

**Town of Charlestown, MD**

**RFP #2024 - 03**

**Frederick Street Stormwater Pipe - Construction Project**

The Town of Charlestown is seeking qualified contractors to install a 18-inch HDPE pipe approximately 550 feet in total length, from an inlet on the east side of 333 Frederick Street, to a swale located on the north east side of the Athletic Complex, within the corporate limits of the Town of Charlestown, MD. A pre-bid meeting and site visit will be held on **Thursday, August 1, 2024 at 10:00 AM**, at the Athletic Complex parking lot, located just south of Frederick and Ogle Streets, Charlestown, MD 21914. Bids must be received no later than **Friday, August 23, 2024 at 4:00 PM**.

Submittals should be emailed or addressed to:

**Town of Charlestown  
P.O. Box 154  
241 Market Street  
Charlestown, Maryland 21914**

**ATTN: Bryan Lightner  
Town Administrator  
410-287-6173  
[blightner@charlestownmd.org](mailto:blightner@charlestownmd.org)**

**General Requirements**

1. The prospective Contractor is urged to attend the **pre-bid meeting on Thursday, August 1, 2024, @ 10:00 AM**, to ascertain the Town's vision for the project and gather information for the proposal.
2. The prospective Contractor is urged to contact the Town Administrator with any questions regarding this proposal. Questions will be answered and compiled for all interested contractors to review, prior to submitting price quotes.
3. The Town of Charlestown reserves the right to negotiate the final terms of all contracts with successful bidders.
4. If a contract is awarded, the successful bidder will be required to indemnify and hold the Town of Charlestown harmless from and against all liability and expenses, including attorney's fees, howsoever arising or incurred, alleging damage to property or injury to, or death of, any person, arising out of or attributable to the bidder's performance of the contract awarded.
5. Any property or work to be provided by the bidder under this contract will remain at the bidder's risk; and the bidder will replace, at bidder's expense, all property or work damaged or destroyed by any cause whatsoever.

6. Successful bidder shall provide Certification of Liability and Workers' Compensation Insurance. Contractors should be insured for \$1,000,000 for both general liability and workers' compensation. The Town, and its agents shall be named as an additional insured on all insurance policies. The Town shall be furnished with satisfactory evidence that the forgoing insurance is in effect within 10 days after written notice of award is given to the bidder. The Town shall be notified in writing (15) fifteen days prior to the cancellation or material change of any coverage.

### **Term**

1. The project will commence on a mutually agreed upon start date.

### **Special Conditions**

1. Site preparation
  - a. The Town of Charlestown will provide proper access prior to the commencement of work.
2. Tools
  - a. All necessary tools will be furnished by the contractor at no cost to the Town of Charlestown.
3. Safety
  - a. All work is to be performed in compliance with Occupational Safety and Health Administration (OSHA) and Maryland Occupational Safety and Health Administration (MOSHA) standards and regulations. Contractor must furnish crew with all necessary safety equipment at no cost to the Town of Charlestown. Such equipment includes, but is not limited to: hard hats, safety shoes, goggles, vests, etc.
4. Property Protection
  - a. The Contractor is responsible to protect all existing equipment, improvements, utilities, structures, and vegetation at all times during the course of this contract. Any property or incidental damage to public or private property during the course of this contract shall be repaired or replaced at the contractor's expense to the satisfaction of the Town Administrator, or his designated representative.
5. Permits
  - a. Since the pipe will be placed under the middle of an existing road, and the earth disturbance will be less than 5,000 square feet and 100 cubic yards, no permits are needed for the work.

### **Proposals**

1. Proposals shall include:
  - a. Coversheet with contractor's name, address, phone, email and contact information.
  - b. Bid price, including all materials and services required to fulfill the Scope of Work. Partial or incomplete bids will not be accepted.
  - c. Two references for related projects that you've completed in Maryland, and if not in Maryland, within the Mid-Atlantic Region, and within the past five years.
2. The Town of Charlestown is exempt from sales tax and no such tax will be included in the bid price. A tax-exempt certificate will be provided upon request.
3. Proposals will be exempt from disclosure until the evaluation and selection process has been completed.

### **Questions**

All questions pertaining to this RFP shall be directed to:

**Bryan Lightner, Town Administrator**

**Town of Charlestown  
241 Market Street  
P.O. Box 154  
Charlestown, MD 21914  
[blightner@charlestownmd.org](mailto:blightner@charlestownmd.org)  
410-287-6620 fax  
410-287-6173 phone**

All additional questions must be submitted in writing via email, and received by **Monday, August 5, at 4:00 PM**. A written response, including the question, will be emailed to all potential contractors.

### **Questions Received at the pre-bid meeting/Answers Provided:**

1. What is a HDPE headwall inlet with trash rack? *It is a cap with grated face that minimizes materials and debris from entering the pipe. Please see Attachment 3, page six for detail.*
2. Who will be responsible for marking the water and sewer lines in the project area? *The Town will have them marked.*
3. What is the required thickness of the road patch after the work? *Please follow the Cecil County Road Code for macadam roadways, refer to Attachment 2.*
4. Is a utility permit required to do the work? *No utility permit is required.*
5. Can the excavated materials for the trench be reused and if so, will the Town provide geotechnical services? *No, the materials can't be reused, so excavated materials will need to be exported and backfill materials will need to be imported. The Town Engineer will inspect*

*construction, to ensure trench excavation, backfill, compaction, and road repaving follows the Cecil County utility and road code standards. Please see Attachment 3 for section 2250 of the utility standards.*

6. *What is the plan for road closure? Cecil Street will be left open for access to the 400-block of Frederick Street, and the four residents affected by the work in the 300-block of Frederick Street will be contacted and coordinated with. Temporary access will need to be provided to these four homes during construction.*
7. *Can crusher run or graded aggregate base be used for backfill? Yes, either can be used, but if GAB is chosen, it must be well graded aggregate meeting the Maryland State Highway Administration requirements for roadway sub-base.*

### **Evaluation of Proposals**

#### **Review and Approval Process**

All proposals received by the closing deadline of **Friday, August 23, 2024 at 4:00 PM**, will be reviewed by the Charlestown Town Administrator. The Charlestown Commissioners will further evaluate and potentially award the contract at their next Meeting, **August 27, 2024**.

#### **Rejections**

The Commissioners of Charlestown reserve the right to waive any informality and reject any or all bids, and to accept any or all proposals which in their judgment are in the best interest of the Town, or to re-advertise for a new bid.

#### **Scope of Work**

- Pipe provided must be 18" HDPE type 'S' for length of 544 linear feet. In addition, from the road to the park swale, pipe provided must be 12" HDPE type 'S' for length of 30.5 linear feet.
- In addition, two inlet covers, four manholes, and one outlet structure must be provided.
- Above and below-ground utilities are on both sides of Frederick Street (water, sewer and overhead lines); the pipe will be installed in close proximity to the existing sanitary sewer line, so the contractor will be responsible for having all utilities accurately marked and avoiding disturbance to the sanitary sewer.
- The trench will be approximately 3.5' deep at the beginning of pipe and 10' deep near Cecil Street.
- Trench excavation, backfill, compaction, and road repaving, shall follow the Cecil County utility and road code standards.
- Project Design Plans will be provided at the pre-bid meeting.

**Attachment 1**

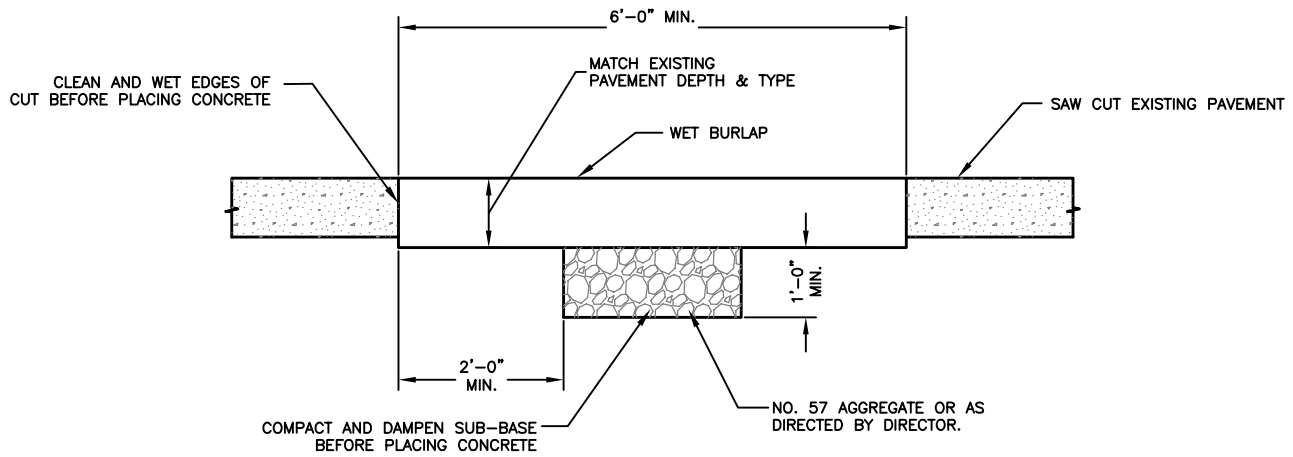
Road paving detail

**Attachment 2**

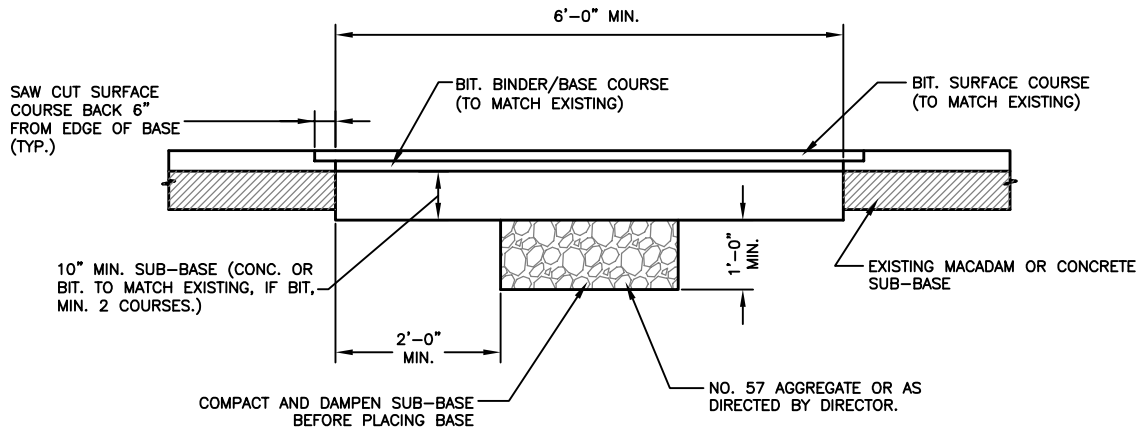
Standard Specifications for Water and Sewer Mains, Section 2250

**Attachment 3**

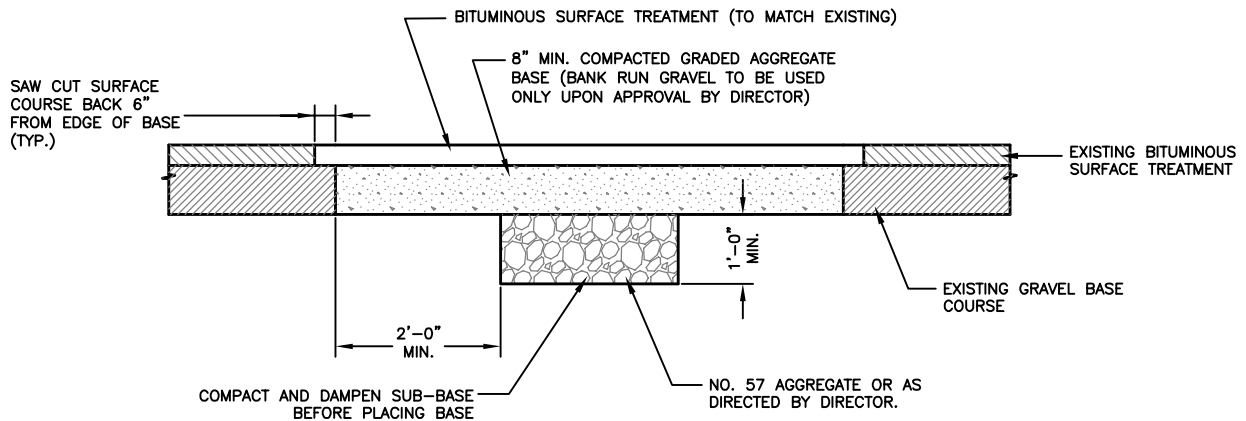
Plan and Profile



**CONCRETE ROADWAY – RIGID TYPE**



**MACADAM ROADWAY – FLEXIBLE TYPE**



**SURFACE TREATED GRAVEL ROADWAY**

NOTE: BACKFILL IN TRENCH SHALL BE THOROUGHLY COMPACTED BY TAMPING OR BY SOME OTHER APPROVED METHOD IN 6" LAYERS BEFORE PATCH IS MADE.

NO EXCAVATION OR CAVE-IN WILL BE PERMITTED UNDER EXISTING SURFACES AND NO BELLING OF THE TRENCHES WILL BE ALLOWED. SHEETING OR SHORING WILL BE USED WHEN SO DIRECTED BY ENGINEER.

(NO SCALE)

CECIL COUNTY DEPARTMENT OF PUBLIC WORKS	STANDARD ROAD & STREET DETAILS	REVISED
	<b>METHOD OF CUTTING &amp; REPAIRING OPENING IN EXISTING ROADWAYS</b>	05/07
		<b>R-31</b>

## SECTION 02250

### TRENCH EXCAVATION, BACKFILL AND COMPACTION

#### **PART 1 - GENERAL**

A. Description

1. Trench excavation, backfill and compaction shall include, but not necessarily be limited to, the excavation, backfill, and compaction of trenches for pipelines, fire hydrants, valves, manholes, vaults and other structures shown on the Plans, and in accordance with the Approved Plans.

B. Related Work Included Elsewhere

1. Test Pits: Section 02012
2. Removal and Abandonment of Existing Utilities: Section 02050
3. Aggregate Backfill: Section 02240
4. Boring and/or Jacking Pipe: Section 02300
5. Tunneling: Section 02400
6. Water Mains: Section 02660
7. Water Valves and Appurtenances: Section 02662
8. Water Services, Water Meter Settings and Vaults: Section 02664
9. Fire Hydrants: Section 02666
10. Gravity Sanitary Sewer and House Connections: Section 02700
11. Sanitary Sewer Manholes: Section 02710
12. Sanitary Sewer Force Mains: Section 02720

C. Quality Assurance

For County owned projects or projects to be owned and operated by a Private or Public Utility Company located in part or in whole within a proposed or existing county right of way or easement all materials removed from trench excavations

and used for backfill will be subject to test by the County to determine the material's suitability for use as backfill.

**PART 2 - MATERIALS**

A. Materials Furnished by the County

For County projects the County will not furnish any materials for trench backfill other than those materials which are available from the trench excavation limits as shown on the Standard Details and the Approved Plans.

B. Contractor's Options

Not applicable.

