October 2022

Annual MS4 Report – FY22
VSMP Permit No. VA0088595

Cover Photo: Hylbrook Park Stream Restoration

Submitted by:
Prince William County
Department of Public Works

Table of Contents

Appendices

Appendix A - Site Inspector and Plan Reviewer Certifications
Appendix B - Land Disturbance Permits Issued
Appendix C - List of County-Maintained Roadways and Parking Lots
Appendix D - Illicit Discharge Summary
Appendix E - Oil and Household Hazardous Waste Disposal Summary
Appendix F - Spill Response Summary
Appendix G - Industrial and High Risk Inspection Summary
Appendix H - County-Maintained SWM Facilities - Inspection Summary
Appendix I - Privately-Maintained SWM Facilities – Inspection Summary
Appendix J - Summary of SWM Facilities Added to Inventory
Appendix K - Clean Water Partners Annual Report
Appendix L - Summary of County Training Program
Appendix M - Dry Weather Screening – Inspection Summary
Appendix N - Wet Weather Screening Reports
Appendix O - Annual VDOT Coordination Meeting – Participant List
Appendix P - Biological Monitoring Report
Appendix Q - In-Stream Monitoring Summary
Appendix R - Floatables Monitoring Report
Appendix S - Chesapeake Bay TMDL Reductions Summary
Appendix T – Local TMDL Action Plan Implementation
Appendix U – Roles and Responsibilities
Appendix V - Annual Program Budget

Certification

"I certify under penalty of law that this document and all attachments were prepared under my direction of 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."

Benjamin Eib

Benjamin Eib
Senior Environmental Program Manager

9/30/2022

Date

I. Program Implementation

1. MS-4 Program Review and Updates

The Prince William County MS-4 Program plan describes all programs and actions taken by the County to ensure compliance with Virginia Stormwater Management Program (VSMP) MS-4 Permit # VA0088595. Prince William County permit expired on December 16th, 2019 and the County is operating under an administrative continuance of the existing Permit. The County is looking forward to working with DEQ on the upcoming new Permit.

2. Planning

The updated Program Plan can be found online at the following website:

https://www.pwcva.gov/department/environmental-services/community-ms-4-program

3. MS4 Program Implementation

a. Construction Site Runoff and Post Construction Runoff

BMP 1 – Continue to implement an Erosion and Sediment Control Program: Prince William County continues to implement the erosion and sediment control program consistent with the Virginia Erosion and Sediment Control Law §62.1-44.15:51 of the Code of Virginia and Virginia Erosion and Sediment Control Regulations 9VAC25-840 et seq. During DEQ's audit of Prince William County in November of 2017, the E&S program was thoroughly inspected and found to be in compliance. The EPA also audited Prince William County's E&S program in August of 2019 and found the program to be in compliance. An E&S permit is required when the land disturbance exceeds 2,500 square feet.

Our stormwater management program is consistent with the Virginia Stormwater Management Act §62.1-44.15:24 of the Code of Virginia and Virginia Stormwater Management Program Regulations 9VAC25-870 et seq. The Virginia Stormwater Management Program (VSMP) regulations became effective on July 1, 2014. These regulations are contained in Section 700 of the County's Design & Construction Standards Manual (DCSM), and Chapter 23.2, Article IV – Storm Water Management in Prince William County Code. The SWM requirements for Development on Prior Developed Lands are consistent with the State regulations. The County's SWM regulations are more stringent than the State regulations only in certain areas as described below:

VSMP regulations allowed the localities to adopt criteria more stringent than VSMP with proper justification based on specific watershed studies. Alternatively, more stringent regulations that pre-existed prior to January 1, 2013 were exempt. Based on this exemption, Prince William County retained more stringent regulations on flood control in critical watersheds to control the 25-year storm to prevent localized flooding events. In addition, the County retained its authority to require the control of the 100-year flood, for proposed developments located upstream of

existing residential developments with required minimum lot sizes less than one acre and adjoining special flood hazard areas. These requirements are in addition to the required control of 2- and 10-year frequency storms per state regulations.

Prince William County employs 11 full-time site inspectors and an E&S Program Manager. In addition, the County has five full-time engineers to review the land development plans for E&S and SWM requirements. All our site inspectors and plan reviewers are duly certified for erosion and sediment control and SWM. In Prince William County, maintaining these certifications is a condition for continued employment. Prince William County is committed to providing continuing education and training to its employees on E&S and SWM. For a list of site inspector certifications, please see Appendix A.

The land development plan review, inspection, and enforcement of E&S and SWM regulations are performed by a single agency in Prince William County. The Environmental Services Division of the Department of Public Works is directly responsible for administering the program. Having a streamlined program under one agency is very helpful in ensuring the consistent interpretation and enforcement of applicable ordinances. The County continues to require the Responsible Land Disturbance (RLD) certifications prior to issuing the land disturbance permits. The County's E&S Administrator conducts periodic joint meetings with the plan reviewers and the site inspectors for the continued improvement of the programs.

Prince William County has developed a mobile application for in E&S and VSMP inspections. This system runs on tablet devices provided to each site inspector. Follow up inspections, violation notices, and inspection checklists are all managed through the mobile application. This application has enhanced the inspection efficiency and brought added consistency among all site inspectors.

For the period July 1, 2021 thru June 30, 2022, Prince William County approved a total of 125 land development plans with a cumulative land disturbance of 1,697.9 acres. Refer to Appendix B for a list of land disturbance permits issued during the period.

Table 1 summarizes the number of land disturbing activity inspections conducted and the number and type of each enforcement action taken for Erosion & Sediment Control.

Table 1 – FY22 Erosion and Sediment Control Program Summary

FY22	Site Inspections	Inspection Notice	Violations	Notice to Comply	Stop Work
Total	**9,044**	**158**	**108**	**8**	**0**

Our stormwater management program is consistent with the Virginia Stormwater Management Act §62.1-44.15:24 of the Code of Virginia and Virginia Stormwater Management Program Regulations 9VAC25-870 et seq.

Prince William County continues to implement a robust program to address the post-construction discharges from new developments and redevelopments by ensuring the long-term operation and

maintenance of these SWM controls. All the county-maintained and the county-owned facilities are inspected annually. The County inspects all the privately-maintained SWM facilities once within the 5-year permit cycle. The owners of these facilities receive the County's inspection reports along with the identification of deficiencies that must be corrected within the specified deadline. Staff conducts follows-up inspections to ensure maintenance and seeks the County Attorney's assistance as necessary for enforcement.

b. Retrofitting on Prior Developed Lands

BMP 1 – Implementation of TMDL priority Projects: The County has completed the process of implementing all of its priority projects. A list of these projects can be found in Table 2 below. For a detailed summary, please see Section III.1.

Table 2 – Priority Projects by Completion Year

Number	Project Name	Completion Year
1	SWM Facility No. 99 – Water Quality Retrofit	FY16
2	Hylbrook Park	FY16
3	SWM Facility No. 28 – Water Quality Retrofit	FY17
4	Reach 5 Stream Restoration	FY17
5	Dewey's Creek Reach 4	FY17
6	East Longview	FY17
7	SWM Facility No. 489	FY18

BMP 2 – Implementation of Non-Priority Projects: During FY21 two additional non-priority projects were completed: SWM Facility #386 Retrofit and Powells Creek Phase 1 Stream Restoration. See Section III.1 for more information.

c. Roadways

BMP 1 – Maintain Accurate List of Prince William County Owned Roadways: Although the Virginia Department of Transportation (VDOT) maintains a majority of the roadways and right of way areas within Prince William County, the County is responsible for the maintenance of some roadways and parking lots. VDOT operates under its own Phase II stormwater permit, and coordination regarding issues with MS-4 physical-interconnectivity is required as part of both permittee's MS-4 requirements (see section II.m). The County currently operates and maintains parking lots associated with County facilities.

As part of its permit responsibilities PWC has generated a list of all County maintained parking lots, streets, and roadways and the acres treated/not treated by BMPs. This list is provided in Appendix C. The County has 94 total parcels with impervious parking lots or roads. There are 53 parcels containing County maintained impervious roadways totaling 13 miles or 43.7 acres, in addition, there are 87 parcels with impervious parking lots totaling 132.5 acres. Some parcels may contain both sections of impervious roadways and parking lots.

BMP 2 – Good Housekeeping Practices on County Maintained Roadways: Prince William County contracts out maintenance activities for County maintained parking lots, streets, and roadways.

These activities include sweeping, line painting, and asphalting. No aggregate materials are stored as part of B&G roadway maintenance activities at this time.

Asphalt maintenance to parking lots and roadways are scheduled to be performed cyclically, with the average asphalt lifespan of 17 years. Each lot and roadway is listed for evaluation every fiscal year. Paint maintenance to parking lots is performed every 4 years. Street sweeping to parking lots is scheduled to be performed every 2 years. All maintenance activates are designed to conform to good housekeeping and pollution prevention practices in a manner to minimize the discharge of pollutants.

Buildings and Grounds maintenance vehicles are stored in a manner to reduce the discharge of pollutants. Vehicles are serviced and repaired by PWC Fleet Management Division and are tracked by GPS to provide feedback on fuel usage and routing. This is designed to improve efficiency and minimize pollutant discharge.

Prince William County established a county-wide IDE (Illicit Discharge Elimination) policy to promote good housekeeping practices across all municipal facilities.

BMP 3 – Good Housekeeping Practices for Winter Weather Maintenance: Prince William County Buildings and Grounds is responsible for snow removal at all county facilities maintained by Buildings and Grounds. Snow removal activities are not performed on any other County maintained roads, streets, or parking lots. Salt, sand, and calcium chloride are the specified materials used in snow removal activities. Any materials used for deicing and sanding activities are stored and maintained in a manner to prevent runoff from precipitation.

Prince William County established a county-wide IDE policy to promote good housekeeping practices across all municipal facilities.

d. Pesticide, Herbicide, and Fertilizer Application

Prince William County Public Works will promote and encourage the proper use, application, and disposal of pesticides, herbicides and fertilizers by public, commercial, and private applicators and distributors. Working with the Virginia Cooperative Extension Service, their staff help support Prince William County applicators and distributors with proper training and coordination with the Virginia Department of Agriculture and Consumer Services (VDACS)

- VDACS provides ongoing communication with all certified applicators and distributors.
- The Virginia Cooperative Extension Service provides training and education on the use, application and disposal of pesticides, herbicides, and fertilizers.

There is an annual collection to properly dispose of the materials in the state. It is held in a different region each year. The Cooperative Extension works with our local applicators and distributors to ensure they are aware of the collection.

BMP 1 – Identify Nutrient Applied over County Lands: Prince William County is dedicated to minimizing the effects of pesticides, herbicides, and fertilizer use on the Chesapeake Bay. The

County has identified all lands of which nutrients are applied to a contiguous area of more than one acre. The latitude and longitude of these lands will be reported to DEQ as requested. This data will be used to determine where Nutrient Management plans need to be developed. This list is displayed in the following section, along with the status of implementation for each site.

BMP 2 – Develop and Implement Turf and Landscape Management Plans: The County has urban nutrient management plans for all County lands where nutrients are applied to greater than one contiguous acre. Table 3 below provides a summary of lands within the MS-4 service area of which nutrients are applied to greater than one contiguous acre and the progress of the County's NMP. All plans should be up to date; however, confirmation of the current expiration dates could not be obtained prior to this report being published. The County will provide this information to DEQ as soon as available.

Table 3 – Nutrient Management Plan Implementation

Plan Name	Area Requiring Plan (Acres)	Latitude	Longitude	Plan Area (Acres)	Initial Plan Date	Current Plan Expiration Date
Braemar	2.46	38.7339	-77.5692	2.46	9/1/2017	8/31/2023
Fairmont	4.01	38.7817	-77.4908	4.01	10/1/2018	9/30/2024
Howison	9.82	38.6339	-77.3825	9.82	4/1/2017	3/31/2023
Western PD	7.27	38.7625	-77.5172	7.27	4/1/2015	2/27/2025
Total	**23.56**			**23.56**		

Staff certified in nutrient management planning develop turf and landscape management plans. These certifications are summarized in Table 4. All plan writer certifications should be up to date; however, confirmation of the current expiration dates could not be obtained prior to this report being published. The County will provide this information to DEQ as soon as available.

Table 4 – Name, certificate number, and expiration date of all nutrient management planners for Prince William County

Plan Writer	Certificate number	Expiration date
Paige Thacker	#759	8/31/2023
Nancy Berlin	#801	8/31/2024
Thomas Bolles	#732	2/28/2025
Kevin Flickinger	#842	8/31/2023

There are two golf courses owned by the County that are under an Integrated Pest management plan. Neither course is located within the County's MS4 services area. The following table identifies the acreage under an IPM.

County Land	Acres
Forest Greens GC	105.42
Prince William GC	114.33

BMP 3 – Develop and Employ Good Housekeeping Practices for storage transport and disposal of pesticides, herbicides, and fertilizers: The County works with its Construction and Operations Division, Buildings and Grounds Division, and Parks and Recreation Department to ensure good housekeeping practices are followed. This includes the storage, transport, and disposal of pesticides, herbicides, and fertilizers. All County staff working with pesticides, herbicides, insecticides, and fertilizers are trained and maintain required certifications. Good housekeeping practices are further defined in the Illicit Discharge Elimination (IDE) policy. The County evaluated each of these departments for compliance with this policy through IDE compliance reports.

BMP 4 – Develop and Employ Integrated Pest Management Plans**:** The County will track and employ Integrated Pest Management Plans where applicable.

e. Illicit Discharge and Improper Disposal

BMP 1 – Elimination of Illicit Discharges and Improper Disposal: The Prince William County's Illicit Discharge Detection and Elimination (IDDE) Program consists of elements designed to identify, mitigate, and prevent the release of non-stormwater discharges into its storm sewer system, and thus into State and Federal waters. Through development of County Fire Protection, Zoning, Building Development, and Stormwater Management Ordinances; Prince William County has prohibited the discharge of any non-stormwater element determined to be contributing significant amounts of pollutants to its storm sewer system. This includes the dumping or improper disposal of motor vehicle fluids, household hazardous wastes, sanitary sewage, grass clippings, leaf litter, and animal wastes. The County defines all discharges categorized as non-stormwater discharges, as well as those discharges not addressed as illicit discharges in accordance with part I.A.1.b) in permit #VA0088595 in Article II sec. 23.2-4.1 of Prince William County's Code of Ordinances. By issuance of a Notice of Violation, illicit discharges are required to be eliminated within 30 days of discovery, unless removal is not possible within that timeframe. In these instances, reasonable and prudent measures to minimize discharge will be taken and an action plan for mitigation/removal will be required.

Table 5 summarizes the results of the Illicit Discharge Program. The program is broken into 2 elements; Dry weather outfall inspections (see section II.1 for more details) and reported and observed discharges.

Table 5 – Illicit Discharge Program Overview (County-Wide) – FY22

Type		No.	Percentage
Dry Weather Outfall Inspections	Non-flowing	663	85.35%
	Flowing	110	14.14%
	Illicit Discharge	5	0.51%
	Total:	**778**	
Reported and Observed Discharge	Unfounded/ Minor	13	33.33%
	Illicit Discharge	26	66.67%
	Total:	39	
Total Illicit Discharges	Closed Cases	31	100%
	Active Cases	0	0%
	Total:	**31**	

During the reporting period, the County conducted dry weather screening at 778 outfalls and responded to 39 referrals of reported discharges. A total of 31 cases of illicit discharge were created, all of which have been closed. Refer to Appendix D for a list of Illicit Discharge cases handled by the County in FY22.

BMP 2 – Sanitary Sewer Exfiltration Abatement Program: Prince William County contains a mix of sanitary sewer systems and septic fields within its jurisdiction. The sanitary sewer system is maintained and operated by the Prince William County Sanitary Sewer Service Authority (PWCSA) and Virginia American Water (formally Dale Services Corporation), both which operate under their own VPDES permit. Prince William County is not responsible for the inspection and maintenance of the sanitary sewer system; however, PWC works closely with the PWCSA to identify and correct deficiencies within the sanitary sewer network. A summary of inspection types and results can be found in Appendix M. Prince William County Service Authority has an ongoing program, the infiltration and inflow check program, for identifying and correcting defects in the County's sanitary sewer systems, such as:

- Performing detailed engineering studies to locate defects in the gravity sewer system and recommend corrective action.
- Preparing construction documents for repair of the identified defects.
- Constructing necessary improvements.

The identification and correction of deficiencies is aided by Prince William County through its Dry Weather Monitoring, Storm Sewer Maintenance, General Stormwater Discharge, and Stream Restoration Programs. Cross connections, leaks, and other maintenance issues are discovered as non-stormwater discharges within the storm sewer network through the County's Dry Weather Monitoring and Storm Sewer Maintenance Programs. Citizens can report leaks and cross connections discovered discharging through the storm sewer system through the County's General Discharge program. Sanitary sewer infrastructure exposed to potential damage because of degrading streams and waterways are protected through projects associated with the County's Stream Restoration Program. Prince William County continues to identify, and report concerns to

the PWCSA when sanitary sewer system maintenance and repairs are needed. The PWCSA oversees all new construction on sanitary sewer system components and is responsible for the proper installation and operation of the system.

Prince William County is actively working on establishing working relationships with Virginia American Water with regards to their Infiltration and Inflow Program as well as with all Phase II MS-4 systems within the County's Jurisdictional area.

The Prince William Health District is responsible for the oversight and regulation of certain sewage and water environmental health issues within Prince William County. The Health Department oversees the permitting and inspection of septic systems. The Health District inspects and permits septic systems and requires onsite sewage disposal systems not requiring a Virginia Pollution Discharge Elimination System (VPDES) permit shall have pump-out accomplished at least once every five years. The Heath District also provides valuable public outreach to septic system owners, including information on septic system maintenance.

BMP 3 – Reduce the Discharge of Floatables: The Adopt-A-Spot program is a litter cleanup and recycling program sponsored by the Virginia Department of Waste Management. The Prince William County Soil & Water Conservation District (SWCD) undertakes stream cleanups under their Adopt-A-Stream program. Some stream clean-ups are done on an individual occasion basis rather than an on-going project, and these sites are often done for specific programs or purposes (Alice Ferguson Foundation, Earth Day, etc.). Adoptable areas under this program include parks, schools, vacant land and neglected public areas. Stream sites are located in the various sub-watersheds in Prince William County and some of cleaned up more than once per year.

The locations selected for the Adopt-A-Stream (AAS) clean-ups are selected from mainly public or park riparian properties, which have experienced historical problems with trash accumulation or have had specific problems in the past. Some private sites are also found in the areas. A list of potential sites is also maintained for future clean-up sites. This program not only identifies locations where floatables and trash are a concern in the County. It follows that assessment with a volunteer cleanup, which temporarily removes the trash and debris. The County's Litter Control and landfill personnel also provide assistance with picking and weighing of the trash after a cleanup to document the amount of trash removed from the site. If the cleanup is included in the AAS program, periodic clean-ups on a biannual or annual basis are conducted, thereby revisiting sites to see if the floatables condition has improved over time. SWCD also administers the County's Floatables Monitoring Program. This program is designed to assess refuse loading to 5 selected stream sites throughout the County. More information on this program can be found in section II.3.

Prince William County, in coordination with the Keep Prince William Beautiful (KPWB) Organization, developed a program dedicated to the labeling of storm drains throughout the County. These labels identify a storm drain as discharging to the Chesapeake Bay, as well as remind citizens not to dump items, fluids, etc., down the storm drain. Included in this program will be public outreach initiatives focused on eliminating illicit discharge and litter. KPWB partners with local volunteers to complete program objectives, involving local citizens and providing educational services.

Prince William County Public Works play a leadership role in controlling litter, as well as promote and publicize opportunities for citizens to help with local cleanup efforts. Public Works has established a Litter Control Crew to pick up highly traveled roadways of the county, handle cleanups of illegal dumpsites and haul material from community clean up events. Public Works also provides funding to Prince William Soil and Water Conservation District and Keep Prince William Beautiful to lead volunteers in cleaning up litter at designated locations and along streams.

- Residents
  - Encourage residents to use litter bags and dispose of waste properly through messages on web site, local government channel and through partner agencies
  - Offer community "dumpster days" where residents can drop off unwanted items from their home
  - Recruit residents to adopt a stream through the Prince William Soil and Water Conservation District
  - Recruit residents to participate in floatables monitoring at five sites monitored quarterly conducted by the Prince William Soil and Water Conservation District
  - The Soil & Water Conservation District implemented two Virginia Conservation Assistance Program (VCAP) projects in 2021–rain gardens treating approximately 600 gallons of storm water per inch of rainfall. They plan additional projects in the future.
  - Recruit residents to adopt a spot or participate in an organized cleanup event sponsored by Keep Prince William Beautiful
  - Conduct litter survey four times a year
  - Enforce anti-littering laws
  - Ask community to report illegal dump sites so we can send Litter Control Crew out to clean them up
  - Pick up litter along highly traveled roadways on a regular annual schedule
  - Pick up trash and debris from community volunteer cleanups at a designated location after the event
  - Enforce property code requirements to eliminate dump heaps, overgrown grass and unkempt structures on residential properties

- Business and Industry
  - Encourage businesses and industries to provide volunteers to clean up community
  - Enforce property code requirements to eliminate dump heaps, overgrown grass and unkempt structures on commercial properties

BMP 4 – Proper Disposal of Wastes: Working with our partners, Prince William County Public Works will promote, publicize and facilitate the proper management and disposal of used oil and household hazardous waste. Public Works has created and maintains a robust management program for the collection and disposal of household hazardous waste and collection and recycling of used oil.

- Residents
  - Offer twice a week collection of household hazardous waste and electronics year-round at the County Landfill and once a month at the Balls Ford Road Compost Facility
  - Maintain a safe building for residents to drop off household hazardous waste and electronics with proper storage as needed
  - Offer daily collection of used motor oil, antifreeze and car batteries
  - Provide useful signs to direct residents on how to properly dispose of these materials when they arrive at the landfill and compost facility
  - Provide clear and complete information about management, storage and delivery of household hazardous waste to the County landfill and compost facility through brochures and instruction sheets, web pages, public service announcements and newsletters

- County Government
  - Provide extensive training on the proper handling and disposal of chemicals and potentially hazardous materials
  - Provide extensive training on how to respond and report a chemical spill
  - Established an effective program for handling motor oil, antifreeze and other vehicle fluids at the Fleet Maintenance Shop
  - Conducted an inventory of chemicals in use by County agencies and arranged a collection of no longer used products with a licensed handler
  - Piloted a program to collect chemicals from agencies and work with County contractor to accept them at designated intervals throughout the year
  - Produced a preferred chemical list to reduce the use of potentially hazardous and harsh products

Reports from the County Solid Waste Division on the quantity of oil and household hazardous wastes collected in FY22 are included as Appendix E.

BMP 5 - Discharge Elimination Programs: Prince William County hosts several programs under its Illicit Discharge Detection and Elimination (IDDE) program dedicated to the detection, identification, and elimination of unauthorized discharges to its MS-4 system. These programs include the Dry Weather Monitoring, General Discharge, Wet Weather Monitoring, Service Authority's Inflow and Infiltration Program, and Industrial and High Risk Monitoring Programs. For more information on these programs, including program background and reporting, see section I.3.l Water Quality Screening Programs.

f. Spill Prevention and Response

BMP 1 – Coordination with FMO: The County's Fire and Rescue System is the lead County agency responsible for all aspects of spill response. Accordingly, the County has designated a full-time Hazardous Materials Officer. Prince William County participates in the Commonwealth

Department of Emergency Management Services' regional Hazardous Materials response programs and maintains a National Incident Management System Type 1 HAZMAT Team for emergency response.

The County's Fire and Rescue System responds to all complaints of hazardous spills and hazardous illicit discharge. If the complaints relate to sewage, the appropriate agency, such as, Prince William County Service Authority or Virginia American Water will be contacted. The complaints on the failing septic systems and drain fields are referred to the County's Health Department. The County staff makes every effort to direct complaints to the appropriate agency as expeditiously as possible.

For this reporting period, there were 46 instances of spills responded to by Prince William County's Department of Fire and Rescue with potential impacts to the County's stormwater system. Out of those 46 instances, 11 were located within the MS4 service area. The Fire and Rescue System team responded to these instances and provided mitigation and clean up service. Copies of the incident reports for these incidents are included as Appendix F.

g. Industrial and High Risk Runoff

BMP 1 – Identify all Industrial and High-Risk Dischargers: The monitoring of VPDES permitted areas of Prince William County is accomplished as part of the County's IDDE program. On a semi-annual basis, PWC examines lists provided by DEQ to assess new permitted facilities discharging to the County's storm sewer system along with their permit, and registration form. These facilities are then added to a GIS layer, and their outfalls identified for use in monitoring efforts. Outfalls are identified using a combination of facility registration statements, DMR reports, and GIS desktop analysis. Having identified its MS-4 service area, a GIS desktop analysis was completed and Permittees that discharge into the County's MS-4 service area were identified.

High Risk and Industrial VPDES permitted facilities are found to be contributing significant pollutants to the storm sewer system will be referred to DEQ for compliance review. Table 6 lists the VPDES facilities discharging into the County's MS-4 area.

In FY16, the County performed used GIS to analyze and generate a list of potential High Risk outfalls according to a probability of pollutant discharge. This probability takes in account an assumed potential for a discharge to occur, possible pollutant discharge effect according to the type of facility and its operations, and the potential for environmental damage according to the facilities proximity to environmentally sensitive areas. From this analysis, 518 outfalls were deemed as potentially High Risk. In addition, any outfalls found to be contributing a significant source of pollutants during routine Dry Weather Monitoring inspections will be added to this list and updated annually.

Table 6 – VPDES Permitted Facilities that Discharge into the County's MS-4

	Permit No	Facility	Location Address 1	Type	Location City	Location Zip

1	VAR052243	234 Auto and Truck Salvage Limited Liability Co.	14843 Dumfries Rd	SWGP	Manassas	20112
2	VAR051949	Chemung Contracting Corporation - Gainesville	7201 Rail Line Ct	SWGP	Gainesville	22013
3	VAR052372	Swift Auto Recycling and Salvage, Inc	14832 Dumfries Rd	SWGP	Manassas	20112
4	VAR051477	First Transit Incorporated	14700 Potomac Mills Rd	SWGP	Woodbridge	22192
5	VAR052115	Penny's Used Auto Parts	13059 Minnieville Rd	SWGP	Woodbridge	22192
6	VAR051639	Potomac Disposal Services of Virginia, LLC	9650 Hawkins Dr	SWGP	Manassas	20109
7	VAG110100	Virginia Concrete Company Inc - Gainesville	7300 Rail Line Ct	Concrete	Gainesville	20156
8	VAG110368	Superior Properties Inc.	5547 Wellington Rd	Concrete	Gainesville	20155
9	VAR052463	Landfill – PW	14811 Dumfries Rd	SWGP	Woodbridge	20112

BMP 2 – Develop Prioritized Schedule for Monitoring VPDES and High Risk Outfalls: Outfalls identified as VPDES and High Risk non-VPDES as described above are inspected according to specific protocols outlined in the Prince William County's IDDE Program. Outfall prioritization follows an iterative process that incorporates in-field observations. As outfalls are monitored under the County's Dry Weather Monitoring Program, those which are determined to have a high potential for pollutant discharge are identified as High Risk and added to the prioritized schedule the next time it is updated.

BMP 3 – Develop Program to Monitor VPDES and High Risk Outfalls: VPDES and High Risk outfalls are scheduled for inspection according to the methods described in BMP 2. Outfalls are monitored in accordance with the County's Dry Weather Monitoring Protocols. Facilities whose outfalls are found to discharge significant pollutant flows within 3 consecutive inspections (follow-up inspections are scheduled according to IDDE protocols) are referred to DEQ for compliance review (see BMP 6). Outfalls of VPDES permitted facilities are inspected once a year, while High Risk outfalls are inspected once a permit cycle (due to high volume).

Table 7 – VPDES Outfalls

Number	Outfall ID	Facility
1	49124	Chemung Contracting Corporation
2	49117	Chemung Contracting Corporation
3	49119	Chemung Contracting Corporation
4	49121	Chemung Contracting Corporation
5	53541	Chemung Contracting Corporation
6	47233	First Transit Inc
7	47271	First Transit Inc
8	35905	Potomac Disposal Services
9	35901	Potomac Disposal Services

10	35896	Potomac Disposal Services

BMP 4 – Obtain DMR Reports from VPDES Permitted Facilities: PWC receives Discharge Monitoring Reports (DMRs) from applicable (non-exempt) VPDES permitted facilities that discharge into the County's MS-4.

BMP 5 – Identify High Risk Dischargers Not Covered Under VPDES Program: As outfalls for facilities determined to have a high risk for pollutant discharge are inspected, those which do not fall under VPDES permitting requirements or Virginia State Water Control Law are identified. These facilities are included under the County's Non-VPDES High Risk Designation.

Potential Non-VPDES High Risk facilities are identified, along with associated outfalls, through GIS desktop analysis. Using County land-use information land-uses that are identified to have a high potential for the discharge of pollutants are isolated. As with VPDES permitted facilities, a buffer is placed around a high risk parcel and the containing outfalls are identified. These outfalls are considered to be potentially High Risk outfalls. During Dry Weather Monitoring activities, outfalls determined to potentially contribute a significant source of pollutants to the storm sewer system are identified and added to the list of high risk discharges. These outfalls are then added to the High Risk outfall prioritization (BMP 2) list the next time it is updated. As with VPDES permitted facilities, as the County's GIS based storm sewer layer is updated, the analysis of outfalls associated with High Risk facilities will be updated. The list of high risk facilities can be found in Appendix G.

Outfalls from these facilities are included in the prioritized outfall inspection schedule described in BMP 2. Any facility found to be discharging significant pollutants to the storm sewer system will be required to adopt control measures to prevent these discharges from entering the County's MS-4 under appropriate regulatory ordinance, since they cannot be referred to DEQ for VPDES compliance review. If access to facilities that fall under these conditions cannot be obtained by watershed staff, assistance from the PWC Fire Marshal's office will be requested.

BMP 6 – Refer Facilities in Noncompliance to DEQ for Review: PWC is required to refer the following facilities to the Department of Environmental Quality, Northern Regional Office, for DEQ compliance review under the Virginia State Water Control Law:

- Facilities and operations having non-stormwater discharges that do not have coverage under an existing VPDES permit.
- Facilities and operations identified pursuant to 40 CFR Part 122.26(b)(14) with manufacturing, processing, or raw materials storage outside that do not have coverage under an existing VPDES industrial stormwater permit.
- Any VPDES industrial stormwater permit facility where there is evidence of significant pollutant loadings to the MS4.
- Facilities that do not submit signed copies of DMRs to the permittee as required under a VPDES industrial stormwater permit.

During the reporting period no facilities were deemed necessary to report to DEQ for compliance review.

h. Storm Sewer Infrastructure Management

BMP 1 – Identify MS-4 Service Area and Regulated Outfalls: An integral part of developing the County's Chesapeake Bay TMDL action plan is determining the MS-4 regulated area. Prince William County maintains a comprehensive GIS database of SWM facilities and its storm sewer system. Included in this system are approximately 658 miles of storm drainage easements, approximately 9,681 stormwater outfalls, and 2,208 private and publicly maintained SWM facilities; however, not all these facilities are served by MS-4 regulated areas.

In May of 2019 the County updated its MS4 service area. This included the Regulated Outfalls and their associated drainage area. Information for each outfall included the individual ID number, local watershed, HUC and receiving water, and latitude/longitude for each MS-4 structure. The number of pervious and impervious acres served by the MS-4 and treated by MS-4 controls were also updated. Prince William County has a total MS-4 service area of 23,933 acres, with 7,127 acres of impervious and 16,806 acres of pervious area.

BMP 2 – Continue Inspection of County-Maintained SWM Facilities: Prince William County continues a program for the inspection and maintenance of SWM facilities maintained by the County. County-maintained facilities include those owned by HOA's and residential communities or by the County Board of Supervisors, and where basic maintenance responsibilities are performed by the owners. As of June 30, 2022, the County is responsible for the maintenance of approximately 1,034 facilities, including dry ponds, wet ponds, infiltration trenches, sand filters, bioretention and proprietary BMP facilities.

County-maintained SWM/BMP facilities are typically inspected under two scenarios; under the general inspection program which occurs once a year, or as requested by an impacted property owner. Maintenance is prioritized by the severity of maintenance needs for the facility. Maintenance on publicly maintained SWM facilities is performed by the County's Construction and Operations Division, as necessary. All applicable permitting requirements will be met during maintenance activities.

During the reporting period, the County staff conducted 1,115 routine inspections, 21 complaint-based inspections and 74 re-inspections of county-maintained facilities. A list of these facilities and their inspection date are included in Appendix H.

The following table summarizes the inspection and maintenance activities for County-maintained stormwater infrastructure.

County-maintained Stormwater Infrastructure Inspection and Maintenance Summary

	FY22
Inventory of SWM facilities at start of FY22	1034
Number of SWM facilities inspected	1034
Percent of SWM facilities inspected	100%
Number of SWM facilities requiring major maintenance	489
Number of SWM facilities with major maintenance completed	527
Miles of storm sewer system owned/or operated by County	658
Miles of stormsewer system inspected	589
Percent of stormsewer system inspected	90%
Number of stormsewer major maintenance cases completed	450

BMP 3 – Continue Inspection of Privately-Maintained SWM Facilities: The County has a program in place to inspect all privately-maintained facilities within the term of the permit and to pursue enforcement actions in instances where maintenance is needed. As of June 30, 2022, there are 1,174 privately maintained facilities within the County. These facilities are comprised of dry ponds, wet ponds, constructed wetlands, bioretention facilities, proprietary stormwater inlet BMP facilities, underground storage facilities, and infiltration trenches.

Facilities in compliance with maintenance requirements are scheduled for re-inspection during the following permit cycle. For facilities with deficiencies, the owner is provided with a detailed report outlining those deficiencies. If the deficiencies are not corrected within the time period allotted a second notice is given, and additional time is provided for repairs. If the facility is still not repaired, Prince William County Construction Services conducts maintenance on the facility and the facility owner is required to reimburse the County for expenses. Follow up inspections are performed to ensure maintenance requirements are followed. Facility owners are urged to self-report maintenance activities to the County in the form of a detailed engineering report.

Before a privately maintained facility can be removed from bond, maintenance agreement must be recorded to ensure the proper upkeep of the facility. A majority of the privately maintained SWM facilities have duly recorded Maintenance Agreements that requires the owner to perform the inspection and maintenance at a frequency identified in the Agreement. For those facilities that do not have Maintenance Agreements, our County Attorney has determined that the maintenance note on the plan is still enforceable.

During the reporting period a total of 238 inspections (including re-inspections) were conducted. A table describing inspection, maintenance, and enforcement of privately maintained facilities for the reporting period can be found in Appendix I.

The following table summarizes the inspection and maintenance of privately-maintained stormwater facilities. Two facilities required a 30-day notice letter from the County Attorney to ensure that the facility owners abided by maintenance agreements.

Privately-maintained SWM Facilities Inspection and Maintenance Summary

	FY22
Inventory of privately-maintained SWM facilities at start of FY22	1174
Number of SWM facilities inspected	235
Notifications of needed maintenance and repair	152
Actions taken by County to address failure of owners to abide by maintenance agreements	2

BMP 4 – Continue Inspection of MS-4 Storm Sewer System: Prince William County conducts routine inspection of its storm drainage system, inspecting the entire system within the permit term. Storm sewer is inspected using visual inspection techniques, as well as using CCTV. The County continues to implement a program to inspect all new drainage systems (eligible for County maintenance) using video cameras, prior to accepting the systems into the County's maintenance program. As of June 30, 2022, there are 658 miles of storm sewer system owned and/or operated within the County. During FY22, the County inspected 589 miles of storm sewer system.

BMP 5 – BMP/SWM Inventory: Prince William County maintains an inventory of all SWM/BMP facilities in the County. A total of 36 facilities were added to the County's inventory during the reporting period. A list of new facilities is provided as Appendix J. This list includes the facility number, type, total acres treated, impervious acres treated, HUC code, State FIPS, and latitude/longitude and is included in an electronic form submitted with this document.

i. County Facilities

BMP 1 – Promote Good Housekeeping Practices for Municipal Facility Operations: Prince William County promotes good housekeeping practices throughout all its municipal facilities through its Environmental Management System (EMS) program and other methods. PWC Watershed Management in partnership with PWC Risk Management enforces good housekeeping at County municipal facilities. The EMS program promotes consistency and accountability in the method for addressing environmental concerns through the allocation of resources, assignment of responsibility and ongoing evaluation of practices, procedures, and processes. This program emphasizes objectives such as the identification and prevention of spills, hazardous material storage and removal, storage tank inspection and maintenance, waste disposal and recycling, proper equipment and material storage, and many other environmental good housekeeping practices.

As the Department of Public Works split into two departments, Fleet and Buildings & Grounds were removed from the Public Works EMS E3 certification and will be applying for their own E3 certification this fall under the Fleet & Facilities Department. The Department of Parks, Recreation and Tourism received their E3 certification in FY21, moving up from E2 by expanding their program to multiple agencies including aquatics, recreation, building & maintenance and grounds.

The following list shows some of the public buildings or facilities that have the Extraordinary Environmental Enterprise (E-2/E-3/E-4) certification:

E4 – PWC Solid Waste Sanitary Landfill and PWC Balls Ford Road Recycling & Composting Facility
E3 – PWC Construction and Operations Division
E3 – PWC Fire & Rescue System
E3 – PWC Parks & Recreation Department
E2 – PWC Police Department
E2 – PWC Libraries

In addition to the EMS program, Prince William County promotes good housekeeping activities for parks and rec facilities. These facilities are inspected biennially, to ensure good housekeeping practices are being followed. This includes properly managing yard waste and grass clippings. Police and fire vehicles are required to be washed in an environmentally safe manner, allowing no wash water to enter storm drain systems. Most vehicles are washed in commercial car washing facilities. PWC Fleet Management has worked closely with Risk Management and Watershed Management to set up a system to prevent the leaking or spilling of vehicles on site waiting for maintenance.

Prince William County's storm drain labeling program targets high priority municipal facilities to maintain markings on storm drain inlets. This program not only labels inlets at high priority municipal facilities, but in multiple areas of the county including high-risk shopping centers and residential neighborhoods.

BMP 2 – Identify High Priority Municipal Facilities: The County operates several municipal facilities. Some, like the PWC landfill facility, are covered under their own VPDES permit for stormwater discharges. During FY17, the County assessed all municipal facilities within its MS4 service area and evaluated their need for a SWPPP. High risk facilities included composting facilities, equipment storage and maintenance facilities, materials storage yards, pesticide storage facilities, public works yards, recycling facilities, salt storage facilities, solid waste handling and transfer facilities, and vehicle storage and maintenance yards. The following four facilities have been identified as being high risk, and are currently maintaining a SWPPP:

Table 8 – High Priority Municipal Facilities

Facility Name	SWPPP Needed	SWPPP Developed
Fleet Administration	Yes	Yes
Ben Lomond Maintenance Building	Yes	Yes
Hellwig Maintenance Building	Yes	Yes
PWC Stadium Maintenance Building	Yes	Yes

BMP 3 – Develop SWPPPs for Selected High Priority Municipal Facilities: SWPPPs will include a site description that includes site map showing all outfalls, direction of flows, existing source controls, and receiving water bodies; a checklist of potential pollutants and pollutant sources; all potential non-stormwater discharges; a maintenance schedule for all source controls; policies and procedures implemented at the facility for source reduction; an inspection schedule to ensure source reduction controls are implemented and maintained properly; training schedules for facility employees; procedures for annual evaluations of the facility; dry weather monitoring procedures; and all modifications made as a result of a spill or release of pollutant. The status of SWPPP

development at High Priority Municipal Facilities is presented in Table 8 located in the above section.

j. Public Education and Participation

Prince William County strives to share relevant and useful information with our community to help protect our local waterways and natural environment. We undertake several projects and special events to provide citizens with the opportunity to help in these goals. Public Works also partners with residents, businesses, other government agencies and organizations to advance our goals to protect and preserve natural resources.

The public education and outreach program is reviewed on an annual basis to determine the effectiveness of the program and to identify future efforts to improve the program. Due to the nature of some of the education and outreach elements, a determination of effectiveness is more qualitative in nature and based on the number of individuals reached through the activities, as well as feedback from the staff involved with those activities. Each activity is reviewed and discussed, and recommendations for future improvements are identified in the annual report. For other program elements, included in the annual report, effectiveness is based on the results of the activity such as pounds of trash removed or percent of participants adopting recommended practices for example.

Prince William County posts monthly social media messages to encourage citizens to maintain a variety of good housekeeping practices. These messages are tailored to match common pollution sources by time of year.

Table 9 – Public Outreach Events in FY22

Event	Number of participants
Virginia Cooperative Extension Environmental Education (Multiple)	2855
Urban Nutrient Management Program (BEST Lawns)	158
Adopt-A-Stream (Multiple)	1266
Prince William Soil and Water Conservation District Adult-Centered Education Program (Multiple)	699

During FY2022, Prince William County supported the Northern Virginia Clean Water Partners campaign. The campaign uses radio, online, and television advertising to educate the public about preventing water pollution. The campaign utilized several advertisements to inform residents about water pollution, stormwater management systems, pet waste, motor oil and fertilizers. Included as Attachment K is the annual report on the Clean Water Partners campaign in FY22.

BMP 1 – Promote Public Reporting and Recognition of Illicit Discharges: Prince William County Public Works offers information to define an illicit discharge, possible sources of pollutants that can enter our stormwater systems, how to prevent runoff and how to report incidents of improper dumping.

- Residents
  - Maintain several references on our website with pages focused on the MS-4 permit, TMDLs, illicit discharge, illegal dumping, storm water runoff and erosion
  - Placed articles in newsletter to HOAs and neighborhood leaders about cleaning up after pets, native plants, and proper disposal of wastes
  - Established a hotline and email address to report illegal dumping into storm drains
  - Placed 1000 informational markers at selected stormwater drains throughout the community and hand out information door hangers explaining the concerns with placing materials in the storm drain

- Businesses and Industries
  - Provide online guidance for developers to protect water quality
  - Share informational materials when visiting sites in the field
  - Send educational materials with warning and violation letters

- County Government
  - Created online training about illicit discharge and pollution prevention for employees (required for some and encouraged for others)
  - Established a SWPPP at four facilities identified as high-risk including park sites and Fleet
  - Established protocol for outdoor storage of equipment, materials and chemical
  - Expanded program for proper collection and disposal of batteries, universal waste, printer cartridges, electronic accessories, chemicals, and hazardous waste generated by County employees
  - Worked with an independent vendor to inspect and make repairs to all above-ground fuel storage tanks located at PWC facilities

BMP 2 - Continue to Promote Involvement in Local Water Quality Improvement Projects: Prince William County Public Works will continue to promote individual and group involvement in local water quality improvement initiatives including the promotion of local restoration and clean-up projects, programs groups, meetings, and other opportunities for public involvement.

Public Works takes the lead on water quality improvement initiatives by facilitating projects and educational events, as well as providing funds to partner agencies in the community to support public involvement and awareness.

- Residents

- Create and maintain educational web pages on sound practices around the home to prevent pollution and runoff, protecting streams, rivers and wetlands, planting native species, safeguarding trees, and managing waterfront property
- Create and maintain informational web pages on opportunities to help families volunteer, take steps to go green and reduce their impact on the environment, get outdoors and learn about conservation agencies in the community
- Provide residents with the opportunity to drop off household hazardous waste and electronics twice a week year-round at no charge to reduce inclination to pour liquids down the storm drain, illegally dump items or throw them away in regular trash collection
- Provide residents with the opportunity to drop off motor oil, anti-freeze and car batteries at no charge every day to reduce inclination to pour down the storm drain
- Provide funding to the Prince William Soil and Water Conservation District to run an Adopt-a-Stream program.
- Provide funding to the Prince William Soil and Water Conservation District to monitor floatables in the community (volunteers monitored five sites each quarter)
- Provide funding to the Prince William Soil and Water Conservation District to monitor water quality at 15 active sites and four sites to monitor E.coli, as well as offer monitoring events and outreach events for residents)
- Provided funding to Keep Prince William Beautiful to work with volunteers to apply adhesive markers to storm drains that remind residents that the drain leads to local waters and eventually the Chesapeake Bay
- Provide funding to the Virginia Tech Cooperative Extension Office to provide training for residents on a variety of environmental topics including horticulture, best lawn practices, natural resources and other lawn care recommendations
- Provide funding to the Virginia Tech Cooperative Extension office to help homeowners, businesses and houses of faith to adopt an urban nutrient management plan

- Businesses and Industry
  - Work with local businesses to properly maintain their stormwater management ponds
  - Work with local businesses to recruit volunteers to help with cleanup projects, particularly near their business or when companies have a corporate philosophy to volunteer in the community
  - Recognize volunteers, individuals and groups, with an annual Green Community Award
  - Provide funding to Keep Prince William Beautiful to conduct quarterly litter surveys in the community to identify problem areas with reports sent to nearby businesses asking for their assistance in cleanups and management of potential sources of litter or runoff
  - Provide funding to Keep Prince William Beautiful to conduct shopping center surveys and provide feedback to property manager to help them better maintain their center (103 shopping centers currently participate)

- County Government

- Created online training for compliance with Resource Conservation and Recovery Act, Spill Prevention, Control and Countermeasure plans and Illicit Discharge Detection and Elimination
- Encourage staff to conduct regular good housekeeping efforts and inspections to ensure environmental compliance as well as safety in Public Works facilities
- Created a training for staff on best salt management practices
- Enforce the County's Environmental Policy Statement
- Continue a robust Environmental Management System that includes facilities awarded E2, E3, E4 and SP status by DEQ and an EMS Council that manages and expands the environmental compliance program
- Host an annual Earth Day Festival for County Employees
- Provide spill kits for all fuel tanks and generators at County facilities and train staff how to respond
- Maintain compliant Spill Prevention, Control and Countermeasure plans for facilities when required and maintain training requirements for the program
- Continue to improve housekeeping practices that will help protect water quality

BMP 3 – Promote Integrated Management Practice (IMP) Plans for Public and Private Golf courses: Prince William County Public Works will reach out to public and private golf courses located within the county that discharge to the permittee's MS4 that would encourage implementation of integrated management practice (IMP) plans and techniques to reduce runoff of fertilizers and pesticides.

Public Works has established a relationship with local golf course managers, particularly the public courses, to ensure they have the tools and knowledge to reduce the impact of their operations.

- Required all golf courses to have a current nutrient management plan
- Required all golf course managers to ensure staff is properly trained in IPM plans
- Required all golf course managers to ensure staff is trained in application techniques to reduce runoff

BMP 4 - Continue to Promote Public Good Housekeeping Practices: Prince William County Public Works will promote and publicize good housekeeping practices including the proper disposal of pet waste, household yard waste and washing vehicles to minimize water quality impacts.

- Residents
  - Provide information online about picking up after your pets
  - Provide a pamphlet about picking up after your pets
  - County-owned compost facility accepts yard waste from residents for composting and mulching (product available for purchase from private vendor that operates the compost)
  - Provide tips and steps for grass cycling and composting at home
  - Host an annual event to highlight the benefits of composting and provide information to the community

- Created a page on the website with tips on good practices to protect water quality
- Created a seven steps tip sheet on protecting water quality
- Created a flyer encouraging residents to maintain good housekeeping practices in regard to yard waste and distributed at the landfill

- Businesses and Industries
  - Created a flyer encouraging landscapers to maintain good housekeeping practices in regard to yard waste and distributed at the landfill
  - Created a flyer encouraging restaurants and shopping centers to maintain good housekeeping practices in regard to cooking oil and dumpsters/compactors.

- County Government
  - Require all standard vehicles be washed at commercial facilities
  - Established protocol for properly washing non-standard vehicles and equipment in such a way as to prevent runoff

BMP 5 - Encourage Private Property Owners to Implement Voluntary Stormwater Management Techniques and/or Retrofits: Prince William County will continue to develop programs to encourage private property owners to implement voluntary stormwater management retrofits. Currently, the County partners with the Prince William County Soil and Water Conservation District (PWSWCD) to encourage private property owners to implement voluntary stormwater management retrofits through the Virginia Conservation Assistance Program. This program promotes cost share incentives for private property owners looking to implement BMPs. As part of this partnership, PWSWCD has a goal to coordinate the installation of at least two retrofit projects per year. Two VCAP projects were completed in FY22.

Prince William County helps private property owners implement voluntary stormwater management techniques and/or retrofits with strategies including protecting sensitive areas, reducing run off and saving trees.

- Residents
  - Created brochures for owners with waterfront property
  - Hosted a conference with information for owners with waterfront property
  - Created a brochure about the Chesapeake Bay Resource Protection Areas for distribution at events and site visits
  - Created a pamphlet on the benefits of rain gardens
  - Encourage residents to reduce turf on property and replace with native species and forested areas
  - Hosted a symposium about establishing native plants on private property

- Businesses and Industries
  - Encourage businesses and industries to replace turf areas with native species and forested areas to reduce use of herbicides and fertilizers, as well as reduce mowing costs

- Offer funding through the Virginia Conservation Assistance Program for non-agricultural lands to support best management practices to protect local water quality

- County Government
  - Establish a reforestation practice for all new County construction to leave as many mature trees as feasible, save soil for planting projects and replace disturbed areas with trees and native plants to save mowing costs and reduce use of fertilizers and herbicides
  - Establish meadows and gardens at County historic sites and public facilities
  - Undertake stream restoration projects
  - Retrofit existing stormwater management structures with improved structures and strategies during retrofits, repairs, or maintenance

BMP 6 - Continue to Promote Commercial, Institutional, and Industrial Good Housekeeping Practices: Prince William County Public Works will share specific information and strategies with local groups of commercial, industrial, and institutional entities likely to have significant stormwater impacts, including illicit discharge and illegal dumping concerns.

- County Government
  - Inspect facilities and areas at high risk for runoff to ensure best management practices in place
  - Improve best management practices by continuous review and upgrades as needed
  - Place spill kits and provide training for staff to use spill kits at all vulnerable locations
  - Conduct regular inspections of our above ground tanks to ensure there are no leaks or spills
  - Enforce and promote protocol for staff and volunteers for safety when they find tanks, suspicious bottles/jars and oil/fluid spills during inspections and cleanups

Prince William County Public Works posts a copy of this state permit on its web page no later than 30 days after the effective date of this state permit and continue to retain a copy of the permit online for the duration of this state permit.

- Public Works has posted a copy of the state permit on its website. It resides on our Environmental Management Division page at the following link: Community MS-4 Program (pwcva.gov)
- A printed copy of the state permit is kept in our offices for any citizen to review upon request at our service counter.

k. Training

BMP 1 – Continue to Train Staff in the Recognition of Illicit Discharges and Good Housekeeping Practices: Prince William County Staff are trained in the recognition and reporting of Illicit Discharges as well as implementation of good housekeeping practices. Currently, appropriate staff are trained on basic good housekeeping, spill prevention, and illicit discharge prevention practices through EMS training. This training is conducted biennially and is required for all staff including full time parks and rec staff.

To increase training opportunities for personnel with varying shifts and schedules, an effort was made during FY18 to offer more online environmental compliance courses. These custom courses with voice-over narration were developed internally and featured pertinent photos from County facilities to demonstrate information and relay County specific procedures for compliance and response. A test at the end of these courses ensured users remained engaged and attentive. Training records are maintained using the online SkillSoft platform that is customized for the County and named "PWC University", and attendance reports are generated by that system. Risk Management maintains a copy of sign-in sheets and course content. In FY22 COVID continued to limit the amount of in-person training opportunities, so more online, on-demand training was provided. In addition, many groups found ways to conduct in-person training outdoors. The following table lists training courses offered in FY22 and the number of participants. Refer to Appendix L for a summary of trainings provided in FY22.

Table 10 – Trainings Provided During FY22

Course Title	Number of Participants
Watershed Illicit Discharge Prevention (EHS460)	190
RCRA Training for PWC Facilities	53
Fuel Tank Inspection Training	22
Intro to PWC's Environmental Management System Workshop	18
Spill Prevention Control and Countermeasure Plans	38
Environmental Regulatory Overview Training	68

BMP 2 – Continue to Ensure Pesticide and Herbicide Application Occurs in Accordance with Pesticide Control Board Regulations: Appropriate County staff and contractors receive appropriate training in pesticide and herbicide application. Appropriate staff are required to stay current in applicable trainings and certifications.

BMP 3 – Continue to ensure County Staff are Trained and Certified in DEQ Stormwater, E&S, and Plan Review Courses: Engineering staff who review E&S, SWM and VSMP plans have certifications. Site inspectors and stormwater management facility inspectors have erosion and sediment control inspector and stormwater management inspector certifications.

BMP 4 – Continue to ensure Emergency Response Staff are Trained in Spill Response: All uniform personnel are trained to the hazmat first responder operations level. This training teaches spill control as a defensive manner. This training is regulated by 29 CFR 1910.120(q) and NFPA 472. Staff are required to be current in this training, including annual refresher training. During the reporting period, all required personnel were current in Emergency Spill Response training.

l. Water Quality Screening Programs

BMP 1 – Develop and Maintain a Dry Weather Monitoring Program: During the reporting period, Prince William County inspected 778 stormwater outfalls as part of the dry weather screening program. There were no outfalls identified as needing maintenance during dry weather

screening activities. A total of 165 outfalls were found to be flowing during dry weather, but only five were determined to be illicit discharges. Descriptions of these discharges and follow-up activities can be found below in Appendix M.

BMP 2 – Develop and Maintain a Wet Weather Screening Program: Prince William County's Wet Weather Screening Program began at the end of FY16, with first the sample occurring in September of 2017. Two sites were selected for sampling and sampling occurs during qualifying storm events. The quarterly Wet Weather Monitoring reports are included as Appendix N.

Table 11 – Exceedance tracking for the Wet Weather Monitoring Program

		2021		2022	
		Q3	Q4	Q1	Q2
Manassas (#941)	Copper		X	X	
	Lead				
	Nickel				
	Zinc			X	
	Total Suspended Solids			X	
	Total Nitrogen			X	X
	Phosphorus, Total				
	Chemical Oxygen Demand			X	
	pH				
Dale City (#4684)	Copper		X	X	X
	Lead				
	Nickel				
	Zinc				
	Total Suspended Solids				
	Total Nitrogen				
	Phosphorus, Total				
	Chemical Oxygen Demand				
	pH		X		

No needed infrastructure or outfall repairs were identified from wet weather screening in FY22.

m. Infrastructure Coordination

BMP 1 – Implement Annual Coordination Meeting with VDOT: Prince William County met with VDOT on January 25, 2022. A screenshot of the meeting participants is included as Appendix O.

BMP 2 – Coordinate with VDOT on MS-4 Initiatives: During the annual meetings with VDOT the following items were discussed:

- Mapping (MS4 Service Areas)
- Chesapeake Bay TMDL Action Plan updates
- Other TMDL Action Plans
- Credit for TMDL Implementation
- Illicit Discharge Detection & Elimination
- Water Quality Monitoring
- Other Issues

II. Monitoring Requirements

1. Biological Stream Monitoring

Prince William County continued its Biological Monitoring Program in FY22 with its monitoring taking place in the fall of 2021 and spring of 2022. Sample collection occurred from October 4 to 6, 2021, and May 3 to 5, 2022 at five locations in Prince William County: Cow Branch, Dawkins Branch, Little Bull Run, Neabsco Creek, and Purcell Branch. Benthic sampling was conducted in accordance with the Sampling Plan. A copy of the Biological Monitoring Report is included as Appendix P. Table 12 and Table 13 summarizes the results of the fall and spring sampling sessions.

Table 12 – Fall 2021 Field Condition and Benthic Macroinvertebrate Results

Metric	Cow Branch	Dawkins Branch	Little Bull Run	Neabsco Creek	Purcell Branch
Taxa Richness	27	35	27	26	28
Abundance	214	189	222	215	186
EPT Index	7	6	7	6	10
EPT/EPT+ Chironomidae	0.95	0.44	0.87	0.93	0.97
Percent Dominant Taxon	33.64	23.28	29.28	18.60	36.02
Percent Chironomidae	3.74	25.93	5.86	5.58	2.15
BI	5.95	6.70	5.89	5.40	5.78
BI Category	Fair	Fairly Poor	Fair	Good	Fair
PMA	33.93	65.63	66.85	39.53	41.29
PMA Category	Severely Impacted	Non-Impacted	Non-impacted	Moderately Impacted	Moderately Impacted
VSCI	51.26	54.70	70.52	61.30	60.12
VSCI Category	Stress	Stress	Good	Good	Good

Measured field and laboratory water quality parameters for the fall event are generally within the normal ranges for shallow, cool, turbulent, piedmont Virginia streams, and generally meet Virginia's Water Quality Standards. However, the E. coli levels at Cow Branch, Dawkins Branch, Neabsco Creek, and Purcell Branch were above the Virginia Water Quality standard which could be indicative of sewage or animal waste.

Table 13 – Spring 2022 Field Condition and Benthic Macroinvertebrate Results

Metric	Cow Branch	Dawkins Branch	Little Bull Run	Neabsco Creek	Purcell Branch
Taxa Richness	21	50	33	38	31
Abundance	193	195	197	236	184
EPT Index	2	2	4	5	5
EPT/EPT+ Chironomidae	0.02	0.09	0.39	0.34	0.20
Percent Dominant Taxon	49.74	18.46	21.83	13.56	13.59
Percent Chironomidae	95.85	36.41	43.15	55.51	72.28
BI	5.12	6.94	6.56	5.63	5.60
BI Category	Good	Fairly Poor	Fairly Poor	Good	Good
PMA	24.15	41.67	68.93	62.71	43.04
PMA Category	Severely Impacted	Moderately Impacted	Non-Impacted	Slightly Impacted	Moderately Impacted
VSCI	30.27	44.88	53.96	50.11	48.13
VSCI Category	Severe Stress	Stress	Stress	Stress	Stress

Measured field and laboratory water quality parameters for the spring event are generally within the normal ranges for shallow, cool, turbulent, piedmont Virginia streams, and generally meet Virginia's Water Quality Standards. However, the E. coli levels at Dawkins Branch, Little Bull Run, Neabsco Creek, and Purcell Branch were above the Virginia Water Quality standard, which could be indicative of sewage or animal waste. Storm events prior to sampling may also have caused elevated bacteria levels within streams. Stressed conditions remain apparent, consistent with seasonal variation during spring season collections. Habitat conditions showed a marked improvement, which may foster positive trends in benthic community health.

The measured field and laboratory water quality parameters from the Fall 2021 and Spring 2022 sampling results are generally comparable to the baseline sampling results, are within the normal ranges, and are below Virginia's Water Quality Standards with the exception of elevated E. coli. Monitoring efforts will be targeted to avoid collection periods following storm events to characterize the benthos and ambient water quality conditions.

Biological metrics, habitat assessments, and evaluations of the benthic macroinvertebrate communities at each site have indicated a marginal level of improvement compared to baseline conditions, though a regression from improvement in recent years at several sites. Seasonal fluctuation in benthic macroinvertebrate assessments has still shown an upward trend for most sites.

This seasonal trend allows for clear distinctions from baseline levels in fall sampling, while spring sampling only shows slight improvement in benthic health. The results of this report indicate that the health of these representative monitoring sites from across Prince William County are either stable or are slightly declining.

2. In-stream Monitoring

The County has maintained an in-stream water quality monitoring program for the past 30 years. In partnership with the Occoquan Watershed Monitoring Laboratory (OWML), there are five stream monitoring stations. Two of these stations, Little Bull Run and Neabsco Creek, have been in operation since the early 1990s, and the remaining three stations went online in FY16:

1. The "Dawkins Branch Station", with drainage to be comprised of older industrial and warehouse type of land uses. This station is to represent industrial land use in the County.

2. The "Cow Branch Station" with drainage area for the proposed station originating from commercial developments, such as, Potomac Mills Mall and several other commercial and residential uses along I-95 corridor. This represents a relatively high density and highly impervious area corridor.

3. The "Purcell Branch Station" was picked to represent large-acre residential lots, which is also a representative land use in the County.

4. Neabsco Creek at Delaney Rd. – Neabsco Creek is one of the most developed watersheds in the County. This station has drainage areas from several new and much older developments in Dale City area. Continuing this station will help us further establish the water quality trends for an older developed watershed.

5. Little Bull Run at Catharpin Road – Little Bull Run has drainage areas from major known developments such as Piedmont, Dominion Valley Country Club, etc. This Station represents the current development trends of well-planned subdivisions constructed with golf course amenities in the fast growing western part of the County. Continuing this station will help us further establish water quality trends.

Refer to Appendix Q for the data summary for the in-stream monitoring.

3. Floatables Solids Monitoring

The County continued the monitoring of floatable trash in FY22. Monitoring occurred quarterly at five locations. Plastic wrappers, plastic bags and plastic bottles continue to be the top three types of trash observed with disposable cups and cutlery slightly increasing for the period. In addition, personal protection masks are still being observed at all sites. Please refer to Appendix R for the F22 Floatables Monitoring Summary.

4. Structural and Source Controls Compliance Monitoring

An electronic database containing all BMP/SWM facilities within Prince William County will be provided with this document when submitted. The database contains information on a facilities type, latitude and longitude, impervious and total acres treated, installation date, HUC 12, privately or permittee-maintained status, discharging MS-4 and dates of inspection and maintenance for all new facilities since July 2016.

Prince William County maintains a program for the inspection and maintenance of permittee and privately maintained SWM/BMP facilities. More information on these inspection programs, and a list of newly constructed SWM facilities, can be found in section II.f of this document.

III. TMDL Action Plan Implementation

1. Chesapeake Bay Watershed TMDL Planning

Prince William County submitted the required Chesapeake Bay TMDL Action Plan (TMDL Action Plan) on December 16, 2016, which was subsequently approved on June 28, 2017. The TMDL Action Plan documents how the County intends to meet the requirements of the Chesapeake Bay Special Condition included in the MS4 Permit.

In Section I.D.1, Chesapeake Bay Special Condition, the County is required to document the means and methods that will be utilized to meet the required reductions of specific Pollutants of Concern (POCs) allocated in the Special Condition of the Commonwealth of Virginia's Phase I and II Chesapeake Bay Total Maximum Daily Load (TMDL) Watershed Implementation Plans (WIPs). These reductions are based on the Level 2 (L2) scoping run of the Chesapeake Bay Watershed Model for existing developed lands (pervious and impervious regulated urban lands developed prior to July 1, 2009). Level 2 implementation equates to an average reduction of 9% of nitrogen loads, 16% of phosphorous loads, and 20% of sediment loads from impervious regulated areas and 6% of nitrogen loads, 7.25% of phosphorous loads, and 8.75% of sediment loads from pervious regulated acres beyond the 2009 progress run loadings.

As part of this effort, Virginia Department of Environmental Quality (VADEQ) has committed to a phased approach for MS4 permittees to implement necessary reductions. Permittees will have up to three, five-year permit cycles to achieve required reductions. Prince William County's first permit cycle (December 17, 2014 – December 16, 2019) represents implementation of 5% of the L2 as specified in the 2010 Phase I WIP. The second permit cycle will require an additional 35% of total L2 reductions (40% cumulative), while the final permit cycle will require implementation of the remaining 60% of reductions (100% cumulative).

The total reductions planned to be achieved during the first permit cycle, as identified in the approved Action Plan, are listed in Table 14. The table also identifies the percent of the L2 scoping run reductions that will be achieved after implementation of the Action Plan.

Table 14 - Planned Reductions per Approved Action Plan

Pollutant of Concern	Planned 1st Permit Cycle Load Reductions (lbs/yr)	Percentage of L2 Reduction Achieved After Implementation
Total Nitrogen (TN)	6,706.58	33.5%
Total Phosphorus (TP)	1,370.40	62.0%
Total Suspended Solids (TSS)	893,286.63	49.4%

Prince William County has a comprehensive watershed improvement program, which aims to improve water quality through the implementation of water quality improvement projects such as stormwater facility retrofits, stream restorations, and reforestation projects.

During the reporting period, construction of Powells Creek Phase 1 stream restoration and the retrofit of SWM Facility #386 were completed. The associated pollutant reductions for these two projects are shown in Table 15.

Table 15 - Pollutant Reductions Achieved During Reporting Period

Project Name	Project Type	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	TSS Reduction (tons/yr)
Powells Creek Phase 1	Stream	201.9	100.9	208.92
SWM Facility #386	Retrofit	47.59	4.22	4.16
Total Reductions		**249.49**	**105.12**	**213.08**

For a project description, as well as before and after photographs of the project implemented this period, please refer to the next section. In addition, the updated reduction summary tables and associated reduction calculation worksheets are included as Appendix S.

Based on the reductions achieved through implementation of the above listed water quality improvement project and the previous reductions identified in the approved Action Plan, Table 16 summarizes the cumulative progress toward meeting the compliance targets. The permit requires that 5% of the L2 reductions be achieved during the first permit cycle. As shown in the table below, this requirement has been exceeded and the additional reductions will be applied toward the second permit cycle required reductions.

Table 16 - Cumulative Progress Toward Meeting Compliance Targets

Pollutant of Concern	Previous Reductions Achieved (lbs/yr)	FY20 Reductions (lbs/yr)	Total Reductions to Date (lbs/yr)	Percent of L2 Reduction Achieved to Date
Total Nitrogen (TN)	7,391.31	249.49	7,640.80	38.12%
Total Phosphorus (TP)	1,528.93	105.12	1,634.05	73.97%
Total Suspended Solids (TSS)	857,916.96	426,147.42	1,284,064.38	71.07%

During the next reporting period, two projects are planned for implementation. Please refer to Table 17 for the pollutant reductions associated with this project.

Table 17 - Planned Projects for FY22 Implementation

Project Name	Project Type	TN Reduction (lbs/yr)	TP Reductions (lbs/yr)	TSS Reduction (tons/yr)
SWM Facility #416	Retrofit	284.51	35.84	13.81
Powells Creek Phase 2	Stream	270.94	245.65	81.07
	Total	**555.45**	**281.49**	**84.88**

Prince William County has received nutrient and sediments credits from both UOSA and PWCSA. The County is reporting these credits as a "Reserve" and the credits have not counted towards required deductions.

2. TMDL Action Plans other than the Chesapeake Bay TMDL

The County submitted Action Plans for bacteria, benthic, and PCB TMDL's in December of 2016. Information on the implementation and evaluation of the local TMDL Action Plans for FY22 are located in Appendix T.

IV. Additional Reporting Requirements

1. Roles and responsibilities

Roles and responsibilities are provided as part of the County's MS4 program plan. Roles and responsibilities can be reviewed as part of each BMP section within the MS4 Program plan. A detailed list of roles and responsibilities is included as Appendix U.

2. Non-Compliance

There were no instances of non-compliance of record during the Reporting period.

3. Budget

Table 18 - FY22 Annual Budget Summary by Activity

Stormwater Infrastructure Management	$	3,953,462
Site Development	$	3,845,456
Watershed Improvement	$	5,040,855
Total FY22 Expenditure Budget	**$**	**12,839,773**

A copy of the Annual Budget is included as Appendix V.

4. Permit Fees

The permit maintenance fee of $8,800 was submitted to the Department on September 26, 2022. with Check #89296.

Appendix A

Site Inspector and Plan Reviewer Certifications

Name	Certification	Number	Exp. Date
Vijay Dindigal	Professional Engineer	402048764	6/30/2023
	Land Surveyor	403002810	6/30/2024
	DEQ-Dual Combined Adminstrator	DCA 0563	11/12/2025
Robert Cook	DEQ Dual Inspector	DIN0533	7/11/2025
	DEQ E/S Program Admin	374	5/31/2025
Shawn Wray	Dual Inspector	DIN0927	10/15/2024
	Program Admin E&S	ESPA0257	4/14/2025
	Nassco Cert	U-0319-070305018	2/7/2025
Jalal Qaradaghi	DEQ Dual inspector	DIN0536	11/30/2025
	VDOT Asphalt I	n/a	5/31/2027
Stefan Gitchev	DEQ Dual Inspector	DIN0535	10/3/2025
	DEQ Dual Program Admin	DPA0172	7/29/2024
	VDOT Asphalt I	n/a	12/31/2026
	VDOT Asphalt II	n/a	12/31/2027
Michael “Mick” Tilley	DEQ Dual Inspector	DIN1234	11/4/2022
	VDOT Soils & Aggregate	n/a	12/31/2027
Zachary Schlemmer	DEQ Dual Inspector	DIN1525	8/14/2024
	VDOT Traffic Control	91219121	9/30/2023
Roger Barnes	DEQ Dual Inspector	DIN0220	10/27/2024
Philip Darko	DEQ Dual Inspetor	DIN0538	1/28/2025
	DEQ Dual Program Admin	DPA0154	11/7/2023
	VDOT Asphalt II	n/a	6/1/2027
	VDOT Asphalt I	n/a	6/1/2027
Jeremiah Goodman	DEQ Dual Combined Administrator	DCA0415	2/19/2025
	VDOT Asphalt I	n/a	11/29/2026
	VDOT Asphalt II	n/a	5/24/2027
	Nassco Cert	U-0319-070305019	2/14/2025
Brian Srey	DEQ Dual Inspector	DIN0306	2/23/2025
	DEQ S/W Program Admin	SWPA0377	12/6/2024
	DEQ E/S Program Admin	ESPA0350	5/21/2024
	VDOT Asphalt I	n/a	12/31/2027
	VDOT Asphalt II	n/a	12/31/2027

Appendix B

Land Disturbance Permits Issued

PUBLIC WORKS - ENVIRONMENTAL SERVICES

Land Plans with Disturbed Area that have Land Permits Issued

07/01/2021 Through 06/30/2022

Plan Name / Plan Number / Permit Number	Parcel Number / Address	Developer / Owner	Phone	Disturbed Area	Plan Approval Date
CARTERS MILL PH 3 SDR2019-00005 LND2022-00006	7298-32-7324 15605 JOHN MARSHALL HWY HAYMARKET, VA 20169	PULTE HOME COMPANY, LLC	7037547700	17.400	07/06/2021
CARTERS MILL PH 4 SDR2019-00010 LND2022-00066	7298-32-7324 15605 JOHN MARSHALL HWY HAYMARKET, VA 20169	PULTE GROUP		19.090	09/02/2021
CARTERS MILL PH 5 SDR2019-00020 LND2022-00140	7298-32-7324 15605 JOHN MARSHALL HWY HAYMARKET, VA 20169	PULTE HOME COMPANY, LLC	2024200738	5.730	11/17/2021
UPLAND MANOR LANDBAY C SDR2019-00046 LND2022-00235	7397-19-6212 14534 JOHN MARSHALL HWY GAINESVILLE, VA 20155	VAN METRE COMMUNITIES, LLC	7034252614	8.700	03/02/2022
BEACON PARK TOWNS AT BELMONT BAY SEC 3 SDR2020-00039 LND2022-00027	8492-33-3044 13895 CLEAR LAKE CIR WOODBRIDGE, VA 22191	MILLER & SMITH	703821250014	1.810	07/08/2021
BELMONT BAY - AGE RESTRICTED APARTMENT SDR2021-00020 LND2022-00039	8492-33-5022 13875 CLEAR LAKE CIR WOODBRIDGE, VA 22191	BLOCKS J&K, LLC	7036153565	5.310	08/05/2021
GLADNEY DRIVE EXTENSION SDR2021-00034 LND2023-00011 LND2021-00298	7994-76-6893 6386 DAVIS FORD RD MANASSAS, VA 20111	CONLEY VENTURES, LLC	7035915800	1.200	06/07/2022
POTOMAC SHORES LANDBAY 4 SEC 3 SDR2021-00035 LND2022-00174	8388-39-0912 18100 COCKPIT POINT RD DUMFRIES, VA 22026	J2 ENGINEERS, INC.		44.640	01/10/2022

PUBLIC WORKS - ENVIRONMENTAL SERVICES

Land Plans with Disturbed Area that have Land Permits Issued

07/01/2021 Through 06/30/2022

Plan Name / Plan Number / Permit Number	Parcel Number / Address	Developer / Owner	Phone	Disturbed Area	Plan Approval Date
ARCARI ESTATES SDR2021-00041 LND2022-00138	7595-45-3651 11890 ARCARI DR BRISTOW, VA 20136	STANLEY MARTIN HOMES, LLC		13.600	12/07/2021
BRADLEY SQUARE SEC 12 SDR2021-00054 LND2022-00142	7794-99-3667 10505 GRANT AVE MANASSAS, VA 20110	LAND DESIGN CONSULTANTS, INC. C/O	7036804585	3.630	12/09/2021
RICHMOND STATION LANDBAY B SEC 2 SDR2021-00059 LND2022-00052	7895-29-8885 8281 QUARRY RD MANASSAS, VA 20110	RICHMOND STATION VENTURE LC		5.460	08/09/2021
RICHMOND STATION LANDBAY B SEC 1 SDR2021-00060 LND2022-00051	7896-20-7837 9150 RICHMOND STATION DR MANASSAS, VA 20110	RICHMOND STATION VENTURE LC		8.560	08/09/2021
POTOMAC TOWN CENTER LANDBAY 2 SDR2021-00061 LND2022-00124	8291-94-8456 14901 RIVER WALK WAY WOODBRIDGE, VA 22191	LENNAR	7036428080	4.190	11/09/2021
BRADLEY SQUARE SEC 11A SDR2021-00064 LND2022-00222	7794-79-5808 8903 OLD DOMINION DR MANASSAS, VA 20110	STANLEY MARTIN HOMES, LLC		1.880	03/21/2022
BRADLEY SQUARE SEC 11-B1 SDR2021-00070 LND2022-00239	7794-89-7619 8804 SHERIDAN LN MANASSAS, VA 20110	STANLEY MARTIN HOMES, LLC		5.540	04/08/2022
BEACON PARK TOWNS AT BELMONT BAY SEC 2 SDR2022-00004 LND2022-00061	8492-33-9545 610 WATERMANS DR WOODBRIDGE, VA 22191	MILLER AND SMITH AT BELMONT BAY III LLC	7036153565	4.379	09/14/2021
BELLEWOOD SEC 2 SDR2022-00019	8290-07-6551 15627 MERRILY WAY WOODBRIDGE, VA 22193	K HOVNANIAN @ BELLEWOOD LLC	7038857337	13.210	12/06/2021

PUBLIC WORKS - ENVIRONMENTAL SERVICES

Land Plans with Disturbed Area that have Land Permits Issued

07/01/2021 Through 06/30/2022

Plan Name / Plan Number / Permit Number	Parcel Number / Address	Developer / Owner	Phone	Disturbed Area	Plan Approval Date
LND2022-00141					
POTOMAC SHORES LANDBAY 9 BLOCK 2 SDR2022-00020 LND2022-00185	8389-55-3146 1800 POTOMAC SHORES PKWY DUMFRIES, VA 22026	BIDDLE REAL ESTATE VENTURES		11.460	01/27/2022
BEACON PARK TOWNS AT BELMONT BAY SEC 2 SDR2022-00039 LND2022-00249	8492-32-9794 595 ANGELFISH WAY WOODBRIDGE, VA 22191	MILLER AND SMITH AT BELMONT BAY III LLC	7036153565	4.379	03/03/2022
POTOMAC SHORES LANDBAY 9 BLOCK 2 - REVISION 2 SDR2022-00065 LND2023-00013	8389-44-9146 1800 POTOMAC SHORES PKWY DUMFRIES, VA 22026	BIDDLE REAL ESTATE VENTURES		11.460	06/27/2022
VILLAGES AT RIPPON LODGE - FREESTONE II SPR2016-00244 LND2022-00045	8291-90-8011 2500 VANTAGE DR WOODBRIDGE, VA 22191	DHIC-FREESTONE LLC	7045161177	5.240	07/21/2021
POTOMAC SHORES - SOUTHERN SHORES DR SPR2016-00340 LND2022-00194	8389-53-6084 1542 CHERRY HILL RD DUMFRIES, VA 22026	HARBOR STATION COMMUNITIES	7034931747	59.500	12/30/2021
POTOMAC SHORES LANDBAY 5 SEC 1 & 2 - REC CTR SPR2020-00098 LND2023-00023	8388-59-3495 18053 WOODS OVERLOOK DR DUMFRIES, VA 22026	POTOMAC SHORES LANDBAY 5 LLC	2125542977	1.600	08/10/2021
POTOMAC SHORES - VRE STATION SPR2020-00143 LND2022-00161	8389-44-9146 17400 POTOMAC STATION WAY DUMFRIES, VA 22026	URBAN LTD	7036428080	8.290	12/21/2021
MCDONALD'S AT JEFFERSON PLAZA SPR2020-00199 LND2021-00274 LND2022-00072	8392-83-5814 13761 JEFFERSON DAVIS HWY WOODBRIDGE, VA 22191	GARRETT, ANDREW		0.980	08/11/2021

PUBLIC WORKS - ENVIRONMENTAL SERVICES

Land Plans with Disturbed Area that have Land Permits Issued

07/01/2021 Through 06/30/2022

Plan Name / Plan Number / Permit Number	Parcel Number / Address	Developer / Owner	Phone	Disturbed Area	Plan Approval Date
ADAMS GAINESVILLE CENTER SPR2020-00259 LND2022-00220	7495-71-6506 12655 VINT HILL RD NOKESVILLE, VA 20181	ALL DULLES AREA MUSLIM SOCIETY GREATER GAINESVILLE PROJECT ACCOUNT	7037280267	8.570	07/02/2021
CLOVERDALE PARK - PARK IMPROVEMENTS SPR2020-00309 LND2022-00013	8291-01-2650 15150 CLOVERDALE RD WOODBRIDGE, VA 22193	PWC PARKS & RECREATION	571-233-0211	2.480	05/09/2022
ENERGIX NOKESVILLE SOLAR FARM SPR2020-00377 LND2022-00097	7493-31-5998 13204 WARRENTON RD CATLETT, VA 20119	ENERGIX US LLC	9198071873	145.000	10/08/2021
OLD CAROLINA ROAD SIDEWALK SPR2020-00402 LND2021-00289	7297-88-5902 7118 WHEELING WAY GAINESVILLE, VA 20155	PRINCE WILLIAM COUNTY TRANSPORTATION	7037926347	0.810	08/30/2021
RIPPON CENTER SPR2021-00002 LND2022-00088	8390-89-3527 15524 FARM CREEK DR WOODBRIDGE, VA 22191	PK BIG CRIST LEAN LLC		9.440	10/12/2021
ARC REDEVELOPMENT - LEVEL 2 WET POND SPR2021-00045 LND2021-00222 LND2022-00118	7497-42-1202 5945 WELLINGTON RD GAINESVILLE, VA 20155	GAINESVILLE ASSOCIATES LLC	2029652424	21.790	09/17/2021
GAINESVILLE CROSSING DATA CENTER PH 1 SPR2021-00096 LND2022-00133	7497-56-0118 13700 UNIVERSITY BLVD GAINESVILLE, VA 20155	GCDC PURCHASER C/O KANDLE SHARED SERVICES LLC	9252855491	65.650	11/16/2021
I-66 EMP: ADMIN OPERATIONS & MAINTENANCE FACILITY SPR2021-00105 LND2022-00007	7597-53-9572 7450 CENTURY PARK DR MANASSAS, VA 20109	I-66 EXPRESS MOBILITY PARTNERS		3.860	07/14/2021

PUBLIC WORKS - ENVIRONMENTAL SERVICES

Land Plans with Disturbed Area that have Land Permits Issued

07/01/2021 Through 06/30/2022

Plan Name / Plan Number / Permit Number	Parcel Number / Address	Developer / Owner	Phone	Disturbed Area	Plan Approval Date
HISH PROPERTY SPR2021-00142 LND2022-00166	7595-93-4700 11101 NOKESVILLE RD MANASSAS, VA 20110	HISH FAMILY REALTY LIMITED PTNRSHP		3.250	07/19/2021
AUTOZONE AT REGENCY BRAEMAR PH II SPR2021-00155 LND2022-00266	7495-78-8127 9410 LINTON HALL RD BRISTOW, VA 20136	AUTOZONE	9014957031	0.970	09/13/2021
POTOMAC SHORES TOWN CENTER BLOCK 3 SPR2021-00157 LND2022-00106	8389-44-9959 1707 DUNNINGTON PL DUMFRIES, VA 22026	HARBOR STATION COMMUNITIES LLC	7039671572	11.200	10/07/2021
AIRPORT GATEWAY COM CTR I & II - MANASSAS CORP CTR SPR2021-00158 LND2022-00252	7694-84-3044 10101 HARRY J PARRISH BLVD MANASSAS, VA 20110	CLOUDHQ		34.910	03/22/2022
JULIE METZ WETLAND BOARDWALK SPR2021-00162 LND2022-00030	8390-36-3481 15875 NEABSCO RD WOODBRIDGE, VA 22191	PWC PARKS & RECREATION	7037924234	1.320	01/06/2022
BUILDING VA2B1 SPR2021-00171 LND2022-00084	7596-56-3489 11660 HAYDEN RD MANASSAS, VA 20109	KH DATA CAPITAL DEVELOPEMENT LAND, LLC	7247947537	30.920	08/09/2021
VIRGINIA MEADOWS IND PK - LOT 6 / BENFIELD ELEC SPR2021-00203 LND2022-00021 LND2022-00089	7596-23-6190 12001 WILTON MEADOWS CT MANASSAS, VA 20109	BENFIELD & DRESSLER LLC		3.370	08/24/2021
CHICK-FIL-A @ QUANTICO CENTER SPR2021-00210 LND2022-00151	8189-77-6123 3880 FETTLER PARK DR DR DUMFRIES, VA 22025	CHICK-FIL-A INC	4043054152	0.170	10/28/2021

PUBLIC WORKS - ENVIRONMENTAL SERVICES

Land Plans with Disturbed Area that have Land Permits Issued

07/01/2021 Through 06/30/2022

Plan Name / Plan Number / Permit Number	Parcel Number / Address	Developer / Owner	Phone	Disturbed Area	Plan Approval Date
PRINCE WILLIAM COUNTY ANIMAL SHELTER SPR2021-00216 LND2022-00056	7991-09-6721 14811 DUMFRIES RD MANASSAS, VA 20112	PRINCE WILLIAM COUNTY	7037925722	6.000	09/01/2021
AVANTI AT INNOVATION SPR2021-00218 LND2022-00116	7595-85-6467 9720 HORNBAKER RD MANASSAS, VA 20109	SI NVA02 LLC	7039650580	19.126	10/18/2021
DOMINION LIBERTY STORAGE YARD RAIL SPUR SPR2021-00224 LND2022-00202	7596-77-9742 8301 BETHLEHEM RD MANASSAS, VA 20109	DOMINION ENERGY	8042296217	1.970	11/24/2021
SHEETZ AT ORCHARD BRIDGE SPR2021-00225 LND2022-00210	7897-35-4244 7285 CENTREVILLE RD MANASSAS, VA 20111	SHEETZ INC	8142396021	2.220	02/04/2022
UNITY BRAXTON MIDDLE SCHOOL SECURITY RESIDENCE SPR2021-00226 LND2022-00092	7697-70-8563 10100 LOMOND DR MANASSAS, VA 20109	PRINCE WILLIAM COUNTY PUBLIC SCHOOLS	7037918717	0.110	07/02/2021
BALLS FORD ROAD FLEX SPR2021-00227 LND2022-00065	7597-02-0716 12980 BALLS FORD RD MANASSAS, VA 20109	66 CAPITAL PARTNERS LLC	7033356060	0.650	08/10/2021
VIRGINIA MEADOWS - BECKNELL MANASSAS 2.0 SPR2021-00237 LND2022-00098	7596-26-7193 8501 VIRGINIA MEADOWS DR MANASSAS, VA 20109	BECKNELL SERVICES LLC		6.380	09/21/2021
FULLER RD IMPROVEMENTS - PI PLAN SPR2021-00250 LND2023-00036	8188-63-2578 18728 FULLER HEIGHTS RD TRIANGLE, VA 22172	PRINCE WILLIAM COUNTY TRANSPORTATION	7037925276	2.170	03/02/2022
RANDOLPH INDUSTRIAL PARK SPR2021-00253	7497-73-0765 12751 RANDOLPH RIDGE LN MANASSAS, VA 20109	CZAG LLC		4.700	01/05/2022

Land Plans with Disturbed Area that have Land Permits Issued

07/01/2021 Through 06/30/2022

Plan Name / Plan Number / Permit Number	Parcel Number / Address	Developer / Owner	Phone	Disturbed Area	Plan Approval Date
LND2022-00149					
WOODBINE SHOPPING CENTER - DUNKIN DONUTS SPR2021-00258 LND2022-00155	7892-55-2432 13414 DUMFRIES RD MANASSAS, VA 20112	WOODBINE SHOPPING CENTER ASSOCIATES LLC C/O PROMARK PARTNERS, AGENT	3017951426	0.230	09/07/2021
McDONALD'S DALE BOULEVARD SPR2021-00259 LND2022-00187	8291-53-0355 2891 DALE BLVD WOODBRIDGE, VA 22193	BOHLER ENGINEERING VA, LLC	5403194500	0.570	01/06/2022
MEDICAL ACCESS SPR2021-00268 LND2022-00034	8391-47-2838 14520 JEFFERSON DAVIS HWY WOODBRIDGE, VA 22191	MEDICAL ACCESS	3044283192	0.050	07/20/2021
PROJECT MANGO PH 1 SPR2021-00299 LND2022-00184	7496-47-2202 13001 ROLLINS FORD RD BRISTOW, VA 20136	NOVA MANGO FARMS LLC	7036692074	27.020	10/04/2021
QUANTICO CENTER SPR2021-00305 LND2023-00019	8189-68-5008 16826 DUMFRIES RD DUMFRIES, VA 22025	QUANTICO CENTRE LLC	7035035555	5.730	07/20/2021
WAWA @ SUDLEY ROAD - TESLA CHARGING STATIONS SPR2021-00308 LND2022-00044	7697-33-5350 10691 DAVIDSON PL MANASSAS, VA 20109	DEWBERRY ENGINEERS INC.		0.010	07/08/2021
BRENTSVILLE HIGH SCHOOL - ADA PATH SPR2021-00310 LND2022-00226	7493-86-8825 12109 ADEN RD NOKESVILLE, VA 20181	PRINCE WILLIAM COUNTY PUBLIC SCHOOLS	7037918718	0.090	12/27/2021
NEABSCO COMMON BUILDING H SPR2021-00311 LND2022-00162	8291-82-5288.00 2501 NEABSCO COMMON PL WOODBRIDGE, VA 22191	I-95 DALE , LLC C/O UNIWEST DEVELOPMENT	7036984042	0.170	08/10/2021

PUBLIC WORKS - ENVIRONMENTAL SERVICES

Land Plans with Disturbed Area that have Land Permits Issued

07/01/2021 Through 06/30/2022

Plan Name / Plan Number / Permit Number	Parcel Number / Address	Developer / Owner	Phone	Disturbed Area	Plan Approval Date
KAISER PERMANENTE SOUTH NORTHERN VIRGINIA HUB SPR2021-00316 LND2022-00053	8292-65-4454 13285 MINNIEVILLE RD WOODBRIDGE, VA 22192	KAISER FOUNDATION HEALTH PLAN	3015523658	10.600	08/23/2021
AIRPORT GATEWAY COMMERCE CENTER SPR2021-00317 LND2022-00037	7694-87-2207 10101 HARRY J PARRISH BLVD MANASSAS, VA 20110	CLOUD HQ	2026790683	0.610	07/20/2021
PROJECT MANGO PH 1 - OFFSITE TELECOM SPR2021-00326 LND2022-00029 LND2022-00077	7496-43-8199 13301 CASEY LN BRISTOW, VA 20136	BOWMAN	7033028701	0.550	08/31/2021
HARPERS STATION LOT 10A SPR2021-00332 LND2022-00028	7297-11-5315 15901 LOVES MILL LN GAINESVILLE, VA 20155	SAGE DEVELOPMENT GROUP	8502388526	7.560	07/29/2021
KESSINGER HUNTER BLDG VA3, VA4 & VA5 SPR2021-00335 LND2023-00030	7596-56-3489 11610 HAYDEN RD MANASSAS, VA 20109	JCL CONSULTING LLC	7034889877	67.440	04/29/2022
DUNKIN BAKERY SPR2021-00337 LND2022-00128	7596-46-3410 11825 LEXINGTON VALLEY DR MANASSAS, VA 20109	VIGARIO MANAGEMENT CORP	2404815441	2.540	08/05/2021
REDSTONE INDUSTRIAL PARK SPR2022-00002 LND2023-00028	7595-79-5266 9232 HORNBAKER RD MANASSAS, VA 20109	BDH PROPERTIES	2402384347	39.730	06/22/2022
YOUTH FOR TOMORROW SPR2022-00004 LND2022-00095	7595-52-1880 10051 LINTON HALL RD BRISTOW, VA 20136	YOUTH FOR TOMORROW	7033968337	9.340	10/21/2021

PUBLIC WORKS - ENVIRONMENTAL SERVICES

Land Plans with Disturbed Area that have Land Permits Issued

07/01/2021 Through 06/30/2022

Plan Name / Plan Number / Permit Number	Parcel Number / Address	Developer / Owner	Phone	Disturbed Area	Plan Approval Date
PW PARKWAY INTERCHANGE @ BALLS FORD ROAD SPR2022-00007 LND2022-00042	7496-87-7828 8106 DEVLIN RD BRISTOW, VA 20136	PWC DOT	7039066480	33.700	08/17/2021
ROUTE 234 BRENTSVILLE ROAD INTERCHANGE PROJECT SPR2022-00010 LND2022-00148	7794-76-1613 10804 DUMFRIES RD MANASSAS, VA 20112	WAGMAN	8042975264	76.320	01/11/2022
PEMBROOK PH 1 SEC 5 SPR2022-00018 LND2022-00040	7496-90-4593 12604 VICTORY LAKES LOOP BRISTOW, VA 20136	VICTORY LAKES CA	70336866611	240.000	07/22/2021
12905 FITZWATER DRIVE SPR2022-00025 LND2022-00071	7493-58-6856 12905 FITZWATER DR NOKESVILLE, VA 20181	LAUREN M SIMON REALTY LLC	2177141229	0.987	08/30/2021
COVANCE SPR2022-00027 LND2022-00257	7695-26-4026 9700 INNOVATION DR MANASSAS, VA 20110	KIMLEY-HORN & ASSOCIATES	7036741374	79.400	05/05/2022
YOUTH FOR TOMORROW #5 & MODULAR UNIT #5 SPR2022-00031 LND2022-00083	7595-44-4815 11835 HAZEL CIRCLE DR BRISTOW, VA 20136	THE ENGINEERING GROUPE, INC.	7033954172	0.660	09/21/2021
AVANTI INNOVATION PH 2 SPR2022-00032 LND2022-00204	7595-76-2307 9590 HORNBAKER RD MANASSAS, VA 20109	GORDON	7038892310	25.260	03/04/2022
VILLAGES AT RIPPON LODGE - FREESTONE II SPR2022-00034 LND2022-00197	8291-90-8011 2500 VANTAGE DR WOODBRIDGE, VA 22191	DHIC-FREESTONE LLC	7045161177	5.240	02/08/2022
PAVILION DEVELOPMENT SPR2022-00036	7595-93-9330 11013 NOKESVILLE RD MANASSAS, VA 20110	PAVILION DEVELOPMENT COMPANY	7049445962	3.700	10/25/2021

Land Plans with Disturbed Area that have Land Permits Issued

07/01/2021 Through 06/30/2022

Plan Name / Plan Number / Permit Number	Parcel Number / Address	Developer / Owner	Phone	Disturbed Area	Plan Approval Date
LND2022-00100					
KOONS HYUNDAI EXPANSION SPR2022-00055 LND2022-00208	8391-36-6375 1880 OPITZ BLVD WOODBRIDGE, VA 22191	KOONS AUTOMOTOTIVE COMPANY	7036746492	2.090	02/03/2022
SES MANASSAS TELEPORT SPR2022-00066 LND2022-00154	7496-79-1270 8000 GAINSFORD CT BRISTOW, VA 20136	SES	7033677311	0.086	11/03/2021
LATSIOS INDUSTRIAL SPR2022-00070 LND2022-00212	7497-54-1947 12875 RANDOLPH RIDGE LN MANASSAS, VA 20109	GAINESVILLE INDUSTRIAL OWNER LLC	3014170510	10.250	01/13/2022
8150 CHATSWORTH SPR2022-00078 LND2022-00233	7596-87-6963 8150 CHATSWORTH DR MANASSAS, VA 20109	TDP, LLC	7039304205	2.020	03/04/2022
RIDGEFIELD VILLAGE RETAIL CENTER SPR2022-00080 LND2023-00068	8093-71-5692 12707 RIDGEFIELD VILLAGE DR WOODBRIDGE, VA 22193	NLD RIDGEFIELD LLC	6123130129	5.160	02/16/2022
MANASSAS LOGISTICS CENTER SPR2022-00084 LND2022-00264	7595-82-0500 10201 GOLF ACADEMY DR BRISTOW, VA 20136	MANASSAS LOGISTICS CENTER, LLC	2022953818	20.960	05/05/2022
PRINCE WILLIAM REGIONAL INDUSTRIAL COMPLEX SPR2022-00085 LND2022-00135	7497-93-8012 12391 RANDOLPH RIDGE LN MANASSAS, VA 20109	THE 2501 LLC	7039263445	0.030	12/02/2021
MARUMSCO ACRES LAKE PARK - ADA & PARK IMPROVEMENTS SPR2022-00087 LND2022-00137	8391-98-3577 14403 MELBOURNE AVE WOODBRIDGE, VA 22191	PWC DEPT OF PARKS, RECREATION, & TOURISM	7037924217	0.540	02/10/2022

PUBLIC WORKS - ENVIRONMENTAL SERVICES

Land Plans with Disturbed Area that have Land Permits Issued

07/01/2021 Through 06/30/2022

Plan Name / Plan Number / Permit Number	Parcel Number / Address	Developer / Owner	Phone	Disturbed Area	Plan Approval Date
AMERICAN WARTIME MUSEUM LANDSCAPES OF WAR - E&S SPR2022-00090 LND2022-00112	8291-53-1608 3127 DALE BL	AMERICAN IN WARTIME LLC	7035901111	12.020	10/19/2021
AT&T @ FREEDOM HIGH SCHOOL SPR2022-00101 LND2022-00101	8291-91-1546 15201 NEABSCO MILLS RD WOODBRIDGE, VA 22191	MILESTONE TOWER LIMITED PARTNERSHIP IV D.B.A. MILESTONE COMMUNICATIONS	7038654697	0.010	09/29/2021
VALVOLINE AT HAYMARKET SPR2022-00102 LND2023-00045	7298-61-1745 6360 JOHN JAMES WAY HAYMARKET, VA 20169	VALVOLINE INSTANT OIL CHANGE	8048401992	0.620	05/24/2022
MERRITT I-66 BUSINESS PARK SPR2022-00108 LND2022-00085	7597-25-1404 7370 MERRITT PARK DR MANASSAS, VA 20109	RINKER DESIGN ASSOCIATES PC	7033687373	0.001	09/29/2021
FIREBIRDS CANOPY ADDITION AT POTOMAC TOWN CENTER SPR2022-00109 LND2022-00284	8291-84-7996 2401 OPITZ BLVD WOODBRIDGE, VA 22191	FIREBIRDS WOOD FIRE GRILL	7042270821	0.001	11/10/2021
4381 OCCOQUAN OVERLOOK SPR2022-00122 LND2022-00190	8194-36-9894 4381 OCCOQUAN OVERLOOK WOODBRIDGE, VA 22192	CLIFFORD ALLISON	7032179267	0.450	03/16/2022
CWS 32 - GAINESVILLE WEST SPR2022-00130 LND2022-00211	7397-01-0983 14813 LEE HWY GAINESVILLE, VA 20155	ENTREX COMMUNICATIONS SERVICES, INC	2027251286	0.360	03/14/2022
VERIZON AT DALE BLVD - I-101 SPR2022-00131 LND2022-00186	8191-95-8579 3577 DALE BLVD WOODBRIDGE, VA 22193	VERIZON	3016091877	0.050	02/21/2022
PROJECT DC-5 SPR2022-00138	7695-39-0644 9301 FREEDOM CENTER BLVD MANASSAS, VA 20110	CHRISTOPHER CONSULTANTS, LTD	7033345652	21.300	12/07/2021

PUBLIC WORKS - ENVIRONMENTAL SERVICES

Land Plans with Disturbed Area that have Land Permits Issued

07/01/2021 Through 06/30/2022

Plan Name / Plan Number / Permit Number	Parcel Number / Address	Developer / Owner	Phone	Disturbed Area	Plan Approval Date
LND2022-00134					
ROLLINS FORD ROAD - PI PLAN SPR2022-00141 LND2022-00263	7496-47-2202 13001 ROLLINS FORD RD BRISTOW, VA 20136	NOVA MANGO FARMS LLC C/O BOWMAN CONSULTING GROUP	7034432400	2.000	05/05/2022
WOODBRIDGE HIGH SCHOOL SPR2022-00142 LND2022-00153	8293-43-3723 3001 OLD BRIDGE RD WOODBRIDGE, VA 22192	PRINCE WILLIAM COUNTY PUBLIC SCHOOLS	7037918717	0.126	12/28/2021
HYLTON HIGH SCHOOL - BUILDING ADDITION SPR2022-00143 LND2022-00255	8092-12-4102 14051 SPRIGGS RD WOODBRIDGE, VA 22192	CHRISTOPHER CONSULTANTS	7033345659	0.990	05/05/2022
YOUTH FOR TOMORROW - GRADING SPR2022-00147 LND2022-00104	7595-44-6561 11800 HAZEL CIRCLE DR	YOUTH FOR TOMORROW	7033968337	17.820	10/29/2021
MANAPORT PLAZA - SPROUTS SPR2022-00164 LND2022-00241	7696-76-9773 8345 SUDLEY RD MANASSAS, VA 20109	FINMARC MANAGEMENT INC	3018369752	0.050	04/01/2022
INNOVATION 2 SILOS BREWING CO SPR2022-00170 LND2022-00246	7695-14-7690 9349 HORNBAKER RD MANASSAS, VA 20109	RINKER DESIGN ASSOCIATES	7033687373	0.110	02/02/2022
BUILDING VA2B1 SPR2022-00171 LND2022-00192	7596-57-0222 11650 HAYDEN RD MANASSAS, VA 20109	KH DATA CAPITAL DEVELOPEMENT LAND, LLC	7247947537	30.920	01/20/2022
SIGNAL HILL ELEMENTARY SCHOOL ADDITION SPR2022-00181 LND2022-00245	7895-57-7834 9553 BIRMINGHAM DR MANASSAS, VA 20111	PRINCE WILLIAM COUNTY PUBLIC SHOOLS	5717199313	0.450	04/15/2022

PUBLIC WORKS - ENVIRONMENTAL SERVICES

Land Plans with Disturbed Area that have Land Permits Issued

07/01/2021 Through 06/30/2022

Plan Name / Plan Number / Permit Number	Parcel Number / Address	Developer / Owner	Phone	Disturbed Area	Plan Approval Date
BRISTOW RUN ELEMENTARY SCHOOL SPR2022-00182 LND2022-00254	7496-21-4898 8990 WORTHINGTON DR BRISTOW, VA 20136	PRINCE WILLIAM COUNTY PUBLIC SHOOLS	5717199313	0.440	04/29/2022
POTOMAC MILLS MALL - TJ MAXX SPR2022-00183 LND2022-00182	8291-79-1954 2700 POTOMAC MILLS CIR WOODBRIDGE, VA 22192	MALL AT POTOMAC MILLS LLC	7034969346	0.030	01/07/2022
VIRGINIA MEADOWS - BECKNELL MANASSAS 2.0 SPR2022-00186 LND2022-00136	7596-26-7193 8501 VIRGINIA MEADOWS DR MANASSAS, VA 20109	BECKNELL INDUSTRIAL		6.380	12/20/2021
ROUTE 234-BRENTSVILLE ROAD INTERCHANGE SPR2022-00189 LND2022-00147	7794-85-3121 11000 DUMFRIES RD MANASSAS, VA 20112	WEGMAN	7174724233	0.990	01/12/2022
HYLTON HIGH SCHOOL - STADIUM TURF FIELD CONVERSION SPR2022-00191 LND2022-00219	8092-12-4102 14051 SPRIGGS RD WOODBRIDGE, VA 22193	PRINCE WILLIAM COUNTY PUBLIC SHOOLS	5717199313	4.200	02/17/2022
EAGLES CROSSING SPR2022-00196 LND2022-00176	7596-88-3274 11341 EAGLES OVERLOOK DR MANASSAS, VA 20109	NVP INC.	7034792067	1.740	01/25/2022
BUILDING VA2B1 SPR2022-00197 LND2022-00200	7596-57-0222 11650 HAYDEN RD MANASSAS, VA 20109	IRON MOUNTAIN DATA CENTERS, LLC	5183895738	30.920	03/02/2022
AVANTI INNOVATION PH 2 - GRADING PLAN SPR2022-00212 LND2022-00156	7595-76-2307 9590 HORNBAKER RD MANASSAS, VA 20109	SI NVA04 LLC	7033289140	25.260	01/12/2022
TURLEY FIELDS SPR2022-00217	8291-33-0384 15011 BIRCHDALE AVE WOODBRIDGE, VA 22193	BOARD OF COUNTY SUPERVISORS	7037926000	0.480	06/21/2022

PUBLIC WORKS - ENVIRONMENTAL SERVICES

Land Plans with Disturbed Area that have Land Permits Issued

07/01/2021 Through 06/30/2022

Plan Name / Plan Number / Permit Number	Parcel Number / Address	Developer / Owner	Phone	Disturbed Area	Plan Approval Date
LND2023-00033					
PRINCE WILLIAM COMMERCE CENTER SPR2022-00219 LND2022-00172	7895-25-4620 9795 LIBERIA AVE MANASSAS, VA 20110	LIDL US OPERATIONS LLC	571 7330780	0.010	01/13/2022
MANASSAS LOGISTICS CENTER SPR2022-00239 LND2022-00209	7595-82-0501 10201 GOLF ACADEMY DR BRISTOW, VA 20136	MANASSAS LOGISTICS CENTER, LLC	2022953818	20.960	02/03/2022
YOUTH FOR TOMORROW - VARIOUS BUILDINGS SPR2022-00240 LND2022-00183	7595-42-4388 11800 HAZEL CIRCLE DR	YOUTH FOR TOMORROW	7033968337	17.820	02/11/2022
AVANTI @ INNOVATION - PRE-CONSTRUCTION PLAN SPR2022-00250 LND2022-00247	7595-85-0592 9680 HORNBAKER RD MANASSAS, VA 20109	PETERSON DEVELOPMENT COMPANIES LC		98.040	04/21/2022
OLD BRIDGE ESTATES POOL HOUSE RENOVATIONS SPR2022-00271 LND2022-00248	8193-91-3918 3600 BEAVER POND RD WOODBRIDGE, VA 22192	MONARC CONSTRUCTION, INC.	2023040122	0.023	04/20/2022
AMERICAN WARTIME MUSEUM LANDSCAPES OF WAR - E&S SPR2022-00280 LND2022-00223	8291-53-1608 3127 DALE BLVD WOODBRIGE, VA 20192	AMERICAN IN WARTIME LLC	7035901111	17.020	03/30/2022
KOONS FORD WOODBRIDGE - MINOR FOR FRONT ENTERANCE SPR2022-00301 LND2023-00018	8292-22-1892 13779 NOBLEWOOD PLZ WOODBRIDGE, VA 22193	JIM KOONS MANAGEMENT COMPANY	7034487179	0.010	06/24/2022
INNOVATION EXECUTIVE CENTER - MANASSAS DC-2 & DC-3 SPR2022-00325 LND2023-00032	7695-48-5745 9420 GODWIN DR MANASSAS, VA 20110	QTS INVESTMENT PROPERTIES MANASSAS II LLC	2144708874	13.090	06/23/2022

Land Plans with Disturbed Area that have Land Permits Issued

07/01/2021 Through 06/30/2022

Plan Name / Plan Number / Permit Number	Parcel Number / Address	Developer / Owner	Phone	Disturbed Area	Plan Approval Date
HOPE HILL CROSSING - MINOR FOR TRAIL IMPROVEMENTS SPR2022-00327 LND2022-00276	8091-41-2470 15141 ADDISON LN WOODBRIDGE, VA 22193	FINLEY ASPHALT & CONCRETE	5713179248	0.050	05/23/2022
INNOVATION - FBI FIELD OFFICE SPR2022-00332 LND2022-00283	7595-98-7006 9345 DISCOVERY BL	DEWBERRY		0.100	06/21/2022
GRACE CHURCH -REVISION FOR CURB & STAIRS SPR2022-00360 LND2022-00273	8189-67-8233 17150 VAN BUREN RD DUMFRIES, VA 22025	GRACE CHRISTIAN CHURCH		12.240	06/14/2022

Total Number of Land Plans: 125

Total Number of Disturbed Acres: 1,697.889

END OF REPORT

Appendix C

List of County-Maintained Roadways and Parking Lots

ST NO	ST NAME	ST TYPE	DEED ACRES	DESCRIPTION	Impervious Parking Lot? (Yes=1; No=0)	Area of Imp. Parking Lot (Acres)	Impervious Road? (Yes=1; No=0)	Imp. Road (Linear Ft)	Imp. Road (Acres)	Site BMPs (Yes=1; No=0)	Parking Lots Treated by BMPs (Acres)	Imp. Roads Treated by BMPs (Acres)	Imp. Roads Treated by BMPs (Miles)	Imp. Roads Not Treated by BMPs (Miles)
4925	CATHARPIN	RD	1.216	LAWNVALE ESTATES SEC 2 R/W PRIVATE ROAD	0		1	880	0.38	0	0	0	0	0.17
13001	CHINN PARK	DR	77.003	CHINN PARK	0		1	97	0.05	1	0	0.05	0.02	0
13131	PUBLIC SAFETY	DR	12.081	PUBLIC SAFETY FACILITY - ACREAGE	0		1	585	0.15	1	0	0.15	0.11	0
5049	WATERWAY	DR	8.21	MONTCLAIR LIBRARY (UNDER CONSTRUCTION)	0		1	716	0.801	1	0	0.801	0.14	0
8636	WELLINGTON	RD	0.857	PWC JUVENILE CTR	0		1	284	0.16	1	0	0.16	0.05	0
1040	EXPRESS	DR	2.538	VRE TRAIN STATION WOODBRIDGE	0		1	483	0.65	1	0	0.65	0.09	0
7625	AARON	LN	15.264	ELLIS L BARRON PARK	1	0.29	0			1	0.29	0	0	0
12560	ADEN	RD	97.074	NOKESVILLE COMMUNITY PARK	1	1.87	1	4393	1.4	1	1.87	1.4	0.83	0
5901	ANTIOCH	RD	3.8	FIRE STATION ANTIOCH ROAD/ DOMINION VALLEY	1	1.17	1	897	0.62	1	1.17	0.62	0.17	0
8051	ASHTON	AV	4.177	BULL RUN LIBRARY	1	1.94	1	231	0.15	1	1.94	0.15	0.04	0
7500	BEN LOMOND PARK	DR	240.607	BEN LOMOND PARK	1	1.92	1	1010	0.86	1	1.92	0.86	0.19	0
14730	BIRCHDALE	AV	8.656	BIRCHDALE PARK	1	0.77	0			0	0	0	0	0
14998	BIRCHDALE	AV	0.836	VFD FIRE STATION	1	0.33	1	58	0.038	0	0	0	0	0.01
15011	BIRCHDALE	AV	4.146	BIRCHDALE PARK	1	0.165	0			0	0	0	0	0
15520	BLACKBURN	RD	42.452	RIPPON LODGE	1	0.48	1	1050	0.58	1	0.48	0.58	0.2	0
12401	BRAEMAR	PY	15.172	BRAEMAR PARK	1	0.55	0			1	0.55	0	0	0
14418	BRISTOW	RD	132.734	HELWIG PARK & LIBRARY	1	6.5	1	3,800	2.18	1	6.5	2.18	0.72	0
14422	BRISTOW	RD	1.5	HELWIG PARK ENTRANCE	0		1	167	0.32	1	0	0.32	0.03	0
13065	CHINN PARK	DR	14.647	CHINN PARK COMPLEX (Library, Aquatic Center)	1	4.86	1	509	0.29	1	4.86	0.29	0.1	0
13850	CHURCH HILL	DR	5.086	COMMUNITY CENTER	1	0.49	1	547	0.25	0	0	0	0	0.1
15150	CLOVERDALE	RD	30.19	CLOVERDALE PARK	1	1.57	1	1122	0.49	0	0	0	0	0.21
10501	COPELAND	DR	2.974	SUDLEY MANOR COMMUNITY CENTER	1	0.74	0			0	0	0	0	0
12380	COTTON MILL	DR	4.77	LAKE RIDGE MARINA	0		1	1163	0.65	1	1.02	0.65	0.22	0
12371	COTTON MILL	DR	67.064	LAKE RIDGE PARK, GOLF COURSE	1	2.01	1	1179	0.66	1	2.01	0.66	0.22	0
12390	COTTON MILL	DR	4.675	LAKE RIDGE PARK	1	1.15	1	2430	1.16	1	1.15	1.16	0.46	0
7	COUNTY COMPLEX	CT	65.547	STADIUM COMPLEX	1	4.88	1	950	0.54	1	4.88	0.54	0.18	0
1	COUNTY COMPLEX	CT	40.676	McCOURT & DEVELOPMENT SERVICES BUILDINGS	1	7.03	1	5085	4.8	1	7.03	4.8	0.96	0
5180	DALE	BL	7.161	PARKS SKATE NATION	1	1.48	0			1	1.48	0	0	0
5070	DALE	BL	6.179	BOYS AND GIRLS CLUB	1	0.38	0			1	0.38	0	0	0
5100	DALE	BL	3.5	BOYS/ GIRLS CLUB/COMMUTER PARKING LOT	1	2.61	1	338	0.24	1	2.61	0.24	0.06	0
5301	DALE	BL	218.234	ANDREW LEITCH PARK	1	1.95	1	933	0.46	1	1.95	0.46	0.18	0

ST NO	ST NAME	ST TYPE	DEED ACRES	DESCRIPTION	Impervious Parking Lot? (Yes=1; No=0)	Area of Imp. Parking Lot (Acres)	Impervious Road? (Yes=1; No=0)	Imp. Road (Linear Ft)	Imp. Road (Acres)	Site BMPs (Yes=1; No=0)	Parking Lots Treated by BMPs (Acres)	Imp. Roads Treated by BMPs (Acres)	Imp. Roads Treated by BMPs (Miles)	Imp. Roads Not Treated by BMPs (Miles)
4249	DALE	BL	0.478	DALE CITY LIBRARY	1	0.1	0			0	0	0	0	0
14012	DAWSON BEACH	RD	6.23	COMMUNITY CENTER	1	0.16	1	1444	0.47	0	0	0	0	0.27
15941	DONALD CURTIS	DR	17.091	FERLAZZO BLDG	1	4.9	1	600	0.5	1	4.9	0.5	0.11	0
13712	DUMFRIES	RD	9.54	COLES FIRE STATION	1	0.98	1	925	0.5	1	0.98	0	0	0
4100	EXETER	DR	5.688	BRITTANY PARK	1	0.96	1	334	0.16	1	0.96	0.16	0.06	0
15611	FARM CREEK	DR	2.427	FARM CREEK VRE COMMUTER LOT	1	1.22	0			1	1.22	0	0	0
15601	FARM CREEK	DR	4.413	FARM CREEK VRE COMMUTER LOT	1	2.65	1	762	0.88	1	2.65	0.88	0.14	0
12993	FITZWATER	DR	0.287	NOKESVILLE LIBRARY - PCL 1	1	0.09	0			1	0.09	0	0	0
12983	FITZWATER	DR	0.287	NOKESVILLE LIBRARY - PCL 2	1	0.1	0			1	0.05	0	0	0
8900	FREEDOM CENTER	BL	15.398	WESTERN POLICE STATION	1	4.15	1	1453	1.03	1	4.15	1.03	0.28	0
18809	FULLER HEIGHTS	RD	42.26	FULLER HEIGHTS PARK	1	0.86	1	1137	0.52	1	0.86	0.52	0.22	0
13030	HARBOR	DR	2.293	COMMUTER LOT - TACKETTS MILL	1	1.47	0			1	1.47	0	0	0
13509	HILLENDALE	DR	3.426	COMMUTER LOT - HILLENDALE RD	1	2.23	0			1	2.23	0	0	0
13499	HILLENDALE	DR	21.901	JOHN JENKINS PARK	1	0.16	1	413	0.26	1	0.16	0.26	0.08	0
12940	HUNTING	CO	2.52	BROAD RUN PARK	1	0.31	0			1	0.31	0	0	0
4603	JAMES MADISON	HY	163.633	JAMES LONG PARK	1	3.55	1	3025	2.02	1	3.55	2.02	0.57	0
15904	RICHMOND	HY	0.96	EASTERN FUELING STATION	1	0.74	0			1	0.74	0	0	0
14945	RICHMOND	HY	5.065	HILDA BARG HOMELESS CENTER	1	0.3	1	468	0.25	1	0.3	0.25	0.09	0
14450	JOHN MARSHALL	HY	3.847	FIRE STATION	1	0.86	1	435	0.26	1	0.86	0.26	0.08	0
9250	LEE	AV	2.307	OLD COURTHOUSE/PARKING	1	0.67	0			1	0.67	0	0	0
9254	LEE	AV	0.201	OLD COURTHOUSE/PARKING	1	0.07	0			1	0.07	0	0	0
9252	LEE	AV	0.186	OLD COURTHOUSE/PARKING	1	0.05	0			1	0.05	0	0	0
9256	LEE	AV	0.154	OLD COURTHOUSE/PARKING	1	0.04	0			1	0.04	0	0	0
9258	LEE	AV	0.163	OLD COURTHOUSE/PARKING	1	0.04	0			1	0.04	0	0	0
9300	LEE	AV	8.502	OLD COURTHOUSE/PARKING	1	2.2	0			1	2.2	0	0	0
9301	LEE	AV	4.68	OLD COURTHOUSE/PARKING	1	2.03	0			1	2.03	0	0	0
14870	LIGHTNER	RD	4.248	GAINESVILLE LIBRARY	1	1.1	1	160	0.15	1	1.1	0	0	0
4701	LOCUST SHADE	DR	642.151	LOCUST SHADE PARK AND FOREST GREEN GOLF	1	3.9	1	7170	3.95	1	3.9	3.95	1.36	0
8460	MAPLEWOOD	DR	27.478	JOSEPH READING PARK	1	0.4	1	1162	0.62	1	0.4	0.62	0.22	0
8601	MATHIS	AV	2.748	CENTRAL LIBRARY MANASSAS	1	1.35	0			0	0	0	0	0

ST NO	ST NAME	ST TYPE	DEED ACRES	DESCRIPTION	Impervious Parking Lot? (Yes=1; No=0)	Area of Imp. Parking Lot (Acres)	Impervious Road? (Yes=1; No=0)	Imp. Road (Linear Ft)	Imp. Road (Acres)	Site BMPs (Yes=1; No=0)	Parking Lots Treated by BMPs (Acres)	Imp. Roads Treated by BMPs (Acres)	Imp. Roads Treated by BMPs (Miles)	Imp. Roads Not Treated by BMPs (Miles)
14716	MINNIEVILLE	RD	26.333	HOWISON HOMESTEAD PARK	1	1.3	1	899	0.53	1	1.3	0.53	0.17	0
14400	MINNIEVILLE	RD	0.367	DALE CITY RECREATION CENTER PARKING LOT	1	0.23	0			1	0.23	0	0	0
14300	MINNIEVILLE	RD	30.862	DALE CITY RECREATION CENTER	1	1.4	1	164	0.31	1	1.4	0.31	0.03	0
9320	MOSBY	ST	4.759	COURTHOUSE PARKING	1	1.85	0			1	1.85	0	0	0
9350	MOSBY	ST	9.452	COURTHOUSE PARKING	1	0.05	0			1	0.05	0	0	0
2081	OLD BRIDGE	RD	0.7	OLD BRIDGE COMMUTER LOT	1	0.39	0			1	0.39	0	0	0
2095	OLD BRIDGE	RD	1.138	OLD BRIDGE COMMUTER LOT	1	1.12	0			1	1.12	0	0	0
2201	OPITZ	BL	3.778	POTOMAC REGIONAL LIBRARY	1	0.93	1	53	0.038	0	0	0	0	0.01
9212	PEABODY	ST	3.74	COURTHOUSE PARKING	1	1.51	0			1	1.51	0	0	0
9307	PEABODY	ST	0.228	COURTHOUSE PARKING	1	0.18	0			0	0	0	0	0
9305	PEABODY	ST	0.151	COURTHOUSE PARKING	1	0.15	0			0	0	0	0	0
9303	PEABODY	ST	0.276	COURTHOUSE PARKING	1	0.12	0			0	0	0	0	0
10699	PIPER	LN	40.33	AIRPORT VRE STATION & COMMUTER LOT	1	4.44	1	1902	1.3	1	4.44	1.3	0.36	0
13800	POP MOUBRY	PL	20.88	LANCASTER PARK	1	0.17	1	258	0.13	1	0.17	0.13	0.05	0
14700	POTOMAC MILLS	RD	3.58	PRTC POTOMAC MILLS	1	1.78	1	419	0.34	1	1.78	0.34	0.08	0
14730	POTOMAC MILLS	RD	0.787	PRTC - HOMELESS SHELTER	1	0.35	0			1	0.35	0	0	0
14716	POTOMAC MILLS	RD	5.507	PRTC POTOMAC MILLS	1	1.9	0			1	1.9	0	0	0
13161	PUBLIC SAFETY	DR	8.276	PUBLIC SAFETY TRAINING FACILITY - PCL B	1	0.4	0			1	0.4	0	0	0
13101	PUBLIC SAFETY	DR	25.052	PUBLIC SAFETY TRAINING FACILITY - PCL A	1	2.29	1	2581	1.8	1	2.29	1.8	0.49	0
12731	RIDGEFIELD VILLAGE	DR	4.4	EARL CUNARD PARK	1	0.18	0			1	0.18	0	0	0
17301	RIVER RIDGE	BL	6.262	LACEY COMPTON PARK - WAYSIDE VILLAGE	1	0.35	1	310	0.15	1	0.35	0.15	0	0
16530	RIVER RIDGE	BL	5.656	RIVER OAKS FIRE STATION	1	1.03	1	854	0.57	1	1.03	0.57	0.16	0
16198	SILVER LAKE	RD	43.753	SILVER LAKE - EQUESTRIAN CENTER	1	0.8	0			1	0.8	0	0	0
15960	SINDLINGER	WY	4.4	FERLAZZO CENTER	1	1.42	0			1	1.42	0	0	0
13455	TELEGRAPH	RD	24.609	HORNER RD COMMUTER PARKING LOT	1	10.9	1	1531	2.3	1	10.9	2.3	0.29	0
12051	TYGART LAKE	DR	42.074	BROAD RUN LINEAR PARK - PUMP STATION	1	0.38	0			1	0.38	0	0	0
11930	VALLEY VIEW	DR	125.626	VALLEY VIEW PARK	1	5.4	1	3644	2.8	1	5.4	2.8	0.69	0
14300	VETERANS	DR	78.114	VETERANS MEMORIAL PARK	1	3.21	1	4221	2.3	1	3.21	2.3	0.8	0
14631	VINT HILL	RD	165	PRINCE WILLIAM GOLF COURSE	1	0.8	1	1736	0.804	1	0.8	0.804	0.33	0
4450	WATERWAY	DR	13.802	ANN MONCURE WALL PARK	1	1	1	1373	0.66	1	1	0.66	0.26	0

