

**VA**



U.S. Department  
of Veterans Affairs

PERMIT YEAR 1  
PROGRESS REPORT

# DEPARTMENT OF VETERAN AFFAIRS VAMC LOCH RAVEN AND PERRY POINT

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)  
GENERAL PERMIT FOR DISCHARGES FROM STATE AND FEDERAL SMALL  
MUNICIPAL SEPARATE STORM SEWER SYSTEMS (MS4)

GENERAL DISCHARGE PERMIT NO. 13 SF 5501    GENERAL NPDES NO. MDR05501

OCTOBER 2018 TO OCTOBER 2023

VA PROJECT NO. 512A5 19 010

## SUBMITTED TO:

Maryland Department of the  
Environment  
Water and Science Administration  
1800 Washington Boulevard  
Baltimore, Maryland 21230

PREPARED BY:



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## 1. PERMIT INTRODUCTION

The Maryland Department of Environment (MDE) Water and Science Administration has issued a *National Pollutant Discharge Elimination System (NPDES) General Permit for Discharges from State and Federal Small Municipal Separate Storm Sewer Systems (MS4)* (herein referred to as the “MS4 Permit”), to regulate stormwater discharges. The Veterans Affairs Maryland HealthCare System (VAMHCS) submitted a Notice of Intent for coverage under this permit for both the Loch Raven and Perry Point Medical Centers (VAMCs).

The VA is required to comply with the conditions of the general permit, effective from October 31, 2018 to October 30, 2023. This report meets the requirement to submit annual progress reports demonstrating compliance with the permit conditions and constitutes the first annual Progress Report. Although the VA is currently in the second permit reporting cycle, MDE granted a Letter of Extension allowing submission of the VA’s first annual Progress Report in July 2020.

The Notice of Intent (NOI) and Waiver Approval Letter for coverage under the NPDES MS4 General Permit and the Letter of Extension for submission of the annual progress report are included in **Appendix A**.

The goal of the NPDES MS4 General Permit is to control and improve the quality of stormwater runoff being discharged from state and federal properties. The U.S. Environmental Protection Agency (EPA) has established and approved water quality goals for the Chesapeake Bay through Total Maximum Daily Load (TMDL) requirements for reducing nitrogen, phosphorus, and sediment. MDE’s general permit establishes restoration requirements aligning with Maryland’s Watershed Implementation Plan (WIP) for nitrogen, phosphorus, and sediment load reductions required to address the Chesapeake Bay TMDL. The restoration efforts include providing treatment for 20 percent of the currently untreated impervious area (as of the permit baseline year) using MDE-approved best management practices (BMPs). The restoration efforts must be fully planned by the end of the permit term in 2023 and implemented no later than 2025.

The permit is separated into two (2) main sections: Section 1 is an impervious area assessment and Section 2 is the six minimum control measures (MCM) for controlling pollutants in stormwater runoff. Reporting on the Section 2 six MCMs will be submitted in the Year 2 and Year 4 progress reports.

This Year 1 Progress Report includes updates on the VA’s Section 1 activities and includes the following:

- Impervious Area Work Plan – **Section 2.1** and **Appendix C**
- Impervious area baseline assessment – **Section 2.2** and **Appendices D-G**
- Restoration Activity Schedule – **Section 2.3** and **Appendix H**
- Urban BMP Database – **Section 2.4** and **Appendices I-J**
- Coordination Efforts – **Section 2.5** and **Appendix K**

The Year 1 MDE progress report forms are included in **Appendix B**.

## 1.1 SITE INFORMATION

The Loch Raven VAMC is in northeast Baltimore, MD between Loch Raven Boulevard and The Alameda. This facility offers specialized inpatient, outpatient, and primary care services for Maryland's Veterans. The center also provides hospice and nursing home care to Veterans.



U.S. Department of Veteran Affairs | Loch Raven Medical Center Main Entrance

The Perry Point VAMC is in Perryville, MD adjacent to the Susquehanna River and Chesapeake Bay. This facility is the largest inpatient facility in the VAMHCS and provides a variety of services, including inpatient medical, intermediate, and long-term care programs.



U.S. Department of Veteran Affairs | Perry Point Medical Center Main Entrance

## 2. IMPERVIOUS AREA RESTORATION REPORTING

### 2.1 IMPERVIOUS AREA RESTORATION WORK PLAN

An annual Impervious Area Restoration Work Plan is required in accordance with Part V.B of the MS4 Permit. The purpose of the Work Plan is to serve as a roadmap to meeting the Chesapeake Bay Restoration TMDL requirements. The Work Plan is included in **Appendix C**.

In Year 1, progress towards the management strategies and goals includes:

- Preparation of an impervious area baseline assessment identifying:
  - Total impervious area covered under the MS4 Permit
  - Total impervious area treated by stormwater quality BMPs
  - Total impervious area treated by BMPs providing partial water quality treatment
  - Total impervious area treated by non-structural practices
  - Impervious areas draining to BMPs with missing inspection records are not considered treated
  - The 20 percent restoration requirement
- Tracking of activities and milestones planned and performed over the permit term to meet the 20 percent treatment requirements (Restoration Activity Schedule)
- Development of the Urban BMP database
- Inspection and maintenance of all existing BMPs onsite
- Identification of any opportunities to develop partnerships with other agencies

### 2.2 IMPERVIOUS AREA BASELINE ASSESSMENT

An impervious area baseline assessment is required in accordance with Part V.A and Appendix B, Section III.A of the MS4 Permit. The VA MS4 Permit has established 2019 as the baseline year for the impervious baseline assessment.

#### 2.2.1 Impervious Area

The initial impervious area delineation is established using the best available land use data, which was obtained starting in the baseline year of 2019. In subsequent permit years the delineation will be field verified and updated as needed if development has occurred onsite.

The baseline impervious cover for Loch Raven was delineated using the aerial survey conducted in November 2019 by Quantum Spatial, Inc. and was field verified in December 2019. The property boundary was delineated using the City of Baltimore parcel information dated February 2017. Loch Raven contains approximately 57 percent impervious cover, including the clinic, residential, and lab buildings, as well as roadways, parking lots, driveways, and sidewalks. The pervious area is comprised of open space and sparsely wooded areas.

The baseline impervious cover for Perry Point was delineated using the Perry Point VAMC-Site Wide Utility and Topo Survey plan and field verified in January 2020. The property boundary was delineated based on field survey conducted in December 2019 by GORDON and documented in the Boundary Survey of Perry Point Medical Center plan (VA Project No. 512A5-19-016). Perry Point contains approximately 22 percent impervious cover, including the clinic, residential, maintenance shops, fire department, water treatment, and lab buildings, as well as

roadways, parking lots, driveways, and sidewalks. The pervious area is comprised of open space and wooded areas along the shoreline and northern portions of the property.

Table 1 shows the land use data for both VA sites. The baseline impervious area maps for both sites are included in **Appendix D**.

**Table 1: Summary Land Use Data**

VA Property	Impervious Area (acres)	Pervious Area (acres)	Total Area (acres)
Loch Raven	8.52	6.31	14.83
Perry Point	82.78	296.19	378.97

**2.2.2 Treated Impervious Area**

As part of the impervious baseline assessment, stormwater management provided by BMPs implemented prior to the baseline year was analyzed. Impervious areas are considered treated if they drain to an approved MDE BMP practice. For the purposes of this permit, MDE-approved BMPs include environmental site design (ESD) practices, structural and non-structural practices, and alternative restoration practices, as listed in Table B.3 of the MS4 Permit.

The existing BMPs at Loch Raven and Perry Point were evaluated using available records, including design plans, as-built plans, stormwater management reports, and recent BMP inspections to determine the year of implementation, water quality treatment, and associated impervious area treatment provided. The impervious area treatment credits assigned to each BMP depend on the type of BMP and the extent of water quality treatment provided. The BMP records were also used to determine if a BMP was built to MDE’s stormwater management requirements for new development, redevelopment, or restoration, as well if it was retrofitted/upgraded to provide additional water quality treatment. Treatment credits were determined using MDE’s *Accounting for Stormwater Wasteload Allocations and Impervious Acres Treated Guidance for National Pollutant Discharge Elimination System Stormwater Permits*, dated August 2014 and in coordination with MDE. Coordination with MDE is included in **Appendix K**.

Using these guidelines, Loch Raven has 1.37 acres of treated impervious area that can be applied as baseline treatment. This treatment is provided by four (4) existing structural and alternative BMPs onsite, including underground filtering devices and impervious area removal.

Perry Point has 5.55 acres of impervious treated area that can be applied as baseline treatment. This treatment is provided by twenty three (23) existing ESD, structural, and alternative BMPs onsite, including micro-bioreentions, bio-swales, grass swales, and disconnection of non-rooftop runoff.

Additional BMP treatment provided by redevelopment and restoration activity implemented between January 1, 2006 and the baseline year (2019) is included as progress towards the Chesapeake Bay restoration requirement, see section 2.3 of this report.

Any new development project implemented after the baseline year should be designed to provide full treatment for all new impervious areas, and therefore would not impact the baseline

impervious area treatment calculations. Should any future new development projects not fully treat the new impervious area, revisions to these computations will be required.

Table 2 shows the data related to these BMP types at both sites.

**Table 2: Impervious Area Treatment Credit (Baseline and Restoration)**

Type of Practice	Loch Raven (acres)	Perry Point (acres)	TOTAL (acres)
<b>Toward baseline requirement</b>			
ESD	0.00	5.55	5.55
Structural	1.33	0.00	1.33
Alternative	0.04	0.00	0.04
<b>Toward restoration requirement</b>			
ESD	0.00	0.86	0.86
Structural	0.00	0.00	0.00
Alternative	0.05	116.28	116.33

Baseline computations for Loch Raven and Perry Point are included in **Appendix E**. Maps of the treated areas and existing BMPs at Loch Raven and Perry Point are included in **Appendix F** and **Appendix G**, respectively.

### 2.2.3 Chesapeake Bay Restoration Requirement

The MS4 Permit mandates restoration of 20 percent of the untreated impervious areas identified in the baseline assessment. Table 3 provides the impervious restoration target, calculated as 20 percent of the untreated baseline impervious area.

**Table 3: Summary Restoration Requirement**

	Description	Impervious Area (acres)		
		Loch Raven	Perry Point	Total
A	Impervious Area Baseline	8.52	82.78	91.30
B	Impervious area treated by stormwater quality BMPs	1.37	5.48	6.85
C	Impervious area treated by BMPs providing partial water quality treatment	0.00	0.02	0.02
D	Impervious area treated by NDNRs, NDRRs, and NSCAs	0.00	0.05	0.05
E = B + C + D	Existing treated impervious area	1.37	5.55	6.92
F = A - E	Existing untreated impervious area	7.15	77.23	84.38
<b>G = 0.2 * F</b>	<b>20% Restoration Requirement</b>	<b>1.43</b>	<b>15.45</b>	<b>16.88</b>

See additional baseline impervious area tables in **Appendix E**.

### 2.3 IMPERVIOUS AREA RESTORATION

A Restoration Activity Schedule is required in accordance with Part V.C of the MS4 Permit. This Restoration Activity Schedule includes existing BMPs that are implemented and any proposed BMPs planned to meet the restoration requirement. The Restoration Activity Schedule includes MDE-required data such as type of restoration project, BMP code, BMP ID, cost of implementation, impervious acres treated, project status, and Maryland grid coordinates.

At Loch Raven, the redevelopment impervious area removal practice counts toward the restoration requirement. This practice is a MDE-approved alternative urban BMP and the equivalent impervious area credit has been calculated in accordance with MDE’s *Accounting for Stormwater Wasteload Allocations and Impervious Acres Treated Guidance for National Pollutant Discharge Elimination System Stormwater Permits*, dated August 2014 and in coordination with MDE.

At Perry Point, there are seven (7) credited practices onsite that count towards the restoration requirement including micro-bioreentions, bioswales, impervious area removal, and shoreline management. Per confirmation with MDE, the shoreline repair project conducted in 2011 to restore approximately 2,900 feet of shoreline is credited as progress towards the restoration target. MDE correspondence documentation is included in **Appendix K**.

While the restoration requirement has been initially evaluated individually for each site, ultimately the restoration goal is applied to the entire permit. The existing BMPs exceed what is required for both sites to meet the 20 percent goal, therefore neither the Loch Raven nor Perry Point facilities are required to implement additional restoration projects during the current permit term.

**Table 4: Summary Restoration Activity Schedule**

	Description	Impervious Area (acres)		
		Loch Raven	Perry Point	Total
A	20% Restoration Requirement	1.43	15.45	16.88
B	Provided Restoration Impervious Area Treated	0.05	117.14	117.19
C	Remaining Restoration Requirement			0.00

The VA will continue to evaluate opportunities to improve water quality at both Loch Raven and Perry Point to account for future development and prepare for future restoration requirements. Because Loch Raven has steep terrain, a largely urban impervious land use, a vast underground utility network, and limited available space, it is likely that any future restoration efforts will be focused on implementation at Perry Point where more space is available.

The Restoration Activity Schedule for Loch Raven, Perry Point, and a combined summary is included in **Appendix H**. The Restoration Activity Schedule will be updated annually and resubmitted to MDE with the annual Progress Report.

### 2.4 URBAN BMP DATABASE

An Urban BMP Database is required in accordance with Part V.D. of the MS4 Permit. The Urban BMP database information is compiled from all available documentation. All BMPs, regardless of MS4 Permit credit have been included. The Urban BMP database for Loch Raven and Perry Point is included in **Appendix I**.

### 2.4.1 BMP Inspection and Maintenance

The Urban BMP databases includes records of the last inspection and maintenance dates for each BMP. The BMPs onsite at Loch Raven and Perry Point were inspected during this permit year. Inspection and maintenance checklists were created for each BMP type and were largely based on guidance from the MDE *Technical Memorandum #9* and project-specific requirements listed on the design plans. Maintenance checklists were developed for monthly, seasonal/after a large rain event, and annual intervals. The inspection checklists were developed to support the triennial inspection required by MDE. These template checklists are included in **Appendix J**.

MDE guidelines state that only BMPs that undergo triennial inspections and are functioning as designed may earn treatment credit. At the VA facilities, any BMP that fails an inspection is maintained and re-inspected until a passing inspection is earned. Failing BMPs are maintained as soon as feasible to prevent a lapse in functionality that could prevent proper water quality treatment.

At Loch Raven, all credited BMPs are maintained and functional, with the exception of one (1) facility. One (1) BMP requires structural repairs, and this effort is in progress. Due to the COVID-19 pandemic, there have been a number of contracting and funding challenges to conduct this activity. The VA is working diligently to contract for the required maintenance and has already identified a qualified contractor and initiated the purchase order to allocate funds. The structural repair is in the order of magnitude of \$50K and is slated for 1<sup>st</sup> quarter government fiscal year 2021. This Year 1 progress report accounts for all BMPs as operational. Should this BMP not be repaired or functioning prior to the Year 2 progress report submission, baseline and restoration computations will be adjusted accordingly.

At Perry Point, all credited BMPs are maintained and functional, with the exception of three (3) bioretentions that are not yet operational. The associated project area is stabilized and the bioretentions are built, but the erosion and sediment control measures have not been removed and final plantings are not complete, as the project is still technically considered under construction. Should this BMP not be operational or functioning prior to the Year 2 progress report submission, baseline and restoration computations will be adjusted accordingly. Additional plantings will be added to multiple facilities onsite in the fall planting season.

An inspection and maintenance training program was also established this year. At Loch Raven, the training is pending the completion of the above repair activities. At Perry Point, a training session was held on July 9, 2020 with all appropriate maintenance staff and personnel. Facility maintenance personnel are trained at Perry Point to properly maintain and inspect the onsite BMPs utilizing the checklists in **Appendix J**. Maintenance and inspection records are stored onsite with the VA engineering department.

## 2.5 COORDINATION EFFORTS

The VA continues to assess opportunities for future partnerships. Currently, the VA coordinates with internal groups and stakeholders at Loch Raven and Perry Point to provide consistent messaging and receive feedback related to stormwater and water quality protection. The VA also provides periodic updates to the Town of Perryville mayor on the stormwater pollution prevention and water quality improvement efforts at Perry Point. The VA has also coordinated with MDE staff to discuss existing BMP crediting and permit requirements.

Documentation of coordination efforts is included in **Appendix K**.



### 3. CONCLUSION

This report constitutes the first annual progress report for Veterans Affairs Maryland HealthCare System (VAMHCS) coverage under the *National Pollutant Discharge Elimination System (NPDES) General Permit for Discharges from State and Federal Small Municipal Separate Storm Sewer Systems (MS4)* (herein referred to as the “MS4 Permit”), for the stormwater discharges from the Loch Raven VA Medical Center and Perry Point VA Medical Center (VAMC).

This Year 1 Progress Report includes updates on the VA’s Section 1 progress and presents the findings of the impervious area baseline assessment, establishes a work plan, identifies the 20 percent impervious area restoration goal, evaluates credits from restoration/redevelopment projects, describes how the VA meets the restoration requirements with the existing facilities onsite, provides a BMP database, and describes coordination and future efforts related to the permit goals for its Loch Raven and Perry Point sites.

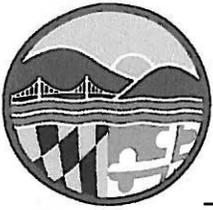
The restoration requirements are established for the entire permit area at both sites. This analysis demonstrated that the collective restoration requirement is achieved through the existing BMPs at both Loch Raven and Perry Point. Therefore, no additional restoration is required during this current permit term, ending in 2023.

The Year 2 progress report will include an update on the Section 1 impervious area assessment and progress towards the Section 2 six minimum control measures.

## **4. APPENDICES**



**A – MDE DOCUMENTATION**



# Maryland

## Department of the Environment

Larry Hogan, Governor  
Boyd K. Rutherford, Lt. Governor

Ben Grumbles, Secretary  
Horacio Tablada, Deputy Secretary

December 6, 2018

Dr. Adam M Robinson, Jr., Director, VA Maryland Health Care System  
Baltimore VA Medical Center  
10 North Greene Street  
Baltimore, MD 21201

RE: Notice of Intent and Waiver Approval letter

Dear Dr. Robinson:

The Maryland Department of the Environment (Department), Water and Science Administration (WSA) has issued a National Pollutant Discharge Elimination System (NPDES) General Permit for Discharges from State and Federal Small Municipal Separate Storm Sewer Systems (MS4s) (General Discharge Permit No. 13-SF-5501, General NPDES No. MDR055501). The legal framework for permit requirements is provided in the federal Clean Water Act (CWA), Title 40 of the Code of Federal Regulations (CFR) § 122 pertaining to NPDES MS4 programs. Regulated MS4 operators identified in the general permit were required to seek authorization to discharge stormwater by submitting a Notice of Intent (NOI) to the Department by October 31, 2018.

This is to confirm that the Department has received a completed NOI from U.S. Department of Veterans Affairs (VA) to obtain NPDES coverage for stormwater discharges located at the Loch Raven and Perry Point Veterans Administration Medical Centers. The VA is required to comply with the conditions of the general permit which is effective for five years unless administratively continued by the Department. The VA must demonstrate compliance with permit conditions by submitting progress reports by October 31<sup>st</sup> each year.

In addition, the Department has received a completed waiver application from the VA in accordance with permit requirements. The Department has determined that the Baltimore Veterans Administration Medical Center and the former Fort Howard VA Medical Center are eligible for waivers in accordance with criteria outlined in the general permit. The VA will be required to submit updated waiver applications for each property upon the Department's re-issuance of this general permit for future consideration of applicability for permit coverage.

Thank you for your cooperation in submitting this information. The Department looks forward to working with you to achieve compliance with the permit and contribute to efforts to improve local water quality and restore the Chesapeake Bay. If you have any questions, please contact me at 410-537-3550 or Ms. Deborah Cappuccitti at 410-537-3533 or [deborah.cappuccitti@maryland.gov](mailto:deborah.cappuccitti@maryland.gov).

Regards,

A handwritten signature in black ink that reads "Stewart R. Comstock".

Stewart R. Comstock, P.E.  
Program Review Division Chief  
Sediment, Stormwater, and Dam Safety Program, WSA



# Maryland

## Department of the Environment

Larry Hogan, Governor  
Boyd K. Rutherford, Lt. Governor  
Ben Grumbles, Secretary  
Horacio Tablada, Deputy Secretary

February 5, 2020

Dr. Adam M. Robinson, Jr., Director, VA Maryland Health System  
U.S. Department of Veterans Affairs  
Baltimore VA Medical Center  
10 North Greene Street  
Baltimore, MD 21201

Dear Dr. Robinson:

The Maryland Department of the Environment, Water and Science Administration (Department) has received the correspondence from the U.S. Department of Veterans Affairs (VA) dated December 2, 2019. The VA is requesting an extension from the Department for submitting the progress report in accordance with the National Pollutant Discharge Elimination System (NPDES) General Permit No. 13-SF-5501 for Discharges from Small Municipal Separate Storm Sewer Systems (MS4). The Department will grant an extension for the reporting requirements for Perry Point VA and Loch Raven VA Medical Centers to the end of July 2020.

Please refer to the MS4 general permit, available on the Department's website, outlining the required deliverables and acceptable format. The required deliverables include:

- Completion of the required information outlined in Appendix D of the MS4 permit under Section I, "Impervious Area Restoration"
- A work plan outlining annual strategies for developing a restoration program
- A restoration activity schedule that identifies projects for future implementation to meet the impervious area restoration target
- A database of stormwater management best management practices (BMPs) submitted in the Microsoft excel template format noted in the permit and available at the Department's website

Please keep in mind that VA is required to implement the required programs associated with the six minimum control measures (MCMs) outlined in the permit. Reporting requirements for the MCMs are due on October 31, 2020. The Department recognizes the significant effort required to develop an impervious area restoration program and VA is commended for this commitment to the program. If you have any questions on the MS4 general permit or need any assistance, please contact me at [Deborah.Cappuccitti@Maryland.gov](mailto:Deborah.Cappuccitti@Maryland.gov) or 410-537-3533, or Christina Lyerly at [Christina.Lyerly@Maryland.gov](mailto:Christina.Lyerly@Maryland.gov) or 410-537-3546.

Sincerely,

A handwritten signature in black ink, appearing to read "Deborah J. Cappuccitti".

Deborah J. Cappuccitti  
Senior Regulatory Compliance Engineer  
Water and Science Administration



**B – MDE PROGRESS REPORT FORMS**

**Maryland Department of the Environment (MDE)**

**National Pollutant Discharge Elimination System (NPDES)  
Small Municipal Separate Storm Sewer Systems (MS4) General Permit**

This Progress Report is required for those State and federal agencies covered under General Discharge Permit No. 13-SF-5501. Progress Reports must be submitted to:

Maryland Department of the Environment, Water and Science Administration  
Sediment, Stormwater, and Dam Safety Program  
1800 Washington Boulevard, Suite 440, Baltimore, MD 21230-1708  
Phone: 410-537-3543 FAX: 410-537-3553  
Web Site: [www.mde.maryland.gov](http://www.mde.maryland.gov)

**Contact Information**

Permittee Name:	U.S. Department of Veterans Affairs
Responsible Personnel:	Dr. Adam M. Robinson, Jr., Director, VAMHCS
Mailing Address:	Baltimore VAMC, 10 North Greene Street Baltimore, MD 21201
Phone Number(s):	
Email address:	
Additional Contact(s):	Daniel Myslinski
Mailing Address:	Perry Point VAMC Building 101, Room 17
Phone Number(s):	410-642-2411 x25216
Email address:	Daniel.Myslinski@va.gov

**Signature of Responsible Personnel**

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

For and in the  
absence of

Dr. Adam M Robinson, Jr.		07/31/20
Printed Name <i>Sandra Marshall, MD</i>	Signature	Date

**Reporting Period (State Fiscal Year):**

2019

**Due Date:**

07/31/20

**Date of Submission:**

07/31/20

**Type of Report Submitted:**

Impervious Area Restoration Progress Report (Annual):

Six Minimum Control Measures Progress (Years 2 and 4):

Both:

**Permittee Information:**

Renewal Permittee:

New Permittee:

**Compliance with Reporting Requirements**

Part VI of the Small MS4 General Discharge Permit (No. 13-SF-5501) specifies the reporting information that must be submitted to MDE to demonstrate compliance with permit conditions. The specific information required in this MS4 Progress Report includes:

1. Annual: Progress toward compliance with impervious area restoration requirements in accordance with Part V of the general permit. All requested information and supporting documentation must be submitted as specified in Section I of the Progress Report.
2. Years 2 and 4: Progress toward compliance with the six minimum control measures in accordance with Part IV of the general permit. All requested information and supporting documentation shall be reported as specified in Section II of the Progress Report. MDE may request more frequent reporting and/or a final report in year 5 if additional information is needed to demonstrate compliance with the permit.

**Instructions for Completing Appendix D Reporting Forms**

The reporting forms provided in Appendix D allow the user to electronically fill in answers to questions. Users may enter quantifiable information (e.g., number of outfalls inspected) in text boxes. When a more descriptive explanation is requested, the reporting forms will expand as the user types to allow as much information needed to fully answer the question. The permittee must indicate in the forms when attachments are included to provide sufficient information required in the MS4 Progress Report.

**Section I: Impervious Area Restoration Reporting Form**

### Section I: Impervious Area Restoration Reporting

1. a. Was the impervious area baseline assessment submitted in year 1?

Yes  No

b. If No, describe the status of completing the required information and provide a date at which all information required by MDE will be submitted:

- c. Has the baseline been adjusted since the previous reporting year?

Yes  No

2. Complete the information below based on the most recent data:

Total impervious acres of area covered under this permit:

91.30

Total impervious acres treated by stormwater water quality best management practices (BMPs):

6.85

Total impervious acres treated by BMPs providing partial water quality treatment (multiply acres treated by percent of water quality provided):

0.02

Total impervious acres treated by nonstructural practices (i.e., rooftop disconnections, non-rooftop disconnections, or vegetated swales):

0.05

Total impervious acres untreated:

84.38

Twenty percent of this total area (this is the restoration requirement):

16.88

Verify that all impervious area draining to BMPs with missing inspection records is not considered treated. Describe how this information was incorporated into the overall analysis:

**All BMPs were inspected in the baseline year (2019), therefore there are no missing BMP inspection records. The "Accounting for Stormwater Wasteload Allocations and Impervious Area Treated" dated August 2014 was utilized to analyze which BMPs could be credited towards the baseline impervious assessment. See Appendix M for additional coordination with MDE for verification of the crediting process for this permit.**

3. Has an Impervious Area Restoration Work Plan been developed and submitted to MDE in accordance with Part V.B, Table 1 of the permit or other format?

Yes  No

Has MDE approved the work plan?

### Section I: Impervious Area Restoration Reporting

Yes  No

If the answer to either question is No, describe the status of submitting (or resubmitting) the work plan to MDE and provide a date at which all outstanding information will be available:

**This constitutes the first submission of the work plan to MDE for approval. Subsequent revisions will be addressed and resubmitted to MDE.**

Describe progress made toward restoration planning, design, and construction efforts and describe adaptive management strategies necessary to meet restoration requirements by the end of the permit term:

**The VA has implemented BMPs as part of redevelopment and restoration projects between January 1, 2006 and the baseline year of 2019 that provide impervious area or equivalent impervious area treatment. These existing BMPs currently satisfy the permit restoration requirements. Therefore, no further restoration activity is required for this permit term.**

**The VA will continue to evaluate future planned growth on the sites and determine how those projects will be incorporated into the restoration planning efforts.**

**The VA will also continue to look for opportunities to collaborate and coordinate with VAMC groups, surrounding communities, and state/federal agencies to continue permit compliance.**

4. Has a Restoration Schedule been completed and submitted to MDE in accordance with Part V.B, Table 2 of the permit?

Yes  No

In year 5, has a complete restoration schedule been submitted including a complete list of projects and implementation dates for all BMPs needed to meet the twenty percent restoration requirement?

Yes  No

Are the projected implementation years for completion of all BMPs no later than 2025?

Yes  No

Describe actions planned to provide a complete list of projects in order to achieve compliance by the end of the permit term:

**Existing BMPs at Perry Point and Loch Raven treat the required number of impervious acres to meet all the permit restoration requirements. Therefore, no additional restoration activity onsite is required for this permit term.**

Describe the progress of restoration efforts (attach examples and photos of proposed or completed projects when available):

**Section I: Impervious Area Restoration Reporting**

**The VA has implemented BMPs as part of redevelopment and restoration projects between January 1 2006 and the permit baseline year (2019). These BMPs treat the required number of impervious acres to meet the permit restoration requirements. Supplementary documentation, including permit drawings and pictures, have been provided for the completed projects where available.**

5. Has the BMP database been submitted to MDE in Microsoft Excel format in accordance with Appendix B, Tables B.1.a, b, and c?  
 Yes  No

Is the database complete?  
 Yes  No

If either answer is No, describe efforts underway to complete all data fields, and a date that MDE will receive the required information:

6. Provide a summary of impervious area restoration activities planned for the next reporting cycle (attach additional information if necessary):  
**Existing BMPs at Perry Point and Loch Raven treat the required number of impervious acres to meet the permit impervious area restoration requirements. Therefore, no additional restoration activity onsite is planned for this permit term.**

7. Describe coordination efforts with other agencies regarding the implementation of impervious area restoration activities:  
**The VA continues to assess opportunities for future partnerships at Loch Raven. Currently, the VA coordinates with internal groups and stakeholders at Loch Raven to provide consistent messaging and receive feedback related to stormwater and water quality protection. This feedback can be incorporated into the developing stormwater program to help meet the needs of Loch Raven’s personnel and veterans. The VA has also coordinated with MDE staff to discuss existing BMP crediting and permit requirements.**

8. List the total cost of developing and implementing impervious area restoration program during the permit term:  
**\$0 – No additional restoration activities are planned for the current permit term since the restoration requirements have been achieved with existing credited stormwater management practices.**

## C – IMPERVIOUS AREA RESTORATION WORK PLAN

**IMPERVIOUS AREA RESTORATION WORK PLAN**  
**DEPARTMENT OF VETERANS AFFAIRS**  
**VAMC PERRY POINT AND LOCH RAVEN**  
**GENERAL DISCHARGE PERMIT NO. 13-SF-5501**

Timeline	Management Strategies and Goals
Year 1	<ul style="list-style-type: none"> <li>• Develop impervious area baseline assessment.</li> <li>• Develop restoration work plan for MDE review and approval.</li> <li>• Develop preliminary restoration activity schedule. Assess existing BMPs for crediting towards restoration goals.</li> <li>• Develop Urban BMP database.</li> <li>• Inspect and maintain all BMPs. Keep records of inspections and maintenance activities.</li> <li>• Assess opportunities to coordinate and collaborate with other agencies, including VAMC groups, surrounding localities, and state/federal agencies.</li> </ul>
Year 2	<ul style="list-style-type: none"> <li>• Refine restoration work plan as needed.</li> <li>• Update Urban BMP database.</li> <li>• Maintain all BMPs. Keep records of maintenance activities. Update documented maintenance and inspection status for all BMPs.</li> <li>• Incorporate future growth site-wide into restoration planning efforts.</li> </ul>
Year 3	<ul style="list-style-type: none"> <li>• Refine restoration work plan as needed.</li> <li>• Update Urban BMP database.</li> <li>• Inspect and maintain all BMPs. Keep records of inspections and maintenance activities. Update documented maintenance and inspection status for all BMPs.</li> <li>• Incorporate future growth site-wide into restoration planning efforts.</li> </ul>
Year 4	<ul style="list-style-type: none"> <li>• Refine restoration work plan as needed.</li> <li>• Update Urban BMP database.</li> <li>• Inspect and maintain all BMPs. Keep records of inspections and maintenance activities. Update documented maintenance and inspection status for all BMPs.</li> <li>• Incorporate future growth site-wide into restoration planning efforts.</li> </ul>
Year 5	<ul style="list-style-type: none"> <li>• Refine restoration work plan as needed.</li> <li>• Update Urban BMP database.</li> <li>• Maintain all BMPs. Keep records of maintenance activities. Update documented maintenance and inspection status for all BMPs.</li> <li>• Incorporate future growth site-wide into restoration planning efforts.</li> </ul>





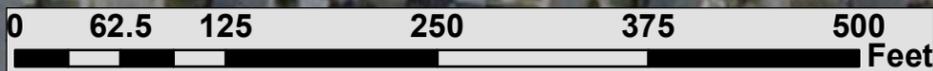
**D – IMPERVIOUS AREA BASELINE ASSESSMENT MAPS**



**Impervious Area: 8.52 acres**  
**Baseline Year: 2019**

 **Property Boundary**

 **Impervious Cover**



1. Service Layer Credits:  
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community  
 Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap contributors, and the GIS User Community  
 Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, © OpenStreetMap contributors, and the GIS User Community

2. Property Boundary:  
 The property line shown is based on City of Baltimore parcel data updated February 2017.

3. Impervious Cover:  
 Aerial survey completed by Quantum Spatial, Inc. in November 2019. Impervious cover verified by site visit in December 2019. Baseline cover includes removed impervious area to be credited as treatment of impervious area.



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 (301) 820-3000

NPDES General Permit -  
 MS4 Perry Point and Loch Raven

**FINAL**

2019 Impervious Area Baseline

Loch Raven VA Medical Center  
 Baltimore, Maryland

 Datum  
 NAD 83

Contract No.  
 VA 245-17-D-0131

Project No. Date  
 512A5-19-010 April 2020

GORDON Proj. No. AECOM Proj. No.  
 3287-0301 60617886

**Map No.**  
 D-1



 Property Boundary  
 Impervious Cover



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**FINAL**  
 2019 Impervious Area Baseline  
 Perry Point VA Medical Center  
 Perry Point, Maryland

Datum	
NAD 83	

Contract No.	
VA 245-17-D-0131	
Project No.	Date
512A5-19-010	July 2020
GORDON Proj. No.	AECOM Proj. No.
3287-0301	60617886

**Map No.**  
 D-2

**1. Service Layer Credits:**  
 Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community  
 Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community  
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community  
**2. Property Boundary:**  
 The property line shown based on field survey performed by GORDON as reflected on Boundary Survey of Perry Point Medical Center (VA Project Number 512A5-19-016) Issued on December 13, 2019.  
**3. Impervious Cover:**  
 All site impervious features shown here are obtained from Perry Point VAMC-Site Wide Utility and Topo Survey (VA Project Number 512A5-14-308). The site impervious areas are supplemented by GORDON using field verification performed on January 22, 2020 and aerial imagery pertaining to best available data at the time of this plan. Baseline cover includes removed impervious area to be credited as treatment of impervious area.



**Impervious Area: 82.78 acres**  
**Baseline Year: 2019**



 Property Boundary  
 Impervious Cover



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MS4 Perry Point and Loch Raven

**FINAL**

2019 Impervious Area Baseline

Perry Point VA Medical Center  
Perry Point, Maryland

	Datum
	NAD 83

Contract No.  
VA 245-17-D-0131

Project No.	Date
512A5-19-010	July 2020

GORDON Proj. No.	AECOM Proj. No.
3287-0301	60617886

**Map No.**  
D-3



**Impervious Area: 82.78 acres**  
**Baseline Year: 2019**

1. Service Layer Credits:  
Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

2. Property Boundary:  
The property line shown based on field survey performed by GORDON as reflected on Boundary Survey of Perry Point Medical Center (VA Project Number 512A5-19-016) Issued on December 13, 2019.

3. Impervious Cover:  
All site impervious features shown here are obtained from Perry Point VAMC-Site Wide Utility and Topo Survey (VA Project Number 512A5-14-308). The site impervious areas are supplemented by GORDON using field verification performed on January 22, 2020 and aerial imagery pertaining to best available data at the time of this plan. Baseline cover includes removed impervious area to be credited as treatment of impervious area.



**E – IMPERVIOUS AREA BASELINE ASSESSMENT COMPUTATIONS**



**SUMMARY - IMPERVIOUS AREA BASELINE ASSESSMENT**  
**DEPARTMENT OF VETERANS AFFAIRS**  
**VAMC PERRY POINT AND LOCH RAVEN**  
**GENERAL DISCHARGE PERMIT NO. 13-SF-5501**

<b>Impervious Area Baseline Computations</b>		
<b>Baseline Year - 2019</b>		
	<b>Description</b>	<b>Area (ac)</b>
A	Impervious Area Baseline	91.30
B	Impervious area treated by stormwater quality BMPs (ac)	6.85
C	Impervious area treated by BMPs providing partial water quality treatment (ac)	0.02
D	Impervious area treated by NDNRs, NDRRs, and NSCA (non-structural) (ac)	0.05
E	Existing Treated Impervious Area (ac)	6.92
F	Existing Untreated Impervious Area (ac)	84.38
G	20% Restoration Requirement (ac)	16.88

Prepared by:  
GORDON/AECOM - 703-263-1900

(Ver. 07/2020)



**LOCH RAVEN - IMPERVIOUS AREA BASELINE ASSESSMENT**  
**DEPARTMENT OF VETERANS AFFAIRS**  
**VAMC PERRY POINT AND LOCH RAVEN**  
**GENERAL DISCHARGE PERMIT NO. 13-SF-5501**

<b>Impervious Area Baseline Computations</b>		
<b>Baseline Year - 2019</b>		
	<b>Description</b>	<b>Area (ac)</b>
A	Impervious Area Baseline*	8.52
B	Impervious area treated by stormwater quality BMPs (ac)	1.37
C	Impervious area treated by BMPs providing partial water quality treatment (ac)	0
D	Impervious area treated by NDNRs, NDRRs, and NCSA (non-structural) (ac)	0
E	Existing Treated Impervious Area (ac)	1.37
F	Existing Untreated Impervious Area (ac)	7.15
G	20% Restoration Requirement (ac)	1.43

\*Baseline impervious cover derived from aerial survey conducted by Quantum Spatial, Inc. in November 2019 and confirmed by December 2019 site visit by Gordon and AECOM.