C. Detailed Material Requirements

1. Material for backfills may be from on-site excavations (if of proper quality) or from borrow sources. The material shall be free from organic material, sludge, grit, trash, muck, roots, logs, stumps or frozen material and other deleterious substances. Except as otherwise specified or approved, the material shall not contain rocks or lumps larger than six inches in greatest dimension. The material shall not contain mica in quantities which, in the judgement of the County are sufficient to affect compaction characteristics. The use of any soil additive that in the judgement of the Director or private/public utility owner may adversely affect the proposed utility is strictly prohibited.

2. Material for Backfill shall be as follows:

- a. Select Material – Within public right-of-way, private roads and parking lots within drainage and utility easement, business, commercial and industrially zoned properties, areas supporting vehicular loads and as specified herein or noted in the Contract Documents.

AASHTO Soil Classification	A-1	A-2	A-3
Sieve Analysis (% passing)			
No. 10 (2.0mm)	50 max.	-	-
No. 40 (0.425mm)	50 max.	-	51 max.
No. 200 (0.075mm)	25 max.	35 max.	10 max.
Typical Material	Stone Fragments, gravel and sand	Silty or clayey gravel and sand	Finesand



Additionally, the following material is allowable under the Unified Soil Classification System: GW and SW, or a well graded aggregate meeting the Maryland State Highway Administration requirements for roadway sub-base.

The maximum dry density shall be 105 lb/ft<sup>3</sup> or greater as measured by AASHTO T-180, Method C. The liquid limit and plasticity index for the portion of material passing the No. 200 size shall not exceed 41 and 10 respectively.

- b. Suitable Material – All other areas not required under paragraph a. above.

The maximum dry density shall be 100 lb/ft<sup>3</sup> or greater as measured by AASHTO T-180, Method C, unless the material has more than 35 percent retained on the No. 4 sieve in which case Method D shall be used. Suitable material shall include all material designated as select material as well as material classified in the Unified Soil Classification System (USCS) as ML, CL, MH and CH.

- c. Structural Fill – Structural fill shall be placed and compacted against cast-in-place concrete structures in accordance with the requirements specified in the Contract Documents.

### 3. Use and Ownership of Excavated Material

- a. Suitable material excavated from utility trenches shall be used, as far as practicable, for backfill in trenches.
- b. The Contractor shall properly store, stockpile and protect all materials that are to be reused in the work. The Contractor shall replace, at his own expense, material that was suitable when excavated, which has subsequently become unsuitable because of careless, neglectful, wasteful, or unprotected storage. The Contractor shall have no property right in any material taken from any excavation and no excavated material shall be wasted or otherwise removed from the project site without permission of the County. All unsuitable and surplus suitable material, as determined by the County, shall be removed from the excavation and disposed of off-site by and at the expense of the Contractor in accordance with all applicable Federal, State, and local regulations.
- c. If insufficient suitable soils are available from excavation on the contract project, the Contractor may obtain suitable soils from

sources designated in the Special Provisions, or from such sources within 300 yards of the site as may be approved by the County. If these sources do not supply sufficient suitable soils, the Contractor shall submit for inspection and test by the County borrow excavation sites from which such soils as may be required to complete the construction of excavation backfill on the contract project. Borrow Excavation shall be supplied and placed at the contract unit price or when not provided for in the contract at a negotiated price for Extra Work”.

4. Aggregate backfill for pipe and structure installation, bedding and trench backfill shall meet the gradation requirements specified in Section 02240.

### **PART 3 - EXECUTION**

#### **A. Surface Preparation**

##### **1. Sediment Control**

The Contractor shall install all required sediment control devices in accordance with permits and all applicable Federal, State and local regulations.

##### **2. Clearing and grubbing**

The Contractor shall clear and grub the surface over the line of the trench in accordance with the requirements of Section 02110.

##### **3. Removing Pavement, Sidewalk, Curb, etc.**

a. Prior to the removal, the Contractor shall saw-cut all existing pavement, sidewalk and curb. Jack hammering edges of pavement sidewalk and curb removal is prohibited.

b. The Contractor shall remove paving only to the width shown on the Standard Details, noted in the Special Provisions, or as directed by the County. When the Contractor removes paving for a greater width than is deemed necessary or disturbs paving, sidewalk, curbs, etc. due to settlement, slides, or cave-ins, or in making excavation outside the limits of the trench without written order of the County, the County will require the Contractor to replace the excess damaged area and may retain from payments due the Contractor such amounts required to permanently replace the excess material removed. The Contractor shall be responsible for repaving or surfacing

roadbeds or replacing sidewalk, curbs, etc. that have failed, settled, or have been damaged at anytime before expiration of the Contract maintenance period due to work or any other activities by the Contractor, his subcontractors, or suppliers.

4. Maintaining Traffic

The Contractor shall furnish all labor, tools, equipment, and materials required for the maintenance of traffic during construction in accordance with the traffic control plan or permits.

B. Trench Excavation

1. General

- a. Excavation for the installation of utilities shall be unclassified and shall consist of the excavation removal and/or disposition of all material encountered to the lines, grades, and sections shown on the Plans and/or the Standard Details, as specified, or as directed by the County.
- b. Unless otherwise indicated, excavation shall be by open cut, except that short sections of a trench may be tunneled, or the pipeline jacked, if, in the opinion of the County, the pipe can be safely and properly installed.
- c. Trenches shall be excavated and backfilled either by hand or by machinery. The Contractor shall have no claims, nor will extra compensation be allowed, for hand excavation or backfill which may be required by these Specifications or by the County for protection of existing utilities or structures.

2. Protection of Property and Structures

- a. The Contractor shall, at his own expense, sustain in place and protect from direct or indirect injury all existing facilities in the vicinity of the excavation, whether above or below the ground, or that may appear in the trench. The Contractor shall be responsible for the implementation of protective measures associated with the presence or proximity of pipes, poles, tracks, walls, buildings, property markers, and other structures and property of every kind and description in or over his trenches or in the vicinity of his work whether above or below the surface of the ground. The Contractor shall repair or replace damaged facilities at his expense.

- b. The Contractor shall be responsible to obtain any applicable local, state and Federal permits associated with dewatering. Dewatering means and methods shall be the responsibility of the Contractor. The Contractor shall be responsible for damage to private property or its water resources as a result of the Contractor's construction activities.

3. Utility Adjustments

- a. All adjustments to utilities other than those owned by the County shall be performed by the utility owner.
- b. Adjustments to water services between the property line and the water main shall be performed by utility contractors licensed and insured in the State of Maryland. Adjustments between the property line and the house shall be performed in accordance with Cecil County Plumbing Code. It shall be the Contractor's responsibility to obtain all permits necessary for the performance of this work.
- c. Adjustments to sanitary sewers within the County easement or right-of-way shall be accomplished by a utility contractor licensed and insured in the State of Maryland. Adjustments to sanitary sewers outside the County easement or right-of-way shall be performed in accordance with the Cecil County Plumbing Code. It shall be the Contractor's responsibility to obtain all permits necessary for the performance of this work.

4. Obstructions Shown on Plans

- a. Certain information regarding the reputed presence, size, character, and location of existing underground utilities and structures has been shown on the Plans based upon available records. There is no certainty of the accuracy of this information, and it shall be considered by the Contractor in this light. If test pit data is not shown on the Plans, the Contractor shall excavate test pits in advance of his work in accordance with Section 02012 to locate existing utilities. The Contractor shall hereby distinctly understand that the County is not responsible for the correctness or sufficiency of the information given. The Contractor shall have no claim for delay or extra compensation on account of incorrectness of information given, or on account of the insufficiency or absence of information regarding obstructions. The Contractor shall have no claim for relief from any obligation or responsibility under the Contract in case the location, size, or character of any underground facility is encountered that is not

shown on the Plans.

- b. It shall be the responsibility of the Contractor to notify MISS UTILITY,” all municipal utilities, all utility line owners, and any other parties affected prior to the beginning of work. It is the Contractors responsibility to reference and maintain the location markings during the construction of the project. In the event that a utility location needs to be re-established by Cecil County, the cost to provide this shall be borne by the Contractor.

5. Removing Obstruction

- a. Should the position of any pipe, conduit, or other structure above or below ground be such as, in the opinion of the County, to require its removal, realignment, or change due to the work to be done under the Contract, the work of removal, realignment, or change will be done as extra work, or will be done by the owner of the obstructions without cost to the Contractor; but the Contractor shall uncover and support the structures in the limits of his trench at his own expense before such removal, and before and after such realignment or change. Whether the obstruction is shown on the Plans or not, the Contractor shall not be entitled to any claim for damage or extra compensation on account of the presence of said structure or on account of any delay in the removal or rearrangement of the same; however, if said structure is not shown on the Plans, time extension will be allowed if deemed to be warranted by the County.
- b. In the event that obstructions would delay the work of pipe installation, the Contractor may, with prior written County approval, be permitted to leave a gap in the work and return to fill the gap after the obstructions have been removed. The installation shall be completed by laying full pipe lengths and appropriate closure pieces.
- c. The Contractor shall not interfere with any persons, firms, or corporations or with the County in protecting, removing, changing or replacing pipes, conduits, poles, or other structures.
- d. In the event that the County has entered into any agreement with an affected utility owner or owners which will have an effect on the operations or financial responsibilities of the Contractor, the requirements of these agreements will be included in the Special Provisions of the Contract.

6. Change of Trench Location

- a. In the event the County directs that the location of a trench be changed to a reasonable extent from that proposed on the drawing on account of the presence of an obstruction, or from other cause, or if a changed location shall be authorized upon the Contractor's request, the Contractor shall not be entitled to extra compensation or to a claim for damages; provided that the change is made before the excavation is begun. If, however, such change, made at the direction of the County involves the abandonment of excavation already made, such abandoned excavation together with the necessary backfill, will be considered extra work and the Contractor shall be compensated accordingly. In the event that the trench is abandoned in favor of a new location, at the Contractor's request, the abandoned excavation and backfill shall be at the Contractor's expense.
- b. If an obstruction shall lie within the trench in such manner that the trench has to be excavated to extra width in order that sheeting or bracing may be properly placed, or in order that a structure to be placed in the trench may be properly built, such extra width of trench shall be classed as miscellaneous excavation. No sloping of sides of excavation, however, for the purpose of avoiding the necessity of placing sheeting or bracing, either in the presence or absence of obstructions, will be considered as excavation beyond pay limits.

7. Trench Width and Depth

- a. Trenches shall be excavated to the necessary width and depth as may be shown on the Plans or Standard Details, as specified in the Special Provisions, or as directed. The trench subgrade shall be such as to provide a uniform and continuous bearing and support for the pipe on solid undisturbed earth for the full length of each pipe, except for that portion at the bell hole. Any part of the bottom of the trench excavated below subgrade shall be backfilled with approved material and compacted in accordance with Approved Plans.
- b. Subgrade, in the case of pipelines, shall be six (6) inches below the underside of the pipe barrel, where the pipe is laid on granular bedding. Where the pipe is laid on a natural foundation, subgrade shall be four (4) inches below the underside of the pipe barrel.

- c. The sides of the trenches shall be in accordance with the latest OSHA requirements. It is the contractor's responsibility to install and supply all materials needed to conform to OSHA requirements.
- d. Bell holes shall be excavated in the bottom of the trench to ensure that pipe has continuous bearing.
- e. Where sheeting or trench boxes are used, the maximum width shall be as noted in the Standard Details.

8. Length of Open Trench

- a. The Contractor shall keep the backfill operation to the top of trench for offsite and existing areas and to road subgrade in areas of new construction, within 100 feet of excavation and pipe laying operations. The County reserves the right to require the backfilling of open trenches over completed pipe lines if, in his judgment, such action is necessary; and the Contractor shall thereby have no claim for extra compensation, even though to accomplish said backfilling, he is compelled temporarily to stop excavation or other work at any place.
- b. All trenches shall be closed at the end of each workday.
- c. The excavation of all trenches shall be fully completed at least one full pipe length in advance of pipe installation, unless otherwise authorized.

9. Responsibility for Condition of Excavation

The Contractor shall be responsible for the condition of all excavations made by him.

10. Trench Support

- a. The support of the trench in conformance with OSHA requirements shall be the sole responsibility of the Contractor.
- b. The Contractor shall support the sides and ends of all excavations wherever necessary with braces, sheeting, shoring or stringers, trench boxes, or other acceptable excavation support systems. All trench support systems shall be installed by men skilled in such work and shall be so arranged that it may be withdrawn as backfilling proceeds, without injury to the utility or structure constructed or to any roadbed, adjacent structure or

- c. All timbering in excavations, trench boxes, or excavation support systems shall be withdrawn as the backfilling is being done, except where and to such extent as the County shall order in writing that said timbering or excavation support system be left in place or where the County permits the trench support to be left in place at the Contractor's expense and upon his request. The Contractor shall cut off any sheeting left in place 2 feet below finished grade and shall remove the material cut off without compensation therefore.
- d. Wherever necessary, in running sand, or soft ground, or for the protection of any structure or property, sheeting shall be driven without extra compensation to such a depth below the bottom of the trench as may be required or directed. Where directed by the County to leave sheeting in place, payment will be made under the appropriate contingent item.
- e. All work shall be performed in accordance with the latest applicable Federal, State, and local safety and health regulations.

11. Drainage and Dewatering

- a. The Contractor shall grade the site as necessary to prevent surface water ponding or from flowing into the trench or other utility excavations and shall provide all necessary temporary surface drainage and keep the same operating to the satisfaction of the County until permanent drainage or finished grading and permanent surface stabilization has been completed.
- b. It shall be the Contractor's responsibility to adequately control water that may be present in the excavation. He shall provide for the disposal of water removed from excavations in such a manner not to cause damage to public or private property or to any portion of the work completed or in progress or cause any impediment to the use of any area by the public; nor shall the Contractor discharge any flushing or ground water or any material of any nature into existing sanitary sewer system during the construction of the facilities. All water shall be discharged through an approved sediment control device.

12. Excavation below Subgrade

- a. The Contractor shall, without additional compensation, before any pipe or appurtenance is installed, fill all unauthorized



depressions or irregularities in the bottom of the trench or tunnel with aggregate fill.

- b. Where the bottom of the trench, at subgrade, is in unstable or unsuitable material, excavation shall be carried to such depth as ordered by the County. The trench bottom shall be restored to subgrade with aggregate fill. Excavation and backfill for removal of unsuitable material will be paid for under the appropriate contingent item.

C. Backfill

1. The Contractor shall backfill all trenches as rapidly as practicable after the installation of the utility therein, or after the excavation has served its purpose.
- 2.. Subgrade to 2' – 0" above top of pipe: Unless otherwise noted in the Construction Drawings, Specifications or Permits, backfill material shall be carefully placed around and to a depth of two feet over the pipe. These initial lifts shall be carefully placed and tamped by hand or suitable machine compaction methods (dependent on material) in four to eight inch layers. Care should be exercised in this operation to insure that the alignment of the utility is not disturbed.
3. Subgrade to 2' – 0" above top of pipe to top of trench. The remainder of the trench may be backfilled in layers not exceeding the specified compaction lift depths. However, if lift thickness is followed and the specified compaction is not obtained based on the testing during backfilling, the Contractor shall, at his own expense, remove, replace, and retest as many times as is required to obtain the specified compactions. In backfilling the remainder of the trench, stones of not more than 6 inches in largest dimension which have been taken out in excavating may be mixed with earth in an amount not exceeding 25% of the backfill volume. Stones of larger size or in greater quantities shall not be used, unless directed by the County. The Contractor shall not permit excavations to be used for the disposal of refuse.
4. Use of frozen backfill material is prohibited.
5. In paved areas, the Contractor shall furnish and backfill the trench as per the requirements of the governing regulatory agency, and/or Approved Plans.
6. Should additional material be required for backfilling in excess of that obtained from excavation, the Contractor shall obtain Borrow material from off-site sources, to complete the trench backfill.

