



COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

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December 9, 2016

By Email (felix.m.mariani3.civ@mail.mil)

Receipt Confirmation Requested

Mr. Felix M. Mariani
Chief, Environmental and Natural Resources Division
U.S. Army – Fort Belvoir
9430 Jackson Loop, Suite 100
Fort Belvoir, VA 22060

RE: Virginia Pollutant Discharge Elimination System (VPDES) MS4 Registration No. VAR040093
U.S. Army – Fort Belvoir
Local TMDL Action Plan Approval

Mr. Mariani:

The Virginia Department of Environmental Quality (DEQ) received a local TMDL Action Plan addressing the following TMDL for the above-referenced registration number on September 30, 2016. DEQ requested additional information on the action plan on November 10, 2016 and received Fort Belvoir's response and updated action plan on December 7, 2016. The action plan was submitted in accordance with Section I.B of the General VPDES Permit for Discharges of Stormwater from Small Municipal Separate Storm Sewer Systems (MS4).

The following Local TMDL Action Plan is approved and is an enforceable part of the MS4 Program Plan:

- Bacteria TMDL Action Plan, dated June 30, 2016 and revised December 2016, which addresses the Bacteria TMDL for the Lower Accotink Creek, approved by the U.S. EPA on December 18, 2008 and by the State Water Control Board on April 28, 2009.

Please note any future modifications to an approved local TMDL Action Plan shall be made in accordance with the Program Plan Modification Section of the MS4 General Permit (Section II.F).

Please contact Caitlin Shipman at (703) 583-3859, caitlin.shipman@deq.virginia.gov if you have any questions regarding this approval.

Respectfully,

A handwritten signature in blue ink, appearing to read 'Bryant Thomas'.

Bryant Thomas
Water Permits and Planning Manager

Cc (by electronic copy): Pamela Couch, U.S. Army – Fort Belvoir (pamela.j.couch2.civ@mail.mil)

**U.S. Army Garrison Fort Belvoir, Virginia
Bacteria Total Maximum Daily Load
Action Plan
For the Lower Accotink Creek Watershed**

For

**Virginia General Permit for Small Municipal
Separate Storm Sewer Systems
VPDES Permit #VAR040093**



**June 30, 2016
Revised December 2016**

**Regulated Small MS4: Fort Belvoir Military Installation
Fairfax County, Virginia**

**Regulated Small MS4 Operator: U.S. Army Garrison,
Fort Belvoir
9820 Flagler Road
Fort Belvoir, Virginia 22060**

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List of Acronyms

AW	American Water
BMP	Best Management Practices
BRAC	Base Realignment and Closure
CWA	Clean Water Act
DAAF	Davison Army Airfield
DEQ	Department of Environmental Quality
EPA	Environmental Protection Agency
FBNA	Fort Belvoir North Area
IDDE	Illicit Discharge Detection and Elimination
MS4	Municipal Separate Storm Sewer System
NPDES	National Pollutant Discharge Elimination System
SSO	Sanitary Sewer Overflow
TMDL	Total Maximum Daily Load
VADEQ	Virginia Department of Environmental Quality
VDOT	Virginia Department of Transportation
VPDES	Virginia Pollutant Discharge Elimination System
WLA	Waste Load Allocation