**LOCH RAVEN - IMPERVIOUS AREA BASELINE ASSESSMENT - BMP DATA**  
**DEPARTMENT OF VETERANS AFFAIRS**  
**VAMC PERRY POINT AND LOCH RAVEN**  
**GENERAL DISCHARGE PERMIT NO. 13-SF-5501**

BMP ID	BMP Name	MDE BMP Category	BMP Category (E,S,A)	Location	Non Structural Practice (Yes/No)	Year Built	Development Category	Pe (in)	Impervious Area Treated (ac)	Credit Multiplier	Impervious Acre Credit (ac)	WQ Credit Type (Full/Partial/Non-Structural/No Credits)	Comment
LR-MTD-0001A	Contech StormFilter	FUND	S	North Entrance parking lot	No	2010	NEWD	1	0.38	1	0.38	Full	
LR-MTD-0001B	Detention Structure	XOTH	S	North Entrance parking lot	No	2010	NEWD	0	0.38	0	0.00	No Credits	
LR-MTD-0002	Baysaver BayFilter	FUND	S	Community Living Center parking lot median	No	2012	NEWD	1	0.28	1	0.28	Full	
LR-XOTH-0001	Recharge Area	XOTH	S	Community Living Center courtyard	No	2012	NEWD	0	0.28	0	0.00	No Credits	
LR-IMPP-0001	Impervious Area Removal	IMPP	A	Site-wide	No	2015	NEWD	-	0.05	0.75	0.04	Full	This impervious area is shown in the baseline impervious cover, though it is not actually present in year 2019. For the purposes of this exercise, this cover is considered "present" so that it can be credited as treated impervious area for the baseline calculations.
LR-MTD-0003A	Contech StormFilter	FUND	S	South parking lot	No	2012	NEWD	1	0.67	1	0.67	Full	
LR-MTD-0003B	Detention Structure	XOTH	S	South parking lot	No	2012	NEWD	0	0.67	0	0.00	No Credits	

**PERRY POINT - IMPERVIOUS AREA BASELINE ASSESSMENT**  
**DEPARTMENT OF VETERANS AFFAIRS**  
**VAMC PERRY POINT AND LOCH RAVEN**  
**GENERAL DISCHARGE PERMIT NO. 13-SF-5501**

<b>Impervious Area Baseline Computations</b>		
<b>Baseline Year - 2019</b>		
	<b>Description</b>	<b>Area (ac)</b>
A	Impervious Area Baseline*	82.78
B	Impervious area treated by stormwater quality BMPs (ac)	5.48
C	Impervious area treated by BMPs providing partial water quality treatment (ac)	0.02
D	Impervious area treated by NDNRs, NDRRs, and NSCA (non-structural) (ac)	0.05
E	Existing Treated Impervious Area (ac)	5.55
F	Existing Untreated Impervious Area (ac)	77.23
G	20% Restoration Requirement (ac)	15.45

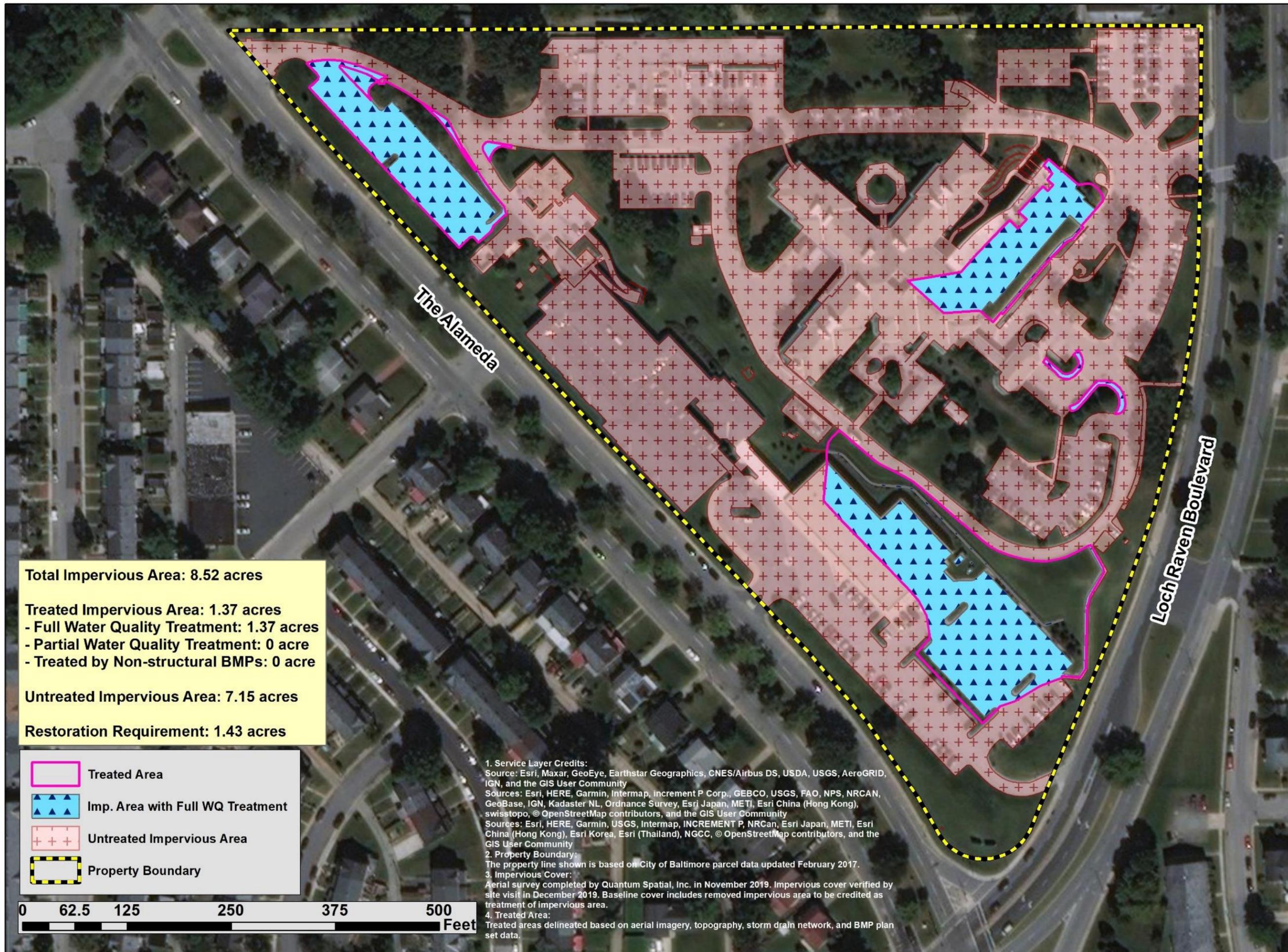
\*Baseline impervious area derived from Perry Point VAMC-Site Wide Utility and Topo Survey published on February 2018 and supplemented using field verification performed on January 2020 and latest aerial imagery at time of this baseline year (2019). Other previously removed impervious surfaces between years 2006 and 2019 were digitized and added to the total baseline impervious area.

**PERRY POINT - IMPERVIOUS AREA BASELINE ASSESSMENT - BMP DATA**  
**DEPARTMENT OF VETERANS AFFAIRS**  
**VAMC PERRY POINT AND LOCH RAVEN**  
**GENERAL DISCHARGE PERMIT NO. 13-SF-5501**

BMP ID	BMP Name	MDE BMP Category	BMP Category (E,S,A)	Location	Non Structural Practice (Yes/No)	Year Built	Development Category	Pe (in)	Impervious Area Treated (ac)	Credit Multiplier	Impervious Acre Credit (ac)	WQ Credit Type (Full/Partial/Non-Structural/No Credits)	Comment
PP-BIO-002	Micro-Bioretenention	MMBR	E	Truck Entrance - SE corner of Fifth Street & Avenue G (2)	No	2014	NEWD	2.6	0.27	1.4	0.38	Full	Built between 2006 to baseline year (2019).
PP-BIO-003	Micro-Bioretenention	MMBR	E	Village - South of Second Street (D)	No	2019	NEWD	2.6	0.08	1.4	0.12	Full	Built between 2006 to baseline year (2019)
PP-BIO-004	Micro-Bioretenention	MMBR	E	Village - North of Fourth Street (I)	No	2019	NEWD	2.6	0.13	1.4	0.19	Full	Built between 2006 to baseline year (2019)
PP-BIO-005	Micro-Bioretenention	MMBR	E	Village - North of Fourth Street (J)	No	2019	NEWD	2.6	0.10	1.4	0.14	Full	Built between 2006 to baseline year (2019)
PP-BIO-006	Micro-Bioretenention	MMBR	E	Village - North of Fourth Street (L)	No	2019	NEWD	2.6	0.08	1.4	0.12	Full	Built between 2006 to baseline year (2019)
PP-BIO-007	Micro-Bioretenention	MMBR	E	Village - Fourth Street & Avenue C (K)	No	2019	NEWD	2.6	0.11	1.4	0.16	Full	Built between 2006 to baseline year (2019)
PP-BIO-008	Micro-Bioretenention	MMBR	E	Village - Fourth Street & Avenue B (M)	No	2019	NEWD	2.6	0.14	1.4	0.19	Full	Built between 2006 to baseline year (2019)
PP-BIO-009	Micro-Bioretenention	MMBR	E	Village - East of Avenue B (T)	No	2019	NEWD	2.6	0.22	1.4	0.31	Full	Built between 2006 to baseline year (2019)
PP-BIO-010	Micro-Bioretenention	MMBR	E	Village - West of Avenue B (N)	No	2019	NEWD	2.6	0.11	1.4	0.16	Full	Built between 2006 to baseline year (2019)
PP-BIO-011	Micro-Bioretenention	MMBR	E	Village - West of Avenue B (O)	No	2019	NEWD	2.6	0.21	1.4	0.29	Full	Built between 2006 to baseline year (2019)
PP-BIO-012	Micro-Bioretenention	MMBR	E	Village - East of Avenue A (R')	No	2019	NEWD	2.6	0.11	1.4	0.15	Full	Built between 2006 to baseline year (2019)
PP-BIO-013	Micro-Bioretenention	MMBR	E	Village - East of Avenue A (P)	No	2019	NEWD	2.5	0.26	1.375	0.36	Full	Built between 2006 to baseline year (2019)
PP-BIO-014	Micro-Bioretenention	MMBR	E	Village - East of Avenue A (S)	No	2019	NEWD	2.6	0.15	1.4	0.21	Full	Built between 2006 to baseline year (2019)
PP-BIO-020	Micro-Bioretenention	MMBR	E	Water Tank	No	2016	NEWD	2.4	0.32	1.35	0.43	Full	Built between 2006 to baseline year (2019).
PP-BWS-001	Bio-Swale	MSWB	E	Truck Entrance - West of Entrance (1)	No	2014	NEWD	1.8	0.33	1.2	0.40	Full	Built between 2006 to baseline year (2019).
PP-BWS-002	Bio-Swale	MSWB	E	Village - South of Second Street (A)	No	2019	NEWD	2.6	0.17	1.4	0.24	Full	Built between 2006 to baseline year (2019)
PP-BWS-003	Bio-Swale	MSWB	E	Village - South of Second Street (B)	No	2019	NEWD	2.6	0.07	1.4	0.10	Full	Built between 2006 to baseline year (2019)
PP-BWS-004	Bio-Swale	MSWB	E	Village - South of Second Street (C)	No	2019	NEWD	2.6	0.12	1.4	0.16	Full	Built between 2006 to baseline year (2019)
PP-BWS-005	Bio-Swale	MSWB	E	Village - North of Third Street (E')	No	2019	NEWD	2.6	0.41	1.4	0.57	Full	Built between 2006 to baseline year (2019)
PP-BWS-006	Bio-Swale	MSWB	E	Village - South of Third Street (F)	No	2019	NEWD	2.6	0.25	1.4	0.35	Full	Built between 2006 to baseline year (2019)
PP-BWS-007	Bio-Swale	MSWB	E	Village - North of Fourth Street (G)	No	2019	NEWD	2.6	0.32	1.4	0.45	Full	Built between 2006 to baseline year (2019)
PP-GWS-001	Grass Swale	MSWG	E	Solar Panels - Near intersection of Fifth Avenue and Avenue G	No	2019	NEWD	0.58	0.03	0.58	0.02	Partial	Built between 2006 to baseline year (2019)
PP-NDNR-004	Disconnection of Non-Rooftop Runoff	NDNR	E	Solar Panels - Near intersection of Fifth Avenue and Avenue G	Yes	2019	NEWD	1	0.05	1	0.05	Non Structural	Built between 2006 to baseline year (2019)



**F – TREATED AREA MAPS**



**Total Impervious Area: 8.52 acres**

**Treated Impervious Area: 1.37 acres**  
 - Full Water Quality Treatment: 1.37 acres  
 - Partial Water Quality Treatment: 0 acre  
 - Treated by Non-structural BMPs: 0 acre

**Untreated Impervious Area: 7.15 acres**

**Restoration Requirement: 1.43 acres**

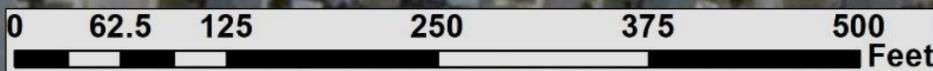
	Treated Area
	Imp. Area with Full WQ Treatment
	Untreated Impervious Area
	Property Boundary

1. Service Layer Credits:  
 Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community  
 Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap contributors, and the GIS User Community  
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2. Property Boundary:  
 The property line shown is based on City of Baltimore parcel data updated February 2017.

3. Impervious Cover:  
 Aerial survey completed by Quantum Spatial, Inc. in November 2019. Impervious cover verified by site visit in December 2019. Baseline cover includes removed impervious area to be credited as treatment of impervious area.

4. Treated Area:  
 Treated areas delineated based on aerial imagery, topography, storm drain network, and BMP plan set data.



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**FINAL**  
 2019 Treated and Untreated  
 Impervious Areas  
 Loch Raven VA Medical Center  
 Baltimore, Maryland

N  
 Datum  
 NAD 83

Contract No.  
 VA 245-17-D-0131

Project No.	Date
512A5-19-010	April 2020

GORDON Proj. No.	AECOM Proj. No.
3287-0301	60617886

**Map No.**  
 F - 1

-  Treated Area
-  Imp. Area with Partial WQ Treatment
-  Imp. Area with Full WQ Treatment
-  Imp. Area Treated by Non-structural BMPs
-  Untreated Impervious Area
-  Property Boundary

**Total Impervious Area: 82.78 acres**

**Treated Impervious Area: 5.55 acres**

- Full Water Quality Treatment: 5.48 acres
- Partial Water Quality Treatment: 0.02 acres
- Treated by Non-structural BMPs: 0.05 acres

**Untreated Impervious Area: 77.23 acres**

**Restoration Requirement: 15.45 acres**

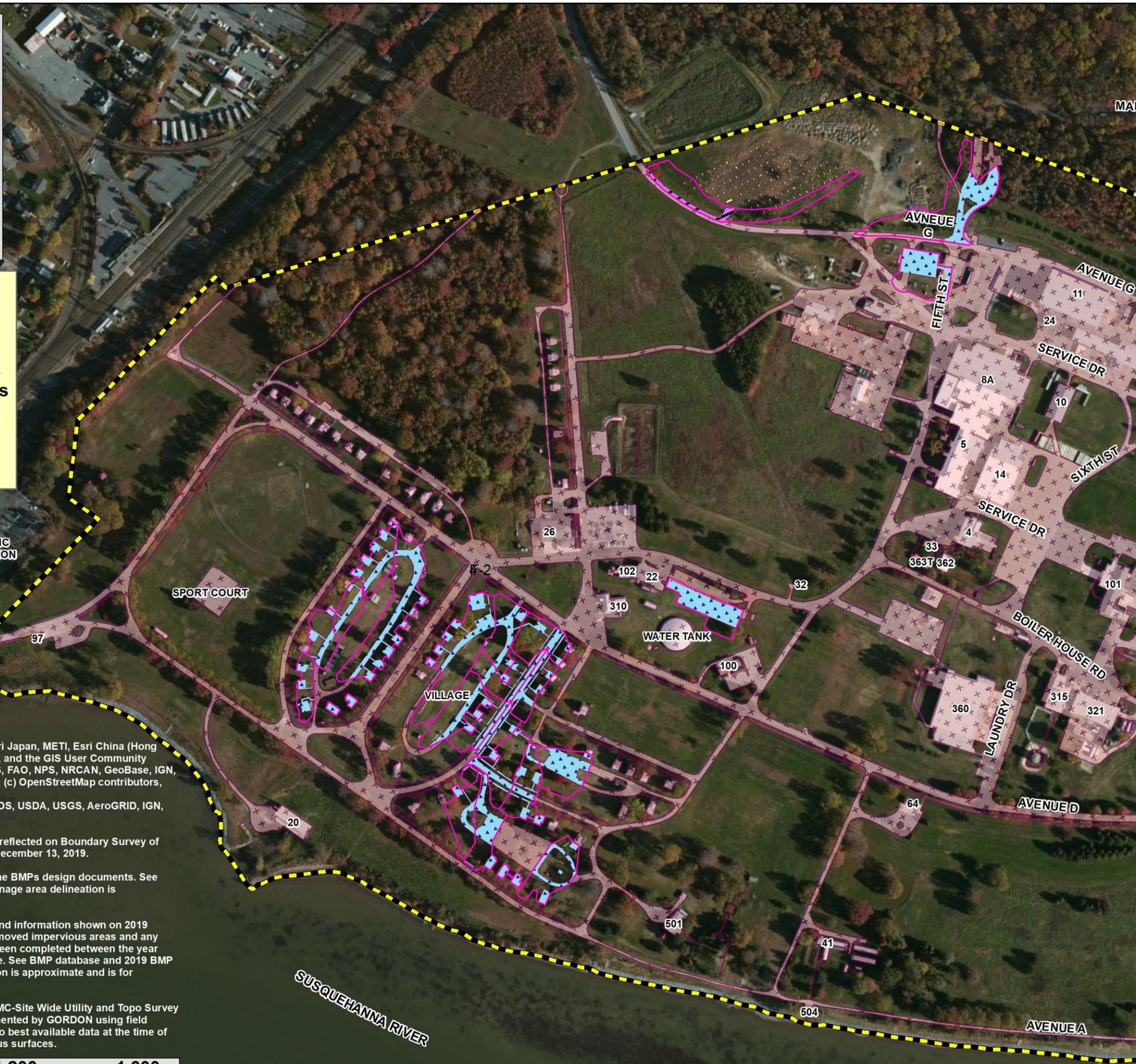
1. Service Layer Credits:  
Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community  
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Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

2. Property Boundary:  
The property line shown based on field survey performed by GORDON as reflected on Boundary Survey of Perry Point Medical Center (VA Project Number 512A5-19-016) Issued on December 13, 2019.

3. Treatment Area:  
Treatment areas are delineated based on record topography shown with the BMPs design documents. See BMP database and 2019 BMP Location Map for more information. The drainage area delineation is approximate and is for illustration purposes only.

4. Treated Impervious Area:  
All treated impervious areas are delineated based on BMP as-built plans and information shown on 2019 Baseline Impervious Map. The treated impervious areas do not include removed impervious areas and any redevelopment portions within the drainage area to the BMP which have been completed between the year 2006 and the permit year and are accounted for in the restoration schedule. See BMP database and 2019 BMP Location Map for more information. The treated impervious area delineation is approximate and is for illustration purposes only.

5. Untreated Impervious Cover:  
All site impervious features shown here are obtained from Perry Point VAMC-Site Wide Utility and Topo Survey (VA Project Number 512A5-14-308). The site impervious areas are supplemented by GORDON using field verification performed on January 22, 2020 and aerial imagery pertaining to best available data at the time of this plan. The impervious cover includes all previously removed impervious surfaces.



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**FINAL**

2019 Treated and Untreated  
Impervious Areas  
Perry Point VA Medical Center  
Perry Point, Maryland

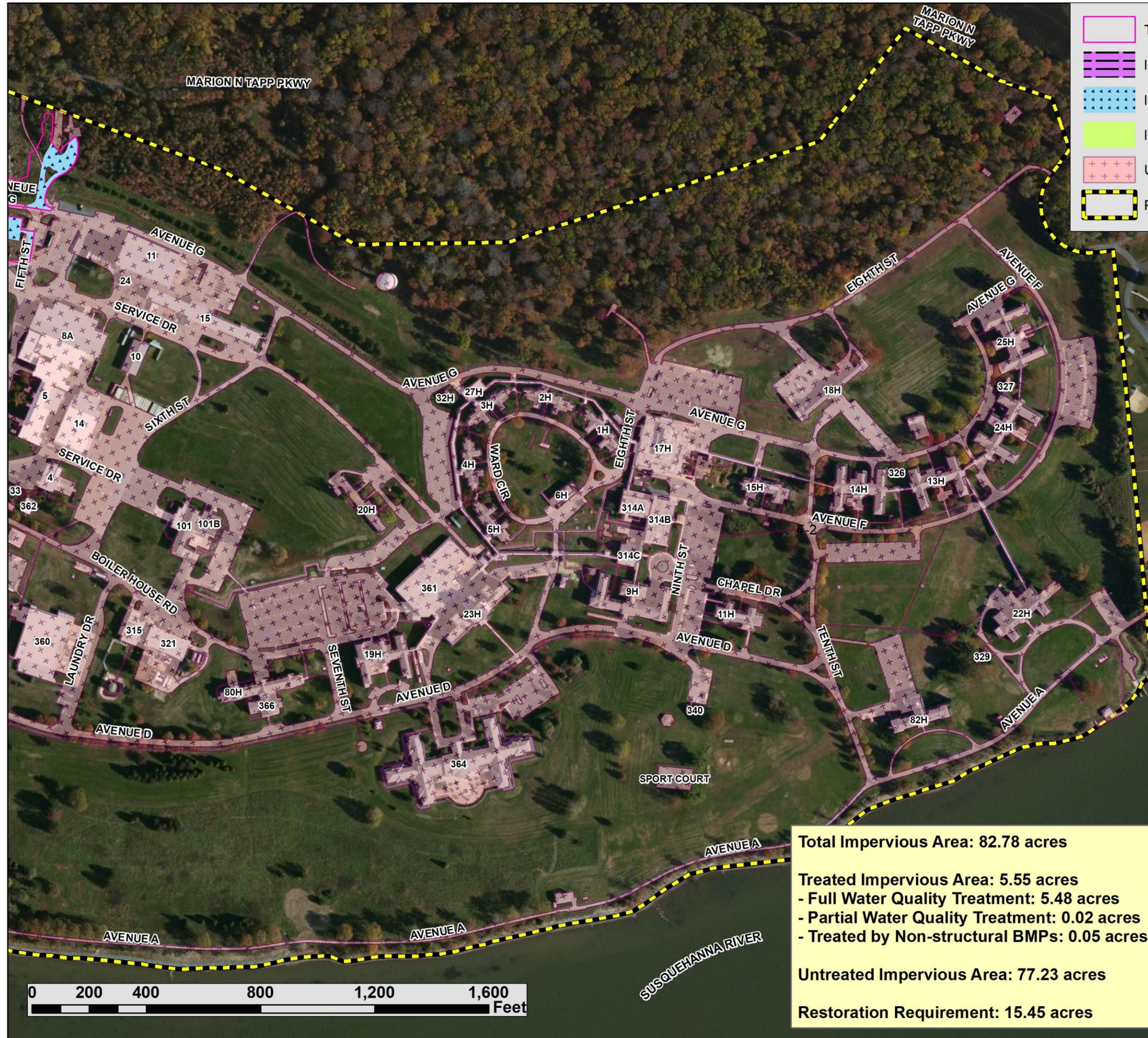
Datum  
NAD 83

Contract No.  
VA 245-17-D-0131

Project No. 512A5-19-010  
Date July 2020

GORDON Proj. No. 3287-0301  
AECOM Proj. No. 60617886

**Map No.**  
F-2



Treated Area  
 Imp. Area with Partial WQ Treatment  
 Imp. Area with Full WQ Treatment  
 Imp. Area Treated by Non-structural BMPs  
 Untreated Impervious Area  
 Property Boundary



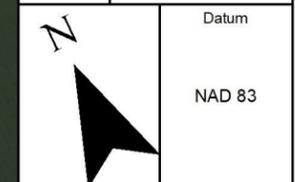
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**AECOM**  
 12420 Milestone Center  
 Drive, Suite 150  
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 (301) 820-3000

1. Service Layer Credits:  
 Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community  
 Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community  
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community  
 2. Property Boundary:  
 The property line shown based on field survey performed by GORDON as reflected on Boundary Survey of Perry Point Medical Center (VA Project Number 512A5-19-016) Issued on December 13, 2019.  
 3. Treatment Area:  
 Treatment areas are delineated based on record topography shown with the BMPs design documents. See BMP database and 2019 BMP Location Map for more information. The drainage area delineation is approximate and is for illustration purposes only.  
 4. Treated Impervious Area:  
 All treated impervious areas are delineated based on BMP as-built plans and information shown on 2019 Baseline Impervious Map. The treated impervious areas do not include removed impervious areas and any redevelopment portions within the drainage area to the BMP which have been completed between the year 2006 and the permit year and are accounted for in the restoration schedule. See BMP database and 2019 BMP Location Map for more information. The treated impervious area delineation is approximate and is for illustration purposes only.  
 5. Untreated Impervious Cover:  
 All site impervious features shown here are obtained from Perry Point VAMC-Site Wide Utility and Topo Survey (VA Project Number 512A5-14-308). The site impervious areas are supplemented by GORDON using field verification performed on January 22, 2020 and aerial imagery pertaining to best available data at the time of this plan. The impervious cover includes all previously removed

**Total Impervious Area: 82.78 acres**  
**Treated Impervious Area: 5.55 acres**  
 - Full Water Quality Treatment: 5.48 acres  
 - Partial Water Quality Treatment: 0.02 acres  
 - Treated by Non-structural BMPs: 0.05 acres  
**Untreated Impervious Area: 77.23 acres**  
**Restoration Requirement: 15.45 acres**



NPDES General Permit -  
 MS4 Perry Point and Loch Raven  
**FINAL**  
 2019 Treated and Untreated  
 Impervious Areas  
 Perry Point VA Medical Center  
 Perry Point, Maryland



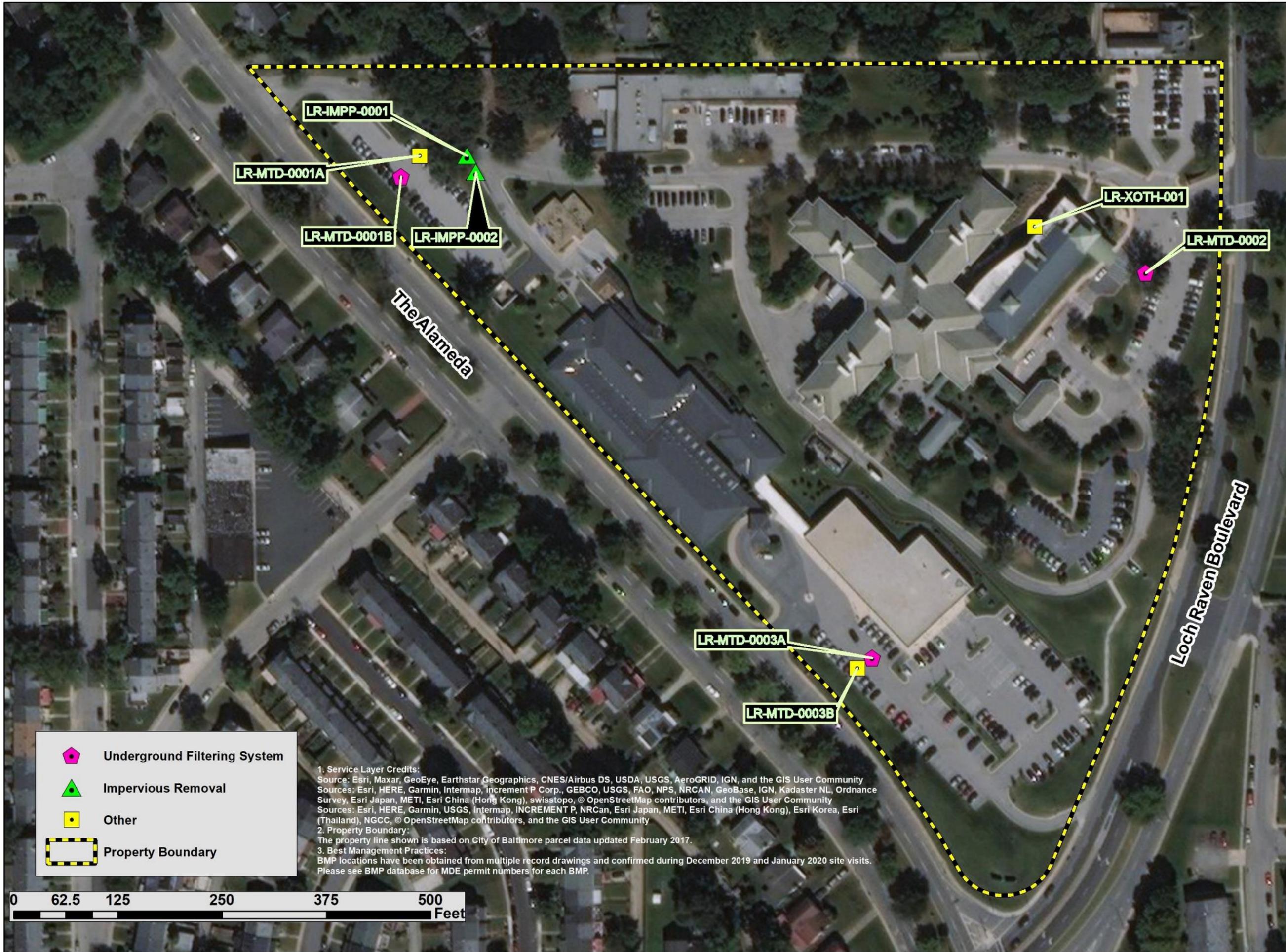
Contract No.	
VA 245-17-D-0131	
Project No.	Date
512A5-19-010	July 2020
GORDON Proj. No.	AECOM Proj. No.
3287-0301	60617886

**Map No.**  
**F-3**



**G – OUTFALL/BMP MAPS**





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NPDES General Permit -  
 MS4 Perry Point and Loch Raven  
**FINAL**  
 2019 BMP Location Map  
 Loch Raven VA Medical Center  
 Baltimore, Maryland

N  
  
 Datum  
 NAD 83

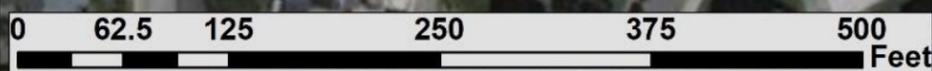
Contract No.  
 VA 245-17-D-0131

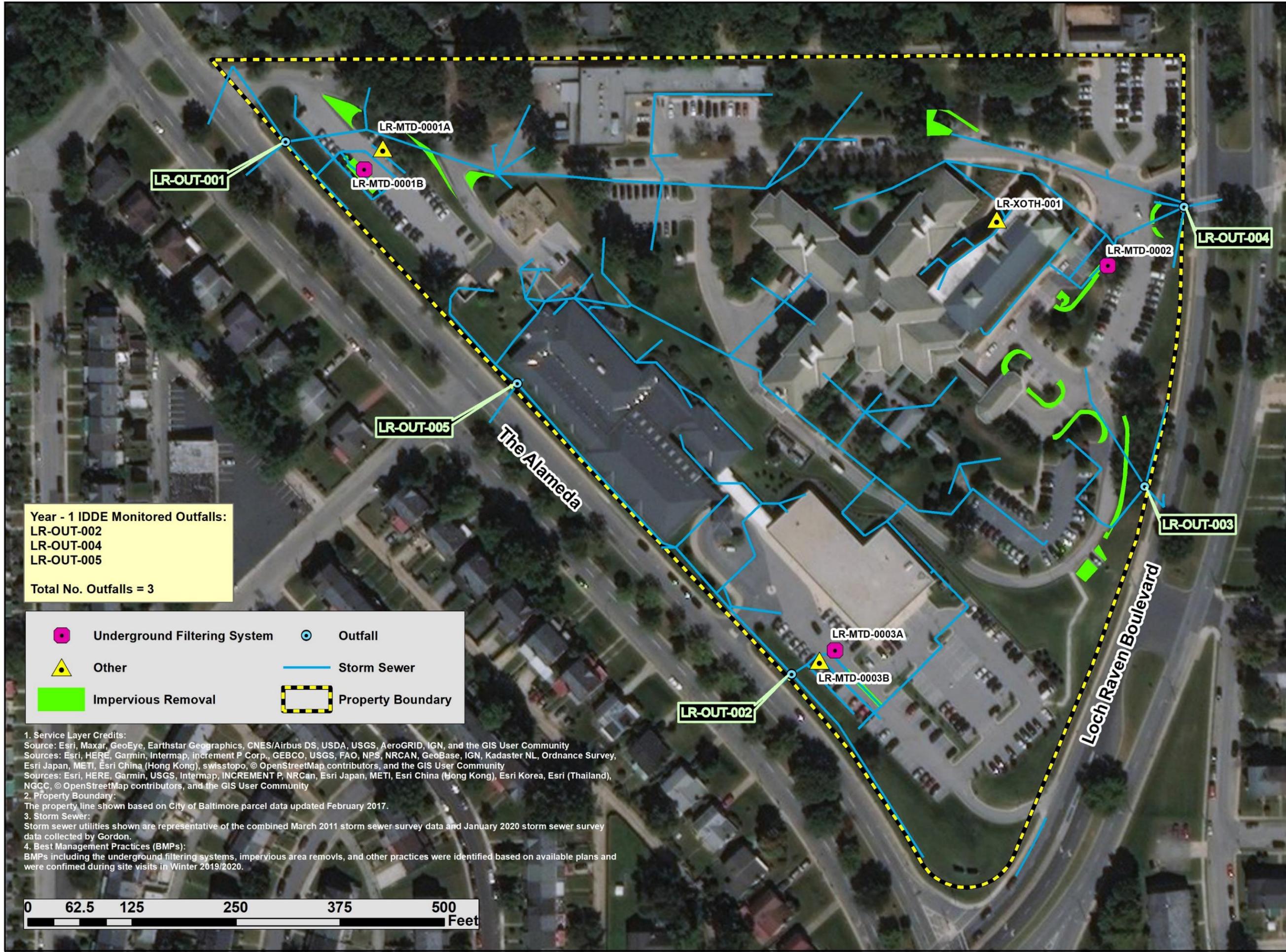
Project No.      Date  
 512A5-19-010      April 2020

GORDON Proj. No.      AECOM Proj. No.  
 3287-0301      60617886

**Map No.**  
 G - 1

1. Service Layer Credits:  
 Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community  
 Sources: Esri, HERE, Garmin, Intermap, Increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap contributors, and the GIS User Community  
 Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, © OpenStreetMap contributors, and the GIS User Community  
 2. Property Boundary:  
 The property line shown is based on City of Baltimore parcel data updated February 2017.  
 3. Best Management Practices:  
 BMP locations have been obtained from multiple record drawings and confirmed during December 2019 and January 2020 site visits.  
 Please see BMP database for MDE permit numbers for each BMP.





**Year - 1 IDDE Monitored Outfalls:**  
 LR-OUT-002  
 LR-OUT-004  
 LR-OUT-005

**Total No. Outfalls = 3**

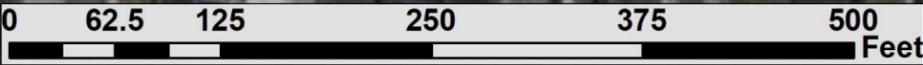
	Underground Filtering System		Outfall
	Other		Storm Sewer
	Impervious Removal		Property Boundary

1. Service Layer Credits:  
 Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community  
 Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap contributors, and the GIS User Community  
 Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, © OpenStreetMap contributors, and the GIS User Community

2. Property Boundary:  
 The property line shown based on City of Baltimore parcel data updated February 2017.

3. Storm Sewer:  
 Storm sewer utilities shown are representative of the combined March 2011 storm sewer survey data and January 2020 storm sewer survey data collected by Gordon.

4. Best Management Practices (BMPs):  
 BMPs including the underground filtering systems, impervious area removals, and other practices were identified based on available plans and were confirmed during site visits in Winter 2019/2020.



VA U.S. Department of Veterans Affairs

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NPDES General Permit -  
 MS4 Perry Point and Loch Raven

**FINAL**  
 2019 Outfall Map

Loch Raven VA Medical Center  
 Baltimore, Maryland

N

Datum  
 NAD 1983

Contract No. VA 245-17-D-0131	
Project No. 512A5-19-010	Date May 2020
Gordon Project No. 3287-0301	AECOM Project No. 60617886

**Map No.**  
 G - 2

**Best Management Practices (BMPs)**

- ★ Microbioretention
- Bio-swale
- ◆ Grass swale
- ⊕ Non-Rooftop Disconnect
- ▬ Shoreline Management
- Impervious Removal
- Outfall
- Storm Sewer
- ▭ Property Boundary

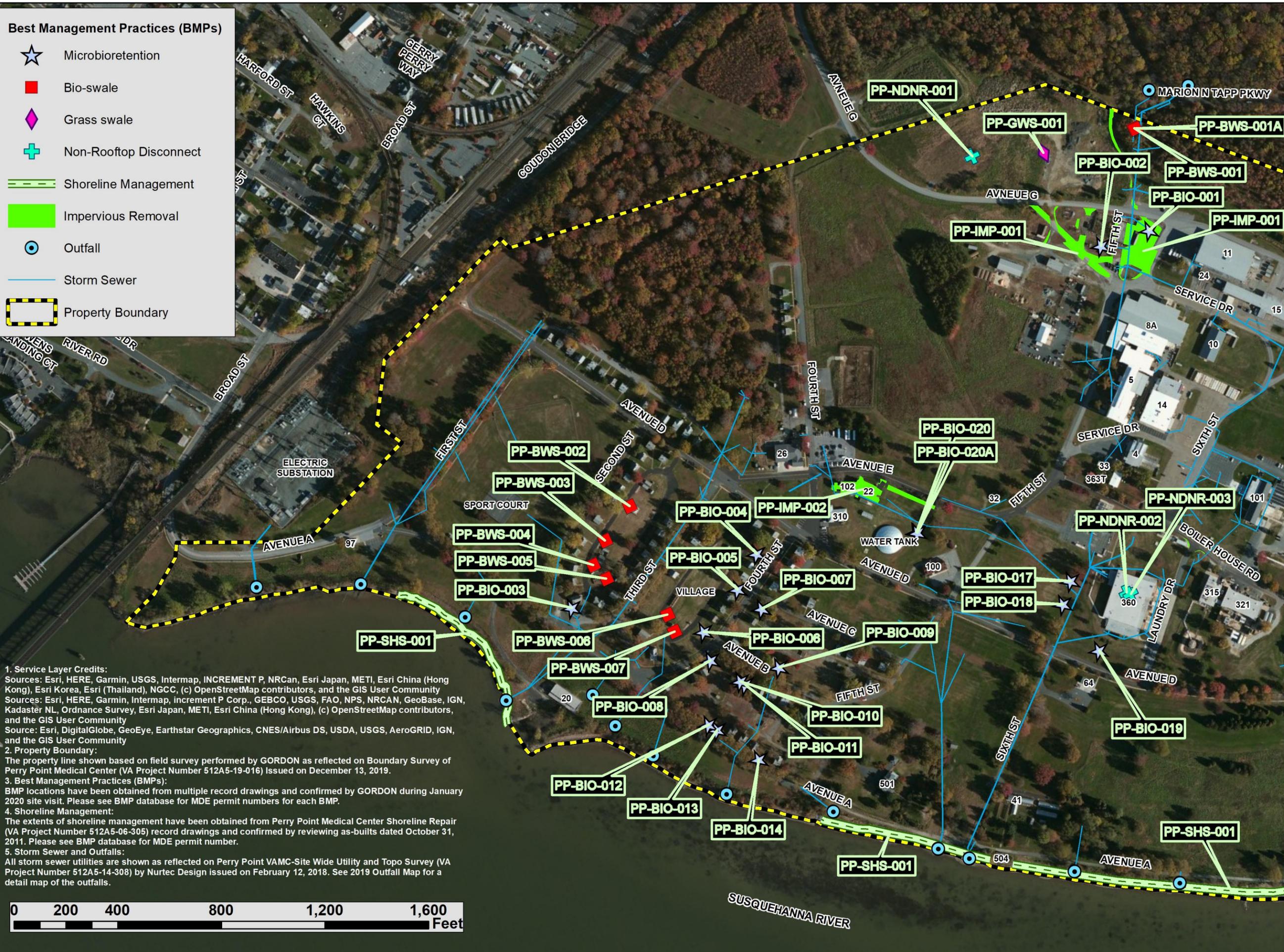
1. Service Layer Credits:  
Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community  
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community  
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

2. Property Boundary:  
The property line shown based on field survey performed by GORDON as reflected on Boundary Survey of Perry Point Medical Center (VA Project Number 512A5-19-016) Issued on December 13, 2019.

3. Best Management Practices (BMPs):  
BMP locations have been obtained from multiple record drawings and confirmed by GORDON during January 2020 site visit. Please see BMP database for MDE permit numbers for each BMP.

4. Shoreline Management:  
The extents of shoreline management have been obtained from Perry Point Medical Center Shoreline Repair (VA Project Number 512A5-06-305) record drawings and confirmed by reviewing as-builts dated October 31, 2011. Please see BMP database for MDE permit number.

5. Storm Sewer and Outfalls:  
All storm sewer utilities are shown as reflected on Perry Point VAMC-Site Wide Utility and Topo Survey (VA Project Number 512A5-14-308) by Nurtec Design issued on February 12, 2018. See 2019 Outfall Map for a detail map of the outfalls.



