



NORFOLK STATE UNIVERSITY

2020 MS4 Annual Report



NORFOLK STATE UNIVERSITY ANNUAL MUNICIPAL SEPARATE STORM SEWER REPORT

Background information

1. *The name and permit number of the program submitting the annual report.*

Norfolk State University, Permit # VAR 040097

2. *The annual report permit year.*

Permit Year July 1, 2019 to June 30, 2020

3. *Modifications to any operator's department's roles and responsibilities.*

The Facilities Management Department has replaced the positions of:

- No replacements have been made.

4. *Number of new MS4 outfalls and associated acreage by HUC added during the permit year.*

No new outfalls were added during the permit year. The existing outfalls and associated acreages by HUC are as follows:

Outfall Name	Acreage	HUC	Description
Outfall #1	±3.4 Acres	JL 54	Flows east into the City line under Ballentine Avenue
Outfall #2 to 8	±18.0 Acres	JL 54	Flow south into a perimeter ditch
Outfall #9	±104.8 Acres	JL 54	Is a large box culvert which flows to the south border
Outfall #10	±3.3 Acres	JL 54	Flows south to the City line under Brambleton Avenue
Outfall #11	±1.2 Acres	JL 54	Flows west to the City line under Park Avenue

An overlay map displaying these structures are in the attached appendix A.



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ANNUAL MUNICIPAL SEPARATE STORM SEWER REPORT

5. *Signed certification in accordance with Part 1.D.2.c.*

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

10/1/20

Date

Anton V. Kashiri

Signature

Anton V. Kashiri, Associate Vice President Facilities Management.



NORFOLK STATE UNIVERSITY ANNUAL MUNICIPAL SEPARATE STORM SEWER REPORT

6. *The status of compliance with permit conditions, an assessment of the appropriateness of the identified best management practices including an assessment of the appropriateness of the identified BMPs in addressing discharges into waters that identified as impaired in the 2018 305(b)/303(d) Water Quality Assessment Integrated Report and progress towards achieving the identified measurable goals for each of the minimum control measures.*

-See attached chart for additional information regarding this item.

7. *The results of information collected and analyzed, including monitoring data, if any, during the reporting period.*

-See attached chart for additional information regarding this item.

8. *A summary of the stormwater activities the operator plans to undertake during the next reporting cycle.*

- The University has retained a consultant to assist with updating a prior Stormwater Management Master Plan for the campus which includes specific directions for current and future stormwater best management practices. The proposed Stormwater Management Master Plan has been submitted to DEQ in 2018, with comments being currently addressed as well as updates resulting from the University Campus Master Plan. These updates are being incorporated to conform to state regulations and TMDL requirements. A resubmittal of the updated Campus Stormwater Master Plan will be submitted to DEQ for review in early 2021.

9. *Any changes in any identified best management practices or measurable goals for any of the minimum control measures including steps to be taken to address any deficiencies.*

-See attached chart for additional information regarding this item.

Minimum Control Measure #1: Public Education and Outreach on Stormwater Impacts			
<p>This measure requires the University to educate the public about the potential impact of stormwater discharges from the University. The University will show the impact it has on surrounding bodies of water, emphasizing the precautions to be taken to reduce pollutants in stormwater runoff. The University considers the campus community as its public and a critical stakeholder in the University's Stormwater Management Plan. Staff receive work orders that directly address physical conditions that can be the source of stormwater pollutants. Multiple Best Management Practices (BMP)s are associated with this Minimum Control Measure. All BMPs defined under this measure were implemented during the first permitting year and continuously since that time.</p>			
Proposed BMP	Measurable Goal and Effectiveness	Compliance Status	Plans for Next Permit Year
<p>1A. High Priority Water Quality Issues:</p> <p>1. - Management Facility Bus Wash - Prevent oils and grease from entering the storm sewer system. Maintain bus wash water inlet structure to be tied into the sanitary sewer system.</p> <p>2. - Material Storage (Mulch, sand, dirt) - Prevent sediment and material being carried with storm runoff to storm sewer system. Design and construction of a material storage bays with E & S control measures.</p> <p>3. - BMP and Outfall maintenance - Prevent vegetative matter from depositing and accumulating in Stormwater Management Facilitates or draining to storm sewer system.</p> <p>A presentation on the University's conservation initiatives, including stormwater pollution prevention will be presented to the grounds staff, students and other interested parties, to increase awareness of stormwater and pollution prevention measures and High Priority Water Quality Issues. This includes understanding of the differences between stormwater and sanitary sewer systems and will be presented annually.</p>	<p>Target Audience - 90 Housekeeping and grounds employees of which 41 housekeeping and 16 Grounds Staff Member (64%) attended and received training. Additionally, newly added staff have received orientation training that includes stormwater pollution prevention. Approximately 297 students in residence halls and at student orientations received Stormwater pollution prevention brochures.</p>	<p>Training on the University's conservation initiatives, including stormwater pollution prevention was completed and held on 3/4/20, covering the 3 high priority water quality issues and additional stormwater pollution prevention information. In addition, NSU has retained the services of a private consultant to give a presentation to educate the grounds staff on the the 3 high priority water quality issues. Due to COVID-19 constraints additional training on the (3) high priority issues was not feasible.</p>	<p>Show updated presentation to staff and students and other interested parties. An expanded program of training in 2021 will include police officers and students and additional faculty. NSU will target its staff members (110 +/-) for the next reporting year in hopes of increasing attendance 80% to 85%. Retain the services of a private consultant to aid in a presentation to staff to further educate them on the importunate of proper maintenance to protect the storm sewers.</p>

Proposed BMP	Measurable Goal and Effectiveness	Compliance Status	Plans for Next Permit Year
1B. The University's website is a source of information on the numerous programs. Among the topics under Facilities Management is information on pollution prevention and stormwater management. (Additional links to other local programs and the City of Norfolk initiatives aimed at improving water quality are to be incorporated.)	To provide the public with easy access to basic information on the various aspects of the University's concern for the natural environment. The program and annual report will be posted annually.	The 2019 MS4 Annual Report is currently available on the University's Website and will be replaced with the 2020 Annual report upon its submittal - See the Stormwater Pollution Prevention" section under the following web address: https://www.nsu.edu/ehsrn A copy of the MS4 Permit and Stormwater Training Presentation is also located on the University Website.	Continue to post Annual Report and Program.
1C. Post stormwater pollution prevention information in the NSU Spartan E-Dailey Email.	One to Two page ad type inclusion to reach student body, staff, and faculty on a semi-annual basis.	NSU has a the Spartan E-Daily Web Email. The University Email covers a variety of topics, including sports, future events, guest speakers, and political topics of interest. In 2020, no stormwater pollution prevention topics were covered.	University staff plan to work with Spartan E-Daily staff to developing articles to include during the next permit year.

Proposed BMP	Measurable Goal and Effectiveness	Compliance Status	Plans for Next Permit Year
1D. NSU's Director of Environmental Health, Safety and Risk Management Office and University Architect and Inspectors to take DEQ E&S Inspector Course and obtain certification. (Land disturbance construction sites)	NSU's Director of Environmental Health, Safety and Risk Management Office and University Architect to take the DEQ E&S and Stormwater Inspector Courses and corresponding examinations as per the Annual Standards and Specifications.	The University Architect has completed the DEQ Combined E&S and Stormwater Management Courses and Exams in the 2017-2018 reporting year.	University Architect to maintain all required certifications.
1E. Stormwater pollution prevention brochures are to promote interest in protecting the natural environment of the campus and related wetlands and rivers.	After approval by senior management, the brochures are to be printed in sufficient volume for the campus community. The brochures shall be available at strategic locations on campus.	The distribution of brochures has been done. A copy of the final version was submitted as part of the 2013 MS4 Report and has not changed since.	Continue to distribute to the students as outlined.
1F. Students have been invited to assist with attaching storm drain markers to stormwater inlets. This project will depend on weather conditions, and the students' academic schedules.	To encourage student/faculty/staff participation and recognition of the stormwater management system. This task will be performed until all inlets on campus have a marker.	100 markers were installed by a consultant in June 2011. The condition of the markers was verified. Approximately 20 new markers are required for structures that have been repaired and/or replaced and is scheduled to take place in early 2021.	Inspect all the markers and replace with new markers if damaged or missing.

Proposed BMP	Measurable Goal and Effectiveness	Compliance Status	Plans for Next Permit Year
1G. Preparation of a SWPPP (Stormwater Pollution Prevention Plan) for the University's Maintenance Facility .	Norfolk State University has retained the services of a private consultant to prepare a SWPPP (Stormwater Pollution Prevention Plan) for the Maintenance Facility that identifies methods for the prevention of sediment and pollutants from entering the storm sewer system. The concern is controlling any sediment, debris and oils from potentially entering the storm sewer system. The SWPPP identifies methods to prevent sediment and pollutants from entering the storm sewer system.	Preparation of the SWPPP was completed in September 2015 and has been implemented.	Maintain SWPPP documents and update as required based on updates from DEQ.
1H. Design of new Bus Wash Facility for the University's Maintenance Facility.	Norfolk State University has retained the services of a private consultant for the design of a new Bus Wash Facility for the University's Maintenance Facility. The concern is controlling any oils and grease from potentially entering the storm sewer system. This will be addressed with the installation of a new drop inlet that is tied to the sanitary system. As buses are washed the inlet structure will be opened via a hatched cover, where wash water from the buses can be collected and sent through the sanitary sewer system. When washing is complete the hatch cover of the inlet is closed, so storm events can pass by the structure and drain to the storm system.	Planning, design, and construction completed in late 2016. A review of functionality has taken place and needed corrective pavement modifications are currently underway that will allow the new hinged hatch covered drain inlet to be more efficient at capturing bus wash water.	Oversee modifications to the pavement that will improve functionality within the facility. Continue with Inspection and cleaning per the SWPPP.

Proposed BMP	Measurable Goal and Effectiveness	Compliance Status	Plans for Next Permit Year
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Minimum Control Measure #2: Public Involvement/Participation

This measure requires the University to encourage the public to become involved in the protection of stormwater runoff and related sewer systems. As a State University and a campus open to the general public, NSU has provided program basics on its website, conferred with faculty, and made presentations to students. Multiple BMPs are associated with this Minimum Control Measure. All BMPs defined under this measure were implemented during the first permitting year and continuously since that time, unless specifically stated otherwise.

Proposed BMP	Measurable Goal and Effectiveness	Compliance Status	Plans for Next Permit Year
2A. NSU will join the Elizabeth River, River star program to allow for participation of Students and Staff in various Elizabeth River clean up events with other City entities and residents.	To encourage student/faculty/staff awareness and participation to provide soil stabilization, reduce heat island effect, sediment and pollution from getting in storm drains and downstream waterways (Elizabeth River). This will occur approximately 3 to 5 times annually as scheduled.	No participation was completed for the 2020 reporting year due to COVID-19.	Advertise schedule for 2021 events on Spartan E-Daily to increase student and staff involvement.
2B. Prepare for Earth Day Activities.	Students will be encouraged to participate and attendance will be taken. This process will occur annually and was started in 2013.	The University did not have an Earthday activity for the 2020 reporting year due to COVID-19.	Schedule events for Earth Day for the upcoming year.

Proposed BMP	Measurable Goal and Effectiveness	Compliance Status	Plans for Next Permit Year
2C. The University's website is a source of information on the status of the MS4 Program and all annual reports. Make copies of reports available on website.	To annually provide public access to the permit via the University's website. Increase their knowledge of stormwater regulations and NSU's efforts to improve the local water quality.	The 2019 MS4 Report is currently available on the University's Website. See the Stormwater Pollution Prevention" section under the following web address: https://www.nsu.edu/ehsrn A copy of the 2020 MS4 Annual Report will be uploaded when completed. A technical staff member was utilized to upgrade the departments current site.	Continue to post Annual Report and Program.
2D. Involvement/Participation of Public, Students and Staff: Conduct a presentation on stormwater pollution prevention to Facilities Management Staff and Students.	To increase Public, Student and Staff awareness of stormwater and pollution prevention measures. This includes understanding of the differences between stormwater and sanitary sewer systems and allowable discharges, and will be conducted annually to biannually.	Housekeeping and grounds employees, of which 57, (64%) attended, received training on 3/4/20. Additionally, the Director of Environmental, Health, Safety and Risk for the University spoke at 7 different Resident halls to a total student audience of 1,400+/- in November of 2019 discussing topics including stormwater pollution prevention.	Update presentations for staff and students and other interested parties. Continue training in next reporting year.

