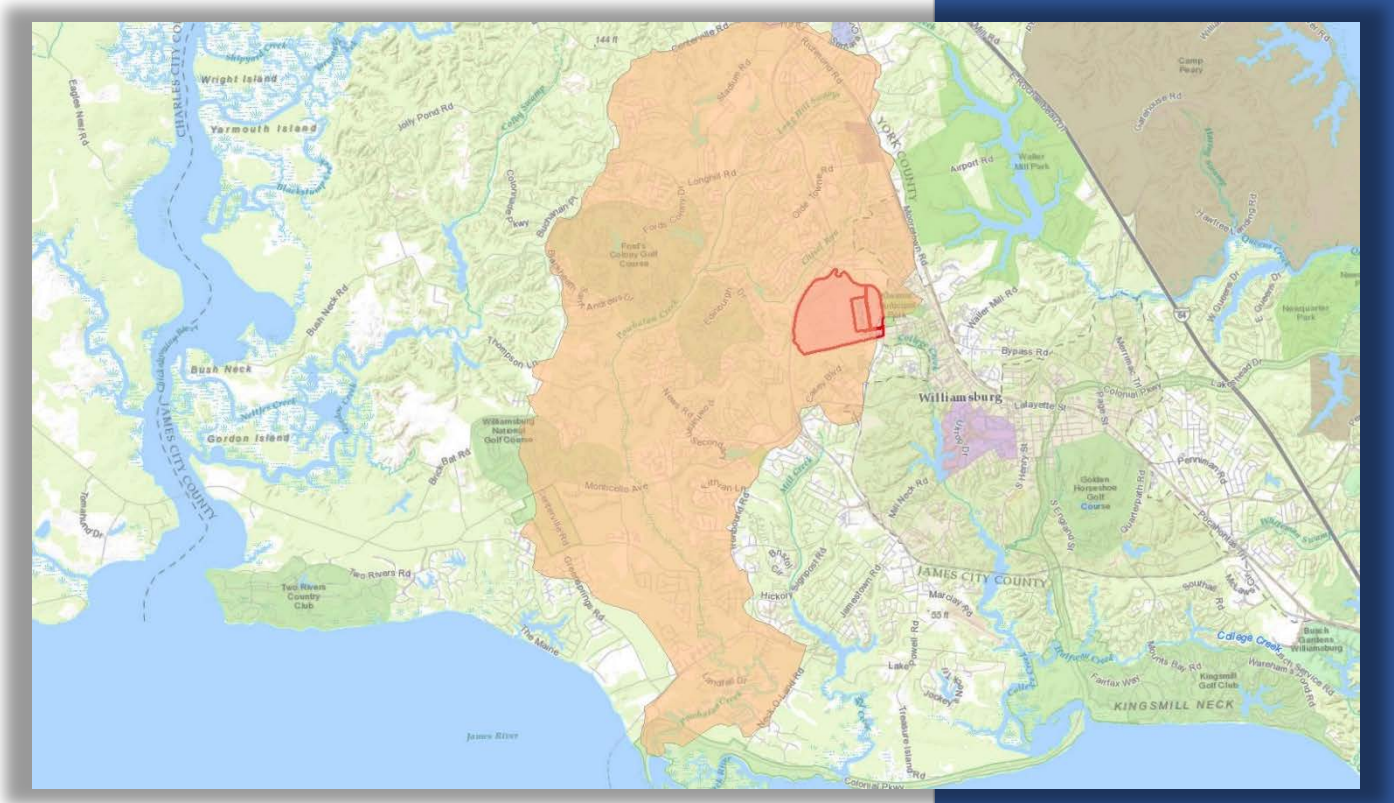
MILL CREEK AND POWHATAN CREEK BACTERIA TMDL ACTION PLAN

A Plan for Achieving Reduction of Existing Loads in the Powhatan Creek Watershed

June 30, 2016
(Revised January 12, 2017)

Eastern State Hospital
Williamsburg, Virginia



This document addresses Section 1, Part B of the General Virginia Pollution Discharge Elimination System (VPDES) Permit for Discharges of Stormwater from Small Municipal Separate Storm Sewer Systems (MS4). This document serves as the MS4-specific Total Maximum Daily Load (TMDL) Action Plan to identify the best management practices and other interim milestone activities to be implemented to address the bacteria waste load allocation (WLA) assigned to ESH's regulated MS4 area in the *"Bacteria Total Maximum Daily Load Development for Mill Creek and Powhatan Creek"* approved by the State Water Control Board (SWCB) on July 27, 2009.

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EEE Consulting, Inc.