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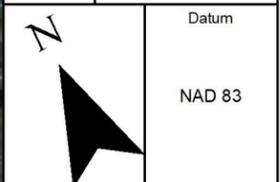
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(301) 820-3000

NPDES General Permit -  
MS4 Perry Point and Loch Raven

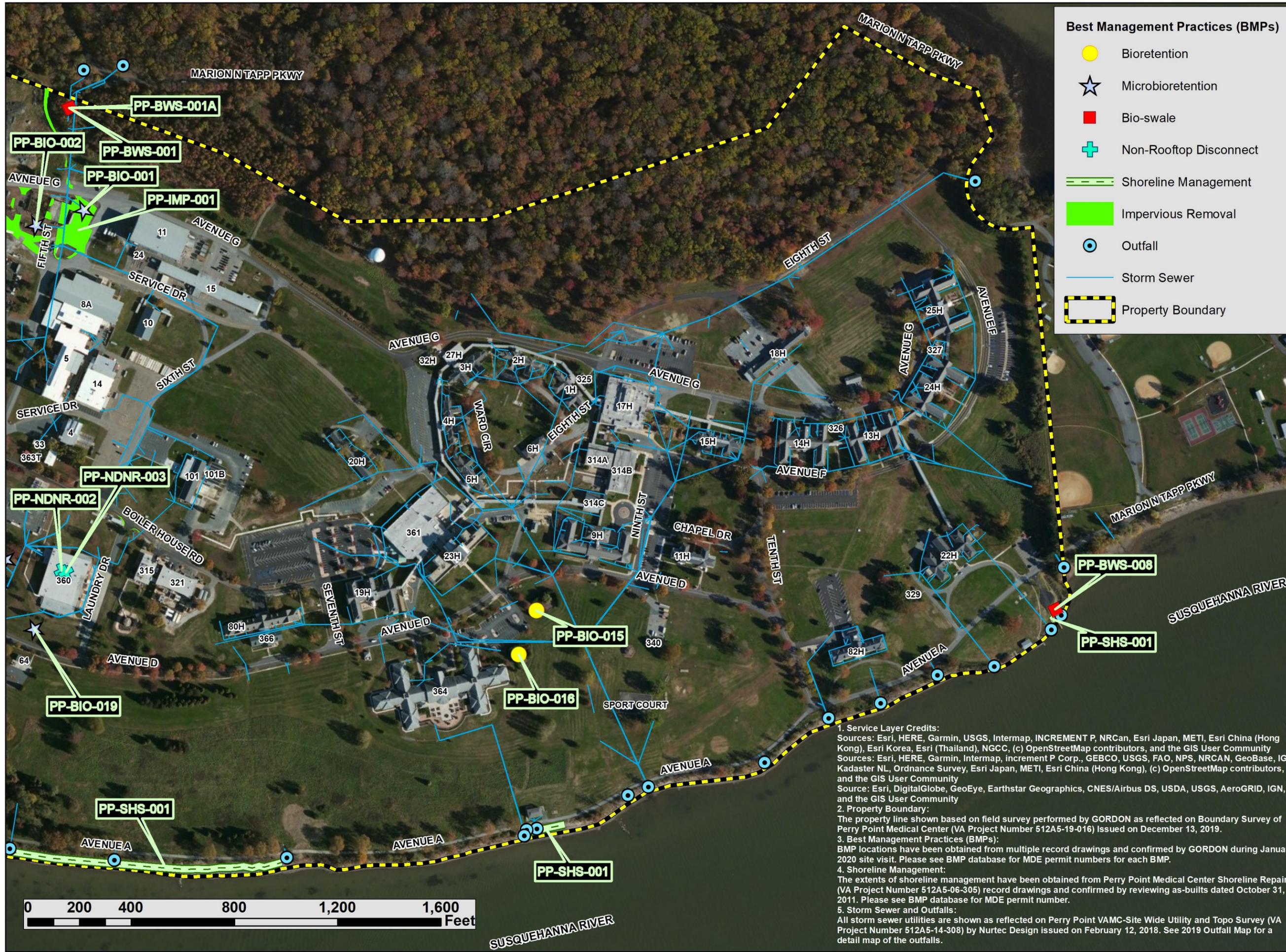
**FINAL**  
2019 BMP Location Map

Perry Point VA Medical Center  
Perry Point, Maryland



Contract No. VA 245-17-D-0131	
Project No. 512A5-19-010	Date July 2020
GORDON Proj. No. 3287-0301	AECOM Proj. No. 60617886

**Map No.**  
G-3



**Best Management Practices (BMPs)**

- Bioretention
- ★ Microbioretention
- Bio-swale
- + Non-Rooftop Disconnect
- Shoreline Management
- Impervious Removal
- Outfall
- Storm Sewer
- Property Boundary



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NPDES General Permit -  
 MS4 Perry Point and Loch Raven  
**FINAL**  
 2019 BMP Location Map  
 Perry Point VA Medical Center  
 Perry Point, Maryland

**N**

Datum  
 NAD 83

Contract No. VA 245-17-D-0131	
Project No. 512A5-19-010	Date July 2020
GORDON Proj. No. 3287-0301	AECOM Proj. No. 60617886

**Map No.**  
 G-4

1. Service Layer Credits:  
 Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community  
 Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community  
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

2. Property Boundary:  
 The property line shown based on field survey performed by GORDON as reflected on Boundary Survey of Perry Point Medical Center (VA Project Number 512A5-19-016) Issued on December 13, 2019.

3. Best Management Practices (BMPs):  
 BMP locations have been obtained from multiple record drawings and confirmed by GORDON during January 2020 site visit. Please see BMP database for MDE permit numbers for each BMP.

4. Shoreline Management:  
 The extents of shoreline management have been obtained from Perry Point Medical Center Shoreline Repair (VA Project Number 512A5-06-305) record drawings and confirmed by reviewing as-builts dated October 31, 2011. Please see BMP database for MDE permit number.

5. Storm Sewer and Outfalls:  
 All storm sewer utilities are shown as reflected on Perry Point VAMC-Site Wide Utility and Topo Survey (VA Project Number 512A5-14-308) by Nurtec Design issued on February 12, 2018. See 2019 Outfall Map for a detail map of the outfalls.



-  Storm Sewer
-  Outfall
-  Best Management Practices (BMPs)
-  Impervious Removal
-  Shoreline Management
-  Property Boundary

**Year-1 IDDE Monitored Outfalls:**  
 PP-OUT-02  
 PP-OUT-04  
 PP-OUT-06  
 PP-OUT-08  
 PP-OUT-10  
 PP-OUT-11  
 PP-OUT-14  
 PP-OUT-16  
 PP-OUT-19  
 PP-OUT-21  
 PP-OUT-24  
 PP-OUT-25  
 PP-OUT-27  
 PP-OUT-29  
 PP-OUT-30  
**Total No. Outfalls = 15**

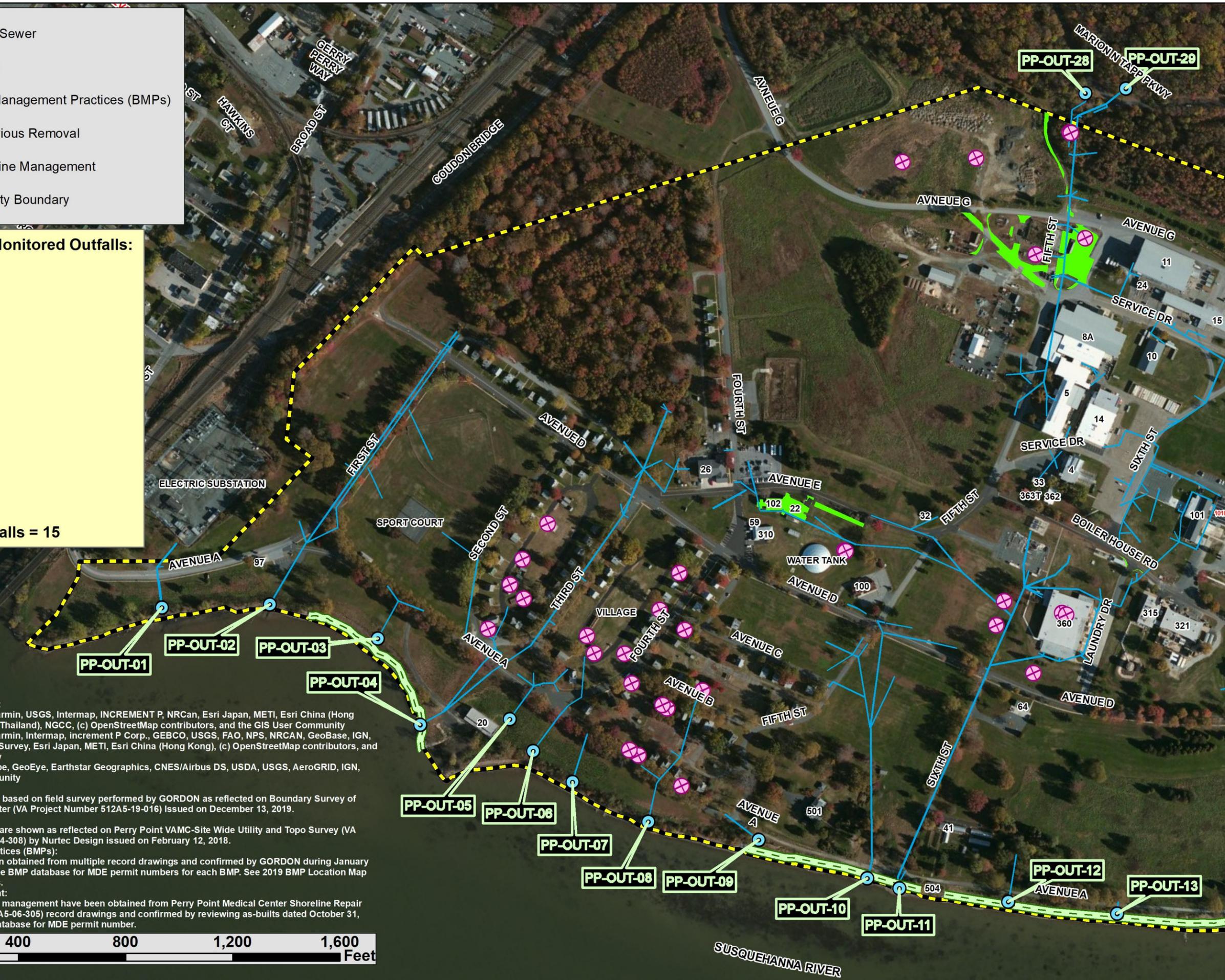
1. Service Layer Credits:  
 Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community  
 Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community  
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

2. Property Boundary:  
 The property line shown based on field survey performed by GORDON as reflected on Boundary Survey of Perry Point Medical Center (VA Project Number 512A5-19-016) Issued on December 13, 2019.

3. Storm Sewer:  
 All storm sewer utilities are shown as reflected on Perry Point VAMC-Site Wide Utility and Topo Survey (VA Project Number 512A5-14-308) by Nurtec Design issued on February 12, 2018.

4. Best Management Practices (BMPs):  
 BMP locations have been obtained from multiple record drawings and confirmed by GORDON during January 2020 site visit. Please see BMP database for MDE permit numbers for each BMP. See 2019 BMP Location Map for a detail map of BMPs.

5. Shoreline Management:  
 The extents of shoreline management have been obtained from Perry Point Medical Center Shoreline Repair (VA Project Number 512A5-06-305) record drawings and confirmed by reviewing as-builts dated October 31, 2011. Please see BMP database for MDE permit number.



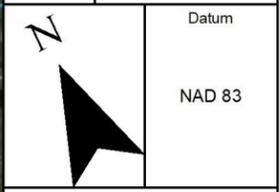
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NPDES General Permit -  
 MS4 Perry Point and Loch Raven

**FINAL**  
 2019 Outfall Map

Perry Point VA Medical Center  
 Perry Point, Maryland

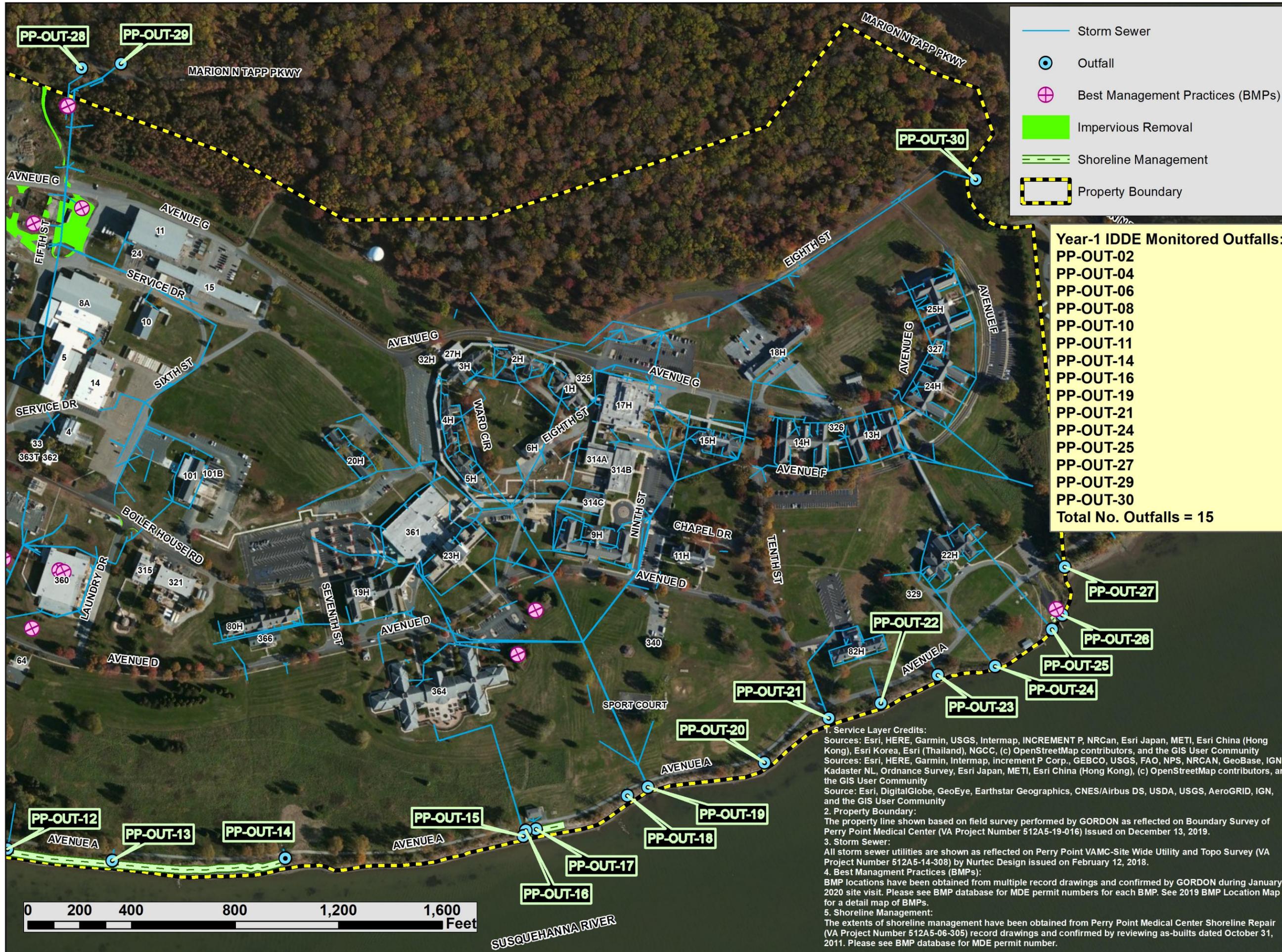


Contract No.  
 VA 245-17-D-0131

Project No. 512A5-19-010 Date February 2020

Gordon Project No. 3287-0301 AECOM Project No. 60617886

**Map No.**  
 G-5



- Storm Sewer
- Outfall
- Best Management Practices (BMPs)
- Impervious Removal
- Shoreline Management
- Property Boundary

**Year-1 IDDE Monitored Outfalls:**  
 PP-OUT-02  
 PP-OUT-04  
 PP-OUT-06  
 PP-OUT-08  
 PP-OUT-10  
 PP-OUT-11  
 PP-OUT-14  
 PP-OUT-16  
 PP-OUT-19  
 PP-OUT-21  
 PP-OUT-24  
 PP-OUT-25  
 PP-OUT-27  
 PP-OUT-29  
 PP-OUT-30  
**Total No. Outfalls = 15**

1. Service Layer Credits:  
 Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community  
 Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community  
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community  
 2. Property Boundary:  
 The property line shown based on field survey performed by GORDON as reflected on Boundary Survey of Perry Point Medical Center (VA Project Number 512A5-19-016) Issued on December 13, 2019.  
 3. Storm Sewer:  
 All storm sewer utilities are shown as reflected on Perry Point VAMC-Site Wide Utility and Topo Survey (VA Project Number 512A5-14-308) by Nurtec Design issued on February 12, 2018.  
 4. Best Management Practices (BMPs):  
 BMP locations have been obtained from multiple record drawings and confirmed by GORDON during January 2020 site visit. Please see BMP database for MDE permit numbers for each BMP. See 2019 BMP Location Map for a detail map of BMPs.  
 5. Shoreline Management:  
 The extents of shoreline management have been obtained from Perry Point Medical Center Shoreline Repair (VA Project Number 512A5-06-305) record drawings and confirmed by reviewing as-builts dated October 31, 2011. Please see BMP database for MDE permit number.



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NPDES General Permit -  
 MS4 Perry Point and Loch Raven

**FINAL**  
 2019 Outfall Map

Perry Point VA Medical Center  
 Perry Point, Maryland

Datum  
 NAD 83

Contract No. VA 245-17-D-0131	
Project No. 512A5-19-010	Date February 2020
Gordon Project No. 3287-0301	AECOM Project No. 60617886

**Map No.**  
 G-6



## **H – RESTORATION ACTIVITY SCHEDULE**



**SUMMARY - RESTORATION ACTIVITY SCHEDULE**  
**DEPARTMENT OF VETERANS AFFAIRS**  
**VAMC PERRY POINT AND LOCH RAVEN**  
**GENERAL DISCHARGE PERMIT NO. 13-SF-5501**

<b>Summary Restoration Computations</b>		
<b>Baseline Year - 2019</b>		
	<b>Description</b>	<b>Area (ac)</b>
A	Perry Point 20% Restoration Requirement (ac)	15.45
B	Loch Raven 20% Restoration Requirement (ac)	1.43
C	Total 20% Restoration Requirement (ac)	16.88
D	Perry Point Provided Restoration Impervious Area Treated (ac)	117.14
E	Loch Raven Provided Restoration Impervious Area Treated (ac)	0.05
F	Total Provided Restoration Impervious Area Treated (ac)	117.19
G	Remaining Restoration Requirement (ac)	-100.31

- A. Perry Point Restoration Requirement acreage is obtained from Perry Point Impervious Area Baseline Assessment Row G.
- B. Loch Raven Restoration Requirement acreage is obtained from Loch Raven Impervious Area Baseline Assessment Row G.
- C. Total VA 20% Restoration Requirement = A + B
- D. Perry Point Provided Restoration Impervious Area Treated is obtained from Perry Point MS4 Restoration Activity Schedule.
- E. Loch Raven Provided Restoration Impervious Area Treated is obtained from Loch Raven MS4 Restoration Activity Schedule.
- F. Total VA Provided Restoration Area Treated = D + E
- G. Total VA Remained Restoration Requirement = C - F

**LOCH RAVEN - RESTORATION ACTIVITY SCHEDULE**  
**DEPARTMENT OF VETERANS AFFAIRS**  
**VAMC PERRY POINT AND LOCH RAVEN**  
**GENERAL DISCHARGE PERMIT NO. 13-SF-5501**

Loch Raven Restoration Activity Schedule									
Type of Restoration project	BMP Code <sup>1</sup>	BMP ID	Cost (\$K) <sup>2</sup>	Equivalent Impervious Area Treated <sup>(1)</sup> (ac)	Target Impervious Area <sup>3</sup> (ac)	Project Status <sup>4</sup>	Completion Year or Project Implementation Year (by 2025)	MD Coordinates	
					1.43			Northing	Easting
REDE Impervious Surfaces Removed	IMPP	LR-IMPP-0002	-	0.05	1.38	C	2015	185472.42	434689.58

1. See Appendix B, Tables B1.a,b, and c, UrbanBMP Database. BMP codes are identified under "MDE BMP Classification.
2. Cost provided is at the completion of the activity.
3. Restoration target acreage is computed based on baseline impervious area and 20% of the existing untreated impervious areas. See impervious area baseline computations for baseline year - 2019.
4. Project status: P for planning and design, UC for under construction, and C for complete.

**PERRY POINT - RESTORATION ACTIVITY SCHEDULE**  
**DEPARTMENT OF VETERANS AFFAIRS**  
**VAMC PERRY POINT AND LOCH RAVEN**  
**GENERAL DISCHARGE PERMIT NO. 13-SF-5501**

Perry Point Restoration Activity Schedule									
Type of Restoration project	BMP Code <sup>1</sup>	BMP ID	Cost (\$K) <sup>2</sup>	Equivalent Impervious Area Treated <sup>(1)</sup> (ac)	Target Impervious Area <sup>3</sup> (ac)	Project Status <sup>4</sup>	Completion Year or Project Implementation Year (by 2025)	MD Coordinates	
					15.45			Northing	Easting
Imp. Surfaces Removed	IMPP	PP-IMP-001	-	0.73	14.72	C	2014	209948.51	480319.56
Imp. Surfaces Removed	IMPP	PP-IMP-002	-	0.23	14.49	C	2017	209854.78	479945.53
REDE Imp. Treated	MMBR	PP-BIO-001	-	0.61	13.88	C	2014	210000.47	480365.64
REDE Imp. Treated	MMBR	PP-BIO-A20	-	0.04	13.84	C	2014	209793.94	479968.41
REDE Imp. Treated	MSWB	PP-BWS-0A1	-	0.10	13.74	C	2014	210116.03	480401.46
REDE Imp. Treated	MSWB	PP-BWS-008	-	0.11	13.63	C	2011	209088.58	481206.36
REST Shoreline Repair	SHST	PP-SHS-001	-	115.32	-101.69	C	2011	209206.11	480242.05

1. See Appendix B, Tables B1.a,b, and c, UrbanBMP Database. BMP codes are identified under "MDE BMP Classification.
2. Cost provided is as a planning tool only for any proposed restoration activities. Not applicable for completed projects.
3. Restoration target acreage is computed based on baseline impervious area and 20% of the existing untreated impervious areas. See impervious area baseline computations for baseline year - 2019.
4. Project status: P for planning and design, UC for under construction, and C for complete.



## **I – URBAN BMP DATABASES**





**J – INSPECTION AND MAINTENANCE CHECKLISTS**

# Best Management Practices (BMP) Maintenance and Inspection Records for

## Department of Veterans Affairs Maryland Health Care System Loch Raven Medical Center

In Accordance with National Pollutant Discharge Elimination System (NPDES)

General Permit for Discharges from State and Federal Small Municipal  
Separate Storm Sewer Systems

General Discharge Permit No. 13-SF-5501

General NPDES No. MDR05501

Prepared for:

Department of Veteran Affairs Maryland Health Care System  
101 Boilerhouse Road, Room 40 (Perry Point VAMC), Perry Point, MD 21902  
Phone: 410-537-3543

**VA**



U.S. Department  
of Veterans Affairs

Prepared by:

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AECOM  
12420 Milestone Center Drive, Suite 150  
Germantown, MD 20876  
Phone: 301-820-3000



**Gordon**

**AECOM**

**JULY 2020**

Manufacture Treatment Devices  
Maintenance and Inspection Records

Department of Veterans Affairs  
Maryland Health Care System  
Loch Raven Medical Center

JULY 2020

Manufacture Treatment Devices  
Maintenance Records

Department of Veterans Affairs  
Maryland Health Care System  
Loch Raven Medical Center

JULY 2020

## BMP MAINTENANCE SCHEDULE MANUFACTURED TREATMENT DEVICES

VA CAMPUS: Loch Raven

MAINTENANCE DIRECTOR: \_\_\_\_\_

PHONE NO. : \_\_\_\_\_

**Note:** This schedule is prepared to assist with summary of all maintenance records for the BMPs. The maintenance director is responsible for updating this record upon completion of each maintenance. The record is organized by month of the year and the type of inspection required for that month. Upon completion of each maintenance type, check the column for the respective maintenance. For maintenance performed after a major storm, report the month number in which the storm has occurred, month numbers can be repeated since multiple major storms can occur during the same month.

BMP-ID	BMP Type	BMP Location	Maintenance Type																							
			BA = Biannually												MS = After a Major Storm											
			-	-	-	BA	-	-	-	-	-	BA	-	-	MS	MS	MS									
1	2	3	4	5	6	7	8	9	10	11	12															
LR-MTD-0001A LR-MTD-0001B	Contech StormFilter	North Entrance Parking Lot	<input type="checkbox"/>																							
LR-MTD-0002	Baysaver BayFilter	Community Living Center Parking Lot	<input type="checkbox"/>																							
LR-MTD-0003A LR-MTD-0003B	Contech StormFilter	South Parking Lot	<input type="checkbox"/>																							
LR-MTD-____			<input type="checkbox"/>																							
LR-MTD-____			<input type="checkbox"/>																							
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LR-MTD-____			<input type="checkbox"/>																							
LR-MTD-____			<input type="checkbox"/>																							

# BIANNUAL BMP MAINTENANCE CHECKLIST

## MANUFACTURED TREATMENT DEVICES - Baysaver BayFilter

VA CAMPUS:  Perry Point  Loch Raven

Page 1 of \_\_\_\_

BMP ID: \_\_\_\_\_

MAINTENANCE PERSONNEL: \_\_\_\_\_

TIME: \_\_\_\_\_ AM \_\_\_ PM \_\_\_

MAINTENANCE DATE: \_\_\_ / \_\_\_ / \_\_\_\_\_

WEATHER: \_\_\_\_\_

**Note to maintenance personnel:** This checklist is adopted from the site plans (Drawing Number: CS-203) associated with the VA Loch Raven CLC Addition (VA Project No. 512-541, MDE Project No. SF-10-0012) (2012) and the *BayFilter Design Manual* published by Baysaver Technologies (2018). The checklist is prepared to generally assist with the components to be checked and maintained within the BayFilter facility **biannually**. Each component within and/or around the facility is listed along with the maintenance activity required. Check "Y" for Yes, "N" for No, and "N/A" for not applicable for each item that is addressed during this routine maintenance. If "N" is checked for a maintenance item, provide a brief reason in the comments section by citing the section number. If additional room is needed for comments use the blank "Additional Comments Attachment Form" provided at the end of this checklist; make additional copies as needed.

Maintenance Items	Completed
<b>I.1. Debris, Sediment, and Trash</b>	
I.1.a. Remove accumulated trash, debris, and sediment in inlet/outlet pipes by power-washing.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
I.1.b. Remove accumulated trash, debris, and sediment in the vault via vactor truck.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
I.1.c. Remove accumulated trash, debris, and sediment on grates and in clean outs.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
I.1.d. Remove accumulated trash, debris, and sediment in bypass pipes and diversion manhole debris screen.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
<b>I.2 Structural Integrity</b>	
I.2.a. Repair or replace damaged pipes.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
I.2.b. Repair cracks in the vault structure and associated piping.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
I.2.c. Repair or replace damaged access ladder (broken/missing rungs, misalignment, rust, cracks etc.)	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
I.2.d. Repair or replace damaged access covers (manhole, grates, cleanouts)	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
<b>I.3 Hazardous Materials</b>	
I.3.a. Remove any hazardous materials that have entered the vault or pipes like automotive grease or oil. Identify and remove source to prevent further spills and leaks into BMP.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
<b>I.4 Other</b>	
I.4.a. Replace filter cartridge as needed. See Cartridge Replacement Guidance.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A

**Comments:**

# BIANNUAL BMP MAINTENANCE CHECKLIST

## MANUFACTURED TREATMENT DEVICES - Contech StormFilter

VA CAMPUS:  Perry Point  Loch Raven

Page 1 of \_\_\_\_

BMP ID: \_\_\_\_\_

MAINTENANCE PERSONNEL: \_\_\_\_\_

TIME: \_\_\_\_\_ AM \_\_\_ PM \_\_\_

MAINTENANCE DATE: \_\_\_ / \_\_\_ / \_\_\_

WEATHER: \_\_\_\_\_

**Note to maintenance personnel:** This checklist is adopted from the site plans (sheet C-10) associated with the VA Loch Raven Parking Lot Expansion (VA Project No. 512-522, MDE Project No. 09-SF-0459) (2009 )and the Contech published guidance. The checklist is prepared to generally assist with the components to be checked and maintained within the StormFilter facility **biannually**. Each component within and/or around the facility is listed along with the maintenance activity required. Check "Y" for Yes, "N" for No, and "N/A" for not applicable for each item that is addressed during this routine maintenance. If "N" is checked for a maintenance item, provide a brief reason in the comments section by citing the section number. If additional room is needed for comments use the blank "Additional Comments Attachment Form" provided at the end of this checklist; make additional copies as needed.

Maintenance Items	Completed
<b>I.1. Debris, Sediment, and Trash</b>	
I.1.a. Remove accumulated trash, debris, and sediment in both vaults via vacuum truck.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
I.1.b. Remove accumulated trash, debris, and sediment in 2" orifice (stormwater management detention vault) via vactor truck.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
I.1.c. Remove accumulated trash, debris, and sediment in inlet/outlet pipes by power-washing.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
I.1.d. Remove accumulated trash, debris, and sediment in bypass pipes, diversion manhole debris screen, and weir pool.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
I.1.e. Properly dispose of all materials removed to prevent reintroduction into BMP.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
<b>I.2 Structural Integrity</b>	
I.2.a. Repair or replace damaged pipes.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
I.2.b. Repair cracks in the vault structures and associated piping.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
I.2.c. Repair or replace damaged access covers.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
I.2.d. Repair damage to ladder, broken rungs, or replace ladder.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
<b>I.3 StormFilter and Water Quality Vault</b>	
I.3.a. Replace filter cartridge as needed. See Cartridge Replacement Guidance.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
<b>I.4 Stormwater Management Detention Vault</b>	
I.4.a. Clean and replace stone media on the dewatering device as needed (check seasonally and after storms, replace every 3 years).	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
<b>I.5 Hazardous Materials</b>	
I.5.a. Remove any hazardous materials that have entered the vault or pipes like automotive grease or oil. Identify and remove source to prevent further spills and leaks into BMP.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A

**Comments:**

# MAINTENANCE REQUIREMENTS MANUFACTURED TREATMENT DEVICES

VA CAMPUS:  Perry Point  Loch Raven

Page \_\_\_ of \_\_\_

BMP ID: \_\_\_\_\_

MAINTENANCE PERSONNEL: \_\_\_\_\_

TIME: \_\_\_\_\_ AM \_\_\_ PM \_\_\_

MAINTENANCE DATE: \_\_\_ / \_\_\_ / \_\_\_

WEATHER: \_\_\_\_\_

**Note to inspection and maintenance personnel:** Maintenance items for manufactured devices should be completed by persons qualified to enter confined spaces, that have the necessary equipment, and that have knowledge of the manufactured systems. If there are no VA personnel available or properly trained and equipped, a third party contractor should be engaged for maintenance activities. Maintenance should always be conducted during dry weather conditions. For maintenance after a large storm, personnel should view the devices shortly after 48 hours post-rainfall.

### Required Equipment

### Obtained

A. Manhole lifter	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
B. Vacuum truck	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
C. Lifting mechanism	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
D. Hammer	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
E. Wrench	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
F. Replacement cartridge(s)	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
G. Other (specify):	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A

### Required Personal Protective Equipment

### Obtained

A. Confined space entry PPE. See VA Confined Space Entry for Sewer Systems SOP.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
---	--

### Cartridge Replacement Resources

For replacement filter cartridge pricing and availability, contact **BaySaver Technologies at 1-800-229-7283** or **Contech Engineered Solutions at 1-800-338-1122**. Order replacement filters immediately after the inspection if it was determined that the cartridges require replacement so that the system can be maintained before its functionality is compromised.

### Comments:

# CARTRIDGE REPLACEMENT GUIDANCE

## MANUFACTURED TREATMENT DEVICES

VA CAMPUS:  Perry Point  Loch Raven

Page \_\_\_ of \_\_\_

BMP ID: \_\_\_\_\_

MAINTENANCE PERSONNEL: \_\_\_\_\_

TIME: \_\_\_\_\_ AM \_\_\_ PM \_\_\_

MAINTENANCE DATE: \_\_\_ / \_\_\_ / \_\_\_

WEATHER: \_\_\_\_\_

**Note to inspection and maintenance personnel:** The following information relates to the conditions in which the filter cartridges require removal and replacement, and the procedures used during replacement. If any one of these conditions is true of the system inspected, replacement is required. When conducting the replacement, check "Y" for Yes, "N" for No, and "N/A" for not applicable for each item that is addressed during this maintenance. If "N" is checked for a replacement item, provide a brief reason in the comments section by citing the section number.

### Cartridge Replacement Conditions

Present

A. More than 4 inches of sediment is accumulated on the vault floor. (Sediment reaches top of manifold.)	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
B. More than 0.25 inch of sediment is accumulated on the top of the cartridge(s).	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
C. More than 4 inches of static water is present above the cartridge bottom(s) for more than 24 hours after the end of a rain event.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
D. Effluent flow rate seems low/slow.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
E. Filter media is heavily clogged.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A

### Cartridge Replacement Procedures

Obtained

1. Remove any liquid and sediments in the filter vault.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
2. Remove the hold down bars/fasteners from around the cartridge (BayFilter) or twist filter cartridge counterclockwise 1/4 turn (StormFilter).	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
3. Use a small lift or boom of vacuum truck to lift out used cartridges.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
4. Remove inlet and outlet pipes from the vault.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
5. Power wash or rinse inlet and outlet piping to clear any accumulation. Clean up remaining debris and sediment in vault.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
6. Re-install inlet and outlet piping into the vault.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
7. Install new cartridge, reinstall hold down bars/fasteners, and close all covers.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
8. Properly dispose of removed sediments, liquid, and debris.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A

### Cartridge Replacement Resources

For replacement filter cartridge pricing and availability, contact **BaySaver Technologies at 1-800-229-7283** or **Contech Engineered Solutions at 1-800-338-1122**. Order replacement filters immediately after the inspection if it was determined that the cartridges require replacement so that the system can be maintained before its functionality is compromised.

### Comments:

**BMP MAINTENANCE**  
**ADDITIONAL COMMENTS ATTACHMENT FORM**

VA CAMPUS:  Perry Point  Loch Raven

Page \_\_\_ of \_\_\_

BMP ID: \_\_\_\_\_

INSPECTOR: \_\_\_\_\_

TIME: \_\_\_\_\_ AM \_\_\_ PM \_\_\_

INSPECTION DATE: \_\_\_ / \_\_\_ / \_\_\_

WEATHER: \_\_\_\_\_

**Comments / Observations:**



**BMP MAINTENANCE  
ADDITIONAL COMMENTS ATTACHMENT FORM**

VA CAMPUS:  Perry Point  Loch Raven

Page \_\_\_ of \_\_\_

BMP ID: \_\_\_\_\_

INSPECTOR: \_\_\_\_\_

TIME: \_\_\_\_\_ AM \_\_\_ PM \_\_\_

INSPECTION DATE: \_\_\_ / \_\_\_ / \_\_\_

WEATHER: \_\_\_\_\_

**Comments / Observations:**



Manufacture Treatment Devices  
Triennial Inspection Records

Department of Veterans Affairs  
Maryland Health Care System  
Loch Raven Medical Center

JULY 2020

## BMP TRIENNIAL INSPECTION SCHEDULE MANUFACTURED TREATMENT DEVICES

VA CAMPUS: Perry Point

MAINTENANCE DIRECTOR: \_\_\_\_\_

PHONE NO. : \_\_\_\_\_

**Note:** This schedule is prepared to assist with summary of all triennial inspection records for the BMPs. The maintenance director is responsible for updating this record upon completion of each triennial inspection. Inspections shall be conducted once every 3 years. After each triennial inspection, record the inspection date and the BMP status. If a BMP is assessed as "failed", the facility should be re-inspected. Record the re-inspection date and status upon completion of the re-inspection.

BMP-ID	BMP Type	BMP Location	Last Triennial Inspection (MM/DD/YY)	Re-Inspection (MM/DD/YY)	BMP Status			
					Triennial Inspection		Re-inspection	
					PASS	FAIL	PASS	FAIL
LR-MTD-0001A LR-MTD-0001B	Contech StormFilter	North Entrance Parking Lot	___/___/___	___/___/___	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
LR-MTD-0002	Baysaver BayFilter	Community Living Center Parking Lot	___/___/___	___/___/___	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
LR-MTD-0003A LR-MTD-0003B	Contech StormFilter	South Parking Lot	___/___/___	___/___/___	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
LR-MTD-___			___/___/___	___/___/___	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
LR-MTD-___			___/___/___	___/___/___	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
LR-MTD-___			___/___/___	___/___/___	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
LR-MTD-___			___/___/___	___/___/___	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
LR-MTD-___			___/___/___	___/___/___	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
LR-MTD-___			___/___/___	___/___/___	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
LR-MTD-___			___/___/___	___/___/___	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
LR-MTD-___			___/___/___	___/___/___	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
LR-MTD-___			___/___/___	___/___/___	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
LR-MTD-___			___/___/___	___/___/___	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
LR-MTD-___			___/___/___	___/___/___	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
LR-MTD-___			___/___/___	___/___/___	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
LR-MTD-___			___/___/___	___/___/___	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
LR-MTD-___			___/___/___	___/___/___	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

# BMP TRIENNIAL INSPECTION CHECKLIST

## MANUFACTURED TREATMENT DEVICES - Baysaver BayFilter

VA CAMPUS:  Perry Point  Loch Raven

Page \_\_\_ of \_\_\_

BMP ID: \_\_\_\_\_

INSPECTOR: \_\_\_\_\_

TIME: \_\_\_\_\_ AM \_\_\_ PM \_\_\_

INSPECTION DATE: \_\_\_ / \_\_\_ / \_\_\_

WEATHER: \_\_\_\_\_

APPROVED MDE PLANS ON RECORD:  YES  NO

MDE PLAN #: \_\_\_\_\_

MAINTENANCE LOG ON RECORD:  YES  NO

INSPECTION RESULTS:

SCHEDULED RE-INSPECTION:  YES  N/A \_\_\_ / \_\_\_ / \_\_\_

PASS  FAIL

REMEDIAL ACTION DUE BY: \_\_\_ / \_\_\_ / \_\_\_

RE-INSPECTION RESULT:

ATTACHMENTS:  NONE  PHOTOS  SKETCHES

PASS  FAIL

**Note to inspector:** This checklist is adopted from the site plans (Drawing Number: CS-203) associated with the VA Loch CLC Addition (VA Project No. 512-541, MDE Project No. 10-SF-0012) (2012). The checklist is prepared to generally assist with the components to be inspected within the BayFilter facility **triennially**. Check "**Acceptable**" for items in good condition, "**Deficient**" for items in poor condition. If any of the inspection item is deficient, the overall facility should be assessed as "**Fail**". Any facility that has "**Failed**" an inspection **MUST** be re-inspected to maintain treatment credit for this facility. If a condition is corrected during re-inspection, check the "**Resolved**" box under the "STATUS" column. **Inspections for manufactured devices should be completed by persons qualified to enter confined spaces, that have the necessary equipment, and that have knowledge of the manufactured systems. If there are no VA personnel available or properly trained and equipped, a third party contractor should be engaged for inspection activities and any associated remedial actions.**

### Inspection Items

1. General	STATUS
<b>1.a. Maintenance Access</b> <b>Requirement:</b> Check for accessibility to facility. <b>Remedial Actions:</b> <ul style="list-style-type: none"> <li><input type="checkbox"/> Repair or replace corroded manhole covers.</li> <li><input type="checkbox"/> Repair or replace damaged access ladder.</li> <li><input type="checkbox"/> Repair or replace broken clean outs or grates.</li> <li><input type="checkbox"/> Remove debris around access points.</li> <li><input type="checkbox"/> Other (Describe Remedial Action):</li> </ul>	<input type="checkbox"/> Acceptable <input type="checkbox"/> Deficient <input type="checkbox"/> N/A <input type="checkbox"/> Resolved

2. Flow Conveyance (Inlets, Outlets, Piping)	STATUS
<b>2.a. Structural Conditions</b> <b>Requirement:</b> Check for crushed or damaged pipes due to corrosion or settlement. <b>Remedial Actions:</b> <ul style="list-style-type: none"> <li><input type="checkbox"/> Repair or replace inlet/outlet pipes.</li> <li><input type="checkbox"/> Repair or replace outlet manifold piping.</li> <li><input type="checkbox"/> Other (Describe Remedial Action):</li> </ul>	<input type="checkbox"/> Acceptable <input type="checkbox"/> Deficient <input type="checkbox"/> N/A <input type="checkbox"/> Resolved

Continue on next page!



