

- GENERAL NOTES
1. THE PROPERTY IS ZONED PUD-E.
 2. THE PROPERTY BOUNDARIES IS FROM A BOUNDARY SURVEY DONE BY RODGERS CONSULTING INC., DATED OCTOBER 19, 2017.
 3. THE EXISTING TOPOGRAPHY SHOWN ON THIS PLAN IS AERIAL AND FIELD-VERIFIED BY RODGERS CONSULTING INC., DATED FEBRUARY 27, 2018.
 4. THE SOILS INFORMATION ON THIS PLAN IS SOURCED FROM THE USDA NRCS WEB SOIL SURVEY (WSS) IN A CUSTOM SOIL RESOURCE REPORT FOR AN AREA OF INTEREST (AOI) ESTABLISHED FOR THE SUBJECT SITE ONLY AND GENERATED ON MAY 1, 2018.
 5. THE WHOLE PROPERTY IS WITHIN THE 100-YEAR FLOODPLAIN IN THE EXISTING CONDITION FEMA FIRM MAPS 24033C005E & 24033C004E. THE PROJECT PROPOSES RAISING PORTIONS OF THE SITE OUT OF THE EXISTING FLOODPLAIN. SEE APPROVED FEMA CLAIM CASE NUMBER 16-04-0017.
 6. FOUR AREAS OF WETLAND EXIST ON THE SITE AS IDENTIFIED IN THE NRI APPROVED BY THE CITY OF LAUREL DATED SEPTEMBER 29, 2017. DEVELOPMENT IS PROPOSED IN THESE AREAS OF THE WETLANDS. NO DEVELOPMENT IS PROPOSED WITHIN THE STREAM BUFFER OF EXISTING STREAMS.
 7. THIS SITE DOES CONTAIN A TIER II WATERBODY AS DEFINED IN COMAR 26.08.02.04. THE TIER II WATERBODY IS THE BEAR BRANCH AND THE PATUXENT RIVER.
 8. THIS SITE IS NOT LOCATED WITHIN A STRONGHOLD WATERSHED AS ESTABLISHED BY THE MD DNR.
 9. THE SITE HAS BEEN IDENTIFIED AS HAVING COMPLETED TMDL'S FOR BACTERIA, SULFATES, & SEDIMENT.
 10. THE SITE IS NOT SUBJECT TO PREVIOUSLY APPROVED TOPS.
 11. THERE ARE 112 SPECIMEN, CHAMPION AND/OR HISTORIC TREES LOCATED WITHIN 100-FEET OF THE PROPERTY. THESE TREES WERE LOCATED USING GPS AND HIGH RESOLUTION AERIAL PHOTOGRAPHY.
 12. THE SITE DOES NOT ABUT ANY HISTORIC ROADS OR PROPERTIES.
 13. THE SUBJECT PROPERTY IS NOT LOCATED WITHIN A REGISTERED HISTORIC DISTRICT.
 14. MARLBORO CLAY AND CHRISTIANA COMPLEX ARE NOT FOUND TO OCCUR ON OR WITHIN THE VICINITY OF THE PROPERTY.
 15. THE SITE IS NOT LOCATED WITHIN THE CHESAPEAKE BAY CRITICAL AREA (CBCA).
 16. NO HIGHLY ERODIBLE SOILS ARE PRESENT ON THE PROPERTY.
 17. THERE ARE 15-25% SLOPES ON SITE.
 18. INFORMATION CONCERNING UNDERGROUND UTILITIES WAS OBTAINED FROM AVAILABLE RECORDS, BUT THE CONTRACTOR MUST DETERMINE THE EXACT LOCATION AND ELEVATION OF THE MAINS BY DIGGING TEST PITS, BY HAND OR VACUUM, AT UTILITY CROSSINGS WELL IN ADVANCE OF TRENCHING, IF CLEARANCES TO WATER AND SEWER LINES ARE LESS THAN SHOWN ON THIS PLAN, OR LESS THAN TWELVE (12) INCHES. CONTACT THE DEPARTMENT OF PERMITTING, INSPECTION, AND ENFORCEMENT (DPIE) INSPECTOR BEFORE PROCEEDING WITH CONSTRUCTION.
 19. ALL STORM DRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE LATEST EDITION OF THE STORMWATER MANAGEMENT STANDARDS AND SPECIFICATIONS OF PRINCE GEORGE'S COUNTY DEPARTMENT OF PUBLIC WORKS AND TRANSPORTATION (DPW&T).
 20. FOR TYPES OF STORM DRAIN STRUCTURES, REFER TO THE LATEST STANDARD DETAILS OF PRINCE GEORGE'S COUNTY DEPARTMENT OF PUBLIC WORKS AND TRANSPORTATION (DPW&T), UNLESS OTHERWISE NOTED.
 21. PRIOR TO DIGGING WITHIN THE PUBLIC RIGHT-OF-WAY, CALL "MISS UTILITY" TOLL FREE AT (800) 257-7777 FOR UTILITY LOCATION AT LEAST 48 HOURS BEFORE BEGINNING CONSTRUCTION.
 22. PRIOR TO PERMIT ISSUANCE AND STARTING ANY WORK SHOWN ON THIS PLAN, THE PERMITTEE SHALL ARRANGE A PRE-CONSTRUCTION MEETING WITH THE DPIE INSPECTOR BY CALLING (301) 883-5730. AN INITIAL INSPECTION IS REQUIRED PRIOR TO FULL MASS GRADING OF THE SITE.
 23. IN ACCORDANCE WITH SECTION 23-128, THE COUNTY'S ROAD ORDINANCE, A PROJECT SIGN SHALL BE POSTED PROMINENTLY DESCRIBING THE FOLLOWING:
 - SUBDIVISION NAME (AS SHOWN ON PERMIT APPLICATION)
 - OWNER/PERMITTEE NAME
 - OWNER/PERMITTEE ADDRESS AND PHONE
 - DPIE PERMIT NUMBER
 7. ALL ELEVATIONS SHOWN ON THIS PLAN ARE IN ACCORDANCE WITH THE FOLLOWING HORIZONTAL - MARYLAND COORDINATE SYSTEM (STATE PLANE GRID) BASED ON NORTH AMERICAN DATUM OF 1983 (NAD 83); NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).
 8. IT SHALL BE THE RESPONSIBILITY OF THE PERMITTEE TO ARRANGE FOR THE ADJUSTMENT OR RELOCATION OF ALL UTILITIES.
 9. ALL UNSUITABLE MATERIAL MUST BE REMOVED AND REPLACED WITH SUITABLE MATERIAL TO A DEPTH DIRECTED BY THE GEOTECHNICAL ENGINEER, THE DPIE INSPECTOR, AND/OR THE DEPARTMENT'S ENGINEER.
 10. EXCAVATION AND PLACEMENT OF FILL MATERIAL SHALL BE PERFORMED UNDER THE SUPERVISION OF A MARYLAND-LICENSED ENGINEER. THE PERMITTEE WILL BE REQUIRED TO FURNISH COMPACTION REPORTS CERTIFIED BY A MARYLAND-LICENSED ENGINEER ON EACH LAYER OF FILL MATERIAL PRIOR TO PLACING SUBSEQUENT LAYERS.
 11. THE PERMITTEE WILL BE REQUIRED TO FURNISH COMPACTION REPORTS CERTIFIED BY A MARYLAND-LICENSED ENGINEER ON EACH LAYER OF FILL MATERIAL PRIOR TO PLACING SUBSEQUENT LAYERS.
 12. POSITIVE DRAINAGE SHALL BE MAINTAINED THROUGHOUT THE AREA COVERED BY THIS PERMIT AND THROUGH ADJACENT FRONTAGES.
 13. ALL UNPAVED AREAS WITHIN THE RIGHT-OF-WAY SHALL BE SODDED.
 14. WASHINGTON SUBURBAN SANITARY COMMISSION 200 FOOT SHEET NO. 219NE08, 219NE09, 219NE08, & 219NE09.
 15. DEPARTMENT OF PERMITTING, INSPECTIONS, AND ENFORCEMENT SITE CONCEPT APPROVAL NO. 16255-2018-0.
 16. SEDIMENT CONTROL APPROVAL NO. 210-18.
 17. LIMITS OF DISTURBANCE = 138.6 AC.

SEQUENCE OF CONSTRUCTION
REFER TO LATEST FINAL GRADING, EROSION AND SEDIMENT CONTROL PLAN FOR SEQUENCE OF CONSTRUCTION.

NARRATIVE

Patuxent Greens is located in the City of Laurel in Prince George's County, Maryland. The site is bounded by the Bear Branch to the north and northeast, the Patuxent River to the southeast, Greenview Drive to the west, and land owned by the Maryland National Capital Park and Planning Commission (MNCPPC) to the south. Current access to the site is from Clubhouse Road.

The site currently is the Patuxent Greens Country Club golf course with associated parking lot, greens, clubhouse, and pro shop. The site is currently zoned PUD-E, Planned Unit Development Existing. The proposed use of this property is residential townhouse and single family detached.

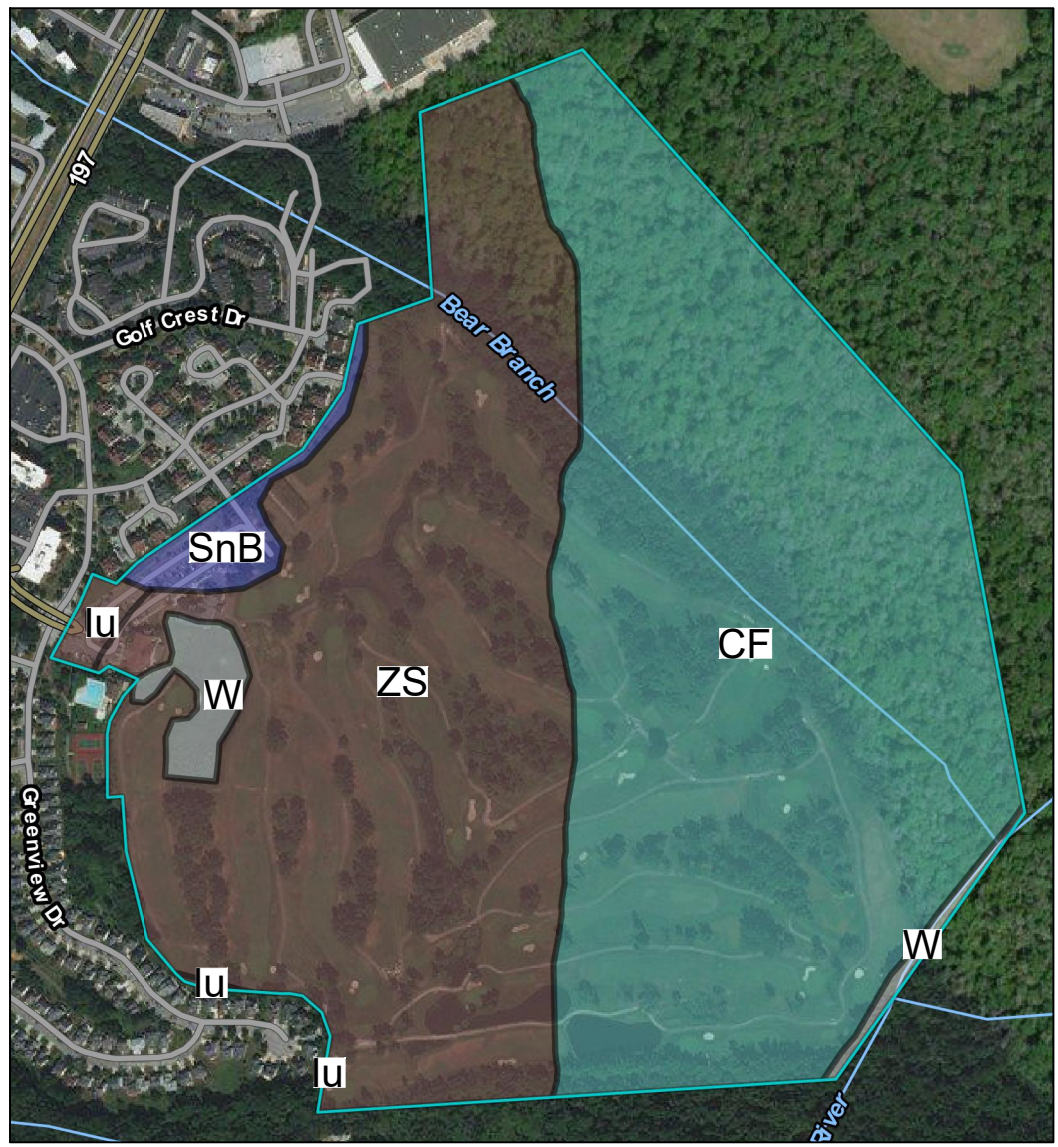
There are CF, lu, SnB, and ZS soils onsite as identified by USDA Web Soil Survey. These soils are identified as hydraulic soil group D by Prince George's County Soil Conservation District. The site is also within the 100-year floodplain.

In the existing condition, 74.1 acres (58.5 acres offset) flows into the existing pond via surface runoff or an existing storm drain system that conveys offsite runoff to the west. This pond currently has no designed outlet structure, therefore runoff in the pond either infiltrates and/or overtops and flows overland along the site's western boundary until it ultimately leaves the site at the south end of the property and flows overland to the Patuxent River. In the proposed condition, this existing pond would be retrofitted to outlet the pond via a dual 48" storm drain system into a compensatory storage area for the Patuxent River. The side slopes of the existing pond will also be raised to provide required freeboard. In the proposed condition, the pond is classified as truly excavated. The pond has a hazard classification of 'A' as failure of the pond will result in runoff flowing into the existing floodplains adjacent to the Patuxent River as the pond currently does in the existing condition.

This plan is for retrofit of the existing stormwater management pond only. All other information, including other stormwater management facilities, are shown for reference purposes only and are not covered under this permit. See appropriate construction drawing for all other information.

THIS PLAN IS FOR EXISTING STORMWATER MANAGEMENT POND RETROFIT PURPOSES ONLY

THIS PLAN TO BE USED FOR THE EXISTING STORMWATER MANAGEMENT POND ONLY. ALL OTHER INFORMATION, INCLUDING OTHER STORMWATER MANAGEMENT FACILITIES, ARE SHOWN FOR REFERENCE PURPOSES ONLY AND ARE NOT COVERED UNDER THIS PERMIT. SEE APPROPRIATE CONSTRUCTION DRAWING FOR ALL OTHER INFORMATION.



Prince George's County, Maryland (MD033)					
Map Unit Symbol	Map Unit Name	USDA Soil Group	PGSCD Soil Group	Acres Onsite	Percent of Acres Onsite
W	Water	-	-	4.1	2.2%
CF	Codorus and Hatboro soils, frequently flooded	C	D	98.0	51.0%
lu	Issue-Urban land complex, occasionally flooded	B/D	D	1.4	0.7%
SnB	Sassafras - Urban land complex, 0 to 5 percent slopes	B	D	3.6	1.9%
ZS	Zekiah and Issue soils, frequently flooded	B/D	D	85.2	44.3%

STABILIZATION NOTE

Stabilization practices on all projects must be in compliance with the requirements of COMAR 26.17.01.08 G regulations by January 9, 2013, regardless of when an Erosion and Sediment Control Plan was approved. Following initial soil disturbance or re-disturbance, permanent or temporary stabilization must be completed within Three (3) calendar days as to the surface of all perimeter dikes, swales, ditches, perimeter slopes, and all slopes steeper than 3:1 vertical (3:1); and Seven (7) calendar days as to all other disturbed or graded areas on the project site not under active grading.

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GRADING CERTIFICATION

"I hereby certify that this plan conforms to the requirements of Subtitle 32, Division 2 of the Code of prince George's County Water Resources Protection and Grading Code; and that I or my staff have inspected this site and that drainage flows from uphill properties onto this site, and from this site onto downhill properties, have been addressed in substantial accordance with applicable codes."

Signature: *Philip R. Hughes III* Date: 1/21/19
Name: Philip R. Hughes III, P.E. MD License No.: 32113 Expires: 9/15/19

UTILITY CERTIFICATION

"I hereby certify that the existing and/or proposed underground utility information shown herein has been correctly duplicated from utility company records. Further, that this project has been carefully coordinated with each individual utility company and all available underground utility information for this project has been solicited from them."

Signature: *Philip R. Hughes III* Date: 1/21/19
Name: Philip R. Hughes III, P.E. MD License No.: 32113 Expires: 9/15/19

ENGINEER CERTIFICATION

"I certify that this plan for the construction of the embankment and/or excavated pond represents a practical and workable plan based on my knowledge of the site and was designed in accordance with the requirements of the Natural Resource Conservation Service - Maryland Conservation Practice Standards for Ponds (MD-378). I have reviewed this plan with owner/developer."

Signature: *Philip R. Hughes III* Date: 1/21/19
Name (Printed): Philip R. Hughes III, P.E. MD License No.: 32113
Address: 1101 Mercantile Lane, Suite 280 Largo, MD 20774
Phone Number: (301) 948-4700

CALL "MISS UTILITY" AT
1-800-257-7777
48 Hours Before Start Of Construction

REVISION	DATE	REVISION	DATE	REVISION	DATE

Applicant:

CS PATUXENT GREENS, LLC.
6290 MONTROSE ROAD
ROCKVILLE, MD 20852
PHONE: 301-692-4000
CONTACT: ALAN COHEN

PATUXENT GREENS

PARCEL A, NLP 126 P.59
L.6008 F.266
ELECTION DISTRICT No. 10
CITY OF LAUREL, PRINCE GEORGE'S COUNTY, MARYLAND

RODERS CONSULTING

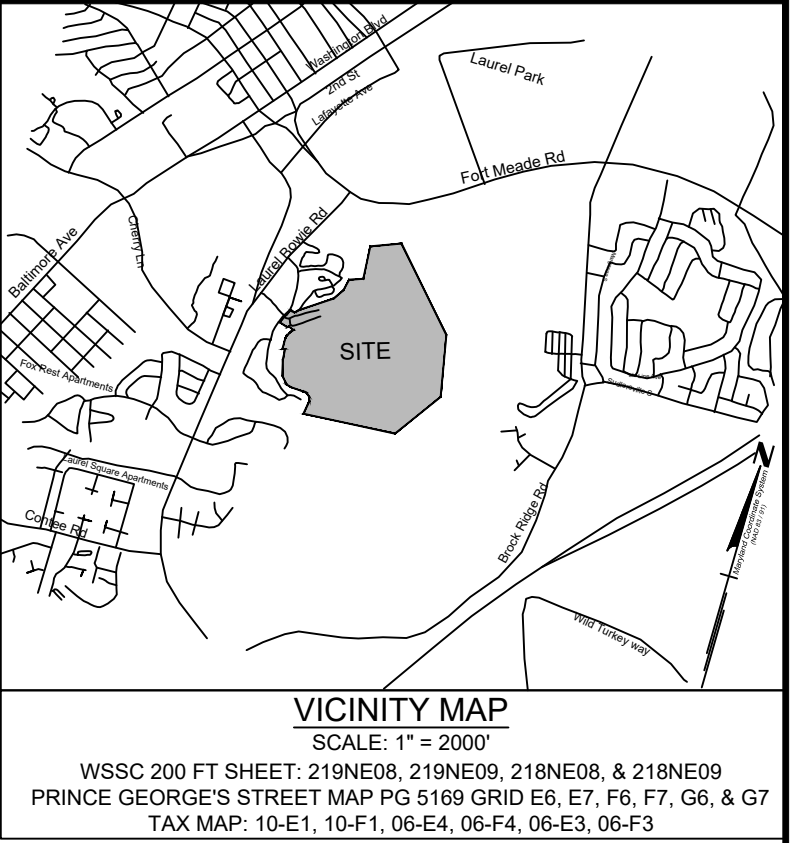
1101 Mercantile Lane, Suite 280 Largo, Maryland 20774
Ph: 301.948.4700 Fx: 301.948.6256 www.rodgers.com

	BY	DATE
BASE DATA	CADD	FEB 2018
DESIGNED	IND/M	NOV 2018
DRAWN	IND/M	NOV 2018
REVIEWED	PRH	NOV 2018
RODERS CONTACT: Philip R. Hughes III		
RELEASE FOR <input type="checkbox"/>		
BY: _____	DATE: _____	

Stormwater Management Plan
Cover Sheet

SCALE:	1"=200'
JOB No.	1262A
DATE:	JAN 2019
SWM-01	
SHEET No.	01 of 32

N: \\MD-Prince Georges\Patuxent Green\autocad\Plot Plans\SWM Final - Pond\01 Cover Sheet.dwg



PRELIMINARY NOT FOR CONSTRUCTION



CALL "MISS UTILITY" AT
1-800-257-7777
8 Hours Before Start Of Construction

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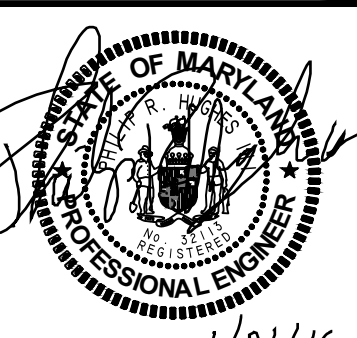
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Stormwater Management Plan

Existing Conditions

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V21/19

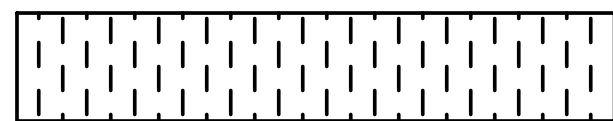
$$1'' = 200'$$

1262A

JAN 2019

SWM-02

02 of 32



NGVD: 29
NAD: 83

Scale: 1" = 30' **N**

GRAPHIC SCALE



1 INCH = 30 FT

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	BY	DATE
BASE DATA	CADD	FEB 2018
DESIGNED	IN/DKM	NOV 2018
DRAWN	IN/DKM	NOV 2018
REVIEWED	PRH	NOV 2018

RELEASE FOR

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"I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 32113. Expiration Date: 9/15/19."

SCALE: 1" = 20'

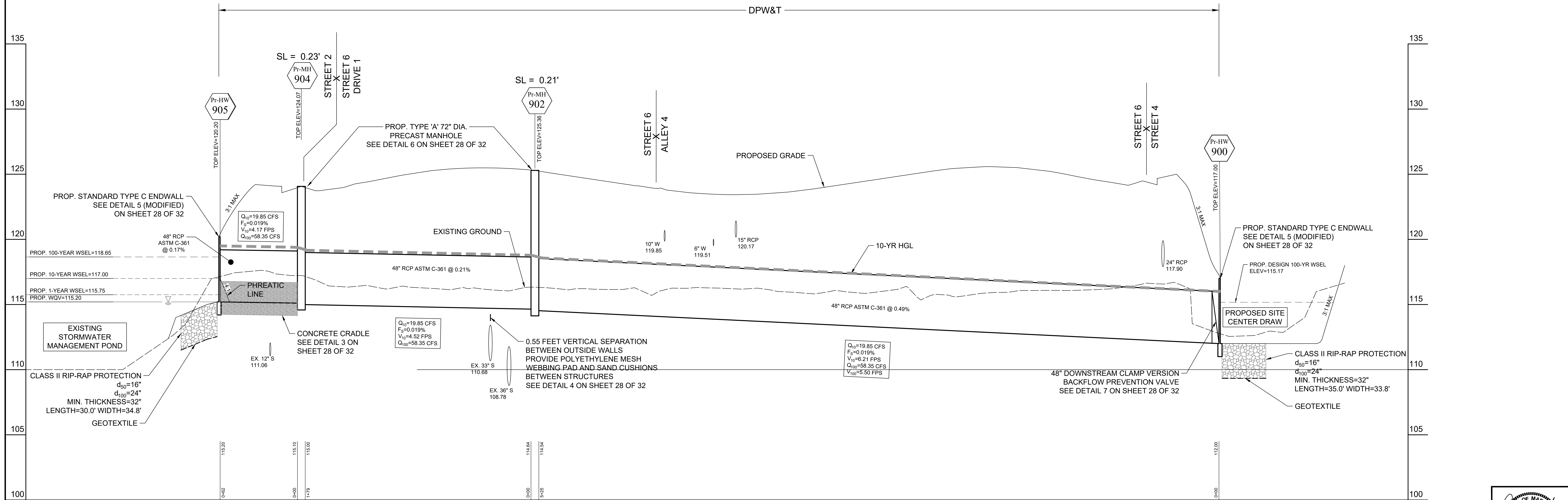
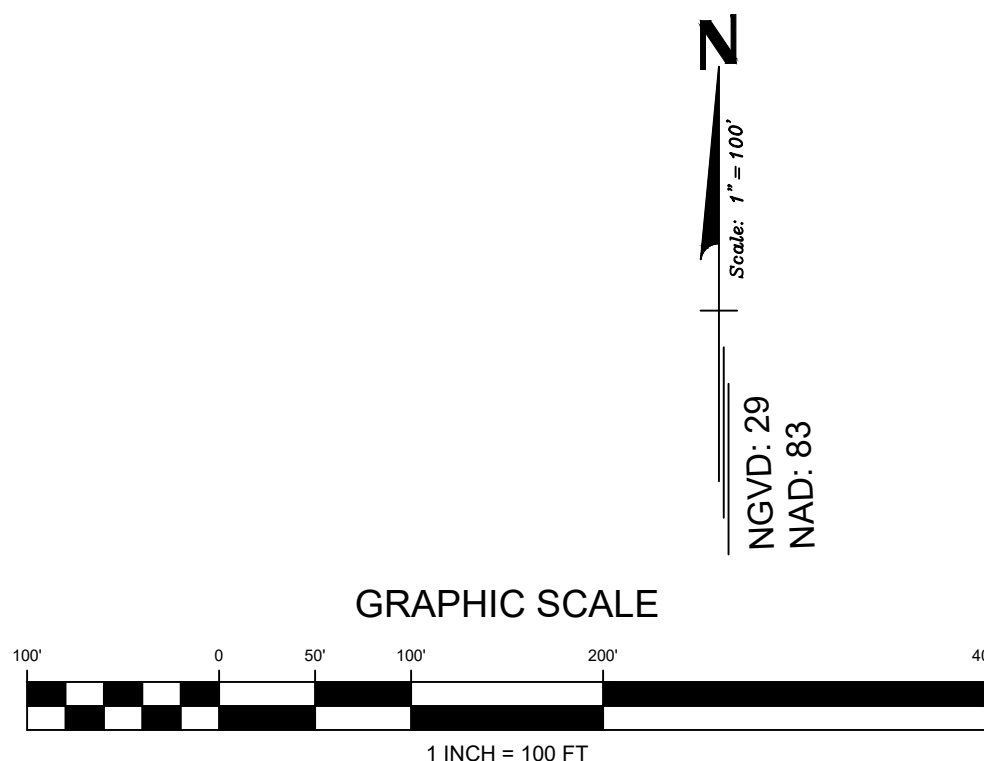
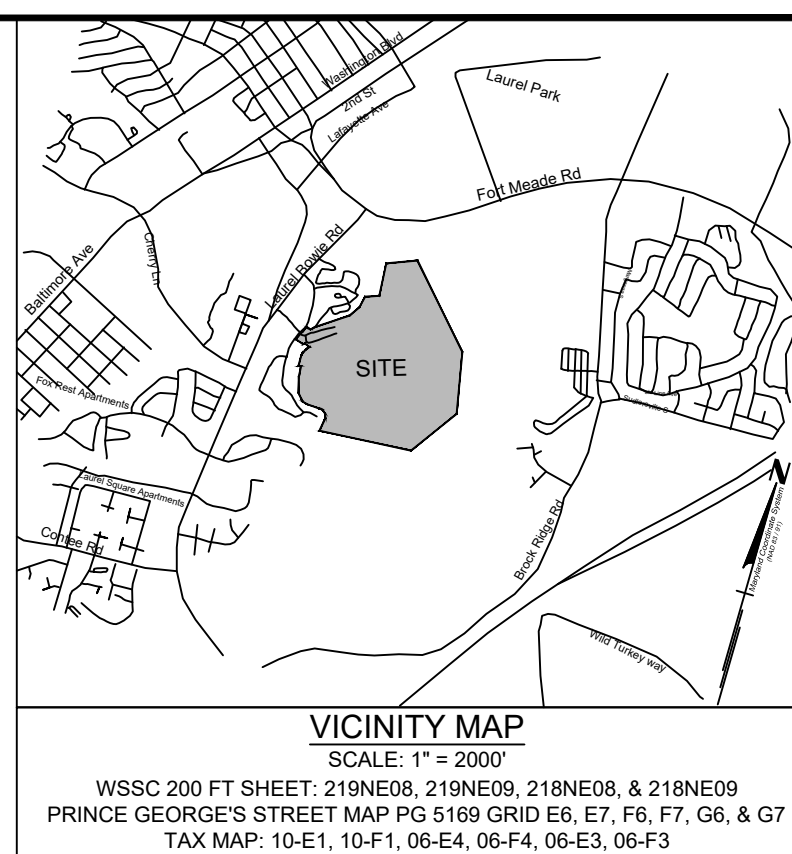
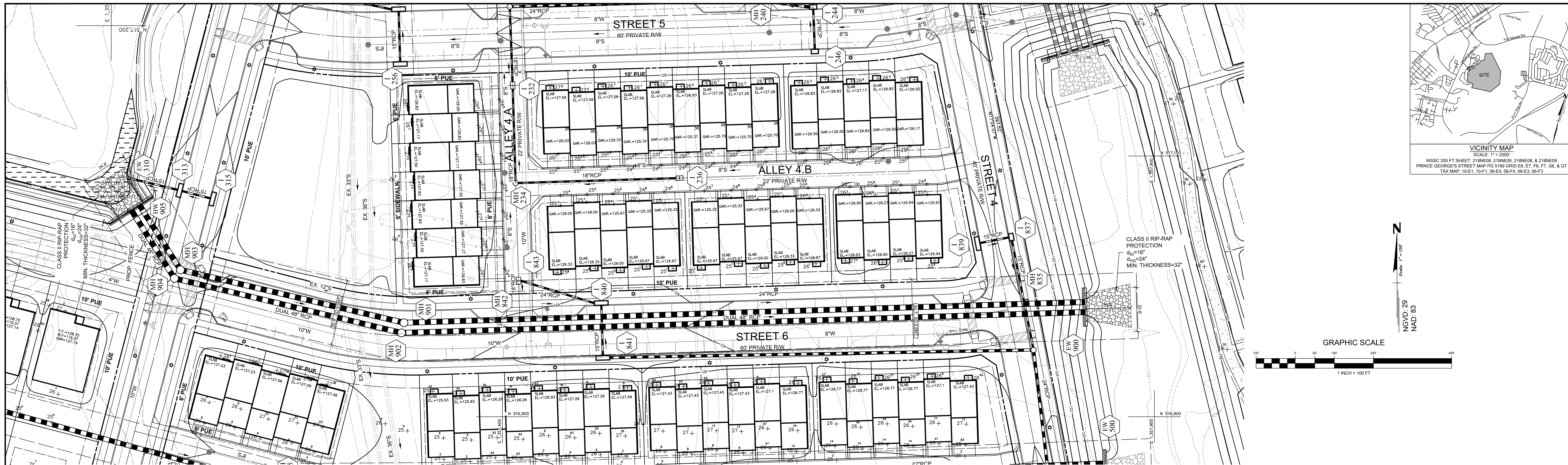
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<div style="text-align: right;"> JOB No. </div>

1262A

DATE: JAN 2019

CWM 03

SWM-03
SHEET No.



CALL "MISS UTILITY" AT 1-800-257-7777 48 Hours Before Start Of Construction

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Applicant: **CS PATUXENT GREENS, LLC.**
6290 MONTROSE ROAD
ROCKVILLE, MD 20852
PHONE: 301-692-4000
CONTACT: ALAN COHEN

PATUXENT GREENS
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L.6008 F.266
ELECTION DISTRICT No. 10
CITY OF LAUREL, PRINCE GEORGES COUNTY, MARYLAND

RODGERS CONSULTING
1101 Mercantile Lane, Suite 280 Largo, Maryland 20774
Ph: 301.948.4700 Fx: 301.948.6256 www.rodgers.com

REVISION	DATE	REVISION	DATE	REVISION	DATE

BY: _____ DATE: _____

RELEASE FOR: ☐ ☐

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"I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 32113, Expiration Date 9/19/19."

