CITY OF CHARLES TOWN
PLANNING COMMISSION
AGENDA • JULY 27, 2026

Commission/Board Meeting | **CITY HALL** | **7:00 PM**

101 E Washington Street, Charles Town, WV 25414

1. CALL TO ORDER

2. APPROVAL OF MINUTES

2.1 : DRAFT June 23, 2026 minutes
06-23-2026 PC MINUTES_DRAFT.pdf

3. UNFINISHED BUSINESS

4. NEW BUSINESS

4.1 : **Public Hearing**: *SLD2025-02* - Norborne-Glebe Phase 16 - Preliminary Plan
1. Staff Report.pdf
2. Application.pdf
3. Engineer Comments on Stormwater.pdf
4. KH Review.pdf
5. CTUB Review.pdf
6. Plan Set.pdf
7. Potomac_Edison_Project.pdf

4.2 : **Public Hearing**: *TXA2026-01* - Amending the Zoning Use Table for uses in the Old Town Mixed Use Commercial Zoning District
1. Report.pdf

4.3 : *Commission Review:* SLD2026-02 - Huntfield Phases 9 & 11 Sketch Plan - Completeness Review
1. Staff Report.pdf
2._Application.pdf
3. Plan Set Revised.pdf
4._Huntfield_Proffers.pdf
5._Master_Plan.pdf

4.4 : *Commission Review:* BR2026-05 - Augustine Manor Phase 1 - Bond Initiation
1. Staff Report.pdf
2. Application.pdf
3. Performance Bond.pdf
4. KH Review.pdf
5. Estimate.pdf

4.5 : *Commission Review:* BR2026-06 - Thomfair Self-Storage - Bond Initiation
1. Staff Report.pdf
2. Application.pdf

3. KH Review.pdf
4. Estimate.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_minutes.php

Planning Commission
101 East Washington Street
Charles Town, WV 25414

SCHEDULED

Meeting: 07/27/26
Department: Planning Commission
Category: Report
Initiator:

AGENDA ITEM (ID #)

DRAFT June 23, 2026 minutes

ATTACHMENTS:

- 06-23-2026 PC MINUTES_DRAFT.pdf

CITY OF CHARLES TOWN
PLANNING COMMISSION •
MINUTES JUNE 23, 2026

Committee Meeting **CITY HALL** **7:00 PM**

101 E Washington Street, Charles Town, WV 25414

1. CALL TO ORDER

Present: Ann Paonessa – Attended Virtually
Jessica Derr – Acting Chair
Kevin Long
Zakhary Dunning

Jeff Hynes - absent

James Newman, City Staff – Zoning Administrator

2. APPROVAL OF MINUTES

2.1: Regular Session Minutes of May 26, 2026

Motion to approve the meeting minutes with a correction that Zak was present:

RESULT:	**Approved**
MOVER:	Long
SECONDER:	Dunning
AYES:	Derr, Long, Paonessa, Dunning

2.2: Special Session Minutes of June 11, 2026

Motion to approve the meeting minutes with a correction that Zak was present:

RESULT:	**Approved**
MOVER:	Long
SECONDER:	Dunning
AYES:	Derr, Long, Paonessa, Dunning

3. UNFINISHED BUSINESS

3.1: Commission Review: BR2026-04 – Huntfield Bond Extension for Multiple Bonds

Staff presentation.

Commission discussion regarding as-builts.

Applicant Matt Stare spoke regarding the amount of bond and how the largest portion of the bond is for the recreation center, construction of which is almost finished. He also spoke regarding the conversations that DRB has had with the Potomac-Edison and the reason for the delays in getting streetlights installed.

DRAFT

Motion to approve BR2026-04 subject to a condition

RESULT:	**Approved**
MOVER:	Dunning
SECONDER:	Paonessa
AYES:	Derr, Long, Paonessa, Dunning

Condition: Bond extension approved to September 30, 2026 subject to the provision of As-Built surveys of the subject phases.

4. NEW BUSINESS

4.1: Public Hearing: *WV2026-01: – 231 N Samuel Street – Waiver Request*

Staff presentation.

Commission questions about the stormwater management.

Motion to open the Public Hearing:

RESULT:	**Approved**
MOVER:	Dunning
SECONDER:	Long
AYES:	Derr, Long, Paonessa, Dunning

Mr. Newman read in a comment from Doug Creamer opposed to the request.

Motion to close the Public Hearing:

RESULT:	**Approved**
MOVER:	Long
SECONDER:	Dunning
AYES:	Derr, Long, Paonessa, Dunning

The applicant was present virtually but had no comments.

Commission discussion regarding public and private use of the property & maintenance, and, what negative impacts would be imposed on neighbors if the waiver was approved.

Motion to approve WV2026-01 subject to a condition:

RESULT:	**Approved**
MOVER:	Dunning
SECONDER:	Paonessa
AYES:	Derr, Long, Paonessa, Dunning

Condition: The stormwater management system shall be installed and operational prior to any increase in impervious surface

DRAFT

4.2: Commission Review: *BR2026-03: – Huntfield Phase 4 – Bond Initiation*

Staff presentation.

Commission discussion regarding the nomenclature of the phase, bond length, and bond sufficiency.

The applicant, Matt Monahan with DR Acquisitions, discussed the bond. He also explained the difference in the phasing nomenclature.

Mr. Newman asked how long he thought it would take to get the work completed that the bond covers.

Matt Stare from DRB stated that the timeframe is market driven and that they will most likely be seeking bond reductions soon because the phase infrastructure is either already in place or under construction. He further stated that he feels three (3) years to be typical of the timeframe to complete everything.

Commission discussion regarding the amount.

Motion to recommend to City Council to approve the bond in the amount of $2,214,540.92:

RESULT:	**Approved**
MOVER:	Paonessa
SECONDER:	Dunning
AYES:	Derr, Long, Paonessa, Dunning

5. ADJOURNMENT

Motion to adjourn:

RESULT:	**Approved**
MOVER:	Long
SECONDER:	Dunning
AYES:	Derr, Long, Paonessa, Dunning

Meeting adjourned at 7:46 pm.

DRAFT

Planning Commission
101 East Washington Street
Charles Town, WV 25414

Meeting: 07/27/26
Department: Planning Commission
Category: Report
Initiator:

SCHEDULED

AGENDA ITEM (ID #)

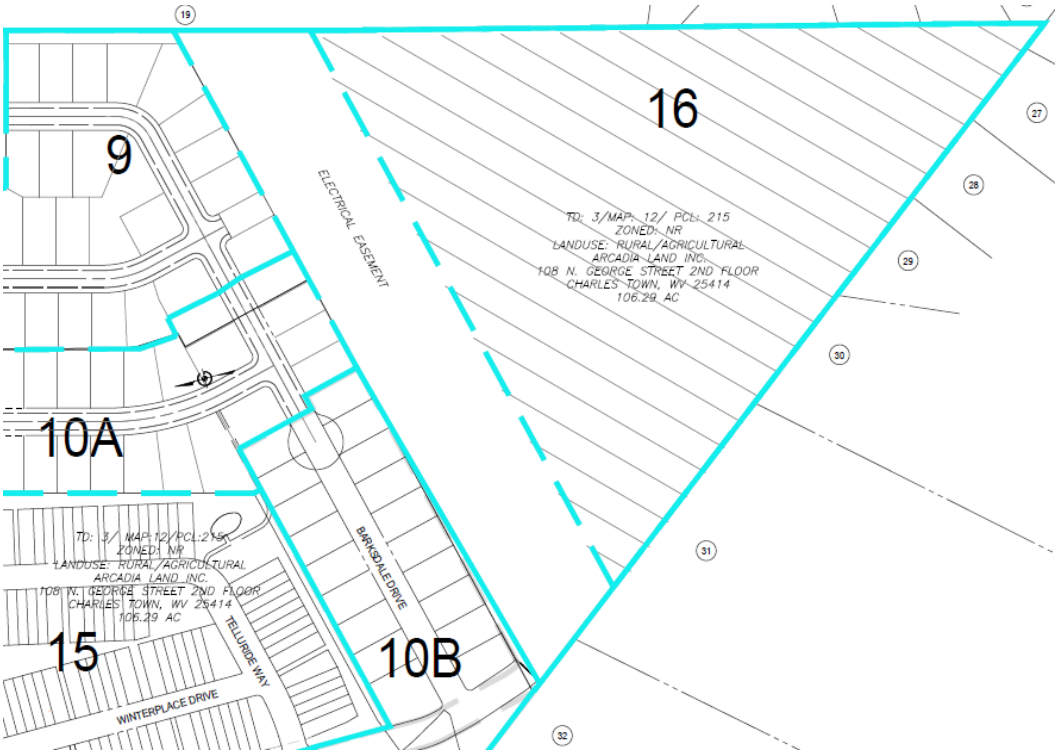
Public Hearing: *SLD2025-02* - Norborne-Glebe Phase 16 - Preliminary Plan

ATTACHMENTS:

- 1. Staff Report.pdf
- 2. Application.pdf
- 3. Engineer Comments on Stormwater.pdf
- 4. KH Review.pdf
- 5. CTUB Review.pdf
- 6. Plan Set.pdf
- 7. Potomac_Edison_Project.pdf

Preliminary Plan
SLD2025-02

Date: For the July 27, 2026 Planning Commission meeting
Applicant: Greenway Engineering
Property Owner: Arcadia Land Inc.
Report by: James Newman, City Planner, Zoning/Subdivision Administrator
Proposal: Major Subdivision and Land Development.
Property Location: Located behind Barksdale Drive, with entrance points from Feldberg Drive and Candlewood Drive. See hashed area below.
Zoning: Neighborhood Residential



PROJECT OVERVIEW

The development of 19.5 acres for 56 single-family residential lots.

SKETCH PLAN

The sketch plan was deemed complete by the Planning Commission on March 24, 2025.

The sketch plan was approved by the Planning Commission on April 28, 2025.

WAIVERS

The project received a waiver Section 1333.20.K *Townhouse Development Standards*, requiring "*All electric meters shall be located in the rear of dwelling units, except where a waiver may be granted by the Planning Commission.*" The waiver was approved by the Planning Commission on June 27, 2022.

The project received a waiver Section 1333.07.C *Driveway Standards*, requiring "*No Driveway shall be constructed closer than 40 feet to the nearest street intersection.*" The waiver was approved by the Planning Commission on March 27, 2023.

ZONING REVIEW

Density

The applicant proposes 56 lots, a density of 3.6 units per acre.

Open Space

Per the zoning requirements, 10% of the property must be open space; for this Phase that is 1.95 acres. A total of 9.35 acres (48%) of open space is provided, through a combination of private lawn space (5.17 acres) and general open land area (3.54 acres).

A tot-lot with playground equipment is provided.

Parking

Required parking for single-family detached homes is 2 spaces per unit. With 56 units, required parking is 112 spaces. Each lot is provided with a driveway; the average driveway depth for this Phase is 26 feet.

Street Landscaping

Street trees are required for every 50 feet of street frontage; this requirement is met.

Buffers

Screening buffers between existing and proposed residential development are not required. There is an existing vegetated buffer that the applicant proposes to keep, and to fill in the gaps in that buffer with new plantings.

Lighting

Streetlights will be set to the City's required design of an acorn top. Lighting placement meets the City's requirements, and the light footprint is within requirements as well.

Stormwater

Stormwater control facilities are provided at the perimeter of the Phase. The plans have been reviewed and approved by the City's 3rd party engineering firm Kimley-Horn.

The emergency spillway drains into the adjacent Eastwood subdivision via culverts of Foxhall Road and Chatham Court, and utilizes the drainage ditches and culverts of 10 private properties and one community open space parcel.

A 10 ft. wide utility easement is adjacent to all boundary lines in the Eastwood subdivision, with the water proposed to funnel down the emergency spillway into that easement area and then into the culverts.

Sidewalks
Sidewalks are provided on both sides of each road and connect to the rest of the development.

Utilities
All required utility information has been provided. The Charles Town Utility Board has reviewed and approved the plan set.

Access-drive entrances are provided on both main roads to allow for maintenance access to the powerline easement.

Power Line Expansion
The FirstEnergy power line expansion project (Gore-Doubs-Goose Creek Improvements Project) includes the powerlines and powerline easement which separate Phase 16 from the rest of the development. The project website (https://firstenergy.consultation.ai/gore-stonewall-millville-doubs) states that outreach to affected property owners started in the 3rd quarter of 2025, but the plan applicant (Arcadia Land Inc.) states they have not received any communication from FirstEnergy. The scope of the project is:

Potomac Edison will utilize its rights-of-way and company-owned property to add a new 500 kV line. The project will include:
• Rebuild an existing 138 kV line by installing new steel structures that will support both the 138 kV line and a new 500 kV line for 44 miles.

• Install new sections of 500 kV line around three existing substations

Per FirstEnergy they plan to start construction of the WV sections of their project starting in mid-2027 through 2028. The project map highlights certain parcels (in yellow, see map) within the development but does not outline what activity, if any, will affect the parcels.



3

RECOMMENDATION

The plan set meets the Zoning and Subdivision Ordinance requirements for approval. In order to prevent the development of lots for homes for sale only to be claimed via eminent domain for the powerline project, approval should be based on two conditions:

1. Arcadia Land Inc. shall send written notice to Potomac Edison inquiring about the status of the powerline project and what impacts it will have on the Norborne Glebe Development as a whole and on Norborne Glebe lots adjacent to the power line easement in particular.

   A copy of this written request shall be given to the City, and copies of any response(s) shall also be given to the City.

2. Lots within Phase 16 which Potomac Edison expresses an interest in acquiring (whether through eminent domain or other means) shall not be sold without first notifying the buyer about the potential acquisition, prior to closing.

S/LD Application No. 2025-02

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 September 15, 2025

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 ( ) Fax Number ( )

Email Address [redacted]

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:

Tax Map # and Parcel: 03120215000000000

Deed Book and Page #: 1173/85

Property Area in Square Feet or Acres: 106.29 AC

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

This project proposes 56 single family homes.

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

Existing use is an 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.

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
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 09/25/2018
SLD-2017-14	Norborne Glebe Phase 14A	Subdivision Plan	Approved 09-25-2018
SLD-2021-02	Norborne Glebe Phase 14B	Subdivision Plan	Approved 02/28/2022
SLD-2021-05	Norborne Glebe Phase 9&10	Subdivision Plan	Approved10/13/2022
SLD-2022-03	Norborne Glebe Phase 15	Subdivsion Plan	Approved 03/27/2023
SLD-2022-06	Norborne Glebe Phase 10B,11,12,13	Subdivision Plan	Approved 02/27/2024
SLD-2025-02	Norborne Glebe Phase 16	Sketch Plan	Approved 04/28/2025

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

☐ 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

$2,800 (56 Lots x $50 per)

AMOUNT PAID $3,000 (paid with final plat)

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 L. Miller, as Treasurer Date 9/30/2025

Arcadia Land, Inc.

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:_____

_____

_____

_____

_____

_____

From: Dan Murphy
To: James Newman
Subject: RE: NG Phase 16 - Prelim. Review
Date: Tuesday, June 9, 2026 11:50:38 AM

James,
See my responses in red below and let me know if you have any additional questions.
Thanks,

Dan Murphy | Project Manager | Cell: **540.247.3671**

From: James Newman <JNewman@charlestownwv.us>
Sent: Tuesday, June 9, 2026 11:27 AM
To: Dan Murphy <dmurphy@greenwayeng.com>
Subject: NG Phase 16 - Prelim. Review

Hi Dan,

I've finished my review of the Phase 16 plan set.

1. Is the emergency spillway going to direct water to 107 & 111 Foxhall Rd.? The existing drainage path goes into the ditch between 107 and 111. There is an existing drainage easement to convey this. Myself and the developer have met with the homeowners to discuss the drainage path. We are reducing the amount of flow from being all storm events to just that of the emergency spillway flows (25 and 100 year storms). The remaining storm events are carried through the proposed storm sewer system that was placed per the homeowner direction.
2. The limits of disturbance reach out onto Foxhall Rd. What is the nature of the planned disturbance on that road? No disturbance is taking place in Foxhall Rd, just to the adjacent roadside ditch. The homeowners stated this ditch was prone to flooding, so the developer is making improvements to the ditch with the homeowner recommendations.

James Newman
City Planner, Zoning/Subdivision Administrator, AICP
City of Charles Town, WV
304-724-3251

Disclaimer: This email does NOT constitute a zoning or subdivision determination. To obtain an official determination, please contact the Zoning Administrator.

Beware - This email comes from outside the City of Charles Town.

Kimley»Horn

Memorandum

To: Dan Murphy
Project Manager
Greenway Engineering
151 Windy Hill Drive
Winchester, VA 22602

From: Mark Phillips, P.E.

Through: Mr. James Newman, AICP
City of Charles Town
101 E Washington Street
Charles Town, WV 25414

Date: June 8, 2026

Subject: Norborne Glebe Phase 16 Preliminary Plan Review - Revision

This memorandum summarizes our review of the Preliminary Plan for Norborne Glebe Phase 16 (dated June 4, 2026, prepared by Greenway Engineering, Inc.) for 56 single family units on a 106.29-acre property. The purpose of this memorandum is to provide and update review based upon plan changes made by the Applicant due to comments received from WVDEP related to off-site storm drainage. The site is currently zoned Neighborhood Residential.

Kimley-Horn's review of this application is limited to the Preliminary Plan and Plat and Application provided. Based upon our review, we have no additional comments. Thank you for the opportunity to review this Preliminary Plan and Plat. In the meantime, please feel free to contact us at 703-870-3631 should you have any questions.

KIMLEY-HORN & ASSOCIATES, INC.

Mark Phillips, P.E.
Project Manager
Associate

From: Travis Markley
To: James Newman; Phillips, Mark; GIS
Subject: RE: NG Phase 16 Plan Review
Date: Monday, June 8, 2026 2:21:18 PM
Attachments: image001.png

Hi James,

This revision is approved.

Kindest Regards,

Travis Markley
Charles Town Utility Board
Engineering Technician
304-725-2316 office

Confidentiality Notice: The information contained in this e-mail and any attached documents may be confidential or legally privileged. It is intended exclusively for the individual or entity to which it is addressed. This communication may contain information that is proprietary, privileged or confidential or otherwise legally exempt from disclosure. If you are not the named addressee, you are not authorized to read, print, retain, copy or disseminate this message or any part of it. If you have received this message in error, please notify the sender immediately by e-mail and delete all copies of the message. Please note that the sender accepts no responsibility for viruses and it is your responsibility to scan this e-mail and attachments (if any). No contracts may be concluded on behalf of the sender by means of electronic communications unless expressly stated to the contrary.

From: James Newman <JNewman@charlestownwv.us>
Sent: Friday, June 5, 2026 2:30 PM
To: Phillips, Mark <mark.phillips@kimley-horn.com>; Travis Markley <tmarkley@ctubwv.com>; GIS <gis@jeffcowv.gov>
Subject: FW: NG Phase 16 Plan Review
Importance: High

Good afternoon,

NORBORNE GLEBE

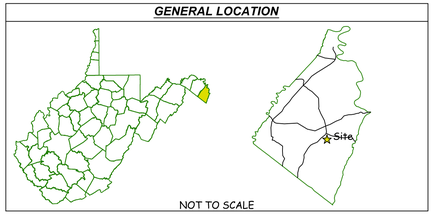
PHASE 16

PRELIMINARY SUBDIVISON/LAND DEVELOPMENT PLAT

CHARLES TOWN CORP. DISTRICT (3)-MAP 12-PARCEL 215
DEED BOOK 1173-PAGE 85 CITY OF CHARLES TOWN
JEFFERSON COUNTY, WV

SLD-2025-02

GENERAL LOCATION



PLAN REVISIONS		
#	DATE	COMMENT
1	10/17/2025	FOR WVDEP SUBMISSION
2	11/07/2025	PER CITY COMMENTS
3	11/25/2025	PER CTUB COMMENTS
4	02/11/2026	PER CTUB COMMENTS
5	03/24/2026	PER DOMINION ENERGY COMMENTS
6	04/06/2026	PER CTUB COMMENTS
7	05/04/2026	PER CLIENT COMMENTS

PLAN REVISIONS		
#	DATE	COMMENT
1	06/04/2026	PER OFF-SITE STORM REVISION & DEP COMMENTS

PLAN REVISION NARRATIVE:

REVISION #1: PER OFF-SITE STORM REVISION & DEP COMMENTS
- **REVISED LIMITS OF DISTURBANCE**
- **REVISED E&S CONTROLS**
- **ADDED SHEET 25B**
- **ADDRESSED DEPARTMENT OF HEALTH COMMENTS**

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
SLDO-CTWV	**1333.07**	**Waiver to allow driveways to be constructed closer than 40' to intersections across from a "T" intersection.**	**March 27, 2023**

"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."

STATE & LOCAL PERMITS

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

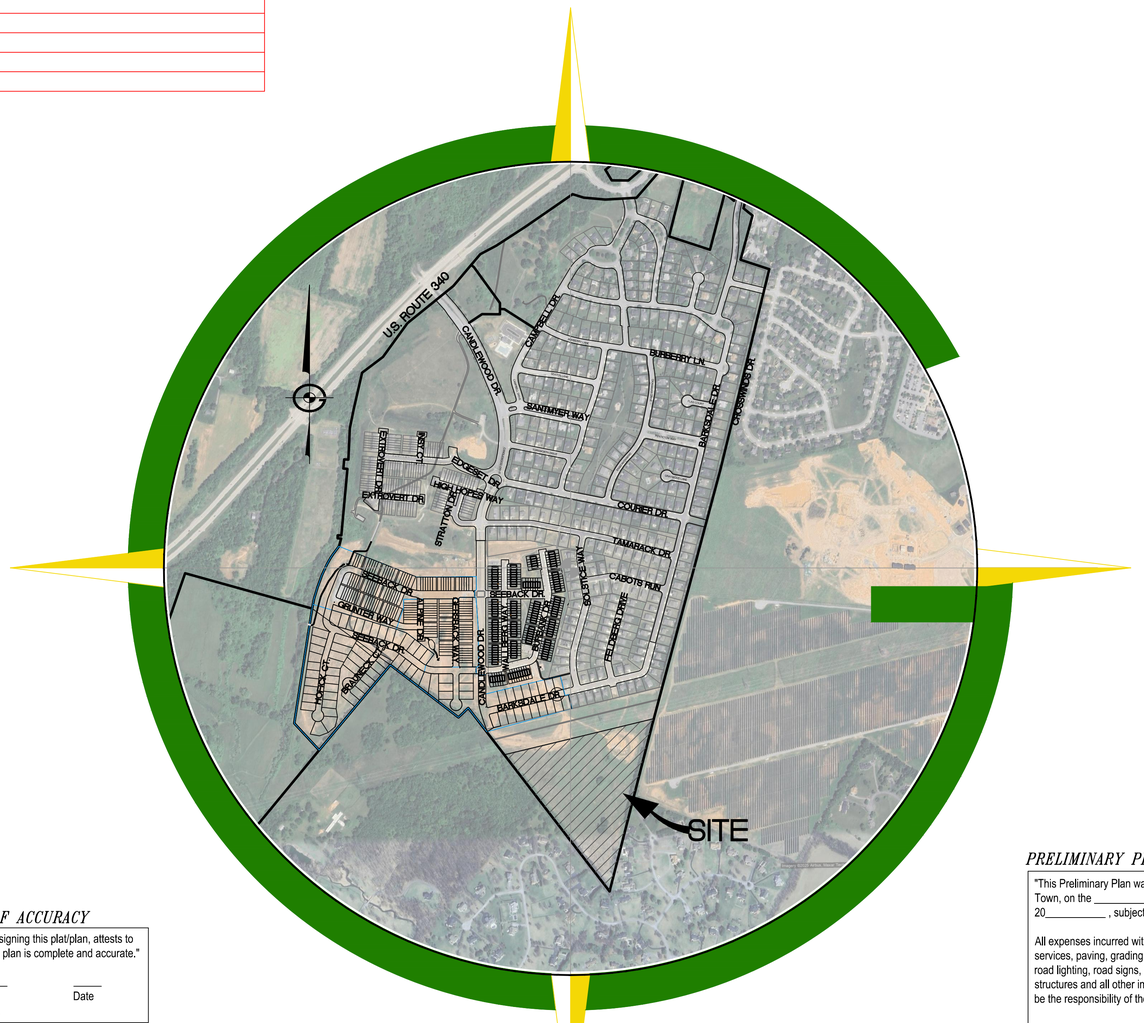
CALL "MISS UTILITY"

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'

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.

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.

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

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

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

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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

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

COVER SHEET

NORBORNE GLEBE - PHASE 16
CHARLES TOWN CORP. DISTRICT (3)-MAP 12-PARCEL 215 DEED BOOK 1173-PAGE 85
CITY OF CHARLES TOWN
JEFFERSON COUNTY, WV

DANIEL B. HAYES REGISTERED 16095 STATE OF WEST VIRGINIA PROFESSIONAL ENGINEER

DATE: 10/07/2025
SCALE: AS NOTED
DESIGNED BY: CC/CW/DM
FILE NO. 4542A
SHEET 1 OF 64
SLD-2025-02

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 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 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 Contractor 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.

TRIP GENERATION DATA

SINGLE FAMILY (**DETACHED**) (210)

UNITS	ADT RATE	ADT	PEAK HOUR RATE	PEAK HOUR TRIPS
56	9.43	528.08	0.70	39.2

*** TAKEN FROM ITE TRIP GENERATION 9TH EDITION**

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.

WV18. WVDOH District 5 Permit #.

LEGEND

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

PROJECT NOTES

Zoning and Area Tabulations

Street Address	Candlewood Drive
Parcel Identification No:	03 12021500000000
Zoned	NR (Neighboorhood Residential)
Proposed Lots	56 Lots
Total Phase 16 Area	19.550 AC
Lot Area	11.179 AC
Sensitive Areas (Electric Right-of-way	0.000 AC
Road Right-of-Way	3.715 AC
SWM Areas	1.113 AC
Net Building Area (NLBA)	14.722 AC
Max Density Allowed ((NLBA/1750)	366 Lots
Total On-Lot Open Space	5.17 AC
Total Off-Lot Open Space	3.54 AC
Total Open Space	8.71 AC
(Minimum 30%*)	45%
(*waived for this subdivision due to dedication of Willingham Knolls Park)	
Minimum Lot Size	6000 SF
Minimum Lot Width	60 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

NORBORNE GLEBE - PHASE 16

CHARLES TOWN CORP. DISTRICT (3)-MAP 12-PARCEL 215 DEED BOOK 1173-PAGE 85
CITY OF CHARLES TOWN
JEFFERSON COUNTY, WV

Rev. No.	Date

DANIEL B. HAYES — REGISTERED — 16095 — STATE OF WEST VIRGINIA — PROFESSIONAL ENGINEER

DATE: 10/07/2025

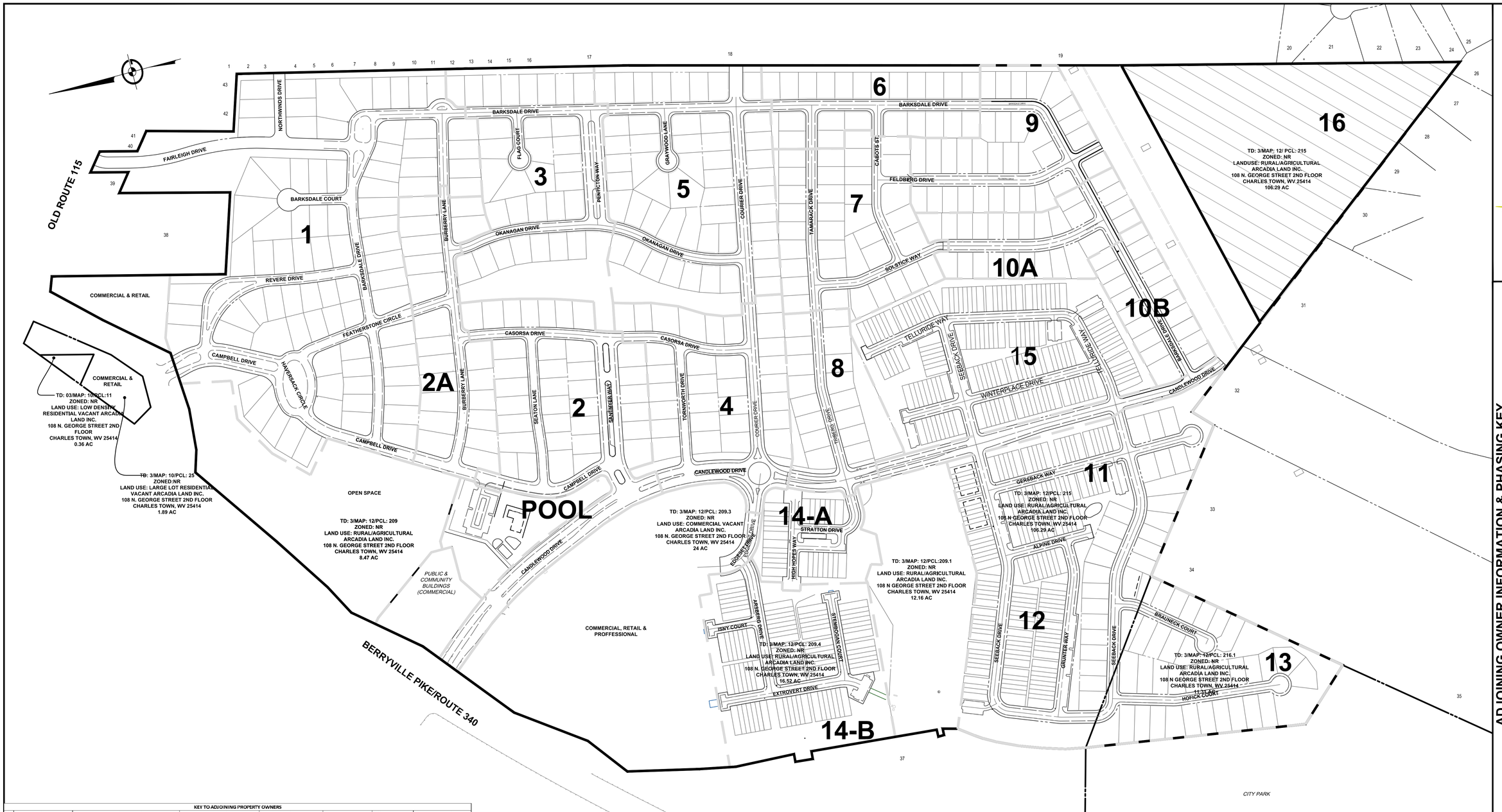
SCALE: N/A

DESIGNED BY: CC/CW/DM

FILE NO. 4542A

SHEET 2 OF 64

SLD-2025-02



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	553	Residential 1 Family
3	T.M. 3-10-28	TODD HOLTE	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	9622	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 & SHEILY 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-SWIM	CROSSWINDS HOMEOWNERS ASSOC.	PO BOX 232	CHARLES TOWN, WV 25414	951	105	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	1208	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. DAGS	107 FOXHALL ROAD	CHARLES TOWN, WV 25414	1234	630	Residential 1 Family
22	T.M. 2-16-49	ROBERT W. & BRENDA J. VINCENT	95 FOXHALL ROAD	CHARLES TOWN, WV 25414	1092	240	Residential 1 Family
23	T.M. 2-16-48	WILLIAM H. & CHRISTINE M. KINSERY	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	449 EASTLAND DRIVE	CHARLES TOWN, WV 25414	945	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	505	Inactive Farm
32	T.M. 2-16-16.4	PATRICK L. & BETH A. MARRONE	1032 OLD CAVE RD	CHARLES TOWN, WV 25414	1139	505	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	709	534	Active Farm
36	T.M. 3-12-216	CHARLES TOWN BOARD OF PARKS AND REC	PO BOX 14	CHARLES TOWN, WV 25414	1009	131	Active Farm
37	T.M. 3-12-217.1	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. CURRMAN	14864 CHARLES TOWN ROAD	CHARLES TOWN, WV 25414	1167	265	Residential 1 Family
40	T.M. 2-17-15	JOSE F. SMIVERTON	14892 CHARLES TOWN ROAD	CHARLES TOWN, WV 25414	1250	83	Residential 1 Family
41	T.M. 2-17-16	JOSEPH HEBIDA 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

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ADJOINING OWNER INFORMATION & PHASING KEY

NORBORNE GLEBE - PHASE 16

CHARLES TOWN CORP. DISTRICT (3)-MAP 12-PARCEL 215 DEED BOOK 1173-PAGE 85
CITY OF CHARLES TOWN
JEFFERSON COUNTY, WV

Rev. No.	Date

DANIEL B. HAYES
REGISTERED
16095
STATE OF
WEST VIRGINIA
PROFESSIONAL ENGINEER

DATE: 10/07/2025

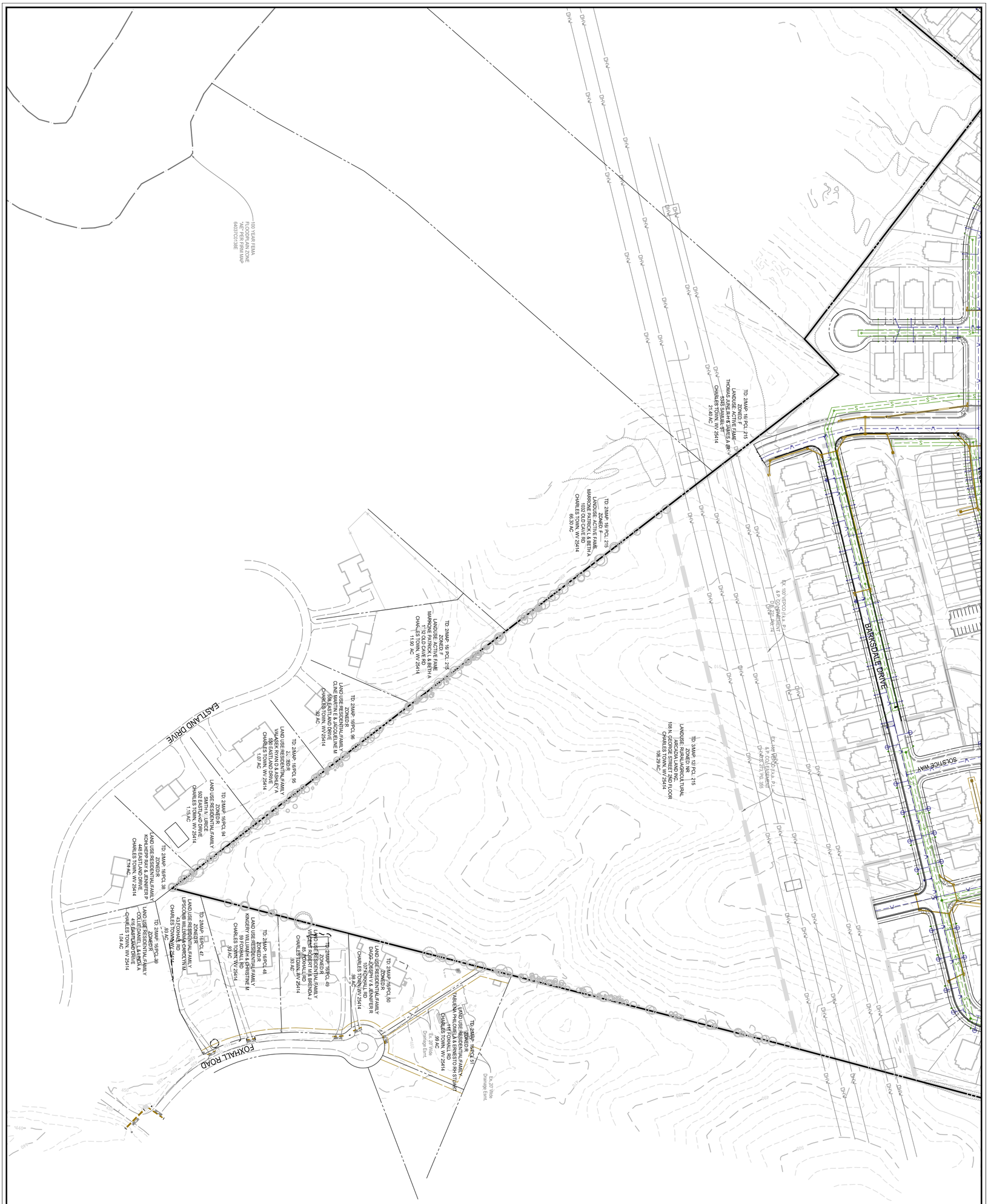
SCALE: 1" = 200'

DESIGNED BY: CC/CW/DM

FILE NO. 4542A

SHEET 3 OF 64

SLD-2025-02



EXISTING CONDITIONS

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CITY OF CHARLES TOWN
JEFFERSON COUNTY, WV

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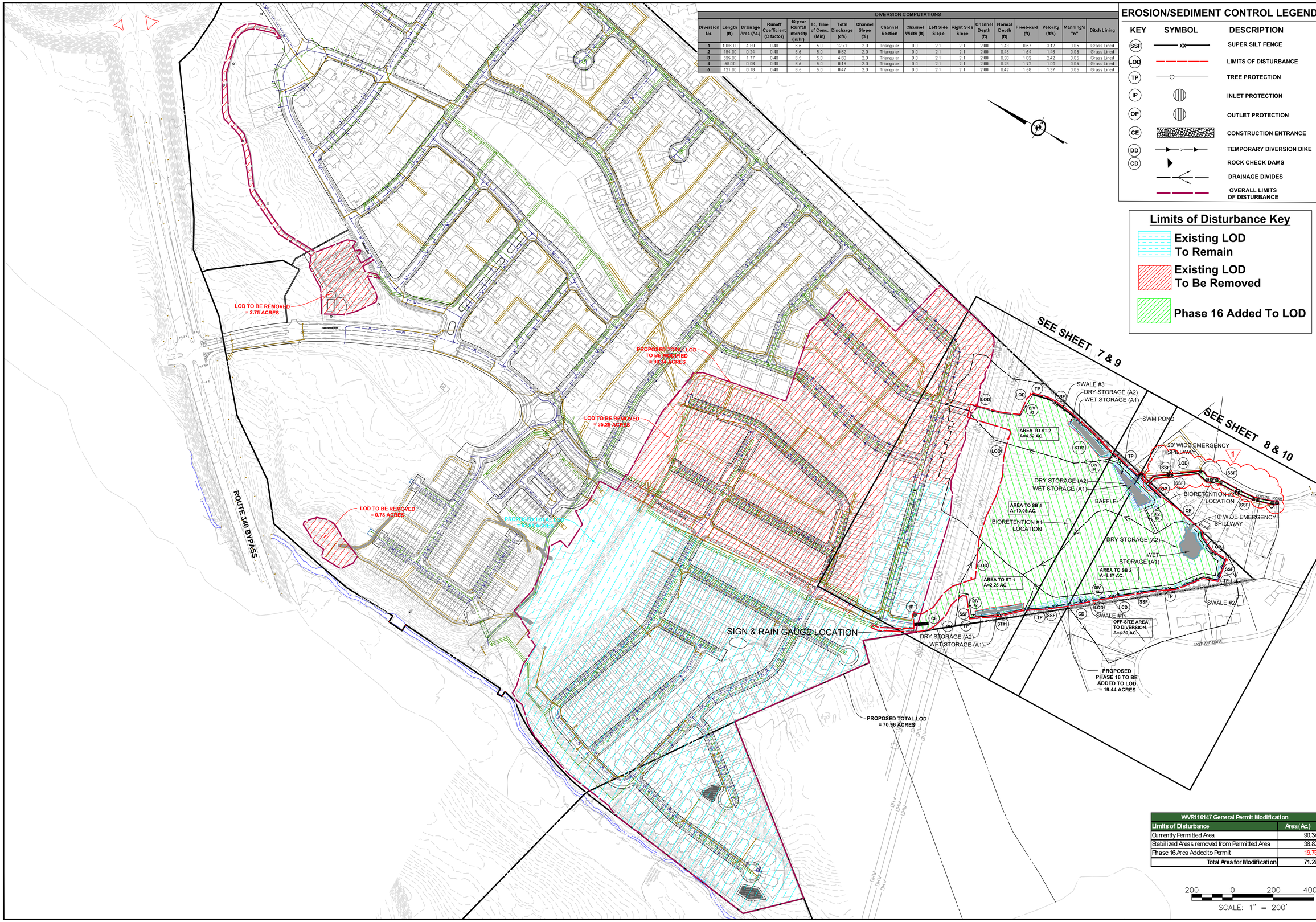

DIVERSION COMPUTATIONS																	
Diversion No.	Length (ft)	Drainage Area (Ac.)	Runoff Coefficient (C factor)	10-year Rainfall Intensity (in/hr)	Tc, Time of Conc. (Min)	Total Discharge (cfs)	Channel Slope (%)	Channel Section	Channel Width (ft)	Left Side Slope	Right Side Slope	Channel Depth (ft)	Normal Depth (ft)	Freeboard (ft)	Velocity (ft/s)	Manning's "n"	Ditch Lining
1	1088.00	4.89	0.40	8.5	5.0	12.71	2.0	Triangular	0.0	2:1	2:1	2.00	1.43	0.57	3.12	0.05	Grass Lined
2	184.00	0.24	0.40	8.5	5.0	0.62	2.0	Triangular	0.0	2:1	2:1	2.00	0.48	1.54	1.46	0.05	Grass Lined
3	595.00	1.77	0.40	8.5	5.0	4.60	2.0	Triangular	0.0	2:1	2:1	2.00	0.98	1.02	2.42	0.05	Grass Lined
4	58.00	0.08	0.40	8.5	5.0	0.18	2.0	Triangular	0.0	2:1	2:1	2.00	0.28	1.72	1.04	0.05	Grass Lined
5	121.00	0.18	0.40	8.5	5.0	0.47	2.0	Triangular	0.0	2:1	2:1	2.00	0.42	1.58	1.37	0.05	Grass Lined

EROSION/SEDIMENT CONTROL LEGEND

KEY	SYMBOL	DESCRIPTION
SSF	xx	SUPER SILT FENCE
LOD		LIMITS OF DISTURBANCE
TP		TREE PROTECTION
IP		INLET PROTECTION
OP		OUTLET PROTECTION
CE		CONSTRUCTION ENTRANCE
DD		TEMPORARY DIVERSION DIKE
CD		ROCK CHECK DAMS
		DRAINAGE DIVIDES
		OVERALL LIMITS OF DISTURBANCE

Limits of Disturbance Key

- Existing LOD To Remain
- Existing LOD To Be Removed
- Phase 16 Added To LOD

WVR110147 General Permit Modification	
Limits of Disturbance	Area (Ac.)
Currently Permitted Area	90.34
Stabilized Areas removed from Permitted Area	38.82
Phase 16 Area Added to Permit	19.76
Total Area for Modification	71.28

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OVERALL E&S

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CITY OF CHARLES TOWN
JEFFERSON COUNTY, WV

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SCALE: 1" = 200'

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SHEET 5 OF 64

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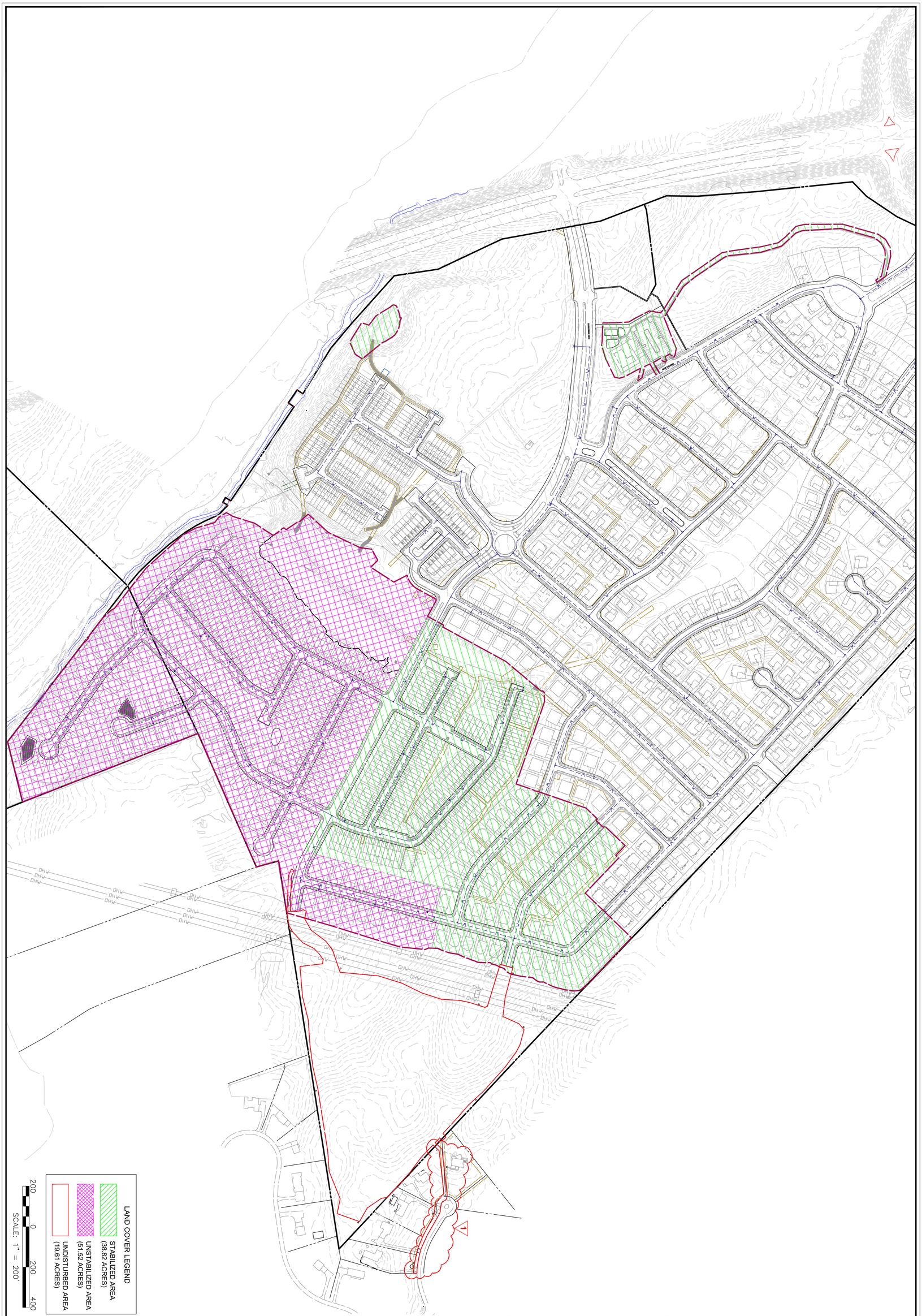

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SHEET 6 OF 64

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E&S PROGRESS MAP

NORBORNE GLEBE - PHASE 16

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CITY OF CHARLES TOWN
JEFFERSON COUNTY, WV

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BARKSDALE DRIVE

SOLSTICE WAY

AREA TO ST 1
A=2.25 AC.

AREA TO ST 2
A=4.82 AC.

AREA TO SB 1
A=10.05 AC.

DRY STORAGE (A2)

WET STORAGE (A1)

BAFFLE

26' WIDE EMERGENCY SPILLWAY

MATCHLINE
SEE SHEET 8

TD: 2/MAP: 16/ PCL: 215
ZONED: F
LANDUSE: ACTIVE FAME
THOMAS JUNE R H & JAMES A JR
534S SAMUEL ST
CHARLES TOWN, WV 25414
24.40 AC

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

EROSION/SEDIMENT CONTROL LEGEND

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OP		OUTLET PROTECTION
CE		CONSTRUCTION ENTRANCE
DD		TEMPORARY DIVERSION DIKE
CD		ROCK CHECK DAMS
		DRAINAGE DIVIDES
ST#X		TEMPORARY SEDIMENT TRAP
		DIVERSION DITCH

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

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E&S PHASE I

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SHEET 7 OF 64

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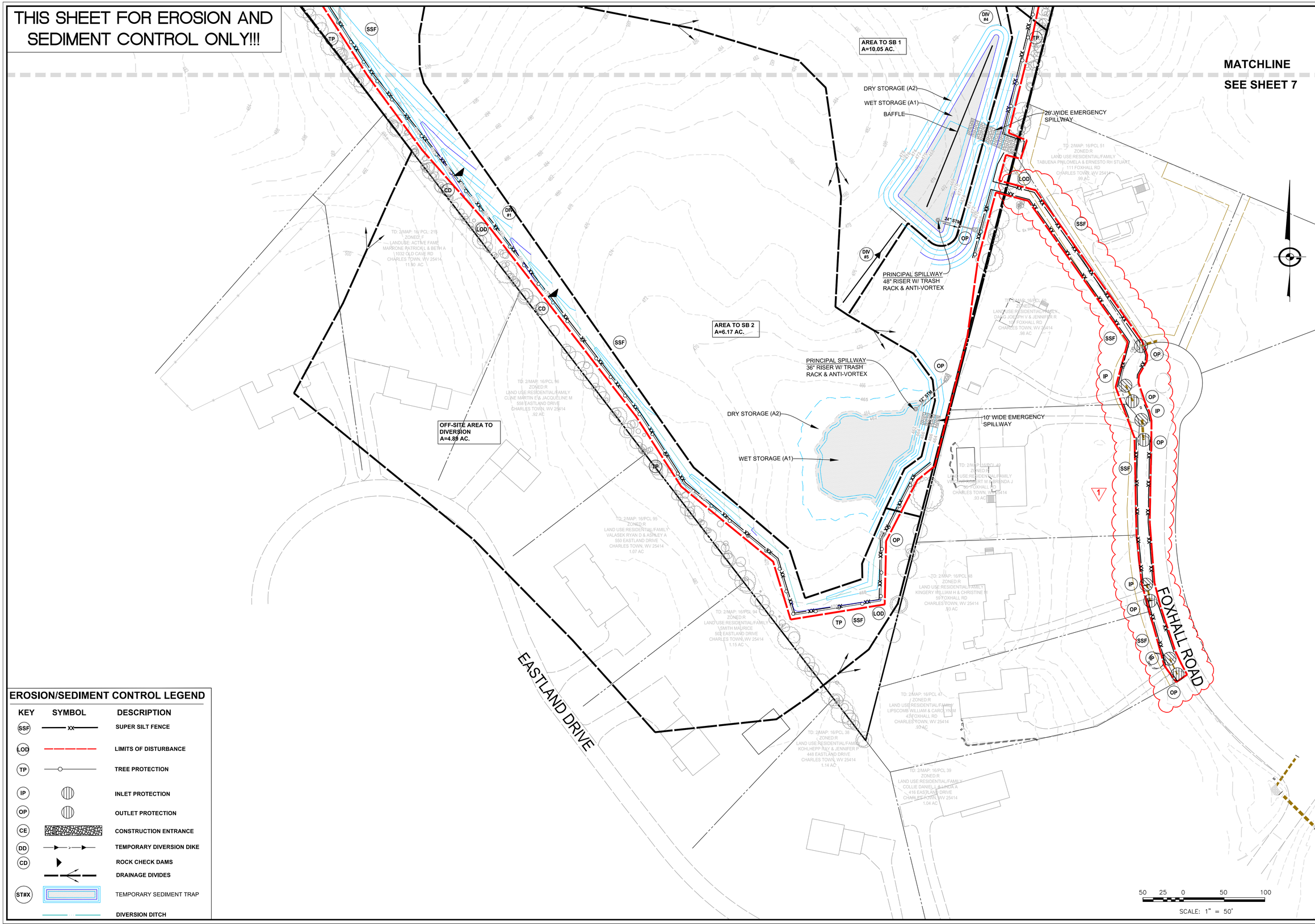

EROSION/SEDIMENT CONTROL LEGEND

KEY	SYMBOL	DESCRIPTION
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NORBORNE GLEBE - PHASE 16

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SHEET 8 OF 64

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SOLSTICE WAY

AREA TO STR. 21
A=0.26 AC.

AREA TO STR. 22
A=0.29 AC.

AREA TO STR. 20
A=5.60 AC.

AREA TO STR. 19
A=0.85 AC.

AREA TO STR. 18
A=0.74 AC.

AREA TO STR. 17
A=0.09 AC.

AREA TO STR. 5
A=0.19 AC.

AREA TO STR. 10
A=0.17 AC.

AREA TO STR. 8
A=0.07 AC.

AREA TO ST 2
A=4.82 AC.

AREA TO STR. 8A
A=0.23 AC.

AREA TO ST. 1
A=2.25 AC.

AREA TO STR. 15
A=0.43 AC.

AREA TO STR. 14
A=0.31 AC.

AREA TO STR. 15A
A=0.98 AC.

AREA TO STR. 4A
A=2.72 AC.

AREA TO STR. 13
A=0.31 AC.

AREA TO STR. 4
A=0.25 AC.

AREA TO STR. 3
A=0.78 AC.

AREA TO STR. 6
A=0.35 AC.

AREA TO STR. 6A
A=0.37 AC.

AREA TO SP 1
A=10.07 AC.

DRY STORAGE (A2)
WET STORAGE (A1)

SWALE #1

SWALE #3

BIORETENTION #1

SWM POND

72" WIDE EMERGENCY SPILLWAY

MATCHLINE
SEE SHEET 10

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
CD		ROCK CHECK DAMS
		DRAINAGE DIVIDES
ST#X		PHASE I E&S

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

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E&S PHASE II

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SHEET 9 OF 64
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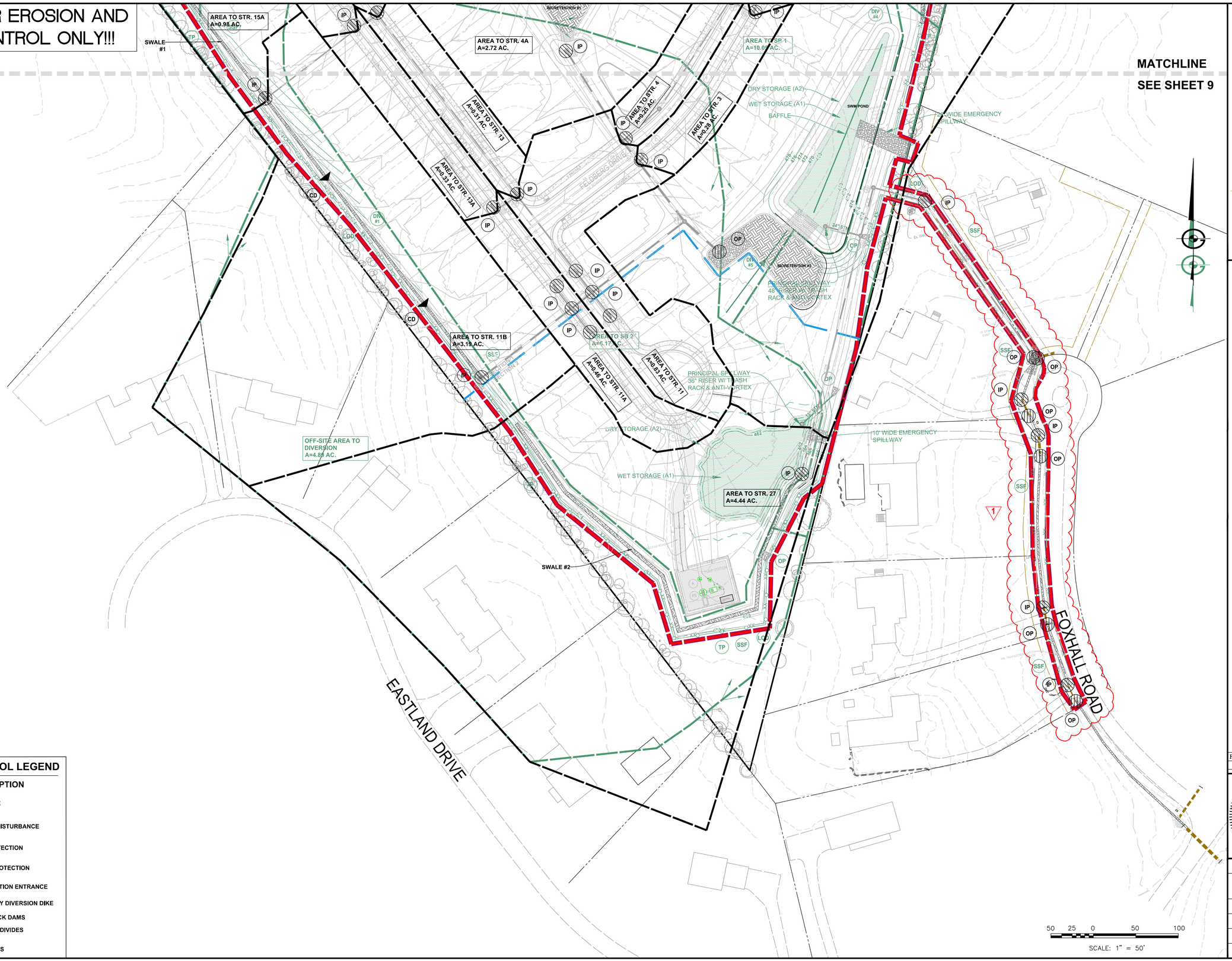

EROSION/SEDIMENT CONTROL LEGEND

KEY	SYMBOL	DESCRIPTION
SF	x	SILT FENCE
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ST#X		PHASE I E&S

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SHEET 10 OF 64

SLD-2025-02

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 16 consisting of 56 single family homes and associated roads and utilities. See Sheet 5 for the detailed Areas of Disturbance.

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.

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.

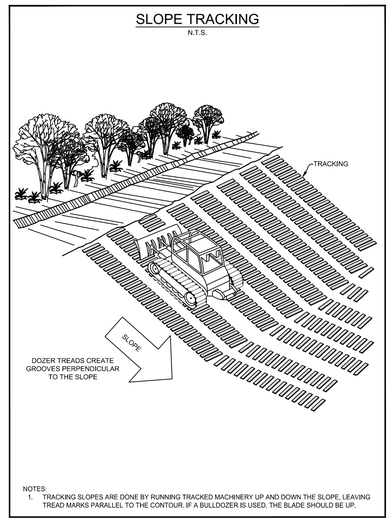
   c. If existing natural receiving channels or previously constructed man-made channels or pipes are not adequate, the applicant shall:

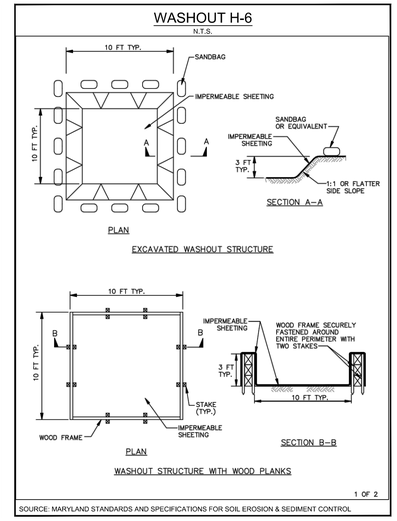
   (1) Improve the channels to a condition where a 10-year storm will not overtop the banks and a two-year storm will not cause erosion to the channel, the bed, or the banks; or

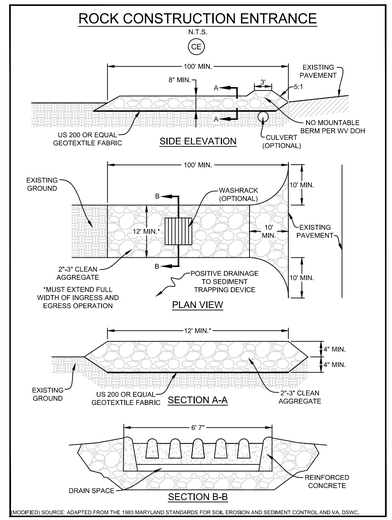
   (2) Improve the pipe or pipe system to a condition where the 10-year storm is contained within the appurtenances;

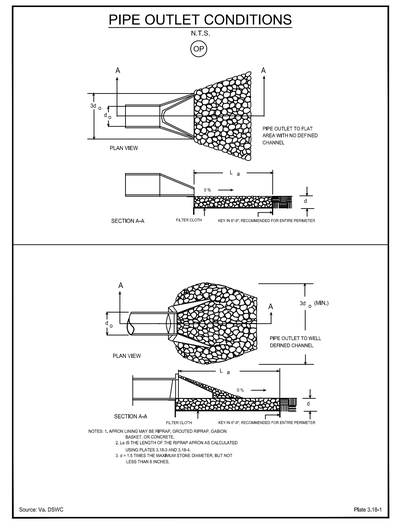
   (3) Develop a site design that will not cause the pre-development peak runoff rate from a two-year storm to increase when runoff outfalls into a natural channel or will not cause the pre-development peak runoff rate from a 10-year storm to increase when runoff outfalls into a man-made channel; or

   (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.









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 APPALACHIAN/MOUNTAIN AREA

	Total Lbs. Per Acre
Minimum Care Lawn	
- Commercial or Residential	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

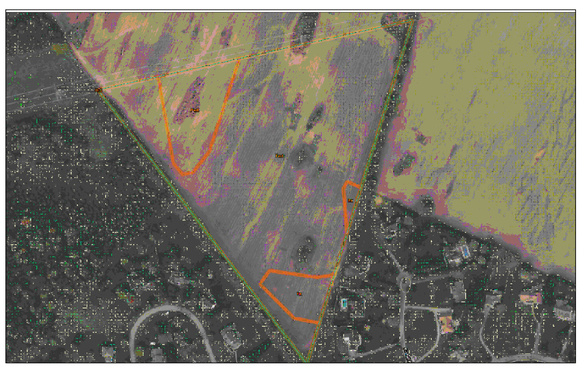
* Perennial Ryegrass will germinate faster and at lower soil temperatures than fescue, thereby providing cover and erosion resistance for seedbed.

** 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	1.1	5.70%
HrC	Hagerstown-Rock outcrop complex, 8 to 15 percent slopes	0	0.00%
PmB	Poplimento silt loam, 3 to 8 percent slopes	2.1	10.90%
PmC	Poplimento silt loam, 8 to 15 percent slopes	16.2	83.40%
TOTALS FOR AREAS OF INTEREST			100%



SOIL MAP
1"=60'

SEDIMENT TRAP COMPUTATIONS

TRAP NO.	DRAINAGE AREA (ACRES)	STORAGE REQUIRED (CU. FT.)	STORAGE PROVIDED (CU. FT.)	WET STORAGE DEPTH D1 (FT.)	WET STORAGE AREA A1 (SQ. FT.)	WET STORAGE VOLUME REQUIRED (CU. FT.)	WET STORAGE VOLUME PROVIDED V1 (CU. FT.)	WET STORAGE SURFACE DIMENSION (FT. x FT.)	DRY STORAGE DEPTH D2 (FT.) (Ho)	DRY STORAGE AREA A2 (SQ. FT.)	DRY STORAGE VOLUME REQUIRED (CU. FT.)	DRY STORAGE VOLUME PROVIDED V1 (CU. FT.)	DRY STORAGE SURFACE DIMENSION (FT. x FT.)	EXCAVATED DEPTH (FT.)	BERM HEIGHT Hi (FT.)	TOP BERM Min WIDTH W (FT.)	OUTLET HEIGHT Ho (FT.)	CLEANOUT HEIGHT (FT.)	OUTLET TYPE	LENGTH OF GRAVEL WEIR (FT.)
1	2.25	8141	11308	2.0	2788	4070.5	4740	34 X 82	2.0	3780	4071	6568	42 X 90	2.0	3.0	3.0	2.0	2.0	GRAVEL	7
2	4.82	17438	20536	2.0	5200	8719.5	8840	50 X 109	2.0	6496	8720	11696	58 X 112	2.0	3.0	3.0	2.0	2.0	GRAVEL	12

Notes: 1. The required storage volume is based upon 134 cu. yds. Per acre (or 3618 cu. ft. per acre) = 80% trap efficiency.
2. V1 = 0.85 x D1 x A1
3. V2 = [(A1 + A2)/2] x D2
4. Total drainage area is used to design the outlet structure of the trap.
5. Construction of the sediment trap shall be in accordance with the latest version of the VA Erosion & Sediment Control Handbook.

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 16
(XXX) XXX-XXXX

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

704 Foxcroft Avenue
Martinsburg, West Virginia 25401
Telephone: (304) 267-5111
Fax: (540) 722-9528
www.greenwayeng.com

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

E&S NARRATIVE

NORBORNE GLEBE - PHASE 16

CHARLES TOWN CORP. DISTRICT (3)-MAP 12-PARCEL 215 DEED BOOK 1173-PAGE 85
CITY OF CHARLES TOWN
JEFFERSON COUNTY, WV

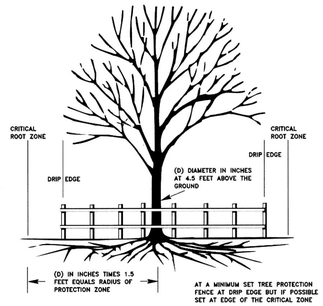
Rev. No.	Date
1	10/17/2025

DANIEL B. HAYES — REGISTERED — 16095 — STATE OF WEST VIRGINIA — PROFESSIONAL ENGINEER

DATE: 10/07/2025
SCALE: N/A
DESIGNED BY: CC/CW/DM
FILE NO. 4542A
SHEET 11 OF 64
SLD-2025-02

FIGURE 3.01.2

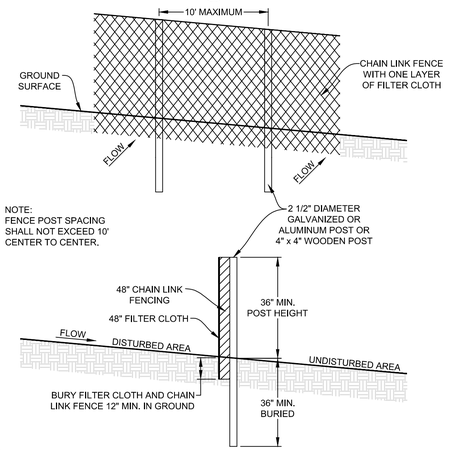
TREE PROTECTION ZONES



SUPER SILT FENCE

N.T.S.

SSF #1



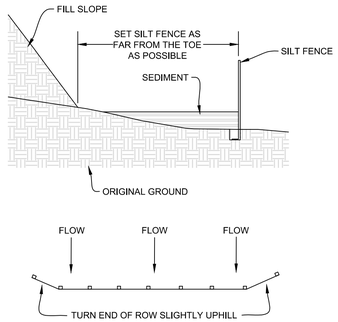
NOTES:
1. SUPER SILT FENCE IS A TEMPORARY BARRIER OF GEOTEXTILE FABRIC OVER CHAIN LINK FENCE.
2. SUPER SILT FENCE SHOULD BE PLACED AS CLOSE TO THE CONTOUR AS POSSIBLE.
3. ENDS SHALL BE EXTENDED UPHILL A MINIMUM OF 2 VERTICAL FEET.
4. CHAIN LINK FENCE SHALL BE FASTENED SECURELY TO THE FENCE POSTS WITH 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

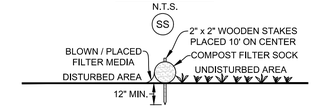


Slope - Percent	Maximum Slope Length (ft) Above Fence		
	Standard (18" High) Silt Fence	Reinforced (30" High) Silt Fence	Super Silt Fence
2 (or less)	150	500	1000
5	100	250	550
10	50	150	325
15	35	100	215
20	25	70	175
25	20	55	135
30	15	45	100
35	15	40	85
40	15	35	75
45	10	30	60
50	10	25	50

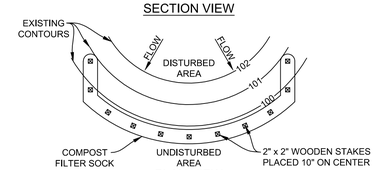
SILT SOCK

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.

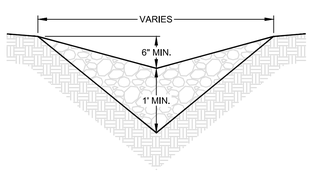
ORGANIC MATTER CONTENT	80%-100% (DRY WEIGHT BASIS)
ORGANIC PORTION	FIBROUS AND ELONGATED
pH	5.5-8.0
MOISTURE CONTENT	35%-55%
PARTICLE SIZE	98% PASS THROUGH 1" SCREEN
SOLUBLE SALT CONCENTRATION	5.0 dS MAXIMUM

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.

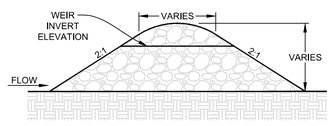
ROCK CHECK DAM

N.T.S.

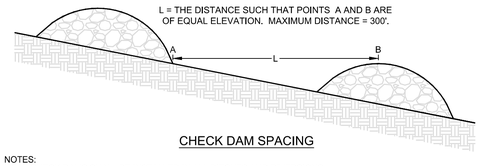
CD



ELEVATION



CROSS-SECTION



CHECK DAM SPACING

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

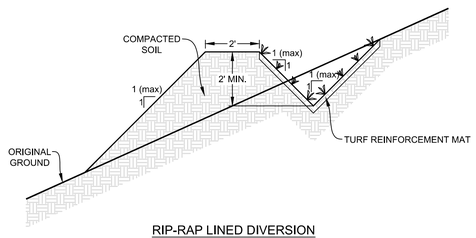
(MODIFIED) SOURCE: WEST VIRGINIA EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICE MANUAL.

DIVERSION

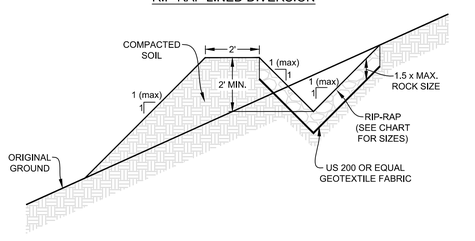
N.T.S.

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.

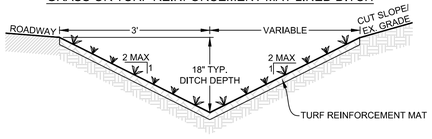
TYPICAL V-DITCH

N.T.S.

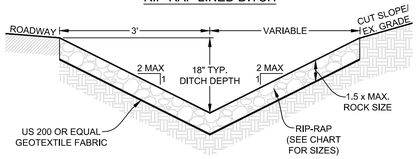
DL #1

***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.

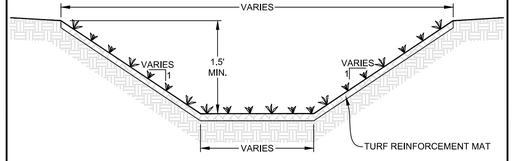
TYPICAL TRAPEZOIDAL DITCH

N.T.S.

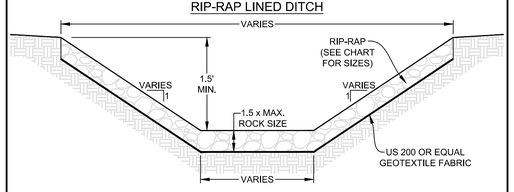
DL #1

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

GRASS OR TURF REINFORCEMENT MAT LINED DITCH



RIP-RAP LINED DITCH



NOTES:
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.

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E&S DETAILS

NORBORNE GLEBE - PHASE 16

CHARLES TOWN CORP. DISTRICT (3)-MAP 12-PARCEL 215 DEED BOOK 1173-PAGE 85
CITY OF CHARLES TOWN
JEFFERSON COUNTY, WV

Rev. No.	Date

DANIEL B. HAYES REGISTERED 16095 STATE OF WEST VIRGINIA PROFESSIONAL ENGINEER

DATE: 10/07/2025

SCALE: · N/A

DESIGNED BY: CC/CW/DM

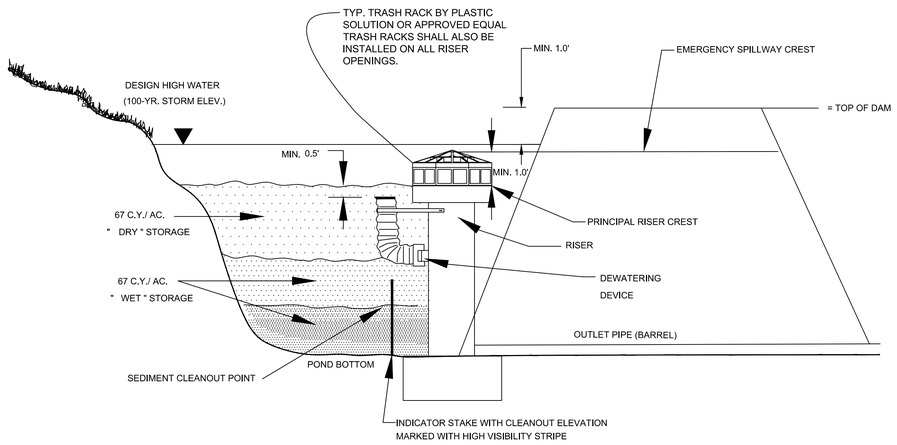
FILE NO. 4542A

SHEET 12 OF 64

SLD-2025-02

SEDIMENT BASIN SCHEMATIC

N.T.S.



NOTE: CLEANOUT ELEVATIONS FOR SEDIMENT TRAPS/BASINS SHALL BE VISIBLY MARKED ON THE RISER STRUCTURE. IF NO RISER STRUCTURE IS PRESENT, A STAKE SHALL BE SET AND VISIBLY MARKED ON THE EMBANKMENT INDICATING THE ELEVATION OF THE CLEANOUT IN ITS RESPECTIVE BMP.

SEE TEMPORARY SEDIMENT BASIN DESIGN SPECIFICATIONS WORKSHEET FOR FINAL DESIGN ELEVATIONS

SOURCE: VA. DSWC

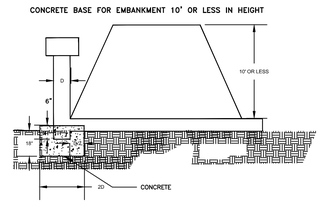
PLATE. 3.14-2

RISER PIPE BASE CONDITIONS

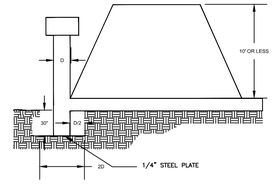
N.T.S.

FOR EMBANKMENTS LESS THAN 10' HIGH

CONCRETE BASE FOR EMBANKMENT 10' OR LESS IN HEIGHT



STEEL BASE FOR EMBANKMENT 10' OR LESS IN HEIGHT

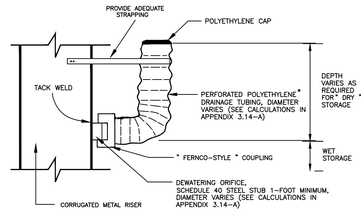


SOURCE: VA. DSWC

PLATE. 3.14-14

DEWATERING SYSTEM FOR SEDIMENT BASINS

N.T.S.



NOTE: WITH CONCRETE RISER, USE PVC SCHEDULE 40 STUB FOR DEWATERING ORIFICE

*DRAINAGE TUBING SHALL COMPLY WITH ASTM F667 AND AASHTO M294

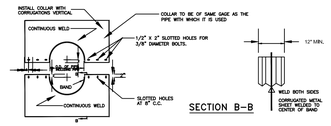
SOURCE: VA. DSWC

PLATE. 3.14-15

SEEP COLLAR

N.T.S.

DETAILS OF CORRUGATED METAL ANTI-SEEP COLLAR



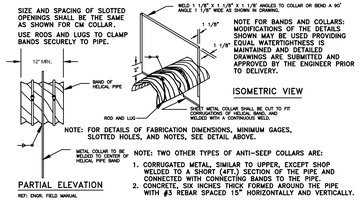
SECTION B-B

ELEVATION OF UNASSEMBLED COLLAR

NOTES FOR COLLARS:

1. ALL MATERIALS TO BE IN ACCORDANCE WITH CONSTRUCTION AND CONSTRUCTION MATERIAL SPECIFICATIONS.
2. WHEN SPECIFIED ON THE PLANS, COATING OF COLLARS SHALL BE IN ACCORDANCE WITH CONSTRUCTION AND CONSTRUCTION MATERIAL SPECIFICATIONS.
3. UNASSEMBLED COLLARS SHALL BE MARKED BY PAINTING OR TAGGING TO IDENTIFY MATCHING PAIRS.
4. THE LAP BETWEEN THE TWO HALF SECTIONS AND BETWEEN THE PIPE AND CONNECTING BAND SHALL BE CAULKED WITH ASPHALT MASTIC AT TIME OF INSTALLATION.
5. EACH COLLAR SHALL BE FURNISHED WITH TWO 1/2" DIAMETER RODS WITH STANDARD TANK LUGS FOR CONNECTING COLLARS TO PIPE.

DETAIL OF HELICAL PIPE ANTI-SEEP COLLAR



NOTE FOR BANDS AND COLLARS: MODIFICATIONS OF THE DETAILS SHOWN MAY BE USED PROVIDING EQUAL WATERTIGHTNESS IS MAINTAINED AND DETAILED DRAWINGS ARE SUBMITTED AND APPROVED BY THE ENGINEER PRIOR TO DELIVERY.

ISOMETRIC VIEW

NOTE: FOR DETAILS OF FABRICATION DIMENSIONS, MINIMUM GAGES, SLOTTED HOLES, AND NOTES, SEE DETAIL ABOVE.

PARTIAL ELEVATION

REF: ENGR. FIELD MANUAL

NOTE: TWO OTHER TYPES OF ANTI-SEEP COLLARS ARE:

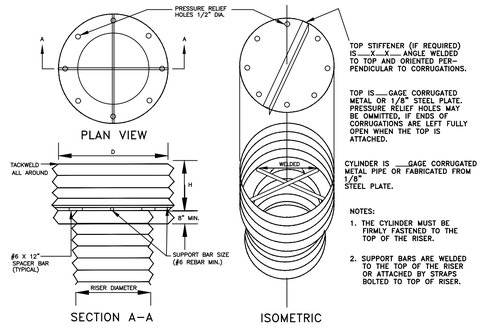
1. CORRUGATED METAL, SIMILAR TO UPPER, EXCEPT SHOP WELDED TO A SHORT (4FT.) SECTION OF THE PIPE AND CONNECTED WITH CONNECTING BANDS TO THE PIPE.
2. CONCRETE, SIX INCHES THICK FORMED AROUND THE PIPE WITH #3 REBAR SPACED 15" HORIZONTALLY AND VERTICALLY.

SOURCE: USDA-SCS

PLATE. 3.14-13

ANTI- VORTEX DEVICE DESIGN

N.T.S.



TOP STIFFENER (IF REQUIRED) IS ___X___X___ ANGLE WELDED TO TOP AND ORIENTED PERPENDICULAR TO CORRUGATIONS.

TOP IS ___ GAGE CORRUGATED METAL OR 1/8" STEEL PLATE. PRESSURE RELIEF HOLES MAY BE OMMITTED, IF ENDS OF CORRUGATIONS ARE LEFT FULLY OPEN WHEN THE TOP IS ATTACHED.

CYLINDER IS ___ GAGE CORRUGATED METAL PIPE OR FABRICATED FROM 1/8" STEEL PLATE.

NOTES:

1. THE CYLINDER MUST BE FIRMLY FASTENED TO THE TOP OF THE RISER.
2. SUPPORT BARS ARE WELDED TO THE TOP OF THE RISER OR ATTACHED BY STRAPS BOLTED TO TOP OF RISER.

SOURCE: USDA-SCS

PLATE. 3.14-10

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SEDIMENT BASIN DETAILS

NORBORNE GLEBE - PHASE 16

CHARLES TOWN CORP. DISTRICT (3)-MAP 12-PARCEL 215 DEED BOOK 1173-PAGE 85
CITY OF CHARLES TOWN
JEFFERSON COUNTY, WV

Rev. No.	Date

DANIEL B. HAYES REGISTERED 16095 STATE OF WEST VIRGINIA PROFESSIONAL ENGINEER

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SCALE: N/A

DESIGNED BY: CC/CW/DM

FILE NO. 4542A

SHEET 13 OF 64

SLD-2025-02

Temporary Sediment Basin Design Data Sheet

(with or without an emergency spillway)

Project:	Norborne Glebe Ph 16	
Basin #:	1	
Total Area Draining to Basin:	10.050	AC.

Basin Volume Design

Wet Storage

1. Minimum Required Volume = 67 CY x Total Drainage Area (AC): 673 CY
2. Available Basin Volume: 828 CY at elevation: 471
3. Excavate: 1,675 CY to obtain required volume*.

*Elevation corresponding to required volume=invert of the dewatering orifice

4. Available Volume Before Cleanout Required. 33 CY x Total Drainage Area = 332 CY
5. Elevation cooresponding to cleanout level = 470
6. Distance from invert of the Dewatering Orifice to Cleanout (min 1.0 FT) = 1.0 FT

Dry Storage

7. Minimum Required Dry Storage = 67 CY x Total Drainage Area (AC) = 673 CY
8. Total Available Basin Volume at Crest of Riser*: 1,245 CY Req'd 1,347 CY
   at Elevation = 472.5 *minimum = 134 CY x Total Drainage Area
9. Diameter of Dewatering Orifice: 2.5 IN
10. Diameter of Flexible Tubing (diameter of dewatering orifice plus 2 inches) = 4.5 IN

Preliminary Design Elevations

11. Crest of Riser: 472.5
    Top of Dam: 474.0
    Design High Water (25 Year): 470.63 25 yr 471.46 100 yr
    Upstream Toe of Dam: 468.0

Basin Shape

12. Length of Flow L = 1.4
    Effective Width We
    If > 2, baffles are not required
    If < 2, baffles are required — baffles are required

Runoff

13. Q2 = 4.09 CFS (From Chapter 5)
14. Q25 = 12.72 CFS (From Chapter 5)
    Q100 = 19.91 CFS

Principal Spillway Design

15. With Emergency Spillway, required spillway capacity QP = Q2 = 4.09 CFS
    Without Emergency Spillway, required spillway capacity QP = Q25 = N/A CFS
    (riser and barrell)
16. With Emergency Spillway:
    Assumed Available Head (h) = 0.0 FT (Using Q2)
    h = Crest of Spillway Elevation - Crest of Riser Elevation
    Without Emergency Spillway:
    Assumed Available Head (h) = -1.9 FT (Using Q25)
    h = Design Highwater Elevation - Crest of Riser Elevation
17. Riser Diameter (Dr) = 48 IN Actual Head (h) = 0.0 FT
    (From Plate 3.14-8)
    Note: Avoid orifice flow conditions
18. Barrel Length (l) = 43 FT
    Head (H) on Barrel through embankment = 2.6 (from Plate 3.14-7)
19. Barrel Diameter = 24 IN
    (from Plate 3.14-B [concrete pipe] or Plate 3.14-A [corrugated pipe]).
20. Trash rack and anti-vortex device
    Diameter = 72 in
    Height = 21 in
    (From Table 3.14-D)

Emergency Spillway Design

21. Required Spillway Capacity Qe = Q25 - Qp = 8.63 CFS
22. Bottom Width (b) = 20 FT
    The slope of the Exit Channel (s) = 0.039 FT/FT
    The minimum length of the exit channel (x) = 280 FT
    (From Table 3.14-C)

Anti-Seep Collar Design

23. Depth of Water at Principle Spillway Crest (Y) = 4.5 FT
    Slope of Upstream Face of Embankement (Z) = 3.0 FT/FT
    Slope of principal spillway Barrel (Sb) = 9.9 %
    Length of Barrel in Saturation Zone (Ls) = 31.2 FT
24. Number of Collars Required: 1 dimensions = 5x5
    (from Plate 3.14-12)

Final Design Elevations

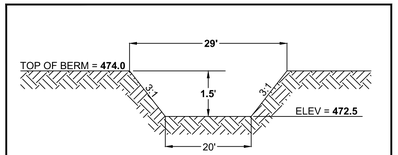
25. Top of Dam = 474.0
    Design High Water = 470.63
    Emergency Spillway Crest = 472.5
    Principle Spillway Crest = 472.5
    Dewatering Orifice Invert = 471.0
    Cleanout Elevation = 470.0
    Elevation of Upstream Toe of Dam or Excavated Bottom of "Wet Storage Area" (If excavation was performed) 468.0

SEDIMENT BASIN #1
STORAGE-ELEVATION CURVE

Elevation	CY	C.F.	Acre-Ft
468	0	0.0	0
469	197	5,324.8	0.12224
470	473	12,784.4	0.29349
471	828	22,350.6	0.5131
472	1,245	33,616.6	0.77173
473	1,728	46,665.4	1.07129
474	2,284	61,660.5	1.41553

DEWATERING ORIFICE SIZING

Ao	As	h	Cd	T1	T2
0.034088	14049	1.5	0.6	48	72
Size at T1		0.041360683			
Size at T2		0.027573789			
Time of Dewatering		58.24002245			



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

Temporary Sediment Basin Design Data Sheet

(with or without an emergency spillway)

Project:	Norborne Glebe Ph 16	
Basin #:	2	
Total Area Draining to Basin:	6.170	AC.

Basin Volume Design

Wet Storage

1. Minimum Required Volume = 67 CY x Total Drainage Area (AC): 413 CY
2. Available Basin Volume: 754 CY at elevation: 464
3. Excavate: 884 CY to obtain required volume*.

