FINAL
Municipal Separate Storm Sewer System (MS4) Annual Report

JBLE–Eustis, Virginia

Permit Year 3: 1 July 2020 – 30 June 2021

JBLE–Eustis
733 CES/CEIE
1407 Washington Blvd.
JBLE–Eustis, VA 23604

September 2021

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List of Acronyms and Abbreviations

733 CES/CEIE	733d Civil Engineer Squadron/Environmental Element
AAFES	Army and Air Force Exchange Service
ACS	Army Community Service
AEM	Advanced Environmental Management
BMP	Best Management Practice
CBAT	Chesapeake Bay Action Team
CFT	Cross-Functional Team
CSCE	Comprehensive Site Compliance Evaluation
DoD	Department of Defense
E&SC	Erosion and Sediment Control
EMAC	Environmental Management Awareness and Competency
EMP	Environmental Management Procedure
EMS	Environmental Management System
EPA	U. S. Environmental Protection Agency
ESOH	Environmental, Safety and Occupational Health
FOG	Fats, Oil and Grease
FSE	Food Service Establishments
FSS	Force Support Squadron
GIS	Geographic Information System
HRSD	Hampton Roads Sanitation District
HQ	Headquarters
IDDE	Illicit Discharge Detection and Elimination
ISO	International Organization of Standardization
JBLE–Eustis	Joint Base Langley Eustis – Eustis
MCM	Minimum Control Measure
MFH	Military Family Housing
MS4	Municipal Separate Storm Sewer System
MWR	Morale, Welfare, and Recreation
NMP	Nutrient Management Plan
O&M	Operation and Maintenance
P4	Public-Public; Public-Private
POC	Pollutants of Concern
PY	Permit Year

List of Acronyms and Abbreviations (Continued)

SC	Special Condition
SMF	Stormwater Management Facility
SWCB	State Water Control Board
SWPPP	Stormwater Pollution Prevention Plan
TA	Training Area
TEACH	The Environmental Awareness Course Hub
TMDL	Total Maximum Daily Load
TRADOC	Training and Doctrine Command
TSS	Total Suspended Solids
VDEQ	Virginia Department of Environmental Quality
VESCL	Virginia Erosion and Sediment Control Law
VESCP	Virginia Erosion and Sediment Control Program
WG	Wing
WOAC	Warrant Officers Advanced Course

Municipal Separate Storm Sewer System Program Plan Certification

As required by Part III.K.2. of General Permit No. VAR040035, all reports required by state permits and other information requested by the board shall be signed by a principal executive office or ranking elected official as described in Part III.K.1.c., or a duly authorized representative.

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.

Type or Print the following information:

Name: Miguel L. Capellan Area Code and Telephone No.: (757) 878-3642

Official Title: Director, 733d Civil Engineering Squadron

Signature: Date Signed: 9/14/21

Permit Number: VAR040035 MS4 Name: JBLE–Eustis

Section 1: Introduction

Joint Base Langley-Eustis – Fort Eustis (JBLE–Eustis), Virginia, holds a General Permit for Discharges of Stormwater from Small Municipal Separate Storm Sewer Systems (MS4), General Permit No. VAR040035, issued by the Commonwealth of Virginia Department of Environmental Quality (VDEQ) on 01 November 2018. In accordance with provisions outlined in this MS4 permit, JBLE–Eustis has continued implementing their comprehensive stormwater management program designed to prevent or reduce the discharge of sediment and other pollutants into the base's stormwater conveyance system. General Permit No. VAR040035 Part I.D.2.e. requires JBLE–Eustis to evaluate the MS4 program on an annual basis to assess program compliance, the appropriateness of the identified Best Management Practices (BMP), and progress towards achieving the identified measurable goals.

This report describes the progress and status of the JBLE–Eustis MS4 Program during Permit Year (PY) 3 from 01 July 2020 to 30 June 2021.

The remainder of this annual report is presented as follows:

- Section 2 – Provides an overview of the MS4 including its physical characteristics
- Section 3 – Presents a listing of the base’s stormwater program guidance
- Section 4 – Discusses the minimum control measures (MCM) JBLE–Eustis is implementing under the MS4 permit
- Section 5 – Reviews the special conditions (SC) JBLE–Eustis is implementing under this MS4 permit

These sections are supported by the following attachments:

- Attachment 1– Illicit Discharge Detection Elimination (IDDE) Map
- Attachment 2 – Stormwater Management Educational Brochures
- Attachment 3 – Public Involvement/Participation Documentation
- Attachment 4 – Illicit Discharge Investigation Details
- Attachment 5 – Stormwater Management Facility (SMF) Inventory Tracking Spreadsheet
- Attachment 6 – Chesapeake Bay Total Maximum Daily Load (TMDL) Action Plan Implementation Status Memo
- Attachment 7 – Bacteria TMDL Action Plan Implementation Status Memo

Section 2: Storm Sewer System Information

Permit Holder

Commanding Officer, 633 Air Base Wing
JBLE–Eustis
Fort Eustis, Virginia

Facility Information

JBLE–Eustis
Fort Eustis, Virginia
MS4 General Permit No. VAR040035

Mailing Address

Director, 733d Civil Engineering Squadron
1407 Washington Blvd.
Fort Eustis, VA 23604

Population Served

The total population attached to the base is approximately 22,090, comprised of approximately 7,160 military personnel and 11,428 dependents, as well as approximately 3,500 civilian non-residents who commute to the base daily.

MS4 Service Area

JBLE–Eustis is located adjacent to the City of Newport News, Virginia which is part of the Norfolk, Hampton, and Newport News metropolitan area. The base is located on Mulberry Island, a small peninsula bordered by the James River to the west, Warwick River to the east, and Skiffes Creek toward the north. Smaller waterbodies on or bordering the base include Jail Creek, Morrison's Creek, Island Creek, Bailey Creek, and Eustis Lake. The base occupies approximately 8,000 acres and houses a variety of military organizations and support activities. Most of the development is located at the northern end of the base, while the southern portion of the peninsula remains largely undeveloped. A golf course and an airfield are located near the center of the base.

The base does not rely on another government entity to satisfy MS4 permit obligations. In addition, no program approvals are required as specified in Part I.C.5. of the MS4 permit.

MS4 Conveyance System

JBLE–Eustis' stormwater conveyance system consists of sheet flow areas, swales, ditches, and pipes. In addition, the base has mapped the stormwater system for JBLE–Eustis as well as the stormwater management facilities (SMF) using Geographic Information System (GIS).

There are three subwatersheds that include portions of JBLE–Eustis. These include Morrison's Creek, Skiffes Creek, and the Warwick River. River basins, streams, and other bodies of water into which the stormwater from the MS4 discharges are shown in Table 1. The table lists the subwatershed and waterbody that receive stormwater runoff from the MS4 jurisdictional area.

Table 1. Subwatersheds

Subwatershed (Hydrologic Unit Code)	Waterbody Name	Waterbody ID[1]
Morrison's Creek - James River (020802060804)	Fort Creek	VAT-G11E_ZZZ01A00
	James River – Gravel Neck to Pagan River	VAT-G11E_JMS01A06
	Morrison's Creek – Mulberry Island	VAT-G11E_MRS01A06
Skiffes Creek - James River (020802060802)	Bailey Creek	Unavailable[2]
	Blows Creek	VAT-G11E_ZZZ01A00
	Eustis Lake	Unavailable[2]
	James River – Gravel Neck to Pagan River	VAT-G11E_JMS01A06
	Skiffes Creek System [Admin Cond]	VAT-G11E_SFF02A08
Warwick River (020802060901)	Browns Lake	Unavailable[2]
	Jail Creek – Lower Tidal Portion	Unavailable[2]
	Milstead Island Creek	Unavailable[2]
	Warwick River – Lower Tidal Portion	VAT-G11E_WWK03A08
	Warwick River – Middle Tidal Portion	VAT-G11E_WWK02A08
	Warwick River – Upper Tidal Portion	VAT-G11E_WWK01A08

Note:
[1] The Waterbody ID is referenced from the 2016 Integrated Report GIS layers (https://www.deq.virginia.gov/Portals/0/DEQ/Water/WaterQualityAssessments/GISData/ir16gisdata.zip)
[2] Waterbody IDs, categories, and impairments were not included in the 2016 VDEQ Integrated Report.

Part I.E.3.a(1) of MS4 Permit No. VAR040035 requires that JBLE–Eustis maintain a stormwater drainage system map that shows the location of all MS4 outfalls as well as the name and location of all waters receiving discharges from the MS4 outfalls and the associated hydrologic unit code. A map is included as Attachment 1. No new outfalls were identified during the MS4 stormwater drainage system mapping update by 733d Civil Engineer Squadron/Environmental Element (733 CES/CEIE) staff.

Total Maximum Daily Load and Impaired Stream Identification

TMDLs Other than the Chesapeake Bay TMDL

The U.S. Environmental Protection Agency (EPA) or VDEQ has the authority to establish and issue a TMDL allocation on a body of water or receiving stream. The Warwick River and Skiffes Creek subwatersheds are subject to a TMDL for fecal bacteria. On 28 April 2009, the VDEQ State Water Control Board (SWCB) approved TMDLs to address fecal coliform bacteria impairment in the Warwick River (James River) and Skiffes Creek. Both the Warwick and James Rivers impaired segment (waterbody ID# VAT-G11E) and Skiffes Creek impaired segment (waterbody ID# VAT-G11E) are considered Condemned Shellfish Areas that do not support the Virginia Department of Health fecal coliform standards for shellfish harvesting. These waterbodies receive runoff from JBLE–Eustis and the TMDLs for these waterbodies include wasteload allocation assignments to JBLE–Eustis.

Chesapeake Bay TMDL

In 2010 the EPA established the Chesapeake Bay TMDL to address pollutants of concern (POC) in the Chesapeake Bay. The POCs include excess nitrogen, phosphorus, and total suspended solids (TSS). The Chesapeake Bay watershed encompasses over 64,000 square miles across the District of Columbia and large sections of Delaware, Maryland, New York, Pennsylvania, West Virginia, and Virginia. JBLE–Eustis sits within the Chesapeake Bay Watershed.

In the Phase I and Phase II Chesapeake Bay Watershed Implementation Plan for the Chesapeake Bay TMDL, the Commonwealth of Virginia committed to a phased approach to reducing the POCs discharging from MS4s. Part II.A.11(a)-(f) of MS4 Permit No. VAR040035 requires JBLE–Eustis to prepare a Chesapeake Bay TMDL Action Plan that demonstrates future plans to meet the required POC reductions.

Section 3: Water Quality Programs and Guidance

This section discusses the local and commonwealth water quality programs that are implemented by JBLE–Eustis or the commonwealth, respectively, within the base boundaries.

Local Programs and Guidance

JBLE–Eustis has developed and implements local programs and guidance in order to comply with the MS4 permit. These programs and guidance documents are listed below.

- JBLE–Eustis Environmental Policy Statement (24 August 2017)
- JBLE–Eustis Instruction 32-101 - Environment Management (28 January 2014)
- JBLE–Eustis Environmental Management Procedures (EMP) (updated annually)
- JBLE–Eustis IDDE Procedure Manual (August 2016)
- JBLE–Eustis Structural SMF Inventory, Annual Inspection and Management Plan
- JBLE–Eustis Erosion and Sediment Control Standards and Specifications (May 2016)
- JBLE–Eustis MS4 Program Plan (January 2019)

Commonwealth Programs

In addition to the local programs that the base is implementing, there are commonwealth programs established by VDEQ, which are also being implemented. These programs are listed below.

- **Erosion and Sedimentation Program** – The Virginia Erosion and Sediment Control Law (VESCL) delegates the authority to administer a Virginia Erosion and Sediment Control Program (VESCP) to local municipalities. Local municipal VESCPs must be approved by the State Water Control Board; however, this is an optional requirement for JBLE–Eustis per the VESCL. JBLE–Eustis has not developed a specific erosion and sediment control program for the base; however, erosion and sediment control standards and specifications were developed and implemented in 2016 for small projects (land disturbance between 2,500 and 10,000 square feet). The base utilizes EMP 4.4.6.2.2, Stormwater Management, to outline roles and responsibilities, as well as procedures related to erosion and sediment control.
- **Stormwater Permitting Program** – The VDEQ Water Division implements the stormwater permitting program to develop, plan, and implement commonwealth-wide stormwater control policies, strategies, and rules designed to protect the commonwealth surface waters from the impacts of stormwater pollutants and runoff.

Section 4: Minimum Control Measures

This section discusses the MCMs that JBLE–Eustis is implementing under MS4 Permit No. VAR040035. MCMs include:

- MCM 1: Public Education and Outreach
- MCM 2: Public Involvement/Participation
- MCM 3: IDDE
- MCM 4: Construction Site Stormwater Runoff Control
- MCM 5: Post-Construction Stormwater Management in New Development and Development on Prior Developed Lands
- MCM 6: Pollution Prevention/Good Housekeeping for Municipal Operations

Details regarding program requirements, achievements, and planned initiatives are discussed on the following pages.

MCM 1: Public Education and Outreach

JBLE–Eustis is required to develop and implement a public education and outreach program with the objective to comply with Commonwealth and local requirements to educate the base community regarding the impacts of stormwater discharges on the receiving waters as well as measures that the community can take to reduce the introduction of pollutants to the stormwater drainage system.

JBLE–Eustis plans to utilize a combination of relevant messages and outreach materials to educate target audiences for each of the three high priority water quality issues, as well as other stormwater topics of interest to the public (using a minimum of two of the strategies listed on Part I.E.1.d, Table 1 - Strategies for Public Education and Outreach. The table below outlines program achievements during PY3 as well as planned education and outreach activities for the upcoming PY, in accordance with Part I.E.1.g.(2) of the MS4 permit. Additional details are included in Section 3.1 of the JBLE–Eustis MS4 Program Plan. Examples of outreach materials are provided in Attachments 2 and 3.

MCM 1: Public Education and Outreach			
A	**B**	**C**	**D**
Required Action(s)	**PY3 Measurable Goal(s)**	**Schedule for Implementation**	**Initiatives Planned for PY4**
Permit Ref.	**Part I.E.1 Public Education and Outreach**		
Identify three high priority water quality issues	Continued to monitor previously identified high priority water quality issues, which include: 1. Curb illegal fats, oils, and grease (FOG) disposal at food service establishments (FSE), including food trucks, to the stormwater drainage system 2. Curb illegal dumping within military family housing (MFH) and the dormitories. 3. Training Area (TA) erosion and sediment control.	Annual	Evaluate high priority water quality issues.

MCM 1: Public Education and Outreach			
A	**B**	**C**	**D**
Required Action(s)	**PY3 Measurable Goal(s)**	**Schedule for Implementation**	**Initiatives Planned for PY4**
Permit Ref.	**Part I.E.1 Public Education and Outreach (Continued)**		
Use a minimum of two strategies from Part I.E.1.d, Table 1 – Media materials, training materials, speaking engagements and traditional written materials	Material used for training, electronic and physical information handouts: 1. Traditional written materials: "Be the Solution to Stormwater Pollution", "Preventing Pollution from Pet Waste" and "Car Maintenance and Pollution Prevention" brochures. 2. Alternative materials: Pet waste bags/holders 3. Signage: FOG Management in FSEs. 4. Media Materials: Plastic bag Challenge.	Annual evaluation / ongoing distribution of materials	Report which strategies were used during the PY.
High Priority Issue 1: Curb illegal fats, oils, and grease disposal at FSE, including food trucks, to the stormwater drainage system. **Target Audience:** JBLE–Eustis FSE workers, food truck vendors. **Goal:** Provide information regarding proper washing procedures to target audience.	1. The FSE Inventory identified which FSEs had trained workers in FOG management and which had not. It also identified the procedures Army Air Force Exchange Service (AAFES) has in place for food trucks doing business on the base. 2. FSEs must have two workers trained in FOG management using the training provided by Hampton Roads Sanitation District (HRSD) at www.hrfog.com. (Part I E.1.d Table 1 – Training Materials) 3. Food truck workers may take either the HRSD FOG training or must have ServSafe training before entering into a contract with AAFES. 4. Signage is posted in kitchens regarding FOG BMPs and grease management. Examples are included in Attachment 1. (Part I E.1.d Table 1 – Signage) *5.* Recommendations for FOG management have been provided to entities performing food preparation related activities (Part I E.1.d Table 1 - Signage).	Ongoing	1. The areas of concern for this water quality issue will continue to be monitored for continued compliance by the target audience. 2. Continue to require FSE staff to maintain appropriate training for FOG management. 3. Continue to post signage related to FOG BMPs in kitchen areas. 4. Continue Food Handler Training

MCM 1: Public Education and Outreach			
A	**B**	**C**	**D**
Required Action(s)	**PY3 Measurable Goal(s)**	**Schedule for Implementation**	**Initiatives Planned for PY4**
Permit Ref.	**Part I.E.1 Public Education and Outreach (Continued)**		
High Priority Issue 2: Curb illegal dumping within MFH and the dormitories. **Target Audience**: JBLE–Eustis MFH residents and dormitory residents. **Goal**: Provide information regarding proper disposal procedures to target audience.	1. Stormwater pollution prevention training was provided to base personnel (active duty, civilian, and contractor). Training activities include Environmental Management Awareness and Competency (EMAC) and Advanced Environmental Management (AEM). (Part I E.1.d Table 1 – Training Materials) a. The EMAC course is provided in an online format through The Environmental Awareness Course Hub (TEACH) website (https:\\usaf.learningbuilder.com) and is required for all base personnel within 30 days of arrival and annually thereafter. 2. The AEM training is conducted in a classroom setting for initial training with annual refresher training provided via TEACH. (2,735 people took the AEM training.)	Ongoing	1. Publish articles in the Warrior newspaper related to illegal dumping (e.g., privately owned vehicle car washing in undesignated areas, littering, and disposal of household chemicals) on a semi-annual basis during the PY. 2. Develop and post information to the JBLE–Eustis and MFH Facebook pages at least semi-annually during the PY. 3. Send a mass email to MFH residents regarding illegal dumping at least semi-annually during the PY. 4. Continue to conduct EMAC, AEM, and WOAC training. 5. Continue to distribute the informational brochures relevant to curbing illegal dumping within MFH and the dormitories.

MCM 1: Public Education and Outreach			
A	**B**	**C**	**D**
Required Action(s)	**PY3 Measurable Goal(s)**	**Schedule for Implementation**	**Initiatives Planned for PY4**
Permit Ref.	**Part I.E.1 Public Education and Outreach (Continued)**		
High Priority Issue 3: Address TA erosion and sediment control **Target Audience**: JBLE–Eustis senior leadership, 733 CES/CEIE, Range Control personnel, and the Force Support Squadron (FSS) **Goal**: Provide information regarding reducing erosion and providing sediment control procedures to target audience.	1. 733 CES/CEIE continued to pursue an opportunity to partner with the Virginia Institute of Marine Science to obtain Legacy Department of Defense funding to develop an oyster reef at TA 1 to resolve erosion issues (Part I E.1.d Table 1 – Speaking engagements). 2. Discussed erosion and sediment control at the April 2021 Cross-Functional Team (CFT) meetings, as well as the February 2021 Environmental Safety and Occupational Health (ESOH) Council briefings (Part I E.1.d Table 1 – Speaking engagements).	Ongoing	1. Meet with Range Control personnel to discuss erosion and sediment control issues at the TA. 2. Discuss at WG and CFT meetings, as well as at ESOH Council briefings. 3. Distribute TA Erosion and Sediment Control (E&SC) outreach materials to Range Control, FSS, and other users. 4. Develop an outreach plan for the TAs.
Conduct Outreach events that focus on key water quality issues.	1. Earth Week Big Butts Campaign and General Environmental Outreach Informational Booth – JBLE–Eustis Environmental set up an informational booth with handouts on stormwater, water quality, water conservation, and pollution prevention tips. The booth also included FOG information and literature from hrfog.com. The booth also focused on the importance of pet waste collection and gave away pet waste collection bags/holders. a. 21 April – Booth was set up at the Balfour Beatty Community Center, which targeted the Family Housing residents and reached 15 people.	Ongoing.	Continue to conduct outreach events that target various communities around JBLE–Eustis.

MCM 1: Public Education and Outreach			
A	**B**	**C**	**D**
Required Action(s)	**PY3 Measurable Goal(s)**	**Schedule for Implementation**	**Initiatives Planned for PY4**
Permit Ref.	**Part I.E.1 Public Education and Outreach (Continued)**		
Conduct Outreach events that focus on key water quality issues. (continued)	b. 22 April – The booth was set up at the AAFES Main Exchange, which targeted the JBLE–Eustis community and reached approximately 40 people. 2. Trunk or Treat/Fall Fest Event – October 2020. Event included an informational booth where handouts on stormwater, water quality, water conservation, and pollution prevention tips were distributed. 3. World Water Day – 3 March 2021. JBLE–Eustis Environmental set up an informational booth with handouts on stormwater, water quality, water conservation, and pollution prevention tips. The booth also included FOG information and literature from hrfog.com. The booth also focused on the importance of pet waste collection and gave away pet waste collection bags/holders. The event targeted Family Housing residents and reached approximately 30 people.	Ongoing	See above.

