COMMONWEALTH of VIRGINIA
DEPARTMENT OF CONSERVATION AND RECREATION

Approved February 13, 2025

Date Received by DCR February 11, 2025

Randy Johnson
GCC Fredericksburg
1000 Germanna Point Drive
Fredericksburg, Va 22408

Your nutrient management plan (NMP) dated March1, 2025 located in Fredericksburg has been approved by the Virginia Department of Conservation and Recreation (DCR). The approved plan is for 2.19 acres. Only nutrient recommendations for applications to be made after the date of this letter are approved by this letter. Your NMP was written by Sara Shelton, a nutrient management planner certified by DCR.

This site has not been inspected by DCR and this approval is contingent upon site conditions being as stated in the NMP. Any revisions to this plan must be approved by DCR. Any change in personnel resulting in a change to the plan manager should be reported to the Certified Nutrient Management Planner who will then make DCR aware. Please note that this letter should be kept with the NMP and supporting documentation including nutrient application records. This plan expires on March 1, 2028. Please feel free to contact me with any questions or concerns regarding this approval.

Best regards,

James Janney

James Janney
Urban Nutrient Management Coordinator
Division of Soil and Water Conservation
600 East Main Street, 24th Floor
Richmond VA 23219
(804) 513-5958

Nutrient Management Plan
for the
Fredericksburg Campus
Germanna Community College

Prepared for:

Randy Johnson
Director of Facilities
Germanna Community College
1000 Germanna Point Drive
Fredericksburg, VA 22408
540.423.9046

Prepared By:

Sara J. Shelton/Certified Nutrient Management Planner - Certification No. 943

Wetland Studies and Solutions, Inc.
1620 Brook Road
Richmond, Virginia 23220

Location Information	
Physical Address	*1000 Germanna Point Drive*
City State Zip	*Fredericksburg, VA 22408*
Coordinates	*38 N 13' 54.28"*
NAD 83 Deg Min Sec	*77 W 29' 34.73"*
VAHU6 Watershed Code	*RA-47 – Massaponax Creek*
County	*Spotsylvania*

Square Footage of Management Areas	
Total	*2.19 acres (95,225.43 ft^2)*
Area 1	*1.39 acres (*60,453.02 *ft^2)*
Area 2	*.80 acres (34,772.41 ft^2)*

Plan Start Date	*March 1, 2025*
Plan End Date	*March 1, 2028*
Planner Signature	Sara Shelton

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1.0 INTRODUCTION AND SITE DESCRIPTION

1.1 Introduction

This Nutrient Management Plan (NMP) is for the Fredericksburg Campus of the Germanna Community College (GCC) located in Spotsylvania east of I-95 and north of US Highway 17 (Figure 1). The entire property is 74.95 acres.

This NMP addresses only the nutrient management of turfgrass. Management of other vegetated areas containing trees, flowering ornamentals, small shrubs and groundcovers, is performed by each facility based on very site-specific conditions including but not limited to the type and status of vegetated areas, annual soil testing, and the occurrence of pests and weeds. This NMP is effective until March 1, 2028, or until major renovation or other changes to maintenance practices occur. This NMP should be used as a resource for planning the quantity and timing of turfgrass nutrient application based on sound agronomic practices.

1.2 Site Description

The campus contains turfgrass in many areas including around campus buildings, along roadways and around and within parking lots. The grounds are managed at a moderate maintenance level. Most turf areas have been seeded with blends of fescue with the exception of one area of bermudagrass.

1.3 Current and Future Turf Maintenance

Turf maintenance is performed by GCC staff and other outside contractors when needed including mowing, herbicide, fertilizer and lime applications, as well as aeration and overseeding. It will be the responsibility of the Director of Facilities to ensure the management plan is followed.

2.0 SOIL SAMPLING AND ANALYSIS

Although most of the soils in the turf areas have been modified by cut and fill activities, the soils still retain most of the characteristics presented in the U.S. Department of Agriculture (USDA) soil survey and may still be classified as clay loams.

Soil samples were collected on December 6, 2024, from four (4) turfgrass areas across the campus and submitted for laboratory analysis including pH, buffer pH, phosphorus and potassium, and other soil properties. Figure 2 shows the locations of the soil sampling areas as well as environmentally sensitive areas and Table 1 presents the laboratory results. Appendix A presents the soil laboratory data. No sampling was performed within wooded or landscaped areas.

Soil laboratory results were converted into nutrient management ratings based on the Virginia Nutrient Management Standards and Criteria (VNMS&C). Soil phosphorous levels ranged from L- to H-, and potassium concentrations ranged from M+ to H. Soil pH ranged from 5.4 to 6.8 Standard Units (SU), with two of the samples having a pH above the target level of 6.2.

3.0 NUTRIENT MANAGEMENT AREAS

Based on the soil test results, current turf conditions, the intensity of use, and overall visibility and aesthetic considerations, two (2) Nutrient Management Areas (NMA) at the Fredericksburg Campus have been established for this NMP. The number of nutrient management areas will facilitate effective management, protect water quality, and maintain healthy turf. Figure 3 shows the nutrient management areas and Figure 4 shows the liming areas. Table 2 presents the application schedule for the nutrient management and liming areas, discussed in greater detail in Section 3.1 below.

3.1 Nutrient and Liming Applications

3.1.1 Nitrogen, Phosphorous and Potassium

Nitrogen, phosphorous (P2O5) and potassium (K2O) are the three macronutrients essential for healthy turf and, along with lime applications, are the central focus of the NMP. Phosphorous and potassium recommendations are based on the soil laboratory results. Nitrogen recommendations are based on the turfgrass needs, not soil test results, which vary based on the type of turfgrass (cool vs. warm season) and level of management (standard vs. intensive). Recommended rates and timing of all three macronutrients are based on the VNMS&C. This NMP uses the most restrictive application rate for each NMA based on individual sample results where multiple sampling areas are part of the same NMA.