*Elevation corresponding to required volume=invert of the dewatering orifice

4. Available Volume Before Cleanout Required. 33 CY x Total Drainage Area = 204 CY
5. Elevation cooresponding to cleanout level = 463
6. Distance from invert of the Dewatering Orifice to Cleanout (min 1.0 FT) = 1.0 FT

Dry Storage

7. Minimum Required Dry Storage = 67 CY x Total Drainage Area (AC) = 413 CY
8. Total Available Basin Volume at Crest of Riser*: 1,307 CY Req'd 827 CY
   at Elevation = 465 *minimum = 134 CY x Total Drainage Area
9. Diameter of Dewatering Orifice: 2.5 IN
10. Diameter of Flexible Tubing (diameter of dewatering orifice plus 2 inches) = 4.5 IN

Preliminary Design Elevations

11. Crest of Riser: 465.0
    Top of Dam: 466.0
    Design High Water (25 Year): 464.59 25 yr 465.14 100 yr
    Upstream Toe of Dam: 463.5

Basin Shape

12. Length of Flow L = 2.3
    Effective Width We
    If > 2, baffles are not required — baffle not required
    If < 2, baffles are required

Runoff

13. Q2 = 2.51 CFS (From Chapter 5)
14. Q25 = 7.81 CFS (From Chapter 5)
    Q100 = 12.22 CFS

Principal Spillway Design

15. With Emergency Spillway, required spillway capacity QP = Q2 = 2.51 CFS
    Without Emergency Spillway, required spillway capacity QP = Q25 = N/A CFS
    (riser and barrell)
16. With Emergency Spillway:
    Assumed Available Head (h) = -0.1 FT (Using Q2)
    h = Crest of Spillway Elevation - Crest of Riser Elevation
    Without Emergency Spillway:
    Assumed Available Head (h) = -0.4 FT (Using Q25)
    h = Design Highwater Elevation - Crest of Riser Elevation
17. Riser Diameter (Dr) = 36 IN Actual Head (h) = -0.1 FT
    (From Plate 3.14-8)
    Note: Avoid orifice flow conditions
18. Barrel Length (l) = 61 FT
    Head (H) on Barrel through embankment = 1.1 (from Plate 3.14-7)
19. Barrel Diameter = 15 IN
    (from Plate 3.14-B [concrete pipe] or Plate 3.14-A [corrugated pipe]).
20. Trash rack and anti-vortex device
    Diameter = 54 in
    Height = 17 in
    (From Table 3.14-D)

Emergency Spillway Design

21. Required Spillway Capacity Qe = Q25 - Qp = 5.30 CFS
22. Bottom Width (b) = 10 FT
    The slope of the Exit Channel (s) = 0.028 FT/FT
    The minimum length of the exit channel (x) = 250 FT
    (From Table 3.14-C)

Anti-Seep Collar Design

23. Depth of Water at Principle Spillway Crest (Y) = 1.5 FT
    Slope of Upstream Face of Embankement (Z) = 3.0 FT/FT
    Slope of principal spillway Barrel (Sb) = 1.7 %
    Length of Barrel in Saturation Zone (Ls) = 10.4 FT
24. Number of Collars Required: 1 dimensions = 3.5x3.5
    (from Plate 3.14-12)

Final Design Elevations

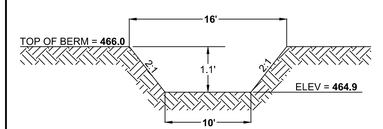
25. Top of Dam = 466.0
    Design High Water = 464.59
    Emergency Spillway Crest = 464.9
    Principle Spillway Crest = 465.0
    Dewatering Orifice Invert = 464.0
    Cleanout Elevation = 463.0
    Elevation of Upstream Toe of Dam or Excavated Bottom of "Wet Storage Area" (If excavation was performed) 463.5

SEDIMENT BASIN #2
STORAGE-ELEVATION CURVE

Elevation	CY	C.F.	Acre-Ft
461	0	0.0	0
463	352	9,505.2	0.21821
464	754	20,363.0	0.46747
465	1,307	35,292.7	0.81021
466	2,159	58,298.5	1.33835

DEWATERING ORIFICE SIZING

Ao	As	h	Cd	T1	T2
0.034088	18582	1	0.6	48	72
Size at T1		0.04466724			
Size at T2		0.02977816			
Time of Dewatering		62.89598855			



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

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SEDIMENT BASIN DETAILS

NORBORNE GLEBE - PHASE 16

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DESIGNED BY: CC/CW/DM

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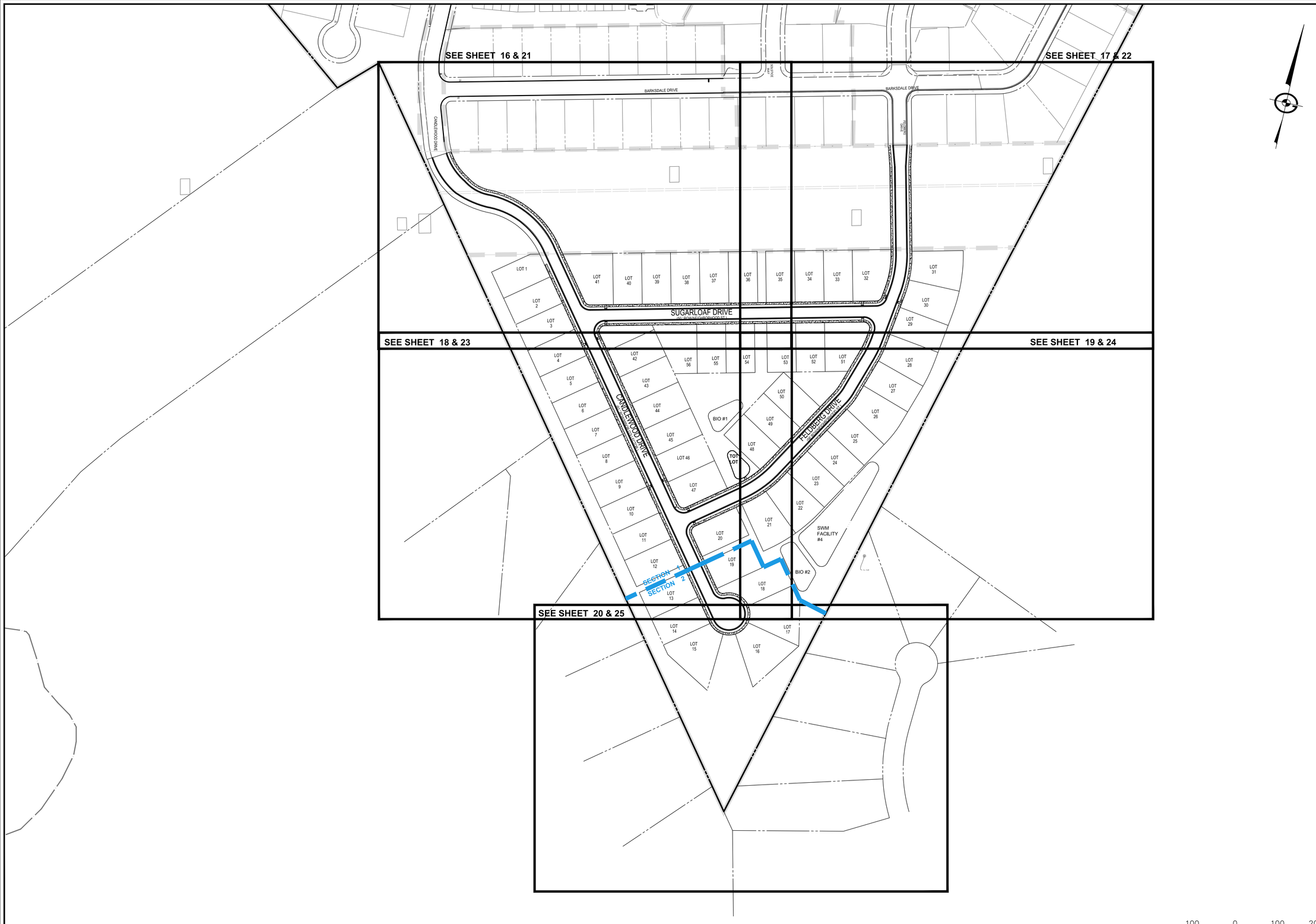
SHEET 14 OF 64

SLD-2025-02



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OVERALL PLAN

NORBORNE GLEBE - PHASE 16

CHARLES TOWN CORP. DISTRICT (3)-MAP 12-PARCEL 215 DEED BOOK 1173-PAGE 85
CITY OF CHARLES TOWN
JEFFERSON COUNTY, WV

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16095
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PROFESSIONAL ENGINEER

DATE: 10/07/2025

SCALE: 1" = 100'

DESIGNED BY: CC/CW/DM

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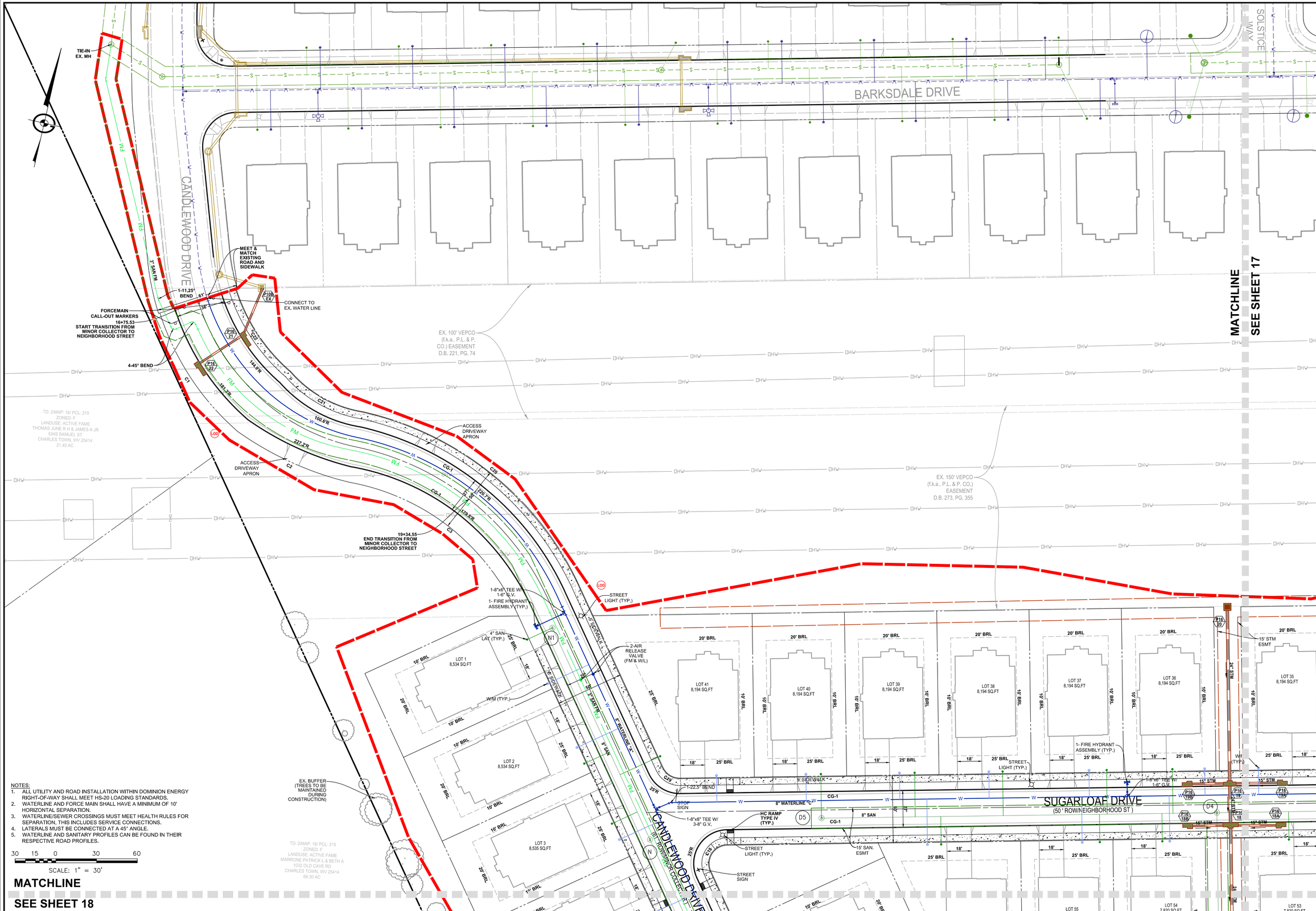
SHEET 15 OF 64

SLD-2025-02



NOTES:
1. ALL UTILITY AND ROAD INSTALLATION WITHIN DOMINION ENERGY RIGHT-OF-WAY SHALL MEET HS-20 LOADING STANDARDS.
2. WATERLINE AND FORCE MAIN SHALL HAVE A MINIMUM OF 10' HORIZONTAL SEPARATION.
3. WATERLINE/SEWER CROSSINGS MUST MEET HEALTH RULES FOR SEPARATION, THIS INCLUDES SERVICE CONNECTIONS.
4. LATERALS MUST BE CONNECTED AT A 45° ANGLE.
5. WATERLINE AND SANITARY PROFILES CAN BE FOUND IN THEIR RESPECTIVE ROAD PROFILES.

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

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LAYOUT & UTILITY PLAN

NORBORNE GLEBE - PHASE 16

CHARLES TOWN CORP. DISTRICT (3)-MAP 12-PARCEL 215 DEED BOOK 1173-PAGE 85
CITY OF CHARLES TOWN
JEFFERSON COUNTY, WV

Rev. No.	Date
5	03/24/2026

DANIEL B. HAYES
REGISTERED
16095
STATE OF WEST VIRGINIA
PROFESSIONAL ENGINEER

DATE: 10/07/2025
SCALE: 1" = 30'
DESIGNED BY: CC/CW/DM
FILE NO. 4542A
SHEET 16 OF 64
SLD-2025-02

LAYOUT & UTILITY PLAN

NORBORNE GLEBE - PHASE 16

CHARLES TOWN CORP. DISTRICT (3)-MAP 12-PARCEL 215 DEED BOOK 1173-PAGE 85
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Rev. No.	Date
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DANIEL B. HAINES — REGISTERED PROFESSIONAL ENGINEER — STATE OF WEST VIRGINIA — 16005

SLD-2025-02
SHEET 17 OF 64
FILE NO. 4542A
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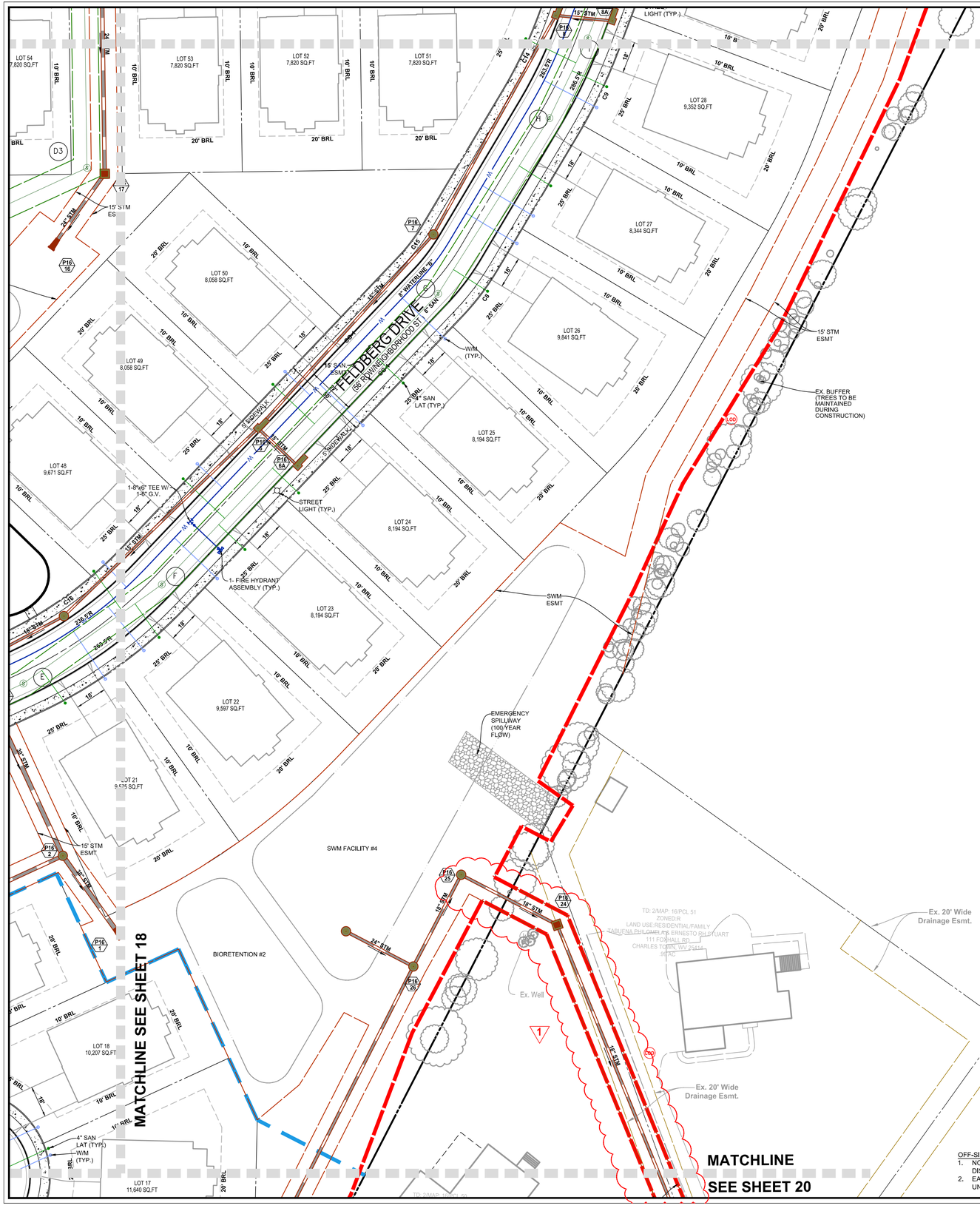
FILE NO. 4542A
SHEET 18 OF 64
SLD-2025-02



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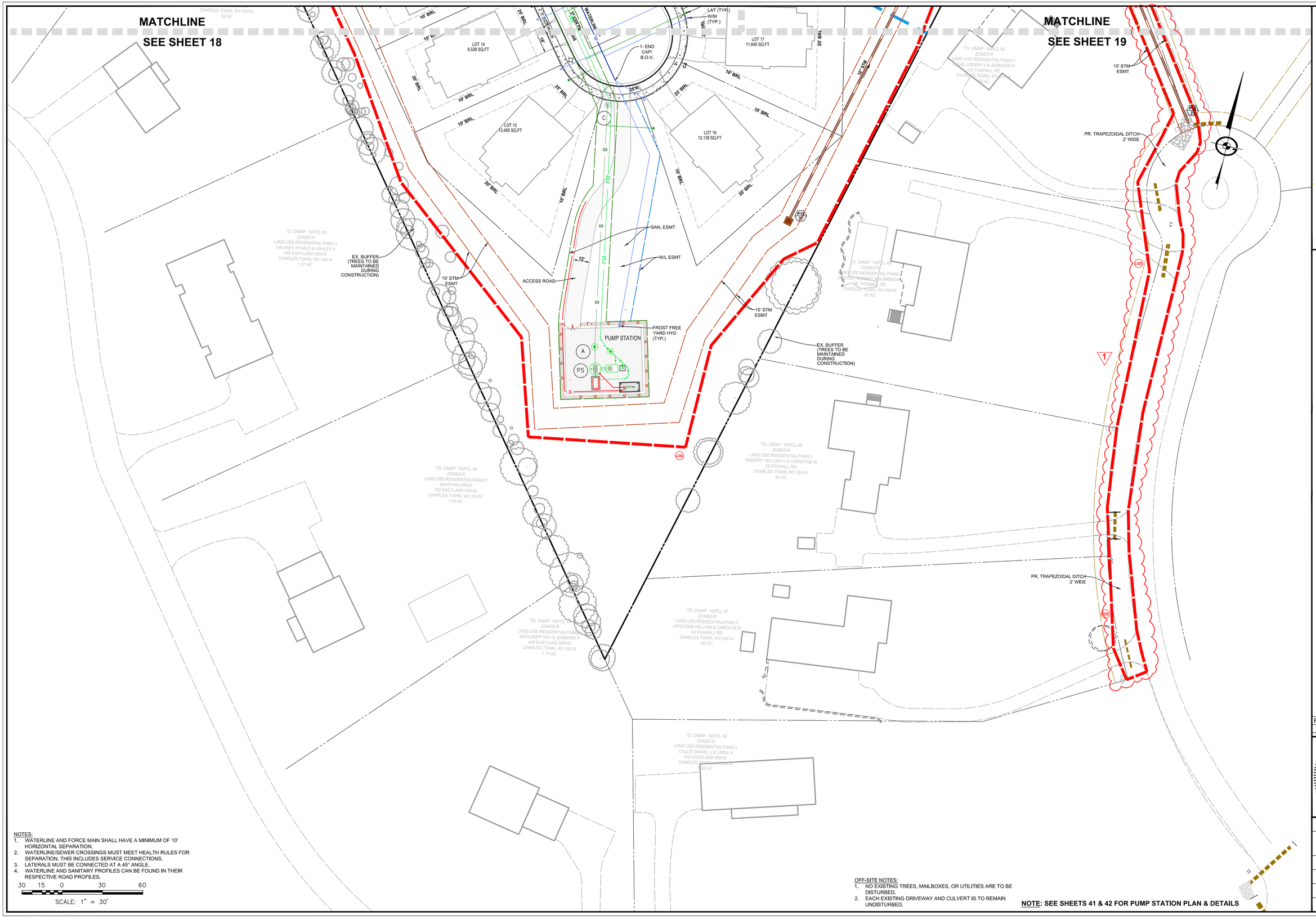
SHEET 19 OF 64

SLD-2025-02



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OFF-SITE NOTES:
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NOTE: SEE SHEETS 41 & 42 FOR PUMP STATION PLAN & DETAILS

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DANIEL B. HAYES REGISTERED 16095 STATE OF WEST VIRGINIA PROFESSIONAL ENGINEER

DATE: 10/07/2025

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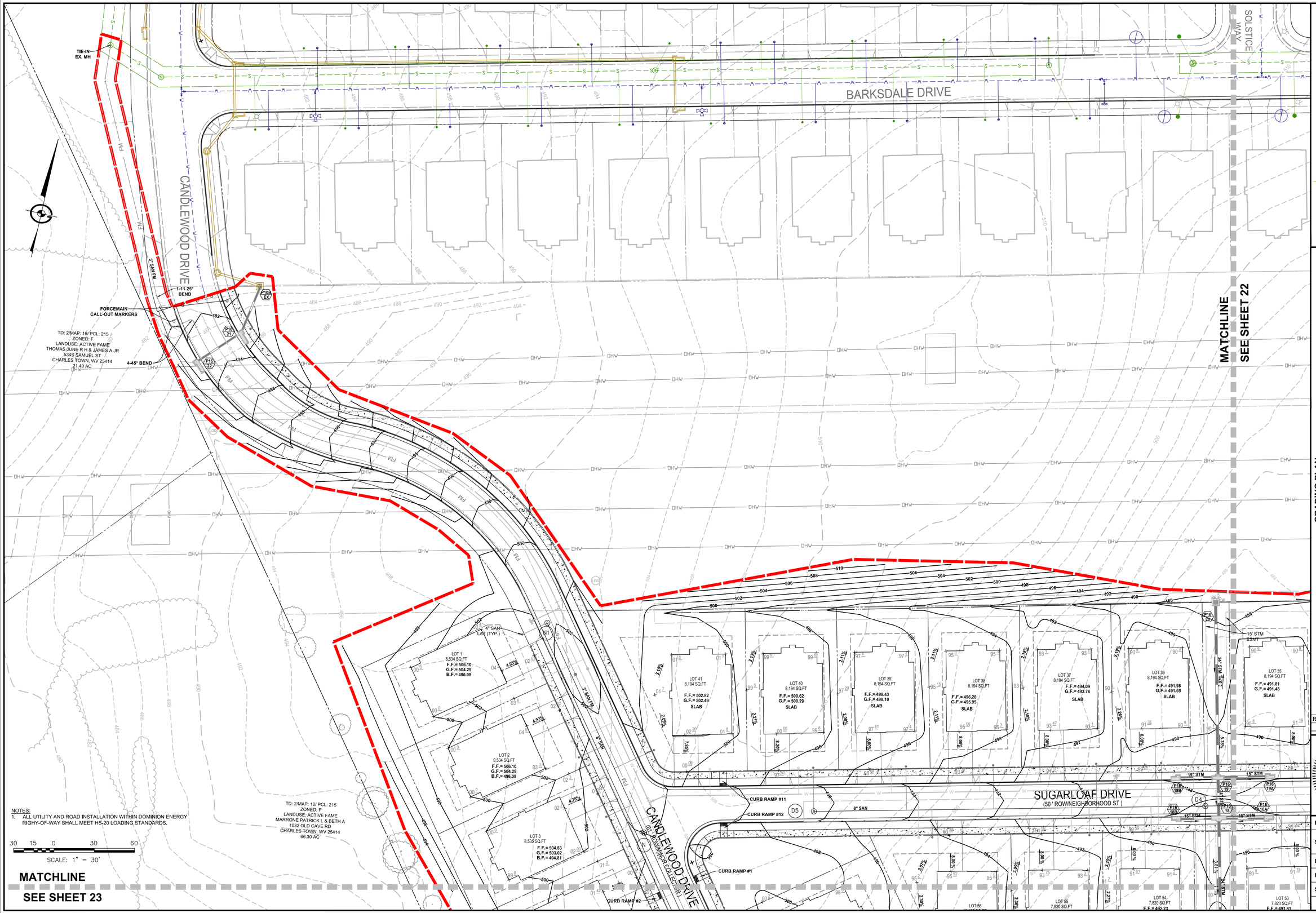
SHEET 20 OF 64

SLD-2025-02



NOTES:
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GRADING PLAN

NORBORNE GLEBE - PHASE 16

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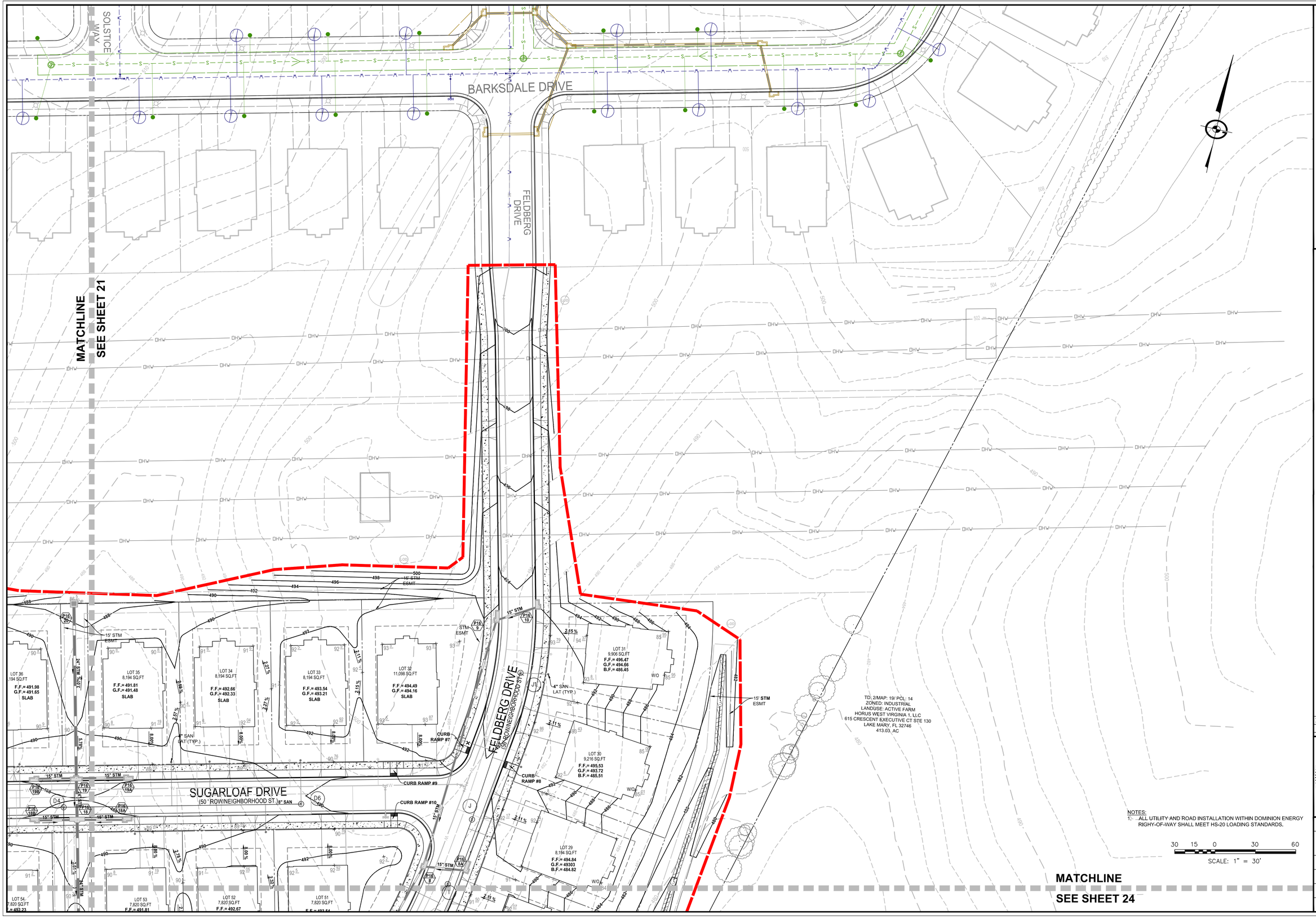
SHEET 21 OF 64
SLD-2025-02



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FILE NO. 4542A

SHEET 22 OF 64

SLD-2025-02

MATCHLINE
SEE SHEET 21

MATCHLINE
SEE SHEET 24

MATCHLINE
SEE SHEET 25

CURB RAMP #1
CURB RAMP #2
CURB RAMP #3
CURB RAMP #4
CURB RAMP #5
CURB RAMP #6

CANDLEWOOD DRIVE
(NEIGHBORHOOD COLLECTOR)

FELDBERG DRIVE
(NEIGHBORHOOD ST.)

TOT LOT

SECTION 1
SECTION 2

TD: 2/MAP: 16/ PCL: 215
ZONED: F
LANDUSE: ACTIVE FAME
MARRONE PATRICK L & BETH A
1032 OLD CAVE RD
CHARLES TOWN, WV 25414
66.30 AC

TD: 2/MAP: 16/ PCL: 215
ZONED: F
LANDUSE: ACTIVE FAME /
MARRONE PATRICK L & BETH A
1032 OLD CAVE RD
CHARLES TOWN, WV 25414
11.90 AC

TD: 2/MAP: 16/PCL: 96
ZONED:R
LAND USE:RESIDENTIAL/FAMILY
CLINE MARTIN E & JACQUELINE M
558 EASTLAND DRIVE
CHARLES TOWN, WV 25414
.92 AC

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

LOT 4 8,535 SQ.FT F.F.= 503.52 G.F.= 507.71 B.F.= 493.50
LOT 5 8,535SQ.FT F.F.= 502.60 G.F.= 500.79 B.F.= 492.58
LOT 6 8,536 SQ.FT F.F.= 501.00 G.F.= 499.19 B.F.= 490.98
LOT 7 8,536 SQ.FT F.F.= 498.70 G.F.= 496.89 B.F.= 488.68
LOT 8 8,536 SQ.FT F.F.= 495.30 G.F.= 493.49 B.F.= 485.28
LOT 9 8,537 SQ.FT F.F.= 491.40 G.F.= 489.59 B.F.= 481.38
LOT 10 8,537 SQ.FT F.F.= 487.60 G.F.= 485.79 B.F.= 477.58
LOT 11 8,537 SQ.FT F.F.= 484.30 G.F.= 482.48 B.F.= 474.28
LOT 12 8,537 SQ.FT F.F.= 482.50 G.F.= 480.69 B.F.= 472.48
LOT 13 8,538 SQ.FT F.F.= 482.30 G.F.= 480.49 B.F.= 472.48
LOT 14 8,538 SQ.FT
LOT 42 8,193 SQ.FT F.F.= 502.70 G.F.= 500.89 B.F.= 492.68
LOT 43 8,194 SQ.FT F.F.= 500.57 G.F.= 498.76 B.F.= 490.55
LOT 44 8,194 SQ.FT F.F.= 498.20 G.F.= 496.39 B.F.= 488.18
LOT 45 8,194 SQ.FT F.F.= 494.90 G.F.= 493.09 B.F.= 484.88
LOT 46 8,194 SQ.FT F.F.= 490.73 G.F.= 488.92 B.F.= 480.71
LOT 47 8,577 SQ.FT F.F.= 487.30 G.F.= 485.49 B.F.= 477.28
LOT 56 10,158 SQ.FT F.F.= 496.54 G.F.= 496.21 SLAB
LOT 55 7,820 SQ.FT F.F.= 494.37 G.F.= 494.04 SLAB
LOT 54 7,820 SQ.FT F.F.= 492.23 G.F.= 491.90 SLAB
LOT 53 7,820 SQ.FT F.F.= 491.81 G.F.= 491.48 SLAB
LOT 48 9,671 SQ.FT F.F.= 487.90 G.F.= 487.57 SLAB
LOT 49 6,058 SQ.FT F.F.= 489.37 G.F.= 489.04 SLAB
LOT 19 8,195 SQ.FT F.F.= 481.00 G.F.= 480.67 SLAB
LOT 20 8,576 SQ.FT F.F.= 482.02 G.F.= 481.69 SLAB
LOT 21 9,575 SQ.FT F.F.= 486.39 G.F.= 484.58 B.F.= 476.37
LOT 18 10,207 SQ.FT F.F.= 48[illegible] G.F.= 481.79 B.F.= [illegible]8
LOT 17 11,640 SQ.FT

15' STM ESMT
24" STM
30" STM
8" SAN
4" SAN LAT (TYP.)
6" SAN
SWM ESMT
W/O

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

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GRADING PLAN

NORBORNE GLEBE - PHASE 16

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SHEET 23 OF 64
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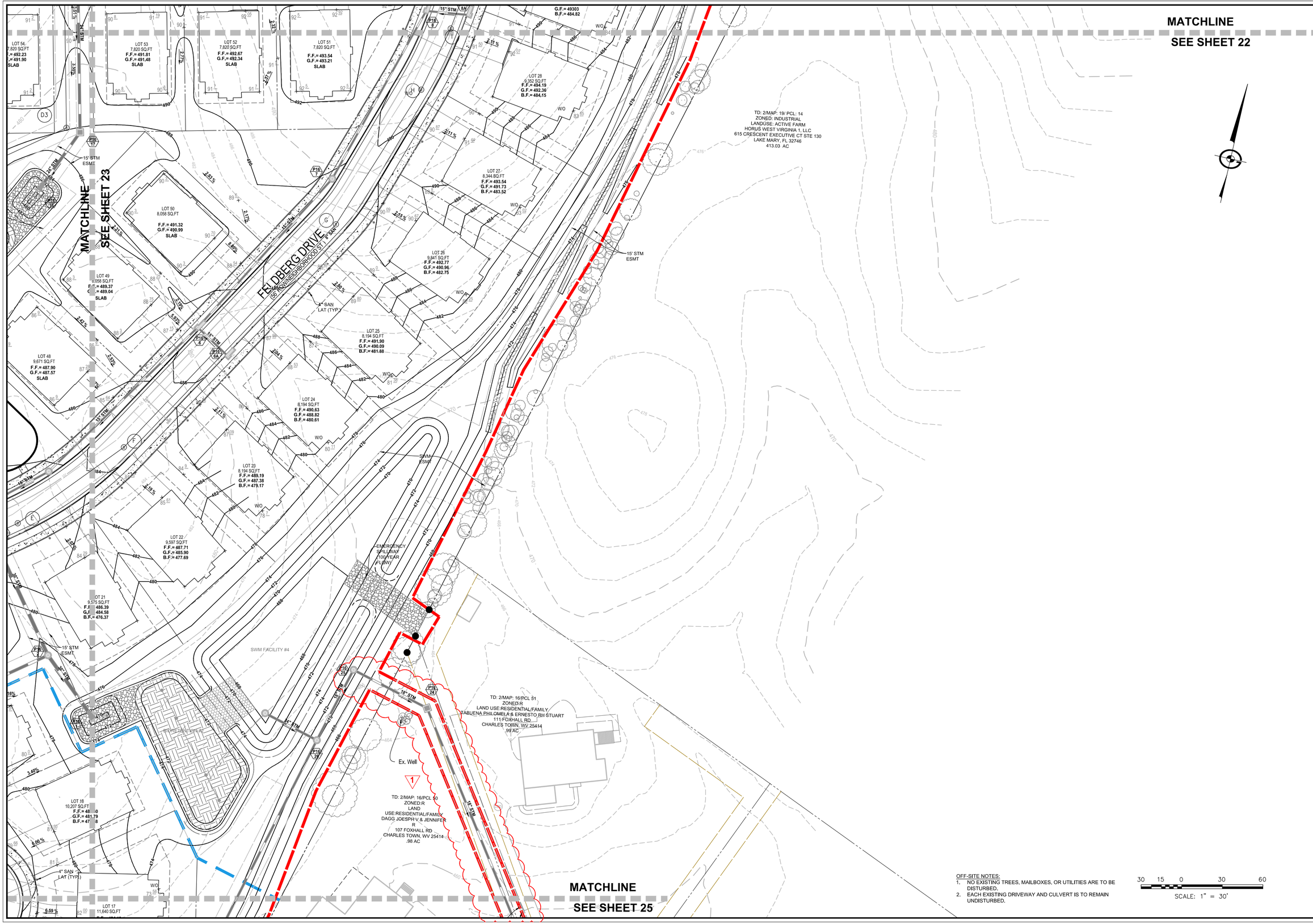

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SHEET 24 OF 64

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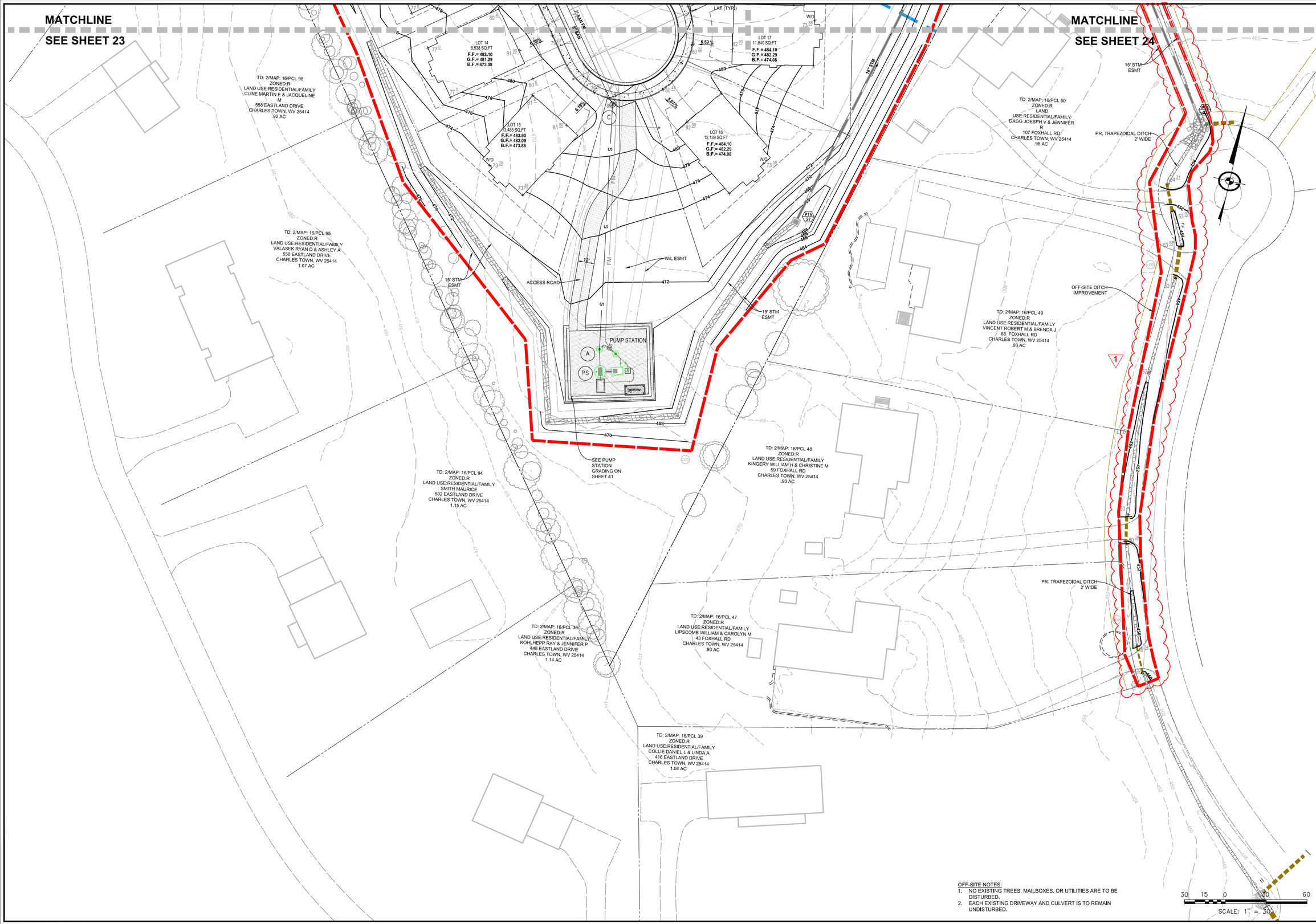

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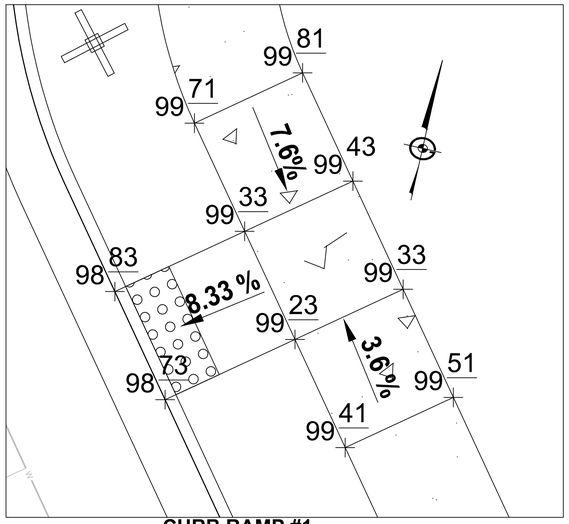
SHEET 25 OF 64

SLD-2025-02



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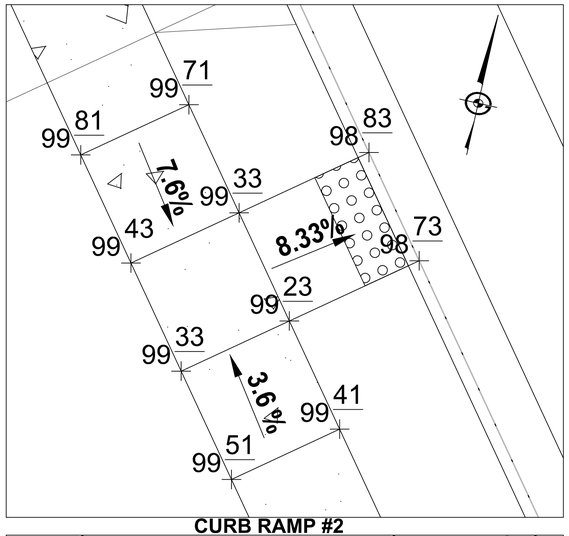

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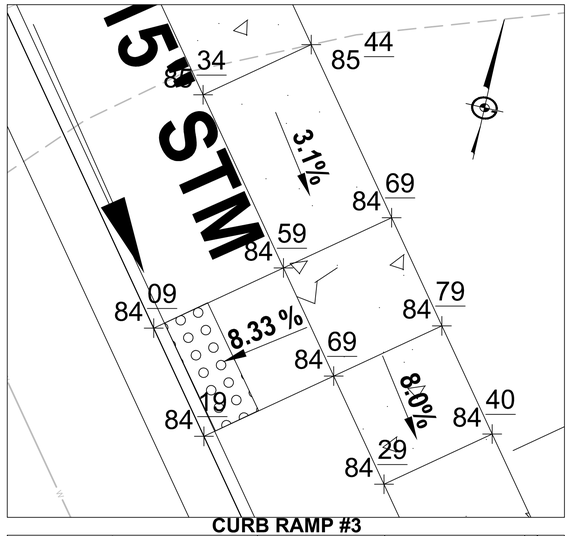

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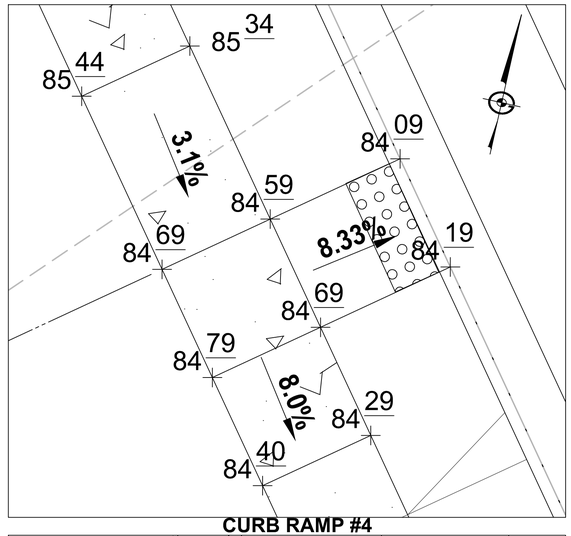

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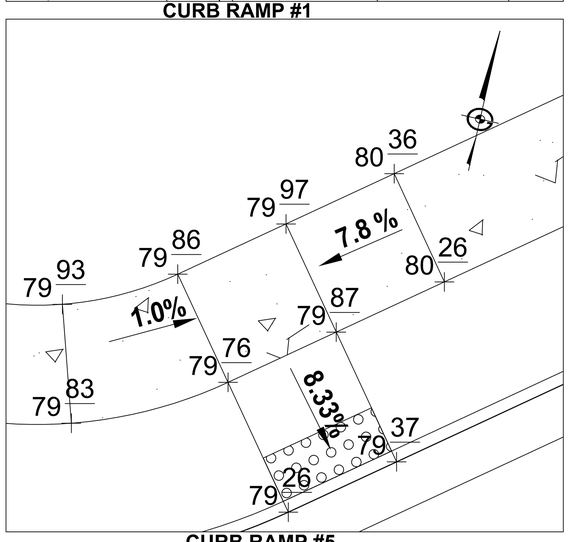

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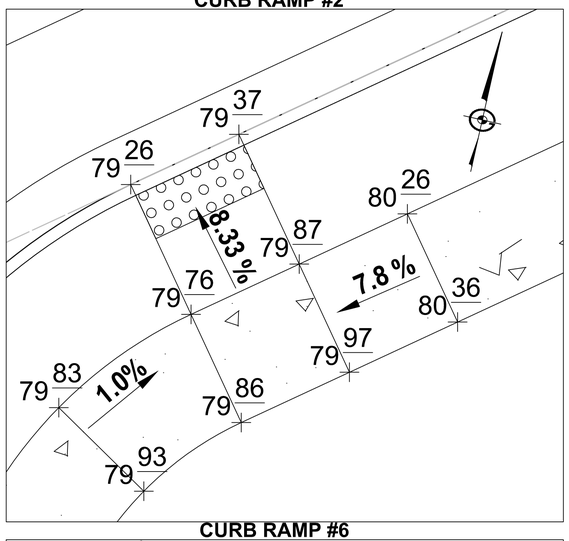

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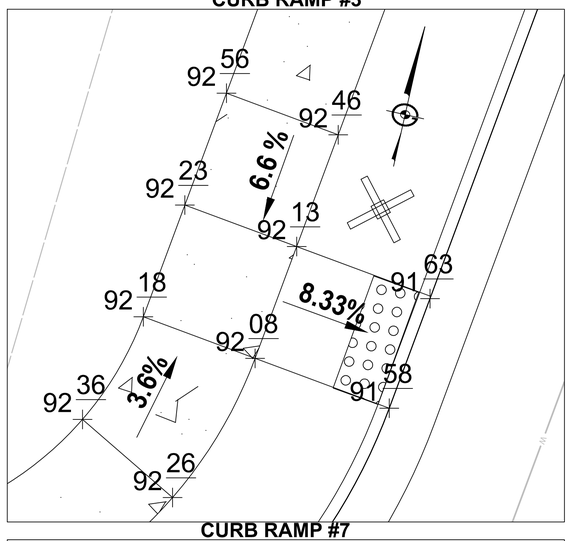

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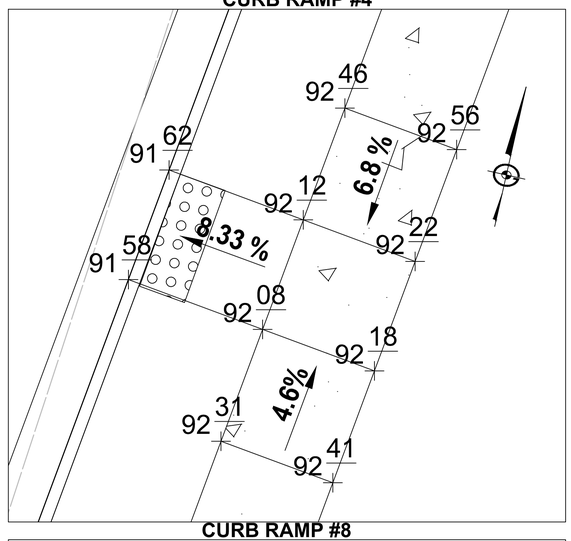

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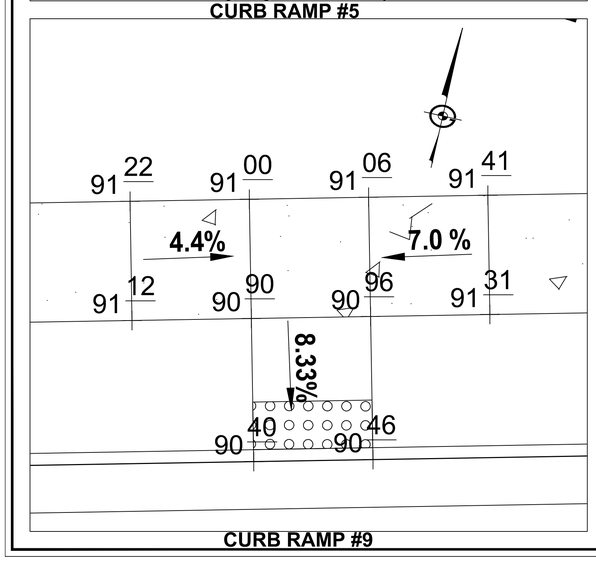

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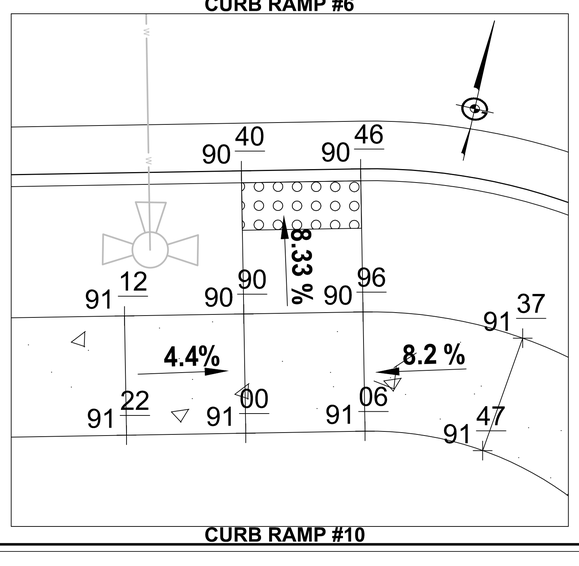

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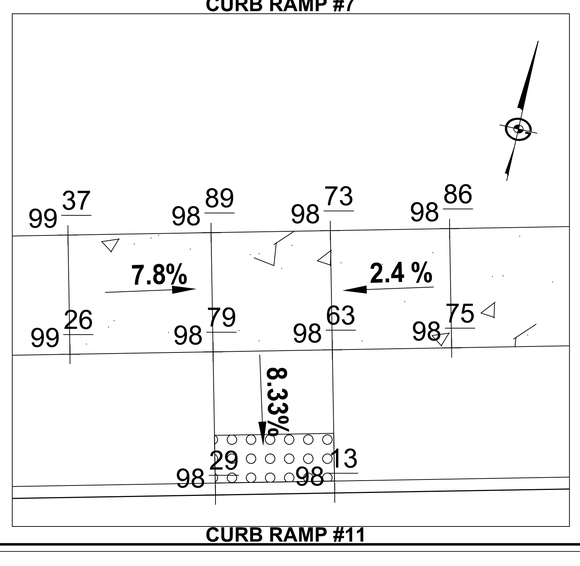

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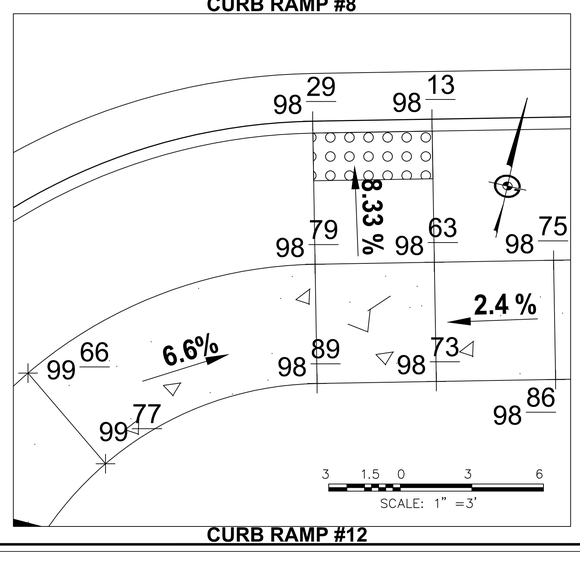

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CURB RAMP DETAIL PLAN

NORBORNE GLEBE - PHASE 16

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JEFFERSON COUNTY, WV

Rev. No.	Date
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DANIEL B. HAYES, REGISTERED, 16095, STATE OF WEST VIRGINIA, PROFESSIONAL ENGINEER

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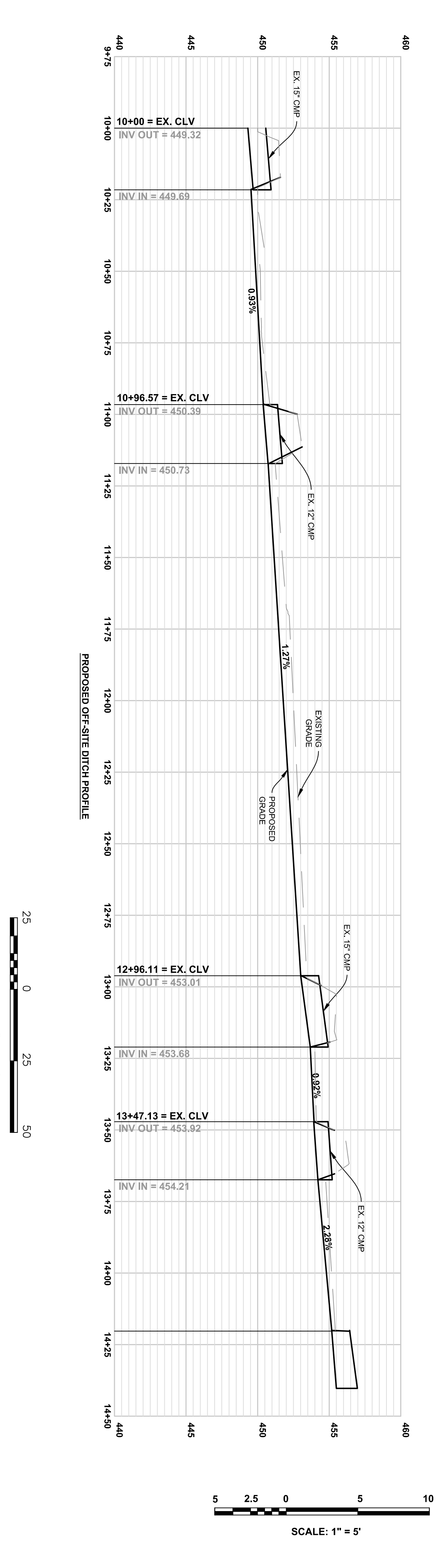
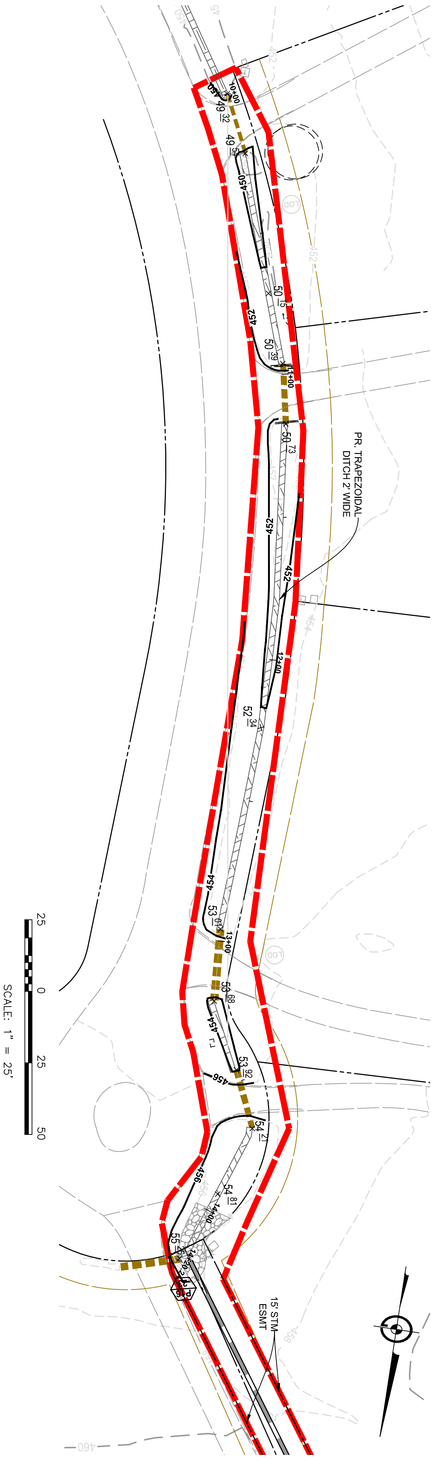
FILE NO. 4542A

SHEET 25A OF 64

SLD-2025-02





OFF-SITE DITCH PROFILE

NORBORNE GLEBE - PHASE 16

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Rev. No.	Date
7	06/04/2026

DANIEL B. HARRIS — REGISTERED PROFESSIONAL ENGINEER — STATE OF WEST VIRGINIA — 16906

SLD-2025-02

SHEET 25B OF 64

FILE NO. 4542A

DESIGNED BY: CC/CW/DM

SCALE: H:1"=25' V:1"=5'

DATE: 10/07/2025

GREENWAY ENGINEERING
704 Foxcroft Avenue
Martinsburg, West Virginia 25401
Telephone: (304) 620-5111
Fax: (540) 722-9528
www.greenwayeng.com
PROUDLY SERVING VIRGINIA & WEST VIRGINIA
OFFICES IN: WINCHESTER, VA & MARTINSBURG, WV

BARKSDALE DRIVE

SOLSTICE WAY

CANDLEWOOD DRIVE

SUGARLOAF DRIVE
(50' ROW/NEIGHBORHOOD ST.)

CANDLEWOOD DRIVE
(61' ROW/MINOR COLLECTOR)

TD: 2/MAP: 16/ PCL: 215
ZONED: F
LANDUSE: ACTIVE FAME
THOMAS JUNE R H & JAMES A JR
534S SAMUEL ST
CHARLES TOWN, WV 25414
21.40 AC

TD: 2/MAP: 16/ PCL: 215
ZONED: F
LANDUSE: ACTIVE FAME
MARRONE PATRICK L & BETH A
1032 OLD CAVE RD
CHARLES TOWN, WV 25414
66.30 AC

EX. 100' VEPCO
(f.k.a., P.L. & P. CO.) EASEMENT
D.B. 221, PG. 74

EX. 150' VEPCO
(f.k.a., P.L. & P. CO.)
EASEMENT
D.B. 273, PG. 355

15' SAN. ESMT

15' STM ESMT

15' SAN. ESMT

MATCHLINE
SEE SHEET 27

MATCHLINE
SEE SHEET 28

CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING	DELTA ANGLE
C1	192.82'	105.95'	104.62'	N 46°10'58" W	31°28'59"
C2	238.75'	90.49'	89.95'	N 78°23'32" W	21°43'00"
C3	168.25'	160.46'	154.45'	S 65°26'27" E	54°38'34"
C4	168.25'	160.46'	154.45'	N 65°26'27" W	54°38'34"
C4	50.00'	226.17'	77.07'	S 12°48'42" W	259°10'01"
C5	13.50'	15.50'	14.66'	N 77°28'51" W	65°47'10"
C6	13.50'	21.21'	19.09'	S 07°23'29" W	90°00'00"
C7	275.00'	104.22'	103.60'	S 41°32'02" W	21°42'54"
C8	150.00'	33.40'	33.33'	N 24°17'52" E	12°45'25"
C9	300.00'	53.58'	53.51'	N 12°48'10" E	10°14'00"
C10	275.00'	102.45'	101.86'	N 02°59'13" W	21°20'44"
C11	225.00'	83.82'	83.34'	S 02°59'13" E	21°20'44"
C12	13.50'	16.18'	15.23'	S 42°00'41" W	68°39'02"
C13	13.50'	26.24'	22.30'	N 47°59'19" W	111°20'58"
C14	250.00'	44.65'	44.59'	S 12°48'10" W	10°14'00"
C15	100.00'	22.27'	22.22'	S 24°17'52" W	12°45'25"
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C18	13.50'	26.80'	22.64'	S 19°21'51" W	113°56'43"
C19	13.50'	15.56'	14.72'	N 70°38'09" W	66°03'17"
C20	232.20'	210.78'	203.62'	S 64°03'47" E	52°00'39"
C21	89.14'	62.48'	61.21'	S 73°53'58" E	40°09'23"
C22	133.45'	73.93'	72.99'	N 46°16'00" W	31°44'31"

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

N 76°20'36" E 21.84'
N 52°23'42" E 100.54'
S 52°23'42" W 120.50'
S 52°23'42" W 120.50'
S 52°23'42" W 120.50'
N 37°36'31" W 140.07'
N 76°20'12" E 457.11'
N 76°20'12" E 673.50'

LOT 1 8,534 SQ.FT
LOT 2 8,534 SQ.FT
LOT 3 8,535 SQ.FT
LOT 41 8,194 SQ.FT
LOT 40 8,194 SQ.FT
LOT 39 8,194 SQ.FT
LOT 38 8,194 SQ.FT
LOT 37 8,194 SQ.FT
LOT 36 8,194 SQ.FT
LOT 35 8,194 SQ.FT
LOT 56 10,155 SQ.FT
LOT 55 7,820 SQ.FT
LOT 54 7,820 SQ.FT
LOT 53 7,820 SQ.FT

S 17°39'29" E 120.50'

704 Foxcroft Avenue
Martinsburg, West Virginia 25401
Telephone: (304) 267-5111
Fax: (540) 722-8528
www.greenwayeng.com

GREENWAY ENGINEERING
EST. 1971

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

PRELIMINARY PLAT

NORBORNE GLEBE - PHASE 16

CHARLES TOWN CORP. DISTRICT (3)-MAP 12-PARCEL 215 DEED BOOK 1173-PAGE 85
CITY OF CHARLES TOWN
JEFFERSON COUNTY, WV

Rev. No.	Date

DANIEL B. HAYES
REGISTERED
16095
STATE OF
WEST VIRGINIA
PROFESSIONAL ENGINEER

DATE: 10/07/2025

SCALE: 1" = 30'

DESIGNED BY: CC/CW/DM

FILE NO. 4542A

SHEET 26 OF 64

SLD-2025-02



CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING	DELTA ANGLE
C1	192.82'	105.95'	104.62'	N 46°10'58" W	31°28'59"
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FILE NO. 4542A

SHEET 27 OF 64

SLD-2025-02

MATCHLINE
SEE SHEET 26

TD: 2/MAP: 16/ PCL: 215
ZONED: F
LANDUSE: ACTIVE FAME
MARRONE PATRICK L & BETH A
1032 OLD CAVE RD
CHARLES TOWN, WV 25414
66.30 AC

TD: 2/MAP: 16/ PCL: 215
ZONED: F
LANDUSE: ACTIVE FAME
MARRONE PATRICK L & BETH A
1032 OLD CAVE RD
CHARLES TOWN, WV 25414
11.90 AC

TD: 2/MAP: 16/PCL 96
ZONED:R
LAND USE:RESIDENTIAL/FAMILY
CLINE MARTIN E & JACQUELINE M
558 EASTLAND DRIVE
CHARLES TOWN, WV 25414
.92 AC

CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING	DELTA ANGLE
C1	192.82'	105.95'	104.62'	N 46°10'58" W	31°28'59"
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30 15 0 30 60
SCALE: 1" = 30'

MATCHLINE
SEE SHEET 30

MATCHLINE
SEE SHEET 29

CANDLEWOOD DRIVE (61' ROW/MINOR COLLECTOR)

FELDBERG DRIVE (56' ROW/NEIGHBORHOOD ST.)

LOT 4 8,535 SQ.FT
LOT 5 8,535SQ.FT
LOT 6 8,536 SQ.FT
LOT 7 8,536 SQ.FT
LOT 8 8,536 SQ.FT
LOT 9 8,537 SQ.FT
LOT 10 8,537 SQ.FT
LOT 11 8,537 SQ.FT
LOT 12 8,537 SQ.FT
LOT 13 8,538 SQ.FT
LOT 14 8,538 SQ.FT
LOT 42 8,193 SQ.FT
LOT 43 8,194 SQ.FT
LOT 44 8,194 SQ.FT
LOT 45 8,194 SQ.FT
LOT 46 8,194 SQ.FT
LOT 47 8,577 SQ.FT
LOT 48 9,671 SQ.FT
LOT 49 8,058 SQ.FT
LOT 56 10,159 SQ.FT
LOT 55 7,820 SQ.FT
LOT 54 7,820 SQ.FT
LOT 53 7,820 SQ.FT
LOT 20 8,576 SQ.FT
LOT 21 9,575 SQ.FT
LOT 19 8,195 SQ.FT
LOT 18 10,207 SQ.FT
LOT 17 11,640 SQ.FT

SECTION 1
SECTION 2

15' STM ESMT
15' SAN. ESMT
SWM ESMT

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CITY OF CHARLES TOWN
JEFFERSON COUNTY, WV

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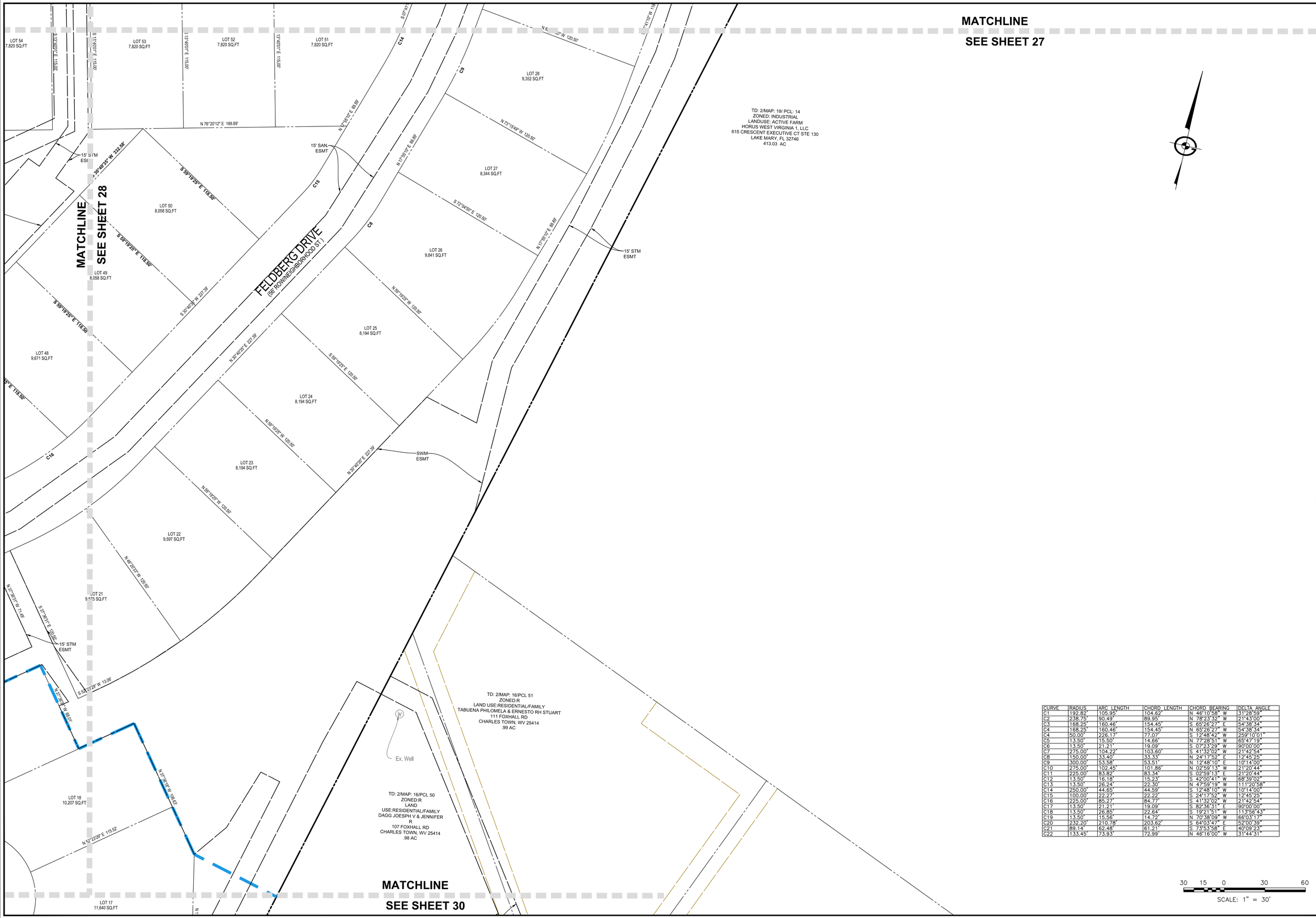
DATE: 10/07/2025
SCALE: 1" = 30'
DESIGNED BY: CC/CW/DM
FILE NO. 4542A
SHEET 28 OF 64
SLD-2025-02



CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING	DELTA ANGLE
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NORBORNE GLEBE - PHASE 16

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CITY OF CHARLES TOWN
JEFFERSON COUNTY, WV

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DATE: 10/07/2025

SCALE: 1" = 30'

DESIGNED BY: CC/CW/DM

FILE NO. 4542A

SHEET 29 OF 64

SLD-2025-02

MATCHLINE
SEE SHEET 28

MATCHLINE
SEE SHEET 29

TD: 2/MAP: 16/PCL 96
ZONED:R
LAND USE:RESIDENTIAL/FAMILY
CLINE MARTIN E & JACQUELINE M
558 EASTLAND DRIVE
CHARLES TOWN, WV 25414
.92 AC

TD: 2/MAP: 16/PCL 95
ZONED:R
LAND USE:RESIDENTIAL/FAMILY
VALASEK RYAN D & ASHLEY A
550 EASTLAND DRIVE
CHARLES TOWN, WV 25414
1.07 AC

TD: 2/MAP: 16/PCL 94
ZONED:R
LAND USE:RESIDENTIAL/FAMILY
SMITH MAURICE
502 EASTLAND DRIVE
CHARLES TOWN, WV 25414
1.15 AC

TD: 2/MAP: 16/PCL 38
ZONED:R
LAND USE:RESIDENTIAL/FAMILY
KOHLHEPP RAY & JENNIFER P
448 EASTLAND DRIVE
CHARLES TOWN, WV 25414
1.14 AC

TD: 2/MAP: 16/PCL 39
ZONED:R
LAND USE:RESIDENTIAL/FAMILY
COLLIE DANIEL L & LINDA A
416 EASTLAND DRIVE
CHARLES TOWN, WV 25414
1.04 AC

TD: 2/MAP: 16/PCL 47
ZONED:R
LAND USE:RESIDENTIAL/FAMILY
LIPSCOMB WILLIAM & CAROLYN M
43 FOXHALL RD
CHARLES TOWN, WV 25414
.93 AC

TD: 2/MAP: 16/PCL 48
ZONED:R
LAND USE:RESIDENTIAL/FAMILY
KINGERY WILLIAM H & CHRISTINE M
59 FOXHALL RD
CHARLES TOWN, WV 25414
.93 AC

TD: 2/MAP: 16/PCL 49
ZONED:R
LAND USE:RESIDENTIAL/FAMILY
VINCENT ROBERT M & BRENDA J
85 FOXHALL RD
CHARLES TOWN, WV 25414
.93 AC

TD: 2/MAP: 16/PCL 50
ZONED:R
LAND
USE:RESIDENTIAL/FAMILY
DAGG JOESPH V & JENNIFER R
107 FOXHALL RD
CHARLES TOWN, WV 25414
.98 AC

LOT 14
8,538 SQ.FT

LOT 15
13,485 SQ.FT

LOT 16
12,139 SQ.FT

LOT 17
11,540 SQ.FT

N 52°23'42" E 125.56'

N 76°10'05" W 131.33'

N 17°30'57" W 136.18'

S 60°26'26" E 124.86'

S 02°59'53" W 137.06'

S 31°09'25" E 131.23'

S 35°24'44" W 145.06'

15' STM ESMT

W/L ESMT

15' STM ESMT

15' STM ESMT

CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING	DELTA ANGLE
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30 15 0 30 60
SCALE: 1" = 30'

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DATE: 10/07/2025

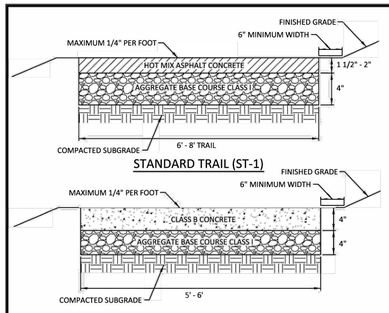
SCALE: 1" = 30'

DESIGNED BY: CC/CW/DM

FILE NO. 4542A

SHEET 30 OF 64

SLD-2025-02



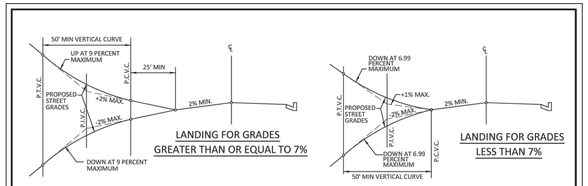
NOTES:

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

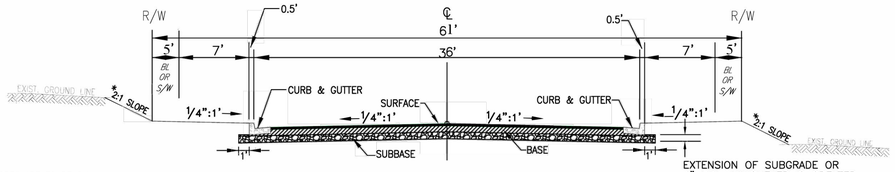


NOTES:

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

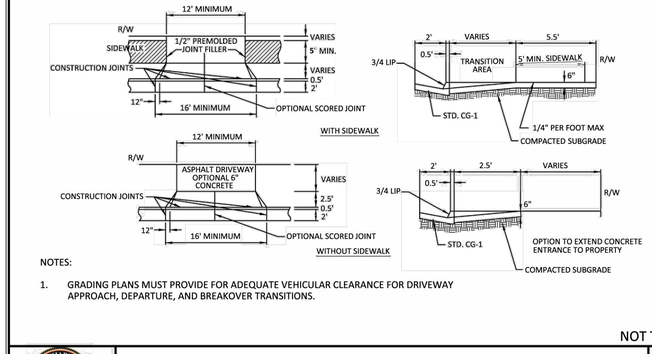
INTERSECTION LANDING REQUIREMENTS
City of Charles Town



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.

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



NOTES:

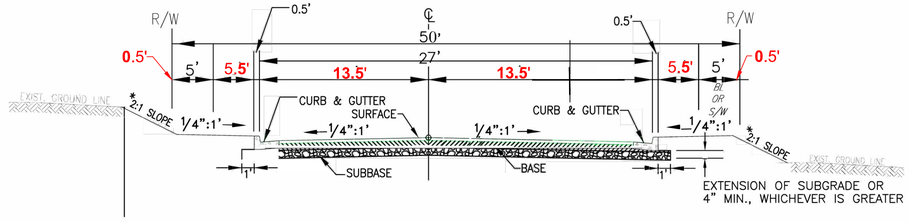
1. GRADING PLANS MUST PROVIDE FOR ADEQUATE VEHICULAR CLEARANCE FOR DRIVEWAY APPROACH, DEPARTURE, AND BREAKOVER TRANSITIONS.

NOT TO SCALE

DRIVEWAY ENTRACE WITH CURB AND GUTTER
City of Charles Town

DE-2

NOTE:
ALL REVISIONS IN RED MADE FOR CONSTRUCTABILITY.



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.

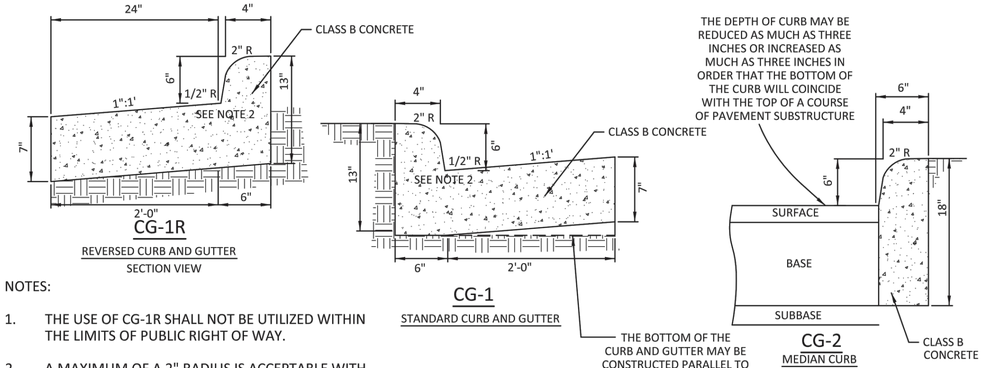
Note: Pavement design is preliminary and shall be adjusted upon establishing actual CBR values.

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

CANDLEWOOD DRIVE, FELDBERG DRIVE, & SUGARLOAF DRIVE

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

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)

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TYPICAL SECTIONS & CITY DETAILS

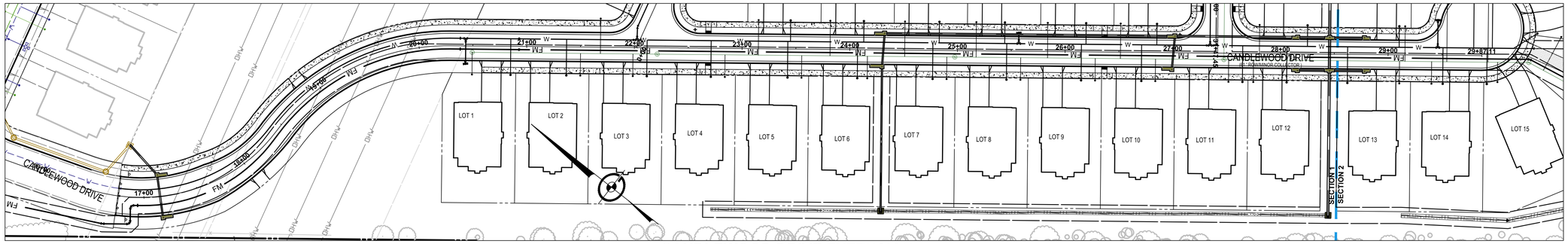
NORBORNE GLEBE - PHASE 16

CHARLES TOWN CORP. DISTRICT (3)-MAP 12-PARCEL 215 DEED BOOK 1173-PAGE 85
CITY OF CHARLES TOWN
JEFFERSON COUNTY, WV

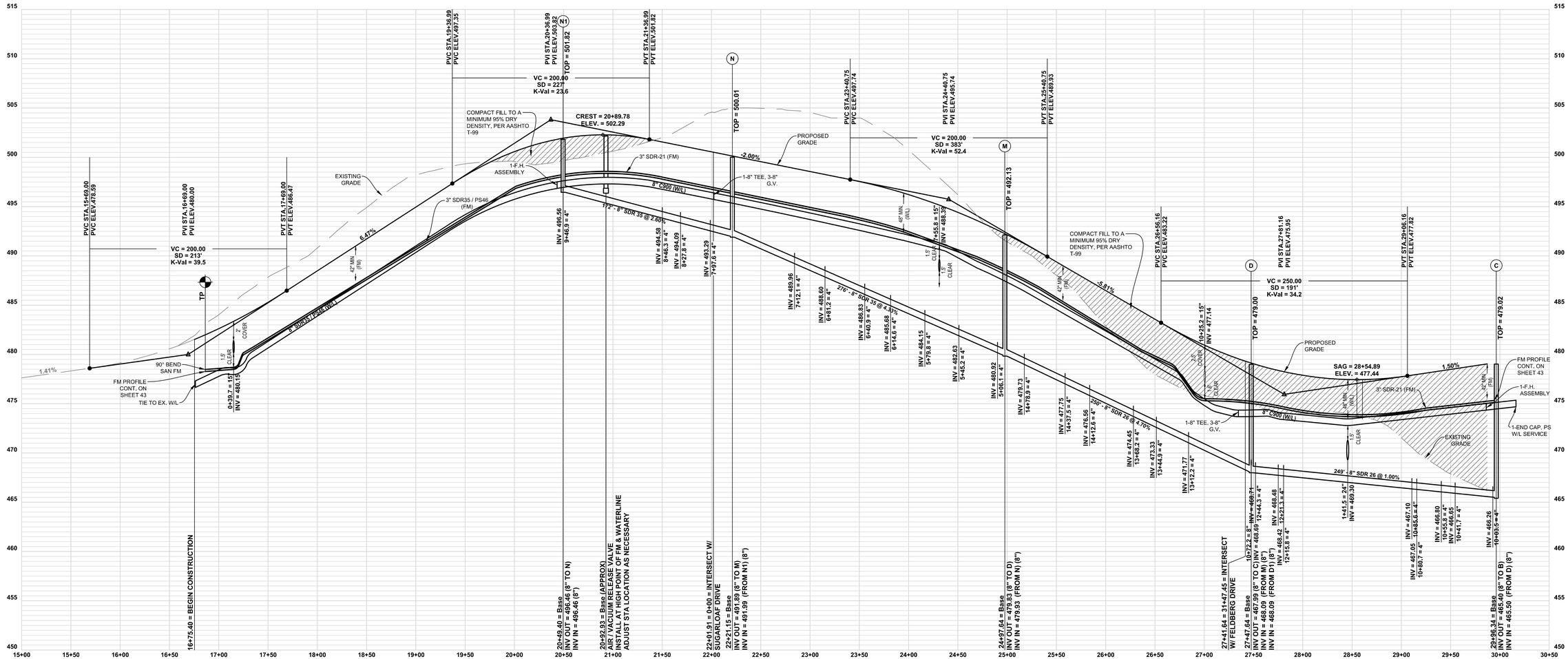
Rev. No.	Date

DANIEL B. HAYES
REGISTERED
16095
STATE OF
WEST VIRGINIA
PROFESSIONAL ENGINEER

DATE: 10/07/2025
SCALE: N/A
DESIGNED BY: CC/CW/DM
FILE NO. 4542A
SHEET 31 OF 64
SLD-2025-02



CANDLEWOOD DRIVE EXTENSION



CANDLEWOOD DRIVE EXT. PROFILE

61' R.O.W., **36' FC TO FC**
POSTED SPEED 25 MPH

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

SCALE: 1" = 5'

NOTES:
1. EXISTING UTILITIES SHOWN PER PREVIOUS DESIGN DATA. CONTRACTOR TO FIELD VERIFY FIELD CONDITIONS.
2. ALL PROPOSED UTILITIES SHALL BE LOCATED UNDERGROUND
3. ALL MANHOLES WHICH FORCEMAINS DISCHARGE INTO, INCLUDING TWO MANHOLES DOWNSTREAM, SHALL BE PROVIDED WITH AN INTERIOR COATING SYSTEM.
4. ALL WATER SERVICE LATERALS TO BE RAN ABOVE SANITARY SEWER LINES.
5. ALL UTILITY AND ROAD INSTALLATION WITHIN DOMINION ENERGY RIGHT-OF-WAY SHALL MEET HS-20 LOADING STANDARDS.

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CANDLEWOOD DRIVE ROAD PROFILES

NORBORNE GLEBE - PHASE 16

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CANDLEWOOD DRIVE ROAD CROSS SECTIONS

NORBORNE GLEBE - PHASE 16

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SHEET 33 OF 64

SLD-2025-02

24+50

27+00

29+50

24+00

26+50

29+00

23+50

26+00

28+50

23+00

25+50

28+00

22+50

25+00

27+50

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SHEET 34 OF 64

SLD-2025-02



FELDBERG DRIVE EXTENSION



FELDBERG DRIVE EXT. PROFILE

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
3. ALL UTILITY AND ROAD INSTALLATION WITHIN DOMINION ENERGY RIGHT-OF-WAY SHALL MEET HS-20 LOADING STANDARDS.