Executive Summary

Eastern State Hospital (ESH) is authorized to discharge stormwater from its Municipal Separate Storm Sewer System (MS4) under the Virginia Pollutant Discharge Elimination System (VPDES) General Permit for Discharge of Stormwater from Small MS4s (MS4 General Permit). To maintain permit compliance, ESH implements an MS4 Program Plan that includes best management practices (BMPs) to address six minimum control measures (MCMs) and special conditions for the Total Maximum Daily Loads (TMDLs) in which ESH has been assigned a wasteload allocation (WLA). The Environmental Protection Agency (EPA) describes a TMDL as a "pollution diet" that identifies the maximum amount of a pollutant the waterway can receive and still meet water quality standards. The WLA determines the required reduction in pollutant of concern loadings from the MS4 to meet water quality standards. The MS4 General Permit serves as the regulatory mechanism for addressing the load reductions described in the TMDL, predominantly through the requirement of a TMDL Action Plan.

The purpose of this Action Plan is to address the WLA assigned to ESH within the following TMDL:

- "Bacteria Total Maximum Daily Load Development for Mill Creek and Powhatan Creek," approved on July 27, 2009

The TMDL assigns ESH a WLA for bacteria that is equivalent to a reduction in the existing conditions to meet water quality standards. However, the expectation of the TMDL is for MS4 permittees to address the TMDL WLAs for stormwater through the iterative implementation of programmatic BMPs. ESH's stormwater program BMPs are described in this TMDL Action Plan, specifically their application to reductions in bacteria discharges to the MS4. The Action Plan addresses bacteria in accordance with the special conditions and expectations of the TMDL by demonstrating that ESH uses an adaptive, iterative implementation of programmatic BMPs to reduce or eliminate bacteria to the maximum extent practicable.

Compliance to the special conditions is demonstrated through:

- ✓ Implementation of BMPs and associated policies and procedures;
- ✓ BMPs beyond those required by the MS4 General Permit;
- ✓ Enhancement of ESH's MS4 Public Education and Outreach Plan;
- ✓ An assessment of owned and operated facilities; and
- ✓ A methodology to measure Action Plan effectiveness through MS4 annual reporting.

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Acronyms

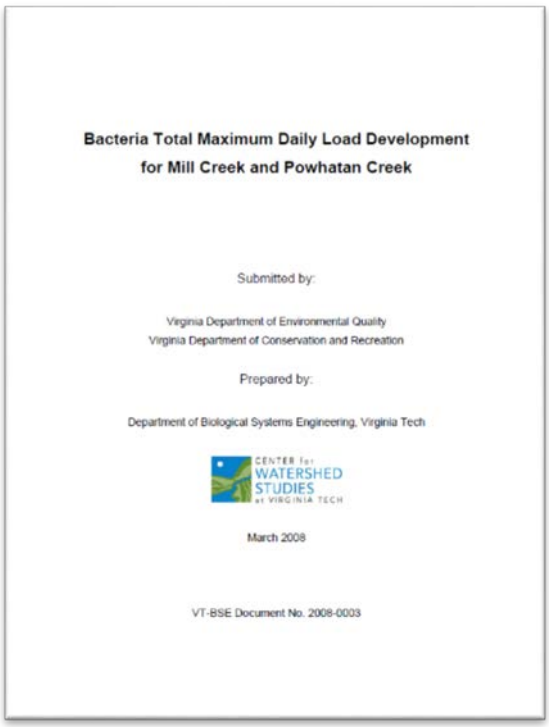
BMP	Best Management Practice
CWA	Clean Water Act
DEQ	Virginia Department of Environmental Quality
EPA	Environmental Protection Agency
ESH	Eastern State Hospital
JCCSA	James City County Service Authority
LA	Load Allocation
MCM	Minimum Control Measure
MEP	Maximum Extent Practicable
MOS	Margin of Safety
MS4	Municipal Separate Stormwater Sewer System
NPDES	National Pollutant Discharge Elimination System
SWCB	State Water Control Board
TMDL	Total Maximum Daily Load
VPDES	Virginia Pollutant Discharge Elimination System
VSMP	Virginia Stormwater Management Program
WLA	Waste Load Allocation

