading reasons.

If you have any questions or comments concerning this matter, please feel free to contact me at jsmit21@firstenergycorp.com or by telephone at 304-267-3244.

Sincerely,

John A. Smith
Distribution Technician IV
Martinsburg Service Center

GENERAL LOCATION



HILLSIDE

SKETCH PLAN
MAJOR SLD 2022-TBD

CHARLES TOWN CORP. DISTRICT (3) - MAP 9 - PARCEL 67, LOTS 2A & 2B
DEED BOOK 691 - PAGE 432
CITY OF CHARLES TOWN, WEST VIRGINIA
ZONED RESIDENTIAL MEDIUM-HIGH DENSITY (R-15)

Plan Revisions

Date	Comment
1/13/23	Resubmission

christopher consultants | now IMEG
4601 Forbes Blvd. Suite 140
Lanham, MD 20706 P 240.296.1574
engineering • surveying • land planning

STATE & LOCAL PERMITS

AGENCY	PERMIT #/APPROVAL DATE

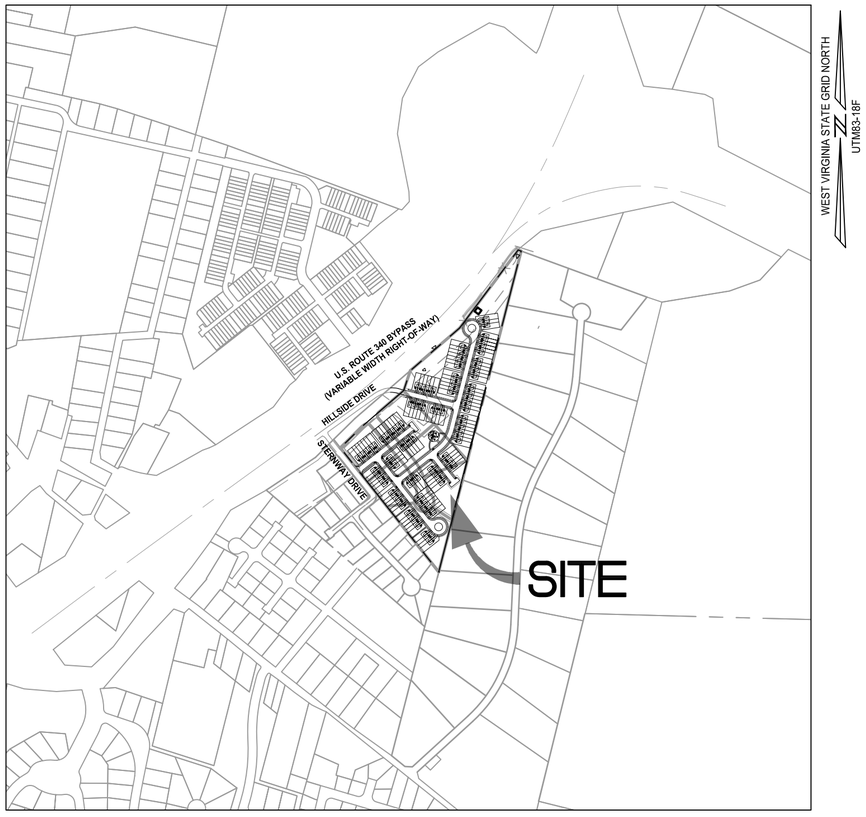
CALL "MISS UTILITY"

MISS UTILITY OF WEST VIRGINIA (MUWV) AT 811 OR 1-800-245-4848, 48 HOURS PRIOR TO THE START OF WORK. EXCAVATORS MUST NOTIFY ALL PUBLIC UTILITY OPERATORS WHO MAINTAIN UNDERGROUND UTILITY LINES IN THE AREA OF PROPOSED EXCAVATING OR BLASTING AND HAVE THOSE FACILITIES LOCATED BY THE UTILITY COMPANIES PRIOR TO COMMENCING EXCAVATION. THE EXCAVATOR IS RESPONSIBLE FOR COMPLIANCE WITH ALL COUNTY REQUIREMENTS, WEST VIRGINIA CODE AND REGULATIONS.

UTILITY NOTICE (AS NEEDED)

Contractors shall notify all public utility operators who maintain underground utility lines in the area of proposed excavating or blasting at least two (2) working days, but not more than ten (10) working days, prior to commencement of excavation or demolition. Names and telephone numbers of the operators of underground utility lines appear below. These numbers shall also be used to serve in an emergency condition.

Water:	Charles Town Utility Board 832 S. George Street Charles Town, WV 25414 (304) 725-2316
Sewer:	Charles Town Utility Board 832 S. George Street Charles Town, WV 25414 (304) 725-2316
Power:	Potomac Edison P.O.Box 3615 Akron, OH 44309 (800) 686-0011
Phone:	Frontier Communications 1108 N. Mildred Street Ranson, WV 25438 (304) 728-8500
Soil Conservation:	Eastern Panhandle Conservation District 151 Aikens Center, Suite 2 Martinsburg, WV 25404 (304) 263-4376



VICINITY MAP
SCALE: 1" = 600'

SHEET INDEX:

SK-1 - SKETCH PLAN COVER SHEET
SK-2 - SKETCH PLAN NOTES
SK-3 - SKETCH PLAN NOTES AND LEGEND
SK-4 - SKETCH PLAN
SK-5 - SKETCH PLAN

"This Sketch Plan was approved by the City of Charles Town, on the _____ day of _____ , 20_____ , subject to any conditions specified hereon.

This plan is vested and valid for one (1) year with the possibility of a one (1) year extension per Section 1332.03(C)(2)(F)(5) of the City of Charles Town Subdivision and Land development Ordinance.

All expenses incurred with respect to improvements for all utility services, paving, grading, landscaping, curbs, gutters, sidewalks, road lighting, road signs, flood protection devices, drainage structures and all other improvements that may be required shall be the responsibility of the subdivider and not the City.

_____ _____
Secretary of the Planning Commision Date

"The developer, in signing this plat/plan, agrees to abide by all conditions, terms and specifications provided heron; and to complete all the improvements required by the Preliminary Plat and Plan or site plan."

_____ 6-2-22
HILLSIDE INVESTMENT LLC Date
175 JOHN J THOMAS WAY
CHARLES TOWN, WEST VIRGINIA 25414

"The Engineer and/or Surveyor, in signing this plat/plan, attests to the best of his or her knowledge, is plan is complete and accurate."

_____ 1/27/2023
CHRIS LEMON Date
CHRISTOPHER CONSULTANTS LLC

DEVELOPER
APPLICANT/OWNER
HILLSIDE INVESTMENT LLC
175 JOHN J THOMAS WAY
CHARLES TOWN, WEST VIRGINIA 25414
(304) 283-2601

SKETCH PLAN - COVER SHEET
HILLSIDE
691/432 MAP 9 PARCEL 67
LOTS 2A (RESIDUE) & 2B
JEFFERSON COUNTY, WV

CHRISTOPHER H. LEMON REGISTERED 6/13/2024 23092 STATE OF WEST VIRGINIA PROFESSIONAL ENGINEER

PROJECT: 22063.001.00
DRAWING NO: 111667
SCALE: AS SHOWN
DATE: JANUARY 18, 2023
DESIGN: SSK/DHL
DRAWN: PJS/DHL
CHECKED: SSK
SHEET No.
SK-1

\\cclpfs01\Production\Projects\22063\00100\111697 Concept Sketch\C100-Sketch Plan.dwg

GENERAL NOTES

1. Methods and materials used in the construction of the improvements herein shall conform to current Jefferson County Construction Standards and Specifications and/or current WVDOH Standards and Specifications.

2. The Engineer shall not have control over or charge of and shall not be responsible for construction means, methods, techniques, sequences or procedures nor for safety precautions and programs in connection with work shown on these plans. The Engineer is not responsible for the contractor's schedules or failure to carry out the work. The Engineer is not responsible for acts or omissions of the contractor, subcontractor, or their agents or employees, or any other person performing portions of the work.

3. The Contractor, Owner or Developer shall be responsible for securing any third party inspection/testing service to insure construction compliance with these plans and specifications. It is Christopher Consultants recommendation that a third party inspection/testing service be employed to ensure that project is completed and materials installed meet the details and specifications in these plans.

4. The location of existing utilities shown in these plans are taken from existing records and available asbuilt data. It shall be the contractors responsibility to verify the exact horizontal and vertical location of all existing utilities as needed prior to construction. The contractor shall be responsible for the digging of all test holes that may be required, whether recommended or not by these plans, to determine the exact location and elevation of existing utilities. If any conflicts arising from this existing utility verification or if during the course of construction, any object of an unusual nature is encountered, the contractor shall cease work in that area and immediately notify Christopher Consultants at (240) 296-1574 and/or the proper authority. Christopher Consultants any engineer associated with these plans shall not be responsible or liable for any construction cost that may be associated with the installation or reinstallation any utility or other improvements if not notified of any discrepancies between actual field conditions and the approved plan.

5. The approval of these plans in no way relieve the developer, the contractor, or their agents of any legal responsibility which may be required by the code of West Virginia or any other ordinance enacted by Jefferson County nor does it guarantee the issuance of any required permit by Jefferson County, WVDOH or any other Agency.

6. An approved set of plans and all applicable permits must be available at the construction site at all times during construction. A representative of the developer must be available at all times.

7. The contractor shall provide adequate means of cleaning mud from trucks and/or other equipment prior to entering public streets, and it is the contractors responsibility to clean streets, allay dust, and to take whatever measures are necessary to insure that public streets are maintained in a clean, mud and dust free condition at all times.

8. The developer will be responsible for any damage to the existing streets and utilities which occurs as a result of his construction project within or contiguous to the existing right-of-way.

9. Warning signs, markers, barricades or flagmen should be in accordance with the State and Federal Manual on Uniform Traffic Control Devices (MUTCD).

10. All unsuitable material shall be removed from the construction limits of the site plan before placing embankment.

11. All pavement sections shown on these approved plans are based on a minimum CBR value of 6 and are for preliminary design only. Final pavement design shall be based upon actual field tested CBR values. The Contractor or Developer shall be responsible for field tests per WVDOH standards to obtain actual CBR values for final design. Final pavement designs will be approved by WVDOH and/or the Owner/Developer, which ever applicable, prior to installation.

12. All springs shall be capped and piped to the nearest storm sewer manholes or curb inlet. The pipe shall be minimum 6" diameter.

13. When grading is proposed within easements of utilities, letters of permission from all involved companies must be provided to Jefferson County & Charles Town Utility Board (CTUB) prior to issuance of grading and/or site development permits.

14. a. Notification shall be given to the Charles Town Utility Board two weeks prior to construction so they can arrange to have a project representative during construction. The District would like to be in the pre-construction project meetings with the contractor.

    b. Notification shall be given to the Charles Town Utility Board prior to construction of water lines. Information should also be obtained from the appropriate authority concerning permits, cut sheets, and connections to existing lines.

15. The Developer and/or Contractor shall be responsible to supply all utility companies with copies of the approved plans and advise them that all grading shall conform to the approved plans, and further that the utility companies shall be responsible for honoring these plans and the finished grades in the installation of their utility lines.

16. All utilities to be located underground.

17. Contractors shall notify operators who maintain underground utility lines in the area of proposed excavating or blasting at least two (2) working days, but not more than ten (10) working days, prior to commencement of excavation or demolition.

18. The developer will be responsible for the relocation of any utilities which is required as a result of his project. The relocation should be done prior to construction.

19. All parking lot/street light and dry utility design shall be performed and provided separately by others. All dry utility and or lighting information shown hereon is as specified by others and is included for informational purposes only, as directed by the Owner, Developer and/or public agency requirements. Christopher Consultants has not performed the lighting and/or dry utility design and does not warrant and is not responsible for the degree and/or adequacy of illumination on this project or the adequacy of the dry utility to service the site.

20. All sanitary sewers, water mains and appurtenances shall be constructed in accordance with the current standards and specifications of the Charles Town Utility Board.

21. All stormwater piping and structures shown on these plans are only accurate to the inlet or manhole locations as shown hereon. Detail design of stormwater structures were not provided to Christopher Consultants. Actual pipe alignments will be based upon developed structural shop drawings as provided by the manufacturer. Contractor shall make adjustments to pipe alignments base on provided shop drawings. Christopher Consultants will not be held responsible or liable for any discrepancies or changes caused by the structural design. Contractor may submit shop drawings to Christopher Consultants for review and approval at contractor's expense. Shop drawings will be reviewed for compliance with design plans. The Owner or Developer will be responsible for any redesign as a result of structural shop drawing design.

22. Controlled fills shall be compacted to 95% of maximum density as determined by method "A" per standard proctor AASHTO-T99, ASTM-D698, or VTM-1 as applicable. Density shall be certified by a registered professional engineer and results submitted to Jefferson County, prior to pavement construction. If a geotechnical report has been prepared, it should supersede the requirements in this note.

23. Refer to Geotechnical Engineer for methods, materials and details for construction of all earthwork activities.

24. Any retaining wall 2 ft. or greater in height shall require the issuance of a separate building permit.

25. Construction debris shall be containerized. No less than one litter receptacle shall be provided at the construction site.

26. Christopher Consultants, Ltd. (CCL) issued this plan set based on project criteria dictated by the client and municipal codes. This plan set is not considered complete or appropriate for construction until ALL necessary agencies have given approval AND this plan set is signed and sealed by a licensed professional. Any work, planning, scheduling, material purchases and/or construction prior to approvals and licensed/professional sealing will be performed at the risk of the personnel authorizing work. GE shall be held harmless from any costs, time delay and/or material changes incurred on work started before this plan set receives approvals and seals.

27. There is no 100-yr floodplain associated with the property according to the FEMA flood map Community-Panel #54037C0139E, Effective Date 12/18/2009.

28. No known wetlands have been identified on the subject property.

28. Other developments are actively seeking approval of the waiver for the electric meter location.

WVDOH Notes

WV1. All work, construction methods and materials shall conform with the West Virginia Division of Highways "STANDARD SPECIFICATIONS ROADS AND BRIDGES Adopted January 1, 2017" and Supplemental Specifications dated January 1, 2018. All work on this project shall also conform with The Soil Conservation Service Erosion and Sediment Control Regulations and any other state, federal, or local regulations applicable. In the event of conflict between any of these standards, specifications, or plans, the most stringent shall govern.

WV2. All construction shall comply with the latest U.S. Department of Labor Occupational Safety & Health Administration.

WV3. When working on WVDOH right-of-way, all traffic control, whether permanent or temporary, shall be in accordance with "Manual on Temporary Traffic Control for Streets and highways" 2006 Edition as published by WVDOH.

WV4. Design features relating to construction or to regulation, control and safety of traffic may be subject to change as deemed necessary by WVDOH.

WV5. Prior to initiation of work, Contractor shall be responsible for acquiring all necessary WVDOH land use permits for any work on WVDOH right-of-way.

WV6. If required by the local WVDOH Residency Office, a preconstruction conference must be arranged and held by the engineer and/or developer with the attendance of the contractor, various County agencies, utility companies and WVDOH prior to initiation of work.

WV7. Contractor shall notify the local WVDOH Residency Office when work is to begin or cease for any undetermined length of time. WVDOH will also require 48 hours notice for any inspection. Please contact the Burlington, WV field office at 304-289-3521.

WV8. The Contractor will be responsible for maintaining adequate access to the project from the adjacent public roadway through construction and maintenance of a construction entrance in accordance with the Soil Conservation Service Erosion & Sediment Control Handbook. Furthermore, access to other properties affected by this project shall be maintained through construction.

WV9. Contractor shall ensure adequate drainage is achieved and maintained on the site during and at the end of construction.

WV10. All water and sewer lines within existing or proposed WVDOH right-of-way are to have minimum 36" cover and, when possible, to be installed under roadway drainage facilities.

WV11. Any unusual subsurface conditions encountered during the course of construction shall be immediately brought to the attention of the engineer and WVDOH. Work shall cease in that vicinity until an adequate design can be determined by the engineer and approved by WVDOH.

WV12. All undercut areas and borrow material shall be inspected and approved by WVDOH Inspector prior to placement of fill.

WV13. All roadway fill, base, subsurface material and backfill of utility/storm sewer trenches shall be compacted in 6" lifts to 98% of theoretical maximum density as determined by AASHTO T-99 Method A, within plus or minus 2% of optimum moisture for the full width of any dedicated street right-of-way. At the direction of WVDOH Inspector density tests performed by a qualified independent agency shall be conducted as required in the WVDOH Road and Bridge Specifications. A copy of all tests shall be submitted to WVDOH prior to final WVDOH approval.

WV14. WVDOH Standard CD and UD underdrains shall be installed where indicated on these plans and further where determined necessary by WVDOH Inspector.

WV15. The installation of any entrances and mailboxes within any dedicated street right-of-way shall meet WVDOH minimum design standards and is the developer's responsibility.

WV16. If required by the local WVDOH Residency Office, copies of all invoices for materials within any dedicated street right-of-way must be provided to the WVDOH Inspector prior to acceptance of work. Unit and total prices may be obscured.

WV17. Prior to acceptance by WVDOH of any streets, any required street signage and/or pavement markings must be installed by the developer.

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Lanham, MD 20706 P 240.296.1574

SKETCH PLAN - NOTES
HILLSIDE
691/432 MAP 9 PARCEL 67
LOTS 2A (RESIDUE) & 2B
JEFFERSON COUNTY, WV

CHRISTOPHER H. LEMON
REGISTERED
6/13/2024
23092
STATE OF WEST VIRGINIA
PROFESSIONAL ENGINEER

PROJECT: 22063.001.00
DRAWING NO: 111667
SCALE: AS SHOWN
DATE: JANUARY 18, 2023
DESIGN: SSK/DHL
DRAWN: PJS/DHL
CHECKED: SSK
SHEET No.
SK-2

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PROJECT NARRATIVE

The project is Hillside Subdivision, Parcel 67, Lots 2A and 2B, and consists of 128 Townhouses. The acreage to be developed is approximately 13.71 acres at the terminus of Hillside Drive in the City of Charles Town. Each townhouse unit is three (3) stories, with a minimum 2,000 SF lot. This property has been rezoned to Residential Medium-High Density (R-15), which permits residential townhome uses. The Sketch Plan applies Residential Medium-High Density (R-15) District Bulk and Area Regulations (Table 1322.07) for the townhome lot layout with variations as noted below.

DEVELOPMENT STANDARD

HILLSIDE				
DEVELOPMENT STANDARDS	**sf**	**acres**		
PROPERTY AREA	597,208	13.71		
PUBLIC ROW DEDICATION (HILLSIDE DRIVE)	14,978	0.34		
PRIVATE STREET A	56,883	1.31		
PRIVATE STREET B	11,252	0.26		
PRIVATE STREET C	32,675	0.75		
PRIVATE STREET D	22,114	0.51		
SWM AREA	36,633	0.84		
NET BUILDABLE LAND AREA [1]	422,673	9.70		
DATA TABLE FOR THE NEIGHBORHOOD COMMERCIAL (R-15) DISTRICT				
SEC. 1322.08 BULK & AREA REGULATIONS			**REQUIRED/ ALLOWED**	**PROPOSED**
TOWNHOME LOTS				
Dwelling Units			N/A	128
Minimum Lot Size (sf)				
Interior Lots			2,000	2000
End Lots			2,000	3000
Minimum Lot Width (ft)			18	20
BUILDING SETBACKS (Min. ft)				
Front Yard[2]			25	25
Side Yard[3]			10	10
Rear Yard			20	20
Maximum Lot Coverage (%)	MAX		60	60
Required Open Space (%)	MIN		10	10
Maximum Stories	MAX		3 stories	3 stories
Maximum Building Height (ft)			35	35
SEC. 1333.20.G OFF-STREET PARKING REQUIREMENTS		**RATE**	**REQUIRED**	**PROPOSED**
SINGLE FAMILY (Per du)		1.8	230	
Off-Street Parking Spaces				256
Additional Street Parking				20
Total Parking Spaces			**230**	**276**
NOTES				
[1] When calculating the density of a development it shall be calculated from the Net Buildable Land Area of all parts of the development in the same Zoning District.				
[2] Frontyard setback shall be measured from the face of the curb.				
[3] No Side Yard shall be required adjoining any Lot line that coincides with party-wall in an attached Dwelling or other Use.				
[4] Corner Lots. A Setback area at least equal to the minimum Front Yard Setback shall be provided along all portions of a Corner Lot abutting any public Street. Except where the applicant is granted an exception under the following provisions for a Front Yard Setback exception with respect to one or more property lines abutting a public Street. The Yard and property line directly opposite (behind) the front facade of the main Building (as reasonably determined by the Zoning Administrator) shall be the designated Rear Yard and rear line, respectively;				
Waivers Requests				
1333.2	Electric meter waiver to allow for the electric meters to be located in the front of the house units			

LEGEND

- EX. INDEX CONTOUR MAJOR (260)
- EX. INT. CONTOUR MINOR (258)
- EX. PROPERTY LINE
- EX. ADJACENT PROPERTY LINE
- EX. ROAD CENTERLINE
- EX. FENCE (X)
- EX. GUARDRAIL
- EX. STORM PIPE
- EX. WATERLINE (W)
- EX. SANITARY SEWER
- EX. STORM DITCH

- PROPOSED PROPERTY LINE
- PROPOSED PROPERTY SETBACK
- PROPOSED RIGHT-OF-WAY BOUNDARY
- PROPOSED ROAD CENTERLINE
- PROPOSED BUILDING OUTLINE
- PROPOSED CURB & GUTTER (TRANSITION / REVERSE)
- PROPOSED PARKING LINE
- PROPOSED RETAINING WALL
- PROPOSED STORM PIPE
- PROPOSED WATERLINE
- PROPOSED SANITARY SEWER
- PROPOSED SANITARY FORCE MAIN PIPE
- PROPOSED PARKING COUNT (12)
- PROPOSED STORM MANHOLE
- PROPOSED STORM INLET STRUCTURE
- PROPOSED STORM CURB INLET STRUCTURE
- STREET LIGHT
- PROPOSED SANITARY SEWER MANHOLE
- PROPOSED WATER VALVE
- PROPOSED WATER FITTINGS
- PROPOSED STORMWATER FACILITY
- ACCESSIBLE CURB RAMP

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SKETCH PLAN - NOTES & LEGEND

HILLSIDE

691/432 MAP 9 PARCEL 67

LOTS 2A (RESIDUE) & 2B

JEFFERSON COUNTY, WV

CHRISTOPHER H. LEMON
REGISTERED
6/13/2024
23092
STATE OF WEST VIRGINIA
PROFESSIONAL ENGINEER

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DRAWING NO: 111667
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SK-3

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SKETCH PLAN
HILLSIDE
691/432 MAP 9 PARCEL 67
LOTS 2A (RESIDUE) & 2B
JEFFERSON COUNTY, WV

CHRISTOPHER H. LENNON
REGISTERED PROFESSIONAL ENGINEER
STATE OF WEST VIRGINIA
23092
8/31/2024

PROJECT: 22063.001.00
DRAWING NO: 111667
SCALE: AS SHOWN
DATE: JANUARY 18, 2023
DESIGN: SSK/DHL
DRAWN: PJS/DHL
CHECKED: SSK
SHEET No. SK-4

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WEST VIRGINIA STATE GRID NORTH
UTM83-18F

U.S. ROUTE 340 BYPASS
(VARIABLE WIDTH RIGHT-OF-WAY)

TIE INTO EXISTING ROAD AND RIGHT OF WAY

PROPOSED SANITARY FORCE MAIN TO FLOW TO BAILEY BROOKS WAY PUMP STATION

SWM OUTFALL #2

EX. CONCRETE CHANNEL

PROPOSED SWM FACILITY TYP.

HILLSIDE DRIVE

HC RAMP TYPE IIIB TYP.

STREET LIGHT TYP.

CONCEPTUAL FORCEMAIN AND PUMP STATION. LOCATION TO BE DETERMINED. DESIGNED AS PART OF SEPARATE PROJECT

SWM OUTFALL #1

PRIVATE ROAD 'A'

HC RAMP TYPE I TYP.

RIGHT OF WAY TERMINATES AT INTERSECTION AND TRANSITIONS TO PRIVATE STREETS

SEE SHEET SK-4

SEE SHEET SK-4

LOT 9
CTD M18 P6.10
SPITZER
3. 865 PG. 647

LOT 10
CTD M18 P6.11
GRENIER
D.B. 1087 PG. 213

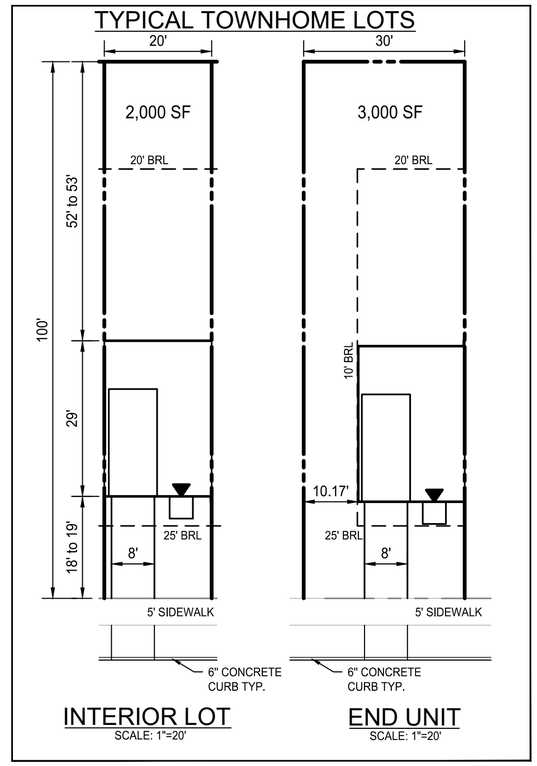
LOT 11
CTD M18 P6.12
CENATE
D.B. 1054 PG. 556

LOT 12
CTD M18 P6.13
CENATE
D.B. 609 PG. 195

LOT 13
CTD M18 P6.14
GRIMES
D.B. 1182 PG. 253

50 25 0 50 100
GRAPHIC SCALE
1" = 50'

TYPICAL TOWNHOME LOTS



INTERIOR LOT
SCALE: 1"=20'

END UNIT
SCALE: 1"=20'

20 10 0 20 40
GRAPHIC SCALE
1" = 20'

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SKETCH PLAN
HILLSIDE
691/432 MAP 9 PARCEL 67
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Planning Commission
101 East Washington Street
Charles Town, WV 25414

SCHEDULED

Meeting: 02/27/23
Department: Planning Commission
Category: Report
Initiator:

AGENDA ITEM (ID #)

SLD2022-02 Norborne-Glebe Phase 15 - Preliminary Plan

ATTACHMENTS:

- Staff Report.docx
- Phase 15 Prelim Application.pdf
- 2022-10-03 Norborne Glebe PH 15 Plan.pdf

Prelimary Plan Review
SLD2022-02/200177

Date: For the February 27th, 2023 Planning Commission meeting
Applicant: Arcadia Land Inc.
Property Owner: Arcadia Land Inc.
Report by: James Newman, City Planner, Zoning/Subdivision Administrator.
Proposal: Preliminary Pan for Norborne-Glebe Phase 15
Property Location: TD: 03 / Map: 12 / Pcl: 0215.0000, located at the end of Candlewood Drive.
Current Zoning: Neighborhood Residential (NR).



PROJECT OVERVIEW
This phase is for the development of 143 townhouse lots, developed over a total of 19.3 acres.

SKETCH PLAN

The sketch plan was unanimously approved by the Planning Commission at a public hearing on June 27, 2022.

A waiver regarding the location of electrical meters was unanimously approved by the Planning Commission at a public hearing on June 27, 2022.

ZONING REVIEW

This plan has been reviewed by the City's Engineering Firm, Kimley-Horn, and they determined it to be in conformance with City Zoning and Subdivision Ordinance requirements.

Parking

258 parking spaces are required, and 412 spaces are proposed. In addition to drive-way parking spaces, two off-street parking bays are proposed, one with 11 spots, the other with 24 spaces.

Landscaping

Street trees are required at a rate of one tree per 50 ft. of road frontage. The applicant is proposing to plant 162 street trees; 161 are required. 16 trees are required around the parking bays.

Townhouse Development Standard

There are 17 townhouse development standards in the Subdivision Ordinance Section 1333.20. All standards are met with this proposed development.

CONCLUSION

Per the City's Engineer, the project conforms to the City Zoning and Subdivision Ordinance requirements. Following Planning Commission review, the applicant will develop a final plan subject to administrative review/approval.

S/LD Application No. SLD-2022-03

SUBDIVISION AND LAND DEVELOPMENT APPLICATION

SUBDIVISION AND LAND DEVELOPMENT ORDINANCE
ARTICLE 1332, SUBDIVISION AND LAND DEVELOPMENT APPLICATION & APPROVAL REQUIREMENTS

To assist the Subdivision Administrator in the review of a Subdivision and Land Development (S/LD) Application, the Applicant must utilize this form to supply the City with the information prescribed under Section 1332.03 of the Charles Town Subdivision Ordinance. The submission of this form, along with the prescribed information and required fees, shall serve as the Applicant's S/LD Application as required by Ordinance Section 1332.03.

1. DATE August 2nd, 20 22

2. APPLICATION TYPE

☐ Minor Subdivision | Final S/LD Plan

Major Subdivision Development*
- Preliminary S/LD Plan and Final Plat

☐ Major Land Development**
- Preliminary S/LD Plan

☒ Major Subdivision and Land Development***
- Preliminary S/LD Plan and Final Plat

*Conventional Subdivision – A Preliminary Plan and Plat Approval and a Final Plan and Plat Approval is required.

**No Division/Merger of Land – A Preliminary Plan and Plat Approval is required for the submission of a building or multiple buildings on one lot where there is no subdivision of land (commonly referred to as a site plan).

***A Preliminary Plan and Plat Approval and a Final Plan and Plat Approval is required for the submission of a building or multiple buildings that will require the merger, adjustment or subdivision of land.

3. APPLICANT'S NAME* Arcadia Land Inc

Address: 108 N. George St. 2nd Floor Charles Town, WV 25414

Telephone Number (443) 286-2786 Fax Number ( )

Email Address gendler@arcadiacompanies.com

4. PROPERTY OWNER'S NAME Same as Above

Address:

Telephone Number ( ) Fax Number ( )

Email Address

5. LEGAL DESCRIPTION OF THE SUBJECT PROPERTY (list all parcels that apply)

Property Address: Located at the intersection of Candlewood Dr and Tamarack Dr.

Tax Map # and Parcel: 03 12021500000000

Deed Book and Page #: 1173/85

Property Area in Square Feet or Acres: 16.33 Acres

6. DESCRIPTION OF PROJECT AND PROPOSED USE(S) OF THE PROPERTY:

The project proposes 143 total townhouse lots and the proposed use is residential subdivision

7. DESCRIPTION OF THE EXISTING (OR FORMER) USE(S) OF THE PROPERTY AND CURRENT ZONING:

Existing use is undeveloped property within a larger subdivision. The current zoning is residential.

*Applicants include: Property owner(s), Engineer(s), Surveyor(s), or Consultant(s)

8. ARE THERE ANY ANTICIPATED WAIVERS OR VARIANCES? IF YES, PROVIDE DETAILS.

N/A

9. PARCEL HISTORY (List all pending or previously approved applications on the subject parcels inventoried above, including previous site plan applications if this application is a site plan amendment)

Application No.	Project Name and Phase	Status	Approval Date
SLD-2013-04	Norborne Glebe Phase 5	Subdivision Plan Approved	1/14/2014
SLD- 2017-05	Norborne Glebe Phase 7-8	Subdivision Plan Approved	9/25/2018
SLD-2016-01	Norborne Glebe Phase 6	Subdivision Plan Approved	9/25/2018
SLD-2017-14	Norborne Glebe Phase 14A	Subdivision Plan Approved	9/25/2018
SLD-2021-02	Norborne Glebe Phase 14B	Subdivison Plan Approved	02/28/2022
SLD-2021-05	Norborne Glebe Phase 9&10	Subdivision Plan Approval Pending	

10. HAS THE PROPERTY BEEN THE SUBJECT OF ANY COURT ACTION?

☐ Yes (Please specify nature of all proceedings and current status and attach any documents showing court decisions, etc.)

☒ No

11. PLAN/PLAT SUBMISSION TO OTHER AGENCIES (Documentation of all required approvals must be attached to this Application or submitted prior to Preliminary S/LD Application approval)

Agency (Specify others as applicable)	Submittal Date	Approval/Permit Issued	Date of Approval/Issuance
City of Charles Town			
City of Charles Town Utility Board			
Jefferson County Planning and Zoning Department			
Jefferson County Addressing Office			
Jefferson County Board of Education			
WV Department of Environmental Protection			
WV Department of Transportation, Division of Highways			
WV State Historic Preservation Office			
WV Office of Environmental Health Services			
U.S. Army Corps of Engineers			

12. FEE CALCULATION (Per Fee Schedule)

$200 Filing Fee

$ 7,150 (143 Lots x $ 50 per lot)

AMOUNT PAID $ 7,350

APPLICANT CERTIFICATION

I certify that, to the best of my knowledge, the submitted information and statements are true and correct. I also certify that I have received and read Section 1332.03 of the Charles Town S/LD Ordinance and relevant provisions of the Charles Town City Code.

Signature of Applicant Gary A. Fidler, its Treasurer Date 8/2/2022

Signature of Property Owner (If different than Applicant)

_____ Date _____

Please submit an original completed Application and specified number of Plan/Plat (Three (3) copies at 24" x 36", Adobe PDF format, and Five (5) copies at 11" x 17") copies to the following:

Subdivision Administrator
City of Charles Town
101 E. Washington Street
Charles Town, WV 25414

FOR CITY USE ONLY

Application Number:_____ Date Application Received:_____

Fee: $_____ Paid:$_____ Check No._____

Receipt No._____

Subdivision Administrator Approval:_____ Date:_____

Planning Commission Approval:_____ Date:_____

Comments/Conditions:_____

_____

_____

_____

_____

_____

THE RED THERMO SECURED "SP" LOGO IN THE LOWER CORNER OF THIS CHECK MUST FADE TEMPORARILY WHEN WARMED BY TOUCH OR FRICTION. SEE BACK FOR ADDITIONAL FEATURES.

ARCADIA DEVELOPEMENT CO.
EAST COAST MANUAL CHECKS
108 N GEORGE STREET
2ND FLOOR
CHARLES TOWN, WV 25414

DATE 8/7/2022

4044

11-24/1210

PAY TO THE ORDER OF City of Charles Town $ 7,350.00

Seventy Three Hundred Fifty 1/100 DOLLARS

WELLS FARGO Wells Fargo Bank, N.A.

MEMO

Mobile Deposit Safe Details on back

⑈004044⑈ ⑆121000248⑆ 4972773154⑈

JB-4050101 RED THERMO SECURED THERMO

NORBORNE GLEBE

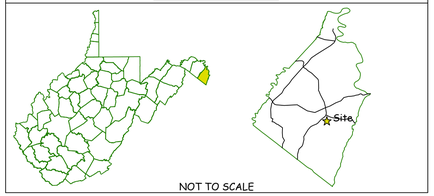
PHASE 15

PRELIMINARY SUBDIVISION / LAND DEVELOPMENT PLAT

MAJOR SLD 2022-03-SP

CHARLES TOWN CORP. DISTRICT (3) - MAP 12 - PARCEL 215
DEED BOOK 1173 - PAGE 85
CITY OF CHARLES TOWN
JEFFERSON COUNTY, WEST VIRGINIA
ZONED NEIGHBORHOOD RESIDENTIAL (NR)

GENERAL LOCATION



Plan Revisions

Revision	Date	Comment
1	09/19/2022	PER CITY COMMENTS
2	10/03/2022	PER CITY & CTUB COMMENTS

STATE & LOCAL PERMITS

AGENCY	PERMIT #/APPROVAL DATE
WVDEP	WVR1101047 / 03/28/2022
WVDOH	05-02-0050 /01-23-2021

CALL "MISS UTILITY"

MISS UTILITY OF WEST VIRGINIA (MUWV) AT 811 OR 1-800-245-4848, 48 HOURS PRIOR TO THE START OF WORK. EXCAVATORS MUST NOTIFY ALL PUBLIC UTILITY OPERATORS WHO MAINTAIN UNDERGROUND UTILITY LINES IN THE AREA OF PROPOSED EXCAVATING OR BLASTING AND HAVE THOSE FACILITIES LOCATED BY THE UTILITY COMPANIES PRIOR TO COMMENCING EXCAVATION. THE EXCAVATOR IS RESPONSIBLE FOR COMPLIANCE WITH ALL COUNTY REQUIREMENTS, WEST VIRGINIA CODE AND REGULATIONS.

UTILITY NOTICE (AS NEEDED)

Contractors shall notify all public utility operators who maintain underground utility lines in the area of proposed excavating or blasting at least two (2) working days, but not more than ten (10) working days, prior to commencement of excavation or demolition. Names and telephone numbers of the operators of underground utility lines appear below. These numbers shall also be used to serve in an emergency condition.

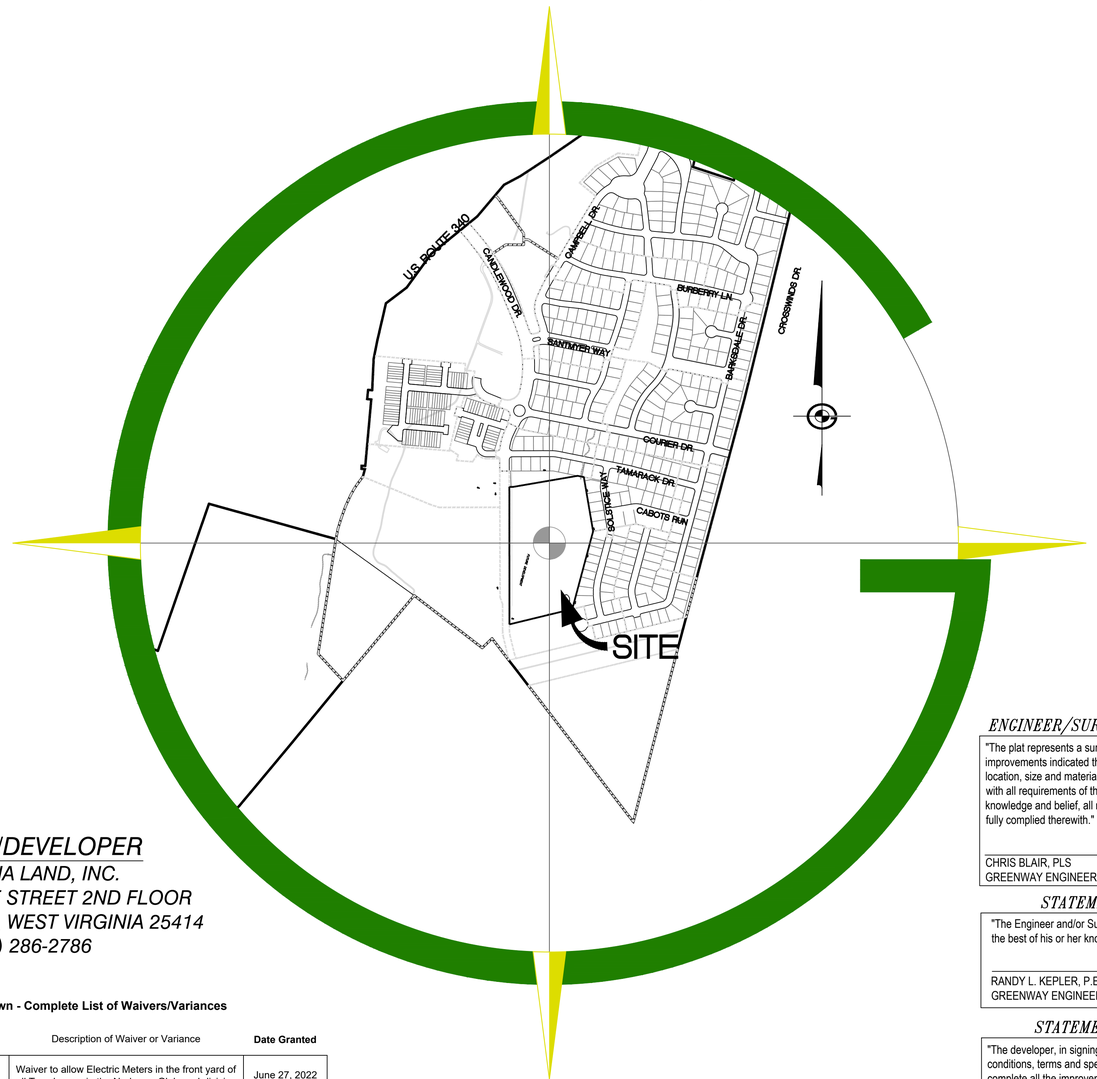
Water: Charles Town Utility Board
832 S. George Street
Charles Town, WV 25414
(304) 725-2316

Sewer: Charles Town Utility Board
832 S. George Street
Charles Town, WV 25414
(304) 725-2316

Power: Potomac Edison
P.O.Box 3615
Akron, OH 44309
(800) 686-0011

Phone: Frontier Communications
1108 N. Mildred Street
Ranson, WV 25438
(304) 728-8500

Soil Conservation: Eastern Panhandle Conservation District
151 Aikens Center, Suite 2
Martinsburg, WV 25404
(304) 263-4376



VICINITY MAP

SCALE: 1" = 600'

OWNER/DEVELOPER

ARCADIA LAND, INC.
108 N. GEORGE STREET 2ND FLOOR
CHARLES TOWN, WEST VIRGINIA 25414
(443) 286-2786

Charles Town - Complete List of Waivers/Variances

Ordinance	Section of Ordinance	Description of Waiver or Variance	Date Granted
SLDO-CTWV	1333.20	Waiver to allow Electric Meters in the front yard of all Townhomes in the Norborne Glebe subdivision	June 27, 2022

"This property is in an area designated as a special flood area, as shown on Community Map/panel Number 54037C0138E, Effective date 12/18/2009."

Sheet List Table

Sheet Number	Sheet Title
1	COVER SHEET
2	GENERAL NOTES & LEGEND
3	ADJOINING OWNER INFORMATION & PHASING KEY
4	E&S PHASE I
5	E&S PHASE II
6	E&S NARRATIVE
7	E&S DETAILS
8	OVERALL PLAN AND SHEET INDEX
9	ROAD & UTILITY PLAN
10	ROAD & UTILITY PLAN
11	GRADING PLAN
12	GRADING PLAN
13	CURB RAMP DETAIL PLAN
14	CURB RAMP DETAIL PLAN
15	CURB RAMP DETAIL PLAN
16	PRELIMINARY PLAN
17	PRELIMINARY PLAN
18	ROAD TYPICAL SECTIONS
19	CANDLEWOOD DRIVE ROAD PROFILES
20	CANDLEWOOD DRIVE ROAD CROSS SECTIONS
21	CANDLEWOOD DRIVE ROAD CROSS SECTIONS
22	CANDLEWOOD DRIVE ROAD CROSS SECTIONS
23	CANDLEWOOD DRIVE ROAD CROSS SECTIONS
24	WALLBERG WAY ROAD PROFILES
25	WALLBERG WAY ROAD CROSS SECTIONS
26	WALLBERG WAY ROAD CROSS SECTIONS
27	WALLBERG WAY ROAD CROSS SECTIONS
28	BURBANK DRIVE ROAD PROFILES
29	BURBANK DRIVE ROAD PROFILES
30	BURBANK DRIVE ROAD CROSS SECTIONS
31	BURBANK DRIVE ROAD CROSS SECTIONS
32	BURBANK DRIVE ROAD CROSS SECTIONS
33	BURBANK DRIVE ROAD CROSS SECTIONS
34	BURBANK DRIVE ROAD CROSS SECTIONS
35	SEEBACK DRIVE ROAD PROFILES
36	SEEBACK DRIVE ROAD CROSS SECTIONS
37	SEEBACK DRIVE ROAD CROSS SECTIONS
38	SANITARY SEWER PROFILES
39	SANITARY SEWER PROFILES
40	STORM SEWER PROFILES
41	STORM SEWER PROFILES & COMPUTATIONS
42	STORM SEWER PROFILES & COMPUTATIONS
43	STORM SEWER DETAILS
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45	STORM SEWER DETAILS
46	STORM SEWER DETAILS
47	LANDSCAPE PLAN
48	LIGHTING PLAN
49	SITE DETAILS
50	CITY OF CHARLES TOWN DETAILS
51	CTUB DETAILS
52	CTUB DETAILS
53	SWM PLAN
54	SWM COMPS
55	SWM DETAILS

ENGINEER/SURVEYOR'S CERTIFICATION

"The plat represents a survey made by him/her; all Monuments and improvements indicated thereon actually exist, and that their location, size and material are correctly shown; he/she is familiar with all requirements of this Ordinance; and, to his/her best knowledge and belief, all requirements of this Ordinance have been fully complied therewith."

CHRIS BLAIR, PLS — Date
GREENWAY ENGINEERING, INC.

STATEMENT OF ACCURACY

"The Engineer and/or Surveyor, in signing this plat/plan, attests to the best of his or her knowledge, is plan is complete and accurate."

RANDY L. KEPLER, P.E. — Date
GREENWAY ENGINEERING INC.

STATEMENT OF ACCEPTANCE

"The developer, in signing this plat/plan, agrees to abide by all conditions, terms and specifications provided heron; and to complete all the improvements required by the Preliminary Plat and Plan or site plan."

ARCADIA LAND, INC. — Date
108 N. GEORGE STREET 2ND FLOOR
CHARLES TOWN, WEST VIRGINIA 25414

PRELIMINARY PLAN AND PLAT APPROVAL

"This Preliminary Plan was approved by the City of Charles Town, on the _____ day of _____ , 20_____ , subject to any conditions specified hereon.

All expenses incurred with respect to improvements for all utility services, paving, grading, landscaping, curbs, gutters, sidewalks, road lighting, road signs, flood protection devices, drainage structures and all other improvements that may be required shall be the responsibility of the subdivider and not the City.

Secretary of the Planning Commision — Date

APPROVALS

PRELIMINARY PLAT APPROVAL — DATE

PLANNING COMMISSION — DATE

ZONING ADMINISTRATOR — DATE

THESE PLANS ARE IN CONFORMANCE WITH CITY OF CHARLES TOWN STANDARDS AND ORDINANCES. ANY DEVIATION OR CHANGE IN THESE PLANS SHALL BE APPROVED BY THE ZONING ADMINISTRATOR PRIOR TO CONSTRUCTION

704 Foxcroft Avenue
Martinsburg, West Virginia 25401
Telephone: (304) 433-3011
Fax: (540) 722-8528
www.greenwayeng.com

GREENWAY ENGINEERING
PROUDLY SERVING VIRGINIA & WEST VIRGINIA
OFFICES IN: WINCHESTER, VA & MARTINSBURG, WV

COVER SHEET

NORBORNE GLEBE
PHASE 15
CHARLES TOWN CORP. DISTRICT (3)
CITY OF CHARLES TOWN - JEFFERSON COUNTY, WV

RANDY L KEPLER — REGISTERED — 17223 STATE OF WEST VIRGINIA — PROFESSIONAL ENGINEER

DATE: 08/24/2022
SCALE: N/A
DESIGNED BY: AM/CC
FILE NO. 4542A
SHEET 1 OF 55
22-03

LIST OF SERVICES: CIVIL ENGINEERING I GIS I LAND SURVEYING I ENVIRONMENTAL I ANALYTICAL LABORATORY I QUALITY CONTROL TESTING & INSPECTIONS

GENERAL NOTES

1. Methods and materials used in the construction of the improvements herein shall conform to current Jefferson County Construction Standards and Specifications and/or current WVDOH Standards and Specifications.

2. The Engineer shall not have control over or charge of and shall not be responsible for construction means, methods, techniques, sequences or procedures nor for safety precautions and programs in connection with work shown on these plans. The Engineer is not responsible for the contractor's schedules or failure to carry out the work. The Engineer is not responsible for acts or omissions of the contractor, subcontractor, or their agents or employees, or any other person performing portions of the work.

3. The Contractor, Owner or Developer shall be responsible for securing any third party inspection/testing service to insure construction compliance with these plans and specifications. It is Greenway Engineering's recommendation that a third party inspection/testing service be employed to ensure that project is completed and materials installed meet the details and specifications in these plans.

4. The location of existing utilities shown in these plans are taken from existing records and available aebuilt data. It shall be the contractors responsibility to verify the exact horizontal and vertical location of all existing utilities as needed prior to construction. The contractor shall be responsible for the digging of all test holes that may be required, whether recommended or not by these plans, to determine the exact location and elevation of existing utilities. If any conflicts arising from this existing utility verification or if during the course of construction, any object of an unusual nature is encountered, the contractor shall cease work in that area and immediately notify Greenway Engineering at (304) 620-5111 and/or the proper authority. Greenway Engineering or any engineer associated with these plans shall not be responsible or liable for any construction cost that may be associated with the installation or reinstallation any utility or other improvements if not notified of any discrepancies between actual field conditions and the approved plan.

5. The approval of these plans in no way relieve the developer, the contractor, or their agents of any legal responsibility which may be required by the code of West Virginia or any other ordinance enacted by Jefferson County nor does it guarantee the issuance of any required permit by Jefferson County, WVDOH or any other Agency.

6. An approved set of plans and all applicable permits must be available at the construction site at all times during construction. A representative of the developer must be available at all times.

7. The contractor shall provide adequate means of cleaning mud from trucks and/or other equipment prior to entering public streets, and it is the contractors responsibility to clean streets, allay dust, and to take whatever measures are necessary to insure that public streets are maintained in a clean, mud and dust free condition at all times.

8. The developer will be responsible for any damage to the existing streets and utilities which occurs as a result of his construction project within or contiguous to the existing right-of-way.

9. Warning signs, markers, barricades or flagmen should be in accordance with the State and Federal Manual on Uniform Traffic Control Devices (MUTCD).

10. All unsuitable material shall be removed from the construction limits of the site plan before placing embankment.

11. All pavement sections shown on these approved plans are based on a minimum CBR value of 6 and are for preliminary design only. Final pavement design shall be based upon actual field tested CBR values. The Contractor or Developer shall be responsible for field tests per WVDOH standards to obtain actual CBR values for final design. Final pavement designs will be approved by WVDOH and/or the Owner/Developer, which ever applicable, prior to installation.

12. All springs shall be capped and piped to the nearest storm sewer manholes or curb inlet. The pipe shall be minimum 6" diameter.

13. When grading is proposed within easements of utilities, letters of permission from all involved companies must be provided to Jefferson County & Charles Town Utility Board (CTUB) prior to issuance of grading and/or site development permits.

14. a. Notification shall be given to the Charles Town Utility Board two weeks prior to construction so they can arrange to have a project representative during construction. The District would like to be in the pre-construction project meetings with the contractor.

    b. Notification shall be given to the Charles Town Utility Board prior to construction of water lines. Information should also be obtained from the appropriate authority concerning permits, cut sheets, and connections to existing lines.

15. The Developer and/or Contractor shall be responsible to supply all utility companies with copies of the approved plans and advise them that all grading shall conform to the approved plans, and further that the utility companies shall be responsible for honoring these plans and the finished grades in the installation of their utility lines.

16. All utilities to be located underground.

17. Contractors shall notify operators who maintain underground utility lines in the area of proposed excavating or blasting at least two (2) working days, but not more than ten (10) working days, prior to commencement of excavation or demolition.

18. The developer will be responsible for the relocation of any utilities which is required as a result of his project. The relocation should be done prior to construction.

19. All parking lot/street light and dry utility design shall be performed and provided separately by others. All dry utility and or lighting information shown hereon is as specified by others and is included for informational purposes only, as directed by the Owner, Developer and/or public agency requirements. Greenway Engineering has not performed the lighting and/or dry utility design and does not warrant and is not responsible for the degree and/or adequacy of illumination on this project or the adequacy of the dry utility to service the site.

20. All sanitary sewers, water mains and appurtenances shall be constructed in accordance with the current standards and specifications of the Charles Town Utility Board.

21. All stormwater piping and structures shown on these plans are only accurate to the inlet or manhole locations as shown hereon. Detail design of stormwater structures were not provided to Greenway Engineering. Actual pipe alignments will be based upon developed structural shop drawings as provided by the manufacturer. Contractor shall make adjustments to pipe alignments base on provided shop drawings. Greenway Engineering will not be held responsible or liable for any discrepancies or changes caused by the structural design. Contractor may submit shop drawings to Greenway Engineering for review and approval at contractor's expense. Shop drawings will be reviewed for compliance with design plans. The Owner or Developer will be responsible for any redesign as a result of structural shop drawing design.

22. Controlled fills shall be compacted to 95% of maximum density as determined by method "A" per standard proctor AASHTO-T99, ASTM-D698, or VTM-1 as applicable. Density shall be certified by a registered professional engineer and results submitted to Jefferson County, prior to pavement construction. If a geotechnical report has been prepared, it should supersede the requirements in this note.

23. Refer to Geotechnical Engineer for methods, materials and details for construction of all earthwork activities.

24. Any retaining wall 2 ft. or greater in height shall require the issuance of a separate building permit.

25. Construction debris shall be containerized. No less than one litter receptacle shall be provided at the construction site.

26. Greenway Engineering, Inc. (GE) issued this plan set based on project criteria dictated by the client and municipal codes. This plan set is not considered complete or appropriate for construction until ALL necessary agencies have given approval AND this plan set is signed and sealed by a licensed professional. Any work, planning, scheduling, material purchases and/or construction prior to approvals and licensed/professional sealing will be performed at the risk of the personnel authorizing work. GE shall be held harmless from any costs, time delay and/or material changes incurred on work started before this plan set receives approvals and seals.

27. This property does not lie in a 100yr floodplain as designated by FEMA for panel 54037C0138E. Map Effective Date: 12/17/2009.

28. No known wetlands have been identified on the subject property.

WATER AND SEWER NOTES

1. Easements shall be given to the Charles Town Utility Board for the construction and maintenance of sewer facilities, as depicted herein.

2. Installation and maintenance of water and sewer lines shall be in accordance with the WV Department of Health, , the City of Charles Town, and the Charles Town Utility Board requirements.

3. Complete water lateral prior to final paving.

4. Water lines to have a minimum of forty-two inches (42") of cover to crown of pipe. Water lines to have seal of the National Sanitation Foundation. Mechanical joints or slip-on joints with rubber gaslets are preferred by the Health Department.

5. Provide concrete thrust blocking at all water line intersections and direction changes.

6. All water mains must be AWWA C900, CL235 PVC. All sanitary sewer to be PVC ASTM 3034 SDR-35 unless otherwise specified.

7. Water easements are to be dedicated to the Charles Town Utility Board.

8. Storm drain easements are to be dedicated to the City of Charles Town.

9. Sanitary sewer and force main easements are to be dedicated to the Charles Town Utility Board.

10. A horizontal separation of at least 10 foot must be maintained between sanitary sewer and potable water lines except when they are crossing. When water and sewer lines cross, the water line shall be at least 18 inches above the sewer line.

Summary of Water Requirements - Charles Town Utility Board, Charles Town, WV

1. All water mains must be AWWA C900, CL235 PVC. Line extensions must have permitted approval prior to installation.
2. All service lines to be minimum 200 PSI PVC or copper. Final Line size will depend on the type of service. The City will not allow any galvanized lines or fittings. A standard shut off valve must be installed on the property side of the meter for the owner's use; the meter valve is for the city use only.
3. All meters, vaults, and crooks will be set at the property line; the CTUB will install the meters.
4. All service lines will be no deeper than 36" at the meter location to allow access to the setter by the meter installers. Deeper service lines may be acceptable if a crossing conflict is encountered or site conditions dictate.
5. The CTUB will supply the meters, setter and boxes. All non-metallic lines will be installed with tracer ribbon. (Located 6" above the newly installed service line with 3" wide detectable tape.)
6. All multi-meter installations, such as a business or apartment complex are to be set in an outside vault, or an accessible mechanical room, and are to be supplied by the owner. These areas are to be inspected prior to the availability of water service.
7. Fire Hydrants must be American Darling Mark B62B 5-1/4" valve opening with 6" base or equal.
8. Valves are to be AWWA C515 gate valves resilient seated opening left. Valve boxes must be screw type Tyler #562S or equal. All valve riser sleeves are to be cast iron with cap. PVC risers to be approved on a use basis by the CTUB Water Representatives.
9. All valves, bends (45's, 22's and 90's), tees and elbows shall have mechanical restraints (such as mega lugs) and thrust blocks.
10. The CTUB must inspect all work. The contractor must give 24-hour notice to the CTUB for an inspection request. The CTUB may request as-built sketches, photos etc. (as back up)
11. All West Virginia Public Service Commission and WV Health Department, rules and regulations, applying to water and sewer must be followed, and all local state and federal permits and approvals must be obtained prior to performing any water or sewer extensions or upgraded work.

Submittals

1. Prior to the installation of any material or equipment on the project supplied by the Contractor, the Contractor shall submit to the City, three (3) copies of all shop drawings, laying schedules, manufacturer specifications, certification and drawings in accordance with the General Conditions. (Water/Sewer) One copy is for the application file. One copy is for the final inspection compliance. One copy is for inspection review or comments to be completed prior to beginning work. A copy of a current WV Contractors License and proof of Liability Insurance must accompany the submittal.

2. City will require as-built drawings and a copy of submittals for all pipe and and appurtenances used on the project. As-builts shall be furnished in both PDF and AutoCAD formats. An O&M Manual containing, at a minimum, all submittals is to be furnished.

Field Copies of Construction Information

The Contractors shall keep a minimum of one (1) complete copy of the Contract construction plans and specifications (including all revisions and addendums), and all shop drawings issued at the project site. All information shall be kept in a neat and good order and shall be made available for the City's Representative to use at his request.

Open Excavation

1. The depth of trenches shall be such that the location of the proposed pipes will conform with the lines and grades shown on the plans. The shape of all trenches above and within the pipe zone, the construction methods employed, the general protections requirements, the general excavation requirements, the general trenching requirements, and the minimum regulations for trench shoring, shall conform with the regulations set forth under OSHA Regulations 29CFR part 1926 650, 651 & 652. No trenching excavation work shall be performed which is not in accordance with those regulations.
2. The shape of the trenches in the "pipe zone" (which shall be construed to be that portion of the trench between the trench bottom and an elevation 1 foot above the top of the pipe) shall conform to the configuration identified as "Typical Bedding" on Pipe Bedding Drawing #1. The contractor is herein advised that if trench widths in the pipe zone exceed the outside diameter of the pipe plus two feet, and if the City determines that such excessive widths will result in a structural loading for which the pipe is not designed, he shall be required to bed the pipe on a concrete cradle at no additional cost.
3. The Contractor shall shape trenches which are located adjacent to existing above ground or underground structures and/or facilities or in other confined areas, so that such structures and facilities are properly protected against damage or disturbance from settlement or displacement. Adequate sheeting, shoring and/or bracing shall be installed and maintained to provide such protection and the Contractor shall be responsible for all damages resulting to such proposed and existing structures, pipelines, and/or facilities as the result of his failure to use and maintain adequate trench wall support, as well as a result of any other construction activities. The bottoms of all trenches shall be excavated to a depth of 6 inches below the bottom of the proposed lines to accommodate the bedding hereinafter specified.