MCM 2: Public Involvement/Participation

The base is required to cultivate a public involvement and participation program with the objective to comply with commonwealth and local public notice requirements, implementing four activities per year from a minimum of two of the categories listed in Part I.E.2 c. Table 2. JBLE–Eustis has taken steps to implement the program BMPs as specified in Part I.E.2 of the MS4 permit. Documentation of Public Involvement/Participation events is provided in Attachment 3.

MCM 2: Public Involvement/Participation			
A	**B**	**C**	**D**
Required Action(s)	**PY3 Measurable Goal(s)**	**Schedule for Implementation**	**Initiatives Planned for PY4**
Permit Ref.	**Part I.E.2: Public Involvement and Participation**		
Maintain a website with the MS4 Program and stormwater information.	The 733 CES/CEIE maintains a website that provides information to the public, including the MS4 Program Plan and the MS4 Annual Reports. The website is located at: https://www.jble.af.mil/Units/Army/Eustis-Enviromental/	Ongoing	Continue to maintain the JBLE–Eustis Environmental website and post educational and reference information for the base population.
Summary and response of public input on the MS4 Program.	JBLE–Eustis posted documents related to the MS4 Program on the JBLE–Eustis Environmental website (https://www.jble.af.mil/Units/Army/Eustis-Enviromental/) for public review and comment. There were no comments received on the MS4 Program. Contact information for 733 CES/CEIE is also posted to the website if there are further comments.	Ongoing	Continue to make documents related to the MS4 Program available to the public for comment and respond to any input provided.

MCM 2: Public Involvement/Participation			
A	**B**	**C**	**D**
Required Action(s)	**PY3 Measurable Goal(s)**	**Schedule for Implementation**	**Initiatives Planned for PY4**
Permit Ref.	**Part I.E.2.f(3)-(4): Volunteer Opportunities**		
Provide volunteer opportunities designed to promote ongoing public participation.	1. Earth Week (19 – 23 April 2021) – Earth Week events were conducted daily to enhance awareness of environmental issues related to JBLE–Langley. Events included: a. 19 April – Virtual presentation via Microsoft Teams Tick Awareness and Reducing Mosquito Breeding. b. 20 April – Turtle Survey c. 21 April – Educational field trip: comparison of mature woodland and early successional habitats. d. 22 April: i. Big Butts Campaign and litter cleanup event. Up to 12 volunteers collected litter/debris along James River. Participation was limited due to Covid-19 restrictions. ii. Submission deadline for nature photography contest. Participants submitted nature phots to JBLE–Eustis Environmental. Winners of each age group category received an Eco-friendly tote bag with goodies. 2. America Recycles Day Coloring Contest – (5 – 20 November 2020). JBLE–Eustis held a contest for kids Pre-K – 12 to show what recycling means to them. Participants uploaded pictures of their drawings to the JBLE–Eustis Environmental Facebook page. The top 5 winners received goodie bags.	Ongoing	1. Continue to host public participation events during Earth Week, World Water Day, America Recycles Day, Clean the Bay Day, and others. 2. Track the number of volunteers.

MCM 2: Public Involvement/Participation			
A	**B**	**C**	**D**
Required Action(s)	**PY3 Measurable Goal(s)**	**Schedule for Implementation**	**Initiatives Planned for PY4**
Permit Ref.	**Part I.E.2.f(3)-(4): Volunteer Opportunities (Continued)**		
Provide volunteer opportunities designed to promote ongoing public participation. (continued)	3. JBLE–Eustis Plastic Bag Collection Competition (1 January – 30 June 2021). JBLE–Eustis participated in a base-wide plastic bag and film collection drive. If 500 lbs. of plastic were collected, a bench made of recycled plastic material would be donated to the base. A total of 3,110 lbs. of plastic was collected and the installation received a bench. 4. Clean the Bay Week (31 May – 5 June 2021). Participants could sign up to participate in activities throughout the week. Activities included: litter cleanup, planting native plants, or installing a rain barrel. Clean the Bay Week also included a *Clean the Bay Your Way Photo and Video Contest*. Participants submitted photos or videos of a Clean the Bay activity. Participants were entered to receive gift cards, gift baskets, and other prizes. There were four photo and video entries.	Ongoing	See above.

MCM 3: Illicit Discharge Detection and Elimination

The base is required to develop, implement, and enforce a program to detect and eliminate illicit discharges into the MS4. JBLE–Eustis has taken steps to implement the IDDE program BMPs as specified in Part I.E.3 of the MS4 permit.

MCM 3: Illicit Discharge Detection and Elimination			
A	**B**	**C**	**D**
Required Action(s)	**PY3 Measurable Goal(s)**	**Schedule for Implementation**	**Initiatives Planned for PY4**
Permit Ref.	**Part I.E.3.e(1): MS4 Map**		
Confirmation statement that the MS4 map and information table have been updated to reflect any changes to the MS4 occurring on or before 30 June of the reporting year by 1 October.	Update MS4 map to reflect all changes from PY2 prior to 01 October 2020 as required by Part I.E.3.a.(4).	Annual	Update the MS4 map and information table as needed by 01 October following the end of the PY.
Permit Ref.	**Part I.E.3.e(2): Outfall Screening**		
Screen non-industrial outfalls and maintain outfall inspection records.	1. Fifty (50) of the 83 non-industrial outfalls were inspected during PY3. Details regarding the inspection findings are included on the outfall inspection forms and in the Dry Weather Outfall Monitoring Report. 2. Copies of the outfall inspection records are maintained by 733 CES/CEIE and will be made available upon request. 3. The IDDE Procedure Manual was evaluated to determine if updates to the MS4 outfalls were needed.	1. Annual 2. Ongoing 3. Annual	1. Continue to track and inspect the non-industrial outfalls as required by the *IDDE Procedure Manual* 2. Continue to maintain inspection forms on 733 CES/CEIE servers. 3. Continue to monitor for any necessary updates to the *IDDE Procedure Manual*.

MCM 3: Illicit Discharge Detection and Elimination			
A	**B**	**C**	**D**
Required Action(s)	**PY3 Measurable Goal(s)**	**Schedule for Implementation**	**Initiatives Planned for PY4**
Permit Ref.	**Part I.E.3.e(2): Outfall Screening (Continued)**		
Investigations of suspected illicit discharges	1. JBLE–Eustis personnel utilized the IDDE Procedure Manual to investigate potential illicit discharges. 2. Detailed building descriptions of each of the illicit discharge investigations are included in Attachment 5. Investigations into potential illicit discharges include: a. Building 2300 cooking oil spill (28 July 2020). b. JP-8 transfer spill (3 August 2020) c. Building 836 oil spill (17 November 2020). d. Building 704 fuel spill (10 January 2021). e. Building 3528 Secondary Containment Vessel Release (01 February 2021). f. Third Port diesel fuel (11 February 2021). *3.* Report all spills or unauthorized releases, whether it enters the MS4 or not, in accordance with JBLE–Eustis EMP 4.7.7, Spill Prevention and Response, and log the incident in the spill database maintained by the 733 CES/CEIE Spill Program Manager.	Annual / Ongoing	1. Continue to utilize IDDE procedures to investigate potential illicit discharges. 2. Continue to report all spills or unauthorized releases, whether it enters the MS4 or not, and log the incident in the spill database maintained by the 733 CES/CEIE Spill Program Manager.
Permit Ref.	**Part I.E.3.a(5): Downstream Adjacent MS4 Notification**		
Document MS4 Interconnections	There are not any existing or new MS4 interconnections to report in PY3.	Annual	733 CES/CEIE will continue to monitor the MS4 area to ensure there are no interconnections with other MS4s.

MCM 4: Construction Site Stormwater Runoff Control

The base is required to comply with the Virginia Stormwater Management Program in order to maintain compliance with the Construction Site Runoff Controls. These controls are designed to assist with the development, implementation and enforcement of an E&SC Program to reduce the pollutants (e.g., total suspended solids, total phosphorus, and total nitrogen) related to "land-disturbing activities including clearing, grading, or excavation that results in a land disturbance equal to or greater than 2,500 square feet and less than one acre in all areas of jurisdictions designated as subject to the Chesapeake Bay Preservation Area Designation and Management Regulations (9VAC25-830) adopted pursuant to the Chesapeake Bay Preservation Act." The base has taken steps to implement the program BMPs as specified in Part I.E.4 of the MS4 permit.

MCM 4: Construction Site Stormwater Runoff Control			
A	**B**	**C**	**D**
Required Action(s)	**Measurable Goal(s)**	**Schedule for Implementation**	**Initiatives Planned for PY4**
Permit Ref.	**Part I.E.4.d(1)-(2): Confirmation Statement**		
Confirmation statement of land disturbing activities.	Conducted land disturbing projects, that occurred during the reporting period, in accordance with the current department approved standards and specifications for erosion and sediment control.	Annual	Continue to provide confirmation statement in Annual Report of land disturbing activities.
Permit Ref.	**Part I.E.4.d(2)-(3): Track regulated land-disturbing activities**		
Provide information on land-disturbing activities including, the total number of inspections conducted; and the total number and type of enforcement actions implemented and the type of enforcement actions.	1. Virginia Electric and Power/Dominion Energy Substation Expansion (VAR10O708) a. Total number of acres disturbed: 2.12 acres b. Frequency of internal inspections performed: Weekly and after major storm event. c. Total number of VDEQ inspections performed: 1 d. Enforcement Actions: None 2. Fuel Facility Replacement (VAR10N882) a. Total number of acres disturbed: 3.35 acres b. Frequency of internal inspections performed: Weekly and after major storm event.	Annual	Continue to track regulated land-disturbing activities, including: 1. Number of on-going land disturbing activities. 2. Number of acres disturbed. 3. Number of inspections conducted.

MCM 4: Construction Site Stormwater Runoff Control			
A	**B**	**C**	**D**
Required Action(s)	**Measurable Goal(s)**	**Schedule for Implementation**	**Initiatives Planned for PY4**
Permit Ref.	**Part I.E.4.d(2)-(3): Track regulated land-disturbing activities (Continued)**		
Provide information on land-disturbing activities including, the total number of inspections conducted; and the total number and type of enforcement actions implemented and the type of enforcement actions. (continued)	c. Total number of VDEQ inspections performed: 1 d. Enforcement Actions: None 3. Aviation Maintenance Training facility (VAR10M829) a. Total number of acres disturbed: 13.98 acres b. Frequency of internal inspections performed: Weekly and after major storm event. c. Total number of VDEQ inspections performed: 1 d. Enforcement Actions: None 4. Aviation Complex (VAR10J790) a. Total number of acres disturbed: 27 acres b. Frequency of internal inspections performed: Weekly and after major storm event. c. Total number of VDEQ inspections performed: 1 d. Enforcement Actions: 2 5. AIT Barracks Complex (VAR10O790) a. Total number of acres disturbed: 8.75 acres b. Frequency of internal inspections performed: Weekly and after major storm event. c. Total number of VDEQ inspections performed: 1 d. Enforcement Actions: None	Annual	See above.

MCM 4: Construction Site Stormwater Runoff Control			
A	**B**	**C**	**D**
Required Action(s)	**Measurable Goal(s)**	**Schedule for Implementation**	**Initiatives Planned for PY4**
Permit Ref.	**Part I.E.4.d(2)-(3): Track regulated land-disturbing activities (Continued)**		
Track the enforcement actions incurred during the PY and the corrective actions taken.	There were no enforcement actions in PY3.	Annual	Continue to track enforcement actions throughout the PY.
Track the construction permits that are closed during the PY.	There were no construction permits closed during PY3.	Annual	Continue to track if any construction permits are closed during the PY.

MCM 5: Post-Construction Stormwater Management in New Development and Development on Prior Developed Lands

The base is required to develop, implement and enforce a program to address stormwater runoff related to new development and redevelopment projects throughout the service area, including a combination of structural and non-structural BMPs. In addition, JBLE–Eustis is required to ensure that the structural BMPs (i.e., SMFs) are functional through long term operation and maintenance (O&M) practices. The base has taken steps to implement the program BMPs as specified in Part I.E.5 of the MS4 permit.

MCM 5: Post-Construction Stormwater Management in New Development and Development on Prior Developed Lands			
A	**B**	**C**	**D**
Required Action(s)	**PY3 Measurable Goal(s)**	**Schedule for Implementation**	**Initiatives Planned for PY4**
Permit Ref.	**Part I.E.5 (1)-(3): SMF Inspection and Maintenance**		
Maintain an updated electronic database of all known operator-owned and privately-owned SMFs that discharge into the MS4.	JBLE–Eustis utilized an excel spreadsheet to track SMFs. The spreadsheet is included electronically as Attachment 6.	Ongoing	Continue to maintain an SMF inventory via an excel spreadsheet and submit with the Annual Report.
Identify new SMFs brought online during the PY.	No SMFs were brought online during PY3.	Annual	Track construction projects and planned SWM facilities and include in the inventory as they are brought online.
Inventory and inspect SMFs and conduct O&M to maintain SMF functionality.	1. Inventoried and completed annual inspection of all 114 SMFs on base. 2. Updated the SMF Inspection and Management Action Plan.	1. Annual inspections 2. Ongoing maintenance	1. Continue to inspect and monitor all SMFs on base. 2. Submit programming for SMF rehab and maintenance based on SMF facility inventory assessment.

MCM 5: Post-Construction Stormwater Management in New Development and Development on Prior Developed Lands			
A	**B**	**C**	**D**
Required Action(s)	**PY3 Measurable Goal(s)**	**Schedule for Implementation**	**Initiatives Planned for PY4**
Permit Ref.	**Part I.E.5 (1)-(3): SMF Inspection and Maintenance (Continued)**		
Inventory and inspect SMFs and conduct O&M to maintain SMF functionality.	SMF rehab was completed during PY3. This included SMFs that were noted to be of the highest priority during the PY1 annual inspection.	1. Annual inspections 2. Ongoing maintenance	1. Continue to inspect and monitor all SMFs on base. 2. Submit programming for SMF rehab and maintenance based on SMF facility inventory assessment.
Provide input on upcoming construction projects and the planned post construction stormwater management strategies.	Work closely with 733 CES/CEIE planning and engineering departments to review plans and specifications associated with upcoming construction projects.	Ongoing	Continue to work closely on emerging construction projects and provide input on planned SMFs.
Permit Ref.	**Part I.E.5 (4)-(5): Confirmation Statements**		
Provide confirmation of VDEQ BMP Warehouse Submission.	The electronically reported BMPs were submitted to the VDEQ for inclusion in the BMP Warehouse in accordance with Part I.E.5.g in September 2020. Confirmation of inclusion by VDEQ was provided on 01 October 2020.	Annual	Send electronically-reported BMPs to VDEQ BMP Warehouse as needed.

MCM 6: Pollution Prevention / Good Housekeeping for Municipal Operations

The base is required to develop and implement a program to address pollution prevention and good housekeeping procedures, including a training program for base personnel and the community. JBLE–Eustis has taken steps to implement the program BMPs as specified in Part I.E.6 of the MS4 permit.

MCM 6: Pollution Prevention / Good Housekeeping for Municipal Operations			
A	**B**	**C**	**D**
Required Action(s)	**PY3 Measurable Goal(s)**	**Schedule for Implementation**	**Initiatives Planned for PY4**
Permit Ref.	**Part 1.E.6.q(1): Develop and implement daily operational procedures**		
Implement Environmental Management System (EMS) and Implement Environmental Management Procedures (EMP)	1. JBLE–Eustis utilizes an EMS that conforms to International Organization of Standardization (ISO) 14001:2004, to manage environmental program requirements. 2. All base environmental and management requirements are codified in JBLE Instruction 32-101, Environmental Management. 3. EMPs have been developed and are used to implement the environmental program. These EMPs are reviewed and updated (as required) on an annual basis. EMPs that are related to the Stormwater Management Program include: a. EMP 4.4.2, Environmental Awareness & Competency Training b. EMP 4.4.2 Tab 2, Environmental Management Training Programs of Instructions c. EMP 4.4.6.2, Wastewater-Stormwater Management d. EMP 4.4.6.5, Pollution Prevention e. EMP 4.4.6.6, Hazardous Materials Management f. EMP 4.4.6.7, Solid Waste and Recycling Management g. EMP 4.4.6.12, Integrated Pest Management	Ongoing	1. Continue to implement an EMS that conforms to ISO 14001:2004. 2. Post EMPs on the JBLE–Eustis Environmental website and advertise them on the JBLE–Eustis Facebook pages. 3. Review all EMPs related to stormwater and update as needed.

MCM 6: Pollution Prevention / Good Housekeeping for Municipal Operations			
A	**B**	**C**	**D**
Required Action(s)	**PY3 Measurable Goal(s)**	**Schedule for Implementation**	**Initiatives Planned for PY4**
Permit Ref.	**Part 1.E.6.q(1): Develop and implement daily operational procedures (Continued)**		
Implement Environmental Management System (EMS) and Implement Environmental Management Procedures (EMP) (continued)	h. EMP 4.4.6.14.1, Aboveground Storage Tanks Management EMP 4.4.6.14.2, Underground Storage Tanks Management i. EMP 4.4.6.16, Tab 1, Assessment Management Special Conditions and Affirmative Procurement j. EMP 4.4.7, Spill Prevention and Response k. EMP 4.5.2.1, Activity Assessments Conducted by 733 CES/CEIE l. EMP 4.5.2.2, Regulatory and Permit Inspections m. EMP 4.5.2.3, Internal Inspections Conducted by Activities n. EMP 4.5.2.3.1, Activity Corrective Action Plans o. Wastewater and stormwater EMPs were consolidated into one EMP, EMP 4.4.6.2, Wastewater/Stormwater Management, issued 25 June 2020. EMPs are posted on the JBLE–Eustis Environmental website (https://www.jble.af.mil/About-Us/Units/Army/Eustis-Enviromental/EMPs/).	Ongoing	See above.
Permit Ref.	**Part 1.E.6.q (2)-(3): Develop and implement required Stormwater Pollution Prevention Plans (SWPPP)**		
Implement Comprehensive SWPPP.	JBLE–Eustis implements its comprehensive SWPPP, designed to satisfy MS4 permit requirements. High priority non-industrial facilities have been included in the comprehensive SWPPP (the Pines Golf Course, AAFES gas station and associated facilities, Base Exchange, and FSS Sport Field Maintenance facility) in order to manage to the same standard as the base's industrial facilities.	Ongoing	Continue to update the comprehensive SWPPP with MS4 high priority facilities as needed.

MCM 6: Pollution Prevention / Good Housekeeping for Municipal Operations			
A	**B**	**C**	**D**
Required Action(s)	**PY3 Measurable Goal(s)**	**Schedule for Implementation**	**Initiatives Planned for PY4**
Permit Ref.	**Part 1.E.6.q (2)-(3): Develop and implement required Stormwater Pollution Prevention Plans (SWPPP) (Continued)**		
Implement High Priority SWPPP.	1. Inspect high priority non-industrial facilities incorporated in the SWPPP for compliance with the SWPPP as part of the annual Comprehensive Site Compliance Evaluation (CSCE). 2. The annual CSCE was completed and no new SWPPPs are currently required.	Ongoing	1. Conduct the annual CSCE of the high-priority non-industrial areas. 2. Continue to review and update the list of municipal/non-industrial high priority facilities and determine if they require a SWPPP in PY4. 3. Create additional SWPPPs if new municipal/non-industrial high priority facilities are identified.
Permit Ref.	**Part 1.E.6.q (4): Develop and implement turf and landscape nutrient management plans (NMP)**		
Implement Pines Golf Course NMP.	1. Acres: 70.8 acres 2. Valid through: New plan currently under review by Virginia DCR. 3. Continued NMP implementation at each site during PY3 and developed updated NMP upon expiration of previous plan as required.	Ongoing	Implement the newly developed NMP for the Pines Golf Course.
Implement Military Family Housing NMP.	1. Acres: 75.1 acres 2. Valid through 06 Aug 2026 3. Continued NMP implementation at each site during PY3 and developed updated NMP upon expiration of previous plan as required.	Ongoing	Implement the newly developed NMP the MFH.