1. INTRODUCTION AND BACKGROUND

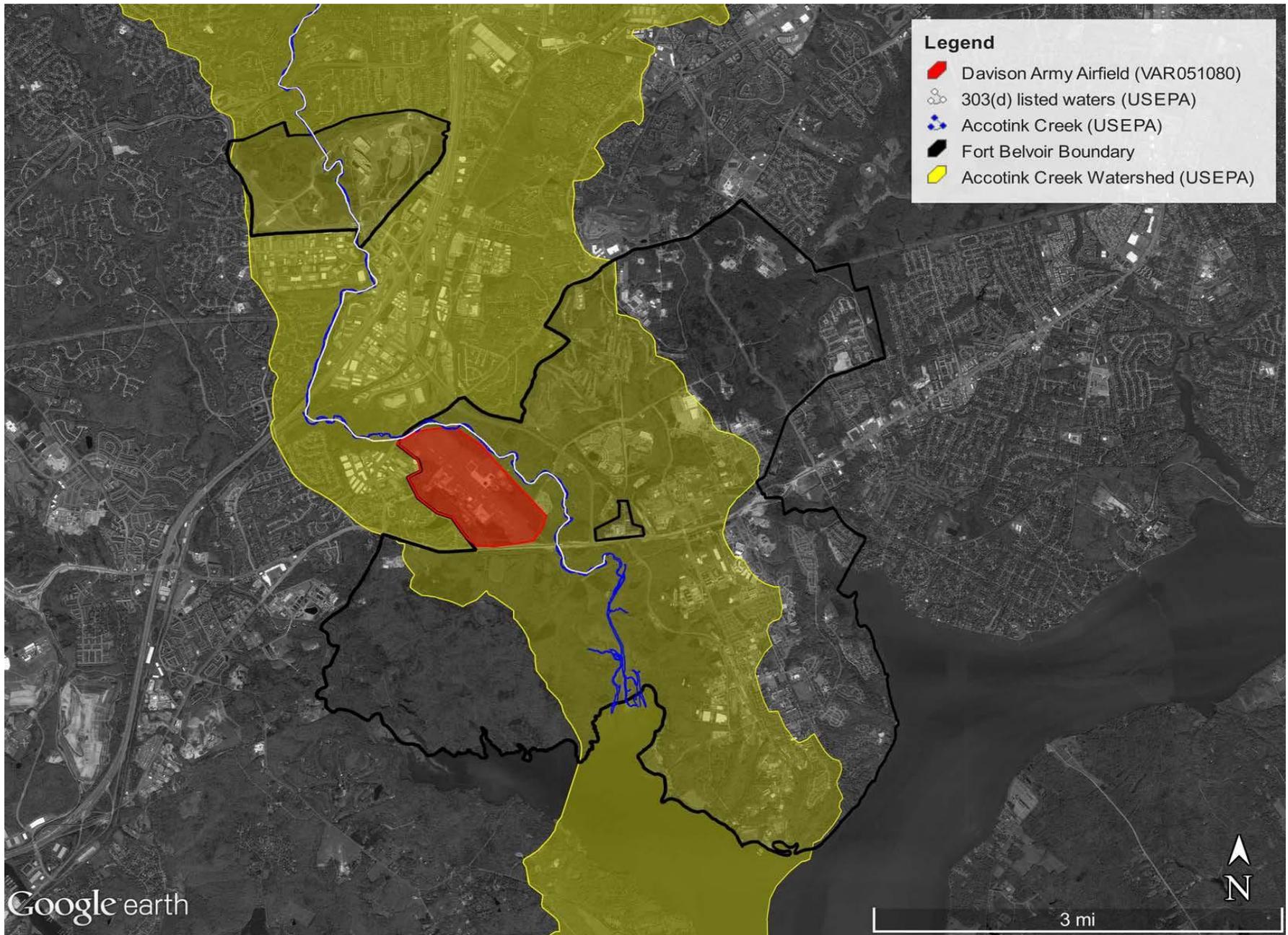
The U.S. Army Garrison Fort Belvoir is located in southeastern Fairfax County, Virginia, approximately 16 miles southwest of Washington D.C. and 80 miles north of Richmond, Virginia. Fort Belvoir's military history dates to the early 1900s, when the facility was known as Camp Belvoir and used as an Army rifle range and training camp. The post was re-named Fort Humphreys in 1922, and became Fort Belvoir in 1935. Since 1935, Fort Belvoir has supported major U.S. military operations throughout the world.

In recent years, Fort Belvoir has functioned primarily as an administrative and logistics support center for the Army and as a host to 150 mission partner organizations. The current population at Fort Belvoir includes approximately 49,000 military, civilians and contractor personnel and provides support services for approximately 68,000 military personnel, dependents and retirees in the region.

Fort Belvoir consists of approximately 8,500 acres and is divided into two separated land areas, as shown in Figure 1-1. The Fort Belvoir North Area (FBNA), located just northwest of I-95, encompasses roughly 800 acres; while the Main Post, located between I-95 and the Potomac River, accounts for the remaining acreage. U.S. Route 1 (Richmond Highway) further divides the Main Post into two distinct geographical areas, referred to as North Post and South Post (see Figures 1-2 and 1-3). All of Fort Belvoir, excluding Davison Army Airfield (DAAF), is covered under a General VPDES Permit for Discharges of Stormwater from Small Municipal Separate Storm Sewer Systems (MS4), MS4 Permit #VAR040093.

Davison Army Airfield (DAAF) covers about 455 acres of Fort Belvoir Main Post, with an operational area within the fence line of 350 acres. DAAF is covered entirely under a Virginia Pollutant Discharge Elimination System (VPDES) Industrial Stormwater General Permit (Permit #VAR051080). Therefore, DAAF is not included in the Fort Belvoir MS4 Permit or addressed in this TMDL action plan.

Fort Belvoir Bacteria TMDL Action Plan for the Lower Accotink Creek Watershed



Produced using EPA's MyWATERS KMZ and WATERS Geospatial Tools (U.S. Environmental Protection Agency (EPA), 2016)