Pipe Installation

1. Before any pipe is installed in trenches, it shall be inspected for damage and the inside of the pipe shall be swabbed to remove loose dirt and foreign objects, No damaged pipe will be permitted to be installed.
2. All pipes shall be installed to the lines and grades shown on the drawings. No pipes shall be constructed in trenches in which water flows or is pooled and, all pipes shall be carefully handled in the ditch to keep the jointing ends and materials free from dirt during installation. During shut down periods and at the end of each day, all open ends of pipe shall be suitably plugged to prevent the inflow of water, dirt, foreign objects, etc.

Pipe Bedding and Pipe Zone Backfill Material

All proposed pipelines shall be supported on stone dust or #10's small diameter stone. The material shall be placed to a minimum depth of 6 inches below the bottom of the pipe and 6 inches above of the top of the pipe. The material shall be placed in the pipe zone in such a manner as to not disturb, displace, or otherwise misalign the installed pipelines.

Backfill Material Above the Pipe Zone

The material used above the pipe zone shall be such that a satisfactory compaction can be made. At no time shall material bigger than 2 inches in diameter be used. But any material used must be approved by the City before hand. After approval, the entire depth within the backfilled area shall be compacted to provide the minimum percentage of density specified for each area of classification.

Special Backfill Material Below the Pipe Zone

Where muck, quicksand, soft clay, swampy or other material is encountered in the trench bottom, which in the opinion of the City is unsuitable for pipe foundation subgrade or backfill, such material shall be removed to a depth satisfactory to the City. The trench shall then be backfilled to grade with acceptable City approved material, mechanically compacted in successive layers.

Ductile Iron Pipe and Fittings

Ductile iron pipe and fittings under this Contract shall be furnished by the Contractor. All pipes will be slip type joint unless otherwise noted and all fittings will be mechanical joint.

PVC Pipe and Fittings

No glue joints are to be used within the CTUB water or JCPSD right of way. Onsite sewer laterals are to be schedule 40 PVC Pipe or equivalent.

Fire Hydrants

Hydrants shall be furnished and installed complete where shown on the drawings and as approved by the CTUB. This installation shall be adapted to the location of the hydrant so as to make the best installation possible. (note: hydrants no-more than 500 ft apart)

Service Connections for Water Lines

1. Service connections shall be made as indicated on the Contract Drawings.
2. The Contractor shall furnish all fittings required to make the necessary connections. All service line connections shall be made in the presence of the CTUB representative.

Valves and Boxes

Each valve installed underground shall be equipped with a valve box furnished by the Contractor and installed by the Contractor.

Anchoring and Blocking

1. All bends in excess of 10 deg, plugs, caps, tees, and wyes branches along pipelines shall be adequately blocked or anchored to prevent the lines from pulling apart under pressure (see typical concrete blocking).
2. Lugged fitting and tie rods, clamps collars, restrained joints, and anchoring fittings may be substituted in lieu of blocking after having received the approval of the CTUB. Concrete used for blocking and anchoring pipelines in trenches shall consist of concrete as specified elsewhere in these specifications.

Pressure and Leakage Tests

All pipeline shall be tested by the Contractor according with AWWA and witnessed by the CTUB Representative. The Contractor shall furnish all equipment, apparatus, temporary blocking, pumps, taps and gauges to conduct the tests.

Blow Off

Blow off valves shall not be installed.

WATER AND SEWER NOTES (CONT.)

Minimum Pipe Size and System Design

1. The minimum size of water pipe shall be six-inch diameter. This may be increased at the discretion of the City if hydraulic modeling indicates that a larger size is needed to provide pressure and/or fireflow in the area.
2. Dead ends shall be minimized by looping of all mains.
3. Where dead-end mains occur they should be provided with a fire hydrant, for flushing purposes.
4. No flushing device shall be directly connected to any sewer.

Separation of Water Services & Mains from Other Utilities

5 foot horizontal separation from all non-sewer utility lines - electric, phone etc.

Parallel Installation

1. Normal conditions - Water mains shall be laid at least ten feet horizontally from any sanitary sewer, storm sewer or sewer manhole, whenever possible; the distance shall be measured edge-to-edge.
2. Unusual conditions - When local conditions prevent a horizontal separation of 10 feet, a water main may be laid closer to a storm sewer provided that:
   A. The bottom of the water main is at least 18 inches above the top of the sewer
   B. Where this vertical separation cannot be obtained, the water main will be sleeved and all voids will be filled.

Crossings

1. Normal conditions - Water mains crossing house sewers, storm sewers or sanitary sewer shall be laid to provide a separation of at least 18 inches between the bottom of the water main and the top of the sewer, whenever possible.
2. Unusual conditions - When local conditions prevent a vertical separation as described, the following construction shall be used:
3. Water mains passing under sewer shall be protected by providing:
   A. A vertical separation of at least 18 inches between the bottom of the sewer and the top of the water main.
   B. Adequate structural support for the sewers to prevent excessive deflection of the joints and settling on and breaking the water mains;
   C. That the length of the water pipe be centered at the point of crossing so that the joints will be equidistant and as far as possible from the sewer.
   D. Water line shall be sleeved and the void area filled.
4. Sewer manholes - No water pipe shall pass through or come within 5 feet of any part of a sewer manhole.

Private Fire Protection Service

No pipe or fixtures connected with a private fire service served by the CTUB shall be connected with pipes or fixtures supplied with water from any other source.

WVDOH Notes

WV1. All work, construction methods and materials shall conform with the West Virginia Division of Highways "STANDARD SPECIFICATIONS ROADS AND BRIDGES Adopted January 1, 2017" and Supplemental Specifications dated January 1, 2020. All work on this project shall also conform with The Soil Conservation Service Erosion and Sediment Control Regulations and any other state, federal, or local regulations applicable. In the event of conflict between any of these standards, specifications, or plans, the most stringent shall govern.

WV2. All construction shall comply with the latest U.S. Department of Labor Occupational Safety & Health Administration.

WV3. When working on WVDOH right-of-way, all traffic control, whether permanent or temporary, shall be in accordance with "Manual on Temporary Traffic Control for Streets and highways" 2006 Edition as published by WVDOH.

WV4. Design features relating to construction or to regulation, control, and safety of traffic maybe subject to change as deemed necessary by WVDOH.

WV 5. Prior to initiation of work, Contractor shall be responsible for acquiring all necessary WVDOH land use permits for any work on WVDOH right-of-way.

WV 6. If required by the local WVDOH Residency Office, a preconstruction conference must be arranged and held by the engineer and/or developer with the attendance of the contractor, various County agencies, utility companies and WVDOH prior to initiation of work.

WV 7. Contractor shall notify the local WVDOH Residency Office when work is to begin or cease for any undetermined length of time. WVDOH will also require 48 hours notice for any inspection. Please contact the Burlington, WV field office at 304-289-3521.

WV 8. The Contractor will be responsible for maintaining adequate access to the project from the adjacent public roadway through construction and maintenance of a construction entrance in accordance with the Soil Conservation Service Erosion & Sediment Control Handbook. Furthermore, access to other properties affected by this project shall be maintained through construction.

WV 9. Contractor shall ensure adequate drainage is achieved and maintained on the site during and at the end of construction.

WV 10. All water and sewer lines within existing or proposed WVDOH right-of-way are to have minimum 36" cover and, when possible, to be installed under roadway drainage facilities.

WV 11. Any unusual subsurface conditions encountered during the course of construction shall be immediately brought to the attention of the engineer and WVDOH. Work shall cease in that vicinity until an adequate design can be determined by the engineer and approved by WVDOH.

WV 12. All undercut areas and borrow material shall be inspected and approved by WVDOH Inspector prior to placement of fill.

WV 13. All roadway fill, base, subsurface material and backfill of utility/storm sewer trenches shall be compacted in 6" lifts to 98% of theoretical maximum density as determined by AASHTO T-99 Method A, within plus or minus 2% of optimum moisture for the full width of any dedicated street right-of-way. At the direction of WVDOH Inspector density tests performed by a qualified independent agency shall be conducted as required in the WVDOH Road and Bridge Specifications. A copy of all tests shall be submitted to WVDOH prior to final WVDOH approval.

WV 14. WVDOH Standard CD and UD underdrains shall be installed where indicated on these plans and further where determined necessary by WVDOH Inspector.

WV 15. The installation of any entrances and mailboxes within any dedicated street right-of-wayshall meet WVDOH minimum design standards and is the developer's responsibility.

WV 16. If required by the local WVDOH Residency Office, copies of all invoices for materials within any dedicated street right-of-way must be provided to the WVDOH Inspector prior to acceptance of work. Unit and total prices may be obscured.

WV 17. Prior to acceptance by WVDOH of any streets, any required street signage and/or pavement markings must be installed by the developer.

TRIP GENERATION DATA

SINGLE FAMILY (DETACHED) (210)

UNITS	ADT RATE	ADT	PEAK HOUR RATE	PEAK HOUR TRIPS
143	**7.20**	1029.6	**0.74**	42.**18**

LEGEND

EXISTING INTERMEDIATE CONTOUR — 330
EXISTING INDEX CONTOUR — 330
PROPOSED CONTOUR — 400
EXISTING EDGE OF PAVEMENT
PROPOSED EDGE OF PAVEMENT
EXISTING CURB AND GUTTER
PROPOSED CURB AND GUTTER
TRANSITION TO REVERSE CURB
EXISTING TELEPHONE LINE — T
PROPOSED TELEPHONE LINE — T
EXISTING STORM SEWER WITH INLET
PROPOSED STORM SEWER WITH INLET
EXISTING SANITARY SEWER WITH MANHOLE — S
PROPOSED SANITARY SEWER WITH MANHOLE — S
PROPOSED SAN. LAT. CLEANOUT — S
EXISTING ELECTRIC SERVICE — E
PROPOSED ELECTRIC SERVICE — E
EXISTING GAS LINE — G
PROPOSED GAS LINE — G
EXISTING WATERLINE W/ TEE — W
PROPOSED WATERLINE W/ TEE — W
EXISTING FIRE HYDRANT/VALVE/METER
PROPOSED FIRE HYDRANT/VALVE/METER
PROPOSED REDUCER — W
PROPERTY LINE
EXISTING EASEMENT
PROPOSED EASEMENT
PROPOSED CENTERLINE
EXISTING CENTERLINE
EXISTING TREE LINE
FLOW LINE
FENCELINE — X — X — X
EXISTING UTILITY POLE/GUIDE WIRE
EXISTING TELEPHONE PEDESTAL
SIGNS
PARKING INDICATOR
INDICATES THE NUMBER OF TYP. PARKING SPACES — 12
HANDICAP PARKING
VEHICLES PER DAY COUNT — 100
PROPOSED BUILDING ENTRANCE
SANITARY MANHOLE IDENTIFIER — 12
STORM DRAIN STRUCTURE IDENTIFIER — 6
EXISTING SPOT ELEVATION — ×735.4
PROPOSED SPOT ELEVATION — ×35.5
LIGHT POLE

PROJECT NOTES

Zoning and Area Tabulations

Street Address	Candlewood Drive
Parcel Identification No:	03 12021500000000
Zoned	NR (Neighboorhood Reisdential)
Proposed Lots	143 Lots
Total Phase 15 Area	19.373 AC
Lot Area	8.643 AC
Sensitive Areas	0.000 AC
Right-of-Way	5.245 AC
Parking Areas	0.510 AC
SWM Areas	1.475 AC
Net Building Area (NLBA)	12.143 AC
Max Density Allowed ((NLBA/1750)	302 Lots
Total On-Lot Open Space	3.24 AC
Total Off-Lot Open Space	4.98 AC
Total Open Space	8.22 AC
(Minimum 30%)	42%
Required Parking (1.8 per D.U.)	258 Spaces
Total Proposed Parking	412 Spaces
1 per Driveway, 1 per Garage	286 Spaces
Parking Lot Spaces	126 Spaces
Minimum Lot Size	2000 SF
Minimum Lot Width	18 FT
Front Yard Setback	25 FT
Rear Yard Setback	20 FT
Side Yard Setback	10 FT
Maximum Building Height	40 FT
Maximum Building Stories	3 Stories
Required Landscape Plantings:	
Street Trees	1 Tree Per 50 L.F. of Road Frontage See Landscape Sheet for Specifics

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GENERAL NOTES & LEGEND

NORBORNE GLEBE

PHASE 15
CHARLES TOWN CORP. DISTRICT (3)
CITY OF CHARLES TOWN - JEFFERSON COUNTY, WV

Rev. No.	Date
1	09/19/2022

RANDY L. KEPLER — REGISTERED — 17223 — STATE OF WEST VIRGINIA — PROFESSIONAL ENGINEER

DATE: 08/24/2022
SCALE: N/A
DESIGNED BY: AM/CC
FILE NO. 4542A
SHEET 2 OF 55
22-03



KEY TO ADJOINING PROPERTY OWNERS

KEY	TAX IDENTIFICATION NO.	CURRENT OWNER	ADDRESS	CITY/STATE	DEED BOOK NUMBER	DEED BOOK PAGE	LAND USE
1	T.M. 3-10-70	BRANDON & VALERIE SMITH	667 CROSSWINDS DRIVE	CHARLES TOWN, WV 25414	1261	714	Residential 1 Family
2	T.M. 3-10-71	KELLY A. MATTINGLY	665 CROSSWINDS DRIVE	CHARLES TOWN, WV 25414	1174	558	Residential 1 Family
3	T.M. 3-10-28	TODD NOLTE	645 CROSSWINDS DRIVE	CHARLES TOWN, WV 25414	1089	173	Residential 1 Family
4	T.M. 3-10-27	ALBERT W. & LINDA T. CRAVEN	619 CROSSWINDS DRIVE	CHARLES TOWN, WV 25414	9522	44	Residential 1 Family
5	T.M. 3-10-26	NANCY C. MYERS	603 CROSSWINDS DRIVE	CHARLES TOWN, WV 25414	941	103	Residential 1 Family
6	T.M. 3-10-25	NATHAN & SHELLY SPITZER	591 CROSSWINDS DRIVE	CHARLES TOWN, WV 25414	1034	323	Residential 1 Family
7	T.M. 2-18A-31	PERRY L. PAYTON II	567 CROSSWINDS DRIVE	CHARLES TOWN, WV 25414	1117	372	Residential 1 Family
8	T.M. 2-18A-30	NICHOLAS P. & SOPHIA M. RAVIZZA	555 CROSSWINDS DRIVE	CHARLES TOWN, WV 25414	1246	522	Residential 1 Family
9	T.M. 2-18A-29	KATHLEEN M. MATTHEWS	539 CROSSWINDS DRIVE	CHARLES TOWN, WV 25414	1190	175	Residential 1 Family
10	T.M. 2-18A-28	DANIEL P. SHANNON	523 CROSSWINDS DRIVE	CHARLES TOWN, WV 25414	920	545	Residential 1 Family
11	T.M. 2-18A-27	JEDEDIAH J. & SARAH M. TUTTLE	32 MOUNTAINSIDE COURT	HARPERS FERRY, WV 25425	1196	88	Residential 1 Family
12	T.M. 2-18A-26	MELISSA G. & EUGENE V. KING	489 CROSSWINDS DRIVE	CHARLES TOWN, WV 25414	927	303	Residential 1 Family
13	T.M. 2-18A-25	RONALD E. & AMARILLI R. KELLEY	473 CROSSWINDS DRIVE	CHARLES TOWN, WV 25414	1017	23	Residential 1 Family
14	T.M. 2-18A-24	JEFFREY J. KISH	455 CROSSWINDS DRIVE	CHARLES TOWN, WV 25414	974	490	Residential 1 Family
15	T.M. 2-18A-23	JACK C. MCBRIDE	439 CROSSWINDS DRIVE	CHARLES TOWN, WV 25414	1239	92	Residential 1 Family
16	T.M. 2-18A-22	TODD & NANCY LANDIS	423 CROSSWINDS DRIVE	CHARLES TOWN, WV 25414	1191	369	Residential 1 Family
17	T.M. 2-18A-SWM	CROSSWINDS HOMEOWNERS ASSOC.	PO BOX 232	CHARLES TOWN, WV 25414	951	108	Residential Vacant
18	T.M. 2-17-22	DR ACQUISITIONS LLC	60 THOMAS DRIVE	FREDERICK, MD 21702	994	667	Inactive Farm
19	T.M. 2-19-1	HIGH HORIZONS FARM INC	336 ROSEMONT WAY	CHARLES TOWN, WV 25414	1008	227	Active Farm
20	T.M. 2-16-51	TABUENA PHILOMELA & ERNESTO R.H. STUART	111 FOXHALL ROAD	CHARLES TOWN, WV 25414	1137	157	Residential 1 Family
21	T.M. 2-16-50	JOSEPH V. & JENNIFER R. DAGG	107 FOXHALL ROAD	CHARLES TOWN, WV 25414	1234	630	Residential 1 Family
22	T.M. 2-16-49	ROBERT W. & BRENDA J. VINCENT	85 FOXHALL ROAD	CHARLES TOWN, WV 25414	1092	240	Residential 1 Family
23	T.M. 2-16-48	WILLIAM H. & CHRISTINE M. KINGERY	59 FOXHALL ROAD	CHARLES TOWN, WV 25414	900	116	Residential 1 Family
24	T.M. 2-16-47	WILLIAM R. & CAROLYN M. LIPSCOMB	43 FOXHALL ROAD	CHARLES TOWN, WV 25414	1140	378	Residential 1 Family
25	T.M. 2-16-39	DANIEL L. & LINDA A. COLLIE	416 EASTLAND DRIVE	CHARLES TOWN, WV 25414	1237	35	Residential 1 Family
26	T.M. 2-16-38	RAY & JENNIFER P. KOHLHEPP	448 EASTLAND DRIVE	CHARLES TOWN, WV 25414	845	458	Residential 1 Family
27	T.M. 2-16-94	MAURICE SMITH	502 EASTLAND DRIVE	CHARLES TOWN, WV 25414	1174	733	Residential 1 Family
28	T.M. 2-16-95	RYAN D. & ASHLEY A. VALASEK	550 EASTLAND DRIVE	CHARLES TOWN, WV 25414	1247	135	Residential 1 Family
29	T.M. 2-16-96	MARTIN E. & JACQUELINE M. CLINE	558 EASTLAND DRIVE	CHARLES TOWN, WV 25414	949	675	Residential 1 Family
30	T.M. 2-16-97	ERIC J. & SHERI R. BUTTERSWORTH	590 EASTLAND DRIVE	CHARLES TOWN, WV 25414	945	566	Residential 1 Family

KEY TO ADJOINING PROPERTY OWNERS

KEY	TAX IDENTIFICATION NO.	CURRENT OWNER	ADDRESS	CITY/STATE	DEED BOOK NUMBER	DEED BOOK PAGE	LAND USE
31	T.M. 2-16-16.5	PATRICK L. & BETH A. MARRONE	1032 OLD CAVE RD	CHARLES TOWN, WV 25414	1139	565	Inactive Farm
32	T.M. 2-16-16.4	PATRICK L. & BETH A. MARRONE	1032 OLD CAVE RD	CHARLES TOWN, WV 25414	1139	565	Inactive Farm
33	T.M. 2-16-15	JUNE R. H. & JAMES A. THOMAS, JR	5345 SAMUEL STREET	CHARLES TOWN, WV, 25414	1046	492	Active Farm
34	T.M. 2-16-14.3	JUNE R. H. THOMAS	5345 SAMUEL STREET	CHARLES TOWN, WV 25414	1125	646	Active Farm
35	T.M. 2-16-14.4	JOSEPH M. & EILEEN L. DILLON	1248 OLD CAVE ROAD	CHARLES TOWN, WV 25414	799	524	Active Farm
36	T.M. 3-12-216	CHARLES TOWN BOARD OF PARKS AND REC	PO BOX 14	CHARLES TOWN, WV 25414	1029	131	Active Farm
37	T.M. 3-12-237.1	BRAD BISHOP	55 FRASER CT	CHARLES TOWN, WV 25414	1238	241	Inactive Farm
38	T.M. 3-12-17	PEACH TREE INVESTMENTS LLC	36 BAKERTON ROAD	HARPERS FERRY, WV 25425	1103	493	Vacant Commercial Land
39	T.M. 3-12-13	MEGAN C. CURFMAN	14864 CHARLES TOWN ROAD	CHARLES TOWN, WV 25414	1167	265	Residential 1 Family
40	T.M. 2-17-15	JOSE E. SALMERON	14892 CHARLES TOWN ROAD	CHARLES TOWN, WV 25414	1250	83	Residential 1 Family
41	T.M. 2-17-16	JOSEPH LEBIDA III	14896 CHARLES TOWN ROAD	CHARLES TOWN, WV 25414	958	244	Residential 1 Family
42	T.M. 2-17-18	DAVID L. & CHERYL J. WILT	10199 CHARLES TOWN ROAD	RANSON, WV 25438	769	534	Residential 2 Family
43	T.M. 2-17-20	DAVID L. & CHERYL J. WILT	10199 CHARLES TOWN ROAD	RANSON, WV 25438	769	534	Mobile Home

200 0 200 400
SCALE: 1" = 200'

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ADJOINING OWNER INFORMATION & PHASING KEY

NORBORNE GLEBE

PHASE 15
CHARLES TOWN CORP. DISTRICT (3)
CITY OF CHARLES TOWN - JEFFERSON COUNTY, WV

Rev. No.	Date

RANDY L. KEPLER
REGISTERED
17223
STATE OF
WEST VIRGINIA
PROFESSIONAL ENGINEER

DATE: 08/24/2022
SCALE: 1" = 200'
DESIGNED BY: AM/CC
FILE NO. 4542A
SHEET 3 OF 55
22-03

THIS SHEET FOR EROSION AND SEDIMENT CONTROL ONLY!!!

LOD

OP

LOD

LOD

AREA TO SB #1
A=197.17 AC.

AREA TO SF
A=0.95 AC.

LOD

SF

CE

DD

DD

DD

SF

SF

LOD

EX SEDIMENT BASIN

50 25 0 50 100

SCALE: 1" = 50'

EROSION/SEDIMENT CONTROL LEGEND

KEY	SYMBOL	DESCRIPTION
SF	x	SILT FENCE
LOD		LIMITS OF DISTURBANCE
IP		INLET PROTECTION
OP		OUTLET PROTECTION
CE		CONSTRUCTION ENTRANCE
DD		TEMPORARY DIVERSION DIKE
		DRAINAGE DIVIDES

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E&S PHASE I

NORBORNE GLEBE

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SCALE: 1" = 50'

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FILE NO. 4542A

SHEET 4 OF 55

22-03

THIS SHEET FOR EROSION AND SEDIMENT CONTROL ONLY!!!

SOLSTICE WAY

TRIBERG DRIVE

CANDLEWOOD DRIVE

LOD

AREA TO CLV #2
A=0.61 AC.

AREA TO STR #52
A=1.80 AC.

AREA TO STR #53
A=1.63 AC.

AREA TO STR 51
A=0.73 AC.

AREA TO STR 44
A=0.65 AC.

AREA TO STR 45
A=0.05 AC.

AREA TO STR 47
A=0.03 AC.

AREA TO STR 48
A=0.29 AC.

AREA TO STR 50
A=0.63 AC.

AREA TO STR 15
A=0.67 AC.

AREA TO STR 46
A=0.21 AC.

AREA TO STR 49
A=0.44 AC.

AREA TO STR 14
A=0.12 AC.

AREA TO STR 31
A=0.42 AC.

AREA TO STR 27
A=0.32 AC.

AREA TO STR 30
A=0.24 AC.

AREA TO STR #17
A=1.84 AC.

AREA TO CLV #1
A=1.00 AC.

AREA TO STR 28
A=0.54 AC.

AREA TO STR 11
A=0.96 AC.

AREA TO STR 26
A=0.12 AC.

AREA TO STR 28
A=0.37 AC.

AREA TO STR 29
A=0.60 AC.

AREA TO STR 12
A=0.16 AC.

AREA TO STR 25
A=0.35 AC.

AREA TO STR 32
A=0.30 AC.

AREA TO STR 33
A=0.39 AC.

AREA TO STR 10
A=0.26 AC.

AREA TO STR 42
A=0.93 AC.

AREA TO STR 24
A=0.32 AC.

AREA TO STR 35
A=0.37 AC.

AREA TO STR 34
A=0.32 AC.

AREA TO STR 37
A=8.73 AC.

AREA TO STR 21
A=0.15 AC.

AREA TO STR 22
A=0.17 AC.

AREA TO STR 9
A=0.14 AC.

AREA TO CLV #3
A=0.56 AC.

AREA TO STR 8
A=0.60 AC.

AREA TO STR 3
A=0.83 AC.

AREA TO STR 5
A=0.13 AC.

AREA TO STR 6
A=0.72 AC.

AREA TO STR 7
A=0.69 AC.

AREA TO STR 18
A=0.15 AC.

AREA TO STR 2
A=0.49 AC.

AREA TO STR 36
A=0.11 AC.

AREA TO STR 20
A=0.23 AC.

AREA TO STR 19
A=0.26 AC.

AREA TO STR 39
A=0.20 AC.

EX SEDIMENT BASIN

DL #1
DL #2
DL #3
DL #4
DL #5

IP
OP
CE
SF
LOD

50 25 0 50 100
SCALE: 1" = 50'

EROSION/SEDIMENT CONTROL LEGEND

KEY	SYMBOL	DESCRIPTION
SF	x	SILT FENCE
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E&S PHASE II

NORBORNE GLEBE

PHASE 15
CHARLES TOWN CORP. DISTRICT (3)
CITY OF CHARLES TOWN - JEFFERSON COUNTY, WV

Rev. No.	Date

RANDY L. KEPLER
17223
STATE OF
WEST VIRGINIA
PROFESSIONAL ENGINEER

DATE: 08/24/2022

SCALE: 1" = 50'

DESIGNED BY: AM/CC

FILE NO. 4542A

SHEET 5 OF 55

22-03

EROSION AND SEDIMENT CONTROL NARRATIVE

Description: The Project delineated hereon is located in the City of Charles Town, WV. This plan proposes construction of Phase 15 consisting of 143 town homes and associated roads and utilities. Approximately 19.97 acres will be disturbed for construction.

Date of construction: Construction will begin following plan approval and is estimated to take up to 2 years to complete the project.

Offsite areas: Top soil will be stripped from graded areas and stockpiled for use in final grading and permanent stabilization. Stockpiles will be kept on site and clear of all construction activities. The stockpiles will be be stabilized with temporary seeding and protected with silt fence.

Erosion And Sediment Control Measures: Unless otherwise indicated, all vegetative and structural erosion and sediment control measures shall be constructed and maintained according to the minimum standards and specifications of the West Virginia Erosion and Sediment Control Handbook.

Management Strategies:

Construction shall be sequenced such that grading operations will begin and end as quickly as possible.

The site superintendent shall be responsible for the installation and maintenance of all erosion and sediment control measures. Maintenance of these measures throughout the project is critical to the effectiveness of the program.

After areas above controls have been stabilized, the controls shall be cleaned up and removed.

Electric power, telephone, storm, sanitary, water & gas supply trenches (as applicable) are to be compacted, seeded and mulched within four (4) days after backfilling. No more than 500 feet are to be open at any one time.

All cut and fill slopes are to be seeded and mulched within four (4) days of completion of grading.

Drainage swales shall be stabilized with check dams until vegetation has been well established, at which time the temporary check dams shall be removed.

Devices listed above are considered minimum erosion and sediment controls. Additional control measures may be necessary due to contractor phasing or other unforeseen conditions. It is the contractor's responsibility to provide additional measures to those shown, as needed, in order to control erosion and contain sediment on site. All measures shall be installed according to the standards and specifications in the West Virginia erosion and sediment control handbook.

Maintenance Program:

All control measures shall be inspected daily by the site superintendent or his representative and within 24 hours after any storm event greater than 0.25 inches of rain per 24-hour period. Any damaged structural measures are to be repaired by the end of the day. Seeded areas shall be checked regularly to ensure that a good stand of grass is maintained. All areas shall be fertilized and reseeded as needed until grass is established.

Trapped sediment is to be removed as required to maintain 50% trap efficiency and disposed of by spreading on site.

Inlet protection shall be checked regularly for sediment build-up. If the gravel outlet is clogged by sediment, it shall be removed and cleaned or replaced immediately.

The contractor is responsible for keeping existing public roads in a clean, dust and mud free, condition at all times.

Erosion and sediment control program:

1. Hold pre-construction meeting on site with inspector.
2. Install construction entrance.
3. Clearing and grubbing for sediment control devices only.
4. Placement of sediment control devices.
5. Obtain inspector's approval prior to beginning grading operations.
6. Clear and grub remainder of site.
7. Rough grade site.
8. Install drainage devices with sediment control.
9. Final grading.
10. Restoration and stabilization of disturbed areas.
11. Remove erosion and sediment control measures with the approval of the inspector.

Note: City of Charles Town Public Officials retain the right to add and/or modify these erosion and sediment control measures during the construction process, within reason, to ensure adequate protection to the public and the environment.

Seeding schedule (soil stabilization):

1. All permanent seeding shall be in accordance with the West Virginia Erosion & Sediment Control Manual.
2. Spread topsoil at a minimum depth of four (4) inches.
3. Incorporate pulverized agricultural limestone into the topsoil at a rate of 92 lbs. per 1,000 square feet (2 tons per acre).
4. Fertilize with 10-10-10 fertilizer at a rate of 23 lbs per 1,000 square feet (1,000 lbs per acre).
5. Seed all areas with a seed mix consisting of 67% Kentucky 31 Tall Fescue and 33% Red Top Clover.
6. Mulch all seeded areas with straw mulch applied at a rate of 3,500 lbs per acre anchored with cutback or emulsified asphalt applied at a rate of 200 gallons per acre.

Dust control:

1. Temporary seeding shall be applied to all disturbed areas subject to little or no construction traffic.
2. All haul roads and other heavy traffic routes shall be sprinkled with water until the surface is wet and repeated as needed to control dust.

Stormwater Management Narrative:

The existing Stormwater Management Facility was approved to service the full build out of the development within its drainage area. The existing pond, as designed, meets the 1999 Virginia Stormwater Management Handbook, which is one of the practices allowable by the City of Charles Town Code. Chapter 2 of the VSMH states sites are allowed to use the Technology-based water quality criteria so that for land development, "the post developed stormwater runoff from the impervious cover shall be treated by an appropriate BMP as required by the post-developed condition percent impervious cover as specified in Table 2-3." Table 2-3 allows an Extended Detention facility to be utilized when the impervious cover is from 22-37%. Our conservative calculations have the existing pond and it contributing drainage area (both currently developed and the proposed full build-out of the remaining drainage area) to be 37% impervious and therefore meeting the technology based criteria. No additional measures are anticipated.

MINIMUM CONSTRUCTION STANDARDS

An erosion and sediment control program adopted with this plan must be consistent with the VSECH for 9VAC25-840-40 minimum standards:

1. Permanent or temporary soil stabilization shall be applied to denuded areas within seven days after final grade is reached on any portion of the site. Temporary soil stabilization shall be applied within seven days to denuded areas that may not be at final grade but will remain dormant for longer than 14 days. Permanent stabilization shall be applied to areas that are to be left dormant for more than one year.
2. During construction of the project, soil stock piles and borrow areas shall be stabilized or protected with sediment trapping measures. The applicant is responsible for the temporary protection and permanent stabilization of all soil stockpiles on site as well as borrow areas and soil intentionally transported from the project site.
3. A permanent vegetative cover shall be established on denuded areas not otherwise permanently stabilized. Permanent vegetation shall not be considered established until a ground cover is achieved that is uniform, mature enough to survive and will inhibit erosion.
4. Sediment basins and traps, perimeter dikes, sediment barriers and other measures intended to trap sediment shall be constructed as a first step in any land-disturbing activity and shall be made functional before upslope land disturbance takes place.
5. Stabilization measures shall be applied to earthen structures such as dams, dikes and diversions immediately after installation.
6. Sediment traps and sediment basins shall be designed and constructed based upon the total drainage area to be served by the trap or basin.
   a. The minimum storage capacity of a sediment trap shall be 134 cubic yards per acre of drainage area and the trap shall only control drainage areas less than three acres.
   b. Surface runoff from disturbed areas that is comprised of flow from drainage areas greater than or equal to three acres shall be controlled by a sediment basin. The minimum storage capacity of a sediment basin shall be 134 cubic yards per acre of drainage area. The outfall system shall, at a minimum, maintain the structural integrity of the basin during a 100-year storm of 24-hour duration. Runoff coefficients used in runoff calculations shall correspond to a bare earth condition or those conditions expected to exist while the sediment basin is utilized.
7. Cut and fill slopes shall be designed and constructed in a manner that will minimize erosion. Slopes that are found to be eroding excessively within one year of permanent stabilization shall be provided with additional slope stabilizing measures until the problem is corrected.
8. Concentrated runoff shall not flow down cut or fill slopes unless contained within an adequate temporary or permanent channel, flume or slope drain structure.
9. Whenever water seeps from a slope face, adequate drainage or other protection shall be provided.
10. All storm sewer inlets that are made operable during construction shall be protected so that sediment-laden water cannot enter the conveyance system without first being filtered or otherwise treated to remove sediment.
11. Before newly constructed stormwater conveyance channels or pipes are made operational, adequate outlet protection and any required temporary or permanent channel lining shall be installed in both the conveyance channel and receiving channel.
12. When work in a live watercourse is performed, precautions shall be taken to minimize encroachment, control sediment transport and stabilize the work area to the greatest extent possible during construction. Nonerodible material shall be used for the construction of causeways and cofferdams. Earthen fill may be used for these structures if armored by nonerodible cover materials.
13. When a live watercourse must be crossed by construction vehicles more than twice in any six-month period, a temporary vehicular stream crossing constructed of nonerodible material shall be provided.
14. All applicable federal, state and local requirements pertaining to working in or crossing live watercourses shall be met.
15. The bed and banks of a watercourse shall be stabilized immediately after work in the watercourse is completed.
16. Underground utility lines shall be installed in accordance with the following standards in addition to other applicable criteria:
   a. No more than 500 linear feet of trench may be opened at one time.
   b. Excavated material shall be placed on the uphill side of trenches.
   c. Effluent from dewatering operations shall be filtered or passed through an approved sediment trapping device, or both, and discharged in a manner that does not adversely affect flowing streams or off-site property.
   d. Material used for backfilling trenches shall be properly compacted in order to minimize erosion and promote stabilization.
   e. Restabilization shall be accomplished in accordance with this chapter.
   f. Applicable safety requirements shall be complied with.
17. Where construction vehicle access routes intersect paved or public roads, provisions shall be made to minimize the transport of sediment by vehicular tracking onto the paved surface. Where sediment is transported onto a paved or public road surface, the road surface shall be cleaned thoroughly at the end of each day. Sediment shall be removed from the roads by shoveling or sweeping and transported to a sediment control disposal area. Street washing shall be allowed only after sediment is removed in this manner. This provision shall apply to individual development lots as well as to larger land-disturbing activities.
18. All temporary erosion and sediment control measures shall be removed within 30 days after final site stabilization or after the temporary measures are no longer needed, unless otherwise authorized by the VESCP authority. Trapped sediment and the disturbed soil areas resulting from the disposition of temporary measures shall be permanently stabilized to prevent further erosion and sedimentation.
19. Properties and waterways downstream from development sites shall be protected from sediment deposition, erosion and damage due to increases in volume, velocity and peak flow rate of stormwater runoff for the stated frequency storm of 24-hour duration in accordance with the following standards and criteria. Stream restoration and relocation projects that incorporate natural channel design concepts are not man-made channels and shall be exempt from any flow rate capacity and velocity requirements for natural or man-made channels:
   a. Concentrated stormwater runoff leaving a development site shall be discharged directly into an adequate natural or man-made receiving channel, pipe or storm sewer system. For those sites where runoff is discharged into a pipe or pipe system, downstream stability analyses at the outfall of the pipe or pipe system shall be performed.
   b. Adequacy of all channels and pipes shall be verified in the following manner:

(1) The applicant shall demonstrate that the total drainage area to the point of analysis within the channel is one hundred times greater than the contributing drainage area of the project in question; or

(2) (a) Natural channels shall be analyzed by the use of a two-year storm to verify that stormwater will not overtop channel banks nor cause erosion of channel bed or banks.

(b) All previously constructed man-made channels shall be analyzed by the use of a 10-year storm to verify that stormwater will not overtop its banks and by the use of a two-year storm to demonstrate that stormwater will not cause erosion of channel bed or banks; and

(c) Pipes and storm sewer systems shall be analyzed by the use of a 10-year storm to verify that stormwater will be contained within the pipe or system.

   c. If existing natural receiving channels or previously constructed man-made channels or pipes are not adequate, the applicant shall:

(1) Improve the channels to a condition where a 10-year storm will not overtop the banks and a two-year storm will not cause erosion to the channel, the bed, or the banks; or

(2) Improve the pipe or pipe system to a condition where the 10-year storm is contained within the appurtenances;

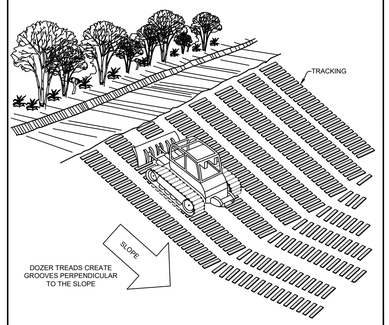
(3) Develop a site design that will not cause the pre-development peak runoff rate from a two-year storm to increase when runoff outfalls into a natural channel or will not cause the pre-development peak runoff rate from a 10-year storm to increase when runoff outfalls into a man-made channel; or

(4) Provide a combination of channel improvement, stormwater detention or other measures which is satisfactory to the VESCP authority to prevent downstream erosion.

   d. The applicant shall provide evidence of permission to make the improvements.
   e. All hydrologic analyses shall be based on the existing watershed characteristics and the ultimate development condition of the subject project.
   f. If the applicant chooses an option that includes stormwater detention, he shall obtain approval from the VESCP of a plan for maintenance of the detention facilities. The plan shall set forth the maintenance requirements of the facility and the person responsible for performing the maintenance.
   g. Outfall from a detention facility shall be discharged to a receiving channel, and energy dissipators shall be placed at the outfall of all detention facilities as necessary to provide a stabilized transition from the facility to the receiving channel.
   h. All on-site channels must be verified to be adequate.
   i. Increased volumes of sheet flows that may cause erosion or sedimentation on adjacent property shall be diverted to a stable outlet, adequate channel, pipe or pipe system, or to a detention facility.
   j. In applying these stormwater management criteria, individual lots or parcels in a residential, commercial or industrial development shall not be considered to be separate development projects. Instead, the development, as a whole, shall be considered to be a single development project. Hydrologic parameters that reflect the ultimate development condition shall be used in all engineering calculations.
   k. All measures used to protect properties and waterways shall be employed in a manner which minimizes impacts on the physical, chemical and biological integrity of rivers, streams and other waters of the state.
   l. Any plan approved prior to July 1, 2014, that provides for stormwater management that addresses any flow rate capacity and velocity requirements for natural or man-made channels shall satisfy the flow rate capacity and velocity requirements for natural or man-made channels if the practices are designed to (i) detain the water quality volume and to release it over 48 hours; (ii) detain and release over a 24-hour period the expected rainfall resulting from the one year, 24-hour storm; and (iii) reduce the allowable peak flow rate resulting from the 1.5, 2, and 10-year, 24-hour storms to a level that is less than or equal to the peak flow rate from the site assuming it was in a good forested condition, achieved through multiplication of the forested peak flow rate by a reduction factor that is equal to the runoff volume from the site when it was in a good forested condition divided by the runoff volume from the site in its proposed condition, and shall be exempt from any flow rate capacity and velocity requirements for natural or man-made channels as defined in any regulations promulgated pursuant to § 62.1-44.15:54 or 62.1-44.15:65 of the Act.
   m. For plans approved on and after July 1, 2014, the flow rate capacity and velocity requirements of § 62.1-44.15:52 A of the Act and this subsection shall be satisfied by compliance with water quantity requirements in the Stormwater Management Act (§ 62.1-44.15:24 et seq. of the Code of Virginia) and attendant regulations, unless such land-disturbing activities are in accordance with 9VAC25-870-48 of the Virginia Stormwater Management Program (VSMP) Regulation or are exempt pursuant to subdivision C 7 of § 62.1-44.15:34 of the Act.
   n. Compliance with the water quantity minimum standards set out in 9VAC25-870-66 of the Virginia Stormwater Management Program (VSMP) Regulation shall be deemed to satisfy the requirements of this subdivision 19.

SLOPE TRACKING

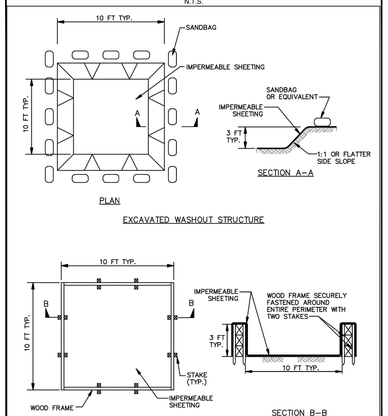
N.T.S.



NOTES:
1. TRACKING SLOPES ARE DONE BY RUNNING TRACKED MACHINERY UP AND DOWN THE SLOPE, LEAVING TREAD MARKS PARALLEL TO THE CONTOUR. IF A BULLDOZER IS USED, THE BLADE SHOULD BE UP.

WASHOUT H-6

N.T.S.



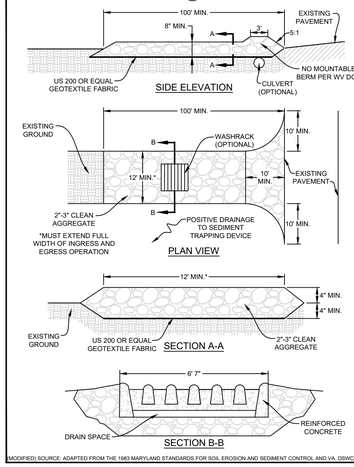
1 OF 2

SOURCE: MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION & SEDIMENT CONTROL

ROCK CONSTRUCTION ENTRANCE

N.T.S.

CE

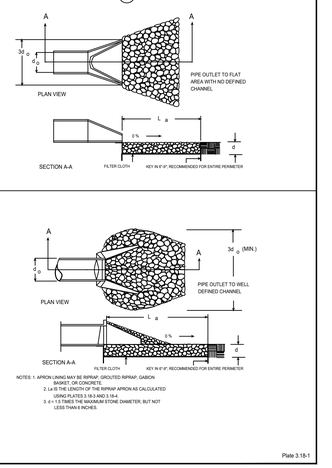


(MODIFIED) SOURCE: ADAPTED FROM THE 1983 MARYLAND STANDARDS FOR SOIL EROSION AND SEDIMENT CONTROL AND VA. DSWC

PIPE OUTLET CONDITIONS

N.T.S.

OP



NOTES: 1. APRON LINING MAY BE RIPRAP, GROUTED RIPRAP, GABION, BASKET, OR CONCRETE
2. La IS THE LENGTH OF THE RIPRAP APRON AS CALCULATED USING PLATES 3.18-3 AND 3.18-4.
3. d = 1.5 TIMES THE MAXIMUM STONE DIAMETER, BUT NOT LESS THAN 6 INCHES.

Source: Va. DSWC

Plate 3.18-1

SEEDING

TABLE 3.31-B
ACCEPTABLE TEMPORARY SEEDING PLANT MATERIALS
"QUICK REFERENCE FOR ALL REGIONS"

Planting Dates	Species	Rate (lbs./acre)
Sept. 1 - Feb. 15	50/50 Mix of Annual Ryegrass (Lolium multi-florum) & Cereal (Winter) Rye (Secal cereale)	50 - 100
Feb. 16 - Apr. 30	Anual Ryegrass (Lolium multi-florum)	60 - 100
May 1 - Aug. 31	German Millet (Setaria italica)	50

TABLE 3.32-C
SITE SPECIFIC PERMANENT SEEDING MIXTURES FOR APPALACHIANMOUNTAIN AREA

	Total Lbs. Per Acre
Minimum Care Lawn	
- Commercial or Residental	200-250 lbs.
- Kentucky 31 or Turf-Type Tall Fescue	90-100%
- Improved Perennial Ryegrass *	0-10%
- Kentucky Bluegrass	0-10%
High-Maintenance Lawn	
Minimum of three (3) up to five (5) varieties of bluegrass from approved list for use in Virginia.	125 lbs.
General Slope (3:1 or less)	
- Kentucky 31 Fescue	128 lbs.
- Red Top Grass	2 lbs.
- Seasonal Nurse Crop**	20 lbs.
	150 lbs
Low-Maintenance Slope (Steeper than 3:1)	
- Kentucky 31 Fescue	108 lbs.
- Red Top Grass	2 lbs.
- Seasonal Nurse Crop**	20 lbs.
- Crownvetch ***	20 lbs.
	150 lbs

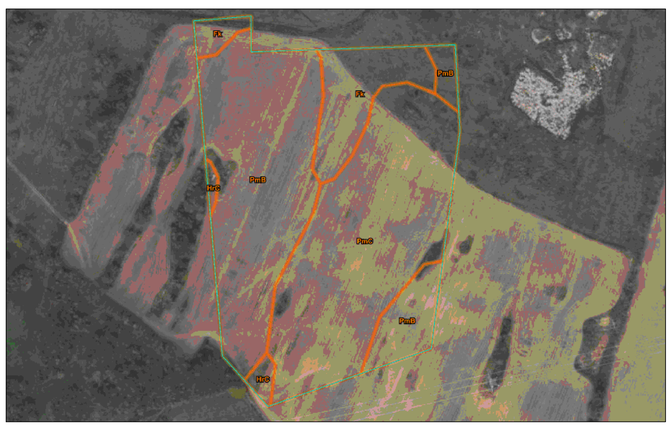
* Perennial Ryegrass will germinate faster and at lower soil temperatures than fescue, thereby providing cover and erosion resistance for seedbed.

** Use seasonal nurse crop in accordance with seeding dates as stated below:
March, April through May 15th.....Annual Rye
May 16th through August 15th.....Foxtail Millet
August 16th through Sept./Oct.....Annual Rye
November through February.....Winter Rye

*** If Flatpea is used, increase to 30 lbs./acre. All legume seed must be properly inoculated. Weeping Lovegrass may also be included in any slope or low-maintance mixtures during warmer seeding periods; add 10-20 lbs/acre in mixes.

Seeding
Seed shall be evenly applied with a broadcast seeder, drill, cultipacker seeder or hydroseeder. Small grains shall be planted no more than one inch deep. Grasses and legumes shall be planted with no less than 1/4" soil cover.

SOIL TABULATION			
MAP UNIT SYMBOL	MAP UNIT NAME	ACRES IN AOI	PERCENT OF AOI
Fk	Funkstown silt loam	3.5	12.30%
HrC	Hagerstown-Rockk outcrop complex 8 to 15 percent slopes	0.5	1.60%
PmB	Poplimento silet loam, 3 to 8 percent slopes	12.2	43.30%
PmC	Poplimento silt loam, 8 to 15 percent slopes	12	42.80%



PUBLIC NOTICE SIGN

N.T.S.

For Info on NPDES Stormwater Permit
To comment on Sediment Control Plan:
Call: 800-654-5227
or
DEP.Plan@wv.gov
DEP 601 57TH Street SE, Charleston WV 25304

Application date:XX/XX/20XX

NORBORNE GLEBE PH 15
(XXX) XXX-XXXX

NOTES:
1. THE SIGN WILL BE A MINIMUM 0F 24"X24" WITH 1.6" AND 0.8" LETTERS.

704 Foxcroft Avenue
Martinsburg, West Virginia 25401
Telephone: (304) 596-2911
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E&S NARRATIVE

NORBORNE GLEBE

PHASE 15
CHARLES TOWN CORP. DISTRICT (3)
CITY OF CHARLES TOWN - JEFFERSON COUNTY, WV

Rev. No.	Date

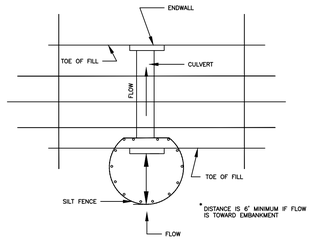
RANDY L. KEPLER — REGISTERED — 17223 STATE OF WEST VIRGINIA — PROFESSIONAL ENGINEER

DATE: 08/24/2022
SCALE: N/A
DESIGNED BY: AM/CC
FILE NO. 4542A
SHEET 6 OF 55
22-03

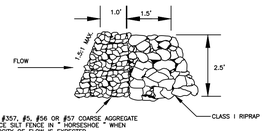
SILT FENCE CULVERT INLET PROTECTION

N.T.S.

IP



*OPTIONAL STONE COMBINATION



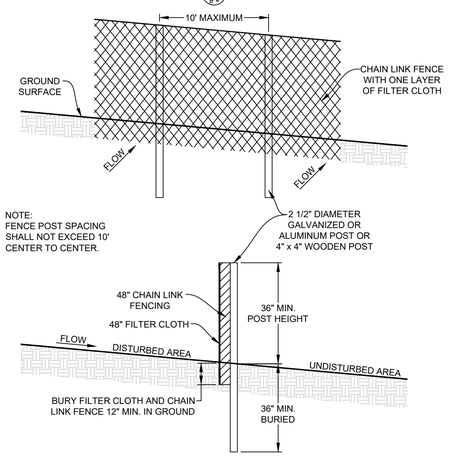
SOURCE: ADAPTED from VDOT Standard Sheets and Va. DSWC

PLATE. 3.08-1

SUPER SILT FENCE

N.T.S.

SSF #1



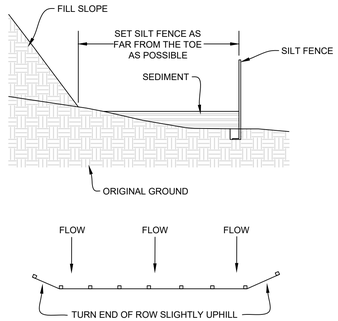
NOTES:
1. SUPER SILT FENCE IS A TEMPORARY BARRIER OF GEOTEXTILE FABRIC OVER CHAIN LINK FENCE.
2. SUPER SILT FENCE SHOULD BE PLACED AS CLOSE TO THE CONTOUR AS POSSIBLE.
3. ENDS SHALL BE EXTENDED UPHILL A MINIMUM OF 2 VERTICAL FEET.
4. CHAIN LINK FENCE SHALL BE FASTENED SECURELY TO THE FENCE POSTS WITH WIRE TIES OR STAPLES. GEOTEXTILE FABRIC SHALL BE FASTENED SECURELY TO THE CHAIN LINK FENCE WITH TIES SPACED EVERY 24" AT THE TOP AND MID-SECTIONS.
5. GEOTEXTILE FABRIC AND CHAIN LINK FENCE SHALL BE EMBEDDED A MINIMUM OF 12" INTO THE GROUND. WHEN 2 SECTIONS OF GEOTEXTILE FABRIC ADJOIN EACH OTHER, THEY SHALL BE OVERLAPPED BY 6" AND FOLDED.
6. METAL POSTS AS SPECIFIED BY WV DOT CAN BE REPLACED BY PRESSURE-TREATED 4" x 4" POSTS.
7. SUPER SILT FENCE SHOULD BE INSPECTED AT A MINIMUM ONCE EVERY 7 CALENDAR DAYS OR WITHIN 24 HOURS AFTER ANY STORM EVENT GREATER THAN 0.5 INCHES OF RAIN PER 24 HOUR PERIOD. ANY REQUIRED REPAIRS SHALL BE MADE IMMEDIATELY.

(MODIFIED) SOURCE: WEST VIRGINIA EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICE MANUAL.

SILT FENCE PLACEMENT

N.T.S.

SF

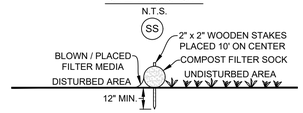


Slope - Percent	Maximum Slope Length (ft) Above Fence		
	Standard (18" High) Silt Fence	Reinforced (30" High) Silt Fence	Super Silt Fence
2 (or less)	150	500	1000
5	100	250	550
10	50	150	325
15	35	100	215
20	25	70	175
25	20	55	135
30	15	45	100
35	15	40	85
40	15	35	75
45	10	30	60
50	10	25	50

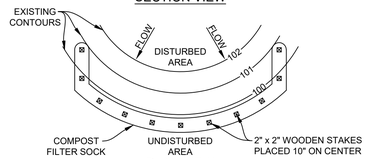
SILT SOCK

N.T.S.

SS



SECTION VIEW



PLAN VIEW

ADAPTED FROM FILTREXX

SOCK FABRIC SHALL MEET STANDARDS OF TABLE 4.1. COMPOST SHALL MEET THE FOLLOWING STANDARDS.

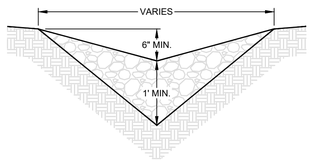
ORGANIC MATTER CONTENT	80%-100% (DRY WEIGHT BASIS)
ORGANIC PORTION	FIBROUS AND ELONGATED
pH	5.5-8.0
MOISTURE CONTENT	35%-55%
PARTICLE SIZE	98% PASS THROUGH 1" SCREEN
SOLUBLE SALT CONCENTRATION	5.0 dS MAXIMUM

NOTES:
1. COMPOST FILTER SOCK SHALL BE PLACED AT EXISTING LEVEL GRADE. BOTH ENDS OF THE SOCK SHALL BE EXTENDED AT LEAST 8' UP THE SLOPE OR TO A HEIGHT EQUAL TO THE EFFECTIVE SOCK HEIGHT, WHICHEVER IS GREATER, AT 45° TO THE MAIN SOCK ALIGNMENT. MAXIMUM SLOPE LENGTH ABOVE ANY SOCK SHALL NOT EXCEED MANUFACTURER'S MAXIMUM PERMISSIBLE SLOPE LENGTH.
2. TRAFFIC SHALL NOT BE PERMITTED TO CROSS FILTER SOCKS.
3. ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN IT REACHES 1/2 THE ABOVE GROUND HEIGHT OF THE SOCK AND DISPOSED IN THE MANNER DESCRIBED ELSEWHERE IN THE PLAN.
4. SOCKS SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT. DAMAGED SOCKS SHALL BE REPAIRED ACCORDING TO MANUFACTURER'S SPECIFICATIONS OR REPLACED WITHIN 24 HOURS OF INSPECTION.
5. BIODEGRADABLE FILTER SOCKS SHALL BE REPLACED AFTER 6 MONTHS; PHOTODEGRADABLE SOCKS AFTER 1 YEAR. POLYPROPYLENE SOCKS SHALL BE REPLACED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
6. UPON STABILIZATION OF THE AREA TRIBUTARY TO THE SOCK, STAKES SHALL BE REMOVED. THE SOCK MAY BE LEFT IN PLACE AND VEGETATED OR REMOVED. IN THE LATTER CASE, THE MESH SHALL BE CUT OPEN AND THE MULCH SPREAD AS A SOIL SUPPLEMENT.
7. IN THE EVENT THE GROUND IS FROZEN, #5 REBAR WITH SAFETY CAPS SHALL BE USED INSTEAD OF WOODEN STAKES TO ANCHOR THE FILTER SOCK. ONCE THE GROUND THAWS, THE REBAR ANCHORS SHALL BE REMOVED AND REPLACED WITH 2" x 2" WOODEN STAKES AND INSTALLED AS SHOWN IN THE DETAIL ABOVE.

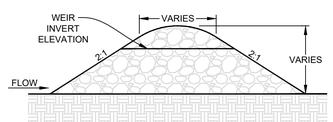
ROCK CHECK DAM

N.T.S.

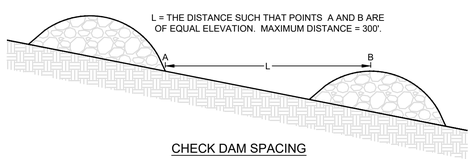
CD



ELEVATION



CROSS-SECTION



CHECK DAM SPACING

NOTES:
1. CHECK DAMS SHALL BE INSTALLED IN ALL DITCHES AND DIVERSIONS.

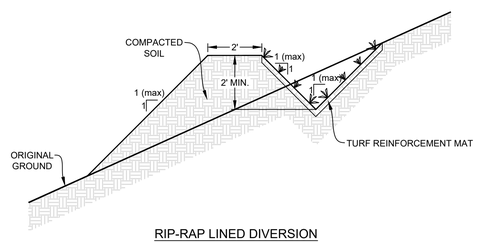
(MODIFIED) SOURCE: WEST VIRGINIA EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICE MANUAL.

DIVERSION

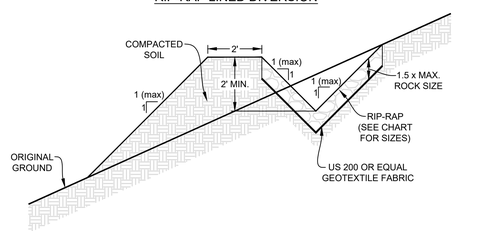
N.T.S.

DD

GRASS OR TURF REINFORCEMENT MAT LINED DIVERSION



RIP-RAP LINED DIVERSION



NOTES:
1. DIVERSION DIMENSIONS SHOWN ARE FOR COMPLETED DIVERSION AFTER LINING INSTALLATION. THE DIVERSION MUST BE OVER-EXCAVATED A SUFFICIENT AMOUNT TO ALLOW FOR THE REQUIRED LINING TO BE PLACED WITHIN THE DIVERSION WHILE MAINTAINING THE SPECIFIED FINISHED DIMENSIONS.
2. DIVERSION DIMENSIONS SHALL BE CONSTANTLY MAINTAINED. DIVERSION LINES SHALL BE CLEANED WHENEVER TOTAL DIVERSION DEPTH IS REDUCED BY 25% AT ANY LOCATION. SEDIMENT DEPOSITS SHALL BE REMOVED WITHIN 24 HOURS OF DISCOVERY OR AS SOON AS SOIL CONDITIONS PERMIT ACCESS TO DIVERSION WITHOUT FURTHER DAMAGE.

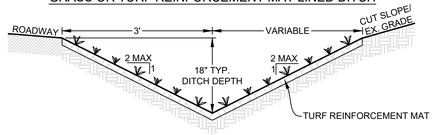
TYPICAL V-DITCH

N.T.S.