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SHEET 36 OF 64

SLD-2025-02

26+24

26+00

25+50

25+35

25+00

28+00

27+50

27+00

26+52

26+50

29+74

29+50

29+00

28+79

28+50

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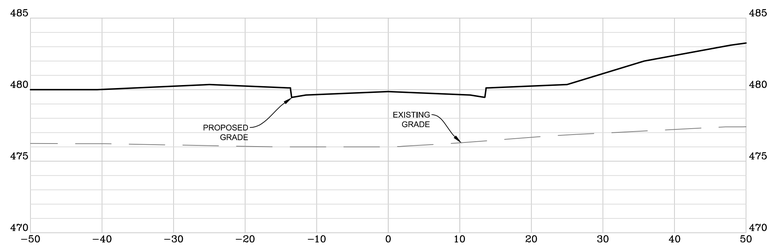

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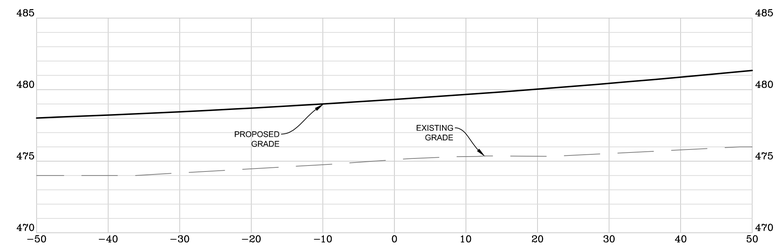

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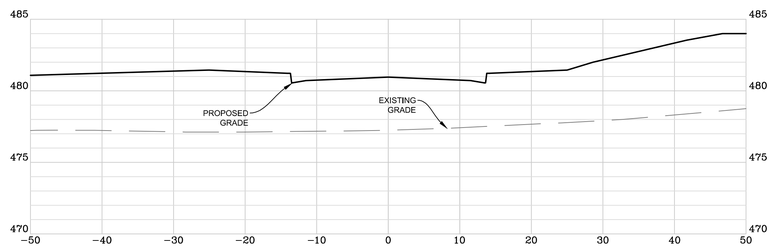

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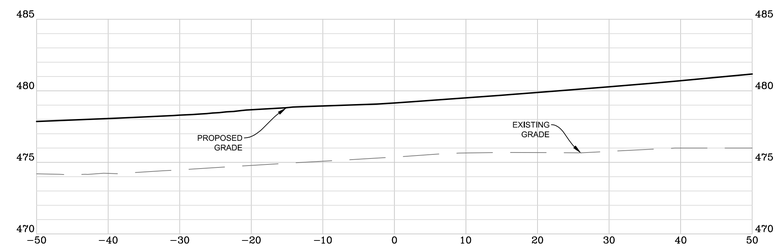

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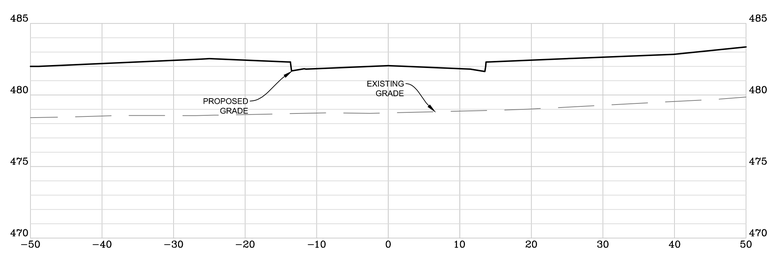

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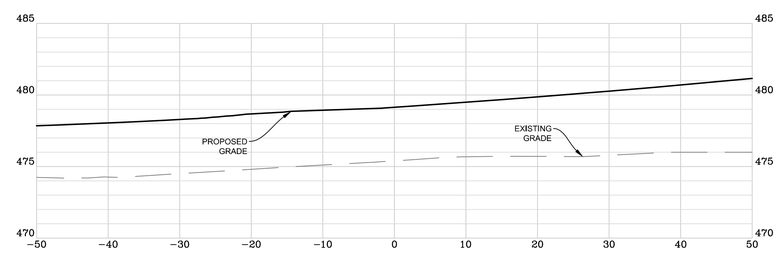

31+39

10 0 10 20
SCALE: 1" = 10'

SCALE: 1" = 5'

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FELDBERG DRIVE ROAD CROSS SECTIONS

NORBORNE GLEBE - PHASE 16

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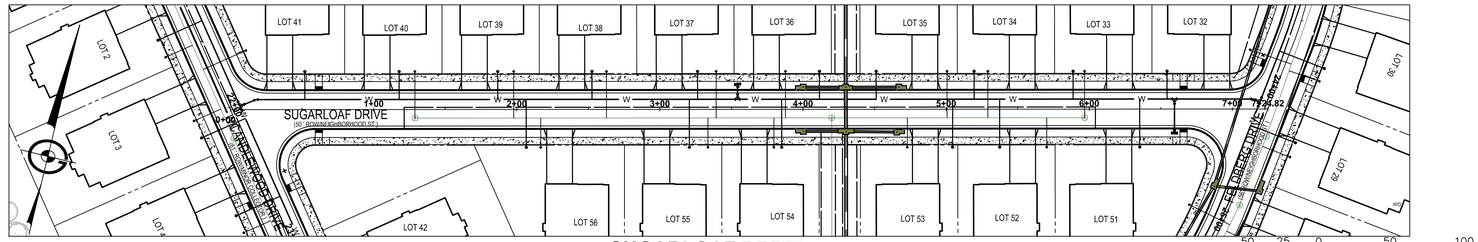
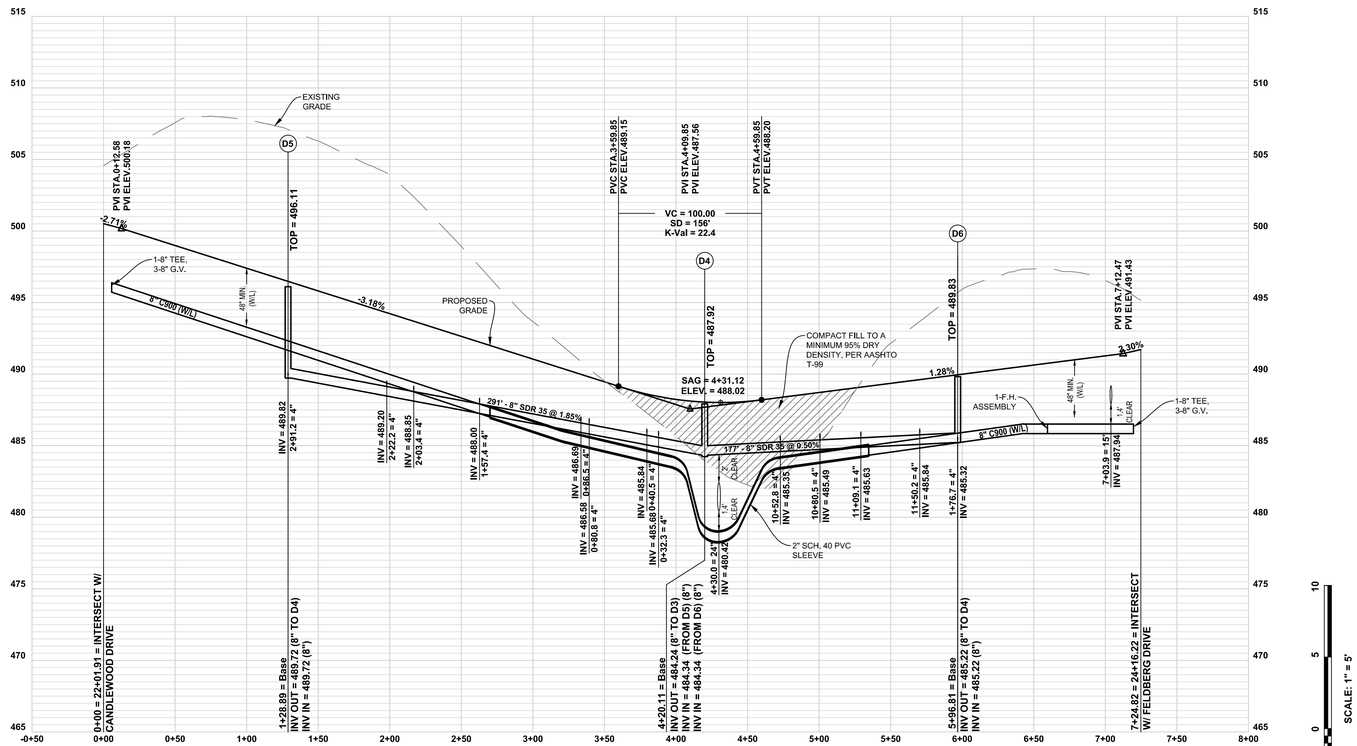


SUGARLOAF DRIVE



SUGARLOAF DRIVE PROFILE

50' R.O.W., **27' FC TO FC**
POSTED SPEED 25 MPH
SHEETS 16 & 17

NOTES:
1. EXISTING UTILITIES SHOWN PER PREVIOUS DESIGN DATA. CONTRACTOR TO FIELD VERIFY FIELD CONDITIONS.
2. ALL PROPOSED UTILITIES SHALL BE LOCATED UNDERGROUND
3. ALL WATER SERVICE LATERALS TO BE RAN ABOVE SANITARY SEWER LINES.

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SHEET 39 OF 64

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10 0 10 20
SCALE: 1" = 10'

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

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SUGARLOAF DRIVE ROAD CROSS SECTIONS

NORBORNE GLEBE - PHASE 16

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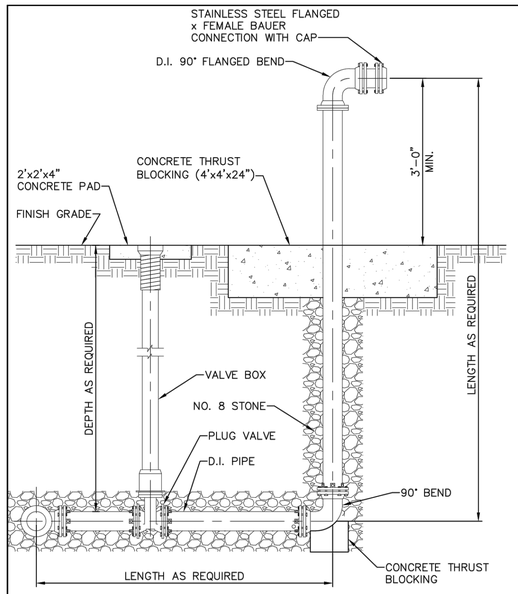
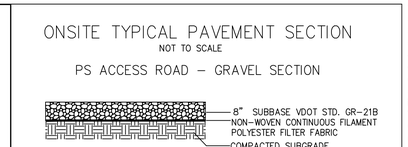
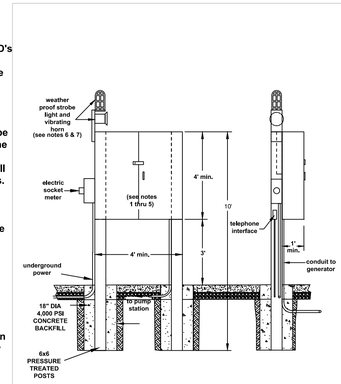




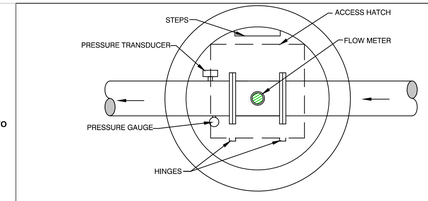
SUCTION LIFT SEWER PUMP STATION
General Notes

1. Pump station shall be installed per CHARLES TOWN UTILITY BOARD's standards.
2. Pump station materials (wet well, pumps, electrical controls, etc.) are to be reviewed and approved by CTUB's engineer. Two copies of submittals are required.
3. CTUB's engineer shall make application for electric and telephone service.
4. Pump station shall be pre-engineered. It shall be a duplex unit and be capable of providing the pump rate at the total design head stated in the drawings.
5. Controls shall be provided by the pump manufacturer. Controls shall include low voltage, short circuit, and overload protection in all phases. They shall also provide the functions listed on the drawings and in the CTUB specifications.
6. Alarm system shall monitor the main power supply, the auxiliary power supply, failure to each pump to discharge, high liquid level in the wet well, and have a test function.
7. Electric service shall be 120/480 volt, 3-phase, 4 wire.
8. Pumps shall be 480 volt 3-phase.
9. Each sewage pump shall have an hour meter which shall record accumulated running time in hours.
10. Pump control shall provide for alternate pump operation.
11. Level Transducer with 6 Mercury float switches shall be used.
12. There shall be no electrical splices or boxes inside the wet well.
13. Flanged ductile iron piping shall be used in the wet well. Connection between pump station discharge line and force main piping shall be by solid sleeve with joint restraints.
14. Two O&M manuals shall be delivered to the CTUB's engineer.
17. A sign indicating notification procedures (responsible persons, telephone numbers, etc.) to be followed in case of alarm activation must be conspicuously displayed at the pump station.

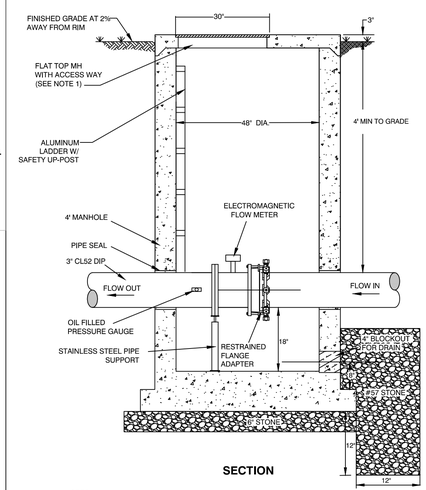


GRINDER SEWER PUMP STATION
ELECTRICAL CONTROLS ENCLOSURE

NOTES:
1. ENCLOSURE CONSTRUCTION:
   - 1.1. MEET NEMA 4X STANDARDS
   - 1.2. 4'0"(W) x 4'0"(H) x 1'0"(D)
   - 1.3. 12 GAUGE STAINLESS STEEL
   - 1.4. DOUBLE DOOR W/ HEAVY DUTY HINGES
   - 1.5. DOOR HEAVY DUTY 3 PT LATCHING MECH
   - 1.6. HEAVY DUTY HASP FOR PADLOCK
   - 1.7. DRIP SHIELD
   - 1.8. BACK PANEL OF 12 GAUGE STEEL TO PROVIDE A MINIMUM OF 8" CLEARANCE
2. THE FOLLOWING ITEMS ARE TO BE MOUNTED IN THE ENCLOSURE:
   - 2.1. MAIN DISCONNECT
   - 2.2. AUTOMATIC TRANSFER SWITCH
   - 2.3. CIRCUIT BREAKER PANEL
   - 2.4. 110V OUTLET
   - 2.5. OMNISITE CRYSTAL BALL
   - 2.6. PHONE JACK
   - 2.7. PUMP CONTROL PANEL
   - 2.8. FLOW METER PANEL
3. CONTROLS TO BE IN THEIR OWN ENCLOSURES AND MOUNTED INSIDE PANEL ENCLOSURE.
4. THE PUMP CONTROL PANEL SHALL BE ACCESSIBLE WITHOUT CUTTING OFF POWER.
5. INSIDE 110V OUTLET TO BE ON SEPARATE CIRCUIT
6. LIGHT AND HORN SHALL BE EDWARDS MODEL #50-R (LIGHT) AND MODEL #876-N5 (HORN) OR CTUB APPROVED EQUAL.
7. ALARM LIGHT AND HORN TO HAVE MANUAL ON/OFF SWITCH INSIDE CONTROL ENCLOSURE.



PLAN



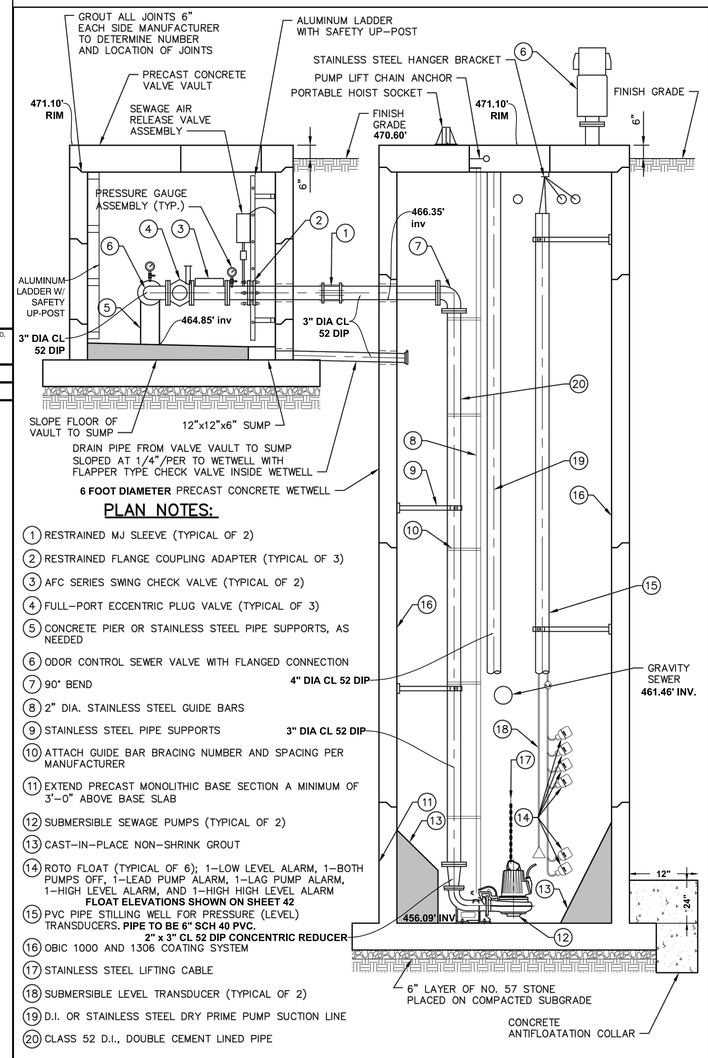
SECTION

NOTES:
1. MANHOLE STRUCTURE SHALL BE PER CTUB STANDARD DETAIL FOR MANHOLES WITH FLAT TOP MANHOLE STRUCTURE. ACCESS WAY SHALL BE 30"X30" ACCESS DOOR MODEL SIR3030 BY HALLIDAY PRODUCTS. DOOR SHALL BE LOCKABLE WITH RECESSED LOCKBOX AND BE H20 LOAD RATED.
2. PRESSURE TRANSDUCER TO BE WET TAPPED INTO DIP PER CTUB REQUIREMENTS. LOCATE ON OPPOSITE SIDE OF PIPE FROM PRESSURE GAUGE AS SHOWN ABOVE.
3. PRESSURE GAUGE TO BE OIL FILLED WITH READINGS FROM O PSI TO 200 PSI. GAUGE SHALL B E INSTALLED SO OPERATOR CAN READ GAUGE FROM SURFACE WITHOUT ENTERING MANHOLE.
4. FLOW METER TO BE KROHNE ENVIROMAG 2000 FLOWTUBE WITH IFC 100 CONVERTER. METER TO BE LOCATED A MIN. OF 10 FEET DOWNSTREAM FROM THE LAST BEND IN THE OUTFLOW PIPE.
5. METER TOTALIZER BOX TO BE MOUNTED IN THE STATION CONTROL BOX.

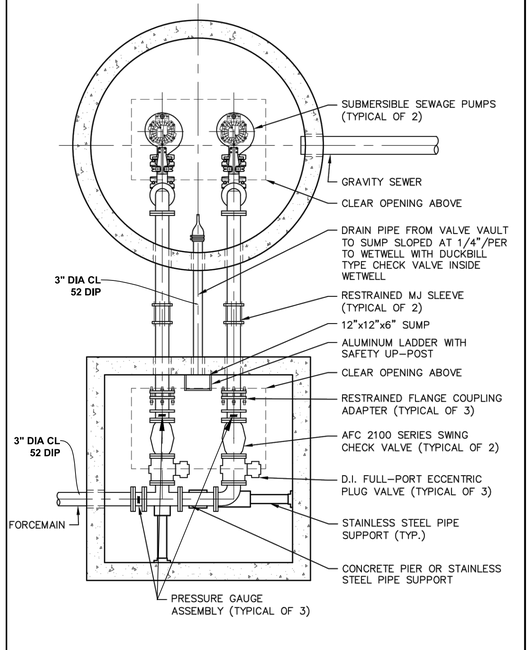
FLOW METER VAULT

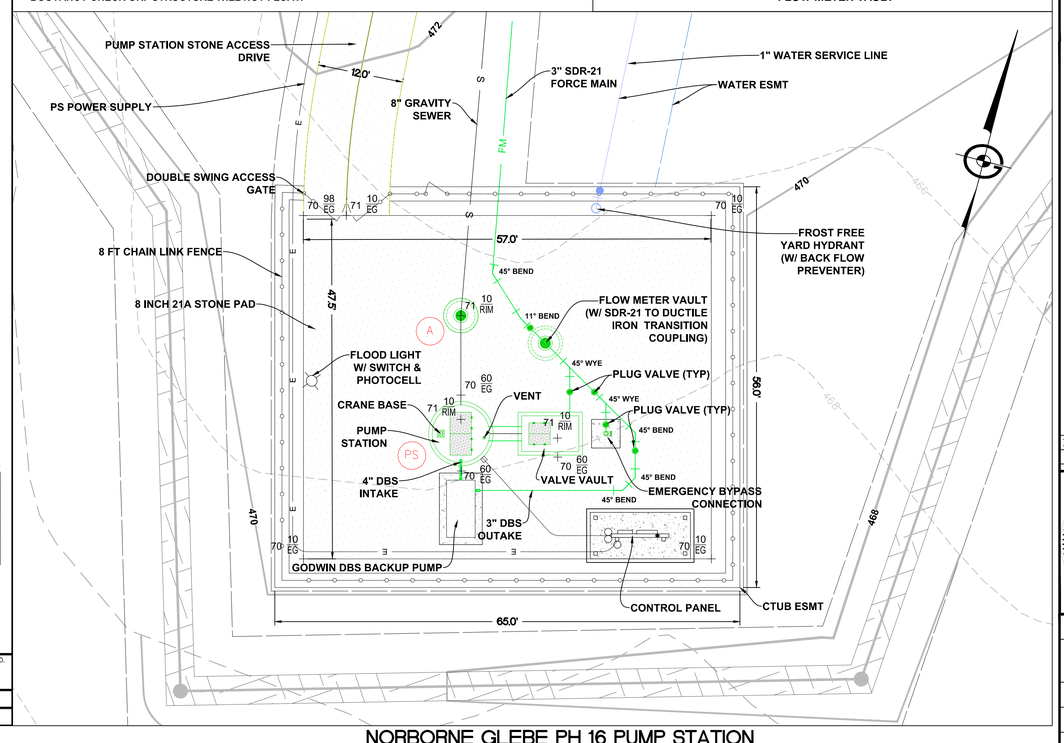
NOTES:
1. **PUMP STATION SHALL BE A PRE-ENGINEERED SEWAGE PUMP STATION BY OLDCASTLE PRECAST OR APPROVED EQUAL AND BE CAPABLE OF PROVIDING THE PUMPING RATE AT THE TOTAL DESIGN HEAD STATED (53 gpm @ 60.53' TDH). THE LOCAL REPRESENTATIVE IS CARROLL HOLMES WITH STH Inc. (301) 682-3390.**
2. **PUMP SHALL BE A SUBMERSIBLE GRINDER PUMP MODEL GRUNDFOS S SERIES, SEG.A20.40.260 DELIVERING 72 GPM AT 76.6' TDH .**
3. **PUMP OPERATION ELEVATIONS SHOWN ARE FOR FULL BUILDOUT. ELEVATIONS MAY REQUIRE ADJUSTMENT DURING STARTUP. CONTRACTOR SHALL ADJUST PER CTUB REQUIREMENTS**
4. **PUMP STATION SHALL BE PROVIDED WITH A STANDBY BYPASS PUMP. STANDBY PUMP SHALL BE A GODWIN DRI-PRIME BACKUP SYSTEM WITH DIESEL ENGINE. SHALL BE PROVIDED BY A SINGLE MANUFACTURER AND PROVIDE FOR AN AUTOMATIC TRANSFER TO OPERATION SHOULD PUMPS OR POWER SHOULD FAIL. SHALL BE INCLUDED WITH A SOUND ATTENUATING ENCLOSURE. PUMP TO BE MODEL NC80 FT 4. MANUFACTURER REPRESENTATIVE IS THOMAS VANCE AT 301-332-6457. CONTRACTOR SHALL COORDINATE WITH THE MANUFACTURER REP. AND PROVIDE A SUBMITTAL FOR APPROVAL BY CTUB AND DESIGN ENGINEER PRIOR TO ORDERING THE BACKUP PUMP SYSTEM.**
5. **THE PUMP STATION CONTROLLER SHALL BE A VIEW SERIES PUMP CONTROLLER BY PRIMEX.**
6. **THE REMOTE MONITORING AND TELEMETRY SYSTEM SHALL BE AN OMNI SITE CRYSTAL BALL MODEL.**

ANTI-FLOATATION DESIGN (PUMP STATION BOUYANCY CHECK)
1. VOLUME OF WATER DISPLACED - 7.0' O.D. RISER x (471.10'-456.09') = 578 CF (ASSUME WET WELL EMPTY)
2. WEIGHT OF WATER DISPLACED - 578 CF x 64 LBS/CF = 36,961 LBS
3. VOLUME OF CONCRETE - TOTAL VOLUME = 415 CF
MH WALL - CIRCx15.01'x8" = 220 CF
BOTTOM - 9.0' DIAM x 8" = 42 CF
TOP - 7.0' DIAM x 8" = 26 CF
ANTIFLOATATION - 24"x12"x9' = 127 CF
4. WEIGHT OF CONCRETE - 415 CF x 155 LBS/CF = 64,358 LBS
5. EFFICIENCY - 64,358/36,961 x 100% = 174%
BOUYANCY CHECK OK. STRUCTURE WILL NOT FLOAT.



PLAN NOTES:
1. RESTRAINED MJ SLEEVE (TYPICAL OF 2)
2. RESTRAINED FLANGE COUPLING ADAPTER (TYPICAL OF 3)
3. AFC SERIES SWING CHECK VALVE (TYPICAL OF 2)
4. FULL-PORT ECCENTRIC PLUG VALVE (TYPICAL OF 3)
5. CONCRETE PIER OR STAINLESS STEEL PIPE SUPPORTS, AS NEEDED
6. ODOR CONTROL SEWER VALVE WITH FLANGED CONNECTION
7. 90° BEND
8. 2" DIA. STAINLESS STEEL GUIDE BARS
9. STAINLESS STEEL PIPE SUPPORTS
10. ATTACH GUIDE BAR BRACING NUMBER AND SPACING PER MANUFACTURER
11. EXTEND PRECAST MONOLITHIC BASE SECTION A MINIMUM OF 3'-0" ABOVE BASE SLAB
12. SUBMERSIBLE SEWAGE PUMPS (TYPICAL OF 2)
13. CAST-IN-PLACE NON-SHRINK GROUT
14. ROTO FLOAT (TYPICAL OF 6); 1-LOW LEVEL ALARM, 1-BOTH PUMPS OFF, 1-LEAD PUMP ALARM, 1-LAG PUMP ALARM, 1-HIGH LEVEL ALARM, AND 1-HIGH HIGH LEVEL ALARM
    FLOAT ELEVATIONS SHOWN ON SHEET 42
15. PVC PIPE STILLING WELL FOR PRESSURE (LEVEL) TRANSDUCERS. **PIPE TO BE 6" SCH 40 PVC.**
    2" x 3" CL 52 DIP CONCENTRIC REDUCER
16. OBIC 1000 AND 1306 COATING SYSTEM
17. STAINLESS STEEL LIFTING CABLE
18. SUBMERSIBLE LEVEL TRANSDUCER (TYPICAL OF 2)
19. D.I. OR STAINLESS STEEL DRY PRIME PUMP SUCTION LINE
20. CLASS 52 D.I., DOUBLE CEMENT LINED PIPE





NORBORNE GLEBE PH 16 PUMP STATION
SCALE 1" = 10'

704 Foxcroft Avenue
Martinsburg, West Virginia 25401
Telephone: (304) 262-5111
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PROUDLY SERVING VIRGINIA & WEST VIRGINIA
OFFICES IN: WINCHESTER, VA & MARTINSBURG, WV

PUMP STATION PLAN

NORBORNE GLEBE - PHASE 16

CHARLES TOWN CORP. DISTRICT (3)-MAP 12-PARCEL 215 DEED BOOK 1173-PAGE 85
CITY OF CHARLES TOWN
JEFFERSON COUNTY, WV

Rev. No.	Date
6	04/06/2026

DANIEL B. HAYES REGISTERED 16095 STATE OF WEST VIRGINIA PROFESSIONAL ENGINEER

DATE: 10/07/2025
SCALE: 1" = 10'
DESIGNED BY: CC/CW/DM
FILE NO. 4542A
SHEET 41 OF 64
SLD-2025-02

Charles Town Utility Board
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EMERGENCY BYPASS CONNECTION DETAIL — STANDARD DETAIL NO. S-27 — NOT TO SCALE — JULY 2025

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PUMP STATION PLAN VIEW (BELOW SLAB) — STANDARD DETAIL NO. S-29 — NOT TO SCALE — JULY 2025

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PUMP STATION ELEVATION VIEW — STANDARD DETAIL NO. S-32 — NOT TO SCALE — JULY 2025

WATER and SEWER DEMAND-Norborne Glebe Section 16 — JN4542L — 12-Aug-2025

Flow Calculations Based on: — Revised: 13-Oct-2025

Spreadsheet based on DESIGN Flows: 180 *GPD/EDU is based on CTUB Design Standards

64CSR77	10.2a-All distributions systems designed to peak	0.13	GPM
CTUB Sect 6	flows	0.38	GPM- Peak Day (3 times)
	10.2b-30 psi min static, 20 psi min Fireflow	0.63	GPM-Peak Hour (5 times)
	10.2.e-Fireflow not less than 250 gpm		

Flow Calculations

Phase 16

			Total	
56	Units	180.0 gpd/EDU	10,080	GPD
			7.00	GPM
Water System Information				
		Total System Average Daily Demand (ADD)	10,080	GPD
			7.00	GPM
		Maximum Daily Demand (MDD)	30,240	GPD
		3xADD	21.00	GPM
		Peak Hour Demand (PHD)	50,400	GPD
			0.63	GPM per connection
Sewer System Information				
Gravity Sewer	56 units		10,080	GPD
Pump Station Design Parameters				
		System Daily Design Flow	10,080	GPD
		or	7.00	gpm
		Peaking Factor 3.5	24.50	gpm
		Target Pump Size	24.50	gpm
		Pump Sized at	53.00	gpm

PUMP STATION HEAD ANALYSIS

Job name: Norborne Glebe Subdivision - Phase 16 — *Job Number: 4542L*

Date: *27-Aug-2025*

XXXXXXX *"- Enter information where locations are blue"* — *Revised: 20-Nov-2025*

"- calculated locations, no entry required"

Suction water surface elevation	458.37 feet	PS ground elev:	470.60
High water surface elevation	498.00 feet	top of Structure:	471.10
Static head	39.63 feet	high point on FM:	498.00
		Discharge:	482.00

Pipe Information	Size	type	location
Pipe 1	3	DIP	station piping
Pipe 2	3	HDPE	FORCE MAIN
Pipe 3			
Pipe 4			

	Pipe 1	Pipe 2	Pipe 3	Pipe 4	Pipe 5	Pipe 6
Pipe length (feet)	30	1785				
Pipe diameter (inches)	3.00	3.00				
Pipe C-factor	120	120				
Portion of Flow	1.00	1.00				
Cross-sectional area (feet)	0.049	0.049				
Hydraulic radius	0.063	0.063				

Number of fittings for each pipe

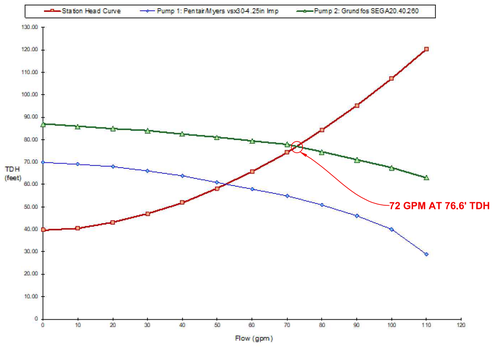
	Pipe 1	Pipe 2	Pipe 3	Pipe 4	Pipe 5	Pipe 6
Gate Valve	1					
Plug Valve (99% open)	1	2				
Butterfly Valve						
Swing Check Valve	1					
90° Bend	2	1				
45° Bend		7				
22.5° Bend		1				
11.25° Bend		2				
Tee (through)						
Tee (side out)	1					
Cross (through)						
Cross (side out)						
Reducer/Increaser	1					
Discharge to air		1				
Sum of losses in fittings	5.95	4.61				
Other miscellaneous losses						
Sum of minor losses (K)	5.95	4.61				

Head Loss Calculations

Flow (gpm)	Pipe 1 Loss (feet)	Pipe 2 Loss (feet)	Pipe 3 Loss (feet)	Pipe 4 Loss (feet)	Pipe 5 Loss (feet)	Pipe 6 Loss (feet)	TDH (feet)
0	0	0	0	0	0	0	39.63
10	0.03	0.90	0	0	0	0	40.57
20	0.13	3.27	0	0	0	0	43.03
30	0.28	6.93	0	0	0	0	46.84
40	0.50	11.82	0	0	0	0	51.94
50	0.77	17.87	0	0	0	0	58.27
60	1.10	25.07	0	0	0	0	65.79
70	1.48	33.36	0	0	0	0	74.47

Velocity Calculations

Flow (gpm)	Pipe 1 Velocity (fps)	Pipe 2 Velocity (fps)	Pipe 3 Velocity (fps)	Pipe 4 Velocity (fps)	Pipe 5 Velocity (fps)	Pipe 6 Velocity (fps)	
0	0	0	0	0	0	0	
10	0.45	0.45	0	0	0	0	
20	0.91	0.91	0	0	0	0	
30	1.36	1.36	0	0	0	0	
40	1.82	1.82	0	0	0	0	
50	2.27	2.27	0	0	0	0	53 gpm design
60	2.72	2.72	0	0	0	0	
70	3.18	3.18	0	0	0	0	



PUMP STATION NOTES:

1. CONTRACTOR SHALL COORDINATE PUMP STATION ACCESS COVER LOCATION AND INSTALLATION WITH PUMP MANUFACTURER AND PRECAST CONCRETE MANUFACTURER/SUPPLIER.
2. WALL AND SLAB THICKNESS FOR THE PUMP STATION AND VALVE VAULT TO BE DETERMINED BY PRECAST CONCRETE MANUFACTURER/SUPPLIER.
3. CONTRACTOR SHALL COORDINATE VALVE VAULT ACCESS COVER SIZE AND INSTALLATION WITH PRECAST CONCRETE MANUFACTURER/SUPPLIER.
4. EXCAVATE AREA TO AN ELEVATION AT LEAST 6" BELOW THE BOTTOM OF NEW FOUNDATION MAT, THICKNESS TO BE DESIGNED BY THE PRECAST CONCRETE PUMP STATION MANUFACTURER, SUPPLIER OR CONTRACTOR.
5. STRUCTURAL DESIGN OF ENTIRE PUMP STATION AND VALVE VAULT SHALL BE BY THE MANUFACTURER, INCLUDING PRECAST TOP SLAB AND CONCRETE BASE MAT. UPLIFT RESISTANCE DUE TO POSSIBILITY OF HIGH GROUNDWATER AND EMPTY TANK SHALL BE ACCOUNTED FOR. USE 2,000 PSF ALLOWABLE SOIL BEARING PRESSURE.
6. PRECAST STRUCTURES SHALL BE MANUFACTURED PER ASTM C-478, 5000 PSI AT 28 DAYS.
7. ALL HARDWARE FOR PUMP STATION AND VALVE VAULT INCLUDING, BUT NOT LIMITED TO, BOLTS, NUTS, WASHERS, ETC., SHALL BE TYPE 304 OR 316 STAINLESS STEEL.
8. ALL PIPE PENETRATIONS SHALL HAVE STAINLESS STEEL SLEEVE WITH INTEGRAL WATERSTOP AND MODULAR ELASTOMER SEAL (LINK-SEAL).

Pump Settings and Volumes

	Depth (ft)		Lead to Bottom	
1) Bottom of wet well at	0.00	456.09 ft	0.00	ft
2) Low Level Alarm	1.00	456.84 ft	0.75	ft
3) Pump off	1.75	457.84 ft	1.75	ft
4) Lead on at	0.63	458.46 ft	2.38	ft
5) Lag on at	1.00	459.46 ft	3.38	ft
6) Alarm 1 on at	1.00	460.46 ft	4.38	ft
7) Alarm 2 on at	1.00	461.46 ft	4.63	ft
8) Inv. In at PS	1.00	461.46 ft	5.38	ft
9) Inv. Out at MH A		461.90 ft	12.50	LF to PS

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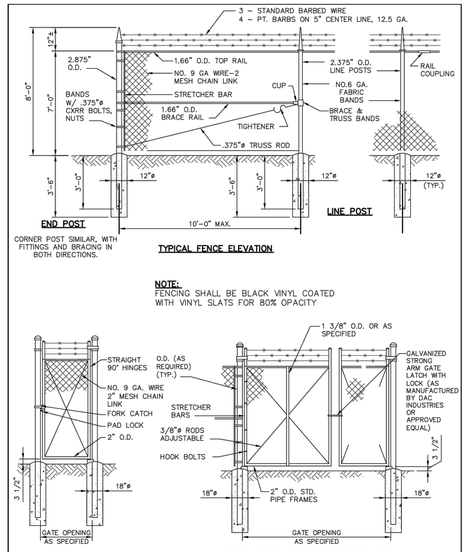
PUMP STATION NOTES — STANDARD DETAIL NO. S-31 — NOT TO SCALE — JULY 2025



TYPICAL FENCE ELEVATION

NOTE:
FENCING SHALL BE BLACK VINYL COATED WITH VINYL SLATS FOR 80% OPACITY

TYPICAL SINGLE SWING GATE ELEVATION

TYPICAL DOUBLE SWING GATE ELEVATION

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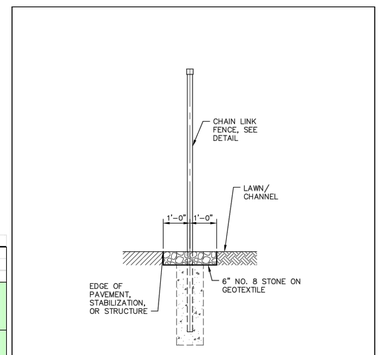
TYPICAL CHAIN-LINK FENCE DETAILS — STANDARD DETAIL NO. S-35 — NOT TO SCALE — JULY 2025



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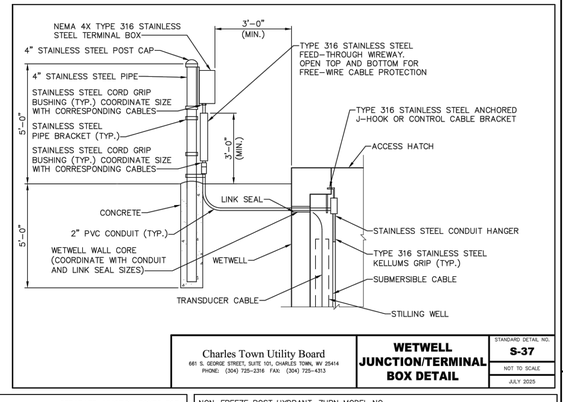
FENCE MOW STRIP — STANDARD DETAIL NO. S-36 — NOT TO SCALE — JULY 2025



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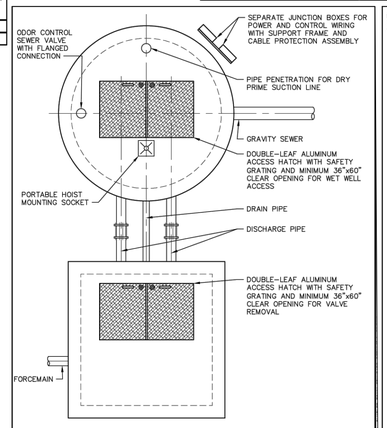
WETWELL JUNCTION/TERMINAL BOX DETAIL — STANDARD DETAIL NO. S-37 — NOT TO SCALE — JULY 2025



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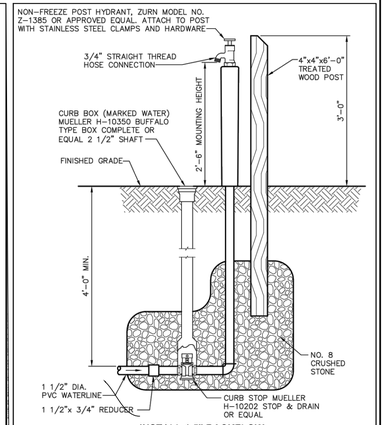
PUMP STATION PLAN VIEW (TOP OF SLAB) — STANDARD DETAIL NO. S-30 — NOT TO SCALE — JULY 2025



INSTALL 1.5" BACKFLOW PREVENTER IN METER VAULT PRIOR TO REDUCER

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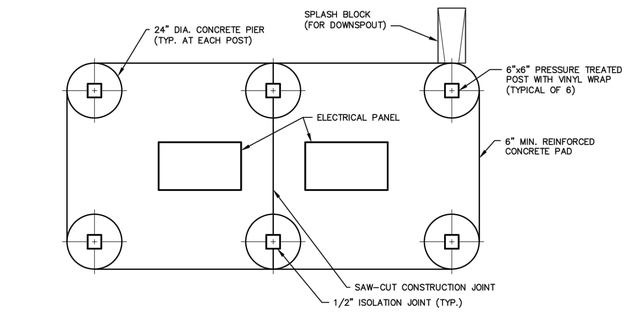
NON-FREEZE YARD (POST) HYDRANT DETAIL — STANDARD DETAIL NO. S-34 — NOT TO SCALE — JULY 2025



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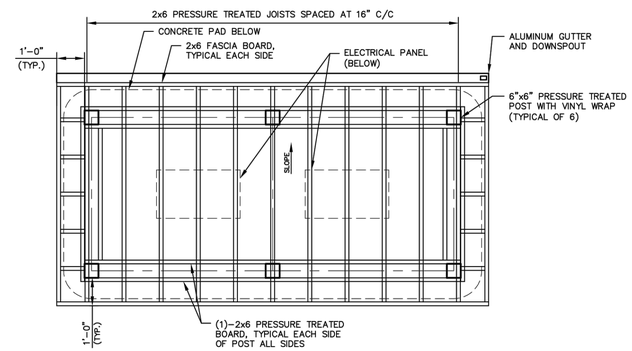
CONTROL PANEL SHELTER STRUCTURAL FLOOR PLAN — STANDARD DETAIL NO. S-40 — NOT TO SCALE — JULY 2025



SHELTER DIMENTION NOTE:
CONTRACTOR TO FINALIZE SHELTER DIMENSIONS (LENGTH,WIDTH,HEIGHT) WITH ENGINEER OF RECORD AND CTUB PRIOR TO ORDERING MATERIALS. SHELTER SHALL PROVIDE COVER FOR THE ELECTRICAL PANELS PLUS 3' ON ALL SIDES. THIS DIMENSION SHALL NOT INCLUDE THE ADDITIONAL 1' EVE SHOWN IN THE DETAILS.

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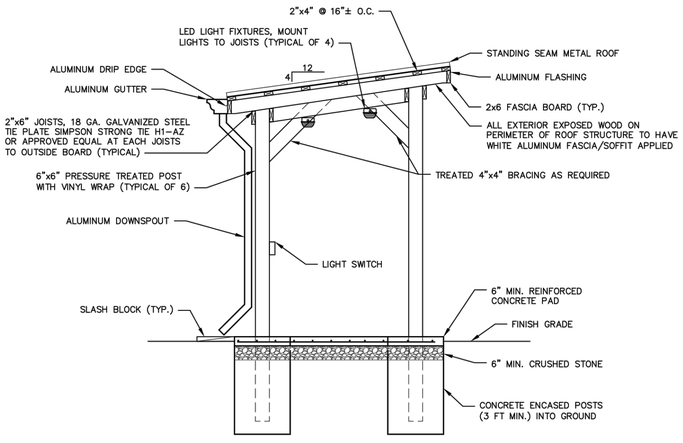
CONTROL PANEL SHELTER ROOF FRAMING PLAN — STANDARD DETAIL NO. S-41 — NOT TO SCALE — JULY 2025



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CONTROL PANEL SHELTER SECTION — STANDARD DETAIL NO. S-42 — NOT TO SCALE — JULY 2025

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PUMP STATION COMPUTATIONS AND DETAILS

NORBORNE GLEBE - PHASE 16

CHARLES TOWN CORP. DISTRICT (3)-MAP 12-PARCEL 215 DEED BOOK 1173-PAGE 85
CITY OF CHARLES TOWN
JEFFERSON COUNTY, WV

Rev. No.	Date
6	04/06/2026

DANIEL B. HAYES — REGISTERED — 16095 — STATE OF WEST VIRGINIA — PROFESSIONAL ENGINEER

DATE: 10/07/2025

SCALE: NA

DESIGNED BY: CC/CW/DM

FILE NO. 4542A

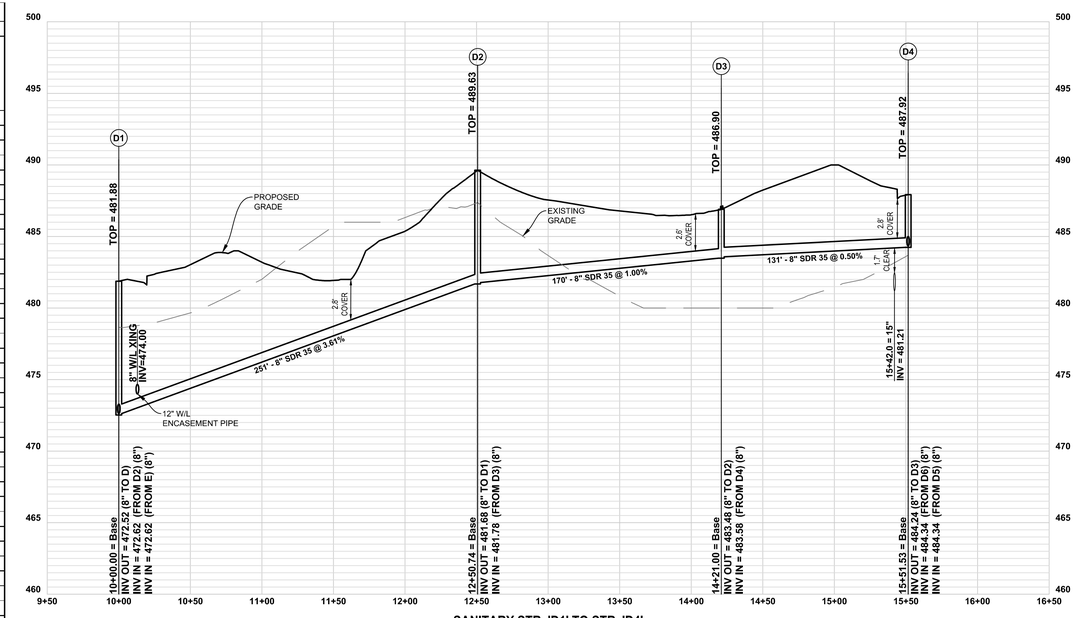
SHEET 42 OF 64

SLD-2025-02

Candlewood Drive

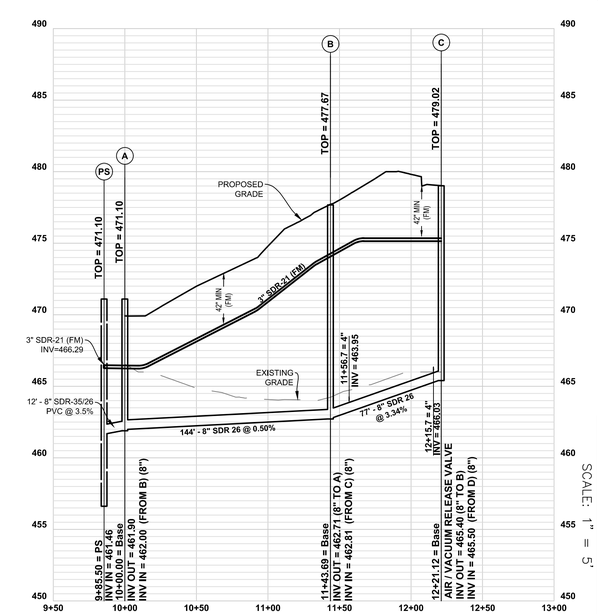
MH B (Inv In = 462.81) to MH C (Inv Out = 465.40) - 77.4' @ 3.34%

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
L15	0+71.98	466.03	465.22	18.37	47.80	0.00	0+00.00	474.81	479.76	0.00	
L16	0+13.05	463.95	463.25	24.00	54.16	0.00	0+00.00	476.95	481.71	0.00	
MH C (Inv In = 465.50) to MH D (Inv Out = 467.99) - 248.7' @ 1.00%											
L11	2+44.34	468.71	468.43	20.50	26.23	0.00	0+00.00	474.09	479.54	0.00	
L12	2+21.26	468.48	468.16	20.50	24.32	0.00	0+00.00	473.46	478.96	0.00	
L20	2+15.84	468.42	468.09	32.50	15.38	0.00	0+00.00	473.42	478.84	0.00	
L13	0+85.84	467.10	466.53	20.50	30.63	0.00	0+00.00	473.38	478.51	0.00	
L19	0+80.86	467.05	466.47	32.50	19.48	0.00	0+00.00	473.38	478.55	0.00	
L14	0+55.80	466.80	466.17	20.50	34.00	0.00	0+00.00	473.77	478.89	0.00	
L18	0+41.74	466.65	466.00	70.92	11.07	0.00	0+00.00	474.50	479.60	0.00	
L17	0+03.47	466.26	465.54	82.18	10.60	0.00	0+00.00	474.97	480.00	0.00	
MH D (Inv In = 468.09) to MH M (Inv Out = 479.83) - 250.0' @ 4.70%											
L45	2+30.21	479.73	482.32	32.50	11.51	0.00	0+00.00	483.47	491.81	0.00	
L8	1+88.79	477.75	479.85	20.50	18.75	0.00	0+00.00	481.60	489.40	0.00	
L46	1+63.88	476.56	478.36	32.50	12.00	0.00	0+00.00	480.46	488.00	0.00	
L9	1+19.51	474.45	475.71	20.50	19.26	0.00	0+00.00	478.39	485.37	0.00	
L47	0+96.19	473.33	474.32	32.50	12.31	0.00	0+00.00	477.33	484.06	0.00	
L10	0+83.54	471.77	472.37	20.50	20.23	0.00	0+00.00	475.92	482.24	0.00	
MH M (Inv In = 479.93) to MH N (Inv Out = 491.89) - 276.5' @ 4.33%											
L4	2+13.36	489.96	490.00	20.50	18.00	0.00	0+00.00	493.65	499.40	0.00	
L42	1+82.46	488.60	489.07	32.50	12.36	0.00	0+00.00	492.62	498.84	0.00	
L5	1+42.15	486.83	487.86	20.50	21.34	0.00	0+00.00	491.21	497.99	0.00	
L43	1+15.88	485.68	487.08	32.50	13.89	0.00	0+00.00	490.19	497.28	0.00	
L6	0+81.12	484.15	486.03	20.50	21.74	0.00	0+00.00	488.61	496.24	0.00	
L44	0+46.52	482.63	485.00	32.50	12.94	0.00	0+00.00	486.84	494.88	0.00	
L7	0+07.39	480.92	483.82	20.50	17.65	0.00	0+00.00	484.54	493.19	0.00	
MH N (Inv In = 491.99) to MH N1 (Inv Out = 496.46) - 171.7' @ 2.60%											
L2	0+71.09	494.58	493.84	20.50	11.94	0.00	0+00.00	497.03	502.05	0.00	
L41	0+52.61	494.09	493.36	32.50	8.09	0.00	0+00.00	496.72	501.70	0.00	
L3	0+22.37	493.29	492.58	20.50	13.78	0.00	0+00.00	496.11	501.15	0.00	
MH N1											
L1	0+00.00	496.56	496.46	16.50	5.70	0.00	0+00.00	497.50	502.52	0.00	



SANITARY STR. 'D1' TO STR. 'D4'

SHEETS 16 & 18



SANITARY PUMP STATION TO STR. 'C'

SHEET 20

SCALE: 1" = 5'

704 Foxcroft Avenue
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Feldberg Drive

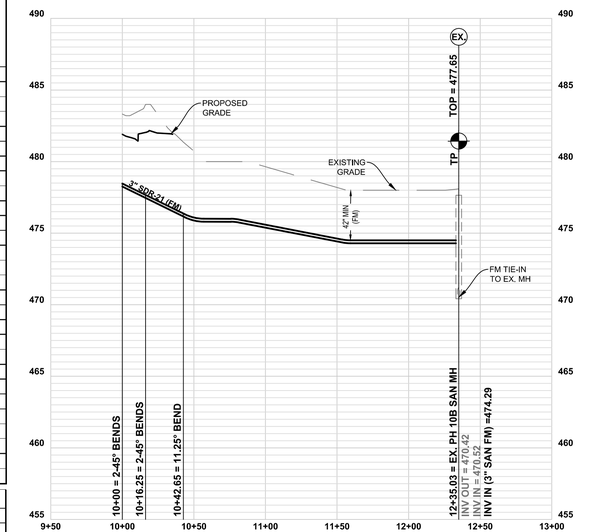
MH E (Inv In = 473.34) to MH F (Inv Out = 476.81) - 96.4' @ 3.60%

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
L22	0+77.79	476.93	477.80	23.50	5.15	0.00	0+00.00	478.14	484.76	0.00	
L48	0+69.56	476.63	477.33	28.59	2.48	0.00	0+00.00	477.34	484.73	0.00	
L21	0+12.85	474.50	474.08	22.80	15.98	0.00	0+00.00	478.14	483.47	0.00	
MH F (Inv In = 476.91) to MH G (Inv Out = 480.89) - 227.4' @ 1.75%											
L25	1+77.13	480.78	481.63	20.50	7.48	0.00	0+00.00	482.31	488.91	0.00	
L50	1+25.65	479.86	480.85	32.50	3.02	0.00	0+00.00	480.84	487.99	0.00	
L24	0+91.11	479.25	480.34	20.50	5.43	0.00	0+00.00	480.36	487.20	0.00	
L49	0+51.82	478.55	479.75	32.50	3.02	0.00	0+00.00	479.53	486.41	0.00	
L23	0+46.88	478.46	477.73	20.50	3.97	0.00	0+00.00	479.27	486.22	0.00	
MH G (Inv In = 480.99) to MH H (Inv Out = 482.46) - 117.9' @ 1.25%											
L27	0+85.85	482.82	483.77	21.18	5.67	0.00	0+00.00	484.03	490.72	0.00	
L26	0+16.23	481.92	482.72	22.92	6.44	0.00	0+00.00	483.40	489.95	0.00	
MH H (Inv In = 482.56) to MH I (Inv Out = 483.19) - 50.1' @ 1.25%											
L51	0+34.77	483.76	484.70	31.57	3.01	0.00	0+00.00	484.71	491.46	0.00	
L28	0+29.77	483.69	482.93	21.58	4.45	0.00	0+00.00	484.65	491.34	0.00	
MH I (Inv In = 483.29) to MH J (Inv Out = 483.93) - 51.4' @ 1.25%											
L29	0+44.08	484.61	483.84	20.50	4.10	0.00	0+00.00	485.45	491.96	0.00	
MH J (Inv In = 484.03) to MH J1 (Inv Out = 485.18) - 114.9' @ 1.00%											
L32	0+53.61	485.32	484.57	30.42	2.99	0.00	0+00.00	486.23	492.69	0.00	
L30	0+48.60	485.26	484.52	22.42	3.35	0.00	0+00.00	486.01	492.55	0.00	
MH J1											
L31	0+00.00	485.28	486.71	16.64	9.31	0.00	0+00.00	486.83	493.36	0.00	

Sugarloaf Drive

MH D6

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
L33	0+00.00	485.32	486.55	28.50	3.40	0.00	0+00.00	486.29	490.54	0.00	
MH D4 (Inv In = 484.34) to MH D6 (Inv Out = 485.22) - 176.7' @ 0.50%											
L52	1+50.20	485.84	485.09	20.50	3.02	0.00	0+00.00	486.46	490.21	0.00	
L34	1+09.07	485.63	484.88	32.50	2.98	0.00	0+00.00	486.60	489.68	0.00	
L35	0+80.54	485.49	484.74	32.50	2.98	0.00	0+00.00	486.46	489.31	0.00	
L53	0+52.78	485.35	484.60	20.50	1.91	0.00	0+00.00	485.74	488.95	0.00	
MH D4 (Inv In = 484.34) to MH D5 (Inv Out = 489.72) - 291.2' @ 1.85%											
L39	2+22.20	489.22	488.45	32.50	2.98	0.00	0+00.00	490.19	494.89	0.00	
L56	2+03.36	488.86	488.10	20.50	3.02	0.00	0+00.00	489.48	494.34	0.00	
L38	1+57.38	488.00	487.25	32.50	2.98	0.00	0+00.00	488.97	492.82	0.00	
L55	0+86.50	486.67	485.94	20.50	3.02	0.00	0+00.00	487.29	490.56	0.00	
L37	0+80.76	485.56	485.83	32.50	2.98	0.00	0+00.00	487.53	490.39	0.00	
L54	0+40.47	485.81	485.09	20.48	2.98	0.00	0+00.00	486.42	489.19	0.00	
L36	0+32.32	485.66	484.93	32.50	2.98	0.00	0+00.00	486.63	489.03	0.00	
MH D5											
L40	0+00.00	489.82	489.72	28.50	7.89	0.00	0+00.00	492.07	497.07	0.00	



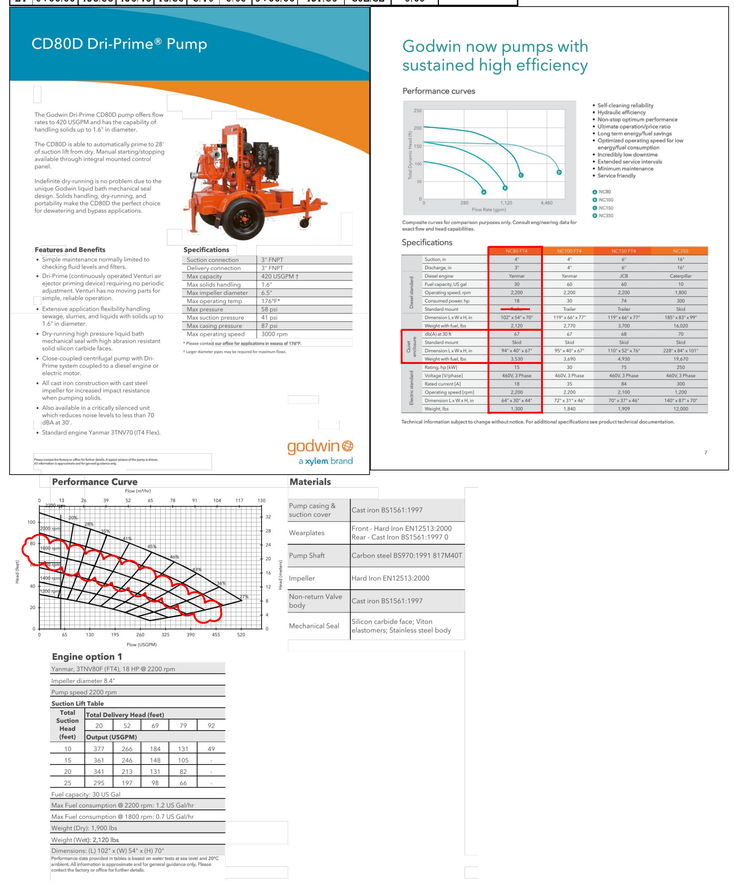
SANITARY FORCE MAIN TO EXISTING STR.

SHEET 16

SCALE: 1" = 50'

NOTE:

1. ALL MANHOLES WHICH FORCEMAINS DISCHARGE INTO, INCLUDING TWO MANHOLES DOWNSTREAM, SHALL BE PROVIDED WITH AN INTERIOR COATING SYSTEM.
2. ALL UTILITY AND ROAD INSTALLATION WITHIN DOMINION ENERGY RIGHT-OF-WAY SHALL MEET HS-20 LOADING STANDARDS.



Performance Curve

Materials

Pump casing & suction cover	Cast iron BS1561:1997
Wearplates	Front - Hard Iron EN12513:2000 Rear - Cast Iron BS1561:1997 G
Pump Shaft	Carbon steel BS970:1991 817M40T
Impeller	Hard Iron EN12513:2000
Non-return Valve body	Cast iron BS1561:1997
Mechanical Seal	Silicon carbide face; Viton elastomers; Stainless steel body

Engine option 1

Yanmar, 3TNV80F (IT4), 18 HP @ 2200 rpm

Impeller diameter 8.4"

Pump speed 2200 rpm

Suction Lift Table

Total Suction Head (feet)	Total Delivery Head (feet)					
	20	52	69	79	92	
	Output (USGPM)					
10	377	266	184	131	49	
15	361	246	148	105	-	
20	341	213	131	82	-	
25	295	197	98	66	-	

Fuel capacity: 30 US Gal

Max Fuel consumption @ 2200 rpm: 1.2 US Gal/hr

Max Fuel consumption @ 1800 rpm: 0.7 US Gal/hr

Weight (Dry): 1,900 lbs

Weight (Wet): 2,120 lbs

Dimensions: (L) 102" x (W) 54" x (H) 70"

Performance data provided in tables is based on water tests at sea level and 20°C ambient. All information is approximate and for general guidance only. Please contact the factory or office for further details.

SANITARY PROFILES & LATERAL TABLES

NORBORNE GLEBE - PHASE 16

CHARLES TOWN CORP. DISTRICT (3)-MAP 12-PARCEL 215 DEED BOOK 1173-PAGE 85
CITY OF CHARLES TOWN
JEFFERSON COUNTY, WV

Rev. No.	Date
5	03/24/2026

DANIEL B. HAYES REGISTERED 16095 STATE OF WEST VIRGINIA PROFESSIONAL ENGINEER

DATE: 10/07/2025

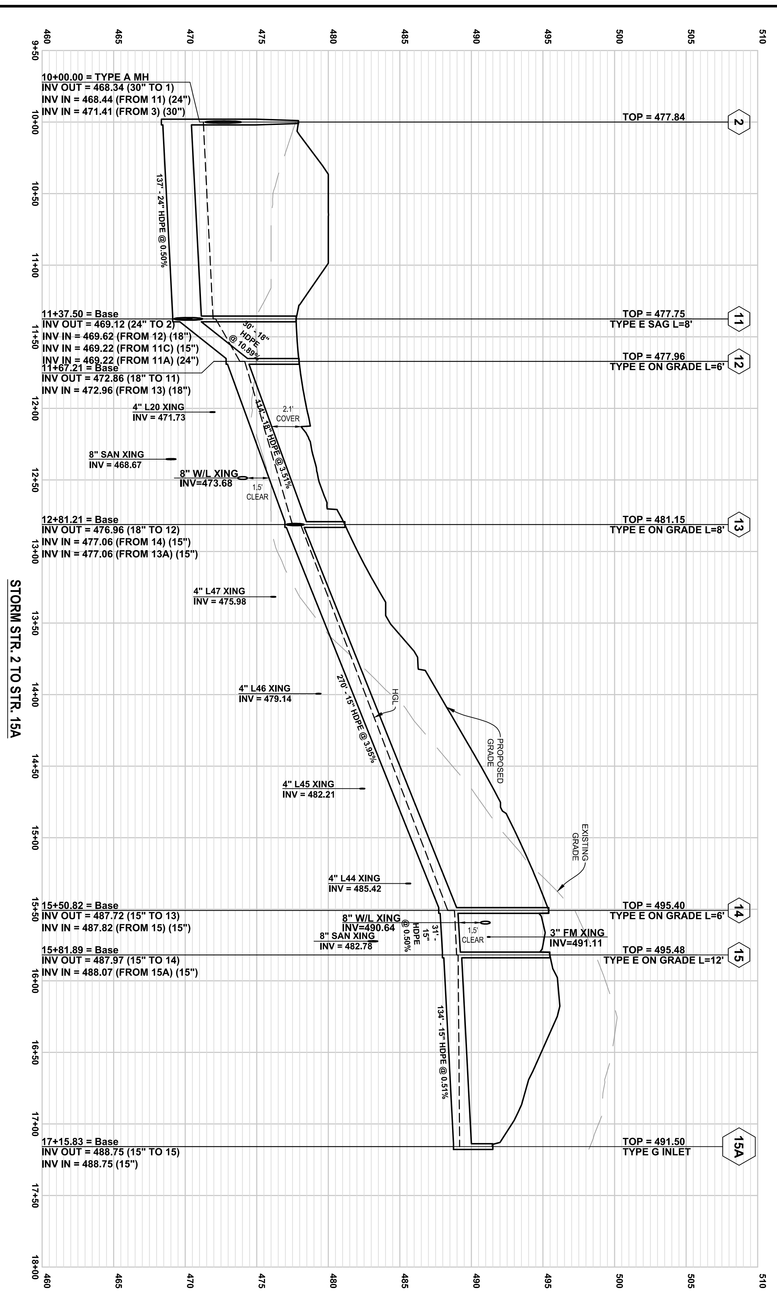
SCALE: H:1"=50' V:1"=5"

DESIGNED BY: CC/CW/DM

FILE NO. 4542A

SHEET 43 OF 64

SLD-2025-02



STORM SEWER PROFILES

NORBORNE GLEBE - PHASE 16

CHARLES TOWN CORP. DISTRICT (3)-MAP 12-PARCEL 215 DEED BOOK 1173-PAGE 85
CITY OF CHARLES TOWN
JEFFERSON COUNTY, WV

Rev. No.	Date
2	11/07/2025

DANIEL B. HAINES — REGISTERED PROFESSIONAL ENGINEER — STATE OF WEST VIRGINIA — 16005 — 10/07/2025

DATE: 10/07/2025
SCALE: H:1"=50' V:1"=5'
DESIGNED BY: CC/CW/DM
FILE NO. 4542A
SHEET 44 OF 64
SLD-2025-02

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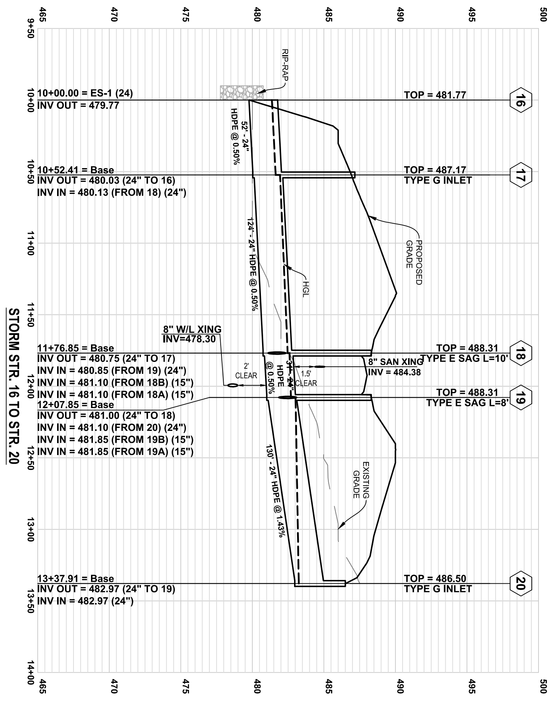

SCALE: 1" = 5'

SCALE: 1" = 50'

NOTES:
1. EXISTING UTILITIES SHOWN PER PREVIOUS DESIGN DATA. CONTRACTOR TO FIELD VERIFY FIELD CONDITIONS.
2. ALL UTILITY INSTALLATION WITHIN STATE HIGHWAY RIGHT-OF-WAY SHALL MEET HS-20 LOADING STANDARDS.

STORM SEWER PROFILES

NORBORNE GLEBE - PHASE 16

CHARLES TOWN CORP. DISTRICT (3)-MAP 12-PARCEL 215 DEED BOOK 1173-PAGE 85
CITY OF CHARLES TOWN
JEFFERSON COUNTY, WV

Rev. No.	Date
7	05/04/2026

DANIEL B. HAINES
REGISTERED
PROFESSIONAL ENGINEER
STATE OF WEST VIRGINIA
16606
Date

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DESIGNED BY: CC/CW/DM

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

DATE: 10/07/2025

FILE NO. 4542A

SHEET 45 OF 64

SLD-2025-02

STORM INLET CALCULATIONS

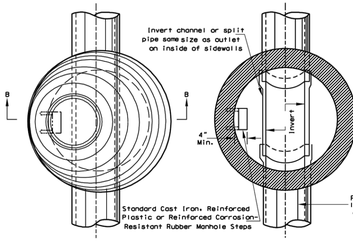
Structure Name	Inlet ID	Length (ft)	DA (AC)	C	CA	I (in/hr)	Q (cfs)	Qb (cfs)	Qt (cfs)	S (ft/ft)	Sx (ft/ft)	T (ft)	W (ft)	W/T	Sw (ft/ft)	Sw/Sx	Eo	a	S'w = a/(12W)	Se=Sx+S'w(Eo) (ft/ft)	Lt (ft)	L, Spec Length	L/Lt	E (%)	Qi (cfs)	Qb, Co (cfs)	Sag Inlets Only: Ponding Depth (ft)	Curb Opening Height (ft)	d/h	T @ Sag
10	DI-3B - 6'	6.00	0.16	0.67	0.11	4.75	0.51	0.00	0.51	0.02	0.02	1.80	2.00	1.11	0.08	4.00	1.00	3.52	0.15	0.17	6.23	6.00	0.96	1.00	0.51	0.00	0.16	-	-	-
9	DI-3B - 8'	8.00	0.18	0.63	0.11	4.75	0.54	0.00	0.54	0.02	0.02	1.82	2.00	1.10	0.08	4.00	1.00	3.52	0.15	0.17	6.49	8.00	1.23	1.00	0.54	0.00	0.16	-	-	-
8A	DI-3B - 8'	8.00	0.23	0.64	0.15	4.75	0.70	0.00	0.70	0.02	0.02	2.14	2.00	0.93	0.08	4.00	1.00	3.52	0.15	0.17	7.11	8.00	1.12	1.00	0.70	0.00	0.17	-	-	-
8	DI-3B - 6'	6.00	0.07	0.81	0.06	4.75	0.27	0.00	0.27	0.02	0.02	1.41	2.00	1.42	0.08	4.00	1.00	3.52	0.15	0.17	4.86	6.00	1.23	1.00	0.27	0.00	0.16	-	-	-
6A	DI-3B - 8'	8.00	0.37	0.59	0.22	4.75	1.04	0.00	1.04	0.02	0.02	3.39	2.00	0.59	0.08	4.00	0.98	3.52	0.15	0.16	8.50	8.00	0.94	1.00	1.04	0.00	0.20	-	-	-
6	DI-3B - 8'	8.00	0.35	0.54	0.19	4.75	0.90	0.00	0.90	0.02	0.02	2.93	2.00	0.68	0.08	4.00	0.99	3.52	0.15	0.17	7.94	8.00	1.01	1.00	0.90	0.00	0.19	-	-	-
4A	DI-1	2.16	2.72	0.30	0.82	4.75	3.88	0.00	3.88	Assume 50% Clogging												N/A	N/A	1.00	3.88	0.00	0.22	-	-	18.145
4	DI-3B - 8'	8.00	0.25	0.59	0.15	4.75	0.70	0.00	0.70	0.02	0.02	2.15	2.00	0.93	0.08	4.00	1.00	3.52	0.15	0.17	7.12	8.00	1.12	1.00	0.70	0.00	0.17	-	-	-
3	DI-3B - 8'	8.00	0.28	0.60	0.17	4.75	0.80	0.00	0.80	0.02	0.02	2.55	2.00	0.78	0.08	4.00	1.00	3.52	0.15	0.17	7.53	8.00	1.06	1.00	0.80	0.00	0.18	-	-	-
13A	DI-3B - 10'	10.00	0.33	0.61	0.20	4.75	0.96	0.00	0.96	0.03	0.02	2.70	2.00	0.74	0.08	4.00	1.00	3.52	0.15	0.17	8.80	10.00	1.14	1.00	0.96	0.00	0.18	-	-	-
15A	DI-1	2.16	0.98	0.30	0.29	4.75	1.40	0.00	1.40	Assume 50% Clogging												N/A	N/A	1.00	1.40	0.00	0.15	-	-	9.720
15	DI-3B - 12'	12.00	0.43	0.62	0.27	4.75	1.27	0.00	1.27	0.04	0.02	3.25	2.00	0.62	0.08	4.00	0.98	3.52	0.15	0.16	10.66	12.00	1.13	1.00	1.27	0.00	0.19	-	-	-
14	DI-3B - 6'	6.00	0.31	0.59	0.18	4.75	0.87	0.00	0.87	0.01	0.02	4.28	2.00	0.47	0.08	4.17	0.93	3.52	0.15	0.16	6.30	6.00	0.95	1.00	0.87	0.00	0.21	-	-	-
13	DI-3B - 8'	8.00	0.31	0.57	0.18	4.75	0.84	0.00	0.84	0.03	0.02	2.30	2.00	0.87	0.08	4.00	1.00	3.52	0.15	0.17	8.32	8.00	0.96	1.00	0.84	0.00	0.17	-	-	-
12	DI-3B - 6'	6.00	0.00	0.50	0.00	4.75	0.00	0.00	0.00	0.01	0.02	0.00	2.00	0.00	0.08	4.17	0.00	3.52	0.15	0.02	0.00	6.00	1.00	0.00	0.00	0.00	0.00	-	-	-
11C	DI-3B - 6'	6.00	0.00	0.50	0.00	4.75	0.00	0.00	0.00	0.01	0.02	0.00	2.00	0.00	0.08	4.17	0.00	3.52	0.15	0.02	0.00	6.00	1.00	0.00	0.00	0.00	0.00	-	-	-
11B	DI-1	2.16	3.19	0.30	0.96	4.75	4.55	0.00	4.55	Assume 50% Clogging												N/A	N/A	1.00	4.55	0.00	0.24	-	-	20.058
11D	DI-3B - 6'	6.00	0.00	0.50	0.00	4.75	0.00	0.00	0.00	0.01	0.02	0.00	2.00	0.00	0.08	4.17	0.00	3.52	0.15	0.02	0.00	6.00	1.00	0.00	0.00	0.00	0.00	-	-	-
11E	DI-3B - 6'	6.00	0.00	0.50	0.00	4.75	0.00	0.00	0.00	0.01	0.02	0.00	2.00	0.00	0.08	4.17	0.00	3.52	0.15	0.02	0.00	6.00	1.00	0.00	0.00	0.00	0.00	-	-	-
11A	DI-3C - 8'	8.00	0.46	0.61	0.28	4.75	1.33	0.00	1.33	0.00	0.02	7.27	2.00	0.28	0.08	4.00	0.00	3.52	0.15	0.02	8.00	8.00	1.00	1.00	1.33	0.00	0.28	0.458	0.606	0.435
11	DI-3C - 8'	8.00	0.83	0.62	0.51	4.75	2.44	0.00	2.44	0.00	0.02	9.78	2.00	0.20	0.08	4.00	0.00	3.52	0.15	0.02	8.00	8.00	1.00	1.00	2.44	0.00	0.33	0.458	0.720	3.684
20	DI-1	2.16	5.60	0.30	1.68	4.75	7.98	0.00	7.98	Assume 50% Clogging												N/A	N/A	1.00	7.98	0.00	0.29	-	-	28.697
19B	DI-3B - 6'	6.00	0.00	0.50	0.00	4.75	0.00	0.00	0.00	0.01	0.02	0.00	2.00	0.00	0.08	4.17	0.00	3.52	0.15	0.02	0.00	6.00	1.00	0.00	0.00	0.00	0.00	-	-	-
19A	DI-3B - 6'	6.00	0.00	0.50	0.00	4.75	0.00	0.00	0.00	0.01	0.02	0.00	2.00	0.00	0.08	4.17	0.00	3.52	0.15	0.02	0.00	6.00	1.00	0.00	0.00	0.00	0.00	-	-	-
19	DI-3C - 8'	8.00	0.85	0.64	0.54	4.75	2.58	0.00	2.58	0.00	0.02	10.03	2.00	0.20	0.08	4.00	0.00	3.52	0.15	0.02	8.00	8.00	1.00	1.00	2.58	0.00	0.34	0.458	0.731	4.053
18B	DI-3B - 6'	6.00	0.00	0.50	0.00	4.75	0.00	0.00	0.00	0.01	0.02	0.00	2.00	0.00	0.08	4.17	0.00	3.52	0.15	0.02	0.00	6.00	1.00	0.00	0.00	0.00	0.00			
18A	DI-3B - 6'	6.00	0.00	0.50	0.00	4.75	0.00	0.00	0.00	0.01	0.02	0.00	2.00	0.00	0.08	4.17	0.00	3.52	0.15	0.02	0.00	6.00	1.00	0.00	0.00	0.00	0.00			
18	DI-3C - 10'	10.00	0.74	0.61	0.45	4.75	2.14	0.00	2.14	0.00	0.02	9.22	2.00	0.22	0.08	4.00	0.00	3.52	0.15	0.02	10.00	10.00	1.00	1.00	2.14	0.00	0.32	0.458	0.691	2.043
17	DI-1	2.16	0.09	0.30	0.03	4.75	0.13	0.00	0.13	Assume 50% Clogging												N/A	N/A	1.00	0.13	0.00	0.06	-	-	2.839
22	DI-3B - 10'	10.00	0.29	0.51	0.15	4.75	0.70	0.00	0.70	0.05	0.02	1.76	2.00	1.14	0.08	4.00	1.00	3.52	0.15	0.17	9.00	10.00	1.11	1.00	0.70	0.00	0.16	-	-	-
21	DI-3B - 10'	10.00	0.26	0.53	0.14	4.75	0.65	0.00	0.65	0.05	0.02	1.71	2.00	1.17	0.08	4.00	1.00	3.52	0.15	0.17	8.73	10.00	1.14	1.00	0.65	0.00	0.16	-	-	-
EX	DI-1	2.16	0.00	0.50	0.00	4.75	0.00	0.00	0.00	Assume 50% Clogging												N/A	N/A	0.00	0.00	0.00	0.00	-	-	0.600
27	DI-1	2.16	4.44	0.30	1.33	4.75	6.33	0.00	6.33	Assume 50% Clogging												N/A	N/A	1.00	6.33	0.00	0.27	-	-	24.738
24	DI-1	2.16	0.00	0.00	0.00	4.75	0.00	0.00	0.00	Assume 50% Clogging												N/A	N/A	0.00	0.00	0.00	0.00	-	-	0.000

STORM SEWER PIPE CALCULATIONS

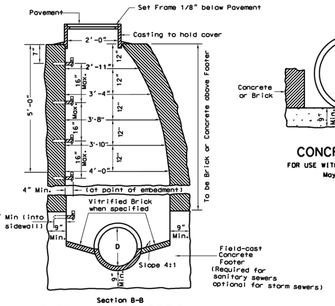
From	To	DA (Acres)	Runoff Coef. C	CA (Increm.)	CA (Accum.)	Tc (min)	Rainfall (in/hr)	Runoff Q_p (cfs)	Invert Up (ft)	Invert Down (ft)	Length (ft)	Slope (%)	Diameter (in)	Capacity (cfs)	Velocity (fps)	Increm Flow Time (min)	Flow Time (min)	Pipe Material
10	9	0.16	0.67	0.11	0.11	5.00	6.54	0.70	489.56	489.39	32.57	0.50	15.00	5.32	2.85	0.19	0.19	HDPE
9	8	0.18	0.63	0.11	0.22	5.00	6.54	1.43	489.29	487.38	191.20	1.00	15.00	7.53	4.48	0.71	0.71	HDPE
8	7	0.07	0.81	0.06	0.42	5.00	6.54	2.64	487.28	485.86	142.27	1.00	15.00	7.53	5.30	0.45	0.45	HDPE
7	6	0.00	0.00	0.00	0.42	0.00	0.00	2.57	485.76	482.57	148.12	2.15	15.00	11.04	6.95	0.35	0.35	HDPE
6	5	0.35	0.54	0.19	0.83	5.00	6.54	4.94	482.47	478.95	153.17	2.30	15.00	11.41	8.49	0.30	0.30	HDPE
5	4	0.00	0.00	0.00	0.83	0.00	0.00	4.86	478.85	477.53	57.51	2.30	15.00	11.42	8.46	0.11	0.11	HDPE
4	3	0.25	0.59	0.15	1.80	5.00	6.54	10.43	476.18	476.02	31.00	0.51	30.00	34.04	2.13	0.09	0.24	HDPE
3	2	0.28	0.60	0.17	1.96	5.00	6.54	11.27	475.92	471.41	88.50	5.10	30.00	107.96	13.55	0.11	0.11	HDPE
2	1	0.00	0.00	0.00	4.84	0.00	0.00	27.61	468.34	468.05	57.52	0.50	30.00	33.80	5.63	0.13	0.17	HDPE
20	19	5.60	0.30	1.68	1.68	5.00	6.54	10.99	482.97	481.10	130.06	1.43	24.00	31.54	8.66	0.25	0.25	HDPE
19	18	0.85	0.64	0.54	2.22	5.00	6.54	14.35	481.00	480.85	31.00	0.50	24.00	18.64	4.57	0.08	0.11	HDPE
18	17	0.74	0.61	0.45	2.68	5.00	6.54	17.15	480.75	480.13	124.44	0.50	24.00	18.64	6.29	0.33	0.33	HDPE
17	16	0.09	0.30	0.03	2.70	5.00	6.54	16.99	480.03	479.77	52.41	0.50	24.00	18.64	6.29	0.14	0.14	HDPE
4A	4	2.72	0.30	0.82	0.82	5.00	6.54	5.34	477.80	477.18	124.87	0.50	18.00	8.66	4.87	0.43	0.43	HDPE
6A	6	0.37	0.59	0.22	0.22	5.00	6.54	1.43	482.72	482.57	30.99	0.50	15.00	5.32	3.49	0.15	0.15	HDPE
8A	8	0.23	0.64	0.15	0.15	5.00	6.54	0.96	487.54	487.38	32.10	0.50	15.00	5.32	3.12	0.17	0.17	HDPE
13A	13	0.33	0.61	0.20	0.20	5.00	6.54	1.32	477.22	477.06	31.11	0.50	15.00	5.32	3.41	0.15	0.15	HDPE
13	12	0.31	0.57	0.18	1.12	5.00	6.54	6.87	476.96	472.96	114.00	3.51	18.00	22.93	10.75	0.18	0.18	HDPE
12	11	0.00	0.50	0.00	1.12	5.00	6.54	6.80	472.86	469.62	29.71	10.89	18.00	40.40	3.85	0.03	0.13	HDPE
11	2	0.83	0.62	0.51	2.87	5.00	6.54	17.31	469.12	468.44	137.50	0.50	24.00	18.64	5.51	0.41	0.41	HDPE
18A	18	0.00	0.50	0.00	0.00	5.00	6.54	0.00	483.22	481.10	35.41	6.00	15.00	18.44	0.00	0.00	0.00	HDPE
18B	18	0.00	0.50	0.00	0.00	5.00	6.54	0.00	481.45	481.10	29.88	1.20	15.00	8.26	0.00	0.00	0.00	HDPE
19A	19	0.00	0.50	0.00	0.00	5.00	6.54	0.00	483.20	481.85	37.02	3.64	15.00	14.35	0.00	0.00	0.00	HDPE
19B	19	0.00	0.50	0.00	0.00	5.00	6.54	0.00	482.83	481.85	29.67	3.30	15.00	13.67	0.00	0.00	0.00	HDPE
11D	11A	0.00	0.50	0.00	0.00	5.00	6.54	0.00	473.98	473.83	29.71	0.50	15.00	5.32	0.00	0.00	0.00	HDPE
11A	11	0.46	0.61	0.28	1.24	5.00	6.54	7.59	469.38	469.22	31.00	0.50	24.00	18.64	2.42	0.10	0.21	HDPE
11C	11	0.00	0.50	0.00	0.00	5.00	6.54	0.00	470.84	469.22	32.28	5.00	15.00	16.83	0.00	0.00	0.00	HDPE
11E	11A	0.00	0.50	0.00	0.00	5.00	6.54	0.00	473.99	473.83	32.63	0.50	15.00	5.32	0.00	0.00	0.00	HDPE
15A	15	0.98	0.30	0.29	0.29	5.00	6.54	1.92	488.75	488.07	133.93	0.51	15.00	5.36	3.80	0.59	0.59	HDPE
15	14	0.43	0.62	0.27	0.56	5.00	6.54	3.55	487.97	487.82	31.08	0.50	15.00	5.32	4.38	0.12	0.12	HDPE
14	13	0.31	0.59	0.18	0.74	5.00	6.54	4.67	487.72	477.06	269.61	3.95	15.00	14.96	10.22	0.44	0.44	HDPE
11B	11A	3.19	0.30	0.96	0.96	5.00	6.54	6.26	470.15	469.48	134.05	0.50	24.00	18.64	1.99	0.44	1.12	HDPE
22	21	0.29	0.51	0.15	0.15	5.00	6.54	0.97	480.25	480.05	40.02	0.50	15.00	5.32	3.13	0.21	0.21	HDPE
21	EX	0.26	0.53	0.14	0.29	5.00	6.54	1.85	479.95	477.75	37.99	5.85	15.00	18.21	9.85	0.07	0.07	HDPE
27	26	4.44	0.30	1.33	1.33	5.00	6.54	8.71	461.14	459.69	289.56	0.50	18.00	8.66	4.93	0.98	0.98	HDPE
26	25	0.00	0.00	0.00	1.33	0.00	0.00	8.24	459.59	459.15	58.65	0.76	18.00	10.67	6.28	0.16	0.16	HDPE
25	24	0.00	0.00	0.00	1.33	0.00	0.00	8.16	459.05	458.74	61.30	0.50	18.00	8.66	4.62	0.22	0.22	HDPE
24	23	0.00	0.00	0.00	1.33	5.00	6.54	8.06	458.64	455.15	225.75	1.55	18.00	15.22	8.27	0.46	0.46	HDPE

HYDRAULIC GRADE LINE CALCULATIONS

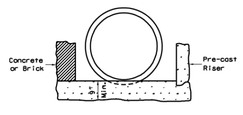
Inlet No.	Outlet W.S.E. (ft)	Do (in)	Qo (cfs)	Lo (ft)	Sfo (%)	Hf (ft)	JUNCTION LOSS: Vo (fps)	Ho (ft)	Qi (cfs)	Vi (fps)	Q/Vi	Vi^2/2g	Hi (ft)	Angle (deg)	K	Hb (ft)	Ht (ft)	1.3Ht (ft)	0.5Ht (ft)	Final H (ft)	Inlet W.S.E. (ft)	Rim Elev (ft)
10	490.39	15.00	0.70	32.57	0.01	0.00	2.85	0.04									0.04	0.05	0.02	0.05	490.42	493.99
9	488.38	15.00	1.43	191.20	0.04	0.08	4.48	0.08	0.70	2.85	2.00	0.13	0.04	55.71	0.53	0.07	0.19	0.25	0.12	0.33	488.59	493.78
8	486.86	15.00	2.64	142.27	0.15	0.21	5.30	0.11	1.43	4.48	6.40	0.31	0.11	12.69	0.16	0.05	0.31		0.15	0.52	487.22	
									0.96	3.12	3.01	0.15		66.30	0.59	0.09				0.00		491.37
7	483.57	15.00	2.57	148.12	0.14	0.21	6.95	0.19	2.64	5.30	13.97	0.44	0.15	12.93	0.16	0.07	0.41		0.21	0.62	483.99	489.87
6	479.95	15.00	4.94	153.17	0.52	0.79	8.49	0.28	2.57	6.95	17.88	0.75	0.26	3.80	0.05	0.04	0.68	0.88	0.44	1.68	481.19	
									1.43	3.49	4.98	0.19		87.61	0.71	0.13				0.00		487.20
5	478.64	15.00	4.86	57.51	0.43	0.25	8.46	0.28	4.94	8.49	41.96	1.12	0.39	15.70	0.20	0.22	0.89		0.45	1.14	479.33	483.79
4	478.02	30.00	10.43	31.00	0.06	0.02	2.13	0.02	4.86	8.46	41.14	1.11	0.39	86.38	0.71	0.78	1.19		0.60	1.21	478.64	
									5.34	4.87	25.99	0.37		5.75	0.07	0.03				0.00		482.46
3	473.41	30.00	11.27	88.50	0.07	0.06	13.55	0.71	10.43	2.13	22.18	0.07	0.02	0.00	0.00	0.00	0.74		0.37	0.80	473.84	482.46
2	470.05	30.00	27.61	57.52	0.40	0.23	5.63	0.12	11.27	13.55	152.76	2.86	1.00	10.85	0.14	0.39	1.51	1.97	0.98	2.20	471.27	
									17.31	5.51	95.34	0.47		79.15	0.68	0.32				0.00		477.92
20	483.02	24.00	10.99	130.06	0.17	0.23	8.66	0.35									0.35	0.45	0.23	0.68	483.47	486.50
19	482.60	24.00	14.35	31.00	0.31	0.10	4.57	0.08	10.99	8.66	95.18	1.17	0.41	0.38	0.00	0.01	0.49	0.64	0.32	0.74	483.02	
									0.00	0.00	0.00	0.00		89.50	0.72	0.00				0.00		
									10.99	8.66	95.18	1.17		0.38	0.00	0.01				0.00		488.31
18	481.94	24.00	17.15	124.44	0.43	0.53	6.29	0.15	14.35	4.57	65.55	0.32	0.11	0.35	0.00	0.00	0.27		0.13	0.80	482.60	
									0.00	0.00	0.00	0.00		89.86	0.72	0.00				0.00		
									14.35	4.57	65.55	0.32		0.35	0.00	0.00				0.00		488.31
17	481.37	24.00	16.99	52.41	0.50	0.26	6.29	0.15	17.15	6.29	107.82	0.61	0.22	36.39	0.40	0.25	0.62		0.31	0.88	481.94	487.17
4A	478.64	18.00	5.34	124.87	0.19	0.24	4.87	0.11									0.11	0.14	0.07	0.38	478.95	481.50
6A	483.57	15.00	1.43	30.99	0.04	0.01	3.49	0.06									0.06	0.07	0.04	0.09	483.62	487.20
8A	488.38	15.00	0.96	32.10	0.02	0.01	3.12	0.05									0.05	0.06	0.03	0.07	488.42	491.46
13A	478.06	15.00	1.32	31.11	0.04	0.01	3.41	0.05									0.05	0.07	0.04	0.08	478.11	481.27
13	474.16	18.00	6.87	114.00	0.38	0.43	10.75	0.45	4.67	10.22	47.70	1.62	0.57	0.00	0.00	0.00	1.14		0.57	1.58	475.17	
									1.32	3.41	4.49	0.18		85.17	0.70	0.13				0.00		481.15
12	472.13	18.00	6.80	29.71	0.36	0.11	3.85	0.06	6.87	10.75	73.86	1.80	0.63	0.00	0.00	0.00	0.69		0.34	0.79	472.58	477.96
11	471.27	24.00	17.31	137.50	0.50	0.68	5.51	0.12	6.80	3.85	26.18	0.23	0.08	90.00	0.72	0.17	0.36		0.18	1.05	472.13	
									7.59	2.42	18.34	0.09		0.00	0.00	0.00				0.00		
									6.80	3.85	26.18	0.23		90.00	0.72	0.17				0.00		477.75
18A	481.10	15.00	0.00	35.41	0.00	0.00	0.00	0.00									0.00		0.00	0.00	481.10	488.58
18B	481.10	15.00	0.00	29.88	0.00	0.00	0.00	0.00									0.00		0.00	0.00	481.10	488.52
19A	481.85	15.00	0.00	37.02	0.00	0.00	0.00	0.00									0.00		0.00	0.00	481.85	488.58
19B	481.85	15.00	0.00	29.67	0.00	0.00	0.00	0.00									0.00		0.00	0.00	481.85	488.52
11D	473.83	15.00	0.00	29.71	0.00	0.00	0.00	0.00									0.00		0.00	0.00	473.83	477.96
11A	472.13	24.00	7.59	31.00	0.10	0.03	2.42	0.02	6.26	1.99	12.47	0.06	0.02	0.00	0.00	0.00	0.04	0.06	0.03	0.09	472.19	
									0.00	0.00	0.00	0.00		90.00	0.72	0.00				0.00		
									6.26	1.99	12.47	0.06		0.00	0.00	0.00				0.00		477.75
11C	469.22	15.00	0.00	32.28	0.00	0.00	0.00	0.00									0.00		0.00	0.00	469.22	477.81
11E	473.83	15.00	0.00	32.63	0.00	0.00	0.00	0.00									0.00		0.00	0.00	473.83	477.81
15A	489.07	15.00	1.92	133.93	0.08	0.11	3.80	0.07									0.07	0.09	0.04	0.19	489.22	491.50
15	488.82	15.00	3.55	31.08	0.27	0.08	4.38	0.07	1.92	3.80	7.30	0.22	0.08	4.03	0.05	0.01	0.16	0.21	0.11	0.30	489.01	495.48
14	478.06	15.00	4.67	269.61	0.46	1.25	10.22	0.41	3.55	4.38	15.54	0.30	0.10	85.96	0.70	0.21	0.72	0.94	0.47	2.19	479.78	495.40
11B	472.19	24.00	6.26	134.05	0.06	0.09	1.99	0.02									0.02	0.02	0.01	0.11	472.29	473.40
22	481.05	15.00	0.97	40.02	0.02	0.01	3.13	0.05									0.05	0.06	0.03	0.07	481.09	483.26
21	478.75	15.00	1.85	37.99	0.07	0.03	5.05	0.32	0.97	3.13	3.03	0.15	0.05	34.11	0.38	0.06	0.43	0.56	0.28	0.59	479.06	483.20
27	461.07	18.00	8.71	289.56	0.51	1.47	4.93	0.11									0.11	0.15	0.07	1.61	462.61	465.71
26	460.64	18.00	8.24	58.65	0.49	0.29	6.28	0.15	8.71	4.93	42.94	0.38	0.13	0.70	0.01	0.00	0.29		0.14	0.58	461.07	470.25
25	459.94	18.00	8.16	61.30	0.54	0.33	4.62	0.08	8.24	6.28	51.70	0.61	0.21	89.99	0.72	0.44	0.74		0.37	1.07	460.64	470.82
24	456.35	18.00	8.06	225.75	0.52	1.18	8.27	0.27	8.16	4.62	37.71	0.33	0.12	40.17	0.43



PLAN VIEWS

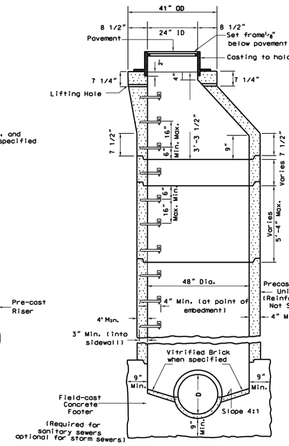


CAST-IN-PLACE OPTION



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.