MCM 6: Pollution Prevention / Good Housekeeping for Municipal Operations			
A	**B**	**C**	**D**
Required Action(s)	**PY3 Measurable Goal(s)**	**Schedule for Implementation**	**Initiatives Planned for PY4**
Permit Ref.	**Part 1.E.6.q (4): Develop and implement turf and landscape nutrient management plans (NMP) (Continued)**		
Implement FSS Youth Athletic Fields NMP.	1. Acres: 8.2 acres 2. Valid through: 27 June 2023 3. Continued NMP implementation at each site during PY3.	Ongoing	Continue to implement the NMP at the FSS Youth Athletic Fields.
FSS Athletic Fields NMP	1. Acres: 11.2 acres 2. Valid through: Plan expired during PY3. Interviews with FSS staff determined that nutrients were not being applied and would not be in the future. A new NMP was not developed. 3. If FSS does want to start applying nutrients to the athletic fields, they have been notified that an NMP must be developed prior to application.	Ongoing	Create NMP if nutrients are to be applied to the FSS Athletic Fields.
Provide Stormwater Pollution Prevention Training	Stormwater pollution prevention training was provided to base personnel (i.e., active duty, civilian, contractor). Training activities include EMAC and AEM training. 1. The EMAC course is provided in an online format through the TEACH website (https:\\usaf.learningbuilder.com) and is required for all base personnel within 30 days of arrival and annually thereafter. 2. The AEM training is conducted in a classroom setting for initial training with annual refresher training provided via TEACH.	Ongoing	1. Continue to conduct stormwater pollution prevention training and continue to track base personnel that have received training. 2. Continue to track training events, including date of event, number of attendees, and objective of the training.

MCM 6: Pollution Prevention / Good Housekeeping for Municipal Operations			
A	**B**	**C**	**D**
Required Action(s)	**PY3 Measurable Goal(s)**	**Schedule for Implementation**	**Initiatives Planned for PY4**
Permit Ref.	**Part 1.E.6.q (5): Training events conducted in accordance with Part I E 6 m**		
Provide Environmental Awareness Training	The Environmental Element provided environmental awareness training, including stormwater pollution prevention training, for the US Army Transportation School, Advanced Marine WOAC. Training was made available via the TEACH website during PY3 due COVID-19 restrictions.	Ongoing	1. Continue to conduct environmental awareness training and continue to track base personnel that have received training. 2. Continue to track training events, including date of event, number of attendees, and objective of the training.
Provide Newcomer's Orientation Briefing.	Newcomer's orientation is given to enlisted and newly assigned officers and contained sections pertaining to EMS, stormwater, and associated required trainings. A total of 618 people attended the orientation during PY3. Of these, 86 participants attended in person on the following dates: 1. 4 May 2021 – 10 attendees 2. 18 May 2021 – 23 attendees 3. 1 June 2021 – 11 attendees 4. 15 June 2021 – 21 attendees 5. 29 June 2021 – 21 attendees	Ongoing	1. Continue to provide the Newcomer's Orientation Briefing. 2. Continue to track briefings, including date of event, number of attendees, and objective of the briefing.
Provide other courses through TEACH.	Additional relevant environmental courses were available to personnel on TEACH. These courses cover the following environmental topics: water; wastewater; spill response; and petroleum, oils and lubricant management.	Ongoing	1. Continue to provide course to base personnel through TEACH. 2. Track courses, including date of event, number of attendees, and objective of the briefing.

Section 5: Special Conditions

SC1: TMDL Special Conditions Compliance for the Chesapeake Bay TMDL

JBLE–Eustis' Phase II Chesapeake Bay TMDL Action Plan was developed and submitted November 2020. The Action Plan presented a discussion of the compliance requirements for JBLE–Eustis.

The Action Plan presents the JBLE–Eustis estimated load contribution, required load reductions and pollutant reduction credits. The plan also reported progress made toward meeting the 40% cumulative pollutant reduction requirement for the first and second MS4permit cycles.

The Chesapeake Bay TMDL Action Plan Implementation Status Memo summarizes the actions taken during PY3 and is included as Attachment 6. Implementation will continue in PY4.

SC2: TMDL Special Conditions Compliance other than the Chesapeake Bay TMDL

Part II.B. of the JBLE–Eustis MS4 permit, Permit No. VAR040035, requires the base to maintain an updated MS4 Program Plan that includes a specific TMDL Action Plan for pollutants allocated to the MS4 in an approved TMDL.

As part of maintaining its MS4 Program Plan, JBLE–Eustis has developed the Bacteria TMDL Action Plan to address bacteria impairment in those water bodies. Implementation continued in PY3 and will continue in PY4. The Bacteria TMDL Action Plan Implementation Status Memo summarizes the actions taken during PY3 and is included as Attachment 7. Implementation will continue in PY4.

Attachment 1:
Illicit Discharge Detection Elimination Maps

Figure 1: MS4 Area Overview Map
JBLE-Eustis, VA

AECOM

- Industrial Outfall
- Non-Industrial Outfall
- Stormwater Line
- Industrial Drainage Basin
- MS4 Drainage Basin
- Building
- Installation Boundary
- Golf Course Fairway
- Golf Course Area
- Water

0 400 800 1,600
Feet

1 inch = 400 feet
(When printed on ANSI E-size paper)

Drainage Note: Areas not located in a dilineated basin sheet flow to nearby storm sewer system apputenances or surface waters. Additional non-industrial areas that do not have a distinct outfall are called out on the map.

September 2021

This map was developed using data from the JBLE-Eustis 2008 Storm Water Drainage Evaluation report, 2019 GIS data provided by JBLE-Eustis, and outfall location data collected during field surveys conducted in 2013 and 2014. AECOM assumes no responsibility for the accuracy of or omissions in the original data provided by the base.

FOR OFFICIAL USE ONLY

Figure 2: MS4 Area Overview Map
JBLE-Eustis, VA

AECOM

- Industrial Outfall
- Non-Industrial Outfall
- Stormwater Line
- Industrial Drainage Basin
- MS4 Drainage Basin
- Building
- Installation Boundary
- Golf Course Area
- Golf Course Fairway
- Water

0 250 500 1,000
Feet

1 inch = 400 feet
(When printed on ANSI E-size paper)

Drainage Note: Areas not located in a dilineated basin sheet flow to nearby storm sewer system apputenances or surface waters. Additional non-industrial areas that do not have a distinct outfall are called out on the map.

September 2021

This map was developed using data from the JBLE-Eustis 2008 Storm Water Drainage Evaluation report, 2019 GIS data provided by JBLE-Eustis, and outfall locationdata collected during field surveys conducted in 2013 and 2014. AECOM assumes no responsibility for the accuracy of or omissions in the original data provided by the base.

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Attachment 2:
Stormwater Management Educational Brochures

Winter weather tips: Walkway salting and the environment

As winter approaches and outdoor activities are generally reduced, environmental pollution is still a consideration. During the season, a practice that contributes to storm water pollution is applying salt to paved surfaces. There are still methods to reduce this salt pollution from entering our storm water.

Using salt is an excellent way to reduce ice on sidewalks and driveways. Many of the bags of salt found in local grocery or hardware stores are sodium chloride. Compared to other salts, sodium chloride is more detrimental to the environment and can harm pets as well. Another downside is that sodium chloride is only effective down to 20 degrees.

There are other salts in the market that work the same, and are more environmentally friendly. Magnesium chloride in particular is used both on and off base to protect the roadways from ice. Magnesium chloride is effective to a lower temperature and releases less chloride ions to the environment. Other alternative salts include calcium chloride and potassium chloride.

It is also important to apply the correct amount of salt to driveways and sidewalks. Before applying salt, shovel as much snow and ice off the surface as possible. If there is still a slip hazard, apply salt according to the recommendations on the package. Applying too much salt can stain clothes, kill grass and contribute to corrosion on unprotected metal.

Be sure to check the label when stocking up on salt or alternate and apply only after shoveling.

Clean Water

Excess nutrients, sediment, and toxic contaminants degrade our waterways, harm fish and wildlife, and pose risks to human health. Reducing these pollutants is critical to creating safe, healthy waters for animals and people.

Doing Our Part in the Watershed

As the second largest federal land holder in the Chesapeake Bay, the Department of Defense (DoD) contributes to meeting the Chesapeake Bay Program Partnership's water quality goals through compliance with the Clean Water Act and other applicable regulations, and by implementing water quality Best Management Practices (BMPs) on installations that help reduce nutrient and sediment runoff into the Chesapeake Bay and its tributaries.

GOALS

Water Quality	Toxic Contaminants	Healthy Watersheds
Reduce water pollutants to support aquatic living resources	Ensure that the Bay and its rivers are free of effects of toxic contaminants	Sustain state-identified healthy waters and watersheds

Leading by Example

In 2010, EPA established the Chesapeake Bay Total Maximum Daily Load (TMDL), sometimes called the Bay's "pollution diet," which limits the discharge of nitrogen, phosphorus, and sediment into the region's streams, creeks, and rivers. DoD works closely with EPA and state jurisdictions to assure that pollutant reductions achieved through BMPs at installations are accounted for under the TMDL.

DoD installations incorporate low impact development practices into new construction projects when feasible and strengthen stormwater management by implementing urban retrofit practices and non-structural control measures that reduce volume and improve the quality of stormwater runoff.

Many DoD installations have upgraded wastewater treatment plants with enhanced nutrient removal technologies, restored shorelines to prevent erosion, and converted oil heating boilers to natural gas to reduce air deposition of nitrogen oxides. DoD also continues to identify the most effective ways to reduce nutrients and sediment entering the Bay.

▲ Rain gardens and bioretention areas, such as those installed in Arlington National Cemetery in Virginia, are examples of how DoD installations manage stormwater.

JBLE (Eustis)

Environmental Policy

Comply – with environmental federal, state, and local laws.

Limit impact – Prevent pollution, minimize waste, and protect the Chesapeake Bay.

Execute plans – Follow the JBLE (Eustis) policies and procedures.

Achieve improvements – Make the environment everyday.

Notify – Communicate to others.

It is the responsibility of all military personnel, civilian employees and support contractors to perform their duties in a manner that prevents pollution, protects the environment, and conserves natural resources.

For more information, call (757) 878-4123

JBLE (Eustis)

Spill Reporting

- Immediately report ALL spills (no matter how small) to the Fire Department at (757) 878-1008
- Call 911 in case of emergency (fire, explosion, injury or release into ANY water or drain)

- ALWAYS PROTECT YOURSELF! Safety & protection of life and limb take precedence over environmental protection!
- Stop the spill, if safe to do
- Contain the spill with absorbents (dry sweep), booms, & pads.

When in doubt, contact the Environmental Element at (757) 878-4123

The Impact of Car Washing on Our Rivers and Bay...

When we wash the grime off our cars, it flows down the street and into the storm drain. This runoff carries soap, sediment, oil, and grease. Once the runoff gets into the storm drainage piping system, it directly discharges without treatment into the nearest lake, river, harbor, or bay.

...and Why It Matters

Polluted stormwater can harm fish, wildlife, and plants, and it can even contaminate drinking water. The U. S. EPA estimates that at least 50% of our nation's water pollution is caused by polluted stormwater runoff. If every vehicle (some 2.3 million) in the U.S. was washed once a month with 25 gallons of water (5 buckets), over 70.5 billion gallons of polluted water could enter the stormwater system every year. You can help. Use the tips provided in this brochure to help ensure that our waterways remain clean.

The Law

Joint Base Langley Eustis is required to obtain a stormwater permit under the Virginia Pollutant Discharge Elimination System, or VPDES. The goal of this permit is to reduce pollutants found in storm water runoff from urbanized areas to the "maximum extent practicable."

Joint Base Langley Eustis has prepared this educational brochure to meet a requirement of their VPDES permit administered by the Virginia Department of Environmental Quality.

Contact Information

For more information, contact a Joint Base Langley Eustis Water Media Manager at 757-878-5218 (Fort Eustis) or 757-764-1141 (Langley AFB).

For additional information, see the Commonwealth of Virginia's VPDES Permits, Fees and Regulations website at:

http://www.deq.virginia.gov/Portals/0/DEQ/Water/PollutionDischargeElimination/VAG75FactSheet2012.pdf

Environmental Protection Agency's information on vehicle washing:

https://cfpub.epa.gov/npstbx/files/KSMO_CarWashing.pdf

Florida DEP's Best Practices for Mobile Vehicle Washing:

http://www.dep.state.fl.us/water/wastewater/iw/docs/bmps4mobile-vehicle-washing.pdf

Outdoor Vehicle Washing

May 2016

Mobile Car Washes: Legal Requirements

Discharges from mobile car washes to the storm sewer system are not allowed at Joint Base Langley Eustis. Owners of mobile vehicle washes may apply for coverage under a permit issued by the Virginia Department of Environmental Quality; however the usual mode of operation for these operations is to prevent the discharge of wash waters to surface waters or the storm sewers. Permit coverage as a mobile operator would require each discharge location to be identified on the registration statement as a separate outfall.

JBLE and DEQ urge mobile car wash owners to avoid a discharge to state waters or storm drains by applying technologies to collect wash water and dispose of it properly, recycle it, or use best management practices (evaporation, blocking storm drain entrances, use of permeable surfaces, etc.). Many ideas to avoid a discharge are covered in this brochure and available online.

Car Washing at Home and for Charity

Washing personal vehicles at home or at a volunteer/ charity event is not regulated. Thus, runoff from these activities does not need to be captured by recycling or catchment devices. Even so, there are several easy ways to help reduce stormwater pollution while you work:

- If possible, use a commercial car wash.
- Commercial car washes have recycling systems or discharge to the sanitary sewer system, which goes to a treatment plant.
- Wash your car on gravel, grass, or other permeable surfaces. These surfaces serve as a filter or a sponge, trapping pollutants from the wash water.
- Block off the storm drain inlets during charity car wash events or use an inlet insert to catch wash water.
- Divert soapy water from car washes into a sanitary sewer drain. If this is not feasible, divert car wash water onto grass or landscaping to provide filtration.
- Use hoses with nozzles that automatically turn off when left unattended.
- Use only biodegradable soaps.

Using these simple rules at home and for charity events helps keep a clean and healthy living environment. This is not only good for us and future generations, it makes for a healthy ecosystem.

The Best Option

Outdoor car washing has the potential to result in high loads of nutrients, metals and hydrocarbons during dry weather conditions in many watersheds, as the detergent-rich water used to wash the grime off our cars flows down the street and into the storm drain.

Car washing is a common routine for residents and a popular way for organizations such as scout troops, schools, and sports teams to raise funds. This activity is not limited by geographic region, but its impact on water quality will be greatest in more urban areas with higher concentrations of automobiles.

Always consider using a commercial car wash as your first alternative. A properly designed car wash is connected to a sanitary sewer that carries the dirty water to a wastewater treatment plant. Trading a few dollars for a healthy stormwater system is one deal that everyone can live with.

Tips

Picking up pet waste is no one's favorite job.

Hopefully the tips below will make the job a little less icky.

- You can turn pet waste collection baggies inside out over your hand to use the bag as a glove when picking up the waste.
- Many pet owners prefer to double bag the collected pet waste.
- After collection, you can tie the baggies onto the leash so that you do not have to hold or put the full baggie in your pocket.
- Long handled pet waste scoopers are available at pet stores to assist with waste collection.
- Although you can purchase baggies specifically for pet waste at pet stores, you can also re-use other bags including newspaper bags, bread bags, or sandwich baggies.
- Pet waste digesters are available for purchase at pet stores.

Additional Information

For more information, contact a Joint Base Langley Eustis Water Media Manager at 757-878-5218 (Fort Eustis) or 757-764-1141 (Langley AFB).

Additional information is available at:

EPA Pet Waste Management:

https://cfpub.epa.gov/npstbx/files/Pet%20Care%20Fact%20Sheet.pdf

City of Hampton

http://www.hampton.gov/DocumentCenter/View/9075

Hampton Roads

www.hrpdcva.gov/departments/water-resources/stormwater-management

http://askhrgreen.org/scoop-the-poop/

Water Environment Federation

www.wef.org/AWK/pages_cs.aspx?id=6392

www.wef.org/blogs/blog.aspx?id=8780&blogid=17296

Pet waste is a health risk to people, other pets, and the environment. Bacteria in pet waste can make people sick. When not disposed of properly, pet waste is washed into storm drains and ends up in local waterways.

Always bag pet waste and dispose of it properly.

Preventing Pollution from Pet Waste

JOINT BASE LANGLEY EUSTIS

AIR FORCE CIVIL ENGINEER CENTER

April 2016

The Problem

Pet waste is not only smelly and unsightly, but also is a health risk to pets, people, and our local water bodies.

You may think that pet waste left on a lawn or sidewalk fertilizes the soil. However, in most cases the waste is washed into storm drains that lead directly into nearby waterways without being treated first.

The problem is that pet waste contains harmful bacteria such as E. coli and fecal coliform, making the water unfit for irrigation, recreation (such as swimming, fishing, or tubing), and other uses.

Pet waste contains parasites and bacteria that can spread gastrointestinal illnesses in humans such as Giardia and Salmonella.

These pollutants are harmful to the thousands of species of plants and animals (including fish, crabs and shellfish, birds, grasses, mammals, reptiles, and amphibians). People who eat food from contaminated water can get very sick.

Furthermore, pet waste also contains nutrients that can cause excessive algae growth in water, leading to fish kills and disrupting the water's natural ecology.

The Facts

Pet waste contains contaminants that are harmful to people, pets, wildlife, and the environment.

Some of the harmful effects of pet waste include:

• When pet waste decays, it uses up dissolved oxygen and releases compounds that are harmful to fish and other aquatic life.

• On average nationally, there are 0.58 dogs per household.

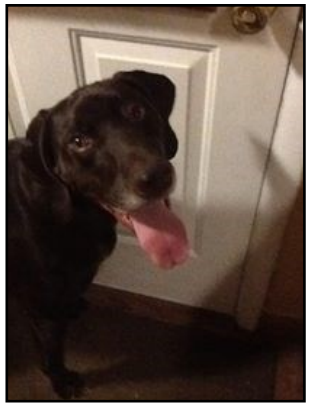
• Each dog produces approximately 0.42 pounds of fecal waste per day, or about 150 pounds per year. Just think how much waste is produced by the pets in your neighborhood!

• A single gram of pet waste contains an average of 23 million fecal coliform bacteria that can cause disease in humans.

• A single day's waste from one large dog can contain 7.8 billion fecal coliform bacteria—enough to close 15 acres of shellfish beds.

• EPA estimates that 2 to 3 days of pet waste from a population of 100 dogs would contribute enough bacteria and nutrients to temporarily close an entire bay for swimming and shellfishing..

Source: EPA 1993



The Solution

Be responsible and clean up after your pets. It is as easy as 1-2-3:

1. Bring a bag.

2. Use a bag to pick up pet the waste.

3. Dispose of the bag properly in the trash...

JBLE - EUSTIS
AMERICA RECYCLES DAY
COLORING CONTEST

November 15 is America Recycles Day and in honor of that JBLE –Eustis will be hosting a coloring contest for kids, school age Pre-K to 12, to show what recycling means to them.

Get out all those crayons, markers and colored pencils and get those artistic juices flowing.

The contest will run from 5 – 20 Nov. To turn in your submission just take a picture of it and post it on the JBLE-Eustis Environmental Facebook page by 20 Nov at: https://www.facebook.com/forteustisenvironment

The top five pictures will be posted on Facebook and winners will receive goodie bags.

Conserve Today. Secure Tomorrow.

For more information please contact Donna Haynes at donna.c.haynes.civ@mail.mil or Joanna Bateman at joanna.g.bateman.civ@mail.mil

Material Storage

Outdoor storage of materials can also pollute stormwater runoff.

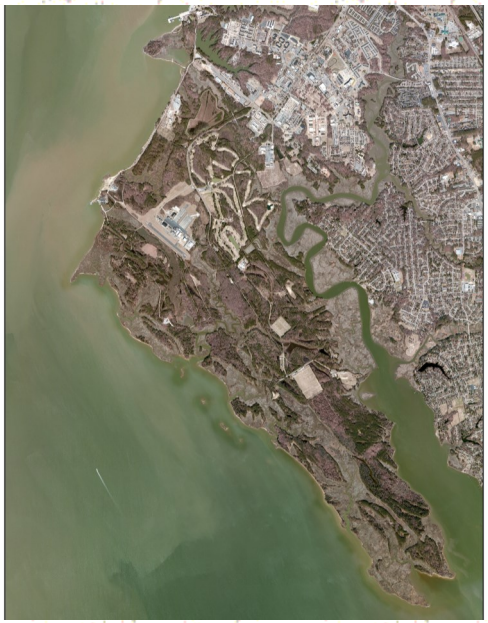
Here are some material storage Best Management Practices:

1. Store materials indoors or under cover where feasible

2. Keep outdoor materials stored away from storm drains and high traffic areas
3. Store materials on pallets to keep dry
4. Use silt fences to filter sediment

5. Install berm for secondary containment of sand and gravel or cover with a tarp.

Why Is Stormwater Pollution Prevention So Important?