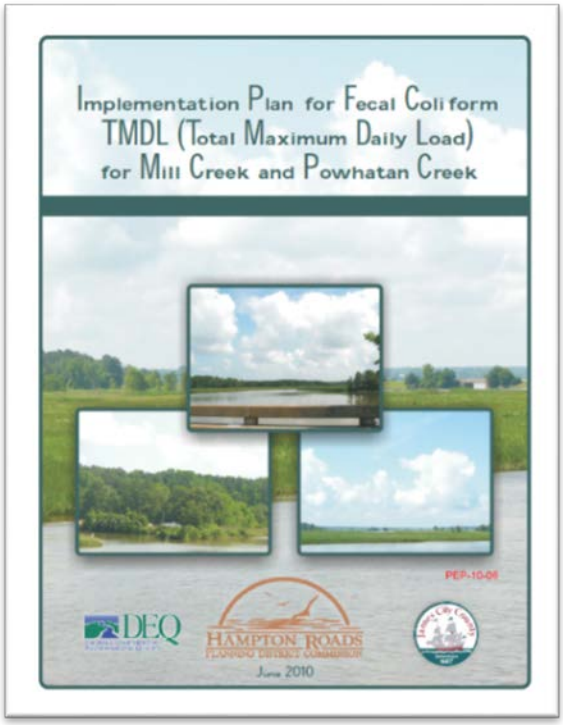
1.0 Introduction and Purpose

Mandated by Congress under the Clean Water Act (CWA), the National Pollutant Discharge Elimination System (NPDES) storm water program includes the Municipal Separate Storm Sewer System (MS4), Construction, and Industrial General Permits. In Virginia, the NPDES Program is administered by the Virginia Department of Environmental Quality (DEQ) through the Virginia Pollutant Discharge Elimination System (VPDES). Eastern State Hospital (ESH) is authorized to discharge stormwater from its MS4 under the VPDES General Permit for Discharge of Stormwater from Small MS4s (MS4 General Permit). As part of the MS4 General Permit authorization, ESH developed and implements an MS4 Program Plan with best management practices (BMPs) to address the six minimum control measures (MCMs) and the special conditions for applicable total maximum daily loads (TMDLs), as outlined in the MS4 General Permit. Implementation of these BMPs is consistent with the provisions of an iterative MS4 Program constituting compliance with the standard of reducing pollutants to the "maximum extent practicable."

The Virginia Department of Environmental Quality (DEQ) listed Mill Creek (2002) tidal and non-tidal sections of Powhatan Creek (1998, 2002) in eastern Virginia on their biennial 303(d) Total Maximum Daily Load (TMDL) Priority List and Report due to violations of the state's water quality standard for fecal coliform bacteria. The fecal coliform bacteria is now expressed as *E. coli* for freshwater and enterococci for brackish and saltwater. The segments were assessed as not supporting the Primary Contact Recreation Designated Use due to the bacteria criterion. As a consequence, the Virginia DEQ developed the *"Bacteria Total Maximum Daily Load Development for Mill Creek and Powhatan Creek"* which was approved by the State Water Control Board (SWCB) on July 27, 2009. DEQ subsequently developed the "Implementation Plan for Fecal Coliform TMDL for Mill Creek and Powhatan Creek" in 2011. The non-tidal segment of Powhatan Creek (segment VATG10R-POW01A00) is currently not listed as an impaired water for bacteria; however, current stormwater programs are expected to remain in place to ensure water quality.

The "*Bacteria Total Maximum Daily Load Development for Mill Creek and Powhatan Creek"* assigns an aggregate WLA for bacteria discharges to the Powhatan Creek watershed for the combined impervious areas of James City County and ESH, which is encompassed in the county's MS4 regulated area. The WLA represents the allowable bacteria load from the MS4 to prevent instances of exceedance of bacteria discharge water quality standards. The aggregated WLA for James City County's (VAR040037) and ESH's (VAR040076) MS4 regulated area in the watershed is 15E+12 colony forming units per year (cfu/yr) of *E. coli*. This represents significant reductions from the existing condition.





ESH operates a MS4 within a census urbanized area and is therefore required to maintain compliance with its General Virginia Pollution Discharge Elimination System (VPDES) Permit for Discharges of Stormwater from the Small MS4 (General Permit VAR040076). The permit requires an operator to implement an MS4 Program that includes six minimum control measures (MCMs) to reduce the discharge of pollutants from its MS4 to the maximum extent practicable (MEP). The Program Plan must also include a specific TMDL Action Plan for pollutants allocated to the MS4 in an approved TMDL. Since ESH was assigned a WLA for bacteria, the MS4 is therefore required to be consistent with special conditions in the permit. The special conditions generally require an Action Plan to incorporate:

- An identification and assessment of facilities that are owned and operated by the MS4, not covered under a separate VPDES permit, with the potential to be significant sources of bacteria discharge to the MS4;
- A list of legal authorities applicable to reducing discharge of bacteria from the MS4;
- A list of management practices and controls, in addition to the MCMs otherwise required by the MS4 General Permit, that are implemented as part of ESH's MS4 Program and applicable to reductions in bacteria discharge from the MS4;
- Promotion of methods to eliminate or reduce discharges of bacteria into ESH's MS4 through ESH's Public Education and Outreach Plan and employee training program; and
- A methodology to assess the effectiveness of ESH's Action Plan in reducing the discharge of bacteria from ESH's MS4.

The purpose of this Action Plan is to address each of the MS4 General Permit special conditions listed above. As an adaptive and iterative approach to meet surface water quality goals, the Action Plan may be revised from time to time to reduce bacteria discharges from ESH's MS4 to the MEP. The Action Plan is incorporated, by reference, into ESH's MS4 Program Plan, which outlines the BMPs that address the entirety of the conditions set forth in the MS4 General Permit. ESH's MS4 Program Plan is available electronically at the following weblink:

http://www.esh.dbhds.virginia.gov

1.1 Total Maximum Daily Loads

A TMDL is the total maximum daily load, or the amount of pollutant a water body can assimilate and still meet water quality standards for its designated use. Subsequent to being listed as impaired, TMDLs with bacteria loading limits were developed by DEQ for Mill Creek and Powhatan Creek. Both creeks discharge into the James River, which flows into the Chesapeake Bay.