7. Pipe Structures, Appurtenances and backfill material shall not be laid upon frozen soil or aggregate.

D. Compaction

1. In unimproved areas (areas not identified in paragraph 2 below) compaction shall be accomplished as follows for the remaining depth of trench: Backfill material shall be placed in maximum 2 foot layers or as approved by the County and compacted in such a manner that a completely dense refill is obtained which is free of voids and not susceptible to undue settlement or depression.
2. Soil compaction certified by a soils testing company will be required under the following conditions, unless otherwise shown on the construction drawings, noted in the Specifications or required in the permit.

- a. Road right-of-ways, roadways, driveways, parking lots, sidewalks and other easement areas with vehicular loads; and all business, commercial or industrial property.

The remaining trench depth less any thickness left for crusher run, paving, or concrete specified hereinafter shall be backfilled with suitable material and mechanically tamped in layers not to exceed twelve inches to not less than 92% of the maximum density at optimum moisture content as determined by the Modified Proctor Method, AASHTO Designation T-180 to within the top foot of subgrade which shall be compacted to 95% of the maximum density determined as noted above. All compaction must comply with the aforementioned or the latest edition of the governing applicable road code or permit whichever is most stringent.

- b. In some circumstances, lawn and landscape areas may require the above compaction standards. Residentially zoned property (maintained lawn and landscaped areas)

The remaining trench depth shall be backfilled with suitable material and mechanically tamped in layers not to exceed twelve inches to not less than 85% of the maximum density at optimum moisture content as determined by the Modified Proctor Method, AASHTO Designation T-180.

3. Insofar as the specifications for mechanical tamping equipment or methods are concerned, no specific requirements are included in these

Specifications other than that the use of any particular type of equipment is subject to the approval of the County and that the County has sole right to judge what equipment is suitable for the uses intended. The Contractor shall be cognizant that use of hand-tamping equipment may be required around existing utilities.

4. For developer projects, the developer or contractor shall inspect and test the soil compaction utilizing a Geotechnical Firm licensed in the State of Maryland to ensure the requirements are met in paragraph 2 above. A full-time soils testing technician shall be on-site performing compaction tests during all backfilling operations. The following shall be required of the soils testing company.
  - a. Prior to construction, perform modified Proctor Test T-180 on bag samples of proposed backfill material for the purpose of obtaining moisture-density relationship curves (Proctor curves). The soils technicians inspecting the backfilling operations shall have the proctor curves with them at all times.
  - b. Monitor and document all backfill operations that are subject to compaction certification.
  - c. The soils technicians shall assure each lift, not exceeding 100 linear feet, meets the compaction requirements noted on the construction drawings. The moisture density of the soil shall be tested by either the sand cone method or by nuclear density gauge. The soils technician shall notify the contractor if any lift does not meet the compaction requirements. The contractor shall then re-compact the backfill as necessary until the minimum compaction has been achieved. The soils technician shall note the station and depth of each test and re-test with results. The contractor shall not proceed until the minimum compaction requirements have been met.
  - d. The soils technician shall provide the County Inspector with copies of the reports on a daily basis on the day the testing occurred.
  - e. The soils technician shall take moisture tests of the backfill material a minimum of twice daily. If the tested soil moisture will prevent the required density, the technician shall immediately notify the contractor. The Contractor shall then take the necessary steps to modify the soil moisture to acceptable levels that will achieve the minimum compaction requirements without the use of additives.

- f. The soils technician shall determine if the backfill material meets the requirements of the Standard Specifications.

For capital projects, Cecil County will retain the services of a soils testing at the County's expense.

E. Maintenance of Backfilled Trench

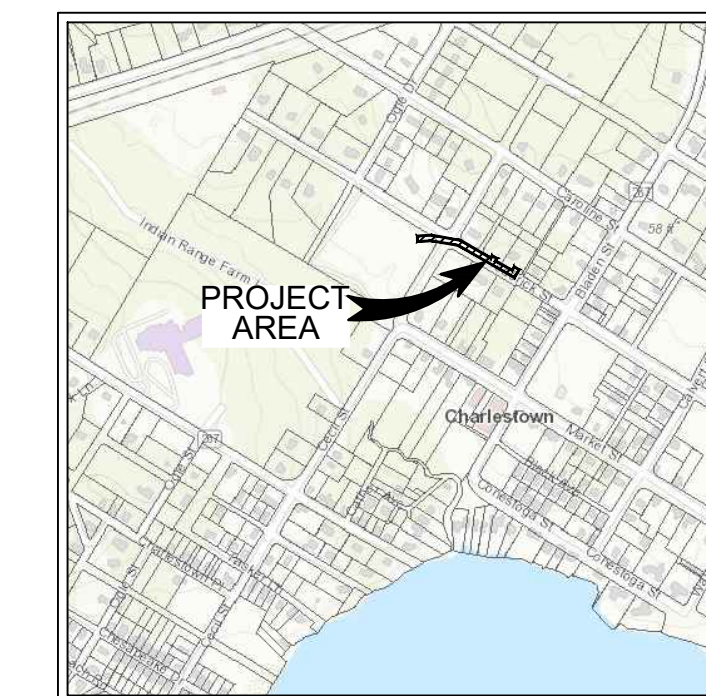
1. All backfilled trenches shall be maintained in an acceptable condition by and at the expense of the Contractor for a period of twelve (12) months following the date of conditional acceptance of the work.
2. If the Contractor fails to fill depressions in the backfilled trench within 24 hours after the receipt of notice from the County, the County may refill said depressions and the Contractor shall reimburse the County for all costs incurred. In case of emergency, the County may refill any dangerous depression or protect with lights wherever necessary without giving previous notice to the Contractor; and the Contractor shall reimburse the County for all costs incurred.
3. The Contractor shall be responsible for any injury or damage that may result from lack of maintenance of any refilled excavation at any time prior to final acceptance of the Project.

END OF SECTION

SHEET INDEX

DESCRIPTION	SHEET
TITLE SHEET	1
LEGEND	2
EXISTING CONDITIONS PLAN	3
GRADING PLAN	4
PROFILE	5
DETAILS	6
SEDIMENT AND EROSION CONTROL NOTES AND DETAILS	7
DRAINAGE AREA MAP	8

# 300 BLOCK FREDERICK STREET STORM DRAIN



VICINITY MAP  
SCALE: 1"=2000'  
COPYRIGHT: ADC THE MAP PEOPLE  
PERMITTED USE NO. 20113300

**STANDARD SPECIFICATIONS AND STANDARDS**

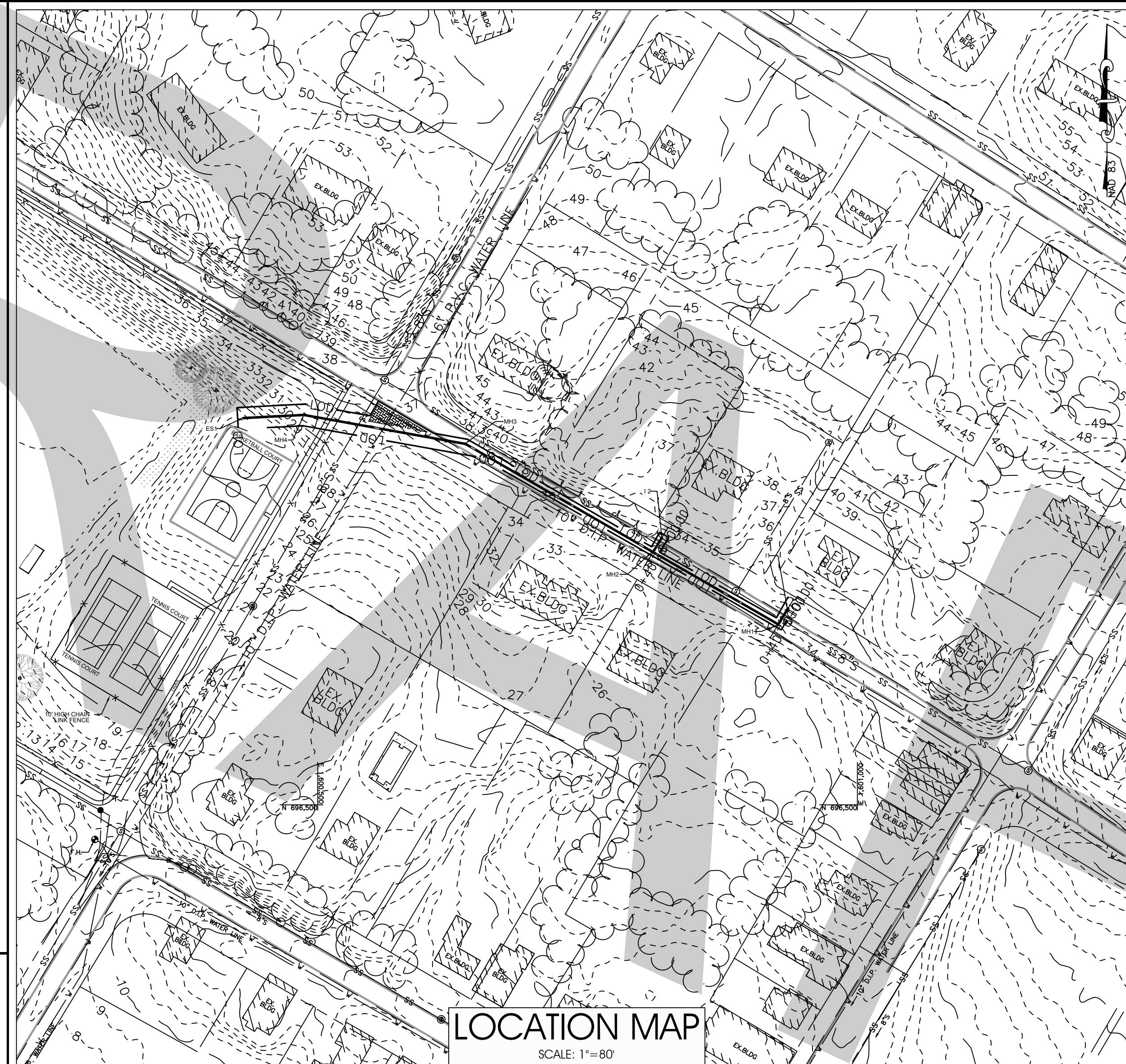
ALL WORK ON THIS PROJECT SHALL CONFORM TO: CECIL COUNTY ROAD CODE AND THE MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATIONS SPECIFICATIONS ENTITLED STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS DATED JULY 2021 REVISIONS THEREOF OR ADDITIONS THERETO; THE MARYLAND STATE HIGHWAY ADMINISTRATION BOOK OF STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES; THE 2011 PUBLICATION OF AASHTO'S "A POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS," AND THE LATEST MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).

**RIGHT OF WAY**

RIGHT OF WAY AND EASEMENT LINE SHOWN ON THESE PLANS ARE FOR ASSISTANCE IN INTERPRETING THE PLANS. THEY ARE NOT OFFICIAL FOR OFFICIAL FEE RIGHT OF WAY AND EASEMENT INFORMATION SEE APPROPRIATE RIGHT OF WAY PLATS.

**UTILITIES**

THE LOCATION OF UTILITIES SHOWN ON THE PLANS ARE FOR INFORMATION AND GUIDANCE ONLY. NO GUARANTEE IS MADE OF THE ACCURACY OF SAID LOCATIONS. CALL "MISS UTILITY" AT 1-800-257-7777 48 HOURS PRIOR TO THE START OF WORK.



LOCATION MAP  
SCALE: 1"=80'

**INFORMATION STATEMENT**

- |  |  |  |
|--|--|--|
| <p>1A. OWNER/ DEVELOPER:<br/>TOWN OF CHARLESTOWN<br/>FREDERICK STREET<br/>CHARLESTOWN MD 21914</p> | <p>1B. CONSULTANT:<br/>UNDERWOOD &amp; ASSOCIATES<br/>1753 EBLING TRAIL<br/>ANNAPOLIS, MARYLAND 21401<br/>BUSINESS PH. (OFFICE) 410.849.3211</p> | <p>1C. ENGINEER:<br/>DAVID J. WALLACE P.E.<br/>701 CHESAPEAKE AVENUE<br/>ANNAPOLIS, MARYLAND 21403<br/>BUSINESS PH. 410.544.1225</p> |
|--|--|--|
2. GENERAL DESCRIPTION OF PREDOMINATE SOIL TYPE:  
Christiana Sassafras-Urban land Complex Soils 0 TO 5 percent Slopes  
Hydrologic Soil Group Rating - D.
  3. EXISTING ZONING IS OPEN SPACE AND RESIDENTIAL LOW DENSITY.
  4. PROPERTY CAN BE FOUND AT TAX MAP 5172, GRID H9 & J8 & J9, PARCEL 0523.
  5. Total area of site is: 7,351.85 square feet = 0.17 Acres±  
Total area disturbed is: 4,900 square feet = 0.112 Acres

**SEQUENCE OF CONSTRUCTION**

THE BELOW NOTED TIMES ARE APPROXIMATE AND REPRESENT WORKING DAYS.

1. STAKE OUT, FLAG, OR OTHERWISE DELINEATE THE LIMIT OF DISTURBANCE. (1 DAY)
2. INSTALL SEDIMENT AND EROSION CONTROL AS SHOWN ON THE APPROVED PLANS. (1 DAY)
3. PREPARE THE SITE, REMOVE EXISTING PIPES. (2 DAYS)
4. INSTALL DRAINAGE STRUCTURES ACCORDING TO THE PLANS AND FOLLOWING MANUFACTURER SPECIFICATIONS. (14 DAYS)
5. RE-PAVE DISTURBED STRIP OF THE ROAD. (5 DAYS)
6. RESTORE ANY REMAINING DISTURBED AREAS. STABILIZE WITH ANNUAL RYE GRASS SEED AS NEEDED. (3 DAYS)
7. REMOVE ANY SEDIMENT AND EROSION CONTROL AND DE-MOBILIZE. (1 DAY)

TOTAL PROJECT DURATION: 27 DAYS

**NOTE TO CONTRACTOR:**  
EROSION AND SEDIMENT CONTROL SHALL BE STRICTLY ENFORCED.

**APPROVALS**

**UNDERWOOD & ASSOCIATES**  
LANDSCAPE ARCHITECTURE • ECOLOGICAL RESTORATION  
A DESIGN/BUILD Co.

901-A COMMERCE ROAD • ANNAPOLIS, MD 21401  
tel. 410-849-3211 Fax. 443-714-8821

DAVID J. WALLACE, P.E.  
PROFESSIONAL CERTIFICATION

I, DAVID J. WALLACE, CERTIFY THAT THESE DOCUMENTS WERE PREPARED BY OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 11466 EXPIRATION DATE: MAY 28, 2025.