Proposed BMP	Measurable Goal and Effectiveness	Compliance Status	Plans for Next Permit Year
Minimum Control Measure #3: Illicit Discharge Detection and Elimination			
<p>This measure requires the University to detect and eliminate illicit discharges into the MS4. The University is aware of potential sources of illicit discharges and has made their elimination a high priority. The following discharges are exempt from discharge prohibitions established by this Minimum Control Measure:</p> <ul style="list-style-type: none"> • Water line flushing or other potable water sources • Landscape irrigation or lawn watering • Diverted stream flows • Rising ground water • Ground water infiltration to storm drains • Uncontaminated pumped ground water • Foundation or footing drains (not including active groundwater dewatering systems) • Crawl space pumps • Air conditioning condensation • Springs • Natural riparian habitat or wetland flows • Swimming pools (if de-chlorinated - typically less than one PPM chlorine) • Fire fighting activities • Any other water source not containing Pollutants. <p>Materials used by the equipment maintenance staff, vegetative nutrients, housekeeping cleaning solvents, chemicals used in academic and research laboratories have been identified as potential pollutants. Separate procedures have been established for each of these exposures. Multiple BMPs are associated with this Minimum Control Measure. All BMPs defined under this measure were implemented during the first permitting year and continued since that time, unless specifically stated otherwise.</p>			
Proposed BMP	Measurable Goal and Effectiveness	Compliance Status	Plans for Next Permit Year
3A. Equipment maintenance: As much as possible, motorized unlicensed equipment will be stored under a shed roof to help minimize the amount of stormwater runoff from the equipment. This equipment can develop lubricant and fuel stains which could produce sheen on waters entering stormwater drains. Accumulations of grass clippings, leaves, dirt and loose debris are to be removed from the equipment, and swept up to prevent their inadvertent entry into stormwater inlets.	To make equipment operators more accountable for the cleanliness of the equipment and reduce the possibility of petrochemical residue and debris entering the stormwater system. Operators will adhere to policies outlined in this plan.	Active. Grounds personnel are trained in keeping debris out of stormwater drains. A roof was installed over equipment in maintenance yard to prevent any oils from equipment entering stormwater system during rain events. In addition, the various fluid product cabinets have been removed from the yard.	Continue plan as is but reinforce it with the development of more specific procedures to clarify employee responsibilities.

Proposed BMP	Measurable Goal and Effectiveness	Compliance Status	Plans for Next Permit Year
3B. Motor vehicle refueling: The University has an underground gasoline storage tank for use in state vehicles. Refueling most of those vehicles is performed by the vehicle maintenance staff who have been instructed not to “top-off” the vehicle tank for fear of overflow and spilling onto the pavement. To help prevent incidents, the nozzle has been replaced with one that will close automatically; access to the hose is restricted by locking the nozzle in place, turning off the gasoline pump and restricting refueling to a few hours in the morning when the mechanic is available to oversee the procedure.	Prevent gasoline from entering the stormwater drains, staining the pavement and reducing the risk of fire. The University will ensure that no unauthorized use of the gasoline tank will occur.	Active	Continue plan as is.
3C. Vegetative nutrients: The University has contracted with a consultant to assist with a nutrient management program. The program includes soil tests, assessments of vegetation and specified application amounts.	To maintain healthy lawns and plantings while reducing spills on pavements that can enter stormwater inlets and adversely affect marine life.	The University engaged a consultant to prepare a new Nutrient Management Plan that was adopted and implemented. The plan is included in the Annual Report Appendix and will be kept with the program records.	Apply and maintain new nutrient management plan.
3D. Dumping: Develop procedures to detect and address non-stormwater discharges, including illegal dumping, will include the University Police patrolling the campus and the presence of facilities groundskeepers, tradesmen and shuttle bus drivers. These individuals are to report observations and incidents that could result in illicit discharges, or conditions that could result in non-stormwater contamination. In addition to these detection methods, the main outfall from campus has a large screen that prevents solids from entering connecting sewers. The University will coordinate with the city to assure this structure remains functional.	To prevent illegal dumping from entering the stormwater drains, which could impair water quality. Incidents of dumping will be documented and provided.	NSU grounds staff and Campus police patrol the campus regularly. No illicit discharges were reported. The draft policy for illicit discharge is being reviewed and considered by the University and is expected to be incorporated in 2021.	Continue monitoring. Initiate and maintain the formal policy, if the draft policy is approved. Amend policy if required and resubmit changes to DEQ for review and approval.
3E. Penalties: A policy proposal shall be drafted addressing the seriousness of illicit discharges on campus, and explaining the possible adverse impact of hazardous materials on the natural environment. The policy shall apply to all members of the campus community and visitors. Technical and legal reviews will be involved and may specify assessments of penalties by a faculty or student conduct board.	If approved, the policy would be made public through an extensive advertising campaign and a “grace” period clearly stated for all to become aware of the policy.	The draft policy is still being reviewed and considered by the University and is expected to be incorporated in 2021.	Initiate and maintain the formal policy, if the draft policy is approved. Amend policy if required and resubmit changes to DEQ for review and approval.
3F. Removal of grease and oil accumulations from parking lots will require the use of pressure-washing, deployment of petrochemical absorbents around the cleanup site and in front of any affected stormwater inlets.	To prevent illicit discharges from entering the University’s stormwater system.	No incidents were reported in the 2019-2020 reporting year.	Continue to monitor parking lot areas.

Proposed BMP	Measurable Goal and Effectiveness	Compliance Status	Plans for Next Permit Year
3G. In the event that an illicit discharge is identified, it will be reported to DEQ in the Annual Report.	To prevent illicit discharges from entering the University's stormwater system. Identified illicit discharges will be reported annually.	No incidents were reported in the 2019-2020 reporting year.	Continue plan as is.
3H. Dry weather Screening. Stormwater Outfall inspection: This section includes details on how to find an illicit discharge in the field and the appropriate laboratory strategies to identify particular pollutants. The Outfall Reconnaissance Inventory (ORI) is the most proven method for screening campus stormwater outfalls. The ORI consists of walking all of the campus outfalls to document where they are and their condition. The field team should be able to find where continuous and intermittent stream flows exist. They will take note of any outfalls with discharges of very high turbidity, strong odors, unnatural colors or an extreme case of pH on a field litmus test strip. When obvious discharges are found, the field crew will take note and start working upstream to find where the source is and eliminate it. While traversing the campus, field crews should be looking for other more common illicit discharges like oil spills, un-permitted car washing or other harmful liquid spills. If these are encountered the appropriate abatement agency should be notified. The following table provides a step by step process for conducting an ORI.	To identify potential illicit discharges that could impair water quality. All outfalls to be inspected and inspection checklist kept onsite. All campus outfalls will be initially inspected by the end of the third permit year and quarterly thereafter. Inspections will be documented.	The 11 Outfalls were inspected with no major incidents reported. It was recorded that regular maintenance of overgrown vegetation was needed. Upon reinspection of outfalls it was observed that maintenance recommendations had been followed. Inspection Reports have been completed and recorded in the program.	Continue plan as is.
3I. Students have been advised not to change any of the fluids used in their motor vehicles while on campus. These include motor oil, transmission fluid, anti-freeze, gasoline or diesel and windshield washer fluids.	To minimize the accumulations of fluid puddles and stains in parking lots and campus streets that can become part of stormwater runoff. The campus will be reminded electronically each semester.	No incidents were reported in the 2019-2020 reporting year.	Continue plan as is.

Proposed BMP	Measurable Goal and Effectiveness	Compliance Status	Plans for Next Permit Year
3J. A list of any written notifications of physical interconnection given to other MS4 holders.	To make adjoining MS4 entities aware that there is interconnecting storm systems.	City of Norfolk is the only interconnected MS4 entity. Written notification was sent out to the Environmental Programs Manager - June Whitehurst on September 28, 2015.	Issue new notification if changes in interconnected MS4 should occur.

Minimum Control Measure #4: Construction Site Stormwater Runoff Control

The University has adopted state mandated procedures to reduce pollutants in stormwater runoff from entering the stormwater inlets on campus during construction projects. The permit requires that permittees address the situation of another government entity being held responsible for the permittee satisfying some of the state permit requirements. Virginia Stormwater Management regulatory oversight has passed to the Department of Environmental Quality as of the issuance of the General Permit June 30, 2013. Public institutions of higher education will continue to have stormwater management plans reviewed by DEQ; however, DEQ will not review Erosion and Sediment Control Plans. The two options for Erosion and Sediment Control review are: implementation of an internal Erosion and Sediment Control review process, or review by the locality. NSU has reviewed both options and will submit Erosion and Sediment Control Plans to the City of Norfolk for review.

Proposed BMP	Measurable Goal and Effectiveness	Compliance Status	Plans for Next Permit Year
4A. Maintain compliance with Virginia Erosion and Sediment Control and Stormwater Laws for Construction projects: Included in affected projects with a general contractor, is a section dedicated to slope protection and erosion control.	To adhere to all laws for erosion, sediment control, and stormwater management. The University Architect will perform inspections to ensure compliance.	Requirements for complying with Virginia Erosion & Sediment Control are specified in the project contract including protection of slopes and erosion control measures. In addition, NSU has had Annual Standards and Specifications (AS&S) prepared, which describe the University's procedures for all land disturbance projects. The AS&S document has been updated and submitted and approved by DEQ June 2019. The updated document will be maintained with the MS4 Program.	Continue plan as is.

Proposed BMP	Measurable Goal and Effectiveness	Compliance Status	Plans for Next Permit Year
4B. The University holds the general contractor responsible for maintaining the job site to the satisfaction of the University and all applicable regulations.	To provide a safe working environment and eliminate damages to the environment. This will be included in the inspection and documented within the MS4 Program records.	The general contractor is held responsible for the entire project and applicable regulations via their contract with the University. No incidents observed or reported.	Continue plan as is.
4C. The contractor is required to schedule work in a manner that best provides slope protection and erosion controls by installing grass, ditches or other means to prevent runoff into stormwater drains.	To prevent erosion on the construction site. This will be included in the regular inspections of control measures.	The general contractor has coordinated their tasks to minimize erosion and slope protection with the use of silt fence and vehicle traffic control.	Continue plan as is.
4D. The contractor must clean out any drains that become contaminated with construction site runoff.	To eliminate future contamination of downstream stormwater system, contaminated drains shall be cleaned of all contaminants on an as-needed basis. Documentation of cleaning will be provided.	No drains were adversely affected during the 2019-2020 reporting year.	Continue plan as is.
4E. The contractor will be responsible for any damage to streams or other natural areas or wetlands by the addition of soil, rock, or topsoil, whether deposited by poor construction practice, sedimentation, or wind, and vegetation matter such as whole trees or any part thereof, or remnants from burning or other clearing processes, and waste construction materials such as concrete, broken pipe, equipment parts and any other additions which could be detrimental to said areas.	To protect the surrounding areas from damage due to poor construction practices. The University Architect will perform inspections to ensure compliance and will enforce penalties as needed.	All contractors have been held responsible for minimizing any impact on the local natural features. Waste construction materials were controlled. No incidents observed.	Continue plan as is.

Proposed BMP	Measurable Goal and Effectiveness	Compliance Status	Plans for Next Permit Year
4F. Any damages will be assessed by the University based on site inspections. Currently the University Architect, Certified for inspection of both E&S measures and post stormwater devices, provided inspection of projects with land disturbance every 5 business days and after rain events. The contractor will act as soon as possible to prevent further damage and correct existing damage at no cost to the University. Should the University choose to do so, a remediation contractor will correct the damage and their fees deducted from the contractor's payment.	To eliminate and repair damages to the surrounding areas. Inspections will take place every 5 business days and after rain events (to be compliant with MS4 Permit - TMDL requirements) and damages will be reviewed and assessed by the University as needed.	The University Architect has completed the DEQ E&S and Stormwater inspector, reviewer, and administrator training and examinations. As part of the Annual Standards and Inspections the University shall provide inspections for Campus projects involving land disturbance. No remediation contractor was required in the permit year.	Continue plan as is. Update any certifications as required.

Proposed BMP	Measurable Goal and Effectiveness	Compliance Status	Plans for Next Permit Year
<p>4G. The contractor will anticipate site inspections by the erosion and sediment control reviewing authority (University Architect).</p> <p>Current projects requiring SWPPP and University Inspections of E & S Measures: Residential Hall Facility</p>	<p>Inspections, regular meetings and oversight was performed by the University Architect.</p>	<p>In the 2019-2020 reporting year, the DEQ Certified University Architect worked closely with contractors to oversee construction progress and final stabilization of the resident hall project. No inspection reports were created during the 2020 reporting year for the resident hall project; however, no issues were observed during inspection walkthroughs due to the close oversight.</p>	<p>Continue plan as is. Inspection Reports will be generated for future projects.</p>
<p>4H. The inspector for the erosion and sediment control reviewing authority will be allowed access to all areas of the construction site.</p>	<p>To ensure all areas of the site are properly monitored and examined. The inspector will document all considered locations.</p>	<p>The University Architect has had full access throughout all areas of the construction site.</p>	<p>Continue plan as is.</p>

Proposed BMP	Measurable Goal and Effectiveness	Compliance Status	Plans for Next Permit Year
4I. All conditions or practices noted by the inspector, that could result in deteriorated slope protection or erosion control, will be immediately corrected.	To prevent damage to the construction site, the inspector will document damages and take immediate action.	The general contractor has been responsive to requests from the University Architect. Minor comments were discussed and addressed within the required time frames. The University Architect has handled follow up inspections.	Continue plan as is.
4J. If the inspector for the erosion and sediment control reviewing authority submits a report to the University or contractor, all infractions or penalties will be addressed by the contractor at no expense to the University.	To make the contractor liable for all infractions and penalties caused by damages. The University will document all infractions and penalties.	No infractions or penalties were recorded.	Continue plan as is.
4K. At the agreed conclusion of a project, all temporary erosion control systems will be removed, and inspection of adjacent stormwater inlets and drains conducted. The contractor will remove all materials, sediment or vegetation that has entered due to activities related to the construction project when approved to remove measures by the inspector.	To ensure proper clean-up of site upon completion and removal of erosion control systems. Inspection documentation will be provided.	The new Residential Hall Facility began construction in the spring of 2018 with construction completed in late 2019. No additional projects requiring erosion control measures have been needed, as the University does not currently have any active construction sites or denuded areas.	Continue plan as is.