Our unique location:

The Chesapeake Bay Watershed

Federal and State Laws

- **Clean Water Act**
- **Virginia Pollutant Discharge Elimination System (VPDES) regulations**
- **Municipal Separate Storm Sewer System (MS4) regulations**

For more information, call the Storm Water Program Manager (757) 878-5218

Joint Base Langley—Eustis Fort Eustis

733d CED/CEIE

Stormwater Pollution Prevention

Small amounts of contaminants from all over the base add up and cause pollution in our water.

Yes, even the little things matter. YOU will make a difference, no matter how small.

The Many Sources of Pollution

- Paint
- Fertilizer
- Pet Waste
- Pesticides
- Grass Clippings
- Tires
- Metal Corrosion
- Litter
- Leaves
- Auto Exhaust
- Motor Oil
- Lubricants
- Gas
- Eroded Soil
- Plastics

These materials enter storm drains every day, making stormwater a major contributor to water pollution in our area.

If the pollutants entering each drain can be reduced, so will the pollution in surrounding waterways.

Common Sources of Pollution Due to Base Operations

- De-icing Operations
- Construction Debris
- Sedimentation
- Air Pollution
- Erosion
- Spills
- Hazardous Waste

These sources of pollution reduce oxygen levels in the water, killing aquatic animals and covering aquatic plant life.

Best Management Practices (BMPs)

Vehicle/Equipment

Overfills, leaks and spills are usually picked up by rain and snow, then carried to a storm sewer system. Here are some BMPs:

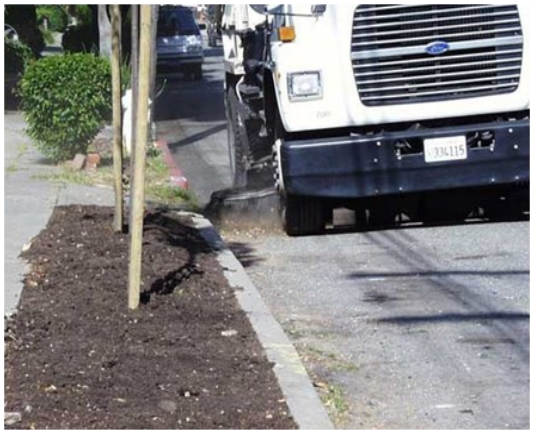
1. Do not top off fuel tanks
2. Immediately clean spills with absorbents
3. Check for leaks on all equipment
4. Use drip pans when fluid transfer occurs at any location

5. Use drip pans beneath parked vehicles
6. Use designated wash racks to clean vehicles and equipment
7. Do NOT wash where soapy water will flow into a storm drain

Pavements

Pollution sources from streets are also picked up by rain and snow. Pavement runoff is carried more quickly to a storm sewer system. Here are some pavement BMPs:

1. Sweep up debris and sediment
2. Reduce deicing materials by using the manufacturer's recommended rates
3. Use products that pollute less
4. Store materials indoors
5. Allow nature to melt snow and ice
6. Maintain your vehicle to prevent fluid leaks



Street sweeping reduces pollution by 80%

Attachment 3:
Public Involvement/Participation Documentation

JBLE-Eustis Plastic Bag Collection Competition

1 Jan – 30 Jun 2021

JBLE-Eustis units/organizations are encouraged to participate in the "Plastic Bag Collection Competition", a 6-month campaign in support of the Plastic Film Recycling Challenge.

The campaign goal is to collect 500 lbs or more during this time frame, improve awareness among installation employees and residents, and divert plastics from the landfill.

Units/organizations work together to recycle the most plastic for the chance to earn a composite bench for their organization.

In addition to plastic grocery and retail bags, a major company reuses polyethylene plastic from a variety of common household items such as case overwraps, bread bags, bubble wrap, newspaper sleeves and dry cleaning bags to create composite products that offer a superior alternative to wood and an eco-friendly choice to consumers.

Those who would like to participate please call or email Joanna Bateman by 29 Jan 2021.

Once registered you can bring your plastic items to the Recycle Center – Bldg. 1209 to be weighed and logged in on Mon, Wed and Fri between 0700- 1400 hrs, starting 1 Jan 2021 through 30 Jun 2021.

Fact: It takes approximately 90 grocery bags to make one pound.

POC: Joanna Bateman, 878-7378
joanna.g.bateman.civ@mail.mil

What can be recycled?

- Pallet wrap and stretch film
- Grocery bags
- Bread bags
- Case overwrap
- Dry cleaning bags
- Newspaper sleeves
- Ice bags
- Wood pellet bags
- Ziplock and other reclosable food storage bags
- Produce bags
- Bubble wrap and air pillow
- Salt bags
- Cereal bags

All plastic must be clean, dry and free of food residue

JBLE-Eustis Environmental
January 6 ·

JBLE-Eustis Plastic Bag Collection Competition.
See the attached flyer for the next competition to see what Eustis Unit/Organization can collect the most plastic in a 6 Month timeframe. Good Luck to everyone.

JBLE-Eustis Plastic Bag Collection Competition

1 Jan – 30 Jun 2021

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All plastic must be clean, dry and free of food residue

Fact: It takes approximately 90 grocery bags to make one pound.

POC: Joanna Bateman, 878-7378
joanna.g.bateman.civ@mail.mil

Like Comment Share

JBLE-Eustis Environmental
September 21, 2020 ·

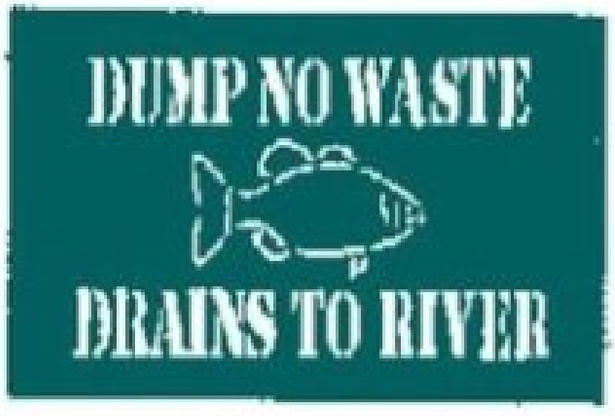
Things you can do to protect our waterways.

TIPS TO PROTECT OUR STORM DRAINS

DID YOU KNOW.....

One quart of oil can pollute 250,000 gallons of drinking water—enough water to supply a family of four for one year!

STORM DRAINS ARE FOR RAINWATER ONLY!



Graphic: U.S. Environmental Protection Agency

- ✓ Keep garbage out of storm drains. Put litter in trash cans and dispose of toxic substances properly.
- ✓ Use a broom, not a hose to clean spills.
- ✓ Grass clippings clog storm drains and cause water to back up onto the streets. Sweep clippings back on your lawn.
- ✓ Never fertilize before it rains. When it rains, the fertilizer goes into storm drains and causes problems.
- ✓ Landscape to retain rain water.
  - Create small berms and depressions in your garden to hold rain water.
  - Border your lawn with deep-rooted flowers and shrubs that soak up water and reduce runoff.
- ✓ Landscape to prevent soil erosion.
- ✓ Pick up after your pet. Double bag the waste and put it in the trash (if your community allows) or flush it.

Conserve Today. Secure Tomorrow.

WORLD WATER DAY – 22 MARCH 2021

What: JBLE-Eustis Doggie Waste Bag Holder Give Away (*Includes Bags and Flashlight*)

Where: Balfour Beatty Community Center
126 Madison Avenue
Fort Eustis, VA

When: 22 March 2021, 11:00 am – 1:00 pm

Who: For you and Fido! Or grab one for a neighbor who needs a gentle reminder.

Why: Pet waste contains high levels of bacteria. When it rains, this bacteria is washed into nearby waterways and storm drains, ultimately making its way into the James River. Bacteria in waterways can negatively impact wildlife and be harmful to human health. Picking up after your pet is an easy way to reduce this form of pollution, thereby improving water quality in the James River and surrounding tributaries.

SCOOP THE POOP...IT'S YOUR ENVIRONMENTAL DOODY!

MOVING TO PROTECT OUR WORLD

Conserve Today. Secure Tomorrow.

Environmental Element, CED
Joint Base Langley-Eustis
(757) 878-4123


Average Daily Water Usage
15 Things You Can Do To Save Water
Conserve Today, Secure Tomorrow.
GOOD TO KNOW
FOG=
Time to fertilize
POOP!
BAG IT!
TRASH IT!
Joint Base Langley-Eustis
Pollution Prevention
Water Conservation

JBLE-Eustis Environmental

October 30, 2020 ·

Help us in celebrating America Recycles Day!!!!!!

JBLE-Eustis Earth Week Events
19-23 April 2021

Come celebrate!

Virtual Options

Presentations via MS TEAMS:
19 & 23 Apr (0900-1100 hrs) –
Tick Awareness & Reducing Mosquito Breeding

Nature Photography Contest:
Submission Deadline - 22 Apr

In-person Options

Turtle Survey:
20 Apr (0830-1200 hrs)

Big Butts Campaign & Litter Cleanup Event:
22 Apr (0900-1100 hrs)

Educational Field Trip:
21 Apr (0900-1130 hrs) or (1300-1530 hrs) -
Comparison of mature woodland and early successional habitats

Registration details and forms are located at the 733 CED/CEIE webpage: https://www.jble.af.mil/Units/Army/Eustis-Enviromental/

Scan QR Code

JBLE-Eustis Environmental
April 18 ·

On your mark, get set...CLICK! Submit your nature photos as part of the CED/CEIE Nature Photography Contest.

On your mark, get set....Click!

JBLE-Eustis Earth Day Nature Photography Contest

- Take outdoor and wildlife photos on or around JBLE-Eustis
- **22 April 2021**: Deadline to submit photo entries electronically
- Download registration form from the 733 CED/CEIE Website https://www.jble.af.mil/Units/Army/Eustis-Enviromental/
- Email registration form and up to 3 photo entries to: USAF.jble.733-msg.list.ced-ee-p2-procurement@mail.mil

- Categories:
  - Youth (ages 5 to 12)
  - Teen (ages 13 to 19)
  - Adult (age 20 and up)
- Participants will receive an Eco-friendly tote bag filled with goodies
- Winners will be announced at the next Environmental Management System (EMS) Cross-Functional Team (CFT) Meeting, 27 April 2021 and photos will be posted on the 733 CED/CEIE Website and Facebook page.

Scan QR Code

Like Comment Share

JBLE-Eustis Environmental
September 25, 2020 ·

Tomorrow is National Public Lands Day. Let's work together to make sure that the generations to come can enjoy what we have today.

SAT, SEP 26, 2020

National Public Lands Day Virtual Signature Event

Other · 711 people

☆ Interested

Like Comment Share

Please help spread the word: CLEAN THE BAY DAY is THIS week!

- This year it will run for six days (Monday, May 31 to Saturday, June 5).Participants can do alitter clean-up, plant a native plant, and/or install a rain barrel.

- Participants can choose the day, the time, and the location of the litter clean-up (the site must be open to the public or permission must be granted).

- Registration is free but required --as an individual participant or join/create a virtual team. Register now atcbf.org/clean < Caution-http://www.cbf.org/clean > .

- We are encouraging communities, schools, localities, public officials, or even a group of good friends to create a virtual team. A virtual team picks up litter separately and logs the clean-up numbers under a shared survey link. Once a participant submits their data, we have created an interactive dashboard that shows all of the teams totals in real time. This dashboard will have social sharing capabilities and is an excellent way to drum up some healthy competition when you include #cleanthebayday in your post!

- We are also holding aClean the Bay Your Way Photo and Video Contest. The contest is free to enter and all you have to do is submit a photo or video is the data collection survey when you have completed your Clean the Bay Your Way activity.Win great prizes such as: Gift certificate for 25 raw oysters from a Chesapeake Oyster Alliance partner;Pair of REI Flexlite Camp Chairs;REI Soft Sided Pack-Away Cooler;12-month pass to Virginia State Parks;North End Bag Co.,;The Bank Note Bag.;Taste Unlimited Gift Basket

CLASSIFICATION: UNCLASSIFIED

Attachment 4:
Illicit Discharge Investigation Details

Illicit Discharge Tracking Record, JBLE - Eustis

	Section 1. Detection					Section 2. Investigation				Section 3. Elimination		Section 4. Follow-Up	
Discharge ID No.	**Date Reported or Identified**	**Reported / Identified by:**	**Location of Discharge**	**Description of Discharge**	**Additional Investigation Required?**	**Date(s) of Investigation**	**Results of Investigation**	**Corrective Action to be Taken**	**Scheduled Date of Corrective Action**	**Description of Corrective Action Taken**	**Date Corrected**	**Date of Verification**	**Additional Notes**
	Enter date discharge was reported or identified	Provide name and contact number of reporting personnel	Provide address, Outfall ID, nearby landmark, etc.	Provide description of the potential illicit discharge (e.g. dumping, wash water, suds, oil, etc.). Include characterization from Section 6 of the outfall inspection form if applicable.	(Yes/No)	Enter date of investigation	Describe investigation results. Was the source found? Was this an illicit discharge? What is the source? What is the frequency of the discharge (continuous, intermittent, or transitory)?	Specify what will be done to eliminate the illicit discharge and by whom	Enter the estimated date for completion of corrective actions	How was the illicit discharge resolved?	Enter date of resolution	Enter date of follow-up investigation to verify illicit discharge has been eliminated	
1	7/28/2020	Mahi Mattus, U.S. Foods (757)-376-7922	Bldg 2300 Loading Dock	Delivery driver was unloading cooking oil and 1 jug fell off pallet and ruptured. Approximately 2 gallons spilled and approximately 1 gallon entered loading dock storm trench drain.	Yes	7/28/2020	Discharge was due to improper packing and human error. Immediate response to spill included absorbent material on loading dock and absorbent pads in storm trench drain. None of the discharge went beyond the storm drain.	U.S. Foods hired a contractor that will arrive in the afternoon of 29 July 2020 to continue spill remediation. They will use a heated pressure washer to remove any residue on the dock and in the trench drain, and capture and remove any wash water.	7/29/2020	Spill was cleaned by hired contractor and all materials were properly disposed of off-site.	7/29/2020	7/29/2020	
2	8/3/2020		U.S. Army floating crane *Keystone State,* Third Port	At 1310, approximately 10 gallons of JP-8 (jet fuel) was discharged onto the deck and into the water during fuel transfer operations. The transfer valves were mistakenly misaligned, which activated the pressure release device.	Yes	8/3/2020	Discharge was due to operational error by the soldiers transferring the fuel. Normally, any discharge from the pressure release device would be captured in a catch basin which it is housed in, however, due to the high pressure release the catch basin was ineffective, and the fuel was released into Skiffe's Creek. Due to SOP's, which require personnel to be present during transfers to oversee the operation, the discharge was recognized as soon as it occurred and transfer operations were suspended immediately. Fort Eustis transfer SOP's also call for hard boom to be placed around any vessel conducting transfer operations of any kind, which ensured this discharge remained contained. The soldiers and 3rd Port personnel responded immediately, placing absorbent pads and an extra line of absorbent boom outside of the hard boom to contain and remediate the discharge, as well as notifying Fort Eustis Fire and Emergency Services and the Environmental Office. Clean up operations were completed by approximately 1500 on 3 August 2020.	Corrective actions were taken immediately as described in the investigation results.	8/3/2020	JBLE-Eustis SOPs were followed and the spill was immediately contained.	8/3/2020		
3	11/17/2020		Bldg 836, motor pool	Apprommately 1/2 quart of oil was spilled on the impervious surface. The spill was covered with absorbent by the fire department. The spill was observed to be flowing towards a nearby stormwater ditch from a recent rain event.	No	11/17/2020	A sheen of the oil had streamed away toward a ditch, but was already controlled by the use of absorbent pads and socks put in place by environmental and the unit occupying the motor pool building 836.	N/A	N/A	Absorbent pads and socks around stormwater infrastructure.	11/17/2020		
4	1/10/2021	Ashley Glamm (757)-369-3780	Bldg 704 Gas Station	Someone who was filling their POV with gas pulled fuel nozzle out of vehicle while the pump was still pumping gas.	No	1/10/2021	Spill was covered with absorbent.	N/A	N/A	Spill was covered with absorbent and did not enter storm system.	1/10/2021		
5	2/1/2021	Brian Nikitas	Bldg 3528	There was a direct discharge from a secondary containment unit onto an impervious surface.	No	2/1/2021	Spill was covered with absorbent.	N/A	N/A	Spill was covered with absorbent and did not enter storm system.	2/1/2021		

Illicit Discharge Tracking Record, JBLE - Eustis

	Section 1. Detection					Section 2. Investigation				Section 3. Elimination		Section 4. Follow-Up	
Discharge ID No.	**Date Reported or Identified**	**Reported / Identified by:**	**Location of Discharge**	**Description of Discharge**	**Additional Investigation Required?**	**Date(s) of Investigation**	**Results of Investigation**	**Corrective Action to be Taken**	**Scheduled Date of Corrective Action**	**Description of Corrective Action Taken**	**Date Corrected**	**Date of Verification**	**Additional Notes**
	Enter date discharge was reported or identified	Provide name and contact number of reporting personnel	Provide address, Outfall ID, nearby landmark, etc.	Provide description of the potential illicit discharge (e.g. dumping, wash water, suds, oil, etc.). Include characterization from Section 6 of the outfall inspection form if applicable.	(Yes/No)	Enter date of investigation	Describe investigation results. Was the source found? Was this an illicit discharge? What is the source? What is the frequency of the discharge (continuous, intermittent, or transitory)?	Specify what will be done to eliminate the illicit discharge and by whom	Enter the estimated date for completion of corrective actions	How was the illicit discharge resolved?	Enter date of resolution	Enter date of follow-up investigation to verify illicit discharge has been eliminated	
6	2/11/2021	Harbor Master, LMC Vessel #8542 Pilot & Crew Members	Bldg 415, Third Port	LMC Vessel #8542 was parked adjacent to Bldg. 415, Land Ship at Third Port. Approximately 1 teaspoon of diesel fuel had spilled from the LMC vessel into the water due to misfiring engine cylinder.	No	2/11/2021	The LMC pilot & crew quickly deployed fuel spill booms and pads in exceptional team effort/manner that completely contained the one teaspoon of diesel fuel on the water from spreading further into the protected watershed	N/A	N/A	Fuel spill booms and pads were deployed to contain the spill.	2/11/2021		
7	3/22/2021	Amy Green	Browns Lake	Observance of a possible sewer leak or spill.	Yes	3/22/2021	Called out to Browns Lake for a possible sewer leak or spill. Findings were of iron leachate from groundwater.	None required. Iron leachate from groundwater is source of discoloration.	3/22/2021	None	3/22/2021	3/22/2021	