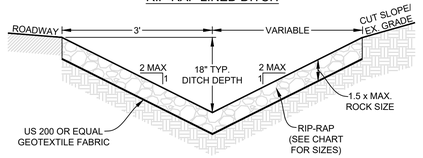
DL #1

***NOTE: THIS DETAIL APPLIES TO PERMANENT DITCHES AND SWALES**

GRASS OR TURF REINFORCEMENT MAT LINED DITCH



RIP-RAP LINED DITCH



NOTES:
1. ALL DITCH LINE PROTECTION SHALL BE INSTALLED AS RECOMMENDED IN THE WEST VIRGINIA EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICE (BMP) MANUAL. DITCH LINE PROTECTION SHALL BE BASED ON THE FOLLOWING GRADES:
   1.1. LESS THAN 3% = GRASS.
   1.2. 3%-9% = TURF REINFORCEMENT MAT OR GRASS WITH ROLLED EROSION CONTROL PRODUCTS (R.E.C.P.).
   1.3. GREATER THAN 9% = RIP-RAP. SEE CHART FOR SIZES.
2. TYPICAL OUTLET PROTECTION SHALL BE INSTALLED AT DOWNSTREAM END OF ALL DITCH LINES. SEE OUTLET PROTECTION DETAIL.
3. DITCH DIMENSIONS SHOWN ARE FOR COMPLETED DITCH AFTER LINING INSTALLATION. THE DITCH MUST BE OVER-EXCAVATED A SUFFICIENT AMOUNT TO ALLOW FOR THE REQUIRED LINING TO BE PLACED WITHIN THE DITCH WHILE MAINTAINING THE SPECIFIED FINISHED DIMENSIONS.
4. DITCH DIMENSIONS SHALL BE CONSTANTLY MAINTAINED. DITCH LINES SHALL BE CLEANED WHENEVER TOTAL DITCH DEPTH IS REDUCED BY 25% AT ANY LOCATION. SEDIMENT DEPOSITS SHALL BE REMOVED WITHIN 24 HOURS OF DISCOVERY OR AS SOON AS SOIL CONDITIONS PERMIT ACCESS TO DITCH WITHOUT FURTHER DAMAGE.
5. DAMAGED LINING SHALL BE REPAIRED OR REPLACED WITHIN 48 HOURS OF DISCOVERY.
6. IF HIGH EROSIVE SOILS ARE ENCOUNTERED DURING CONSTRUCTION, THE ENGINEER SHOULD BE CONTACTED FOR FURTHER EVALUATION.

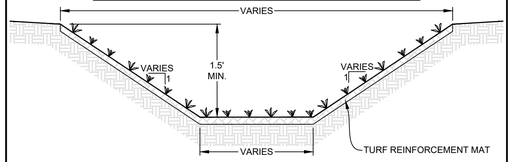
TYPICAL TRAPEZOIDAL DITCH

N.T.S.

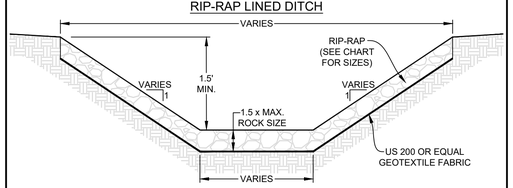
DL #1

***NOTE: THIS DETAIL APPLIES TO PERMANENT DITCHES AND SWALES**

GRASS OR TURF REINFORCEMENT MAT LINED DITCH



RIP-RAP LINED DITCH



NOTES:
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   1.2. 3%-9% = TURF REINFORCEMENT MAT OR GRASS WITH ROLLED EROSION CONTROL PRODUCTS (R.E.C.P.).
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3. DITCH DIMENSIONS SHOWN ARE FOR COMPLETED DITCH AFTER LINING INSTALLATION. THE DITCH MUST BE OVER-EXCAVATED A SUFFICIENT AMOUNT TO ALLOW FOR THE REQUIRED LINING TO BE PLACED WITHIN THE DITCH WHILE MAINTAINING THE SPECIFIED FINISHED DIMENSIONS.
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5. DAMAGED LINING SHALL BE REPAIRED OR REPLACED WITHIN 48 HOURS OF DISCOVERY.
6. IF HIGH EROSIVE SOILS ARE ENCOUNTERED DURING CONSTRUCTION, THE ENGINEER SHOULD BE CONTACTED FOR FURTHER EVALUATION.

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OFFICES IN: WINCHESTER, VA & MARTINSBURG, WV

E&S DETAILS

NORBORNE GLEBE

PHASE 15
CHARLES TOWN CORP. DISTRICT (3)
CITY OF CHARLES TOWN - JEFFERSON COUNTY, WV

Rev. No.	Date

RANDY L. KEPLER — REGISTERED — 17223 — STATE OF WEST VIRGINIA — PROFESSIONAL ENGINEER

DATE: 08/24/2022

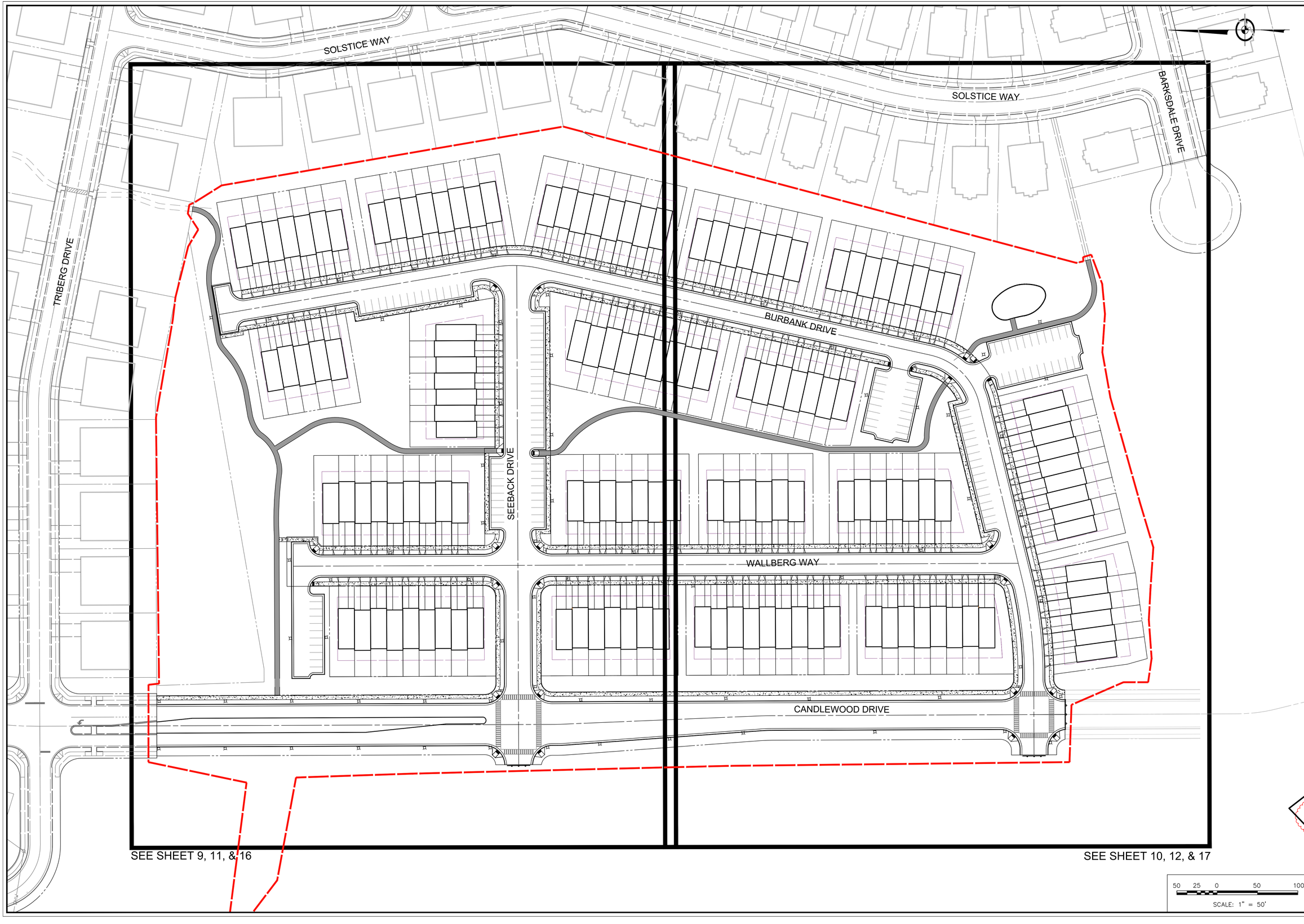
SCALE: N/A

DESIGNED BY: AM/CC

FILE NO. 4542A

SHEET 7 OF 55

22-03



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PND 1971

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OFFICES IN: WINCHESTER, VA & MARTINSBURG, WV

OVERALL PLAN AND SHEET INDEX

NORBORNE GLEBE

PHASE 15
CHARLES TOWN CORP. DISTRICT (3)
CITY OF CHARLES TOWN - JEFFERSON COUNTY, WV

Rev. No.	Date

RANDY L KEPLER
REGISTERED
17223
STATE OF
WEST VIRGINIA
PROFESSIONAL ENGINEER

DATE: 08/24/2022

SCALE: 1" = 50'

DESIGNED BY: AM/CC

FILE NO. 4542A

SHEET 8 OF 55

22-03

PHASE 8

EX. STORM WATER MANAGEMENT POND

TD: 3/MAP: 12/PCL: 209.1
ZONED: NR
LAND USE: RURAL/AGRICULTURAL
ARCADIA LAND INC.
108 N GEORGE STREET 2ND FLOOR
CHARLES TOWN, WV 25414
12.16 AC

TD: 3/MAP: 12/PCL: 215
ZONED: NR
LAND USE: RURAL/AGRICULTURAL
ARCADIA LAND INC.
108 N GEORGE STREET 2ND FLOOR
CHARLES TOWN, WV 25414
106.29 AC

CANDLEWOOD DRIVE
(80' ROW/MAJOR COLLECTOR)

WALLBERG WAY
(60' ROW/NEIGHBORHOOD ST.)

SEEBACK DRIVE
(56 ' ROW/NEIGHBORHOOD CENTER ST.)

BURBANK DRIVE
(50' ROW/NEIGHBORHOOD ST.)

PHASE 7

MATCHLINE
SEE SHEET 10

EX. PORTION OF RIP-RAP TO BE REMOVED

EXISTING STM ESMT

STM ESMT

15' SAN. ESMT

25' STM ESMT

15' STM ESMT

15' W/L ESMT

15' SAN. ESMT

66" STM

60" STM

54" STM

48" STM

42" STM

36" STM

30" STM

24" STM

18" STM

15" STM

6" SAN

8" SAN

8" WATERLINE

4" SAN LAT (TYP.)

W/M (TYP.)

1- F.H. ASSEMBLY

2-45° BENDS

1-8"x8" TEE 3-8" G.V.

1-8"x8" CROSS 4-8" G.V.

TYPE III TRAFFIC BARRICADE

END CAP W/ B.O.V. CROSSWALKS (TYP.)

STOP SIGN (TYP.)

STREET LIGHT

6' ASPHALT TRAIL

5' SIDEWALK

6' SIDEWALK

29' ROAD EFFICIENCY BUFFER

CG-1

Lot 100 Lot 101 Lot 102 Lot 103 Lot 104 Lot 105 Lot 106 Lot 107 Lot 108 Lot 109 Lot 110 Lot 111 Lot 112 Lot 113 Lot 114 Lot 115 Lot 116 Lot 117 Lot 118 Lot 119 Lot 120 Lot 121 Lot 122 Lot 123 Lot 124 Lot 125 Lot 126 Lot 127 Lot 128 Lot 129 Lot 130 Lot 131

Lot 154 Lot 155 Lot 156 Lot 157 Lot 158 Lot 159 Lot 160 Lot 161 Lot 162 Lot 163 Lot 164 Lot 165 Lot 166 Lot 167 Lot 168 Lot 169 Lot 170 Lot 171 Lot 172 Lot 173 Lot 174 Lot 175 Lot 176 Lot 177 Lot 178 Lot 179 Lot 180 Lot 181 Lot 182 Lot 183 Lot 184 Lot 185 Lot 186 Lot 187 Lot 188 Lot 189 Lot 190 Lot 191 Lot 192 Lot 193 Lot 194 Lot 195

NOTE:
1. ALL PROPOSED UTILITIES SHALL BE LOCATED UNDERGROUND.

30 15 0 30 60
SCALE: 1" = 30'

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OFFICES IN: WINCHESTER, VA & MARTINSBURG, WV

ROAD & UTILITY PLAN

NORBORNE GLEBE

PHASE 15
CHARLES TOWN CORP. DISTRICT (3)
CITY OF CHARLES TOWN - JEFFERSON COUNTY, WV

Rev. No.	Date
2	10/03/2022

RANDY L. KESLER
REGISTERED
17223
STATE OF
WEST VIRGINIA
PROFESSIONAL ENGINEER

DATE: 08/24/2022
SCALE: 1" = 30'
DESIGNED BY: AM/CC
FILE NO. 4542A
SHEET 9 OF 55

22-03

MATCHLINE
SEE SHEET 9

FUTURE
DEVELOPMENT
(PHASE 11)

CANDLEWOOD DRIVE
(61' ROW/MINOR COLLECTOR)

WALLBERG WAY
(50' ROW/NEIGHBORHOOD ST)

BURBANK DRIVE
(50' ROW/NEIGHBORHOOD ST)

BARKSDALE DRIVE

PHASE 10A

FUTURE
DEVELOPMENT
(PHASE 10B)

TOT LOT
2,150 SF

MEET AND
MATCH EX
TRAIL

TYPE III TRAFFIC BARRICADE
END CAP W/ B.O.V.

TYPE III TRAFFIC BARRICADE
END CAP W/ B.O.V.

SAN STUB

STREET LIGHT

CROSSWALKS (TYP.)

STOP SIGN
1- F.H. (TYP.)
ASSEMBLY

8' ASPHALT TRAIL

5' SIDEWALK

CG-1

8" WATERLINE

8" SAN

4" SAN. LAT (TYP.)

15" STM

24" STM

15" STM ESMT

15' SAN. ESMT

PR. DUAL W/M (TYP.)

W/M (TYP.)

1-11.25° BEND

1-45° BEND

1-8"x8" TEE
3-8" G.V.

1-8"x6" TEE
3-8" G.V.

1 - F.H. ASSEMBLY

Lot 83 Lot 84 Lot 85 Lot 86 Lot 87 Lot 88 Lot 89 Lot 90 Lot 91 Lot 92 Lot 93 Lot 94 Lot 95 Lot 96 Lot 97 Lot 98 Lot 99 Lot 131 Lot 132 Lot 133 Lot 134 Lot 135 Lot 136 Lot 137 Lot 138 Lot 139 Lot 140 Lot 141 Lot 142 Lot 143 Lot 144 Lot 145 Lot 146 Lot 147 Lot 148 Lot 149 Lot 150 Lot 151 Lot 152 Lot 153 Lot 154 Lot 196 Lot 197 Lot 198 Lot 199 Lot 200 Lot 201 Lot 202 Lot 203 Lot 204 Lot 205 Lot 206 Lot 207 Lot 208 Lot 209 Lot 210 Lot 211 Lot 212 Lot 213 Lot 214 Lot 215 Lot 216 Lot 217 Lot 218 Lot 219 Lot 220 Lot 221 Lot 222 Lot 223 Lot 224 Lot 225

TD: 3/MAP: 12/ PCL: 215
ZONED: NR
LANDUSE: RURAL/AGRICULTURAL
ARCADIA LAND INC.
108 N. GEORGE STREET 2ND FLOOR
CHARLES TOWN, WV 25414
106.29 AC

NOTE:
1. ALL PROPOSED UTILITIES SHALL BE LOCATED UNDERGROUND

30 15 0 30 60
SCALE: 1" = 30'

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ROAD & UTILITY PLAN

NORBORNE GLEBE

PHASE 15
CHARLES TOWN CORP. DISTRICT (3)
CITY OF CHARLES TOWN - JEFFERSON COUNTY, WV

Rev. No.	Date
2	10/03/2022

RANDY L KEPLER
REGISTERED
17223
STATE OF
WEST VIRGINIA
PROFESSIONAL ENGINEER

DATE: 08/24/2022

SCALE: 1" = 30'

DESIGNED BY: AM/CC

FILE NO. 4542A

SHEET 10 OF 55

22-03

EX. STORM WATER MANAGEMENT POND

10 YR WSE = 466.05 (TYP.)

TYPE III TRAFFIC BARRICADE

MATCHLINE
SEE SHEET 12

SCALE: 1" = 30'

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GRADING PLAN

NORBORNE GLEBE

PHASE 15
CHARLES TOWN CORP. DISTRICT (3)
CITY OF CHARLES TOWN - JEFFERSON COUNTY, WV

Rev. No.	Date
2	10/03/2022

RANDY L KEPLER
REGISTERED
17223
STATE OF
WEST VIRGINIA
PROFESSIONAL ENGINEER

DATE: 08/24/2022

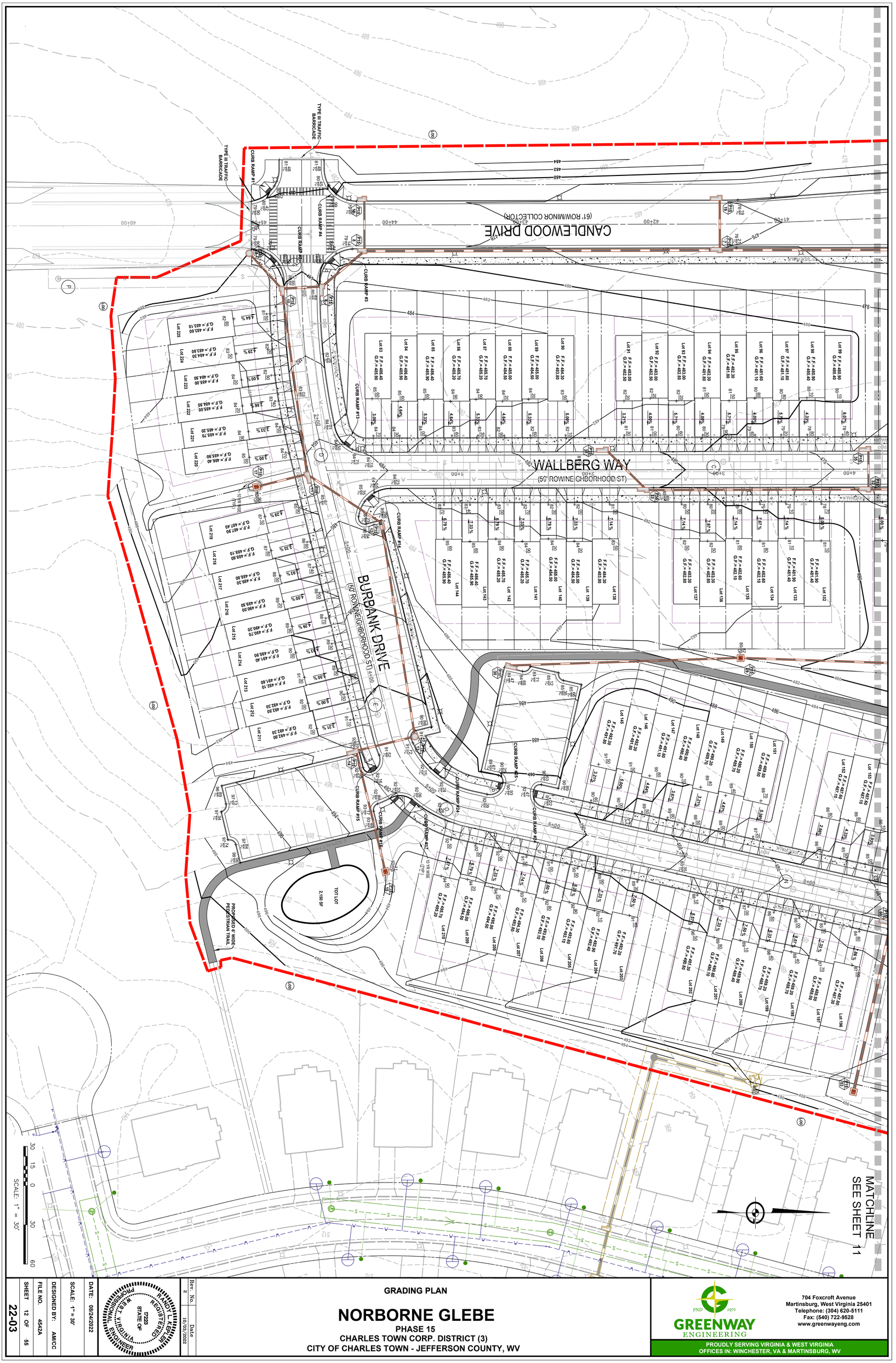
SCALE: 1" = 30'

DESIGNED BY: AM/CC

FILE NO. 4542A

SHEET 11 OF 55

22-03



GRADING PLAN

NORBORNE GLEBE

PHASE 15

CHARLES TOWN CORP. DISTRICT (3)

CITY OF CHARLES TOWN - JEFFERSON COUNTY, WV

Rev. No.	Date
2	10/05/2022

RANDY L. SELBY
17223
STATE OF WEST VIRGINIA
PROFESSIONAL ENGINEER
REGISTERED

DATE:	08/24/2022
SCALE:	1" = 30'
DESIGNED BY:	AM/CC
FILE NO.	4542A
SHEET	12 OF 55
	22-03

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CURB RAMP #1

CURB RAMP #2

CURB RAMP #3

CURB RAMP #4

CURB RAMP #5

CURB RAMP #6

CURB RAMP #7

CURB RAMP #8

CURB RAMP #9

CURB RAMP #10

CURB RAMP #11

CURB RAMP #12

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NORBORNE GLEBE

PHASE 15
CHARLES TOWN CORP. DISTRICT (3)
CITY OF CHARLES TOWN - JEFFERSON COUNTY, WV

Rev. No.	Date
2	10/03/2022

RANDY L. KISSLER
REGISTERED
17223
STATE OF
WEST VIRGINIA
PROFESSIONAL ENGINEER

DATE: 08/24/2022

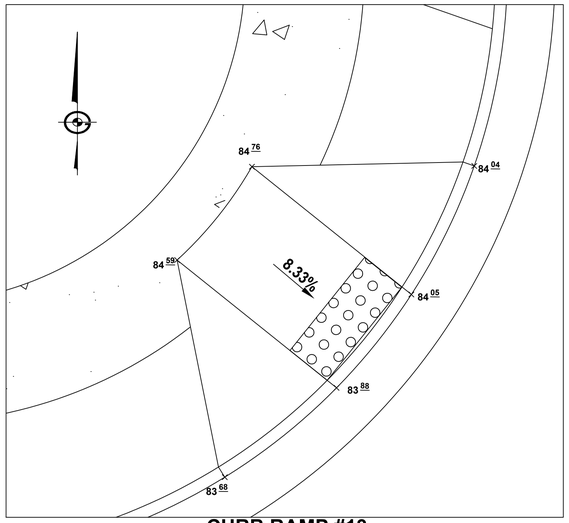
SCALE: 1" = 3'

DESIGNED BY: AM/CC

FILE NO. 4542A

SHEET 13 OF 55

22-03



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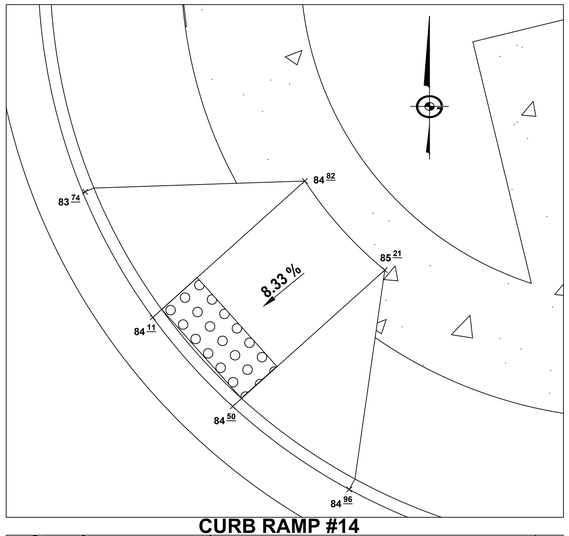

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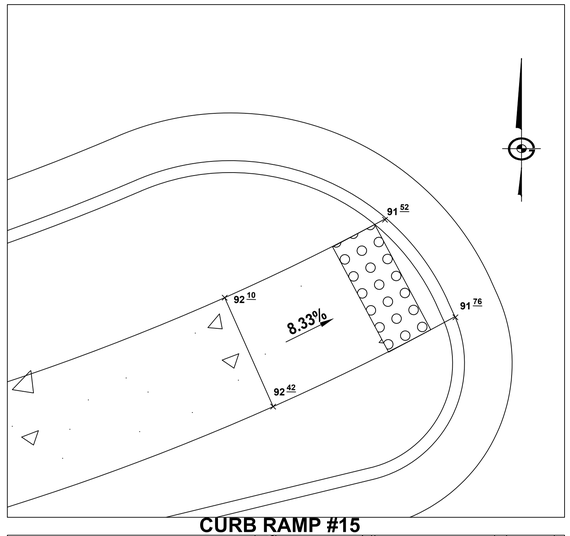

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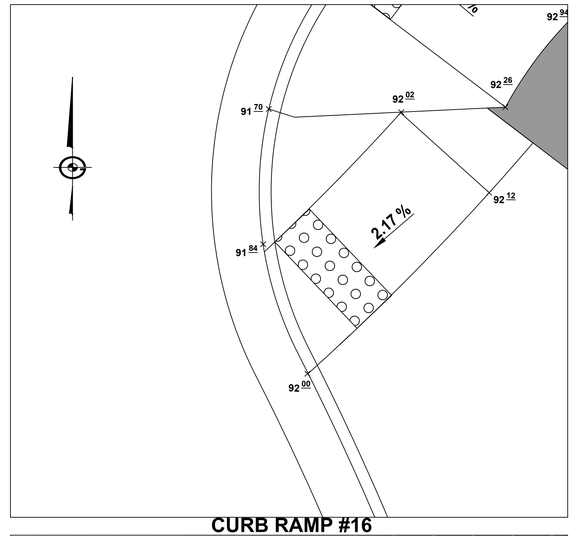

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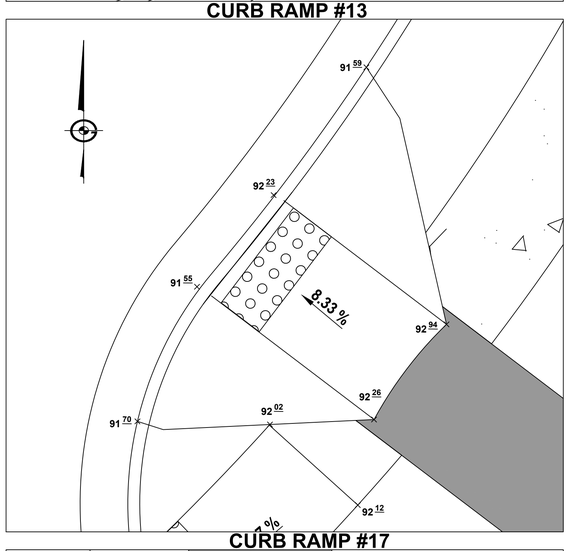

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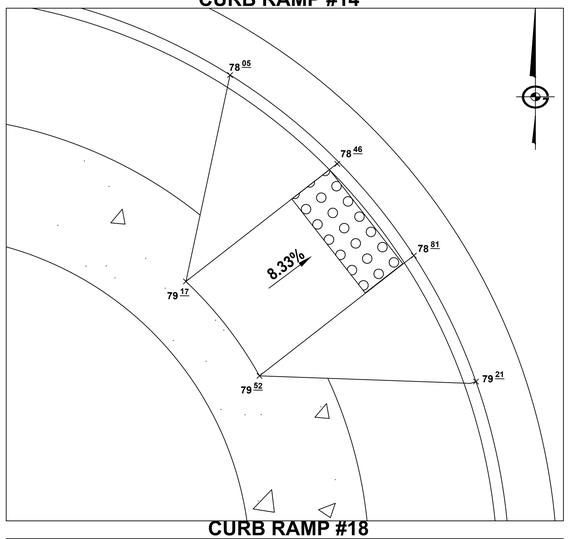

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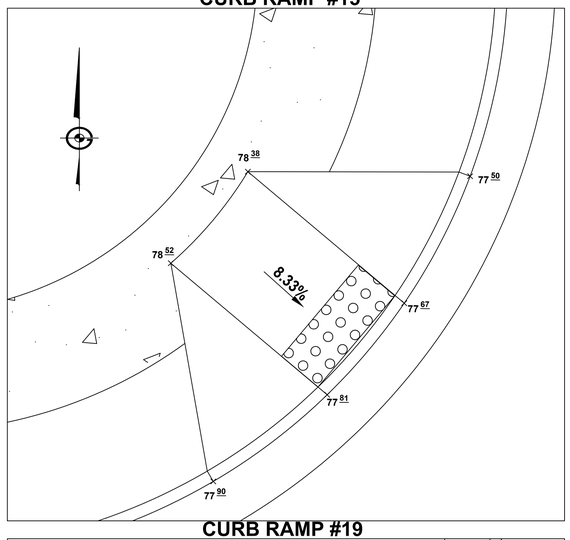

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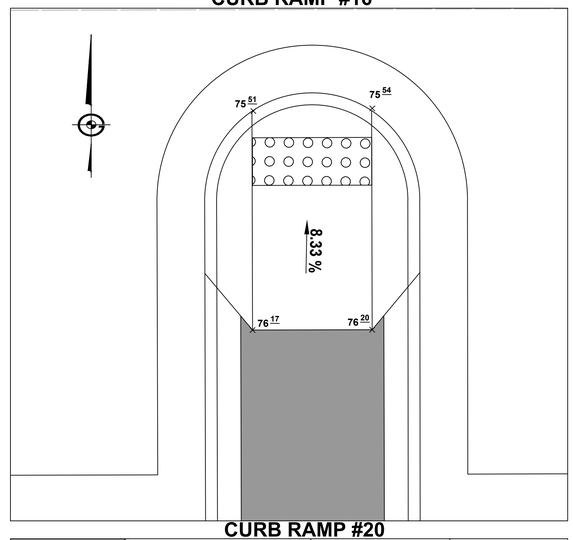

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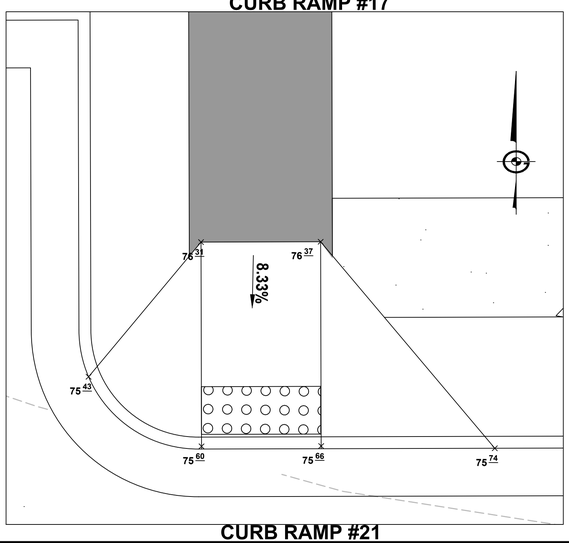

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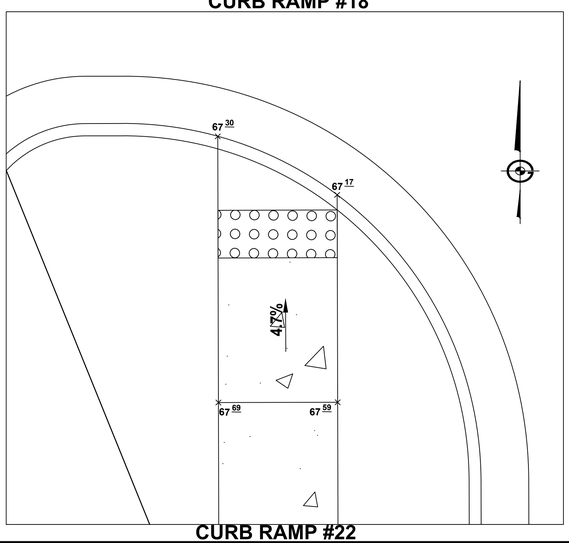

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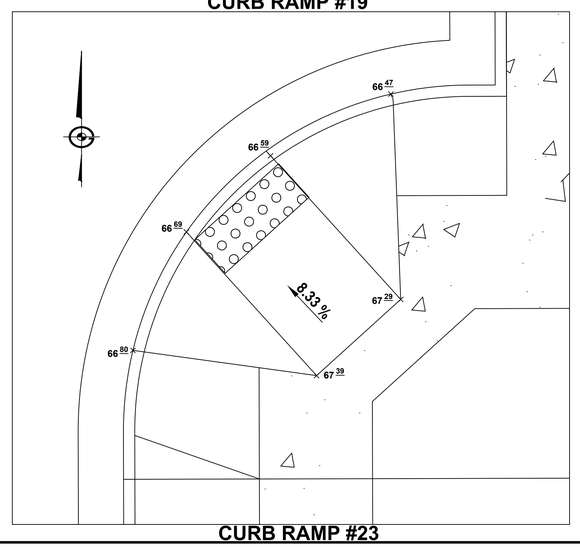

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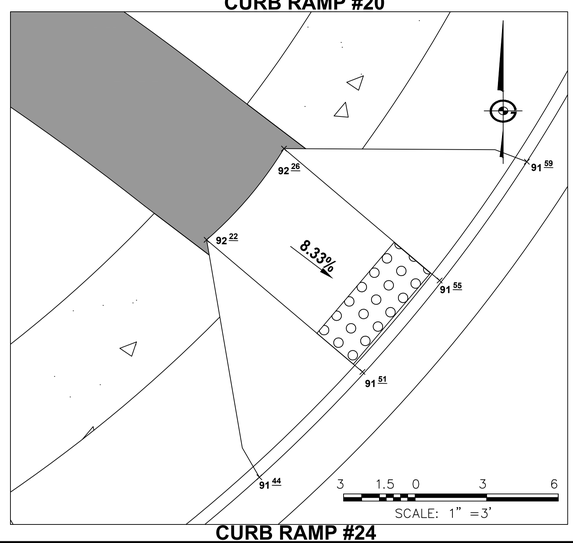

CURB RAMP #24

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PROUDLY SERVING VIRGINIA & WEST VIRGINIA
OFFICES IN: WINCHESTER, VA & MARTINSBURG, WV

CURB RAMP DETAIL PLAN

NORBORNE GLEBE

PHASE 15
CHARLES TOWN CORP. DISTRICT (3)
CITY OF CHARLES TOWN - JEFFERSON COUNTY, WV

Rev. No.	Date
2	10/03/2022

RANDY L KEPLER
REGISTERED
17223
STATE OF
WEST VIRGINIA
PROFESSIONAL ENGINEER

DATE: 08/24/2022

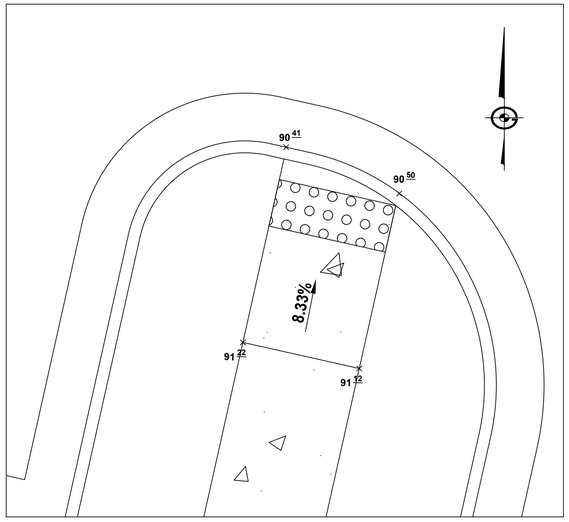
SCALE: 1" = 3'

DESIGNED BY: AM/CC

FILE NO. 4542A

SHEET 14 OF 55

22-03



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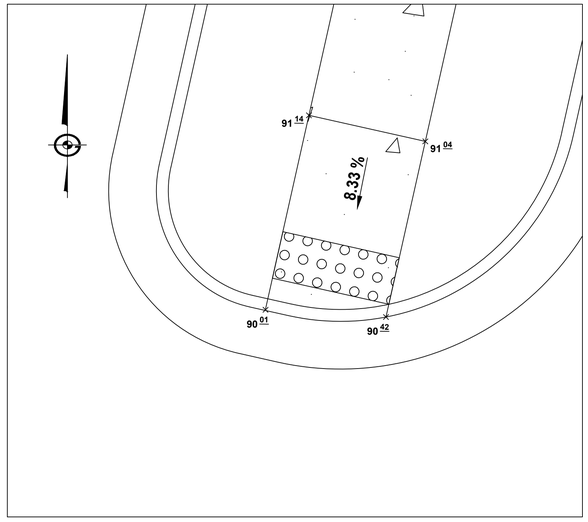

CURB RAMP #26

3 1.5 0 3 6

SCALE: 1" =3'

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CURB RAMP DETAIL PLAN

NORBORNE GLEBE

PHASE 15
CHARLES TOWN CORP. DISTRICT (3)
CITY OF CHARLES TOWN - JEFFERSON COUNTY, WV

Rev. No.	Date
2	10/03/2022

RANDY L. KEPLER
REGISTERED
17223
STATE OF
WEST VIRGINIA
PROFESSIONAL ENGINEER

DATE: 08/24/2022

SCALE: 1" = 3'

DESIGNED BY: AM/CC

FILE NO. 4542A

SHEET 15 OF 55

22-03

NOTES:

1. ALL OPEN SPACE THAT IS NOT PART OF A LOT IS PUBLIC USE.
2. ALL CORNERS FOR THIS SUBDIVISION ARE "TO BE SET". THE APPROPRIATE CORNER NOTES WILL BE ADDED TO THE FINAL PLAT FOR RECORDATION AND WILL BE SET PER WV CODE AT TIME OF RECORDATION.

LOT LINE & CURVE TABLE

LINE	BEARING	DISTANCE
L1	S 89°51'17" W	7.04'
L2	N 47°48'49" E	5.95'
L3	S 00°08'43" E	13.00'
L4	S 80°17'45" W	12.50'
L5	N 73°21'05" E	12.09'
L6	S 15°06'34" E	10.62'
L7	S 13°38'04" E	11.58'

CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING	DELTA ANGLE
C1	13.54'	20.30'	18.45'	N 42°48'44" E	85°54'55"
C2	13.50'	21.21'	19.09'	N 45°08'43" W	90°00'00"
C3	13.50'	19.18'	17.61'	S 40°51'00" E	81°24'35"
C4	13.50'	21.21'	19.09'	S 44°51'17" W	90°00'00"
C5	13.50'	21.21'	19.09'	N 44°51'17" E	90°00'00"
C6	13.50'	21.21'	19.09'	S 45°08'43" E	90°00'00"
C7	13.50'	3.51'	3.50'	S 05°10'29" W	14°53'06"
C8	55.00'	51.14'	49.32'	N 39°15'13" E	53°16'22"
C9	105.00'	112.28'	107.00'	N 43°15'00" E	61°15'57"
C10	13.50'	18.31'	16.94'	N 38°42'22" E	77°42'10"
C11	13.50'	21.21'	19.09'	N 44°51'17" E	90°00'00"
C12	12.50'	19.63'	17.68'	N 45°08'43" W	90°00'00"
C13	12.50'	19.63'	17.68'	S 44°51'17" W	90°00'00"
C14	13.50'	21.21'	19.09'	S 45°08'43" E	90°00'00"
C15	14.00'	3.34'	3.33'	N 83°01'38" E	13°39'18"
C16	175.00'	68.18'	67.75'	N 01°27'23" E	22°19'16"
C17	475.00'	101.95'	101.75'	N 83°42'22" E	12°17'50"

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OFFICES IN: WINCHESTER, VA & MARTINSBURG, WV

PRELIMINARY PLAN

NORBORNE GLEBE

PHASE 15
CHARLES TOWN CORP. DISTRICT (3)
CITY OF CHARLES TOWN - JEFFERSON COUNTY, WV

Rev. No.	Date

RANDY L KEPLER — REGISTERED — 17223 — STATE OF WEST VIRGINIA — PROFESSIONAL ENGINEER

DATE: 08/24/2022
SCALE: 1" = 30'
DESIGNED BY: AM/CC
FILE NO. 4542A
SHEET 16 OF 55
22-03

SCALE: 1" = 30'

MATCHLINE SEE SHEET 17

CANDLEWOOD DRIVE (80' ROW/MAJOR COLLECTOR)

WALLBERG WAY (50' ROW/NEIGHBORHOOD ST)

BURBANK DRIVE (50' ROW/NEIGHBORHOOD ST)

SEEBACK DRIVE (56 ' ROW/NEIGHBORHOOD CENTER ST)

LAND
108 N G
CH

MATCHLINE
SEE SHEET 16

CANDLEWOOD DRIVE
(61' ROW/MINOR COLLECTOR)

WALLBERG WAY
(50' ROW/NEIGHBORHOOD ST)

BURBANK DRIVE
(50' ROW/NEIGHBORHOOD ST)

TOT LOT
2,150 SF

15' SAN. ESMT

15' STM ESMT

LOT LINE & CURVE TABLE

LINE	BEARING	DISTANCE
L1	S 89°51'17" W	7.04'
L2	N 47°48'49" E	5.95'
L3	S 00°08'43" E	13.00'
L4	S 90°17'45" W	12.50'
L5	N 73°21'05" E	12.09'
L6	S 15°06'34" E	10.62'
L7	S 13°38'04" E	11.58'

CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING	DELTA ANGLE
C1	13.54'	20.30'	18.45'	N 42°48'44" E	85°54'55"
C2	13.50'	21.21'	19.09'	N 45°08'43" W	90°00'00"
C3	13.50'	19.18'	17.61'	S 40°51'00" E	81°24'35"
C4	13.50'	21.21'	19.09'	S 44°51'17" W	90°00'00"
C5	13.50'	21.21'	19.09'	N 44°51'17" E	90°00'00"
C6	13.50'	21.21'	19.09'	S 45°08'43" E	90°00'00"
C7	13.50'	3.51'	3.50'	S 05°10'29" W	14°53'06"
C8	55.00'	51.14'	49.32'	N 39°15'13" E	53°16'22"
C9	105.00'	112.28'	107.00'	N 43°15'00" E	61°15'57"
C10	13.50'	18.31'	16.94'	N 38°42'22" E	77°42'10"
C11	13.50'	21.21'	19.09'	N 44°51'17" E	90°00'00"
C12	12.50'	19.63'	17.68'	N 45°08'43" W	90°00'00"
C13	12.50'	19.63'	17.68'	S 44°51'17" W	90°00'00"
C14	13.50'	21.21'	19.09'	S 45°08'43" E	90°00'00"
C15	14.00'	3.34'	3.33'	N 83°01'38" E	13°39'18"
C16	175.00'	68.18'	67.75'	N 01°27'23" E	22°19'16"
C17	475.00'	101.95'	101.75'	N 83°42'22" E	12°17'50"

NOTES:

1. ALL OPEN SPACE THAT IS NOT PART OF A LOT IS PUBLIC USE.
2. ALL CORNERS FOR THIS SUBDIVISION ARE "TO BE SET". THE APPROPRIATE CORNER NOTES WILL BE ADDED TO THE FINAL PLAT FOR RECORDATION AND WILL BE SET PER WV CODE AT TIME OF RECORDATION.

30 15 0 30 60
SCALE: 1" = 30'

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PRELIMINARY PLAN

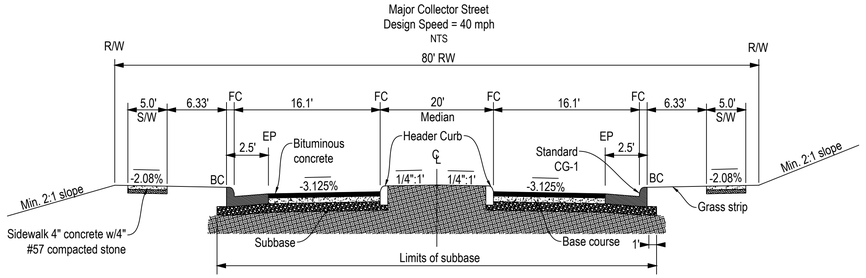
NORBORNE GLEBE

PHASE 15
CHARLES TOWN CORP. DISTRICT (3)
CITY OF CHARLES TOWN - JEFFERSON COUNTY, WV

Rev. No.	Date

RANDY L. KEPLER
REGISTERED
17223
STATE OF
WEST VIRGINIA
PROFESSIONAL ENGINEER

DATE: 08/24/2022
SCALE: 1" = 30'
DESIGNED BY: AM/CC
FILE NO. 4542A
SHEET 17 OF 55
22-03



CANDLEWOOD DRIVE STA 33+79.63 TO 38+83.15
PER PREVIOUS CANDLEWOOD DR APPROVED DESIGN PLANS

Note: Pavement design is preliminary and shall be adjusted upon establishing actual CBR values.

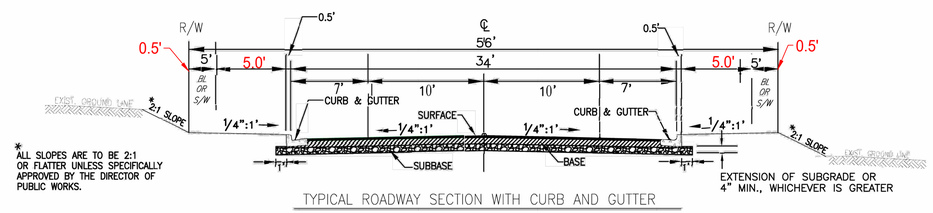
PRELIMINARY PAVEMENT DESIGN

SURFACE: 1.5" SM-9.5A
INTERMEDIATE: 1.5" IM-19.0
BASE: 3" BM-25.0
SUBBASE: 8" 21-B Aggregate

Note: Pavement design is preliminary and shall be adjusted upon establishing actual CBR values.

PRELIMINARY PAVEMENT DESIGN

SURFACE: 1.5" SM-9.5A
INTERMEDIATE: 3" IM-19.0
BASE: 8" 21-B Aggregate
SUBBASE: Compacted Subgrade

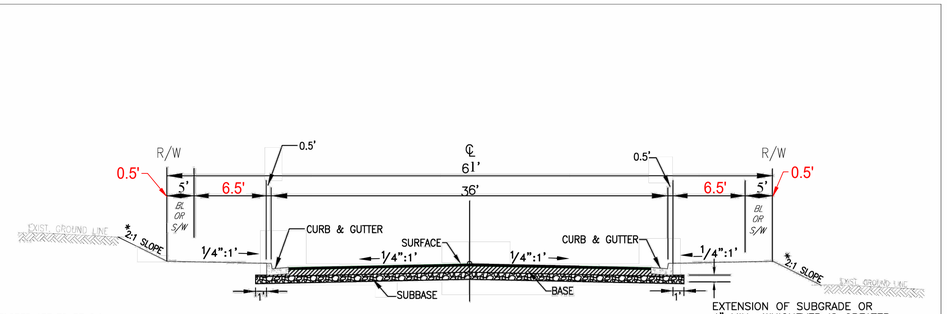


* ALL SLOPES ARE TO BE 2:1 OR FLATTER UNLESS SPECIFICALLY APPROVED BY THE DIRECTOR OF PUBLIC WORKS.

TYPICAL ROADWAY SECTION WITH CURB AND GUTTER

SEEBACK DRIVE

TYPICAL SECTION - NEIGHBORHOOD CENTER STREET
(501-1000 VPD)
City of Charles Town



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TYPICAL ROADWAY SECTION WITH CURB AND GUTTER

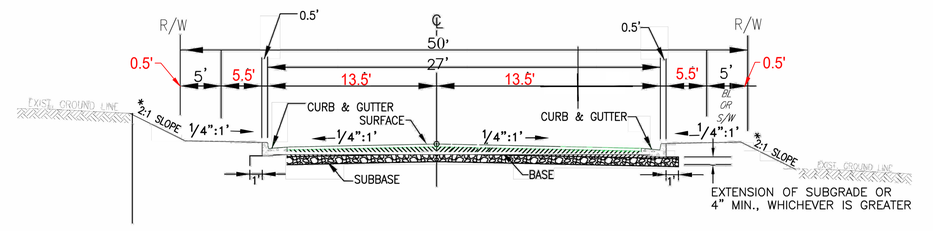
CANDLEWOOD DRIVE STA 41+33.13 TO 46+64.99

TYPICAL SECTION - MINOR COLLECTOR
(1000-2001 VPD)
City of Charles Town

Note: Pavement design is preliminary and shall be adjusted upon establishing actual CBR values.

PRELIMINARY PAVEMENT DESIGN

SURFACE: 1.5" SM-9.5A
INTERMEDIATE: 3" IM-19.0
BASE: 8" 21-B Aggregate
SUBBASE: Compacted Subgrade



TYPICAL ROADWAY SECTION WITH CURB AND GUTTER

* ALL SLOPES ARE TO BE 2:1 OR FLATTER UNLESS SPECIFICALLY APPROVED BY THE DIRECTOR OF PUBLIC WORKS.

WALLBERG WAY AND BURBANK DRIVE

TYPICAL SECTION - NEIGHBORHOOD STREET
(0-500 VPD)
City of Charles Town

Note: Pavement design is preliminary and shall be adjusted upon establishing actual CBR values.

PRELIMINARY PAVEMENT DESIGN

SURFACE: 1.5" SM-9.5A
INTERMEDIATE: 3" IM-19.0
BASE: 8" 21-B Aggregate
SUBBASE: Compacted Subgrade

NOTE:
ALL REVISIONS IN RED MADE FOR CONSTRUCTABILITY.

704 Foxcroft Avenue
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ROAD TYPICAL SECTIONS

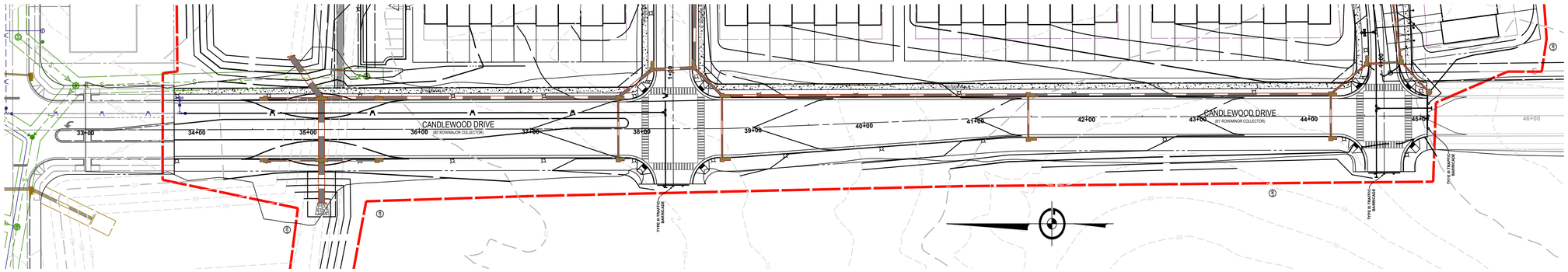
NORBORNE GLEBE
PHASE 15
CHARLES TOWN CORP. DISTRICT (3)
CITY OF CHARLES TOWN - JEFFERSON COUNTY, WV

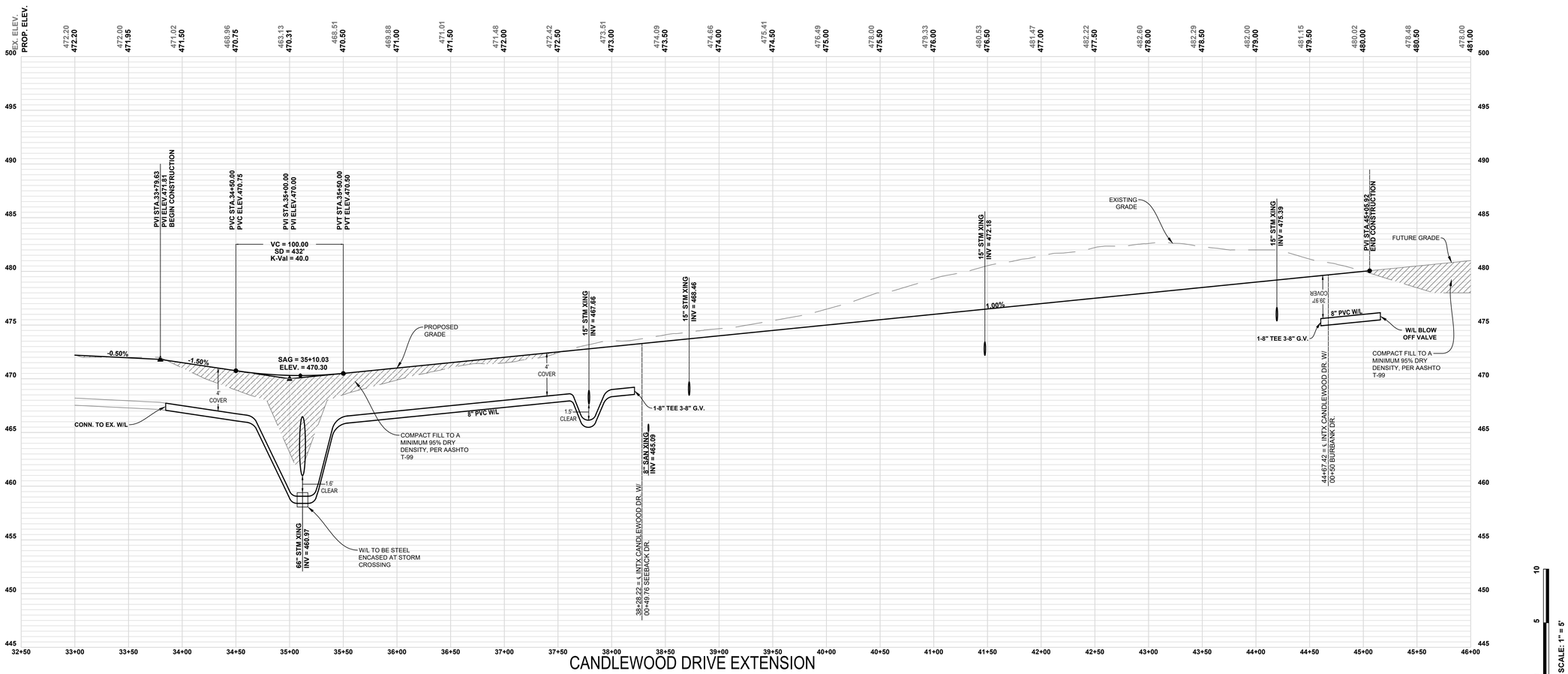
Rev. No.	Date

RANDY L. KESLER
REGISTERED
17223
STATE OF
WEST VIRGINIA
PROFESSIONAL ENGINEER

DATE: 08/24/2022
SCALE: N/A
DESIGNED BY: AM/CC
FILE NO. 4542A
SHEET 18 OF 55

22-03





NOTES:
1. EXISTING UTILITIES SHOWN PER PREVIOUS DESIGN DATA. CONTRACTOR TO FIELD VERIFY FIELD CONDITIONS.
2. ALL PROPOSED UTILITIES SHALL BE LOCATED UNDERGROUND

50 25 0 50 100
SCALE: 1" = 50'

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OFFICES IN: WINCHESTER, VA & MARTINSBURG, WV

CANDLEWOOD DRIVE ROAD PROFILES

NORBORNE GLEBE

PHASE 15
CHARLES TOWN CORP. DISTRICT (3)
CITY OF CHARLES TOWN - JEFFERSON COUNTY, WV

Rev. No.	Date
1	09/19/2022

RANDY L KEPLER
REGISTERED
17223
STATE OF
WEST VIRGINIA
PROFESSIONAL ENGINEER

DATE: 08/24/2022

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

DESIGNED BY: AM/CC

FILE NO. 4542A

SHEET 19 OF 55

22-03

34+50

34+00

33+50

33+00

36+50

36+00

35+50

35+00

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OFFICES IN: WINCHESTER, VA & MARTINSBURG, WV

CANDLEWOOD DRIVE ROAD CROSS SECTIONS

NORBORNE GLEBE

PHASE 15
CHARLES TOWN CORP. DISTRICT (3)
CITY OF CHARLES TOWN - JEFFERSON COUNTY, WV

Rev. No.	Date

RANDY L. KEPLER
REGISTERED
17223
STATE OF
WEST VIRGINIA
PROFESSIONAL ENGINEER

DATE: 08/24/2022

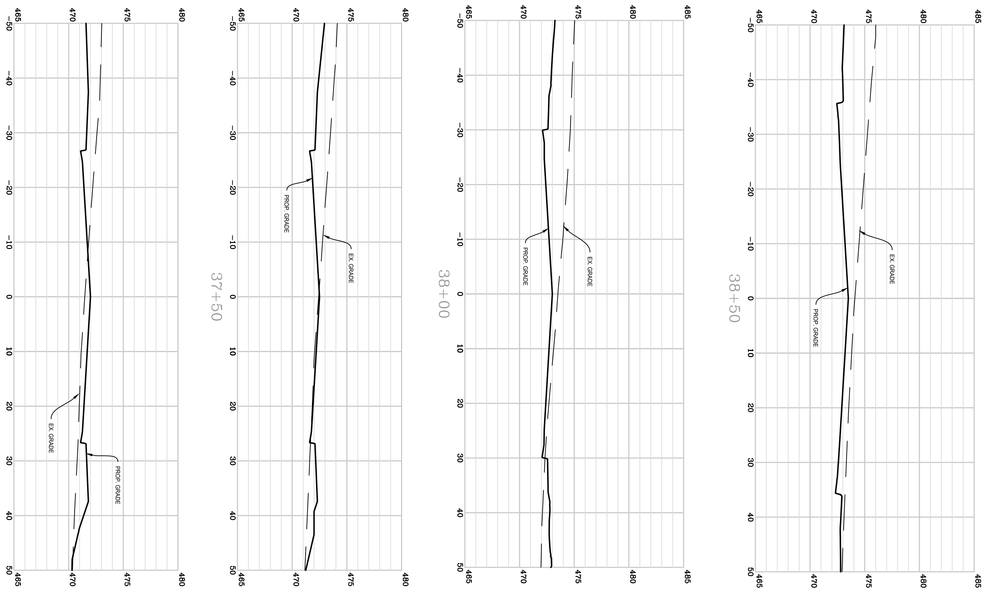
SCALE: H:1"=50
V:1"=5"