Proposed BMP	Measurable Goal and Effectiveness	Compliance Status	Plans for Next Permit Year
4L. For sites in excess of 2500 sf, the contractor will ensure compliance with all the requirements of VR 680-14-19 (VSMP).	Inspections will ensure that the contractors follow requirements.	The general contractors have demonstrated compliance with the requirements of their construction contract. Regular inspection by the University Architect have been conducted to maintain compliance.	Continue plan as is.
4M. The University reserves the right to require all architects, engineers and related consultants to obtain appropriate certifications as specified under the Erosion and Sediment Control law.	The University shall request to receive documentation of appropriate certifications.	Appropriate documentation and certifications have been provided as requested.	Continue plan as is.
4N. Contractor will provide the University with legible copies of all correspondence, reports, meeting minutes, etc. that involve stormwater issues.	The University will review all stormwater practice correspondence.	Site inspection reports submitted (as applicable) by inspectors have been reviewed and kept on file.	Continue plan as is.

Proposed BMP	Measurable Goal and Effectiveness	Compliance Status	Plans for Next Permit Year
Minimum Control Measure #5: Post-Construction Stormwater Management in New Development and Re-Development			
The University will develop, implement and enforce procedures to address stormwater runoff from completed construction sites. Multiple BMPs are associated with this Minimum Control Measure. All BMPs defined under this measure will be continued to be implemented each permit year.			
Proposed BMP		Compliance Status	Plans for Next Permit Year
<p>5A. Compliance with Virginia Erosion and Sediment Control and Stormwater Laws:</p> <ul style="list-style-type: none"> • The location, size and routing of stormwater will be designed, approved and constructed in accordance with existing regulations. Tie-ins to existing structures will be permitted if engineering studies can prove that such configurations are within current capacities and do not inhibit severe stormwater flows. • The University will implement strategies that include structural and nonstructural best management practices appropriate for the campus and surrounding environments. In contracts with consultants, emphasis will be placed on replicating pre-construction runoff characteristics and site hydrology. Among the prominent concerns are the runoff from local city streets and the outfalls from the campus. • Any additional maintenance requirements of the new structure will be assigned to the respective tradesmen. If warranted, formal preventive maintenance procedures will be scheduled and modified as warranted by experience, efficiency and employee safety. • Work orders and inspections of stormwater structures will be documented and copies sent to the Office of Environmental Health. Discrepancies will be recorded and corrective measures identified, performed and documented. Timely completion of these functions will be a factor in the tradesmen's performance appraisals. • New construction activities will secure a VSMP permit. • Existing and newly constructed BMPs shall be electronically reported to the DEQ Warehouse database. 	To prevent pollution of stormwater and maintain healthy waterways. The inspector will ensure all new erosion and sediment control processes will be properly documented and approved.	<p>These items are required within the construction contracts for all current and new construction on campus. All University BMPs have been electronically filed with the DEQ Warehouse database on September 10, 2020.</p> <p>TMDL Action Plan Activities Summary - In August of 2019, the University retained a consultant to provide stormwater design and calculations to retrofit three of its existing BMPs to higher efficiency BMPs as follows: this work includes two of its existing grass swale will be converted to a Bioretention and a Dry Swale; and one existing dry detention pond will be converted to a dry swale and bioretention pond. The proposed BMPs shall adhere to DEQ clearing house design standards for greater pollutant removal efficiency to be applied towards the TMDL 2nd Permit Cycle goals.</p>	<p>Continue plan as is.</p> <p>As new BMPs come on line or if retrofit BMPs, the DEQ Warehouse database shall be updated.</p>

Proposed BMP	Measurable Goal and Effectiveness	Compliance Status	Plans for Next Permit Year
5B. Outside consultants have been scheduled to conduct inspections of campus stormwater basins. Inspections are documented and include clearing of soil/sand, removal of debris, checks for erosion, reporting of sheen in standing water, and the removal of leaves and floating debris. Periodic inspections will be added to the preventive maintenance list.	To verify basins are clean and capable of retaining and draining. This will be done quarterly and documentation will be provided.	These items are required within the construction contracts for all current and new construction on campus.	Continue plan as is.
5C. Develop a Stormwater Master Plan: For State owned property, stormwater regulations are determined and enforced at the State level by the Virginia Department of Environmental Quality (DEQ). The Master Plan was developed to ensure compliance with current regulations.	To supplement the Current Campus Master Plan by providing a guideline for development on campus, and updating it as projects are completed. A copy can be provided upon request.	The University has retained a consultant to assist with updating the existing campus storm water master plan which includes specific directions for current and future stormwater best management practices. The stormwater master plan was submitted to DEQ in the summer of 2018. Comments were received that will be addressed as well as internal coordination of updates made to the overall Campus Master Plan. The stormwater master plan is expected to be resubmitted in 2021.	The proposed Comprehensive Stormwater Master Plan for Norfolk State University shall be updated with the latest Architectural Campus Master Plan layout and Stormwater improvement goals to conform with new regulations. A formal re-submittal of the updated Campus Comprehensive Stormwater Master Plan will be submitted to DEQ for review in 2021. Moving forward, NSU will update the stormwater master plan as projects come on line and include updates in the 2021 MS4 Annual report.
5D. Develop a Stormwater Management Facility Record to include: Treatment area, type of BMP, and Hydrologic Unit Code. Should also include inspection reports and checklist.	Create a plan that will be continuously updated with new construction projects and new SWMF. This plan will be updated and submitted with the annual report.	See Appendix A below for a list of current BMPs on campus. NSU has retained the services of a consultant to assist with the preparation of a SWMF Record documents (Uploaded to the DEQ Warehouse September 10, 2020) and map. BMP Inspection reports have been completed and kept with the program records.	Update SWMF Record for any changes to existing BMP facilities and incorporate new BMP facilities as they come online to the DEQ Warehouse database. Adjust and perform inspections respectively.

Proposed BMP	Measurable Goal and Effectiveness	Compliance Status	Plans for Next Permit Year
Minimum Control Measure #6: Pollution prevention/good housekeeping for municipal operations			
<p>The University has been performing functions that contribute to the prevention of pollutants from entering stormwater inlets and adversely affecting the natural environment. Potential sources of stormwater pollution include oil/grease stains in parking lots, fuel spills, lawn & garden nutrients on pavement, exposed bulk storage piles and common floatable trash. It is recognized greater documentation, training and expansion in some areas will contribute to an increase in the efficiency of the overall program. Multiple BMPs are associated with this Minimum Control Measure. All BMPs defined under this measure will be implemented beginning in the first permit year.</p>			
Proposed BMP	Measurable Goal and Effectiveness	Compliance Status	Plans for Next Permit Year
6A. Development and Implementation of Dailey Operation Procedures	Eliminate sources of illicit materials polluting surface waters. Dailey Good House keeping procedures are included in the new Facilities Maintenance SWPPP.	Preparation of the SWPPP containing Good House Keeping Procedures completed in September 2015 is being implemented. A copy will be kept in the program records.	Continue plan, update SWPPP as required based on updates from DEQ.
6B. Development and Implementation of required SWPPPs	Norfolk State University has retained the services of a private consultant for the preparation of a SWPPP (Stormwater Pollution Prevention Plan) for the Maintenance Facility that identifies methods for the prevention of sediment and pollutants from entering the storm sewer system. The concern is controlling any sediment, debris and oils from potentially entering the storm sewer system. The SWPPP identifies methods for the prevention of sediment and pollutants from entering the storm sewer system.	Preparation of the SWPPP for the Residential Facility has been completed as of June 2018 and has been implemented through the project's close out in late 2019.	Maintain SWPPP documents and update as required based on updates from DEQ.

Proposed BMP	Measurable Goal and Effectiveness	Compliance Status	Plans for Next Permit Year
6C. Development and Implementation of turf and landscape Nutrient Management Plan. The University has chosen to select a consultant from a list, originally provided by the DCR. After soil conditions have been sampled and tested, specific fertilizer mixes will be administered by the University to maintain the lawns and flower beds. The application of fertilizers and herbicides will strictly follow the recommendations provided by the consultant, and will be fully documented. Those employees assigned to apply the fertilizers and herbicides will be certified to perform those tasks.	Maintain the minimum appropriate levels of fertilizers and to prevent excess from entering storm sewer system and causing downstream pollution. Nutrient Management is applicable for all locations containing turf and or planted areas within the University.	The University engaged a consultant to prepare a new Nutrient Management Plan. That plan was adopted and implemented in 2020. NSU currently has 12.88 Acres of athletic field turf and decorative landscaped areas that 100% will be accounted for in the nutrient management plan.	Implement and maintain the new Nutrient Management Plan.
6D. Required Employee Training	Increase staff awareness and procedures for stormwater and pollution prevention measures.	NSU's Director of Environmental Health, Safety and Risk Management Office has represented multiple training seminars for in-house training of Facilities Maintenance Staff with regard to Stormwater Pollution Prevention and Good Housekeeping. The Training Calendar of events and topics of discussion are filed in the Program Plan. Stormwater Pollution and BMP Maintenance training was held on 3/4/20. Fifty Seven, Housekeeping and Grounds Staff Members (64%) attended and received training. The University Architect has obtained certification the Administrative and Combined Stormwater examination in October 2018 and the Combined Erosion and Sediment Control in late 2018.	Continue plan as is.

Proposed BMP	Measurable Goal and Effectiveness	Compliance Status	Plans for Next Permit Year
6E. Tradesmen have been instructed to immediately cleanup releases of any materials they are using and report any quantity that may have entered the stormwater sewer system.	Increase awareness for stormwater runoff and eliminate sources of illicit materials polluting surface waters.	Requirements added to work profile.	Continue plan as is.
6F. Groundskeepers have been instructed to pick-up debris and floatables to prevent shredding by lawn mowers and entering the stormwater sewer system.	Reduce the amount of pollutants in the stormwater, and promote the free flowing of stormwater in the sewer lines.	Requirements added to work profile.	Continue plan as is.
6G. Absorbent materials are kept available, and a fully enclosed hazardous materials storage shed is used for the staging of hazardous wastes, including contaminated absorbents and personal protective equipment.	Tradesmen and faculty to store hazardous wastes isolated from the weather and unauthorized personnel. Documentation of the location of the storage shed will be provided.	Completed. Storage shed is in the southeast corner of lot #4.	No further plans.
6H. Creation of a Hazardous Substance Policy: The discharge of hazardous substances or oil into the stormwater sewers has been prevented through the creation of a hazardous materials policy. The policy includes the periodic removal of hazardous wastes from the academic chemistry, biology and medical laboratories, along with chemical wastes from the research facilities. Hazardous substances and wastes from facility maintenance operations are controlled by storing the materials in flammable storage cabinets, keeping a limited amount on campus, and using an approved hazardous waste hauler to over pack stale or contaminated cans, bottles, etc. Temporary storage on campus is within a specially manufactured hazardous material shed until transport to a recycler, incinerator or approved landfill can be arranged by the hazardous waste transporter. Reporting, response and disposal requirements have been explained to staff as part of the Hazard Communication Training required by OSHA Standard 29 CFR 1910.1200.	Prevent hazardous materials from entering the University's stormwater system and other downstream waters. A copy of this policy will be submitted.	Proposed F.M. Policies 49.03.08-49.03.12. The proposed policy is in draft form and must be routed through the management ranks for approval. It is expected to be approved in 2021.	Copies of approved policy will be forwarded once approved.
6I. Emergency generators, boilers, and hot water heaters have been converted to natural gas.	Prevent hazardous materials from entering the University's stormwater sewer system and other downstream waters.	Boilers and hot water heaters have been converted to natural gas. All emergency generators are powered by natural gas with the exception of one generator at the McDemmond Center which is powered by diesel fuel.	No further plans.