Typically, TMDLs are represented numerically in three main components:

- Wasteload Allocations (WLA) for point source contributions,
- Load Allocations (LA) for non-point source contributions, and a
- Margin of Safety (MOS).

Point source pollution is any single identifiable source from which pollutants are discharged. If point source discharges, including a permitted MS4, are present in the TMDL watershed, then any allocations assigned to that permittee must be in the form of a WLA. ESH's MS4, as a point source, falls under this category in the TMDL. Pollution that is not from an identifiable source, such as a pipe or a ditch, but rather originates from multiple sources over a relatively large area, it is considered to be non-point source pollution. These sources of bacteria are typically categorized into agricultural, livestock, and wildlife, with Load Allocations (LAs) assigned for each. The Margin of Safety (MOS) is a required component that accounts for the uncertainty in the response of the waterbody to loading reductions, and it was implicitly incorporated into the TMDLs for the watershed.

The TMDL is expressed in the following equation: $TMDL = \sum WLA + \sum LA + MOS$

The TMDL represents the sum of calculable sources plus a margin of safety that is required to not exceed the state water quality standard, which for the non-tidal portion of Powhatan Creek is the Primary Contact Recreation designation for freshwater. This standard states that a 30-day geometric mean shall not exceed 126 cfu/100 mL *E. coli*, nor shall any single sample exceed 235 cfu/100 mL *E. coli*. The cfu/100 mL unit represents a volumetric concentration of viable bacteria cells that can multiply under controlled conditions.

1.2 MS4 General Permit Special Conditions

ESH operates its regulated MS4 within a portion of the Powhatan Creek bacteria TMDL watershed and is therefore subject to the TMDL WLAs assigned in the TMDL. The special conditions for the TMDL listed in the MS4 General Permit require ESH to develop a TMDL Action Plan that identifies the BMPs and other interim milestone activities to be implemented during the remaining terms of this state permit that specifically includes:

- A list of legal authorities applicable to reducing discharge of *E. coli* from the MS4
- A list of management practices and controls, beyond those required within the six minimum control measures of the MS4 General Permit, that are implemented as part of ESH's MS4 Program and applicable to reductions in *E. coli* discharge from the MS4;
- Enhancement of ESH's Public Education and Outreach Plan (PEOP) and employee training program to promote methods to eliminate and reduce discharges of *E. coli* into its MS4;
- An identification and assessment of facilities that are owned and operated by the MS4, not covered under a separate VPDES permit, with the potential (greater than the average expected loading) to be significant sources of *E. coli* discharge to the MS4;
- A methodology to assess the effectiveness of ESH's Action Plan in reducing the discharge of *E. coli* from its MS4.

1.3 Eastern State Hospital's Bacteria Action Plan

The purpose of ESH's Action Plan for the Powhatan Creek bacteria TMDL is to address each of the MS4 General Permit special conditions listed in Section 1.2. As an adaptive and iterative approach to meet surface water quality goals, the Action Plan may be revised from time to time to reduce *E. coli* discharges from the ESH's MS4 to the maximum extent practicable (MEP). The Action Plan is incorporated, by reference, into ESH's MS4 Program Plan, which outlines the BMPs that address the entirety of the conditions set forth in the MS4 General Permit.

1.4 Eastern State Hospital's Applicable Bacteria TMDL

The bacteria TMDL for the non-tidal Powhatan Creek assigns WLAs for the pollutant as measured by *Escherichia coli*, commonly abbreviated as *E. coli*. This particular bacteria is typically found in the lower intestines of warm-blooded organisms. Certain strains of the bacteria can be harmful and can survive for a limited amount of time outside of a host. Fecal contamination from these organisms, if ingested by another host, can cause serious poisoning. A WLA was calculated for existing point sources, including MS4 permit operators, along with LAs and the MOS to meet the water quality standard and reduce the risk of waterborne illness. MS4 permit loads were based on each share of the contributing urbanized area in the TMDL watershed, and the WLA for ESH is aggregated within James City County. The TMDL was established based on an allocation scenario where no violations of either the *E. coli* geometric mean standard or the instantaneous *E. coli* standard for the non-tidal portion of Powhatan Creek would occur. The scenario included the following areas of focus:

- A 92% reduction in direct loads to streams from wildlife
- A 92% reduction of land surface loads from agricultural sources
- A 92% reduction of land surface loads from residential sources
- A 0% reduction of land surface loads from forest sources

The TMDL also includes a transitional scenario, or Stage 1 implementation, where the violation rate of the instantaneous or single-sample criterion is set for 10.5% rather than 0%, allowing for measurable effectiveness of management practices over time. For Powhatan Creek, this scenario includes a 20% reduction of residential and agricultural loads. Potential residential sources of the pollutant depicted in the TMDL, as they relate to ESH property, include failing septic systems, straight pipes draining to waterways, and sewage spills.