12/19

SCALE: 1"=100'

JOB No. 1262A

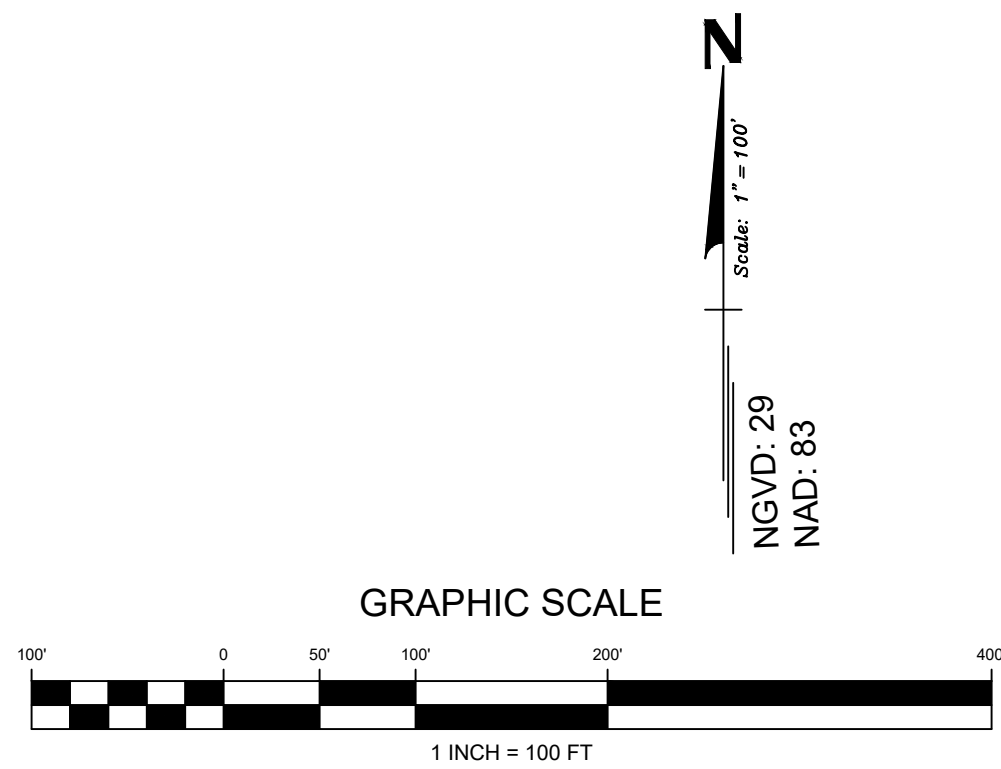
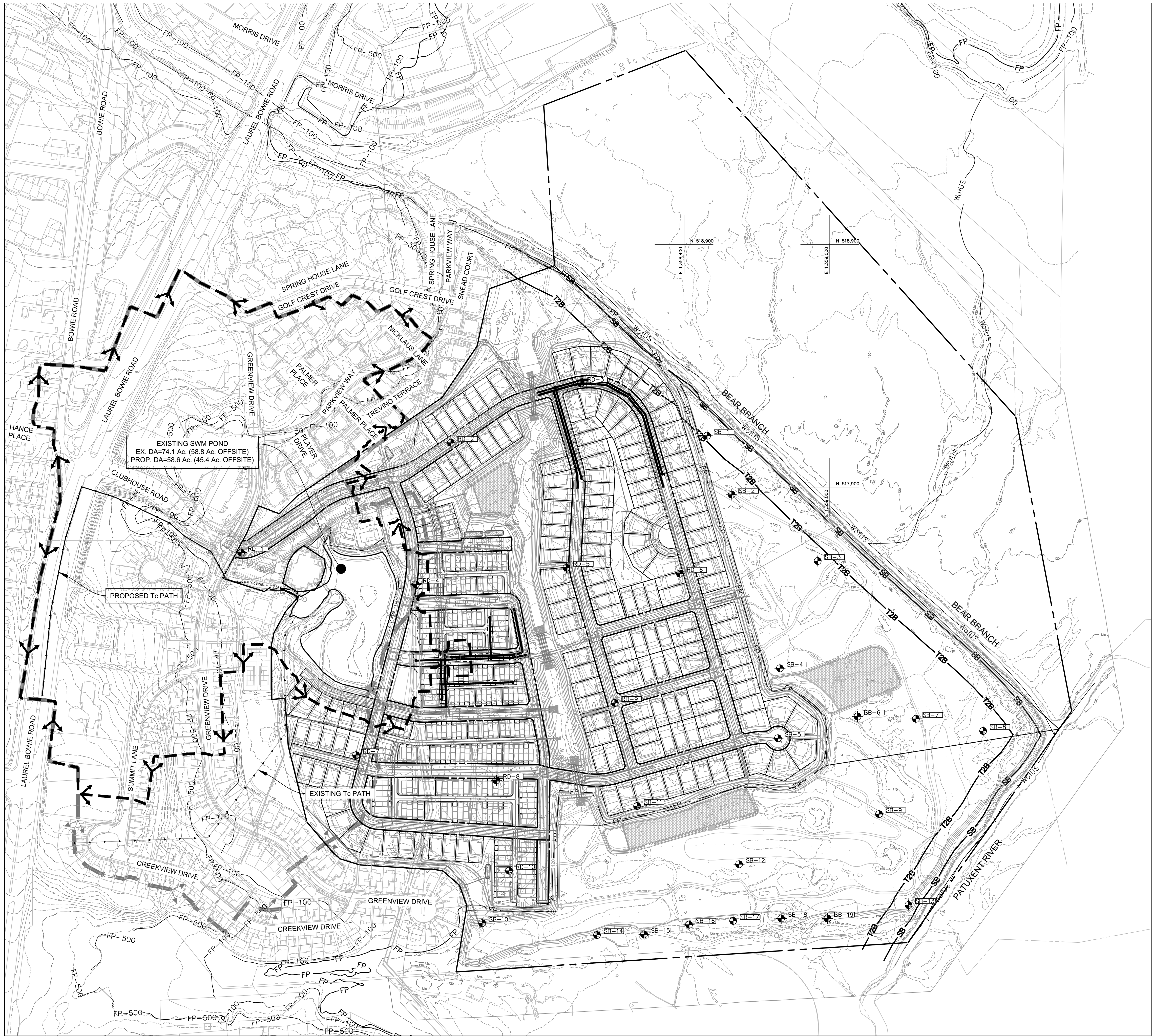
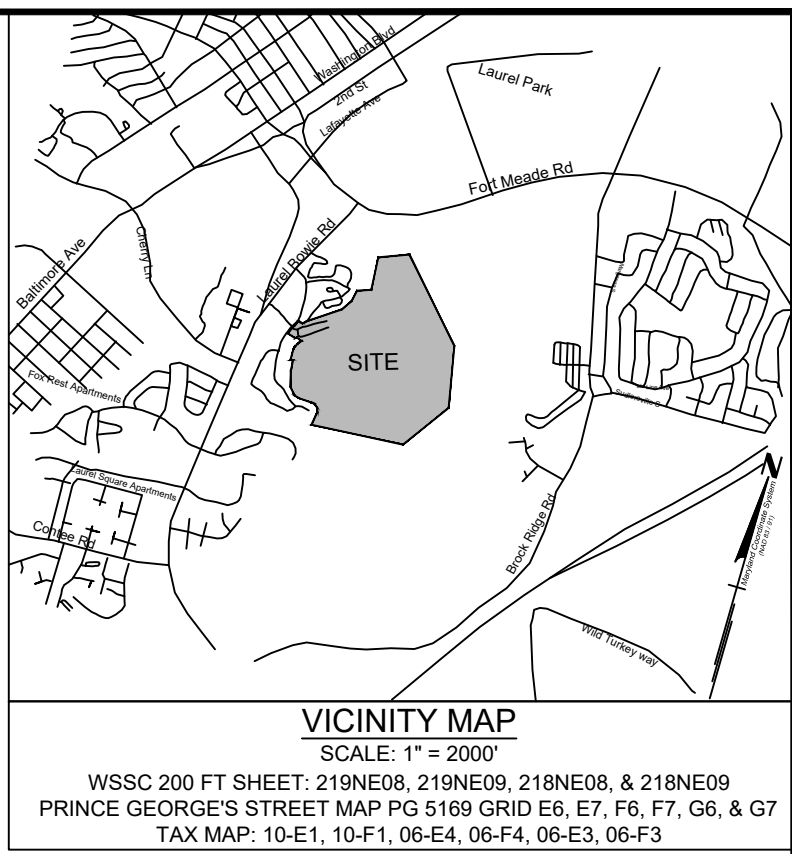
DATE: JAN 2019

SWM-04

SHEET No. 04 of 46

*NOTE: ALL PIPES TO BE GASKETED

PRELIMINARY NOT FOR CONSTRUCTION



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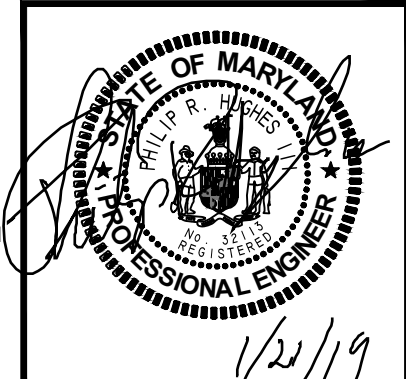
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RODGERS
CONSULTING

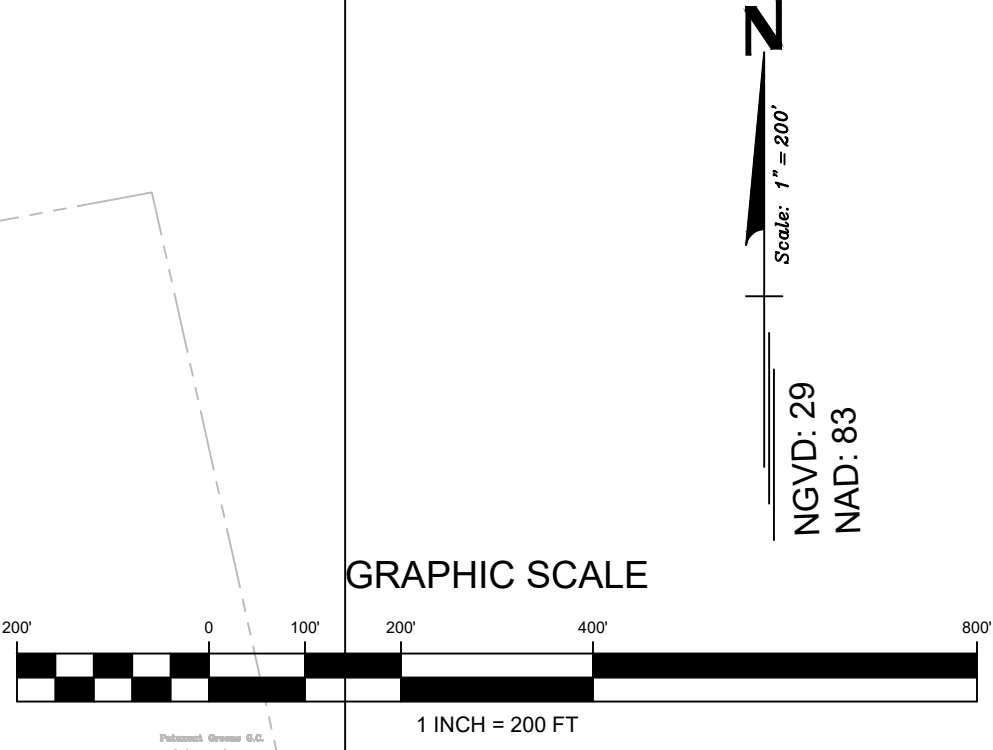
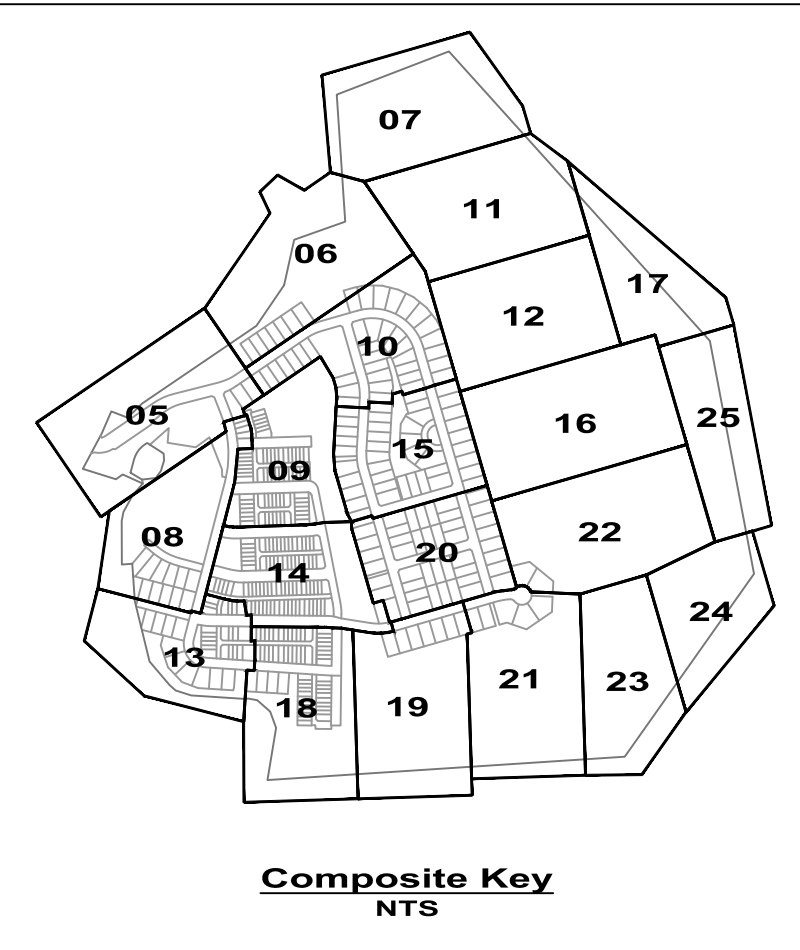
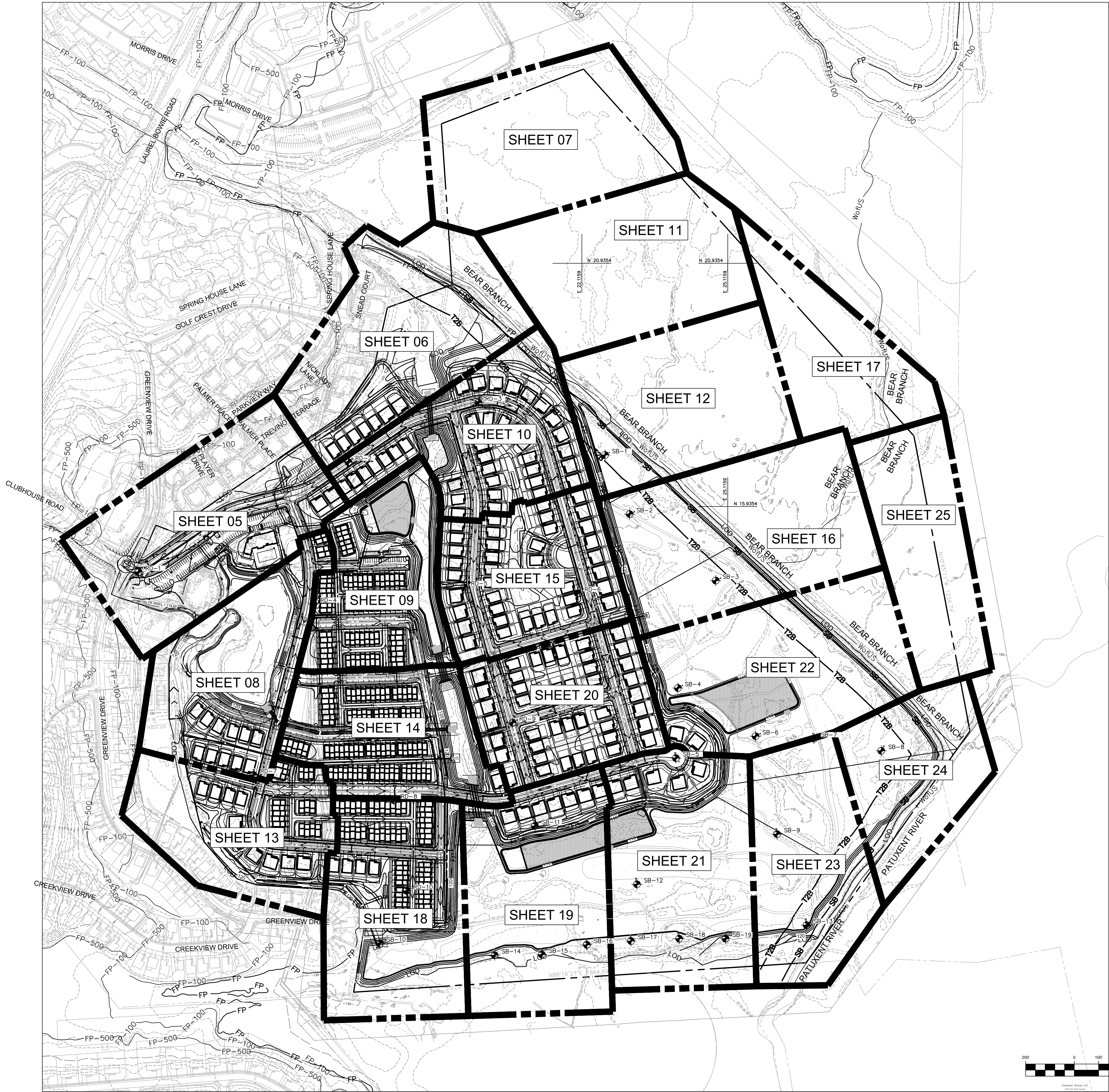
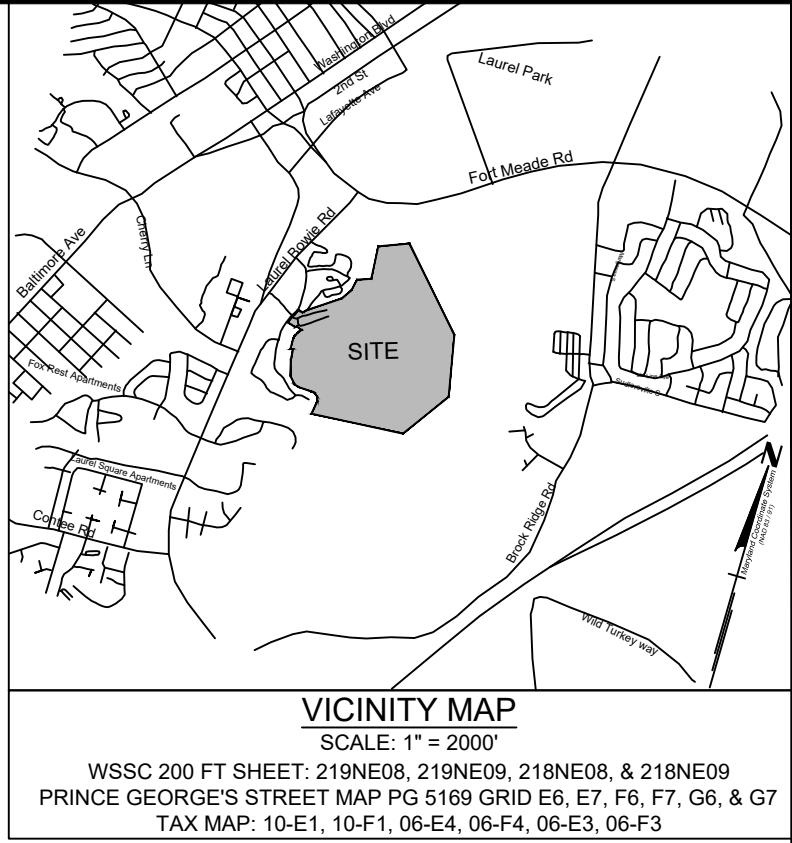
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DRAWN	IND/KM NOV 2018
REVIEWED	PRH NOV 2018
RODGERS CONTACT: Philip R. Hughes III	
RELEASE FOR	
BY: _____	DATE: _____

Stormwater Management Plan
Drainage Area Map



1/2/19
SCALE: 1"=100'
JOB No. 1262A
DATE: JAN 2019
SWM-05
SHEET No. 05 of 32



NGVD: 29
NAD: 83

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CONTACT: ALAN COHEN

PATUXENT GREENS
PARCEL A, NLP 126 P.59
L.6008 F.266
ELECTION DISTRICT No. 10
CITY OF LAUREL, PRINCE GEORGE'S COUNTY, MARYLAND

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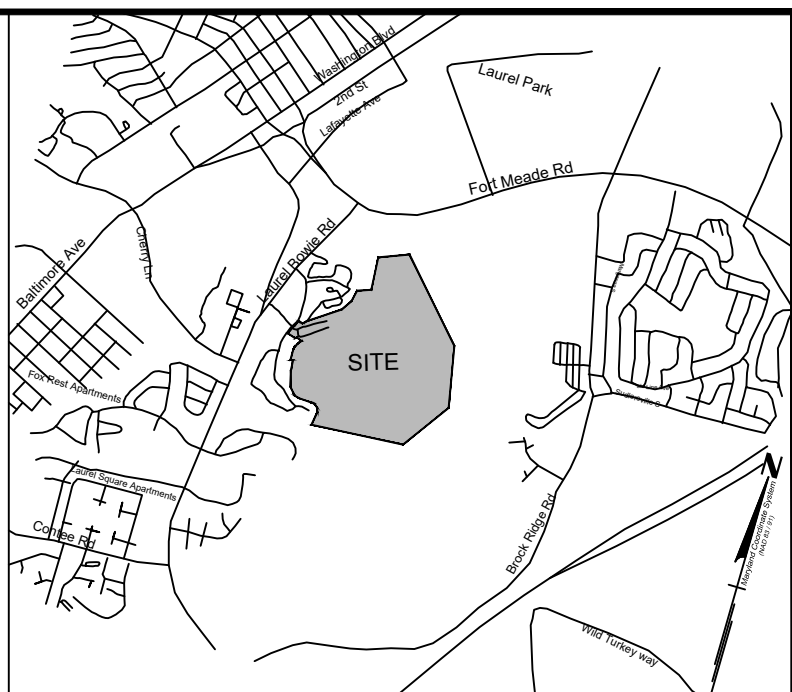
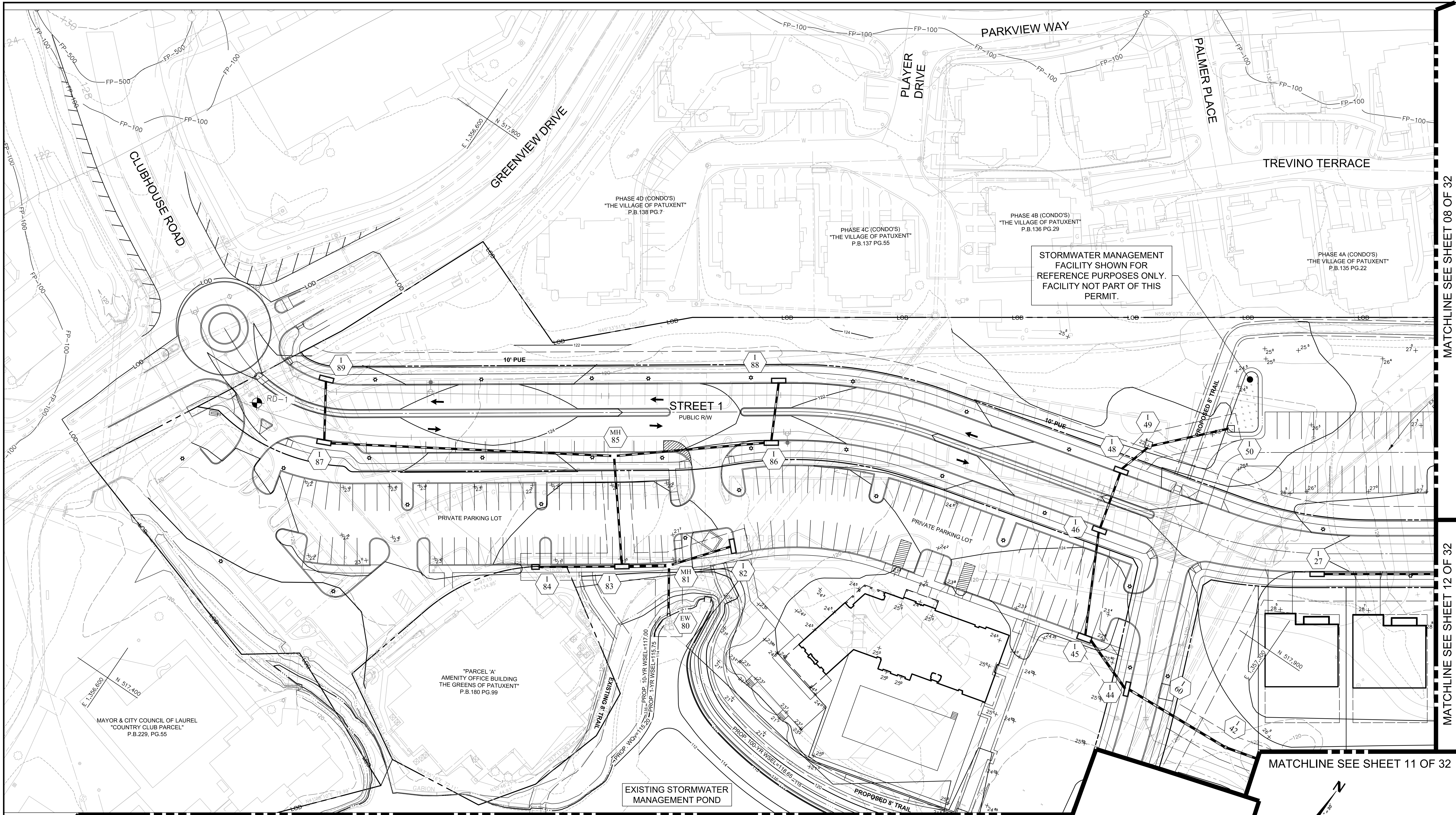
BY	DATE
BASE DATA	CADD FEB 2018
DESIGNED	IND/KM NOV 2018
DRAWN	IND/KM NOV 2018
REVIEWED	PRH NOV 2018
RODGERS CONTACT: Philip R. Hughes III	
RELEASE FOR	
BY: _____	DATE: _____

Stormwater Management Plan
Composite Plan

PROFESSIONAL CERTIFICATION
"I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 32113, Expiration Date: 9/15/19."

1/21/19

SCALE: 1" = 200'
JOB No. 1262A
DATE: JAN 2019
SWM-06
SHEET No. 06 of 32



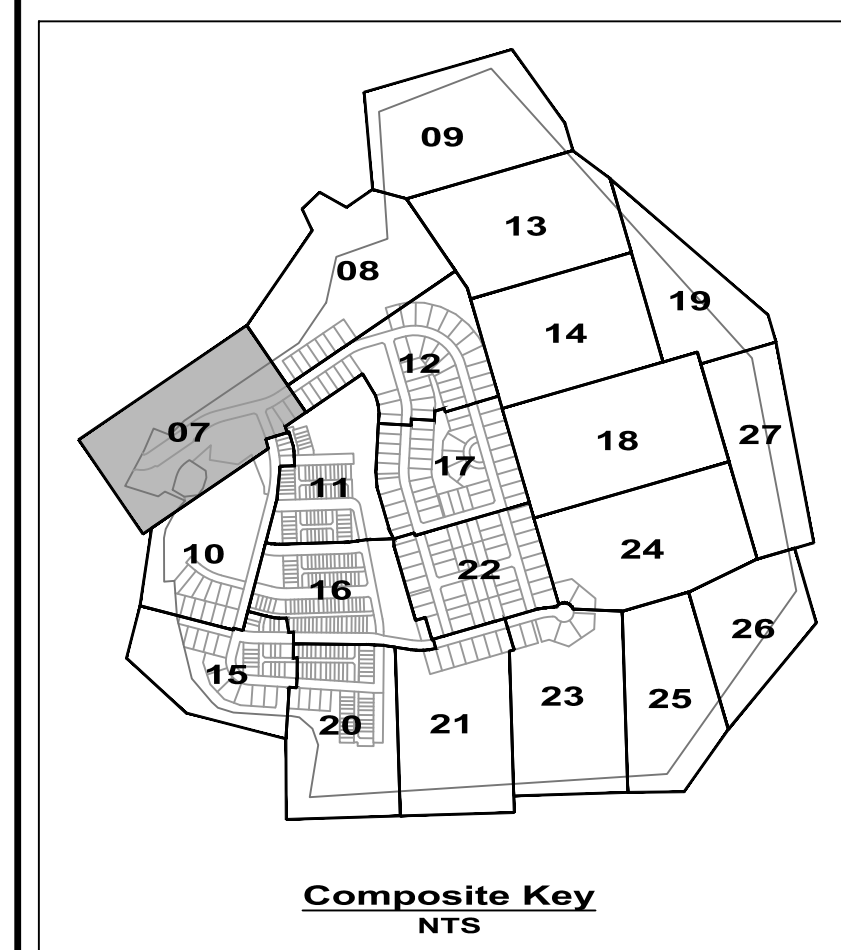
VICINITY MAP
SCALE: 1" = 200'
WSSC 200 FT SHEET: 210NE08, 210NE09, 210NE10, & 210NE11
PRINCE GEORGES STREET MAP PG 5189 GRID E6, E7, F6, F7, G6, & G7
TAX MAP: 10-E1, 10-F1, 06-E4, 06-F4, 06-E3, 06-F3

MATCHLINE SEE SHEET 08 OF 32

MATCHLINE SEE SHEET 12 OF 32

MATCHLINE SEE SHEET 11 OF 32

MATCHLINE SEE SHEET 10 OF 32



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48 Hours Before Start Of Construction

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REVISION	DATE	REVISION	DATE	REVISION	DATE

Applicant:
CS PATUXENT GREENS, LLC.
6290 MONTROSE ROAD
ROCKVILLE, MD 20852
PHONE: 301-692-4000
CONTACT: ALAN COHEN

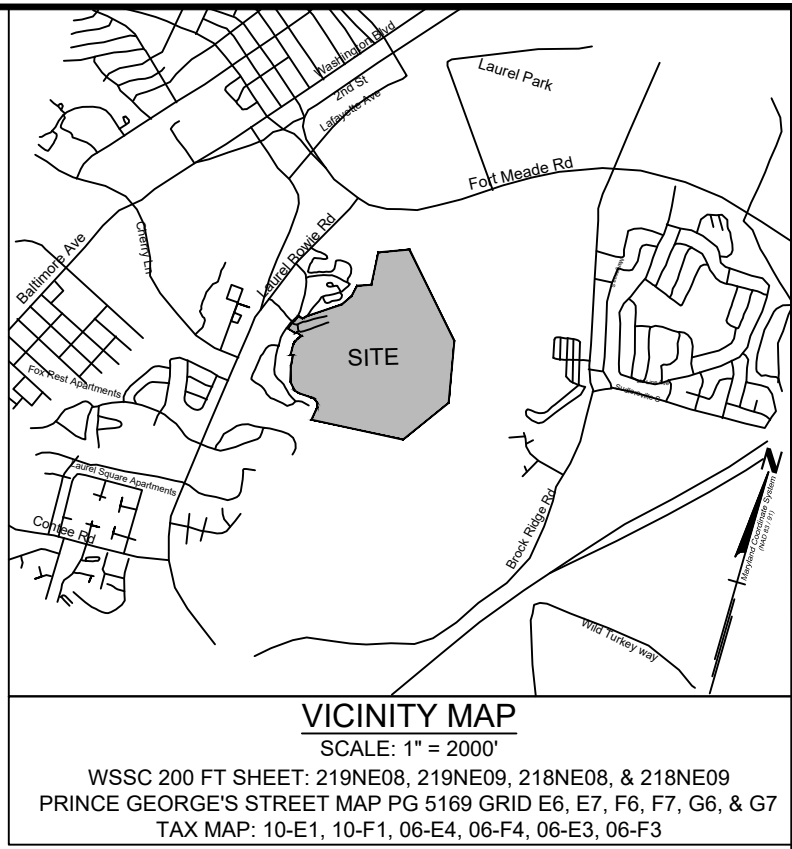
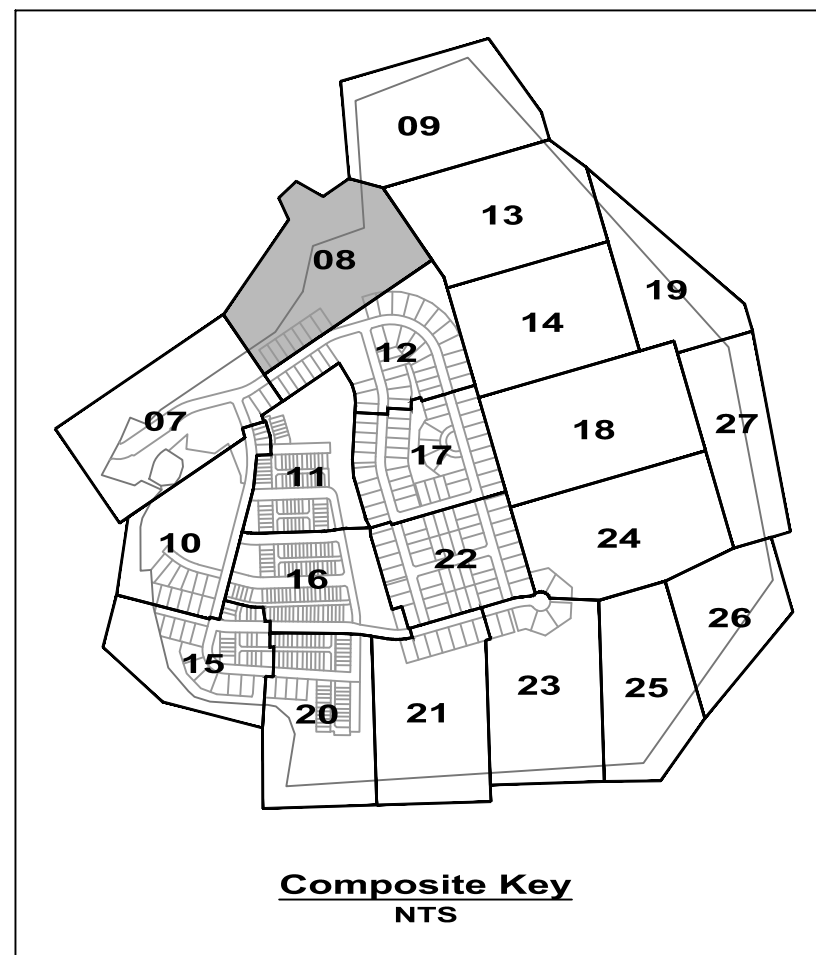
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REVIEWED	PRH	NOV 2018
RODGERS CONTACT: Philip R. Hughes III		
RELEASE FOR		
BY: _____	DATE: _____	