The acceptable window for nitrogen application for cool season fescue turf at the Fredericksburg Campus is six weeks prior to the last spring average frost and six weeks after the first fall average frost from March 4 until December 6. Although aggressive spring and summer nitrogen fertilization can result in lush, dark green foliage, this occurs at the expense of the turf root system. Turf with an inadequate root system will then struggle in the summer heat and moisture conditions. Additionally, too much nitrogen in spring and summer for cool season turf can result in leaching or runoff to nearby waterbodies. The bulk of nitrogen should be applied in monthly increments from September through November. As phosphorous and potassium are not as mobile as nitrogen and generally reside in soil for longer periods of time, the application timing of these two macronutrients is not as critical as nitrogen. Incremental applications of these nutrients from September to November are recommended. The acceptable window for nitrogen application for non-overseeded warm season bermuda turf at the Fredericksburg campus 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 from March 15 to September 25.

3.1.2 Lime and pH

Soil acidity is critical to plants because it affects the availability of nutrients in the soil and potential leaching of nutrients from the soil. Cool season fescue prefers a soil pH that is slightly acidic, at a level of approximately 6.2 Standard Units (SU). Periodic lime applications are necessary for many Virginia soils to correct low pH, add buffering capacity, to provide secondary nutrients calcium and magnesium as well as some micronutrients. Liming rates are based on the soil test pH and the buffer indices.

According to the laboratory results, two split liming applications of 45 lbs. per 1,000 square feet is needed for the first year of this NMP for Soil Sampling Area FA-1 and one application of 50 lbs. per 1,000 square feet is needed for the first year of this NMP for Soil Sampling Area FA-2. See Table 2 for recommended amounts and timing of applications. No liming is recommended for the remainder of the soil sampling areas. Liming recommendations are only for the first year following sampling. The soil should be tested for soil pH and Buffer pH in the late fall to winter each following year to determine if liming is necessary following the initial recommended liming.

3.2 Problem Turfgrass Areas and Temporarily Inactive Nutrient Management Areas

Turf in several areas across the campus appears thin, with bermudagrass mixed in and appears to need additions of topsoil and overseeding. Areas of ineffective groundcover and all active construction sites should be temporarily removed from active nutrient management until corrective measures can be applied to improve the turfgrass or groundcover conditions or the construction site is returned to active management. At the time of the development of this NMP, there were no active construction sites or turf areas that were designated as ineffective and removed from active management.

Corrective action options vary by area but may include additional soil amendments (compost/topsoil), aeration or shallow tilling, and the use of mulch, turf mats and blankets. Alternative landscaping such as groundcovers, pavers, and other hardscape treatments may be the best alternative for some areas. If turfgrass is the desired vegetative cover, the soil should be retested for soil and buffer pH and adjusted accordingly with limestone as part of corrective action.

3.3 Selection of Fertilizers

Specific fertilizers have not been selected as a part of this NMP to provide greater flexibility and cost savings. The landscape contractor has the option to select either commonly used fertilizer blends that they may already have in stock or are readily available, or they can use custom blends, a common practice in the commercial landscaping industry. Slow-release nitrogen containing fertilizers are recommended. This NMP will require revision should the Director of Facilities decide to use animal manures or Class B biosolids (not of exceptional quality).

Provided the maximum rate of nitrogen per application and the total annual rates of all three nutrients are not exceeded as detailed in Table 2, the Facility staff and/or a landscape contractor may use their discretion with the exact ratio of nutrients applied per application.

3.4 Pre- and Post-Emergent Herbicides

Weed control is a necessary requirement for healthy turf. Herbicides with nitrogen included may be used in the spring provided the application of nitrogen follows the amount allowed by this NMP and the VNMS&C. However, additional straight application of herbicides without nitrogen additives may be required.

3.5 Precautions for Fertilizer Applications

General precautions for fertilizer application include:

- Avoid applying fertilizers on steep slopes 48-hours prior to a rain event.
- Do not apply fertilizers to frozen or snow-covered ground, nor should they ever be used as ice melt.
- Avoid/minimize application of fertilizers to impervious areas such as parking lots, roads, and sidewalks, and within 25 feet of environmentally sensitive areas and stormwater collection/management facilities.
- 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.

4.0 ENVIRONMENTALLY SENSITIVE AREAS AND RECOMMENDED BUFFERS

Five (5) environmentally sensitive areas were identified on the Fredericksburg Campus as shown on Figures 2 through 4:

- Permeable pavement in the parking lot in the Northeastern corner of the property.
- Filterra along the Eastern side of the property on the drive to the parking garage.
- Bioretention Basin to the South of the parking garage.
- Detention Basin to the South of the Bioretention Basin at the Southeastern corner of the property.
- Bioretention Basin south of the V. Earl Dickenson Building within the plaza area.

A no-fertilizer/pesticide application buffer area of at least 25 feet and preferably 50 feet should be established around these sensitive areas. Where practicable, native vegetation may be an alternative to turf in the buffer areas.

It is noted that identification of sensitive natural resources areas such as wetlands and streams is based on the publicly available National Hydrologic Dataset and the U.S. Fish & Wildlife Service (USFWS) National Wetland Inventory Maps. Field mapping of other wetlands and streams that may exist on the campus was outside the scope of this NMP.

5.0 OTHER TURF MANAGEMENT CONSIDERATIONS

Aeration - Extensive core cultivation/aeration in the late summer to early fall is recommended for the Fredericksburg campus. Core aeration is very disruptive to surface smoothness, but it is the best way to relieve the physical effects of soil compaction and increase soil oxygen levels.

Grass Seed Type - Reference the most recent Virginia Cooperative Extension's *Virginia Turfgrass Variety Recommendations* found online at https://www.sites.ext.vt.edu/newsletter-archive/turfgrass/index.html when selecting seed mix for over-seeding. The seed type should be suitable to regional environmental conditions.

Iron - Iron applications (particularly foliar applications) may periodically be used for enhanced greening as an alternative to nitrogen. These applications are most beneficial if applied in late spring through summer for cool season grasses and in late summer/fall applications for warm-season grasses. Since iron is a micronutrient, its application levels are very low. The color response is short-lived (typically two to three weeks) because the iron-induced color response in the leaves is removed by mowing.