Proposed BMP	Measurable Goal and Effectiveness	Compliance Status	Plans for Next Permit Year
6J. A company with expertise in hazardous materials has been contracted to provide emergency response to incidents requiring additional resources and equipment. They have the added responsibility of over packing primary containers and arranging for transportation to approved disposal sites, recyclers or incinerators.	Assure a release is adequately contained and remediated, storm drains are protected, staff personnel do not become contaminated and disposal protocols are strictly followed.	Semi-annual hazardous material removal completed.	Continue plan as is. Documentation will be provided if necessary.
6K. All trash receptacles will be emptied and refilled with new trash bags when they become full, after the event ends and after the crowds leave. All stormwater inlets in the general area of the events will be checked and trash of all types removed from the inlet. An estimate of the amount of trash collected will be recorded and sites of the greatest accumulations noted.	Reduce the amount of pollutants in the stormwater.	Post event inspections to be scheduled with staff.	Continue plan as is.
6L. Exterior storage: Certain material storage practices include bulk piles of mulch, topsoil, sand and salt. It was recognized that heavy rains can cause the loose materials to flow into street gutters and eventually into stormwater inlets. Currently salt (for icing conditions) and urea fertilizer are received in bags and stored in a grounded storage container. If other lawn and garden supplies cannot be purchased in bags, then provisions will be considered to store such materials under an impervious cover.	Reduce the amount of pollutants in the stormwater. Norfolk State University has retained the services of a private consultant to design for a new series of storage bays for bulk material storage. The design will include adequate containment to prevent materials from spreading out side of the storage bay area.	Construction was completed in late 2016. Maintenance and inspection shall take place as required per the SWPPP for the Maintenance Facility.	Continue with Inspection and Cleaning per the SWPPP.
6M. Education of Staff: Conduct a presentation on stormwater pollution prevention to Facilities Management Staff and have staff complete pollution prevention training.	Increase staff awareness of stormwater and pollution prevention measures and proper BMP and Outfall maintenance. This includes understanding of the differences and appropriate maintenance between the various stormwater BMP types on campus.	Stormwater Pollution and BMP Maintenance training was held on 3/4/19. Fifty Seven Grounds and Housekeeping Staff Member (64%) attended and received training.	Continue plan as is.
6N. Development of on-site BMP Maintenance and Inspection Procedures.	Increase staff awareness of stormwater and pollution prevention measures. This includes the preparation of on-site BMP Maintenance and Inspection Procedures.	On-site BMP Maintenance and Inspection Procedures have been created and implemented. Procedures are maintained within the program.	Continue plan as is. Update as necessary.



NORFOLK STATE UNIVERSITY ANNUAL MUNICIPAL SEPARATE STORM SEWER REPORT

10. *Notice that the operator is relying on another government entity to satisfy some of the permit obligations.*

- The University receives technical and regulatory assistance from the Department of Environmental Quality. DEQ reviews individual capital improvement projects for compliance with Virginia Stormwater Management regulations. DEQ also assists in establishing requirements for the Stormwater Master Plan.

- The University reviews technical and regulatory assistance provided by the Virginia Department of Environmental Quality for the review of Erosion and Sediment (E & S) Control Plans and E & S Control Site Inspections.

11. *The approval status of any programs pursuant to Part II of the General Permit (if applicable), or the progress towards achieving full approval of these programs.*

TMDL Action Plan Activities Summary -

In August of 2019, the University retained a consultant to provide stormwater design and calculations to retrofit three of its existing BMPs to higher efficiency BMPs as follows: this work includes two of its existing grass swale will be converted to a Bioretention and a Dry Swale; and one existing dry detention pond will be converted to a dry swale and bioretention pond. The proposed BMPs shall adhere to DEQ clearing house design standards for greater pollutant removal efficiency to be applied towards the TMDL 2nd Permit Cycle goals.

12. *Regulated land-disturbing activities data tracked under Part 1.E.5.i of the General Permit.*

There are no current land disturbing activities at the University requiring a Construction General Permit.

Table 1: Current Campus Land Disturbing Activities – N/A

Approximate Location	Area (Acres)
Total	

13. *All known permanent stormwater management facility data tracked under Part 1.E.5.g of the General Permit submitted in a database format to be prescribed by the department. Upon filing of this list, subsequent reports shall only include those new stormwater management facilities that have been brought online.*

- No new stormwater management facilities have been brought online. See Table 2 below for a list of current facilities. The DEQ Warehouse Database containing all the current BMP information per Part 1.E.5.g was uploaded on September 10, 2020.



NORFOLK STATE UNIVERSITY ANNUAL MUNICIPAL SEPARATE STORM SEWER REPORT

Table 2: Current Campus Stormwater Basins

Approximate Location	Description	HUC
Outfall 1	Retention Basin	JL 54
Spartan Suites	Infiltration Trench	JL 54
Lot 17	Detention Basin	JL 54
Lot 30	Detention Basin	JL 54
Hamm Fine Arts North	Grassed Swale	JL 54
Hamm Fine Arts South	Detention Basin	JL 54
Lots 2 and 3	Detention Basin	JL 54
Student Center	Bioretention	JL 54
Student Center	Underground Storage	JL 54
Nursing Classroom	Grassed Swale	JL 54
Brown Hall East	Bioretention	JL 54
Brown Hall North	Bioretention	JL 54
Bowser Bldg Parking	Filtterra - Biofiltration	JL 54
Stadium - Infiltration	Underground Infiltration	JL 54
Stadium - CST	Underground filtering	JL 54
Baseball Field	Underground Infiltration	JL 54
Softball Field	Underground Infiltration	JL 54

14. *A list of any new or terminated signed agreements between the operator and any applicable third parties where the operator has entered into an agreement in order to implement minimum control measures or portions of minimum control measures.*

- The University has a contract with Burns & McDonnell, who serve as a stormwater management consultant.

15. *Copies of any written comments received during a public comment period regarding the MS4 Program Plan or any modifications.*

- No written comments have been received.



APPENDIX A ATTACHMENTS



**Norfolk State
University**

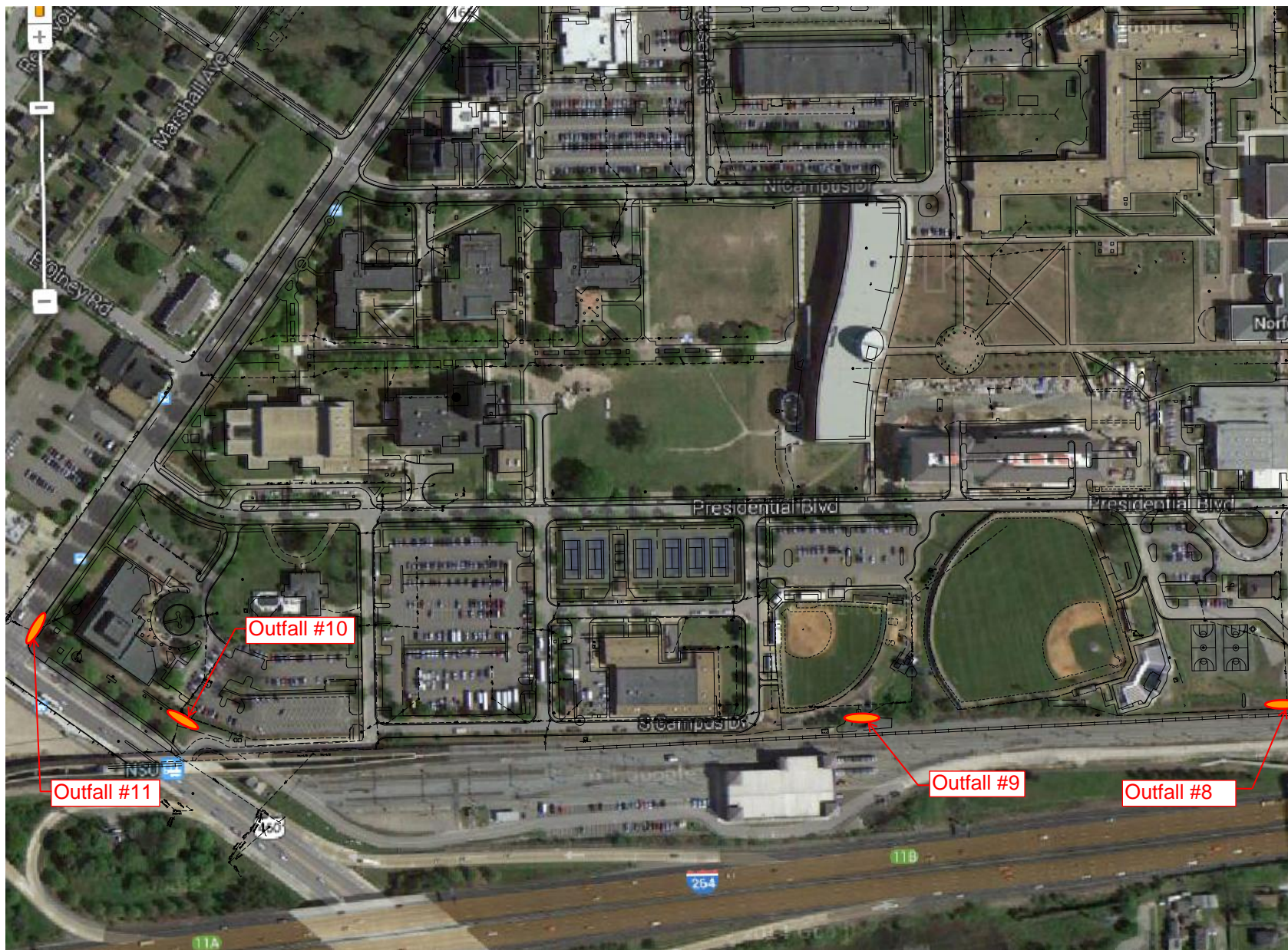
Outfalls Locations

Exhibit 1

Not to Scale
Receiving Waters
from all Outfalls:
Eastern Branch
Elizabeth River
Lower.
HUC - JL54



NORFOLK STATE
UNIVERSITY



**Norfolk State
University**

Outfalls Locations

Exhibit 2

Not to Scale

**Receiving Waters
from all Outfalls:
Eastern Branch
Elizabeth River
Lower.
HUC - JL54**



Norfolk State University Stormwater Management Facility Database (Operator Owned)

BMP ID	Date Installed	Clearinghouse	BMP Name	Measurement	Measurement	BMP	Impervious	Practice Description	Locality	Locality	ToLocality	HUC12	VAHU6	Latitude	Longitude
Outfall 1	06/30/05		Wet Pond	Area Treated	ACRE	3.25	2.76		NORFOLK	51710	NORFOLK	020802080204	JL54	36.84642800	-76.25303300
Spartan Suites	06/30/05		Infiltration Trench	Area Treated	ACRE	1.71	0.34		NORFOLK	51710	NORFOLK	020802080204	JL54	36.85015800	-76.25753100
Lot 17	06/30/05		Dry Detention Ponds	Area Treated	ACRE	1.08	0.22		NORFOLK	51710	NORFOLK	020802080204	JL54	36.85035300	-76.26237800
Lot 30	06/30/05		Dry Detention Ponds	Area Treated	ACRE	1.54	0.64		NORFOLK	51710	NORFOLK	020802080204	JL54	36.85031900	-76.26523900
Hamm Fine Arts North	06/30/05		Vegetated Open Channels	Area Treated	ACRE	1.23	0.47		NORFOLK	51710	NORFOLK	020802080204	JL54	36.84803600	-76.26815800
Hamm Fine Arts South	06/30/05		Dry Detention Ponds	Area Treated	ACRE	0.84	0.2		NORFOLK	51710	NORFOLK	020802080204	JL54	36.84741900	-76.26734200
Lot 2 & 3	06/30/05		Dry Detention Ponds	Area Treated	ACRE	0.59	0.12		NORFOLK	51710	NORFOLK	020802080204	JL54	36.84633300	-76.26815300
Student Success Center	04/01/10		Bioretention	Area Treated	ACRE	1.23	0.25		NORFOLK	51710	NORFOLK	020802080204	JL54	36.84860000	-76.26254400
Student Service Center	01/01/14		Dry Detention Ponds	Area Treated	ACRE	1.36	0.28		NORFOLK	51710	NORFOLK	020802080204	JL54	36.84860000	-76.26254000
Nursing Classroom	01/01/14		Vegetated Open Channels	Area Treated	ACRE	1.06	0.79		NORFOLK	51710	NORFOLK	020802080204	JL54	36.84783100	-76.26433900
Brown Hall East	08/10/19	BB1	Biofiltration	Area Treated	ACRE	0.69	0.48		NORFOLK	51710	NORFOLK	020802080204	JL54	36.84999600	-76.26239200
Brown Hall North	08/10/19	BB1	Biofiltration	Area Treated	ACRE	1.17	0.63		NORFOLK	51710	NORFOLK	020802080204	JL54	36.84697300	-76.26337600
Bowser Bldg Parking	10/16/18		Proprietary Stormwater Treatment Device	Area Treated	ACRE	0.129	0.129	Filterra Bio-Filtration	NORFOLK	51710	NORFOLK	020802080204	JL54	36.84930000	-76.26413000
Stadium - Infiltration	08/25/18	CI1	Infiltration Practice	Area Treated	ACRE	2.04	2.04		NORFOLK	51710	NORFOLK	020802080204	JL54	36.84699000	-76.26008000
Stadium - CST	08/25/18		Proprietary Stormwater Treatment Device	Area Treated	ACRE	1.64	1.64	Crystal Stream Separator	NORFOLK	51710	NORFOLK	020802080204	JL54	36.84624000	-76.26088000
Baseball Field	08/01/17	CI1	Infiltration Practices	Area Treated	ACRE	2.25	0		NORFOLK	51711	NORFOLK	020802080204	JL54	36.84675000	-76.26356000
Softball Field	08/01/17	CI2	Infiltration Practices	Area Treated	ACRE	0.6	0		NORFOLK	51712	NORFOLK	020802080204	JL54	36.84640000	-76.26473000

Matthew J. Strickler
Secretary of Natural Resources

Clyde E. Cristman
Director



Rochelle Altholz
Deputy Director of
Administration and Finance

Russell W. Baxter
Deputy Director of
Dam Safety & Floodplain
Management and Soil & Water
Conservation

Thomas L. Smith
Deputy Director of Operations

COMMONWEALTH of VIRGINIA
DEPARTMENT OF CONSERVATION AND RECREATION

Towanda Colquiett
700 Park Ave.
Suite 101
Norfolk, VA 23690

04/23/2020

Subject: Norfolk State University Nutrient Management Plan Review

The following nutrient management plan has been reviewed by Nick Yakish and confirmed by the Virginia Department of Conservation & Recreation to be developed in accordance with the Code of Virginia 10.1-104.2. Please note that this plan has not been reviewed for compliance with more restrictive requirements from other specific legislative, regulatory or incentive programs.