Stormwater Management Plan
Proposed Conditions

SCALE: 1"=30'
JOB No. 1262A
DATE: JAN 2019
SWM-07
SHEET No. 07 of 32



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RODGERS CONTACT	PRH	NOV 2018

RELEASE FOR

BY: _____ DATE: _____

Stormwater Management Plan

Proposed Conditions

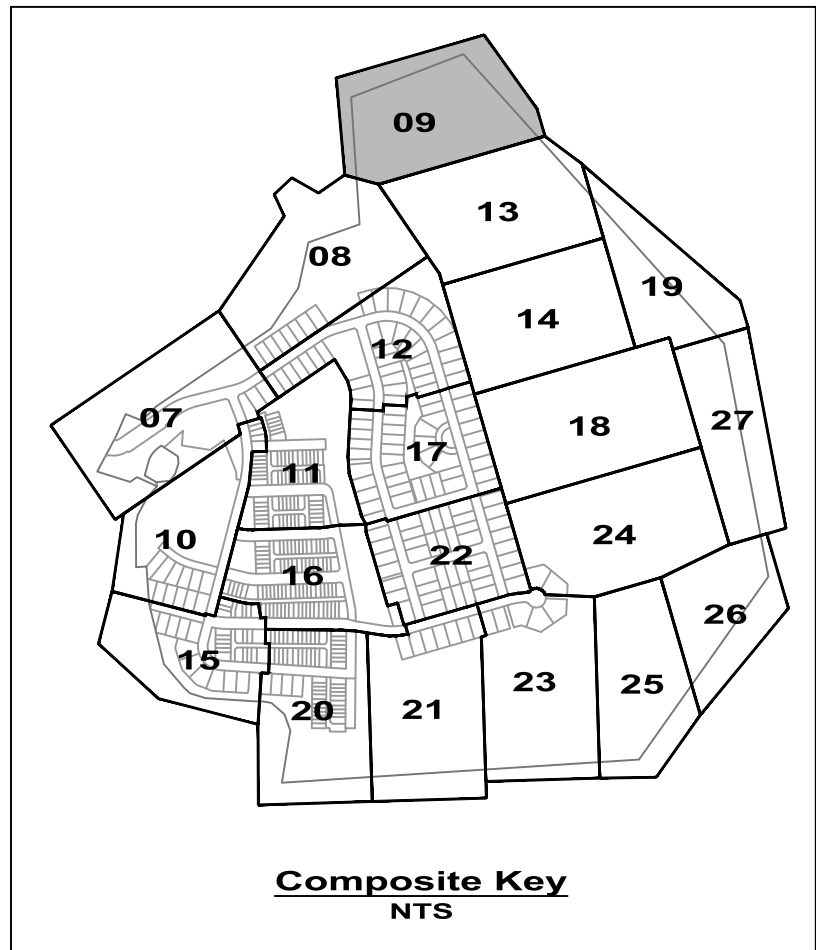
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1/21/19

SCALE:	1"=30'
JOB No.	1262A
DATE:	JAN 2019
SWM-08	
SHEET No.	08 of 32

N:\MD-Prince Georges\Patuxent Green\autocad\Plot Plans\SWM Final - Pond\06 - Sheet 27 Proposed Conditions.dwg



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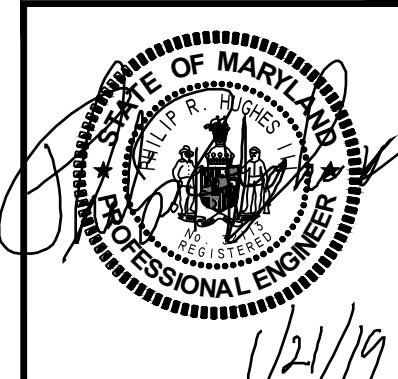
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Applicant:

PATUXENT GREENS

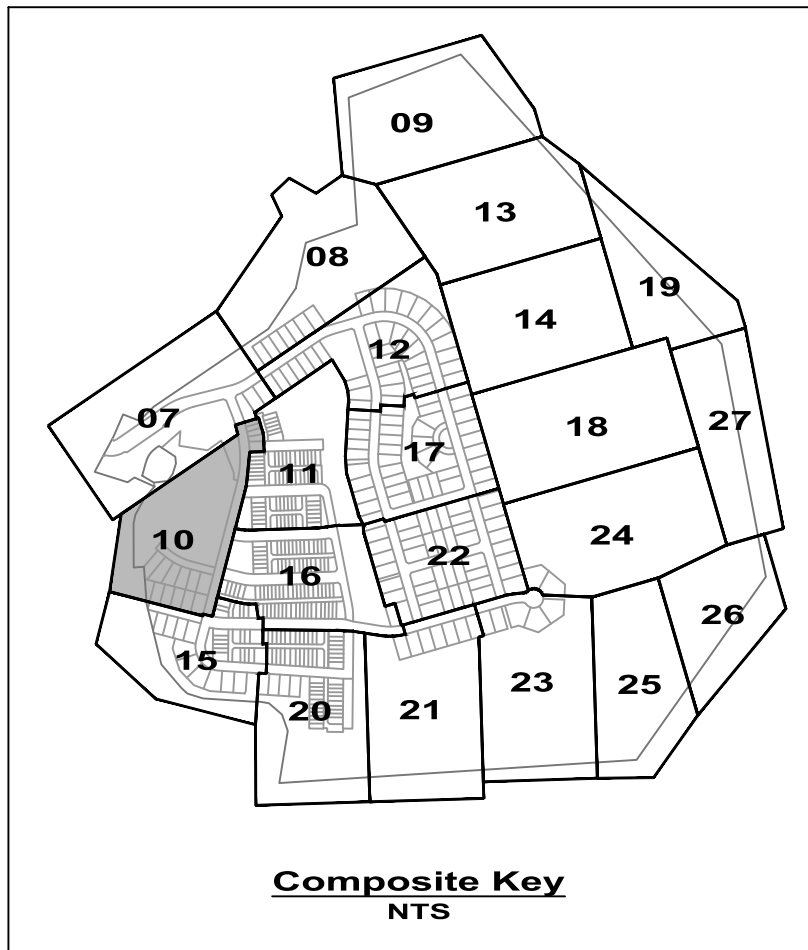
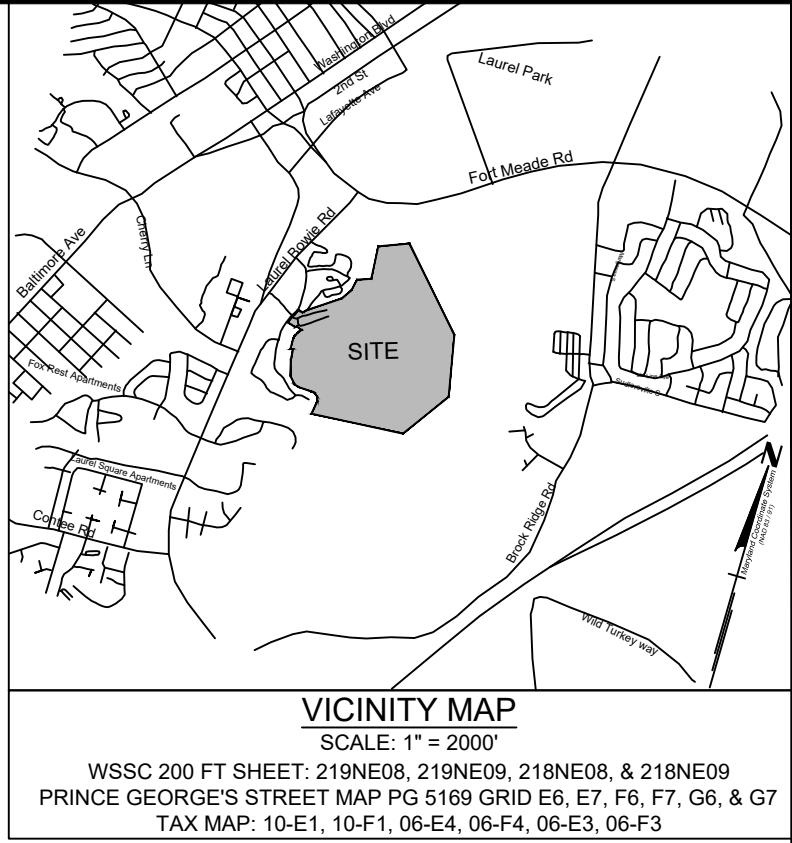
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Stormwater Management Plan

Proposed Conditions

SCALE:	1"=30'
JOB No.	1262A
DATE:	JAN 2019
	SWM-09
SHEET No.	09 OF 32



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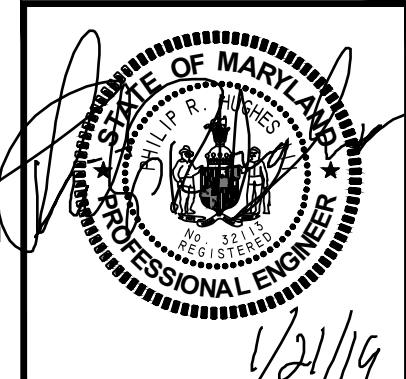
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CONTACT: ALAN COHEN

PATUXENT GREENS

PARCEL A, NLP 126 P.59
L.6008 F.266
ELECTION DISTRICT No. 10
CITY OF LAUREL, PRINCE GEORGE'S COUNTY, MARYLAND

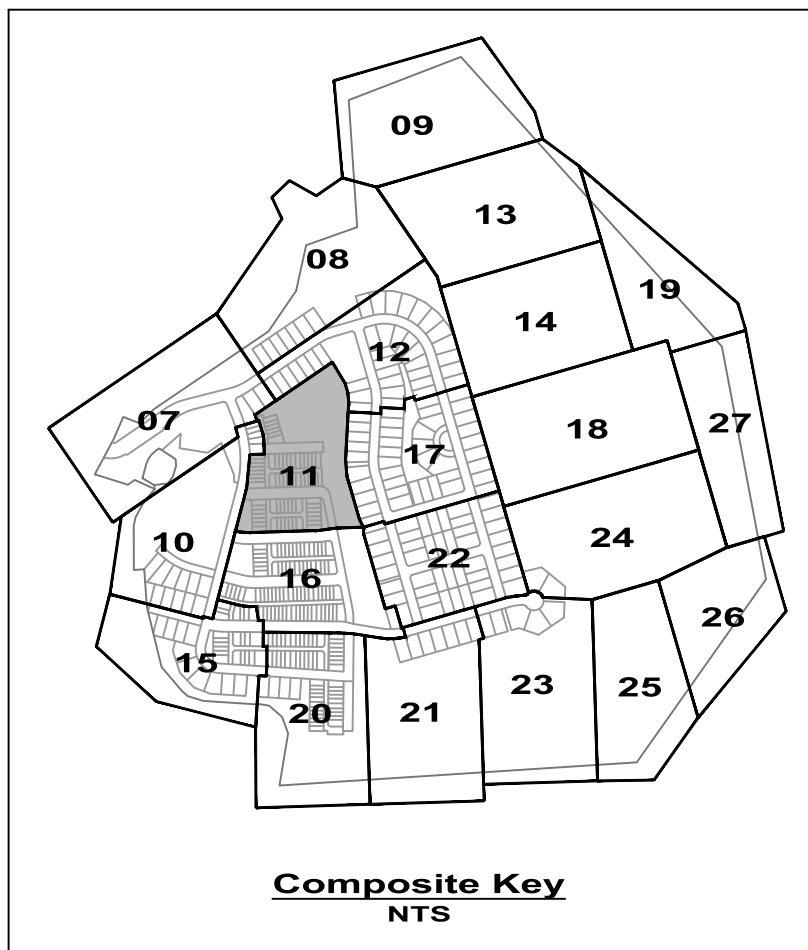
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**Stormwater Management Plan
Proposed Conditions**

SCALE:	1"=30'
JOB No.	1262A
DATE:	JAN 2019
SWM-10	
SHEET No.	10 of 32



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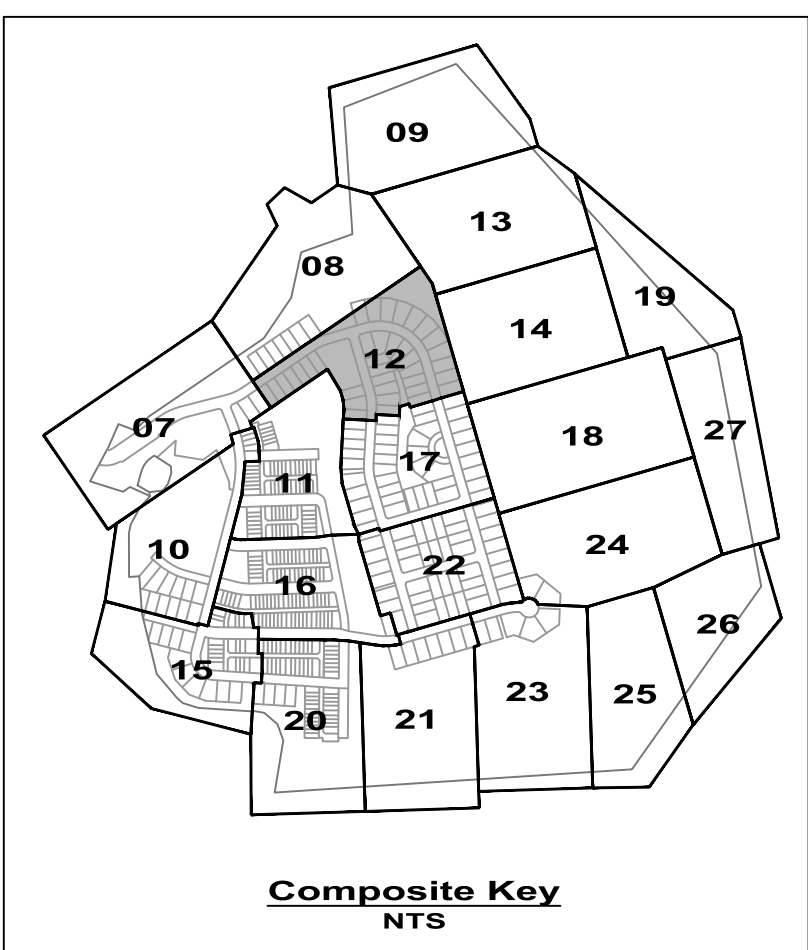
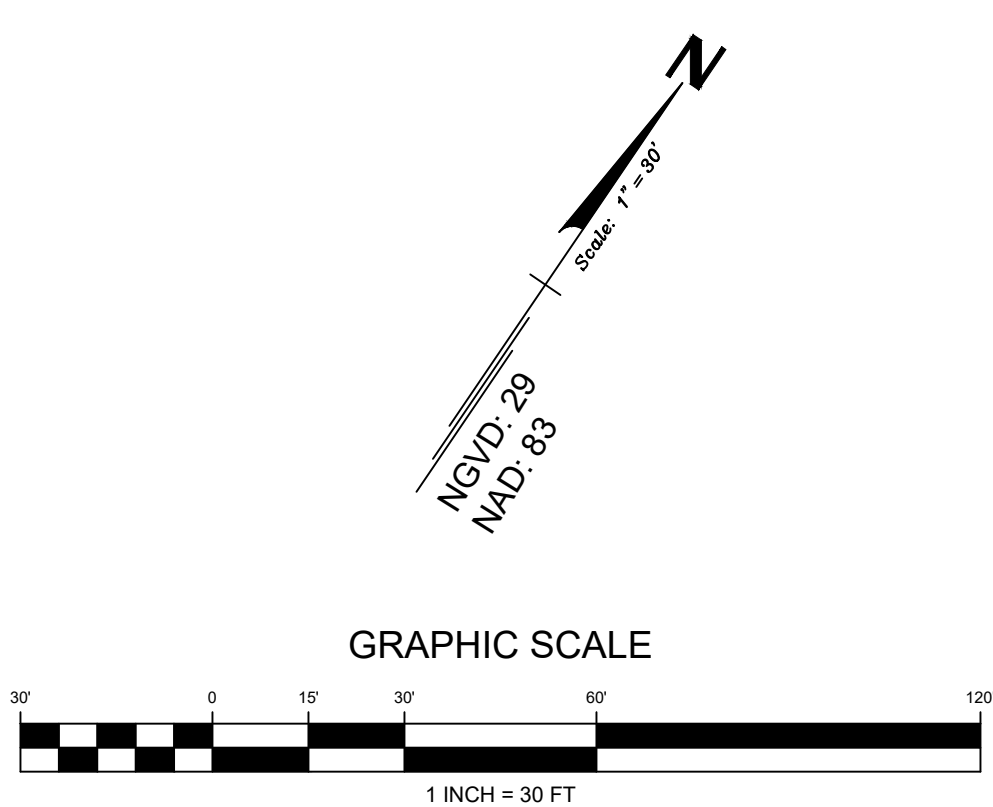
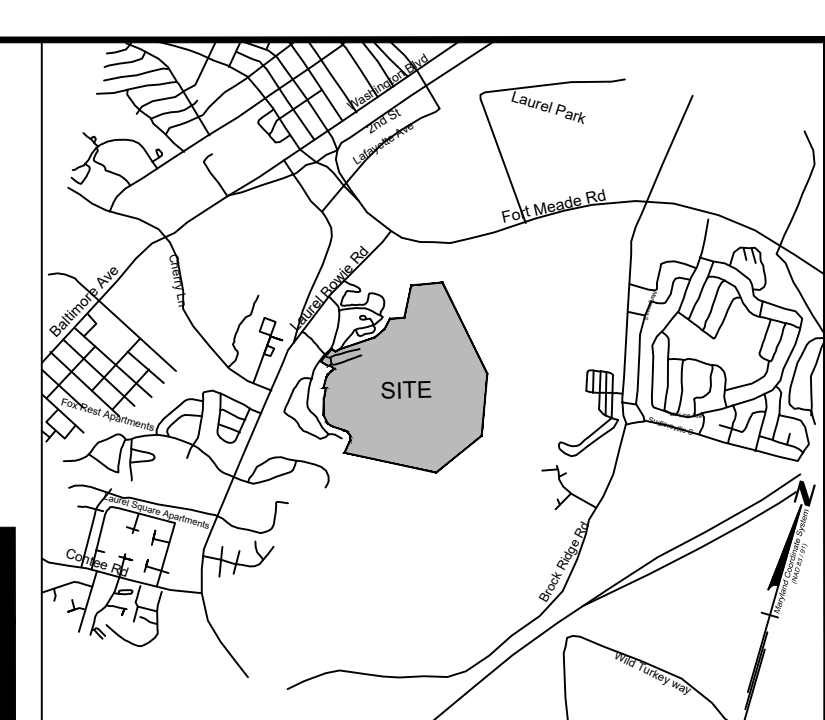
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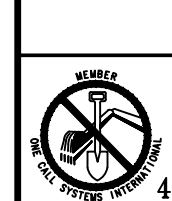
JOB No.
1262A

DATE:
JAN 2019

SWM-11

SHEET No.
11 OF 32





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RELEASE FOR <input type="checkbox"/>	
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SCALE: 1"=30'

JOB No. 1262A

DATE: JAN 2019


SWM-12

SHEET No. 12 of 32

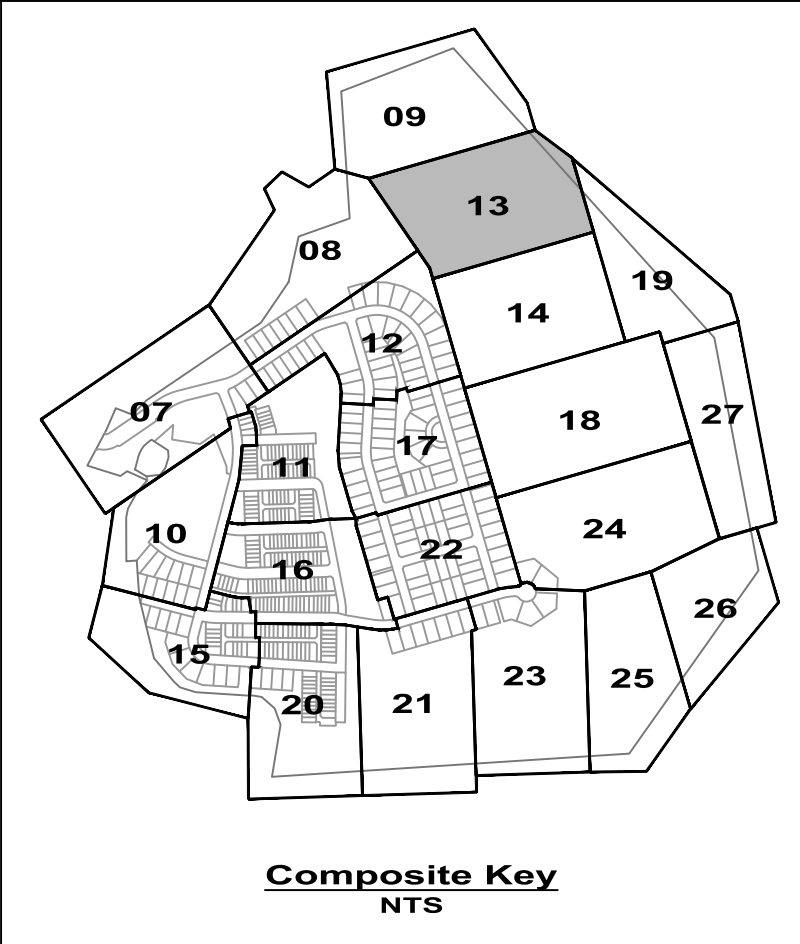
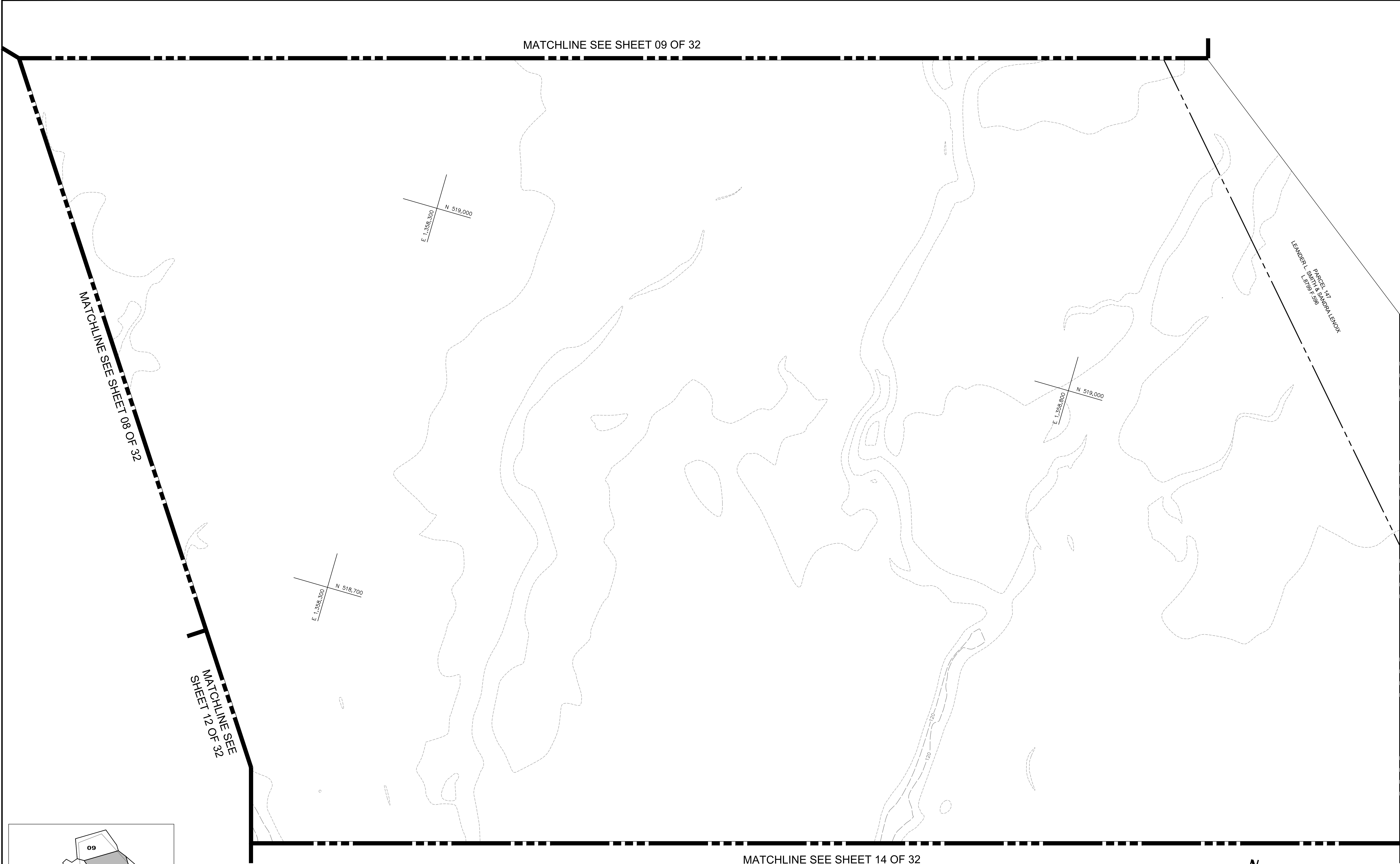
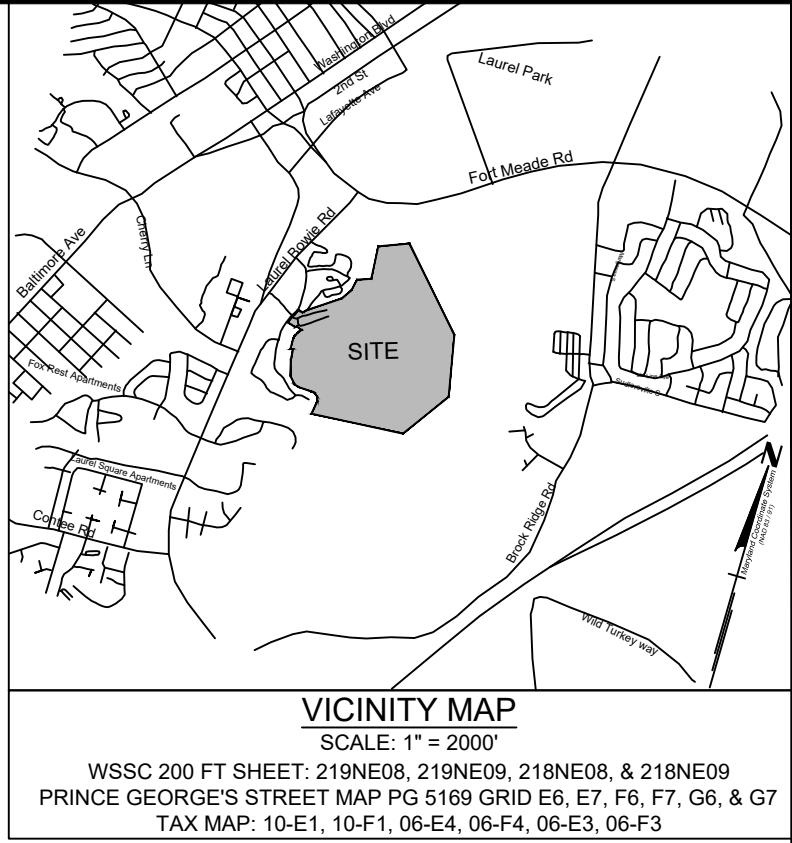
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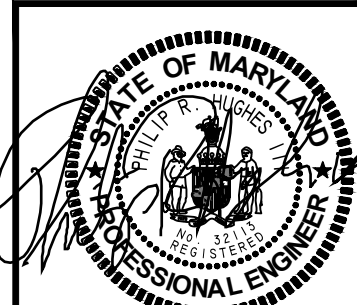
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Stormwater Management Plan
Proposed Conditions

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SHEET No. 13 of 32

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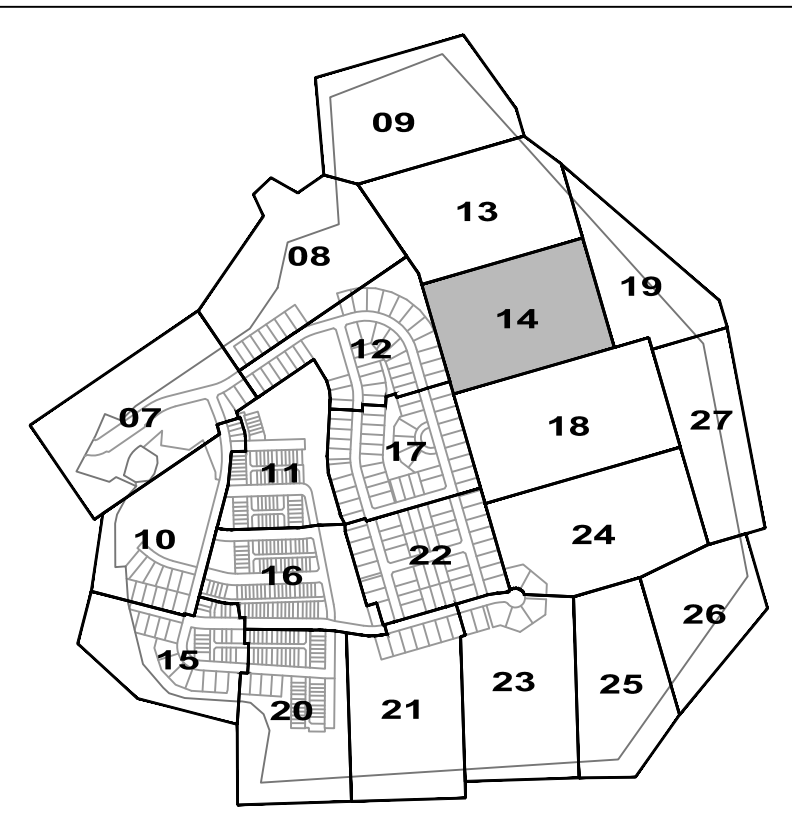


This topographic map depicts the Bear Branch area, showing contour lines at 10-foot intervals. The map includes a proposed road layout with stationing and various engineering notes. Key features include:

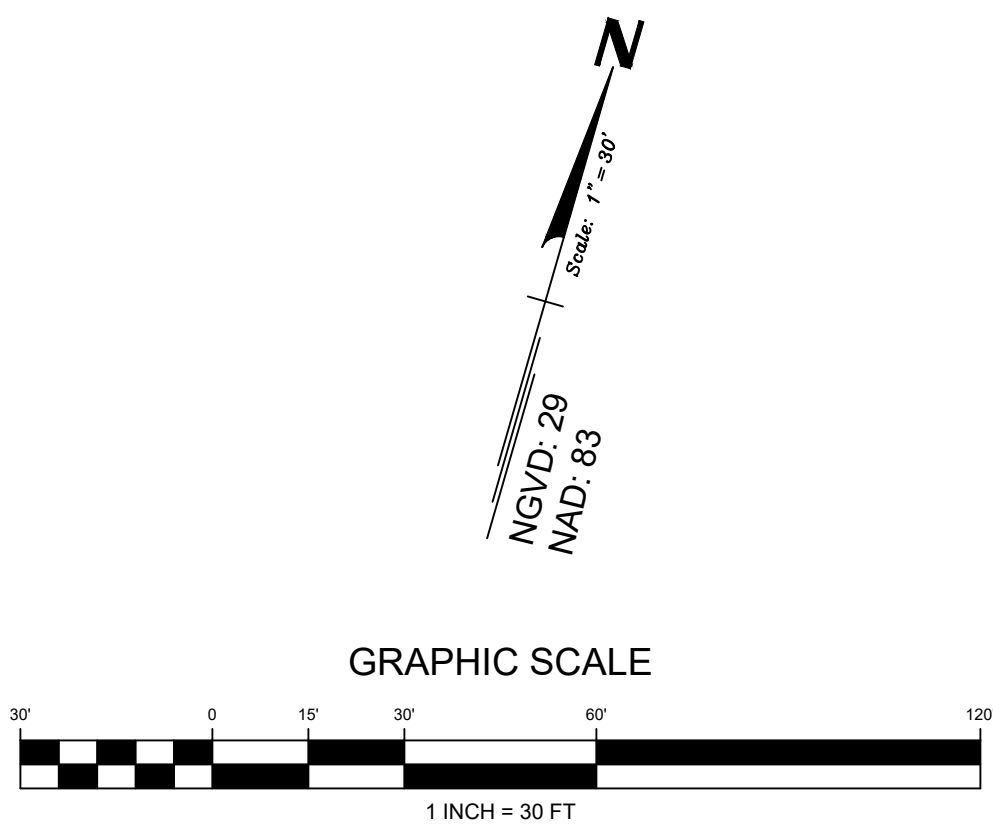
- Contour Lines:** Dashed lines representing elevation contours, with labels such as 100, 110, 120, 130, 140, 150, 160, 170, 180, 190, 200, 210, 220, 230, 240, 250, 260, 270, 280, 290, 300, 310, 320, 330, 340, 350, 360, 370, 380, 390, 400, 410, 420, 430, 440, 450, 460, 470, 480, 490, 500, 510, 520, 530, 540, 550, 560, 570, 580, 590, 600, 610, 620, 630, 640, 650, 660, 670, 680, 690, 700, 710, 720, 730, 740, 750, 760, 770, 780, 790, 800, 810, 820, 830, 840, 850, 860, 870, 880, 890, 900, 910, 920, 930, 940, 950, 960, 970, 980, 990, 1000, 1010, 1020, 1030, 1040, 1050, 1060, 1070, 1080, 1090, 1100, 1110, 1120, 1130, 1140, 1150, 1160, 1170, 1180, 1190, 1200, 1210, 1220, 1230, 1240, 1250, 1260, 1270, 1280, 1290, 1300, 1310, 1320, 1330, 1340, 1350, 1360, 1370, 1380, 1390, 1400, 1410, 1420, 1430, 1440, 1450, 1460, 1470, 1480, 1490, 1500, 1510, 1520, 1530, 1540, 1550, 1560, 1570, 1580, 1590, 1600, 1610, 1620, 1630, 1640, 1650, 1660, 1670, 1680, 1690, 1700, 1710, 1720, 1730, 1740, 1750, 1760, 1770, 1780, 1790, 1800, 1810, 1820, 1830, 1840, 1850, 1860, 1870, 1880, 1890, 1900, 1910, 1920, 1930, 1940, 1950, 1960, 1970, 1980, 1990, 2000, 2010, 2020, 2030, 2040, 2050, 2060, 2070, 2080, 2090, 2100, 2110, 2120, 2130, 2140, 2150, 2160, 2170, 2180, 2190, 2200, 2210, 2220, 2230, 2240, 2250, 2260, 2270, 2280, 2290, 2300, 2310, 2320, 2330, 2340, 2350, 2360, 2370, 2380, 2390, 2400, 2410, 2420, 2430, 2440, 2450, 2460, 2470, 2480, 2490, 2500, 2510, 2520, 2530, 2540, 2550, 2560, 2570, 2580, 2590, 2600, 2610, 2620, 2630, 2640, 2650, 2660, 2670, 2680, 2690, 2700, 2710, 2720, 2730, 2740, 2750, 2760, 2770, 2780, 2790, 2800, 2810, 2820, 2830, 2840, 2850, 2860, 2870, 2880, 2890, 2900, 2910, 2920, 2930, 2940, 2950, 2960, 2970, 2980, 2990, 3000, 3010, 3020, 3030, 3040, 3050, 3060, 3070, 3080, 3090, 3100, 3110, 3120, 3130, 3140, 3150, 3160, 3170, 3180, 3190, 3200, 3210, 3220, 3230, 3240, 3250, 3260, 3270, 3280, 3290, 3300, 3310, 3320, 3330, 3340, 3350, 3360, 3370, 3380, 3390, 3400, 3410, 3420, 3430, 3440, 3450, 3460, 3470, 3480, 3490, 3500, 3510, 3520, 3530, 3540, 3550, 3560, 3570, 3580, 3590, 3600, 3610, 3620, 3630, 3640, 3650, 3660, 3670, 3680, 3690, 3700, 3710, 3720, 3730, 3740, 3750, 3760, 3770, 3780, 3790, 3800, 3810, 3820, 3830, 3840, 3850, 3860, 3870, 3880, 3890, 3900, 3910, 3920, 3930, 3940, 3950, 3960, 3970, 3980, 3990, 4000, 4010, 4020, 4030, 4040, 4050, 4060, 4070, 4080, 4090, 4100, 4110, 4120, 4130, 4140, 4150, 4160, 4170, 4180, 4190, 4200, 4210, 4220, 4230, 4240, 4250, 4260, 4270, 4280, 4290, 4300, 4310, 4320, 4330, 4340, 4350, 4360, 4370, 4380, 4390, 4400, 4410, 4420, 4430, 4440, 4450, 4460, 4470, 4480, 4490, 4500, 4510, 4520, 4530, 4540, 4550, 4560, 4570, 4580, 4590, 4600, 4610, 4620, 4630, 4640, 4650, 4660, 4670, 4680, 4690, 4700, 4710, 4720, 4730, 4740, 4750, 4760, 4770, 4780, 4790, 4800, 4810, 4820, 4830, 4840, 4850, 4860, 4870, 4880, 4890, 4900, 4910, 4920, 4930, 4940, 4950, 4960, 4970, 4980, 4990, 5000, 5010, 5020, 5030, 5040, 5050, 5060, 5070, 5080, 5090, 5100, 5110, 5120, 5130, 5140, 5150, 5160, 5170, 5180, 5190, 5200, 5210, 5220, 5230, 5240, 5250, 5260, 5270, 5280, 5290, 5300, 5310, 5320, 5330, 5340, 5350, 5360, 5370, 5380, 5390, 5400, 5410, 5420, 5430, 5440, 5450, 5460, 5470, 5480, 5490, 5500, 5510, 5520, 5530, 5540, 5550, 5560, 5570, 5580, 5590, 5600, 5610, 5620, 5630, 5640, 5650, 5660, 5670, 5680, 5690, 5700, 5710, 5720, 5730, 5740, 5750, 5760, 5770, 5780, 5790, 5800, 5810, 5820, 5830, 5840, 5850, 5860, 5870, 5880, 5890, 5900, 5910, 5920, 5930, 5940, 5950, 5960, 5970, 5980, 5990, 6000, 6010, 6020, 6030, 6040, 6050, 6060, 6070, 6080, 6090, 6100, 6110, 6120, 6130, 6140, 6150, 6160, 6170, 6180, 6190, 6200, 6210, 6220, 6230, 6240, 6250, 6260, 6270, 6280, 6290, 6300, 6310, 6320, 6330, 6340, 6350, 6360, 6370, 6380, 6390, 6400, 6410, 6420, 6430, 6440, 6450, 6460, 6470, 6480, 6490, 6500, 6510, 6520, 6530, 6540, 6550, 6560, 6570, 6580, 6590, 6600, 6610, 6620, 6630, 6640, 6650, 6660, 6670, 6680, 6690, 6700, 6710, 6720, 6730, 6740, 6750, 6760, 6770, 6780, 6790, 6800, 6810, 6820, 6830, 6840, 6850, 6860, 6870, 6880, 6890, 6900, 6910,

MATCHLINE SEE
SHEET 17 OF 32

MATCHLINE SEE SHEET 19 OF 32

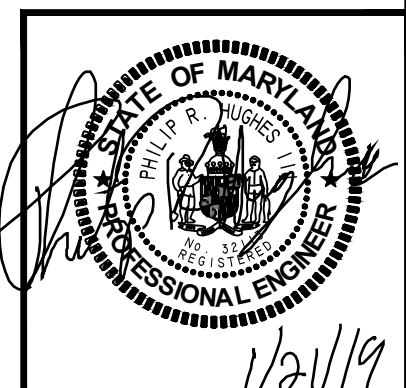


A topographic map of the Bear Branch area. The map features several contour lines indicating elevation, with labels for 100, 120, 140, and 160 feet. A prominent road, likely a highway, runs diagonally across the lower portion of the map. Other roads and trails are shown as thinner lines. A small body of water, possibly a lake or reservoir, is visible in the upper right. The text 'BEAR BRANCH' is written in large, bold, black letters across the center of the map. A scale bar at the bottom indicates distances in miles (0 to 1) and kilometers (0 to 1.6).




PROFESSIONAL CERTIFICATION

"I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No.32113, Expiration Date:9/15/19."



SCALE	1"=30'
JOB No.	1262A
DATE:	JAN 2019
SWM-14	
SHEET No.	14 OF 32

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48 Hours Before Start Of Construction

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THIS PLAN IS FOR EXISTING
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Applicant:

CS PATUXENT GREENS, LLC.
6290 MONTROSE ROAD
ROCKVILLE, MD 20852
PHONE: 301-692-4000
CONTACT: ALAN COHEN

PATUXENT GREENS

PARCEL A, NLP 126 P.59
L.6008 F.266
ELECTION DISTRICT No. 10
CITY OF LAUREL, PRINCE GEORGE'S COUNTY, MARYLAND

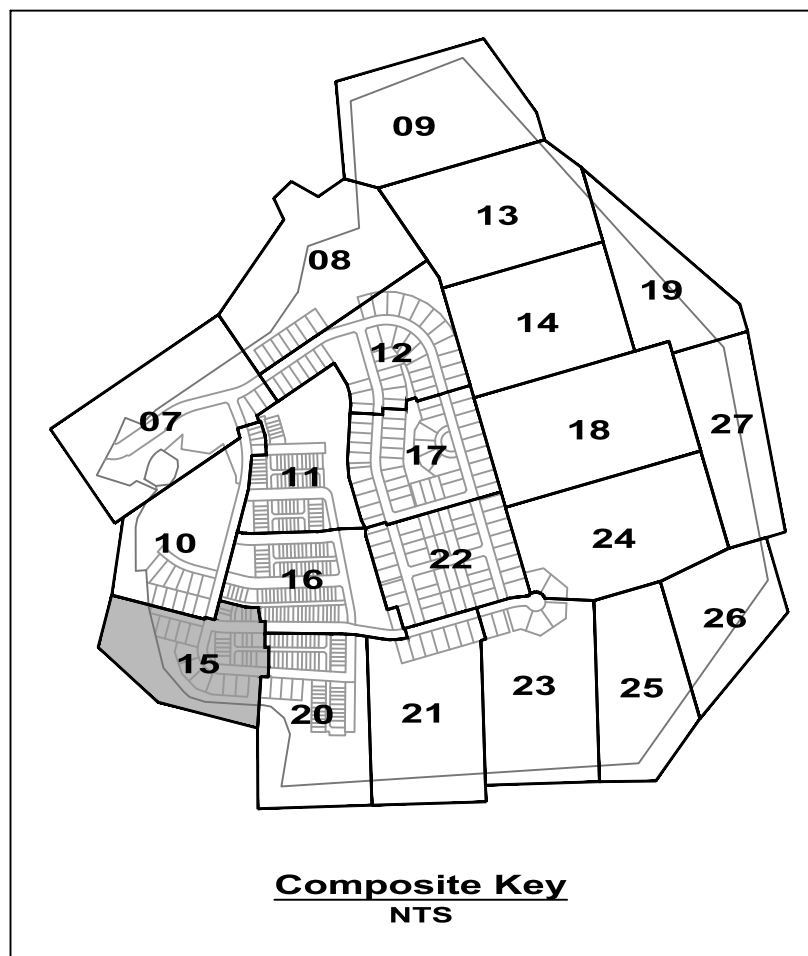
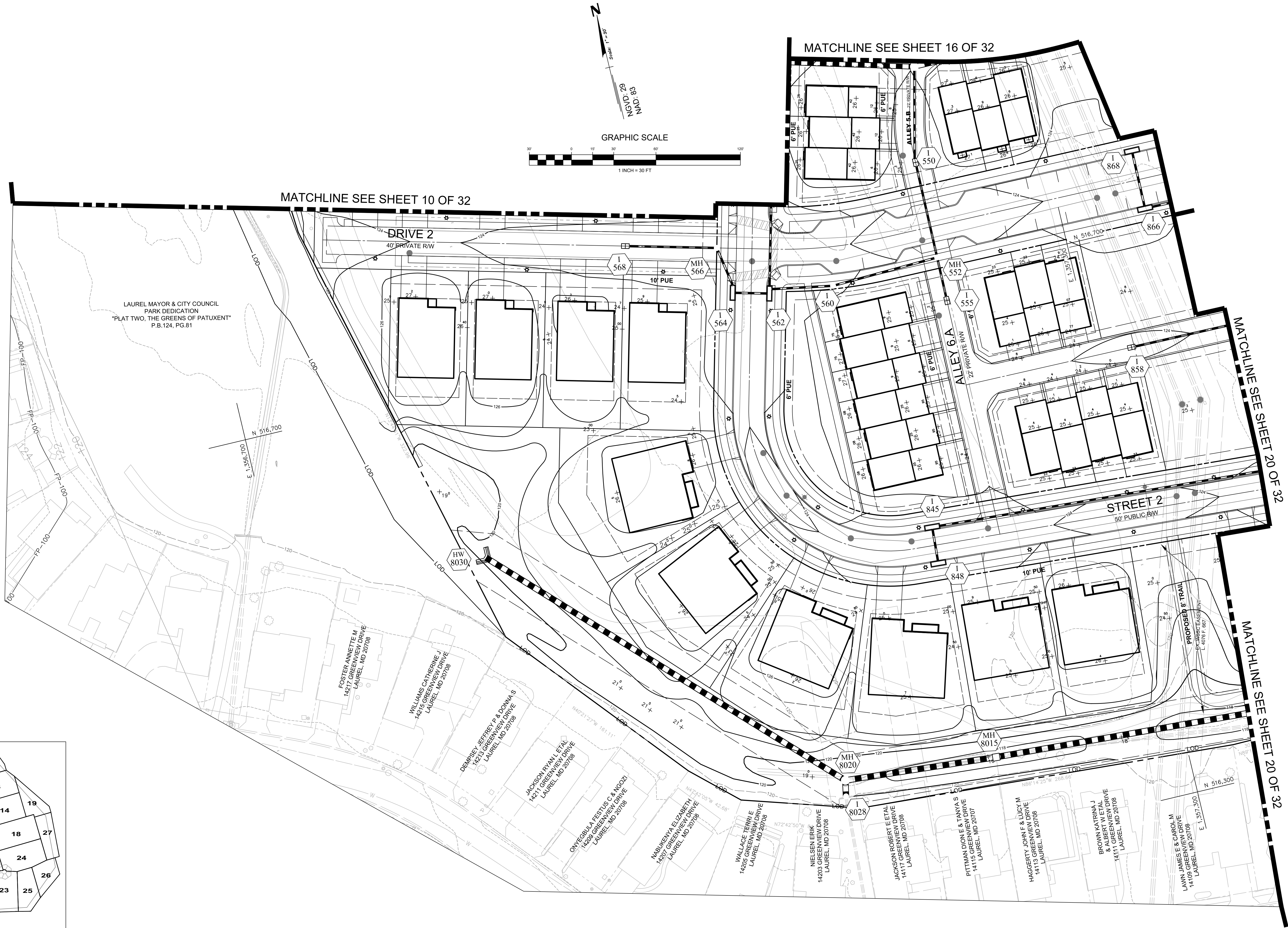
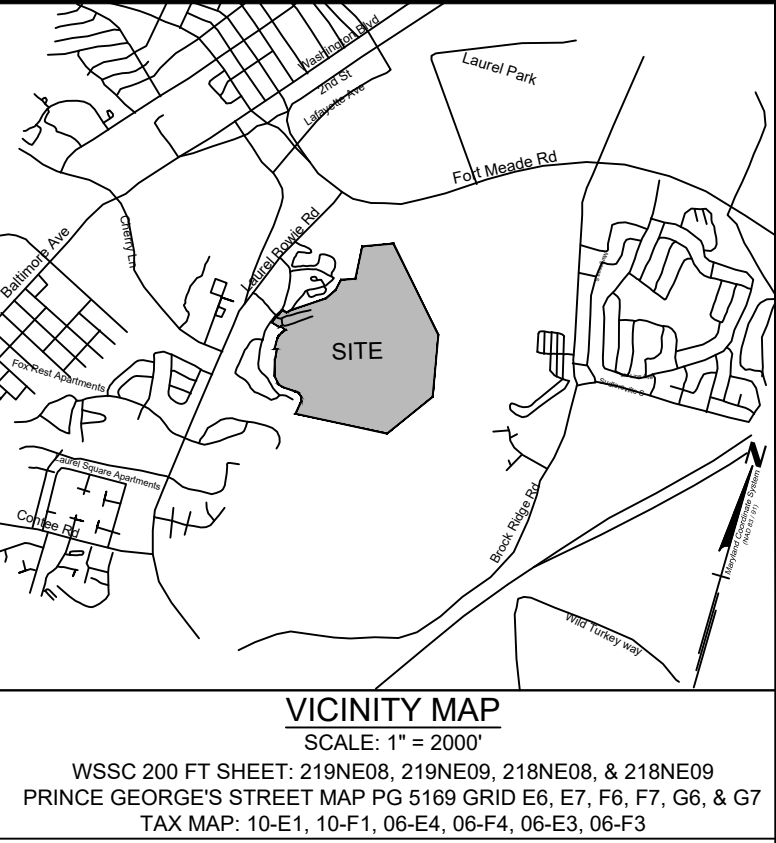
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Ph: 301.948.4700 Fx: 301.948.6256 www.rodgers.com

	BY	DATE
BASE DATA	CADD	FEB 2018
DESIGNED	IN/DKM	NOV 2018
DRAWN	IN/DKM	NOV 2018
REVIEWED	PRH	NOV 2018
RODGERS CONTACT: Philip R. Hughes III		
RELEASE FOR		
		<input type="checkbox"/>
BY _____		DATE _____

Stormwater Management Plan

Proposed Conditions



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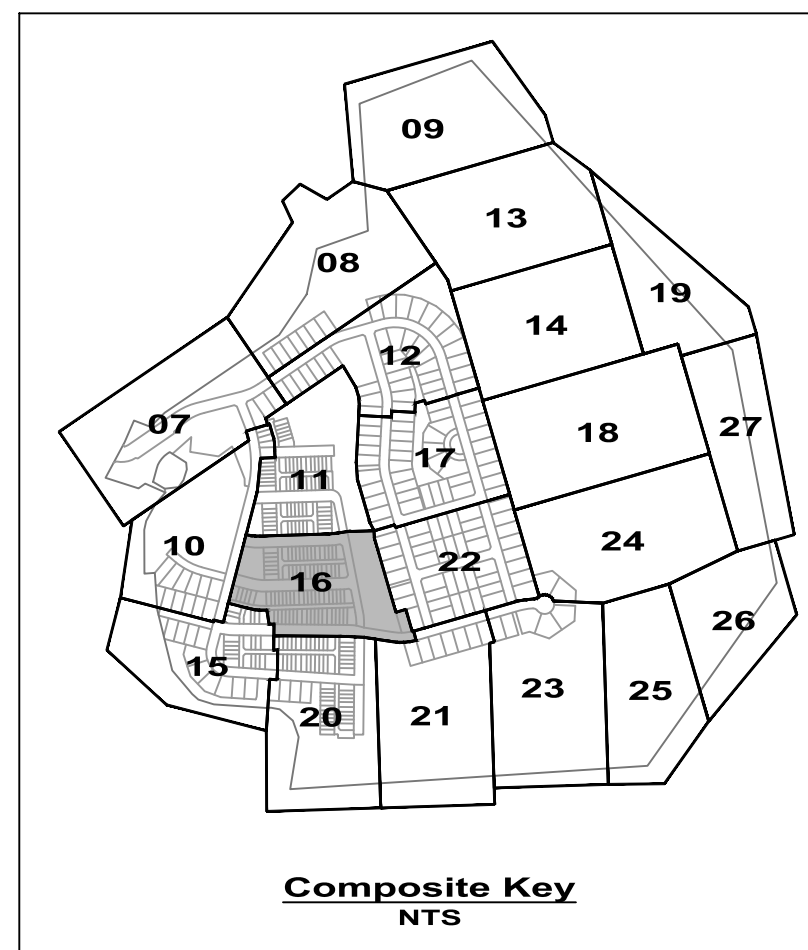
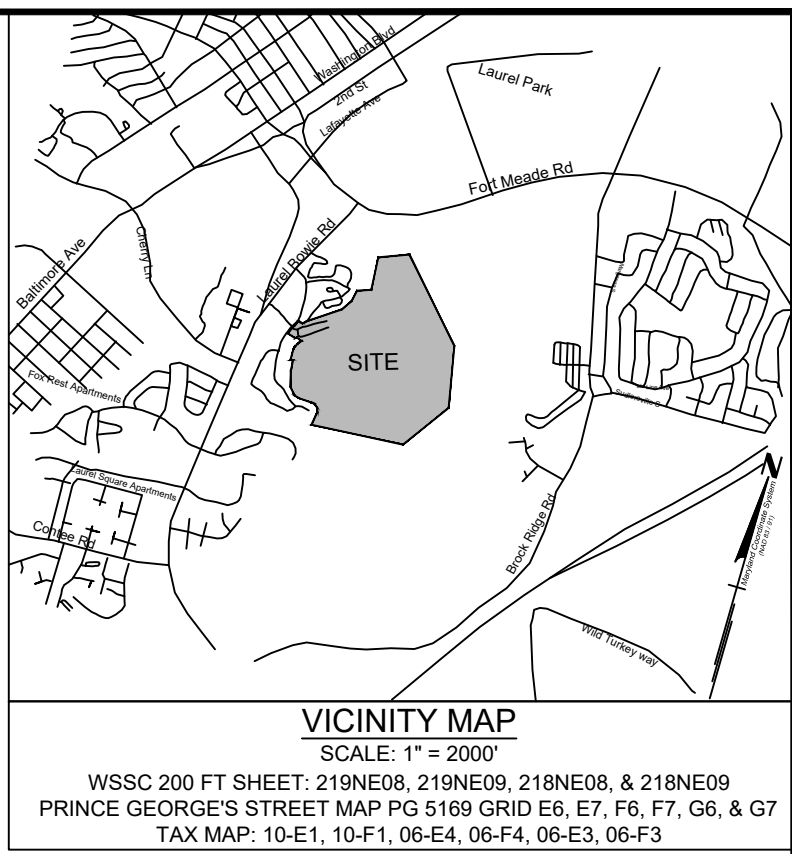
BASE DATA	BY	DATE
DESIGNED	CADD	FEB 2018
DRAWN	INDKM	NOV 2018
REVIEWED	PRH	NOV 2018
RODGERS CONTACT: Philip R. Hughes III		
RELEASE FOR		
BY	DATE	

**Stormwater Management Plan
Proposed Conditions**



PROFESSIONAL CERTIFICATION
I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 22113, Expiration Date 9/15/19.

1/24/19
SCALE: 1" = 30'
JOB No. 1262A
DATE: JAN 2019
SWM-15
SHEET No. 15 of 32



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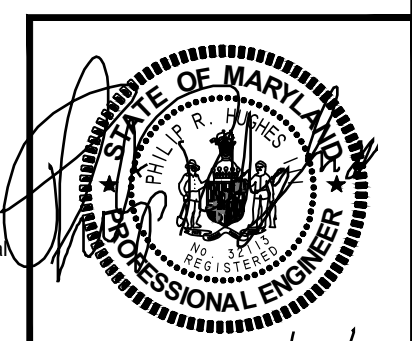
PARCEL A, NLP 126 P.59
L.6008 F.266
ELECTION DISTRICT No. 10
CITY OF LAUREL, PRINCE GEORGE'S COUNTY, MARYLAND

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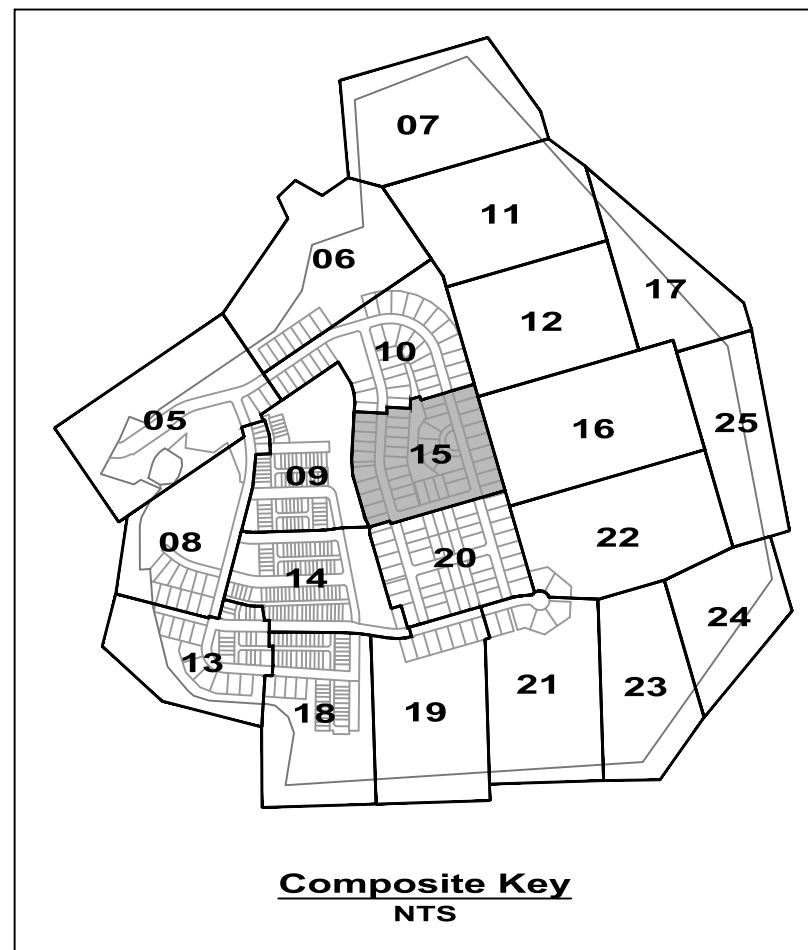
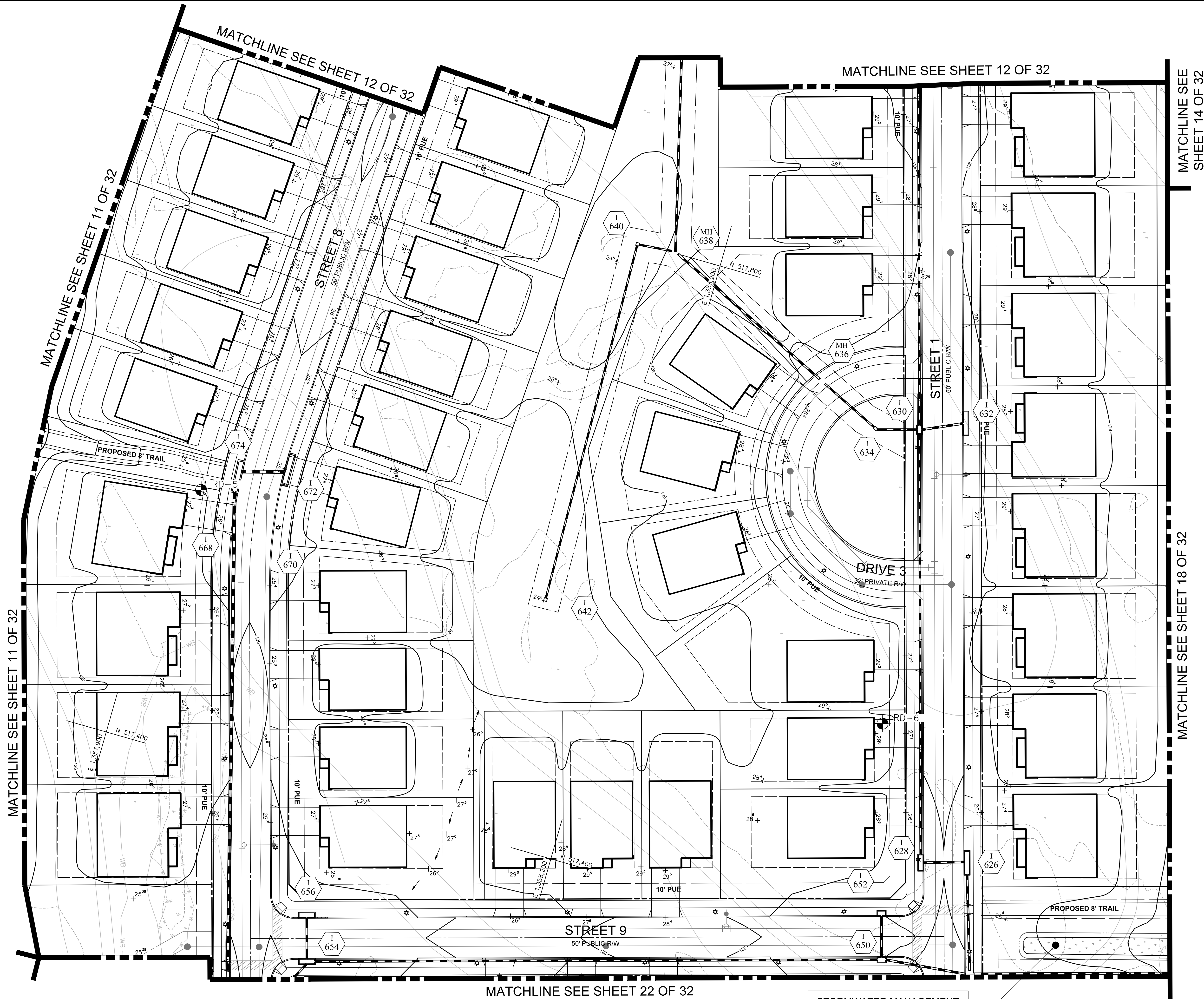
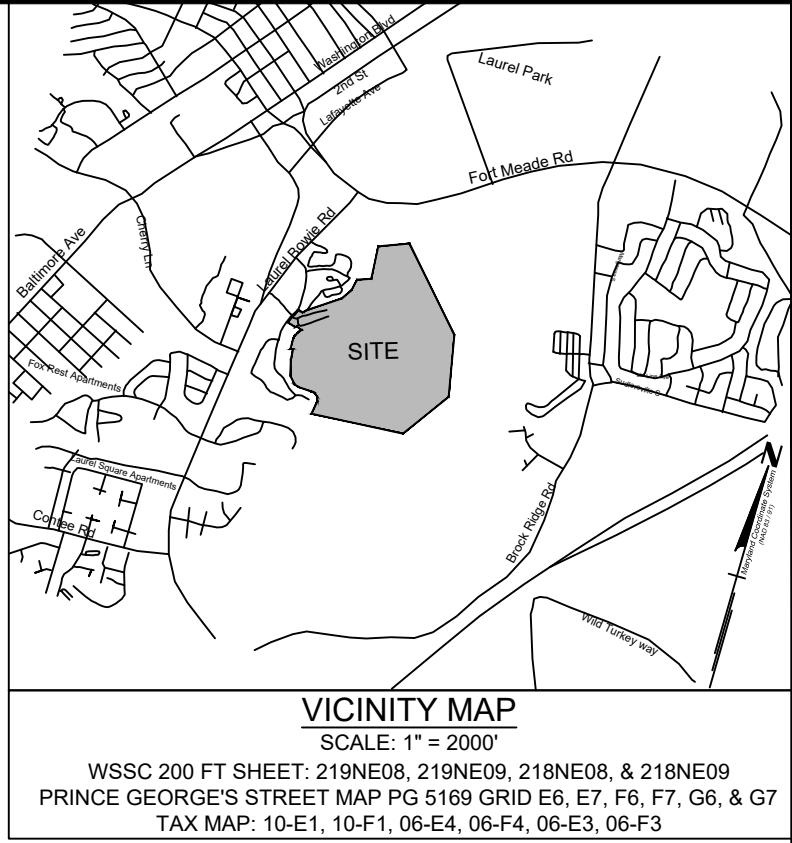
BY	DATE
BASE DATA	CADD FEB 2018
DESIGNED	INDKM NOV 2018
DRAWN	INDKM NOV 2018
REVIEWED	PRH NOV 2018
RODGERS CONTACT: Philip R. Hughes III	
RELEASE FOR	
BY: _____	DATE: _____

Stormwater Management Plan
Proposed Conditions

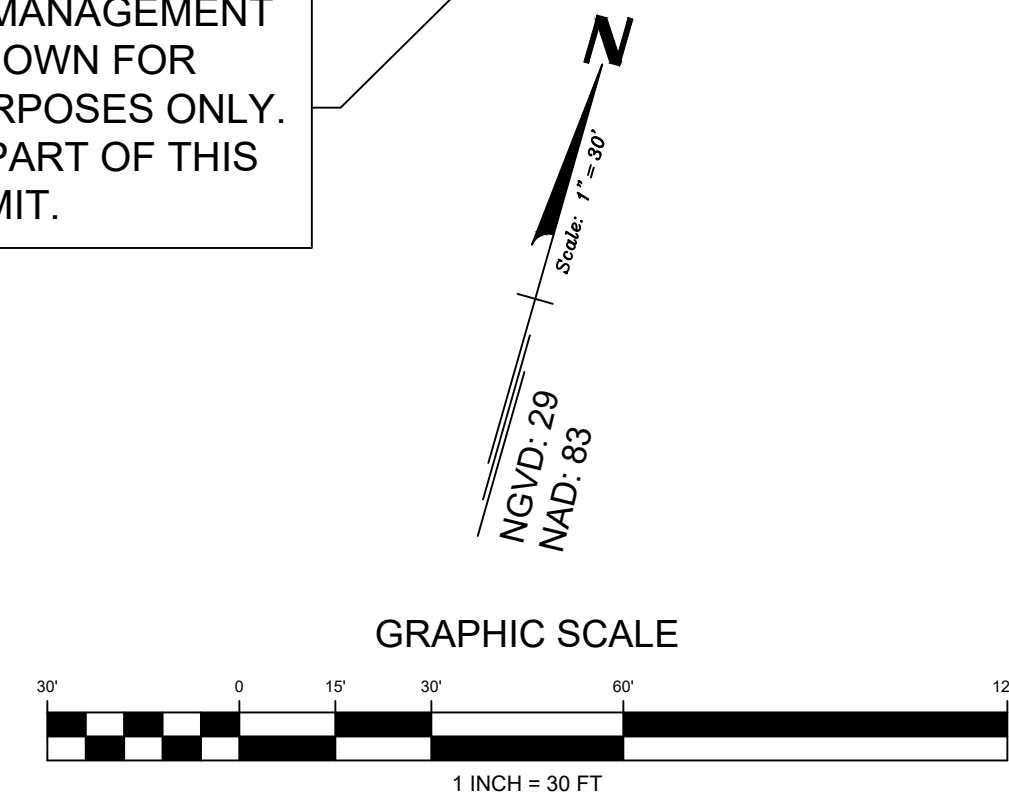


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SCALE: 1" = 30'
JOB No. 1262A
DATE: JAN 2019
SWM-16
SHEET No. 16 of 32



STORMWATER MANAGEMENT
FACILITY SHOWN FOR
REFERENCE PURPOSES ONLY.
FACILITY NOT PART OF THIS
PERMIT.