ST NO	ST NAME	ST TYPE	DEED ACRES	DESCRIPTION	Impervious Parking Lot? (Yes=1; No=0)	Area of Imp. Parking Lot (Acres)	Impervious Road? (Yes=1; No=0)	Imp. Road (Linear Ft)	Imp. Road (Acres)	Site BMPs (Yes=1; No=0)	Parking Lots Treated by BMPs (Acres)	Imp. Roads Treated by BMPs (Acres)	Imp. Roads Treated by BMPs (Miles)	Imp. Roads Not Treated by BMPs (Miles)
8642	WELLINGTON	RD	1.263	PWC JUVENILE CENTER	1	0.17	1	357	0.204	1	0.17	0.204	0.07	0
2430	WEST LONGVIEW	DR	4.156	HYLBROOK PARK	1	0.59	0			0	0	0	0	0
14811	DUMFRIES	RD	1061.984	FLEET BUILDING PARKING LOT ONLY	1	2.09	0			0	0	0	0	0
				TOTALS	87	132.5	53	68,697	43.685	78	122.9	41.2	12	0.8

Appendix D

Illicit Discharge Summary

Outfall	Date of inspection	Location Description	Related Propety Owner/Company	Description of Dishcarge	NOV, Issued?	Date re-inspected	Notes/Findings	Conclusion	Case Status
12694	7/7/2021	8013 Folkstone Rd	HOA	Shallow discharge with algae	NA	8/31/2021	During routine inspection, flow observed through outfall with orange algae. Discharge tracked along storm sewer available access during ispection except one branch. Follow up inspection made. The source of algae is confirmed ground water.	The source of discharge was suspected to be ground water but follow up inspection will continue to investigate on unseen branch	Closed
14711	7/15/2021	1202 Rope Ct	Mr. Ruiza Garcia, the owner of 1204 Rope Ct	Discharge of laundry operation (Grey) and kitchen water into storm sewer system	Yes, NOV# 1-2022	7/23/2021	During dry weather monitoring , suspecious intermittent flow discovered flowing through outfall in the morning and evening. Investigation was made and the County staff detected the connection of kitchen sink and washer dryer outlet with the stormwater system.	NOV#1-2022 was issued to Mr. Ruiza Garcia asking to stop further discharge of kitchen and washer-dryer. Follow up inspection was made on 7/23 and deficiencies are found to be corrected.	Closed
24673	8/10/2021	16801 Richmond Hwy	VDOT Easement	Litters	Yes, NA	8/10/2021	County staff could not inspect the outfall due to overgrown vegetation. Stormwater system was tracked and discovered significant volume of litters at the manhole. VDOT associates with the stormwater system.	The case forwarded to VDOT for resolution.	Closed
14786	10/13/2021	1711 Carter Ln	Castro Julma	Green Algae	Yes, NA	10/13/2021	Discharge with orange algae observed through the outfall. The pH and conductivity of the discharge were within the standard range. Discharge tracked and cross connection of sanitary sewer did not find.Water sample was taken, performed desktop analysis and found Fluoride and Chlorine slightly higher than the standard limit.	Source of discharge was supposed to be ground water seepage. The follow up inspection will be made on the driest season and the investigation will be continued.	Closed
14770	10/14/2021	1828 Hylton Ave	Joanne Casper	Orange Algae	Yes,NA	10/21/2021	Discharge observed with orange algae through the outfall. pH and conductivity of the discharge were within the standard range. Water sample was collected, discharge tracked and performed desktop analysis. Ammonia and Copper were found slightly higher than the standard limit.	Follow up inspection was made on 10/21/2021 Source of contamination could not find and source of high water quality parameter was suspected from ground water seepage into stormwater system. Ammonia could be developed due to natural decomposition of organic substances. Copper could be the constituents of the natural ground.	Closed
57948	2/18/2022	12501 Randolph Ridge Ln	Lone Oak Manassas LLC	Gray Discharge	Yes, NA	2/18/2022	Discharge having gray color observed through outfall. pH and Conductivity of the discharge were within the standard limit. Water sample collected for desktop analysis. Discharge tracked and flow discovered from AC units. The facility is a huge food storage running coolers 24/7 days in a week.	Water quality parameters Chlorine, Cupper, and Fluoride were found slightly higher than the standard limit from desktop analysis. The gray discharge could be the consequence of food truck movement in the property. Follow up inspection will continue in following years.	Closed

Reported/Observed Discharges FY22

Citizen/County Staff	Date	Suspected Discharger	Discharge Description	Discharge Location	Type	Date of initial inspection	Illicit Discharge?/ NOV Issued	Date of last Inspection	Comments/Notes	Status	Date of Closure
VDEM Staff	7/7/2021	Owner of 5354 Cleburne Ln	Construction Debris	Near Stream	Impedement and contamination of runoff	5/27/2021	NA	7/29/2021	This case was already investigated and there had no eveidence of illicit discharge releasing out from 5354 Cleburne Ln. PWC, Watershed staff already closed this case on last May 28. Now same incident has reported to Virgina Department of Emergency Management (VDEM). The case has also reffered to PWC Fire Marshal, DEQ as well. Follow up inspection will do periodically for inclusive investigation. Follow up made on 7/29/21 and County staff did not notice illicit discharge.	Closed	7/29/2021
County Staff	7/9/2021	TBD	Dark discharge in the water with a strong odor	Outfall of SWMP 5005	Illicit discharge in stormwater system	7/12/2021	Yes, NA	7/29/2021	Source of illicit discharge discovered flushing water from Broad Run Recycling Facility. It is a VPDES permitted facility. Interaction was made with Mr. Eric Nelson, the owner of Broad Run Recycling (BRR) facility. Review the permit and approved SOP of BRR. County staff requested to stop flushing dust into stormwater system. Mr. Eric made call to Ms. Susan Mackert of DEQ regarding washwater on 7/27/2021. She also suggested him to employ dry sweept instead of flushing into storm drain. BRR decided to employ vaccum truck and also used for dry sweep.	Closed	7/29/2021
Citizen	7/12/2021	TBD	Like sewage discharge	12531 Poplar Lane	Soggy yard with colorful flow	7/12/2021	NA	7/12/2021	Upon arrival,shallow water observed at the backyard with colorful surfactant. After inspection, source confirmed ground water break out to the surface due to raised water table. Yard is just couple of feet above than occoquan river.Heavy rain of last week and house mantenance operation could raise water table.The source colorful flow was not as reported sanitary sewage.Contact information of PWCSA was given to Mr. Lucas if he wanted to be assuared.	Closed	7/12/2021
Citizen	7/16/2021	TBD	Polluted water contained in a Blue Tub	14117 Randall Drive	Polluted water holding in water tub	7/16/2021	Yes, NA	7/16/2021	Upon arrival, blue water tub located on drive way of 14117 Randall Drive was holding very polluted water. The tub was found to have automotive tools and cleaning supplies in it. The rusted metals made the water polluted. The tub was very small and used for household work and volume of water less tan 15 gallon. County staff advised her to discharge water into grassy areas. so that pollutant filtrate naturally without reaching into channel and creek.	Closed	7/16/2021
County Staff	7/21/2021	Crigger Contracting Inc	Sediment & clay discharge into SWMP 435	8760 Virginia Meadows Dr	Sediments and debris	7/28/2021	Yes, NA	9/7/2021	Upon arrival, County staff noticed sediment and clay layer at the surface of the pond. Debris was seemed to be unnatural. Meeting held with Mrs. Renee, the staffs of Crigger Contracting Inc and advised her to carry out mitigation activities with milling out the sediment and clay (2 to 3 inches) from the pond surface , avoid encroachment of the pond, put the filtration barrier across the flow path of surface inflow. Follow up inspection made on 9/7/2021. Deficiencies were resolved.	Closed	9/7/2021
County Staff	7/27/2021	Skyline Concrete Pumping Inc.	Ground contaminated with vehicle leakage and wrong practice of fueling	9421 Developers Drive	Oil spill on the ground	7/27/2021	Yes, NOV#2-2022	8/26/2021	During routine inspection, the potential source of illicit discharge into pond (CSWMP 5005) was tracked and County Staff discovered oil spill on multiple locations and open fueling station used in the Skyline Concrete Pumping Inc. The plastic tank was used for oil storage and fueling at the North-East corner with spill on the ground. The facility had a very bad housekeeping practice creating exposer of oil to the surface runoff. Follow up inspection made on 8/26/2021. Deficiencies were found to be resolved.	Closed	8/26/2021
Citizen	8/6/2021	El Pollo Rico Restaurant	Dumping waste cooking oil, fat and food debris on the ground	13470 Minnieville Rd	Food waste, grease and oil	8/10/2021	Yes, NOV#3-2022	8/30/2021	Upon arrival, waste cooking oil, fat and food debris were observed on the pavement and landscape beside the parking lot. Foot print of flushing waste was also discovered on parking lot ultimately directed towards curb and gutter inlet. Notice of violation issued to the restaurant owner to mitigate deficiencies and stop further violation. Follow up inspection was made and deficiencies were resolved as desired.	Closed	8/30/2021
County Staff	8/16/2021	Walker Station LLC	Grease	8200 Tudor Hall Ln	Ground water	8/20/2021	NO	8/20/2021	Upon arrival, trikle flow were observed in all three drop manholes STM-14, STM-P-26, and STM-C3 respectively. Stain were found to develop at flow path after getting flow from ground water as the water carry over some grounded minerals. There were no sign of an illicit discharge at each outfall.	Closed	8/20/2018
Citizen	8/15/2021	TBD	Sump pump discharge with Oil	5325 Jessup Ln	Oily substance in sump pump	8/24/2021	No	8/24/2021	Upon arrival, the sump pump was found to be replaced with new ones. There was no oily substance except clayey stain on the wall of sump pit. The oily substance could be developed due to bacterial decomposition in stagnant water while sump pump was out of older.. There was no chance of contamination with oil in sump pump.	Closed	8/24/2021
County Staff	8/30/2021	Battlefield Sunoco	Wash water discharge from the kitchen of food truck	7203 Sudley Rd	flushing kitchen waste into storm drain	8/30/2021	Yes, NOV#4-2022	9/15/2021	Upon arrival, cleaning crews of Sunoco Gas was cleaning and flushing food truck and surrounding pavement having spill of waste cooking oill, grease and waste food grain into storm drain. Notice of violation was issued to the bussiness owner. Follow up inspection made on 9/15/2021. Deficiencies were resolved.	Closed	9/15/2021
County Staff	8/31/2021	Sanitary Sewage	Stagnant water observed on road curb and gutter having green algae	9500 Damascus Drive	Sump Pump Discharge	8/31/2021	NO	9/1/2021	Upon arrival, the stagnant water was observed having green algae on road curb and gutter. The sump pump discharge of 9500 Damascus Dr was flowing with intermittent trickle flow. The case was old and the County staff already did flush test through sanitary outlet of 9500 Damascus Dr two times in previous years. County staff confirmed no cross-connection of sanitary pipes to the sump pit. County staff again performed a dye test and confirmed no cross connection of sanitary sewer into sump pit. The light green color of stagnant water could be generated by the runoff developed from hydroseeding landscape. Follow up inspection made and found nothing.	Closed	9/1/2021

Citizen/County Staff	Date	Suspected Discharger	Discharge Description	Discharge Location	Type	Date of initial inspection	Illicit Discharge?/ NOV Issued	Date of last Inspection	Comments/Notes	Status	Date of Closure
County Staff	9/8/2021	Property owner (10844 Balls Ford Rd)	Sanitary Pipe of RV's hooked up with storm drain	10844 Balls Ford Rd	Sewage Discharge from RV's	9/10/2021	Yes, NA	9/14/2021	PWC watershed staff received the complaint of sanitary sewer hook up with storm water system.The property is seemed to be rented by LCI, the Demolition and Excavation Company for storing vehicle and equipments. Property is fenced and closed. County staff met one of the staffs and she connected with the Manager of LCI Mr. Mark Wines. The case is already handled by NSD. Mr.Wines said that the RV's hooked up to discharge clean water just for clean up. Some one stay inside for only three hours to prevent entry of homeless in early night to protect from being theft. He said, he will remove that RV's within couple of days. Follow up made on 9/14/2021, Rv removed.	Closed	9/14/2021
Citizen	9/10/2021	Papa Dents Crabs	Dumping waste cooking and crabs seasoned water right next to the creek.	15809 Jefferson Davis Hwy	Bad smell with crabs parts and seasoned water discharge into water course	9/10/2021	Yes, NA	10/13/2021	Upon arrival, bad smell of sea food with crabs parts were observed on graveled parking lot of 15807 Jefferson Davis Hwy. It was reported that Papa Dents Crabs (703-656-6821) use to sell crab food on parking lot on every Saturday and Sunday and dumps waste cooked crabs and seasoned water right next to the creek. Conversation was made with business owner eventhough the impact is not so bad. Follow up inspection made on 10/13/2021. County staff did not discover bad impact to the environment.	Closed	10/13/2021
Citizen	9/16/2021	TBD	Oil scene on pond surface	11916 Bluebird Ln	Floated scum on pond surface	9/17/2021	NA	9/17/2021	Upon arrival, the floatable scum was observed on pond surface. It could happen due to natural decomposition of organic matters inside the pond since the pond has never cleaned up for a long time and close with the wood land. County staff tracked catchment areas but could not find the specific source of runoff contamination.	Closed	9/17/2021
Citizen	9/28/2021	Dennis Hoskins	Dumping dead crabs into storm drain	3011 Tiger Court	Dumping see food into stormwater system	9/28/2021	Yes, NA	10/29/2021	Upon arrival, some dead crabs were found at the curb and gutter inlet attached with 3011 Tiger Ct. The discharger confirmed Mr. Dennis Hoskins. County staff met his son during inspection and mentioned about dumping dead crabs into stormdrain is the County Code violaton. He agreed to convey the message to his dad. Follow up inspection made on 10/29/2021. Deficiences were mitigated by collecting the crabs, disposing prudently. a Deficiencies were mitigated.	Closed	10/29/2021
Citizen	10/18/2021	Paul D Grant	Oil patch on Cul-de-sac	14650 Kogen Drive	Petroleum Spill	10/18/2021	Yes, NA	9/18/2019	Upon arrival a very small grease stain was observed on cul-de-sac nearby 14661Kogen Drive . That was found almost dry and will never wash out during raifall event. The case has been closed.	Closed	10/19/2021.
Citizen	10/28/2021	Marc Anthony Dowell	Leachate from milling asphalt pavement	12601 Foremont Ct	Asphalt Leachate	10/29/2021	Yes, NA	10/29/2021	After having the conversation with complainant, her neighbour Mr. Marc spread out the fresh milling asphalt on his drive way and extended parking areas.There is a threat of contamination of dug well and adjacent creek with the leached discharge from milling asphalt pavement. The activities has been running from evening to whole night with vehicular noise. The case already handled by Neighbourhood Srvices Division (NSD) and have the code case: Zon2022-00-725. .As I learned, the illicit discharge is a secondary results of reported activities and complain already reported to the zoning section, NSD will handle it.	Closed	10/29/2021
Citizen	11/16/2021	NA	Imediment of runoff	8213 Maplewood Drive	Collapse of CMP	11/17/2021	NA	11/17/2021	Case belongs to drainage issue so complaint has forwarded to drainage maintenance staff.	Closed	11/17/2021
County Staff	11/17/2021	Unit Owners Jacksons Ridge Condo	Pool Water discharge in stormwater system	11110 Adler Ln	Pool Water Discharge	11/17/2021	NA	11/17/2021	The pool water had been stagnant since last two years after beginning of COVID-19 Pandemic. The poll water was found basically from rain water, PH and Chlorine were found within standard limit. The complaint came through the contractor who is working for pond retrofit of 386 after getting large volume of discharge through the stormwater system. Discharge was instantly diverted into sanitary sewer system once the contractor's representative tracked and followed up.	Closed	11/17/2021
Citizen	11/29/2021	TBD	spill of waterproofing substance	3099 Baylor Street	Asphalt Residue	11/30/2021	NA	11/30/2021	The County staff inspected the reported discharge. Asphalt residue found to retain on the pavement without flowing into storm drain.	Closed	11/30/2021
Citizen	12/2/2021	Mr. Carlos Vargas	Sanitary discharge with a hose pipe into stormdrain	8772 Diamond Hill Dr	Sanitary Waste	12/13/2021	NA	12/15/2021	Upon arrival, most of the road curbs and gutters of the community were found to partly fill with dead leaves as usual. Curb and gutters located at 8772 Diamond Hill Dr were found dry without having footprint of discharge. Interaction made with Mr. Carlos Vargas, the owner of 8772 Diamond Hill Drive. Mr. Carlos is running business Bravo Jetting Solution. The County staff could not find the violation. Stormwater system was tracked all the away to the outfall. The outfall was dry without having any sign of illicit discharge.Follow up inspection was made on 12/15/2021, there was no deficiencies.	Closed	12/15/2021
Citizen	12/27/2021	Hibachi Restaurant	Waste cooking oil & grease	2050 Daniel Stuart Sq	Waste cooking oil & grease	12/27/2021	Yes, NOV#5-2022	1/26/2022	Prince William County, Illicit Discharge Detection and Elimination staff has received a citizen complaint . During follow up inspection, County staff observed the spill on the pavement beyond the grease container. The spilled oil, grease and debris were susceptible to flow into storm drain with runoff. The interaction was made one by one with the shift supervisors of California Wings Chicken and Hibachi Restaurant to stop further spill and hand over the education materials to make them aware about unlawful activities. NOV#5-2022 has issued to the property owner. Case found to be resolved in follow up inspection.	Closed	1/26/2022
Citizen	1/13/2021	5518 Victory Loop	Sediment discharge, covered stormwater Drop Inlet	5620 Victory Loop	sediments and debris discharge into stormwater drop inlet	1/13/2022	Yes, NA	1/19/2022	Upon arrival snow and sediments found to be deposited on top of drop inlet located at 5620 Victory Loop. The sediment and debris was discovered from lawn maintenance of 5518 Victory Lp. As per conversation of Mr. Derek with the county staff, he will reach out to his neighbour first for requesting removal of debris to avoid blockage. If his neighbour deney to proceed the resolution, Mr. Derec will inform County for further steps. Follow up inspection made on 1/19, the case resolved by his neighbour..	Closed	1/19/2022

Citizen/County Staff	Date	Suspected Discharger	Discharge Description	Discharge Location	Type	Date of initial inspection	Illicit Discharge?/ NOV Issued	Date of last Inspection	Comments/Notes	Status	Date of Closure
Citizen	3/2/2022	TBD	The creek discolored with very green tint	Behind 14500 Idlebrook Ct	Colorful discharge	3/3/2022	NA	3/3/2022	County staff met the complainants and visited the creek. Creek was clean but tracking was continued until the property of GDC contracting Inc. The street was found to be flushed with four tanker water yesterday. The large volume of flushing discharge may carried sediment and debris at that moment. Convertation was made with Mr. Steve Petty, the vice president of GDC and asked him to take precaution to control pollutant with controlled volume of water so that there will not happen erosion and other bad impact on down stream creek.	Closed	3/3/2022
Citizen	3/2/2022	TBD	Oil and grease left over the street after maintenance	Paper Mill Ln	Grease and oil left over on the street after maintenance	3/3/2022	Yes, NA	3/3/2022	Upon arrival county staff observed a part of engine of a vehicle left over on the street and assumed vehicle maintenance done on the street. The police officer and the vehicle, collecting auto parts arrived on site during inspection. Street was covered with a lot of oil and grease stains. The empty oil gallons were found either side of the road. The eveidence shows that the people use to change the oil on the street. The road belongs to VDOT. The case was forwarded to DFR Hazmat team and VDOT. VDOT will take care about the complaint.	Closed	3/3/2022
Citzen	3/16/2022	TBD	Vehicle leaking and discharging oil into stormdrain	Street beside 4309 Stretton Farm Ct	Oil and grease discharge	3/16/2022	Yes, NA	3/16/2022	PWC Watershed staff received a complaint regarding a car parking on the street leaking oil into the storm drain. Some oil stains were noticed under the truck parked beside the street of 4309 Stretton Farm Ct. That truck belongs to Mohammad Rasoli of 4309 Stretton Farm Ct. County staff knocked the door and requested to move the truck leaking oil. One of the family member has agreed to remove from the street. Stain was limited and local so that notice of violation did not issed.	Closed	3/17/2022
Citizen	3/24/2022	Multiple	Illegal dumping household trash	13950 Jefferson Davis hwy	Household trash and remodelling waste	3/29/2022	Yes, NA	3/29/2022	Upon arrival, property was used to dump trash. The trash seemed to be mattress, tires, plastics, litters, couch, construction debris and so on. It is a zoning violation so that the case has been forwarded to zoning section.	Closed	3/29/2022
Citizen	4/3/2022	TBD	Paint dump into creek	Braemar Clareybrook Park trail near by stream crossing bridge	Paint Dumping into Creek	4/6/2022	Yes, NA	4/6/2022	Upon arrival, painting work observed at the outfall headwall of SWMP 602. Location is close to stream crossing bridge of walking trail. Ms. Starkey said, painting was done with adult students. There was no eveidence of paint contamination as it was already two days over of the heavy rain. The creek could be slightly polluted due to painting close to water level, clean brushes and falling drops during painting.	Closed	4/6/2022
Citizen	4/5/2022	Leary Family LLC	Salt Pile Exposed to Runoff	13191 Gordon Blvd	Salt melting and flowing out with runoff	4/12/2022	Yes, NOV#6-2022	4/21/2022	Upon arrival, salt bags were stocked on praking lot without cover. Salt lumps were observed here and there in certain areas. White salt stain were observed along the flow path of runoff. The management company is identified Cimco Realty. Notice of violation issued to the owner. Follow up inspection made on 4/21/2022, the case has resolved.	Closed	4/21/2022
Citizen	4/7/2022	TBD	Yellow grease, scum floating on pond	On CSWMP 5769	Yellow floating substance confirmed pollen	4/7/2022	NA	4/7/2022	Upon arrival yellow floating substance was observed on pond water and some backing up to the pond slope. The contamination was confirmed pollen, tracked the stormwater system and did not found reported discharge from restaurants. Citizen complaint is reported to Rappaport about the concern of citizen to make aware to the teanants.	Closed	4/7/2022
County Staff	4/7/2022	Soap and Sud Carwash	Dump debris on adjacent Property from carwash bay	9725 Liberia Ave	The pile of oil and Grit expose to the ground compromise eith runoff	4/7/2022	Yes, NA	4/13/2022	Upon arriaval, the Soap and Sud Carwash pull out the grease and grit from the carwash bay and dump out to the open ground and adjacent property. Facility was shut down. Contact made to the owner and asked to recollect and dump prudently. The case found to be resolved on followup inspection made on 4/13/2022.	Closed	4/13/2022
Citizen	4/12/2022	Mr. Stephen Carter	Grass Clippings	12910 Valleyhill Street	Left grass clippings at road curbs and gutter inlet during lawn mower.	4/13/2022	Yes, NA	4/13/2022	Upon arrival, County staff observed some dry clippings on curb and gutter then opened the lid. There was no clippings inside the inlet, tracked the system. There was no significant amount of yard waste at the outfall too. Door of Stephen's house knocked but nobody was at home, left the education materials at the door handle asking to contact County Staff. Mr. Stephen called and mentioned, he collected the clippings left over on street curb and gutter and dump into trash can. He promised not to repeat again.	Closed	4/13/2022
Citizen	4/17/2022	TBD	Automotive fluid	14670 Cloverdale Rd	Automotive fluid dumping into storm drain	4/26/2022	Yes, NA	4/26/2022	Upon arrival, oil stain was observed on parking lot which is very common everywhere and hard to inforce for such case. The case has closed for now.	Closed	4/26/2022
County Staff	4/19/2022	Ram Hauling Inc	Grease, Oil and Trash	10236 Residency Rd	Discharge oil and grease	4/19/2022	Yes, NOV#7-2022	4/26/2022	Upon arrival, grease and oil observed flowing through storage area of Ram Hauling into SWMP (ID:645). The interaction made with Mr. Parham Malihi, the CEO of Ram Hauling Inc. He accept his guilty and is willing to mitigate deficiencies. Nov#7-2022 has issued to the owner cc'd to Ram Hauling Inc. Follow up inspection made by the County Staff on 4/26/2022. Case resolved.	Closed	4/26/2022
Citizen	4/25/2022	Martin Michel	Sump pump discharge with Chemical	5519 Katy Ann Ct	Sump Pump Discharge	4/26/2022	NA	4/27/2022	Upon arrival, sump pump discharge observed from 5511 Katy Ann Ct. Inspection was made inside the basement of Martins House to verify the complinants report of running laboratory inside.. There was no chemical laboratory run inside the building. The building could be in high water table area. The case is closed.	Closed	4/27/2022
Citizen	5/9/2022	Taco Bell	Discharge of waste cooking oil	4248 Dale Blvd	Dumping large amounts of used cooking oil on drive way	5/9/2022	Yes, NA	6/14/2022	Upon arrival oil stains were obsvered on drive thru of Taco Bell. Phone Call made to the Taco Bell Manager, the incident was happen on May 2nd 2022. The grease interceptor located under the drive way was suddenly blocked and started to overflow from lid. The manager instantly called a company and ceased overflow, pump out fluid from interceptor to hauling tanker. Mr. Saleh, the Manager said, deep cleaning will carry out in this week. Follow up inspection made on 6/14/2021. The case closed..	Closed	6/14/2022
Citizen	5/9/2022	TBD	Dumping drum filled with hazmat substance	At the creek of 9819 Montiville Drive	Barrel dumping with partly filled substance in the creek	5/10/2022	Yes, NA	5/10/2022	Upon arrival, hazmat officers are on site. The drum was partly filled with substance. The case was handled by Hazmat team. The substance was identified as red dyed diesel fuel . None escaped the container and the Fire Marshal's Office served the property owner with information on disposal of the drum. DEQ is aware and I have provided them info.	Closed	5/10/2022

Reported/Observed Discharges FY22

Citizen/County Staff	Date	Suspected Discharger	Discharge Description	Discharge Location	Type	Date of initial inspection	Illicit Discharge?/ NOV Issued	Date of last Inspection	Comments/Notes	Status	Date of Closure
Citizen	5/20/2022	4054 Saplings Way	Yard waste, Grass clippings blow into storm drain	4054 Saplings Way, stormwater inlets	Grass clippings	6/14/2022	Yes, NA	6/14/2022	Inspection was made by the County staff. There was no clipping discharge into stormwater system. Interaction was made with homeowner and handover the education materials to educate them what is illicit and what is not.	Closed	6/14/2022
County Staff	6/13/2022	Potomac Town Center	Trash Discharge to the downstream channel and pond	14900 Potomac Town Pl	Trash	6/24/2022	Yes, NA		Upon arrival, litters and trash were found to backup to the bank of SWMP # 810. The county staff visited the office of Potomac Club Owners Association and talk with the Asst. Manager Mrs. Arielle Sands to confirm the actual problem. County staff will keep continue to talk about the issues with the management of Stonbridge at Potomac Town Center. Nobody came to cantact on phone made by County Staff.	Running	
Citizen	6/17/2022	Westridge Swim & Racquet Club Management	Dumping paint on water way	12764 Quarterhorse Lane	Paint dumping	6/23/2022	NA	6/23/2022	Upon arrival, County staff did not observe the paint dumping into storm water system. It could bealready addressed by the property management company as complainant reported to the management too.	Closed	6/23/2022

Appendix E

Oil and Household Hazardous Waste Disposal Summary

PRINCE WILLIAM COUNTY
RECYCLING
MONTHLY OPERATIONS REPORT
PRINCE WILLIAM COUNTY - *ONLY*

9/16/2022

FY22	SCRAP METAL		ELECTRONICS		TEXTILES	DONATION PLACE	USED OIL			CAR BATTERIES			ANTIFREEZE	
	OUT		LANDFILL OUT	BALLS FORD OUT	OUT	OUT	L.F. OUT	B.F. OUT		L.F. OUT	B.F. OUT		L.F. OUT	B.F. OUT
MONTH	TONS	REVENUE	TONS	TONS	TONS		GALLONS	GALLONS	REVENUE	NO.	NO.	REVENUE	GALLONS	GALLONS
Jul-21	517.83	$ 138,934.33	38.81	-	0.00	0.00	3,801	1,508	$ -	335	9	$ 1,668.30	579	44
Aug-21	296.25	$ 78,781.01	39.58	-	0.00	0.00	800	884	$ -	123	129	$ 1,955.90	-	141
Sep-21	398.29	$ 95,155.74	29.72	-	0.00	0.00	1,862	1,415	$ -	204	42	$ 1,030.10	-	95
Oct-21	362.60	$ 86,288.06	29.20	-	0.00	0.00	10,417	789	$ -	328	24	$ 2,790.60	1,124	78
Nov-21	265.48	$ 85,595.13	31.86	-	0.00	0.00	1,379	660	$ -	182	27	$ -	-	131
Dec-21	16.00	$ 4,335.86	25.52	-	0.00	0.00	2,829	857	$ -	245	10	$ 1,206.30	-	49
Jan-22	453.87	$ 122,053.23	21.71	-	0.00	0.00	1,537	178	$ -	53	34	$ 1,278.70	-	17
Feb-22	137.90	$ 34,779.09	28.08	-	0.00	0.00	973	563	$ -	120	59	$ -	-	-
Mar-22	354.46	$ 106,183.12	29.06	-	0.00	0.00	1,992	875	$ -	103	42	$ 704.40	437	-
Apr-22	323.35	$ 103,238.15	27.39	-	0.00	0.00	1,803	706	$ -	146	59	$ 848.70	-	8
May-22	277.05	$ 92,600.76	24.78	-	0.00	0.00	5,821	1,192	$ -	272	74	$ 982.30	103	-
Jun-22	297.43	$ 75,232.12	24.46	-	0.00	0.00	6,983	993	$ -	116	21	$ 1,607.50	-	65
TOTAL	3,700.51	$ 1,023,176.60	350.17	-	0.00	0.00	40,197	10,620	$ -	2,227	530	$ 14,072.80	2,243	628

+1.71 tons +.36 tons

PRINCE WILLIAM COUNTY
SANITARY LANDFILL
MONTHLY OPERATIONS REPORT

9/16/2022

FY22	COVER MATERIAL DAVIS, REPUBLIC, BROAD RUN	REFUSE TO FAIRFAX TONS	NO. OF LOAD INSP.	HHW LANDFILL # OF USERS	HHW LANDFILL TONS COLLECTED	HHW BALLS FORD # OF USERS	HHW BALLS FORD TONS COLLECTED	Diverted Road Materials	Kilowatt Hours of Green Power	DATE & SIGNATURE
Jul-21	2,652.75	2,808.34	594	2,124	12.55	-	0.44	0.00		
Aug-21	3,035.80	2,821.02	321	1,871	12.98	-	0.33	0.00		
Sep-21	4,600.08	2,567.35	489	2,359	9.39	-	0.33	0.00		
Oct-21	3,391.26	2,448.41	436	2,124	9.40	-	0.62	0.00		
Nov-21	3,494.03	2,540.70	446	2,170	9.41	-	0.29	0.00		
Dec-21	3,799.77	2,437.86	290	1,356	7.27	-	0.34	0.00		
Jan-22	2,652.19	2,282.53	202	1,579	8.17	-	0.21	0.00		
Feb-22	3,576.81	2,051.59	328	932	5.09	-	0.52	0.00		
Mar-22	2,087.98	1,877.81	348	2,140	10.11	-	0.52	0.00		
Apr-22	1,231.31	2,428.82	328	1,891	9.28	-	0.35	5.54		
May-22	181.17	2,889.62	413	2,308	10.84	-	0.34	0.00		
Jun-22	-	3,075.88	422	2,349	11.58	-	0.29	0.00		
TOTAL	30,703.15	30,229.93	4,617	23,203	116.07	-	4.58	5.54	0	

Appendix F

Spill Response Summary

Prince William County FY22 Annual Report
MS4 Spill Response Table

Incident #	Date	Location	Source	Incident Narrative	Status	MS4?
FD210021742	7/3/2021	13211 Hill Ct	fuel tank	On July 3, 2021, E502B was dispatched to a smell of oil and gas from the grass at 13211 Hill Ct. Woodbridge VA 22191. Upon arrival E502B noticed an oil stain and odor coming from the ground. E502B officer contacted the on duty DHM. E506, R506, HM506 all responded priority two. While responding, DHM requested FM respond to the scene due to report of an intentional discharge. The hazmat team arrived on scene to a small amount of water/ oil mix following the curb. Crews placed a boom down to stop the product flow from continuing down the street. DHM contacted homeowner at 13209 Hill Ct. Woodbridge VA. 22191. Homeowner stated that the fuel oil tank had been leaking and that the tank was approximately half full when it began leaking. The homeowner at 13209 removed the tank from side Charlie of the house, power washed the outside of the tank and placed the tank into the back of a pickup truck. Hazmat crews investigated the tank and found it to be a 275-gallon fuel oil tank with residual product present in it. Hazmat crew investigated where the fuel runoff went. Hazmat crew used oil test paper to find fuel oil on the hill heading towards 13211 Hill Court. Fuel oil was found in their natural spring sump pump, basement sump pump, driveway, and the road heading towards Cater Lane. The well sump pump drained into the storm drain, and the basement sump pump discharged onto Hill Ct. Samples from the natural spring well were ran on the True Defender. Results showed Diesel (Lot E) CAS: 68334-30-5. Positive confidence test ran before and after sample testing. Storm water management was contacted with no response, so a voicemail was left. DEQ was also notified about the discharge into the storm drains. Duty fire marshal investigated the illicit discharge taking samples and pictures with assistance from Hazmat Team. State sample cooler utilized. After the fire marshal investigation booms, pads, and absorbent were placed on the fuel oil spills to capture any additional product. Booms were also placed in the storm drains to prevent rainwater from carrying product further down the storm water system.	Closed	YES
FD210022934	7/12/2021	4728 Still Pl	hose	On July 12, 2021, at 1410 E513 was dispatched to assist PD with cleaning up blood in the street from a shooting which had occurred earlier near 4728 Still Place. E513 used their front 1 ¾ line to hose down the street and discovered that some residual foam was still in the line. It could not initially be determined if this was Type or Type B foam, less then 5 gallons was released and entered a nearby storm drain. It was later determined that it was Type A foam. Lt Ahmady requested a Haz Mat consult and was advised based on the small amount of foam and the fact that it was mixed with blood from the scene she should continue washing down the street and allow the foam to drain into the storm drain provided that no additional foam was discharged. No additional foam was released beyond the initial residual in the line. VDEM, DEQ, VDOT and PWC Storm Water were all notified. The spill occurred on a public road. VDEM-2021-07-12-3195	Closed	YES
FD210025151	7/30/2021	13580 Den Hollow Ct	paint	E506 was dispatched to the noted location for a hazard. CAD notes reported that someone had poured paint into the storm drain in front of the dispatched address. E506 responded priority two. E506 arrived on scene and found a storm drain grate that had dried paint on it. The neighbors reported that the dispatched address had been under renovation and painters had recently been there. Request for FM to come to scene was made. Painters arrived on scene and denied dumping paint into the storm water system. Contacted the reporting party. He reported that he noticed the paint the night prior but did not know when it occurred. Unable to determine time frame or responsible party. E506's crew traced the storm system to the fallout and retention area. No visible paint noted. FM arrived on scene and was briefed. Scene turned over to FM. No visible product present to initiated clean up contractor. Hazmat consult not notified due to E506 officer being DHM for the shift.	Closed	YES

Prince William County FY22 Annual Report
Spills within MS4

Incident #	Date	Location	Source	Incident Narrative	Status	MS4?
MNPK210001422	8/21/2021	Arrowwood Dr/Fruitwood Dr	dump truck	Fielded a phone consult from E509BM regarding a dump truck that was leaking diesel fuel from its fuel saddle tank. E509BM's officer was advised to contact PWCPD and to assure fuel was not leaking into the storm drain. R506 went enroute to investigate the leaking fuel tank. R506 AOS to find Prince William County PD out with the vehicle. They advised that a tow company would be there within 30 min to remove the vehicle. E509BM had conducted defensive measures to include absorbent and placing a bucket under the leak. An estimated amount of fuel that had leaked onto the ground was approx. 1 gallon. The leak was a very slow drip and no fuel had leaked into the storm drain. No other measures were needed and R506 turned the scene back to PWCPD	Closed	YES
FD210035915	10/19/2021	12745 Galveston Ct	tractor trailer	On October 19, 2021, R506 pulled into the parking lot in front of Harris Teeter at 12745 Galveston Court, Manassas, Va 20112 and noticed a tractor trailer which had struck a light pole. County Police were already on scene and there were no injuries. R506 placed themselves on the call and investigated the situation. It appeared that the truck had damaged its radiator and passenger side saddle tank. The radiator had leaked coolant for about 50', approximately 1 gallon was spilled. The coolant did not enter any waterways and had already largely dissipated by the time R506 arrived on scene. The saddle tank had a tiny leak which had spilled no more than about a tablespoon of diesel. R506 placed about 3 bags of absorbent on the coolant and patched the leak with wax, which completely stopped the leak. A boom was placed around a nearby storm drain as a precaution. The driver stated that he had a tow company on the way. Lt. Moore contacted the tow company who stated they would bring extra absorbent. Given the small size of the spill and the tow company already on the way it was decided not to provide an LEPC and to allow the enroute company to clean up the absorbent which had been placed. No waterways or storm drains were affected.	Closed	YES
FD220004537	1/31/2022	14050 Worth Ave	vehicle	Phone consult received from E520B, Captain Chris Eddy, who was on the scene of a fuel leak. Captain Eddy reported a 4-door sedan was at the fuel pumps of Sam's Club with a leak from the fuel tank. Responsible party recently had work done to his vehicle's fuel tank at the dealership. When he was fueling his vehicle this evening, it had leaked onto the ground at the gas station. Initial estimates from E520B were less than 5 gallons. E520B reported the fuel had leaked into a "French drain." Due to the unknown discharge of the "French drain," hazmat units went to the scene. E506 and HM506 responded priority 2 to the scene. R506 was on another call for service and was not available for this incident. Upon arrival, E520B's officer provided overview of the situation. Manager for the gas station was on scene and had already begun placing absorbent on the ground. He was working to contact the companies clean up contractor and was following his spill control plan. Driver had already contacted his insurance company and reported he was going to have the vehicle towed to the dealer. Vehicle was not actively leaking fuel. It was believed that the leak was the result or same issue that resulted in the repair earlier in the day. Fuel pumps listed 13 gallons having been dispensed into the vehicle. Visible staining to the ground was noted. The debris drains were pulled around the gas station and the discharged product was found. It was estimated that 10 gallons total had been discharged. Two booms were placed into the drain to absorb the product. No waterways or storm drains were impacted. Drains were isolated with not outflow. Manager stated he had enough absorbent for the ground near the car. LEPC issued to responsible party. Manager was informed to follow his spill control plan and that he would need a clean up contractor on site to pick up the absorbent that was placed by his staff as well as the two fuel saturated booms. Both the responsible party and manager were provided contact information for Captain Moreau in the event they had additional questions. DEQ notified via email with no request for resources. VA EOC notified via phone for a report only with not request for resources. Reimbursemnt form completed and submitted to Hazmat Coordinator.	Closed	YES

Prince William County FY22 Annual Report
Spills within MS4

Incident #	Date	Location	Source	Incident Narrative	Status	MS4?
FD220016139	5/2/2022	1913 Briar Rose Ln 304	storage containers	Contacted by FF Rees from R502 regarding a call for food on the stove. During the course of the call R502 found approx. 30 5 liter containers containing used motor. Some of the containers may have been leaking slightly but more than likely the product was spilled motor oil. The approx. spilled product was less than a gallon. R502 was advised to apply stay dry to the affected area. FM Schultz was contacted to advise day shift units for follow up. No further hazmat services needed	Closed	YES
FD22050600022072	5/6/2022	7819 Garner Dr	SUV	BC 504 requested a phone consult for an auto accident involving a leaking fuel tank from a mid-sized SUV. He advised the vehicle was rear ended causing the tank to leak resulting in gasoline entering a nearby storm drain. R506 and HM506 responded to find a pool of approx. 5 gallons of gasoline contained by a soil dam that was constructed by T511's crew. Hazmat personnel placed down serval pads and four booms to contain the product until it could be cleaned up. The small amount of product that entered the storm drain was washed out by heavy rain prior to HM506 arrival. A LEPC from was given to PWC PD so the driver (who was in custody) could handle the cleanup. Prior to HM506 and R506 clearing the scene, Horton's towing arrived and advised they would handle the tow and all cleanup.	Closed	YES
FD22051500023619	5/15/2022	Lee Hwy @ Stonewall Shops Sq	trailer	E504 advised they were on the scene of an auto accident involving an enclosed trailer. Inside of the trailer a small amount of gasoline (approx. 1 -2 gallons) leaked onto the floor and roadway. There was also a small ruptured can of Xylene in the trailer that mixed with the gasoline. Based on both products being a hydrocarbon, E504 was advised to place absorbemt on the spill and have the tow company dispose of the contaminated absorbent. After further investigation, the driver determined that he would pull the trailer and not require a tow. The remaing cans were secured and the driver advised E504 that he would dispose of the absorbent.	Closed	YES
FD 220018596	5/19/2022	Savage Ln/Hullfish	illicit discharge	Received a phone consult from E504 officer. E504 responded to duck that was covered in oil found around the dispatched address. Per E504, there were no other oil contaminants found on any other animals, retention ponds, or vegetation around the area. Station 4 personnel remembered that the dispatched address had a FMO follow up due to an illicit discharge of patrolium products in the past. The on duty FMO officer, VADEQ, and PWC Storm Water/ Environment Service were notified.	Closed	YES

Prince William County FY22 Annual Report
Spills within MS4

Incident #	Date	Location	Source	Incident Narrative	Status	MS4?
FD220021151	6/5/2022	16198 Silver Lake Rd	unknown	Contacted by E524 for Hazmat consult. E524 on scene for a citizen complaint on possible antifreeze release into Silver Lake. Upon arrival it was noted that the product did not exhibit the characteristics of antifreeze in water. It also appeared to be approximately 10ozs of liquid. The product had more of a slimy presentation and did not appear to be mixing with the water like antifreeze would. Samples were taken and run through the Gemini, first and true defenders. All samples returned as water. Some research was completed, and the product was determined to be one of several products. The most likely is that the product was water tracing dye. The product had similar characteristics of dye. The other possibility is the product was the dye from inside a paintball. Paintball gloves were located near the scene. Finally, the last possibility is that it was the liquid inside a glow stick. This is the least likely hypothesis. A boom was placed in the water to contain the product. It was determined that the product was not hazardous. The boom was collected, bagged and disposed of and the product was scooped out with a shovel and placed on the boom. PWC park ranger was on scene and a FM was requested and arrived. Due to the quantity, likely product and product characteristics no further FD services required. The scene was turned over to PWC parks. No further notifications were required.	Closed	YES
FD220024191	6/26/2022	Prince William Pkwy/Hoadly Rd	SUV	Phone consult received from E526 (Lt. Hart). E526 was on scene of a single vehicle that had struck road debris. Location of incident was on Prince William County Parkway westbound, one mile west of Hoadley Road. Debris impacted the fuel tank resulting in a puncture. Vehicle was a large SUV, unleaded fuel. E526 reported the leak was still active and some fuel had made its way into the ditch on the side of the road. E526 was instructed to place their pop-up pool under the leaking tank. E526 did not have any LEPC's on their unit. Due to the active leak of the fuel tank and the need to identify who the tow company would be, hazmat units responded priority two to the incident. Upon arrival, hazmat crews used wax and plug-n-dike to stop the leak. No more than 10 gallons of fuel had been lost. Vehicle was noted to have a quarter tank left. Fuel runoff was noted in the ditch and E526 had placed an earth dam to contain the small amount of fuel. Hazmat placed a bag of absorbent on fuel that had pooled in the ditch. Tow company was identified as GTS towing (703-498-0737). LEPC was issued to the driver of the vehicle. Due to the amount of fuel and location of fuel being contained, VDOT was contacted for clean up of the fuel. Site was marked with two wooden stakes and fire line tape.	Closed	YES

Appendix G

Industrial and High Risk Inspection Summary

Industrial Outfall Inspection FY22

Landuse	Outfall ID	Last Inspection Date	Flow Present	Illicit Discharge	High Risk	Maintenance Required	Within PWC Service Area	VPDES Permitted
Industrial Park	51065	7/13/2021	No	Unlikely	N	False	Y	N
Industrial Park	31753	8/5/2021	No	Unlikely	N	True	N	N
Industrial Park	31761	8/5/2021	No	Unlikely	N	True	N	N
Industrial Park	45321	8/27/2021	Yes	Unlikely	Y	False	N	N
Industrial Park	45313	8/27/2021	Stagnant	Unlikely	N	True	N	N
Industrial Park	45316	8/27/2021	No	Unlikely	N	True	N	N
Industrial Park	45306	8/27/2021	No	Unlikely	N	True	N	N
Industrial Park	47962	8/27/2021	No	Unlikely	Y	True	N	N
Industrial Park	60587	10/5/2021	No	Unlikely	N	False	N	N
Industrial Park	27844	10/5/2021	No	Unlikely	Y	False	N	N
Industrial Park	27842	10/5/2021	No	Unlikely	N	False	N	N
Industrial Park	24489	10/20/2021	No	Unlikely	N	False	N	N
Industrial Park	24485	10/20/2021	No	Unlikely	N	False	N	N
Industrial Park	62254	10/20/2021	No	Unlikely	N	False	N	N
Industrial Park	62257	10/20/2021	No	Unlikely	N	False	N	N
Industrial Park	62255	10/20/2021	No	Unlikely	N	True	N	N
Industrial Park	63690	10/20/2021	Stagnant	Unlikely	Y	False	N	N
Industrial Park	63692	10/20/2021	No	Unlikely	N	False	N	N
Industrial Park	60916	12/17/2021	No	Unlikely	N	True	N	N
Industrial Park	30954	12/17/2021	No	Unlikely	N	True	N	N
Industrial Park	1112	12/17/2021	No	Unlikely	N	False	N	N
Industrial Park	46135	12/17/2021	No	Unlikely	N	False	N	N
Industrial Park	1116	12/17/2021	No	Unlikely	N	False	N	N
Industrial Park	34177	12/17/2021	No	Unlikely	N	False	N	N
Industrial Park	47390	12/17/2021	No	Unlikely	N	False	N	N
Industrial Park	46140	12/17/2021	No	Unlikely	N	False	N	N
Industrial Park	62139	12/17/2021	No	Unlikely	N	True	N	N
Industrial Park	34179	12/17/2021	No	Unlikely	N	True	N	N
Industrial Park	30952	12/17/2021	No	Unlikely	N	True	N	N
Industrial Park	34983	12/17/2021	No	Unlikely	N	False	N	N

Industrial Outfall Inspection FY22

Landuse	Outfall ID	Last Inspection Date	Flow Present	Illicit Discharge	High Risk	Maintenance Required	Within PWC Service Area	VPDES Permitted
Industrial Park	30962	12/17/2021	No	Unlikely	N	False	N	N
Industrial Park	27184	12/17/2021	No	Unlikely	N	False	N	N
Industrial Park	60816	12/17/2021	No	Unlikely	N	True	N	N
Industrial Park	34170	12/17/2021	No	Unlikely	N	False	N	N
Industrial Park	34173	12/17/2021	No	Unlikely	N	False	N	N
Industrial Park	60815	12/20/2021	No	Unlikely	N	True	N	N
Industrial Park	60820	12/20/2021	No	Unlikely	N	False	N	N
Industrial Park	34993	12/20/2021	No	Unlikely	N	False	N	N
Industrial Park	52442	12/20/2021	No	Unlikely	N	False	N	N
Industrial Park	60843	12/20/2021	No	Unlikely	N	False	N	N
Industrial Park	47385	12/20/2021	No	Unlikely	N	False	N	N
Industrial Park	62141	12/20/2021	No	Unlikely	N	False	N	N
Industrial Park	52491	12/20/2021	No	Unlikely	N	False	N	N
Industrial Park	60819	12/20/2021	No	Unlikely	N	False	N	N
Industrial Park	57923	2/18/2022	Yes	Unlikely	Y	False	N	N
Industrial Park	47797	2/18/2022	No	Unlikely	Y	False	N	N
Industrial Park	57969	2/18/2022	No	Unlikely	N	False	N	N
Industrial Park	57948	2/18/2022	Yes	Unlikely	Y	False	N	N
Industrial Park	57927	2/18/2022	Stagnant	Unlikely	Y	False	N	N
Industrial Park	57967	2/18/2022	Yes	Unlikely	Y	False	N	N
Industrial Park	57930	2/18/2022	No	Unlikely	Y	False	N	N
Industrial Park	34289	2/21/2022	Stagnant	Unlikely	Y	False	N	N
Industrial Park	11347	2/21/2022	No	Unlikely	Y	False	N	N
Industrial Park	64155	2/21/2022	No	Unlikely	Y	False	N	N
Industrial Park	46039	2/21/2022	No	Unlikely	N	True	N	N
Industrial Park	64437	2/21/2022	No	Unlikely	Y	True	N	N
Industrial Park	46043	2/21/2022	Stagnant	Unlikely	Y	True	N	N
Industrial Park	64433	2/21/2022	No	Unlikely	Y	False	N	N
Industrial Park	34301	2/21/2022	No	Unlikely	N	False	N	N
Industrial Park	64441	2/21/2022	No	Unlikely	Y	False	N	N

Industrial Outfall Inspection FY22

Landuse	Outfall ID	Last Inspection Date	Flow Present	Illicit Discharge	High Risk	Maintenance Required	Within PWC Service Area	VPDES Permitted
Industrial Park	60394	2/21/2022	No	Unlikely	N	False	N	N
Industrial Park	55610	3/11/2022	No	Unlikely	N	False	N	N
Industrial Park	55617	3/11/2022	No	Unlikely	N	False	N	N
Industrial Park	60241	3/11/2022	No	Unlikely	Y	False	N	N
Industrial Park	60245	3/11/2022	Stagnant	Unlikely	Y	False	N	N

High Risk Outfall Inspection FY22

Land Use	Outfall ID	Last Inspection Date	Flow Present	Illicit Discharge	High Risk	Maintenance Required	Within PWC Service Area	VPDES Permitted
Residential	12694	7/7/2021	Yes	Unlikely	Y	False	N	N
Shopping Center	53535	7/13/2021	Stagnant	Unlikely	Y	False	Y	N
Other	30267	7/13/2021	No	Unlikely	Y	False	N	N
Other	30265	7/13/2021	No	Unlikely	Y	False	N	N
Other	29077	7/13/2021	No	Unlikely	Y	False	N	N
Residential	30269	7/13/2021	No	Unlikely	Y	False	N	N
Other	30254	7/13/2021	No	Unlikely	Y	False	N	N
Other	30250	7/13/2021	Stagnant	Unlikely	Y	False	N	N
Other	29072	7/13/2021	Yes	Unlikely	Y	False	N	N
Other	13707	7/13/2021	No	Unlikely	Y	False	Y	N
Open Space	29074	7/13/2021	No	Unlikely	Y	False	Y	N
Other	30257	7/13/2021	No	Unlikely	Y	False	N	N
Residential	14711	7/23/2021	No	Unlikely	Y	False	N	N
Residential	5757-002	8/5/2021	No	Unlikely	Y	False	N	N
Residential	5757-001	8/5/2021	No	Unlikely	Y	False	N	N
Gas Station	24673	8/10/2021	No	Obvious	Y	True	N	N
Planned Industrial Park	45321	8/27/2021	Yes	Unlikely	Y	False	N	N
Planned Industrial Park	47962	8/27/2021	No	Unlikely	Y	True	N	N
Vehicle Sale/Repair/Miscellaneous Automotive	60569	10/5/2021	No	Unlikely	Y	True	N	N
Planned Industrial Park	27844	10/5/2021	No	Unlikely	Y	False	N	N
Planned Industrial Park	63690	10/20/2021	Stagnant	Unlikely	Y	False	N	N
Wholesale Warehousing	19533	10/20/2021	No	Unlikely	Y	False	N	N
Other	26423	10/21/2021	Yes	Unlikely	Y	False	N	N
Shopping Center	1069	10/25/2021	No	Unlikely	Y	False	N	N
Restaurant	50217	11/18/2021	No	Unlikely	Y	True	N	N
Vehicle Sale/Repair/Miscellaneous Automotive	21193	11/18/2021	Stagnant	Unlikely	Y	False	N	N
Vehicle Sale/Repair/Miscellaneous Automotive	70864	12/17/2021	No	Unlikely	Y	False	N	N
Shopping Center	63840	12/21/2021	No	Unlikely	Y	False	N	N
Planned Industrial Park	57923	2/18/2022	Yes	Unlikely	Y	False	N	N
Gas Station	34191	2/18/2022	No	Unlikely	Y	False	N	N
Planned Industrial Park	47797	2/18/2022	No	Unlikely	Y	False	N	N
Other	47761	2/18/2022	Yes	Unlikely	Y	False	N	N
Gas Station	34203	2/18/2022	Yes	Unlikely	Y	True	N	N

Land Use	Outfall ID	Last Inspection Date	Flow Present	Illicit Discharge	High Risk	Maintenance Required	Within PWC Service Area	VPDES Permitted
Planned Industrial Park	57948	2/18/2022	Yes	Unlikely	Y	False	N	N
Planned Industrial Park	57927	2/18/2022	Stagnant	Unlikely	Y	False	N	N
Planned Industrial Park	57967	2/18/2022	Yes	Unlikely	Y	False	N	N
Planned Industrial Park	57930	2/18/2022	No	Unlikely	Y	False	N	N
Planned Industrial Park	34289	2/21/2022	Stagnant	Unlikely	Y	False	N	N
Planned Industrial Park	11347	2/21/2022	No	Unlikely	Y	False	N	N
Planned Industrial Park	64155	2/21/2022	No	Unlikely	Y	False	N	N
Vehicle Sale/Repair/Miscellaneous Automotive	5190	2/21/2022	No	Unlikely	Y	False	N	N
Planned Industrial Park	64437	2/21/2022	No	Unlikely	Y	True	N	N
Open Space	34299	2/21/2022	Yes	Unlikely	Y	True	N	N
Planned Industrial Park	46043	2/21/2022	Stagnant	Unlikely	Y	True	N	N
Vehicle Sale/Repair/Miscellaneous Automotive	34292	2/21/2022	No	Unlikely	Y	True	N	N
Vehicle Sale/Repair/Miscellaneous Automotive	34295	2/21/2022	No	Unlikely	Y	True	N	N
Planned Industrial Park	64433	2/21/2022	No	Unlikely	Y	False	N	N
Planned Industrial Park	64441	2/21/2022	No	Unlikely	Y	False	N	N
Restaurant	6508	2/28/2022	No	Unlikely	Y	True	N	N
Shopping Center	8129	2/28/2022	No	Unlikely	Y	False	N	N
Shopping Center	8131	2/28/2022	No	Unlikely	Y	False	N	N
Vehicle Sale/Repair/Miscellaneous Automotive	35126	2/28/2022	No	Unlikely	Y	False	N	N
Planned Industrial Park	60241	3/11/2022	No	Unlikely	Y	False	N	N
Other	55619	3/11/2022	Yes	Unlikely	Y	False	N	N
Planned Industrial Park	60245	3/11/2022	Stagnant	Unlikely	Y	False	N	N
Vehicle Sale/Repair/Miscellaneous Automotive	43184	4/28/2022	No	Unlikely	Y	False	N	N
Shopping Center	62239	4/28/2022	Stagnant	Unlikely	Y	True	N	N
Vehicle Sale/Repair/Miscellaneous Automotive	58152	4/29/2022	No	Unlikely	Y	False	Y	N

Appendix H

County-Maintained SWM Facilities - Inspection Summary

Facility ID	Inspection Date	Inspection Type	Facility In Compliance?	Comments	Minor Maintenance Required	Major Maintenance Required
5	7/2/2022	Routine	No	Maintenance is needed.	Yes	Yes
23	7/2/2022	Routine	No	Maintenance is needed.	Yes	Yes
152	7/2/2021	Complaint Based	No	Maintenance is needed.	Yes	No
838	7/2/2021	30-day reinspection	Yes	No maintenance is needed at this time.	No	No
1007	7/6/2021	60-day reinspection	Yes	No maintenance is needed at this time.	No	No
1007	7/6/2021	60-day reinspection	Yes	No maintenance is needed at this time.	No	No
795	7/7/2021	Routine	No	Maintenance is needed.	Yes	Yes
270	7/7/2021	Routine	No	Maintenance is needed.	Yes	No
528	7/7/2021	Routine	No	Maintenance is needed.	Yes	No
669	7/7/2021	Routine	No	Maintenance is needed.	Yes	No
859	7/7/2021	Routine	No	Maintenance is needed.	Yes	No
884	7/7/2021	Routine	No	Maintenance is needed.	Yes	No
652	7/8/2021	Routine	No	Maintenance is needed.	Yes	Yes
343	7/8/2021	Routine	No	Maintenance is needed.	Yes	No
563	7/8/2021	Routine	No	Maintenance is needed.	Yes	No
823	7/8/2021	Routine	No	Maintenance is needed.	Yes	No
858	7/8/2021	Routine	No	Maintenance is needed.	Yes	No
971	7/8/2021	Routine	Yes	No maintenance is needed at this time.	No	No
180	7/12/2021	Other	No	Maintenance is needed.	Yes	No
635	7/12/2021	Other	No	Maintenance is needed.	Yes	No
201	7/13/2021	Routine	No	Maintenance is needed.	Yes	Yes
911	7/13/2021	Routine	No	Maintenance is needed.	Yes	Yes
200	7/13/2021	Routine	No	Maintenance is needed.	No	Yes
123	7/13/2021	Routine	No	Maintenance is needed.	Yes	No
910	7/13/2021	Routine	No	Maintenance is needed.	Yes	No
912	7/13/2021	Routine	No	Maintenance is needed.	Yes	No
1012	7/13/2021	Routine	No	Maintenance is needed.	Yes	No
1037	7/13/2021	Routine	No	Maintenance is needed.	Yes	No
996	7/13/2021	Routine	Yes	Maintenance is needed.	Yes	No
124	7/13/2021	Routine	Yes	No maintenance is needed at this time.	No	No
210	7/16/2021	Routine	No	Maintenance is needed.	Yes	Yes
281	7/16/2021	Routine	No	Maintenance is needed.	Yes	Yes

Facility ID	Inspection Date	Inspection Type	Facility In Compliance?	Comments	Minor Maintenance Required	Major Maintenance Required
999	7/16/2021	Routine	No	Maintenance is needed.	Yes	Yes
657	7/16/2021	Routine	No	Maintenance is needed.	Yes	No
665	7/16/2021	Routine	No	Maintenance is needed.	Yes	No
666	7/16/2021	Routine	No	Maintenance is needed.	Yes	No
877	7/16/2021	Routine	No	Maintenance is needed.	Yes	No
989	7/16/2021	Routine	No	Maintenance is needed.	Yes	No
990	7/16/2021	Routine	No	Maintenance is needed.	Yes	No
1000	7/16/2021	Routine	No	Maintenance is needed.	Yes	No
878	7/16/2021	Routine	No	No maintenance is needed at this time.	No	No
610	7/19/2021	Routine	No	Maintenance is needed.	Yes	Yes
816	7/19/2021	Routine	No	Maintenance is needed.	Yes	Yes
822	7/19/2021	Routine	No	Maintenance is needed.	Yes	Yes
592	7/19/2021	Routine	No	Maintenance is needed.	Yes	No
628	7/19/2021	Routine	No	Maintenance is needed.	Yes	No
629	7/19/2021	Routine	No	Maintenance is needed.	Yes	No
649	7/19/2021	Routine	No	Maintenance is needed.	Yes	No
650	7/19/2021	Routine	No	Maintenance is needed.	Yes	No
671	7/19/2021	Other	No	Maintenance is needed.	Yes	No
817	7/19/2021	Routine	No	Maintenance is needed.	Yes	No
820	7/19/2021	Routine	No	Maintenance is needed.	Yes	No
821	7/19/2021	Routine	No	Maintenance is needed.	Yes	No
991	7/19/2021	Routine	No	Maintenance is needed.	Yes	No
682	7/19/2021	Routine	No	No maintenance is needed at this time.	No	No
200	7/19/2021	60-day reinspection	Yes	No maintenance is needed at this time.	No	No
889	7/19/2021	Routine	Yes	No maintenance is needed at this time.	No	No
435	7/20/2021	Routine	No	Maintenance is needed.	Yes	Yes
451	7/20/2021	Routine	No	Maintenance is needed.	Yes	Yes
576	7/20/2021	Routine	No	Maintenance is needed.	Yes	Yes
577	7/20/2021	Routine	No	Maintenance is needed.	Yes	Yes
578	7/20/2021	Routine	No	Maintenance is needed.	Yes	Yes
581	7/20/2021	Routine	No	Maintenance is needed.	No	Yes
455	7/20/2021	Routine	No	Maintenance is needed.	Yes	No

Facility ID	Inspection Date	Inspection Type	Facility In Compliance?	Comments	Minor Maintenance Required	Major Maintenance Required
605	7/20/2021	Routine	No	Maintenance is needed.	Yes	No
805	7/20/2021	Routine	No	Maintenance is needed.	Yes	No
818	7/20/2021	Routine	No	Maintenance is needed.	Yes	No
874	7/20/2021	Routine	No	Maintenance is needed.	Yes	No
882	7/20/2021	Routine	No	Maintenance is needed.	Yes	No
579	7/20/2021	Routine	No	No maintenance is needed at this time.	No	No
582	7/20/2021	Routine	No	No maintenance is needed at this time.	No	No
815	7/21/2021	Routine	No	Maintenance is needed.	Yes	Yes
445	7/21/2021	Routine	No	Maintenance is needed.	Yes	No
446	7/21/2021	Routine	No	Maintenance is needed.	Yes	No
879	7/21/2021	Routine	No	Maintenance is needed.	Yes	No
895	7/21/2021	Routine	No	Maintenance is needed.	Yes	No
897	7/21/2021	Routine	No	Maintenance is needed.	Yes	No
901	7/21/2021	Routine	No	Maintenance is needed.	Yes	No
902	7/21/2021	Routine	No	Maintenance is needed.	Yes	No
903	7/21/2021	Routine	No	Maintenance is needed.	Yes	No
928	7/21/2021	60-day reinspection	No	Maintenance is needed.	Yes	No
813	7/21/2021	Routine	No	No maintenance is needed at this time.	No	No
814	7/21/2021	Routine	No	No maintenance is needed at this time.	No	No
896	7/21/2021	Routine	No	No maintenance is needed at this time.	No	No
849	7/22/2021	Routine	No	Maintenance is needed.	Yes	Yes
857	7/22/2021	Routine	No	Maintenance is needed.	Yes	No
209	7/22/2021	Routine	No	No maintenance is needed at this time.	No	No
412	7/22/2021	Routine	No	No maintenance is needed at this time.	No	No
856	7/22/2021	Routine	No	No maintenance is needed at this time.	No	No
969	7/22/2021	Routine	No	No maintenance is needed at this time.	No	No
855	7/22/2021	Routine	Yes	No maintenance is needed at this time.	No	No
967	7/22/2021	Routine	Yes	No maintenance is needed at this time.	No	No
968	7/22/2021	Routine	Yes	No maintenance is needed at this time.	No	No
624	7/23/2021	Routine	No	Maintenance is needed.	Yes	No
684	7/23/2021	Routine	No	Maintenance is needed.	Yes	No
538	7/23/2021	Routine	No	No maintenance is needed at this time.	No	No

Facility ID	Inspection Date	Inspection Type	Facility In Compliance?	Comments	Minor Maintenance Required	Major Maintenance Required
560	7/23/2021	Routine	No	No maintenance is needed at this time.	No	No
561	7/23/2021	Routine	No	No maintenance is needed at this time.	No	No
322	7/23/2021	Routine	Yes	No maintenance is needed at this time.	No	No
151	7/26/2021	Routine	No	Maintenance is needed.	Yes	Yes
916	7/26/2021	Routine	No	Maintenance is needed.	Yes	Yes
68	7/26/2021	Routine	No	Maintenance is needed.	Yes	No
405	7/26/2021	Routine	No	Maintenance is needed.	Yes	No
520	7/26/2021	Routine	No	Maintenance is needed.	Yes	No
836	7/26/2021	Routine	Yes	No maintenance is needed at this time.	No	No
925	7/28/2021	Routine	No	Maintenance is needed.	No	Yes
189	7/28/2021	Routine	No	Maintenance is needed.	Yes	No
214	7/28/2021	Routine	No	Maintenance is needed.	Yes	No
410	7/28/2021	Routine	No	Maintenance is needed.	Yes	No
880	7/28/2021	Routine	No	Maintenance is needed.	Yes	No
918	7/28/2021	Routine	No	Maintenance is needed.	Yes	No
919	7/28/2021	Routine	No	Maintenance is needed.	Yes	No
927	7/28/2021	Routine	No	Maintenance is needed.	Yes	No
964	7/28/2021	Routine	No	Maintenance is needed.	Yes	No
965	7/28/2021	Routine	No	Maintenance is needed.	Yes	No
966	7/28/2021	Routine	No	Maintenance is needed.	Yes	No
917	7/28/2021	Routine	Yes	No maintenance is needed at this time.	No	No
926	7/28/2021	Routine	Yes	No maintenance is needed at this time.	No	No
936	7/28/2021	Routine	Yes	No maintenance is needed at this time.	No	No
557	7/29/2021	Routine	No	Maintenance is needed.	Yes	Yes
570	7/29/2021	Routine	No	Maintenance is needed.	Yes	Yes
587	7/29/2021	Routine	No	Maintenance is needed.	Yes	Yes
637	7/29/2021	Routine	No	Maintenance is needed.	Yes	Yes
638	7/29/2021	Routine	No	Maintenance is needed.	Yes	Yes
952	7/29/2021	Routine	No	Maintenance is needed.	Yes	Yes
998	7/29/2021	Routine	No	Maintenance is needed.	No	Yes
951	7/29/2021	Routine	No	Maintenance is needed.	Yes	No
840	7/29/2021	Other	Yes	Maintenance is needed.	Yes	No

Facility ID	Inspection Date	Inspection Type	Facility In Compliance?	Comments	Minor Maintenance Required	Major Maintenance Required
648	7/29/2021	Other	Yes	No maintenance is needed at this time.	No	No
839	7/29/2021	Routine	Yes	No maintenance is needed at this time.	No	No
623	7/30/2021	Routine	No	Maintenance is needed.	Yes	Yes
802	7/30/2021	Routine	No	Maintenance is needed.	Yes	Yes
840	7/30/2021	Routine	No	Maintenance is needed.	No	Yes
566	7/30/2021	Routine	No	Maintenance is needed.	Yes	No
597	7/30/2021	Routine	No	Maintenance is needed.	Yes	No
622	7/30/2021	Routine	No	Maintenance is needed.	Yes	No
801	7/30/2021	Routine	No	Maintenance is needed.	Yes	No
841	7/30/2021	Routine	No	Maintenance is needed.	Yes	No
842	7/30/2021	Routine	No	Maintenance is needed.	Yes	No
911	8/2/2021	60-day reinspection	No	Maintenance is needed.	Yes	Yes
435	8/2/2021	Complaint Based	No	Maintenance is needed.	Yes	No
912	8/2/2021	60-day reinspection	No	Maintenance is needed.	Yes	No
996	8/2/2021	Other	No	Maintenance is needed.	Yes	No
1020	8/2/2021	Routine	No	Maintenance is needed.	Yes	No
1030	8/2/2021	Complaint Based	No	Maintenance is needed.	Yes	No
908	8/3/2021	Routine	Yes	Maintenance is needed.	Yes	Yes
887	8/3/2021	Routine	No	Maintenance is needed.	Yes	No
906	8/3/2021	Routine	No	Maintenance is needed.	Yes	No
907	8/3/2021	Routine	No	Maintenance is needed.	Yes	No
909	8/3/2021	Routine	No	Maintenance is needed.	Yes	No
144	8/4/2021	Routine	No	Maintenance is needed.	Yes	Yes
630	8/4/2021	Routine	No	Maintenance is needed.	Yes	Yes
898	8/4/2021	Routine	No	Maintenance is needed.	Yes	Yes
232	8/4/2021	Routine	No	Maintenance is needed.	Yes	No
235	8/4/2021	Routine	No	Maintenance is needed.	Yes	No
535	8/4/2021	Routine	No	Maintenance is needed.	Yes	No
565	8/4/2021	Routine	No	Maintenance is needed.	Yes	No
631	8/4/2021	Routine	No	Maintenance is needed.	Yes	No
863	8/4/2021	Routine	No	Maintenance is needed.	Yes	No
899	8/4/2021	Routine	No	Maintenance is needed.	Yes	No

Facility ID	Inspection Date	Inspection Type	Facility In Compliance?	Comments	Minor Maintenance Required	Major Maintenance Required
817	8/5/2021	Other	No	Maintenance is needed.	Yes	Yes
989	8/5/2021	Other	No	Maintenance is needed.	No	Yes
838	8/5/2021	Other	Yes	Maintenance is needed.	No	Yes
492	8/6/2021	Routine	No	Maintenance is needed.	Yes	Yes
185	8/6/2021	Routine	No	Maintenance is needed.	No	Yes
197	8/6/2021	Routine	No	Maintenance is needed.	No	Yes
406	8/6/2021	Routine	No	Maintenance is needed.	Yes	No
423	8/6/2021	Routine	No	Maintenance is needed.	Yes	No
474	8/6/2021	Routine	No	Maintenance is needed.	Yes	No
651	8/6/2021	Routine	No	Maintenance is needed.	Yes	No
568	8/6/2021	Routine	No	No maintenance is needed at this time.	No	No
52	8/6/2021	Routine	Yes	No maintenance is needed at this time.	No	No
196	8/6/2021	Routine	Yes	No maintenance is needed at this time.	No	No
975	8/9/2021	Routine	Yes	Maintenance is needed.	No	Yes
974	8/9/2021	Routine	No	Maintenance is needed.	Yes	No
973	8/9/2021	Routine	Yes	No maintenance is needed at this time.	No	No
85	8/10/2021	Complaint Based	No	Maintenance is needed.	Yes	Yes
890	8/10/2021	Routine	No	Maintenance is needed.	Yes	Yes
470	8/10/2021	Routine	No	Maintenance is needed.	Yes	No
789	8/10/2021	Routine	No	Maintenance is needed.	Yes	No
864	8/10/2021	Routine	No	Maintenance is needed.	Yes	No
954	8/10/2021	Routine	No	Maintenance is needed.	Yes	No
891	8/10/2021	Routine	Yes	Maintenance is needed.	Yes	No
84	8/10/2021	Routine	Yes	No maintenance is needed at this time.	No	No
339	8/11/2021	Routine	No	Maintenance is needed.	Yes	Yes
340	8/11/2021	Routine	No	Maintenance is needed.	Yes	Yes
336	8/11/2021	Routine	No	Maintenance is needed.	Yes	No
338	8/11/2021	Routine	No	Maintenance is needed.	Yes	No
559	8/11/2021	Routine	No	Maintenance is needed.	Yes	No
411	8/12/2021	Routine	No	Maintenance is needed.	Yes	Yes
529	8/12/2021	Routine	No	Maintenance is needed.	Yes	Yes
567	8/12/2021	Routine	No	Maintenance is needed.	Yes	Yes

Facility ID	Inspection Date	Inspection Type	Facility In Compliance?	Comments	Minor Maintenance Required	Major Maintenance Required
414	8/12/2021	Routine	No	Maintenance is needed.	Yes	No
852	8/12/2021	Routine	Yes	Maintenance is needed.	Yes	No
788	8/12/2021	Routine	Yes	No maintenance is needed at this time.	No	No
881	8/16/2021	Routine	Yes	Maintenance is needed.	Yes	No
312	8/17/2021	Routine	No	Maintenance is needed.	Yes	No
390	8/17/2021	Routine	No	Maintenance is needed.	Yes	No
543	8/17/2021	Routine	No	Maintenance is needed.	Yes	No
692	8/17/2021	Routine	No	Maintenance is needed.	Yes	No
1020	8/17/2021	Other	No	Maintenance is needed.	Yes	No
843	8/18/2021	Routine	No	Maintenance is needed.	Yes	Yes
844	8/18/2021	Routine	No	Maintenance is needed.	Yes	Yes
999	8/18/2021	60-day reinspection	No	Maintenance is needed.	Yes	Yes
5754-003	8/18/2021	Complaint Based	Yes	Maintenance is needed.	No	Yes
99	8/18/2021	Routine	No	Maintenance is needed.	Yes	No
141	8/18/2021	Routine	No	Maintenance is needed.	Yes	No
142	8/18/2021	Routine	No	Maintenance is needed.	Yes	No
143	8/18/2021	Routine	No	Maintenance is needed.	Yes	No
989	8/18/2021	60-day reinspection	No	Maintenance is needed.	Yes	No
991	8/18/2021	60-day reinspection	No	Maintenance is needed.	Yes	No
1036	8/18/2021	60-day reinspection	No	Maintenance is needed.	Yes	No
795	8/18/2021	60-day reinspection	Yes	Maintenance is needed.	Yes	No
1000	8/18/2021	60-day reinspection	Yes	Maintenance is needed.	Yes	No
790	8/19/2021	Routine	No	Maintenance is needed.	Yes	Yes
888	8/19/2021	Routine	No	Maintenance is needed.	Yes	Yes
627	8/19/2021	Routine	Yes	Maintenance is needed.	Yes	Yes
234	8/19/2021	Routine	No	Maintenance is needed.	Yes	No
284	8/19/2021	Routine	No	Maintenance is needed.	Yes	No
462	8/19/2021	Routine	No	Maintenance is needed.	Yes	No
501	8/19/2021	Routine	No	Maintenance is needed.	Yes	No
668	8/19/2021	Routine	No	Maintenance is needed.	Yes	No
690	8/19/2021	Routine	No	Maintenance is needed.	Yes	No
791	8/19/2021	Routine	No	Maintenance is needed.	Yes	No

Facility ID	Inspection Date	Inspection Type	Facility In Compliance?	Comments	Minor Maintenance Required	Major Maintenance Required
957	8/19/2021	Routine	No	Maintenance is needed.	Yes	No
963	8/19/2021	Routine	No	Maintenance is needed.	Yes	No
793	8/20/2021	Routine	No	Maintenance is needed.	Yes	No
911	8/24/2021	60-day reinspection	Yes	Maintenance is needed.	Yes	Yes
867	8/24/2021	Routine	Yes	Maintenance is needed.	No	Yes
398	8/24/2021	Routine	No	Maintenance is needed.	Yes	No
431	8/24/2021	Routine	No	Maintenance is needed.	Yes	No
530	8/24/2021	Routine	No	Maintenance is needed.	Yes	No
866	8/24/2021	Routine	No	Maintenance is needed.	Yes	No
528	8/24/2021	60-day reinspection	Yes	Maintenance is needed.	Yes	No
648	8/24/2021	60-day reinspection	Yes	Maintenance is needed.	Yes	No
912	8/24/2021	60-day reinspection	Yes	Maintenance is needed.	Yes	No
863	8/24/2021	60-day reinspection	No	No maintenance is needed at this time.	No	No
640	8/24/2021	Routine	Yes	No maintenance is needed at this time.	No	No
576	8/25/2021	Complaint Based	No	Maintenance is needed.	No	Yes
551	8/25/2021	Routine	No	Maintenance is needed.	Yes	No
552	8/25/2021	Routine	No	Maintenance is needed.	Yes	No
553	8/25/2021	Routine	No	Maintenance is needed.	Yes	No
564	8/25/2021	Routine	No	Maintenance is needed.	Yes	No
868	8/25/2021	Routine	No	Maintenance is needed.	Yes	No
869	8/25/2021	Routine	No	Maintenance is needed.	Yes	No
558	8/26/2021	Routine	No	Maintenance is needed.	Yes	Yes
590	8/26/2021	Routine	No	Maintenance is needed.	Yes	No
1029	8/30/2021	Routine	No	Maintenance is needed.	Yes	Yes
1030	8/30/2021	Routine	No	Maintenance is needed.	Yes	Yes
529	8/30/2021	60-day reinspection	Yes	Maintenance is needed.	No	Yes
1031	8/30/2021	Routine	Yes	Maintenance is needed.	No	Yes
1033	8/30/2021	Routine	Yes	Maintenance is needed.	No	Yes
1034	8/30/2021	Routine	Yes	Maintenance is needed.	No	Yes
270	8/30/2021	Other	No	Maintenance is needed.	Yes	No
1030	8/30/2021	Routine	Yes	No maintenance is needed at this time.	No	No
1032	8/30/2021	Routine	Yes	No maintenance is needed at this time.	No	No

Facility ID	Inspection Date	Inspection Type	Facility In Compliance?	Comments	Minor Maintenance Required	Major Maintenance Required
190	8/31/2021	Routine	Yes	Maintenance is needed.	Yes	Yes
394	8/31/2021	Routine	No	Maintenance is needed.	Yes	No
191	8/31/2021	Routine	Yes	No maintenance is needed at this time.	No	No
1021	8/31/2021	Routine	Yes	No maintenance is needed at this time.	No	No
1022	9/2/2021	Routine	No	Maintenance is needed.	Yes	Yes
1023	9/2/2021	Routine	No	Maintenance is needed.	Yes	Yes
1024	9/2/2021	Routine	No	Maintenance is needed.	Yes	Yes
1025	9/2/2021	Routine	No	Maintenance is needed.	Yes	Yes
613	9/2/2021	Routine	No	Maintenance is needed.	Yes	No
613	9/2/2021	Routine	No	Maintenance is needed.	Yes	No
850	9/2/2021	Routine	No	Maintenance is needed.	Yes	No
198	9/7/2021	Routine	No	Maintenance is needed.	Yes	Yes
314	9/7/2021	Routine	No	Maintenance is needed.	Yes	Yes
616	9/7/2021	Routine	No	Maintenance is needed.	No	Yes
90	9/7/2021	Routine	No	Maintenance is needed.	Yes	No
199	9/7/2021	Routine	No	Maintenance is needed.	Yes	No
327	9/7/2021	Routine	No	Maintenance is needed.	Yes	No
519	9/7/2021	Routine	No	Maintenance is needed.	Yes	No
883	9/7/2021	Routine	No	Maintenance is needed.	Yes	No
892	9/7/2021	Routine	No	No maintenance is needed at this time.	No	No
939	9/7/2021	Routine	No	No maintenance is needed at this time.	No	No
435	9/7/2021	60-day reinspection	Yes	No maintenance is needed at this time.	No	No
987	9/7/2021	Routine	Yes	No maintenance is needed at this time.	No	No
938	9/8/2021	Routine	No	Maintenance is needed.	Yes	Yes
988	9/8/2021	Routine	No	Maintenance is needed.	Yes	Yes
970	9/8/2021	Routine	No	Maintenance is needed.	Yes	No
1005	9/8/2021	Routine	No	Maintenance is needed.	Yes	No
843	9/9/2021	Other	No	Maintenance is needed.	Yes	Yes
394	9/9/2021	Other	No	Maintenance is needed.	Yes	No
190	9/9/2021	Other	Yes	Maintenance is needed.	Yes	No
312	9/9/2021	60-day reinspection	Yes	No maintenance is needed at this time.	No	No
1020	9/9/2021	60-day reinspection	Yes	No maintenance is needed at this time.	No	No

Facility ID	Inspection Date	Inspection Type	Facility In Compliance?	Comments	Minor Maintenance Required	Major Maintenance Required
893	9/22/2021	Other	No	Maintenance is needed.	Yes	No
214	9/27/2021	60-day reinspection	No	Maintenance is needed.	Yes	No
805	9/27/2021	60-day reinspection	No	Maintenance is needed.	Yes	No
874	9/27/2021	60-day reinspection	No	Maintenance is needed.	Yes	No
189	9/27/2021	60-day reinspection	Yes	Maintenance is needed.	Yes	No
455	9/27/2021	60-day reinspection	Yes	Maintenance is needed.	Yes	No
882	9/27/2021	60-day reinspection	Yes	Maintenance is needed.	Yes	No
909	9/27/2021	60-day reinspection	Yes	Maintenance is needed.	Yes	No
410	9/27/2021	60-day reinspection	Yes	No maintenance is needed at this time.	No	No
908	9/27/2021	60-day reinspection	Yes	No maintenance is needed at this time.	No	No
960	9/27/2021	Complaint Based	Yes	No maintenance is needed at this time.	No	No
309	9/29/2021	Routine	No	Maintenance is needed.	Yes	Yes
310	9/29/2021	Routine	No	Maintenance is needed.	Yes	Yes
332	9/29/2021	Routine	No	Maintenance is needed.	Yes	Yes
422	9/29/2021	Routine	No	Maintenance is needed.	Yes	Yes
476	9/29/2021	Routine	No	Maintenance is needed.	Yes	Yes
624	9/29/2021	Complaint Based	Yes	Maintenance is needed.	Yes	Yes
46	9/29/2021	Routine	No	Maintenance is needed.	No	Yes
479	9/29/2021	Routine	No	Maintenance is needed.	No	Yes
159	9/29/2021	Routine	No	Maintenance is needed.	Yes	No
218	9/29/2021	Routine	No	Maintenance is needed.	Yes	No
318	9/29/2021	Routine	No	Maintenance is needed.	Yes	No
377	9/29/2021	Routine	No	Maintenance is needed.	Yes	No
424	9/29/2021	Routine	No	Maintenance is needed.	Yes	No
491	9/29/2021	Routine	No	Maintenance is needed.	Yes	No
505	9/29/2021	Routine	No	Maintenance is needed.	Yes	No
537	9/29/2021	60-day reinspection	No	Maintenance is needed.	Yes	No
544	9/29/2021	Routine	No	Maintenance is needed.	Yes	No
545	9/29/2021	Routine	No	Maintenance is needed.	Yes	No
808	9/29/2021	Routine	No	Maintenance is needed.	Yes	No
837	9/29/2021	Routine	No	Maintenance is needed.	Yes	No
894	9/29/2021	Routine	No	Maintenance is needed.	Yes	No

Facility ID	Inspection Date	Inspection Type	Facility In Compliance?	Comments	Minor Maintenance Required	Major Maintenance Required
1010	9/29/2021	Routine	No	Maintenance is needed.	Yes	No
1011	9/29/2021	Routine	No	Maintenance is needed.	Yes	No
296	9/30/2021	Routine	No	Maintenance is needed.	Yes	Yes
490	9/30/2021	Routine	No	Maintenance is needed.	Yes	Yes
508	9/30/2021	Routine	No	Maintenance is needed.	Yes	Yes
604	9/30/2021	Routine	No	Maintenance is needed.	Yes	Yes
660	9/30/2021	60-day reinspection	No	Maintenance is needed.	Yes	Yes
216	9/30/2021	Routine	No	Maintenance is needed.	Yes	No
217	9/30/2021	Routine	No	Maintenance is needed.	Yes	No
219	9/30/2021	60-day reinspection	No	Maintenance is needed.	Yes	No
509	9/30/2021	Routine	No	Maintenance is needed.	Yes	No
532	9/30/2021	Routine	No	Maintenance is needed.	Yes	No
533	9/30/2021	Routine	No	Maintenance is needed.	Yes	No
937	9/30/2021	Routine	No	Maintenance is needed.	Yes	No
237	10/4/2021	Routine	No	Maintenance is needed.	Yes	No
797	10/4/2021	Routine	No	Maintenance is needed.	Yes	No
819	10/4/2021	Routine	No	Maintenance is needed.	Yes	No
155	10/4/2021	Routine	Yes	No maintenance is needed at this time.	No	No
198	10/5/2021	Other	No	Maintenance is needed.	Yes	No
199	10/5/2021	Other	No	Maintenance is needed.	Yes	No
327	10/5/2021	Other	No	Maintenance is needed.	Yes	No
470	10/6/2021	Complaint Based	No	Maintenance is needed.	No	Yes
116	10/7/2021	Routine	No	Maintenance is needed.	No	Yes
139	10/7/2021	Routine	No	Maintenance is needed.	No	Yes
119	10/7/2021	Routine	No	Maintenance is needed.	Yes	No
226	10/7/2021	Routine	No	Maintenance is needed.	Yes	No
227	10/7/2021	Routine	No	Maintenance is needed.	Yes	No
228	10/7/2021	Routine	No	Maintenance is needed.	Yes	No
584	10/7/2021	Routine	No	Maintenance is needed.	Yes	No
654	10/7/2021	Routine	No	Maintenance is needed.	Yes	No
655	10/7/2021	60-day reinspection	No	Maintenance is needed.	Yes	No
115	10/7/2021	Routine	Yes	Maintenance is needed.	Yes	No

Facility ID	Inspection Date	Inspection Type	Facility In Compliance?	Comments	Minor Maintenance Required	Major Maintenance Required
138	10/7/2021	Routine	Yes	Maintenance is needed.	Yes	No
699	10/7/2021	Routine	No	No maintenance is needed at this time.	No	No
137	10/7/2021	Routine	Yes	No maintenance is needed at this time.	No	No
689	10/8/2021	Routine	No	Maintenance is needed.	Yes	No
688	10/8/2021	Routine	No	No maintenance is needed at this time.	No	No
953	10/11/2021	Routine	No	Maintenance is needed.	Yes	Yes
269	10/11/2021	Complaint Based	No	Maintenance is needed.	No	Yes
269	10/11/2021	Routine	No	Maintenance is needed.	Yes	No
458	10/11/2021	Routine	No	Maintenance is needed.	Yes	No
459	10/11/2021	Routine	No	Maintenance is needed.	Yes	No
953	10/11/2021	Routine	No	Maintenance is needed.	Yes	No
297	10/12/2021	Routine	No	Maintenance is needed.	Yes	Yes
442	10/13/2021	Routine	No	Maintenance is needed.	Yes	No
853	10/13/2021	Routine	No	Maintenance is needed.	Yes	No
854	10/13/2021	Routine	No	Maintenance is needed.	Yes	No
920	10/13/2021	Routine	No	Maintenance is needed.	Yes	No
921	10/13/2021	Routine	No	Maintenance is needed.	Yes	No
972	10/13/2021	Routine	Yes	No maintenance is needed at this time.	No	No
73	10/14/2021	Routine	No	Maintenance is needed.	Yes	No
873	10/14/2021	Routine	Yes	No maintenance is needed at this time.	No	No
63	10/19/2021	Routine	No	Maintenance is needed.	Yes	No
80	10/21/2021	Routine	No	Maintenance is needed.	Yes	No
81	10/21/2021	Routine	No	Maintenance is needed.	Yes	No
86	10/21/2021	Routine	No	Maintenance is needed.	Yes	No
150	10/21/2021	Routine	No	Maintenance is needed.	Yes	No
477	10/21/2021	Routine	No	Maintenance is needed.	Yes	No
51	10/21/2021	Routine	Yes	No maintenance is needed at this time.	No	No
148	10/21/2021	Routine	Yes	No maintenance is needed at this time.	No	No
149	10/21/2021	Routine	Yes	No maintenance is needed at this time.	No	No
239	10/22/2021	Routine	No	Maintenance is needed.	Yes	Yes
240	10/22/2021	Routine	No	Maintenance is needed.	Yes	Yes
460	10/22/2021	Routine	No	Maintenance is needed.	Yes	Yes

Facility ID	Inspection Date	Inspection Type	Facility In Compliance?	Comments	Minor Maintenance Required	Major Maintenance Required
521	10/22/2021	Routine	No	Maintenance is needed.	Yes	Yes
206	10/22/2021	Routine	No	Maintenance is needed.	No	Yes
641	10/22/2021	Routine	No	Maintenance is needed.	No	Yes
641	10/22/2021	Routine	No	Maintenance is needed.	No	Yes
236	10/22/2021	Routine	No	Maintenance is needed.	Yes	No
950	10/22/2021	Routine	No	Maintenance is needed.	Yes	No
686	10/22/2021	Routine	No	No maintenance is needed at this time.	No	No
1037	10/25/2021	60-day reinspection	Yes	Maintenance is needed.	No	Yes
789	10/25/2021	60-day reinspection	No	Maintenance is needed.	Yes	No
800	10/25/2021	Routine	No	Maintenance is needed.	Yes	No
864	10/25/2021	60-day reinspection	No	Maintenance is needed.	Yes	No
974	10/25/2021	60-day reinspection	Yes	Maintenance is needed.	Yes	No
890	10/25/2021	60-day reinspection	No	No maintenance is needed at this time.	No	No
1012	10/25/2021	60-day reinspection	Yes	No maintenance is needed at this time.	No	No
596	10/26/2021	Routine	No	Maintenance is needed.	Yes	Yes
602	10/26/2021	Routine	No	Maintenance is needed.	Yes	Yes
207	10/26/2021	Routine	No	Maintenance is needed.	No	Yes
208	10/26/2021	Routine	No	Maintenance is needed.	No	Yes
503	10/26/2021	Routine	No	Maintenance is needed.	Yes	No
632	10/26/2021	Routine	No	Maintenance is needed.	Yes	No
633	10/26/2021	Routine	No	Maintenance is needed.	Yes	No
644	10/26/2021	Routine	No	Maintenance is needed.	Yes	No
661	10/26/2021	Routine	No	Maintenance is needed.	Yes	No
863	10/26/2021	Routine	No	Maintenance is needed.	Yes	No
619	10/26/2021	Routine	Yes	Maintenance is needed.	Yes	No
930	10/26/2021	Routine	No	No maintenance is needed at this time.	No	No
885	10/26/2021	Routine	Yes	No maintenance is needed at this time.	No	No
439	10/27/2021	Routine	No	Maintenance is needed.	Yes	Yes
524	10/27/2021	60-day reinspection	No	Maintenance is needed.	Yes	Yes
482	10/27/2021	Routine	No	Maintenance is needed.	Yes	No
643	10/27/2021	Routine	No	Maintenance is needed.	Yes	No
845	10/27/2021	Routine	No	Maintenance is needed.	Yes	No

Facility ID	Inspection Date	Inspection Type	Facility In Compliance?	Comments	Minor Maintenance Required	Major Maintenance Required
130	10/27/2021	Routine	Yes	No maintenance is needed at this time.	No	No
427	10/27/2021	Routine	Yes	No maintenance is needed at this time.	No	No
1003	10/27/2021	Routine	Yes	No maintenance is needed at this time.	No	No
1027	10/28/2021	Routine	No	Maintenance is needed.	Yes	Yes
1028	10/28/2021	Routine	No	Maintenance is needed.	Yes	Yes
862	10/28/2021	Routine	No	Maintenance is needed.	No	Yes
434	10/28/2021	Routine	Yes	Maintenance is needed.	No	Yes
192	10/28/2021	Routine	No	Maintenance is needed.	Yes	No
929	10/28/2021	Routine	No	Maintenance is needed.	Yes	No
129	10/28/2021	Routine	Yes	No maintenance is needed at this time.	No	No
131	10/28/2021	Routine	Yes	No maintenance is needed at this time.	No	No
554	10/28/2021	Routine	Yes	No maintenance is needed at this time.	No	No
431	11/3/2021	60-day reinspection	No	Maintenance is needed.	Yes	No
664	11/3/2021	Routine	No	No maintenance is needed at this time.	No	No
687	11/3/2021	Routine	No	No maintenance is needed at this time.	No	No
1014	11/3/2021	Routine	No	No maintenance is needed at this time.	No	No
140	11/4/2021	Routine	Yes	Maintenance is needed.	No	Yes
117	11/4/2021	Routine	No	Maintenance is needed.	Yes	No
135	11/4/2021	Routine	No	Maintenance is needed.	Yes	No
496	11/4/2021	Routine	No	Maintenance is needed.	Yes	No
498	11/4/2021	Routine	No	Maintenance is needed.	Yes	No
797	11/4/2021	Other	No	Maintenance is needed.	Yes	No
495	11/4/2021	Routine	Yes	Maintenance is needed.	Yes	No
118	11/4/2021	Routine	Yes	No maintenance is needed at this time.	No	No
136	11/4/2021	Routine	Yes	No maintenance is needed at this time.	No	No
497	11/4/2021	Routine	Yes	No maintenance is needed at this time.	No	No
789	11/8/2021	Routine	No	Maintenance is needed.	Yes	Yes
890	11/8/2021	Routine	Yes	Maintenance is needed.	Yes	No
864	11/8/2021	Routine	Yes	No maintenance is needed at this time.	No	No
276	11/9/2021	Routine	No	Maintenance is needed.	Yes	Yes
114	11/9/2021	Other	No	Maintenance is needed.	Yes	No
313	11/9/2021	Routine	No	Maintenance is needed.	Yes	No

Facility ID	Inspection Date	Inspection Type	Facility In Compliance?	Comments	Minor Maintenance Required	Major Maintenance Required
337	11/9/2021	Routine	No	Maintenance is needed.	Yes	No
385	11/9/2021	Routine	No	Maintenance is needed.	Yes	No
457	11/9/2021	Routine	No	Maintenance is needed.	Yes	No
465	11/9/2021	Routine	No	Maintenance is needed.	Yes	No
653	11/9/2021	Routine	No	Maintenance is needed.	Yes	No
656	11/9/2021	Routine	No	Maintenance is needed.	Yes	No
962	11/9/2021	Routine	No	Maintenance is needed.	Yes	No
955	11/9/2021	Routine	Yes	No maintenance is needed at this time.	No	No
1041	11/10/2021	Routine	No	Maintenance is needed.	Yes	Yes
92	11/10/2021	Routine	No	Maintenance is needed.	Yes	No
163	11/10/2021	Routine	No	Maintenance is needed.	Yes	No
200	11/10/2021	Routine	No	Maintenance is needed.	Yes	No
201	11/10/2021	Routine	No	Maintenance is needed.	Yes	No
383	11/10/2021	Routine	No	Maintenance is needed.	Yes	No
384	11/10/2021	Routine	No	Maintenance is needed.	Yes	No
1039	11/10/2021	Routine	No	Maintenance is needed.	Yes	No
1040	11/10/2021	Routine	No	No maintenance is needed at this time.	No	No
527	11/12/2021	Routine	No	Maintenance is needed.	Yes	No
935	11/12/2021	Routine	No	Maintenance is needed.	Yes	No
15	11/12/2021	Routine	Yes	No maintenance is needed at this time.	No	No
56	11/12/2021	Routine	Yes	No maintenance is needed at this time.	No	No
87	11/12/2021	Routine	Yes	No maintenance is needed at this time.	No	No
133	11/12/2021	Routine	Yes	No maintenance is needed at this time.	No	No
133	11/12/2021	Routine	Yes	No maintenance is needed at this time.	No	No
251	11/12/2021	Routine	Yes	No maintenance is needed at this time.	No	No
851	11/16/2021	Routine	No	Maintenance is needed.	Yes	Yes
488	11/16/2021	Routine	No	Maintenance is needed.	No	Yes
799	11/16/2021	Routine	No	Maintenance is needed.	Yes	No
254	11/17/2021	Routine	No	No maintenance is needed at this time.	No	No
238	11/18/2021	Routine	No	Maintenance is needed.	Yes	Yes
388	11/18/2021	Routine	No	Maintenance is needed.	Yes	Yes
387	11/18/2021	Routine	Yes	Maintenance is needed.	No	Yes

Facility ID	Inspection Date	Inspection Type	Facility In Compliance?	Comments	Minor Maintenance Required	Major Maintenance Required
30	11/18/2021	Routine	No	Maintenance is needed.	Yes	No
113	11/18/2021	Routine	No	Maintenance is needed.	Yes	No
73	11/18/2021	60-day reinspection	Yes	Maintenance is needed.	Yes	No
467	11/19/2021	Routine	No	Maintenance is needed.	Yes	Yes
386	11/19/2021	Routine	No	Maintenance is needed.	No	Yes
468	11/19/2021	Routine	No	Maintenance is needed.	No	Yes
469	11/19/2021	Routine	No	Maintenance is needed.	Yes	No
488	11/19/2021	Other	No	Maintenance is needed.	Yes	No
568	11/19/2021	Routine	No	Maintenance is needed.	Yes	No
695	11/19/2021	Routine	No	Maintenance is needed.	Yes	No
979	11/19/2021	Routine	No	Maintenance is needed.	Yes	No
571	11/22/2021	Routine	No	Maintenance is needed.	Yes	Yes
85	11/22/2021	Other	No	No maintenance is needed at this time.	No	No
299	11/22/2021	Routine	Yes	No maintenance is needed at this time.	No	No
556	11/22/2021	Routine	Yes	No maintenance is needed at this time.	No	No
104	11/23/2021	Routine	No	Maintenance is needed.	Yes	No
169	11/23/2021	Routine	No	Maintenance is needed.	Yes	No
223	11/23/2021	Routine	No	Maintenance is needed.	Yes	No
224	11/23/2021	Routine	No	Maintenance is needed.	Yes	No
277	11/23/2021	Routine	No	Maintenance is needed.	Yes	No
852	11/23/2021	Other	Yes	Maintenance is needed.	Yes	No
245	11/23/2021	Routine	Yes	No maintenance is needed at this time.	No	No
246	11/23/2021	Routine	Yes	No maintenance is needed at this time.	No	No
300	11/23/2021	Routine	Yes	No maintenance is needed at this time.	No	No
5824	11/23/2021	Routine	Yes	No maintenance is needed at this time.	No	No
595	11/24/2021	Routine	No	Maintenance is needed.	Yes	Yes
195	11/24/2021	Routine	Yes	No maintenance is needed at this time.	No	No
293	11/24/2021	Routine	Yes	No maintenance is needed at this time.	No	No
294	11/24/2021	Routine	Yes	No maintenance is needed at this time.	No	No
594	11/24/2021	Routine	Yes	No maintenance is needed at this time.	No	No
316	11/30/2021	Routine	Yes	No maintenance is needed at this time.	No	No
458	11/30/2021	60-day reinspection	Yes	No maintenance is needed at this time.	No	No

Facility ID	Inspection Date	Inspection Type	Facility In Compliance?	Comments	Minor Maintenance Required	Major Maintenance Required
459	11/30/2021	60-day reinspection	Yes	No maintenance is needed at this time.	No	No
424	12/2/2021	Other	No	Maintenance is needed.	Yes	No
39	12/6/2021	Routine	No	Maintenance is needed.	Yes	No
606	12/7/2021	Routine	No	Maintenance is needed.	Yes	Yes
500	12/7/2021	Routine	Yes	Maintenance is needed.	No	Yes
278	12/7/2021	Routine	No	Maintenance is needed.	Yes	No
607	12/7/2021	Routine	No	Maintenance is needed.	Yes	No
29	12/7/2021	Routine	Yes	No maintenance is needed at this time.	No	No
499	12/7/2021	Routine	Yes	No maintenance is needed at this time.	No	No
662	12/8/2021	Routine	No	Maintenance is needed.	Yes	No
685	12/8/2021	Routine	No	Maintenance is needed.	Yes	No
989	12/8/2021	Routine	No	Maintenance is needed.	Yes	No
1001	12/8/2021	Routine	No	Maintenance is needed.	Yes	No
1002	12/8/2021	Routine	No	Maintenance is needed.	Yes	No
995	12/9/2021	Other	Yes	Maintenance is needed.	No	Yes
185	12/9/2021	Complaint Based	No	Maintenance is needed.	Yes	No
197	12/9/2021	Other	No	Maintenance is needed.	Yes	No
197	12/9/2021	Routine	No	Maintenance is needed.	Yes	No
651	12/9/2021	Complaint Based	Yes	Maintenance is needed.	Yes	No
695	12/9/2021	Other	Yes	Maintenance is needed.	Yes	No
695	12/9/2021	Routine	Yes	Maintenance is needed.	Yes	No
185	12/9/2021	Complaint Based	Yes	No maintenance is needed at this time.	No	No
185	12/10/2021	Routine	No	Maintenance is needed.	Yes	No
692	12/15/2021	60-day reinspection	Yes	Maintenance is needed.	Yes	No
805	12/15/2021	60-day reinspection	Yes	No maintenance is needed at this time.	No	No
874	12/15/2021	60-day reinspection	Yes	No maintenance is needed at this time.	No	No
882	12/15/2021	60-day reinspection	Yes	No maintenance is needed at this time.	No	No
337	12/16/2021	60-day reinspection	No	Maintenance is needed.	Yes	No
385	12/16/2021	Other	No	Maintenance is needed.	Yes	No
653	12/16/2021	60-day reinspection	No	Maintenance is needed.	Yes	No
5384	12/31/2021	Routine	Yes	No maintenance is needed at this time.	No	No
189	1/6/2022	Routine	No	Maintenance is needed.	No	Yes

Facility ID	Inspection Date	Inspection Type	Facility In Compliance?	Comments	Minor Maintenance Required	Major Maintenance Required
882	1/6/2022	Routine	Yes	Maintenance is needed.	No	Yes
410	1/6/2022	Routine	No	Maintenance is needed.	Yes	No
653	1/6/2022	Routine	No	Maintenance is needed.	Yes	No
692	1/6/2022	Routine	No	Maintenance is needed.	Yes	No
805	1/6/2022	Routine	No	Maintenance is needed.	Yes	No
458	1/6/2022	Routine	Yes	No maintenance is needed at this time.	No	No
459	1/6/2022	Routine	Yes	No maintenance is needed at this time.	No	No
63	1/10/2022	Complaint Based	No	Maintenance is needed.	Yes	Yes
122	1/10/2022	Routine	No	Maintenance is needed.	No	Yes
691	1/10/2022	Routine	Yes	Maintenance is needed.	No	Yes
49	1/10/2022	Routine	No	Maintenance is needed.	Yes	No
186	1/10/2022	Routine	No	Maintenance is needed.	Yes	No
541	1/10/2022	Routine	Yes	No maintenance is needed at this time.	No	No
1006	1/10/2022	Routine	Yes	No maintenance is needed at this time.	No	No
444	1/11/2022	Routine	No	Maintenance is needed.	Yes	Yes
389	1/11/2022	Routine	Yes	Maintenance is needed.	No	Yes
53	1/11/2022	Routine	No	Maintenance is needed.	Yes	No
55	1/11/2022	Routine	No	Maintenance is needed.	Yes	No
527	1/11/2022	Complaint Based	No	Maintenance is needed.	Yes	No
922	1/11/2022	Routine	Yes	No maintenance is needed at this time.	No	No
924	1/11/2022	Routine	Yes	No maintenance is needed at this time.	No	No
5035	1/11/2022	Routine	Yes	No maintenance is needed at this time.	No	No
5963	1/11/2022	Routine	Yes	No maintenance is needed at this time.	No	No
45	1/12/2022	Routine	No	Maintenance is needed.	Yes	Yes
147	1/12/2022	Routine	No	Maintenance is needed.	Yes	Yes
158	1/12/2022	Routine	No	Maintenance is needed.	Yes	Yes
233	1/12/2022	Routine	Yes	Maintenance is needed.	Yes	Yes
167	1/12/2022	Routine	No	Maintenance is needed.	Yes	No
562	1/12/2022	Routine	Yes	No maintenance is needed at this time.	No	No
994	1/13/2022	Routine	No	Maintenance is needed.	Yes	Yes
602	1/13/2022	Routine	No	Maintenance is needed.	No	Yes
426	1/13/2022	Routine	No	Maintenance is needed.	Yes	No

Facility ID	Inspection Date	Inspection Type	Facility In Compliance?	Comments	Minor Maintenance Required	Major Maintenance Required
493	1/13/2022	Routine	No	Maintenance is needed.	Yes	No
494	1/13/2022	Routine	No	Maintenance is needed.	Yes	No
236	1/13/2022	Routine	No	No maintenance is needed at this time.	No	No
809	1/13/2022	Routine	Yes	No maintenance is needed at this time.	No	No
997	1/13/2022	Routine	Yes	No maintenance is needed at this time.	No	No
572	1/14/2022	Routine	No	Maintenance is needed.	Yes	No
168	1/18/2022	Routine	No	Maintenance is needed.	Yes	Yes
872	1/18/2022	Complaint Based	Yes	Maintenance is needed.	No	Yes
112	1/18/2022	Routine	No	Maintenance is needed.	Yes	No
193	1/18/2022	Routine	No	Maintenance is needed.	Yes	No
380	1/18/2022	Routine	No	Maintenance is needed.	Yes	No
860	1/18/2022	Routine	No	Maintenance is needed.	Yes	No
861	1/18/2022	Routine	No	Maintenance is needed.	Yes	No
893	1/18/2022	Routine	No	Maintenance is needed.	Yes	No
194	1/18/2022	Routine	No	No maintenance is needed at this time.	No	No
573	1/18/2022	Routine	No	No maintenance is needed at this time.	No	No
574	1/18/2022	Routine	No	No maintenance is needed at this time.	No	No
575	1/18/2022	Routine	No	No maintenance is needed at this time.	No	No
295	1/18/2022	Routine	Yes	No maintenance is needed at this time.	No	No
478	1/18/2022	Routine	Yes	No maintenance is needed at this time.	No	No
5877	1/18/2022	Routine	Yes	No maintenance is needed at this time.	No	No
904	1/19/2022	Routine	No	Maintenance is needed.	Yes	Yes
905	1/19/2022	Routine	No	Maintenance is needed.	Yes	Yes
798	1/19/2022	Routine	No	Maintenance is needed.	Yes	No
5298	1/19/2022	Routine	Yes	No maintenance is needed at this time.	No	No
5909	1/19/2022	Routine	Yes	No maintenance is needed at this time.	No	No
79	1/21/2022	Routine	No	Maintenance is needed.	Yes	Yes
93	1/21/2022	Routine	No	No maintenance is needed at this time.	No	No
636	1/21/2022	Routine	No	No maintenance is needed at this time.	No	No
527	1/24/2022	60-day reinspection	Yes	Maintenance is needed.	Yes	Yes
59	1/24/2022	Routine	Yes	Maintenance is needed.	No	Yes
531	1/24/2022	Routine	Yes	Maintenance is needed.	No	Yes

Facility ID	Inspection Date	Inspection Type	Facility In Compliance?	Comments	Minor Maintenance Required	Major Maintenance Required
128	1/24/2022	Routine	No	Maintenance is needed.	Yes	No
452	1/24/2022	Routine	No	Maintenance is needed.	Yes	No
824	1/24/2022	Routine	No	Maintenance is needed.	Yes	No
54	1/24/2022	Routine	Yes	Maintenance is needed.	Yes	No
825	1/24/2022	Routine	No	No maintenance is needed at this time.	No	No
826	1/24/2022	Routine	No	No maintenance is needed at this time.	No	No
827	1/24/2022	Routine	No	No maintenance is needed at this time.	No	No
828	1/24/2022	Routine	No	No maintenance is needed at this time.	No	No
453	1/24/2022	Routine	Yes	No maintenance is needed at this time.	No	No
829	1/24/2022	Routine	Yes	No maintenance is needed at this time.	No	No
834	1/24/2022	Routine	Yes	No maintenance is needed at this time.	No	No
835	1/24/2022	Routine	Yes	No maintenance is needed at this time.	No	No
72	1/25/2022	Routine	No	Maintenance is needed.	Yes	No
298	1/25/2022	Routine	No	Maintenance is needed.	Yes	No
647	1/25/2022	Routine	No	Maintenance is needed.	Yes	No
900	1/25/2022	Other	No	Maintenance is needed.	Yes	No
94	1/25/2022	Routine	No	No maintenance is needed at this time.	No	No
830	1/25/2022	Routine	Yes	No maintenance is needed at this time.	No	No
831	1/25/2022	Routine	Yes	No maintenance is needed at this time.	No	No
832	1/25/2022	Routine	Yes	No maintenance is needed at this time.	No	No
833	1/25/2022	Routine	Yes	No maintenance is needed at this time.	No	No
5154	1/25/2022	Routine	Yes	No maintenance is needed at this time.	No	No
202	1/26/2022	Routine	No	Maintenance is needed.	Yes	Yes
305	1/26/2022	Routine	No	Maintenance is needed.	Yes	Yes
357	1/26/2022	Routine	No	Maintenance is needed.	Yes	Yes
359	1/26/2022	Routine	No	Maintenance is needed.	Yes	Yes
363	1/26/2022	Routine	No	Maintenance is needed.	Yes	Yes
471	1/26/2022	Routine	No	Maintenance is needed.	Yes	Yes
355	1/26/2022	Routine	No	Maintenance is needed.	No	Yes
273	1/26/2022	Routine	No	Maintenance is needed.	Yes	No
275	1/26/2022	Routine	No	Maintenance is needed.	Yes	No
306	1/26/2022	Routine	No	Maintenance is needed.	Yes	No

Facility ID	Inspection Date	Inspection Type	Facility In Compliance?	Comments	Minor Maintenance Required	Major Maintenance Required
360	1/26/2022	Routine	No	Maintenance is needed.	Yes	No
361	1/26/2022	Routine	No	Maintenance is needed.	Yes	No
362	1/26/2022	Routine	No	Maintenance is needed.	Yes	No
193	1/26/2022	Routine	No	No maintenance is needed at this time.	No	No
358	1/26/2022	Routine	No	No maintenance is needed at this time.	No	No
121	1/26/2022	Routine	Yes	No maintenance is needed at this time.	No	No
368	1/26/2022	Routine	Yes	No maintenance is needed at this time.	No	No
126	1/28/2022	Routine	No	Maintenance is needed.	Yes	Yes
354	1/28/2022	Routine	No	Maintenance is needed.	Yes	Yes
806	1/28/2022	Routine	No	Maintenance is needed.	Yes	Yes
807	1/28/2022	Routine	No	Maintenance is needed.	Yes	Yes
350	1/28/2022	Routine	No	Maintenance is needed.	Yes	No
351	1/28/2022	Routine	No	Maintenance is needed.	Yes	No
485	1/28/2022	Routine	No	Maintenance is needed.	Yes	No
486	1/28/2022	Routine	No	Maintenance is needed.	Yes	No
487	1/28/2022	Routine	No	Maintenance is needed.	Yes	No
586	1/28/2022	Routine	No	Maintenance is needed.	Yes	No
958	1/28/2022	Routine	No	Maintenance is needed.	Yes	No
959	1/28/2022	Routine	No	Maintenance is needed.	Yes	No
16	1/28/2022	Routine	Yes	No maintenance is needed at this time.	No	No
17	1/28/2022	Routine	Yes	No maintenance is needed at this time.	No	No
536	1/28/2022	Routine	Yes	No maintenance is needed at this time.	No	No
252	1/31/2022	Routine	No	Maintenance is needed.	Yes	No
321	1/31/2022	Routine	No	Maintenance is needed.	Yes	No
253	1/31/2022	Routine	Yes	No maintenance is needed at this time.	No	No
173	2/1/2022	Routine	No	Maintenance is needed.	Yes	Yes
175	2/1/2022	Routine	No	Maintenance is needed.	Yes	Yes
286	2/1/2022	Routine	No	Maintenance is needed.	Yes	Yes
356	2/1/2022	Routine	No	Maintenance is needed.	No	Yes
174	2/1/2022	Routine	No	Maintenance is needed.	Yes	No
369	2/1/2022	Routine	No	Maintenance is needed.	Yes	No
371	2/1/2022	Routine	No	Maintenance is needed.	Yes	No

Facility ID	Inspection Date	Inspection Type	Facility In Compliance?	Comments	Minor Maintenance Required	Major Maintenance Required
372	2/1/2022	Routine	No	Maintenance is needed.	Yes	No
374	2/1/2022	Routine	No	Maintenance is needed.	Yes	No
375	2/1/2022	Routine	No	Maintenance is needed.	Yes	No
399	2/1/2022	Routine	No	Maintenance is needed.	Yes	No
876	2/1/2022	Routine	No	No maintenance is needed at this time.	No	No
285	2/1/2022	Routine	Yes	No maintenance is needed at this time.	No	No
370	2/1/2022	Routine	Yes	No maintenance is needed at this time.	No	No
373	2/1/2022	Routine	Yes	No maintenance is needed at this time.	No	No
78	2/2/2022	Routine	No	Maintenance is needed.	Yes	Yes
100	2/2/2022	Routine	No	Maintenance is needed.	Yes	Yes
107	2/2/2022	Routine	No	Maintenance is needed.	Yes	Yes
108	2/2/2022	Routine	No	Maintenance is needed.	Yes	Yes
114	2/2/2022	Routine	No	Maintenance is needed.	Yes	Yes
585	2/2/2022	Routine	No	Maintenance is needed.	Yes	Yes
233	2/2/2022	Complaint Based	Yes	Maintenance is needed.	Yes	Yes
42	2/2/2022	Routine	No	Maintenance is needed.	No	Yes
97	2/2/2022	Routine	No	Maintenance is needed.	No	Yes
274	2/2/2022	Routine	No	Maintenance is needed.	No	Yes
6	2/2/2022	Routine	No	Maintenance is needed.	Yes	No
26	2/2/2022	Routine	No	Maintenance is needed.	Yes	No
36	2/2/2022	Routine	No	Maintenance is needed.	Yes	No
37	2/2/2022	Routine	No	Maintenance is needed.	Yes	No
38	2/2/2022	Routine	No	Maintenance is needed.	Yes	No
64	2/2/2022	Routine	No	Maintenance is needed.	Yes	No
74	2/2/2022	Routine	No	Maintenance is needed.	Yes	No
346	2/2/2022	Routine	No	Maintenance is needed.	Yes	No
583	2/2/2022	Routine	No	Maintenance is needed.	Yes	No
848	2/2/2022	Routine	No	Maintenance is needed.	Yes	No
1017	2/2/2022	Routine	No	Maintenance is needed.	Yes	No
1018	2/2/2022	Routine	No	Maintenance is needed.	Yes	No
35	2/2/2022	Routine	Yes	No maintenance is needed at this time.	No	No
345	2/2/2022	Routine	Yes	No maintenance is needed at this time.	No	No

Facility ID	Inspection Date	Inspection Type	Facility In Compliance?	Comments	Minor Maintenance Required	Major Maintenance Required
517	2/2/2022	Routine	Yes	No maintenance is needed at this time.	No	No
215	2/3/2022	Routine	No	Maintenance is needed.	Yes	Yes
241	2/3/2022	Routine	No	Maintenance is needed.	Yes	Yes
242	2/3/2022	Routine	No	Maintenance is needed.	Yes	Yes
247	2/3/2022	Routine	No	Maintenance is needed.	Yes	Yes
249	2/3/2022	Routine	No	Maintenance is needed.	Yes	Yes
1042	2/3/2022	Routine	No	Maintenance is needed.	Yes	Yes
248	2/3/2022	Routine	No	Maintenance is needed.	No	Yes
274	2/3/2022	Routine	No	Maintenance is needed.	No	Yes
366	2/3/2022	Routine	No	Maintenance is needed.	No	Yes
367	2/3/2022	Routine	No	Maintenance is needed.	No	Yes
85	2/3/2022	60-day reinspection	No	Maintenance is needed.	Yes	No
204	2/3/2022	Routine	No	Maintenance is needed.	Yes	No
219	2/3/2022	Routine	No	Maintenance is needed.	Yes	No
644	2/3/2022	Routine	No	Maintenance is needed.	Yes	No
661	2/3/2022	Routine	No	Maintenance is needed.	Yes	No
863	2/3/2022	Routine	No	Maintenance is needed.	Yes	No
364	2/3/2022	Routine	No	No maintenance is needed at this time.	No	No
365	2/3/2022	Routine	No	No maintenance is needed at this time.	No	No
648	2/3/2022	Routine	No	No maintenance is needed at this time.	No	No
205	2/3/2022	Routine	Yes	No maintenance is needed at this time.	No	No
221	2/3/2022	Routine	Yes	No maintenance is needed at this time.	No	No
222	2/3/2022	Routine	Yes	No maintenance is needed at this time.	No	No
243	2/3/2022	Routine	Yes	No maintenance is needed at this time.	No	No
244	2/3/2022	Routine	Yes	No maintenance is needed at this time.	No	No
1038	2/3/2022	Routine	Yes	No maintenance is needed at this time.	No	No
213	2/8/2022	Routine	No	Maintenance is needed.	Yes	Yes
315	2/8/2022	Routine	No	Maintenance is needed.	Yes	Yes
391	2/8/2022	Routine	No	Maintenance is needed.	Yes	Yes
393	2/8/2022	Routine	No	Maintenance is needed.	Yes	Yes
395	2/8/2022	Routine	No	Maintenance is needed.	Yes	Yes
400	2/8/2022	Routine	No	Maintenance is needed.	Yes	Yes

Facility ID	Inspection Date	Inspection Type	Facility In Compliance?	Comments	Minor Maintenance Required	Major Maintenance Required
698	2/8/2022	Routine	No	Maintenance is needed.	Yes	Yes
27	2/8/2022	Routine	No	Maintenance is needed.	Yes	No
66	2/8/2022	Routine	No	Maintenance is needed.	Yes	No
88	2/8/2022	Routine	No	Maintenance is needed.	Yes	No
212	2/8/2022	Routine	No	Maintenance is needed.	Yes	No
250	2/8/2022	Routine	No	Maintenance is needed.	Yes	No
323	2/8/2022	Routine	No	Maintenance is needed.	Yes	No
324	2/8/2022	Routine	No	Maintenance is needed.	Yes	No
378	2/8/2022	Routine	No	Maintenance is needed.	Yes	No
392	2/8/2022	Routine	No	Maintenance is needed.	Yes	No
402	2/8/2022	Routine	No	Maintenance is needed.	Yes	No
403	2/8/2022	Routine	No	Maintenance is needed.	Yes	No
589	2/8/2022	Routine	No	Maintenance is needed.	Yes	No
618	2/8/2022	Routine	No	Maintenance is needed.	Yes	No
697	2/8/2022	Routine	No	Maintenance is needed.	Yes	No
67	2/8/2022	Routine	Yes	No maintenance is needed at this time.	No	No
430	2/8/2022	Routine	Yes	No maintenance is needed at this time.	No	No
588	2/9/2022	Routine	No	Maintenance is needed.	Yes	Yes
671	2/9/2022	Routine	No	Maintenance is needed.	Yes	Yes
382	2/9/2022	Routine	No	Maintenance is needed.	Yes	No
546	2/9/2022	Routine	No	Maintenance is needed.	Yes	No
600	2/9/2022	Routine	No	Maintenance is needed.	Yes	No
600	2/9/2022	Routine	No	Maintenance is needed.	Yes	No
600	2/9/2022	Routine	No	Maintenance is needed.	Yes	No
865	2/9/2022	Routine	No	Maintenance is needed.	Yes	No
875	2/9/2022	Routine	No	No maintenance is needed at this time.	No	No
436	2/9/2022	Routine	Yes	No maintenance is needed at this time.	No	No
601	2/9/2022	Routine	Yes	No maintenance is needed at this time.	No	No
601	2/9/2022	Routine	Yes	No maintenance is needed at this time.	No	No
670	2/9/2022	Routine	Yes	No maintenance is needed at this time.	No	No
109	2/10/2022	Routine	No	Maintenance is needed.	Yes	Yes
282	2/10/2022	Routine	No	Maintenance is needed.	Yes	Yes