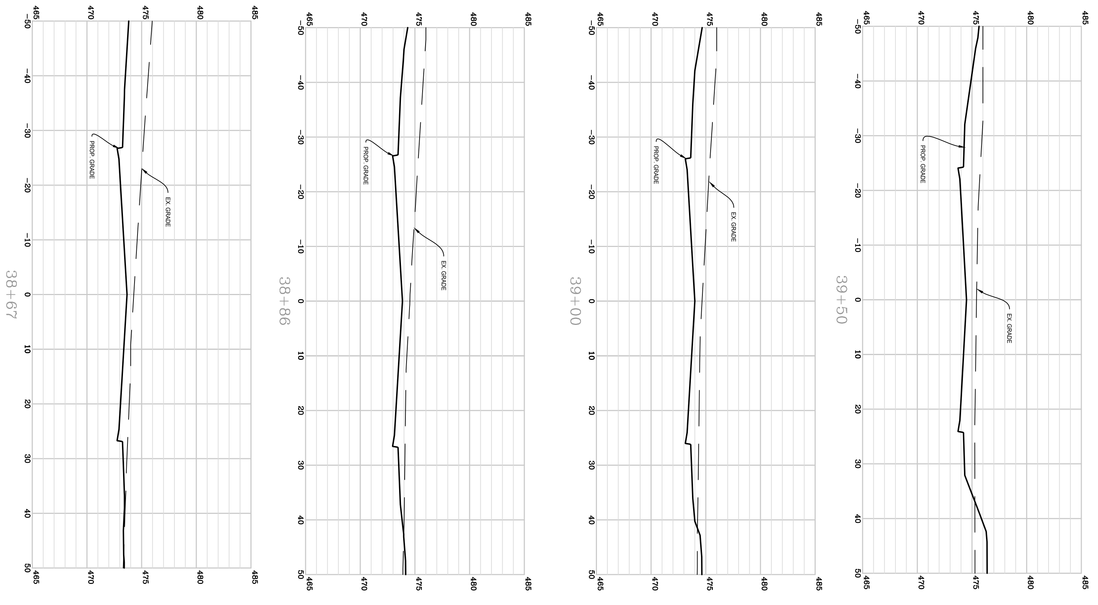
DESIGNED BY: AM/CC

FILE NO. 4542A

SHEET 20 OF 55

22-03





SCALE: 1" = 50'

SCALE: 1" = 5'

CANDLEWOOD DRIVE ROAD CROSS SECTIONS

NORBORNE GLEBE

PHASE 15
CHARLES TOWN CORP. DISTRICT (3)
CITY OF CHARLES TOWN - JEFFERSON COUNTY, WV

Rev. No.	Date

RANDY L. GREENWAY
17223
STATE OF WEST VIRGINIA
PROFESSIONAL ENGINEER
REGISTERED

DATE: 08/24/2022
SCALE: H:1"=50 V:1"=5'
DESIGNED BY: AM/CC
FILE NO. 4542A
SHEET 21 OF 55
22-03

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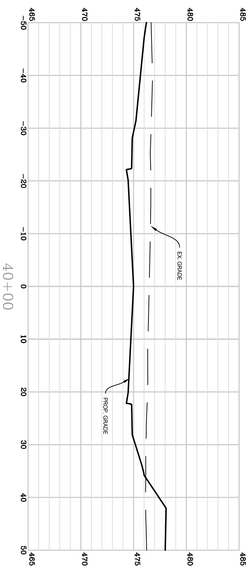

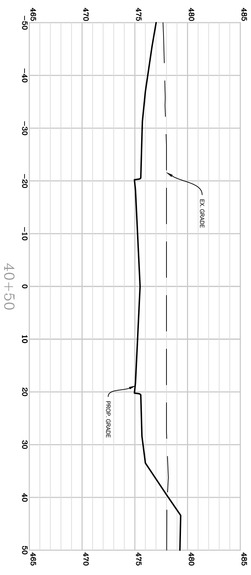

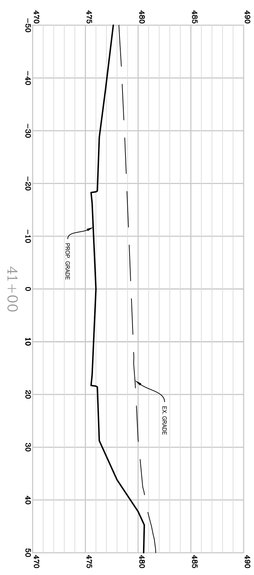

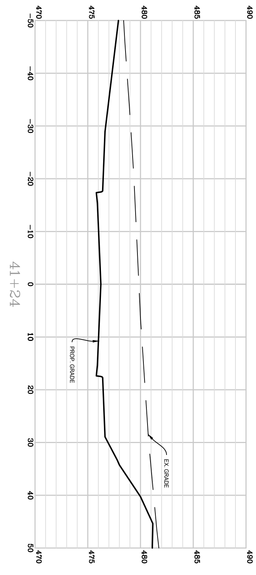

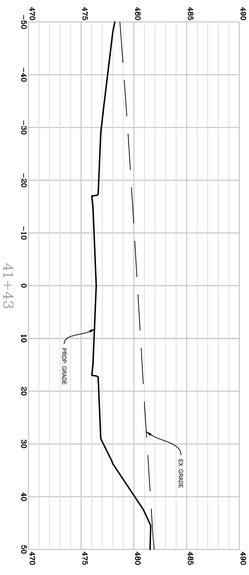

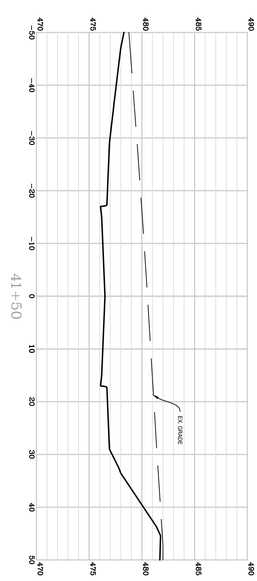

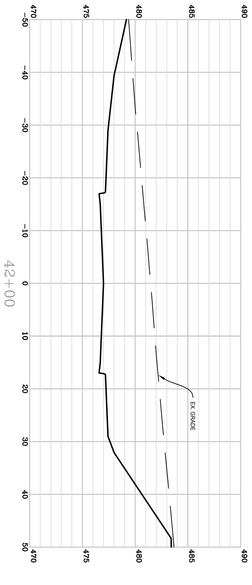

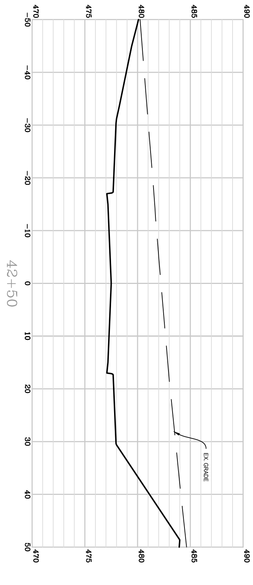

50 25 0 50 100
SCALE: 1" = 50'

5 2.5 0 5 10
SCALE: 1" = 5'

CANDLEWOOD DRIVE ROAD CROSS SECTIONS

NORBORNE GLEBE

PHASE 15
CHARLES TOWN CORP. DISTRICT (3)
CITY OF CHARLES TOWN - JEFFERSON COUNTY, WV

Rev. No.	Date

RANDY L. SELBY
17223
STATE OF
WEST VIRGINIA
PROFESSIONAL ENGINEER
REGISTERED

DATE: 08/24/2022
SCALE: H:1"=50 V:1"=5'
DESIGNED BY: AM/CC
FILE NO. 4542A
SHEET 22 OF 55
22-03

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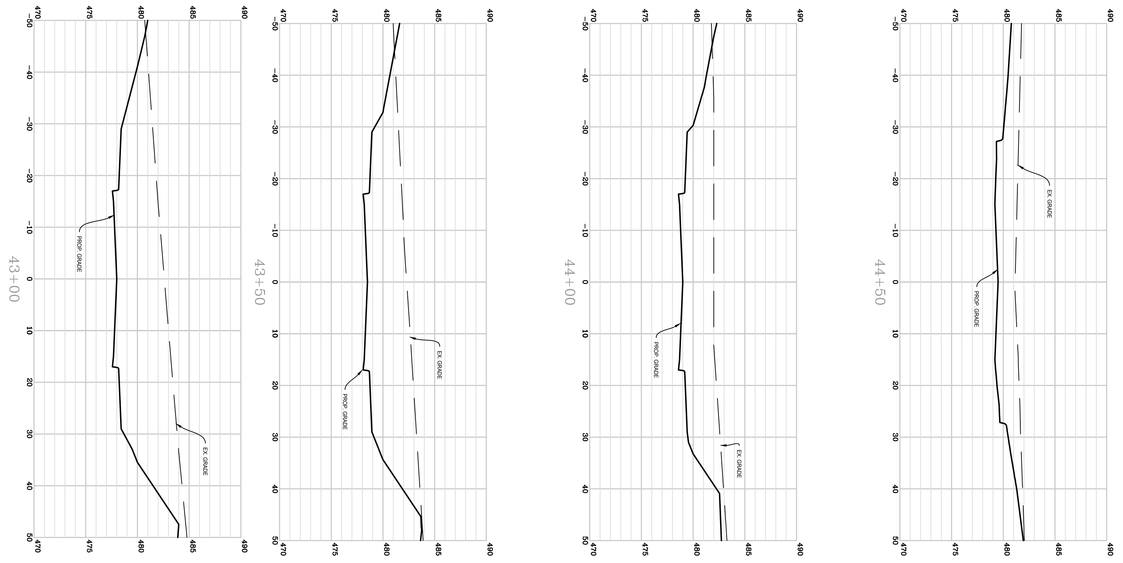
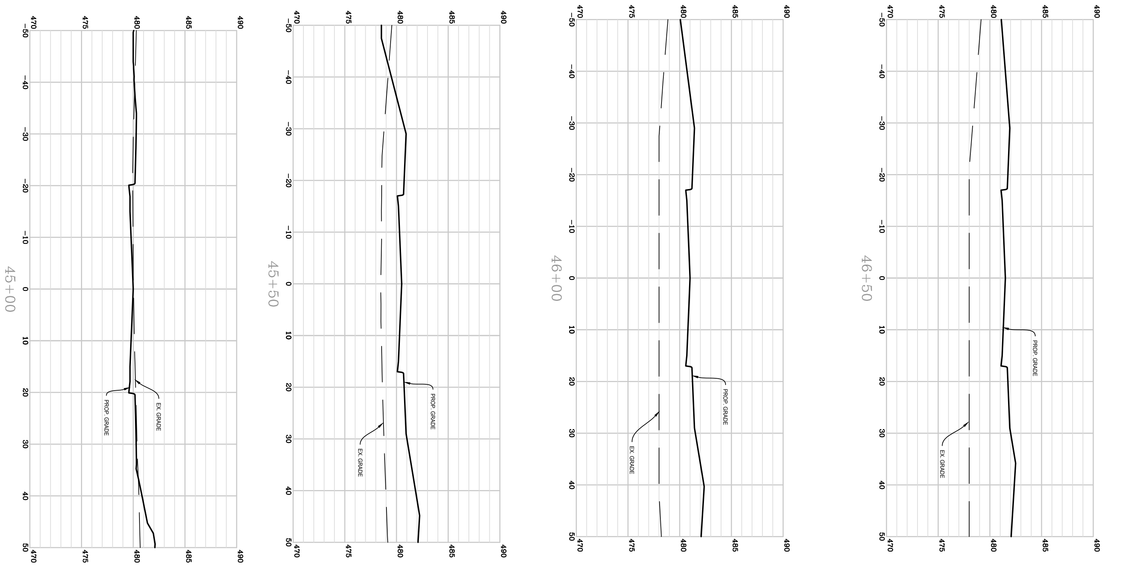
OFFICES IN: WINCHESTER, VA & MARTINSBURG, WV





SCALE: 1" = 50'

SCALE: 1" = 5'

CANDLEWOOD DRIVE ROAD CROSS SECTIONS

NORBORNE GLEBE

PHASE 15
CHARLES TOWN CORP. DISTRICT (3)
CITY OF CHARLES TOWN - JEFFERSON COUNTY, WV

Rev. No.	Date

DATE: 08/24/2022
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SHEET 23 OF 55
22-03

RANDY L. CRESS 17223 STATE OF WEST VIRGINIA PROFESSIONAL ENGINEER REGISTERED

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FND 1971
704 Foxcroft Avenue
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PROUDLY SERVING VIRGINIA & WEST VIRGINIA
OFFICES IN: WINCHESTER, VA & MARTINSBURG, WV

Walberg Way

MH A (Inv In = 459.81) to MH B (Inv Out = 464.03) - 282.0' @ 1.50%

Lot Number	Lateral Station	Lateral Invert (ft)	Main Invert (ft)	Lateral Length (ft)	Lateral Slope (%)	Riser Height (ft)	Station @ Riser End	Invert @ Lateral Cleanout (ft)	Finish Grade @ Cleanout (ft)	Basement Floor Elev (ft)	Comments
L116	0+45.56	461.24	460.49	32.50	3.99	0.00	0+00.00	462.54	467.56	0.00	
L115	0+59.18	461.45	460.70	20.50	7.77	0.00	0+00.00	463.04	468.06	0.00	
L117	0+72.33	461.64	460.89	32.50	5.90	0.00	0+00.00	463.56	468.54	0.00	
L114	0+86.19	461.85	461.10	20.50	5.94	0.00	0+00.00	463.07	469.05	0.00	
L118	0+92.43	461.95	461.20	32.50	4.16	0.00	0+00.00	463.30	469.28	0.00	
L113	1+06.18	462.15	461.40	20.50	8.08	0.00	0+00.00	463.81	469.78	0.00	
L119	1+12.43	462.25	461.50	32.50	5.49	0.00	0+00.00	464.03	470.01	0.00	
L112	1+26.18	462.45	461.70	20.50	5.27	0.00	0+00.00	463.53	470.51	0.00	
L120	1+32.43	462.55	461.80	32.50	6.81	0.00	0+00.00	464.76	470.74	0.00	
L111	1+46.18	462.75	462.00	20.50	7.37	0.00	0+00.00	464.26	471.24	0.00	
L121	1+52.43	462.85	462.10	32.50	5.06	0.00	0+00.00	464.49	471.47	0.00	
L110	1+66.18	463.05	462.30	20.50	9.44	0.00	0+00.00	464.99	471.97	0.00	
L122	1+72.43	463.15	462.40	32.50	6.39	0.00	0+00.00	465.22	472.20	0.00	
L109	1+86.18	463.35	462.60	20.50	6.70	0.00	0+00.00	464.72	472.70	0.00	
L123	1+92.43	463.45	462.70	32.50	7.71	0.00	0+00.00	465.95	472.93	0.00	
L108	2+06.18	463.65	462.90	20.50	8.80	0.00	0+00.00	465.46	473.43	0.00	
L124	2+12.43	463.75	463.00	32.50	5.96	0.00	0+00.00	465.68	473.66	0.00	
L107	2+26.18	463.95	463.20	20.50	6.10	0.00	0+00.00	465.20	474.18	0.00	

MH B (Inv In = 464.13) to MH C (Inv Out = 470.65) - 311.0' @ 2.10%

L106	0+47.57	465.88	465.13	20.50	10.47	0.00	0+00.00	468.02	476.00	0.00	
L125	0+57.25	466.08	465.33	32.50	5.22	0.00	0+00.00	467.78	474.77	0.00	
L105	0+74.57	466.44	465.69	20.50	7.50	0.00	0+00.00	467.98	476.00	0.00	
L126	0+84.25	466.65	465.90	32.50	4.92	0.00	0+00.00	468.24	475.25	0.00	
L104	0+94.57	466.86	466.11	20.50	5.44	0.00	0+00.00	467.98	476.00	0.00	
L127	1+04.25	467.07	466.32	32.50	4.71	0.00	0+00.00	468.60	475.60	0.00	
L103	1+14.57	467.28	466.53	20.50	7.30	0.00	0+00.00	468.78	475.79	0.00	
L128	1+24.25	467.48	466.73	32.50	7.58	0.00	0+00.00	469.95	475.95	0.00	
L102	1+34.57	467.70	466.95	20.50	6.96	0.00	0+00.00	469.13	476.13	0.00	
L129	1+44.25	467.90	467.15	32.50	7.37	0.00	0+00.00	470.30	476.30	0.00	
L101	1+54.57	468.12	467.37	20.50	6.63	0.00	0+00.00	469.48	476.48	0.00	
L130	1+64.25	468.32	467.57	32.50	7.16	0.00	0+00.00	470.65	476.65	0.00	
L100	1+74.57	468.54	467.79	20.50	6.30	0.00	0+00.00	469.83	476.83	0.00	
L131	1+84.25	468.74	467.99	32.50	6.95	0.00	0+00.00	471.00	477.00	0.00	
L99	2+19.57	469.48	468.73	20.50	5.59	0.00	0+00.00	470.63	477.62	0.00	
L132	2+35.85	469.82	469.07	32.50	6.43	0.00	0+00.00	471.91	477.91	0.00	
L98	2+46.57	470.05	469.30	20.50	5.10	0.00	0+00.00	471.10	478.10	0.00	
L133	2+62.85	470.39	469.64	32.50	6.12	0.00	0+00.00	472.38	478.38	0.00	
L97	2+66.57	470.47	469.72	20.50	9.65	0.00	0+00.00	472.45	478.45	0.00	
L134	2+82.85	470.81	470.06	32.50	5.91	0.00	0+00.00	472.73	478.74	0.00	
L96	2+86.57	470.89	470.14	20.50	9.31	0.00	0+00.00	472.80	478.80	0.00	
L135	3+02.85	471.23	470.48	32.50	5.71	0.00	0+00.00	473.09	479.09	0.00	
L95	3+06.57	471.31	470.56	20.50	8.96	0.00	0+00.00	473.14	479.15	0.00	

MH C (Inv In = 470.75) to MH D(Inv Out = 473.08) - 311.0' @ 0.75%

L83	0+00.00	471.40	470.65	268.33	1.32	0.00	0+00.00	474.94	483.93	0.00	
L136	0+11.85	471.59	470.84	32.50	5.72	0.00	0+00.00	473.45	479.44	0.00	
L94	0+15.57	471.62	470.87	20.50	9.22	0.00	0+00.00	473.51	479.50	0.00	
L137	0+31.85	471.74	470.99	32.50	6.35	0.00	0+00.00	473.80	479.79	0.00	
L93	0+35.57	471.77	471.02	20.50	5.32	0.00	0+00.00	472.86	479.86	0.00	
L92	0+55.57	471.92	471.17	20.50	6.31	0.00	0+00.00	473.21	480.21	0.00	
L91	0+75.57	472.07	471.32	20.50	7.29	0.00	0+00.00	473.56	480.56	0.00	
L138	0+86.82	472.15	471.40	32.50	7.98	0.00	0+00.00	474.75	480.76	0.00	
L139	1+13.82	472.35	471.60	32.50	8.88	0.00	0+00.00	475.24	481.23	0.00	
L90	1+20.57	472.40	471.65	20.50	9.42	0.00	0+00.00	474.34	481.35	0.00	
L140	1+33.82	472.50	471.75	32.50	6.42	0.00	0+00.00	474.59	481.58	0.00	
L89	1+47.55	472.61	471.86	20.50	10.85	0.00	0+00.00	474.83	481.82	0.00	
L141	1+53.82	472.65	471.90	32.50	7.04	0.00	0+00.00	474.94	481.93	0.00	
L88	1+67.55	472.76	472.01	20.50	6.98	0.00	0+00.00	474.19	482.18	0.00	
L142	1+73.82	472.80	472.05	32.50	7.66	0.00	0+00.00	475.29	482.28	0.00	
L87	1+87.55	472.91	472.16	20.50	7.96	0.00	0+00.00	474.54	482.53	0.00	
L143	1+93.82	472.95	472.20	32.50	8.28	0.00	0+00.00	475.65	482.64	0.00	
L86	2+07.55	473.06	472.31	20.50	10.01	0.00	0+00.00	475.11	482.88	0.00	
L144	2+13.82	473.10	472.35	32.50	8.90	0.00	0+00.00	476.00	482.99	0.00	
L85	2+27.55	473.21	472.46	20.50	8.28	0.00	0+00.00	474.90	483.23	0.00	
L84	2+47.55	473.36	472.61	20.50	9.28	0.00	0+00.00	475.26	483.58	0.00	

WALLBERG WAY

50' R.O.W., **27' FC TO FC**
POSTED SPEED 25 MPH

NOTES:
1. EXISTING UTILITIES SHOWN PER PREVIOUS DESIGN DATA. CONTRACTOR TO FIELD VERIFY FIELD CONDITIONS.
2. ALL PROPOSED UTILITIES SHALL BE LOCATED UNDERGROUND

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WALLBERG WAY ROAD PROFILES

NORBORNE GLEBE

PHASE 15
CHARLES TOWN CORP. DISTRICT (3)
CITY OF CHARLES TOWN - JEFFERSON COUNTY, WV

Rev. No.	Date
1	09/19/2022

RANDY L. KEPLER
REGISTERED
17223
STATE OF
WEST VIRGINIA
PROFESSIONAL ENGINEER

DATE:	08/24/2022
SCALE:	H:1"=50 V:1"=5"
DESIGNED BY:	AM/CC
FILE NO.	4542A
SHEET	24 OF 55
	22-03

1+50

1+00

0+50

0+00

3+50

3+00

2+50

2+00

SCALE: 1" = 50'

SCALE: 1" = 5'

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WALLBERG WAY ROAD CROSS SECTIONS

NORBORNE GLEBE

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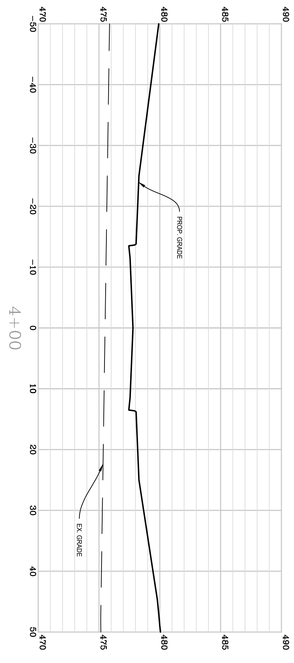
SCALE: H:1"=50
V:1"=5"

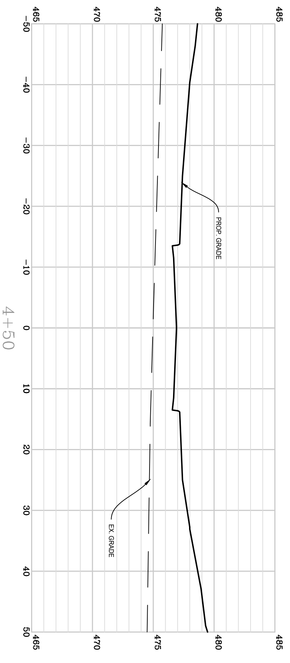
DESIGNED BY: AM/CC

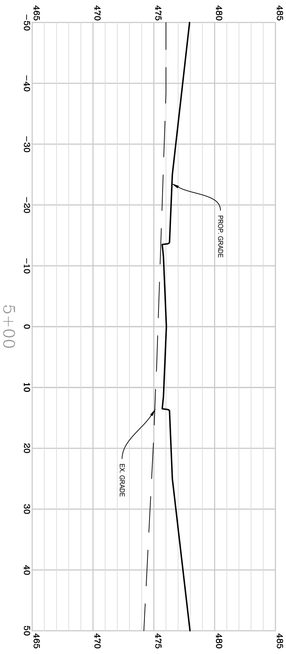
FILE NO. 4542A

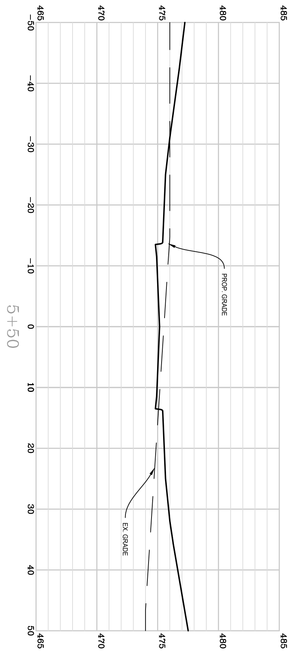
SHEET 25 OF 55

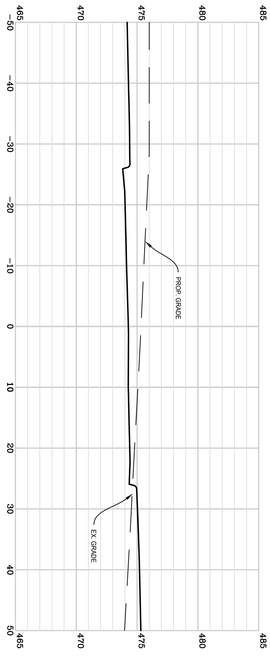
22-03

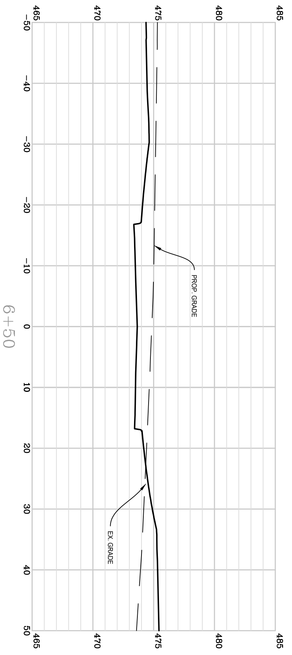


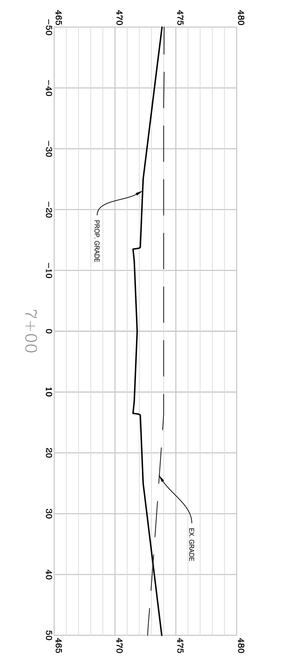


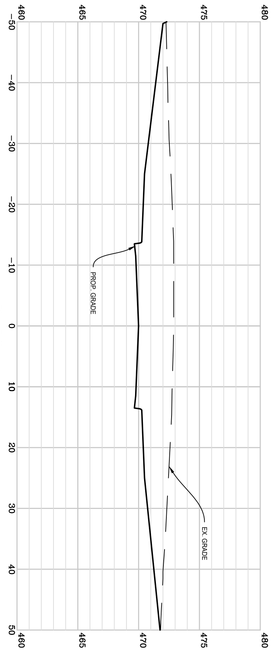












50 25 0 50 100
SCALE: 1" = 50'

5 2.5 0 5 10
SCALE: 1" = 5'

WALLBERG WAY ROAD CROSS SECTIONS

NORBORNE GLEBE

PHASE 15
CHARLES TOWN CORP. DISTRICT (3)
CITY OF CHARLES TOWN - JEFFERSON COUNTY, WV

Rev. No.	Date

RANDY L. GREENWAY
17223
STATE OF
WEST VIRGINIA
PROFESSIONAL ENGINEER
REGISTERED

DATE: 08/24/2022
SCALE: H:1"=50 V:1"=5'
DESIGNED BY: AM/CC
FILE NO. 4542A
SHEET 26 OF 55
22-03

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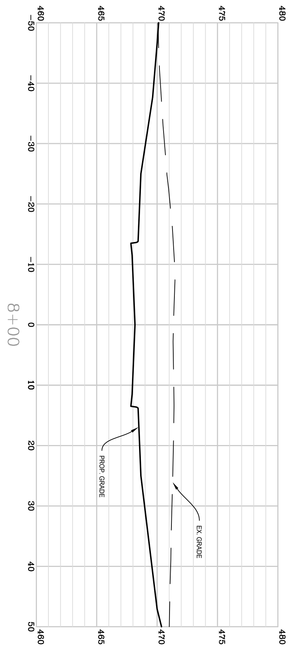
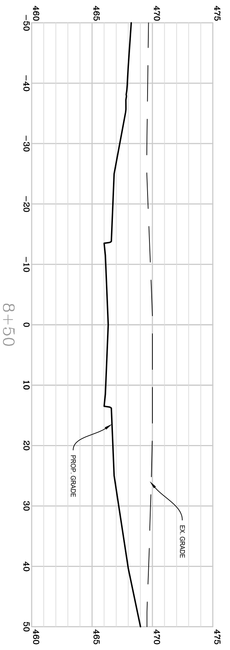
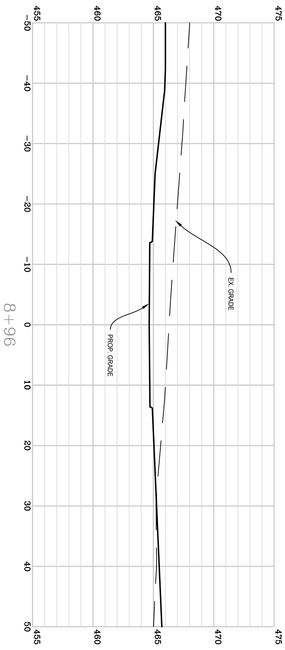
OFFICES IN: WINCHESTER, VA & MARTINSBURG, WV







SCALE: 1" = 50'

SCALE: 1" = 5'

WALLBERG WAY ROAD CROSS SECTIONS

NORBORNE GLEBE

PHASE 15
CHARLES TOWN CORP. DISTRICT (3)
CITY OF CHARLES TOWN - JEFFERSON COUNTY, WV

Rev. No.	Date

DATE: 08/24/2022
SCALE: H:1"=50 V:1"=5'
DESIGNED BY: AM/CC
FILE NO. 4542A
SHEET 27 OF 55
22-03

RANDY L. WALLBERG
17223
STATE OF
WEST VIRGINIA
PROFESSIONAL ENGINEER
REGISTERED

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FND 1971
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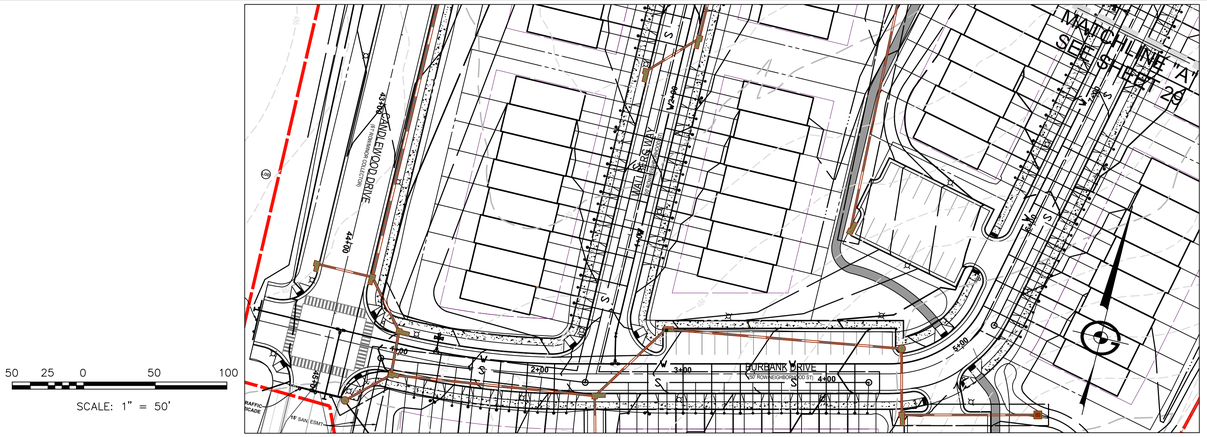
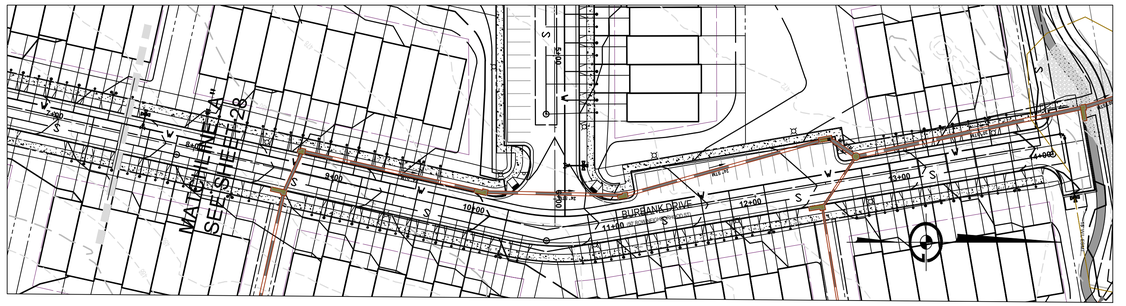
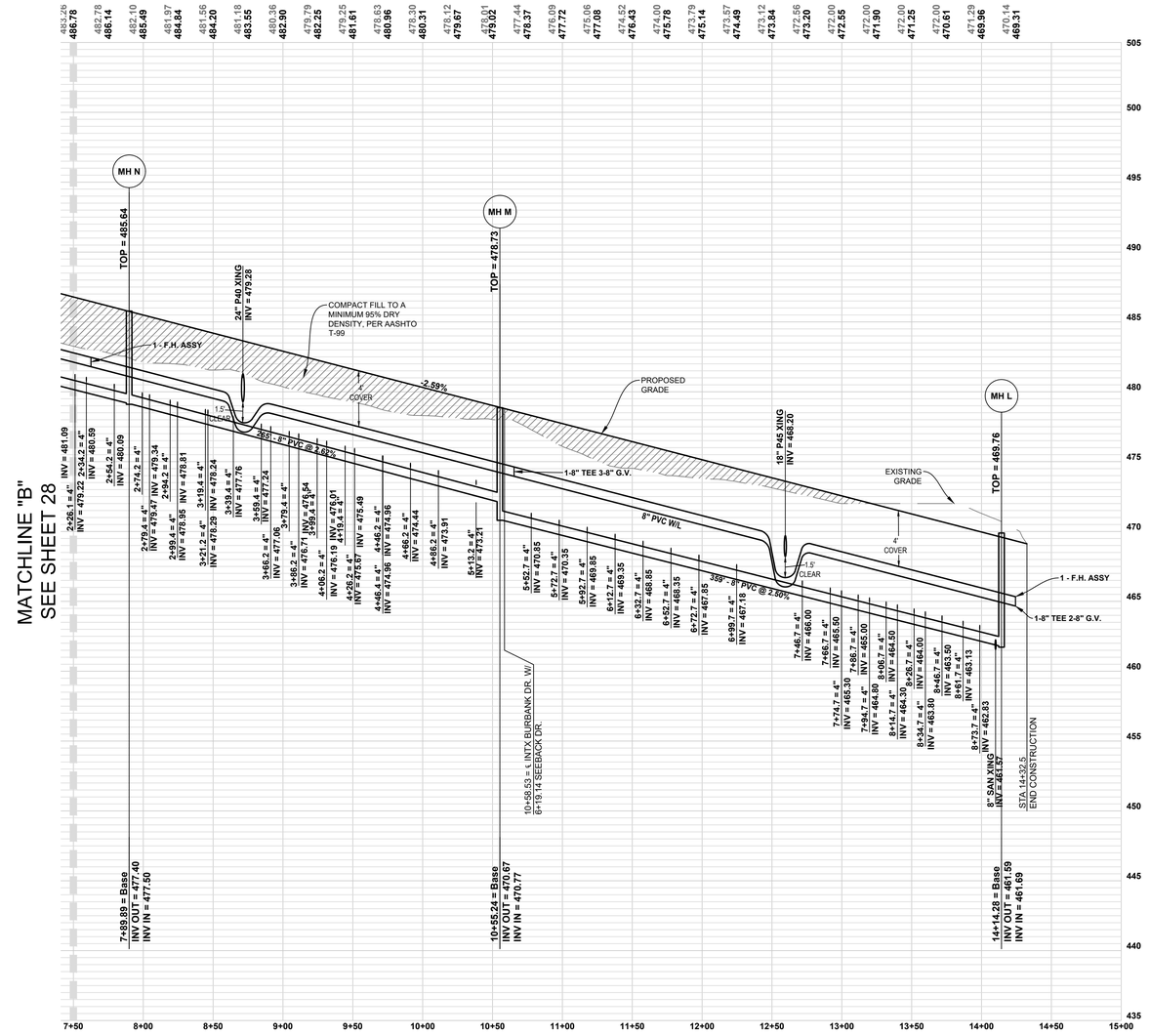

MATCHLINE "A"
SEE SHEET 29
CANDLEWOOD DRIVE
WALLBERG WAY
BURBANK DRIVE
2+00
3+00
4+00
4+50
S
S
S

Burbank Drive

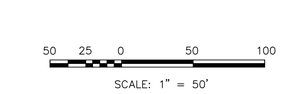
MH L (Inv In = 461.59) to MH M (Inv Out = 470.67) - 359.0' @ 2.50%

Lot Number	Lateral Station	Lateral Invert (ft)	Main Invert (ft)	Lateral Length (ft)	Lateral Slope (%)	Riser Height (ft)	Station @ Riser End	Invert @ Lateral Cleanout (ft)	Finish Grade @ Cleanout (ft)	Basement Floor Elev (ft)	Comments
L173	0+15.56	462.83	462.08	20.50	7.39	0.00	0+00.00	464.34	471.34	0.00	
L172	0+27.50	463.13	462.38	32.50	3.00	0.00	0+00.00	464.10	471.65	0.00	
L174	0+42.56	463.50	462.75	20.50	7.34	0.00	0+00.00	465.01	471.30	0.00	
L171	0+54.50	463.80	463.05	32.50	3.00	0.00	0+00.00	464.78	471.99	0.00	
L175	0+62.56	464.00	463.25	20.50	6.10	0.00	0+00.00	465.25	471.90	0.00	
L170	0+74.50	464.30	463.55	32.50	3.00	0.00	0+00.00	465.28	471.99	0.00	
L176	0+82.56	464.50	463.75	20.50	9.74	0.00	0+00.00	466.50	472.30	0.00	
L169	0+94.50	464.80	464.05	32.50	3.00	0.00	0+00.00	465.78	471.88	0.00	
L177	1+02.56	465.00	464.25	20.50	8.49	0.00	0+00.00	466.75	472.80	0.00	
L168	1+14.50	465.30	464.55	32.50	3.00	0.00	0+00.00	466.28	472.40	0.00	
L178	1+22.56	465.50	464.75	20.50	7.25	0.00	0+00.00	466.99	473.40	0.00	
L179	1+42.56	466.00	465.25	20.50	5.48	0.00	0+00.00	467.13	473.13	0.00	
L180	1+89.56	467.18	466.43	20.50	5.68	0.00	0+00.00	468.34	474.35	0.00	
L181	2+16.56	467.85	467.10	20.50	5.82	0.00	0+00.00	469.05	475.04	0.00	
L182	2+36.56	468.35	467.60	20.50	5.89	0.00	0+00.00	469.56	475.56	0.00	
L183	2+56.56	468.85	468.10	20.50	5.97	0.00	0+00.00	470.08	476.08	0.00	
L184	2+76.56	469.35	468.60	20.50	6.07	0.00	0+00.00	470.60	476.60	0.00	
L185	2+96.56	469.85	469.10	20.50	6.15	0.00	0+00.00	471.11	477.11	0.00	
L186	3+16.56	470.35	469.60	20.50	6.15	0.00	0+00.00	471.11	477.63	0.00	
L187	3+36.56	470.85	470.10	19.83	6.25	0.00	0+00.00	472.09	478.12	0.00	
MH M (Inv In = 472.01) to MH N (Inv Out = 478.97) - 265.0' @ 2.62%											
L188	0+16.98	473.21	472.46	18.13	5.00	0.00	0+00.00	474.11	479.14	0.00	
L189	0+43.98	473.91	473.16	18.61	5.00	0.00	0+00.00	474.84	479.78	0.00	
L190	0+63.98	474.44	473.69	18.78	6.27	0.00	0+00.00	475.62	480.30	0.00	
L160	0+83.76	474.96	474.21	34.06	3.00	0.00	0+00.00	475.98	480.86	0.00	
L191	0+83.98	474.96	474.21	18.95	6.31	0.00	0+00.00	476.16	480.81	0.00	
L192	1+03.98	475.49	474.74	19.12	6.34	0.00	0+00.00	476.70	481.33	0.00	
L159	1+10.76	475.67	474.92	33.83	3.00	0.00	0+00.00	476.68	481.51	0.00	
L193	1+23.98	476.01	475.26	19.29	6.38	0.00	0+00.00	477.24	481.85	0.00	
L158	1+30.76	476.19	475.44	33.66	3.00	0.00	0+00.00	477.20	482.02	0.00	
L194	1+43.98	476.54	475.79	19.46	6.41	0.00	0+00.00	477.79	482.37	0.00	
L157	1+50.76	476.71	475.96	33.48	3.00	0.00	0+00.00	477.72	482.54	0.00	
L195	1+63.98	477.06	476.31	19.64	6.45	0.00	0+00.00	478.33	482.88	0.00	
L156	1+70.76	477.24	476.49	33.31	4.00	0.00	0+00.00	478.57	483.06	0.00	
L155	1+90.76	477.76	477.01	33.14	6.91	0.00	0+00.00	480.05	483.58	0.00	
L196	2+08.99	478.24	477.49	20.02	6.52	0.00	0+00.00	479.55	484.05	0.00	
L154	2+10.76	478.29	477.54	32.97	7.00	0.00	0+00.00	480.60	484.09	0.00	
L153	2+30.76	478.81	478.06	32.80	7.09	0.00	0+00.00	481.14	484.61	0.00	
L197	2+35.99	478.95	478.20	20.25	6.57	0.00	0+00.00	480.28	484.75	0.00	
L152	2+50.76	479.34	478.59	32.63	7.18	0.00	0+00.00	481.68	485.13	0.00	
L198	2+85.99	479.47	478.72	20.42	6.60	0.00	0+00.00	480.82	485.26	0.00	
MH O (Inv In = 479.07) to MH N (Inv Out = 485.69) - 265.0' @ 2.50%											
L199	0+10.64	480.09	479.34	20.50	6.19	0.00	0+00.00	481.35	485.78	0.00	
L200	0+30.64	480.59	479.84	20.50	6.28	0.00	0+00.00	481.87	486.30	0.00	
L151	0+38.74	480.79	480.04	32.50	7.05	0.00	0+00.00	483.08	486.51	0.00	





BURBANK DRIVE
50' R.O.W., **27' FC TO FC**
POSTED SPEED 25 MPH



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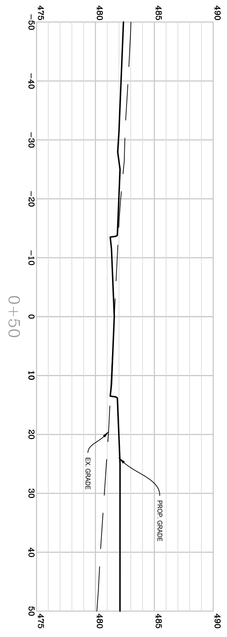
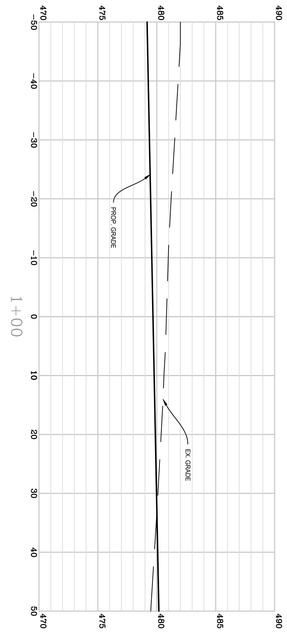
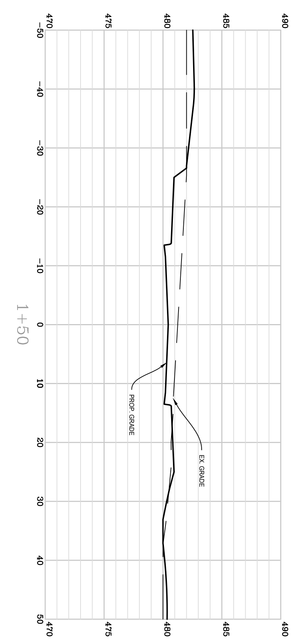
Rev. No.	Date
1	09/19/2022

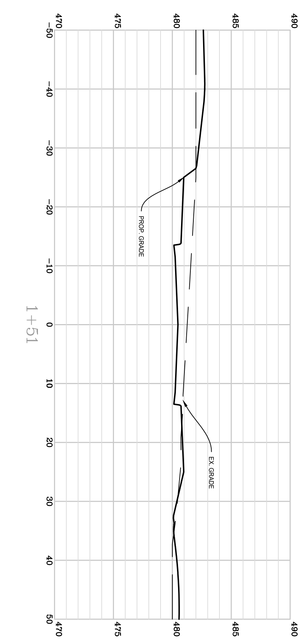
RANDY L KEPLER — REGISTERED — 17223 STATE OF — WEST VIRGINIA — PROFESSIONAL ENGINEER

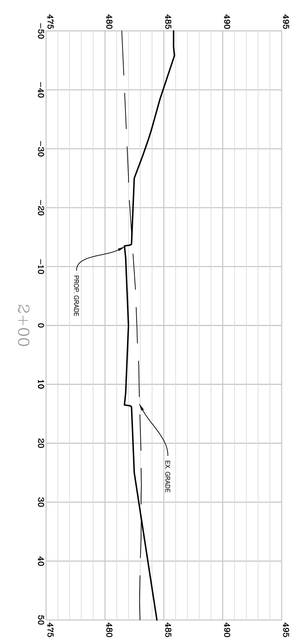
DATE:	08/24/2022
SCALE:	H:1"=50 V:1"=5"
DESIGNED BY:	AM/CC
FILE NO.	4542A
SHEET	29 OF 55
	22-03

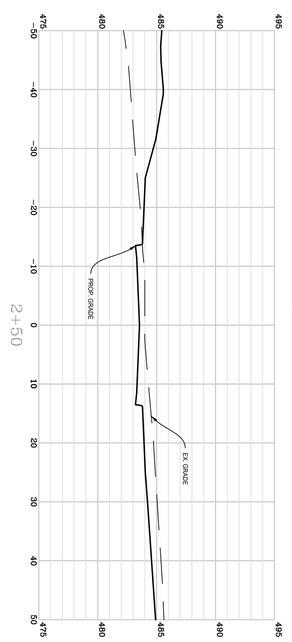


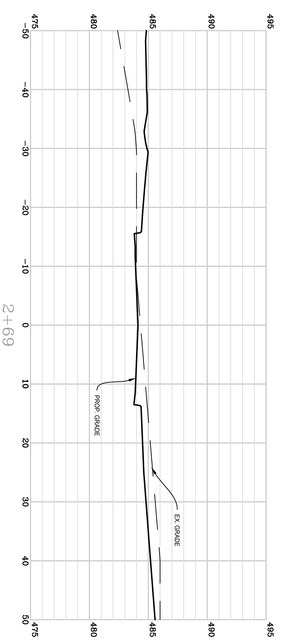


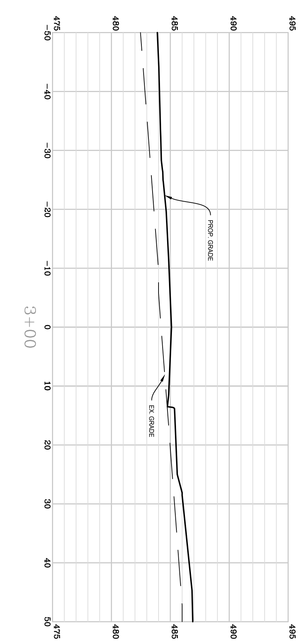












SCALE: 1" = 50'

SCALE: 1" = 5'

BURBANK DRIVE ROAD CROSS SECTIONS

NORBORNE GLEBE

PHASE 15
CHARLES TOWN CORP. DISTRICT (3)
CITY OF CHARLES TOWN - JEFFERSON COUNTY, WV

Rev. No.	Date

RANDY L. CRABTREE
17223
STATE OF WEST VIRGINIA
PROFESSIONAL ENGINEER
REGISTERED

DATE: 08/24/2022
SCALE: H:1"=50' V:1"=5'
DESIGNED BY: AM/CC
FILE NO. 4542A
SHEET 30 OF 55
22-03

704 Foxcroft Avenue
Martinsburg, West Virginia 25401
Telephone: (304) 620-5111
Fax: (540) 722-9528
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GREENWAY ENGINEERING
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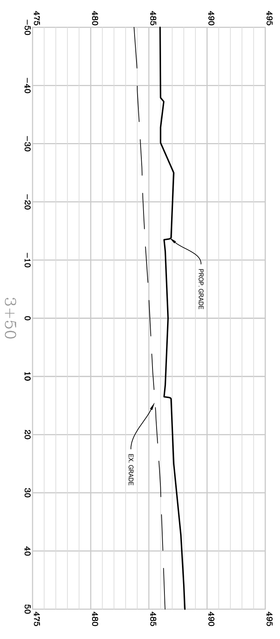
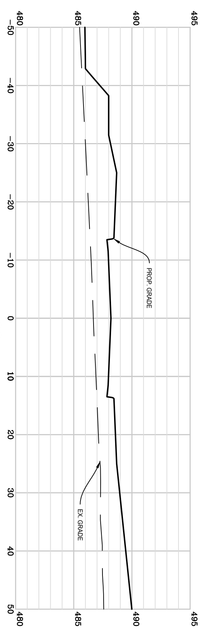
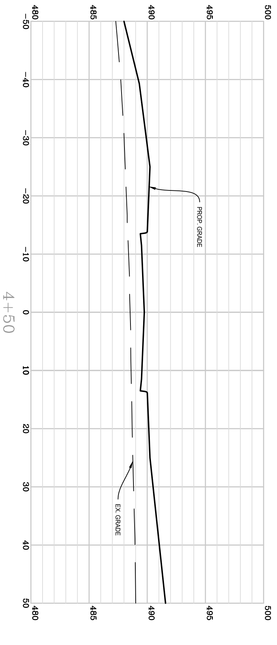
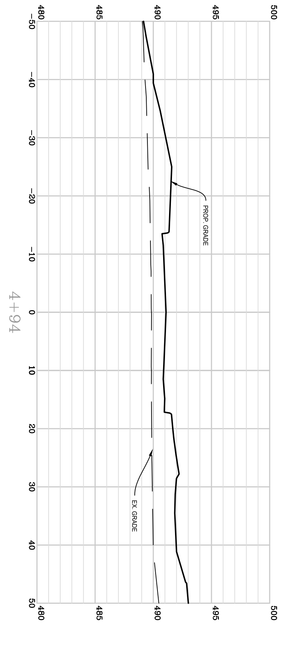
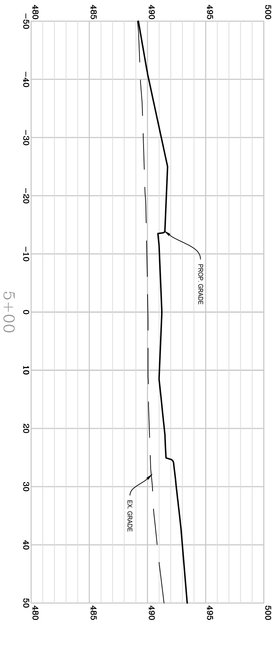
OFFICES IN: WINCHESTER, VA & MARTINSBURG, WV

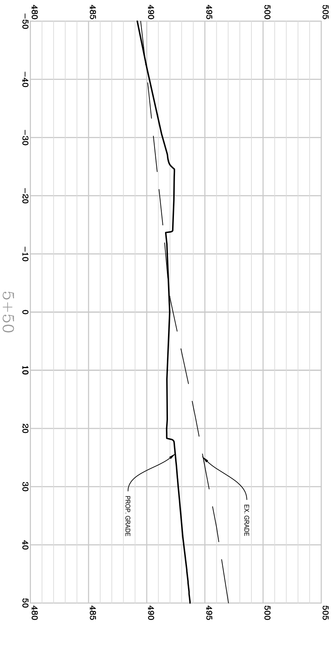


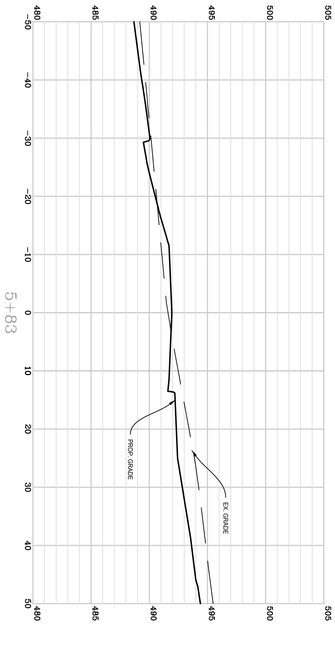


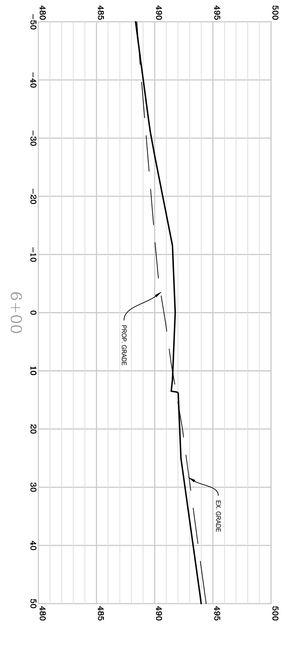












SCALE: 1" = 50'

SCALE: 1" = 5'

BURBANK DRIVE ROAD CROSS SECTIONS

NORBORNE GLEBE

PHASE 15
CHARLES TOWN CORP. DISTRICT (3)
CITY OF CHARLES TOWN - JEFFERSON COUNTY, WV

Rev. No.	Date

DATE: 08/24/2022
SCALE: H:1"=50' V:1"=5'
DESIGNED BY: AM/CC
FILE NO. 4542A
SHEET 31 OF 55
22-03

RANDY L. SELBY 17223 STATE OF WEST VIRGINIA PROFESSIONAL ENGINEER REGISTERED

704 Foxcroft Avenue
Martinsburg, West Virginia 25401
Telephone: (304) 620-5111
Fax: (540) 722-9528
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GREENWAY ENGINEERING
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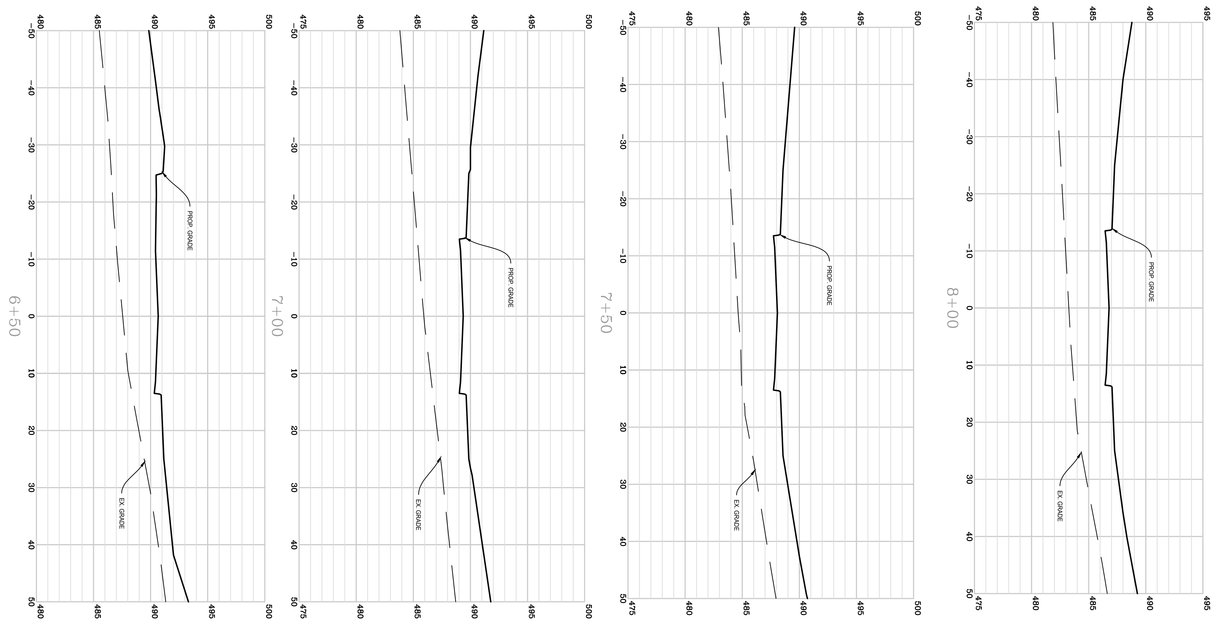
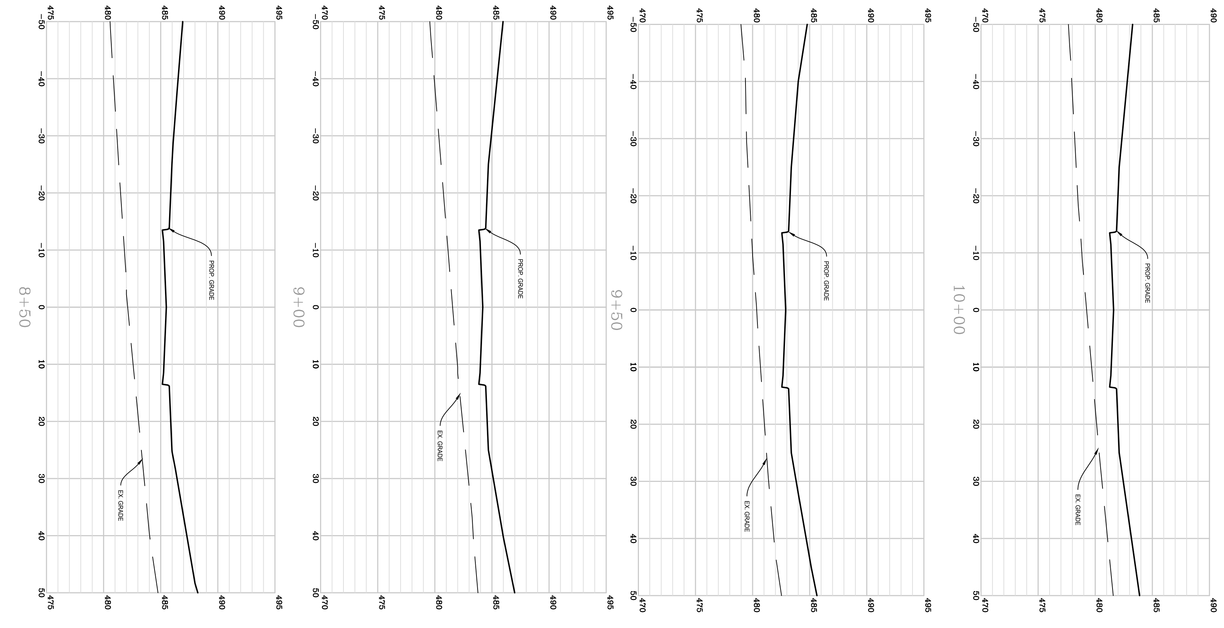
OFFICES IN: WINCHESTER, VA & MARTINSBURG, WV