# BMP TRIENNIAL INSPECTION CHECKLIST

## MANUFACTURED TREATMENT DEVICES - Baysaver BayFilter

VA CAMPUS:  Perry Point  Loch Raven

Page \_\_\_ of \_\_\_

BMP ID: \_\_\_\_\_

INSPECTOR: \_\_\_\_\_

TIME: \_\_\_\_\_ AM \_\_\_ PM \_\_\_

INSPECTION DATE: \_\_\_ / \_\_\_ / \_\_\_

WEATHER: \_\_\_\_\_

**Note to inspector:** This checklist is adopted from the site plans (Drawing Number: CS-203) associated with the VA Loch CLC Addition (VA Project No. 512-541, MDE Project No. 10-SF-0012) (2012). The checklist is prepared to generally assist with the components to be inspected within the BayFilter facility **triennially**. Check "**Acceptable**" for items in good condition, "**Deficient**" for items in poor condition. If any of the inspection item is deficient, the overall facility should be assessed as "**Fail**". Any facility that has "**Failed**" an inspection **MUST** be re-inspected to maintain treatment credit for this facility. If a condition is corrected during re-inspection, check the "**Resolved**" box under the "STATUS" column. **Inspections for manufactured devices should be completed by persons qualified to enter confined spaces, that have the necessary equipment, and that have knowledge of the manufactured systems. If there are no VA personnel available or properly trained and equipped, a third party contractor should be engaged for inspection activities and any associated remedial actions.**

### Inspection Items (Continued)

2. Flow Conveyance (Inlets, Outlets, Piping) (Continued)	STATUS
<b>2.b. Debris, Biological Growth, and Trash</b> <b>Requirement:</b> Check for trash and debris accumulation in and around pipes. <span style="float: right;">Check</span> for trash and debris accumulation in bypass pipes and diversion manhole debris screen. <b>Remedial Actions:</b> <input type="checkbox"/> Remove and properly dispose of trash <input type="checkbox"/> Power wash flow conveyances to remove debris. <input type="checkbox"/> Other (Describe Remedial Action):	<input type="checkbox"/> Acceptable <input type="checkbox"/> Deficient <input type="checkbox"/> N/A <input type="checkbox"/> Resolved
<b>2.c. Sediment Accumulation / Blockage</b> <b>Requirement:</b> Check for sediment accumulation in flow conveyances (including bypass pipes and diversion manhole) contributing to reduced flow rate. <b>Remedial Actions:</b> <input type="checkbox"/> Use a vacuum truck to remove sediment accumulation. <input type="checkbox"/> Other (Describe Remedial Action):	<input type="checkbox"/> Acceptable <input type="checkbox"/> Deficient <input type="checkbox"/> N/A <input type="checkbox"/> Resolved

3. Vault	STATUS
<b>3.a. Structural Conditions</b> <b>Requirement:</b> Check for cracks wider than 0.5 inch in vault concrete structure. <b>Remedial Actions:</b> <input type="checkbox"/> Repair cracks to be no larger than 0.25 inch width. <input type="checkbox"/> Other (Describe Remedial Action):	<input type="checkbox"/> Acceptable <input type="checkbox"/> Deficient <input type="checkbox"/> N/A <input type="checkbox"/> Resolved

Continue on next page!

# BMP TRIENNIAL INSPECTION CHECKLIST

## MANUFACTURED TREATMENT DEVICES - Baysaver BayFilter

VA CAMPUS:  Perry Point  Loch Raven

Page \_\_\_ of \_\_\_

BMP ID: \_\_\_\_\_

INSPECTOR: \_\_\_\_\_

TIME: \_\_\_\_\_ AM \_\_\_ PM \_\_\_

INSPECTION DATE: \_\_\_ / \_\_\_ / \_\_\_

WEATHER: \_\_\_\_\_

**Note to inspector:** This checklist is adopted from the site plans (Drawing Number: CS-203) associated with the VA Loch CLC Addition (VA Project No. 512-541, MDE Project No. 10-SF-0012) (2012). The checklist is prepared to generally assist with the components to be inspected within the BayFilter facility **triennially**. Check "**Acceptable**" for items in good condition, "**Deficient**" for items in poor condition. If any of the inspection item is deficient, the overall facility should be assessed as "**Fail**". Any facility that has "**Failed**" an inspection **MUST** be re-inspected to maintain treatment credit for this facility. If a condition is corrected during re-inspection, check the "**Resolved**" box under the "STATUS" column. **Inspections for manufactured devices should be completed by persons qualified to enter confined spaces, that have the necessary equipment, and that have knowledge of the manufactured systems. If there are no VA personnel available or properly trained and equipped, a third party contractor should be engaged for inspection activities and any associated remedial actions.**

### Inspection Items (Continued)

3. Vault (Continued)	STATUS
<b>3.b. Debris, Biological Growth, and Trash</b> <b>Requirement:</b> Check for trash and debris on the floor of the vault. <b>Remedial Actions:</b> <input type="checkbox"/> Remove and properly dispose of trash and debris. <input type="checkbox"/> Other (Describe Remedial Action):	<input type="checkbox"/> Acceptable <input type="checkbox"/> Deficient <input type="checkbox"/> N/A <input type="checkbox"/> Resolved
<b>3.c. Sediment Accumulation / Blockage</b> <b>Requirement:</b> Check for sediment accumulation in vault exceeding height of manifold piping. <b>Remedial Actions:</b> <input type="checkbox"/> Use a vacuum truck to remove sediment accumulation. <input type="checkbox"/> Other (Describe Remedial Action):	<input type="checkbox"/> Acceptable <input type="checkbox"/> Deficient <input type="checkbox"/> N/A <input type="checkbox"/> Resolved
<b>3.d. Hazardous Materials</b> <b>Requirement:</b> Check for any hazardous materials that have entered the system like automotive oil or grease. <b>Remedial Actions:</b> <input type="checkbox"/> Clean hazardous waste out of vault and attached flow conveyances. <input type="checkbox"/> Identify and remove source to prevent further leaks and spills into BMP. <input type="checkbox"/> Other (Describe Remedial Action):	<input type="checkbox"/> Acceptable <input type="checkbox"/> Deficient <input type="checkbox"/> N/A <input type="checkbox"/> Resolved
<b>3.e. Cartridges</b> <b>Requirement:</b> Check cartridges for cracking, structural damage, blockage, or reduced effluent flow rates. <b>Remedial Actions:</b> <input type="checkbox"/> Replace cartridges. See Cartridge Replacement Guidance sheet. <input type="checkbox"/> Other (Describe Remedial Action):	<input type="checkbox"/> Acceptable <input type="checkbox"/> Deficient <input type="checkbox"/> N/A <input type="checkbox"/> Resolved

End of checklist items.

### Comments/Observations:

# BMP TRIENNIAL INSPECTION CHECKLIST

## MANUFACTURED TREATMENT DEVICES - Contech StormFilter

VA CAMPUS:  Perry Point  Loch Raven

Page \_\_\_ of \_\_\_

BMP ID: \_\_\_\_\_

INSPECTOR: \_\_\_\_\_

TIME: \_\_\_\_\_ AM \_\_\_ PM \_\_\_

INSPECTION DATE: \_\_\_ / \_\_\_ / \_\_\_

WEATHER: \_\_\_\_\_

APPROVED MDE PLANS ON RECORD:  YES  NO

MDE PLAN #: \_\_\_\_\_

MAINTENANCE LOG ON RECORD:  YES  NO

INSPECTION RESULTS:

SCHEDULED RE-INSPECTION:  YES  N/A \_\_\_ / \_\_\_ / \_\_\_

PASS  FAIL

REMEDIAL ACTION DUE BY: \_\_\_ / \_\_\_ / \_\_\_

RE-INSPECTION RESULT:

ATTACHMENTS:  NONE  PHOTOS  SKETCHES

PASS  FAIL

**Note to inspector:** This checklist is adopted from the site plans (sheet C-10) associated with the VA Loch Raven Parking Lot Expansion (VA Project No. 512-522, MDE Project No. 09-SF-0459) (2009). The checklist is prepared to generally assist with the components to be inspected within the BayFilter facility **triennially**. Check "**Acceptable**" for items in good condition, "**Deficient**" for items in poor condition. If any of the inspection item is deficient, the overall facility should be assessed as "**Fail**". Any facility that has "**Failed**" an inspection **MUST** be re-inspected to maintain treatment credit for this facility. If a condition is corrected during re-inspection, check the "**Resolved**" box under the "STATUS" column. **Inspections for manufactured devices should be completed by persons qualified to enter confined spaces, that have the necessary equipment, and that have knowledge of the manufactured systems. If there are no VA personnel available or properly trained and equipped, a third party contractor should be engaged for inspection activities and any associated remedial actions.**

### Inspection Items

1. General	STATUS
<b>1.a. Maintenance Access</b> <b>Requirement:</b> Check for accessibility to facility. <b>Remedial Actions:</b> <ul style="list-style-type: none"> <li><input type="checkbox"/> Repair or replace corroded manhole covers.</li> <li><input type="checkbox"/> Repair or replace damaged access ladder.</li> <li><input type="checkbox"/> Repair or replace broken clean outs or grates.</li> <li><input type="checkbox"/> Remove debris around access points.</li> <li><input type="checkbox"/> Other (Describe Remedial Action):</li> </ul>	<input type="checkbox"/> Acceptable <input type="checkbox"/> Deficient <input type="checkbox"/> N/A <input type="checkbox"/> Resolved

2. Flow Conveyance (Inlets, Outlets, Piping)	STATUS
<b>2.a. Structural Conditions</b> <b>Requirement:</b> Check for crushed or damaged pipes due to corrosion or settlement. <b>Remedial Actions:</b> <ul style="list-style-type: none"> <li><input type="checkbox"/> Repair or replace inlet/outlet pipes.</li> <li><input type="checkbox"/> Repair or replace outlet manifold piping.</li> <li><input type="checkbox"/> Other (Describe Remedial Action):</li> </ul>	<input type="checkbox"/> Acceptable <input type="checkbox"/> Deficient <input type="checkbox"/> N/A <input type="checkbox"/> Resolved

Continue on next page!

# BMP TRIENNIAL INSPECTION CHECKLIST

## MANUFACTURED TREATMENT DEVICES - Contech StormFilter

VA CAMPUS:  Perry Point  Loch Raven

Page \_\_\_ of \_\_\_

BMP ID: \_\_\_\_\_

INSPECTOR: \_\_\_\_\_

TIME: \_\_\_\_\_ AM \_\_\_ PM \_\_\_

INSPECTION DATE: \_\_\_ / \_\_\_ / \_\_\_

WEATHER: \_\_\_\_\_

**Note to inspector:** This checklist is adopted from the site plans (sheet C-10) associated with the VA Loch Raven Parking Lot Expansion (VA Project No. 512-522, MDE Project No. 09-SF-0459) (2009). The checklist is prepared to generally assist with the components to be inspected within the BayFilter facility **triennially**. Check "**Acceptable**" for items in good condition, "**Deficient**" for items in poor condition. If any of the inspection item is deficient, the overall facility should be assessed as "**Fail**". Any facility that has "**Failed**" an inspection **MUST** be re-inspected to maintain treatment credit for this facility. If a condition is corrected during re-inspection, check the "**Resolved**" box under the "STATUS" column. **Inspections for manufactured devices should be completed by persons qualified to enter confined spaces, that have the necessary equipment, and that have knowledge of the manufactured systems. If there are no VA personnel available or properly trained and equipped, a third party contractor should be engaged for inspection activities and any associated remedial actions.**

### Inspection Items (Continued)

2. Flow Conveyance (Inlets, Outlets, Piping) (Continued)	STATUS
<b>2.b. Debris, Biological Growth, and Trash</b> <b>Requirement:</b> Check for trash and debris accumulation in and around pipes. <span style="float: right;">Check</span> for trash and debris accumulation in bypass pipes and diversion manhole debris screen. <b>Remedial Actions:</b> <input type="checkbox"/> Remove and properly dispose of trash <input type="checkbox"/> Power wash flow conveyances to remove debris. <input type="checkbox"/> Other (Describe Remedial Action):	<input type="checkbox"/> Acceptable <input type="checkbox"/> Deficient <input type="checkbox"/> N/A <input type="checkbox"/> Resolved
<b>2.c. Sediment Accumulation / Blockage</b> <b>Requirement:</b> Check for sediment accumulation in flow conveyances (including bypass pipes and diversion manhole) contributing to reduced flow rate. <b>Remedial Actions:</b> <input type="checkbox"/> Use a vacuum truck to remove sediment accumulation. <input type="checkbox"/> Other (Describe Remedial Action):	<input type="checkbox"/> Acceptable <input type="checkbox"/> Deficient <input type="checkbox"/> N/A <input type="checkbox"/> Resolved

3. Detention and StormFilter/Water Quality Vaults	STATUS
<b>3.a. Structural Conditions</b> <b>Requirement:</b> Check for cracks wider than 0.5 inch in vault concrete structure. <b>Remedial Actions:</b> <input type="checkbox"/> Repair cracks to be no larger than 0.25 inch width. <input type="checkbox"/> Other (Describe Remedial Action):	<input type="checkbox"/> Acceptable <input type="checkbox"/> Deficient <input type="checkbox"/> N/A <input type="checkbox"/> Resolved

Continue on next page!

# BMP TRIENNIAL INSPECTION CHECKLIST

## MANUFACTURED TREATMENT DEVICES - Contech StormFilter

VA CAMPUS:  Perry Point  Loch Raven

Page \_\_\_ of \_\_\_

BMP ID: \_\_\_\_\_

INSPECTOR: \_\_\_\_\_

TIME: \_\_\_\_\_ AM \_\_\_ PM \_\_\_

INSPECTION DATE: \_\_\_ / \_\_\_ / \_\_\_

WEATHER: \_\_\_\_\_

**Note to inspector:** This checklist is adopted from the site plans (sheet C-10) associated with the VA Loch Raven Parking Lot Expansion (VA Project No. 512-522, MDE Project No. 09-SF-0459) (2009). The checklist is prepared to generally assist with the components to be inspected within the BayFilter facility **triennially**. Check "**Acceptable**" for items in good condition, "**Deficient**" for items in poor condition. If any of the inspection item is deficient, the overall facility should be assessed as "**Fail**". Any facility that has "**Failed**" an inspection **MUST** be re-inspected to maintain treatment credit for this facility. If a condition is corrected during re-inspection, check the "**Resolved**" box under the "STATUS" column. **Inspections for manufactured devices should be completed by persons qualified to enter confined spaces, that have the necessary equipment, and that have knowledge of the manufactured systems. If there are no VA personnel available or properly trained and equipped, a third party contractor should be engaged for inspection activities and any associated remedial actions.**

### Inspection Items (Continued)

3. Detention and StormFilter/Water Quality Vaults (Continued)	STATUS
<b>3.b. Debris, Biological Growth, and Trash</b> <b>Requirement:</b> Check for trash and debris on the floor of the vault. <b>Remedial Actions:</b> <input type="checkbox"/> Remove and properly dispose of trash and debris. <input type="checkbox"/> Other (Describe Remedial Action):	<input type="checkbox"/> Acceptable <input type="checkbox"/> Deficient <input type="checkbox"/> N/A <input type="checkbox"/> Resolved
<b>3.c. Sediment Accumulation / Blockage</b> <b>Requirement:</b> Check for sediment accumulation in both vaults. Check for sediment accumulation in the 2" inch orifice in stormwater management detention vault. Check for a sediment accumulation in the stone media in dewatering device in the stormwater management detention vault. <b>Remedial Actions:</b> <input type="checkbox"/> Use a vactor truck to remove sediment accumulation. <input type="checkbox"/> Replace stone media in dewatering device. <input type="checkbox"/> Other (Describe Remedial Action):	<input type="checkbox"/> Acceptable <input type="checkbox"/> Deficient <input type="checkbox"/> N/A <input type="checkbox"/> Resolved
<b>3.d. Hazardous Materials</b> <b>Requirement:</b> Check for any hazardous materials that have entered the system like automotive oil or grease. <b>Remedial Actions:</b> <input type="checkbox"/> Clean hazardous waste out of vault and attached flow conveyances. <input type="checkbox"/> Identify and remove source to prevent further leaks and spills into BMP. <input type="checkbox"/> Other (Describe Remedial Action):	<input type="checkbox"/> Acceptable <input type="checkbox"/> Deficient <input type="checkbox"/> N/A <input type="checkbox"/> Resolved
<b>3.e. Cartridges</b> <b>Requirement:</b> Check cartridges for cracking, structural damage, blockage, or reduced effluent flow rates. <b>Remedial Actions:</b> <input type="checkbox"/> Replace cartridges. See Cartridge Replacement Guidance sheet. <input type="checkbox"/> Other (Describe Remedial Action):	<input type="checkbox"/> Acceptable <input type="checkbox"/> Deficient <input type="checkbox"/> N/A <input type="checkbox"/> Resolved

End of checklist items.

**BMP TRIENNIAL INSPECTION  
ADDITIONAL COMMENTS ATTACHMENT FORM**

VA CAMPUS:  Perry Point  Loch Raven

Page \_\_\_ of \_\_\_

BMP ID: \_\_\_\_\_

INSPECTOR: \_\_\_\_\_

TIME: \_\_\_\_\_ AM \_\_\_ PM \_\_\_

INSPECTION DATE: \_\_\_ / \_\_\_ / \_\_\_

WEATHER: \_\_\_\_\_

**Comments / Observations:**



**BMP TRIENNIAL INSPECTION  
ADDITIONAL COMMENTS ATTACHMENT FORM**

VA CAMPUS:  Perry Point  Loch Raven

Page \_\_\_ of \_\_\_

BMP ID: \_\_\_\_\_

INSPECTOR: \_\_\_\_\_

TIME: \_\_\_\_\_ AM \_\_\_ PM \_\_\_

INSPECTION DATE: \_\_\_ / \_\_\_ / \_\_\_

WEATHER: \_\_\_\_\_

**Comments / Observations:**



Other Practices – Recharge Area  
Maintenance and Inspection Records

Department of Veterans Affairs  
Maryland Health Care System  
Loch Raven Medical Center

JULY 2020

Other Practices – Recharge Area  
Maintenance Records

Department of Veterans Affairs  
Maryland Health Care System  
Loch Raven Medical Center

JULY 2020

## BMP MAINTENANCE SCHEDULE OTHER PRACTICES

VA CAMPUS: Loch Raven

MAINTENANCE DIRECTOR: \_\_\_\_\_

PHONE NO. : \_\_\_\_\_

**Note:** This schedule is prepared to assist with summary of all maintenance records for the BMPs. The maintenance director is responsible for updating this record upon completion of each maintenance. The record is organized by month of the year and the type of inspection required for that month. Upon completion of each maintenance type, check the column for the respective maintenance. For maintenance performed after a major storm, report the month number in which the storm has occurred, month numbers can be repeated since multiple major storms can occur during the same month.

BMP-ID	BMP Type	BMP Location	Maintenance Type																							
			S = Seasonally												MS = After a Major Storm											
			-	S	-	-	S	-	-	S	-	-	S	-	MS	MS	MS									
1	2	3	4	5	6	7	8	9	10	11	12															
LR-XOTH-0001	Recharge Area	Community Living Center Courtyard	<input type="checkbox"/>																							
LR-MTD-____			<input type="checkbox"/>																							
LR-MTD-____			<input type="checkbox"/>																							
LR-MTD-____			<input type="checkbox"/>																							
LR-MTD-____			<input type="checkbox"/>																							
LR-MTD-____			<input type="checkbox"/>																							
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LR-MTD-____			<input type="checkbox"/>																							
LR-MTD-____			<input type="checkbox"/>																							
LR-MTD-____			<input type="checkbox"/>																							
LR-MTD-____			<input type="checkbox"/>																							

# SEASONAL & AFTER STORM - BMP MAINTENANCE CHECKLIST

## OTHER PRACTICES - RECHARGE AREA

VA CAMPUS:  Perry Point  Loch Raven

Page 1 of \_\_\_\_

BMP ID: \_\_\_\_\_

MAINTENANCE PERSONNEL: \_\_\_\_\_

TIME: \_\_\_\_\_ AM \_\_\_ PM \_\_\_

MAINTENANCE DATE: \_\_\_ / \_\_\_ / \_\_\_

WEATHER: \_\_\_\_\_

**Note to maintenance personnel:** This checklist is adopted from the guidance for infiltration basins in MDE's Technical Memorandum No. 9 (2018). The Recharge Area is not formally categorized as an infiltration basin, but is meant to allow infiltration of the BayFilter recharge volume (Rev) and may be designed similarly to an infiltration basin. The checklist is prepared to generally assist with the components to be checked and maintained within the Recharge Area **seasonally** or **after major storms**. Each component within and/or around the facility is listed along with the maintenance activity required. Check "Y" for Yes, "N" for No, and "N/A" for not applicable for each item that is addressed during this routine maintenance. If "N" is checked for a maintenance item, provide a brief reason in the comments section by citing the section number. If additional room is needed for comments use the blank "Additional Comments Attachment Form" provided at the end of this checklist; make additional copies as needed.

Maintenance Items	Completed
<b>I.1. Debris, Sediment, and Trash</b>	
I.1.a. Remove and properly dispose of accumulated trash and debris in outlet riser.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
I.1.b. Remove and properly dispose of accumulated trash, debris, and sediment in filter bed.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
I.1.c. Remove and properly dispose of accumulated trash and debris from connected grate inlets.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
I.1.d. Properly dispose of any wastes to prevent reintroduction into BMP.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
<b>I.2 Structural Integrity</b>	
I.2.a. Repair cracks in the riser structure.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
I.2.b. Repair or replace damaged access covers (grates or cleanouts).	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
<b>I.3 Hazardous Materials</b>	
I.3.a. Remove and properly dispose of any hazardous materials like automotive oil or grease that have entered the BMP. Identify and remove source to prevent further spills and leaks into BMP.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
<b>I.4 Other</b>	
I.4.a. Replace or redistribute filter media if any gravel or mulch has migrated due to heavy stormflow.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A

**Comments:**

**BMP MAINTENANCE**  
**ADDITIONAL COMMENTS ATTACHMENT FORM**

VA CAMPUS:  Perry Point  Loch Raven

Page \_\_\_ of \_\_\_

BMP ID: \_\_\_\_\_

INSPECTOR: \_\_\_\_\_

TIME: \_\_\_\_\_ AM \_\_\_ PM \_\_\_

INSPECTION DATE: \_\_\_ / \_\_\_ / \_\_\_

WEATHER: \_\_\_\_\_

**Comments / Observations:**



**BMP MAINTENANCE**  
**ADDITIONAL COMMENTS ATTACHMENT FORM**

VA CAMPUS:  Perry Point  Loch Raven

Page \_\_\_ of \_\_\_

BMP ID: \_\_\_\_\_

INSPECTOR: \_\_\_\_\_

TIME: \_\_\_\_\_ AM \_\_\_ PM \_\_\_

INSPECTION DATE: \_\_\_ / \_\_\_ / \_\_\_

WEATHER: \_\_\_\_\_

**Comments / Observations:**



Other Practices – Recharge Area  
Triennial Inspection Records

Department of Veterans Affairs  
Maryland Health Care System  
Loch Raven Medical Center

JULY 2020

## BMP TRIENNIAL INSPECTION SCHEDULE OTHER PRACTICES

VA CAMPUS: Perry Point

MAINTENANCE DIRECTOR: \_\_\_\_\_

PHONE NO. : \_\_\_\_\_

**Note:** This schedule is prepared to assist with summary of all triennial inspection records for the BMPs. The maintenance director is responsible for updating this record upon completion of each triennial inspection. Inspections shall be conducted once every 3 years. After each triennial inspection, record the inspection date and the BMP status. If a BMP is assessed as "failed", the facility should be reinspected. Record the re-inspection date and status upon completion of the re-inspection.

BMP-ID	BMP Type	BMP Location	Last Triennial Inspection (MM/DD/YY)	Re-Inspection (MM/DD/YY)	BMP Status			
					Triennial Inspection		Re-inspection	
					PASS	FAIL	PASS	FAIL
LR-XOTH-0001	Recharge Area	Community Living Center Courtyard	___/___/___	___/___/___	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
LR-MTD-___			___/___/___	___/___/___	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
LR-MTD-___			___/___/___	___/___/___	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
LR-MTD-___			___/___/___	___/___/___	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
LR-MTD-___			___/___/___	___/___/___	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
LR-MTD-___			___/___/___	___/___/___	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
LR-MTD-___			___/___/___	___/___/___	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
LR-MTD-___			___/___/___	___/___/___	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
LR-MTD-___			___/___/___	___/___/___	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
LR-MTD-___			___/___/___	___/___/___	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
LR-MTD-___			___/___/___	___/___/___	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
LR-MTD-___			___/___/___	___/___/___	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
LR-MTD-___			___/___/___	___/___/___	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
LR-MTD-___			___/___/___	___/___/___	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
LR-MTD-___			___/___/___	___/___/___	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
LR-MTD-___			___/___/___	___/___/___	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
LR-MTD-___			___/___/___	___/___/___	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
LR-MTD-___			___/___/___	___/___/___	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
LR-MTD-___			___/___/___	___/___/___	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

# BMP TRIENNIAL INSPECTION CHECKLIST

## OTHER PRACTICES - RECHARGE AREA

VA CAMPUS:  Perry Point  Loch Raven

Page \_\_\_ of \_\_\_

BMP ID: \_\_\_\_\_

INSPECTOR: \_\_\_\_\_

TIME: \_\_\_\_\_ AM \_\_\_ PM \_\_\_

INSPECTION DATE: \_\_\_ / \_\_\_ / \_\_\_

WEATHER: \_\_\_\_\_

APPROVED MDE PLANS ON RECORD:  YES  NO

MDE PLAN #: \_\_\_\_\_

MAINTENANCE LOG ON RECORD:  YES  NO

INSPECTION RESULTS:

SCHEDULED RE-INSPECTION:  YES  N/A \_\_\_ / \_\_\_ / \_\_\_

PASS  FAIL

REMEDIAL ACTION DUE BY: \_\_\_ / \_\_\_ / \_\_\_

RE-INSPECTION RESULT:

ATTACHMENTS:  NONE  PHOTOS  SKETCHES

PASS  FAIL

**Note to inspector:** This checklist is adopted from the guidance for infiltration basins in MDE's Technical Memorandum No. 9 (2018). The checklist is prepared to generally assist with the components to be inspected within the BayFilter facility **triennially**. Check "**Acceptable**" for items in good condition, "**Deficient**" for items in poor condition. If any of the inspection item is deficient, the overall facility should be assessed as "**Fail**". Any facility that has "**Failed**" an inspection **MUST** be re-inspected to maintain treatment credit for this facility. If a condition is corrected during re-inspection, check the "**Resolved**" box under the "STATUS" column. **Inspections for manufactured devices should be completed by persons qualified to enter confined spaces, that have the necessary equipment, and that have knowledge of the manufactured systems. If there are no VA personnel available or properly trained and equipped, a third party contractor should be engaged for inspection activities and any associated remedial actions.**

### Inspection Items

1. Flow Conveyances (Riser outlet and surrounding grate inlets)	STATUS
<b>1.a. Debris and Trash</b> <b>Requirement:</b> Check for debris and trash blocking outlet riser or grates. <b>Remedial Actions:</b> <input type="checkbox"/> Remove debris and trash blocking outlet riser or grates. <input type="checkbox"/> Dispose of removed material properly to prevent reintroduction into the BMP area. <input type="checkbox"/> Other (Describe Remedial Action):	<input type="checkbox"/> Acceptable <input type="checkbox"/> Deficient <input type="checkbox"/> N/A <input type="checkbox"/> Resolved
<b>1.b. Structural Conditions</b> <b>Requirement:</b> Check for cracks or damage to riser structure or grates. <b>Remedial Actions:</b> <input type="checkbox"/> Repair or replace riser or grate. <input type="checkbox"/> Other (Describe Remedial Action):	<input type="checkbox"/> Acceptable <input type="checkbox"/> Deficient <input type="checkbox"/> N/A <input type="checkbox"/> Resolved
2. Filter Bed	STATUS
<b>2.a. Debris and Trash</b> <b>Requirement:</b> Check for debris and trash in filter bed. <b>Remedial Actions:</b> <input type="checkbox"/> Remove debris and trash in filter bed. <input type="checkbox"/> Dispose of removed material properly to prevent reintroduction into the BMP area. <input type="checkbox"/> Other (Describe Remedial Action):	<input type="checkbox"/> Acceptable <input type="checkbox"/> Deficient <input type="checkbox"/> N/A <input type="checkbox"/> Resolved

Continue on next page!



# BMP TRIENNIAL INSPECTION CHECKLIST

## OTHER PRACTICES - RECHARGE AREA

VA CAMPUS:  Perry Point  Loch Raven

Page \_\_\_ of \_\_\_

BMP ID: \_\_\_\_\_

INSPECTOR: \_\_\_\_\_

TIME: \_\_\_\_\_ AM \_\_\_ PM \_\_\_

INSPECTION DATE: \_\_\_ / \_\_\_ / \_\_\_\_\_

WEATHER: \_\_\_\_\_

**Note to inspector:** This checklist is adopted from the guidance for infiltration basins in MDE's Technical Memorandum No. 9 (2018). The checklist is prepared to generally assist with the components to be inspected within the BayFilter facility **triennially**. Check "**Acceptable**" for items in good condition, "**Deficient**" for items in poor condition. If any of the inspection item is deficient, the overall facility should be assessed as "**Fail**". Any facility that has "**Failed**" an inspection **MUST** be re-inspected to maintain treatment credit for this facility. If a condition is corrected during re-inspection, check the "**Resolved**" box under the "STATUS" column. **Inspections for manufactured devices should be completed by persons qualified to enter confined spaces, that have the necessary equipment, and that have knowledge of the manufactured systems. If there are no VA personnel available or properly trained and equipped, a third party contractor should be engaged for inspection activities and any associated remedial actions.**

### Inspection Items (Continued)

2. Filter Bed (Continued)	STATUS
<b>2.b. Sediment Accumulation/Blockage</b> <b>Requirement:</b> Check for sediment accumulation in filter bed media. <b>Remedial Actions:</b> <input type="checkbox"/> Vacuum out excessive sediment or replace filter media. <input type="checkbox"/> Other (Describe Remedial Action):	<input type="checkbox"/> Acceptable <input type="checkbox"/> Deficient <input type="checkbox"/> N/A <input type="checkbox"/> Resolved
<b>2.c. Erosion</b> <b>Requirement:</b> Check for bare spots or evidence of flow cutting. <b>Remedial Actions:</b> <input type="checkbox"/> Replace or redistribute filter media to stabilize filter bed and cover bare spots. <input type="checkbox"/> Other (Describe Remedial Action):	<input type="checkbox"/> Acceptable <input type="checkbox"/> Deficient <input type="checkbox"/> N/A <input type="checkbox"/> Resolved
<b>2.d. Hazardous Materials</b> <b>Requirement:</b> Check for any hazardous materials that have entered the system like automotive oil and grease. <b>Remedial Actions:</b> <input type="checkbox"/> Remove contaminated media any hazardous materials that have entered the recharge area. <input type="checkbox"/> Identify and remove source to prevent further leaks and spills into BMP. <input type="checkbox"/> Other (Describe Remedial Action):	<input type="checkbox"/> Acceptable <input type="checkbox"/> Deficient <input type="checkbox"/> N/A <input type="checkbox"/> Resolved

End of checklist items.

### Comments/Observations:

**BMP TRIENNIAL INSPECTION  
ADDITIONAL COMMENTS ATTACHMENT FORM**

VA CAMPUS:  Perry Point  Loch Raven

Page \_\_\_ of \_\_\_

BMP ID: \_\_\_\_\_

INSPECTOR: \_\_\_\_\_

TIME: \_\_\_\_\_ AM \_\_\_ PM \_\_\_

INSPECTION DATE: \_\_\_ / \_\_\_ / \_\_\_

WEATHER: \_\_\_\_\_

**Comments / Observations:**



**BMP TRIENNIAL INSPECTION  
ADDITIONAL COMMENTS ATTACHMENT FORM**

VA CAMPUS:  Perry Point  Loch Raven

Page \_\_\_ of \_\_\_

BMP ID: \_\_\_\_\_

INSPECTOR: \_\_\_\_\_

TIME: \_\_\_\_\_ AM \_\_\_ PM \_\_\_

INSPECTION DATE: \_\_\_ / \_\_\_ / \_\_\_

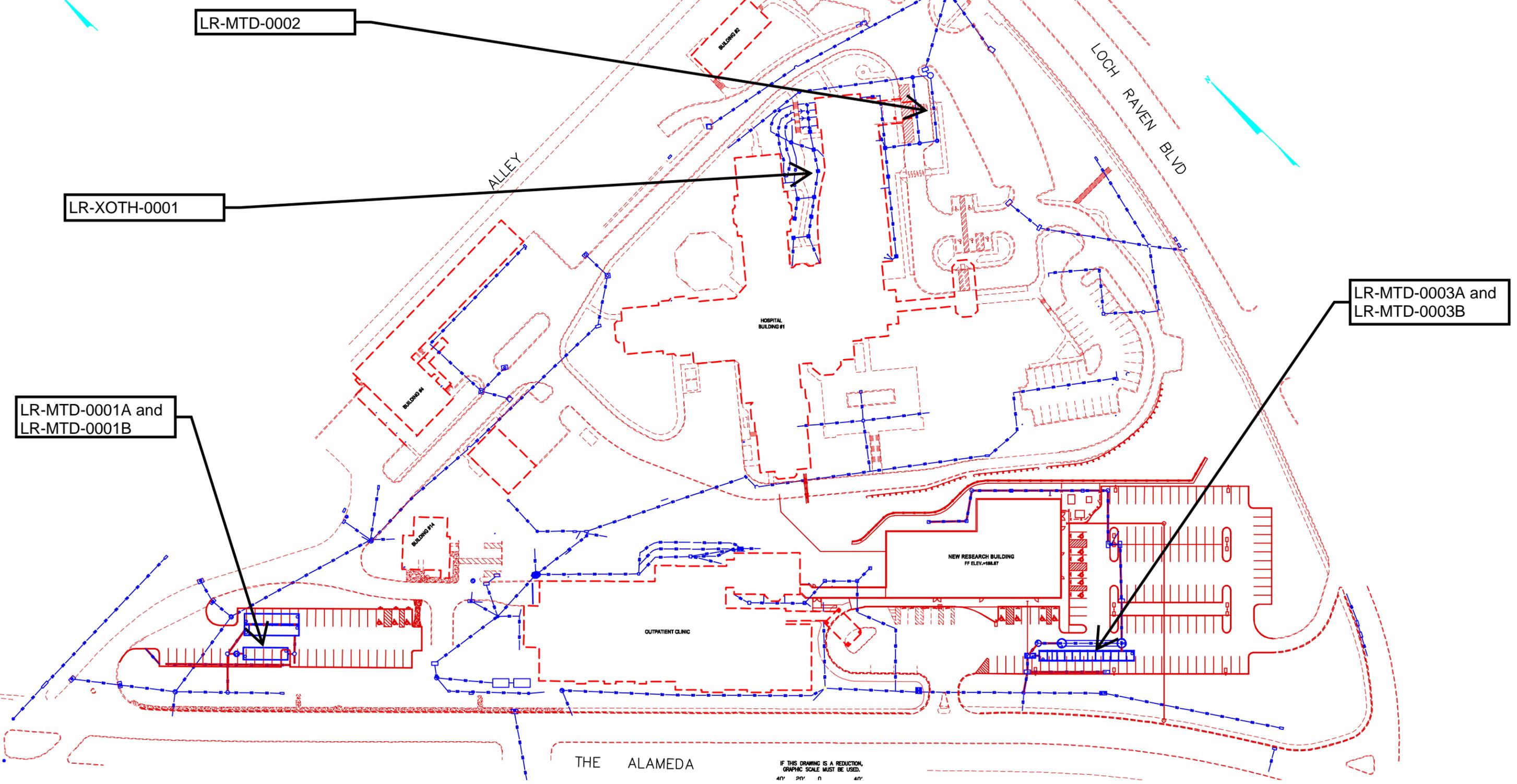
WEATHER: \_\_\_\_\_

**Comments / Observations:**



Loch Raven BMP Location Guide  
Plan View

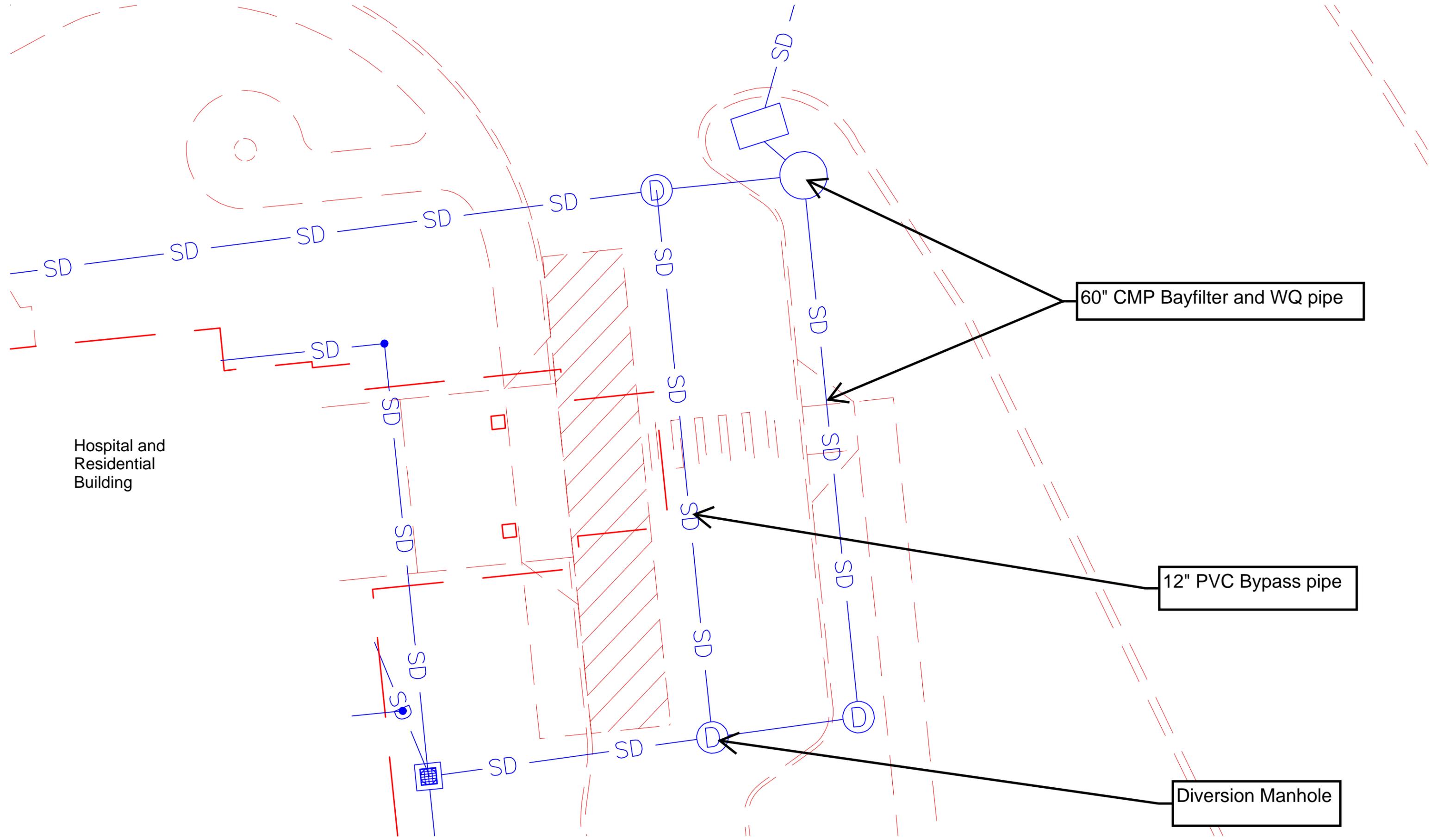
# Overall Site View



IF THIS DRAWING IS A REDUCTION,  
GRAPHIC SCALE MUST BE USED.  
4" = 20' 0 4"