Plan Name	Planner	Acres	Start Date	Expiration Date
Norfolk State University	Angela Whitehead	51.41	4/08/2020	4/08/2023

A copy of this letter should be kept with your nutrient management plan. Initiation of plan revision is recommended by the Department to occur at least six months prior to the expiration date. If you have any questions concerning this letter or reviews, please contact me via phone or email.

Sincerely,

A handwritten signature in cursive script, appearing to read "Nick Yakish".

Nick Yakish
Urban Nutrient Management Coordinator
Department of Conservation and Recreation
600 East Main St., 24th Floor
Richmond, Virginia 23219
(804) 389-5439
nicholas.yakish@dcr.virginia.gov

600 East Main Street, 24th Floor | Richmond, Virginia 23219 | 804-786-6124

*State Parks • Soil and Water Conservation • Outdoor Recreation Planning
Natural Heritage • Dam Safety and Floodplain Management • Land Conservation*

Nutrient Management Plan

Prepared For:

Norfolk State University
Towanda Colquiett
Director Facilities Manager
700 Park Avenue, Suite 101
Norfolk, VA 23504

Prepared By:
Angela C. Whitehead
Soil Horizons, LLC
2 Whittakers Mill Rd
Williamsburg, VA 23195
804-892-6678
soilmapper@yahoo.com
Certification Code: # 386

Total Plan Acreage: 51.41

City/County: City of Norfolk

Hydrologic Unit Code	JL54
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Plan Effective: 04/08/20

Plan Expires: 04/08/23

Planner Signature



The purpose of this Nutrient Management Plan is to ensure minimum movement of nitrogen and phosphorus from the specified area of application to surface and groundwater where they can potentially have a detrimental effect on water quality as well as ensuring that plants have optimum soil nutrient availability for good productivity and quality. By following this soil test based plan you are helping to protect local waters and the Chesapeake Bay.

If you have questions, please contact your plan writer, local Virginia Cooperative Extension Agent, or the Department of Conservation and Recreation Nutrient Management Program.



Nutrient Management Plan for:		
Norfolk State University		
Owner Information		
Project Contact	Towanda Colquiett	
	Director Facilities Manager	
Mailing Address	700 Park Avenue, Suite 101	
City State Zip	Norfolk, VA 23690	
Phone	757-823-9545	
Email	trcolquiett@nsu.edu	
Planner Information		
Planner Name	Angela C. Whitehead – Soil Horizons, LLC	
Mailing Address	2 Whittakers Mill Rd	
City State Zip	Williamsburg, VA 23195	
Phone	804-892-6678	
Email	soilmapper@yahoo.com	
Certification Code	386	
Location Information		
Physical Address	700 Park Avenue	
City State Zip	Norfolk, VA 23504	
VAHU6 Watershed Code	JL54	
City/County	City of Norfolk	
Acreage		
Total	51.41	
Plan Start Date	04/08/20	
Plan End Date	04/08/23	

Table of Contents

Updates and Revisions to Nutrient Management Plans	4
1. Site Description and Supporting Information	4
A. Site Location.....	5
B1. Campus Map.....	6
B2. Turf Management Areas.....	7
C. Fertilization Season.....	8
D. Environmentally Sensitive Sites.....	8
2. Soil Test Summary and Results	10
3. Summary of Recommended Annual Lime, Nitrogen, Phosphorous, and Potassium Application	11
A. Fertilizer Recommendations Summary: NSU Turf.....	11
B. Recommended Monthly Fertilizer Application: NSU Turf.....	12
4. Fertilizer Application Record	13
5. Virginia Nutrient Management Standards and Criteria, Revised July 2014	14
VI. Turfgrass Nutrient Recommendations.....	14
6. Soil Reports	21

Norfolk State University (NSU) agrees to comply with all requirements set forth in the Nutrient Management Training and Certification Regulations, 4 VAC 50-85 et seq., and to follow recommendations for turf fertilization and management as described in the Virginia Nutrient Management Standards and Criteria, Revised July 2014. This includes implementing the Department of Conservation and Recreation's approved Nutrient Management Plan and maintaining fertilization records. All nutrient applications performed by NSU staff and contractors shall comply with the provisions of this Nutrient Management Plan upon receipt of the approved plan.

Updates and Revisions to Nutrient Management Plans

Nutrient Management Plans (NMP) for shall be valid for up to three years. Updated soil sampling and analysis shall be required at least once every three years to determine soil fertility and pH, and to update the NMP or upon a major renovation or redesign of the grounds, whichever occurs sooner. If Class B biosolids or raw manure is applied, the plan must be revised to meet the conditions of the Virginia Department of Environmental Quality permit.

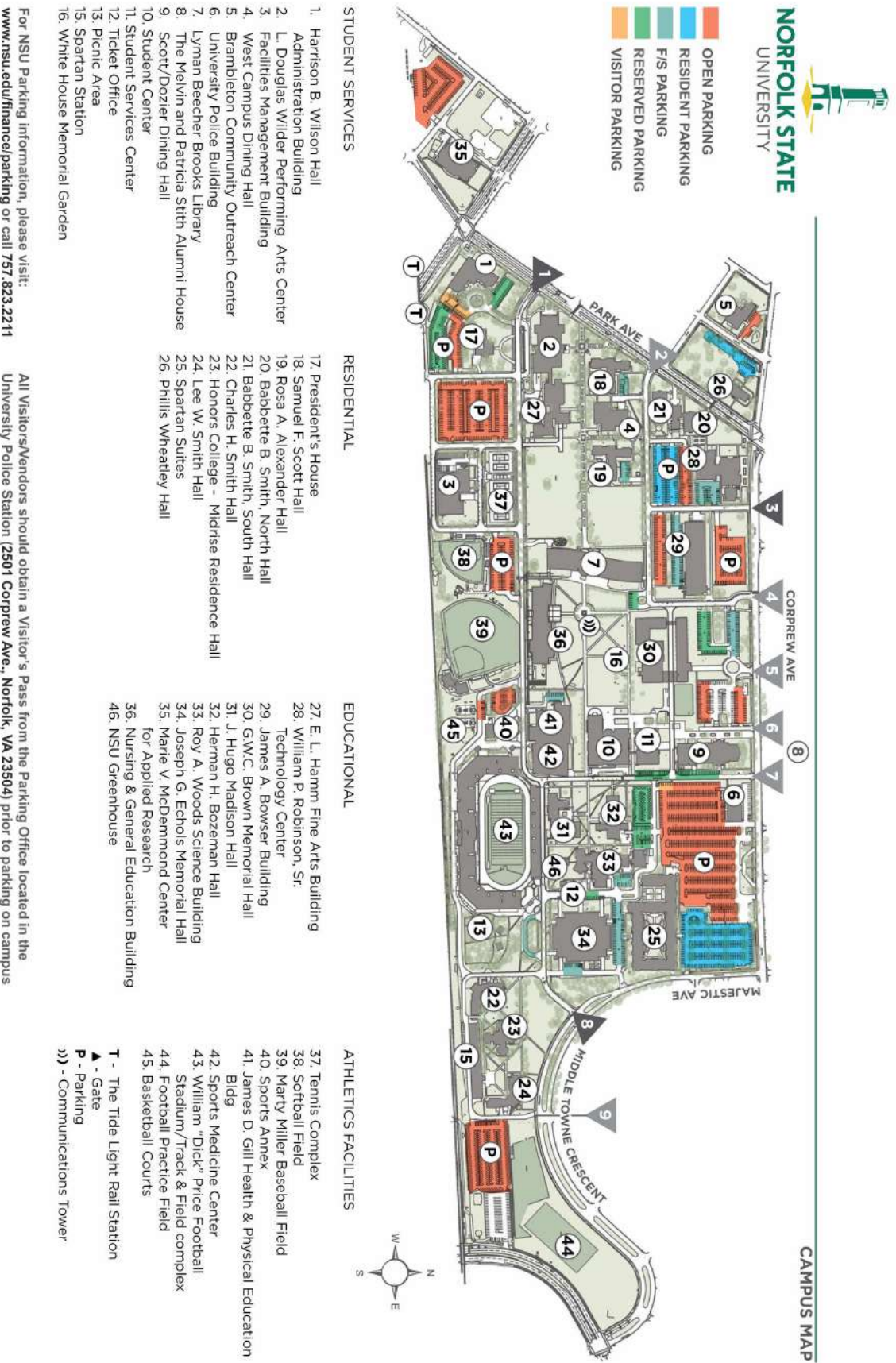
1. Site Description and Supporting Information

Norfolk State University (NSU) is a public historically black university in Norfolk, Virginia. The campus encompasses approximately 134 acres within the Eastern Branch Elizabeth River watershed. The university recognizes the importance of nutrient management as a fundamental way to protect water quality.

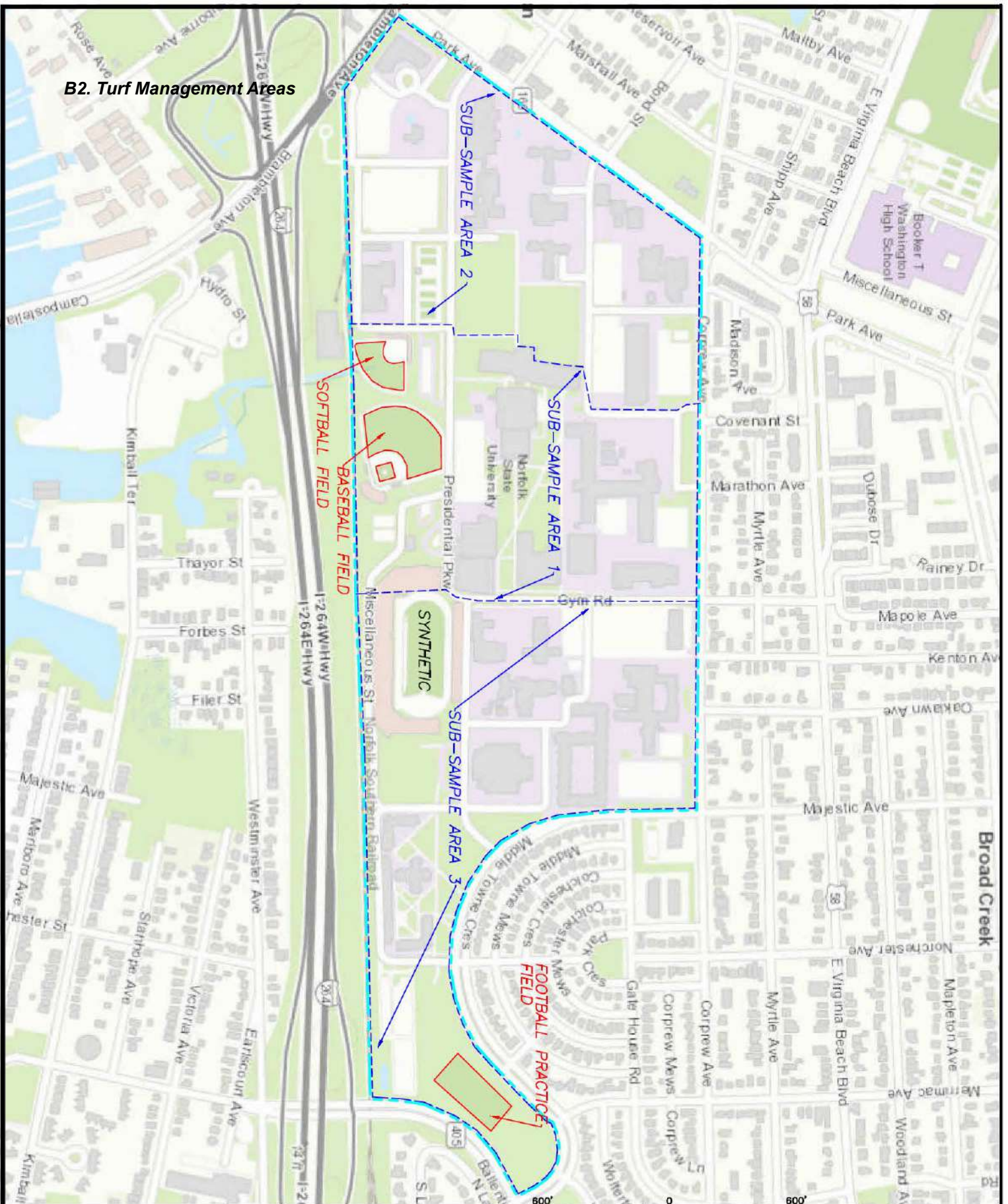
Fertilized grounds turf is predominantly non-overseeded bermudagrass. Areas comprised of a mix of warm season and cool season grasses are managed to encourage warm season growth. Athletic fields are naturally sandy or sand-based, irrigated, and managed for fall overseeded, bermudagrass. Managed fields include: Softball Field, Football Practice Field (non-overseeded), and Baseball Field. The football game field was converted to synthetic turf prior to the 2018 season. Landscape beds are located within the common areas, but do not receive any additional nutrients aside from what is applied to the adjacent turf. The primary sources of irrigation water on campus originate from onsite wells and/or municipal water. NSU staff is responsible for the maintenance of all campus turf.