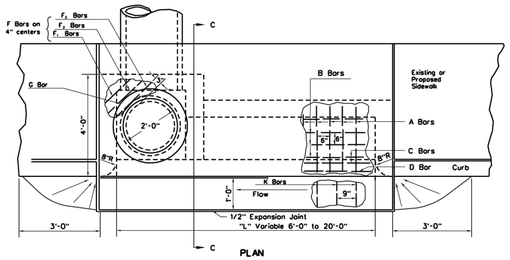
The pre-cast sidewall units shall be set in joint mortar or sealed with O-ring gaskets.

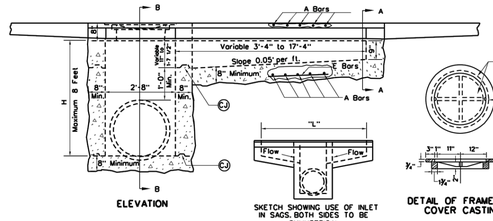
WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
STANDARD DETAIL

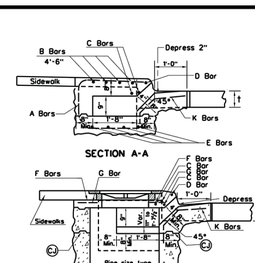
PREPARED 7-1-98
REVISION DATE

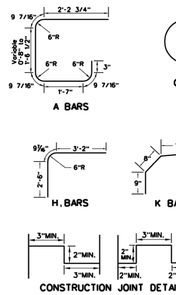
TYPE A MANHOLE

STANDARD SHEET DR7-A









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 "C.J" 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.

CONCRETE AND REINFORCING STEEL QUANTITIES

"L" 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	F, Bars (Straight) No.	Size	Length	G Bar (Bent) No.	Size	Length	H,Bars (Straight) No.	Size	Length	M, 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'-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"	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.

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
STANDARD DETAIL

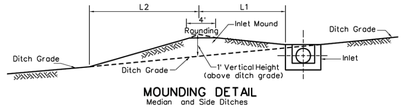
PREPARED 7-1-98
REVISION DATE

TYPE E INLET

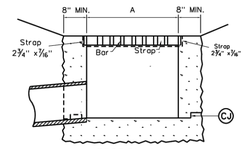
STANDARD SHEET DR6-E

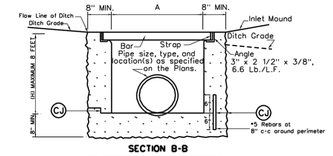
INLET MOUNDING TABLE

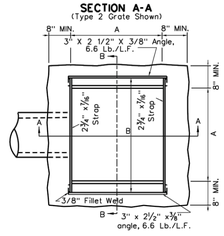
DITCH GRADE (Z) FROM	TO	L1, HORIZONTAL LENGTH (FT.)	L2, HORIZONTAL LENGTH (FT.)
0	3	10	15
3	5	9	20
5	7.5	8	40
7.5	UP	SPECIAL DESIGN	SPECIAL DESIGN

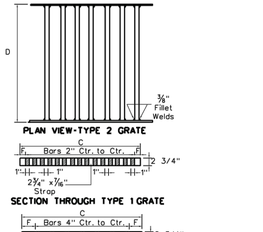


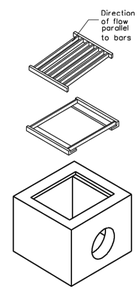
MOUNDING DETAIL
Median and Side Ditches











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.

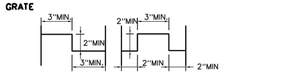
The Mounding Detail as shown is not required when an inlet is placed in a sag.

Optional construction joints labeled C.J" 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.



DIMENSIONS						TYPE 2 GRATE			FRAME	TYPE 1 GRATE		
Pipe Dia	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	418	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"

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) 262-5111
Fax: (540) 722-8528
www.greenwayeng.com

GREENWAY ENGINEERING
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STORM SEWER DETAILS
STANDARD DETAILS

NORBORNE GLEBE - PHASE 16

CHARLES TOWN CORP. DISTRICT (3)-MAP 12-PARCEL 215 DEED BOOK 1173-PAGE 85
CITY OF CHARLES TOWN
JEFFERSON COUNTY, WV

Rev. No.	Date

DANIEL B. HAYES
REGISTERED
16095
STATE OF WEST VIRGINIA
PROFESSIONAL ENGINEER

DATE: 10/07/2025

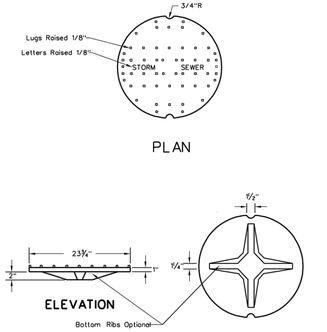
SCALE: N/A

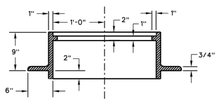
DESIGNED BY: CC/CW/DM

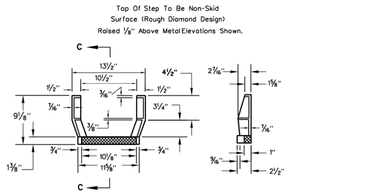
FILE NO. 4542A

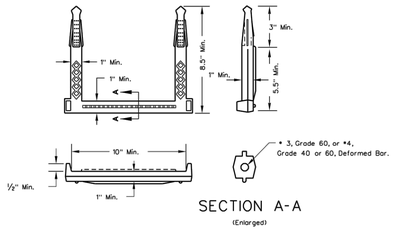
SHEET 47 OF 64

SLD-2025-02









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.

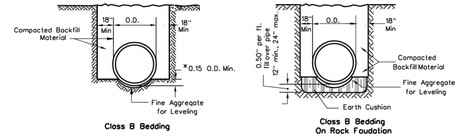
WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
STANDARD DETAIL

PREPARED 7-1-99
REVISION DATE

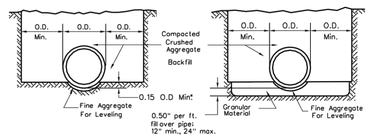
MANHOLE CASTINGS

STANDARD SHEET DR7-X

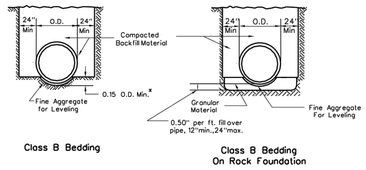
* Except for structural plate pipe where length of bedding arc need not exceed width of bottom plate However, if structural plate pipe is first assembled and then placed in the trench, the 0.15 O.D. minimum value will apply.



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

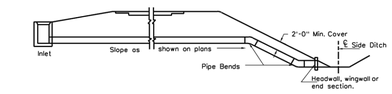


(Trench shown is for 60" thru 108" flexible pipe in soil cut fill sections)

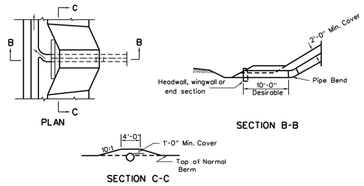


(Trench shown is for 60" thru 108" rigid pipe in cut sections)

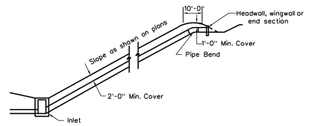
TYPICAL PIPE BEDDING



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

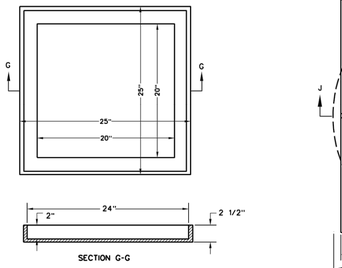
For pipe without corrugations, a one inch layer of fine aggregate for leveling will normally be adequate to achieve a uniform bearing surface. For corrugated pipe, layers shall be 1" minimum for 1/2" depth corrugations, 2" minimum for 1" depth corrugations, and 3" minimum for 2" or 2-1/2" depth corrugations.

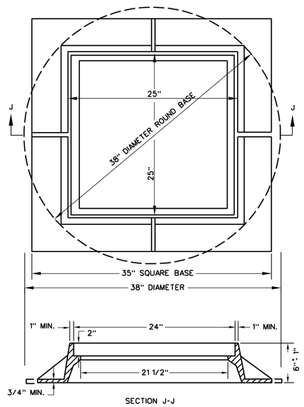
WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
STANDARD DETAIL

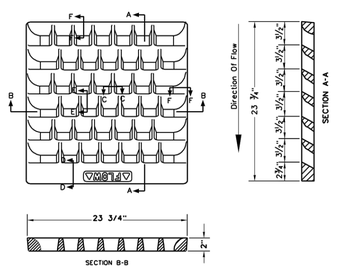
PREPARED 7-1-99
REVISION DATE

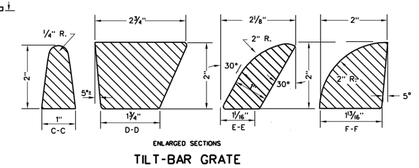
MISCELLANEOUS DRAINAGE
(sheet 1 of 4)

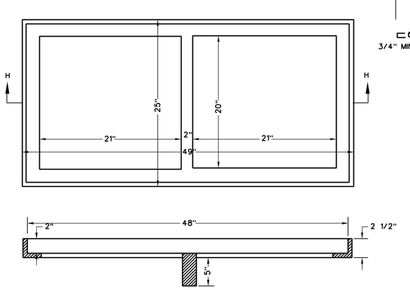
STANDARD SHEET DR8

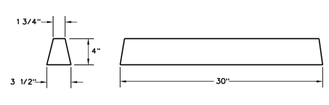












WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
STANDARD DETAIL

PREPARED 7-1-99
REVISION DATE

INLET CASTINGS

STANDARD SHEET DR6-X

704 Foxcroft Avenue
Martinsburg, West Virginia 25401
Telephone: (304) 267-5111
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OFFICES IN: WINCHESTER, VA & MARTINSBURG, WV

STORM SEWER DETAILS

NORBORNE GLEBE - PHASE 16

CHARLES TOWN CORP. DISTRICT (3)-MAP 12-PARCEL 215 DEED BOOK 1173-PAGE 85
CITY OF CHARLES TOWN
JEFFERSON COUNTY, WV

Rev. No.	Date

DANIEL B. HAYES
REGISTERED
16095
STATE OF WEST VIRGINIA
PROFESSIONAL ENGINEER

DATE: 10/07/2025
SCALE: N/A
DESIGNED BY: CC/CW/DM
FILE NO. 4542A
SHEET 48 OF 64
SLD-2025-02

THIS VIEW FOR LANDSCAPING ONLY



LEGEND

- Deciduous Trees
- Ornamental Trees
- Evergreen Trees
- Shrubs
- Bioretention Plantings
- Ex Buffer Trees to Remain

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LANDSCAPE PLAN

NORBORNE GLEBE - PHASE 16

CHARLES TOWN CORP. DISTRICT (3)-MAP 12-PARCEL 215 DEED BOOK 1173-PAGE 85
CITY OF CHARLES TOWN
JEFFERSON COUNTY, WV

Rev. No.	Date
3	11/25/2025

DANIEL B. HAYES REGISTERED 16095 STATE OF WEST VIRGINIA PROFESSIONAL ENGINEER

DATE: 10/07/2025

SCALE: 1" = 60'

DESIGNED BY: CC/CW/DM

FILE NO. 4542A

SHEET 49 OF 64

SLD-2025-02

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.

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:
6,245 LF STREET FRONTAGE - 1,319 LF EXEMPT STREET FRONTAGE WITHIN FIRST ENERGY & DOMINION OVERHEAD POWER RIGHT-OF-WAY (CANNOT PLANT TREES IN THIS AREA)
REMAINDER = 4,926 LF STREET FRONTAGE

4,926/50 = 99 TREES REQUIRED
112 TOTAL TREES PROVIDED

BUFFER STANDARDS (20' WIDE STANDARD)

Minimum of one continuous row of coniferous trees spaced a maximum of 12' on-center in two staggered rows (spaced a maximum of 8 feet apart). One row can consist of deciduous trees.

Buffer plantings to supplement existing mature trees and shrubs along property line in agreement with the adjacent landowners.

PLANT SCHEDULE

ABB	BOTANIC NAME	COMMON NAME	QUANTITY	SIZE
Ar	Acer Rubrum 'Franksred'	Red Sunset Red Maple	52	2" cal, B&B
Cb	Carpinus betulus 'Fastigiata'	Pyramidal European Hornbeam	74	2" cal, B&B
Js	Juniperus scopulorum 'Skyrocket'	Skyrocket juniper	114	2" cal, B&B
Tc	Tilia chordata 'Greenspire'	Greenspire Littleleaf Linden	21	2" cal, B&B
Zs	Zelkova serrata 'Green Vase'	Green Vase Japanese Zelkova	40	2" cal, B&B
		TOTAL	296	

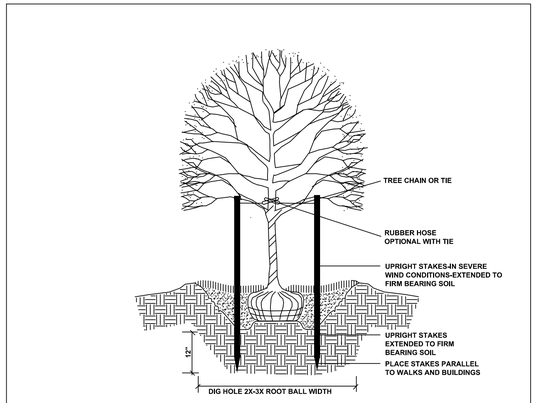
NOTES:

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

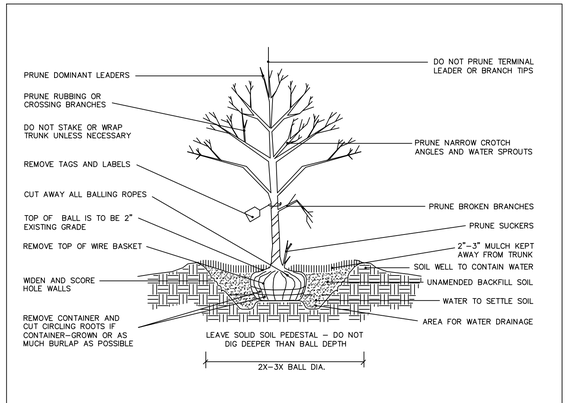
2) ANY PLANT SUBSTITUTIONS MUST BE APPROVED IN WRITING BY THE CHARLESTOWN DEPARTMENT OF COMMUNITY DEVELOPMENT ZONING AND PLANNING DIVISION.

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.

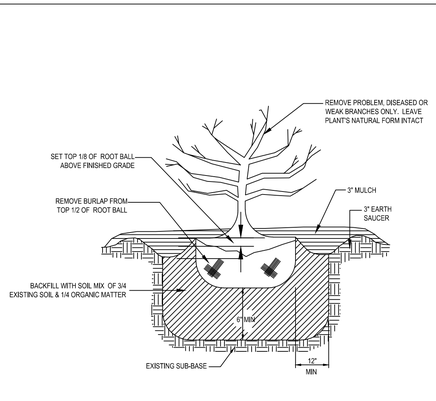
4.) ALL GRADED/DISTURBED AREAS WITHIN THE PROJECT LIMITS EXCEPT FOR BUT NOT LIMITED TO WALKS, ROADS, DRIVES, TEMPORARY EASEMENTS UNDER CULTIVATION, AND AREAS DESIGNATED AS PLANTING BEDS SHALL BE SODDED OR SEEDED



TREE PLANTING - VERTICAL STAKES
TREES <4" CAL. SCALE: NOT TO SCALE



TREE PLANTING DETAIL
TREES <4" CAL. SCALE: NOT TO SCALE



SHRUB PLANTING DETAIL
SCALE: NOT TO SCALE

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LANDSCAPE DETAILS

NORBORNE GLEBE - PHASE 16

CHARLES TOWN CORP. DISTRICT (3)-MAP 12-PARCEL 215 DEED BOOK 1173-PAGE 85
CITY OF CHARLES TOWN
JEFFERSON COUNTY, WV

Rev. No.	Date

DANIEL B. HAYES REGISTERED 16095 STATE OF WEST VIRGINIA PROFESSIONAL ENGINEER

DATE: 10/07/2025
SCALE: N/A
DESIGNED BY: CC/CW/DM
FILE NO. 4542A
SHEET 50 OF 64
SLD-2025-02



Luminaire Schedule - DB Lighting								
Label	Qty	Symbol	Arrangement	[MANUFAC]	Description	Lumens	Watts	LLF
A3	10		Single	HADCO	VX671-80-G3-V-3W-740-5	11258	127.791	0.850

Calculation Summary - DB Lighting							
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
Candlewood Drive	Illuminance	Fc	0.51	4.7	0.0	N.A.	N.A.
Feldberg Drive	Illuminance	Fc	0.79	4.7	0.0	N.A.	N.A.
Sugar Loaf Drive	Illuminance	Fc	0.79	4.3	0.0	N.A.	N.A.

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 15'-0" Pole with Post top Fixture ?Light Source at 16'-6"
4. Calculation points are on an 8' x 8' spacing
5. Per fixture isolines shown represent 0.25 fc and is for reference only

Not to Scale

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
R1	11/07/25	City Comments
..	....	....
..	....	....
..	....	....
..	....	....

Revisions

Project Name: **Norborne Glebe Phase 16**
Project ID Number: **2025-104**
Date: **09/30/2025**

24" x 36"
Page 1 of 3

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 16

CHARLES TOWN CORP. DISTRICT (3)-MAP 12-PARCEL 215 DEED BOOK 1173-PAGE 85
CITY OF CHARLES TOWN
JEFFERSON COUNTY, WV

Rev. No.	Date
2	11/07/2025

DANIEL B. HAYES REGISTERED 16095 STATE OF WEST VIRGINIA PROFESSIONAL ENGINEER

DATE: 10/07/2025
SCALE: N/A
DESIGNED BY: CC/CW/DM
FILE NO. 4542A
SHEET 51 OF 64
SLD-2025-02

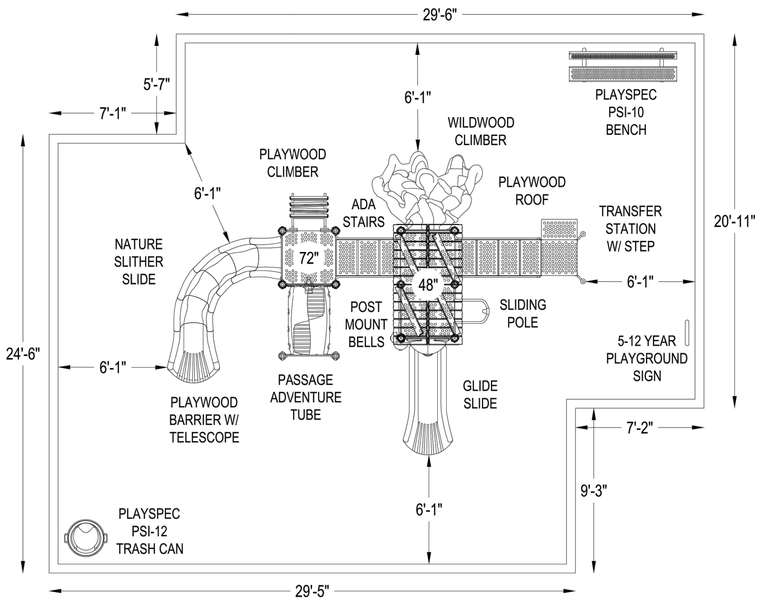
Potomac Edison, WV EMU

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.**

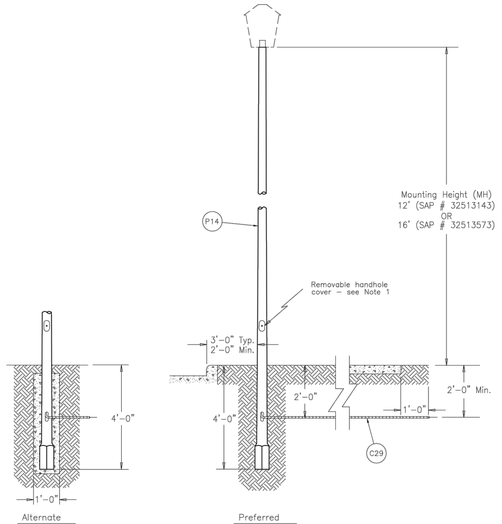
USER CAPACITY: **32** AGE GROUP: **5-12**

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:	SCALE:
P021218-12B	1/4"=1'-0"
DRAWN BY: SSHEEHY	Paper Size B
DATE: 16-FEB-18	



Notes:
1. Future page to be added for connection and fusing details.
2. Luminaires 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.

APPROVED BY: *JLM/ JBW*

Embedded Fiberglass Post For Post Top Luminaires

FirstEnergy
Construction Std. 16–210 REV. 1 DATE 8/16

704 Foxcroft Avenue
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SITE DETAILS

NORBORNE GLEBE - PHASE 16

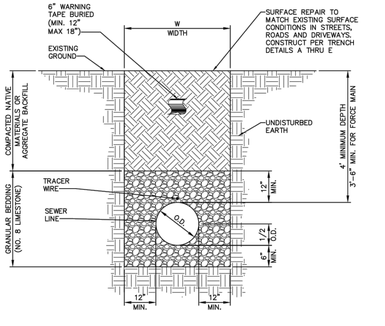
CHARLES TOWN CORP. DISTRICT (3)-MAP 12-PARCEL 215 DEED BOOK 1173-PAGE 85
CITY OF CHARLES TOWN
JEFFERSON COUNTY, WV

Rev. No.	Date

DANIEL B. HAYES REGISTERED 16095 STATE OF WEST VIRGINIA PROFESSIONAL ENGINEER

DATE: 10/07/2025
SCALE: N/A
DESIGNED BY: CC/CW/DM
FILE NO. 4542A
SHEET 52 OF 64

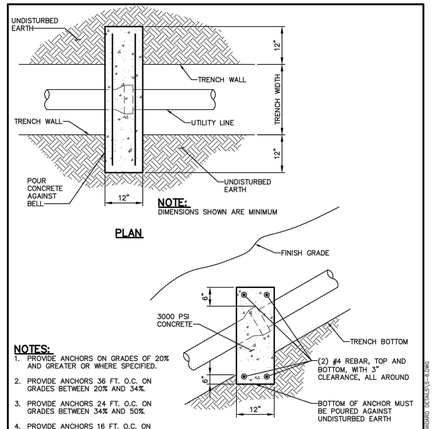
SLD-2025-02



NOTES:

1. W = MAXIMUM PERMISSIBLE TRENCH WIDTH, BASED UPON, W = O.D. + 24", UNLESS APPROVED BY THE ENGINEER.
2. CONTRACTOR IS FULLY RESPONSIBLE FOR ALL MEANS, METHODS AND SAFETY FOR TRENCH EXCAVATIONS.
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 (MODIFIED PROCTOR) AT OPTIMUM MOISTURE (+2%) IN ROADS AND STREETS. COMPACT TO MATCH EXISTING OR PROPOSED GRADE IN OTHER AREAS.
6. A CASING PIPE SHALL BE REQUIRED IN ROAD CROSSINGS WHERE SHOWN ON PLANS.

Charles Town Utility Board	SEWER LINE TRENCH DETAIL	STANDARD DETAIL NO. S-1
661 S. GEORGE STREET, SUITE 101, CHARLES TOWN, WV 25414 PHONE: (304) 725-2316 FAX: (304) 725-4313		NOT TO SCALE
		JULY 2025



NOTE: DIMENSIONS SHOWN ARE MINIMUM

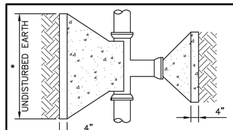
PLAN

SECTION

NOTES:

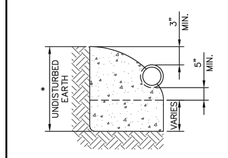
1. PROVIDE ANCHORS ON GRADES OF 20% AND GREATER OR WHERE SPECIFIED.
2. PROVIDE ANCHORS 36 FT. O.C. ON GRADES BETWEEN 20% AND 34%.
3. PROVIDE ANCHORS 24 FT. O.C. ON GRADES BETWEEN 34% AND 50%.
4. PROVIDE ANCHORS 16 FT. O.C. ON GRADES 50% OR GREATER.
5. WHEN NECESSARY, EXTEND ANCHOR TO 12" BELOW FINISH GRADE TO PREVENT WASHOUT OF BACKFILL BY SURFACE WATER.
6. ANCHORS SHALL BE PLACED AT JOINTS NOT TO EXCEED O.C. DISTANCES.
7. CONCRETE ANCHORS TO BE PLACED AGAINST DOWNGRADE SIDE OF PIPE JOINTS.

Charles Town Utility Board	CONCRETE SLOPE ANCHOR DETAIL	STANDARD DETAIL NO. S-6
661 S. GEORGE STREET, SUITE 101, CHARLES TOWN, WV 25414 PHONE: (304) 725-2316 FAX: (304) 725-4313		NOT TO SCALE
		JULY 2025



PLAN–TEES, WYES AND PLUGS

PLAN–BENDS



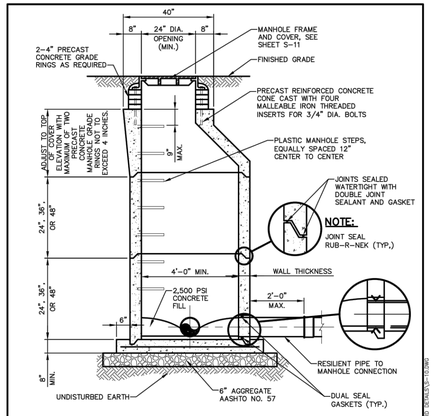
ELEVATION–TEES, WYES AND PLUGS

NOTES:

1. ALL CONCRETE SHALL BE MINIMUM 3,000 P.S.I.
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 CONCRETE.
5. WITH APPROVAL OF ENGINEER, MEGA-LUG JOINT RESTRAINTS MAY BE SUBSTITUTED FOR THRUST BLOCKS PER MANUFACTURER'S RECOMMENDATION (TO BE FURNISHED BY CONTRACTOR). FOR DUCTILE IRON, USE UNIFLANGE 1400 OR EBBA 1100 AND FOR C900 PVC, USE UNIFLANGE 1500 OR EBBA 2000PV.
6. THRUST BLOCKING GENERALLY ONLY APPLIES TO PIPE FITTINGS 4" IN DIAMETER OR LESS.

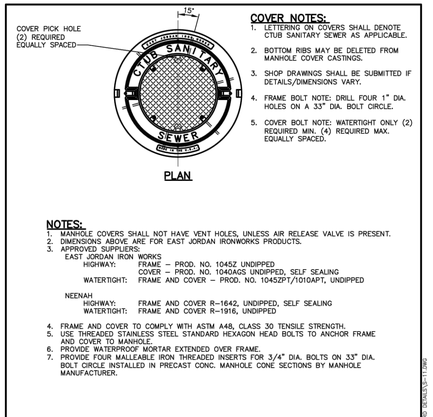
PIPE SIZE (IN.)	AREA (SQ IN.)	TOTAL FORCE (LBS.)	AREA OF BLOCK IN SQ. FT.				
			TEES & PLUGS	90° BENDS	45° BENDS	22 1/2° BENDS	11 1/4° BENDS
4	12.57	2,827	1.0	1.0	1.0	1.0	1.0
6	28.27	6,361	1.6	2.3	1.2	1.0	1.0
8	50.26	11,308	2.8	4.0	2.2	1.1	1.0
10	75.54	17,672	4.4	6.3	3.4	1.7	1.0
12	113.16	25,461	6.4	9.0	4.9	3.0	1.3
14	153.94	34,637	8.7	12.3	6.6	3.4	1.7
16	201.06	45,239	11.3	16.0	8.7	4.4	2.2
18	254.47	57,256	14.3	20.3	11.0	5.6	2.8
20	314.16	70,686	17.7	25.0	13.5	6.9	3.5
24	452.39	101,788	25.4	36.0	19.5	9.9	5.0

Charles Town Utility Board	PIPE BUTTRESS DETAIL	STANDARD DETAIL NO. S-7
661 S. GEORGE STREET, SUITE 101, CHARLES TOWN, WV 25414 PHONE: (304) 725-2316 FAX: (304) 725-4313		NOT TO SCALE
		JULY 2025



NOTE: SEE SHEET S-10A FOR MANHOLE NOTES

Charles Town Utility Board	PRECAST MANHOLE WITH ECCENTRIC TOP DETAIL	STANDARD DETAIL NO. S-10
661 S. GEORGE STREET, SUITE 101, CHARLES TOWN, WV 25414 PHONE: (304) 725-2316 FAX: (304) 725-4313		NOT TO SCALE
		JULY 2025



PLAN

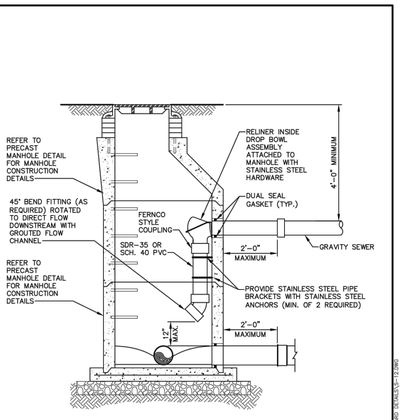
COVER NOTES:

1. LETTERING ON COVERS SHALL DENOTE CTUB SANITARY SEWER AS APPLICABLE.
2. BOTTOM RIBS MAY BE DELETED FROM MANHOLE COVER CASTINGS.
3. SHOP DRAWINGS SHALL BE SUBMITTED IF DETAILS/DIMENSIONS VARY.
4. FRAME BOLT NOTE: DRILL FOUR 1" DIA. HOLES ON A 33" DIA. BOLT CIRCLE.
5. COVER BOLT NOTE: WATERTIGHT ONLY (2) REQUIRED MIN. (4) REQUIRED MAX. EQUALLY SPACED.

NOTES:

1. MANHOLE COVERS SHALL NOT HAVE VENT HOLES, UNLESS AIR RELEASE VALVE IS PRESENT.
2. DIMENSIONS ABOVE ARE FOR EAST JORDAN IRONWORKS PRODUCTS.
3. APPROVED SUPPLIERS:
   EAST JORDAN IRON WORKS
   HIGHWAY: FRAME – PROD. NO. 1045Z UNDIPPED
   COVER – PROD. NO. 1040AGS UNDIPPED, SELF SEALING
   WATERTIGHT: FRAME AND COVER – PROD. NO. 1045ZPT/1010APT, UNDIPPED
   NEENAH
   HIGHWAY: FRAME AND COVER R-1642, UNDIPPED, SELF SEALING
   WATERTIGHT: FRAME AND COVER R-1916, UNDIPPED
4. FRAME AND COVER TO COMPLY WITH ASTM A48, CLASS 30 TENSILE STRENGTH.
5. USE THREADED STAINLESS STEEL STANDARD HEXAGON HEAD BOLTS TO ANCHOR FRAME AND COVER TO MANHOLE.
6. PROVIDE WATERPROOF MORTAR EXTENDED OVER FRAME.
7. PROVIDE FOUR MALLEABLE IRON THREADED INSERTS FOR 3/4" DIA. BOLTS ON 33" DIA. BOLT CIRCLE INSTALLED IN PRECAST CONC. MANHOLE CONE SECTIONS BY MANHOLE MANUFACTURER.

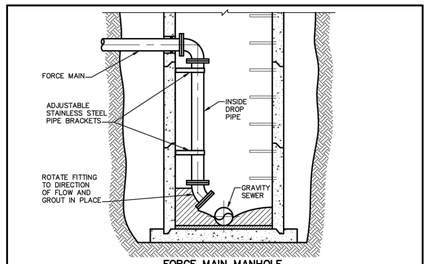
Charles Town Utility Board	MANHOLE FRAME AND COVER DETAIL	STANDARD DETAIL NO. S-11
661 S. GEORGE STREET, SUITE 101, CHARLES TOWN, WV 25414 PHONE: (304) 725-2316 FAX: (304) 725-4313		NOT TO SCALE
		JULY 2025



NOTE:

1. OUTSIDE DROP MANHOLES ARE PROHIBITED.

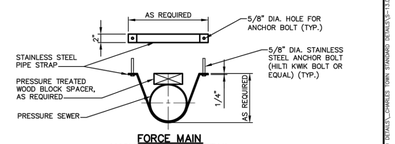
Charles Town Utility Board	INSIDE DROP MANHOLE DETAIL	STANDARD DETAIL NO. S-12
661 S. GEORGE STREET, SUITE 101, CHARLES TOWN, WV 25414 PHONE: (304) 725-2316 FAX: (304) 725-4313		NOT TO SCALE
		JULY 2025



FORCE MAIN MANHOLE

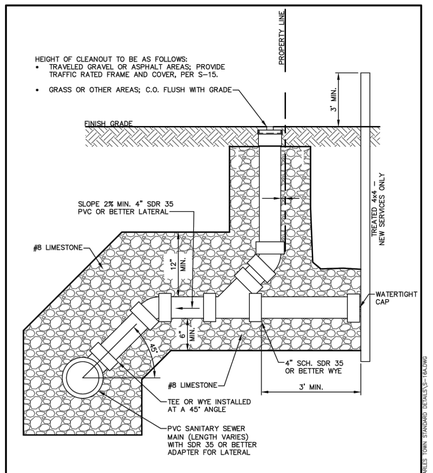
NOTES:

1. FORCE MAIN CONNECTIONS WITHIN MANHOLE SHALL BE RESTRAINED.
2. ANCHOR FORCE MAIN TO MANHOLE USING ADJUSTABLE STAINLESS STEEL PIPE BRACKETS. (2) BRACKETS MINIMUM AND 3' MAX. SPACING.
3. FOR IRREGULAR HOLES, SEAL PIPE ON BOTH SIDES WITH HYDRAULIC CEMENT.
4. ALL FORCE MAIN INLET MANHOLES SHALL RECEIVE SPECIAL COATING SYSTEM.



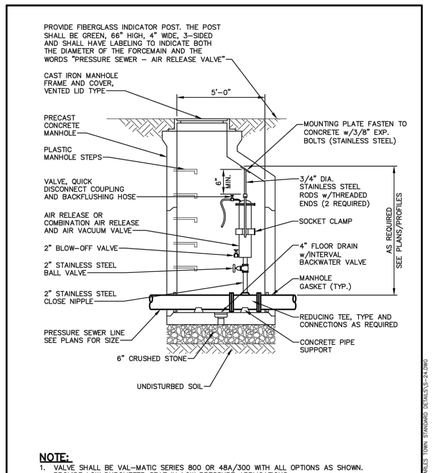
FORCE MAIN ANCHOR STRAP DETAIL

Charles Town Utility Board	FORCE MAIN MANHOLE FORCE MAIN ANCHOR STRAP DETAIL	STANDARD DETAIL NO. S-13
661 S. GEORGE STREET, SUITE 101, CHARLES TOWN, WV 25414 PHONE: (304) 725-2316 FAX: (304) 725-4313		NOT TO SCALE
		JULY 2025



ELEVATION

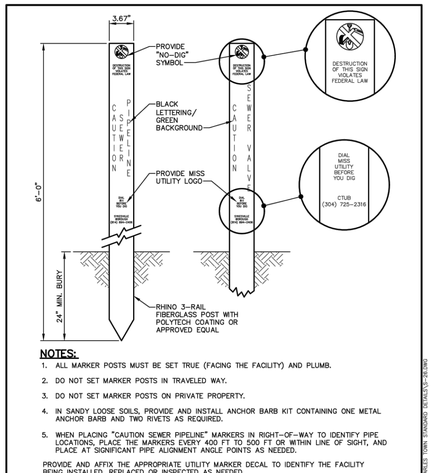
Charles Town Utility Board	NEW SINGLE LATERAL CONNECTION DETAIL (ELEVATION)	STANDARD DETAIL NO. S-16A
661 S. GEORGE STREET, SUITE 101, CHARLES TOWN, WV 25414 PHONE: (304) 725-2316 FAX: (304) 725-4313		NOT TO SCALE
		JULY 2025



NOTE:

1. VALVE SHALL BE VAL-MATIC SERIES 800 OR 48A/300 WITH ALL OPTIONS AS SHOWN. PROVIDE LOW DUROMETER SEAT IN LOW PRESSURE APPLICATIONS.

Charles Town Utility Board	AIR RELEASE AND VACUUM RELIEF VALVE DETAIL	STANDARD DETAIL NO. S-24
661 S. GEORGE STREET, SUITE 101, CHARLES TOWN, WV 25414 PHONE: (304) 725-2316 FAX: (304) 725-4313		NOT TO SCALE
		JULY 2025



NOTES:

1. ALL MARKER POSTS MUST BE SET TRUE (FACING THE FACILITY) AND PLUMB.
2. DO NOT SET MARKER POSTS IN TRAVELED WAY.
3. DO NOT SET MARKER POSTS ON PRIVATE PROPERTY.
4. IN SANDY LOOSE SOILS, PROVIDE AND INSTALL ANCHOR BARB KIT CONTAINING ONE METAL ANCHOR BARB AND TWO RIVETS AS REQUIRED.
5. WHEN PLACING "CAUTION SEWER PIPELINE" MARKERS IN RIGHT-OF-WAY TO IDENTIFY PIPE LOCATIONS, PLACE THE MARKERS EVERY 400 FT TO 500 FT OR WITHIN LINE OF SIGHT, AND PLACE AT SIGNIFICANT PIPE ALIGNMENT ANGLE POINTS AS NEEDED.

PROVIDE AND AFFIX THE APPROPRIATE UTILITY MARKER DECAL TO IDENTIFY THE FACILITY BEING INSTALLED, REPLACED OR INSPECTED AS NEEDED.

CAUTION SEWER PIPELINE
CAUTION SEWER VALVE

Charles Town Utility Board	PIPELINE MARKER POST DETAIL	STANDARD DETAIL NO. S-26
661 S. GEORGE STREET, SUITE 101, CHARLES TOWN, WV 25414 PHONE: (304) 725-2316 FAX: (304) 725-4313		NOT TO SCALE
		JULY 2025

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CTUB DETAILS

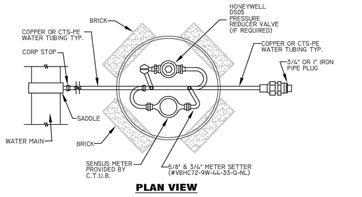
NORBORNE GLEBE - PHASE 16

CHARLES TOWN CORP. DISTRICT (3)-MAP 12-PARCEL 215 DEED BOOK 1173-PAGE 85
CITY OF CHARLES TOWN
JEFFERSON COUNTY, WV

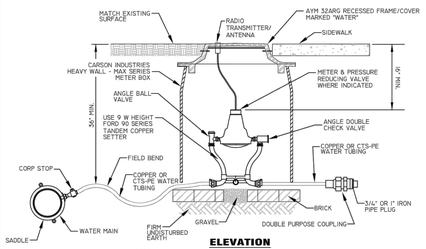
Rev. No.	Date
4	02/11/2026

DANIEL B. HAYES REGISTERED 16095 STATE OF WEST VIRGINIA PROFESSIONAL ENGINEER

DATE: 10/07/2025
SCALE: N/A
DESIGNED BY: CC/CW/DM
FILE NO. 4542A
SHEET 53 OF 64
SLD-2025-02



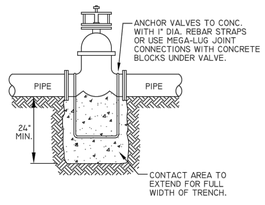
PLAN VIEW



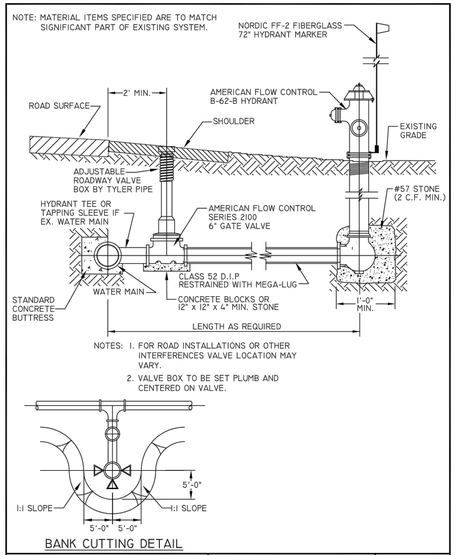
ELEVATION

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) 725-4313	METERED CONNECTION DETAIL	Standard Detail No. W-1 Not to Scale April 2015

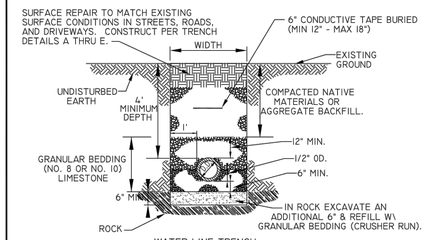


Charles Town Utility Board 832 S. George Street, P.O. Box 359, Charles Town, WV 25414 Phone: (304) 725-2316 • Fax: (304) 725-4313	WATER VALVES DETAIL	Standard Detail No. W-3 Not to Scale April 2015



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) 725-4313	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) 725-4313	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)

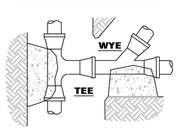
PIPE SIZE	PRESSURE CLASS 100	150	200	250	300
2	1	1	1	1	1
4	2	2	3	3	4
6	3	4	5	7	8
8	5	7	10	12	15
10	7	11	15	19	22
12	9	16	21	27	32
14	12	22	29	36	44



90° BEND

TEE CONTACT AREA (SF)

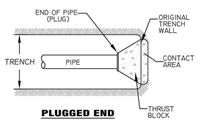
PIPE SIZE	PRESSURE CLASS 100	150	200	250	300
2	1	1	1	1	1
4	1	2	2	2	3
6	2	3	4	5	6
8	4	5	7	9	10
10	5	8	11	13	16
12	7	12	15	19	23
14	10	16	21	26	31



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

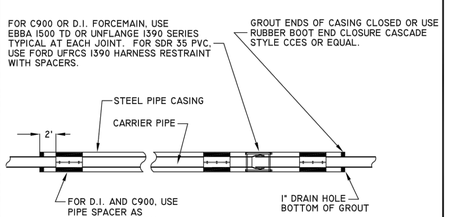
1. ALL CONCRETE SHALL BE 3000 P.S.I. (AE)
2. THRUST BLOCKS SHALL BE IMBEDDED IN UNDISTURBED SOIL.
3. SOIL BEARING CAPACITY IS ASSUMED AT 3000 LB. SQ. FT. FOR WEAKER SOILS THRUST BLOCK AREAS SHALL BE INCREASED AS REQUIRED.
4. WRAP PIPE WITH POLYETHYELENE TO PREVENT CONTACT BETWEEN PIPE AND THE CONCRETE.

Charles Town Utility Board 832 S. George Street, P.O. Box 359, Charles Town, WV 25414 Phone: (304) 725-2316 • Fax: (304) 725-4313	PIPE BUTTRESS DETAILS	Standard Detail No. W-13 Not to Scale April 2015

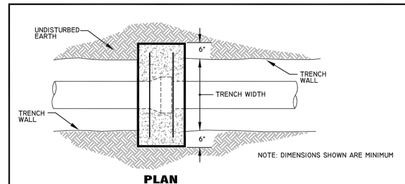
CASING SCHEDULE FOR C900, DI, OR DI TR FLEX RESTRAINED JT 350 PSI

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

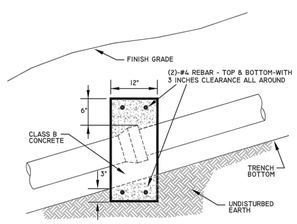
NOTE: SDR 35 PVC, CASING FOR 4" CARRIER IS 12" DIA. AND FOR 6" CARRIER IS 16" DIA. OTHER SIZE SDR 35 ARE SAME AS ABOVE. STEEL CASING SHALL BE USED WITH SPECIFIED MINIMUM YIELD STRENGTH OF AT LEAST 35,000 PSI.



Charles Town Utility Board 832 S. George Street, P.O. Box 359, Charles Town, WV 25414 Phone: (304) 725-2316 • Fax: (304) 725-4313	PIPE CASING DETAIL	Standard Detail No. W-14 Not to Scale April 2015



PLAN



SECTION

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) 725-4313	SLOPE ANCHOR DETAIL	Standard Detail No. W-16 Not to Scale April 2015

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CTUB DETAILS

NORBORNE GLEBE - PHASE 16

CHARLES TOWN CORP. DISTRICT (3)-MAP 12-PARCEL 215 DEED BOOK 1173-PAGE 85
CITY OF CHARLES TOWN
JEFFERSON COUNTY, WV

Rev. No.	Date

DANIEL B. HAYES REGISTERED 16095 STATE OF WEST VIRGINIA PROFESSIONAL ENGINEER

DATE: 10/07/2025

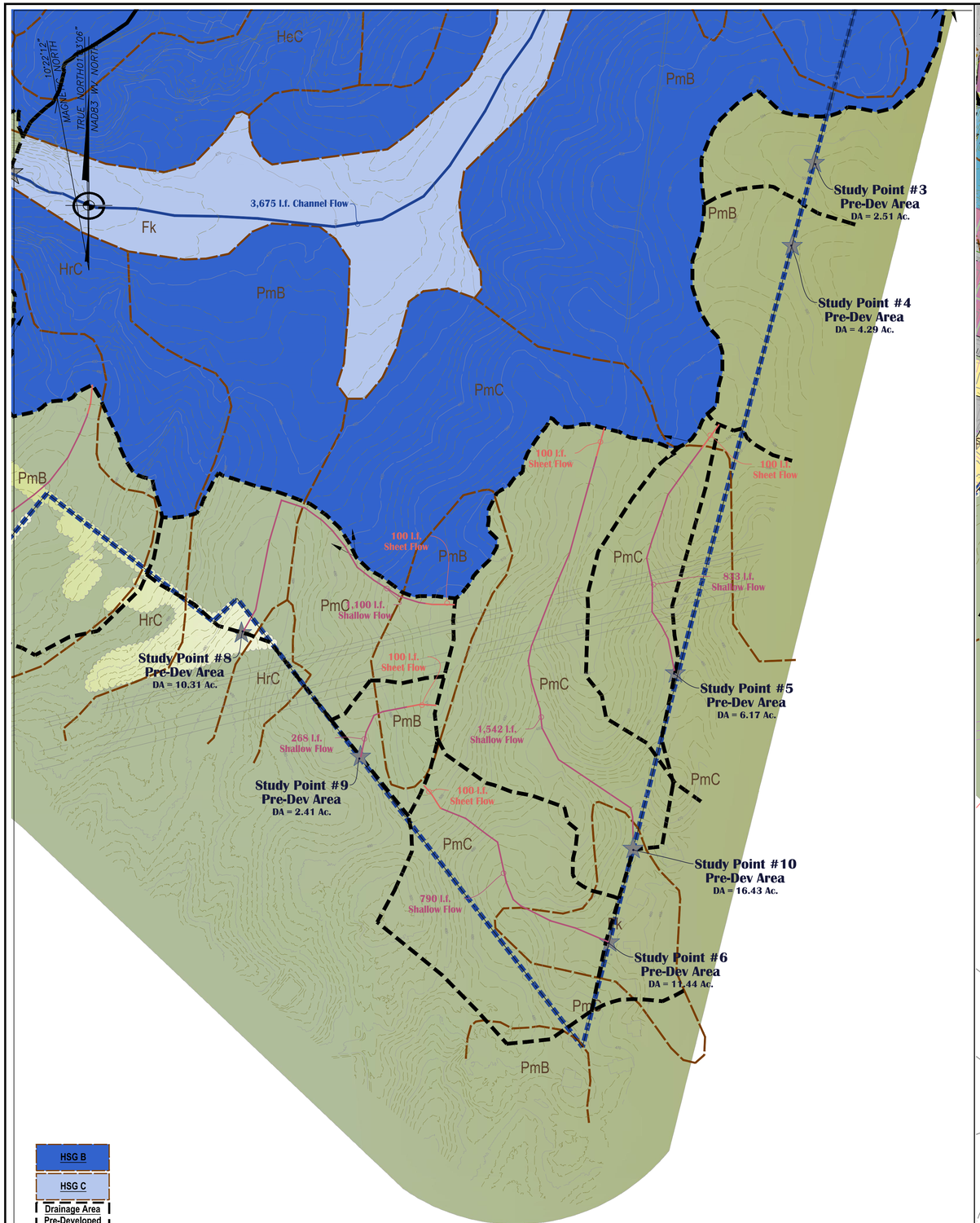
SCALE: N/A

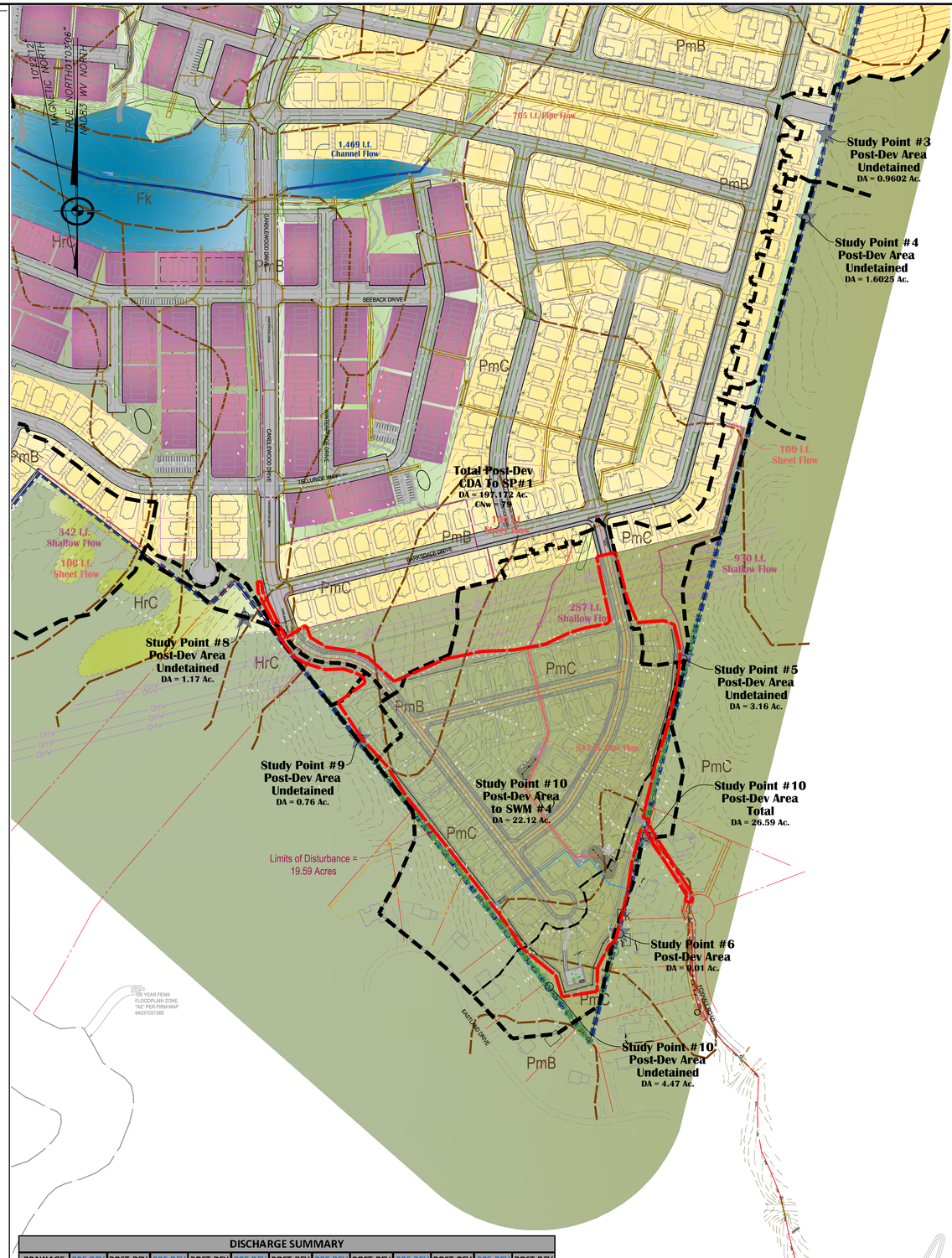
DESIGNED BY: CC/CW/DM

FILE NO. 4542A

SHEET 54 OF 64

SLD-2025-02





DISCHARGE SUMMARY

DRAINAGE AREA	PRE-DEV 1 YR	POST-DEV 1 YR	PRE-DEV 2 YR	POST-DEV 2 YR	PRE-DEV 10 YR	POST-DEV 10 YR	PRE-DEV 25 YR	POST-DEV 25 YR	PRE-DEV 50 YR	POST-DEV 50 YR	PRE-DEV 100 YR	POST-DEV 100 YR
6	3.50	0	5.41	0.01	11.48	0.01	15.88	0.02	19.72	0.02	24.00	0.03
7	3.56	4.29	6.75	6.66	18.05	14.45	26.76	20.84	34.57	26.38	43.38	32.66
8	3.20	0.35	5.00	0.59	10.75	1.35	14.92	1.92	18.56	2.42	22.64	2.99
9	0.68	0.25	1.14	0.41	2.66	0.92	3.79	1.3	4.79	1.63	5.92	2
10	4.38	3.61	6.69	4.78	14.29	8.33	20.80	10.79	26.31	12.89	32.55	26.65

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PRE & POST DEVELOPMENT DRAINAGE MAP

NORBORNE GLEBE - PHASE 16

CHARLES TOWN CORP. DISTRICT (3)-MAP 12-PARCEL 215 DEED BOOK 1173-PAGE 85
CITY OF CHARLES TOWN
JEFFERSON COUNTY, WV

Rev. No.	Date

DANIEL B. HAYES REGISTERED 16095 STATE OF WEST VIRGINIA PROFESSIONAL ENGINEER

DATE: 10/07/2025

SCALE: 1"=200'

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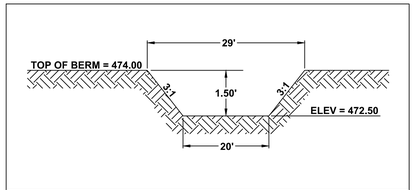
FILE NO. 4542A

SHEET 55 OF 64

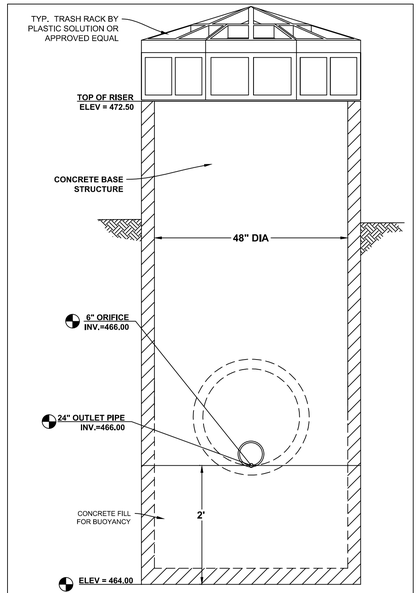
SLD-2025-02



EMERGENCY SPILLWAY
NOT TO SCALE

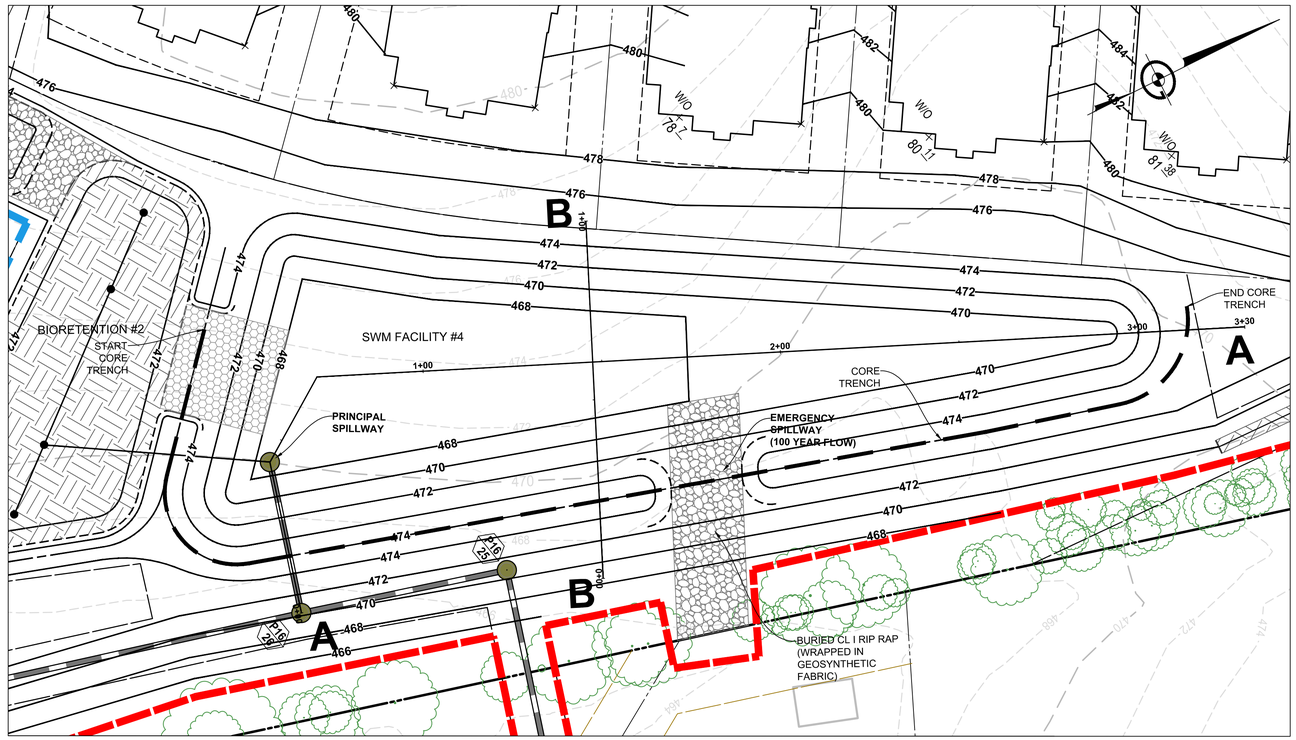
NOTES:

1. IF ROCK IS ENCOUNTERED, UNDERCUT POND 18" AND BACKFILL WITH CL TYPE SOIL.
2. CORE TRENCH AND EARTH DAM SHALL BE COMPACTED TO MINIMUM 95% MAXIMUM DRY DENSITY.
3. ALL PIPE JOINTS SHALL BE WATERTIGHT.
4. THE CONSTRUCTION OF SWM FACILITIES SHALL BE PRIVATE AND INSPECTED AND CERTIFIED BY A PROFESSIONAL ENGINEER.
5. ALL PONDS SHALL BE LINED WITH A GEOSYNTHETIC LINER (30 MIL LLDPE OR APPROVED EQUIVALENT) OR CLAY LINER (8 INCH COMPACTED) AT LEAST UP TO THE 100-YEAR WATER SURFACE ELEVATION. ANCHOR TRENCH SHALL BE 2' DEEP BY 3' WIDE.



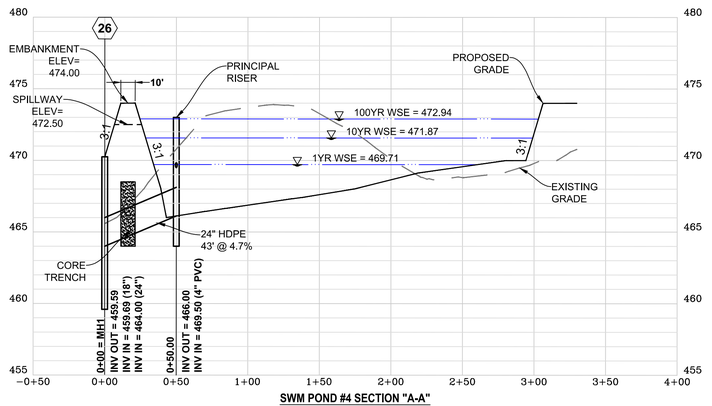
STORMWATER MANAGEMENT
PRINCIPAL RISER FRONT VIEW
NTS

Anti-Flotation Design - Riser Buoyancy Check								
SWM Basin - Primary Riser								
1. Volume of Water Displaced	36.67	sq.ft.	x	6.50	ft.	=	238.38	cu.ft.
2. Weight of Water Displaced	238.38	cu.ft.	x	62.40	lb/cu.ft.	=	14874.87	lbs
3. Volume of Concrete								
Concrete filled base	146.69	sq.ft.	x	2.00	ft.	=	293.39	cu.ft.
Riser Wall	8.40	sq.ft.	x	6.50	ft.	=	54.60	cu.ft.
minus 6" circular orifice	0.35	sq.ft.	x	0.42	ft.	=	-0.15	cu.ft.
minus 24" RCP	3.14	sq.ft.	x	0.42	ft.	=	-1.31	cu.ft.
			Total Volume minus openings				346.53	cu.ft.
4. Weight of Concrete	346.53	cu.ft.	x	150.00	lb/cu.ft.	=	51979.50	lbs
5. Safety Factor Min. 1.25	51979.50	lbs	/	14874.87	lbs	=	3.49	
							Safety Factor	

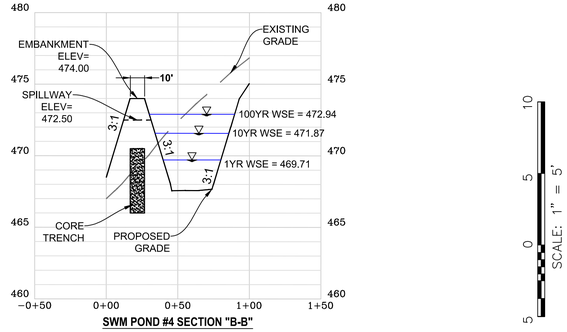


SWM FACILITY #4 PLAN VIEW

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



SWM POND #4 SECTION "A-A"



SWM POND #4 SECTION "B-B"

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

SCALE: 1" = 5'

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SWM DETAILS

NORBORNE GLEBE - PHASE 16

CHARLES TOWN CORP. DISTRICT (3)-MAP 12-PARCEL 215 DEED BOOK 1173-PAGE 85
CITY OF CHARLES TOWN
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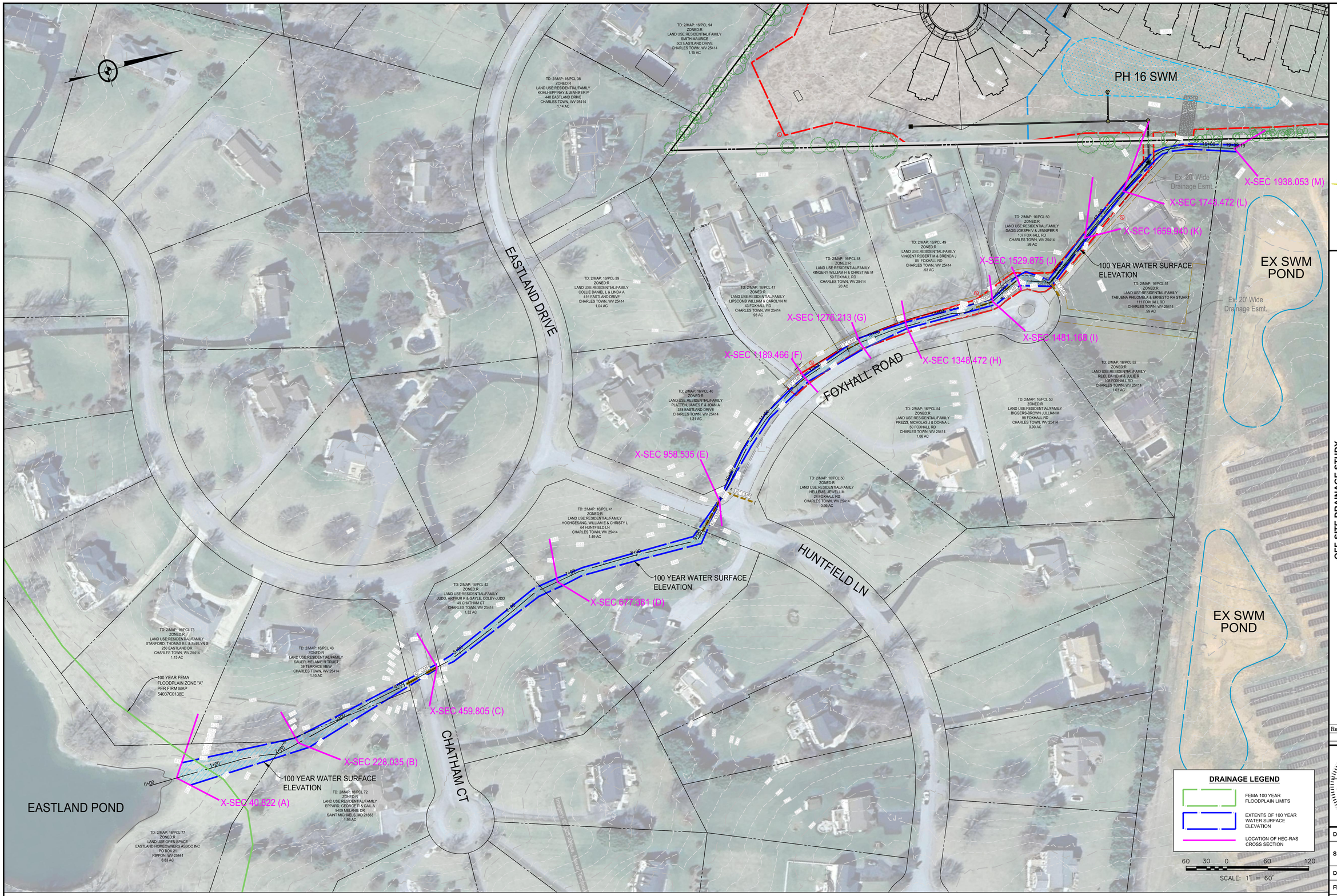
SHEET 56 OF 64
SLD-2025-02



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OFF-SITE DRAINAGE STUDY

NORBORNE GLEBE - PHASE 16

CHARLES TOWN CORP. DISTRICT (3)-MAP 12-PARCEL 215 DEED BOOK 1173-PAGE 85
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SHEET 57 OF 64

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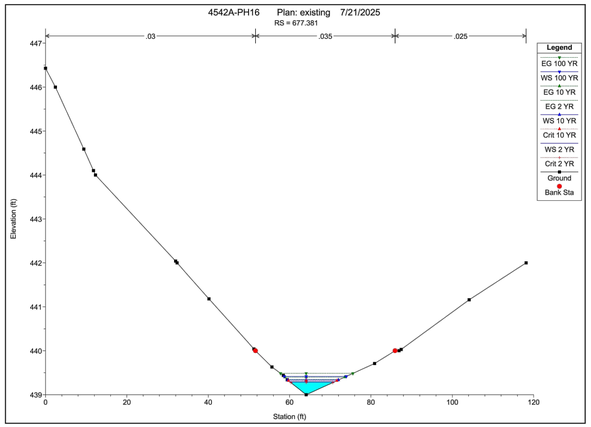

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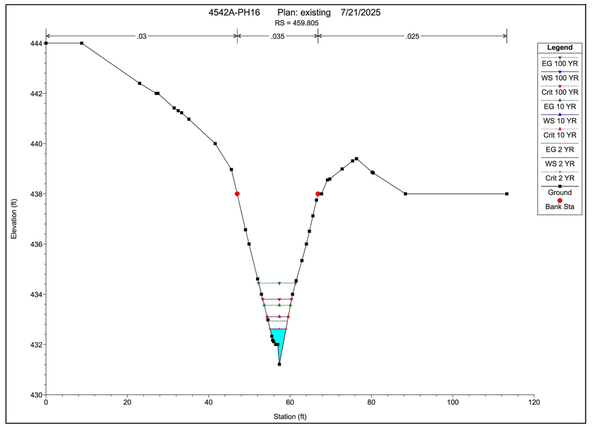

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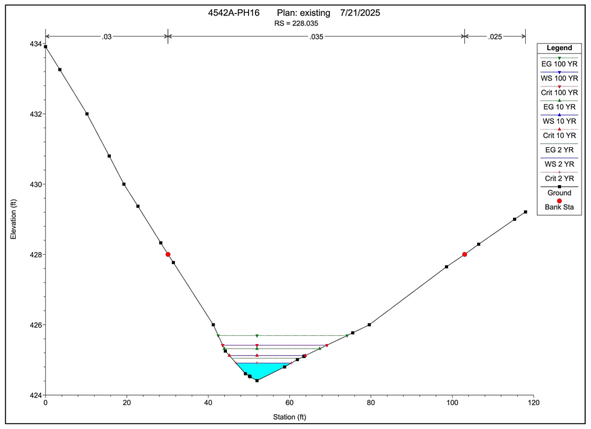

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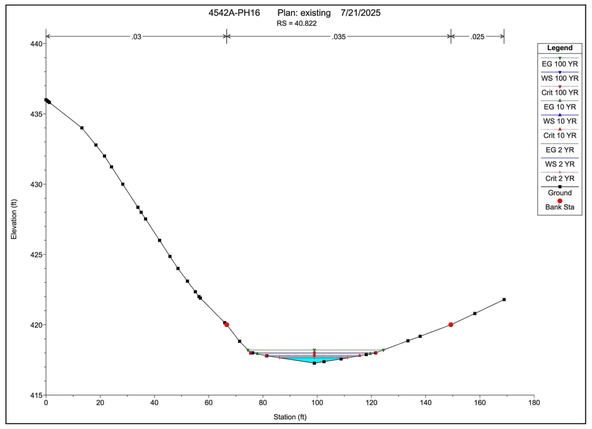

SECTION A

GREENWAY ENGINEERING
151 Windy Hill Lane
Winchester, VA 22602

07/28/2025

Norborne Glebe Phase 16 - Drainage Study

On behalf of our client, Arcadia Development, Greenway Engineering has performed a downstream drainage study of the Phase 16 drainage shed for the Norborne Glebe subdivision. This analysis was completed using field survey data shot by Geeenway Engineering in May, 2025. We used this data and supplemental GIS data to draw detailed drainage areas for the site. These drainage areas were computed using HydroCAD to develop flow information for the 2-, 10-, and 100-year storm events. The pre-development data was used, since the post-development flows are required to be less than the pre-development flows.

The analysis for the downstream was completed from the proposed outfall of the stormwater management for Phase 16 to the Evitts Run floodplain at the existing Eastland subdivision stormwater pond. This drainage path was drawn in the centerline of the drainage channel and cross sections cut at pertinent locations. These locations include culverts, houses, and road crossings. The existing field shot topography was used for the information to create these cross sections in HECRAS. The HECRAS model was created using the centerline and cross section information.

The drainage data was combined with the HECRAS data to calculate the proposed water surface elevations for the 2,10-, and 100-year storm events. The data was also used to verify that the culverts were sized adequately for the drainage area using a basic culvert computation from AutoCAD. The 100-year water surface elevation is entirely contained in the existing channel that carries that water to the stormwater pond at Evitts Run. The Drainage Study map shows this water surface for the 100-year storm event since it is the worst-case scenario. From our analysis, it appears the subdivision drainage channel and existing culverts were designed with this drainage area in mind and have capacity to handle the pre and post development conditions adjacent to the site.