Returning and Management of Grass Clippings - The recycling of grass clippings on turf should be encouraged as an effective means of recycling nitrogen, phosphorus, and potassium. Where aesthetics allows, all clippings from mowing events should be returned to the turf rather than discharging them onto sidewalks or streets. Clippings 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

Spreader Equipment Calibration - Spreader equipment calibration is critical to NMP implementation. The landscape contractor should supply equipment calibration records to the Director of Facilities on a routine basis.

6.0 RECORDKEEPING

Proper NMP implementation requires diligent record keeping of fertilizer, lime and herbicide applications, and turfgrass conditions. Important information to retain with the plan includes soil tests reports; spreader settings; calibration results, dates of fertilizer application and rates applied; seeding or renovation; and unusual stresses caused by disease, drought, and pests. This information will also provide the background needed for future plan revisions. NMP Application record keeping forms are included in Appendix B for use for tracking fertilizer, lime, pesticide and herbicides.

7.0 REFERENCES

Nutrient Management Training and Certification Regulations 4VAC50-85 (effective date November 23, 2014)

Virginia Nutrient Management Standards and Criteria (Revised July 2014): https://www.dcr.virginia.gov/document/standardsandcriteria.pdf

Urban Nutrient Management Handbook (August 16, 2019); 430-350: https://resources.ext.vt.edu/

A Spreadsheet-Based Soil Test Converter for Turfgrass Professionals and Nutrient Management Planning in Virginia (November 1, 2018); SPES-60P: https://resources.ext.vt.edu/

Soil Test Note #1 – Explanation of Soil Tests (December 1, 2018): https://resources.ext.vt.edu/

TABLES

Table 1 - Soil Test Summary

Site:	Fredericksburg Campus - GCC										
Testing Lab:	Waypoint Analytical (Formerly A&L Eastern Laboratories)										
Sample Date:	12/06/2024										
Soil Sampling Area ID	Square Feet	Soil pH (SU)	Buffer pH (SU)	P (Mehlich III) ppm	P (Mehlich I) ppm	P (H/M/L)	P (Mehlich III) ppm	K (Mehlich I) ppm	K (H/M/L)	Soil Description	Turf Species
FA-1	18,337.75	5.4	6.7	41	16	M+	181	129	H	Dark Brown, Clay Loam	Cool season, fescue
FA-2	28,707.85	6.1	6.79	54	21	H-	163	116	H	Dark Brown, Clay Loam	Cool season, fescue
FA-3	34,772.41	6.8	DNC	7	0	L-	116	82	M+	Dark Brown, Clay Loam	Warm season, bermuda
FA-4	13,407.42	6.6	DNC	46	18	M+	120	85	M+	Dark Brown, Clay Loam	Cool season, fescue

Notes: SU = Standard Units; ppm = parts per million; P and K ratings are from Virginia Nutrient Management Standards & Criteria.
DNC* = Buffer pH did not compute because the pH was above 6.2, according to Waypoint Analytical personnel.

Table 2 – Nutrient Application Worksheet – Schedule 1

Site: Fredericksburg Campus
Begins: 3/01/2025
Nutrient Management Area: 1 (FA-1, FA-2 & FA-4)
Landscape Plants: Cool Season Turf (Fescue)

Operator: Germanna Community College
Expires: 3/01/2028
Square Feet: 60,423.02

Annual Nutrient Needs (lbs./1000 ft^2)[1]	Application Month/Day[1],[2]	Amendment Material Notes	% Slow-Release N	Total N (lbs./1000 ft^2)	Total $P_2 0_5$ (lbs./1000 ft^2)	Total $K_2 0$ (lbs./1000 ft^2)	Lime Recommendation (lbs./1000 ft^2)[3]
3.4-1.0-0.75	March 4	Lime		0	0	0	45 (FA-1)
	April 4	N, $P_2 0_5$	50% or greater	0.75	0.25	0	
	September 4	N, $P_2 0_5$, $K_2 0$	50% or greater	0.9	0.25	0.25	
	October 4	N, $P_2 0_5$, $K_2 0$	50% or greater	0.9	0.25	0.25	
	November 4	N, $P_2 0_5$, $K_2 0$	50% or greater	0.9	0.25	0.25	
	December 4	Lime		0	0	0	45 (FA-1) & 50 (FA-2)
	Totals:			**3.4**	**1.0**	**0.75**	

Notes:

1. Fertilizer recommendations are flexible provided the following conditions are met: a) no more than 0.7 pounds of Water Soluble N per 1000 ft^2 is applied within a 30-day period; b) no more than 0.9 pounds of Total N (per 1000 ft^2) may be applied within a 30-day period; and c) Total annual fertilizer amounts for each nutrient should not exceed the Annual Nutrient Needs listed in column 1.
2. The fertilization window is from March 4th until December 6th. The day designations in column 2 are general guidelines. The application day can vary as long as the application intervals are adhered to, and the applications occur within the window dates.
3. Lime areas are shown in Figure 4 and Soil Sampling Areas are shown in Figure 2. Two split applications of pelletized agricultural dolomitic limestone at a rate of 45 lbs./1000 ft^2 for a total of 90 lbs./1000 ft^2 for soil sampling area FA-1 and one application of 50 lbs./1000 ft^2 for soil sampling area FA-2. Lime applications are for the first year after sampling only. Liming for the following years should be based on additional soil pH and Buffer pH testing.
4. Do not apply inorganic fertilizers on frozen or snow-covered ground, or on denuded areas. Any fertilizer that makes its way onto impervious surfaces should be swept or blown back into pervious turfgrass – covered areas. Do not use fertilizers as ice melt.
5. Use a drop spreader for application of inorganic fertilizers on turf areas less than 10 feet wide or on slopes greater than 2%.
6. Apply pre and or post emergent herbicides as needed, but do not use fertilizer containing herbicide prior to March 4th. Conditions must be met in Note 1.