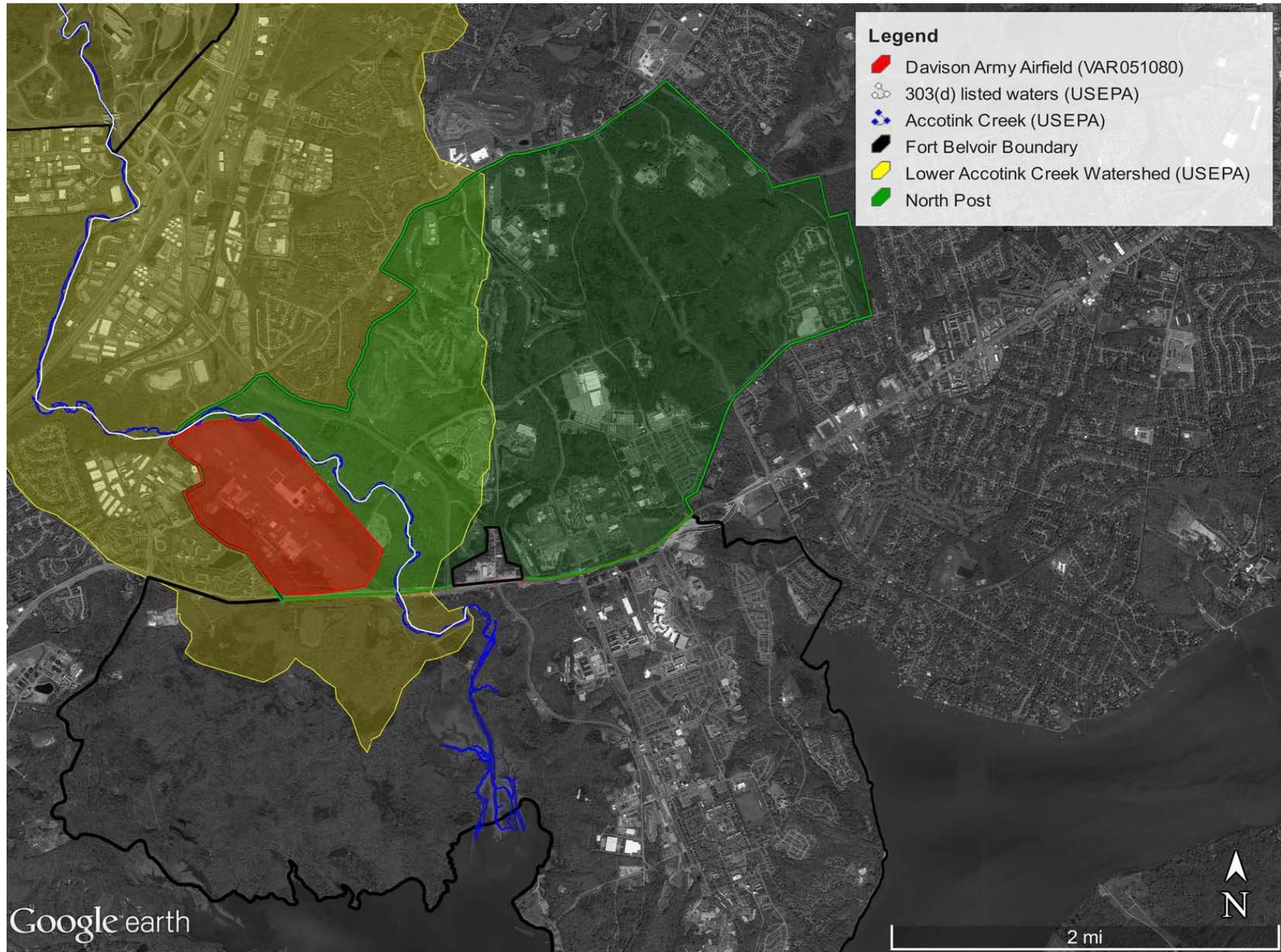


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Fort Belvoir**

Figure 1-1: Main Post and Fort Belvoir North Area

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Fort Belvoir Bacteria TMDL Action Plan for the Lower Accotink Creek Watershed



Produced using EPA's MyWATERS KMZ and WATERS Geospatial Tools (U.S. Environmental Protection Agency (EPA), 2016)