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THE PROPOSED EXCAVATION AND HAVE THOSE FACILITIES
LOCATED BY THE UTILITY COMPANIES PRIOR TO COMMENCING
EXCAVATION. THE EXCAVATOR IS RESPONSIBLE FOR
COMPLIANCE WITH ALL APPLICABLE REQUIREMENTS OF THE
PRINCE GEORGE'S COUNTY CODE.

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RETROFIT PURPOSES ONLY
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REVISION	DATE	REVISION	DATE	REVISION	DATE

Applicant:

CS PATUXENT GREENS, LLC.
6290 MONTROSE ROAD
ROCKVILLE, MD 20852
PHONE: 301-692-4000
CONTACT: ALAN COHEN

PATUXENT GREENS
PARCEL A, NLP 126 P.59
L.6008 F.266
ELECTION DISTRICT No. 10
CITY OF LAUREL, PRINCE GEORGE'S COUNTY, MARYLAND

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Ph: 301.948.4700 Fx: 301.948.6256 www.rodgers.com

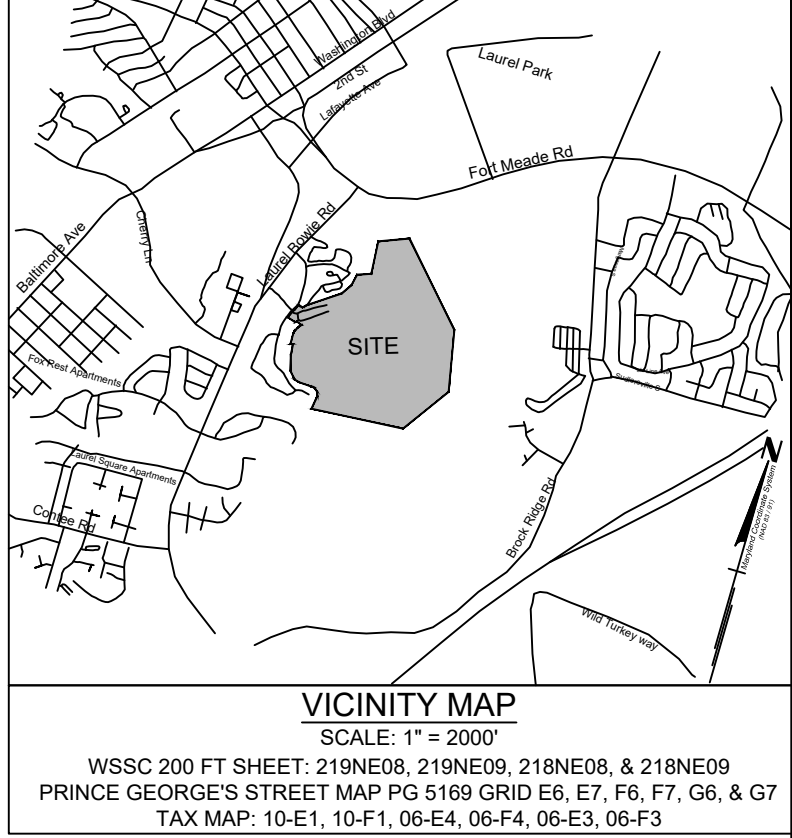
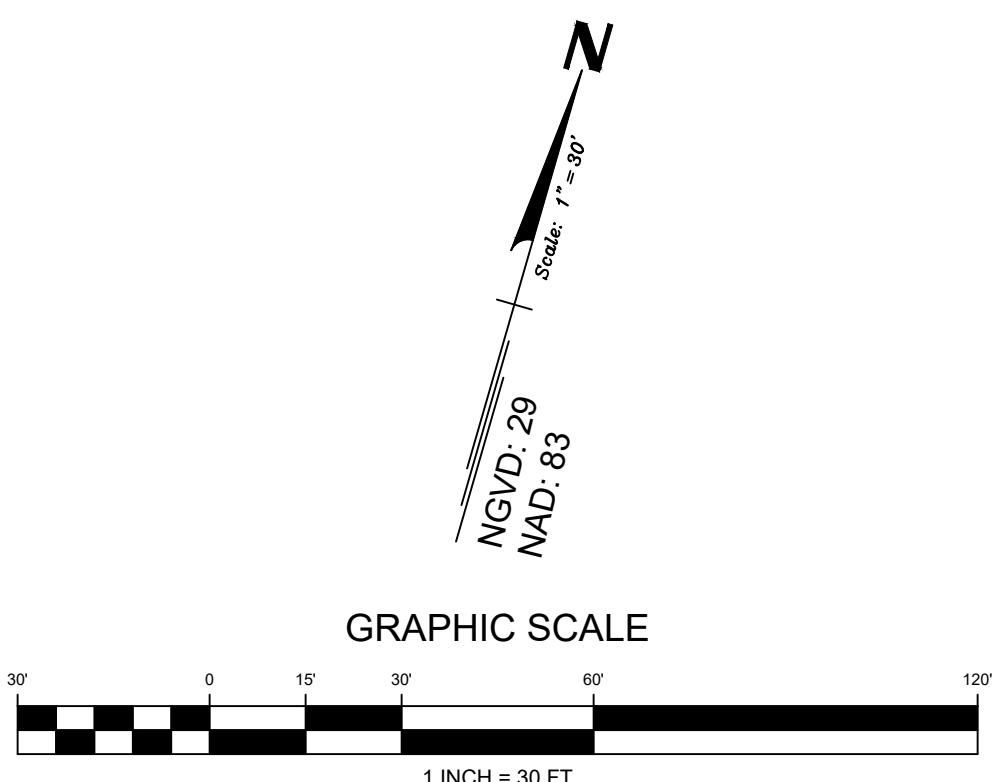
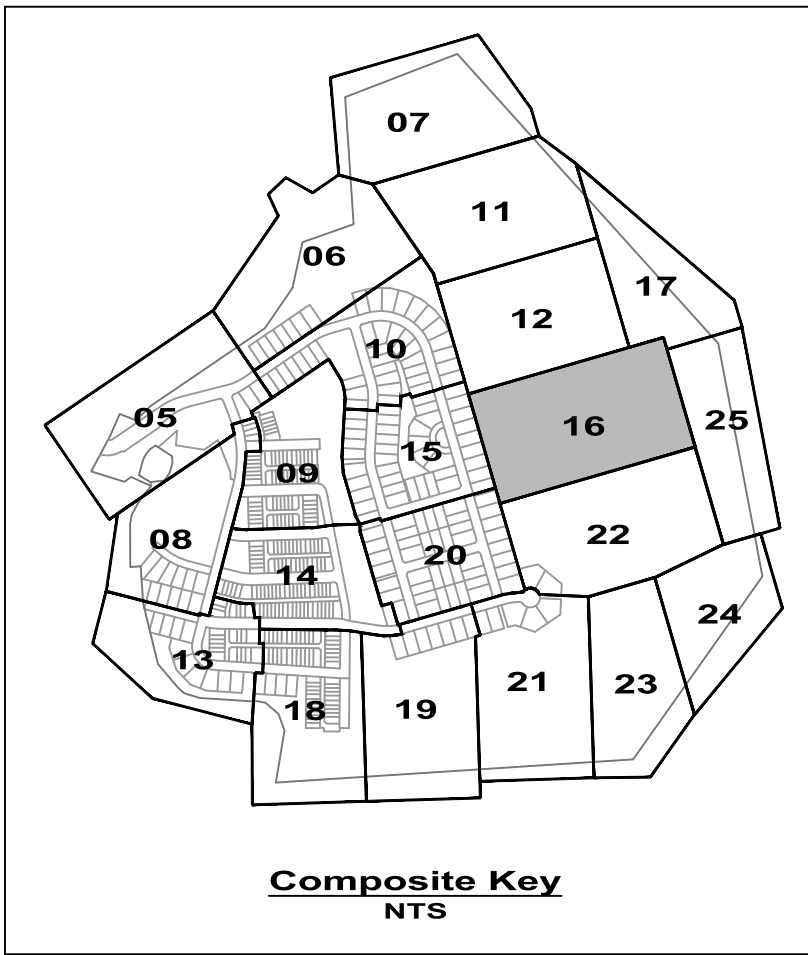
BASE DATA	BY	DATE
DESIGNED	CADD	FEB 2018
DRAWN	INDKM	NOV 2018
REVIEWED	INDKM	NOV 2018
	PRH	NOV 2018
RODGERS CONTACT: Philip R. Hughes III		
RELEASE FOR		
BY: _____	DATE: _____	

**Stormwater Management Plan
Proposed Conditions**

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No. 32113, Expiration Date 9/19/19."



SCALE: 1" = 30'
JOB No. 1262A
DATE: JAN 2019
SWM-17
SHEET No. 17 of 32



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6290 MONTROSE ROAD
ROCKVILLE, MD 20852
PHONE: 301-692-4000
CONTACT: ALAN COHEN

PATUXENT GREENS

PARCEL A, NLP 126 P.59
L.6008 F.266
ELECTION DISTRICT No. 10
CITY OF LAUREL, PRINCE GEORGE'S COUNTY, MARYLAND

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BASE DATA	CADD	FEB 2018
DESIGNED	IND/M	NOV 2018
DRAWN	IND/M	NOV 2018
REVIEWED	PRH	NOV 2018

RODGERS CONTACT: Philip R. Hughes III

RELEASE FOR ☐

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Stormwater Management Plan
Proposed Conditions

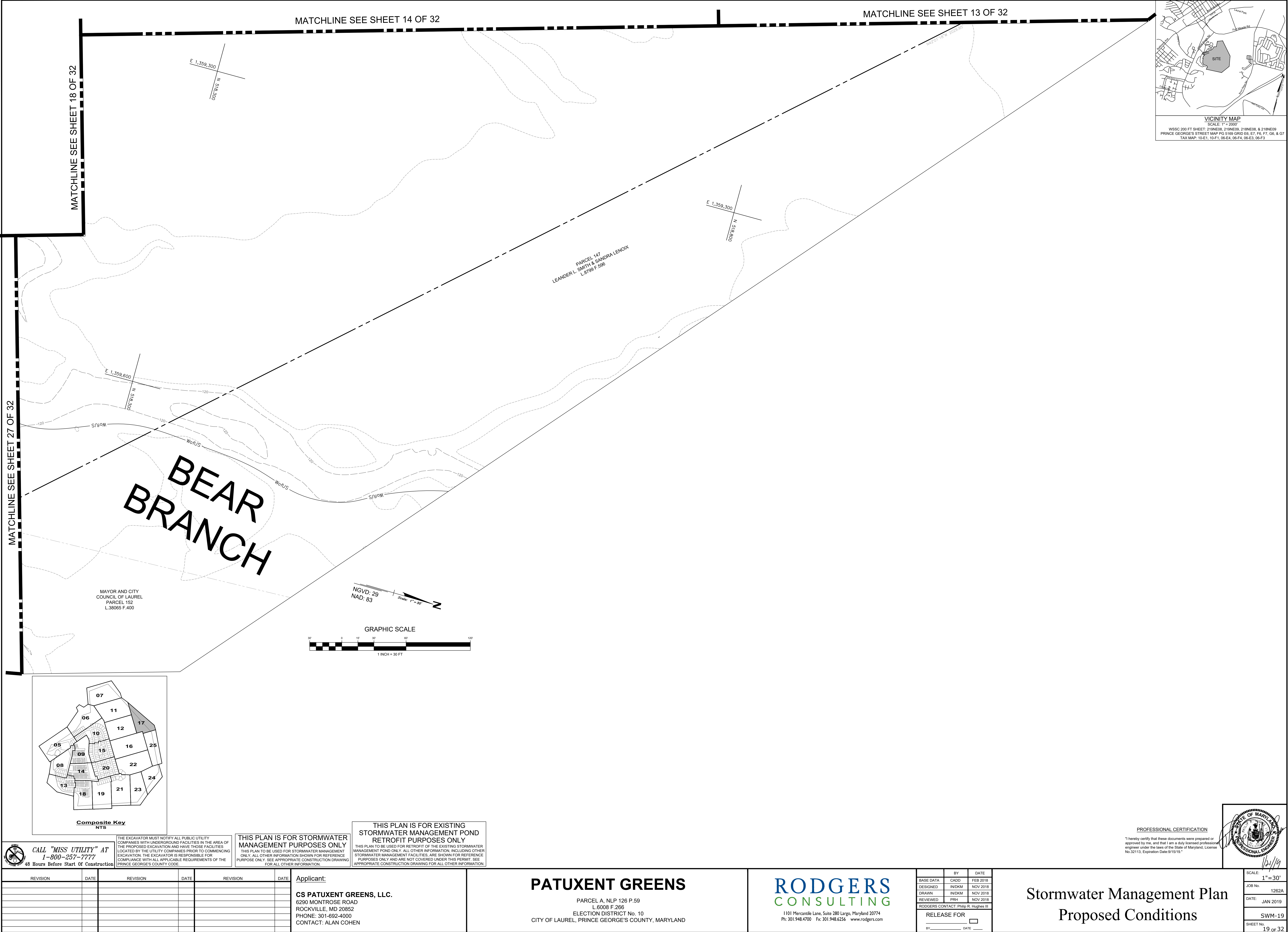
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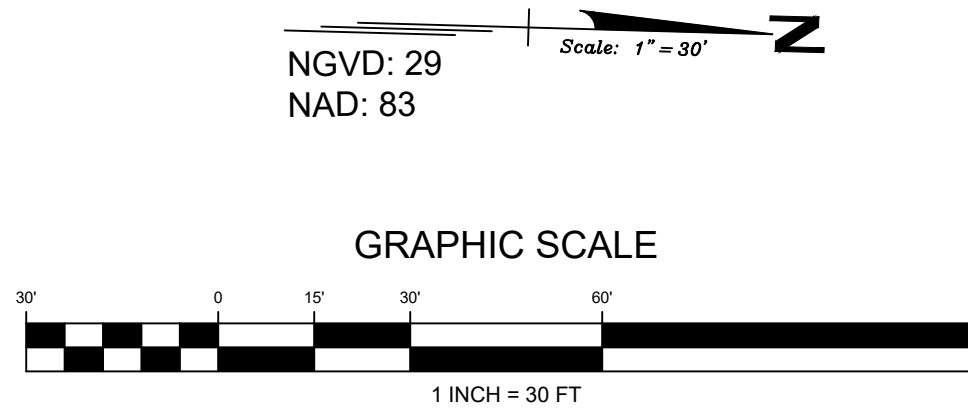
JOB No. 1262A

DATE: JAN 2019

SWM-18

SHEET No. 18 of 32





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Applicant

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PATUXENT GREENS

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DESIGNED	IN/DKM	NOV 20
DRAWN	IN/DKM	NOV 20
REVIEWED	PRH	NOV 20
RODGERS CONTACT: Philip R. Hughes		

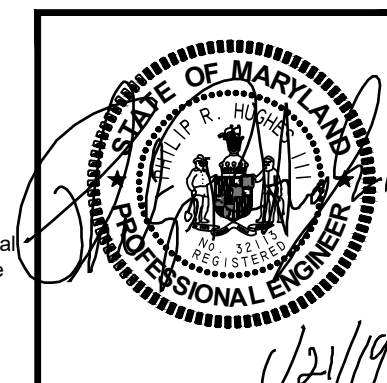
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Stormwater Management Plan Proposed Conditions

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SCALE:	1"=30'
JOB No.	1262
DATE:	JAN 2019
	SWM-2
SHEET No.	20 OF 3

MATCHLINE SEE SHEET 20 OF 32

WARREN, BARBARA E ETAL
9128 BRIARCHIP STREET
LAUREL, MD 20708
L 3156 F.565

E 1,358,000
N 516,500

SB-14

SB-15

SB-16

E 1,358,300
N 516,000

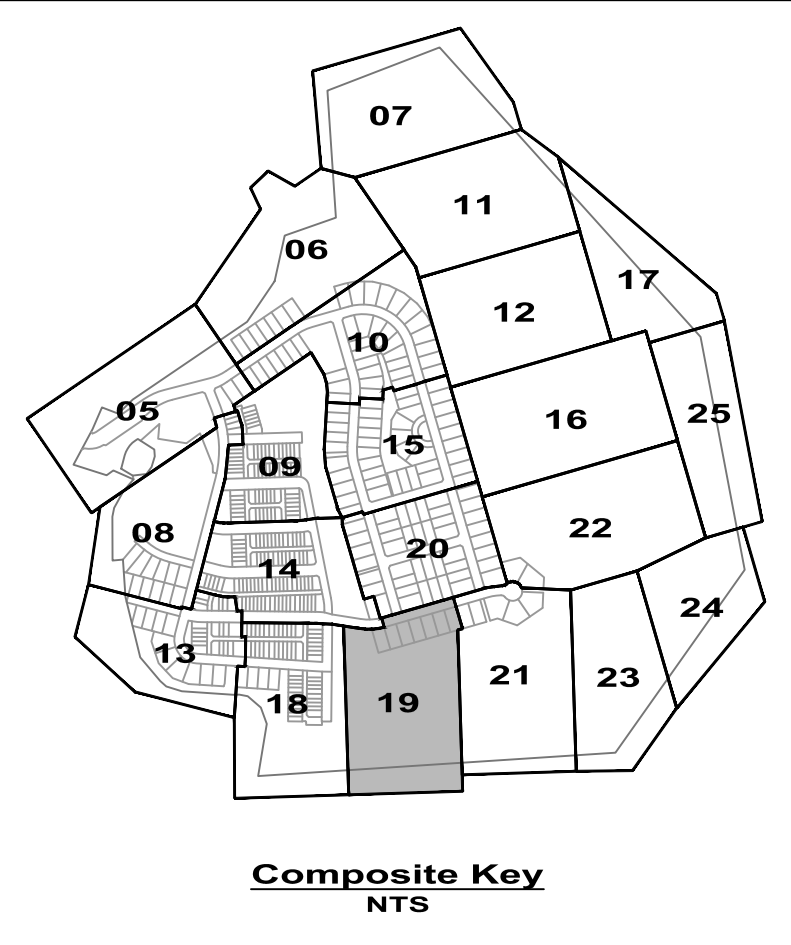
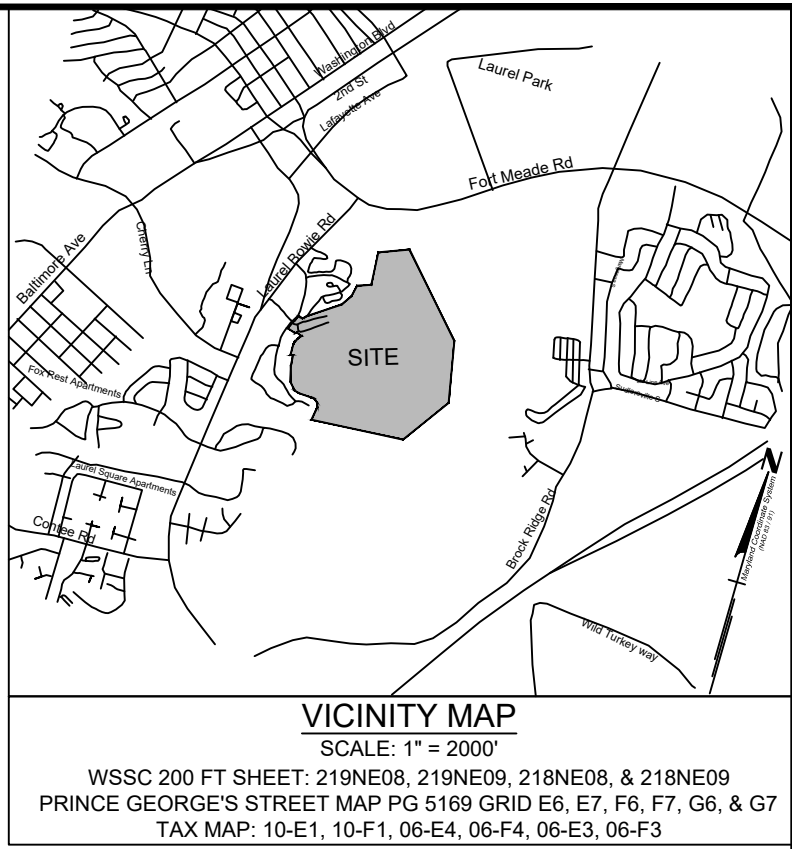
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STORMWATER
MANAGEMENT FACILITY
SHOWN FOR
REFERENCE PURPOSES
ONLY. FACILITY NOT
PART OF THIS PERMIT.

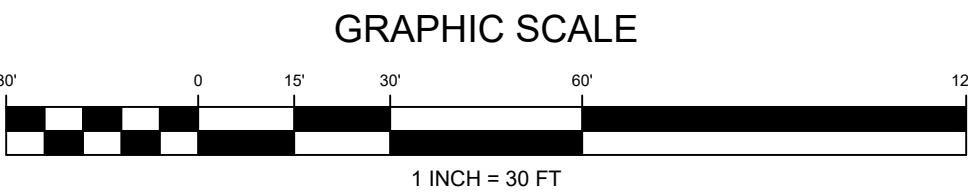
MATCHLINE SEE
SHEET 16 OF 32

MATCHLINE SEE SHEET 22 OF 32

MATCHLINE SEE SHEET 23 OF 32



NGVD: 29
NAD: 83



CALL "MISS UTILITY" AT
1-800-257-7777
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Applicant:

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6290 MONTROSE ROAD
ROCKVILLE, MD 20852
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CONTACT: ALAN COHEN

PATUXENT GREENS

PARCEL A, NLP 126 P.59
L 6008 F.266
ELECTION DISTRICT No. 10
CITY OF LAUREL, PRINCE GEORGE'S COUNTY, MARYLAND

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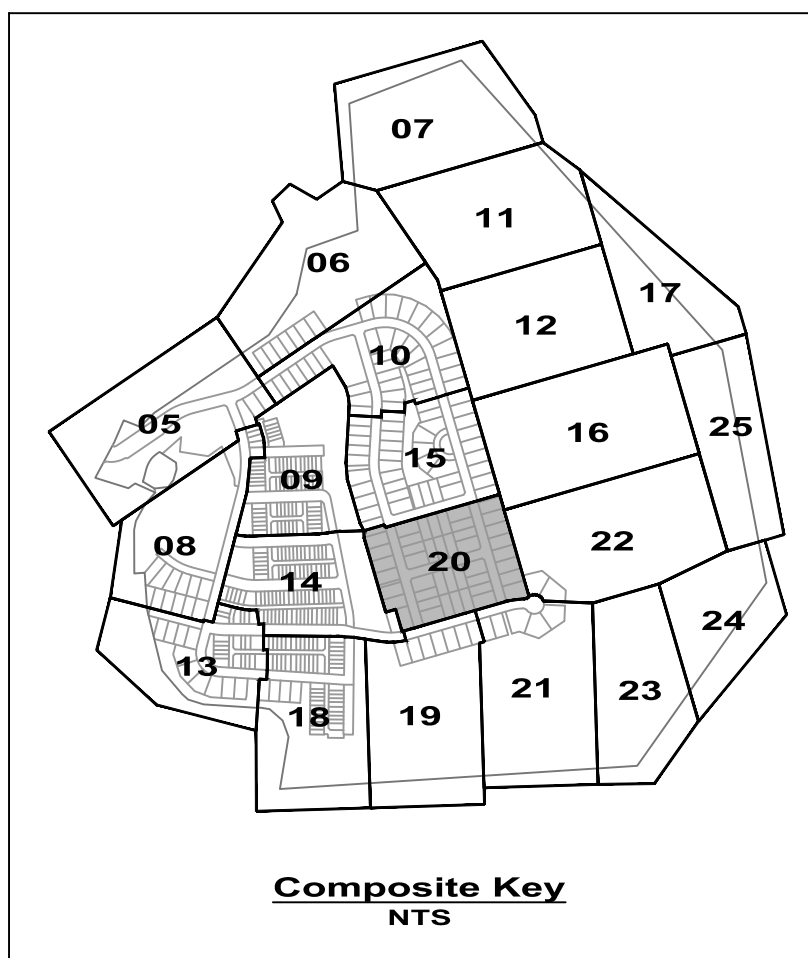
BY	DATE
BASE DATA	CADD FEB 2018
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DRAWN	IND/KM NOV 2018
REVIEWED	PRH NOV 2018
RODGERS CONTACT: Philip R. Hughes III	
RELEASE FOR	
BY	DATE

Stormwater Management Plan
Proposed Conditions



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SCALE: 1" = 30'
JOB No. 1262A
DATE: JAN 2019
SWM-21
SHEET No. 21 of 32



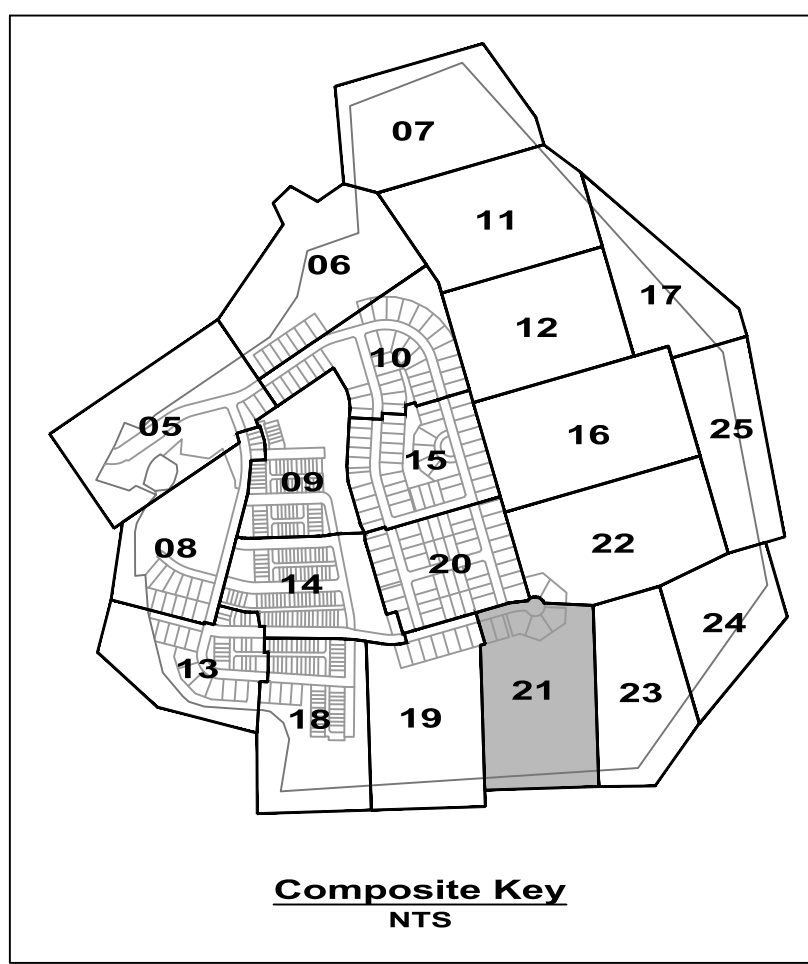
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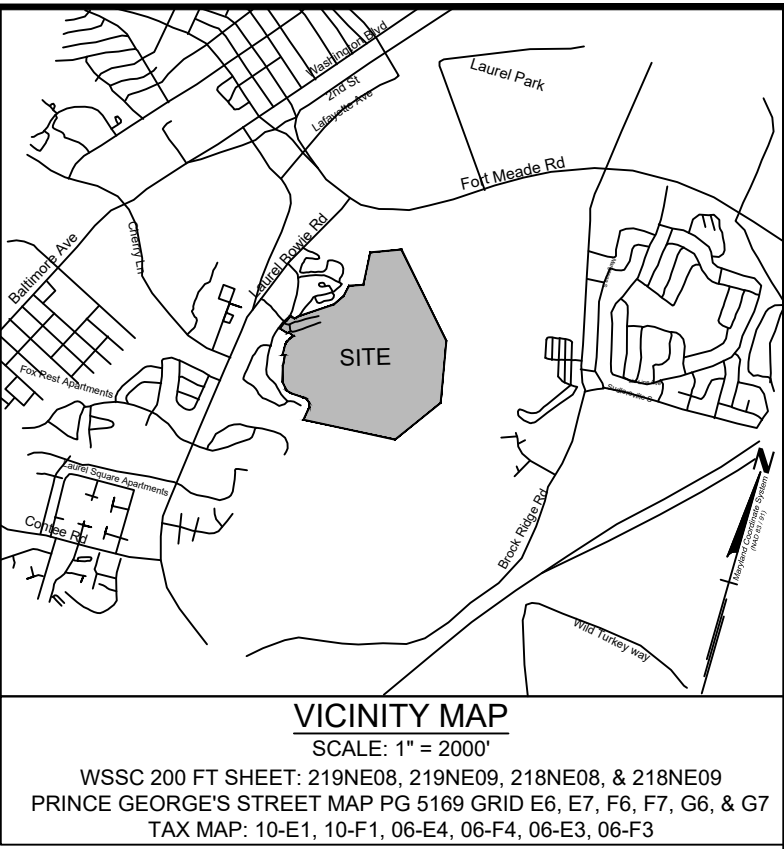
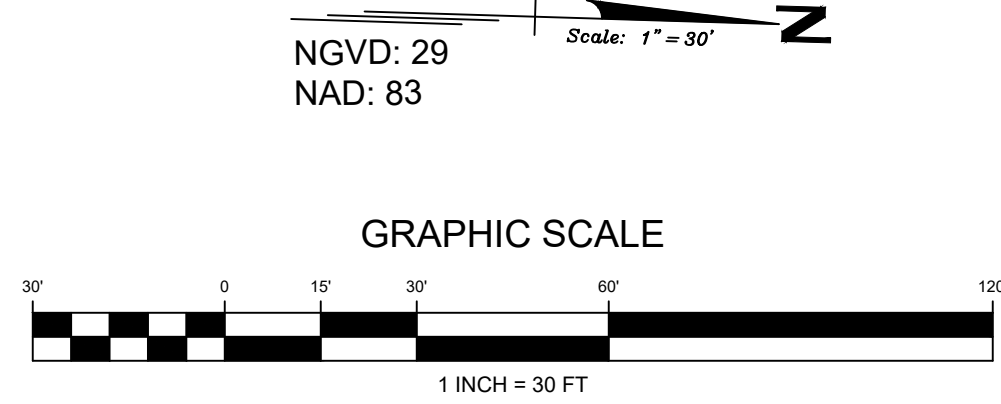
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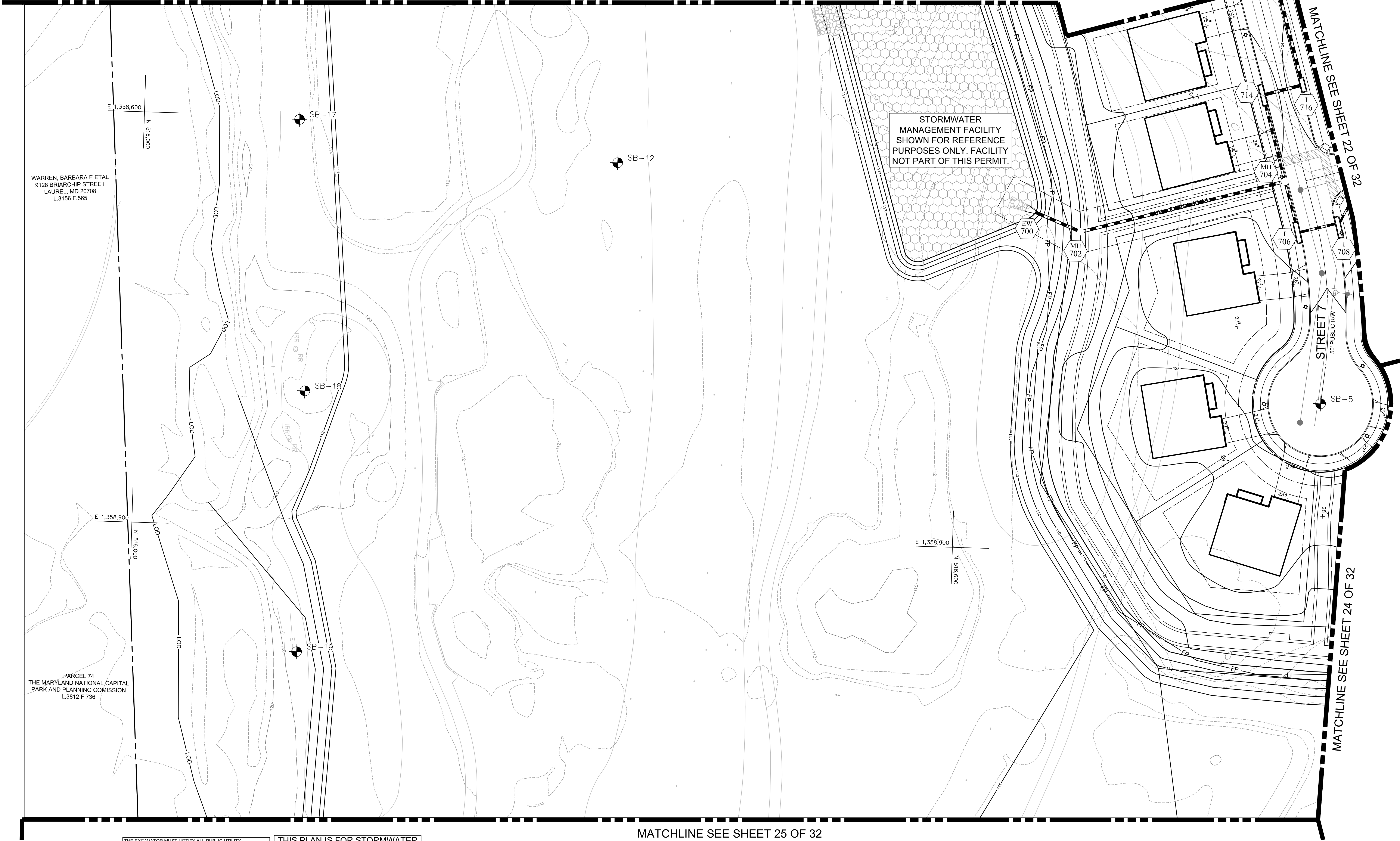
SCALE:	1"=30'
DB No.	1262A
DATE:	JAN 2019
	SWM-22
SHEET No.	22 OF 32