SCALE: 1" = 50'

SCALE: 1" = 5'

BURBANK DRIVE ROAD CROSS SECTIONS

NORBORNE GLEBE

PHASE 15
CHARLES TOWN CORP. DISTRICT (3)
CITY OF CHARLES TOWN - JEFFERSON COUNTY, WV

Rev. No.	Date

RANDY L. GREENWAY — 17223 — STATE OF WEST VIRGINIA — PROFESSIONAL ENGINEER — REGISTERED

DATE: 08/24/2022
SCALE: H:1"=50' V:1"=5'
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FILE NO. 4542A
SHEET 32 OF 55
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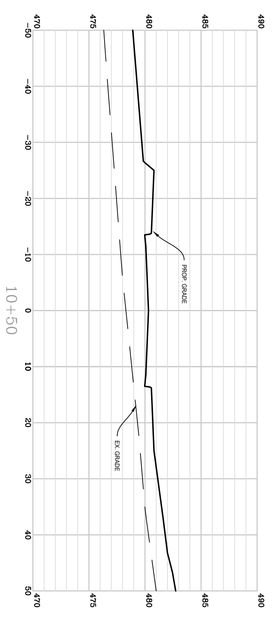

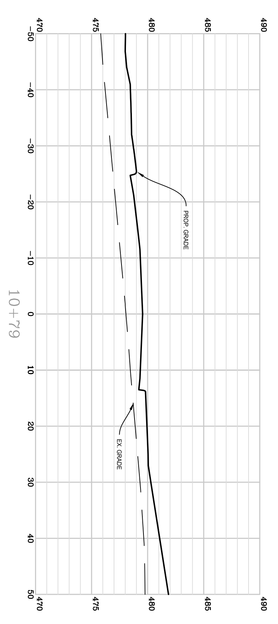

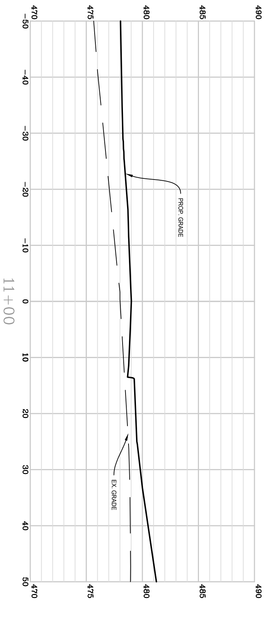

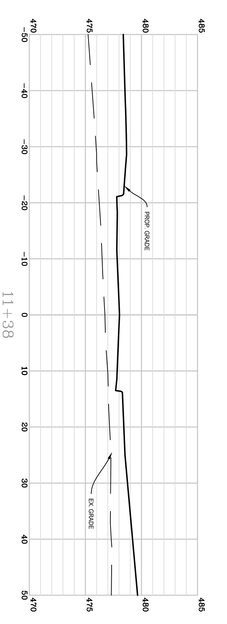

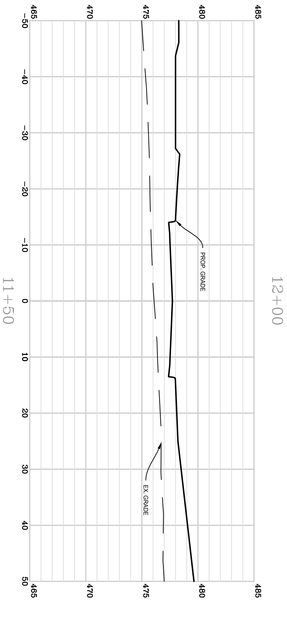

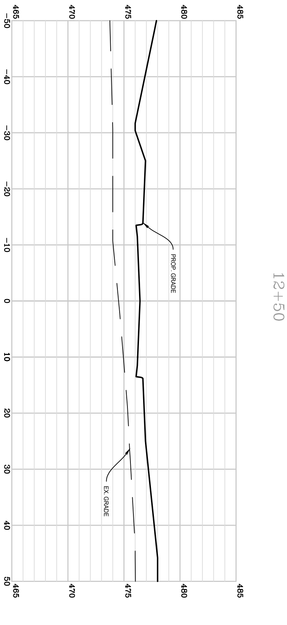

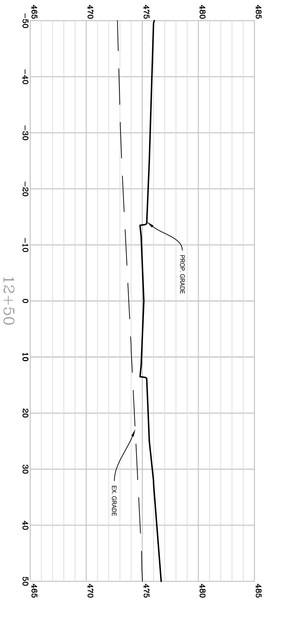

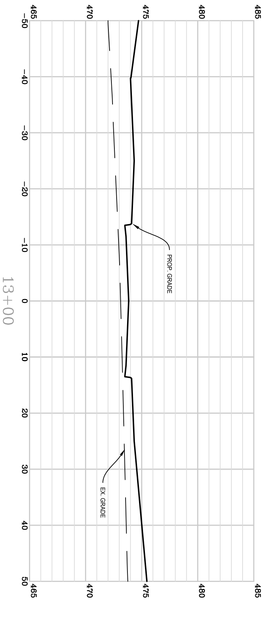

SCALE: 1" = 50'

SCALE: 1" = 5'

BURBANK DRIVE ROAD CROSS SECTIONS

NORBORNE GLEBE

PHASE 15
CHARLES TOWN CORP. DISTRICT (3)
CITY OF CHARLES TOWN - JEFFERSON COUNTY, WV

Rev. No.	Date

DATE: 08/24/2022
SCALE: H:1"=50 V:1"=5'
DESIGNED BY: AM/CC
FILE NO. 4542A
SHEET 33 OF 55
22-03

RANDY L. GREENWAY
17223
STATE OF WEST VIRGINIA
PROFESSIONAL ENGINEER
REGISTERED

GREENWAY ENGINEERING
FND 1971
704 Foxcroft Avenue
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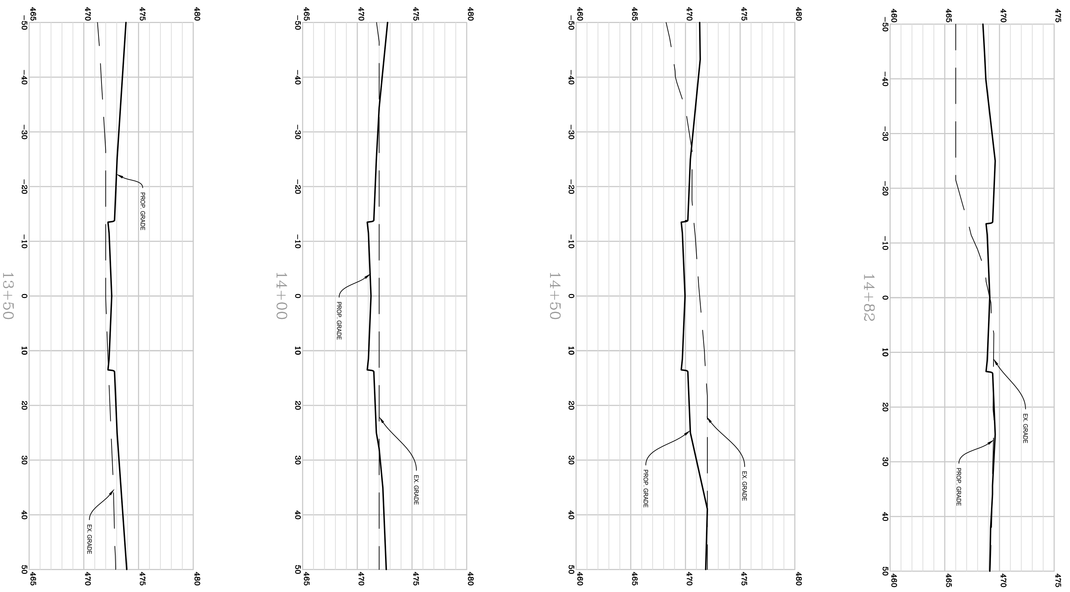
PROUDLY SERVING VIRGINIA & WEST VIRGINIA
OFFICES IN: WINCHESTER, VA & MARTINSBURG, WV



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SCALE: 1" = 5'

DATE:	08/24/2022
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FILE NO.	4542A
SHEET	34 OF 55
	22-03

RANDY L. GREENWAY
17223
STATE OF
WEST VIRGINIA
PROFESSIONAL ENGINEER

Rev. No.	Date

BURBANK DRIVE ROAD CROSS SECTIONS

NORBORNE GLEBE

PHASE 15
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CITY OF CHARLES TOWN - JEFFERSON COUNTY, WV

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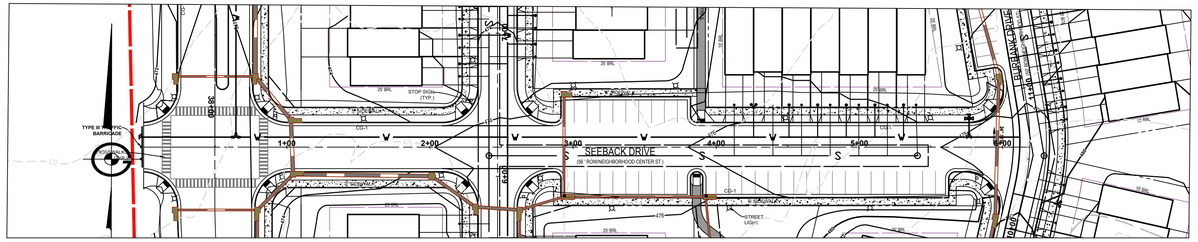

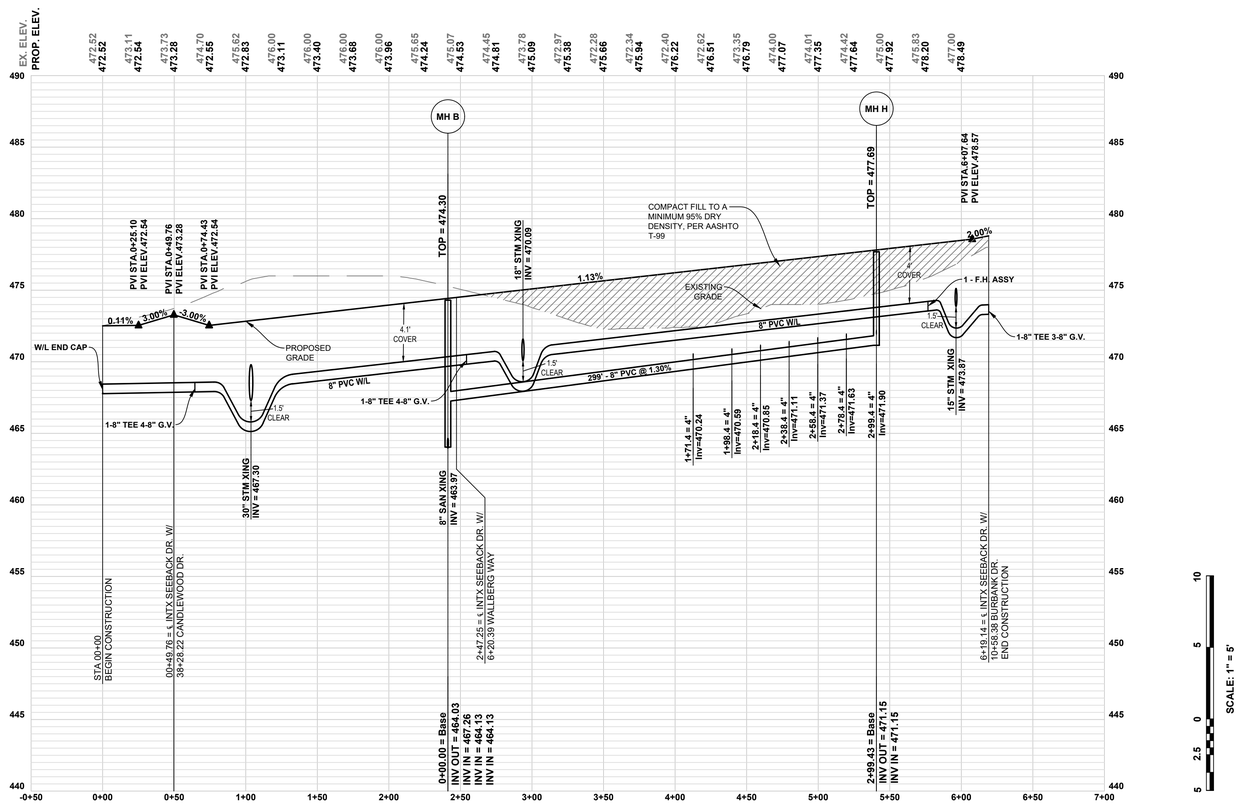

SEEBACK DRIVE

56' R.O.W., **34' FC TO FC**
POSTED SPEED 25 MPH

50 25 0 50 100
SCALE: 1" = 50'

Seeback Drive

MH B (Inv In = 467.26) to MH H (Inv Out = 471.15) - 299.0' @ 1.30%

Lot Number	Lateral Station	Lateral Invert (ft)	Main Invert (ft)	Lateral Length (ft)	Lateral Slope (%)	Riser Height (ft)	Station @ Riser End	Invert @ Lateral Cleanout (ft)	Finish Grade @ Cleanout (ft)	Basement Floor Elev (ft)	Comments
L167	1+71.37	470.24	469.49	33.50	5.51	0.00	0+00.00	472.08	476.00	0.00	
L166	1+98.44	470.59	469.84	33.50	7.87	0.00	0+00.00	473.23	476.33	0.00	
L165	2+18.43	470.85	470.10	33.50	7.40	0.00	0+00.00	473.33	476.55	0.00	
L164	2+38.43	471.11	470.36	33.50	6.91	0.00	0+00.00	473.42	476.78	0.00	
L163	2+58.43	471.37	470.62	33.50	6.45	0.00	0+00.00	473.53	477.01	0.00	
L162	2+78.43	471.63	470.88	33.50	5.98	0.00	0+00.00	473.63	477.23	0.00	
					MH H						
L161	0+00.00	471.90	471.15	31.51	6.76	0.00	0+00.00	474.03	477.46	0.00	

NOTES:
1. EXISTING UTILITIES SHOWN PER PREVIOUS DESIGN DATA. CONTRACTOR TO FIELD VERIFY FIELD CONDITIONS.
2. ALL PROPOSED UTILITIES SHALL BE LOCATED UNDERGROUND

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GREENWAY ENGINEERING
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OFFICES IN: WINCHESTER, VA & MARTINSBURG, WV

SEEBACK DRIVE ROAD PROFILES

NORBORNE GLEBE

PHASE 15
CHARLES TOWN CORP. DISTRICT (3)
CITY OF CHARLES TOWN - JEFFERSON COUNTY, WV

Rev. No.	Date
1	09/19/2022

RANDY L KEPLER
REGISTERED
17223
STATE OF
WEST VIRGINIA
PROFESSIONAL ENGINEER

DATE: 08/24/2022
SCALE: H:1"=50 V:1"=5"
DESIGNED BY: AM/CC
FILE NO. 4542A
SHEET 35 OF 55

22-03

1+50

1+00

0+50

0+00

3+50

3+00

2+50

2+00

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SEEBACK DRIVE ROAD CROSS SECTIONS

NORBORNE GLEBE

PHASE 15
CHARLES TOWN CORP. DISTRICT (3)
CITY OF CHARLES TOWN - JEFFERSON COUNTY, WV

Rev. No.	Date

RANDY L. KESLER
REGISTERED
17223
STATE OF
WEST VIRGINIA
PROFESSIONAL ENGINEER

DATE: 08/24/2022

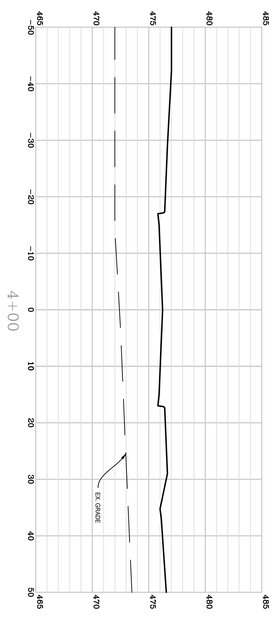
SCALE: H:1"=50 V:1"=5"

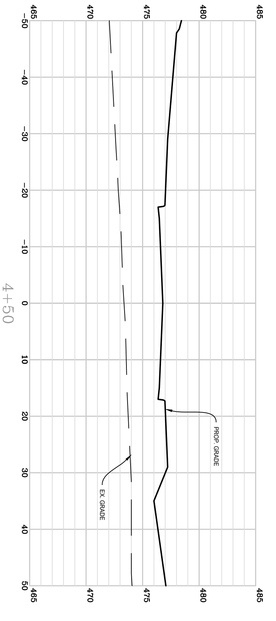
DESIGNED BY: AM/CC

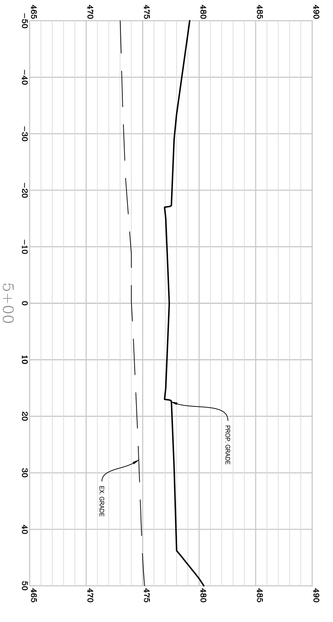
FILE NO. 4542A

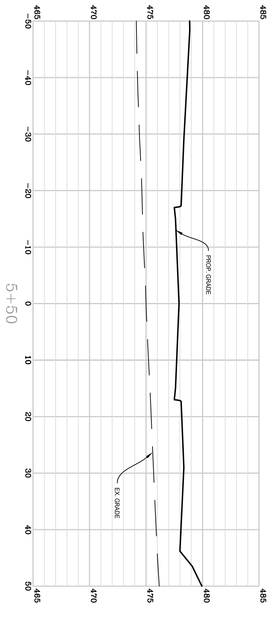
SHEET 36 OF 55

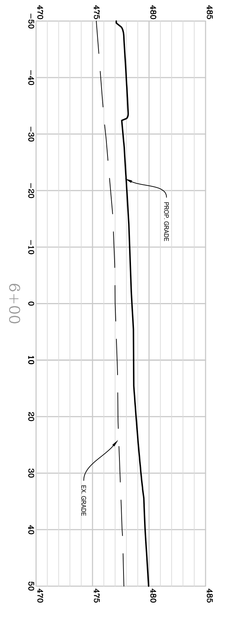
22-03

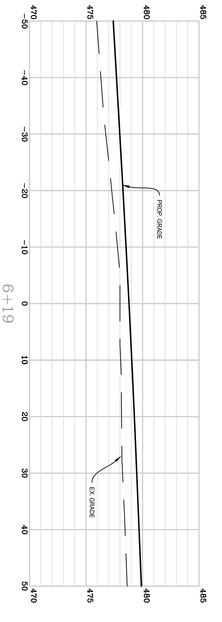












SCALE: 1" = 50'

SCALE: 1" = 5'

SEEBACK DRIVE ROAD CROSS SECTIONS

NORBORNE GLEBE

PHASE 15
CHARLES TOWN CORP. DISTRICT (3)
CITY OF CHARLES TOWN - JEFFERSON COUNTY, WV

Rev. No.	Date

DATE: 08/24/2022
SCALE: H:1"=50' V:1"=5'
DESIGNED BY: AM/CC
FILE NO. 4542A
SHEET 37 OF 55
22-03

RANDY L. SEIBERT — 17223 — STATE OF WEST VIRGINIA — PROFESSIONAL ENGINEER — REGISTERED

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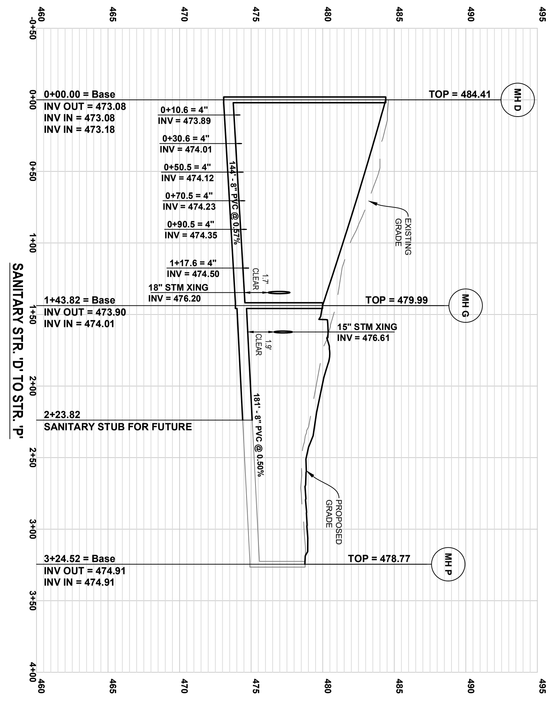

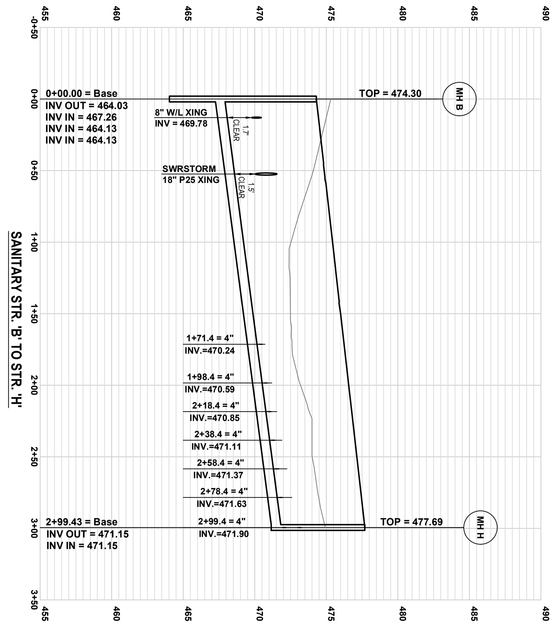

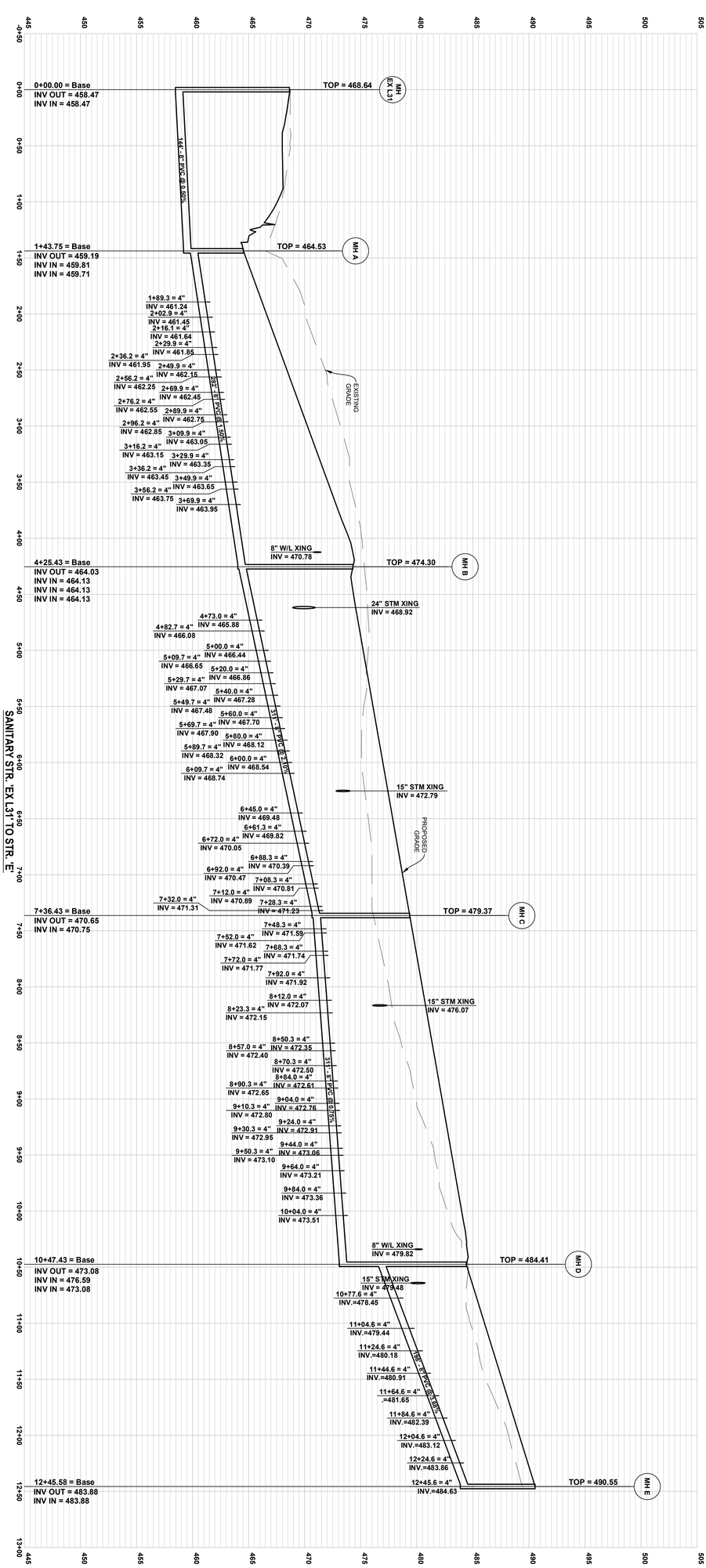

SCALE: 1" = 5'

SCALE: 1" = 50'

SANITARY SEWER PROFILES

NORBORNE GLEBE

CHARLES TOWN CORP. DISTRICT (3)
CITY OF CHARLES TOWN - JEFFERSON COUNTY, WV

Rev. No.	Date
2	10/05/2022

RANDY L. SELBY
17223
STATE OF WEST VIRGINIA
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REGISTERED

DATE: 08/24/2022
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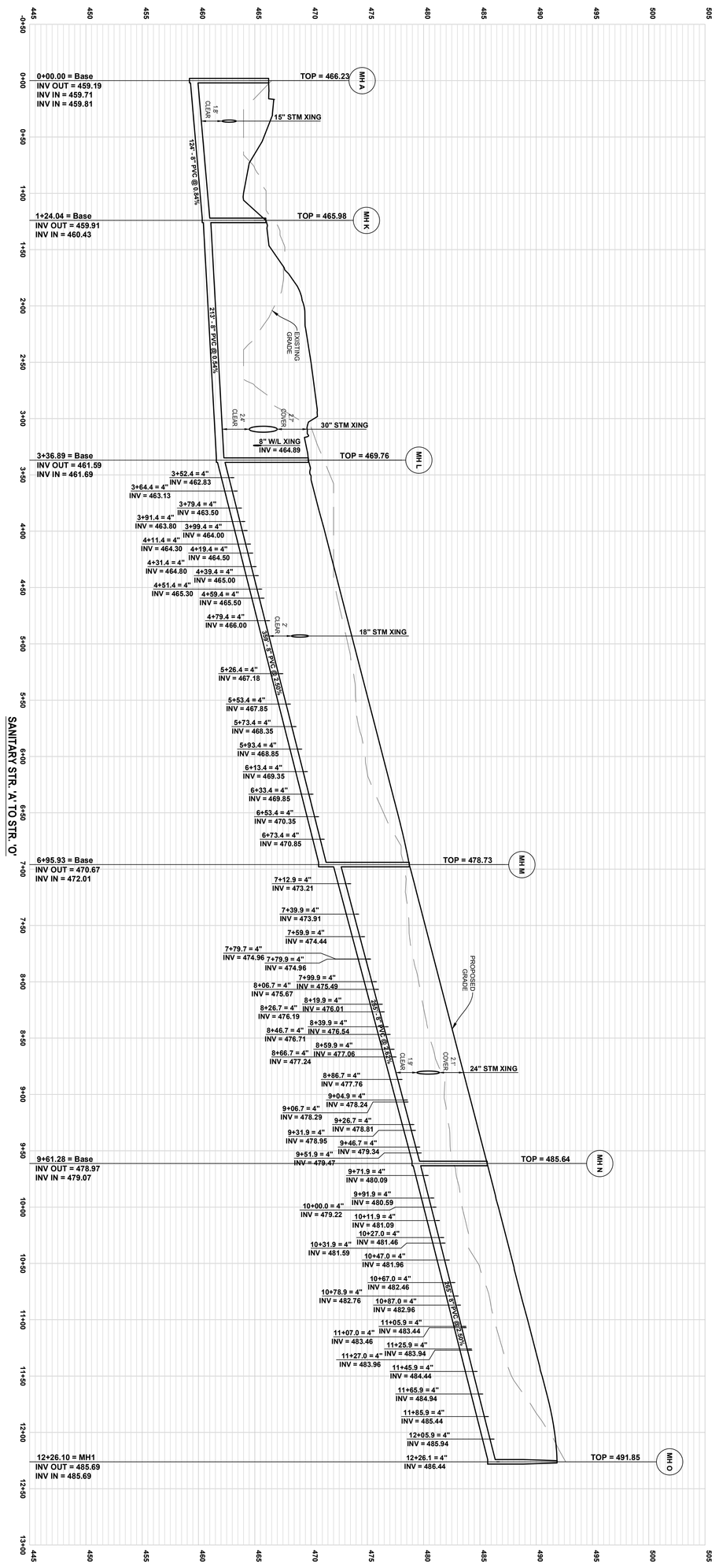
FND 1971
PROUDLY SERVING VIRGINIA & WEST VIRGINIA
OFFICES IN: WINCHESTER, VA & MARTINSBURG, WV



SCALE: 1" = 5'

10 5 0 5

SCALE: 1" = 50'

50 25 0 50 100

SANITARY SEWER PROFILES

NORBORNE GLEBE

CHARLES TOWN CORP. DISTRICT (3)
CITY OF CHARLES TOWN - JEFFERSON COUNTY, WV

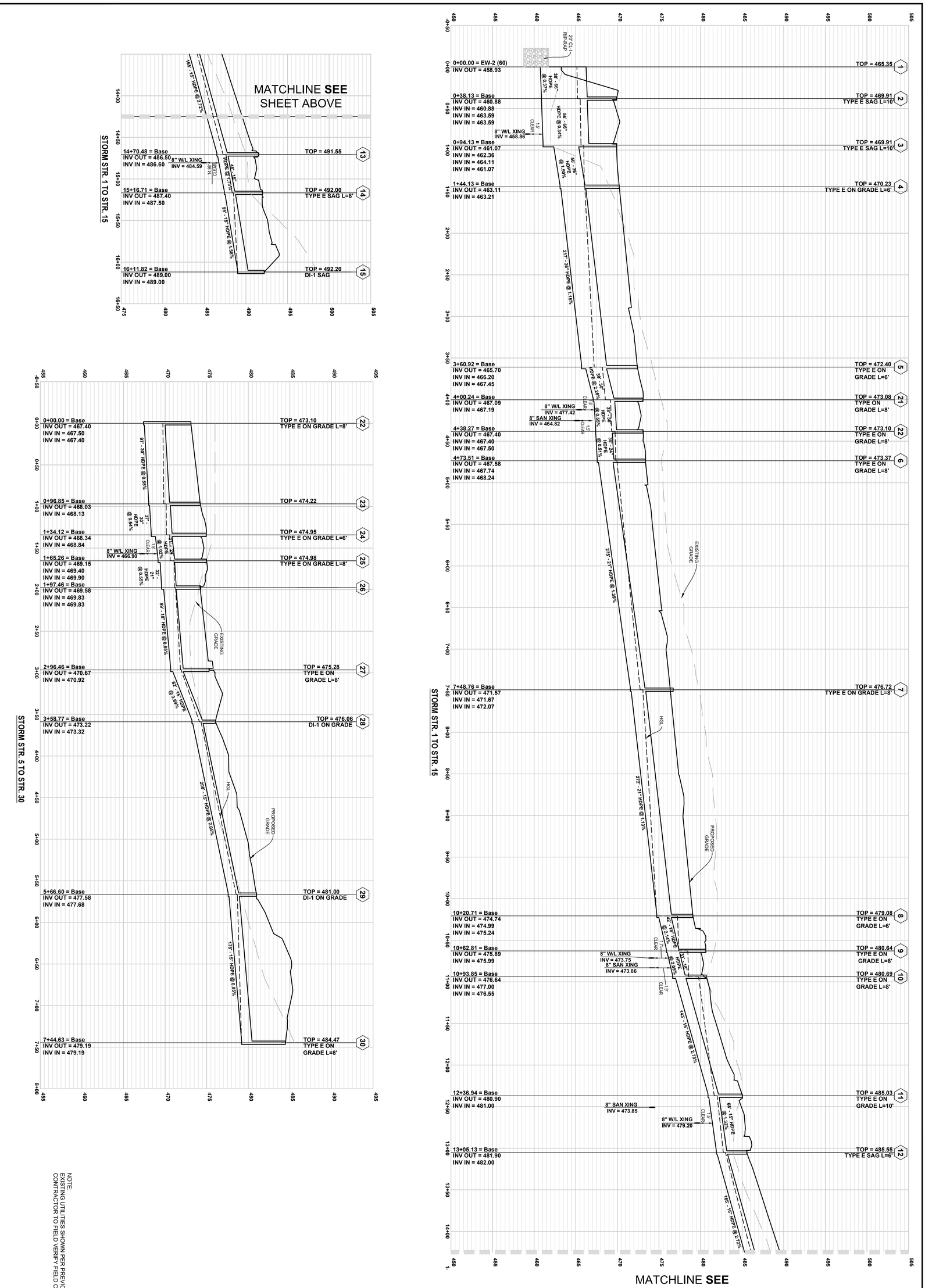
Rev. No.	Date
2	10/05/2022

RANDY L. EBERSOLE
17223
STATE OF WEST VIRGINIA
REGISTERED PROFESSIONAL ENGINEER

DATE: 08/24/2022
DESIGNED BY: AM/CC
SCALE: H=1"=50' V=1"=5'
FILE NO. 4542A
SHEET 39 OF 55
22-03

704 Foxcroft Avenue
Martinsburg, West Virginia 25401
Telephone: (304) 620-5111
Fax: (540) 722-9528
www.greenwayeng.com

GREENWAY ENGINEERING
FND 1971
PROUDLY SERVING VIRGINIA & WEST VIRGINIA
OFFICES IN: WINCHESTER, VA & MARTINSBURG, WV



STORM SEWER PROFILES

NORBORNE GLEBE

PHASE 15

CHARLES TOWN CORP. DISTRICT (3)

CITY OF CHARLES TOWN - JEFFERSON COUNTY, WV

Rev. No.	Date
2	10/05/2022

RANDY W. GREENWAY
17223
STATE OF WEST VIRGINIA
PROFESSIONAL ENGINEER
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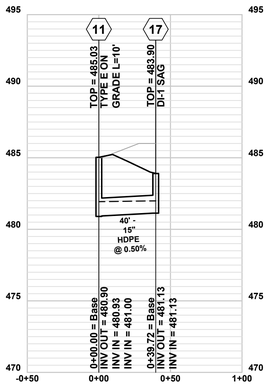
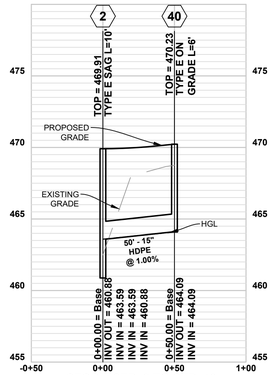
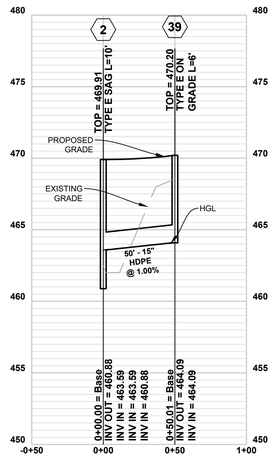


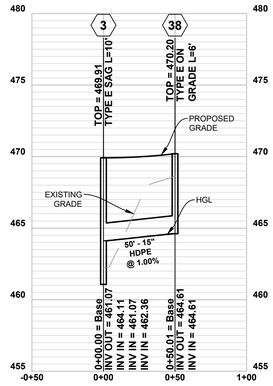
STORM STR. 11 TO STR. 17



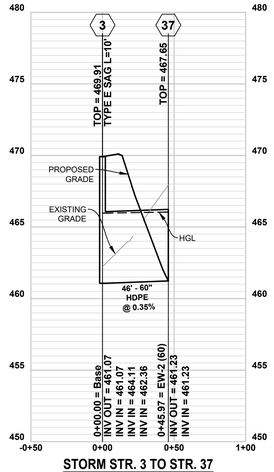
STORM STR. 2 TO STR. 40



STORM STR. 2 TO STR. 39

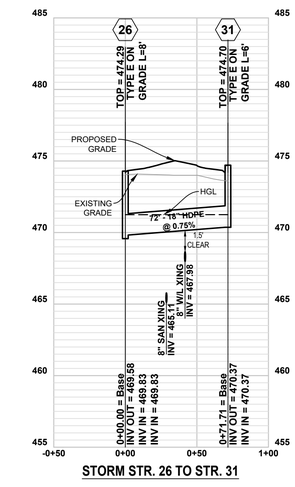


STORM STR. 3 TO STR. 38

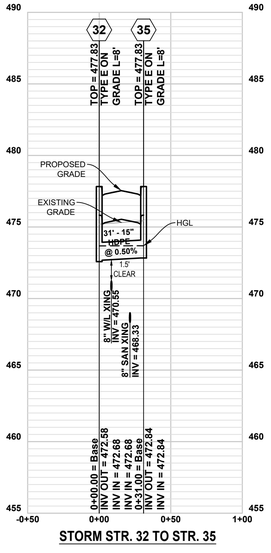


STORM STR. 3 TO STR. 37

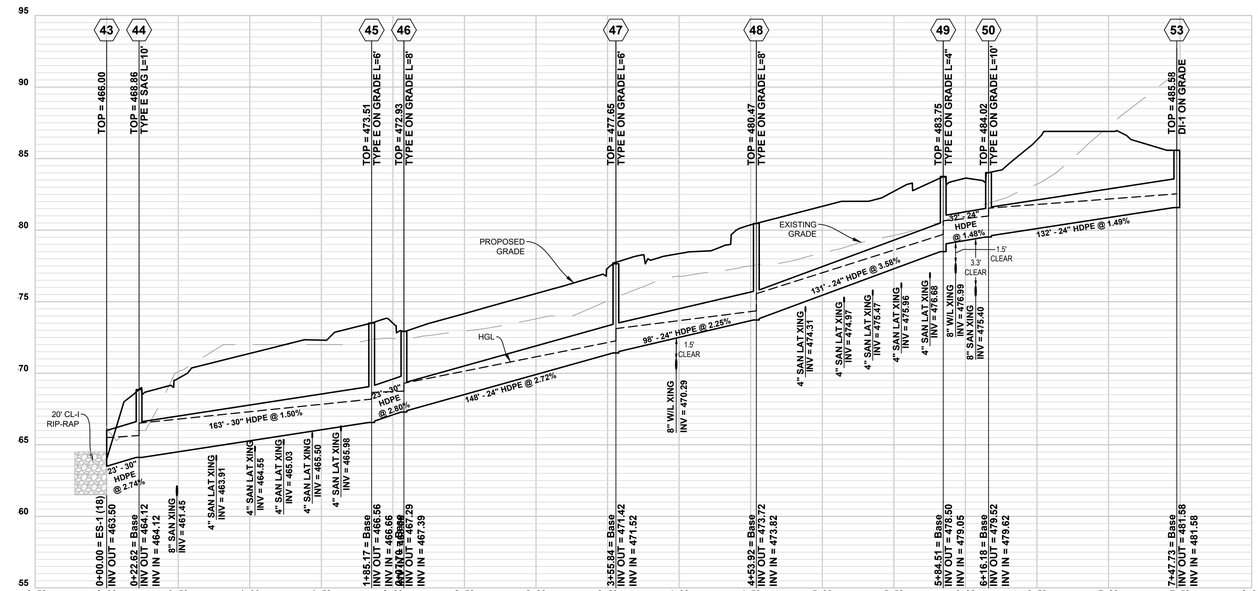
STORM STR. 10 TO STR. 16



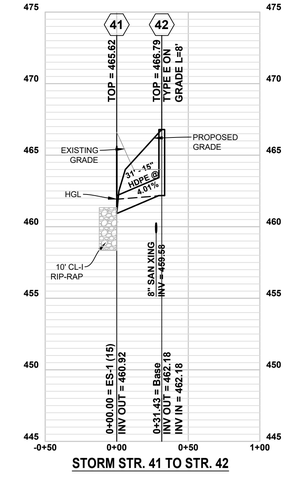
STORM STR. 26 TO STR. 31



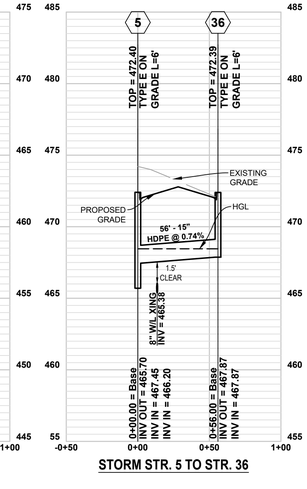
STORM STR. 32 TO STR. 35



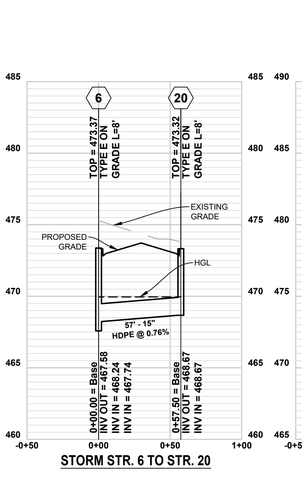
STORM STR. 43 TO STR. 50



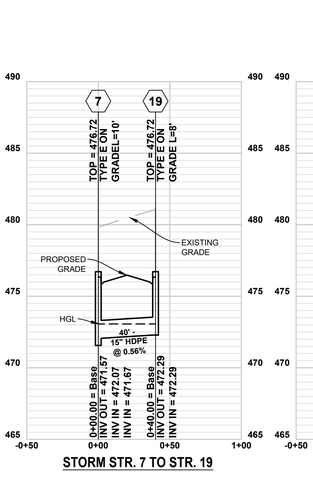
STORM STR. 41 TO STR. 42



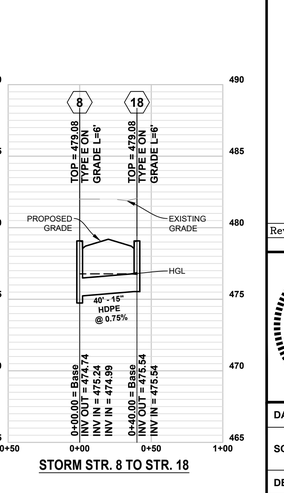
STORM STR. 5 TO STR. 36



STORM STR. 6 TO STR. 20



STORM STR. 7 TO STR. 19



STORM STR. 8 TO STR. 18

CULVERT COMPUTATIONS																			
Culvert No.	Drainage Area (Ac.)	Runoff Coefficient (C factor)	10-year Rainfall Intensity (in/hr)	Tc, Time of Conc. (Min)	Total Discharge (cfs)	Upstream Invert Elevation	Downstream Invert Elevation	Culvert Size (In)	Number of Barrels	Length (ft)	Culvert Slope (%)	Culvert Manning's "n"	Culvert Material	Inlet (Ke)	Maximum Headwater Elev. (ft)	Headwater Elevation (ft)	Headwater Depth (ft)	Outlet Flow Depth (ft)	Flow Type	Tailwater Elevation (ft)	Outlet Velocity (ft/s)
1	1.00	0.57	6.5	5.0	3.73	466.76	466.50	12	1	10.0	2.6	0.012	HDPE	0.2	467.76	468.34	1.58	0.56	Inlet Control	467.06	8.28
2	0.61	0.58	6.5	5.0	2.30	470.62	470.14	12	1	10.0	4.8	0.012	HDPE	0.2	471.62	471.61	0.99	0.36	Inlet Control	470.50	9.16
3	0.56	0.49	6.5	5.0	1.80	466.55	466.26	12	1	10.0	2.9	0.012	HDPE	0.2	467.55	467.40	0.85	0.04	Inlet Control	466.30	7.13

50 25 0 50 100

SCALE: 1" = 50'

NOTE:
EXISTING UTILITIES SHOWN PER PREVIOUS DESIGN DATA.
CONTRACTOR TO FIELD VERIFY FIELD CONDITIONS.

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STORM SEWER PROFILES & COMPUTATIONS

NORBORNE GLEBE

PHASE 15

CHARLES TOWN CORP. DISTRICT (3)

CHARLES TOWN - JEFFERSON COUNTY, WV

Rev. No.	Date
2	10/03/2022

RANDY L. KEPLER
REGISTERED
17223
STATE OF
WEST VIRGINIA
PROFESSIONAL ENGINEER

DATE: 08/24/2022

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

DESIGNED BY: AM/CC

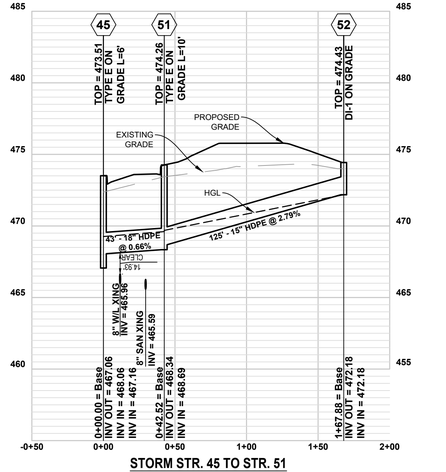
FILE NO. 4542A

SHEET 41 OF 55

22-03

HYDRAULIC GRADE LINE CALCULATIONS

Inlet No.	Outlet W.S.E. (ft)	Do (in)	Qo (cfs)	Lo (ft)	Sfo (%)	Hf (ft)	JUNCTION LOSS Vo (fps)	Ho (ft)	Qi (cfs)	Vi (fps)	QiVi	Vi^2/2g	Hi (ft)	Angle (deg)	K	Hb (ft)	Ht (ft)	1.3Ht (ft)	0.5Ht (ft)	Final H (ft)	Inlet W.S.E. (ft)	Rim Elev (ft)
15	488.50	15.00	0.33	95.10	0.00	0.00	3.44										0.06			0.06	488.56	492.20
14	487.60	15.00	0.76	46.23	0.01	0.01	4.54										0.15			0.16	487.76	492.20
13	483.00	15.00	0.76	165.35	0.01	0.02	5.33										0.36			0.38	483.38	491.55
12	482.00	15.00	1.33	68.20	0.04	0.03	4.85										0.26			0.28	482.28	485.55
11	479.89	15.00	5.44	143.09	0.60	0.86	9.27										0.77			1.64	481.53	485.03
10	478.36	18.00	6.17	31.03	0.29	0.09	8.65										0.91			1.00	479.36	480.42
9	477.18	18.00	6.57	42.10	0.33	0.14	8.86										0.57			0.71	477.89	480.64
8	473.07	21.00	8.43	271.95	0.25	0.68	7.44										1.96			2.64	475.70	479.08
7	470.00	21.00	10.77	275.26	0.39	1.08	4.48										0.38			1.46	471.46	476.72
6	469.74	24.00	13.06	35.24	0.28	0.10	4.16	0.07	10.77	4.48	48.21	0.31	0.11	45.00	0.47	0.15	0.32		0.16	0.42	470.00	
							0.68	0.55	0.38	0.00				45.00	0.47	0.00				0.00		473.37
22	469.19	30.00	25.44	38.03	0.34	0.13	7.42	0.21	11.89	6.17	73.37	0.59	0.21	87.01	0.71	0.42	0.84		0.42	0.97	469.74	
							13.06	4.16	54.31	0.27				47.26	0.48	0.13				0.00		473.10
21	468.20	30.00	25.84	39.32	0.35	0.14	12.73	0.63	25.44	7.42	188.84	0.86	0.30	37.06	0.41	0.35	1.28		0.64	1.42	468.98	473.08
5	466.10	36.00	26.60	216.79	0.12	0.26	3.76	0.06	25.84	12.73	328.94	2.52	0.88	39.32	0.42	1.07	2.01		1.00	2.26	467.36	
							0.35	2.67	0.93	0.11				90.00	0.72	0.08				0.00		472.40
4	465.97	36.00	26.60	50.00	0.13	0.07	3.76	0.06	26.60	3.76	100.08	0.22	0.08	0.00	0.00	0.00	0.13		0.07	0.20	466.10	470.23
3	465.54	66.00	157.90	56.00	0.18	0.10	6.65	0.17	128.75	6.56	844.24	0.67	0.23	35.31	0.39	0.26	0.67		0.33	0.77	465.97	
									26.60	3.76	100.08	0.22		90.00	0.72	0.16				0.00		
									128.75	6.56	844.24	0.67		35.31	0.39	0.26				0.00		469.91
2	465.14	66.00	159.41	38.13	0.20	0.08	10.11	0.40	157.90	6.65	1049.47	0.69	0.24	0.11	0.00	0.00	0.64		0.32	0.71	465.54	
									0.00	0.00	0.00	0.00		89.89	0.72	0.00				0.00		
									157.90	6.65	1049.47	0.69		0.11	0.00	0.00				0.00		469.91
16	476.55	15.00	0.00	36.80	0.00	0.00	0.00										0.00			0.00	476.55	479.93
17	481.93	15.00	2.58	39.72	0.14	0.06	4.07										0.05			0.11	482.04	483.90
18	476.75	15.00	0.44	40.00	0.00	0.00	2.88										0.03			0.03	476.78	479.08
19	473.07	15.00	0.68	40.00	0.01	0.00	2.94										0.03			0.03	473.10	476.72
20	470.00	15.00	0.68	57.50	0.01	0.01	0.55	0.00									0.00	0.00	0.00	0.01	470.01	473.32
30	478.68	15.00	0.65	178.03	0.01	0.02	3.37	0.05									0.05	0.07	0.03	0.09	478.73	484.47
29	474.32	15.00	1.85	207.83	0.07	0.15	6.23	0.15	0.65	3.37	2.20	0.18	0.06	3.89	0.05	0.01	0.22	0.29	0.14	0.44	474.62	480.82
28	471.92	15.00	2.85	62.31	0.17	0.11	2.32	0.02	1.85	6.23	11.55	0.60	0.21	8.02	0.10	0.06	0.29	0.38	0.19	0.49	472.22	476.06
27	471.25	18.00	4.15	99.00	0.11	0.11	2.35	0.02	2.85	2.32	6.60	0.08	0.03	84.11	0.70	0.06	0.11	0.14	0.07	0.25	471.43	475.28
26	471.08	21.00	6.08	32.20	0.11	0.03	5.22	0.11	1.22	3.80	4.64	0.22	0.03	73.26	0.63	0.14	0.28		0.14	0.31	471.25	
									4.15	2.35	9.73	0.09		16.60	0.21	0.02				0.00		474.29
25	470.56	24.00	10.98	31.14	0.19	0.06	7.63	0.23	3.96	7.10	28.08	0.78	0.15	86.04	0.70	0.55	0.93		0.46	0.98	471.08	
							6.08		5.22	31.70	0.42			20.56	0.25	0.11				0.00		474.98
24	470.13	30.00	11.87	37.27	0.07	0.03	6.14	0.15	10.98	7.63	83.84	0.91	0.32	31.31	0.36	0.33	0.79		0.39	0.82	470.56	474.95
23	469.74	30.00	11.89	96.85	0.06	0.06	6.17	0.15	11.87	6.14	72.84	0.59	0.20	34.54	0.39	0.23	0.58		0.29	0.64	470.09	474.22
31	471.25	18.00	1.22	71.71	0.01	0.01	3.80										0.04			0.05	471.30	474.70
34	476.91	15.00	0.96	43.98	0.02	0.01	3.11	0.05									0.05	0.06	0.03	0.07	476.95	481.36
33	473.68	15.00	2.02	169.65	0.09	0.15	6.15	0.15	0.96	3.11	2.99	0.15	0.05	44.82	0.47	0.07	0.27	0.35	0.18	0.50	474.00	480.81
32	471.08	15.00	3.96	161.99	0.27	0.44	7.10	0.20	2.02	6.15	12.44	0.59	0.21	0.00	0.00	0.00	0.52	0.67	0.34	1.13	471.86	
									1.10	3.24	3.55	0.16		90.00	0.72	0.12				0.00		477.83
35	473.68	15.00	1.10	31.00	0.03	0.01	3.24	0.05									0.05	0.06	0.03	0.07	473.72	477.83
36	468.45	15.00	0.35	56.00	0.00	0.00	2.67	0.03									0.03	0.04	0.02	0.04	468.48	472.39
37	465.97	60.00	128.75	45.97	0.19	0.09	6.56	0.20									0.20		0.10	0.29	466.15	466.23
38	464.11	15.00	0.00	50.01	0.00	0.00	0.00	0.00									0.00		0.00	0.00	464.11	470.20
39	463.59	15.00	0.00	50.01	0.00	0.00	0.00	0.00									0.00		0.00	0.00	463.59	470.20
40	463.59	15.00	0.00	50.00	0.00	0.00	0.00	0.00									0.00		0.00	0.00	463.59	470.23
42	461.92	15.00	2.18	31.43	0.10	0.03	8.30										0.21			0.25	462.17	466.79
52	469.69	15.00	3.46	125.36	0.25	0.32	2.82	0.04									0.04	0.05	0.02	0.37	470.03	474.43
51	469.26	18.00	5.62	42.52	0.25	0.11	3.18	0.04	3.46	2.82	9.73	0.12	0.04	42.72	0.45	0.06	0.14	0.18	0.09	0.29	469.46	474.26
45	466.51	30.00	33.39	162.55	0.49	0.79	11.65	0.53	27.46	5.59	153.63	0.49	0.17	46.68	0.48	0.23	0.93		0.47	1.73	467.77	
									5.62	3.18	17.88	0.16		44.31	0.46	0.07				0.00		473.51
44	465.50	30.00	35.21	22.62	0.65	0.15	14.82	0.85	33.39	11.65	389.05	2.11	0.74	5.27	0.07	0.14	1.73		0.87	1.88	466.51	468.86
53	481.53	24.00	22.96	131.55	0.76	1.00	10.50	0.51									0.51		0.26	1.51	482.78	485.58
50	480.65	24.00	24.64	31.67	1.05	0.33	7.84	0.24	22.96	10.50	241.07	1.71	0.60	11.80	0.15	0.26	1.09		0.55	1.43	481.53	484.02
49	475.53	24.00	25.49	130.58	1.00	1.31	15.11	0.89	24.64	7.84	193.27	0.96	0.33	78.20	0.67	0.64	1.87		0.93	3.18	477.77	483.75
48	473.12	24.00	26.77	98.08	1.24	1.22	12.75	0.63	25.49	15.11	385.24	3.55	1.24	11.29	0.14	0.51	2.38		1.19	3.60	475.53	480.47
47	469.30	24.00	26.92	148.14	1.04	1.54	8.57	0.29	26.77	12.75	341.49	2.53	0.88	16.92	0.21	0.53	1.70		0.85	3.25	471.69	477.65
46	468.66	30.00	27.46	22.53	0.40	0.09	5.59	0.12	26.92	8.57	230.60	1.14	0.40	50.07	0.50	0.57	1.09		0.55	1.18	469.30	472.93



STORM STR. 45 TO STR. 51

50 25 0 50 100

SCALE: 1" = 50'