Facility ID	Inspection Date	Inspection Type	Facility In Compliance?	Comments	Minor Maintenance Required	Major Maintenance Required
301	2/10/2022	Routine	No	Maintenance is needed.	Yes	Yes
302	2/10/2022	Routine	No	Maintenance is needed.	Yes	Yes
603	2/10/2022	Routine	No	Maintenance is needed.	Yes	Yes
283	2/10/2022	Routine	No	Maintenance is needed.	Yes	No
303	2/10/2022	Routine	No	Maintenance is needed.	Yes	No
304	2/10/2022	Routine	No	Maintenance is needed.	Yes	No
329	2/10/2022	Routine	No	Maintenance is needed.	Yes	No
502	2/10/2022	Routine	No	Maintenance is needed.	Yes	No
555	2/10/2022	Routine	No	Maintenance is needed.	Yes	No
609	2/10/2022	Routine	No	Maintenance is needed.	Yes	No
433	2/10/2022	Routine	Yes	No maintenance is needed at this time.	No	No
608	2/10/2022	Routine	Yes	No maintenance is needed at this time.	No	No
635	2/10/2022	Routine	Yes	No maintenance is needed at this time.	No	No
5384	2/10/2022	Routine	Yes	No maintenance is needed at this time.	No	No
199	2/13/2022	Routine	No	Maintenance is needed.	Yes	No
198	2/13/2022	Routine	Yes	No maintenance is needed at this time.	No	No
327	2/13/2022	Routine	Yes	No maintenance is needed at this time.	No	No
568	2/14/2022	Routine	No	Maintenance is needed.	Yes	Yes
654	2/14/2022	Routine	No	Maintenance is needed.	Yes	No
799	2/14/2022	Routine	No	Maintenance is needed.	Yes	No
176	2/14/2022	Routine	Yes	No maintenance is needed at this time.	No	No
432	2/14/2022	Routine	Yes	No maintenance is needed at this time.	No	No
150	2/15/2022	60-day reinspection	Yes	Maintenance is needed.	Yes	No
80	2/15/2022	60-day reinspection	Yes	No maintenance is needed at this time.	No	No
80	2/15/2022	60-day reinspection	Yes	No maintenance is needed at this time.	No	No
81	2/15/2022	60-day reinspection	Yes	No maintenance is needed at this time.	No	No
86	2/15/2022	60-day reinspection	Yes	No maintenance is needed at this time.	No	No
477	2/15/2022	60-day reinspection	Yes	No maintenance is needed at this time.	No	No
482	2/15/2022	60-day reinspection	Yes	No maintenance is needed at this time.	No	No
102	2/16/2022	Routine	No	Maintenance is needed.	Yes	Yes
106	2/16/2022	Routine	No	Maintenance is needed.	Yes	Yes
111	2/16/2022	Routine	No	Maintenance is needed.	Yes	Yes

Facility ID	Inspection Date	Inspection Type	Facility In Compliance?	Comments	Minor Maintenance Required	Major Maintenance Required
593	2/16/2022	Routine	No	Maintenance is needed.	Yes	Yes
190	2/16/2022	Routine	Yes	Maintenance is needed.	No	Yes
11	2/16/2022	Routine	No	Maintenance is needed.	Yes	No
77	2/16/2022	Routine	No	Maintenance is needed.	Yes	No
85	2/16/2022	Routine	No	Maintenance is needed.	Yes	No
110	2/16/2022	Routine	No	Maintenance is needed.	Yes	No
152	2/16/2022	Routine	No	Maintenance is needed.	Yes	No
153	2/16/2022	Routine	No	Maintenance is needed.	Yes	No
320	2/16/2022	Routine	No	Maintenance is needed.	Yes	No
416	2/16/2022	Routine	No	Maintenance is needed.	Yes	No
599	2/16/2022	Routine	No	Maintenance is needed.	Yes	No
503	2/16/2022	60-day reinspection	Yes	Maintenance is needed.	Yes	No
76	2/16/2022	Routine	Yes	No maintenance is needed at this time.	No	No
101	2/16/2022	Routine	Yes	No maintenance is needed at this time.	No	No
184	2/16/2022	Routine	Yes	No maintenance is needed at this time.	No	No
319	2/16/2022	Routine	Yes	No maintenance is needed at this time.	No	No
634	2/16/2022	Routine	Yes	No maintenance is needed at this time.	No	No
667	2/16/2022	Routine	Yes	No maintenance is needed at this time.	No	No
34	2/17/2022	Routine	No	Maintenance is needed.	Yes	Yes
177	2/17/2022	Routine	No	Maintenance is needed.	Yes	Yes
280	2/17/2022	Routine	No	Maintenance is needed.	Yes	Yes
341	2/17/2022	Routine	No	Maintenance is needed.	Yes	Yes
342	2/17/2022	Routine	No	Maintenance is needed.	Yes	Yes
525	2/17/2022	Routine	No	Maintenance is needed.	Yes	Yes
259	2/17/2022	Routine	No	Maintenance is needed.	No	Yes
262	2/17/2022	Routine	No	Maintenance is needed.	No	Yes
263	2/17/2022	Routine	No	Maintenance is needed.	No	Yes
267	2/17/2022	Routine	No	Maintenance is needed.	No	Yes
10	2/17/2022	Routine	No	Maintenance is needed.	Yes	No
31	2/17/2022	Routine	No	Maintenance is needed.	Yes	No
33	2/17/2022	Routine	No	Maintenance is needed.	Yes	No
257	2/17/2022	Routine	No	Maintenance is needed.	Yes	No

Facility ID	Inspection Date	Inspection Type	Facility In Compliance?	Comments	Minor Maintenance Required	Major Maintenance Required
265	2/17/2022	Routine	No	Maintenance is needed.	Yes	No
347	2/17/2022	Routine	No	Maintenance is needed.	Yes	No
526	2/17/2022	Routine	No	Maintenance is needed.	Yes	No
843	2/17/2022	Routine	Yes	Maintenance is needed.	Yes	No
260	2/17/2022	Routine	No	No maintenance is needed at this time.	No	No
266	2/17/2022	Routine	No	No maintenance is needed at this time.	No	No
12	2/17/2022	Routine	Yes	No maintenance is needed at this time.	No	No
21	2/17/2022	Routine	Yes	No maintenance is needed at this time.	No	No
32	2/17/2022	Routine	Yes	No maintenance is needed at this time.	No	No
261	2/17/2022	Routine	Yes	No maintenance is needed at this time.	No	No
264	2/17/2022	Routine	Yes	No maintenance is needed at this time.	No	No
268	2/17/2022	Routine	Yes	No maintenance is needed at this time.	No	No
279	2/17/2022	Routine	Yes	No maintenance is needed at this time.	No	No
435	2/17/2022	Routine	Yes	No maintenance is needed at this time.	No	No
171	2/18/2022	Routine	No	Maintenance is needed.	Yes	Yes
146	2/18/2022	Routine	No	Maintenance is needed.	Yes	No
170	2/18/2022	Routine	No	Maintenance is needed.	Yes	No
272	2/18/2022	Other	No	Maintenance is needed.	Yes	No
351	2/18/2022	Routine	No	Maintenance is needed.	Yes	No
335	2/21/2022	Routine	Yes	Maintenance is needed.	Yes	No
2	2/21/2022	Routine	Yes	No maintenance is needed at this time.	No	No
3	2/21/2022	Routine	Yes	No maintenance is needed at this time.	No	No
4	2/21/2022	Routine	Yes	No maintenance is needed at this time.	No	No
344	2/22/2022	Routine	No	Maintenance is needed.	No	Yes
25	2/22/2022	Routine	No	Maintenance is needed.	Yes	No
230	2/22/2022	Routine	No	Maintenance is needed.	Yes	No
419	2/22/2022	Routine	No	Maintenance is needed.	Yes	No
534	2/22/2022	Routine	No	Maintenance is needed.	Yes	No
483	2/23/2022	Routine	No	Maintenance is needed.	Yes	Yes
658	2/23/2022	Routine	No	Maintenance is needed.	Yes	Yes
696	2/23/2022	Routine	No	Maintenance is needed.	Yes	Yes
89	2/23/2022	Routine	No	Maintenance is needed.	No	Yes

Facility ID	Inspection Date	Inspection Type	Facility In Compliance?	Comments	Minor Maintenance Required	Major Maintenance Required
870	2/23/2022	Routine	Yes	Maintenance is needed.	No	Yes
62	2/23/2022	Routine	No	Maintenance is needed.	Yes	No
65	2/23/2022	Routine	No	Maintenance is needed.	Yes	No
659	2/23/2022	Routine	No	Maintenance is needed.	Yes	No
1013	2/23/2022	Routine	No	Maintenance is needed.	Yes	No
1004	2/23/2022	Routine	No	No maintenance is needed at this time.	No	No
1009	2/23/2022	Routine	Yes	No maintenance is needed at this time.	No	No
626	2/24/2022	Routine	No	Maintenance is needed.	Yes	Yes
417	2/24/2022	Routine	No	Maintenance is needed.	No	Yes
307	2/24/2022	Routine	No	Maintenance is needed.	Yes	No
24	2/24/2022	Routine	Yes	Maintenance is needed.	Yes	No
231	2/24/2022	Routine	Yes	No maintenance is needed at this time.	No	No
418	2/24/2022	Routine	Yes	No maintenance is needed at this time.	No	No
421	2/24/2022	Routine	Yes	No maintenance is needed at this time.	No	No
40	2/25/2022	Routine	No	Maintenance is needed.	Yes	Yes
326	2/25/2022	Routine	No	Maintenance is needed.	Yes	Yes
376	2/25/2022	Routine	No	Maintenance is needed.	Yes	Yes
381	2/25/2022	Routine	No	Maintenance is needed.	Yes	Yes
803	2/25/2022	Routine	No	Maintenance is needed.	Yes	Yes
846	2/25/2022	Routine	No	Maintenance is needed.	Yes	Yes
48	2/25/2022	Routine	No	Maintenance is needed.	Yes	No
413	2/25/2022	Routine	No	Maintenance is needed.	Yes	No
475	2/25/2022	Routine	No	Maintenance is needed.	Yes	No
931	2/25/2022	Routine	Yes	No maintenance is needed at this time.	No	No
932	2/25/2022	Routine	Yes	No maintenance is needed at this time.	No	No
278	2/28/2022	Other	No	Maintenance is needed.	Yes	Yes
308	2/28/2022	Routine	No	Maintenance is needed.	Yes	Yes
132	2/28/2022	Routine	Yes	Maintenance is needed.	No	Yes
98	2/28/2022	Routine	No	Maintenance is needed.	Yes	No
810	2/28/2022	Routine	No	Maintenance is needed.	Yes	No
337	3/1/2022	Other	No	Maintenance is needed.	Yes	No
385	3/1/2022	Other	No	Maintenance is needed.	Yes	No

Facility ID	Inspection Date	Inspection Type	Facility In Compliance?	Comments	Minor Maintenance Required	Major Maintenance Required
653	3/1/2022	Other	No	Maintenance is needed.	Yes	No
180	3/2/2022	Routine	No	Maintenance is needed.	Yes	Yes
429	3/2/2022	Routine	No	Maintenance is needed.	Yes	Yes
401	3/2/2022	Routine	No	Maintenance is needed.	No	Yes
203	3/2/2022	Routine	No	Maintenance is needed.	Yes	No
428	3/2/2022	Routine	No	Maintenance is needed.	Yes	No
157	3/7/2022	Routine	Yes	No maintenance is needed at this time.	No	No
317	3/7/2022	Routine	Yes	No maintenance is needed at this time.	No	No
154	3/8/2022	Routine	No	Maintenance is needed.	Yes	No
694	3/8/2022	Routine	No	Maintenance is needed.	Yes	No
454	3/8/2022	Routine	Yes	Maintenance is needed.	Yes	No
379	3/8/2022	Routine	Yes	No maintenance is needed at this time.	No	No
633	3/9/2022	Other	No	Maintenance is needed.	Yes	Yes
632	3/9/2022	Other	No	Maintenance is needed.	Yes	No
481	3/10/2022	Routine	No	Maintenance is needed.	Yes	Yes
156	3/10/2022	Routine	Yes	Maintenance is needed.	Yes	No
489	3/10/2022	Routine	No	No maintenance is needed at this time.	No	No
598	3/10/2022	Routine	Yes	No maintenance is needed at this time.	No	No
1019	3/10/2022	Routine	Yes	No maintenance is needed at this time.	No	No
616	3/15/2022	Routine	No	Maintenance is needed.	No	Yes
19	3/15/2022	Routine	Yes	Maintenance is needed.	No	Yes
82	3/15/2022	Routine	Yes	Maintenance is needed.	No	Yes
28	3/15/2022	Routine	No	Maintenance is needed.	Yes	No
806	3/15/2022	60-day reinspection	No	Maintenance is needed.	Yes	No
807	3/15/2022	60-day reinspection	No	Maintenance is needed.	Yes	No
83	3/15/2022	Routine	Yes	No maintenance is needed at this time.	No	No
161	3/16/2022	Routine	No	Maintenance is needed.	Yes	Yes
57	3/16/2022	Routine	No	Maintenance is needed.	Yes	No
172	3/16/2022	Routine	No	Maintenance is needed.	Yes	No
325	3/16/2022	Routine	No	Maintenance is needed.	Yes	No
847	3/16/2022	Routine	No	Maintenance is needed.	Yes	No
7	3/16/2022	Routine	Yes	Maintenance is needed.	Yes	No

Facility ID	Inspection Date	Inspection Type	Facility In Compliance?	Comments	Minor Maintenance Required	Major Maintenance Required
8	3/16/2022	Routine	Yes	No maintenance is needed at this time.	No	No
145	3/16/2022	Routine	Yes	No maintenance is needed at this time.	No	No
473	3/16/2022	Routine	Yes	No maintenance is needed at this time.	No	No
617	3/16/2022	Routine	Yes	No maintenance is needed at this time.	No	No
934	3/16/2022	Routine	Yes	No maintenance is needed at this time.	No	No
63	3/17/2022	Complaint Based	No	Maintenance is needed.	Yes	Yes
1045	3/17/2022	Routine	No	Maintenance is needed.	Yes	Yes
568	3/17/2022	Routine	No	Maintenance is needed.	Yes	No
1043	3/17/2022	Routine	Yes	No maintenance is needed at this time.	No	No
1044	3/17/2022	Routine	Yes	No maintenance is needed at this time.	No	No
1046	3/17/2022	Routine	No	No maintenance is needed at this time.	No	No
348	3/18/2022	Routine	No	Maintenance is needed.	Yes	Yes
160	3/18/2022	Routine	No	Maintenance is needed.	Yes	No
303	3/18/2022	Routine	No	Maintenance is needed.	Yes	No
349	3/18/2022	Routine	No	Maintenance is needed.	Yes	No
480	3/18/2022	Routine	No	Maintenance is needed.	Yes	No
578	3/18/2022	Routine	No	Maintenance is needed.	Yes	No
584	3/18/2022	Routine	No	Maintenance is needed.	Yes	No
43	3/18/2022	Routine	Yes	No maintenance is needed at this time.	No	No
258	3/21/2022	Routine	No	Maintenance is needed.	Yes	Yes
20	3/21/2022	Routine	No	Maintenance is needed.	Yes	No
60	3/21/2022	Routine	No	Maintenance is needed.	Yes	No
404	3/21/2022	Routine	No	Maintenance is needed.	Yes	No
70	3/21/2022	Routine	Yes	Maintenance is needed.	Yes	No
18	3/21/2022	Routine	No	No maintenance is needed at this time.	No	No
794	3/22/2022	Routine	No	Maintenance is needed.	Yes	Yes
484	3/22/2022	Routine	Yes	No maintenance is needed at this time.	No	No
61	3/23/2022	Routine	Yes	No maintenance is needed at this time.	No	No
91	3/23/2022	Routine	Yes	No maintenance is needed at this time.	No	No
472	3/23/2022	Routine	Yes	No maintenance is needed at this time.	No	No
134	3/24/2022	Routine	Yes	Maintenance is needed.	Yes	Yes
447	3/24/2022	Routine	Yes	Maintenance is needed.	Yes	Yes

Facility ID	Inspection Date	Inspection Type	Facility In Compliance?	Comments	Minor Maintenance Required	Major Maintenance Required
448	3/24/2022	Routine	Yes	No maintenance is needed at this time.	No	No
449	3/24/2022	Routine	Yes	No maintenance is needed at this time.	No	No
450	3/24/2022	Routine	Yes	No maintenance is needed at this time.	No	No
164	3/25/2022	Routine	No	Maintenance is needed.	Yes	Yes
69	3/25/2022	Routine	No	Maintenance is needed.	Yes	No
792	3/25/2022	Routine	No	Maintenance is needed.	Yes	No
501	3/29/2022	60-day reinspection	Yes	Maintenance is needed.	No	Yes
41	3/29/2022	Routine	No	Maintenance is needed.	Yes	No
337	3/29/2022	Routine	No	Maintenance is needed.	Yes	No
337	3/29/2022	Routine	No	Maintenance is needed.	Yes	No
385	3/29/2022	Routine	No	Maintenance is needed.	Yes	No
653	3/29/2022	Routine	No	Maintenance is needed.	Yes	No
698	3/29/2022	Other	No	Maintenance is needed.	Yes	No
853	3/29/2022	Other	No	Maintenance is needed.	Yes	No
95	3/31/2022	Routine	No	Maintenance is needed.	Yes	No
96	3/31/2022	Routine	No	Maintenance is needed.	Yes	No
165	3/31/2022	Routine	No	Maintenance is needed.	Yes	No
425	3/31/2022	Routine	No	Maintenance is needed.	Yes	No
871	3/31/2022	Routine	No	Maintenance is needed.	Yes	No
105	4/4/2022	Routine	No	Maintenance is needed.	Yes	No
1036	4/4/2022	Routine	No	Maintenance is needed.	Yes	No
311	4/4/2022	Routine	Yes	Maintenance is needed.	Yes	No
103	4/5/2022	Routine	Yes	Maintenance is needed.	Yes	Yes
330	4/5/2022	Routine	Yes	No maintenance is needed at this time.	No	No
443	4/5/2022	Routine	Yes	No maintenance is needed at this time.	No	No
571	4/5/2022	60-day reinspection	Yes	No maintenance is needed at this time.	No	No
838	4/5/2022	Routine	Yes	No maintenance is needed at this time.	No	No
220	4/11/2022	Routine	No	Maintenance is needed.	Yes	Yes
225	4/11/2022	Routine	No	Maintenance is needed.	Yes	Yes
271	4/11/2022	Routine	No	Maintenance is needed.	Yes	Yes
178	4/11/2022	Routine	No	Maintenance is needed.	Yes	No
179	4/11/2022	Routine	No	Maintenance is needed.	Yes	No

Facility ID	Inspection Date	Inspection Type	Facility In Compliance?	Comments	Minor Maintenance Required	Major Maintenance Required
650	4/11/2022	Routine	No	Maintenance is needed.	Yes	No
182	4/11/2022	Routine	No	No maintenance is needed at this time.	No	No
183	4/11/2022	Routine	Yes	No maintenance is needed at this time.	No	No
642	4/11/2022	Routine	Yes	No maintenance is needed at this time.	No	No
291	4/12/2022	Routine	No	Maintenance is needed.	Yes	Yes
396	4/12/2022	Routine	No	Maintenance is needed.	Yes	Yes
397	4/12/2022	Routine	No	Maintenance is needed.	Yes	Yes
437	4/12/2022	Routine	No	Maintenance is needed.	Yes	Yes
940	4/12/2022	Routine	No	Maintenance is needed.	Yes	Yes
942	4/12/2022	Routine	No	Maintenance is needed.	Yes	Yes
943	4/12/2022	Routine	No	Maintenance is needed.	Yes	Yes
944	4/12/2022	Routine	No	Maintenance is needed.	Yes	Yes
947	4/12/2022	Routine	No	Maintenance is needed.	Yes	Yes
949	4/12/2022	Routine	No	Maintenance is needed.	Yes	Yes
58	4/12/2022	Routine	No	Maintenance is needed.	Yes	No
292	4/12/2022	Routine	No	Maintenance is needed.	Yes	No
522	4/12/2022	Routine	No	Maintenance is needed.	Yes	No
945	4/12/2022	Routine	No	Maintenance is needed.	Yes	No
946	4/12/2022	Routine	No	Maintenance is needed.	Yes	No
948	4/12/2022	Routine	No	Maintenance is needed.	Yes	No
976	4/12/2022	Routine	Yes	Maintenance is needed.	Yes	No
461	4/12/2022	Routine	Yes	No maintenance is needed at this time.	No	No
523	4/12/2022	Routine	Yes	No maintenance is needed at this time.	No	No
941	4/12/2022	Routine	Yes	No maintenance is needed at this time.	No	No
438	4/13/2022	Routine	No	Maintenance is needed.	Yes	Yes
272	4/13/2022	Routine	No	Maintenance is needed.	No	Yes
862	4/13/2022	Routine	No	Maintenance is needed.	No	Yes
1035	4/13/2022	Complaint Based	No	Maintenance is needed.	No	Yes
34	4/13/2022	Other	No	Maintenance is needed.	Yes	No
85	4/13/2022	60-day reinspection	No	Maintenance is needed.	Yes	No
256	4/13/2022	Routine	No	No maintenance is needed at this time.	No	No
288	4/13/2022	Routine	No	No maintenance is needed at this time.	No	No

Facility ID	Inspection Date	Inspection Type	Facility In Compliance?	Comments	Minor Maintenance Required	Major Maintenance Required
289	4/13/2022	Routine	No	No maintenance is needed at this time.	No	No
488	4/13/2022	Routine	No	No maintenance is needed at this time.	No	No
518	4/13/2022	Routine	No	No maintenance is needed at this time.	No	No
549	4/13/2022	Routine	No	No maintenance is needed at this time.	No	No
550	4/13/2022	Routine	No	No maintenance is needed at this time.	No	No
187	4/13/2022	Routine	Yes	No maintenance is needed at this time.	No	No
255	4/13/2022	Routine	Yes	No maintenance is needed at this time.	No	No
290	4/13/2022	Routine	Yes	No maintenance is needed at this time.	No	No
995	4/14/2022	Routine	No	Maintenance is needed.	Yes	No
886	4/14/2022	Routine	Yes	No maintenance is needed at this time.	No	No
1007	4/15/2022	Routine	No	Maintenance is needed.	Yes	Yes
661	4/15/2022	Routine	Yes	No maintenance is needed at this time.	No	No
1047	4/16/2022	Routine	Yes	Maintenance is needed.	Yes	No
863	4/16/2022	60-day reinspection	Yes	No maintenance is needed at this time.	No	No
786	4/19/2022	Routine	No	Maintenance is needed.	No	Yes
980	4/19/2022	Routine	No	Maintenance is needed.	No	Yes
611	4/20/2022	Routine	No	Maintenance is needed.	Yes	Yes
1015	4/20/2022	Routine	No	Maintenance is needed.	Yes	Yes
915	4/20/2022	Routine	No	Maintenance is needed.	No	Yes
1016	4/20/2022	Routine	No	Maintenance is needed.	No	Yes
923	4/20/2022	Routine	No	Maintenance is needed.	Yes	No
933	4/20/2022	Routine	No	Maintenance is needed.	Yes	No
639	4/20/2022	Routine	No	No maintenance is needed at this time.	No	No
956	4/20/2022	Routine	No	No maintenance is needed at this time.	No	No
646	4/20/2022	Routine	Yes	No maintenance is needed at this time.	No	No
913	4/20/2022	Routine	Yes	No maintenance is needed at this time.	No	No
914	4/20/2022	Routine	Yes	No maintenance is needed at this time.	No	No
900	4/21/2022	Routine	No	Maintenance is needed.	No	Yes
33	4/21/2022	Routine	No	Maintenance is needed.	Yes	No
34	4/21/2022	Routine	No	Maintenance is needed.	Yes	No
612	4/21/2022	Routine	No	Maintenance is needed.	Yes	No
977	4/21/2022	Routine	Yes	No maintenance is needed at this time.	No	No

Facility ID	Inspection Date	Inspection Type	Facility In Compliance?	Comments	Minor Maintenance Required	Major Maintenance Required
591	4/22/2022	Routine	No	Maintenance is needed.	Yes	Yes
698	4/22/2022	Routine	No	Maintenance is needed.	Yes	Yes
683	4/22/2022	Routine	No	Maintenance is needed.	No	Yes
63	4/22/2022	Routine	No	Maintenance is needed.	Yes	No
73	4/22/2022	Routine	No	Maintenance is needed.	Yes	No
74	4/22/2022	Routine	No	Maintenance is needed.	Yes	No
80	4/22/2022	Routine	No	Maintenance is needed.	Yes	No
81	4/22/2022	Routine	No	Maintenance is needed.	Yes	No
86	4/22/2022	Routine	No	Maintenance is needed.	Yes	No
150	4/22/2022	Routine	No	Maintenance is needed.	Yes	No
278	4/22/2022	Routine	No	Maintenance is needed.	Yes	No
614	4/22/2022	Routine	No	Maintenance is needed.	Yes	No
615	4/22/2022	Routine	No	Maintenance is needed.	Yes	No
632	4/22/2022	Routine	No	Maintenance is needed.	Yes	No
645	4/22/2022	Routine	No	Maintenance is needed.	Yes	No
620	4/22/2022	Routine	No	No maintenance is needed at this time.	No	No
646	4/22/2022	Routine	Yes	No maintenance is needed at this time.	No	No
31	4/27/2022	Other	No	Maintenance is needed.	Yes	No
5754-004	4/27/2022	Routine	Yes	No maintenance is needed at this time.	No	No
23	4/28/2022	Routine	No	Maintenance is needed.	Yes	No
429	4/28/2022	Routine	No	Maintenance is needed.	Yes	No
700	5/10/2022	Routine	No	Maintenance is needed.	Yes	Yes
765	5/10/2022	Routine	No	Maintenance is needed.	Yes	Yes
783	5/10/2022	Routine	No	Maintenance is needed.	No	Yes
706	5/10/2022	Routine	No	Maintenance is needed.	Yes	No
707	5/10/2022	Routine	No	Maintenance is needed.	Yes	No
751	5/10/2022	Routine	No	Maintenance is needed.	Yes	No
761	5/10/2022	Routine	No	Maintenance is needed.	Yes	No
768	5/10/2022	Routine	No	Maintenance is needed.	Yes	No
737	5/10/2022	Routine	Yes	Maintenance is needed.	Yes	No
738	5/10/2022	Routine	Yes	Maintenance is needed.	Yes	No
739	5/10/2022	Routine	Yes	Maintenance is needed.	Yes	No

Facility ID	Inspection Date	Inspection Type	Facility In Compliance?	Comments	Minor Maintenance Required	Major Maintenance Required
776	5/10/2022	Routine	Yes	Maintenance is needed.	Yes	No
778	5/10/2022	Routine	Yes	Maintenance is needed.	Yes	No
708	5/10/2022	Routine	No	No maintenance is needed at this time.	No	No
709	5/10/2022	Routine	No	No maintenance is needed at this time.	No	No
710	5/10/2022	Routine	No	No maintenance is needed at this time.	No	No
716	5/10/2022	Routine	No	No maintenance is needed at this time.	No	No
723	5/10/2022	Routine	No	No maintenance is needed at this time.	No	No
744	5/10/2022	Routine	No	No maintenance is needed at this time.	No	No
750	5/10/2022	Routine	No	No maintenance is needed at this time.	No	No
753	5/10/2022	Routine	No	No maintenance is needed at this time.	No	No
757	5/10/2022	Routine	No	No maintenance is needed at this time.	No	No
758	5/10/2022	Routine	No	No maintenance is needed at this time.	No	No
759	5/10/2022	Routine	No	No maintenance is needed at this time.	No	No
760	5/10/2022	Routine	No	No maintenance is needed at this time.	No	No
769	5/10/2022	Routine	No	No maintenance is needed at this time.	No	No
771	5/10/2022	Routine	No	No maintenance is needed at this time.	No	No
772	5/10/2022	Routine	No	No maintenance is needed at this time.	No	No
775	5/10/2022	Routine	No	No maintenance is needed at this time.	No	No
752	5/10/2022	Routine	Yes	No maintenance is needed at this time.	No	No
755	5/10/2022	Routine	Yes	No maintenance is needed at this time.	No	No
756	5/10/2022	Routine	Yes	No maintenance is needed at this time.	No	No
767	5/10/2022	Routine	Yes	No maintenance is needed at this time.	No	No
770	5/10/2022	Routine	Yes	No maintenance is needed at this time.	No	No
773	5/10/2022	Routine	Yes	No maintenance is needed at this time.	No	No
323	5/11/2022	60-day reinspection	No	Maintenance is needed.	Yes	Yes
782	5/11/2022	Routine	No	Maintenance is needed.	No	Yes
725	5/11/2022	Routine	Yes	Maintenance is needed.	No	Yes
568	5/11/2022	60-day reinspection	No	Maintenance is needed.	Yes	No
774	5/11/2022	Routine	No	Maintenance is needed.	Yes	No
701	5/11/2022	Routine	Yes	Maintenance is needed.	Yes	No
711	5/11/2022	Routine	Yes	Maintenance is needed.	Yes	No
712	5/11/2022	Routine	Yes	Maintenance is needed.	Yes	No

Facility ID	Inspection Date	Inspection Type	Facility In Compliance?	Comments	Minor Maintenance Required	Major Maintenance Required
715	5/11/2022	Routine	Yes	Maintenance is needed.	Yes	No
719	5/11/2022	Routine	Yes	Maintenance is needed.	Yes	No
720	5/11/2022	Routine	Yes	Maintenance is needed.	Yes	No
724	5/11/2022	Routine	Yes	Maintenance is needed.	Yes	No
324	5/11/2022	60-day reinspection	No	No maintenance is needed at this time.	No	No
718	5/11/2022	Routine	No	No maintenance is needed at this time.	No	No
719	5/11/2022	60-day reinspection	No	No maintenance is needed at this time.	No	No
721	5/11/2022	Routine	No	No maintenance is needed at this time.	No	No
722	5/11/2022	Routine	No	No maintenance is needed at this time.	No	No
747	5/11/2022	Routine	No	No maintenance is needed at this time.	No	No
748	5/11/2022	Routine	No	No maintenance is needed at this time.	No	No
749	5/11/2022	Routine	No	No maintenance is needed at this time.	No	No
754	5/11/2022	Routine	No	No maintenance is needed at this time.	No	No
780	5/11/2022	Routine	No	No maintenance is needed at this time.	No	No
784	5/11/2022	Routine	No	No maintenance is needed at this time.	No	No
785	5/11/2022	Routine	No	No maintenance is needed at this time.	No	No
702	5/11/2022	Routine	Yes	No maintenance is needed at this time.	No	No
703	5/11/2022	Routine	Yes	No maintenance is needed at this time.	No	No
704	5/11/2022	Routine	Yes	No maintenance is needed at this time.	No	No
705	5/11/2022	Routine	Yes	No maintenance is needed at this time.	No	No
713	5/11/2022	Routine	Yes	No maintenance is needed at this time.	No	No
717	5/11/2022	Routine	Yes	No maintenance is needed at this time.	No	No
725	5/11/2022	Complaint Based	Yes	No maintenance is needed at this time.	No	No
726	5/11/2022	Routine	Yes	No maintenance is needed at this time.	No	No
727	5/11/2022	Routine	Yes	No maintenance is needed at this time.	No	No
728	5/11/2022	Routine	Yes	No maintenance is needed at this time.	No	No
733	5/11/2022	Routine	Yes	No maintenance is needed at this time.	No	No
734	5/11/2022	Routine	Yes	No maintenance is needed at this time.	No	No
735	5/11/2022	Routine	Yes	No maintenance is needed at this time.	No	No
736	5/11/2022	Routine	Yes	No maintenance is needed at this time.	No	No
777	5/11/2022	Routine	Yes	No maintenance is needed at this time.	No	No
779	5/11/2022	Routine	Yes	No maintenance is needed at this time.	No	No

Facility ID	Inspection Date	Inspection Type	Facility In Compliance?	Comments	Minor Maintenance Required	Major Maintenance Required
781	5/11/2022	Routine	Yes	No maintenance is needed at this time.	No	No
714	5/13/2022	Routine	No	Maintenance is needed.	Yes	No
787	5/13/2022	Routine	Yes	No maintenance is needed at this time.	No	No
588	5/17/2022	Routine	No	Maintenance is needed.	No	Yes
548	5/19/2022	Routine	No	Maintenance is needed.	Yes	No
812	5/19/2022	Routine	No	Maintenance is needed.	Yes	No
150	5/19/2022	60-day reinspection	Yes	No maintenance is needed at this time.	No	No
729	5/19/2022	Routine	Yes	No maintenance is needed at this time.	No	No
730	5/19/2022	Routine	Yes	No maintenance is needed at this time.	No	No
731	5/19/2022	Routine	Yes	No maintenance is needed at this time.	No	No
732	5/19/2022	Routine	Yes	No maintenance is needed at this time.	No	No
740	5/19/2022	Routine	Yes	No maintenance is needed at this time.	No	No
741	5/19/2022	Routine	Yes	No maintenance is needed at this time.	No	No
742	5/19/2022	Routine	Yes	No maintenance is needed at this time.	No	No
743	5/19/2022	Routine	Yes	No maintenance is needed at this time.	No	No
745	5/19/2022	Routine	Yes	No maintenance is needed at this time.	No	No
746	5/19/2022	Routine	Yes	No maintenance is needed at this time.	No	No
762	5/19/2022	Routine	Yes	No maintenance is needed at this time.	No	No
763	5/19/2022	Routine	Yes	No maintenance is needed at this time.	No	No
764	5/19/2022	Routine	Yes	No maintenance is needed at this time.	No	No
766	5/19/2022	Routine	Yes	No maintenance is needed at this time.	No	No
799	5/19/2022	Routine	Yes	No maintenance is needed at this time.	No	No
811	5/19/2022	Routine	Yes	No maintenance is needed at this time.	No	No
986	5/19/2022	Routine	Yes	No maintenance is needed at this time.	No	No
625	5/20/2022	Routine	Yes	Maintenance is needed.	Yes	Yes
556	5/20/2022	Complaint Based	Yes	Maintenance is needed.	No	Yes
25	5/20/2022	Routine	No	Maintenance is needed.	Yes	No
150	5/20/2022	Routine	No	Maintenance is needed.	Yes	No
811	5/20/2022	Routine	No	Maintenance is needed.	Yes	No
978	5/20/2022	Routine	No	Maintenance is needed.	Yes	No
796	5/20/2022	Routine	Yes	No maintenance is needed at this time.	No	No
981	5/20/2022	Routine	Yes	No maintenance is needed at this time.	No	No

Facility ID	Inspection Date	Inspection Type	Facility In Compliance?	Comments	Minor Maintenance Required	Major Maintenance Required
982	5/20/2022	Routine	Yes	No maintenance is needed at this time.	No	No
983	5/20/2022	Routine	Yes	No maintenance is needed at this time.	No	No
984	5/20/2022	Routine	Yes	No maintenance is needed at this time.	No	No
985	5/20/2022	Routine	Yes	No maintenance is needed at this time.	No	No
985	5/20/2022	Routine	Yes	No maintenance is needed at this time.	No	No
992	5/20/2022	Routine	Yes	No maintenance is needed at this time.	No	No
993	5/20/2022	Routine	Yes	No maintenance is needed at this time.	No	No
352	6/1/2022	Routine	No	Maintenance is needed.	Yes	No
353	6/1/2022	Routine	No	Maintenance is needed.	Yes	No
440	6/1/2022	Routine	No	Maintenance is needed.	Yes	No
441	6/1/2022	Routine	No	Maintenance is needed.	Yes	No
510	6/1/2022	Routine	No	Maintenance is needed.	Yes	No
512	6/1/2022	Routine	No	Maintenance is needed.	Yes	No
546	6/1/2022	Routine	No	Maintenance is needed.	Yes	No
569	6/1/2022	Routine	No	Maintenance is needed.	Yes	No
511	6/1/2022	Routine	Yes	Maintenance is needed.	Yes	No
514	6/1/2022	Routine	Yes	No maintenance is needed at this time.	No	No
515	6/1/2022	Routine	Yes	No maintenance is needed at this time.	No	No
516	6/1/2022	Routine	Yes	No maintenance is needed at this time.	No	No
804	6/1/2022	Routine	Yes	No maintenance is needed at this time.	No	No
90	6/3/2022	Routine	No	Maintenance is needed.	Yes	No
178	6/3/2022	Routine	No	Maintenance is needed.	Yes	No
179	6/3/2022	Routine	No	Maintenance is needed.	Yes	No
271	6/3/2022	Routine	No	Maintenance is needed.	Yes	No
271	6/3/2022	Routine	No	Maintenance is needed.	Yes	No
423	6/8/2022	Routine	No	Maintenance is needed.	Yes	No
568	6/8/2022	Routine	No	Maintenance is needed.	Yes	No
865	6/8/2022	Routine	No	No maintenance is needed at this time.	No	No
506	6/9/2022	Routine	No	Maintenance is needed.	Yes	Yes
507	6/9/2022	Routine	No	Maintenance is needed.	Yes	Yes
578	6/9/2022	Routine	No	Maintenance is needed.	No	Yes
463	6/9/2022	Routine	No	Maintenance is needed.	Yes	No

Facility ID	Inspection Date	Inspection Type	Facility In Compliance?	Comments	Minor Maintenance Required	Major Maintenance Required
464	6/9/2022	Routine	No	Maintenance is needed.	Yes	No
466	6/9/2022	Routine	No	Maintenance is needed.	Yes	No
513	6/9/2022	Routine	No	Maintenance is needed.	Yes	No
537	6/9/2022	Routine	No	Maintenance is needed.	Yes	No
621	6/9/2022	Routine	No	Maintenance is needed.	Yes	No
50	6/9/2022	Routine	No	No maintenance is needed at this time.	No	No
663	6/9/2022	Routine	Yes	No maintenance is needed at this time.	No	No
9	6/10/2022	Routine	No	Maintenance is needed.	Yes	No
22	6/10/2022	Routine	No	Maintenance is needed.	Yes	No
44	6/10/2022	Routine	No	Maintenance is needed.	Yes	No
47	6/10/2022	Routine	No	Maintenance is needed.	Yes	No
50	6/10/2022	Routine	No	Maintenance is needed.	Yes	No
120	6/10/2022	Routine	No	Maintenance is needed.	Yes	No
229	6/10/2022	Routine	No	Maintenance is needed.	Yes	No
334	6/10/2022	Routine	No	Maintenance is needed.	Yes	No
456	6/10/2022	Routine	No	Maintenance is needed.	Yes	No
547	6/10/2022	Routine	No	No maintenance is needed at this time.	No	No
60	6/15/2022	Routine	No	Maintenance is needed.	Yes	No
562	6/15/2022	Routine	No	Maintenance is needed.	Yes	No
125	6/15/2022	Routine	Yes	Maintenance is needed.	Yes	No
75	6/15/2022	Routine	No	No maintenance is needed at this time.	No	No
166	6/15/2022	Routine	No	No maintenance is needed at this time.	No	No
188	6/15/2022	Routine	No	No maintenance is needed at this time.	No	No
127	6/21/2022	Routine	No	Maintenance is needed.	Yes	No
960	6/21/2022	Routine	No	Maintenance is needed.	Yes	No
961	6/21/2022	Routine	No	Maintenance is needed.	Yes	No
180	6/24/2022	60-day reinspection	No	Maintenance is needed.	Yes	No
225	6/29/2022	Routine	No	No maintenance is needed at this time.	No	No
13	6/30/2022	Routine	No	Maintenance is needed.	Yes	No
14	6/30/2022	Routine	No	Maintenance is needed.	Yes	No
407	6/30/2022	Routine	No	No maintenance is needed at this time.	No	No
408	6/30/2022	Routine	No	No maintenance is needed at this time.	No	No

Facility ID	Inspection Date	Inspection Type	Facility In Compliance?	Comments	Minor Maintenance Required	Major Maintenance Required
409	6/30/2022	Routine	No	No maintenance is needed at this time.	No	No
693	6/30/2022	Routine	No	No maintenance is needed at this time.	No	No

Appendix I

Privately-Maintained SWM Facilities – Inspection Summary

Privately-Maintained SWM/BMP Facilities- Compliance Report FY22

Facility Id	Inspection Date	Inspection Type	Facility In Compliance?	Notes	Owner 60 Day Ltr (Y/N)	CAO 30 Day Ltr	CAO 15 Day Ltr
5333	7/6/2021	60-day reinspection	No	Maintenance is needed.	Yes	No	No
5177	7/30/2021	Routine	Yes	No maintenance is needed at this time.	Yes	No	No
6175	7/30/2021	Routine	Yes	No maintenance is needed at this time.	Yes	No	No
6176	7/30/2021	Routine	Yes	No maintenance is needed at this time.	Yes	No	No
6178	7/30/2021	Routine	No	Maintenance is needed.	Yes	No	No
6179	7/30/2021	Routine	No	Maintenance is needed.	Yes	No	No
6180	7/30/2021	Routine	Yes	No maintenance is needed at this time.	Yes	No	No
6122	8/3/2021	60-day reinspection	No	Maintenance is needed.	Yes	No	No
6123	8/3/2021	60-day reinspection	No	Maintenance is needed.	Yes	No	No
5561	8/4/2021	Routine	No	Maintenance is needed.	Yes	No	No
5242	8/5/2021	Other	No	Meeting	No	No	No
5507	8/5/2021	Other	Yes	Meeting	No	No	No
5753	8/6/2021	Routine	Yes	No maintenance is needed at this time.	Yes	No	No
5754	8/6/2021	Routine	Yes	No maintenance is needed at this time.	Yes	No	No
5755	8/6/2021	Routine	No	Maintenance is needed.	Yes	No	No
5756	8/6/2021	Routine	No	Maintenance is needed.	Yes	No	No
5757	8/6/2021	Routine	No	Maintenance is needed.	Yes	No	No
5758	8/6/2021	Routine	Yes	No maintenance is needed at this time.	Yes	No	No
5759	8/6/2021	Routine	Yes	No maintenance is needed at this time.	Yes	No	No
5760	8/6/2021	Routine	Yes	No maintenance is needed at this time.	Yes	No	No
5761	8/6/2021	Routine	No	Maintenance is needed.	Yes	No	No
5762	8/6/2021	Routine	Yes	No maintenance is needed at this time.	Yes	No	No
5007	8/18/2021	Routine	No	Maintenance is needed.	Yes	No	No
5256	8/25/2021	Routine	No	Maintenance is needed.	Yes	No	No
5386	8/25/2021	Routine	No	Maintenance is needed.	Yes	No	No
5560	8/25/2021	Routine	No	Maintenance is needed.	Yes	No	No
6047	8/25/2021	Routine	Yes	No maintenance is needed at this time.	Yes	No	No
5236	8/26/2021	Routine	Yes	No maintenance is needed at this time.	Yes	No	No
5237	8/26/2021	Routine	No	Maintenance is needed.	Yes	No	No
5279	8/26/2021	Routine	No	Maintenance is needed.	Yes	No	No
5340	8/26/2021	Routine	No	Maintenance is needed.	Yes	No	No
5986	8/26/2021	Routine	Yes	No maintenance is needed at this time.	Yes	No	No
5987	8/26/2021	Routine	Yes	No maintenance is needed at this time.	Yes	No	No
6048	8/26/2021	Routine	Yes	No maintenance is needed at this time.	Yes	No	No
6049	8/26/2021	Routine	Yes	No maintenance is needed at this time.	Yes	No	No
6050	8/26/2021	Routine	Yes	No maintenance is needed at this time.	Yes	No	No
6051	8/26/2021	Routine	Yes	No maintenance is needed at this time.	Yes	No	No
6052	8/26/2021	Routine	Yes	No maintenance is needed at this time.	Yes	No	No

Privately-Maintained SWM/BMP Facilities- Compliance Report FY22

Facility Id	Inspection Date	Inspection Type	Facility In Compliance?	Notes	Owner 60 Day Ltr (Y/N)	CAO 30 Day Ltr	CAO 15 Day Ltr
6053	8/26/2021	Routine	Yes	No maintenance is needed at this time.	Yes	No	No
6181	8/26/2021	Routine	No	Maintenance is needed.	Yes	No	No
5621	8/27/2021	Routine	No	Maintenance is needed.	Yes	No	No
5631	8/27/2021	Routine	No	Maintenance is needed.	Yes	No	No
5791	8/27/2021	Routine	No	Maintenance is needed.	Yes	No	No
5964	8/27/2021	Routine	No	Maintenance is needed.	Yes	No	No
6182	8/27/2021	Routine	No	Maintenance is needed.	Yes	No	No
6003	8/31/2021	Complaint Based	No	Maintenance is needed.	Yes	No	No
5785	9/7/2021	Routine	Yes	No maintenance is needed at this time.	Yes	No	No
5624	9/8/2021	Routine	No	Maintenance is needed.	Yes	No	No
5104	9/9/2021	Routine	No	Maintenance is needed.	Yes	No	No
5157	9/9/2021	Routine	No	Maintenance is needed.	Yes	No	No
5879	9/9/2021	Routine	No	Maintenance is needed.	Yes	No	No
6003	9/9/2021	Other	Yes	Meeting	No	No	No
6181	9/9/2021	Other	No	Meeting	No	No	No
5069	9/10/2021	Routine	No	Maintenance is needed.	Yes	No	No
5070	9/10/2021	Routine	No	Maintenance is needed.	Yes	No	No
5101	9/10/2021	Routine	Yes	No maintenance is needed at this time.	Yes	No	No
5403	9/10/2021	Routine	Yes	No maintenance is needed at this time.	Yes	No	No
5629	9/10/2021	Routine	Yes	No maintenance is needed at this time.	Yes	No	No
5919	9/10/2021	Routine	Yes	No maintenance is needed at this time.	Yes	No	No
5951	9/10/2021	Routine	No	Maintenance is needed.	Yes	No	No
6003	9/10/2021	Other	No	Meeting	No	No	No
6078	9/10/2021	Routine	No	Maintenance is needed.	Yes	No	No
5924	9/29/2021	Routine	No	Maintenance is needed.	Yes	No	No
5502	9/30/2021	Routine	No	Maintenance is needed.	Yes	Yes	No
5503	9/30/2021	60-day reinspection	No	Maintenance is needed.	Yes	Yes	No
5508	9/30/2021	Routine	No	Maintenance is needed.	Yes	No	No
5144	10/1/2021	Routine	No	Maintenance is needed.	Yes	No	No
6172	10/1/2021	Routine	Yes	No maintenance is needed at this time.	Yes	No	No
6173	10/1/2021	Routine	No	Maintenance is needed.	Yes	No	No
6174	10/1/2021	Routine	Yes	No maintenance is needed at this time.	Yes	No	No
5908	10/4/2021	60-day reinspection	Yes	No maintenance is needed at this time.	Yes	No	No
5211	10/6/2021	Routine	No	Maintenance is needed.	Yes	No	No
5374	10/6/2021	Routine	No	Maintenance is needed.	Yes	No	No
5375	10/6/2021	Routine	No	Maintenance is needed.	Yes	No	No
5655	10/6/2021	Routine	No	Maintenance is needed.	Yes	No	No
5656	10/6/2021	Routine	No	Maintenance is needed.	Yes	No	No

Privately-Maintained SWM/BMP Facilities- Compliance Report FY22

Facility Id	Inspection Date	Inspection Type	Facility In Compliance?	Notes	Owner 60 Day Ltr (Y/N)	CAO 30 Day Ltr	CAO 15 Day Ltr
5657	10/6/2021	Routine	No	Maintenance is needed.	Yes	No	No
5658	10/6/2021	Routine	No	Maintenance is needed.	Yes	No	No
5659	10/6/2021	Routine	No	Maintenance is needed.	Yes	No	No
5660	10/6/2021	Routine	No	Maintenance is needed.	Yes	No	No
5041	10/7/2021	Routine	Yes	No maintenance is needed at this time.	Yes	No	No
5080	10/8/2021	Routine	No	Maintenance is needed.	Yes	No	No
5902	10/8/2021	Routine	No	Maintenance is needed.	Yes	No	No
6175	10/13/2021	Other	Yes	Meeting	No	No	No
6184	10/21/2021	Routine	Yes	No maintenance is needed at this time.	Yes	No	No
6185	10/21/2021	Routine	Yes	No maintenance is needed at this time.	Yes	No	No
6186	10/21/2021	Routine	No	Maintenance is needed.	Yes	No	No
6187	10/21/2021	Routine	No	Maintenance is needed.	Yes	No	No
6188	10/21/2021	Routine	Yes	No maintenance is needed at this time.	Yes	No	No
5508	10/26/2021	Routine	No	Maintenance is needed.	Yes	No	No
5038	10/28/2021	Routine	No	Maintenance is needed.	Yes	No	No
5240	10/28/2021	Routine	No	Maintenance is needed.	Yes	No	No
5278	10/28/2021	Routine	No	Maintenance is needed.	Yes	No	No
5984	10/28/2021	Routine	No	Maintenance is needed.	Yes	No	No
6189	10/28/2021	Routine	No	Maintenance is needed.	Yes	No	No
5256	11/3/2021	60-day reinspection	No	Maintenance is needed.	Yes	No	No
5074	11/9/2021	Routine	No	Maintenance is needed.	Yes	No	No
5752	11/9/2021	Routine	No	Maintenance is needed.	Yes	No	No
6183	11/12/2021	Routine	Yes	No maintenance is needed at this time.	Yes	No	No
5180	11/16/2021	Routine	No	Maintenance is needed.	Yes	No	No
5420	11/16/2021	Routine	No	Maintenance is needed.	Yes	No	No
5547	11/16/2021	Routine	No	Maintenance is needed.	Yes	No	No
5648	11/16/2021	Routine	No	Maintenance is needed.	Yes	No	No
5649	11/16/2021	Routine	No	Maintenance is needed.	Yes	No	No
5711	11/16/2021	Routine	No	Maintenance is needed.	Yes	No	No
5897	11/16/2021	Routine	No	Maintenance is needed.	Yes	No	No
6091	11/16/2021	Routine	No	Maintenance is needed.	Yes	No	No
5258	11/19/2021	Routine	No	Maintenance is needed.	Yes	No	No
5291	11/19/2021	Routine	No	Maintenance is needed.	Yes	No	No
5292	11/19/2021	Routine	No	Maintenance is needed.	Yes	No	No
5399	11/19/2021	Routine	No	Maintenance is needed.	Yes	No	No
5401	11/19/2021	Routine	No	Maintenance is needed.	Yes	No	No
5402	11/19/2021	Routine	No	Maintenance is needed.	Yes	No	No
5404	11/19/2021	Routine	No	Maintenance is needed.	Yes	No	No

Privately-Maintained SWM/BMP Facilities- Compliance Report FY22

Facility Id	Inspection Date	Inspection Type	Facility In Compliance?	Notes	Owner 60 Day Ltr (Y/N)	CAO 30 Day Ltr	CAO 15 Day Ltr
5521	11/19/2021	60-day reinspection	No	Maintenance is needed.	Yes	No	No
5522	11/19/2021	60-day reinspection	No	Maintenance is needed.	Yes	No	No
5543	11/19/2021	Routine	No	Maintenance is needed.	Yes	No	No
5662	11/19/2021	Routine	No	Maintenance is needed.	Yes	No	No
5693	11/19/2021	60-day reinspection	Yes	No maintenance is needed at this time.	Yes	No	No
5694	11/19/2021	Routine	No	Maintenance is needed.	Yes	No	No
5823	11/23/2021	Routine	No	Maintenance is needed.	Yes	No	No
5749	11/24/2021	Routine	No	Maintenance is needed.	Yes	No	No
5420	12/9/2021	Other	No	Meeting	No	No	No
5242	12/10/2021	Routine	No	Maintenance is needed.	Yes	No	No
5256	12/10/2021	Routine	No	Maintenance is needed.	Yes	No	No
5036	1/11/2022	Routine	No	Maintenance is needed.	Yes	No	No
5977	1/11/2022	Routine	No	Maintenance is needed.	Yes	No	No
5337	1/12/2022	Routine	No	Maintenance is needed.	Yes	No	No
5095	1/13/2022	Routine	No	Maintenance is needed.	Yes	No	No
5017	1/14/2022	Routine	No	Maintenance is needed.	Yes	No	No
6190	1/18/2022	Routine	No	Maintenance is needed.	Yes	No	No
6191	1/18/2022	Routine	Yes	No maintenance is needed at this time.	Yes	No	No
6046	1/18/2022	Routine	No	Maintenance is needed.	Yes	No	No
5126	1/24/2022	Routine	No	Maintenance is needed.	Yes	No	No
5549	1/26/2022	Routine	No	Maintenance is needed.	Yes	No	No
5550	1/26/2022	Routine	No	Maintenance is needed.	Yes	No	No
6192	1/26/2022	Routine	Yes	No maintenance is needed at this time.	Yes	No	No
6193	1/26/2022	Routine	Yes	No maintenance is needed at this time.	Yes	No	No
6195	1/26/2022	Routine	No	Maintenance is needed.	Yes	No	No
6196	1/26/2022	Routine	No	Maintenance is needed.	Yes	No	No
6189	1/27/2022	Other	No	Meeting	No	No	No
5473	1/28/2022	Routine	No	Maintenance is needed.	Yes	No	No
5550	1/31/2022	Complaint Based	Yes	No maintenance is needed at this time.	Yes	No	No
6194	2/1/2022	Routine	No	Maintenance is needed.	Yes	No	No
5227	2/4/2022	Routine	No	Maintenance is needed.	Yes	No	No
5228	2/4/2022	Routine	No	Maintenance is needed.	Yes	No	No
5373	2/4/2022	Routine	No	Maintenance is needed.	Yes	No	No
5555	2/4/2022	Routine	No	Maintenance is needed.	Yes	No	No
5556	2/4/2022	Routine	No	Maintenance is needed.	Yes	No	No
5557	2/4/2022	Routine	No	Maintenance is needed.	Yes	No	No
5558	2/4/2022	Routine	No	Maintenance is needed.	Yes	No	No
5559	2/4/2022	Routine	No	Maintenance is needed.	Yes	No	No

Privately-Maintained SWM/BMP Facilities- Compliance Report FY22

Facility Id	Inspection Date	Inspection Type	Facility In Compliance?	Notes	Owner 60 Day Ltr (Y/N)	CAO 30 Day Ltr	CAO 15 Day Ltr
5891	2/4/2022	Routine	No	Maintenance is needed.	Yes	No	No
5965	2/4/2022	Routine	No	Maintenance is needed.	Yes	No	No
5966	2/4/2022	Routine	No	Maintenance is needed.	Yes	No	No
5967	2/4/2022	Routine	No	Maintenance is needed.	Yes	No	No
5968	2/4/2022	Routine	No	Maintenance is needed.	Yes	No	No
5969	2/4/2022	Routine	No	Maintenance is needed.	Yes	No	No
5970	2/4/2022	Routine	No	Maintenance is needed.	Yes	No	No
5971	2/4/2022	Routine	No	Maintenance is needed.	Yes	No	No
5972	2/4/2022	Routine	No	Maintenance is needed.	Yes	No	No
5973	2/4/2022	Routine	No	Maintenance is needed.	Yes	No	No
5628	2/9/2022	Routine	No	Maintenance is needed.	Yes	No	No
5957	2/9/2022	Routine	No	Maintenance is needed.	Yes	No	No
5958	2/9/2022	Routine	No	Maintenance is needed.	Yes	No	No
5959	2/9/2022	Routine	No	Maintenance is needed.	Yes	No	No
6194	2/14/2022	Other	No	Meeting	No	No	No
5230	2/17/2022	Routine	No	Maintenance is needed.	Yes	No	No
5231	2/17/2022	Routine	No	Maintenance is needed.	Yes	No	No
5232	2/17/2022	Routine	No	Maintenance is needed.	Yes	No	No
5612	3/16/2022	Routine	Yes	No maintenance is needed at this time.	Yes	No	No
6189	3/16/2022	60-day reinspection	Yes	No maintenance is needed at this time.	Yes	No	No
5613	3/17/2022	Other	No	Meeting	No	No	No
6197	3/17/2022	Routine	Yes	No maintenance is needed at this time.	Yes	No	No
5473	3/18/2022	Other	No	Meeting	No	No	No
5769	4/12/2022	Complaint Based	No	Maintenance is needed.	Yes	No	No
5327	4/15/2022	Other	No	Meeting	No	No	No
6204	4/15/2022	Routine	No	Maintenance is needed.	Yes	No	No
6198	4/16/2022	Routine	Yes	No maintenance is needed at this time.	Yes	No	No
6199	4/16/2022	Routine	Yes	No maintenance is needed at this time.	Yes	No	No
6200	4/16/2022	Routine	Yes	No maintenance is needed at this time.	Yes	No	No
6201	4/16/2022	Routine	Yes	No maintenance is needed at this time.	Yes	No	No
6202	4/16/2022	Routine	Yes	No maintenance is needed at this time.	Yes	No	No
6203	4/16/2022	Routine	Yes	No maintenance is needed at this time.	Yes	No	No
5001	4/22/2022	Routine	Yes	No maintenance is needed at this time.	Yes	No	No
5002	4/22/2022	Routine	Yes	No maintenance is needed at this time.	Yes	No	No
5003	4/22/2022	Routine	Yes	No maintenance is needed at this time.	Yes	No	No
5150	4/22/2022	Routine	No	Maintenance is needed.	Yes	No	No
5342	4/22/2022	Routine	No	Maintenance is needed.	Yes	No	No
5347	4/22/2022	Routine	No	Maintenance is needed.	Yes	No	No

Privately-Maintained SWM/BMP Facilities- Compliance Report FY22

Facility Id	Inspection Date	Inspection Type	Facility In Compliance?	Notes	Owner 60 Day Ltr (Y/N)	CAO 30 Day Ltr	CAO 15 Day Ltr
5362	4/22/2022	Routine	No	Maintenance is needed.	Yes	No	No
5363	4/22/2022	Routine	Yes	No maintenance is needed at this time.	Yes	No	No
5470	4/22/2022	Routine	No	Maintenance is needed.	Yes	No	No
6008	4/22/2022	Routine	No	Maintenance is needed.	Yes	No	No
5046	4/27/2022	Routine	No	Maintenance is needed.	Yes	No	No
5092	4/27/2022	Routine	No	Maintenance is needed.	Yes	No	No
5489	4/27/2022	Routine	No	Maintenance is needed.	Yes	No	No
5819	4/27/2022	Routine	No	Maintenance is needed.	Yes	No	No
5820	4/27/2022	Routine	No	Maintenance is needed.	Yes	No	No
5871	4/27/2022	Routine	No	Maintenance is needed.	Yes	No	No
5914	4/27/2022	Routine	No	Maintenance is needed.	Yes	No	No
5980	4/27/2022	Routine	No	Maintenance is needed.	Yes	No	No
5981	4/27/2022	Routine	No	Maintenance is needed.	Yes	No	No
5098	4/28/2022	Routine	Yes	No maintenance is needed at this time.	Yes	No	No
5534	4/28/2022	Routine	No	Maintenance is needed.	Yes	No	No
5728	4/28/2022	Routine	No	Maintenance is needed.	Yes	No	No
5729	4/28/2022	Routine	No	Maintenance is needed.	Yes	No	No
6005	4/28/2022	Routine	Yes	No maintenance is needed at this time.	Yes	No	No
6038	4/28/2022	Routine	No	Maintenance is needed.	Yes	No	No
5151	4/29/2022	Routine	No	Maintenance is needed.	Yes	No	No
5274	4/29/2022	Routine	No	Maintenance is needed.	Yes	No	No
5304	4/29/2022	Routine	No	Maintenance is needed.	Yes	No	No
5305	4/29/2022	Routine	No	Maintenance is needed.	Yes	No	No
5355	4/29/2022	Routine	No	Maintenance is needed.	Yes	No	No
5713	4/29/2022	Routine	No	Maintenance is needed.	Yes	No	No
5741	4/29/2022	Routine	Yes	No maintenance is needed at this time.	Yes	No	No
6006	4/29/2022	Routine	No	Maintenance is needed.	Yes	No	No
6030	4/29/2022	Routine	No	Maintenance is needed.	Yes	No	No
6092	4/29/2022	Routine	No	Maintenance is needed.	Yes	No	No
5131	5/12/2022	Routine	Yes	No maintenance is needed at this time.	Yes	No	No
5377	5/12/2022	Routine	No	Maintenance is needed.	Yes	No	No
5422	5/12/2022	Routine	Yes	No maintenance is needed at this time.	Yes	No	No
5423	5/12/2022	Routine	Yes	No maintenance is needed at this time.	Yes	No	No
5424	5/12/2022	Routine	Yes	No maintenance is needed at this time.	Yes	No	No
5553	5/12/2022	Routine	No	Maintenance is needed.	Yes	No	No
5614	5/12/2022	Routine	No	Maintenance is needed.	Yes	No	No
5615	5/12/2022	Routine	No	Maintenance is needed.	Yes	No	No
5616	5/12/2022	Routine	Yes	No maintenance is needed at this time.	Yes	No	No

Privately-Maintained SWM/BMP Facilities- Compliance Report FY22

Facility Id	Inspection Date	Inspection Type	Facility In Compliance?	Notes	Owner 60 Day Ltr (Y/N)	CAO 30 Day Ltr	CAO 15 Day Ltr
5617	5/12/2022	Routine	No	Maintenance is needed.	Yes	No	No
5618	5/12/2022	Routine	No	Maintenance is needed.	Yes	No	No
5619	5/12/2022	Routine	No	Maintenance is needed.	Yes	No	No
5910	5/12/2022	Routine	Yes	No maintenance is needed at this time.	Yes	No	No
5475	5/19/2022	Routine	No	Maintenance is needed.	Yes	No	No
5672	5/19/2022	Routine	No	Maintenance is needed.	Yes	No	No
6107	5/19/2022	Routine	No	Maintenance is needed.	Yes	No	No
5046	6/8/2022	Other	No	Meeting	No	No	No
5923	6/15/2022	Routine	Yes	No maintenance is needed at this time.	Yes	No	No
5415	6/30/2022	Routine	No	Maintenance is needed.	Yes	No	No

Appendix J

Summary of SWM Facilities Added to Inventory

Facilities added to County Inventory in FY22

FAC ID	FAC TYPE	FAC DESC	DATE INVEN	MAINT	COMMENTS	SWM AGREE	VAHUC 6	VAHUC12 NAME	SUBDIVISION	STATUS	DRAINAGE AREA	LATITUDE	LONGITUDE
1038	SWMP	D	9/21/2021	P	GABION WALL IN POND BASIN, NO ESMT	N	PL44	Middle Bull Run	PWC ADULT DETENTION CENTER PH II EXPANSION	NR	15.90	38.7546	-77.4798
1039	SWMP/BMP	W	10/14/2021	P	PWSE=305.95', 12" DRAWDOWN PIPE	N	PL43	Little Bull Run	REGENCY AT CREEKSIDE SECTION 1	R	24.59	38.8286	-77.6013
1040	SWMP/BMP	W	10/14/2021	P	PWSE=300.57', 12" DRAWDOWN PIPE	N	PL43	Little Bull Run	REGENCY AT CREEKSIDE SECTION 1	R	48.44	38.8283	-77.6056
1041	SWMP/BMP	D	10/14/2021	P	1.5" BMP ORIFICE AT EW, 12" DRAWDOWN PIPE	N	PL43	Little Bull Run	REGENCY AT CREEKSIDE SECTION 1	R	4.94	38.8290	-77.6048
1042	SWMP/BMP	D	11/22/2021	P	4" BMP ORIFICE AT EW	N	PL51	Powells Creek	POTOMAC SHORES PHASE 2A SECTION 1B & 1C	R	22.42	38.5745	-77.2869
1043	BMP	B	1/20/2022	P	BIORETENTION AREA	N	PL51	Powells Creek	MALLARD'S OVERLOOK SOUTH	R	1.91	38.6268	-77.4068
1044	BMP	B	1/20/2022	P	BIORETENTION AREA	N	PL51	Powells Creek	MALLARD'S OVERLOOK SOUTH	R	2.11	38.6260	-77.4055
1045	SWMP/BMP	D	1/20/2022	P	2" BMP ORIFICE AT EW	N	PL51	Powells Creek	MALLARD'S OVERLOOK SOUTH	R	15.39	38.6264	-77.4039
1046	SWMP/BMP	W	1/20/2022	P	PWSE=311.74', 2" BMP ORIFICE AT RISER	N	PL51	Powells Creek	MALLARD'S OVERLOOK SOUTH	R	12.66	38.6278	-77.4037
1047	SWMP/BMP	W	2/24/2022	P	PWSE=337.95', 5'x5' RISER	N	PL51	Powells Creek	HIDDEN CREEK	R	60.72	38.6585	-77.4153
1048	SWMP/BMP	D	5/12/2022	P	5'x5' RISER, 2" BMP ORIFICE AT RISER	N	PL52	Quantico Creek	GRAHAM PARK HILLS ESTATES	R	11.53	38.5573	-77.3260
6183	CBMP	B	8/20/2021	C	VEGETATIVE GREEN ROOF, 3 SECTIONS, NO ESMT	Y	PL48	Occoquan River-Belmont Bay	WESTMINSTER AT LAKE RIDGE	R	0.21	38.6875	-77.2761
6184	CSWMP/BMP	U	8/24/2021	C	STORMTECH MC-3500 W/ 7 ISOLATOR CHAMBERS	Y	PL47	Occoquan River-Occoquan Reservoir	HOLLY ACRES	NR	6.34	38.6623	-77.2967
6185	CBMP	U	8/24/2021	C	BAYFILTER VAULT (530 BAYFILTER)	Y	PL47	Occoquan River-Occoquan Reservoir	HOLLY ACRES	NR	6.34	38.6624	-77.2966
6186	CBMP	B	9/24/2021	C	BIORETENTION AREA	Y	PL49	Neabsco Creek	STOR-ALL SELF STORAGE - SMOKE COURT PROPERTY	NR	0.48	38.6264	-77.2896
6187	CBMP	B	9/24/2021	C	BIORETENTION AREA	Y	PL49	Neabsco Creek	STOR-ALL SELF STORAGE - SMOKE COURT PROPERTY	NR	0.47	38.6257	-77.2894
6188	CSWMP/BMP	U	9/24/2021	C	STORMTECH MC-3500 W/ ISOLATOR CHAMBER	Y	PL49	Neabsco Creek	STOR-ALL SELF STORAGE - SMOKE COURT PROPERTY	NR	2.36	38.6257	-77.2894
6189	CSWMP/BMP	W	9/30/2021	C	PWSE=238.73', 5'x8' RISER	Y	PL44	Middle Bull Run	PREMIER BUSINESS PARK	NR	26.65	38.7980	-77.5500
6190	CBMP	B	11/4/2021	C	BIORETENTION AREA	Y	PL41	Occoquan River-Lake Jackson	BRADLEY SQUARE SECTION 9	R	2.25	38.7259	-77.4597
6191	CSWMP/BMP	U	11/4/2021	C	STORMTECH MC-4500 W/ 2 ISOLATOR CHAMBERS	Y	PL41	Occoquan River-Lake Jackson	BRADLEY SQUARE SECTION 9	R	13.35	38.7260	-77.4596
6192	CBMP	B	11/17/2021	C	BIORETENTION AREA	Y	PL47	Occoquan River-Occoquan Reservoir	APPLE FEDERAL CREDIT UNION AT LAKE RIDGE	NR	0.43	38.6723	-77.3353
6193	CBMP	O	11/17/2021	C	PERMEABLE PAVERS W/ 4" & 6" UNDERDRAINS	Y	PL47	Occoquan River-Occoquan Reservoir	APPLE FEDERAL CREDIT UNION AT LAKE RIDGE	NR	0.08	38.6723	-77.3356
6194	CSWMP/BMP	U	12/7/2021	C	STORMKEEPER SK75 W/ 8 SEDIMENT STRIPS	Y	PL34	Broad Run-Rocky Branch	BETHLEHEM ROAD STORAGE YARD	NR	23.01	38.7900	-77.5364
6195	CBMP	U	12/7/2021	C	BAYSAVER BAYFILTER VAULT (545 BAYFILTER)	Y	PL34	Broad Run-Rocky Branch	BETHLEHEM ROAD STORAGE YARD	NR	23.01	38.7893	-77.5370
6196	CBMP	O	12/7/2021	C	LEVEL SPREADER TO CONSERVATION AREA	Y	PL34	Broad Run-Rocky Branch	BETHLEHEM ROAD STORAGE YARD	NR	1.14	38.7885	-77.5354
6197	CSWMP/BMP	D	2/11/2022	C	4'x4' RISER, 1" BMP ORIFICE AT RISER	Y	PL32	Broad Run-Catletts Branch	WHEELER SWITCHING STATION	NR	3.08	38.7522	-77.6534

Facilities added to County Inventory in FY22

FAC ID	FAC TYPE	FAC DESC	DATE INVEN	MAINT	COMMENTS	SWM AGREE	VAHUC 6	VAHUC12 NAME	SUBDIVISION	STATUS	DRAINAGE AREA	LATITUDE	LONGITUDE
6198	CBMP	B	3/31/2022	C	BIORETENTION AREA	Y	PL44	Middle Bull Run	BURGER KING AT BALLS FORD ROAD	NR	0.25	38.7982	-77.5200
6199	CBMP	B	3/31/2022	C	BIORETENTION AREA	Y	PL44	Middle Bull Run	BURGER KING AT BALLS FORD ROAD	NR	0.18	38.7982	-77.5196
6200	CBMP	O	3/31/2022	C	PERMEABLE PAVEMENT W/ 4" UNDERDRAINS	Y	PL44	Middle Bull Run	BURGER KING AT BALLS FORD ROAD	NR	0.13	38.7982	-77.5200
6201	CBMP	O	3/31/2022	C	PERMEABLE PAVEMENT W/ 4" UNDERDRAIN	Y	PL44	Middle Bull Run	BURGER KING AT BALLS FORD ROAD	NR	0.15	38.7980	-77.5203
6202	CBMP	O	3/31/2022	C	PERMEABLE PAVEMENT W/ 4" UNDERDRAIN	Y	PL44	Middle Bull Run	BURGER KING AT BALLS FORD ROAD	NR	0.04	38.7980	-77.5199
6203	CBMP	O	3/31/2022	C	PERMEABLE PAVEMENT W/ 4" UNDERDRAINS	Y	PL44	Middle Bull Run	BURGER KING AT BALLS FORD ROAD	NR	0.22	38.7979	-77.5197
6205	CSWMP/BMP	U	4/6/2022	C	STORMTECH MC-3500 W/ 2 ISOLATOR CHAMBERS	Y	PL34	Broad Run-Rocky Branch	DDC9 DELIVERY STATION	NR	3.45	38.7973	-77.5957
6206	CBMP	U	4/6/2022	C	BAYFILTER VAULT (522 BAYFILTER)	Y	PL34	Broad Run-Rocky Branch	DDC9 DELIVERY STATION	NR	0.73	38.7981	-77.5947
6207	CBMP	U	5/23/2022	C	CONTECH CDS2015-4-C	N	PL34	Broad Run-Rocky Branch	BRISTOW SHEETZ	NR	0.34	38.7327	-77.5453
6208	CBMP	U	5/23/2022	C	CONTECH CDS2015-4-C	N	PL34	Broad Run-Rocky Branch	BRISTOW SHEETZ	NR	0.35	38.7330	-77.5450
9063	WET POND	W	10/14/2021		FEATURE POND, NO ESMT, PWSE=334.00'	N	PL43	Little Bull Run	REGENCY AT CREEKSIDE SECTION 1	R	0.00	38.8265	-77.6025
9064	CSWMP/BMP	D	10/26/2021	C	4" BMP ORIFICE AT RISER, 4'x4' RISER	N	PL34	Broad Run-Rocky Branch	FREESTATE FARMS LLC	NR	0.00	38.7872	-77.5645
9065	CSWMP/BMP	D	10/26/2021	C	4" BMP ORIFICE AT RISER, 5'x5' RISER	N	PL34	Broad Run-Rocky Branch	FREESTATE FARMS LLC	NR	0.00	38.7892	-77.5630
9066	CSWMP/BMP	W	10/26/2021	C	PWSE=281.81', 5'x5' RISER	N	PL34	Broad Run-Rocky Branch	FREESTATE FARMS LLC	NR	19.00	38.7874	-77.5638
9069	CSWMP/BMP	U	3/29/2022	C	STORMTECH SC-740 W/ ISOLATOR CHAMBER	N	PL44	Middle Bull Run	WEST GATE ELEMENTARY SCHOOL BUILDING ADDITION	NR	2.27	38.7819	-77.4966
9070	CSWMP/BMP	D	5/5/2022	C	2.5" BMP ORIFICE AT EW, 6" DRAWDOWN PIPE	N	PL50	Potomac River-Occoquan Bay	KILBY ELEMENTARY SCHOOL	R	24.60	38.6589	-77.2682
9071	CSWMP/BMP	U	5/19/2022	C	STORMTECH SC-740 W/ ISOLATOR CHAMBER	Y	PL43	Little Bull Run	MOUNTAIN VIEW ELEMENTARY SCHOOL ADDITIONS	NR	0.70	38.8369	-77.6279
9072	CBMP	U	5/26/2022	C	STORMCEPTOR (STC 1800)	N	PL49	Neabsco Creek	GAR-FIELD HIGH SCHOOL BUS PARKING LOT	NR	0.53	38.6423	-77.3028
9073	CBMP	B	5/26/2022	C	BIORETENTION AREA	N	PL49	Neabsco Creek	GAR-FIELD HIGH SCHOOL BUS PARKING LOT	NR	1.80	38.6418	-77.3032
9074	CBMP	U	5/26/2022	C	BIORETENTION AREA	N	PL49	Neabsco Creek	GAR-FIELD HIGH SCHOOL BUS PARKING LOT	NR	1.80	38.6421	-77.3030

Appendix K

Clean Water Partners Annual Report

Northern Virginia Clean Water Partners
Annual Summary of Results
July 1, 2021 - June 30, 2022

Polluted stormwater runoff is the number one cause of poor water quality in Northern Virginia's streams and rivers. When it rains and snows, water runs off streets, driveways, yards and parking lots and mixes with pollutants, such as litter, fertilizer, pet waste, road salt, and auto fluids. These pollutants then enter storm drains on the street and are discharged directly into nearby streams.

To reduce the impacts of stormwater pollution, the Northern Virginia Clean Water Partners joined together to improve residents' knowledge and behavior through an ongoing public education campaign.

About the Partnership

The Northern Virginia Clean Water Partners is composed of a group of local governments, drinking water and sanitation authorities, and businesses that share the common goals to keep Northern Virginia residents healthy and safe by reducing the amount of pollution from stormwater runoff that reaches local creeks and rivers, and empower individuals to take action to reduce pollution.

To meet these goals, the partners work together to:

- Identify high priority water quality issues for the region
- Identify the target audience(s) for outreach
- Educate the region's residents on simple ways to reduce pollution around their homes
- Monitor changes in behavior through surveys and other data collection techniques
- Pilot new cost-effective opportunities for public outreach and education

Membership is voluntary and each member makes an annual contribution to fund the program. By working together, the partners are able to leverage their funds to develop and implement a range of bilingual education and outreach strategies throughout Northern Virginia.

"Only rain down the storm drain"
- Partnership Motto

The 2022 campaign helped to satisfy MS4 (Municipal Separate Storm Sewer System) Phase I and Phase II permit requirements for stormwater education and documenting changes in behavior.

For more information visit **onlyrain.org**

2022 Campaign Overview

The Northern Virginia Clean Water Partners identified the following water quality issues to highlight in their 2022 campaign:

- **Nutrients (Phosphorus and Nitrogen)**
- **Bacteria**
- **Salt**
- **Illicit Discharges (e.g., pesticides, motor oil, etc.)**

Target audiences for these issues include pet owners, winter salt applicators, home mechanics, and residents with a lawn or garden. To reach these audiences, the campaign used a combination of social media, television, printed advertising, and the Only Rain website to distribute messaging that would improve stormwater-related knowledge and behaviors. Partners also participated in local events throughout the year to engage residents and raise campaign awareness.

To expand outreach and engagement, the 2022 campaign also included several new social marketing tools, including:

- A "Clean Water Pledge" on onlyrain.org for participants to adopt a new clean water behavior
- New “made for social media” psa’s for target audiences on Facebook and Twitter
- A quarterly e-newsletter
- A Facebook Group for people to interact and connect on reducing stormwater runoff

Social Media

The Clean Water Partners created Facebook and Twitter accounts as a part of their 2020 campaign strategy.

Since July 1, 2021, the Facebook page has gained 120 new followers for a total of 403 current followers. During the campaign year, the page had 405 posts, 29,216 post engagements, and 12,740 post link clicks. The Clean Water Partners Facebook Group also gained 53 members.

The Twitter account currently has 131 followers, with 50 new followers since July 1, 2021. Over the year, the account had 408 tweets, 1,051 tweet engagements, and 68 link clicks.

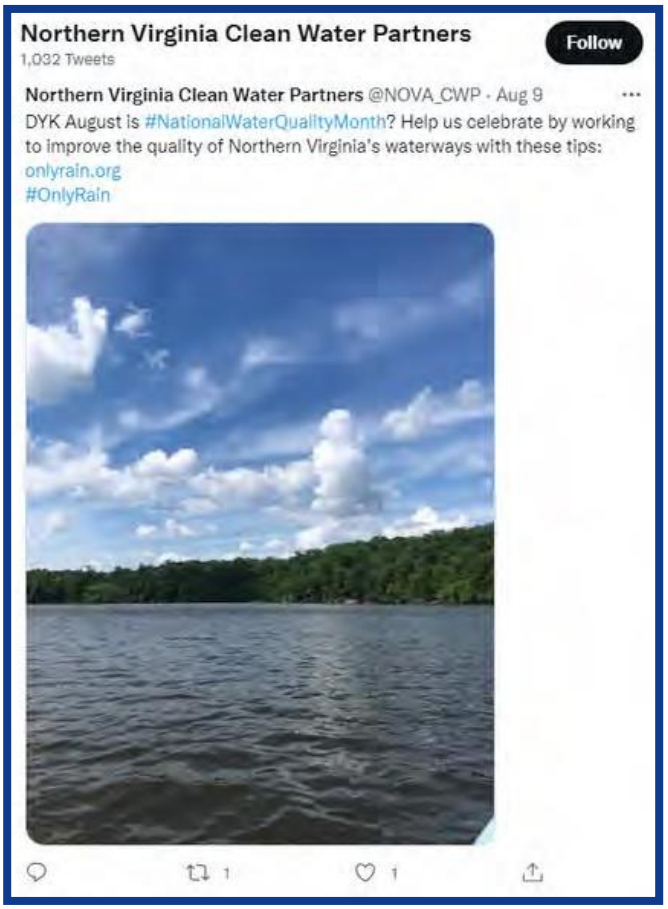
Video Advertisements

The campaign continued to reach residents through a series of video advertisements that focused on residential stormwater management actions. In 2022, the campaign aired two public service announcements (one in English and one in Spanish) on a combination of English and Spanish language networks for a total of 820,154 impressions, or views.

Key Facts and Figures for 2022

- **3,984** visits to OnlyRain.org
- **500** Stormwater Survey responses
- **32** Clean Water Pledges
- **820,154** Premium digital TV impressions* (cable network ads)
- **1,257,502** Total social media impressions* (Facebook and Twitter)
- **30,267** Engagements with social media posts (Facebook and Twitter)

**Impressions are the number of times an ad appeared on a single television or computer screen.*



Top reaching Facebook post of the campaign year

Annual Stormwater Survey

Survey Goal

The Clean Water Partners conduct an annual online survey of 500 Northern Virginia residents to better understand their stormwater-related knowledge and behaviors over time. Results help the partners to assess their campaign's effectiveness and direct future education and outreach efforts.

Results

Stormwater and Watershed Knowledge

Only 37% of Northern Virginia residents believe that they live within the Potomac River Watershed, representing a 7% decrease from 2020. 28% of residents are not sure if they live in the watershed and 7% do not know what a watershed is.

When asked where stormwater eventually ends up, 61% of residents responded that it goes to the Potomac River or Chesapeake Bay, while nearly half believe that it goes to a wastewater treatment plant (27%) or do not know where it ends up (18%). Responses to this question have been consistent since 2019.

Overall, results relating to resident knowledge indicate a need for more general education on the Chesapeake Bay watershed and how stormwater runoff ends up in its waterways.

Information and Advertising

Nearly one-third (32%) of residents in 2022 reported that they have seen or received at least some form of information about reducing water pollution in the past 12 months. 24% have heard of specific opportunities to participate in water quality improvement activities, such as stream clean ups and storm drain stenciling.

28% of residents recalled viewing a Clean Water Partners ad on TV, Facebook, or Twitter prior to taking the survey. While similar to 2021 (29%), this response represents a significant increase from 2020 (22%).

After viewing an ad, 42% of residents stated that they now pick up pet waste more often, 37% plan to fertilize less frequently, 12% now properly dispose of motor oil, and 40% were already taking action to reduce water pollution.

When shown the "only rain down the storm drain" fish logo, 66% of residents reported seeing the logo prior to the survey. While over 50% of residents have recognized the logo each year since 2013, the 2022 response was the highest so far with a 5% increase from 2021. This result highlights a growing awareness of the campaign in recent years through new advertising and engagement efforts.

Resident Behaviors

The survey asked specific questions to understand changes in Northern Virginia residents' behaviors around relevant stormwater management and pollution issues, including pet waste, lawn and garden care, car fluids, and household hazardous waste.

As in 2021, nearly half (48%) of residents reported owning a dog. Of those that walk their dog, 70% stated that they always pick up their dog's waste, while 4% rarely or never pick up the waste.

When asked why they pick up their dog's waste, 32% of residents selected that "it's what good neighbors do" and 21% responded that their actions where due to city or county ordinances. Although there was a slight increase from 2021 (14%), only 17% of residents noted picking up their pet's waste because it causes water pollution.

Based on the percentage of new dog owners in recent years, these results underscore the need and opportunity for further outreach and education around pet waste impacts on local waterways.

77% of residents with a lawn or garden reported fertilizing their lawn at least once a year. Similar to 2021, 21% of residents fertilize twice a year, compared to those that only fertilize in the spring (16%) or in the fall (6%). Notably, 12% stated that they use a lawn care service, indicating that they also fertilize at least once a year.

For those that cut their own grass, only 28% of residents keep their grass clippings on their lawn or garden. 50% bag their clippings and either recycle them (27%) or put them in the regular trash (23%). Future engagement with lawn and garden owners might include information about the various benefits of leaving grass clippings in the yard.

Respondents were provided descriptions of a rain barrel, rain garden, and conservation landscaping and asked whether they have heard of these stormwater management features and would be interested in getting one for their property. While there was a decline in those that had heard of each feature from 2021, there were increases in those reporting that they had seen the features in the neighborhood and were interested in getting one. Specifically, from 2021, there was a 5% increase in those interested in having some form of conservation landscaping on their property.

To build on greater levels of interest, the campaign could provide further resources and opportunities to support residents in obtaining and maintaining these features in the future.

Two-thirds (67%) of residents know if their locality has a specific location to drop off household hazardous waste. Responses to this question have consistently remained above 60% since 2018.

The majority of residents (75%) reported going to an auto center for an oil change or taking their old motor oil to a gas station or hazmat facility for recycling (10%). However, similar to past years, nearly 10% of residents store their used motor oil in their garage, place it in the trash, or dump it down the storm drain, sink or onto the ground.

50% of residents reported that they wash their car or truck at least every other month, with 14% washing it multiple times a month. In particular, there has been a continuous annual increase in residents that wash their automobiles at home (30% in 2018 versus 43% in 2022) and decrease in those that take their car to a carwash (45% in 2018 and 36% in 2022). For those that wash their cars or trucks at home, about half (52%) stated that they use environmentally friendly detergent, while 10% solely use water.

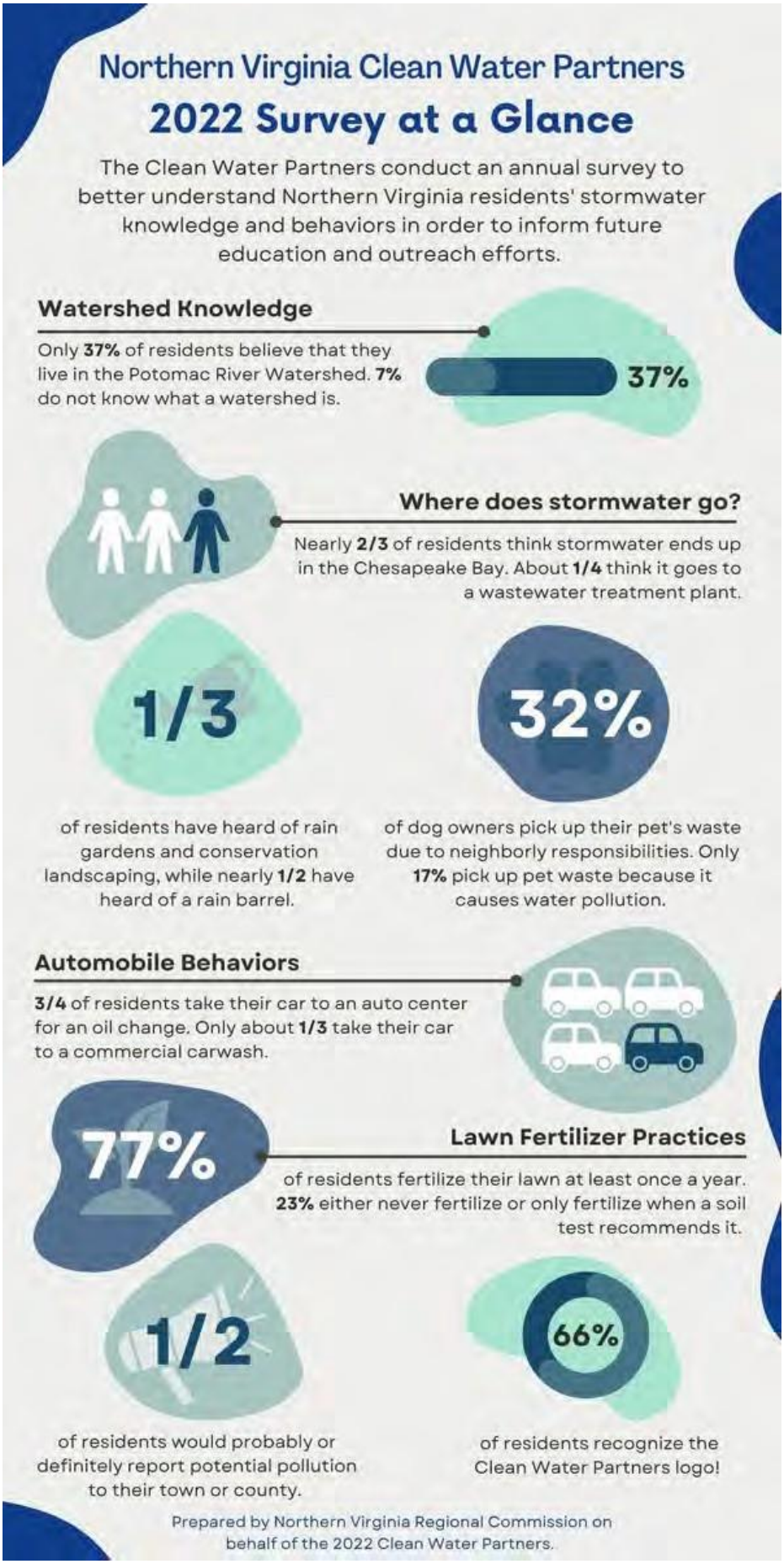
With an increasing number of residents washing their automobiles at home, related engagement should be centered around safe washing practices or encouragement to go to a carwash where dirty water is sent to a wastewater treatment plant.

Next Steps

Through a combination of social media, TV, and the Only Rain website, the 2022 campaign was able to reach a broad span of Northern Virginia residents around stormwater runoff and pollution. New social marketing features, such as the quarterly e-newsletter, further advanced the campaign's messaging and outreach goals.

The 2023 campaign will aim to build off of current momentum and continue to integrate fresh tools to engage residents around various stormwater issues. The next campaign year will include:

- A new campaign video
- Enhanced social media content strategies, such as a "spot the stormdrain sticker" contest
- Monthly partner highlights
- And more!


Northern Virginia Clean Water Partners
2022 Survey at a Glance
The Clean Water Partners conduct an annual survey to better understand Northern Virginia residents' stormwater knowledge and behaviors in order to inform future education and outreach efforts.
Watershed Knowledge
Only 37% of residents believe that they live in the Potomac River Watershed. 7% do not know what a watershed is.
37%
Where does stormwater go?
Nearly 2/3 of residents think stormwater ends up in the Chesapeake Bay. About 1/4 think it goes to a wastewater treatment plant.
1/3
of residents have heard of rain gardens and conservation landscaping, while nearly 1/2 have heard of a rain barrel.
32%
of dog owners pick up their pet's waste due to neighborly responsibilities. Only 17% pick up pet waste because it causes water pollution.
Automobile Behaviors
3/4 of residents take their car to an auto center for an oil change. Only about 1/3 take their car to a commercial carwash.
77%
Lawn Fertilizer Practices
of residents fertilize their lawn at least once a year. 23% either never fertilize or only fertilize when a soil test recommends it.
1/2
of residents would probably or definitely report potential pollution to their town or county.
66%
of residents recognize the Clean Water Partners logo!
Prepared by Northern Virginia Regional Commission on behalf of the 2022 Clean Water Partners.

Additional Information

Website: onlyrain.org
Facebook: facebook.com/NVCWP
Twitter: twitter.com/nova_cwp

Contact: Rebecca Murphy
Coastal Program Manager
rmurphy@novaregion.org
703-642-4625
3040 Williams Drive, Suite 200
Fairfax, VA 22031

2022 Clean Water Partners:

Fairfax County | Arlington County | Loudoun County | Loudoun Water | Fairfax Water | City of Alexandria | City of Fairfax | City of Falls Church | City of Manassas | City of Manassas Park | Stafford County | Town of Leesburg | Town of Dumfries | Town of Herndon | Town of Vienna | Prince William County | Northern Virginia Regional Commission | George Mason University | Virginia Coastal Zone Management Program | Fairfax County Public Schools | Prince William County Public Schools | Northern Virginia Soil and Water Conservation District

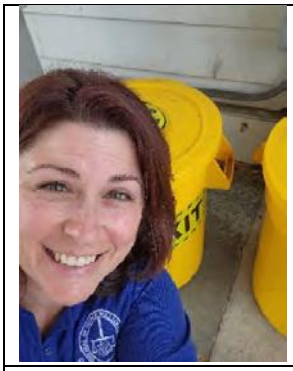
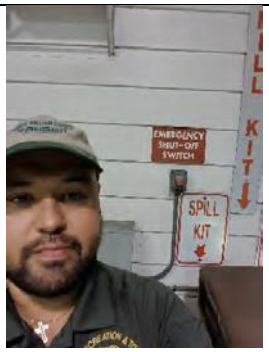
This summary was produced by Northern Virginia Regional Commission on behalf of the 2022 Clean Water Partners.

Appendix L

Summary of County Training Program

Newsletters:

The Risk & Wellness Services office incorporated two watershed protection topics into their monthly newsletters, where over 200 representatives across the County promote them within their agency. The first topic, "Fill It, Don't Spill It", promotes safe fueling, spill prevention, and spill response. It encourages everyone to locate the emergency shut-off button, spill kits and storm drains at the County fueling sites, and to send the Risk office a "selfie" of themselves at the fuel site in front of one of those preventative controls.

			
Social Services	Fire & Rescue	Parks & Rec	Public Works Interns

The second topic, Illicit Discharge Detection and Elimination, highlights the County's policy and best practices for vehicle and equipment washing, chemical use, and fueling. It includes a self-audit checklist for employees to complete and return to the Risk & Wellness office or their department representative.

Snow Rodeo:

In October 2021, Facilities & Fleet Maintenance (FFM) hosted a Snow Rodeo for over 150 County personnel with responsibilities related to snow and ice removal during weather events. The Environmental Council hosted a booth at the event promoting "Smart Salting", with information and games related to preventing excess salt use during the winter. Additionally, FFM shared information on their equipment that utilizes liquid brine for PWC facilities to reduce overall salt use and runoff.

	
Employees learning to measure the appropriate amount of salt to use with the "smart salting" orange cup giveaway.	Participants for the FY22 Snow Rodeo

Training:

Most training programs had to be modified in FY22 to adhere to state and County policies related to social distancing and employee gatherings. New videos were created to allow for "on-demand" training for teleworkers and many groups found ways to conduct training outdoors.

	
Environmental Regulatory Overview training at the landfill during COVID restrictions in FY22	Spill Prevention, Control and Countermeasure plan training at police station during COVID restrictions in FY22

Training numbers for FY22 on relevant topics:

Course Title	**Number of Participants**
Watershed Illicit Discharge Prevention (EHS460)	190
RCRA Training for PWC Facilities	53
Fuel Tank Inspection Training	22
Intro to PWC's Environmental Management System Workshop	18
Spill Prevention Control and Countermeasure Plans	38
Environmental Regulatory Overview Training	68

Appendix M

Dry Weather Screening – Inspection Summary

Landuse	Outfall Id	Last Inspection Date	Flow Present	Illicit Discharge	High Risk	Maintenance Required	Within PWC Service Area	VPDES Permitted
Other	32631	7/1/2021	No	Unlikely	N	False	N	N
Open Space	32629	7/1/2021	No	Unlikely	N	False	N	N
Residential	32531	7/7/2021	Stagnant	Unlikely	N	False	Y	N
Residential	32529	7/7/2021	No	Unlikely	N	False	N	N
Residential	6766	7/7/2021	No	Unlikely	N	False	Y	N
Residential	32537	7/7/2021	No	Unlikely	N	True	Y	N
Residential	32533	7/7/2021	Yes	Unlikely	N	False	Y	N
Residential	6772	7/7/2021	No	Unlikely	N	False	Y	N
Other	30129	7/7/2021	Yes	Unlikely	N	False	N	N
Residential	32535	7/7/2021	No	Unlikely	N	True	Y	N
Residential	12694	7/7/2021	Yes	Obvious	Y	False	N	N
Residential	32525	7/7/2021	No	Unlikely	N	True	Y	N
Shopping Center	53535	7/13/2021	Stagnant	Unlikely	Y	False	Y	N
Other	44112	7/13/2021	Yes	Unlikely	N	False	N	N
Other	19970	7/13/2021	Yes	Unlikely	N	False	Y	N
Other	13641	7/13/2021	Yes	Unlikely	N	False	N	N
Other	36105	7/13/2021	Yes	Unlikely	N	False	N	N
Regional Mall	25307	7/13/2021	No	Unlikely	N	False	Y	N
Other	30267	7/13/2021	No	Unlikely	Y	False	N	N
Residential	63258	7/13/2021	Stagnant	Unlikely	N	False	Y	N
Other	37858	7/13/2021	Yes	Unlikely	N	False	N	N
Residential	36103	7/13/2021	No	Unlikely	N	False	Y	N
Other	29004	7/13/2021	No	Unlikely	N	False	N	N
Other	30265	7/13/2021	No	Unlikely	Y	False	N	N
Other	32578	7/13/2021	Yes	Unlikely	N	False	N	N
Institutional (schools/churches)	31147	7/13/2021	No	Unlikely	N	False	N	N
Other	6009	7/13/2021	Yes	Unlikely	N	False	Y	N
Residential	8248	7/13/2021	No	Unlikely	N	False	Y	N
Regional Mall	64095	7/13/2021	No	Unlikely	N	False	N	N
Residential	6120	7/13/2021	No	Unlikely	N	False	Y	N
Other	19254	7/13/2021	No	Unlikely	N	False	Y	N
Other	29077	7/13/2021	No	Unlikely	Y	False	N	N
Other	11483	7/13/2021	Yes	Unlikely	N	False	N	N
Residential	10400	7/13/2021	Yes	Unlikely	N	False	Y	N
Residential	5952	7/13/2021	No	Unlikely	N	False	Y	N
Regional Mall	18593	7/13/2021	No	Unlikely	N	False	Y	N
Residential	5443	7/13/2021	No	Unlikely	N	False	Y	N
Other	27179	7/13/2021	Yes	Unlikely	N	False	N	N
Residential	30269	7/13/2021	No	Unlikely	Y	False	N	N
Residential	17890	7/13/2021	Yes	Unlikely	N	False	Y	N
Other	17270	7/13/2021	No	Unlikely	N	False	N	N

Dry Weather Screening Summary FY22

Landuse	Outfall Id	Last Inspection Date	Flow Present	Illicit Discharge	High Risk	Maintenance Required	Within PWC Service Area	VPDES Permitted
Residential	5987	7/13/2021	No	Unlikely	N	False	Y	N
Residential	18570	7/13/2021	No	Unlikely	N	False	Y	N
Other	30254	7/13/2021	No	Unlikely	Y	False	N	N
Shopping Center	18588	7/13/2021	Stagnant	Unlikely	N	False	Y	N
Other	30250	7/13/2021	Stagnant	Unlikely	Y	False	N	N
Other	6007	7/13/2021	No	Unlikely	N	False	Y	N
Residential	530	7/13/2021	No	Unlikely	N	False	Y	N
Other	44119	7/13/2021	Yes	Unlikely	N	False	N	N
Residential	17866	7/13/2021	No	Unlikely	N	False	Y	N
Residential	22718	7/13/2021	No	Unlikely	N	False	N	N
Other	17268	7/13/2021	No	Unlikely	N	False	N	N
Other	5954	7/13/2021	Yes	Unlikely	N	False	Y	N
Residential	60134	7/13/2021	Stagnant	Unlikely	N	False	Y	N
Institutional (schools/churches)	60157	7/13/2021	Yes	Unlikely	N	False	N	N
Residential	26542	7/13/2021	No	Unlikely	N	False	Y	N
Residential	32575	7/13/2021	Stagnant	Unlikely	N	False	Y	N
Residential	44100	7/13/2021	No	Unlikely	N	False	Y	N
Residential	63262	7/13/2021	No	Unlikely	N	False	Y	N
Residential	44109	7/13/2021	No	Unlikely	N	False	N	N
Residential	532	7/13/2021	No	Unlikely	N	False	Y	N
Residential	6116	7/13/2021	No	Unlikely	N	False	Y	N
Residential	5022	7/13/2021	No	Unlikely	N	False	Y	N
Residential	37836	7/13/2021	No	Unlikely	N	False	N	N
Planned Industrial Park	51065	7/13/2021	No	Unlikely	N	False	Y	N
Open Space	28999	7/13/2021	No	Unlikely	N	False	Y	N
Regional Mall	13702	7/13/2021	No	Unlikely	N	False	Y	N
Other	11485	7/13/2021	Yes	Unlikely	N	False	N	N
Other	5024	7/13/2021	No	Unlikely	N	False	Y	N
Other	29072	7/13/2021	Yes	Unlikely	Y	False	N	N
Other	13707	7/13/2021	No	Unlikely	Y	False	Y	N
Residential	40171	7/13/2021	No	Unlikely	N	False	Y	N
Residential	61029	7/13/2021	No	Unlikely	N	False	Y	N
Residential	22720	7/13/2021	No	Unlikely	N	False	N	N
Open Space	29074	7/13/2021	No	Unlikely	Y	False	Y	N
Residential	739	7/13/2021	No	Unlikely	N	False	N	N
Regional Mall	25309	7/13/2021	No	Unlikely	N	False	Y	N
Residential	5994	7/13/2021	No	Unlikely	N	False	N	N
Other	51068	7/13/2021	Yes	Unlikely	N	False	N	N
Other	50891	7/13/2021	Yes	Unlikely	N	False	Y	N
Other	6098	7/13/2021	Yes	Unlikely	N	False	N	N
Institutional (schools/churches)	17260	7/13/2021	No	Unlikely	N	False	N	N

Dry Weather Screening Summary FY22

Landuse	Outfall Id	Last Inspection Date	Flow Present	Illicit Discharge	High Risk	Maintenance Required	Within PWC Service Area	VPDES Permitted
Residential	8249	7/13/2021	No	Unlikely	N	False	Y	N
Residential	34902	7/13/2021	No	Unlikely	N	False	N	N
Open Space	6002	7/13/2021	No	Unlikely	N	False	Y	N
Other	17405	7/13/2021	Yes	Unlikely	N	False	N	N
Other	8251	7/13/2021	Yes	Unlikely	N	False	Y	N
Other	60136	7/13/2021	Yes	Unlikely	N	False	Y	N
Residential	60320	7/13/2021	No	Unlikely	N	False	Y	N
Other	30257	7/13/2021	No	Unlikely	Y	False	N	N
Residential	50889	7/13/2021	No	Unlikely	N	False	Y	N
Residential	68721	7/16/2021	Yes	Unlikely	N	False	N	N
Other	14723	7/16/2021	Yes	Unlikely	N	False	Y	N
Residential	14885	7/19/2021	No	Unlikely	N	True	N	N
Residential	68706	7/19/2021	No	Unlikely	N	False	Y	N
Residential	14715	7/19/2021	No	Unlikely	N	False	N	N
Residential	68702	7/19/2021	Yes	Unlikely	N	True	N	N
Residential	14854	7/19/2021	No	Unlikely	N	True	N	N
Residential	14860	7/19/2021	No	Unlikely	N	False	N	N
Residential	14733	7/19/2021	No	Unlikely	N	True	N	N
Residential	14868	7/19/2021	No	Unlikely	N	False	N	N
Residential	37429	7/20/2021	No	Unlikely	N	True	N	N
Residential	23950	7/20/2021	No	Unlikely	N	False	N	N
Residential	37436	7/20/2021	Stagnant	Unlikely	N	False	N	N
Residential	37454	7/20/2021	No	Unlikely	N	False	N	N
Residential	23987	7/20/2021	Yes	Unlikely	N	False	N	N
Residential	37445	7/20/2021	No	Unlikely	N	False	N	N
Residential	23994	7/20/2021	No	Unlikely	N	False	N	N
Residential	34378	7/20/2021	Stagnant	Unlikely	N	False	N	N
Residential	37461	7/20/2021	No	Unlikely	N	False	N	N
Residential	29746	7/20/2021	No	Unlikely	N	False	Y	N
Residential	23998	7/20/2021	No	Unlikely	N	False	Y	N
Residential	23955	7/20/2021	No	Unlikely	N	False	N	N
Other	23989	7/20/2021	Yes	Unlikely	N	False	N	N
Residential	23942	7/20/2021	Stagnant	Unlikely	N	False	N	N
Residential	34382	7/20/2021	No	Unlikely	N	False	N	N
Residential	8329	7/23/2021	Yes	Unlikely	N	False	Y	N
Residential	14711	7/23/2021	No	Unlikely	Y	False	N	N
Residential	8333	7/23/2021	No	Unlikely	N	False	Y	N
Residential	29588	7/23/2021	No	Unlikely	N	False	Y	N
Residential	14741	7/23/2021	Yes	Unlikely	N	True	Y	N
Residential	33025	7/23/2021	No	Unlikely	N	True	N	N
Institutional (schools/churches)	49847	7/23/2021	No	Unlikely	N	True	N	N

Dry Weather Screening Summary FY22

Landuse	Outfall Id	Last Inspection Date	Flow Present	Illicit Discharge	High Risk	Maintenance Required	Within PWC Service Area	VPDES Permitted
Other	49852	7/23/2021	No	Unlikely	N	False	N	N
Residential	29496	7/26/2021	No	Unlikely	N	False	N	N
Residential	32895	7/26/2021	No	Unlikely	N	False	N	N
Residential	6209	7/26/2021	No	Unlikely	N	True	Y	N
Residential	32897	7/26/2021	No	Unlikely	N	False	Y	N
Residential	32893	7/26/2021	Yes	Unlikely	N	False	N	N
Residential	29457	7/26/2021	No	Unlikely	N	False	Y	N
Residential	29744	7/26/2021	No	Unlikely	N	True	Y	N
Residential	32539	7/26/2021	Yes	Unlikely	N	True	Y	N
Open Space	29480	7/26/2021	Yes	Unlikely	N	False	N	N
Other	20954	7/26/2021	Yes	Unlikely	N	True	N	N
Residential	6211	7/26/2021	No	Unlikely	N	True	Y	N
Residential	29460	7/26/2021	No	Unlikely	N	False	Y	N
Residential	29455	7/26/2021	No	Unlikely	N	False	Y	N
Residential	29467	7/26/2021	No	Unlikely	N	False	N	N
Residential	29446	7/26/2021	Stagnant	Unlikely	N	False	N	N
Residential	28492	7/27/2021	No	Unlikely	N	False	Y	N
Residential	28506	7/27/2021	No	Unlikely	N	False	N	N
Residential	32545	7/27/2021	No	Unlikely	N	False	Y	N
Residential	29497	7/27/2021	No	Unlikely	N	False	N	N
Residential	29499	7/27/2021	No	Unlikely	N	False	Y	N
Residential	32541	7/27/2021	No	Unlikely	N	False	Y	N
Residential	32543	7/27/2021	No	Unlikely	N	False	Y	N
Residential	63624	8/2/2021	No	Unlikely	N	False	N	N
Other	29536	8/2/2021	Yes	Unlikely	N	False	Y	N
Other	11986	8/2/2021	No	Unlikely	N	False	Y	N
Other	29538	8/2/2021	Yes	Unlikely	N	False	N	N
Residential	13423	8/2/2021	No	Unlikely	N	False	Y	N
Open Space	2384	8/2/2021	Yes	Unlikely	N	False	Y	N
Other	17134	8/2/2021	Yes	Unlikely	N	False	Y	N
Other	11982	8/2/2021	No	Unlikely	N	False	Y	N
Residential	13427	8/3/2021	No	Unlikely	N	False	N	N
Residential	17807	8/3/2021	No	Unlikely	N	False	Y	N
Residential	13425	8/3/2021	No	Unlikely	N	False	N	N
Residential	14422	8/3/2021	No	Unlikely	N	True	Y	N
Residential	17814	8/3/2021	No	Unlikely	N	False	Y	N
Residential	2476	8/3/2021	No	Unlikely	N	False	Y	N
Residential	32193	8/3/2021	No	Unlikely	N	False	Y	N
Residential	17824	8/3/2021	No	Unlikely	N	False	Y	N
Open Space	14540	8/3/2021	Stagnant	Unlikely	N	False	N	N
Residential	50063	8/3/2021	No	Unlikely	N	False	Y	N

Landuse	Outfall Id	Last Inspection Date	Flow Present	Illicit Discharge	High Risk	Maintenance Required	Within PWC Service Area	VPDES Permitted
Residential	23485	8/3/2021	No	Unlikely	N	False	N	N
Residential	5946	8/3/2021	Yes	Unlikely	N	False	N	N
Other	14544	8/3/2021	Yes	Unlikely	N	False	N	N
Residential	28681	8/3/2021	No	Unlikely	N	False	N	N
Residential	17822	8/4/2021	No	Unlikely	N	False	Y	N
Residential	11311	8/4/2021	Stagnant	Unlikely	N	False	N	N
Other	17830	8/4/2021	Yes	Unlikely	N	False	N	N
Other	9489	8/4/2021	No	Unlikely	N	False	Y	N
Other	27130	8/4/2021	No	Unlikely	N	False	Y	N
Other	17811	8/4/2021	Yes	Unlikely	N	True	N	N
Residential	11307	8/4/2021	No	Unlikely	N	False	N	N
Residential	14417	8/4/2021	No	Unlikely	N	False	N	N
Residential	20744	8/4/2021	No	Unlikely	N	False	Y	N
Residential	17832	8/4/2021	No	Unlikely	N	False	Y	N
Residential	20746	8/4/2021	No	Unlikely	N	False	N	N
Residential	17820	8/4/2021	No	Unlikely	N	False	Y	N
Residential	17818	8/4/2021	No	Unlikely	N	False	Y	N
Residential	5937	8/4/2021	No	Unlikely	N	False	Y	N
Other	6352	8/5/2021	No	Unlikely	N	False	N	N
Residential	18135	8/5/2021	No	Unlikely	N	False	Y	N
Planned Industrial Park	31753	8/5/2021	No	Unlikely	N	True	N	N
Residential	6147	8/5/2021	No	Unlikely	N	False	Y	N
Residential	62091	8/5/2021	No	Unlikely	N	False	N	N
Residential	62097	8/5/2021	No	Unlikely	N	False	N	N
Residential	5757-002	8/5/2021	No	Unlikely	Y	False	N	N
Planned Industrial Park	31761	8/5/2021	No	Unlikely	N	True	N	N
Residential	62075	8/5/2021	No	Unlikely	N	True	N	N
Residential	62081	8/5/2021	No	Unlikely	N	True	N	N
Residential	5757-001	8/5/2021	No	Unlikely	Y	False	N	N
Residential	62102	8/5/2021	No	Unlikely	N	False	N	N
Residential	62078	8/5/2021	No	Unlikely	N	False	N	N
Regional Mall	6359	8/5/2021	No	Unlikely	N	False	N	N
Residential	6110-002	8/6/2021	No	Unlikely	N	True	N	N
Residential	13551	8/6/2021	No	Unlikely	N	False	N	N
Institutional (schools/churches)	61871	8/6/2021	Stagnant	Unlikely	N	False	N	N
Shopping Center	33040	8/6/2021	Yes	Unlikely	N	False	N	N
Residential	27806	8/6/2021	Yes	Unlikely	N	True	N	N
Institutional (schools/churches)	61829	8/6/2021	No	Unlikely	N	True	N	N
Institutional (schools/churches)	61875	8/6/2021	No	Unlikely	N	False	N	N
Residential	13544	8/6/2021	Stagnant	Unlikely	N	False	N	N
Institutional (schools/churches)	61865	8/6/2021	No	Unlikely	N	False	N	N

Landuse	Outfall Id	Last Inspection Date	Flow Present	Illicit Discharge	High Risk	Maintenance Required	Within PWC Service Area	VPDES Permitted
Institutional (schools/churches)	61837	8/6/2021	No	Unlikely	N	False	N	N
Institutional (schools/churches)	61847	8/8/2021	No	Unlikely	N	False	N	N
Institutional (schools/churches)	61840	8/8/2021	No	Unlikely	N	True	N	N
Institutional (schools/churches)	62279	8/10/2021	No	Unlikely	N	False	N	N
Institutional (schools/churches)	61861	8/10/2021	Yes	Unlikely	N	False	N	N
Institutional (schools/churches)	26116	8/10/2021	No	Unlikely	N	False	N	N
Other	61868	8/10/2021	Yes	Unlikely	N	False	N	N
Institutional (schools/churches)	62276	8/10/2021	No	Unlikely	N	False	N	N
Gas Station	24673	8/10/2021	No	Obvious	Y	True	N	N
Institutional (schools/churches)	61833	8/10/2021	No	Unlikely	N	False	N	N
Institutional (schools/churches)	61827	8/10/2021	Yes	Unlikely	N	False	N	N
Residential	27787	8/10/2021	Yes	Unlikely	N	False	N	N
Residential	67443	8/23/2021	Stagnant	Unlikely	N	True	Y	N
Residential	67658	8/23/2021	No	Unlikely	N	False	Y	N
Other	67662	8/23/2021	No	Unlikely	N	False	Y	N
Residential	66792	8/23/2021	Stagnant	Unlikely	N	True	Y	N
Other	25621	8/25/2021	No	Unlikely	N	False	N	N
Other	67500	8/25/2021	No	Unlikely	N	True	Y	N
Residential	53948	8/25/2021	No	Unlikely	N	False	Y	N
Open Space	67656	8/25/2021	No	Unlikely	N	False	Y	N
Residential	53945	8/25/2021	No	Unlikely	N	False	Y	N
Residential	66845	8/25/2021	No	Unlikely	N	True	Y	N
Residential	28685	8/25/2021	Stagnant	Unlikely	N	False	N	N
Residential	67497	8/25/2021	Stagnant	Unlikely	N	False	Y	N
Residential	53950	8/25/2021	No	Unlikely	N	True	Y	N
Institutional (schools/churches)	59496	8/26/2021	No	Unlikely	N	True	N	N
Institutional (schools/churches)	59499	8/26/2021	No	Unlikely	N	False	N	N
Other	61935	8/26/2021	Yes	Unlikely	N	True	N	N
Shopping Center	22882	8/26/2021	No	Unlikely	N	False	N	N
Open Space	61937	8/26/2021	Yes	Unlikely	N	False	N	N
Open Space	61932	8/26/2021	No	Unlikely	N	False	N	N
Other	45746	8/26/2021	No	Unlikely	N	False	N	N
Institutional (schools/churches)	59512	8/26/2021	Yes	Unlikely	N	False	N	N
Other	59501	8/26/2021	Yes	Unlikely	N	False	N	N
Institutional (schools/churches)	59493	8/26/2021	No	Unlikely	N	False	N	N
Wholesale Warehousing	61922	8/26/2021	No	Unlikely	N	False	N	N
Other	59516	8/26/2021	Yes	Unlikely	N	False	N	N
Other	58699	8/26/2021	Yes	Unlikely	N	False	N	N
Institutional (schools/churches)	19435	8/26/2021	Stagnant	Unlikely	N	True	N	N
Open Space	59514	8/26/2021	Yes	Unlikely	N	False	N	N
Institutional (schools/churches)	19433	8/26/2021	No	Unlikely	N	False	N	N

Landuse	Outfall Id	Last Inspection Date	Flow Present	Illicit Discharge	High Risk	Maintenance Required	Within PWC Service Area	VPDES Permitted
Wholesale Warehousing	61930	8/26/2021	No	Unlikely	N	False	N	N
Open Space	61986	8/27/2021	Stagnant	Unlikely	N	False	N	N
Residential	27594	8/27/2021	No	Unlikely	N	False	Y	N
Other	61988	8/27/2021	No	Unlikely	N	True	N	N
Other	27590	8/27/2021	No	Unlikely	N	True	Y	N
Other	61946	8/27/2021	No	Unlikely	N	False	N	N
Planned Industrial Park	45321	8/27/2021	Yes	Unlikely	Y	False	N	N
Open Space	61981	8/27/2021	No	Unlikely	N	True	N	N
Other	61952	8/27/2021	No	Unlikely	N	False	N	N
Other	61944	8/27/2021	No	Unlikely	N	False	N	N
Other	61967	8/27/2021	No	Unlikely	N	True	N	N
Planned Industrial Park	45313	8/27/2021	Stagnant	Unlikely	N	True	N	N
Other	61950	8/27/2021	No	Unlikely	N	False	N	N
Other	61956	8/27/2021	No	Unlikely	N	False	N	N
Residential	27592	8/27/2021	Yes	Unlikely	N	True	Y	N
Planned Industrial Park	45316	8/27/2021	No	Unlikely	N	True	N	N
Planned Industrial Park	45306	8/27/2021	No	Unlikely	N	True	N	N
Open Space	61983	8/27/2021	No	Unlikely	N	False	N	N
Other	61942	8/27/2021	No	Unlikely	N	False	N	N
Other	61970	8/27/2021	Stagnant	Unlikely	N	False	N	N
Other	61954	8/27/2021	No	Unlikely	N	False	N	N
Other	61972	8/27/2021	Stagnant	Unlikely	N	False	N	N
Planned Industrial Park	47962	8/27/2021	No	Unlikely	Y	True	N	N
Residential	3221	10/5/2021	No	Unlikely	N	False	Y	N
Planned Industrial Park	60587	10/5/2021	No	Unlikely	N	False	N	N
Other	10340	10/5/2021	No	Unlikely	N	False	N	N
Residential	10338	10/5/2021	No	Unlikely	N	False	N	N
Wholesale Warehousing	22733	10/5/2021	No	Unlikely	N	False	N	N
Institutional (schools/churches)	23788	10/5/2021	Stagnant	Unlikely	N	False	N	N
Other	23790	10/5/2021	No	Unlikely	N	False	N	N
Vehicle Sale/Repair/Miscellaneous	60569	10/5/2021	No	Unlikely	Y	True	N	N
Residential	10334	10/5/2021	No	Unlikely	N	False	N	N
Planned Industrial Park	27844	10/5/2021	No	Unlikely	Y	False	N	N
Planned Industrial Park	27842	10/5/2021	No	Unlikely	N	False	N	N
Residential	49207	10/5/2021	No	Unlikely	N	False	Y	N
Other	18707	10/6/2021	Stagnant	Unlikely	N	False	N	N
Other	60876	10/6/2021	Yes	Unlikely	N	False	N	N
Other	26097	10/7/2021	No	Unlikely	N	True	N	N
Residential	4744	10/7/2021	No	Unlikely	N	False	N	N
Residential	5294	10/7/2021	No	Unlikely	N	False	Y	N
Residential	4740	10/7/2021	No	Unlikely	N	False	N	N

Dry Weather Screening Summary FY22

Landuse	Outfall Id	Last Inspection Date	Flow Present	Illicit Discharge	High Risk	Maintenance Required	Within PWC Service Area	VPDES Permitted
Other	60863	10/7/2021	No	Unlikely	N	True	N	N
Other	60869	10/7/2021	Yes	Unlikely	N	True	N	N
Other	60857	10/7/2021	No	Unlikely	N	False	N	N
Other	60861	10/7/2021	Yes	Unlikely	N	True	N	N
Other	60859	10/7/2021	Yes	Unlikely	N	False	N	N
Residential	5668	10/7/2021	No	Unlikely	N	True	N	N
Residential	5662	10/7/2021	No	Unlikely	N	False	N	N
Residential	5656	10/7/2021	No	Unlikely	N	False	N	N
Residential	5301	10/7/2021	No	Unlikely	N	False	N	N
Other	60855	10/7/2021	No	Unlikely	N	True	N	N
Residential	45505	10/12/2021	No	Unlikely	N	False	N	N
Residential	29030	10/12/2021	No	Unlikely	N	True	Y	N
Residential	36564	10/12/2021	No	Unlikely	N	False	Y	N
Institutional (schools/churches)	27405	10/12/2021	No	Unlikely	N	False	Y	N
Residential	22132	10/12/2021	No	Unlikely	N	True	N	N
Residential	22138	10/12/2021	Stagnant	Unlikely	N	False	N	N
Residential	27369	10/12/2021	No	Unlikely	N	False	Y	N
Residential	22130	10/12/2021	No	Unlikely	N	True	N	N
Residential	45510	10/12/2021	No	Unlikely	N	False	N	N
Residential	45508	10/12/2021	Yes	Unlikely	N	False	N	N
Residential	29025	10/12/2021	No	Unlikely	N	False	N	N
Open Space	29032	10/12/2021	Yes	Unlikely	N	False	N	N
Residential	22135	10/12/2021	No	Unlikely	N	True	N	N
Open Space	30862	10/12/2021	Stagnant	Unlikely	N	False	N	N
Other	22123	10/12/2021	Yes	Unlikely	N	False	N	N
Residential	45457	10/12/2021	Stagnant	Unlikely	N	False	N	N
Other	28817	10/12/2021	No	Unlikely	N	False	Y	N
Residential	29394	10/12/2021	No	Unlikely	N	False	Y	N
Residential	29044	10/12/2021	No	Unlikely	N	False	Y	N
Residential	45969	10/13/2021	No	Unlikely	N	False	Y	N
Residential	14786	10/13/2021	Yes	Obvious	Y	False	N	N
Other	6797	10/13/2021	No	Unlikely	N	False	N	N
Residential	6795	10/13/2021	No	Unlikely	N	False	N	N
Residential	45938	10/13/2021	Yes	Unlikely	N	False	N	N
Residential	14770	10/14/2021	Yes	Obvious	Y	False	N	N
Residential	45942	10/14/2021	No	Unlikely	N	False	Y	N
Other	45971	10/18/2021	Yes	Unlikely	N	False	Y	N
Other	30178	10/18/2021	Yes	Unlikely	N	False	N	N
Residential	14760	10/18/2021	No	Unlikely	N	False	Y	N
Residential	14765	10/18/2021	No	Unlikely	N	False	Y	N
Residential	45946	10/18/2021	No	Unlikely	N	False	Y	N