Attachment 5:
Stormwater Management Facility Inventory Tracking Spreadsheet

SWM Facility Inventory - JBLE-Eustis, VA

Year_Installed	Practice_Name	Practice_Description	Total Acres	IMP_Acres	Runoff_Treated	Measurement_Unit	Report_Applied_Amount	Latitude	Longitude	HUC12	Facility_Name	Inspect_Date	Maint_Date	Contact_Name	Agency_Name	Year_Funded	SCM_Cost
2009	WetlandRestore	A water impoundment structure that intercepts stormwater runoff then releases it to an open water system at a specified flow rate. These structures retain a permanent pool and usually have retention times sufficient to allow settlement of some portion of the intercepted sediments and attached nutrients/toxics. Until recently, these practices were designed specifically to meet water quantity, not water quality objectives. There is little or no vegetation living within the pooled area nor are outfalls directed through vegetated areas prior to open water release. Nitrogen reduction is minimal. SCM ID: WR_WB_001	31.65	19.70	1.642	Systems	1	37.1641811	-76.56998674	020802060901	JBLE-Eustis	3/2/2021		Ken Dunn	Dept of Defense	2008	$ 404,976.25
2012	ExtDryPonds	Dry extended detention (ED) basins are depressions created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. Dry ED basins are designed to dry out between storm events, in contrast with wet ponds, which contain standing water permanently. As such, they are similar in construction and function to dry detention basins, except that the duration of detention of stormwater is designed to be longer, theoretically improving treatment effectiveness. SCM ID: WR_DE_002	0.85	0.52	0.043	Systems	1	37.16212832	-76.57108258	020802060901	JBLE-Eustis	1/13/2021		Ken Dunn	Dept of Defense	2011	$ 311,905.21
2013	PermPavSVUDCD	Pavement or pavers that reduce runoff volume and treat water quality through both infiltration and filtration mechanisms. Water filters through open voids in the pavement surface to a washed gravel subsurface storage reservoir, where it is then slowly infiltrated into the underlying soils or exits via an underdrain. This SCM has an underdrain, has sand and/or vegetation and is in C or D soil. SCM ID: WR_PP_003	0.17	0.11	0.009	Systems	1	37.16205367	-76.57165244	020802060901	JBLE-Eustis	1/13/2021		Ken Dunn	Dept of Defense	2011	$ 32,739.65
2013	PermPavSVUDCD	Pavement or pavers that reduce runoff volume and treat water quality through both infiltration and filtration mechanisms. Water filters through open voids in the pavement surface to a washed gravel subsurface storage reservoir, where it is then slowly infiltrated into the underlying soils or exits via an underdrain. This SCM has an underdrain, has sand and/or vegetation and is in C or D soil. SCM ID: WR_PP_004	0.04	0.03	0.002	Systems	1	37.16171464	-76.57183497	020802060901	JBLE-Eustis	1/13/2021		Ken Dunn	Dept of Defense	2011	$ 5,840.93
2013	PermPavSVUDCD	Pavement or pavers that reduce runoff volume and treat water quality through both infiltration and filtration mechanisms. Water filters through open voids in the pavement surface to a washed gravel subsurface storage reservoir, where it is then slowly infiltrated into the underlying soils or exits via an underdrain. This SCM has an underdrain, has sand and/or vegetation and is in C or D soil. SCM ID: WR_PP_005	0.01	0.00	0.000	Systems	1	37.16164836	-76.57167113	020802060901	JBLE-Eustis	1/13/2021		Ken Dunn	Dept of Defense	2011	$ 19,258.62
2013	RainWaterHarv	Rainwater Harvesting systems are practices designed to intercept, divert, store, and release rainwater for future use. Rainwater that falls on the collection area (generally a rooftop) is collected and conveyed into an above- or below-ground storage tank where it can be used for non-potable water uses including landscape irrigation, exterior building washing, flushing of toilets and urinals, fire suppression systems, and many others. SCM ID: WR_RH_006	0.28	0.28	0.022	Systems	1	37.16168375	-76.57156983	020802060901	JBLE-Eustis	1/13/2021		Ken Dunn	Dept of Defense	2011	
2012	ExtDryPonds	Dry extended detention (ED) basins are depressions created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. Dry ED basins are designed to dry out between storm events, in contrast with wet ponds, which contain standing water permanently. As such, they are similar in construction and function to dry detention basins, except that the duration of detention of stormwater is designed to be longer, theoretically improving treatment effectiveness. SCM ID: WR_DE_007	1.14	0.73	0.061	Systems	1	37.1612144	-76.57105691	020802060901	JBLE-Eustis	1/13/2021		Ken Dunn	Dept of Defense	2011	$ 8,163.53
2012	ExtDryPonds	Dry extended detention (ED) basins are depressions created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. Dry ED basins are designed to dry out between storm events, in contrast with wet ponds, which contain standing water permanently. As such, they are similar in construction and function to dry detention basins, except that the duration of detention of stormwater is designed to be longer, theoretically improving treatment effectiveness. SCM ID: WR_DE_008	1.14	0.73	0.061	Systems	1	37.1612144	-76.57105691	020802060901	JBLE-Eustis	1/13/2021		Ken Dunn	Dept of Defense	2010	$ 17,541.04
2017	ExtDryPonds	Dry extended detention (ED) basins are depressions created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. Dry ED basins are designed to dry out between storm events, in contrast with wet ponds, which contain standing water permanently. As such, they are similar in construction and function to dry detention basins, except that the duration of detention of stormwater is designed to be longer, theoretically improving treatment effectiveness. SCM ID: WR_DE_009	0.85	0.52	0.043	Systems	1	37.16182851	-76.57093335	020802060901	JBLE-Eustis	1/13/2021		Ken Dunn	Dept of Defense	2011	$ 13,398.00
2011	VegOpChanNoUDCD	Open channels are practices that convey stormwater runoff and provide treatment as the water is conveyed, includes bioswales. Runoff passes through either vegetation in the channel, subsoil matrix, and/or is infiltrated into the underlying soils. This SCM has no underdrain and is in C or D soil. SCM IDs: WR_BB_010	0.57	0.21	0.018	Systems	1	37.16072595	-76.56640587	020802060901	JBLE-Eustis	1/15/2021		Ken Dunn	Dept of Defense	2010	$ 45,856.19
2011	VegOpChanNoUDCD	Open channels are practices that convey stormwater runoff and provide treatment as the water is conveyed, includes bioswales. Runoff passes through either vegetation in the channel, subsoil matrix, and/or is infiltrated into the underlying soils. This SCM has no underdrain and is in C or D soil. SCM IDs: WR_BB_011	1.16	0.87	0.073	Systems	1	37.16022694	-76.56642017	020802060901	JBLE-Eustis	1/15/2021		Ken Dunn	Dept of Defense	2010	$ 40,124.17
2008	VegOpChanNoUDCD	Open channels are practices that convey stormwater runoff and provide treatment as the water is conveyed, includes bioswales. Runoff passes through either vegetation in the channel, subsoil matrix, and/or is infiltrated into the underlying soils. This SCM has no underdrain and is in C or D soil. SCM ID: WR_VS_012	9.03	3.37	0.281	Systems	1	37.15871527	-76.57010633	020802060901	JBLE-Eustis	1/13/2021		Ken Dunn	Dept of Defense	2007	$ 404,236.23

SWM Facility Inventory - JBLE-Eustis, VA

Year_Installed	Practice_Name	Practice_Description	Total Acres	IMP_Acres	Runoff_Treated	Measurement_Unit	Report_Applied_Amount	Latitude	Longitude	HUC12	Facility_Name	Inspect_Date	Maint_Date	Contact_Name	Agency_Name	Year_Funded	SCM_Cost
2011	DryPonds	Dry Detention Ponds are depressions or basins created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. SCM ID: WR_DB_013	9.37	5.47	0.456	Systems	1	37.16035547	-76.57059497	020802060901	JBLE-Eustis	1/13/2021		Ken Dunn	Dept of Defense	2009	$ 36,003.31
2011	VegOpChanNoUDCD	Open channels are practices that convey stormwater runoff and provide treatment as the water is conveyed, includes bioswales. Runoff passes through either vegetation in the channel, subsoil matrix, and/or is infiltrated into the underlying soils. This SCM has no underdrain and is in C or D soil. SCM ID: WR_VS_014	5.88	3.17	0.264	Systems	1	37.16014704	-76.57172546	020802060901	JBLE-Eustis	1/13/2021		Ken Dunn	Dept of Defense	2010	$ 4,836.37
2011	VegOpChanNoUDCD	Open channels are practices that convey stormwater runoff and provide treatment as the water is conveyed, includes bioswales. Runoff passes through either vegetation in the channel, subsoil matrix, and/or is infiltrated into the underlying soils. This SCM has no underdrain and is in C or D soil. SCM ID: WR_VS_015	2.69	1.85	0.154	Systems	1	37.15962995	-76.57254632	020802060901	JBLE-Eustis	1/13/2021		Ken Dunn	Dept of Defense	2010	$ 48,601.58
2011	FilteringDevice	Filtering devices are pre-manufactured devices that provide treatment through detention and infiltration of stormwater through engineered media. SCM ID: WR_FT_016	.1568`7	0.15	0.013	Systems	1	37.16121717	-76.57435761	020802060901	JBLE-Eustis	1/13/2021		Ken Dunn	Dept of Defense	2009	$ 6,001.34
2012	ExtDryPonds	Dry extended detention (ED) basins are depressions created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. Dry ED basins are designed to dry out between storm events, in contrast with wet ponds, which contain standing water permanently. As such, they are similar in construction and function to dry detention basins, except that the duration of detention of stormwater is designed to be longer, theoretically improving treatment effectiveness. SCM ID: BC_DE_017	0.65	0.26	0.022	Systems	1	37.16247747	-76.57636255	020802060901	JBLE-Eustis	1/12/2021		Ken Dunn	Dept of Defense	2011	$ 6,416.20
2012	BioRetUDCD	An excavated pit backfilled with engineered media, topsoil, mulch, and vegetation. These are planting areas installed in shallow basins in which the storm water runoff is temporarily ponded and then treated by filtering through the bed components, and through biological and biochemical reactions within the soil matrix and around the root zones of the plants. SCM ID: BC_BB_018	0.20	0.14	0.011	Systems	1	37.1625387	-76.57673816	020802060901	JBLE-Eustis	1/12/2021		Ken Dunn	Dept of Defense	2011	$ 27,513.71
2013	BioRetUDCD	An excavated pit backfilled with engineered media, topsoil, mulch, and vegetation. These are planting areas installed in shallow basins in which the storm water runoff is temporarily ponded and then treated by filtering through the bed components, and through biological and biochemical reactions within the soil matrix and around the root zones of the plants. SCM ID: BC_BB_019	0.58	0.51	0.042	Systems	1	37.16321482	-76.57684549	020802060802	JBLE-Eustis	1/12/2021		Ken Dunn	Dept of Defense	2011	$ 26,705.98
2013	BioRetUDCD	An excavated pit backfilled with engineered media, topsoil, mulch, and vegetation. These are planting areas installed in shallow basins in which the storm water runoff is temporarily ponded and then treated by filtering through the bed components, and through biological and biochemical reactions within the soil matrix and around the root zones of the plants. SCM ID: BC_BB_020	0.30	0.20	0.017	Systems	1	37.16355014	-76.57750423	020802060802	JBLE-Eustis	1/12/2021		Ken Dunn	Dept of Defense	2011	$ 34,084.62
2013	BioRetUDCD	An excavated pit backfilled with engineered media, topsoil, mulch, and vegetation. These are planting areas installed in shallow basins in which the storm water runoff is temporarily ponded and then treated by filtering through the bed components, and through biological and biochemical reactions within the soil matrix and around the root zones of the plants. SCM ID: BC_BB_021	0.44	0.33	0.028	Systems	1	37.16340654	-76.57762472	020802060802	JBLE-Eustis	1/12/2021		Ken Dunn	Dept of Defense	2011	$ 26,705.98
2011	InfiltrationBasin	Infiltration basins are practices that use temporary surface or underground storage to allow incoming stormwater runoff to exfiltrate into underlying soils. As the stormwater penetrates the underlying soil, chemical and physical adsorption processes remove pollutants. SCM ID: WR_IB_022	1.04	0.33	0.027	Systems	1	37.15891904	-76.57610997	020802060901	JBLE-Eustis	1/12/2021		Ken Dunn	Dept of Defense	2009	$ 27,344.02
2011	VegOpChanNoUDCD	Open channels are practices that convey stormwater runoff and provide treatment as the water is conveyed, includes bioswales. Runoff passes through either vegetation in the channel, subsoil matrix, and/or is infiltrated into the underlying soils. This SCM has no underdrain and is in C or D soil. SCM ID: WR_VS_023	2.82	1.74	0.145	Systems	1	37.15884009	-76.57313357	020802060901	JBLE-Eustis	1/12/2021		Ken Dunn	Dept of Defense	2010	$ 110,340.14
2011	VegOpChanNoUDCD	Open channels are practices that convey stormwater runoff and provide treatment as the water is conveyed, includes bioswales. Runoff passes through either vegetation in the channel, subsoil matrix, and/or is infiltrated into the underlying soils. This SCM has no underdrain and is in C or D soil. SCM ID: WR_VS_024	2.82	1.74	0.145	Systems	1	37.15868626	-76.57363948	020802060901	JBLE-Eustis	1/12/2021		Ken Dunn	Dept of Defense	2010	$ 115,584.54
2011	VegOpChanNoUDCD	Open channels are practices that convey stormwater runoff and provide treatment as the water is conveyed, includes bioswales. Runoff passes through either vegetation in the channel, subsoil matrix, and/or is infiltrated into the underlying soils. This SCM has no underdrain and is in C or D soil. SCM ID: WR_VS_025	2.99	2.16	0.180	Systems	1	37.15792512	-76.57471194	020802060901	JBLE-Eustis	1/12/2021		Ken Dunn	Dept of Defense	2010	$ 137,600.64
2011	VegOpChanNoUDCD	Open channels are practices that convey stormwater runoff and provide treatment as the water is conveyed, includes bioswales. Runoff passes through either vegetation in the channel, subsoil matrix, and/or is infiltrated into the underlying soils. This SCM has no underdrain and is in C or D soil. SCM ID: WR_VS_026	2.99	2.16	0.180	Systems	1	37.15753995	-76.57499565	020802060901	JBLE-Eustis	1/12/2021		Ken Dunn	Dept of Defense	2010	$ 121,244.34
2011	VegOpChanNoUDCD	Open channels are practices that convey stormwater runoff and provide treatment as the water is conveyed, includes bioswales. Runoff passes through either vegetation in the channel, subsoil matrix, and/or is infiltrated into the underlying soils. This SCM has no underdrain and is in C or D soil. SCM ID: WR_VS_027	2.99	2.16	0.180	Systems	1	37.15718882	-76.57532343	020802060901	JBLE-Eustis	1/12/2021		Ken Dunn	Dept of Defense	2010	$ 810,026.41

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2011	WetlandRestore	A water impoundment structure that intercepts stormwater runoff then releases it to an open water system at a specified flow rate. These structures retain a permanent pool and usually have retention times sufficient to allow settlement of some portion of the intercepted sediments and attached nutrients/toxics. Until recently, these practices were designed specifically to meet water quantity, not water quality objectives. There is little or no vegetation living within the pooled area nor are outfalls directed through vegetated areas prior to open water release. Nitrogen reduction is minimal. SCM ID: WR_WB_028	25.13	14.86	1.238	Systems	1	37.157398	-76.57213	020802060901	JBLE-Eustis	3/2/2021		Ken Dunn	Dept of Defense	2010	$ 350,097.66
2002	DryPonds	Dry Detention Ponds are depressions or basins created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. SCM ID: WR_DB_029	7.78	4.35	0.363	Systems	1	37.15670279	-76.56992497	020802060901	JBLE-Eustis	1/15/2021		Ken Dunn	Dept of Defense	2000	$ 47,306.32
2012	FilteringDevice	Filtering devices are pre-manufactured devices that provide treatment through detention and infiltration of stormwater through engineered media. SCM ID: WR_FT_030	0.20	0.18	0.015	Systems	1	37.15674102	-76.57685614	020801060901	JBLE-Eustis	1/14/2021		Ken Dunn	Dept of Defense	2011	$ 5,310.71
2012	FilteringDevice	Filtering devices are pre-manufactured devices that provide treatment through detention and infiltration of stormwater through engineered media. SCM ID: WR_FT_031	0.24	0.23	0.019	Systems	1	37.15679428	-76.57675184	020801060901	JBLE-Eustis	1/14/2021		Ken Dunn	Dept of Defense	2011	$ 5,310.71
2012	FilteringDevice	Filtering devices are pre-manufactured devices that provide treatment through detention and infiltration of stormwater through engineered media. SCM ID: WR_FT_032	0.20	0.18	0.015	Systems	1	37.15667746	-76.57678959	020801060901	JBLE-Eustis	1/14/2021		Ken Dunn	Dept of Defense	2011	$ 5,310.71
2012	FilteringDevice	Filtering devices are pre-manufactured devices that provide treatment through detention and infiltration of stormwater through engineered media. SCM ID: WR_FT_033	0.24	0.23	0.019	Systems	1	37.15667485	-76.57671403	020801060901	JBLE-Eustis	1/14/2021		Ken Dunn	Dept of Defense	2011	$ 5,310.71
2012	FilteringDevice	Filtering devices are pre-manufactured devices that provide treatment through detention and infiltration of stormwater through engineered media. SCM ID: WR_FT_034	0.26	0.25	0.021	Systems	1	37.15566039	-76.57743451	020801060901	JBLE-Eustis	1/13/2021		Ken Dunn	Dept of Defense	2011	$ 6,360.40
2012	FilteringDevice	Filtering devices are pre-manufactured devices that provide treatment through detention and infiltration of stormwater through engineered media. SCM ID: WR_FT_035	0.26	0.25	0.021	Systems	1	37.15569481	-76.57736555	020801060901	JBLE-Eustis	1/13/2021		Ken Dunn	Dept of Defense	2011	$ 5,310.71
2017	FilteringDevice	Filtering devices are pre-manufactured devices that provide treatment through detention and infiltration of stormwater through engineered media. SCM ID: WR_FT_036	0.19	0.19	0.016	Systems	1	37.15695097	-76.58070634	020802060901	JBLE-Eustis	1/14/2021		Ken Dunn	Dept of Defense	2016	$ 21,153.00
2017	FilteringDevice	Filtering devices are pre-manufactured devices that provide treatment through detention and infiltration of stormwater through engineered media. SCM ID: WR_FT_037	0.28	0.27	0.022	Systems	1	37.15672478	-76.58090165	020802060901	JBLE-Eustis	1/14/2021		Ken Dunn	Dept of Defense	2016	$ 21,153.00
2013	BioRetUDCD	An excavated pit backfilled with engineered media, topsoil, mulch, and vegetation. These are planting areas installed in shallow basins in which the storm water runoff is temporarily ponded and then treated by filtering through the bed components, and through biological and biochemical reactions within the soil matrix and around the root zones of the plants. SCM ID: WR_BB_038	4.75	1.62	0.135	Systems	1	37.156126	-76.580827	020802060901	JBLE-Eustis	1/14/2021		Ken Dunn	Dept of Defense	2010	$ 183,883.32
2017	BioRetUDCD	An excavated pit backfilled with engineered media, topsoil, mulch, and vegetation. These are planting areas installed in shallow basins in which the storm water runoff is temporarily ponded and then treated by filtering through the bed components, and through biological and biochemical reactions within the soil matrix and around the root zones of the plants. SCM ID: WR_BB_039	4.75	1.62	0.135	Systems	1	37.1553768	-76.5797722	020802060901	JBLE-Eustis	1/14/2021		Ken Dunn	Dept of Defense	2016	$ 17,372.00
2017	BioRetUDCD	An excavated pit backfilled with engineered media, topsoil, mulch, and vegetation. These are planting areas installed in shallow basins in which the storm water runoff is temporarily ponded and then treated by filtering through the bed components, and through biological and biochemical reactions within the soil matrix and around the root zones of the plants. SCM ID: WR_BB_040	4.75	1.62	0.135	Systems	1	37.1552789	-76.5795524	020802060901	JBLE-Eustis	1/14/2021		Ken Dunn	Dept of Defense	2016	$ 17,372.00
2017	BioRetUDCD	An excavated pit backfilled with engineered media, topsoil, mulch, and vegetation. These are planting areas installed in shallow basins in which the storm water runoff is temporarily ponded and then treated by filtering through the bed components, and through biological and biochemical reactions within the soil matrix and around the root zones of the plants. SCM ID: WR_BB_041	1.93	1.41	0.118	Systems	1	37.15618	-76.579327	020802060901	JBLE-Eustis	1/14/2021		Ken Dunn	Dept of Defense	2014	$ 119,750.00
2014	DryPonds	Dry Detention Ponds are depressions or basins created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. SCM ID: WR_DB_042	2.99	1.41	0.135	Systems	1	37.15506163	-76.58347728	020802060901	JBLE-Eustis	1/14/2021		Ken Dunn	Dept of Defense	2012	$ 30,879.66
2014	DryPonds	Dry Detention Ponds are depressions or basins created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. SCM ID: WR_DB_043	2.99	1.62	0.135	Systems	1	37.15424786	-76.58194895	020802060901	JBLE-Eustis	1/14/2021		Ken Dunn	Dept of Defense	2012	$ 26,303.61
2012	ExtDryPonds	Dry extended detention (ED) basins are depressions created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. Dry ED basins are designed to dry out between storm events, in contrast with wet ponds, which contain standing water permanently. As such, they are similar in construction and function to dry detention basins, except that the duration of detention of stormwater is designed to be longer, theoretically improving treatment effectiveness. SCM ID: WR_DE_044	1.98	1.01	0.084	Systems	1	37.15336595	-76.58036248	020802060901	JBLE-Eustis	1/14/2021		Ken Dunn	Dept of Defense	2011	$ 8,887.78