This is a Google Map of Norfolk, Virginia, centered on the Norfolk State University campus. The map displays a grid of streets, including Corprew Ave, Gate House Rd, and Ballentine Blvd. Key landmarks and points of interest are marked with icons and labels, such as the Norfolk State University Police Department, Joseph G Echols Hall, William 'Dick' Price Stadium, and the Norfolk State University Softball Field. The Elizabeth River is visible at the bottom of the map, and the Chesapeake Bay is partially visible on the left. The map also shows the location of the Norfolk Ship Repair & Dry Dock and the Grandy Village Recreation Center. The Google logo is visible at the bottom center of the map.

B1. Campus Map



B2. Turf Management Areas



PROJECT NAME: _____
 NORFOLK STATE UNIVERSITY
 CAMPUS MAP

DATE: 3/29/20
 SCALE: 1 IN = 600 FT

BASE MAP PROVIDED BY:
 CITY OF NORFOLK GIS

Scale 1" = 600'

☐ WARM SEASON ATHLETIC FIELDS
☐ WARM SEASON COMMON AREA TURF
☐ NMP MANAGEMENT BOUNDARY
 (IMPERVIOUS AREAS EXCLUDED FROM FERTILIZATION)

C. Fertilization Season

The recommended nutrient management application season for nitrogen fertilizers to cool season turfgrasses begins six weeks prior to the last spring average killing frost date and ends six weeks past the first fall average killing frost date. The acceptable nitrogen fertilizer application season for non-overseeded warm season turfgrass begins no earlier than the last spring average killing frost date and ends no later than one month prior to the first fall average killing frost date. **Cool Season: Do not apply N between December 19 and February 20 or when the ground is frozen. Warm Season: Do not apply N between October 10 and April 3 or during periods of drought.**

	Killing Frost Dates	Cool Season Applications	Warm Season Applications
Spring	April 4	February 21	April 4
Fall	November 6	December 18	October 9

D. Environmentally Sensitive Sites

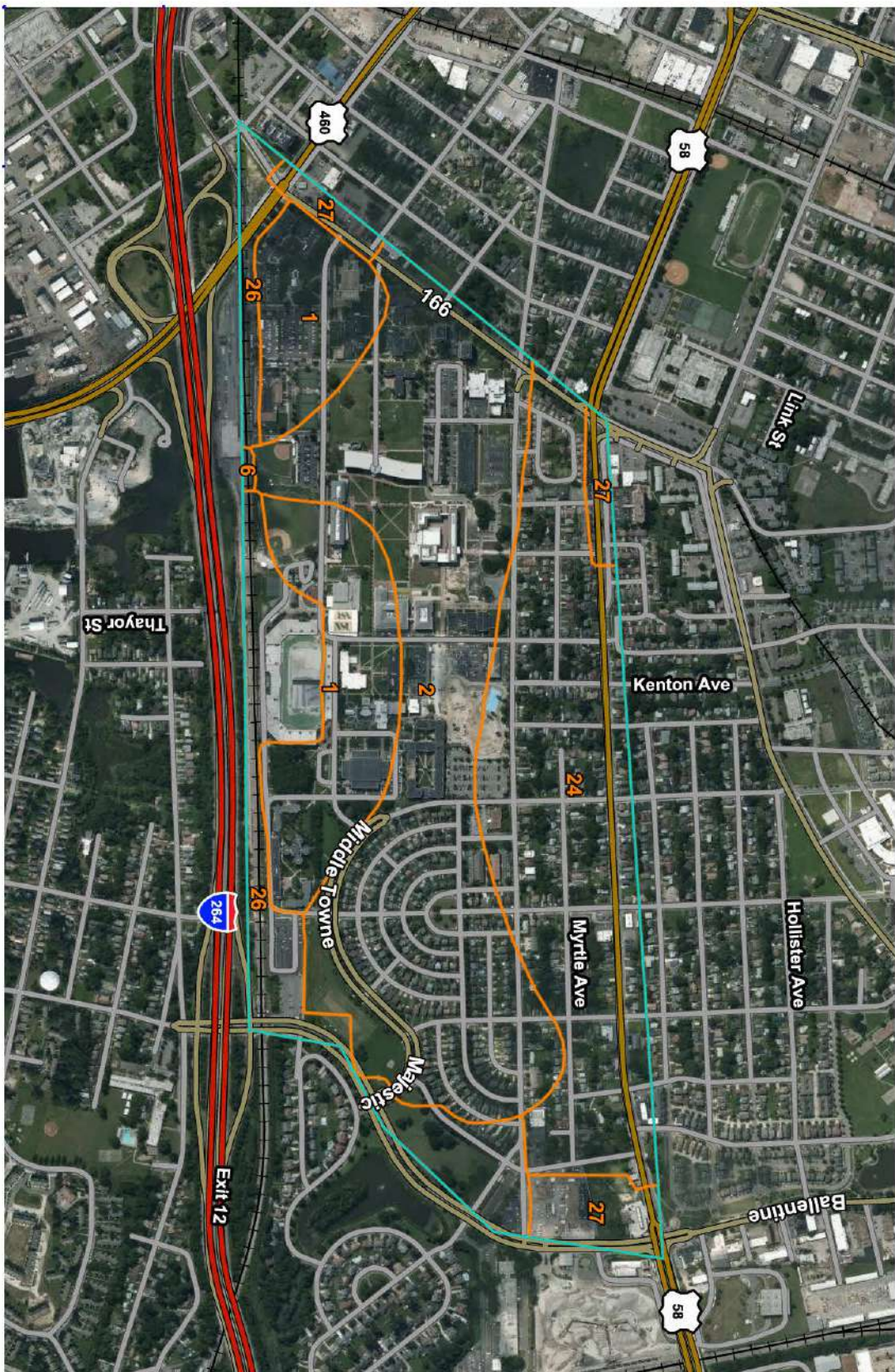
An environmentally sensitive site is any area which is particularly susceptible to nutrient loss to groundwater or surface water since it contains or drains to areas which contain sinkholes, or where at least 33% of the area in a specific management area contains one or any combination of the following features:

1. Soils with high potential for leaching based on soil texture or excessive drainage;
2. Shallow soils less than 41 inches deep likely to be located over fractured or limestone bedrock;
3. Subsurface tile drains; (none reported by NSU facilities management staff)
4. Soils with high potential for subsurface lateral flow based on soil texture and poor drainage;
5. Floodplains as identified by soils prone to frequent flooding in NRCS soil surveys; or
6. Lands with slopes greater than 15%

Soil survey information was obtained from the Tidewater Cities Area Soil Survey. (websoilsurvey.sc.egov.usda.gov)

The majority of the management areas occur within disturbed urban soils where the soils have been altered or obscured by construction, excavation/fill and do not exhibit environmentally sensitive conditions. Bohicket (6) and Tomotley (24) are naturally poorly drained soils. Special attention should be given to the timing of fertilizer applications prior to heavy rainfall to avoid nutrient loss due to leaching.

#	Soil Map Unit
1	Altavista-Urban land complex
2	Augusta-Urban land complex
6	Bohicket muck very frequently flooded
24	Tomotley-Urban land complex
26	Udorthents-Dumps complex
27	Urban land



76° 16' 27" W



Map Scale: 1:11,900 if printed on A landscape (11" x 8.5") sheet.



Map projection: Web Mercator Corner coordinates: WGS84

76° 14' 43" W

2. Soil Test Summary and Results

Soil samples were taken from fertilized turf areas at each field and/or location. Each composite sample consisted of several sub-samples from the upper 4 inches of soil. These sub-samples were taken in a random manner to minimize the variability that is present in the sampling area. Sub-samples were thoroughly mixed, breaking apart clumps and removing all foreign matter such as roots, stalks, rocks, etc.

Soil samples were analyzed by Waypoint Analytical. Standard soil test results provide values for pH, Calculated Cation Exchange Capacity, Phosphorous, Calcium, Magnesium, Potassium, Copper, Iron, Boron, Manganese, and Calculated Cation Saturation. The soil samples collected are valid for the life of this plan (three years) or upon a major renovation or redesign of the campus grounds, whichever occurs sooner.

Customer Name: **NSU**
 Testing Lab: **Waypoint Analytical**
 Sample Date: **3/23/20**
 Planner Name, Cert. #: **Angela C. Whitehead, #386**

Area	Soil pH	Buffer pH	Lab P (ppm)	VT P (ppm)	VT (H/M/L)	P ₂ O ₅ Needs (lbs/1000ft ²)	Lab K (ppm)	VT K (ppm)	VT (H/M/L)	K ₂ O Needs (lbs/1000ft ²)
G1	7.2		34	12	M	1.5	103	73	M	1.5
G2	7.4		51	20	H-	1.0	106	75	M	1.5
G3	5.4	6.77	50	20	H-	1.0	75	53	M	1.5
Football Practice	6.3		41	16	M+	1.0	38	27	L	2.5
Baseball	6.1	6.83	78	32	H	0.75	114	81	M+	1.0
Softball	6.1	6.82	60	24	H-	1.0	115	82	M+	1.0

- Soil pH ranged from 5.4 – 7.4. Additions of limestone are recommended where pH measures below 6.2 (Grounds Area 3, Baseball, Softball). Refer to Waypoint Analytical recommendations for site-specific rates.
- Potassium levels ranged in the moderate + - low range. Additional potassium may be added annually to aid in recovery of damaged turf during times of extreme use.
- Phosphorus levels measured in the medium to high range. Phosphorous may be applied, however a plant response is not expected.
- Nitrogen applications may not exceed 6 lbs/1000 ft² annually to overseeded warm season athletic fields. This application rate includes up to 0.5 lb/1000 ft² of nitrogen applied in the Fall after perennial ryegrass overseeding is well established. An additional N application of 0.5 lb/1000 ft² may be made in early Spring to overseeded perennial ryegrass if growth and color indicate need.
- Nitrogen applications may not exceed 4 lb/1000 ft² annually to warm season turf on non-athletic field common areas.

3. Summary of Recommended Annual Lime, Nitrogen, Phosphorous, and Potassium Application

The following tables provide nutrient recommendations that allow managers flexibility in selecting fertilizer products that best fit their management program, weather conditions, and budget levels. Fertilizer products and/or analysis are not specified and doing so may constrain the manager. Monthly fertilization programs are included to demonstrate the frequency and timing of nutrient applications that comply with Virginia Nutrient Management Standards and Criteria, Revised July 2014. Application rates below the rate recommended in the plan are permitted. If Class B biosolids or raw manure is applied, the plan must be revised to meet the conditions of the Virginia Department of Environmental Quality permit.

A. Fertilizer Recommendations Summary: NSU Turf

Site	Management Acres	Annual Lime Needs (lbs/1000ft ²)	Max. Annual N App. (lbs/1000ft ²) ^{a, b}	Max. Total N Rate per application (lbs/1000ft ²) ^{b, c, d}	Annual P ₂ O ₅ Needs (lbs/1000ft ²)	Annual K ₂ O Needs (lbs/1000ft ²)
Grounds	45.49	45 (Area 3)	4.0	0.7 (min. 30 days)	1.0	1.5
Football Practice Field (nonirrigated)	2.0	--	5.0	0.7 (min. 30 days)	1.0	2.5
Baseball Field	3.03	45	6.0	0.35 (min. 15 days)	0.75	1.0
Softball Field	0.89	45	6.0	0.35 (min. 15 days)	1.0	1.0

^a Cool Season: Do not apply N between December 19 and February 20 or when the ground is frozen. Warm Season: Do not apply N between October 10 and April 3 or during periods of drought.

^b 100% Water Soluble N (WSN) Fertilizer

^c A maximum application rate of 0.9 lb/1000 ft² of total N (cool season) or 1.0 lb/1,000 ft² of total N (warm season) may be applied using slowly available forms of N with a minimum of 30 days between applications.

^d On sand-based fields: WSN must be applied as two applications not to exceed 0.35 lb/1,000 ft² each with a minimum of 15 days between applications. Slowly Available N sources may be applied as a split application of 0.5 lb/1,000 ft² with a minimum of 15 days between applications.