Attachments:

- Drainage Study PDF
- HydroCAD file
- HECRAS files
- AutoCAD File

Sincerely,

Daniel Murphy
Project Manager

Engineers Surveyors Planners Environmental Scientists
Telephone 540-662-4185 Fax 540.722.9528
www.greenwayeng.com

HEC-RAS Plan: ex River: TributoEvittsRun Reach: Trib

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Trib	1938.053	2 YR	1.34	466.76	467.01	466.98	467.04	0.018197	1.47	0.91	6.97	0.72
Trib	1938.053	10 YR	5.18	466.76	467.17	467.14	467.24	0.020858	2.18	2.37	11.14	0.83
Trib	1938.053	100 YR	16.04	466.76	467.38	467.36	467.52	0.024434	3.08	5.21	16.42	0.96
Trib	1748.472	2 YR	1.34	462.37	462.54	462.54	462.59	0.038098	1.86	0.72	6.73	1.00
Trib	1748.472	10 YR	5.18	462.37	462.69	462.69	462.79	0.031718	2.48	2.09	11.08	1.01
Trib	1748.472	100 YR	16.04	462.37	462.91	462.91	463.06	0.026605	3.10	5.18	17.24	1.00
Trib	1659.940	2 YR	1.34	458.98	459.23	459.23	459.29	0.036118	2.01	0.67	5.29	1.00
Trib	1659.940	10 YR	5.18	458.98	459.41	459.41	459.52	0.029795	2.63	1.97	9.10	1.00
Trib	1659.940	100 YR	16.04	458.98	459.65	459.65	459.82	0.026570	3.34	4.80	14.19	1.01
Trib	1529.875	2 YR	3.42	454.00	454.57		454.61	0.007133	1.61	2.12	6.94	0.51
Trib	1529.875	10 YR	13.23	454.00	454.86	454.77	454.99	0.013963	2.91	4.55	10.13	0.77
Trib	1529.875	100 YR	41.02	454.00	455.23	455.23	455.55	0.021856	4.55	9.01	14.35	1.01
Trib	1481.168	2 YR	2.42	453.78	454.12	454.07	454.16	0.015257	1.60	1.52	9.01	0.69
Trib	1481.168	10 YR	3.24	453.78	454.11	454.11	454.19	0.032448	2.28	1.42	8.73	0.99
Trib	1481.168	100 YR	4.94	453.78	454.16	454.16	454.26	0.031852	2.51	1.96	10.25	1.01
Trib	1348.472	2 YR	2.42	452.00	452.55		452.59	0.009612	1.72	1.41	5.16	0.58
Trib	1348.472	10 YR	3.24	452.00	452.71		452.74	0.004148	1.35	2.40	6.73	0.40
Trib	1348.472	100 YR	4.94	452.00	452.94		452.96	0.002316	1.18	4.17	9.23	0.31
Trib	1276.213	2 YR	3.88	451.00	451.59		451.67	0.015573	2.32	1.67	5.67	0.75
Trib	1276.213	10 YR	8.92	451.00	451.78	451.74	451.92	0.019008	3.07	2.90	7.46	0.87
Trib	1276.213	100 YR	22.57	451.00	452.11	452.11	452.30	0.013886	3.56	6.55	17.43	0.80
Trib	1180.466	2 YR	2.64	449.69	450.16	450.16	450.24	0.014268	2.28	1.18	7.35	0.72
Trib	1180.466	10 YR	3.45	449.69	450.19	450.19	450.28	0.013056	2.35	1.47	8.45	0.70
Trib	1180.466	100 YR	5.29	449.69	450.26	450.26	450.37	0.010700	2.40	2.11	10.48	0.66
Trib	958.535	2 YR	2.98	443.69	444.78	444.62	444.90	0.017869	2.85	1.04	1.92	0.68
Trib	958.535	10 YR	4.32	443.69	444.94		445.09	0.017921	3.13	1.38	2.21	0.70
Trib	958.535	100 YR	6.77	443.69	445.08	444.98	445.32	0.024726	3.96	1.71	2.46	0.84
Trib	677.381	2 YR	2.98	439.00	439.29	439.28	439.35	0.024525	1.85	1.61	10.97	0.85
Trib	677.381	10 YR	4.32	439.00	439.33	439.32	439.40	0.025845	2.07	2.09	12.49	0.89

HEC-RAS Plan: ex River: TributoEvittsRun Reach: Trib (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Trib	677.381	100 YR	6.77	439.00	439.42		439.49	0.019274	2.09	3.24	15.28	0.80
Trib	459.805	2 YR	10.85	431.21	432.62	432.62	432.94	0.031133	4.53	2.39	3.91	1.02
Trib	459.805	10 YR	25.08	431.21	433.10	433.10	433.56	0.026950	5.43	4.62	5.20	1.02
Trib	459.805	100 YR	57.36	431.21	433.80	433.80	434.45	0.023539	6.44	8.91	7.09	1.01
Trib	228.035	2 YR	10.85	424.41	424.91	424.91	425.05	0.028548	2.98	3.64	13.57	1.01
Trib	228.035	10 YR	25.08	424.41	425.12	425.12	425.32	0.025330	3.54	7.09	18.68	1.01
Trib	228.035	100 YR	57.36	424.41	425.42	425.42	425.69	0.022727	4.20	13.67	25.64	1.01
Trib	40.822	2 YR	12.02	417.27	417.65	417.65	417.75	0.031047	2.49	4.83	25.17	1.00
Trib	40.822	10 YR	27.02	417.27	417.80	417.80	417.93	0.027450	2.92	9.24	34.49	1.00
Trib	40.822	100 YR	63.24	417.27	418.01	418.01	418.21	0.025506	3.57	17.70	46.26	1.02

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NORBORNE GLEBE - PHASE 16

CHARLES TOWN CORP. DISTRICT (3)-MAP 12-PARCEL 215 DEED BOOK 1173-PAGE 85
CITY OF CHARLES TOWN
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SHEET 58 OF 64

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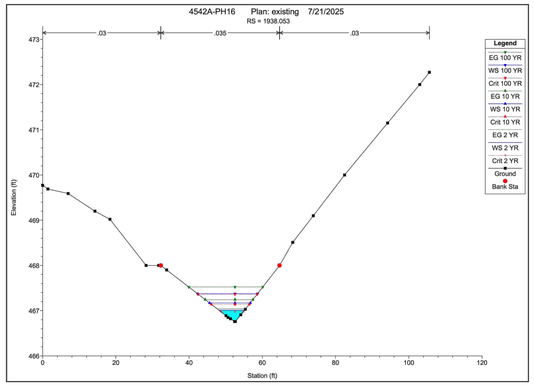

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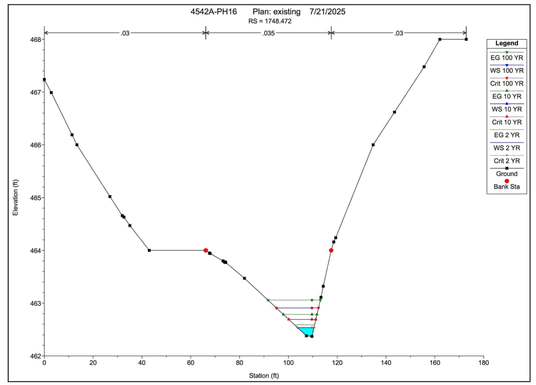

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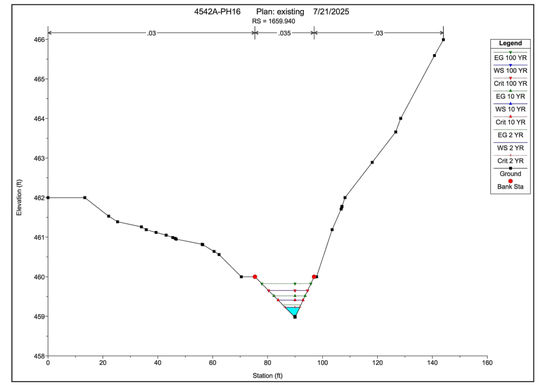

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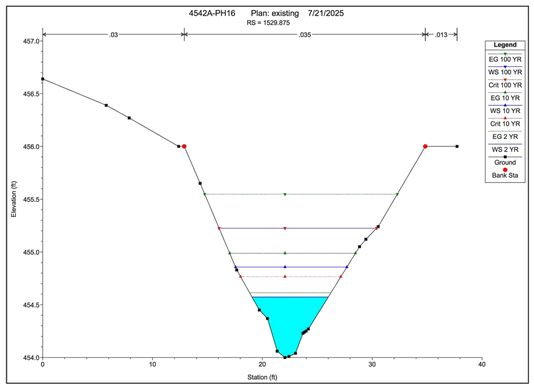

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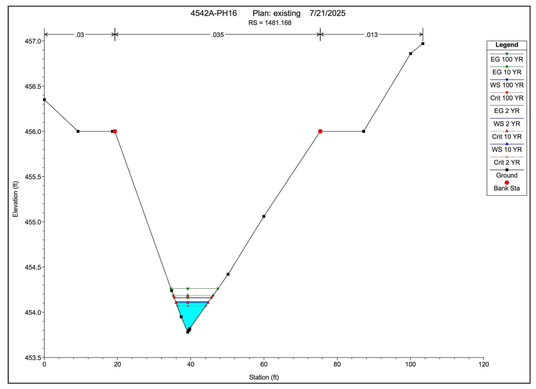

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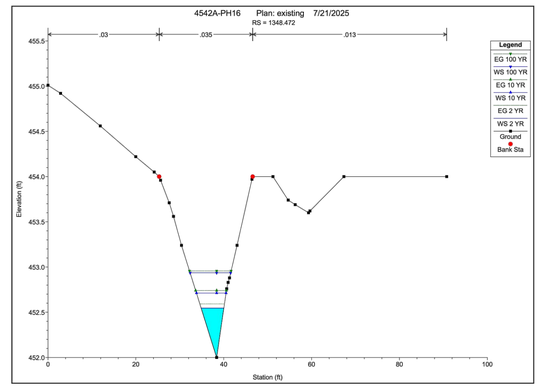

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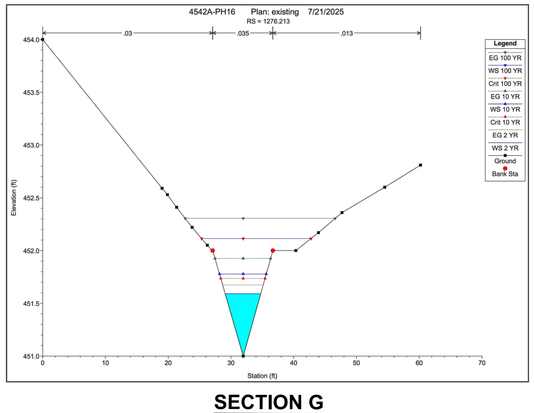

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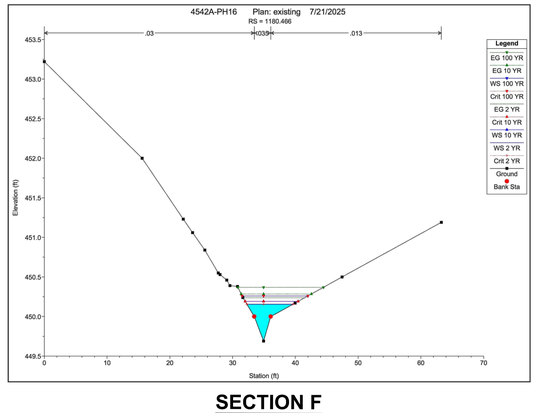

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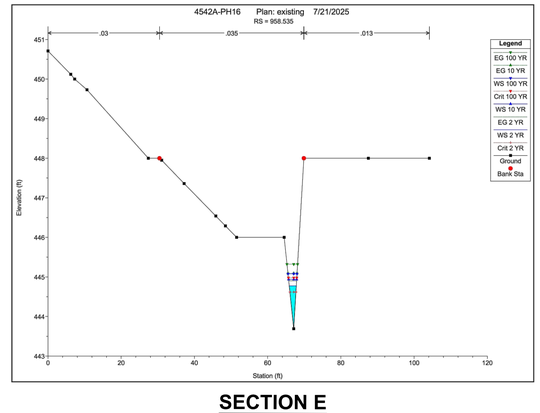

SECTION E

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SHEET 59 OF 64

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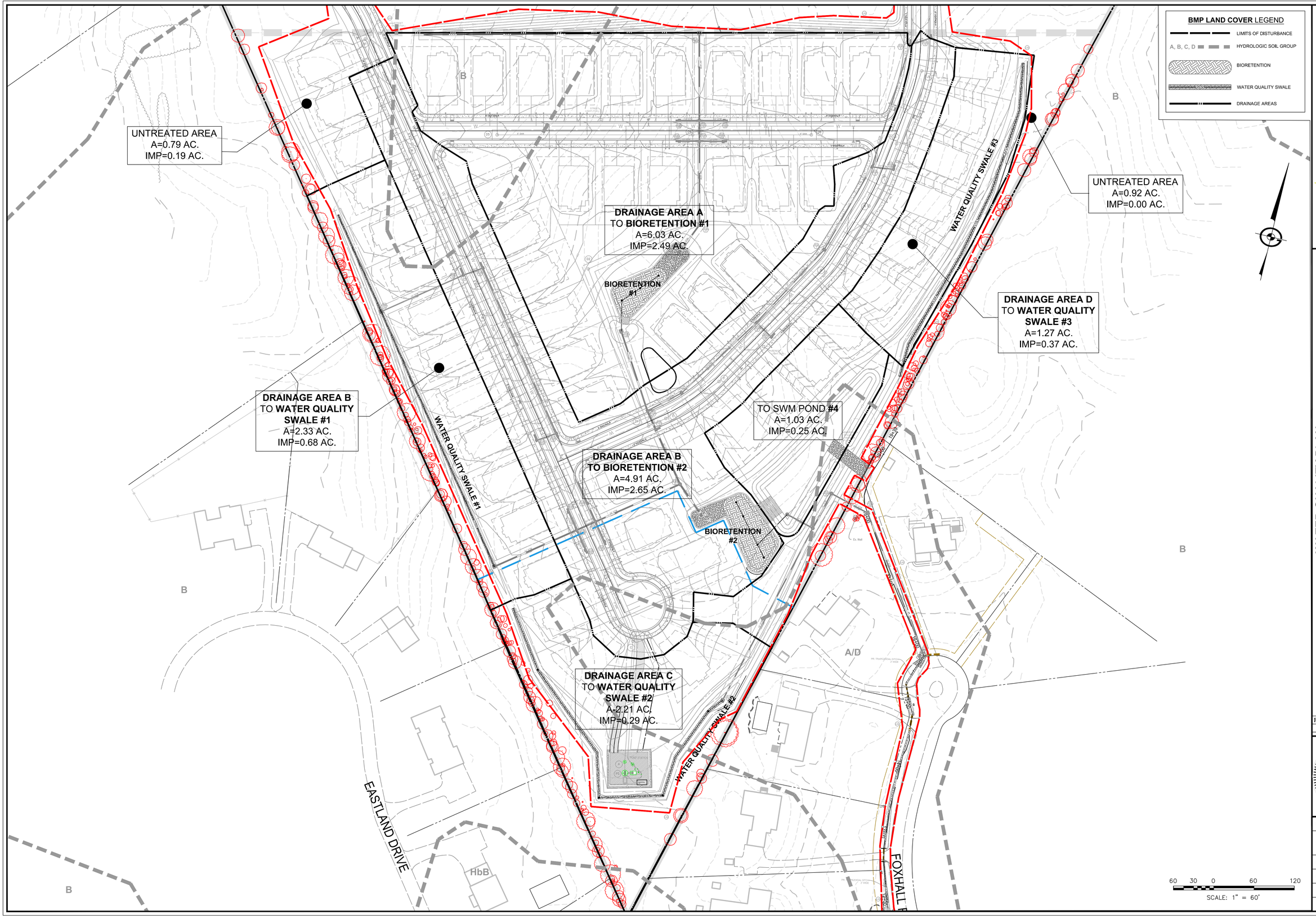

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WATER QUALITY PLAN

NORBORNE GLEBE - PHASE 16

CHARLES TOWN CORP. DISTRICT (3)-MAP 12-PARCEL 215 DEED BOOK 1173-PAGE 85
CITY OF CHARLES TOWN
JEFFERSON COUNTY, WV

Rev. No.	Date

DANIEL B. HAYES
REGISTERED
16095
STATE OF
WEST VIRGINIA
PROFESSIONAL ENGINEER

DATE: 10/07/2025

SCALE: 1" = 60'

DESIGNED BY: CC/CW/DM

FILE NO. 4542A

SHEET 60 OF 64

SLD-2025-02

Site Data

Site Name: Norborne Glebe - Phase 16

Site Information

Post-Development Land Cover

Drainage Area A

Land Cover Type	HSG A Soils	HSG B Soils	HSG C Soils	HSG D Soils	Totals
Forest/Preserved Open Space (acres)	0.00	0.00	0.00	0.00	0.00
Managed Turf (acres)	0.00	3.54	0.00	0.00	3.54
Impervious Cover (acres)	0.00	2.49	0.00	0.00	2.49
				Total	6.03

Drainage Area B

Land Cover Type	HSG A Soils	HSG B Soils	HSG C Soils	HSG D Soils	Totals
Forest/Preserved Open Space (acres)	0.00	0.00	0.00	0.00	0.00
Managed Turf (acres)	0.00	3.91	0.00	0.00	3.91
Impervious Cover (acres)	0.00	3.33	0.00	0.00	3.33
				Total	7.24

Drainage Area C

Land Cover Type	HSG A Soils	HSG B Soils	HSG C Soils	HSG D Soils	Totals
Forest/Preserved Open Space (acres)	0.00	0.00	0.00	0.00	0.00
Managed Turf (acres)	0.00	1.92	0.00	0.00	1.92
Impervious Cover (acres)	0.00	0.29	0.00	0.00	0.29
				Total	2.21

Drainage Area D

Land Cover Type	HSG A Soils	HSG B Soils	HSG C Soils	HSG D Soils	Totals
Forest/Preserved Open Space (acres)	0.00	0.00	0.00	0.00	0.00
Managed Turf (acres)	0.00	0.90	0.00	0.00	0.90
Impervious Cover (acres)	0.00	0.37	0.00	0.00	0.37
				Total	1.27

Drainage Area E

Land Cover Type	HSG A Soils	HSG B Soils	HSG C Soils	HSG D Soils	Totals
Forest/Preserved Open Space (acres)	0.00	0.00	0.00	0.00	0.00
Managed Turf (acres)	0.00	0.00	0.00	0.00	0.00
Impervious Cover (acres)	0.00	0.00	0.00	0.00	0.00
				Total	0.00

Total Site Area

Land Cover Type	HSG A Soils	HSG B Soils	HSG C Soils	HSG D Soils	Totals
Forest/Preserved Open Space (acres)	0.00	0.00	0.00	0.00	0.00
Managed Turf (acres)	0.00	10.27	0.00	0.00	10.27
Impervious Cover (acres)	0.00	6.48	0.00	0.00	6.48
Total:	0.00	16.75	0.00	0.00	16.75

Rv Coefficients

Land Cover Type	HSG A Soils	HSG B Soils	HSG C Soils	HSG D Soils
Forest/Preserved Open Space	0.00	0.00	0.00	0.00
Managed Turf	0.15	0.20	0.22	0.25
Impervious Cover	0.95	0.95	0.95	0.95

Land Cover Summary

Forest/Preserved Open Space (acres)	0.00
Weighted Rv(forest)	0.00
% Forest	0%
Managed Turf (acres)	10.27
Weighted Rv(turf)	0.20
% Managed Turf	61%
Impervious Cover (acres)	6.48
Rv(impervious)	0.95
% Impervious	39%
Site Area (acres)	16.75
Site Rv	**0.49**

Development Credits (Select all that apply)

Is the proposed development:	
a) Redevelopment?	No
b) Brownfield redevelopment?	No
c) High density (>7 units per acre)?	No
d) Vertical Density, (Floor to Area Ratio (FAR) of 2 or >18 units per acre)?	No
e) Mixed use or Transit Oriented Development (within 1/2 mile of transit)?	No
Total Credits (inches)	**0**

Runoff Reduction Rainfall Event (inches)	1.00
Target Runoff Reduction Volume, RRv (acre-feet)	0.68
Target Runoff Reduction Volume, RRv (cubic feet)	29,802

West Virginia MS4 Stormwater Compliance Spreadsheet v2.0; April 2013

Stormwater Runoff Reduction Summary

Target Runoff Reduction Volume, RRv (cubic feet)	29,802
Runoff Reduction Achieved (cubic feet)	30,271
Runoff Reduction Volume Remaining (cubic feet)	0
1.5:1 Mitigation Runoff Volume (cubic feet)	0
2:1 Mitigation Runoff Volume (cubic feet)	0
Total Mitigation Runoff Volume Required (cubic feet)	0

WV MS4 Stormwater Compliance Spreadsheet v2.0; April 2013	1-year storm	2-year storm	10-year storm
Target Rainfall Event (in)	2.70	3.35	5.15

Drainage Area A	
Drainage Area (acres)	6.03
Storage Volume Provided By Runoff Reduction Practices (cf)	11,195
Drainage Area B	
Drainage Area (acres)	7.24
Storage Volume Provided By Runoff Reduction Practices (cf)	16,014
Drainage Area C	
Drainage Area (acres)	2.21
Storage Volume Provided By Runoff Reduction Practices (cf)	2,395
Drainage Area D	
Drainage Area (acres)	1.27
Storage Volume Provided By Runoff Reduction Practices (cf)	2,558

West Virginia MS4 Stormwater Compliance Spreadsheet v2.0; April 2013 — Update — Print

Site Data Summary

Site Land Cover Summary

	A Soils	B Soils	C Soils	D Soils	Total	% of Total
Forest (acres)	0.00	0.00	0.00	0.00	0.00	*0.00*
Turf (acres)	0.00	10.27	0.00	0.00	10.27	*61.31*
Impervious (acres)	0.00	6.48	0.00	0.00	6.48	*38.69*
					16.75	*100.00*

Site Rv	0.49
Post Development Treatment Volume (ft3)	29,802
Total Runoff Volume Reduction (ft3)	30,271

Drainage Area Summary

	D.A. A	D.A. B	D.A. C	D.A. D	D.A. E	Total
Forest (acres)	0.00	0.00	0.00	0.00	0.00	*0.00*
Turf (acres)	3.54	3.91	1.92	0.90	0.00	*10.27*
Impervious (acres)	2.49	3.33	0.29	0.37	0.00	*6.48*
						16.75

Drainage Area A Summary

Land Cover Summary

	A Soils	B Soils	C Soils	D Soils	Total	% of Total
Forest (acres)	0.00	0.00	0.00	0.00	0.00	*0.00*
Turf (acres)	0.00	3.54	0.00	0.00	3.54	*58.71*
Impervious (acres)	0.00	2.49	0.00	0.00	2.49	*41.29*
					6.03	

BMP Selections

Practice	Credit Area (acres)	Runoff Reduction (ft3)	Downstream Practice
Simple Disconnection to A/B Soils or Soil-Amended Filter Path in C/D Soils (4.2.2, Appendix D)	1.55	5,345	Bioretention, Level 2
Bioretention, Level 2	4.48	5,812	
Total Impervious Cover Treated (acres)	2.49		
Total Turf Area Treated (acres)	3.54		

Drainage Area B Summary

Land Cover Summary

	A Soils	B Soils	C Soils	D Soils	Total	% of Total
Forest (acres)	0.00	0.00	0.00	0.00	0.00	*0.00*
Turf (acres)	0.00	3.91	0.00	0.00	3.91	*54.84*
Impervious (acres)	0.00	3.33	0.00	0.00	3.33	*55.22*
					7.24	

BMP Selections

Practice	Credit Area (acres)	Runoff Reduction (ft3)	Downstream Practice
Simple Disconnection to A/B Soils or Soil-Amended Filter Path in C/D Soils (4.2.2, Appendix D)	0.68	2,345	Grass Swale A/B Soils
Grass Swale A/B Soils	0.00	469	
Water Quality Swale, Level 1	1.65	1,198	Bioretention, Level 2
Bioretention, Level 2	4.91	10,779	
Total Impervious Cover Treated (acres)	3.33		
Total Turf Area Treated (acres)	3.91		

Drainage Area C Summary

Land Cover Summary

	A Soils	B Soils	C Soils	D Soils	Total	% of Total
Forest (acres)	0.00	0.00	0.00	0.00	0.00	*0.00*
Turf (acres)	0.00	1.92	0.00	0.00	1.92	*31.84*
Impervious (acres)	0.00	0.29	0.00	0.00	0.29	*4.81*
					2.21	

BMP Selections

Practice	Credit Area (acres)	Runoff Reduction (ft3)	Downstream Practice
Simple Disconnection to A/B Soils or Soil-Amended Filter Path in C/D Soils (4.2.2, Appendix D)	0.19	655	Water Quality Swale, Level ...
Water Quality Swale, Level 2	2.02	1,739	
Total Impervious Cover Treated (acres)	0.29		
Total Turf Area Treated (acres)	1.92		

Drainage Area D Summary

Land Cover Summary

	A Soils	B Soils	C Soils	D Soils	Total	% of Total
Forest (acres)	0.00	0.00	0.00	0.00	0.00	*0.00*
Turf (acres)	0.00	0.90	0.00	0.00	0.90	*14.93*
Impervious (acres)	0.00	0.37	0.00	0.00	0.37	*6.14*
					1.27	

BMP Selections

Practice	Credit Area (acres)	Runoff Reduction (ft3)	Downstream Practice
Simple Disconnection to A/B Soils or Soil-Amended Filter Path in C/D Soils (4.2.2, Appendix D)	0.37	1,276	Water Quality Swale, Level ...
Water Quality Swale, Level 1	0.90	653	
Total Impervious Cover Treated (acres)	0.37		
Total Turf Area Treated (acres)	0.90		

BR-4.17. Bioretention Landscaping Criteria

Landscaping is critical to the function and performance of Bioretention areas. It is recommended that the planting plan be prepared by a qualified landscape architect or horticulturalist who has the expertise to design a plan tailored to site-specific conditions, including landscape context, microclimates, water velocity, planting zones, potential extended ponding time, and maintenance schedule.

The Bioretention landscaping plan should include the following elements:

- Clear delineation of planting area(s), mulched areas, accent stones, river rock beds, and other landscape elements.
- Plant list with Latin and common names, size of plant material [quart containers, #1 (1 gallon container), #2 (2 gallon), 2.5" caliper tree, etc.], quantities, and any specifics desired, such as multi-stem or single stem.
- List and quantities for other materials (e.g., rock, erosion control matting).
- Note whether plant substitutions are permitted, and who can authorize substitutions.
- Construction notes about handling and watering of plants and other materials during construction and construction sequence for landscaping elements.

- Maintenance information, such as:
  - Instructions for initial watering (e.g., first growing season after installation)
  - Punch list items (e.g., erosion, damaged plants) and an identified responsible party for adjustments or repairs after the first three significant rain events.
  - Care and replacement of plant materials for a specified timeframe (e.g., 1 year after installation). It is recommended that construction contracts include a care and replacement warranty to ensure that vegetation is properly established and survives through at least the first growing season following construction.
    - Maintenance tasks and frequencies (see **Section BR-8**).
  - The intended plant community in future years. This will help the party responsible for maintenance to know how to cut, prune, replace, supplement, and otherwise maintain the landscaping to achieve the desired plant community and aesthetics. Photos, photo simulations, and/or other graphics showing the desired plant community at years 1, 3, 5, 10 and beyond are also helpful for long-term maintenance.

Native plant species are preferred over non-native species, to include "native selections" and cultivars. Some ornamental species may be used if they are proven to be "sustainable" and are not aggressive or invasive. Some popular native species which work well in Bioretention areas and that are commercially available can be found in **Appendix F**. Internet links to more detailed Bioretention plant lists developed in the Chesapeake Bay and the Mississippi River Basin regions are provided below:

- **West Virginia Division of Natural Resources**
  http://www.wvdnr.gov/
- **Wildlife Diversity Program and Natural Heritage Program (WVDNR)**
  http://www.wvdnr.gov/wildlife/wdpintro.shtm
- **West Virginia Native Plant Society**
  http://www.wvnps.org/index.html
- **West Virginia Nursery and Landscape Association**
  http://www.wvnla.org/
- **Native Plant Database - Lady Bird Johnson Wildflower Center**
  http://www.wildflower.org/plants/
- **List of Native Plants by each State (USDA):**
  http://plants.usda.gov/checklist.html
- **Invasive species list**
  http://invasipedia.org/

Planting choices for Bioretention areas (both urban and non-urban) should be selected based on the level of landscape maintenance which will be devoted to the Bioretention. Plant selection differs if the area will be frequently mowed, pruned, and weeded, in contrast to a site which will receive minimum annual maintenance. In areas where less maintenance will be provided, consider the "meadow" or "wildflower" landscaping model. In certain cases, site owners or managers may wish to have managed turf as the ground cover that can be mowed along with other turf areas on the site. While this is allowable, it is not the recommended planting type for bioretention. If used, turf cover should be integrated with herbaceous, shrub, and/or tree zones.

Table BR-5. Soil Media Criteria and Testing for Bioretention

Soil Media Criterion	Description	Standard(s)		
General Composition	Soil media must have the proper proportions sand, fines, and organic matter to promote plant growth, drain at the proper rate, and filter pollutants	70% to 88% sand; 8% to 26% top soil; and 3% to 5% organic matter (aged compost)		
Sand	Silica based coarse aggregate[1] Locally-approved pulverized glass may be substituted if the local authority undertakes testing to verify compliance with the specification and also lack of heavy metals	Sieve 3/8 in No. 4 No. 8 No. 16 No. 30 No. 50 No. 100	Size 9.50 mm 4.75 mm 2.36 mm 1.18 mm 0.6 mm 0.3 mm 0.15 mm	% Passing 100 95 to 100 80 to 100 45 to 85 15 to 60 3 to 15 0 to 4
		Effective Particle size (D10) > 0.3mm Uniformity Coefficient (D60/D10) < 4.0		
Top Soil	Loamy sand or Sandy Loam	USDA Textural Triangle		
Organic Matter	Well aged, clean compost	Appendix D		
P-Index or Phosphorus (P) content	Soil media with high P levels will export P through the media and potentially to downstream conveyances or receiving waters	P content = 7 to 23 mg/kg		

Soil Media Criterion	Description	Standard(s)
Cation Exchange Capacity (CEC)	The CEC is determined by the amount of humus or organic matter. Higher CEC will promote pollutant removal	CEC > 10 milliequivalents per 100 grams
Infiltration Rate	This refers to the infiltration rate of the soil media, and not the underlying soil A minimum rate is required to allow the soil media to properly drain	Minimum Infiltration Rate = 1 – 2 inches/hour (most soil media will have much higher rates)
Soil Media Depth	The depth of soil media for various applications	Soil media depths for Level 1 and Level 2 design are specified in Table BR-1. If trees are included in the bioretention planting plan, tree planting holes in the filter bed must be at least 4 feet deep to provide enough soil volume for the root structure of mature trees. In addition, higher proportions of topsoil (30%) and aged compost (20%) should be added to these planting holes compared to the rest of the soil media. Turf, perennials or shrubs should be used instead of trees to landscape shallower filter beds.

[1] Many specifications for sand refer to ASTM C-33. The ASTM C-33 specification allows a particle size distribution that contains a large fraction of fines (silt and clay sized particles - < 0.05 mm). The smaller fines fill the voids between the larger sand sized particles, resulting in smaller and more convoluted pore spaces. While this condition provides a high degree of treatment, it also encourages clogging of the remaining void spaces with suspended solids and biological growth, resulting in a greater chance of a restrictive biomat forming. By limiting the fine particles allowed in the sand component, the combined media recipe of sand and the fines associated with the soil and organic material will be less prone to clogging, while also providing an adequate level of filtration and retention.

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WATER QUALITY COMPS & DETAILS
NORBORNE GLEBE - PHASE 16
CHARLES TOWN CORP. DISTRICT (3)-MAP 12-PARCEL 215 DEED BOOK 1173-PAGE 85
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SHEET 61 OF 64
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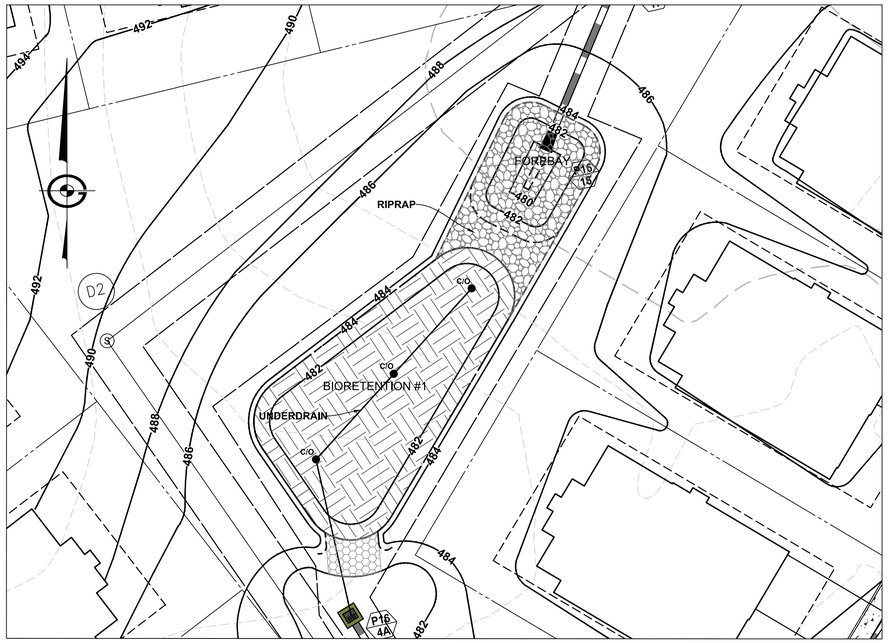
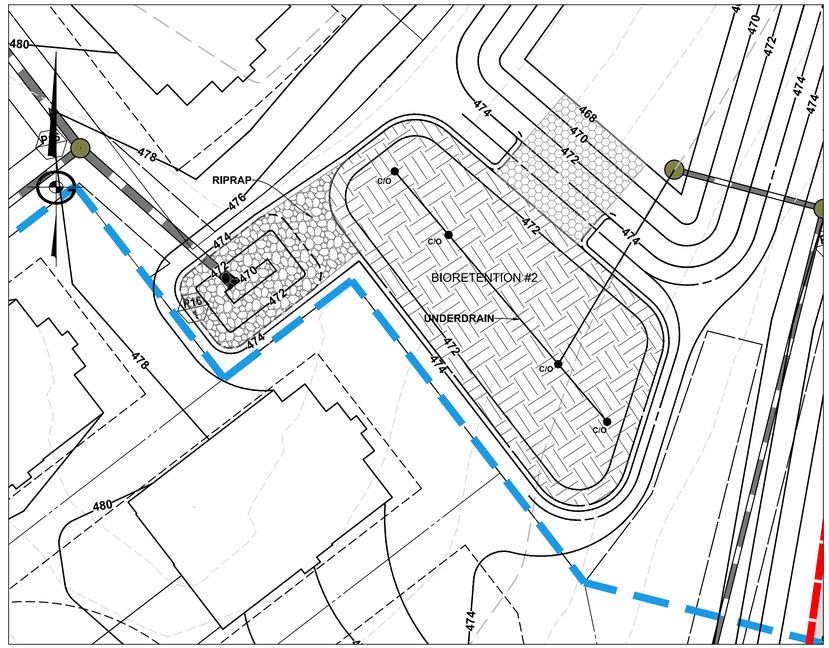


BIORETENTION #1 PLAN VIEW

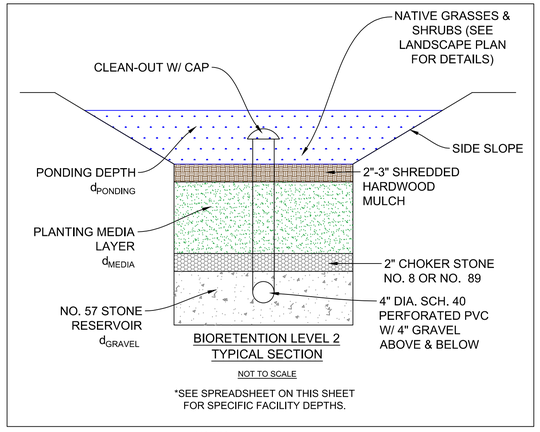


BIORETENTION #2 PLAN VIEW

20 10 0 20 40

SCALE: 1" = 20'

Bioretention #1, Level 2		
Total Ac		6.03
Impervious Ac		2.49
Managed Turf ac		3.54
Total Volume Received By Practice CF		5,812.0
STEP 1 Surface Ponding		**Elevations (ft)**
Surface Ponding Depth $d_{ponding}$ (ft.)	1.50	483.50
Surface Ponding Volume (ft^3) Must be ≥50% of Design Tv	4270.50	
Average Ponding Surface Area (ft^2) ($SA_{avg\text{-}ponding}$)	2847.00	
Side Slopes (3:1)	3.00	
Approximate surface area at the top of the ponding depth (ft^2)	3344.00	
Approximate surface area at the bottom of the ponding depth (ft^2)	2350.00	
STEP 2 Soil Media Surface Area and Depth		**Elevations**
Soil Media Surface Area (SA_{bottom}) (ft^2)	2350.00	
d_{media} (ft) 1.5' min	2.00	481.50
d_{gravel} (ft)	1.00	480.50
n_{media}	0.25	
n_{gravel}	0.4	
$SA_{avg\text{-}ponding}$ (ft^2)	2,847.00	
$d_{ponding}$ (ft)	1.5	
$Dv_{practive}$ (ft^3)	6,386	



BIORETENTION LEVEL 2
TYPICAL SECTION

NOT TO SCALE

*SEE SPREADSHEET ON THIS SHEET FOR SPECIFIC FACILITY DEPTHS.

NOTES:
1. SEE SHEET 50 FOR LANDSCAPING NOTES AND DETAILS.

Bioretention #2, Level 2		
Total Ac		7.24
Impervious Ac		3.33
Managed Turf ac		3.91
Total Volume Received By Practice CF		10,779.0
STEP 1 Surface Ponding		**Elevations (ft)**
Surface Ponding Depth $d_{ponding}$ (ft.)	1.50	473.50
Surface Ponding Volume (ft^3) Must be ≥50% of Design Tv	6877.50	
Average Ponding Surface Area (ft^2) ($SA_{avg\text{-}ponding}$)	4585.00	
Side Slopes (3:1)	3.00	
Approximate surface area at the top of the ponding depth (ft^2)	5224.00	
Approximate surface area at the bottom of the ponding depth (ft^2)	3946.00	
STEP 2 Soil Media Surface Area and Depth		**Elevations**
Soil Media Surface Area (SA_{bottom}) (ft^2)	3946.00	
d_{media} (ft) 1.5' min	3.00	470.50
d_{gravel} (ft)	1.00	469.50
n_{media}	0.25	
n_{gravel}	0.4	
$SA_{avg\text{-}ponding}$ (ft^2)	4,585.00	
$d_{ponding}$ (ft)	1.5	
$Dv_{practive}$ (ft^3)	11,415	

20 10 0 20 40

SCALE: 1" = 20'

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BIORETENTION DETAILS

NORBORNE GLEBE - PHASE 16

CHARLES TOWN CORP. DISTRICT (3)-MAP 12-PARCEL 215 DEED BOOK 1173-PAGE 85
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FILE NO. 4542A

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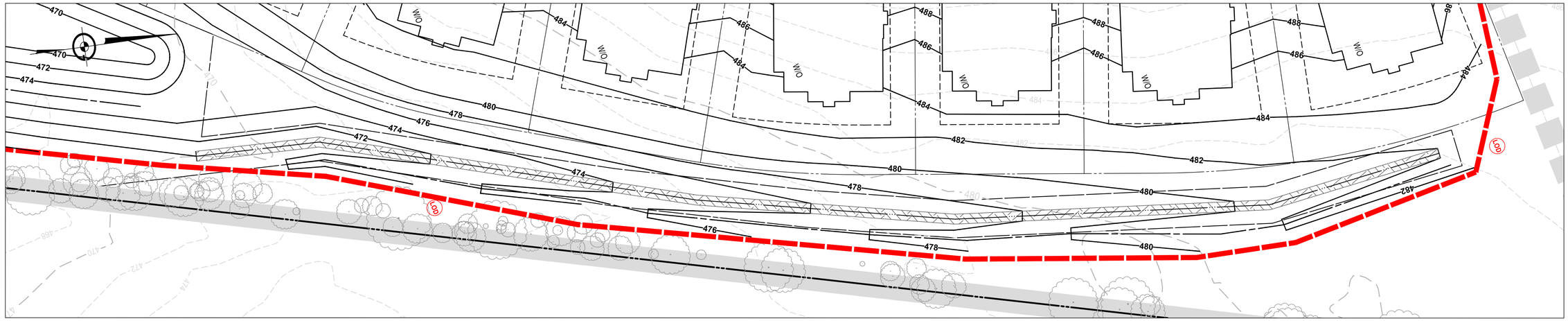
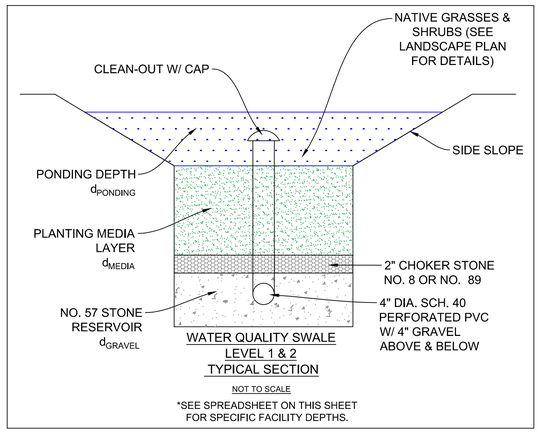
SLD-2025-02



WATER QUALITY SWALE #3 PLAN VIEW

20 10 0 20 40

SCALE: 1" = 20'



WATER QUALITY SWALE
LEVEL 1 & 2
TYPICAL SECTION

NOT TO SCALE

*SEE SPREADSHEET ON THIS SHEET FOR SPECIFIC FACILITY DEPTHS.

Water Quality Swale #3, Level 1	
Total Ac	**1.27**
Impervious Ac	**0.37**
Managed Turf ac	**0.9**
Total Volume Received By Practice CF	**1,200.0**
STEP 1 Surface Ponding	
Temporary Ponding Depth $d_{ponding}$ (in.)	6
Side Slopes (3:1)	3
Average Slope (%)	2.40
Length (ft)	493.00
Width (ft)	2.00
Soil Media Surface Area (SA_{bottom}) (ft^2)	986.00
d_{media} (ft) 1.5' min	2.00
n_{media}	0.25
$Dv_{practive}$ (ft^3)	1,282

Table WQS-3.Typical Check Dam Spacing to Achieve Effective Channel Slope

Channel Longitudinal Slope	Spacing [1] of 12-inch High (max.) Check Dams [3,4] to Create an Effective Slope of 2%	Spacing [1] of 12-inch High (max.) Check Dams [3,4] to Create an Effective Slope of 0 to 1%
0.5%	–	200 ft.to –
1.0%	–	100 ft.to –
1.5%	–	67 ft.to 200 ft.
2.0%	–	50 ft.to 100 ft.
2.5%	200 ft.	40 ft.to 67 ft.
3.0%	100 ft.	33 ft.to 50 ft.
3.5%	67 ft.	30 ft.to 40 ft.
4.0%	50 ft.	25 ft.to 33 ft.
4.5% [2]	40 ft.	20 ft.to 30 ft.
5.0% [3]	40 ft.	20 ft.to 30 ft.

Notes:
[1] The spacing dimension is half of the above distances if a 6-inch check dam is used.
[2] Open channels with slopes greater than 4% require special design considerations, such as drop structures to accommodate greater than 12-inch high check dams (and therefore a flatter effective slope), in order to ensure non-erosive flows.
[3] All check dams require a stone energy dissipater at the downstream toe.
[4] Check dams require weep holes at the channel invert. Swales with slopes less than 2% will require multiple weep holes (at least 3) in each check dam.

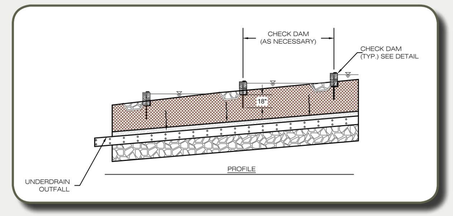


Figure WQS-2.Typical profile for Water Quality Swale with check dams

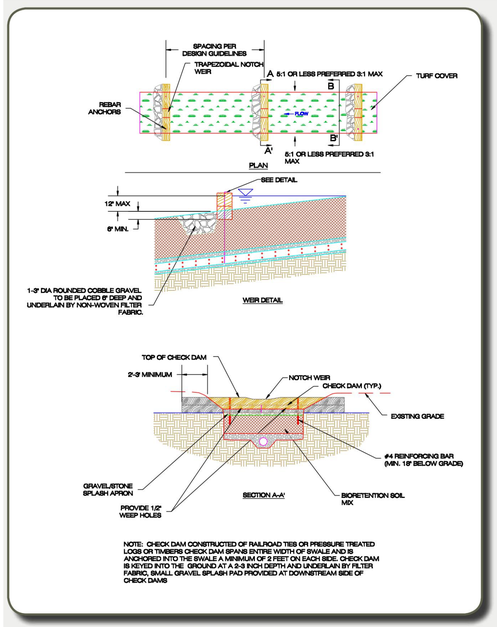


Figure WQS-3. Typical details for check dams

704 Foxcroft Avenue
Martinsburg, West Virginia 25401
Telephone: (304) 267-4111
Fax: (540) 722-4528
www.greenwayeng.com

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

WATER QUALITY SWALE DETAILS
NORBORNE GLEBE - PHASE 16
CHARLES TOWN CORP. DISTRICT (3)-MAP 12-PARCEL 215 DEED BOOK 1173-PAGE 85
CITY OF CHARLES TOWN
JEFFERSON COUNTY, WV

Rev. No.	Date

DANIEL B. HAYES
REGISTERED
16095
STATE OF
WEST VIRGINIA
PROFESSIONAL ENGINEER

DATE: 10/07/2025

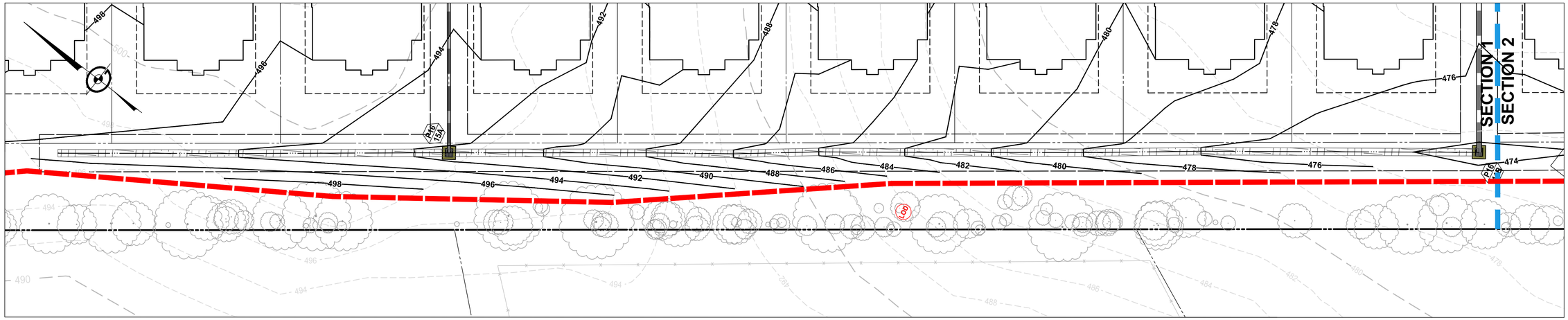
SCALE: AS SHOWN

DESIGNED BY: CC/CW/DM

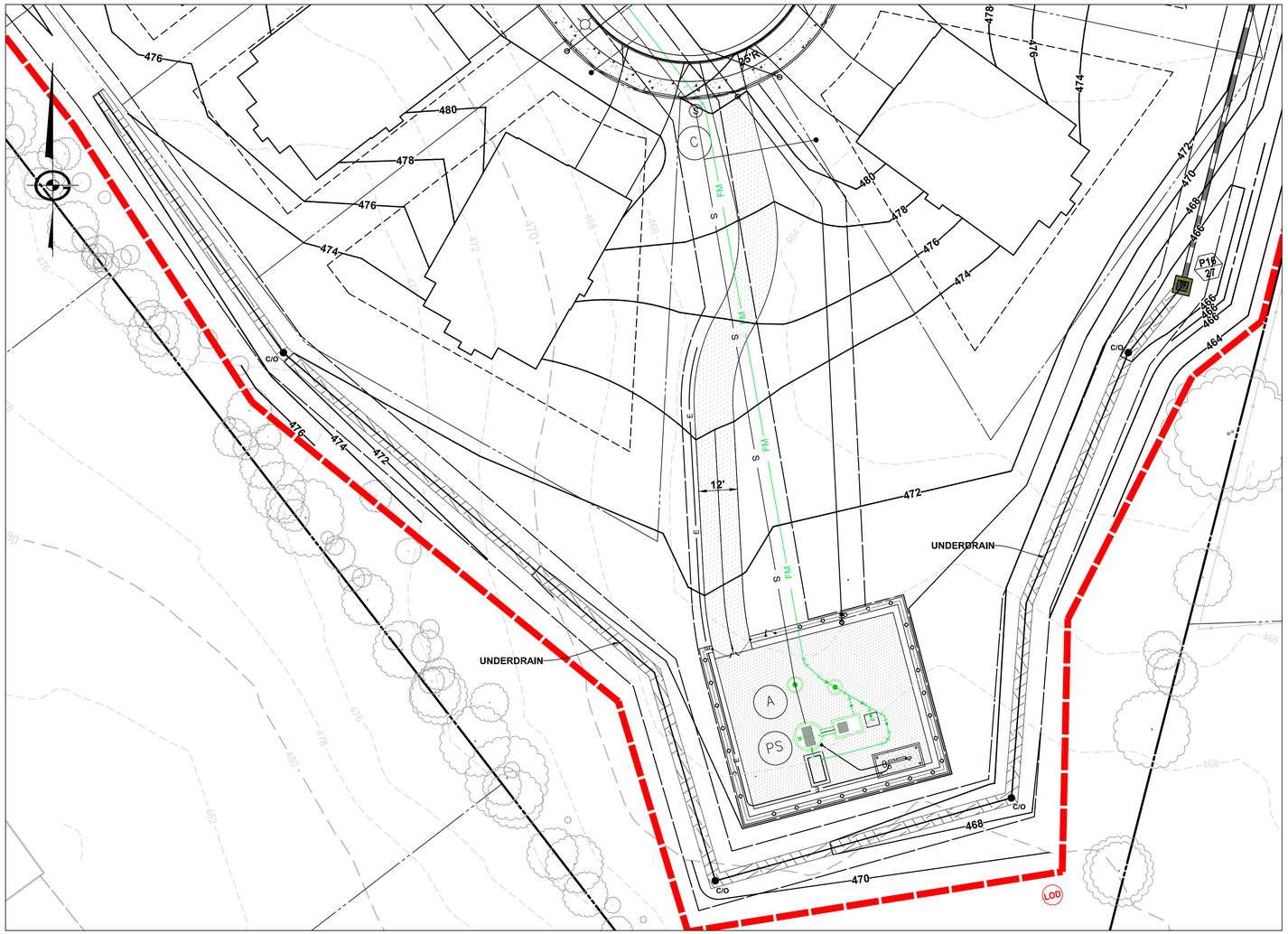
FILE NO. 4542A

SHEET 63 OF 64

SLD-2025-02



WATER QUALITY SWALE #1 PLAN VIEW



WATER QUALITY SWALE #2 PLAN VIEW

Water Quality Swale #1, Level 1	
Total Ac	**2.33**
Impervious Ac	**0.68**
Managed Turf ac	**1.65**
Total Volume Received By Practice CF	**2,200.0**
STEP 1 Surface Ponding	
Temporary Ponding Depth $d_{ponding}$ (in.)	6
Side Slopes (3:1)	3
Average Slope (%)	3.90
Length (ft)	574.00
Width (ft)	3.00
Soil Media Surface Area (SA_{bottom}) (ft^2)	1722.00
d_{media} (ft) 1.5' min	2.00
n_{media}	0.25
$Dv_{practive}$ (ft^3)	2,239

Water Quality Swale #2, Level 2	
Total Ac	**2.21**
Impervious Ac	**0.19**
Managed Turf ac	**2.02**
Total Volume Received By Practice CF	**1,739.0**
STEP 1 Surface Ponding	
Temporary Ponding Depth $d_{ponding}$ (in.)	6
Side Slopes (3:1)	3
Average Slope (%)	1.40
Length (ft)	446.00
Width (ft)	3.00
Soil Media Surface Area (SA_{bottom}) (ft^2)	1338.00
d_{media} (ft) 1.5' min	2.00
n_{media}	0.25
$Dv_{practive}$ (ft^3)	1,739

20 10 0 20 40

SCALE: 1" = 20'

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WATER QUALITY SWALE DETAILS
NORBORNE GLEBE - PHASE 16

CHARLES TOWN CORP. DISTRICT (3)-MAP 12-PARCEL 215 DEED BOOK 1173-PAGE 85
CITY OF CHARLES TOWN
JEFFERSON COUNTY, WV

Rev. No.	Date

DANIEL B. HAYES, REGISTERED, 16095, STATE OF WEST VIRGINIA, PROFESSIONAL ENGINEER

DATE: 10/07/2025

SCALE: 1"=20'

DESIGNED BY: CC/CW/DM

FILE NO. 4542A

SHEET 64 OF 64

SLD-2025-02



Gore-Doubs-Goose Creek Improvements Project

Virtual Public Engagement

August 2025

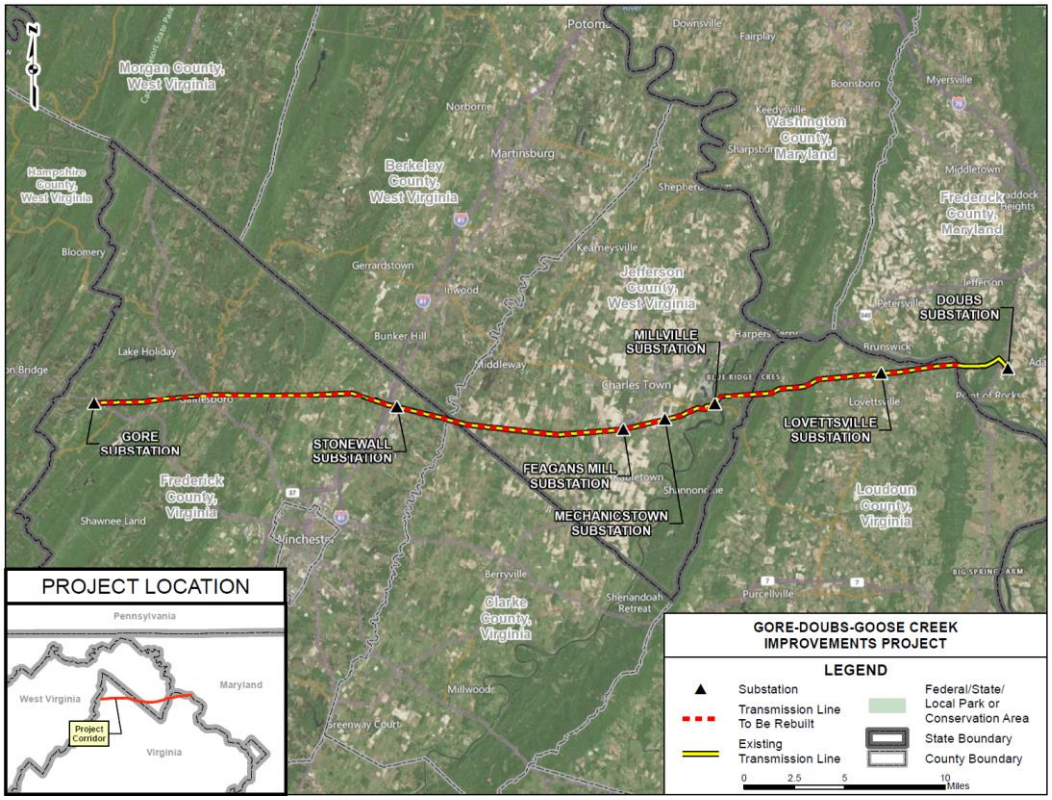
Project Overview

The project will utilize approximately 44 miles of existing rights-of-way (ROW). Starting outside of the Gore Substation in Frederick County, Virginia, the work will utilize an existing ROW that traverses east through Frederick County, Virginia (17.9 miles); Clarke County, Virginia (0.2 miles); Jefferson County, West Virginia (15.4 miles); and Loudoun County, Virginia (10.5 miles).

Potomac Edison will also build two new 138 kV lines between the Stonewall Substation in Clearbrook, Virginia, and the proposed Woodside Substation nearby.

Potomac Edison will utilize its rights-of-way and company-owned property to add a new 500 kV line. The project will include:

- Rebuild an existing 138 kV line by installing new steel structures that will support both the 138 kV line and a new 500 kV line for 44 miles.
- Install new sections of 500 kV line around three existing substations.



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A FirstEnergy Company

Need and Benefits

The Project Need:

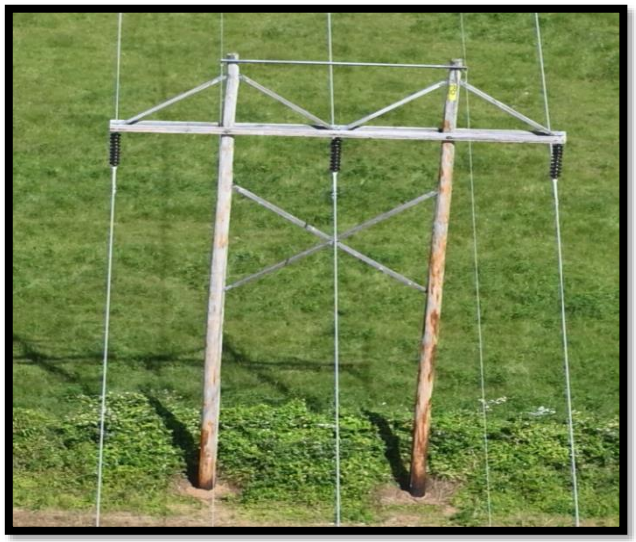
- **Potomac Edison has been awarded a project by regional transmission organization, PJM Interconnection LLC, to upgrade existing transmission lines in Virginia and West Virgina.**
- **This work will primarily take place within approximately 44 miles of existing rights of way and update existing circuit configurations into 500/138 kV double circuit configurations.**

These improvements will:

- **Enhance transmission system reliability, accommodate growing demand for electricity by residential and commercial customers, and facilitate the connection of new energy sources.**
- **Address a regional need identified by PJM, the grid operator for 13 states (and DC), to address the growing demand for electricity in its regional footprint and help address the impact of recent power plant retirements in PJM's service territory.**

Engineering Design Structure Types

Existing Wood 138 kV Structures
Average Height: 65’





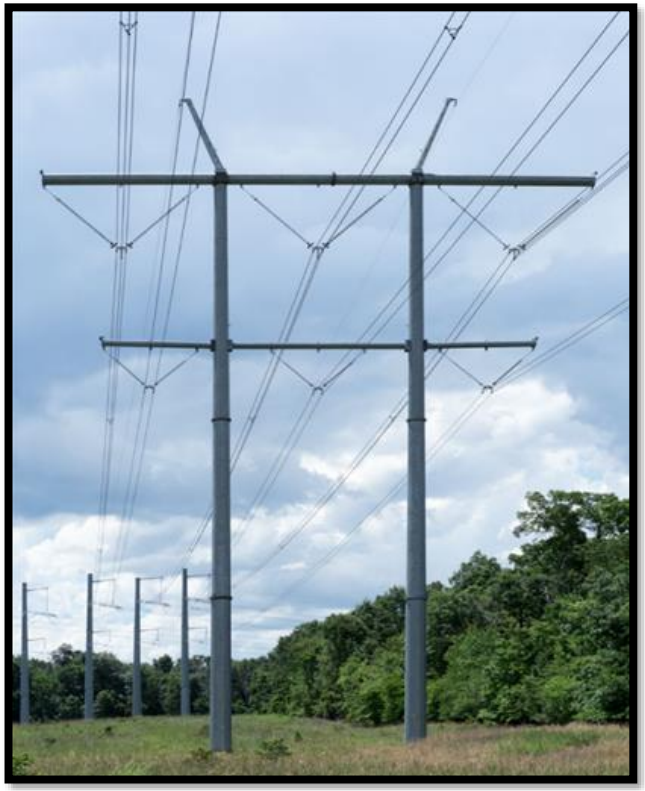


Engineering Design Structure Types

Proposed 500/138 kV Structures
Average Height: 185’







*Typical structures are depicted. More detailed engineering design may require other structure and material types be considered.

Real Estate Negotiations

- **The existing right-of-way width is variable and ranges from 100 to 150 feet.**
  - The project will primarily utilize existing transmission rights-of-way to minimize impacts to landowners, the environment, and the community. Potomac Edison plans to acquire new rights-of-way for the proposed 138 kV lines between the Stonewall and Woodside substations. Potomac Edison also plans to acquire new rights-of-way to bypass the Stonewall Substation as well as the Feagans Mill and Millville substations in Jefferson County.
  - In some limited areas, the rights-of-way may need to be expanded to establish required clearances around the transmission lines. Potomac Edison will contact landowners directly to discuss the additional easements required as well as temporary rights necessary to facilitate construction such as access routes, tree clearing and laydown yards.



- **Examples of land rights acquisition:**
  - Easement agreements
  - Priority tree rights
  - Access roads

Vegetation Management

- **Proper vegetation management is an important part of ensuring electric system reliability.**
- **Potomac Edison focuses on responsible vegetation management to create a sustainable, compatible, low-growing habitat that supports reliable electric service.**
- **For more information on vegetation maintenance practices, please visit the link below:**
  - Maintaining Trees and Vegetation (firstenergycorp.com)



Environmental Permitting

Principal Regulatory Agencies

Federal

- U.S. Fish and Wildlife Service
- U.S. Army Corps of Engineers
- National Park Service

Virginia

- Virginia Dept of Environmental Quality
- Virginia Dept of Historical Resources
- Virginia Dept of Transportation

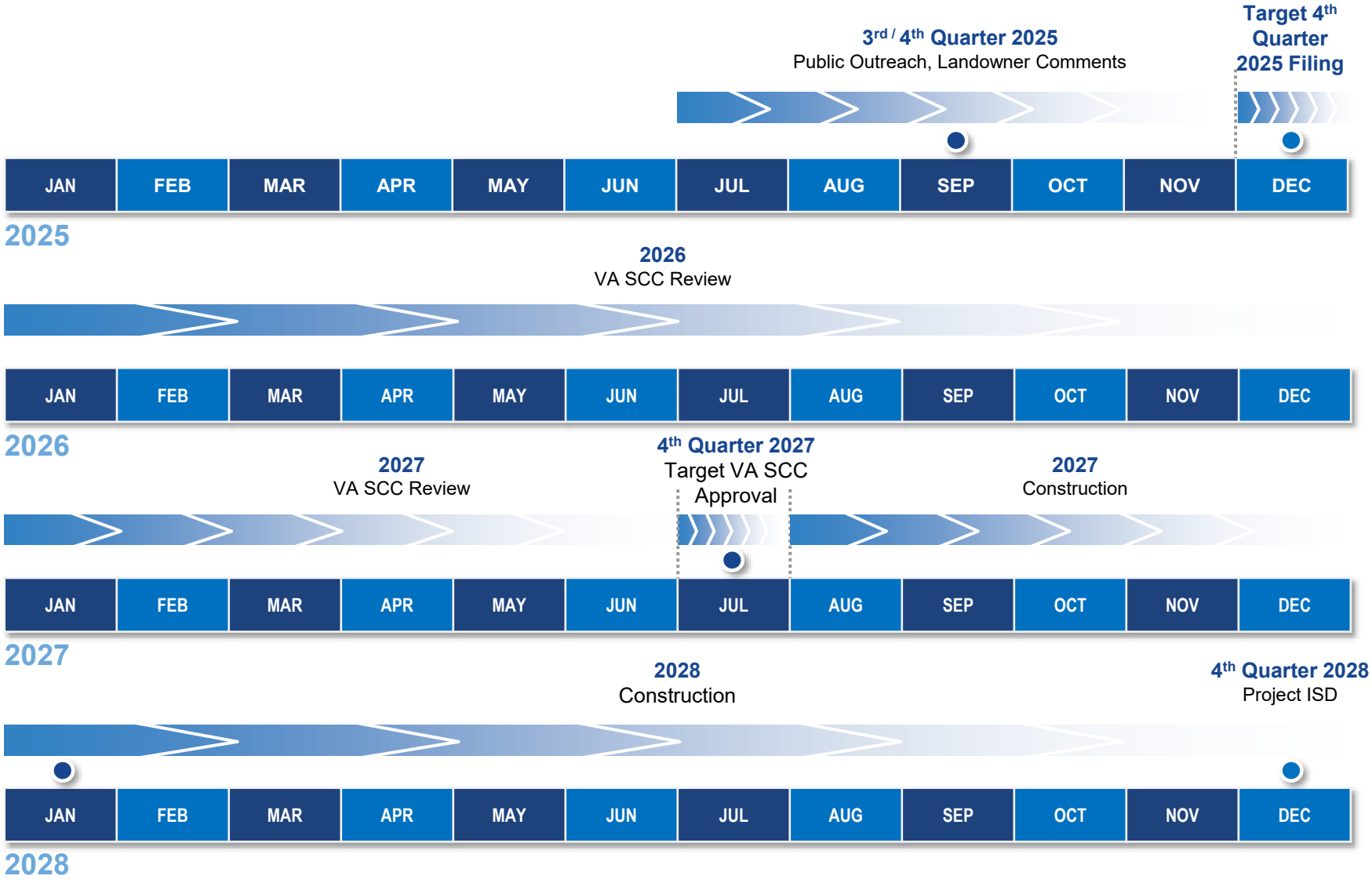
West Virginia

- WV Division of Natural Resources
- WV Dept of Transportation
- WV Dept of Environmental Protection

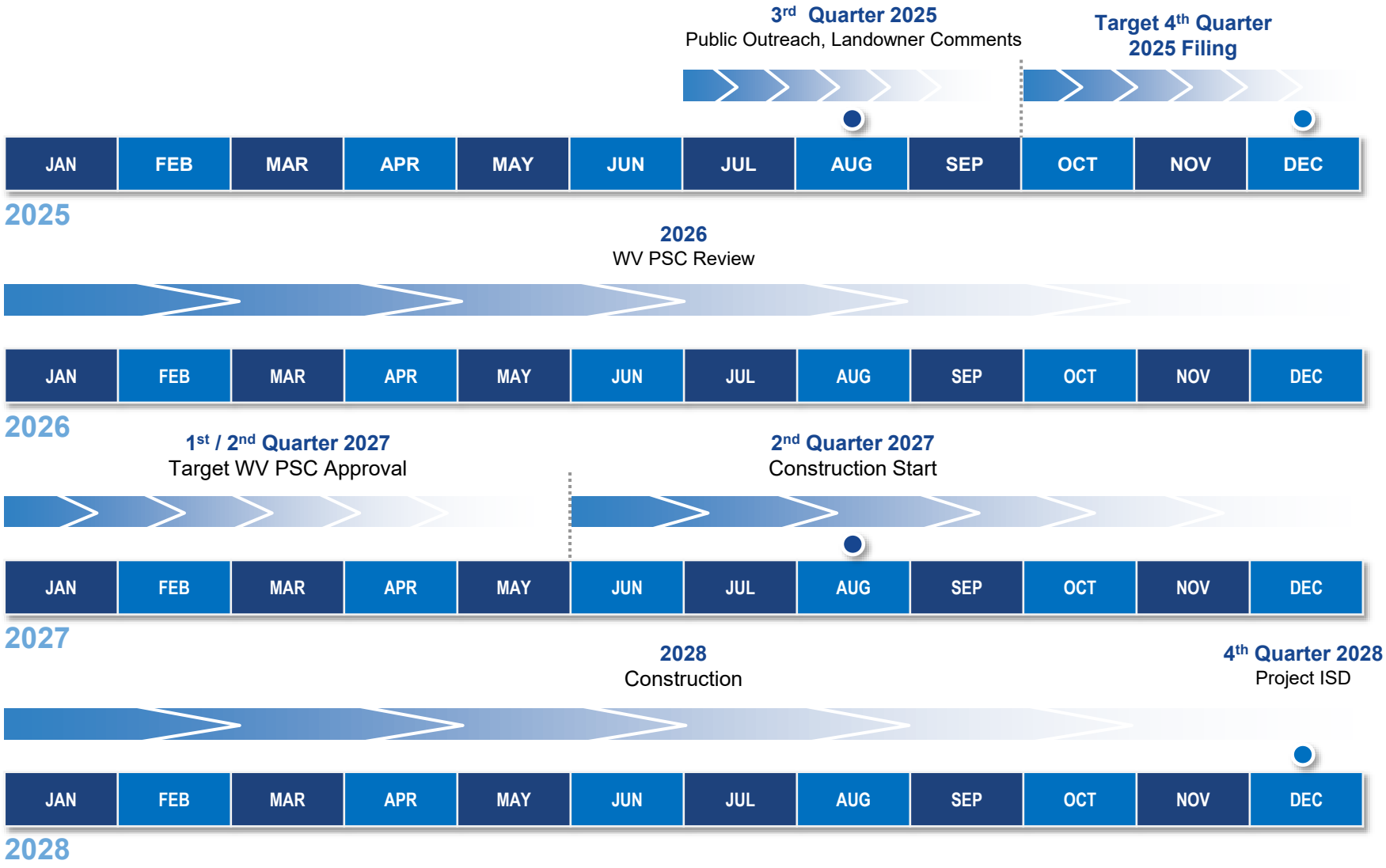




Proposed VA Construction Schedule



Proposed WV Construction Schedule



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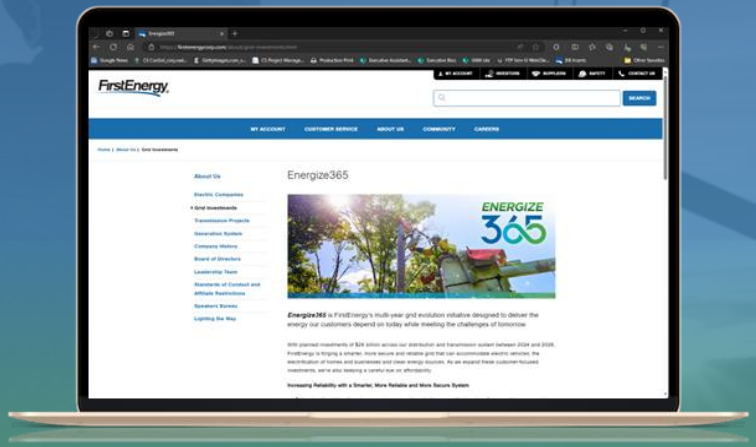


Contact Information

- **Visit the project website for additional information**
- **Contact us if you'd like to schedule an individual meeting for further discussion**

Email: transmissionprojects@firstenergycorp.com

Phone: 1-888-311-4737

Websites:

Virginia:
firstenergycorp.com/content/fecorp/about/transmission_projects/virginia/gore-doubs.html

West Virginia:
firstenergycorp.com/content/fecorp/about/transmission_projects/westvirginia/gore-doubs.html

or interactive map link at:
arcg.is/1rmqK41

Planning Commission
101 East Washington Street
Charles Town, WV 25414

SCHEDULED

Meeting: 07/27/26
Department: Planning Commission
Category: Report
Initiator:

AGENDA ITEM (ID #)

Public Hearing: *TXA2026-01* - Amending the Zoning Use Table for uses in the Old Town Mixed Use Commercial Zoning District

ATTACHMENTS:

- 1. Report.pdf

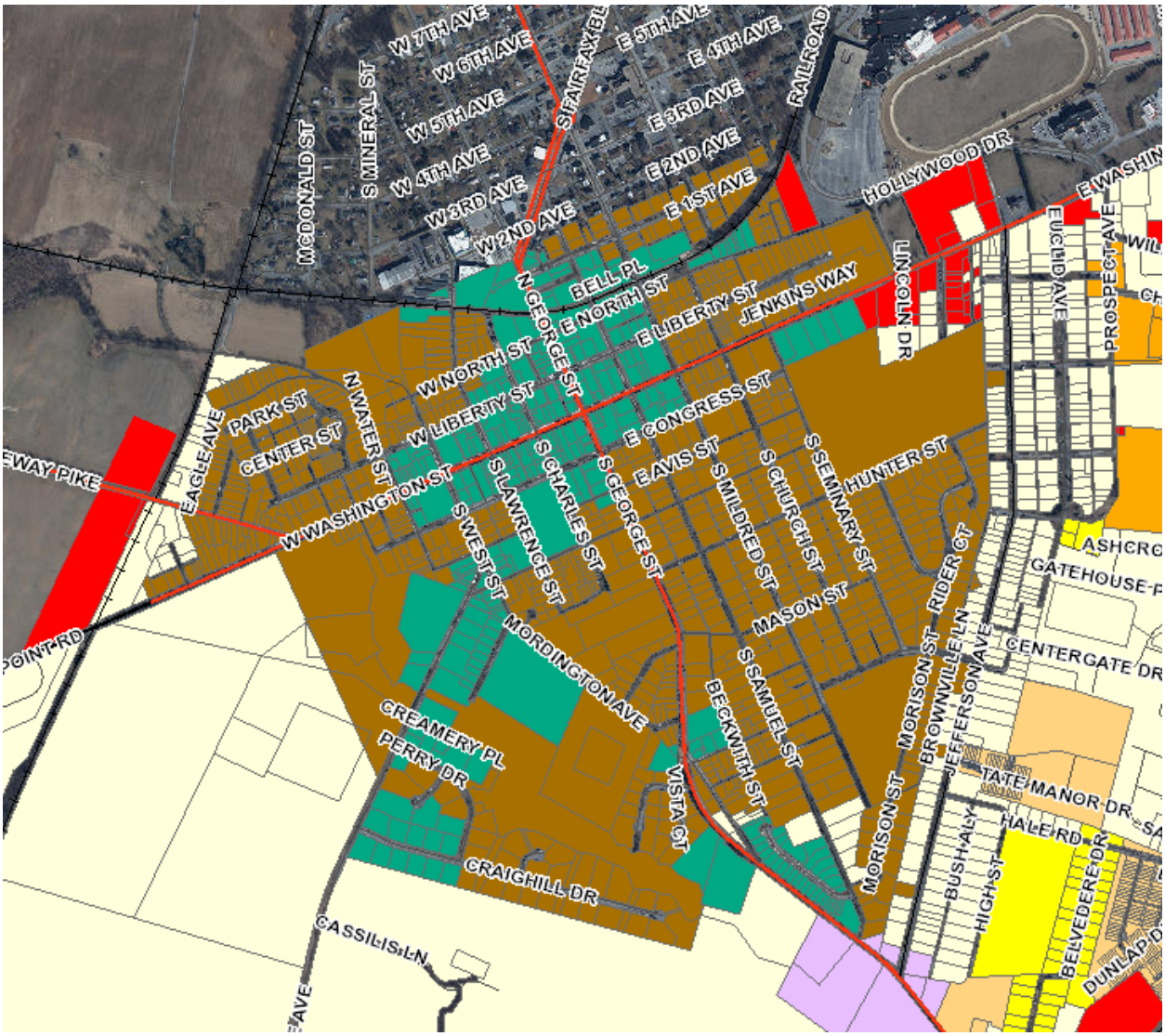
TXA2026-01

OT-MUC Permitted Uses

Date: For the July 27 2026 Planning Commission meeting
Report by: James Newman, City Planner, Zoning/Subdivision Administrator.

OLD TOWN MIXED-USE COMMERCIAL ZONING OVERVIEW

The City's Old Town Mixed-Use Commercial (OT-MUC) Zoning District covers a large portion of downtown and its key access points. The Zoning Map below shows the OT-MUC District **in green:**



The purpose of the District is to:

Recognize the diversity of existing Uses and **provide for a wide range of Uses** in a manner that **strengthens** Charles Town's **urban core**, **contributes** to its **historic character**, **minimizes impacts** on adjacent land Uses, and provides connections to annexed properties. The OT-MUC District shall include the areas formerly consisting of NC, OR, GC, CBD, and I Districts. The OT-MUC District will accommodate the Uses previously allowed in the individual districts because the OT-MUC District is designed to provide the flexibility and variety in one Zoning District that was previously provided by five districts.

The OT-MUC District furthermore fosters a greater opportunity for creative Infill Development and Redevelopment by encouraging **a mix of Uses compatible with existing** and **neighboring properties** and providing housing and business Uses in locations where City services are available. The intent is also to encourage interaction among activities located within the OT-MUC District, to enhance business vitality, **reduce vehicular traffic**, **increase access to** and **the use of transit** services, provide employment opportunities for residents close to home, **ensure the compatibility with each of the Commercial and residential Uses**, ensure that the **appearance** and **effects** of Buildings and **Uses are harmonious with the character of the area** in which they are located by:

1. Allowing a diversity of Uses in close proximity in the OT-MUC District within a limited area, including residential, retail, office, and industrial;

2. Preserving and restoring the overall character of the OT-MUC District;

3. Promoting a balance of land Uses;

4. Promoting the opportunity for people to work, interact, shop, dine, and utilize business and public services in the vicinity of their residences;

5. Providing opportunities for the development of affordable housing;

6. Providing opportunities for a mixture of Uses in the same Building;

7. Promoting a positive pedestrian environment in the OT-MUC District;

8. Facilitating integrated physical design;

9. Promoting a high level of design quality;

10. Encouraging the development of flexible space for small and emerging businesses;

11. Facilitating development proposals responsive to current and future market conditions; and

12. Encouraging the development of Open Spaces and Parks within the OT-MUC District to accommodate workers, residents, pedestrians and shoppers;

ISSUE

In the past few months the Community Development Department has received inquiries from automobile related business looking to set up in the OT-MUC District. These automotive related uses are not compatible with the purpose of the District as such uses:

1. Do not strengthen the historic urban core. The founding of the City predates the invention of the automobile;

2. Have a negative impact on neighboring land uses due to vehicle volume, traffic, visual blight, noise, and fumes;

3. By their very nature they increase, rather than reduce, vehicular traffic.

4. Are not harmonious with the desired live/work retail character of the District as a whole.

CITY COUNCIL

On June 1, 2026 voted to initiate the text amendment process by referring this to the Planning Commission.

EXISTING USE TABLE

Table 1322.04, Zoning District Use Table

CHARLES TOWN ZONING ORDINANCE DISTRICT USE TABLE Key: P – Permitted Use S – Special Exception Use PA – Permitted Accessory Use SA – Special Exception Accessory Use		ZONING DISTRICTS						
		Residential Low Density	Residential Medium-High Density	Neighborhood Residential	Neighborhood Commercial	General Commercial	Old Town Mixed Use Commercials	Old Town Residential
ITE Code	Land Use	R-3	R-15	NR	NC	GC	OT-MUC	OT-R
841	Automobile Sales					P	P	
941	Quick Lube Vehicle Shop					P	P	
942	Automobile Care Center					P	P	
943	Automobile Parts and Service Center					P	P	
944	Gasoline/Service Station				P	P	P	
945	Gasoline/Service Station with Convenience Market			P	P	P	P	
946	Gasoline/Service Station with Convenience Market and Car Wash				P	P	P	
947	Self-Service Car Wash					P	P	
948	Automated Car Wash					P	P	

PROPOSED USE TABLE

Table 1322.04, Zoning District Use Table

CHARLES TOWN ZONING ORDINANCE DISTRICT USE TABLE Key: P – Permitted Use S – Special Exception Use PA – Permitted Accessory Use SA – Special Exception Accessory Use		ZONING DISTRICTS						
		Residential Low Density	Residential Medium-High Density	Neighborhood Residential	Neighborhood Commercial	General Commercial	Old Town Mixed Use Commercials	Old Town Residential
ITE Code	Land Use	R-3	R-15	NR	NC	GC	OT-MUC	OT-R
841	Automobile Sales					P		
941	Quick Lube Vehicle Shop					P		
942	Automobile Care Center					P		
943	Automobile Parts and Service Center					P		
944	Gasoline/Service Station				P	P		
945	Gasoline/Service Station with Convenience Market			P	P	P		
946	Gasoline/Service Station with Convenience Market and Car Wash				P	P		
947	Self-Service Car Wash					P		
948	Automated Car Wash					P		

DEFINITIONS

AUTOMOBILE SALES – A dealership, typically located along major arterial streets characterized by abundant commercial development. Leasing and used car sales may also be areas of focus. May offer services and sale of parts.

QUICK LUBE VEHICLE SHOP – A business where the primary activity is to perform oil change services for vehicles. May also offer ancillary services such as preventative maintenance. Vehicle repair is generally not performed.

AUTOMOBILE CARE CENTER – A center which houses numerous businesses that provided automobile-related services. These service may include repair and servicing, upholstering, and stereo installation.

AUTOMOBILE PARTS AND SERVICE CENTER - Facility focused on the sale of automobile parts for maintenance and repair, and also provide a full array of auto repair services. Material sold may include oil and batteries, and a wide array of automobile parts

GASOLINE/SERVICE STATION – Business with a primary focus on fueling vehicles. May offer some ancillary repair services. Sale of goods is limited or non-existent. Does not have a car wash facility.

GASOLINE/SERVICE STATION WITH CONVENIENCE MARKET – Business with a primary focus on fueling vehicles. May offer some ancillary repair services. May sell a limited selection of food, beverages, and consumer goods. Does not have a car wash facility.

EXISITNG AUTOMOBILE RELATED USES IN DISTRICT

Citgo Gas Station at 222 N. George Street.

Liberty Gas Station at 321 S. West Street.

Amigos Auto Sales is at 130 Augustine Avenue.

Bobby's Used Cars is at 155 Augustine Avenue.

Creamers Auto Repair at 200/208 E. North Street.

NAPA Auto Parts at 213 E. North St.

All of these uses would become legally non-conforming if the amendment is adopted as proposed.

ZONING UPDATE

The Zoning and Subdivision Ordinance Committee is in the process of overhauling both Ordinances. While not yet ready for public review and comment (as both Ordinances are still in the draft phase), the changes proposed by this text amendment are in accordance with the changes proposed under the re-write.

RECOMMENDATION

Recommend Approval to City Council.

Planning Commission
101 East Washington Street
Charles Town, WV 25414

SCHEDULED

Meeting: 07/27/26
Department: Planning Commission
Category: Report
Initiator:

AGENDA ITEM (ID #)

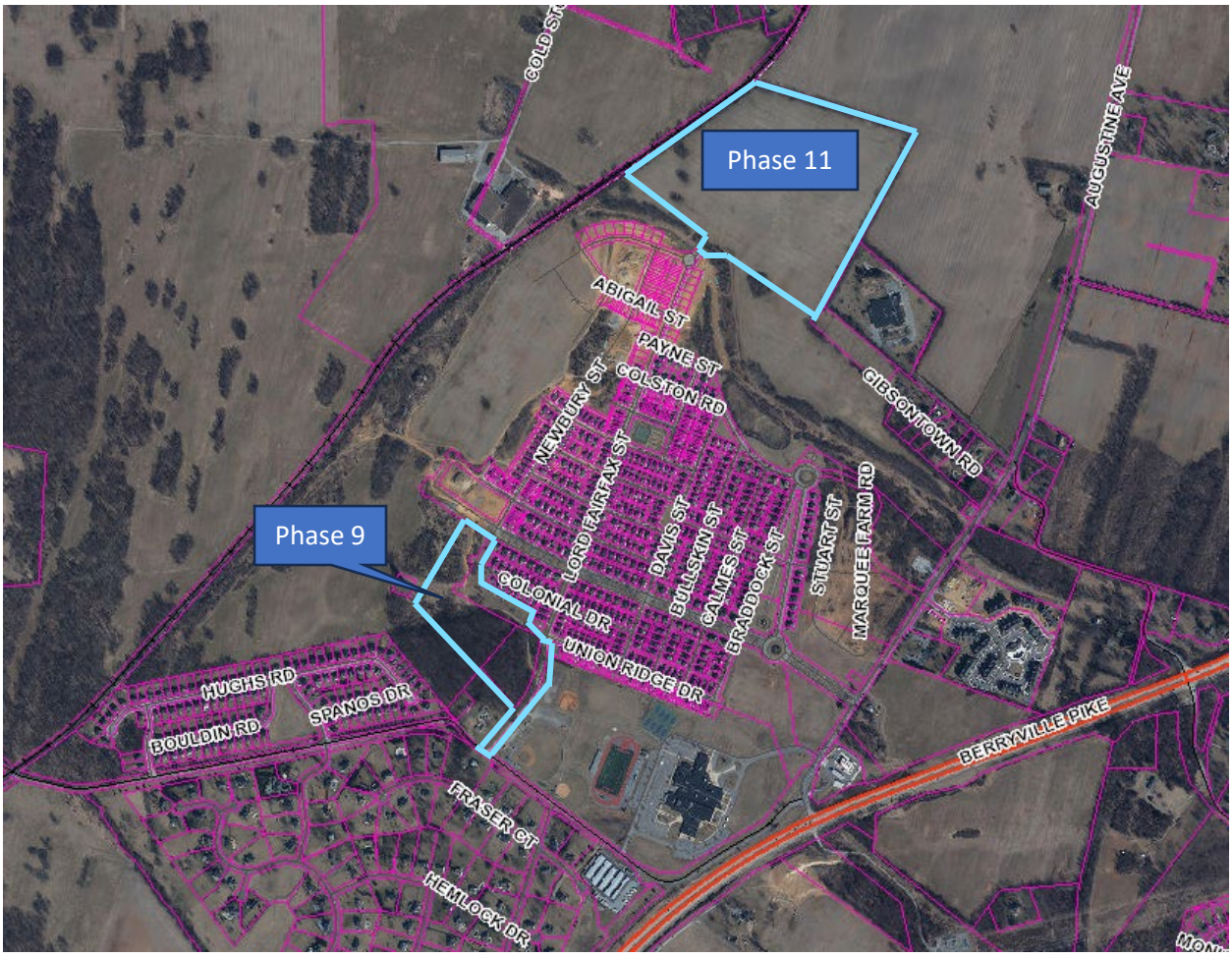
Commission Review: SLD2026-02 - Huntfield Phases 9 & 11 Sketch Plan - Completeness Review

ATTACHMENTS:

- 1. Staff Report.pdf
- 2._Application.pdf
- 3. Plan Set Revised.pdf
- 4._Huntfield_Proffers.pdf
- 5._Master_Plan.pdf

Sketch Plan Completeness Review
SLD2026-02

Date: For the July 27, 2026 Planning Commission meeting
Applicant: DR Acquisitions LLC
Property Owner: DR Acquisitions LLC
Report by: James Newman, City Planner, Zoning/Subdivision Administrator.
Proposal: Major Subdivision and Land Development.
Property Location: TD 03 / Map: 11 / Pcl 1
Current Zoning: Neighborhood Residential



PROJECT OVERVIEW

The development of 18.16 acres for 74 single-family detached lots in Phase 9, and 48.25 acres for 92 single-family detached and 93 townhomes in Phase 11.

ZONING REVIEW

The property is zoned Neighborhood Residential (NR).

COMPLETENESS REVIEW

Code Requirements for completeness, per section 1332.04.E. (Major Subdivision/Land Development):

a. Existing conditions, including boundary lines of the property

Provided.

b. A land use plan, showing the location, arrangement and approximate boundaries of all proposed land uses

Provided.

c. Vicinity Map, North arrow, scale (written and graphic) and date

Provided.

d. Names of the abutting owners, adjoining lot lines and structures on abutting lots within 100 feet of the property

Provided. The purpose of the name information is to provide for contact points when sending out mailed notice; that information is accessible to staff and the public via the Jefferson County GIS Office.

e. 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.

Provided.

f. Current zoning and total area of the property

Provided. Neighborhood Residential zoning.

g. Maximum and proposed density based on the Net Buildable Land Area

Per the applicant, Phase 9 has a Net Buildable Area of 12.08 acres, and a density of 6.1 units per acre. Phase 11 has a Net Buildable Area of 32.91 acres, and a density of 7.9 units per acre. Maximum permitted density is 10 units an acre (!6 units an acre for townhomes per the Conditions of Annexation).

h. Available utilities

Water and sewer are available through the Charles Town Utility Board, and electric is available through Potomac Edison.

i. All existing sanitary sewer facilities and combined sewer facilities
Utility layout to be provided at Preliminary Plan stage. The existing pipe locations in surrounding streets are provided.

j. Depict location or statement of proposed water and sewer supply and other utility improvements.
Utility layout to be provided at Preliminary Plan stage.

k. Existing covenants
None.

l. 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.
Provided. Typical single-family detached lot size is proposed to be 8,701 sq. ft. Typical townhome lot size is proposed to be 2,100 sq. ft. Both exceed the minimum lot size and lot width requirements.

m. Statement of total acreage of the tract being subdivided or developed, including the Net Buildable Land Area
Provided.

n. 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
Provided. Phase 9 will have 6.08 acres dedicated to right-of-way. Phase 11 will have 13.07 acres dedicated to right-of-way, 2.27 acres dedicated to stormwater management, and 9.76 acres dedicated to open space.

o. The proposed number of dwelling units of each type in each in the total development
Provided. Phase 9: 74 SFD. Phase 11: 92 SFD, 93 townhomes.

p. Location of proposed Street layout, including connections to adjoining streets or vacant lots,
Provided.

q. The location of sidewalks, trails and crosswalks, as may be applicable.
Provided. Sidewalks are provided on both sides of interior roads.

r. 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.
No open space proposed in Phase 9, open space is proposed in Phase 11 at 9.76 acres.

s. The location of environmentally sensitive land to be included in common open space.
None are identified. No portion of the Phases are within a FEMA identified floodway.

t. Notes indicating any modifications, waivers, variances, special exceptions and/or conditional uses that are required.
None requested.

u. The location and extent of proposed buffers
None proposed. None required between existing and proposed residential uses.

v. 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
Provided.

w. Calculations describing all proposed bonus factors with the location of and specifications for bonus improvements, when proposed.
No applicable bonus factors.

x. Any other information requested by the Subdivision Administrator in order for the Subdivision Administrator to make an accurate determination.
None required.

CONDITIONS OF ANNEXATION

The Phases both lie within Zone 2, which has a requirement for driveways: A 25 ft minimum driveway (as measured from the back edge of the sidewalk to the front of garage) is required for all front loading units, whether attached or detached.

At the time of the approval of the latest revisions to the COA (August 19, 2024), Phase 11 was identified as Phase 4. Item 8.S. of the COA requires that:

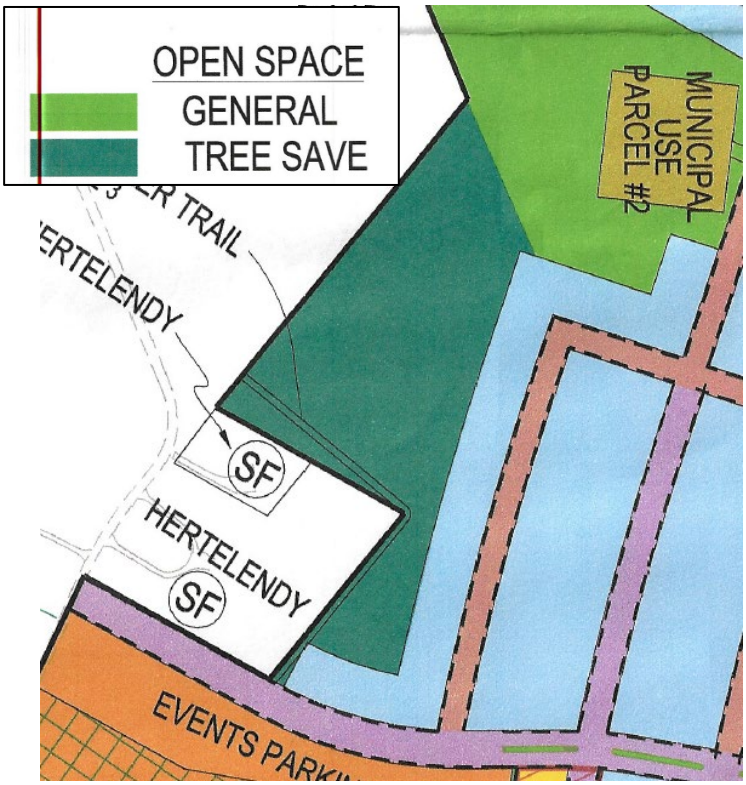
s) Huntfield will submit a "Master Schematic Plan", to City Planning Commission prior to applicable approvals for Phase 4 of the development that incorporate the "Neo Traditional and new Urbanist Concepts" and an exhibit illustrating the location, total land area and public accessibility of proposed recreational and open space. Subsequent site plans submitted to support this Master Schematic Plan will provide the detailed design and concepts as they relate to street and block networks; an interconnected pedestrian sidewalk and trail system; landscape screening, buffers and design consideration to mitigate the visual impacts of parking lots; street and parking lot landscaping using the West Virginia Division of Forestry's Recommended Trees for City and Communities publication as the species guide; and design and pedestrian attributes as related to the Village Center, major civic and public use buildings should be located in or adjacent to the village and neighborhood centers or adjacent to the civic green, square or park in the village center. Public space components and civic buildings should terminate vistas whenever possible. Public and civic use buildings may front on open spaces such as parks and greens.

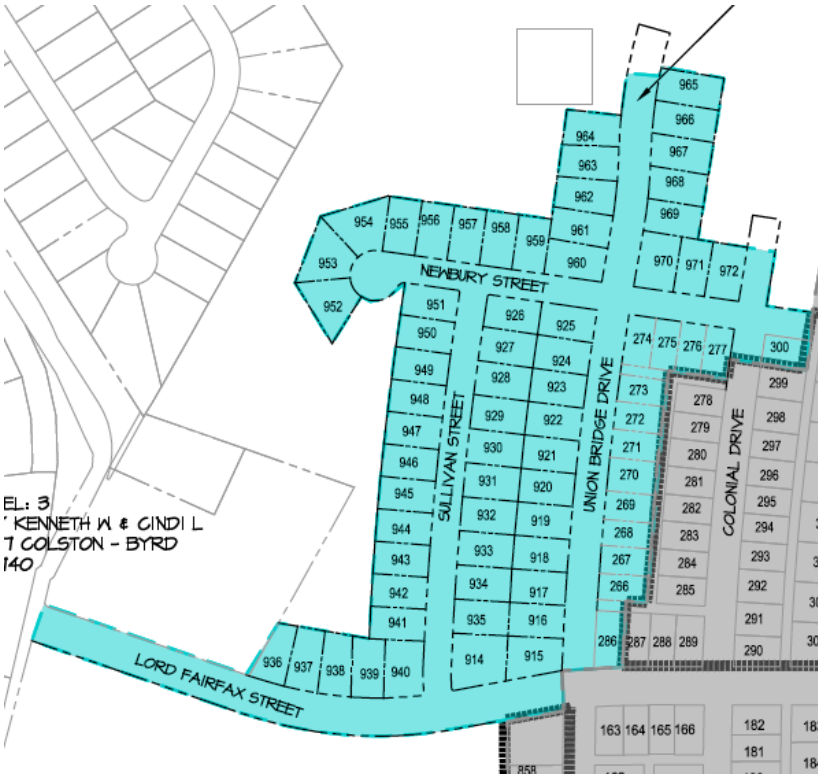
No ‘Master Schematic Plan’ has been submitted as part of this sketch application; only the standard sketch plan, requirements, and fees have been submitted. If the intention of the Master Schematic Plan is to ensure compliance with the COA and Sketch Plan requirements, all those can be met via the standard plan review process.

The applicant contends that the existing Master Plan covers this requirement, and the Master Plan changes approved on Feb. 10, 2026 also account for this plan request.

MASTER PLAN

The approved Master Plan shows an area adjacent to Phase 9 being set aside for tree preservation. The proposed plan has four lots (952-955) which cut into that:





The applicant has chosen to convert 2.78 acres from general open space to ‘Tree Save’ area to make up for the 4 lots and cul-de-sac that will encroach into the ‘Tree Save’ area. Given the general lack of existing tree cover on the site the conversion of 2.78 acres from open fields to tree preservation will have a negligible impact on the overall amount of grassy open space available to residents; the additional trees will act as visual and sound buffer for residents, and provide for wildlife habitat.

CONCLUSION

The sketch plan meets the requirements of being a complete application as provided for in Subdivision Ordinance Section 1332.03.C.2.C. The applicant has addressed all comments at this stage except for the requirement about submitting a 'Master Schematic Plan' per the proffers, the purpose of which can be met during the standard plan review process.

The Planning Commission should vote to deem the sketch plan complete, so that it may move to the public hearing phase and further sketch plan review.

MAJOR SUBDIVISION AND LAND DEVELOPMENT APPLICATION

The submission of this form, along with the prescribed information and required fees, shall serve as the Applicant's Major S/LD Application as required by Ordinance Section 1332.03.

1. SUBMISSION DATE 5/27/2026

2. APPLICATION TYPE
- [x] Sketch Plan
- [ ] Preliminary Plan
- [ ] Final Plan

3. FEES

See next page. Fee is comprised of base fee, additional fees, and legal notice fees.

Sketch and Preliminary Plans each require Class I legal notices, first class mail, and public hearing signs. Final plans are reviewed administratively.

4. SUBMITTAL PACKAGE

Please submit a paper application and one paper plan set with at least dimensions of 24" x 36", as well as a plan set in PDF format.

Fee Schedule

1. BASE FEES

- **Sketch/Preliminary** Plan Review - $300 application fee.

- **Final Plan/ Record Plat** Review Fees: $200 application fee

2. APPLICATION FEES

(1) Single principal structure on a single site - $200 filing fee
(2) < 3 Residential Buildings - $200 filing fee
(3) 3 or more Residential Buildings - $500 filing fee plus $50 per building, minimum of $2000 escrow.
(4) Manufactured (Mobile) Home Park - $500 filing fee plus $50 per dwelling unit, minimum of $2000 escrow.
(5) Commercial and Industrial Buildings - $700 filing fee plus $2000 escrow.
(6) Subdivision only – $200 filing fee

Building Addition:
(1.) Less than 2,5000 sq.ft AND less than 50% increase in impervious area - $200
(2.) More than 2,5000 sq.ft OR more than 50% increase in impervious area - $300

3. LEGAL NOTICE FEES

(1). Newspaper public notice:
A. Class I/I-0 Legal Advertisement- - $25 flat fee
B. Class II/II-0 Legal Advertisement - $50 flat fee
C. Class III/III-0 Legal Advertisement - $75 flat fee

(2). Mailed notice:
A. First class mail - $25 flat fee
B. Certified mail - $75 flat fee

(3). Signage:
A. Public notice signage - $10 flat fee

4. ADDITIONAL FEES

These fees may differ between applications depending on the level of analysis required.