Table 3 – Nutrient Application Worksheet – Schedule 2

Site: Fredericksburg Campus
Operator: Germanna Community College
Begins: 3/01/2025
Expires: 3/01/2028
Nutrient Management Area: 3 (FA-3)
Square Feet: 34,772.41
Landscape Plants: Warm Season Turf (Bermuda)

Annual Nutrient Needs (lbs./1000 ft^2)[1]	Application Month/Day[1,2]	Amendment Material Notes	% Slow-Release N	Total N (lbs./1000 ft^2)	Total P_2O_5 (lbs./1000 ft^2)	Total K_20 (lbs./1000 ft^2)	Lime Recommendation (lbs./1000 ft^2)[3]
4.0[1f]-3.0-1.0	April 15	N	50% or greater	1.0[1c]	0	0	0
	May 15	N	50% or greater	.50[1b]	0	0	
	June 15	N	50% or greater	.50[1b]	0	0	
	July 15	N, P_2O_5	50% or greater	.50[1b]	1.0	0	
	August 15	N, P_2O_5 & K_20	50% or greater	.50[1b]	1.0	0.50	
	September 15	N, P_2O_5 & K_20	50% or greater	1.0[1c]	1.0	0.50	
	Totals:			**4.0**	**3.0**	**1.0**	
If Overseeded with Perennial Ryegrass							
1.0[1g]-0-0	Oct 15 – Nov 15	N	50% or greater	0.5[1f]	0	0	
	Feb 15 – Mar 15	N	50% or greater	0.5[1f]	0	0	
	Totals:			**1.0**	**0**	**0**	

Notes:

1. Fertilizer recommendations are flexible if the following conditions are met: (a) no more than 0.7 pounds of Water Soluble N per 1000 ft^2 is applied within a 30-day period; (b) no more than 1.0 lbs. of Total N per 1000 ft^2 may be applied within a 30-day period; (c) total annual fertilizer amounts for each nutrient shall not exceed the Annual Nutrient Needs listed in column 1; (d) if a material containing slowly available forms of nitrogen is used, nitrogen application rates up to 1.0 lbs./1000 ft^2 may be applied in a single application with a minimum of 30 days between applications; (e) If the Campus decides to add N for overseeding, they must reduce the other applications to a total of 3 pounds as the maximum allowable N for commercial turf is 4 pounds. (f) up to 1.0 lbs.1000 ft^2 of additional nitrogen is allowed if overseeding with perennial ryegrass. This may be accomplished using split applications of 0.5 lbs./1000 ft^2 applied with a minimum of 15 days between applications.
2. The fertilization window is from March 15th until September 25th. The day designations in column 2 are general guidelines. The application day can vary as long as the application intervals are adhered to, and the applications occur within the window dates.
3. No lime is required for the turf areas in NMA 3 for the first year of this NMP. Lime applications are only for the first year. Liming for years 2 and 3 shall be based on additional soil pH and Buffer pH testing.
4. Do not apply inorganic fertilizers on frozen or snow-covered ground, or on denuded areas. Any fertilizer that makes its way onto impervious surfaces should be swept or blown back into pervious turfgrass – covered areas. Do not use fertilizers as ice melt.
5. Use a drop spreader for application of inorganic fertilizers on turf areas less than 10 feet wide or on slopes greater than 2%.
6. Apply pre and/or post emergent herbicides as needed, but do not use fertilizer containing herbicide before March 15th. Conditions must be met in Note 1.

FIGURES

Figure 1: Project Location

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N

Campus Boundary

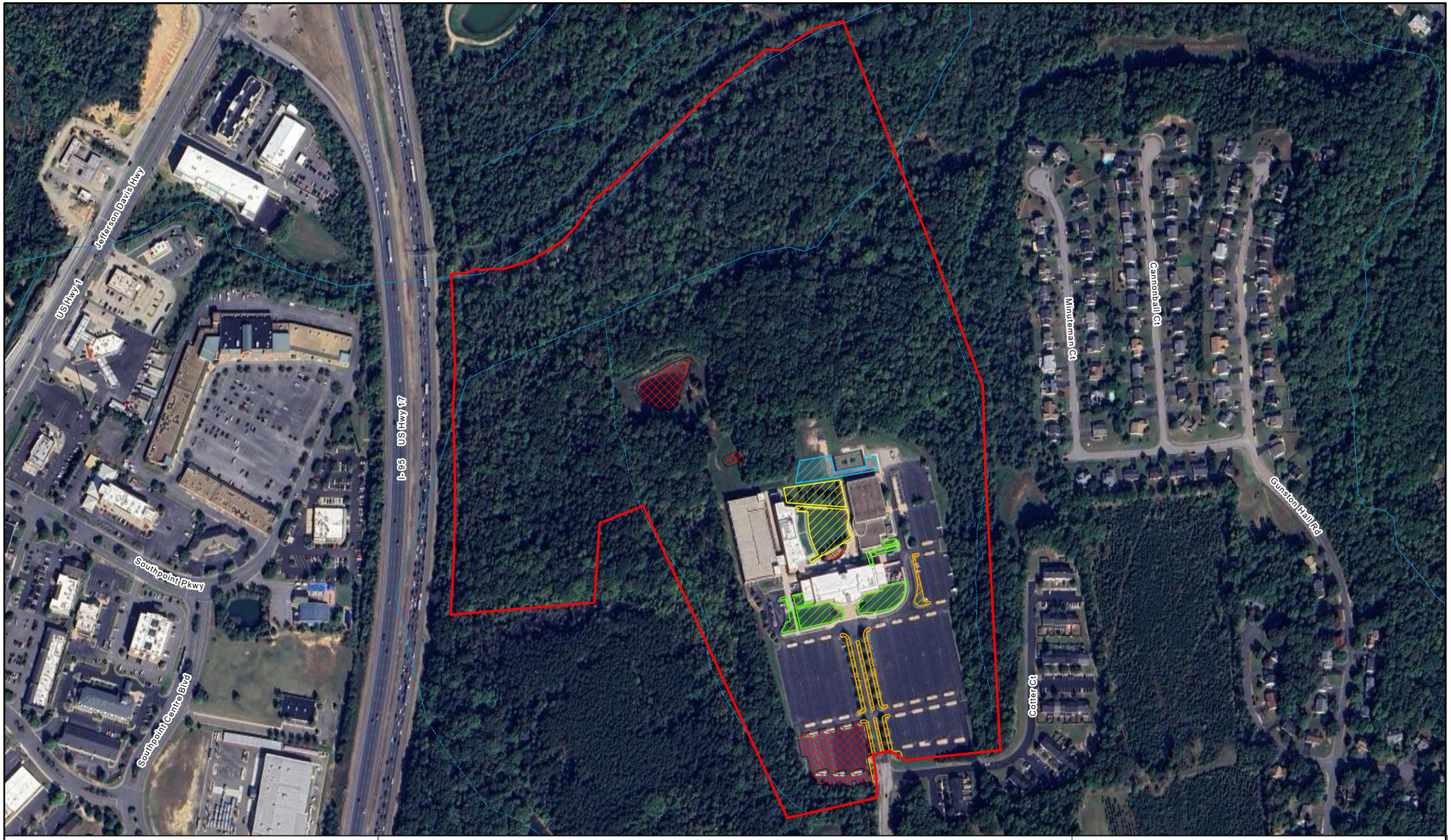
Prepared by WL, 1/17/2025 8:55 AM
Sources: VGIN Most Recent
Projection: NAD 1983 StatePlane Virginia South FIPS 4502 Feet