LR-MTD-0002

Plan View and Details



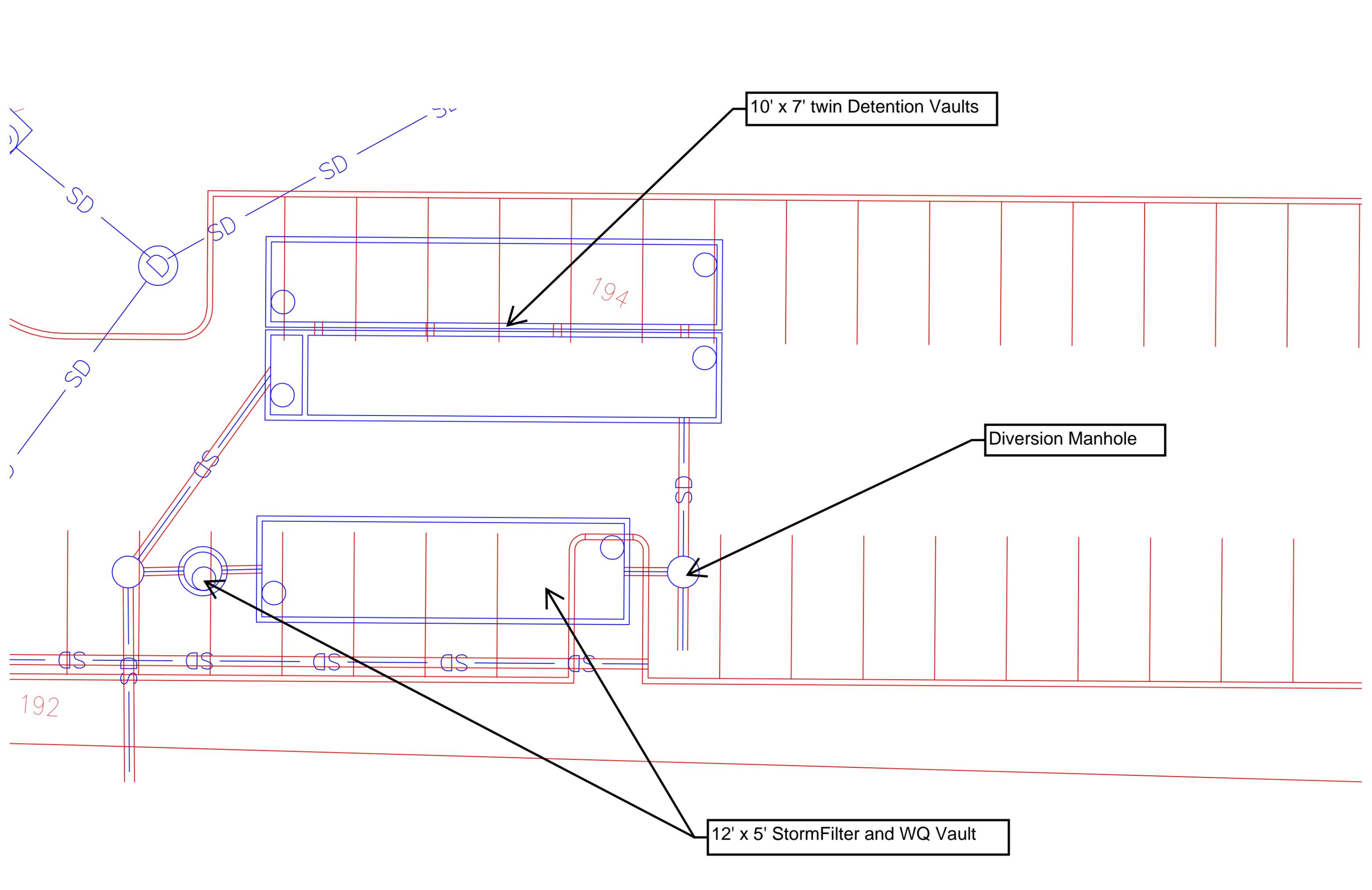
Hospital and Residential Building

60" CMP Bayfilter and WQ pipe

12" PVC Bypass pipe

Diversion Manhole

LR-MTD-0001A and  
LR-MTD-0001B  
Plan View and Details



10' x 7' twin Detention Vaults

Diversion Manhole

12' x 5' StormFilter and WQ Vault

194

192

SD

SD

SD

SD

SS

SS

SS

SS

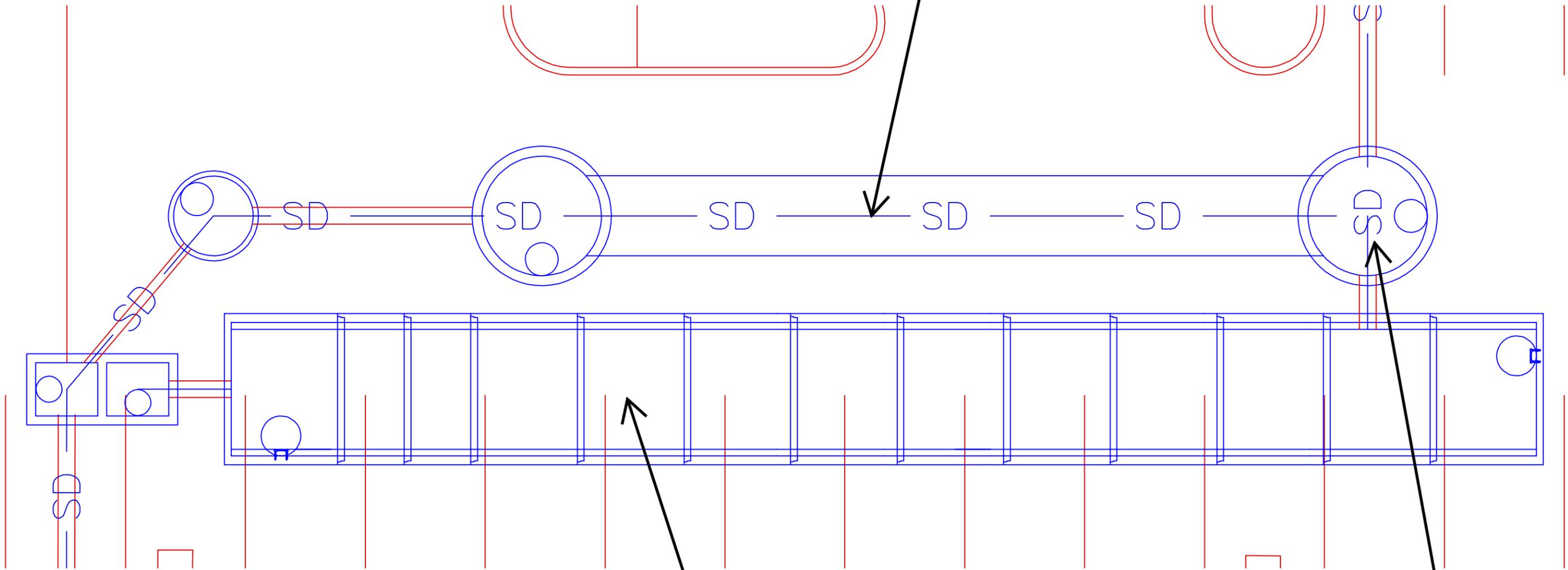
SS

SS

LR-MTD-0003A and  
LR-MTD-0003B

Plan View and Details

72" PVC StormFilter and WQ Pipe

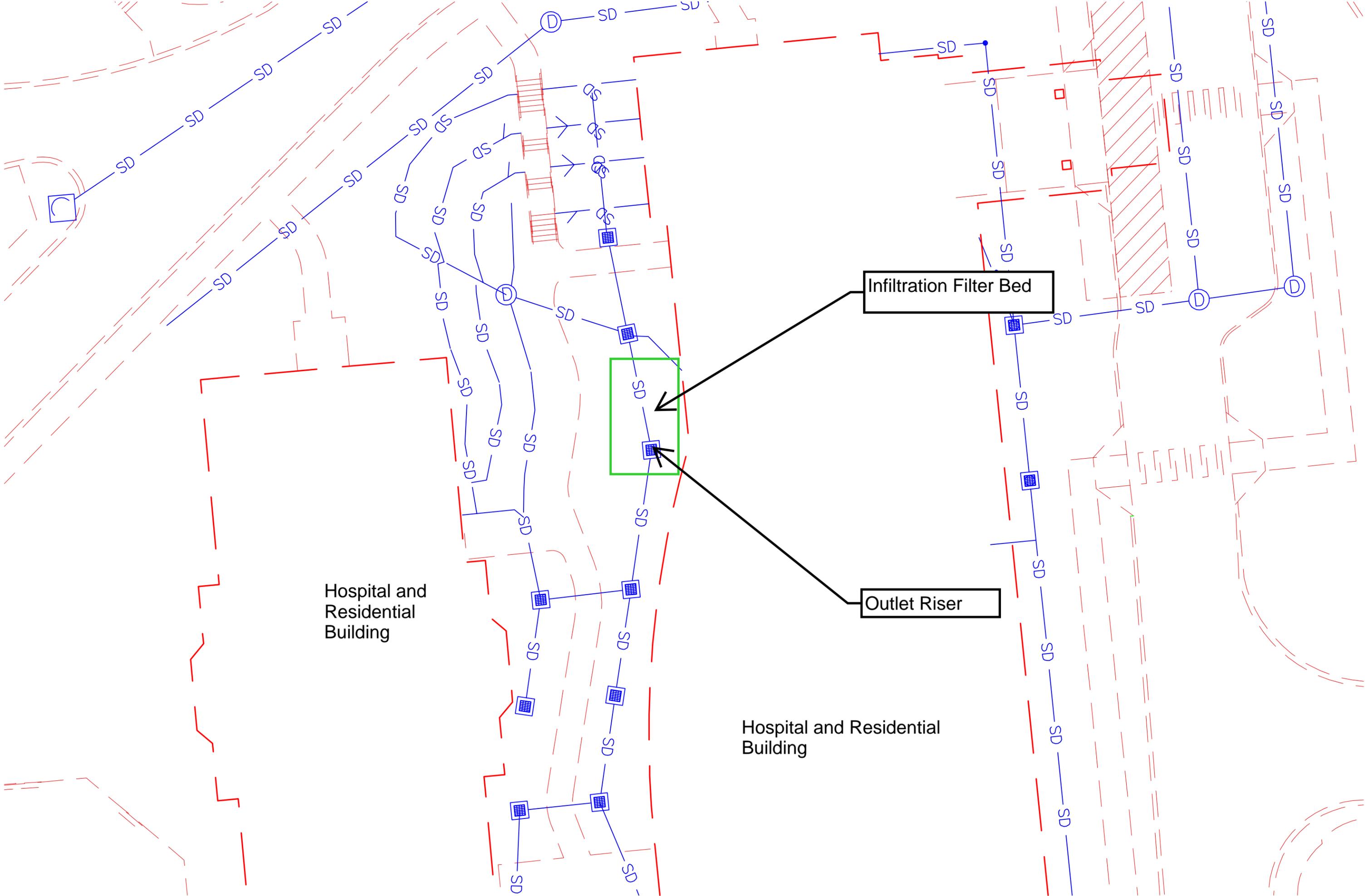


Diversion Manhole

8' by 10' box culvert Detention vault

LR-XOTH-0001

Plan View and Details

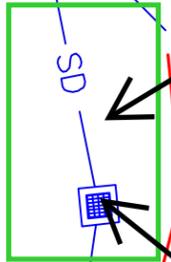


Hospital and Residential Building

Hospital and Residential Building

Infiltration Filter Bed

Outlet Riser



# Best Management Practices (BMP) Maintenance and Inspection Records for

## Department of Veterans Affairs Maryland Health Care System Perry Point Medical Center

In Accordance with National Pollutant Discharge Elimination System (NPDES)

General Permit for Discharges from State and Federal Small Municipal  
Separate Storm Sewer Systems

General Discharge Permit No. 13-SF-5501

General NPDES No. MDR05501

Prepared for:

Department of Veteran Affairs Maryland Health Care System  
101 Boilerhouse Road, Room 40 (Perry Point VAMC), Perry Point, MD 21902  
Phone: 410-537-3543

**VA**



U.S. Department  
of Veterans Affairs

Prepared by:

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Germantown, MD 20876  
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**Gordon**

**AECOM**

**JULY 2020**

Micro-bioretentation  
Maintenance and Inspection Records

Department of Veterans Affairs  
Maryland Health Care System  
Perry Point Medical Center

JULY 2020

Micro-bioretenion  
Maintenance Records

Department of Veterans Affairs  
Maryland Health Care System  
Perry Point Medical Center

JULY 2020

## BMP MAINTENANCE SCHEDULE (VA) MICRO-BIORETENTION

VA CAMPUS: Perry Point

MAINTENANCE DIRECTOR: \_\_\_\_\_

PHONE NO. : \_\_\_\_\_

**Note:** This schedule is prepared to assist with summary of all maintenance records for the BMPs. The maintenance director is responsible for updating this record upon completion of each maintenance. The record is organized by month of the year and the type of inspection required for that month. Upon completion of each maintenance type check the column for the respective maintenance. For maintenances performed after a major storm, report the month number in which the storm has occurred. Month numbers could be repeated since multiple major storms can occur during the same month.

BMP-ID	BMP Location	Maintenance Type																						
		M = Monthly			S = Seasonal				A = Annual			MS = After a Major Storm												
		M	M	S	M	M	A	M	M	S	M	M	S	MS										
		1	2	3	4	5	6	7	8	9	10	11	12											
PP-BIO-001	Building 11	<input type="checkbox"/>																						
PP-BIO-002	Southeast - Fifth Street & Avenue G	<input type="checkbox"/>																						
PP-BIO-015	Building 364 - East of Parking Lot	<input type="checkbox"/>																						
PP-BIO-016	Building 364 - South of Parking Lot	<input type="checkbox"/>																						
PP-BIO-017	Building 360	<input type="checkbox"/>																						
PP-BIO-018	Building 360	<input type="checkbox"/>																						
PP-BIO-019	Building 360	<input type="checkbox"/>																						
PP-BIO-020	Water Tank	<input type="checkbox"/>																						
		<input type="checkbox"/>																						
		<input type="checkbox"/>																						
		<input type="checkbox"/>																						
		<input type="checkbox"/>																						
		<input type="checkbox"/>																						
		<input type="checkbox"/>																						
		<input type="checkbox"/>																						

## BMP MAINTENANCE SCHEDULE (EUL) MICRO-BIORETENTION

VA CAMPUS: Perry Point

MAINTENANCE DIRECTOR: \_\_\_\_\_

PHONE NO. : \_\_\_\_\_

**Note:** This schedule is prepared to assist with summary of all maintenance records for the BMPs. The maintenance director is responsible for updating this record upon completion of each maintenance. The record is organized by month of the year and the type of inspection required for that month. Upon completion of each maintenance type check the column for the respective maintenance. For maintenances performed after a major storm, report the month number in which the storm has occurred. Month numbers could be repeated since multiple major storms can occur during the same month.

BMP-ID	BMP Location	Maintenance Type																					
		M = Monthly			S = Seasonal				A = Annual					MS = After a Major Storm									
		M	M	S	M	M	A	M	M	S	M	M	S	MS	MS								
		1	2	3	4	5	6	7	8	9	10	11	12										
PP-BIO-003	Village - South of Second Street	<input type="checkbox"/>																					
PP-BIO-004	Village - North of Fourth Street	<input type="checkbox"/>																					
PP-BIO-005	Village - North of Fourth Street	<input type="checkbox"/>																					
PP-BIO-006	Village - North of Fourth Street	<input type="checkbox"/>																					
PP-BIO-007	Village - Fourth Street & Avenue C	<input type="checkbox"/>																					
PP-BIO-008	Village - Fourth Street & Avenue B	<input type="checkbox"/>																					
PP-BIO-009	Village - East of Avenue B	<input type="checkbox"/>																					
PP-BIO-010	Village - West of Avenue B	<input type="checkbox"/>																					
PP-BIO-011	Village - West of Avenue B	<input type="checkbox"/>																					
PP-BIO-012	Village - East of Avenue A	<input type="checkbox"/>																					
PP-BIO-013	Village - East of Avenue A	<input type="checkbox"/>																					
PP-BIO-014	Village - East of Avenue A	<input type="checkbox"/>																					
		<input type="checkbox"/>																					
		<input type="checkbox"/>																					
		<input type="checkbox"/>																					
		<input type="checkbox"/>																					

# MONTHLY - BMP MAINTENANCE CHECKLIST

## MICRO-BIORETENTION

VA CAMPUS:  Perry Point  Loch Raven

Page 1 of \_\_\_

BMP ID: \_\_\_\_\_

MAINTENANCE PERSONNEL: \_\_\_\_\_

TIME: \_\_\_\_\_ AM \_\_\_ PM\_\_\_

MAINTENANCE DATE: \_\_\_ / \_\_\_ / \_\_\_

WEATHER: \_\_\_\_\_

**Note to maintenance personnel:** This checklist is adopted from MDE Technical Memorandum No. 9 (June 2019). The checklist is prepared to generally assist with the items to be checked and maintained within the BMP facility monthly. Each component within and/or around the facility is listed along with the maintenance activity required. Check "Y" for Yes, "N" for No, and "N/A" for not applicable for each item that is addressed during this routine maintenance. If "N" is checked for a maintenance item, provide a brief reason in the comments section by citing the section number. If additional room is needed for comments use the blank "Additional Comments Attachment Form" provided at the end of this checklist; make additional copies as needed.

Maintenance Items	Completed
<b>I.1. Debris and Trash</b>	
I.1.a. Remove and properly dispose all trash and debris clogging inlets and outlets.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
I.1.b. Remove and properly dispose all trash and debris within the facility.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
I.1.c. Remove and properly dispose all trash and debris in the immediate vicinity of the facility.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
<b>I.2. Plant Composition and Health</b>	
I.2.a. Remove invasive species and weeds within the facility.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
I.2.b. Remove dead or dying vegetation and re-plant / re-seed in conformance with approved plans.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
<b>I.3. Vegetative Cover</b>	
I.3.a. Check for channelizing, erosion, or bare spots and replant / re-seed as needed.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
I.3.b. Remove excessive vegetation growth blocking inlets, weirs, outlet, and other flow passages.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
I.3.c. Mow side slopes to 4 to 6 inches in height when grass exceeds 12 inches in height. <b><u>Do Not Mow the Clippings into the Facility!</u></b>	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
<b>I.4. Mulch Layer</b>	
I.4.a. Check for adequate mulch cover (typically 3 to 4 inches of cover). Place mulch covering bare spots.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
I.4.b. Check for sediment on mulch layer. Remove sediment and replace mulch in kind and quantity as needed.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
I.4.c. Check for mulch discoloration. Remove and replace old mulch in kind and quantity. Provide 3 to 4 inches of mulch cover.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A

**Comments:**

# SEASONAL & AFTER MAJOR STORM - BMP MAINTENANCE CHECKLIST

## MICRO-BIORETENTION

VA CAMPUS:  Perry Point  Loch Raven

Page 1 of \_\_\_\_

BMP ID: \_\_\_\_\_

MAINTENANCE PERSONNEL: \_\_\_\_\_

TIME: \_\_\_\_\_ AM \_\_\_ PM \_\_\_

MAINTENANCE DATE: \_\_\_ / \_\_\_ / \_\_\_

WEATHER: \_\_\_\_\_

**Note to maintenance personnel:** This checklist is adopted from MDE Technical Memorandum No. 9 (June 2019). The checklist is prepared to generally assist with the items to be checked and maintained within the BMP facility after a major storm and every change of season. Each component within and/or around the facility is listed along with the maintenance activity required. Check "Y" for Yes, "N" for No, and "N/A" for not applicable for each item that is addressed during this routine maintenance. If "N" is checked for a maintenance item, provide a brief reason in the comments section by citing the section number. If additional room is needed for comments use the blank "Additional Comments Attachment Form" provided at the end of this checklist; make additional copies as needed.

Maintenance Items	Completed
<b>II.1. Dewatering</b>	
II.1.a. Check for standing water within the facility 48 hours after storm; Report standing water in comments; Perform follow up visits to confirm dewatering.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
II.1.b. Remove and replace top few inches of filter media in kind and quantity if noticeable odor is present. Report any noticeable odors in comments.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
II.1.c. Remove and replace top few inches of filter media in kind and quantity if visible water or stained water line is present; Report stained components in comments.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
II.1.d. Check for algae and other aquatic vegetation; remove aquatic vegetation and replace top few inches of media in kind and quantity.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
<b>II.2. Erosion</b>	
II.2.a. Stabilize around inlets and outlets if rills, gullies, and bare spots are present.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
II.2.b. Re-grade, vegetate, and/or armor runoff channelization, rills and gullies within filter bed areas.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
II.2.c. Re-plant, re-seed, re-grade, and/or armor side slopes if bare spots are present.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
<b>II.3. Sediment Accumulation (Filter bed and Flow conveyance)</b>	
II.3.a. Remove sediments from filter bed and clogged openings.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
II.3.b. Check for sediment blocking flow of water within system; remove any obstructions due to sediment accumulation.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
II.3.c. Check for sediment on gravel diaphragm and forebay. Remove sediment from diaphragm. Remove sediment from forebay if depth of sediment is half the depth of forebay.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
<b>II.4. Blockage (Inlet/Riser and Pipes/Underdrains)</b>	
II.4.a. Remove and properly dispose any debris and filter media blocking flow of water.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
II.4.b. Remove and properly dispose debris blocking flow to the inlets upstream of facility.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
II.4.c. Remove and properly dispose debris blocking flow leaving the facility. Check risers, weirs, pipe openings.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
II.4.d. Check observation well and report observed water level in comments. Measure from top of pipe to water surface and record measurement.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A

**Comments:**

# ANNUAL - BMP MAINTENANCE CHECKLIST

## MICRO-BIORETENTION

VA CAMPUS:  Perry Point  Loch Raven

Page 1 of \_\_\_\_

BMP ID: \_\_\_\_\_

MAINTENANCE PERSONNEL: \_\_\_\_\_

TIME: \_\_\_\_\_ AM \_\_\_ PM \_\_\_

MAINTENANCE DATE: \_\_\_ / \_\_\_ / \_\_\_\_

WEATHER: \_\_\_\_\_

**Note to maintenance personnel:** This checklist is adopted from MDE Technical Memorandum No. 9 (June 2019). The checklist is prepared to generally assist with the items to be checked and maintained within the BMP facility annually. Each component within and/or around the facility is listed along with the maintenance activity required. Check "Y" for Yes, "N" for No, and "N/A" for not applicable for each item that is addressed during this routine maintenance. If "N" is checked for a maintenance item, provide a brief reason in the comments section by citing the section number. If additional room is needed for comments use the blank "Additional Comments Attachment Form" provided at the end of this checklist; make additional copies as needed.

Maintenance Items	Completed
<b>III.1. Overall Facility Function</b>	
III.1.a. Check for standing water within the facility; Report standing water. Perform follow up inspection to confirm dewatering after 48 hours; Report standing water.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
III.1.b. Check observation well and report observed water level in comments. Measure from top of pipe to water surface and record measurement.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
III.1.c. Check inlet/outlet, cleanout pipes, and other structures within facility for cracks, spalling, breakage and misalignments. Report conditions and any notable observations.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
<b>III.2. Overall Mulch and Vegetation Condition</b>	
III.2.a. Remove invasive species and weeds within the facility.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
III.2.b. Remove dead or dying vegetation and re-plant/re-seed in conformance with approved plans.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
III.2.c. Compare planting in facility with approved plans for missing or dead vegetation, and replace or re-plant in kind and quantity.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
III.2.d. Mow side slopes to 4 to 6 inches in height when grass exceeds 12 inches in height. <b><u>Do Not Mow the Clippings into the Facility!</u></b>	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
III.2.e. Remove and replace mulch layer if discolored or missing adequate mulch cover.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
<b>III.3. Debris, Trash and Sediments</b>	
III.3.a. Remove and properly dispose all trash and debris clogging inlets and outlets.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
III.3.b. Remove and properly dispose all trash and debris within the facility.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
III.3.c. Remove and properly dispose all trash and debris in the immediate vicinity of the facility.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
III.3.d. Check for sediment blocking flow of water within system; remove any obstructions due to sediment accumulation > 1 inch in depth.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
<b>III.4. Erosion</b>	
III.4.a. Stabilize around inlets and outlets if rills, gullies, and bare spots are present.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
III.4.b. Re-grade, vegetate, and/or armor runoff channelization, rills and gullies within filter bed areas.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
III.4.c. Repair with topsoil when there is evidence of flow cutting around the BMP. Re-grade, re-plant as needed.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
III.4.d. Repair with topsoil, or provide stone reinforcement at the outfalls if bare spots or holes are present.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
<b>III.5. Access to Facility</b>	
III.5.a. Remove and clear any obstruction preventing access to the facility. i.e. erosion, excessive vegetation growth and/or other obstructions.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A

**Comments:**

**BMP MAINTENANCE**  
**ADDITIONAL COMMENTS ATTACHMENT FORM**

VA CAMPUS:  Perry Point  Loch Raven

Page \_\_\_ of \_\_\_

BMP ID: \_\_\_\_\_

INSPECTOR: \_\_\_\_\_

TIME: \_\_\_\_\_ AM \_\_\_ PM \_\_\_

INSPECTION DATE: \_\_\_ / \_\_\_ / \_\_\_

WEATHER: \_\_\_\_\_

**Comments / Observations:**



**BMP MAINTENANCE**  
**ADDITIONAL COMMENTS ATTACHMENT FORM**

VA CAMPUS:  Perry Point  Loch Raven

Page \_\_\_ of \_\_\_

BMP ID: \_\_\_\_\_

INSPECTOR: \_\_\_\_\_

TIME: \_\_\_\_\_ AM \_\_\_ PM \_\_\_

INSPECTION DATE: \_\_\_ / \_\_\_ / \_\_\_

WEATHER: \_\_\_\_\_

**Comments / Observations:**



Micro-bioretenention  
Triennial Inspection Records

Department of Veterans Affairs  
Maryland Health Care System  
Perry Point Medical Center

**JULY 2020**

## BMP TRIENNIAL INSPECTION SCHEDULE (VA) MICRO-BIORETENTION

VA CAMPUS: Perry Point

MAINTENANCE DIRECTOR: \_\_\_\_\_

PHONE NO. : \_\_\_\_\_

**Note:** This schedule is prepared to assist with summary of all triennial inspection records for the BMPs. The maintenance director is responsible for updating this record upon completion of each triennial inspection. Inspections shall be conducted once every 3 years. After each triennial inspection, record the inspection date and the BMP status. If a BMP is assessed as "failed", the facility should be re-inspected. Record the re-inspection date and status upon completion of the re-inspection.

BMP-ID	BMP Location	Last Triennial Inspection (MM/DD/YY)	Re-Inspection (MM/DD/YY)	BMP Status			
				Triennial Inspection		Re-inspection	
				PASS	FAIL	PASS	FAIL
PP-BIO-001	Building 11	___/___/___	___/___/___	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PP-BIO-002	Southeast - Fifth Street & Avenue G	___/___/___	___/___/___	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PP-BIO-015	Building 364 - East of Parking Lot	___/___/___	___/___/___	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PP-BIO-016	Building 364 - South of Parking Lot	___/___/___	___/___/___	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PP-BIO-017	Building 360	___/___/___	___/___/___	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PP-BIO-018	Building 360	___/___/___	___/___/___	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PP-BIO-019	Building 360	___/___/___	___/___/___	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PP-BIO-020	Water Tank	___/___/___	___/___/___	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		___/___/___	___/___/___	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		___/___/___	___/___/___	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		___/___/___	___/___/___	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		___/___/___	___/___/___	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		___/___/___	___/___/___	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		___/___/___	___/___/___	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		___/___/___	___/___/___	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		___/___/___	___/___/___	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

# BMP TRIENNIAL INSPECTION SCHEDULE (EUL)

## MICRO-BIORETENTION

VA CAMPUS: Perry Point

MAINTENANCE DIRECTOR: \_\_\_\_\_

PHONE NO. : \_\_\_\_\_

**Note:** This schedule is prepared to assist with summary of all triennial inspection records for the BMPs. The maintenance director is responsible for updating this record upon completion of each triennial inspection. Inspections shall be conducted once every 3 years. After each triennial inspection, record the inspection date and the BMP status. If a BMP is assessed as "failed", the facility should be re-inspected. Record the re-inspection date and status upon completion of the re-inspection.

BMP-ID	BMP Location	Last Triennial Inspection (MM/DD/YY)	Re-Inspection (MM/DD/YY)	BMP Status			
				Triennial Inspection		Re-inspection	
				PASS	FAIL	PASS	FAIL
PP-BIO-003	Village - South of Second Street	__/__/__	__/__/__	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PP-BIO-004	Village - North of Fourth Street	__/__/__	__/__/__	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PP-BIO-005	Village - North of Fourth Street	__/__/__	__/__/__	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PP-BIO-006	Village - North of Fourth Street	__/__/__	__/__/__	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PP-BIO-007	Village - Fourth Street & Avenue C	__/__/__	__/__/__	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PP-BIO-008	Village - Fourth Street & Avenue B	__/__/__	__/__/__	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PP-BIO-009	Village - East of Avenue B	__/__/__	__/__/__	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PP-BIO-010	Village - West of Avenue B	__/__/__	__/__/__	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PP-BIO-011	Village - West of Avenue B	__/__/__	__/__/__	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PP-BIO-012	Village - East of Avenue A	__/__/__	__/__/__	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PP-BIO-013	Village - East of Avenue A	__/__/__	__/__/__	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PP-BIO-014	Village - East of Avenue A	__/__/__	__/__/__	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		__/__/__	__/__/__	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		__/__/__	__/__/__	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		__/__/__	__/__/__	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		__/__/__	__/__/__	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

# BMP TRIENNIAL INSPECTION CHECKLIST

## MICRO-BIORETENTION

VA CAMPUS:  Perry Point  Loch Raven

Page \_\_\_ of \_\_\_

BMP ID: \_\_\_\_\_

INSPECTOR: \_\_\_\_\_

TIME: \_\_\_\_\_ AM \_\_\_ PM \_\_\_

INSPECTION DATE: \_\_\_/\_\_\_/\_\_\_

WEATHER: \_\_\_\_\_

APPROVED MDE PLANS ON RECORD:  YES  NO

MDE PLAN #: \_\_\_\_\_

MAINTENANCE LOG ON RECORD:  YES  NO

INSPECTION RESULTS:

SCHEDULED RE-INSPECTION:  YES  NO \_\_\_/\_\_\_/\_\_\_

PASS  FAIL

REMEDIAL ACTION DUE BY: \_\_\_/\_\_\_/\_\_\_

RE-INSPECTION RESULT:

ATTACHMENTS:  NONE  PHOTOS  SKETCHES

PASS  FAIL

**Note to inspector:** This checklist is adopted from MDE Technical Memorandum No. 9 (June 2019). The checklist is prepared to generally assist with the items required to be inspected. Check "**Acceptable**" for items in good condition, "**Deficient**" for items in poor condition. If any of the inspection item is deficient, then the overall facility should be assessed as "**Fail**". Any facility that has "Failed" an inspection **MUST** schedule a date for the remedial action and **MUST** be re-inspected to maintain treatment credit for this facility. During re-inspection, if condition is corrected, check the "**Resolved**" box under the "STATUS" column.

### Inspection Items

1. General	STATUS
<b>1.a. Maintenance Access</b> <b>Requirement:</b> Check for accessibility to facility. <b>Remedial Actions:</b> <input type="checkbox"/> Mow and remove excessive vegetation growth blocking access to facility. <input type="checkbox"/> Repair eroded areas blocking access to facility. <input type="checkbox"/> Remove any obstructions to facility. <input type="checkbox"/> Other (Describe Remedial Action):	<input type="checkbox"/> Acceptable <input type="checkbox"/> Deficient <input type="checkbox"/> N/A <input type="checkbox"/> Resolved

<b>2. Flow Conveyance (Inlets, outlets, piping, outfall)</b> <b>2.a. Debris and Trash</b> <b>Requirement:</b> Check for debris and trash blocking inlets, outlets, other conveyance links. Check for debris and trash within filter bed. Check for clogged pipes and weir openings. <b>Remedial Actions:</b> <input type="checkbox"/> Remove and properly dispose all trash and debris. <input type="checkbox"/> Unclog all openings. <input type="checkbox"/> Other (Describe Remedial Action):	<input type="checkbox"/> Acceptable <input type="checkbox"/> Deficient <input type="checkbox"/> N/A <input type="checkbox"/> Resolved
<b>2.b. Vegetative Cover</b> <b>Requirement:</b> Check for excessive vegetation growth blocking inlets, outlets, and weirs. <b>Remedial Actions:</b> <input type="checkbox"/> Remove excess vegetation around inlets, outlets, and weirs. <input type="checkbox"/> Other (Describe Remedial Action):	<input type="checkbox"/> Acceptable <input type="checkbox"/> Deficient <input type="checkbox"/> N/A <input type="checkbox"/> Resolved

Continues on next page!

# BMP TRIENNIAL INSPECTION CHECKLIST

## MICRO-BIORETENTION

VA CAMPUS:  Perry Point  Loch Raven

Page \_\_\_ of \_\_\_

BMP ID: \_\_\_\_\_

INSPECTOR: \_\_\_\_\_

TIME: \_\_\_\_\_ AM \_\_\_ PM \_\_\_

INSPECTION DATE: \_\_\_ / \_\_\_ / \_\_\_

WEATHER: \_\_\_\_\_

**Note to inspector:** This checklist is adopted from MDE Technical Memorandum No. 9 (June 2019). The checklist is prepared to generally assist with the items required to be inspected. Check "**Acceptable**" for items in good condition, "**Deficient**" for items in poor condition. If any of the inspection item is deficient, then the overall facility should be assessed as "**Fail**". Any facility that has "Failed" an inspection **MUST** schedule a date for the remedial action and **MUST** be re-inspected to maintain treatment credit for this facility. During re-inspection, if condition is corrected, check the "**Resolved**" box under the "STATUS" column.

### Inspection Items (Continued)

2. Flow Conveyance (Inlets, outlets, piping, outfall) (Continued)	STATUS
<p><b>2.c. Erosion</b></p> <p><b>Requirement:</b>                      Check for rills, gullies, and runoff channelization around inlets and at the outfall.                      Check for evidence of flow cutting around the BMP.                      Check for signs of scour at the outfall.</p> <p><b>Remedial Actions:</b></p> <p><input type="checkbox"/> Re-grade and repair with soil, seed, and/or matting.  <input type="checkbox"/> Grade, vegetate, and/or armor with stone to provide stable conveyance per approved plans.</p> <p><input type="checkbox"/> Other (Describe Remedial Action):</p>	<p><input type="checkbox"/> Acceptable <input type="checkbox"/> Deficient</p> <p><input type="checkbox"/> N/A <input type="checkbox"/> Resolved</p>
<p><b>2.d. Sediment Accumulation / Blockage</b></p> <p><b>Requirement:</b>                      Check for sediment accumulation (recommend action if sediment &gt; 1 inch in depth)                      Check for blockages in inlets, outlets, and all other conveyance links.                      Check observation well. (Record water level from top of well to water surface. _____ inches)</p> <p><b>Remedial Actions:</b></p> <p><input type="checkbox"/> Remove sediment from clogged openings, around inlets, and outlets.  <input type="checkbox"/> Clear out any blockage.</p> <p><input type="checkbox"/> Other (Describe Remedial Action):</p>	<p><input type="checkbox"/> Acceptable <input type="checkbox"/> Deficient</p> <p><input type="checkbox"/> N/A <input type="checkbox"/> Resolved</p>
<p><b>2.e. Structural conditions</b></p> <p><b>Requirement:</b>                      Check inlets, outlets, and pipes for misalignment, cracks, spalling, and breakage.                      Check riprap and stone armoring for missing stones, bare spots, and erosion.                      Check for evidence of missing pipes, risers, and other flow conveyance structures. Compare with approved plans.</p> <p><b>Remedial Actions:</b></p> <p><input type="checkbox"/> Repair and/or replace any broken pipe, inlet, and/or outlet structures per approved plans and specifications.  <input type="checkbox"/> Replace missing structures and flow conveyance items.  <input type="checkbox"/> Consider major repairs and retrofit of the conveyance structures within the facility.</p> <p><input type="checkbox"/> Other (Describe Remedial Action):</p>	<p><input type="checkbox"/> Acceptable <input type="checkbox"/> Deficient</p> <p><input type="checkbox"/> N/A <input type="checkbox"/> Resolved</p>

Continues on next page!

# BMP TRIENNIAL INSPECTION CHECKLIST

## MICRO-BIORETENTION

VA CAMPUS:  Perry Point  Loch Raven

Page \_\_\_ of \_\_\_

BMP ID: \_\_\_\_\_

INSPECTOR: \_\_\_\_\_

TIME: \_\_\_\_\_ AM \_\_\_ PM \_\_\_

INSPECTION DATE: \_\_\_ / \_\_\_ / \_\_\_

WEATHER: \_\_\_\_\_

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### Inspection Items (Continued)

3. Side Slopes	STATUS
<b>3.a. Vegetation Cover</b> <b>Requirement:</b> Check for invasive species or weeds. Check for excessive vegetation growth. <b>Remedial Actions:</b> <input type="checkbox"/> Remove invasive species and weeds. <input type="checkbox"/> Mow side slopes to 4 to 6 inches in height when grass exceeds 12 inches in height. <b><u>Do Not Mow the Clippings into the Facility!</u></b> <input type="checkbox"/> Other (Describe Remedial Action):	<input type="checkbox"/> Acceptable <input type="checkbox"/> Deficient <input type="checkbox"/> N/A <input type="checkbox"/> Resolved
<b>3.b. Erosion</b> <b>Requirement:</b> Check for bare spots, rills and gullies on side slopes. <b>Remedial Actions:</b> <input type="checkbox"/> Re-plant / re-seed as needed. <input type="checkbox"/> Re-grade prior to seeding and planting if flow channelization has eroded the side slopes. <input type="checkbox"/> Other (Describe Remedial Action):	<input type="checkbox"/> Acceptable <input type="checkbox"/> Deficient <input type="checkbox"/> N/A <input type="checkbox"/> Resolved

4. Filter Bed and Mulch Layer	STATUS
<b>4.a. Plant Composition and Health</b> <b>Requirement:</b> Compare plants with approved plans. Check for missing or dying vegetation. Check for invasive species or weeds. <b>Remedial Actions:</b> <input type="checkbox"/> Replace dead or dying vegetation per approved plans and specifications. <input type="checkbox"/> Plant missing vegetation per approved plans and specifications. <input type="checkbox"/> Remove invasive species and weeds. <input type="checkbox"/> Other (Describe Remedial Action):	<input type="checkbox"/> Acceptable <input type="checkbox"/> Deficient <input type="checkbox"/> N/A <input type="checkbox"/> Resolved

Continues on next page!

# BMP TRIENNIAL INSPECTION CHECKLIST

## MICRO-BIORETENTION

VA CAMPUS:  Perry Point  Loch Raven

Page \_\_\_ of \_\_\_

BMP ID: \_\_\_\_\_

INSPECTOR: \_\_\_\_\_

TIME: \_\_\_\_\_ AM \_\_\_ PM \_\_\_

INSPECTION DATE: \_\_\_ / \_\_\_ / \_\_\_

WEATHER: \_\_\_\_\_

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### Inspection Items (Continued)

4. Filter Bed and Mulch Layer (Continued)	STATUS
<b>4.b. Debris</b> <b>Requirement:</b> Check for trash and debris within filter bed. <b>Remedial Actions:</b> <input type="checkbox"/> Remove and properly dispose all trash and debris. <input type="checkbox"/> Other (Describe Remedial Action):	<input type="checkbox"/> Acceptable <input type="checkbox"/> Deficient <input type="checkbox"/> N/A <input type="checkbox"/> Resolved
<b>4.c. Erosion</b> <b>Requirement:</b> Check for bare spots, rills and gullies within the filter media. <b>Remedial Actions:</b> <input type="checkbox"/> Repair and re-grade bare spots per approved plans. <input type="checkbox"/> Replace top few inches of filter media in kind and quantity. <input type="checkbox"/> Other (Describe Remedial Action):	<input type="checkbox"/> Acceptable <input type="checkbox"/> Deficient <input type="checkbox"/> N/A <input type="checkbox"/> Resolved
<b>4.d. Mulch Layer</b> <b>Requirement:</b> Compare mulch layer thickness with approved plans and confirm adequate mulch cover. Check for discoloration, odors, oil and other signs of contamination. Check for sediment accumulation > 1 inch in depth. <b>Remedial Actions:</b> <input type="checkbox"/> Provide adequate mulch layer coverage. Layer thickness _____ inches. <input type="checkbox"/> Remove old mulch and replace with new mulch per approved plans. <input type="checkbox"/> Remove sediments and mulch layer. Replace mulch layer with new mulch in kind and quantity. <input type="checkbox"/> Other (Describe Remedial Action):	<input type="checkbox"/> Acceptable <input type="checkbox"/> Deficient <input type="checkbox"/> N/A <input type="checkbox"/> Resolved

Continues on next page!