Landuse	Outfall Id	Last Inspection Date	Flow Present	Illicit Discharge	High Risk	Maintenance Required	Within PWC Service Area	VPDES Permitted
Other	6798	10/18/2021	No	Unlikely	N	False	N	N
Residential	9266	10/18/2021	No	Unlikely	N	False	N	N
Residential	14818	10/18/2021	No	Unlikely	N	False	Y	N
Residential	30066	10/19/2021	No	Unlikely	N	True	N	N
Residential	10542	10/19/2021	No	Unlikely	N	False	Y	N
Other	18619	10/19/2021	No	Unlikely	N	False	N	N
Other	30060	10/19/2021	Yes	Unlikely	N	False	N	N
Residential	30064	10/19/2021	No	Unlikely	N	False	Y	N
Other	18621	10/19/2021	Yes	Unlikely	N	False	N	N
Residential	10546	10/19/2021	No	Unlikely	N	False	Y	N
Residential	30062	10/19/2021	No	Unlikely	N	False	Y	N
Residential	30058	10/19/2021	Stagnant	Unlikely	N	False	N	N
Wholesale Warehousing	60561	10/20/2021	No	Unlikely	N	False	N	N
Planned Industrial Park	24489	10/20/2021	No	Unlikely	N	False	N	N
Planned Industrial Park	24485	10/20/2021	No	Unlikely	N	False	N	N
Residential	18623	10/20/2021	No	Unlikely	N	False	Y	N
Planned Industrial Park	62254	10/20/2021	No	Unlikely	N	False	N	N
Residential	30056	10/20/2021	No	Unlikely	N	False	Y	N
Wholesale Warehousing	21471	10/20/2021	No	Unlikely	N	False	N	N
Wholesale Warehousing	60563	10/20/2021	No	Unlikely	N	False	N	N
Residential	18625	10/20/2021	No	Unlikely	N	False	Y	N
Wholesale Warehousing	62253	10/20/2021	No	Unlikely	N	False	N	N
Planned Industrial Park	62257	10/20/2021	No	Unlikely	N	False	N	N
Wholesale Warehousing	34365	10/20/2021	Stagnant	Unlikely	N	False	N	N
Wholesale Warehousing	60559	10/20/2021	No	Unlikely	N	False	N	N
Planned Industrial Park	62255	10/20/2021	No	Unlikely	N	True	N	N
Planned Industrial Park	63690	10/20/2021	Stagnant	Unlikely	Y	False	N	N
Residential	46818	10/20/2021	No	Unlikely	N	False	N	N
Residential	30054	10/20/2021	No	Unlikely	N	False	Y	N
Residential	22223	10/20/2021	No	Unlikely	N	False	Y	N
Planned Industrial Park	63692	10/20/2021	No	Unlikely	N	False	N	N
Wholesale Warehousing	19533	10/20/2021	No	Unlikely	Y	False	N	N
Other	18627	10/20/2021	No	Unlikely	N	False	N	N
Wholesale Warehousing	60556	10/20/2021	No	Unlikely	N	False	N	N
Other	22436	10/21/2021	No	Unlikely	N	False	N	N
Other	32592	10/21/2021	Yes	Unlikely	N	False	N	N
Institutional (schools/churches)	21115	10/21/2021	Stagnant	Unlikely	N	False	N	N
Institutional (schools/churches)	22454	10/21/2021	No	Unlikely	N	False	N	N
Other	32594	10/21/2021	Yes	Unlikely	N	True	N	N
Other	26421	10/21/2021	Yes	Unlikely	N	False	N	N
Other	22456	10/21/2021	No	Unlikely	N	False	N	N

Dry Weather Screening Summary FY22

Landuse	Outfall Id	Last Inspection Date	Flow Present	Illicit Discharge	High Risk	Maintenance Required	Within PWC Service Area	VPDES Permitted
Institutional (schools/churches)	21117	10/21/2021	No	Unlikely	N	False	N	N
Other	32588	10/21/2021	Yes	Unlikely	N	False	N	N
Institutional (schools/churches)	22432	10/21/2021	Stagnant	Unlikely	N	False	N	N
Other	26423	10/21/2021	Yes	Unlikely	Y	False	N	N
Other	22434	10/21/2021	No	Unlikely	N	False	N	N
Institutional (schools/churches)	22458	10/21/2021	No	Unlikely	N	False	N	N
Institutional (schools/churches)	22440	10/21/2021	No	Unlikely	N	False	N	N
Residential	26418	10/21/2021	Stagnant	Unlikely	N	False	N	N
Other	1076	10/25/2021	No	Unlikely	N	False	N	N
Shopping Center	48446	10/25/2021	No	Unlikely	N	False	N	N
Regional Mall	58067	10/25/2021	No	Unlikely	N	False	N	N
Shopping Center	1090	10/25/2021	No	Unlikely	N	False	N	N
Shopping Center	1069	10/25/2021	No	Unlikely	Y	False	N	N
Other	58069	10/25/2021	No	Unlikely	N	False	N	N
Regional Mall	18201	10/25/2021	No	Unlikely	N	True	N	N
Regional Mall	24482	10/25/2021	No	Unlikely	N	True	N	N
Residential	27815	10/25/2021	No	Unlikely	N	False	N	N
Residential	27820	10/25/2021	No	Unlikely	N	False	N	N
Shopping Center	48441	10/25/2021	No	Unlikely	N	False	N	N
Shopping Center	48433	10/25/2021	No	Unlikely	N	False	N	N
Durable Manufacturing	1073	10/25/2021	No	Unlikely	N	True	N	N
Residential	27812	10/25/2021	No	Unlikely	N	False	N	N
Residential	31587	10/29/2021	No	Unlikely	N	False	Y	N
Residential	31584	10/29/2021	No	Unlikely	N	False	N	N
Residential	26840	10/29/2021	No	Unlikely	N	False	Y	N
Residential	18853	10/29/2021	No	Unlikely	N	False	Y	N
Residential	31576	10/29/2021	No	Unlikely	N	False	N	N
Residential	26837	10/29/2021	No	Unlikely	N	False	Y	N
Residential	18838	10/29/2021	Stagnant	Unlikely	N	False	Y	N
Residential	31604	10/29/2021	Stagnant	Unlikely	N	False	Y	N
Residential	31810	10/29/2021	No	Unlikely	N	False	Y	N
Residential	31599	10/29/2021	Stagnant	Unlikely	N	False	N	N
Other	20281	11/5/2021	No	Unlikely	N	False	Y	N
Residential	20289	11/5/2021	No	Unlikely	N	False	Y	N
Residential	46662	11/5/2021	No	Unlikely	N	False	Y	N
Other	50100	11/5/2021	Yes	Unlikely	N	False	N	N
Residential	38618	11/5/2021	No	Unlikely	N	False	Y	N
Residential	20293	11/5/2021	No	Unlikely	N	False	Y	N
Residential	46629	11/5/2021	No	Unlikely	N	False	Y	N
Residential	38652	11/5/2021	No	Unlikely	N	False	Y	N
Residential	18730	11/5/2021	No	Unlikely	N	False	Y	N

Landuse	Outfall Id	Last Inspection Date	Flow Present	Illicit Discharge	High Risk	Maintenance Required	Within PWC Service Area	VPDES Permitted
Other	2386	11/5/2021	Yes	Unlikely	N	False	N	N
Residential	20279	11/5/2021	No	Unlikely	N	True	Y	N
Residential	2478	11/5/2021	No	Unlikely	N	False	Y	N
Residential	2478	11/5/2021	No	Unlikely	N	False	Y	N
Residential	2478	11/5/2021	No	Unlikely	N	False	Y	N
Residential	2478	11/5/2021	No	Unlikely	N	False	Y	N
Residential	2478	11/5/2021	No	Unlikely	N	False	Y	N
Residential	2478	11/5/2021	No	Unlikely	N	False	Y	N
Residential	2478	11/5/2021	No	Unlikely	N	False	Y	N
Residential	2478	11/5/2021	No	Unlikely	N	False	Y	N
Residential	2478	11/5/2021	No	Unlikely	N	False	Y	N
Residential	2478	11/5/2021	No	Unlikely	N	False	Y	N
Residential	2478	11/5/2021	No	Unlikely	N	False	Y	N
Residential	46535	11/5/2021	No	Unlikely	N	False	Y	N
Residential	46653	11/5/2021	Stagnant	Unlikely	N	False	Y	N
Residential	53996	11/5/2021	No	Unlikely	N	True	Y	N
Residential	20277	11/5/2021	No	Unlikely	N	False	Y	N
Residential	50098	11/5/2021	Stagnant	Unlikely	N	False	N	N
Residential	2369	11/8/2021	No	Unlikely	N	False	N	N
Residential	50102	11/8/2021	No	Unlikely	N	False	N	N
Residential	50169	11/8/2021	No	Unlikely	N	False	Y	N
Wholesale Warehousing	62452	11/8/2021	No	Unlikely	N	True	N	N
Open Space	26175	11/8/2021	No	Unlikely	N	False	Y	N
Wholesale Warehousing	13463	11/8/2021	No	Unlikely	N	False	N	N
Shopping Center	19832	11/8/2021	No	Unlikely	N	False	N	N
Residential	50136	11/8/2021	Stagnant	Unlikely	N	False	Y	N
Residential	50172	11/8/2021	No	Unlikely	N	False	Y	N
Wholesale Warehousing	13486	11/8/2021	No	Unlikely	N	False	N	N
Wholesale Warehousing	62442	11/8/2021	No	Unlikely	N	False	N	N
Residential	50186	11/8/2021	No	Unlikely	N	False	Y	N
Wholesale Warehousing	62456	11/8/2021	No	Unlikely	N	False	N	N
Institutional (schools/churches)	26173	11/8/2021	No	Unlikely	N	False	Y	N
Shopping Center	19845	11/8/2021	Yes	Unlikely	N	False	N	N
Shopping Center	19845	11/8/2021	Yes	Unlikely	N	False	N	N
Other	26177	11/8/2021	No	Unlikely	N	False	N	N
Wholesale Warehousing	13449	11/8/2021	No	Unlikely	N	False	N	N
Shopping Center	50865	11/17/2021	Yes	Unlikely	N	False	N	N
Residential	9468	11/17/2021	No	Unlikely	N	False	N	N
Vehicle Sale/Repair/Miscellaneous	10459	11/17/2021	No	Unlikely	N	False	N	N
Residential	9482	11/17/2021	Stagnant	Unlikely	N	False	N	N
Institutional (schools/churches)	50867	11/17/2021	No	Unlikely	N	False	N	N

Dry Weather Screening Summary FY22

Landuse	Outfall Id	Last Inspection Date	Flow Present	Illicit Discharge	High Risk	Maintenance Required	Within PWC Service Area	VPDES Permitted
Institutional (schools/churches)	50869	11/17/2021	No	Unlikely	N	False	N	N
Institutional (schools/churches)	50871	11/17/2021	No	Unlikely	N	False	N	N
Residential	9465	11/17/2021	No	Unlikely	N	False	N	N
Hotel w/ Restaurant	20151	11/18/2021	Yes	Unlikely	N	False	N	N
Open Space	35223	11/18/2021	No	Unlikely	N	False	N	N
Other	20153	11/18/2021	No	Unlikely	N	True	N	N
Restaurant	50217	11/18/2021	No	Unlikely	Y	True	N	N
Vehicle Sale/Repair/Miscellaneous	36558	11/18/2021	No	Unlikely	N	False	N	N
Regional Mall	20148	11/18/2021	Yes	Unlikely	N	False	N	N
Vehicle Sale/Repair/Miscellaneous	21195	11/18/2021	Stagnant	Unlikely	N	False	N	N
Residential	35237	11/18/2021	Stagnant	Unlikely	N	False	N	N
Other	35231	11/18/2021	No	Unlikely	N	False	N	N
Open Space	64446	11/18/2021	No	Unlikely	N	False	N	N
Other	58079	11/18/2021	No	Unlikely	N	False	Y	N
Open Space	58076	11/18/2021	No	Unlikely	N	False	Y	N
Shopping Center	10480	11/18/2021	No	Unlikely	N	False	Y	N
Other	35273	11/18/2021	No	Unlikely	N	True	N	N
Other	35271	11/18/2021	Yes	Unlikely	N	False	N	N
Vehicle Sale/Repair/Miscellaneous	21193	11/18/2021	Stagnant	Unlikely	Y	False	N	N
Residential	35239	11/18/2021	No	Unlikely	N	False	N	N
Residential	142	11/19/2021	No	Unlikely	N	False	N	N
Residential	130	11/19/2021	No	Unlikely	N	True	Y	N
Residential	132	11/19/2021	No	Unlikely	N	False	Y	N
Residential	132	11/19/2021	No	Unlikely	N	False	Y	N
Residential	148	11/19/2021	Yes	Unlikely	N	False	N	N
Other	58163	11/19/2021	No	Unlikely	N	False	N	N
Residential	29872	11/19/2021	No	Unlikely	N	False	N	N
Residential	136	11/19/2021	No	Unlikely	N	False	Y	N
Other	35933	11/19/2021	No	Unlikely	N	False	N	N
Other	146	11/19/2021	Yes	Unlikely	N	False	N	N
Residential	134	11/19/2021	No	Unlikely	N	False	Y	N
Residential	58161	11/19/2021	No	Unlikely	N	False	N	N
Residential	144	11/19/2021	No	Unlikely	N	False	N	N
Residential	29874	11/19/2021	Yes	Unlikely	N	False	N	N
Residential	140	11/19/2021	No	Unlikely	N	False	N	N
Residential	138	11/19/2021	No	Unlikely	N	False	Y	N
Restaurant	983	12/15/2021	Stagnant	Unlikely	N	False	N	N
Other	980	12/16/2021	No	Unlikely	N	False	N	N
Restaurant	11210	12/16/2021	No	Unlikely	N	False	N	N
Restaurant	7337	12/16/2021	No	Unlikely	N	False	N	N
Residential	50146	12/16/2021	Yes	Unlikely	N	False	Y	N

Landuse	Outfall Id	Last Inspection Date	Flow Present	Illicit Discharge	High Risk	Maintenance Required	Within PWC Service Area	VPDES Permitted
Regional Mall	6349	12/16/2021	No	Unlikely	N	False	N	N
Other	7335	12/16/2021	No	Unlikely	N	False	N	N
Open Space	12415	12/16/2021	Stagnant	Unlikely	N	False	N	N
Institutional (schools/churches)	10686	12/16/2021	No	Unlikely	N	False	N	N
Hotel w/ Restaurant	38771	12/16/2021	No	Unlikely	N	False	N	N
Hotel w/ Restaurant	29563	12/16/2021	No	Unlikely	N	False	N	N
Residential	13302	12/16/2021	Stagnant	Unlikely	N	False	N	N
Institutional (schools/churches)	10681	12/16/2021	No	Unlikely	N	False	N	N
Restaurant	11218	12/16/2021	No	Unlikely	N	False	N	N
Other	28019	12/16/2021	No	Unlikely	N	True	N	N
Other	13304	12/16/2021	Yes	Unlikely	N	False	N	N
Shopping Center	976	12/16/2021	No	Unlikely	N	False	N	N
Other	50151	12/17/2021	Yes	Unlikely	N	False	N	N
Other	50149	12/17/2021	Yes	Unlikely	N	False	N	N
Planned Industrial Park	60916	12/17/2021	No	Unlikely	N	True	N	N
Planned Industrial Park	30954	12/17/2021	No	Unlikely	N	True	N	N
Planned Industrial Park	1112	12/17/2021	No	Unlikely	N	False	N	N
Planned Industrial Park	46135	12/17/2021	No	Unlikely	N	False	N	N
Planned Industrial Park	1116	12/17/2021	No	Unlikely	N	False	N	N
Planned Industrial Park	34177	12/17/2021	No	Unlikely	N	False	N	N
Planned Industrial Park	47390	12/17/2021	No	Unlikely	N	False	N	N
Planned Industrial Park	46140	12/17/2021	No	Unlikely	N	False	N	N
Planned Industrial Park	62139	12/17/2021	No	Unlikely	N	True	N	N
Planned Industrial Park	34179	12/17/2021	No	Unlikely	N	True	N	N
Vehicle Sale/Repair/Miscellaneous	70864	12/17/2021	No	Unlikely	Y	False	N	N
Residential	863	12/17/2021	No	Unlikely	N	False	N	N
Planned Industrial Park	30952	12/17/2021	No	Unlikely	N	True	N	N
Planned Industrial Park	34983	12/17/2021	No	Unlikely	N	False	N	N
Residential	315	12/17/2021	No	Unlikely	N	False	Y	N
Planned Industrial Park	30962	12/17/2021	No	Unlikely	N	False	N	N
Planned Industrial Park	27184	12/17/2021	No	Unlikely	N	False	N	N
Planned Industrial Park	60816	12/17/2021	No	Unlikely	N	True	N	N
Planned Industrial Park	34170	12/17/2021	No	Unlikely	N	False	N	N
Wholesale Warehousing	68198	12/17/2021	No	Unlikely	N	False	N	N
Planned Industrial Park	34173	12/17/2021	No	Unlikely	N	False	N	N
Vehicle Sale/Repair/Miscellaneous	70873	12/17/2021	No	Unlikely	N	False	N	N
Residential	321	12/17/2021	No	Unlikely	N	False	Y	N
Other	37641	12/20/2021	No	Unlikely	N	True	N	N
Planned Industrial Park	60815	12/20/2021	No	Unlikely	N	True	N	N
Planned Industrial Park	60820	12/20/2021	No	Unlikely	N	False	N	N
Other	60832	12/20/2021	No	Unlikely	N	False	N	N

Landuse	Outfall Id	Last Inspection Date	Flow Present	Illicit Discharge	High Risk	Maintenance Required	Within PWC Service Area	VPDES Permitted
Other	37651	12/20/2021	No	Unlikely	N	False	N	N
Planned Industrial Park	34993	12/20/2021	No	Unlikely	N	False	N	N
Planned Industrial Park	52442	12/20/2021	No	Unlikely	N	False	N	N
Planned Industrial Park	60843	12/20/2021	No	Unlikely	N	False	N	N
Open Space	37653	12/20/2021	No	Unlikely	N	False	N	N
Open Space	57703	12/20/2021	No	Unlikely	N	False	N	N
Residential	511	12/20/2021	No	Unlikely	N	False	N	N
Planned Industrial Park	47385	12/20/2021	No	Unlikely	N	False	N	N
Planned Industrial Park	62141	12/20/2021	No	Unlikely	N	False	N	N
Planned Industrial Park	52491	12/20/2021	No	Unlikely	N	False	N	N
Planned Industrial Park	60819	12/20/2021	No	Unlikely	N	False	N	N
Residential	42146	12/20/2021	No	Unlikely	N	False	Y	N
Other	62143	12/20/2021	No	Unlikely	N	False	N	N
Residential	37656	12/20/2021	No	Unlikely	N	False	N	N
Residential	13512	12/21/2021	No	Unlikely	N	False	N	N
Other	24275	12/21/2021	No	Unlikely	N	False	N	N
Other	13497	12/21/2021	No	Unlikely	N	False	N	N
Residential	5967	12/21/2021	No	Unlikely	N	False	N	N
Shopping Center	63840	12/21/2021	No	Unlikely	Y	False	N	N
Institutional (schools/churches)	16762	12/21/2021	No	Unlikely	N	True	N	N
Residential	60328	12/21/2021	No	Unlikely	N	False	Y	N
Residential	5974	12/21/2021	No	Unlikely	N	False	Y	N
Residential	26235	12/21/2021	No	Unlikely	N	False	Y	N
Residential	6910	12/21/2021	No	Unlikely	N	True	Y	N
Residential	6906	12/21/2021	No	Unlikely	N	False	Y	N
Institutional (schools/churches)	68043	12/21/2021	No	Unlikely	N	False	N	N
Residential	34779	12/21/2021	No	Unlikely	N	False	Y	N
Residential	5956	12/21/2021	No	Unlikely	N	True	N	N
Residential	13507	12/21/2021	No	Unlikely	N	False	N	N
Residential	18691	12/22/2021	No	Unlikely	N	False	N	N
Residential	6292	12/22/2021	Stagnant	Unlikely	N	False	N	N
Residential	12982	12/22/2021	No	Unlikely	N	False	N	N
Residential	58085	12/22/2021	No	Unlikely	N	False	N	N
Residential	21626	12/22/2021	No	Unlikely	N	True	Y	N
Other	31409	12/22/2021	Yes	Unlikely	N	False	N	N
Residential	19013	12/22/2021	No	Unlikely	N	False	N	N
Residential	12985	12/22/2021	No	Unlikely	N	True	N	N
Other	14186	12/22/2021	No	Unlikely	N	False	Y	N
Residential	31414	12/22/2021	No	Unlikely	N	False	N	N
Residential	21622	12/22/2021	No	Unlikely	N	False	N	N
Other	31436	12/22/2021	Yes	Unlikely	N	False	N	N

Landuse	Outfall Id	Last Inspection Date	Flow Present	Illicit Discharge	High Risk	Maintenance Required	Within PWC Service Area	VPDES Permitted
Other	29019	12/22/2021	No	Unlikely	N	False	N	N
Residential	18688	12/22/2021	No	Unlikely	N	False	Y	N
Residential	31418	12/22/2021	No	Unlikely	N	False	N	N
Residential	2621	12/29/2021	No	Unlikely	N	True	N	N
Residential	5424	12/29/2021	No	Unlikely	N	False	N	N
Residential	2658	12/29/2021	No	Unlikely	N	False	N	N
Institutional (schools/churches)	8412	12/29/2021	No	Unlikely	N	False	N	N
Residential	9843	12/29/2021	No	Unlikely	N	False	Y	N
Other	8415	12/29/2021	No	Unlikely	N	False	N	N
Residential	9885	12/29/2021	No	Unlikely	N	False	Y	N
Residential	15305	12/29/2021	No	Unlikely	N	True	N	N
Residential	2286	12/29/2021	No	Unlikely	N	False	Y	N
Residential	9874	12/29/2021	No	Unlikely	N	False	N	N
Residential	9871	12/29/2021	Stagnant	Unlikely	N	True	Y	N
Residential	2645	12/29/2021	No	Unlikely	N	False	N	N
Residential	2661	12/29/2021	No	Unlikely	N	False	N	N
Other	9887	12/29/2021	Yes	Unlikely	N	False	N	N
Residential	9882	12/29/2021	Stagnant	Unlikely	N	False	Y	N
Residential	6913	2/14/2022	No	Unlikely	N	False	Y	N
Residential	5854	2/14/2022	No	Unlikely	N	False	N	N
Residential	5997	2/14/2022	No	Unlikely	N	True	Y	N
Other	19887	2/14/2022	Yes	Unlikely	N	False	N	N
Residential	5831	2/14/2022	No	Unlikely	N	False	N	N
Residential	5848	2/14/2022	No	Unlikely	N	False	N	N
Residential	22618	2/14/2022	No	Unlikely	N	False	N	N
Other	5859	2/14/2022	No	Unlikely	N	False	Y	N
Residential	6922	2/14/2022	No	Unlikely	N	False	Y	N
Residential	5685	2/14/2022	No	Unlikely	N	False	Y	N
Residential	5688	2/14/2022	No	Unlikely	N	False	Y	N
Residential	5868	2/14/2022	No	Unlikely	N	False	Y	N
Residential	5249	2/15/2022	No	Unlikely	N	False	N	N
Residential	5216	2/15/2022	No	Unlikely	N	False	Y	N
Residential	5734	2/15/2022	No	Unlikely	N	False	Y	N
Residential	5311	2/15/2022	No	Unlikely	N	False	Y	N
Residential	5067	2/15/2022	No	Unlikely	N	False	N	N
Residential	5252	2/15/2022	Yes	Unlikely	N	False	N	N
Residential	5071	2/15/2022	No	Unlikely	N	False	N	N
Residential	5732	2/15/2022	No	Unlikely	N	False	N	N
Residential	5587	2/15/2022	No	Unlikely	N	False	N	N
Residential	5584	2/15/2022	Stagnant	Unlikely	N	False	N	N
Residential	26228	2/17/2022	No	Unlikely	N	False	N	N

Dry Weather Screening Summary FY22

Landuse	Outfall Id	Last Inspection Date	Flow Present	Illicit Discharge	High Risk	Maintenance Required	Within PWC Service Area	VPDES Permitted
Other	18536	2/17/2022	Yes	Unlikely	N	False	N	N
Residential	18532	2/17/2022	No	Unlikely	N	False	Y	N
Residential	26274	2/17/2022	No	Unlikely	N	False	Y	N
Residential	26280	2/17/2022	No	Unlikely	N	True	N	N
Open Space	27011	2/17/2022	Yes	Unlikely	N	False	N	N
Residential	26226	2/17/2022	No	Unlikely	N	False	Y	N
Residential	26282	2/17/2022	No	Unlikely	N	False	Y	N
Residential	26276	2/17/2022	No	Unlikely	N	False	Y	N
Residential	26272	2/17/2022	No	Unlikely	N	True	Y	N
Open Space	27009	2/17/2022	Yes	Unlikely	N	False	Y	N
Residential	18534	2/17/2022	Stagnant	Unlikely	N	False	Y	N
Residential	26278	2/17/2022	No	Unlikely	N	False	N	N
Planned Industrial Park	57923	2/18/2022	Yes	Unlikely	Y	False	N	N
Gas Station	34191	2/18/2022	No	Unlikely	Y	False	N	N
Planned Industrial Park	47797	2/18/2022	No	Unlikely	Y	False	N	N
Other	47761	2/18/2022	Yes	Unlikely	Y	False	N	N
Planned Industrial Park	57969	2/18/2022	No	Unlikely	N	False	N	N
Gas Station	34203	2/18/2022	Yes	Unlikely	Y	True	N	N
Planned Industrial Park	57948	2/18/2022	Yes	Obvious	Y	False	N	N
Planned Industrial Park	57927	2/18/2022	Stagnant	Unlikely	Y	False	N	N
Planned Industrial Park	57967	2/18/2022	Yes	Unlikely	Y	False	N	N
Vehicle Sale/Repair/Miscellaneous	47754	2/18/2022	Stagnant	Unlikely	N	False	N	N
Planned Industrial Park	57930	2/18/2022	No	Unlikely	Y	False	N	N
Planned Industrial Park	34289	2/21/2022	Stagnant	Unlikely	Y	False	N	N
Planned Industrial Park	11347	2/21/2022	No	Unlikely	Y	False	N	N
Planned Industrial Park	64155	2/21/2022	No	Unlikely	Y	False	N	N
Planned Industrial Park	46039	2/21/2022	No	Unlikely	N	True	N	N
Vehicle Sale/Repair/Miscellaneous	5190	2/21/2022	No	Unlikely	Y	False	N	N
Planned Industrial Park	64437	2/21/2022	No	Unlikely	Y	True	N	N
Open Space	34299	2/21/2022	Yes	Unlikely	Y	True	N	N
Planned Industrial Park	46043	2/21/2022	Stagnant	Unlikely	Y	True	N	N
Vehicle Sale/Repair/Miscellaneous	34292	2/21/2022	No	Unlikely	Y	True	N	N
Vehicle Sale/Repair/Miscellaneous	34295	2/21/2022	No	Unlikely	Y	True	N	N
Planned Industrial Park	64433	2/21/2022	No	Unlikely	Y	False	N	N
Planned Industrial Park	34301	2/21/2022	No	Unlikely	N	False	N	N
Planned Industrial Park	64441	2/21/2022	No	Unlikely	Y	False	N	N
Planned Industrial Park	60394	2/21/2022	No	Unlikely	N	False	N	N
Residential	3182	2/23/2022	No	Unlikely	N	False	N	N
Other	3183	2/23/2022	Yes	Unlikely	N	False	N	N
Residential	361	2/23/2022	No	Unlikely	N	False	N	N
Residential	20333	2/24/2022	No	Unlikely	N	False	N	N

Landuse	Outfall Id	Last Inspection Date	Flow Present	Illicit Discharge	High Risk	Maintenance Required	Within PWC Service Area	VPDES Permitted
Residential	3080	2/24/2022	No	Unlikely	N	True	N	N
Residential	391	2/24/2022	No	Unlikely	N	False	N	N
Residential	17603	2/24/2022	No	Unlikely	N	True	N	N
Residential	61624	2/24/2022	No	Unlikely	N	False	Y	N
Residential	17637	2/24/2022	No	Unlikely	N	True	N	N
Residential	3061	2/24/2022	No	Unlikely	N	True	Y	N
Residential	20331	2/24/2022	No	Unlikely	N	False	Y	N
Open Space	3185	2/24/2022	No	Unlikely	N	False	N	N
Residential	365	2/24/2022	No	Unlikely	N	True	N	N
Residential	17633	2/24/2022	Stagnant	Unlikely	N	False	N	N
Residential	61611	2/24/2022	No	Unlikely	N	False	Y	N
Other	61627	2/24/2022	No	Unlikely	N	False	Y	N
Residential	17626	2/24/2022	No	Unlikely	N	True	Y	N
Shopping Center	8134	2/28/2022	No	Unlikely	N	False	N	N
Institutional (schools/churches)	26470	2/28/2022	No	Unlikely	N	False	N	N
Residential	65378	2/28/2022	No	Unlikely	N	False	N	N
Institutional (schools/churches)	26473	2/28/2022	No	Unlikely	N	False	N	N
Residential	65376	2/28/2022	No	Unlikely	N	False	N	N
Shopping Center	8137	2/28/2022	No	Unlikely	N	True	N	N
Restaurant	6508	2/28/2022	No	Unlikely	Y	True	N	N
Institutional (schools/churches)	26476	2/28/2022	No	Unlikely	N	True	N	N
Institutional (schools/churches)	67129	2/28/2022	No	Unlikely	N	True	N	N
Institutional (schools/churches)	67144	2/28/2022	No	Unlikely	N	True	N	N
Shopping Center	8129	2/28/2022	No	Unlikely	Y	False	N	N
Shopping Center	8131	2/28/2022	No	Unlikely	Y	False	N	N
Other	26478	2/28/2022	No	Unlikely	N	True	N	N
Vehicle Sale/Repair/Miscellaneous	35126	2/28/2022	No	Unlikely	Y	False	N	N
Other	7348	2/28/2022	No	Unlikely	N	False	N	N
Residential	7355	2/28/2022	No	Unlikely	N	False	Y	N
Residential	7345	2/28/2022	Yes	Unlikely	N	False	N	N
Residential	16405	3/1/2022	No	Unlikely	N	True	N	N
Residential	6480	3/1/2022	No	Unlikely	N	False	Y	N
Residential	26902	3/1/2022	No	Unlikely	N	False	Y	N
Residential	16397	3/1/2022	No	Unlikely	N	False	N	N
Residential	27872	3/1/2022	No	Unlikely	N	False	Y	N
Residential	27898	3/1/2022	Stagnant	Unlikely	N	False	N	N
Residential	26913	3/1/2022	No	Unlikely	N	False	N	N
Residential	26905	3/1/2022	Stagnant	Unlikely	N	False	Y	N
Residential	26899	3/1/2022	No	Unlikely	N	False	Y	N
Other	16400	3/1/2022	No	Unlikely	N	False	N	N
Residential	16395	3/1/2022	No	Unlikely	N	False	Y	N

Landuse	Outfall Id	Last Inspection Date	Flow Present	Illicit Discharge	High Risk	Maintenance Required	Within PWC Service Area	VPDES Permitted
Residential	26916	3/1/2022	No	Unlikely	N	False	Y	N
Residential	27883	3/1/2022	Stagnant	Unlikely	N	False	Y	N
Residential	2737	3/8/2022	Yes	Unlikely	N	False	N	N
Residential	2731	3/8/2022	Yes	Unlikely	N	True	N	N
Institutional (schools/churches)	57155	3/8/2022	No	Unlikely	N	False	N	N
Residential	2735	3/8/2022	Yes	Unlikely	N	False	N	N
Institutional (schools/churches)	57148	3/8/2022	No	Unlikely	N	True	N	N
Residential	2727	3/8/2022	No	Unlikely	N	False	Y	N
Institutional (schools/churches)	57143	3/8/2022	No	Unlikely	N	True	N	N
Residential	2733	3/8/2022	No	Unlikely	N	False	Y	N
Residential	2729	3/8/2022	No	Unlikely	N	False	Y	N
Planned Industrial Park	55610	3/11/2022	No	Unlikely	N	False	N	N
Open Space	58684	3/11/2022	No	Unlikely	N	False	N	N
Planned Industrial Park	55617	3/11/2022	No	Unlikely	N	False	N	N
Planned Industrial Park	60241	3/11/2022	No	Unlikely	Y	False	N	N
Institutional (schools/churches)	58692	3/11/2022	No	Unlikely	N	False	N	N
Open Space	58686	3/11/2022	No	Unlikely	N	False	N	N
Shopping Center	52738	3/11/2022	Stagnant	Unlikely	N	False	N	N
Other	58690	3/11/2022	Yes	Unlikely	N	False	N	N
Residential	52736	3/11/2022	No	Unlikely	N	True	N	N
Other	52734	3/11/2022	No	Unlikely	N	False	N	N
Other	55619	3/11/2022	Yes	Unlikely	Y	False	N	N
Other	58688	3/11/2022	Yes	Unlikely	N	False	N	N
Institutional (schools/churches)	58696	3/11/2022	No	Unlikely	N	False	N	N
Planned Industrial Park	60245	3/11/2022	Stagnant	Unlikely	Y	False	N	N
Institutional (schools/churches)	58694	3/11/2022	No	Unlikely	N	False	N	N
Residential	5638-003	3/22/2022	No	Unlikely	N	False	N	N
Residential	42261	3/22/2022	No	Unlikely	N	False	Y	N
Residential	42274	3/22/2022	No	Unlikely	N	False	Y	N
Residential	42270	3/22/2022	No	Unlikely	N	False	Y	N
Residential	56964	3/22/2022	No	Unlikely	N	False	Y	N
Residential	56943	3/22/2022	No	Unlikely	N	False	Y	N
Residential	5638-001	3/22/2022	No	Unlikely	N	False	N	N
Residential	56948	3/22/2022	No	Unlikely	N	False	Y	N
Institutional (schools/churches)	42253	3/22/2022	No	Unlikely	N	False	N	N
Other	41547	3/22/2022	Yes	Unlikely	N	False	Y	N
Residential	42278	3/22/2022	No	Unlikely	N	False	N	N
Residential	56977	3/22/2022	No	Unlikely	N	False	Y	N
Residential	56941	3/22/2022	No	Unlikely	N	False	Y	N
Residential	5638-002	3/22/2022	No	Unlikely	N	False	N	N
Residential	56952	3/22/2022	No	Unlikely	N	False	Y	N

Dry Weather Screening Summary FY22

Landuse	Outfall Id	Last Inspection Date	Flow Present	Illicit Discharge	High Risk	Maintenance Required	Within PWC Service Area	VPDES Permitted
Other	54126	3/28/2022	No	Unlikely	N	False	Y	N
Open Space	54118	3/28/2022	Stagnant	Unlikely	N	False	Y	N
Residential	54135	3/28/2022	Yes	Unlikely	N	False	Y	N
Other	23289	3/28/2022	No	Unlikely	N	False	Y	N
Other	54120	3/28/2022	Yes	Unlikely	N	False	Y	N
Other	54131	3/28/2022	Yes	Unlikely	N	False	N	N
Other	54114	3/28/2022	Stagnant	Unlikely	N	False	Y	N
Residential	54116	3/28/2022	Stagnant	Unlikely	N	False	Y	N
Other	54128	3/28/2022	No	Unlikely	N	False	Y	N
Other	54152	3/28/2022	Yes	Unlikely	N	False	N	N
Residential	54112	3/28/2022	No	Unlikely	N	True	Y	N
Other	23276	3/28/2022	Yes	Unlikely	N	False	N	N
Other	54122	3/28/2022	No	Unlikely	N	False	Y	N
Residential	54124	3/28/2022	No	Unlikely	N	False	Y	N
Residential	54158	3/28/2022	No	Unlikely	N	False	Y	N
Residential	54149	3/28/2022	No	Unlikely	N	False	Y	N
Other	23291	3/28/2022	Yes	Unlikely	N	False	N	N
Residential	54133	3/29/2022	No	Unlikely	N	False	Y	N
Residential	54143	3/29/2022	No	Unlikely	N	False	Y	N
Residential	54141	3/29/2022	No	Unlikely	N	False	Y	N
Residential	54154	3/29/2022	No	Unlikely	N	False	Y	N
Residential	54139	3/29/2022	Yes	Unlikely	N	False	Y	N
Residential	54137	3/29/2022	Yes	Unlikely	N	False	Y	N
Residential	54147	3/29/2022	No	Unlikely	N	False	Y	N
Residential	54156	3/29/2022	No	Unlikely	N	False	Y	N
Residential	54145	3/29/2022	No	Unlikely	N	False	Y	N
Residential	21356	4/15/2022	No	Unlikely	N	True	Y	N
Residential	13146	4/15/2022	No	Unlikely	N	False	Y	N
Residential	13128	4/15/2022	No	Unlikely	N	False	Y	N
Residential	21371	4/15/2022	Stagnant	Unlikely	N	False	Y	N
Residential	20226	4/15/2022	No	Unlikely	N	False	Y	N
Residential	21376	4/15/2022	No	Unlikely	N	False	Y	N
Residential	20245	4/15/2022	Yes	Unlikely	N	False	N	N
Residential	20207	4/15/2022	No	Unlikely	N	True	Y	N
Residential	13122	4/15/2022	No	Unlikely	N	True	Y	N
Other	20211	4/18/2022	No	Unlikely	N	True	Y	N
Residential	20198	4/18/2022	No	Unlikely	N	False	N	N
Other	13148	4/18/2022	Yes	Unlikely	N	False	N	N
Residential	13189	4/18/2022	No	Unlikely	N	False	Y	N
Residential	20191	4/18/2022	No	Unlikely	N	False	N	N
Residential	20218	4/18/2022	No	Unlikely	N	False	Y	N

Landuse	Outfall Id	Last Inspection Date	Flow Present	Illicit Discharge	High Risk	Maintenance Required	Within PWC Service Area	VPDES Permitted
Residential	20234	4/18/2022	No	Unlikely	N	False	Y	N
Residential	20194	4/18/2022	No	Unlikely	N	False	N	N
Residential	20214	4/18/2022	No	Unlikely	N	True	Y	N
Shopping Center	10920	4/28/2022	Stagnant	Unlikely	N	True	N	N
Residential	26325	4/28/2022	No	Unlikely	N	True	N	N
Residential	26338	4/28/2022	No	Unlikely	N	True	Y	N
Residential	1711	4/28/2022	Yes	Unlikely	N	False	N	N
Open Space	1690	4/28/2022	Yes	Unlikely	N	False	N	N
Vehicle Sale/Repair/Miscellaneous	43184	4/28/2022	No	Unlikely	Y	False	N	N
Residential	26336	4/28/2022	No	Unlikely	N	True	Y	N
Residential	26333	4/28/2022	No	Unlikely	N	True	Y	N
Shopping Center	62239	4/28/2022	Stagnant	Unlikely	Y	True	N	N
Other	61992	4/28/2022	Yes	Unlikely	N	False	N	N
Shopping Center	62224	4/28/2022	Stagnant	Unlikely	N	True	N	N
Residential	1685	4/29/2022	No	Unlikely	N	False	N	N
Residential	1674	4/29/2022	No	Unlikely	N	False	Y	N
Residential	1692	4/29/2022	No	Unlikely	N	False	N	N
Vehicle Sale/Repair/Miscellaneous	48231	4/29/2022	No	Unlikely	N	False	N	N
Vehicle Sale/Repair/Miscellaneous	58152	4/29/2022	No	Unlikely	Y	False	Y	N
Residential	1755	4/29/2022	Yes	Unlikely	N	False	N	N
Residential	1715	4/29/2022	No	Unlikely	N	True	N	N
Other	58154	4/29/2022	No	Unlikely	N	False	Y	N
Residential	1718	4/29/2022	No	Unlikely	N	False	Y	N
Other	17566	5/3/2022	No	Unlikely	N	False	Y	N
Other	17550	5/3/2022	No	Unlikely	N	False	Y	N
Residential	30424	5/3/2022	No	Unlikely	N	False	Y	N
Residential	17556	5/3/2022	No	Unlikely	N	False	Y	N
Residential	17279	5/3/2022	No	Unlikely	N	True	N	N
Residential	17961	5/3/2022	No	Unlikely	N	False	Y	N
Residential	30432	5/3/2022	No	Unlikely	N	False	Y	N
Other	17892	5/3/2022	No	Unlikely	N	False	N	N
Residential	17291	5/3/2022	No	Unlikely	N	False	Y	N
Other	17552	5/3/2022	No	Unlikely	N	False	N	N
Other	30434	5/3/2022	Yes	Unlikely	N	False	Y	N
Residential	30470	5/3/2022	No	Unlikely	N	False	Y	N
Residential	17925	5/3/2022	No	Unlikely	N	False	Y	N
Residential	17963	5/3/2022	No	Unlikely	N	False	Y	N
Residential	30419	5/3/2022	No	Unlikely	N	False	Y	N
Other	17563	5/3/2022	Yes	Unlikely	N	False	Y	N
Residential	3981	5/11/2022	Yes	Unlikely	N	False	Y	N
Residential	3811	5/11/2022	Yes	Unlikely	N	False	N	N

Landuse	Outfall Id	Last Inspection Date	Flow Present	Illicit Discharge	High Risk	Maintenance Required	Within PWC Service Area	VPDES Permitted
Residential	3831	5/12/2022	No	Unlikely	N	True	N	N
Residential	15083	5/12/2022	No	Unlikely	N	False	N	N
Other	3814	5/12/2022	No	Unlikely	N	False	N	N
Residential	3826	5/12/2022	No	Unlikely	N	False	N	N
Residential	3921	5/12/2022	Stagnant	Unlikely	N	False	N	N
Residential	25286	5/12/2022	No	Unlikely	N	False	Y	N
Residential	3823	5/12/2022	No	Unlikely	N	False	N	N
Other	17732	5/12/2022	Stagnant	Unlikely	N	False	Y	N
Residential	3919	5/12/2022	No	Unlikely	N	False	N	N
Residential	3833	5/12/2022	No	Unlikely	N	False	N	N
Residential	3976	5/12/2022	No	Unlikely	N	True	N	N
Residential	20177	5/12/2022	No	Unlikely	N	False	N	N
Residential	45594	5/12/2022	No	Unlikely	N	False	Y	N
Residential	3737	5/12/2022	No	Unlikely	N	False	N	N
Residential	3923	5/12/2022	No	Unlikely	N	False	N	N
Residential	3821	5/12/2022	No	Unlikely	N	True	N	N
Residential	17764	5/12/2022	Stagnant	Unlikely	N	False	Y	N
Residential	17836	5/13/2022	No	Unlikely	N	False	Y	N
Residential	17729	5/13/2022	No	Unlikely	N	False	Y	N
Residential	17834	5/13/2022	No	Unlikely	N	False	Y	N
Residential	25287	5/13/2022	No	Unlikely	N	False	Y	N
Other	45596	5/13/2022	No	Unlikely	N	False	N	N
Residential	23774	5/13/2022	No	Unlikely	N	False	Y	N
Residential	23778	5/13/2022	Stagnant	Unlikely	N	False	Y	N
Residential	9630	6/15/2022	Yes	Unlikely	N	True	N	N
Residential	46824	6/15/2022	Yes	Unlikely	N	False	Y	N
Residential	10304	6/15/2022	Stagnant	Unlikely	N	False	N	N
Residential	10294	6/16/2022	No	Unlikely	N	False	N	N
Residential	2072	6/16/2022	No	Unlikely	N	True	N	N
Other	30070	6/16/2022	Yes	Unlikely	N	False	N	N
Other	24866	6/16/2022	No	Unlikely	N	True	Y	N
Residential	2691	6/16/2022	No	Unlikely	N	False	Y	N
Residential	9625	6/16/2022	No	Unlikely	N	False	N	N
Residential	3130	6/16/2022	No	Unlikely	N	True	Y	N
Other	30068	6/16/2022	No	Unlikely	N	False	N	N
Open Space	22217	6/16/2022	No	Unlikely	N	False	N	N
Residential	10301	6/16/2022	No	Unlikely	N	False	Y	N
Residential	3140	6/16/2022	No	Unlikely	N	False	Y	N
Other	24860	6/16/2022	No	Unlikely	N	True	N	N
Residential	10297	6/16/2022	No	Unlikely	N	True	N	N
Residential	10307	6/16/2022	Yes	Unlikely	N	True	N	N

Dry Weather Screening Summary FY22

Landuse	Outfall Id	Last Inspection Date	Flow Present	Illicit Discharge	High Risk	Maintenance Required	Within PWC Service Area	VPDES Permitted
Residential	10309	6/16/2022	No	Unlikely	N	False	Y	N
Residential	2076	6/16/2022	No	Unlikely	N	False	N	N

Appendix N

Wet Weather Screening Reports

Wet Weather Monitoring Report

Third Quarter 2021 (July 1 – September 30)
Event Date: September 22 & October 25, 2021

Prepared for:

Prince William County Department of Public Works
5 County Complex Court, Suite 170
Prince William, Virginia 22192

Prepared by:
Wood Environment & Infrastructure Solutions, Inc.
4795 Meadow Wood Lane, Suite 310E
Chantilly, VA 20151
(703) 488-3700

November 23, 2021
Project No. 151280001

1.0 INTRODUCTION

Wood Environment & Infrastructure Solutions, Inc. (Wood) is pleased to provide this report of wet weather monitoring for compliance with the requirements of the Virginia Stormwater Management Program (VSMP) Municipal Separate Storm Sewer System (MS4) Permit (Number VA0088595), issued by the Virginia Department of Environmental Quality (VDEQ) to Prince William County, Virginia. This report discusses the results of the Q3 sampling events conducted on September 22, 2021 and October 25, 2021 as well as the findings from the water quality analysis results of those sampling events.

2.0 METHODS

Flow rate data were collected at the outfalls by an ISCO 6712 automated sampler coupled with an ISCO 730 bubbler flow module, installed with a Scissors Ring. Flow rate over the course of the sampling events were electronically calculated using ISCO Flowlink 5.1 software, which utilizes the Manning Equation to convert flow level and velocity to flow rate.

SITE #941; MANASSAS, VA

Site #941 is located near 11850 Livingston Road. The site receives a total of 52 acres of upstream drainage area from a land surface that is 34% impervious. County data documents that the pipe is 54 inches in diameter with a slope of 0.03437. This site is subject to backwater conditions as water levels continue to rise within the pond receiving flow from this outfall. Maintenance is recommended to ensure the continued efficacy of the monitoring program at this site.

SITE #4684; DALE CITY, VA

Site #4684 is located near the corner of Potomac Center Blvd. and Sheffield Hill Way, north of Eastbourne Drive. It drains into a BMP for the Potomac Club residential development. Upstream drainage totaled 51 acres, 21% of which is from impervious surfaces. The pipe is 54 inches in diameter with a slope of 0.002593. Storm events at this site are flashy in nature, accounted for by programming shorter sample intervals, if necessary based upon forecast conditions.

The automated samplers were deployed when a qualifying storm event (>0.3 inches precipitation) was forecast for the two monitoring sites. On September 22, Wood staff deployed the samplers at both field sites and programmed the samplers' automated, discrete sampling sequence to initiate upon flow levels exceeding current water levels in each pipe. The samplers were programmed to collect 24 discrete 800 mL samples to be collected every hour. Rain gage data were compiled for monitoring stations in the Weather Underground monitoring network. The data were easily accessible online and provided hourly precipitation totals over the monitoring period. Gages were prioritized based on the makeup of the data record (reporting interval) and proximity to monitoring locations. Sampling was unsuccessful at the Manassas site, where no samples were collected. The sampler was redeployed on October 25, and samples were successfully collected.

Following the storm event, staff retrieved the samples and prepared them for shipment to Pace Environmental for water quality analysis. To compile the complete set of discrete samples into a single flow-weighted composite, Flowlink software calculated the storm event discharge using the Manning Equation (continued on the next page):

Equation 1: Manning Equation used to calculate flow rate.

$$Q = VA = \left(\frac{1.49}{n}\right) A R^{\frac{2}{3}} \sqrt{S} \text{ [US]}$$

Q = Flow rate
A = Flow area
R = Hydraulic Radius
n = Roughness coefficient
1.49 = English units conversion factor
S = Water surface slope

Channel slopes were determined using invert elevations reported in the stormwater infrastructure geospatial data provided by Prince William County. Using flow levels reported by the ISCO samplers, the area and hydraulic radius inside the sampled outfalls could be computed for a given time interval. A Manning's *n* value of 0.013 was assumed for the concrete pipes. Discrete samples collected over the duration of the storm event were then mixed based on their representative weight within the cumulative flow curve for each storm event. This flow weighted composite sample was provided to the laboratory for analysis. The resulting analysis is considered the event mean concentration (EMC) of the individual analyte.

3.0 RESULTS

SITE #941; MANASSAS, VA

Following redeployment, sampling occurred from 19:00 on 10/25/21 – 18:00 on 10/26/21. The Global Historical Climatology Network (GHCN) daily gauge in Manassas, VA (USC00445204) recorded 2.0 inches of precipitation over that period with temperatures ranging from 52-78 degrees Fahrenheit. The previous storm event was recorded on 10/23/21, producing 0.05 inch of precipitation.

SITE #4684; DALE CITY, VA

Sampling occurred from 14:06 on 9/22/21 – 11:06 on 9/23/21. The Global Historical Climatology Network (GHCN) daily gauge in Woodbridge, VA (US1VAPW0010) recorded 1.76 inches of precipitation over this same period. The previous storm event was recorded on 9/17/21, producing 1.01 inch of precipitation.

Samples from both sites were retained under refrigeration until they were composited and shipped overnight to Pace Analytical Services in Asheville, NC. The Dale City sample was shipped 9/23/21, received on 9/27/21. The Manassas sample was shipped on 10/27/21 after they were composited, arriving on 10/29/21.

3.1 FLOW DATA

SITE #941; MANASSAS, VA

Flow rate reached 157.9 cfs and oscillated throughout the course of the storm. The storm event hydrograph compared with cumulative volume can be seen in Figure 1. Table 1 lists the proportion of each sample mixed with the flow-weighted composite.

Flow rate and volume are calculated by measuring changes in water level over time. Backwater effects at the pond have rendered the current monitoring setup ineffective. This explains the inflated values listed for cumulative volume and flow rate.

Figure 1: Flow data over time for the storm event at Site #941 on October 25 - 26, 2021.

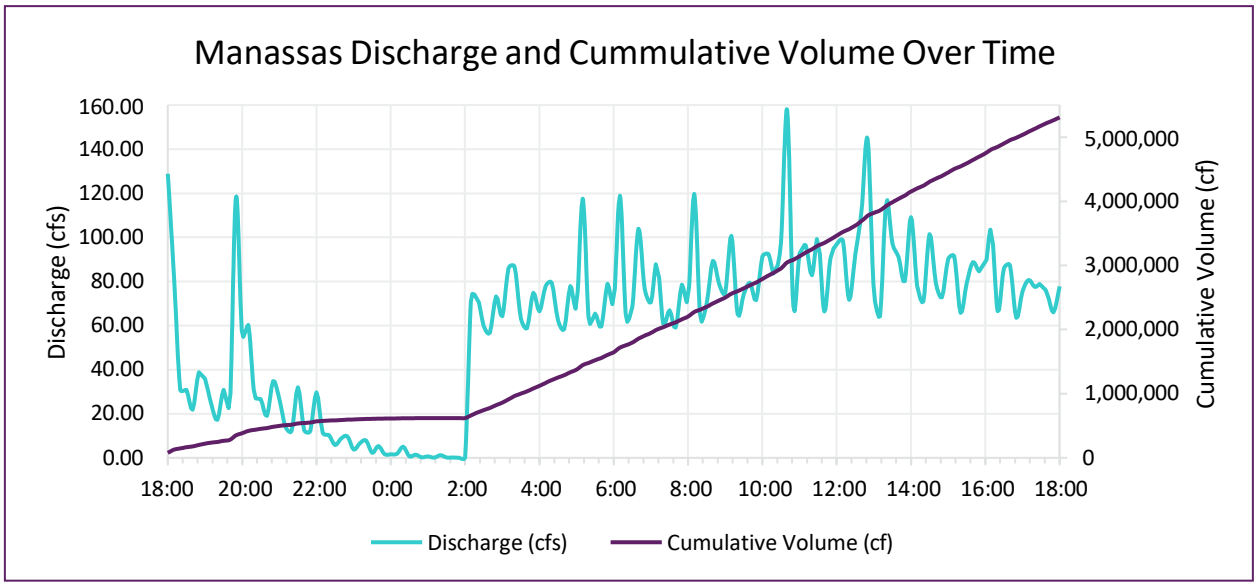


Table 1: Summary of Flow Weighted Composite – Site #941

Bottle #	Time of Sample	Volume (cf)	% of Flow	Flow Weighted Volume (mL)*
1	10/25, 19:00	143755.6	2.75	110
2	20:00	161151.7	3.08	123
3	21:00	116862.1	2.23	89
4	22:00	67329.38	1.29	51
5	23:00	29655.47	0.57	23
6	10/26, 0:00	15034.76	0.29	11
7	1:00	5757.395	0.11	4
8	2:00	834.1568	0.02	1
9	3:00	240342.1	4.60	184
10	4:00	261365.9	5.00	200
11	5:00	254369.6	4.86	195
12	6:00	271403	5.19	208
13	7:00	300280.2	5.74	230
14	8:00	254917.7	4.87	195
15	9:00	296944.3	5.68	227
16	10:00	289120.2	5.53	221
17	11:00	354899.7	6.79	271
18	12:00	319888.6	6.12	245
19	13:00	356230.4	6.81	272
20	14:00	334520.1	6.40	256
21	15:00	295555	5.65	226
22	16:00	297573.5	5.69	228
23	17:00	289193.1	5.53	221
24	18:00	273043.8	5.22	209

**4.0 L Sample*

SITE #4684; DALE CITY, VA

Flow rate reached 0.337 cfs. The storm event hydrograph compared with cumulative volume can be seen in Figure 2. Table 2 lists the proportion of each sample mixed with the flow-weighted composite. The flow-weighted composite volume was adjusted to incorporate representative volumes from the collected samples.

Figure 2: Flow data over time for the storm event at Site #4684 on September 22 - 23, 2021.

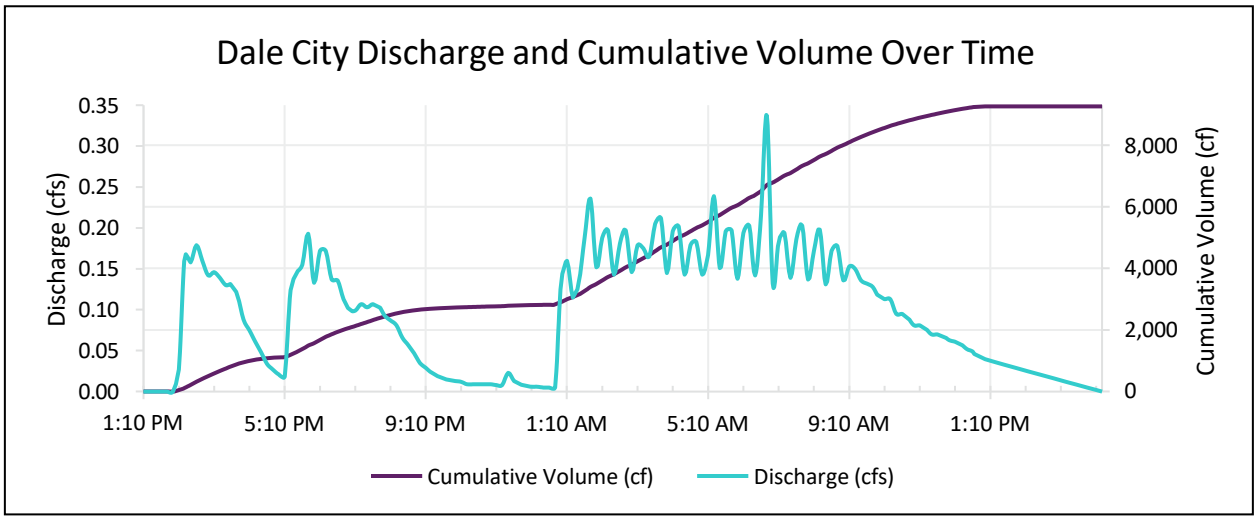


Table 2: Summary of Flow Weighted Composite – Site #4684

Bottle #	Time of Sample	Volume (cf)	% of Flow	Flow Weighted Volume (mL)*
1	9/22, 14:10	16.51	0.18	9
2	15:10	570.32	6.24	312
3	16:10	407.72	4.46	223
4	17:10	124.54	1.36	68
5	18:10	552.85	6.05	303
6	19:10	454.98	4.98	249
7	20:10	361.12	3.95	198
8	21:10	188.08	2.06	103
9	22:10	58.41	0.64	32
10	23:10	32.21	0.35	18
11	9/23, 0:10	40.41	0.44	22
12	1:10	188.98	2.07	103
13	2:10	606.52	6.64	332
14	3:10	625.95	6.85	343
15	4:10	659.22	7.21	361
16	5:10	610.11	6.68	334
17	6:10	669.05	7.32	366
18	7:10	728.40	7.97	399
19	8:10	618.64	6.77	339
20	9:10	580.73	6.35	318
21	10:10	464.75	5.09	254
22	11:10	333.23	3.65	182
23	12:10	245.53	2.69	134

**5.0 L Sample*

3.2 LABORATORY ANALYTICAL RESULTS

Samples were sent to Pace Analytical Services, Inc. lab in Asheville, NC for analysis, with Analytical Parameters tested listed in **Table 3**.

Table 3: Analytical Parameters

Analyte	Analysis Method
Copper	EPA 200.7
Lead	EPA 200.7
Nickel	EPA 200.7
Zinc	EPA 200.7
Total Suspended Solids	SM 2540D
pH	EPA 9040
Ammonia	EPA 350.1 1993 Rev 2.0
Total Kjeldahl Nitrogen	EPA 351.2
Nitrate + Nitrite Nitrogen	EPA 353.2
Total Phosphorus	EPA 365.1
Chemical Oxygen Demand	SM 5220D

Table 4: Results of Water Quality Analysis

	Analyte	Analyte Value*	Analyte Unit	Reporting Limit	Exceedance Criterion	Criterion Basis
Manassas (#941)	Copper	8.5	µg/L	5.0	13	a
	Lead	ND	µg/L	5.0	120	a
	Nickel	ND	µg/L	5.0	180	a
	Zinc	20.7	µg/L	10.0	120	a
	Total Suspended Solids	13.8	mg/L	1.0	100	b
	Nitrogen, Ammonia	ND	mg/L	0.10		-
	Nitrogen, Kjeldahl, Total	0.65	mg/L	0.50		-
	Nitrogen, NO^2 plus NO^3	1.5	mg/L	0.040		-
	Total Nitrogen	2.15	mg/L	0.52	2.2	c
	Phosphorus, Total	0.11	mg/L	0.050	2	b
	Chemical Oxygen Demand	ND	mg/L	25	120	b
	pH	7.7	Std. Units	0.1	6.0-9.0	d
Dale City (#4684)	Copper	7.0	µg/L	5.0	13	a
	Lead	ND	µg/L	5.0	120	a
	Nickel	ND	µg/L	5.0	180	a
	Zinc	30.9	µg/L	10.0	120	a
	Total Suspended Solids	32.4	mg/L	2.0	100	b
	Nitrogen, Ammonia	ND	mg/L	0.1		-
	Nitrogen, Kjeldahl, Total	0.51	mg/L	0.5		-
	Nitrogen, NO^2 plus NO^3	0.46	mg/L	0.040		-
	Total Nitrogen	0.97	mg/L	0.52	2.2	c
	Phosphorus, Total	0.10	mg/L	0.050	2	b
	Chemical Oxygen Demand	ND	mg/L	25.0	120	b
	pH	7.2	Std. Units	0.10	6.0-9.0	d

[a]State Water Quality Control Board Acute Standards for Surface Water Quality. Value is based on an assumed hardness of 100mg/L.
[b]Based on benchmark criteria for the VPDES Industrial Stormwater General Permit.
[c]The sum of Nitrogen as Ammonia, NO^2, NO^3, and Total Kjeldahl Nitrogen.
[d]Based on numeric effluent limitations noted in the VPDES Permit for Discharge of Stormwater Associated with Industrial Activity.
*Values highlighted in red were found to be in exceedance of their respective criterion.

4.0 SUMMARY

As indicated in **Table 4,** no exceedances occurred at Site #941or Site #4684. Exceedance tracking for parameters of concern are illustrated in **Figure 3** below.

Figure 3: Exceedance tracking for the Wet Weather Monitoring Program.

		2016		2017				2018				2019				2020				2021		
		Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
Manassas (#941)	Copper	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x		
	Lead																					
	Nickel																					
	Zinc	x		x	x	x	x	x	x							x	x					
	Total Suspended Solids						x	x								x	x					
	Total Nitrogen					x	x	x				x										
	Phosphorus, Total																					
	Chemical Oxygen Demand		x				x	x								x						
	pH						x												x			

		2016		2017				2018				2019				2020				2021		
		Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2*	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
Dale City (#4684)	Copper	x		x	x	x	x	x	--		x	x				x	x	x	x			
	Lead								--													
	Nickel								--													
	Zinc			x		x	x	x	--							x	x					
	Total Suspended Solids						x		--							x	x					
	Total Nitrogen	x	x	x	x		x	x	--			x										
	Phosphorus, Total								--													
	Chemical Oxygen Demand						x	x	--							x						
	pH		x		x		x		--										x			

* No sample collected at #4684 during Q2 2018.

APPENDIX A

SITE CONDITIONS

Manassas (#941)

Site #941 is located within the Bull Run watershed. It receives drainage from an industrial use area and parking lots with frequent truck traffic. Water levels are persistently found to be above 6 – 10 inches in the monitoring outfall.

Dale City (#4684)

Site #4684 receives flow from Neabsco Mills Road and the Stonebridge at Potomac Town Center development. It is a 54" concrete pipe that drains to a deep scour pool before draining to a large BMP that collects drainage for the Potomac Club development. Erosion around the headwall and apron of the outfall at this site continues to pose a risk during sampler deployment and retrieval.

APPENDIX B

WATER QUALITY LABORATORY RESULTS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

November 05, 2021

Benjamin Green
WOOD E&I
4795 Meadow Wood Lane
Suite 310E
Chantilly, VA 20151

RE: Project: Prince William Co Q3-2021
Pace Project No.: 92567969

Dear Benjamin Green:

Enclosed are the analytical results for sample(s) received by the laboratory on September 27, 2021. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Asheville
- Pace Analytical Services - Eden
- Pace Analytical Services - Ormond Beach

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Ryan Brumfield
ryan.brumfield@pacelabs.com
(770)734-4200
Project Manager

Enclosures

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

CERTIFICATIONS

Project: Prince William Co Q3-2021
Pace Project No.: 92567969

Pace Analytical Services Ormond Beach
8 East Tower Circle, Ormond Beach, FL 32174
Alaska DEC- CS/UST/LUST
Alabama Certification #: 41320
Colorado Certification: FL NELAC Reciprocity
Connecticut Certification #: PH-0216
Delaware Certification: FL NELAC Reciprocity
Florida Certification #: E83079
Georgia Certification #: 955
Guam Certification: FL NELAC Reciprocity
Hawaii Certification: FL NELAC Reciprocity
Illinois Certification #: 200068
Indiana Certification: FL NELAC Reciprocity
Kansas Certification #: E-10383
Kentucky Certification #: 90050
Louisiana Certification #: FL NELAC Reciprocity
Louisiana Environmental Certificate #: 05007
Maine Certification #: FL01264
Maryland Certification: #346
Michigan Certification #: 9911
Mississippi Certification: FL NELAC Reciprocity
Missouri Certification #: 236
Montana Certification #: Cert 0074
Nebraska Certification: NE-OS-28-14
New Hampshire Certification #: 2958
New Jersey Certification #: FL022
New York Certification #: 11608
North Carolina Environmental Certificate #: 667
North Carolina Certification #: 12710
North Dakota Certification #: R-216
Ohio DEP 87780
Oklahoma Certification #: D9947
Pennsylvania Certification #: 68-00547
Puerto Rico Certification #: FL01264
South Carolina Certification: #96042001
Tennessee Certification #: TN02974
Texas Certification: FL NELAC Reciprocity
US Virgin Islands Certification: FL NELAC Reciprocity
Virginia Environmental Certification #: 460165
West Virginia Certification #: 9962C
Wisconsin Certification #: 399079670
Wyoming (EPA Region 8): FL NELAC Reciprocity

Pace Analytical Services Asheville
2225 Riverside Drive, Asheville, NC 28804
Florida/NELAP Certification #: E87648
North Carolina Drinking Water Certification #: 37712
North Carolina Wastewater Certification #: 40
South Carolina Certification #: 99030001
Virginia/VELAP Certification #: 460222

Pace Analytical Services Eden
205 East Meadow Road Suite A, Eden, NC 27288
North Carolina Drinking Water Certification #: 37738
North Carolina Wastewater Certification #: 633
Virginia/VELAP Certification #: 460025

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

SAMPLE SUMMARY

Project: Prince William Co Q3-2021
Pace Project No.: 92567969

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92567969001	**DAL09232021**	Water	09/22/21 14:10	09/27/21 10:50

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

SAMPLE ANALYTE COUNT

Project: Prince William Co Q3-2021
Pace Project No.: 92567969

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92567969001	**DAL09232021**	EPA 350.1 Rev 2.0 1993	AMI	1	PASI-E
		EPA 200.7 Rev 4.4 1994	RDT	4	PASI-A
		SM 2540D-2011	ZMC	1	PASI-A
		EPA 9040C	SMK	1	PASI-A
		TKN+NO3+NO2 Calculation	EWS	1	PASI-A
		EPA 351.2	AVW	1	PASI-O
		EPA 353.2 Rev 2.0 1993	KDF1	1	PASI-A
		EPA 365.1 Rev 2.0 1993	MDW	1	PASI-A
		SM 5220D-2011	JP1	1	PASI-A

PASI-A = Pace Analytical Services - Asheville
PASI-E = Pace Analytical Services - Eden
PASI-O = Pace Analytical Services - Ormond Beach

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

ANALYTICAL RESULTS

Project: Prince William Co Q3-2021
Pace Project No.: 92567969

Sample: DAL09232021 **Lab ID: 92567969001** Collected: 09/22/21 14:10 Received: 09/27/21 10:50 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
350.1 Ammonia EDN	Analytical Method: EPA 350.1 Rev 2.0 1993 Pace Analytical Services - Eden							
Nitrogen, Ammonia	ND	mg/L	0.10	1		10/22/21 12:44	7664-41-7	H3
200.7 MET ICP	Analytical Method: EPA 200.7 Rev 4.4 1994 Preparation Method: EPA 200.7 Rev 4.4 1994 Pace Analytical Services - Asheville							
Copper	**7.0**	ug/L	5.0	1	10/22/21 11:20	10/26/21 04:33	7440-50-8	
Lead	ND	ug/L	5.0	1	10/22/21 11:20	10/26/21 04:33	7439-92-1	
Nickel	ND	ug/L	5.0	1	10/22/21 11:20	10/26/21 04:33	7440-02-0	
Zinc	**30.9**	ug/L	10.0	1	10/22/21 11:20	10/26/21 04:33	7440-66-6	
2540D TSS, Low-Level	Analytical Method: SM 2540D-2011 Pace Analytical Services - Asheville							
Total Suspended Solids	**32.4**	mg/L	2.0	1		10/22/21 16:51		H1
9040 pH	Analytical Method: EPA 9040C Pace Analytical Services - Asheville							
pH at 25 Degrees C	**7.2**	Std. Units	0.10	1		10/24/21 16:11		D6,H3
Total Nitrogen Calculation	Analytical Method: TKN+NO3+NO2 Calculation Pace Analytical Services - Asheville							
Total Nitrogen	**9.0**	mg/L	0.52	1		11/05/21 11:08		
351.2 Total Kjeldahl Nitrogen	Analytical Method: EPA 351.2 Preparation Method: EPA 351.2 Pace Analytical Services - Ormond Beach							
Nitrogen, Kjeldahl, Total	**0.51**	mg/L	0.50	1	10/26/21 19:22	11/01/21 12:31	7727-37-9	H3
353.2 Nitrogen, NO2/NO3 pres.	Analytical Method: EPA 353.2 Rev 2.0 1993 Pace Analytical Services - Asheville							
Nitrogen, NO2 plus NO3	**0.46**	mg/L	0.040	1		10/25/21 10:44		H3
365.1 Phosphorus, Total	Analytical Method: EPA 365.1 Rev 2.0 1993 Preparation Method: EPA 365.1 Rev 2.0 1993 Pace Analytical Services - Asheville							
Phosphorus	**0.10**	mg/L	0.050	1	10/21/21 20:16	10/22/21 18:48	7723-14-0	H1,H2
5220D COD	Analytical Method: SM 5220D-2011 Preparation Method: SM 5220D-2011 Pace Analytical Services - Asheville							
Chemical Oxygen Demand	ND	mg/L	25.0	1	10/22/21 03:15	10/22/21 06:08		H1,H2

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: Prince William Co Q3-2021
Pace Project No.: 92567969

QC Batch: 654667
QC Batch Method: EPA 350.1 Rev 2.0 1993
Analysis Method: EPA 350.1 Rev 2.0 1993
Analysis Description: 350.1 Ammonia, EDN
Laboratory: Pace Analytical Services - Eden

Associated Lab Samples: 92567969001

METHOD BLANK: 3432759 Matrix: Water
Associated Lab Samples: 92567969001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, Ammonia	mg/L	ND	0.10	10/22/21 12:47	

LABORATORY CONTROL SAMPLE: 3432760

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Ammonia	mg/L	5	5.1	102	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3432761 3432762

Parameter	Units	92568045004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, Ammonia	mg/L	ND	5	5	5.3	5.3	106	106	90-110	0	10	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3432763 3432764

Parameter	Units	92567964001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, Ammonia	mg/L	0.16	5	5	5.4	5.4	105	105	90-110	0	10	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: Prince William Co Q3-2021
Pace Project No.: 92567969

QC Batch: 654614
QC Batch Method: EPA 200.7 Rev 4.4 1994
Analysis Method: EPA 200.7 Rev 4.4 1994
Analysis Description: 200.7 MET
Laboratory: Pace Analytical Services - Asheville
Associated Lab Samples: 92567969001

METHOD BLANK: 3432376 Matrix: Water
Associated Lab Samples: 92567969001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Copper	ug/L	ND	5.0	10/26/21 04:27	
Lead	ug/L	ND	5.0	10/26/21 04:27	
Nickel	ug/L	ND	5.0	10/26/21 04:27	
Zinc	ug/L	ND	10.0	10/26/21 04:27	

LABORATORY CONTROL SAMPLE: 3432377

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Copper	ug/L	500	499	100	85-115	
Lead	ug/L	500	480	96	85-115	
Nickel	ug/L	500	481	96	85-115	
Zinc	ug/L	500	464	93	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3432378 3432379

Parameter	Units	92567969001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Copper	ug/L	7.0	500	500	492	488	97	96	70-130	1	20	
Lead	ug/L	ND	500	500	464	471	93	94	70-130	1	20	
Nickel	ug/L	ND	500	500	467	471	93	94	70-130	1	20	
Zinc	ug/L	30.9	500	500	490	491	92	92	70-130	0	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3432380 3432381

Parameter	Units	92567878001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Copper	ug/L	ND	500	500	512	518	102	103	70-130	1	20	
Lead	ug/L	ND	500	500	411	416	82	83	70-130	1	20	
Nickel	ug/L	421	500	500	839	838	84	83	70-130	0	20	
Zinc	ug/L	ND	500	500	445	452	89	90	70-130	2	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: Prince William Co Q3-2021
Pace Project No.: 92567969

QC Batch: 654736
QC Batch Method: SM 2540D-2011
Analysis Method: SM 2540D-2011
Analysis Description: 2540D Total Suspended Solids
Laboratory: Pace Analytical Services - Asheville
Associated Lab Samples: 92567969001

METHOD BLANK: 3433329 Matrix: Water
Associated Lab Samples: 92567969001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Suspended Solids	mg/L	ND	1.0	10/22/21 16:50	

LABORATORY CONTROL SAMPLE: 3433330

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Suspended Solids	mg/L	250	240	96	90-110	

SAMPLE DUPLICATE: 3433473

Parameter	Units	92567533001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	65.3	67.3	3	10	

SAMPLE DUPLICATE: 3433474

Parameter	Units	92567533002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	143	144	1	10	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: Prince William Co Q3-2021
Pace Project No.: 92567969

QC Batch: 654895
QC Batch Method: EPA 9040C
Analysis Method: EPA 9040C
Analysis Description: 9040 pH
Laboratory: Pace Analytical Services - Asheville

Associated Lab Samples: 92567969001

SAMPLE DUPLICATE: 3433987

Parameter	Units	92567969001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.2	7.3	2	10	D6,H3

SAMPLE DUPLICATE: 3433988

Parameter	Units	92567047001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	6.9	7.0	2	10	D6,H3

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: Prince William Co Q3-2021
Pace Project No.: 92567969

QC Batch: 772818
QC Batch Method: EPA 351.2
Analysis Method: EPA 351.2
Analysis Description: 351.2 TKN
Laboratory: Pace Analytical Services - Ormond Beach
Associated Lab Samples: 92567969001

METHOD BLANK: 4227807 Matrix: Water
Associated Lab Samples: 92567969001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, Kjeldahl, Total	mg/L	ND	0.50	11/01/21 12:04	

LABORATORY CONTROL SAMPLE: 4227808

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Kjeldahl, Total	mg/L	20	19.2	96	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 4227823 4227822

Parameter	Units	35672247007 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, Kjeldahl, Total	mg/L	2.0	20	20	82.7	81.9	403	399	90-110	1	20	E,M1

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 4228575 4228574

Parameter	Units	35669174001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, Kjeldahl, Total	mg/L	0.099J	20	20	19.4	19.5	97	97	90-110	1	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: Prince William Co Q3-2021
Pace Project No.: 92567969

QC Batch: 654918
QC Batch Method: EPA 353.2 Rev 2.0 1993
Analysis Method: EPA 353.2 Rev 2.0 1993
Analysis Description: 353.2 Nitrate + Nitrite, preserved
Laboratory: Pace Analytical Services - Asheville
Associated Lab Samples: 92567969001

METHOD BLANK: 3434019 Matrix: Water
Associated Lab Samples: 92567969001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	ND	0.040	10/25/21 10:42	

LABORATORY CONTROL SAMPLE: 3434020

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	2.5	2.5	101	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3434021 3434022

Parameter	Units	92565392004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, NO2 plus NO3	mg/L	0.11	2.5	2.5	2.4	2.4	94	94	90-110	0	10	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3434023 3434024

Parameter	Units	92566008001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, NO2 plus NO3	mg/L	72.6	2.5	2.5	72.8	71.6	5	-41	90-110	2	10	M1

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: Prince William Co Q3-2021
Pace Project No.: 92567969

QC Batch: 654484
QC Batch Method: EPA 365.1 Rev 2.0 1993
Analysis Method: EPA 365.1 Rev 2.0 1993
Analysis Description: 365.1 Phosphorus, Total
Laboratory: Pace Analytical Services - Asheville
Associated Lab Samples: 92567969001

METHOD BLANK: 3431907 Matrix: Water
Associated Lab Samples: 92567969001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Phosphorus	mg/L	ND	0.050	10/22/21 18:47	

LABORATORY CONTROL SAMPLE: 3431908

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Phosphorus	mg/L	2.5	2.6	103	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3431911 3431912

Parameter	Units	92566008001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Phosphorus	mg/L	7.8	2.5	2.5	12.1	12.1	171	173	90-110	0	10	M1

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3432180 3432181

Parameter	Units	92566300001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Phosphorus	mg/L	0.35	2.5	2.5	2.9	3.0	103	104	90-110	1	10	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: Prince William Co Q3-2021
Pace Project No.: 92567969

QC Batch: 654546
QC Batch Method: SM 5220D-2011
Analysis Method: SM 5220D-2011
Analysis Description: 5220D COD
Laboratory: Pace Analytical Services - Asheville
Associated Lab Samples: 92567969001

METHOD BLANK: 3432209 Matrix: Water
Associated Lab Samples: 92567969001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chemical Oxygen Demand	mg/L	ND	25.0	10/22/21 06:08	

LABORATORY CONTROL SAMPLE: 3432210

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chemical Oxygen Demand	mg/L	750	759	101	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3432211 3432212

Parameter	Units	92566785001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chemical Oxygen Demand	mg/L	156	100	100	263	260	107	105	90-110	1	3	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3432213 3432214

Parameter	Units	92566785002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chemical Oxygen Demand	mg/L	48.5	100	100	163	156	114	107	90-110	4	3	M1,R1

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALIFIERS

Project: Prince William Co Q3-2021
Pace Project No.: 92567969

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

Acid preservation may not be appropriate for 2 Chloroethylvinyl ether.

A separate vial preserved to a pH of 4-5 is recommended in SW846 Chapter 4 for the analysis of Acrolein and Acrylonitrile by EPA Method 8260.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Reported results are not rounded until the final step prior to reporting. Therefore, calculated parameters that are typically reported as "Total" may vary slightly from the sum of the reported component parameters.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

D6	The precision between the sample and sample duplicate exceeded laboratory control limits.
E	Analyte concentration exceeded the calibration range. The reported result is estimated.
H1	Analysis conducted outside the EPA method holding time.
H2	Extraction or preparation conducted outside EPA method holding time.
H3	Sample was received or analysis requested beyond the recognized method holding time.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
R1	RPD value was outside control limits.

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Prince William Co Q3-2021
Pace Project No.: 92567969

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92567969001	**DAL09232021**	EPA 350.1 Rev 2.0 1993	654667		
92567969001	**DAL09232021**	EPA 200.7 Rev 4.4 1994	654614	EPA 200.7 Rev 4.4 1994	654798
92567969001	**DAL09232021**	SM 2540D-2011	654736		
92567969001	**DAL09232021**	EPA 9040C	654895		
92567969001	**DAL09232021**	TKN+NO3+NO2 Calculation	657845		
92567969001	**DAL09232021**	EPA 351.2	772818	EPA 351.2	772987
92567969001	**DAL09232021**	EPA 353.2 Rev 2.0 1993	654918		
92567969001	**DAL09232021**	EPA 365.1 Rev 2.0 1993	654484	EPA 365.1 Rev 2.0 1993	654552
92567969001	**DAL09232021**	SM 5220D-2011	654546	SM 5220D-2011	654575

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. AU relevant fields musl be compleled accuralely.

Submitting a sample via this chain of custody conslilutes acknowledgment and acceptance of the Pace Terms and Conditions found at https://info.pacelabs.com/hubfs/pas-Standard-terms.pdf

Section A Required Client Information	Section B Required Project Information	Section C Invoice Information
Company: WOOd E&I • Ci-lilly	Report To: Beniamin O,..,	Attention:
Address: 4795 ...Wood Lane, Chantilly, VA 20151	Copy To:	Company Name:
Email:	Purchase Order #:	Address:
Phone: 03)4118-3795 Fax:	Project Name: PRINCE WILLIM4 CO 03 2021	Pace Quote:
Requested Due Date:	Project #:	Pace Project Manager: ryantwumr.ek -.can.
		Pace Profile #: 8125-1

Regulatory Agency
State / Location: VA

Analyses Filtered (Y/N)

Preservatives

SAMPLE ID
One Character per box.
(A-Z, 0-9 / , -)
Sample Ids must be unique

MATRIX CODE

COLLECTED: START DATE TIME / END DATE TIME

ITEM #	SAMPLE ID	MATRIX CODE	COLLECTED	Preservatives	Analyses
1	I'DAL 091,3 Io?_\		ilui11U/Zl1\4 ll	IIDINIM,-	X X X X X X

ADDITIONAL COMMENTS

RELINQUISHED BY / AFFILIATION / DATE / TIME / ACCEPTED BY / AFFILIATION / DATE / TIME / SAMPLE CONDITIONS

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER:

SIGNATURE of SAMPLER:

WO#: 92567969

111111111111

SIGNATUR SAM

DATE Signed: '\ (1.3 / 2-0 -Z._

l11i 1 Et!I[

Analytfca(!	Document Name: Samole Condition Unon RecelotlSCURl	Document Raiised. October 28, 2020 Pagelof2
	Document No.: F•CAR·CS-033-Rev.07	Issuing Authority: Pace Carolinas Quality omce

laboratory Ing samples:

Ashevllle jLI EdenO Greenwood O Huntersvllle D Ralelgh0 MechanicsvllleO Atlanta☐ KernersvlleO

Sample Cond,tion Upon Rc clp

Client Name:

Project/I

WOI:92567969

Courier:

uWed Ex OuPs OusPS _ Oollent

Pfl: RNB Due Dale: 18/84/21

0 Commercial [&face Oother:

CLIENT: 92-Amec VA

Custody Seal Present? ()ves Seals Intact?

Dale/Initials Person E aminlng Contents:

P1ckin1 MatMal: f,3fiubble Wrap ☐Bubble Bags 0N011e O Other

8fological Tissue frozen1

Thermom!Y

☐Yes 0No A

jO Ill GUI\10: 43 fl)? (Typeof 1ce: Oerue

fV "l. Correttlon factor:

Cooler Temp: _ ...._._._""•'-"-- Add/Subtract (℃) __ 0;...__ _

Tempihould be above freezing to 6"C

☐Samples out of temp uiteria. n1ples Oil Ice, c0<1llna pro,ess has btgon

Cooter Temp Correcte l'CJ:_. I .'I–

USDA Regulated Soll ((d'N/A, waler sample)

Did sampll?S originate in a quarantine ione within the United States: CA, NY, or SC (check maps)? Yel ☐No

01d samples originate from a foreign source [1n1ema1lonally. lneluding Hi1wa nd Puerto Rico)l 0Yes 0No

					Comments/Discrepancy:
Chaln of Cuslodv l'rese11t?	☑Yes	☐No	☐N/A	1.	
Sample Arrived within Hold Time?	☑Yes	☐No	☐N/A	2.	
Shon Hold Time An.i is <n hr.)?	☐Yes	☐No	☐N/A	3.	
Rush Tum Around Time Requelted?	☐Yes	☑No	☐N/A	4.	
Sufficient Volume?	☐Yes	☑No	☐N/A	S.	
Correct Containe<s Used?	☑Yes	☐No	☐N/A	6.	
•Pilce Containers Used?	☑Yes	☐No	☐N/A		
Containers Intact?	☑Yes	☐No	☐N/A	1.	
0lsso ed aria sis: Samples Field Flltered?	☐Yes	☐No	☑N/A	8.	
Sample labels Match COC?	☑Yes	☐No	☐N/A	9.	
•lndudes Date/Time/ID/Ana sis Matriic:	~1				
Heads ace In VOA Vials {>S·6mml?	☐Yes	☐No	☑N/A	10.	
Trip 81ank Present?	☐Yes	☐No	☑N/A	11.	
Tri Olank Custod Seats Present?	☐Yes	☐No	☑N/A		

COMM EHTS/SAMPLE DISCREPANCY

F!eldO ta Requirod? 0Yes 0No

Lot ID of spilt containers:

CLIENT NOTIFICATION/RESOLUTION

Person(ontacted: _____ Date/Time· _____

Project Mana1er SCURF Review: _____ Date: _____

ProJect Manager SJtF Review: _____ Date: _____

***Check mark top half of box if pH and/or dechlorination is verified and within the acceptance range for preservation samples.**

Exceptions: VOA, Coliform, TOC, Oil and Grease, DRO/8015 (water) DOC, LLHg

****Bottom half of box is to list number of bottles**

Project

WO# : 92567969

PM: RNB Due Date: 10/04/21

CLIENT: 92-Amec VA

Item#	BP4U-125 mL Plastic Unpreserved (N/A) (Cl-)	BP3U-250 mL Plastic Unpreserved (N/A)	BP2U-500 mL Plastic Unpreserved (N/A)	BP1U-1 liter Plastic Unpreserved (N/A)	BP4S-125 mL Plastic H2SO4 (pH < 2) (Cl-)	BP3N-250 mL plastic HNO3 (pH < 2)	BP4Z-125 mL Plastic ZN Acetate & NaOH (>9)	BP4C-125 mL Plastic NaOH (pH > 12) (Cl-)	WGFU-Wide-mouthed Glass jar Unpreserved	AG1U-1 liter Amber Unpreserved (N/A) (Cl-)	AG1H-1 liter Amber HCl (pH < 2)	AG3U-250 mL Amber Unpreserved (N/A) (Cl-)	AG1S-1 liter Amber H2SO4 (pH < 2)	AG3S-250 mL Amber H2SO4 (pH < 2)	AG3A(DG3A)-250 mL Amber NH4Cl (N/A)(Cl-)	DG9H-40 mL VOA HCl (N/A)	VG9T-40 mL VOA Na2S2O3 (N/A)	VG9U-40 mL VOA Unp (N/A)	DG9P-40 mL VOA H3PO4 (N/A)	VOAK (6 vials per kit)-5035 kit (N/A)	V/GK (3 vials per kit)-VPH/Gas kit (N/A)	SP5T-125 mL Sterile Plastic (N/A – lab)	SP2T-250 mL Sterile Plastic (N/A – lab)		BP3A-250 mL Plastic (NH2)2SO4 (9.3-9.7)	AG0U-100 mL Amber Unpreserved vials (N/A)	VSGU-20 mL Scintillation vials (N/A)	DG9U-40 mL Amber Unpreserved vials (N/A)
1	1			1	2	1																						
2																												
3																												
4																												
5																												
6																												
7																												
8																												
9																												
10																												
11																												
12																												

pH Adjustment Log for Preserved Samples

Sample ID	Type of Preservative	pH upon receipt	Date preservation adjusted	Time preservation adjusted	Amount of Preservative added	Lot #

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. Out of hold, incorrect preservative, out of temp, incorrect containers.

Analytical

sample Receiving Non-Conformance Form (NCF)

Date:	Evaluated by:
Client:	

Affix Workorder/Logln Label Here or List Pace Workorder Number or MTJL Log-in Number Here

1. If Chain-of-Custody {COC) is not **received:** contact client and if necessary, fill out a COC and indicate that it was filled out by lab personnel. Note issues on this NCF.

2. If COC is incomplete, check applicable issues below and add details where appropriate:

Collection date/time missing or incorrect	Analyses oranalytes: missing or clarification needed	Samples listed on *COC* do not match samples received missln additional. etc,
Sample IDs on COC do not match sam le labels	Re uired tri blanks were not received	Re uired st natures are missin

Comments/Details/Other Issues not listed **above:**

3. Sample intearitv. fssues: check annlicable issues below and add details where apprc,,priate:

	Samoles: Past holdina time		Samples: Condition needs to be brought to lab personnel's attention (details below)		Preservation: Improper
	Samoles: Not field filtered		Containers: Broken or compromised		"Temperature: not within acceptance criteria (typically 0-6C)
	Samples: Insufficient volume received		Containers: Incorrect		Temoerature: Samples arrived frozen
	Samples: Cooler damaged or comoromised		Custody Seals: Missing or compromised on samoles trio blanks or coolers		Vials received with improoer headsoace
	Samples: contain chlorlne or sulfides		Packina Material: Insufficient/Improper		Other:

Comments!Details: Held in FedEx

4. If Samples not preserved properly and Sample Receiving adjusts pH, add details below:

Sample ID:	**Date/Time:**	**Amount/type res added:**
Preserved by:	Initial and Final H:	**Lot # of pres added:**
Sam le!O:	DatefTime:	**Amount/type pres added:**
Preserved b :	Initial and Final H:	**Lot # of pres added:**
Sam le ID:	Date/Time:	**Amount/type pres added:**
Preserved b :	Initial and Final H:	**Lot # of pres added:**

S. Client Contact: If client is contacted for any issue listed above, fill In details below:

CUent:	Contacted oer:	
PM Initials:	Date/fime:	

Client Comments/Instructions:

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

November 05, 2021

This report contains results from the Dale City as well as the Manassas site. The Dale City samples will be reported for Q4. The Manassas results presented herein are for the Q3 makeup event.

Benjamin Green
WOOD E&I
4795 Meadow Wood Lane
Suite 310E
Chantilly, VA 20151

RE: Project: PRINCE WILLIAM CO
Pace Project No.: 92569558

Dear Benjamin Green:

Enclosed are the analytical results for sample(s) received by the laboratory on October 29, 2021. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Asheville

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Ryan Brumfield
ryan.brumfield@pacelabs.com
(770)734-4200
Project Manager

Enclosures

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

CERTIFICATIONS

Project: PRINCE WILLIAM CO
Pace Project No.: 92569558

Pace Analytical Services Asheville
2225 Riverside Drive, Asheville, NC 28804
Florida/NELAP Certification #: E87648
North Carolina Drinking Water Certification #: 37712
North Carolina Wastewater Certification #: 40
South Carolina Certification #: 99030001
Virginia/VELAP Certification #: 460222

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

SAMPLE SUMMARY

Project: PRINCE WILLIAM CO
Pace Project No.: 92569558

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92569558001	**DAL10252021**	Water	10/25/21 17:30	10/29/21 11:00
92569558002	**MAN10252021**	Water	10/25/21 19:00	10/29/21 11:00

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

SAMPLE ANALYTE COUNT

Project: PRINCE WILLIAM CO
Pace Project No.: 92569558

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92569558001	**DAL10252021**	EPA 200.7 Rev 4.4 1994	DS	4	PASI-A
		SM 2540D-2011	ZMC	1	PASI-A
		EPA 9040C	SMK	1	PASI-A
		TKN+NO3+NO2 Calculation	CRT	1	PASI-A
		EPA 350.1 Rev 2.0 1993	NGP	1	PASI-A
		EPA 351.2 Rev 2.0 1993	MFO	1	PASI-A
		EPA 353.2 Rev 2.0 1993	KDF1	1	PASI-A
		EPA 365.1 Rev 2.0 1993	MDW	1	PASI-A
		SM 5220D-2011	JP1	1	PASI-A
92569558002	**MAN10252021**	EPA 200.7 Rev 4.4 1994	DS	4	PASI-A
		SM 2540D-2011	ZMC	1	PASI-A
		EPA 9040C	SMK	1	PASI-A
		TKN+NO3+NO2 Calculation	CRT	1	PASI-A
		EPA 350.1 Rev 2.0 1993	NGP	1	PASI-A
		EPA 351.2 Rev 2.0 1993	MFO	1	PASI-A
		EPA 353.2 Rev 2.0 1993	KDF1	1	PASI-A
		EPA 365.1 Rev 2.0 1993	MDW	1	PASI-A
		SM 5220D-2011	JP1	1	PASI-A

PASI-A = Pace Analytical Services - Asheville

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

ANALYTICAL RESULTS

Project: PRINCE WILLIAM CO
Pace Project No.: 92569558

Sample: DAL10252021 **Lab ID: 92569558001** Collected: 10/25/21 17:30 Received: 10/29/21 11:00 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 MET ICP	Analytical Method: EPA 200.7 Rev 4.4 1994 Preparation Method: EPA 200.7 Rev 4.4 1994 Pace Analytical Services - Asheville							
Copper	**15.8**	ug/L	5.0	1	10/30/21 01:29	11/03/21 18:00	7440-50-8	
Lead	ND	ug/L	5.0	1	10/30/21 01:29	11/03/21 18:00	7439-92-1	
Nickel	ND	ug/L	5.0	1	10/30/21 01:29	11/03/21 18:00	7440-02-0	
Zinc	**89.2**	ug/L	10.0	1	10/30/21 01:29	11/03/21 18:00	7440-66-6	
2540D TSS, Low-Level	Analytical Method: SM 2540D-2011 Pace Analytical Services - Asheville							
Total Suspended Solids	**55.2**	mg/L	2.0	1		10/29/21 17:41		
9040 pH	Analytical Method: EPA 9040C Pace Analytical Services - Asheville							
pH at 25 Degrees C	**5.6**	Std. Units	0.10	1		11/01/21 18:12		H3
Total Nitrogen Calculation	Analytical Method: TKN+NO3+NO2 Calculation Pace Analytical Services - Asheville							
Total Nitrogen	**1.3**	mg/L	0.52	1		11/05/21 15:21		
350.1 Ammonia	Analytical Method: EPA 350.1 Rev 2.0 1993 Pace Analytical Services - Asheville							
Nitrogen, Ammonia	**0.25**	mg/L	0.10	1		11/02/21 12:06	7664-41-7	
351.2 Total Kjeldahl Nitrogen	Analytical Method: EPA 351.2 Rev 2.0 1993 Preparation Method: EPA 351.2 Rev 2.0 1993 Pace Analytical Services - Asheville							
Nitrogen, Kjeldahl, Total	**0.85**	mg/L	0.50	1	11/04/21 17:51	11/05/21 05:06	7727-37-9	
353.2 Nitrogen, NO2/NO3 pres.	Analytical Method: EPA 353.2 Rev 2.0 1993 Pace Analytical Services - Asheville							
Nitrogen, NO2 plus NO3	**0.50**	mg/L	0.040	1		11/01/21 12:39		
365.1 Phosphorus, Total	Analytical Method: EPA 365.1 Rev 2.0 1993 Preparation Method: EPA 365.1 Rev 2.0 1993 Pace Analytical Services - Asheville							
Phosphorus	**0.16**	mg/L	0.050	1	11/03/21 20:08	11/03/21 23:47	7723-14-0	
5220D COD	Analytical Method: SM 5220D-2011 Preparation Method: SM 5220D-2011 Pace Analytical Services - Asheville							
Chemical Oxygen Demand	**50.1**	mg/L	25.0	1	11/05/21 02:57	11/05/21 06:08		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

ANALYTICAL RESULTS

Project: PRINCE WILLIAM CO
Pace Project No.: 92569558

Sample: MAN10252021 **Lab ID: 92569558002** Collected: 10/25/21 19:00 Received: 10/29/21 11:00 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 MET ICP	Analytical Method: EPA 200.7 Rev 4.4 1994 Preparation Method: EPA 200.7 Rev 4.4 1994 Pace Analytical Services - Asheville							
Copper	**8.5**	ug/L	5.0	1	10/30/21 01:29	11/03/21 18:16	7440-50-8	
Lead	ND	ug/L	5.0	1	10/30/21 01:29	11/03/21 18:16	7439-92-1	
Nickel	ND	ug/L	5.0	1	10/30/21 01:29	11/03/21 18:16	7440-02-0	
Zinc	**20.7**	ug/L	10.0	1	10/30/21 01:29	11/03/21 18:16	7440-66-6	
2540D TSS, Low-Level	Analytical Method: SM 2540D-2011 Pace Analytical Services - Asheville							
Total Suspended Solids	**13.8**	mg/L	1.0	1		10/29/21 17:42		
9040 pH	Analytical Method: EPA 9040C Pace Analytical Services - Asheville							
pH at 25 Degrees C	**7.7**	Std. Units	0.10	1		11/01/21 18:18		H3
Total Nitrogen Calculation	Analytical Method: TKN+NO3+NO2 Calculation Pace Analytical Services - Asheville							
Total Nitrogen	**2.1**	mg/L	0.52	1		11/05/21 15:21		
350.1 Ammonia	Analytical Method: EPA 350.1 Rev 2.0 1993 Pace Analytical Services - Asheville							
Nitrogen, Ammonia	ND	mg/L	0.10	1		11/03/21 10:19	7664-41-7	
351.2 Total Kjeldahl Nitrogen	Analytical Method: EPA 351.2 Rev 2.0 1993 Preparation Method: EPA 351.2 Rev 2.0 1993 Pace Analytical Services - Asheville							
Nitrogen, Kjeldahl, Total	**0.65**	mg/L	0.50	1	11/04/21 17:51	11/05/21 05:07	7727-37-9	
353.2 Nitrogen, NO2/NO3 pres.	Analytical Method: EPA 353.2 Rev 2.0 1993 Pace Analytical Services - Asheville							
Nitrogen, NO2 plus NO3	**1.5**	mg/L	0.040	1		11/01/21 12:40		
365.1 Phosphorus, Total	Analytical Method: EPA 365.1 Rev 2.0 1993 Preparation Method: EPA 365.1 Rev 2.0 1993 Pace Analytical Services - Asheville							
Phosphorus	**0.11**	mg/L	0.050	1	11/03/21 20:08	11/03/21 23:48	7723-14-0	
5220D COD	Analytical Method: SM 5220D-2011 Preparation Method: SM 5220D-2011 Pace Analytical Services - Asheville							
Chemical Oxygen Demand	ND	mg/L	25.0	1	11/05/21 02:57	11/05/21 06:09		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: PRINCE WILLIAM CO
Pace Project No.: 92569558

QC Batch: 656340
QC Batch Method: EPA 200.7 Rev 4.4 1994
Analysis Method: EPA 200.7 Rev 4.4 1994
Analysis Description: 200.7 MET
Laboratory: Pace Analytical Services - Asheville
Associated Lab Samples: 92569558001, 92569558002

METHOD BLANK: 3440939 Matrix: Water
Associated Lab Samples: 92569558001, 92569558002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Copper	ug/L	ND	5.0	11/03/21 17:21	
Lead	ug/L	ND	5.0	11/03/21 17:21	
Nickel	ug/L	ND	5.0	11/03/21 17:21	
Zinc	ug/L	ND	10.0	11/03/21 17:21	

LABORATORY CONTROL SAMPLE: 3440940

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Copper	ug/L	500	510	102	85-115	
Lead	ug/L	500	508	102	85-115	
Nickel	ug/L	500	494	99	85-115	
Zinc	ug/L	500	498	100	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3440941 3440942

Parameter	Units	92569214001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Copper	ug/L	ND	500	500	516	508	103	101	70-130	1	20	
Lead	ug/L	ND	500	500	512	506	102	101	70-130	1	20	
Nickel	ug/L	ND	500	500	499	484	99	97	70-130	3	20	
Zinc	ug/L	ND	500	500	516	505	103	101	70-130	2	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: PRINCE WILLIAM CO
Pace Project No.: 92569558

QC Batch: 656292
QC Batch Method: SM 2540D-2011
Analysis Method: SM 2540D-2011
Analysis Description: 2540D Total Suspended Solids
Laboratory: Pace Analytical Services - Asheville
Associated Lab Samples: 92569558001, 92569558002

METHOD BLANK: 3440549 Matrix: Water
Associated Lab Samples: 92569558001, 92569558002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Suspended Solids	mg/L	ND	1.0	10/29/21 17:38	

LABORATORY CONTROL SAMPLE: 3440550

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Suspended Solids	mg/L	250	248	99	90-110	

SAMPLE DUPLICATE: 3440638

Parameter	Units	92569333002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	208	145	36	10	1g,D6

SAMPLE DUPLICATE: 3440639

Parameter	Units	92569333003 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	345	344	0	10	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: PRINCE WILLIAM CO
Pace Project No.: 92569558

QC Batch: 656453
QC Batch Method: EPA 9040C
Analysis Method: EPA 9040C
Analysis Description: 9040 pH
Laboratory: Pace Analytical Services - Asheville
Associated Lab Samples: 92569558001, 92569558002

SAMPLE DUPLICATE: 3441291

Parameter	Units	92568349005 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	6.1	5.6	9	10	D6,H3

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: PRINCE WILLIAM CO
Pace Project No.: 92569558

QC Batch: 656768
QC Batch Method: EPA 350.1 Rev 2.0 1993
Analysis Method: EPA 350.1 Rev 2.0 1993
Analysis Description: 350.1 Ammonia
Laboratory: Pace Analytical Services - Asheville
Associated Lab Samples: 92569558001

METHOD BLANK: 3442785 Matrix: Water
Associated Lab Samples: 92569558001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, Ammonia	mg/L	ND	0.10	11/02/21 11:57	

LABORATORY CONTROL SAMPLE: 3442786

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Ammonia	mg/L	5	5.0	101	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3442787 3442788

Parameter	Units	92568167001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, Ammonia	mg/L	ND	5	5	5.1	5.1	101	101	90-110	0	10	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3442789 3442790

Parameter	Units	92568312001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, Ammonia	mg/L	ND	5	5	5.2	5.2	104	103	90-110	0	10	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: PRINCE WILLIAM CO
Pace Project No.: 92569558

QC Batch: 656978
QC Batch Method: EPA 350.1 Rev 2.0 1993
Analysis Method: EPA 350.1 Rev 2.0 1993
Analysis Description: 350.1 Ammonia
Laboratory: Pace Analytical Services - Asheville
Associated Lab Samples: 92569558002

METHOD BLANK: 3443855 Matrix: Water
Associated Lab Samples: 92569558002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, Ammonia	mg/L	ND	0.10	11/03/21 10:05	

LABORATORY CONTROL SAMPLE: 3443856

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Ammonia	mg/L	5	5.1	102	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3443891 3443892

Parameter	Units	92569537002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, Ammonia	mg/L	11.8	5	5	16.8	16.7	98	97	90-110	0	10	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3443893 3443894

Parameter	Units	92569558002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, Ammonia	mg/L	ND	5	5	5.3	5.3	106	105	90-110	0	10	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: PRINCE WILLIAM CO
Pace Project No.: 92569558

QC Batch: 657202
QC Batch Method: EPA 351.2 Rev 2.0 1993
Analysis Method: EPA 351.2 Rev 2.0 1993
Analysis Description: 351.2 TKN
Laboratory: Pace Analytical Services - Asheville
Associated Lab Samples: 92569558001, 92569558002

METHOD BLANK: 3444837 Matrix: Water
Associated Lab Samples: 92569558001, 92569558002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, Kjeldahl, Total	mg/L	ND	0.50	11/05/21 04:39	

LABORATORY CONTROL SAMPLE: 3444838

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Kjeldahl, Total	mg/L	10	9.6	96	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3444839 3444840

Parameter	Units	92568852001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, Kjeldahl, Total	mg/L	6.3	10	10	16.8	16.6	104	103	90-110	1	10	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3447457 3447458

Parameter	Units	92568867002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, Kjeldahl, Total	mg/L	8.6	10	10	19.5	19.9	109	113	90-110	2	10	M1

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: PRINCE WILLIAM CO
Pace Project No.: 92569558

QC Batch: 656474
QC Batch Method: EPA 353.2 Rev 2.0 1993
Analysis Method: EPA 353.2 Rev 2.0 1993
Analysis Description: 353.2 Nitrate + Nitrite, preserved
Laboratory: Pace Analytical Services - Asheville
Associated Lab Samples: 92569558001, 92569558002

METHOD BLANK: 3441349 Matrix: Water
Associated Lab Samples: 92569558001, 92569558002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	ND	0.040	11/01/21 12:10	

LABORATORY CONTROL SAMPLE: 3441350

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	2.5	2.5	100	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3441524 3441525

Parameter	Units	92568285001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, NO2 plus NO3	mg/L	4.4	2.5	2.5	11.6	11.2	288	270	90-110	4	10	M1

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3441526 3441527

Parameter	Units	92568339001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, NO2 plus NO3	mg/L	13.6	2.5	2.5	15.9	15.7	93	87	90-110	1	10	M1

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: PRINCE WILLIAM CO
Pace Project No.: 92569558

QC Batch: 657336
QC Batch Method: EPA 365.1 Rev 2.0 1993
Analysis Method: EPA 365.1 Rev 2.0 1993
Analysis Description: 365.1 Phosphorus, Total
Laboratory: Pace Analytical Services - Asheville
Associated Lab Samples: 92569558001, 92569558002

METHOD BLANK: 3445930 Matrix: Water
Associated Lab Samples: 92569558001, 92569558002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Phosphorus	mg/L	ND	0.050	11/03/21 23:26	

LABORATORY CONTROL SAMPLE: 3445931

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Phosphorus	mg/L	2.5	2.6	104	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3445932 3445933

Parameter	Units	92568285001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Phosphorus	mg/L	2.4	2.5	2.5	4.8	4.9	99	100	90-110	1	10	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3445934 3445935

Parameter	Units	92568945002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Phosphorus	mg/L	68.6	2.5	2.5	70.0	70.6	52	80	90-110	1	10	M1

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: PRINCE WILLIAM CO
Pace Project No.: 92569558

QC Batch: 657724
QC Batch Method: SM 5220D-2011
Analysis Method: SM 5220D-2011
Analysis Description: 5220D COD
Laboratory: Pace Analytical Services - Asheville
Associated Lab Samples: 92569558001, 92569558002

METHOD BLANK: 3447790 Matrix: Water
Associated Lab Samples: 92569558001, 92569558002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chemical Oxygen Demand	mg/L	ND	25.0	11/05/21 06:03	

LABORATORY CONTROL SAMPLE: 3447791

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chemical Oxygen Demand	mg/L	750	780	104	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3447792 3447793

Parameter	Units	92569116001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chemical Oxygen Demand	mg/L	5010	100	100	5080	5100	72	95	90-110	0	3	M1

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3447794 3447795

Parameter	Units	92569173001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chemical Oxygen Demand	mg/L	ND	100	100	110	110	95	95	90-110	0	3	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALIFIERS

Project: PRINCE WILLIAM CO
Pace Project No.: 92569558

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

Acid preservation may not be appropriate for 2 Chloroethylvinyl ether.

A separate vial preserved to a pH of 4-5 is recommended in SW846 Chapter 4 for the analysis of Acrolein and Acrylonitrile by EPA Method 8260.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Reported results are not rounded until the final step prior to reporting. Therefore, calculated parameters that are typically reported as "Total" may vary slightly from the sum of the reported component parameters.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

1g	Constant weight could not be achieved for this sample after 3 drying cycles. The final weight change was 0.0013g.
D6	The precision between the sample and sample duplicate exceeded laboratory control limits.
H3	Sample was received or analysis requested beyond the recognized method holding time.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: PRINCE WILLIAM CO
Pace Project No.: 92569558

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92569558001	**DAL10252021**	EPA 200.7 Rev 4.4 1994	656340	EPA 200.7 Rev 4.4 1994	656369
92569558002	**MAN10252021**	EPA 200.7 Rev 4.4 1994	656340	EPA 200.7 Rev 4.4 1994	656369
92569558001	**DAL10252021**	SM 2540D-2011	656292		
92569558002	**MAN10252021**	SM 2540D-2011	656292		
92569558001	**DAL10252021**	EPA 9040C	656453		
92569558002	**MAN10252021**	EPA 9040C	656453		
92569558001	**DAL10252021**	TKN+NO3+NO2 Calculation	657960		
92569558002	**MAN10252021**	TKN+NO3+NO2 Calculation	657960		
92569558001	**DAL10252021**	EPA 350.1 Rev 2.0 1993	656768		
92569558002	**MAN10252021**	EPA 350.1 Rev 2.0 1993	656978		
92569558001	**DAL10252021**	EPA 351.2 Rev 2.0 1993	657202	EPA 351.2 Rev 2.0 1993	657735
92569558002	**MAN10252021**	EPA 351.2 Rev 2.0 1993	657202	EPA 351.2 Rev 2.0 1993	657735
92569558001	**DAL10252021**	EPA 353.2 Rev 2.0 1993	656474		
92569558002	**MAN10252021**	EPA 353.2 Rev 2.0 1993	656474		
92569558001	**DAL10252021**	EPA 365.1 Rev 2.0 1993	657336	EPA 365.1 Rev 2.0 1993	657368
92569558002	**MAN10252021**	EPA 365.1 Rev 2.0 1993	657336	EPA 365.1 Rev 2.0 1993	657368
92569558001	**DAL10252021**	SM 5220D-2011	657724	SM 5220D-2011	657742
92569558002	**MAN10252021**	SM 5220D-2011	657724	SM 5220D-2011	657742

REPORT OF LABORATORY ANALYSIS

liibor. torv rec Jvll'lfs mpl_e.s :

Ashevllle.l&] l; enO-Greonwoo :o HYnJersvll.le ☐ aterg tJ Me hal'!lcsvllleO Atlanta. ☐ :Ke.rl'ie.Y.s.!dUeCl,:

Siln1ule Condi11on Upon Receip

Cll'ei)tName: l--lo d E+I

PtoJec IJQ# : 92569558

Courier: ☐ Corh:inafciaf ☐ Fed Ex ☐ UPS ☐ USPS ☐ Pace ☐ Other:

..oi mu 1111111111111

Custody Seal Present? ☐Yes ☒No Seals Intact? ☐Yes

Date/Initials Person Examining Contents: 10-29-21 AK

Packing Material: QErubble'Wr.ip ☐Bubble Bags ☒None ☐ Other

BIQlogl I Tf.isuli-Fi:imn1

Thermom er: Oves· Ot.,i"a N/A

ltll:lunIOi. q :, 7i07/ / .l.... Type ri/ lt .l IX)w f .Owue·

C.oOlar.famp: Cormtlon Fac r: O

Add/Subt:raci ('C) _____ _,

l'ero1nt10Ljld-b libiive freezlrig to 6'C

Qsainpf,:,s out: / temp r!t rli, s. rnple n1/,Jjlti·gproms-'hn bog:im

Cliolat ftimp Correcte:d (C): /•.l

USDA RtiB\llated Safi (01N/A, walllr sample)

6'd m11PIJ!fot1glnate'fria:quili:anllne ,ona-wllhlil lhe'Unlted St ttfS}CII, NV,-o c{chemap·st.i -QI SaJ11Jll arigl ijie flam afor'lll so·wca(lilten•J1tio"i1llly;

Yes J8lNq. 11¢1udln'S°ffawaJhnd·rvertqRtooJl OV t

					Comments/Discrepancy:
Chaln·of c::111tqd Present?	☒Yes	☐No	☐N/A	1.	
Samples Arrived within Hold Time?	☒Yes	☐No	☐N/A	2.	
Short Hold Time Analysis (<72 hr.)?	☐Yes	☒No	☐N/A	3.	
flush Turi:rAroumfTlme Re ue:.1,d?	☐Yes	☒No	☐N/A	4.	
-S-ufficlcnt'-llolumeil	☒Yes	☐No	☐N/A	5.	
l:or.111ct Containers U1ed?	☒Yes	☐No	☐N/A	6.	
-Paco Cpnt. li111 Used?.	☒Yes	☐No	☐N/A		
Containers Intact?	☒Yes	☐No	☐N/A	7.	
Dfssolvell anal .s!s: Sarn IC!s Fl!!ld FUtell!d 7	☐Yes	☐No	☒N/A	8.	
lioiftrplc! Labels Match CQC?.	☒Yes	☐No	☐N/A	9.	
-Includes Date/Time/ID/Analysis Matrix: W					
teadspaco In VOA Vials (>5-6mm)?	☐Yes	☐No	☒N/A	10.	
Trip·s1a·n1tPr.e-s'eot1	☐Yes	☐No	☒N/A	i1,	
'frl 1 artk·custOd·.Seals P eseilt	☐Yes	☐No	☒N/A		

COMMENTS/SAMPLE DISCREPANCY

Tield Data Required? ☐Yes ☐No

Lot ID ofspllt Cfil'.ltilin,er .:

CLl,ENT'NOTIFIt!<'rfO_NlR SOLtlhON

P.er-s.onc n a.cted;. _ IJatc/Tim :

Project Manager SCURF Review:: Date:

Project Manager SRF Review: Date:

Pace Analytical®

lloeµh:,ent Natne; Sampla Cbndl on Uporr R e el i S"CU RI	D0¢!!111trit:Revl. _ ./rlctp.ber-28, 202,0. ;Peg 2 of 2
Oocum MtNoif F-CAR-CS-033-Rev.07	lssuin& A.11thor1ty: Pace Carolli... n,. IIL:>'

'l!Ch,ck malik=t ?PhQlf of ox I.f ⊢and/Qi'-:dec_hJc:,rlnatlQ,:lis vetlfle a11_d_wit l'1 t e ., c pt,aMe ranfe for=p·remvatfoh *$am*ples,

EicCl!Pll ::voA;,Coliform, TOC, 011 and me s(l',.OR0/8015(Wiilel),o:r:i:c,tl B-

*'"Qqtto !hhalf c,fboic Is to ltst n m - i'of boijie

ri.ewoii9 **2569558**

Que Dale: 11/05/21

P... RN& VA

CLIENT: **92-Amiec**

Item#	BP4U-125 mL Plastic Unpreserved (N/A) (Cl-)	BP3U-250 mL Plastic Unpreserved (N/A)	BP2U-500 mL Plastic Unpreserved (N/A)	BP1U-1 liter Plastic Unpreserved (N/A)	BP4S-125 mL Plastic H2SO4 (pH < 2) (Cl-)	BP3N-250 mL plastic HNO3 (pH < 2)	BP4Z-125 mL Plastic ZN Acetate & NaOH (>9)	BP4C-125 mL Plastic NaOH (pH > 12) (Cl-)	WGFU-Wide-mouthed Glass jar Unpreserved	AG1U-1 liter Amber Unpreserved (N/A) (Cl-)	AG1H-1 liter Amber HCl (pH < 2)	AG3U-250 mL Amber Unpreserved (N/A) (Cl-)	AG1S-1 liter Amber H2SO4 (pH < 2)	AG3S-250 mL Amber H2SO4 (pH < 2)	AG3A(DG3A)-250 mL Amber NH4Cl (N/A)(Cl-)	DG9H-40 mL VOA HCl (N/A)	VG9T-40 mL VOA Na2S2O3 (N/A)	VG9U-40 mL VOA Unp (N/A)	DG9P-40 mL VOA H3PO4 (N/A)	VOAK (6 vials per kit)-5035 kit (N/A)	V/GK (3 vials per kit)-VPH/Gas kit (N/A)	SP5T-125 mL Sterile Plastic (N/A – lab)	SP2T-250 mL Sterile Plastic (N/A – lab)		BP3A-250 mL Plastic (NH2)2SO4 (9.3-9.7)	AG0U-100 mL Amber Unpreserved vials (N/A)	VSGU-20 mL Scintillation vials (N/A)	DG9U-40 mL Amber Unpreserved vials (N/A)
1	1 ✓			1	2 ✓	1 ✓																						
2	1 ✓			1	2 ✓	1 ✓																						
3																												
4																												
5																												
6																												
7																												
8																												
9																												
10																												
11																												
12																												

pH AdjustmE!rtt Lo for Preserved samples						
S4mplo 10	Type 6f Prenr atlve	pH upi,n-ttc lpt	Date p.(ervatlpn ailJu t d.	TJ_m_A prtsRJV&Ul>I) ;.d]Ull-d	i\·1110u111ci.f P.r.aicrv' ti e idded	lQI II

N.ot_a.; W11e11over 1h,ra·l11dbcr •lCV a!fectlng North Carolina compliance 1amples, a c:opy,oflhls forf11-WIIIbo m,tto,the Nortb Caro oa DEtlNR Certlllc tlon Ofllt'I! (l.e, O l'"of hold, lnco(r.ect Pfemv;itive, out of \tll)p, lncorr dcootalr.ors.

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at htlpc:/fanfo.pacelab:s.comlhubfsfpa:;-slandard-te=;;;;;;;rms.;:.;;;;;ipdf=--------

Page: 1 Of

Section A
Required Client Information:
Company: Wood E&I - Ch
Address: 4795 Meadow Wood Lane
Chantilly, VA 20151
Email: benjamin.green@amecfw.com
Phone: (703)488-3795
Requested Due Date:

Report To: Benjamin Green
Copy To:
Purchase Order:
Project Name:
Project: 1 15UB, GL Code: 571000 / INCE WILLIAM CO Q3 2021

Attention:
Company Name:
Pace Project Manager: .brumfield@pacelabs.c
Pace Profile #: 8125-

Regulatory Agency
State / Location: VA

ITEM #	SAMPLE ID (A-Z, 0-9 / , -) Sample Ids must be unique	COLLECTED START	COLLECTED END	Preservatives	Y/N	pH	Metals	TSS	Ammonia/Phosphorus/COD	TKN + Nitrate+Nitrite
1	DAL10252					X	→	→	→	X
2	MAN10252					X	→	→	→	X
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
Ilana Tan / Wood	10/27/21	1700	A. Rucker / PACE / AVL	10-28-21	1100	1.2	Y	N	Y

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: Ilana Tan
SIGNATURE of SAMPLER: [signature]

Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

Wet Weather Monitoring Report

Fourth Quarter 2021 (October 1 – December 31)
Event Date: October 25 and November 12, 2021

Prepared for:

Prince William County Department of Public Works
5 County Complex Court, Suite 170
Prince William, Virginia 22192

Prepared by:
Wood Environment & Infrastructure Solutions, Inc.
4795 Meadow Wood Lane, Suite 310E
Chantilly, VA 20151
(703) 488-3700

December 13, 2021
Project No. 151280001

1.0 INTRODUCTION

Wood Environment & Infrastructure Solutions, Inc. (Wood) is pleased to provide this report of wet weather monitoring for compliance with the requirements of the Virginia Stormwater Management Program (VSMP) Municipal Separate Storm Sewer System (MS4) Permit (Number VA0088595), issued by the Virginia Department of Environmental Quality (VDEQ) to Prince William County, Virginia. This report discusses the results of the Q4 sampling events conducted on October 25, 2021 and November 12, 2021 as well as the findings from the water quality analysis results of those sampling events.

2.0 METHODS

Flow rate data were collected at the outfalls by an ISCO 6712 automated sampler coupled with an ISCO 730 bubbler flow module, installed with a Scissors Ring. Flow rate over the course of the sampling events were electronically calculated using ISCO Flowlink 5.1 software, which utilizes the Manning Equation to convert flow level and velocity to flow rate.

SITE #941; MANASSAS, VA

Site #941 is located near 11850 Livingston Road. The site receives a total of 52 acres of upstream drainage area from a land surface that is 34% impervious. County data documents that the pipe is 54 inches in diameter with a slope of 0.03437. This site is subject to backwater conditions as water levels within the downstream pond have risen over the past year. Maintenance is recommended to ensure the continued efficacy of the monitoring program at this site.

SITE #4684; DALE CITY, VA

Site #4684 is located near the corner of Potomac Center Blvd. and Sheffield Hill Way, north of Eastbourne Drive. It drains into a BMP for the Potomac Club residential development. Upstream drainage totaled 51 acres, 21% of which is from impervious surfaces. The pipe is 54 inches in diameter with a slope of 0.002593. Storm events at this site are flashy in nature, accounted for by programming shorter sample intervals, if necessary based upon forecast conditions.

The automated samplers were deployed when a qualifying storm event (>0.3 inches precipitation) was forecast for the two monitoring sites. On October 25, Wood staff deployed the samplers at both field sites and programmed the samplers' automated, discrete sampling sequence to initiate upon flow levels exceeding current water levels in each pipe. The samplers were programmed to collect 24 discrete 800 mL samples to be collected every hour. Rain gage data were compiled for monitoring stations in the Weather Underground monitoring network. The data were easily accessible online and provided hourly precipitation totals over the monitoring period. Gages were prioritized based on the makeup of the data record (reporting interval) and proximity to monitoring locations. Sampling was unsuccessful at the Manassas site, where no samples were collected. The sampler was redeployed on November 11, and samples were successfully collected on November 12.