FIGURE 1
PROJECT LOCATION
GCC - Fredericksburg NMP

0 1,000 2,000 *Feet*

Fredericksburg, Virginia

Figure 2: Soil Sampling Areas



Wetland Studies and Solutions, Inc. a DAVEY company

N

Prepared by WL, 1/17/2025 9:11 AM
Sources: Google Satellite Imagery
Projection: NAD 1983 StatePlane Virginia South FIPS 4502 Feet

FA-1
FA-2
FA-3
FA-4
Campus Boundary
National Hydrography Dataset (NHD)
Environmentally Sensitive Area

FIGURE 2
SOIL SAMPLING AREAS
GCC - Fredericksburg NMP

0 250 500 *Feet*

Culpeper, Virginia

Figure 3: Nutrient Management Areas

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Prepared by WL, 1/17/2025 9:51 AM
Sources: Google Satellite Imagery
Projection: NAD 1983 StatePlane Virginia South FIPS 4502 Feet

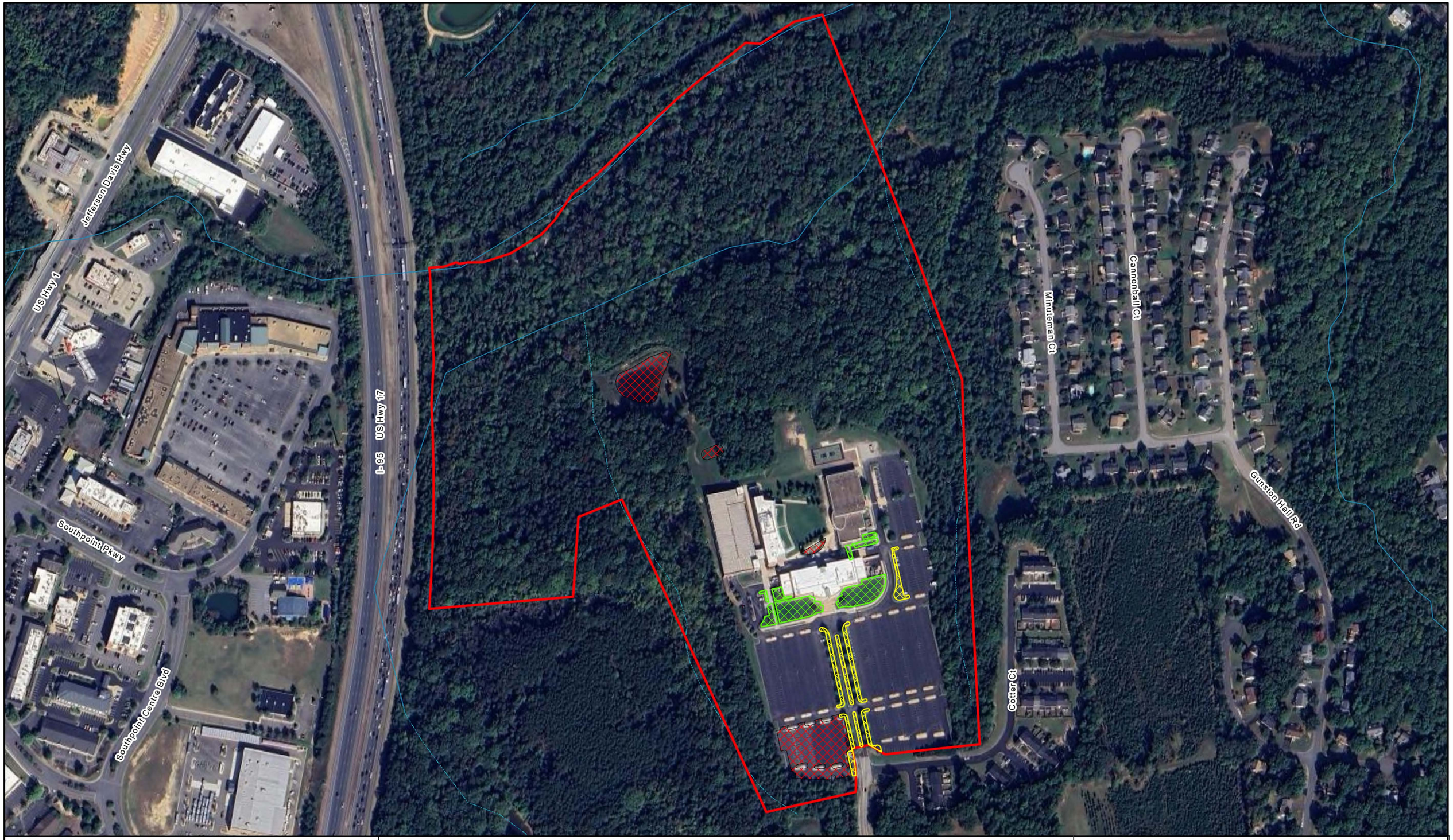
NMA-1
NMA-2
Campus Boundary
National Hydrography Dataset (NHD)
Environmentally Sensitive Area