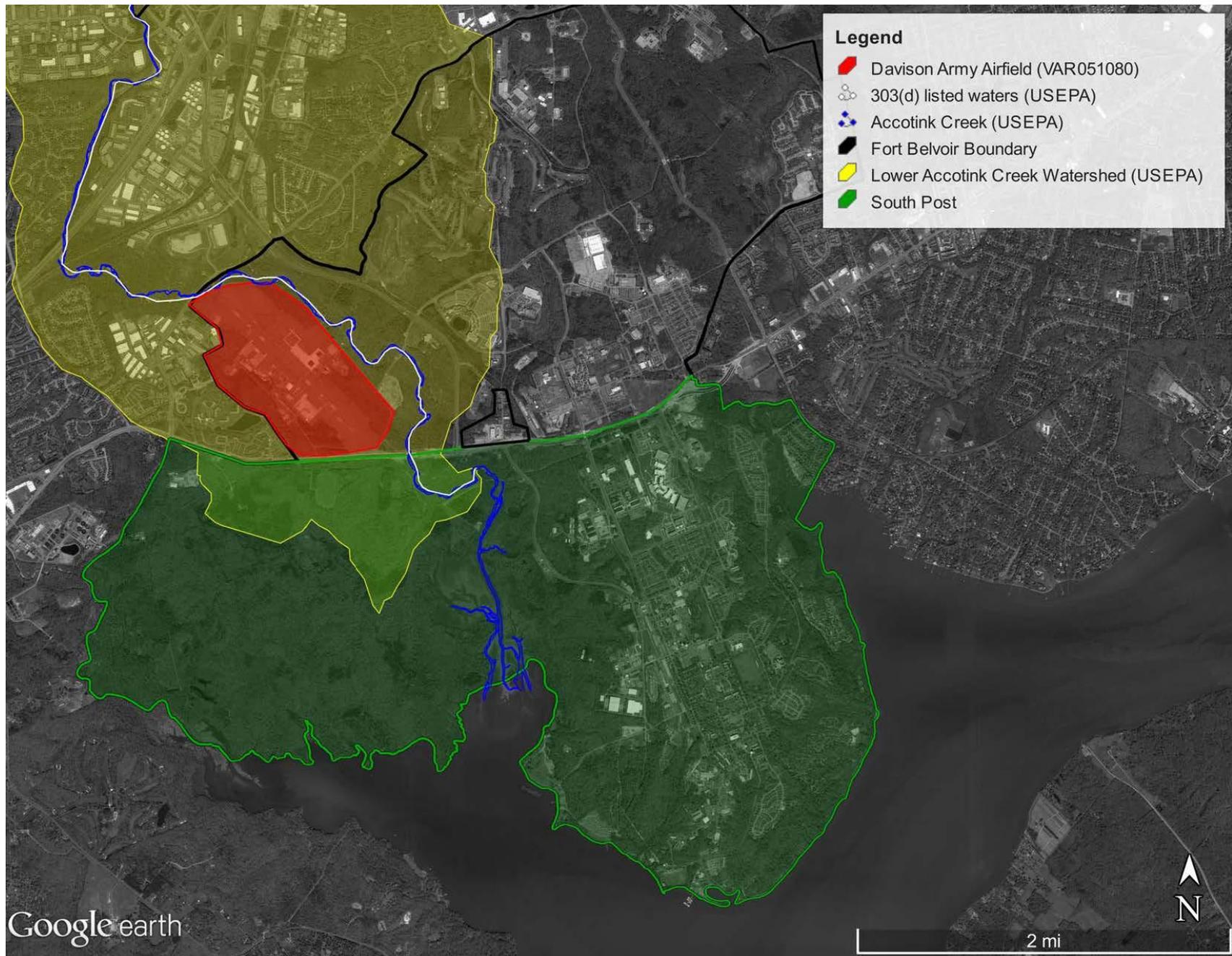


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Figure 1-2: Fort Belvoir North Post

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Fort Belvoir Bacteria TMDL Action Plan for the Lower Accotink Creek Watershed



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Figure 1-3: Fort Belvoir South Post

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2. LEGAL AUTHORITIES

2.1 Section 303(d) of the Clean Water Act (CWA) and the U.S. Environmental Protection Agency's (EPA's) Water Quality Planning and Management Regulations (40 CFR Part 130)

The CWA and EPA's Management regulations direct States to identify and list water bodies in which current required controls of a specified pollutant are inadequate to achieve water quality standards. For the Commonwealth of Virginia, Impaired waters are outlined in the biennial Virginia Water Quality Assessment 305(b)/303(d) Integrated report. Segment VAN-A15R-01 of Accotink Creek (See Figure 2-1) was first listed as impaired for bacteria on Virginia's 2004 305(b)/303(d) Water Quality Assessment Integrated Report.

States are then required to establish a Total Maximum Daily Loads (TMDLs) for water bodies that are exceeding water quality standards. TMDLs represent the total pollutant loading that a water body can receive without violating water quality standards. The TMDL process establishes the allowable loadings of pollutants waste load allocation (WLA) needed to achieve and maintain water quality standards. In September 2008, the Bacteria TMDL for the Lower Accotink Creek Watershed was developed by Virginia Department of Environmental Quality, George Mason University and The Louis Berger Group, Inc. The U.S. EPA approved the TMDL on December 18, 2008 and the State Water Control Board approved the TMDL shortly after on April 28, 2009. The allocated *Escherichia coli* (E. coli) load from five MS4 sources in the Lower Creek Watershed was set at 1.73E+12 cfu/year. The five MS4 sources contributing to the load included the Phase I permit for Fairfax County and four Phase II permits for VDOT Northern Urban Area, Fairfax County Public Schools, Northern Virginia Community College and Fort Belvoir. (VADEQ, 2008)

2.2 40 CFR §122.44 Establishing limitations, standards and other permit conditions applicable to State NPDES programs

Section (d) (1) (vii) (B) requires that all new or revised National Pollutant Discharge Elimination System (NPDES) permits must be consistent with assumptions and requirements of any applicable TMDL WLA. The Commonwealth of Virginia, Virginia Department of Environmental Quality (VADEQ), regulates the management of pollutants carried by stormwater runoff under the Virginia Pollutant Discharge Elimination System (VPDES) program.

2.3 Fort Belvoir General VPDES Permit for Discharges of Stormwater from Small Municipal Separate Storm Sewer Systems (MS4), MS4 Permit #VAR040093

As required by Fort Belvoir's MS4 permit, TMDL WLAs are specifically addressed through the iterative implementation of programmatic Best Management Practices (BMPs). Only failure to implement the programmatic BMPs identified in this plan would be considered a permit noncompliance issue. The special conditions found within the General VPDES Permit for Discharges of Stormwater from Small Municipal Separate Storm Sewer Systems at 9VAC-25-890-40 Section I. B. are stated as follows:

“Special conditions for approved total maximum daily loads (TMDL) other than the Chesapeake Bay TMDL. An approved TMDL may allocate an applicable wasteload to a small MS4 that identifies a pollutant or pollutants for which additional stormwater controls are necessary for the surface waters to meet water quality standards. The MS4 operator shall address the pollutants in accordance with this special condition where the MS4 has been allocated a wasteload in an approved TMDL.

The operator shall maintain an updated MS4 Program Plan that includes a specific TMDL Action Plan for pollutants allocated to the MS4 in approved TMDLs. TMDL Action Plans may be implemented in multiple phases over more than one state permit cycle using the adaptive iterative approach provided adequate progress to reduce the pollutant discharge in a manner consistent with the assumptions and requirements of the specific TMDL wasteload is demonstrated in accordance with subdivision 2 e. of this subsection. These TMDL Action Plans shall identify the best management practices and other interim milestone activities to be implemented during the remaining terms of this state permit.”