DAVID J. WALLACE, P.E.  
701 CHESAPEAKE AVENUE  
ANNAPOLIS, MARYLAND 21403  
BUSINESS PH. 410.544.1225



JULY 31, 2024

Scale	AS SHOWN
Drawn By	K.B.J.K./E.C.
Approved By	D.W.
Sheet No.	1 Of 8
Project No.	22-063
Proposal No.	...

**TITLE SHEET**

**CHARLESTOWN  
300 BLOCK FREDERICK STREET  
STORM DRAIN**

THE TOWN OF CHARLESTOWN  
PO BOX 154 CHARLESTOWN, MARYLAND 21914  
FREDERICK STREET CHARLESTOWN, MARYLAND 21914  
FORMERLY MAP 0301, GRID 0024, PARCEL 0395  
5TH ELECTION DISTRICT, CECIL COUNTY

The techniques used in this design are covered by US Patents # 11047124 & # 11047125, owned by Underwood & Associates, Inc. PLOTTED: Aug 01, 2024 - 6:55pm

- EXISTING TOPOGRAPHY AND SURFACE FEATURES ARE SHOWN BASED ON CECIL COUNTY GIS DATA
- THE COORDINATES, BEARINGS, AND ELEVATIONS SHOWN HEREON ARE BASED ON THE MARYLAND STATE SYSTEM OF PLANE COORDINATES NAD 83.
- EXISTING UTILITIES AND OBSTRUCTIONS HAVE BEEN SHOWN FROM AVAILABLE RECORDS AND SHALL BE VERIFIED BY THE CONTRACTOR TO HIS SATISFACTION PRIOR TO CONSTRUCTION. OWNER/DEVELOPER, NOR UNDERWOOD & ASSOCIATES, NOR THE TOWN OF CHARLESTOWN WARRANTS OR GUARANTEES THE ACCURACY OR THE COMPLETENESS OF THE EXISTING UTILITY INFORMATION SHOWN HEREON. CONTRACTOR SHALL TAKE ANY AND ALL PRECAUTIONS NECESSARY TO AVOID DAMAGE TO EXISTING UTILITIES, AND ANY DAMAGE TO THEM RESULTING FROM HIS OPERATIONS SHALL BE IMMEDIATELY REPAIRED AT HIS EXPENSE. AS A MINIMUM PRECAUTION, CONTRACTOR SHALL NOTIFY MISS UTILITY (800-257-7777) AT LEAST FIVE DAYS PRIOR TO ANY EXCAVATION, BORING, PILE DRIVING, DIGGING, OR OTHER CONSTRUCTION ACTIVITY TO OBTAIN FIELD LOCATIONS OF EXISTING GAS, ELECTRIC, WATER, SEWER, OR TELEPHONE LINES. SHALL DETERMINE THE LOCATION OF ANY TELEVISION CABLES IN THE VICINITY OF THE WORK AREA, AND SHALL PROVIDE ANY REQUIRED BRACING OF POWER POLES IN THE VICINITY OF THE WORK AREA AT HIS EXPENSE. UTILITIES SHALL BE RELOCATED AT OWNER'S EXPENSE ONLY WITH OWNER'S SPECIFIC WRITTEN APPROVAL.
- CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACING OR RESTORING TO ORIGINAL CONDITION ANY EXISTING FENCES, PAVED AREAS, SIDEWALKS, MAILBOXES, ETC. THAT ARE REMOVED OR DAMAGED DURING CONSTRUCTION AND ALL DISTURBED AREAS SHALL BE RETURNED TO THEIR ORIGINAL CONDITION, UNLESS OTHERWISE INDICATED.
- UNLESS OTHERWISE NOTED, ALL CONSTRUCTION METHODS SHALL BE IN ACCORDANCE WITH THE LATEST MARYLAND STATE HIGHWAY ADMINISTRATION DETAILS AND SPECIFICATIONS.
- IT SHALL BE DISTINCTLY UNDERSTOOD THAT FAILURE TO MENTION SPECIFICALLY ANY WORK THAT WOULD NATURALLY BE REQUIRED TO COMPLETE THE PROJECT SHALL NOT RELIEVE THE CONTRACTOR OF HIS RESPONSIBILITY TO PERFORM SUCH WORK.
- THESE DRAWINGS DO NOT INCLUDE THE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY. ALL CONSTRUCTION MUST BE DONE IN COMPLIANCE WITH THE MOST CURRENT VERSION OF OSHA STANDARDS AND/OR REGULATIONS.
- IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY THE ENGINEER AND THE TOWN OF ANY DEVIATION TO THIS PLAN PRIOR TO ANY CHANGE BEING MADE. ANY CHANGE IN THIS PLAN WITHOUT WRITTEN AUTHORIZATION FOR SAID CHANGE FROM THE ENGINEER SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR OR SUBCONTRACTOR. SAID CHANGES MAY WARRANT ENGINEER AND TOWN REVIEW AND APPROVAL.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION OF CONSTRUCTION WITH CONSTRUCTION BY OTHER CONTRACTORS, IF APPLICABLE.
- THESE DRAWINGS SHALL BE USED ONLY FOR:
  - INSTALLATION OF SEDIMENT CONTROL MEASURES
  - CLEARING AND GRADING
  - INSTALLATION OF ONSITE DRAINAGE STRUCTURES.
- ALL EXISTING UTILITIES SHALL BE TEST PITTED/LOCATED AS NECESSARY AND IN ADVANCE OF THE PROPOSED CONSTRUCTION, IN ORDER TO PROPERLY MAKE ALL REQUIRED UTILITY CROSSINGS AND/OR CONNECTIONS. ANY DISCREPANCIES OR UTILITY CONFLICTS SHALL BE IMMEDIATELY REPORTED TO THE ENGINEER.
- IT SHALL BE DISTINCTLY UNDERSTOOD THAT FAILURE TO MENTION SPECIFICALLY ANY WORK WHICH WOULD NORMALLY BE REQUIRED TO COMPLETE THE PROJECT SHALL NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY TO COMPLETE SUCH WORK.
- THE CONTRACTOR SHALL IMMEDIATELY ALERT THE TOWN OF ANY DISCREPANCIES BETWEEN THE PROJECT DOCUMENTS AND FIELD CONDITIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY FIELD CHANGES MADE WITHOUT APPROVAL OF THE TOWN.
- DISTURBANCE WITHIN EXISTING PAVING MUST BE STABILIZED IMMEDIATELY USING COLD -PATCH BITUMINOUS MATERIAL. PERMANENT PAVEMENT PATCHING IN THESE AREAS WITH HOT-MIX BITUMINOUS MATERIAL MUST BE COMPLETED WITHIN 14-30 DAYS AND MATCH THE EXISTING PAVING SECTION.
- PIPE ELEVATIONS REFER TO THE INVERT PIPES UNLESS OTHERWISE NOTED.

**EXISTING CONDITIONS**

- 35' CHANNELWARD ENCROACHMENT LINE
- MINOR CONTOURS
- MAJOR CONTOURS
- TRAVERSE POINT
- BENCH MARK
- DRAINAGE AREA BOUNDARY
- SOIL TYPE BOUNDARY
- EX 100-YR FLOODPLAIN (HEC-RAS)
- EX 100-YR FLOODPLAIN BUFFER
- GEOTECHNICAL SOIL BORING
- STREAMLINE
- PROPERTY BOUNDARY
- BUILDING
- ROAD EDGE
- ROAD OUTCROP
- ROCK OUTCROP
- RIPRAP
- REINFORCED CONCRETE PIPE
- ELECTRIC LINE (APPROX. EXTENTS)
- WOOD FENCE
- CHAIN LINK FENCE
- GUARD RAIL
- ELECTRIC LINE (APPROX. EXTENTS)
- TREE
- TREE LINE
- WETLANDS
- WETLAND BUFFER
- STREAM EASEMENT
- EXISTING PIER
- SPECIMEN TREE
- BUCKHEAD
- EXISTING STORM DRAIN
- UTILITY POLE
- BIORETENTION AREA
- SPOT ELEVATION
- MEAN HIGH WATER
- MEAN LOW WATER

**PROPOSED FEATURES LEGEND**

- MINOR CONTOURS
- MAJOR CONTOURS
- PROPOSED SPOT ELEVATION
- RIFFLE GRADE CONTROL STRUCTURE
- BOULDER STABILIZATION
- PROPOSED SAND FILL
- PROPOSED COBBLE STRUCTURE
- PROPOSED BOULDER OUTCROP
- PROPOSED MEAN HIGH WATER
- PROPOSED MEAN LOW WATER
- CHANNEL FILL AND WOODY DEBRIS
- PROPOSED GRAVEL
- CROSS SECTION LINE
- SPARTINA ALTERNIFLORA (LOW MARSH)
- SPARTINA PATENS (HIGH MARSH)
- LOG SILL WITH COBBLE FILL

**PROPOSED DEMOLITION LEGEND**

- ROCK REMOVAL
- FENCE REMOVAL
- TREE REMOVAL

**PROFILE LEGEND**

- EXISTING GRADE
- PROPOSED GRADE
- PROPOSED 100 YR FLOOD WSEL
- PROPOSED BASEFLOW WSEL
- PROPOSED COBBLE WEIR
- PROPOSED CASCADE
- BOULDER OUTCROP
- SPARTINA PATENS
- SPARTINA ALTERNIFLORA
- SAND/WOOD CHIP MIX
- SUBMERGED COBBLE
- PROPOSED LOG SILL
- EXCAVATION AREA
- BOULDER STRUCTURES
- ROAD EMBANKMENT STABILIZATION
- COMMON BORROW FILL MATERIAL
- EPHEMERAL VALLEY RESTORATION (EVR)
- CLAY BLOCK (CB)

**SEDIMENT AND EROSION CONTROL FEATURES**

- LIMIT OF DISTURBANCE (L.O.D.)
- REINFORCED SILT FENCE
- FILTER LOG
- TREE PROTECTION FENCING
- STABILIZED CONSTRUCTION ENTRANCE
- STABILIZED CONSTRUCTION ACCESS
- TEMPORARY SAND BAG DIKE
- MODIFIED RIPRAP SEDIMENT TRAP
- PROPOSED 6" SLOTTED HDPE PIPE & PEA GRAVEL UNDERDRAIN
- DEWATERING PUMP & DIVERSION PIPE
- SILT FENCE (SF)
- SUPER SILT FENCE (SSF)
- PROPOSED STAGING AND STOCKPILE AREA
- FILTER BAG
- SANDBAG DIVERSION PIPE
- TURBIDITY CURTAIN with ANCHOR AND BUOY
- TC

**ABBREVIATIONS**

ACRE	AC
APPROXIMATELY	APPROX
CRITICAL ROOT ZONE	CRZ
CLEAR WATER DIVERSION	CWD
CUBIC YARD	CY
DIAMETER AT BREST HEIGHT	DBH
DRAINAGE PIPE	DP
ELEVATION	EL
FEET	FT
INCH	IN
INV	INVERT
LIMIT OF DISTURBANCE	LOD
MAXIMUM	MAX
MINIMUM	MIN
MANHOLE	MH
OUTLET CONTROL STRUCTURE	OCS
PRE-FORMED SCOUR POOL	PSP
REINFORCED CONCRETE PIPE	RCP
RIP RAP SWALE	RRS
REGENERATIVE STREAM CONVEYANCE	RSC
SQUARE FEET	SF
SILT FENCE	SF
SUPER SILT FENCE	SSF
TYPICAL	TYP
WETLAND	WL
WETLAND BUFFER	WB
WATER SURFACE ELEVATION	WSEL

**UNDERWOOD & ASSOCIATES**  
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 A DESIGN/BUILD Co.  
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 tel. 410-849-3211 fax. 443-714-8821

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 DAVID J. WALLACE, P.E.  
 701 CHESAPEAKE AVENUE  
 ANNAPOLIS, MARYLAND 21403  
 BUSINESS PH. 410.544.1225



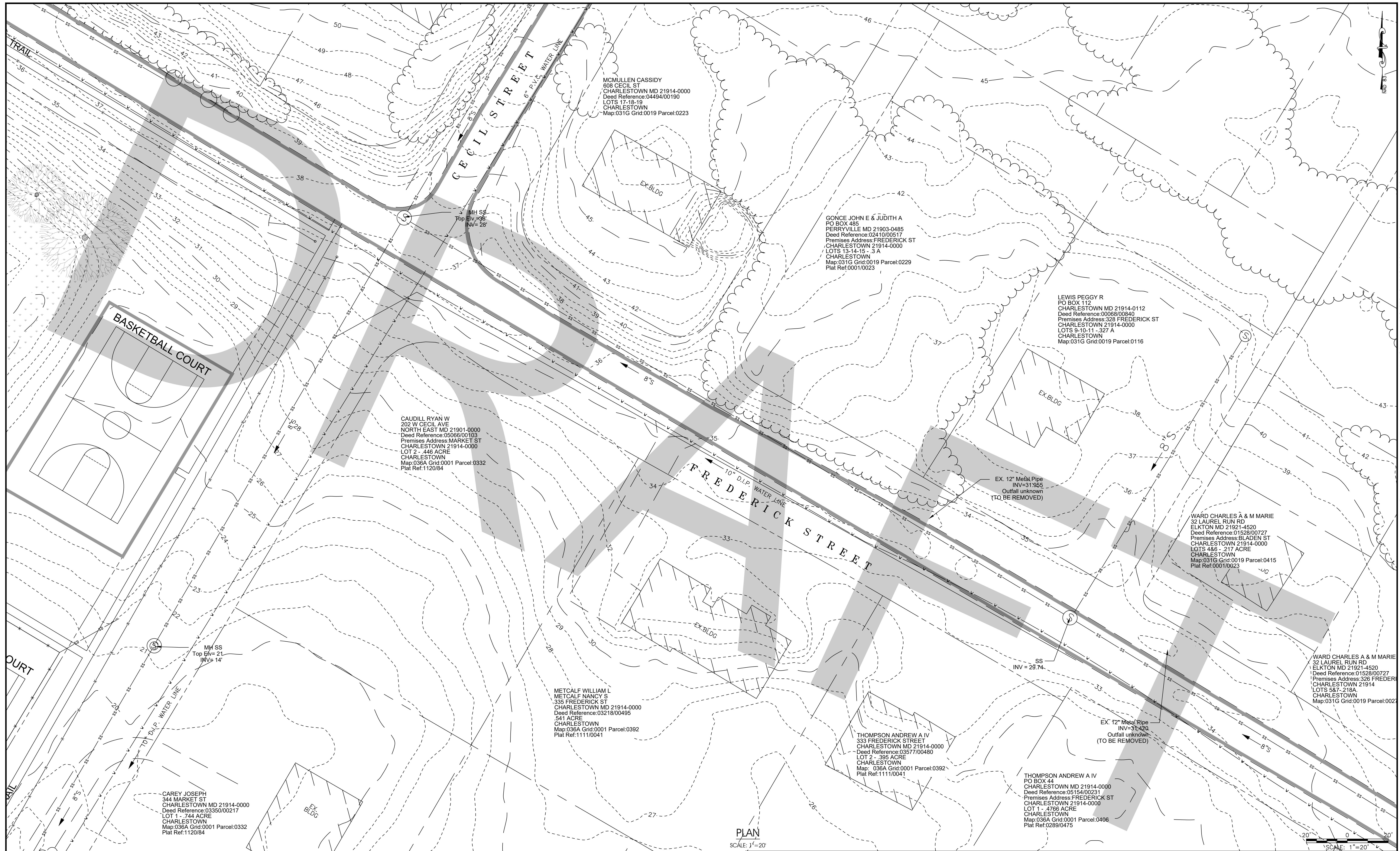
Scale		AS SHOWN
Drawn By		K.B.J.K./E.C.
Approved By		D.W.
Sheet No.		2 Of 8
Project No.		22-063
Proposal No.		...