# BMP TRIENNIAL INSPECTION CHECKLIST

## MICRO-BIORETENTION

VA CAMPUS:  Perry Point  Loch Raven

Page \_\_\_ of \_\_\_

BMP ID: \_\_\_\_\_

INSPECTOR: \_\_\_\_\_

TIME: \_\_\_\_\_ AM \_\_\_ PM \_\_\_

INSPECTION DATE: \_\_\_ / \_\_\_ / \_\_\_

WEATHER: \_\_\_\_\_

**Note to inspector:** This checklist is adopted from MDE Technical Memorandum No. 9 (June 2019). The checklist is prepared to generally assist with the items required to be inspected. Check "**Acceptable**" for items in good condition, "**Deficient**" for items in poor condition. If any of the inspection item is deficient, then the overall facility should be assessed as "**Fail**". Any facility that has "Failed" an inspection **MUST** schedule a date for the remedial action and **MUST** be re-inspected to maintain treatment credit for this facility. During re-inspection, if condition is corrected, check the "**Resolved**" box under the "STATUS" column.

### Inspection Items (Continued)

5. Overall Facility Condition	STATUS
<b>5.a. Dewatering</b> <b>Requirement:</b> Check for presence of ponding water after 48 hours from the last rainfall. Check for noticeable odors. (If applicable, provide description in comments) Check for visible water line or stained filter bed, plants, and inlet/outlet structures. Check for presence of algae or other aquatic vegetation. <b>Remedial Actions:</b> <input type="checkbox"/> Remove and replace top few inches of filter media. <input type="checkbox"/> If ponding water is observed, schedule follow up inspection after 48 hours. <input type="checkbox"/> Consider more frequent monitoring if facility is not draining. <input type="checkbox"/> Consider refurbishing the entire system if facility does not drain properly.  <input type="checkbox"/> Other (Describe Remedial Action):	<input type="checkbox"/> Acceptable <input type="checkbox"/> Deficient <input type="checkbox"/> N/A <input type="checkbox"/> Resolved
<b>5.b. Other</b> <b>Requirement:</b> Check for other pollutants (i.e. oil) in and in the immediate vicinity of the facility. <b>Remedial Actions:</b> <input type="checkbox"/> Remove and dispose pollutant in an appropriate manner.  <input type="checkbox"/> Other (Describe Remedial Action):	<input type="checkbox"/> Acceptable <input type="checkbox"/> Deficient <input type="checkbox"/> N/A <input type="checkbox"/> Resolved

End of check list items.

### Comments/Observations:

**BMP TRIENNIAL INSPECTION  
ADDITIONAL COMMENTS ATTACHMENT FORM**

VA CAMPUS:  Perry Point  Loch Raven

Page \_\_\_ of \_\_\_

BMP ID: \_\_\_\_\_

INSPECTOR: \_\_\_\_\_

TIME: \_\_\_\_\_ AM \_\_\_ PM \_\_\_

INSPECTION DATE: \_\_\_ / \_\_\_ / \_\_\_

WEATHER: \_\_\_\_\_

**Comments / Observations:**



**BMP TRIENNIAL INSPECTION  
ADDITIONAL COMMENTS ATTACHMENT FORM**

VA CAMPUS:  Perry Point  Loch Raven

Page \_\_\_ of \_\_\_

BMP ID: \_\_\_\_\_

INSPECTOR: \_\_\_\_\_

TIME: \_\_\_\_\_ AM \_\_\_ PM \_\_\_

INSPECTION DATE: \_\_\_ / \_\_\_ / \_\_\_

WEATHER: \_\_\_\_\_

**Comments / Observations:**



Bio-swale  
Maintenance and Inspection Records

Department of Veterans Affairs  
Maryland Health Care System  
Perry Point Medical Center

JULY 2020

Bio-swale  
Maintenance Records

Department of Veterans Affairs  
Maryland Health Care System  
Perry Point Medical Center

JULY 2020

## BMP MAINTENANCE SCHEDULE (VA) BIO-SWALE

VA CAMPUS: Perry Point

MAINTENANCE DIRECTOR: \_\_\_\_\_

PHONE NO. : \_\_\_\_\_

**Note:** This schedule is prepared to assist with summary of all maintenance records for the BMPs. The maintenance director is responsible for updating this record upon completion of each maintenance. The record is organized by month of the year and the type of inspection required for that month. Upon completion of each maintenance type check the column for the respective maintenance. For maintenances performed after a major storm, report the month number in which the storm has occurred. The month numbers could be repeated since multiple major storms can occur during the same month.

BMP-ID	BMP Location	Maintenance Type																						
		M = Monthly			S = Seasonal					A = Annual					MS = After a Major Storm									
		M	M	S	M	M	A	M	M	S	M	M	S	MS	MS									
		1	2	3	4	5	6	7	8	9	10	11	12											
PP-BWS-001	Truck Entrance - West of Entrance	<input type="checkbox"/>																						
PP-BWS-008	Boat Ramp	<input type="checkbox"/>																						
PP-BWS-___		<input type="checkbox"/>																						
PP-BWS-___		<input type="checkbox"/>																						
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## BMP MAINTENANCE SCHEDULE (EUL) BIO-SWALE

VA CAMPUS: Perry Point

MAINTENANCE DIRECTOR: \_\_\_\_\_

PHONE NO. : \_\_\_\_\_

**Note:** This schedule is prepared to assist with summary of all maintenance records for the BMPs. The maintenance director is responsible for updating this record upon completion of each maintenance. The record is organized by month of the year and the type of inspection required for that month. Upon completion of each maintenance type check the column for the respective maintenance. For maintenances performed after a major storm, report the month number in which the storm has occurred. The month numbers could be repeated since multiple major storms can occur during the same month.

BMP-ID	BMP Location	Maintenance Type																						
		M = Monthly			S = Seasonal					A = Annual					MS = After a Major Storm									
		M	M	S	M	M	A	M	M	S	M	M	S	MS	MS									
		1	2	3	4	5	6	7	8	9	10	11	12											
PP-BWS-002	Village - South of Second Street	<input type="checkbox"/>																						
PP-BWS-003	Village - South of Second Street	<input type="checkbox"/>																						
PP-BWS-004	Village - South of Second Street	<input type="checkbox"/>																						
PP-BWS-005	Village - North of Third Street	<input type="checkbox"/>																						
PP-BWS-006	Village - South of Third Street	<input type="checkbox"/>																						
PP-BWS-007	Village - North of Fourth Street	<input type="checkbox"/>																						
PP-BWS-___		<input type="checkbox"/>																						
PP-BWS-___		<input type="checkbox"/>																						
PP-BWS-___		<input type="checkbox"/>																						
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PP-BWS-___		<input type="checkbox"/>																						

# MONTHLY - BMP MAINTENANCE CHECKLIST

## BIO-SWALE

VA CAMPUS:  Perry Point  Loch Raven

Page 1 of \_\_\_\_

BMP ID: \_\_\_\_\_

MAINTENANCE PERSONNEL: \_\_\_\_\_

TIME: \_\_\_\_\_ AM \_\_\_ PM \_\_\_

MAINTENANCE DATE: \_\_\_ / \_\_\_ / \_\_\_

WEATHER: \_\_\_\_\_

**Note to maintenance personnel:** This checklist is adopted from MDE Technical Memorandum No. 9 (June 2019). The checklist is prepared to generally assist with the items to be checked and maintained within the BMP facility monthly. Each component within and/or around the facility is listed along with the maintenance activity required. Check "Y" for Yes, "N" for No, and "N/A" for not applicable for each item that is addressed during this routine maintenance. If "N" is checked for a maintenance item, provide a brief reason in the comments section by citing the section number. If additional room is needed for comments use the blank "Additional Comments Attachment Form" provided at the end of this checklist; make additional copies as needed.

Maintenance Items	Completed
<b>I.1. Debris and Trash</b>	
I.1.a. Remove and properly dispose all trash and debris clogging inlets and outlets.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
I.1.b. Remove and properly dispose all trash and debris within the facility.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
I.1.c. Remove and properly dispose all trash and debris in the immediate vicinity of the facility.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
<b>I.2. Plant Composition and Health</b>	
I.2.a. Remove invasive species or weeds within the facility.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
I.2.b. Remove dead/dying vegetation & re-plant / re-seed in conformance with approved swale plans.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
<b>I.3. Vegetative Cover</b>	
I.3.a. Check for channelizing, erosion, or bare spots and replant/re-seed as needed.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
I.3.b. Remove excessive vegetation growth blocking inlets, check dams, outlet, and other flow passages.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
I.3.c. Mow side slopes to 4 to 6 inches in height when grass exceeds 12 inches in height. <b><u>Do Not Mow the Clippings into the Swale! Do Not Mow the Swale Bottom!</u></b>	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A

**Comments:**

# SEASONAL & AFTER MAJOR STORM - BMP MAINTENANCE CHECKLIST

## BIO-SWALE

VA CAMPUS:  Perry Point  Loch Raven

Page 1 of \_\_\_\_

BMP ID: \_\_\_\_\_

MAINTENANCE PERSONNEL: \_\_\_\_\_

TIME: \_\_\_\_\_ AM \_\_\_ PM \_\_\_

MAINTENANCE DATE: \_\_\_ / \_\_\_ / \_\_\_

WEATHER: \_\_\_\_\_

**Note to maintenance personnel:** This checklist is adopted from MDE Technical Memorandum No. 9 (June 2019). The checklist is prepared to generally assist with the items to be checked and maintained within the BMP facility after a major storm and every change of season. Each component within and/or around the facility is listed along with the maintenance activity required. Check "Y" for Yes, "N" for No, and "N/A" for not applicable for each item that is addressed during this routine maintenance. If "N" is checked for a maintenance item, provide a brief reason in the comments section by citing the section number. If additional room is needed for comments use the blank "Additional Comments Attachment Form" provided at the end of this checklist; make additional copies as needed.

Maintenance Items	Completed
<b>II.1. Dewatering</b>	
II.1.a. Check for standing water within the facility 48 hours after storm; Report standing water in comments; Perform follow up visits to confirm dewatering.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
II.1.b. Remove and replace top few inches of media in kind and quantity if noticeable odor is present. Report any noticeable odors in comments.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
II.1.c. Remove and replace top few inches of media in kind and quantity if visible or stained water line on the filter surface or at the outlet is present; Report stained components in comments.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
II.1.d. Check for algae and other aquatic vegetation; remove aquatic vegetation and replace top few inches of filter media in kind and quantity.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
<b>II.2. Erosion (Inlets/Outlets, Filter bed, and Side slopes)</b>	
II.2.a. Stabilize around inlets and outlets if rills, gullies, and bare spots are present.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
II.2.b. Re-grade, vegetate, and/or armor runoff channelization, rills and gullies within filter bed areas.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
II.2.c. Re-plant, re-seed, re-grade, and/or armor side slopes if bare spots are present.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
<b>II.3. Check Dams</b>	
II.3.a. Re-grade, re-plant, and repair with compacted topsoil when there is evidence of flow cutting around check dam edges.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
II.3.b. Repair with compacted topsoil, or provide stone reinforcement at the bottom of check dams if bare spots or holes are present.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
<b>II.4. Sediment Accumulation (Filter bed, Flow conveyance)</b>	
II.4.a. Remove and properly dispose all sediment from filter bed and clogged openings.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
II.4.b. Check for sediment blocking flow of water within system; remove any obstructions due to sediment accumulation and dispose properly.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
<b>II.5. Blockage (Inlet/Riser and Pipes/Underdrains)</b>	
II.5.a. Remove and properly dispose any debris and filter media blocking flow of water.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
II.5.b. Remove and properly dispose any debris blocking flow to the inlets upstream of facility.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
II.5.c. Remove and properly dispose any debris blocking flow leaving the facility. Check risers, weirs, pipe openings.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
II.5.d. Check observation well and report observed water level in comments. Measure from top of pipe to water surface and record measurement.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A

**Comments:**

# ANNUAL - BMP MAINTENANCE CHECKLIST

## BIO-SWALE

VA CAMPUS:  Perry Point  Loch Raven

Page 1 of \_\_\_\_

BMP ID: \_\_\_\_\_

MAINTENANCE PERSONNEL: \_\_\_\_\_

TIME: \_\_\_\_\_ AM \_\_\_ PM \_\_\_

MAINTENANCE DATE: \_\_\_ / \_\_\_ / \_\_\_\_

WEATHER: \_\_\_\_\_

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Maintenance Items	Completed
<b>III.1. Overall Facility Function</b>	
III.1.a. Check for standing water within the facility; Report standing water depth. Perform follow up inspection to confirm dewatering after 48 hours; Report standing water depth.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
III.1.b. Check observation well and report observed water level in comments. Measure from top of pipe to water surface and record measurement.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
III.1.c. Check inlet/outlet, check dams, cleanout pipes, and other structures within facility for cracks, spalling, breakage and misalignments. Report conditions and any notable observations.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
<b>III.2. Overall Vegetation Condition</b>	
III.2.a. Remove invasive species or weeds within the facility.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
III.2.b. Remove dead/dying vegetation & re-plant/re-seed in conformance with approved swale plans.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
III.2.c. Compare planting in facility with approved plans for missing/dead vegetation, & replace or re-plant in kind and quantity.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
III.2.d. Check for vegetation growth on gravel check dams. Remove any vegetation growth from gravel check dams and retrofit with same type of gravel per approved plans.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
III.2.e. Mow side slopes to 4 to 6 inches in height when grass exceeds 12 inches in height. <b>Do Not Mow the Clippings into the Swale! Do Not Mow the Swale Bottom!</b>	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
<b>III.3. Debris, Trash and Sediments</b>	
III.3.a. Remove and properly dispose all trash and debris clogging inlets and outlets.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
III.3.b. Remove and properly dispose all trash and debris within the facility.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
III.3.c. Remove and properly dispose all trash and debris in the immediate vicinity of the facility.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
III.3.d. Check for sediment blocking flow of water within system; remove any obstructions due to sediment accumulation.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
<b>III.4. Erosion</b>	
III.4.a. Stabilize around inlets and outlets if rills, gullies, and bare spots are present.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
III.4.b. Re-grade, vegetate, and/or armor runoff channelization, rills and gullies within filter bed areas.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
III.4.c. Repair with topsoil when there is evidence of flow cutting around check dam edges. Re-grade, re-plant as needed.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
III.4.d. Repair with topsoil, or provide stone reinforcement at the bottom of check dams if bare spots or holes are present.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
<b>III.5. Access to Facility</b>	
III.5.a. Remove and clear any obstruction preventing access to the facility. i.e. erosion, excessive vegetation growth, and/or other obstructions.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A

**Comments:**

**BMP MAINTENANCE**  
**ADDITIONAL COMMENTS ATTACHMENT FORM**

VA CAMPUS:  Perry Point  Loch Raven

Page \_\_\_ of \_\_\_

BMP ID: \_\_\_\_\_

INSPECTOR: \_\_\_\_\_

TIME: \_\_\_\_\_ AM \_\_\_ PM \_\_\_

INSPECTION DATE: \_\_\_ / \_\_\_ / \_\_\_

WEATHER: \_\_\_\_\_

**Comments / Observations:**



**BMP MAINTENANCE  
ADDITIONAL COMMENTS ATTACHMENT FORM**

VA CAMPUS:  Perry Point  Loch Raven

Page \_\_\_ of \_\_\_

BMP ID: \_\_\_\_\_

INSPECTOR: \_\_\_\_\_

TIME: \_\_\_\_\_ AM \_\_\_ PM \_\_\_

INSPECTION DATE: \_\_\_ / \_\_\_ / \_\_\_

WEATHER: \_\_\_\_\_

**Comments / Observations:**



Bio-swale  
Triennial Inspection Records

Department of Veterans Affairs  
Maryland Health Care System  
Perry Point Medical Center

JULY 2020

## BMP TRIENNIAL INSPECTION SCHEDULE (VA) BIO-SWALE

VA CAMPUS: Perry Point

MAINTENANCE DIRECTOR: \_\_\_\_\_

PHONE NO. : \_\_\_\_\_

**Note:** This schedule is prepared to assist with summary of all triennial inspection records for the BMPs. The maintenance director is responsible for updating this record upon completion of each triennial inspection. Inspections shall be conducted once every 3 years. After each triennial inspection, record the inspection date and the BMP status. If a BMP is assessed as "failed", the facility should be re-inspected. Record the re-inspection date and status upon completion of the re-inspection.

BMP-ID	BMP Location	Last Triennial Inspection (MM/DD/YY)	Re-Inspection (MM/DD/YY)	BMP Status			
				Triennial Inspection		Re-inspection	
				PASS	FAIL	PASS	FAIL
PP-BWS-001	Truck Entrance - West of Entrance	__/__/__	__/__/__	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PP-BWS-008	Boat Ramp	__/__/__	__/__/__	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PP-BWS-__		__/__/__	__/__/__	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PP-BWS-__		__/__/__	__/__/__	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PP-BWS-__		__/__/__	__/__/__	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PP-BWS-__		__/__/__	__/__/__	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PP-BWS-__		__/__/__	__/__/__	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PP-BWS-__		__/__/__	__/__/__	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PP-BWS-__		__/__/__	__/__/__	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PP-BWS-__		__/__/__	__/__/__	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PP-BWS-__		__/__/__	__/__/__	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PP-BWS-__		__/__/__	__/__/__	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PP-BWS-__		__/__/__	__/__/__	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PP-BWS-__		__/__/__	__/__/__	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PP-BWS-__		__/__/__	__/__/__	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PP-BWS-__		__/__/__	__/__/__	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PP-BWS-__		__/__/__	__/__/__	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PP-BWS-__		__/__/__	__/__/__	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## BMP TRIENNIAL INSPECTION SCHEDULE (EUL) BIO-SWALE

VA CAMPUS: Perry Point

MAINTENANCE DIRECTOR: \_\_\_\_\_

PHONE NO. : \_\_\_\_\_

**Note:** This schedule is prepared to assist with summary of all triennial inspection records for the BMPs. The maintenance director is responsible for updating this record upon completion of each triennial inspection. Inspections shall be conducted once every 3 years. After each triennial inspection, record the inspection date and the BMP status. If a BMP is assessed as "failed", the facility should be re-inspected. Record the re-inspection date and status upon completion of the re-inspection.

BMP-ID	BMP Location	Last Triennial Inspection (MM/DD/YY)	Re-Inspection (MM/DD/YY)	BMP Status			
				Triennial Inspection		Re-inspection	
				PASS	FAIL	PASS	FAIL
PP-BWS-002	Village - South of Second Street	__/__/__	__/__/__	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PP-BWS-003	Village - South of Second Street	__/__/__	__/__/__	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PP-BWS-004	Village - South of Second Street	__/__/__	__/__/__	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PP-BWS-005	Village - North of Third Street	__/__/__	__/__/__	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PP-BWS-006	Village - South of Third Street	__/__/__	__/__/__	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PP-BWS-007	Village - North of Fourth Street	__/__/__	__/__/__	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PP-BWS-__		__/__/__	__/__/__	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PP-BWS-__		__/__/__	__/__/__	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PP-BWS-__		__/__/__	__/__/__	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PP-BWS-__		__/__/__	__/__/__	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PP-BWS-__		__/__/__	__/__/__	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PP-BWS-__		__/__/__	__/__/__	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PP-BWS-__		__/__/__	__/__/__	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PP-BWS-__		__/__/__	__/__/__	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PP-BWS-__		__/__/__	__/__/__	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PP-BWS-__		__/__/__	__/__/__	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PP-BWS-__		__/__/__	__/__/__	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PP-BWS-__		__/__/__	__/__/__	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PP-BWS-__		__/__/__	__/__/__	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

# BMP TRIENNIAL INSPECTION CHECKLIST

## BIO-SWALE

VA CAMPUS:  Perry Point  Loch Raven

Page \_\_\_ of \_\_\_

BMP ID: \_\_\_\_\_

INSPECTOR: \_\_\_\_\_

TIME: \_\_\_\_\_ AM \_\_\_ PM \_\_\_

INSPECTION DATE: \_\_\_ / \_\_\_ / \_\_\_

WEATHER: \_\_\_\_\_

APPROVED MDE PLANS ON RECORD:  YES  NO

MDE PLAN #: \_\_\_\_\_

MAINTENANCE LOG ON RECORD:  YES  NO

INSPECTION RESULTS:

SCHEDULED RE-INSPECTION:  YES  N/A \_\_\_ / \_\_\_ / \_\_\_

PASS  FAIL

REMEDIAL ACTION DUE BY: \_\_\_ / \_\_\_ / \_\_\_

RE-INSPECTION RESULT:

ATTACHMENTS:  NONE  PHOTOS  SKETCHES

PASS  FAIL

**Note to inspector:** This checklist is adopted from MDE Technical Memorandum No. 9 (June 2019). The checklist is prepared to generally assist with the items required to be inspected. Check "**Acceptable**" for items in good condition, "**Deficient**" for items in poor condition. If any of the inspection item is deficient, then the overall facility should be assessed as "**Fail**". Any facility that has "Failed" an inspection **MUST** schedule a date for the remedial action and **MUST** be re-inspected to maintain treatment credit for this facility. During re-inspection, if condition is corrected, check the "**Resolved**" box under the "STATUS" column.

### Inspection Items

1. General	STATUS
<b>1.a. Maintenance Access</b> <b>Requirement:</b> Check for accessibility to facility. <b>Remedial Actions:</b> <input type="checkbox"/> Mow and remove excessive vegetation growth blocking access to facility. <input type="checkbox"/> Repair eroded areas blocking access to facility. <input type="checkbox"/> Remove any obstructions to facility. <input type="checkbox"/> Other (Describe Remedial Action):	<input type="checkbox"/> Acceptable <input type="checkbox"/> Deficient <input type="checkbox"/> N/A <input type="checkbox"/> Resolved

<b>2. Flow Conveyance (Inlets, outlets, check dams, piping, outfall)</b> <b>2.a. Debris and Trash</b> <b>Requirement:</b> Check for debris and trash blocking inlets, outlets, other conveyance links. Check for debris and trash within filter bed. Check for clogged pipes and weir openings. <b>Remedial Actions:</b> <input type="checkbox"/> Remove and properly dispose all trash and debris and dispose in an acceptable manner. <input type="checkbox"/> Unclog all openings. <input type="checkbox"/> Other (Describe Remedial Action):	<input type="checkbox"/> Acceptable <input type="checkbox"/> Deficient <input type="checkbox"/> N/A <input type="checkbox"/> Resolved
<b>2.b. Vegetative Cover</b> <b>Requirement:</b> Check for excessive vegetation growth blocking inlets, outlets, and weirs. <b>Remedial Actions:</b> <input type="checkbox"/> Remove excess vegetation around inlets, outlets, and weirs. <input type="checkbox"/> Other (Describe Remedial Action):	<input type="checkbox"/> Acceptable <input type="checkbox"/> Deficient <input type="checkbox"/> N/A <input type="checkbox"/> Resolved

Continue on next page!

# BMP TRIENNIAL INSPECTION CHECKLIST

## BIO-SWALE

VA CAMPUS:  Perry Point  Loch Raven

Page \_\_\_ of \_\_\_

BMP ID: \_\_\_\_\_

INSPECTOR: \_\_\_\_\_

TIME: \_\_\_\_\_ AM \_\_\_ PM \_\_\_

INSPECTION DATE: \_\_\_ / \_\_\_ / \_\_\_

WEATHER: \_\_\_\_\_

**Note to inspector:** This checklist is adopted from MDE Technical Memorandum No. 9 (June 2019). The checklist is prepared to generally assist with the items required to be inspected. Check "**Acceptable**" for items in good condition, "**Deficient**" for items in poor condition. If any of the inspection item is deficient, then the overall facility should be assessed as "**Fail**". Any facility that has "Failed" an inspection **MUST** schedule a date for the remedial action and **MUST** be re-inspected to maintain treatment credit for this facility. During re-inspection, if condition is corrected, check the "**Resolved**" box under the "STATUS" column.

### Inspection Items (Continued)

2. Flow Conveyance (Inlets, outlets, check dams, piping, outfall) (Continued)	STATUS
<p><b>2.c. Erosion</b></p> <p><b>Requirement:</b> Check for rills, gullies, and runoff channelization around inlets and at the outfall. Check for evidence of flow cutting around check dams. Check for signs of scour at the base of the check dams.</p> <p><b>Remedial Actions:</b></p> <p><input type="checkbox"/> Re-grade and repair with soil, seed, and matting. <input type="checkbox"/> Grade, vegetate, and/or armor with stone to provide stable conveyance per approved plans.</p> <p><input type="checkbox"/> Other (Describe Remedial Action):</p>	<input type="checkbox"/> Acceptable <input type="checkbox"/> Deficient <input type="checkbox"/> N/A <input type="checkbox"/> Resolved
<p><b>2.d. Sediment Accumulation / Blockage</b></p> <p><b>Requirement:</b> Check for sediment accumulation (recommend action if sediment &gt; 1 inch in depth) Check for blockages in inlets, outlets, and all other conveyance links. Check observation well. (Record water level from top of well to water surface. _____ inches)</p> <p><b>Remedial Actions:</b></p> <p><input type="checkbox"/> Remove sediment from clogged openings, around inlets, and outlets. <input type="checkbox"/> Clear out any blockage.</p> <p><input type="checkbox"/> Other (Describe Remedial Action):</p>	<input type="checkbox"/> Acceptable <input type="checkbox"/> Deficient <input type="checkbox"/> N/A <input type="checkbox"/> Resolved
<p><b>2.e. Structural conditions</b></p> <p><b>Requirement:</b> Check inlets, outlets, and pipes for misalignment, cracks, spalling, and breakage. Check riprap and stone armoring for missing stones, bare spots, and erosion. Check for evidence of missing pipes, check dams, other flow conveyance structures. Compare with approved plans.</p> <p><b>Remedial Actions:</b></p> <p><input type="checkbox"/> Repair and/or replace any broken pipe, inlet, and/or outlet structures per approved plans and specifications. <input type="checkbox"/> Replace missing structures and flow conveyance items. <input type="checkbox"/> Consider major repairs and retrofit of the conveyance structures within the facility.</p> <p><input type="checkbox"/> Other (Describe Remedial Action):</p>	<input type="checkbox"/> Acceptable <input type="checkbox"/> Deficient <input type="checkbox"/> N/A <input type="checkbox"/> Resolved

Continue on next page!



# BMP TRIENNIAL INSPECTION CHECKLIST

## BIO-SWALE

VA CAMPUS:  Perry Point  Loch Raven

Page \_\_\_ of \_\_\_

BMP ID: \_\_\_\_\_

INSPECTOR: \_\_\_\_\_

TIME: \_\_\_\_\_ AM \_\_\_ PM \_\_\_

INSPECTION DATE: \_\_\_ / \_\_\_ / \_\_\_

WEATHER: \_\_\_\_\_

**Note to inspector:** This checklist is adopted from MDE Technical Memorandum No. 9 (June 2019). The checklist is prepared to generally assist with the items required to be inspected. Check "**Acceptable**" for items in good condition, "**Deficient**" for items in poor condition. If any of the inspection item is deficient, then the overall facility should be assessed as "**Fail**". Any facility that has "Failed" an inspection **MUST** schedule a date for the remedial action and **MUST** be re-inspected to maintain treatment credit for this facility. During re-inspection, if condition is corrected, check the "**Resolved**" box under the "STATUS" column.

### Inspection Items (Continued)

3. Side Slopes	STATUS
<b>3.a. Vegetation Cover</b> <b>Requirement:</b> Check for invasive species or weeds. Check for excessive vegetation growth. <b>Remedial Actions:</b> <input type="checkbox"/> Remove invasive species and weeds. <input type="checkbox"/> Mow side slopes to 4 to 6 inches in height when grass exceeds 12 inches in height. <b><u>Do Not Mow the Clippings into the BMP! Do Not Mow the Swale Bottom!</u></b> <input type="checkbox"/> Other (Describe Remedial Action):	<input type="checkbox"/> Acceptable <input type="checkbox"/> Deficient <input type="checkbox"/> N/A <input type="checkbox"/> Resolved
<b>3.b. Erosion</b> <b>Requirement:</b> Check for bare spots, rills and gullies on side slopes. <b>Remedial Actions:</b> <input type="checkbox"/> Re-plant / re-seed as needed. <input type="checkbox"/> Re-grade prior to seeding and planting if flow channelization has eroded the side slopes. <input type="checkbox"/> Other (Describe Remedial Action):	<input type="checkbox"/> Acceptable <input type="checkbox"/> Deficient <input type="checkbox"/> N/A <input type="checkbox"/> Resolved
4. Filter Bed	STATUS
<b>4.a. Plant Composition and Health</b> <b>Requirement:</b> Compare plants with approved plans. Check for missing or dying vegetation. Check for invasive species or weeds. <b>Remedial Actions:</b> <input type="checkbox"/> Replace dead or dying vegetation per approved plans and specifications. <input type="checkbox"/> Plant missing vegetation per approved plans and specifications. <input type="checkbox"/> Remove invasive species and weeds. <input type="checkbox"/> Other (Describe Remedial Action):	<input type="checkbox"/> Acceptable <input type="checkbox"/> Deficient <input type="checkbox"/> N/A <input type="checkbox"/> Resolved

Continue on next page!

# BMP TRIENNIAL INSPECTION CHECKLIST

## BIO-SWALE

VA CAMPUS:  Perry Point  Loch Raven

Page \_\_\_ of \_\_\_

BMP ID: \_\_\_\_\_

INSPECTOR: \_\_\_\_\_

TIME: \_\_\_\_\_ AM \_\_\_ PM \_\_\_

INSPECTION DATE: \_\_\_ / \_\_\_ / \_\_\_

WEATHER: \_\_\_\_\_

**Note to inspector:** This checklist is adopted from MDE Technical Memorandum No. 9 (June 2019). The checklist is prepared to generally assist with the items required to be inspected. Check "**Acceptable**" for items in good condition, "**Deficient**" for items in poor condition. If any of the inspection item is deficient, then the overall facility should be assessed as "**Fail**". Any facility that has "Failed" an inspection **MUST** schedule a date for the remedial action and **MUST** be re-inspected to maintain treatment credit for this facility. During re-inspection, if condition is corrected, check the "**Resolved**" box under the "STATUS" column.

### Inspection Items (Continued)

4. Filter Bed (Continued)	STATUS
<b>4.b. Debris</b> <b>Requirement:</b> Check for trash and debris within filter bed. <b>Remedial Actions:</b> <input type="checkbox"/> Remove trash and debris and dispose in acceptable manner. <input type="checkbox"/> Other (Describe Remedial Action):	<input type="checkbox"/> Acceptable <input type="checkbox"/> Deficient <input type="checkbox"/> N/A <input type="checkbox"/> Resolved
<b>4.c. Erosion</b> <b>Requirement:</b> Check for bare spots within the filter media. <b>Remedial Actions:</b> <input type="checkbox"/> Repair and re-grade bare spots per approved plans. <input type="checkbox"/> Replace top few inches of filter media in kind and quantity. <input type="checkbox"/> Other (Describe Remedial Action):	<input type="checkbox"/> Acceptable <input type="checkbox"/> Deficient <input type="checkbox"/> N/A <input type="checkbox"/> Resolved

5. Overall Facility Condition	STATUS
<b>5.a. Dewatering</b> <b>Requirement:</b> Check for presence of ponding water. Check for noticeable odors. (If applicable, provide description in comments!) Check for visible water line or stain on filter bed, on plants, and around inlets and outlets. Check for presence of algae or other aquatic vegetation. <b>Remedial Actions:</b> <input type="checkbox"/> Remove and replace top few inches of filter media in kind and quantity. <input type="checkbox"/> Schedule follow up inspection. Check for standing water after 48 hours. <input type="checkbox"/> Consider more frequent monitoring if facility is not draining. <input type="checkbox"/> Consider refurbishing the entire system if facility does not drain properly. <input type="checkbox"/> Other (Describe Remedial Action):	<input type="checkbox"/> Acceptable <input type="checkbox"/> Deficient <input type="checkbox"/> N/A <input type="checkbox"/> Resolved

Continue on next page!



# BMP TRIENNIAL INSPECTION CHECKLIST

## BIO-SWALE

VA CAMPUS:  Perry Point  Loch Raven

Page \_\_\_ of \_\_\_

BMP ID: \_\_\_\_\_

INSPECTOR: \_\_\_\_\_

TIME: \_\_\_\_\_ AM \_\_\_ PM \_\_\_

INSPECTION DATE: \_\_\_ / \_\_\_ / \_\_\_

WEATHER: \_\_\_\_\_

**Note to inspector:** This checklist is adopted from MDE Technical Memorandum No. 9 (June 2019). The checklist is prepared to generally assist with the items required to be inspected. Check "**Acceptable**" for items in good condition, "**Deficient**" for items in poor condition. If any of the inspection item is deficient, then the overall facility should be assessed as "**Fail**". Any facility that has "Failed" an inspection **MUST** schedule a date for the remedial action and **MUST** be re-inspected to maintain treatment credit for this facility. During re-inspection, if condition is corrected, check the "**Resolved**" box under the "STATUS" column.

### Inspection Items (Continued)

5. Overall Facility Condition (Continued)	STATUS
<b>5.b. Other</b> <b>Requirement:</b> Check for other pollutants (i.e. oil) in and in the immediate vicinity of the facility. <b>Remedial Actions:</b> <input type="checkbox"/> Remove and dispose pollutant in an appropriate manner. <input type="checkbox"/> Other (Describe Remedial Action):	<input type="checkbox"/> Acceptable <input type="checkbox"/> Deficient <input type="checkbox"/> N/A <input type="checkbox"/> Resolved

End of check list items.

### Comments/Observations:

**BMP TRIENNIAL INSPECTION  
ADDITIONAL COMMENTS ATTACHMENT FORM**

VA CAMPUS:  Perry Point  Loch Raven

Page \_\_\_ of \_\_\_

BMP ID: \_\_\_\_\_

INSPECTOR: \_\_\_\_\_

TIME: \_\_\_\_\_ AM \_\_\_ PM \_\_\_

INSPECTION DATE: \_\_\_ / \_\_\_ / \_\_\_

WEATHER: \_\_\_\_\_

**Comments / Observations:**



**BMP TRIENNIAL INSPECTION  
ADDITIONAL COMMENTS ATTACHMENT FORM**

VA CAMPUS:  Perry Point  Loch Raven

Page \_\_\_ of \_\_\_

BMP ID: \_\_\_\_\_

INSPECTOR: \_\_\_\_\_

TIME: \_\_\_\_\_ AM \_\_\_ PM \_\_\_

INSPECTION DATE: \_\_\_ / \_\_\_ / \_\_\_

WEATHER: \_\_\_\_\_

**Comments / Observations:**



Grass-swale  
Maintenance and Inspection Records

Department of Veterans Affairs  
Maryland Health Care System  
Perry Point Medical Center

JULY 2020

Grass-swale  
Maintenance Records

Department of Veterans Affairs  
Maryland Health Care System  
Perry Point Medical Center

JULY 2020

## BMP MAINTENANCE SCHEDULE (EUL) GRASS-SWALE

VA CAMPUS: Perry Point

MAINTENANCE DIRECTOR: \_\_\_\_\_

PHONE NO. : \_\_\_\_\_

**Note:** This schedule is prepared to assist with summary of all maintenance records for the BMPs. The maintenance director is responsible for updating this record upon completion of each maintenance. The record is organized by month of the year and the type of inspection required for that month. Upon completion of each maintenance type check the column for the respective maintenance. For maintenances performed after a major storm, report the month number in which the storm has occurred. The month numbers could be repeated since multiple major storms can occur during the same month.

BMP-ID	BMP Location	Maintenance Type																						
		M = Monthly			S = Seasonal				A = Annual			MS = After a Major Storm												
		M	M	S	M	M	A	M	M	S	M	M	S	MS	MS									
		1	2	3	4	5	6	7	8	9	10	11	12											
PP-GWS-001	Near Fifth Street and Avenue G	<input type="checkbox"/>																						
PP-GWS-___		<input type="checkbox"/>																						
PP-GWS-___		<input type="checkbox"/>																						
PP-GWS-___		<input type="checkbox"/>																						
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PP-GWS-___		<input type="checkbox"/>																						

# MONTHLY - BMP MAINTENANCE CHECKLIST

## GRASS-SWALE

VA CAMPUS:  Perry Point  Loch Raven

Page 1 of \_\_\_\_

BMP ID: \_\_\_\_\_

MAINTENANCE PERSONNEL: \_\_\_\_\_

TIME: \_\_\_\_\_ AM \_\_\_ PM \_\_\_

MAINTENANCE DATE: \_\_\_ / \_\_\_ / \_\_\_

WEATHER: \_\_\_\_\_

**Note to maintenance personnel:** This checklist is adopted from MDE Technical Memorandum No. 9 (June 2019). The checklist is prepared to generally assist with the items to be checked and maintained within the BMP facility monthly. Each component within and/or around the facility is listed along with the maintenance activity required. Check "Y" for Yes, "N" for No, and "N/A" for not applicable for each item that is addressed during this routine maintenance. If "N" is checked for a maintenance item, provide a brief reason in the comments section by citing the section number. If additional room is needed for comments use the blank "Additional Comments Attachment Form" provided at the end of this checklist; make additional copies as needed.

Maintenance Items	Completed
<b>I.1. Debris and Trash</b>	
I.1.a. Remove and properly dispose all trash and debris clogging inlets and outlets.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
I.1.b. Remove and properly dispose all trash and debris within the facility.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
I.1.c. Remove and properly dispose all trash and debris in the immediate vicinity of the facility.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
<b>I.2. Grass Cover</b>	
I.2.a. Remove invasive species or weeds within the facility.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
I.2.b. Grass in the swale must be maintained at a height of 4 to 6 inches. Mow the channel at least bi-annually. <b><u>Do Not Mow Clippings into the Swale!</u></b>	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
I.2.c. Mow side slopes to 4 to 6 inches in height when grass exceeds 12 inches in height. <b><u>Do Not Mow the Clippings into the Swale!</u></b>	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
I.2.d. Check for channelizing, erosion, or bare spots and re-seed as needed.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
I.2.e. Remove excessive vegetation growth blocking inlets, check dams, outlet, and other flow passages.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A

**Comments:**



# SEASONAL & AFTER MAJOR STORM - BMP MAINTENANCE CHECKLIST

## GRASS-SWALE

VA CAMPUS:  Perry Point  Loch Raven

Page 1 of \_\_\_\_

BMP ID: \_\_\_\_\_

MAINTENANCE PERSONNEL: \_\_\_\_\_

TIME: \_\_\_\_\_ AM \_\_\_ PM \_\_\_

MAINTENANCE DATE: \_\_\_ / \_\_\_ / \_\_\_

WEATHER: \_\_\_\_\_

**Note to maintenance personnel:** This checklist is adopted from MDE Technical Memorandum No. 9 (June 2019). The checklist is prepared to generally assist with the items to be checked and maintained within the BMP facility after a major storm and every change of season. Each component within and/or around the facility is listed along with the maintenance activity required. Check "Y" for Yes, "N" for No, and "N/A" for not applicable for each item that is addressed during this routine maintenance. If "N" is checked for a maintenance item, provide a brief reason in the comments section by citing the section number. If additional room is needed for comments use the blank "Additional Comments Attachment Form" provided at the end of this checklist; make additional copies as needed.