2.4 Fort Belvoir Bacteria TMDL Action Plan

This action plan addresses the requirement to minimize the pollutant of concern, E. coli, by identifying legal authorities, Best Management Practices (BMPs) and measurable goals for achieving compliance in accordance with 9VAC25-890-40, Section I. B. Special Conditions for Approved Total Maximum Daily Loads of the General VPDES Permit for Discharges of Stormwater from Small Municipal Separate Storm Sewer Systems (MS4), MS4 Permit #VAR040093.

2.5 Fort Belvoir Policy Memorandum #28, Environmental Policy

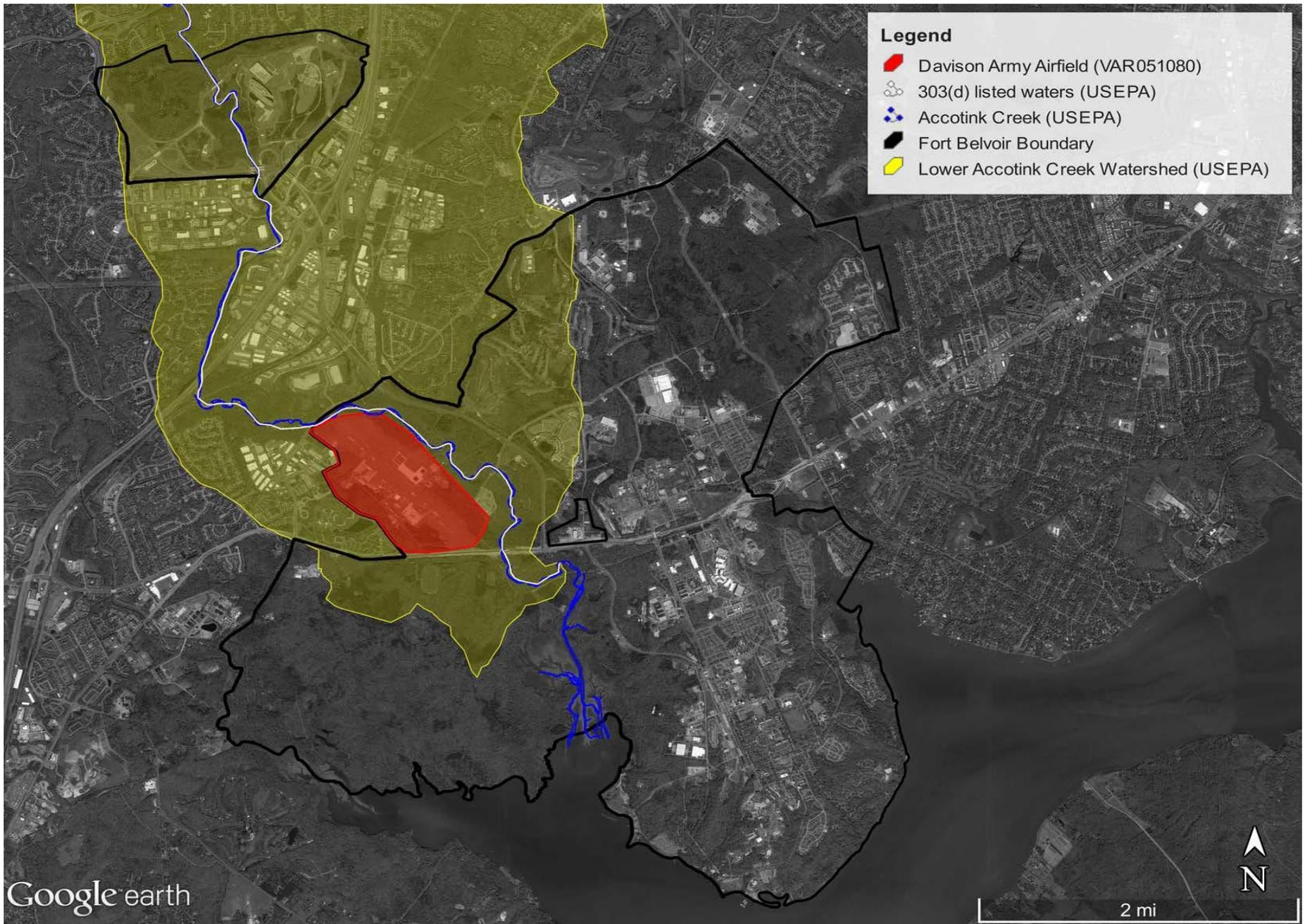
Section 4.a. of this policy states “Fort Belvoir is committed to the protection of the environment, within mission and funding constraints, and will be accountable for its decisions. In support of this environmental policy, Fort Belvoir will: Comply with legal and other requirements applicable to the conduct of Fort Belvoir’s mission while continually improving Fort Belvoir’s environmental performance.” This policy memorandum may be found in full at:

http://www.belvoir.army.mil/Belvoir/PL/ PDF_TableofContentsPL.html.

2.6 Fort Belvoir Regulation 40-905, Medical Services Animal Control

This regulation governs prohibition of feeding wildlife. Section 8.b. of this regulation states “Except for the use of bird feeders, all persons are prohibited from feeding any wildlife on the installation without approval of the Department of Defense (DOD) Game Warden, 806-4007.”