JULY 31, 2024

**LEGEND**

**CHARLESTOWN  
300 BLOCK FREDERICK STREET  
STORM DRAIN**

THE TOWN OF CHARLESTOWN  
 PO BOX 154 CHARLESTOWN, MARYLAND 21914  
 FREDRICK STREET CHARLESTOWN, MARYLAND 21914  
 FORMERLY MAP 0301, GRID 0024, PARCEL 0395  
 5TH ELECTION DISTRICT, CECIL COUNTY



PLAN  
SCALE: 1"=20'

SCALE: 1"=20'  
JULY 31, 2024

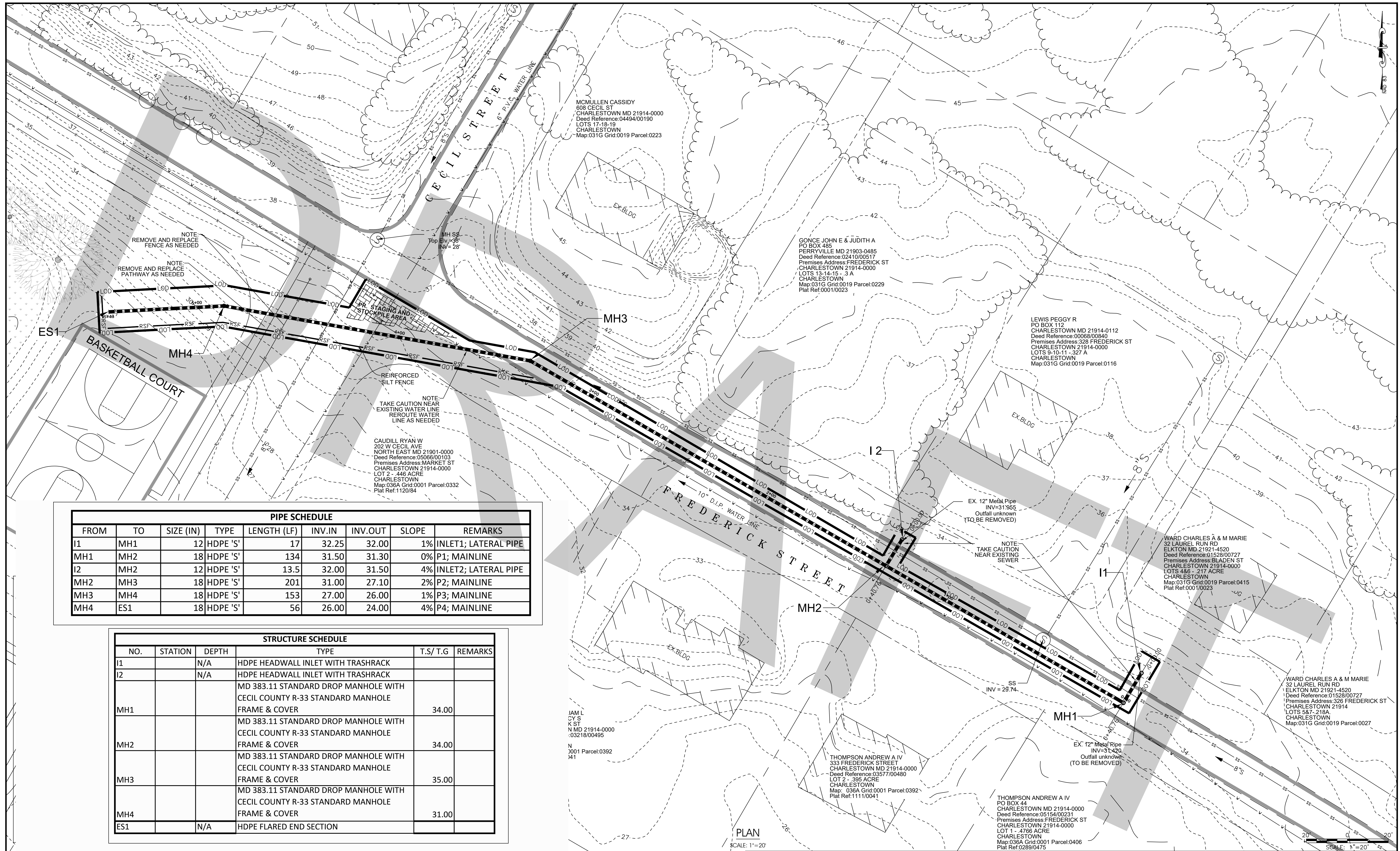
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 BUSINESS PH. 410.544.1225



Scale	AS SHOWN	<b>EXISTING CONDITION</b>
Drawn By	K.B.J.K./E.C.	
Approved By	D.W.	<b>CHARLESTOWN</b> <b>300 BLOCK FREDERICK STREET</b> <b>STORM DRAIN</b>
Sheet No.	3 Of 8	
Project No.	22-063	THE TOWN OF CHARLESTOWN PO BOX 154 CHARLESTOWN, MARYLAND 21914 FREDRICK STREET CHARLESTOWN, MARYLAND 21914 FORMERLY MAP 0301, GRID 0024, PARCEL 0395 5TH ELECTION DISTRICT, CECIL COUNTY
Proposal No.	...	

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PIPE SCHEDULE								
FROM	TO	SIZE (IN)	TYPE	LENGTH (LF)	INV. IN	INV. OUT	SLOPE	REMARKS
I1	MH1	12	HDPE 'S'	17	32.25	32.00	1%	INLET1; LATERAL PIPE
MH1	MH2	18	HDPE 'S'	134	31.50	31.30	0%	P1; MAINLINE
I2	MH2	12	HDPE 'S'	13.5	32.00	31.50	4%	INLET2; LATERAL PIPE
MH2	MH3	18	HDPE 'S'	201	31.00	27.10	2%	P2; MAINLINE
MH3	MH4	18	HDPE 'S'	153	27.00	26.00	1%	P3; MAINLINE
MH4	ES1	18	HDPE 'S'	56	26.00	24.00	4%	P4; MAINLINE

STRUCTURE SCHEDULE					
NO.	STATION	DEPTH	TYPE	T.S/ T.G	REMARKS
I1		N/A	HDPE HEADWALL INLET WITH TRASHRACK		
I2		N/A	HDPE HEADWALL INLET WITH TRASHRACK		
MH1			MD 383.11 STANDARD DROP MANHOLE WITH CECIL COUNTY R-33 STANDARD MANHOLE FRAME & COVER	34.00	
MH2			MD 383.11 STANDARD DROP MANHOLE WITH CECIL COUNTY R-33 STANDARD MANHOLE FRAME & COVER	34.00	
MH3			MD 383.11 STANDARD DROP MANHOLE WITH CECIL COUNTY R-33 STANDARD MANHOLE FRAME & COVER	35.00	
MH4			MD 383.11 STANDARD DROP MANHOLE WITH CECIL COUNTY R-33 STANDARD MANHOLE FRAME & COVER	31.00	
ES1		N/A	HDPE FLARED END SECTION		

PLAN  
SCALE: 1"=20'

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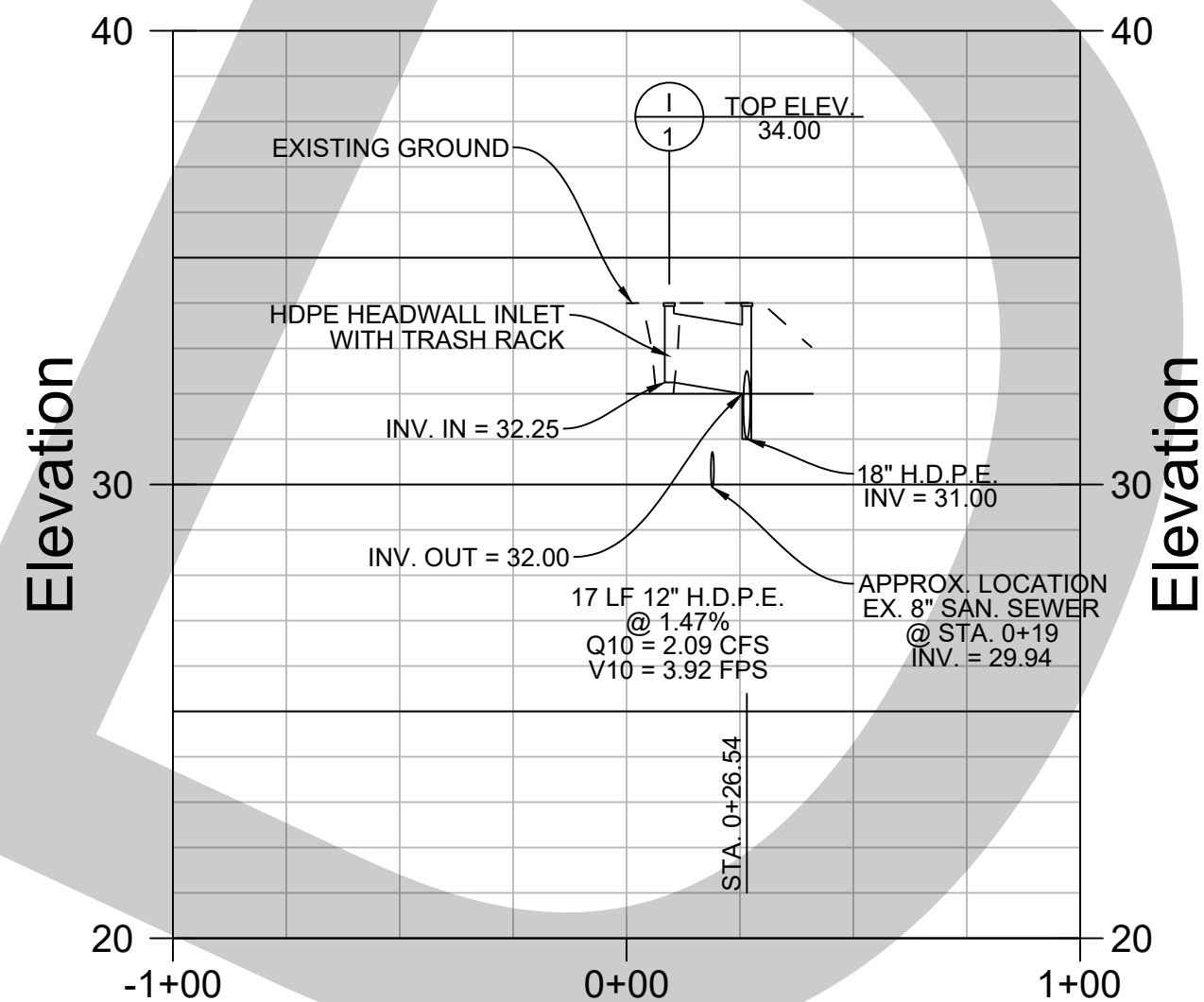
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Scale	AS SHOWN	<p><b>GRADING PLAN</b></p> <p><b>CHARLESTOWN</b></p> <p><b>300 BLOCK FREDERICK STREET</b></p> <p><b>STORM DRAIN</b></p> <p>THE TOWN OF CHARLESTOWN PO BOX 154 CHARLESTOWN, MARYLAND 21914 FREDRICK STREET CHARLESTOWN, MARYLAND 21914 FORMERLY MAP 0301, GRID 0024, PARCEL 0395 5TH ELECTION DISTRICT, CECIL COUNTY</p>
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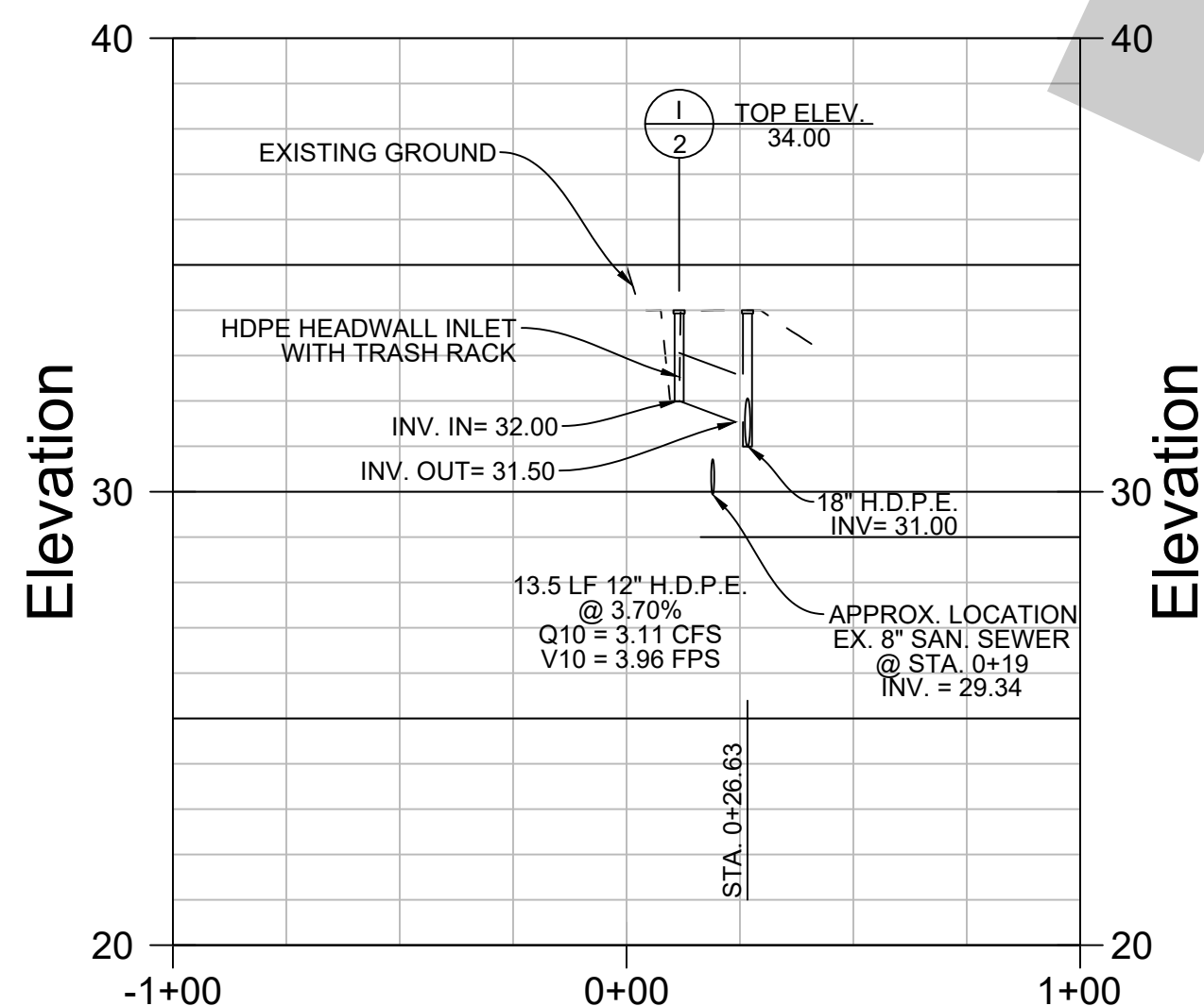
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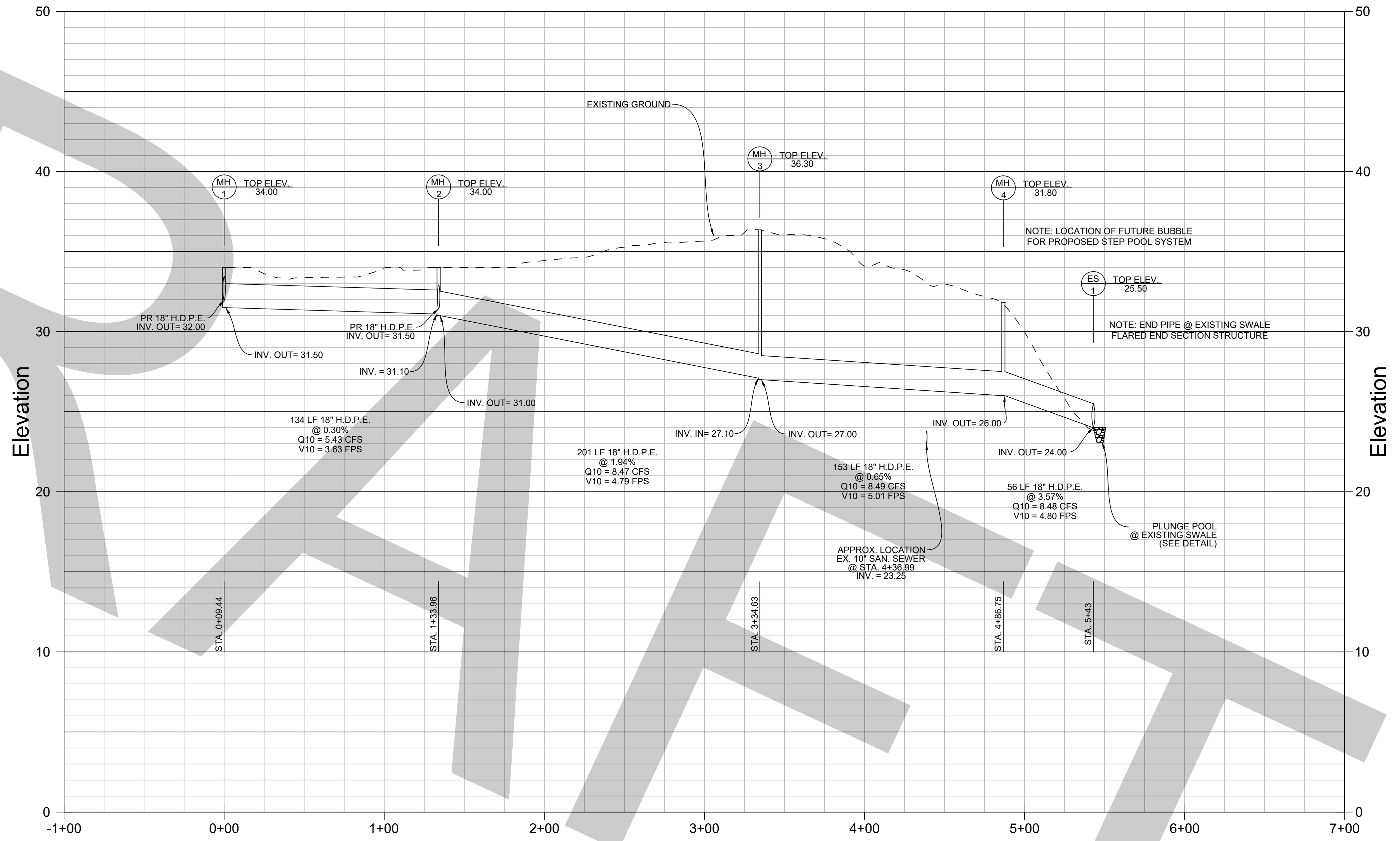
**INLET 1 STORM DRAIN PROFILE**