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MATCHLINE SEE SHEET 21 OF 32



MATCHLINE SEE SHEET 24 OF 32

MATCHLINE SEE SHEET 25 OF 32

CALL "MISS UTILITY" AT 1-800-257-7777 48 Hours Before Start Of Construction

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PHONE: 301-692-4000
CONTACT: ALAN COHEN

PATUXENT GREENS

PARCEL A, NLP 126 P.59
L.6008 F.266
ELECTION DISTRICT No. 10
CITY OF LAUREL, PRINCE GEORGE'S COUNTY, MARYLAND

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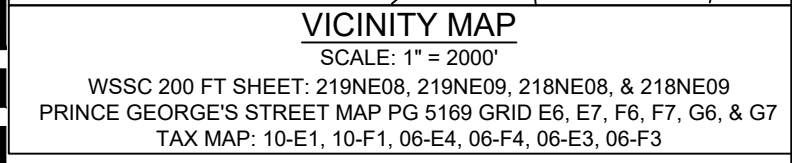
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RELEASE FOR	
BY: _____	DATE: _____

Stormwater Management Plan Proposed Conditions

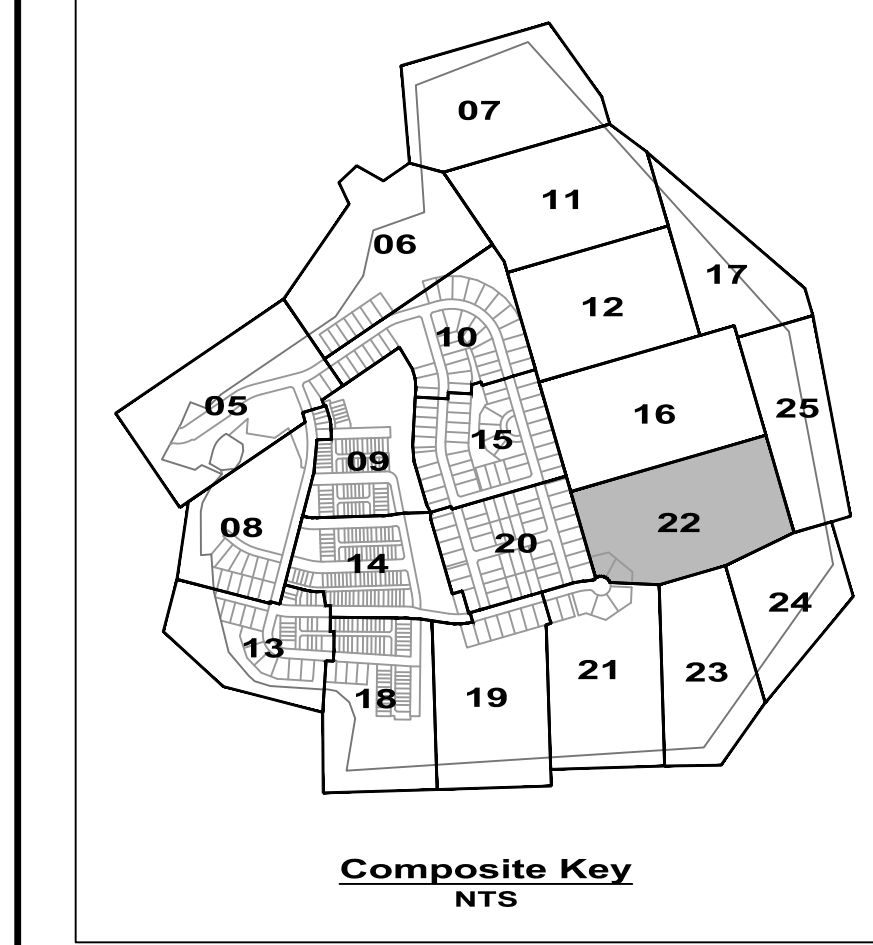
PROFESSIONAL CERTIFICATION
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SCALE:	1"=30'
JOB No.	1262A
DATE:	JAN 2019
SWM-23	
SHEET No.	23 of 32



MATCHLINE SEE SHEET 27 OF 32



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1/21/9

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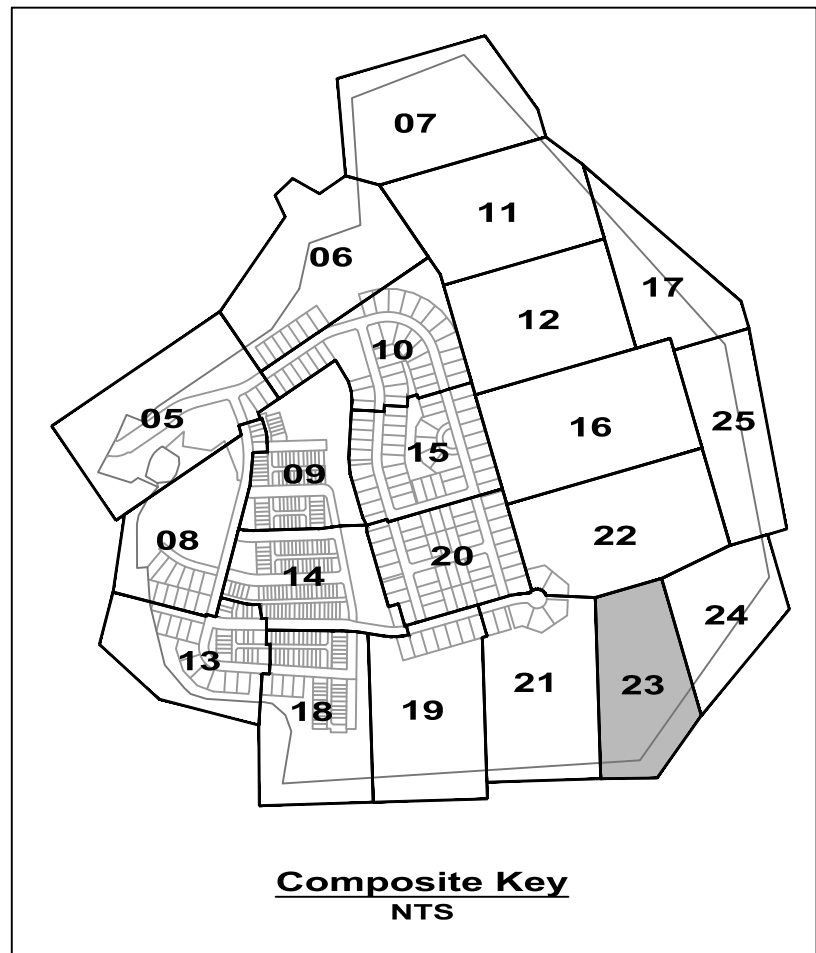
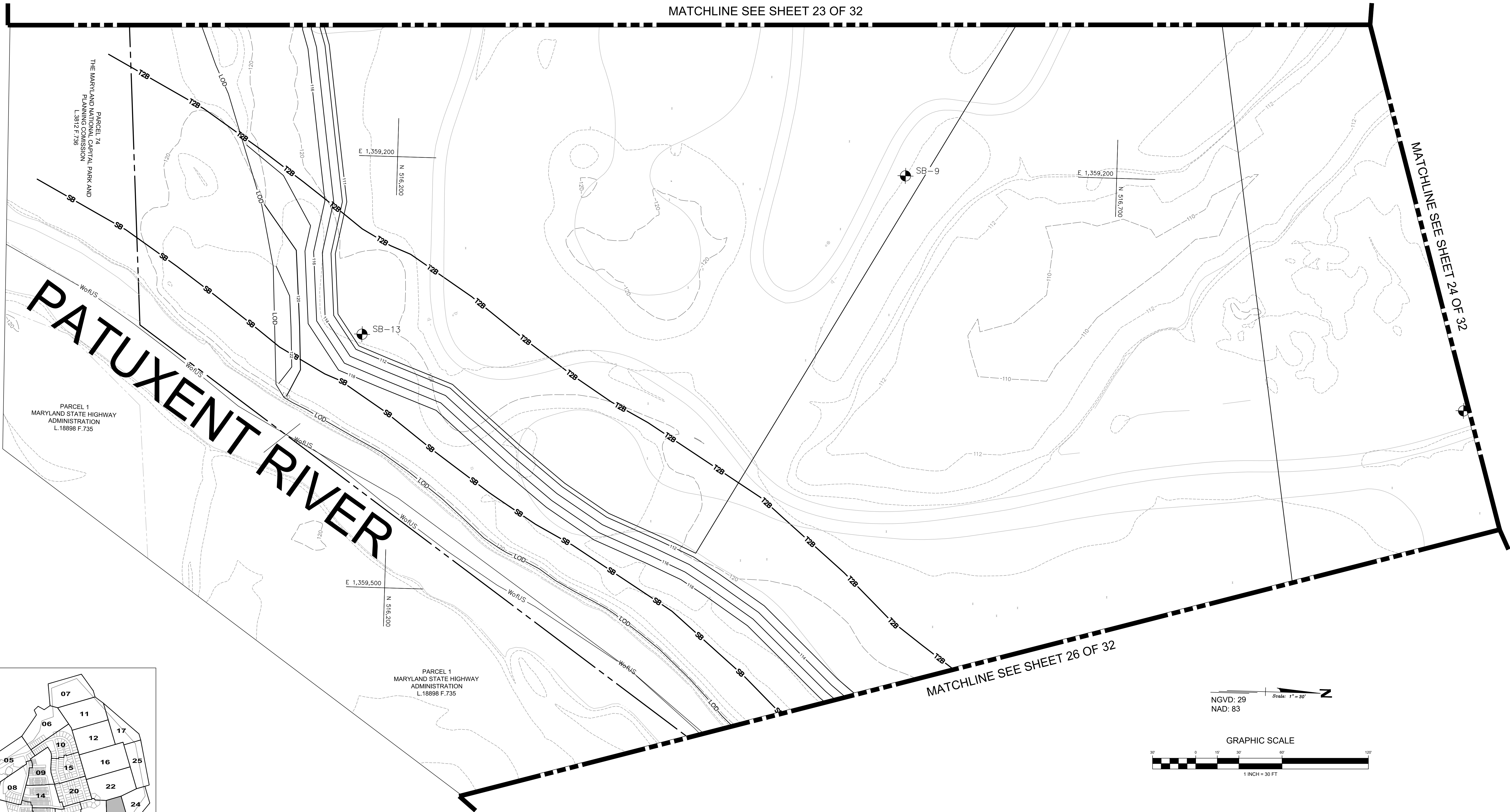
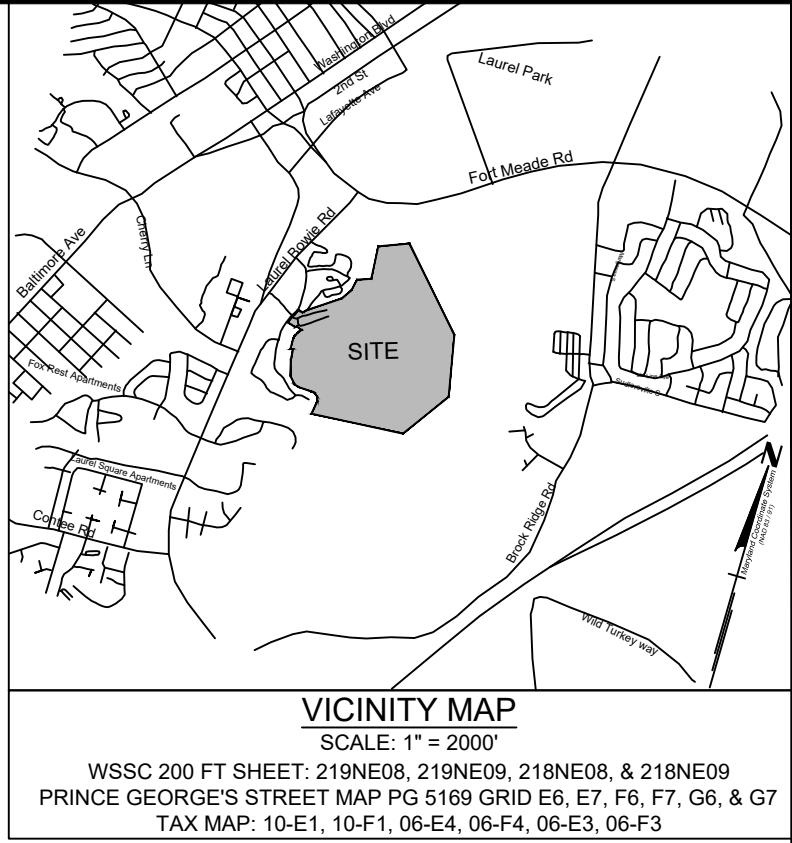
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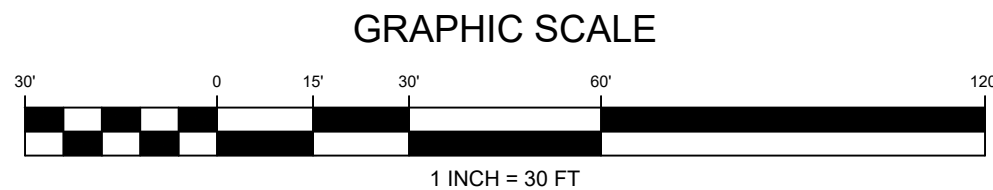
Stormwater Management Plan

Proposed Conditions

SCALE:	1"=30'
JOB No.	1262A
DATE:	JAN 2019
	SWM-24
SHEET No.	24 OF 32



NGVD: 29
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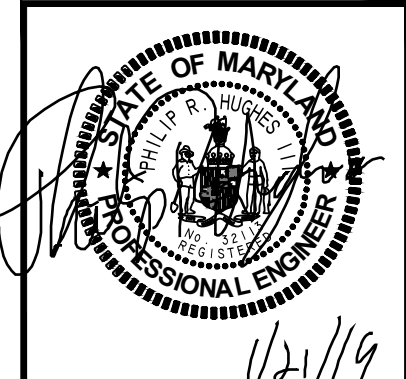
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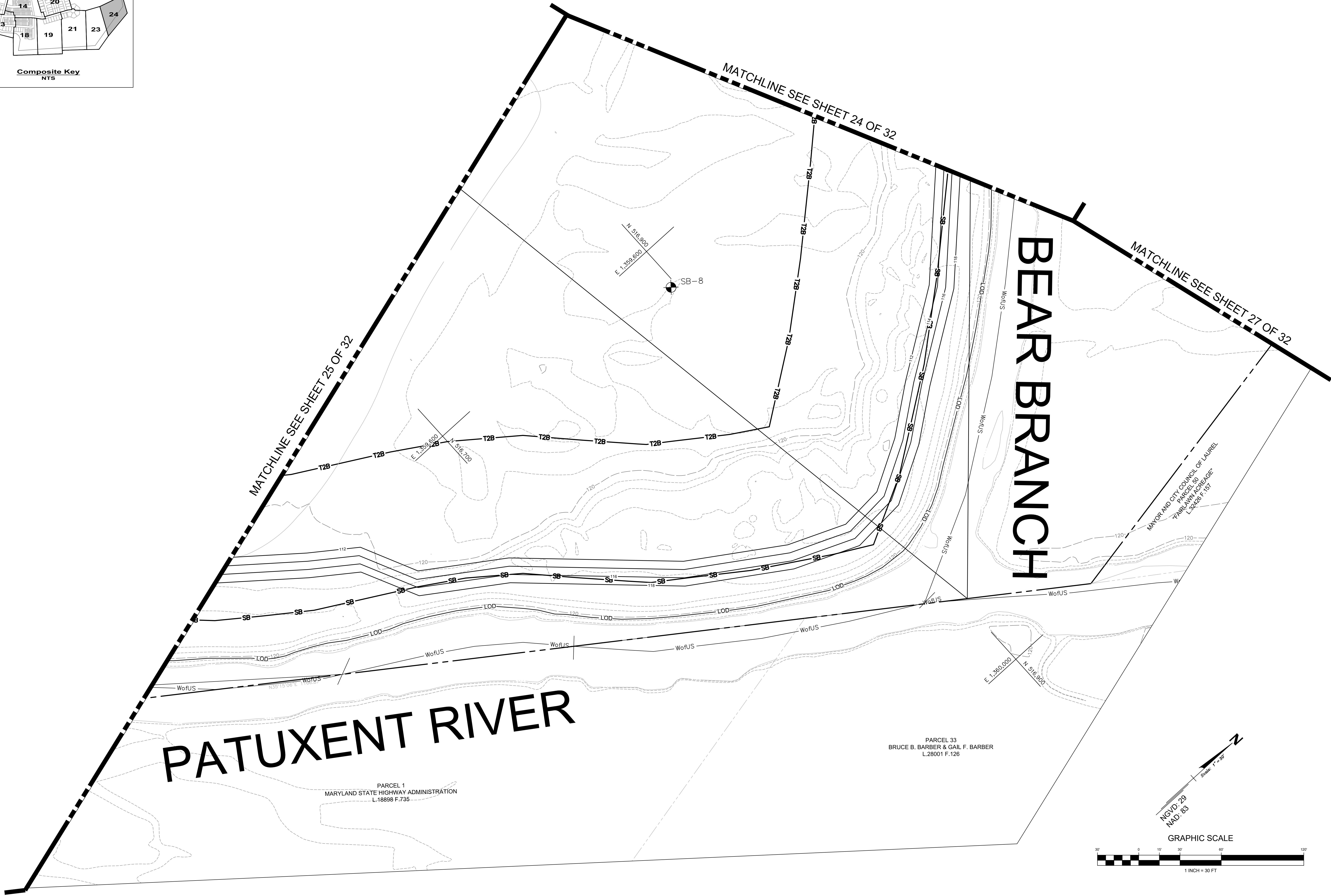
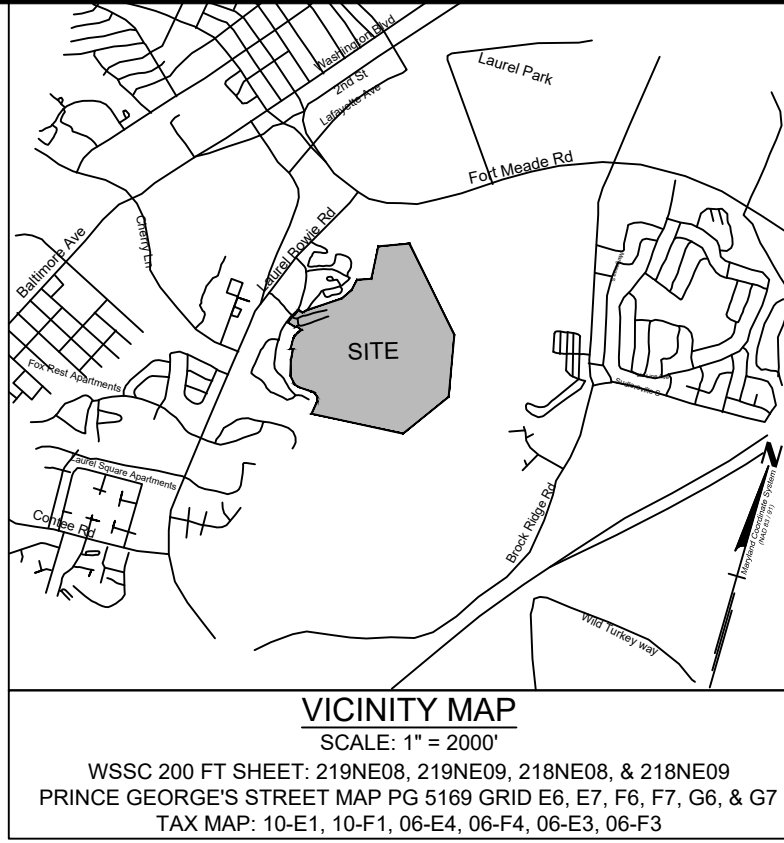
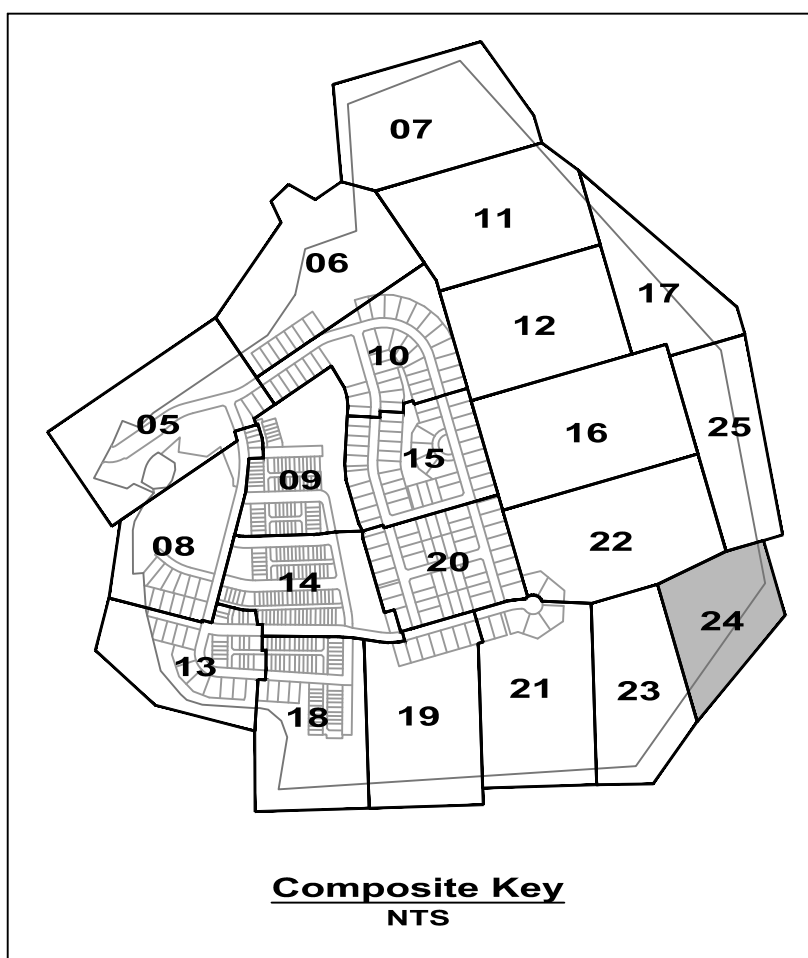
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Proposed Conditions**



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SWM-25	
SHEET No.	25 of 32



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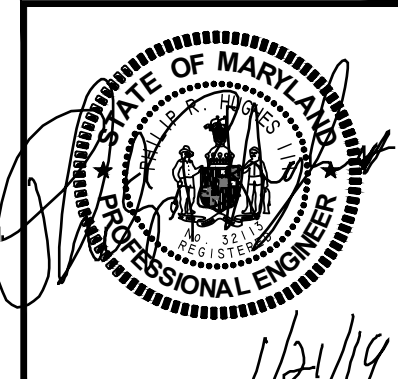
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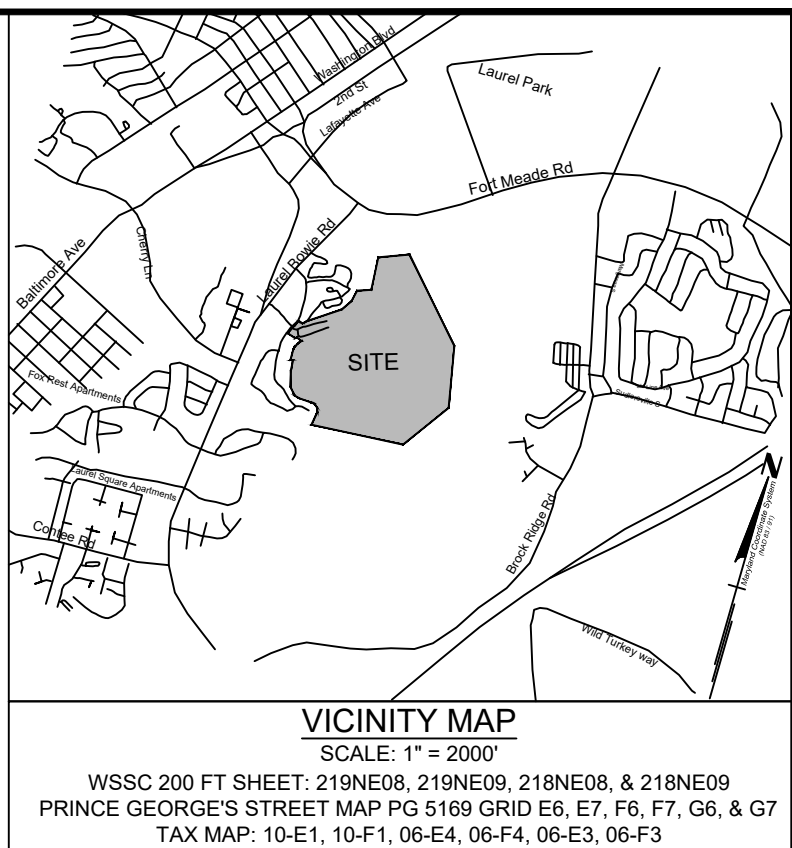
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SWM-26	
SHEET No.	26 of 32

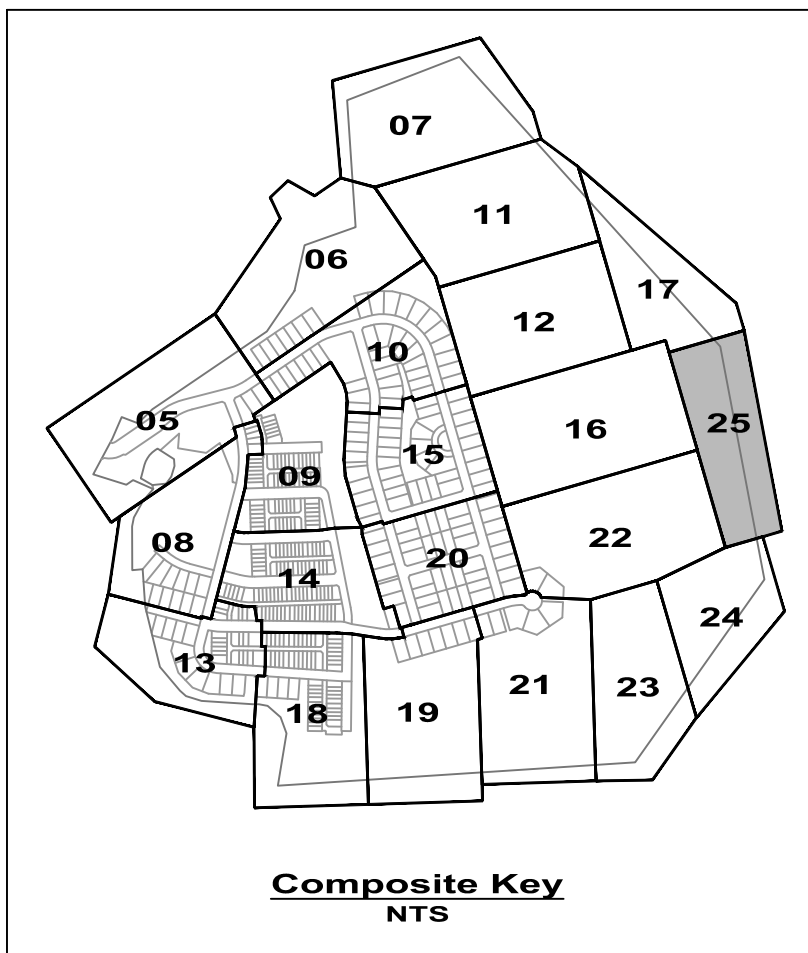
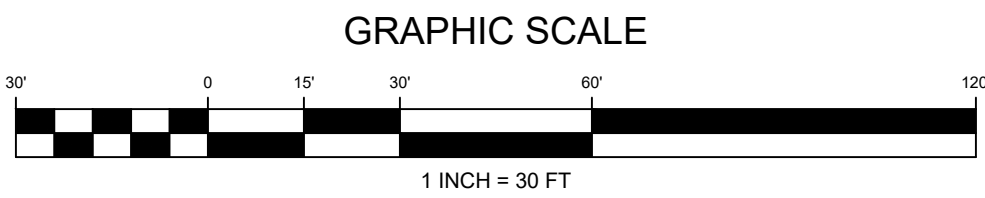
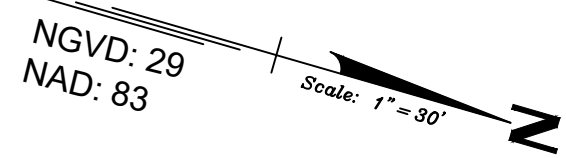
MATCHLINE SEE SHEET 26 OF 32

MATCHLINE SEE SHEET 24 OF 32

MATCHLINE SEE SHEET 18 OF 32



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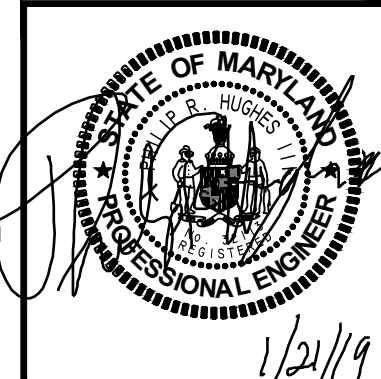
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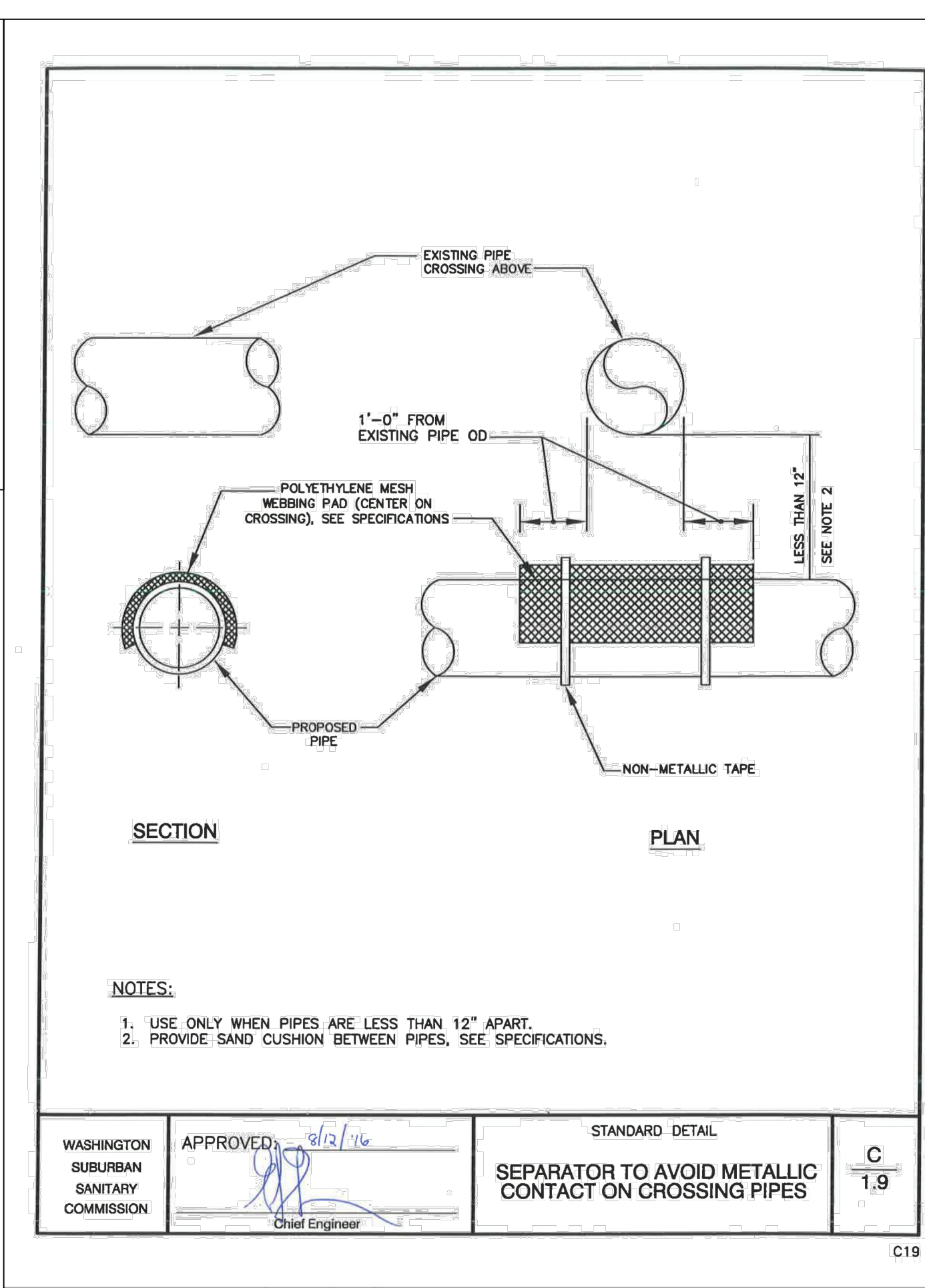
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SHEET No. 27 of 32