SWM Facility Inventory - JBLE-Eustis, VA

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2012	ExtDryPonds	Dry extended detention (ED) basins are depressions created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. Dry ED basins are designed to dry out between storm events, in contrast with wet ponds, which contain standing water permanently. As such, they are similar in construction and function to dry detention basins, except that the duration of detention of stormwater is designed to be longer, theoretically improving treatment effectiveness. SCM ID: WR_DE_045	0.81	0.49	0.041	Systems	1	37.15416285	-76.58016977	020802060901	JBLE-Eustis	1/14/2021		Ken Dunn	Dept of Defense	2011	$ 3,629.56
2017	FilteringDevice	Filtering devices are pre-manufactured devices that provide treatment through detention and infiltration of stormwater through engineered media. SCM ID: WR_FT_046	0.42	0.31	0.024	Systems	1	37.153378	-76.5788445	020801060901	JBLE-Eustis	1/14/2021		Ken Dunn	Dept of Defense	2011	$ 18,310.00
2017	FilteringDevice	Filtering devices are pre-manufactured devices that provide treatment through detention and infiltration of stormwater through engineered media. SCM ID: WR_FT_047	0.44	0.31	0.025	Systems	1	37.1533884	-76.5782623	020801060901	JBLE-Eustis	1/14/2021		Ken Dunn	Dept of Defense	2011	$ 18,310.00
2013	FilteringDevice	Filtering devices are pre-manufactured devices that provide treatment through detention and infiltration of stormwater through engineered media. SCM ID: WR_FT_048	0.49	0.48	0.040	Systems	1	37.1527063	-76.5785706	020801060901	JBLE-Eustis	1/14/2021		Ken Dunn	Dept of Defense	2011	$ 18,310.00
2013	FilteringDevice	Filtering devices are pre-manufactured devices that provide treatment through detention and infiltration of stormwater through engineered media. SCM ID: WR_FT_049	0.09	0.08	0.006	Systems	1	37.1532404	-76.5775761	020801060901	JBLE-Eustis	1/13/2021		Ken Dunn	Dept of Defense	2011	$ 18,310.00
2013	FilteringDevice	Filtering devices are pre-manufactured devices that provide treatment through detention and infiltration of stormwater through engineered media. SCM ID: WR_FT_050	0.09	0.08	0.006	Systems	1	37.1533064	-76.5775743	020801060901	JBLE-Eustis	1/13/2021		Ken Dunn	Dept of Defense	2011	$ 18,310.00
2013	FilteringDevice	Filtering devices are pre-manufactured devices that provide treatment through detention and infiltration of stormwater through engineered media. SCM ID: WR_FT_051	0.11	0.10	0.009	Systems	1	37.1537048	-76.5768962	020801060901	JBLE-Eustis	1/13/2021		Ken Dunn	Dept of Defense	2011	$ 18,310.00
2013	FilteringDevice	Filtering devices are pre-manufactured devices that provide treatment through detention and infiltration of stormwater through engineered media. SCM ID: WR_FT_052	0.11	0.10	0.009	Systems	1	37.1536855	-76.5768273	020801060901	JBLE-Eustis	1/13/2021		Ken Dunn	Dept of Defense	2011	$ 18,310.00
2013	BioRetUDCD	An excavated pit backfilled with engineered media, topsoil, mulch, and vegetation. These are planting areas installed in shallow basins in which the storm water runoff is temporarily ponded and then treated by filtering through the bed components, and through biological and biochemical reactions within the soil matrix and around the root zones of the plants. SCM ID: WR_BB_053	1.64	1.16	0.097	Systems	1	37.15290834	-76.57640809	020802060901	JBLE-Eustis	1/13/2021		Ken Dunn	Dept of Defense	2011	$ 74,980.25
2010	BioRetUDCD	An excavated pit backfilled with engineered media, topsoil, mulch, and vegetation. These are planting areas installed in shallow basins in which the storm water runoff is temporarily ponded and then treated by filtering through the bed components, and through biological and biochemical reactions within the soil matrix and around the root zones of the plants. SCM ID: WR_BB_054	2.72	1.93	0.161	Systems	1	37.15410615	-76.57647674	020802060901	JBLE-Eustis	1/13/2021		Ken Dunn	Dept of Defense	2009	$ 312,097.54
2009	BioRetUDCD	An excavated pit backfilled with engineered media, topsoil, mulch, and vegetation. These are planting areas installed in shallow basins in which the storm water runoff is temporarily ponded and then treated by filtering through the bed components, and through biological and biochemical reactions within the soil matrix and around the root zones of the plants. SCM ID: WR_BB_055	2.72	1.93	0.161	Systems	1	37.15370629	-76.57627154	020802060901	JBLE-Eustis	1/13/2021		Ken Dunn	Dept of Defense	2007	$ 42,921.39
1997	DryPonds	Dry Detention Ponds are depressions or basins created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. SCM ID: WR_DB_056	3.55	1.80	0.150	Systems	1	37.15342362	-76.57227005	020802060901	JBLE-Eustis	1/15/2021	7/28/2021	Ken Dunn	Dept of Defense	1995	$ 36,669.49
2010	InfiltrationBasin	Infiltration basins are practices that use temporary surface or underground storage to allow incoming stormwater runoff to exfiltrate into underlying soils. As the stormwater penetrates the underlying soil, chemical and physical adsorption processes remove pollutants. SCM ID: WR_IB_057	0.68	0.40	0.032	Systems	1	37.15368231	-76.57129056	020802060901	JBLE-Eustis	1/15/2021		Ken Dunn	Dept of Defense	2008	$ 18,702.38
2010	InfiltrationBasin	Infiltration basins are practices that use temporary surface or underground storage to allow incoming stormwater runoff to exfiltrate into underlying soils. As the stormwater penetrates the underlying soil, chemical and physical adsorption processes remove pollutants. SCM ID: WR_IB_058	0.84	0.44	0.037	Systems	1	37.15331695	-76.57092023	020802060901	JBLE-Eustis	1/15/2021		Ken Dunn	Dept of Defense	2008	$ 22,856.91
2010	PermPavSVUDCD	Pavement or pavers that reduce runoff volume and treat water quality through both infiltration and filtration mechanisms. Water filters through open voids in the pavement surface to a washed gravel subsurface storage reservoir, where it is then slowly infiltrated into the underlying soils or exits via an underdrain. This SCM has an underdrain, has sand and/or vegetation and is in C or D soil. SCM ID: WR_PP_059	0.03	0.03	0.002	Systems	1	37.15303377	-76.57126523	020802060901	JBLE-Eustis	1/15/2021		Ken Dunn	Dept of Defense	2008	$ 5,341.32
2010	InfiltrationBasin	Infiltration basins are practices that use temporary surface or underground storage to allow incoming stormwater runoff to exfiltrate into underlying soils. As the stormwater penetrates the underlying soil, chemical and physical adsorption processes remove pollutants. SCM ID: WR_IB_060	3.02	1.70	0.142	Systems	1	37.15211142	-76.57083934	020802060901	JBLE-Eustis	1/15/2021		Ken Dunn	Dept of Defense	2008	$ 82,032.06
2002	WetlandRestore	A water impoundment structure that intercepts stormwater runoff then releases it to an open water system at a specified flow rate. These structures retain a permanent pool and usually have retention times sufficient to allow settlement of some portion of the intercepted sediments and attached nutrients/toxics. Until recently, these practices were designed specifically to meet water quantity, not water quality objectives. There is little or no vegetation living within the pooled area nor are outfalls directed through vegetated areas prior to open water release. Nitrogen reduction is minimal. SCM ID: WR_WB_061	14.35	6.57	0.547	Systems	1	37.15146927	-76.57435328	020802060901	JBLE-Eustis	3/4/2021		Ken Dunn	Dept of Defense	2000	$ 192,227.56
2012	BioRetUDCD	An excavated pit backfilled with engineered media, topsoil, mulch, and vegetation. These are planting areas installed in shallow basins in which the storm water runoff is temporarily ponded and then treated by filtering through the bed components, and through biological and biochemical reactions within the soil matrix and around the root zones of the plants. SCM ID: WR_BB_062	2.75	1.18	0.098	Systems	1	37.1519059	-76.5770487	020801060901	JBLE-Eustis	1/14/2021		Ken Dunn	Dept of Defense	2011	$ 62,822.98

SWM Facility Inventory - JBLE-Eustis, VA

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2011	HydroDynStruc	Hydrodynamic Structures are devices designed to improve quality of stormwater using features such as swirl concentrators, grit chambers, oil barriers, baffles, micropools, and absorbent pads that are designed to remove sediments, nutrients, metals, organic chemicals, or oil and grease from urban runoff. SCM ID: WR_SC_063	1.14	0.96	0.080	Systems	1	37.15188527	-76.57773367	020802060901	JBLE-Eustis	3/1/2021		Ken Dunn	Dept of Defense	2012	$ 99,000.00
2011	HydroDynStruc	Hydrodynamic Structures are devices designed to improve quality of stormwater using features such as swirl concentrators, grit chambers, oil barriers, baffles, micropools, and absorbent pads that are designed to remove sediments, nutrients, metals, organic chemicals, or oil and grease from urban runoff. SCM ID: WR_SC_064	1.01	0.87	0.072	Systems	1	37.1515045	-76.57777151	020802060901	JBLE-Eustis	3/1/2021		Ken Dunn	Dept of Defense	2012	$ 99,000.00
2011	HydroDynStruc	Hydrodynamic Structures are devices designed to improve quality of stormwater using features such as swirl concentrators, grit chambers, oil barriers, baffles, micropools, and absorbent pads that are designed to remove sediments, nutrients, metals, organic chemicals, or oil and grease from urban runoff. SCM ID: WR_SC_065	1.01	0.87	0.072	Systems	1	37.15089401	-76.57772901	020802060901	JBLE-Eustis	3/1/2021		Ken Dunn	Dept of Defense	2012	$ 99,000.00
2011	HydroDynStruc	Hydrodynamic Structures are devices designed to improve quality of stormwater using features such as swirl concentrators, grit chambers, oil barriers, baffles, micropools, and absorbent pads that are designed to remove sediments, nutrients, metals, organic chemicals, or oil and grease from urban runoff. SCM ID: WR_SC_066	0.83	0.81	0.068	Systems	1	37.15056701	-76.57770096	020802060901	JBLE-Eustis	3/1/2021		Ken Dunn	Dept of Defense	2012	$ 99,000.00
2011	HydroDynStruc	Hydrodynamic Structures are devices designed to improve quality of stormwater using features such as swirl concentrators, grit chambers, oil barriers, baffles, micropools, and absorbent pads that are designed to remove sediments, nutrients, metals, organic chemicals, or oil and grease from urban runoff. SCM ID: WR_SC_067	0.59	0.59	0.049	Systems	1	37.14983317	-76.57951653	020802060901	JBLE-Eustis	3/1/2021		Ken Dunn	Dept of Defense	2012	$ 99,000.00
2011	HydroDynStruc	Hydrodynamic Structures are devices designed to improve quality of stormwater using features such as swirl concentrators, grit chambers, oil barriers, baffles, micropools, and absorbent pads that are designed to remove sediments, nutrients, metals, organic chemicals, or oil and grease from urban runoff. SCM ID: WR_SC_068	1.00	1.00	0.085	Systems	1	37.14978209	-76.58080066	020802060901	JBLE-Eustis	3/1/2021		Ken Dunn	Dept of Defense	2012	$ 99,000.00
2009	BioRetUDCD	An excavated pit backfilled with engineered media, topsoil, mulch, and vegetation. These are planting areas installed in shallow basins in which the storm water runoff is temporarily ponded and then treated by filtering through the bed components, and through biological and biochemical reactions within the soil matrix and around the root zones of the plants. SCM ID: WR_BB_069	1.22	0.62	0.051	Systems	1	37.149375	-76.574394	020802060901	JBLE-Eustis	1/14/2021		Ken Dunn	Dept of Defense	2008	$ 279,722.76
2009	BioRetUDCD	An excavated pit backfilled with engineered media, topsoil, mulch, and vegetation. These are planting areas installed in shallow basins in which the storm water runoff is temporarily ponded and then treated by filtering through the bed components, and through biological and biochemical reactions within the soil matrix and around the root zones of the plants. SCM ID: WR_BB_070	1.22	0.62	0.051	Systems	1	37.14907917	-76.5741394	020802060901	JBLE-Eustis	1/14/2021		Ken Dunn	Dept of Defense	2007	$ 279,579.75
2009	BioRetUDCD	An excavated pit backfilled with engineered media, topsoil, mulch, and vegetation. These are planting areas installed in shallow basins in which the storm water runoff is temporarily ponded and then treated by filtering through the bed components, and through biological and biochemical reactions within the soil matrix and around the root zones of the plants. SCM ID: WR_BB_071	1.22	0.62	0.051	Systems	1	37.14912316	-76.57368844	020802060901	JBLE-Eustis	1/14/2021		Ken Dunn	Dept of Defense	2007	$ 279,579.75
2009	BioRetUDCD	An excavated pit backfilled with engineered media, topsoil, mulch, and vegetation. These are planting areas installed in shallow basins in which the storm water runoff is temporarily ponded and then treated by filtering through the bed components, and through biological and biochemical reactions within the soil matrix and around the root zones of the plants. SCM ID: WR_BB_072	1.22	0.62	0.051	Systems	1	37.14926339	-76.57298812	020802060901	JBLE-Eustis	1/14/2021		Ken Dunn	Dept of Defense	2007	$ 279,579.75
2009	BioRetUDCD	An excavated pit backfilled with engineered media, topsoil, mulch, and vegetation. These are planting areas installed in shallow basins in which the storm water runoff is temporarily ponded and then treated by filtering through the bed components, and through biological and biochemical reactions within the soil matrix and around the root zones of the plants. SCM ID: WR_BB_073	1.22	0.62	0.051	Systems	1	37.14975	-76.57305192	020802060901	JBLE-Eustis	1/14/2021		Ken Dunn	Dept of Defense	2007	$ 279,579.75
2011	DryPonds	Dry Detention Ponds are depressions or basins created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. SCM ID: WR_DB_074 (swale portion)	2.06	0.48	0.040	Systems	1	37.14842019	-76.56909838	020802060901	JBLE-Eustis	1/15/2021		Ken Dunn	Dept of Defense	2010	$ 168,244.25
2011	DryPonds	Dry Detention Ponds are depressions or basins created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. SCM ID: WR_DB_074 (swale portion)	8.07	4.29	0.358	Systems	1	37.14842019	-76.56909838	020802060901	JBLE-Eustis	3/1/2021		Ken Dunn	Dept of Defense	2009	$ 166,159.26
2011	DryPonds	Dry Detention Ponds are depressions or basins created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. SCM ID: WR_DB_074 (basin portion)	11.30	4.94	0.412	Systems	1	37.14796217	-76.56908072	020802060901	JBLE-Eustis	3/3/2021		Ken Dunn	Dept of Defense	2009	$ 33,432.75
2011	DryPonds	Dry Detention Ponds are depressions or basins created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. SCM ID: WR_DB_075	7.32	2.92	0.243	Systems	1	37.1458527	-76.57671625	020802060901	JBLE-Eustis	3/1/2021		Ken Dunn	Dept of Defense	2009	$ 75,574.49
2011	WetlandRestore	A water impoundment structure that intercepts stormwater runoff then releases it to an open water system at a specified flow rate. These structures retain a permanent pool and usually have retention times sufficient to allow settlement of some portion of the intercepted sediments and attached nutrients/toxics. Until recently, these practices were designed specifically to meet water quantity, not water quality objectives. There is little or no vegetation living within the pooled area nor are outfalls directed through vegetated areas prior to open water release. Nitrogen reduction is minimal. SCM ID: WR_WB_076	3.62	0.90	0.075	Systems	1	37.14729138	-76.57811682	020802060901	JBLE-Eustis	3/3/2021		Ken Dunn	Dept of Defense	2010	$ 48,229.85

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Year_Installed	Practice_Name	Practice_Description	Total Acres	IMP_Acres	Runoff_Treated	Measurement_Unit	Report_Applied_Amount	Latitude	Longitude	HUC12	Facility_Name	Inspect_Date	Maint_Date	Contact_Name	Agency_Name	Year_Funded	SCM_Cost
2011	DryPonds	Dry Detention Ponds are depressions or basins created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. SCM ID: WR_DB_077	0.63	0.57	0.048	Systems	1	37.14342861	-76.57688944	020802060901	JBLE-Eustis	3/1/2021		Ken Dunn	Dept of Defense	2009	$ 3,140.80
1992	VegOpChanNoUDCD	Open channels are practices that convey stormwater runoff and provide treatment as the water is conveyed, includes bioswales. Runoff passes through either vegetation in the channel, subsoil matrix, and/or is infiltrated into the underlying soils. This SCM has no underdrain and is in C or D soil. SCM ID: IC_VS_078	1.20	0.70	0.058	Systems	1	37.14659103	-76.58971134	020802060901	JBLE-Eustis	3/1/2021		Ken Dunn	Dept of Defense	1991	$ 77,530.41
1992	VegOpChanNoUDCD	Open channels are practices that convey stormwater runoff and provide treatment as the water is conveyed, includes bioswales. Runoff passes through either vegetation in the channel, subsoil matrix, and/or is infiltrated into the underlying soils. This SCM has no underdrain and is in C or D soil. SCM ID: IC_VS_079	1.20	0.70	0.058	Systems	1	37.14663316	-76.59014234	020802060901	JBLE-Eustis	3/1/2021		Ken Dunn	Dept of Defense	1991	$ 77,530.41
2006	DryPonds	Dry Detention Ponds are depressions or basins created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. SCM ID: WR_DB_080	1.69	1.21	0.101	Systems	1	37.15585534	-76.59453709	020802060802	JBLE-Eustis	3/2/2021	7/28/2021	Ken Dunn	Dept of Defense	2004	$ 17,419.00
2010	ExtDryPonds	Dry extended detention (ED) basins are depressions created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. Dry ED basins are designed to dry out between storm events, in contrast with wet ponds, which contain standing water permanently. As such, they are similar in construction and function to dry detention basins, except that the duration of detention of stormwater is designed to be longer, theoretically improving treatment effectiveness. SCM ID: IC_DE_081	6.43	4.67	0.389	Systems	1	37.15942524	-76.60214326	020802060802	JBLE-Eustis	3/2/2021		Ken Dunn	Dept of Defense	2008	$ 12,993.37
2011	PermPavSVUDCD	Pavement or pavers that reduce runoff volume and treat water quality through both infiltration and filtration mechanisms. Water filters through open voids in the pavement surface to a washed gravel subsurface storage reservoir, where it is then slowly infiltrated into the underlying soils or exits via an underdrain. This SCM has an underdrain, has sand and/or vegetation and is in C or D soil. SCM IDs: EL_PP_082	0.05	0.05	0.004	Systems	1	37.15842434	-76.58348306	020802060901	JBLE-Eustis	3/1/2021		Ken Dunn	Dept of Defense	2009	$ 9,630.56
2009	PermPavSVUDCD	Pavement or pavers that reduce runoff volume and treat water quality through both infiltration and filtration mechanisms. Water filters through open voids in the pavement surface to a washed gravel subsurface storage reservoir, where it is then slowly infiltrated into the underlying soils or exits via an underdrain. This SCM has an underdrain, has sand and/or vegetation and is in C or D soil. SCM IDs: EL_PP_083	0.06	0.06	0.005	Systems	1	37.15849991	-76.58362271	020802060802	JBLE-Eustis	3/1/2021		Ken Dunn	Dept of Defense	2008	$ 12,144.81
2012	DryPonds	Dry Detention Ponds are depressions or basins created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. Hydrodynamic Structures are devices designed to improve quality of stormwater using features such as swirl concentrators, grit chambers, oil barriers, baffles, micropools, and absorbent pads that are designed to remove sediments, nutrients, metals, organic chemicals, or oil and grease from urban runoff. SCM ID: EL_DB_084	0.39	0.37	0.031	Systems	1	37.16056009	-76.58746244	020802060802	JBLE-Eustis	3/4/2021		Ken Dunn	Dept of Defense	2011	$ 6,194.57
2000	WetlandRestore	A water impoundment structure that intercepts stormwater runoff then releases it to an open water system at a specified flow rate. These structures retain a permanent pool and usually have retention times sufficient to allow settlement of some portion of the intercepted sediments and attached nutrients/toxics. Until recently, these practices were designed specifically to meet water quantity, not water quality objectives. There is little or no vegetation living within the pooled area nor are outfalls directed through vegetated areas prior to open water release. Nitrogen reduction is minimal. SCM ID: WR_WB_085	1.09	0.70	0.056	Systems	1	37.16136013	-76.58908388	020802060802	JBLE-Eustis	3/4/2021		Ken Dunn	Dept of Defense	1998	$ 14,605.82
2002	ExtDryPonds	Dry extended detention (ED) basins are depressions created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. Dry ED basins are designed to dry out between storm events, in contrast with wet ponds, which contain standing water permanently. As such, they are similar in construction and function to dry detention basins, except that the duration of detention of stormwater is designed to be longer, theoretically improving treatment effectiveness. SCM ID: EL_DE_086	4.32	3.23	0.269	Systems	1	37.16192944	-76.59209343	020802060802	JBLE-Eustis	3/2/2021		Ken Dunn	Dept of Defense	2000	$ 13,398.00
2003	ExtDryPonds	Dry extended detention (ED) basins are depressions created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. Dry ED basins are designed to dry out between storm events, in contrast with wet ponds, which contain standing water permanently. As such, they are similar in construction and function to dry detention basins, except that the duration of detention of stormwater is designed to be longer, theoretically improving treatment effectiveness. SCM IDs: EL_BB_087	0.90	0.70	0.058	Systems	1	37.16244861	-76.592091	020802060802	JBLE-Eustis	3/2/2021		Ken Dunn	Dept of Defense	2001	$ 197,933.69
2003	DryPonds	Dry Detention Ponds are depressions or basins created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. Hydrodynamic Structures are devices designed to improve quality of stormwater using features such as swirl concentrators, grit chambers, oil barriers, baffles, micropools, and absorbent pads that are designed to remove sediments, nutrients, metals, organic chemicals, or oil and grease from urban runoff. SCM ID: EL_DB_088	4.19	2.98	0.248	Systems	1	37.1620232	-76.59413631	020802060802	JBLE-Eustis	3/2/2021		Ken Dunn	Dept of Defense	2001	$ 19,293.46