A separate set of TMDL scenarios were also developed for the tidal section of Powhatan Creek, which includes ESH in its overall drainage area. Tidal TMDLs are presented in terms of enterococci bacteria, rather than *E. coli*, as enterococci are a more accurate indicator of fecal bacteria in saline water than *E. coli*. The percent reductions of fecal bacteria associated with the tidal Powhatan Creek TMDL, however, are the same as those for the non-tidal section.

The non-tidal segment of Powhatan Creek (segment VATG10R-POW01A00) is currently not listed as an impaired water for bacteria; however, the Commonwealth expects that stormwater programs and their associated best management practices remain in place to maintain water quality that meets the standard. Mapping that depicts ESH property in relation to the Powhatan Creek watershed is provided in Figure A below.

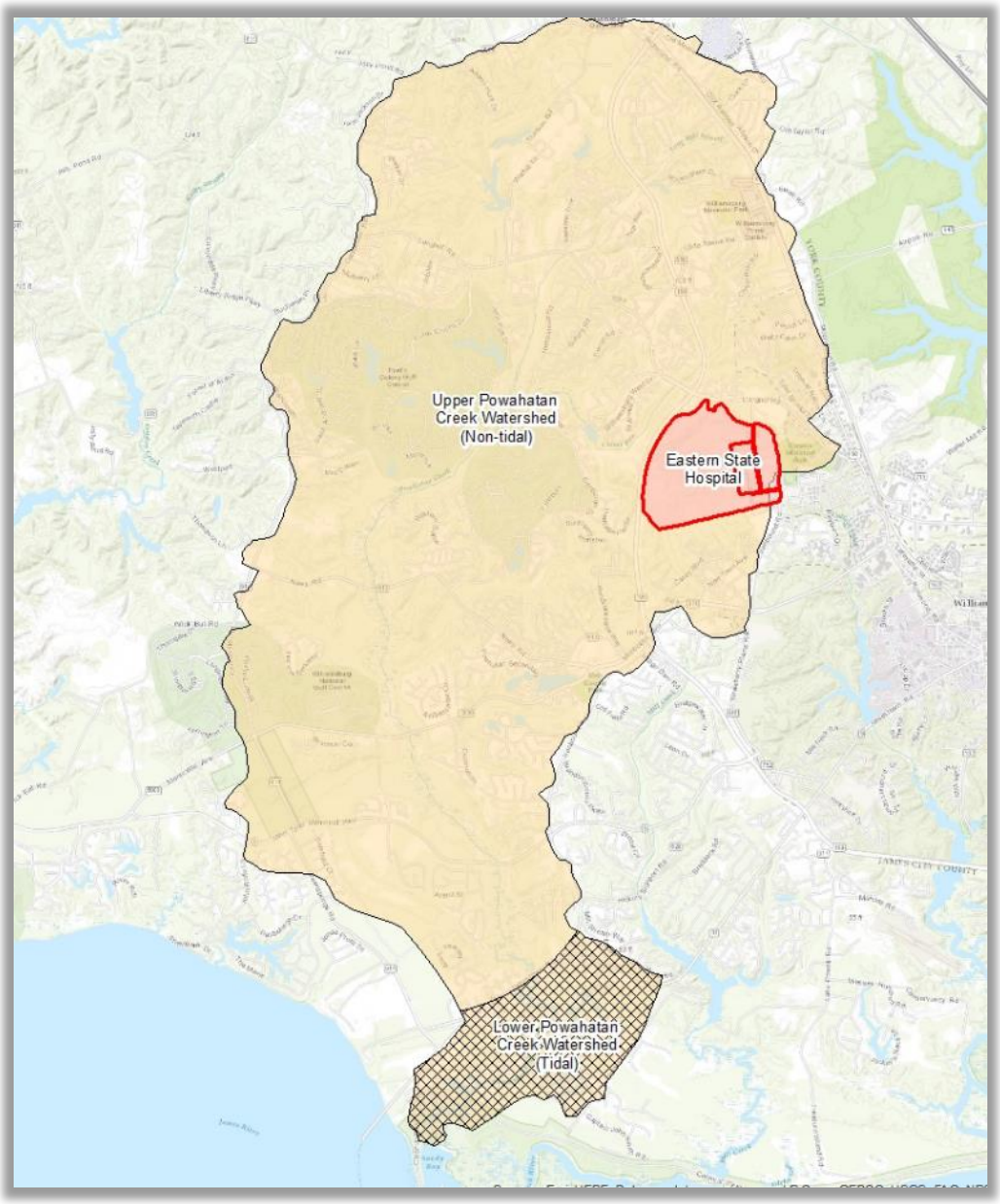


Figure A. Eastern State Hospital property and the Powhatan Creek watershed.

2.0 Pollutant Load Characterization at Eastern State Hospital

The ESH property is located in the headwaters of several unnamed tributaries to Chisel Run, which drain into the non-tidal segment of Powhatan Creek in James City County, approximately one and a half miles northwest of the property. There are currently three regulated MS4 stormwater outfalls located on the property, each draining to these tributaries. The majority of buildings and facilities are currently connected to the sanitary sewer system, which drain to a 15-inch pipe running offsite and to a county pump facility to the West of the property. Mapping that shows these features is provided in Figure B below.