Maintenance Items	Completed
<b>II.1. Sediment Accumulation</b>	
II.1.a. Remove and properly dispose all sediment from filter bed and clogged openings.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
II.1.b. Check for sediment blocking flow of water within system; remove any obstructions due to sediment accumulation and dispose properly.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
<b>II.2. Erosion</b>	
II.2.a. Stabilize around inlets and outlets if rills, gullies, and bare spots are present.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
II.2.b. Re-grade, vegetate, and/or armor runoff channelization, rills and gullies within the facility.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
II.2.c. Re-plant, re-seed, re-grade, and/or armor side slopes if bare spots are present.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
<b>II.3. Check Dams</b>	
II.3.a. Re-grade, re-seed, and repair with topsoil when there is evidence of flow cutting around check dam edges.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
II.3.b. Repair with topsoil, or provide stone reinforcement at the bottom of check dams if bare spots or holes are present.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A

**Comments:**



# ANNUAL - BMP MAINTENANCE CHECKLIST

## GRASS-SWALE

VA CAMPUS:  Perry Point  Loch Raven

Page 1 of \_\_\_\_

BMP ID: \_\_\_\_\_

MAINTENANCE PERSONNEL: \_\_\_\_\_

TIME: \_\_\_\_\_ AM \_\_\_ PM \_\_\_

MAINTENANCE DATE: \_\_\_ / \_\_\_ / \_\_\_\_

WEATHER: \_\_\_\_\_

**Note to maintenance personnel:** This checklist is adopted from MDE Technical Memorandum No. 9 (June 2019). The checklist is prepared to generally assist with the items to be checked and maintained within the BMP facility annually. Each component within and/or around the facility is listed along with the maintenance activity required. Check "Y" for Yes, "N" for No, and "N/A" for not applicable for each item that is addressed during this routine maintenance. If "N" is checked for a maintenance item, provide a brief reason in the comments section by citing the section number. If additional room is needed for comments use the blank "Additional Comments Attachment Form" provided at the end of this checklist; make additional copies as needed.

Maintenance Items	Completed
<b>III.1. Overall Facility Function</b>	
III.1.a. Check inflow and outflow channel, check dams, and other flow conveyance structures within facility for cracks, spalling, breakage and misalignments. Report conditions and any notable observations.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
<b>III.2. Overall Grass Cover</b>	
III.2.a. Remove invasive species or weeds within the facility.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
III.2.b. Grass in the swale must be maintained at a height of 4 to 6 inches. Mow the channel at least bi-annually. <b><u>Do Not Mow Clippings into the Swale!</u></b>	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
III.2.c. Check for vegetation growth on gravel check dams. Remove any vegetation growth from gravel check dams and retrofit with same type of gravel per approved plans.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
III.2.e. Mow side slopes to 4 to 6 inches in height when grass exceeds 12 inches in height. <b><u>Do Not Mow the Clippings into the Swale!</u></b>	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
<b>III.3. Debris, Trash and Sediment</b>	
III.3.a. Remove and properly dispose all trash and debris clogging inlets and outlets.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
III.3.b. Remove and properly dispose all trash and debris within the facility.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
III.3.c. Remove and properly dispose all trash and debris in immediate vicinity of the facility.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
III.3.d. Check for sediment blocking flow of water within system; remove any obstructions due to sediment accumulation.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
<b>III.4. Erosion</b>	
III.4.a. Stabilize around inlets and outlets if rills, gullies, and bare spots are present.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
III.4.b. Re-grade, re-seed, and/or armor runoff channelization, rills and gullies within the facility.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
III.4.c. Repair with topsoil when there is evidence of flow cutting around check dam edges. Re-grade, re-seed as needed.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
III.4.d. Repair with topsoil, or provide stone reinforcement at the bottom of check dams if bare spots or holes are present.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
<b>III.5. Access to Facility</b>	
III.5.a. Remove and clear any obstruction preventing access to the facility. i.e. erosion, excessive vegetation growth, and/or other obstructions.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A

**Comments:**

**BMP MAINTENANCE  
ADDITIONAL COMMENTS ATTACHMENT FORM**

VA CAMPUS:  Perry Point  Loch Raven

Page \_\_\_ of \_\_\_

BMP ID: \_\_\_\_\_

INSPECTOR: \_\_\_\_\_

TIME: \_\_\_\_\_ AM \_\_\_ PM \_\_\_

INSPECTION DATE: \_\_\_ / \_\_\_ / \_\_\_

WEATHER: \_\_\_\_\_

**Comments / Observations:**



**BMP MAINTENANCE**  
**ADDITIONAL COMMENTS ATTACHMENT FORM**

VA CAMPUS:  Perry Point  Loch Raven

Page \_\_\_ of \_\_\_

BMP ID: \_\_\_\_\_

INSPECTOR: \_\_\_\_\_

TIME: \_\_\_\_\_ AM \_\_\_ PM \_\_\_

INSPECTION DATE: \_\_\_ / \_\_\_ / \_\_\_

WEATHER: \_\_\_\_\_

**Comments / Observations:**



Grass-swale  
Triennial Inspection Records

Department of Veterans Affairs  
Maryland Health Care System  
Perry Point Medical Center

JULY 2020

# BMP TRIENNIAL INSPECTION SCHEDULE (EUL)

## GRASS-SWALE

VA CAMPUS: Perry Point

MAINTENANCE DIRECTOR: \_\_\_\_\_

PHONE NO. : \_\_\_\_\_

**Note:** This schedule is prepared to assist with summary of all triennial inspection records for the BMPs. The maintenance director is responsible for updating this record upon completion of each triennial inspection. Inspections shall be conducted once every 3 years. After each triennial inspection, record the inspection date and the BMP status. If a BMP is assessed as "failed", the facility should be re-inspected. Record the re-inspection date and status upon completion of the re-inspection.

BMP-ID	BMP Location	Last Triennial Inspection (MM/DD/YY)	Re-Inspection (MM/DD/YY)	BMP Status			
				Triennial Inspection		Re-inspection	
				PASS	FAIL	PASS	FAIL
PP-GWS-001	Near Fifth Street and Avenue G	__/__/__	__/__/__	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PP-GWS-__		__/__/__	__/__/__	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PP-GWS-__		__/__/__	__/__/__	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PP-GWS-__		__/__/__	__/__/__	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PP-GWS-__		__/__/__	__/__/__	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PP-GWS-__		__/__/__	__/__/__	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PP-GWS-__		__/__/__	__/__/__	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PP-GWS-__		__/__/__	__/__/__	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PP-GWS-__		__/__/__	__/__/__	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PP-GWS-__		__/__/__	__/__/__	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PP-GWS-__		__/__/__	__/__/__	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PP-GWS-__		__/__/__	__/__/__	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PP-GWS-__		__/__/__	__/__/__	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PP-GWS-__		__/__/__	__/__/__	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PP-GWS-__		__/__/__	__/__/__	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PP-GWS-__		__/__/__	__/__/__	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PP-GWS-__		__/__/__	__/__/__	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PP-GWS-__		__/__/__	__/__/__	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PP-GWS-__		__/__/__	__/__/__	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



# BMP TRIENNIAL INSPECTION CHECKLIST

## GRASS-SWALE

VA CAMPUS:  Perry Point  Loch Raven

Page \_\_\_ of \_\_\_

BMP ID: \_\_\_\_\_

INSPECTOR: \_\_\_\_\_

TIME: \_\_\_\_\_ AM \_\_\_ PM \_\_\_

INSPECTION DATE: \_\_\_ / \_\_\_ / \_\_\_

WEATHER: \_\_\_\_\_

APPROVED MDE PLANS ON RECORD:  YES  NO

MDE PLAN #: \_\_\_\_\_

MAINTENANCE LOG ON RECORD:  YES  NO

INSPECTION RESULTS:

SCHEDULED RE-INSPECTION:  YES  N/A \_\_\_ / \_\_\_ / \_\_\_

PASS  FAIL

REMEDIAL ACTION DUE BY: \_\_\_ / \_\_\_ / \_\_\_

RE-INSPECTION RESULT:

ATTACHMENTS:  NONE  PHOTOS  SKETCHES

PASS  FAIL

**Note to inspector:** This checklist is adopted from MDE Technical Memorandum No. 9 (June 2019). The checklist is prepared to generally assist with the items required to be inspected. Check "**Acceptable**" for items in good condition, "**Deficient**" for items in poor condition. If any of the inspection item is deficient, then the overall facility should be assessed as "**Fail**". Any facility that has "Failed" an inspection **MUST** schedule a date for the remedial action and **MUST** be re-inspected to maintain treatment credit for this facility. During re-inspection, if condition is corrected, check the "**Resolved**" box under the "STATUS" column.

### Inspection Items

1. General	STATUS
<b>1.a. Maintenance Access</b> <b>Requirement:</b> Check for accessibility to facility. <b>Remedial Actions:</b> <input type="checkbox"/> Mow and remove excessive vegetation growth blocking access to facility. <input type="checkbox"/> Repair eroded areas blocking access to facility. <input type="checkbox"/> Remove any obstructions to facility. <input type="checkbox"/> Other (Describe Remedial Action):	<input type="checkbox"/> Acceptable <input type="checkbox"/> Deficient <input type="checkbox"/> N/A <input type="checkbox"/> Resolved

<b>2. Flow Conveyance (Inlets, outlets, check dams, piping, outfall)</b> <b>2.a. Debris and Trash</b> <b>Requirement:</b> Check for debris and trash blocking inlets, outlets, other conveyance links. Check for debris and trash within the channel. Check for clogged pipes and weir openings. <b>Remedial Actions:</b> <input type="checkbox"/> Remove and properly dispose all trash and debris and dispose in an acceptable manner. <input type="checkbox"/> Unclog all openings. <input type="checkbox"/> Other (Describe Remedial Action):	<input type="checkbox"/> Acceptable <input type="checkbox"/> Deficient <input type="checkbox"/> N/A <input type="checkbox"/> Resolved
<b>2.b. Vegetative Cover</b> <b>Requirement:</b> Check for excessive vegetation growth blocking inlets, outlets, and check dams. <b>Remedial Actions:</b> <input type="checkbox"/> Remove excess vegetation around inlets, outlets, and weirs. <input type="checkbox"/> Other (Describe Remedial Action):	<input type="checkbox"/> Acceptable <input type="checkbox"/> Deficient <input type="checkbox"/> N/A <input type="checkbox"/> Resolved

Continue on next page!

# BMP TRIENNIAL INSPECTION CHECKLIST

## GRASS-SWALE

VA CAMPUS:  Perry Point  Loch Raven

Page \_\_\_ of \_\_\_

BMP ID: \_\_\_\_\_

INSPECTOR: \_\_\_\_\_

TIME: \_\_\_\_\_ AM \_\_\_ PM \_\_\_

INSPECTION DATE: \_\_\_ / \_\_\_ / \_\_\_

WEATHER: \_\_\_\_\_

**Note to inspector:** This checklist is adopted from MDE Technical Memorandum No. 9 (June 2019). The checklist is prepared to generally assist with the items required to be inspected. Check "**Acceptable**" for items in good condition, "**Deficient**" for items in poor condition. If any of the inspection item is deficient, then the overall facility should be assessed as "**Fail**". Any facility that has "Failed" an inspection **MUST** schedule a date for the remedial action and **MUST** be re-inspected to maintain treatment credit for this facility. During re-inspection, if condition is corrected, check the "**Resolved**" box under the "STATUS" column.

### Inspection Items (Continued)

2. Flow Conveyance (Inlets, outlets, check dams, piping, outfall) (Continued)	STATUS
<p><b>2.c. Erosion</b></p> <p><b>Requirement:</b> Check for rills, gullies, and runoff channelization around inlets and at the outfall. Check for evidence of flow cutting around check dams. Check for signs of scour at the base of the check dams.</p> <p><b>Remedial Actions:</b></p> <p><input type="checkbox"/> Re-grade and repair with soil, seed, and/or matting. <input type="checkbox"/> Grade, vegetate, and/or armor with stone to provide stable conveyance per approved plans.</p> <p><input type="checkbox"/> Other (Describe Remedial Action):</p>	<input type="checkbox"/> Acceptable <input type="checkbox"/> Deficient <input type="checkbox"/> N/A <input type="checkbox"/> Resolved
<p><b>2.d. Sediment Accumulation / Blockage</b></p> <p><b>Requirement:</b> Check for sediment accumulation (recommend action if sediment &gt; 2 inch in depth) Check for blockages in inlets, outlets, and all other conveyance links.</p> <p><b>Remedial Actions:</b></p> <p><input type="checkbox"/> Remove sediment from clogged openings, around inlets, and outlets. <input type="checkbox"/> Clear out any blockage.</p> <p><input type="checkbox"/> Other (Describe Remedial Action):</p>	<input type="checkbox"/> Acceptable <input type="checkbox"/> Deficient <input type="checkbox"/> N/A <input type="checkbox"/> Resolved
<p><b>2.e. Structural conditions</b></p> <p><b>Requirement:</b> Check all check dams for misalignment, cracks, and breakage. Check riprap and stone armoring for missing stones, bare spots, and erosion. Check for evidence of missing check dams and other flow conveyance structures. Compare with approved plans.</p> <p><b>Remedial Actions:</b></p> <p><input type="checkbox"/> Repair and/or replace any broken structures per approved plans and specifications. <input type="checkbox"/> Replace missing riprap and stone per approved plans and specifications. <input type="checkbox"/> Consider major repairs and retrofit of the conveyance structures within the facility.</p> <p><input type="checkbox"/> Other (Describe Remedial Action):</p>	<input type="checkbox"/> Acceptable <input type="checkbox"/> Deficient <input type="checkbox"/> N/A <input type="checkbox"/> Resolved

Continue on next page!

# BMP TRIENNIAL INSPECTION CHECKLIST

## GRASS-SWALE

VA CAMPUS:  Perry Point  Loch Raven

Page \_\_\_ of \_\_\_

BMP ID: \_\_\_\_\_

INSPECTOR: \_\_\_\_\_

TIME: \_\_\_\_\_ AM \_\_\_ PM \_\_\_

INSPECTION DATE: \_\_\_ / \_\_\_ / \_\_\_

WEATHER: \_\_\_\_\_

**Note to inspector:** This checklist is adopted from MDE Technical Memorandum No. 9 (June 2019). The checklist is prepared to generally assist with the items required to be inspected. Check "**Acceptable**" for items in good condition, "**Deficient**" for items in poor condition. If any of the inspection item is deficient, then the overall facility should be assessed as "**Fail**". Any facility that has "Failed" an inspection **MUST** schedule a date for the remedial action and **MUST** be re-inspected to maintain treatment credit for this facility. During re-inspection, if condition is corrected, check the "**Resolved**" box under the "STATUS" column.

### Inspection Items (Continued)

3. Side Slopes	STATUS
<b>3.a. Vegetation Cover</b> <b>Requirement:</b> Check for invasive species or weeds. Check for excessive vegetation growth. <b>Remedial Actions:</b> <input type="checkbox"/> Remove invasive species and weeds. <input type="checkbox"/> Mow side slopes to 4 to 6 inches in height when grass exceeds 12 inches in height. <b><u>Do Not Mow the Clippings into the Swale!</u></b> <input type="checkbox"/> Other (Describe Remedial Action):	<input type="checkbox"/> Acceptable <input type="checkbox"/> Deficient <input type="checkbox"/> N/A <input type="checkbox"/> Resolved
<b>3.b. Erosion</b> <b>Requirement:</b> Check for bare spots, rills and gullies on side slopes. <b>Remedial Actions:</b> <input type="checkbox"/> Re-plant / re-seed as needed. <input type="checkbox"/> Re-grade prior to seeding and planting if flow channelization has eroded the side slopes. <input type="checkbox"/> Other (Describe Remedial Action):	<input type="checkbox"/> Acceptable <input type="checkbox"/> Deficient <input type="checkbox"/> N/A <input type="checkbox"/> Resolved

4. Swale Bottom	STATUS
<b>4.a. Grass Cover</b> <b>Requirement:</b> Check that the grass is maintained at 4 to 6 inches in height. Check for dead grass patches. Check for invasive species or weeds. <b>Remedial Actions:</b> <input type="checkbox"/> Mow swale bottom to 4 to 6 inches in height when grass exceeds 12 inches in height. <b><u>Do Not Mow the Clippings into the Swale!</u></b> <input type="checkbox"/> Remove dead grass patches and re-seed per approved plans and specifications. <input type="checkbox"/> Remove invasive species and weeds. <input type="checkbox"/> Other (Describe Remedial Action):	<input type="checkbox"/> Acceptable <input type="checkbox"/> Deficient <input type="checkbox"/> N/A <input type="checkbox"/> Resolved

Continue on next page!



# BMP TRIENNIAL INSPECTION CHECKLIST

## GRASS-SWALE

VA CAMPUS:  Perry Point  Loch Raven

Page \_\_\_ of \_\_\_

BMP ID: \_\_\_\_\_

INSPECTOR: \_\_\_\_\_

TIME: \_\_\_\_\_ AM \_\_\_ PM \_\_\_

INSPECTION DATE: \_\_\_ / \_\_\_ / \_\_\_

WEATHER: \_\_\_\_\_

**Note to inspector:** This checklist is adopted from MDE Technical Memorandum No. 9 (June 2019). The checklist is prepared to generally assist with the items required to be inspected. Check "**Acceptable**" for items in good condition, "**Deficient**" for items in poor condition. If any of the inspection item is deficient, then the overall facility should be assessed as "**Fail**". Any facility that has "Failed" an inspection **MUST** schedule a date for the remedial action and **MUST** be re-inspected to maintain treatment credit for this facility. During re-inspection, if condition is corrected, check the "**Resolved**" box under the "STATUS" column.

### Inspection Items (Continued)

4. Swale Bottom (Continued)	STATUS
<b>4.b. Debris</b> <b>Requirement:</b> Check for trash and debris within the swale. <b>Remedial Actions:</b> <input type="checkbox"/> Remove and properly dispose all trash and debris. <input type="checkbox"/> Other (Describe Remedial Action):	<input type="checkbox"/> Acceptable <input type="checkbox"/> Deficient <input type="checkbox"/> N/A <input type="checkbox"/> Resolved
<b>4.c. Erosion</b> <b>Requirement:</b> Check for bare spots within the swale. <b>Remedial Actions:</b> <input type="checkbox"/> Repair, re-grade, and re-seed bare spots per approved plans. <input type="checkbox"/> Other (Describe Remedial Action):	<input type="checkbox"/> Acceptable <input type="checkbox"/> Deficient <input type="checkbox"/> N/A <input type="checkbox"/> Resolved

5. Overall Facility Condition	STATUS
<b>5.a. Other</b> <b>Requirement:</b> Check for other pollutants (i.e. oil) in and in the immediate vicinity of the facility. <b>Remedial Actions:</b> <input type="checkbox"/> Remove and dispose pollutant in an appropriate manner. <input type="checkbox"/> Other (Describe Remedial Action):	<input type="checkbox"/> Acceptable <input type="checkbox"/> Deficient <input type="checkbox"/> N/A <input type="checkbox"/> Resolved

End of check list items.

### Comments/Observations:

**BMP TRIENNIAL INSPECTION  
ADDITIONAL COMMENTS ATTACHMENT FORM**

VA CAMPUS:  Perry Point  Loch Raven

Page \_\_\_ of \_\_\_

BMP ID: \_\_\_\_\_

INSPECTOR: \_\_\_\_\_

TIME: \_\_\_\_\_ AM \_\_\_ PM \_\_\_

INSPECTION DATE: \_\_\_ / \_\_\_ / \_\_\_

WEATHER: \_\_\_\_\_

**Comments / Observations:**



**BMP TRIENNIAL INSPECTION  
ADDITIONAL COMMENTS ATTACHMENT FORM**

VA CAMPUS:  Perry Point  Loch Raven

Page \_\_\_ of \_\_\_

BMP ID: \_\_\_\_\_

INSPECTOR: \_\_\_\_\_

TIME: \_\_\_\_\_ AM \_\_\_ PM \_\_\_

INSPECTION DATE: \_\_\_ / \_\_\_ / \_\_\_

WEATHER: \_\_\_\_\_

**Comments / Observations:**



Shoreline Management  
Maintenance and Inspection Records

Department of Veterans Affairs  
Maryland Health Care System  
Perry Point Medical Center

JULY 2020

Shoreline Management  
Maintenance Records

Department of Veterans Affairs  
Maryland Health Care System  
Perry Point Medical Center

JULY 2020



# AFTER FLOODING EVENT- BMP MAINTENANCE CHECKLIST

## SHORELINE MANAGEMENT

VA CAMPUS:  Perry Point

Page 1 of \_\_\_\_

BMP ID: \_\_\_\_\_

MAINTENANCE PERSONNEL: \_\_\_\_\_

TIME: \_\_\_\_\_ AM \_\_\_ PM \_\_\_

MAINTENANCE DATE: \_\_\_ / \_\_\_ / \_\_\_\_\_

WEATHER: \_\_\_\_\_

**Note to maintenance personnel:** This checklist is adopted from MDE Shore Erosion Control Guidelines of Waterfront Property Owners (December 2008). The checklist is prepared to generally assist with the items to be checked and maintained, as needed, along the shoreline revetment after a major flooding event. Major flooding event can be considered a 10-yr storm, or greater, which correlates to approximately 5.1 inches of rain in 24 hours. Inspection of the shoreline should occur within 24 hours of the flood event, or when water recedes enough for safe inspections and repairs. Each component within and/or around the shoreline revetment is listed along with the maintenance activity required. Check "Y" for Yes, "N" for No, and "N/A" for not applicable for each item that is addressed during this routine maintenance. If "N" is checked for a maintenance item, provide a brief reason in the comments section by citing the section number. If additional room is needed for comments, use the blank "Additional Comments Attachment Form" provided at the end of this checklist; make additional copies as needed.

Maintenance Items	Completed
<b>I.1. Riprap Cover</b>	
I.1.a. Shifted or displaced riprap: Check riprap area for shifted or displaced riprap. Pay special attention to the bottom of the riprap (toe protection). Re-anchor shifted or displaced riprap. Achieve uniform slope and depth of riprap cover.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
I.1.b. Missing riprap: Check riprap area for large voids of missing riprap. Pay special attention to the bottom of the riprap (toe protection). Fill large voids with riprap of similar size to the adjacent riprap and anchor in place. Achieve uniform slope and depth of riprap cover.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
I.1.c. Damaged riprap: Check riprap area for any damage, in particular damage from heavy ice flow in the river. Pay special attention to the bottom of the riprap (toe protection). Remove and replace damaged riprap in kind (with riprap of similar size) and anchor in place. Achieve uniform slope and depth of riprap cover.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
I.1.d. Missing or damaged filter fabric: Check riprap area for missing or damaged underlying filter fabric or signs of erosion. Pay special attention to the bottom of the riprap (toe protection). Replace any missing or damaged underlying filter fabric and stabilize erosion.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
<b>I.2. Uphill Land Area</b>	
I.2.a. Check land area uphill from the riprap cover for signs of erosion and exposed filter fabric. Regrade and stabilize eroded areas with topsoil and proper vegetative cover. Reestablish filter fabric as needed.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A

**Comments:**

# ANNUAL - BMP MAINTENANCE CHECKLIST

## SHORELINE MANAGEMENT

VA CAMPUS:  Perry Point

Page 1 of \_\_\_\_

BMP ID: \_\_\_\_\_

MAINTENANCE PERSONNEL: \_\_\_\_\_

TIME: \_\_\_\_\_ AM \_\_\_ PM \_\_\_

MAINTENANCE DATE: \_\_\_ / \_\_\_ / \_\_\_\_

WEATHER: \_\_\_\_\_

**Note to maintenance personnel:** This checklist is adopted from MDE Shore Erosion Control Guidelines of Waterfront Property Owners (December 2008). The checklist is prepared to generally assist with the items to be checked and maintained, as needed, along the shoreline revetment annually. Each component within and/or around the shoreline revetment is listed along with the maintenance activity required. Check "Y" for Yes, "N" for No, and "N/A" for not applicable for each item that is addressed during this routine maintenance. If "N" is checked for a maintenance item, provide a brief reason in the comments section by citing the section number. If additional room is needed for comments, use the blank "Additional Comments Attachment Form" provided at the end of this checklist; make additional copies as needed.

Maintenance Items	Completed
<b>II.1. Debris and Trash</b>	
II.1.a. Remove and properly dispose of all trash within the shoreline riprap area. Natural driftwood/debris does not need to be removed, unless it is causing damage to the riprap area.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
II.1.b. Remove and properly dispose of all trash within the land area adjacent to the riprap.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
<b>II.2. Photo Documentation</b>	
II.2.a. Take photos from established photo location monuments with similar angle and direction facing as previous photo documentations. In addition, take photos in any areas that have recurring maintenance activities.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
<b>II.3. Riprap Cover</b>	
II.3.a. Shifted or displaced riprap: Check riprap area for shifted or displaced riprap. Pay special attention to the bottom of the riprap (toe protection). Re-anchor shifted or displaced riprap. Achieve uniform slope and depth of riprap cover.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
II.3.b. Missing riprap: Check riprap area for large voids of missing riprap. Pay special attention to the bottom of the riprap (toe protection). Fill large voids with riprap of similar size to the adjacent riprap and anchor in place. Achieve uniform slope and depth of riprap cover.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
II.3.c. Damaged riprap: Check riprap area for any damage, in particular damage from heavy ice flow in the river. Pay special attention to the bottom of the riprap (toe protection). Remove and replace damaged riprap in kind (with riprap of similar size) and anchor in place. Achieve uniform slope and depth of riprap cover.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
II.3.d. Missing or damaged filter fabric: Check riprap area for missing or damaged underlying filter fabric or signs of erosion. Pay special attention to the bottom of the riprap (toe protection). Replace any missing or damaged underlying filter fabric and stabilize erosion.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
II.3.e. Check riprap area for large trees that could shift or displace riprap and monitor these locations. If large trees cause shifts, cut tree to the height of the riprap, do not remove the tree root system. Re-anchor shifted or displaced riprap.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
<b>II.4. Uphill Land Area</b>	
II.4.a. Check land area uphill from the riprap cover for signs of erosion and exposed filter fabric. Regrade and stabilize eroded areas with topsoil and proper vegetative cover. Reestablish filter fabric as needed.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
<b>II.5. Access to Shoreline</b>	
II.5.a. Remove and clear any obstruction preventing adequate access to the shoreline. i.e. erosion, excessive vegetation, and/or other obstructions.	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A

**Comments:**

**BMP MAINTENANCE  
ADDITIONAL COMMENTS ATTACHMENT FORM**

VA CAMPUS:  Perry Point  Loch Raven

Page \_\_\_ of \_\_\_

BMP ID: \_\_\_\_\_

INSPECTOR: \_\_\_\_\_

TIME: \_\_\_\_\_ AM \_\_\_ PM \_\_\_

INSPECTION DATE: \_\_\_ / \_\_\_ / \_\_\_

WEATHER: \_\_\_\_\_

**Comments / Observations:**



**BMP MAINTENANCE**  
**ADDITIONAL COMMENTS ATTACHMENT FORM**

VA CAMPUS:  Perry Point  Loch Raven

Page \_\_\_ of \_\_\_

BMP ID: \_\_\_\_\_

INSPECTOR: \_\_\_\_\_

TIME: \_\_\_\_\_ AM \_\_\_ PM \_\_\_

INSPECTION DATE: \_\_\_ / \_\_\_ / \_\_\_

WEATHER: \_\_\_\_\_

**Comments / Observations:**



Shoreline Management  
Triennial Inspection Records

Department of Veterans Affairs  
Maryland Health Care System  
Perry Point Medical Center

JULY 2020

## BMP TRIENNIAL INSPECTION SCHEDULE (VA) SHORELINE MANAGEMENT

VA CAMPUS: Perry Point

MAINTENANCE DIRECTOR: \_\_\_\_\_

PHONE NO. : \_\_\_\_\_

**Note:** This schedule is prepared to assist with summary of all triennial inspection records for the BMPs. The maintenance director is responsible for updating this record upon completion of each triennial inspection. Inspections shall be conducted once every 3 years. After each triennial inspection, record the inspection date and the BMP status. If a BMP is assessed as "failed", the facility should be re-inspected. Record the re-inspection date and status upon completion of the re-inspection.

BMP-ID	BMP Location	Last Triennial Inspection (MM/DD/YY)	Re-Inspection (MM/DD/YY)	BMP Status			
				Triennial Inspection		Re-inspection	
				PASS	FAIL	PASS	FAIL
PP-SHS-001	Along Susquehanna River	__/__/__	__/__/__	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PP-SHS-__		__/__/__	__/__/__	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PP-SHS-__		__/__/__	__/__/__	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		__/__/__	__/__/__	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		__/__/__	__/__/__	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		__/__/__	__/__/__	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		__/__/__	__/__/__	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		__/__/__	__/__/__	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		__/__/__	__/__/__	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		__/__/__	__/__/__	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		__/__/__	__/__/__	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		__/__/__	__/__/__	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		__/__/__	__/__/__	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		__/__/__	__/__/__	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		__/__/__	__/__/__	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		__/__/__	__/__/__	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		__/__/__	__/__/__	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		__/__/__	__/__/__	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

# BMP TRIENNIAL INSPECTION CHECKLIST

## SHORELINE MANAGEMENT

VA CAMPUS:  Perry Point

Page \_\_\_ of \_\_\_

BMP ID: \_\_\_\_\_

INSPECTOR: \_\_\_\_\_

TIME: \_\_\_\_\_ AM \_\_\_ PM \_\_\_

INSPECTION DATE: \_\_\_ / \_\_\_ / \_\_\_

WEATHER: \_\_\_\_\_

APPROVED MDE PLANS ON RECORD:  YES  NO

MDE PLAN #: \_\_\_\_\_

MAINTENANCE LOG ON RECORD:  YES  NO

INSPECTION RESULTS:

SCHEDULED RE-INSPECTION:  YES  N/A \_\_\_ / \_\_\_ / \_\_\_

PASS  FAIL

REMEDIAL ACTION DUE BY: \_\_\_ / \_\_\_ / \_\_\_

RE-INSPECTION RESULT:

ATTACHMENTS:  NONE  PHOTOS  SKETCHES

PASS  FAIL

**Note to inspector:** This checklist is adopted from MDE Shore Erosion Control Guidelines of Waterfront Property Owners (December 2008). The checklist is prepared to generally assist with the items required to be inspected. Check "**Acceptable**" for items in good condition, "**Deficient**" for items in poor condition. If any of the inspection item is deficient, then the overall facility should be assessed as "**Fail**". Any facility that has "Failed" an inspection **MUST** schedule a date for the remedial action and **MUST** be re-inspected to maintain treatment credit for this facility. During re-inspection, if condition is corrected, check the "**Resolved**" box under the "STATUS" column.

### Inspection Items

1. Visual Assessment	STATUS
<p><b>1.a. Photo Documentation</b></p> <p><b>Requirement:</b> Take photos from established photo location monuments with similar angle and direction facing as previous photo documentations. Take photos in areas that had recurring maintenance activities.</p> <p><b>Remedial Actions:</b></p> <p><input type="checkbox"/> Other (Describe Remedial Action):</p>	<input type="checkbox"/> Acceptable <input type="checkbox"/> Deficient <input type="checkbox"/> N/A <input type="checkbox"/> Resolved

2. Riprap Cover	STATUS
<p><b>2.a. Riprap Cover</b></p> <p><b>Requirement:</b> Check for shifted or displaced riprap. Check for large voids of missing riprap. Check for damaged riprap. Check for large trees that could shift or displace riprap. Pay special attention to the bottom of the riprap (toe protection).</p> <p><b>Remedial Actions:</b></p> <p><input type="checkbox"/> Re-anchor shifted or displaced riprap. Achieve uniform slope and depth.</p> <p><input type="checkbox"/> Fill large voids with riprap of similar size to adjacent riprap and anchor in place. Achieve uniform slope and depth.</p> <p><input type="checkbox"/> Remove and replace damaged riprap in kind (similar size) and anchor in place. Achieve uniform slope and depth.</p> <p><input type="checkbox"/> Monitor areas with large trees that could shift or displace riprap. If large trees cause shifts, cut tree to the height of riprap. Do not remove the tree root system. Re-anchor riprap. Achieve uniform slope and depth.</p> <p><input type="checkbox"/> Other (Describe Remedial Action):</p>	<input type="checkbox"/> Acceptable <input type="checkbox"/> Deficient <input type="checkbox"/> N/A <input type="checkbox"/> Resolved

Continue on next page!

# BMP TRIENNIAL INSPECTION CHECKLIST

## SHORELINE MANAGEMENT

VA CAMPUS:  Perry Point

Page \_\_\_ of \_\_\_

BMP ID: \_\_\_\_\_

INSPECTOR: \_\_\_\_\_

TIME: \_\_\_\_\_ AM \_\_\_ PM \_\_\_

INSPECTION DATE: \_\_\_ / \_\_\_ / \_\_\_

WEATHER: \_\_\_\_\_

**Note to inspector:** This checklist is adopted from MDE Shore Erosion Control Guidelines of Waterfront Property Owners (December 2008). The checklist is prepared to generally assist with the items required to be inspected. Check "**Acceptable**" for items in good condition, "**Deficient**" for items in poor condition. If any of the inspection item is deficient, then the overall facility should be assessed as "**Fail**". Any facility that has "Failed" an inspection **MUST** schedule a date for the remedial action and **MUST** be re-inspected to maintain treatment credit for this facility. During re-inspection, if condition is corrected, check the "**Resolved**" box under the "STATUS" column.

### Inspection Items (Continued)

2. Riprap Cover (Continued)	STATUS
<b>2.b. Filter fabric</b>	
<b>Requirement:</b> Check for missing or damaged underlying filter fabric.	<input type="checkbox"/> Acceptable <input type="checkbox"/> Deficient <input type="checkbox"/> N/A <input type="checkbox"/> Resolved
<b>Remedial Actions:</b> <input type="checkbox"/> Replace any missing or damaged underlying filter fabric and stabilize any erosion. <input type="checkbox"/> Other (Describe Remedial Action):	
<b>2.c. Trash</b>	
<b>Requirement:</b> Check for trash within the shoreline riprap area. Natural driftwood/debris does not need to be removed, unless it is causing damage to the riprap area.	<input type="checkbox"/> Acceptable <input type="checkbox"/> Deficient <input type="checkbox"/> N/A <input type="checkbox"/> Resolved
<b>Remedial Actions:</b> <input type="checkbox"/> Remove and properly dispose of all trash. <input type="checkbox"/> Other (Describe Remedial Action):	

3. Uphill Land Area	STATUS
<b>3.a. Erosion</b>	
<b>Requirement:</b> Check uphill land area adjacent to the riprap cover for rills, gullies, and runoff channelization. Check uphill land area adjacent to the riprap cover for bare spots and exposed underlying fabric.	<input type="checkbox"/> Acceptable <input type="checkbox"/> Deficient <input type="checkbox"/> N/A <input type="checkbox"/> Resolved
<b>Remedial Actions:</b> <input type="checkbox"/> Regrade and stabilize eroded areas with topsoil and proper vegetative cover. <input type="checkbox"/> Reestablish filter fabric. <input type="checkbox"/> Other (Describe Remedial Action):	
<b>3.b. Trash</b>	
<b>Requirement:</b> Check uphill land area adjacent to the riprap cover for trash.	<input type="checkbox"/> Acceptable <input type="checkbox"/> Deficient <input type="checkbox"/> N/A <input type="checkbox"/> Resolved
<b>Remedial Actions:</b> <input type="checkbox"/> Remove and properly dispose of all trash. <input type="checkbox"/> Other (Describe Remedial Action):	

Continue on next page!

# BMP TRIENNIAL INSPECTION CHECKLIST

## SHORELINE MANAGEMENT

VA CAMPUS:  Perry Point

Page \_\_\_ of \_\_\_

BMP ID: \_\_\_\_\_

INSPECTOR: \_\_\_\_\_

TIME: \_\_\_\_\_ AM \_\_\_ PM \_\_\_

INSPECTION DATE: \_\_\_ / \_\_\_ / \_\_\_

WEATHER: \_\_\_\_\_

**Note to inspector:** This checklist is adopted from MDE Shore Erosion Control Guidelines of Waterfront Property Owners (December 2008). The checklist is prepared to generally assist with the items required to be inspected. Check "**Acceptable**" for items in good condition, "**Deficient**" for items in poor condition. If any of the inspection item is deficient, then the overall facility should be assessed as "**Fail**". Any facility that has "Failed" an inspection **MUST** schedule a date for the remedial action and **MUST** be re-inspected to maintain treatment credit for this facility. During re-inspection, if condition is corrected, check the "**Resolved**" box under the "STATUS" column.

### Inspection Items (Continued)

4. Access to Shoreline	STATUS
<b>4.a. Access</b> <b>Requirement:</b> Check access to the shoreline for erosion, excessive vegetation, and/or other obstructions.  <b>Remedial Actions:</b> <input type="checkbox"/> Remove any obstructions preventing adequate access to the shoreline. Stabilize eroded areas with topsoil and proper vegetation. <input type="checkbox"/> Other (Describe Remedial Action):	<input type="checkbox"/> Acceptable <input type="checkbox"/> Deficient <input type="checkbox"/> N/A <input type="checkbox"/> Resolved

End of check list items.