Fort Belvoir Bacteria TMDL Action Plan for the Lower Accotink Creek Watershed



Produced using EPA's MyWATERS KMZ and WATERS Geospatial Tools (U.S. Environmental Protection Agency (EPA), 2016)



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Figure 2-1: Lower Accotink Creek Impaired Waters

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3. LOWER ACCOTINK CREEK WATERSHED AND LAND USE

The Lower Accotink Creek Watershed receives drainage from approximately 11,700 acres of land which includes about 1,700 acres of Fort Belvoir Main Post (including 350 acres belonging to DAAF) and most of FBNA's 800 acres.

FBNA is split almost evenly in the middle by the Accotink Creek. Currently, land use for FBNA is designated as Professional/Institutional use. East of Accotink Creek is a campus for a major mission partner and associated support facilities (fire department and child development center). Land use west of Accotink Creek at FBNA is minimal with approximately 300 acres that are undeveloped. Virginia Department of Transportation (VDOT) holds right-of way for the portion of land to the west associated with Fairfax County Parkway see Figure 3-1. Fairfax County holds a Public Utility easement for a major sanitary sewer gravity line that runs along the Accotink Creek on FBNA. (Atkins, 2014)

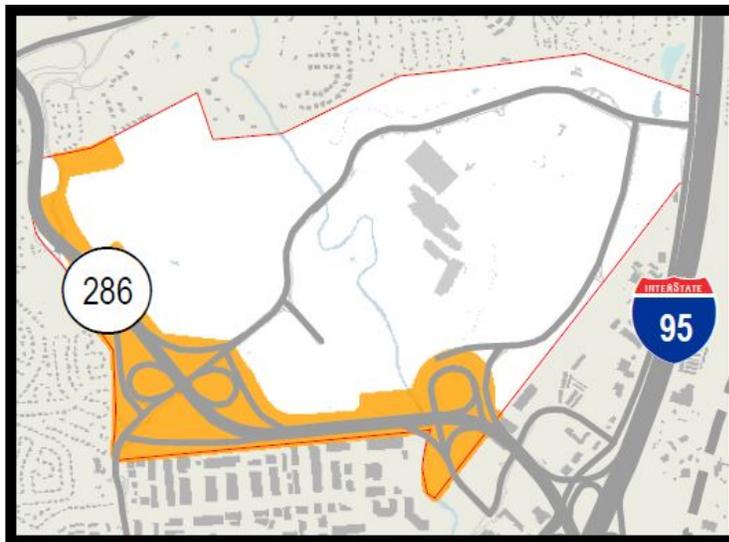


Figure 3-1: VDOT Right-of-way at FBNA

On Fort Belvoir Main Post, this watershed includes a major mission partner requiring a secure campus, a 36-hole golf course, DAAF, and a portion of the Accotink Bay Wildlife Refuge. Accotink Creek runs east of the Wildlife Refuge and DAAF, which is covered under industrial VPDES Permit #VAR051080, and therefore is not addressed in this TMDL Action Plan. Richmond Highway runs east of the creek and provides access to the North Post and Route 1, VDOT holds right-of way and maintains both Fairfax County Parkway and Route 1. Further east, the land use is divided between Community (area housing the golf course) and Professional/Institutional. Located on North Post between Fairfax County Parkway and Gunston Road, the professional/ institutional area houses the major mission partner and is one of the three large research and development (R&D) clusters on Main Post. (Atkins, 2014)

4. BACTERIA SOURCE ASSESSMENT

Potential bacteria sources identified in the Bacteria TMDL for the Lower Accotink Creek Watershed dated September 2008 include the following: permitted sources, human sources, livestock, and land application of manure and Biosolids, wildlife and pets. The location and boundary of the Lower Accotink Creek Watershed receiving discharge from Fort Belvoir is shown in Figure 2-1. Potential bacteria sources from Fort Belvoir, within this watershed, were considered and their bacteria contribution is detailed below.

4.1 Permitted Facilities

Fort Belvoir does not own nor operate any sewage treatment works. All domestic sewage generated by Fort Belvoir goes to the Noman M. Cole Jr. Pollution Control Plant located at 9399 Richmond Highway, Lorton, Virginia 22079. Therefore, sewage treatment works are not considered a bacteria source in the portion of the Lower Accotink Watershed encompassing Fort Belvoir.

4.2 Wildlife

There are no anthropogenic activities which would influence the congregation of wildlife. Fort Belvoir Regulation 40-905 dated February 2000 prohibits feeding of wildlife in section 8.b.

“Except for the use of bird feeders, all persons are prohibited from feeding any wildlife on the installation without the approval of the Department of Defense (DOD) Game Warden”

Therefore, direct in stream loading from wildlife because of anthropogenic activities is not considered a substantial bacteria source in the portion of the Lower Accotink Watershed encompassing Fort Belvoir.

4.3 Land Application of Manure

Fort Belvoir does not conduct land application of manure on either Fort Belvoir North Area or Fort Belvoir Main Post. Therefore, land application of manure is not considered a bacteria source in the portion of the Lower Accotink Watershed encompassing Fort Belvoir.