SWM Facility Inventory - JBLE-Eustis, VA

Year_Installed	Practice_Name	Practice_Description	Total Acres	IMP_Acres	Runoff_Treated	Measurement_Unit	Report_Applied_Amount	Latitude	Longitude	HUC12	Facility_Name	Inspect_Date	Maint_Date	Contact_Name	Agency_Name	Year_Funded	SCM_Cost
2012	ExtDryPonds	Dry extended detention (ED) basins are depressions created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. Dry ED basins are designed to dry out between storm events, in contrast with wet ponds, which contain standing water permanently. As such, they are similar in construction and function to dry detention basins, except that the duration of detention of stormwater is designed to be longer, theoretically improving treatment effectiveness. SCM ID: IC_DE_089	0.74	0.10	0.008	Systems	1	37.16074461	-76.59498448	020802060802	JBLE-Eustis	3/2/2021		Ken Dunn	Dept of Defense	2010	$ 7,667.27
2003	ExtDryPonds	Dry extended detention (ED) basins are depressions created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. Dry ED basins are designed to dry out between storm events, in contrast with wet ponds, which contain standing water permanently. As such, they are similar in construction and function to dry detention basins, except that the duration of detention of stormwater is designed to be longer, theoretically improving treatment effectiveness. SCM ID: IC_DE_090	1.67	1.32	0.110	Systems	1	37.162782	-76.596188	020802060802	JBLE-Eustis	3/2/2021		Ken Dunn	Dept of Defense	2001	$ 13,398.00
2002	ExtDryPonds	Dry extended detention (ED) basins are depressions created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. Dry ED basins are designed to dry out between storm events, in contrast with wet ponds, which contain standing water permanently. As such, they are similar in construction and function to dry detention basins, except that the duration of detention of stormwater is designed to be longer, theoretically improving treatment effectiveness. SCM ID: IC_DE_091	0.90	0.62	0.052	Systems	1	37.16345064	-76.59661824	020802060802	JBLE-Eustis	3/2/2021		Ken Dunn	Dept of Defense	2001	$ 13,398.00
2010	BioRetUDCD	An excavated pit backfilled with engineered media, topsoil, mulch, and vegetation. These are planting areas installed in shallow basins in which the storm water runoff is temporarily ponded and then treated by filtering through the bed components, and through biological and biochemical reactions within the soil matrix and around the root zones of the plants. SCM ID: EL_BB_092	2.51	1.56	0.130	Systems	1	37.16405849	-76.59130139	020802060802	JBLE-Eustis	3/2/2021		Ken Dunn	Dept of Defense	2008	$ 51,951.34
2010	BioRetUDCD	An excavated pit backfilled with engineered media, topsoil, mulch, and vegetation. These are planting areas installed in shallow basins in which the storm water runoff is temporarily ponded and then treated by filtering through the bed components, and through biological and biochemical reactions within the soil matrix and around the root zones of the plants. SCM ID: EL_BB_093	1.79	1.19	0.099	Systems	1	37.16484411	-76.59105203	020802060802	JBLE-Eustis	3/2/2021		Ken Dunn	Dept of Defense	2008	$ 45,138.34
2010	BioRetUDCD	An excavated pit backfilled with engineered media, topsoil, mulch, and vegetation. These are planting areas installed in shallow basins in which the storm water runoff is temporarily ponded and then treated by filtering through the bed components, and through biological and biochemical reactions within the soil matrix and around the root zones of the plants. SCM ID: EL_BB_094	0.40	0.20	0.016	Systems	1	37.16544939	-76.59102431	020802060802	JBLE-Eustis	3/2/2021		Ken Dunn	Dept of Defense	2008	$ 18,285.66
2010	BioRetUDCD	An excavated pit backfilled with engineered media, topsoil, mulch, and vegetation. These are planting areas installed in shallow basins in which the storm water runoff is temporarily ponded and then treated by filtering through the bed components, and through biological and biochemical reactions within the soil matrix and around the root zones of the plants. SCM ID: EL_BB_095	0.40	0.20	0.016	Systems	1	37.16540536	-76.59074258	020802060802	JBLE-Eustis	3/2/2021		Ken Dunn	Dept of Defense	2008	$ 17,662.75
2008	DryPonds	Dry Detention Ponds are depressions or basins created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. SCM ID: EL_DB_096	11.58	5.08	0.423	Systems	1	37.16369786	-76.58898553	020802060802	JBLE-Eustis	3/4/2021		Ken Dunn	Dept of Defense	2007	$ 533,916.37
2008	DryPonds	Dry Detention Ponds are depressions or basins created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. SCM ID: EL_DB_096	11.60	3.60	0.288	Systems	1	37.16369786	-76.58898553	020802060802	JBLE-Eustis	3/4/2021	7/28/2021	Ken Dunn	Dept of Defense	2008	$ 119,691.82
1994	ExtDryPonds	Dry extended detention (ED) basins are depressions created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. Dry ED basins are designed to dry out between storm events, in contrast with wet ponds, which contain standing water permanently. As such, they are similar in construction and function to dry detention basins, except that the duration of detention of stormwater is designed to be longer, theoretically improving treatment effectiveness. SCM ID: EL_DE_097	2.65	1.35	0.113	Systems	1	37.162021	-76.585189	020802060802	JBLE-Eustis	3/4/2021		Ken Dunn	Dept of Defense	1993	$ 13,398.00
2010	InfiltrationBasin	Infiltration basins are practices that use temporary surface or underground storage to allow incoming stormwater runoff to exfiltrate into underlying soils. As the stormwater penetrates the underlying soil, chemical and physical adsorption processes remove pollutants. SCM ID: BC_IB_098	0.62	0.42	0.035	Systems	1	37.16292259	-76.58452971	020802060802	JBLE-Eustis	3/4/2021		Ken Dunn	Dept of Defense	2008	$ 17,054.44
2010	InfiltrationBasin	Infiltration basins are practices that use temporary surface or underground storage to allow incoming stormwater runoff to exfiltrate into underlying soils. As the stormwater penetrates the underlying soil, chemical and physical adsorption processes remove pollutants. SCM ID: BC_IB_099	2.45	1.01	0.084	Systems	1	37.1631348	-76.5830312	020802060802	JBLE-Eustis	3/3/2021		Ken Dunn	Dept of Defense	2008	$ 21,492.40
2010	ExtDryPonds	Dry extended detention (ED) basins are depressions created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. Dry ED basins are designed to dry out between storm events, in contrast with wet ponds, which contain standing water permanently. As such, they are similar in construction and function to dry detention basins, except that the duration of detention of stormwater is designed to be longer, theoretically improving treatment effectiveness. SCM ID: BC_DE_100	9.92	5.78	0.481	Systems	1	37.163904	-76.583342	020802060901	JBLE-Eustis	3/3/2021		Ken Dunn	Dept of Defense	2008	$ 44,492.52

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Year_Installed	Practice_Name	Practice_Description	Total Acres	IMP_Acres	Runoff_Treated	Measurement_Unit	Report_Applied_Amount	Latitude	Longitude	HUC12	Facility_Name	Inspect_Date	Maint_Date	Contact_Name	Agency_Name	Year_Funded	SCM_Cost
2010	ExtDryPonds	Dry extended detention (ED) basins are depressions created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. Dry ED basins are designed to dry out between storm events, in contrast with wet ponds, which contain standing water permanently. As such, they are similar in construction and function to dry detention basins, except that the duration of detention of stormwater is designed to be longer, theoretically improving treatment effectiveness. SCM ID: BC_DE_101	2.84	2.05	0.171	Systems	1	37.16630006	-76.5879641	020802060802	JBLE-Eustis	3/3/2021		Ken Dunn	Dept of Defense	2008	$ 3,634.35
2010	DryPonds	Dry Detention Ponds are depressions or basins created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. SCM ID: BC_DB_102	5.59	4.55	0.379	Systems	1	37.16703755	-76.58988719	020802060901	JBLE-Eustis	3/3/2021	7/28/2021	Ken Dunn	Dept of Defense	2008	$ 57,663.92
2006	InfiltrationBasin	Infiltration basins are practices that use temporary surface or underground storage to allow incoming stormwater runoff to exfiltrate into underlying soils. As the stormwater penetrates the underlying soil, chemical and physical adsorption processes remove pollutants. SCM ID: BC_IB_103	5.93	4.87	0.406	Systems	1	37.16727252	-76.59357082	020802060802	JBLE-Eustis	3/2/2021		Ken Dunn	Dept of Defense	2004	$ 162,027.35
2010	WetlandRestore	A water impoundment structure that intercepts stormwater runoff then releases it to an open water system at a specified flow rate. These structures retain a permanent pool and usually have retention times sufficient to allow settlement of some portion of the intercepted sediments and attached nutrients/toxics. Until recently, these practices were designed specifically to meet water quantity, not water quality objectives. There is little or no vegetation living within the pooled area nor are outfalls directed through vegetated areas prior to open water release. Nitrogen reduction is minimal. SCM ID: BC_WB_104	8.58	5.45	0.454	Systems	1	37.168156	-76.579818	020802060802	JBLE-Eustis	3/3/2021		Ken Dunn	Dept of Defense	2008	$ 43,945.07
1994	WetlandRestore	A water impoundment structure that intercepts stormwater runoff then releases it to an open water system at a specified flow rate. These structures retain a permanent pool and usually have retention times sufficient to allow settlement of some portion of the intercepted sediments and attached nutrients/toxics. Until recently, these practices were designed specifically to meet water quantity, not water quality objectives. There is little or no vegetation living within the pooled area nor are outfalls directed through vegetated areas prior to open water release. Nitrogen reduction is minimal. SCM ID: IC_WB_105	55.87	1.13	0.094	Systems	1	37.14195589	-76.59927237	020802060901	JBLE-Eustis	3/3/2021		Ken Dunn	Dept of Defense	1993	$ 379,470.76
1994	WetlandRestore	A water impoundment structure that intercepts stormwater runoff then releases it to an open water system at a specified flow rate. These structures retain a permanent pool and usually have retention times sufficient to allow settlement of some portion of the intercepted sediments and attached nutrients/toxics. Until recently, these practices were designed specifically to meet water quantity, not water quality objectives. There is little or no vegetation living within the pooled area nor are outfalls directed through vegetated areas prior to open water release. Nitrogen reduction is minimal. SCM ID: IC_WB_106	18.72	0.07	0.006	Systems	1	37.13785338	-76.58847912	020802060901	JBLE-Eustis	3/3/2021		Ken Dunn	Dept of Defense	1993	$ 267,828.15
2010	BioRetUDAB	An excavated pit backfilled with engineered media, topsoil, mulch, and vegetation. These are planting areas installed in shallow basins in which the storm water runoff is temporarily ponded and then treated by filtering through the bed components, and through biological and biochemical reactions within the soil matrix and around the root zones of the plants. SCM ID: MC_BB_107	0.58	0.45	0.037	Systems	1	37.13101626	-76.59854855	020802060804	JBLE-Eustis	3/3/2021		Ken Dunn	Dept of Defense	2008	$ 27,513.71
2010	VegOpChanNoUDCD	Open channels are practices that convey stormwater runoff and provide treatment as the water is conveyed, includes bioswales. Runoff passes through either vegetation in the channel, subsoil matrix, and/or is infiltrated into the underlying soils. This SCM has no underdrain and is in C or D soil. SCM ID: BC_VS_108	1.29	0.40	0.033	Systems	1	37.16307091	-76.58355011	020802060901	JBLE-Eustis	3/3/2021		Ken Dunn	Dept of Defense	2008	$ 181,736.70
2008	HydroDynStruc	Hydrodynamic Structures are devices designed to improve quality of stormwater using features such as swirl concentrators, grit chambers, oil barriers, baffles, micropools, and absorbent pads that are designed to remove sediments, nutrients, metals, organic chemicals, or oil and grease from urban runoff. SCM ID: WR_VT_109	46.17	23.23	1.936	Systems	1	37.147797	-76.58695	020802060901	JBLE-Eustis	3/3/2021		Ken Dunn	Dept of Defense	2007	$ 130,000.00
2011	DryPonds	Dry Detention Ponds are depressions or basins created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. SCM ID: JR_DB_110	0.89	0.08	0.007	Systems	1	37.1088944	-76.58598208	020802060901	JBLE-Eustis	3/3/2021		Ken Dunn	Dept of Defense	2009	$ 9,286.43
2007	HydroDynStruc	Hydrodynamic Structures are devices designed to improve quality of stormwater using features such as swirl concentrators, grit chambers, oil barriers, baffles, micropools, and absorbent pads that are designed to remove sediments, nutrients, metals, organic chemicals, or oil and grease from urban runoff. SCM ID: WR_SF_111	0.36	0.27	0.002	Systems	1	37.164814	-76.590679	020802060802	JBLE-Eustis	3/2/2021		Ken Dunn	Dept of Defense	2006	$ 18,724.17
2007	HydroDynStruc	Hydrodynamic Structures are devices designed to improve quality of stormwater using features such as swirl concentrators, grit chambers, oil barriers, baffles, micropools, and absorbent pads that are designed to remove sediments, nutrients, metals, organic chemicals, or oil and grease from urban runoff. SCM ID: WR_SF_112	0.39	0.30	0.025	Systems	1	37.16458	-76.590752	020802060802	JBLE-Eustis	3/2/2021		Ken Dunn	Dept of Defense	2006	$ 11,642.60
2007	HydroDynStruc	Hydrodynamic Structures are devices designed to improve quality of stormwater using features such as swirl concentrators, grit chambers, oil barriers, baffles, micropools, and absorbent pads that are designed to remove sediments, nutrients, metals, organic chemicals, or oil and grease from urban runoff. SCM ID: WR_SF_113	0.38	0.28	0.022	Systems	1	37.164066	-76.590914	020802060802	JBLE-Eustis	3/2/2021		Ken Dunn	Dept of Defense	2006	$ 11,462.56
2007	HydroDynStruc	Hydrodynamic Structures are devices designed to improve quality of stormwater using features such as swirl concentrators, grit chambers, oil barriers, baffles, micropools, and absorbent pads that are designed to remove sediments, nutrients, metals, organic chemicals, or oil and grease from urban runoff. SCM ID: WR_SF_114	0.35	0.28	0.024	Systems	1	37.164014	-76.590927	020802060802	JBLE-Eustis	3/2/2021		Ken Dunn	Dept of Defense	2006	$ 10,502.34

Attachment 6:
Chesapeake Bay TMDL Action Plan Implementation Status Memo

Date: 8 September 2021

Subject: **Chesapeake Bay Phase II Total Maximum Daily Load (TMDL) Action Plan Implementation Progress for JBLE–Eustis**

1.0 INTRODUCTION

In 2010 the United States Environmental Protection Agency (EPA) established the Chesapeake Bay Total Maximum Daily Load (TMDL) to address excess nitrogen, phosphorus, and total suspended solids (pollutants of concern or POCs) in the Chesapeake Bay (EPA, 2010). A TMDL is the maximum amount of a pollutant that a waterbody can assimilate and still support its designated use. The Chesapeake Bay watershed encompasses over 64,000 square miles across the District of Columbia and large sections of Delaware, Maryland, New York, Pennsylvania, West Virginia, and Virginia.

In the Phase I and Phase II Chesapeake Bay Watershed Implementation Plan (WIP) for the Chesapeake Bay TMDL, the Commonwealth of Virginia committed to a phased approach to reducing nutrients and suspended solids discharging from Municipal Separate Storm Sewer Systems (MS4). Section I.C of the Joint Base Langley Eustis – Eustis (JBLE–Eustis) MS4 permit (Permit No. VAR040035, effective 01 November 2018) requires the base to prepare a Chesapeake Bay TMDL Action Plan that demonstrates future plans to meet the required nutrient and suspended solids reductions for each permit cycle as specified in the 2012 Phase II WIP (VDEQ, 2012).

JBLE–Eustis developed a Chesapeake Bay TMDL Action Plan for the installation's MS4 area (JBLE–Eustis, 2020). The Action Plan is an annual report on the progress made by the base in meeting the Chesapeake Bay TMDL pollutant reduction requirements, specifically the Level 2 (L2) scoping run as specified in the 2010 Phase I WIP (VDEQ, 2010). The L2 reductions are to be met in phases corresponding to the permit cycles, as outlined in Table 1-1.

Table 1-1. Pollutant Percent Reduction Requirements by Permit Cycle

Permit Cycle	Timeframe	Cycle Percent Reduction	Cumulative Percent Reduction
1	2013-2018	5%	5%
2	2018-2023	35%	40%
3	2023-2028	60%	100%

The purpose of this memorandum is to document progress toward implementing the Chesapeake Bay TMDL Action Plan. The objectives of this memorandum are to present the required pollutant reduction requirements for the second permit cycle and discuss strategies that have been implemented or will be implemented by the Air Force Civil Engineer Center (AFCEC) and JBLE–Eustis to reduce nutrient and sediment loads.

This memorandum is organized into the following sections:

- Section 1.0 presents the background, purpose and objectives.
- Section 2.0 describes the pollutant load reduction requirements.
- Section 3.0 describes the pollutant credits achieved by the base.
- Section 4.0 describes future best management practices (BMP).
- Section 5 presents the progress summary.
- Section 6.0 contains a list of references associated with this memorandum.

2.0 POLLUTANT LOAD REDUCTION REQUIREMENTS

The methodology used to calculate the pollutant loads and credits is based on Virginia Department of Environmental Quality (VDEQ) Guidance Memo No. 20-2003 (Guidance Document) (VDEQ, 2021). The base's pollutant loads for existing sources (contributed by the base as of 30 June 2009) and new sources (contributed by the base between 01 July 2009 and 30 June 2021) were calculated from impervious and pervious land use area and loading rates for the James River Basin as specified in the Guidance Document (VDEQ, 2021). Estimated loads for 2009 and 2021 are presented in Table 2-1.

Table 2-1. Existing and New Loads and Total Load Change at JBLE-Eustis

Land Cover (Subsource)	Pollutant	Estimated Total Load as of 30 June 2021 (lbs/yr)	Estimated Total Load as of 30 June 2009 (lbs/yr)	Total Load Change (lbs/yr)	
Regulated Urban Impervious	Nitrogen	5,544.9	5,251.3	293.6	954.4
Regulated Urban Pervious		9,062.0	8,401.2	660.8	
Regulated Urban Impervious	Phosphorus	1,039.3	984.3	55.0	102.3
Regulated Urban Pervious		648.2	600.9	47.3	
Regulated Urban Impervious	Total Suspended Solids	399,744.0	378,571.0	21,173.0	30,728.8
Regulated Urban Pervious		131,042.3	121,486.5	9,555.8	

Note and Acronym:
[1] Minor calculation discrepancies are accounted for in rounding.
lbs/yr – Pounds per year

The total load change is adjusted by any credits earned from BMPs implemented during the 2009–2020 timeframe to arrive at the Net Load Change. BMPs installed after 01 July 2009 were included in this analysis when they were implemented under conditions of redevelopment. The base is required to offset 40% of the net load change by the end of the second permit cycle, as shown in Table 2-2.