- Legal review fees for zoning and site plan reviews will be will be actual costs incurred based on the -legal review.

- Water and Sewer review fees for zoning and site plan reviews will actual costs incurred based on the review.

- Third-party review fees for zoning and site plan reviews will be actual costs incurred based on the review.

3. APPLICANT'S NAME* DR Acquisitions, LLC

Address: 10313 Arnett Dr, Ste 101, Hagerstown, MD 21740

Telephone Number (240) 420-6046

Email Address _____

4. PROPERTY OWNER'S NAME DR Acquisitions, LLC

Address: 10313 Arnett Dr, Ste 101, Hagerstown, MD 21740

Telephone Number (240) 420-6046

Email Address _____

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

Property Address: _____

Tax Map # and Parcel: 03 11000100000000

Property Area in Square Feet or Acres: 284.98 Remaining Acres

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

6. FEE CALCULATION (Per Fee Schedule)

BASE: _____

APPLICATION: _____

_____

_____

_____

The City will send out invoices for 3rd party review.

LEGAL (**For sketch and preliminary only**)

MAILING TYPE: $25

LEGAL AD $25

SIGNAGE: $10

AMOUNT DUE: $_____

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

Sketch plan submission for Phases 9 & 11

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

PUD

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

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
Huntfield Overall Composite Schematic		Previously Approved	Nov. 2004

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

☑ No

☐ Yes (Please specify nature of all proceedings and current status)

_____

_____

_____

12. 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**	**Permit ID/#**	**Date of Approval/Issuance**
City of Charles Town Utility Board			
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			
Other (specify each Agency)			

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 4/9/2026

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:

At City Hall:	Or	Via Mail:
Subdivision Administrator City of Charles Town 101 E. Washington Street Charles Town, WV 25414		Subdivision Administrator City of Charles Town PO BOX 14 Charles Town, WV 25414

FOR CITY USE ONLY

Application Number:_____ Date Application Received:_____

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

Receipt No._____

Subdivision Administrator Approval/Denial:_____ Date:_____

Planning Commission Approval/Denial:_____ Date:_____

Comments/Conditions:_____

_____

_____

_____

SKETCH PLAN
HUNTFIELD PHASES 9 & 11

CHARLES TOWN CORPORATION

JEFFERSON COUNTY, WV

OVERALL GENERALIZED LAND USE SUMMARY

THE FOLLOWING SUMMARY / DENSITY IS PER APPROVED - SCHM 2003-0003 - HUNTFIELD, COMPOSITE SCHEMATIC 1 DATED:5/28/2003

Use	Required	Provided
Site Area	Min. 5 Acres	998.8 Total Acres
Existing		
Composite Schematic 1		313.3 Acres
Proposed:		
Residential (includes rights of way)	499.4 Acres	612.9 Acres
Dedicated School Parcels		74.1 Acres
Municipal Use Parcels		12.9 Acres
Active Community Centers		14.7 Acres
Open Space (Includes open space medians)	149.8 Acres	228.2 Acres
Additional Open Space Provided in School Site		38.5 Acres
Commercial (Includes 44 Live/Work Units) *See "Commercial" Section of this document	99.9 Acres	26.1 Acres

Items Required in the Zoning Ordinance	*HUNTFIELD – Overall Composite Schematic Item Submitted*
Parcels 5 acres or larger	*998.8 Acres*
Mix of uses	*Mixed-Use Development*
Compatible with surrounding uses	*Compatible with existing subdivisions*
50% of total area to be residential	*Required: 499.4 Acres* *Provided: 612.9 Acres includes ROW* ** An additional 74.1 acres not counted towards the Residential Area Requirements has been provided for school facilities* **An additional 12.9 acres not counted towards the Residential Area has been provided in Municipal Use Parcels* **An additional 14.7 acres not counted towards the Residential Area has been provided by parcels designated as Active Community Centers*
15% of area (less streets, sidewalks & drainage) in open space	*Required: 149.8 Acres* *Provided: 228.2 Acres includes open space medians* **An additional 38.5 acres of open space not counted towards the open space requirements is provided within the School Site*
Not less than 10% in office/retail * Includes 44 Live/Work Units	*Required: 99.9 Acres* *Provided: 26.1 Acres* **See "Commercial" Section of this document*
Residential Lots Provided	*1,283 Single Family* *692 Townhomes* *381 Multi-Family* *900 Age-Restricted SFD Lots (Washington Homes)* *44 Live/Work (Counted as Commercial Area)* *3,200 Total Dwelling units*

Items Required in the Zoning Ordinance	*HUNTFIELD – Overall Composite Schematic Item Submitted*
Number of lots: land area in sq. ft. / 10,000 *Note: For Townhome developments, each five (5) acres developed as townhouses constitutes 1 lot	*Required: 4,351 Lots Maximum* *Provided: 2,523 Lots* *Townhome Acreage = 74.6 acres* *Equivalent # Townhome Lots = 74.6 acres/5 = 15 Lots* *Total # Lots = (3,200 Units – 692 Townhomes) + 15 Equivalent # Townhome Lots = 2,523 Lots* *Number of Lots: 43,507,728 sq. ft. / 10,000 = 4,351 Lots*
Overall Maximum Residential Density *Note: For Townhome developments, each five (5) acres developed as townhouses constitutes 1 lot	*Required: Not to exceed 10 Units / Acre* *Provided: 2.5 Units/Acres* *Townhome Acreage = 74.6 acres* *Equivalent # Townhome Lots = 74.6 acres/5 = 15 Lots* *Total # Lots = (3,200 Units – 692 Townhomes) + 15 Equivalent # Townhome Lots = 2,523 Lots* *Overall density: 2,523 Lots / 998.8 Acres = 2.5 Units/Acres*
Maximum Density - Multi-Family	*Required:* not exceed 20 units per acre *Provided: 13.8 units/acre* *381 Units / 27.6 Acres =13.8 units/acre*
Maximum Density - Townhomes	*Required:* not exceed 10 units per acre *(modified per Huntfield proffers to 16 units/acre)* *Provided: 9.3 units/acre* *692 Townhomes / 74.6 Total Acres Including ROW = 9.3 Units/Acre*

NOTE:

THE ZONING YIELD PER THE APPROVED PROFFER AMENDMENT #3 (APPROVED 8/19/24) ALLOWS A 3,200 RESIDENTIAL UNITS OF SINGLE FAMILY DETACHED, SINGLE FAMILY ATTACHED AND MULTI-FAMILY.

LAND USE SUMMARY FOR PHASES 9 & 11

PHASE - 9

GROSS AREA = ±18.16 AC / ±791,328 SF
1. LESS SENSITIVE AREAS = N/A
2. LESS ROW = ±6.08 AC
3. LESS SWM = N/A
*NET BUILDABLE LAND AREA = ±12.08 AC

74 TOTAL LOTS
74 - SFD
COMMON OPEN SPACE AREAS = N/A

PHASE - 11

GROSS AREA = ±48.25 AC / ±2,101,845
1. LESS SENSITIVE AREAS = N/A
2. LESS ROW =±13.07 AC
3. LESS SWM = ±2.27 AC
*NET BUILDABLE LAND AREA = ±32.91 AC

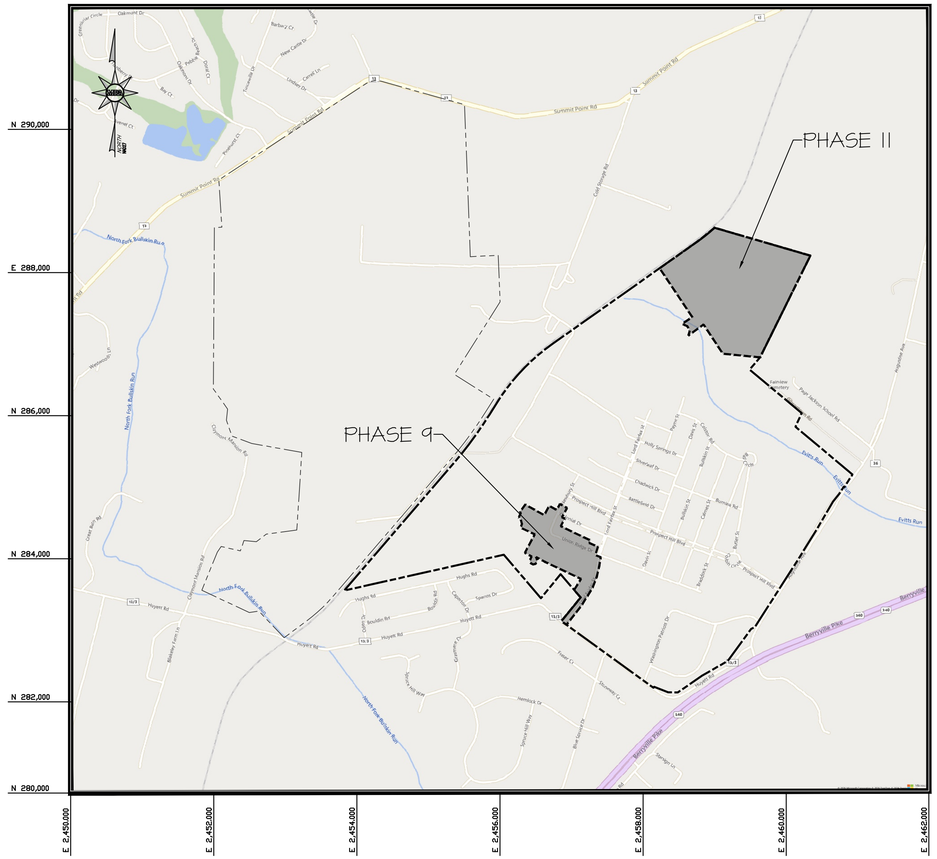
185 TOTAL LOTS
92 - SFD (SINGLE FAMILY DETACHED UNITS)
93 - SFA (SINGLE FAMILY ATTACHED UNITS)

COMMON OPEN SPACE AREAS = ±9.76 AC

*NOTES

NET BUILDABLE LAND AREA - WHEN DETERMINING THE ALLOWED DENSITY FOR ANY GIVEN LOT IN THE CITY, THE NET BUILDABLE LAND AREA OF THE SITE IS USED. NET BUILDABLE LAND AREA, FOR THE PURPOSE OF DETERMINING THE ALLOWED DWELLING UNITS FOR A SITE, SHALL BE CALCULATED BY SUBTRACTING AREAS WHERE BUILDING IS PROHIBITED OR SUBJECT TO SIGNIFICANT RESTRICTIONS FROM THE GROSS LOT AREA. THE AREA REMAINING AFTER THESE EXCLUSIONS FROM THE GROSS LOT AREA REPRESENTS THE NET BUILDABLE LAND AREA. THE FOLLOWING SHALL BE DEDUCTED FROM THE GROSS LOT AREA TO DETERMINE NET BUILDABLE LAND AREA:

1. SENSITIVE AREAS INCLUDING: TYPE I, II, III AND IV WETLANDS, RIPARIAN BUFFERS, FLOODPLAIN AREA, AND SINKHOLES;
2. PUBLIC RIGHT-OF-WAYS AND PUBLIC EASEMENTS, AND PRIVATE STREETS AND ACCESS CORRIDORS; AND
3. AREAS DEDICATED TO STORMWATER MANAGEMENT.



VICINITY MAP

SCALE : 1"= 1000'

1000 0 1000 2000 3000

Scale 1" = 1000'

OWNER / DEVELOPER
DR AQUISITIONS, LLC
225 AMENIAN OAK DRIVE
FREDERICK, MD, 21701

Sheet List Table	
Sheet Number	Sheet Title
1	COVER SHEET
2	NOTES & DETAILS
3	OVERALL PLAN
4	SKETCH PLAN (PHASE 9) – 1
5	SKETCH PLAN (PHASE 9) – 2
6	SKETCH PLAN (PHASE 11) – 1
7	SKETCH PLAN (PHASE 11) – 2

APPLICATION #	ASSOCIATED PROJECT	STATUS	APPROVAL DATE
	HUNTFIELD, PHASE 1 SCHEMATIC	APPROVED	2/11/2002
STPL 2002-0001	HUNTFIELD, PHASE 1 (SITE PLAN)	APPROVED	6/24/2002
SBRD 2002-0001	HUNTFIELD, PHASE 1 RECORD PLAT	APPROVED	7/29/2002
RPOC 2003-0001	HUNTFIELD, PHASE 1 (RECORD PLAT CORRECTION)	APPROVED	Recorded 9/9/03
	HUNTFIELD, REVISED PHASE 1&2A SCHEMATIC	APPROVED	10/22/2002
SPAM 2003-001	HUNTFIELD, PHASE 1 REVISED (SITE PLAN AMMENDMENT)	APPROVED	5/28/2003
SBDR 2003-0001/RPAM 2003-0001	HUNTFIELD, PHASE 1 REVISED (RECORD PLAT AMMENDMENT)	APPROVED	6/16/2003
SCHM 2003-0003	HUNTFIELD, COMPOSITE SCHEMATIC 1	APPROVED	5/28/2003
SPAM 2003-0002	HUNTFIELD, PHASE 1 BLOCK 1 REVISION (SITE PLAN AMMENDMENT)	APPROVED	10/27/2003
RPAM 2003-0002	HUNTFIELD, PHASE 1 BLOCK 1 REVISION (RECORD PLAT AMMENDMENT)	APPROVED	10/27/2003
STPL 2003-0001	HUNTFIELD, PHASE 2A (SITE PLAN)	APPROVED	5/28/2003
SBRD 2003-0002	HUNTFIELD, PHASE 2A RECORD PLAT	APPROVED	3/30/2004
SCHM 2003-0001	HUNTFIELD, PHASE 2B SCHEMATIC	APPROVED	2/24/2003
STPL 2003-0006	HUNTFIELD, PHASE 2B (SITE PLAN)	APPROVED	8/5/2004
SBRD 2004-0002	HUNTFIELD, PHASE 2B SECTION 1A RECORD PLAT	APPROVED	5/24/2004
SBRD 2004-0002	HUNTFIELD, PHASE 2B SECTION 1B RECORD PLAT	APPROVED	10/25/2004
STPL 2003-0009	HUNTFIELD, PHASE 3A (SITE PLAN)	APPROVED	5/24/2004
SBRD 2004-0003	HUNTFIELD, PHASE 3A SECTION 1 RECORD PLAT	APPROVED	5/24/2004
SBRD 2004-0003	HUNTFIELD, PHASE 3A SECTION 2 RECORD PLAT	APPROVED	6/28/2004
STPL 2004-0006	HUNTFIELD, PHASE 3B (SITE PLAN)	APPROVED	5/22/2006
STPL 2009-0005	HUNTFIELD, PHASE 3A BLOCK 29 REVISION	APPROVED	12/18/2009
STPL 2024-0005	HUNTFIELD, PHASE 3B REVISION	APPROVED	08/26/2024
SLD 2025-07	HUNTFIELD, PHASE 4 (SITE PLAN)	APPROVED	01/28/2026

NOTES:
1. HUNTFIELD COMPOSITE SCHEMATIC 1 (SCHM 2003-0003) REPLACED PREVIOUSLY APPROVED HUNTFIELD SCHEMATICS.
2. THE DATE LISTED FOR THE PHASE 2B SITE PLAN APPROVAL CORRESPONDS TO THE DATE THAT THE REVISED DEPARTMENT OF HIGHWAYS PERMIT WAS ISSUED WHICH COVERED THE OUTSTANDING LOTS IN HUNTFIELD 2B.

MORRIS & RITCHIE ASSOCIATES, INC.

ENGINEERS, PLANNERS, SURVEYORS, AND LANDSCAPE ARCHITECTS

205 E HIRST ROAD, SUITE 106
PURCELLVILLE, VA 20132
703-994-4047 x3103

MRAGTA.COM

REV. NO.	REVISION	DATE
#1	REVISED PER CITY OF CHARLES TOWN COMMENTS	7/24/26

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HUNTFIELD
(PHASES 9 & 11)
SKETCH PLAN
CITY OF CHARLES TOWN, WV

JOB NO.: 23593	DRAWN BY: CDS
SCALE: AS SHOWN	DESIGN BY: CDS
DATE: 04/06/26	REVIEW BY: TDH
SHEET: 1 OF 7	

SHEET TITLE
COVERSHEET

SHEET NUMBER
1

GENERAL NOTES

1. THIS SET OF DRAWINGS PERTAINS TO PHASES 9 & 11 OF HUNTFIELD, WHICH CONSISTS OF A TOTAL COMBINED SITE AREA OF ±66.41 ACRES.(PHASE 9 = 18.16 AC / PHASE 11 = 44.25 AC)

2. PHASE 9 CONTAINS, 74 SFD LOTS RESIDENTIAL LOTS. (14 LOT ARE APPROVED WITH SECTION 2B PLANS DATED:10/27/04

3. PHASE 11 CONTAINS, 92 SFD LOTS AND 93 SFA LOTS FOR A COMBINED TOTAL OF 185 RESIDENTIAL LOTS.

4. REFERENCE WAS MADE TO THE SCHEMATIC PLAN "HUNTFIELD OVERALL COMPOSITE SCHEMATIC PLAN" (SCHM 2004-0002) APPROVED APRIL 12, 2005. NOTE THAT THE "HUNTFIELD COMPOSITE SCHEMATIC" IS COMPOSED OF SEVERAL SITE PLANS. THIS SET OF PLANS PERTAINS TO A SMALL SECTION OF THE SCHEMATIC. THESE PLANS SHALL BE IN CONFORMANCE WITH THE APPROVED SCHEMATIC PLAN & ALL ZONING REQUIREMENTS INCLUDING THOSE MODIFIED IN THE HUNTFIELD PROFFERS. ALL OPEN SPACE, RESIDENTIAL, AND COMMERCIAL REQUIREMENTS SHALL CORRESPOND TO THOSE SET FORTH IN THE SCHEMATIC.

5. THE PROPERTY DELINEATED HEREON IS A PORTION OF PARCEL 1, AS SHOWN ON CHARLES TOWN CORPORATION TAX ASSESSMENT MAP 11, DEED BOOK 1263 PAGE 99, WHICH IS LOCATED AMONG THE LAND RECORDS OF JEFFERSON COUNTY

6. BOUNDARY INFORMATION, SHOWN HEREON, WAS OBTAINED FROM A PLAT SHOWING HUNTFIELD, LC PROPERTY AS RECORDED IN THE OFFICE OF THE CLERK OF THE COUNTY COMMISSION OF JEFFERSON COUNTY, WEST VIRGINIA, IN PLAT BOOK 19, PAGE 49.

7. TOPOGRAPHIC INFORMATION WAS OBTAINED FROM APPALACHIA SURVEY OF WEST VIRGINIA, LLC. BASIS FOR SURVEY WAS NAD'27-NAVD'88 AND FIELD VERIFIED BY MRA, INC.

8. THE PROPERTY SHOWN HEREON WAS ACQUIRED BY DR ACQUISITIONS AS RECORDED IN THE OFFICE OF THE CLERK OF THE COMMISSION OF JEFFERSON COUNTY, WEST VIRGINIA IN DEED BOOK 1263, PAGE 99.

9. THE HOMEOWNER'S ASSOCIATION INC. WILL BE RESPONSIBLE FOR THE MAINTENANCE OF STORM WATER DETENTION/DRAINAGE FACILITIES AND EASEMENTS. IN ADDITION THEY SHALL BE RESPONSIBLE FOR MAINTENANCE OF SIDEWALKS & STREET LIGHTS. THE WEST VIRGINIA DEPARTMENT OF HIGHWAY IS NOT RESPONSIBLE FOR MAINTENANCE OF SIDEWALKS AND STREET LIGHTS. ALL CONSTRUCTION SHALL CONFORM TO CURRENT CITY OF CHARLES TOWN, WVDOH AND SANITATION AUTHORITY STANDARDS AND SPECIFICATIONS.

10. THE APPROVAL OF THESE PLANS SHALL IN NO WAY RELIEVE THE DEVELOPER OR HIS AGENT OF ANY LEGAL RESPONSIBILITY WHICH MAY BE REQUIRED BY THE CODE OF WEST VIRGINIA OR ANY OTHER ORDINANCE ENACTED BY THE CITY OF CHARLES TOWN.

11. ALL UNDERGROUND UTILITIES WITHIN STREET RIGHT-OF-WAYS SHALL BE INSTALLED TO THE REQUIRED DISTANCE BEYOND THE RIGHT-OF-WAY LINE PRIOR TO THE INSTALLATION OF ANY SUBBASE MATERIAL, CURB AND GUTTER, OR SIDEWALK.

12. THESE PLANS MAKE NO REPRESENTATION AS TO SUBSURFACE CONDITIONS AND THE PRESENCE OF SUBSURFACE WATER OR THE NEED FOR SUBSURFACE DRAINAGE FACILITIES. ANY WELLS OR SEPTIC FIELDS WITHIN THE LIMITS OF THE SITE WILL BE ABANDONED IN PLACE.

13. ACCORDANCE WITH STATE AND LOCAL HEALTH DEPARTMENT REQUIREMENTS AND REGULATIONS PRIOR TO RECORD PLAT APPROVAL. THE SECTION DELINEATED HEREON CONTAINS NO KNOWN ARCHEOLOGICAL OR HISTORICAL LANDMARKS.

14. FINAL HOUSE AND ACCESSORY LOCATIONS ARE SUBJECT TO APPROVAL AT BUILDING PERMIT SUBMISSION.

15. PARKING FOR THIS SITE PLAN WILL BE IN COMPLIANCE WITH ALL REQUIRED REGULATIONS.

16. WETLAND INFORMATION OBTAINED FROM WETLAND DELINEATION REPORT PREPARED BY GREENHORNE AND O'MARA, INC. DATED JULY 14, 2000.

17. THE OWNER/DEVELOPER SHALL BE RESPONSIBLE FOR MAINTAINING ALL IMPROVEMENTS AND AREAS UNTIL CONVEYANCE OF THE IMPROVEMENTS TO THE HOME OWNERS ASSOCIATION OR OTHER ENTITY. UPON RELEASE FROM THE ASSOCIATED PERFORMANCE RELATED BOND OR OTHER FORM OF SURETY BOND POSTED WITH THE CITY OR COUNTY, ALL OPEN SPACE PARCELS, ALLEYS, AND OTHER COMMON ELEMENTS SHALL BE CONVEYED TO HUNTFIELD COMMUNITY ASSOCIATION, INC AT WHICH TIME THE ASSOCIATION SHALL BE RESPONSIBLE FOR THE UPKEEP OF SUCH PARCELS. REFERENCE ARTICLE IV, SECTION 4.1, 4.2 AND 4.3 OF THE DECLARATION OF COVENANTS, CONDITIONS, AND RESTRICTIONS FOR THE HUNTFIELD COMMUNITY ASSOCIATION, INC , WHICH WAS RECORDED FEBRUARY 14, 2003 IN DEED BOOK 970 AT PAGE 154.

18. ALL STREETS SHOWN WITHIN THIS PLAN WITH THE EXCEPTION OF LORD FAIRFAX STREET ARE DEFINED AS LOCAL ROADS PER THE CRITERIA LISTED IN SECTION 1333.02 OF THE SUBDIVISION / LAND DEVELOPMENT ORDINANCE.

APPROVED DEVIATIONS & WAIVERS

WAIVERS AND DEVIATIONS
APPROVED PER DEVELOPMENT PLAN & PLAT APPROVED JUNE 16, 2021
RZNG–21–013 & LDPP–21–025.

DEVIATIONS
. 5.5.2f – SETBACKS FOR PRINCIPAL BUILDINGS SHALL BE SHOWN IN TABLE 11–TABLE14 AND/OR TABLE 22 AND TABLE 23. DEVIATION TO ALLOW 7' 2" SIDE SETBACKS FOR THE SINGLE–FAMILY UNITS PROPOSED IN T3.

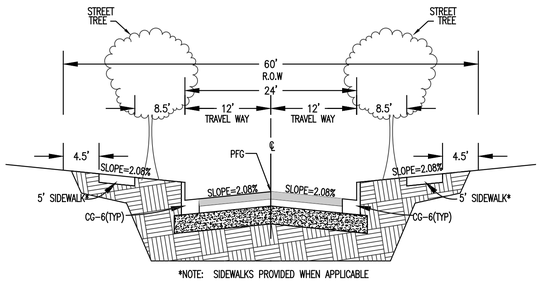
WAIVERS
3.5.4. – BLOCKS ADJACENT TO UNDEVELOPED LAND, AREAS UNSUITABLE FOR DEVELOPMENT, OR PRE–EXISTING INCOMPLETE BLOCKS MAY BE EXEMPT FROM BLOCK FACE LENGTH AND BLOCK PERIMETER REQUIREMENTS BY ADMINISTRATIVE WAIVER IN ACCORDANCE WITH 1.5.3. WAIVER TO ALLOW FOR BLOCKS ADJACENT TO UNDEVELOPED OR UNSUITABLE LAND TO BE EXEMPT FROM BLOCK PERIMETER AND BLOCK FACE LENGTH REQUIREMENTS.

SECONDARY STREETS
TYPICAL SECTION - (NO PARKING)

FOR ILLUSTRATIVE PURPOSES ONLY

FINAL SECTION DETAILS TO BE APPROVED DURING SITE PLAN REVIEW

(NOT TO SCALE)



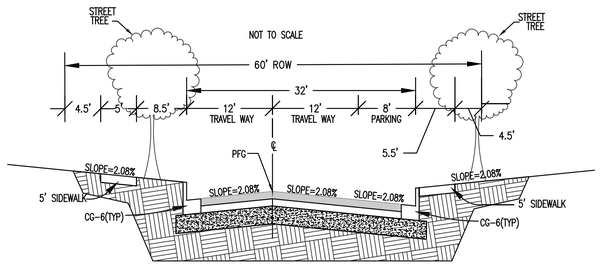
*NOTE: SIDEWALKS PROVIDED WHEN APPLICABLE

SECONDARY STREETS
TYPICAL SECTION - (PARKING ONE SIDE)

FOR ILLUSTRATIVE PURPOSES ONLY

FINAL SECTION DETAILS TO BE APPROVED DURING SITE PLAN REVIEW

(NOT TO SCALE)

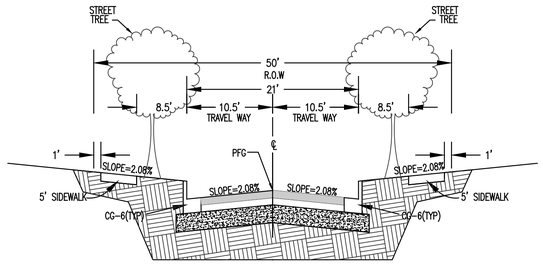


TERTIARY STREETS
TYPICAL SECTION - (NO PARKING)

FOR ILLUSTRATIVE PURPOSES ONLY

FINAL SECTION DETAILS TO BE APPROVED DURING SITE PLAN REVIEW

(NOT TO SCALE)

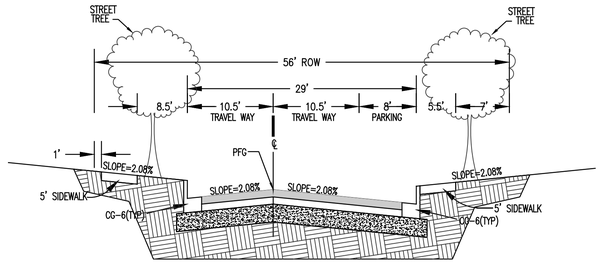


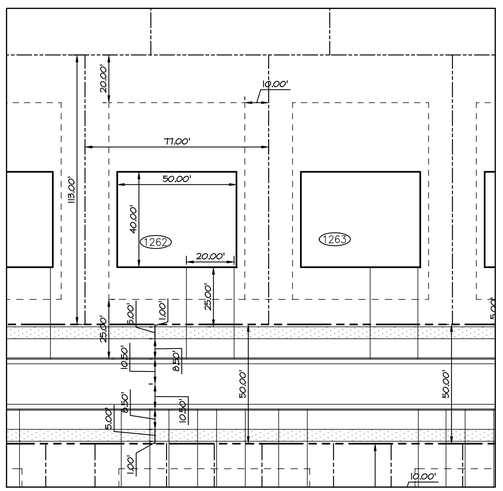
TERTIARY STREETS
TYPICAL SECTION - (PARKING ONE SIDE)

FOR ILLUSTRATIVE PURPOSES ONLY

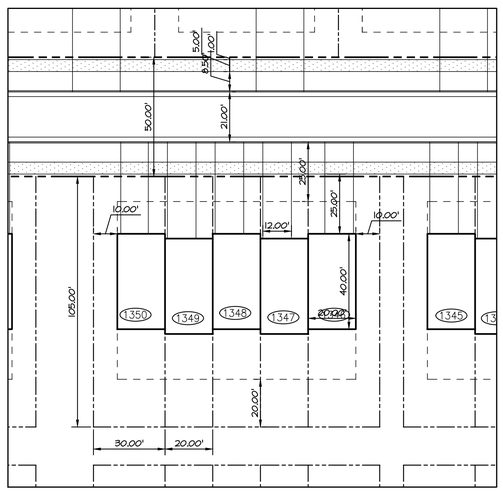
FINAL SECTION DETAILS TO BE APPROVED DURING SITE PLAN REVIEW

(NOT TO SCALE)





TYPICAL SINGLE FAMILY DETACHED LOT DETAIL
SCALE: 1"=30'



TYPICAL SINGLE FAMILY ATTACHED LOT DETAIL
SCALE: 1"=30'

ZONING INFORMATION

DISTRICT – NR (NEIGHBORHOOD RESIDENTIAL)

MODIFIED AS SET FORTH IN THE PROFFERS FOR THE HUNTFIELD DEVELOPMENT IN "LETTER OF CLARIFICATION / HUNTFIELD PROFFER STATEMENT DATED MARCH 28, 2002" & THE AMENDMENT TO THE HUNTFIELD PROFFERS DATED MAY 3, 2004, PROFFER AMENDMENT #2 DATED 8/1/05 AND PROFFER AMENDMENT #3 DATED 8/19/24

PROPOSED USES
SFD – SINGLE FAMILY DETACHED UNITS
SFA – SINGLE FAMILY ATTACHED UNITS (TOWNHOUSES)

NOTES:
1) PER "LETTER OF CLARIFICATION/HUNTFIELD PROFFER STATEMENT" DATED MARCH 28, 2002:
   a) MINIMUM LOT WIDTH SHALL BE REDUCED TO 50 FEET AT THE STREET.
   b) MINIMUM LOT AREA SHALL BE REDUCED TO 5,000 SQUARE FEET.
   c) FRONT YARD SETBACK SHALL BE 25 FEET FROM THE EDGE OF PAVEMENT.
   d) ENCROACHMENT WITHIN THE FRONT YARD SETBACK SHALL BE NO MORE THAN 30% OR 8.34 FEET. (NOTE: THE 30% VALUE APPEARS TO BE A TYPOGRAPHICAL ERROR IN THE PROFFERS THAT SHOULD BE 33%.)
   e) SIDE YARD SETBACKS SHALL BE REDUCED TO 5 FEET MINIMUM.
   f) NO SETBACK FROM THE PROPERTY LINE FOR ACCESSORY STRUCTURES SHALL BE REQUIRED.
   g) MINIMUM PAVING WIDTH SHALL BE 24 FEET.
2) PER THE CITY OF CHARLES TOWN ZONING ORDINANCE, MAXIMUM AREA OCCUPIED BY ACCESSORY STRUCTURES TO BE LESS THAN 25% OF THE REAR YARD. ACTUAL AREA OCCUPIED BY ACCESSORY STRUCTURE WILL BE BASED ON FINAL SELECTION OF TOWNHOME PRODUCT.
3) PER THE CITY OF CHARLES TOWN ZONING ORDINANCE, IMPERVIOUS SITE AREA NOT TO EXCEED REQUIREMENTS SHOWN IN THE TABLE BELOW. ACTUAL IMPERVIOUS SITE AREA TO BE BASED ON FINAL SELECTION OF AND SFD HOUSE TYPES.
4) MAX HEIGHT NOT TO EXCEED 3 STORIES OR 45 FT PER THE AMENDED HUNTFIELD PROFFERS DATED 8/19/24. ACTUAL HEIGHT BASED ON FINAL SELECTION OF HOUSE TYPE.
5) PER THE AMENDED HUNTFIELD PROFFERS DATED MAY 3, 2004, FRONT LOADING GARAGES MAY BE USED FOR NOT MORE THAN 40% OF THE TOTAL NUMBER OF GARAGES PROPOSED IN THE DEVELOPMENT.

SFD Units
** indicates items modified in proffers - see notes*

*Lot Size	Required	Provided
Min (sf)	5,000	> Minimum
*Lot Width		
Min (ft)	50'	> Minimum
Impervious Site Coverage		
Max. Gross Site Area Covered (%)	70%	*See note 3*
*Max Height		
Not to Exceed (stories/ft)	3/45	*See note 4*
*Front Setbacks	25'	25'
*Side Setbacks	5'	5'
Rear Setbacks	20'	20'
*Accessory Structures - See note 2		
No Setback Requirements - see note 1 (f).		
Corner Lots		
Shall have 2 fronts, 1 side, and 1 rear yard.		

SFA Units (Town homes)
** indicates items modified in proffers - see notes*

*Lot Size	Required	Provided
Min (sf)	1,600 SF	> Minimum
*Lot Width		
Min (ft)	16'	20'
Impervious Site Coverage		
Max. Gross Site Area Covered (%)	80%	*See note 3*
*Max Height		
Not to Exceed (stories/ft)	3/45	*See note 4*
*Front Setbacks	25'	25'
*Side Setbacks (at the end of each row)	10'	10'
Rear Setbacks	20'	20'
*Accessory Structures - See note 2		
No Setback Requirements - see note 1 (f).		

PHASE - 9
(±791,328 SF / ±18.16 AC)
74 TOTAL LOTS
74 - SFD

PHASE - 11
(±2,101,845 SF / ±48.25 AC)
185 TOTAL LOTS
92 - SFD
93 - SFA

Total Parking (Phase 9)	Required	Provided
	148	183
*Min. Parking per SFD (2 Spaces / Unit) (74) Units	148	148
**Min. Parking per SFA (1.8 Spaces / Unit) (-) Units	-	-
On-Street Parking	-	35

Total Parking (Phase 11)	Required	Provided
	351	408
*Min. Parking per SFD (2 Spaces / Unit) (92) Units	184	184
**Min. Parking per SFA (1.8 Spaces / Unit) (93) Units	167	186
On-Street Parking	-	38

NOTES:
*ASSUMES (2) PARKING SPACES PER DRIVEWAY
**ASSUMES (1) PARKING SPACE PER DRIVEWAY AND (1) PER GARAGE

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#1	REVISED PER CITY OF CHARLES TOWN COMMENTS	7/24/26

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HUNTFIELD
(PHASES 9 & 11)
SKETCH PLAN
CITY OF CHARLES TOWN, WV

JOB NO.: 23593	DRAWN BY: CDS
SCALE: AS SHOWN	DESIGN BY: CDS
DATE: 04/06/26	REVIEW BY: TDH
SHEET:	2 OF 7

SHEET TITLE
NOTES & DETAILS

SHEET NUMBER
2

NORTH NAD83

TD: 03 / MAP: II / PARCEL: 0003
OWNERSHIP: WINCHESTER GOLD STORAGE CO INC
OWNER ADDRESS: 0 PO BOX 45
CITY, STATE, ZIP: WINCHESTER , VA , 22601
LEGAL DESCRIPTION: 142.67A BYRD COLD STORAGE
DEED BOOK/PAGE: 452/0015

TD: 3 / MAP: II / PARCEL: 2
OWNERSHIP: DR ACQUISITIONS LLC
LEGAL DESCRIPTION: 481.25 AC TRACT B- BYRD
DEED BOOK/PAGE: 1263/99

TD: 03 / MAP: II / PARCEL: 0001
OWNERSHIP: DR ACQUISITIONS LLC
OWNER ADDRESS: 225 ARMENIAN OAK DR STE 101
CITY, STATE, ZIP: FREDERICK , MD , 217017091
LEGAL DESCRIPTION: 265.34 AC TRACT A - BYRD
DEED BOOK/PAGE: 1263/99

SWM

PHASE 9

PROPERTIES WITHIN 100' PROXIMITY OF PHASE 9

TD: 03 / MAP: II / PARCEL: 0NTT
OWNERSHIP: DR ACQUISITIONS LLC
OWNER ADDRESS: 225 ARMENIAN OAK DR STE 101
CITY, STATE, ZIP: FREDERICK , MD , 217017091
LEGAL DESCRIPTION: .52 AC TRACT A - BYRD
DEED BOOK/PAGE: 1263/99

TD: 02 / MAP: 15 / PARCEL: 0003
OWNERSHIP: RINDONE SALVATORE J
OWNER ADDRESS: 2009 HUYETT RD
CITY, STATE, ZIP: CHARLES TOWN , WV , 25414
LEGAL DESCRIPTION: .88 AC SINGHAS- PHALEN
DEED BOOK/PAGE: 1216/183

TD: 03 / MAP: IID / PARCEL: PARK
OWNERSHIP: SPRUCE HILL NORTH HOME OWNERS ASSOCIATION INC
OWNER ADDRESS: 835E WASHINGTON ST
CITY, STATE, ZIP: CHARLES TOWN , WV , 25414
LEGAL: DESCRIPTION: PARK SPRUCE HILL NORTH (1.24AC)
DEED BOOK/PAGE: 1119/462

TD: 03 / MAP: II / PARCEL: 0010
OWNERSHIP: MDH, CHARLES TOWN LLC
OWNER ADDRESS: 786 SPRUCE HILL WAY
CITY, STATE, ZIP: CHARLES TOWN , WV , 254144406
LEGAL DESCRIPTION: 5.49 AC HOWARD
DEED BOOK/PAGE: 1299/457

TD: 2 / MAP: 15 / PARCEL: 3
OWNERSHIP: HERTELENDY KENNETH M & GINDI L
LEGAL DESCRIPTION: 3.51 COLSTON - BYRD
DEED BOOK/PAGE: 874/140

TD: 06 / MAP: 3C / PARCEL: 0041
OWNERSHIP: MOORE THOMAS R III
LEGAL DESCRIPTION: LT #41 SPRUCE HILL
DEED BOOK/PAGE: 1182/520

TD: 06 / MAP: 3C / PARCEL: 0040
OWNERSHIP: DAVIDSON AMBER & MICHAEL
OWNER ADDRESS: 106 FRASER CT
CITY, STATE, ZIP: CHARLES TOWN , WV , 25414
LEGAL DESCRIPTION: LT #40 SPRUCE HILL
DEED BOOK/PAGE: 1254/528

TD: 06 / MAP: 3C / PARCEL: COMM
OWNERSHIP: SPRUCE HILL ESTATES HOA INC
OWNER ADDRESS: 835E WASHINGTON ST STE 105
CITY, STATE, ZIP: CHARLES TOWN , WV , 25414
LEGAL DESCRIPTION: 40.12 A OPEN SPACE & COMM
DEED BOOK/PAGE: 1031/235

TD: 03 / MAP: IIB / PARCEL: COMM
OWNERSHIP: DR ACQUISITIONS LLC
OWNER ADDRESS: 225 ARMENIAN OAK DR STE 101
CITY, STATE, ZIP: FREDERICK , MD , 217017091
LEGAL DESCRIPTION: 4.24 AC HUNTFIELD (OPEN SPACE)
DEED BOOK/PAGE: 1263/99

TD: 03 / MAP: IIE / PARCEL: PARK
OWNERSHIP: DR ACQUISITIONS LLC
OWNER ADDRESS: 225 ARMENIAN OAK DR STE 101
CITY, STATE, ZIP: FREDERICK , MD , 217017091
LEGAL DESCRIPTION: PARK UNION RIDGE TH-HUNTFIELD
DEED BOOK/PAGE: 1263/99

UNIONRIDGE TOWNHOMES (PHASE 2A-3)

TD: 3 / MAP: II / PARCEL: 6
OWNERSHIP: JEFFERSON COUNTY BOARD OF EDUCATION
LEGAL DESCRIPTION: 58.00 AC BYRD-HUNTFIELD
DEED BOOK/PAGE: 974/140

TD: 3 / MAP: II / PARCEL: I
OWNERSHIP: DR ACQUISITIONS LLC
LEGAL DESCRIPTION: 265.34 AC TRACT A - BYRD
DEED BOOK/PAGE: 1263/99

PHASE 4 REC CENTER

PHASE 2B

PHASE 3E

PHASE 3A

PHASE 4

PHASE 3B

SWM

SWM

SWM

SWM

SWM

EX. PHASES

PHASE 5A

PHASE 5B

PHASE II

TD: 3 / MAP: II / PARCEL: 4
OWNERSHIP: DR ACQUISITIONS LLC
LEGAL DESCRIPTION: 265.34 AC
TRACT A - BYRD
DEED BOOK/PAGE: 1263/99

TD: 2 / MAP: 15 / PARCEL: 11
OWNERSHIP: VENTOSA CEMETERY OF GIBSONTOWN
LEGAL DESCRIPTION: 3.5 A.- VENTOSA
DEED BOOK/PAGE: 10

TD: 2 / MAP: 17 / PARCEL: 1
OWNERSHIP: BOARD OF EDUCATION COUNTY JEFFERSON
LEGAL DESCRIPTION: 12 A.- PERRY (SOLAR SCHOOL)
DEED BOOK/PAGE: 385/526

TD: 2 / MAP: 17 / PARCEL: 1
OWNERSHIP: HILL FARM PARTNERS LLC
LEGAL DESCRIPTION: 162.75AC GEORGE SHAULL-HOPKINS
DEED BOOK/PAGE: 1315/620

PROPERTIES WITHIN 100' PROXIMITY OF PHASE II

INTERNAL ABUTTING OWNERS WITHIN 100'

PHASE - 9

LOT # 163 TD: 03 / MAP: IIB / PARCEL: 0163
OWNERSHIP: BEISNER RALPH E III & PAMELA L
OWNER ADDRESS: 228 LORD FAIRFAX ST
CITY, STATE, ZIP: CHARLES TOWN , WV , 254142607
LEGAL DESCRIPTION: LOT 163 HUNTFIELD
DEED BOOK/PAGE: 1371/650

LOT # 164 TD: 03 / MAP: IIB / PARCEL: 0164
OWNERSHIP: FARGO TIFFANY
OWNER ADDRESS: 238 LORD FAIRFAX ST
CITY, STATE, ZIP: CHARLES TOWN , WV , 25414
LEGAL DESCRIPTION: LOT 164 HUNTFIELD
DEED BOOK/PAGE: 1167/275

LOT # 165 TD: 03 / MAP: IIB / PARCEL: 0165
OWNERSHIP: BRAMHALL ANESSA D
OWNER ADDRESS: 242 LORD FAIRFAX ST
CITY, STATE, ZIP: CHARLES TOWN , WV , 25414
LEGAL DESCRIPTION: LOT 165 HUNTFIELD
DEED BOOK/PAGE: 1042/693

LOT # 278 TD: 03 / MAP: IIB / PARCEL: 0278
OWNERSHIP: KNATH KAHLIL A & JESSICA L
OWNER ADDRESS: 5030 ISTANBUL PL APT 7B
CITY, STATE, ZIP: DALLES , VA , 201845030
LEGAL DESCRIPTION: LT 278 HUNTFIELD
DEED BOOK/PAGE: 1151/450

LOT # 279 TD: 03 / MAP: IIB / PARCEL: 0279
OWNERSHIP: MELDON TERRY
OWNER ADDRESS: 225 COLONIAL DR
CITY, STATE, ZIP: CHARLES TOWN , WV , 254144420
LEGAL DESCRIPTION: LT 279 HUNTFIELD
DEED BOOK/PAGE: 1213/266

LOT # 280 TD: 03 / MAP: IIB / PARCEL: 0280
OWNERSHIP: RAIMOND SHANE & JESSICA
OWNER ADDRESS: 209 COLONIAL DR
CITY, STATE, ZIP: CHARLES TOWN , WV , 25414
LEGAL DESCRIPTION: LT 280 HUNTFIELD
DEED BOOK/PAGE: 1261/343

LOT # 281 TD: 03 / MAP: IIB / PARCEL: 0281
OWNERSHIP: BOSTIAN JENNIFER
OWNER ADDRESS: 199 COLONIAL DR
CITY, STATE, ZIP: CHARLES TOWN , WV , 25414
LEGAL DESCRIPTION: LT 281 HUNTFIELD
DEED BOOK/PAGE: 1060/21

LOT # 282 TD: 03 / MAP: IIB / PARCEL: 0282
OWNERSHIP: GOSSETT TANYA
OWNER ADDRESS: 187 COLONIAL DR
CITY, STATE, ZIP: CHARLES TOWN , WV , 254144448
LEGAL DESCRIPTION: LT 282 HUNTFIELD
DEED BOOK/PAGE: 1322/624

LOT # 283 TD: 03 / MAP: IIB / PARCEL: 0283
OWNERSHIP: FREE MARGARET M
OWNER ADDRESS: 174 COLONIAL DR
CITY, STATE, ZIP: CHARLES TOWN , WV , 254144448
LEGAL DESCRIPTION: LT 283 HUNTFIELD
DEED BOOK/PAGE: 1314/723

LOT # 284 TD: 03 / MAP: IIB / PARCEL: 0284
OWNERSHIP: HOUSLEY GREGG M & JENNIFER L CAVASINA-HOUSLEY
OWNER ADDRESS: 164 COLONIAL DR
CITY, STATE, ZIP: CHARLES TOWN , WV , 254144448
LEGAL DESCRIPTION: LT 284 HUNTFIELD
DEED BOOK/PAGE: 1216/381

LOT # 285 TD: 03 / MAP: IIB / PARCEL: 0285
OWNERSHIP: MARTINEZ SEVERIANO A JR & KATELYN D JENKINS
OWNER ADDRESS: 151 COLONIAL DR
CITY, STATE, ZIP: CHARLES TOWN , WV , 25414
LEGAL DESCRIPTION: LT 285 HUNTFIELD
DEED BOOK/PAGE: 1206/238

LOT # 286 TD: 03 / MAP: IIB / PARCEL: 0286
OWNERSHIP: DR ACQUISITIONS LLC
OWNER ADDRESS: 225 ARMENIAN OAK DR STE 101
CITY, STATE, ZIP: FREDERICK , MD , 217017091
LEGAL DESCRIPTION: LT 286 HUNTFIELD
DEED BOOK/PAGE: 1263/99

LOT # 287 TD: 03 / MAP: IIB / PARCEL: 0287
OWNERSHIP: MARTINEZ JOSE R & DANA L
OWNER ADDRESS: 221 LORD FAIRFAX ST
CITY, STATE, ZIP: CHARLES TOWN , WV , 254142608
LEGAL DESCRIPTION: LT 287 HUNTFIELD
DEED BOOK/PAGE: 1250/574

LOT # 288 TD: 03 / MAP: IIB / PARCEL: 0288
OWNERSHIP: CARDOZO EDWIN
OWNER ADDRESS: 231 LORD FAIRFAX ST
CITY, STATE, ZIP: CHARLES TOWN , WV , 25414
LEGAL DESCRIPTION: LT 288 HUNTFIELD
DEED BOOK/PAGE: 1260/148

LOT # 289 TD: 03 / MAP: IIB / PARCEL: 0289
OWNERSHIP: MESSINA GEORGE JR & RENE K
OWNER ADDRESS: 244 LORD FAIRFAX ST
CITY, STATE, ZIP: CHARLES TOWN , WV , 25414
LEGAL DESCRIPTION: LT 289 HUNTFIELD
DEED BOOK/PAGE: 1256/446

LOT # 247 TD: 03 / MAP: IIB / PARCEL: 0247
OWNERSHIP: BASS JACK L III & GRACE F
OWNER ADDRESS: 220 COLONIAL DR
CITY, STATE, ZIP: CHARLES TOWN , WV , 254144419
LEGAL DESCRIPTION: LT 247 HUNTFIELD
DEED BOOK/PAGE: 1265/363

LOT # 248 TD: 03 / MAP: IIB / PARCEL: 0248
OWNERSHIP: BROWN AMANDA B
OWNER ADDRESS: 228 COLONIAL DR
CITY, STATE, ZIP: CHARLES TOWN , WV , 25414
LEGAL DESCRIPTION: LT 248 HUNTFIELD
DEED BOOK/PAGE: 1264/341

LOT # 249 TD: 03 / MAP: IIB / PARCEL: 0249
OWNERSHIP: MATTOS ANA ROSARIO & RICARDO
OWNER ADDRESS: 240 COLONIAL DR
CITY, STATE, ZIP: CHARLES TOWN , WV , 25414
LEGAL DESCRIPTION: LT 249 HUNTFIELD
DEED BOOK/PAGE: 1227/28

LOT # 300 TD: 03 / MAP: IIB / PARCEL: 0300
OWNERSHIP: DR ACQUISITIONS LLC
OWNER ADDRESS: 225 ARMENIAN OAK DR STE 101
CITY, STATE, ZIP: FREDERICK , MD , 217017091
LEGAL DESCRIPTION: LT 300 HUNTFIELD
DEED BOOK/PAGE: 1263/99

LOT # 301 TD: 03 / MAP: IIB / PARCEL: 0301
OWNERSHIP: PEARSON MATTHEW & MARY E
OWNER ADDRESS: 604 PROSPECT HILL BLVD
CITY, STATE, ZIP: CHARLES TOWN , WV , 254145550
LEGAL DESCRIPTION: LT 301 HUNTFIELD
DEED BOOK/PAGE: 1194/490

LOT # 302 TD: 03 / MAP: IIB / PARCEL: 0302
OWNERSHIP: GOLDEN JUDY & CLARA
OWNER ADDRESS: 591 PROSPECT HILL BLVD
CITY, STATE, ZIP: CHARLES TOWN , WV , 25414
LEGAL DESCRIPTION: LT 302 HUNTFIELD
DEED BOOK/PAGE: 1210/50

LOT # 858 TD: 03 / MAP: IIE / PARCEL: 0858
OWNERSHIP: DAN RYAN BUILDERS WEST VIRGINIA LLC
OWNER ADDRESS: 2049 GAITHER RD STE 600
CITY, STATE, ZIP: ROCKVILLE , MD , 208504018
LEGAL DESCRIPTION: 4052 UNION RIDGE TH-HUNTFIELD
DEED BOOK/PAGE: 1216/527

LOTS # 913 & LOT # 914
TD: 03 / MAP: II / PARCEL: 0001
OWNERSHIP: DR ACQUISITIONS LLC
OWNER ADDRESS: 225 ARMENIAN OAK DR STE 101
CITY, STATE, ZIP: FREDERICK , MD , 217017091
LEGAL DESCRIPTION: 265.34 AC TRACT A - BYRD
DEED BOOK/PAGE: 1263/99

PHASE - II

LOT # 481 TD: 03 / MAP: IIF / PARCEL: 0481
OWNERSHIP: DRB GROUP WEST VIRGINIA LLC
OWNER ADDRESS: 2049 GAITHER RD STE 600
CITY, STATE, ZIP: ROCKVILLE , MD , 208504018
LEGAL DESCRIPTION: LOT 481 HUNTFIELD
DEED BOOK/PAGE: 1342/229

LOT # 482 TD: 03 / MAP: IIF / PARCEL: 0482
OWNERSHIP: DRB GROUP WEST VIRGINIA LLC
OWNER ADDRESS: 2049 GAITHER RD STE 600
CITY, STATE, ZIP: ROCKVILLE , MD , 208504018
LEGAL DESCRIPTION: LOT 482 HUNTFIELD
DEED BOOK/PAGE: 1343/654

LOT # 483 TD: 03 / MAP: IIF / PARCEL: 0483
OWNERSHIP: DRB GROUP WEST VIRGINIA LLC
OWNER ADDRESS: 2049 GAITHER RD STE 600
CITY, STATE, ZIP: ROCKVILLE , MD , 208504018
LEGAL DESCRIPTION: LOT 483 HUNTFIELD
DEED BOOK/PAGE: 1341/88

LOT # 484 TD: 03 / MAP: IIF / PARCEL: 0484
OWNERSHIP: DRB GROUP WEST VIRGINIA LLC
OWNER ADDRESS: 2049 GAITHER RD STE 600
CITY, STATE, ZIP: ROCKVILLE , MD , 208504018
LEGAL DESCRIPTION: LOT 484 HUNTFIELD
DEED BOOK/PAGE: 1342/224

OWNERSHIP: WINCHESTER GOLD STORAGE CO INC
LEGAL DESCRIPTION: 142.67A BYRD COLD STORAGE
DEED BOOK/PAGE: 452/15

300 0 300 600 900
Scale 1" = 300'

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HUNTFIELD
(PHASES 9 & 11)
SKETCH PLAN
CITY OF CHARLES TOWN, WV

JOB NO.: 23593	DRAWN BY: CDS
SCALE: AS SHOWN	DESIGN BY: CDS
DATE: 04/06/26	REVIEW BY: TDH
SHEET: 3 OF 7	

SHEET TITLE
OVERALL

SHEET NUMBER
3

NOTES:

LOTS #s EX.266-277 & EX. 286, WERE PREVIOUS APPROVED WITH PHASE 2B STPL 2003-0006 AND ARE NOW INCORPORATED IN THE PHASE 9

EX. 300

EX. ALLEY 2B19

EX. NEWBURY STREET

EX. COLONIAL DRIVE

EX. ALLEY 2A18

EX. ALLEY 2B18

EX. ALLEY 2C18

EX. LORD FAIRFAX STREET

EX.277 EX.276 EX.275 EX.274 EX. 273 EX.272 EX.271 EX.270 EX.269 EX.268 EX.267 EX.266 EX.286

UNION RIDGE DRIVE

EX. UNION RIDGE DRIVE

NEWBURY STREET

SULLIVAN STREET

LORD FAIRFAX STREET

965 966 967 968 969 970 971 972

964 963 962 961 960

959 958 957 956 955 954 953 952

925 924 923 922 921 920 919 918 917 916 915

926 927 928 929 930 931 932 933 934 935 914

951 950 949 948 947 946 945 944 943 942 941

940 939 938 937 936

±2.78 AC OF GENERAL OPEN SPACE CONVERTED TO TREE SAVE AREA

SEE SHEET #3 FOR LOCATION OF SWM FACILIY ASSOCIATED WITH THIS PHASE & LIST OF ADJACENT OWNERS WITHIN 100' OF PHASE LIMITS

±5.02 AC OF TREE SAVE AREA PER APPROVED SCHM 2003-0003

N40°37'42"W 430.05'

S39°16'43"W 434.25'

MATCHLINE (SEE SHEET 5)

TREE SAVE AREA NOTE:

THE TREE SAVE AREA FOR PHASE 9 IS 6.8 ACRES. THE PROPOSED TREE SAVE AREA SHOWN IS APPROXIMATELY 7.8 ACRES; HOWEVER, IT MAY BE ADJUSTED OR REDUCED AS NECESSARY TO ACCOMMODATE FINAL ENGINEERING DESIGN.

50 0 50 100 150

Scale 1" = 50'

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HUNTFIELD
(PHASES 9 & 11)
SKETCH PLAN
CITY OF CHARLES TOWN, WV

JOB NO.: 23593	DRAWN BY: CDS
SCALE: AS SHOWN	DESIGN BY: CDS
DATE: 04/06/26	REVIEW BY: TDH
SHEET: 4 OF 7	

SHEET TITLE

SKETCH PLAN (PHASE 9) - 1

SHEET NUMBER

4

UNION RIDGE DRIVE

UNION RIDGE DRIVE

SULLIVAN STREET

NEWBURY STREET

LORD FAIRFAX STREET

964 963 962 961 960

959 958 957 956 955 954 953 952

925 924 923 922 921 920 919 918 917 916 915

926 927 928 929 930 931 932 933 934 935 914

951 950 949 948 947 946 945 944 943 942 941 940

939 938 937 936

±2.78 AC OF
GENERAL OPEN SPACE
CONVERTED TO
TREE SAVE AREA

±5.02 AC OF
TREE SAVE AREA
PER APPROVED
SCHM 2003-0003

SEE SHEET #3 FOR
LOCATION OF SWM
FACILITY ASSOCIATED WITH
THIS PHASE & LIST OF
ADJACENT OWNERS WITHIN
100' OF PHASE LIMITS

MATCHLINE
(SEE SHEET 4)

TREE SAVE AREA NOTE:

THE TREE SAVE AREA FOR PHASE 9 IS 6.8 ACRES. THE PROPOSED TREE SAVE AREA SHOWN IS APPROXIMATELY 7.8 ACRES; HOWEVER, IT MAY BE ADJUSTED OR REDUCED AS NECESSARY TO ACCOMMODATE FINAL ENGINEERING DESIGN.

N40°37'47"W
430.05'

S38°16'43"W
434.25'

N40°31'05"W
799.49'

N39°12'15"E
425.48'

FX. HUYETT ROAD

50 0 50 100 150
Scale 1" = 50'

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REV/REQ	#	REVISION	DATE
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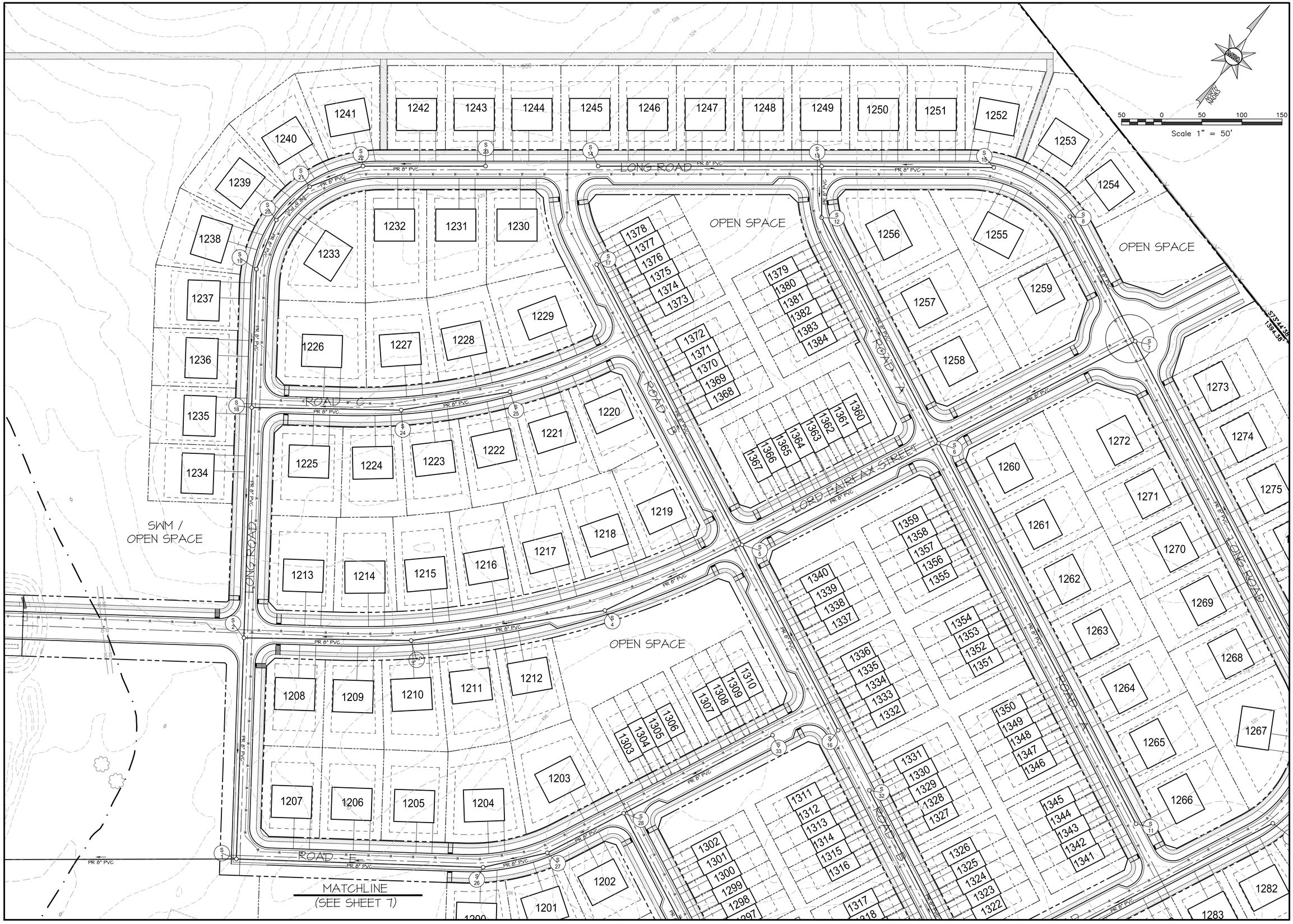
HUNTFIELD
(PHASES 9 & 11)
SKETCH PLAN
CITY OF CHARLES TOWN, WV

JOB NO.: 23593	DRAWN BY: CDS
SCALE: AS SHOWN	DESIGN BY: CDS
DATE: 04/06/26	REVIEW BY: TDH
SHEET: 5 OF 7	

SHEET TITLE
SKETCH PLAN (PHASE 9) - 2

SHEET NUMBER
5



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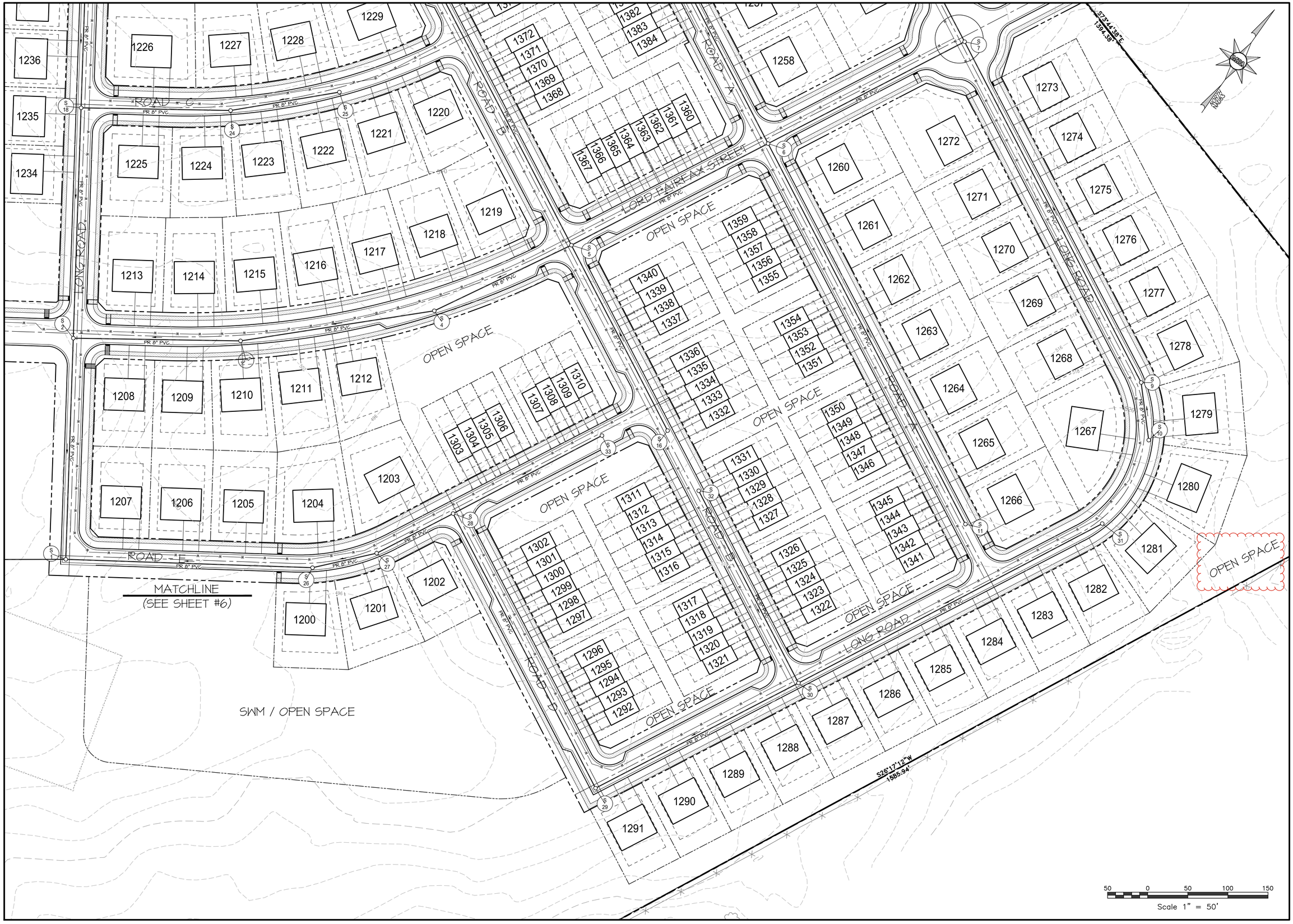
HUNTFIELD
(PHASES 9 & 11)
SKETCH PLAN
CITY OF CHARLES TOWN, WV

JOB NO.: 23593	DRAWN BY: CDS
SCALE: AS SHOWN	DESIGN BY: CDS
DATE: 04/06/26	REVIEW BY: TDH
SHEET: 6 OF 7	

SHEET TITLE
SKETCH PLAN (PHASE 11) - 1

SHEET NUMBER
6



MRA

MORRIS & RITCHIE ASSOCIATES, INC.

ENGINEERS, PLANNERS, SURVEYORS, AND LANDSCAPE ARCHITECTS

205 E HIRST ROAD, SUITE 106
PURCELLVILLE, VA 20132
703-994-4047 x3103

MRAGTA.COM

REV. NO.	REVISION	DATE
#1	REVISED PER CITY OF CHARLES TOWN COMMENTS	7/24/26

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HUNTFIELD
(PHASES 9 & 11)
SKETCH PLAN
CITY OF CHARLES TOWN, WV

JOB NO.: 23593	DRAWN BY: CDS
SCALE: AS SHOWN	DESIGN BY: CDS
DATE: 04/06/26	REVIEW BY: TDH
SHEET: 7 OF 7	

SHEET TITLE

SKETCH PLAN (PHASE 11) - 2

SHEET NUMBER

7

Huntfield List of Proffers

Proffer Amendment 3

Approval Date 8/19/24

Original Proffers: Jan 7, 2002

Resolution for Amendment of Proffers 1 - May 17, 2004

Proffer Amendment 2 - August 1, 2005

Proffer Amendment 3 – August 19, 2024

1) EDUCATION- Huntfield, proffers to dedicate up to 17 acres of land to Jefferson County Board of Education. The land proposed to be donated to the Jefferson County Board of Education shall be identified via conceptual plan within one (1) year of the effective date of this document.

2) TRANSPORTATION- Huntfield, will maintain its commitment to participate with the West Virginia Division of Highways and other developments to pay for Huntfield's pro rata share of required road improvements directly attributable in part to Huntfield.

3) HISTORY- Huntfield proffers to provide any historic or archeologic reports and studies, as required by the State Historic Preservation Office, Division of Culture and History.

4) SOILS – "Huntfield proffers to identify and remediate any known environmental conditions in any manner, method or process that meets or exceeds West Virginia Department of Environmental Protection (WVDEP) de minimus soils standards and provide the report/documentation to the purchaser indicating proper soil remediation no later than at each home settlement.

5) OVERALL PLANNING

   a) Huntfield proffers to actively participate with the City and adjacent landowners in the comprehensive planning, preservation, and development of the Old Route 340 corridor between Huntfield's boundaries and Evitt's Run.

   b) Huntfield proffers to construct a 8' hiker/biker trail in a location in accordance with the Master Plan and within a timeframe in accordance with the mutual agreement of the city and Huntfield.

      i) A contiguous sidewalk system from Huntfield to the Augustine Avenue Trail shall be constructed.

   c) Huntfield proffers continued participation and coordination with the Eastern Panhandle Transportation Authority (EPTA) to provide bus service between Huntfield and downtown Charles Town, and any other major Charles Town developments. Huntfield shall further present development site plans which incorporate shuttle stops and other appropriate shuttle infrastructure in the Huntfield project.

   d) Within 12 months of the full execution of this proffer amendment, Huntfield shall collect and distribute community information and future traffic volume projections and relevant data to the City, to incorporate into other/future traffic studies conducted by others.

i) Additionally, Huntfield shall cooperate with the City to provide all necessary construction easements or Right of Ways for current and future planned trails, walkways, and pedestrian crossings.

e) Lord Fairfax Street shall be developed as an alternative access point pursuant to the Huntfield Overall Composite Schematic plan with City of Charles Town Planning Commission approval date of April 12, 2005 (PREL-20107).

6) OTHER CONTRIBUTIONS- To offset its proportionate share of the costs of capital improvements and operating expenses brought about by the development of Huntfield, Huntfield proffers to pay the city the following per unit proffer fees:

a) The City shall collect $2,448 per single family, townhome or attached villa style dwelling unit, or any other style residence approved for permit, to be used for public facilities, infrastructure, and other improvements within the City. This monetary proffered fee shall be separate and exclusive of any County imposed Impact Fee. The City Fee shall be paid at Building Permit application for each dwelling unit.

b) Huntfield proffers to dedicate to the City up to 10 (ten) acres of improved (utilities and hard surface road frontage) but vacant land, for the use and benefit of the City for the purpose of constructing, operating, and maintaining municipal facilities.

7) CONDITIONS OF DEVELOPMENT OF PHASE I – The foregoing proffers are conditioned upon the following:

a) Current plans being processed in the County will be administered under the NR Zoning Ordinance, and accepted as currently designed, by the City with the following conditions:

i) Minimum lot width shall be reduced to 50 feet at the street.
ii) Minimum lot area shall be reduced to 5,000 square feet.
iii) Front yard setback shall be 25 feet from the edge of pavement.
iv) Encroachment within the front yard setback shall be no more than 30% or 8.34 feet.
v) Side yard setbacks shall be reduced to 5 feet minimum.
vi) No setback from the property line for accessory structures shall be required.
vii) Minimum paving width shall be 24 feet.

b) All plans submitted to the City for development within Huntfield beyond Phase I shall continue to be administered and processed under the NR Zoning Ordinance with the above-listed conditions until such time as the City has created and adopted the new zoning classification pursuant to its Resolution and Annexation Agreement.

8) CONDITIONS OF OVERALL DEVELOPMENT

The City and Huntfield agree to the following performance, design standards, and modifications to the Neighborhood Residential zoning regulations:

Huntfield List of Proffers

Proffer Amendment 3

Approval Date 8/19/24

The foregoing proffers are further conditioned upon the following:

a) To allow the development of not more than 3,200 homes with the Property, according to "Neo Traditional and New Urbanist Planning Concepts." (*While Neo-Traditional Development often features primarily rear loaded homes, the intent of this agreement is to allow front loaded homes in designated areas so long as the development, as a whole, is in keeping with Neo-Traditional design including, but not limited to, walkability, connectivity, mixed-houses, quality architecture and design, urban design, increased density, and open space.*) Note, this is not an all-inclusive or exhaustive list of the characteristics of neo-traditional style but is used to illustrate the larger development style. All plans for the development of the Property now and in the future may be administered, at the option of Huntfield, under the Neighborhood Residential zoning classification with the following conditions:

b) The minimum 200,000 square feet of commercial, retail or office space proffered by Huntfield shall satisfy all requirements for land are devoted to office and/or commercial. This agreement does not preclude Huntfield from developing commercial/retail/office space beyond the 200,000 square feet requirements;

c) Huntfield will dedicate 15% of the total land area to open and recreational space. All active and passive recreational facilities provided in Huntfield shall be credited towards the 15% open space requirements specified herein. In addition, Huntfield will provide a minimum 50-foot buffer on either side of Bullskin Run measured from the edge of the stream bank and a landscaped 50-foot buffer along major highways (i.e. US Route 340, 340 Bypass, WV Route 9).

d) Maximum Building Heights shall be as follows:

   i) Single Family Detached - 45' (forty-five feet), but not more than (3) three stories

   ii) Townhouse - 45' (forty-five feet), but no more than 4 (four) stories Multi-Family - 55' (fifty-five feet), but not more than 4 (four) stories

   iii) Office, Commercial, Civic and Mixed Use – 60' (sixty feet), but not more than (5) five stories

e) Minimum Lot Widths shall be as follows:

   i) Single Family Detached - 50' (fifty-feet), however 45' (forty-five feet) for Active Adult Community (development)

   ii) Townhouses – Mix of 16' (sixteen feet) to 24' (twenty-four feet);

f) Minimum Lot Sizes shall be as follows:

i) Single Family Detached – 5,000 (five thousand square feet), however 4,500 (forty-five hundred square feet) for Active Adult Community (development)

ii) Townhouses – 1,600 square feet;

g) Townhouse portions of development shall be permitted to have an area less than five acres;

h) Townhouse units shall be permitted at a maximum density of 16 units per net acre;

i) Multi-family units, as defined in the City's zoning ordinances, shall be permitted within Huntfield consistent with the City of Charles Town Zoning and Subdivision Ordinance requirements.

j) The minimum rear yard setback for units with attached rear-load garages shall be 10' (ten feet);

k) Alleys may be dead-end streets when intersection would cause a curb cut on a collector street;

l) Alleys may provide lot access and satisfy road frontage requirements when the lots served by those alleys front on open space;

m) Cul-de-sac streets shall be permitted in limited instances and require approval by the Planning Commission. When allowed, the cul-de-sac terminus shall include a landscaped circle.

n) The designated Village Center shall be permitted for Central Business District, General Commercial and Neighborhood Residential uses as defined in the present City of Charles Town Zoning Ordinance. The designed Neighborhood Centers shall be permitted for Office Residential, Neighborhood Residential and Neighborhood Commercial uses as defined in the present City of Charles Town Zoning Ordinance. Future changes in the existing Zoning Ordinances shall be made Applicable to this paragraph.

o) In order to allow townhouses to be constructed with both decks and two-car garages, accessory buildings may occupy up to 40% of the rear yard of any townhouse lot.

p) The development of gated communities (i.e. restricted access to specific neighborhoods) is not permitted, other than Active Adult Development.

q) To enable Huntfield to perform its obligations under the Annexation Agreement, the City shall work cooperatively with Huntfield to ensure that Huntfield may obtain the amount of sewage treatment plant capacity needed to serve the Property at each stage of its development until built out.

r) In addition to the proffered commitment to approach Pan Tran to provide bus services between Huntfield and downtown Charles Town, Huntfield shall cooperate with any efforts initiated by the City to provide transit services to Huntfield.

s) Huntfield will submit a "Master Schematic Plan", to City Planning Commission prior to applicable approvals for Phase 4 of the development that incorporate the "Neo Traditional and new Urbanist Concepts" and an exhibit illustrating the location, total land area and public accessibility of proposed recreational and open space. Subsequent site plans submitted to support this Master Schematic Plan will provide the detailed design and concepts as they relate to street and block networks; an interconnected pedestrian sidewalk and trail system; landscape screening, buffers and design consideration to mitigate the visual impacts of parking lots; street and parking lot landscaping using the West Virginia Division of Forestry's Recommended Trees for City and Communities publication as the species guide; and design and pedestrian attributes as related to the Village Center, major civic and public use buildings should be located in or adjacent to the village and neighborhood centers or adjacent to the civic green, square or park in the village center. Public space components and civic buildings should terminate vistas whenever possible. Public and civic use buildings may front on open spaces such as parks and greens.

t) Garage Configuration:

The areas shaded and/or hatched and noted in Exhibit A as Zone 1, Zone 2, and Zone 3 are subject to specific garage configuration conditions as follows:

i) **Zone 1**: The use of rear entry, alley access parking or rear-loading detached or attached garages for residential garage parking is required. The homes in Zone 1 must provide parking to the rear of the home as indicated in Exhibit A.

ii) **Zone 2**: Single family attached or detached residential units with front loading garages or parking (defined as access from street facing front of the home) are permitted without a recessed garage requirement so long as a minimum 25' length minimum driveway is provided extending from back of sidewalk to the front of the garage. Zone 2 includes all land shown/illustrated within Exhibit A.

iii) **Zone 3**: Single family attached or detached residential units with front loading garages or parking (defined as access from the street facing front of the home) are permitted without a recessed garage requirement so long as a minimum 25' length minimum driveway is provided extending from back of sidewalk to the front of the garage. Zone 3 includes all the land as noted (and not illustrated) within Exhibit A to include the remaining 481.25 deeded acres to the northwestern side of railroad tracks.

v. Community Pool and Associated Facilities:

iv) Huntfield proffers the design, permitting, and construction of a community swimming pool, pool club house with bathroom facilities and associated parking lot in similar layout

and conformance with the Huntfield Recreation Center preliminary plans (PP-20125).

(1) Community Pool shall be a minimum of 4,500+ /sf, inclusive of access steps, 3' shallow end and up to 8' deep end, and a 800+ /sf Children's pool.

(2) Single Story Pool clubhouse (min 2,100/sf) with men's and women's restroom, locker room, and changing room facilities.

(3) Parking area consistent with approved preliminary plans.

(4) Pool and associated land and facilities shall be dedicated to HOA upon completion (defined as issuance of Use & Occupancy Permit) and before use by any residents. HOA shall furnish, supply, operate, and manage facilities from acceptance of facility without financial assistance or contribution from Developer or City.

(5) The Pool, Clubhouse and all associated site work shall be complete, dedicated to the HOA, and able to be used by all residents within two (2) years of the effective date of this signed Proffer Amendment.

(6) All basketball courts, recreational equipment and green space shall be built out consistent with the Huntfield Recreation Center preliminary plans (PP-20125). The construction of the basketball courts and recreational equipment shall commence no later than the time the pool dedication occurs to the HOA and completed and ready for usage within one (1) year.

9) ZONING YIELD

a) Approved under the zoning shall be 3,200 residential units of single family detached, single family attached, multi-family, and 200,000 to 1,000,000 square feet commercial, retail, and office development. If desired, Huntfield may produce a market study identifying the potential to increase the total square footage of commercial, retail and office space beyond the required minimum of 200,000 square feet. In order to achieve the desired maximum commercial development of 1,000,000 square feet, the City acknowledges that Floor Area Ratios (FAR's) of greater than 1 or building heights of 75 feet may be considered by the City of Charles Town.

b) Phasing of development or building permits – No phasing of development or building permits will be imposed with the exception of Article 10.a as outlined herein. (Subject to availability of adequate infrastructure facilities).

10) SEQUENCE OF DEVELOPMENT

a) All lots in Zone 1 as defined herein, shall have homes/residences constructed and fully built out prior to any residential construction is permitted to commence in Zone 3 (as defined herein). All land within Zone 2 is specifically excluded from this restriction.

Huntfield List of Proffers

Proffer Amendment 3

Approval Date 8/19/24

Proffer Amendment 3 Adopted by Council the 19th day of August, 2024

Robert M. Trainor
Mayor

John Nissel
City Manager/Clerk

Dan Ebersole
DR Acquisitions, LLC, Manager

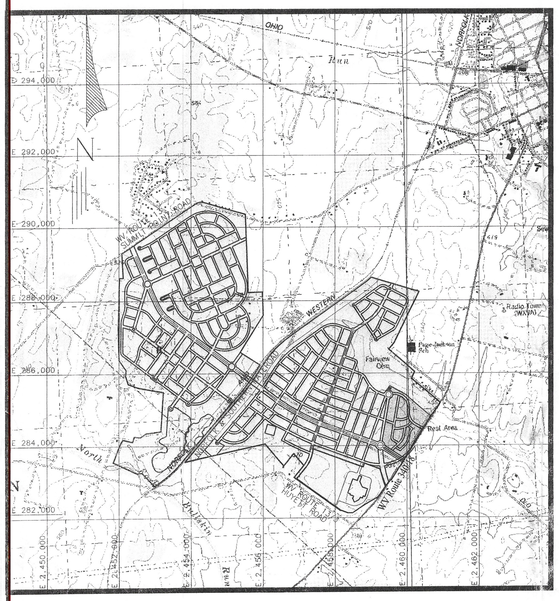
SCHEMATIC PLAN
HUNTFIELD - OVERALL COMPOSITE SCHEMATIC
TAX MAP 11, PARCEL 1 & PARCEL 2
HUNTFIELD, L.C. - DEED BOOK 949 PAGE 203
CHARLES TOWN CORPORATION
JEFFERSON COUNTY, WV

OWNER / DEVELOPER

HUNTFIELD, L.C.
8614 WESTWOOD CENTER DRIVE, SUITE 900
VIENNA, VIRGINIA 22182
703-442-8992

VICINITY MAP

SCALE : 1"= 2000'



SBRD 2004-0003	Huntfield Phase 3A Section 1 Record Plat	Approved	5/24/2004
SBRD 2004-0003	Huntfield Phase 3A Section 2 Record Plat	Approved	6/28/2004
STPL 2004-0006	Huntfield Phase 3B (Site Plan)	In Review	
STPL 2004-0007	Huntfield Phase 3C (Site Plan)	In Review	

SCHEMATIC PLAN REQUIREMENTS AND SUBMISSION

The following table compares submission requirements of the zoning ordinance for Neighborhood Residential schematic plans (@Article 8A c) 1.b.) and items submitted as the Huntfield Overall Composite Schematic.

Table 1

Items Required in the Zoning Ordinance	*HUNTFIELD Item Submitted*
Indicate the existing parcel	*base map with property lines, parcels, sizes*
Natural existing features, contours @ 10' intervals	*topography and natural feature map*
Surrounding uses	*map of surrounding uses and existing streets*
Proposed general land use	*proposed general land use map*
Circulation patterns	*existing permitted/constructed entrances, circulation, open space distribution overlay map*

LAND AREA

The total area of the Huntfield, Overall Composite Schematic within the City is 998.8 acres. This area includes the previously approved Huntfield Composite Schematic I, which contained 313.3 acres.

The existing parcels making up this land are south of the Norfolk and Southern Railroad)

Total north of Norfolk and Southern Railroad = *481.252* Acres
Total south of Norfolk and Southern Railroad = *517.590* Acres
998.842 Acres

SURROUNDING LAND USE AND EXISTING STREETS

Surrounding Land Use

Surrounding land use to the North and across West Virginia Route 13 includes the Locust Hills and Tuscawilla Hills single family subdivision and the Locust Hills Golf Course. North of the railroad to the west is property owned by the Claymont Society for Continuous Education, which contains the Claymont Museum

Existing Streets

Existing streets include Summit Point Road (WV Rt.13), Route *340/18* (Augustine Avenue), and Route *13/1* (Huyett Road). Currently under construction and or built are: Prospect Boulevard, Burnlea Road. Colston Road, Butler Street, Braddock Street, Calmes Street, Bullskin Street, Colonial Drive, Davis Street, and Payne Street. A small portion of Battlefield Drive, Chadwick Drive, Silver Leaf Drive, and Holly Springs Drive are currently under construction and or have been built. All the aforementioned streets were previously approved with the Huntfield Phase 1, Phase 2A, Phase 2B, and Phase 3A construction plans.

NATURAL FEATURES

The property is and has been farmland so there is very little wooded or forested area and none of any quality. The property was farmed as recently as the fall of 2001.

The property has no real prominent features. The site is relatively flat and open through the middle of the property with a wooded area to the west. It has areas of woods, areas of dense thick brush and some high open areas.

The North Fork of the Bullskin Run crosses the property on the southwest and the drain of an unnamed wet weather stream crosses the east of the property.

A portion of the property is located in the FEMA Flood Plain Zone 'A' per FIRM "#540065 0050 C" dated August 2, 1993. However, this portion of the property is not to be developed.

ZONING REQUIREMENTS

Zoning requirements for Neighborhood Residential (@ Article 8A b) 1., 3.-5.) and the general approach to these requirements in the Huntfield Schematic Plan are presented in the following table.

Table 2 (Note: Acreages shown are approximate. Actual areas to be determined at the time of recordation of the record plat pertaining to each Phase of the development. All areas shall be in general conformance with the Overall Composite Schematic.)

Items Required in the Zoning Ordinance	*HUNTFIELD – Overall Composite Schematic Item Submitted*
Parcels 5 acres or larger	*998.8 Acres*
Mix of uses	*Mixed-Use Development*
Compatible with surrounding uses	*Compatible with existing subdivisions*
50% of total area to be residential	*Required: 499.4 Acres* *Provided: 612.9 Acres includes ROW* ** An additional 74.1 acres not counted towards the Residential Area Requirements has been provided for school facilities* **An additional 12.9 acres not counted towards the Residential Area has been provided in Municipal Use Parcels* **An additional 14.7 acres not counted towards the Residential Area has been provided by parcels designated as Active Community Centers*
15% of area (less streets, sidewalks & drainage) in open space	*Required: 149.8 Acres* *Provided: 228.2 Acres includes open space medians* **An additional 38.5 acres of open space not counted towards the open space requirements is provided within the School Site*
Not less than 10% in office/retail * Includes 44 Live/Work Units	*Required: 99.9 Acres* *Provided: 26.1 Acres* **See "Commercial" Section of this document*
Residential Lots Provided	*1,203 Single Family* *692 Townhomes* *381 Multi-Family* *600 Age-Restricted SFD Lots (Washington Homes)* *44 Live/Work (Counted as Commercial Area)* *3,200 Total Dwelling units*

Items Required in the Zoning Ordinance	*HUNTFIELD – Overall Composite Schematic Item Submitted*
Number of lots: land area in sq. ft. / 10,000 *Note: For Townhome developments, each five (5) acres developed as townhouses constitutes 1 lot	*Required: 4,351 Lots Maximum* *Provided: 2,523 Lots* *Townhome Acreage = 74.6 acres* *Equivalent # Townhome Lots = 74.6 acres/5 = 15 Lots* *Total # Lots = (3,200 Units – 692 Townhomes) + 15 Equivalent # Townhome Lots = 2,523 Lots* *Number of Lots: 43,507,728 sq. ft. / 10,000 = 4,351 Lots*
Overall Maximum Residential Density *Note: For Townhome developments, each five (5) acres developed as townhouses constitutes 1 lot	*Required: Not to exceed 10 Units / Acre* *Provided: 2.5 Units/Acres* *Townhome Acreage = 74.6 acres* *Equivalent # Townhome Lots = 74.6 acres/5 = 15 Lots* *Total # Lots = (3,200 Units – 692 Townhomes) + 15 Equivalent # Townhome Lots = 2,523 Lots* *Overall density: 2,523 Lots / 998.8 Acres = 2.5 Units/Acres*
Maximum Density - Multi-Family	*Required:* not exceed 20 units per acre *Provided: 13.8 units/acre* *381 Units / 27.6 Acres =13.8 units/acre*
Maximum Density - Townhomes	*Required:* not exceed 10 units per acre *(modified per Huntfield proffers to 16 units/acre)* *Provided: 9.3 units/acre* *692 Townhomes / 74.5 Total Acres Including ROW = 9.3 Units/Acre*

The following is a partial listing of the conditions of the overall development per the "Letter of Clarification/Huntfield Proffer Statement" dated March 28, 2002. See the aforementioned "Letter of Clarification/Huntfield Proffer Statement" for a full listing of the proffers.

- Minimum lot width shall be reduced to 50 feet at the street.
- Minimum lot area shall be reduced to 5,000 square feet.
- Front yard setback shall be 25 feet from the edge of pavement.
- Encroachment within the front yard setback shall be no more than 30% or 8.34 feet. It appears that the percentage should be 33.3%.
- Side yard setbacks shall be reduced to 5 feet minimum.
- No setback from the property line for accessory structures shall be required.
- Minimum paving width shall be 24 feet.