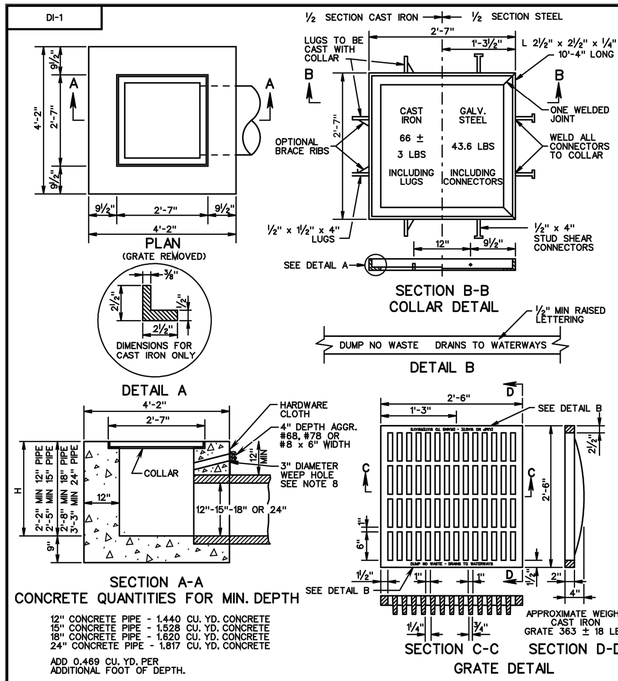
STORM INLET CALCULATIONS

Structure Name	Inlet ID	Length (ft)	DA (AC)	C	CA	I (in/hr)	Q (cfs)	Qb (cfs)	Qt (cfs)	S (ft/ft)	Sx (ft/ft)	T (ft)	W (ft)	W/T	Sw (ft/ft)	Sw/Sx	Eo	a	S'w = a/(12W)	Se=Sx+S'w (Eo) (ft/ft)	Lt (ft)	L, Spec Length	L/Lt	E (%)	Qi (cfs)	Qb, Co (cfs)	Sag Inlets Only: Ponding Depth (ft)	Curb Opening Height (ft)	d/h	T @ Sag	Remarks
15	DI-1	2.16	0.26	0.32	0.08	4.00	0.33	0.00	0.33	Assume 50% Clogging												N/A	N/A	1.00	0.33	0.00	0.09	-	-	4.40	10yr WS = 492.29
14	DI-3B - 8'	8.00	0.12	0.90	0.11	4.00	0.43	0.00	0.43	0.01	0.02	2.00	2.00	1.00	0.08	4.17	1.00	3.52	0.15	0.17	4.20	8.00	1.90	1.00	0.43	0.00	0.17	-	-	-	-
12	DI-3B - 6'	6.00	0.16	0.90	0.14	4.00	0.58	0.00	0.58	0.03	0.02	1.80	2.00	1.11	0.08	4.17	1.00	3.52	0.15	0.17	6.66	6.00	0.90	0.98	0.57	0.01	0.16	-	-	-	-
17	DI-2A	2.20	1.84	0.35	0.64	4.00	2.58	0.00	2.58	Assume 50% Clogging												2.20	1.00	1.00	2.58	0.00	0.31	-	0.676	4.46	10yr WS = 484.21
11	DI-3B -10'	10.00	0.52	0.74	0.38	4.00	1.54	0.00	1.54	0.03	0.02	4.30	2.00	0.47	0.08	4.17	0.93	3.52	0.15	0.16	10.44	10.00	0.96	1.00	1.53	0.01	0.21	-	-	-	-
10	DI-3B - 6'	6.00	0.26	0.74	0.19	4.00	0.77	0.01	0.77	0.03	0.02	2.11	2.00	0.95	0.08	4.17	1.00	3.52	0.15	0.17	7.54	6.00	0.80	0.94	0.73	0.04	0.17	-	-	-	-
9	DI-3B - 8'	8.00	0.14	0.64	0.09	4.00	0.36	0.04	0.40	0.03	0.02	1.57	2.00	1.27	0.08	4.17	1.00	3.52	0.15	0.17	5.74	8.00	1.39	1.00	0.40	0.00	0.16	-	-	-	-
18	DI-3B - 6'	6.00	0.15	0.74	0.11	4.00	0.44	0.00	0.44	0.01	0.02	2.11	2.00	0.95	0.08	4.17	1.00	3.52	0.15	0.17	4.25	6.00	1.41	1.00	0.44	0.00	0.17	-	-	-	-
8	DI-3B - 6'	6.00	0.60	0.64	0.38	4.00	1.54	0.00	1.54	0.01	0.02	6.27	2.00	0.32	0.08	4.17	0.80	3.52	0.15	0.14	8.03	6.00	0.75	0.92	1.41	0.13	0.25	-	-	-	-
19	DI-3B - 8'	8.00	0.26	0.65	0.17	4.00	0.68	0.00	0.68	0.01	0.02	3.44	2.00	0.58	0.08	4.17	0.98	3.52	0.15	0.16	5.14	8.00	1.56	1.00	0.68	0.00	0.20	-	-	-	-
7	DI-3B - 8'	8.00	0.69	0.56	0.39	4.00	1.55	0.13	1.67	0.01	0.02	6.59	2.00	0.30	0.08	4.17	0.78	3.52	0.15	0.13	8.45	8.00	0.95	0.99	1.67	0.01	0.26	-	-	-	-
20	DI-3B - 8'	8.00	0.23	0.74	0.17	4.00	0.68	0.00	0.68	0.01	0.03	3.00	2.00	0.67	0.08	4.17	0.98	3.52	0.15	0.17	5.13	8.00	1.56	1.00	0.68	0.00	0.20	-	-	-	-
6	DI-3B - 8'	8.00	0.72	0.56	0.40	4.00	1.61	0.00	1.61	0.01	0.03	5.16	2.00	0.39	0.08	2.78	0.83	3.52	0.15	0.15	7.98	8.00	1.00	1.00	1.61	0.00	0.26	-	-	-	-
35	DI-3B - 8'	8.00	0.37	0.74	0.27	4.00	1.10	0.00	1.10	0.02	0.02	4.11	2.00	0.49	0.08	4.17	0.94	3.52	0.15	0.16	7.59	8.00	1.05	1.00	1.10	0.00	0.21	-	-	-	-
34	DI-3B - 8'	8.00	0.32	0.75	0.24	4.00	0.96	0.00	0.96	0.02	0.02	3.67	2.00	0.54	0.08	4.17	0.97	3.52	0.15	0.16	7.09	8.00	1.13	1.00	0.96	0.00	0.20	-	-	-	-
33	DI-3B - 8'	8.00	0.39	0.68	0.27	4.00	1.06	0.00	1.06	0.02	0.02	4.00	2.00	0.50	0.08	4.17	0.95	3.52	0.15	0.16	7.46	8.00	1.07	1.00	1.06	0.00	0.21	-	-	-	-
32	DI-3B - 8'	8.00	0.30	0.70	0.21	4.00	0.84	0.00	0.84	0.02	0.02	3.23	2.00	0.62	0.08	4.17	0.98	3.52	0.15	0.16	6.65	8.00	1.20	1.00	0.84	0.00	0.19	-	-	-	-
31	DI-3B - 6'	6.00	0.42	0.77	0.32	4.00	1.29	0.00	1.29	0.01	0.02	5.39	2.00	0.37	0.08	4.17	0.86	3.52	0.15	0.15	7.52	6.00	0.80	0.94	1.22	0.07	0.23	-	-	-	-
30	DI-3B - 8'	8.00	0.24	0.68	0.16	4.00	0.65	0.00	0.65	0.01	0.02	3.33	2.00	0.60	0.08	4.17	0.98	3.52	0.15	0.16	5.06	8.00	1.58	1.00	0.65	0.00	0.19	-	-	-	-
29	DI-1	2.16	0.60	0.50	0.30	4.00	1.20	0.00	1.20	Assume 50% Clogging												N/A	N/A	1.00	1.20	0.00	0.14	-	-	8.89	10yr WS = 480.96
28	DI-1	2.16	0.54	0.46	0.25	4.00	0.99	0.00	0.99	Assume 50% Clogging												N/A	N/A	1.00	0.99	0.00	0.13	-	-	7.97	10yr WS = 476.19
27	DI-2B - 8'	8.00	0.57	0.57	0.32	4.00	1.30	0.00	1.30	0.01	0.02	5.45	2.00	0.37	0.08	4.17	1.00	3.52	0.15	0.17	7.50	8.00	1.07	1.00	1.30	0.00	0.24	-	-	-	-
26	DI-2B - 8'	8.00	0.25	0.71	0.18	4.00	0.71	0.00	0.71	0.01	0.02	3.40	2.00	0.59	0.08	4.17	0.98	3.52	0.15	0.16	5.44	8.00	1.47	1.00	0.71	0.00	0.19	-	-	-	-
25	DI-3B - 8'	8.00	0.35	0.68	0.24	4.00	0.95	0.00	0.95	0.02	0.02	3.64	2.00	0.55	0.08	4.17	0.97	3.52	0.15	0.16	7.06	8.00	1.13	1.00	0.95	0.00	0.20	-	-	-	-
24	DI-3B - 6'	6.00	0.32	0.71	0.23	4.00	0.91	0.00	0.91	0.02	0.02	3.49	2.00	0.57	0.08	4.17	0.97	3.52	0.15	0.16	6.90	6.00	0.87	0.97	0.89	0.02	0.20	-	-	-	-
22	DI-3B - 8'	8.00	0.17	0.72	0.12	4.00	0.49	0.00	0.49	0.01	0.02	2.39	2.00	0.84	0.08	4.17	1.00	3.52	0.15	0.17	4.43	8.00	1.80	1.00	0.49	0.00	0.17	-	-	-	-
21	DI-3B - 8'	8.00	0.15	0.66	0.10	4.00	0.40	0.00	0.40	0.01	0.02	1.93	2.00	1.04	0.08	4.17	1.00	3.52	0.15	0.17	4.05	8.00	1.97	1.00	0.40	0.00	0.17	-	-	-	-
36	DI-3B - 6'	6.00	0.11	0.79	0.09	4.00	0.35	0.00	0.35	0.01	0.02	1.84	2.00	1.09	0.08	4.17	1.00	3.52	0.15	0.17	3.84	6.00	1.56	1.00	0.35	0.00	0.16	-	-	-	-
5	DI-3B - 6'	6.00	0.14	0.73	0.10	4.00	0.41	0.00	0.41	0.01	0.02	1.95	2.00	1.02	0.08	4.17	1.00	3.52	0.15	0.17	4.11	6.00	1.46	1.00	0.41	0.00	0.17	-	-	-	-
4	DI-3B - 6'	6.00	0.00	0.58	0.00	4.00	0.00	0.00	0.00	0.01	0.03	0.00	2.00	0.00	0.08	2.66	0.00	3.52	0.15	0.03	0.00	6.00	1.00	0.00	0.00	0.00	0.00	-	-	-	-
38	DI-3B - 6'	6.00	0.00	0.90	0.00	4.00	0.00	0.00	0.00	0.02	0.03	0.00	2.00	0.00	0.08	2.66	0.00	3.52	0.15	0.03	0.00	6.00	1.00	0.00	0.00	0.00	0.00	-	-	-	-
3	DI-3C - 10'	10.00	0.83	0.77	0.64	4.00	2.56	0.00	2.56	0.02	0.03	5.76	2.00	Located in Sag									1.00	1.00	2.56	0.00	0.28	0.458	0.620	2.69	-
40	DI-3B - 6'	6.00	0.00	0.81	0.00	4.00	0.00	0.00	0.00	0.01	0.03	0.00	2.00	0.00	0.08	2.66	0.00	3.52	0.15	0.03	0.00	6.00	1.00	0.00	0.00	0.00	0.00	-	-	-	-
39	DI-3B - 6'	6.00	0.00	0.90	0.00	4.00	0.00	0.00	0.00	0.02	0.03	0.00	2.00	0.00	0.08	2.66	0.00	3.52	0.15	0.03	0.00	6.00	1.00	0.00	0.00	0.00	0.00	-	-	-	-
2	DI-3C - 10'	10.00	0.49	0.77	0.38	4.00	1.51	0.00	1.51	0.02	0.03	4.36	2.00	Located in Sag									1.00	1.00	1.51	0.00	0.24	0.458	0.525	0.91	-
42	DI-3B - 8'	8.00	0.94	0.77	0.72	4.00	2.90	0.00	2.90	0.03	0.02	6.57	2.00	Located in Sag									0.54	0.75	2.18	0.71	0.26	-	-	-	-
52	DI-1	2.16	1.80	0.48	0.86	4.00	3.46	0.00	3.46	Assume 50% Clogging												N/A	N/A	1.00	3.46	0.00	0.18	-	-	16.89	10yr WS = 474.61
51	DI-3B -10'	10.00	0.73	0.72	0.53	4.00	2.10	0.19	2.29	0.03	0.02	5.99	2.00	0.33	0.08	4.17	0.82	3.52	0.15	0.14	12.48	10.00	0.80	0.95	2.17	0.13	0.25	-	-	-	-
53	DI-1	2.16	1.63	0.45	0.73	4.00	2.93	0.00	2.93	Assume 50% Clogging												N/A	N/A	1.00	2.93	0.00	0.17	-	-	15.25	10yr WS = 485.75
50	DI-3B - 8'	8.00	0.63	0.74	0.47	4.00	1.86	0.00	1.86	0.03	0.02	5.26	2.00	0.38	0.08	4.17	0.87	3.52	0.15	0.15	11.10	8.00	0.72	0.90	1.68	0.19	0.23	-	-	-	-
49	DI-3B - 4'	4.00	0.44	0.75	0.33	4.00	1.32	0.00	1.32	0.03	0.02	4.08	2.00	0.49	0.08	4.17	0.95	3.52	0.15	0.16	9.21	4.00	0.43	0.64	0.85	0.47	0.21	-	-	-	-
48	DI-3B - 8'	8.00	0.29	0.73	0.21	4.00	0.85	0.47	1.32	0.03	0.02	4.09	2.00	0.49	0.08	4.17	0.94	3.52	0.15	0.16	9.21	8.00	0.87	0.97	1.29	0.03	0.21	-	-	-	-
47	DI-3B - 6'	6.00	0.03	0.90	0.03	4.00	0.11	0.03	0.14	0.03	0.02	1.10	2.00	1.82	0.08	4.17	0.99	3.52	0.15	0.16	3.53	6.00	1.70	1.00	0.14	0.00	0.15	-	-	-	-
44	DI-3B -10'	10.00	0.65	0.70	0.46	4.00	1.82	0.00	1.82	0.01	0.02	6.90	2.00	Located in Sag									1.13	1.00	1.82	0.00	0.26	-	-	-	-

STORM SEWER PIPE CALCULATIONS

From	To	DA (Acres)	Runoff Coef. C	CA (Increm.)	CA (Accum.)	Tc (min)	Rainfall (in/hr)	Runoff Q, (cfs)	Invert Up (ft)	Invert Down (ft)	Length (ft)	Slope (%)	Diameter (in)	Capacity (cfs)	Velocity (fps)	Increm Flow Time (min)	Flow Time (min)	Pipe Material
15	14	0.26	0.32	0.08	0.08	5.00	4.00	0.33	489.00	487.50	95.10	1.58	15.00	9.45	3.44	0.46	0.46	HDPE
14	13	0.12	0.90	0.11	0.19	5.00	4.00	0.76	487.40	486.60	46.23	1.73	15.00	9.90	4.54	0.17	0.17	HDPE
13	12	0.00	0.50	0.00	0.19	5.00	4.00	0.76	486.50	482.00	165.35	2.72	15.00	12.42	5.33	0.52	0.52	HDPE
12	11	0.16	0.90	0.14	0.34	5.00	4.00	1.33	481.90	481.00	68.20	1.32	15.00	8.65	4.85	0.23	0.23	HDPE
11	10	0.52	0.74	0.38	1.36	5.00	4.00	5.44	480.90	477.00	143.09	2.73	15.00	12.43	9.27	0.26	0.26	HDPE
10	9	0.26	0.74	0.19	1.56	5.00	4.00	6.17	476.64	475.99	31.03	2.09	18.00	17.72	8.65	0.06	0.06	HDPE
9	8	0.14	0.64	0.09	1.65	5.00	4.00	6.57	475.89	474.99	42.10	2.14	18.00	17.90	8.86	0.08	0.08	HDPE
8	7	0.60	0.64	0.38	2.14	5.00	4.00	8.43	474.74	471.67	271.95	1.13	21.00	19.63	7.44	0.61	0.61	HDPE
7	6	0.69	0.56	0.39	2.70	5.00	4.00	10.77	471.

DI-1



12" CONCRETE PIPE - 1.440 CU. YD. CONCRETE
15" CONCRETE PIPE - 1.528 CU. YD. CONCRETE
18" CONCRETE PIPE - 1.620 CU. YD. CONCRETE
24" CONCRETE PIPE - 1.817 CU. YD. CONCRETE

ADD 0.469 CU. YD. PER ADDITIONAL FOOT OF DEPTH.

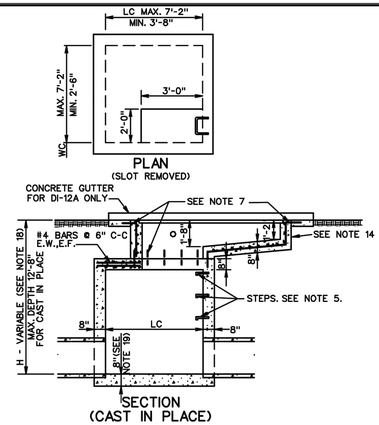
NOTES

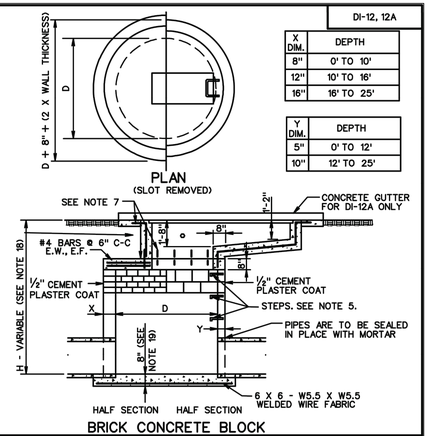
1. DEPTH OF INLET (H) TO BE SHOWN ON PLANS. FOR DEPTH GREATER THAN 10' USE STANDARD DI-1A
2. THE "H" DIMENSION SHOWN ON THE STANDARDS AND SPECIFIED ON THE PLANS WILL BE MEASURED FROM THE INVERT OF THE OUTFALL PIPE TO THE TOP OF THE STRUCTURE. PLAN "H" DIMENSIONS ARE APPROXIMATE ONLY FOR ESTIMATING PURPOSES AND THE ACTUAL DIMENSIONS SHALL BE DETERMINED BY THE CONTRACTOR FROM FIELD CONDITIONS.
3. WHEN SPECIFIED ON THE PLANS THE INVERT IS TO BE SHAPED IN ACCORDANCE WITH STANDARD IS-1. THE COST OF FURNISHING AND PLACING ALL MATERIALS INCIDENTAL TO THE SHAPING IS TO BE INCLUDED IN THE BID PRICE FOR THE STRUCTURE.
4. IN THE EVENT THE INVERT OF THE OUTFALL PIPE IS HIGHER THAN THE BOTTOM OF THE STRUCTURE, THE INVERT OF THE STRUCTURE SHALL BE SHAPED WITH CEMENT MORTAR TO PREVENT STANDING OR PONDING OF WATER IN THE STRUCTURE. THE COST OF FURNISHING AND PLACING ALL MATERIALS INCIDENTAL TO INLET SHAPING IS TO BE INCLUDED IN THE BID PRICE FOR THE STRUCTURE.
5. STEPS ARE TO BE PROVIDED WHEN H IS 4'-0" OR GREATER. FOR DETAILS SEE STANDARD ST-1.
6. THIS ITEM MAY BE PRECAST OR CAST-IN-PLACE.
7. #4 X 8" SMOOTH DOWELS AT APPROXIMATELY 12" C-C TO BE PLACED IN ALL AREAS ADJACENT TO ABUTTING CONCRETE TO PREVENT SETTLEMENT. IN LIEU OF DOWELS A 2"X4" NOTCH MAY BE PROVIDED. SEE STANDARD 7-DI-3, 4 FOR ALTERNATE DESIGN.
8. 3" DIAMETER WEEP HOLE WITH 12"X12" PLASTIC HARDWARE CLOTH ¼" MESH OR GALVANIZED STEEL WIRE, MINIMUM WIRE DIAMETER 0.03", NUMBER 4 MESH HARDWARE CLOTH ANCHORED FIRMLY TO THE OUTSIDE OF THE STRUCTURE.
9. CAST IN PLACE CONCRETE IS TO BE CLASS A3 (3000 PSI). PRECAST CONCRETE IS TO BE 4000 PSI.
10. ANY ALTERNATE METHODS OF ANCHORAGE MEETING THE APPROVAL OF THE ENGINEER MAY BE SUBSTITUTED FOR THE CAST IRON LUGS AS SHOWN HEREON.
11. DUMP NO WASTE DRAINS TO WATERWAY LETTERING IS REQUIRED ON ALL DI-1 GRATES. LOCATION OF LETTERING MAY VARY BY MANUFACTURER.

VDOT ROAD AND BRIDGE STANDARDS		SPECIFICATION REFERENCE
SHEET 1 OF 1	REVISION DATE	233 302
104.01		

STANDARD DROP INLET
12" - 24" PIPE: MAXIMUM DEPTH (H) = 10'
VIRGINIA DEPARTMENT OF TRANSPORTATION

DI-12, 12A





X DIM.	DEPTH
8"	0' TO 10'
12"	10' TO 16'
16"	16' TO 25'

Y DIM.	DEPTH
5"	0' TO 12'
10"	12' TO 25'

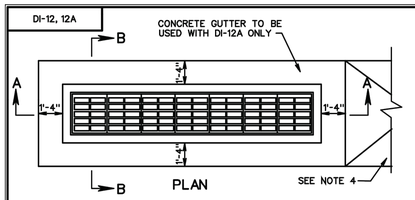
NOTES

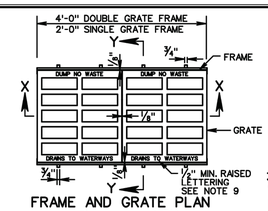
1. USE OF INLET RESTRICTED TO NON-VEHICULAR LOCATIONS.
2. DEPTH OF INLET (H) AND LENGTH (L) TO BE SHOWN ON PLANS.
3. THE "H" DIMENSION SHOWN ON THE STANDARDS AND SPECIFIED ON THE PLANS WILL BE MEASURED FROM THE INVERT OF THE OUTFALL PIPE TO THE TOP OF THE STRUCTURE.
4. WHEN SPECIFIED ON THE PLANS THE INVERT IS TO BE SHAPED IN ACCORDANCE WITH STANDARD IS-1, THE COST OF FURNISHING AND PLACING ALL MATERIALS INCIDENTAL TO THE SHAPING IS TO BE INCLUDED IN THE BID PRICE FOR THE STRUCTURE.
5. IN THE EVENT THE INVERT OF THE OUTFALL PIPE IS HIGHER THAN THE BOTTOM OF THE STRUCTURE, THE INVERT OF THE STRUCTURE SHALL BE SHAPED WITH CEMENT MORTAR TO PREVENT STANDING OR PONDING OF WATER IN THE STRUCTURE. THE COST OF FURNISHING AND PLACING ALL MATERIALS INCIDENTAL TO THE SHAPING IS TO BE INCLUDED IN THE BID PRICE FOR THE STRUCTURE.
6. STEPS ARE TO BE PROVIDED WHEN H IS 4'-0" OR GREATER. FOR DETAILS SEE STANDARD ST-1.
7. CHAMBER MAY BE PRECAST. SEE STANDARD 103.10 FOR DETAILS.
8. #4 DOWELS 12" LONG SPACED AT 12" C-C ALL SIDES.
9. FOOTING MAY BE ROUND OR SQUARE IN SHAPE. KEY IS TO BE 1" DEEP X WALL THICKNESS + 1".
10. ALL REINFORCING STEEL SHALL HAVE A MIN. COVER OF 2".
11. ALL REINFORCING STEEL TO BE CUT CLEAR OF ALL OPENINGS BY 2".
12. CAST-IN PLACE CONCRETE IS TO BE CLASS A3 (3000 PSI). PRECAST CONCRETE IS TO BE 4000 PSI.
13. ALL REINFORCING BARS TO BE #4.
14. GRATE BARS TO BE INSTALLED SO THEY WILL BE ALIGNED PARALLEL TO DITCH FLOW.
15. FOR DETAILS OF CONCRETE SLOT, COLLAR AND GRATE, AND METHOD OF PLACING APPROACH GUTTER SEE SHEET 2 OF 3.
16. PAVED DITCHES ARE TO BE TRANSITIONED TO MEET INLET GUTTER AS SHOWN IN ST'D. PG-2A.
17. QUANTITIES SHOWN ARE FOR INLETS WITHOUT PIPES. PIPE DISPLACEMENTS MUST BE DEDUCTED TO OBTAIN TRUE QUANTITIES. SEE SHEET 3 OF 3 FOR QUANTITIES.
18. PROVIDE SAFETY SLABS WHEN SPECIFIED ON THE PLANS.
19. SEE TABULATION CHART ON SHEET 3 OF 3 FOR FOR MINIMUM DEPTH (H).
20. 10" THICK SLAB FOR PIPE SIZES 60" TO 72" IN DIAMETER.
21. THE TYPE OF INLET DETAILED HEREON TO BE CONSTRUCTED WILL BE AT THE OPTION OF THE CONTRACTOR.
22. DI-12 NO GUTTER.
    DI-12A PERIPHERAL GUTTER.

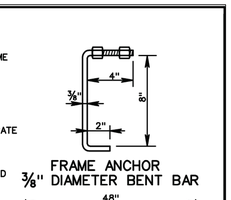
SPECIFICATION REFERENCE	VDOT ROAD AND BRIDGE STANDARDS	
233 302	REVISION DATE	SHEET 1 OF 3
		104.30

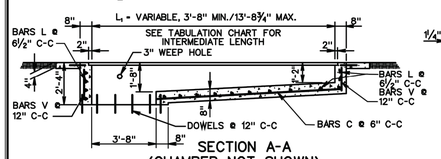
MULTIGRATE DROP INLET
FOR PIPE SIZES 12" TO 72"
VIRGINIA DEPARTMENT OF TRANSPORTATION

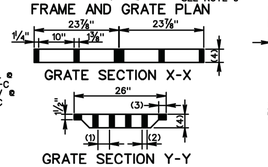
DI-12, 12A





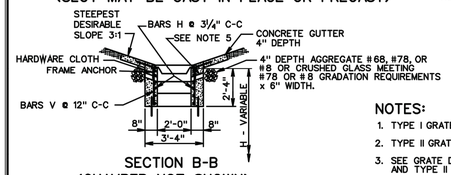


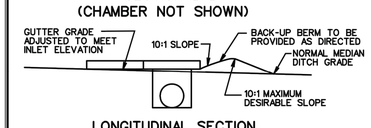




NOTE: SEE GRATE DIMENSION TABLE FOR GRATE TYPE I & II DIMENSIONS

GRATE DIMENSIONS				
GRATE TYPE	OPENING WIDTH (1)	BAR THICKNESS (2)	END SECTION WIDTH (3)	GRATE THICKNESS (4)
TYPE I	3½" 5 OPENINGS	1⅜" 4 BARS	2⅛"	3¾"
TYPE II	1¾" 8 OPENINGS	1⅜" 7 BARS	2⅜"	3¾"





NOTES:

1. TYPE I GRATE: LIMITED ACCESS AND RURAL UNLIMITED ACCESS: PEDESTRIAN ACCESS UNLIKELY
2. TYPE II GRATE: URBAN AREAS: PEDESTRIAN ACCESSIBLE AREAS.
3. SEE GRATE DIMENSION TABLE FOR SIZE AND NUMBER OF GRATE OPENINGS REQUIRED FOR TYPE I AND TYPE II GRATE.
4. PAVED DITCHES ARE TO BE TRANSITIONED TO MEET INLET GUTTER AS SHOWN IN STANDARD PG-2A.
5. 3" DIAMETER WEEP HOLE WITH 12" X 12" PLASTIC HARDWARE CLOTH ½" MESH OR GALVANIZED STEEL WIRE, MINIMUM WIRE DIAMETER 0.03", NUMBER 4 MESH HARDWARE CLOTH ANCHORED FIRMLY TO OUTSIDE OF STRUCTURE.
6. IF NORMAL DITCH GRADE IS TOO FLAT TO ALLOW FOR ADJUSTED GRADE TO INLET, A SPECIAL GUTTER DETAIL WILL BE REQUIRED ON PLANS.
7. GRATE BARS TO BE PARALLEL TO DITCH FLOW.
8. DI-12 AND DI-12A ARE NOT TO BE UTILIZED IN LOCATIONS NORMALLY SUBJECT TO TRAFFIC.
9. DUMP NO WASTE DRAINS TO WATERWAYS LETTERING IS REQUIRED ON ALL DI-12 GRATES. LOCATION OF LETTERING MAY VARY BY MANUFACTURER.

VDOT ROAD AND BRIDGE STANDARDS		SPECIFICATION REFERENCE
SHEET 2 OF 3	REVISION DATE	233 302
104.31		

MULTIGRATE DROP INLET
FOR PIPE SIZES 12" TO 72"
VIRGINIA DEPARTMENT OF TRANSPORTATION

DI-12, 12A

TABULATION CHARTS

APPROXIMATE QUANTITIES (SEE NOTE 2) CAST IN PLACE CHAMBER						
PIPE SIZES	MINIMUM DEPTH H (SEE NOTE 3)	REINFORCING STEEL LBS.	CONCRETE CU. YDS.	CHAMBER DIMENSIONS W_C	CHAMBER DIMENSIONS L_C	CONCRETE CHAMBER INCREMENTS PER FOOT (SEE NOTE 1) CU. YDS.
12" TO 24"	4'-2"	20.5	1.20	2'-6"	3'-8"	.37
27" TO 36"	5'-6 1/4 "	30.33	2.14	3'-8"	3'-8"	.43
42" TO 54"	6'-10 1/2 "	129.80	4.39	5'-5"	5'-5"	.53
60" TO 72"	8'-6"	277.32	7.65	7'-2"	7'-2"	.69

NOTES

1. FOR EACH ADDITIONAL FOOT IN DEPTH THE INCREMENT SHOWN MUST BE MULTIPLIED BY THE ADDITIONAL DEPTH IN FEET AND ADDED TO THE CONCRETE TOTAL.
2. APPROXIMATE QUANTITIES ARE SHOWN FOR BIDDING PURPOSES ONLY: ITEMS ARE NOT TO BE BID SEPARATELY. TO OBTAIN THE TOTAL APPROXIMATE CONCRETE QUANTITIES FOR EACH INLET, THE CHAMBER, SLOT AND GUTTER (GUTTER TO BE USED WITH DI-12A ONLY) QUANTITIES MUST BE ADDED TOGETHER.
3. MINIMUM DEPTHS SHOWN ARE FOR THE SMALLEST PIPE SIZE IN EACH SERIES. MINIMUM DEPTH H = PIPE DIAMETER + PIPE WALL THICKNESS + 3'.
4. FOR APPROXIMATE QUANTITIES FOR DI-12A ADD 0.36 CU. YDS. OF CLASS A3 CONCRETE TO DI-12 QUANTITIES FOR CONCRETE GUTTER. QUANTITY SHOWN IS FOR A MINIMUM SLOT LENGTH OF 3'-8". FOR OTHER CONCRETE LENGTHS SEE CONCRETE GUTTER INCREMENTS IN THIS TABLE.
5. DI-12A CONCRETE GUTTER INCREMENT: ADD 0.07 CU. YDS. CLASS A3 CONCRETE FOR EACH ADDITIONAL FOOT OF SLOT LENGTH GREATER THAN MINIMUM 3'-8".
6. DOWELS ARE TO BE PROVIDED FOR THE JOINT BETWEEN THE CONCRETE GUTTER AND SLOT. THE COST OF DOWELS ARE TO BE INCLUDED IN THE CUBIC YARD COST FOR CONCRETE.
7. SLOT MAY BE PRECAST OR CAST IN PLACE.
8. L = LENGTH ROUNDED FOR PLAN USE.

APPROXIMATE QUANTITIES BRICK AND BLOCK CHAMBER						
PIPE SIZES	CHAMBER DIMENSIONS "D"	REINFORCING STEEL LBS.	CONCRETE CU. YDS.	BRICK MIN. DEPTH H	BRICK NO.	BLOCK NO.
12" TO 24"	4'-0"	102.68	1.25	4'-2"	688	42
27" TO 36"	4'-0"	102.68	1.25	5'-6¼"	911	55
42" TO 54"	5'-6"	200.81	2.01	7'-10½"	1300	111
60" TO 72"	8'-0"	404.74	3.65	9'-6"	1568	190

BRICK CHAMBER INCREMENTS PER FT.				
X DIM.	DEPTH	4' DIAMETER APPROX. NO. BRICKS/FT.	5'-6" DIAMETER APPROX. NO. BRICKS/FT.	8'-0" DIAMETER APPROX. NO. BRICKS/FT.
8"	0' - 10'	165	227	330
12"	10' - 16'	250	341	495
16"	16' - 25'	330	454	660

BLOCK CHAMBER INCREMENTS PER FT.				
Y DIM.	DEPTH	4' DIAMETER APPROX. NO. BRICKS/FT.	5'-6" DIAMETER APPROX. NO. BRICKS/FT.	8'-0" DIAMETER APPROX. NO. BRICKS/FT.
5"	0' - 12'	10	14	20
10"	12' - 25'	20	28	40

APPROXIMATE QUANTITIES - DI- 12 ONLY (SEE NOTE 4) SLOT 4' TO 14' (SEE NOTE 8)				
L (SEE NOTE 8)	L_1	CONCRETE CU. YDS.	REINFORCING STEEL LBS.	GRATES NO.
4	3'-8"	0.81	81.27	2
6	5'-8¾"	1.10	122.81	3
8	7'-8"	1.30	161.90	4
10	9'-8¾"	1.61	203.37	5
12	11'-8"	1.91	242.45	6
14	13'-8¾"	2.22	283.93	7

SPECIFICATION REFERENCE	VDOT ROAD AND BRIDGE STANDARDS	
233 302	REVISION DATE	SHEET 3 OF 3
		104.32

MULTIGRATE DROP INLET
FOR PIPE SIZES 12" TO 72"
VIRGINIA DEPARTMENT OF TRANSPORTATION

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Telephone: (304) 262-5111
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STORM SEWER DETAILS

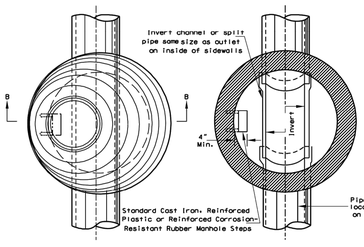
NORBORNE GLEBE

PHASE 15
CHARLES TOWN CORP. DISTRICT (3)
CITY OF CHARLES TOWN - JEFFERSON COUNTY, WV

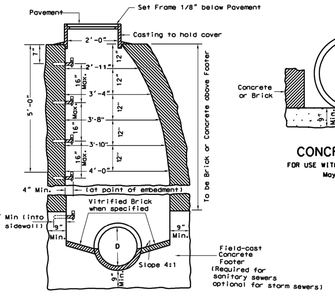
Rev. No.	Date

RANDY L. KEPLER
REGISTERED
17223
STATE OF
WEST VIRGINIA
PROFESSIONAL ENGINEER

DATE: 08/24/2022
SCALE: N/A
DESIGNED BY: AM/CC
FILE NO. 4542A
SHEET 43 OF 55
22-03

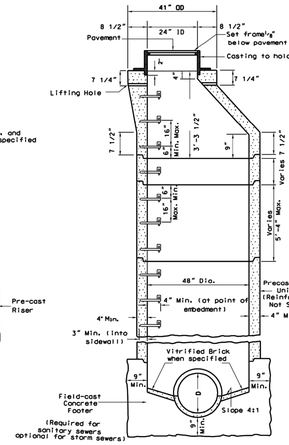


PLAN VIEWS



CAST-IN-PLACE OPTION

CONCRETE BASE
FOR USE WITH STORM SEWERS ONLY
May Be Precast



PRE-CAST

NOTES

Type A Manholes, when specified on the Plans, may be constructed in either method (cast-in-place or pre-cast option) as shown herein.

Steps, frames, and covers shall be as shown on Standard Sheet DR7-X.

"Keyed" or "doweled" type construction joints, acceptable to the Engineer, may be used in the construction of concrete manholes.

If the cast-in-place manhole is over twelve feet (12') in depth, the sidewalls below that depth will be double thickness.

Pipe at elevations other than shown may be joined to the manhole by cutting a hole the size of the connecting pipe in the manhole. Inserting the pipe the thickness of the manhole shell and closing all openings around the connecting pipe with joint mortar.

Drawing shows pipe entering and leaving manhole in a straight line. However, the pipes may enter or leave at an angle or place as called for or shown on the Plans.

Minimum height of bench wall above flowline of pipe is 25% of the diameter of the pipes.

The use of brick for manhole construction will not be allowed when a manhole is located in the roadway.

The following additional notes are applicable for pre-cast manholes:

Manhole steps shall be placed into plastic concrete wall during manufacture or mortared into holes after the concrete has set.

Sidewall sections may be used in any combination to produce a manhole of desired depth, except the tapered top section shall be retained as shown.

The tapered top section shall be manufactured and meet the same requirements as the manhole's sidewalls, but shall conform to the dimensions detailed herein.

Lifting holes in the tapered top section and the circumferential notches in the manhole cover are for handling purposes only.

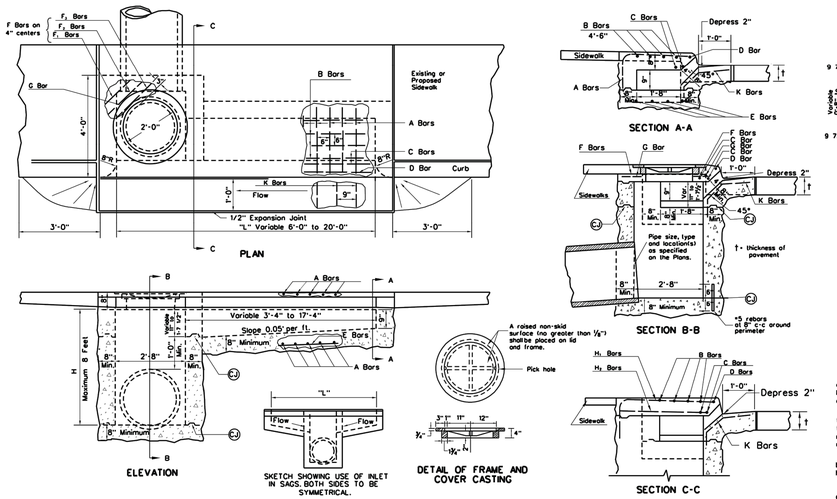
The pre-cast sidewall units shall be set in joint mortar or sealed with O-ring gaskets.

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
STANDARD DETAIL

PREPARED 7-1-98
REVISION DATE

TYPE A MANHOLE

STANDARD SHEET DR7-A



CONCRETE AND REINFORCING STEEL QUANTITIES

"H" Feet	Concrete C.Y.	Reinforcing Steel lbs.	A Bars (Bent) No.	Size	Length	B Bars (Straight) No.	Size	Length	C Bars (Straight) No.	Size	Length	D Bars (Straight) No.	Size	Length	E Bars (Straight) No.	Size	Length	F, Bars (Straight) No.	Size	Length	F, Bars (Straight) No.	Size	Length	G Bar (Bent) No.	Size	Length	H Bars (Straight) No.	Size	Length	H1 Bars (Straight) No.	Size	Length	K Bars (Bent) No.	Size	Length
6	2.59	189	5	#5	7'-1" to 7'-3"	4	#5	3'-9"	2	#5	7'-1"	1	#5	7'-1"	4	#5	3'-6"	4	#5	2'-0"	4	#5	2'-6"	4	#5	3'-0"	1	#5	8'-0"	2	#7	6'-5"	2	#6	3'-4"	10	#5	2'-3"
8	3.07	250	9	#5	7'-1" to 7'-4"	4	#5	5'-9"	2	#5	9'-1"	1	#5	9'-1"	4	#5	5'-6"	4	#5	2'-0"	4	#5	2'-6"	4	#5	3'-0"	1	#5	8'-0"	2	#7	6'-5"	2	#6	3'-4"	13	#5	2'-3"
10	3.57	308	13	#5	7'-1" to 7'-5"	4	#5	7'-9"	2	#5	11'-1"	1	#5	11'-1"	4	#5	7'-6"	4	#5	2'-0"	4	#5	2'-6"	4	#5	3'-0"	1	#5	8'-0"	2	#7	6'-5"	2	#6	3'-4"	15	#5	2'-3"
12	4.09	369	17	#5	7'-1" to 7'-6"	4	#5	9'-9"	2	#5	13'-1"	1	#5	13'-1"	4	#5	9'-6"	4	#5	2'-0"	4	#5	2'-6"	4	#5	3'-0"	1	#5	8'-0"	2	#7	6'-5"	2	#6	3'-4"	18	#5	2'-3"
14	4.62	444	21	#5	7'-1" to 7'-7"	4	#5	11'-9"	2	#6	15'-1"	1	#5	15'-1"	4	#5	11'-8"	4	#5	2'-0"	4	#5	2'-6"	4	#5	3'-0"	1	#5	8'-0"	2	#7	6'-5"	2	#6	3'-4"	21	#5	2'-3"
16	5.17	506	25	#5	7'-1" to 7'-9"	4	#5	13'-9"	2	#6	17'-1"	1	#5	17'-1"	4	#5	13'-6"	4	#5	2'-0"	4	#5	2'-6"	4	#5	3'-0"	1	#5	8'-0"	2	#7	6'-5"	2	#6	3'-4"	23	#5	2'-3"
18	5.74	570	29	#5	7'-1" to 7'-10"	4	#5	15'-9"	2	#6	19'-1"	1	#5	19'-1"	4	#5	15'-6"	4	#5	2'-0"	4	#5	2'-6"	4	#5	3'-0"	1	#5	8'-0"	2	#7	6'-5"	2	#6	3'-4"	26	#5	2'-3"
20	6.19	636	33	#5	7'-1" to 8'-0"	4	#5	17'-9"	2	#6	21'-1"	1	#5	21'-1"	4	#5	17'-6"	4	#5	2'-0"	4	#5	2'-6"	4	#5	3'-0"	1	#5	8'-0"	2	#7	6'-5"	2	#6	3'-4"	29	#5	2'-3"

* The quantities shown above are for an H of five feet. If deeper inlets are required the quantities must be adjusted accordingly.

The above table to be used for estimating purposes only.

NOTES

Type E inlet detailed herein is for use on a grade. If it is to be used in a sag (see sketch herein) it should be built symmetrically about centerline of pipe and length of opening specified.

The covering for reinforcing steel shall be two inches, measured from the surface of the concrete to the face of the bar, unless otherwise shown. All reinforcing steel shall be epoxy-coated and meet the requirements of Section 602 of the Specifications.

Optional construction joints labeled "CJ" may be keyed or doweled as per the typical details shown herein or as approved by the Engineer.

If Type E inlet is to be constructed along with a sidewalk, the sidewalk shall be constructed monolithic with the top slab on the inlet. The sidewalk shall be reinforced with Type B Fabric placed 2" from bottom of sidewalk and extended into the top slab of the inlet a minimum distance of 8". Cost of Type B Fabric shall be included in the unit price bid for Concrete Sidewalk.

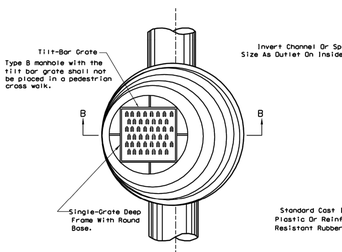
This inlet shall not be placed in a pedestrian cross walk.

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
STANDARD DETAIL

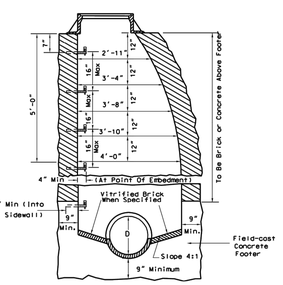
PREPARED 7-1-98
REVISION DATE

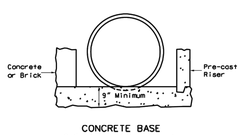
TYPE E INLET

STANDARD SHEET DR6-E



PLAN VIEWS





NOTES

"Keyed" Or "Doweled" Type Construction Joints, Acceptable To The Engineer, May Be Used In The Construction Of Concrete Manholes.

If Cast-In-Place Manhole Is Over Twelve Feet (12') In Depth, The Sidewalls Below That Depth Will Be Double Thickness.

Pipe At Elevations Other Than Shown May Be Joined To The Manhole By Cutting A Hole The Size Of The Connecting Pipe In The Manhole, Inserting The Pipe The Thickness Of The Manhole Shell And Closing All Openings Around The Connecting Pipe With Joint Mortar.

Either This Manhole Or The Precast Manhole On Standard Sheet DR7-A May Be Furnished When Type B Manhole Is Called For In The Contract. The Frame And Grate Shall Be As Shown On Standard Sheet DR6-X INLET CASTINGS. Steps Shall Be As Shown On Standard Sheet DR7-X.

Minimum Height Of Bench Wall Above Flowline Of Pipe Is 25% Of The Diameter Of The Pipes.

The use of brick for manhole construction will not be allowed when a manhole is located in the roadway.

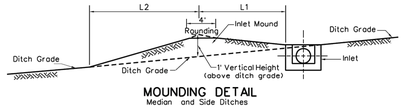
WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
STANDARD DETAIL

PREPARED 7-1-98
REVISION DATE

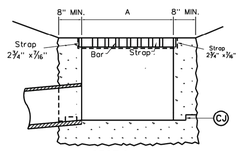
TYPE B MANHOLE

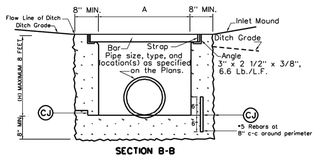
STANDARD SHEET DR7-B

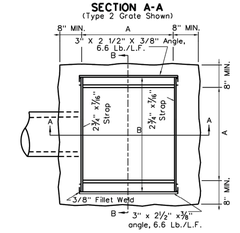
INLET MOUNDING TABLE			
DITCH GRADE (2)		L1, HORIZONTAL LENGTH (FT.)	L2, HORIZONTAL LENGTH (FT.)
FROM	TO		
0	3	10	15
3	5	9	20
5	7.5	8	40
7.5	UP	SPECIAL DESIGN	SPECIAL DESIGN

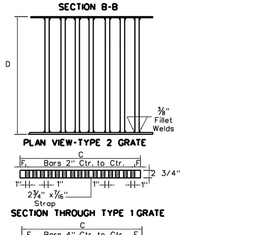


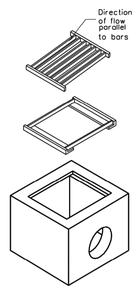
MOUNDING DETAIL
Median and Side Ditches











DIMENSIONS						TYPE 2 GRATE		FRAME	TYPE 1 GRATE		
Pipe Size	A	B	C	D	H(Min)	F	Bars	WT.	WT.	F	Bars	WT.
18"	2'-8"	3'-2"	2'-7 3/4"	3'-1 3/4"	2'-0"	3 3/8"	7	223	62	1 3/8"	15	453
21"	2'-8"	3'-2"	2'-7 3/4"	3'-1 3/4"	2'-3"	3 3/8"	7	223	62	1 3/8"	15	453
24"	2'-8"	3'-2"	2'-7 3/4"	3'-1 3/4"	2'-6"	3 3/8"	7	223	62	1 3/8"	15	453
27"	3'-0"	3'-6"	2'-11 3/4"	3'-5 3/4"	2'-9"	3 3/8"	8	279	69	1 3/8"	17	566
30"	3'-6"	4'-0"	3'-5 3/4"	3'-11 3/4"	3'-0"	3 3/8"	9	357	80	1 3/8"	21	797
33"	3'-9"	4'-3"	3'-8 3/4"	4'-2 3/4"	3'-3"	3 7/8"	10	419	85	1 7/8"	21	847
36"	4'-0"	4'-6"	3'-11 3/4"	4'-5 3/4"	3'-6"	3 3/8"	11	486	90	1 3/8"	23	981
42"	4'-6"	5'-0"	4'-5 3/4"	4'-11 3/4"	4'-0"	3 3/8"	12	587	101	1 3/8"	27	1277
48"	5'-0"	5'-6"	4'-11 3/4"	5'-5 3/4"	4'-6"	3 3/8"	14	748	112	1 3/8"	29	1507

Table Note: Grate and frame weights are for information only and will increase if larger straps and bars are used.

The following substitutions in dimensions are acceptable for fabricating the grate and frame:

Strap Thickness: 1/2" Strap Depth: 3" Bar Depth: 3"

NOTES

The final installed top surface of inlet and grate shall be flush with adjacent finished surfaces such as pavement, gutters, curbs, and sidewalks. Top of grate elevation, if shown on the plans, is for information only.

Construction may be cast-in place, precast in one or multiple sections, or any combination of cast-in-place and precast.

Type 2 Grate shall be used at all locations unless otherwise specified on the Plans. Type 1 Urban Grates shall be used only at specially designated locations as shown on the plans.

The Contractor, at his option, may omit use of the frame by forming a ledge in the concrete.

Special care shall be execised in forming the 2" wide concrete ledge to provide a smooth, even surface for supporting the grates if the shallow frame is not used, no projections shall exist on the bearing surfaces of the ledge or the grates, and the grates shall seat on the ledge without rocking.

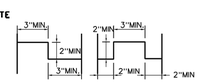
The Mounding Detail as shown is not required when an inlet is placed in a sag.

Optional construction joints labeled "CJ" may be roughened concrete, keyed or doweled as per the typical details shown herein or as approved by the Engineer. Non shrink grout meeting the requirements of subsection 715.5 of the specifications may be used to a depth of ½" for leveling between precast sections. Thicker depths will be allowed as per the manufacturer's recommendations.

This inlet is to be installed in roadside or median ditches only. It is not to be placed adjacent to pavement or in the gutter pan of combination curb and gutter.

The minimum distance from the top of any pipe opening to any construction joint above the opening shall be four (4) inches.

The number and location of pipe openings shall be as shown in the plans. The contractor at no additional cost, shall be responsible for any temporary bracing required to transport precast inlet sections due to multiple openings.



WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
STANDARD DETAIL

PREPARED 7-1-98
REVISION DATE

TYPE G INLET

STANDARD SHEET DR6-G

704 Foxcroft Avenue
Martinsburg, West Virginia 25401
Telephone: (304) 263-8951
Fax: (540) 722-8628
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STORM SEWER DETAILS

NORBORNE GLEBE

PHASE 15

CHARLES TOWN CORP. DISTRICT (3)
CITY OF CHARLES TOWN - JEFFERSON COUNTY, WV

Rev. No.	Date

RANDY L. KEPLER
17223
STATE OF
WEST VIRGINIA
PROFESSIONAL ENGINEER
REGISTERED

DATE: 08/24/2022

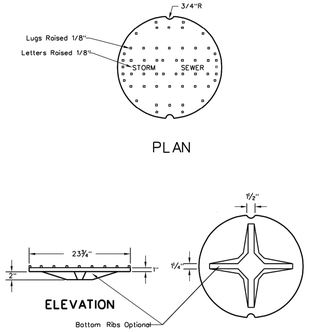
SCALE: N/A

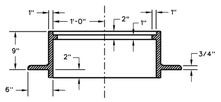
DESIGNED BY: AM/CC

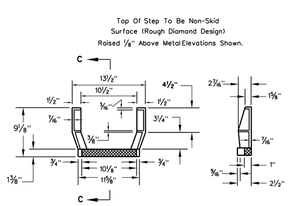
FILE NO. 4542A

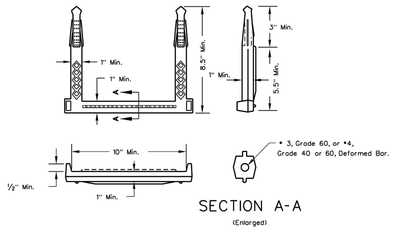
SHEET 44 OF 55

22-03









REINFORCED PLASTIC AND REINFORCED CORROSION - RESISTANT RUBBER MANHOLE STEPS

NOTES

Lettering on covers shall denote STORM SEWER or SANITARY SEWER as applicable.
Bottom ribs may be deleted from manhole cover castings.
The ⅛" raised lugs are a skid resistant measure. Alternative measures will require approval by the Engineer.
Shop Drawings shall be submitted if details and dimensions vary.

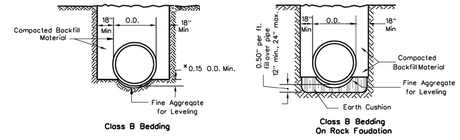
WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
STANDARD DETAIL

PREPARED 7-1-93
REVISION DATE

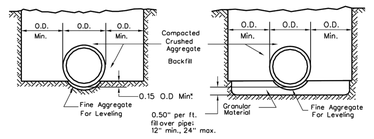
MANHOLE CASTINGS

STANDARD SHEET DR7-X

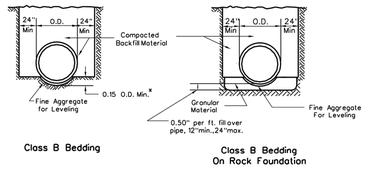
* Except for structural plate pipe where length of bedding arc need not exceed width of bottom plate. However, if structural plate pipe is first assembled and then placed in the trench, the 0.15 O.D. minimum value will apply.



(Trench shown is for 18" thru 54" Pipe)

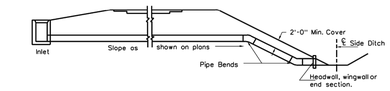


(Trench shown is for 60" thru 108" flexible pipe in soil cut fill sections)

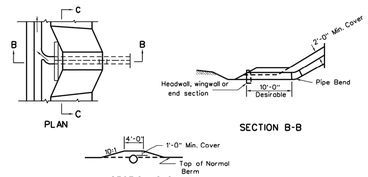


(Trench shown is for 60" thru 108" rigid pipe in cut sections)

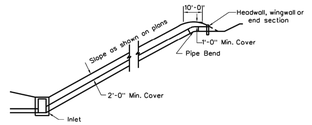
TYPICAL PIPE BEDDING



MEDIAN OUTLET IN HIGH FILL
To be used where called for on the plans or as shown on the cross sections.



OUTLET THROUGH BERM
To be used where called for on the plans or as shown on the cross sections.



PIPE FLUME
Earth Cut or Shallow Rock Cuts

NOTES

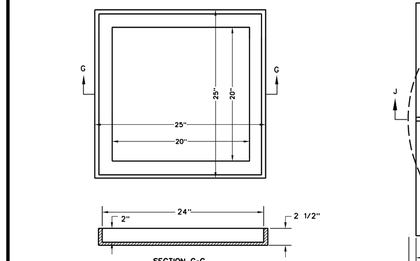
For pipe without corrugations, a one inch layer of fine aggregate for leveling will normally be adequate to achieve a uniform bearing surface. For corrugated pipe, layers shall be 1" minimum for 1/2" depth corrugations, 2" minimum for 1" depth corrugations, and 3" minimum for 2" or 2-1/2" depth corrugations.

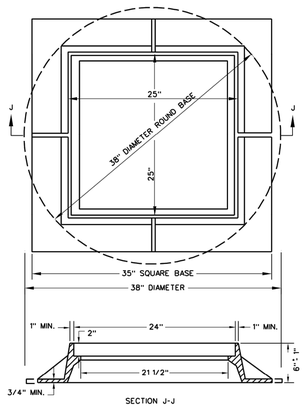
WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
STANDARD DETAIL

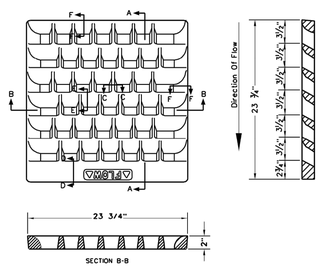
PREPARED 1-1-93
REVISION DATE

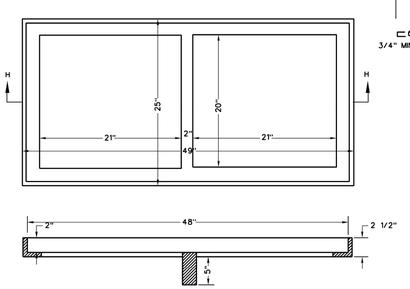
MISCELLANEOUS DRAINAGE
(sheet 1 of 4)

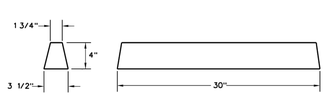
STANDARD SHEET DR8

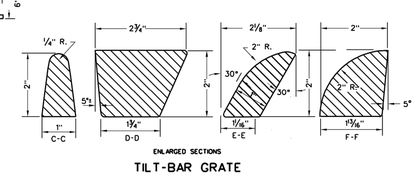












TILT-BAR GRATE

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
STANDARD DETAIL

PREPARED 7-1-93
REVISION DATE

INLET CASTINGS

STANDARD SHEET DR6-X

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STORM SEWER DETAILS

NORBORNE GLEBE

PHASE 15

CHARLES TOWN CORP. DISTRICT (3)
CITY OF CHARLES TOWN - JEFFERSON COUNTY, WV

Rev. No.	Date

RANDY L. KEPLER
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17223
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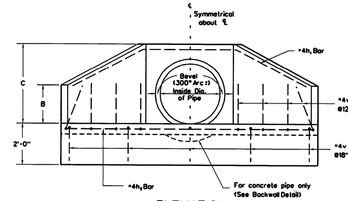
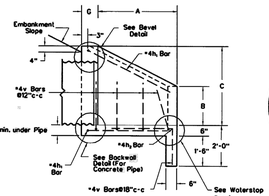
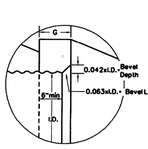
DATE: 08/24/2022
SCALE: N/A
DESIGNED BY: AM/CC
FILE NO. 4542A
SHEET 45 OF 55
22-03



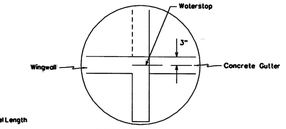
ELEVATION



SECTION A-A



BEVEL DETAIL



WATERSTOP DETAIL

NOTES

All concrete shall be Class B Concrete.

Reinforcing steel shall be new billet steel and shall conform to the requirements of 709.1 of the Specifications.

The covering for Reinforcing Steel shall be 2" measured from the surface of the concrete to the face of the bar, unless otherwise noted on the Plans. Reinforcement in members where concrete is deposited on the ground shall have 3" of concrete from the face of the bar to the ground contact surface.

All exposed edges shall have a 3/4" x 45°chamfer. Chamfer on vertical edges shall be continued a minimum of one foot below finished ground line.

When wingwalls are placed on the inlet end of corrugated metal or structural plate pipe, a bevel shall be used at the inlet opening. The end of the pipe shall be set in from the face of the walls as shown on the "Bevel Detail", and the bevel constructed from the end of the pipe to the face of the wall.

When wingwalls are placed on the inlet end of concrete pipe, the "bell" or "groove" of the pipe shall be placed in the wall, and the inside of the "bell" or "groove" shall be filled with concrete up to the flow line.

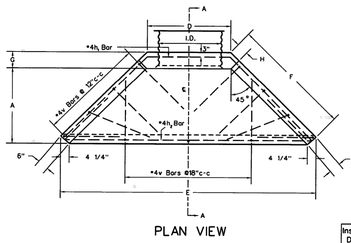
Bevels are not required on outlet wingwalls or on inlet wingwalls for concrete pipe.

Keyed or doweled type construction joints, acceptable to the Engineer, may be used during construction.

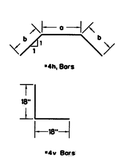
If embankment slope above wingwalls is flatter than 2:1, provide wings for 2:1 slope and wrap embankment to 2:1 slope at wingwall.

The pay quantity for wingwalls, constructed in accordance with the details herein, will be the cubic yards of Class B Concrete specified on this sheet. Cost of all reinforcing steel shall be included in the unit price bid for Class B Concrete.

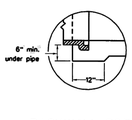
Waterstop meeting the requirements of 708.10 shall be placed as shown when concrete gutter is to abut the wingwall.