B. Recommended Monthly Fertilizer Application: NSU Turf

	N^{a,b, c, e} – P₂O₅ – K₂O (lbs/1000ft²) 2020-2023									
Area	Mar 4	April	May	June	July	August	Sept	Oct	Nov	Annual Need^d
										N ^{a,b} P K
Grounds (non-irrigated)			0.7 – 0.5 – 0.75				0.7 – 0.5 – 0.75			1.4 1.0 1.5
Football Practice (non-irrigated)			0.7 – 0.2 – 0.5	0.7 – 0.2 – 0.5	0.7 – 0.2 – 0.5	0.7 – 0.2 – 0.5	0.7 – 0.2 – 0.5			3.5 1.0 2.5
Baseball overseeded	0.5 – 0 – 0 (overseeding)		0.7 – 0.15 – 0.2	0.7 – 0.15 – 0.2	0.7 – 0.15 – 0.2	0.7 – 0.15 – 0.2	0.7 – 0.15 – 0.2	0.5 – 0 – 0 (overseeding)		4.5 0.75 1.0
Softball overseeded	0.5 – 0 – 0 (overseeding)		0.7 – 0.2 – 0.2	0.7 – 0.2 – 0.2	0.7 – 0.2 – 0.2	0.7 – 0.2 – 0.2	0.7 – 0.2 – 0.2	0.5 – 0 – 0 (overseeding)		4.5 1.0 1.0

^a See Table 3A and Section 5 for N Rate Guidelines. N applications may not exceed those specified in Table 4A.

^b A maximum application rate of 0.9 lb/1000 ft² of total N (cool season) or 1.0 lb/1,000 ft² of total N (warm season) may be applied using slowly available forms of N with a minimum of 30 days between applications.

^c **Do not apply more than 0.7 pounds of water soluble nitrogen per 1000 ft² within a 30 day period.**

^d P₂O₅ applications may not exceed the Annual Need. Additional K₂O may be made annually to increase plant vigor and relieve traffic stress on damaged turf during times of extreme use.

^e On sand-based fields: WSN must be applied as two applications not to exceed 0.35 lb/1,000 ft² each with a minimum of 15 days between applications. Slowly Available N sources may be applied as a split application of 0.5 lb/1,000 ft² with a minimum of 15 days between applications

4. Fertilizer Application Record

Customer Information					Management Area Information			
Name: Norfolk State University					Management Area ID:			
Address: 700 Park Avenue					Management Area Size:			
Norfolk, VA 23504					Plant Species:			
					Notes:			
Phone #: 757-823-9545								
Date (M/D/Y)	Supervisor/Applicator	Weather Conditions: Temp/Wind/Precip			Fertilizer Analysis	Rate	Amount Fertilizer Used	Application Equipment Used

5. Virginia Nutrient Management Standards and Criteria, Revised July 2014

VI. Turfgrass Nutrient Recommendations

Definitions

For the purposes of this section, the following definitions, as presented by the Association of American Plant Food Control Officials (AAPFCO), apply:

“Enhanced efficiency fertilizer” describes fertilizer products with characteristics that allow increased plant nutrient availability and reduce the potential of nutrient losses to the environment when compared to an appropriate reference product.

“Slow or controlled release fertilizer” means a fertilizer containing a plant nutrient in a form which delays its availability for plant uptake and use after application, or which extends its availability to the plant significantly longer than a reference “rapidly available nutrient fertilizer” such as ammonium nitrate, urea, ammonium phosphate or potassium chloride. A slow or controlled release fertilizer must contain a minimum of 15 percent slowly available forms of nitrogen.

“Water soluble nitrogen”, “WSN”, or “readily available nitrogen” means: Water soluble nitrogen in either ammonical, urea, or nitrate form that does not have a controlled release or slow response.

Nitrogen Application Guidelines

A nitrogen fertilization schedule weighted toward fall application is recommended and preferred for agronomic quality and persistence of cool season turfgrass; however, the acceptable window of applications is much wider than this for nutrient management. ***The nutrient management recommended application season for nitrogen fertilizers to cool season turfgrasses begins six weeks prior to the last spring average killing frost date and ends six weeks past the first fall average killing frost date.*** Applications of nitrogen during the intervening late fall and winter period should be avoided due to higher potential leaching or runoff risk, but where necessary, apply no more than 0.5 pounds per 1,000 ft² of water soluble nitrogen within a 30 day period. Higher application rates may be used during this late fall and winter period by using materials containing slowly available sources of nitrogen, if the water soluble nitrogen contained in the fertilizer does not exceed the recommended maximum of 0.5 pounds per 1,000 ft² rate. Do not apply nitrogen or phosphorus fertilizers when the ground is frozen.

The acceptable nitrogen fertilizer application season for non-overseeded warm season turfgrass begins no earlier than the last spring average killing frost date and ends no later than one month prior to the first fall average killing frost date.

Per Application Rates

Do not apply more than 0.7 pounds of water soluble nitrogen per 1,000 ft² within a 30 day period. For cool season grasses, do not apply more than 0.9 pounds of total nitrogen per 1,000 ft² within a 30-day period. For warm season grasses, do not apply more than 1.0 pounds of total nitrogen per 1,000 ft² within a 30-day period. Lower per application rates of water soluble nitrogen sources or use of slowly available nitrogen sources should be utilized on very permeable sandy soils, shallow soils over fractured bedrock, or areas near water wells.

Annual Application Rates for Home Lawns and Commercial Turf

Up to 3.5 pounds per 1,000 ft² of nitrogen may be applied annually to cool season grass species or up to 4 pounds per 1,000 ft² may be applied annually to warm season grass species using 100 percent water soluble nitrogen sources. Lower rates of nitrogen application may be desirable on those mature stands of grasses that require less nitrogen for long-term quality. As a result, lower application rates will probably be more suited to the fine leaf fescues (hard fescue, chewings fescue, creeping red fescue, and sheep fescue) and non-overseeded zoysiagrass. Lower rates should also be used on less intensively managed areas.

For warm season grasses, up to 0.7 lb/1,000 ft² of nitrogen may be applied in the Fall after perennial ryegrass overseeding is well established. An additional N application of 0.5 lb/1,000ft² may be made in February-March to overseeded perennial ryegrass if growth and color indicate need. Applications using WSN may not exceed 0.7 lb/1,000ft² within a 30 day period.

Use of Slowly Available Forms of Nitrogen

For slow or controlled release fertilizer sources, or enhanced efficiency fertilizer sources, no more than 0.9 pounds of nitrogen per 1,000 ft² may be applied to cool season grasses within a 30-day period and no more than 1.0 pounds of nitrogen per 1,000 ft² may be applied to warm season grasses within a 30-day period.

Provided the fertilizer label guarantees that the product can be used in such a way that it will not release more than 0.7 pounds of nitrogen per 1,000 ft² in a 30-day period, no more than 2.5 pounds of nitrogen per 1,000 ft² may be applied in a single application. Additionally, total annual applications shall not exceed 80 percent of the annual nitrogen rates for cool or warm season grasses.

Nitrogen Timing

The beginning and ending dates for application of nitrogen shall be determined using guidance and frost date contained on page 4 of this Nutrient Management Plan.

If the full rate or the highest rate of the recommendation range for a monthly application is applied in a single application, then the interval of application for nitrogen shall be at least 30 days to allow turf to utilize previous nitrogen applications. If several applications are to be made for the monthly nitrogen rate, then the timing of the applications shall be at approximately even intervals, with the rate per application to be evenly divided between each application with the total nitrogen applied not to exceed the maximum monthly rate. Use of Water Insoluble Nitrogen forms of nitrogen is encouraged.

Nitrogen Management on Athletic Fields - Cool Season Grasses

- This program is intended for those fields which are under heavy use.
- Nitrogen recommendations are based on the assumption that there is adequate soil moisture to promote good turf growth at the time of application. If no rainfall has occurred since the last application, further applications should be delayed until significant soil moisture is available.

Cool-Season Grasses Maintenance Program ^a		
	Normal	Intensive
Application Timing ^b	N lb/1000 ft ²	
After August 15	-----	0.5
September	0.7 ^c	0.7 ^c
October	0.7 ^c	0.7 ^c
November	0.5	0.7 ^c
April 15 - May 15	0.5	0.5
June 1 - June 15	----	0.5 ^d

Notes:

- Soluble nitrogen rates of 0.25 pounds per 1,000 ft² or less which may be a component of a pesticide or minor element application may be applied any time the turf is actively growing, but must be considered with the total annual nitrogen application rate.
 - WSN = water soluble nitrogen; WIN = water insoluble nitrogen
- a) Intensive managed areas must be irrigated.
- b) The beginning and ending dates for application of nitrogen shall be determined using guidance and frost date contained on page 13 of this Nutrient Management Plan.
- c) Rates up to 0.9 pounds per 1,000 ft² of total nitrogen can be applied using a material containing slowly available forms of nitrogen, with a minimum of 30 days between applications.
- d) Make this application only if turf use warrants additional nitrogen for sustaining desirable growth and /or color.

Nitrogen Management on Athletic Fields - Warm Season Grasses

The following comments apply to both Naturally Occurring or Modified Sand based Fields and Predominantly Silt/Clay Soil Fields:

- Annual nitrogen rates for warm season grasses shall not exceed **4 pounds** in areas which have the average first killing frost on or before October 20, and shall not exceed **5 pounds** in areas which have the average first killing frost after October 20. Nitrogen rates and timings for overseeding warm season grasses are not included in these rates.
- April 15 - May 15 applications should not be made until after complete green-up of turf.
- Nitrogen applications June through August should be coordinated with anticipated rainfall if irrigation is not available.
- Use the lower end of the ranges for non-irrigated fields and the higher end of the ranges should be used on fields with irrigation.
- Nitrogen rates towards the higher end of the ranges may be applied on heavily used fields to accelerate recovery, however per application and annual rates cannot be exceeded.

Warm-Season Grasses Maintenance Program (Silt/Clay based) ^a		
	N lb/1000 ft ²	First Killing Frost Date ^b
Application Timing ^b	0.5 – 0.7 ^c	Before October 20
April 15 – May 15	0.7	
June	0.5 – 0.7 ^d	
July	0.5 – 0.7 ^d	
August	0.5 – 0.7 ^d	
September 1 - 15	0.5 – 0.7 ^c	
After October 20		
If overseeded with perennial ryegrass		
October - November	0.5 ^e	
February - March	0.5 ^e	

Warm-Season Grasses Maintenance Program (Sand based) ^a		
	N lb/1000 ft ²	First Killing Frost Date ^b
Application Timing ^b	0.5 – 0.7 ^c	Before October 20
April 15 – May 15	0.7 ^c	
June	0.7 ^c	
July	0.7 ^c	
August	0.7 ^c	
September 1 - 15	0.5 – 0.7 ^c	After October 20
If overseeded with perennial ryegrass		
October - November	0.5 ^e	
February - March	0.5 ^e	

The following notes apply to both of the Warm-Season tables above:

- In the Piedmont and the Ridge and Valley areas of Virginia, the existing native soil will normally be comprised predominantly of clay and/or silt and these soils have inherently lower water infiltration and percolation rates and greater nutrient holding capacity. However, most areas of the Coastal Plain have existing native soils that are predominantly sandy textured soils and other facilities throughout the state may choose to install modified soil root zones that are predominantly sand (>50%) in order to maximize drainage and reduce compaction tendency. **If subsurface drain tile surrounded by sand and/or gravel has been installed under the playing surface of any of these fields, their nitrogen programs should be managed as predominantly sand-based systems to minimize nutrient leaching.**
- The beginning and ending dates for application of nitrogen shall be determined using guidance contained on page 4 of this Nutrient Management Plan.
- WSN must be applied as two applications not to exceed 0.35 pounds per 1,000 ft² each with a minimum of 15 days between applications. Alternatively, using a material that contains slowly available nitrogen sources, split applications of 0.5 pounds per 1,000 ft² may be applied with a minimum of 15 days between applications.

- (d) If a material containing slowly available forms of nitrogen is used, rates up to 1.0 pounds of nitrogen per 1,000 ft² may be applied in a single application with a minimum of 30 days between applications.
- (e) For overseeded warm season grasses, an additional 0.7 pounds per 1,000ft² of WSN may be applied in the Fall after the perennial ryegrass overseeding is well established. The WSN must be applied as two applications not to exceed 0.35 pounds per 1,000 ft² of nitrogen each, with a minimum of 15 days between applications. Additional WSN application of 0.5 pounds per 1,000 ft² may be made in February-March to overseeded perennial ryegrass if growth and color indicate need. Alternatively, split applications of 0.5 pounds of nitrogen per 1,000 ft² each with a minimum of 15 days between applications may be applied using a material containing slowly available nitrogen sources.

Phosphorus and Potassium Recommendations for Established Turf and Athletic Fields

Apply phosphorus (P₂O₅) and potassium (K₂O) fertilizers as indicated by a soil test using the following guidelines:

Soil Test (VT) Rating	P₂O₅ lb/1000 ft²	K₂O lb/1000 ft²
L-	3	3
L	2.5	2.5
L+	2	2
M-	2	2
M	1.5	1.5
M+	1	1
H-	1	1
H	0.75	0.75
H+	0.5	0.5
VH	0	0

Avoid the general use of high phosphorus ratio fertilizers such as 10-10-10 or 5-10-10, unless soil tests indicate phosphorus availability below the M+ level.

For irrigated Athletic Fields grown on Naturally Occurring and Modified Sand Based soils only, up to 0.5 pounds of P₂O₅ per 1,000 ft² may be applied, if needed, to aid in recovery of damaged turf during times of extreme use. No phosphorus applications shall be made when the soil phosphorus test level is above 65% saturation, based on the soil test phosphorus values and region.

Establishment/Grow-In Recommendations for Golf Courses, Athletic Fields, and Sod Production

(These rates replace normal maintenance fertilizer applications that would have occurred during these time periods.)