FIGURE 3
NUTRIENT MANAGEMENT AREAS
GCC - Fredericksburg NMP

0 250 500 Feet

Lynchburg, Virginia

Figure 4: Liming Areas



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Prepared by WL, 1/17/2025 11:35 AM
Sources: Google Satellite Imagery
Projection: NAD 1983 StatePlane Virginia South FIPS 4502 Feet

Liming Area:
- 50 lbs/1000 ft²
- 90 lbs/1000 ft²*

* See Table 2 for split applications

- Campus Boundary
- National Hydrography Dataset (NHD)
- Environmentally Sensitive Area

FIGURE 4
LIMING AREA
GCC - Fredericksburg NMP
0 250 500 Feet
Lynchburg, Virginia

APPENDICES

Appendix A: Laboratory Soil Test Results

Waypoint ANALYTICAL

7621 Whitepine Road, Richmond, VA 23237
Main 804-743-9401 ° Fax 804-271-6446
www.waypointanalytical.com

SOIL ANALYSIS

Client : Wetlands Studies Solutions 1620 Brook Road Richmond VA 23220	Grower : GCC FA GCC Fredericksburg Area Campus 1000 Germanna Point Drive Fredericksburg, VA 22408 PO:	Report No: 24-341-0567 Cust No: 78934 Date Printed: 12/09/2024 Date Received : 12/06/2024 Date Analysis : 12/09/2024 Page : 1 of 8

Lab Number : 11763 **Field Id :** **Sample Id :** FA-1

Test	Results	SOIL TEST RATINGS (Very Low / Low / Medium / Optimum / Very High)
Soil pH	5.4	
Buffer pH	6.70	
Phosphorus (P)	41 ppm	
Potassium (K)	181 ppm	
Calcium (Ca)	770 ppm	
Magnesium (Mg)	179 ppm	
Sulfur (S)		
Boron (B)		
Copper (Cu)		
Iron (Fe)		
Manganese (Mn)		
Zinc (Zn)		
Sodium (Na)		
Soluble Salts		
Organic Matter	3.7 % ENR 112	
Nitrate Nitrogen		

Calculated Cation Exchange Capacity: **8.1** meq/100g

Calculated Cation Saturation

%K	5.7
%Ca	47.5
%Mg	18.4
%H	28.4
Hmeq	2.3

K : Mg Ratio: 0.33

Ca : Mg Ratio: 2.58

SOIL FERTILITY GUIDELINES

Crop : Lawn **Rec Units:** LB/1000 SF

(lbs) LIME (tons)	N	P_2O_5	K_2O	Mg	S	B	Cu	Mn	Zn	Fe
90	4.0	0.5	0	0						
Crop :							**Rec Units:**			

Comment :

Brandi Watson

Analysis prepared by: Waypoint Analytical Virginia, Inc.

Waypoint ANALYTICAL

7621 Whitepine Road, Richmond, VA 23237
Main 804-743-9401 º Fax 804-271-6446
www.waypointanalytical.com

SOIL ANALYSIS

Client : Wetlands Studies Solutions 1620 Brook Road Richmond VA 23220	Grower : GCC FA GCC Fredericksburg Area Campus 1000 Germanna Point Drive Fredericksburg, VA 22408 PO:	Report No: 24-341-0567 Cust No: 78934 Date Printed: 12/09/2024 Date Received : 12/06/2024 Date Analysis : 12/09/2024 Page : 2 of 8

Lab Number : 11763 **Field Id :** **Sample Id :** FA-1

SUGGESTED FERTILIZATION PROGRAM

First Application		Second Application		Third Application		Fourth Application	
#/1000 Sq. Ft.	Fertilizer	#/1000 Sq. Ft.	Fertilizer	#/1000 Sq. Ft.	Fertilizer	#/1000 Sq. Ft.	Fertilizer
8	16-4-8	8	16-4-8	6	21-3-7		

Comments:

Lawn

Limestone application is targeted to bring soil pH to 6.5.

· Apply the amount of lime recommended in first page to raise pH

· For existing lawns, lime applications should NOT exceed 50 pounds per 1000 sq. feet per application. Split and apply every 4 to 6 month until the recommended amount is completed.

· The amount of fertilizer recommended on the first page is the total amount needed for the entire growing season. Split into 3-4 applications to keep the lawn green and prevent fertilizer loss. You should not apply more than 0.7 lbs of soluble nitrogen per 1000 square feet in a 30 day period. Or more than 0.9 lbs of nitrogen per 1000 square feet if you are using a slow or controlled release product in a 30 day period.Custom blend is best to meet exactly the requirement, if this is impossible, the above specific fertilizer application is a general guideline, if the specified grades can not be found, replace with fertilizer having similar N:P:K ratio. The best time to apply fertilizer for cool season grass (bluegrass, fescue, ryegrass) is in the Fall when the grass is growing. For Mid-Atlantic region the time is from late August to November. For Northeast region the time is from mid August to October. Fall application should start as soon as the day time high temperature is below 80-85F, apply with the interval of one month. If you start application late in the Fall and do not finish all three applications, repeat the same applications in the Fall of next year. Spring application is recommended when exceptional fertilizer loss due to heavy spring rain leaching and the grasses look pale green. Spring application can start as soon as the grass starts to grow in April. In the case of exceptional warm spring, the application can be made earlier.

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· Use calcitic limestone to correct the pH.

Brandi Watson

Analysis prepared by: Waypoint Analytical Virginia, Inc.