PLAN VIEW



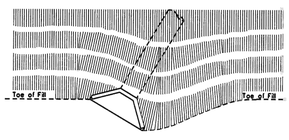
DETAIL OF BENT BARS



BACKWALL DETAIL (For Concrete Pipe)

Inside Dia. of Pipe	Slope of Fill	DIMENSIONS A	B	C	D	E	F	G	H	REINFORCEMENT Mark	Size	No. of Bars	LENGTH a	b	Total	Type	QUANTITIES CONC (RCP) C.Y.	CONC (C.M.S. or S.P.P.) C.Y.	STEEL LBS.
15"	2:1	2'-0"	0'-10"	1'-11"	2'-0"	6'-2"††	3'-3"††	0'-8"	0'-5.9"†	h	*4	2	7'-10"	3'-2"†	8'-3"	BENT	0.61	0.62	41.2
		1'-2"						0'-6"	0'-2.9"†	h	*4	1			8'-1"	ST.			
		BEVEL-DEPTH=3/4" LENGTH=1'								v	*4	13			3'-0"	BENT			
18"	2:1	2'-0"	1'-1"	2'-2"	2'-3"	6'-10"††	3'-3"††	0'-8"	0'-5.9"†	h	*4	2	2'-1"	3'-3"†	8'-6"	BENT	0.67	0.68	41.8
		1'-2"						0'-6"	0'-2.9"†	h	*4	1			8'-4"	ST.			
		BEVEL-DEPTH=3/4" LENGTH=1 1/4"								v	*4	13			3'-0"	BENT			
24"	2:1	2'-8"	1'-4"	2'-9"	2'-11"	8'-10.9"††	4'-2.9"††	0'-8"	0'-5.9"†	h	*4	2	2'-9"	4'-1.9"†	11'-0"	BENT	1.01	1.02	52.4
		1'-10"						0'-6"	0'-2.9"†	h	*4	1			8'-4"	ST.			
		BEVEL-DEPTH=1" LENGTH=1 1/2"								v	*4	16			3'-0"	BENT			
30"	2:1	3'-1"	1'-7"	3'-3"	3'-5"	10'-4.9"††	4'-11"	0'-9"	0'-6.8"†	h	*4	2	3'-3"	4'-6.9"†	13'-0"	BENT	1.32	1.37	58.1
		1'-3.4"						0'-6"	0'-2.9"†	h	*4	1			9'-10"	ST.			
		BEVEL-DEPTH=1 1/4" LENGTH=2"								v	*4	17			3'-0"	BENT			
36"	2:1	3'-9"	1'-10"	3'-10"	4'-1"	12'-4.9"††	5'-10.9"††	0'-9"	0'-6.8"†	h	*4	2	3'-11"	5'-0.9"†	15'-6"	BENT	1.79	1.86	70.8
		1'-4'-0"						0'-6"	0'-2.9"†	h	*4	1			11'-10"	ST.			
		BEVEL-DEPTH=1 1/2" LENGTH=2 1/4"								v	*4	21			3'-0"	BENT			

* DIMENSIONS FOR INLET WINGWALLS ON CORRUGATED METAL PIPE (TO ACCOMMODATE THE BEVEL).
† DIMENSIONS FOR INLET WINGWALLS ON CONCRETE PIPE AND ALL OUTLET WINGWALLS.



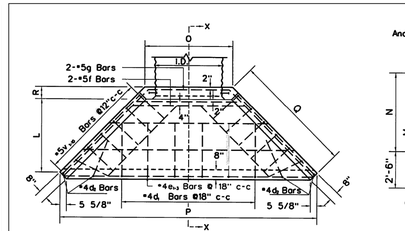
CONSTRUCTION DETAIL - SKEWED PIPE

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
STANDARD DETAIL

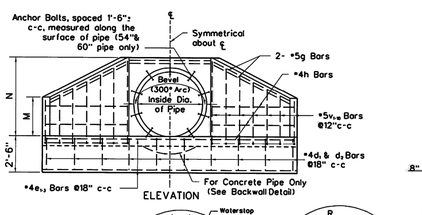
PREPARED 7-1-99
REVISION DATE

PIPE CULVERT WINGWALLS (SHEET 1 OF 4)

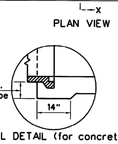
STANDARD SHEET DR2



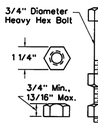
PLAN VIEW



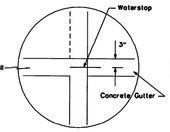
ELEVATION



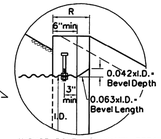
BACKWALL DETAIL (for concrete pipe)



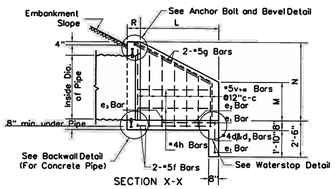
ANCHOR BOLT DIMENSIONS



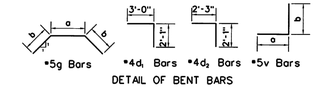
WATERSTOP DETAIL



ANCHOR BOLT AND BEVEL DETAIL



SECTION X-X



Inside Dia. of Pipe	Slope of Fill	DIMENSIONS L	M	N	O	P	Q	R	S	T	REINFORCEMENT Mark	Size	No. of Bars	LENGTH a	b	Total	Type	QUANTITIES CONC (RCP) C.Y.	CONC (C.M.S. or S.P.P.) C.Y.	STEEL Lbs.
42"	2:1	4'-3"	2'-2"	4'-4.5"	4'-10"	14'-3"	6'-8.5"	10'-10"	4'-10.4"	12"	d,	*4	8			5'-1"	Bent	4.64	4.74	300.0
		4'-5"						0'-9"	10'-3.4"		d2	*4	4			4'-4"	Bent			
											e,	*4	1			10'-9"	St.			
		Bevel Depth = 1.4"									e2	*4	1			11'-0"	St.			
		Length= 2.2"									e3	*4	1			11'-6"	St.			
											f	*5	2			7'-0"	St.			
											g	*5	2	4'-4"& 9'-1"		13'-5"	Bent			
											h	*5	2	2'-0"		8'-0"	St.			
											x,	*5	2	2'-0"-2'-6"& 4'-6"		8'-8"	Bent			
											x2	*5	2	2'-0"-3'-4"& 5'-4"		9'-4"	Bent			
											x3	*5	2	2'-0"-3'-7"& 6'-1"		10'-1"	Bent			
											x4	*5	2	2'-0"-3'-8"& 6'-8"		10'-8"	Bent			
											x5	*5	2	2'-0"-3'-9"& 7'-3"		11'-3"	Bent			
											x6	*5	2	2'-0"-4'-0"& 7'-10"		11'-10"	Bent			
											x7	*5	2	2'-0"-4'-1"& 8'-5"		12'-6"	Bent			
											x8	*5	2	2'-0"-4'-2"& 9'-0"		13'-2"	Bent			
48"	2:1	4'-10"	2'-5"	4'-11"	5'-5"	15'-9½"	7'-4.8"	10'-10"	10'-8.8"	12"	d,	*4	7			5'-7"	Bent	3.89	3.97	362.0
		5'-5"						0'-9"	10'-3.4"		d2	*4	4			4'-4"	Bent			
											e,	*4	2			10'-3"	St.			
		Bevel Depth= 2"									e2	*4	1			10'-9"	St.			
		Length= 3"									e3	*4	1			9'-9"	St.			
											f	*5	2			8'-5"	St.			
											g	*5	2	4'-11"†-8"& 10'-3"		15'-8"	Bent			
											h	*5	2	2'-0"		8'-0"	St.			
											x,	*5	2	2'-0"-2'-9"& 5'-9"		9'-5"	Bent			
											x2	*5	2	2'-0"-3'-1"& 6'-5"		10'-1"	Bent			
											x3	*5	2	2'-0"-3'-5"& 7'-1"		10'-7"	Bent			
											x4	*5	2	2'-0"-3'-6"& 7'-8"		11'-3"	Bent			
											x5	*5	2	2'-0"-3'-7"& 8'-3"		11'-9"	Bent			
											x6	*5	2	2'-0"-3'-8"& 8'-10"		12'-5"	Bent			
											x7	*5	2	2'-0"-3'-9"& 9'-5"		13'-1"	Bent			
											x8	*5	2	2'-0"-4'-0"& 10'-0"		13'-8"	Bent			
54"	2:1	5'-5"	2'-8"	5'-5½"	6'-0"	17'-6¾"	8'-2"	11'-0"	11'-8.8"	12"	d,	*4	8			5'-11"	Bent	5.54	5.66	341.0
		5'-7"						0'-9"	10'-3.4"		d2	*4	4			4'-4"	Bent			
											e,	*4	2			10'-9"	St.			
		Bevel Depth = 2½"									e2	*4	1			10'-3"	St.			
		Length= 3½"									e3	*4	1			10'-9"	St.			
											f	*5	2			7'-7"	St.			
											g	*5	2	6'-1"†-3"& 7'-11"		16'-1"	Bent			
											h	*5	8			8'-6"	St.			
											x,	*5	2	2'-0"-3'-1"& 7'-3"		10'-3"	Bent			
											x2	*5	2	2'-0"-3'-7"& 7'-11"		11'-5"	Bent			
											x3	*5	2	2'-0"-3'-9"& 8'-7"		12'-1"	Bent			
											x4	*5	2	2'-0"-3'-10"& 9'-2"		12'-8"	Bent			
											x5	*5	2	2'-0"-4'-0"& 9'-10"		13'-4"	Bent			
											x6	*5	2	2'-0"-4'-1"& 10'-5"		14'-0"	Bent			
											x7	*5	2	2'-0"-4'-2"& 11'-0"		14'-7"	Bent			
											x8	*5	2	2'-0"-4'-3"& 11'-8"		15'-3"	Bent			
60"	2:1	6'-5"	2'-11"	6'-0"	6'-7"	19'-3¾"	9'-0"	11'-10"†	12'-0.8"	12"	d,	*4	9			6'-1"	Bent	6.64	6.78	382.0
		6'-2"						0'-9"	10'-3.4"		d2	*4	4			4'-4"	Bent			
											e,	*4	2			10'-9"	St.			
		Bevel Depth = 2½"									e2	*4	1			10'-3"	St.			
		Length= 3½"									e3	*4	1			13'-3"	St.			
											f	*5	2			7'-7"	St.			
											g	*5	2	6'-1"†-3"& 7'-11"		16'-1"	Bent			
											h	*5	8			8'-6"	St.			
											x,	*5	2	2'-0"-3'-1"& 7'-3"		10'-3"	Bent			
											x2	*5	2	2'-0"-3'-7"& 7'-11"		11'-5"	Bent			
											x3	*5	2	2'-0"-3'-9"& 8'-7"		12'-1"	Bent			
											x4	*5	2	2'-0"-3'-10"& 9'-2"		12'-8"	Bent			
											x5	*5	2	2'-0"-4'-0"& 9'-10"		13'-4"	Bent			
											x6	*5	2	2'-0"-4'-1"& 10'-5"		14'-0"	Bent			
											x7	*5	2	2'-0"-4'-2"& 11'-0"		14'-7"	Bent			
											x8	*5	2	2'-0"-4'-3"& 11'-8"		15'-3"	Bent			

* Dimensions for inlet wingwalls on corrugated metal or structural plate pipe (to accommodate bevel).

NOTES

The "Notes" and the "Construction Detail-Skewed Pipe" on Standard Sheet DR2 (Sheet 1 of 2) shall apply to this sheet.

Anchor bolts shall be used on wingwalls for corrugated metal and structural plate pipe greater than 48" in diameter. Anchor bolts are not required for concrete pipe.

Anchor bolts and nuts shall conform to the requirements for "Headwall Anchorage" hardware as stipulated in AASHTO Specification M-167. Anchor bolts and nuts shall be cleaned after galvanizing to provide a free running fit.

Cost of the anchor bolts and nuts shall be included in the unit price bid for the pipe.

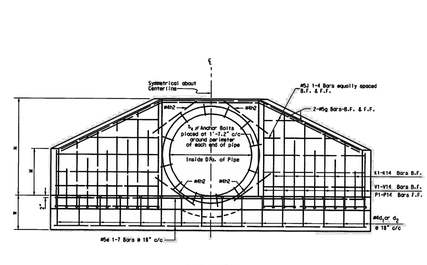
Right-of-way fence hardware inserts shall be installed in the sidewalls during the construction of wingwalls for pipes over 48" in diameter. Dimensions and location of inserts shall conform to the "Drainage Structure Terminal Installation" detail of the applicable right-of-way fence standard.

Waterstop meeting the requirements of 708.10 shall be placed as shown when concrete gutter is to abut the wingwall.

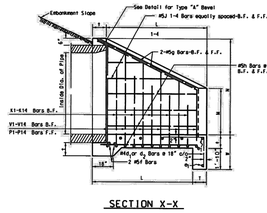
WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
STANDARD DETAIL

PREPARED 7-1-99
REVISION DATE

PIPE CULVERT WINGWALLS (SHEET 2 OF 4)



END VIEW



SECTION X-X

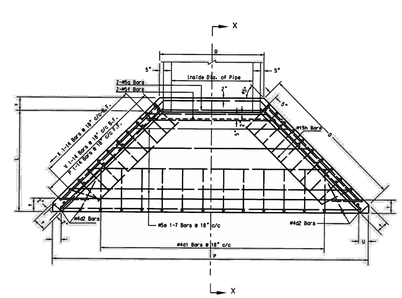
I.D. OF PIPE	SLOPE OF FILL	DIMENSIONS L	M	N	O	P	Q	T	U	W
72"	2:1	7'-4"	3'-6"	7'-7"	8'-0"	13'-3"	10'-9"	12"	65½"	2'-10"
84"	2:1	8'-6"	4'-0"	8'-2"	9'-2"	15'-3"	12'-5"	12"	65½"	2'-10"
90"	2:1	9'-0"	4'-3"	8'-4"	9'-4"	15'-9"	12'-10"	12"	65½"	2'-10"
108"	2:1	10'-10"	5'-0"	9'-0"	10'-4"	17'-9"	14'-5"	12"	65½"	2'-10"
120"	2:1	12'-0"	5'-6"	9'-6"	11'-0"	19'-0"	15'-6"	14"	65½"	2'-10"
144"	2:1	14'-4"	6'-6"	10'-6"	12'-0"	21'-6"	17'-7"	14"	65½"	2'-10"

NOTES

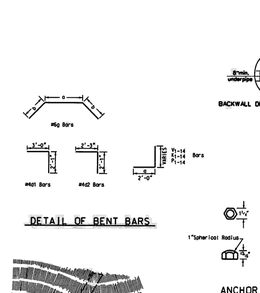
REINFORCING BAR DETAILS AND QUANTITIES ARE SHOWN ON SHEET 4 OF 4

B.F. DENOTES BACK FACE

F.F. DENOTES FRONT FACE

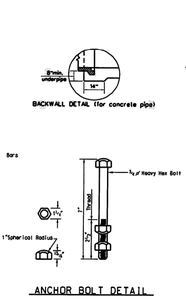


PLAN



SKEWED PIPE CONSTRUCTION DETAIL

DETAIL OF BENT BARS





ANCHOR BOLT AND BEVEL DETAIL

NOTES

NOTES ON THE STANDARD DETAIL DR2 SHEETS 1 & 2 AND 2 OF 2 SHALL APPLY TO THIS SHEET.

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
STANDARD DETAIL

PREPARED 7/1/99
REVISION DATE

PIPE CULVERT WINGWALLS (SHEET 3 OF 4)

STANDARD SHEET DR2

I.D. PIPE	SLOPE OF FILL	DIMENSIONS L	M	N	O	P	Q	REINFORCEMENT Mark	No.	Size	a	b	LENGTH TOTAL	SPAC.	TYPE	QUANTITY CONC (RCP) C.Y.	CONC (C.M.S. or S.P.P.) C.Y.	STEEL LBS.
72"	2:1	7'-4"	3'-6"	7'-7"	8'-0"	13'-3"	10'-9"	12"										
								d,	14	6			5'-1"	10" c-c	BENT	4.22	4.32	272
								d2	3	4			10'-9"	10" c-c	BENT			
								e,	3	2			10'-9"	10" c-c	STR.			
								e2	1	2			11'-0"		STR.			
								e3	1	2			11'-6"		STR.			
								f	3	2			7'-0"		STR.			
								g	3	2	4'-4"& 9'-1"		13'-5"	10" c-c	BENT			
								h	3	8			8'-0"		STR.			
								x,	3	2	2'-0"-2'-6"& 4'-6"		8'-8"	10" c-c	BENT			
								x2	3	2	2'-0"-3'-4"& 5'-4"		9'-4"	10" c-c	BENT			
								x3	3	2	2'-0"-3'-7"& 6'-1"		10'-1"	10" c-c	BENT			
								x4	3	2	2'-0"-3'-8"& 6'-8"		10'-8"	10" c-c	BENT			
								x5	3	2	2'-0"-3'-9"& 7'-3"		11'-3"	10" c-c	BENT			
								x6	3	2	2'-0"-4'-0"& 7'-10"		11'-10"	10" c-c	BENT			
								x7	3	2	2'-0"-4'-1"& 8'-5"		12'-6"	10" c-c	BENT			
								x8	3	2	2'-0"-4'-2"& 9'-0"		13'-2"	10" c-c	BENT			
											6" MOMENTS							
								m,	3	2	2'-0"	1'-0"	3'-0"	10" c-c	BENT			
								m2	3	2	2'-0"	3'-7"†	5'-7"	10" c-c	BENT			
								m3	3	2	2'-0"	4'-0"	6'-0"	10" c-c	BENT			
84"	2:1	8'-6"	4'-0"	8'-2"	9'-2"	15'-3"	12'-5"	12"										
								D	14	6			5'-1"	10" c-c	BENT	14.23	1005	
								d,	4	4			4'-4"	10" c-c	BENT			
								e,	3	2			10'-3"		STR.			
								e2	1	2			10'-9"		STR.			
								e3	1	2			11'-0"		STR.			
								f	3	2			7'-0"		STR.			
								g	3	2	4'-4"& 9'-1"		13'-5"	10" c-c	BENT			
								h	3	8			8'-0"		STR.			
								x,	3	2	2'-0"-2'-6"& 4'-6"		8'-8"	10" c-c	BENT			
								x2	3	2	2'-0"-3'-4"& 5'-4"		9'-4"	10" c-c	BENT			
								x3	3	2	2'-0"-3'-7"& 6'-1"		10'-1"	10" c-c	BENT			
								x4	3	2	2'-0"-3'-8"& 6'-8"		10'-8"	10" c-c	BENT			
								x5	3	2	2'-0"-3'-9"& 7'-3"		11'-3"	10" c-c	BENT			
								x6	3	2	2'-0"-4'-0"& 7'-10"		11'-10"	10" c-c	BENT			
								x7	3	2	2'-0"-4'-1"& 8'-5"		12'-6"	10" c-c	BENT			
								x8	3	2	2'-0"-4'-2"& 9'-0"		13'-2"	10" c-c	BENT			
											6" MOMENTS							
								m,	3	2	2'-0"	1'-0"	3'-0"	10" c-c	BENT			
								m2	3	2	2'-0"	3'-7"†	5'-7"	10" c-c	BENT			
								m3	3	2	2'-0"	4'-0"	6'-0"	10" c-c	BENT			
90"	2:1	9'-0"	4'-3"	8'-4"	9'-4"	15'-9"	12'-10"	12"										
								D	16	6			5'-7"	10" c-c	BENT	16.30	1185	
								d,	4	4			4'-4"	10" c-c	BENT			
								e,	3	2			10'-3"		STR.			
								e2	1	2			10'-9"		STR.			
								e3	1	2			11'-0"		STR.			
								f	3	2			7'-0"		STR.			
								g	3	2	4'-4"& 9'-1"		13'-5"	10" c-c	BENT			
								h	3	8			8'-0"		STR.			
								x,	3	2	2'-0"-2'-6"& 4'-6"		8'-8"	10" c-c	BENT			
								x2	3	2	2'-0"-3'-4"& 5'-4"		9'-4"	10" c-c	BENT			
								x3	3	2	2'-0"-3'-7"& 6'-1"		10'-1"	10" c-c	BENT			
								x4	3	2	2'-0"-3'-8"& 6'-8"		10'-8"	10" c-c	BENT			
								x5	3	2	2'-0"-3'-9"& 7'-3"		11'-3"	10" c-c	BENT			
								x6	3	2	2'-0"-4'-0"& 7'-10"		11'-10"	10" c-c	BENT			
								x7	3	2	2'-0"-4'-1"& 8'-5"		12'-6"	10" c-c	BENT			
								x8	3	2	2'-0"-4'-2"& 9'-0"		13'-2"	10" c-c	BENT			
											6" MOMENTS							
								m,	3	2	2'-0"	1'-0"	3'-0"	10" c-c	BENT			
								m2	3	2	2'-0"	3'-7"†	5'-7"	10" c-c	BENT			
								m3	3	2	2'-0"	4'-0"	6'-0"	10" c-c	BENT			

I.D. PIPE	SLOPE OF FILL	DIMENSIONS L	M	N	O	P	Q	REINFORCEMENT Mark	No.	Size	a	b	LENGTH TOTAL	SPAC.	TYPE	QUANTITY CONC (RCP) C.Y.	CONC (C.M.S. or S.P.P.) C.Y.	STEEL LBS.
96"																		
	2:1	10'-0"	5'-0"	9'-0"	10'-4"	17'-9"	14'-5"	d,	4	6			5'-7"	10" c-c	BENT	4.22	4.32	272
								d2	3	4			10'-9"	10" c-c	BENT			
								e,	3	2			10'-9"	10" c-c	STR.			
								e2	1	2			11'-0"		STR.			
								e3	1	2			11'-6"		STR.			
								f	3	2			7'-0"		STR.			
								g	3	2	4'-4"& 9'-1"		13'-5"	10" c-c	BENT			
								h	3	8			8'-0"		STR.			
								x,	3	2	2'-0"-2'-6"& 4'-6"		8'-8"	10" c-c	BENT			
								x2	3	2	2'-0"-3'-4"& 5'-4"		9'-4"	10" c-c	BENT			
								x3	3	2	2'-0"-3'-7"& 6'-1"		10'-1"	10" c-c	BENT			
								x4	3	2	2'-0"-3'-8"& 6'-8"		10'-8"	10" c-c	BENT			
								x5	3	2	2'-0"-3'-9"& 7'-3"		11'-3"	10" c-c	BENT			
								x6	3	2	2'-0"-4'-0"& 7'-10"		11'-10"	10" c-c	BENT			
								x7	3	2	2'-0"-4'-1"& 8'-5"		12'-6"	10" c-c	BENT			
								x8	3	2	2'-0"-4'-2"& 9'-0"		13'-2"	10" c-c	BENT			
											6" MOMENTS							
								m,	3	2	2'-0"	1'-0"	3'-0"	10" c-c	BENT			
								m2	3	2	2'-0"	3'-7"†	5'-7"	10" c-c	BENT			
								m3	3	2	2'-0"	4'-0"	6'-0"	10" c-c	BENT			
108"	2:1	10'-10"	5'-0"	9'-0"	10'-4"	17'-9"	14'-5"	12"										
								d,	4	6			5'-7"	10" c-c	BENT	5.07	5.19	327
								d2	3	4			10'-9"	10" c-c	BENT			
								e,	3	2			10'-9"	10" c-c	STR.			

GENERAL CONDITIONS - CODE COMPLIANT LANDSCAPE PLAN

SCOPE OF WORK
THE LANDSCAPE CONTRACTOR SHALL PROVIDE ALL MATERIALS, LABOR AND EQUIPMENT TO COMPLETE ALL LANDSCAPE WORK AS SHOWN ON THE PLANS AND SPECIFICATIONS.

NOTE: IF CONTRACTOR BIDS ACCORDING TO THE PLANT LIST, HE/SHE SHOULD THOROUGHLY CHECK THE PLANT LIST QUANTITIES WITH THE SYMBOLS DRAWN ON THE PLAN, TO BE SURE THERE ARE NO DISCREPANCIES. IF THERE IS A DISCREPANCY BETWEEN THE DRAWING AND THE LIST ON THE PLANS, THE DRAWING TAKES PRECEDENCE.

STANDARDS
ALL PLANT MATERIAL WILL CONFORM TO THE CURRENT ISSUE OF THE AMERICAN STANDARD FOR NURSERY STOCK PUBLISHED BY THE AMERICAN NURSERY & LANDSCAPE ASSOCIATION (ANLA).PLANT MATERIAL MUST BE SELECTED FROM NURSERIES THAT HAVE BEEN INSPECTED AND CERTIFIED BY STATE PLANT INSPECTORS.COLLECTED MATERIAL MAY BE USED ONLY WHEN APPROVED BY OWNER'S REPRESENTATIVE.NOMENCLATURE WILL BE IN ACCORDANCE WITH HORTUS III BY L.H. BAILEY.

SUBSTITUTIONS: PRE-BID
IT IS THE LANDSCAPE CONTRACTOR'S RESPONSIBILITY TO MAKE EVERY REASONABLE EFFORT TO FIND THE PLANTS SPECIFIED BY THE LANDSCAPE ARCHITECT. THE LANDSCAPE CONTRACTOR MAY OFFER SUBSTITUTIONS TO THE LANDSCAPE ARCHITECT FOR HIS/HER CONSIDERATION. THE LANDSCAPE CONTRACTOR WILL NOTIFY THE LANDSCAPE ARCHITECT IF THERE ARE KNOWN
DISEASES OR INSECT RESISTANT SPECIES THAT CAN BE SUBSTITUTED FOR A SELECTED PEST-PRONE PLANT. THE CONTRACTOR SHALL SUBMIT A BASE BID AS PER PLAN PLUS PRICE CLARIFICATIONS FOR ALL RECOMMENDED SUBSTITUTIONS.

SUBSTITUTIONS: POST-BID
IT IS THE INTENT TO ELIMINATE POST-BID SUBSTITUTIONS. HOWEVER, IN THE EVENT THAT THE CONTRACT MATERIAL HAS BECOME UNAVAILABLE, AN APPROPRIATE SUBSTITUTION MUST BE APPROVED BY THE OWNER'S REPRESENTATIVE.

UTILITIES AND UNDERGROUND FEATURES
THE LANDSCAPE CONTRACTOR SHALL NOTIFY UTILITY COMPANIES AND/OR THE GENERAL CONTRACTOR IN ADVANCE OF CONSTRUCTION TO LOCATE UTILITIES.

TREES AND/OR SHRUBS SHALL NOT BE PLACED WITHIN WATER AND SEWER EASEMENTS

IF THERE IS A CONFLICT WITH UTILITIES AND THE PLANTING, THE LANDSCAPE ARCHITECT SHALL BE RESPONSIBLE FOR RELOCATING PLANTS PRIOR TO THE PLANTING PROCESS. ANY COST DUE TO RELOCATING AFTER PLANTING SHALL BE BORNE BY THE OWNER. IF PLANTS ARE TO BE INSTALLED IN AREAS THAT SHOW OBVIOUS POOR DRAINAGE, AND THE PLANTS ARE INAPPROPRIATE FOR THAT CONDITION, THE LANDSCAPE CONTRACTOR SHALL NOTIFY THE LANDSCAPE ARCHITECT AND OWNER. IF THEY DEEM NECESSARY, THE PLANTS SHALL BE RELOCATED, THE CONTRACT SHALL BE ADJUSTED TO ALLOW FOR DRAINAGE CORRECTION AT A NEGOTIATED COST, OR THE PLANT SELECTION MODIFIED BY THE LANDSCAPE ARCHITECT TO ACCOMMODATE THE POOR DRAINAGE.

WARRANTY
THE STANDARD WARRANTY IS FOR ONE (1) YEAR PERIOD, EXCLUDING BULBS, SOD AND ANNUALS, COMMENCING ON THE DATE OF INITIAL ACCEPTANCE. ALL PLANTS SHALL BE ALIVE AND IN SATISFACTORY GROWTH AT THE END OF THE GUARANTEE PERIOD. ANY MATERIAL THAT IS 25% DEAD OR MORE SHALL BE CONSIDERED DEAD AND MUST BE REPLACED AT NO CHARGE. A TREE SHALL BE CONSIDERED DEAD WHEN THE MAIN LEADER HAS DIED BACK, OR 25% OF THE CROWN IS DEAD. REPLACEMENTS SHALL BE MADE DURING THE NEXT PLANTING PERIOD. REPLACEMENTS SHALL BE OF THE SAME TYPE, SIZE AND QUALITY AS ORIGINAL SPECIES UNLESS OTHERWISE NEGOTIATED.

CONTAINER - GROWN STOCK
1. THE SIZE OF CONTAINER-GROWN SHRUBS IS MEASURED BY HEIGHT AND WIDTH OF THE PLANT.
CONTAINER-GROWN TREES
ARE MEASURED BY THE SAME STANDARDS LISTED IN B.3. ABOVE. THE ROOT SYSTEM OF CONTAINER-GROWN PLANTS SHALL
BE WELL DEVELOPED AND WELL DISTRIBUTED THROUGH OUT THE CONTAINER.

2. ALL CONTAINER-GROWN TREES AND SHRUBS THAT HAVE CIRCLING (GIRDLING) AND MATTED ROOTS SHALL BE TREATED IN
THE FOLLOWING MANNER PRIOR TO PLANTING: SEPARATE THE ROOTS BY HAND, UNTANGLING SO CIRCLING ROOTS WILL NOT
DAMAGE FUTURE OF THE PLANT. SEE PLANTING PROCEDURES FOR ALL CONTAINER-GROWN TREES & SHRUBS IN THIS SECTION.

3. ALL CONTAINER-GROWN PLANTS SHOULD BE GROUPED AND WATERED DAILY UNTIL THEY ARE PLANTED IN THE

LANDSCAPE, THE SOIL SHALL BE KEPT MOIST WITH THE EQUIVALENT OF ONE-INCH OF RAINFALL PER WEEK.

4. PRUNING SHALL BE DONE BEFORE PLANTING OR DURING THE PLANTING OPERATION. PRUNING DETAIL FOR TREES IN THIS SECTION.

5. ALL PLANT MATERIAL IN TRANSIT SHALL BE COVERED TO KEEP MATERIAL FROM DRYING OUT. THE COVERING SHALL COMPLY WITH THE STATE AND LOCAL LAWS PERTAINING TO THE TRANSPORT OF MATERIALS.

6. TREES SHALL BE PLACED IN AN UPRIGHT POSITION WITH THE ROOTBALL COVERED BY MULCH AND KEPT MOIST. TREES AND SHRUBS SHOULD NOT BE LEFT ON SITE UNPLANTED FOR MORE THAN 24-HOURS WITHOUT ADEQUATE WATER TO INSURE ROOT SURVIVAL.

INSPECTION
A. PLANTS MAY BE SUBJECT TO INSPECTION AND APPROVAL BY THE OWNER OR OWNER'S REPRESENTATIVE AT THE PLACE OF GROWTH OR HOLDING YARD FOR CONFORMITY TO SPECIFICATION REQUIREMENTS AS TO QUALITY, SIZE AND VARIETY.

B. PLANTS DAMAGED IN HANDLING OR TRANSPORTATION CAN BE REJECTED BY THE OWNER OR OWNER'S REPRESENTATIVE.

C. STATE NURSERY INSPECTION CERTIFICATES SHALL BE FURNISHED TO THE LANDSCAPE ARCHITECT UPON REQUEST.

STANDARDS
A. PLANTS WILL BE IN ACCORDANCE WITH THE CURRENT ANLA'S STANDARDS AND CONFORM IN GENERAL TO REPRESENTATIVE SPECIES.

B. BALLED AND BURLAPPED (B&B)
1. BALLED AND BURLAPPED PLANTS SHALL BE DUG WITH FIRM ROOT BALLS FREE OF NOXIOUS WEEDS. THERE SHOULD BE NO EXCESS SOIL ON TOP OF THE ROOTBALL OR AROUND THE TRUNK
2. BALL SIZES SHALL BE IN ACCORDANCE WITH ANLA STANDARDS.
3. CALIPER AND HEIGHT MEASUREMENT: IN SIZE GRADING B&B SINGLE TRUNK TREES, CALIPER SHALL TAKE PRECEDENCE OVER HEIGHT. CALIPER OF THE TRUNK SHALL BE TAKEN 6" ABOVE GROUND LEVEL (UP TO AND INCLUDING 4" CALIPER SIZE) AND 12" ABOVE THE GROUND LEVEL FOR LARGER TREES. FOR MULTIPLE-TRUNK TREES, HEIGHT MEASUREMENT SHALL TAKE PRECEDENCE OVER CALIPER.

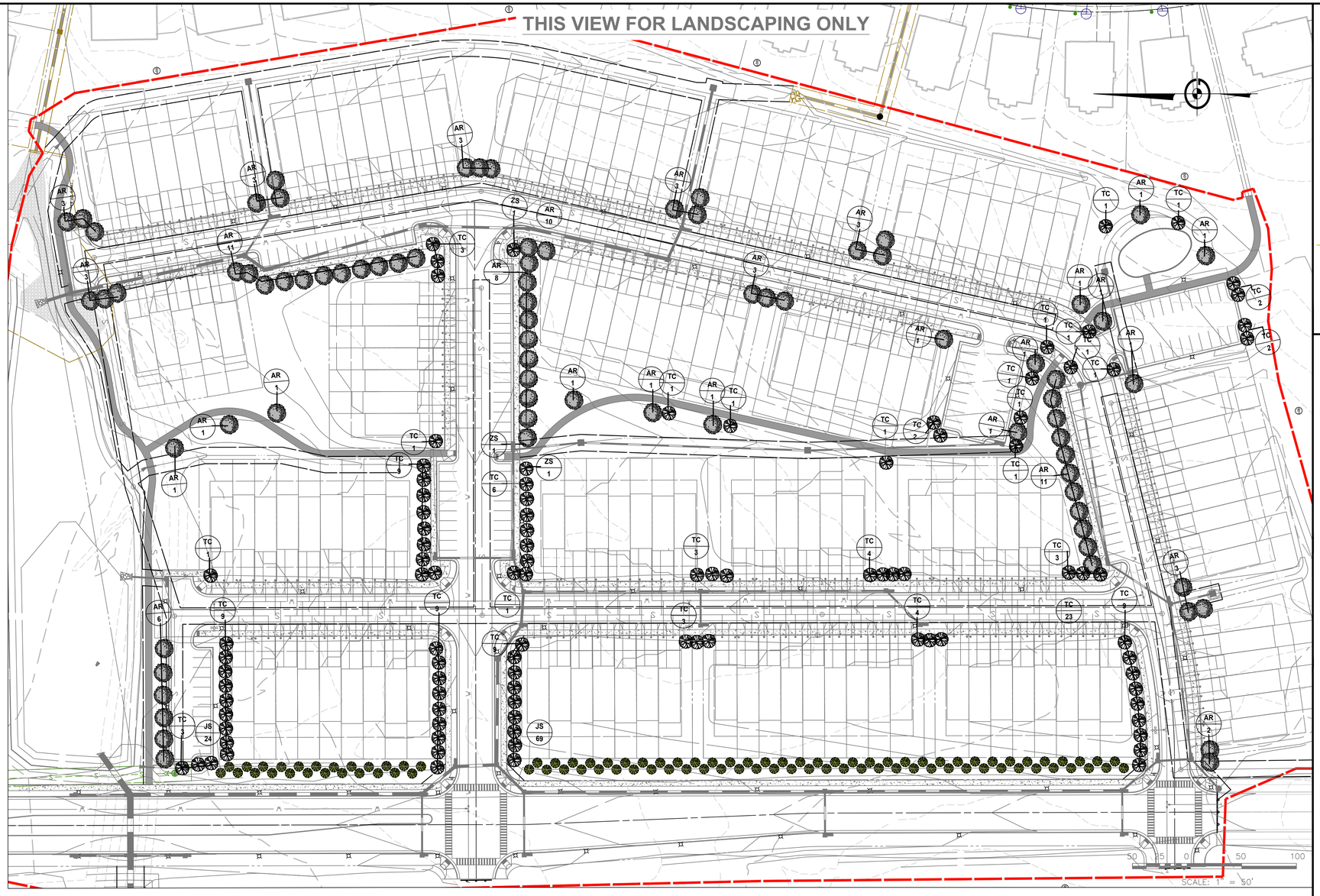
NOTES:

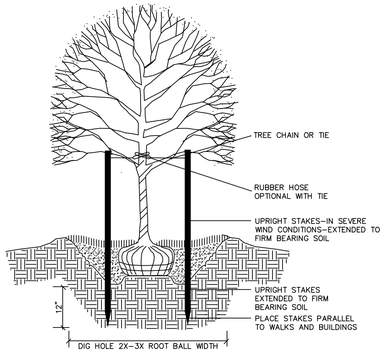
1) ALL PLANTING SHALL CONFORM WITH SECTION 1333.15, BUFFER AND SCREENING STANDARDS,AND/OR SECTION 1333.16, LANDSCAPING STANDARDS OF THE CHARLESTOWN SUBDIVISION AND LAND DEVELOPMENT ORDINANCE

2) ANY PLANT SUBSTITUTIONS MUST BE APPROVED IN WRITING BY THE CHARLESTOWN DEPARTMENT OF COMMUNITY DEVELOPMENT ZONING AND PLANNING DIVISION.

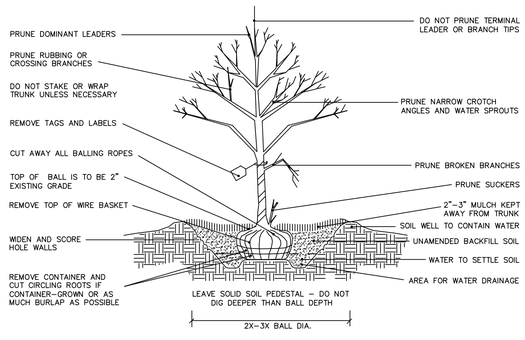
3) ANY TREES LOCATED ON AN INDIVIDUAL LOT WILL BE INSTALLED PRIOR TO THE REQUEST FOR AN OCCUPANCY PERMIT FOR THAT SPECIFIC LOT. ALL OTHER LANDSCAPING SHOWN ON THIS PLAN WILL BE INSTALLED PRIOR TO BOND RELEASE.

4.) ALL GRADED/DISTURBED AREAS WITHIN THE PROJECT LIMITS EXCEPT FOR BUT NOT LIMITED TO WALKS, ROADS, DRIVES, TEMPORARY EASEMENTS UNDER CULTIVATION, AND AREAS DESIGNATED AS PLANTING BEDS SHALL BE SODDED OR SEEDED





TREE PLANTING – VERTICAL STAKES
TREES <4" CAL. SCALE: NOT TO SCALE



TREE PLANTING DETAIL
TREES <4" CAL. SCALE: NOT TO SCALE

PLANT SCHEDULE

ABB	BOTANIC NAME	COMMON NAME	QUANTITY	SIZE
PROPOSED TREE PLANTINGS				
Ar*	Acer Rubrum 'Franksred'	Red Sunset Red Maple	80	2" cal, B&B
Tc*	Tilia chordata 'Greenspire'	Greenspire Littleleaf Linden	97	2" cal, B&B
Js	Juniperus scopulorum 'Skyrocket'	Skyrocket juniper	93	2" cal, B&B

*162 total street trees — 270 total trees

STREET TREE PLANTING:
1 TREE EVERY 50' OF STREET FRONTAGE. UP TO 10% OF THE TOTAL NUMBER FOR STREET TREES REQUIRED MAY BE PLANTED IN DESIGNATED OPEN SPACE AREAS.

PHASE 15 STREET FRONTAGE:
8,042 LF STREET FRONTAGE, 8,042/50 = 161 TREES REQ
162 TOTAL TREES PROVIDED

PHASE 15 PARKING LOT LANDSCAPING:
1 TREE SHALL BE PROVIDED FOR EVERY 2,000 SQUARE FEET OF IMPERVIOUS AREA FOR THE FIRST 100,000 SQUARE FEET OF THE TOTAL SITE.
31,001.84 SQFT PARKING LOT AREA: 31,001.84/2000 SQFT= 16 TREES REQ

ROAD BUFFER CANDLEWOOD DRIVE: ONE CONTINUOUS ROW OF CONIFEROUS TREES SPACED 12 FEET ON CENTER AND TWO STAGGERED ROW SPACED 8 FEET APART.

LEGEND

- Deciduous Trees (Street Trees/Parking Lot Landscaping)
- Deciduous Trees (Street Trees/Parking Lot Landscaping)
- Evergreen Trees (Buffer Plantings)

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OFFICES IN: WINCHESTER, VA & MARTINSBURG, WV

LANDSCAPE PLAN

NORBORNE GLEBE

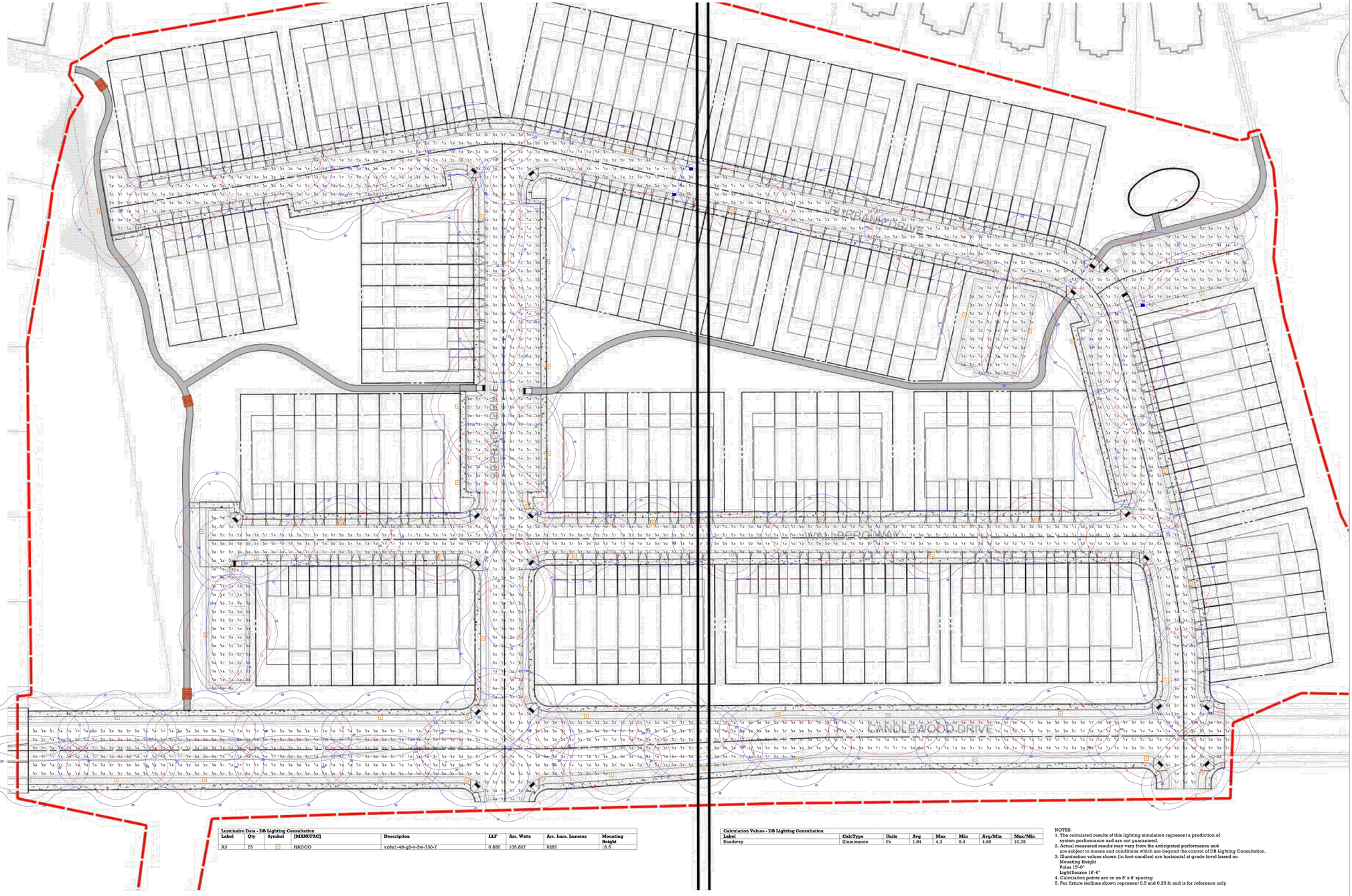
PHASE 15
CHARLES TOWN CORP. DISTRICT (3)
CITY OF CHARLES TOWN - JEFFERSON COUNTY, WV

Rev. No.	Date

RANDY L KEPLER — REGISTERED — 17223 — STATE OF WEST VIRGINIA — PROFESSIONAL ENGINEER

DATE:	08/24/2022
SCALE:	1" = 50'
DESIGNED BY:	AM/CC
FILE NO.	4542A
SHEET	47 OF 55

22-03



Luminaire Data - DB Lighting Consultation

Label	Qty	Symbol	[MANUFAC]	Description	LLF	Arr. Watts	Arr. Lum. Lumens	Mounting Height
A3	73		HADCO	vx6x1-48-g3-y-3w-730-7	0.850	105.837	8287	i6.5

Calculation Values - DB Lighting Consultation

Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
Roadway	Illuminance	Fc	1.84	4.3	0.4	4.60	10.75

NOTES:
1. The calculated results of this lighting simulation represent a prediction of system performance and are not guaranteed.
2. Actual measured results may vary from the anticipated performance and are subject to means and conditions which are beyond the control of DB Lighting Consultation.
3. Illumination values shown (in foot-candles) are horizontal at grade level based on
   Mounting Height
   Poles 15'-0"
   Light Source 16'-6"
4. Calculation points are on an 8' x 8' spacing
5. Per fixture isolines shown represent 0.5 and 0.25 fc and is for reference only

Scale: 1 inch= 40 Ft.

DB Lighting Consultation (DBLC) assumes no responsibility for any errors in the IES files, background images, or other information provided to DBLC to be used in these calculations.
Actual or measured results may vary due to manufacturer tolerances, component malfunctions, obstructions, varying surface reflectance's and other field conditions.
The owner assumes all responsibility for compliance with federal, state and/or local codes and regulations.

Prepared For:
Dan Murphy

Prepared by:
DB Lighting Consultation
407-924-4113

Greenway Engineering
151 Windy Hill Ln.,
Winchester, VA 22602

Rev	Date	Comments
..	.....	.....
..	.....	.....
..	.....	.....
..	.....	.....
..	.....	.....

Revisions

Project Name: **Norborne Glebe Phase 15**
Project ID Number: **2022-903**
Date: **08/22/2022**

24" x 36"
Page 1 of 1

NOTE:
FIXTURE TYPE AND COUNT TO BE CONFIRMED BY OWNER AND POWER COMPANY PRIOR TO ORDERING.

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LIGHTING PLAN
NORBORNE GLEBE
PHASE 15
CHARLES TOWN CORP. DISTRICT (3)
CITY OF CHARLES TOWN - JEFFERSON COUNTY, WV

Rev. No.	Date

RANDY L KEPLER
REGISTERED
17223
STATE OF
WEST VIRGINIA
PROFESSIONAL ENGINEER

DATE: 08/24/2022
SCALE: N/A
DESIGNED BY: AM/CC
FILE NO. 4542A
SHEET 48 OF 55
22-03

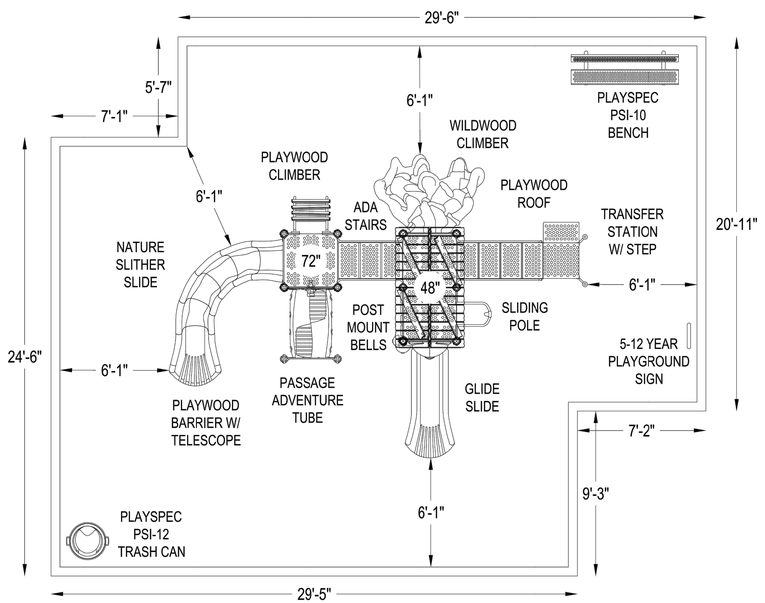
Potomac Edison, WV EMU

Picture	Description	Wattage	Type	Lumens
	Open Luminaire (note 5)	100	HPS	9500
	Open Luminaire	100	HPS	9500
	Cobra Head	~~175~~	~~MV~~	~~8150~~
		100	HPS	9500
		200	HPS	22000
		400	HPS	50000
		400	MH	36000
		1000	MH	90000
	Shoebox	100	HPS	9500
		200	HPS	22000
		400	HPS	50000
		100	HPS	9500
		200	HPS	22000
		400	HPS	50000
		100	HPS	9500
		200	HPS	22000
		400	HPS	50000
		400	MH	36000
		400	MH	36000
		400	MH	36000
		1000	MH	90000
		1000	MH	90000
	Floodlight	200	HPS	22000
		400	HPS	50000
		400	MH	36000
		1000	MH	90000
	Colonial Post Top	100	HPS	9500
		175	MH	11600

Notes:
1. Use specified Lighting or an approved equal.
2. Light pole base detail to be provided by the lighting designer/contractor.

SECTION 1333.14, LIGHTING STANDARDS
(A) Public Street Lighting. Street lights are required for all new Public Streets in accordance with the following standards:
1. Lights shall be provided along all City Streets and shall conform to Article 926, Underground Utilities, of the Charles Town Codified Ordinance.
2. Lights shall be provided at all entrances, intersections, and Cul-de-sacs.
3. Lights shall be spaced no more than two hundred (200) feet apart in residential areas, and no more than three hundred (300) feet apart in non-residential areas.
4. Lights shall use a white metal halide lighting system.
5. Lights shall conform to the power provider's requirements pertaining to watts, lumens, downlight reflectors and residential shields.
6. Lights shall be mounted on flat black poles with acorn style tops, unless otherwise specified by the Planning Commission.
7. Lights proposed within Land Developments and Subdivisions shall be provided without any installation or equipment costs incurred by the City of Charles Town.

NOTE: AN EQUIVALENT TOT LOT MAY BE USED DUE TO AVAILABILITY.



*PLAYGROUND SUPERVISION REQUIRED

PLAYWORLD

PLAYGROUND SPECIALISTS INC.
29 APPLES CHURCH RD
THURMONT, MD 21788

EQUIPMENT SIZE: **X' x Y' x Z'**

USE ZONE: **X' x Y'**

AREA: **931 SqFt.** PERIMETER: **130 Ft.**

FALL HEIGHT: **6 Ft.**

USER CAPACITY: **32** AGE GROUP: **5-12**

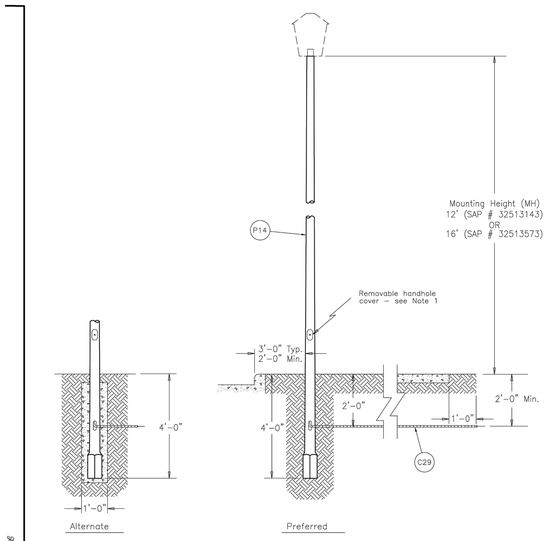
ADA SCHEDULE

	Total Elevated Play Activities: X		
	Total Ground-Level Play Activities: X		
	Accessible Elevated Activities	Accessible Ground-Level Activities	Accessible Ground-Level Play Types
Required	X	X	X
Provided	X	X	X

✓ ASTM F1487-11
✓ CPSC #325

PROJECT NO: **P021218-12B** SCALE: **1/4"=1'-0"**
DRAWN BY: **SSHEEHY** Paper Size **B**
DATE: **16-FEB-18**

Upper Lakes
Area 3



APPROVED BY: *RAK/RJB*

Notes:
1. Future page to be added for connection and fusing details.
2. Luminares should be grounded to neutral terminal if not grounded by manufacturer.
3. Install concrete foundation in poor soil conditions such as soft clay, heavy silt, or areas where standing water is common. Round fiber forms should be used for concrete foundation.
4. For field identification of high intensity discharge (HID) lamps, see Standard 16–020.

Embedded Fiberglass Post For Post Top Luminaires

FirstEnergy
Construction Std. 16–210 REV. 1 DATE 8/16

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SITE DETAILS

NORBORNE GLEBE

PHASE 15
CHARLES TOWN CORP. DISTRICT (3)
CITY OF CHARLES TOWN - JEFFERSON COUNTY, WV

Rev. No.	Date
1	09/19/2022

RANDY L KEPLER
REGISTERED
17223
STATE OF
WEST VIRGINIA
PROFESSIONAL ENGINEER

DATE: 08/24/2022
SCALE: N/A
DESIGNED BY: AM/CC
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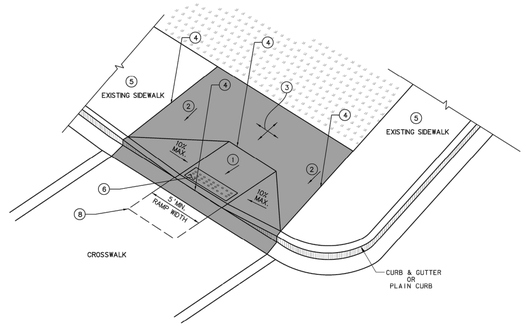
SHEET 49 OF 55

22-03



TYPE I RAMP

LEGEND

1. 8.33% (12:1) MAXIMUM RAMP SLOPE INCLUDING CONSTRUCTION TOLERANCE SLOPE OF RAMP SHALL CARRY THROUGH TO FACE OF CURB
2. CROSS SLOPE: 2.00% MAXIMUM INCLUDING CONSTRUCTION TOLERANCE
3. CURB RAMPS REQUIRE A (5'-0") MINIMUM TURNING SPACE WHERE PEDESTRIANS PERFORM TURNING MANEUVERS WITH A MAXIMUM CROSS SLOPE OF 2% AND LONGITUDINAL SLOPE MATCHING ROADWAY
4. GRADE BREAK REQUIRED TO BE FLUSH (0") AND PERPENDICULAR TO PEDESTRIAN PATH OF TRAVEL
5. IF SIDEWALK IS EXISTING AND NON-COMPLIANT SEE "TRANSITION TO EXISTING NON-COMPLIANT SIDEWALK" DETAIL SHEET 12
6. DETECTABLE WARNING SURFACE SEE "DETECTABLE WARNING SURFACE (DWS)" DETAIL SHEET 11
7. CURB WALL OR CHEEK WALL AS DICTATED BY FIELD CONDITIONS, SEE "EXISTING ADJACENT SURFACE TRANSITION" DETAIL SHEET 13
8. CLEAR SPACE - WIDTH OF CURB RAMP AND EXTENDING 4' MINIMUM
9. 3/4" CHAMFER EDGE

PAY LIMITS FOR CURB RAMPS (EXCLUDING DWS)

NOTES

THE TYPE OF RAMP TO BE USED SHALL BE AS SPECIFIED ON THE PLANS. THESE STANDARDS CAN BE CONSIDERED GUIDELINES IN SELECTING RAMP TYPES, HOWEVER THEY CAN BE DEVIATED FROM WITH A SPECIAL DETAIL AS NOTED IN PLANS.

RAMP CONCRETE SHALL MEET THE REQUIREMENTS OF SECTION 609 OF THE CURRENT WVDOT, DOH STANDARD SPECIFICATIONS ROADS AND BRIDGES AND ANY SUBSEQUENT DOH SUPPLEMENTAL SPECIFICATIONS, AND THE PUBLIC RIGHTS OF WAY ACCESSIBILITY GUIDELINES (PROWAG) DATED JULY 26, 2011. RAMP SURFACE SHALL INCLUDE A "DETECTABLE WARNING SURFACE" (SEE PVT7 SHT. 11 OF 13) AS SHOWN FOR EACH RAMP TYPE, A COARSE BROOM FINISH, TRANSVERSE TO FLARE SLOPES, OR EQUAL NON-SKID FINISH SHALL BE PROVIDED ON CONCRETE SURFACES.

NORMAL GUTTER FLOW LINE AND PROFILE SHALL BE MAINTAINED THROUGH THE RAMP AREA, UNLESS OTHERWISE SHOWN OR SPECIFIED. POSITIVE DRAINAGE MUST BE MAINTAINED SO THAT NO PONDING OCCURS WITHIN THE RAMP OR CLEAR SPACE AREA.

1/4" MINIMUM, 1/2" MAXIMUM PREFORMED EXPANSION JOINT FILLER, MEETING THE REQUIREMENTS OF SECTION 609 OF THE SPECIFICATIONS, AS NOTED ABOVE, SHALL BE PLACED AT ALL LOCATIONS WHERE RAMP CONTACTS CURB, GUTTER, CONCRETE PAVEMENT, OR OTHER RIGID OBJECTS.

WHERE EXISTING SIDEWALK CONNECTS TO PROPOSED SIDEWALK OR RAMPS, EXPANSION JOINTS ALONG WITH DOWEL BARS WILL BE PLACED. DOWEL BARS WILL BE UTILIZED BETWEEN EXISTING AND PROPOSED TO REDUCE VERTICAL CHANGE. SEE SHEET 11 FOR ADDITIONAL INFORMATION.

SAWCUTS WILL BE UTILIZED DURING DEMOLITION OF EXISTING SIDEWALKS. SIMILAR METHODS MAY BE USED UPON APPROVAL BY FIELD ENGINEER.

RAMPS SHALL NOT BE PLACED IN LINE WITH DRAINAGE STRUCTURES. LOCATION OF THE RAMP SHALL TAKE PRECEDENCE OVER LOCATION OF THE DRAINAGE STRUCTURE, EXCEPT WHERE EXISTING STRUCTURES ARE BEING UTILIZED FOR CONSTRUCTION OF NEW RAMPS.

ANY GRATE IN PEDESTRIAN AREAS SHALL HAVE OPENINGS NOT GREATER THAN 1/2" AND SHALL BE PLACED WITH LONG DIMENSION OF OPENING PERPENDICULAR TO THE DIRECTION OF PEDESTRIAN TRAVEL.

IF THE 8.33% (12:1) SLOPE CANNOT BE OBTAINED DUE TO GRADE OF THE ADJACENT ROADWAY, THE SLOPED PORTION OF THE RAMP SHALL BE EXTENDED TO A MINIMUM LENGTH OF 15'-0".

EXISTING CROSS WALK AND STOP BAR MARKINGS TO BE ERADICATED AND RELOCATED AS DICTATED BY PROPOSED RAMP LOCATIONS. COST NOT INCIDENTAL TO COST OF PROPOSED RAMP.