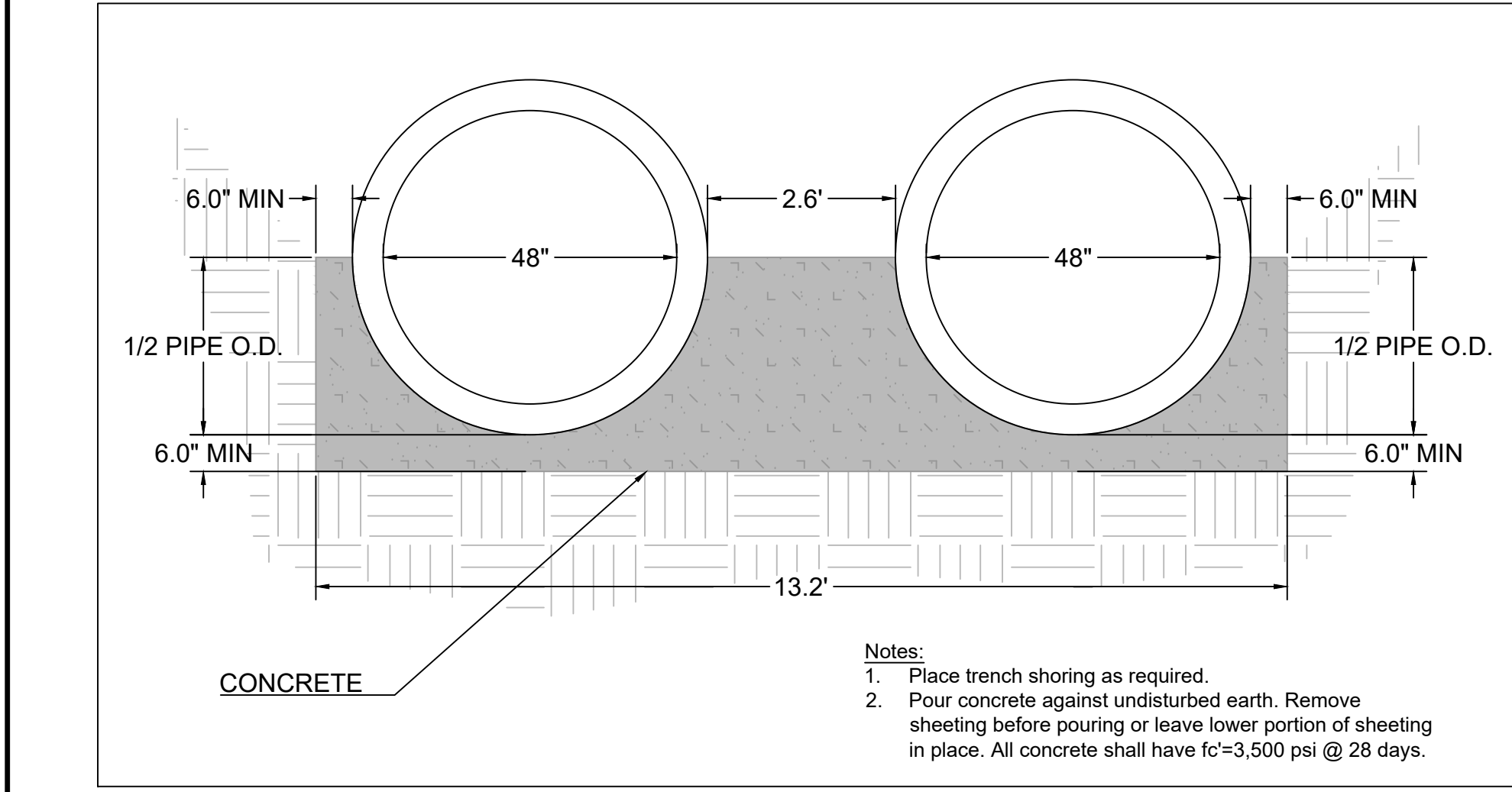
Table H.1: Geotextile Fabric									
PROPERTY	TEST METHOD	WOVEN		NONWOVEN		NONWOVEN		NONWOVEN	
		MD	CD	MD	CD	MD	CD	MD	CD
Unit Tensile Strength	ASTM D-4432	200 lb	200 lb	200 lb	200 lb	200 lb	200 lb	200 lb	200 lb
Unit Tensile Elongation	ASTM D-4432	10%	10%	10%	10%	10%	10%	10%	10%
Trapped Soil Strength	ASTM D-4511	75 lb	75 lb	100 lb	60 lb	80 lb	80 lb	80 lb	80 lb
Puncture Strength	ASTM D-4541	50 lb	50 lb	50 lb	50 lb	50 lb	50 lb	50 lb	50 lb
Apparent Opening Size	ASTM D-4751	U.S. Sieve No. 60 (0.25 mm)	U.S. Sieve No. 60 (0.25 mm)	U.S. Sieve No. 60 (0.25 mm)	U.S. Sieve No. 60 (0.25 mm)	U.S. Sieve No. 60 (0.25 mm)	U.S. Sieve No. 60 (0.25 mm)	U.S. Sieve No. 60 (0.25 mm)	U.S. Sieve No. 60 (0.25 mm)
Permeability	ASTM D-4491	0.05 sec	0.05 sec	0.05 sec	0.05 sec	0.05 sec	0.05 sec	0.05 sec	0.05 sec
Uniaxial Resistance	ASTM D-4535	70% strength	70% strength	70% strength	70% strength	70% strength	70% strength	70% strength	70% strength

Table H.2: Stone Size									
TYPE	SIZE RANGE	d ₁₀	d ₅₀	ASHTO	MIDSIZE				
NUMBER 37	3/8 to 1/2 inch	1/4 in.	1 1/4 in.	M-41	N/A				
NUMBER 1	2 to 3 inch	2 1/4 in.	3 in.	M-43	N/A				
NUMBER 10	4 to 7 inch	5 1/4 in.	7 in.	N/A	N/A				
CLASS I	N/A	9 1/4 in.	14 in.	N/A	40 lb				
CLASS II	N/A	16 in.	24 in.	N/A	200 lb				
CLASS III	N/A	24 in.	36 in.	N/A	600 lb				

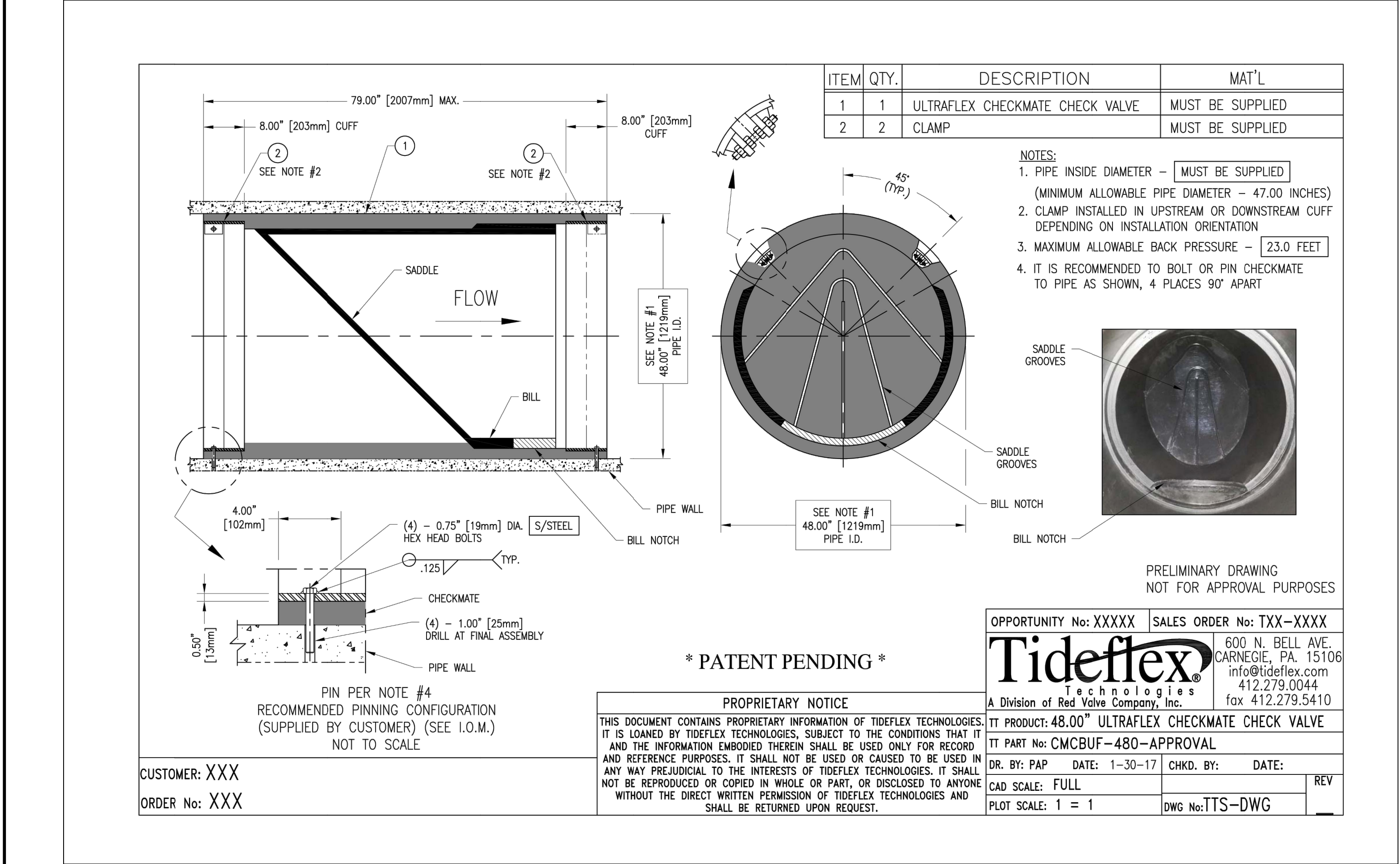


STANDARDS FOR GEOTEXTILE FABRICS

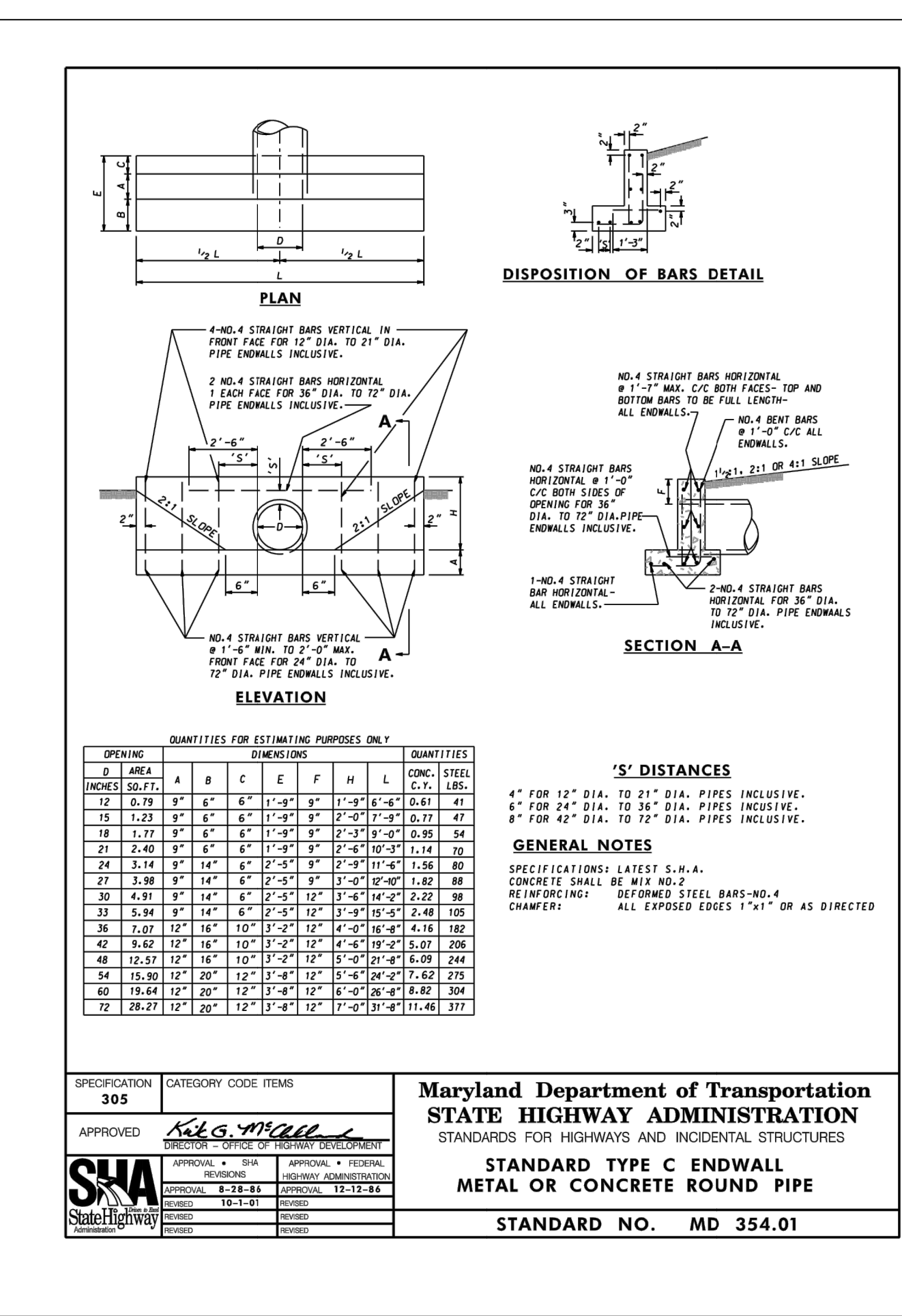
STONE SIZE SPECIFICATIONS



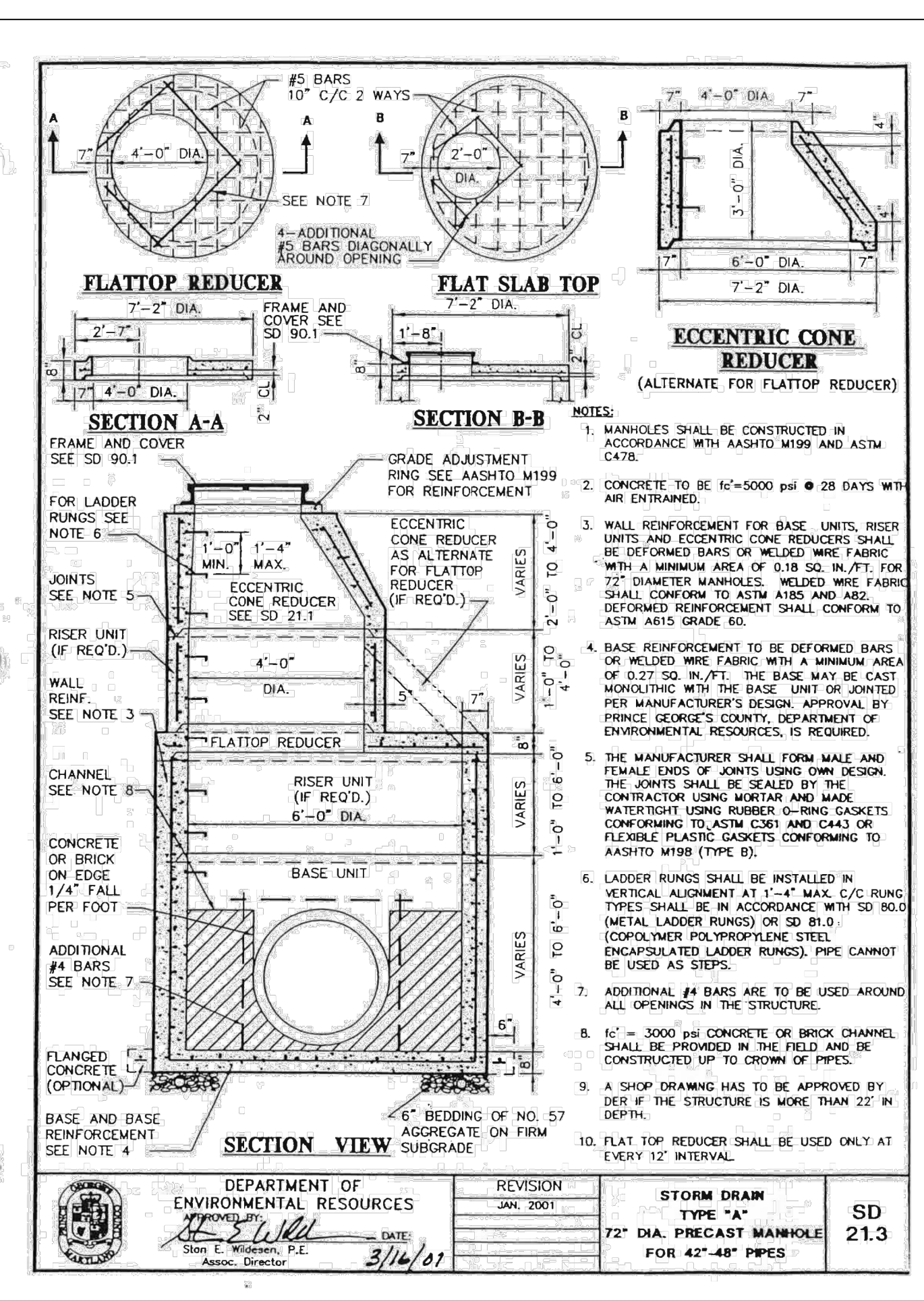
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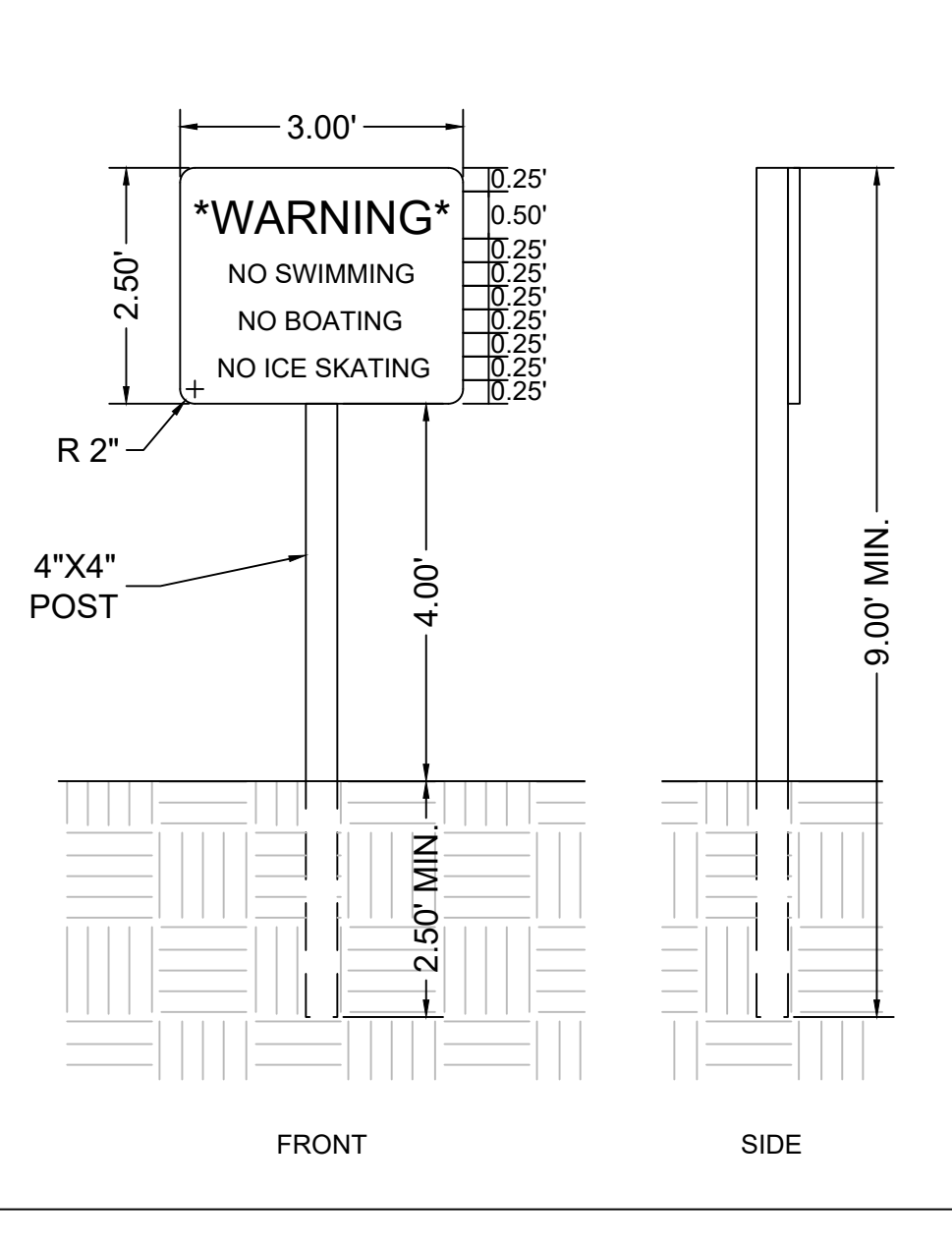
BACKFLOW PREVENTION VALVE



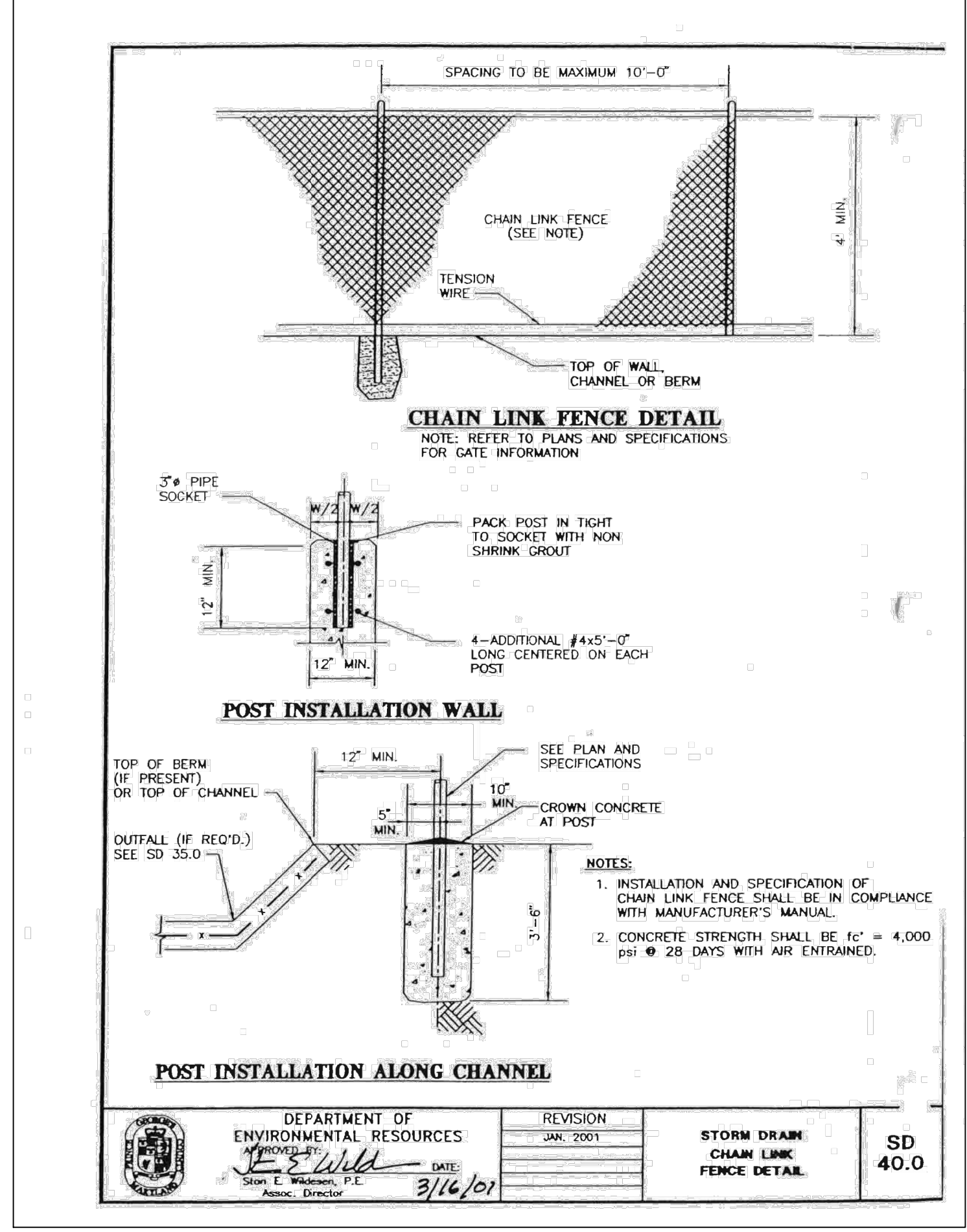
TYPE C ENDWALL



TYPE 'A' PRECAST MANHOLE



WARNING SIGN



FENCE

PIPE SCHEDULE - STORMWATER MANAGEMENT PLAN				
FROM	TO	SIZE (IN)	TYPE	LENGTH (FT)
905	903	48	C-361	59
903	901	48	C-361	176
901	900	48	C-361	522
905	904	48	C-361	62
904	902	48	C-361	179
902	900	48	C-361	525

PIPE SUMMARY SCHEDULE		
SIZE (IN)	TYPE	LENGTH (FT)
48	C-361	1523

STRUCTURE SCHEDULE - STORMWATER MANAGEMENT PLAN				
STR. NO.	TYPE	STD. NO.	TOP ELEVATION (FT)	INVERT OUT (FT)
900	TYPE C ENDWALL	MDSHA MD 354.01	117.00	112.00
901	TYPE 'A' 72" DIA MANHOLE	SD 21.3	125.03	114.54
902	TYPE 'A' 72" DIA MANHOLE	SD 21.3	123.36	114.52
903	TYPE 'A' 72" DIA MANHOLE	SD 21.3	123.86	115.00
904	TYPE 'A' 72" DIA MANHOLE	SD 21.3	124.07	115.00
905	TYPE C ENDWALL	MDSHA MD 354.01	120.20	115.20

CALL "MISS UTILITY" AT 1-800-257-7777 48 Hours Before Start Of Construction

THE EXCAVATOR MUST NOTIFY ALL PUBLIC UTILITY COMPANIES WITH UNDERGROUND FACILITIES IN THE AREA OF THE PROPOSED EXCAVATION AND HAVE THOSE FACILITIES LOCATED BY THE UTILITY COMPANIES PRIOR TO COMMENCING EXCAVATION. THE EXCAVATOR IS RESPONSIBLE FOR COMPLIANCE WITH ALL APPLICABLE REQUIREMENTS OF THE PRINCE GEORGES COUNTY CODE.

THIS PLAN IS FOR STORMWATER MANAGEMENT PURPOSES ONLY. THIS PLAN TO BE USED FOR STORMWATER MANAGEMENT PURPOSES ONLY. IT SHALL NOT BE USED OR CAUSED TO BE USED IN ANY WAY PREJUDICIAL TO THE INTERESTS OF TIDEFLEX TECHNOLOGIES. IT SHALL NOT BE REPRODUCED OR COPIED IN WHOLE OR PART, OR DISCLOSED TO ANYONE WITHOUT THE DIRECT WRITTEN PERMISSION OF TIDEFLEX TECHNOLOGIES AND SHALL BE RETURNED UPON REQUEST.

THIS PLAN IS FOR EXISTING STORMWATER MANAGEMENT POND RETROFIT PURPOSES ONLY. THIS PLAN TO BE USED FOR RETROFIT PURPOSES ONLY. IT SHALL NOT BE USED OR CAUSED TO BE USED IN ANY WAY PREJUDICIAL TO THE INTERESTS OF TIDEFLEX TECHNOLOGIES. IT SHALL NOT BE REPRODUCED OR COPIED IN WHOLE OR PART, OR DISCLOSED TO ANYONE WITHOUT THE DIRECT WRITTEN PERMISSION OF TIDEFLEX TECHNOLOGIES AND SHALL BE RETURNED UPON REQUEST.

REVISION	DATE	REVISION	DATE	REVISION	DATE

Applicant: **CS PATUXENT GREENS, LLC.**
6290 MONTROSE ROAD
ROCKVILLE, MD 20852
PHONE: 301-692-4000
CONTACT: ALAN COHEN

PATUXENT GREENS

PARCEL A, NLP 126 P.59
L.6008 F.266
ELECTION DISTRICT No. 10
CITY OF LAUREL, PRINCE GEORGE'S COUNTY, MARYLAND

RODGERS CONSULTING

1101 Mercantile Lane, Suite 280 Largo, Maryland 20774
Ph: 301.948.4700 Fx: 301.948.6256 www.rodgers.com

BASE DATA	BY	DATE
DESIGNED	CADD	FEB 2018
DRAWN	INDKM	NOV 2018
REVIEWED	PRH	NOV 2018
RODGERS CONTACT: Philip R. Hughes III		
RELEASE FOR		
BY: DATE:		

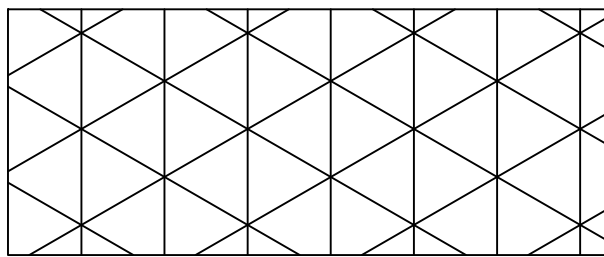
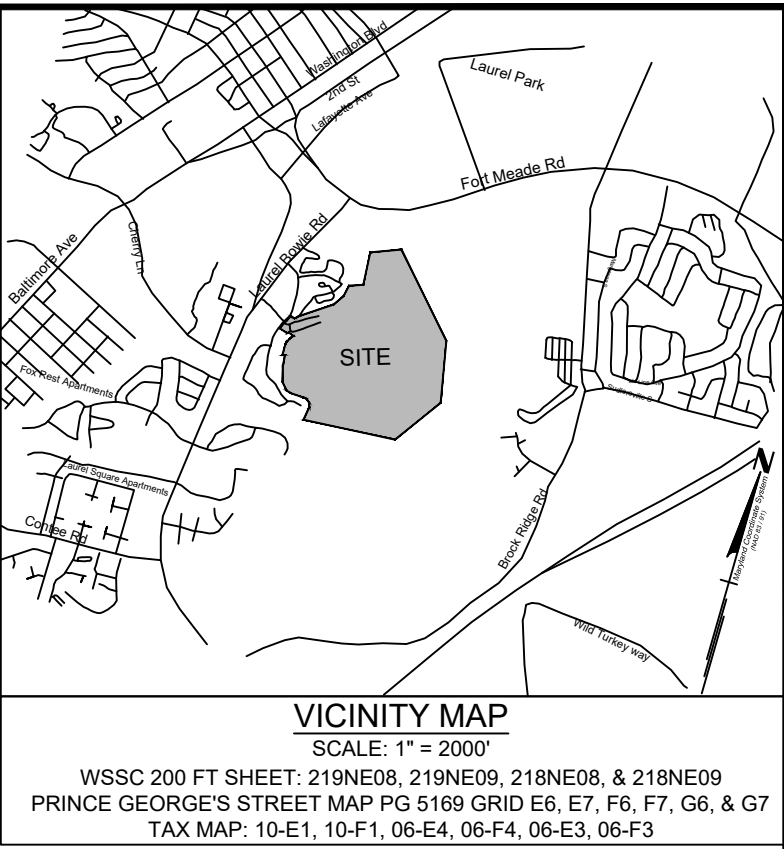
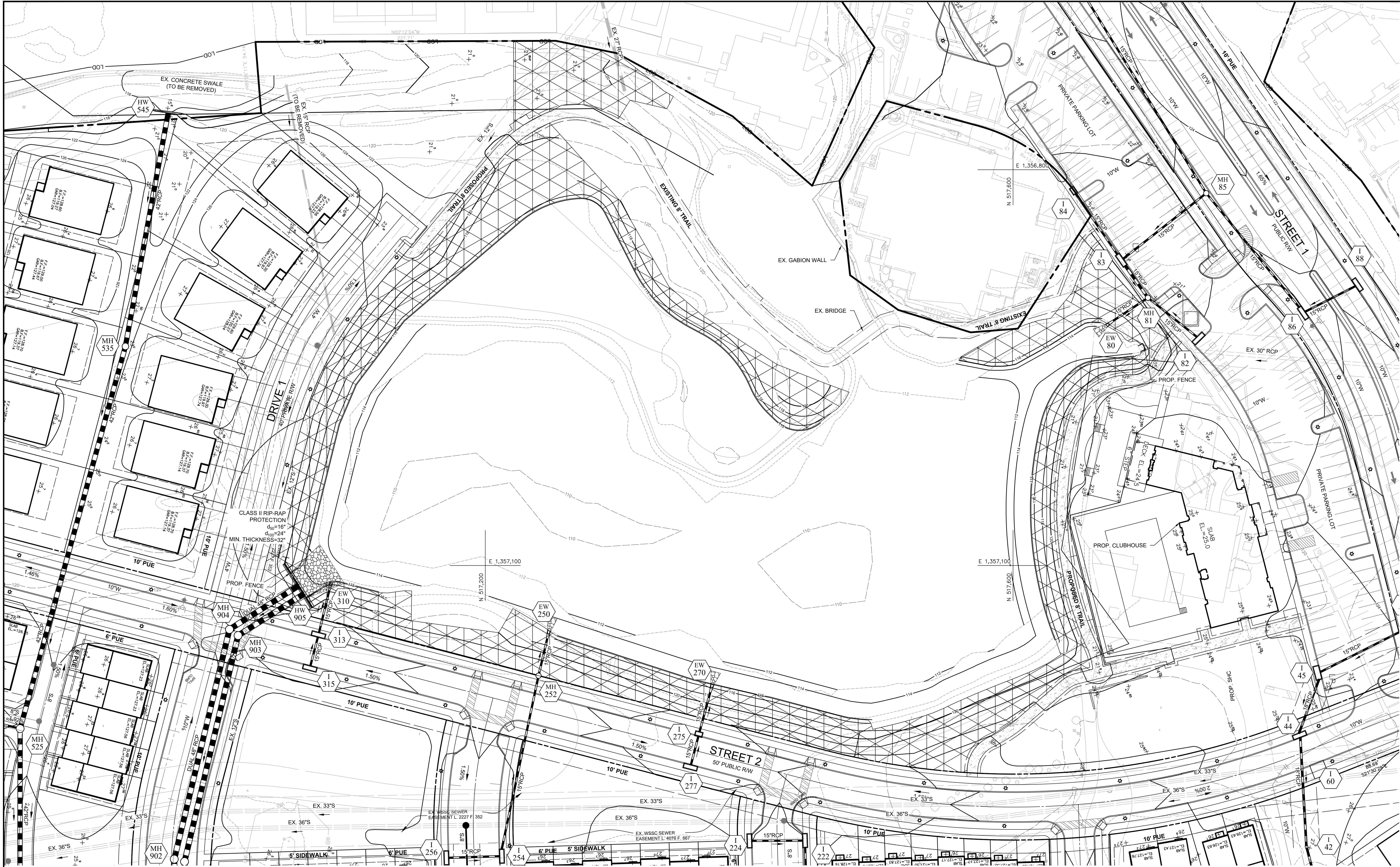
Stormwater Management Plan

SWM Details

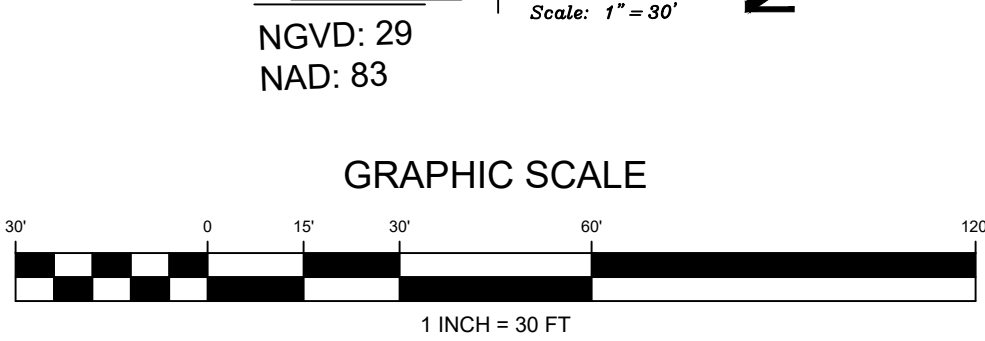


PROFESSIONAL CERTIFICATION
"I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 21113, Expiration Date 9/15/19."