Table 2-2. Net Load Changes from New Sources and Additional Reductions Required

Pollutant	Total Load Change (lbs/yr)[1]	Reductions from BMPs Installed between 01 July 2009 and 30 June 2020 (lbs/yr)[1]	Net Load Change (lbs/yr)[1]	Required Reduction by End of Second Permit Cycle	Additional Reductions Required between 01 July 2020 and 30 June 2023 (lbs/yr)[1]
Nitrogen	954.4	474.4	480.0	40%	192.0
Phosphorus	102.3	83.0	19.3	40%	7.7
Total Suspended Solids	30,728.8	39,576.0	-8,847.2	40%	0.0

Note and Acronym:
[1] Minor calculation discrepancies are accounted for in rounding.
lbs/yr – Pounds per year

3.0 LOAD REDUCTION CREDITS ACHIEVED

This section describes load reduction credits achieved by JBLE–Eustis from post-construction BMPs, street sweeping, land use change, and shoreline management.

3.1 Existing Post-Construction BMPs (Post-2006)

A geographic information system (GIS) inventory of existing post-construction BMPs present at JBLE–Eustis and their drainage areas, which was developed in 2021, was used to help calculate existing credits for the Chesapeake Bay TMDL Action Plan. BMPs installed between 01 January 2006 and 30 June 2009 were included in this analysis. BMPs installed prior to 01 January 2006 are not eligible for credit and were thus excluded from consideration for this Action Plan. BMPs installed after 30 June 2009 were tracked separately to facilitate the calculation of new source loads. For BMPs installed after 30 June 2009, only those implemented under conditions of redevelopment were eligible for credits, as described in the Guidance Document (VDEQ, 2021). Summaries of existing BMP types and credits are given in Table 3-1 and 3-2 respectively.

Table 3-1. Summary of Existing BMP Types

BMP Type	Timeframe Implemented		
	01 Jan 2006 to 30 June 2009	01 July 2009 to 30 June 2020	Total
Bioretention	2	21	23
Dry Detention Pond	0	6	6
Dry Extended Detention Pond	1	8	9
Permeable Pavement	0	8	8
Rainwater Harvesting	0	1	1
Swale	2	10	12
Wet Pond or Wetland	1	2	3
Infiltration Pond	1	2	3
Hydrodynamic Device	0	6	6
Filtering Device	4	0	4
Total	**11**	**64**	**75**

Table 3-2. Summary of Credits from Existing Post-Construction BMPs

BMP Timeframe	Number of BMPs	Credits (lbs/yr)		
		Nitrogen	Phosphorus	Total Suspended Solids
2006–2009	11	141.1	32.5	15,249.8
2009–2020	64	474.4	83.0	39,576.0

Acronym:
lbs/yr – Pounds per year

3.2 Street Sweeping

The base performs vacuum powered street sweeping on primary roads, secondary roads, and parking lots on a regular basis. Street sweeping credits are calculated based on the methodology described in

Recommendations of the Expert Panel to Define Removal Rates for Street and Storm Drain Cleaning Practices (Donner et al., 2016). Data on frequency and linear miles of sweeping was provided by JBLE–Eustis and is used to calculate load reduction credits. A summary of street sweeping credits is presented in Table 3-3.

Table 3-3. Summary of Annual Street Sweeping Credits

Lane-Miles Swept	Acres Swept	Credits (lbs/yr)		
		Nitrogen	Phosphorus	Total Suspended Solids
1,383.6	1,686.6	430.6	154.2	207,360.9

Acronym:
lbs/yr – Pounds per year

3.3 Storm Drain Cleaning

The base removes debris from outfalls on an annual basis. The base follows a Standard Operating Procedure to keep track of the mass of debris that is removed and to ensure the debris is disposed properly to avoid washing back into the watershed. The method used to calculate credits for the storm drain cleaning BMP is described in Appendix V.G of the Guidance Document. A summary of the Storm Drain Cleaning BMP credits is provided in Table 3-4.

Table 3-4. Summary of Storm Drain Cleaning

Wet Weight	Dry Weight		Nutrients Removed					
			Sediment		Organic Matter		Total	
Debris Collected (lbs)	Sediment	Organic Material	TN	TP	TN	TP	TN	TP
15,400.0	4,204.2	1,604.7	11.4	2.5	17.8	1.9	29.2	4.4

4.0 **Acronyms:**
lbs/yr – Pounds per year
5.0 TN – Total nitrogen
6.0 TP – Total phosphorus

3.4 Land Use Change

The base is restoring various parcels of turf into native forb and grassland habitats, where no fertilization is applied and minimal maintenance is conducted. The land use change credited at all locations is thus based on the turf to mixed-open land use. A summary of land use change credits is presented in Table 3-5.

Table 3-5. Summary of Land Use Change BMP Credits

Pollutant	Turf to Mixed Open Area (acres)	Credit (lbs/yr)
Nitrogen	15.33	90.3
Phosphorus	15.33	17.2
Total Suspended Solids	15.33	0.0

Acronym:
lbs/yr – Pounds per year

3.5 Shoreline Management

Pollutant load reductions from the 40 linear feet of shoreline restoration activities on the base are presented in Table 3-6.

Table 3-6. Summary of Shoreline Management Reductions

Pollutant	Shoreline Restoration (linear feet)	Loading Rate (lbs/ft/yr)[1]	Credit (lbs/yr)
Nitrogen	40	0.01218	0.5
Phosphorus	40	0.00861	0.3
Total Suspended Solids	40	42.0	1,680.0

Note and Acronyms:
[1] Source: Forand et al., 2017
lbs/ft/yr: Pounds per foot per year
lbs/yr: Pounds per year

4 FUTURE BMPs

The base plans on converting an additional 12.98 acres of turf into native species grass lands in 2021. JBLE–Eustis will continue to investigate the applicability and feasibility of additional BMPs and BMP types in order to meet the pollutant load reduction requirements of the Chesapeake Bay TMDL. Opportunities for effective retrofit options will be explored and prioritized to make the best use of available resources.

5 PROGRESS SUMMARY

A summary of the required load reductions is presented in Table 5-1, and the second permit cycle pollutant credits are presented in Table 5-2.

Table 5-1. Summary of Permit Cycles 1, 2 and 3 Reduction Requirements

Pollutant	Required Load Reduction by 2018 (lbs/yr)	Required Load Reduction by 2023 (lbs/yr)	Required Load Reduction by 2028 (lbs/yr)
Nitrogen	73	583	1,457
Phosphorus	11	88	220
Total Suspended Solids	3,875	30,999	77,497

Acronym:
lbs/yr – Pounds per year

Table 5-2. Summary of Second Permit Cycle Reduction Requirements and Credits

Pollutant	Second Permit Cycle Cumulative Percent Reduction Requirement	Required Load Reduction by 2023 (lbs/yr)	Credits from Existing BMPs (lbs/yr)[1]	Second Permit Cycle Target Met?	Third Permit Cycle Target Met?
Nitrogen	40%	583	692	Yes	No
Phosphorus	40%	88	209	Yes	No
Total Suspended Solids	40%	30,999	228,495	Yes	Yes

Note and Acronym:
[1] Does not include credits related to new sources that were previously accounted for in Table 2-2.
lbs/yr – Pounds per year

Assuming the BMPs considered in this analysis are maintained and fully functional to provide the design performance, it is the conclusion of this analysis that the base currently meets the second permit cycle reduction requirement goals for nitrogen, phosphorus and total suspended solids. However, the base does not currently meet the third permit cycle reduction goals for nitrogen or phosphorus. Additional reductions could be achieved through more frequent street sweeping schedules and additional post-construction BMPs.

6.0 REFERENCES

Donner, S., Frost, B., Goulet, N., Hurd, M., Law, N., Maguire, T., Selbig, B., Shafer, J., Stewart, S., and Tribo, J. 2016. *Recommendations of the Expert Panel to Define Removal Rates for Street and Storm Drain Cleaning Practices.* Chesapeake Bay Program Office. Accessed at https://www.chesapeakebay.net/channel_files/23064/final_street_cleaning_expert_panel_report.pdf.

EPA. 2010. *Chesapeake Bay Total Maximum Daily Load for Nitrogen, Phosphorus and Sediment*. 29 December 2010.

JBLE–Eustis. 2020. *Chesapeake Bay Phase II Total Maximum Daily Load Action Plan for Joint Base Langley Eustis - Eustis*. June 2021.

VDEQ. 2010. *Chesapeake Bay TMDL Phase I Watershed Implementation Plan*. 29 November 2010.

VDEQ. 2018. *General Permit for Discharges of Stormwater from Small Municipal Separate Storm Sewer Systems, General Permit No. VAR040035*. Effective Date 1 July 2013.

VDEQ. 2021. *Guidance Memo No. 20-2003 – Chesapeake Bay TMDL Special Condition Guidance*. 06 February 2021.

ACRONYMS

AFCEC	Air Force Civil Engineer Center
BMP	Best Management Practice
EPA	Environmental Protection Agency
GIS	Geographic Information System
JBLE–Eustis	Joint Base Langley Eustis – Eustis
L2	Level 2
lbs/ft/yr	Pounds per foot per year
lbs/yr	Pounds per year
MS4	Municipal Separate Storm Sewer System
POC	Pollutant of Concern
TMDL	Total Maximum Daily Load
VDEQ	Virginia Department of Environmental Quality
WIP	Watershed Implementation Plan

Attachment 7:
Bacteria TMDL Action Plan Implementation Status Memo

Date: 4 August 2021

Subject: **Warwick River and Skiffes Creek Bacteria TMDL Action Plan Implementation Progress for Joint Base Langley Eustis – Eustis**

1.0 INTRODUCTION

In 2008, the United States Environmental Protection Agency (EPA) approved Total Maximum Daily Loads (TMDL) for Warwick River and Skiffes Creek to address excess fecal coliform bacteria in these waterbodies (VDEQ, 2007). The TMDL report assigned individual wasteload allocations (WLA) for bacteria to the city of Newport News, York County, and Joint Base Langley Eustis – Eustis (JBLE–Eustis). The WLA is a portion of the TMDL load and represents the allowable load a permittee may discharge to the waterbody and still meet water quality standards.

JBLE–Eustis is authorized to discharge stormwater from the installation in accordance with a Virginia Pollutant Stormwater Discharge Elimination (VPDES) industrial stormwater permit (Permit No. VA0025216) and a Municipal Separate Storm Sewer System (MS4) permit (Permit No. VAR040035), both issued by the Virginia Department of Environmental Quality (VDEQ). The MS4 permit identifies minimum control measures (MCM) and special condition requirements, measurable goals and best management practices (BMP) selected for implementation at JBLE–Eustis. Special Condition 1 found in Section II.B.1 of the JBLE–Eustis MS4 permit requires the installation to maintain a specific TMDL Action Plan for pollutants allocated to the MS4 in an approved TMDL. On 30 November 2015, VDEQ notified JBLE–Eustis that, as part of maintaining its MS4 Program Plan, the installation is required to develop TMDL Action Plans for the Warwick River and Skiffes Creeks to address bacteria impairment in those waterbodies.

JBLE–Eustis updated their Bacteria TMDL Action Plan for the installation's MS4 area. The TMDL Action Plan describes the TMDL waterbodies, JBLE–Eustis installation, existing and proposed bacteria control measures and an implementation schedule for addressing bacteria sources for the Warwick River and Skiffes Creeks watersheds (JBLE–Eustis, 2021).

The purpose of this memorandum is to document progress toward implementing the Warwick River and Skiffes Creek Bacteria TMDL Action Plan. The objectives of this memorandum are to present the results of the bacteria source assessment at JBLE–Eustis and discuss strategies that have been implemented or will be implemented by the Air Force Civil Engineer Center (AFCEC) and JBLE–Eustis to reduce bacteria sources.

This memorandum is organized into the following sections:

- Section 1.0 presents the background, purpose and objectives
- Section 2.0 describes the schedule and actions for addressing bacteria sources
- Section 3.0 describes the bacteria source assessment

- Section 4.0 describes the bacteria action plan implementation progress
- Section 5.0 describes bacteria-reducing actions in progress
- Section 6.0 presents the summary and next steps
- Section 7.0 contains a list of references associated with this memorandum

2.0 ACTION PLAN FOR ADDRESSING BACTERIA IN WARWICK RIVER AND SKIFFES CREEK

JBLE–Eustis developed an implementation schedule for addressing bacteria impairments in Warwick River and Skiffes Creek as part of the Warwick River and Skiffes Creek Bacteria TMDL Action Plan (JBLE–Eustis, 2021). During the first MS4 permit cycle (2013 – 2018), the Action Plan lists the following JBLE–Eustis implementation actions:

- Reviewed the final TMDL report to inform actions taken by the base to address sources of bacteria and update this Action Plan.
- Developed the Bacteria TMDL Action Plan and implementation schedule (JBLE–Eustis, 2016c)
- Identified and maintained a list of existing source controls and management practices that are applicable to reducing fecal coliform bacteria.
- Identified opportunities for enhancing education and outreach programs to address bacteria impairment.
- Assessed significant sources of bacteria using desktop evaluations, field investigations and collaboration with key base staff.
- Determined if additional source controls are needed. If additional controls were needed, a summary of potential controls and identified programs and activities to support their implementation was prepared.
- Evaluated new bacteria-related datasets for the watersheds collected by other agencies (e.g., VDEQ) as available.

As described in the updated Warwick River and Skiffes Creek Bacteria TMDL Action Plan, bacteria-reducing activities to be performed during the second MS4 permit cycle (2018 – 2023) include:

- As funding permits, implement activities identified in the implementation schedule (from previous years) as appropriate.
- Evaluate new bacteria-related datasets for the Warwick River and Skiffes Creek watersheds collected by other agencies as available.
- Identify any modified or additional activities to be performed during the subsequent permit cycle.
- Update the Warwick River and Skiffes Creek Bacteria TMDL Action Plan to reflect activities performed during the following year and report on progress annually. Adjust the implementation schedule as needed to reflect findings from field and desktop assessments. Report on progress annually.

3.0 BACTERIA SOURCE ASSESSMENT

The Warwick River and Skiffes Creek TMDL report identifies both natural and anthropogenic sources of bacteria in the watershed (Table 3-1).

Table 3-1. Fecal Bacteria Source Allocations (%) in the Warwick River and Skiffes Creek Watersheds
(Source: VDEQ 2007, Table 3.7 and Table 3.8)

Watershed	Wildlife	Human	Livestock	Pet
Warwick River	18	35	23	24
Skiffes Creek	3	21	36	40

The values presented in Table 3-1 are watershed averages across multiple MS4s. To build on this information, JBLE–Eustis conducted a local fecal bacteria source assessment in February 2020 with the goal of identifying potential pollutant "hot spots" or sources across the base. The sources identified, and strategies taken to address these sources are described in Sections 4 and 5.

In April 2021, a follow-up bacteria source investigation was conducted via a windshield survey at JBLE–Eustis to locate bacteria sources described in Table 3-1 and to identify other potential sources that might be present. In addition, multiple JBLE–Eustis personnel involved with activities that may be affecting fecal bacteria loading from the base were interviewed to discuss actions that JBLE–Eustis is currently taking to reduce or remove bacteria sources.

4.0 BACTERIA ACTION PLAN IMPLEMENTATION PROGRESS

This section describes programs and activities that are being implemented at JBLE–Eustis to address bacteria sources and accomplish the goals set forth in the JBLE–Eustis Bacteria Action Plan.

4.1 Pets

Pet waste is the largest contributor of non-human bacteria within the Warwick River and Skiffes Creek watershed. Unlike wildlife, pet waste can be effectively controlled using a variety of management approaches. JBLE–Eustis residents are permitted to have pets and it is reasonable to assume that residents walk their dogs around nearby neighborhoods. Residents are required to clean up after their dogs; however, pet waste disposal receptacles are not available along the walking paths, and this is noted for possible future implementation.

A community dog park was opened at JBLE–Eustis in May 2015. Access to the dog park is restricted, and residents must submit an application, register pets, pay a registration fee, and sign a receipt acknowledging the rules of the dog park. Owners are required to clean-up after their dogs and dog-waste bags are provided near the trash can for pet waste disposal.

JBLE–Eustis has developed and distributed a pet waste brochure that contains educational information and contact information for the Stormwater Program Manager.

4.2 Livestock

Livestock is the second largest contributor of non-human bacteria within the watersheds. JBLE–Eustis operates horse stables for authorized personnel to utilize. Stable bedding and horse manure are collected by patrons and stored in a roll-off bin located on site, and then disposed of by a contractor off-site. During periods of good weather, horses are allowed to utilize pasture lands.

4.3 Wildlife

Wildlife is the most challenging bacteria source to control. The southern portion of the base (located in the Warwick River watershed) is largely undeveloped and therefore is prime wildlife habitat. The TMDL report noted that prime raccoon habitat covers a large portion of the base that lies within the Warwick River watershed. In developed areas in the northern part of the base, implementing "No Mow" buffer zones around natural and constructed ponds can deter geese from landing, foraging, and contributing to the bacteria problem. The base also removes wetlands surrounding airfields that would attract wildlife and present bird/animal aircraft strike hazard (BASH) safety concerns. Removal of wetlands reduces habitat for waterfowl and other wildlife that have the potential to contribute bacteria to the Warwick River.

4.4 Human

The entire JBLE–Eustis installation is currently connected to a sanitary sewer network. There are no septic systems currently located on the installation. Additionally, JBLE–Eustis adheres to an Illicit Discharge Detection and Elimination (IDDE) Program, designed to help detect, identify, and address non-stormwater discharges to the stormwater network. Non-stormwater discharges include untreated sewage that contain fecal bacteria. To help detect and identify illicit discharges, the base regularly screens outfalls to determine if any non-runoff related discharges are occurring. Additionally, any sanitary sewer overflows that occur are tracked and immediately addressed. Initiatives planned include continued inspections of non-industrial outfalls and investigation and reporting of potential illicit discharges. IDDE inspections were conducted during 2020-2021. Initiatives planned include continued inspections of non-industrial outfalls and investigation and reporting of potential illicit discharges.

5.0 BACTERIA-REDUCING ACTIVITIES IN PROGRESS (2021-2022)

JBLE–Eustis has initiated 2021-2022 actions that are identified in Section 2.0 of this memorandum. In addition, JBLE–Eustis conducted a local fecal bacteria windshield survey in April 2021. This evaluation included field assessments of potential point and nonpoint sources of bacteria, including wildlife, the community dog park, horse stables, and resident housing area. The evaluation also included interviews with base staff to identify stormwater and bacteria-reducing practices currently used by the base and determine strategies that would improve bacteria reduction on the installation. The evaluation determined that the base continues to implement many of the bacteria-reducing strategies required by section II.B.4 in the MS4 permit. Findings from the source assessment include:

- The base actively manages bird and animal populations, and minimal wildlife was observed during the source assessment.
- No human sources of bacteria were identified.
- Livestock and pet sources continue to be controlled through BMPs at the horse stables, pet waste stations in residential areas, and a pet waste station at the community dog park. Opportunities for improving bacteria-reduction at these facilities may include stormwater controls and riparian management to prevent wash-off of fecal bacteria into streams.
- Illicit discharges and sewer line leaks into the MS4 are being monitored through the IDDE program. Opportunities to improve strategies on illicit discharge prevention may include public education programs on the environmental impacts of dumping materials.
- The base urges residents to use commercial car washing facilities where wash waters are prevented from entering the storm sewer system. Opportunities to further reduce bacteria wash-off may include public education programs on the environmental impacts of car washing.

6.0 SUMMARY

In summary, JBLE–Eustis has taken several actions to reduce bacteria and address various sources on the installation. Completed or ongoing actions taken by JBLE–Eustis include the following:

- Prepared the Warwick River and Skiffes Creek Bacteria TMDL Action Plan, including preliminary source investigations and schedule for addressing bacteria sources.
- Active bird and animal population management including BASH.
- Livestock and pet sources are controlled through BMPs at the horse stables, pet waste stations in residential areas, and a pet waste station at the community dog park.
- Developed and distributed to the public educational brochures including the Stormwater Pollution Prevention Educational Flyer and the Pet Waste Pollution Prevention Brochure.
- Illicit discharges and sewer line leaks into the MS4 are being monitored through the IDDE program.

7.0 REFERENCES

JBLE–Eustis. 2020. *Final MS4 Program Plan for Joint Base Langley Eustis – Eustis*. Prepared by AECOM Technical Services, Inc. January 2020.

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ACRONYMS

AFCEC	Air Force Civil Engineer Center
BASH	Bird/Animal Aircraft Strike Hazard
BMP	Best Management Practice
EPA	Environmental Protection Agency
IDDE	Illicit Discharge Detection and Elimination
JBLE–Eustis	Joint Base Langley Eustis – Eustis
MS4	Municipal Separate Storm Sewer System
TMDL	Total Maximum Daily Load
VDEQ	Virginia Department of Environmental Quality
VPDES	Virginia Pollutant Discharge Elimination System
WLA	Wasteload Allocation