The following is a partial listing of the, "Amended Huntfield Proffers" dated May 3, 2004. See the aforementioned "Amended Huntfield Proffers" for a full listing of the proffers.

- The minimum 200,000 square feet of commercial retail or office space proffered by Huntfield shall satisfy all requirements for land area devoted to office and/or commercial. This agreement does not preclude Huntfield from developing commercial/retail/office beyond the 200,000 square feet requirement.
- Huntfield will dedicate 15% of the total land are to open and recreational space. All active and passive recreational facilities provided in Huntfield shall be credited toward the 15% open space requirement specified herein. In addition, Huntfield will provide a minimum 50-foot buffer on either side of Bullskin Run measured from the edge of the stream bank and a landscaped 50-foot buffer along major highways (i.e. Route 340, 340 Bypass, WV Route 9).
- Maximum building heights shall be as follows:
  - Single Family Detached – 45', but not more than 3 stories
  - Townhouses – 45', but not more than 3 stories
  - Multi-Family – 50', but not more than 4 stories
  - Office, Commercial, Civic and Mixed Use – 60' but not more than 5 stories
- Minimum lot widths shall be as follows:
  - Single Family Detached – 50', however 45' for Active Adult Community (development)
  - Townhouses – Mix of 16' to 24'
- Minimum lot sizes shall be as follows:
  - Single Family Detached – 5,000 square feet, however 4,500 square feet for Active Adult Community (development)
  - Townhouses – 1,600 square feet
- Townhouse portions of the development shall be permitted to have an area less than five acres
- Townhouse units shall be permitted at a maximum density of 16 units per acres
- The minimum rear yard setback for units with attached rear-load garages shall be 10'
- Alleys may be dead-end streets when intersections would cause a curb cut on a collector street
- Alleys may provide lot access and satisfy road frontage requirements when the lots served by those alleys front on open space
- Cul-de-sac streets shall be permitted in limited instances and require approval by the Planning Commission. When allowed, the cul-de-sacs terminus shall include a landscaped circle.
- The designated Village Center shall be permitted for Central Business District, General Commercial and Neighborhood Residential uses as defined in the present City of Charles Town Zoning Ordinance. The designated Neighborhood Centers shall be permitted for Office Residential, Neighborhood Residential and Neighborhood Commercial uses as defined in the present City of Charles Town Zoning Ordinance. Future changes in the existing Zoning Ordinances shall be made applicable to this paragraph.

Table 3 (Note: Acreages shown are approximate. Actual areas to be determined at the time of recordation of the record plat pertaining to each Phase of the development. All areas shall be in general conformance with the Overall Composite Schematic.)

Use	Required	Provided
Site Area	Min. 5 Acres	998.8 Total Acres
Existing		
Composite Schematic I		313.3 Acres
Proposed:		
Residential (includes rights of way)	499.4 Acres	612.9 Acres
Dedicated School Parcels		74.1 Acres
Municipal Use Parcels		12.9 Acres
Active Community Centers		14.7 Acres
Open Space (Includes open space medians)	149.8 Acres	228.2 Acres
Additional Open Space Provided in School Site		38.5 Acres
Commercial (Includes 44 Live/Work Units)	99.9 Acres	26.1 Acres
*See "Commercial" Section of this document		

STATEMENT OF ACCEPTANCE

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

LINDA ERBS, V.P. OF PLANNING AND ZONING
8614 WESTWOOD CENTER DRIVE SUITE 900
VIENNA, VA 22182
703-442-8992

INTRODUCTION

This description and the accompanying illustrative graphics are a part of the Huntfield Overall Composite Schematic for the Neighborhood Residential zoning of Huntfield. This schematic encompasses all existing and future phases of Huntfield North and South of the Norfolk & Southern Railroad. The Overall Composite Schematic includes the previously approved Huntfield Composite Schematic I, which included and superseded the following previously approved schematics: Huntfield Phase 1 Schematic, Huntfield Phase 1&2A Schematic, Huntfield Phase 2B Schematic. The Huntfield Overall Composite Schematic supersedes all previously approved schematics, and all development shall be in conformance with it.

Assuming development proceeds in an orderly fashion, a phasing plan will be submitted to the City of Charles Town within twelve (12) months of the approval date of the Huntfield Overall Composite Schematic. In the event that the development is delayed, an alternate time frame for submittal of the phasing plan will be agreed upon by the City and the Applicant. The phasing plan will be provided for the information of the City and will include information pertaining to construction of community centers and recreational areas to ensure adequate amenities are provided in conjunction with residential areas. Per the Huntfield Proffers, "Huntfield has agreed to approach Pan Tran to provide shuttle service between the Property and downtown Charles Town." Information pertaining to approach of Huntfield to Pan-Tran and potential train commuter service shall also be included in the phasing plan. See the "Traffic Circulation and Analysis" section of this document for additional information to be provided in the phasing plan.

The items included in this Description are organized under the headings of:

- Parcel History
- Schematic Plan Requirements and Submission
- Land Area
- Surrounding Land Use and Existing Streets
- Natural Features
- Zoning Requirements
- Generalized Land Use
- Traffic Circulation & Analysis

PARCEL HISTORY

List all pending or previously approved applications on the subject parcel(s), including previous schematic plan applications if this application is a schematic plan amendment

Application #	Project Name & Phase	Status	Approval Date
	Huntfield Phase 1 Schematic	Approved	2/11/2002
STPL 2002-0001	Huntfield Phase I (Site Plan)	Approved	6/24/2002
SBRD 2002-0001	Huntfield Phase 1 Record Plat	Approved	7/29/2002
RPOC 2003-0001	Huntfield Phase 1 Record Plat Correction	Approved	Recorded 9/9/2003
	Huntfield Revised Phase 1 & 2A Schematic	Approved	10/22/2002
SPAM 2003-0001	Huntfield Phase I Revised (Site Plan Amendment)		5/28/2003
SBRD 2003-0001/ RPAM 2003-0001	Huntfield Phase 1 Revised Record Plat Amendment	Approved	6/16/2003
SPAM 2003-0002	Huntfield Phase I Block I Revised (Site Plan Amendment)	Approved	10/27/2003
RPAM 2003-0002	Huntfield Phase 1 Block 1 Record Plat Amendment	Approved	1/12/2004
STPL 2003-0001	Huntfield Phase 2A (Site Plan)	Approved	5/28/2003
SBRD 2003-0002	Huntfield Phase 2A Record Plat	Approved	3/30/2004
SCHM 2003-0001	Huntfield Phase 2B Schematic	Approved	2/24/2003
STPL 2003-0006	Huntfield Phase 2B (Site Plan)	Approved	8/5/2004
SBRD 2004-0002	Huntfield Phase 2B Section 1A Record Plat	Approved	5/24/2004
SBRD 2004-0002	Huntfield Phase 2B Section 1B Record Plat	Approved	10/25/04
SCHM 2003-0003	Huntfield Composite Schematic I	Approved	5/28/2003
STPL 2003-0009	Huntfield Phase 3A (Site Plan)	Approved	5/24/2004

GENERALIZED LAND USE

Proposed generalized land use in this Schematic Plan submission is as follows:

Table 4 (Note: Acreages shown are approximate. Actual areas to be determined at the time of recordation of the record plat pertaining to each Phase of the development. All areas shall be in general conformance with the Overall Composite Schematic.)

Use	Required	Provided
Site Area	Min. 5 Acres	998.8 Total Acres
Existing		
Composite Schematic I		313.3 Acres
Proposed:		
Residential (includes rights of way)	499.4 Acres	612.9 Acres
Dedicated School Parcels		74.1 Acres
Municipal Use Parcels		12.9 Acres
Active Community Centers		14.7 Acres
Open Space (Includes open space medians)	149.8 Acres	228.2 Acres
Additional Open Space Provided in School Site		38.5 Acres
Commercial (Includes 44 Live/Work Units) *See "Commercial" Section of this document	99.9 Acres	26.1 Acres

Residential Area

This area consists of approximately 612.9 acres, and is projected to be developed with single family detached houses, town homes, and multi-family dwellings. It will also include an Active Adult Community as defined by the Active Adult Community Covenants. Lots sizes will vary throughout the development; however, all lots sizes will be in accordance with the proffers for the Huntfield development. All residential areas meet the density requirements set forth in the Zoning Ordinance except where modified by the Huntfield proffers. An additional 74.1 acres not counted towards the residential requirements has been provided for school facilities, and an additional 12.9 acres have been provided as Municipal Use Parcels. Municipal Use Parcel #1 contains approximately 5.4 acres and is a proposed location for a public administration building and potential train and/or Pan-Tran bus stations. Municipal Use Parcel #4, which contains approximately 3.0 acres, is also a potential location for train and/or Pan-Tran bus stations. Municipal Use Parcel #2 (1.5 acres) contains the water tower, and Municipal Use Parcel #3 (3.0 acres) is proposed as a ball field. Determination of final use of Municipal Parcels will be determined with future site plans. Additional areas also not included in the residential area requirements have been provided in parcels dedicated to Active Community Centers. Active Community Center #1 provides 5.5 acres, #2 provides 6.2 acres, and #3 provides 6.9 acres for a total of 14.7 acres of additional area provided by Active Community Centers. The final use and design of each Active Community Center will be determined at the site plan stage; however, they shall contain, but are not limited to the following: swimming pools, meeting facilities, and recreational facilities. These recreational amenities will be sized appropriately with adequate parking and ancillary support facilities, such as bathrooms, etc.

Commercial

The commercial areas shown have been revised from those shown on previous schematic plans in order to provide more viable commercial locations. The commercial area requirements have been modified based on neo-traditional design concepts. As specified in the Huntfield proffers, "a minimum 200,000 square feet of commercial, retail, or office space proffered by Huntfield shall satisfy all requirements for land area devoted to office and/or commercial. This agreement does not preclude Huntfield from developing commercial/retail/office beyond the 200,000 square feet requirement."

Commercial areas include a Village Center and multiple Neighborhood Centers providing 26.1 acres of commercial area. Per the Huntfield proffers, "The designated Village Center shall be permitted for Central Business District, General Commercial and Neighborhood Residential uses as defined in the present City of Charles Town Zoning Ordinance. The designated Neighborhood Centers shall be permitted for Office Residential, Neighborhood Residential and Neighborhood Commercial uses as defined in the present City of Charles Town Zoning Ordinance. Future changes in the existing Zoning Ordinances shall be made applicable to this paragraph." In addition, 44 live/work units provided in the commercial areas.

Open Space

Huntfield Overall Composite Schematic allocates approximately 228.2 acres of open space, which exceeds the Zoning Ordinance standard for open space requirements. This consists of dedicated open space parcels totaling approximately 217.9 acres with the remaining area located within the right of way. Not counted toward the open space requirements are 38.5 acres of open space located within in the School Site.

The dedicated parcels will contain an active use park, a public green, and multiple passive parks. The passive parks may contain, but are not limited to: picnic areas, playing fields, and grass areas. Final determination of passive parks use will be determined with future site plans. One tot-lot is currently constructed on the eastern side of the project. At a minimum, one additional tot-lot shall be provided on the western site. This tot-lot shall be located south of Future Prospect Hill Boulevard within close proximity to the town home regions.

A biker/biker trail will be provided within open space parcels and other areas with the development. The trail will be coordinated with trails located on adjoining parcels and may incorporate the use of sidewalks and roadways throughout the development as a part of the trail system.

The open space, to be located and designed during the site planning stage, would seek to achieve the following objectives:

- Provide the zoning ordinance-required open space.
- Provide some open space area easily accessible to all parts of Huntfield.
- Provide at least one area large enough for residents of different neighborhoods to gather together.
- Provide internal buffers between non-residential and residential uses.
- Incorporate passive and active component in Neighborhood open space areas.
- As new lots are added additional neighborhood park sites will be developed.

NOTES:
1) SEE SHEET 2 FOR TRAFFIC CIRCULATION & ANALYSIS
2) FOR LISTING OF AFFECTED PARCELS PLEASE SEE SHEET 4

SHEET INDEX

1. COVER SHEET & NARRATIVE
2. STATUS & TYPICAL ROAD SECTIONS
3. CIRCULATION & OPEN SPACE
4. SCHEMATIC COMPARISON
5. OVERALL SITE CONDITIONS

Approved:

Scott Coyle 4-12-2005

Planning Commission Date

SCHM 2004-0002

No.	DATE	REVISIONS
	02-10-05	ADDRESSED COMMENTS RECEIVED AT JANUARY PLANNING COMMISSION MEETING
	01-04-05	ADDRESSED VERBAL COMMENTS RECEIVED FROM CITY
	12-17-04	ADDRESSED SECOND SET OF CITY COMMENTS
	12-13-04	ADDRESSED CITY COMMENTS

PLAN DATE: 11-29-04; 12-13-04; 01-04-05; 02-10-05

Urban Engineering & Associates, Inc.
CIVIL ENGINEERS • LANDSCAPE ARCHITECTS • LAND SURVEYORS
PEGASUS BUSINESS CENTER
600 PEGASUS COURT, SUITE 101 WINCHESTER, VIRGINIA 22602
PHONE (540) 450-0211 FAX (540) 450-0210

LICENSED LANDSCAPE ARCHITECT #519 STATE OF WEST VIRGINIA

Cover Sheet & Narrative

HUNTFIELD
OVERALL COMPOSITE SCHEMATIC
CHARLES TOWN CORPORATION
JEFFERSON COUNTY, WEST VIRGINIA

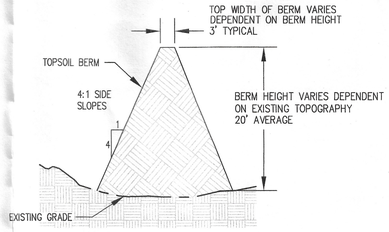
DATE: NOVEMBER 2004
SCALE: AS SHOWN C.I. N/A

SHEET 1 OF 5

PREL-20107

TYPICAL SECTION
RAILROAD BERM

NOTE: BERM SECTION SHOWN IS APPROXIMATE. ACTUAL BERM DESIGN AND LOCATION TO BE DETERMINED WITH FUTURE SITE PLANS.

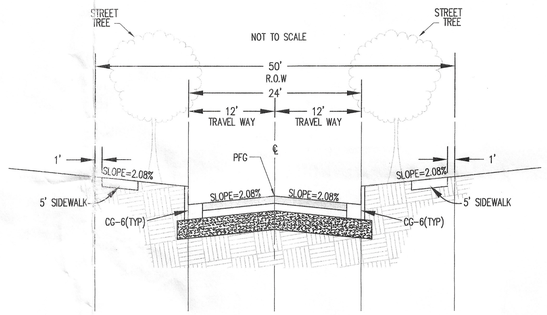


TYPICAL SECTION
TERTIARY STREETS - ACTIVE ADULT COMMUNITY

FOR ILLUSTRATIVE PURPOSES ONLY

FINAL SECTION DETAILS TO BE APPROVED DURING SITE PLAN REVIEW

NOTE: APPLICABLE TO TERTIARY STREETS LOCATED WITHIN THE ACTIVE ADULT COMMUNITY. SEE DETAIL "TERTIARY STREETS - STANDARD DETAIL" FOR DETAIL OF TERTIARY STREETS LOCATED OUTSIDE OF ACTIVE ADULT COMMUNITY.

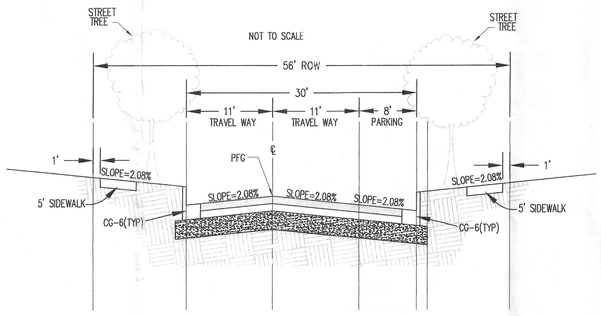


TYPICAL SECTION
TERTIARY STREETS (STANDARD DETAIL)

FOR ILLUSTRATIVE PURPOSES ONLY

FINAL SECTION DETAILS TO BE APPROVED DURING SITE PLAN REVIEW

NOTE: APPLICABLE TO TERTIARY STREETS LOCATED OUTSIDE OF ACTIVE ADULT COMMUNITY. SEE DETAIL "TERTIARY STREETS - ACTIVE ADULT COMMUNITY" FOR DETAIL OF TERTIARY STREETS LOCATED WITHIN THE ACTIVE ADULT COMMUNITY.



TRAFFIC CIRCULATION & ANALYSIS

The traffic circulation system has been designed to accomplish the following objectives:

- Achieve high levels of service by dispersing and balancing site generated traffic among available roads.
- Provide for connections with existing and future neighboring subdivisions & properties when applicable.
- Provide a planned hierarchy of roads including main and secondary roads.
- Respect the existing topography and landform in designing roads to avoid unnecessary or disruptive changes to the landscape.
- Provide good access to all roads adjoining the site but avoid a direct cut through or alternative to the existing interchange between WV Route 13 and Route 13/3.
- Provide pedestrian ways with subdivision and site plans which connect the complementary land uses and sub-neighborhoods within Huntfield, and which will include sidewalks next to streets with emphasis on pedestrian elements at the secondary road level rather than on the busier roads.
- Provide traffic calming at the internal intersection to help with pedestrian safety.

Roads within the Western Site have been aligned to provide views of historic Claymont (Claymont-Blakeley Axis) and the Charles Town Court House (Washington Street Axis).

A Phased Traffic Impact Analysis for Huntfield was prepared on May 5, 2004 by Patton Harris Rust & Associates. The analysis includes both site related and non-site related recommended transportation improvements. The Analysis is currently in review by the West Virginia Department of Highways. Per the recommendations made in the Traffic Analysis, the existing Prospect Hill Boulevard entrance will be abandoned and a "Re-aligned Prospect Hill Boulevard" will be constructed. Final determination of the exact location of Re-aligned Prospect Hill Boulevard and the associated intersections to be determined based upon coordination with the High School and the Department of Highways.

Per the Huntfield proffers, "Huntfield has proffered to produce a transportation study and plan which indicates how the development of road improvements, a hike/biker trail, shuttle routes, a potential commuter train/bus station, and other transportation improvement could minimize the impacts of additional vehicle traffic, attributable to the Huntfield project, in the Charles Town Area". A phasing plan will be submitted to the City of Charles Town with future site plans for informative purposes. The phasing plan will include trigger points at which action regarding the transportation plan will be taken.

PLAN STATUS

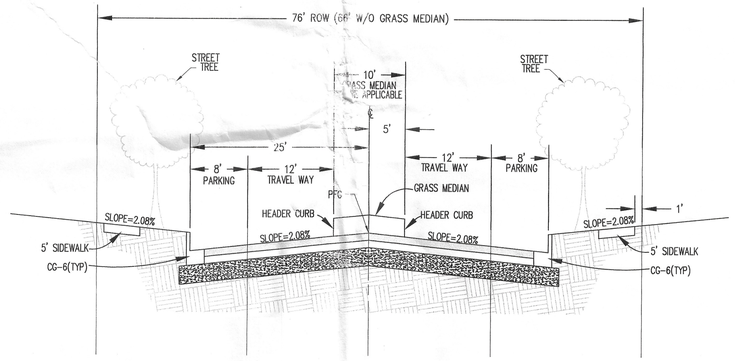
DATE	DESCRIPTION
11-29-04	FIRST SUBMISSION
12-14-04	SECOND SUBMISSION – ADDRESSED CITY COMMENTS
12-17-04	THIRD SUBMISSION – ADDRESSED SECOND SET OF CITY COMMENTS
01-04-05	FOURTH SUBMISSION – ADDRESSED VERBAL COMMENTS RECEIVED FROM CITY
02-10-05	FINAL SUBMISSION – ADDRESSED COMMENTS RECEIVED AT JANUARY PLANNING COMMISSION MEETING

TYPICAL SECTION
SECONDARY STREETS

FOR ILLUSTRATIVE PURPOSES ONLY

FINAL SECTION DETAILS TO BE APPROVED DURING SITE PLAN REVIEW
NOT TO SCALE

NOTE:
1) APPLICABLE TO ALL SECONDARY STREETS WITHIN THE HUNTFIELD DEVELOPMENT.

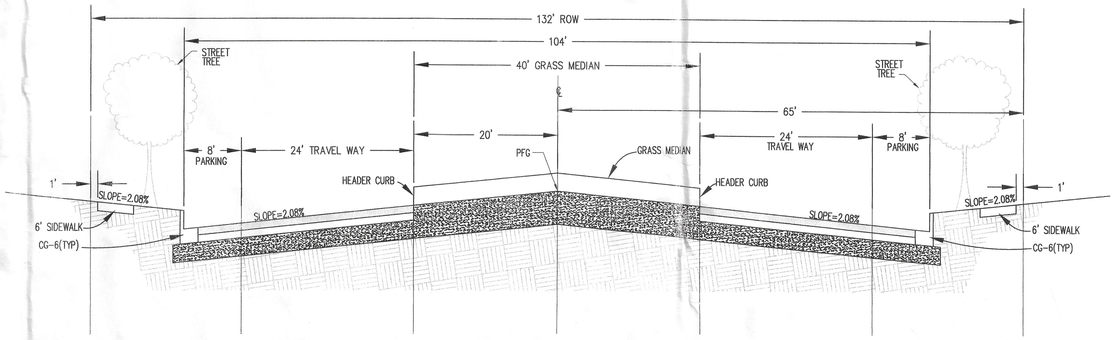


TYPICAL SECTION
PRIMARY STREET

FOR ILLUSTRATIVE PURPOSES ONLY

FINAL SECTION DETAILS TO BE APPROVED DURING SITE PLAN REVIEW
NOT TO SCALE

NOTE: APPLICABLE TO ALL SECONDARY STREETS WITHIN THE HUNTFIELD DEVELOPMENT.



No.	DATE	REVISIONS
	02-10-05	ADDRESSED COMMENTS RECEIVED AT JANUARY PLANNING COMMISSION MEETING
	01-04-05	ADDRESSED VERBAL COMMENTS RECEIVED FROM CITY
	12-17-04	ADDRESSED SECOND SET OF CITY COMMENTS
	12-13-04	ADDRESSED CITY COMMENTS

PLAN DATE
11-29-04
12-13-04
12-17-04
01-04-05
02-10-05

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PHONE (540) 450-0211 FAX (540) 450-0210

DAVID E. LEMLOCK
REGISTERED
#1515
STATE OF
WEST VIRGINIA
PROFESSIONAL ENGINEER
02-10-05

STATUS & TYPICAL SECTIONS

HUNTFIELD

OVERALL COMPOSITE SCHEMATIC

CHARLES TOWN CORPORATION
JEFFERSON COUNTY, WEST VIRGINIA

SCALE: N/A C.I. N/A DATE: NOVEMBER 2004

SHEET
2
OF
5

PREL-20107

SITE AREA (PARCEL 2)
DB 949 PG 203
TAX MAP 11, PARCEL 2
481.252 ACRES

SITE AREA (PARCEL 2)
517.59 ACRES
DB 949 PG 203
TAX MAP 11, PARCEL 1

LEGEND

ROADS
- PRIMARY
- SECONDARY
- TERTIARY

OPEN SPACE
- GENERAL
- TREE SAVE
- SCHOOL SITE OPEN SPACE

NEIGHBORHOOD RESIDENTIAL
- SINGLE FAMILY
- SINGLE FAMILY (ACTIVE ADULT COMMUNITY)
- TOWN HOMES
- TOWN HOME REGION
- MULTI-FAMILY
- ACTIVE COMMUNITY CENTER
- MUNICIPAL USE

- COMMERCIAL
- COMMERCIAL (VILLAGE CENTER)
- SCHOOL SITE

- FLOOD PLAIN
- WETLAND AREA
- SW= SIDEWALK
- EXISTING ROADS
- HUNTFIELD BOUNDARY
- TOTAL SITE AREA 998.8 ACRES

RE-ALIGNED PROSPECT HILL BOULEVARD & SCOOL ACCESS
ALTERNATE LAYOUT - OPTION 2

NOTE: LOCATION AND DESIGN OF RE-ALIGNED PROSPECT HILL BOULEVARD AND UNION RIDGE DRIVE ARE PRELIMINARY. FINAL STREET DESIGN TO BE DETERMINED BASED UPON LOCATION OF SCHOOL LAYOUT AND ENTRANCE.

NOTES:

1) TOPSOIL BERM TO BE LOCATED WITHIN THE 200' OPEN SPACE BUFFER ALONG THE RAILROAD IN LOCATIONS DETERMINED WITH FUTURE SITE PLANS. REFERENCE SHEET 2 FOR TYPICAL BERM SECTION

2) A SEPARATE LANDSCAPE PLAN DETAILING THE PROPOSED BUFFERING BETWEEN THE HUNTFIELD/CLAYMONT BOUNDARY SHALL BE PROVIDED TO THE PLANNING COMMISSION FOR INFORMATIVE PURPOSES

3) APPROXIMATE LOCATION OF HIKER/BIKER TRAIL. FINAL LOCATION TO BE DETERMINED WITH FUTURE SITE PLANS & COORDINATED WITH TRAILS ON ADJOINER PARCELS.

GRAPHIC SCALE
400 0 200 400 800 1600
(IN FEET)
1 inch = 400 ft.

No.	DATE	DESCRIPTION
		REVISIONS
	12-13-04	ADDRESSED CITY COMMENTS
	01-04-05	ADDRESSED SECOND SET OF CITY COMMENTS
	12-17-04	ADDRESSED VERBAL COMMENTS RECEIVED FROM CITY
	01-04-05	PLANNING COMMISSION MEETING
	02-10-05	ADDRESSED COMMENTS RECEIVED AT JANUARY

PLAN DATE
11-29-04
12-13-04
12-17-04
01-04-05
02-10-05

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CIRCULATION & OPEN SPACE
HUNTFIELD
OVERALL COMPOSITE SCHEMATIC
CHARLES TOWN CORPORATION
JEFFERSON COUNTY, WEST VIRGINIA

DATE: NOVEMBER 2004
SCALE: 1"=400' C.I. N/A

SHEET 3 OF 5

PREL-20107

PARCELS AFFECTED BY THIS SCHEMATIC

DIST.	MAP	PARCEL	LOT	REFERENCE DB/PG	ZONING
CTC	11A	1	1	973/335	NR
CTC	11A	2	2	983/357	NR
CTC	11A	3	3	976/549	NR
CTC	11A	4	4	966/353	NR
CTC	11A	5	5	966/353	NR
CTC	11A	6	6	976/351	NR
CTC	11A	7	7	976/288	NR
CTC	11A	8	8	986/738	NR
CTC	11A	9	9	984/39	NR
CTC	11A	10	10	990/243	NR
CTC	11A	11	11	979/8	NR
CTC	11A	12	12	984/37	NR
CTC	11A	13	13	970/615	NR
CTC	11A	14	14	983/408	NR
CTC	11A	15	15	993/697	NR
CTC	11A	16	16	984/89	NR
CTC	11A	17	17	985/481	NR
CTC	11A	18	18	982/361	NR
CTC	11A	19	19	970/615	NR
CTC	11A	20	20	949/203	NR
CTC	11A	21	21	996/207	NR
CTC	11A	22	22	991/566	NR
CTC	11A	23	23	989/725	NR
CTC	11A	24	24	993/257	NR
CTC	11A	25	25	983/284	NR
CTC	11A	26	26	979/395	NR
CTC	11A	27	27	979/602	NR
CTC	11A	28	28	983/690	NR
CTC	11A	29	29	987/405	NR
CTC	11A	30	30	985/719	NR
CTC	11A	31	31	986/82	NR
CTC	11A	32	32	985/187	NR
CTC	11A	33	33	985/189	NR
CTC	11A	34	34	985/150	NR
CTC	11A	35	35	989/639	NR
CTC	11A	36	36	988/599	NR
CTC	11A	37	37	992/533	NR
CTC	11A	38	38	949/203	NR
CTC	11A	39	39	988/418	NR
CTC	11A	40	40	949/203	NR
CTC	11A	41	41	985/156	NR
CTC	11A	42	42	983/683	NR
CTC	11A	43	43	986/80	NR
CTC	11A	44	44	984/81	NR
CTC	11A	45	45	972/613	NR
CTC	11A	46	46	972/613	NR
CTC	11A	47	47	984/85	NR
CTC	11A	48	48	982/524	NR
CTC	11A	49	49	982/682	NR
CTC	11A	50	50	982/635	NR
CTC	11A	51	51	981/531	NR
CTC	11A	52	52	982/234	NR
CTC	11A	53	53	994/15	NR
CTC	11A	54	54	949/203	NR
CTC	11A	55	55	995/48	NR
CTC	11A	56	56	997/536	NR
CTC	11A	57	57	987/63	NR
CTC	11A	58	58	987/14	NR
CTC	11A	59	59	987/184	NR
CTC	11A	60	60	988/585	NR
CTC	11A	61	61	989/59	NR
CTC	11A	62	62	989/57	NR
CTC	11A	63	63	949/203	NR
CTC	11A	64	64	990/539	NR
CTC	11A	65	65	990/539	NR
CTC	11A	66	66	990/539	NR
CTC	11A	67	67	982/147	NR
CTC	11A	68	68	979/466	NR
CTC	11A	69	69	995/569	NR
CTC	11A	69A	69A	949/203	NR
CTC	11A	70	70	994/506	NR
CTC	11A	70A	70A	996/242	NR
CTC	11A	71	71	949/203	NR
CTC	11A	71A	71A	994/15	NR
CTC	11A	72	72	997/526	NR
CTC	11A	72A	72A	995/203	NR
CTC	11A	73	73	995/484	NR
CTC	11A	74	74	994/504	NR
CTC	11A	75	75	996/544	NR
CTC	11A	76	76	986/180	NR
CTC	11A	77	77	995/108	NR
CTC	11A	78	78	998/153	NR
CTC	11A	78A	78A	997/690	NR
CTC	11A	79	79	994/15	NR
CTC	11A	79A	79A	998/151	NR
CTC	11A	80	80	997/558	NR
CTC	11A	80A	80A	997/613	NR
CTC	11A	81	81	994/15	NR
CTC	11A	82	82	998/149	NR
CTC	11A	83	83	997/566	NR
CTC	11A	84	84	989/31	NR
CTC	11A	85	85	989/31	NR
CTC	11A	86	86	990/539	NR
CTC	11A	87	87	989/31	NR
CTC	11A	88	88	986/78	NR
CTC	11A	89	89	977/292	NR
CTC	11A	90	90	993/491	NR
CTC	11A	91	91	985/55	NR
CTC	11A	92	92	975/265	NR
CTC	11A	93	93	971/529	NR
CTC	11A	94	94	973/521	NR
CTC	11A	95	95	979/10	NR
CTC	11A	96	96	974/340	NR
CTC	11A	97	97	996/19	NR
CTC	11A	98	98	974/670	NR
CTC	11A	99	99	981/332	NR
CTC	11A	100	100	980/682	NR
CTC	11A	101	101	981/278	NR
CTC	11A	102	102	985/226	NR
CTC	11A	103	103	986/304	NR
CTC	11A	104	104	986/137	NR
CTC	11A	105	105	988/595	NR
CTC	11A	106	106	989/12	NR
CTC	11A	107	107	988/593	NR
CTC	11A	108	108	949/203	NR
CTC	11A	109	109	949/203	NR
CTC	11A	109A	109A	994/15	NR
CTC	11A	110	110	949/203	NR
CTC	11A	111	111	949/203	NR
CTC	11A	111A	111A	994/15	NR
CTC	11A	112	112	980/476	NR
CTC	11A	113	113	980/592	NR
CTC	11A	PARK	D+E	949/203	NR
CTC	11A	COM1	C	949/203	NR
CTC	11A	COM2	F	949/203	NR

DIST.	MAP	PARCEL	LOT	REFERENCE DB/PG	ZONING
CTC	11A	CMR1	A	949/203	NR
CTC	11A	CMR2	B	949/203	NR
CTC	11A	114	114		NR
CTC	11A	115	115		NR
CTC	11A	116	116		NR
CTC	11A	117	117		NR
CTC	11A	118	118		NR
CTC	11A	119	119		NR
CTC	11A	120	120		NR
CTC	11A	121	121		NR
CTC	11A	122	122		NR
CTC	11A	123	123		NR
CTC	11A	124	124		NR
CTC	11A	125	125		NR
CTC	11A	126	126		NR
CTC	11A	127	127		NR
CTC	11A	128	128		NR
CTC	11A	129	129		NR
CTC	11A	130	130		NR
CTC	11A	131	131		NR
CTC	11A	132	132		NR
CTC	11A	133	133		NR
CTC	11A	134	134		NR
CTC	11A	135	135		NR
CTC	11A	136	136		NR
CTC	11A	137	137		NR
CTC	11A	138	138		NR
CTC	11A	139	139		NR
CTC	11A	140	140		NR
CTC	11A	141	141		NR
CTC	11A	142	142		NR
CTC	11A	143	143		NR
CTC	11A	144	144		NR
CTC	11A	145	145		NR
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CTC	11A	182	182		NR
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CTC	11A	184	184		NR
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CTC	11A	186	186		NR
CTC	11A	187	187		NR
CTC	11A	188	188		NR
CTC	11A	189	189		NR
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CTC	11A	PARK	2B		NR
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CTC	11A	210	210		NR
CTC	11A	211	211		NR
CTC	11A	212	212		NR
CTC	11A	213	213		NR
CTC	11A	214	214		NR
CTC	11A	215	215		NR
CTC	11A	216	216		NR
CTC	11A	217	217		NR
CTC	11A	218	218		NR
CTC	11A	219	219		NR
CTC	11A	220	220		NR
CTC	11A	221	221		NR
CTC	11A	222	222		NR
CTC	11A	223	223		NR
CTC	11A	224	224		NR
CTC	11A	225	225		NR
CTC	11A	226	226		NR
CTC	11A	227	227		NR
CTC	11A	228	228		NR
CTC	11A	229	229		NR
CTC	11A	230	230		NR
CTC	11A	231	231		NR
CTC	11A	232	232		NR
CTC	11A	233	233		NR

PARCELS AFFECTED BY THIS SCHEMATIC

DIST.	MAP	PARCEL	LOT	REFERENCE DB/PG	ZONING
CTC	11A	234			NR
CTC	11A	235	235		NR
CTC	11A	236	236		NR
CTC	11A	237	237		NR
CTC	11A	238	238		NR
CTC	11A	239	239		NR
CTC	11A	240	240		NR
CTC	11A	241	241		NR
CTC	11A	242	242		NR
CTC	11A	243	243		NR
CTC	11A	243	243		NR
CTC	11A	244	244		NR
CTC	11A	262	262		NR
CTC	11A	263	263		NR
CTC	11A	264	264		NR
CTC	11A	265	265		NR
CTC	11A	PARK	2D		NR
CTC	11A	PARK	2F		NR
CTC	11A	379	379		NR
CTC	11A	380	380		NR
CTC	11A	381	381		NR
CTC	11A	382	382		NR
CTC	11A	383	383		NR
CTC	11A	384	384		NR
CTC	11A	385	385		NR
CTC	11A	386	386		NR

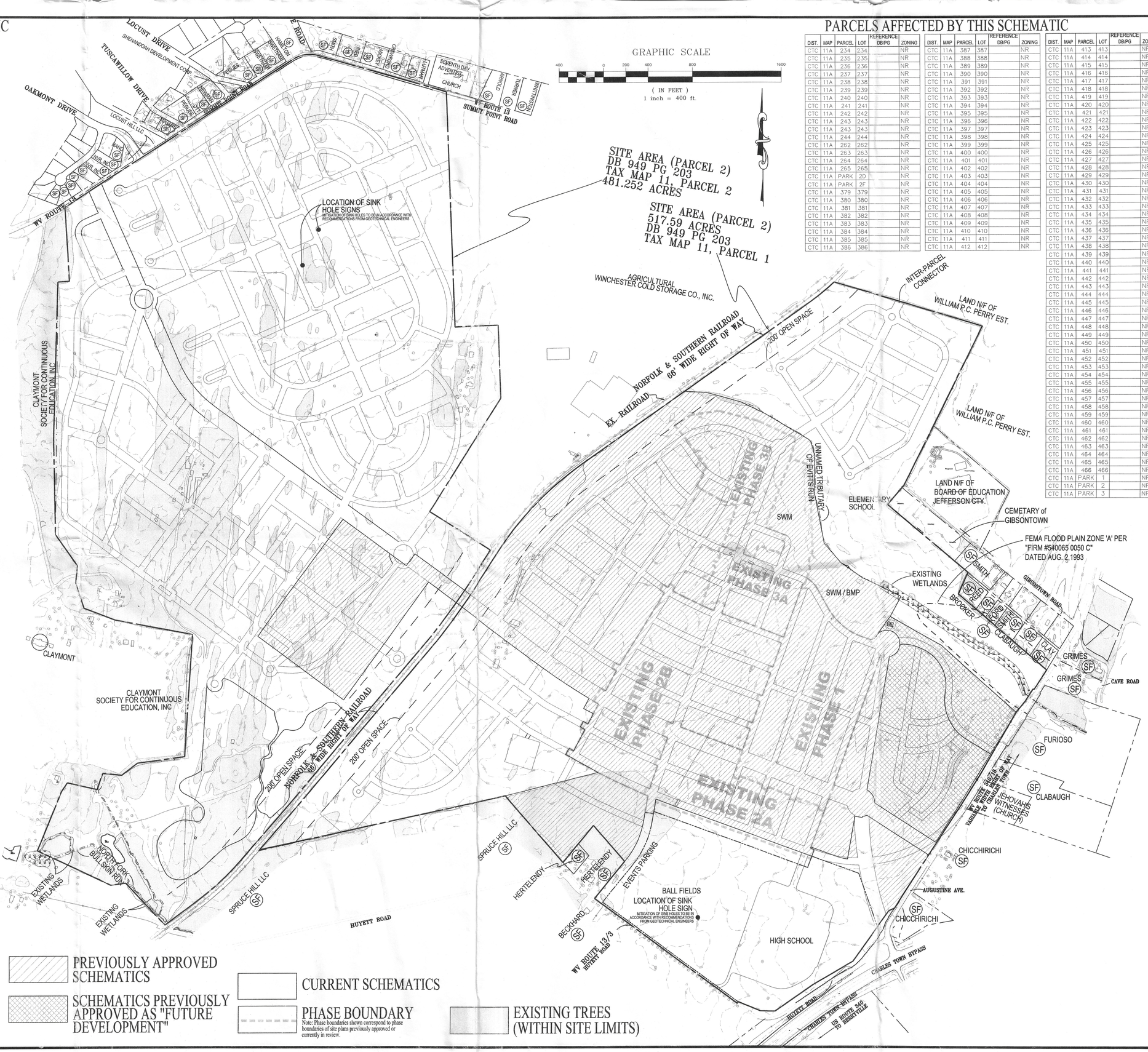
DIST.	MAP	PARCEL	LOT	REFERENCE DB/PG	ZONING
CTC	11A	387	387		NR
CTC	11A	388	388		NR
CTC	11A	389	389		NR
CTC	11A	390	390		NR
CTC	11A	391	391		NR
CTC	11A	392	392		NR
CTC	11A	393	393		NR
CTC	11A	394	394		NR
CTC	11A	395	395		NR
CTC	11A	396	396		NR
CTC	11A	397	397		NR
CTC	11A	398	398		NR
CTC	11A	399	399		NR
CTC	11A	400	400		NR
CTC	11A	401	401		NR
CTC	11A	402	402		NR
CTC	11A	403	403		NR
CTC	11A	404	404		NR
CTC	11A	405	405		NR
CTC	11A	406	406		NR
CTC	11A	407	407		NR
CTC	11A	408	408		NR
CTC	11A	409	409		NR
CTC	11A	410	410		NR
CTC	11A	411	411		NR
CTC	11A	412	412		NR

DIST.	MAP	PARCEL	LOT	REFERENCE DB/PG	ZONING
CTC	11A	413	413		NR
CTC	11A	414	414		NR
CTC	11A	415	415		NR
CTC	11A	416	416		NR
CTC	11A	417	417		NR
CTC	11A	418	418		NR
CTC	11A	419	419		NR
CTC	11A	420	420		NR
CTC	11A	421	421		NR
CTC	11A	422	422		NR
CTC	11A	423	423		NR
CTC	11A	424	424		NR
CTC	11A	425	425		NR
CTC	11A	426	426		NR
CTC	11A	427	427		NR
CTC	11A	428	428		NR
CTC	11A	429	429		NR
CTC	11A	430	430		NR
CTC	11A	431	431		NR
CTC	11A	432	432		NR
CTC	11A	433	433		NR
CTC	11A	434	434		NR
CTC	11A	435	435		NR
CTC	11A	436	436		NR
CTC	11A	437	437		NR
CTC	11A	438	438		NR
CTC	11A	439	439		NR
CTC	11A	440	440		NR
CTC	11A	441	441		NR
CTC	11A	442	442		NR
CTC	11A	443	443		NR
CTC	11A	444	444		NR
CTC	11A	445	445		NR
CTC	11A	446	446		NR
CTC	11A	447	447		NR
CTC	11A	448	448		NR
CTC	11A	449	449		NR
CTC	11A	450	450		NR
CTC	11A	451	451		NR
CTC	11A	452	452		NR
CTC	11A	453	453		NR
CTC	11A	454	454		NR
CTC	11A	455	455		NR
CTC	11A	456	456		NR
CTC	11A	457	457		NR
CTC	11A	458	458		NR
CTC	11A	459	459		NR
CTC	11A	460	460		NR
CTC	11A	461	461		NR
CTC	11A	462	462		NR
CTC	11A	463	463		NR
CTC	11A	464	464		NR
CTC	11A	465	465		NR
CTC	11A	466	466		NR
CTC	11A	PARK	1		NR
CTC	11A	PARK	2		NR
CTC	11A	PARK	3		NR

GRAPHIC SCALE

400 0 200 400 800 1600

(IN FEET)
1 inch = 400 ft.



PREVIOUSLY APPROVED SCHEMATICS

SCHEMATICS PREVIOUSLY APPROVED AS "FUTURE DEVELOPMENT"

CURRENT SCHEMATICS

PHASE BOUNDARY
Note: Phase boundaries shown correspond to phase boundaries of site plans previously approved or currently in review.

EXISTING TREES (WITHIN SITE LIMITS)

No.	DATE	DESCRIPTION
	02-10-05	ADDRESSED COMMENTS RECEIVED AT JANUARY PLANNING COMMISSION MEETING
	01-04-05	ADDRESSED VERBAL COMMENTS RECEIVED FROM CITY
	12-17-04	ADDRESSED SECOND SET OF CITY COMMENTS
	12-13-04	ADDRESSED CITY COMMENTS

REVISIONS

PLAN DATE
11-29-04
12-13-04
12-17-04
01-04-05
01-10-05
02-10-05

Urban Engineering & Associates, Inc.
CIVIL ENGINEERS - LANDSCAPE ARCHITECTS - LAND SURVEYORS
PEGASUS BUSINESS CENTER
600 PEGASUS COURT - SUITE 101 WINCHESTER, VIRGINIA 22602
PHONE (540) 450-0211 FAX (540) 450-0210

Overall Schematic Comparison, Existing Topography & Environmental Features

OVERALL COMPOSITE SCHEMATIC

HUNTFIELD
CHARLES TOWN CORPORATION
JEFFERSON COUNTY, WEST VIRGINIA

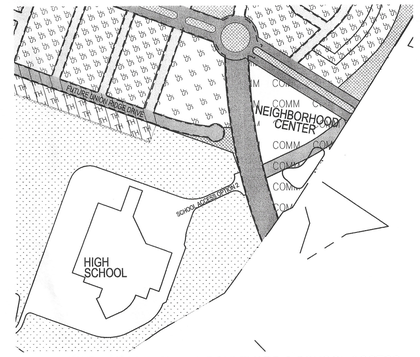
SCALE: 1"=400' C.I. = 10' DATE: NOVEMBER 2004

SHEET 4 OF 5

PREL-20107

SITE AREA (PARCEL 2)
DB 949 PG 203
TAX MAP 11, PARCEL 2
481.252 ACRES

SITE AREA (PARCEL 2)
517.59 ACRES
DB 949 PG 203
TAX MAP 11, PARCEL 1



RE-ALIGNED PROSPECT HILL BOULEVARD & SCHOOL ACCESS
ALTERNATE LAYOUT - OPTION 2

NOTE: LOCATION AND DESIGN OF RE-ALIGNED PROSPECT HILL BOULEVARD AND UNION RIDGE DRIVE ARE PRELIMINARY. FINAL STREET DESIGN TO BE DETERMINED BASED UPON LOCATION OF SCHOOL LAYOUT AND ENTRANCE.

LEGEND

ROADS
- PRIMARY
- SECONDARY
- TERTIARY

OPEN SPACE
- GENERAL
- TREE SAVE
- SCHOOL SITE OPEN SPACE

NEIGHBORHOOD RESIDENTIAL
- SF= SINGLE FAMILY
- AR= ACTIVE ADULT COMMUNITY
- TH= TOWN HOMES
- TOWN HOME REGION
- MF= MULTI-FAMILY
- COMM = COMMERCIAL (VILLAGE CENTER)
- COMM = COMMERCIAL (NEIGHBORHOOD CENTERS)

- FLOOD PLAIN
- WETLAND AREA
- SW= SIDEWALK
- EXISTING ROADS
- HUNTFIELD BOUNDARY

TOTAL SITE AREA 998.8 ACRES

NOTES:

1) TOPSOIL BERM TO BE LOCATED WITHIN THE 200' OPEN SPACE BUFFER ALONG THE RAILROAD IN LOCATIONS DETERMINED WITH FUTURE SITE PLANS. REFERENCE SHEET 2 FOR TYPICAL BERM SECTION

2) A SEPARATE LANDSCAPE PLAN DETAILING THE PROPOSED BUFFERING BETWEEN THE HUNTFIELD/CLAYMONT BOUNDARY SHALL BE PROVIDED TO THE PLANNING COMMISSION FOR INFORMATIVE PURPOSES

3) APPROXIMATE LOCATION OF HIKER/BIKER TRAIL. FINAL LOCATION TO BE DETERMINED WITH FUTURE SITE PLANS & COORDINATED WITH TRAILS ON ADJOINER PARCELS.

GRAPHIC SCALE
400 0 200 400 800 1600
(IN FEET)
1 inch = 400 ft.

No.	DATE	DESCRIPTION
	02-10-05	ADDRESSED COMMENTS RECEIVED AT JANUARY PLANNING COMMISSION MEETING
	01-04-05	ADDRESSED VERBAL COMMENTS RECEIVED FROM CITY
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REVISIONS

PLAN DATE
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12-13-04
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Overall Site Conditions

HUNTFIELD
OVERALL COMPOSITE SCHEMATIC
CHARLES TOWN CORPORATION
JEFFERSON COUNTY, WEST VIRGINIA

DATE: NOVEMBER 2004
SCALE: 1"=400' C.I. N/A

SHEET 5 OF 5

PREL-20107

Planning Commission
101 East Washington Street
Charles Town, WV 25414

SCHEDULED

Meeting: 07/27/26
Department: Planning Commission
Category: Report
Initiator:

AGENDA ITEM (ID #)

Commission Review: BR2026-05 - Augustine Manor Phase 1 - Bond Initiation

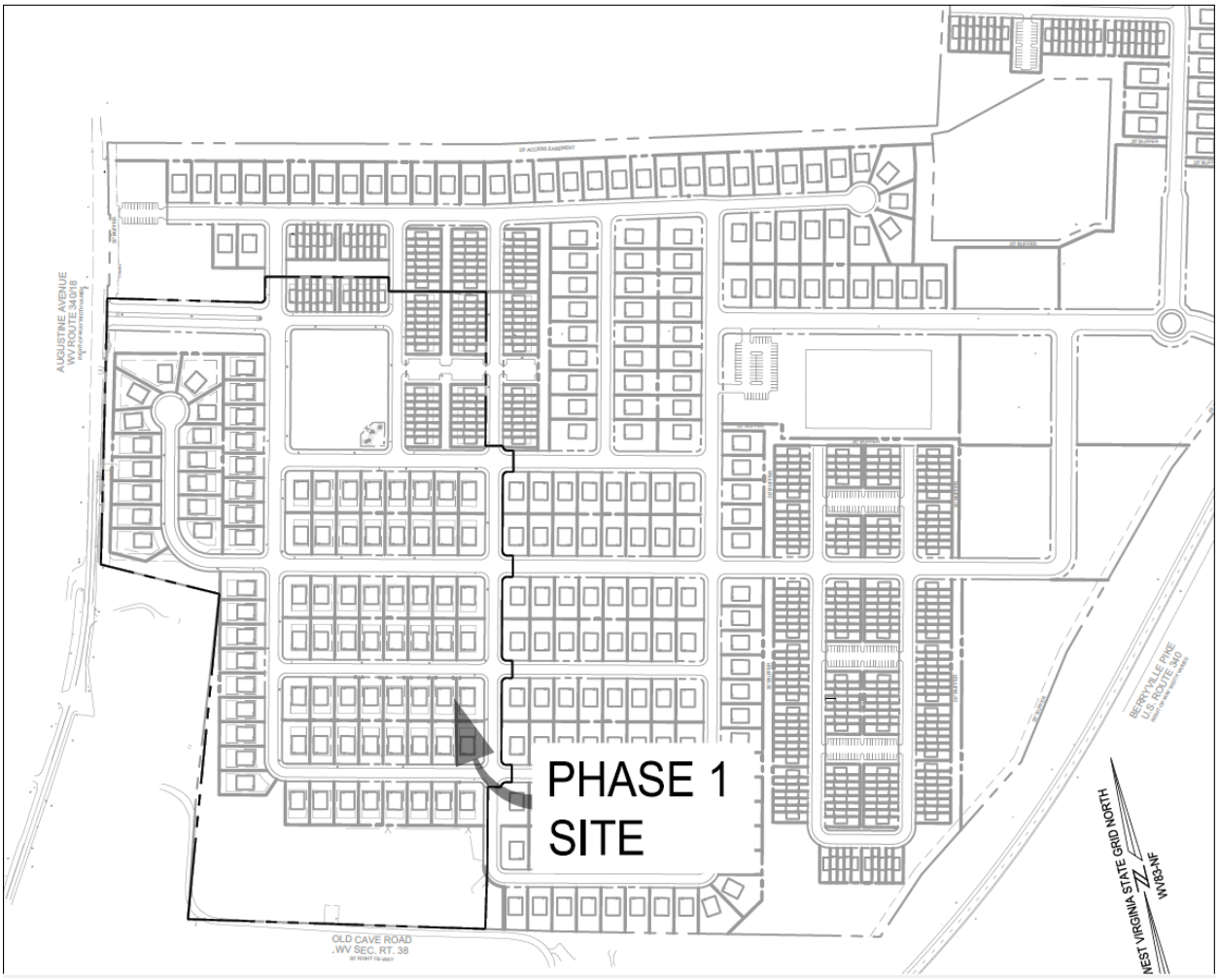
ATTACHMENTS:

- 1. Staff Report.pdf
- 2. Application.pdf
- 3. Performance Bond.pdf
- 4. KH Review.pdf
- 5. Estimate.pdf

Bond Initation Request
BR2026-05

Date: For the July 27, 2026 Planning Commission meeting
Applicant: Vinton Investments LLC
Report by: James Newman, City Planner, Zoning/Subdivision Administrator
Proposal: A bond initiation in the amount of $13,392,400.64

Augustine Manor – Phase 1



BACKGROUND

The applicant, Vinton Investments LLC, has submitted a bond initiation request for Phase 1 of their Augustine Manor development. This phase consists of 88 single-family homes, 60 townhomes, open/recreation space, and stormwater control facilities. The amount of $13,392,400.64 will cover both performance bond issues (road paving, landscaping, utility lines etc.) and land disturbance requirements (such as silt fencing).

Bonds shall be required for public and other physical Improvements to be constructed under an approved Final S/LD Application. Such Improvements shall include, without limitation, Road, curb, gutter, sidewalk, trails, storm Drainage, traffic signalization and control, water and sanitary sewer infrastructure, and any other site-related Improvements required by the City of Charles Town for vehicular and pedestrian ingress and egress, for public access roadways, for Structures necessary to insure stability of critical slopes, for necessary utilities, and for Stormwater Management Facilities.

3rd PARTY REVIEW

Upon review of the request the City Engineer, Kimley-Horn, has determined that the bond initiation amount is a reasonable request based on the work to be performed.

BOND COMMITTEE

At their June 15, 2026 meeting, the City's Bond Committee discussed the application and recommend approval of the proposed initiation.

PLAN APPROVAL

The Planning Commission approved the preliminary plan on December 22, 2025.

RECOMMENDATION

Recommend **approval** to City Council.

BOND REQUEST AND REDUCTION

1. APPLICATION TYPE :

☑ Bond Initiation – No application fee

☐ Bond Reduction – No application fee

☐ Bond Extension – No application fee

☐ Bond Release – Application Fee: $60

2. FEES

Third-party review fees are assessed separately for each application, and will be sent to the applicant. All fees must be paid prior to approval.

3. PUBLIC NOTICE

Only bond release applications require a public hearing, which is held by the Planning Commission. City Council approval is still required.

4. APPLICATION REQUIREMENTS

Please submit one application set with supporting materials in paper, and one copy in PDF format.

1. DATE 6/3/2026

2. PROJECT NAME Augustine Manor Phase 1

Address 632 Vinton Lane, Charles Town, WV 25414

3. APPLICANT'S NAME* Vinton Investments, LLC - attn. Jim Perry

Address 1355 Beverly Road, Sutie 240, McLean, VA 22101

Telephone Number (703) 734-9730

Email Address [redacted]

4. PROPERTY OWNER'S NAME Hayes Roscoe A. et al

Address 245 Vinton Lane, Charles Town, WV 25414

Telephone Number (304) 671-1078

Email Address [redacted]

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

5. DESCRIPTION OF REQUEST:

Performance bond cost estimate review for above project and phase.

6. A) CURRENT BOND AMOUNT $13,392,400.64

B) PROPOSED BOND AMOUNT $_____

C) CHANGE IN BONDED AMOUNT $_____

7. PARCEL INVENTORY: (List all parcels that are part of this application):

Tax Map No.	Parcel No.	Tax Map No.	Parcel No.
Tax Map#: 12	Parcel#: 217 & 218		

8. PARCEL HISTORY: (List all pending or previously approved applications on the subject parcels inventoried above, including previous plat applications if this application is an amendment)

Application No.	Project Name and Phase	Status	Approval Date
CTUB	Augustine Manor PH1	Approved	3/24/26
WV DEP / WVDOH	Augustine Manor PH1	Approved	2/23/26 & 3/20/26
Charles Town	Final Plans & Plat	In Review	TBD

9. <u>BOND RELEASE</u> – SUPPLEMENTAL MATERIALS REQUIRED:

A. Copies of inspection and test reports if work was inspected and tested by a third-party inspector.

B. Certification that all bonded Improvements, have been completed in accordance with the approved plans, profiles, and specifications and the requirements of any applicable manual.

C. A copy of the City-approved As-Built Drawings as required for facilities within public rights-of-way or Easements.

D. A letter from a Professional Engineer or Professional Land Surveyor certifying that property corners and Monuments have been set as required under this Ordinance.

Continued on next page.

E. Documentation of acceptance by WVDOH for public roadways and rights-of-way, or a maintenance and indemnification agreement and bond approved by the Planning Commission for public roadways that have been completed in accordance with WVDOH standards but which, due to factors other than their quality of construction, are not eligible for acceptance by WVDOH.

F. **For private roadways**, a letter of acceptance by the entity responsible for maintenance and a Latent Defects Indemnification Agreement and Bond.

Before a Performance Agreement and surety for private roadway construction shall be released, a Latent Defects Indemnification Agreement and Bond shall be provided by the applicant/Developer and approved by the Planning Commission. The guarantee provided by such Agreement and Bond must be for a period of two (2) years following the date of performance bond release, and must be in an amount equal to no less than 5% of the original performance bond estimate.

G. **Landscaping Surety** is required to ensure the landscaping shown on a Major S/LD plan is maintained for one (1) year. The one (1) year shall start from the date at which the surety for the site has been released, with the exception of this landscaping surety. The landscaping surety amount shall not be less than $5,000.00 or 10% of the total landscaping cost for the project, which ever is greater.

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 Article 1335 of the S/LD Ordinance.

Signature of Applicant

_____ Date 10/1/25

Signature of Property Owner (If different than Applicant)

Alice M. Spurlen Date 9/30/25

as Attorney In Fact for Reuse A Hare

Please submit an original completed application to the following:

At City Hall:	Or	Via Mail:
Subdivision Administrator City of Charles Town 101 E. Washington Street Charles Town, WV 25414		Subdivision Administrator City of Charles Town PO BOX 14 Charles Town, WV 25414

FOR CITY USE ONLY

Application Number:_____ Date Application Received:_____

Fee: $_____ Check No._____

Receipt No._____

Site Inspection Date:_____ Inspector:_____

Planning Commission Approval:_____ Date:_____

City Council Approval:_____ Date:_____

Comments:_____

_____

_____

_____

_____

CITY OF CHARLES TOWN, WEST VIRGINIA
PERFORMANCE BOND

Bond No.: K42189522

BOND NO.	**DATE BOND EXECUTED:** July 8, 2026
PRINCIPAL(S)/CO-PRINCIPAL(S) (Legal Name(s), Status, and Business Address(es) and Telephone Number(s) Vinton Investment, LLC 1355 Beverly Road McLean, Virginia 22101 PH: 703-734-9730 (Hereinafter "Principal" whether one or more than one)	TYPE OF ORGANIZATION: (Check One) ( ) Individual ( ) Partnership (X) Limited Liability Corporation ( ) Corporation ( ) Other (Specify) _____ _____ STATE OF INCORPORATION OF ORGANIZATION: DE
SURETY(IES): (Names and Business Address(es) and Telephone Number(s)) Federal Insurance Company 202B Hall's Mill Road Whitehouse Station, New Jersey 08889-3454 PH: 908-903-2000 (Hereinafter "Surety" whether one or more than one)	SUM OF BOND Million(s): 13 | Thousand(s): 392 | Hundred(s): 400.64 DATE OF AGREEMENT: PLAN NAME: Augustine Manor" Phase 1 (formely known Vinton Hayes Project) PLAN NO: Major SLD2025-04 Any and all revisions of such plans:

KNOW ALL MEN BY THESE PRESENTS, that we, the Principal and Surety hereto recite and declare that:

1. We are held and firmly bound to the oblige, the **CITY OF CHARLES TOWN, WEST VIRGINIA** (hereinafter called "City"), in the sum written above in lawful money of the United States of America, to be paid to the City, its successors or assigns, for the payment whereof Principal(s), Co-Principal(s) and Surety(ies) bind themselves, their heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by this Bond.

2. The condition of this Bond is that if the Principal shall in every respect discharge its obligations under the Agreement identified above, which Agreement is incorporated herein by reference, then this Bond shall be void; otherwise, this Bond shall remain in full force and effect until released by the City.

3. Surety expressly WAIVES any right to receive notice, review, approve any revisions to the plans, profiles, and specifications referred to in the Agreement and no such revision shall in any way affect the obligation of the Surety under this Bond.

4. Surety shall be deemed to consent to any extension of time granted to Principal to permit performance of the obligations of the Agreement, whether or not Surety receives notice of such extension of time, and the liability of Surety under this Bond shall not be discharged or affected by any such extension of time.

5. DEFAULT:

   A. Default may be deemed to have occurred on the part of the Principal, if Principal shall fail to complete its obligations under the Agreement within the time set forth therein or any time extension thereof;
   B. Default shall be deemed to have occurred on the part of the Principal prior to the expiration of such time period, or time extension, if, in the judgment of the Zoning Administrator ("ZA"), the Principal has:
      1. Abandoned the performance of its obligations under the Agreement; or
      2. Renounced or repudiated its obligations under the Agreement; or
      3. Demonstrated through in solvency, or otherwise, including the voluntary filing of a bankruptcy, that its obligations under the Agreement cannot be completed within the time allotted under the Agreement. Should the Applicant file bankruptcy, it shall provide notice of filing and obtain Bankruptcy Court permission to maintain any bonds, including this one, in place with the City.
   C. Default shall be deemed to have occurred on the part of the Principal if Principal shall fail to renew this bond or to have this bond reissued prior to the completion of the Improvements covered by the Agreement.
   D. The City may elect to provide Principal 30 days to cure any default with the Notice of Default.
   E. In the event of default, the City may terminate whatever rights the Principal may have to construct or correct construction of facilities.

6. In the event of default by the Principal, the City shall send a Notice of Default to the Principal which may include the 30-day time period to cure the default. A copy of the Notice of Default will be sent to the Surety. Should the Principal fail to cure the default in the time allotted, the City through its City Manager or other agent, shall give written notice of same to the Surety. In the event of such default and notice, the Surety shall have either of the following options:

   A. Within 21 days of receipt of the default notice, Surety shall pay over the full-face value sum of the Bond to the City or such lesser sum as the City Manager may determine in his sole discretion, and thereafter be relieved of further liability under this Bond. If this option is selected by Surety, then the City will take over or re-let all or any part of the work required by the Agreement but not completed, and will complete the same to the extent of available sums. The cost and expenses of completing the work shall include all items set forth in paragraph 7(B) of this Bond as the measure of damages. If these funds are not enough to complete the work, then the City may proceed against the Principal for any difference. I f there are any funds left which are not necessary for completion of the work, then the City will remit this excess to Surety after work is completed.
   B. Within 21 days of receipt of the default notice, Surety shall give written notice to the City that it will assume the Agreement and the obligations of the Principal and shall complete the Agreement according to its terms and provisions within 180 days of said notice or such other term as may be approved by City and thereafter be relieved of further liability under the terms of this Bond. In the event that Surety elects this option and then fails to faithfully perform all or any part of the work or should it unnecessarily delay completion of all or any part of the work, then the City may proceed as provided in paragraph 6 of this Bond.
   C. As used in this Bond, completion of the work specifically includes performance of every obligation of the Principal under the Agreement.
   D. The City shall not be required to institute suit against Principal as a precondition to seeking recovery from Surety.

7. Should Surety fail to elect either option in paragraphs 6 (A) and (B), above, within 21 days of receipt of

default notice, or upon election of either option should then fail to perform, in either such event, then the City may:

A. Take over, or re-let all or any part of the work not completed and complete the same for the account and at the expense of the Principal and Surety, who shall be jointly and severally liable to the City for the costs incurred in completion, including all items set forth in paragraph 7(B) of this Bond as the measure of damages chargeable against Principal and Surety for their breach; or

B. Bring suit, action, or proceeding to enforce the provisions of this Bond. In the event that any such suit, action, or proceeding is brought by the City, it is expressly agreed and understood that, regardless of when the breach of the underlying Agreement occurs, or the breach of the obligations of this Bond, the measure of damages recoverable shall be computed as the costs of completion or correction, or both, of the work required by the Agreement (I) at the time the work is actually completed *and or* corrected to local and state approval and acceptance or (2) at the time of final judgment of a Court of competent jurisdiction; it is further expressly agreed and understood that the measure of damages shall include expenses attributable, but not limited, to administrative costs, litigation costs, attorney's fees, maintenance, deterioration, inflation, and any cost increases arising from delay occasioned by litigation, action, or proceedings necessary to enforce the provisions of this Bond, and delays by Surety under paragraph 6(B) of this Bond.

C. Should the City complete the work, the City shall not be bound by the Principal's approved construction plans if unforeseen conditions require the City to deviate from the approved plans. Such deviations shall be reasonable with regard to costs, time, and exigency and shall be at the sole discretion of the Zoning Administrator.

8. Nothing in this Bond shall be construed as creating an obligation upon the City to pay for the completion or correction of the work guaranteed under the provisions of this Bond.

9. By signatures hereto the Principal and the Surety do hereby expressly WAIVE any objection that they, or either of them, might interpose to the authority of the City to require each and every provision of the foregoing Bond.

10. If any provision of this Bond is held to be illegal, invalid, or unenforceable, or is found to be against public policy for any reason, such provision shall be fully severable and this Bond shall be construed and enforced as if such illegal, invalid, or unenforceable provision had never been part of this Bond, and the remaining provisions of this Bond shall remain in full force and effect and shall not be affected by the illegal, invalid, or unenforceable provision, or by its severance from this Bond.

11. The failure or refusal of the City to take any action, proceeding, or step to enforce any remedy or exercise any right under the Agreement or the taking of any action, proceeding, or step by City, acting in good faith upon the belief that same is permitted, shall not in any way release Principal or Surety, or any of them, or their respective executors, administrators, successors or assigns from liability under this Bond. Surety hereby WAIVES notice of any amendment, indulgence, or forbearance, made, granted or permitted by the City.

12. In any action or proceeding initiated in connection with this Bond and any and all obligations arising hereunder, the venue shall be the County of Jefferson, West Virginia and it is hereby further understood and agreed that this Bond shall be governed by the laws of the State of West Virginia, both as to interpretation and performance.

13. All notices sent to the Principal and Surety shall be sent to the addresses set forth on page 1 of 7 of this bond unless said Principal or Surety notify the Zoning Administrator in writing of any change. If an address of either Principal or Surety as shown on the signature page hereof is different from the address for that party as shown on page 1 of 7, notices shall be effective if sent to either address. If the addresses of any Principal or Surety change, the said Principal or Surety shall immediately notify the City Manager of such change. Failure to notify the City Manager of any change in address is deemed to be a waiver of any requirement of notice under this Bond to the Principal and Surety. All written notice to the City under this Bond shall be sent certified or registered mail, return receipt requested and addressed to the City Manager.

[REMAINDER OF THIS PAGE PURPOSELY BLANK. SIGNATURE PAGES FOLLOW]

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed, under seal, as of the day and year on the date set forth above.

Vinton Investment, LLC

PRINCIPALS(S) / CO-PRINCIPAL(S)

TYPED, PRINTED NAME: SIGNATURE:

_____(SEAL)

NAME AND TITLE: Nicholas Flanagan, Vice President of
(Typed/Printed) ESDC II, Inc., Manager

SIGNATURE:_____(SEAL)

NAME AND TITLE: _____
(Typed/Printed) _____

STATE OF VIRGINIA
COUNTY OF FAIRFAX, to wit:

I, ALASIA M. THOMAS a Notary Public in and for the State and County aforesaid, do hereby certify that NICHOLAS FLANAGAN and VINTON INVESTMENTS, LLC as VICE PRESIDENT OF ESDC II, INC., MANAGER and VINTON INVESTMENTS LLC respectively of the VINTON INVESTMENTS, LLC, whose names are signed to the foregoing, this day personally appeared before me in my State and County aforesaid and acknowledged their signatures affixed above, and the Corporate Seal as the genuine seal of the said corporation.

Given under my hand this 10th day of JULY, 2026.

_____
Notary Public

My Commission Expires: MARCH 31, 2028

Notary Registration Number: 8104954

ALASIA MONAE THOMAS
COMMONWEALTH OF VIRGINIA
REGISTRATION NO. 8104954
MY COMM. EXPIRES 03/31/2028
NOTARY PUBLIC

Form: Corporate Surety Bond

Federal Insurance Company

SURETY

NAME, ADDRESS, AND TELEPHONE NUMBER:

Federal Insurance Company
202B Hall's Mill Road
Whitehouse Station, New Jersey 08889-3454
PH: 908-903-2000

STATE OF INCORPORATION OR ORGANIZATION:
Indiana

SIGNATURES:

1. Maureen McNeill **(SEAL)**
2. NA **(SEAL)**

1. NAME AND TITLE: Maureen McNeill,
(Typed/Printed) Attorney-in-Fact

2. NAME AND TITLE: NA
(Typed/Printed)

STATE OF Pennsylvania
COUNTY OF Philadelphia, to wit:

I, Bianca M. Phillips a Notary Public in and for the State and County aforesaid, do hereby certify that Maureen McNeill and Federal Insurance Company as Attorney-in-Fact and Federal Insurance Company respectively of the Federal Insurance Company, whose names are signed to the foregoing, this day personally appeared before me in my State and County aforesaid and acknowledged their signatures affixed above, and the Corporate Seal as the genuine seal of the said corporation.

Given under my hand this 8th day of July, 2026.

Commonwealth of Pennsylvania - Notary Seal
Bianca M. Phillips, Notary Public
Philadelphia County
My Commission Expires January 4, 2027
Commission Number 1343881

Bianca M. Phillips
Notary Public

My Commission Expires: 1/4/2027

Notary Registration Number: 1343881

Form: Corporate Surety Bond

CHUBB

Power of Attorney

Federal Insurance Company | Vigilant Insurance Company | Pacific Indemnity Company
Westchester Fire Insurance Company | ACE American Insurance Company

Know All by These Presents, that **FEDERAL INSURANCE COMPANY**, an Indiana corporation, **VIGILANT INSURANCE COMPANY**, a New York corporation, **PACIFIC INDEMNITY COMPANY**, a Delaware corporation, **WESTCHESTER FIRE INSURANCE COMPANY** and **ACE AMERICAN INSURANCE COMPANY** corporations of the Commonwealth of Pennsylvania, do each hereby constitute and appoint

Maureen McNeill

each as their true and lawful Attorney-in-Fact to execute under such designation in their names and to affix their corporate seals to and deliver for and on their behalf as surety thereon or otherwise, bonds and undertakings and other writings obligatory in the nature thereof (other than bail bonds) given or executed in the course of business, and any instruments amending or altering the same, and consents to the modification or alteration of any instrument referred to in said bonds or obligations.

In Witness Whereof, said **FEDERAL INSURANCE COMPANY, VIGILANT INSURANCE COMPANY, PACIFIC INDEMNITY COMPANY, WESTCHESTER FIRE INSURANCE COMPANY** and **ACE AMERICAN INSURANCE COMPANY** have each executed and attested these presents and affixed their corporate seals on this **19th** day of **July, 2024.**

Rupert HD Swindells, Assistant Secretary

Warren Eichhorn, Vice President

STATE OF NEW JERSEY
County of Hunterdon ss.

On this **19th** day of **July, 2024** before me, a Notary Public of New Jersey, personally came Rupert HD Swindells and Warren Eichhorn, to me known to be Assistant Secretary and Vice President, respectively, of FEDERAL INSURANCE COMPANY, VIGILANT INSURANCE COMPANY, PACIFIC INDEMNITY COMPANY, WESTCHESTER FIRE INSURANCE COMPANY and ACE AMERICAN INSURANCE COMPANY, the companies which executed the foregoing Power of Attorney, and the said Rupert HD Swindells and Warren Eichhorn, being by me duly sworn, severally and each for himself did depose and say that they are Assistant Secretary and Vice President, respectively, of FEDERAL INSURANCE COMPANY, VIGILANT INSURANCE COMPANY, PACIFIC INDEMNITY COMPANY, WESTCHESTER FIRE INSURANCE COMPANY and ACE AMERICAN INSURANCE COMPANY and know the corporate seals thereof, that the seals affixed to the foregoing Power of Attorney are such corporate seals and were thereto affixed by authority of said Companies; and that their signatures as such officers were duly affixed and subscribed by like authority.

Notarial Seal

Albert Contursi
NOTARY PUBLIC OF NEW JERSEY
No 50202369
Commission Expires August 22, 2027

Notary Public

CERTIFICATION

Resolutions adopted by the Boards of Directors of FEDERAL INSURANCE COMPANY, VIGILANT INSURANCE COMPANY, and PACIFIC INDEMNITY COMPANY on August 30, 2016; WESTCHESTER FIRE INSURANCE COMPANY on December 11, 2006; and ACE AMERICAN INSURANCE COMPANY on March 20, 2009:

"RESOLVED, that the following authorizations relate to the execution, for and on behalf of the Company, of bonds, undertakings, recognizances, contracts and other written commitments of the Company entered into in the ordinary course of business (each a "Written Commitment"):

(1) Each of the Chairman, the President and the Vice Presidents of the Company is hereby authorized to execute any Written Commitment for and on behalf of the Company, under the seal of the Company or otherwise.

(2) Each duly appointed attorney-in-fact of the Company is hereby authorized to execute any Written Commitment for and on behalf of the Company, under the seal of the Company or otherwise, to the extent that such action is authorized by the grant of powers provided for in such person's written appointment as such attorney-in-fact.

(3) Each of the Chairman, the President and the Vice Presidents of the Company is hereby authorized, for and on behalf of the Company, to appoint in writing any person the attorney-in-fact of the Company with full power and authority to execute, for and on behalf of the Company, under the seal of the Company or otherwise, such Written Commitments of the Company as may be specified in such written appointment, which specification may be by general type or class of Written Commitments or by specification of one or more particular Written Commitments.

(4) Each of the Chairman, the President and the Vice Presidents of the Company is hereby authorized, for and on behalf of the Company, to delegate in writing to any other officer of the Company the authority to execute, for and on behalf of the Company, under the Company's seal or otherwise, such Written Commitments of the Company as are specified in such written delegation, which specification may be by general type or class of Written Commitments or by specification of one or more particular Written Commitments.

(5) The signature of any officer or other person executing any Written Commitment or appointment or delegation pursuant to this Resolution, and the seal of the Company, may be affixed by facsimile on such Written Commitment or written appointment or delegation.

FURTHER RESOLVED, that the foregoing Resolution shall not be deemed to be an exclusive statement of the powers and authority of officers, employees and other persons to act for and on behalf of the Company, and such Resolution shall not limit or otherwise affect the exercise of any such power or authority otherwise validly granted or vested."

I, Rupert HD Swindells, Assistant Secretary of FEDERAL INSURANCE COMPANY, VIGILANT INSURANCE COMPANY, PACIFIC INDEMNITY COMPANY, WESTCHESTER FIRE INSURANCE COMPANY and ACE AMERICAN INSURANCE COMPANY (the "Companies") do hereby certify that

(i) the foregoing Resolutions adopted by the Board of Directors of the Companies are true, correct and in full force and effect,
(ii) the foregoing Power of Attorney is true, correct and in full force and effect.

Given under my hand and seals of said Companies at Whitehouse Station, NJ, this July 8, 2026

Rupert HD Swindells, Assistant Secretary

IN THE EVENT YOU WISH TO VERIFY THE AUTHENTICITY OF THIS BOND OR NOTIFY US OF ANY OTHER MATTER, PLEASE CONTACT US AT:
Telephone (908) 903-3493 Fax (908) 903-3656 e-mail: surety@chubb.com

MARYLAND INSURANCE ADMINISTRATION

CERTIFICATE OF AUTHORITY **No. 001665**

The below named insurer has authority to transact, within this State until the 30th day of June next, unless said authority is revoked prior to said day in accordance with law, the kinds of insurance set forth below and specifically designated by code letters. Code letters are detailed on the reverse side.

DATE APPROVED		
7	1	2026
MD	DAY	YR

C H M P S V W

Federal Insurance Company
202B Hall's Mill Road
Whitehouse Station, New Jersey 08889

Insurance Commissioner

KINDS OF INSURANCE AUTHORIZED TO BE WRITTEN UNDER THE MARYLAND INSURANCE ARTICLE

A- Variable Annuities - Sections 1-101(d)(e), 16-601, 16-602, 16-603

C - Casualty (not including Vehicle Liability, Mortgage Guaranty & Worker's Compensation) - Section 1-101(i)

D- Dental Plan Organization - Sections 14-401, 14-405, 14-407

F - Fraternal - Section 8-423, 8-424, 8-427

G - Mortgage Guaranty- Section 1-101(i)

H - Health - Section 1-101(p)

L - Life, including Annuities and Health (except Variable Life & Variable Annuities)- Sections 1-101(d)(e), 1-101(p), 1-101(x)

M - Marine, Wet Marine & Transportation - Sections 1-101(z), 1-101(ss)

N - Non-Profit Health Service Plan - Section 14-101, 14-110, 14-111

P - Property and Marine (excluding Wet Marine and Transportation) - Section 1-101(gg)

R - Variable Life - Sections 16-601, 16-602

S - Surety- Section 1-101(00)

T - Title - Section 1-101(qq)

V - Vehicle Liability - Sections 1-101(i), 19-101, 19-502, 19-503, 19-504

W - Workers' Compensation - Sections 1-101(i), 19-101, 19-402

X - Medical Mutual - Sections 24-203, 24-206

Kimley»Horn

Memorandum

To: Christopher Lemon, PE
IMEG
4601 Forbes Boulevard, Suite 140
Lanham, MD 20706

From: Mark Phillips, P.E.

Through: James Newman
City of Charles Town
101 E Washington Street
Charles Town, WV 25414

Date: June 25, 2026

Subject: Augustine Manor Phase 1 Bond Initiation Review

This memorandum summarizes our review of the Bond Initiation for the for the Augustine Manor (formerly Vinton Hayes Development) (dated May 1, 2026, prepared by IMEG) for 88 single family dwelling units and 60 townhouse dwelling units. The site is currently zoned Residential Medium-High Density (R-15). The Bond initiation amount is for $13,392,400.64.

Kimley-Horn's review of this application is limited to the Bond Initiation Application, final approved plans, and quantities provided. Based on our review, we have no comments.

Thank you for the opportunity to review this Bond Initiation. Please feel free to contact us at 703-870-3631 should you have any questions.

KIMLEY-HORN & ASSOCIATES, INC.