PROFILE  
SCALE: HORI. 1"=40', VERT. 1"=4'



**INLET 2 STORM DRAIN PROFILE**

PROFILE  
SCALE: HORI. 1"=40', VERT. 1"=4'



**FREDERICK STREET**

**MAIN LINE STORM DRAIN PROFILE**

PROFILE  
SCALE: HORI. 1"=40', VERT. 1"=4'



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JULY 31, 2024

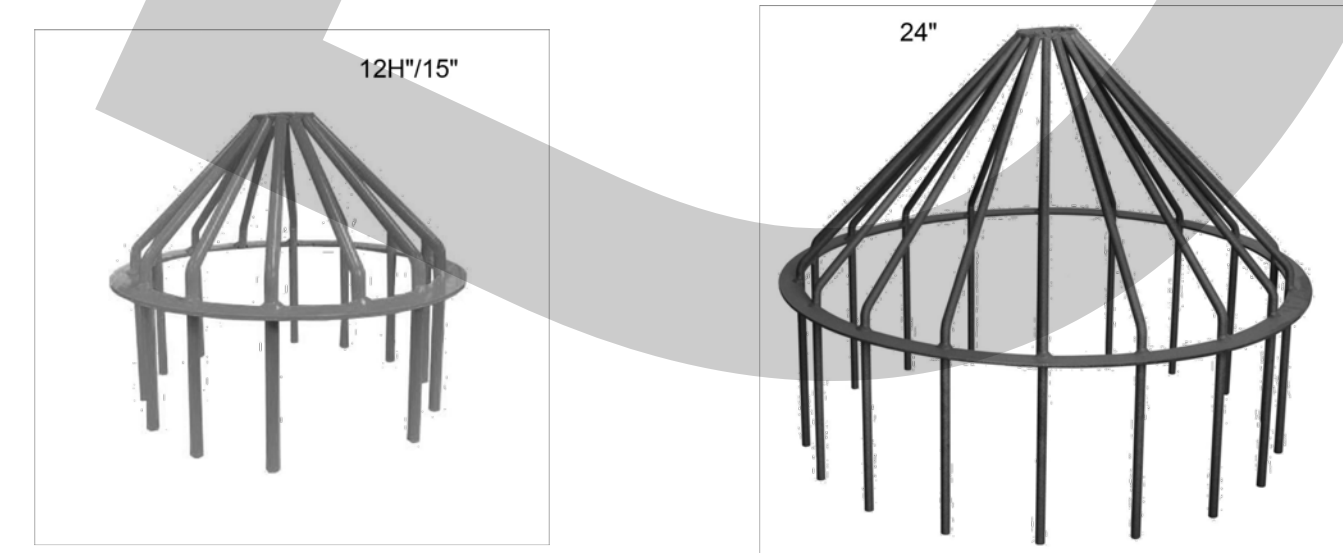
**Heavy Duty Bar Guards**  
Keeps out the big chunks.

- Provides maximum flow rates.
- Allows small trash to pass.
- An excellent choice in any situation where a low-profile, high-capacity intake is required.
- Constructed of 1/4" rod on 4" and 6", 5/16" rod on 8", 3/8" rod on 10", and 1/2" rod on 12" through 36".
- Available in durable yellow or black powder coat finish for years of service. Please specify color when ordering.
- All intakes require periodic maintenance.

Discount available when purchased in case quantity. Cases available on 4"-8" per case, 6"-5 per case, 8"-6 per case, and 12"-5 per case.

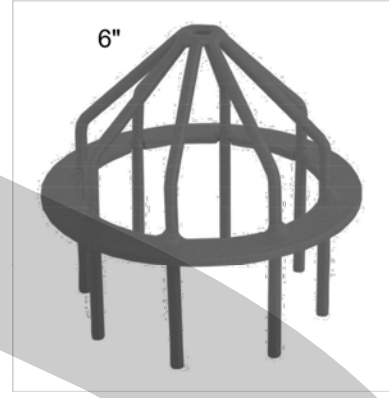
Size	Bar Diameter	Number Of Bars	Approx. Bar Spacing	Bar O.D. Below Ring	Bar Depth Below Ring	Over-all O.D.	Over-all Height
4"	1/4"	6	1 5/8"	3 7/8"	2 7/8"	5 3/8"	5 7/8"
6"	1/4"	8	1 7/8"	5 3/4"	2 7/8"	7"	6 5/8"
8"	5/16"	9	2 1/4"	7 3/4"	4"	9"	8 3/4"
8" H*	5/16"	9	2 1/2"	8 5/8"	4"	9 7/8"	9"
10"	3/8"	10	2 1/2"	9 1/2"	4"	10 5/8"	9 1/4"
10" H*	3/8"	10	2 7/8"	10 7/8"	4"	12 1/2"	10"
12"	1/2"	11	2 5/8"	11 1/2"	4"	12 1/2"	10"
12" H/15***	1/2"	14	2 1/2"	14 1/4"	6"	16"	13 1/4"
18"	1/2"	15	3"	17 1/4"	6"	19"	14 1/4"
24"	1/2"	16	3 3/8"	23"	8"	25"	19 1/2"
30" (3-piece)	1/2"	18	4.46"	29.04"	6"	31"	19"
36" (4-piece)	1/2"	20	5"	35.68"	6"	38"	22"

\*Special-sized Bar Guards to fit Hickenbottom Intakes.  
\*\*Special-sized Bar Guard to fit 12" Hickenbottom Intake and 15" pipe.



NOTES:  
- APPLICABLE TO 11 & 12

- GENERAL NOTES:
- All pipe material should be AASHTO M-294, HDPE Type 'S' (smooth interior).
  - Joints shall be bell and spigot with watertight joints as per D3212.
  - Refer to Section 4.9.4 of MDOT SHA Drainage Manual for cover requirements.
  - Refer to Section 303.03 of the MDOT SHA Standard Specifications for Construction and Materials for bedding and backfill requirements.
  - Contractor is to be responsible for all traffic control best practices



**ALTERNATE ECCENTRIC CONE UNIT**

**FLAT SLAB TOP**  
(SHOWN WITHOUT FRAME & COVER)

**SECTION B-B**  
(SHOWN WITHOUT FRAME & COVER)

**SECTION VIEW**  
(SHOWN WITHOUT FRAME & COVER)

**NOTES**

- MANHOLES SHALL BE CONSTRUCTED IN ACCORDANCE WITH AASHTO M 199.
- CONCRETE SHALL BE MIX NO. 6 14500 PS11.
- WALL REINFORCEMENT FOR BASE UNITS, RISER UNITS AND ECCENTRIC CONE UNITS SHALL BE REINFORCEMENT BARS OR WELDED WIRE FABRIC WITH A MINIMUM AREA OF 0.19 IN<sup>2</sup>/FT AND A MAXIMUM SPACING OF 12" FOR THE 48" DIAMETER MANHOLES. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A 195 AND A 95. REINFORCEMENT SHALL MEET ASTM A 615- GRADE 60.
- BASE REINFORCEMENT SHALL BE REINFORCEMENT BARS OR WELDED WIRE FABRIC WITH A MINIMUM AREA OF 0.20 IN<sup>2</sup>/FT AND A MAXIMUM SPACING OF 10" WITH 2" COVER FROM THE TOP OF BASE. THE BASE SHALL BE CAST MONOLITHIC WITH THE UNIT OR JOINTED PER THE MANUFACTURER'S DESIGN.
- THE MANUFACTURER SHALL FORM MALE AND FEMALE ENDS OF JOINTS USING TRIED DESIGN. THE JOINTS SHALL BE SEALED BY THE CONTRACTOR AND MADE WATER TIGHT USING (WHERE APPLICABLE) MORTAR, RUBBER O-RING GASKETS MEETING ASTM C 361 & C 443 OR FLEXIBLE PLASTIC CASSETS MEETING AASHTO M 199 TYPE B.
- LADDER RUNGS SHALL BE INSTALLED IN VERTICAL ALIGNMENT AT 1'-4" MAXIMUM C/C. RING TYPES SHALL BE IN ACCORDANCE WITH STANDARDS MD 383.91 OR MD 383.92 LADDER RUNGS SHALL BE INCIDENTAL TO THE COST OF THE MANHOLE.
- WHEN THE DISTANCE BETWEEN MULTIPLE OPENINGS IN THE BASE UNIT OR ANY RISER UNIT IS LESS THAN 6" ADDITIONAL NO. 3 BARS ARE REQUIRED AROUND OPENINGS.
- LIFT HOLES OR LIFT EYES SHALL BE PROVIDED IN EACH SECTION FOR HANDLING.
- MIX NO. 2 CONCRETE OR BRICK CHANNEL SHALL BE PROVIDED IN THE FIELD AND SHALL SLOPE 2" PER FOOT TOWARD OUTLET OR AS DIRECTED BY THE ENGINEER.
- THE DRIP STONE LANDING SHALL BE USED ONLY WHEN THERE ARE PIPES CONNECTED TO THE RISER UNITS. SEE STD. NO. 384.13 FOR DETAILS.
- MINIMUM DEPTH PAYMENT PER EACH SHALL BE 9'-0" MEASURED FROM THE BOTTOM OF THE BASE UNIT TO THE TOP OF THE MANHOLE COVER. VERTICAL DEPTH PAYMENT PER LINEAL FOOT SHALL INCLUDE ALL DEPTHS IN EXCESS OF 9'-0". THE COST OF THE DRIP STONE LANDING, NO. 57 AGGREGATE GROUT, SEALANT, AND ALL NECESSARY APPURTENANCES SHALL BE INCIDENTAL TO THE PRICE BID.
- MANHOLE HAS BEEN DESIGNED FOR HS-25 LOADING, ACCORDING TO AASHTO LOAD-BRIDGE DESIGN SPECIFICATIONS.

**Maryland Department of Transportation**  
**STATE HIGHWAY ADMINISTRATION**  
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES  
**48" DIAMETER PRECAST MANHOLE**  
FOR 12" TO 24" PIPES  
STANDARD NO. MD 384.01

NOTES:  
- APPLICABLE TO MH1, MH2, MH3, & MH4

**SECTION A-A**

**SECTION B-B**

**SECTION C-C**

**NOTES**

- WALL REINFORCEMENT SHALL BE NO. 4 DEFORMED BARS @ 6" C/C. 2 WAYS AND HAVE 2" COVER BELOW DEPTH OF 12'-0" AND 4" COVER FROM TOP OF BASE.
- BASE REINFORCEMENT SHALL BE NO. 4 DEFORMED BARS @ 6" C/C. 2 WAYS AND HAVE 2" COVER FROM TOP OF BASE.
- MANHOLE HAS BEEN DESIGNED FOR HS-25 LOADING, ACCORDING TO AASHTO LOAD-BRIDGE DESIGN SPECIFICATIONS.
- BRICK AND MORTAR MAY BE USED IN NON-TRAFFIC AREAS ONLY.