Warm Season Grasses:

Predominantly Silt/Clay Soils

- ◆ Plant Date - late May -June for sprigs, plugs, sod, or seeding.
- ◆ Apply P₂O₅ and K₂O as needed based on soil test recommendations, incorporate into the top 2 inches if possible.
- ◆ At Planting - Up to 1.0 pounds of nitrogen per 1,000 ft² using a material containing slowly available forms of nitrogen may be applied as one application or lesser amounts applied at regular intervals, through the first 4 weeks, not to exceed a total of 1.0 pounds of nitrogen per 1,000ft².
- ◆ Four weeks after planting - 0.25 pounds.of WSN per 1,000 ft² per week for the next 4 weeks.

Naturally Occurring or Modified Sand Based Soils

- ◆ Plant Date - late May -June for sprigs, plugs, sod, or seeding.
- ◆ Apply P₂O₅ and K₂O as needed based on soil test recommendations, incorporate into the top 2 inches if possible.
- ◆ At Planting - Up to 1.0 pounds of nitrogen per 1,000 ft² using a material containing slowly available forms of nitrogen may be applied as one application or lesser amounts at regular intervals through the first 4 weeks, not to exceed a total of 1.0 pounds of nitrogen per 1,000 ft².
- ◆ Four weeks after planting - 0.25 pounds per 1,000 ft² using a material containing slowly available forms of nitrogen per week for the next 4 weeks.

Cool Season Grasses:

Predominantly Silt/Clay Soils

- ♦ Plant Date - August - September (preferred)
- ♦ Apply P_2O_5 and K_2O as needed based on soil test recommendations, incorporate into the top 2 inches if possible.
- ♦ At Planting - up to 0.9 pounds of nitrogen per 1,000 ft² using a material containing slowly available forms of nitrogen may be applied; 30 days after planting, apply up to 0.5 pounds of nitrogen per 1,000 ft² every week for the next 4 weeks.

Naturally Occurring or Modified Sand Based Soils

- ♦ Plant Date - August -September (preferred)
- ♦ Apply P_2O_5 and K_2O as needed based on soil test recommendations, incorporate into the top 2 inches if possible.
- ♦ At Planting - up to 0.9 pounds of nitrogen per 1,000 ft² using a material containing slowly available forms of nitrogen may be applied.
- ♦ Apply up to 0.25 pounds of nitrogen per 1,000 ft² per week after germination is complete, for the next 8 weeks. If using a material that contains slowly available forms of nitrogen, up to 0.5 pounds of nitrogen per 1,000 ft² every two weeks may be applied after germination is complete for the next 8 weeks.

Recommendations for Establishment of Turf

These recommendations are for timely planted turfgrass, that is, the seed or vegetative material (sod, plugs, and /or sprigs), are planted at a time of the year when temperatures and moisture are adequate to maximize turfgrass establishment. These recommended establishment periods would be late summer to early fall for cool-season turfgrasses and late spring through mid-summer for warm-season turfgrasses.

Phosphorus and Potassium Recommendations for Establishment of Turf

Soil Test (VT) Rating	P_2O_5 lb/1000 ft ²	K_2O lb/1000 ft ²
L-	4	3
L	3.5	2.5
L+	3	2
M-	3	2
M	2.5	1.5
M+	2	1
H-	2	1
H	1.5	0.75
H+	1	0.5
VH	0	0

Nitrogen Application for Establishment of Turf

At the time of establishment, apply no more than 0.9 pounds per 1,000 ft² of total nitrogen for cool season grasses or 1.0 pounds per 1,000 ft² of total nitrogen for warm season grasses, using a material containing slowly available forms of nitrogen, followed by one or two applications beginning 30 days after planting, not to exceed a total of 1.8 pounds per 1,000 ft² total for cool season grasses and 2.0 pounds per 1,000 ft² for warm season grasses for the establishment period. Applications of WSN cannot exceed more than 0.7 pounds per 1,000 ft² within a 30-day period.

Sod Installations:

Site preparation should include a soil test, which can be done several months before the project begins in order to have time to get test results back. Phosphorus, potassium and lime applications should be based on soil test analysis to increase the likelihood of a successful installation. Shallow incorporation of material into the top 2 inches of the soil is preferred prior to sod installation, especially if lime is required.

No more than 0.7 lb of WSN/1,000 ft² should be applied before sod is installed. Alternatively, using a slowly available forms of nitrogen, 0.9 lb N/1000 ft² for cool season grasses or 1 lb of N/1000 ft² for warm season grasses may be applied before sod installation.

After installation apply adequate amounts of water to maintain sufficient soil moisture (i.e. to prevent visible wilt

symptoms). Excessive water will limit initial root development. After roots begin to establish (as verified by lightly tugging on the sod pieces), shift irrigation strategy to a deep and infrequent program in order to encourage deep root growth. Apply approximately 1 inch of water per week (either by rainfall or irrigation), making sure that the water is being accepted by the soil profile without running off. This will insure thorough wetting of the soil profile.

After sod has completed rooting and is well established, initiate the normal nitrogen management program as described for the appropriate use shall be recommended.

Other Turf Management Considerations

Lime Recommendations

Lime should be recommended based on a soil test to maintain soil pH within an agronomic range for turfgrass.

For new seedings where lime is recommended, incorporate the lime into the topsoil for best results.

Returning Grass Clippings

Recycling of clippings on turf should be encouraged as an effective means of recycling nitrogen, phosphorus, and potassium. Proper mowing practices that ensure no more than 1/3 of the leaf blade is removed in any cutting event will enhance turf appearance and performance when clippings are returned. Return all leaf clippings from mowing events to the turf rather than discharging them onto sidewalks or streets. Rotary mulching mowers can further enhance clipping recycling by reducing the size of clippings being returned to the turfgrass canopy.

Management of Collected Clippings

If clippings are collected they should be disposed of properly. They may be composted or spread uniformly as a thin layer over other turf areas or areas where the nutrient content of the clippings can be recycled through actively growing plants. They should not be blown onto impervious surfaces or surface waters, dumped down stormwater drains, or piled outside where rainwater will leach out the nutrients creating the potential for nutrient loss to the environment.

Use of Iron

Foliar iron supplements may be used to stimulate a greening effect on the turfgrass as an alternative to additional applications of nitrogen. These applications are most beneficial if applied in late spring through summer for cool season grasses and in late summer through fall for warm-season grasses.

Impervious Surfaces

Do not apply fertilizers containing nitrogen or phosphorus to impervious surfaces (sidewalks, streets, etc.). DO NOT use urea as an ice melting substance in cold weather. Remove any granular materials that land on impervious surfaces by sweeping and collecting, and either put the collected material back in the bag, or spread it onto the turf and/or use a leaf blower etc., to return the fertilizer back to the turfgrass canopy.

Environmentally Sensitive Areas

Avoid fertilizer applications within 15 feet of waterways. This setback is reduced to 10 feet if a drop spreader, rotary spreader with deflector or targeted spray liquid is used to apply the fertilizer. The use of fertilizers with slow release nitrogen is greatly encouraged, especially where there is any reason to suspect environmental concerns.

Recordkeeping requirements and reporting for the application of fertilizer (2VAC5-405-100)

State-owned lands subject to this regulation shall maintain records of each application of fertilizer to non-agricultural land for at least three years following the application. These records shall be available for inspection. Each record shall contain the:

1. Name, mailing address of the application site;
2. Name of the person making or supervising the application;
3. Day, month, and year of application;
4. Weather conditions at the start of the application;
5. Acreage, area, square footage, or plants treated;
6. Analysis of fertilizer applied;
7. Amount of fertilizer used, by weight or volume; and
8. Type of application equipment used.

Spreader Calibration

Spreaders and boom sprayers must be properly calibrated if they are to deliver fertilizers and pesticides to turf at correct rates. If calibration is done incorrectly, the product may be misapplied and either too much or too little of the product will reach the turf. Sprayers and spreaders should be calibrated at first use and every fourth application. Spreaders and sprayers be calibrated in several ways. Refer to the following publication for detailed instructions:

[www.turfgrass.ncsu.edu/Articles/admin/2008/Calibration_of_Turfgrass_Boom_Sprayers_and_Spreaders_\(AG-628\).pdf](http://www.turfgrass.ncsu.edu/Articles/admin/2008/Calibration_of_Turfgrass_Boom_Sprayers_and_Spreaders_(AG-628).pdf)

6. Soil Reports

Page 1 of 2

Report Number: 20-083-0508

Account Number: 06736

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Grower: Norfolk State University

SOIL ANALYSIS REPORT

Analytical Method(s): SMP Buffer pH Mehlich 3 Loss On Ignition Water pH

Date Received: 03/23/2020

Date Of Analysis: 03/24/2020

Date Of Report: 03/24/2020

Sample ID Field ID	Lab Number	OM	W/V	ENR	Phosphorus				Potassium	Magnesium	Calcium	Sodium	pH		Acidity		C.E.C
		% Rate	Soil Class	lbs/A	M3 ppm Rate	ppm	Rate	ppm	Rate	K ppm Rate	Mg ppm Rate	Ca ppm Rate	Na ppm Rate	Soil pH	Buffer Index	H meq/100g	meq/100g
NSU1-G	22395	2.6 M		86	34 M				103 L	117 L	2058 VH		7.2		0.0	11.5	
NSU2-G	22396	3.3 M		99	51 H				106 M	116 L	2166 VH		7.4		0.0	12.1	
NSU3-G	22397	3.9 M		120	50 M				75 L	83 M	621 M		5.4	6.77	1.6	5.6	
NSU4-PF	22398	2.5 L		92	41 M				38 VL	51 L	841 H		6.3		0.6	5.3	
NSU5-BB	22399	4.5 M		130	78 H				114 M	121 M	944 M		6.1	6.83	1.0	7.0	

Sample ID Field ID	Percent Base Saturation					Nitrate	Sulfur	Zinc	Manganese	Iron	Copper	Boron	Soluble Salts		
	K %	Mg %	Ca %	Na %	H %	NO ₃ N ppm Rate	S ppm Rate	Zn ppm Rate	Mn ppm Rate	Fe ppm Rate	Cu ppm Rate	B ppm Rate	SS ms/cm Rate		
NSU1-G	2.3	8.5	89.5		0.0										
NSU2-G	2.2	8.0	89.5		0.0										
NSU3-G	3.4	12.4	55.4		28.6										
NSU4-PF	1.8	8.0	79.3		11.3										
NSU5-BB	4.2	14.4	67.4		14.3										

Values on this report represent the plant available nutrients in the soil. Rating after each value: VL (Very Low), L (Low), M (Medium), H (High), VH (Very High). ENR - Estimated Nitrogen Release. C.E.C. - Cation Exchange Capacity.

Explanation of symbols: % (percent), ppm (parts per million), lbs/A (pounds per acre), ms/cm (milli-mhos per centimeter), meq/100g (milli-equivalent per 100 grams). Conversions: ppm x 2 = lbs/A, Soluble Salts ms/cm x 640 = ppm.

This report applies to sample(s) tested. Samples are retained a maximum of thirty days after testing.

Analysis prepared by: Waypoint Analytical Virginia, Inc.

by: *Paucic McGeary*

Paucic McGeary

Report Number: 20-083-0508

Account Number: 06736

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WILLIAMSBURG VA 23185



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Grower: Norfolk State University

SOIL ANALYSIS REPORT

Analytical Method(s): SMP Buffer pH Mehlich 3 Loss On Ignition Water pH

Date Received: 03/23/2020

Date Of Analysis: 03/24/2020

Date Of Report: 03/24/2020

Sample ID Field ID	Lab Number	OM	W/V	ENR	Phosphorus			Potassium		Magnesium		Calcium		Sodium		pH		Acidity		C.E.C
		% Rate	Soil Class	lbs/A	M3 ppm	Rate	ppm	Rate	K ppm	Rate	Mg ppm	Rate	Ca ppm	Rate	Na ppm	Rate	Soil pH	Buffer Index	H meq/100g	meq/100g
NSU6-SB	22400	4.9 M		136	60	H			115	M	123	M	1131	M			6.1	6.82	1.1	8.1

Sample ID Field ID	Percent Base Saturation					Nitrate	Sulfur	Zinc	Manganese	Iron	Copper	Boron	Soluble Salts		
	K %	Mg %	Ca %	Na %	H %	NO ₃ -N ppm	S ppm	Zn ppm	Mn ppm	Fe ppm	Cu ppm	B ppm	SS ms/cm		
NSU6-SB	3.6	12.7	69.8		13.6										

Values on this report represent the plant available nutrients in the soil. Rating after each value: VL (Very Low), L (Low), M (Medium), H (High), VH (Very High). ENR - Estimated Nitrogen Release. C.E.C. - Cation Exchange Capacity.

Explanation of symbols: % (percent), ppm (parts per million), lbs/A (pounds per acre), ms/cm (milli-mhos per centimeter), meq/100g (milli-equivalent per 100 grams). Conversions: ppm x 2 = lbs/A, Soluble Salts ms/cm x 640 = ppm.

This report applies to sample(s) tested. Samples are retained a maximum of thirty days after testing.

Analysis prepared by: Waypoint Analytical Virginia, Inc.

by: *Paucic McGeary*

Paucic McGeary