An analysis was performed on ESH property to determine if there are any potential sources of the pollutant. Having an institutional land use, potential sources of bacteria on ESH property as described in the TMDL include failing septic systems, straight pipes discharging effluent to waterways, and sewage spills from existing sanitary sewer systems. The analysis of these potential sources can be summarized as follows, with locations depicted in Figure B.

Figure B. E.coli source analysis of ESH property.

2.1 Septic Systems

Two detached residential buildings, both of which have been closed and abandoned for a minimum of 7 years, have septic systems located at the rear. It could not be confirmed whether or not these systems had been pumped prior to their closure. The observed age and condition of the buildings, as well as their inactive and abandoned state, do not characterize them as potential sources of *E. coli* through failure and leakage of contaminated materials. See Figure C.

Figure C - Abandoned residential buildings

2.2 Straight Pipes

No straight pipes were observed on the property and an analysis of civil engineering drawings indicated that all original buildings remaining on the property were connected to public sewer with the exception of the two relic buildings described in Section 3.1.

2.3 Sanitary System

With the exception of the two residential buildings described in Section 3.1.1, the entire ESH property and its facilities are connected to the sanitary sewer system that drains via a 15-inch gravity line offsite to James City County. A cleanout station is located toward the western end of the property, just before the pipe daylights above an unnamed tributary to Chisel Run and runs off property. The access is surrounded by a concrete staging area that is curbed on all sides and where covered collection barrels are stored. ESH

Figure D – Sanitary Sewer Cleanout Station

maintenance personnel visually inspect and clean the filter rack inside the unit daily in order to reduce the amount of trash and debris.

When the barrels reach their capacity, sealed bags are transferred off site. In the event of a spill, material is contained within the curbed area, and excess material can be washed back into the manhole. A BMP action item has been added to Section 4.0, Table 1 for this section. The BMP also includes a measurable goal, measure of effectiveness and a schedule. Items should be reported on annual during the MS4 annual reporting process. Inspection and maintenance documentation consists of the preventative maintenance work order records generated by ESH. No specific inspection or maintenance forms are completed beyond works orders. The work order records will be utilized to show compliance and with this BMP per Section 4, Table 1.

This assessment addresses the following MS4 General Permit Special Condition:

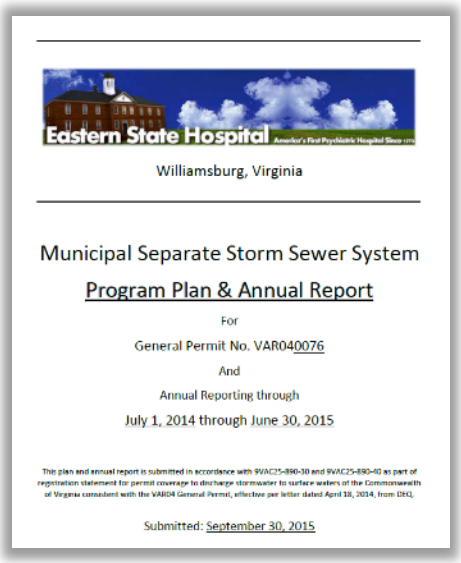
- ✓ *Assess all significant sources of pollutant(s) from facilities of concern owned and operated by the MS4 operator that are not covered under a separate VPDES permit and identify all municipal facilities that may be a significant source of the identified pollutant.* [Section I(B)(2)(b)]

3.0 Best Management Practices to Address *E. coli*

ESH's MS4 Permit covers stormwater discharges from the property. Its collective efforts, as described in the Program Plan and Annual Report, result in significant reduction of pollutants that may be discharged from its regulated MS4. BMPs already included in the ESH Program Plan that address *E. coli* are described in the following sections. Each subsection is provided to address the referenced special condition in the MS4 General Permit.

3.1 Current Program and Existing Legal Authority

ESH's current MS4 Program provides appropriate policies and procedures to implement a compliant program that is aligned with the goals and requirements of the Powhatan Creek TMDL. As a non-traditional MS4, ESH does not have the ability to create legal authorities and has not identified any legal authorities necessary to meet the requirements of the special conditions. ESH's MS4 Program includes Minimum Control Measures that achieve this, as described in the summary below.


Eastern State Hospital

Williamsburg, Virginia

Municipal Separate Storm Sewer System

Program Plan & Annual Report

For

General Permit No. VAR040076

And

Annual Reporting through

July 1, 2014 through June 30, 2015

This plan and annual report is submitted in accordance with 9VAC25-890-30 and 9VAC25-890-40 as part of registration statement for permit coverage to discharge stormwater to surface waters of the Commonwealth of Virginia consistent with the VARD4 General Permit, effective per letter dated April 18, 2014, from DEQ.