4.4 Land Application of Biosolids

Fort Belvoir does not conduct land application of Biosolids on either FBNA or Fort Belvoir Main Post. Therefore, land application of Biosolids is not a bacteria source in the Lower Accotink Creek Watershed on Fort Belvoir.

4.5 Livestock

Fort Belvoir does not own or care for livestock within the Lower Accotink Creek Watershed. Therefore, livestock is not considered a bacteria source in the portion of the Lower Accotink Watershed encompassing Fort Belvoir.

4.6 Sanitary Sewer Systems

4.6.1 Main Post

Fort Belvoir facilities located on Main Post within the Lower Accotink Watershed are connected to a sanitary sewer system which is privatized. American Water (AW) Military Services purchased facilities and equipment from the U.S. Army on March 3, 2010. Because the assets were located on Fort Belvoir, the U.S. Army entered into a 50-year lease agreement with AW to allow them to own, operate, construct, repair, replace and maintain the system that was purchased. AW is responsible for reporting any sanitary sewer overflows to the Virginia Department of Environmental Quality. Under the Utility Privatization Contract, the U.S. Army pays AW for services. Public Utility Easements on the main post consist of a recently installed sewer force main that runs south of Route 1.

4.6.2 Fort Belvoir North Area

Fort Belvoir North Area was not privatized during this Utility Privatization effort because construction for facilities at FBNA was not completed until September 2011 and later under the Base Realignment and Closure action (BRAC). The FBNA sanitary sewer system services a child development center, an office complex and a Fire Department. Portions of the FBNA sanitary sewer system tie into a main Fairfax County sewer line that runs adjacent to Accotink Creek with portions of the line being located on Army land on the east side of Accotink Creek. In addition, portions of the FBNA sanitary sewer system tie into a major Fairfax County trunk line runs adjacent to the northern boundary of FBNA which services housing areas to the north of FBNA property line. Public Utility Easements at FBNA consists of a major sanitary sewer gravity line that runs along Accotink Creek on FBNA. These County-maintained lines flow to the Noman M. Cole Jr. Pollution Control Plant located at 9399 Richmond Highway, Lorton, Virginia 22079.

Sanitary sewer overflows (SSO) are not considered to be a source of bacteria at FBNA because Fairfax County is responsible for all SSOs associated with these two mainlines. The sanitary sewer system at FBNA owned by the Army is not currently considered to be a bacteria source because the system is relatively new (Construction completed September 2011 and later.). A re-evaluation of this assessment will need to be conducted during the next 5-year permit cycle for the MS4 permit.

4.6.3 Septic Systems

There are no known facilities that are on septic systems. Therefore, failed septic systems are not considered a bacteria source in the portion of the Lower Accotink Watershed encompassing Fort Belvoir.

4.7 Pets

There are no residential housing areas located at either FBNA or the portion of Fort Belvoir Main Post within the Lower Accotink Creek Watershed. However, on June 30, 2016 construction of a Working

Animal Support Building was completed on the western side of FBNA. This facility houses 10 working dogs. As per Fort Belvoir Regulation 40-905 section 5.d and 5.e.

“Pet owners must immediately clean-up and properly dispose of all fecal waste created by their pet animal in public areas, yard areas of other residents and in their own yard. All feces an animal generates will be disposed of in a trash receptacle within 24-hour period in order to reduce disease being spread from animals to humans.”

“Pet owners must not allow their pet animals to create an unsightly, offensive, or potentially unhealthy environment with their excrement. Excrement must be picked up and disposed of daily.”

As such, handlers are responsible for immediately picking up dog waste using the bags and placing the waste in the disposal container. A dog waste disposal container is permanently mounted outside in the dog exercise area. Once full, the container is emptied into a dumpster for final disposal. Because handlers dispose of dog waste correctly, pet waste is not considered a substantial bacteria source in the portion of the Accotink Watershed encompassing Fort Belvoir.

5. BEST MANAGEMENT PRACTICES

Best Management Practices (BMPs) can be either structural/engineered or operational control measures that are put in place in order to mitigate the effects of pollutant sources on water quality. The selection of BMPs is dependent on the site characteristics and the pollutant of concern. For this TMDL Action Plan the pollutant of concern is bacterial loads largely due to fecal coliform. As discussed in Section 4, Bacteria Source Assessment, none of the considered sources caused a substantial bacterial discharge to the Lower Accotink Creek Watershed. Therefore, the focus of the BMPs selected for implementation will be operational controls and involve educating Fort Belvoir tenants, partners, employees, and residents in the bacteria water quality issue and what their role is in mitigating and reporting.