**Maryland Department of Transportation**  
**STATE HIGHWAY ADMINISTRATION**  
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES  
**STANDARD DROP MANHOLE**  
STANDARD NO. MD 383.11

NOTES:  
- ALTERNATIVE FOR MH3

**FLARED END SECTION SPECIFICATION**

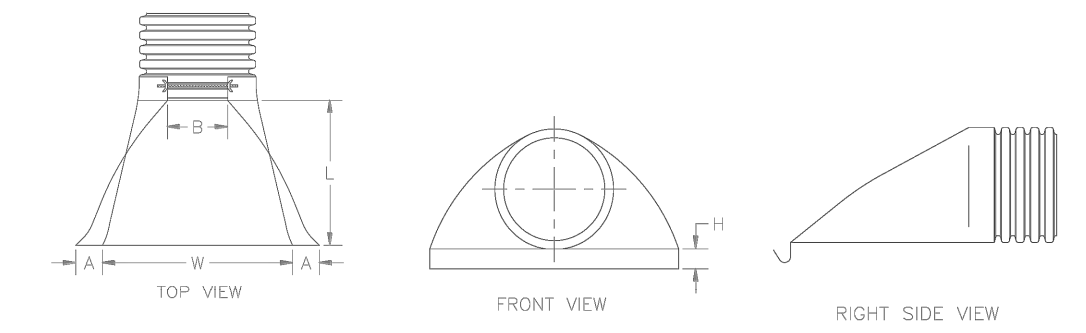
**Scope**  
This specification describes 12- through 36-inch (300 to 900mm) Flared End Sections for use in culvert and drainage outlet applications.

**Requirements**  
The Flared End Section shall be high density polyethylene meeting ASTM D3350 minimum cell classification 213320C; contact manufacturer for additional cell classification information. When provided, the metal threaded fastening rod shall be stainless steel.

**Installation**  
Installation shall be in accordance with ADS installation instructions and with those issued by state or local authorities. Contact your local ADS representative or visit [www.adspipe.com](http://www.adspipe.com) for the latest installation instructions.

Diameter in (mm)	PIPE DIAMETER in (mm)			
	12 (300)	15 (375)	18 (450)	24 (600)
h (mm)	6.5 (165)	6.5 (165)	7.5 (191)	7.5 (191)
b (mm)	10.0 (254)	10.0 (254)	15.0 (381)	16.0 (407)
r (mm)	6.5 (165)	6.5 (165)	6.5 (165)	6.5 (165)
l (mm)	25.0 (635)	25.0 (635)	32.0 (813)	36.0 (914)
t (mm)	28.0 (717)	28.0 (717)	35.0 (889)	45.0 (1143)

\*Product detail may differ slightly from actual product appearance



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NOTES:  
- APPLICABLE TO ES1

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901-A COMMERCE ROAD • ANNAPOLIS, MD 21401  
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DAVID J. WALLACE, P.E.  
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BUSINESS PH. 410.544.1225

JULY 31, 2024

Scale	AS SHOWN
Drawn By	K.B.J.K./E.C.
Approved By	D.W.
Sheet No.	6 Of 8
Project No.	22-063
Proposal No.	...

**DETAILS**  
**CHARLESTOWN**  
**300 BLOCK FREDERICK STREET**  
**STORM DRAIN**

THE TOWN OF CHARLESTOWN  
PO BOX 154 CHARLESTOWN, MARYLAND 21914  
FREDRICK STREET CHARLESTOWN, MARYLAND 21914  
FORMERLY MAP 0301, GRID 0024, PARCEL 0395  
5TH ELECTION DISTRICT, CECIL COUNTY

**Standard Erosion and Sediment Control Notes**

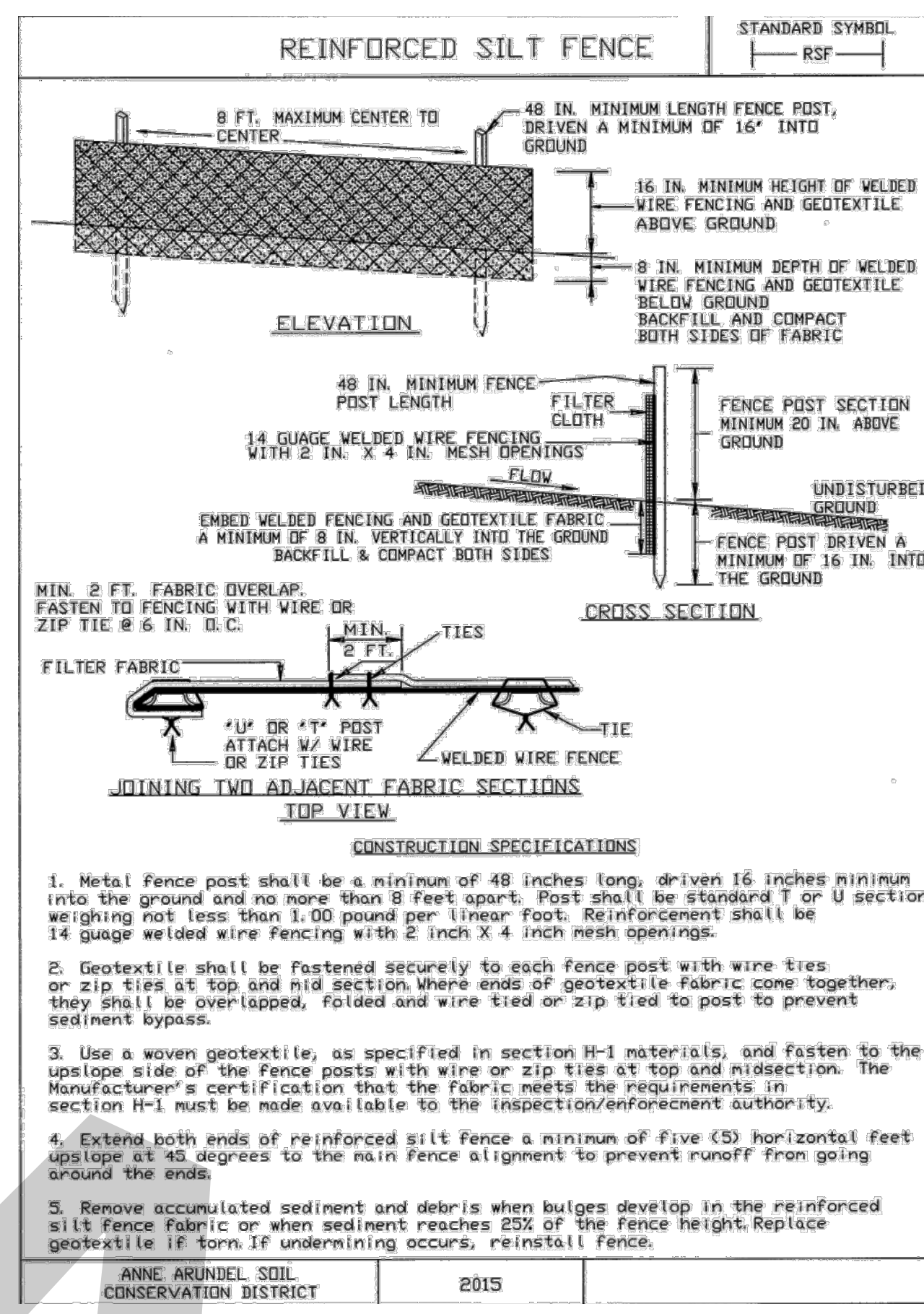
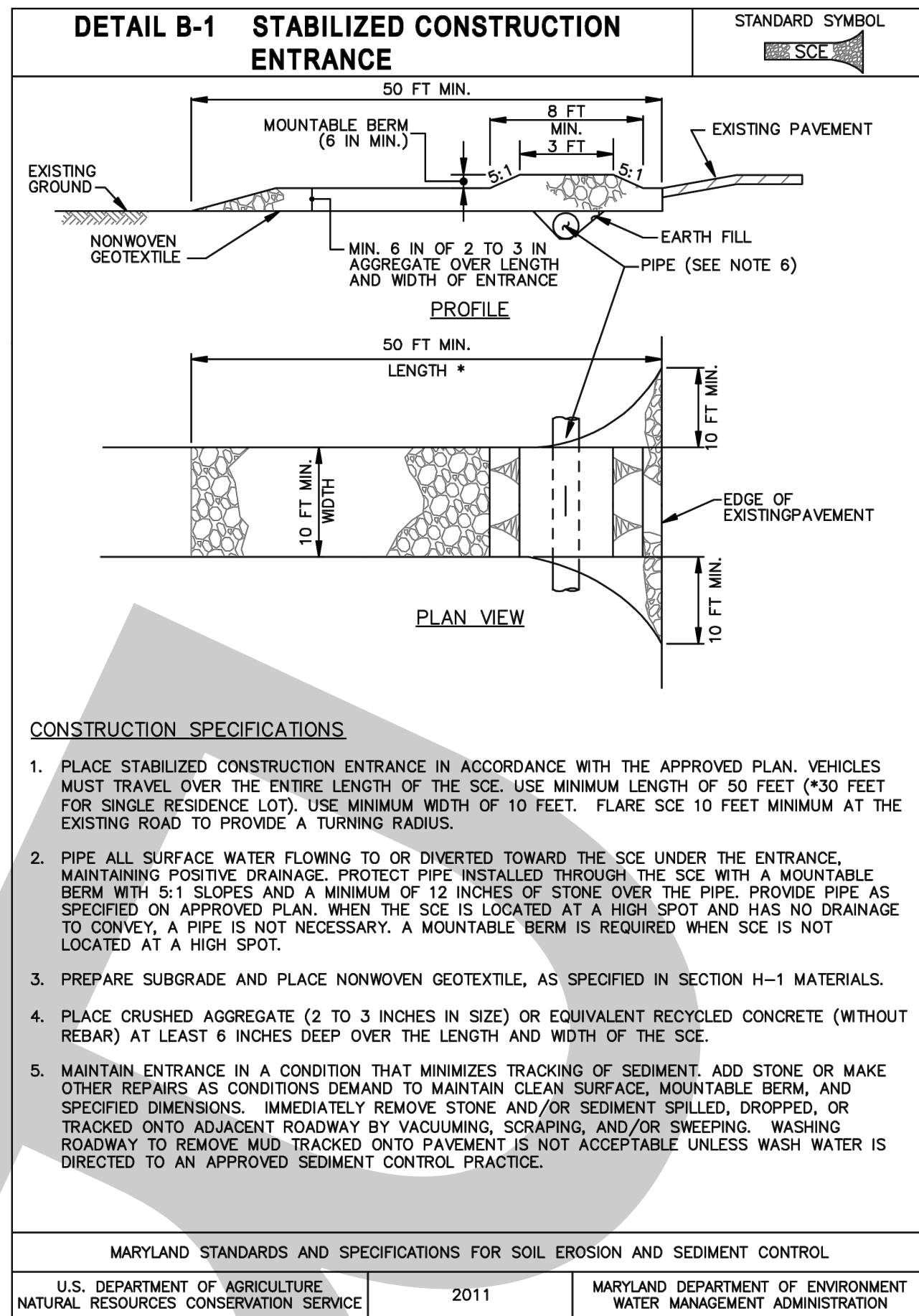
- The contractor shall notify the Maryland Department of the Environment (MDE) Sediment Control Inspector at 410-901-4020 and the Cecil County Department of Public Works (DPW) at 410-996-5265 at least 48 hours prior to commencing any land disturbing activities and, unless waived by the Sediment Control Inspector, shall be required to hold a pre-construction meeting at the project site. The contractor must provide the name of the person on the site who is responsible for inspection and maintenance of erosion and sediment control measures and a copy of their green card to the Sediment Control Inspector.
- All projects with construction activities disturbing 1 acre or more are required to submit a General Permit (NOI) to MDE to comply with the General Permit for Construction Activity for Stormwater Discharges. The General Permit (NOI) must be approved prior to disturbance activities. To obtain a General Permit (NOI) form, contact the Permits Coordinator at the MDE Compliance Program at 410-537-3510.
- The limit of disturbance shall be clearly delineated in the field prior to the pre-construction meeting and any grading activities to ensure compliance with the approved plan.
- The approved Erosion and Sediment Control Plan must be kept at the project site.
- The Cecil Soil Conservation District (CSCD) reserves the right to modify the Erosion and Sediment Control Plans.
- The CSCD may revoke the approval of the Erosion and Sediment Control Plan if work performed at the project site does not conform to the provisions of the grading permit, to the approved plan or to any written instructions from MDE, Cecil County DPW or the CSCD.
- The contractor must request that the Sediment Control Inspector approve work completed in accordance with the approved Erosion and Sediment Control Plan, the grading or building permit and the Cecil County Erosion and Sediment Control Ordinance at the following points of project development:
  - Upon completion of the installation of perimeter erosion and sediment control measures but before proceeding with any other earth disturbance or grading. Other building or grading inspection approvals may not be authorized until this initial approval by MDE is made.
  - Prior to removal or modification of any sediment control structure(s).
  - Upon final stabilization of the site and prior to the removal of any sediment control measures.
- The contractor shall construct all erosion and sediment control measures per the approved plan and construction sequence and shall have them inspected and approved by the Sediment Control Inspector prior to beginning any other land disturbances.
- The contractor shall ensure that all runoff from disturbed areas is directed to the sediment control devices and shall not remove any erosion or sediment control measure without prior permission from the Sediment Control Inspector.
- The following minor plan modifications may be approved by the Sediment Control Inspector in the field:
  - Sediment control structures (except basins and traps) may be moved to meet the existing contours and field conditions, when moving these structures would have no impact on their function or design criteria.
  - Substitution of perimeter control measures may be made provided the measure substituted is equivalent (i.e., silt fence for straw bales) or is an upgrade of the original measure (i.e., silt fence to a perimeter berm with properly sized outlet).
  - Addition and extension of perimeter controls (including stone construction entrances) may be made to meet field conditions.

Any modifications to the plan which are not listed above require the plan to be submitted to the CSCD for review and approval.

- The contractor shall protect all points of construction ingress and egress to prevent the deposition of materials onto public roads. All materials deposited onto public roads shall be removed immediately.
- On-site temporary stockpile areas must be placed as shown on the approved plan. If the construction schedule is to exceed 3 days, the stockpile areas must be stabilized. Stockpile areas should not exceed fifteen feet in height. If a stockpile is to exceed fifteen feet in height, it must be shown on the plan to be terraced with pipe slope drains installed and approved by CSCD. Upon the completion of the use of the stockpile area, existing ground surfaces shall be restored to their original conditions and permanently stabilized.
- Various steps in the sequence of construction may require the contractor to remove excess excavated material to an approved location or to import material from an approved location. For purposes of this plan, an approved location shall be one which is operating under an approved erosion and sediment control plan and an active grading permit at the time of construction.
- The contractor shall inspect daily and maintain continuously in an effective operating condition all erosion and sediment control measures until such time as they are removed with prior permission from the Sediment Control Inspector.
- Following initial soil disturbance or re-disturbance, permanent or temporary stabilization shall be completed within:
  - Three (3) calendar days as to the surface of all perimeter controls, dikes, swales, ditches, perimeter slopes, and all slopes equal to or greater than 3 horizontal to 1 vertical (3:1), and
  - Seven (7) days as to all other disturbed or graded areas on the project site.

The above requirements do not apply to those areas which are shown on the plan and are currently being used for material storage or for those areas on which actual construction activities are currently being performed or to interior areas of a surface mine site where the stabilization material would contaminate the recoverable resource. Maintenance shall be performed as necessary to ensure that the stabilized areas continuously meet the appropriate requirements of the most current Maryland Standards and Specifications for Soil Erosion and Sediment Control.