Following the storm event, staff retrieved the samples and prepared them for shipment to Pace Analytical for water quality analysis. To compile the complete set of discrete samples into a single flow-weighted composite, Flowlink software calculated the storm event discharge using the Manning Equation (continued on the next page):

Equation 1: Manning Equation used to calculate flow rate.

$$Q = VA = \left(\frac{1.49}{n}\right)AR^{\frac{2}{3}}\sqrt{S}\ [\ US\ ]$$

Q = Flow rate
A = Flow area
R = Hydraulic Radius
n = Roughness coefficient
1.49 = English units conversion factor
S = Water surface slope

Channel slopes were determined using invert elevations reported in the stormwater infrastructure geospatial data provided by Prince William County. Using flow levels reported by the ISCO samplers, the area and hydraulic radius inside the sampled outfalls could be computed for a given time interval. A Manning's *n* value of 0.013 was assumed for the concrete pipes. Discrete samples collected over the duration of the storm event were then mixed based on their representative weight within the cumulative flow curve for each storm event. This flow weighted composite sample was provided to the laboratory for analysis. The resulting analysis is considered the event mean concentration (EMC) of the individual analyte.

3.0 RESULTS

SITE #941; MANASSAS, VA

Following redeployment, sampling occurred from 03:30 on 11/12/21 – 13:30 on 11/12/21. The Global Historical Climatology Network (GHCN) daily gauge in Manassas, VA (USC00445204) recorded 0.34 inches of precipitation over that period with temperatures ranging from 44-62 degrees Fahrenheit. The previous storm event was recorded on 11/10/21, producing 0.05 inch of precipitation.

SITE #4684; DALE CITY, VA

Sampling occurred from 17:30 on 10/25/21 – 00:30 on 10/26/21. The Global Historical Climatology Network (GHCN) daily gauge in Woodbridge, VA (US1VAPW0010) recorded 2.25 inches of precipitation over this same period. The scissor ring from the Dale City installation became dislodged during monitoring. The sampler collected samples for 8 of 24 bottles. The previous storm event was recorded on 10/24/21, producing 0.01 inch of precipitation.

Samples from both sites were retained under refrigeration until they were composited and shipped overnight to Pace Analytical Services in Asheville, NC. The Dale City sample was shipped 10/27/21, received on 10/29/21. The Manassas sample was composited on 11/12/21, kept under refrigeration, shipped on 11/15/21, and arrived on 11/17/21.

3.1 FLOW DATA

SITE #941; MANASSAS, VA

Flow rate reached 58.28 cfs and peaked twice throughout the course of the storm. The storm event hydrograph compared with cumulative volume can be seen in Figure 1. Table 1 lists the proportion of each sample mixed with the flow-weighted composite.

Flow rate and volume are calculated by measuring changes in water level over time. Backwater effects at the pond have rendered the current monitoring setup ineffective. This explains the inflated values listed for cumulative volume and flow rate.

Figure 1: Flow data over time for the storm event at Site #941 on November 12, 2021.

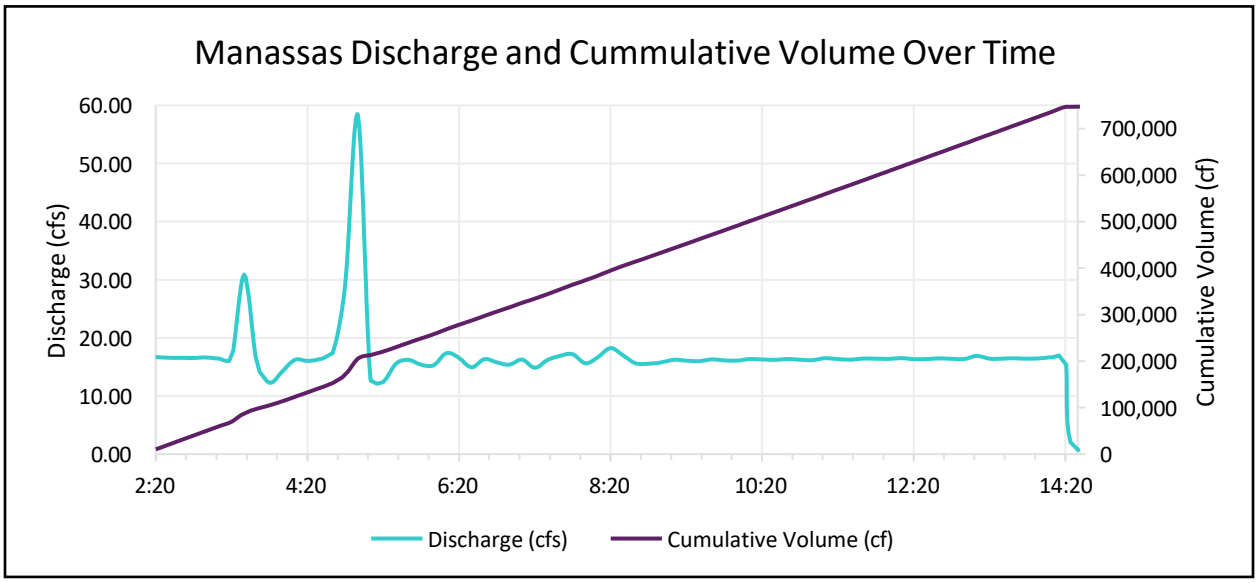


Table 1: Summary of Flow Weighted Composite – Site #941

Bottle #	Time of Sample	Volume (cf)	% of Flow	Flow Weighted Volume (mL)*
1	3:30	38,233.59	5.91	236
2	4:00	25,127.56	3.88	155
3	4:30	29,138.84	4.50	180
4	5:00	62,955.40	9.73	389
5	5:30	24,344.41	3.76	150
6	6:00	28,090.32	4.34	174
7	6:30	29,270.29	4.52	181
8	7:00	28,472.24	4.40	176
9	7:30	28,339.19	4.38	175
10	8:00	29,787.97	4.60	184
11	8:30	31,112.57	4.81	192
12	9:00	28,095.57	4.34	174
13	9:30	28,944.78	4.47	179
14	10:00	29,067.08	4.49	180
15	10:30	29,271.34	4.52	181
16	11:00	29,220.25	4.51	181
17	11:30	29,425.34	4.55	182
18	12:00	29,507.23	4.56	182
19	12:30	29,486.80	4.56	182
20	13:00	29,497.00	4.56	182
21	13:30	29,807.44	4.61	184

**4.0 L Sample*

SITE #4684; DALE CITY, VA

Flow rate reached 0.346 cfs. The apparent oscillation in water level could be a result of the suction line sampling drawing down low flow levels. The storm event hydrograph compared with cumulative volume can be seen in Figure 2. Table 2 lists the proportion of each sample mixed with the flow-weighted composite. The flow-weighted composite volume was adjusted to incorporate representative volumes from the collected samples.

The scissor ring became dislodged from the outfall at approximately 00:30 on 10/26. This is corroborated by the sampler collecting 8 of 24 bottles, the eighth and final bottle being collected at 12:30.

Figure 2: Flow data over time for the storm event at Site #4684 on October 25-26, 2021.

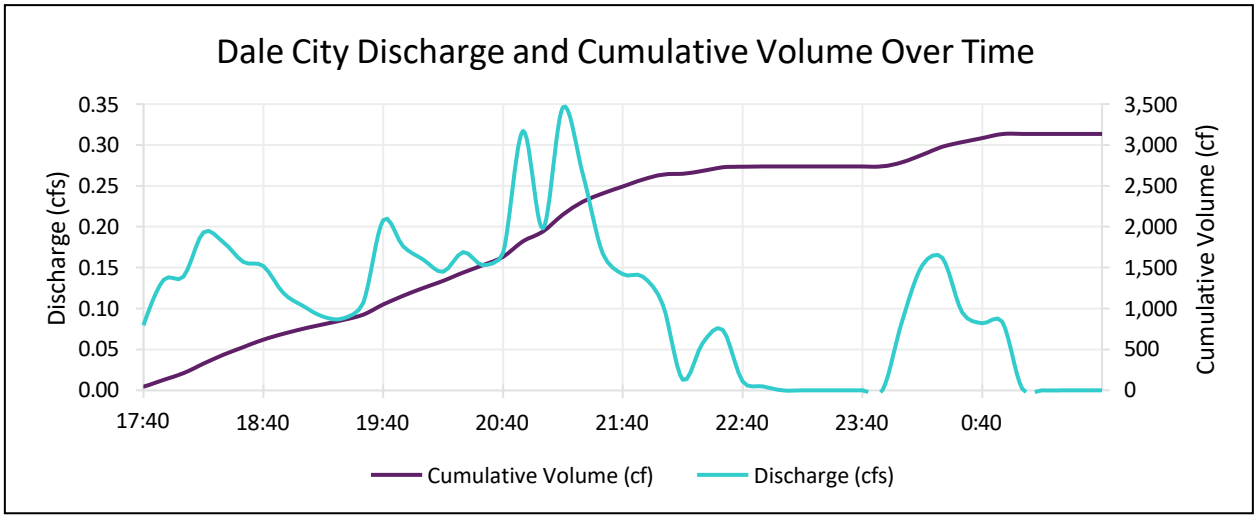


Table 2: Summary of Flow Weighted Composite – Site #4684

Bottle #	Time of Sample	Volume (cf)	% of Flow	Flow Weighted Volume (mL)*
1	17:30	0.14	0.00	0.14
2	18:30	531.00	17.49	525
3	19:30	395.61	13.03	391
4	20:30	606.24	19.97	600
5	21:30	875.81	28.85	865
6	22:30	319.59	10.53	316
7	23:30	9.91	0.33	9.79
8	10/26, 0:30	297.61	9.80	294

**3.0 L Sample*

3.2 LABORATORY ANALYTICAL RESULTS

Samples were sent to Pace Analytical Services, Inc. lab in Asheville, NC for analysis, with Analytical Parameters tested listed in **Table 3**.

Table 3: Analytical Parameters

Analyte	Analysis Method
Copper	EPA 200.7
Lead	EPA 200.7
Nickel	EPA 200.7
Zinc	EPA 200.7
Total Suspended Solids	SM 2540D
pH	EPA 9040
Ammonia	EPA 350.1 1993 Rev 2.0
Total Kjeldahl Nitrogen	EPA 351.2
Nitrate + Nitrite Nitrogen	EPA 353.2
Total Phosphorus	EPA 365.1
Chemical Oxygen Demand	SM 5220D

Table 4: Results of Water Quality Analysis

	Analyte	Analyte Value*	Analyte Unit	Reporting Limit	Exceedance Criterion	Criterion Basis
Manassas (#941)	Copper	40.8	µg/L	5.0	13	a
	Lead	11.2	µg/L	5.0	120	a
	Nickel	5.9	µg/L	5.0	180	a
	Zinc	131	µg/L	10.0	120	a
	Total Suspended Solids	100	mg/L	1.0	100	b
	Nitrogen, Ammonia	ND	mg/L	0.10		-
	Nitrogen, Kjeldahl, Total	1.0	mg/L	0.50		-
	Nitrogen, NO^2 plus NO^3	0.54	mg/L	0.040		-
	Total Nitrogen	1.54	mg/L	0.52	2.2	c
	Phosphorus, Total	0.21	mg/L	0.050	2	b
	Chemical Oxygen Demand	64.0	mg/L	25	120	b
	pH	7.6	Std. Units	0.1	6.0-9.0	d
Dale City (#4684)	Copper	15.8	µg/L	5.0	13	a
	Lead	ND	µg/L	5.0	120	a
	Nickel	ND	µg/L	5.0	180	a
	Zinc	89.2	µg/L	10.0	120	a
	Total Suspended Solids	55.2	mg/L	2.0	100	b
	Nitrogen, Ammonia	0.25	mg/L	0.1		-
	Nitrogen, Kjeldahl, Total	0.85	mg/L	0.5		-
	Nitrogen, NO^2 plus NO^3	0.50	mg/L	0.040		-
	Total Nitrogen	1.6	mg/L	0.52	2.2	c
	Phosphorus, Total	0.16	mg/L	0.050	2	b
	Chemical Oxygen Demand	50.1	mg/L	25.0	120	b
	pH	5.6	Std. Units	0.10	6.0-9.0	d

[a]State Water Quality Control Board Acute Standards for Surface Water Quality. Value is based on an assumed hardness of 100mg/L.
[b]Based on benchmark criteria for the VPDES Industrial Stormwater General Permit.
[c]The sum of Nitrogen as Ammonia, NO^2, NO^3, and Total Kjeldahl Nitrogen.
[d]Based on numeric effluent limitations noted in the VPDES Permit for Discharge of Stormwater Associated with Industrial Activity.
*Values highlighted in red were found to be in exceedance of their respective criterion.

4.0 SUMMARY

As indicated in **Table 4,** exceedances occurred for Copper Site #941 and for Copper and pH at Site #4684. Exceedance tracking for parameters of concern are illustrated in **Figure 3** below.

Figure 3: Exceedance tracking for the Wet Weather Monitoring Program.

Manassas (#941)

	2016		2017				2018				2019				2020				2021			
	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Copper	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x			x
Lead																						
Nickel																						
Zinc	x		x	x	x	x	x	x							x	x						
Total Suspended Solids						x	x								x	x						
Total Nitrogen					x	x	x				x											
Phosphorus, Total																						
Chemical Oxygen Demand		x				x	x								x							
pH						x												x				

Dale City (#4684)

	2016		2017				2018				2019				2020				2021			
	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2*	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Copper	x		x	x	x	x	x	--		x	x											x
Lead								--														
Nickel								--														
Zinc			x		x	x	x	--														
Total Suspended Solids						x		--														
Total Nitrogen	x	x	x	x		x	x	--			x											
Phosphorus, Total								--														
Chemical Oxygen Demand						x	x	--														
pH		x		x		x		--									x					x

* No sample collected at #4684 during Q2 2018.

APPENDIX A

SITE CONDITIONS

Manassas (#941)

Site #941 is located within the Bull Run watershed. It receives drainage from an industrial use area and parking lots with frequent truck traffic. Water levels are persistently found to be above 6 – 10 inches in the monitoring outfall.

Dale City (#4684)

Site #4684 receives flow from Neabsco Mills Road and the Stonebridge at Potomac Town Center development. It is a 54" concrete pipe that drains to a deep scour pool before draining to a large BMP that collects drainage for the Potomac Club development. Erosion around the headwall and apron of the outfall at this site continues to pose a risk during sampler deployment and retrieval.

APPENDIX B

WATER QUALITY LABORATORY RESULTS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

November 05, 2021

Benjamin Green
WOOD E&I
4795 Meadow Wood Lane
Suite 310E
Chantilly, VA 20151

RE: Project: PRINCE WILLIAM CO
Pace Project No.: 92569558

Dear Benjamin Green:

Enclosed are the analytical results for sample(s) received by the laboratory on October 29, 2021. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Asheville

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Ryan Brumfield
ryan.brumfield@pacelabs.com
(770)734-4200
Project Manager

Enclosures

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

CERTIFICATIONS

Project: PRINCE WILLIAM CO
Pace Project No.: 92569558

Pace Analytical Services Asheville
2225 Riverside Drive, Asheville, NC 28804
Florida/NELAP Certification #: E87648
North Carolina Drinking Water Certification #: 37712
North Carolina Wastewater Certification #: 40
South Carolina Certification #: 99030001
Virginia/VELAP Certification #: 460222

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

SAMPLE SUMMARY

Project: PRINCE WILLIAM CO
Pace Project No.: 92569558

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92569558001	**DAL10252021**	Water	10/25/21 17:30	10/29/21 11:00
92569558002	**MAN10252021**	Water	10/25/21 19:00	10/29/21 11:00

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

SAMPLE ANALYTE COUNT

Project: PRINCE WILLIAM CO
Pace Project No.: 92569558

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92569558001	**DAL10252021**	EPA 200.7 Rev 4.4 1994	DS	4	PASI-A
		SM 2540D-2011	ZMC	1	PASI-A
		EPA 9040C	SMK	1	PASI-A
		TKN+NO3+NO2 Calculation	CRT	1	PASI-A
		EPA 350.1 Rev 2.0 1993	NGP	1	PASI-A
		EPA 351.2 Rev 2.0 1993	MFO	1	PASI-A
		EPA 353.2 Rev 2.0 1993	KDF1	1	PASI-A
		EPA 365.1 Rev 2.0 1993	MDW	1	PASI-A
		SM 5220D-2011	JP1	1	PASI-A
92569558002	**MAN10252021**	EPA 200.7 Rev 4.4 1994	DS	4	PASI-A
		SM 2540D-2011	ZMC	1	PASI-A
		EPA 9040C	SMK	1	PASI-A
		TKN+NO3+NO2 Calculation	CRT	1	PASI-A
		EPA 350.1 Rev 2.0 1993	NGP	1	PASI-A
		EPA 351.2 Rev 2.0 1993	MFO	1	PASI-A
		EPA 353.2 Rev 2.0 1993	KDF1	1	PASI-A
		EPA 365.1 Rev 2.0 1993	MDW	1	PASI-A
		SM 5220D-2011	JP1	1	PASI-A

PASI-A = Pace Analytical Services - Asheville

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

ANALYTICAL RESULTS

Project: PRINCE WILLIAM CO
Pace Project No.: 92569558

Sample: DAL10252021 **Lab ID: 92569558001** Collected: 10/25/21 17:30 Received: 10/29/21 11:00 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 MET ICP	Analytical Method: EPA 200.7 Rev 4.4 1994 Preparation Method: EPA 200.7 Rev 4.4 1994 Pace Analytical Services - Asheville							
Copper	**15.8**	ug/L	5.0	1	10/30/21 01:29	11/03/21 18:00	7440-50-8	
Lead	ND	ug/L	5.0	1	10/30/21 01:29	11/03/21 18:00	7439-92-1	
Nickel	ND	ug/L	5.0	1	10/30/21 01:29	11/03/21 18:00	7440-02-0	
Zinc	**89.2**	ug/L	10.0	1	10/30/21 01:29	11/03/21 18:00	7440-66-6	
2540D TSS, Low-Level	Analytical Method: SM 2540D-2011 Pace Analytical Services - Asheville							
Total Suspended Solids	**55.2**	mg/L	2.0	1		10/29/21 17:41		
9040 pH	Analytical Method: EPA 9040C Pace Analytical Services - Asheville							
pH at 25 Degrees C	**5.6**	Std. Units	0.10	1		11/01/21 18:12		H3
Total Nitrogen Calculation	Analytical Method: TKN+NO3+NO2 Calculation Pace Analytical Services - Asheville							
Total Nitrogen	**1.3**	mg/L	0.52	1		11/05/21 15:21		
350.1 Ammonia	Analytical Method: EPA 350.1 Rev 2.0 1993 Pace Analytical Services - Asheville							
Nitrogen, Ammonia	**0.25**	mg/L	0.10	1		11/02/21 12:06	7664-41-7	
351.2 Total Kjeldahl Nitrogen	Analytical Method: EPA 351.2 Rev 2.0 1993 Preparation Method: EPA 351.2 Rev 2.0 1993 Pace Analytical Services - Asheville							
Nitrogen, Kjeldahl, Total	**0.85**	mg/L	0.50	1	11/04/21 17:51	11/05/21 05:06	7727-37-9	
353.2 Nitrogen, NO2/NO3 pres.	Analytical Method: EPA 353.2 Rev 2.0 1993 Pace Analytical Services - Asheville							
Nitrogen, NO2 plus NO3	**0.50**	mg/L	0.040	1		11/01/21 12:39		
365.1 Phosphorus, Total	Analytical Method: EPA 365.1 Rev 2.0 1993 Preparation Method: EPA 365.1 Rev 2.0 1993 Pace Analytical Services - Asheville							
Phosphorus	**0.16**	mg/L	0.050	1	11/03/21 20:08	11/03/21 23:47	7723-14-0	
5220D COD	Analytical Method: SM 5220D-2011 Preparation Method: SM 5220D-2011 Pace Analytical Services - Asheville							
Chemical Oxygen Demand	**50.1**	mg/L	25.0	1	11/05/21 02:57	11/05/21 06:08		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

ANALYTICAL RESULTS

Project: PRINCE WILLIAM CO
Pace Project No.: 92569558

Sample: MAN10252021 **Lab ID: 92569558002** Collected: 10/25/21 19:00 Received: 10/29/21 11:00 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 MET ICP	Analytical Method: EPA 200.7 Rev 4.4 1994 Preparation Method: EPA 200.7 Rev 4.4 1994 Pace Analytical Services - Asheville							
Copper	**8.5**	ug/L	5.0	1	10/30/21 01:29	11/03/21 18:16	7440-50-8	
Lead	ND	ug/L	5.0	1	10/30/21 01:29	11/03/21 18:16	7439-92-1	
Nickel	ND	ug/L	5.0	1	10/30/21 01:29	11/03/21 18:16	7440-02-0	
Zinc	**20.7**	ug/L	10.0	1	10/30/21 01:29	11/03/21 18:16	7440-66-6	
2540D TSS, Low-Level	Analytical Method: SM 2540D-2011 Pace Analytical Services - Asheville							
Total Suspended Solids	**13.8**	mg/L	1.0	1		10/29/21 17:42		
9040 pH	Analytical Method: EPA 9040C Pace Analytical Services - Asheville							
pH at 25 Degrees C	**7.7**	Std. Units	0.10	1		11/01/21 18:18		H3
Total Nitrogen Calculation	Analytical Method: TKN+NO3+NO2 Calculation Pace Analytical Services - Asheville							
Total Nitrogen	**2.1**	mg/L	0.52	1		11/05/21 15:21		
350.1 Ammonia	Analytical Method: EPA 350.1 Rev 2.0 1993 Pace Analytical Services - Asheville							
Nitrogen, Ammonia	ND	mg/L	0.10	1		11/03/21 10:19	7664-41-7	
351.2 Total Kjeldahl Nitrogen	Analytical Method: EPA 351.2 Rev 2.0 1993 Preparation Method: EPA 351.2 Rev 2.0 1993 Pace Analytical Services - Asheville							
Nitrogen, Kjeldahl, Total	**0.65**	mg/L	0.50	1	11/04/21 17:51	11/05/21 05:07	7727-37-9	
353.2 Nitrogen, NO2/NO3 pres.	Analytical Method: EPA 353.2 Rev 2.0 1993 Pace Analytical Services - Asheville							
Nitrogen, NO2 plus NO3	**1.5**	mg/L	0.040	1		11/01/21 12:40		
365.1 Phosphorus, Total	Analytical Method: EPA 365.1 Rev 2.0 1993 Preparation Method: EPA 365.1 Rev 2.0 1993 Pace Analytical Services - Asheville							
Phosphorus	**0.11**	mg/L	0.050	1	11/03/21 20:08	11/03/21 23:48	7723-14-0	
5220D COD	Analytical Method: SM 5220D-2011 Preparation Method: SM 5220D-2011 Pace Analytical Services - Asheville							
Chemical Oxygen Demand	ND	mg/L	25.0	1	11/05/21 02:57	11/05/21 06:09		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: PRINCE WILLIAM CO
Pace Project No.: 92569558

QC Batch: 656340
QC Batch Method: EPA 200.7 Rev 4.4 1994
Analysis Method: EPA 200.7 Rev 4.4 1994
Analysis Description: 200.7 MET
Laboratory: Pace Analytical Services - Asheville
Associated Lab Samples: 92569558001, 92569558002

METHOD BLANK: 3440939 Matrix: Water
Associated Lab Samples: 92569558001, 92569558002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Copper	ug/L	ND	5.0	11/03/21 17:21	
Lead	ug/L	ND	5.0	11/03/21 17:21	
Nickel	ug/L	ND	5.0	11/03/21 17:21	
Zinc	ug/L	ND	10.0	11/03/21 17:21	

LABORATORY CONTROL SAMPLE: 3440940

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Copper	ug/L	500	510	102	85-115	
Lead	ug/L	500	508	102	85-115	
Nickel	ug/L	500	494	99	85-115	
Zinc	ug/L	500	498	100	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3440941 3440942

Parameter	Units	92569214001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Copper	ug/L	ND	500	500	516	508	103	101	70-130	1	20	
Lead	ug/L	ND	500	500	512	506	102	101	70-130	1	20	
Nickel	ug/L	ND	500	500	499	484	99	97	70-130	3	20	
Zinc	ug/L	ND	500	500	516	505	103	101	70-130	2	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: PRINCE WILLIAM CO
Pace Project No.: 92569558

QC Batch: 656292
QC Batch Method: SM 2540D-2011
Analysis Method: SM 2540D-2011
Analysis Description: 2540D Total Suspended Solids
Laboratory: Pace Analytical Services - Asheville
Associated Lab Samples: 92569558001, 92569558002

METHOD BLANK: 3440549 Matrix: Water
Associated Lab Samples: 92569558001, 92569558002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Suspended Solids	mg/L	ND	1.0	10/29/21 17:38	

LABORATORY CONTROL SAMPLE: 3440550

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Suspended Solids	mg/L	250	248	99	90-110	

SAMPLE DUPLICATE: 3440638

Parameter	Units	92569333002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	208	145	36	10	1g,D6

SAMPLE DUPLICATE: 3440639

Parameter	Units	92569333003 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	345	344	0	10	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: PRINCE WILLIAM CO
Pace Project No.: 92569558

QC Batch: 656453
QC Batch Method: EPA 9040C
Analysis Method: EPA 9040C
Analysis Description: 9040 pH
Laboratory: Pace Analytical Services - Asheville
Associated Lab Samples: 92569558001, 92569558002

SAMPLE DUPLICATE: 3441291

Parameter	Units	92568349005 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	6.1	5.6	9	10	D6,H3

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: PRINCE WILLIAM CO
Pace Project No.: 92569558

QC Batch: 656768
QC Batch Method: EPA 350.1 Rev 2.0 1993
Analysis Method: EPA 350.1 Rev 2.0 1993
Analysis Description: 350.1 Ammonia
Laboratory: Pace Analytical Services - Asheville
Associated Lab Samples: 92569558001

METHOD BLANK: 3442785 Matrix: Water
Associated Lab Samples: 92569558001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, Ammonia	mg/L	ND	0.10	11/02/21 11:57	

LABORATORY CONTROL SAMPLE: 3442786

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Ammonia	mg/L	5	5.0	101	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3442787 3442788

Parameter	Units	92568167001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, Ammonia	mg/L	ND	5	5	5.1	5.1	101	101	90-110	0	10	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3442789 3442790

Parameter	Units	92568312001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, Ammonia	mg/L	ND	5	5	5.2	5.2	104	103	90-110	0	10	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: PRINCE WILLIAM CO
Pace Project No.: 92569558

QC Batch: 656978
QC Batch Method: EPA 350.1 Rev 2.0 1993
Analysis Method: EPA 350.1 Rev 2.0 1993
Analysis Description: 350.1 Ammonia
Laboratory: Pace Analytical Services - Asheville
Associated Lab Samples: 92569558002

METHOD BLANK: 3443855 Matrix: Water
Associated Lab Samples: 92569558002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, Ammonia	mg/L	ND	0.10	11/03/21 10:05	

LABORATORY CONTROL SAMPLE: 3443856

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Ammonia	mg/L	5	5.1	102	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3443891 3443892

Parameter	Units	92569537002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, Ammonia	mg/L	11.8	5	5	16.8	16.7	98	97	90-110	0	10	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3443893 3443894

Parameter	Units	92569558002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, Ammonia	mg/L	ND	5	5	5.3	5.3	106	105	90-110	0	10	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: PRINCE WILLIAM CO
Pace Project No.: 92569558

QC Batch: 657202
QC Batch Method: EPA 351.2 Rev 2.0 1993
Analysis Method: EPA 351.2 Rev 2.0 1993
Analysis Description: 351.2 TKN
Laboratory: Pace Analytical Services - Asheville
Associated Lab Samples: 92569558001, 92569558002

METHOD BLANK: 3444837 Matrix: Water
Associated Lab Samples: 92569558001, 92569558002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, Kjeldahl, Total	mg/L	ND	0.50	11/05/21 04:39	

LABORATORY CONTROL SAMPLE: 3444838

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Kjeldahl, Total	mg/L	10	9.6	96	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3444839 3444840

Parameter	Units	92568852001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, Kjeldahl, Total	mg/L	6.3	10	10	16.8	16.6	104	103	90-110	1	10	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3447457 3447458

Parameter	Units	92568867002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, Kjeldahl, Total	mg/L	8.6	10	10	19.5	19.9	109	113	90-110	2	10	M1

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: PRINCE WILLIAM CO
Pace Project No.: 92569558

QC Batch: 656474
QC Batch Method: EPA 353.2 Rev 2.0 1993
Analysis Method: EPA 353.2 Rev 2.0 1993
Analysis Description: 353.2 Nitrate + Nitrite, preserved
Laboratory: Pace Analytical Services - Asheville
Associated Lab Samples: 92569558001, 92569558002

METHOD BLANK: 3441349 Matrix: Water
Associated Lab Samples: 92569558001, 92569558002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	ND	0.040	11/01/21 12:10	

LABORATORY CONTROL SAMPLE: 3441350

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	2.5	2.5	100	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3441524 3441525

Parameter	Units	92568285001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, NO2 plus NO3	mg/L	4.4	2.5	2.5	11.6	11.2	288	270	90-110	4	10	M1

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3441526 3441527

Parameter	Units	92568339001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, NO2 plus NO3	mg/L	13.6	2.5	2.5	15.9	15.7	93	87	90-110	1	10	M1

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: PRINCE WILLIAM CO
Pace Project No.: 92569558

QC Batch: 657336
QC Batch Method: EPA 365.1 Rev 2.0 1993
Analysis Method: EPA 365.1 Rev 2.0 1993
Analysis Description: 365.1 Phosphorus, Total
Laboratory: Pace Analytical Services - Asheville
Associated Lab Samples: 92569558001, 92569558002

METHOD BLANK: 3445930 Matrix: Water
Associated Lab Samples: 92569558001, 92569558002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Phosphorus	mg/L	ND	0.050	11/03/21 23:26	

LABORATORY CONTROL SAMPLE: 3445931

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Phosphorus	mg/L	2.5	2.6	104	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3445932 3445933

Parameter	Units	92568285001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Phosphorus	mg/L	2.4	2.5	2.5	4.8	4.9	99	100	90-110	1	10	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3445934 3445935

Parameter	Units	92568945002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Phosphorus	mg/L	68.6	2.5	2.5	70.0	70.6	52	80	90-110	1	10	M1

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: PRINCE WILLIAM CO
Pace Project No.: 92569558

QC Batch: 657724
QC Batch Method: SM 5220D-2011
Analysis Method: SM 5220D-2011
Analysis Description: 5220D COD
Laboratory: Pace Analytical Services - Asheville
Associated Lab Samples: 92569558001, 92569558002

METHOD BLANK: 3447790 Matrix: Water
Associated Lab Samples: 92569558001, 92569558002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chemical Oxygen Demand	mg/L	ND	25.0	11/05/21 06:03	

LABORATORY CONTROL SAMPLE: 3447791

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chemical Oxygen Demand	mg/L	750	780	104	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3447792 3447793

Parameter	Units	92569116001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chemical Oxygen Demand	mg/L	5010	100	100	5080	5100	72	95	90-110	0	3	M1

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3447794 3447795

Parameter	Units	92569173001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chemical Oxygen Demand	mg/L	ND	100	100	110	110	95	95	90-110	0	3	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALIFIERS

Project: PRINCE WILLIAM CO
Pace Project No.: 92569558

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

Acid preservation may not be appropriate for 2 Chloroethylvinyl ether.

A separate vial preserved to a pH of 4-5 is recommended in SW846 Chapter 4 for the analysis of Acrolein and Acrylonitrile by EPA Method 8260.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Reported results are not rounded until the final step prior to reporting. Therefore, calculated parameters that are typically reported as "Total" may vary slightly from the sum of the reported component parameters.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

1g	Constant weight could not be achieved for this sample after 3 drying cycles. The final weight change was 0.0013g.
D6	The precision between the sample and sample duplicate exceeded laboratory control limits.
H3	Sample was received or analysis requested beyond the recognized method holding time.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: PRINCE WILLIAM CO
Pace Project No.: 92569558

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92569558001	**DAL10252021**	EPA 200.7 Rev 4.4 1994	656340	EPA 200.7 Rev 4.4 1994	656369
92569558002	**MAN10252021**	EPA 200.7 Rev 4.4 1994	656340	EPA 200.7 Rev 4.4 1994	656369
92569558001	**DAL10252021**	SM 2540D-2011	656292		
92569558002	**MAN10252021**	SM 2540D-2011	656292		
92569558001	**DAL10252021**	EPA 9040C	656453		
92569558002	**MAN10252021**	EPA 9040C	656453		
92569558001	**DAL10252021**	TKN+NO3+NO2 Calculation	657960		
92569558002	**MAN10252021**	TKN+NO3+NO2 Calculation	657960		
92569558001	**DAL10252021**	EPA 350.1 Rev 2.0 1993	656768		
92569558002	**MAN10252021**	EPA 350.1 Rev 2.0 1993	656978		
92569558001	**DAL10252021**	EPA 351.2 Rev 2.0 1993	657202	EPA 351.2 Rev 2.0 1993	657735
92569558002	**MAN10252021**	EPA 351.2 Rev 2.0 1993	657202	EPA 351.2 Rev 2.0 1993	657735
92569558001	**DAL10252021**	EPA 353.2 Rev 2.0 1993	656474		
92569558002	**MAN10252021**	EPA 353.2 Rev 2.0 1993	656474		
92569558001	**DAL10252021**	EPA 365.1 Rev 2.0 1993	657336	EPA 365.1 Rev 2.0 1993	657368
92569558002	**MAN10252021**	EPA 365.1 Rev 2.0 1993	657336	EPA 365.1 Rev 2.0 1993	657368
92569558001	**DAL10252021**	SM 5220D-2011	657724	SM 5220D-2011	657742
92569558002	**MAN10252021**	SM 5220D-2011	657724	SM 5220D-2011	657742

REPORT OF LABORATORY ANALYSIS

liibor. torv rec Jvll'lfs mpl_e.s :

Ashevllle.l&] l; enO-Greonwoo :o HYnJersvll.le ☐ aterg tJ Me hal'!lcsvllleO Atlanta. ☐ :Ke.rl'ie.Y.s.!dUeCl,:

Siln1ule Condi11on Upon Receip

Cll'ei)tName: l--lo d E+I

PtoJec IJQ# : 92569558

Courier: ☐ Corh:inafciaf ☐ Fed Ex ☐ UPS ☐ USPS ☐ Pace ☐ Other:

..oi mu 1111111111111

Custody Seal Present? ☐Yes ☒No Seals Intact? ☐Yes

Date/Initials Person Examining Contents: 10-29-21 AK

Packing Material: QErubble'Wr.ip ☐Bubble Bags ☒None ☐ Other

BIQlogl I Tf.isuli-Fi:imn1

Thermom er: Oves· Ot.,i"a N/A

ltll:lunIOi. q :, 7i07/ / .l.... Type ri/ lt .l IX)w f .Owue·

C.oOlar.famp: Cormtlon Fac r: O

Add/Subt:raci ('C) _____ _,

l'ero1nt10Ljld-b libiive freezlrig to 6'C

Qsainpf,:,s out: / temp r!t rli, s. rnple n1/,Jjlti·gproms-'hn bog:im

Cliolat ftimp Correcte:d (C): /•.l

USDA RtiB\llated Safi (01N/A, walllr sample)

6'd m11PIJ!fot1glnate'fria:quili:anllne ,ona-wllhlil lhe'Unlted St ttfS}CII, NV,-o c{chemap·st.i -QI SaJ11Jll arigl ijie flam afor'lll so·wca(lilten•J1tio"i1llly;

Yes J8lNq. 11¢1udln'S°ffawaJhnd·rvertqRtooJl OV t

					Comments/Discrepancy:
Chaln·of c::111tqd Present?	☒Yes	☐No	☐N/A	1.	
Samples Arrived within Hold Time?	☒Yes	☐No	☐N/A	2.	
Short Hold Time Analysis (<72 hr.)?	☐Yes	☒No	☐N/A	3.	
flush Turi:rAroumfTlme Re ue:.1,d?	☐Yes	☒No	☐N/A	4.	
-S-ufficlcnt'-llolumeil	☒Yes	☐No	☐N/A	5.	
l:or.111ct Containers U1ed?	☒Yes	☐No	☐N/A	6.	
-Paco Cpnt. li111 Used?.	☒Yes	☐No	☐N/A		
Containers Intact?	☒Yes	☐No	☐N/A	7.	
Dfssolvell anal .s!s: Sarn IC!s Fl!!ld FUtell!d 7	☐Yes	☐No	☒N/A	8.	
lioiftrplc! Labels Match CQC?.	☒Yes	☐No	☐N/A	9.	
-Includes Date/Time/ID/Analysis Matrix: W					
teadspaco In VOA Vials (>5-6mm)?	☐Yes	☐No	☒N/A	10.	
Trip·s1a·n1tPr.e-s'eot1	☐Yes	☐No	☒N/A	i1,	
'frl 1 artk·custOd·.Seals P eseilt	☐Yes	☐No	☒N/A		

COMMENTS/SAMPLE DISCREPANCY

Tield Data Required? ☐Yes ☐No

Lot ID ofspllt Cfil'.ltilin,er .:

CLl,ENT'NOTIFIt!<'rfO_NlR SOLtlhON

P.er-s.onc n a.cted;. _ IJatc/Tim :

Project Manager SCURF Review:: Date:

Project Manager SRF Review: Date:

Pace Analytical	lloeµh:,ent Natne; .Sampla Cbndl on Uporr R e el i S"CU RI Oocum MtNoif F-CAR-CS-033-Rev.07	D0¢!!111trit:Revl. _ ./rlctp.ber-28, 202 0. ;Peg 2 of 2 lssuin& A.11thor1ty: Pace Carolli... n,. IIL:>'.

'l!Ch,ck malik=t.?PhQlf of ox I.f H and/Qi'-:dec_hJc:,rlnatlQ,:lis vetlfle a11_d_wit l'1 t e ., c pt,aMe ranfe for=p·remvatfoh

*$am*ples,

EicCl!Pll ::voA;,Coliform,.TOC, 011:and,me s(l',.OR0/8015(Wiilel),o:r:i:c,tl B-

*"'Qqtto.!hhalf c,fboic Is·to ltst n m - i'of boijie

· ri.ewoii9 **2569558**

Que Dale: 11/05/21

P... RN& **VA**

CLIENT: **92-Amiec**

Item#	BP4U-125 mL Plastic Unpreserved (N/A) (Cl-)	BP3U-250 mL Plastic Unpreserved (N/A)	BP2U-500 mL Plastic Unpreserved (N/A)	BP1U-1 liter Plastic Unpreserved (N/A)	BP4S-125 mL Plastic H2SO4 (pH < 2) (Cl-)	BP3N-250 mL plastic HNO3 (pH < 2)	BP4Z-125 mL Plastic ZN Acetate & NaOH (>9)	BP4C-125 mL Plastic NaOH (pH > 12) (Cl-)	WGFU-Wide-mouthed Glass jar Unpreserved	AG1U-1 liter Amber Unpreserved (N/A) (Cl-)	AG1H-1 liter Amber HCl (pH < 2)	AG3U-250 mL Amber Unpreserved (N/A) (Cl-)	AG1S-1 liter Amber H2SO4 (pH < 2)	AG3S-250 mL Amber H2SO4 (pH < 2)	AG3A(DG3A)-250 mL Amber NH4Cl (N/A)(Cl-)	DG9H-40 mL VOA HCl (N/A)	VG9T-40 mL VOA Na2S2O3 (N/A)	VG9U-40 mL VOA Unp (N/A)	DG9P-40 mL VOA H3PO4 (N/A)	VOAK (6 vials per kit)-5035 kit (N/A)	V/GK (3 vials per kit)-VPH/Gas kit (N/A)	SP5T-125 mL Sterile Plastic (N/A – lab)	SP2T-250 mL Sterile Plastic (N/A – lab)		BP3A-250 mL Plastic (NH2)2SO4 (9.3-9.7)	AG0U-100 mL Amber Unpreserved vials (N/A)	VSGU-20 mL Scintillation vials (N/A)	DG9U-40 mL Amber Unpreserved vials (N/A)
1	1 ✓			1	1 ✓	1 ✓																						
2	1 ✓			1	2 ✓	1 ✓																						
3																												
4																												
5																												
6																												
7																												
8																												
9																												
10																												
11																												
12																												

pH AdjustmE!rtt Lo .for Preserved samples

S4mplo 10	Type 6f Prenr atlve	pH upi,n-ttc lpt	Date p.(ervatlpn ailJu t d.	TJ_m_A.prtsRJV&Ul>I) ;.d]Ull-d	i\·1110u111ci.f P.r.aicrv' ti e idded	lQI II

N.ot_a.; W11e11over.1h,ra·l11dbcr •lCV a!fectlng North Carolina compliance 1amples, a c:opy,oflhls forf11-WIIIbo m,tto,the Nortb Caro oa DEtlNR Certlllc tlon Ofllt'I! (l.e, O l"'of hold, lnco(r.ect Pfemv;itive, out of \tll)p, Incorr dcootalr.ors.

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at htlpc:/fanfo.pacelab:s.comlhubfsfpa::-slandard-te=

Page: 1 Of

Section A
Required Client Information:
Company: Wood E&I - Ch
Address: 4795 Meadow Wood Lane
Chantilly, VA 20151
Email: benjamin.green@amecfw.com
Phone: (703)488-3795
Requested Due Date:

Report To: Benjamin Green
Copy To:
Order:
Project Name:
INCE WILLIAM CO Q3 2021

Attention:
Pace Profile #: 8125-
.brumfield@pacelabs.c

Regulatory Agency
State / Location: VA

ITEM #	Sample Ids (A-Z, 0-9 / , -) must be unique	Collected Time		Preservatives	Analyses Test Y/N	pH	Metals	TSS	Ammonia/Phosphorus/COD	TKN + Nitrate+Nitrite
					Y	→		→		Y
1	DAL10252					X	→		→	X
2	MAN10252					X	→		→	X
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										

Relinquished by / Affiliation	Date	Time	Accepted by / Affiliation	Date	Time	Sample Conditions			
Ilana Tan / Wood	10/27/21	1700	A. Rucker / PACE / AVL	10-28-21	1100	1.2	Y	N	Y

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: Ilana Tan
SIGNATURE of SAMPLER: [signature]

Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

November 29, 2021

Benjamin Green
WOOD E&I
4795 Meadow Wood Lane
Suite 310E
Chantilly, VA 20151

RE: Project: Prince William Co Q4 2021
Pace Project No.: 92573065

Dear Benjamin Green:

Enclosed are the analytical results for sample(s) received by the laboratory on November 17, 2021. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Asheville

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Ryan Brumfield
ryan.brumfield@pacelabs.com
(770)734-4200
Project Manager

Enclosures

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

CERTIFICATIONS

Project: Prince William Co Q4 2021
Pace Project No.: 92573065

Pace Analytical Services Asheville
2225 Riverside Drive, Asheville, NC 28804
Florida/NELAP Certification #: E87648
North Carolina Drinking Water Certification #: 37712
North Carolina Wastewater Certification #: 40
South Carolina Laboratory ID: 99030
South Carolina Certification #: 99030001
Virginia/VELAP Certification #: 460222

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

SAMPLE SUMMARY

Project: Prince William Co Q4 2021
Pace Project No.: 92573065

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92573065001	**MAN11122021**	Water	11/12/21 03:30	11/17/21 11:10

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

SAMPLE ANALYTE COUNT

Project: Prince William Co Q4 2021
Pace Project No.: 92573065

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92573065001	**MAN11122021**	EPA 200.7 Rev 4.4 1994	CBV	4	PASI-A
		SM 2540D-2011	MJP	1	PASI-A
		EPA 9040C	SMK	1	PASI-A
		EPA 350.1 Rev 2.0 1993	NGP	1	PASI-A
		EPA 351.2 Rev 2.0 1993	MFO	1	PASI-A
		EPA 353.2 Rev 2.0 1993	KDF1	1	PASI-A
		EPA 365.1 Rev 2.0 1993	MDW	1	PASI-A
		SM 5220D-2011	JP1	1	PASI-A

PASI-A = Pace Analytical Services - Asheville

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

ANALYTICAL RESULTS

Project: Prince William Co Q4 2021
Pace Project No.: 92573065

Sample: MAN11122021 **Lab ID: 92573065001** Collected: 11/12/21 03:30 Received: 11/17/21 11:10 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 MET ICP	Analytical Method: EPA 200.7 Rev 4.4 1994 Preparation Method: EPA 200.7 Rev 4.4 1994 Pace Analytical Services - Asheville							
Copper	**40.8**	ug/L	5.0	1	11/19/21 11:16	11/24/21 06:25	7440-50-8	
Lead	**11.2**	ug/L	5.0	1	11/19/21 11:16	11/24/21 06:25	7439-92-1	
Nickel	**5.9**	ug/L	5.0	1	11/19/21 11:16	11/24/21 06:25	7440-02-0	
Zinc	**131**	ug/L	10.0	1	11/19/21 11:16	11/24/21 06:25	7440-66-6	
2540D TSS, Low-Level	Analytical Method: SM 2540D-2011 Pace Analytical Services - Asheville							
Total Suspended Solids	**100**	mg/L	4.0	1		11/18/21 13:37		
9040 pH	Analytical Method: EPA 9040C Pace Analytical Services - Asheville							
pH at 25 Degrees C	**7.6**	Std. Units	0.10	1		11/23/21 10:48		H3
350.1 Ammonia	Analytical Method: EPA 350.1 Rev 2.0 1993 Pace Analytical Services - Asheville							
Nitrogen, Ammonia	ND	mg/L	0.10	1		11/19/21 13:07	7664-41-7	
351.2 Total Kjeldahl Nitrogen	Analytical Method: EPA 351.2 Rev 2.0 1993 Preparation Method: EPA 351.2 Rev 2.0 1993 Pace Analytical Services - Asheville							
Nitrogen, Kjeldahl, Total	**1.0**	mg/L	0.50	1	11/23/21 04:11	11/24/21 06:45	7727-37-9	
353.2 Nitrogen, NO2/NO3 pres.	Analytical Method: EPA 353.2 Rev 2.0 1993 Pace Analytical Services - Asheville							
Nitrogen, NO2 plus NO3	**0.54**	mg/L	0.040	1		11/22/21 12:40		
365.1 Phosphorus, Total	Analytical Method: EPA 365.1 Rev 2.0 1993 Preparation Method: EPA 365.1 Rev 2.0 1993 Pace Analytical Services - Asheville							
Phosphorus	**0.21**	mg/L	0.050	1	11/18/21 00:46	11/18/21 20:33	7723-14-0	
5220D COD	Analytical Method: SM 5220D-2011 Preparation Method: SM 5220D-2011 Pace Analytical Services - Asheville							
Chemical Oxygen Demand	**64.0**	mg/L	25.0	1	11/19/21 02:33	11/19/21 06:02		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: Prince William Co Q4 2021
Pace Project No.: 92573065

QC Batch: 661080
QC Batch Method: EPA 200.7 Rev 4.4 1994
Analysis Method: EPA 200.7 Rev 4.4 1994
Analysis Description: 200.7 MET
Laboratory: Pace Analytical Services - Asheville
Associated Lab Samples: 92573065001

METHOD BLANK: 3463891 Matrix: Water
Associated Lab Samples: 92573065001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Copper	ug/L	ND	5.0	11/24/21 05:02	
Lead	ug/L	ND	5.0	11/24/21 05:02	
Nickel	ug/L	ND	5.0	11/24/21 05:02	
Zinc	ug/L	ND	10.0	11/24/21 05:02	

LABORATORY CONTROL SAMPLE: 3463892

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Copper	ug/L	500	496	99	85-115	
Lead	ug/L	500	501	100	85-115	
Nickel	ug/L	500	486	97	85-115	
Zinc	ug/L	500	500	100	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3463893 3463894

Parameter	Units	92572323001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Copper	ug/L	0.0075 mg/L	500	500	494	560	97	111	70-130	13	20	
Lead	ug/L	ND	500	500	500	561	100	112	70-130	12	20	
Nickel	ug/L	ND	500	500	479	554	96	110	70-130	14	20	
Zinc	ug/L	0.035 mg/L	500	500	538	615	101	116	70-130	13	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3463895 3463896

Parameter	Units	92572999001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Copper	ug/L	7.9	500	500	544	548	107	108	70-130	1	20	
Lead	ug/L	ND	500	500	514	524	102	104	70-130	2	20	
Nickel	ug/L	0.025 mg/L	500	500	513	520	98	99	70-130	1	20	
Zinc	ug/L	ND	500	500	505	509	100	101	70-130	1	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: Prince William Co Q4 2021
Pace Project No.: 92573065

QC Batch: 660790
QC Batch Method: SM 2540D-2011
Analysis Method: SM 2540D-2011
Analysis Description: 2540D Total Suspended Solids
Laboratory: Pace Analytical Services - Asheville
Associated Lab Samples: 92573065001

METHOD BLANK: 3462267 Matrix: Water
Associated Lab Samples: 92573065001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Suspended Solids	mg/L	ND	1.0	11/18/21 13:36	

LABORATORY CONTROL SAMPLE: 3462268

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Suspended Solids	mg/L	250	250	100	90-110	

SAMPLE DUPLICATE: 3462549

Parameter	Units	92573102001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	77.0	78.0	1	10	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: Prince William Co Q4 2021
Pace Project No.: 92573065

QC Batch: 661789
QC Batch Method: EPA 9040C
Analysis Method: EPA 9040C
Analysis Description: 9040 pH
Laboratory: Pace Analytical Services - Asheville

Associated Lab Samples: 92573065001

SAMPLE DUPLICATE: 3467284

Parameter	Units	92572259001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.9	7.9	0	10	H3

SAMPLE DUPLICATE: 3467285

Parameter	Units	92572800001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	6.8	6.8	0	10	H3

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: Prince William Co Q4 2021
Pace Project No.: 92573065

QC Batch: 661058
QC Batch Method: EPA 350.1 Rev 2.0 1993
Analysis Method: EPA 350.1 Rev 2.0 1993
Analysis Description: 350.1 Ammonia
Laboratory: Pace Analytical Services - Asheville
Associated Lab Samples: 92573065001

METHOD BLANK: 3463832 Matrix: Water
Associated Lab Samples: 92573065001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, Ammonia	mg/L	ND	0.10	11/19/21 12:31	

LABORATORY CONTROL SAMPLE: 3463833

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Ammonia	mg/L	5	5.0	99	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3463834 3463835

Parameter	Units	92571852003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, Ammonia	mg/L	ND	5	5	4.6	4.6	92	92	90-110	0	10	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3463836 3463837

Parameter	Units	92571852004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, Ammonia	mg/L	ND	5	5	5.0	5.0	98	99	90-110	0	10	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: Prince William Co Q4 2021
Pace Project No.: 92573065

QC Batch: 661560
QC Batch Method: EPA 351.2 Rev 2.0 1993
Analysis Method: EPA 351.2 Rev 2.0 1993
Analysis Description: 351.2 TKN
Laboratory: Pace Analytical Services - Asheville
Associated Lab Samples: 92573065001

METHOD BLANK: 3466287 Matrix: Water
Associated Lab Samples: 92573065001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, Kjeldahl, Total	mg/L	ND	0.50	11/24/21 06:21	

LABORATORY CONTROL SAMPLE: 3466288

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Kjeldahl, Total	mg/L	10	10.7	107	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3466289 3466290

Parameter	Units	92572661004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, Kjeldahl, Total	mg/L	0.93	10	10	12.6	12.8	117	119	90-110	2	10	M1

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3466291 3466292

Parameter	Units	92572654001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, Kjeldahl, Total	mg/L	11.9	10	10	26.2	24.4	143	125	90-110	7	10	M1

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: Prince William Co Q4 2021
Pace Project No.: 92573065

QC Batch: 661458
QC Batch Method: EPA 353.2 Rev 2.0 1993
Analysis Method: EPA 353.2 Rev 2.0 1993
Analysis Description: 353.2 Nitrate + Nitrite, preserved
Laboratory: Pace Analytical Services - Asheville
Associated Lab Samples: 92573065001

METHOD BLANK: 3465655 Matrix: Water
Associated Lab Samples: 92573065001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	ND	0.040	11/22/21 12:13	

LABORATORY CONTROL SAMPLE: 3465656

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	2.5	2.5	101	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3465657 3465658

Parameter	Units	92571818001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, NO2 plus NO3	mg/L	ND	2.5	2.5	2.1	2.1	82	83	90-110	1	10	M1

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3465659 3465660

Parameter	Units	92571838001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, NO2 plus NO3	mg/L	ND	2.5	2.5	2.1	2.1	85	85	90-110	0	10	M1

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: Prince William Co Q4 2021
Pace Project No.: 92573065

QC Batch: 660655
QC Batch Method: EPA 365.1 Rev 2.0 1993
Analysis Method: EPA 365.1 Rev 2.0 1993
Analysis Description: 365.1 Phosphorus, Total
Laboratory: Pace Analytical Services - Asheville
Associated Lab Samples: 92573065001

METHOD BLANK: 3461897 Matrix: Water
Associated Lab Samples: 92573065001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Phosphorus	mg/L	ND	0.050	11/18/21 20:23	

LABORATORY CONTROL SAMPLE: 3461898

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Phosphorus	mg/L	2.5	2.6	102	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3461899 3461900

Parameter	Units	92571838002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Phosphorus	mg/L	3.6	2.5	2.5	6.3	6.3	107	107	90-110	0	10	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: Prince William Co Q4 2021
Pace Project No.: 92573065

QC Batch: 660991
QC Batch Method: SM 5220D-2011
Analysis Method: SM 5220D-2011
Analysis Description: 5220D COD
Laboratory: Pace Analytical Services - Asheville
Associated Lab Samples: 92573065001

METHOD BLANK: 3463693 Matrix: Water
Associated Lab Samples: 92573065001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chemical Oxygen Demand	mg/L	ND	25.0	11/19/21 05:56	

LABORATORY CONTROL SAMPLE: 3463694

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chemical Oxygen Demand	mg/L	750	766	102	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3463695 3463696

Parameter	Units	92571935001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chemical Oxygen Demand	mg/L	31.0	100	100	149	132	118	101	90-110	12	3	M1,R1

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3463697 3463698

Parameter	Units	92572050001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chemical Oxygen Demand	mg/L	464	100	100	568	584	104	120	90-110	3	3	M1

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALIFIERS

Project: Prince William Co Q4 2021
Pace Project No.: 92573065

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

Acid preservation may not be appropriate for 2 Chloroethylvinyl ether.

A separate vial preserved to a pH of 4-5 is recommended in SW846 Chapter 4 for the analysis of Acrolein and Acrylonitrile by EPA Method 8260.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Reported results are not rounded until the final step prior to reporting. Therefore, calculated parameters that are typically reported as "Total" may vary slightly from the sum of the reported component parameters.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

H3	Sample was received or analysis requested beyond the recognized method holding time.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
R1	RPD value was outside control limits.

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Prince William Co Q4 2021
Pace Project No.: 92573065

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92573065001	**MAN11122021**	EPA 200.7 Rev 4.4 1994	661080	EPA 200.7 Rev 4.4 1994	661260
92573065001	**MAN11122021**	SM 2540D-2011	660790		
92573065001	**MAN11122021**	EPA 9040C	661789		
92573065001	**MAN11122021**	EPA 350.1 Rev 2.0 1993	661058		
92573065001	**MAN11122021**	EPA 351.2 Rev 2.0 1993	661560	EPA 351.2 Rev 2.0 1993	662059
92573065001	**MAN11122021**	EPA 353.2 Rev 2.0 1993	661458		
92573065001	**MAN11122021**	EPA 365.1 Rev 2.0 1993	660655	EPA 365.1 Rev 2.0 1993	660959
92573065001	**MAN11122021**	SM 5220D-2011	660991	SM 5220D-2011	661029

PA ;'	O u_J)1\lo..t Ni!me: Samole'CcirHlltl.Dn trpon, ecelpt(SCURI	Diliument Revire.dt October. 28; 2020 Page-'1 or2 ..
	P.P.<111tl.l (ItNo,: F„CM _C$,()3R ev.07	Issliln AuUiotitv: R . eC<1ro)lrias Qualitr,Office

l bor:ato.r.v.re,c. Mngsatnple:s:

·Ashevllle·l8.J . denQ_ -Gr1;1enwoo(ir:J H1.10W vllle O RalelghQ' l\1'e;f.1lnl(v1U¢'0 ,Atlanta ☐ Kert\Eirs lllen:

Sample Cond11ion Upon Receip

(:it·entName}

· Woac/ E J.;I •CA.r,rr,t,'1/y

eroJ, IJQ# : 92573065

Courier: [] Com:mercial

00Fed Ex OPace ☐UPS Ou.sps: 06ttrer-:_

oh t I\I\\I II\ Ill \Ill \1111\1

92573065

'ustody Seal Present? ☐Yes X]No Seals Intact?

ate/(nitials Person Examining Contents: 11-17-21 AK

Packing Material: ☐Bubble Wrap ☐Bubble B<! S• L!]None: ☐ Olher

fql_qgidlT($$Ue Frozen]

'PYes 0Na l!]N/tl.

Thermometer':

Kl 11\."Gun 10: Cf3 707 / , 1 q

Co-rre_ciJon.Fa tor:

ia1wet Ooluo

'ype of Ice:

·C.oofer Temp: "11

·Add/Subt'rat1 ('C)-o..

Temp-1ho lcj.be nbove freezliig to 6"C (Jsan, les <>ut:oftemp ultefla. s_el'!)p! n fee; co .lln ·process hQ.Sb gliii

Cooler Tamp·cor ected ('C): t./ 1 9

USD1Y egul11ted Soll ([81N/ ,1 ,.t.er.$ 1l)ple_).....:.....:.....:.....;:.----

i'Jfa ranJplcs.orlk\natifhi e·iquar.rilll'le-iciriawllhirflhe·Unlled States: ct,„ NY;-or Sc (che _\i;map1).7

.tjid si1_111_ple$'at1$ln·aie fco1i1 n fore|gil sc!"ami(llllt.emallgii l!y, rncludin"g"-HawaJhmd Jfuart_o Rh;o)7OVi!5.

☐ Yes Ng.

No ...

Chain of Custody Present?	X]Yes	☐No	☐N/A	i.
S rnpff!JArrl11ed Wlthln·tJnid Tinle:?	X]Yes	☐No	☐N/A	2.,
Short Hold Time Analysis (<72 hr.)?	☐Yes	X]No	☐N/A	·j,
Rush Turn _A 9un(flln1e Requl.!1tea1	☐Yes	X]No	☐N/A	4.
Sufficient Volume?	X]Yes	☐No	☐N/A	·S.
tomtt toit atnerHJsed? -_P _e·Ci!ntalh11r ·.uil!d?.	!!OY.I!.I X]Yes	☐No	☐ I.&	-6,
Containers Intact?	X]Yes	☐No	☐N/A.	7•.
.Vfsso!Ve!l anal .5ls: sarn I E'leld Fllter<!d}	☐Yes	☐No	X]N/A	8·,.
Sample Labels Match COC?	X]Yes	☐No	☐N/A	9.
··Incluc!os Dato . Ime/10//Allal jls Mlitllx:	W T			
Heads aco-ln VOA Vlals_(>S,6mrii -	☐Yes	☐No	X]N/A	.1.0,
frlp Blari_k.Presena	☐Yes	☐No	X]N/A	
Trip lllank-,Custo.d seal P(e.sent?	☐Yes	☐No	X]N/A	

Comrnents/ofi,:i'ancy:

COMME TS/s:„ pl D1$0!_6PAN Y

F.lotd'.Oara Requlrad1- 0'fos 0No.

Lot ID of split containers:

CLIENT NOTIfICATfON/RE.501.UTION

Pe.rs.on co_ntacted ---------- Onle/Tim!!:- -----,- -------,-------

ProJect Manager SC\JIIF.-Revlew:: _____ Data: _____

Project Man;iger SRF Rovlew: _____ Date: _____

Pace Analytical®	l;focullle, ·tN h1e: Sa,„-pltt Condlt(Qll l.Jpii;,·Racel I S<:IJR	Dott.lm rtt R.evbg.::"O tpb11r-28, ip2p '.POe 2 of2 -
	D.o rn!!ntNo'.: F•CAR·GS·033-Rev;0:1'	ls!uing-AutlwrlW: "PBCI! Carollnn o,fillitt:Hlfft......

'Cl:iQc.k mir,k t()p ha.If-pf Q Oklf pH and/or tfet!1.io·rln t1Qh ts yeHJletj•<!".l .Within·\ e.a c; ptance rang,;1-for ptas- rvation !;a1npies.

E"xceptlons:VOA,,Collform;-TOC,-Off and Gre sei DROi801S (W111"eri oo c,LLHg

• ·•sottom half-of box Is to fist 11'1.(,tib ·;--of' ot_(i

P.roj, **IJQ#j : 92573065**

PH: RNB Due Date: 11/24/21

CLIEN1': 92-Amec VA

Item#	BP4U-125 mL Plastic Unpreserved (N/A) (Cl-)	BP3U-250 mL Plastic Unpreserved (N/A)	BP2U-500 mL Plastic Unpreserved (N/A)	BP1U-1 liter Plastic Unpreserved (N/A)	BP4S-125 mL Plastic H2SO4 (pH < 2) (Cl-)	BP3N-250 mL plastic HNO3 (pH < 2)	BP4Z-125 mL Plastic ZN Acetate & NaOH (>9)	BP4C-125 mL Plastic NaOH (pH > 12) (Cl-)	WGFU-Wide-mouthed Glass jar Unpreserved	AG1U-1 liter Amber Unpreserved (N/A) (Cl-)	AG1H-1 liter Amber HCl (pH < 2)	AG3U-250 mL Amber Unpreserved (N/A) (Cl-)	AG1S-1 liter Amber H2SO4 (pH < 2)	AG3S-250 mL Amber H2SO4 (pH < 2)	AG3A(DG3A)-250 mL Amber NH4Cl (N/A)(Cl-)	DG9H-40 mL VOA HCl (N/A)	VG9T-40 mL VOA Na2S2O3 (N/A)	VG9U-40 mL VOA Unp (N/A)	DG9P-40 mL VOA H3PO4 (N/A)	VOAK (6 vials per kit)-5035 kit (N/A)	V/GK (3 vials per kit)-VPH/Gas kit (N/A)	SP5T-125 mL Sterile Plastic (N/A – lab)	SP2T-250 mL Sterile Plastic (N/A – lab)		BP3A-250 mL Plastic (NH2)2SO4 (9.3-9.7)	AG0U-100 mL Amber Unpreserved vials (N/A)	VSGU-20 mL Scintillation vials (N/A)	DG9U-40 mL Amber Unpreserved vials (N/A)
1	✓			/	✓	✓																						
2																												
3																												
4																												
5																												
6																												
7																												
8																												
9																												
10																												
11																												
12																												

pH Adj4.sJrrie nt Log_far Preserved Sam pies

Sa P.lc·10	Type ol Preser allv"e	pH upon t!lc:elp 1	!) te pl' _Jc_rua l I)ai!Just d	Time preserv,tlon dJ ,t d .	"M1ount oJ P.r.eteil'.Jtlve ad ed	Lot#

Notei When ever th1 1re Is n d l s c r e Po n(V arfe ctJi-t!Nl ciith•C Jolfoaconiplieif sam ileJ, a cop.y. cif thb:f oL m wlllJeienl,fo-tlill Ncrth i::'arollha DEHNR:tertHtcoUonOfflo! l;e OutOr hold,.1/lcorr-ectprawv .ttiio, out. f"tefl]p,)ry prr et co fncrs:

fl:,

CHAIN-OF-CUSTODY/ Analyti i R quest Document

The Chaln-of:Ct,lslody is.a LEGAL DOCUMENT. All relevant iekis must be Cl?mpleted acrurately.

Submitting a sample wi lhis chain of aislody constitutes ackmwledgment and aa:eplance or I/le Pace Tenna and Conditiona found :rtht!ps-Jlinfo.pacelabs.com/hubf$1 i=a =---•:pdf

Clmlt lnr.mnallon:	ProjectInfonnmcn:	OffIMlioft:	Page: Of 1
uim:pany: Wood E&I • Ctiantil!V	lwpor!Ta: BendlfflinG/e«l	.S t' ll,rlrl 1-1'\dV\11 ff1\'I(M8'rl"l:'l	
4795 MeadowWood Lane	C"lll'To:	IIAIITIDaTV Name:	
01alnlinY. VA20151		Ad<Rss:	
Email: becljamln.Rree-,.,.can	Pun:tmseo,de<flc;	Pace	
p— (6:30)S3&&117 IF...:	Prc,:.dNamr. PRINCE WILLIAM CO Q4 2021	""""Project Manager. ryan.aumlield....,.,..... eom.	
Recµ,sted OU. D;,w:	Projecl1':	"-Pn>ll<>1': 8125-1	VA

SAMPLE ID One 0.aracnr per box. [A-Z, Mf, 5.>mplelds-beunique	0......,W...,_ Walow.lor / Pa.sud Sol/Solid / 01 W',po Alo / 0 r--	CXIOEc CM WII WP / P / Ol WP C1T	COLLECTED START DATE	TIME	END DATE	TIME	Preservatives					
MAN ı I ı1.10 2 \		u	11/l'UZI	033Ci	--	--	:r	N	"I:""	"C"	X	X

aDl

'3rn

m,

ffIt !.

~HID-

or5: 10."1 | tJCi.vlf. | '?---J._ j '\1->0 o J. | I VIS/U \(o 00 | A.l-o.c 'f 1 | Cf: l t!hf L | n--,r,...{

GL cotAe: 5110-00

1/'JCIO o\ PYllJec..+ nvr•d1ey;

\ C, I 1 >. fi (i(J 1

phrue. ·. OGOl

h& : 'It-*

PRINT Name ofSAIIPLER: :J:\ 'i'-D. '"fr,.11

SIGNATURE ots.u!PLER: r),_ DA Signod: 11/15'"/LI

fiii
µJo.:

Wet Weather Monitoring Report

First Quarter 2022 (January 1 – March 31)
Event Date: February 21 – 23, 2022

Prepared for:

Prince William County Department of Public Works
5 County Complex Court, Suite 170
Prince William, Virginia 22192

Prepared by:
Wood Environment & Infrastructure Solutions, Inc.
4795 Meadow Wood Lane, Suite 310E
Chantilly, VA 20151
(703) 488-3700

April 25, 2022
Project No. 151280001

1.0 INTRODUCTION

Wood Environment & Infrastructure Solutions, Inc. (Wood) is pleased to provide this report of wet weather monitoring for compliance with the requirements of the Virginia Stormwater Management Program (VSMP) Municipal Separate Storm Sewer System (MS4) Permit (Number VA0088595), issued by the Virginia Department of Environmental Quality (VDEQ) to Prince William County, Virginia. This report discusses the results of the Q1 sampling events conducted on February 21, 2022 through February 23, 2022 as well as the findings from the water quality analysis results of the sampling event.

2.0 METHODS

Flow rate data were collected at the outfalls by an ISCO 6712 automated sampler coupled with an ISCO 730 bubbler flow module, installed with a Scissors Ring. Flow rate over the course of the sampling events were electronically calculated using ISCO Flowlink 5.1 software, which utilizes the Manning Equation to convert flow level and velocity to flow rate.

SITE #941; MANASSAS, VA

Site #941 is located near 11850 Livingston Road. The site receives a total of 52 acres of upstream drainage area from a land surface that is 34% impervious. County data documents that the pipe is 54 inches in diameter with a slope of 0.03437. This site is subject to backwater conditions as water levels within the downstream pond have risen over the past year. Maintenance is recommended to ensure the continued efficacy of the monitoring program at this site.

SITE #4684; DALE CITY, VA

Site #4684 is located near the corner of Potomac Center Blvd. and Sheffield Hill Way, north of Eastbourne Drive. It drains into a Best Management Practice (BMP) for the Potomac Club residential development. Upstream drainage totals 51 acres, 21% of which is from impervious surfaces. The pipe is 54 inches in diameter with a slope of 0.002593. Storm events at this site are flashy in nature, which is accounted for by programming shorter sample intervals, if necessary, based upon forecast conditions.

The automated samplers were deployed when a qualifying storm event (>0.3 inches precipitation) was forecast for the two monitoring sites. On February 21, Wood staff deployed the samplers at both field sites and programmed the samplers' automated, discrete sampling sequence to initiate upon flow levels exceeding current water levels in each pipe. The samplers were programmed to collect 24 discrete 800 mL samples every hour. Rain gage data were compiled for monitoring stations in the Weather Underground monitoring network. The data were easily accessible online and provided hourly precipitation totals over the monitoring period. Gages were prioritized based on the makeup of the data record (reporting interval) and proximity to monitoring locations.

Following the storm event, staff retrieved the samples and prepared them for shipment to Pace Analytical for water quality analysis. To compile the complete set of discrete samples into a single flow-weighted composite, Flowlink software calculated the storm event discharge using the Manning Equation (continued on the next page):

Equation 1: Manning Equation used to calculate flow rate.

$$Q = VA = \left(\frac{1.49}{n}\right) A R^{\frac{2}{3}} \sqrt{S} \text{ [US]}$$

Q = Flow rate
A = Flow area
V = Avg. velocity
S = Water surface slope
R = Hydraulic Radius
n = Roughness coefficient
1.49 = English units conversion factor

Channel slopes were determined using invert elevations reported in the stormwater infrastructure geospatial data provided by Prince William County. Using flow levels reported by the ISCO samplers, the area and hydraulic radius inside the sampled outfalls could be computed for a given time interval. A Manning's *n* value of 0.013 was assumed for the concrete pipes1. Discrete samples collected over the duration of the storm event were then mixed based on their representative weight within the cumulative flow curve for each storm event. This flow-weighted composite sample was provided to the laboratory for analysis. The resulting analysis is considered the event mean concentration (EMC) of the individual analyte.

3.0 RESULTS

SITE #941; MANASSAS, VA

Sampling occurred from 23:10 on 2/21/22 – 16:20 on 2/22/22. The Global Historical Climatology Network (GHCN) daily gauge in Manassas, VA (USC00445204) recorded 0.10 inches of precipitation over that period with temperatures ranging from 24-67 degrees Fahrenheit. The previous storm event was recorded on 2/4/22, producing 0.40 inch of precipitation.

SITE #4684; DALE CITY, VA

Sampling occurred from 11:00 on 2/22/22 – 08:00 on 2/23/22. The Global Historical Climatology Network (GHCN) daily gauge in Woodbridge, VA (US1VAPW0010) recorded 0.12 inches of precipitation over this same period. The previous storm event was recorded on 2/18/22, producing 0.01 inch of precipitation.

Samples from both sites were retained under refrigeration until they were composited and shipped overnight on 2/28/22 to Pace Analytical Services in Asheville, NC.

1 Chow, V.T. (1959) Open Channel Hydraulics. McGraw-Hill, New York.

3.1 FLOW DATA

SITE #941; MANASSAS, VA

Flow rate reached 74.78 cfs and maintained a relatively steady discharge ranging from 60 cfs to the peak of 74.78 cfs throughout most of the storm. The storm event hydrograph compared with cumulative volume can be seen in Figure 1. Table 1 lists the proportion of each sample mixed with the flow-weighted composite.

Flow rate and volume are calculated by measuring changes in water level over time. Backwater effects are impacting flow meter readings at the outfall point of discharge. Backwater conditions cause elevated readings for flow volume and flow rate.

Figure 1: Flow data over time for the storm event at Site #941 from February 21 to February 22.

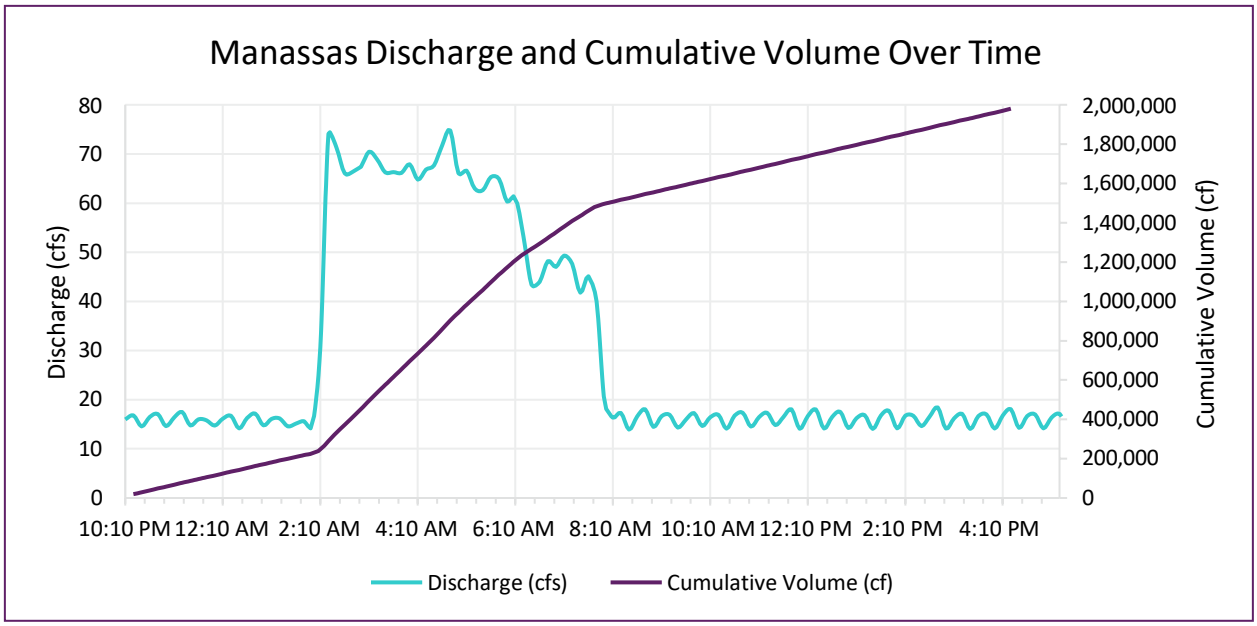


Table 1: Summary of Flow Weighted Composite – Site #941

Bottle #	Time of Sample	Volume (cf)	% of Flow	Flow Weighted Volume (mL)*
1	23:10	67,154.32	3.4	237
2	23:50	38,451.72	1.9	136
3	00:40	46,826.19	2.4	166
4	01:20	38,545.09	1.9	136
5	02:10	54,210.05	2.7	192
6	02:50	166,672.51	8.4	589
7	03:40	203,578.09	10.3	720
8	04:20	159,406.80	8.0	563
9	05:10	208,138.65	10.5	736
10	05:50	153,500.19	7.8	543
11	06:40	157,309.63	7.9	556
12	07:20	115,315.73	5.8	408
13	08:10	97,506.49	4.9	345
14	08:50	39,519.16	2.0	140
15	09:40	46,974.49	2.4	166
16	10:20	39,189.07	2.0	139
17	11:10	47,520.29	2.4	168
18	11:50	40,017.42	2.0	141
19	12:40	47,634.33	2.4	168
20	13:20	38,931.67	2.0	138
21	14:10	47,681.49	2.4	169
22	14:50	39,802.71	2.0	141
23	15:40	46,898.69	2.4	166
24	16:20	39,578.45	2.0	140

**7.0 L Sample*

SITE #4684; DALE CITY, VA

Flow rate reached 0.266 cfs and peaks three times through the course of the storm event. The storm event hydrograph compared with cumulative volume can be seen in Figure 2. Table 2 lists the volume of sample collected compared to the cumulative volume during the time of sample collection. The storm produced insufficient flow in the evening and early morning period of the storm and samples were not collected between the hours of 19:50 on 2/22/22 - 04:30 on 2/23/22. The sampler collected samples for 6 of 24 bottles and a grab sample was collected during the sampler retrieval for a total of 7 sample bottles. The 7 sample bottles were combined into a single composite grab sample.

Figure 2: Flow data over time for the storm event at Site #4684 on February 22 to February 23.

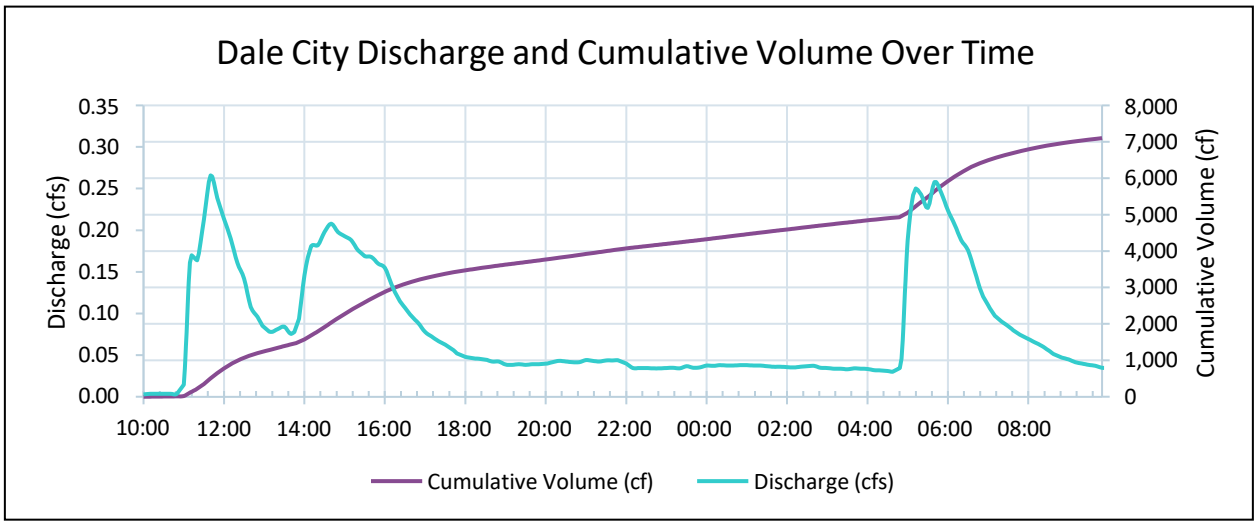


Table 2: Summary of Composite Sample– Site #4684

Bottle #	Time of Sample	Volume (cf)	Volume of Sample Collected (mL)*
1	11:00	21.48	0
2	12:50	1177.88	800
3	14:30	773.25	800
4	16:20	1121.15	800
5	18:00	507.73	200
6	19:50	272.83	0
7	21:30	277.49	0
8	23:20	241.77	0
9	01:00	243.11	0
10	02:50	240.06	0
11	04:30	219.76	0
12	06:20	1258.20	800
13	08:00	746.18	400
14	09:50	309.93	1000**

**4.8 L Sample*
***Grab sample collected during sampler retrieval*

3.2 LABORATORY ANALYTICAL RESULTS

Samples were sent to Pace Analytical Services, Inc. lab in Asheville, NC for analysis, with Analytical Parameters tested listed in **Table 3**.

Table 3: Analytical Parameters

Analyte	Analysis Method
Copper	EPA 200.7
Lead	EPA 200.7
Nickel	EPA 200.7
Zinc	EPA 200.7
Total Suspended Solids	SM 2540D
pH	EPA 9040
Ammonia	EPA 350.1 1993 Rev 2.0
Total Kjeldahl Nitrogen	EPA 351.2
Nitrate + Nitrite Nitrogen	EPA 353.2
Total Phosphorus	EPA 365.1
Chemical Oxygen Demand	SM 5220D

Table 4: Results of Water Quality Analysis

	Analyte	Analyte Value*	Analyte Unit	Reporting Limit	Exceedance Criterion	Criterion Basis
Manassas (#941)	Copper	102	µg/L	5.0	13	a
	Lead	37.0	µg/L	10.0	120	a
	Nickel	28.5	µg/L	5.0	180	a
	Zinc	268	µg/L	20.0	120	a
	Total Suspended Solids	455	mg/L	25.0	100	b
	Nitrogen, Ammonia	ND	mg/L	0.10		-
	Nitrogen, Kjeldahl, Total	2.0	mg/L	0.50		-
	Nitrogen, NO^2 plus NO^3	0.58	mg/L	0.040		-
	Total Nitrogen	2.58	mg/L	0.52	2.2	c
	Phosphorus, Total	0.50	mg/L	0.050	2	b
	Chemical Oxygen Demand	197	mg/L	25	120	b
	pH	6.6	Std. Units	0.1	6.0-9.0	d
Dale City (#4684)	Copper	13.2	µg/L	5.0	13	a
	Lead	ND	µg/L	10.0	120	a
	Nickel	9.1	µg/L	5.0	180	a
	Zinc	103	µg/L	20.0	120	a
	Total Suspended Solids	27.0	mg/L	12.5	100	b
	Nitrogen, Ammonia	0.24	mg/L	0.1		-
	Nitrogen, Kjeldahl, Total	1.1	mg/L	0.5		-
	Nitrogen, NO^2 plus NO^3	0.79	mg/L	0.040		-
	Total Nitrogen	2.13	mg/L	0.52	2.2	c
	Phosphorus, Total	0.068	mg/L	0.050	2	b
	Chemical Oxygen Demand	47.8	mg/L	25.0	120	b
	pH	6.7	Std. Units	0.10	6.0-9.0	d

[a]State Water Quality Control Board Acute Standards for Surface Water Quality. Value is based on an assumed hardness of 100mg/L.
[b]Based on benchmark criteria for the VPDES Industrial Stormwater General Permit.
[c]The sum of Nitrogen as Ammonia, NO^2, NO^3, and Total Kjeldahl Nitrogen.
[d]Based on numeric effluent limitations noted in the VPDES Permit for Discharge of Stormwater Associated with Industrial Activity.
*Values highlighted in red were found to be in exceedance of their respective criterion.

4.0 SUMMARY

As indicated in **Table 4,** exceedances occurred for Copper, Zinc, Total Suspended Solids, total Nitrogen, and Chemical Oxygen Demand at Site #941 and for Copper at Site #4684. Exceedance tracking for parameters of concern are illustrated in **Figure 3** below.

Figure 3: Exceedance tracking for the Wet Weather Monitoring Program.

		2016		2017				2018				2019				2020				2021				2022
		Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1
Manassas (#941)	Copper	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x			x	x
	Lead																							
	Nickel																							
	Zinc	x		x	x	x	x	x	x							x	x							x
	Total Suspended Solids						x	x								x	x							x
	Total Nitrogen					x	x	x				x												x
	Phosphorus, Total																							
	Chemical Oxygen Demand		x				x	x								x								x
	pH						x												x					

		2016		2017				2018				2019				2020				2021				2022
		Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2*	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1
Dale City (#4684)	Copper	x		x	x	x	x	x	--		x	x											x	x
	Lead								--															
	Nickel								--															
	Zinc			x		x	x	x	--															
	Total Suspended Solids						x		--															
	Total Nitrogen	x	x	x	x		x	x	--			x												
	Phosphorus, Total								--															
	Chemical Oxygen Demand						x	x	--															
	pH		x		x		x		--									x					x	

* No sample collected at #4684 during Q2 2018.

APPENDIX A

SITE CONDITIONS

Manassas (#941)

Site #941 is located within the Bull Run watershed. It receives drainage from an industrial use area and parking lots with frequent truck traffic. Water levels are persistently found to be above 6 – 10 inches in the monitoring outfall. During the 2022 Q1 event, the sampling site set up was modified by creating a level gravel pad and reinstalling fence posts to strap and secure the sampler.

Dale City (#4684)

Site #4684 receives flow from Neabsco Mills Road and the Stonebridge at Potomac Town Center development. It is a 54" concrete pipe that drains to a deep scour pool before draining to a large BMP that collects drainage for the Potomac Club development. Erosion around the headwall and apron of the outfall at this site continues to pose a risk during sampler deployment and retrieval. During the 2022 Q1 event, the sampling site set up was modified by creating a level gravel pad and reinstalling fence posts to strap and secure the sampler.

APPENDIX B

WATER QUALITY LABORATORY RESULTS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

March 16, 2022

Benjamin Green
WOOD E&I
4795 Meadow Wood Lane
Suite 310E
Chantilly, VA 20151

RE: Project: PRINCE WILLIAM COUNTY
Pace Project No.: 92590732

Dear Benjamin Green:

Enclosed are the analytical results for sample(s) received by the laboratory on March 01, 2022. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Asheville
- Pace Analytical Services - Ormond Beach

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Sara Poulson
sara.poulson@pacelabs.com
(704)875-9092
Project Manager

Enclosures

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

CERTIFICATIONS

Project: PRINCE WILLIAM COUNTY
Pace Project No.: 92590732

Pace Analytical Services Ormond Beach
8 East Tower Circle, Ormond Beach, FL 32174
Alaska DEC- CS/UST/LUST
Alabama Certification #: 41320
Colorado Certification: FL NELAC Reciprocity
Connecticut Certification #: PH-0216
Delaware Certification: FL NELAC Reciprocity
Florida Certification #: E83079
Georgia Certification #: 955
Guam Certification: FL NELAC Reciprocity
Hawaii Certification: FL NELAC Reciprocity
Illinois Certification #: 200068
Indiana Certification: FL NELAC Reciprocity
Kansas Certification #: E-10383
Kentucky Certification #: 90050
Louisiana Certification #: FL NELAC Reciprocity
Louisiana Environmental Certificate #: 05007
Maine Certification #: FL01264
Maryland Certification: #346
Michigan Certification #: 9911
Mississippi Certification: FL NELAC Reciprocity
Missouri Certification #: 236
Montana Certification #: Cert 0074
Nebraska Certification: NE-OS-28-14
New Hampshire Certification #: 2958
New Jersey Certification #: FL022
New York Certification #: 11608
North Carolina Environmental Certificate #: 667
North Carolina Certification #: 12710
North Dakota Certification #: R-216
Ohio DEP 87780
Oklahoma Certification #: D9947
Pennsylvania Certification #: 68-00547
Puerto Rico Certification #: FL01264
South Carolina Certification: #96042001
Tennessee Certification #: TN02974
Texas Certification: FL NELAC Reciprocity
US Virgin Islands Certification: FL NELAC Reciprocity
Virginia Environmental Certification #: 460165
West Virginia Certification #: 9962C
Wisconsin Certification #: 399079670
Wyoming (EPA Region 8): FL NELAC Reciprocity

Pace Analytical Services Asheville
2225 Riverside Drive, Asheville, NC 28804
Florida/NELAP Certification #: E87648
North Carolina Drinking Water Certification #: 37712
North Carolina Wastewater Certification #: 40
South Carolina Laboratory ID: 99030
South Carolina Certification #: 99030001
Virginia/VELAP Certification #: 460222

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

SAMPLE SUMMARY

Project: PRINCE WILLIAM COUNTY
Pace Project No.: 92590732

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92590732001	**MAN**	Water	02/21/22 23:10	03/01/22 13:15
92590732002	**DAL**	Water	02/22/22 12:40	03/01/22 13:15

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

SAMPLE ANALYTE COUNT

Project: PRINCE WILLIAM COUNTY
Pace Project No.: 92590732

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92590732001	**MAN**	EPA 200.7	KC2	4	PASI-O
		SM 2540D-2015	ZMC	1	PASI-A
		SM 4500-H+B-2011	EWS	1	PASI-A
		EPA 350.1 Rev 2.0 1993	SMS	1	PASI-A
		EPA 351.2 Rev 2.0 1993	MFO	1	PASI-A
		EPA 353.2 Rev 2.0 1993	KDF1	1	PASI-A
		EPA 365.1 Rev 2.0 1993	MFO	1	PASI-A
		SM 5220D-2011	JP1	1	PASI-A
92590732002	**DAL**	EPA 200.7	KC2	4	PASI-O
		SM 2540D-2015	ZMC	1	PASI-A
		SM 4500-H+B-2011	EWS	1	PASI-A
		EPA 350.1 Rev 2.0 1993	SMS	1	PASI-A
		EPA 351.2 Rev 2.0 1993	MFO	1	PASI-A
		EPA 353.2 Rev 2.0 1993	KDF1	1	PASI-A
		EPA 365.1 Rev 2.0 1993	MFO	1	PASI-A
		SM 5220D-2011	JP1	1	PASI-A

PASI-A = Pace Analytical Services - Asheville
PASI-O = Pace Analytical Services - Ormond Beach

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

ANALYTICAL RESULTS

Project: PRINCE WILLIAM COUNTY
Pace Project No.: 92590732

Sample: MAN **Lab ID: 92590732001** Collected: 02/21/22 23:10 Received: 03/01/22 13:15 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 MET ICP	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Ormond Beach							
Copper	**102**	ug/L	5.0	1	03/10/22 10:16	03/15/22 16:30	7440-50-8	
Lead	**37.0**	ug/L	10.0	1	03/10/22 10:16	03/15/22 16:30	7439-92-1	
Nickel	**28.5**	ug/L	5.0	1	03/10/22 10:16	03/15/22 16:30	7440-02-0	
Zinc	**268**	ug/L	20.0	1	03/10/22 10:16	03/15/22 16:30	7440-66-6	
2540D Total Suspended Solids	Analytical Method: SM 2540D-2015 Pace Analytical Services - Asheville							
Total Suspended Solids	**455**	mg/L	25.0	1		03/01/22 17:42		H3
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B-2011 Pace Analytical Services - Asheville							
pH at 25 Degrees C	**6.6**	Std. Units	0.10	1		03/02/22 10:38		H3
350.1 Ammonia	Analytical Method: EPA 350.1 Rev 2.0 1993 Pace Analytical Services - Asheville							
Nitrogen, Ammonia	ND	mg/L	0.10	1		03/04/22 13:36	7664-41-7	
351.2 Total Kjeldahl Nitrogen	Analytical Method: EPA 351.2 Rev 2.0 1993 Preparation Method: EPA 351.2 Rev 2.0 1993 Pace Analytical Services - Asheville							
Nitrogen, Kjeldahl, Total	**2.0**	mg/L	0.50	1	03/08/22 05:21	03/09/22 03:03	7727-37-9	
353.2 Nitrogen, NO2/NO3 pres.	Analytical Method: EPA 353.2 Rev 2.0 1993 Pace Analytical Services - Asheville							
Nitrogen, NO2 plus NO3	**0.58**	mg/L	0.040	1		03/07/22 12:44		
365.1 Phosphorus, Total	Analytical Method: EPA 365.1 Rev 2.0 1993 Preparation Method: EPA 365.1 Rev 2.0 1993 Pace Analytical Services - Asheville							
Phosphorus	**0.50**	mg/L	0.050	1	03/04/22 19:01	03/05/22 00:22	7723-14-0	
5220D COD	Analytical Method: SM 5220D-2011 Preparation Method: SM 5220D-2011 Pace Analytical Services - Asheville							
Chemical Oxygen Demand	**197**	mg/L	25.0	1	03/04/22 00:58	03/04/22 05:38		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

ANALYTICAL RESULTS

Project: PRINCE WILLIAM COUNTY
Pace Project No.: 92590732

Sample: DAL **Lab ID: 92590732002** Collected: 02/22/22 12:40 Received: 03/01/22 13:15 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 MET ICP	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Ormond Beach							
Copper	**13.2**	ug/L	5.0	1	03/10/22 10:16	03/15/22 16:33	7440-50-8	
Lead	ND	ug/L	10.0	1	03/10/22 10:16	03/15/22 16:33	7439-92-1	
Nickel	**9.1**	ug/L	5.0	1	03/10/22 10:16	03/15/22 16:33	7440-02-0	
Zinc	**103**	ug/L	20.0	1	03/10/22 10:16	03/15/22 16:33	7440-66-6	
2540D Total Suspended Solids	Analytical Method: SM 2540D-2015 Pace Analytical Services - Asheville							
Total Suspended Solids	**27.0**	mg/L	12.5	1		03/01/22 17:42		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B-2011 Pace Analytical Services - Asheville							
pH at 25 Degrees C	**6.7**	Std. Units	0.10	1		03/02/22 10:40		H3
350.1 Ammonia	Analytical Method: EPA 350.1 Rev 2.0 1993 Pace Analytical Services - Asheville							
Nitrogen, Ammonia	**0.24**	mg/L	0.10	1		03/04/22 13:37	7664-41-7	
351.2 Total Kjeldahl Nitrogen	Analytical Method: EPA 351.2 Rev 2.0 1993 Preparation Method: EPA 351.2 Rev 2.0 1993 Pace Analytical Services - Asheville							
Nitrogen, Kjeldahl, Total	**1.1**	mg/L	0.50	1	03/08/22 05:21	03/09/22 03:04	7727-37-9	
353.2 Nitrogen, NO2/NO3 pres.	Analytical Method: EPA 353.2 Rev 2.0 1993 Pace Analytical Services - Asheville							
Nitrogen, NO2 plus NO3	**0.79**	mg/L	0.040	1		03/07/22 12:45		
365.1 Phosphorus, Total	Analytical Method: EPA 365.1 Rev 2.0 1993 Preparation Method: EPA 365.1 Rev 2.0 1993 Pace Analytical Services - Asheville							
Phosphorus	**0.068**	mg/L	0.050	1	03/04/22 19:01	03/05/22 00:23	7723-14-0	
5220D COD	Analytical Method: SM 5220D-2011 Preparation Method: SM 5220D-2011 Pace Analytical Services - Asheville							
Chemical Oxygen Demand	**47.8**	mg/L	25.0	1	03/04/22 00:58	03/04/22 05:39		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: PRINCE WILLIAM COUNTY
Pace Project No.: 92590732

QC Batch: 806625
QC Batch Method: EPA 200.7
Analysis Method: EPA 200.7
Analysis Description: 200.7 MET
Laboratory: Pace Analytical Services - Ormond Beach
Associated Lab Samples: 92590732001, 92590732002

METHOD BLANK: 4428678 Matrix: Water
Associated Lab Samples: 92590732001, 92590732002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Copper	ug/L	ND	5.0	03/14/22 12:44	
Lead	ug/L	ND	10.0	03/14/22 12:44	
Nickel	ug/L	ND	5.0	03/14/22 12:44	
Zinc	ug/L	ND	20.0	03/14/22 12:44	

LABORATORY CONTROL SAMPLE: 4428679

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Copper	ug/L	250	263	105	85-115	
Lead	ug/L	250	267	107	85-115	
Nickel	ug/L	250	270	108	85-115	
Zinc	ug/L	1250	1350	108	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 4428680 4428681

Parameter	Units	35702031001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Copper	ug/L	2.6U	250	250	273	277	109	110	70-130	1	20	
Lead	ug/L	4.6U	250	250	271	273	108	109	70-130	1	20	
Nickel	ug/L	2.1U	250	250	274	278	110	111	70-130	1	20	
Zinc	ug/L	11.0U	1250	1250	1350	1370	108	110	70-130	2	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 4428682 4428683

Parameter	Units	35702308001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Copper	ug/L	0.029 mg/L	250	250	308	316	112	115	70-130	2	20	
Lead	ug/L	4.6U	250	250	276	283	110	113	70-130	3	20	
Nickel	ug/L	0.0021U mg/L	250	250	284	291	113	116	70-130	2	20	
Zinc	ug/L	0.053 mg/L	1250	1250	1480	1500	114	116	70-130	2	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: PRINCE WILLIAM COUNTY
Pace Project No.: 92590732

QC Batch: 681740
QC Batch Method: SM 2540D-2015
Analysis Method: SM 2540D-2015
Analysis Description: 2540D Total Suspended Solids
Laboratory: Pace Analytical Services - Asheville
Associated Lab Samples: 92590732001, 92590732002

METHOD BLANK: 3566165 Matrix: Water
Associated Lab Samples: 92590732001, 92590732002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Suspended Solids	mg/L	ND	2.5	03/01/22 17:41	

LABORATORY CONTROL SAMPLE: 3566166

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Suspended Solids	mg/L	250	232	93	90-110	

SAMPLE DUPLICATE: 3566212

Parameter	Units	92590732001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	455	492	8	25	H3

SAMPLE DUPLICATE: 3566213

Parameter	Units	92590714003 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	43.8	50.0	13	25	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: PRINCE WILLIAM COUNTY
Pace Project No.: 92590732

QC Batch: 681882
QC Batch Method: SM 4500-H+B-2011
Analysis Method: SM 4500-H+B-2011
Analysis Description: 4500H+B pH
Laboratory: Pace Analytical Services - Asheville
Associated Lab Samples: 92590732001, 92590732002

SAMPLE DUPLICATE: 3566641

Parameter	Units	92590714001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	6.3	6.4	1	10	H3

SAMPLE DUPLICATE: 3566642

Parameter	Units	92590611003 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	6.6	6.7	1	10	H3

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: PRINCE WILLIAM COUNTY
Pace Project No.: 92590732

QC Batch: 682452
QC Batch Method: EPA 350.1 Rev 2.0 1993
Analysis Method: EPA 350.1 Rev 2.0 1993
Analysis Description: 350.1 Ammonia
Laboratory: Pace Analytical Services - Asheville
Associated Lab Samples: 92590732001, 92590732002

METHOD BLANK: 3569619 Matrix: Water
Associated Lab Samples: 92590732001, 92590732002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, Ammonia	mg/L	ND	0.10	03/04/22 12:55	

LABORATORY CONTROL SAMPLE: 3569620

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Ammonia	mg/L	5	5.2	104	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3569621 3569622

Parameter	Units	92590866001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, Ammonia	mg/L	24.6	5	5	28.7	28.5	82	78	90-110	1	10	M1

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3569623 3569624

Parameter	Units	92590866002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, Ammonia	mg/L	0.14	5	5	5.6	5.5	108	108	90-110	0	10	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: PRINCE WILLIAM COUNTY
Pace Project No.: 92590732

QC Batch: 683001
QC Batch Method: EPA 351.2 Rev 2.0 1993
Analysis Method: EPA 351.2 Rev 2.0 1993
Analysis Description: 351.2 TKN
Laboratory: Pace Analytical Services - Asheville
Associated Lab Samples: 92590732001, 92590732002

METHOD BLANK: 3572670 Matrix: Water
Associated Lab Samples: 92590732001, 92590732002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, Kjeldahl, Total	mg/L	ND	0.50	03/09/22 02:54	

LABORATORY CONTROL SAMPLE: 3572671

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Kjeldahl, Total	mg/L	10	9.5	95	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3572672 3572673

Parameter	Units	92590110005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, Kjeldahl, Total	mg/L	4.6	10	10	13.3	13.4	88	88	90-110	0	10	M1

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3572674 3572675

Parameter	Units	92590781005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, Kjeldahl, Total	mg/L	ND	10	10	10	10.1	100	101	90-110	1	10	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: PRINCE WILLIAM COUNTY
Pace Project No.: 92590732

QC Batch: 682756
QC Batch Method: EPA 353.2 Rev 2.0 1993
Analysis Method: EPA 353.2 Rev 2.0 1993
Analysis Description: 353.2 Nitrate + Nitrite, preserved
Laboratory: Pace Analytical Services - Asheville
Associated Lab Samples: 92590732001, 92590732002

METHOD BLANK: 3571331 Matrix: Water
Associated Lab Samples: 92590732001, 92590732002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	ND	0.040	03/07/22 12:15	

LABORATORY CONTROL SAMPLE: 3571332

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	2.5	2.5	101	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3571333 3571334

Parameter	Units	92590203001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, NO2 plus NO3	mg/L	2.5	2.5	2.5	4.8	4.8	90	91	90-110	1	10	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3571335 3571336

Parameter	Units	92590297001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, NO2 plus NO3	mg/L	2.6	2.5	2.5	4.0	4.0	57	57	90-110	0	10	M1

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: PRINCE WILLIAM COUNTY
Pace Project No.: 92590732

QC Batch: 682612
QC Batch Method: EPA 365.1 Rev 2.0 1993
Analysis Method: EPA 365.1 Rev 2.0 1993
Analysis Description: 365.1 Phosphorus, Total
Laboratory: Pace Analytical Services - Asheville
Associated Lab Samples: 92590732001, 92590732002

METHOD BLANK: 3570738 Matrix: Water
Associated Lab Samples: 92590732001, 92590732002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Phosphorus	mg/L	ND	0.050	03/05/22 00:07	

LABORATORY CONTROL SAMPLE: 3570739

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Phosphorus	mg/L	2.5	2.7	106	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3570740 3570741

Parameter	Units	92590471001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Phosphorus	mg/L	0.25	2.5	2.5	2.9	2.9	105	105	90-110	0	10	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3570742 3570743

Parameter	Units	92590536001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Phosphorus	mg/L	104	2.5	2.5	116	115	466	425	90-110	1	10	M1

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: PRINCE WILLIAM COUNTY
Pace Project No.: 92590732

QC Batch: 682393
QC Batch Method: SM 5220D-2011
Analysis Method: SM 5220D-2011
Analysis Description: 5220D COD
Laboratory: Pace Analytical Services - Asheville
Associated Lab Samples: 92590732001, 92590732002

METHOD BLANK: 3569501 Matrix: Water
Associated Lab Samples: 92590732001, 92590732002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chemical Oxygen Demand	mg/L	ND	25.0	03/04/22 05:34	

LABORATORY CONTROL SAMPLE: 3569502

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chemical Oxygen Demand	mg/L	750	730	97	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3569503 3569504

Parameter	Units	92589727001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chemical Oxygen Demand	mg/L	ND	100	100	130	130	108	108	90-110	0	3	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3569505 3569506

Parameter	Units	92590788003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chemical Oxygen Demand	mg/L	26.7	100	100	158	137	131	110	90-110	14	3	M1,R1

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALIFIERS

Project: PRINCE WILLIAM COUNTY
Pace Project No.: 92590732

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

Acid preservation may not be appropriate for 2 Chloroethylvinyl ether.

A separate vial preserved to a pH of 4-5 is recommended in SW846 Chapter 4 for the analysis of Acrolein and Acrylonitrile by EPA Method 8260.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Reported results are not rounded until the final step prior to reporting. Therefore, calculated parameters that are typically reported as "Total" may vary slightly from the sum of the reported component parameters.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

H3	Sample was received or analysis requested beyond the recognized method holding time.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
R1	RPD value was outside control limits.

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: PRINCE WILLIAM COUNTY
Pace Project No.: 92590732

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92590732001	**MAN**	EPA 200.7	806625	EPA 200.7	806803
92590732002	**DAL**	EPA 200.7	806625	EPA 200.7	806803
92590732001	**MAN**	SM 2540D-2015	681740		
92590732002	**DAL**	SM 2540D-2015	681740		
92590732001	**MAN**	SM 4500-H+B-2011	681882		
92590732002	**DAL**	SM 4500-H+B-2011	681882		
92590732001	**MAN**	EPA 350.1 Rev 2.0 1993	682452		
92590732002	**DAL**	EPA 350.1 Rev 2.0 1993	682452		
92590732001	**MAN**	EPA 351.2 Rev 2.0 1993	683001	EPA 351.2 Rev 2.0 1993	683327
92590732002	**DAL**	EPA 351.2 Rev 2.0 1993	683001	EPA 351.2 Rev 2.0 1993	683327
92590732001	**MAN**	EPA 353.2 Rev 2.0 1993	682756		
92590732002	**DAL**	EPA 353.2 Rev 2.0 1993	682756		
92590732001	**MAN**	EPA 365.1 Rev 2.0 1993	682612	EPA 365.1 Rev 2.0 1993	682661
92590732002	**DAL**	EPA 365.1 Rev 2.0 1993	682612	EPA 365.1 Rev 2.0 1993	682661
92590732001	**MAN**	SM 5220D-2011	682393	SM 5220D-2011	682410
92590732002	**DAL**	SM 5220D-2011	682393	SM 5220D-2011	682410

/aArral-/6Caf

CHAIN-OF-CUSTODY Analytical Request Document

Sc.ibmltti:ie'.rgmpl■via tl,Js chain oFO!:n:odywrt5'titutn:ada'lowlfod£t111tnt ::and .acn:pbnee of ti-le Polee T1mns: i'Jnd Conditions fcond ac hnps,//lr,(o,paa,labs.ccm/huhls/-•dltt!-4•m><.pdr

01ai-f-CUS,o!!Y is II LfGAL DOCUMENT-C.Omplete al! relevant fields

-SE:WO#:92590732

92590'732

Company: Wood

Address: 4795 Meadow Wool ln,Suire 310E, Chantilly, VA 20151

Billing Information:

Attn: Joyce MitcheU

ReportTa: Benjamin Green

EmallTo;benjamin.green@woodplc.com, 1oVce,mitc:hell@woodolc.com

Copy To:

Site Colleclion Info/Address:

Contain

Preserviltlve Types:{1) nitric add, (2) sulfurlc acid, 131 hydrochloric add. (4)sodll.Wll hydro,clde, {SI zinc aaf2k, (61 methanol, (7) sodium btsul'-, (8) sodium thlosu!rate. (51 hc,cane, [A) ascorbic acid, (SI am;,,on;um sut (C) ammonium hydroxide. (DJ T'SP, (UJ Uns>reserved, (OJ Ot!ier

CUstomer Project Name/Nunjber: Prince W Gam County/ 151280001.0002•-. O 7 G6. Gl cl,xic 5210-!lll

State: VA.1

County/City: Prince Wimam Co.

nme Zone Co nected; [ ]PT I]MT LKT [)(]ET

Analyses

Phone: 703 488 3795

Emaa: benjom e,@>wcodple.a,,j,

Site/Facmtv !D #:

Compliance Monitoring? [ ] Yes [ ] No

eonected By (print): TT"LI-I

Purchase Order II:

Quote#:

DWPWSID#:

DW Location Code:

Colle at:ure):

Turnaround Date Required:

Immediately Packed on Ice: [X]Yes [ ]No

Sample Disposal:
()CJ DisPose a• appropriot,e
[ ] Return
[ ] Archive:.
LJHo!d:

Rush: (Expedite Charges Apply)
[ ] Same Day [ ] Next Day
[ ]2 bay [ ]3 Day
[ ] J4Day [X]SDav

Field Filtered (If applicable): [ ] Yes [ ] No

Analysis:

Matrix Codes {Insert in Ma box below): Drinking Water (DW), Ground Water (GW); Wastewater (WW), Product (P), Soii/Solid (St), ii (O ll, Wip e (WP), A_ir (AR), nssue (TS), Bioassay (BJ, Vapor (VJ, Other (OTI

customer Sample ID	Matnx•	Comp/Grab	Collected (or composite Start) Dare	Time	Composite End Date	lime	Resl#of Cl	Ctns						
MAN	OT-Water	Comp	2/21/2022	23:10				2	p	X	X	X	X	X
DAL	OT-Water	Comp	2/22/2022	12:40				2	p	X	X	X	X	X

Sample Receipt Checklist:
Custody Seals Present/Intact Y N NA
Custody Signatures Present Y N NA
Collector Signature Present Y N NA
Bottles Intact Y N NA
Correct Bottles Y N NA
Sufficient Volume Y N NA
Samples Received on Ice Y N NA
Samples in Holding Time Y N NA
Residual Chlorine Present Y N NA
Cl Strips:
Sample pH Acceptable Y N NA
pH Strips:
Sulfide Present Y N NA
Lead Acetate Strips:

Lab Sample # / Comments:

Customer Reinarlcs /Special londitions / Possible Hazards:
Prince William County/
151280001.0002.•.-u, ORG 526, GL Code 5210--00

Pace PM Sara Poulson

Type of Ice Used: Wet Blue Dry None

Packing Material Used:

Raddif:!m samplels) screenei:l (<500 cpm)i.. Y N NA

SHORT HOLDS PRESENT (<72 hours): Y N

Lab Tracking #:

Samples received via: Client

Pace Couri

MTIL LAB US£ ONLY

LAB Sample Temperature Info:
Temp Blank Received: Y N NA
Therm ID#: k?7071
Cooler 1 Temp Upon Receipt: l c
Cooler 1 Therm Corr. Factor: 0 oc
Cooler 1 Corrected Temp: >(;cc
Comment:

Relinquished by/Company: (Signature) | Date/Time: | Received by/Company: (Signature) | Date/Time:

Relinquished by/Company: (Signature) | Date/Time: | Received by/Company: (Signature) | Date/Time: | Prelogin:

Relinquished by/Company: (Signature) | Date/Time: | Received by/Company: (Signature) | Date/Time:

Trip Blank Received: Y N NA
HCl MeOH TSP Other

Non Conformance(s): YES / NO
Page: of:

'Gne I< mark top-half f'box if pH a·nd/or dechlor.inatfon l ver)fie.d and wfthrn the acceptance range for preseFvation. sampl *ES.*

Eicep lons: *VOA,* CollfQ.rrn, T€JC, OIi and Clr-ea"se, OR0/8Ql5 (wat'er) DOC, llHg

••soti;om ti lf of box is to11st number of bottles

Projed#wo .: **92 590732**

PH: SC **Due Dale: 03/08/22**

CLIENT: 92-Amec VA

Item#	BP4U-125 mL Plastic Unpreserved (N/A) (C	BP1U-1 liter Plastic Unpreserved (N/A)	BP4S-125 mL Plastic H2SO4 (pH < 2) (Cl-)	BP3N-250 mL plastic HNO3 (pH < 2)	BP4Z-125 mL Plastic ZN Acetate & NaOH (>9	BP4B-125 mL Plastic NaOH (pH > 12) (Cl-)	WGFU-Wide-mouthed Glass jar Unpreserve	AG1U-1 liter Amber Unpreserved (N/A) (Cl-)	AG1H-1 liter Amber HCl (pH < 2)	AG3U-250 mL Amber Unpreserved (N/A) (C	AG1S-1 liter Amber H2SO4 (pH < 2)	AG3S-250 mL Amber H2SO4 (pH < 2)	AG3A(DG3A)-250 mL Amber NH4Cl (N/A)(C	DG9H-40 mL VOA HCl (N/A)	VG9T-40 mL VOA Na2S2O3 (N/A)	VG9U-40 mL VOA Unpreserved (N/A)	VOAK (3 vials per kit)-5035 kit (N/A)	V/GK (3 vials per kit)-VPH/Gas kit (N/A	SP2T-250 mL Sterile Plastic (N/A – lab)	BP3A-250 mL Plastic (NH2)2SO4 (9.3-9.7)	AG0U-100 mL Amber Unpreserved vials (N/A)	VSGU-20 mL Scintillation vials (N/A)	DG9U-40 mL Amber Unpreserved vials (N/A)
1	1	1	2	1																			
2	1	1	2	1																			
3	\																			1\1\			
																				1\1\			
7	\																			i\l\			
12	I\								I\	i\f'\i\													

pH Adjttstment Log for Pres·erved Samples

sample ID	fype cf Preser atlve	pH open receipt	Oate,preservalion adju,ted	llrne preservat1011 sdjus1ed	Amouot of Preserva1lVo **dded**	

Note: Whenever there lsa-dimepancy affe<rting North Carolina tomplfan e samples, a copy. of this fo<m will be ient lo the-North-CM-00na OEHIIJRCerlifkatlon OH!ce [l..e. Out ol ho!d, rncdrred rernrvativ", out of t=P, i torr ect containers.

Wet Weather Monitoring Report

Second Quarter 2022 (April 1 – June 30)
Event Date: June 22, 2022

Prepared for:

Prince William County Department of Public Works
5 County Complex Court, Suite 170
Prince William, Virginia 22192

Prepared by:
Wood Environment & Infrastructure Solutions, Inc.
4795 Meadow Wood Lane, Suite 310E
Chantilly, VA 20151
(703) 488-3700

August 5, 2022
Project No. 151280001

1.0 INTRODUCTION

Wood Environment & Infrastructure Solutions, Inc. (Wood) is pleased to provide this report of wet weather monitoring for compliance with the requirements of the Virginia Stormwater Management Program (VSMP) Municipal Separate Storm Sewer System (MS4) Permit (Number VA0088595), issued by the Virginia Department of Environmental Quality (VDEQ) to Prince William County, Virginia. This report discusses the results of the Q2 sampling events conducted from June 22 - 23, 2022 as well as the findings from the water quality analysis results of the sampling event.

2.0 METHODS

Flow rate data were collected at the outfalls by an ISCO 6712 automated sampler coupled with an ISCO 730 bubbler flow module, installed with a Scissors Ring. Flow rate over the course of the sampling events were electronically calculated using ISCO Flowlink 5.1 software, which utilizes the Manning Equation to convert flow level and velocity to flow rate.

SITE #941; MANASSAS, VA

Site #941 is located near 11850 Livingston Road. The site receives a total of 52 acres of upstream drainage area from a land surface that is 34% impervious. County data documents that the pipe is 54 inches in diameter with a slope of 0.03437. This site is subject to backwater conditions as water levels within the downstream pond have risen over the previous two years. Maintenance is recommended to ensure the continued efficacy of the monitoring program at this site. Backwater at the site extends too far upstream into the pipe, and would require confined space entry to install equipment. Accommodations are made in the sampling program, as described in further detail in the following section.

SITE #4684; DALE CITY, VA

Site #4684 is located near the corner of Potomac Center Blvd. and Sheffield Hill Way, north of Eastbourne Drive. It drains into a regional detention pond for the Potomac Club residential development. Upstream drainage totals 51 acres, 21% of which is from impervious surfaces. The pipe is 54 inches in diameter with a slope of 0.002593. Storm events at this site are flashy in nature, which is accounted for by programming shorter sample intervals, if necessary, based upon forecast conditions.

The automated samplers were deployed when a qualifying storm event (>0.3 inches precipitation) was forecast for the two monitoring sites. On June 22, Wood staff deployed the samplers at both field sites and programmed the samplers' automated, discrete sampling sequence to initiate upon flow levels exceeding current water levels in each pipe.
Rain gage data were compiled for monitoring stations in the Weather Underground monitoring network. The data are accessible online and provided hourly precipitation totals over the monitoring period. Gages are prioritized based on the makeup of the data record (reporting interval) and proximity to monitoring locations.

Following the storm event, staff retrieved the samples and prepared them for shipment to Pace Analytical for water quality analysis. To compile the complete set of discrete samples into a single flow-weighted composite, Flowlink software calculated the storm event discharge using the Manning Equation:

Equation 1: Manning Equation used to calculate flow rate.

$$Q = VA = \left(\frac{1.49}{n}\right) AR^{\frac{2}{3}}\sqrt{S} \text{ [US]}$$

Q = Flow rate
A = Flow area
V = Avg. velocity
S = Water surface slope
R = Hydraulic Radius
n = Roughness coefficient
1.49 = English units conversion factor

Channel slopes were determined using invert elevations reported in the stormwater infrastructure geospatial data provided by Prince William County. Using flow levels reported by the ISCO samplers, the area and hydraulic radius inside the sampled outfalls could be computed for a given time interval. A Manning's *n* value of 0.013 was assumed for the concrete pipes[1].
Two sampling programs were implemented to accommodate for different conditions between the sites.

Manassas Sampling Program
The bubbler module does not currently provide accurate water level readings at the Manassas site, and fluctuates during static water conditions. Wood recommends replacement of the module for future monitoring events. To accommodate the unreliable equipment readings, the Isco sampler at the Manassas site was programed to collect on a time-paced program. Samples were collected at a pre-set time interval over the course of the storm.

The sampler collects discrete samples every 30 minutes, which are then composited into a single container. The sample volume within the bucket is used to fill sample bottles sent to the lab. This provides a representative grab sample but does not represent the event mean concentration of pollutants.

Dale City Sampling Program
The Isco samplers are capable of collecting samples using a flow-proportional composite program. Flow-proportional composite samples collect more frequently at higher flow rates and less frequently at lower flow rates (as flow rate increases, the time between aliquots decrease). This method is a direct measure of the storm's hydrograph or the relationship between the pollutant concentration and flow rate. This allows a direct estimation of event mean concentration (EMC).

The sampler at Dale City was programmed with a flow-proportional composite program, with an incremental flow volume of approximately 1,000 cubic feet. While there is not a direct stage-discharge relationship available for the outfall at the Dale City monitoring station, this was an estimated based upon total storm volume of previously measured storm events at this station. This estimate will continue to be refined for this site.

[1] Chow, V.T. (1959) Open Channel Hydraulics. McGraw-Hill, New York.

3.0 RESULTS

SITE #941; MANASSAS, VA

Sampling occurred from 16:00 on Jun 22 – 14:30 on June 23, 2022. The Global Historical Climatology Network (GHCN) daily gauge in Manassas, VA (USC00445204) recorded 0.48 inches of precipitation over that period with temperatures ranging from 65 - 92 degrees Fahrenheit. The previous storm event was recorded on June 12, 2022, producing 0.12 inch of precipitation.

SITE #4684; DALE CITY, VA

Sampling occurred from 14:00 – 19:00 on June 22, 2022. The Global Historical Climatology Network (GHCN) daily gauge in Woodbridge, VA (US1VAPW0010) recorded 2.43 inches of precipitation over this same period. The previous storm event was recorded on June 14, 2022, producing 0.41 inch of precipitation.

Samples from both sites were retained under refrigeration until they were composited and shipped overnight on June 23, 2022 to Pace Analytical Services in Asheville, NC.

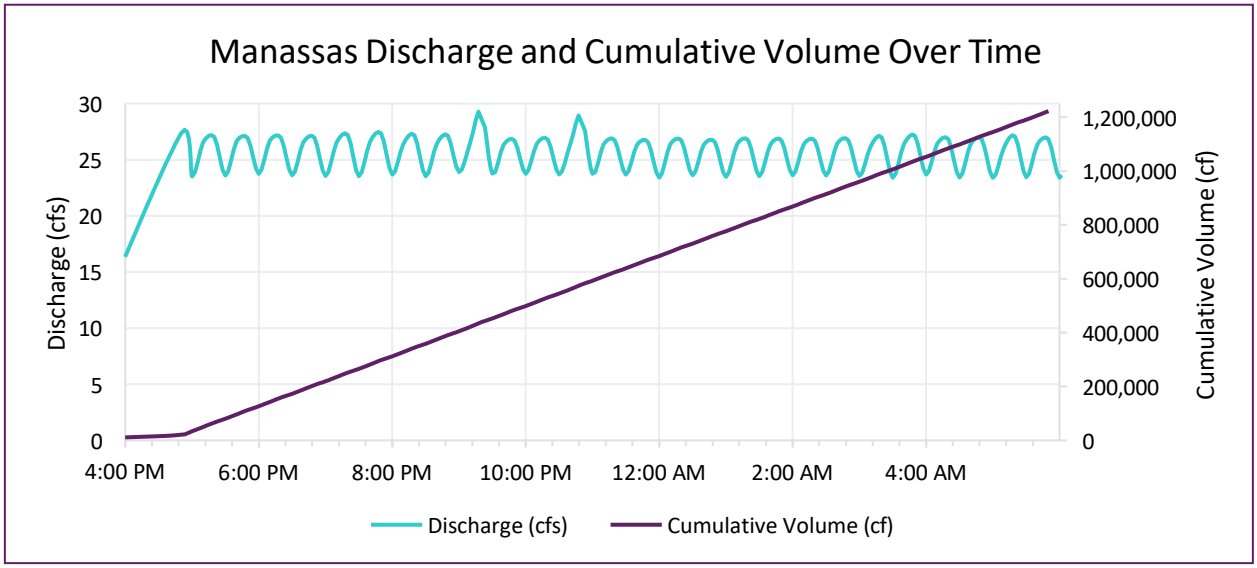
3.1 FLOW DATA

SITE #941; MANASSAS, VA

Flow rate reached 29.74 cfs and oscillated throughout the course of the storm. The storm event hydrograph compared with cumulative volume can be seen in Figure 1. Table 1 lists the proportion of each sample mixed with the flow-weighted composite.

Flow rate and volume are calculated by measuring changes in water level over time. Backwater effects are impacting flow meter readings at the outfall point of discharge. Backwater conditions cause elevated readings for flow volume and flow rate.

Figure 1: Flow data over time for the storm event at Site #941 on June 22 to June 23.