5.1 Recommended BMPs for TMDL Compliance

BMP BAC.1 Bacteria TMDL Action Plan Revision and Reporting

- ✚ **Measurable Goal:** In permit year 4, post approved Bacteria TMDL Action Plan on Fort Belvoir website and report on implementation of TMDL Action Plan in the MS4 Annual Report. In permit year 5, the Bacteria TMDL Action Plan shall be reviewed and revised, as needed, for the MS4 reapplication package due to VADEQ at least 90 days before the expiration date of the existing permit.
- ✚ **Reporting and Record Keeping:** In the annual report, provide a narrative on the progress of implementation.
- ✚ **Responsible Party:** DPW ENRD

BMP BAC.2 Incorporate Bacteria TMDL information into MS4 program Written Training Plan

- ✚ **Measurable Goal:** In permit year 4, revise the written training plan to Incorporate Bacteria TMDL information. . Training shall specifically highlight sources of bacteria, how to report sanitary sewer overflows, and bacteria impacts on water quality. Target audience will include military, civilian and contractor personnel performing work on the installation. In permit years 4 and 5, implement training plan.
- ✚ **Reporting and Record Keeping:** In the annual report, provide a narrative on the progress of development and implementation to include the percent of target audience reached.
- ✚ **Responsible Party:** DPW ENRD

BMP BAC.3 Public Education and Outreach

- ✚ **Measurable Goal:** In permit year 4, revise the Public Education and Outreach Plan to incorporate the goal to publish one article annually in the *Fort Belvoir Eagle* that

discusses the bacteria water quality issue, sources of bacteria, reporting information and steps that can be taken to reduce bacteria sources. In permit years 4 and 5, publish fact sheets, articles and notices in the *Eagle* and other sources about the bacteria water quality issue.

 **Reporting and Record Keeping:** In the annual report, provide a narrative on the progress.

 **Responsible Party:** DPW ENRD

5.2 Illicit Discharge Detection and Elimination Program

In addition to the Bacteria BMPs listed above, Fort Belvoir implements an Illicit Discharge Detection and Elimination (IDDE) Program, in accordance with Section II.B.3 of the MS4 General Permit. The following BMPs are already being implemented under this IDDE program that relate to reducing bacteria loads:

- **Annual Outfall Reconnaissance Inventory:** In accordance with the *U.S. Army Fort Belvoir, Virginia Illicit Discharge Detection and Elimination Plan* dated June 2015, 50 outfalls are screened per year for the presence of illicit discharges which includes sanitary sewage;
- **IDDE Training:** Illicit Discharge Detection and Elimination Training is provided on an annual basis to various audiences either through classroom training or through publication of newspaper articles in the *Fort Belvoir Eagle*. Emphasis is placed on preventing and reporting illicit discharges, including reporting of sanitary sewer overflows (SSO).
- **Weekly Windshield Inspections:** Weekly inspections are conducted to identify potential locations for intermittent illicit discharges or physical indications of any materials being discharged into surface drains. Results from inspections are used to identify organizations or personnel that would require IDDE training. If a sanitary sewer overflow is discovered during a weekly windshield inspection, the SSO is reported immediately to the appropriate operator of the particular sanitary system.

5.3 Implementation and Assessment of the Action Plan

Educational programs work best when they increase the level of environmental awareness in the target audience and convey a clear link between people's everyday activities and stormwater quality impacts. The program should raise the environmental awareness and knowledge level of program participants with respect to stormwater management issues. Education programs can also increase the public scrutiny of industrial and municipal practices, with a resulting increase in the reporting of incidents such as spills or illegal discharges to storm drains.

Fort Belvoir will implement the program components discussed above to order to bring awareness to and reduce the potential of E.coli discharge to surface waters from installation personnel. As per MS4 Permit Section I.B.2.e, this Action Plan will be assessed for its effectiveness through the MS4 annual

reporting process which covers activities that occur from July 1st to June 30th, and it is due to DEQ by October 1st of each year. Both the Program Plan and Annual Report will be updated to include the components of the Bacteria TMDL Action Plan, including the status of implementation, a description of activities, and an assessment of their effectiveness in lowering E.coli discharges. Table 1 below summarizes the measures used to address each component.

Table 1: Measures of Effectiveness

MS4 Program Plan BMP	Description	Measure of Effectiveness
BMP 1.1	Develop and Implement a Public Education and Outreach Plan	Prepare a Pet Waste BMP fact sheet for distribution in facility SWPPPs; Review Fort Belvoir Responsibility Guide for new housing residents and revise fact sheets, as needed;
BMP 2.1	Public Participation	Participate in local activities (i.e. Career Day, Earth Day; provide brochures on pet waste and bacteria water quality concerns
BMP 2.2	Publish the MS4 Program Plan and Annual Reports on the Fort Belvoir Website	Maintain Updated Plans and Annual reports on Fort Belvoir website
BMP 3.2	Implement and Update the IDDE plan.	Screened outfalls with potential bacteria discharges investigated and resolved; Update Training Plan, as needed, to address organizations identified through windshield inspections
BMP 6.1	Develop and Implement Written Training Plan	Update training to include Bacteria TMDL and reach at least 20% of target audience annually
BAC BMP.1	Bacteria TMDL Action Plan Revision and Reporting	Maintain Updated Bacteria TMDL Action Plan on website; Implementation status in Annual Reports
BAC BMP.2	Incorporate Bacteria TMDL information into MS4 program Written Training Plan	Update and revise Written Training Plan to incorporate Bacteria TMDL information
BAC BMP.3	Public Education and Outreach	Publish at least 1 article annually on water quality issues associated with bacteria loads

References

- Atkins. (2014). *Real Property Master Plan; Installation Vision and Development Plan*. Fort Belvoir, Virginia: Installation Management Command.
- U.S. Environmental Protection Agency (EPA). (2016). EPA MyWATERS Mapper. Fort Belvoir, Virginia, Region III.
- VADEQ. (2008). *Bacteria TMDL for the Lower Accotink Creek Watershed*. Richmond: Virginia Department of Environmental Quality.