Submitted: September 30, 2015

The following summary addresses the special condition:

- ✓ *"Develop and maintain a list of its legal authorities such as ordinances, state and other permits, orders, specific contract language, and inter-jurisdictional agreements applicable to reducing the pollutant identified in each applicable WLA."* [SectionI(B)(2)(a)]

- *MCM 1 (Public Education and Outreach)* – ESH's MS4 Program includes, by reference, a Public Education and Outreach Program (PEOP) that incorporates educational information about TMDL pollutants of concern. The PEOP was revised at the time of the Action Plan development to include E. Coli as a pollutant of concern. The PEOP includes in the future, as Water Quality Issue #1, the distribution of educational materials regarding pollution in stormwater runoff, including sources of *E.coli.* A BMP action item has been added to Section 4.0, Table 1 for this section. The BMP also includes a measurable goal, measure of effectiveness and a schedule. Items should be reported on annual during the MS4 annual reporting process.

- *MCM 2 (Public Participation)* – ESH will post this Action Plan on their stormwater pollution prevention webpage at http://www.esh.dbhds.virginia.gov. Availability of the Action Plan will increase awareness of the TMDL with web page visitors. This action plan will be posted online within 30 days of final approval by DEQ. A BMP action item has been added to Section 4.0, Table 1 for this section. The BMP also includes a measurable goal, measure of effectiveness and a schedule. Items should be reported on annual during the MS4 annual reporting process.

- *MCM 3 (Illicit Discharge Detection and Elimination)* – ESH's MS4 Program includes an Illicit Discharge Detection and Elimination (IDDE) Program that provides written procedures to detect, identify, and address non-stormwater discharges, including illegal dumping, to the small MS4 with policies and procedures for when and how to use legal authorities. ESH prohibits non-stormwater discharges into the storm sewer system through language provided with the Stormwater/Pollution Prevention Policy for employees. The IDDE Program also includes a proactive approach to reduce illicit discharges with annual outfall screening to seek out and remove non-stormwater discharges into the MS4. IDDE BMPs are described in the MCM 3 BMPs of the ESH MS4 Program Plan.

  A BMP action item has been added to Section 4.0, Table 1 for this section. The BMP also includes a measurable goal, measure of effectiveness and a schedule. Items should be reported on annual during the MS4 annual reporting process.

- *MCM 4 (Construction Site Runoff Control)* – ESH's MS4 Program includes a Construction Site Runoff Control Program that includes mechanisms to ensure compliance and enforcement on regulated construction sites, which ESH relies on DEQ to provide. All plans must be consistent with the Virginia Erosion and Sediment Control and SWM Laws and Regulations and includes:
  - Required plan approval prior to commencement of a regulated land disturbance activity;
  - Construction site inspections and enforcement; and
  - Certification of post-construction SWM facilities.

  ESH relies on DEQ for inspection and enforcement of these requirements while ESH and the Department of Behavioral Health and Development Services rely upon the General Conditions of the construction contract document developed by the Department of General Services. Through inspections and enforcement, especially in regards to stormwater pollution prevention plan (SWPPP) inspections, potential for *E. coli* discharges (e.g. port-a-johns) is minimized. Minimum Control Measure 4 BMPs in ESH's MS4 Program Plan describe construction site runoff control BMPs.

  A BMP action item has been added to Section 4.0, Table 1 for this section. The BMP also includes a measurable goal, measure of effectiveness and a schedule. Items should be reported on annual during the MS4 annual reporting process.

- *MCM 5 (Post-Construction)* – ESH's MS4 Program includes a Post-Construction SWM Program that ensures water quality criteria in the Virginia Stormwater Management Regulations has been achieved on new developments and developments on prior developed land. ESH relies on DEQ for implementation of this requirement. ESH's Post-Construction Program ensures inspection and maintenance of stormwater management facilities to maintain functionality. Minimum Control Measure 5 BMPs in the ESH's MS4 Program Plan describes post-construction stormwater management BMPs.

A BMP action item has been added to Section 4.0, Table 1 for this section. The BMP also includes a measurable goal, measure of effectiveness and a schedule. Items should be reported on annual during the MS4 annual reporting process.

- *MCM 6 (Good Housekeeping)* – ESH's MS4 Program includes a Pollution Prevention/Good Housekeeping Program that includes policies and procedures to ensure that day-to-day operations minimize the exposure of pollutants to rainfall on the property to the maximum extent practicable. The program is supported with ESH's Pollution Prevention & Good Housekeeping Manual and annual training for applicable staff. ESH also utilizes contract language to ensure appropriate certifications from various contracting services that visit the property. Minimum Control Measure 6 BMPs in ESH's MS4 Program Plan describe pollution prevention and good housekeeping BMPs. No new policies and procedures or modifications to existing policies and procedures were identified as necessary to meet the requirements of the special conditions.

  A BMP action item has been added to Section 4.0, Table 1 for this section. The BMP also includes a measurable goal, measure of effectiveness and a schedule. Items should be reported on annual during the MS4 annual reporting process.

Each MCM will be reviewed for its effectiveness during the MS4 annual reporting and modified, as necessary.