CURB RAMP WIDTH SHALL MATCH SIDEWALK WIDTH PLUS CLEARANCE. TYPICAL SIDEWALK WIDTH IS 5' MINIMUM. RAMP WIDTHS LESS THAN 5' REQUIRE DIVISION/DISTRICT ENGINEER APPROVAL. WIDTHS LESS THAN 4' REQUIRE AN EXCEPTION JUSTIFICATION REPORT. SEE SHEET 11 FOR INFORMATION REGARDING RAMP THICKNESS.

GRADE BREAKS SHALL BE PERPENDICULAR TO THE DIRECTION OF THE RAMP RUN. SURFACE SLOPES THAT MEET AT GRADE BREAKS SHALL BE FLUSH.

CLEAR SPACE- BEYOND THE BOTTOM GRADE BREAK, A CLEAR SPACE THE WIDTH OF THE CURB RAMP AND EXTENDING 4' MINIMUM INTO THE ABUTTING ROADWAY SHALL BE PROVIDED WITHIN THE WIDTH OF THE PEDESTRIAN STREET CROSSING AND WHOLLY OUTSIDE THE PARALLEL TRAVEL LANE. SURFACE TO MATCH EXISTING. ANY CLEAR SPACE WORK TO BE COMPLETED WILL BE INCIDENTAL TO THE COST OF THE RAMP.

ALL CURB RAMPS SHALL BE CONSTRUCTED TO PROVIDE ACCESS TO EXISTING OPERABLE PARTS. AN EXAMPLE OF THIS WOULD BE PEDESTRIAN PUSH BUTTONS.

NOT TO SCALE

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
STANDARD DETAIL

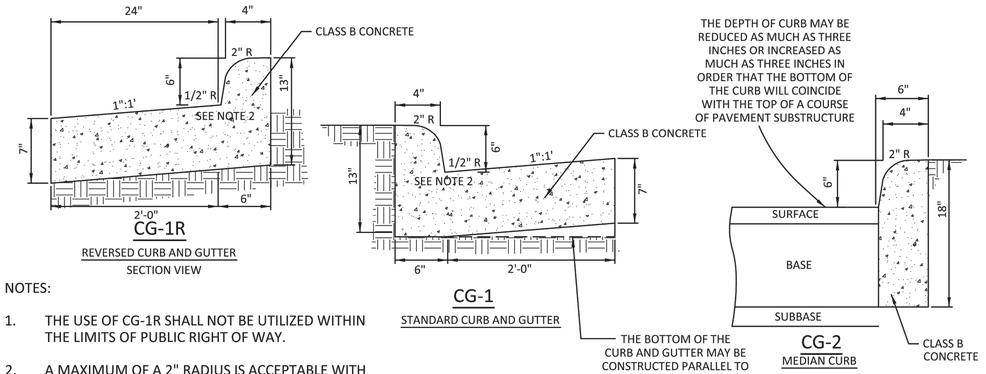
PREPARED 1-1-1988
REVISED DATE
10/20/10
5/15/15
10/20/20

SIDEWALK RAMPS
(Sheet 1 of 13)
TYPE I RAMP

STANDARD SHEET PVT 7

TYPICAL COMBINATION CURB AND GUTTER

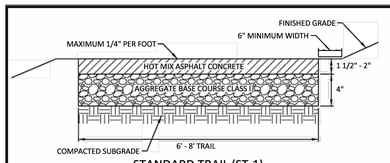
N.T.S.



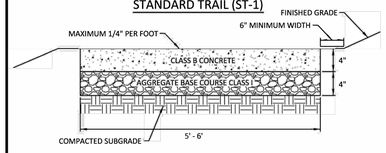
NOTES:

1. THE USE OF CG-1R SHALL NOT BE UTILIZED WITHIN THE LIMITS OF PUBLIC RIGHT OF WAY.
2. A MAXIMUM OF A 2" RADIUS IS ACCEPTABLE WITH CURB AND GUTTER.
3. SUBGRADE FOR ALL CURB AND GUTTER SHALL BE COMPACTED TO 95 PERCENT DENSITY AT OPTIMUM MOISTURE TO THE FULL WIDTH OF RIGHT OF WAY IN ACCORDANCE WITH AASHTO, T99.

(MODIFIED) SOURCE: CITY OF CHARLES TOWN DETAIL CG-1, CG-1R, AND CG-2)



STANDARD TRAIL (ST-1)



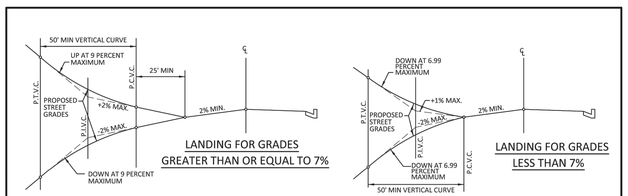
STANDARD SIDEWALK (SW-1)

NOTES:

1. ALL PEDESTRIAN AND BIKE TRAILS LOCATED OUTSIDE OF CITY OF CHARLESTOWN RIGHT OF WAY SHALL BE A MINIMUM OF 5' IN WIDTH FOR SIDEWALKS, 6' FOR ALL PEDESTRIAN TRAILS, AND 8' FOR ALL BIKE TRAILS.
2. A PRIVATE ACCESS EASEMENT SHALL BE PROVIDED FOR ALL SIDEWALKS AND TRAILS OUTSIDE OF CITY OF CHARLES TOWN RIGHT OF WAY AND SHALL INCLUDE A MINIMUM OF 3' OF WIDTH ON BOTH SIDES OF THE TRAIL OR SIDEWALK.
3. THE MAXIMUM GRADE FOR ALL PEDESTRIAN TRAILS SHALL BE 10%.
4. THE MAXIMUM GRADE FOR ALL BIKE TRAILS SHALL BE 8%, EXCEPT UP TO 15% IS ALLOWED FOR DISTANCES OF LESS THAN 150 FEET.
5. APPROPRIATE LIGHTING AND SIGNAGE, LANDSCAPING, BUFFERING AND DRAINAGE MEASURES, ALONG WITH CONSIDERATIONS FOR SECURITY SHALL BE INCORPORATED IN THE DESIGN OF THESE FACILITIES.

NOT TO SCALE

	TRAIL AND TYPICAL SIDEWALK City of Charles Town	ST-1 SW-1

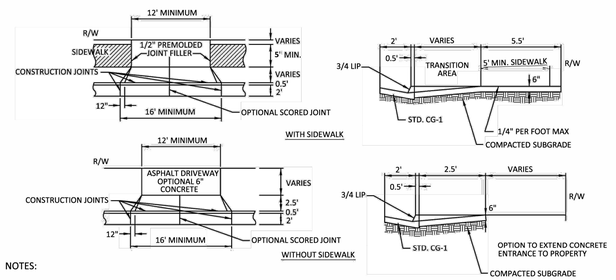


NOTES:

1. THE P.C.V.C. AS SHOWN ON THE DETAIL FOR LANDINGS WITH GRADES LESS THAN 7% SHALL BEGIN AT THE FACE OF CURB ON A CURB AND GUTTER SECTION OR AT THE EDGE OF PAVEMENT ON A SECTION WITHOUT CURB AND GUTTER.
2. THE 25' MINIMUM VERTICAL CURVE AS SHOWN ON THE DETAIL FOR LANDINGS WITH GRADES EQUAL TO OR GREATER THAN 7% SHALL BEGIN AT THE FACE OF CURB ON A CURB AND GUTTER SECTION OR AT THE EDGE OF PAVEMENT ON A SECTION WITHOUT CURB AND GUTTER.

NOT TO SCALE

	INTERSECTION LANDING REQUIREMENTS City of Charles Town	

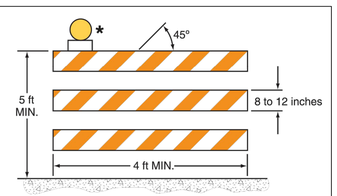


NOTES:

1. GRADING PLANS MUST PROVIDE FOR ADEQUATE VEHICULAR CLEARANCE FOR DRIVEWAY APPROACH, DEPARTURE, AND BREAKOVER TRANSITIONS.

NOT TO SCALE

	DRIVEWAY ENTRACE WITH CURB AND GUTTER City of Charles Town	DE-2



TYPE 3 BARRICADE **

* Warning lights (optional)

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CITY OF CHARLES TOWN DETAILS

NORBORNE GLEBE

PHASE 15
CHARLES TOWN CORP. DISTRICT (3)
CITY OF CHARLES TOWN - JEFFERSON COUNTY, WV

Rev. No.	Date

RANDY L. KEPLER
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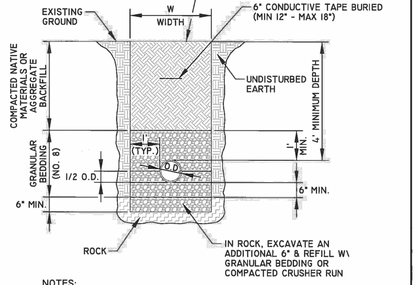
DATE: 08/24/2022
SCALE: N/A
DESIGNED BY: AM/CC
FILE NO. 4542A
SHEET 50 OF 55

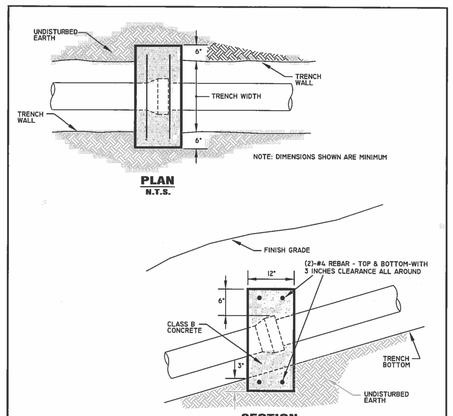
22-03



NOTES:

1. W = MAXIMUM PERMISSIBLE TRENCH WIDTH, BASED UPON, W = O.D. + 24", UNLESS APPROVED BY THE ENGINEER.
2. TRENCHES TO BE SHEETED AND BRACED AS REQUIRED.
3. PROVIDE BEARING FOR FULL LENGTH OF BARREL, DIG HOLES FOR THE BELL.
4. BACKFILL ON SIDES TO 1/2 O.D. OF PIPE TO HOLD PIPE IN PLACE PRIOR TO PLACING ADDITIONAL BEDDING.
5. BACKFILL TO BE COMPACTED IN 6" LAYERS TO 95% OF MAXIMUM DENSITY AT OPTIMUM MOISTURE (+2%) IN ROADS AND STREETS. COMPACT TO MATCH EXISTING GROUND IN OTHER AREAS.
6. MAINTAIN MINIMUM OF 4' OF COVER TO THE TOP OF PIPE.
7. A CASING PIPE SHALL BE REQUIRED IN ROAD CROSSINGS WHERE SHOWN ON PLANS
8. ALL WATER LINES REQUIRE PERMIT FROM APPLICABLE REGULATORY ENTITIES. PERMIT REQUIREMENTS SUPERCEDE WHAT IS SHOWN ON THIS DETAIL.

Charles Town Utility Board	SEWER LINE TRENCH DETAIL	Standard Detail No. S-1
832 S. George Street, P.O. Box 359, Charles Town, WV 25414 Phone: (304) 725-2316 • Fax: (304) 725-4313		NOT TO SCALE
		SEPTEMBER 2015

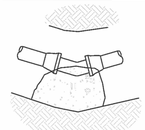


1. PROVIDE ANCHORS ON GRADES OF 20% AND GREATER OR WHERE SPECIFIED.
2. PROVIDE ANCHORS 36 FT. O.C. ON GRADES BETWEEN 20% AND 35%.
3. PROVIDE ANCHORS 24 FT. O.C. ON GRADES BETWEEN 36% AND 50%.
4. PROVIDE ANCHORS 16 FT. O.C. ON GRADES 50% OR GREATER.
5. WHEN NECESSARY EXTEND ANCHOR TO 12" BELOW FINISH GRADE TO PREVENT WASHOUT OF BACKFILL BY SURFACE WATER.
6. ANCHORS SHALL BE PLACED AT JOINTS NOT TO EXCEED O.C. DISTANCES.

Charles Town Utility Board	SLOPE ANCHOR DETAIL	Standard Detail No. S-4
832 S. George Street, P.O. Box 359, Charles Town, WV 25414 Phone: (304) 725-2316 • Fax: (304) 725-4313		NOT TO SCALE
		SEPTEMBER 2015

22.5 & 45 DEGREE CONTACT AREA (SF)

PIPE SIZE	PRESSURE CLASS 100	150	200	250	300
2	1	1	1	1	1
4	1	1	2	2	2
6	2	2	3	4	5
8	3	4	5	7	8
10	4	6	8	10	12
12	5	9	12	15	18
14	8	12	16	20	24



22.5° & 45° BENDS

90 DEGREE BEND CONTACT AREA (SF)

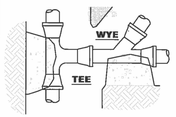
PIPE SIZE	PRESSURE CLASS 100	150	200	250	300
2	1	1	1	1	1
4	2	2	3	3	4
6	3	4	5	7	8
8	5	7	10	12	15
10	7	11	15	19	22
12	9	16	21	27	32
14	12	22	29	36	44



90° BEND

TEE CONTACT AREA (SF)

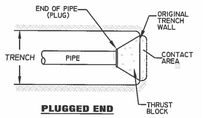
PIPE SIZE	PRESSURE CLASS 100	150	200	250	300
2	1	1	1	1	1
4	1	2	2	2	3
6	2	3	4	5	6
8	4	5	7	9	10
10	5	8	11	13	16
12	7	12	15	19	23
14	10	16	21	26	31



SAME CONTACT AREA AS TEE

PLUGGED END CONTACT AREA (SF)

PIPE SIZE	PRESSURE CLASS 100	150	200	250	300
2	1	1	1	1	1
4	1	2	2	2	3
6	2	3	4	5	6
8	4	5	7	9	10
10	5	8	11	13	16
12	7	12	15	19	23
14	10	16	21	26	31

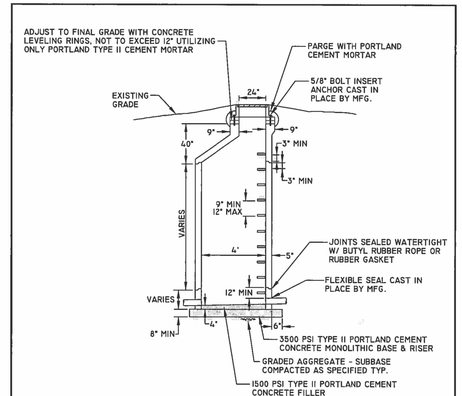


PLUGGED END

THRUST BLOCK GENERAL NOTES

1. ALL CONCRETE SHALL BE 3000 P.S.I. (AE)
2. THRUST BLOCKS SHALL BE IMBEDDED IN UNDISTURBED SOIL.
3. SOIL BEARING CAPACITY IS ASSUMED AT 3000 LB. SQ. FT. FOR WEAKER SOILS THRUST BLOCK AREAS SHALL BE INCREASED AS REQUIRED.
4. WRAP PIPE WITH POLYETHYLENE TO PREVENT CONTACT BETWEEN PIPE AND THE CONCRETE.
5. WITH APPROVAL OF ENGINEER, MEGA-LUG JOINT RESTRAINTS MAYBE SUBSTITUTED FOR THRUST BLOCKS PER MANUFACTURER'S RECOMMENDATION(TO BE FURNISHED BY CONTRACTOR). FOR DUTICLE IRON, USE UNIFLANGE 1400 OR EBBA 1100 AND FOR C900 PVC, USE UNIFLANGE 1500 OR EBBA 2000PV.

Charles Town Utility Board	PIPE BUTTRESS DETAIL	Standard Detail No. S-5
832 S. George Street, P.O. Box 359, Charles Town, WV 25414 Phone: (304) 725-2316 • Fax: (304) 725-4313		NOT TO SCALE
		SEPTEMBER 2015



NOTES:

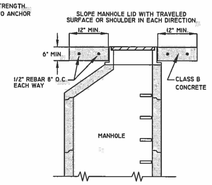
1. PRECAST MANHOLE SHALL BE MANUFACTURED IN ACCORDANCE WITH ASTM C 478 UTILIZING TYPE II PORTLAND CEMENT. 3500 PSI MIX MINIMUM.
2. 0.1' FALL TYPICAL INVERT IN TO INVERT OUT OR MATCH CROWNS FOR DIFFERING PIPE DIAMETERS.
3. COMPLETE MANHOLE SHALL PASS VACUUM TEST PRIOR TO ACCEPTANCE.

Charles Town Utility Board	PRECAST MANHOLE W/ ECCENTRIC TOP DETAIL	Standard Detail No. S-6
832 S. George Street, P.O. Box 359, Charles Town, WV 25414 Phone: (304) 725-2316 • Fax: (304) 725-4313		NOT TO SCALE
		SEPTEMBER 2015



NOTES:
1. MANHOLE COVERS SHALL NOT HAVE VENT HOLES
2. AVERAGE WEIGHT IS 400 LBS
3. DIMENSIONS ABOVE ARE FOR EAST JORDAN IRONWORKS PRODUCTS
4. APPROVED SUPPLIERS:
   EAST JORDAN IRON WORKS
   HIGHWAY: FRAME - PROD. NO. 1045Z UNDIPPED
   COVER - PROD. NO. 1045A UNDIPPED, SELF SEALING
   FRAME & COVER - PROD. NO. 1045AGS UNDIPPED, SELF SEALING
   WATERTIGHT: FRAME & COVER PROD., NO. 1045ZPT/0010APT, UNDIPPED
   NEENAH
   HIGHWAY: FRAME & COVER R-1642, UNDIPPED, SELF SEALING
   WATERTIGHT: FRAME & COVER R-1916, UNDIPPED
5. FRAME AND COVER TO COMPLY WITH ASTM A48, CLASS 30 TENSILE STRENGTH.
6. USE THREADED STAINLESS STEEL STANDARD HEXAGON HEAD BOLTS TO ANCHOR FRAME AND COVER TO MANHOLE.

MANHOLE FRAME AND COVER

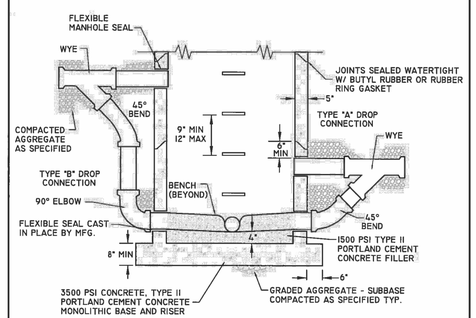


ANCHOR DETAIL FOR FRAME & COVER IN PAVED ROAD SURFACE AREAS AND SHOULDERS OF ROAD

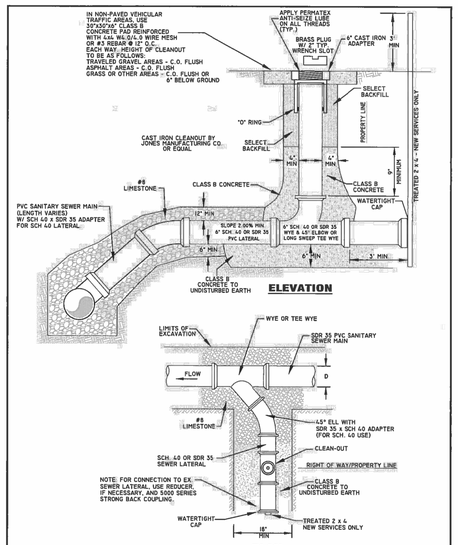
Charles Town Utility Board	MANHOLE FRAME & COVER ANCHOR FOR FRAME & COVER DETAIL	Standard Detail No. S-7
832 S. George Street, P.O. Box 359, Charles Town, WV 25414 Phone: (304) 725-2316 • Fax: (304) 725-4313		NOT TO SCALE
		SEPTEMBER 2015

DROP CONNECTIONS			
SIZE OF SEWER	TYPE A MAX DROP	TYPE A MIN DROP	TYPE B MIN DROP
8"	3'-0"	1'-0"	3'-0"
10"	4'-0"	2'-0"	4'-0"
12"	6'-0"	2'-6"	6'-0"
15"	6'-0"	2'-6"	6'-0"

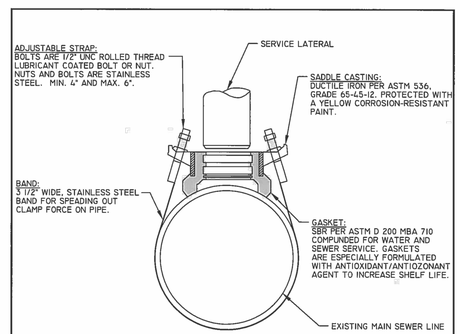
NOTES:
1. PRECAST MANHOLE SHALL BE MANUFACTURED IN ACCORDANCE WITH ASTM C 478 UTILIZING TYPE II PORTLAND CEMENT.



Charles Town Utility Board	DROP MANHOLE DETAIL	Standard Detail No. S-8
832 S. George Street, P.O. Box 359, Charles Town, WV 25414 Phone: (304) 725-2316 • Fax: (304) 725-4313		NOT TO SCALE
		SEPTEMBER 2015



Charles Town Utility Board	NEW LATERAL CONNECTION DETAIL	Standard Detail No. S-13
832 S. George Street, P.O. Box 359, Charles Town, WV 25414 Phone: (304) 725-2316 • Fax: (304) 725-4313		NOT TO SCALE
		SEPTEMBER 2015



NOTES:

1. SADDLE SHALL BE CAPABLE OF ATTACHING TO VARIOUS SIZES AND MATERIALS OF GRAVITY SEWER MAIN LINES. SADDLE SHALL BE INSTALLED SO SEWER LATERAL IS AT 45° FROM VERTICAL AT MAINLINE.
2. ROMAC ORIGINAL, STYLE "CB" SEWER SADDLE.
3. PIPE STOP CAPABLE OF WITHSTANDING 1000 POUNDS OF OF THRUST IS MOLDED INTO THE CB SADDLE GASKET. CARE MUST BE TAKEN DURING SYSTEM DESIGN & INSTALLATION TO ASSURE THAT THIS THRUST LIMIT IS NOT EXCEEDED.
4. NEW LATERAL CONNECTIONS USE 4" SADDLE OR SIZE OF LATERAL IF LARGER.
5. FOR SEWER LATERAL REPLACEMENTS USE 6" SADDLE AND USE PIPE REDUCER TO CONNECT TO LATERAL.
6. A PVC REDUCER IS REQUIRED FOR LOW PRESSURE SEWER MAINS.

Charles Town Utility Board	SEWER SADDLE DETAIL	Standard Detail No. S-15
832 S. George Street, P.O. Box 359, Charles Town, WV 25414 Phone: (304) 725-2316 • Fax: (304) 725-4313		NOT TO SCALE
		SEPTEMBER 2015

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CTUB DETAILS

NORBORNE GLEBE

PHASE 15

CHARLES TOWN CORP. DISTRICT (3)

CITY OF CHARLES TOWN - JEFFERSON COUNTY, WV

Rev. No.	Date

RANDY L. KEPLER REGISTERED 17223 STATE OF WEST VIRGINIA PROFESSIONAL ENGINEER

DATE: 08/24/2022

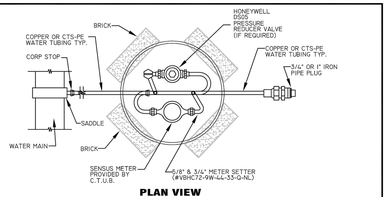
SCALE: N/A

DESIGNED BY: AM/CC

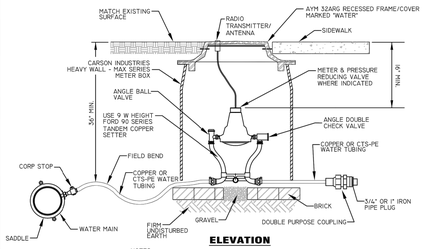
FILE NO. 4542A

SHEET 51 OF 55

22-03



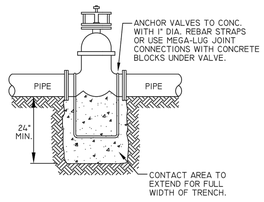
PLAN VIEW



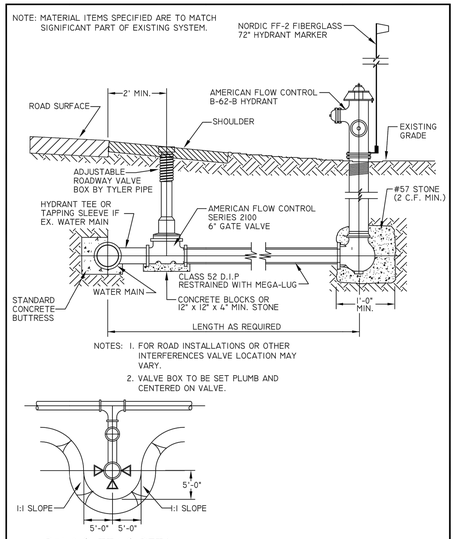
ELEVATION

NOTES:
1. ALL BOLTS TO BE STAINLESS STEEL.
2. CONNECT NEW METER SETTER TO EXISTING SERVICE LINES FOR LOCATIONS REQUIRING ONLY METER REPLACEMENT
3. PRESSURE REDUCING VALVE REQUIRED IF STATIC SYSTEM PRESSURES EXCEED 100 PSI
4. ALL METERS TO BE SENSUS RADIO READ PLACED AT PROPERTY LINE.

Charles Town Utility Board 832 S. George Street, P.O. Box 359, Charles Town, WV 25414 Phone: (304) 725-2316 • Fax: (304) 725-4315	METERED CONNECTION DETAIL	Standard Detail No. W-1 Not to Scale April 2015

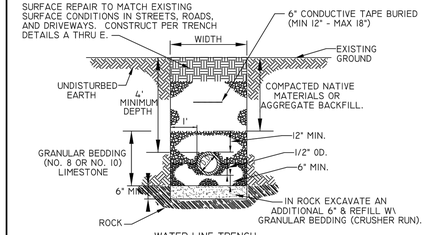


Charles Town Utility Board 832 S. George Street, P.O. Box 359, Charles Town, WV 25414 Phone: (304) 725-2316 • Fax: (304) 725-4315	WATER VALVES DETAIL	Standard Detail No. W-3 Not to Scale April 2015



BANK CUTTING DETAIL

Charles Town Utility Board 832 S. George Street, P.O. Box 359, Charles Town, WV 25414 Phone: (304) 725-2316 • Fax: (304) 725-4315	FIRE HYDRANT WITH TAPPING SLEEVE AND VALVE DETAIL	Standard Detail No. W-5 Not to Scale April 2015



WATER LINE TRENCH

NOTES:
1. W = MAXIMUM PERMISSIBLE TRENCH WIDTH, BASED UPON, W = O.D. + 24", UNLESS APPROVED BY THE ENGINEER.
2. TRENCHES TO BE SHEETED AND BRACED AS REQUIRED.
3. PROVIDE BEARING FOR FULL LENGTH OF BARREL, DIG HOLES FOR THE BELL.
4. BACKFILL TO BE COMPACTED IN 6" LAYERS TO 95% OF MAXIMUM DENSITY AT OPTIMUM MOISTURE (+2%) IN ROADS AND STREETS. COMPACT TO MATCH EXISTING GROUND IN OTHER AREAS.
5. MAINTAIN MINIMUM OF 4' OF COVER TO THE TOP OF PIPE.
6. A CASING PIPE SHALL BE REQUIRED IN ROAD CROSSINGS WHERE SHOWN ON PLANS
7. ALL WATER LINES REQUIRE PERMIT FROM APPLICABLE REGULATORY ENTITIES. PERMIT REQUIREMENTS SUPERCEDE WHAT IS SHOWN ON THIS DETAIL.

Charles Town Utility Board 832 S. George Street, P.O. Box 359, Charles Town, WV 25414 Phone: (304) 725-2316 • Fax: (304) 725-4315	WATER LINE TRENCH DETAIL	Standard Detail No. W-9 Not to Scale April 2015

22.5 & 45 DEGREE CONTACT AREA (SF)

PIPE SIZE	PRESSURE CLASS 100	150	200	250	300
2	1	1	1	1	1
4	1	1	2	2	2
6	2	2	3	4	5
8	3	4	5	7	8
10	4	6	8	10	12
12	5	9	12	15	18
14	8	12	16	20	24



22.5° & 45° BENDS

90 DEGREE BEND CONTACT AREA (SF)

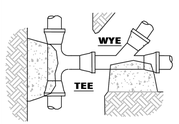
PIPE SIZE	PRESSURE CLASS 100	150	200	250	300
2	1	1	1	1	1
4	2	2	3	3	4
6	3	4	5	7	8
8	5	7	10	12	15
10	7	11	15	19	22
12	9	16	21	27	32
14	12	22	29	36	44



90° BEND

TEE CONTACT AREA (SF)

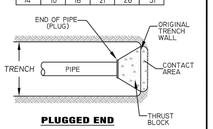
PIPE SIZE	PRESSURE CLASS 100	150	200	250	300
2	1	1	1	1	1
4	1	2	2	2	3
6	2	3	4	5	6
8	4	5	7	9	10
10	5	8	11	13	16
12	7	12	15	19	23
14	10	16	21	26	31



SAME CONTACT AREA AS TEE

PLUGGED END CONTACT AREA (SF)

PIPE SIZE (PLUG)	PRESSURE CLASS 100	150	200	250	300
2	1	1	1	1	1
4	1	2	2	2	3
6	2	3	4	5	6
8	4	5	7	9	10
10	5	8	11	13	16
12	7	12	15	19	23
14	10	16	21	26	31



PLUGGED END

THRUST BLOCK GENERAL NOTES

1. ALL CONCRETE SHALL BE 3000 P.S.I. (AE)
2. THRUST BLOCKS SHALL BE IMBEDDED IN UNDISTURBED SOIL.
3. SOIL BEARING CAPACITY IS ASSUMED AT 3000 LB. SQ. FT. FOR WEAKER SOILS THRUST BLOCK AREAS SHALL BE INCREASED AS REQUIRED.
4. WRAP PIPE WITH POLYETHYELENE TO PREVENT CONTACT BETWEEN PIPE AND THE CONCRETE.

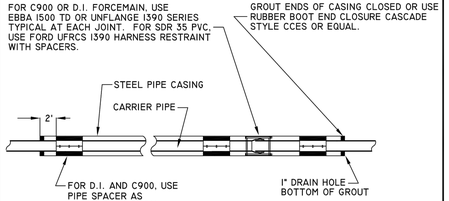
Charles Town Utility Board 832 S. George Street, P.O. Box 359, Charles Town, WV 25414 Phone: (304) 725-2316 • Fax: (304) 725-4315	PIPE BUTTRESS DETAILS	Standard Detail No. W-13 Not to Scale April 2015

CASING SCHEDULE FOR C900, DI, OR DI TR FLEX RESTRAINED JT 350 PSI

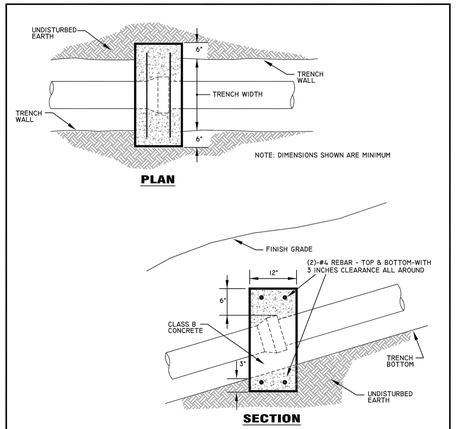
CARRIER PIPE DIA. (IN.)	MIN. CASING PIPE DIA. (IN.)	NOM. WALL THICKNESS
4	10	0.313
6	12	0.313
8	16	0.313
10	18	0.375
12	20	0.375

NOTE: SDR 35 PVC, CASING FOR 4" CARRIER IS 12" DIA. AND FOR 6" CARRIER IS 16" DIA. OTHER SIZE SDR 35 ARE SAME AS ABOVE. STEEL CASING SHALL BE USED WITH SPECIFIED MINIMUM YIELD STRENGTH OF AT LEAST 35,000 PSI.

FOR C900 OR D.I. FORCEMAIN, USE EBBA 1500 TD OR UNFLANGE 1390 SERIES TYPICAL AT EACH JOINT. FOR SDR 35 PVC, USE FORD UFRCS 1390 HARNESS RESTRAINT WITH SPACERS.



Charles Town Utility Board 832 S. George Street, P.O. Box 359, Charles Town, WV 25414 Phone: (304) 725-2316 • Fax: (304) 725-4315	PIPE CASING DETAIL	Standard Detail No. W-14 Not to Scale April 2015



1. PROVIDE ANCHORS ON GRADES OF 20% AND GREATER OR WHERE SPECIFIED.
2. PROVIDE ANCHORS 36 FT. O.C. ON GRADES BETWEEN 20% AND 34%.
3. PROVIDE ANCHORS 24 FT. O.C. ON GRADES BETWEEN 34% AND 50%.
4. PROVIDE ANCHORS 16 FT. O.C. ON GRADES 50% OR GREATER.
5. WHEN NECESSARY EXTEND ANCHOR TO 12" BELOW FINISH GRADE TO PREVENT WASHOUT OF BACKFILL BY SURFACE WATER.
6. ANCHORS SHALL BE PLACED AT JOINTS NOT TO EXCEED O.C. DISTANCES.

Charles Town Utility Board 832 S. George Street, P.O. Box 359, Charles Town, WV 25414 Phone: (304) 725-2316 • Fax: (304) 725-4315	SLOPE ANCHOR DETAIL	Standard Detail No. W-16 Not to Scale April 2015

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CTUB DETAILS

NORBORNE GLEBE

PHASE 15

CHARLES TOWN CORP. DISTRICT (3)
CITY OF CHARLES TOWN - JEFFERSON COUNTY, WV

Rev. No.	Date

RANDY L. KEPLER
REGISTERED
17223
STATE OF
WEST VIRGINIA
PROFESSIONAL ENGINEER

DATE: 08/24/2022

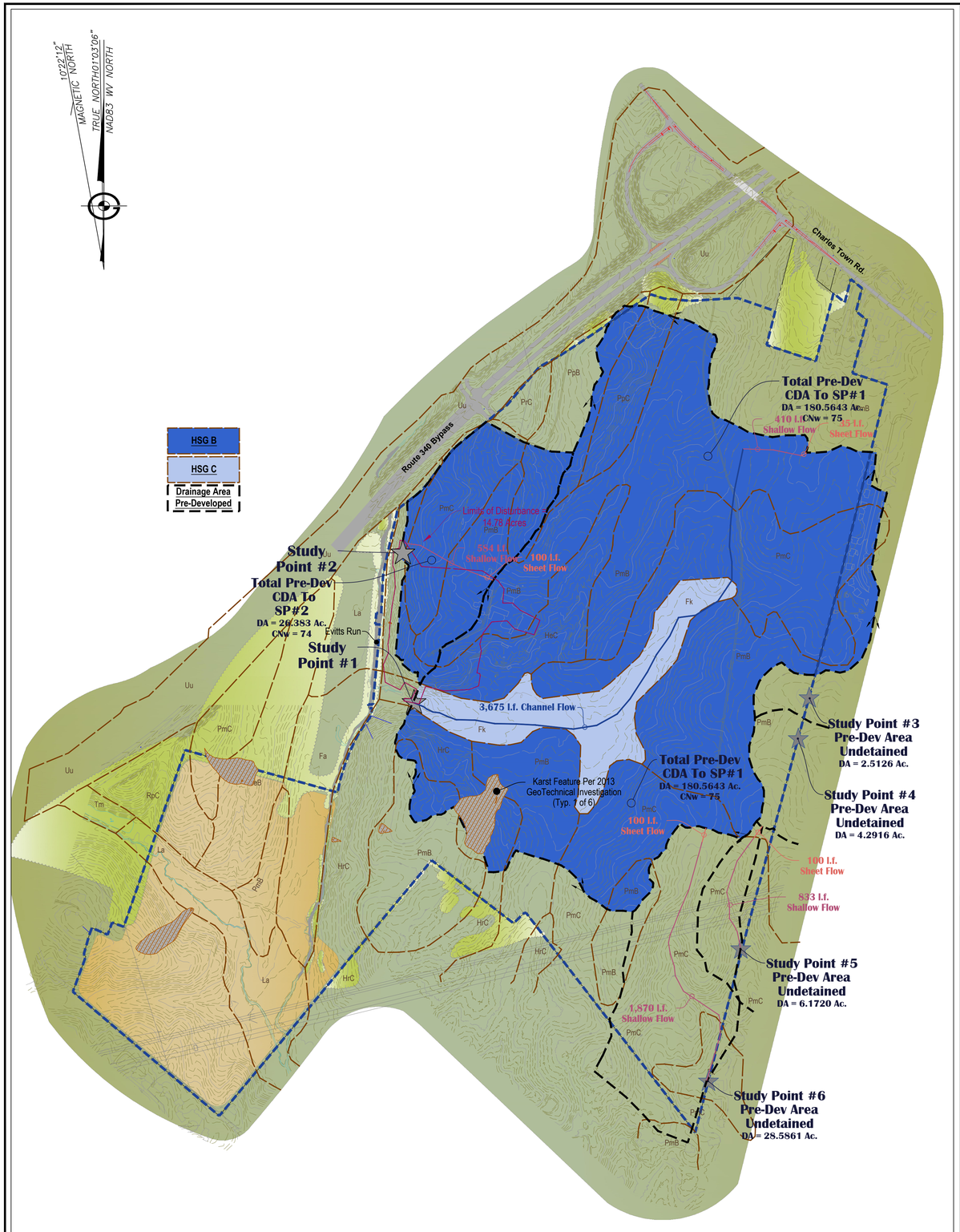
SCALE: N/A

DESIGNED BY: AM/CC

FILE NO. 4542A

SHEET 52 OF 55

22-03





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CHARLES TOWN CORP. DISTRICT (3)
CITY OF CHARLES TOWN - JEFFERSON COUNTY, WV

Rev. No.	Date

RANDY L. KEPLER
REGISTERED
17223
STATE OF
WEST VIRGINIA
PROFESSIONAL ENGINEER

DATE: 08/24/2022
SCALE: N/A
DESIGNED BY: AM/CC
FILE NO. 4542A
SHEET 53 OF 55
22-03

Study Point #1			
Pre-Development Weighted Curve Number (CNw)			
Drainage Area	Soils Group	Land Use	CN
161.378 Ac.	HSG B	Farmstead	74
19.186 Ac.	HSG C	Farmstead	82
Total D.A. = 180.564			CNw = 75

Study Point #1						
Pre-Development Time of Concentration (Tc) Calculation						
Segment	Segment Length	Segment Slope (%)	Flow Velocity	Manning s "n"	Surface	Time of Concentration
Sheet Flow	35 lf	2.00%	0.09 fps	0.240	Dense Grass	6.5 mins.
Shallow Concentrated	410 lf	2.50%	2.55 fps		Unpaved	2.7 mins.
					(Kv=16.1 fps)	
Channel Flow	3,675 lf	1.00%	1.60 fps	0.080	Capacity = 32.01 cfs	38.3 mins.
Area = 20.0 sf, Perim = 25.0', r= 0.80'						
					Total Tc =	47.5 Minutes

Study Point #1		
Pre-Development Discharge Summary		
24 Hour Storm Event	Inflow = Outlow	Peak Elevation
	(cfs)	(feet)
1 Year	48.42	454.50
2 Year	77.15	454.74
5 Year	125.80	455.03
10 Year	170.60	455.25
25 Year	239.12	455.52
50 Year	299.15	455.72
100 Year	366.55	455.92

Post-Development Study Point #1			
Weighted Curve Number (CNw)			
Drainage Area (Acres)	Land Use*	Soils Group	CN
32.238	Paved Road & R/W Area	HSG B	94
1.165	Paved Road & R/W Area	HSG C	96
19.387	Open Space - Good Grass cover	HSG B	61
3.762	Open Space - Good Grass cover	HSG C	74
2.013	Open Spaces - Medians in R/W	HSG B	61
7.123	SWM Area, 100% Impervious	HSG C	98
1.709	SFA Lots, 65% Impervious	HSG B	85
0.105	SFA Lots, 65% Impervious	HSG C	90
112.373	SFD Lots, 38% Impervious	HSG B	75
8.979	SFD Lots, 38% Impervious	HSG C	83
8.318	Commercial Lots, 85% Impervious	HSG B	92
Total D.A. = 197.172 Ac.			CNw = 79

Study Point #1						
Post-Development Time of Concentration (Tc) Calculation						
Segment	Segment Length	Segment Slope (%)	Flow Velocity	Manning s "n"	Surface	Time of Concentration
Sheet Flow	30 lf	3.30%	0.15 fps	0.150	Short Grass	3.2 mins.
Shallow Concentrated	997 lf	1.80%	2.16 fps		Unpaved	7.7 mins.
					(Kv=16.1 fps)	
Pipe Flow	275 lf	0.75%	6.76 fps	0.012	Capacity = 21.22 cfs	0.7 mins.
24" HDPE (Ex. Str. # 200 - Ex. Str.# 501, Area = 3.1 sf, Permim. 6.3' r=0.50'						
Channel Flow	430 lf	0.65%	12.35 fps	0.028	Capacity = 293.30 cfs	0.6 mins.
mooth Alum. (Ex. Str. # 600 - Ex. Str.# 200, Area = 23.8 sf, Permim. 17.3' r=1.38'						
Channel Flow	1,469 lf	0.50%	6.24 fps	0.035	Capacity = 1,030.39 cfs	3.9 mins.
Area = 165 sf, Permim. 55.0' r=3.00'						
Total Flow Length = 3,201 lf					Total Tc =	16.1 Minutes

Study Point #1					
Post-Development Discharge Summary					
24 Hour Storm Event	Inflow	Primary Outflow	Peak Elevation	Storage	Storage
	(cfs)	(cfs)	(feet)	(cubic feet)	(Acre-feet)
1 Year	75.81	0.95	466.91	508,476	11.6730
2 Year	108.73	1.08	468.12	741,130	17.0140
5 Year	162.65	12.36	468.65	867,672	19.9190
10 Year	217.37	32.95	469.15	994,301	22.8260
25 Year	296.71	80.71	469.57	1,239,195	28.4480
50 Year	365.70	120.12	470.61	1,427,026	32.7600
100 Year	442.72	171.17	471.22	1,629,492	37.4080

Study Point #2			
Pre-Development Weighted Curve Number (CNw)			
Drainage Area	Soils Group	Land Use	CN
26.383 Ac.	HSG B	Farmstead	74
Total D.A. = 26.383			CNw = 74

Study Point #2					
Pre-Development Time of Concentration (Tc) Calculation					
Segment	Segment Length	Segment Slope (%)	Manning s "n"	Surface	Time of Concentration
Sheet Flow	100 lf	5.00%	0.240	Dense Grass	10.4 mins.
Shallow Concentrated	584 lf	6.00%		Short Grass Pasture	5.7 mins.
				Total Tc =	16.1 Minutes

Study Point #2	
Pre-Development Discharge Summary	
24 Hour Storm Event	Inflow = Outlow
	(cfs)
1 Year	7.16
2 Year	10.92
5 Year	17.28
10 Year	23.17
25 Year	32.26
50 Year	41.59
100 Year	51.40

Study Point #2		
Post-Development Time of Concentration (Tc) Calculation		
Total Flow Length = 1,035 lf	Total Tc =	5 Minutes

Post-Development Study Point #2			
Weighted Curve Number (CNw)			
Drainage Area (Acres)	Land Use*	Soils Group	CN
0.322	Paved Road & R/W Area	HSG B	94
1.234	Open Space - Good Grass cover	HSG B	61
1.28	SFD Lots, 37% Impervious	HSG B	75
15.291	Commercial Lots, 85% Impervious	HSG B	92
Total D.A. = 18.127 Ac.			CNw = 89

Study Point #2					
Post-Development Discharge Summary					
24 Hour Storm Event	Inflow	Primary Outflow	Peak Elevation	Storage	Storage
	(cfs)	(cfs)	(feet)	(cubic feet)	(Acre-feet)
1 Year	16.99	4.67	464.88	42,558	0.9770
2 Year	22.31	9.85	465.84	53,971	1.2390
5 Year	30.44	16.51	466.70	65,035	1.4930
10 Year	37.38	21.32	467.32	73,529	1.6880
25 Year	47.41	26.28	468.24	86,989	1.9970
50 Year	55.83	35.69	468.69	93,872	2.1550
100 Year	65.01	52.69	469.06	99,535	2.2850

Study Point #3			
Pre-Development Weighted Curve Number (CNw)			
Drainage Area	Soils Group	Land Use	CN
2.513	HSG B	Farmstead	74
Total D.A. = 2.513			CNw = 74

Study Point #3		
Pre-Development Time of Concentration (Tc) Calculation		
Total Flow Length = 398 lf	Total Tc =	5 Minutes

Study Point #3		
Pre-Development Discharge Summary		
24 Hour Storm Event	Flow	Runoff Volumes
	(cfs)	(acre-ft)
1 Year	0.76	0.116
2 Year	1.26	0.174
5 Year	2.12	0.274
10 Year	2.91	0.367
25 Year	4.13	0.510
50 Year	5.21	0.637
100 Year	6.42	0.781

Post-Development Study Point #3			
Weighted Curve Number (CNw)			
Drainage Area (Acres)	Land Use*	Soils Group	CN
0.26	Paved Road & R/W Area	HSG B	94
0.7	SFD Lots, 37% Impervious	HSG B	75
Total D.A. = 0.96 Ac.			CNw = 77

Study Point #3		
Post-Development Time of Concentration (Tc) Calculation		
Total Flow Length = 260 lf	Total Tc =	5 Minutes

Study Point #3		
Post-Development Discharge Summary		
24 Hour Storm Event	Flow	Runoff Volumes
	(cfs)	(acre-ft)
1 Year	0.54	0.070
2 Year	0.78	0.098
5 Year	1.16	0.143
10 Year	1.51	0.184
25 Year	2.02	0.245
50 Year	2.46	0.298
100 Year	2.94	0.358

Study Point #4			
Pre-Development Weighted Curve Number (CNw)			
Drainage Area	Soils Group	Land Use	CN
4.29	HSG B	Farmstead	74
Total D.A. = 4.29			CNw = 74

Study Point #4		
Pre-Development Time of Concentration (Tc) Calculation		
Total Flow Length = 364 lf	Total Tc =	5 Minutes

Study Point #4		
Pre-Development Discharge Summary		
24 Hour Storm Event	Flow	Runoff Volumes
	(cfs)	(acre-ft)
1 Year	1.29	0.198
2 Year	2.15	0.298
5 Year	3.61	0.468
10 Year	4.97	0.627
25 Year	7.06	0.871
50 Year	8.89	1.088
100 Year	10.96	1.334

Post-Development Study Point #4			
Weighted Curve Number (CNw)			
Drainage Area (Acres)	Land Use*	Soils Group	CN
1.6	SFD Lots, 37% Impervious	HSG B	75
Total D.A. = 1.60 Ac.			CNw = 75

Study Point #4		
Post-Development Time of Concentration (Tc) Calculation		
Total Flow Length = 600 lf	Total Tc =	5 Minutes

Study Point #4			
Post-Development Discharge Summary			
24 Hour Storm Event	Flow	Runoff Volumes	
	(cfs)	(acre-ft)	
1 Year	0.54	0.079	
2 Year	0.87	0.118	
5 Year	1.43	0.183	
10 Year	1.95	0.244	
25 Year	2.74	0.337	
50 Year	3.43	0.419	
100 Year	4.21	0.512	

Study Point #5			
Pre-Development Weighted Curve Number (CNw)			
Drainage Area	Soils Group	Land Use	CN
6.172	HSG B	Farmstead	74
Total D.A. = 6.172 Ac			CNw = 74

Study Point #5						
Pre-Development Time of Concentration (Tc) Calculation						
Segment	Segment Length	Segment Slope (%)	Manning s "n"	Surface	Time of Concentration	
Sheet Flow	100 lf	3.00%	0.240	Dense Grass	12.8 mins.	
Shallow Concentrated	833 lf	5.00%		Short Grass Pasture	8.9 mins.	
					Total Tc =	21.7 Minutes

Study Point #5		
Pre-Development Discharge Summary		
24 Hour Storm Event	Flow	Runoff Volumes
	(cfs)	(acre-ft)
1 Year	1.86	0.284
2 Year	2.86	0.428
5 Year	4.53	0.673
10 Year	6.05	0.900
25 Year	8.36	1.252
50 Year	10.38	1.563
100 Year	12.63	1.916

Post-Development Study Point #5			
Weighted Curve Number (CNw)			
Drainage Area (Acres)	Land Use*	Soils Group	CN
0.052	Paved Road & R/W Area	HSG B	94
4.145	Farmsteads	HSG B	74
1.015	SFD Lots, 37% Impervious	HSG B	75
Total D.A. = 18.127 Ac.			CNw = 74

Study Point #5						
Post-Development Time of Concentration (Tc) Calculation						
Segment	Segment Length	Segment Slope (%)	Manning s "n"	Surface	Time of Concentration	
Sheet Flow	100	3.00%	0.240	Dense Grass	12.8 mins.	
Shallow Concentrated	930 lf	5.00%		Short Grass Pasture	9.9 mins.	
					Total Tc =	18.4 Minutes

Study Point #5		
Post-Development Discharge Summary		
24 Hour Storm Event	Flow	Runoff Volumes
	(cfs)	(acre-ft)
1 Year	1.59	0.240
2 Year	2.45	0.362
5 Year	3.88	0.569
10 Year	5.19	0.761
25 Year	7.18	1.058
50 Year	8.92	1.321
100 Year	10.85	1.620

Pre-Development Weighted Curve Number (CNw)			
Drainage Area	Soils Group	Land Use	CN
28.586	HSG B	Farmstead	74
Total D.A. = 28.586 Ac			CNw = 74

Study Point #6						
Pre-Development Time of Concentration (Tc) Calculation						
Segment	Segment Length	Segment Slope (%)	Manning s "n"	Surface	Time of Concentration	
Sheet Flow	100 lf	3.30%	0.240	Dense Grass	12.3 mins.	
Shallow Concentrated	1,870 lf	3.00%		Short Grass Pasture	25.7 mins.	
					Total Tc =	38.0 Minutes

Study Point #6		
Pre-Development Discharge Summary		
24 Hour Storm Event	Flow	Runoff Volumes
	(cfs)	(acre-ft)
1 Year	8.12	1.309
2 Year	13.02	1.973
5 Year	21.31	3.104
10 Year	28.95	4.154
25 Year	40.62	5.778
50 Year	50.84	7.217
100 Year	82.32	8.850

Study Point #6						
Post-Development Time of Concentration (Tc) Calculation						
Segment	Segment Length	Segment Slope (%)	Manning s "n"	Surface	Time of Concentration	
Sheet Flow	100	3.00%	0.240	Dense Grass	12.8 mins.	
Shallow Concentrated	1,587 lf	3.00%		Short Grass Pasture	21.8 mins.	
					Total Tc =	34.6 Minutes

Post-Development Study Point #6			
Weighted Curve Number (CNw)			
Drainage Area (Acres)	Land Use*	Soils Group	CN
0.141	Paved Road & R/W Area	HSG B	94
23.306	Farmsteads	HSG B	74
0.681	SFD Lots, 37% Impervious	HSG B	75
Total D.A. = 24.128 Ac.			CNw = 74

Study Point #6		
Post-Development Discharge Summary		
24 Hour Storm Event	Flow	Runoff Volumes
	(cfs)	(acre-ft)
1 Year	7.15	1.112
2 Year	11.37	1.675
5 Year	18.49	2.633
10 Year	25.02	3.523
25 Year	35.00	4.898
50 Year	43.73	6.117
100 Year	53.51	7.500

SEDIMENT BASIN 1 VOLUMES			
Elevation	C.Y.	C.F.	Acre-Ft
458	98	2,640.6	0.06062
459	315	8,504.8	0.19524
460	714	19,286.9	0.44277
461	1,391	37,559.4	0.86225
462	2,553	68,916.6	1.58211
463	4,397	118,718.2	2.72539
464	6,956	187,813.5	4.31161
465	10,697	288,821.0	6.63042
466	15,561	420,136.3	9.645
467	21,971	593,214.7	13.61833
468	30,182	814,907.6	18.70771
469	40,793	1,101,407.2	25.28483
470	53,725	1,450,562.8	33.30034
471	69,875	1,886,611.1	43.31063
472	89,143	2,406,868.7	55.2541

SEDIMENT BASIN 2 VOLUMES			
Elevation	C.Y.	C.F.	Acre-Ft
462	510	13,770.9	0.31614
463	846	22,846.2	0.52448
464	1,218	32,878.1	0.75478
465	1,626	43,899.1	1.00778
466	2,072	55,943.2	1.28428
467	2,557	69,045.1	1.58506
468	3,083	83,245.5	1.91105
469	3,651	98,584.8	2.2632
470	4,263	115,093.9	2.64219
470.7	4,718	127,387.6	2.92442

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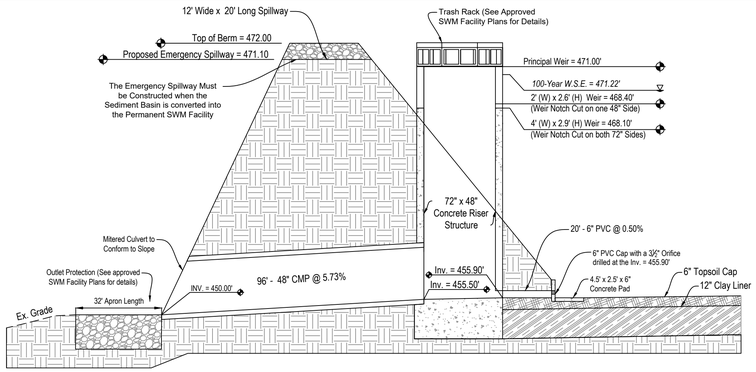
OFFICES IN: WINCHESTER, VA & MARTINSBURG, WV

SWM COMPS
NORBORNE GLEBE
PHASE 15
CHARLES TOWN CORP. DISTRICT (3)
CITY OF CHARLES TOWN - JEFFERSON COUNTY, WV

Rev. No.	Date

RANDY L. KISLER
REGISTERED
17223
STATE OF
WEST VIRGINIA
PROFESSIONAL ENGINEER

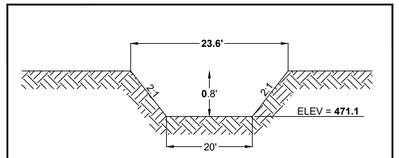
DATE: 08/24/2022
SCALE: N/A
DESIGNED BY: AM/CC
FILE NO. 4542A
SHEET 54 OF 55
22-03



Stormwater Management Outfall Structure Detail Basin 1 -

NTS

Nov. 2018



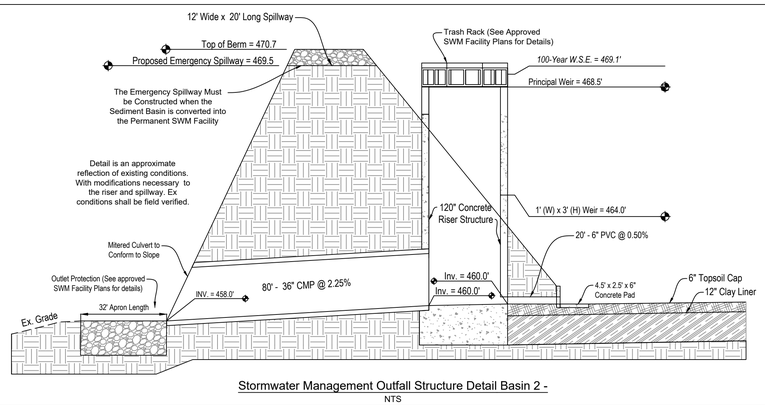
BASIN 1 EMERGENCY SPILLWAY

NOT TO SCALE

Notes:

- **Area within design high water area to remain at grades shown on E&S Phase I plan until stabilization and transition to E&S Phase II plan
- Contractor to coordinate with Geotechnical Engineer to ensure wet area is stable and can hold water prior to construction

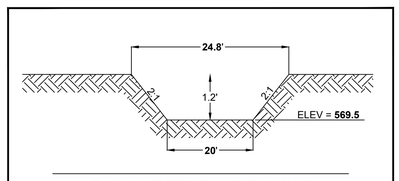
SEDIMENT BASIN 1 VOLUMES			
Elevation	C.Y.	C.F.	Acre-Ft
458	98	2,640.6	0.06062
459	315	8,504.8	0.19524
460	714	19,286.9	0.44277
461	1,391	37,559.4	0.86225
462	2,553	68,916.6	1.58211
463	4,397	118,718.2	2.72539
464	6,956	187,813.5	4.31161
465	10,697	288,821.0	6.63042
466	15,561	420,136.3	9.645
467	21,971	593,214.7	13.61833
468	30,182	814,907.6	18.70771
469	40,793	1,101,407.2	25.28483
470	53,725	1,450,562.8	33.30034
471	69,875	1,886,611.1	43.31063
472	89,143	2,406,868.7	55.2541



Stormwater Management Outfall Structure Detail Basin 2 -

NTS

Nov. 2018



BASIN 2 EMERGENCY SPILLWAY

NOT TO SCALE

Notes:

- **Area within design high water area to remain at grades shown on E&S Phase I plan until stabilization and transition to E&S Phase II plan
- Contractor to coordinate with Geotechnical Engineer to ensure wet area is stable and can hold water prior to construction

SEDIMENT BASIN 2 VOLUMES			
Elevation	C.Y.	C.F.	Acre-Ft
462	510	13,770.9	0.31614
463	846	22,846.2	0.52448
464	1,218	32,878.1	0.75478
465	1,626	43,899.1	1.00778
466	2,072	55,943.2	1.28428
467	2,557	69,045.1	1.58506
468	3,083	83,245.5	1.91105
469	3,651	98,584.8	2.2632
470	4,263	115,093.9	2.64219
470.7	4,718	127,387.6	2.92442

SWM Facility Data Reference Note:
The Outfall Structure Dimensions and Elevations are Design Elevations referenced from the Approved "Site Plan for Stormwater Management Facility - Norborne Glebe" dated 2001.

Storage Volumes represent the current constructed state of the SWM Facility. These Volumes were derived from 2' interval contours and spot elevations, from a 2013 Aerial Survey. Modified to represent construction of 14A.

The Facility was constructed as a Sediment Basin, had achieved stabilization and was in functional operation. The facility is unaltered from this condition as of November, 2018.

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SWM DETAILS

NORBORNE GLEBE

PHASE 15

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CITY OF CHARLES TOWN - JEFFERSON COUNTY, WV

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SHEET 55 OF 55

22-03