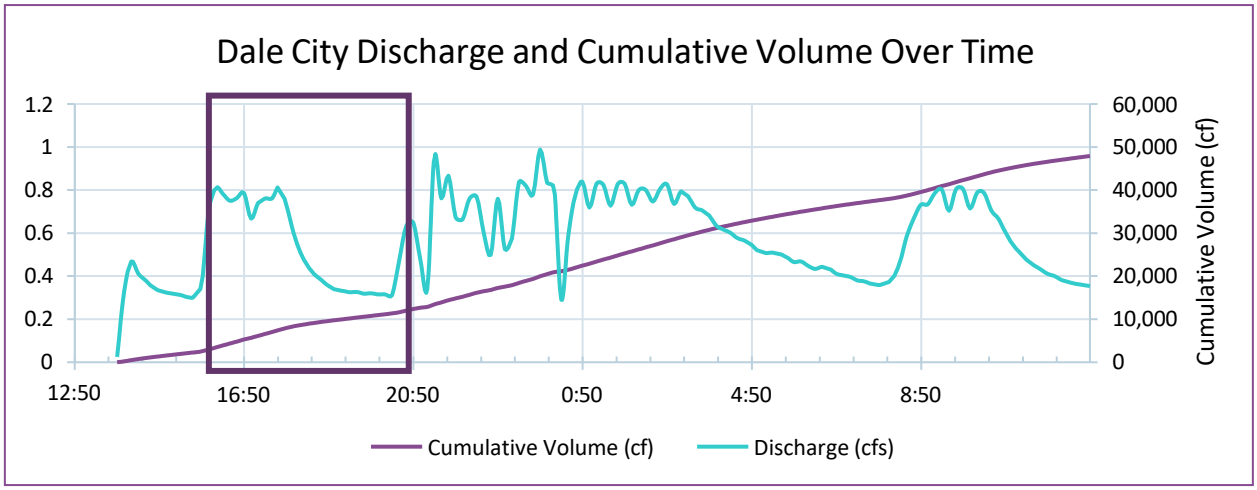
Samples were collected using a time-paced sampling program. As such, flow data was not considered for compositing samples, and Table 1: Summary of Flow Weighted Composite – Site #941 is not included within this report as in past reports. Samples submitted to the water quality lab are representative of a grab composite for the entire storm event.

SITE #4684; DALE CITY, VA

Flow rate reached 0.988 cfs and peaks three times through the course of the storm event. The storm event hydrograph compared with cumulative volume can be seen in Figure 2.

The sampling interval was smaller than anticipated for the expected storm. As a result, the composite sample collected for the storm event represents mean concentrations for the first ~5 hours of the storm, as shown in Figure 2, and are not representative of the EMC. Staff will reprogram the sampler to better accommodate anticipated flow volume for the next monitoring event.

Figure 2: Flow data over time for the storm event at Site #4684 on June 22 to June 23.



Samples were collected using a Flow-proportional composite sampling program. As such, flow data was not used to tabulate composite volumes, Table 2: Summary of Flow Weighted Composite – Site #4684 is not included within this report as in past reports.

3.2 LABORATORY ANALYTICAL RESULTS

Samples were sent to Pace Analytical Services, Inc. lab in Asheville, NC for analysis, with Analytical Parameters tested listed in **Table 3**.

Table 1: Analytical Parameters

Analyte	Analysis Method
Copper	EPA 200.7
Lead	EPA 200.7
Nickel	EPA 200.7
Zinc	EPA 200.7
Total Suspended Solids	SM 2540D
pH	EPA 9040
Ammonia	EPA 350.1 1993 Rev 2.0
Total Kjeldahl Nitrogen	EPA 351.2
Nitrate + Nitrite Nitrogen	EPA 353.2
Total Phosphorus	EPA 365.1
Chemical Oxygen Demand	SM 5220D

Table 2: Results of Water Quality Analysis

	Analyte	Analyte Value*	Analyte Unit	Reporting Limit	Exceedance Criterion	Criterion Basis
Manassas (#941)	Copper	8.70	µg/L	5.0	13	a
	Lead	ND	µg/L	10.0	120	a
	Nickel	ND	µg/L	5.0	180	a
	Zinc	59.90	µg/L	20.0	120	a
	Total Suspended Solids	9.40	mg/L	25.0	100	b
	Nitrogen, Ammonia	0.55	mg/L	0.10		-
	Nitrogen, Kjeldahl, Total	1.50	mg/L	0.50		-
	Nitrogen, NO^2 plus NO^3	0.95	mg/L	0.040		-
	Total Nitrogen	3.00	mg/L	0.52	2.2	c
	Phosphorus, Total	0.09	mg/L	0.050	2	b
	Chemical Oxygen Demand	42.20	mg/L	25	120	b
	pH	7.0	Std. Units	0.1	6.0-9.0	d
Dale City (#4684)	Copper	26.90	µg/L	5.0	13	a
	Lead	ND	µg/L	10.0	120	a
	Nickel	ND	µg/L	5.0	180	a
	Zinc	48.90	µg/L	20.0	120	a
	Total Suspended Solids	6.10	mg/L	12.5	100	b
	Nitrogen, Ammonia	0.12	mg/L	0.1		-
	Nitrogen, Kjeldahl, Total	0.63	mg/L	0.5		-
	Nitrogen, NO^2 plus NO^3	1.20	mg/L	0.040		-
	Total Nitrogen	1.95	mg/L	0.52	2.2	c
	Phosphorus, Total	0.06	mg/L	0.050	2	b
	Chemical Oxygen Demand	ND	mg/L	25.0	120	b
	pH	7.4	Std. Units	0.10	6.0-9.0	d

[a]State Water Quality Control Board Acute Standards for Surface Water Quality. Value is based on an assumed hardness of 100mg/L.
[b]Based on benchmark criteria for the VPDES Industrial Stormwater General Permit.
[c]The sum of Nitrogen as Ammonia, NO^2, NO^3, and Total Kjeldahl Nitrogen.
[d]Based on numeric effluent limitations noted in the VPDES Permit for Discharge of Stormwater Associated with Industrial Activity.
*Values highlighted in red were found to be in exceedance of their respective criterion.

4.0 SUMMARY

As indicated in **Table 4,** exceedances occurred for Total Nitrogen at Site #941 and for Copper at Site #4684. Exceedance tracking for parameters of concern are illustrated in **Figure 3** below.

Figure 3: Exceedance tracking for the Wet Weather Monitoring Program.

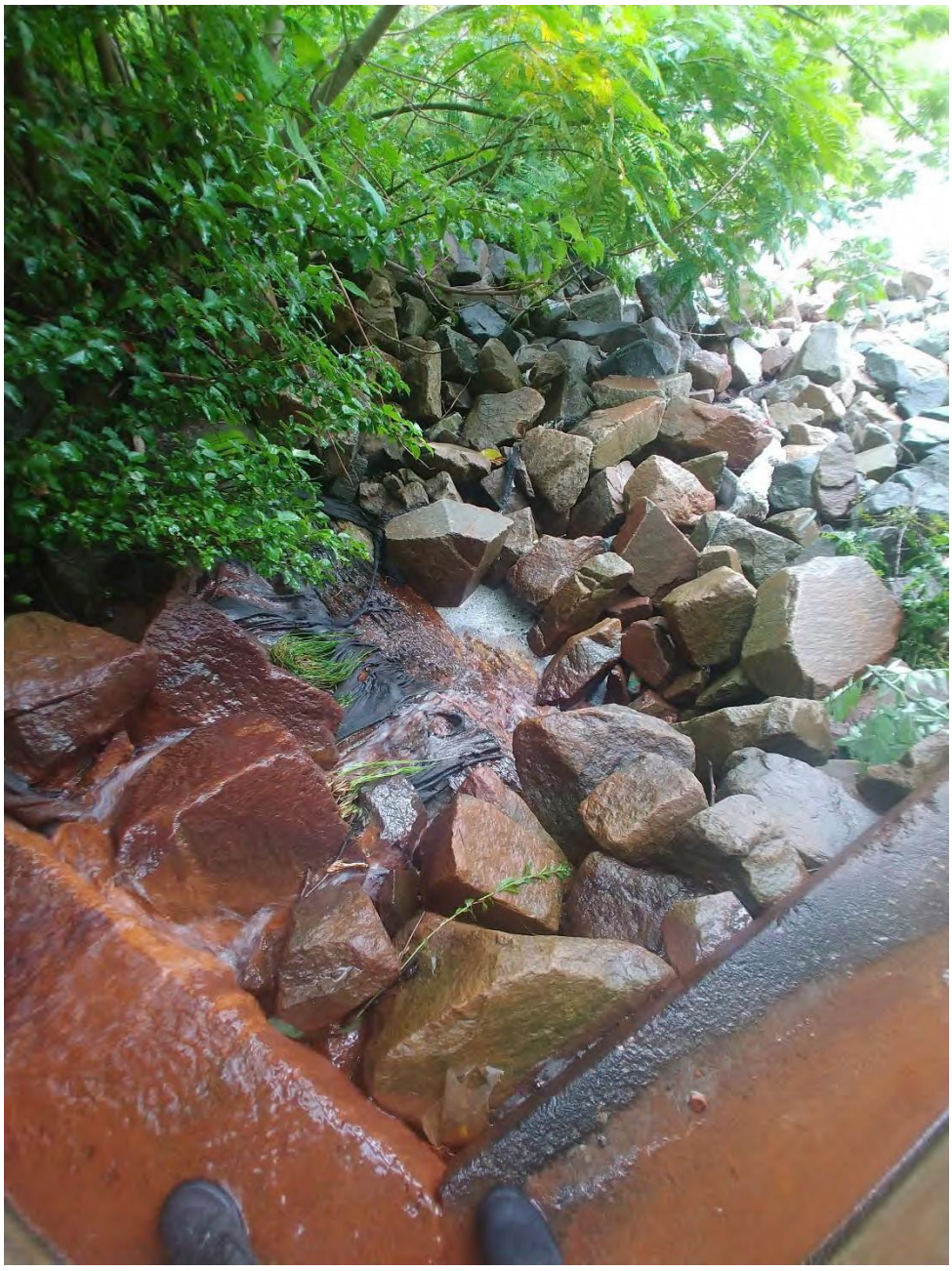
Manassas (#941)	2016		2017				2018				2019				2020				2021				2022	
	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
Copper	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x			x	x	
Lead																								
Nickel																								
Zinc	x		x	x	x	x	x	x							x	x							x	
Total Suspended Solids						x	x								x	x							x	
Total Nitrogen					x	x	x				x												x	x
Phosphorus, Total																								
Chemical Oxygen Demand		x				x	x								x								x	
pH						x												x						

Dale City (#4684)	2016		2017				2018				2019				2020				2021				2022	
	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2*	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
Copper	x		x	x	x	x	x	--		x	x											x	x	x
Lead								--																
Nickel								--																
Zinc			x		x	x	x	--																
Total Suspended Solids						x		--																
Total Nitrogen	x	x	x	x		x	x	--			x													
Phosphorus, Total								--																
Chemical Oxygen Demand						x	x	--																
pH		x		x		x		--									x					x		

* No sample collected at #4684 during Q2 2018.

APPENDIX: Photo Log

SITE CONDITIONS



Site: Dale City Station

Photo: 1

Date: 6/23/2022

Description: Plunge pool from Dale City outfall. Signs of oxidation.

Site: Dale City Station

Photo: 2

Date: 6/23/2022

Description: Dale City outfall at time of sampler retrieval.

Site: Manassas Station

Photo: 3

Date: 6/23/2022

Description: Manassas sampler at time of retrieval. Equipment bag present, as well as battery cover.

Site: Manassas Station

Photo: 4

Date: 6/23/2022

Description: Manassas Outfall downstream channel. Trash and debris present.

APPENDIX B

WATER QUALITY LABORATORY RESULTS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

July 08, 2022

Benjamin Green
WOOD E&I
4795 Meadow Wood Lane
Suite 310E
Chantilly, VA 20151

RE: Project: Prince William County
Pace Project No.: 92611754

Dear Benjamin Green:

Enclosed are the analytical results for sample(s) received by the laboratory on June 24, 2022. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Asheville
- Pace Analytical Services - Ormond Beach

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Sara Poulson
sara.poulson@pacelabs.com
(704)875-9092
Project Manager

Enclosures

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

CERTIFICATIONS

Project: Prince William County
Pace Project No.: 92611754

Pace Analytical Services Ormond Beach

8 East Tower Circle, Ormond Beach, FL 32174
Alaska DEC- CS/UST/LUST
Alabama Certification #: 41320
Colorado Certification: FL NELAC Reciprocity
Connecticut Certification #: PH-0216
Delaware Certification: FL NELAC Reciprocity
Florida Certification #: E83079
Georgia Certification #: 955
Guam Certification: FL NELAC Reciprocity
Hawaii Certification: FL NELAC Reciprocity
Illinois Certification #: 200068
Indiana Certification: FL NELAC Reciprocity
Kansas Certification #: E-10383
Kentucky Certification #: 90050
Louisiana Certification #: FL NELAC Reciprocity
Louisiana Environmental Certificate #: 05007
Maine Certification #: FL01264
Maryland Certification: #346
Massachusetts Certification #: M-FL1264
Michigan Certification #: 9911
Mississippi Certification: FL NELAC Reciprocity
Missouri Certification #: 236
Montana Certification #: Cert 0074
Nebraska Certification: NE-OS-28-14
New Hampshire Certification #: 2958
New Jersey Certification #: FL022
New York Certification #: 11608
North Carolina Environmental Certificate #: 667
North Carolina Certification #: 12710
North Dakota Certification #: R-216
Ohio DEP 87780
Oklahoma Certification #: D9947
Pennsylvania Certification #: 68-00547
Puerto Rico Certification #: FL01264
South Carolina Certification: #96042001
Tennessee Certification #: TN02974
Texas Certification: FL NELAC Reciprocity
US Virgin Islands Certification: FL NELAC Reciprocity
Virginia Environmental Certification #: 460165
West Virginia Certification #: 9962C
Wisconsin Certification #: 399079670
Wyoming (EPA Region 8): FL NELAC Reciprocity

Pace Analytical Services Asheville

2225 Riverside Drive, Asheville, NC 28804
Florida/NELAP Certification #: E87648
North Carolina Drinking Water Certification #: 37712
North Carolina Wastewater Certification #: 40
South Carolina Laboratory ID: 99030
South Carolina Certification #: 99030001
Virginia/VELAP Certification #: 460222

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

SAMPLE SUMMARY

Project: Prince William County
Pace Project No.: 92611754

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92611754001	**MAN**	Water	06/23/22 15:45	06/24/22 10:00
92611754002	**DAL**	Water	06/23/22 14:00	06/24/22 10:00

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

SAMPLE ANALYTE COUNT

Project: Prince William County
Pace Project No.: 92611754

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92611754001	**MAN**	EPA 200.7	AME	4	PASI-O
		SM 2540D-2011	MAB2	1	PASI-A
		SM 4500-H+B-2011	SMS	1	PASI-A
		TKN+NO3+NO2 Calculation	MDW	1	PASI-A
		EPA 350.1 Rev 2.0 1993	NDS	1	PASI-A
		EPA 351.2 Rev 2.0 1993	MFO	1	PASI-A
		EPA 353.2 Rev 2.0 1993	KDF1	1	PASI-A
		EPA 365.1 Rev 2.0 1993	SMT	1	PASI-A
		SM 5220D-2011	JP1	1	PASI-A
92611754002	**DAL**	EPA 200.7	AME	4	PASI-O
		SM 2540D-2011	MAB2	1	PASI-A
		SM 4500-H+B-2011	SMS	1	PASI-A
		TKN+NO3+NO2 Calculation	MDW	1	PASI-A
		EPA 350.1 Rev 2.0 1993	NDS	1	PASI-A
		EPA 351.2 Rev 2.0 1993	MFO	1	PASI-A
		EPA 353.2 Rev 2.0 1993	KDF1	1	PASI-A
		EPA 365.1 Rev 2.0 1993	SMT	1	PASI-A
		SM 5220D-2011	JP1	1	PASI-A

PASI-A = Pace Analytical Services - Asheville
PASI-O = Pace Analytical Services - Ormond Beach

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

ANALYTICAL RESULTS

Project: Prince William County
Pace Project No.: 92611754

Sample: MAN **Lab ID: 92611754001** Collected: 06/23/22 15:45 Received: 06/24/22 10:00 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 MET ICP	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Ormond Beach							
Copper	**26.9**	ug/L	5.0	1	07/04/22 10:30	07/07/22 09:38	7440-50-8	
Lead	ND	ug/L	10.0	1	07/04/22 10:30	07/07/22 09:38	7439-92-1	
Nickel	ND	ug/L	5.0	1	07/04/22 10:30	07/07/22 09:38	7440-02-0	
Zinc	**48.9**	ug/L	20.0	1	07/04/22 10:30	07/07/22 09:38	7440-66-6	
2540D TSS, Low-Level	Analytical Method: SM 2540D-2011 Pace Analytical Services - Asheville							
Total Suspended Solids	**6.1**	mg/L	1.0	1		06/26/22 14:46		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B-2011 Pace Analytical Services - Asheville							
pH at 25 Degrees C	**7.4**	Std. Units	0.10	1		06/29/22 13:16		H3
Total Nitrogen Calculation	Analytical Method: TKN+NO3+NO2 Calculation Pace Analytical Services - Asheville							
Total Nitrogen	**1.9**	mg/L	0.040	1		06/30/22 18:57		
350.1 Ammonia	Analytical Method: EPA 350.1 Rev 2.0 1993 Pace Analytical Services - Asheville							
Nitrogen, Ammonia	**0.12**	mg/L	0.10	1		06/25/22 13:40	7664-41-7	
351.2 Total Kjeldahl Nitrogen	Analytical Method: EPA 351.2 Rev 2.0 1993 Preparation Method: EPA 351.2 Rev 2.0 1993 Pace Analytical Services - Asheville							
Nitrogen, Kjeldahl, Total	**0.63**	mg/L	0.50	1	06/28/22 16:33	06/29/22 02:34	7727-37-9	
353.2 Nitrogen, NO2/NO3 pres.	Analytical Method: EPA 353.2 Rev 2.0 1993 Pace Analytical Services - Asheville							
Nitrogen, NO2 plus NO3	**1.2**	mg/L	0.040	1		06/30/22 13:06		M1
365.1 Phosphorus, Total	Analytical Method: EPA 365.1 Rev 2.0 1993 Preparation Method: EPA 365.1 Rev 2.0 1993 Pace Analytical Services - Asheville							
Phosphorus	**0.060**	mg/L	0.050	1	06/28/22 17:43	06/29/22 19:58	7723-14-0	
5220D COD	Analytical Method: SM 5220D-2011 Preparation Method: SM 5220D-2011 Pace Analytical Services - Asheville							
Chemical Oxygen Demand	ND	mg/L	25.0	1	06/29/22 01:36	06/29/22 04:26		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

ANALYTICAL RESULTS

Project: Prince William County
Pace Project No.: 92611754

Sample: DAL **Lab ID: 92611754002** Collected: 06/23/22 14:00 Received: 06/24/22 10:00 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 MET ICP	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Ormond Beach							
Copper	**8.7**	ug/L	5.0	1	07/04/22 10:30	07/07/22 09:42	7440-50-8	
Lead	ND	ug/L	10.0	1	07/04/22 10:30	07/07/22 09:42	7439-92-1	
Nickel	ND	ug/L	5.0	1	07/04/22 10:30	07/07/22 09:42	7440-02-0	
Zinc	**59.9**	ug/L	20.0	1	07/04/22 10:30	07/07/22 09:42	7440-66-6	
2540D TSS, Low-Level	Analytical Method: SM 2540D-2011 Pace Analytical Services - Asheville							
Total Suspended Solids	**9.4**	mg/L	1.2	1		06/26/22 14:47		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B-2011 Pace Analytical Services - Asheville							
pH at 25 Degrees C	**7.0**	Std. Units	0.10	1		06/29/22 13:13		H3
Total Nitrogen Calculation	Analytical Method: TKN+NO3+NO2 Calculation Pace Analytical Services - Asheville							
Total Nitrogen	**2.5**	mg/L	0.040	1		06/30/22 18:57		
350.1 Ammonia	Analytical Method: EPA 350.1 Rev 2.0 1993 Pace Analytical Services - Asheville							
Nitrogen, Ammonia	**0.55**	mg/L	0.10	1		06/25/22 13:43	7664-41-7	
351.2 Total Kjeldahl Nitrogen	Analytical Method: EPA 351.2 Rev 2.0 1993 Preparation Method: EPA 351.2 Rev 2.0 1993 Pace Analytical Services - Asheville							
Nitrogen, Kjeldahl, Total	**1.5**	mg/L	0.50	1	06/28/22 16:33	06/29/22 02:35	7727-37-9	
353.2 Nitrogen, NO2/NO3 pres.	Analytical Method: EPA 353.2 Rev 2.0 1993 Pace Analytical Services - Asheville							
Nitrogen, NO2 plus NO3	**0.95**	mg/L	0.040	1		06/30/22 13:09		
365.1 Phosphorus, Total	Analytical Method: EPA 365.1 Rev 2.0 1993 Preparation Method: EPA 365.1 Rev 2.0 1993 Pace Analytical Services - Asheville							
Phosphorus	**0.093**	mg/L	0.050	1	06/28/22 17:43	06/29/22 19:59	7723-14-0	
5220D COD	Analytical Method: SM 5220D-2011 Preparation Method: SM 5220D-2011 Pace Analytical Services - Asheville							
Chemical Oxygen Demand	**42.2**	mg/L	25.0	1	06/29/22 01:36	06/29/22 04:26		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: Prince William County
Pace Project No.: 92611754

QC Batch: 836911
QC Batch Method: EPA 200.7
Analysis Method: EPA 200.7
Analysis Description: 200.7 MET
Laboratory: Pace Analytical Services - Ormond Beach
Associated Lab Samples: 92611754001, 92611754002

METHOD BLANK: 4599876 Matrix: Water
Associated Lab Samples: 92611754001, 92611754002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Copper	ug/L	ND	5.0	07/07/22 08:07	
Lead	ug/L	ND	10.0	07/07/22 08:07	
Nickel	ug/L	ND	5.0	07/07/22 08:07	
Zinc	ug/L	ND	20.0	07/07/22 08:07	

LABORATORY CONTROL SAMPLE: 4599877

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Copper	ug/L	250	245	98	85-115	
Lead	ug/L	250	253	101	85-115	
Nickel	ug/L	250	255	102	85-115	
Zinc	ug/L	1250	1270	102	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 4599878 4599879

Parameter	Units	35728540001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Copper	ug/L	31.0	250	250	279	285	99	101	70-130	2	20	
Lead	ug/L	4.6U	250	250	255	253	102	101	70-130	1	20	
Nickel	ug/L	3.1J	250	250	257	257	101	102	70-130	0	20	
Zinc	ug/L	32.9	1250	1250	1300	1290	101	100	70-130	1	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 4599880 4599881

Parameter	Units	92611252001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Copper	ug/L	7.8	250	250	254	257	99	100	70-130	1	20	
Lead	ug/L	ND	250	250	249	255	100	102	70-130	2	20	
Nickel	ug/L	ND	250	250	255	259	102	103	70-130	1	20	
Zinc	ug/L	44.0	1250	1250	1270	1290	98	100	70-130	2	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: Prince William County
Pace Project No.: 92611754

QC Batch: 707015
QC Batch Method: SM 2540D-2011
Analysis Method: SM 2540D-2011
Analysis Description: 2540D Total Suspended Solids
Laboratory: Pace Analytical Services - Asheville
Associated Lab Samples: 92611754001, 92611754002

METHOD BLANK: 3688370 Matrix: Water
Associated Lab Samples: 92611754001, 92611754002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Suspended Solids	mg/L	ND	1.0	06/26/22 14:44	

LABORATORY CONTROL SAMPLE: 3688371

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Suspended Solids	mg/L	250	242	97	90-110	

SAMPLE DUPLICATE: 3688401

Parameter	Units	92611441001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	188	236	23	10	D6

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: Prince William County
Pace Project No.: 92611754

QC Batch: 707634
QC Batch Method: SM 4500-H+B-2011
Analysis Method: SM 4500-H+B-2011
Analysis Description: 4500H+B pH
Laboratory: Pace Analytical Services - Asheville
Associated Lab Samples: 92611754001, 92611754002

SAMPLE DUPLICATE: 3690680

Parameter	Units	92611519002 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.0	7.0	0	10	H3

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: Prince William County
Pace Project No.: 92611754

QC Batch: 706987
QC Batch Method: EPA 350.1 Rev 2.0 1993
Analysis Method: EPA 350.1 Rev 2.0 1993
Analysis Description: 350.1 Ammonia
Laboratory: Pace Analytical Services - Asheville
Associated Lab Samples: 92611754001, 92611754002

METHOD BLANK: 3688282 Matrix: Water
Associated Lab Samples: 92611754001, 92611754002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, Ammonia	mg/L	ND	0.10	06/25/22 11:58	

LABORATORY CONTROL SAMPLE: 3688283

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Ammonia	mg/L	5	5.1	103	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3688284 3688285

Parameter	Units	92611134006 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, Ammonia	mg/L	1.6	5	5	6.7	6.7	101	101	90-110	0	10	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3688286 3688287

Parameter	Units	92611163001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, Ammonia	mg/L	0.28	5	5	5.4	5.4	102	102	90-110	0	10	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: Prince William County
Pace Project No.: 92611754

QC Batch: 707254
QC Batch Method: EPA 351.2 Rev 2.0 1993
Analysis Method: EPA 351.2 Rev 2.0 1993
Analysis Description: 351.2 TKN
Laboratory: Pace Analytical Services - Asheville
Associated Lab Samples: 92611754001, 92611754002

METHOD BLANK: 3689240 Matrix: Water
Associated Lab Samples: 92611754001, 92611754002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, Kjeldahl, Total	mg/L	ND	0.50	06/29/22 02:19	

LABORATORY CONTROL SAMPLE: 3689241

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Kjeldahl, Total	mg/L	10	10.3	103	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3689242 3689243

Parameter	Units	92611257001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, Kjeldahl, Total	mg/L	0.69	10	10	11.7	11.4	110	108	90-110	2	10	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3689244 3689245

Parameter	Units	92611289001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, Kjeldahl, Total	mg/L	240	10	10	252	260	120	206	90-110	3	10	M1

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: Prince William County
Pace Project No.: 92611754

QC Batch: 707750
QC Batch Method: EPA 353.2 Rev 2.0 1993
Analysis Method: EPA 353.2 Rev 2.0 1993
Analysis Description: 353.2 Nitrate + Nitrite, preserved
Laboratory: Pace Analytical Services - Asheville
Associated Lab Samples: 92611754001, 92611754002

METHOD BLANK: 3691543 Matrix: Water
Associated Lab Samples: 92611754001, 92611754002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	ND	0.040	06/30/22 12:58	

LABORATORY CONTROL SAMPLE: 3691544

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	2.5	2.6	104	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3691545 3691546

Parameter	Units	92611163001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, NO2 plus NO3	mg/L	0.045	2.5	2.5	1.6	1.6	63	64	90-110	1	10	M1

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3691547 3691548

Parameter	Units	92611754001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, NO2 plus NO3	mg/L	1.2	2.5	2.5	3.4	3.6	88	95	90-110	5	10	M1

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: Prince William County
Pace Project No.: 92611754

QC Batch: 707448
QC Batch Method: EPA 365.1 Rev 2.0 1993
Analysis Method: EPA 365.1 Rev 2.0 1993
Analysis Description: 365.1 Phosphorus, Total
Laboratory: Pace Analytical Services - Asheville
Associated Lab Samples: 92611754001, 92611754002

METHOD BLANK: 3689965 Matrix: Water
Associated Lab Samples: 92611754001, 92611754002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Phosphorus	mg/L	ND	0.050	06/29/22 19:36	

LABORATORY CONTROL SAMPLE: 3689966

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Phosphorus	mg/L	2.5	2.6	103	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3689967 3689968

Parameter	Units	92610034001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Phosphorus	mg/L	4.2	2.5	2.5	7.1	7.1	113	116	90-110	1	10	M1

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3689969 3689970

Parameter	Units	92610594001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Phosphorus	mg/L	0.36	2.5	2.5	3.0	3.1	106	108	90-110	1	10	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: Prince William County
Pace Project No.: 92611754

QC Batch: 707533
QC Batch Method: SM 5220D-2011
Analysis Method: SM 5220D-2011
Analysis Description: 5220D COD
Laboratory: Pace Analytical Services - Asheville
Associated Lab Samples: 92611754001, 92611754002

METHOD BLANK: 3690421 Matrix: Water
Associated Lab Samples: 92611754001, 92611754002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chemical Oxygen Demand	mg/L	ND	25.0	06/29/22 04:20	

LABORATORY CONTROL SAMPLE: 3690422

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chemical Oxygen Demand	mg/L	750	787	105	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3690423 3690424

Parameter	Units	92610643001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chemical Oxygen Demand	mg/L	ND	100	100	132	139	114	121	90-110	5	3	M1,R1

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3690425 3690426

Parameter	Units	92611755001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chemical Oxygen Demand	mg/L	277	100	100	384	372	107	95	90-110	3	3	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALIFIERS

Project: Prince William County
Pace Project No.: 92611754

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

Acid preservation may not be appropriate for 2 Chloroethylvinyl ether.

A separate vial preserved to a pH of 4-5 is recommended in SW846 Chapter 4 for the analysis of Acrolein and Acrylonitrile by EPA Method 8260.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Reported results are not rounded until the final step prior to reporting. Therefore, calculated parameters that are typically reported as "Total" may vary slightly from the sum of the reported component parameters.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

D6	The precision between the sample and sample duplicate exceeded laboratory control limits.
H3	Sample was received or analysis requested beyond the recognized method holding time.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
R1	RPD value was outside control limits.

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Prince William County
Pace Project No.: 92611754

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92611754001	**MAN**	EPA 200.7	836911	EPA 200.7	836924
92611754002	**DAL**	EPA 200.7	836911	EPA 200.7	836924
92611754001	**MAN**	SM 2540D-2011	707015		
92611754002	**DAL**	SM 2540D-2011	707015		
92611754001	**MAN**	SM 4500-H+B-2011	707634		
92611754002	**DAL**	SM 4500-H+B-2011	707634		
92611754001	**MAN**	TKN+NO3+NO2 Calculation	708137		
92611754002	**DAL**	TKN+NO3+NO2 Calculation	708137		
92611754001	**MAN**	EPA 350.1 Rev 2.0 1993	706987		
92611754002	**DAL**	EPA 350.1 Rev 2.0 1993	706987		
92611754001	**MAN**	EPA 351.2 Rev 2.0 1993	707254	EPA 351.2 Rev 2.0 1993	707538
92611754002	**DAL**	EPA 351.2 Rev 2.0 1993	707254	EPA 351.2 Rev 2.0 1993	707538
92611754001	**MAN**	EPA 353.2 Rev 2.0 1993	707750		
92611754002	**DAL**	EPA 353.2 Rev 2.0 1993	707750		
92611754001	**MAN**	EPA 365.1 Rev 2.0 1993	707448	EPA 365.1 Rev 2.0 1993	707523
92611754002	**DAL**	EPA 365.1 Rev 2.0 1993	707448	EPA 365.1 Rev 2.0 1993	707523
92611754001	**MAN**	SM 5220D-2011	707533	SM 5220D-2011	707548
92611754002	**DAL**	SM 5220D-2011	707533	SM 5220D-2011	707548

ce· /lijt(ILlll'rltll	OC#_Title: ENV-FRM-HUN1-0083 v01_Sample Condition Upon Receipt
	Effective Date; 05/1212.0-22

laboratory receiving sam_pfes:

AsheyllJe [&) **Eden** ☐ Greenwood D Hu nter-svllle D **R lelghQ** ,**Mec:h:mir.!.vlllPn** **Atl::a.nt:1n lto ..n,urulll ..n**

SJ111pl11 Conc.litlo11 Urion rie,e 1

Client Name: lUx>

Project#: **1J0#:92611754**

III 111111111111111
92611'754

C.o rler: MFed £)(☐UPS ☐USPS ☐client
0 Cormnerf:fal 0Pace Oother:__

Custodv.Seal Present? 0Ye5 No ·S.eal Intact? OYes

i>ate/lnl\!als Person Examining Ccntents: 7-.

Packing Materlal: Onttbble Wrap ☐Bubble **Bags** None D Other

Blologlcal Tissue Frozeh -'®
Oves QN.o ON/A

Thermometer:

d IRGun ID: (i;3Ttf.'.)1:f
/_:]- 6C. ·**correctionF.actor:**

Type ofrce: ☐Wet 0Norie

Cooler Temp: _...___.______ Add/subtract ("C) _...:Yd.-=::..__ _

Temp should be- above fteezlns to GPC.
Qs mP,lesour of temp lteJ!a. Samples on IEe; co.ol)ng proces s.
ha1 begun

co olerTemp Corrected (..CJ:) .} &

USDARegulated Soll f **00N/A**, watet sampll!)

Did samples originate in a quar ntine zone within the Uf.llted St tes; Cf\, NY, qr SC J heck maps)? Oves nNo

Oid samples orlglnawrri:im a fpre!&n s.11urce (int rnatlonally, Including Hawaii and Puert Rtco)7 ☐Yes ☐No

				Comments/Dlscff,!Pan,y:
Chain of Cu tody PresentP	lilv	0No	ON/A	i.
.S n.ple§i Arrived within Hi;ild Time7	M'v s	nt-10	ON/A	2.
Short H cld Time Analvsls f<72 hr.)?	☐Yes	00No	ON/A	3.
Rush Twn.Around Time Requesti:id7	l'i?lves	nijo	ON/A'	4,
Sufficient Volume?	litYes	ON(\	nf'.1/{l	5.
Certect Containers Used?	(i'Yeg	☐No	ON/A	6.
-P.ace Contc!iner Used?	[V\.'fes	☐No	☐NIA	
Containers Intact?	fi!!Yes	0No	ON/A	7.
Dissolved anf.llysls: Samples Field Flltered?	ov''s	OOllD	☐NIA	8.
Sample l bels M t(h COC? •Includes Oa te/T.lrne/1D/Analysis Mafrix: \t.'1\	Yes	QNo	ON/A	9.
Hi:adspace In VOA Vials (:>S,6mm)?	☐Yes	☐NQ	!2fN/A	10.
Trip Bla-nk Present?	0Yes	☐No	(ia'N/A	1.1.
Trip-Blank Custoclv Seals Present?	Ovrs	0No	llfN/A	

COMM ENTS/SAMPlf P.ISCREPANCY

Fleld Oat Required? 0Yes 0No

Lot JD of spilt.containers(

CLIENT NOTIFICATION/RESOLUTION

Person contacted: ______________________ Date/Tim!!: ______________________

Proje Manager SCURF Review: ______________________ Oate: _ _ _ _ _ _ _ _ _ _

Project Man.ager SRf Review: ______________________ Date; ——————————

Pace	DC#_Title: ENV-FRM-HUN1-0083 v01_Sample Condition Upon Receipt
	Effective Date: 05/12/2022

*Check mark top half of box if pH and/or dechlorination is verified and within the acceptance range for preservation samples.
Exceptions: VOA, Coliform, TOC, Oil and Grease, DRO/8015 (water) DOC, LLHg

**Bottom half of box is to list number of bottles

***Check all unpreserved Nitrates for chlorine

Project #

WO# : 92611754

PM: SC Due Date: 07/01/22

CLIENT: 92-Amec VA

Item#	BP4U-125 mL Plastic Unpreserved (N/A) (Cl-)	BP3U-250 mL Plastic Unpreserved (N/A)	BP2U-500 mL Plastic Unpreserved (N/A)	BP1U-1 liter Plastic Unpreserved (N/A)	BP4S-125 mL Plastic H2SO4 (pH < 2) (Cl-)	BP3N-250 mL plastic HNO3 (pH < 2)	BP4Z-125 mL Plastic ZN Acetate & NaOH (>9)	BP4B-125 mL Plastic NaOH (pH > 12) (Cl-)	WGFU-Wide-mouthed Glass jar Unpreserved	AG1U-1 liter Amber Unpreserved (N/A) (Cl-)	AG1H-1 liter Amber HCl (pH < 2)	AG3U-250 mL Amber Unpreserved (N/A) (Cl-)	AG1S-1 liter Amber H2SO4 (pH < 2)	AG3S-250 mL Amber H2SO4 (pH < 2)	DG94-250 mL Amber NH4Cl (N/A)(Cl-)	DG9H-40 mL VOA HCl (N/A)	VG9T-40 mL VOA Na2S2O3 (N/A)	VG9U-40 mL VOA Unpreserved (N/A)	DG9V-40 mL VOA H3PO4 (N/A)	DG9S-40 mL VOA H2SO4 (N/A)	V/GK (3 vials per kit)-VPH/Gas kit (N/A)	SP5T-125 mL Sterile Plastic (N/A – lab)	SP2T-250 mL Sterile Plastic (N/A – lab)		BP3R-250 mL Plastic (NH2)2SO4 (9.3-9.7)	AG0U-100 mL Amber Unpreserved (N/A) (Cl-)	VSGU-20 mL Scintillation vials (N/A)	DG9U-40 mL Amber Unpreserved vials (N/A)
1	1			1	2	1																						
2	1			1	2	1																						
3																												
4																												
5																												
6																												
7																												
8																												
9																												
10																												
11																												
12																												

pH Adjustment Log for Preserved Samples

Sample ID	Type of Preservative	pH upon receipt	Date preservation adjusted	Time preservation adjusted	Amount of Preservative added	Lot #

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DENR Certification Office (i.e. Out of hold, Incorrect preservative, out of temp, Incorrect containers.

peAf?1ytjc2t-

CHAIN-OF-CUSTODY Analytical R.equest Document

Submitt.in6 li 1amptevb tflls chain or custody coni.t:ltuw adr\owIDCl,cmimt.:11nd ;cc:cpbntcdthc PUOC" Term ;and Conditions lound • https:/flnlc.paa,bbs.<0m/l,ubh/poHtilndo'11-terms_pdf

Chain-ol-0.Stoclvisa LEGAL OOCUMEl't!' • Complete 3'1rt:lewant foelds

LAB USE ONLY- Affix Workorder/Login Label Here or List Pace Workorder Number or MTJL Log-in Number Here

ALL BOLD OUTLINED AREAS are for LAB USE ONLY

COmpany: Wood | Billing Information:

Address: 4795 Meadow Wood Ln, Suite 310E, Chantilly, VA 20151 | Attn:

ReportTo: Benjamin Green | Email To: benjamln-green@woodplc.com

Copy To: | Sile Collection Info/Address:

Customer Project Name/Number: Prince William County/ 15128000L0002.••- ORG 7 26. GlCod S2l0-00 | State: VA / County/City: Prince William Co. | T,me Zone Collected: PT f JMT CT [X]ET

Phone: 703 488 3795

Email: bcnJornio_P,r"'n woocti,lucm

Slte/Facllity ID If:

Compliance Monitoring? [l \'es [ ) No

Collected By (printl: ff_JH

Purchase Order 1': Quc,cell:

OWPWSIOII: ow Location Code:

Collected By {s1gnature):

Turnaround Date Required:

Immediately Packed on Ice: Yes [1 No

Saimple Disposal: [XJ Dispc,e a, appropri•te [l J\etum [ ]Arm;vc:________ Hold:

Rush: (Expedite Charges Apply) [I Same Day [ ] Next Oay (J 2 Day [ ) 3 Day ( ]4Day [X)SDay

Field Filtered (if applicable): | | Yes [l No

Analysis: ________________

• Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW}, Product (Pl, Soil/Solid (SL), Oil (DL), Wipe (WP), Air (AR), Tissue (TS}, Bioassay [S), Vapor [V), Other (OTI

Container Preservative Type **: U | 1 | 2 | 2 | U

** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other ______

Lab Project Manager:

Customer Sample ID	Matrix•	Comp/Grab	Collected (or Composite Start) Date	Time	Composite End Date	Time	Res Cl	# of Ctns	Container Type	TSS	Metals	TKN/NO2+NO3	Ammonia/ Phosphorus/ COD	pH	LAB USE ONLY: Lab Sample # / Comments: 92611754
MAN	OT-Water	Comp						5	P	X	X	x	x	x	001
DAL	OT-Water	Comp						5	P	X	X	x	x	x	002

Lab Profile/Line: Lab Sample Receipt Checklist: Custody Seals Present/Intact Y N NA; Custody Signatures Present Y N NA; Collector Signature Present Y N NA; Bottles Intact Y N NA; Correct Bottles Y N NA; Sufficient Volume Y N NA; Samples Received on Ice Y N NA; VOA - Headspace Acceptable Y N NA; USDA Regulated Soils Y N NA; Samples in Holding Time Y N NA; Residual Chlorine Present Y N NA; Cl Strips: 2120; Sample pH Acceptable Y N NA; pH Strips: 223819AV; Sulfide Present Y N NA; Lead Acetate Strips:

Customer Remarks/ Special Conditions/ Possible Hazards:
Prince William County/
151280001-0002.,........, ORG 7526, Gl Code 5210-00
Pace PM Sara Poulson

Type of Ice Used: Wet Blue Dry None

Packing Material Used:

Radchem sample(s) screened (<500 cpm): Y N NA

SHORT HOLDS PRESENT (<72 hours): Y N N/A

Lab Tracking #:

Samples received via: FEDEX UPS Client Courier Pace Courier

LAB Sample Temperature Info: Temp Blank Received: Y N NA; Therm ID#: 95T071; Cooler 1 Temp Upon Receipt: 1.7 °C; Cooler 1 Therm Corr. Factor: 0 °C; Cooler 1 Corrected Temp: 1.7 °C; Comments:

Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:
[signature] Wood	6/23/22 17:30	[signature] PACE AVL	6/24/22 1000
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:

MTJL LAB USE ONLY: Table #: Acctnum: Template: Prelogin: PM: PB:

Trip Blank Received: Y N NA HCl MeOH TSP Other

Non Conformance(s): YES / NO

Page: ____ of: ____

Appendix O

Annual VDOT Coordination Meeting – Participant List

Q Search

Northern Virginia Regional Com..

ii **VDOT - Phase I's Coordination Meeting** Chat Files Details Scheduling Assistant Meeting notes 3 more v +

53:54 +14 Join 1111

X Cancel meeting c-:::> Copy link Category: None v Time zone: (UTC-05:00) Eastern Time (US & Canada) v Meeting options

VDOT - Phase I's Coordination Meeting

CC Carinci, Craig A. X Unknown
BE Eib, Benjamin A. X Free
MM Madan Mohan X Free
DU Ungar, David X Unknown
MH Hurd, Martin X Free
JP Jason Papacosma X Free
JF John Foraste X Free
TH Harmon, Tracey E. (VDOT) X Free
DH Diana Handy X Free
M maria.mutuc@vdot.virginia.gov Free X
MC Marian Carroll Free X
SC Scott Crafton Free X
MF Michelle Fults Free X
JL JJ Lightfoot Free X

Optional:
CT Torgersen, Catherine S Unknown X
TC Cannon, Takisha Free X
EB Burton, Emily Free X
C chris.swanson@vdot.virginia.gov Free X
K kun.dong@vdot.virginia.gov Free X

0 1/25/2022 10:00 AM v 1/25/2022 12:00 PM v 2h • All day

Time suggestions are only available for 15 or fewer attendees.

Does not repeat v

fol Teams Meeting X Unknown

Hide meeting info A

B I Paragraph v

Items for Coordination

- Mapping (MS4 Service Areas)
- Chesapeake Bay TMDL Action Plan updates
- Other TMDL Action Plans
- Credit for TMDL Implementation
- Illicit Discharge Detection & Elimination
- Water Quality Monitoring

Tracking

NG Normand Goulet
Organizer

Oo OJ 16 Accepted 1 Tentative

BE Eib, Benjamin A. Accepted
MM Madan Mohan Accepted
MH Hurd, Martin Accepted
JP Jason Papacosma Accepted
JF John Foraste Accepted
TH Harmon, Tracey E. (VDOT) Accepted
DH Diana Handy Accepted
M maria.mutuc@vdot.virginia.gov Accepted
MC Marian Carroll Accepted
SC Scott Crafton Accepted
MF Michelle Fults Accepted
JL JJ Lightfoot Accepted
CC Carinci, Craig A. Unknown
Ungar David

Chat
COJ Teams
Calendar
Calls
Files
rool
Apps
Help

P Type here to search

42°F Mostly cloudy

10:49AM 112512022

Appendix P

Biological Monitoring Report

Benthic Macroinvertebrate Population and Water Quality Monitoring Report

Fall 2021 and Spring 2022

Prepared for:

Prince William County Department of Public Works
5 County Complex Court, Suite 170
Prince William, Virginia 22192

Prepared by:
Wood Environment & Infrastructure Solutions, Inc.
4795 Meadow Wood Lane, Suite 310E
Chantilly, VA 20151
(703) 488-3700

September 1, 2022
Project No. 151280001

TABLE OF CONTENTS

TABLES

FIGURES

APPENDICES

LIST OF ACRONYMS

BI	Biotic Index
°C	Degrees Celsius
CWA	Clean Water Act
DO	Dissolved Oxygen
E. coli	*Escherichia coli*
EPT	Ephemeroptera/Plecoptera/Trichoptera
m	Meter
mg/L	Milligrams per Liter
µS/cm	Microsiemens per Centimeter
MPN/100mL	Most Probable Number of Coliform per 100 Milliliters
m/s	Meters per Second
MS4	Municipal Separate Storm Sewer System
NTU	Nephelometric Turbidity Units
PMA	Percent Model Affinity
RBP	USEPA Rapid Bioassessment Protocol
SU	Standard Units
TKN	Total Kjeldahl Nitrogen
TSS	Total Suspended Solids
USEPA	United States Environmental Protection Agency
VDEQ	Virginia Department of Environmental Quality
VSCI	Virginia Stream Condition Index
VSMP	Virginia Stormwater Management Program

1.0 INTRODUCTION

Wood Environment & Infrastructure Solutions, Inc. (Wood) has prepared this report for ongoing benthic macroinvertebrate sampling for compliance with the requirements of the Virginia Stormwater Management Program (VSMP) Permit, Municipal Separate Storm Sewer System (MS4) Permit Number VA0088595, issued by the Virginia Department of Environmental Quality (VDEQ) to Prince William County, Virginia. This report presents the results of the 2021 Fall and 2022 Spring sampling events, which were conducted in accordance with the *Sampling Plan for Benthic Macroinvertebrate Population and Water Quality Monitoring* (Sampling Plan) (Amec Foster Wheeler 2015). This report provides detailed descriptions of the sampling and analysis activities conducted, as well as the water quality analytical results and benthic macroinvertebrate results. In addition, this report provides a comparison summary with the baseline results from the 2016 Spring and Fall sampling events (spring and fall baselines).

1.1 Background

The U.S. Environmental Protection Agency (USEPA) delegated the authority to implement Section 402 of the Clean Water Act (CWA) to the Commonwealth of Virginia on March 31, 1975. Subsequently, Section 62.1-44.15:25 of the Virginia Stormwater Management Act authorizes VDEQ to issue, deny, amend, revoke, terminate, and enforce permits for the control of stormwater discharges from MS4s. The VSMP Permit Number VA0088595 authorizes point source discharges of stormwater runoff and certain non-stormwater discharges from the MS4 operated or owned by Prince William County. Part I.C of the VSMP permit outlines the monitoring requirements guided by Section 9VAC25-870-380 C.2.c.(4) of the VSMP regulations. As stipulated in the permit, benthic macroinvertebrate and surface water monitoring is conducted at five locations in Prince William County: Cow Branch, Dawkins Branch, Little Bull Run, Neabsco Creek, and Purcell Branch (Figures 1 through 5).

1.2 Purpose

The purpose of this sampling report is to provide data that will be used to comply with the biological stream (Part I.C.1) and in-stream monitoring (Part I.C.2) requirements outlined in Prince William County's permit. The specific objectives are to gather sufficient data to evaluate, and subsequently demonstrate, the effectiveness of upstream best management practices. The results presented in this report will be compared to baseline conditions to evaluate trends in benthic health and stream ecosystem conditions at each site.

2.0 METHODS

Sample collection occurred from October 4 to 6, 2021, and from May 3 to 5, 2022, in accordance with the Sampling Plan. Benthic macroinvertebrate and surface water samples were collected by Wood personnel from five locations in Prince William County: Cow Branch, Dawkins Branch, Little Bull Run, Neabsco Creek, and Purcell Branch (Figures 1 through 5). The field team prepared Physical Characterization/Water Quality Field Data Sheets and Habitat Assessment Field Data Sheets for High Gradient Streams, as specified in USEPA Rapid Bioassessment Protocol (RBP) (Barbour et al. 1999; Appendix A). In-situ water quality data were collected using a YSI 556 water quality meter for dissolved oxygen (DO), pH, conductivity, and temperature. Turbidity was measured using a LaMotte 2020e meter in Nephelometric Turbidity Units (NTU).

Approximate stream width, water depth, and transparency (as measured with a Secchi disk) were measured in meters (m). Water velocity was measured with a Marsh-McBirney Flo-Mate current meter in meters per second (m/s). Upstream and downstream photographs were also taken for each site (Appendix A). Grab water samples were analyzed for ammonia, *Escherichia coli* (*E. coli*), nitrate/nitrite, orthophosphate, total Kjeldahl nitrogen (TKN), total nitrogen, total phosphorus, and total suspended solids (TSS).

Benthic macroinvertebrate sampling was conducted in accordance with the Sampling Plan. The multiple habitat sampling method was used for each of the sites. This method consists of a total of 20 jabs or kicks, taken from each major habitat type in the reach. Benthic macroinvertebrate samples were placed on ice in coolers and shipped overnight to Wood's benthic macroinvertebrate laboratory in Gainesville, Florida. The laboratory sorted, mounted, identified, enumerated, evaluated, and classified benthic macroinvertebrates according to Section 7.2 of the RBP (Barbour et al. 1999). Eight metrics were calculated including the Hilsenhoff Biotic Index (HBI) (1987); the Percent Model Affinity (PMA) from Novak and Bode (1992); and the Virginia Stream Condition Index (VSCI) using guidance from TetraTech (2003) and VDEQ (2008).

It should be noted that HBI, PMA, and VSCI represent various ways to assess stream condition; as a result, score categories will not always agree among assessments. HBI estimates the overall tolerance of the community in a sampled area, weighted by the relative abundance of each taxonomic group (e.g., family), and the group's predetermined tolerance level. PMA is an index of percentage similarity, used to measure the affinity of various metrics (e.g., species richness) from the sample reach to that of the expected model community. VSCI is an index designed specifically for streams and small rivers in Virginia. The index utilizes eight scoring metrics, comparing monitored site metrics to the metrics of a designated reference condition.

3.0 RESULTS

Sample collection occurred from October 4 to 6, 2021, and from May 3 to 5, 2022, in accordance with the Sampling Plan and is summarized in the following sections.

3.1 Field Condition and Parameter Results

Assessing physical habitat quality is an integral component of the final evaluation of impairment. The RBP matrix used to assess habitat quality is based on 10 visual physical characteristics of the waterbody and surrounding land, particularly the catchment of the site under investigation. The habitat parameters evaluated are related to overall aquatic life use and are a potential source of limitation to the aquatic biota; the scoring of each of these characteristics is included as page 4 of the site datasheets in Appendix A, while score totals and the resulting condition categories are summarized in Table 1 for the Fall 2021 event and Table 2 for Spring 2022 event. The RBP defines the following condition categories based on the physical habitat characterization scores, to determine the ability of the habitat to support an optimal biological community:

151-200	**Optimal**	The physical habitat present meets natural expectations and can support optimal benthic community.
101-150	**Suboptimal**	Physical habitat is less than desirable but satisfies expectations under most circumstances to support a benthic community.
51-100	**Marginal**	Physical habitat has moderate levels of degradation, with a severity at frequent intervals throughout the reach, which limit the capability of supporting a benthic community.
0-50	**Poor**	Physical habitat has been substantially altered with severe degradation to characteristics that would support a benthic community.

Water quality is also an integral component of stream evaluation and the ability of a stream to support biological communities. Surface waters should meet Virginia's Water Quality Standards, as outlined in Section 9VAC25-260. However, these standards represent limits not to be exceeded. For a general comparison, the following bullets summarize typical conditions for piedmont streams.

- A pH range of 6.5 to 8.0 standard units (SU) is optimal for most organisms, as a pH outside this range reduces the diversity in the stream because it stresses the physiological systems of most organisms and can reduce reproduction.
- Distilled water has conductivity in the range of 0.5 to 3 microsiemens per centimeter (µS/cm). The conductivity of streams generally range from 0 to 1500 µS/cm, while

studies of inland fresh waters indicate that streams supporting mixed fisheries have a range between 50 and 500 µS/cm.

- Temperature affects feeding, reproduction, and metabolism of aquatic animals. A week or two of high temperatures may make a stream unsuitable for sensitive aquatic organisms; the maximum temperature of nontidal (piedmont) streams should not exceed 32 degrees Celsius (°C).
- DO is an important measure of stream water quality, as aquatic organisms need DO to live. DO in the water varies greatly with stream characteristics, temperature, and time, but a minimal DO level of 5 milligrams per liter (mg/L) is usually required to maintain healthy growth and activity.
- Turbidity is a measure of water clarity, and though Virginia water quality standards do not include guidelines for turbidity. Generally, water begins to appear cloudy when the turbidity is greater than 5 NTU.

3.1.1 Fall 2021

RBP physical habitat assessment scores ranged from 106 (**Purcell Branch**) to 149 (**Neabsco Creek**). The scores indicated that all sites exhibited suboptimal habitat for supporting benthic communities. As shown in Table 1, the physical water quality characteristics of the five sites meet the typical water quality conditions described above.

Table 1. Fall 2021 Field Condition and Parameter Results.

Parameter	Units	Cow Branch	Dawkins Branch	Little Bull Run	Neabsco Creek	Purcell Branch
RBP Habitat Assessment/ Characterization Score	--	129	117	128	149	106
RBP Habitat Condition Category	--	Suboptimal	Suboptimal	Suboptimal	Suboptimal	Suboptimal
pH	SU	6.92	7.64	7.64	7.54	7.25
Specific Conductance	µS/cm	360	531	462	188	172
Temperature	°C	20.28	23.78	18.89	18.94	18.81
DO	mg/L	9.8*	5.71*	8.58*	10.6*	7.94
Turbidity	NTU	NR	1.49	0.65	1.23	1.84
Water Depth	m	0.21	0.27	0.15	0.22	0.17
Secchi Depth	m	0.21	0.27	0.15	0.22	0.17
Reach Length	m	100	100	100	100	100
Reach Width	m	3.96	5.79	8.84	6.55	7.62
Surface Velocity	m/s	0.02	NR	0.37	0.076	0.15

Abbreviations:
NR = Not Reported
°C = degrees Celsius
mg/L = milligrams per liter
**Dissolved Oxygen was converted from % to mg/ L, assuming pressure = 1 atm*

Prepared by: INT
Checked by: BTG

3.1.2 Spring 2022

RBP physical habitat assessment scores ranged from 145 (**Little Bull Run**) to 174 (**Neabsco Creek**). The scores indicated that all sites exhibited optimal or suboptimal habitat for supporting benthic communities.

As shown in Table 2, most of the physical water quality characteristics of the five sites meet the typical water quality conditions described above. In-situ pH levels at **Cow Branch** were slightly below the optimal range. The turbidity at **Dawkins Branch** was slightly above the optimal maximum. The specific conductance at **Dawkins Branch** was slightly above the range for inland fresh waters supporting mixed fisheries, but well within the broader range of typical conductivity for streams.

Table 2. Spring 2022 Field Condition and Parameter Results.

Parameter	Units	Cow Branch	Dawkins Branch	Little Bull Run	Neabsco Creek	Purcell Branch
RBP Habitat Assessment/ Characterization Score	--	167	163	145	174	147
RBP Habitat Condition Category	--	Optimal	Optimal	Suboptimal	Optimal	Suboptimal
pH	SU	6.19	7.71	7.69	7.2	7.43
Specific Conductance	µS/cm	411	640	481	178	184
Temperature	°C	16.2	18.3	16.0	16.0	16.1
DO	mg/L	8.5	7.85	7.77	8.88	9.31
Turbidity	NTU	2.45	8.08	1.26	2.41	6.75
Water Depth	m	0.29	0.23	0.12	0.37	0.24
Secchi Depth	m	0.29	0.23	0.12	0.37	0.24
Reach Length	m	100	100	100	100	100
Reach Width	m	3.99	4.11	6.16	5.49	5.88
Surface Velocity	m/s	0.11	1.14	0.55	0.38	0.37

Abbreviations:
NR = Not Reported
°C = degrees Celsius
mg/L = milligrams per liter

Prepared by: CCD
Checked by: INT

3.2 Water Quality Laboratory Results

The laboratory analytical reports are provided in Appendix B. As mentioned in the previous section, the following bullets represent typical conditions and provide a general indication of stream health.

- Ammonia is toxic to fish and other types of aquatic life. Ammonia's toxicity depends on both the temperature and pH of the water, but chronic levels above 3.0 mg/L exceed water quality standards.

- *E. coli* can be used as an indicator of stream impairment from sewage and animal waste. The Virginia Water Quality Standard is 126 most probable number of coliform per 100 milliliters (MPN/100mL).
- Nitrate stimulates plant growth, and excessive plant growth can impact DO levels. Streams in areas with little human impact have less than 0.6 mg/L nitrate.
- Phosphates act as a nutrient for plant growth similar to nitrate. Streams in areas with little human impact have less than 0.1 mg/L. There is no Virginia Water Quality Standard for phosphate. Orthophosphate serves as an indicator of biologically available Phosphorus within streams.
- TKN is the sum of organic nitrogen, ammonia, and ammonium. Though there is no Virginia Water Quality Standard for TKN, it can be used as an indicator for stream impairment.
- There are no Virginia Water Quality standards for total phosphorus or nitrogen. However, total phosphorus levels higher than 0.1 mg/L may stimulate plant growth sufficiently to surpass natural growth rates. Levels in excess of 0.1 mg/L indicate a potential human source such as industrial soaps, sewage, fertilizers, disturbance of soil, animal waste, or industrial effluent.
- TSS, similar to turbidity, is a quantitative measurement of sediment and other particles found in surface water. Though there is no Virginia Water Quality Standard for TSS, it can be used as an indicator for erosion and sedimentation.

3.2.1 Fall 2021

As shown in Table 3, the water quality results for the five sites meet the typical water quality conditions described above, with the exception of elevated *E. coli* levels recorded at **Cow Branch, Dawkins Branch, Neabsco Creek, and Purcell Branch**. Samples at these four sites exceed the Virginia Water Quality Standard of 126 MPN/100mL. Elevated *E. coli* levels are typically associated with sewage and animal waste. The weather station at Fort Belvoir (KDAA) recorded over 2 inches of precipitation on September 23, which may account for elevated levels within the streams. Also notable, nitrate + nitrite at **Little Bull Run** is slightly above the threshold that may indicate human impact to the stream. While this is not an exceedance of a Virginia water quality standard, it indicates increased potential for excessive plant growth impacting DO levels.

Table 3. Fall 2021 Water Quality Results.

Parameter	Units	Cow Branch	Dawkins Branch	Little Bull Run	Neabsco Creek	Purcell Branch
Ammonia as N	mg/L	0.02	0.04	0.02	0.02	0.02
E. coli	MPN/100mL	**236**	**4,350**	119	**261**	**1,120**
Nitrate+Nitrite	mg/L	0.43	0.04	0.68	0.34	0.45
Orthophosphate as P	mg/L	<0.01	<0.01	0.01	<0.01	0.01
TKN	mg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Total Phosphorus	mg/L	<0.01	0.02	0.02	0.01	0.01
TSS	mg/L	<1.0	13.4	<1.0	1.6	<1.0

Abbreviations: *Prepared by: INT*
< = not detected at the associated reporting limit *Checked by: BTG*
mg/L = milligrams per liter
bold *indicates a result exceeding the VA water quality standards*

The laboratory analytical report for the Fall 2021 sampling is provided in Appendix B.

3.2.2 Spring 2022

As shown in Table 4, the water quality results for the five sites meet the typical water quality conditions described above, with the exception of elevated *E. coli* levels recorded at **Dawkins Branch, Little Bull Run, Neabsco Creek, and Purcell Branch**. Samples at these four sites exceed the Virginia Water Quality Standard of 126 MPN/100mL. Elevated *E. coli* levels are typically associated with sewage and animal waste. The weather station at Fort Belvoir (KDAA) recorded 0.88 inches of precipitation between midnight and 4 am on May 4, which may account for elevated levels within the streams.

Table 4. Spring 2022 Water Quality Results.

Parameter	Units	Cow Branch	Dawkins Branch	Little Bull Run	Neabsco Creek	Purcell Branch
Ammonia as N	mg/L	0.06	0.04	0.07	0.04	0.02
E. coli	MPN/100mL	77.1	**2,420**	**435**	**162**	**2,910**
Nitrate+Nitrite	mg/L	0.30	0.10	0.34	0.26	0.40
Orthophosphate as P	mg/L	<0.01	0.01	0.01	0.01	0.01
TKN	mg/L	<0.5	0.85	<0.5	<0.5	0.63
Total Phosphorus	mg/L	0.08	0.05	0.05	0.05	0.03
TSS	mg/L	1.1	17.2	4.0	2.6	6.7

Abbreviations: *Prepared by: CCD*
< = not detected at the associated reporting limit *Checked by: INT*
mg/L = milligrams per liter
bold *indicates a result exceeding the VA water quality standards*

The laboratory analytical report for the Spring 2022 sampling is provided in Appendix B.

3.3 Benthic Macroinvertebrate Results

Terms such as “tolerant” and “intolerant” taxa are used to describe benthic communities in this document without the negative or positive lay connotations of such language. Tolerant taxa are benthic species adapted to survive in a broad range of environmental conditions, whereas intolerant taxa are adapted to more limited range of environmental conditions. The term “impairment” has a negative connotation with its lay usage; in this document, the term is used to describe the nature and composition of a benthic community. The scientific “impairment” conditions are classified into four categories:

No Impairment	Similar to the reference conditions; the benthic community is of excellent quality.
Slight Impairment	Sustaining a diverse and abundant benthic community with some intolerant taxa; the benthic community is of good quality.
Moderate Impairment	Not having a highly diverse and abundant community, but having taxa present in several major groups, generally a few intolerant taxa and one taxon being dominant; the community has been impacted.
Severe Impairment	Few, if any, benthic invertebrate taxa are present, all tolerant taxa, low diversity, and often one taxon is very abundant; the benthic community has been severely impacted.

Wood’s laboratory sorted and identified the organisms in the benthic macroinvertebrate samples and provided reports dated December 20, 2021, and August 15, 2022 for the Fall 2021 and the Spring 2022 sampling events, respectively (Appendix C). The results of the sampling are provided in the Tables 5 and 6 below and summarized in this section.

3.3.1 Fall 2021

A total of 72 taxa were identified from the fall samples. Among the five sites, taxa richness ranged from 26 to 35, while abundance ranged from 186 to 222. EPT taxa ranged from 6 to 10 among the sites.

The percentage of the top taxa ranged from 18.06 to 36.02%. Percentage of the top two taxa combined, which is a VSCI metric, ranged from 51.26 to 60.12%.

The HBI ranged from 5.40 to 6.70 for the sites, with corresponding HBI Category scores of “Good” and “Fairly Poor”. The PMA ranged from 33.93 to 66.85 for the sites, indicating levels of impactedness ranging from “Severely Impacted” at **Cow Branch**, to “Non-impacted” at **Little Bull Run**.

Results from the calculation of the VSCI for the individual sample sites ranged from 51.26 (**Cow Branch**) to 70.52 (**Little Bull Run**).

Table 5. Fall 2021 Benthic Macroinvertebrate Results.

Metric	Cow Branch	Dawkins Branch	Little Bull Run	Neabsco Creek	Purcell Branch
Taxa Richness	27	35	27	26	28
Abundance	214	189	222	215	186
EPT Index	7	6	7	6	10
EPT/EPT+ Chironomidae	0.95	0.44	0.87	0.93	0.97
Percent Dominant Taxon	33.64	23.28	29.28	18.60	36.02
Percent Chironomidae	3.74	25.93	5.86	5.58	2.15
BI	5.95	6.70	5.89	5.40	5.78
BI Category	Fair	Fairly Poor	Fair	Good	Fair
PMA	33.93	65.63	66.85	39.53	41.29
PMA Category	Severely Impacted	Non-Impacted	Non-Impacted	Moderately Impacted	Moderately Impacted
VSCI	51.26	54.70	70.52	61.30	60.12
VSCI Category	Stress	Stress	Good	Good	Good

Abbreviations:
BI = Biotic Index
EPT = Ephemeroptera, Plecoptera, and Trichoptera
PMA = percent model affinity
VSCI = Virginia Stream Condition Index

Prepared by: INT
Checked by: BTG

3.3.2 Spring 2022

A total of 92 taxa were identified from the spring samples. Among the five sites, taxa richness ranged from 21 to 50, while abundance ranged from 184 to 236. EPT taxa ranged from 2 to 5 among the sites.

The percentage of the top taxa ranged from 13.56 to 49.74%. Percentage of the top two taxa combined, which is a VSCI metric, ranged from 25.54 to 67.36%.

The HBI ranged from 5.12 to 6.94 for the sites, with corresponding HBI Category scores of “Good” and “Fairly Poor”. The PMA ranged from 24.15 to 68.93 for the sites, indicating levels of impactedness ranging from “Severely Impacted” at **Cow Branch**, to “Non-impacted” at **Little Bull Run**.

Results from the calculation of the VSCI for the individual sample sites ranged from 30.27 (**Cow Branch**) to 53.96 (**Little Bull Run**).

Table 6. Spring 2022 Benthic Macroinvertebrate Results.

Metric	Cow Branch	Dawkins Branch	Little Bull Run	Neabsco Creek	Purcell Branch
Taxa Richness	21	50	33	38	31
Abundance	193	195	197	236	184
EPT Index	2	2	4	5	5
EPT/EPT+ Chironomidae	0.02	0.09	0.39	0.34	0.20
Percent Dominant Taxon	49.74	18.46	21.83	13.56	13.59
Percent Chironomidae	95.85	36.41	43.15	55.51	72.28
BI	5.12	6.94	6.56	5.63	5.60
BI Category	Good	Fairly Poor	Fairly Poor	Good	Good
PMA	24.15	41.67	68.93	62.71	43.04
PMA Category	Severely Impacted	Moderately Impacted	Non-Impacted	Slightly Impacted	Moderately Impacted
VSCI	30.27	44.88	53.96	50.11	48.13
VSCI Category	Severe Stress	Stress	Stress	Stress	Stress

Abbreviations:
BI = Biotic Index
EPT = Ephemeroptera, Plecoptera, and Trichoptera
PMA = percent model affinity
VSCI = Virginia Stream Condition Index

Prepared by: CCD
Checked by: INT

3.4 Comparison to Baseline Results

In the assessment of measured field and laboratory water quality parameters, the Fall 2021 and Spring 2022 sampling results have shown slight improvements compared to the Fall and Spring baseline sampling results from 2016, are within or slightly above the normal ranges, and are below Virginia's Water Quality Standards, with the exception of *E. coli,* pH, and turbidity results. Four of five sites were found to be in exceedance of the state water quality standard for *E. coli* in the Fall and Spring. In-situ pH levels at **Cow Branch** were slightly below the optimal range during Spring 2022. The turbidity at **Dawkins Branch** was slightly above the optimal maximum during Spring 2022.

The habitat and benthic community results among the events are summarized below in Table 7. Habitat assessment scores at **Dawkins Branch** have stabilized year over year, after a decline from baseline events. Steady increases in metrics assessing the health of the benthos at each site appear to remain constant or improve though out the years. The only improvements were seen at **Neabsco Creek** which went from "Severe Stress" in the Spring of 2021 to "Stress" in the Spring of 2022, and at **Neabsco Creek** and **Purcell Branch** which went from "Stress" in Fall 2020 to "Good" from Fall 2021.

The PMA category has fluctuated from baseline; two of the five sites received scores of "Severely Impacted" during the Spring baseline sampling and no sites received a score of "Severely Impacted" during the Fall baseline sampling. Improvements in the Fall 2021 from baseline were seen in **Dawkins Branch**, and **Little Bull Run**. Regressions in the Fall 2021 from

baseline were seen in **Cow Branch, Neabsco Creek,** and **Purcell Branch**. Improvements in the Spring 2022 from baseline were seen in **Little Bull Run** and **Neabsco Creek**. Regression in the Spring 2022 from baseline were seen in **Purcell Branch**. No changes from Spring 2022 from base line were observed at **Cow Branch** and **Dawkins Branch**.

Table 7. Habitat and Benthic Community Comparison Summary

Parameter	Event	Cow Branch	Dawkins Branch	Little Bull Run	Neabsco Creek	Purcell Branch
RBP Habitat Score	Baseline (Spring)	94	126	120	134	103
	Baseline (Fall)	104	147	110	136	87
	2017 (Spring)	98	134	94	123	108
	2017 (Fall)	101	116	98	114	80
	2018 (Spring)	93	126	103	113	106
	2018 (Fall)*	106	114	126	129	105
	2019 (Spring)*	113	99	124	117	103
	2019 (Fall)	132	134	120	136	117
	2020 (Spring)	107	106	102	127	89
	2020 (Fall)	109	120	142	121	114
	2021 (Spring)	122	103	138	114	117
	2021 (Fall)	129	117	128	149	106
	2022 (Spring)	167	163	145	174	147
RBP Habitat Category	Baseline (Spring)	Marginal	Suboptimal	Suboptimal	Suboptimal	Suboptimal
	Baseline (Fall)	Suboptimal	Suboptimal	Suboptimal	Suboptimal	Marginal
	2017 (Spring)	Marginal	Suboptimal	Marginal	Suboptimal	Suboptimal
	2017 (Fall)	Suboptimal	Suboptimal	Marginal	Suboptimal	Marginal
	2018 (Spring)	Marginal	Suboptimal	Suboptimal	Suboptimal	Suboptimal
	2018 (Fall)	Suboptimal	Suboptimal	Suboptimal	Suboptimal	Suboptimal
	2019 (Spring)	Suboptimal	Marginal	Suboptimal	Suboptimal	Suboptimal
	2019 (Fall)	Suboptimal	Suboptimal	Suboptimal	Suboptimal	Suboptimal
	2020 (Spring)	Suboptimal	Suboptimal	Suboptimal	Suboptimal	Marginal
	2020 (Fall)	Suboptimal	Suboptimal	Suboptimal	Suboptimal	Suboptimal
	2021 (Spring)	Suboptimal	Suboptimal	Suboptimal	Suboptimal	Suboptimal
	2021 (Fall)	Suboptimal	Suboptimal	Suboptimal	Suboptimal	Suboptimal
	2022 (Spring)	Optimal	Optimal	Suboptimal	Optimal	Suboptimal
BI Category	Baseline (Spring)	Fair	Fair	Good	Good	Good
	Baseline (Fall)	Good	Fair	Fair	Fair	Fair
	2017 (Spring)	Fairly Poor	Good	Fair	Fair	Good
	2017 (Fall)	Fair	Fair	Fair	Fair	Good
	2018 (Spring)	Fair	Fairly Poor	Fair	Fairly Poor	Good
	2018 (Fall)*	Fair	Good	Good	Good	Good
	2019 (Spring)*	Fair	Good	Fair	Fair	Good
	2019 (Fall)	Fairly Poor	Fairly Poor	Fair	Fair	Fair
	2020 (Spring)	Fairly Poor	Good	Good	Fair	Good
	2020 (Fall)	Fairly Poor	Fair	Fair	Fair	Fair
	2021 (Spring)	Good	Fair	Fair	Fair	Good
	2021 (Fall)	Fair	Fairly Poor	Fair	Good	Fair
	2022 (Spring)	Good	Fairly Poor	Fairly Poor	Good	Good

Parameter	Event	Cow Branch	Dawkins Branch	Little Bull Run	Neabsco Creek	Purcell Branch
PMA Category	Baseline (Spring)	Severely Impacted	Moderately Impacted	Moderately Impacted	Severely Impacted	Moderately Impacted
	Baseline (Fall)	Slightly Impacted	Moderately Impacted	Moderately Impacted	Slightly Impacted	Slightly Impacted
	2017 (Spring)	Moderately Impacted	Slightly Impacted	Moderately Impacted	Moderately Impacted	Moderately Impacted
	2017 (Fall)	Moderately Impacted	Slightly Impacted	Non-Impacted	Slightly Impacted	Slightly Impacted
	2018 (Spring)	Moderately Impacted	Moderately Impacted	Slightly Impacted	Moderately Impacted	Moderately Impacted
	2018 (Fall)*	Moderately Impacted	Moderately Impacted	Slightly Impacted	Moderately Impacted	Slightly Impacted
	2019 (Spring)*	Moderately Impacted	Moderately Impacted	Moderately Impacted	Slightly Impacted	Non-impacted
	2019 (Fall)	Moderately Impacted	Slightly Impacted	Non-impacted	Slightly Impacted	Slightly Impacted
	2020 (Spring)	Moderately Impacted	Moderately Impacted	Slightly Impacted	Slightly Impacted	Slightly Impacted
	2020 (Fall)	Severely Impacted	Slightly Impacted	Non-impacted	Slightly Impacted	Slightly Impacted
	2021 (Spring)	Severely Impacted	Moderately Impacted	Moderately Impacted	Moderately Impacted	Moderately Impacted
	2021 (Fall)	Severely Impacted	Non-Impacted	Non-Impacted	Moderately Impacted	Moderately Impacted
	2022 (Spring)	Severely Impacted	Moderately Impacted	Non-Impacted	Slightly Impacted	Moderately Impacted
VSCI Score	Baseline (Spring)	27.85	35.67	39.29	32.96	46.40
	Baseline (Fall)	36.54	49.42	56.59	39.44	57.34
	2017 (Spring)	37.17	39.85	38.66	47.03	41.71
	2017 (Fall)	41.78	49.71	61.83	58.67	63.60
	2018 (Spring)	40.61	48.25	52.47	42.94	48.40
	2018 (Fall)*	49.91	52.64	74.17	60.74	64.67
	2019 (Spring)*	37.33	45.35	49.27	44.68	47.14
	2019 (Fall)	42.95	62.99	67.99	56.10	60.76
	2020 (Spring)	34.52	41.42	42.77	47.03	47.53
	2020 (Fall)	35.57	48.77	62.62	57.12	55.25
	2021 (Spring)	34.71	45.91	45.24	38.48	41.08
	2021 (Fall)	51.26	54.70	70.52	61.30	60.12
	2022 (Spring)	30.27	44.88	53.96	50.11	48.13
VSCI Category	Baseline (Spring)	Severe Stress	Severe Stress	Severe Stress	Severe Stress	Stress
	Baseline (Fall)	Severe Stress	Stress	Stress	Severe Stress	Stress
	2017 (Spring)	Severe Stress	Severe Stress	Severe Stress	Stress	Severe Stress
	2017 (Fall)	Severe Stress	Stress	Good	Stress	Good
	2018 (Spring)	Severe Stress	Stress	Stress	Stress	Stress
	2018 (Fall)*	Stress	Stress	Excellent	Good	Good
	2019 (Spring)*	Severe Stress	Stress	Stress	Stress	Stress
	2019 (Fall)	Stress	Good	Good	Stress	Good
	2020 (Spring)	Severe Stress	Severe Stress	Stress	Stress	Stress
	2020 (Fall)	Severe Stress	Stress	Good	Stress	Stress
	2021 (Spring)	Severe Stress	Stress	Stress	Severe Stress	Stress
	2021 (Fall)	Stress	Stress	Good	Good	Good
	2022 (Spring)	Severe Stress	Stress	Stress	Stress	Stress

***Previously reported VSCI Scores for Fall 2018 and Spring 2019 have shifted slightly due to a calculation error.**

Prepared by: INT
Checked by: BTG

4.0 SUMMARY AND CONCLUSIONS

The following sections present a summary of the Fall 2021 and Spring 2022 sampling events and compare the results with the previous sampling events conducted in 2016, 2017, 2018, 2019, and 2020. This section also provides conclusions for the current report period. It should be noted that there are biological changes associated with seasonality, with taxa emerging in the spring, and transitional life stages (e.g., metamorphosis) during and between events that may account for benthic community dynamics.

4.1 Summary

4.1.1 Fall 2021

Measured field and laboratory water quality parameters are generally within the normal ranges for shallow, cool, turbulent, piedmont Virginia streams, and generally meet Virginia's Water Quality Standards, as outlined in Section 3. However, the *E. coli* levels at Cow Branch, Dawkins Branch, Neabsco Creek, and Purcell Branch were above the Virginia Water Quality standard which could be indicative of sewage or animal waste.

4.1.2 Spring 2022

Measured field and laboratory water quality parameters are generally within the normal ranges for shallow, cool, turbulent, piedmont Virginia streams, and generally meet Virginia's Water Quality Standards, as outlined in Section 3. However, the *E. coli* levels at Dawkins Branch, Little Bull Run, Neabsco Creek, and Purcell Branch were above the Virginia Water Quality standard, which could be indicative of sewage or animal waste. Storm events prior to sampling may also have caused elevated bacteria levels within streams. Stressed conditions remain apparent, consistent with seasonal variation during spring season collections. Habitat conditions showed a marked improvement, which may foster positive trends in benthic community health.

4.2 Conclusions

The measured field and laboratory water quality parameters from the Fall 2021 and Spring 2022 sampling results are generally comparable to the baseline sampling results, are within the normal ranges, and are below Virginia's Water Quality Standards with the exception of elevated *E. coli*. Monitoring efforts will be targeted to avoid collection periods following storm events to characterize the benthos and ambient water quality conditions.

Biological metrics, habitat assessments, and evaluations of the benthic macroinvertebrate communities at each site have indicated a marginal level of improvement compared to baseline conditions, though a regression from improvement in recent years at several sites. Seasonal

fluctuation in benthic macroinvertebrate assessments has still shown an upward trend for most sites.

This seasonal trend allows for clear distinctions from baseline levels in Fall sampling, while Spring sampling only shows slight improvement in benthic health. Based on the Fall 2021 and Spring 2022 sampling results, stream conditions have shown slight improvement from baseline conditions, and some improvement compared to recent years of sampling. The results of this report indicate that the health of these representative monitoring sites from across Prince William County are remaining stable.

5.0 REFERENCES

Amec Foster Wheeler, 2015. Sampling Plan for Benthic Macroinvertebrate and Water Quality Monitoring, Prince William County, Virginia. December 29, 2015.

Barbour, M. T., J. Gerritsen, B. D. Snyder, and J. B. Stribling, 1999. Rapid bioassessment protocols for use in streams and wadeable rivers: periphyton, benthic macroinvertebrates, and fish. 2nd ed. EPA 841-B-99-002. U.S. Environmental Protection Agency, Office of Water, Washington, DC.

Hilsenhoff, W. L., 1987. An improved biotic index of organic stream pollution. The Great Lakes Entomologist. 20:31-39.

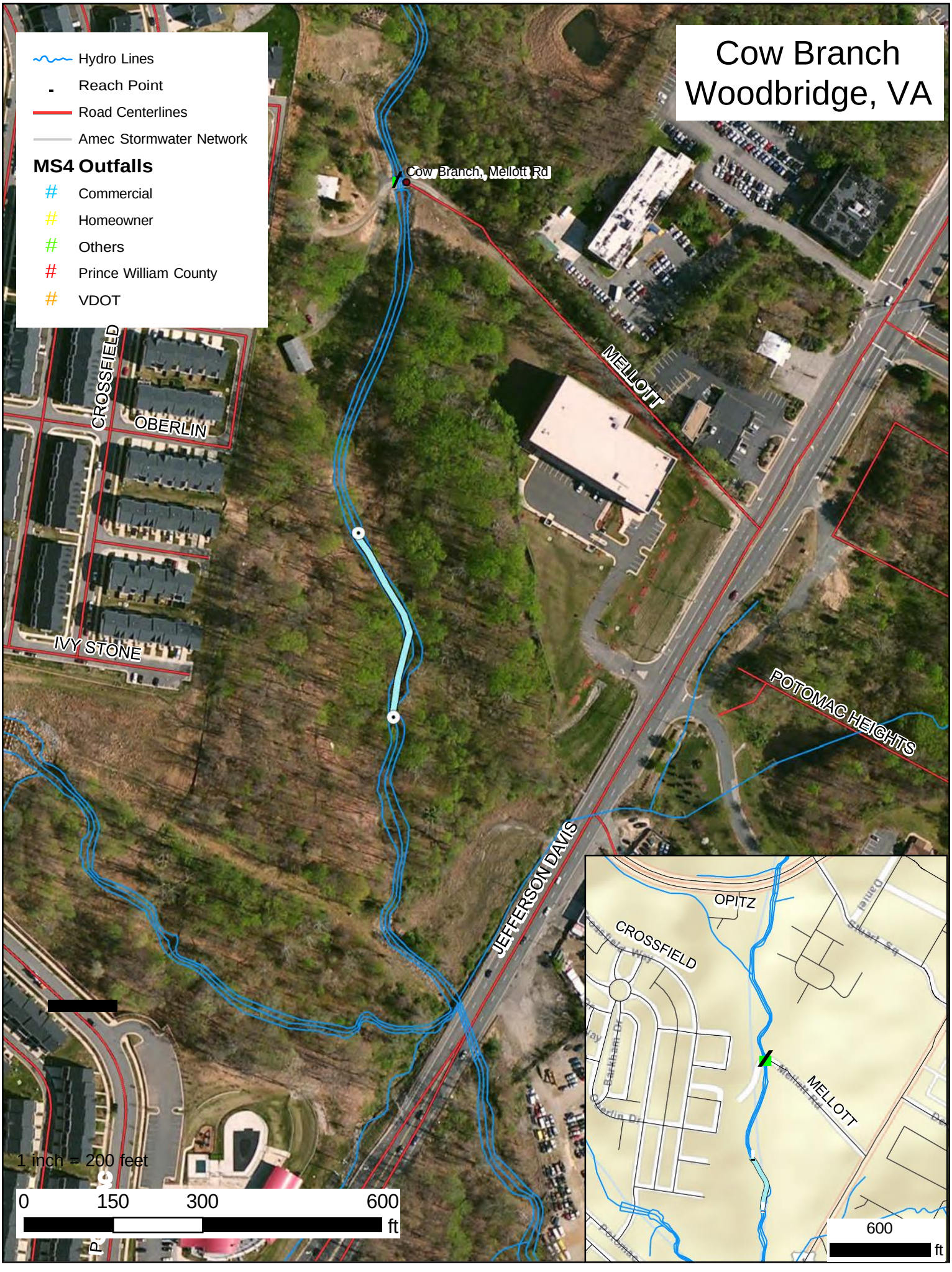
Novak, M. A. and R. W. Bode. 1992. Percent model affinity: a new measure of macroinvertebrate community composition. Journal of North American Benthological Society 11 (1): 80-85.

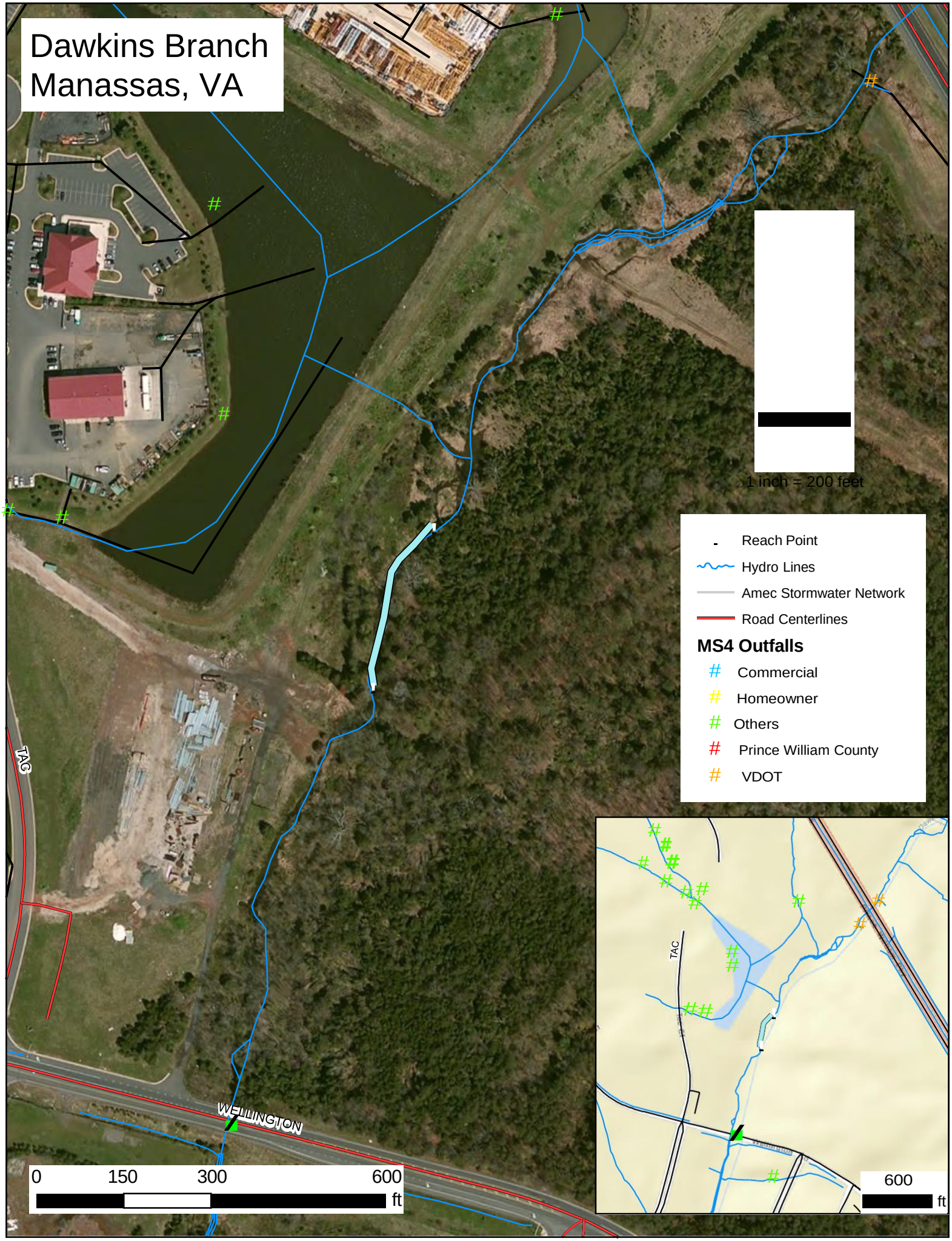
TetraTech, 2003. A Stream Condition Index for Virginia Non-Coastal Streams. Owings Mill, MD. September 2003.

VDEQ, 2008. Biological Monitoring Program Quality Assurance Project Plan for Wadeable Streams and Rivers. Division of Water Quality, Office of Water Quality Monitoring and Assessment Programs, VA. August 2008. Available at: http://www.deq.virginia.gov/Portals/0/DEQ/Water/WaterQualityMonitoring/BiologicalMonitoring/BioMonQAPP_13Aug2008.pdf.

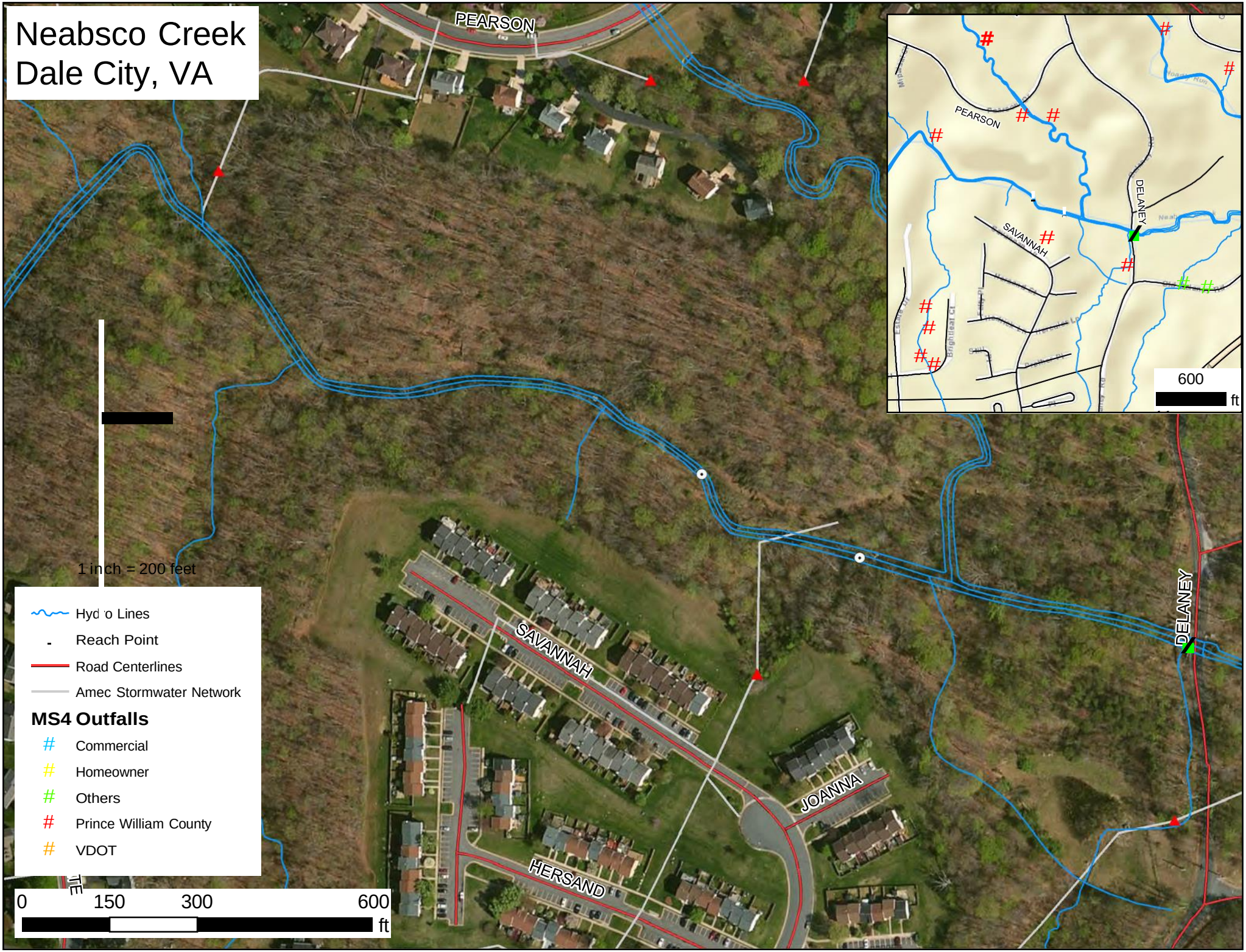
Virginia's Legislative Information System (LIS). 2017. 9VAC25-260-50. Numerical Criteria for Dissolved Oxygen, Ph, and Maximum Temperature. Available at: http://law.lis.virginia.gov/admincode/title9/agency25/chapter260/section50/. Accessed July 12, 2017.

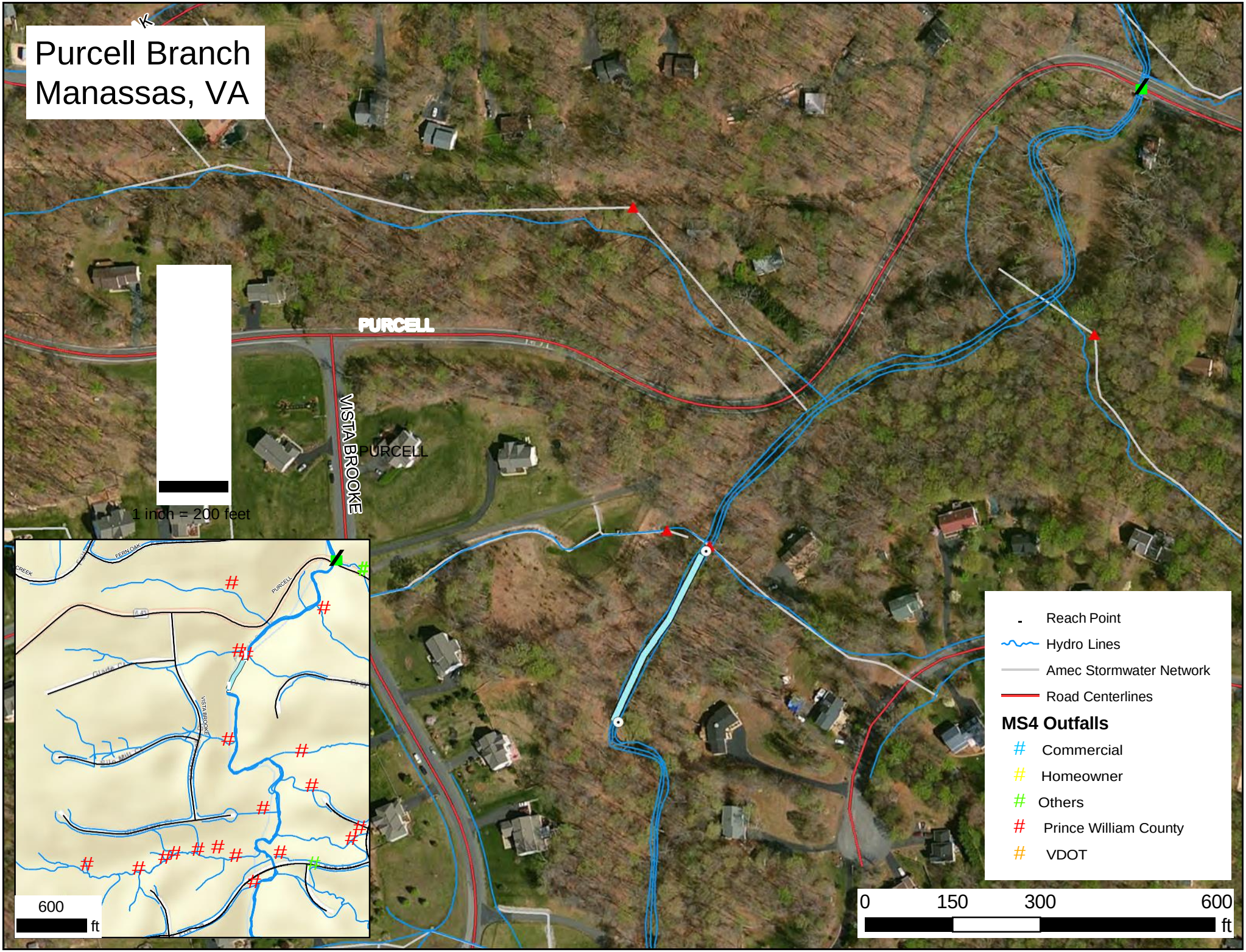
FIGURES


Cow Branch
Woodbridge, VA
Hydro Lines
Reach Point
Road Centerlines
Amec Stormwater Network
MS4 Outfalls
Commercial
Homeowner
Others
Prince William County
VDOT
Cow Branch, Mellott Rd
MELLOTT
CROSSFIELD
OBERLIN
IVY STONE
POTOMAC HEIGHTS
JEFFERSON DAVIS
OPITZ
1 inch = 200 feet
0
150
300
600
ft
600
ft


Dawkins Branch
Manassas, VA
1 inch = 200 feet
Reach Point
Hydro Lines
Amec Stormwater Network
Road Centerlines
MS4 Outfalls
Commercial
Homeowner
Others
Prince William County
VDOT
TAC
WELLINGTON
0
150
300
600
ft
600
ft


Little Bull Run
Gainesville, VA
PIEDMONT VISTA
SNICKERSVILLE
HUNTERS RUN
600
ft
1 inch = 200 feet
Reach Point
Hydro Lines
Amec Stormwater Network
Road Centerlines
MS4 Outfalls
Commercial
Homeowner
Others
Prince William County
VDOT
HUNTERS RUN
EMMANUEL
FALLSMERE
0
150
300
600
ft


Neabsco Creek
Dale City, VA
PEARSON
SAVANNAH
DELANEY
JOANNA
HERSAND
1 inch = 200 feet
Hydro Lines
Reach Point
Road Centerlines
Amec Stormwater Network
MS4 Outfalls
Commercial
Homeowner
Others
Prince William County
VDOT
0
150
300
600
ft
600
ft


Purcell Branch
Manassas, VA
PURCELL
VISTA BROOKE
PURCELL
1 inch = 200 feet
600
ft
Reach Point
Hydro Lines
Amec Stormwater Network
Road Centerlines
MS4 Outfalls
Commercial
Homeowner
Others
Prince William County
VDOT
0
150
300
600
ft

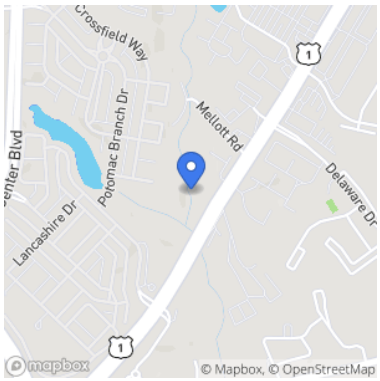
APPENDIX A

SITE DATA SHEETS

Prince William Biological Monitoring Form

Stream Name	Cow Branch
Location	Woodbridge
River Basin	Potomac
Investigators	Ben Green and Rob Smith
Date	10/04/2021
Time	11:54 AM GMT-04:00
Reason for Survey	PWC Biological Monitoring
Weather Conditions	Clear / Sunny

GPS location



RIPARIAN VEGETATION
(18 meter buffer)

Dominant Type	Trees

INSTREAM FEATURES

Est. Stream Width (ft)	13.0
Est. Stream Depth (ft)	0.7
Surface Velocity (ft/sec at thalweg)	0.07
Canopy Cover	Partly open
High Water Mark (ft)	4.5
Channelized	(●) Yes ( ) No
Dam Present	( ) Yes (●) No
Proporation of Reach by Stream Morphology Types	
Riffle (%)	65
Run (%)	35
Pool (%)	0

AQUATIC VEGETATION

Dominant Type	Attached Algae
Portion of reach with aquatic veg	70

WATER QUALITY

Temperature	68.5
Specific Conductance	.360
Dissolved Oxygen	108.3%
pH	6.92
Turbidity	
WQ Instrument Used	YSI 556
Water Odors	☑ Normal / None ☐ Sewage ☐ Petroleum ☐ Chemical ☐ Fishy ☐ Other

Water Surface Oils	
	☐ Slick ☐ Sheen ☐ Globs ☐ Flecks ☑ None ☐ Other

Inorganic Substrate Components
(should add up to 100%)

Substrate Type	Diameter	% Composition in sampling reach
Bedrock		5.0
Boulder	**>256 mm** (10")	5.0
Cobble	**64 - 256 mm** (2.5" - 10")	10.0
Gravel	**2 - 64 mm** (0.1" - 2.5")	50.0
Sand	**0.06 - 2 mm** (gritty)	15.0
Silt	**0.004 - 0.06 mm**	10.0
Clay	**< 0.004 mm** (slick)	5.0

Parameters to be evaluated in sampling reach

Habitat Parameter	Condition Category
Epifaunal Substrate / Available Cover	11
Embeddedness	10
Velocity / Depth Regime	10
Sediment Deposition	12
Channel Flow Status	9

Parameters to be evaluated broader than sampling reach

Habitat Parameter	Condition Category
Channel Alteration	13
Frequency of Riffles (or Bends)	14
Bank Stability (LEFT BANK)	7
Bank Stability (RIGHT BANK)	8
Vegetative Protection (LEFT BANK)	9
Vegetative Protection (RIGHT BANK)	8
Riparian Vegetative Zone Width (LEFT BANK)	9
Riparian Vegetative Zone Width (RIGHT BANK)	9

Field Photography

Image 1

Image 2

Image 3

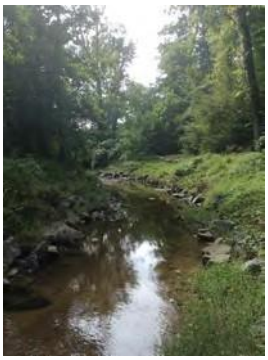


Image 4

Image 5

Report completed by:
BTG

Signature


Signature Date/Time
10/04/2021 02:23 PM GMT-04:00

Please use the upper-right menu to "Save as complete and exit" to place this finalized form in the upload queue.

Prince William Biological Monitoring Form

Stream Name	Dawkins Branch
Location	Manassas
River Basin	Potomac
Investigators	Ben Green and Ilana Ton
Date	10/05/2021
Time	02:20 PM GMT-04:00
Reason for Survey	PWC Biological Monitoring
Weather Conditions	Clear / Sunny

GPS location

RIPARIAN VEGETATION
(18 meter buffer)

Dominant Type	Trees

INSTREAM FEATURES

Est. Stream Width (ft)	19.0
Est. Stream Depth (ft)	0.9
Surface Velocity (ft/sec at thalweg)	
Canopy Cover	Partly open
High Water Mark (ft)	2.5
Channelized	○ Yes ◉ No
Dam Present	○ Yes ◉ No
Proporation of Reach by Stream Morphology Types	
Riffle (%)	60
Run (%)	30
Pool (%)	10

AQUATIC VEGETATION

Dominant Type	Attached Algae
Portion of reach with aquatic veg	75

WATER QUALITY

Temperature	74.8
Specific Conductance	.531
Dissolved Oxygen	67.5
pH	7.64
Turbidity	1.49
WQ Instrument Used	YSI556
Water Odors	☑ Normal / None ☐ Sewage ☐ Petroleum ☐ Chemical ☐ Fishy ☐ Other

Water Surface Oils	☑ Slick ☐ Sheen ☐ Globs ☐ Flecks ☑ None ☐ Other

Inorganic Substrate Components
(should add up to 100%)

Substrate Type	Diameter	% Composition in sampling reach
Bedrock		5.0
Boulder	**>256 mm** (10")	10.0
Cobble	**64 - 256 mm** (2.5" - 10")	15.0
Gravel	**2 - 64 mm** (0.1" - 2.5")	10.0
Sand	**0.06 - 2 mm** (gritty)	20.0
Silt	**0.004 - 0.06 mm**	20.0
Clay	**< 0.004 mm** (slick)	20.0

Parameters to be evaluated in sampling reach

Habitat Parameter	Condition Category
Epifaunal Substrate / Available Cover	15
Embeddedness	8
Velocity / Depth Regime	10
Sediment Deposition	6
Channel Flow Status	16

Parameters to be evaluated broader than sampling reach

Habitat Parameter	Condition Category
Channel Alteration	12
Frequency of Riffles (or Bends)	12
Bank Stability (LEFT BANK)	8
Bank Stability (RIGHT BANK)	8
Vegetative Protection (LEFT BANK)	9
Vegetative Protection (RIGHT BANK)	9
Riparian Vegetative Zone Width (LEFT BANK)	6
Riparian Vegetative Zone Width (RIGHT BANK)	7

Field Photography

Image 1

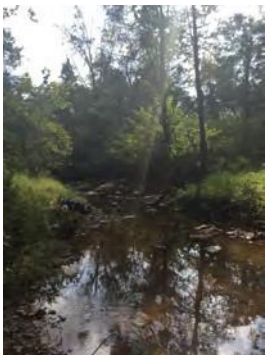
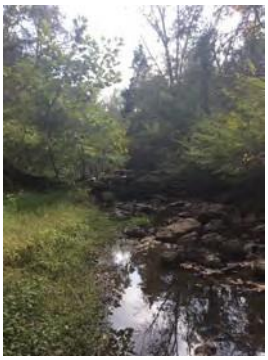


Image 2

Image 3



Caption for Image 3

Blockage downstream.

Report completed by:
BTG

Signature

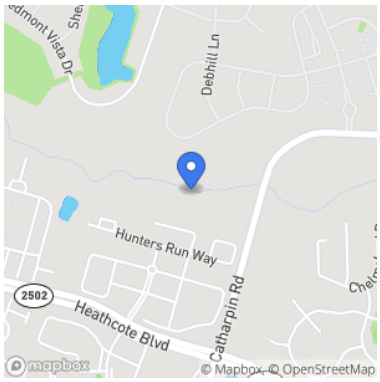

Signature Date/Time
10/05/2021 05:44 PM GMT-04:00

Please use the upper-right menu to "Save as complete and exit" to place this finalized form in the upload queue.

Prince William Biological Monitoring Form

Stream Name	Little Bull Run
Location	Gainesville
River Basin	Potomac
Investigators	Ben Green and Ilana Ton
Date	10/05/2021
Time	11:24 AM GMT-04:00
Reason for Survey	PWC Biological Monitoring
Weather Conditions	Clear / Sunny

GPS location



RIPARIAN VEGETATION
(18 meter buffer)

INSTREAM FEATURES

Est. Stream Width (ft)	29.0
Est. Stream Depth (ft)	0.5
Surface Velocity (ft/sec at thalweg)	1.2
Canopy Cover	Shaded
High Water Mark (ft)	5.5
Channelized	○ Yes ◉ No
Dam Present	○ Yes ◉ No
Proporation of Reach by Stream Morphology Types	
Riffle (%)	55
Run (%)	40
Pool (%)	5

AQUATIC VEGETATION

Dominant Type	Rooted emergent
Portion of reach with aquatic veg	25

WATER QUALITY

Temperature	66.0
Specific Conductance	.462
Dissolved Oxygen	92.3
pH	7.64
Turbidity	.65
WQ Instrument Used	YSI 556
Water Odors	☑ Normal / None ☐ Sewage ☐ Petroleum ☐ Chemical ☐ Fishy ☐ Other
Water Surface Oils	☐ Slick ☐ Sheen ☐ Globs ☐ Flecks ☑ None ☐ Other

Inorganic Substrate Components

(should add up to 100%)

Substrate Type	Diameter	% Composition in sampling reach
Bedrock		10.0
Boulder	**>256 mm** (10")	5.0
Cobble	**64 - 256 mm** (2.5" - 10")	10.0
Gravel	**2 - 64 mm** (0.1" - 2.5")	20.0
Sand	**0.06 - 2 mm** (gritty)	25.0
Silt	**0.004 - 0.06 mm**	20.0
Clay	**< 0.004 mm** (slick)	10.0

Parameters to be evaluated in sampling reach

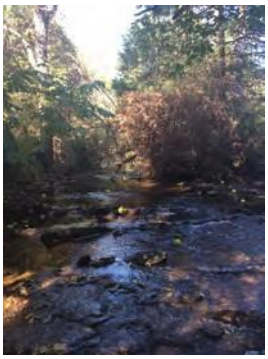
Habitat Parameter	Condition Category
Epifaunal Substrate / Available Cover	11
Embeddedness	9
Velocity / Depth Regime	15
Sediment Deposition	15
Channel Flow Status	15

Parameters to be evaluated broader than sampling reach

Habitat Parameter	Condition Category
Channel Alteration	13
Frequency of Riffles (or Bends)	11
Bank Stability (LEFT BANK)	4
Bank Stability (RIGHT BANK)	5
Vegetative Protection (LEFT BANK)	6
Vegetative Protection (RIGHT BANK)	6
Riparian Vegetative Zone Width (LEFT BANK)	9
Riparian Vegetative Zone Width (RIGHT BANK)	9

Field Photography

Image 1



Caption for Image 1

Looking upstream from downstream extent.

Image 2

Caption for Image 2

Looking downstream from downstream extent.

Image 3

Image 4

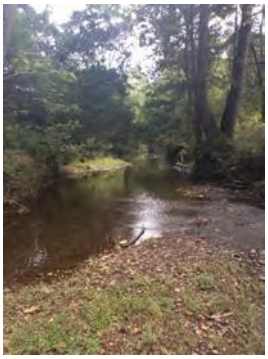


Image 5

Caption for Image 5
Trees fallen at downstream extent riffle.

Report completed by:
BTG

Signature


Signature Date/Time
10/05/2021 01:12 PM GMT-04:00

Please use the upper-right menu to "Save as complete and exit" to place this finalized form in the upload queue.

Prince William Biological Monitoring Form

Stream Name	Neabsco Creek
Location	Dale City
River Basin	Potomac
Investigators	Ben Green and Rob Smith
Date	10/04/2021
Time	04:30 PM GMT-04:00
Reason for Survey	PWC Biological Monitoring
Weather Conditions	Clear / Sunny

RIPARIAN VEGETATION
(18 meter buffer)

Dominant Type	Trees

INSTREAM FEATURES

Est. Stream Width (ft)	21.5
Est. Stream Depth (ft)	0.72
Surface Velocity (ft/sec at thalweg)	0.25
Canopy Cover	Shaded
High Water Mark (ft)	3.0
Channelized	(●) Yes ( ) No
Dam Present	( ) Yes (●) No
Proporation of Reach by Stream Morphology Types	
Riffle (%)	60
Run (%)	30
Pool (%)	10

AQUATIC VEGETATION

Dominant Type	Attached Algae
Portion of reach with aquatic veg	30

WATER QUALITY

Temperature	66.1
Specific Conductance	.188
Dissolved Oxygen	114.1%
pH	7.54
Turbidity	1.23
WQ Instrument Used	YSI 556
Water Odors	[ ] Normal / None [x] Sewage [ ] Petroleum [ ] Chemical [ ] Fishy [ ] Other

Water Surface Oils	
	☐ Slick ☐ Sheen ☐ Globs ☐ Flecks ☑ None ☐ Other

Inorganic Substrate Components
(should add up to 100%)

Substrate Type	Diameter	% Composition in sampling reach
Bedrock		15.0
Boulder	**>256 mm** (10")	25.0
Cobble	**64 - 256 mm** (2.5" - 10")	15.0
Gravel	**2 - 64 mm** (0.1" - 2.5")	10.0
Sand	**0.06 - 2 mm** (gritty)	20.0
Silt	**0.004 - 0.06 mm**	10.0
Clay	**< 0.004 mm** (slick)	5.0

Parameters to be evaluated in sampling reach

Habitat Parameter	Condition Category
Epifaunal Substrate / Available Cover	18
Embeddedness	12
Velocity / Depth Regime	14
Sediment Deposition	14
Channel Flow Status	15

Parameters to be evaluated broader than sampling reach

Habitat Parameter	Condition Category
Channel Alteration	16
Frequency of Riffles (or Bends)	12
Bank Stability (LEFT BANK)	8
Bank Stability (RIGHT BANK)	6
Vegetative Protection (LEFT BANK)	8
Vegetative Protection (RIGHT BANK)	7
Riparian Vegetative Zone Width (LEFT BANK)	9
Riparian Vegetative Zone Width (RIGHT BANK)	10

Field Photography

Image 1

Image 2

Image 3

Image 4

Report completed by:
BTG

Signature


Signature Date/Time
10/04/2021 04:30 PM GMT-04:00

Please use the upper-right menu to "Save as complete and exit" to place this finalized form in the upload queue.

Prince William Biological Monitoring Form

Stream Name	Purcell Branch
Location	Off Purcell Road
River Basin	Potomac
Investigators	Ilana Ton and Rob Smith
Date	10/06/2021
Time	02:32 PM GMT-04:00
Reason for Survey	PWC Biological Monitoring
Weather Conditions	Showers (intermittent)

GPS location

RIPARIAN VEGETATION
(18 meter buffer)

Dominant Type	Trees

INSTREAM FEATURES

Est. Stream Width (ft)	25.0
Est. Stream Depth (ft)	0.55
Surface Velocity (ft/sec at thalweg)	0.5
Canopy Cover	Shaded
High Water Mark (ft)	4.0
Channelized	○ Yes ◉ No
Dam Present	○ Yes ◉ No
Proporation of Reach by Stream Morphology Types	
Riffle (%)	40
Run (%)	55
Pool (%)	5

AQUATIC VEGETATION

Dominant Type	Attached Algae
Portion of reach with aquatic veg	20

WATER QUALITY

Temperature	65.86
Specific Conductance	172
Dissolved Oxygen	7.94
pH	7.25
Turbidity	1.84
WQ Instrument Used	YSI 556
Water Odors	☑ Normal / None ☐ Sewage ☐ Petroleum ☐ Chemical ☐ Fishy ☐ Other

Water Surface Oils	
	☐ Slick ☐ Sheen ☐ Globs ☐ Flecks ☐ None ☑ Other

Inorganic Substrate Components
(should add up to 100%)

Substrate Type	Diameter	% Composition in sampling reach
Bedrock		15.0
Boulder	**>256 mm** (10")	30.0
Cobble	**64 - 256 mm** (2.5" - 10")	10.0
Gravel	**2 - 64 mm** (0.1" - 2.5")	10.0
Sand	**0.06 - 2 mm** (gritty)	30.0
Silt	**0.004 - 0.06 mm**	5.0
Clay	**< 0.004 mm** (slick)	0.0

Parameters to be evaluated in sampling reach

Habitat Parameter	Condition Category
Epifaunal Substrate / Available Cover	17
Embeddedness	11
Velocity / Depth Regime	8
Sediment Deposition	12
Channel Flow Status	8

Parameters to be evaluated broader than sampling reach

Habitat Parameter	Condition Category
Channel Alteration	16
Frequency of Riffles (or Bends)	8
Bank Stability (LEFT BANK)	4
Bank Stability (RIGHT BANK)	4
Vegetative Protection (LEFT BANK)	1
Vegetative Protection (RIGHT BANK)	1
Riparian Vegetative Zone Width (LEFT BANK)	9
Riparian Vegetative Zone Width (RIGHT BANK)	7

Field Photography

Image 1

Caption for Image 1

Upstream site looking downstream

Image 2

Caption for Image 2

Upstream site looking upstream

Image 3

Caption for Image 3

Upstream site looking downstream

Image 4

Caption for Image 4
Downstream site looking upstream

Report completed by:
Ilana Ton

Signature

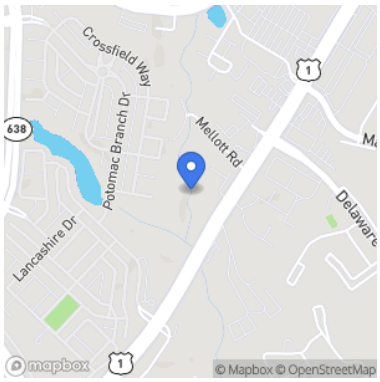

Signature Date/Time
10/06/2021 01:50 PM GMT-04:00

Please use the upper-right menu to "Save as complete and exit" to place this finalized form in the upload queue.

Prince William Biological Monitoring Form

Stream Name	Cow Branch
Location	PC20, near Rt 1 Woodbridge
River Basin	Lower Potomac
Investigators	Anna Allie, Christina Davis, Paul Haywood
Date	05/05/2022
Time	11:52 AM GMT-04:00
Reason for Survey	Biomonitoring
Weather Conditions	Overcast, 65

GPS location



RIPARIAN VEGETATION
(18 meter buffer)

Dominant Type	Trees

INSTREAM FEATURES

Est. Stream Width (m)	13.1
Est. Stream Depth (m)	0.95
Surface Velocity (m/sec at thalweg)	0.35
Canopy Cover	Partly open
High Water Mark (m)	1.0
Channelized	○ Yes ◉ No
Dam Present	○ Yes ◉ No
Proporation of Reach by Stream Morphology Types	
Riffle (%)	35
Run (%)	30
Pool (%)	35

AQUATIC VEGETATION

Dominant Type	Attached Algae
Portion of reach with aquatic veg	5

WATER QUALITY

Temperature	16.2
Specific Conductance	0.4112
Dissolved Oxygen	8.52
pH	6.19
Turbidity	2.45
WQ Instrument Used	YSI Pro Quatro
Water Odors	☑ Normal / None ☐ Sewage ☐ Petroleum ☐ Chemical ☐ Fishy ☐ Other

Water Surface Oils	
	☐ Slick ☐ Sheen ☐ Globs ☐ Flecks ☑ None ☐ Other

Inorganic Substrate Components
(should add up to 100%)

Substrate Type	Diameter	% Composition in sampling reach
Bedrock		0.0
Boulder	**>256 mm** (10")	5.0
Cobble	**64 - 256 mm** (2.5" - 10")	35.0
Gravel	**2 - 64 mm** (0.1" - 2.5")	35.0
Sand	**0.06 - 2 mm** (gritty)	20.0
Silt	**0.004 - 0.06 mm**	5.0
Clay	**< 0.004 mm** (slick)	0.0

Parameters to be evaluated in sampling reach

Habitat Parameter	Condition Category
Epifaunal Substrate / Available Cover	17
Embeddedness	15
Velocity / Depth Regime	15
Sediment Deposition	15
Channel Flow Status	18

Parameters to be evaluated broader than sampling reach

Habitat Parameter	Condition Category
Channel Alteration	18
Frequency of Riffles (or Bends)	17
Bank Stability (LEFT BANK)	9
Bank Stability (RIGHT BANK)	9
Vegetative Protection (LEFT BANK)	9
Vegetative Protection (RIGHT BANK)	9
Riparian Vegetative Zone Width (LEFT BANK)	9
Riparian Vegetative Zone Width (RIGHT BANK)	7

Field Photography

Image 1

Caption for Image 1

Upstream at upstream extent

Image 2

Caption for Image 2

Downstream at upstream extent

Image 3

Caption for Image 3

Upstream at downstream extent

Image 4

Caption for Image 4
Downstream at downstream extent

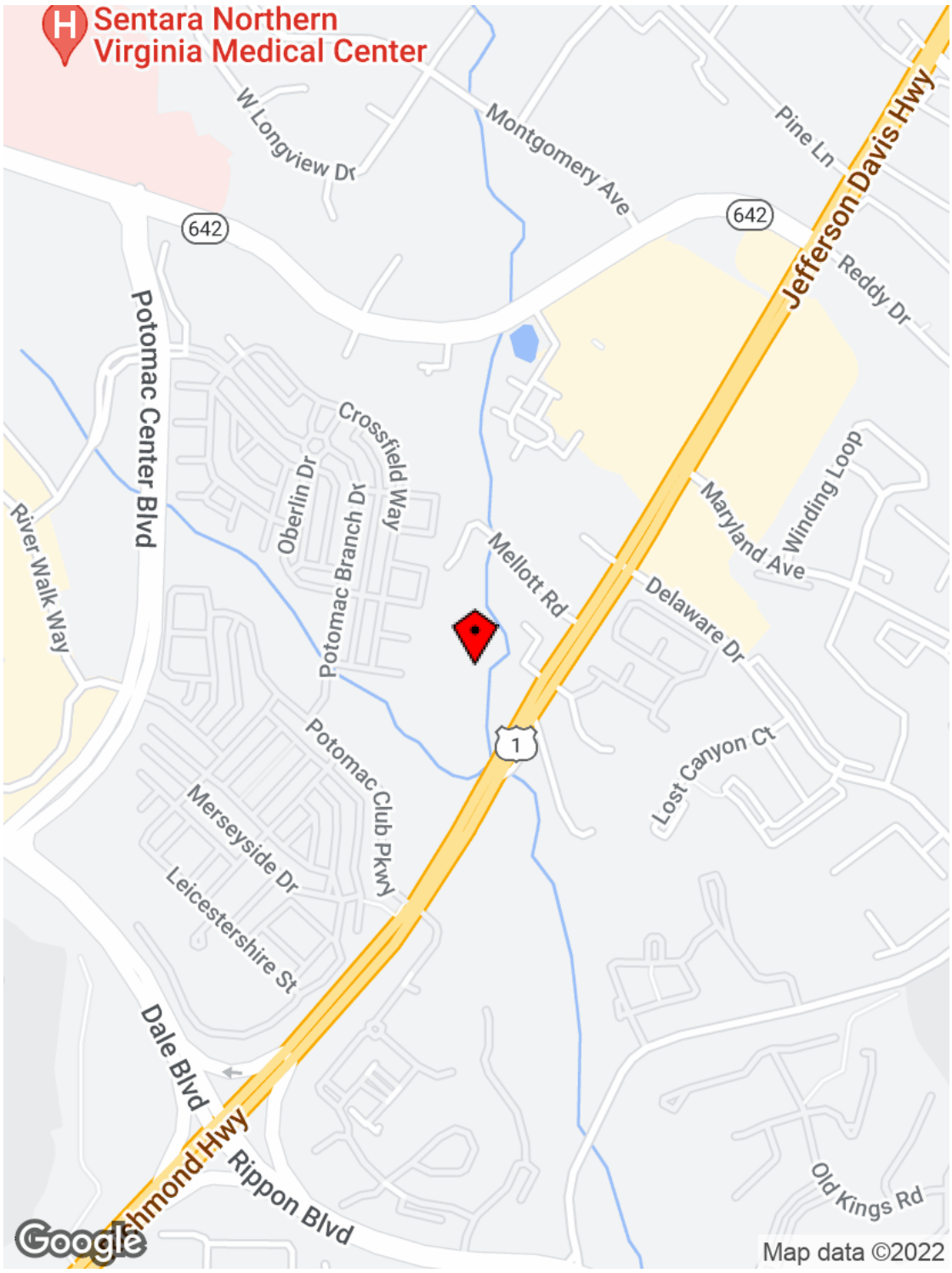
Report completed by:
AEA, CD, KPH

Signature


Signature Date/Time
05/05/2022 11:53 AM GMT-04:00

Please use the upper-right menu to "Save as complete and exit" to place this finalized form in the upload queue.