Waypoint ANALYTICAL

7621 Whitepine Road, Richmond, VA 23237
Main 804-743-9401 ° Fax 804-271-6446
www.waypointanalytical.com

SOIL ANALYSIS

Client : Wetlands Studies Solutions 1620 Brook Road Richmond VA 23220	Grower : GCC FA GCC Fredericksburg Area Campus 1000 Germanna Point Drive Fredericksburg, VA 22408 PO:	Report No: 24-341-0567 Cust No: 78934 Date Printed: 12/09/2024 Date Received : 12/06/2024 Date Analysis : 12/09/2024 Page : 3 of 8

Lab Number : 11764 **Field Id :** **Sample Id :** FA-2

Test	Results	SOIL TEST RATINGS (Very Low / Low / Medium / Optimum / Very High)
Soil pH	6.1	
Buffer pH	6.79	
Phosphorus (P)	54 ppm	
Potassium (K)	163 ppm	
Calcium (Ca)	1254 ppm	
Magnesium (Mg)	228 ppm	
Sulfur (S)		
Boron (B)		
Copper (Cu)		
Iron (Fe)		
Manganese (Mn)		
Zinc (Zn)		
Sodium (Na)		
Soluble Salts		
Organic Matter	5.1 % ENR 138	
Nitrate Nitrogen		

Calculated Cation Exchange Capacity	
10.0 meq/100g	
Calculated Cation Saturation	
%K	4.2
%Ca	62.7
%Mg	19.0
%H	14.0
Hmeq	1.4
K : Mg Ratio	
0.21	
Ca : Mg Ratio	
3.30	

SOIL FERTILITY GUIDELINES

Crop : Lawn **Rec Units:** LB/1000 SF

(lbs) LIME (tons)	N	P_2O_5	K_2O	Mg	S	B	Cu	Mn	Zn	Fe
50	4.0	0	0.5	0						
Crop :							**Rec Units:**			

Comment :

Brandi Watson

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www.waypointanalytical.com

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Lab Number : 11764 **Field Id :** **Sample Id :** FA-2

SUGGESTED FERTILIZATION PROGRAM

First Application		Second Application		Third Application		Fourth Application	
#/1000 Sq. Ft.	Fertilizer	#/1000 Sq. Ft.	Fertilizer	#/1000 Sq. Ft.	Fertilizer	#/1000 Sq. Ft.	Fertilizer
8	16-4-8	8	16-4-8	6	21-3-7		

Comments:

Lawn

Limestone application is targeted to bring soil pH to 6.5.

· Apply the amount of lime recommended in first page to raise pH

· The amount of fertilizer recommended on the first page is the total amount needed for the entire growing season. Split into 3-4 applications to keep the lawn green and prevent fertilizer loss. You should not apply more than 0.7 lbs of soluble nitrogen per 1000 square feet in a 30 day period. Or more than 0.9 lbs of nitrogen per 1000 square feet if you are using a slow or controlled release product in a 30 day period.Custom blend is best to meet exactly the requirement, if this is impossible, the above specific fertilizer application is a general guideline, if the specified grades can not be found, replace with fertilizer having similar N:P:K ratio. The best time to apply fertilizer for cool season grass (bluegrass, fescue, ryegrass) is in the Fall when the grass is growing. For Mid-Atlantic region the time is from late August to November. For Northeast region the time is from mid August to October. Fall application should start as soon as the day time high temperature is below 80-85F, apply with the interval of one month. If you start application late in the Fall and do not finish all three applications, repeat the same applications in the Fall of next year. Spring application is recommended when exceptional fertilizer loss due to heavy spring rain leaching and the grasses look pale green. Spring application can start as soon as the grass starts to grow in April. In the case of exceptional warm spring, the application can be made earlier.

·

· Use calcitic limestone to correct the pH.

Brandi Watson

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Waypoint ANALYTICAL

7621 Whitepine Road, Richmond, VA 23237
Main 804-743-9401 ° Fax 804-271-6446
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SOIL ANALYSIS

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Lab Number : 11765 **Field Id :** **Sample Id :** FA-3

Test	Results	SOIL TEST RATINGS (Very Low / Low / Medium / Optimum / Very High)
Soil pH	6.8	
Buffer pH		
Phosphorus (P)	7 ppm	
Potassium (K)	116 ppm	
Calcium (Ca)	1540 ppm	
Magnesium (Mg)	146 ppm	
Sulfur (S)		
Boron (B)		
Copper (Cu)		
Iron (Fe)		
Manganese (Mn)		
Zinc (Zn)		
Sodium (Na)		
Soluble Salts		
Organic Matter	5.2 % ENR 140	
Nitrate Nitrogen		

Calculated Cation Exchange Capacity	
9.5 meq/100g	
Calculated Cation Saturation	
%K	3.1
%Ca	81.1
%Mg	12.8
%H	3.2
Hmeq	0.3
K : Mg Ratio	
0.25	
Ca : Mg Ratio	
6.34	

SOIL FERTILITY GUIDELINES

Crop : Bermudagrass Lawn **Rec Units:** LB/1000 SF

(lbs) LIME (tons)	N	P_2O_5	K_2O	Mg	S	B	Cu	Mn	Zn	Fe
0	3.5	4.5	4.0	0						
Crop :							**Rec Units:**			

Comment :

Brandi Watson

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Brandi Watson

Waypoint ANALYTICAL

7621 Whitepine Road, Richmond, VA 23237
Main 804-743-9401 º Fax 804-271-6446
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SOIL ANALYSIS

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Lab Number : 11765 **Field Id :** **Sample Id :** FA-3

SUGGESTED FERTILIZATION PROGRAM

First Application		Second Application		Third Application		Fourth Application	
#/1000 Sq. Ft.	Fertilizer	#/1000 Sq. Ft.	Fertilizer	#/1000 Sq. Ft.	Fertilizer	#/1000 Sq. Ft.	Fertilizer
6	21-0-0	6	21-0-0	6	21-0-0		

Comments:

Bermudagrass Lawn

· The above fertilizer application recommendation is a general guideline, if the specified grades can not be found, replace with fertilizer having similar N:P:K ratio. The best time to apply fertilizer for warm season grass (bermuda, St. Augustine, zoysia, bahia, centipede) is in the late spring and summer when grass is growing. For Mid-Atlantic region the time is from May to Mid September. Apply with the interval of 4-6 weeks. These grades of fertilizer are the best fit for your requirements for Nitrogen and Phosphorus. It may cause the amount of Potassium being slightly lower than the amount required. This problem should not affect the growth of your lawn and can be easily adjusted from resubmitting soil sample same time next year.