- Sediment control practices will be maintained until the entire contributing area to the practice has been permanently stabilized and meets the satisfaction of the Sediment Control Inspector. Sediment controls may only be removed with the authorization of the Sediment Control Inspector.
- All areas disturbed by the removal of sediment control devices must be immediately stabilized.
- Surface drainage flows over unstabilized cut and fill slopes shall be controlled by either preventing drainage flows from traversing the slopes or by installing protective devices to convey the water downslope without causing erosion. Dikes shall be installed and maintained at the top of cut or fill slopes until the slope and drainage area to it are fully stabilized, at which time the dikes must be removed and final grading done to promote sheet flow drainage. Erosion control measures must be implemented at points of concentrated flow where erosion is likely to occur.
- No permanent cut or fill slope with a gradient steeper than 3:1 will be permitted in lawn maintenance areas. A slope gradient of up to 2:1 will be permitted in non-maintenance areas provided that those areas are indicated on the erosion and sediment control plans with a low-maintenance ground cover specified for permanent stabilization. Slope gradient steeper than 2:1 will not be permitted with vegetation stabilization.
- All flow lines are to be stabilized with sod or seed with erosion control matting to a depth of flow of 1 foot.
- Sediment traps or basins are not permitted within 20 feet of a foundation which is existing or under construction. No structure may be constructed within 20 feet of an active sediment trap or basin.
- Temporary sediment traps and sediment basins shall be cleaned out and restored to the original dimensions when sediment has accumulated to one half (1/2) the wet storage depth of the trap or basin.
- Sediment removed from traps (and basins) shall be placed and stabilized in approved areas, but not within a floodplain, wetland or forest retention area. When pumping sediment laden water, the discharge must be directed to a sediment trapping device prior to release from the site.
- For approved dewatering strategies for traps and basins, see section F of the 2011 Maryland Standards and Specifications for Soil Erosion and Sediment Control. Pumping sediment laden water into the waters of the State without filtration is strictly forbidden.
- Sediment control devices placed in infiltration areas must have bottom elevations at least two (2) feet higher than the finished grade elevation of the infiltration practice. When converting a sediment trap to an infiltration device, all accumulated sediment must be removed and disposed of prior to final grading of infiltration device.
- The developer is responsible for obtaining all necessary permits prior to any construction activities. Further, the issuance of a grading permit does not relieve the developer of the responsibility to obtain any additional local, state or federal permits.



**2018 VEGETATIVE ESTABLISHMENT**

Following initial soil disturbances or redistribution, permanent or temporary stabilization shall be completed within three calendar days for the surface of all perimeter controls, dikes, swales, ditches, perimeter slopes, and all slopes greater than 3 horizontal to 1 vertical (3:1) and seven days for all other disturbed or graded areas on the project site.

- Permanent Seeding:
  - Soil Tests: Lime and fertilizer will be applied per soil tests results for sites greater than 5 acres. Soil tests will be done at completion of initial rough grading or as recommended by the sediment control inspector. Rates and analyses will be provided to the grading inspector as well as the contractor.

Occurrence of acid sulfate soils (grayish black color) will require covering with a minimum of 12 inches of clean soil with 6 inches minimum capping of top soil. No stockpiling of material is allowed. If needed, soil tests should be done before and after a 6-week incubation period to allow oxidation of sulfates.

The minimum soil conditions required for permanent vegetative establishment are:

- Soil pH shall be between 6.0 and 7.0.
- Soluble salts shall be less than 500 parts per million (ppm).
- The soil shall contain less than 40% clay but enough fine grained material (> 30% silt plus clay) to provide the capacity to hold a moderate amount of moisture. An exception is if lovegrass or sericea lespedeza is to be planted, then a sandy soil (< 30% silt plus clay) would be acceptable.
- Soil shall contain 1.5% minimum organic matter by weight.
- Soil must contain sufficient pore space to permit adequate root penetration.
- If these conditions cannot be met by soils on site, adding topsoil is required in accordance with the Standard and Specification for Soil Preparation, Topsoiling and Soil Amendments from the 2011 Maryland Standards and Specifications for Soil Erosion and Sediment Control or amendments made as recommended by a certified agronomist.

- Seedbed Preparation: Area to be seeded shall be loose and friable to a depth of at least 3-5 inches. The top layer shall be loosened by raking, disking or other acceptable means before seeding occurs. For sites less than 5 acres, apply 100 pounds dolomitic limestone and 21 pounds of 10-10-10 fertilizer per 1,000 square feet. Harrow or disk lime and fertilizer into the soil to a depth of at least 3-5 inches on slopes flatter than 3:1.

- Seeding: Apply 5-6 pounds per 1,000 square feet of tall fescue between February 1 and April 30 or between August 15 and October 31. Apply seed uniformly on a moist firm seedbed with a cyclone seeder, cultipacker seeder or hydroseeder (slurry includes seeds and fertilizer, recommended on steep slopes only). Maximum seed depth should be 1/4 inch in clayey soils and 1/2 inch in sandy soils when using other than the hydroseeder method. Irrigate where necessary to support adequate growth until vegetation is firmly established. If other seed mixes are to be used, select from Table B3 and B5 of the 2011 Maryland Standards and Specifications for Soil Erosion and Sediment Control.

- Mulching: Mulch shall be applied to all seeded areas immediately after seeding. During the time periods when seeding is not permitted, mulch shall be applied immediately after grading. Mulch shall be unrotted, unchopped, small grain straw applied at a rate of 2 tons per acre or 90 pounds per 1,000 square feet (2 bales). Apply mulch to achieve a uniform distribution and depth so that the soil surface is not exposed. If a mulch-anchoring tool is used, apply 2.5 tons per acre. Mulch materials shall be relatively free of all kinds of weeds and shall be completely free of prohibited noxious weeds. Spread mulch uniformly, mechanically or by hand, to a depth of 1-2 inches.

- Securing Straw Mulch: Straw mulch shall be secured immediately following mulch application to minimize movement by wind or water. The following methods are permitted:
  - Use a mulch-anchoring tool which is designed to punch and anchor mulch into the soil surface to a minimum depth of 2 inches. This is the most effective method for securing mulch, however, it is limited to relatively flat areas where equipment can operate safely.
  - Wood cellulose fiber may be used for anchoring straw. Apply the fiber binder at a net dry weight of 750 pounds per acre. If mixed with water, use 50 pounds of wood cellulose fiber per 100 gallons of water.
  - Liquid binders may be used. Apply at higher rates at the edges where wind catches mulch, such as in valleys and on crests of slopes. The remainder of the area should appear uniform after binder application. Binders listed in the 2011 Maryland Standards and Specifications for Soil Erosion and Sediment Control or approved equal shall be applied at rates recommended by the manufacturers.
  - Lightweight plastic netting may be used to secure mulch. The netting will be stapled to the ground according to manufacturer's recommendations.

- Temporary Seeding:
 

Lime:	100 pounds of dolomitic limestone per 1,000 square feet.
Fertilizer:	15 pounds of 10-10-10 per 1,000 square feet.
Seed:	Perennial rye - 0.92 pounds per 1,000 square feet (February 1 through April 30 or August 15 through October 31). Millet - 0.92 pounds per 1,000 square feet (May 1 through August 15).
Mulch:	Same as I and E above.

- No fills may be placed on frozen ground. All fill is to be placed in approximately horizontal layers, each layer having a loose thickness of not more than 8 inches. All compaction requirements are in accordance to Anne Arundel County Standard Specifications for Construction as well as the AA County Design Manual and Standard Details. Fills for pond embankments shall be compacted as per MD-378 Construction Specifications. All other fills shall be compacted sufficiently so as to be stable and prevent erosion and slippage.

- Permanent Sod:
 

Installation of sod should follow permanent seeding dates. Seedbed preparation for sod shall be as noted in section (B) above. Permanent sod is to be tall fescue, state approved sod; lime and fertilizer per permanent seeding specifications and lightly irrigate soil prior to laying sod. Sod is to be laid on the contour with all ends tightly abutting. Joints are to be staggered between rows. Water and roll or tamp sod to insure positive root contact with the soil. All slopes steeper than 3:1, as shown, are to be permanently sodded or protected with an approved erosion control netting. Additional watering for establishment may be required. Sod is not to be installed on frozen ground. Sod shall not be transplanted when moisture content (dry or wet) and/or extreme temperature may adversely affect its survival. In the absence of adequate rainfall, irrigation should be performed to ensure establishment of sod.

- Mining Operations:
 

Sediment control plans for mining operations must include the following seeding dates and mixtures:

For seeding dates of February 1 through April 30 and August 15 through October 31, use seed mixture of tall fescue at the rate of 2 pounds per 1,000 square feet and sericea lespedeza at the minimum rate of 0.5 pounds per 1,000 square feet.

- Topsoil shall be applied as per the Standard and Specifications for Soil Preparation, Topsoiling, and Soil Amendments from the 2011 Maryland Standards and Specifications for Soil Erosion and Sediment Control.
- Use of these Vegetative Establishment Specifications does not preclude the permittee or contractor from meeting all of the requirements set forth in the 2011 Maryland Standards and Specifications for Soil Erosion and Sediment Control.

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DAVID J. WALLACE, P.E.  
PROFESSIONAL CERTIFICATION

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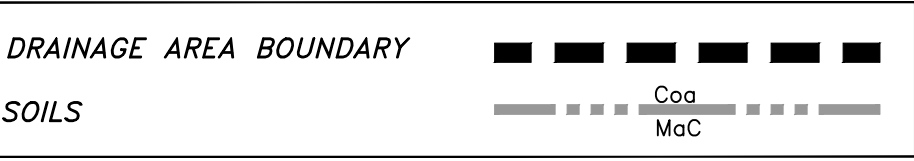
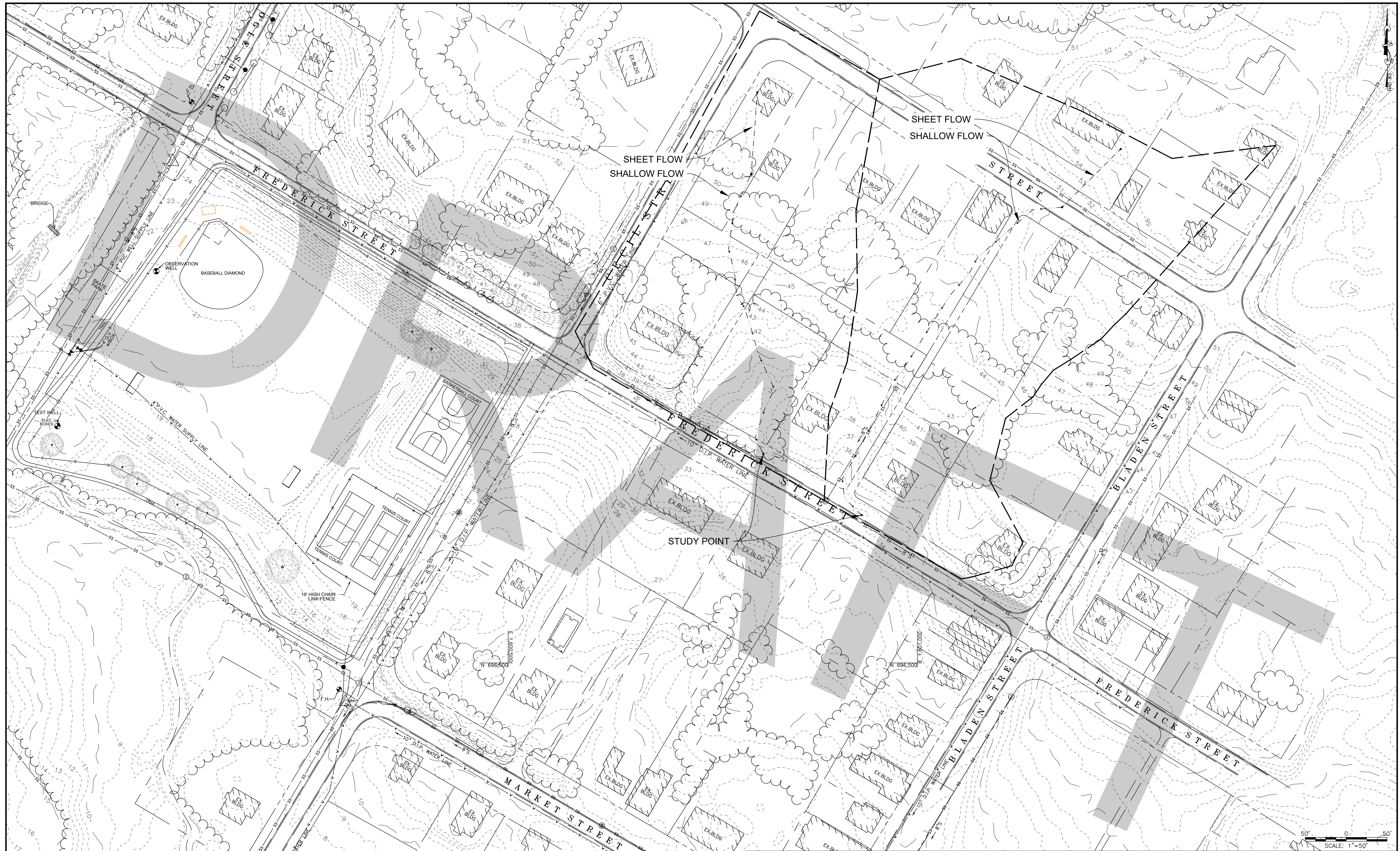


JULY 31, 2024	
Scale	AS SHOWN
Drawn By	K.B./J.K./E.C.
Approved By	D.W.
Sheet No.	7 Of 8
Project No.	22-063
Proposal No.	...
Signature	Date

**SEDIMENT & EROSION CONTROL NOTES AND DETAILS**

**CHARLESTOWN 300 BLOCK FREDERICK STREET STORM DRAIN**

THE TOWN OF CHARLESTOWN  
FREDRICK STREET CHARLESTOWN, MARYLAND 21914  
FORMERLY MAP 0301, GRID 0024, PARCEL 0395  
5TH ELECTION DISTRICT, CECIL COUNTY



PLAN  
SCALE: 1"=50'

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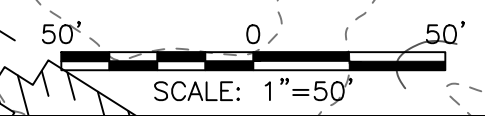
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Drawn By	K.B./J.K./E.C.
Approved By	D.W.
Sheet No.	8 OF 8
Project No.	22-063
Proposal No.	...

**DRAINAGE AREA MAP**  
**CHARLESTOWN**  
**300 BLOCK FREDERICK STREET**  
**STORM DRAIN**

THE TOWN OF CHARLESTOWN  
PO BOX 154 CHARLESTOWN, MARYLAND 21914  
FREDERICK STREET CHARLESTOWN, MARYLAND 21914  
FORMERLY MAP 0301, GRID 0024, PARCEL 0395  
5TH ELECTION DISTRICT, CECIL COUNTY



Cadd File: S:\008\Projects\Charlestown\Athletic Complex RSC and SWM\B1F104-CAD\Drawings\Fredrick St Pipe Plans\08\_DRAINMAP.dwg PLOTTED: Aug 01, 2024 - 6:56pm The techniques used in this design are covered by US Patents # 11047124 & #11047125, owned by Underwood & Associates, Inc.