Location Map



Prince William Biological Monitoring Form

Stream Name	Dawkins Branch, PC-30
Location	Manassas
River Basin	Potomac
Investigators	Ilana Ton, Paul Haywood, Rob Smith
Date	05/04/2022
Time	12:51 PM GMT-04:00
Reason for Survey	PWC Biological Monitoring
Weather Conditions	Cloudy

GPS location

RIPARIAN VEGETATION
(18 meter buffer)

Dominant Type	Trees

INSTREAM FEATURES

Est. Stream Width (ft)	13.5
Est. Stream Depth (ft)	0.75
Surface Velocity (ft/sec at thalweg)	3.75
Canopy Cover	Partly open
High Water Mark (ft)	0.0
Channelized	○ Yes ◉ No
Dam Present	◉ Yes ○ No
Proporation of Reach by Stream Morphology Types	
Riffle (%)	20
Run (%)	30
Pool (%)	50

AQUATIC VEGETATION

Dominant Type	Rooted emergent
Portion of reach with aquatic veg	15

WATER QUALITY

Temperature	18.3
Specific Conductance	.640 mS/cm
Dissolved Oxygen	7.85
pH	7.71
Turbidity	8.08
WQ Instrument Used	YSI Pro Quatro
Water Odors	☑ Normal / None ☐ Sewage ☐ Petroleum ☐ Chemical ☐ Fishy ☐ Other

Water Surface Oils	
	☐ Slick ☐ Sheen ☐ Globs ☐ Flecks ☐ None ☑ Other

Inorganic Substrate Components
(should add up to 100%)

Substrate Type	Diameter	% Composition in sampling reach
Bedrock		10.0
Boulder	**>256 mm** (10")	5.0
Cobble	**64 - 256 mm** (2.5" - 10")	30.0
Gravel	**2 - 64 mm** (0.1" - 2.5")	10.0
Sand	**0.06 - 2 mm** (gritty)	0.0
Silt	**0.004 - 0.06 mm**	20.0
Clay	**< 0.004 mm** (slick)	5.0

Parameters to be evaluated in sampling reach

Habitat Parameter	Condition Category
Epifaunal Substrate / Available Cover	13
Embeddedness	14
Velocity / Depth Regime	15
Sediment Deposition	15
Channel Flow Status	18

Parameters to be evaluated broader than sampling reach

Habitat Parameter	Condition Category
Channel Alteration	18
Frequency of Riffles (or Bends)	17
Bank Stability (LEFT BANK)	8
Bank Stability (RIGHT BANK)	9
Vegetative Protection (LEFT BANK)	8
Vegetative Protection (RIGHT BANK)	8
Riparian Vegetative Zone Width (LEFT BANK)	10
Riparian Vegetative Zone Width (RIGHT BANK)	10

Field Photography

Image 1

Caption for Image 1

Upstream location looking upstream

Image 2

Caption for Image 2

Upstream location looking downstream

Image 3

Caption for Image 3

Downstream site looking downstream

Image 4

Caption for Image 4
Downstream site looking upstream

Report completed by:
Ilana Ton

Signature

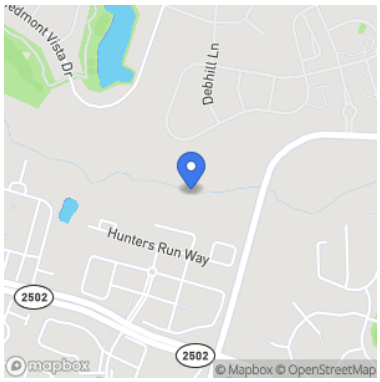

Signature Date/Time
05/04/2022 12:14 PM GMT-04:00

Please use the upper-right menu to "Save as complete and exit" to place this finalized form in the upload queue.

Prince William Biological Monitoring Form

Stream Name	Little Bull Run
Location	PC90
River Basin	Potomac
Investigators	Paul, Christina, Anna, Rob, Ilana
Date	05/03/2022
Time	02:14 PM GMT-04:00
Reason for Survey	PWC Biological Monitoring
Weather Conditions	Overcast

GPS location



RIPARIAN VEGETATION
(18 meter buffer)

Dominant Type	Trees

INSTREAM FEATURES

Est. Stream Width (ft)	20.2
Est. Stream Depth (ft)	0.4
Surface Velocity (ft/sec at thalweg)	1.8
Canopy Cover	Partly shaded
High Water Mark (ft)	0.3
Channelized	○ Yes ◉ No
Dam Present	○ Yes ◉ No
Proporation of Reach by Stream Morphology Types	
Riffle (%)	25
Run (%)	25
Pool (%)	50

AQUATIC VEGETATION

Dominant Type	Attached Algae
Portion of reach with aquatic veg	60

WATER QUALITY

Temperature	16.0
Specific Conductance	0.4813us/cm
Dissolved Oxygen	7.77mg/l
pH	7.69
Turbidity	1.26
WQ Instrument Used	YSI Pro Quatro
Water Odors	☑ Normal / None ☐ Sewage ☐ Petroleum ☐ Chemical ☐ Fishy ☐ Other

Water Surface Oils	
	☐ Slick ☑ Sheen ☐ Globs ☑ Flecks ☐ None ☐ Other

Inorganic Substrate Components

(should add up to 100%)

Substrate Type	Diameter	% Composition in sampling reach
Bedrock		5.0
Boulder	**>256 mm** (10")	5.0
Cobble	**64 - 256 mm** (2.5" - 10")	25.0
Gravel	**2 - 64 mm** (0.1" - 2.5")	25.0
Sand	**0.06 - 2 mm** (gritty)	25.0
Silt	**0.004 - 0.06 mm**	15.0
Clay	**< 0.004 mm** (slick)	0.0

Parameters to be evaluated in sampling reach

Habitat Parameter	Condition Category
Epifaunal Substrate / Available Cover	14
Embeddedness	9
Velocity / Depth Regime	15
Sediment Deposition	14
Channel Flow Status	19

Parameters to be evaluated broader than sampling reach

Habitat Parameter	Condition Category
Channel Alteration	20
Frequency of Riffles (or Bends)	6
Bank Stability (LEFT BANK)	7
Bank Stability (RIGHT BANK)	5
Vegetative Protection (LEFT BANK)	8
Vegetative Protection (RIGHT BANK)	8
Riparian Vegetative Zone Width (LEFT BANK)	10
Riparian Vegetative Zone Width (RIGHT BANK)	10

Field Photography

Image 1

Caption for Image 1

Upstream at upstream extent

Image 2

Caption for Image 2

Right Bank upstream extent

Image 3

Caption for Image 3

Left bank upstream extent

Image 4

Caption for Image 4
Downstream at upstream extent

Image 5

Caption for Image 5
Upstream from lower extent

Report completed by:
Robert Smith

Signature

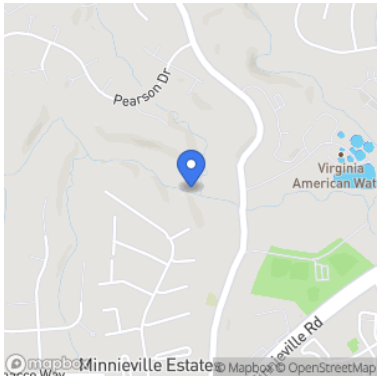

Signature Date/Time
05/03/2022 01:58 PM GMT-04:00

Please use the upper-right menu to "Save as complete and exit" to place this finalized form in the upload queue.

Prince William Biological Monitoring Form

Stream Name	Neabsco Creek
Location	PC60 near Minneville Rd Dale City
River Basin	Lower Potomac
Investigators	Anna Allie and Christina Davis
Date	05/05/2022
Time	01:05 PM GMT-04:00
Reason for Survey	Biomonitoring
Weather Conditions	Overcast 65

GPS location



RIPARIAN VEGETATION
(18 meter buffer)

Dominant Type	Trees

INSTREAM FEATURES

Est. Stream Width (m)	18.0
Est. Stream Depth (m)	1.2
Surface Velocity (m/sec at thalweg)	1.25
Canopy Cover	Shaded
High Water Mark (m)	0.5
Channelized	○ Yes ● No
Dam Present	○ Yes ● No
Proporation of Reach by Stream Morphology Types	
Riffle (%)	40
Run (%)	40
Pool (%)	20

AQUATIC VEGETATION

Dominant Type	Attached Algae
Portion of reach with aquatic veg	15

WATER QUALITY

Temperature	16.0
Specific Conductance	0.1780
Dissolved Oxygen	8.88
pH	7.2
Turbidity	2.41
WQ Instrument Used	YSI Pro Quatro
Water Odors	☑ Normal / None ☐ Sewage ☐ Petroleum ☐ Chemical ☐ Fishy ☐ Other

Water Surface Oils	
	☐ Slick ☐ Sheen ☐ Globs ☐ Flecks ☑ None ☐ Other

Inorganic Substrate Components
(should add up to 100%)

Substrate Type	Diameter	% Composition in sampling reach
Bedrock		10.0
Boulder	**>256 mm** (10")	50.0
Cobble	**64 - 256 mm** (2.5" - 10")	24.0
Gravel	**2 - 64 mm** (0.1" - 2.5")	5.0
Sand	**0.06 - 2 mm** (gritty)	10.0
Silt	**0.004 - 0.06 mm**	1.0
Clay	**< 0.004 mm** (slick)	0.0

Parameters to be evaluated in sampling reach

Habitat Parameter	Condition Category
Epifaunal Substrate / Available Cover	19
Embeddedness	15
Velocity / Depth Regime	15
Sediment Deposition	15
Channel Flow Status	18

Parameters to be evaluated broader than sampling reach

Habitat Parameter	Condition Category
Channel Alteration	20
Frequency of Riffles (or Bends)	19
Bank Stability (LEFT BANK)	9
Bank Stability (RIGHT BANK)	9
Vegetative Protection (LEFT BANK)	9
Vegetative Protection (RIGHT BANK)	9
Riparian Vegetative Zone Width (LEFT BANK)	8
Riparian Vegetative Zone Width (RIGHT BANK)	9

Field Photography

Image 1

Caption for Image 1

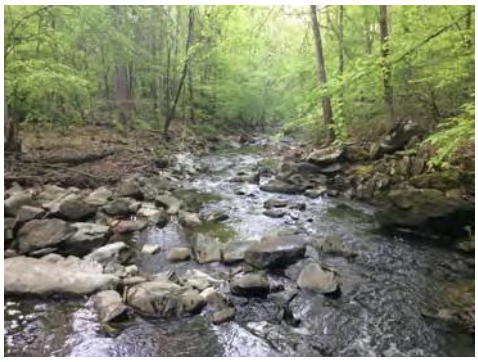
Downstream at downstream extent

Image 2

Caption for Image 2

Upstream at downstream extent

Image 3



Caption for Image 3

Downstream at upstream extent

Image 4

Caption for Image 4
Upstream at upstream extent

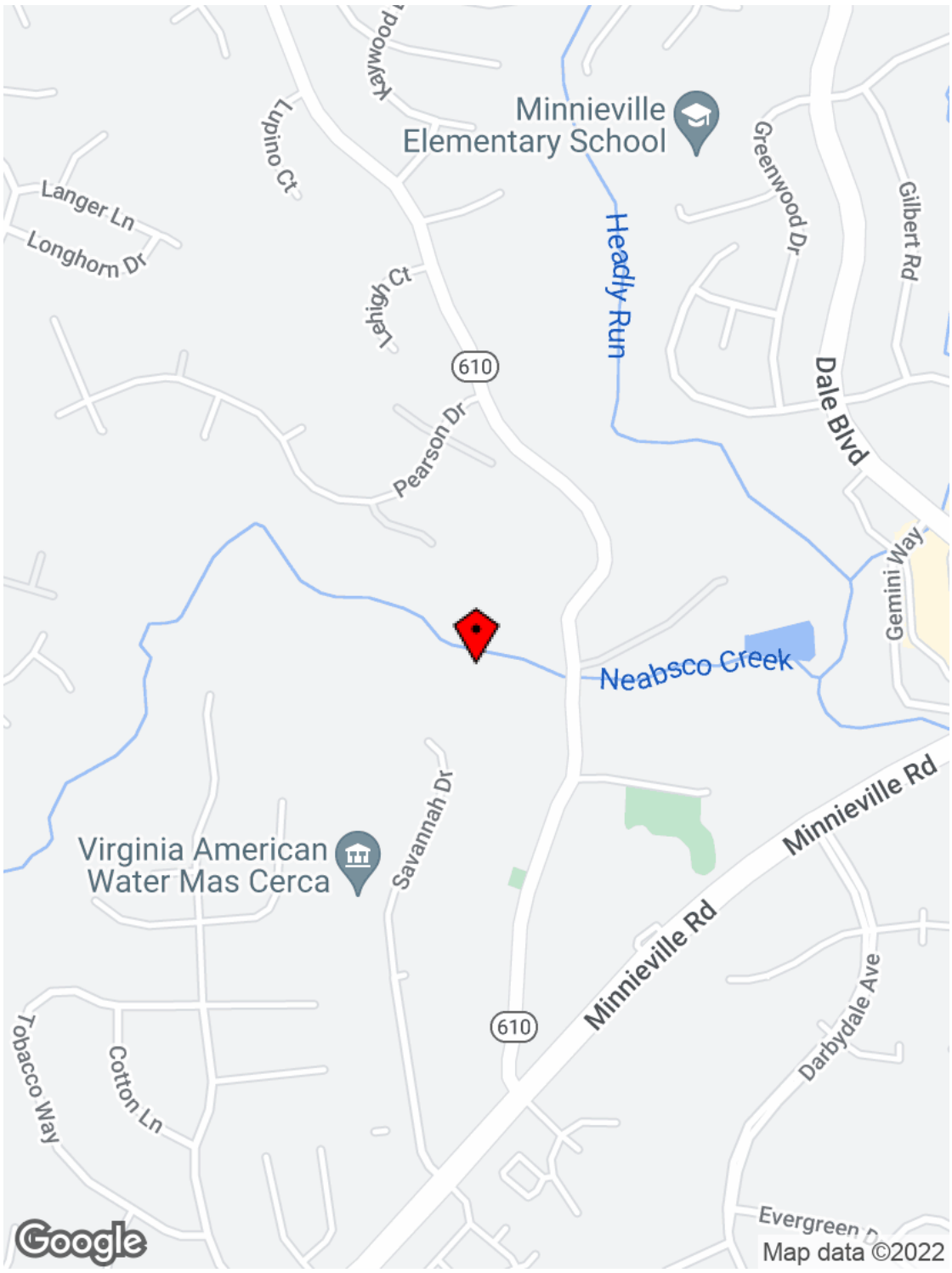
Report completed by:
AEA, KPH, CCD

Signature


Signature Date/Time
05/05/2022 02:39 PM GMT-04:00

Please use the upper-right menu to "Save as complete and exit" to place this finalized form in the upload queue.

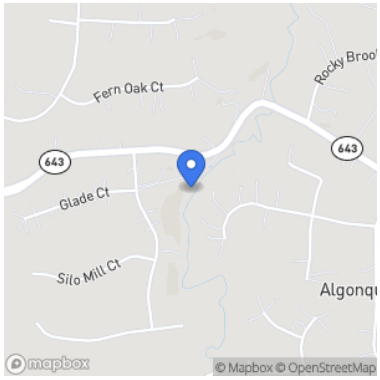
Location Map



Prince William Biological Monitoring Form

Stream Name	Purcell Branch, PC-10
Location	Manassas
River Basin	Potomac
Investigators	Ilana, Paul, Rob
Date	05/04/2022
Time	02:54 PM GMT-04:00
Reason for Survey	PWC Biological Monitoring
Weather Conditions	Cloudy

GPS location



RIPARIAN VEGETATION
(18 meter buffer)

Dominant Type	Trees

INSTREAM FEATURES

Est. Stream Width (ft)	19.3
Est. Stream Depth (ft)	0.8
Surface Velocity (ft/sec at thalweg)	1.2
Canopy Cover	Partly shaded
High Water Mark (ft)	1.0
Channelized	○ Yes ● No
Dam Present	○ Yes ● No
Proporation of Reach by Stream Morphology Types	
Riffle (%)	40
Run (%)	45
Pool (%)	25

AQUATIC VEGETATION

Dominant Type	Attached Algae
Portion of reach with aquatic veg	20

WATER QUALITY

Temperature	16.1
Specific Conductance	.184 mS/cm
Dissolved Oxygen	9.31
pH	7.43
Turbidity	6.75
WQ Instrument Used	YSI Pro Quatro
Water Odors	☑ Normal / None ☐ Sewage ☐ Petroleum ☐ Chemical ☐ Fishy ☐ Other

Water Surface Oils	
	☐ Slick ☐ Sheen ☐ Globs ☐ Flecks ☑ None ☐ Other

Inorganic Substrate Components
(should add up to 100%)

Substrate Type	Diameter	% Composition in sampling reach
Bedrock		10.0
Boulder	**>256 mm** (10")	25.0
Cobble	**64 - 256 mm** (2.5" - 10")	30.0
Gravel	**2 - 64 mm** (0.1" - 2.5")	15.0
Sand	**0.06 - 2 mm** (gritty)	20.0
Silt	**0.004 - 0.06 mm**	0.0
Clay	**< 0.004 mm** (slick)	0.0

Parameters to be evaluated in sampling reach

Habitat Parameter	Condition Category
Epifaunal Substrate / Available Cover	16
Embeddedness	17
Velocity / Depth Regime	10
Sediment Deposition	15
Channel Flow Status	10

Parameters to be evaluated broader than sampling reach

Habitat Parameter	Condition Category
Channel Alteration	18
Frequency of Riffles (or Bends)	16
Bank Stability (LEFT BANK)	7
Bank Stability (RIGHT BANK)	8
Vegetative Protection (LEFT BANK)	7
Vegetative Protection (RIGHT BANK)	7
Riparian Vegetative Zone Width (LEFT BANK)	8
Riparian Vegetative Zone Width (RIGHT BANK)	8

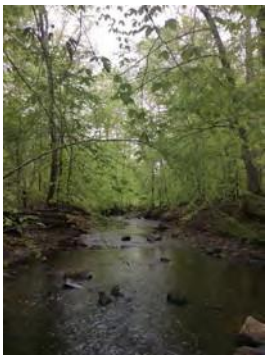
Field Photography

Image 1

Caption for Image 1

Downstream site looking upstream

Image 2



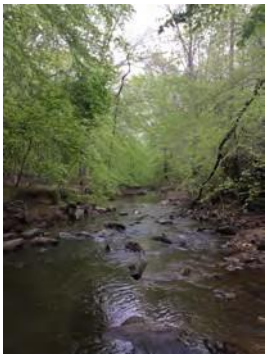
Caption for Image 2

Downstream site looking downstream

Image 3

Caption for Image 3

Upstream site looking downstream

Image 4

Caption for Image 4
Upstream site looking downstream

Report completed by:
Ilana Ton

Signature


Signature Date/Time
05/04/2022 02:55 PM GMT-04:00

Please use the upper-right menu to "Save as complete and exit" to place this finalized form in the upload queue.

APPENDIX B

WATER QUALITY LABORATORY RESULTS

Occoquan Watershed Monitoring Laboratory

9408 Prince William St.

Manassas, VA 20110

Tel: (703) 361-5606

Virginia Laboratory ID: 460026

Att: Mr. Benjamin Green

Wood www.woodplc.com

14424 Albemarle Point Place, Suite 115
Chantilly, VA 20151

Analysis Report

Report #20200527

Description	Sample Date	Sample ID	Result	Unit	Reporting Limit	Method	Analysis Date
Ammonia as N	10/4/2021	21-3084 PC20	0.02	mg/L	0.01	SM4500-NH3 G	10/14/2021
E. coli	10/4/2021	21-3084 PC20	236	MPN/100mL	1.80	SM9221 B(LT)E(EC)C MPN	10/4/2021
Nitrate+nitrite as N	10/4/2021	21-3084 PC20	0.43	mg/L	0.01	SM4500-NO3-F	10/14/2021
Orthophosphate as P	10/4/2021	21-3084 PC20	<0.01	mg/L	0.01	SM4500-P F	10/14/2021
Total Kjeldahl Nitrogen	10/4/2021	21-3084 PC20	<0.5	mg/L	0.50	Lachat 10-107-06-2D	10/14/2021
Total Phosphorus	10/4/2021	21-3084 PC20	<0.01	mg/L	0.01	SM4500-P F, 4500-P J	10/28/2021
Total Suspended Solids	10/4/2021	21-3084 PC20	<1.0	mg/L	<1.0	SM2540D	10/13/2021
Ammonia as N	10/4/2021	21-3085 PC60	0.02	mg/L	0.01	SM4500-NH3 G	10/14/2021
E. coli	10/4/2021	21-3085 PC60	261	MPN/100mL	1.80	SM9221 B(LT)E(EC)C MPN	10/4/2021
Nitrate+nitrite as N	10/4/2021	21-3085 PC60	0.34	mg/L	0.01	SM4500-NO3-F	10/14/2021
Orthophosphate as P	10/4/2021	21-3085 PC60	<0.01	mg/L	0.01	SM4500-P F	10/14/2021
Total Kjeldahl Nitrogen	10/4/2021	21-3085 PC60	<0.5	mg/L	0.50	Lachat 10-107-06-2D	10/14/2021
Total Phosphorus	10/4/2021	21-3085 PC60	0.01	mg/L	0.01	SM4500-P F, 4500-P J	10/28/2021
Total Suspended Solids	10/4/2021	21-3085 PC60	1.6	mg/L	<1.0	SM2540D	10/13/2021
Ammonia as N	10/5/2021	21-3094 PC90	0.02	mg/L	0.01	SM4500-NH3 G	10/14/2021
E. coli	10/5/2021	21-3094 PC90	119	MPN/100mL	1.80	SM9221 B(LT)E(EC)C MPN	10/5/2021
Nitrate+nitrite as N	10/5/2021	21-3094 PC90	0.68	mg/L	0.01	SM4500-NO3-F	10/14/2021
Orthophosphate as P	10/5/2021	21-3094 PC90	0.01	mg/L	0.01	SM4500-P F	10/14/2021
Total Kjeldahl Nitrogen	10/5/2021	21-3094 PC90	<0.5	mg/L	0.50	Lachat 10-107-06-2D	10/14/2021
Total Phosphorus	10/5/2021	21-3094 PC90	0.02	mg/L	0.01	SM4500-P F, 4500-P J	10/28/2021
Total Suspended Solids	10/5/2021	21-3094 PC90	<1.0	mg/L	<1.0	SM2540D	10/13/2021
Ammonia as N	10/5/2021	21-3095 PC30	0.04	mg/L	0.01	SM4500-NH3 G	10/14/2021
E. coli	10/5/2021	21-3095 PC30	4350	MPN/100mL	1.80	SM9221 B(LT)E(EC)C MPN	10/5/2021
Nitrate+nitrite as N	10/5/2021	21-3095 PC30	0.04	mg/L	0.01	SM4500-NO3-F	10/14/2021
Orthophosphate as P	10/5/2021	21-3095 PC30	<0.01	mg/L	0.01	SM4500-P F	10/14/2021
Total Kjeldahl Nitrogen	10/5/2021	21-3095 PC30	<0.5	mg/L	0.50	Lachat 10-107-06-2D	10/14/2021
Total Phosphorus	10/5/2021	21-3095 PC30	0.02	mg/L	0.01	SM4500-P F, 4500-P J	10/28/2021
Total Suspended Solids	10/5/2021	21-3095 PC30	13.4	mg/L	<1.0	SM2540D	10/13/2021
Ammonia as N	10/6/2021	21-3101 PC10	0.02	mg/L	0.01	SM4500-NH3 G	10/14/2021
E. coli	10/6/2021	21-3101 PC10	1120	MPN/100mL	1.80	SM9221 B(LT)E(EC)C MPN	10/6/2021
Nitrate+nitrite as N	10/6/2021	21-3101 PC10	0.45	mg/L	0.01	SM4500-NO3-F	10/14/2021
Orthophosphate as P	10/6/2021	21-3101 PC10	0.01	mg/L	0.01	SM4500-P F	10/14/2021
Total Kjeldahl Nitrogen	10/6/2021	21-3101 PC10	<0.5	mg/L	0.50	Lachat 10-107-06-2D	10/14/2021
Total Phosphorus	10/6/2021	21-3101 PC10	0.01	mg/L	0.01	SM4500-P F, 4500-P J	10/28/2021
Total Suspended Solids	10/6/2021	21-3101 PC10	<1.0	mg/L	<1.0	SM2540D	10/13/2021

Note: TKN samples were contracted to NELAC certified lab at Prince William County Service Authority

Prepared by:

Dongmei Alvi (Wang)

Laboratory Supervisor

Occoquan Watershed Monitoring Laboratory

9408 Prince William St.

Manassas, VA 20110

Tel: (703) 361-5606

Virginia Laboratory ID: 460026

Att: Mr. Benjamin Green

Wood www.woodplc.com

14424 Albemarle Point Place, Suite 115
Chantilly, VA 20151

Analysis Report

Report #20200527

Description	Blank	LCS, %R	Duplicate, RPD	Spike, %R	Matrix Spike, %R	Method	Analysis Date
Ammonia as N	0.004	101	n.a.	98	101	SM4500-NH3 G	10/14/2021
Accepted Range	-0.01~0.01	100±10		100±10	100±10		
E. coli	n.a.	n.a.	1.00	n.a.	n.a.	SM9221 B(LT)E(EC)C MPN	10/5/2021
Accepted Range							
Nitrate+nitrite as N	-0.010	101	n.a.	102	105	SM4500-NO3-F	10/14/2021
Accepted Range	-0.01~0.01	100±10		100±10	100±10		
Orthophosphate as P	0.005	100	n.a.	92	93	SM4500-P F	10/14/2021
Accepted Range	-0.01~0.01	100±10		100±10	100±10		
Total Kjeldahl Nitrogen	n.a.	n.a.	n.a.	n.a.	n.a.	Lachat 10-107-06-2D	10/14/2021
Accepted Range							
Total Phosphorus	-0.008	103	2.0	104	n.a.	SM4500-P F, 4500-P J	10/28/2021
Accepted Range	-0.01~0.01	100±10	±10	100±10	100±10		
Total Suspended Solids	0.00	n.a.	0	n.a.	n.a.	SM2540D	10/13/2021
Accepted Range	-1.0~1.0		±20				

n.a.= not applicable

Note: TKN samples were contracted to NELAC certified lab at Prince William County Service Authority

Prepared by:

Dongmei Alvi (Wang)

Laboratory Supervisor

Occoquan Watershed Monitoring Laboratory

9408 Prince William St.

Manassas, VA 20110

Tel: (703) 361-5606

Virginia Laboratory ID: 460026

Att: Mr. Benjamin Green

Wood w.woodplc.com

14424 Albemarle Point Place, Suite 115
Chantilly, VA 20151

Analysis Report

Report #20200527

Description	Sample Date	Sample ID	Result	Unit	Reporting Limit	Method	Analysis Date
Ammonia as N	5/3/2022	22-0899 PC90	0.07	mg/L	0.01	SM4500-NH3 G	5/17/2022
E. coli	5/3/2022	22-0899 PC90	435	MPN/100mL	1.80	SM9221 B(LT)E(EC)C MPN	5/4/2022
Nitrate+nitrite as N	5/3/2022	22-0899 PC90	0.34	mg/L	0.01	SM4500-NO3-F	5/17/2022
Orthophosphate as P	5/3/2022	22-0899 PC90	0.01	mg/L	0.01	SM4500-P F	5/17/2022
Total Kjeldahl Nitrogen	5/3/2022	22-0899 PC90	<0.5	mg/L	0.50	Lachat 10-107-06-2D	5/17/2022
Total Phosphorus	5/3/2022	22-0899 PC90	0.05	mg/L	0.01	SM4500-P F, 4500-P J	5/27/2022
Total Suspended Solids	5/3/2022	22-0899 PC90	4.0	mg/L	1.0	SM2540D	5/13/2022
Ammonia as N	5/4/2022	22-0905 PC10	0.02	mg/L	0.01	SM4500-NH3 G	5/17/2022
E. coli	5/4/2022	22-0905 PC10	2910	MPN/100mL	1.80	SM9221 B(LT)E(EC)C MPN	5/5/2022
Nitrate+nitrite as N	5/4/2022	22-0905 PC10	0.40	mg/L	0.01	SM4500-NO3-F	5/17/2022
Orthophosphate as P	5/4/2022	22-0905 PC10	0.01	mg/L	0.01	SM4500-P F	5/17/2022
Total Kjeldahl Nitrogen	5/4/2022	22-0905 PC10	0.63	mg/L	0.50	Lachat 10-107-06-2D	5/17/2022
Total Phosphorus	5/4/2022	22-0905 PC10	0.03	mg/L	0.01	SM4500-P F, 4500-P J	5/27/2022
Total Suspended Solids	5/4/2022	22-0905 PC10	6.7	mg/L	1.0	SM2540D	5/13/2022
Ammonia as N	5/4/2022	22-0906 PC30	0.04	mg/L	0.01	SM4500-NH3 G	5/17/2022
E. coli	5/4/2022	22-0906 PC30	2420	MPN/100mL	1.80	SM9221 B(LT)E(EC)C MPN	5/5/2022
Nitrate+nitrite as N	5/4/2022	22-0906 PC30	0.10	mg/L	0.01	SM4500-NO3-F	5/17/2022
Orthophosphate as P	5/4/2022	22-0906 PC30	0.01	mg/L	0.01	SM4500-P F	5/17/2022
Total Kjeldahl Nitrogen	5/4/2022	22-0906 PC30	0.85	mg/L	0.50	Lachat 10-107-06-2D	5/17/2022
Total Phosphorus	5/4/2022	22-0906 PC30	0.05	mg/L	0.01	SM4500-P F, 4500-P J	5/27/2022
Total Suspended Solids	5/4/2022	22-0906 PC30	17.2	mg/L	1.0	SM2540D	5/13/2022
Ammonia as N	5/5/2022	22-0909 PC20	0.06	mg/L	0.01	SM4500-NH3 G	5/17/2022
E. coli	5/5/2022	22-0909 PC20	77.1	MPN/100mL	1.80	SM9221 B(LT)E(EC)C MPN	5/6/2022
Nitrate+nitrite as N	5/5/2022	22-0909 PC20	0.30	mg/L	0.01	SM4500-NO3-F	5/17/2022
Orthophosphate as P	5/5/2022	22-0909 PC20	<0.01	mg/L	0.01	SM4500-P F	5/17/2022
Total Kjeldahl Nitrogen	5/5/2022	22-0909 PC20	<0.5	mg/L	0.50	Lachat 10-107-06-2D	5/17/2022
Total Phosphorus	5/5/2022	22-0909 PC20	0.08	mg/L	0.01	SM4500-P F, 4500-P J	5/27/2022
Total Suspended Solids	5/5/2022	22-0909 PC20	1.1	mg/L	1.0	SM2540D	5/13/2022
Ammonia as N	5/5/2022	22-0910 PC60	0.04	mg/L	0.01	SM4500-NH3 G	5/17/2022
E. coli	5/5/2022	22-0910 PC60	162	MPN/100mL	1.80	SM9221 B(LT)E(EC)C MPN	5/6/2022
Nitrate+nitrite as N	5/5/2022	22-0910 PC60	0.26	mg/L	0.01	SM4500-NO3-F	5/17/2022
Orthophosphate as P	5/5/2022	22-0910 PC60	0.01	mg/L	0.01	SM4500-P F	5/17/2022
Total Kjeldahl Nitrogen	5/5/2022	22-0910 PC60	<0.5	mg/L	0.50	Lachat 10-107-06-2D	5/17/2022
Total Phosphorus	5/5/2022	22-0910 PC60	0.05	mg/L	0.01	SM4500-P F, 4500-P J	5/27/2022
Total Suspended Solids	5/5/2022	22-0910 PC60	2.6	mg/L	1.0	SM2540D	5/13/2022

Note: TKN samples were contracted to NELAC certified lab at Prince William County Service Authority

Prepared by:

Dongmei Alvi (Wang)

Laboratory Supervisor

Occoquan Watershed Monitoring Laboratory

9408 Prince William St.

Manassas, VA 20110

Tel: (703) 361-5606

Virginia Laboratory ID: 460026

Att: Mr. Benjamin Green

Wood www.woodplc.com

14424 Albemarle Point Place, Suite 115
Chantilly, VA 20151

Analysis Report

Report #20200527

Description	Blank	LCS, %R	Duplicate, RPD	Spike, %R	Matrix Spike, %R	Method	Analysis Date
Ammonia as N	0.000	105	n.a.	96	96	SM4500-NH3 G	5/17/2022
Accepted Range	-0.01~0.01	100±10		100±10	100±10		
E. coli	n.a.	n.a.	6.0	n.a.	n.a.	SM9221 B(LT)E(EC)C MPN	5/5/2022
Accepted Range							
Nitrate+nitrite as N	-0.011	100	n.a.	102	102	SM4500-NO3-F	5/17/2022
Accepted Range	-0.01~0.01	100±10		100±10	100±10		
Orthophosphate as P	0.005	92	n.a.	90	92	SM4500-P F	5/17/2022
Accepted Range	-0.01~0.01	100±10		100±10	100±10		
Total Kjeldahl Nitrogen	n.a.	n.a.	n.a.	n.a.	n.a.	Lachat 10-107-06-2D	5/17/2022
Accepted Range							
Total Phosphorus	-0.009	96	6.0	103	n.a.	SM4500-P F, 4500-P J	5/27/2022
Accepted Range	-0.01~0.01	100±10	±10	100±10	100±10		
Total Suspended Solids	-0.40	n.a.	2	n.a.	n.a.	SM2540D	5/13/2022
Accepted Range	-1.0~1.0		±20				

n.a.= not applicable

Note: TKN samples were contracted to NELAC certified lab at Prince William County Service Authority

Prepared by:

Dongmei Alvi (Wang)

Laboratory Supervisor

APPENDIX C

BENTHIC MACROINVERTEBRATE LABORATORY RESULTS

Wood Environment & Infrastructure Solutions, Inc.
404 SW 140th Terrace
Newberry, FL 32669
USA
T: 352.332.3318
www.woodplc.com

December 20, 2021

Mr. Benjamin Green
Wood Environment & Infrastructure Solutions, Inc.
14424 Albemarle Point Place, Suite 115
Chantilly, VA 20151

Subject: Prince William County Multiple Habitat Sampling Method Report
Wood Project No.: 151280001.0001

Dear Mr. Green,

Wood Environment & Infrastructure Solutions, Inc. (Wood) (Gainesville office) completed benthic macroinvertebrate determinations for samples collected by Wood (Chantilly office), in October 2021. Wood (Gainesville office) received a total of five samples, one from each of the following locations: Cow Branch, Dawkins Branch, Little Bull Run, Neabsco Creek, and Purcell Branch. The results of the taxonomic analyses are presented in this report.

1.0 Multiple Habitat Sampling Method

1.1 Methods and Procedures

All samples collected by Wood, Chantilly office, in October 2021, were received by Wood's taxonomy laboratory at Newberry, Florida, where they were logged in and processed. The samples were sorted (i.e. organisms removed from debris) and organisms were identified and enumerated by a qualified taxonomist according to Section 7.2 of the U.S. Environmental Protection Agency's (USEPA) "*Rapid Bioassessment Protocol for Use in Wadeable Streams and Rivers*" (RBP) (Barbour *et al.*, 1999). Eight metrics were calculated including the Biotic Index, using guidance from Hilsenhoff (1987); the Percent Model Affinity (PMA), using guidance from Novak and Bode (1992); and the Virginia Stream Condition Index, using guidance from Virginia Department of Environmental Quality (2008). The scraper taxa and tolerance values were identified according to life history information from RBP (Barbour *et al.*, 1999); "*An Introduction to the Aquatic Insects of North America*" (Merritt *et al.,* 2008); "*Quality System Standard Operating Procedure for Macroinvertebrate Stream Surveys*" (Tennessee Department of Environment and Conservation, 2011); and "*Standard Operating Procedures for the Collection and Analysis of Benthic Macroinvertebrates*" (North Carolina Department of Environmental Quality, 2016). Quality assurance and quality control checks were conducted according to the EPA RBP on Laboratory Quality Control for Macroinvertebrate Taxonomic Identification (Barbour *et al.*, 1999). Quality assurance/quality control requirements for sample picking and taxonomic identification were conducted by a Wood Senior Taxonomist.

1.2 Benthic Macroinvertebrate Results

The benthic macroinvertebrate community data were used to generate metrics outlined in the Wood draft sampling plan. The Multiple Habitat Sampling assessments conducted for the five samples are summarized below in Table 1.

Table 1. Summary of Results of Multiple Habitat Samples

Metric	Site Locations				
	Cow Branch	Dawkins Branch	Little Bull Run	Neabsco Creek	Purcell Branch
Taxa Richness	27	35	27	26	28
Abundance	214	189	222	215	186
EPT Index	7	6	7	6	10
EPT/EPT + Chironomidae Ratio	0.95	0.44	0.87	0.93	0.97
Percent Dominant Taxon	33.64	23.28	29.28	18.60	36.02
Percent Chironomidae	3.74	25.93	5.86	5.58	2.15
Biotic Index (BI)	5.95	6.70	5.89	5.40	5.78
BI Category	Fair	Fairly Poor	Fair	Good	Fair
Percent Model Affinity (PMA)	33.93	65.63	66.85	39.53	41.29
PMA Category	Severely Impacted	Non-Impacted	Non-Impacted	Moderately Impacted	Moderately Impacted
VSCI	51.26	54.70	70.52	61.30	60.12

Source: Wood, 2021 Prepared By: JSD Checked By: SEM

Taxonomic identifications and abundances of the benthic macroinvertebrates and metric calculations for each sample are included in Attachment 1. References are listed in Attachment 2.

Closing

We appreciate the opportunity to provide ecological services to you. Please do not hesitate to contact me if you have questions or need to request further information. You can reach me by phone at (352) 333-3634, or via email at shannon.mcmorrow@woodplc.com.

Sincerely
Wood Environment & Infrastructure Solutions, Inc.

Jennifer S. Davenport, M.Sc.
Senior Biologist, Taxonomist
Direct Tel: + 1 352 333 7618
Fax: +1 352 333 6622
E-mail: Jennifer.davenport@woodplc.com

Shannon McMorrow, PWS
Senior Scientist
Mobile: +1 352 284 7094
Fax: +1 352 333 6622
Email: shannon.mcmorrow@woodplc.com

Attachments:
Attachment 1: Tabulated Data
Attachment 2: References

Attachment 1
Tabulated Data

Multiple Habitat Sampling
Samples Collected: October 2021
Project #: 151280001.001

Metrics	Site Locations				
	Cow Branch	Dawkins Branch	Little Bull Run	Neabsco Creek	Purcell Branch
Taxa Richness	27	35	27	26	28
Abundance	214	189	222	215	186
EPT Index	7	6	7	6	10
EPT/EPT + Chironomidae Ratio	0.95	0.44	0.87	0.93	0.97
Percent Dominant Taxon	33.64	23.28	29.28	18.60	36.02
Percent Chironomidae	3.74	25.93	5.86	5.58	2.15
Biotic Index (BI)	5.95	6.70	5.89	5.40	5.78
Biotic Index (BI) Category	Fair	Fairly Poor	Fair	Good	Fair
Percent Model Affinity (PMA)	33.93	65.63	66.85	39.53	41.29
Percent Model Affinity (PMA) Category	Severely Impacted	Non-Impacted	Non-Impacted	Moderately Impacted	Moderately Impacted
VSCI	51.26	54.70	70.52	61.30	60.12

Created By: JSD
Checked By: SEM
Source: Wood, 2021

Cow Branch
Multiple Habitat Sampling
Sample Collected: 4-Oct-2021
Project #: 151280001.001

Results for Cow Branch

Phylum	Subphylum	Class	Subclass	Order	Family	Taxa	Raw Abundance	Ephemeroptera	Plecoptera	Trichoptera	Chironomidae	Dominant Taxon	Tolerance Values	Tolerance Values * Individual Abundance/Total Abundance	Coleoptera	Oligochaeta	Other	Plecoptera & Trichoptera (less Hydropsychidae)	Scrapers	Top 2 Dominant Taxa
Nemertea		Hoplonemertea		Monostilifera	Prostomatidae	*Prostoma* spp.	3	0	0	0	0		6.1	0.09	0	0	3	0	0	
Annelida		Clitellata	Oligochaeta	Tubificida	Naididae	*Aulodrilus pluriseta*	1	0	0	0	0		5.6	0.03	0	1	0	0	0	
Annelida		Clitellata	Oligochaeta	Tubificida	Naididae	*Nais communis*	1	0	0	0	0		8.7	0.04	0	1	0	0	0	
Annelida		Clitellata	Oligochaeta	Lumbriculida	Lumbriculidae	*Lumbriculus* cf. *variegatus*	1	0	0	0	0		7.03	0.03	0	1	0	0	0	
Annelida		Clitellata	Oligochaeta	Crassiclitellata	Sparganophilidae	*Sparganophilus* spp.	12	0	0	0	0			0.00	0	12	0	0	0	
Mollusca		Gastropoda	Heterobranchia	Hygrophila	Planorbidae	Planorbidae spp.	1	0	0	0	0		6.3	0.03	0	0	1	0	1	
Arthropoda	Hexapoda	Insecta	Pterygota	Ephemeroptera	Baetidae	Baetidae spp.	9	9	0	0	0		6.1	0.26	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Ephemeroptera	Baetidae	*Baetis intercalaris*	1	1	0	0	0		5	0.02	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Trichoptera	Hydropsychidae	Hydropsychidae spp.	24	0	0	24	0		4	0.45	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Trichoptera	Hydropsychidae	*Cheumatopsyche* spp.	34	0	0	34	0		6.6	1.05	0	0	0	0	0	34
Arthropoda	Hexapoda	Insecta	Pterygota	Trichoptera	Hydropsychidae	*Hydropsyche* spp.	11	0	0	11	0		4.3	0.22	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Trichoptera	Hydropsychidae	*Hydropsyche betteni/depravata/potomacensis*	72	0	0	72	0	72	7.9	2.66	0	0	0	0	0	72
Arthropoda	Hexapoda	Insecta	Pterygota	Trichoptera	Philopotamidae	*Chimarra* spp.	7	0	0	7	0		3.3	0.11	0	0	0	7	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera		Diptera spp.	3	0	0	0	0		7	0.10	0	0	3	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera		Cyclorrhaphous-Brachycera spp.	1	0	0	0	0			0.00	0	0	1	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	Chironomidae spp.	4	0	0	0	1		6.2	0.12	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Polypedilum illinoense* group	1	0	0	0	1		8.7	0.04	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Rheotanytarsus* spp.	3	0	0	0	1		6.5	0.09	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Ablabesmyia mallochi*	1	0	0	0	1		7.4	0.03	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Orthocladius* spp.	12	0	0	0	1		4.4	0.25	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Thienemanniella* spp.	2	0	0	0	1		8	0.07	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Labrundinia* spp.	2	0	0	0	1		6.2	0.06	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Cricotopus* or *Orthocladius*	4	0	0	0	1		4.86	0.09	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Simuliidae	*Simulium* spp.	1	0	0	0	0		4.9	0.02	0	0	1	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Empididae	*Hemerodromia* spp.	1	0	0	0	0		7.57	0.04	0	0	1	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Heteroptera	Veliidae	*Rhagovelia obesa*	1	0	0	0	0		6	0.03	0	0	1	0	0	
Arthropoda	Chelicerata	Arachnida	Acari	Trombidiformes	Lebertiidae	*Lebertia* spp.	1	0	0	0	0		8	0.04	0	0	1	0	0	

Percent Model Affinity		Difference from Model %
Model % Ephemeroptera	40	35.33
Model % Plecoptera	5	5.00
Model % Trichoptera	10	59.16
Model % Chironomidae	20	16.26
Model % Coleoptera	10	10.00
Model % Oligochaeta	5	2.01
Model % Other	10	4.39
Sum of Difference		132.15
Sum of Difference * 0.5		66.07
Percent Model Affinity		33.93
Percent Model Affinity Category		Severely Impacted

Metric	Value	VSCI metrics	Adjusted VSCI metrics
Species Richness	27	122.73	100.00
Total Abundance	214		
% Ephemeroptera	4.67	7.62	7.62
% Plecoptera	0.00		
% Trichoptera	69.16		
% Chironomidae	3.74	96.26	96.26
% Dominant Taxon	33.64		
Biotic Index	5.95	59.51	59.51
% Coleoptera	0.00		
% Oligochaeta	7.01		
% Other	5.61		
% Plecoptera + Trichoptera (less Hydropsychidae)	3.27	9.19	9.19
% Scrapers	0.47	0.91	0.91
% Top 2 Dominant Taxa	49.53	72.93	72.93
EPT Index	7	63.64	63.64
EPT/EPT + Chironomidae Ratio	0.95		

Hilsenhoff Biotic Index Category	Fair

Final VSCI score	51.26

Created By: JSD
Checked By: SEM
Source: Wood, 2021

Dawkins Branch
Multiple Habitat Sampling
Sample Collected: 5-Oct-2021
Project #: 151280001.001

Results for Dawkins Branch

Phylum	Subphylum	Class	Subclass	Order	Family	Taxa	Raw Abundance	Ephemeroptera	Plecoptera	Trichoptera	Chironomidae	Dominant Taxon	Tolerance Values	Tolerance Values * Individual Abundance/Total Abundance	Coleoptera	Oligochaeta	Other	Plecoptera & Trichoptera (less Hydropsychidae)	Scrapers	Top 2 Dominant Taxa
Platyhelminthes						Platyhelminthes spp.	2	0	0	0	0			0.00	0	0	2	0	0	
Annelida		Clitellata	Oligochaeta	Tubificida	Naididae	Tubificinae spp.	27	0	0	0	0		9.5	1.36	0	27	0	0	0	27
Annelida		Clitellata	Oligochaeta	Tubificida	Naididae	*Nais pardalis*	1	0	0	0	0		8.7	0.05	0	1	0	0	0	
Annelida		Clitellata	Oligochaeta	Tubificida	Naididae	*Slavina appendiculata*	2	0	0	0	0		8.4	0.09	0	2	0	0	0	
Annelida		Clitellata	Oligochaeta	Crassiclitellata	Sparganophilidae	*Sparganophilus* spp.	1	0	0	0	0			0.00	0	1	0	0	0	
Annelida		Clitellata	Hirudinida	Rhynchobdellida	Glossiphoniidae	*Helobdella elongata*	1	0	0	0	0		9.1	0.05	0	0	1	0	0	
Mollusca		Gastropoda	Caenogastropoda	Littorinimorpha	Hydrobiidae	Hydrobiidae spp.	1	0	0	0	0		5.78	0.03	0	0	1	0	1	
Mollusca		Gastropoda	Heterobranchia	Hygrophila	Ancylidae	*Ferrissia fragilis*	4	0	0	0	0		6.6	0.14	0	0	4	0	4	
Mollusca		Bivalvia	Autobranchia	Venerida	Cyrenidae	*Corbicula* spp.	2	0	0	0	0		6.12	0.06	0	0	2	0	0	
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Decapoda	Cambaridae	Cambaridae spp.	1	0	0	0	0		7.5	0.04	0	0	1	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Ephemeroptera	Caenidae	*Caenis* spp.	18	18	0	0	0		6.8	0.65	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Ephemeroptera	Baetidae	Baetidae spp.	4	4	0	0	0		6.1	0.13	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Odonata	Coenagrionidae	*Argia* spp.	6	0	0	0	0		8.3	0.26	0	0	6	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Odonata	Coenagrionidae	*Argia moesta*	3	0	0	0	0		8.3	0.13	0	0	3	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Trichoptera	Hydropsychidae	Hydropsychidae spp.	5	0	0	5	0		4	0.11	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Trichoptera	Hydropsychidae	*Cheumatopsyche* spp.	9	0	0	9	0		6.6	0.31	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Trichoptera	Hydropsychidae	*Hydropsyche* spp.	2	0	0	2	0		4.3	0.05	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Trichoptera	Hydropsychidae	*Hydropsyche betteni/depravata/potomacensis*	1	0	0	1	0		7.9	0.04	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Coleoptera	Elmidae	*Dubiraphia* spp.	1	0	0	0	0		5.5	0.03	1	0	0	0	1	
Arthropoda	Hexapoda	Insecta	Pterygota	Coleoptera	Elmidae	*Stenelmis* spp.	44	0	0	0	0	44	5.6	1.30	44	0	0	0	44	44
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera		Cyclorrhaphous-Brachycera spp.	1	0	0	0	0			0.00	0	0	1	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	Chironomidae spp.	5	0	0	0	5		6.2	0.16	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Tanytarsus* spp.	7	0	0	0	7		6.6	0.24	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Polypedilum flavum*	10	0	0	0	10		5.7	0.30	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Polypedilum illinoense* group	11	0	0	0	11		8.7	0.51	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Rheotanytarsus* spp.	6	0	0	0	6		6.5	0.21	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Ablabesmyia mallochi*	3	0	0	0	3		7.4	0.12	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Stenochironomus* spp.	1	0	0	0	1		6.3	0.03	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Cricotopus* spp.	2	0	0	0	2		5.78	0.06	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Orthocladius* spp.	2	0	0	0	2		4.4	0.05	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Labrundinia* spp.	1	0	0	0	1		6.2	0.03	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Rheocricotopus robacki*	1	0	0	0	1		7.9	0.04	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Ceratopogonidae	*Atrichopogon* spp.	1	0	0	0	0		6.1	0.03	0	0	1	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Heteroptera	Veliidae	*Rhagovelia obesa*	1	0	0	0	0		6	0.03	0	0	1	0	0	
Nematoda						Nematoda spp.	2	0	0	0	0		5	0.05	0	0	2	0	0	

Percent Model Affinity		Difference from Model %
Model % Ephemeroptera	40	28.36
Model % Plecoptera	5	5.00
Model % Trichoptera	10	1.01
Model % Chironomidae	20	5.93
Model % Coleoptera	10	13.81
Model % Oligochaeta	5	11.40
Model % Other	10	3.23
Sum of Difference		68.73
Sum of Difference * 0.5		34.37
Percent Model Affinity		65.63
Percent Model Affinity Category		Non-Impacted

Metric	Value	VSCI metrics	Adjusted VSCI metrics
Species Richness	35	159.09	100.00
Total Abundance	189		
% Ephemeroptera	11.64	18.99	18.99
% Plecoptera	0.00		
% Trichoptera	8.99		
% Chironomidae	25.93	74.07	74.07
% Dominant Taxon	23.28		
Biotic Index	6.70	48.53	48.53
% Coleoptera	23.81		
% Oligochaeta	16.40		
% Other	13.23		
% Plecoptera + Trichoptera (less Hydropsychidae)	0.00	0.00	0.00
% Scrapers	26.46	51.27	51.27
% Top 2 Dominant Taxa	37.57	90.22	90.22
EPT Index	6	54.55	54.55
EPT/EPT + Chironomidae Ratio	0.44		

Hilsenhoff Biotic Index Category	Fairly Poor

Final VSCI score	54.70

Created By: JSD
Checked By: SEM
Source: Wood, 2021

Little Bull Run
Multiple Habitat Sampling
Sample Collected: 5-Oct-2021
Project #: 151280001.001

Results for Little Bull Run

Phylum	Subphylum	Class	Subclass	Order	Family	Taxa	Raw Abundance	Ephemeroptera	Plecoptera	Trichoptera	Chironomidae	Dominant Taxon	Tolerance Values	Tolerance Values * Individual Abundance/Total Abundance	Coleoptera	Oligochaeta	Other	Plecoptera & Trichoptera (less Hydropsychidae)	Scrapers	Top 2 Dominant Taxa
Annelida		Clitellata	Oligochaeta	Tubificida	Naididae	*Slavina appendiculata*	1	0	0	0	0		8.4	0.04	0	1	0	0	0	
Mollusca		Gastropoda	Caenogastropoda	Littorinimorpha	Hydrobiidae	Hydrobiidae spp.	4	0	0	0	0		5.78	0.10	0	0	4	0	0	
Mollusca		Gastropoda	Heterobranchia	Hygrophila	Physidae	*Physa acuta*	1	0	0	0	0		8.84	0.04	0	0	1	0	0	
Mollusca		Gastropoda	Heterobranchia	Hygrophila	Planorbidae	Planorbidae spp.	3	0	0	0	0		6.3	0.09	0	0	3	0	0	
Mollusca		Bivalvia	Autobranchia	Venerida	Cyrenidae	*Corbicula* spp.	5	0	0	0	0		6.12	0.14	0	0	5	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Ephemeroptera	Caenidae	*Caenis* spp.	65	65	0	0	0	65	6.8	1.99	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Ephemeroptera	Heptageniidae	Heptageniidae spp.	3	3	0	0	0		4	0.05	0	0	0	0	3	
Arthropoda	Hexapoda	Insecta	Pterygota	Ephemeroptera	Heptageniidae	*Maccaffertium* spp.	1	1	0	0	0		3.15	0.01	0	0	0	0	1	
Arthropoda	Hexapoda	Insecta	Pterygota	Odonata	Coenagrionidae	*Argia* spp.	3	0	0	0	0		8.3	0.11	0	0	3	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Odonata	Coenagrionidae	*Enallagma* spp.	8	0	0	0	0		8.5	0.31	0	0	8	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Trichoptera	Leptoceridae	*Oecetis* spp.	1	0	0	1	0		5.1	0.02	0	0	0	1	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Trichoptera	Hydropsychidae	Hydropsychidae spp.	3	0	0	3	0		4	0.05	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Trichoptera	Hydropsychidae	*Cheumatopsyche* spp.	9	0	0	9	0		6.6	0.27	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Trichoptera	Philopotamidae	*Chimarra* spp.	8	0	0	8	0		3.3	0.12	0	0	0	8	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Coleoptera	Elmidae	*Dubiraphia* spp.	13	0	0	0	0		5.5	0.32	13	0	0	0	13	
Arthropoda	Hexapoda	Insecta	Pterygota	Coleoptera	Elmidae	*Stenelmis* spp.	63	0	0	0	0		5.6	1.59	63	0	0	0	63	
Arthropoda	Hexapoda	Insecta	Pterygota	Coleoptera	Elmidae	*Microcylloepus* spp.	6	0	0	0	0		2.11	0.06	6	0	0	0	6	
Arthropoda	Hexapoda	Insecta	Pterygota	Coleoptera	Elmidae	*Macronychus glabratus*	6	0	0	0	0		4.7	0.13	6	0	0	0	6	
Arthropoda	Hexapoda	Insecta	Pterygota	Coleoptera	Psephenidae	*Psephenus* spp.	4	0	0	0	0		2.35	0.04	4	0	0	0	4	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	Chironomidae spp.	3	0	0	0	3		6.2	0.08	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Tanytarsus* spp.	1	0	0	0	1		6.6	0.03	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Rheotanytarsus* spp.	4	0	0	0	4		6.5	0.12	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Orthocladius* spp.	3	0	0	0	3		4.4	0.06	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Paratanytarsus dissimilis*	1	0	0	0	1		8.45	0.04	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Labrundinia* spp.	1	0	0	0	1		6.2	0.03	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Tipulidae	*Antocha* spp.	1	0	0	0	0		4.4	0.02	0	0	1	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Heteroptera	Veliidae	*Microvelia* spp.	1	0	0	0	0		6	0.03	0	0	1	0	0	

Percent Model Affinity		Difference from Model %
Model % Ephemeroptera	40	8.92
Model % Plecoptera	5	5.00
Model % Trichoptera	10	0.54
Model % Chironomidae	20	14.14
Model % Coleoptera	10	31.44
Model % Oligochaeta	5	4.55
Model % Other	10	1.71
Sum of Difference		66.31
Sum of Difference * 0.5		33.15
Percent Model Affinity		66.85
Percent Model Affinity Category		Non-Impacted

Metric	Value	VSCI metrics	Adjusted VSCI metrics
Species Richness	27	122.73	100.00
Total Abundance	222		
% Ephemeroptera	31.08	50.70	50.70
% Plecoptera	0.00		
% Trichoptera	9.46		
% Chironomidae	5.86	94.14	94.14
% Dominant Taxon	29.28		
Biotic Index	5.89	60.49	60.49
% Coleoptera	41.44		
% Oligochaeta	0.45		
% Other	11.71		
% Plecoptera + Trichoptera (less Hydropsychidae)	4.05	11.39	11.39
% Scrapers	43.24	83.80	83.80
% Top 2 Dominant Taxa	0.00	144.51	100.00
EPT Index	7	63.64	63.64
EPT/EPT + Chironomidae Ratio	0.87		

Hilsenhoff Biotic Index Category	Fair

Final VSCI score	70.52

Created By: JSD
Checked By: SEM
Source: Wood, 2021

Neabsco Creek
Multiple Habitat Sampling
Sample Collected: 4-Oct-2021
Project #: 151280001.001

Results for Neabsco Creek

Phylum	Subphylum	Class	Subclass	Order	Family	Taxa	Raw Abundance	Ephemeroptera	Plecoptera	Trichoptera	Chironomidae	Dominant Taxon	Tolerance Values	Tolerance Values * Individual Abundance/Total Abundance	Coleoptera	Oligochaeta	Other	Plecoptera & Trichoptera (less Hydropsychidae)	Scrapers	Top 2 Dominant Taxa
Nemertea		Hoplonemertea		Monostilifera	Prostomatidae	*Prostoma* spp.	7	0	0	0	0		6.1	0.20	0	0	7	0	0	
Annelida		Clitellata	Oligochaeta	Crassiclitellata	Sparganophilidae	*Sparganophilus* spp.	4	0	0	0	0			0.00	0	4	0	0	0	
Mollusca		Bivalvia	Autobranchia	Venerida	Cyrenidae	*Corbicula* spp.	1	0	0	0	0		6.12	0.03	0	0	1	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Ephemeroptera	Baetidae	Baetidae spp.	14	14	0	0	0		6.1	0.40	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Odonata	Calopterygidae	*Calopteryx* spp.	1	0	0	0	0		7.5	0.03	0	0	1	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Trichoptera	Hydropsychidae	Hydropsychidae spp.	17	0	0	17	0		4	0.32	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Trichoptera	Hydropsychidae	*Cheumatopsyche* spp.	30	0	0	30	0		6.6	0.92	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Trichoptera	Hydropsychidae	*Hydropsyche* spp.	30	0	0	30	0		4.3	0.60	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Trichoptera	Hydropsychidae	*Hydropsyche betteni/depravata/potomacensis*	32	0	0	32	0		7.9	1.18	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Trichoptera	Philopotamidae	*Chimarra* spp.	40	0	0	40	0	40	3.3	0.61	0	0	0	40	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Coleoptera	Elmidae	*Stenelmis* spp.	6	0	0	0	0		5.6	0.16	6	0	0	0	6	
Arthropoda	Hexapoda	Insecta	Pterygota	Coleoptera	Elmidae	*Ancyronyx variegatus*	6	0	0	0	0		6.8	0.19	6	0	0	0	6	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera		Diptera spp.	1	0	0	0	0		7	0.03	0	0	1	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Polypedilum flavum*	1	0	0	0	1		5.7	0.03	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Rheotanytarsus* spp.	4	0	0	0	4		6.5	0.12	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Tribelos fuscicorne*	1	0	0	0	1		5.1	0.02	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Stenochironomus* spp.	1	0	0	0	1		6.3	0.03	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Polypedilum beckae*	2	0	0	0	2		5.69	0.05	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Rheocricotopus robacki*	2	0	0	0	2		7.9	0.07	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Cricotopus* or *Orthocladius*	1	0	0	0	1		4.86	0.02	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Tipulidae	*Antocha* spp.	1	0	0	0	0		4.4	0.02	0	0	1	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Tipulidae	*Tipula* spp.	3	0	0	0	0		7.5	0.10	0	0	3	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Simuliidae	*Simulium* spp.	7	0	0	0	0		4.9	0.16	0	0	7	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Empididae	*Hemerodromia* spp.	1	0	0	0	0		7.57	0.04	0	0	1	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Megaloptera	Corydalidae	*Corydalus cornutus*	1	0	0	0	0		5.2	0.02	0	0	1	0	0	
Arthropoda	Chelicerata	Arachnida	Acari	Trombidiformes	Lebertiidae	*Lebertia* spp.	1	0	0	0	0		8	0.04	0	0	1	0	0	

Percent Model Affinity		Difference from Model %
Model % Ephemeroptera	40	33.49
Model % Plecoptera	5	5.00
Model % Trichoptera	10	59.30
Model % Chironomidae	20	14.42
Model % Coleoptera	10	4.42
Model % Oligochaeta	5	3.14
Model % Other	10	1.16
Sum of Difference		120.93
Sum of Difference * 0.5		60.47
Percent Model Affinity		39.53
Percent Model Affinity Category		Moderately Impacted

Metric	Value	VSCI metrics	Adjusted VSCI metrics
Species Richness	26	118.18	100.00
Total Abundance	215		
% Ephemeroptera	6.51	10.62	10.62
% Plecoptera	0.00		
% Trichoptera	69.30		
% Chironomidae	5.58	94.42	94.42
% Dominant Taxon	18.60		
Biotic Index	5.40	67.71	67.71
% Coleoptera	5.58		
% Oligochaeta	1.86		
% Other	11.16		
% Plecoptera + Trichoptera (less Hydropsychidae)	18.60	52.26	52.26
% Scrapers	5.58	10.82	10.82
% Top 2 Dominant Taxa	0.00	144.51	100.00
EPT Index	6	54.55	54.55
EPT/EPT + Chironomidae Ratio	0.93		

Hilsenhoff Biotic Index Category	Good

Final VSCI score	61.30

Created By: JSD
Checked By: SEM
Source: Wood, 2021

Purcell Branch
Multiple Habitat Sampling
Sample Collected: 6-Oct-2021
Project #: 151280001.001

Results for Purcell Branch

Phylum	Subphylum	Class	Subclass	Order	Family	Taxa	Raw Abundance	Ephemeroptera	Plecoptera	Trichoptera	Chironomidae	Dominant Taxon	Tolerance Values	Tolerance Values * Individual Abundance/Total Abundance	Coleoptera	Oligochaeta	Other	Plecoptera & Trichoptera (less Hydropsychidae)	Scrapers	Top 2 Dominant Taxa
Annelida		Clitellata	Oligochaeta	Tubificida	Naididae	Tubificinae spp.	2	0	0	0	0		9.5	0.10	0	2	0	0	0	
Annelida		Clitellata	Oligochaeta	Tubificida	Naididae	*Spirosperma carolinensis*	1	0	0	0	0		5.3	0.03	0	1	0	0	0	
Annelida		Clitellata	Oligochaeta	Crassiclitellata	Sparganophilidae	*Sparganophilus* spp.	3	0	0	0	0			0.00	0	3	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Ephemeroptera	Caenidae	*Caenis* spp.	1	1	0	0	0		6.8	0.04	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Ephemeroptera	Baetidae	Baetidae spp.	8	8	0	0	0		6.1	0.26	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Ephemeroptera	Baetidae	*Baetis intercalaris*	1	1	0	0	0		5	0.03	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Ephemeroptera	Heptageniidae	Heptageniidae spp.	1	1	0	0	0		4	0.02	0	0	0	0	1	
Arthropoda	Hexapoda	Insecta	Pterygota	Odonata	Gomphidae	Gomphidae spp.	1	0	0	0	0		5	0.03	0	0	1	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Odonata	Calopterygidae	*Calopteryx maculata*	1	0	0	0	0		7.5	0.04	0	0	1	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Trichoptera		Trichoptera spp.	1	0	0	1	0			0.00	0	0	0	1	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Trichoptera	Hydropsychidae	Hydropsychidae spp.	6	0	0	6	0		4	0.13	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Trichoptera	Hydropsychidae	*Cheumatopsyche* spp.	67	0	0	67	0	67	6.6	2.38	0	0	0	0	0	67
Arthropoda	Hexapoda	Insecta	Pterygota	Trichoptera	Hydropsychidae	*Hydropsyche* spp.	12	0	0	12	0		4.3	0.28	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Trichoptera	Hydropsychidae	*Hydropsyche betteni/depravata/potomacensis*	10	0	0	10	0		7.9	0.42	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Trichoptera	Philopotamidae	*Chimarra* spp.	9	0	0	9	0		3.3	0.16	0	0	0	9	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Coleoptera	Elmidae	Elmidae spp.	1	0	0	0	0		6	0.03	1	0	0	0	1	
Arthropoda	Hexapoda	Insecta	Pterygota	Coleoptera	Elmidae	*Stenelmis* spp.	37	0	0	0	0		5.6	1.11	37	0	0	0	37	37
Arthropoda	Hexapoda	Insecta	Pterygota	Coleoptera	Psephenidae	*Psephenus* spp.	1	0	0	0	0		2.35	0.01	1	0	0	0	1	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Polypedilum scalaenum* group	1	0	0	0	1		8.5	0.05	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Rheotanytarsus* spp.	1	0	0	0	1		6.5	0.03	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Orthocladius* spp.	2	0	0	0	2		4.4	0.05	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Tipulidae	*Antocha* spp.	3	0	0	0	0		4.4	0.07	0	0	3	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Tipulidae	*Tipula* spp.	4	0	0	0	0		7.5	0.16	0	0	4	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Heteroptera	Veliidae	*Rhagovelia obesa*	5	0	0	0	0		6	0.16	0	0	5	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Heteroptera	Veliidae	*Microvelia* spp.	4	0	0	0	0		6	0.13	0	0	4	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Megaloptera	Corydalidae	*Corydalus cornutus*	1	0	0	0	0		5.2	0.03	0	0	1	0	0	
Arthropoda	Chelicerata	Arachnida	Acari	Trombidiformes	Clathrosperchonidae	*Clathrosperchon* spp.	1	0	0	0	0			0.00	0	0	1	0	0	
Nematoda						Nematoda spp.	1	0	0	0	0		5	0.03	0	0	1	0	0	

Percent Model Affinity		Difference from Model %
Model % Ephemeroptera	40	34.09
Model % Plecoptera	5	5.00
Model % Trichoptera	10	46.45
Model % Chironomidae	20	17.85
Model % Coleoptera	10	10.97
Model % Oligochaeta	5	1.77
Model % Other	10	1.29
Sum of Difference		117.42
Sum of Difference * 0.5		58.71
Percent Model Affinity		41.29
Percent Model Affinity Category		Moderately Impacted

Metric	Value	VSCI metrics	Adjusted VSCI metrics
Species Richness	28	127.27	100.00
Total Abundance	186		
% Ephemeroptera	5.91	9.65	9.65
% Plecoptera	0.00		
% Trichoptera	56.45		
% Chironomidae	2.15	97.85	97.85
% Dominant Taxon	36.02		
Biotic Index	5.78	62.09	62.09
% Coleoptera	20.97		
% Oligochaeta	3.23		
% Other	11.29		
% Plecoptera + Trichoptera (less Hydropsychidae)	5.38	15.10	15.10
% Scrapers	21.51	41.68	41.68
% Top 2 Dominant Taxa	55.91	63.71	63.71
EPT Index	10	90.91	90.91
EPT/EPT + Chironomidae Ratio	0.97		

Hilsenhoff Biotic Index Category	Fair

Final VSCI score	60.12

Created By: JSD
Checked By: SEM
Source: Wood, 2021

Attachment 2
References

Attachment 2 - References

Barbour, M. T., J. Gerritsen, B. D. Snyder and J. B. Stribling. 1999. Rapid bioassessment protocols for use in wadeable streams and rivers: periphyton, benthic macroinvertebrates, and fish. 2nd ed. EPA 841-B-99-002. U.S. Environmental Protection Agency, Office of Water, Washington, D.C.

Hilsenhoff, W. L. 1987. An improved biotic index of organic stream pollution. The Great Lakes Entomologist 20 (1): 31-39.

Merritt, R. W., K. W. Cummings and M. B. Berg. 2008. An introduction to the aquatic insects of North America. 4th ed. Kendall Hunt Publishing Company, Dubuque, IA.

North Carolina Department of Environmental Quality. 2016. Standard operating procedures for the collection and analysis of benthic macroinvertebrates. Division of Water Resources. Raleigh, North Carolina. February 2016.

Novak, M. A. and R. W. Bode. 1992. Percent model affinity: a new measure of macroinvertebrate community composition. Journal of North American Benthological Society 11 (1): 80-85.

Tennessee Department of Environment and Conservation. 2011. Quality system standard operating procedure for macroinvertebrate stream surveys. Division of Water Pollution Control. Nashville, Tennessee.

Virginia Department of Environmental Quality. 2008. Biological monitoring program: quality assurance project plan for wadeable streams and rivers. Division of Water Quality, Office of Water Quality Monitoring and Assessment Programs, Richmond, VA.

Wood Environment & Infrastructure Solutions, Inc.
3701 NW 98th Street
Gainesville, FL 32606
USA
T: 352.332.3318
www.woodplc.com

August 15, 2022

Mr. Benjamin Green
Wood Environment & Infrastructure Solutions, Inc.
14424 Albemarle Point Place, Suite 115
Chantilly, VA 20151

Subject: Prince William County Multiple Habitat Sampling Method Report
Wood Project No.: 151280001.0001

Dear Mr. Green,

Wood Environment & Infrastructure Solutions, Inc. (Wood) (Gainesville office) completed benthic macroinvertebrate determinations for samples collected by Wood (Chantilly office), in May 2022. Wood (Gainesville office) received a total of five samples, one from each of the following locations: Cow Branch, Dawkins Branch, Little Bull Run, Neabsco Creek, and Purcell Branch. The results of the taxonomic analyses are presented in this report.

1.0 Multiple Habitat Sampling Method

1.1 Methods and Procedures

All samples collected by Wood, Chantilly office, in May 2022, were received by Wood's taxonomy laboratory at Gainesville, Florida, where they were logged in and processed. The samples were sorted (i.e. organisms removed from debris) and organisms were identified and enumerated by a qualified taxonomist according to Section 7.2 of the U.S. Environmental Protection Agency's (USEPA) "*Rapid Bioassessment Protocol for Use in Wadeable Streams and Rivers*" (RBP) (Barbour *et al.*, 1999). Eight metrics were calculated including the Biotic Index, using guidance from Hilsenhoff (1987); the Percent Model Affinity (PMA), using guidance from Novak and Bode (1992); and the Virginia Stream Condition Index, using guidance from Virginia Department of Environmental Quality (2008). The scraper taxa and tolerance values were identified according to life history information from RBP (Barbour *et al.*, 1999); "*An Introduction to the Aquatic Insects of North America*" (Merritt *et al.,* 2008); "*Quality System Standard Operating Procedure for Macroinvertebrate Stream Surveys*" (Tennessee Department of Environment and Conservation, 2011); and "*Standard Operating Procedures for the Collection and Analysis of Benthic Macroinvertebrates*" (North Carolina Department of Environmental Quality, 2016). Quality assurance and quality control checks were conducted according to the EPA RBP on Laboratory Quality Control for Macroinvertebrate Taxonomic Identification (Barbour *et al.*, 1999). Quality assurance/quality control requirements for sample picking and taxonomic identification were conducted by a Wood Senior Taxonomist.

1.2 Benthic Macroinvertebrate Results

The benthic macroinvertebrate community data were used to generate metrics outlined in the Wood draft sampling plan. The Multiple Habitat Sampling assessments conducted for the five samples are summarized below in Table 1.

Table 1. Summary of Results of Multiple Habitat Samples

Metric	Site Locations				
	Cow Branch	Dawkins Branch	Little Bull Run	Neabsco Creek	Purcell Branch
Taxa Richness	21	50	33	38	31
Abundance	193	195	197	236	184
EPT Index	2	2	4	5	5
EPT/EPT + Chironomidae Ratio	0.02	0.09	0.39	0.34	0.20
Percent Dominant Taxon	49.74	18.46	21.83	13.56	13.59
Percent Chironomidae	95.85	36.41	43.15	55.51	72.28
Biotic Index (BI)	5.12	6.94	6.56	5.63	5.60
BI Category	Good	Fairly Poor	Fairly Poor	Good	Good
Percent Model Affinity (PMA)	24.15	41.67	68.93	62.71	43.04
PMA Category	Severely Impacted	Moderately Impacted	Non-Impacted	Slightly Impacted	Moderately Impacted
VSCI	30.27	44.88	53.96	50.11	48.13

Source: Wood, 2022 Prepared By: NFP Checked By: SEM

Taxonomic identifications and abundances of the benthic macroinvertebrates and metric calculations for each sample are included in Attachment 1. References are listed in Attachment 2.

Closing

We appreciate the opportunity to provide ecological services to you. Please do not hesitate to contact me if you have questions or need to request further information. You can reach me by phone at (352) 559-0490, or via email at shannon.mcmorrow@woodplc.com.

Sincerely
Wood Environment & Infrastructure Solutions, Inc.

Nichole Panico
Scientist

Shannon McMorrow, PWS
Senior Scientist
Mobile: +1 352 284 7094
Email: shannon.mcmorrow@woodplc.com

Attachments:
Attachment 1: Tabulated Data
Attachment 2: References

Attachment 1
Tabulated Data

Multiple Habitat Sampling
Samples Collected: May 2022
Project #: 151280001.001

Metrics	Site Locations				
	Cow Branch	Dawkins Branch	Little Bull Run	Neabsco	Purcell Branch
Taxa Richness	21	50	33	38	31
Abundance	193	195	197	236	184
EPT Index	2	2	4	5	5
EPT/EPT + Chironomidae Ratio	0.02	0.09	0.39	0.34	0.20
Percent Dominant Taxon	49.74	18.46	21.83	13.56	13.59
Percent Chironomidae	95.85	36.41	43.15	55.51	72.28
Biotic Index (BI)	5.12	6.94	6.56	5.63	5.60
Biotic Index (BI) Category	Good	Fairly Poor	Fairly Poor	Good	Good
Percent Model Affinity (PMA)	24.15	41.67	68.93	62.71	43.04
Percent Model Affinity (PMA) Category	Severely Impacted	Moderately Impacted	Non-Impacted	Slightly Impacted	Moderately Impacted
VSCI	30.27	44.88	53.96	50.11	48.13

Created By: NFP
Checked By: SEM
Source: Wood, 2022

Cow Branch
Multiple Habitat Sampling
Sample Collected: 5-May-2022
Project #: 151280001.001

Results for Cow Branch

Phylum	Subphylum	Class	Subclass	Order	Family	Taxa	Raw Abundance	Ephemeroptera	Plecoptera	Trichoptera	Chironomidae	Dominant Taxon	Tolerance Values	Tolerance Values * Individual Abundance/Total Abundance	Coleoptera	Oligochaeta	Other	Plecoptera & Trichoptera (less Hydropsychidae)	Scrapers	Top 2 Dominant Taxa
Arthropoda	Hexapoda	Insecta	Pterygota	Trichoptera		Trichoptera spp.	1	0	0	1	0			0.00	0	0	0	1	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Trichoptera	Hydropsychidae	*Hydropsyche betteni/depravata/potomacensis*	2	0	0	2	0		7.9	0.08	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Coleoptera	Elmidae	*Stenelmis* spp.	1	0	0	0	0		5.6	0.03	1	0	0	0	1	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera		Diptera spp.	1	0	0	0	0		7	0.04	0	0	1	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	Chironomidae spp.	8	0	0	0	8		6.2	0.26	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	Chironominae spp.	1	0	0	0	1		6.2	0.03	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	Orthocladiinae spp.	10	0	0	0	10		5	0.26	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	Tanytarsini spp.	1	0	0	0	1		7	0.04	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Cricotopus* spp.	1	0	0	0	1		5.78	0.03	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Corynoneura* spp.	2	0	0	0	2		5.7	0.06	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Orthocladius* spp.	96	0	0	0	96	96	4.4	2.20	0	0	0	0	0	96
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Thienemanniella xena*	9	0	0	0	9		8	0.38	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Nanocladius* spp.	2	0	0	0	2		7.4	0.08	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Thienemannimyia* grp. sp.	1	0	0	0	1		8.4	0.04	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Rheocricotopus* spp.	3	0	0	0	3		4.7	0.07	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Krenosmitta* spp.	2	0	0	0	2		6.5	0.07	0	0	0	0	2	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Cricotopus* or *Orthocladius*	34	0	0	0	34		4.86	0.86	0	0	0	0	0	34
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Smittia* spp.	3	0	0	0	3		8.4	0.13	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Eukiefferiella claripennis* group	12	0	0	0	12		6.2	0.39	0	0	0	0	1	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Simuliidae	*Simulium* spp.	2	0	0	0	0		4.9	0.05	0	0	2	0	0	
Arthropoda	Hexapoda	Collembola				Collembola spp.	1	0	0	0	0		6.1	0.03	0	0	1	0	0	

Percent Model Affinity		Difference from Model %
Model % Ephemeroptera	40	40.00
Model % Plecoptera	5	5.00
Model % Trichoptera	10	8.45
Model % Chironomidae	20	75.85
Model % Coleoptera	10	9.48
Model % Oligochaeta	5	5.00
Model % Other	10	7.93
Sum of Difference		151.71
Sum of Difference * 0.5		75.85
Percent Model Affinity		24.15
Percent Model Affinity Category		Severely Impacted

Metric	Value	VSCI metrics	Adjusted VSCI metrics
Species Richness	21	95.45	95.45
Total Abundance	193		
% Ephemeroptera	0.00	0.00	0.00
% Plecoptera	0.00		
% Trichoptera	1.55		
% Chironomidae	95.85	4.15	4.15
% Dominant Taxon	49.74		
Biotic Index	5.12	71.70	71.70
% Coleoptera	0.52		
% Oligochaeta	0.00		
% Other	2.07		
% Plecoptera + Trichoptera (less Hydropsychidae)	0.52	1.46	1.46
% Scrapers	2.07	4.02	4.02
% Top 2 Dominant Taxa	67.36	47.17	47.17
EPT Index	2	18.18	18.18
EPT/EPT + Chironomidae Ratio	0.02		

Hilsenhoff Biotic Index Category	Good

Final VSCI score	30.27

Created By: NFP
Checked By: SEM
Source: Wood, 2022

Dawkins Branch
Multiple Habitat Sampling
Sample Collected: 4-May-2022
Project #: 151280001.001

Results for Dawkins Branch

Phylum	Subphylum	Class	Subclass	Order	Family	Taxa	Raw Abundance	Ephemeroptera	Plecoptera	Trichoptera	Chironomidae	Dominant Taxon	Tolerance Values	Tolerance Values * Individual Abundance/Total Abundance	Coleoptera	Oligochaeta	Other	Plecoptera & Trichoptera (less Hydropsychidae)	Scrapers	Top 2 Dominant Taxa
Annelida		Clitellata	Oligochaeta	Tubificida	Naididae	Naididae spp.	1	0	0	0	0		2.6	0.01	0	1	0	0	0	
Annelida		Clitellata	Oligochaeta	Tubificida	Naididae	Tubificinae spp.	11	0	0	0	0		9.5	0.54	0	11	0	0	0	
Annelida		Clitellata	Oligochaeta	Tubificida	Naididae	*Aulodrilus limnobius*	3	0	0	0	0		6.1	0.09	0	3	0	0	0	
Annelida		Clitellata	Oligochaeta	Tubificida	Naididae	*Nais variabilis*	2	0	0	0	0		8.7	0.09	0	2	0	0	0	
Annelida		Clitellata	Oligochaeta	Tubificida	Naididae	*Nais pardalis*	3	0	0	0	0		8.7	0.13	0	3	0	0	0	
Annelida		Clitellata	Oligochaeta	Tubificida	Naididae	*Dero* spp.	1	0	0	0	0		9.8	0.05	0	1	0	0	0	
Annelida		Clitellata	Oligochaeta	Tubificida	Naididae	*Slavina appendiculata*	5	0	0	0	0		8.4	0.22	0	5	0	0	0	
Annelida		Clitellata	Oligochaeta	Lumbriculida	Lumbriculidae	Lumbriculidae spp.	2	0	0	0	0		8	0.08	0	2	0	0	0	
Mollusca		Gastropoda				Gastropoda spp.	1	0	0	0	0		7	0.04	0	0	1	0	0	
Mollusca		Gastropoda	Heterobranchia	Hygrophila	Physidae	*Physa acuta*	6	0	0	0	0		8.84	0.27	0	0	6	0	6	
Mollusca		Gastropoda	Heterobranchia	Hygrophila	Planorbidae	*Menetus* spp.	6	0	0	0	0		7.6	0.23	0	0	6	0	6	
Mollusca		Gastropoda	Heterobranchia	Hygrophila	Planorbidae	*Planorbella scalaris*	2	0	0	0	0		6.82	0.07	0	0	2	0	2	
Mollusca		Bivalvia	Autobranchia	Venerida	Cyrenidae	*Corbicula* spp.	1	0	0	0	0		6.12	0.03	0	0	1	0	0	
Mollusca		Bivalvia	Autobranchia	Sphaeriida	Sphaeriidae	Sphaeriidae spp.	36	0	0	0	0	36	6.6	1.22	0	0	36	0	0	36
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Isopoda	Asellidae	*Caecidotea* spp.	4	0	0	0	0		8.4	0.17	0	0	4	0	0	
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda		Gammarida spp.	2	0	0	0	0		6.6	0.07	0	0	2	0	2	
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Gammaridae	*Gammarus* spp.	4	0	0	0	0		6.6	0.14	0	0	4	0	4	
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Decapoda	Cambaridae	Cambaridae spp.	1	0	0	0	0		7.5	0.04	0	0	1	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Ephemeroptera	Caenidae	*Caenis punctata*	4	4	0	0	0		7.41	0.15	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Trichoptera	Hydropsychidae	Hydropsychidae spp.	3	0	0	3	0		4	0.06	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Coleoptera	Elmidae	*Dubiraphia* spp.	3	0	0	0	0		5.5	0.08	3	0	0	0	3	
Arthropoda	Hexapoda	Insecta	Pterygota	Coleoptera	Elmidae	*Stenelmis* spp.	3	0	0	0	0		5.6	0.09	3	0	0	0	3	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera		Diptera spp.	1	0	0	0	0		7	0.04	0	0	1	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	Chironomidae spp.	7	0	0	0	7		6.2	0.22	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	Chironominae spp.	2	0	0	0	2		6.2	0.06	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	Tanypodinae spp.	1	0	0	0	1		7	0.04	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	Orthocladiinae spp.	4	0	0	0	4		5	0.10	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Chironomus* spp.	1	0	0	0	1		9.3	0.05	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Cladotanytarsus* spp.	3	0	0	0	3		9.3	0.14	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Tanytarsus* spp.	16	0	0	0	16		6.6	0.54	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Polypedilum flavum*	3	0	0	0	3		5.7	0.09	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Polypedilum illinoense* group	4	0	0	0	4		8.7	0.18	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Rheotanytarsus* spp.	19	0	0	0	19		6.5	0.63	0	0	0	0	0	19
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Tanypus* spp.	1	0	0	0	1		7	0.04	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Orthocladius* spp.	3	0	0	0	3		4.4	0.07	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Cladopelma* spp.	1	0	0	0	1		9.3	0.05	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Nanocladius* spp.	1	0	0	0	1		7.4	0.04	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Parachironomus* spp.	1	0	0	0	1		4.4	0.02	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Paratanytarsus* spp.	1	0	0	0	1		8.45	0.04	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Thienemannimyia* grp. sp.	2	0	0	0	2		8.4	0.09	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Zavreliella marmorata*	1	0	0	0	1		6.1	0.03	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Ceratopogonidae	Ceratopogoninae spp.	3	0	0	0	0		5.9	0.09	0	0	3	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Ceratopogonidae	*Forcipomyia* spp.	1	0	0	0	0		6.6	0.03	0	0	1	0	1	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Tipulidae	*Tipula* spp.	3	0	0	0	0		7.5	0.12	0	0	3	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Simuliidae	*Simulium* spp.	1	0	0	0	0		4.9	0.03	0	0	1	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Psychodidae	Psychodidae spp.	2	0	0	0	0		6.9	0.07	0	0	2	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Ephydridae	*Parydra* spp.	4	0	0	0	0		6	0.12	0	0	4	0	0	
Arthropoda	Chelicerata	Arachnida	Acari	Trombidiformes	Hygrobatidae	*Hygrobates* spp.	2	0	0	0	0		6.5	0.07	0	0	2	0	2	
Arthropoda	Chelicerata	Arachnida	Acari	Sarcoptiformes		Oribatida spp.	1	0	0	0	0		4	0.02	0	0	1	0	0	
Nematoda						Nematoda spp.	2	0	0	0	0		5	0.05	0	0	2	0	0	

Percent Model Affinity		Difference from Model %
Model % Ephemeroptera	40	37.95
Model % Plecoptera	5	5.00
Model % Trichoptera	10	8.46
Model % Chironomidae	20	16.41
Model % Coleoptera	10	6.92
Model % Oligochaeta	5	9.36
Model % Other	10	32.56
Sum of Difference		116.67
Sum of Difference * 0.5		58.33
Percent Model Affinity		41.67
Percent Model Affinity Category		Moderately Impacted

Metric	Value	VSCI metrics	Adjusted VSCI metrics
Species Richness	50	227.27	100.00
Total Abundance	195		
% Ephemeroptera	2.05	3.35	3.35
% Plecoptera	0.00		
% Trichoptera	1.54		
% Chironomidae	36.41	63.59	63.59
% Dominant Taxon	18.46		
Biotic Index	6.94	45.06	45.06
% Coleoptera	3.08		
% Oligochaeta	14.36		
% Other	42.56		
% Plecoptera + Trichoptera (less Hydropsychidae)	0.00	0.00	0.00
% Scrapers	14.87	28.82	28.82
% Top 2 Dominant Taxa	28.21	103.75	100.00
EPT Index	2	18.18	18.18
EPT/EPT + Chironomidae Ratio	0.09		

Hilsenhoff Biotic Index Category	Fairly Poor

Final VSCI score	44.88

Created By: NFP
Checked By: SEM
Source: Wood, 2022

Little Bull Run
Multiple Habitat Sampling
Sample Collected: 3-May-2022
Project #: 151280001.001

Results for Little Bull Run

Phylum	Subphylum	Class	Subclass	Order	Family	Taxa	Raw Abundance	Ephemeroptera	Plecoptera	Trichoptera	Chironomidae	Dominant Taxon	Tolerance Values	Tolerance Values * Individual Abundance/Total Abundance	Coleoptera	Oligochaeta	Other	Plecoptera & Trichoptera (less Hydropsychidae)	Scrapers	Top 2 Dominant Taxa
Platyhelminthes						Platyhelminthes spp.	1	0	0	0	0			0.00	0	0	1	0	0	
Annelida		Clitellata	Oligochaeta	Tubificida	Naididae	Tubificinae spp.	1	0	0	0	0		9.5	0.05	0	1	0	0	0	
Annelida		Clitellata	Oligochaeta	Tubificida	Naididae	*Nais pardalis*	1	0	0	0	0		8.7	0.04	0	1	0	0	0	
Mollusca		Gastropoda	Heterobranchia	Hygrophila	Physidae	*Physa acuta*	7	0	0	0	0		8.84	0.32	0	0	7	0	7	
Mollusca		Gastropoda	Heterobranchia	Hygrophila	Planorbidae	Planorbidae spp.	7	0	0	0	0		6.3	0.23	0	0	7	0	7	
Mollusca		Bivalvia	Autobranchia	Sphaeriida	Sphaeriidae	Sphaeriidae spp.	9	0	0	0	0		6.6	0.30	0	0	9	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Ephemeroptera	Caenidae	Caenidae spp.	9	9	0	0	0		8.4	0.39	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Ephemeroptera	Caenidae	*Caenis* spp.	2	2	0	0	0		6.8	0.07	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Ephemeroptera	Caenidae	*Caenis diminuta*	43	43	0	0	0	43	7.41	1.63	0	0	0	0	0	43
Arthropoda	Hexapoda	Insecta	Pterygota	Ephemeroptera	Heptageniidae	Heptageniidae spp.	1	1	0	0	0		4	0.02	0	0	0	0	1	
Arthropoda	Hexapoda	Insecta	Pterygota	Coleoptera	Elmidae	*Dubiraphia* spp.	7	0	0	0	0		5.5	0.20	7	0	0	0	7	
Arthropoda	Hexapoda	Insecta	Pterygota	Coleoptera	Elmidae	*Stenelmis* spp.	17	0	0	0	0		5.6	0.49	17	0	0	0	17	17
Arthropoda	Hexapoda	Insecta	Pterygota	Coleoptera	Elmidae	*Macronychus glabratus*	3	0	0	0	0		4.7	0.07	3	0	0	0	3	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera		Diptera spp.	2	0	0	0	0		7	0.07	0	0	2	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	Chironomidae spp.	7	0	0	0	7		6.2	0.22	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	Orthocladiinae spp.	2	0	0	0	2		5	0.05	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Chironomus* spp.	1	0	0	0	1		9.3	0.05	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Tanytarsus* spp.	10	0	0	0	10		6.6	0.34	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Rheotanytarsus* spp.	12	0	0	0	12		6.5	0.40	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Ablabesmyia mallochi*	1	0	0	0	1		7.4	0.04	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Tribelos fuscicorne*	1	0	0	0	1		5.1	0.03	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Dicrotendipes* spp.	9	0	0	0	9		7.2	0.33	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Pentaneura inconspicua*	3	0	0	0	3		5	0.08	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Cricotopus* spp.	2	0	0	0	2		5.78	0.06	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Corynoneura* spp.	2	0	0	0	2		5.7	0.06	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Pseudochironomus* spp.	1	0	0	0	1		2.35	0.01	0	0	0	0	1	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Orthocladius* spp.	2	0	0	0	2		4.4	0.04	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Thienemanniella xena*	8	0	0	0	8		8	0.33	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Nanocladius* spp.	2	0	0	0	2		7.4	0.08	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Rheocricotopus* spp.	6	0	0	0	6		4.7	0.14	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Cricotopus* or *Orthocladius*	16	0	0	0	16		4.86	0.40	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Ceratopogonidae	Ceratopogoninae spp.	1	0	0	0	0		5.9	0.03	0	0	1	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Simuliidae	*Simulium* spp.	1	0	0	0	0		4.9	0.03	0	0	1	0	0	

Percent Model Affinity		Difference from Model %
Model % Ephemeroptera	40	12.08
Model % Plecoptera	5	5.00
Model % Trichoptera	10	10.00
Model % Chironomidae	20	23.15
Model % Coleoptera	10	3.71
Model % Oligochaeta	5	3.98
Model % Other	10	4.21
Sum of Difference		62.13
Sum of Difference * 0.5		31.07
Percent Model Affinity		68.93
Percent Model Affinity Category		Non-Impacted

Metric	Value	VSCI metrics	Adjusted VSCI metrics
Species Richness	33	150.00	100.00
Total Abundance	197		
% Ephemeroptera	27.92	45.54	45.54
% Plecoptera	0.00		
% Trichoptera	0.00		
% Chironomidae	43.15	56.85	56.85
% Dominant Taxon	21.83		
Biotic Index	6.56	50.58	50.58
% Coleoptera	13.71		
% Oligochaeta	1.02		
% Other	14.21		
% Plecoptera + Trichoptera (less Hydropsychidae)	0.00	0.00	0.00
% Scrapers	21.83	42.30	42.30
% Top 2 Dominant Taxa	30.46	100.50	100.00
EPT Index	4	36.36	36.36
EPT/EPT + Chironomidae Ratio	0.39		

Hilsenhoff Biotic Index Category	Fairly Poor

Final VSCI score	53.96

Created By: NFP
Checked By: SEM
Source: Wood, 2022

Neabsco Creek
Multiple Habitat Sampling
Sample Collected: 5-May-2022
Project #: 151280001.001

Results for Neabsco Creek

Phylum	Subphylum	Class	Subclass	Order	Family	Taxa	Raw Abundance	Ephemeroptera	Plecoptera	Trichoptera	Chironomidae	Dominant Taxon	Tolerance Values	Tolerance Values * Individual Abundance/Total Abundance	Coleoptera	Oligochaeta	Other	Plecoptera & Trichoptera (less Hydropsychidae)	Scrapers	Top 2 Dominant Taxa
Annelida		Clitellata	Oligochaeta	Tubificida	Naididae	Tubificinae spp.	1	0	0	0	0		9.5	0.04	0	1	0	0	0	
Annelida		Clitellata	Oligochaeta	Tubificida	Naididae	*Pristina americana*	1	0	0	0	0		4	0.02	0	1	0	0	0	
Annelida		Clitellata	Oligochaeta	Tubificida	Naididae	*Nais* spp.	1	0	0	0	0		8.7	0.04	0	1	0	0	0	
Annelida		Clitellata	Oligochaeta	Tubificida	Naididae	*Nais behningi*	3	0	0	0	0		8.7	0.11	0	3	0	0	0	
Annelida		Clitellata	Oligochaeta	Tubificida	Naididae	*Paranais frici*	6	0	0	0	0			0.00	0	6	0	0	0	
Annelida		Clitellata	Oligochaeta	Tubificida	Naididae	*Slavina appendiculata*	1	0	0	0	0		8.4	0.04	0	1	0	0	0	
Annelida		Clitellata	Oligochaeta	Tubificida	Naididae	*Chaetogaster diaphanus*	1	0	0	0	0		5.9	0.03	0	1	0	0	0	
Annelida		Clitellata	Oligochaeta	Enchytraeida	Enchytraeidae	Enchytraeidae spp.	2	0	0	0	0		9.84	0.09	0	2	0	0	0	
Mollusca		Gastropoda	Heterobranc	Hygrophila	Physidae	*Physa acuta*	2	0	0	0	0		8.84	0.08	0	0	2	0	2	
Mollusca		Bivalvia	Autobranchia	Sphaeriida	Sphaeriidae	Sphaeriidae spp.	3	0	0	0	0		6.6	0.09	0	0	3	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Ephemeroptera	Baetidae	Baetidae spp.	32	32	0	0	0	32	6.1	0.85	0	0	0	0	0	32
Arthropoda	Hexapoda	Insecta	Pterygota	Ephemeroptera	Baetidae	*Baetis intercalaris*	28	28	0	0	0		5	0.61	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Trichoptera		Trichoptera spp.	3	0	0	3	0			0.00	0	0	0	3	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Trichoptera	Hydropsychidae	Hydropsychidae spp.	3	0	0	3	0		4	0.05	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Trichoptera	Hydropsychidae	*Hydropsyche betteni/depravata/potomacensis*	1	0	0	1	0		7.9	0.03	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera		Diptera spp.	4	0	0	0	0		7	0.12	0	0	4	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	Chironomidae spp.	22	0	0	0	22		6.2	0.60	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	Tanypodinae spp.	1	0	0	0	1		7	0.03	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	Orthocladiinae spp.	31	0	0	0	31		5	0.68	0	0	0	0	0	31
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	Tanytarsini spp.	1	0	0	0	1		7	0.03	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Tanytarsus* spp.	2	0	0	0	2		6.6	0.06	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Polypedilum flavum*	1	0	0	0	1		5.7	0.02	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Polypedilum illinoense* group	1	0	0	0	1		8.7	0.04	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Rheotanytarsus* spp.	12	0	0	0	12		6.5	0.34	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Tribelos fuscicorne*	2	0	0	0	2		5.1	0.04	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Orthocladius* spp.	21	0	0	0	21		4.4	0.40	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Cladopelma* spp.	1	0	0	0	1		9.3	0.04	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Thienemanniella xena*	10	0	0	0	10		8	0.35	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Apedilum* spp.	1	0	0	0	1		5.69	0.02	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Parametriocnemus* spp.	7	0	0	0	7		3.9	0.12	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Rheocricotopus* spp.	1	0	0	0	1		4.7	0.02	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Cricotopus* or *Orthocladius*	17	0	0	0	17		4.86	0.36	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Limoniidae	*Antocha* spp.	1	0	0	0	0		4.4	0.02	0	0	1	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Simuliidae	*Simulium* spp.	8	0	0	0	0		4.9	0.17	0	0	8	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Heteroptera	Gerridae	Gerridae spp.	1	0	0	0	0		7	0.03	0	0	1	0	0	
Arthropoda	Chelicerata	Arachnida	Acari	Trombidiformes	Sperchonidae	*Sperchon* spp.	1	0	0	0	0			0.00	0	0	1	0	0	
Arthropoda	Chelicerata	Arachnida	Acari	Trombidiformes	Lebertiidae	*Lebertia* spp.	1	0	0	0	0		8	0.03	0	0	1	0	0	
Nematoda						Nematoda spp.	1	0	0	0	0		5	0.02	0	0	1	0	0	

Percent Model Affinity		Difference from Model %
Model % Ephemeroptera	40	14.58
Model % Plecoptera	5	5.00
Model % Trichoptera	10	7.03
Model % Chironomidae	20	35.51
Model % Coleoptera	10	10.00
Model % Oligochaeta	5	1.78
Model % Other	10	0.68
Sum of Difference		74.58
Sum of Difference * 0.5		37.29
Percent Model Affinity		62.71
Percent Model Affinity Category		Slightly Impacted

Metric	Value	VSCI metrics	Adjusted VSCI metrics
Species Richness	38	172.73	100.00
Total Abundance	236		
% Ephemeroptera	25.42	41.47	41.47
% Plecoptera	0.00		
% Trichoptera	2.97		
% Chironomidae	55.51	44.49	44.49
% Dominant Taxon	13.56		
Biotic Index	5.63	64.24	64.24
% Coleoptera	0.00		
% Oligochaeta	6.78		
% Other	9.32		
% Plecoptera + Trichoptera (less Hydropsychidae)	1.27	3.57	3.57
% Scrapers	0.85	1.64	1.64
% Top 2 Dominant Taxa	26.69	105.93	100.00
EPT Index	5	45.45	45.45
EPT/EPT + Chironomidae Ratio	0.34		

Hilsenhoff Biotic Index Category	Fair

Final VSCI score	50.11

Created By: NFP
Checked By: SEM
Source: Wood, 2022

Purcell Branch
Multiple Habitat Sampling
Sample Collected: 4-May-2022
Project #: 151280001.001

Results for Purcell Branch

Phylum	Subphylum	Class	Subclass	Order	Family	Taxa	Raw Abundance	Ephemeroptera	Plecoptera	Trichoptera	Chironomidae	Dominant Taxon	Tolerance Values	Tolerance Values * Individual Abundance/Total Abundance	Coleoptera	Oligochaeta	Other	Plecoptera & Trichoptera (less Hydropsychidae)	Scrapers	Top 2 Dominant Taxa
Annelida		Clitellata	Oligochaeta	Tubificida	Naididae	Tubificinae spp.	1	0	0	0	0		9.5	0.06	0	1	0	0	0	
Annelida		Clitellata	Oligochaeta	Tubificida	Naididae	*Nais behningi*	1	0	0	0	0		8.7	0.05	0	1	0	0	0	
Mollusca		Gastropoda	Heterobranc	Hygrophila	Physidae	Physa acuta	2	0	0	0	0		8.84	0.11	0	0	2	0	2	
Arthropoda	Hexapoda	Insecta	Pterygota	Ephemeroptera	Baetidae	Baetidae spp.	7	7	0	0	0		6.1	0.27	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Trichoptera		Trichoptera spp.	21	0	0	21	0			0.00	0	0	0	21	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Trichoptera	Hydropsychidae	*Hydropsychidae spp.*	4	0	0	4	0		4	0.10	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Trichoptera	Hydropsychidae	Cheumatopsyche spp.	1	0	0	1	0		6.6	0.04	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Trichoptera	Glossosomatidae	Glossosoma intermedium	1	0	0	1	0		1.55	0.01	0	0	0	1	1	
Arthropoda	Hexapoda	Insecta	Pterygota	Coleoptera	Elmidae	*Stenelmis spp.*	4	0	0	0	0		5.6	0.14	4	0	0	0	4	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	Chironomidae spp.	7	0	0	0	7		6.2	0.27	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	Orthocladiinae spp.	25	0	0	0	25	25	5	0.78	0	0	0	0	0	25
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	Tanytarsus spp.	6	0	0	0	6		6.6	0.25	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	Polypedilum flavum	2	0	0	0	2		5.7	0.07	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	Rheotanytarsus spp.	8	0	0	0	8		6.5	0.32	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	Tribelos fuscicorne	1	0	0	0	1		5.1	0.03	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	Dicrotendipes spp.	2	0	0	0	2		7.2	0.09	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Paracladopelma spp.*	2	0	0	0	2		4.4	0.05	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	Corynoneura spp.	8	0	0	0	8		5.7	0.28	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	Orthocladius spp.	11	0	0	0	11		4.4	0.30	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	Cladopelma spp.	1	0	0	0	1		9.3	0.06	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	Thienemanniella xena	14	0	0	0	14		8	0.70	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	Nanocladius spp.	1	0	0	0	1		7.4	0.05	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	Thienemannimyia grp. sp.	3	0	0	0	3		8.4	0.16	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	Parametriocnemus spp.	22	0	0	0	22		3.9	0.53	0	0	0	0	0	22
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	Cricotopus or Orthocladius	19	0	0	0	19		4.86	0.57	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	Smittia spp.	1	0	0	0	1		8.4	0.05	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Tipulidae	*Tipula spp.*	2	0	0	0	0		7.5	0.09	0	0	2	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Simuliidae	Simulium spp.	3	0	0	0	0		4.9	0.09	0	0	3	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Tabanidae	*Tabanidae spp.*	1	0	0	0	0		6.3	0.04	0	0	1	0	0	
Arthropoda	Hexapoda	Collembola				Collembola spp.	1	0	0	0	0		6.1	0.04	0	0	1	0	0	
Arthropoda	Chelicerata	Arachnida	Acari	Trombidiformes	Sperchonidae	Sperchon spp.	2	0	0	0	0			0.00	0	0	2	0	0	

Percent Model Affinity		Difference from Model %
Model % Ephemeroptera	40	36.20
Model % Plecoptera	5	5.00
Model % Trichoptera	10	4.67
Model % Chironomidae	20	52.28
Model % Coleoptera	10	7.83
Model % Oligochaeta	5	3.91
Model % Other	10	4.02
Sum of Difference		113.91
Sum of Difference * 0.5		56.96
Percent Model Affinity		43.04
Percent Model Affinity Category		Moderately Impacted

Metric	Value	VSCI metrics	Adjusted VSCI metrics
Species Richness	31	140.91	100.00
Total Abundance	184		
% Ephemeroptera	3.80	6.21	6.21
% Plecoptera	0.00		
% Trichoptera	14.67		
% Chironomidae	72.28	27.72	27.72
% Dominant Taxon	13.59		
Biotic Index	5.60	64.73	64.73
% Coleoptera	2.17		
% Oligochaeta	1.09		
% Other	5.98		
% Plecoptera + Trichoptera (less Hydropsychidae)	11.96	33.59	33.59
% Scrapers	3.80	7.37	7.37
% Top 2 Dominant Taxa	25.54	107.60	100.00
EPT Index	5	45.45	45.45
EPT/EPT + Chironomidae Ratio	0.20		

Hilsenhoff Biotic Index Category	Fair

Final VSCI score	48.13

Created By: NFP
Checked By: SEM
Source: Wood, 2022

Attachment 2
References

Attachment 2 - References

Barbour, M. T., J. Gerritsen, B. D. Snyder and J. B. Stribling. 1999. Rapid bioassessment protocols for use in wadeable streams and rivers: periphyton, benthic macroinvertebrates, and fish. 2nd ed. EPA 841-B-99-002. U.S. Environmental Protection Agency, Office of Water, Washington, D.C.

Hilsenhoff, W. L. 1987. An improved biotic index of organic stream pollution. The Great Lakes Entomologist 20 (1): 31-39.

Merritt, R. W., K. W. Cummings and M. B. Berg. 2008. An introduction to the aquatic insects of North America. 4th ed. Kendall Hunt Publishing Company, Dubuque, IA.

North Carolina Department of Environmental Quality. 2016. Standard operating procedures for the collection and analysis of benthic macroinvertebrates. Division of Water Resources. Raleigh, North Carolina. February 2016.

Novak, M. A. and R. W. Bode. 1992. Percent model affinity: a new measure of macroinvertebrate community composition. Journal of North American Benthological Society 11 (1): 80-85.

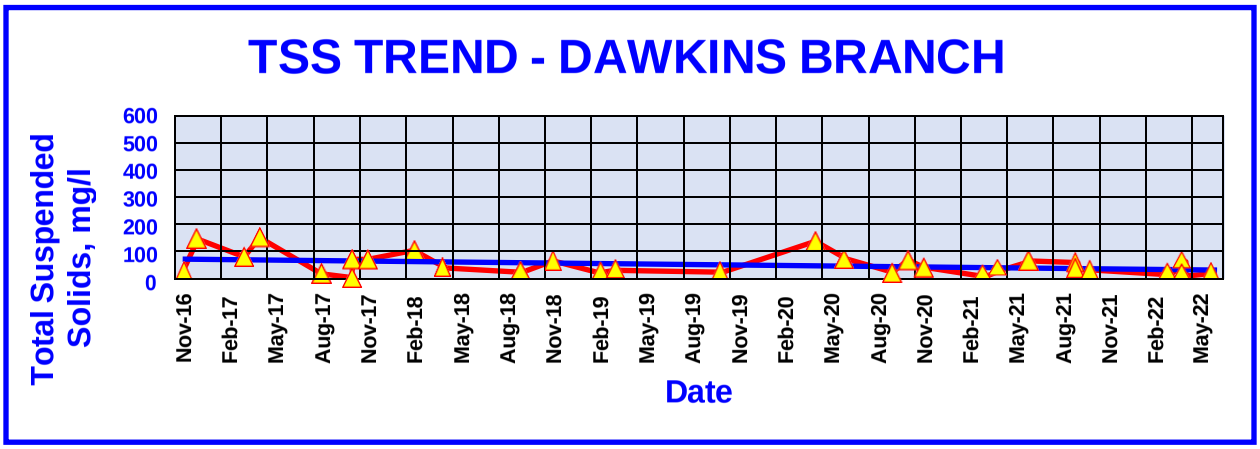
Tennessee Department of Environment and Conservation. 2011. Quality system standard operating procedure for macroinvertebrate stream surveys. Division of Water Pollution Control. Nashville, Tennessee.

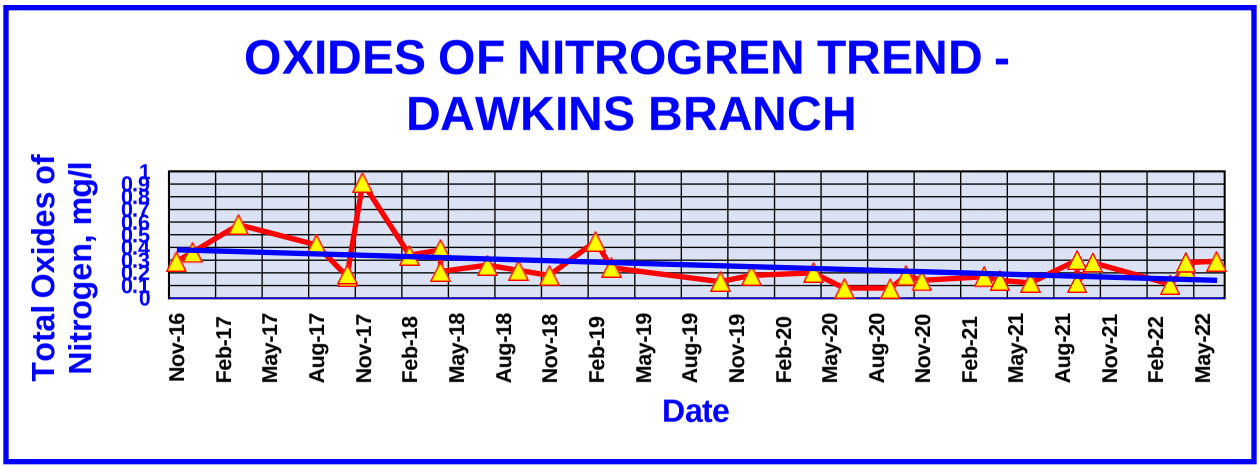
Virginia Department of Environmental Quality. 2008. Biological monitoring program: quality assurance project plan for wadeable streams and rivers. Division of Water Quality, Office of Water Quality Monitoring and Assessment Programs, Richmond, VA.