### Comments/Observations:

**BMP TRIENNIAL INSPECTION  
ADDITIONAL COMMENTS ATTACHMENT FORM**

VA CAMPUS:  Perry Point  Loch Raven

Page \_\_\_ of \_\_\_

BMP ID: \_\_\_\_\_

INSPECTOR: \_\_\_\_\_

TIME: \_\_\_\_\_ AM \_\_\_ PM \_\_\_

INSPECTION DATE: \_\_\_ / \_\_\_ / \_\_\_

WEATHER: \_\_\_\_\_

**Comments / Observations:**



**BMP TRIENNIAL INSPECTION  
ADDITIONAL COMMENTS ATTACHMENT FORM**

VA CAMPUS:  Perry Point  Loch Raven

Page \_\_\_ of \_\_\_

BMP ID: \_\_\_\_\_

INSPECTOR: \_\_\_\_\_

TIME: \_\_\_\_\_ AM \_\_\_ PM \_\_\_

INSPECTION DATE: \_\_\_ / \_\_\_ / \_\_\_

WEATHER: \_\_\_\_\_

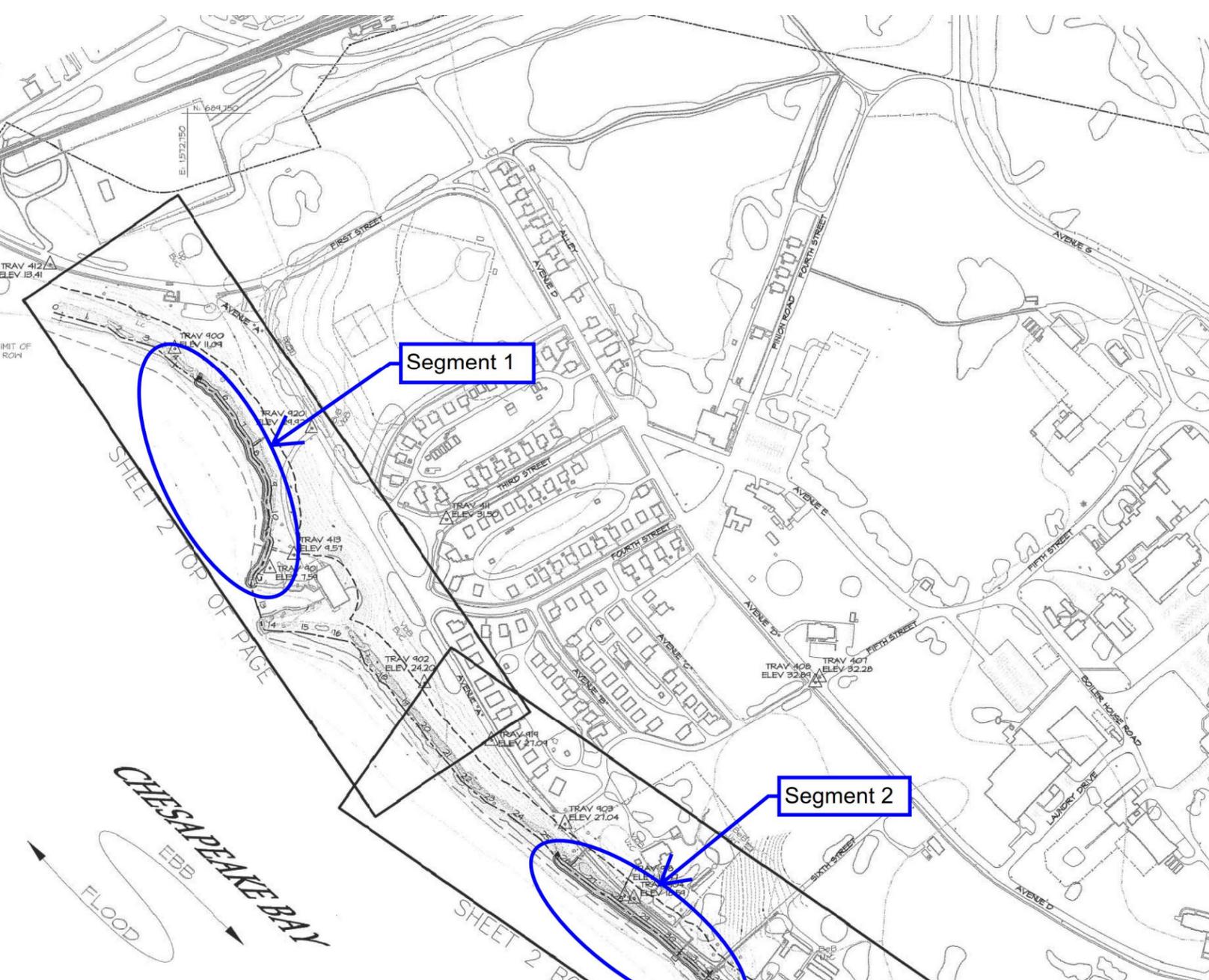
**Comments / Observations:**



Shoreline Management  
BMP Location Guide  
Plan View

Department of Veterans Affairs  
Maryland Health Care System  
Perry Point Medical Center

**JULY 2020**



Segment 1

Segment 2

Segment 3

Segment 4

Segment 5 & 6

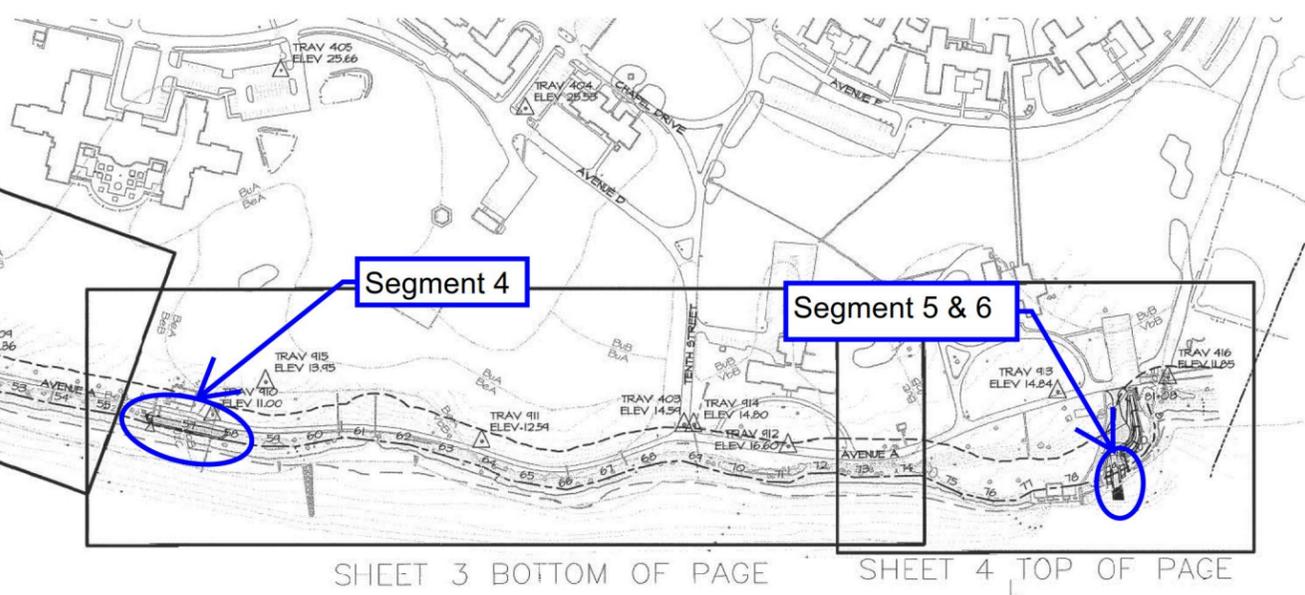
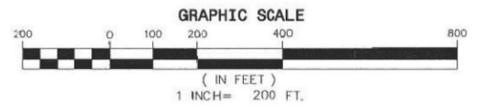
POINT NUMBER	NORTHING	EASTING	ELEVATION
403	686054.5	1577751.3	14.59
411	683498.1	1573549.3	31.50
412	689285.4	157238.0	13.41
413	688390.8	1573080.9	9.57
416	686161.8	1578862.7	11.85
900	689026.5	1572712.4	11.09
901	688349.5	1573006.6	7.59
902	687997.7	1573481.9	24.20
903	687562.8	1573910.6	27.04
904	687333.1	1574120.8	18.59
905	686975.1	1574570.1	19.08
906	686720.3	1575004.0	16.71
907	686516.3	1575374.1	20.08
908	686357.6	1575753.1	12.99
909	686214.6	1576054.7	16.86
910	686079.8	1576662.9	11.00
911	686012.3	1577281.8	12.59
912	686005.9	1577990.2	16.60
913	686130.2	1578609.8	14.84
914	686053.9	1577773.8	14.80
915	686155.3	1576785.8	13.95
916	686325.1	1575844.9	17.27
917	686752.6	1574915.8	17.98
918	687341.3	1574092.1	19.47
919	687818.2	1573686.3	27.09
920	688779.7	1573136.3	29.92

**PROPOSED SHORELINE PROTECTION**

STATION	LENGTH	PHASE	AS-BUILT NOTE:
4+95 TO 12+32	737	PHASE I	REVETMENT ARMORING WAS CONSTRUCTED AS SHOWN ON THE DESIGN PLANS EXCEPT BASELINE WAS FIELD LOCATED AND SHIFTED LANDWARD BY APPROXIMATELY 4' DUE TO SHORELINE EROSION BETWEEN ORIGINAL SURVEY AND CONSTRUCTION DATES.
25+85 TO 32+56	671	PHASE II	
33+45 TO 46+50	1305	PHASE III	
56+20 TO 57+70	150	PHASE III	
78+77 TO 78+87	10	RAMP PHASE	
79+14 TO 79+24	10	RAMP PHASE	

**SOILS**

SYMBOL	NAME	HYDRAULIC CONDUCTIVITY	SLOPES	ERODIBILITY, K FACTOR	HYDRIC
BeA	BELTSVILLE SILT LOAM	C	0-2%	0.37	NO
BeB	BELTSVILLE SILT LOAM	C	2-5%	0.37	NO
BuA	BUTLERTOWN SILT LOAM	C	0-2%	-	NO
BuB	BUTLERTOWN SILT LOAM	C	2-5%	-	NO
BuC	BUTLERTOWN SILT LOAM	C	5-13%	-	NO
UzC	UDORTHENTS	B	0-13%	0.20	NO
VbB	BUTLERTOWN URBAN LAND	C	0-5%	-	NO

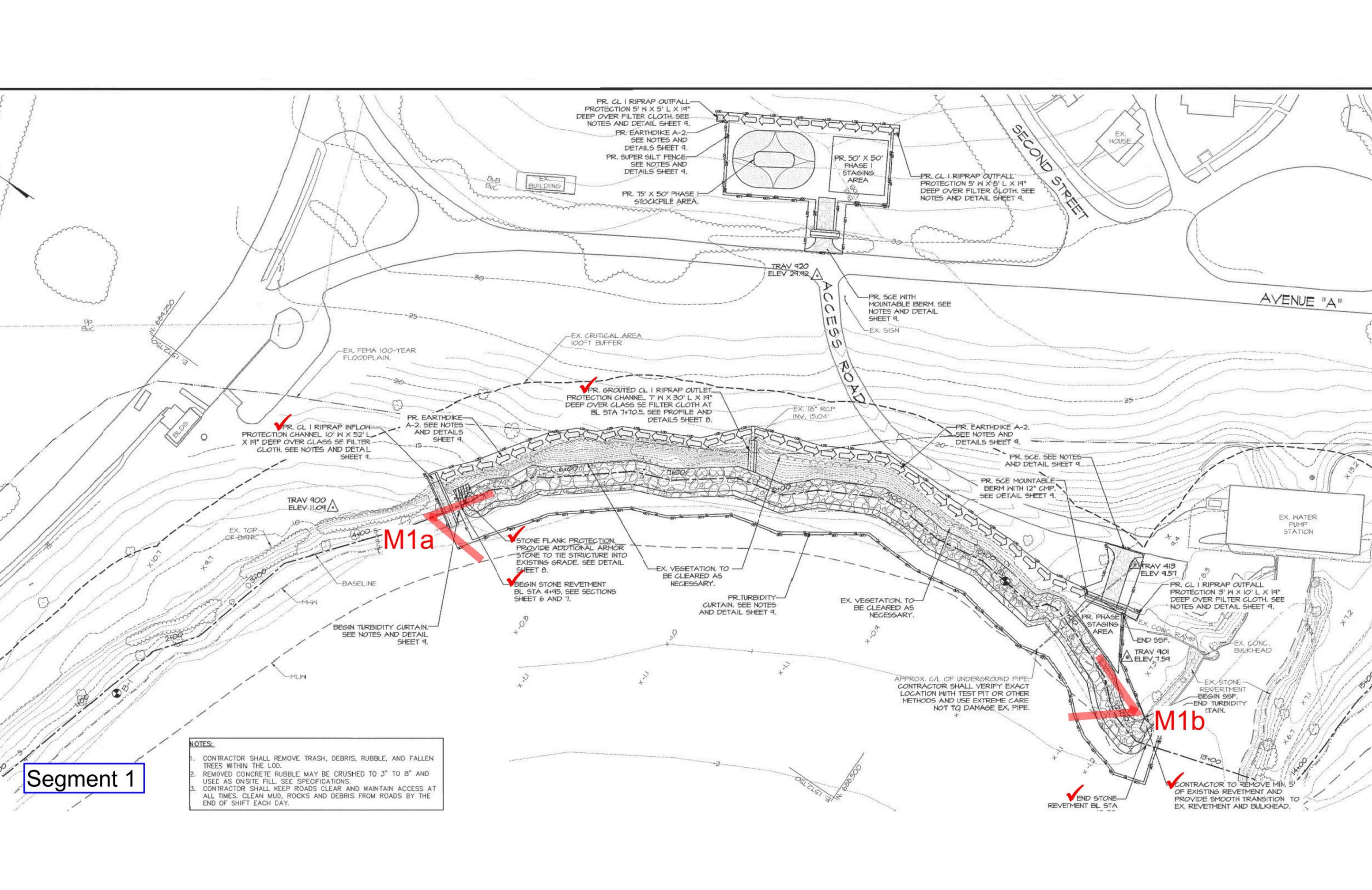


SHEET 3 BOTTOM OF PAGE

SHEET 4 TOP OF PAGE

E. 1572750

E. 1573500



**Segment 1**

- NOTES:**
1. CONTRACTOR SHALL REMOVE TRASH, DEBRIS, RUBBLE, AND FALLEN TREES WITHIN THE LOD.
  2. REMOVED CONCRETE RUBBLE MAY BE CRUSHED TO 3" TO 8" AND USED AS ONSITE FILL. SEE SPECIFICATIONS.
  3. CONTRACTOR SHALL KEEP ROADS CLEAR AND MAINTAIN ACCESS AT ALL TIMES. CLEAN MUD, ROCKS AND DEBRIS FROM ROADS BY THE END OF SHIFT EACH DAY.

PR. CL I RIPRAP INFLOW PROTECTION CHANNEL 10' W X 52' L X 14" DEEP OVER CLASS SE FILTER CLOTH. SEE NOTES AND DETAIL SHEET 9.

**M1a**

PR. GROUNDED CL I RIPRAP OUTLET PROTECTION CHANNEL 7' W X 30' L X 14" DEEP OVER CLASS SE FILTER CLOTH AT BL STA 7+70.5. SEE PROFILE AND DETAILS SHEET 8.

STONE FLANK PROTECTION. PROVIDE ADDITIONAL ARMOR STONE TO TIE STRUCTURE INTO EXISTING GRADE. SEE DETAIL SHEET 8.

BEGIN STONE REVETMENT BL STA 4+95. SEE SECTIONS SHEET 6 AND 7.

PR. CL I RIPRAP OUTFALL PROTECTION 5' W X 5' L X 14" DEEP OVER FILTER CLOTH. SEE NOTES AND DETAIL SHEET 9.

PR. EARTHDIKE A-2. SEE NOTES AND DETAILS SHEET 9.

PR. SUPER SILT FENCE. SEE NOTES AND DETAILS SHEET 9.

PR. 75' X 50' PHASE I STOCKPILE AREA.

PR. 50' X 50' PHASE I STAGING AREA.

PR. CL I RIPRAP OUTFALL PROTECTION 5' W X 5' L X 14" DEEP OVER FILTER CLOTH. SEE NOTES AND DETAIL SHEET 9.

PR. SCE WITH MOUNTABLE BERM. SEE NOTES AND DETAIL SHEET 9.

EX. SIGN

PR. SCE. SEE NOTES AND DETAIL SHEET 9.

PR. SCE MOUNTABLE BERM WITH 12" CMP. SEE DETAIL SHEET 9.

PR. EARTHDIKE A-2. SEE NOTES AND DETAILS SHEET 9.

PR. CL I RIPRAP OUTFALL PROTECTION 3' W X 10' L X 14" DEEP OVER FILTER CLOTH. SEE NOTES AND DETAIL SHEET 9.

**M1b**

END STONE REVETMENT BL STA

CONTRACTOR TO REMOVE MIN. 5' OF EXISTING REVETMENT AND PROVIDE SMOOTH TRANSITION TO EX. REVETMENT AND BULKHEAD.

APPROX. C/L OF UNDERGROUND PIPE. CONTRACTOR SHALL VERIFY EXACT LOCATION WITH TEST PIT OR OTHER METHODS AND USE EXTREME CARE NOT TO DAMAGE EX. PIPE.

EX. VEGETATION TO BE CLEARED AS NECESSARY.

EX. VEGETATION TO BE CLEARED AS NECESSARY.

PR. TURBIDITY CURTAIN. SEE NOTES AND DETAIL SHEET 9.

EX. FEMA 100-YEAR FLOODPLAIN.

EX. CRITICAL AREA 100'-T BUFFER

EX. 18" RCP INV. 15.04'

AVENUE "A"

SECOND STREET

EX. BUILDING

EX. HOUSE

EX. WATER PUMP STATION

TRAY 900 ELEV. 11.04'

TRAY 920 ELEV. 29.92'

TRAY 413 ELEV. 9.57'

TRAY 901 ELEV. 1.54'

M. 809+250

E. 157+250

Up BVC

EX. TOP OF BANK

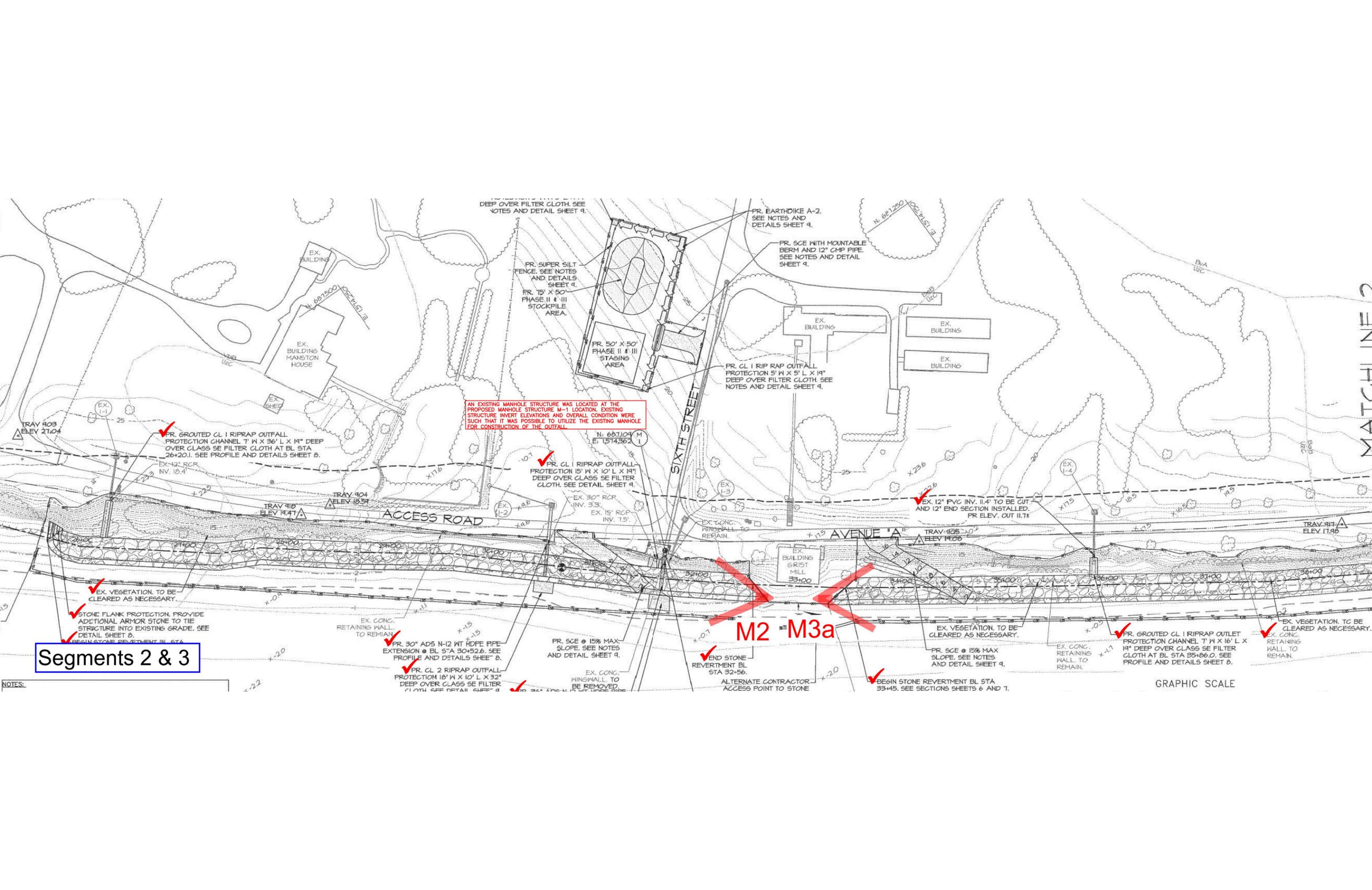
BASELINE

BEGIN TURBIDITY CURTAIN. SEE NOTES AND DETAIL SHEET 9.

MLM

B-1

X12



DEEP OVER FILTER CLOTH. SEE NOTES AND DETAIL SHEET 9.

PR. EARTHDIKE A-2. SEE NOTES AND DETAILS SHEET 9.

PR. SCE WITH MOUNTABLE BERM AND 12" CMP PIPE. SEE NOTES AND DETAIL SHEET 9.

PR. SUPER SILT FENCE. SEE NOTES AND DETAILS SHEET 9.  
PR. 75' X 50' PHASE II & III STOCKPILE AREA.

PR. 50' X 50' PHASE II & III STAGING AREA

PR. CL I RIP RAP OUTFALL PROTECTION 5' W X 5' L X 19" DEEP OVER FILTER CLOTH. SEE NOTES AND DETAIL SHEET 9.

AN EXISTING MANHOLE STRUCTURE WAS LOCATED AT THE PROPOSED MANHOLE STRUCTURE M-1 LOCATION. EXISTING STRUCTURE INVERT ELEVATIONS AND OVERALL CONDITION WERE SUCH THAT IT WAS POSSIBLE TO UTILIZE THE EXISTING MANHOLE FOR CONSTRUCTION OF THE OUTFALL.

PR. CL I RIP RAP OUTFALL PROTECTION 15' W X 10' L X 19" DEEP OVER CLASS SE FILTER CLOTH. SEE DETAIL SHEET 9.

EX. 12" PVC INV. 11.4' TO BE CUT AND 12" END SECTION INSTALLED. PR. ELEV. OUT 11.71

PR. GROUTED CL I RIPRAP OUTFALL PROTECTION CHANNEL 7' W X 36' L X 19" DEEP OVER CLASS SE FILTER CLOTH AT BL STA 26+20.1. SEE PROFILE AND DETAILS SHEET 8.

EX. 12" RCP INV. 10.4'

TRAY 904 ELEV 19.47

ACCESS ROAD

SIXTH STREET

AVENUE 'A'

TRAY 905 ELEV 19.06

TRAY 917 ELEV 17.96

EX. VEGETATION TO BE CLEARED AS NECESSARY.

STONE FLANK PROTECTION. PROVIDE ADDITIONAL ARMOR STONE TO TIE STRUCTURE INTO EXISTING GRADE. SEE DETAIL SHEET 8.  
BEGIN STONE REVERTMENT BL STA

EX. CONG. RETAINING WALL TO REMAIN

PR. 30" ADS N-12 WT HDPE PIPE EXTENSION @ BL STA 30+52.6. SEE PROFILE AND DETAILS SHEET 8.

PR. CL 2 RIPRAP OUTFALL PROTECTION 18' W X 10' L X 32" DEEP OVER CLASS SE FILTER CLOTH. SEE DETAIL SHEET 9.

PR. SCE @ 15% MAX SLOPE. SEE NOTES AND DETAIL SHEET 9.

EX. CONG. WINGWALL TO BE REMOVED.

END STONE REVERTMENT BL STA 32+56.

ALTERNATE CONTRACTOR ACCESS POINT TO STONE

EX. VEGETATION TO BE CLEARED AS NECESSARY.

PR. SCE @ 15% MAX SLOPE. SEE NOTES AND DETAIL SHEET 9.

EX. CONG. RETAINING WALL TO REMAIN.

PR. GROUTED CL I RIPRAP OUTFALL PROTECTION CHANNEL 7' W X 16' L X 19" DEEP OVER CLASS SE FILTER CLOTH AT BL STA 35+06.0. SEE PROFILE AND DETAILS SHEET 8.

EX. VEGETATION TO BE CLEARED AS NECESSARY.

EX. CONG. RETAINING WALL TO REMAIN.

Segments 2 & 3

M2 M3a

GRAPHIC SCALE

NOTES:

Segment 3

MATCHLINE 2



M3b



N: 686,250  
E: 1576,750

N: 686,250  
E: 1577,500

BEGIN STONE  
REVETMENT BL STA  
56+20. SEE SECTIONS  
SHEETS 6 AND 7.

BEGIN SSF. SEE  
NOTES AND DETAIL  
SHEET 9.

CONTRACTOR  
ACCESS POINT.  
X12.3

PR. CL I RIPRAP OUTLET PROTECTION  
CHANNEL 3' W X 3' L X 18" DEEP OVER  
FILTER CLOTH AT BL STA 56+27.0. SEE  
PROFILE AND DETAILS SHEET 8.

TRAV 915  
ELEV 13.95

END STONE REVETMENT BL  
STA 57+70.  
PR. SCE @ 15% SLOPE MAX. SEE  
NOTES AND DETAIL SHEET 9.

M4

MATCHLINE

PR. 24" ADS N-12 WT  
HDPE PIPE EXTENSION @  
BL STA 56+14.9. SEE  
PROFILE AND DETAILS  
SHEET 8.

PR. 40 LF OF 12" TEMP  
HDPE PIPE EXTENSION.

PR. 20 LF OF 24" TEMP  
HDPE PIPE EXTENSION.

PR. CL I RIPRAP  
OUTFALL PROTECTION  
20' L X 22' W X 19"  
DEEP OVER CLASS SE  
FILTER CLOTH. SEE  
DETAIL THIS SHEET.

PORTABLE SEDIMENT  
TANK. SEE NOTES AND  
DETAILS SHEET 9.

EX. CONG.  
RETAINING  
WALL.

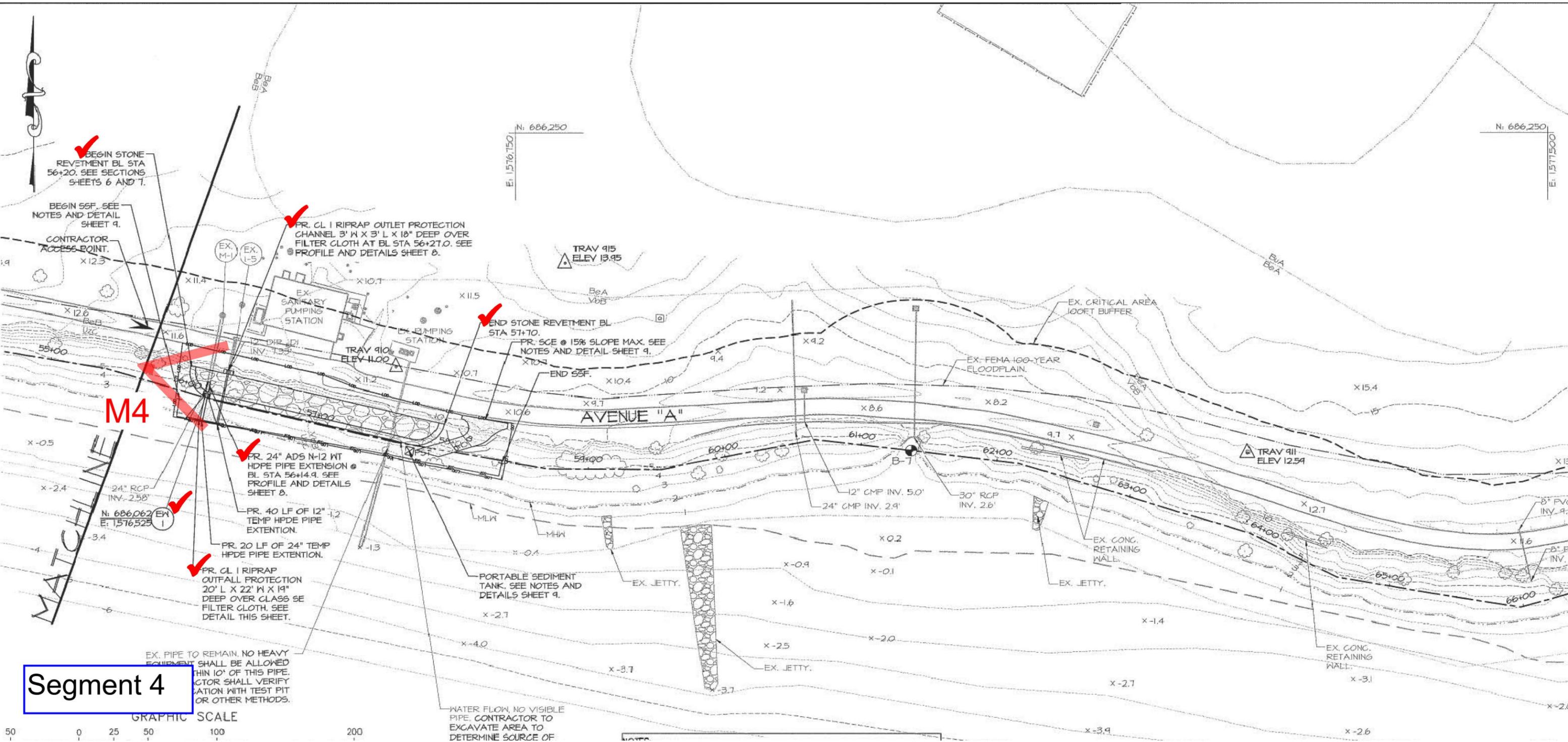
EX. CONG.  
RETAINING  
WALL.

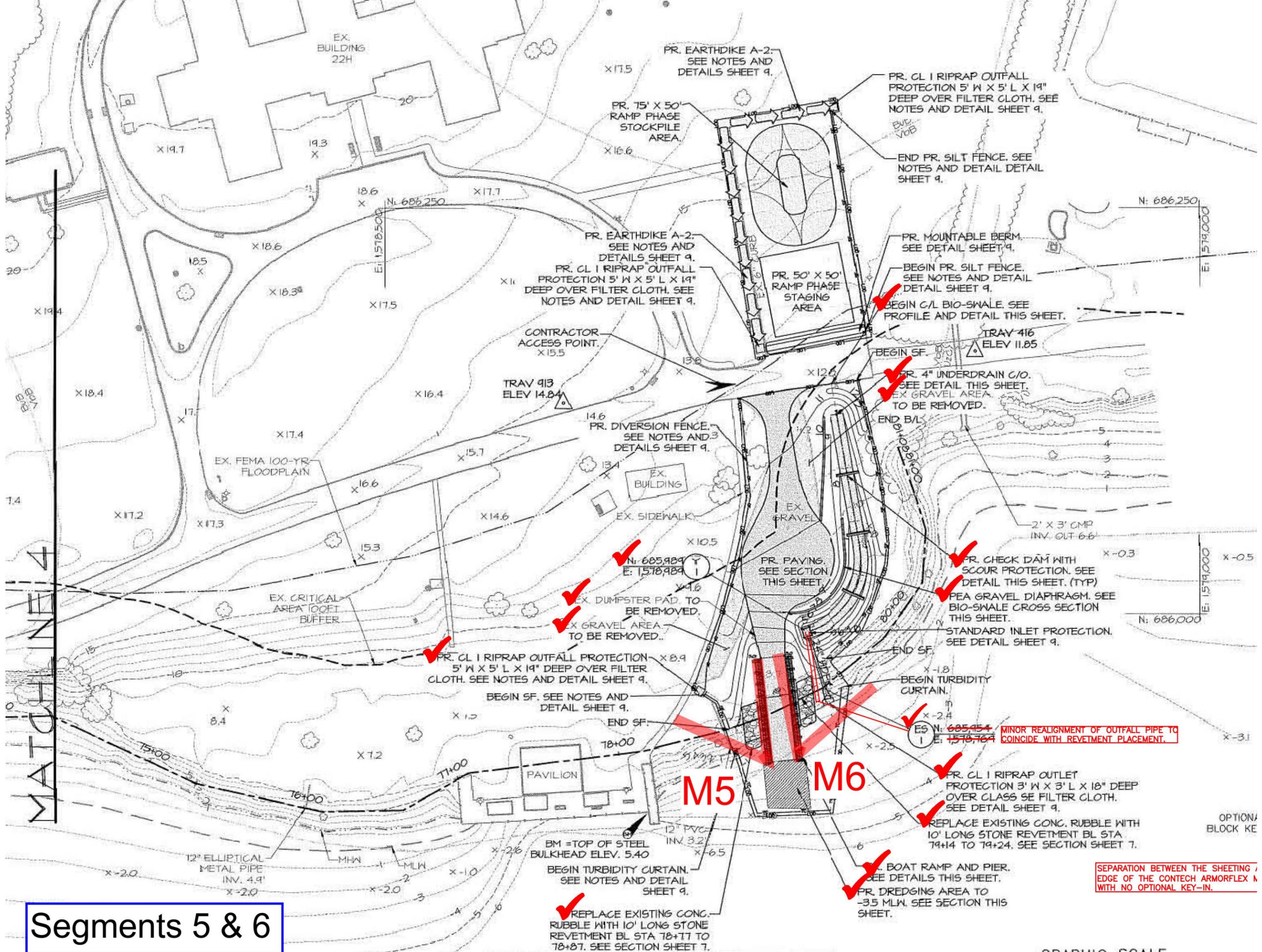
Segment 4

GRAPHIC SCALE



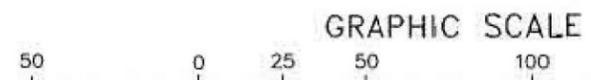
WATER FLOW, NO VISIBLE  
PIPE. CONTRACTOR TO  
EXCAVATE AREA TO  
DETERMINE SOURCE OF





**Segments 5 & 6**

**NOTES:**  
 1. WORK SHALL NOT BE PERFORMED FOR THE BOAT RAMP PHASE



SEPARATION BETWEEN THE SHEETING / EDGE OF THE CONTECH ARMORFLEX M WITH NO OPTIONAL KEY-IN.

MINOR REALIGNMENT OF OUTFALL PIPE TO COINCIDE WITH REVETMENT PLACEMENT.

**M5 M6**

OPTIONAL BLOCK KE



**K - COORDINATION EFFORTS DOCUMENTATION**



## Kelsey Ryan

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From: Kelsey Ryan  
Sent: Wednesday, April 29, 2020 4:35 PM  
To: Christina Lyerly -MDE-  
Cc: Deborah Cappuccitti (MDE); Dan Myslinksi (VA); Jen Dellaire (VA); Maichle, Richard (VAMHCS); Anthony Vincenti (VA); Melissa Hess (AECOM); Claire Weinrib (AECOM); Steven Pandish; Shahriar Abd  
Subject: RE: Phase II MS4 - General Questions

Follow Up Flag: Follow up  
Flag Status: Flagged

Christina,  
Great, thank you very much for the feedback. We will provide documentation and verification about the condition/functioning of the shoreline restoration area in our report.

Thanks,

Kelsey Ryan, PE  
Associate | Project Manager  
GORDON | Water Resources  
O: 703.263.1900 | D: 703.889.2302

From: Christina Lyerly -MDE- <christina.lyerly@maryland.gov>  
Sent: Wednesday, April 29, 2020 4:01 PM  
To: Kelsey Ryan <kryan@gordon.us.com>  
Cc: Deborah Cappuccitti (MDE) <Deborah.cappuccitti@maryland.gov>; Dan Myslinksi (VA) <Daniel.Myslinski@va.gov>; Jen Dellaire (VA) <Jennifer.Dallaire@va.gov>; Maichle, Richard (VAMHCS) <Richard.Maichle2@va.gov>; Anthony Vincenti (VA) <Anthony.Vincenti@va.gov>; Melissa Hess (AECOM) <melissa.hess@aecom.com>; Claire Weinrib (AECOM) <claire.weinrib@aecom.com>; Steven Pandish <spandish@gordon.us.com>; Shahriar Abd <sabd@gordon.us.com>  
Subject: Re: Phase II MS4 - General Questions

Hi Kelsey,  
The answer to both questions is yes. For the shoreline management restoration project, I recommend submitting some documentation of pre and post conditions, such as before and after photographs. Verification will be needed to ensure that the project is still in good condition and is functioning as designed.  
I hope you are well.  
Christina

**Christina Lyerly**  
Natural Resources Planner IV  
Water and Science Administration  
Maryland Department of the Environment  
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Baltimore, Maryland 21230  
[christina.lyerly@maryland.gov](mailto:christina.lyerly@maryland.gov)  
410-537-3546 (O)  
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Click here to complete a three question [customer experience survey](#).

On Thu, Apr 23, 2020 at 1:57 PM Kelsey Ryan <[kryan@gordon.us.com](mailto:kryan@gordon.us.com)> wrote:

Good afternoon Christina,

Hope you are doing well. We have 2 additional questions for you regarding restoration crediting , related to the Phase II permit for the VA.

1. A shoreline restoration project was completed at the Perry Point Medical Center in 2011. The project meets the 2014 accounting guidelines for shoreline restoration as an alternative practice and obtained all the necessary permits at the time. Since this project was completed between January 1, 2006 and the baseline year of assessment for our permit (2019), we believe this project can be credited towards meeting the restoration target. Do you concur?
2. The VA does annual tree planting, and a lot of trees have been planted before the baseline year of assessment (2019). If the tree planting over a period of time meets the reforestation criteria in the 2014 accounting guidelines, and was completed between 2006 and 2019, we believe that area can be credited towards meeting the restoration target. Do you concur?

Thanks,

Kelsey Ryan, PE

Associate | Project Manager

GORDON | Water Resources

O: 703.263.1900 | D: 703.889.2302

---

From: Kelsey Ryan  
Sent: Friday, March 20, 2020 8:27 AM  
To: Christina Lyerly -MDE- <[christina.lyerly@maryland.gov](mailto:christina.lyerly@maryland.gov)>  
Cc: Deborah Cappuccitti (MDE) <[Deborah.cappuccitti@maryland.gov](mailto:Deborah.cappuccitti@maryland.gov)>; Dan Myslinks (VA) <[Daniel.Myslinski@va.gov](mailto:Daniel.Myslinski@va.gov)>; Jen Dellaire (VA) <[Jennifer.Dallaire@va.gov](mailto:Jennifer.Dallaire@va.gov)>; Maichle, Richard (VAMHCS) <[Richard.Maichle2@va.gov](mailto:Richard.Maichle2@va.gov)>; Anthony Vincenti (VA) <[Anthony.Vincenti@va.gov](mailto:Anthony.Vincenti@va.gov)>; Melissa Hess (AECOM) <[melissa.hess@aecom.com](mailto:melissa.hess@aecom.com)>; Claire Weinrib (AECOM) <[claire.weinrib@aecom.com](mailto:claire.weinrib@aecom.com)>; Mary Roman (AECOM) <[mary.e.roman@aecom.com](mailto:mary.e.roman@aecom.com)>; Steven Pandish <[spandish@gordon.us.com](mailto:spandish@gordon.us.com)>  
Subject: RE: Phase II MS4 - General Questions

Christina,

Thank you for the quick response. This answers all of our questions for now, thank you!

Kelsey Ryan, PE

Associate | Project Manager

GORDON | Water Resources

O: 703.263.1900 | D: 703.889.2302

From: Christina Lyerly -MDE- <[christina.lyerly@maryland.gov](mailto:christina.lyerly@maryland.gov)>  
Sent: Thursday, March 19, 2020 9:32 AM  
To: Kelsey Ryan <[kryan@gordon.us.com](mailto:kryan@gordon.us.com)>  
Cc: Deborah Cappuccitti (MDE) <[Deborah.cappuccitti@maryland.gov](mailto:Deborah.cappuccitti@maryland.gov)>; Dan Myslinks (VA) <[Daniel.Myslinski@va.gov](mailto:Daniel.Myslinski@va.gov)>; Jen Dellaire (VA) <[Jennifer.Dallaire@va.gov](mailto:Jennifer.Dallaire@va.gov)>; Maichle, Richard (VAMHCS) <[Richard.Maichle2@va.gov](mailto:Richard.Maichle2@va.gov)>; Anthony Vincenti (VA) <[Anthony.Vincenti@va.gov](mailto:Anthony.Vincenti@va.gov)>; Melissa Hess (AECOM) <[melissa.hess@aecom.com](mailto:melissa.hess@aecom.com)>; Claire Weinrib (AECOM) <[claire.weinrib@aecom.com](mailto:claire.weinrib@aecom.com)>; Mary Roman (AECOM) <[mary.e.roman@aecom.com](mailto:mary.e.roman@aecom.com)>; Steven Pandish <[spandish@gordon.us.com](mailto:spandish@gordon.us.com)>  
Subject: Re: Phase II MS4 - General Questions

Good morning, Kelsey,

Phase II MS4s will continue to use the 2014 Guidance, even after the 2019 Guidance has been released with the Large Phase I MS4 permits. We included the equivalent impervious acres of the 2014 Guidance within the Phase II permit itself to ensure that there is no change if a new guidance came out.

Regarding your second question, the impervious acres removed between 2006 and the year of imagery would be added to the 2019 untreated impervious area baseline, which would slightly change the restoration target. Then those removed acres can be counted as progress toward the restoration target. Acres can only be counted toward restoration if they were considered untreated in the baseline.

Regards,

Christina

**Christina Lyerly**  
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Click here to complete a three question [customer experience survey](#).

On Wed, Mar 18, 2020 at 2:07 PM Kelsey Ryan <[kryan@gordon.us.com](mailto:kryan@gordon.us.com)> wrote:

Good afternoon Christina,

We are working for the Veterans Administration on the Phase II permit for state and federal MS4 systems (13-SF-5501). The Veterans Administration contacts are cc'ed to this email and have authorized us to contact you at MDE on their behalf. The Phase II permit applies to the Perry Point and Loch Raven Medical Centers.

The baseline year for our permit is 2019. We have a few general questions that we could use your assistance with:

1. What is MDE's current position on which "Accounting for Stormwater Wasteload Allocations and Impervious Acres Treated" guidance document Phase II permit holders should be utilizing, the 2014 or 2019 manual?
2. We have a impervious area removal (IMPP BMP) that was implemented prior to the baseline year of assessment (2019) for a redevelopment project after January 1, 2006. How would this be credited in the permit? We understand that any other type of BMP in this scenario could be applied to the restoration requirement, but

we are wondering if an IMPP BMP would be treated differently since any impervious area removal pre-baseline year would be reflected in the aerial imagery used to develop the baseline impervious area.

If it would be easier to discuss these questions on the phone, please let me know and I can set up a conference call.

Thanks,

Kelsey Ryan, PE

Associate | Project Manager

Water Resources



4501 Daly Drive, Suite 200, Chantilly, VA 20151

O: 703.263.1900 | D: 703.889.2302 | W: [gordon.us.com](http://gordon.us.com)



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