3.2 Additional Practices and Controls

ESH has existing prohibitions and increased training aimed to maintain and improve the water quality of the local waterways. Training will take place on an annual basis, instead of every other year required by the General Permit. Additional practices beyond the MCMs described above may be developed during ESH's iterative approach and implemented through the annual reporting process. Each Program Plan BMP will be reviewed for its effectiveness and modified, as necessary.

This process addresses the following special condition:

- ✓ *"Identify and maintain an updated list of all additional management practices, control techniques and system design and engineering methods, beyond those identified in Section II V, that have been implemented as part of the MS4 Program Plan that are applicable to reducing the pollutant identified in the WLA."* [Section I(B)(2)(b)]

3.3 Enhanced Public Education and Outreach Plan

As previously mentioned, ESH revised Public Education and Outreach Plan (PEOP) which includes E. Coli as a pollutant of concern. As a result, the target audience, including all staff,

will be provided information promoting the elimination and reduction of *E. coli* during the 2016-2017 MS4 reporting year and annually thereafter. Annual staff training material (ESH's Good Housekeeping/Pollution Prevention Manual) will include information regarding TMDL pollutants of concern. A BMP action item has been added to Section 4.0, Table 1 for this section. The BMP also includes a measurable goal, measure of effectiveness and a schedule. Items should be reported on annual during the MS4 annual reporting process. The inclusion of information regarding *E. coli* sources in stormwater runoff in the Public Education and Outreach Program and staff training materials addresses the following permit special condition:

- ✓ *"Enhance [its] public education and outreach and employee training programs to also promote methods to eliminate and reduce discharges of the pollutants identified."* [SectionI(B)(2)(c)]

The PEOP will be reviewed for its effectiveness during the MS4 annual reporting and modified, as necessary.

4.0 Implementation to the MEP

ESH will implement the MS4 Program components described in Section 4 to reduce the potential of *E. coli* discharge to surface waters to the MEP. The method of assessment is implemented through the annual reporting process with the review of the effectiveness of each MS4 Program Plan BMP. Table 1 below lists action items required by ESH to be reported on in the annual report. Interim milestone activities consist of the annually reported implementation of the Program components described herein, therefore, addressing the following special condition:

✓ *"Develop and implement a method to assess TMDL Action Plans for their effectiveness in reducing the pollutants identified in the WLAs."* [Section I(B)(2)(e)]

Table 1: BMP Action Items

BMP Action Item	Measurable Goal	Measure to Assess Effectiveness	Schedule
Increased annual MS4 training to include methods to eliminate and reduce potential sources of E.coli.	Training conducted annually and quiz results from the training.	Training conducted annually and quiz results average score should be above a (70) seventy.	Annually
Enhanced public education and outreach program brochure by promoting the elimination and reduction of E. coli. in brochures. Also, a link to the ESH website.	PEOP brochures promote ways to eliminate and reduce E.Coli. The brochure will also provide a link to the ESH stormwater website.	Number of brochures distributed should be at least 20% of target audience for water quality issue #1. Brochures have a link to the ESH stormwater website.	Annually starting with the 2016-2017 MS4 reporting year.
Mill Creek and Powhatan Creek Action Plan posted on website.	Mill Creek and Powhatan Creek Action Plan posted on website.	Mill Creek and Powhatan Creek Action Plan posted on website.	Posted within 30 days of DEQ approval.
Continued Implementation of MCM #3.	Continued Implementation of MCM #3. MCM requirements in MS4 GP and the ESH MS4 Program Plan hereby incorporated by reference.	MCM requirements in MS4 GP and the ESH MS4 Program Plan are hereby incorporated by reference.	Annually
Continued Implementation of MCM #4.	Continued Implementation of MCM #4. MCM requirements in MS4 GP and the ESH MS4 Program Plan hereby incorporated by reference.	MCM requirements in MS4 GP and the ESH MS4 Program Plan are hereby incorporated by reference.	Annually
Continued Implementation of MCM #5.	Continued Implementation of MCM #5. MCM requirements in MS4 GP and the ESH MS4 Program Plan hereby incorporated by reference.	MCM requirements in MS4 GP and the ESH MS4 Program Plan are hereby incorporated by reference.	Annually
Continued Implementation of MCM #6.	Continued Implementation of MCM #6. MCM requirements in MS4 GP and the ESH MS4 Program Plan hereby incorporated by reference.	MCM requirements in MS4 GP and the ESH MS4 Program Plan are hereby incorporated by reference.	Annually
Daily inspections and maintenance of the ESH Sanitary Sewer Cleanout Station.	Daily visual inspections and maintenance of the ESH Sanitary Sewer Cleanout Station. Documentation will consist of the daily work orders records generated by ESH with the completion date. No specific inspection or maintenance forms are completed beyond works orders.	Daily inspection and maintenance work order records provided by ESH with the completion date. No specific inspection or maintenance forms are completed beyond works orders.	Inspections and maintenance will continue to take place daily.