Mark Phillips, P.E.
Project Manager, Associate

BOND ESTIMATE						BOND REDUCTION						City Use Only
ITEM	UNIT	UNIT COST	QUANTITY	Final Price		QUANTITY COMPLETED (REDUCTION REQUEST)	UNIT COST	PREVIOUS QUANTITY COMPLETED	TOTAL QUANTITY COMPLETED (INCLUDING REDUCTION REQUEST)	EXTENSION	%COMPLETE	%APPROVED
MOBILIZATION GENERAL												
Mobilization	LS	$12,440.00	1	$12,440.00			$0.00		0		0%	
Field Office	EA	$3,490.00	1	$3,490.00			$0.00		0		0%	
Job Sign	EA	$1,340.00	1	$1,340.00			$0.00		0		0%	
SURVEYING												
Steel Pipe Property Corner Marker Incl. Survey	EA	$320.38	403	$129,113.14			$0.00		0		0%	
R.O.W MONUMENTS SURVEYED IN PLACE												
RM--1	EA	$825.00	2	$1,650.00			$0.00		0		0%	
RM--2	EA	$764.00		$0.00			$0.00		0		0%	
EARTHWORK EXCAVATION												
Regular Bulk used as Fill	CY	$4.50	250000	$1,125,000.00			$0.00		0		0%	
Rock, Rip	CY	$51.50		$0.00			$0.00		0		0%	
Rock, Blast	CY	$55.00	40000	$2,200,000.00			$0.00		0		0%	
BORROW MATERIAL												
Buy, Load, Haul 10 Mi. Select Material	CY	$42.00	0	$0.00			$0.00		0		0%	
Fill and Compaction of On-site Borrow	CY	$11.06	0	$0.00			$0.00		0		0%	
UNSUITABLE MATERIAL												
Load and Haul, 20 mi R/T	CY	$36.56	0	$0.00			$0.00		0		0%	
Dump Charge	CY	$62.50	0	$0.00			$0.00		0		0%	
Site Grading	SY	$1.25	200000	$250,000.00			$0.00		0		0%	
CLEAR & GRUB												
Light	AC	$14,548.50	16	$232,776.00			$0.00		0		0%	
Heavy	AC	$26,699.49	14	$373,792.86			$0.00		0		0%	
LANDSCAPING												
Seeding	SY	$3.00	136384.607	$409,153.82			$0.00		0		0%	
Sodding	SY	$8.50	73563.8711	$625,292.90			$0.00		0		0%	
PLANTING SHRUBS												
18"	EA	$70.00	44	$3,080.00			$0.00		0		0%	
24"	EA	$90.00		$0.00			$0.00		0		0%	
TREES												
6'-8' (1-2 in. Caliper)	EA	$400.00	334	$133,600.00			$0.00		0		0%	
8'-10' (2.5-3 in. Caliper)	EA	$700.00		$0.00			$0.00		0		0%	
Tree Protection	LF	$11.13		$0.00			$0.00		0		0%	
MISCELLANEOUS SITE IMPROVEMENTS												
Timber Wall (less than 6 ft)	LF	$325.00		$0.00			$0.00		0		0%	
Dry Rubble RW-1 (H=6')	LF	$450.00		$0.00			$0.00		0		0%	
Mortared Rubble RW-1A (H=6')	LF	$535.00		$0.00			$0.00		0		0%	
Concrete Gravity RW-2 (H=6')	LF	$589.50		$0.00			$0.00		0		0%	
Concrete Gravity RW-3 (H=6')	LF	$1,037.50		$0.00			$0.00		0		0%	
FENCING												
Std. Fence (H=5') FR-5	LF	$56.00	470	$26,320.00			$0.00		0		0%	
Farm Fence (H=5') FR-3A	LF	$37.50		$0.00			$0.00		0		0%	
Chain Link Fence (H=6') FR 2-B	LF	$62.00		$0.00			$0.00		0		0%	
Board Fence (H=6')	LF	$62.00		$0.00			$0.00		0		0%	

TOTS LOTS										
Tot Lot	EA	$16,495.00		$0.00		$0.00		0		0%
STORM DRAINAGE										
STORM SEWER										
NOTE: All pipe unit prices include trench, excavation, bedding, pipe, & backfill										
Rock Excavation for All Pipe Types										
Less than 1,500 CY (Blasting)	CY	$110.00		$0.00		$0.00		0		0%
More than 1,500 CY (Blasting)	CY	$90.00	11000	$990,000.00		$0.00		0		0%
Less than 1,500 CY (Hoe Ram)	CY	$220.00		$0.00		$0.00		0		0%
More than 1,500 CY (Hoe Ram)	CY	$180.00		$0.00		$0.00		0		0%
Trench De-Watering										
Trench De-Watering	LF	$4.00	0	$0.00		$0.00		0		0%
RCP CLASS III ROUND T & G W/MASTIC										
12" Pipe (RCP III)										
0'-8' Cut	LF	$100.00		$0.00		$0.00		0		0%
8'-14' Cut	LF	$140.00		$0.00		$0.00		0		0%
Add cost for Class IV	LF	$1.90		$0.00		$0.00		0		0%
O-Ring	LF	$12.36		$0.00		$0.00		0		0%
15" Pipe (RCP III)										
0'-10' Cut	LF	$100.00		$0.00		$0.00		0		0%
10'-16'	LF	$156.00		$0.00		$0.00		0		0%
Add Cost for Class IV	LF	$1.48		$0.00		$0.00		0		0%
O-Ring	LF	$8.58		$0.00		$0.00		0		0%
18" Pipe (RCP III)										
0'-10' Cut	LF	$100.00		$0.00		$0.00		0		0%
10' -16' Cut	LF	$160.00		$0.00		$0.00		0		0%
Add Cost for Class IV	LF	$3.20		$0.00		$0.00		0		0%
O-Ring	LF	$11.20		$0.00		$0.00		0		0%
21" Pipe (RCP III)										
0'-8' Cut	LF	$115.00		$0.00		$0.00		0		0%
8'-14' Cut	LF	$174.80		$0.00		$0.00		0		0%
Add cost for Class IV	LF	$4.40		$0.00		$0.00		0		0%
O-Ring	LF	$20.80		$0.00		$0.00		0		0%
24" Pipe (RCP III)										
0'- 10' Cut	LF	$140.00		$0.00		$0.00		0		0%
10'-16'	LF	$196.00		$0.00		$0.00		0		0%
Add Cost for Class IV	LF	$5.04		$0.00		$0.00		0		0%
O-Ring	LF	$22.40		$0.00		$0.00		0		0%
27" Pipe (RCP III)										
0'- 10' Cut	LF	$123.20		$0.00		$0.00		0		0%
10' -16' Cut	LF	$195.03		$0.00		$0.00		0		0%
Add Cost for Class IV	LF	$6.40		$0.00		$0.00		0		0%
O-Ring	LF	$24.00		$0.00		$0.00		0		0%
30" Pipe (RCP III)										
0'- 8' Cut	LF	$169.40		$0.00		$0.00		0		0%
8'-14' Cut	LF	$256.66		$0.00		$0.00		0		0%
Add cost for Class IV	LF	$9.60		$0.00		$0.00		0		0%
O-Ring	LF	$27.60		$0.00		$0.00		0		0%
33" Pipe (RCP III)										
0'- 10' Cut	LF	$240.00		$0.00		$0.00		0		0%
10'-16'	LF	$333.00		$0.00		$0.00		0		0%
Add Cost for Class IV	LF	$13.50		$0.00		$0.00		0		0%
O-Ring	LF	$45.80		$0.00		$0.00		0		0%
36" Pipe (RCP III)										

0'-10' Cut	LF	$249.60		$0.00			$0.00		0		0%
10' -16' Cut	LF	$363.92		$0.00			$0.00		0		0%
Add Cost for Class IV	LF	$12.40		$0.00			$0.00		0		0%
O-Ring	LF	$36.40		$0.00			$0.00		0		0%
42" Pipe (RCP III)											
0'- 8' Cut	LF	$289.54		$0.00			$0.00		0		0%
8'-14' Cut	LF	$413.46		$0.00			$0.00		0		0%
Add cost for Class IV	LF	$19.20		$0.00			$0.00		0		0%
O-Ring	LF	$56.72		$0.00			$0.00		0		0%
48" Pipe (RCP III)											
0'-10' Cut	LF	$320.52		$0.00			$0.00		0		0%
10'-16'	LF	$442.31		$0.00			$0.00		0		0%
Add Cost for Class IV	LF	$20.00		$0.00			$0.00		0		0%
O-Ring	LF	$69.36		$0.00			$0.00		0		0%
54" Pipe (RCP III)											
0' - 10' Cut	LF	$420.00	423	$177,660.00			$0.00		0		0%
10' -16' Cut	LF	$541.38	576	$311,834.88			$0.00		0		0%
Add Cost for Class IV	LF	$30.00		$0.00			$0.00		0		0%
O-Ring	LF	$70.96		$0.00			$0.00		0		0%
60" Pipe (RCP III)											
0'-10' Cut	LF	$420.00		$0.00			$0.00		0		0%
10' -16' Cut	LF	$498.48		$0.00			$0.00		0		0%
Add Cost for Class IV	LF	$36.00		$0.00			$0.00		0		0%
O-Ring	LF	$77.84		$0.00			$0.00		0		0%
ELLIPTICAL PIPE - RCP CLASS III											
23"x14" (18" Equiv- RCP III)											
0'10' Cut	LF	$190.00		$0.00			$0.00		0		0%
10'-16' Cut	LF	$278.60		$0.00			$0.00		0		0%
Add cost for Class IV	LF	$41.60		$0.00			$0.00		0		0%
O-Ring	LF	$109.80		$0.00			$0.00		0		0%
30"x19" (24" Equiv- RCP III)											
0'10' Cut	LF	$190.00		$0.00			$0.00		0		0%
10'-16' Cut	LF	$329.25		$0.00			$0.00		0		0%
Add cost for Class IV	LF	$15.07		$0.00			$0.00		0		0%
O-Ring	LF	$109.79		$0.00			$0.00		0		0%
38"x24" (30" Equiv- RCP III)											
0'10' Cut	LF	$190.00		$0.00			$0.00		0		0%
10'-16' Cut	LF	$423.78		$0.00			$0.00		0		0%
Add cost for Class IV	LF	$21.38		$0.00			$0.00		0		0%
O-Ring	LF	$129.92		$0.00			$0.00		0		0%
45"x29" (36" Equiv- RCP III)											
0'10' Cut	LF	$370.00		$0.00			$0.00		0		0%
10'-16' Cut	LF	$526.88		$0.00			$0.00		0		0%
Add cost for Class IV	LF	$25.45		$0.00			$0.00		0		0%
O-Ring	LF	$119.63		$0.00			$0.00		0		0%
53"X 34" (42" Equiv-RCP III)											
0'12' Cut	LF	$370.00		$0.00			$0.00		0		0%
10'-18' Cut	LF	$528.36		$0.00			$0.00		0		0%
Add cost for Class IV	LF	$38.87		$0.00			$0.00		0		0%
O-Ring	LF	$149.26		$0.00			$0.00		0		0%
60"x38" (48" Equiv- RCP III)											
0'12' Cut	LF	$370.00		$0.00			$0.00		0		0%
10'-18' Cut	LF	$543.90		$0.00			$0.00		0		0%
Add cost for Class IV	LF	$46.46		$0.00			$0.00		0		0%
O-Ring	LF	$177.11		$0.00			$0.00		0		0%

HDPE PIPE											
8" Pipe											
0'-8' Cut	LF	$50.00		$0.00			$0.00		0		0%
8'-14' Cut	LF	$75.30		$0.00			$0.00		0		0%
12" Pipe											
0'-8' Cut	LF	$67.50		$0.00			$0.00		0		0%
8'-14' Cut	LF	$100.04		$0.00			$0.00		0		0%
15" Pipe											
0'-8' Cut	LF	$87.08	4686	$408,056.88			$0.00		0		0%
8'-16' Cut	LF	$129.65		$0.00			$0.00		0		0%
18" Pipe											
0'-8' Cut	LF	$114.33	483	$55,221.39			$0.00		0		0%
8'-16' Cut	LF	$170.69	160	$27,310.40			$0.00		0		0%
24" Pipe											
0'-8' Cut	LF	$132.62	1765	$234,074.30			$0.00		0		0%
8'-16' Cut	LF	$197.61		$0.00			$0.00		0		0%
30" Pipe											
0'-8' Cut	LF	$157.42	130	$20,464.60			$0.00		0		0%
8'-16' Cut	LF	$236.13	268	$63,282.84			$0.00		0		0%
36" Pipe											
0'-8' Cut	LF	$200.00		$0.00			$0.00		0		0%
8'-16' Cut	LF	$298.00	216	$64,368.00			$0.00		0		0%
42" Pipe											
0'-8' Cut	LF	$224.20		$0.00			$0.00		0		0%
8'-16' Cut	LF	$334.06	263	$87,857.78			$0.00		0		0%
48" Pipe											
0'-8' Cut	LF	$253.35		$0.00			$0.00		0		0%
8'-16' Cut	LF	$377.49	2504	$945,234.96			$0.00		0		0%
STORM STRUCTURES											
END SECTIONS											
End Sections (ES-1), Concrete Pipe Size											
15"	EA	$1,389.00	5	$6,945.00			$0.00		0		0%
18"	EA	$1,583.46	1	$1,583.46			$0.00		0		0%
21"	EA	$1,805.14		$0.00			$0.00		0		0%
24"	EA	$2,057.86	1	$2,057.86			$0.00		0		0%
27"	EA	$2,345.97		$0.00			$0.00		0		0%
30"	EA	$2,674.40		$0.00			$0.00		0		0%
36"	EA	$3,048.82		$0.00			$0.00		0		0%
42"	EA	$3,558.50		$0.00			$0.00		0		0%
48"	EA	$4,056.69		$0.00			$0.00		0		0%
54"	EA	$4,624.63		$0.00			$0.00		0		0%
60"	EA	$5,272.07		$0.00			$0.00		0		0%
ENDWALLS											
EW-1 (Pre-Cast) Round Pipe Size											
15"	EA	$2,433.00		$0.00			$0.00		0		0%
18"	EA	$2,724.96		$0.00			$0.00		0		0%
24"	EA	$3,051.96	4	$12,207.84			$0.00		0		0%
30"	EA	$3,418.19		$0.00			$0.00		0		0%
36"	EA	$3,828.37		$0.00			$0.00		0		0%
EW-1 Cast in Place [Round Pipe Size]											
15"	EA	$2,591.15		$0.00			$0.00		0		0%
18"	EA	$2,902.08		$0.00			$0.00		0		0%
24"	EA	$3,250.33		$0.00			$0.00		0		0%
30"	EA	$3,640.37		$0.00			$0.00		0		0%
36"	EA	$4,077.22		$0.00			$0.00		0		0%

EW-1A (Pre-Cast) Elliptical Pipe Size											
23" X 14" (18")	EA	$1,335.00		$0.00			$0.00		0		0%
30" X 19" (24")	EA	$1,495.20		$0.00			$0.00		0		0%
38 X 24" (30")	EA	$1,879.50		$0.00			$0.00		0		0%
45 X 29" (36")	EA	$2,105.04		$0.00			$0.00		0		0%
53" X 34" (42")	EA	$2,791.50		$0.00			$0.00		0		0%
EW-1A (Cast in Place) Elliptical Pipe Size											
23" X 14" (18")	EA	$1,318.50		$0.00			$0.00		0		0%
30" X 19" (24")	EA	$1,318.50		$0.00			$0.00		0		0%
38 X 24" (30")	EA	$2,257.00		$0.00			$0.00		0		0%
45 X 29" (36")	EA	$2,257.00		$0.00			$0.00		0		0%
53" X 34" (42")	EA	$3,217.50		$0.00			$0.00		0		0%
EW-2 (PreCast) Round Size Pipe Size											
42"	EA	$8,324.00		$0.00			$0.00		0		0%
48"	EA	$9,322.88		$0.00			$0.00		0		0%
54"	EA	$10,441.63	1	$10,441.63			$0.00		0		0%
60"	EA	$11,694.62	2	$23,389.24			$0.00		0		0%
72"	EA	$12,675.50		$0.00			$0.00		0		0%
84"	EA	$14,196.56		$0.00			$0.00		0		0%
EW-2 (Cast in Place) Round Size Pipe Size											
42"	EA	$9,255.50		$0.00			$0.00		0		0%
48"	EA	$10,366.16		$0.00			$0.00		0		0%
54"	EA	$11,610.10		$0.00			$0.00		0		0%
60"	EA	$13,003.31		$0.00			$0.00		0		0%
72"	EA	$15,747.00		$0.00			$0.00		0		0%
84"	EA	$17,636.64		$0.00			$0.00		0		0%
EW-6PC [Double Pipe] Pipe Size											
2-15"	EA	$2,123.00		$0.00			$0.00		0		0%
2-18"	EA	$2,377.76		$0.00			$0.00		0		0%
2-24"	EA	$2,663.09		$0.00			$0.00		0		0%
2-30"	EA	$4,096.00		$0.00			$0.00		0		0%
2-36"	EA	$4,587.52		$0.00			$0.00		0		0%
MANHOLES											
Standard Brick Manhole Std Frame & Cover (MH-1)											
6' Depth	EA	$6,048.00		$0.00			$0.00		0		0%
Depth Below 6'	VF	$230.00		$0.00			$0.00		0		0%
Standard Precast Manhole Std Frame & Cover (MH-2)		$5,337.00	58	$309,546.00			$0.00		0		0%
Additional Cost (Amount in parentheses to be added to the above unit costs)											
Watertight Fr/Cover (Add 110)	EA	$579.00		$0.00			$0.00		0		0%
Heavy Duty Fr/ Cover (Add 82)	VF	$599.00		$0.00			$0.00		0		0%
Drop Inlets											
Cast in Place 48"											
Drop Inlet (DI-1) 12"-24" Pipe0-10 VF	EA	$7,690.00	7	$53,830.00			$0.00		0		0%
Drop Inlet (DI-1A) 12"-24" Pipe10-20 VF	EA	$7,690.00		$0.00			$0.00		0		0%
Drop Inlet (DI-2A) 12"-24" Pipe0-10 VF, 10' throat	EA	$9,458.70		$0.00			$0.00		0		0%
Drop Inlet (DI-2A) 12"-24" Pipe10-20 VF, 10' throat	EA	$11,634.20		$0.00			$0.00		0		0%
Curb Drop Inlets											
Curb Drop Inlet (DI-3A)											

12"-30" Pipe (Invert Depth (H) =0'-8') Inlet Length 2'-6"	EA	$7,460.00		$0.00			$0.00		0		0%	
Curb Drop Inlet (DI-3AA)												
12"-30" Pipe (Invert Depth (H) =8'-	**EA**	$9,772.60		$0.00			$0.00		0		0%	
Curb Drop Inlet (DI-3B) 12"-30" Pipe (Invert Depth (H) = 0 '-8') Inlet Length												
4'	EA	$7,758.40		$0.00			$0.00		0		0%	
6'	EA	$8,534.24		$0.00			$0.00		0		0%	
8'	EA	$9,387.66		$0.00			$0.00		0		0%	
10'	EA	$10,326.43	61	$629,912.23			$0.00		0		0%	
12'	EA	$11,359.07		$0.00			$0.00		0		0%	
16'	EA	$12,494.98		$0.00			$0.00		0		0%	
20'	EA	$13,744.48		$0.00			$0.00		0		0%	
Curb Drop Inlet (DI-3BB) 12"-30" Pipe (Invert Depth (H) = 0 '-8') Inlet Length												
4'	EA	$7,680.82		$0.00			$0.00		0		0%	
6'	EA	$8,448.90		$0.00			$0.00		0		0%	
8'	EA	$9,293.79		$0.00			$0.00		0		0%	
10'	EA	$10,223.17		$0.00			$0.00		0		0%	
12'	EA	$11,245.48		$0.00			$0.00		0		0%	
16'	EA	$12,370.03		$0.00			$0.00		0		0%	
20'	EA	$13,607.03		$0.00			$0.00		0		0%	
Curb Drop Inlet (DI-3C) 12"-30" Pipe (Invert Depth (H) = 0 '-8') Inlet Length												
6'	EA	$7,204.61	2	$14,409.22			$0.00		0		0%	
8'	EA	$7,925.07		$0.00			$0.00		0		0%	
10'	EA	$8,717.57	11	$95,893.27			$0.00		0		0%	
12'	EA	$9,589.33	1	$9,589.33			$0.00		0		0%	
16'	EA	$10,548.26		$0.00			$0.00		0		0%	
20'	EA	$11,603.09		$0.00			$0.00		0		0%	
Curb Drop Inlet (DI-3CC) 12"-30" Pipe (Invert Depth (H) = 0 '-8') Inlet Length												
6'	EA	$8,573.48		$0.00			$0.00		0		0%	
8'	EA	$9,430.83		$0.00			$0.00		0		0%	
10'	EA	$10,373.91		$0.00			$0.00		0		0%	
12'	EA	$11,411.30		$0.00			$0.00		0		0%	
16'	EA	$12,552.43		$0.00			$0.00		0		0%	
20'	EA	$13,807.68		$0.00			$0.00		0		0%	
Curb Drop Inlet (DI-3D)												
12"-30" Pipe (Invert Depth (H) =0'-8') Inlet Length 2'-6"	EA	$6,430.11		$0.00			$0.00		0		0%	
Curb Drop Inlet (DI-3DD)												
12"-30" Pipe (Invert Depth	**EA**	$7,587.53		$0.00			$0.00		0		0%	
Curb Drop Inlet (DI-3E) 12"-30" Pipe (Invert Depth (H) = 0 '-8') Inlet Length												
4'	EA	$7,460.00		$0.00			$0.00		0		0%	
8'	EA	$7,982.20		$0.00			$0.00		0		0%	
10'	EA	$8,540.95		$0.00			$0.00		0		0%	
12'	EA	$9,138.82		$0.00			$0.00		0		0%	
16'	EA	$9,778.54		$0.00			$0.00		0		0%	
20'	EA	$10,463.04		$0.00			$0.00		0		0%	
Curb Drop Inlet (DI-3EE) 12"-30" Pipe (Invert Depth (H) = 8'-20') Inlet Length												
6'	EA	$11,509.34		$0.00			$0.00		0		0%	
8'	EA	$12,314.99		$0.00			$0.00		0		0%	
10'	EA	$13,177.04		$0.00			$0.00		0		0%	
12'	EA	$14,099.44		$0.00			$0.00		0		0%	
16'	EA	$15,086.40		$0.00			$0.00		0		0%	
20'	EA	$16,142.44		$0.00			$0.00		0		0%	
Curb Drop Inlet (DI-3F) 12"-30" Pipe (Invert Depth (H) = 0 '-8') Inlet Length												
6'	EA	$6,855.74		$0.00			$0.00		0		0%	

8'	EA	$7,335.64		$0.00			$0.00		0		0%
10'	EA	$7,849.14		$0.00			$0.00		0		0%
12'	EA	$8,398.58		$0.00			$0.00		0		0%
16'	EA	$8,986.48		$0.00			$0.00		0		0%
20'	EA	$9,615.53		$0.00			$0.00		0		0%
Curb Drop Inlet (DI-3FF) 12"-30" Pipe (Invert Depth (H) = 8'-20') Inlet Length											
6'	EA	$14,671.28		$0.00			$0.00		0		0%
8'	EA	$15,698.27		$0.00			$0.00		0		0%
10'	EA	$16,797.15		$0.00			$0.00		0		0%
12'	EA	$17,972.95		$0.00			$0.00		0		0%
16'	EA	$19,231.06		$0.00			$0.00		0		0%
20'	EA	$20,577.23		$0.00			$0.00		0		0%
Curb Drop Inlet (DI-4A) 36"-48" Pipe (Invert Depth (H) = 8'-20') Inlet Length											
4'	**EA**	$10,020.00		$0.00			$0.00		0		0%
Curb Drop Inlet (DI-4AA) 36"-48" Pipe (Invert Depth (H) = 8'-20') Inlet Length											
4'	**EA**	$10,020.00		$0.00			$0.00		0		0%
Curb Drop Inlet (DI-4B) 36"-48" Pipe (Invert Depth (H) = 0'-8') Inlet Length											
6'	EA	$8,802.77		$0.00			$0.00		0		0%
8'	EA	$9,418.96		$0.00			$0.00		0		0%
10'	EA	$10,078.29		$0.00			$0.00		0		0%
12'	EA	$10,783.77		$0.00			$0.00		0		0%
16'	EA	$11,538.64		$0.00			$0.00		0		0%
20'	EA	$12,346.34		$0.00			$0.00		0		0%
Curb Drop Inlet (DI-4BB) 36"-48" Pipe (Invert Depth (H) = 8'-20') Inlet Length											
6'	EA	$17,429.48		$0.00			$0.00		0		0%
8'	EA	$18,649.55		$0.00			$0.00		0		0%
10'	EA	$19,955.02		$0.00			$0.00		0		0%
12'	EA	$21,351.87		$0.00			$0.00		0		0%
16'	EA	$22,846.50		$0.00			$0.00		0		0%
20'	EA	$24,445.75		$0.00			$0.00		0		0%
Curb Drop Inlet (DI-4C) 36"-48" Pipe (Invert Depth (H) = 0'-8') Inlet Length											
8'	EA	$9,418.96		$0.00			$0.00		0		0%
10'	EA	$10,078.29		$0.00			$0.00		0		0%
12'	EA	$10,783.77		$0.00			$0.00		0		0%
16'	EA	$11,538.64		$0.00			$0.00		0		0%
20'	EA	$12,346.34		$0.00			$0.00		0		0%
Curb Drop Inlet (DI-4CC) 36"-48" Pipe (Invert Depth (H) = 8'-20') Inlet Length											
8'	EA	$22,417.13		$0.00			$0.00		0		0%
10'	EA	$23,986.33		$0.00			$0.00		0		0%
12'	EA	$25,665.38		$0.00			$0.00		0		0%
16'	EA	$27,461.95		$0.00			$0.00		0		0%
20'	EA	$29,384.29		$0.00			$0.00		0		0%
Curb Drop Inlet (DI-4D)											
36"-48" Pipe (Invert Depth (H) =8'16') Inlet Length 4'	EA	$8,279.27		$0.00			$0.00		0		0%
Curb Drop Inlet (DI-4DD)											
36"-48" Pipe (Invert Depth (H)	**EA**	$16,392.95		$0.00			$0.00		0		0%
Curb Drop Inlet (DI-4E) 36"-48" Pipe (Invert Depth (H) = 0'-8') Inlet Length											
6'	EA	$9,016.12		$0.00			$0.00		0		0%
8'	EA	$9,647.25		$0.00			$0.00		0		0%
10'	EA	$10,322.56		$0.00			$0.00		0		0%
12'	EA	$11,045.14		$0.00			$0.00		0		0%
16'	EA	$11,818.30		$0.00			$0.00		0		0%
20'	EA	$12,645.58		$0.00			$0.00		0		0%
Curb Drop Inlet (DI-4EE) 36"-48" Pipe (Invert Depth (H) = 8'-16') Inlet Length											

6'	EA	$15,688.06		$0.00			$0.00		0		0%
8'	EA	$16,786.22		$0.00			$0.00		0		0%
10'	EA	$17,961.26		$0.00			$0.00		0		0%
12'	EA	$19,218.54		$0.00			$0.00		0		0%
16'	EA	$20,563.84		$0.00			$0.00		0		0%
20'	EA	$22,003.31		$0.00			$0.00		0		0%
Curb Drop Inlet (DI-4F) 36"-48" Pipe (Invert Depth (H) = 0'-8') Inlet Length											
8'	EA	$10,040.36		$0.00			$0.00		0		0%
10'	EA	$10,743.18		$0.00			$0.00		0		0%
12'	EA	$11,495.20		$0.00			$0.00		0		0%
16'	EA	$12,299.87		$0.00			$0.00		0		0%
20'	EA	$13,160.86		$0.00			$0.00		0		0%
Curb Drop Inlet (DI-4FF) 36"-48" Pipe (Invert Depth (H) = 8'-16') Inlet Length											
8'	EA	$15,140.86		$0.00			$0.00		0		0%
10'	EA	$16,200.72		$0.00			$0.00		0		0%
12'	EA	$17,334.77		$0.00			$0.00		0		0%
16'	EA	$18,548.20		$0.00			$0.00		0		0%
20'	EA	$19,846.57		$0.00			$0.00		0		0%
Median Drop Inlets - CIP											
Median Drop Inlets (DI-6A) 12"-24"Pipe Inlet (H=8')	EA	$6,032.00		$0.00			$0.00		0		0%
Median Drop Inlets (DI-6B) 12"-24"Pipe Inlet (H=8')	EA	$6,080.00		$0.00			$0.00		0		0%
Median Drop Inlets (DI-6C) 30"-48"Pipe Inlet (H=10')	EA	$7,737.50		$0.00			$0.00		0		0%
Median Drop Inlets (DI-6D) 30"-48"Pipe Inlet (H=10')	EA	$7,805.00		$0.00			$0.00		0		0%
Median Drop Inlets (DI-7) Type III Top 12"-42" Pipe Inlet (H=10')	EA	$8,548.00	7	$59,836.00			$0.00		0		0%
Median Drop Inlets (DI-7A) Type III Top 12"-42" Pipe Inlet (H=10')	EA	$8,548.00		$0.00			$0.00		0		0%
Median Drop Inlets (DI-7B) Type III Top 12"-42" Pipe Inlet (H=10')	EA	$8,548.00		$0.00			$0.00		0		0%
MISCELLANEOUS INLETS											
Median Drop Inlets (DI-5) Type III Top 12"-42" Pipe Inlet (H=8')	EA	$6,569.08		$0.00			$0.00		0		0%
Standard Yard Inlet (YI-1) 12"-48" Pipe (Invert Depth (H)= 0'-8') Inlet Length 4' (No Aprons)		$5,969.49		$0.00			$0.00		0		0%
Add Yard Inlet Apron	THROAT	$320.54		$0.00			$0.00		0		0%
Standard Yard Inlet (YI-1) 12"-48" Pipe (Invert Depth (H)= 0'-8') Inlet Length 4' (No Aprons)	EA	$6,444.64		$0.00			$0.00		0		0%
Add Yard Inlet Apron	THROAT	$320.54		$0.00			$0.00		0		0%
Culverts											
Single Box Culvert (BC-1A) Fills to 25'											
4' X 4'	LF	$473.00		$0.00			$0.00		0		0%
5' X 5'	LF	$563.00		$0.00			$0.00		0		0%
6' X 6'	LF	$689.00		$0.00			$0.00		0		0%

8' X 8'	LF	$944.00		$0.00			$0.00		0		0%
10' X 10'	LF	$1,159.00		$0.00			$0.00		0		0%
Double Box Culvert (BC-2b) Fills to 25'											
4' X 4'	LF	$792.40		$0.00			$0.00		0		0%
5' X 5'	LF	$987.00		$0.00			$0.00		0		0%
6' X 6'	LF	$1,195.60		$0.00			$0.00		0		0%
8' X 8'	LF	$1,607.20		$0.00			$0.00		0		0%
10' X 10'	LF	$1,975.40		$0.00			$0.00		0		0%
Oversized Single Box Culvert (BBC-1) Fills to 25'											
12' X 6'	LF	$1,488.50		$0.00			$0.00		0		0%
12' X 8'	LF	$1,488.50		$0.00			$0.00		0		0%
12' X 10'	LF	$1,771.50		$0.00			$0.00		0		0%
12' X 12'	LF	$1,771.50		$0.00			$0.00		0		0%
Triple Box Culvert (BC-3B) Fills to 25'											
4' X 4'	LF	$1,129.55		$0.00			$0.00		0		0%
5' X 5'	LF	$1,399.25		$0.00			$0.00		0		0%
6' X 6'	LF	$1,755.95		$0.00			$0.00		0		0%
8' X 8'	LF	$2,367.85		$0.00			$0.00		0		0%
10' X 10'	LF	$3,607.60		$0.00			$0.00		0		0%
Quadruple Box Culvert (BC-4B) Fills to 25'											
4' X 4'	LF	$1,431.15		$0.00			$0.00		0		0%
5' X 5'	LF	$1,776.25		$0.00			$0.00		0		0%
6' X 6'	LF	$2,208.35		$0.00			$0.00		0		0%
8' X 8'	LF	$2,170.65		$0.00			$0.00		0		0%
10' X 10'	LF	$4,110.75		$0.00			$0.00		0		0%
Standard Wing for Box Culvert (1 Side Only) Height of Box											
4'	EA	$926.50		$0.00			$0.00		0		0%
5'	EA	$1,390.00		$0.00			$0.00		0		0%
6'	EA	$1,853.50		$0.00			$0.00		0		0%
8'	EA	$3,426.50		$0.00			$0.00		0		0%
10'	EA	$4,558.00		$0.00			$0.00		0		0%
Standard Wing for Box Culvert (BBC-W) Height of Box											
6'	EA	$1,817.00		$0.00			$0.00		0		0%
8'	EA	$3,007.50		$0.00			$0.00		0		0%
10'	EA	$4,497.50		$0.00			$0.00		0		0%
12'	EA	$6,567.00		$0.00			$0.00		0		0%
MISCELLANEOUS STORM											
Connection to Existing Structure											
15"-36" Pipe	EA	$1,584.00		$0.00			$0.00		0		0%
42"-60" Pipe	EA	$1,584.00		$0.00			$0.00		0		0%
Casing Pipe, Bore and Jack (3/8" wall)											
22" ID (6"-8" Carrier Pipe)	LF	$885.71		$0.00			$0.00		0		0%
24" ID (10" Carrier Pipe)	LF	$971.91		$0.00			$0.00		0		0%
30" ID (12" Carrier Pipe)	LF	$1,226.20		$0.00			$0.00		0		0%
Plug Pipe											
6"-12" Pipe	EA	$444.50		$0.00			$0.00		0		0%
15"-36" Pipe	EA	$444.50		$0.00			$0.00		0		0%
42"-60" Pipe	EA	$574.50		$0.00			$0.00		0		0%
Pavement Edge Pipe											
Standard Pipe Underdrain	LF	$20.50		$0.00			$0.00		0		0%
RipRap											
Dry, Class I, 18"	SY	$82.00		$0.00			$0.00		0		0%
Dry, Class II, 18"	SY	$82.00		$0.00			$0.00		0		0%
Grouted, Class I, 18"	SY	$84.00		$0.00			$0.00		0		0%

Filter Fabric											
Class I	SY	$4.13		$0.00			$0.00		0		0%
Class II	SY	$4.13		$0.00			$0.00		0		0%
Class III	SY	$4.13		$0.00			$0.00		0		0%
Gabions (No excavations)											
Mattress	CY	$237.50		$0.00			$0.00		0		0%
Revetment	CY	$237.50		$0.00			$0.00		0		0%
Wall	CY	$237.50		$0.00			$0.00		0		0%
Paved Ditch (4" Thick)											
Concrete (Non-reinforced)	SY	$94.50		$0.00			$0.00		0		0%
Bituminous Concrete (4")	SY	$43.50		$0.00			$0.00		0		0%
Sodded Ditch											
Sodded Ditch(Incl Fine Grading)	SY	$15.03		$0.00			$0.00		0		0%
STREET CONSTRUCTION											
ROADS AND PARKING											
Soil Stabilization											
Cement 6%	SY/ Inch	$20.00		$0.00			$0.00		0		0%
Depth (in Inches):	Depth					0					
Lime 6%	SY/ Inch	$14.00		$0.00			$0.00		0		0%
Depth (in Inches):	Depth					0					
Subbase, Aggregated Material											
Base Type I	SY/ Inch	$12.95		$0.00			$0.00		0		0%
Depth (in Inches):	Depth					0					
Bituminous Concrete											
Base Course	SY/ Inch	$7.00	24858	$174,006.00			$0.00		0		0%
Depth (in Inches):	Depth	1				1					
Intermediate Course	SY/ Inch	$7.00	24858	$174,006.00			$0.00		0		0%
Depth (in Inches):	Depth	1				1					
Top Course	SY/ Inch	$7.00	24858	$174,006.00			$0.00		0		0%
Depth (in Inches):	Depth	1				1					
Prime Coat	SY	$1.38		$0.00			$0.00		0		0%
Tack Coat	SY	$1.38		$0.00			$0.00		0		0%
Driveway Restoration											
4” Concrete & 4” Gravel	SY	$75.00		$0.00			$0.00		0		0%
2” S-5 & 7 6” Gravel	SY	$29.98		$0.00			$0.00		0		0%
Shoulders, Type I											
Aggregated Base, 4”	SY	$15.00		$0.00			$0.00		0		0%
Concrete Curbing											
Curb & Gutter CG6 & CG7	LF	$31.50		$0.00			$0.00		0		0%
Curb Cut, CG-12 DetectableSurf.	EA	$1,044.00		$0.00			$0.00		0		0%
Entrances/ Driveways											
Commercial Entrance CG-11	SY	$87.00		$0.00			$0.00		0		0%
Commercial Entrance CG-13	SY	$87.00		$0.00			$0.00		0		0%
Residential Driveway Apron	EA	$2,254.50	148	$333,666.00			$0.00		0		0%
Guardrails											
Std. Blocked-out W beam(GR2)	LF	$53.50		$0.00			$0.00		0		0%
Std. W beam, Weak Post GR8	LF	$53.50		$0.00			$0.00		0		0%
Terminal, GR-6 (L=12’-6”)	EA	$3,880.50		$0.00			$0.00		0		0%
Terminal, GR-7 (L=6’-3”)	EA	$3,880.50		$0.00			$0.00		0		0%
Type I, GR-8 Terminal (L=25’)	EA	$3,580.50		$0.00			$0.00		0		0%
Type II, GR-8 Terminal(L=13’-6”)	EA	$1,701.00		$0.00			$0.00		0		0%
Terminal, MB-4 (L=37’-6”)	EA	$3,580.50		$0.00			$0.00		0		0%
Type I, MB-5 Terminal(L=27’-1)	EA	$3,580.50		$0.00			$0.00		0		0%
Type II, MB-5 Terminal(L=13’-6)	EA	$1,701.00		$0.00			$0.00		0		0%
Miscellaneous											

Trash enclosure - Brick 6' high	LF	$7,336.50		$0.00			$0.00		0		0%
Reinforced Concrete Pad 6" to 8"	SY	$150.00		$0.00			$0.00		0		0%
Striping 4" width (VDOT Type	LF	$2.50		$0.00			$0.00		0		0%
B)											
Concrete Wheel Stops	EA	$90.00		$0.00			$0.00		0		0%
Parking Lot Striping	EA	$50.00		$0.00			$0.00		0		0%
Sign Island	EA	$850.00		$0.00			$0.00		0		0%
Traffic Barricade	EA	$133.50		$0.00			$0.00		0		0%
Street Name Signs	EA	$594.50	33	$19,618.50			$0.00		0		0%
Traffic Control Signs	EA	$512.00	29	$14,848.00			$0.00		0		0%
Street Light (pole, bracket,light)	EA	$5,938.00	35	$207,830.00			$0.00		0		0%
SIDEWALKS AND TRAILS											
Sidewalk											
Concrete 4" w/WWF, No base	SY	$58.50	7544.23	$441,337.46			$0.00		0		0%
Bitum. Conc, 2" w/4" Base	SY	$42.00		$0.00			$0.00		0		0%
4" Conc, No Reinf., No Base	SY	$58.50		$0.00			$0.00		0		0%
HANDRAIL											
Handrail 3 Rail 1-1/4" #4 Finish	LF	$143.00	470	$67,210.00			$0.00		0		0%
Wood Chip Trail											
Trails(Incl Excavation &	SY	$77.00		$0.00			$0.00		0		0%
Grading) Wood chip, 4' wide	SY	$21.00		$0.00			$0.00		0		0%
Bituminous Trail											
6' to 10' wide	SY	$22.00		0			$0.00		0		0%
CRITICAL SLOPE STABILIZATION											
Paved Flume	SY	$100.00		$0.00			$0.00		0		0%
Stmwtr Conc Channel-Excav	SY	$97.00		$0.00			$0.00		0		0%
ADD Grass Lined-seeded	SY	$19.00		$0.00			$0.00		0		0%
ADD Grass Lined-sodded	SY	$26.00		$0.00			$0.00		0		0%
Outlet Protection											
Non-grouted Riprap 18"	SY	$87.00	197.38	$17,172.06			$0.00		0		0%
Concrete 4"	SY	$70.00		$0.00			$0.00		0		0%
Level Spreader	SY	$5.77		$0.00			$0.00		0		0%
Struc Streambank Protection											
Non-grouted Riprap 18"	SY	$87.00		$0.00			$0.00		0		0%
Gabions	CY	$255.00		$0.00			$0.00		0		0%
Vegetative Erosion Control											
Sodding incl Fertilizing –Banks	SY	$9.00		$0.00			$0.00		0		0%
Sodding incl Fertilizing – Flat	SY	$9.00		$0.00			$0.00		0		0%
Seeding incl Fertilizing	SY	$3.00	136384.607	$409,153.82			$0.00		0		0%
Soding W/Soil Treat &Watering	SY	$9.00		$0.00			$0.00		0		0%
Seeding W/Soil Treat &Watering	SY	$3.00		$0.00			$0.00		0		0%
Straw Mulch w/Tack	SY	$2.00		$0.00			$0.00		0		0%
Jute Mesh	SY	$2.00		$0.00			$0.00		0		0%
SPECIAL ITEMS											
FEMA ProcessingLOMR/CLOMR	EA	$10,240.00		$0.00			$0.00		0		0%
As Built (Record Drawings)	EA	$12,967.50		$0.00			$0.00		0		0%
SWM/BMP POND	LS	$0.00		$0.00			$0.00		0		0%
SIGNALIZATION	LS	$0.00		$0.00			$0.00		0		0%

EFFECTIVE PERIOD OF BOND (IN MONTHS)	
TOTAL ESTIMATE OF COMPLETED WORK	**$12,174,909.67**
+ 10% CONTINGENCY	**$1,217,490.97**
GRAND TOTAL	**$13,392,400.64**

EFFECTIVE PERIOD OF BOND (IN MONTHS)	
TOTAL BOND REDUCTION REQUEST	**$0.00**
+ 10% CONTINGENCY	**$0.00**
GRAND TOTAL	**$0.00**

FINAL PRICE (+ 4% ANNUAL INTEREST)	$13,392,400.64

FINAL BOND REDUCTION REQUEST (+4% ANNUAL INTEREST)	$0.00

TOTAL ESTIMATED - BOND REMAINING	###########

Planning Commission
101 East Washington Street
Charles Town, WV 25414

SCHEDULED

Meeting: 07/27/26
Department: Planning Commission
Category: Report
Initiator:

AGENDA ITEM (ID #)

Commission Review: BR2026-06 - Thomfair Self-Storage - Bond Initiation

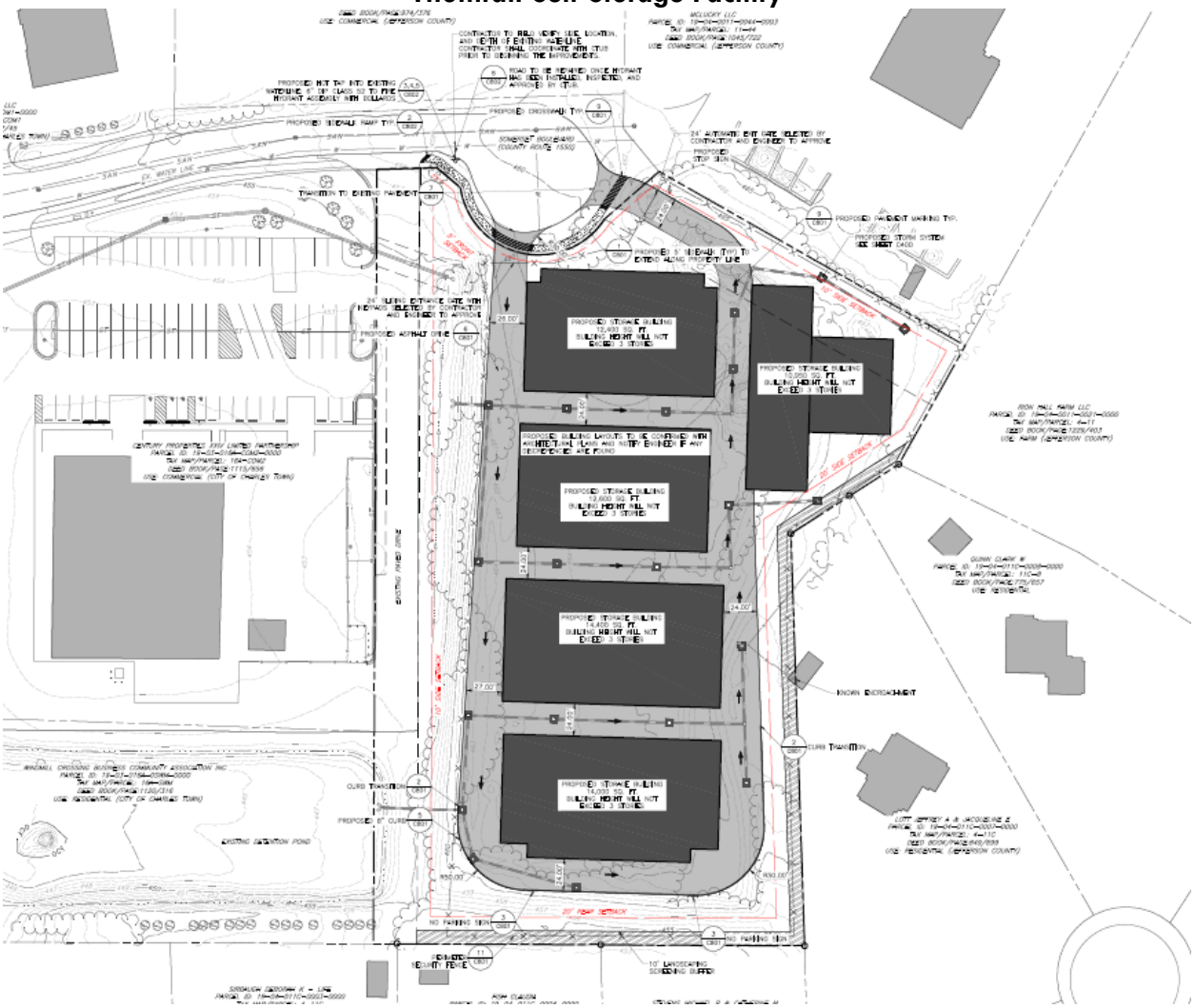
ATTACHMENTS:

- 1. Staff Report.pdf
- 2. Application.pdf
- 3. KH Review.pdf
- 4. Estimate.pdf

Bond Initation Request
BR2026-06

Date: For the July 27, 2026 Planning Commission meeting
Applicant: Thomfair LLC
Report by: James Newman, City Planner, Zoning/Subdivision Administrator
Proposal: A bond initiation in the amount of $1,519,818.82

Thomfair Self-Storage Facility



BACKGROUND

The applicant, Thomfair LLC, has submitted a bond initiation request for a self-storage facility to be located at the end of Somerset Blvd. The amount of $1,519,818.82 will cover both performance bond issues (paving, landscaping, etc.) and land disturbance requirements (such as erosion control).

Bonds shall be required for public and other physical Improvements to be constructed under an approved Final S/LD Application. Such Improvements shall include, without limitation, Road, curb, gutter, sidewalk, trails, storm Drainage, traffic signalization and control, water and sanitary sewer infrastructure, and any other site-related Improvements required by the City of Charles Town for vehicular and pedestrian ingress and egress, for public access roadways, for Structures necessary to insure stability of critical slopes, for necessary utilities, and for Stormwater Management Facilities.

3rd PARTY REVIEW

Upon review of the request the City Engineer, Kimley-Horn, has determined that the bond initiation amount is a reasonable request based on the work to be performed.

BOND COMMITTEE

At their July 9, 2026 meeting, the City's Bond Committee discussed the application and recommend approval of the proposed initiation.

PLAN APPROVAL

The Planning Commission approved the preliminary plan on March 23, 2026.

RECOMMENDATION

Recommend **approval** to City Council.

BOND REQUEST AND REDUCTION

1. APPLICATION TYPE :

☑ Bond Initiation – No application fee

☐ Bond Reduction – No application fee

☐ Bond Extension – No application fee

☐ Bond Release – Application Fee: $60

2. FEES

Third-party review fees are assessed separately for each application, and will be sent to the applicant. All fees must be paid prior to approval.

3. PUBLIC NOTICE

Only bond release applications require a public hearing, which is held by the Planning Commission. City Council approval is still required.

4. APPLICATION REQUIREMENTS

Please submit one application set with supporting materials in paper, and one copy in PDF format.

1. DATE June 23, 2026

2. PROJECT NAME Thomfair Storage

Address Parcel ID: 19-03-016A-COM5-0000

3. APPLICANT'S NAME* Thomfair LLC

Address 170 John J Thomas Way, Charles Town, WV 25414

Telephone Number (304) 283-2601

Email Address

4. PROPERTY OWNER'S NAME Somerset LLC

Address 170 John J Thomas Way, Charles Town, WV 25414

Telephone Number (304) 283-2601

Email Address

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

5. DESCRIPTION OF REQUEST:

Bond Initiation for the Approved Site Plan

6. A) CURRENT BOND AMOUNT $ 0

B) PROPOSED BOND AMOUNT $ 1,519,818.82

C) CHANGE IN BONDED AMOUNT $ 1,519,818.82

7. PARCEL INVENTORY: (List all parcels that are part of this application):

Tax Map No.	Parcel No.	Tax Map No.	Parcel No.
16A	COM5	16A	44

8. PARCEL HISTORY: (List all pending or previously approved applications on the subject parcels inventoried above, including previous plat applications if this application is an amendment)

Application No.	Project Name and Phase	Status	Approval Date
SLD2025-05	Thomfair Self-Storage	Approved	March 23, 2026

9. <u>BOND RELEASE</u> – SUPPLEMENTAL MATERIALS REQUIRED:

A. Copies of inspection and test reports if work was inspected and tested by a third-party inspector.

B. Certification that all bonded Improvements, have been completed in accordance with the approved plans, profiles, and specifications and the requirements of any applicable manual.

C. A copy of the City-approved As-Built Drawings as required for facilities within public rights-of-way or Easements.

D. A letter from a Professional Engineer or Professional Land Surveyor certifying that property corners and Monuments have been set as required under this Ordinance.

Continued on next page.

E. Documentation of acceptance by WVDOH for public roadways and rights-of-way, or a maintenance and indemnification agreement and bond approved by the Planning Commission for public roadways that have been completed in accordance with WVDOH standards but which, due to factors other than their quality of construction, are not eligible for acceptance by WVDOH.

F. **For private roadways**, a letter of acceptance by the entity responsible for maintenance and a Latent Defects Indemnification Agreement and Bond.

   Before a Performance Agreement and surety for private roadway construction shall be released, a Latent Defects Indemnification Agreement and Bond shall be provided by the applicant/Developer and approved by the Planning Commission. The guarantee provided by such Agreement and Bond must be for a period of two (2) years following the date of performance bond release, and must be in an amount equal to no less than 5% of the original performance bond estimate.

G. **Landscaping Surety** is required to ensure the landscaping shown on a Major S/LD plan is maintained for one (1) year. The one (1) year shall start from the date at which the surety for the site has been released, with the exception of this landscaping surety. The landscaping surety amount shall not be less than $5,000.00 or 10% of the total landscaping cost for the project, which ever is greater.

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 Article 1335 of the S/LD Ordinance.

Signature of Applicant _____ Date 06-23-2026

Signature of Property Owner (If different than Applicant)

_____ Date _____

Please submit an original completed application to the following:

At City Hall:	Or	Via Mail:
Subdivision Administrator City of Charles Town 101 E. Washington Street Charles Town, WV 25414		Subdivision Administrator City of Charles Town PO BOX 14 Charles Town, WV 25414

FOR CITY USE ONLY

Application Number:_____ Date Application Received:_____

Fee: $_____ Check No._____

Receipt No._____

Site Inspection Date:_____ Inspector:_____

Planning Commission Approval:_____ Date:_____

City Council Approval:_____ Date:_____

Comments:_____

_____

_____

_____

_____

Kimley»Horn

Memorandum

To: Lane Tobin
Civil & Environmental Consultants, Inc.
786 Foxcroft Ave
Martinsburg, WV 25401

From: Mark Phillips, P.E.

Through: James Newman
City of Charles Town
101 E Washington Street
Charles Town, WV 25414

Date: June 23, 2026

Subject: Thomfair Storage Units Bond Initiation Review

This memorandum summarizes our review of the Bond Initiation for the Thomfair Storage Units (dated June 23, 2026, prepared by Civil & Environmental Consultants, Inc.) for 5 storage units (64,350 SF), one access loop road and through roads connecting to Somerset Blvd (WV County Route 1550) on 4.17 acres. The site is currently zoned Neighborhood Commercial. The Bond initiation amount is for $1,519,818.82.

Kimley-Horn's review of this application is limited to the Bond Initiation Application, final approved plans, and quantities provided. Based on our review, we have no comments.

Thank you for the opportunity to review this Bond Initiation. Please feel free to contact us at 703-870-3631 should you have any questions.

KIMLEY-HORN & ASSOCIATES, INC.



Mark Phillips, P.E.
Project Manager, Associate

BOND ESTIMATE						BOND REDUCTION						City Use Only
ITEM	UNIT	UNIT COST	QUANTITY	Final Price	QUANTITY COMPLETED (REDUCTION REQUEST)	UNIT COST	PREVIOUS QUANTITY COMPLETED	TOTAL QUANTITY COMPLETED (INCLUDING REDUCTION REQUEST)	EXTENSION	%COMPLETE	%APPROVED
MOBILIZATION GENERAL											
Mobilization	LS	$12,440.00	1	$12,440.00		$0.00		0		0%	
Field Office	EA	$3,490.00	1	$3,490.00		$0.00		0		0%	
Job Sign	EA	$1,340.00	1	$1,340.00		$0.00		0		0%	
SURVEYING											
Steel Pipe Property Corner Marker Incl. Survey	EA	$320.38	10	$3,203.80		$0.00		0		0%	
R.O.W MONUMENTS SURVEYED IN PLACE											
RM--1	EA	$825.00	0	$0.00		$0.00		0		0%	
RM--2	EA	$764.00	0	$0.00		$0.00		0		0%	
EARTHWORK EXCAVATION											
Regular Bulk used as Fill	CY	$4.50	4000	$18,000.00		$0.00		0		0%	
Rock, Rip	CY	$51.50	0	$0.00		$0.00		0		0%	
Rock, Blast	CY	$55.00	0	$0.00		$0.00		0		0%	
BORROW MATERIAL											
Buy, Load, Haul 10 Mi. Select Material	CY	$42.00	0	$0.00		$0.00		0		0%	
Fill and Compaction of On-site Borrow	CY	$11.06	0	$0.00		$0.00		0		0%	
UNSUITABLE MATERIAL											
Load and Haul, 20 mi R/T	CY	$36.56	0	$0.00		$0.00		0		0%	
Dump Charge	CY	$62.50	0	$0.00		$0.00		0		0%	
Site Grading	SY	$1.25	1222	$1,527.50		$0.00		0		0%	
CLEAR & GRUB											
Light	AC	$14,548.50	1.21	$17,603.69		$0.00		0		0%	
Heavy	AC	$26,699.49	0	$0.00		$0.00		0		0%	
LANDSCAPING											
Seeding	SY	$3.00	3921	$11,763.00		$0.00		0		0%	
Sodding	SY	$8.50	3697	$31,424.50		$0.00		0		0%	
PLANTING SHRUBS											
18"	EA	$70.00	0	$0.00		$0.00		0		0%	
24"	EA	$90.00	0	$0.00		$0.00		0		0%	
TREES											
6'-8' (1-2 in. Caliper)	EA	$400.00	0	$0.00		$0.00		0		0%	
8'-10' (2.5-3 in. Caliper)	EA	$700.00	55	$38,500.00		$0.00		0		0%	
Tree Protection	LF	$11.13	0	$0.00		$0.00		0		0%	
MISCELLANEOUS SITE IMPROVEMENTS											
Timber Wall (less than 6 ft)	LF	$325.00	0	$0.00		$0.00		0		0%	
Dry Rubble RW-1 (H=6')	LF	$450.00	0	$0.00		$0.00		0		0%	
Mortared Rubble RW-1A (H=6')	LF	$535.00	0	$0.00		$0.00		0		0%	
Concrete Gravity RW-2 (H=6')	LF	$589.50	0	$0.00		$0.00		0		0%	
Concrete Gravity RW-3 (H=6')	LF	$1,037.50	0	$0.00		$0.00		0		0%	
FENCING											
Std. Fence (H=5') FR-5	LF	$56.00	0	$0.00		$0.00		0		0%	
Farm Fence (H=5') FR-3A	LF	$37.50	0	$0.00		$0.00		0		0%	
Chain Link Fence (H=6') FR 2-B	LF	$62.00	1480	$91,760.00		$0.00		0		0%	
Board Fence (H=6')	LF	$62.00	0	$0.00		$0.00		0		0%	
TOTS LOTS											
Tot Lot	EA	$16,495.00	0	$0.00		$0.00		0		0%	

STORM DRAINAGE										
STORM SEWER										
NOTE: All pipe unit prices include trench, excavation, bedding, pipe, & backfill										
Rock Excavation for All Pipe Types										
Less than 1,500 CY (Blasting)	CY	$110.00	0	$0.00		$0.00		0		0%
More than 1,500 CY (Blasting)	CY	$90.00	0	$0.00		$0.00		0		0%
Less than 1,500 CY (Hoe Ram)	CY	$220.00	0	$0.00		$0.00		0		0%
More than 1,500 CY (Hoe Ram)	CY	$180.00	0	$0.00		$0.00		0		0%
Trench De-Watering										
Trench De-Watering	LF	$4.00	0	$0.00		$0.00		0		0%
RCP CLASS III ROUND T & G W/MASTIC										
12" Pipe (RCP III)										
0'-8' Cut	LF	$100.00	0	$0.00		$0.00		0		0%
8'-14' Cut	LF	$140.00	0	$0.00		$0.00		0		0%
Add cost for Class IV	LF	$1.90	0	$0.00		$0.00		0		0%
O-Ring	LF	$12.36	0	$0.00		$0.00		0		0%
15" Pipe (RCP III)										
0'-10' Cut	LF	$100.00	0	$0.00		$0.00		0		0%
10'-16'	LF	$156.00	0	$0.00		$0.00		0		0%
Add Cost for Class IV	LF	$1.48	0	$0.00		$0.00		0		0%
O-Ring	LF	$8.58	0	$0.00		$0.00		0		0%
18" Pipe (RCP III)										
0'-10' Cut	LF	$100.00	0	$0.00		$0.00		0		0%
10' -16' Cut	LF	$160.00	0	$0.00		$0.00		0		0%
Add Cost for Class IV	LF	$3.20	0	$0.00		$0.00		0		0%
O-Ring	LF	$11.20	0	$0.00		$0.00		0		0%
21" Pipe (RCP III)										
0'-8' Cut	LF	$115.00	0	$0.00		$0.00		0		0%
8'-14' Cut	LF	$174.80	0	$0.00		$0.00		0		0%
Add cost for Class IV	LF	$4.40	0	$0.00		$0.00		0		0%
O-Ring	LF	$20.80	0	$0.00		$0.00		0		0%
24" Pipe (RCP III)										
0'- 10' Cut	LF	$140.00	0	$0.00		$0.00		0		0%
10'-16'	LF	$196.00	0	$0.00		$0.00		0		0%
Add Cost for Class IV	LF	$5.04	0	$0.00		$0.00		0		0%
O-Ring	LF	$22.40	0	$0.00		$0.00		0		0%
27" Pipe (RCP III)										
0'- 10' Cut	LF	$123.20	0	$0.00		$0.00		0		0%
10' -16' Cut	LF	$195.03	0	$0.00		$0.00		0		0%
Add Cost for Class IV	LF	$6.40	0	$0.00		$0.00		0		0%
O-Ring	LF	$24.00	0	$0.00		$0.00		0		0%
30" Pipe (RCP III)										
0'- 8' Cut	LF	$169.40	0	$0.00		$0.00		0		0%
8'-14' Cut	LF	$256.66	0	$0.00		$0.00		0		0%
Add cost for Class IV	LF	$9.60	0	$0.00		$0.00		0		0%
O-Ring	LF	$27.60	0	$0.00		$0.00		0		0%
33" Pipe (RCP III)										
0'- 10' Cut	LF	$240.00	0	$0.00		$0.00		0		0%
10'-16'	LF	$333.00	0	$0.00		$0.00		0		0%
Add Cost for Class IV	LF	$13.50	0	$0.00		$0.00		0		0%
O-Ring	LF	$45.80	0	$0.00		$0.00		0		0%
36" Pipe (RCP III)										
0'-10' Cut	LF	$249.60	0	$0.00		$0.00		0		0%
10' -16' Cut	LF	$363.92	0	$0.00		$0.00		0		0%
Add Cost for Class IV	LF	$12.40	0	$0.00		$0.00		0		0%
O-Ring	LF	$36.40	0	$0.00		$0.00		0		0%
42" Pipe (RCP III)										

0'- 8' Cut	LF	$289.54	0	$0.00			$0.00		0		0%	
8'-14' Cut	LF	$413.46	0	$0.00			$0.00		0		0%	
Add cost for Class IV	LF	$19.20	0	$0.00			$0.00		0		0%	
O-Ring	LF	$56.72	0	$0.00			$0.00		0		0%	
48" Pipe (RCP III)												
0'-10' Cut	LF	$320.52	0	$0.00			$0.00		0		0%	
10'-16'	LF	$442.31	0	$0.00			$0.00		0		0%	
Add Cost for Class IV	LF	$20.00	0	$0.00			$0.00		0		0%	
O-Ring	LF	$69.36	0	$0.00			$0.00		0		0%	
54" Pipe (RCP III)												
0' - 10' Cut	LF	$420.00	0	$0.00			$0.00		0		0%	
10' -16' Cut	LF	$541.38	0	$0.00			$0.00		0		0%	
Add Cost for Class IV	LF	$30.00	0	$0.00			$0.00		0		0%	
O-Ring	LF	$70.96	0	$0.00			$0.00		0		0%	
60" Pipe (RCP III)												
0'-10' Cut	LF	$420.00	0	$0.00			$0.00		0		0%	
10' -16' Cut	LF	$498.48	0	$0.00			$0.00		0		0%	
Add Cost for Class IV	LF	$36.00	0	$0.00			$0.00		0		0%	
O-Ring	LF	$77.84	0	$0.00			$0.00		0		0%	
ELLIPTICAL PIPE - RCP CLASS III												
23"x14" (18" Equiv- RCP III)												
0'10' Cut	LF	$190.00	0	$0.00			$0.00		0		0%	
10'-16' Cut	LF	$278.60	0	$0.00			$0.00		0		0%	
Add cost for Class IV	LF	$41.60	0	$0.00			$0.00		0		0%	
O-Ring	LF	$109.80	0	$0.00			$0.00		0		0%	
30"x19" (24" Equiv- RCP III)												
0'10' Cut	LF	$190.00	0	$0.00			$0.00		0		0%	
10'-16' Cut	LF	$329.25	0	$0.00			$0.00		0		0%	
Add cost for Class IV	LF	$15.07	0	$0.00			$0.00		0		0%	
O-Ring	LF	$109.79	0	$0.00			$0.00		0		0%	
38"x24" (30" Equiv- RCP III)												
0'10' Cut	LF	$190.00	0	$0.00			$0.00		0		0%	
10'-16' Cut	LF	$423.78	0	$0.00			$0.00		0		0%	
Add cost for Class IV	LF	$21.38	0	$0.00			$0.00		0		0%	
O-Ring	LF	$129.92	0	$0.00			$0.00		0		0%	
45"x29" (36" Equiv- RCP III)												
0'10' Cut	LF	$370.00	0	$0.00			$0.00		0		0%	
10'-16' Cut	LF	$526.88	0	$0.00			$0.00		0		0%	
Add cost for Class IV	LF	$25.45	0	$0.00			$0.00		0		0%	
O-Ring	LF	$119.63	0	$0.00			$0.00		0		0%	
53"X 34" (42" Equiv-RCP III)												
0'12' Cut	LF	$370.00	0	$0.00			$0.00		0		0%	
10'-18' Cut	LF	$528.36	0	$0.00			$0.00		0		0%	
Add cost for Class IV	LF	$38.87	0	$0.00			$0.00		0		0%	
O-Ring	LF	$149.26	0	$0.00			$0.00		0		0%	
60"x38" (48" Equiv- RCP III)												
0'12' Cut	LF	$370.00	0	$0.00			$0.00		0		0%	
10'-18' Cut	LF	$543.90	0	$0.00			$0.00		0		0%	
Add cost for Class IV	LF	$46.46	0	$0.00			$0.00		0		0%	
O-Ring	LF	$177.11	0	$0.00			$0.00		0		0%	
HDPE PIPE												
8" Pipe												
0'-8' Cut	LF	$50.00	0	$0.00			$0.00		0		0%	
8'-14' Cut	LF	$75.30	0	$0.00			$0.00		0		0%	
12" Pipe												
0'-8' Cut	LF	$67.50	0	$0.00			$0.00		0		0%	
8'-14' Cut	LF	$100.04	0	$0.00			$0.00		0		0%	

15" Pipe											
0'-8' Cut	LF	$87.08	1500	$130,620.00			$0.00		0	0%	
8'-16' Cut	LF	$129.65	0	$0.00			$0.00		0	0%	
18" Pipe											
0'-8' Cut	LF	$114.33	0	$0.00			$0.00		0	0%	
8'-16' Cut	LF	$170.69	0	$0.00			$0.00		0	0%	
24" Pipe											
0'-8' Cut	LF	$132.62	0	$0.00			$0.00		0	0%	
8'-16' Cut	LF	$197.61	0	$0.00			$0.00		0	0%	
30" Pipe											
0'-8' Cut	LF	$157.42	0	$0.00			$0.00		0	0%	
8'-16' Cut	LF	$236.13	0	$0.00			$0.00		0	0%	
36" Pipe											
0'-8' Cut	LF	$200.00	0	$0.00			$0.00		0	0%	
8'-16' Cut	LF	$298.00	0	$0.00			$0.00		0	0%	
42" Pipe											
0'-8' Cut	LF	$224.20	0	$0.00			$0.00		0	0%	
8'-16' Cut	LF	$334.06	0	$0.00			$0.00		0	0%	
48" Pipe											
0'-8' Cut	LF	$253.35	0	$0.00			$0.00		0	0%	
8'-16' Cut	LF	$377.49	0	$0.00			$0.00		0	0%	
STORM STRUCTURES											
END SECTIONS											
End Sections (ES-1), Concrete Pipe Size											
15"	EA	$1,389.00	0	$0.00			$0.00		0	0%	
18"	EA	$1,583.46	0	$0.00			$0.00		0	0%	
21"	EA	$1,805.14	0	$0.00			$0.00		0	0%	
24"	EA	$2,057.86	0	$0.00			$0.00		0	0%	
27"	EA	$2,345.97	0	$0.00			$0.00		0	0%	
30"	EA	$2,674.40	0	$0.00			$0.00		0	0%	
36"	EA	$3,048.82	0	$0.00			$0.00		0	0%	
42"	EA	$3,558.50	0	$0.00			$0.00		0	0%	
48"	EA	$4,056.69	0	$0.00			$0.00		0	0%	
54"	EA	$4,624.63	0	$0.00			$0.00		0	0%	
60"	EA	$5,272.07	0	$0.00			$0.00		0	0%	
ENDWALLS											
EW-1 (Pre-Cast) Round Pipe Size											
15"	EA	$2,433.00	0	$0.00			$0.00		0	0%	
18"	EA	$2,724.96	2	$5,449.92			$0.00		0	0%	
24"	EA	$3,051.96	0	$0.00			$0.00		0	0%	
30"	EA	$3,418.19	0	$0.00			$0.00		0	0%	
36"	EA	$3,828.37	0	$0.00			$0.00		0	0%	
EW-1 Cast in Place [Round Pipe Size]											
15"	EA	$2,591.15	0	$0.00			$0.00		0	0%	
18"	EA	$2,902.08	0	$0.00			$0.00		0	0%	
24"	EA	$3,250.33	0	$0.00			$0.00		0	0%	
30"	EA	$3,640.37	0	$0.00			$0.00		0	0%	
36"	EA	$4,077.22	0	$0.00			$0.00		0	0%	
EW-1A (Pre-Cast) Elliptical Pipe Size											
23" X 14" (18")	EA	$1,335.00	0	$0.00			$0.00		0	0%	
30" X 19" (24")	EA	$1,495.20	0	$0.00			$0.00		0	0%	
38 X 24" (30")	EA	$1,879.50	0	$0.00			$0.00		0	0%	
45 X 29" (36")	EA	$2,105.04	0	$0.00			$0.00		0	0%	
53" X 34" (42")	EA	$2,791.50	0	$0.00			$0.00		0	0%	
EW-1A (Cast in Place) Elliptical Pipe Size											
23" X 14" (18")	EA	$1,318.50	0	$0.00			$0.00		0	0%	
30" X 19" (24")	EA	$1,318.50	0	$0.00			$0.00		0	0%	

38 X 24" (30")	EA	$2,257.00	0	$0.00			$0.00		0		0%	
45 X 29" (36")	EA	$2,257.00	0	$0.00			$0.00		0		0%	
53" X 34" (42")	EA	$3,217.50	0	$0.00			$0.00		0		0%	
EW-2 (PreCast) Round Size Pipe Size												
42"	EA	$8,324.00	0	$0.00			$0.00		0		0%	
48"	EA	$9,322.88	0	$0.00			$0.00		0		0%	
54"	EA	$10,441.63	0	$0.00			$0.00		0		0%	
60"	EA	$11,694.62	0	$0.00			$0.00		0		0%	
72"	EA	$12,675.50	0	$0.00			$0.00		0		0%	
84"	EA	$14,196.56	0	$0.00			$0.00		0		0%	
EW-2 (Cast in Place) Round Size Pipe Size												
42"	EA	$9,255.50	0	$0.00			$0.00		0		0%	
48"	EA	$10,366.16	0	$0.00			$0.00		0		0%	
54"	EA	$11,610.10	0	$0.00			$0.00		0		0%	
60"	EA	$13,003.31	0	$0.00			$0.00		0		0%	
72"	EA	$15,747.00	0	$0.00			$0.00		0		0%	
84"	EA	$17,636.64	0	$0.00			$0.00		0		0%	
EW-6PC [Double Pipe] Pipe Size												
2-15"	EA	$2,123.00	0	$0.00			$0.00		0		0%	
2-18"	EA	$2,377.76	0	$0.00			$0.00		0		0%	
2-24"	EA	$2,663.09	0	$0.00			$0.00		0		0%	
2-30"	EA	$4,096.00	0	$0.00			$0.00		0		0%	
2-36"	EA	$4,587.52	0	$0.00			$0.00		0		0%	
MANHOLES												
Standard Brick Manhole Std Frame & Cover (MH-1)												
6' Depth	EA	$6,048.00	0	$0.00			$0.00		0		0%	
Depth Below 6'	VF	$230.00	0	$0.00			$0.00		0		0%	
Standard Precast Manhole Std Frame & Cover (MH-2)		$5,337.00	0	$0.00			$0.00		0		0%	
Additional Cost (Amount in parentheses to be added to the above unit costs)												
Watertight Fr/Cover (Add 110)	EA	$579.00	0	$0.00			$0.00		0		0%	
Heavy Duty Fr/ Cover (Add 82)	VF	$599.00	0	$0.00			$0.00		0		0%	
Drop Inlets												
Cast in Place 48"												
Drop Inlet (DI-1) 12"-24" Pipe0-10 VF	EA	$7,690.00	0	$0.00			$0.00		0		0%	
Drop Inlet (DI-1A) 12"-24" Pipe10-20 VF	EA	$7,690.00	0	$0.00			$0.00		0		0%	
Drop Inlet (DI-2A) 12"-24" Pipe0-10 VF, 10' throat	EA	$9,458.70	0	$0.00			$0.00		0		0%	
Drop Inlet (DI-2A) 12"-24" Pipe10-20 VF, 10' throat	EA	$11,634.20	0	$0.00			$0.00		0		0%	
Curb Drop Inlets												
Curb Drop Inlet (DI-3A)												
12"-30" Pipe (Invert Depth (H) =0'-8') Inlet Length 2'-6"	EA	$7,460.00	0	$0.00			$0.00		0		0%	
Curb Drop Inlet (DI-3AA)												
12"-30" Pipe (Invert Depth (H) =8'-	**EA**	$9,772.60	0	$0.00			$0.00		0		0%	
Curb Drop Inlet (DI-3B) 12"-30" Pipe (Invert Depth (H) = 0 '-8') Inlet Length												
4'	EA	$7,758.40	0	$0.00			$0.00		0		0%	
6'	EA	$8,534.24	0	$0.00			$0.00		0		0%	
8'	EA	$9,387.66	0	$0.00			$0.00		0		0%	
10'	EA	$10,326.43	0	$0.00			$0.00		0		0%	
12'	EA	$11,359.07	0	$0.00			$0.00		0		0%	
16'	EA	$12,494.98	0	$0.00			$0.00		0		0%	
20'	EA	$13,744.48	0	$0.00			$0.00		0		0%	

Curb Drop Inlet (DI-3BB) 12"-30" Pipe (Invert Depth (H) = 0 '-8') Inlet Length											
4'	EA	$7,680.82	0	$0.00			$0.00		0		0%
6'	EA	$8,448.90	0	$0.00			$0.00		0		0%
8'	EA	$9,293.79	0	$0.00			$0.00		0		0%
10'	EA	$10,223.17	0	$0.00			$0.00		0		0%
12'	EA	$11,245.48	0	$0.00			$0.00		0		0%
16'	EA	$12,370.03	0	$0.00			$0.00		0		0%
20'	EA	$13,607.03	0	$0.00			$0.00		0		0%
Curb Drop Inlet (DI-3C) 12"-30" Pipe (Invert Depth (H) = 0 '-8') Inlet Length											
6'	EA	$7,204.61	0	$0.00			$0.00		0		0%
8'	EA	$7,925.07	0	$0.00			$0.00		0		0%
10'	EA	$8,717.57	0	$0.00			$0.00		0		0%
12'	EA	$9,589.33	0	$0.00			$0.00		0		0%
16'	EA	$10,548.26	0	$0.00			$0.00		0		0%
20'	EA	$11,603.09	0	$0.00			$0.00		0		0%
Curb Drop Inlet (DI-3CC) 12"-30" Pipe (Invert Depth (H) = 0 '-8') Inlet Length											
6'	EA	$8,573.48	0	$0.00			$0.00		0		0%
8'	EA	$9,430.83	0	$0.00			$0.00		0		0%
10'	EA	$10,373.91	0	$0.00			$0.00		0		0%
12'	EA	$11,411.30	0	$0.00			$0.00		0		0%
16'	EA	$12,552.43	0	$0.00			$0.00		0		0%
20'	EA	$13,807.68	0	$0.00			$0.00		0		0%
Curb Drop Inlet (DI-3D)											
12"-30" Pipe (Invert Depth (H) =0'-8') Inlet Length 2'-6"	EA	$6,430.11	0	$0.00			$0.00		0		0%
Curb Drop Inlet (DI-3DD)											
12"-30" Pipe (Invert Depth	**EA**	$7,587.53	0	$0.00			$0.00		0		0%
Curb Drop Inlet (DI-3E) 12"-30" Pipe (Invert Depth (H) = 0 '-8') Inlet Length											
4'	EA	$7,460.00	0	$0.00			$0.00		0		0%
8'	EA	$7,982.20	0	$0.00			$0.00		0		0%
10'	EA	$8,540.95	0	$0.00			$0.00		0		0%
12'	EA	$9,138.82	0	$0.00			$0.00		0		0%
16'	EA	$9,778.54	0	$0.00			$0.00		0		0%
20'	EA	$10,463.04	0	$0.00			$0.00		0		0%
Curb Drop Inlet (DI-3EE) 12"-30" Pipe (Invert Depth (H) = 8'-20') Inlet Length											
6'	EA	$11,509.34	0	$0.00			$0.00		0		0%
8'	EA	$12,314.99	0	$0.00			$0.00		0		0%
10'	EA	$13,177.04	0	$0.00			$0.00		0		0%
12'	EA	$14,099.44	0	$0.00			$0.00		0		0%
16'	EA	$15,086.40	0	$0.00			$0.00		0		0%
20'	EA	$16,142.44	0	$0.00			$0.00		0		0%
Curb Drop Inlet (DI-3F) 12"-30" Pipe (Invert Depth (H) = 0 '-8') Inlet Length											
6'	EA	$6,855.74	0	$0.00			$0.00		0		0%
8'	EA	$7,335.64	0	$0.00			$0.00		0		0%
10'	EA	$7,849.14	0	$0.00			$0.00		0		0%
12'	EA	$8,398.58	0	$0.00			$0.00		0		0%
16'	EA	$8,986.48	0	$0.00			$0.00		0		0%
20'	EA	$9,615.53	0	$0.00			$0.00		0		0%
Curb Drop Inlet (DI-3FF) 12"-30" Pipe (Invert Depth (H) = 8'-20') Inlet Length											
6'	EA	$14,671.28	0	$0.00			$0.00		0		0%
8'	EA	$15,698.27	0	$0.00			$0.00		0		0%
10'	EA	$16,797.15	0	$0.00			$0.00		0		0%
12'	EA	$17,972.95	0	$0.00			$0.00		0		0%
16'	EA	$19,231.06	0	$0.00			$0.00		0		0%
20'	EA	$20,577.23	0	$0.00			$0.00		0		0%
Curb Drop Inlet (DI-4A) 36"-48" Pipe (Invert Depth (H) = 8'-20') Inlet Length											
4'	**EA**	$10,020.00	0	$0.00			$0.00		0		0%

Curb Drop Inlet (DI-4AA) 36"-48" Pipe (Invert Depth (H) = 8'-20') Inlet Length											
4'	**EA**	$10,020.00	0	$0.00			$0.00		0		0%
Curb Drop Inlet (DI-4B) 36"-48" Pipe (Invert Depth (H) = 0'-8') Inlet Length											
6'	EA	$8,802.77	0	$0.00			$0.00		0		0%
8'	EA	$9,418.96	0	$0.00			$0.00		0		0%
10'	EA	$10,078.29	0	$0.00			$0.00		0		0%
12'	EA	$10,783.77	0	$0.00			$0.00		0		0%
16'	EA	$11,538.64	0	$0.00			$0.00		0		0%
20'	EA	$12,346.34	0	$0.00			$0.00		0		0%
Curb Drop Inlet (DI-4BB) 36"-48" Pipe (Invert Depth (H) = 8'-20') Inlet Length											
6'	EA	$17,429.48	0	$0.00			$0.00		0		0%
8'	EA	$18,649.55	0	$0.00			$0.00		0		0%
10'	EA	$19,955.02	0	$0.00			$0.00		0		0%
12'	EA	$21,351.87	0	$0.00			$0.00		0		0%
16'	EA	$22,846.50	0	$0.00			$0.00		0		0%
20'	EA	$24,445.75	0	$0.00			$0.00		0		0%
Curb Drop Inlet (DI-4C) 36"-48" Pipe (Invert Depth (H) = 0'-8') Inlet Length											
8'	EA	$9,418.96	0	$0.00			$0.00		0		0%
10'	EA	$10,078.29	0	$0.00			$0.00		0		0%
12'	EA	$10,783.77	0	$0.00			$0.00		0		0%
16'	EA	$11,538.64	0	$0.00			$0.00		0		0%
20'	EA	$12,346.34	0	$0.00			$0.00		0		0%
Curb Drop Inlet (DI-4CC) 36"-48" Pipe (Invert Depth (H) = 8'-20') Inlet Length											
8'	EA	$22,417.13	0	$0.00			$0.00		0		0%
10'	EA	$23,986.33	0	$0.00			$0.00		0		0%
12'	EA	$25,665.38	0	$0.00			$0.00		0		0%
16'	EA	$27,461.95	0	$0.00			$0.00		0		0%
20'	EA	$29,384.29	0	$0.00			$0.00		0		0%
Curb Drop Inlet (DI-4D)											
36"-48" Pipe (Invert Depth (H) =8'16') Inlet Length 4'	EA	$8,279.27	0	$0.00			$0.00		0		0%
Curb Drop Inlet (DI-4DD)											
36"-48" Pipe (Invert Depth (H)	**EA**	$16,392.95	0	$0.00			$0.00		0		0%
Curb Drop Inlet (DI-4E) 36"-48" Pipe (Invert Depth (H) = 0'-8') Inlet Length											
6'	EA	$9,016.12	0	$0.00			$0.00		0		0%
8'	EA	$9,647.25	0	$0.00			$0.00		0		0%
10'	EA	$10,322.56	0	$0.00			$0.00		0		0%
12'	EA	$11,045.14	0	$0.00			$0.00		0		0%
16'	EA	$11,818.30	0	$0.00			$0.00		0		0%
20'	EA	$12,645.58	0	$0.00			$0.00		0		0%
Curb Drop Inlet (DI-4EE) 36"-48" Pipe (Invert Depth (H) = 8'-16') Inlet Length											
6'	EA	$15,688.06	0	$0.00			$0.00		0		0%
8'	EA	$16,786.22	0	$0.00			$0.00		0		0%
10'	EA	$17,961.26	0	$0.00			$0.00		0		0%
12'	EA	$19,218.54	0	$0.00			$0.00		0		0%
16'	EA	$20,563.84	0	$0.00			$0.00		0		0%
20'	EA	$22,003.31	0	$0.00			$0.00		0		0%
Curb Drop Inlet (DI-4F) 36"-48" Pipe (Invert Depth (H) = 0'-8') Inlet Length											
8'	EA	$10,040.36	0	$0.00			$0.00		0		0%
10'	EA	$10,743.18	0	$0.00			$0.00		0		0%
12'	EA	$11,495.20	0	$0.00			$0.00		0		0%
16'	EA	$12,299.87	0	$0.00			$0.00		0		0%
20'	EA	$13,160.86	0	$0.00			$0.00		0		0%
Curb Drop Inlet (DI-4FF) 36"-48" Pipe (Invert Depth (H) = 8'-16') Inlet Length											
8'	EA	$15,140.86	0	$0.00			$0.00		0		0%
10'	EA	$16,200.72	0	$0.00			$0.00		0		0%
12'	EA	$17,334.77	0	$0.00			$0.00		0		0%

16'	EA	$18,548.20	0	$0.00		$0.00		0		0%	
20'	EA	$19,846.57	0	$0.00		$0.00		0		0%	
Median Drop Inlets - CIP											
Median Drop Inlets (DI-6A) 12"-24"Pipe Inlet (H=8')	EA	$6,032.00	0	$0.00		$0.00		0		0%	
Median Drop Inlets (DI-6B) 12"-24"Pipe Inlet (H=8')	EA	$6,080.00	0	$0.00		$0.00		0		0%	
Median Drop Inlets (DI-6C) 30"-48"Pipe Inlet (H=10')	EA	$7,737.50	0	$0.00		$0.00		0		0%	
Median Drop Inlets (DI-6D) 30"-48"Pipe Inlet (H=10')	EA	$7,805.00	0	$0.00		$0.00		0		0%	
Median Drop Inlets (DI-7) Type III Top 12"-42" Pipe Inlet (H=10')	EA	$8,548.00	0	$0.00		$0.00		0		0%	
Median Drop Inlets (DI-7A) Type III Top 12"-42" Pipe Inlet (H=10')	EA	$8,548.00	0	$0.00		$0.00		0		0%	
Median Drop Inlets (DI-7B) Type III Top 12"-42" Pipe Inlet (H=10')	EA	$8,548.00	0	$0.00		$0.00		0		0%	
MISCELLANEOUS INLETS											
Median Drop Inlets (DI-5) Type III Top 12"-42" Pipe Inlet (H=8')	EA	$6,569.08	0	$0.00		$0.00		0		0%	
Standard Yard Inlet (YI-1) 12"-48" Pipe (Invert Depth (H)= 0'-8') Inlet Length 4' (No Aprons)		$5,969.49	20	$119,389.80		$0.00		0		0%	
Add Yard Inlet Apron	THROAT	$320.54	0	$0.00		$0.00		0		0%	
Standard Yard Inlet (YI-1) 12"-48" Pipe (Invert Depth (H)= 0'-8') Inlet Length 4' (No Aprons)	EA	$6,444.64	0	$0.00		$0.00		0		0%	
Add Yard Inlet Apron	THROAT	$320.54	0	$0.00		$0.00		0		0%	
Culverts											
Single Box Culvert (BC-1A) Fills to 25'											
4' X 4'	LF	$473.00	0	$0.00		$0.00		0		0%	
5' X 5'	LF	$563.00	0	$0.00		$0.00		0		0%	
6' X 6'	LF	$689.00	0	$0.00		$0.00		0		0%	
8' X 8'	LF	$944.00	0	$0.00		$0.00		0		0%	
10' X 10'	LF	$1,159.00	0	$0.00		$0.00		0		0%	
Double Box Culvert (BC-2b) Fills to 25'											
4' X 4'	LF	$792.40	0	$0.00		$0.00		0		0%	
5' X 5'	LF	$987.00	0	$0.00		$0.00		0		0%	
6' X 6'	LF	$1,195.60	0	$0.00		$0.00		0		0%	
8' X 8'	LF	$1,607.20	0	$0.00		$0.00		0		0%	
10' X 10'	LF	$1,975.40	0	$0.00		$0.00		0		0%	
Oversized Single Box Culvert (BBC-1) Fills to 25'											
12' X 6'	LF	$1,488.50	0	$0.00		$0.00		0		0%	
12' X 8'	LF	$1,488.50	0	$0.00		$0.00		0		0%	
12' X 10'	LF	$1,771.50	0	$0.00		$0.00		0		0%	
12' X 12'	LF	$1,771.50	0	$0.00		$0.00		0		0%	
Triple Box Culvert (BC-3B) Fills to 25'											
4' X 4'	LF	$1,129.55	0	$0.00		$0.00		0		0%	
5' X 5'	LF	$1,399.25	0	$0.00		$0.00		0		0%	
6' X 6'	LF	$1,755.95	0	$0.00		$0.00		0		0%	
8' X 8'	LF	$2,367.85	0	$0.00		$0.00		0		0%	

10' X 10'	LF	$3,607.60	0	$0.00			$0.00		0		0%	
Quadruple Box Culvert (BC-4B) Fills to 25'												
4' X 4'	LF	$1,431.15	0	$0.00			$0.00		0		0%	
5' X 5'	LF	$1,776.25	0	$0.00			$0.00		0		0%	
6' X 6'	LF	$2,208.35	0	$0.00			$0.00		0		0%	
8' X 8'	LF	$2,170.65	0	$0.00			$0.00		0		0%	
10' X 10'	LF	$4,110.75	0	$0.00			$0.00		0		0%	
Standard Wing for Box Culvert (1 Side Only) Height of Box												
4'	EA	$926.50	0	$0.00			$0.00		0		0%	
5'	EA	$1,390.00	0	$0.00			$0.00		0		0%	
6'	EA	$1,853.50	0	$0.00			$0.00		0		0%	
8'	EA	$3,426.50	0	$0.00			$0.00		0		0%	
10'	EA	$4,558.00	0	$0.00			$0.00		0		0%	
Standard Wing for Box Culvert (BBC-W) Height of Box												
6'	EA	$1,817.00	0	$0.00			$0.00		0		0%	
8'	EA	$3,007.50	0	$0.00			$0.00		0		0%	
10'	EA	$4,497.50	0	$0.00			$0.00		0		0%	
12'	EA	$6,567.00	0	$0.00			$0.00		0		0%	
MISCELLANEOUS STORM												
Connection to Existing Structure												
15"-36" Pipe	EA	$1,584.00	0	$0.00			$0.00		0		0%	
42"-60" Pipe	EA	$1,584.00	0	$0.00			$0.00		0		0%	
Casing Pipe, Bore and Jack (3/8" wall)												
22" ID (6"-8" Carrier Pipe)	LF	$885.71	0	$0.00			$0.00		0		0%	
24" ID (10" Carrier Pipe)	LF	$971.91	0	$0.00			$0.00		0		0%	
30" ID (12" Carrier Pipe)	LF	$1,226.20	0	$0.00			$0.00		0		0%	
Plug Pipe												
6"-12" Pipe	EA	$444.50	0	$0.00			$0.00		0		0%	
15"-36" Pipe	EA	$444.50	0	$0.00			$0.00		0		0%	
42"-60" Pipe	EA	$574.50	0	$0.00			$0.00		0		0%	
Pavement Edge Pipe												
Standard Pipe Underdrain	LF	$20.50	0	$0.00			$0.00		0		0%	
RipRap												
Dry, Class I, 18"	SY	$82.00	175	$14,350.00			$0.00		0		0%	
Dry, Class II, 18"	SY	$82.00	0	$0.00			$0.00		0		0%	
Grouted, Class I, 18"	SY	$84.00	0	$0.00			$0.00		0		0%	
Filter Fabric												
Class I	SY	$4.13	0	$0.00			$0.00		0		0%	
Class II	SY	$4.13	50	$206.50			$0.00		0		0%	
Class III	SY	$4.13	0	$0.00			$0.00		0		0%	
Gabions (No excavations)												
Mattress	CY	$237.50	0	$0.00			$0.00		0		0%	
Revetment	CY	$237.50	0	$0.00			$0.00		0		0%	
Wall	CY	$237.50	0	$0.00			$0.00		0		0%	
Paved Ditch (4" Thick)												
Concrete (Non-reinforced)	SY	$94.50	0	$0.00			$0.00		0		0%	
Bituminous Concrete (4")	SY	$43.50	0	$0.00			$0.00		0		0%	
Sodded Ditch												
Sodded Ditch(Incl Fine Grading)	SY	$15.03	0	$0.00			$0.00		0		0%	
STREET CONSTRUCTION												
ROADS AND PARKING												
Soil Stabilization												
Cement 6%	SY/ Inch	$20.00	0	$0.00			$0.00		0		0%	
Depth (in Inches):	Depth					0						
Lime 6%	SY/ Inch	$14.00	0	$0.00			$0.00		0		0%	
Depth (in Inches):	Depth					0						

Subbase, Aggregated Material											
Base Type I	SY/ Inch	$12.95	4840	$501,424.00		$0.00		0		0%	
Depth (in Inches):	Depth	8			8						
Bituminous Concrete											
Base Course	SY/ Inch	$7.00	4840	$84,700.00		$0.00		0		0%	
Depth (in Inches):	Depth	2.5			2.5						
Intermediate Course	SY/ Inch	$7.00	4840	$50,820.00		$0.00		0		0%	
Depth (in Inches):	Depth	1.5			1.5						
Top Course	SY/ Inch	$7.00	4840	$16,940.00		$0.00		0		0%	
Depth (in Inches):	Depth	0.5			0.5						
Prime Coat	SY	$1.38	0	$0.00		$0.00		0		0%	
Tack Coat	SY	$1.38	4840	$6,679.20		$0.00		0		0%	
Driveway Restoration											
4” Concrete & 4” Gravel	SY	$75.00	0	$0.00		$0.00		0		0%	
2” S-5 & 7 6” Gravel	SY	$29.98	0	$0.00		$0.00		0		0%	
Shoulders, Type I											
Aggregated Base, 4”	SY	$15.00	0	$0.00		$0.00		0		0%	
Concrete Curbing											
Curb & Gutter CG6 & CG7	LF	$31.50	0	$0.00		$0.00		0		0%	
Curb Cut, CG-12 DetectableSurf.	EA	$1,044.00	0	$0.00		$0.00		0		0%	
Entrances/ Driveways											
Commercial Entrance CG-11	SY	$87.00	377	$32,799.00		$0.00		0		0%	
Commercial Entrance CG-13	SY	$87.00	0	$0.00		$0.00		0		0%	
Residential Driveway Apron	EA	$2,254.50	0	$0.00		$0.00		0		0%	
Guardrails											
Std. Blocked-out W beam(GR2)	LF	$53.50	0	$0.00		$0.00		0		0%	
Std. W beam, Weak Post GR8	LF	$53.50	0	$0.00		$0.00		0		0%	
Terminal, GR-6 (L=12’-6”)	EA	$3,880.50	0	$0.00		$0.00		0		0%	
Terminal, GR-7 (L=6’-3”)	EA	$3,880.50	0	$0.00		$0.00		0		0%	
Type I, GR-8 Terminal (L=25’)	EA	$3,580.50	0	$0.00		$0.00		0		0%	
Type II, GR-8 Terminal(L=13’-6”)	EA	$1,701.00	0	$0.00		$0.00		0		0%	
Terminal, MB-4 (L=37’-6”)	EA	$3,580.50	0	$0.00		$0.00		0		0%	
Type I, MB-5 Terminal(L=27’-1)	EA	$3,580.50	0	$0.00		$0.00		0		0%	
Type II, MB-5 Terminal(L=13’-6)	EA	$1,701.00	0	$0.00		$0.00		0		0%	
Miscellaneous											
Trash enclosure - Brick 6' high	LF	$7,336.50	0	$0.00		$0.00		0		0%	
Reinforced Concrete Pad 6" to 8"	SY	$150.00	0	$0.00		$0.00		0		0%	
Striping 4" width (VDOT Type B)	LF	$2.50	0	$0.00		$0.00		0		0%	
Concrete Wheel Stops	EA	$90.00	0	$0.00		$0.00		0		0%	
Parking Lot Striping	EA	$50.00	2	$100.00		$0.00		0		0%	
Sign Island	EA	$850.00	0	$0.00		$0.00		0		0%	
Traffic Barricade	EA	$133.50	0	$0.00		$0.00		0		0%	
Street Name Signs	EA	$594.50	0	$0.00		$0.00		0		0%	
Traffic Control Signs	EA	$512.00	2	$1,024.00		$0.00		0		0%	
Street Light (pole, bracket,light)	EA	$5,938.00	0	$0.00		$0.00		0		0%	
SIDEWALKS AND TRAILS											
Sidewalk											
Concrete 4” w/WWF, No base	SY	$58.50	85	$4,972.50		$0.00		0		0%	
Bitum. Conc, 2” w/4” Base	SY	$42.00	0	$0.00		$0.00		0		0%	
4” Conc, No Reinf., No Base	SY	$58.50	0	$0.00		$0.00		0		0%	
HANDRAIL											
Handrail 3 Rail 1-1/4” #4 Finish	LF	$143.00	0	$0.00		$0.00		0		0%	
Wood Chip Trail											
Trails(Incl Excavation & Grading) Wood chip, 4’ wide	SY	$77.00	0	$0.00		$0.00		0		0%	
	SY	$21.00	0	$0.00		$0.00		0		0%	

Bituminous Trail											
6’ to 10' wide	SY	$22.00	0	0		$0.00		0		0%	
CRITICAL SLOPE STABILIZATION											
Paved Flume	SY	$100.00	0	$0.00		$0.00		0		0%	
Stmwtr Conc Channel-Excav	SY	$97.00	0	$0.00		$0.00		0		0%	
ADD Grass Lined-seeded	SY	$19.00	0	$0.00		$0.00		0		0%	
ADD Grass Lined-sodded	SY	$26.00	0	$0.00		$0.00		0		0%	
Outlet Protection											
Non-grouted Riprap 18”	SY	$87.00	170	$14,790.00		$0.00		0		0%	
Concrete 4”	SY	$70.00	0	$0.00		$0.00		0		0%	
Level Spreader	SY	$5.77	0	$0.00		$0.00		0		0%	
Struc Streambank Protection											
Non-grouted Riprap 18”	SY	$87.00	0	$0.00		$0.00		0		0%	
Gabions	CY	$255.00	0	$0.00		$0.00		0		0%	
Vegetative Erosion Control											
Sodding incl Fertilizing –Banks	SY	$9.00	0	$0.00		$0.00		0		0%	
Sodding incl Fertilizing – Flat	SY	$9.00	0	$0.00		$0.00		0		0%	
Seeding incl Fertilizing	SY	$3.00	0	$0.00		$0.00		0		0%	
Soding W/Soil Treat &Watering	SY	$9.00	0	$0.00		$0.00		0		0%	
Seeding W/Soil Treat &Watering	SY	$3.00	0	$0.00		$0.00		0		0%	
Straw Mulch w/Tack	SY	$2.00	0	$0.00		$0.00		0		0%	
Jute Mesh	SY	$2.00	0	$0.00		$0.00		0		0%	
SPECIAL ITEMS											
FEMA ProcessingLOMR/CLOMR	EA	$10,240.00	0	$0.00		$0.00		0		0%	
As Built (Record Drawings)	EA	$12,967.50	1	$12,967.50		$0.00		0		0%	
SWM/BMP POND	LS	$0.00	0	$0.00		$0.00		0		0%	
SIGNALIZATION	LS	$0.00	0	$0.00		$0.00		0		0%	



EFFECTIVE PERIOD OF BOND (IN MONTHS)	**36**
TOTAL ESTIMATE OF COMPLETED WORK	**$1,228,284.91**
+ 10% CONTINGENCY	**$122,828.49**
GRAND TOTAL	**$1,351,113.40**
FINAL PRICE (+ 4% ANNUAL INTEREST)	**$1,519,818.82**

EFFECTIVE PERIOD OF BOND (IN MONTHS)	
TOTAL BOND REDUCTION REQUEST	**$0.00**
+ 10% CONTINGENCY	**$0.00**
GRAND TOTAL	**$0.00**
FINAL BOND REDUCTION REQUEST (+4% ANNUAL INTEREST)	**$0.00**

TOTAL ESTIMATED - BOND REMAINING	**$1,519,818.82**