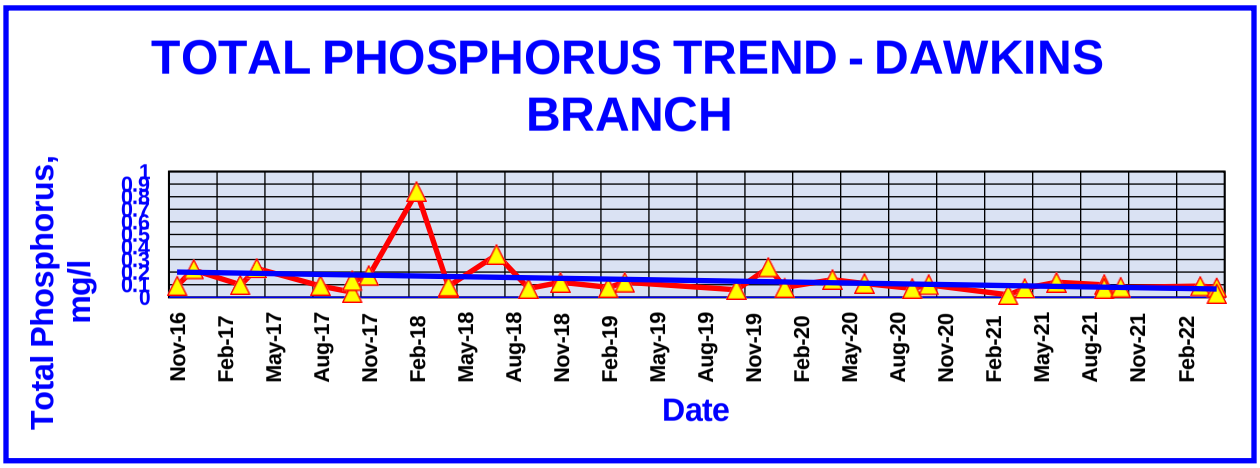
Appendix Q

In-Stream Monitoring Summary

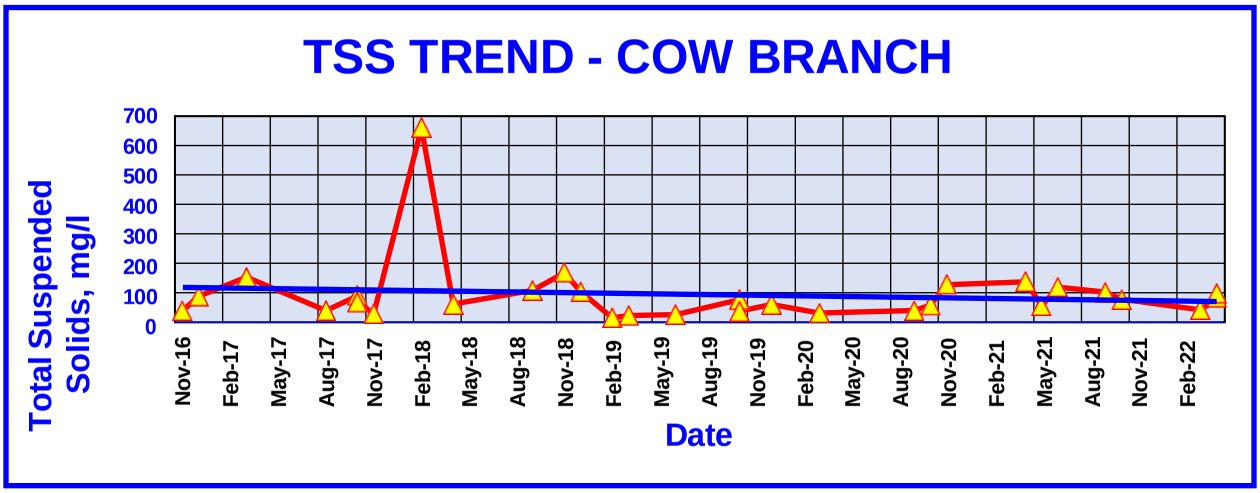
Dawkins Branch

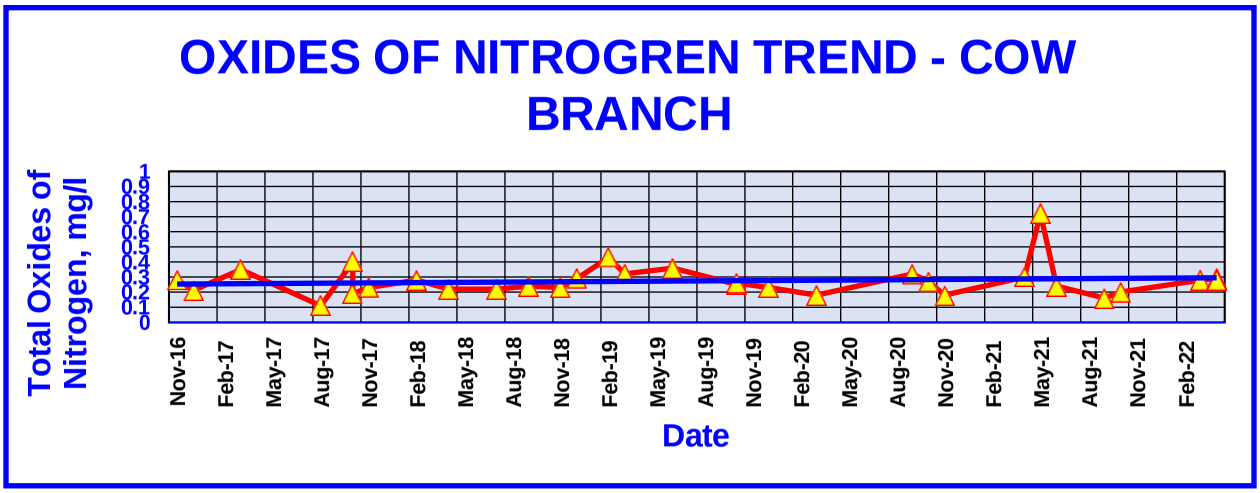


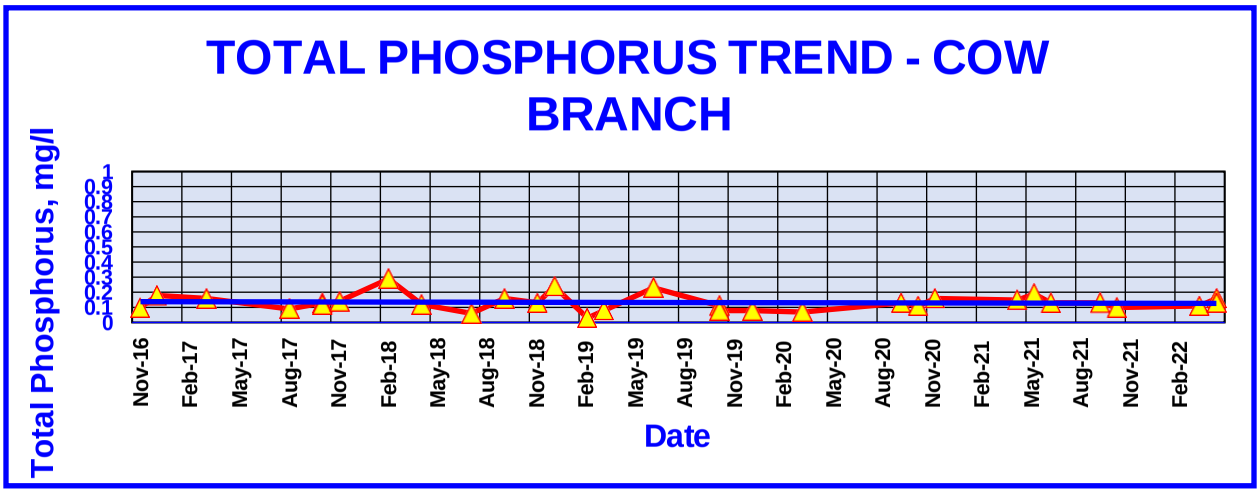




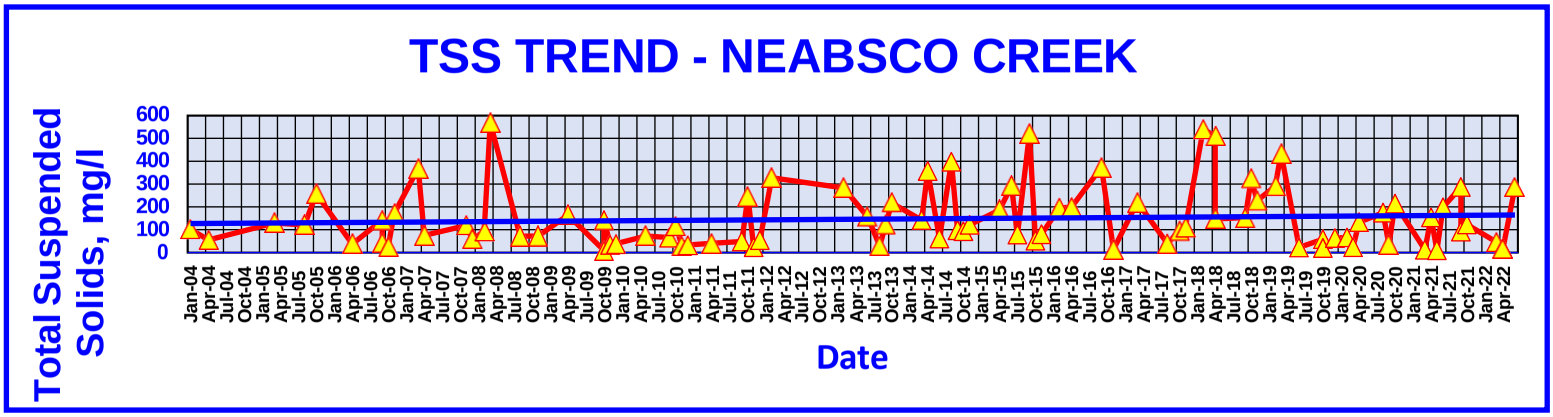
Cow Branch

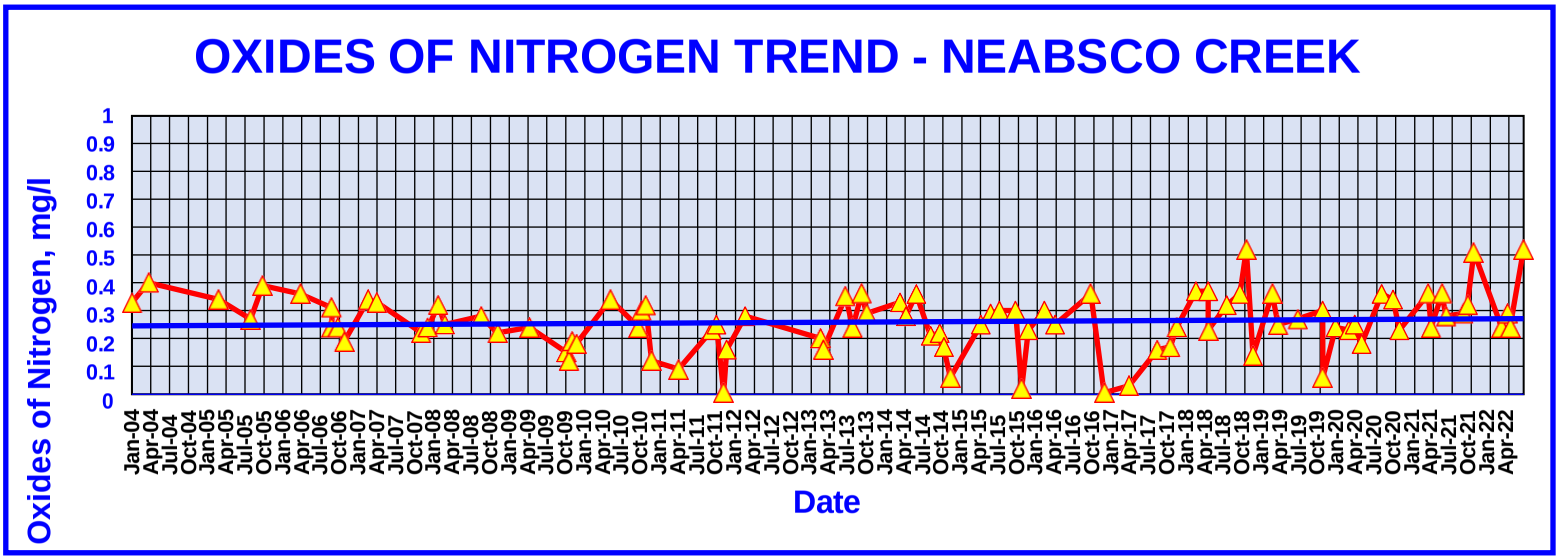

TSS TREND - COW BRANCH
Total Suspended Solids, mg/l
700
600
500
400
300
200
100
0
Nov-16
Feb-17
May-17
Aug-17
Nov-17
Feb-18
May-18
Aug-18
Nov-18
Feb-19
May-19
Aug-19
Nov-19
Feb-20
May-20
Aug-20
Nov-20
Feb-21
May-21
Aug-21
Nov-21
Feb-22
Date

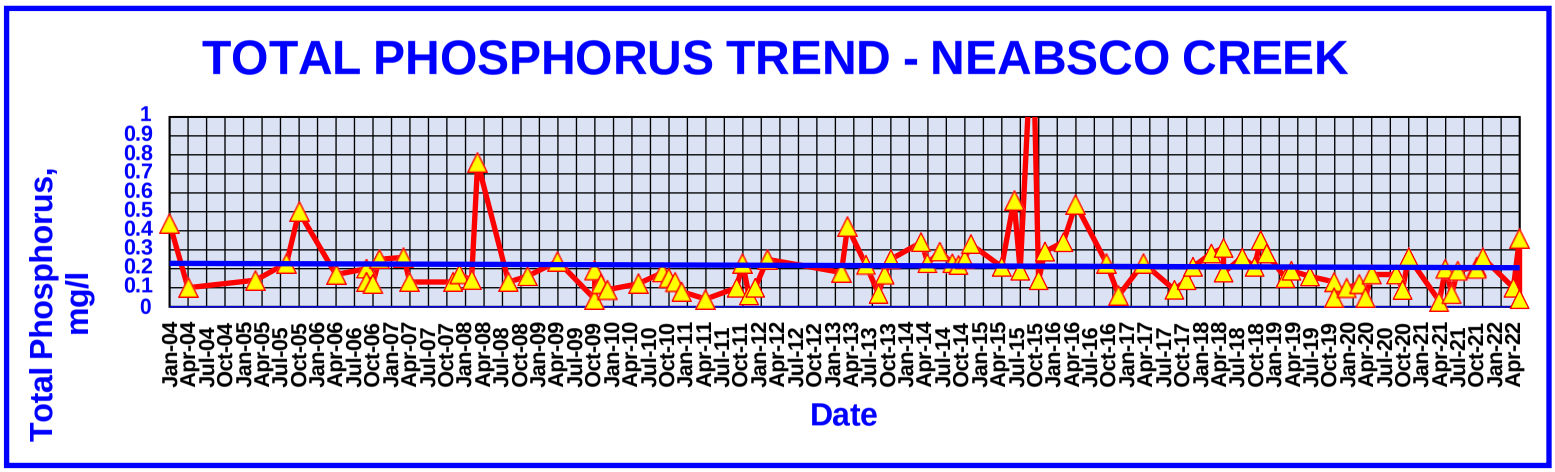

OXIDES OF NITROGREN TREND - COW BRANCH
Total Oxides of Nitrogen, mg/l
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Nov-16
Feb-17
May-17
Aug-17
Nov-17
Feb-18
May-18
Aug-18
Nov-18
Feb-19
May-19
Aug-19
Nov-19
Feb-20
May-20
Aug-20
Nov-20
Feb-21
May-21
Aug-21
Nov-21
Feb-22
Date


TOTAL PHOSPHORUS TREND - COW BRANCH
Total Phosphorus, mg/l
1
0
Nov-16
Feb-17
May-17
Aug-17
Nov-17
Feb-18
May-18
Aug-18
Nov-18
Feb-19
May-19
Aug-19
Nov-19
Feb-20
May-20
Aug-20
Nov-20
Feb-21
May-21
Aug-21
Nov-21
Feb-22
Date

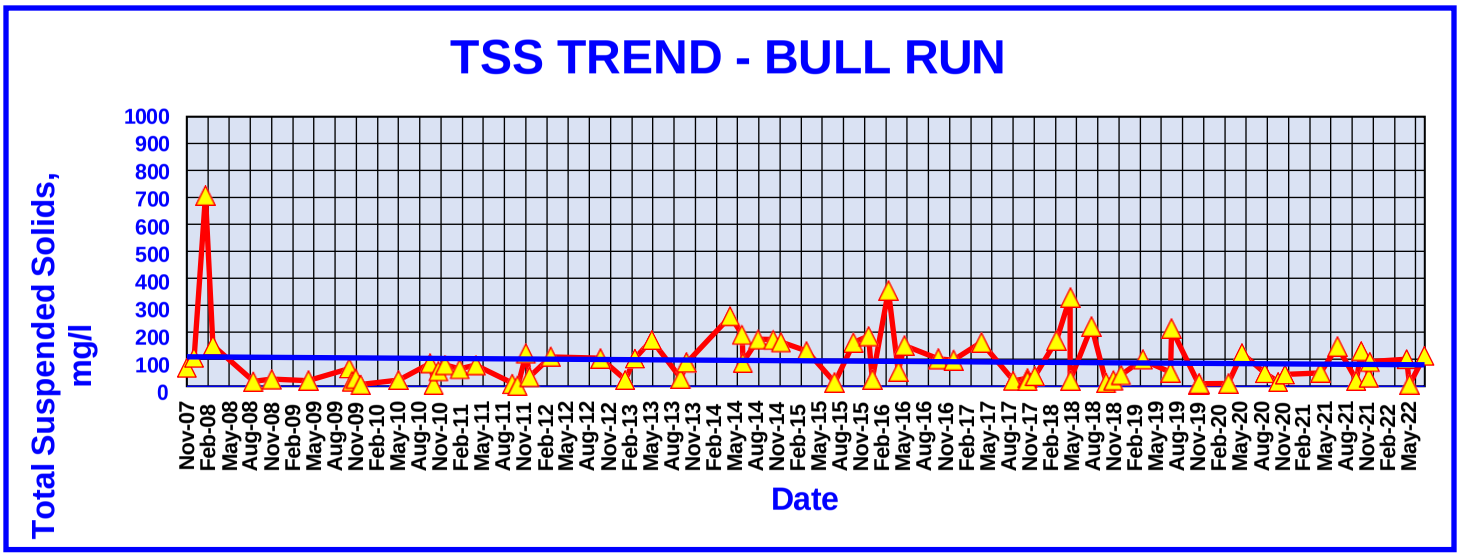
Neabsco Creek

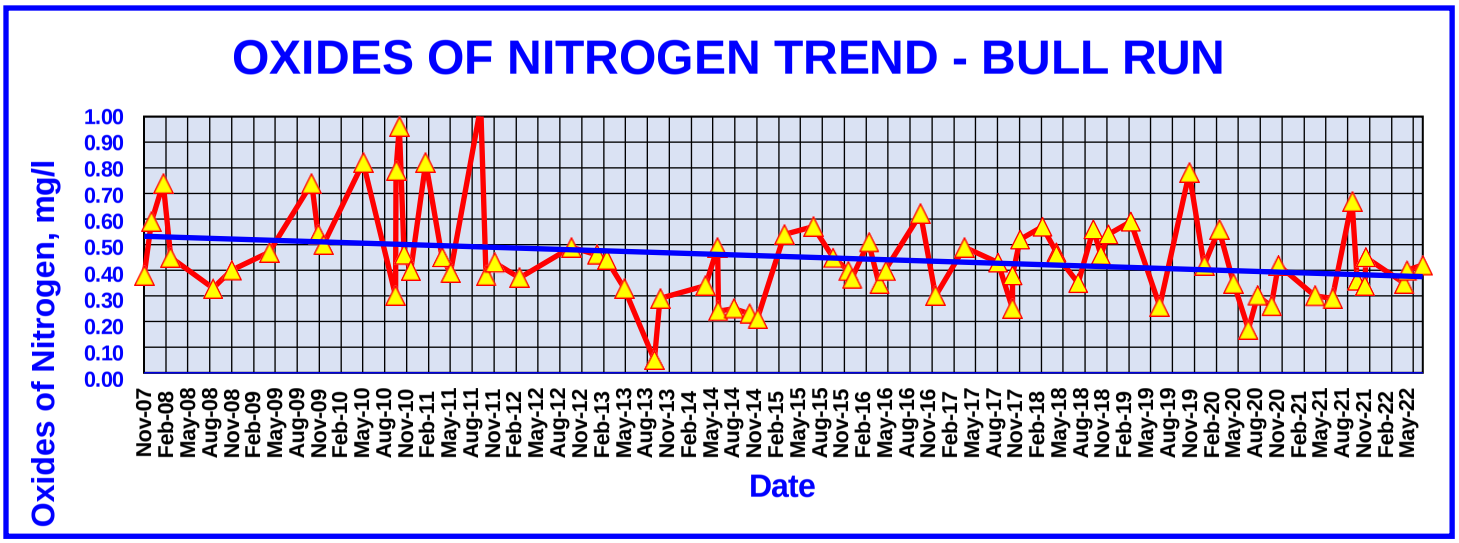


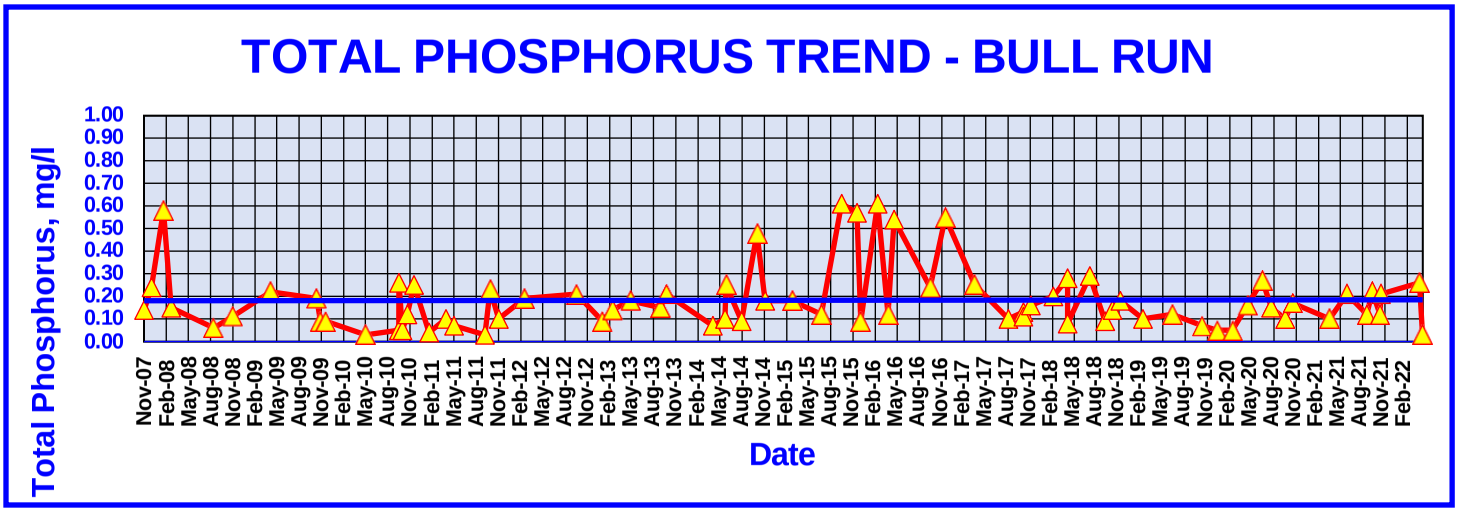




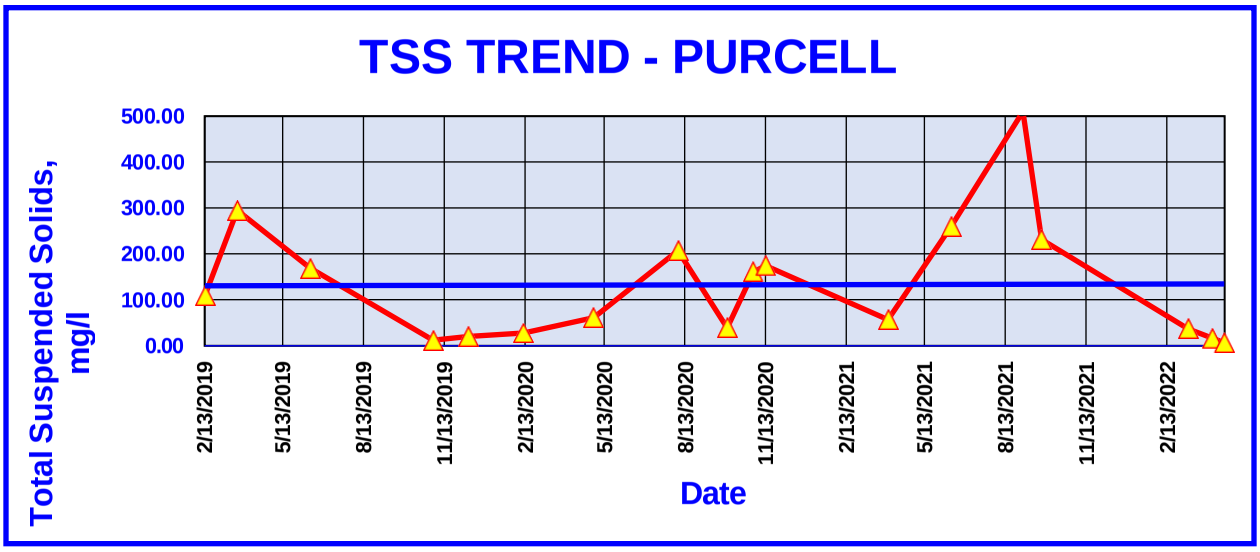
Bull Run

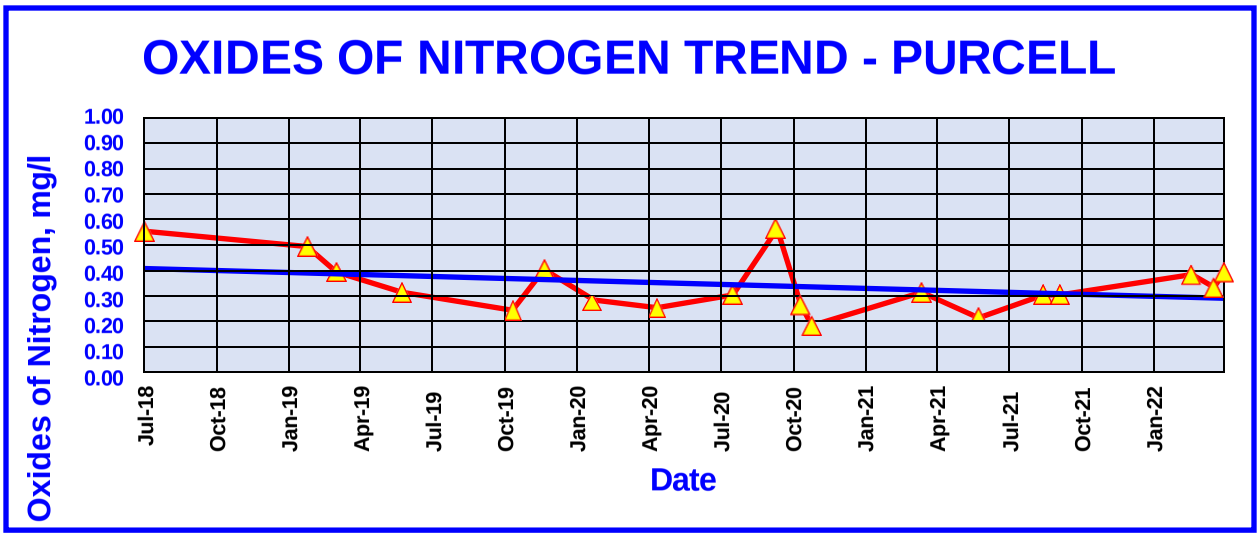

TSS TREND - BULL RUN
Total Suspended Solids, mg/l
1000
900
800
700
600
500
400
300
200
100
0
Nov-07 Feb-08 May-08 Aug-08 Nov-08 Feb-09 May-09 Aug-09 Nov-09 Feb-10 May-10 Aug-10 Nov-10 Feb-11 May-11 Aug-11 Nov-11 Feb-12 May-12 Aug-12 Nov-12 Feb-13 May-13 Aug-13 Nov-13 Feb-14 May-14 Aug-14 Nov-14 Feb-15 May-15 Aug-15 Nov-15 Feb-16 May-16 Aug-16 Nov-16 Feb-17 May-17 Aug-17 Nov-17 Feb-18 May-18 Aug-18 Nov-18 Feb-19 May-19 Aug-19 Nov-19 Feb-20 May-20 Aug-20 Nov-20 Feb-21 May-21 Aug-21 Nov-21 Feb-22 May-22
Date

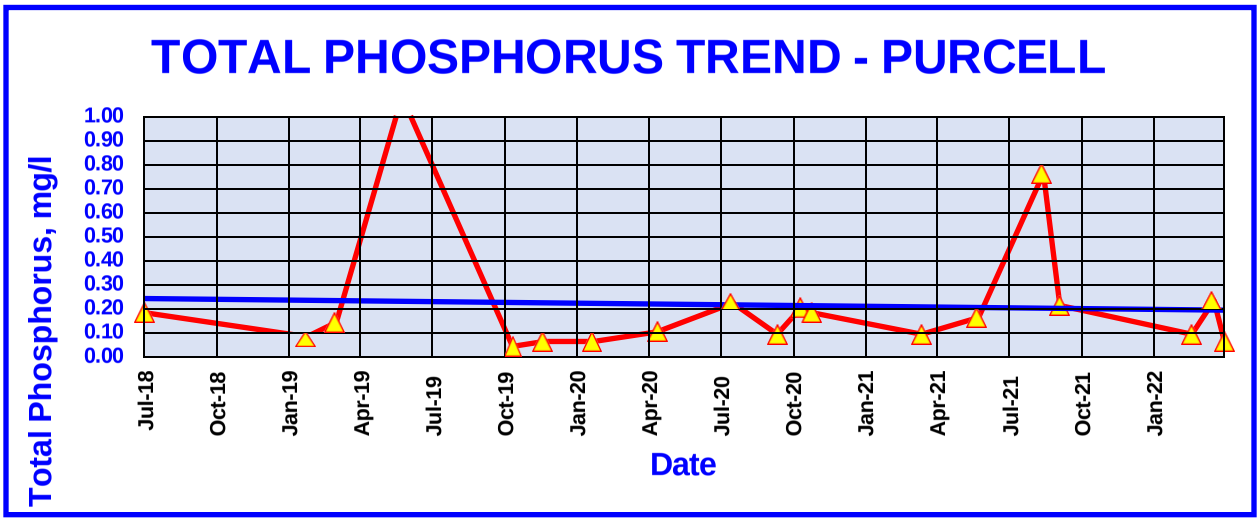

OXIDES OF NITROGEN TREND - BULL RUN
Oxides of Nitrogen, mg/l
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
Nov-07 Feb-08 May-08 Aug-08 Nov-08 Feb-09 May-09 Aug-09 Nov-09 Feb-10 May-10 Aug-10 Nov-10 Feb-11 May-11 Aug-11 Nov-11 Feb-12 May-12 Aug-12 Nov-12 Feb-13 May-13 Aug-13 Nov-13 Feb-14 May-14 Aug-14 Nov-14 Feb-15 May-15 Aug-15 Nov-15 Feb-16 May-16 Aug-16 Nov-16 Feb-17 May-17 Aug-17 Nov-17 Feb-18 May-18 Aug-18 Nov-18 Feb-19 May-19 Aug-19 Nov-19 Feb-20 May-20 Aug-20 Nov-20 Feb-21 May-21 Aug-21 Nov-21 Feb-22 May-22
Date


TOTAL PHOSPHORUS TREND - BULL RUN
Total Phosphorus, mg/l
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
Nov-07 Feb-08 May-08 Aug-08 Nov-08 Feb-09 May-09 Aug-09 Nov-09 Feb-10 May-10 Aug-10 Nov-10 Feb-11 May-11 Aug-11 Nov-11 Feb-12 May-12 Aug-12 Nov-12 Feb-13 May-13 Aug-13 Nov-13 Feb-14 May-14 Aug-14 Nov-14 Feb-15 May-15 Aug-15 Nov-15 Feb-16 May-16 Aug-16 Nov-16 Feb-17 May-17 Aug-17 Nov-17 Feb-18 May-18 Aug-18 Nov-18 Feb-19 May-19 Aug-19 Nov-19 Feb-20 May-20 Aug-20 Nov-20 Feb-21 May-21 Aug-21 Nov-21 Feb-22
Date

Purcell


TSS TREND - PURCELL
Total Suspended Solids, mg/l
500.00
400.00
300.00
200.00
100.00
0.00
2/13/2019
5/13/2019
8/13/2019
11/13/2019
2/13/2020
5/13/2020
8/13/2020
11/13/2020
2/13/2021
5/13/2021
8/13/2021
11/13/2021
2/13/2022
Date


OXIDES OF NITROGEN TREND - PURCELL
Oxides of Nitrogen, mg/l
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
Jul-18
Oct-18
Jan-19
Apr-19
Jul-19
Oct-19
Jan-20
Apr-20
Jul-20
Oct-20
Jan-21
Apr-21
Jul-21
Oct-21
Jan-22
Date


TOTAL PHOSPHORUS TREND - PURCELL
Total Phosphorus, mg/l
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
Jul-18
Oct-18
Jan-19
Apr-19
Jul-19
Oct-19
Jan-20
Apr-20
Jul-20
Oct-20
Jan-21
Apr-21
Jul-21
Oct-21
Jan-22
Date

Appendix R

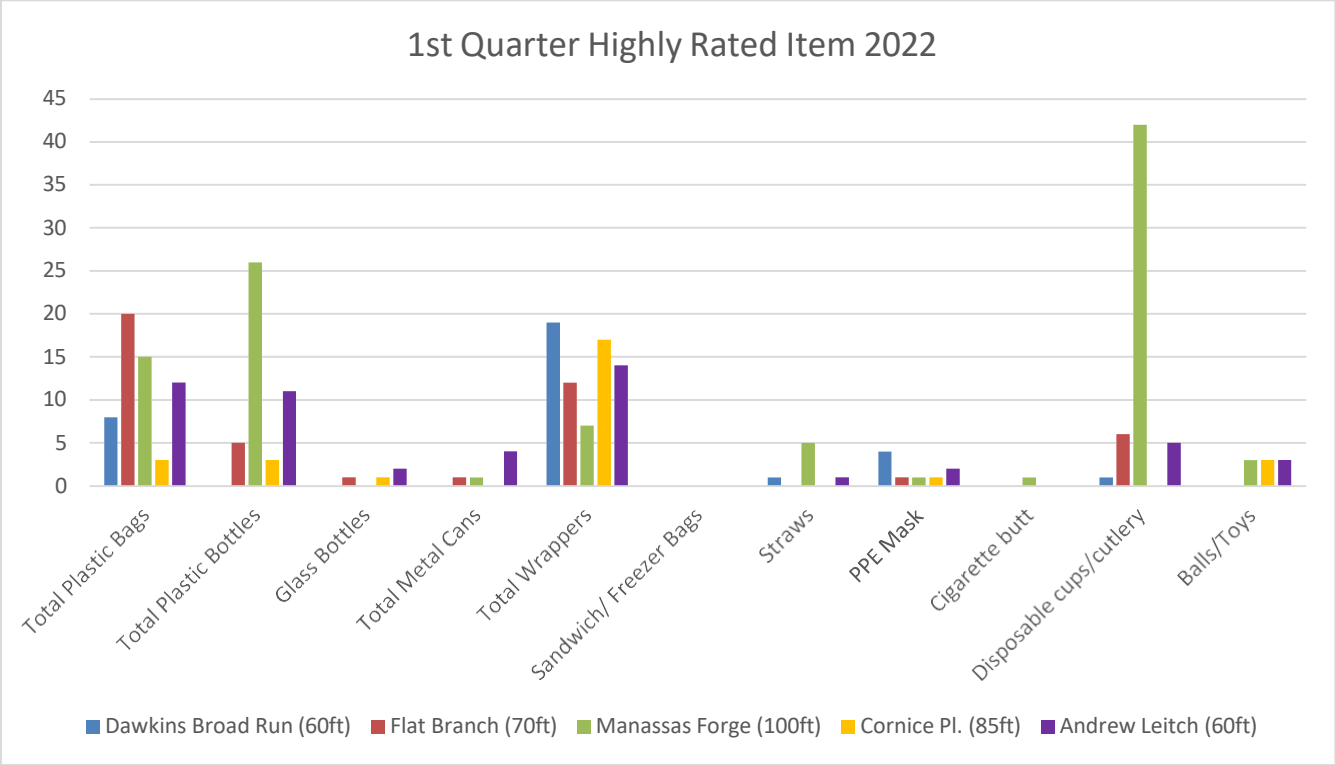
Floatables Monitoring Report

8850 Rixlew Lane, Manassas, VA 20109 Tel. 571.379.7514 Fax. 571.379.8305 www.pwswcd.org

Prince William County Floatable Survey

2022 Fiscal Year Report

Figure 1. Top on the list floatable Items collected during the 1st Quarter

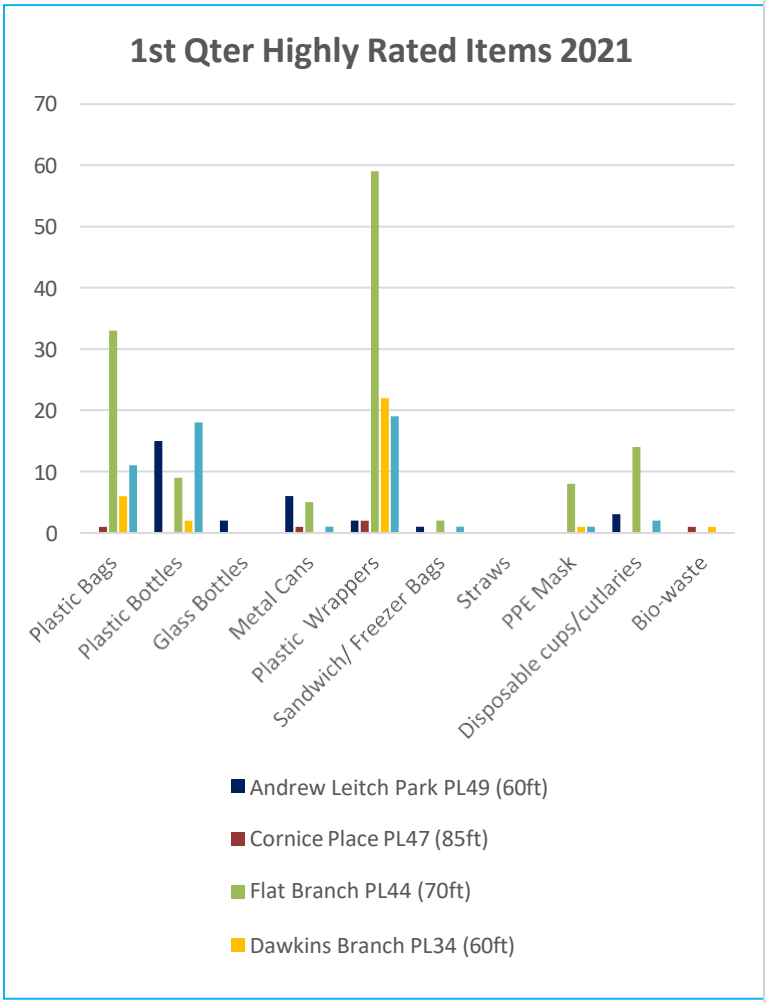


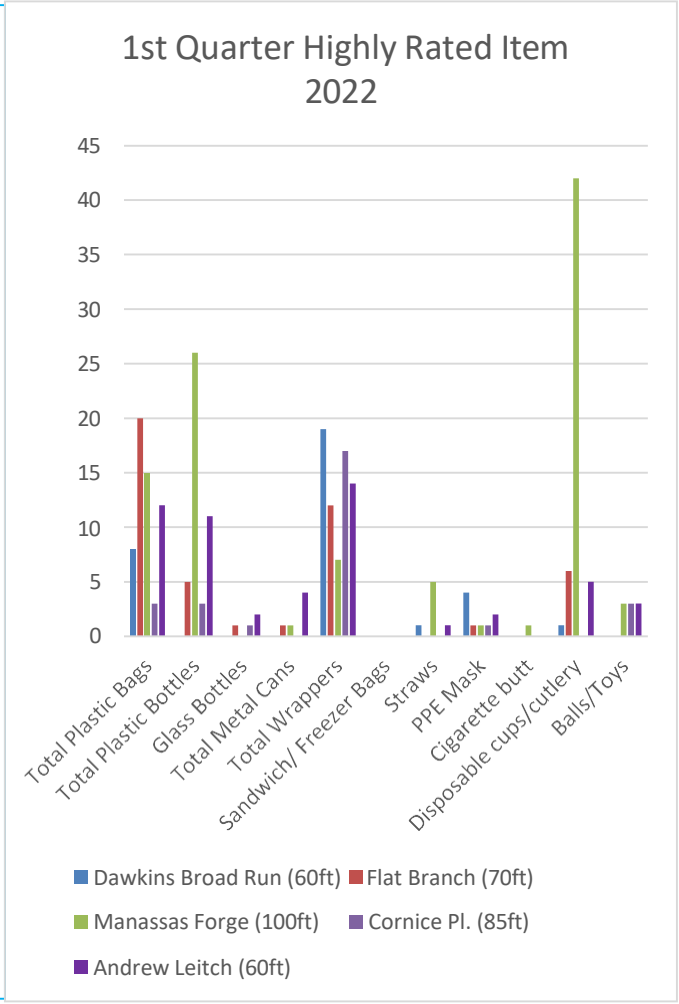
Monitoring during the 1st Quarter showed a high number of plastic wrappers at all five sites which was a similar trend in 2021. This is followed by plastic bags and plastic bottles. Flat Branch was dominant in all three items. Manassas Forge Drive was dominant in plastic bottles and disposable cups and cutleries. (Figure 1).

Comparing 1st Quarter 2021 and 2022 Fiscal year

Comparing the items collected during the 1st Quarter of 2020 to that of 2021 Fiscal year, Dawkin's Branch registered the highest number of plastic wrappers. Flat Branch was dominant in plastic bags. Manassas Forge had the highest number of plastic bottles. PPE was noticed at all sites.

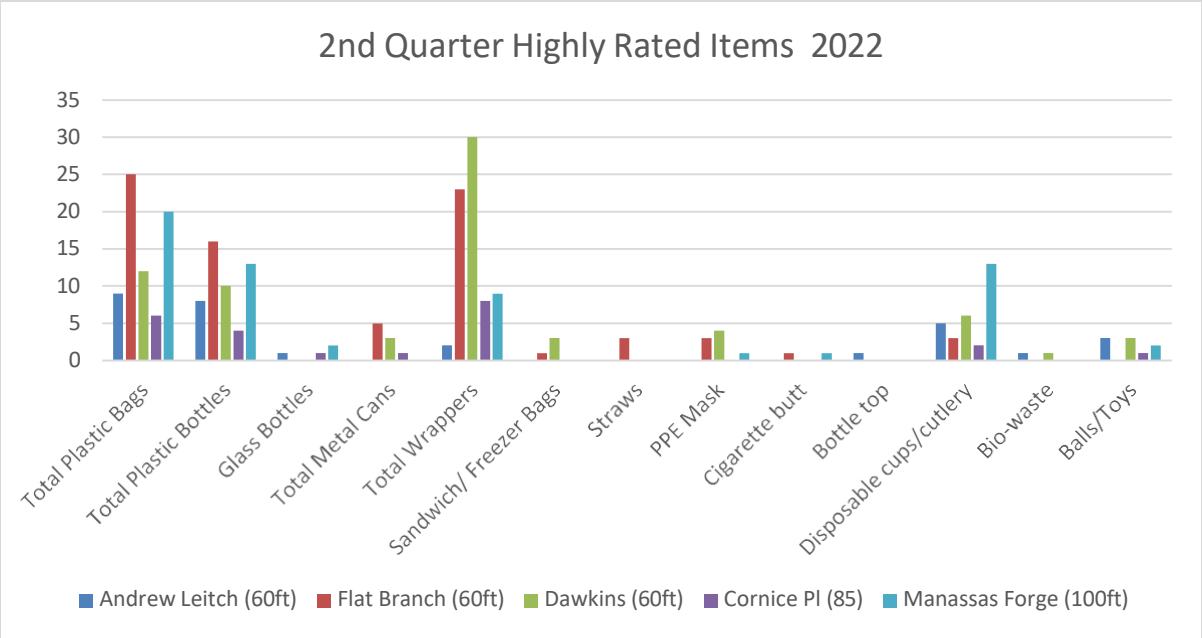
Figure 1a. Comparing 2021 and 2022





Phase 2

Figure 2. Top on the list Floatable Items collected during the 2nd Quarter

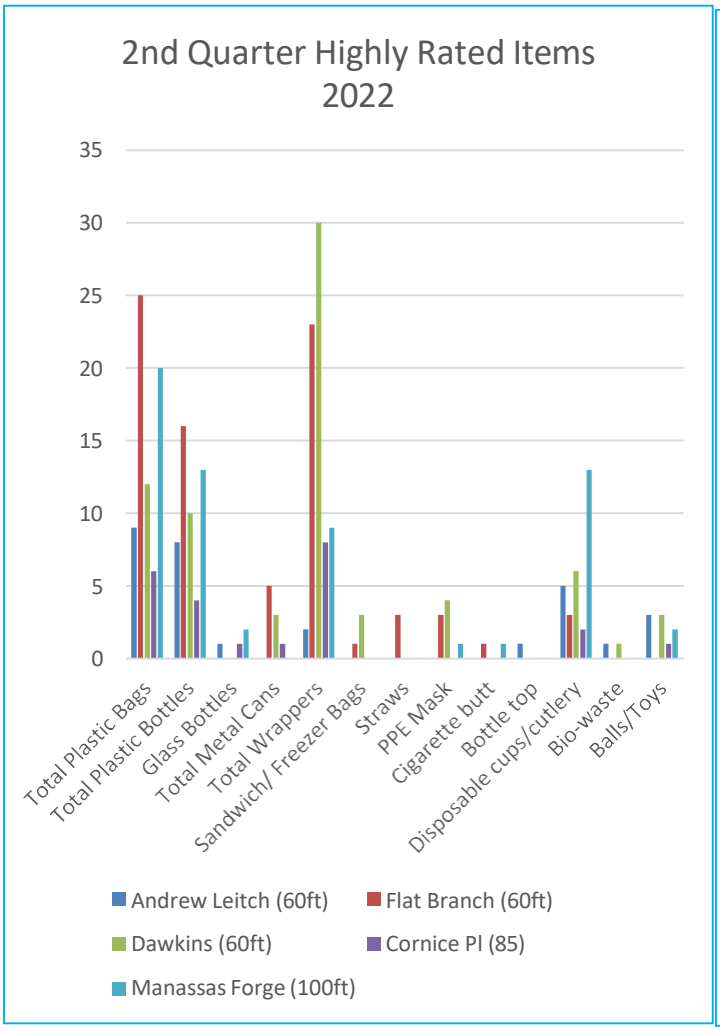


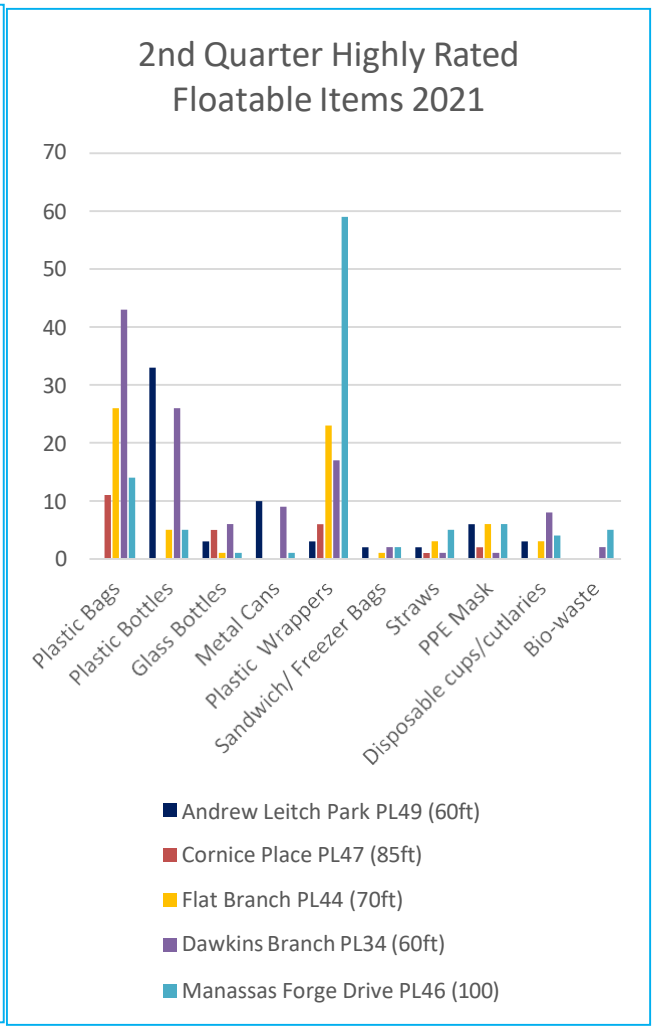
The 2nd Quarter of 2022 registered plastic wrappers as the most dominate item This was followed by plastic bags and plastic bottles. Disposaple cups and cutleries were significant at all the five monitoring locations. This followed a similar trend in the 2nd Qter. of 2021 which also recorded a significant amount of plastic wrappers, bags and bottles. Personal Protective Equipment(PPE) seen as masks and gloves were also present but not as high compared to 2021. This could be attributed to the down trend of the Covid-19 pandemic.

Comparing 2nd Quarter 2021 and 2022 Fiscal year

Dawkin's Branch, Flat Branch and Manassas Forge have shown a significantly high number in plastic bags for for three years straight (2020, 2021 and 2022) (Fig 2a). Cornice Place kept its low number trend in 2022. and Dawkin's Branch, Flat Branch and Manassas Forge were dominant all the varieties of floatable items.

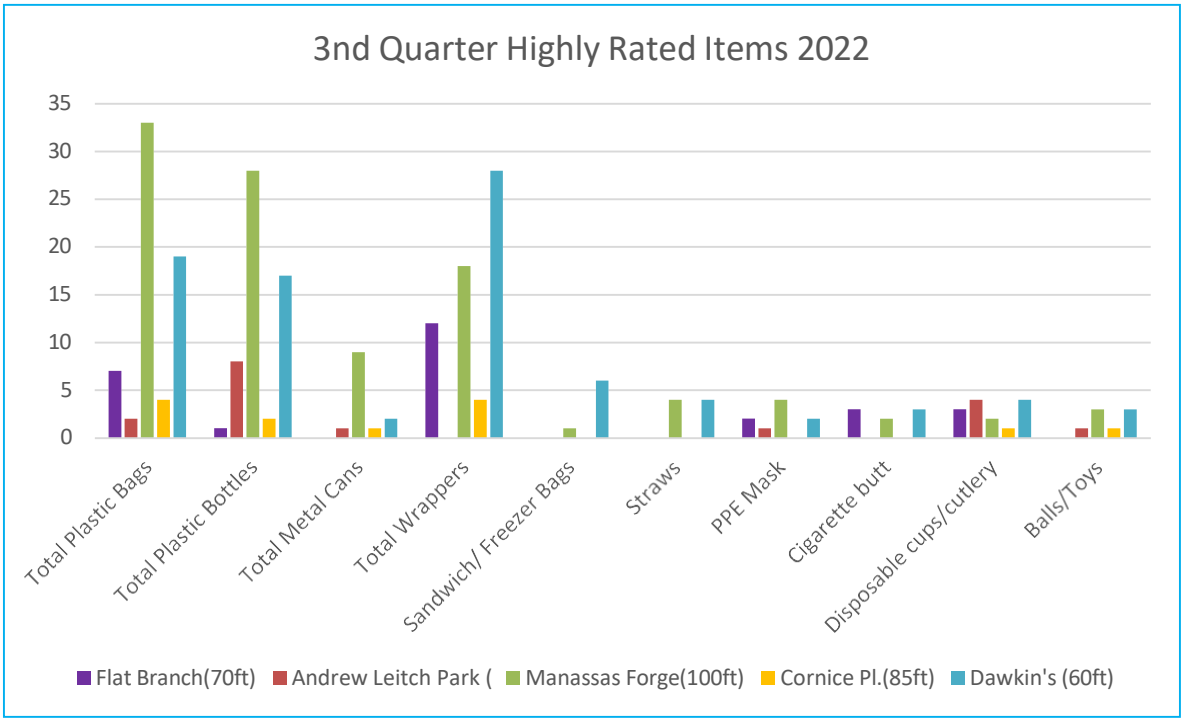
Figure 2a. Comparing 2021 and 2022





Phase III

Figure 3. Top on the list Floatable Items collected during the 3rd Quarter

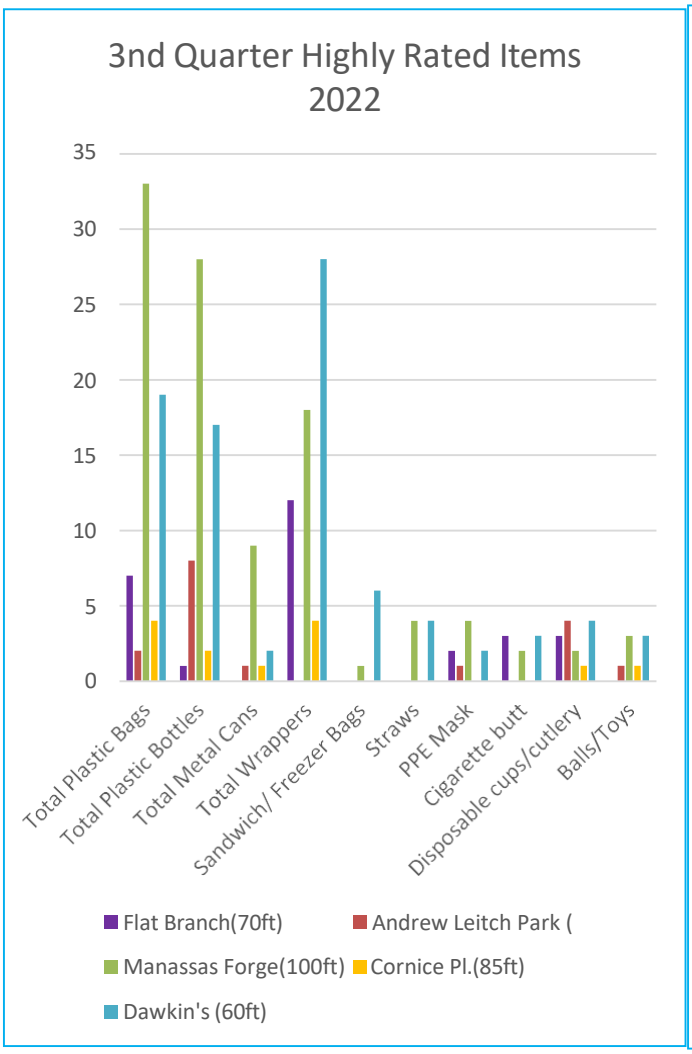


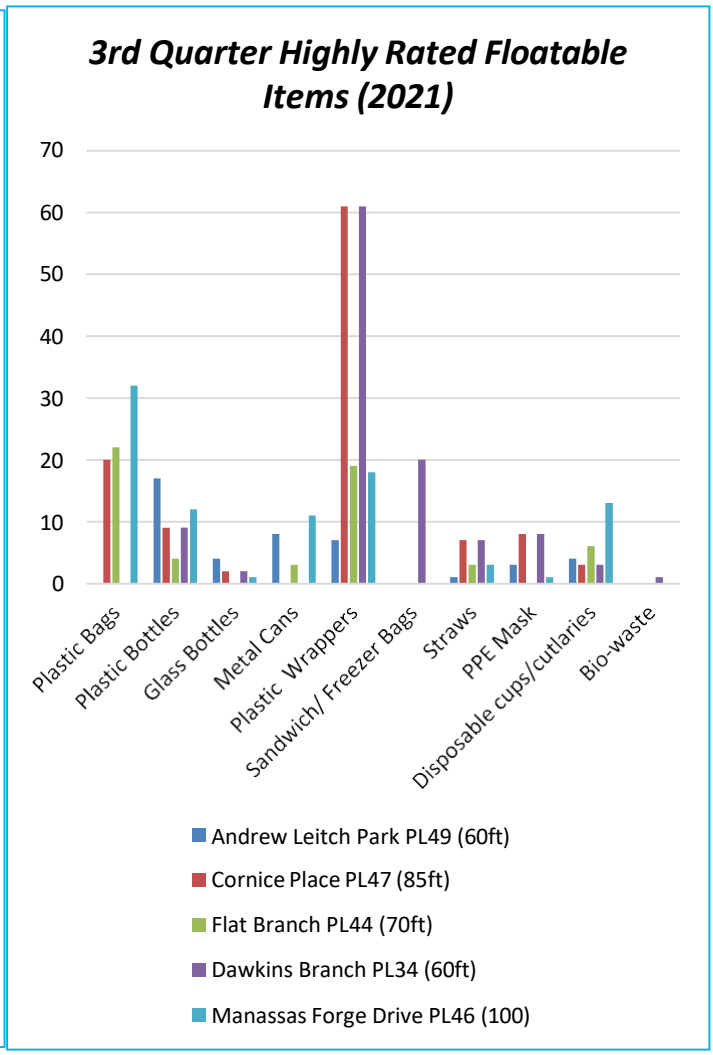
In the 3rd Quarter of 2022 plastic bags were the most dominant ite. This was so significant at Manassas Forge site. This was followed by plastic bottles and plastic wrappers. Manassas Forge and Dawkin's Branch were dominant in these top items. Personal Protective Equipment (PPE) and straws were significant at all the monitoring sites.

Toys, food disposable and cutlaries were recorded from all the monitoring locations. This toy and food disposable items can be attributed to the pandemic which encourage more toy purchase to keep kids busy and more take-out food orders from restaurants.

Comparing 3rd Quarter 2021 and 2022 Fiscal year

Figure 3a. Comparing 2021 and 2022



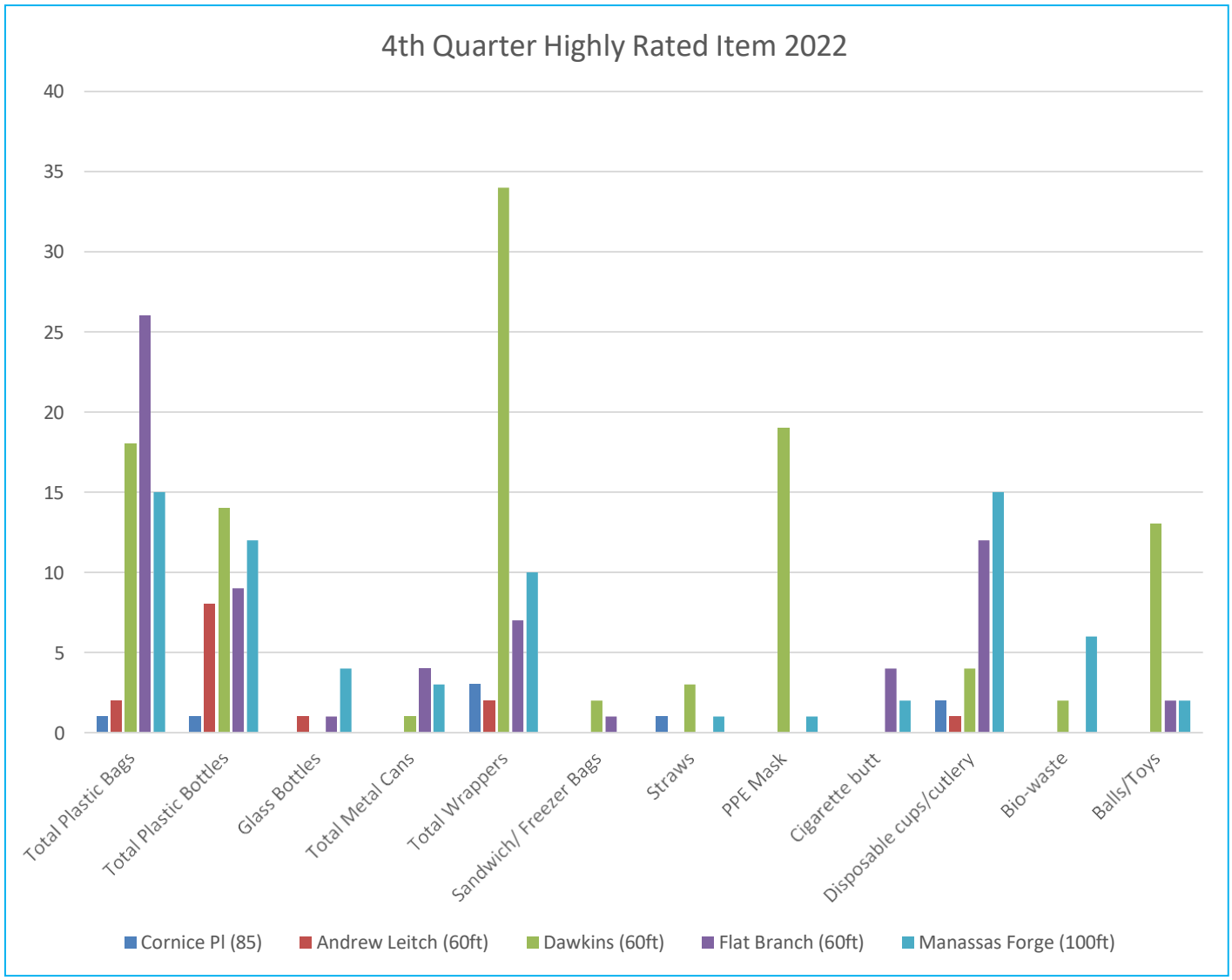


Comparing 3rd Quarter plastic bags, bottles, and Wrappers at all five sites in 2021 and 2022 Fiscal year

Plastic bags, plastic bottles and plastic wrappers were the top items and present at all five monitoring sites.

PHASE IV

Figure 4. Top on the list Floatable Items collected during the 4th Quarter

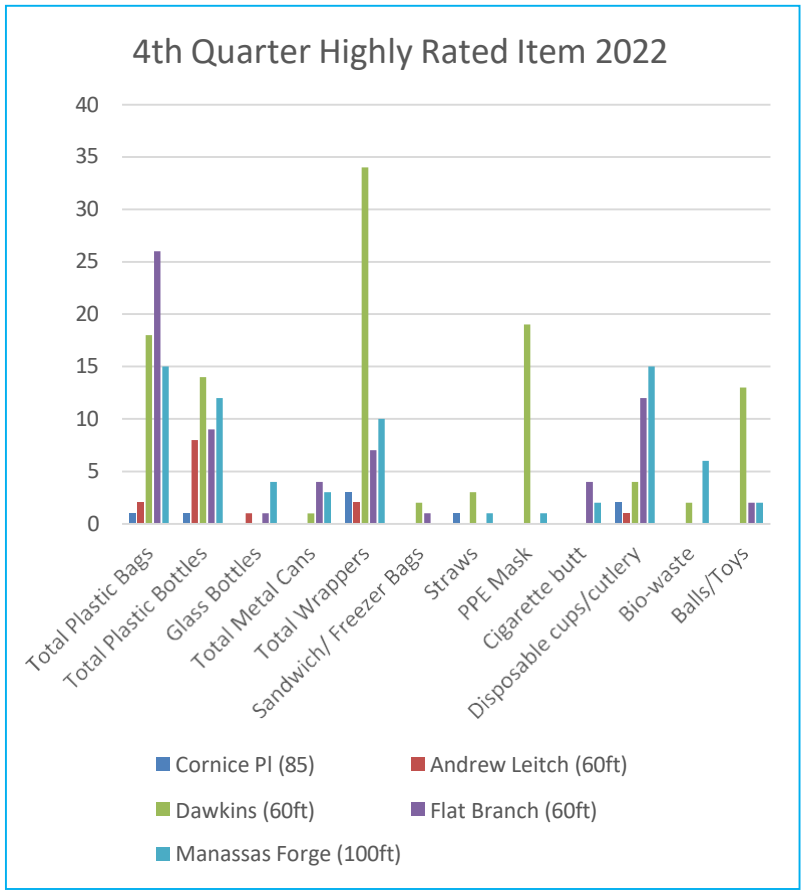


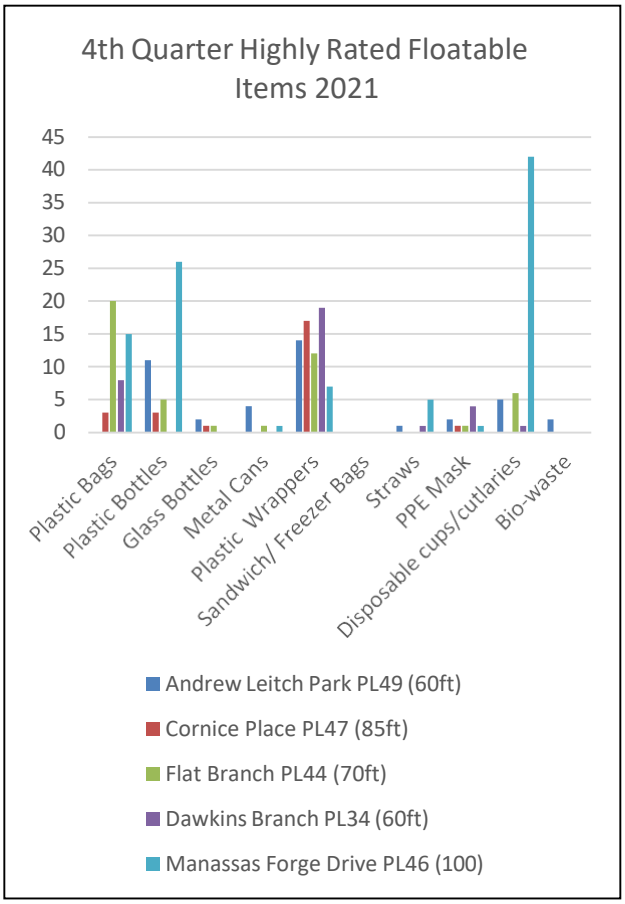
Comparing 4th Quarter 2021 and 2022 Fiscal year

The 4th Quarter of 2022 saw outstanding results from Dawkin's Branch with is close to the Victory Elementary School in Bristow. These outstanding results could be seen in the number of plastic wrappers, PPE, and toys. Though this site is also close to a playground it is also obvious that some of these items also come from the school. It became more significant with students going back to in person learning.

Overall, plastic bags, plastic bottles, wrappers, and disposable items (cups and cutleries) were significantly at all the monitoring sites. (Figure 4a).

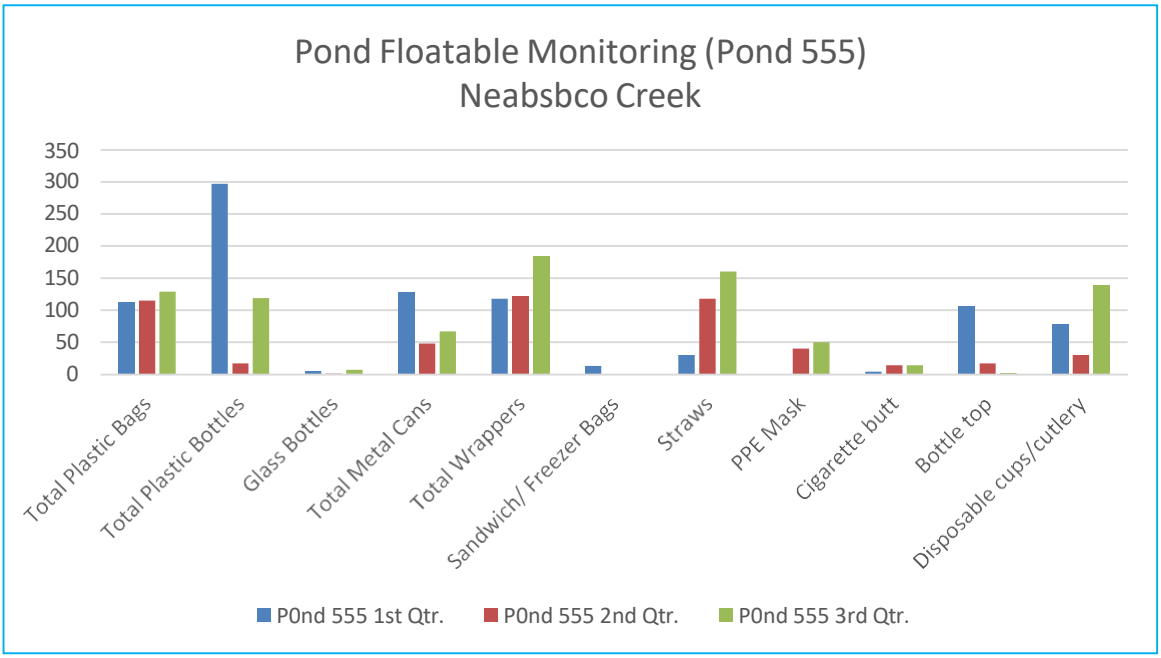
Figure 4a. Comparing 2021 and 2022





8850 Rixlew Lane, Manassas, VA 20109 Tel. 571.379.7514 Fax. 571.379.8305 www.pwswcd.org

Pond Floatable Monitoring- Pond 555 off Potomac Mills Mall, Woodbridge.



The introduction of a pond monitoring site data in this report compared to the streams' channel monitoring data collected from the five official existing monitoring sites (Cornice place, Manassas Forge, Andrew Leitch Park, Dawkin's Branch and Flat Branch) helps to throw more light on the level of all floatable items of concern.

These outstanding results clearly gives a picture of the general state of floatable items in Prince William County waterways.

The data collected for the 1st, 2nd and 3rd Quarter of the 2022 fiscal year, showed plastic bottles, plastic bags, metal beverage cans, plastic wrappers, straws, disposable/cups/cutleries are the main items that litter Prince William County waterways.

General Analysis of Floatable Items Collected in 2022

PHASES

This report covers five streams' area floatable monitoring sites and one pond which are monitored quarterly: Phase I (July 2020 – September 2020), Phase II (October 2020 – December 2020), Phase III (January 2021 – March 2021) and Phase IV (April 2021 – June 2021).

The data of 2022 fiscal year has drawn more attention on the dominating floatable items. These items have been presented in a range to reflect their pollution levels in Prince William County waterways.

Items	***Rating (Top 10 items)***	***Comments/Field Observation***
Plastic Wrappers	*1st Position*	*Most dominant and of all types. Snack wrappers are significant overall*
Plastic Bottles	*2nd Position*	*Dominated by plastic water bottles followed by beverage bottles.*
Plastic Bags	*3rd position*	*Very high especially the T-Shirt bags*
Disposable food items	*4th Position*	*Significantly high and branded*
Personal Protective Equipment (PPE	*5th Position*	*Significant appearance because of the Covid-19 pandemic.*
Straws	*6th Position*	*Significant*
Toys	*7th Position*	*Toys dominant at monitoring locations near playgrounds and schools.*
Sandwich/ Freezer Bags	*8th Position*	*Dominant at sites with school facility and playgrounds*
Bio Waste (Dog Poop bags)	*9th Position*	*Dominant at monitoring sites near trails*
Cigarette items	*10TH Position*	*Could have been up the list but has a high chance of floating on the surface and quickly taken further downstream and to the Bay.*

Some recommendations:

- There is the need for the school system to engage in promoting water quality awareness as shown by the results from Dawkin's Branch which is very close to a school facility. This shows high number of toys and sandwich bags. Thought the schools are making efforts towards this much work needs to be done.
- More education on water quality awareness and littering is needed especially in a suburban community like Prince William County. This will also help to address the issue of environmental justice and equity in water resources in Prince William County as more folks will get engaged to promote the County's sustainable goal.

Conclusion

As Prince William County is advancing in floatable monitoring, the data collected is getting more meaningful results to help address this growing challenge around water quality.

These efforts also go towards the protection of the rich biodiversity in the Chesapeake Bay watershed.

Appendix S

Chesapeake Bay TMDL Reductions Summary

FY22 Report-Stream Restoration: Stream Restoration Projects Beginning July 1, 2009

Project Name	Status	Installation FY	Latitude	Longitude	Length	Pollutant Removal Rate	Physiographic Province	Estimated Total Pollutant Reduction (lbs/yr)			Percent Unregulated Area	Baseline Adjustment for Unregulated Areas (lbs/yr)			Total Pollutant Reduction Achieved After Baseline Adjustment (lbs/yr)		
								TN	TP	TSS		TN	TP	TSS	TN	TP	TSS
Completed Projects																	
Cow Branch Phase I	Completed	2011	38.62637	-77.27779	1,600	Interim Approved	Coastal Plain	120	108.8	24,208.00	36%	613.55	88.90	77,864.74	77.38	70.16	15,609.85
Cow Branch Phase II	Completed	2012	38.63309	-77.27754	1,086	Interim Approved	Coastal Plain	81.45	73.848	16,431.18	37%	533.87	77.39	67,792.77	51.44	46.64	10,377.70
Lower Cabin Run	Completed	2012	38.55637	-77.31275	1,073	Interim Approved	Coastal Plain	80.475	72.964	16,234.49	3%	5.42	0.57	463.86	78.40	72.39	15,815.83
Northgate	Completed	2013	38.60703	-77.32944	300	Interim Approved	Piedmont	22.5	20.4	13,464.00	19%	1,084.44	100.84	77,953.88	18.31	16.60	10,954.81
Deerfield Estates	Completed	2013	38.72890	-77.41942	225	Interim Approved	Piedmont	16.875	15.3	10,098.00	5%	2.40	0.25	204.70	16.10	15.05	9,893.30
Cow Branch III	Completed	2015	38.63026	-77.27800	1,000	Interim Approved	Coastal Plain	75	68	15,130.00	39%	604.15	87.75	76,896.67	45.88	41.60	9,255.93
Oak Street	Completed	2015	38.78353	-77.43967	200	Interim Approved	Piedmont	15	13.6	8,976.00	80%	232.74	23.42	18,609.81	3.02	2.74	1,806.18
Hylbrook Park	Completed	2016	38.65086	-77.26413	1,268	Interim Approved	Coastal Plain	95.1	86.224	19,184.84	27%	67.25	8.06	6,752.78	68.99	78.16	13,918.49
East Longview - Route 1 Restoration	Completed	2017	38.64522	-77.26070	925	Interim Approved	Coastal Plain	69.375	62.9	13,995.25	68%	95.00	11.94	10,119.16	22.52	50.96	4,543.39
Dewey's Creek Reach 4	Completed	2017	38.56467	-77.31045	400	Interim Approved	Coastal Plain	30	27.2	6,052.00	29%	342.39	38.66	31,845.39	21.20	19.22	4,276.94
Reach 5	Completed	2017	38.68478	-77.29637	2,100	Interim Approved	Piedmont	157.5	142.8	94,248.00	12%	10.24	1.25	1,056.83	147.26	141.55	93,191.17
Dewey's Creek Reach 1	Completed	2018	38.57572	-77.31094	1,270	Protocols	Coastal Plain	180	66	19,200.00	28%	277.11	32.85	27,422.95	68.35	61.97	13,788.21
Dewey's Creek Reach 2	Completed	2020	38.56572	-77.30986	4,865	Protocols	Coastal Plain	956	353	102,800.00	29%	334.00	38.01	31,377.59	622.00	314.99	71,422.41
Powells Creek Phase 1	Construction	2022	38.60268	-77.32370	3,538	Interim Approved	Piedmont	503.50	224.40	1,213,200.00	18.64%	1,090.80	101.39	78,367.50	295.74	147.75	417,832.50

FY22 Report - Reforestation: Reforestation Projects (LUC) Beginning July 1, 2009

Project Name	Status	Installation FY	Latitude	Longitude	BMP Type	Existing Land Use	New Land Use	Area (Ac)	Total Pollutant Reduction (lbs/yr)		
									TN	TP	TSS
Completed Projects											
Innovation - Area 1D	Completed	2011	38.74008	-77.53709	Land Use Change	Pervious	Forest	0.22	1.58	0.08	29.25
Ben Lomond Park Area A	Completed	2012	38.79833	-77.47860	Land Use Change	Pervious	Forest	0.15	1.07	0.06	19.94
Ben Lomond Park Area B	Completed	2013	38.79833	-77.47860	Land Use Change	Pervious	Forest	3.81	27.28	1.45	506.58
Ben Lomond Park Area C	Completed	2013	38.79833	-77.47860	Land Use Change	Pervious	Forest	0.23	1.65	0.09	30.58
Sudley Place Reforestation	Completed	2014	38.79188	-77.50187	Land Use Change	Pervious	Forest	3.17	22.70	1.20	421.48
Ben Lomond Park Area D	Completed	2015	38.79833	-77.47860	Land Use Change	Pervious	Forest	0.12	0.86	0.05	15.96
Hope Hill Crossing	Completed	2015	38.61801	-77.37752	Land Use Change	Pervious	Forest	5.09	36.44	1.93	676.77
Garner Drive	Completed	2016	38.78738	-77.50875	Land Use Change	Pervious	Forest	0.40	2.86	0.15	53.18
Hunter Ridge Estates Area A	Completed	2016	38.63727	-77.38444	Land Use Change	Pervious	Forest	5.65	40.45	2.15	751.22
Hunter Ridge Estates Area B	Completed	2017	38.63427	-77.38747	Land Use Change	Pervious	Forest	4.75	34.01	1.81	631.56
Bristoe Station Battlefield Phase 1	Completed	2017	38.72238	-77.54464	Land Use Change	Pervious	Forest	13.99	100.17	5.32	1,860.11
Bristoe Station Battlefield Phase 2	Completed	2018	38.72238	-77.54464	Land Use Change	Pervious	Forest	4.50	32.22	1.71	598.32
Bristoe Station Battlefield Phase 3	Completed	2021	38.72238	-77.54464	Land Use Change	Pervious	Forest	10.20	73.03	3.88	1,356.19

FY22 Report - SWM Retrofits: Stormwater Facility Retrofits Beginning July 1, 2009

Project Name	Status	Installation FY	Latitude	Longitude	BMP Practice	Area Treated (Ac)	Impervious Area (Ac)	Pervious Area (Ac)	Forested Area (Ac)	Calculation Method	Estimated Total Pollutant Reduction (lbs/yr)			Precent Unregulated Area	Baseline Adjustment for Unregulated Area (lbs/yr)			Total Pollutant Reduction Achieved after Baseline Adjustment (lbs/yr)		
											TN	TP	TSS		TN	TP	TSS	TN	TP	TSS
Completed Projects																				
SWM Facility #257	Completed	2010	38.70846	-77.42804	Extended Detention	4.28	1.09	1.91	1.28	CBP Established Efficiency, Incremental	7.33	0.35	223.44	13.52%	0.53	0.06	52.90	6.80	0.29	170.54
Pond 51 - Hammill Mill Park SWMF	Completed	2011	38.66706	-77.26875	Extended Detention	7.13	2.10	2.76	2.27	CBP Established Efficiency, Incremental	12.41	0.63	406.44	3.06%	0.21	0.03	21.60	12.20	0.60	384.84
SWM Facility #154 - Dawson Ridge	Completed	2011	38.64959	-77.26743	Extended Detention	6.48	2.44	2.89	1.15	CBP Established Efficiency, Incremental	12.60	0.69	449.74	9.17%	0.61	0.08	69.64	11.99	0.61	380.09
SWM Facility #157 - Dawson Ridge	Completed	2011	38.64802	-77.26509	Extended Detention	4.86	1.56	1.46	1.83	CBP Established Efficiency, Incremental	8.38	0.44	290.67	7.23%	0.36	0.05	40.57	8.03	0.39	250.11
SWM Facility #363	Completed	2013	38.73062	-77.41825	Extended Detention	35.42	8.54	14.34	12.53	CBP Established Efficiency, Incremental	58.53	2.77	1,758.43	0.52%	0.18	0.02	19.30	58.35	2.75	1,739.13
SWM Facility #318	Completed	2013	38.56811	-77.30660	Extended Detention	17.48	3.27	9.46	4.75	CBP Established Efficiency, Incremental	28.95	1.27	763.03	0.00%	0.00	0.00	0.00	28.95	1.27	763.03
SWM Facility #494	Completed	2013	38.78569	-77.53199	Constructed Wetland	38.27	15.26	22.13	0.88	CBP Retrofits Expert Panel, ST, Incremental	99.20	14.00	5,442.51	5.70%	2.20	0.29	244.38	97.00	13.72	5,198.13
SWM Facility #77	Completed	2014	38.74038	-77.42235	Extended Detention	54.12	6.38	22.48	25.26	CBP Established Efficiency, Incremental	77.15	2.97	1,747.72	14.09%	5.89	0.55	424.59	71.26	2.42	1,323.13
SWM Facility #505	Completed	2014	38.56390	-77.30522	Extended Detention	16.26	4.28	7.77	4.22	CBP Established Efficiency, Incremental	28.49	1.39	872.77	3.07%	0.35	0.03	19.68	28.14	1.36	853.09
SWM Facility #99	Completed	2015	38.78563	-77.51022	Constructed Wetland	8.89	5.14	3.74	0.00	CBP Retrofits Expert Panel, ST, Incremental	40.20	4.84	4,319.55	81.51%	7.90	1.10	955.15	32.31	3.74	3,364.40
SWM Facility #98	Completed	2015	38.62455	-77.27419	Extended Detention	7.70	2.70	2.51	2.50	CBP Established Efficiency, Incremental	13.86	0.74	494.46	0.41%	0.03	0.00	3.52	13.83	0.74	490.94
SWM Facility #28	Completed	2017	38.68411	-77.27122	Wet Pond, L1	74.97	21.10	34.63	19.24	CBP Retrofits Expert Panel, ST, Incremental	67.40	5.81	5,409.80	8.34%	5.74	0.68	566.70	61.65	5.13	4,843.10
SWM Facility #147	Completed	2018	38.61010	-77.31428	Constructed Wetland, L1	45.24	15.28	24.02	5.93	CBP Retrofits Expert Panel, ST, Incremental	68.18	6.61	5,808.09	10.44%	4.17	0.47	388.79	64.01	6.14	5,419.30
SWM Facility #489	Completed	2018	38.68457	-77.29579	Extended Detention	82.12	32.67	36.52	12.92	CBP Established Efficiency, Incremental	162.85	9.05	5,943.86	15.04%	11.28	1.33	1,105.74	151.57	7.72	4,838.12
SWM Facility #109	Completed	2018	38.72093	-77.41199	Wet Pond, L1	72.52	9.79	21.94	40.78	CBP Retrofits Expert Panel, ST, Incremental	167.29	12.72	10,334.53	11.36%	7.00	0.75	611.50	160.29	11.97	9,723.03
SWM Facility #424	Completed	2020	38.57761	-77.30891	Constructed Wetland	92.01	39.01	41.88	11.11	CBP Retrofits Expert Panel, ST, Incremental	239.05	37.64	28,053.69	19.75%	21.34	3.14	2,763.32	217.71	31.22	25,290.37
SWM Facility #232	Completed	2021	38.78560	-77.51020	Wet Pond	14.77	3.20	8.24	3.32	CBP Retrofits Expert Panel, ST, Incremental	47.59	4.22	3,365.39	0.00%	0.00	0.00	0.00	47.59	4.22	3,365.39
SWM Facility #386	Completed	2022	38.78880	-77.52390	Wet Pond	21.38	12.13	8.83	0.41	CBP Retrofits Expert Panel, ST, Incremental	63.57	10.03	8,372.76	2.07%	0.47	0.07	57.83	63.10	9.97	8,314.92

Phase II Stormwater Retrofits
Reduction Calculation Worksheet

SWM Facility #386 **Wet Pond**

1 Determine existing published efficency

BMP Type	Source	TN	TP	TSS
Dry Detention Pond	CBP	5%	10%	10%

2 Apply downward modification to BMP Efficiency

Facilty Name	BMP Type	Lat	Long	Modification Type	Downward Modification Applied
SWM Facility #386	Dry Detention Pond	38.7888	-77.5239	No sediment forebay	-10%
				Short circuiting	-10%
				No micropool	-10%
				Total	**-30%**

3 Calculate modified existing efficiency

		TN	TP	TSS
Published Efficiency	Step 1	5%	10%	10%
Efficiency Modification	Step 2	-30%	-30%	-30%
Modified Efficiency		**3.50%**	**7.00%**	**7.00%**

4 Determine efficiency of proposed BMP Type

Source	BMP Type	TN	TP	TSS
BMP Clearinghouse	Wet Pond	25.00%	50.00%	60.00%

Runoff storage (acre-feet)	
Impervious acres	
Runoff depth	**#DIV/0!**

Retrofit Equation Results

TN	#DIV/0!
TP	#DIV/0!
TSS	#DIV/0!

5 Calculate Incremental Removal Rate

		TN	TP	TSS	
Removal Rate	Wet Pond	25.00%	50.00%	60.00%	BMP Clearinghouse
Modified existing efficieny	Step 3	3.50%	7.00%	7.00%	
Incremental Removal Rate		**21.50%**	**43.00%**	**53.00%**	

6 Calculate Load Reduction

6a Characterize the Drainage Area

	Urban Impervious Acres	Pervious Acres	Forested Acres	Total	
PWC Regulated Land	10.42	8.12	0.37	18.91	
Other Regulated Land	1.48	0.52	0.01	2.02	
Unregulated Land	0.23	0.19	0.02	0.44	2.07439585
	12.1332	**8.83**	**0.41**	**21.38**	0.567502339

6b Account for Total Baseline Reductions on Unregulated Land

	POC	Required 5% Load Reductions	Baseline Loading Rate (*20)	Acres	Baseline Reduction
Unregulated Impervious	TN	0.07587000	1.51740000	0.23	0.36
Unregulated Pervious	TN	0.03021000	0.60420000	0.19	0.11
Unregulated Impervious	TP	0.01296000	0.25920000	0.23	0.06
Unregulated Pervious	TP	0.00148625	0.02972500	0.19	0.01
Unregulated Impervious	TSS	11.71320000	234.26400000	0.23	54.94
Unregulated Pervious	TSS	0.76912500	15.38250000	0.19	2.89

6c Calculate Total Load Reduction

Land Use	Pollutant	2009 EOS Loading Rate (lbs/acre/yr)	DA	Load	Efficiency	Initial Reduction	Baseline	Total Reduction	Sub-total/POC
Urban Impervious	Nitrogen	16.86	12.13	204.57	21.50%	43.98	0.36	43.63	
Urban Pervious	Nitrogen	10.07	8.83	88.97	21.50%	19.13	0.11	19.01	**63.10**
Forest	Nitrogen	5.29	0.41	2.16	21.50%	0.46	0.00	0.46	
Urban Impervious	Phosphorus	1.62	12.13	19.66	43.00%	8.45	0.06	8.39	
Urban Pervious	Phosphorus	0.41	8.83	3.62	43.00%	1.56	0.01	1.55	**9.97**
Forest	Phosphorus	0.13	0.41	0.05	43.00%	0.02	0.00	0.02	
Urban Impervious	Total Suspended Solids	1,171.32	12.13	14,211.83	53.00%	7,532.27	54.94	7,477.33	
Urban Pervious	Total Suspended Solids	175.80	8.83	1,553.16	53.00%	823.17	2.89	820.28	**8,314.92**
Forest	Total Suspended Solids	79.91	0.41	32.66	53.00%	17.31	0.00	17.31	

7 Reduction Summary Table

Project Name	BMP Type	Lat	Long	TN (lbs/yr)	TP (lbs/yr)	TSS (lbs/yr)
SWM Facility #386	Wet Pond	38.7888	-77.5239	63.10	9.97	8,314.92

Appendix T

Local TMDL Action Plan Implementation

Prince William County FY22 Annual Report
Local TMDL Action Plan Implementation FY22

Benthic TMDL Action Plan

The Benthic TMDL Action Plan includes stream restoration projects, reforestations (LUC), stormwater retrofit projects completed in the Bull Run Watershed. The following table summarizes the projects that have been implemented as well as planned projects in FY22.

Project Name	Project Type	Status	TSS Reduction (lbs/yr)
Ben Lomond Park Area A	Reforestation	Completed	19.94
Ben Lomond Park Area C	Reforestation	Completed	30.58
Ben Lomond Park Area B	Reforestation	Completed	506.58
Sudley Place Reforestation	Reforestation	Completed	421.48
Ben Lomond Park Area D	Reforestation	Completed	15.96
Garner Drive	Reforestation	Completed	53.18
SWM Facility #99	Retrofit	Completed	4,273.97
Oak Street	Stream Restoration	Completed	49,591.16
SWM Facility #77	Retrofit	Completed	1,323.13
SWM Facility #386	Retrofit	Completed	8,314.92
		Total Completed	**64,550.90**
SWM Facility #416	Retrofit	Implementation	27,611.25
Ben Lomond Reforestation (LUC)	Reforestation	Implementation	425.47
Mayhew Park Stream Restoration	Stream Restoration	Concept	TBD
		Total Planned for FY23	**28,036.72**

The status of other implementation items from the Benthic TMDL Action Plan are summarized below:

Implementation Item	Description	Implementation Status
MS4 Program Plan	The County will continue to implement the MS4 Program Plan, including elements related to sediment, in accordance with the schedule provided for in the MS4 Program Plan.	The County continues to implement its MS4 Program Plan.
Chesapeake Bay TMDL Action Plan	The County will continue to leverage the projects selected to meet the Chesapeake Bay TMDL Action Plan to reduce sediment in the Bull Run watershed. The County will include whether a project will help meet Bull Run sediment load reductions in its project selection prioritization process.	The County continues to implement the Chesapeake Bay TMDL Action Plan. See above summary.
County Owned or Operated Property	The County will consider potential retrofits of property assessed in Appendix A for inclusion in lists of projects to meet the Chesapeake Bay TMDL. The County will address minor erosion issues identified during	Projects currently planned for implementation: • Reforestation at Ben Lomond Park • Water quality retrofit of SWM Facility #416

Implementation Item	Description	Implementation Status
	the assessment of properties as described in Appendix A.	• Mayhew Park Stream Restoration
Redevelopment	The County will continue to enforce provisions that require redevelopment to reduce phosphorus from existing conditions (20% one acre and greater; 20% less than one acre). Reductions in phosphorus also result in reductions in sediment.	The county continues to implement Section 23.2 of the Prince William County Code.
Enhanced Education, Outreach, and Training	The County will continue to implement enhanced education, outreach, and training for sediment in accordance with the MS4 permit and the MS4 Program Plan.	The County is implementing its enhanced education, outreach and training for sediment in accordance with the MS4 Program Plan

Bacteria TMDL Action Plan

The status of implementation items from the Bacteria TMDL Action Plan are summarized below:

Program Element	Description	Implementation Status
Pet Waste Brochure Distribution	The County will provide pet waste brochures (see Appendix A) for distribution at the private facilities listed in Table 2.H.	The County determined that distribution of brochures at private facilities is not an effective method of outreach. In FY21, the County updated the pet waste brochure and is distributing to HOA's and other community partners for distribution.
Pet Waste Clean-Up Signage	The County will assess the trail system within the MS4 portion of affected watersheds for opportunities to install signage reminding pet owners to clean up pet waste.	The County assessed County-owned properties in FY18 and determined no need for signage. The assessment of County properties was repeated in FY21 with HOA common areas added to the scope. The County is currently evaluating opportunities to work with HOA's and Parks to provide signage and other outreach materials to users.

PCB TMDL Action Plan

The status of implementation items from the PCB TMDL Action Plan are summarized below:

Implementation Item	Description	Implementation Status
Enhanced training on good housekeeping and pollution prevention practices	Training materials will be revised in PY3 to include information relevant to potential PCB sources and steps to take if a source of PCBs is discovered at a County-owned property. The training will be implemented in PY4 as part of the ongoing biennial training program.	The online PWC University training materials were revised in FY22 to include information related to sources of PCB discharges.
Enhanced training on recognition and reporting of illicit discharges by field personnel	The County's Illicit Discharge Identification and Elimination Program Manual will be updated in PY3 to include information on potential sources of PCBs, safety precautions and notifications.	The Illicit Discharge Identification and Elimination Program Manual was revised in FY22 to include information related to sources of PCB discharges.

Appendix U

Roles and Responsibilities

Prince William County FY22 Annual Report
Roles and Responsibilities FY22 (I.A.2)

Agency	Permit Section	Responsibilities
Department of Facilities & Fleet Management (DFFM)	I.B.2.c	Roadways
	I.B.2.d	Pesticide, Herbicide, and Fertilizer Application
	I.B.2.i	County Facilities
	I.B.2.k.2	Training: good housekeeping during road, street and parking lot maintenance
	I.B.2.k.3	Training: good housekeeping at maintenance and public works facilities
	I.B.2.k.4	Training: tracking of pesticides, herbicides and fertilizer certifications
Department of Finance (DF), Risk Management Division (RMD)	I.B.2.k.9	Training: coordination of training documentation
Department of Fire and Rescue (DFR)	I.B.2.f	Spill Prevention and Response
	I.B.2.k.8	Training: spill response for emergency response employees
Department of Parks, Recreation & Toursim (DPRT)	I.B.2.d	Pesticide, Herbicide, and Fertilizer Application
	I.B.2.i	County Facilities
	I.B.2.j.1.c	Public Education: golf courses
	I.B.2.k.2	Training: good housekeeping during road, street and parking lot maintenance
	I.B.2.k.4	Training: tracking of pesticides, herbicides and fertilizer certifications
	I.B.2.k.7	Training: good housekeeping at county recreation facilities
Department of Public Works (DPW), Environmental Management Division (EMD) & Construction and Operations Division (COD)	I.A.	MS4 Program Coordination
	I.B.1.	Planning
	I.B.2.a	Construction Site Runoff and Post Construction Runoff from Areas of New Development and Development on Prior Developed Lands
	I.B.2.b	Retrofitting on Prior Developed Lands
	I.B.2.e	Illicit Discharges and Improper Disposal
	I.B.2.g	Industrial & High Risk Runoff
	I.B.2.h	Storm Sewer Infrastructure Management
	I.B.2.j	Public Education/Participation

Prince William County FY22 Annual Report
Roles and Responsibilities (I.A.2)

Agency	Permit Section	Responsibilities
	I.B.2.j.1.a	Public Education: illicit discharges
Department of Public Works (DPW), Environmental Management Division (EMD) & Construction and Operations Division (COD)	I.B.2.j.1.b	Public Education: individual and group involvement in local water quality improvement initiatives
	I.B.2.j.1.e	Public Education: household yard waste
	I.B.2.j.1.f	Public Education: litter prevention program
	I.B.2.j.1.g	Public Education: residential car washing
	I.B.2.j.1.h	Public Education: pesticides, herbicides, and fertilizers
	I.B.2.j.1.i	Public Education: voluntary stormwater management techniques
	I.B.2.j.1.j	Public Education: commercial, industrial, and institutional entities
	I.B.2.k.1	Training: illicit discharges
	I.B.2.k.5	Training and certifications per Virginia Erosion and Sediment Control Law
	I.B.2.k.6	Training and certifications per Virginia Stormwater Management Act
	I.B.2.l	Water Quality Screening Programs
	I.B.2.m	Infrastructure Coordination
	I.C.1.	Biological Stream Monitoring
	I.C.2.	In-Stream Monitoring
	I.C.3.	Floatables Monitoring
	I.D.1.	Chesapeake Bay Special Condition
	I.D.2.	TMDL Action Plans other than the Chesapeake Bay TMDL
Department of Public Works (DPW), Solid Waste Division (SWD)	I.B.2.i	County Facilities
	I.B.2.j.1.d	Public Education: used oil and household hazardous waste
	I.B.2.k.2	Training: good housekeeping during road, street and parking lot maintenance

Prince William County FY22 Annual Report
Roles and Responsibilities (I.A.2)

Agency	Permit Section	Responsibilities
	I.B.2.k.3	Training: good housekeeping at maintenance and public works facilities

Appendix V

Annual Program Budget

Public Works

Mission Statement

The goal of the Prince William County Department of Public Works is to improve the wellbeing of our community by creating and sustaining the best environment in which to live, work, and play. We protect and improve our natural resources, adopt and enforce codes and regulations, and build and maintain environmental infrastructure in our community.

Community Development Expenditure Budget: $150,198,353

Expenditure Budget: $50,891,645

33.9% of Community Development

Programs:

- Director's Office: $414,725
- Stormwater Infrastructure Management: $3,953,462
- Site Development: $3,845,456
- Watershed Improvement: $5,040,855
- Sign Shop: $260,373
- Small Project Construction: $2,096,798
- Mosquito & Forest Pest Management: $1,753,825
- Solid Waste: $29,086,357
- Neighborhood Services: $4,074,508
- Service Districts: $365,287

Mandates

Public Works provides mandated services for solid waste management and recycling and maintains existing street name signs. Public Works is liaison to the state-mandated Chesapeake Bay Preservation Area Review and Wetlands Boards. The Board of County Supervisors has enacted additional local mandates for which Public Works has responsibility.

Federal Code: 33 U. S. C. Section 1251 (Clean Water Act)

State Code: 9VAC20-130 (Solid Waste Management Regulations), 33.2-328 (Street Name Signs), 28.2-1303 (Local Wetlands Board), 62.1-44.15:74 (Chesapeake Bay Preservation Areas), Chapter 870 (Virginia Stormwater Management Regulation), Chapter 3.1 (State Water Control Law)

County Code: Chapter 2 Article VII (Wetlands Areas), Chapter 3 (Amusements), Chapter 5 Article VI (Building Maintenance Code), Chapter 12 (Massage Establishments), Chapter 13-320.1 (Designation of watercraft, boat trailer, motor home, and camping trailer "restricted parking" zones), Chapter 14 (Noise), Chapter 16-56 (Graffiti Prevention and Removal), Chapter 22 (Refuse), Chapter 23 Article II (Public Sanitary Sewers), Chapter 23.2 (Stormwater Management), Chapter 25 Article II (Subdivisions - Minimum Requirements), Chapter 29 Article II (Weeds & Grass), Chapter 32 (Zoning), Chapter 33 (Expedited Land Development Plan Review)

Expenditure and Revenue Summary

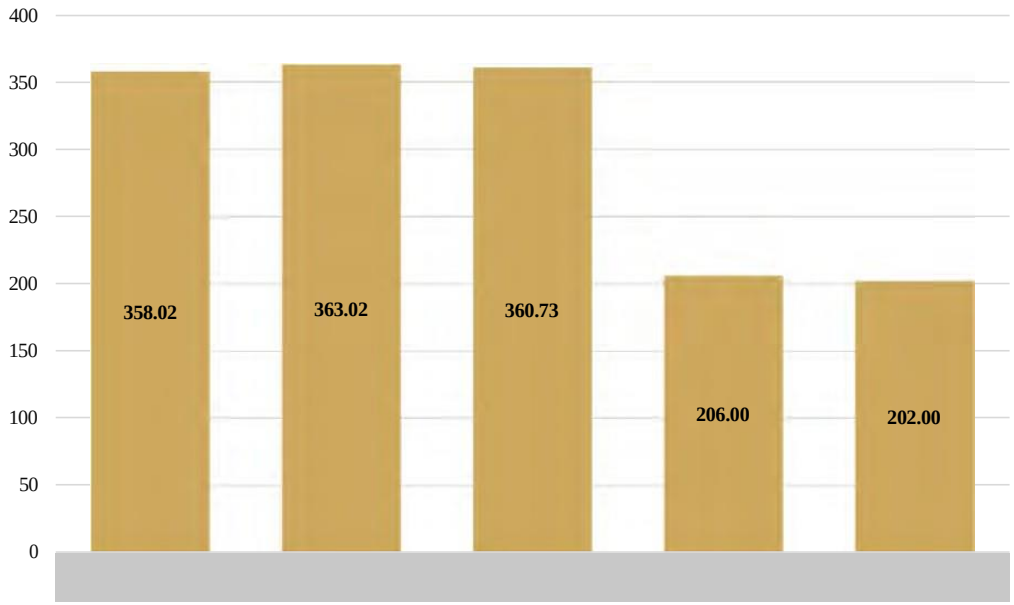
Expenditure by Program	FY18 Actuals	FY19 Actuals	FY20 Actuals	FY21 Adopted	FY22 Adopted	% Change Budget FY21/ Budget FY22
Director's Office	$1,396,542	$1,582,998	$1,699,705	$485,698	$414,725	(14.61%)
Historic Preservation	$1,315,257	$1,374,848	$0	$0	$0	-
Stormwater Infrastructure Management	$3,546,384	$3,486,111	$4,196,209	$3,899,715	$3,953,462	1.38%
Site Development	$3,374,458	$3,637,468	$3,726,041	$4,048,222	$3,845,456	(5.01%)
Watershed Improvement	$7,365,168	$4,905,025	$4,934,270	$5,006,242	$5,040,855	0.69%
Fleet Management - PW	$9,263,362	$11,973,810	$11,378,417	$0	$0	-
Facilities Construction Management - PW	($30,906)	$105,473	$906,645	$0	$0	-
Sign Shop	$244,324	$265,403	$304,102	$217,651	$260,373	19.63%
Small Project Construction	$2,016,298	$3,183,649	$3,386,728	$2,109,675	$2,096,798	(0.61%)
Mosquito & Forest Pest Mgmt	$1,472,725	$1,546,708	$1,592,212	$1,697,311	$1,753,825	3.33%
Solid Waste	$15,397,112	$26,295,132	$17,556,951	$29,322,612	$29,086,357	(0.81%)
Buildings & Grounds - PW	$11,588,120	$12,140,167	$11,789,771	$0	$0	-
Property Management	$13,318,745	$13,398,677	$12,723,852	$0	$0	-
Neighborhood Services	$3,771,062	$3,813,251	$3,919,053	$4,108,667	$4,074,508	(0.83%)
Service Districts	$321,687	$291,740	$321,101	$365,287	$365,287	0.00%
Total Expenditures	**$74,360,337**	**$88,000,461**	**$78,435,057**	**$51,261,079**	**$50,891,645**	**(0.72%)**

Expenditure by Classification						
Salaries & Benefits	$27,745,780	$29,259,394	$30,410,528	$18,283,358	$18,557,251	1.50%
Contractual Services	$12,925,241	$14,162,645	$13,150,436	$6,104,348	$6,487,405	6.28%
Internal Services	$3,907,809	$3,745,202	$4,450,125	$2,633,458	$2,608,458	(0.95%)
Purchase of Goods & Services	$11,945,348	$13,097,756	$12,430,452	$4,512,550	$4,734,281	4.91%
Capital Outlay	$1,902,712	$4,394,195	$2,251,850	$2,394,013	$1,959,861	(18.13%)
Leases & Rentals	$7,357,523	$7,405,620	$7,802,962	$183,597	$183,597	0.00%
Reserves & Contingencies	($2,736,857)	($3,099,401)	($2,189,773)	($168,490)	($168,490)	0.00%
Amortization	$656,594	$2,614,265	$2,786,571	$2,085,793	$2,085,793	0.00%
Depreciation Expense	$1,492,152	$1,485,477	$1,294,760	$2,158,713	$2,158,713	0.00%
Transfers Out	$9,164,036	$14,935,308	$6,047,146	$13,073,739	$12,284,776	(6.03%)
Total Expenditures	**$74,360,337**	**$88,000,461**	**$78,435,057**	**$51,261,079**	**$50,891,645**	**(0.72%)**

Funding Sources						
Permits & Fees	$2,479,062	$2,974,499	$2,802,106	$3,002,522	$3,002,522	0.00%
Fines & Forfeitures	$2,004	$12,308	$155	$0	$0	-
Use of Money & Property	$1,306,429	$1,571,051	$1,402,337	$1,526,000	$1,526,000	0.00%
Miscellaneous Revenue	$744,526	$501,021	$403,642	$240,000	$290,000	20.83%
Non-Revenue Receipts	$277,087	$308,498	$327,775	$0	$0	-
General Property Taxes	$1,772,646	$1,840,171	$1,903,249	$1,870,287	$1,870,287	0.00%
Charges for Services	$38,073,282	$41,105,372	$41,860,466	$29,845,061	$30,870,061	3.43%
Revenue from Commonwealth	$666,006	$371,278	$125,857	$86,000	$86,000	0.00%
Transfers In	$1,827,770	$1,010,234	$857,626	$3,060,020	$2,194,667	(28.28%)
Total Designated Funding Sources	**$47,148,813**	**$49,694,432**	**$49,683,211**	**$39,629,889**	**$39,839,537**	**0.53%**
Use/(Contribution) of Fund Balance	**($2,175,022)**	**$4,505,491**	**($2,288,464)**	**$7,932,241**	**$7,269,080**	
Net General Tax Support	**$29,386,546**	**$33,800,538**	**$31,040,309**	**$3,698,949**	**$3,783,028**	**2.27%**
Net General Tax Support	**39.52%**	**38.41%**	**39.57%**	**7.22%**	**7.43%**	

An FY19 expense misclassification of $104,025 exists between Facilities Construction Management (FCM) and Solid Waste. The correct FY19 expense for FCM is $1,448, and the expense for Solid Waste is $26,399,221.

Staff History by Program



Director's Office	5.27	6.27	6.27	6.37	3.27
Historic Preservation	14.55	14.55	0.00	0.00	0.00
Stormwater Infrastructure Management	25.16	26.44	27.01	23.58	24.18
Site Development	27.78	27.50	29.23	28.74	27.95
Watershed Improvement	11.22	11.22	10.92	10.98	11.27
Fleet Management	35.15	35.15	44.41	0.00	0.00
Facilities Construction Management	10.00	10.00	10.00	0.00	0.00
Sign Shop	4.16	4.16	4.16	4.06	4.06
Small Project Construction	14.43	14.43	12.43	16.42	16.42
Mosquito & Forest Pest Management	14.00	14.00	14.00	14.02	14.02
Solid Waste	60.72	62.72	65.72	65.72	65.72
Buildings & Grounds	80.47	80.47	81.47	0.00	0.00
Property Management	18.00	19.00	19.00	0.00	0.00
Neighborhood Services	37.11	37.11	36.11	36.11	35.11

Future Outlook

Construction Costs and Labor Shortages – A shortage of skilled labor is having direct effects on construction costs and hiring of qualified construction and maintenance personnel. High demand and increases in pay of truck drivers and equipment operations in the private sector have made it difficult to retain and hire qualified operators. Factors leading to the construction cost escalation include the following: loss of skilled labor, an increase in the number of public and private sector projects, reduced competition, and increases in salaries. The recent pandemic has made the procurement of some construction materials more difficult and has increased prices as well.

Solid Waste Issues – Recycling markets have continued to be depressed due to lack of markets and manufacturing facilities that use recyclable products. The prices to process recyclable material at local recycling facilities continue to be higher than refuse disposal costs and make it difficult for refuse haulers to economically provide recycling services and find markets for collected recyclables. A new program for glass recycling should be expanded.

Planning for the permitting and construction for the Phase IV landfill area, scheduled to open in FY30, is in progress. Additional land was purchased in FY21 and one additional parcel is under negotiation with the property owner. Costs to build access roads, new scale facilities, crew offices and a new heavy equipment shop will need to be funded to build and operate the Phase IV area. To avoid a large fee increase when future Phase IV costs are necessary, a review of the Solid Waste Fee and proposed increases in revenue should be considered as recommended in the recent audit of the solid waste system performed by RSM Internal Audit June 11, 2020. Debt financing for future Phase IV infrastructure should also be considered and analyzed.

The opening of a new advanced compost system occurred in July 2020. Changes in Chapter 22 of the Prince William County (PWC) Code, to include new requirements for mandatory separation of yard waste, was approved by the Board of County Supervisors (BOCS) on December 15, 2020, via Ordinance 20-55, to be implemented in FY21. This will increase recycling and extend the life of the landfill by 10 to 15 years.

Development and implementation of new alternative waste conversion technologies continues to be an opportunity to reduce waste disposed at the landfill. The long-term cost/benefit of these alternatives have been analyzed and future discussions are ongoing. The impacts of these proposed changes have been analyzed through development of various scenarios of the Solid Waste 15-year forecast projections.

Stormwater Management and Dam Safety – Environmental Services anticipates a marked increase in dredging (removal of silt and mud) from stormwater management ponds and facilities as the next phase of our County stormwater management program. With over 1,000 ponds and facilities in our inventory – and the number continues to grow – along with the high cost of dredge material disposal, this activity will have an impact on the stormwater management fee. Additionally, as County stormwater infrastructure (pipes and culverts and easements) continues to grow and age, more inspections, maintenance, and repairs will be needed, especially to prevent localized flooding. Localized flooding continues to be of concern as the intensity and number of significant rain events in the County is increasing. Lake Jackson Dam is an aging County-owned dam that is seeing an increase in expenses related to dam safety, maintenance, and operation costs to meet Dam Safety Regulations and Permit Certifications.

COVID-19 Pandemic Impacts – Work methods and protocols, schedules, and the way work is completed by both those whose work is performed in an office setting and those whose work is in the field have changed and will most likely not go back to the way work was done before COVID-19. Remote work, online shopping, and safer-at-home-stay practices have resulted in diminished in-person commerce. Less use of commercial properties and increasing vacancy rates have resulted in reduced and deferred maintenance, as well as tall grass/ weeds. In addition, there are large sections of the workforce that are unemployed or underemployed. Deferred utility payments and prohibitions on evictions for lack of payment loom large, as well as a possible increase in foreclosures resulting in neighborhood deterioration.

General Overview

A. Base Revenue Adjustments – The FY2022 Budget includes the following base budget revenue adjustments:

- Solid Waste – Increase the Solid Waste revenue budget $800,000 to accurately reflect historical revenue trends with no change to the solid waste fees. There is no impact to the general fund.
- Watershed Improvement – Increase the Watershed Improvement revenue budget $300,000 to accurately reflect historical revenue trends with no change to the stormwater management fee. There is no impact to the general fund.

B. Budget Shift for Occoquan Monitoring Lab Membership Dues – Watershed Improvement – This shift covers an increase of $9,711, from $271,289 to $281,000, in the Community Partner Occoquan Monitoring Lab membership dues. The Occoquan Reservoir is a drinking water supply for the County, and Department of Environmental Quality (DEQ) mandates the continued annual support to the Occoquan Watershed Monitoring program to ensure the integrity of the reservoir as a drinking water supply. All member jurisdictions using or discharging effluent to the reservoir are required to pay a set percentage of the annual budgeted amount to run and operate the Occoquan Watershed Monitoring Program. The County's membership increases approximately 3% annually; however, the budget has not been increased in several years. This increase is covered within the existing Watershed Improvement program budget. There is no net impact to the General Fund.

C. Increase/Decrease Indirect Cost Transfer to the General Fund – Indirect costs are expenditures charged by one part of the County government for services rendered by another part of the County government, for example, the cost of office space, utilities, and other basic agency support.

- The indirect cost transfer amount reimbursing the general fund for Solid Waste decreases by $18,862 from $1,436,580 in FY21 to $1,417,718 in FY22.
- The indirect cost transfer amount reimbursing the general fund for Mosquito & Forest Pest Management increases by $7,472 from $255,135 in FY21 to $262,607 in FY22.
- The indirect cost transfer amount reimbursing the general fund for Stormwater Infrastructure Management decreases by $174,988 from $1,174,710 in FY21 to $999,722 in FY22.

D. Removal of One-Time Costs in Solid Waste –

- A total of $1,607,400 in expenditures has been removed from the Public Works Solid Waste Program for FY21 one-time costs associated with the addition of equipment and vehicles. In FY21, Solid Waste replaced a Mack roll-off truck ($210,000), a Cat D6T Dozer ($510,000), an Al-Jon Compactor ($580,000), and a 15-Passenger Chevy Van ($45,000). A new Roll-Off Truck ($210,000) and a replacement for a Litter Crew truck ($52,400) were also purchased.
- A total of $4,680,000 in expenditures has been removed from the Public Works Solid Waste Program for FY21 one-time costs associated with the Landfill Liner Phase III Cell A capital project.

E. Solid Waste Transfer to Litter Control Crew in Neighborhood Services – Solid Waste has historically transferred funds from the Solid Waste operating fund to Litter Control in the general fund, funding the Litter Control expenses. To achieve more efficiency and accuracy, FY22 Litter Control revenue and expenses are budgeted directly in the Solid Waste Fund. When compared to the FY2021 Budget, the transfer out of Solid Waste and the transfer into Litter Crew decreases by $865,353. There is no net impact to the general fund.

F. Position Transfers from Public Works to Facilities & Fleet Management – When Facilities & Fleet Management was created in FY21, four programs, including Buildings & Grounds, Facilities Construction Management, Fleet Management, and Property Management, were removed from Public Works to create the new department. During FY21, the Facilities & Fleet Management Director's Office was formed to provide overall leadership and management oversight. Four FTEs were shifted from Public Works: the

Deputy Director, Senior Business Services Administrator, Senior Business Services Analyst, and Risk & Wellness Specialist, forming the Facilities & Fleet Management Director's Office. These transfers shifted funds totaling $584,568 from Public Works to Facilities & Fleet Management.

Budget Initiatives

A. Budget Initiatives

1. Phase II Sequence 5 Landfill Cap - A Capital Project – Solid Waste

Expenditure	$4,950,000
Use of Fund Balance	$4,950,000
General Fund Impact	$0
FTE Positions	0.00

a. Description – This initiative funds the Phase II Sequence 5 Landfill Cap design, bidding, construction, and construction quality & assurance of the capital project in the FY2022-FY2027 Capital Improvement Program (CIP). The capping is a DEQ mandate for environmental health and is required by federal and state regulations to operate a sanitary landfill. The Solid Waste Enterprise fund balance supports this one-time expenditure, which is included in the Solid Waste 15-year forecast. There is no general fund impact.

b. Service Level Impacts – Existing service levels are maintained.

2. Replace Solid Waste Equipment and Vehicles – Solid Waste

Expenditure	$1,105,000
Use of Fund Balance	$1,105,000
General Fund Impact	$0
FTE Positions	0.00

a. Description – This initiative provides one-time funding for the replacement and purchase of solid waste equipment and vehicles. The equipment includes:

- $550,000 to replace an Articulated Dump Truck (SW2683) acquired in 2006 with a useful life of 15 years. This truck is used to support the landfill cover program set by DEQ.
- $200,000 to replace the Fuel Truck (SW2974) acquired in 2008 with a useful life of 10 years. This truck is used to support of landfill fueling program of County equipment.
- $165,000 to replace Kenworth Roll-Off (SW2689) acquired in 2005 with a useful life of 10 years. This equipment is for the continued support of the resident disposal and recycling program set by DEQ compliance.
- $150,000 to replace a tractor (SW2374) acquired in 1997 with a useful life of 15 years. This equipment is used to support the mowing of the landfill for DEQ compliance.
- $40,000 to replace the John Deere Gator (SW2647) acquired in 2005 with a useful life of 15 years. This equipment is used to support the freon extraction program.

The Solid Waste Enterprise fund balance supports these one-time expenditures. There is no general fund impact.

b. Service Level Impacts –

- **Percent of regulations met per DEQ inspections**

  FY22 w/o Addition | 70%
  FY22 w/ Addition | 100%

- **Compaction rate of trash**

  FY22 w/o Addition | 1,000 pounds per cubic yard
  FY22 w/ Addition | 1,200 pounds per cubic yard

3. Part A Permit Update – Solid Waste

Expenditure	$530,000
Use of Fund Balance	$530,000
General Fund Impact	$0
FTE Positions	0.00

a. Description – This initiative funds the Part A DEQ environmental mandated permit. Part A permit demonstrates that the landfill facility meets siting requirements mandated by federal and state regulations to operate a sanitary landfill. Solid Waste continually updates a 15-year forecast to determine when capping is required and permits are needed. The Solid Waste Enterprise fund balance funds this one-time expenditure. There is no general fund impact.

b. Service Level Impacts – Maintain compliance with mandated requirements.

4. Landfill Traffic Control Building – Solid Waste

Expenditure	$80,000
Use of Fund Balance	$80,000
General Fund Impact	$0
FTE Positions	0.00

a. Description – This initiative provides one-time funding for the construction of a new traffic control building at the landfill. The design of the existing building is old, creating health issues resulting from exposure to the elements and car exhaust. On weekends, six thousand cars pass through the building, needing immediate service to avoid a hazardous backup on Route 234 which could potentially cause a hazard. Additionally, the design of the current building hampers visibility, resulting in traffic control errors. Temporary solutions such as shades and tinted windows are not effective, and an awning is not feasible due to the height of trucks. The Solid Waste Enterprise fund balance funds this one-time expenditure. There is no general fund impact.

b. Service Level Impacts –

- **Customer services wait time**

  FY22 w/o Addition | 3 minutes
  FY22 w/ Addition | 1 minute

- **Number of transaction errors made in traffic control building per year**

  FY22 w/o Addition | 5%
  FY22 w/ Addition | 2%

Program Summary

Director's Office

Provide overall leadership and management oversight for all Public Works personnel activities. Review all major policy issues, financial transactions, BOCS reports, and County Executive-generated directives, and interface with executive management and the public on complex issues within the department.

Key Measures	FY18 Actuals	FY19 Actuals	FY20 Actuals	FY21 Adopted	FY22 Adopted
Key department program measures met	67%	64%	66%	62%	86%
Public Works Days Away Restricted or Transferred	7.58	5.01	3.33	5.79	4.67

Program Activities & Workload Measures (Dollar amounts expressed in thousands)	FY18 Actuals	FY19 Actuals	FY20 Actuals	FY21 Adopted	FY22 Adopted
Leadership & Management	**$1,397**	**$1,583**	**$1,700**	**$486**	**$415**
BOCS agenda items	53	33	23	50	17

Stormwater Infrastructure Management

Ensure that the County's stormwater infrastructure complies with state and federal environmental regulations, standards, and policies, including County standards, the Chesapeake Bay Total Maximum Daily Load (TMDL), and the County's Municipal Separate Storm Sewer System (MS4) permit regulations, along with Virginia Stormwater Management Program (VSMP) regulations. The program consists of the inspection of existing infrastructure, such as storm drain inlets, storm sewers, and stormwater management facilities within County easements, as well as major maintenance of County-maintained facilities to prevent flooding and protect local water quality and the Chesapeake Bay.

Key Measures	FY18 Actuals	FY19 Actuals	FY20 Actuals	FY21 Adopted	FY22 Adopted
Drainage assistance requests responded to within five business days	100%	99%	100%	97%	97%

Program Activities & Workload Measures (Dollar amounts expressed in thousands)	FY18 Actuals	FY19 Actuals	FY20 Actuals	FY21 Adopted	FY22 Adopted
Stormwater Management Infrastructure Inspection	**$810**	**$759**	**$813**	**$905**	**$958**
County-maintained facilities inspected and/or re-inspected	969	1,036	1,243	900	900
Privately-maintained facilities inspected and/or re-inspected	256	241	342	200	200
Stormwater Management Infrastructure Maintenance	**$2,737**	**$2,727**	**$3,383**	**$2,995**	**$2,996**
Major maintenance cases completed/closed	460	543	467	350	350

Site Development

Review all site and subdivision land development plans and document inspection of active construction sites to ensure compliance with environmental regulations, standards, and policies related to stormwater management, best management practices, erosion and sediment control, resource protection areas, floodplains, and geotechnical engineering.

Key Measures	FY18 Actuals	FY19 Actuals	FY20 Actuals	FY21 Adopted	FY22 Adopted
Site development plan submissions reviewed within County standards	100%	99%	100%	100%	100%
Lot grading plan submissions reviewed within 10 business days	100%	100%	100%	100%	100%

Program Activities & Workload Measures (Dollar amounts expressed in thousands)	FY18 Actuals	FY19 Actuals	FY20 Actuals	FY21 Adopted	FY22 Adopted
Plan Review	**$1,780**	**$1,876**	**$2,004**	**$2,062**	**$1,918**
Site development plan submissions reviewed	448	356	565	350	350
Lot grading lots reviewed	1,338	1,012	1,246	1,000	1,000
Site Inspections	**$1,595**	**$1,761**	**$1,722**	**$1,987**	**$1,928**
VSMP & erosion & sediment control inspections	17,049	21,561	27,777	19,000	22,000

Watershed Improvement

Ensure that the water quality of local streams within each of the County's watersheds follows environmental regulations, standards, and policies, including the Chesapeake Bay TMDL and the County's MS4 permit. The program focus is to prevent downstream and localized flooding impacts, protect water quality from illicit pollution discharges into the storm drainage system, prevent discharge of pollutants from industrial activities, and prevent sediment release associated with stream erosion, as well as the reduction of nitrogen, phosphorous, and sediment loads from stormwater runoff. The program includes the assessment of streams and other natural resources within each watershed, identification of problem areas, and implementation of water quality improvements. In addition, environmental education, outreach, and technical assistance to citizens, both in urban areas as well as within the agricultural community, are components of this program.

Key Measures	FY18 Actuals	FY19 Actuals	FY20 Actuals	FY21 Adopted	FY22 Adopted
Industrial or high risk inspections conducted	130	81	26	50	50
Linear feet of stream restorations completed	1,380	3,100	3,143	3,000	3,000

Program Activities & Workload Measures (Dollar amounts expressed in thousands)	FY18 Actuals	FY19 Actuals	FY20 Actuals	FY21 Adopted	FY22 Adopted
Watershed Monitoring	**$6,792**	**$4,495**	**$4,458**	**$4,496**	**$4,530**
Linear feet of stream assessments completed	63,260	61,454	67,522	60,000	60,000
Dry weather outfalls monitored and inspected	853	1,092	761	800	700
Watershed Improvements	**$573**	**$410**	**$476**	**$510**	**$511**
Pounds of phosphorus reduction achieved	112	211	248	200	200

Sign Shop

Inspect, fabricate, install, and maintain all street name signs as mandated by Code of Virginia. In addition, the program produces high quality graphics for County vehicles and creates custom-designed original graphic designs for interior and exterior signs, banners, posters, and displays for County agencies, outside jurisdictions, and developers.

Key Measures	FY18 Actuals	FY19 Actuals	FY20 Actuals	FY21 Adopted	FY22 Adopted
Street signs completed within 10 days of request	92%	96%	92%	85%	85%

Program Activities & Workload Measures (Dollar amounts expressed in thousands)	FY18 Actuals	FY19 Actuals	FY20 Actuals	FY21 Adopted	FY22 Adopted
Street Name Signs	**$176**	**$211**	**$260**	**$187**	**$229**
Streets requiring street name signs	9,826	9,797	7,298	9,900	7,300
Street name signs fabricated for maintenance	1,592	1,060	1,318	1,000	1,000
Signs and Graphics	**$68**	**$54**	**$44**	**$31**	**$31**
Signs and graphics fabricated for revenue	8,806	20,372	25,497	12,500	17,500

Small Project Construction

Provide support for a variety of County projects, including stormwater management infrastructure maintenance and inspections, stream restorations, drainage improvements, and parks and transportation improvements.

Key Measures	FY18 Actuals	FY19 Actuals	FY20 Actuals	FY21 Adopted	FY22 Adopted
Community improvement projects completed within 10% of estimated cost	100%	100%	100%	97%	97%

Program Activities & Workload Measures (Dollar amounts expressed in thousands)	FY18 Actuals	FY19 Actuals	FY20 Actuals	FY21 Adopted	FY22 Adopted
Small Community Improvement Construction	**$2,016**	**$3,184**	**$3,387**	**$2,110**	**$2,097**
Drainage infrastructure inspected (% of easement miles)	37%	56%	76%	45%	45%
Drainage infrastructure projects completed/closed	460	543	467	350	350
Responsive to project estimate requests within 30 days	-	100%	100%	90%	90%

Mosquito & Forest Pest Management

Survey, reduce, and manage mosquitoes and certain forest pest populations. Program objectives include minimizing mosquito-transmitted disease such as West Nile Virus and Zika Virus by reducing mosquito populations and breeding sites, minimizing tree defoliation and mortality caused by the Gypsy Moth and Fall Cankerworm, conducting surveillance and outreach for Emerald Ash Borer, Asian Longhorned Beetle, Thousand Cankers Disease, and Sudden Oak Death, and minimizing adverse environmental and human health impacts resulting from the treatment of these pests.

Key Measures	FY18 Actuals	FY19 Actuals	FY20 Actuals	FY21 Adopted	FY22 Adopted
Mosquito traps processed within 48 hrs to detect West Nile & Zika virus	100%	100%	100%	98%	98%
High priority mosquito habitat applications	-	91%	92%	90%	90%
Citizen site visit requests responded to within 24 hours	92%	100%	100%	95%	95%
Gypsy moth surveys conducted to determine if spraying is needed	1,047	1,050	1,054	1,050	1,050

Program Activities & Workload Measures (Dollar amounts expressed in thousands)	FY18 Actuals	FY19 Actuals	FY20 Actuals	FY21 Adopted	FY22 Adopted
Mosquito/Forest Pest Monitoring	**$855**	**$849**	**$905**	**$949**	**$994**
Larval mosquito habitat inspections	5,752	5,587	7,059	5,500	5,500
Reduction and Response	**$618**	**$697**	**$687**	**$749**	**$759**
Mosquito larvicide applications	1,374	1,528	1,489	1,500	1,500
Community engagement and outreach	48	40	25	40	40

Solid Waste

Provide solid waste management services to all residents, institutions, and businesses now and into the long-range future. Facilities and programs promote waste reduction and recycling, and efficiently receive and process all acceptable household and commercial wastes generated within the geographical boundaries, including the towns of Dumfries, Haymarket, Occoquan, and Quantico. Processing of the waste will meet or exceed all applicable federal, state, and local regulations.

Key Measures	FY18 Actuals	FY19 Actuals	FY20 Actuals	FY21 Adopted	FY22 Adopted
Refuse recycled	35%	35%	35%	32%	35%
Tons of refuse processed	444,654	392,630	365,615	425,000	400,000

Program Activities & Workload Measures (Dollar amounts expressed in thousands)	FY18 Actuals	FY19 Actuals	FY20 Actuals	FY21 Adopted	FY22 Adopted
Solid Waste Management & Administration	**$2,879**	**$2,992**	**$3,268**	**$10,030**	**$5,916**
Non-residential accounts processed	4,356	4,576	4,414	4,600	4,600
Yard Waste Composting	**$2,437**	**$2,931**	**$2,555**	**$3,648**	**$3,616**
Tons of County yard waste diverted from waste stream	24,688	26,053	24,885	28,000	28,000
Solid Waste Facilities Operation	**$9,341**	**$19,854**	**$11,072**	**$12,532**	**$11,455**
Refuse trucks inspected	3,958	5,448	5,158	4,500	5,000
Pounds of Household Hazardous Waste and eWaste collected	1.3M	1.3M	0.9M	1.3M	1.3M
Citizens trips to Solid Waste facilities	585,903	609,720	662,435	620,000	630,000
Recyclable Materials Collected, Processed & Marketed	**$740**	**$622**	**$662**	**$1,027**	**$1,063**
Tons of recyclables processed and marketed	1,637	1,747	1,928	2,000	2,000
Revenue generated from sale of recyclables	$628,591	$651,778	$538,375	$600,000	$600,000
Landfill Closure	**$0**	**$0**	**$0**	**$2,086**	**$7,036**

Neighborhood Services

Provide a safe, clean, and healthy community through education, community support, and Property Code Enforcement (PCE). Provide programs that teach residents and business owners how to properly maintain their properties, and work with neighborhood leaders to enforce property codes that go to the heart of the County's quality of life.

Key Measures	FY18 Actuals	FY19 Actuals	FY20 Actuals	FY21 Adopted	FY22 Adopted
Founded PCE cases resolved or moved to court action within 100 calendar days	92%	95%	95%	92%	92%
First inspection of complaint within five business days	97%	99%	98%	97%	97%
Average time to resolve cases (calendar days)	46	36	38	40	38

Program Activities & Workload Measures (Dollar amounts expressed in thousands)	FY18 Actuals	FY19 Actuals	FY20 Actuals	FY21 Adopted	FY22 Adopted
Litter Control	**$727**	**$694**	**$732**	**$817**	**$753**
Illegal signs removed from State right-of-way	12,253	11,805	5,682	9,500	6,000
Lane miles cleaned	-	-	1,185	1,450	1,200
Tons of trash removed by County Litter Crew	125	164	75	-	-
Landscaping	**$503**	**$509**	**$605**	**$717**	**$717**
Landscaping areas maintained	44	48	48	48	48
Acres of medians and rights-of-way maintained	230	234	234	234	234
Property Code Enforcement	**$2,541**	**$2,610**	**$2,583**	**$2,575**	**$2,605**
Total cases resolved	4,179	4,079	3,219	4,200	4,200
Total inspections conducted	11,455	10,761	8,652	11,100	10,000