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SOIL ANALYSIS

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Lab Number : 11766 **Field Id :** **Sample Id :** FA-4

Test	Results	SOIL TEST RATINGS (Very Low / Low / Medium / Optimum / Very High)
Soil pH	6.6	
Buffer pH		
Phosphorus (P)	46 ppm	
Potassium (K)	120 ppm	
Calcium (Ca)	1582 ppm	
Magnesium (Mg)	169 ppm	
Sulfur (S)		
Boron (B)		
Copper (Cu)		
Iron (Fe)		
Manganese (Mn)		
Zinc (Zn)		
Sodium (Na)		
Soluble Salts		
Organic Matter	5.7 % ENR 149	
Nitrate Nitrogen		

Calculated Cation Exchange Capacity	
10.2 meq/100g	
Calculated Cation Saturation	
%K	3.0
%Ca	77.5
%Mg	13.8
%H	5.9
Hmeq	0.6
K : Mg Ratio	
0.21	
Ca : Mg Ratio	
5.62	

SOIL FERTILITY GUIDELINES

Crop : Lawn **Rec Units:** LB/1000 SF

(lbs) LIME (tons)	N	P_2O_5	K_2O	Mg	S	B	Cu	Mn	Zn	Fe
0	4.0	0.5	2.0	0						
Crop :							**Rec Units:**			

Comment :

Brandi Watson

Analysis prepared by: Waypoint Analytical Virginia, Inc.

Waypoint ANALYTICAL

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Main 804-743-9401 º Fax 804-271-6446
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SOIL ANALYSIS

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Lab Number : 11766 **Field Id :** **Sample Id :** FA-4

SUGGESTED FERTILIZATION PROGRAM

First Application		Second Application		Third Application		Fourth Application	
#/1000 Sq. Ft.	Fertilizer	#/1000 Sq. Ft.	Fertilizer	#/1000 Sq. Ft.	Fertilizer	#/1000 Sq. Ft.	Fertilizer
12	10-0-20	8	16-4-8	8	16-4-8		

Comments:

Lawn

· The amount of fertilizer recommended on the first page is the total amount needed for the entire growing season. Split into 3-4 applications to keep the lawn green and prevent fertilizer loss. You should not apply more than 0.7 lbs of soluble nitrogen per 1000 square feet in a 30 day period. Or more than 0.9 lbs of nitrogen per 1000 square feet if you are using a slow or controlled release product in a 30 day period.Custom blend is best to meet exactly the requirement, if this is impossible, the above specific fertilizer application is a general guideline, if the specified grades can not be found, replace with fertilizer having similar N:P:K ratio. The best time to apply fertilizer for cool season grass (bluegrass, fescue, ryegrass) is in the Fall when the grass is growing. For Mid-Atlantic region the time is from late August to November. For Northeast region the time is from mid August to October. Fall application should start as soon as the day time high temperature is below 80-85F, apply with the interval of one month. If you start application late in the Fall and do not finish all three applications, repeat the same applications in the Fall of next year. Spring application is recommended when exceptional fertilizer loss due to heavy spring rain leaching and the grasses look pale green. Spring application can start as soon as the grass starts to grow in April. In the case of exceptional warm spring, the application can be made earlier.

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Appendix B: Application Record Forms

Fertilizer Application Records

Customer Information		Management Area Information	
Name:		Management Area ID:	
Address:		Management Area Size:	
		Target Species:	
		Notes:	

Date	Supervisor/Applicator	Weather Conditions			Fertilizer Analysis	Rate	Amount Fertilizer Used (1000 lbs/AC)	Application Equipment Used
		Temp	Wind Speed	Precip				

When was the last time your fertilizer equipment was calibrated??? For information on calibration see Chapter 10 of the "Urban Nutrient Management Handbook". Available for download at http://pubs.ext.vt.edu/430/430-350/430-350.html

Herbicide Application Records

Customer Information		Management Area Information	
Name:		Management Area ID:	
Address:		Management Area Size:	
		Target Species:	
		Notes:	

Date	Supervisor/Applicator	Weather Conditions			Herbicide Analysis	Rate	Amount Herbicide Used	Application Equipment Used
		Temp	Wind Speed	Precip				

When was the last time your fertilizer equipment was calibrated??? For information on calibration see Chapter 10 of the "Urban Nutrient Management Handbook". Available for download at http://pubs.ext.vt.edu/430/430-350/430-350.html

Lime Application Records

Customer Information		Management Area Information	
Name:		Management Area ID:	
Address:		Management Area Size:	
		Notes:	

Date	Supervisor/Applicator	Weather Conditions			Lime Analysis	Rate	Amount Lime Used (1000 lbs/AC)	Application Equipment Used
		Temp	Wind Speed	Precip				

When was the last time your fertilizer equipment was calibrated??? For information on calibration see Chapter 10 of the "Urban Nutrient Management Handbook". Available for download at http://pubs.ext.vt.edu/430/430-350/430-350.html

Pesticide Application Records

Customer Information					Management Area Information			
Name:					Management Area ID:			
Address:					Management Area Size:			
					Target Species:			
					Notes:			

Date	Supervisor/Applicator	Weather Conditions			Pesticide Analysis	Rate	Amount Pesticide Used	Application Equipment Used
		Temp	Wind Speed	Precip				

When was the last time your fertilizer equipment was calibrated??? For information on calibration see Chapter 10 of the "Urban Nutrient Management Handbook". Available for download at http://pubs.ext.vt.edu/430/430-350/430-350.html