SCALE	NTS
JOB NO.	1262A
DATE:	JAN 2019
SWM-28	
SHEET No.	28 of 32



PERMANENT SEED MIXTURE STABILIZATION PLANTING
SEE LANDSCAPE DETAILS SHEETS 30 & 31



CALL "MISS UTILITY" AT
1-800-257-7777
48 Hours Before Start Of Construction

THE EXCAVATOR MUST NOTIFY ALL PUBLIC UTILITY COMPANIES WITH UNDERGROUND FACILITIES IN THE AREA OF THE PROPOSED EXCAVATION AND HAVE THOSE FACILITIES LOCATED BY THE UTILITY COMPANIES PRIOR TO COMMENCING EXCAVATION. THE EXCAVATOR IS RESPONSIBLE FOR COMPLIANCE WITH ALL APPLICABLE REQUIREMENTS OF THE PRINCE GEORGE'S COUNTY CODE.

THIS PLAN IS FOR STORMWATER MANAGEMENT PURPOSES ONLY
THIS PLAN TO BE USED FOR STORMWATER MANAGEMENT ONLY. ALL OTHER INFORMATION SHOWN FOR REFERENCE PURPOSES ONLY. SEE APPROPRIATE CONSTRUCTION DRAWING FOR ALL OTHER INFORMATION.

THIS PLAN IS FOR EXISTING STORMWATER MANAGEMENT POND RETROFIT PURPOSES ONLY
THIS PLAN TO BE USED FOR RETROFIT OF THE EXISTING STORMWATER MANAGEMENT POND ONLY. ALL OTHER INFORMATION, INCLUDING OTHER STORMWATER MANAGEMENT FACILITIES, ARE SHOWN FOR REFERENCE PURPOSES ONLY AND ARE NOT COVERED UNDER THIS PERMIT. SEE APPROPRIATE CONSTRUCTION DRAWING FOR ALL OTHER INFORMATION.

Applicant:

CS PATUXENT GREENS, LLC.
6290 MONTROSE ROAD
ROCKVILLE, MD 20852
PHONE: 301-692-4000
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PARCEL A, NLP 126 P.59
L.6008 F.266
ELECTION DISTRICT No. 10
CITY OF LAUREL, PRINCE GEORGE'S COUNTY, MARYLAND

RODGERS CONSULTING

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BY	DATE
BASE DATA	CADD FEB 2018
DESIGNED	IND/MK NOV 2018
DRAWN	IND/MK NOV 2018
REVIEWED	PRH NOV 2018
RODGERS CONTACT: Philip R. Hughes III	
RELEASE FOR	
BY: _____	DATE: _____

Stormwater Management Plan Landscape Plan

SCALE:	1"=30'
JOB No.	1262A
DATE:	JAN 2019
SWM-29	
SHEET No.	29 of 32

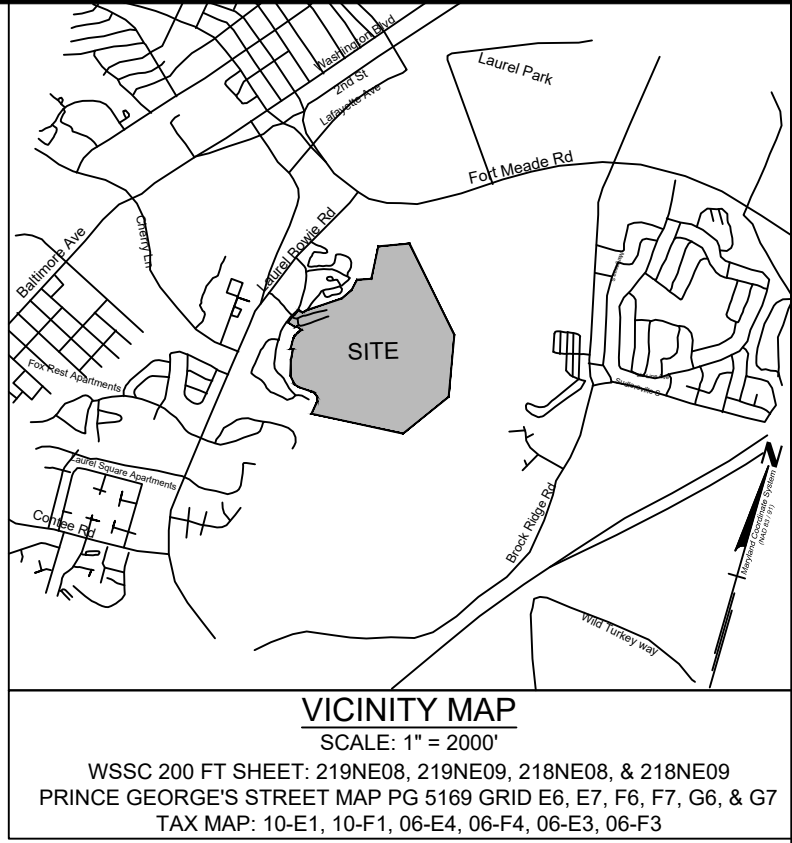
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PROFESSIONAL CERTIFICATION

"I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 22113, Expiration Date 9/10/19."

PRELIMINARY NOT FOR CONSTRUCTION



**B-3 STANDARDS AND SPECIFICATIONS
FOR
LAND GRADING**

- Definition**
Reshaping the existing land surface to provide suitable topography for building facilities and other site improvements.
- Purpose**
To provide erosion control and vegetative establishment for extreme changes in grade.
- Conditions Where Practice Applies**
Earth disturbances or extreme grade modifications on steep or long slopes.
- Design Criteria**

The grading plan should be based on the incorporation of building designs and street layouts that fit and utilize existing topography and desirable natural surroundings to avoid extreme grade modifications. Information submitted must provide sufficient topographic surveys and soil investigations to determine limitations that must be imposed on the grading operation related to slope stability, adjacent properties, drainage patterns, measures for water removal, and vegetative treatment, etc.

Many jurisdictions have regulations and design procedures already established for land grading that must be followed. The plan must show existing and proposed contours for the area(s) to be graded including practices for erosion control, slope stabilization, and safe conveyance of runoff (e.g., waterways, lined channels, reverse benches, grade stabilization structures). The grading/construction plans are to include the phasing of these practices and consideration of the following:

- Provisions to safely convey surface runoff to storm drains, protected outlets or stable water courses to ensure that surface runoff will not damage slopes or other graded areas.
- Cut and fill slopes, stabilized with grasses, no steeper than 2:1. (Where the slope is to be mowed, the slope should be no steeper than 3:1, but 4:1 is preferred because of safety factors related to mowing steep slopes.) Slopes steeper than 2:1 require special design and stabilization considerations to be shown on the plans.
- Benching per Detail B-3-1 whenever the vertical interval (height) of any 2:1 slope exceeds 20 feet; for 3:1 slopes, when it exceeds 30 feet; and for 4:1 slopes, when it exceeds 40 feet. Locate benches to divide the slope face as equally as possible and to convey the water to a stable outlet. Soils, seeps, rock outcrops, etc. are to be taken into consideration when designing benches.
 - Provide benches with a minimum width of six feet for ease of maintenance.
 - Design benches with a reverse slope of 6:1 or flatter to the toe of the upper slope and with a minimum of one foot in depth. Grade the longitudinal slope of the bench between 2 percent and 3 percent, unless accompanied by appropriate design and computations.
 - The maximum allowable flow length within a bench is 800 feet unless accompanied by appropriate design and computations.
- Division of surface water from the face of all cut and fill slopes using earth dikes or swales. Convey surface water down slope using a designed structure, and:
 - Protect the face of all graded slopes from surface runoff until they are stabilized.
 - Do not subject the slope's face to any concentrated flow of surface water such as from natural drainage ways, graded swales, downslopes, etc.
 - Protect the face of the slope by special erosion control materials to include, but not be limited to, approved vegetative stabilization practices, riprap or other approved stabilization methods.
- Serrated slope as shown in Detail B-3-2. The steepest allowable slope for ripable rock is 1.5:1. For non rock surfaces, the slopes are to be 2:1 or flatter. These steps will weather and act to hold moisture, lime, fertilizer and seed thus producing a much quicker and longer lived vegetative cover and better slope stabilization.
- Subsurface drainage provisions. Provide subsurface drainage where necessary to intercept seepage that would otherwise adversely affect slope stability or create excessively wet site conditions.
- Proximity to adjacent property. Slopes must not be created close to property lines without adequate protection against sedimentation, erosion, slippage, settlement, subsidence, or other related damages.
- Quality of fill material. Fill material must be free of brush, rubbish, logs, stumps, building debris, and other objectionable material. Do not place frozen materials in the fill nor place the fill material on a frozen foundation.
- Stabilization. Stabilize all disturbed areas structurally or vegetatively in compliance with Section B-4 Standards and Specifications for Stabilization Practices.

**B-4 STANDARDS AND SPECIFICATIONS
FOR
VEGETATIVE STABILIZATION**

- Definition**
Using vegetation as cover to protect exposed soil from erosion.
- Purpose**
To promote the establishment of vegetation on exposed soil.
- Conditions Where Practice Applies**
On all disturbed areas not stabilized by other methods. This specification is divided into sections on incremental stabilization; soil preparation, soil amendments and topsoiling; seeding and mulching; temporary stabilization; and permanent stabilization.
- Effects on Water Quality and Quantity**
Stabilization practices are used to promote the establishment of vegetation on exposed soil. When soil is stabilized with vegetation, the soil is less likely to erode and more likely to allow infiltration of rainfall, thereby reducing sediment loads and runoff to downstream areas.

Planting vegetation in disturbed areas will have an effect on the water budget, especially on volumes and rates of runoff, infiltration, evaporation, transpiration, percolation, and groundwater recharge. Over time, vegetation will increase organic matter content and improve the water holding capacity of the soil and subsequent plant growth.

Vegetation will help reduce the movement of sediment, nutrients, and other chemicals carried by runoff to receiving waters. Plants will also help protect groundwater supplies by assimilating those substances present within the root zone.

Sediment control practices must remain in place during grading, seedbed preparation, seeding, mulching, and vegetative establishment.

Adequate Vegetative Establishment

- Inspect seeded areas for vegetative establishment and make necessary repairs, replacements, and reseedings within the planting season.
- Adequate vegetative stabilization requires 95 percent groundcover.
 - If an area has less than 40 percent groundcover, restabilize following the original recommendations for lime, fertilizer, seedbed preparation, and seeding.
 - If an area has between 40 and 94 percent groundcover, over-seed and fertilize using half of the rates originally specified.
 - Maintenance fertilizer rates for permanent seeding are shown in Table B.6.

**B-4-2 STANDARDS AND SPECIFICATIONS
FOR
SOIL PREPARATION, TOPSOILING, AND SOIL AMENDMENTS**

- Definition**
The process of preparing the soils to sustain adequate vegetative stabilization.
- Purpose**
To provide a suitable soil medium for vegetative growth.
- Conditions Where Practice Applies**
Where vegetative stabilization is to be established.
- Criteria**

- Soil Preparation
 - Temporary Stabilization
 - Seedbed preparation consists of loosening soil to a depth of 3 to 5 inches by means of suitable agricultural or construction equipment, such as disc harrows or chisel plows or rippers mounted on construction equipment. After the soil is loosened, it must not be rolled or dragged smooth but left in the roughened condition. Slopes 3:1 or flatter are to be tracked with ridges running parallel to the contour of the slope.
 - Apply fertilizer and lime as prescribed on the plans.
 - Incorporate lime and fertilizer into the top 3 to 5 inches of soil by disking or other suitable means.
 - Permanent Stabilization
 - A soil test is required for any earth disturbance of 5 acres or more. The minimum soil conditions required for permanent vegetative establishment are:
 - Soil pH between 6.0 and 7.0.
 - Soluble salts less than 500 parts per million (ppm).
 - Soil contains less than 40 percent clay but enough fine grained material (greater than 30 percent silt plus clay) to provide the capacity to hold a moderate amount of moisture. An exception: if lovegrass will be planted, then a sandy soil (less than 30 percent silt plus clay) would be acceptable.
 - Soil contains 1.5 percent minimum organic matter by weight.
 - Soil contains sufficient pore space to permit adequate root penetration.
 - Application of amendments or topsoil is required if on-site soils do not meet the above conditions.
 - Graded areas must be maintained in a true and even grade as specified on the approved plan, then scarified or otherwise loosened to a depth of 3 to 5 inches.
 - Apply soil amendments as specified on the approved plan or as indicated by the results of a soil test.
 - Mix soil amendments into the top 3 to 5 inches of soil by disking or other suitable means. Rake lawn areas to smooth the surface, remove large objects like stones and branches, and ready the area for seed application. Loosen surface soil by dragging with a heavy chain or other equipment to roughen the surface where site conditions will not permit normal seedbed preparation. Track slopes 3:1 or flatter with tracked equipment leaving the soil in an irregular condition with ridges running parallel to the contour of the slope. Leave the top 1 to 3 inches of soil loose and friable. Seedbed loosening may be unnecessary on newly disturbed areas.

- Topsoiling
 - Topsoil is placed over prepared subsoil prior to establishment of permanent vegetation. The purpose is to provide a suitable soil medium for vegetative growth. Soils of concern have low moisture content, low nutrient levels, low pH, materials toxic to plants, and/or unacceptable soil gradation.
 - Topsoil salvaged from an existing site may be used provided it meets the standards as set forth in these specifications. Typically, the depth of topsoil to be salvaged for a given soil type can be found in the representative soil profile section in the Soil Survey published by USDA-NRCS.
 - Topsoiling is limited to areas having 2:1 or flatter slopes where:
 - The texture of the exposed subsoil/parent material is not adequate to produce vegetative growth.
 - The soil material is so shallow that the rooting zone is not deep enough to support plants or furnish continuing supplies of moisture and plant nutrients.
 - The original soil to be vegetated contains material toxic to plant growth.
 - The soil is so acidic that treatment with limestone is not feasible.
 - Areas having slopes steeper than 2:1 require special consideration and design.
 - Topsoil Specifications: Soil to be used as topsoil must meet the following criteria:
 - Topsoil must be a loam, sandy loam, clay loam, silt loam, sandy clay loam, or loamy sand. Other soils may be used if recommended by an agronomist or soil scientist and approved by the appropriate approval authority. Topsoil must not be a mixture of contrasting textured subsoils and must contain less than 5 percent by volume of cinders, stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 1½ inches in diameter.
 - Topsoil must be free of noxious plants or plant parts such as Bermuda grass, quack grass, Johnson grass, nut sedge, poison ivy, thistle, or others as specified.
 - Topsoil substitutes or amendments, as recommended by a qualified agronomist or soil scientist and approved by the appropriate approval authority, may be used in lieu of natural topsoil.
 - Topsoil Application
 - Erosion and sediment control practices must be maintained when applying topsoil.
 - Uniformly distribute topsoil in a 5 to 8 inch layer and lightly compact to a minimum thickness of 4 inches. Spreading is to be performed in such a manner that sodding or seeding can proceed with a minimum of additional soil preparation and tillage. Any irregularities in the surface resulting from topsoiling or other operations must be corrected in order to prevent the formation of depressions or water pockets.
 - Topsoil must not be placed if the topsoil or subsoil is in a frozen or muddy condition, when the subsoil is excessively wet or in a condition that may otherwise be detrimental to proper grading and seedbed preparation.

- Soil Amendments (Fertilizer and Lime Specifications)
 - Soil tests must be performed to determine the exact ratios and application rates for both lime and fertilizer on sites having disturbed areas of 5 acres or more. Soil analysis may be performed by a recognized private or commercial laboratory. Soil samples taken for engineering purposes may also be used for chemical analyses.
 - Fertilizers must be uniform in composition, free flowing and suitable for accurate application by appropriate equipment. Manure may be substituted for fertilizer with prior approval from the appropriate approval authority. Fertilizers must all be delivered to the site fully labeled according to the applicable laws and must bear the name, trade name or trademark and warranty of the producer.
 - Lime materials must be ground limestone (hydrated or burnt lime may be substituted except when hydroseeding) which contains at least 50 percent total oxides (calcium oxide plus magnesium oxide). Limestone must be ground to such fineness that at least 50 percent will pass through a #100 mesh sieve and 98 to 100 percent will pass through a #20 mesh sieve.
 - Lime and fertilizer are to be evenly distributed and incorporated into the top 3 to 5 inches of soil by disking or other suitable means.
 - Where the subsoil is either highly acidic or composed of heavy clays, spread ground limestone at the rate of 4 to 8 tons/acre (200-400 pounds per 1,000 square feet) prior to the placement of topsoil.

**B-4-3 STANDARDS AND SPECIFICATIONS
FOR
SEEDING AND MULCHING**

- Definition**
The application of seed and mulch to establish vegetative cover.
- Purpose**
To protect disturbed soils from erosion during and at the end of construction.
- Conditions Where Practice Applies**
To the surface of all perimeter controls, slopes, and any disturbed area not under active grading.
- Seeding Criteria**

- Specifications
 - All seed must meet the requirements of the Maryland State Seed Law. All seed must be subject to re-testing by a recognized seed laboratory. All seed used must have been tested within the 6 months immediately preceding the date of sowing such material on any project. Refer to Table B.4 regarding the quality of seed. Seed tags must be available upon request to the inspector to verify type of seed and seeding rate.
 - Mulch alone may be applied between the fall and spring seeding dates only if the ground is frozen. The appropriate seeding mixture must be applied when the ground thaws.
 - Inoculants: The inoculant for treating legume seed in the seed mixtures must be a pure culture of nitrogen fixing bacteria prepared specifically for the species. Inoculants must not be used later than the date indicated on the container. Add fresh inoculants as directed on the package. Use four times the recommended rate when hydroseeding. Note: It is very important to keep inoculant as cool as possible until used. Temperatures above 75 to 80 degrees Fahrenheit can weaken bacteria and make the inoculant less effective.
 - Sod or seed must not be placed on soil which has been treated with soil sterilants or chemicals used for weed control until sufficient time has elapsed (14 days min.) to permit dissipation of phlyto-toxic materials.
- Application
 - Dry Seeding: This includes use of conventional drop or broadcast spreaders.
 - Incorporate seed into the subsoil at the rates prescribed on Temporary Seeding Table B.1, Permanent Seeding Table B.3, or site-specific seeding summaries.
 - Apply seed in two directions, perpendicular to each other. Apply half the seeding rate in each direction. Roll the seeded area with a weighted roller to provide good seed to soil contact.
 - Drill or Cultipacker Seeding: Mechanized seeders that apply and cover seed with soil.
 - Cultipacker seeders are required to bury the seed in such a fashion as to provide at least 1/4 inch of soil covering. Seedbed must be firm after planting.
 - Apply seed in two directions, perpendicular to each other. Apply half the seeding rate in each direction.
 - Hydroseeding: Apply seed uniformly with hydroseeder (slurry includes seed and fertilizer).
 - If fertilizer is being applied at the time of seeding, the application rates should not exceed the following: nitrogen, 100 pounds per acre total of soluble nitrogen; P2O5 (phosphorus), 200 pounds per acre; K2O (potassium), 200 pounds per acre.
 - Lime: Use only ground agricultural limestone (up to 3 tons per acre may be applied by hydroseeding). Normally, not more than 2 tons are applied by hydroseeding at any one time. Do not use burnt or hydrated lime when hydroseeding.
 - Mix seed and fertilizer on site and seed immediately and without interruption.
- When hydroseeding do not incorporate seed into the soil.

Mulching Criteria

- Mulch Materials (in order of preference)
 - Straw consisting of thoroughly threshed wheat, rye, oat, or barley and reasonably bright in color. Straw is to be free of noxious weed seeds as specified in the Maryland Seed Law and not musty, moldy, caked, decayed, or excessively dusty. Note: Use only sterile straw mulch in areas where one species of grass is desired.
 - Wood Cellulose Fiber Mulch (WCFM) consisting of specially prepared wood cellulose processed into a uniform fibrous physical state.
 - WCFM is to be dyed green or contain a green dye in the package that will provide an appropriate color to facilitate visual inspection of the uniformly spread slurry.
 - WCFM, including dye, must contain no germination or growth inhibiting factors.
 - WCFM materials are to be manufactured and processed in such a manner that the wood cellulose fiber mulch will remain in uniform suspension in water under agitation and will blend with seed, fertilizer and other additives to form a homogeneous slurry. The mulch material must form a blotter-like ground cover, on application, having moisture absorption and percolation properties and must cover and hold grass seed in contact with the soil without inhibiting the growth of the grass seedlings.
 - WCFM material must not contain elements or compounds at concentration levels that will be phyto-toxic.
 - WCFM must conform to the following physical requirements: fiber length of approximately 10 millimeters, diameter approximately 1 millimeter str, pH range of 4.0 to 8.5, ash content of 1.0 percent maximum and water holding capacity of 90 percent minimum.
- Application
 - Apply mulch to all seeded areas immediately after seeding.
 - When straw mulch is used, spread it over all seeded areas at the rate of 2 tons per acre to a uniform loose depth of 1 to 2 inches. Apply mulch to achieve a uniform distribution and depth so that the soil surface is not exposed. When using a mulch anchoring tool, increase the application rate to 2.5 tons per acre.
 - Wood cellulose fiber used as mulch must be applied at a net dry weight of 1500 pounds per acre. Mix the wood cellulose fiber with water to attain a mixture with a maximum of 50 pounds of wood cellulose fiber per 100 gallons of water.
- Anchoring
 - Perform mulch anchoring immediately following application of mulch to minimize loss by wind or water. This may be done by one of the following methods (listed by preference), depending upon the size of the area and erosion hazard.
 - A mulch anchoring tool is a tractor drawn implement designed to punch and anchor mulch into the soil surface a minimum of 2 inches. This practice is most effective on large areas, but is limited to flatter slopes where equipment can operate safely. If used on sloping land, this practice should follow the contour.
 - Wood cellulose fiber may be used for anchoring straw. Apply the fiber binder at a net dry weight of 750 pounds per acre. Mix the wood cellulose fiber with water at a maximum of 50 pounds of wood cellulose fiber per 100 gallons of water.
 - Synthetic binders such as Acrylic DLR (Agro-Tack), DCA-70, Petroseal, Terra Tax II, Terra Tack AR or other approved equal may be used. Follow application rates as specified by the manufacturer. Application of liquid binders needs to be heavier at the edges where wind catches mulch, such as in valleys and on crests of banks. Use of asphalt binders is strictly prohibited.
 - Lightweight plastic netting may be stapled over the mulch according to manufacturer recommendations. Netting is usually available in rolls

**B-4-5 STANDARDS AND SPECIFICATIONS
FOR
PERMANENT STABILIZATION**

- Definition**
To stabilize disturbed soils with permanent vegetation.
- Purpose**
To use long-lived perennial grasses and legumes to establish permanent ground cover on disturbed soils.
- Conditions Where Practice Applies**
Exposed soils where ground cover is needed for 6 months or more.
- Criteria**

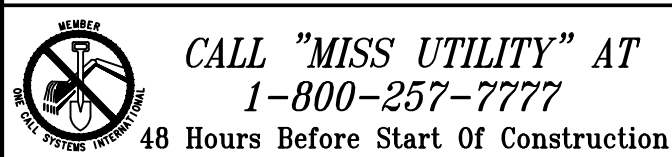
- Seed Mixtures
 - General Use
 - Select one or more of the species or mixtures listed in Table B.3 for the appropriate Plant Hardiness Zone (from Figure B.3) and based on the site condition or purpose found on Table B.2. Enter selected mixture(s), application rates, and seeding dates in the Permanent Seeding Summary. The Summary is to be placed on the plan.
 - Additional planting specifications for exceptional sites such as shorelines, stream banks, or dunes or for special purposes such as wildlife or aesthetic treatment may be found in USDA-NRCS Technical Field Office Guide, Section 342 - Critical Area Planting.
 - For sites having disturbed area over 5 acres, use and show the rates recommended by the soil testing agency.
 - For areas receiving low maintenance, apply urea form fertilizer (46-0-0) at 3 ½ pounds per 1000 square feet (150 pounds per acre) at the time of seeding in addition to the soil amendments shown in the Permanent Seeding Summary .
 - Turfgrass Mixtures
 - Areas where turfgrass may be desired include lawns, parks, playgrounds, and commercial sites which will receive a medium to high level of maintenance.
 - Select one or more of the species or mixtures listed below based on the site conditions or purpose. Enter selected mixture(s), application rates, and seeding dates in the Permanent Seeding Summary. The summary is to be placed on the plan.
 - Kentucky Bluegrass: Full Sun Mixture: For use in areas that receive intensive management. Irrigation required in the areas of central Maryland and Eastern Shore. Recommended Certified Kentucky Bluegrass Cultivars Seeding Rate: 1.5 to 2.0 pounds per 1000 square feet. Choose a minimum of three Kentucky bluegrass cultivars with each ranging from 10 to 35 percent of the total mixture by weight.
 - Kentucky Bluegrass/Perennial Rye: Full Sun Mixture: For use in full sun areas where rapid establishment is necessary and when turf will receive medium to intensive management. Certified Perennial Ryegrass Cultivars/Certified Kentucky Bluegrass Seeding Rate: 2 pounds mixture per 1000 square feet. Choose a minimum of three Kentucky bluegrass cultivars with each ranging from 10 to 35 percent of the total mixture by weight.
 - Tall Fescue/Kentucky Bluegrass: Full Sun Mixture: For use in drought prone areas and/or for areas receiving low to medium management in full sun to medium shade. Recommended mixture includes: Certified Tall Fescue Cultivars 95 to 100 percent, Certified Kentucky Bluegrass Cultivars 0 to 5 percent. Seeding Rate: 5 to 8 pounds per 1000 square feet. One or more cultivars may be blended.
 - Kentucky Bluegrass/Fine Fescue: Shade Mixture: For use in areas with shade in Bluegrass lawns. For establishment in high quality, intensively managed turf area. Mixture includes: Certified Kentucky Bluegrass Cultivars 30 to 40 percent and Certified Fine Fescue and 60 to 70 percent. Seeding Rate: 1½ to 3 pounds per 1000 square feet.
Note: Select turfgrass varieties from those listed in the most current University of Maryland Publication, Agronomy Memo #77, "Turfgrass Cultivar Recommendations for Maryland"
 - Choose certified material. Certified material is the best guarantee of cultivar purity. The certification program of the Maryland Department of Agriculture, Turf and Seed Section, provides a reliable means of consumer protection and assures a pure genetic line
 - Ideal Times of Seeding for Turf Grass Mixtures
Western MD: March 15 to June 1, August 1 to October 1 (Hardiness Zones: 5b, 6a)
Central MD: March 1 to May 15, August 15 to October 15 (Hardiness Zone: 6b)
Southern MD, Eastern Shore: March 1 to May 15, August 15 to October 15 (Hardiness Zones: 7a, 7b)
 - Till areas to receive seed by disking or other approved methods to a depth of 2 to 4 inches, level and rake the areas to prepare a proper seedbed. Remove stones and debris over 1½ inches in diameter. The resulting seedbed must be in such condition that future mowing of grasses will pose no difficulty.
 - If soil moisture is deficient, supply new seedlings with adequate water for plant growth (½ to 1 inch every 3 to 4 days depending on soil texture) until they are firmly established. This is especially true when seedlings are made late in the planting season, in abnormally dry or hot seasons, or on adverse sites.

Permanent Seeding Summary

Hardiness Zone (from Figure B.3): _____				Fertilizer Rate (10-20-20)			
Seed Mixture (from Table B.3): _____							
No.	Species	Application Rate (lb/a-c)	Seeding Dates	Seeding Depth	N	P+Os	K+O
	Tall Fescue (Lolium grandifolium)	60	Aug 15 - Nov 30	1/4 - 1/2 in			
	Kentucky Bluegrass (Poa pratensis)	40	Aug 15 - Nov 30	1/4 - 1/2 in	45 pounds per acre (1 lb /1000 sf)	90 lb/a-c (2 lb /1000 sf)	90 lb/a-c (2 lb /1000 sf)
	Perennial Ryegrass (Lolium perenne)	20	Aug 15 - Nov 30	1/4 - 1/2 in			2 tons/a-c (90 lb /1000 sf)

- B. Sod: To provide quick cover on disturbed areas (2-1 grade or flatter).

- General Specifications
 - Class of turfgrass sod must be Maryland State Certified. Sod labels must be made available to the job foreman and inspector.
 - Sod must be machine cut at a uniform soil thickness of ¾ inch, plus or minus ¼ inch, at the time of cutting. Measurement for thickness must exclude top growth and thatch. Broken pads and torn or uneven ends will not be acceptable.
 - Standard size sections of sod must be strong enough to support their own weight and retain their size and shape when suspended vertically with a firm grasp on the upper 10 percent of the section.
 - Sod must not be harvested or transplanted when moisture content (excessively dry or wet) may adversely affect its survival.
 - Sod must be harvested, delivered, and installed within a period of 36 hours. Sod not transplanted within this period must be approved by an agronomist or soil scientist prior to its installation.
- Sod Installation
 - During periods of excessively high temperature or in areas having dry subsoil, lightly irrigate the subsoil immediately prior to laying the sod.
 - Lay the first row of sod in a straight line with subsequent rows placed parallel to it and tightly wedged against each other. Stagger lateral joints to promote more uniform growth and strength. Ensure that sod is not stretched or overlapped and that all joints are butted tight in order to prevent voids which would cause air drying of the roots.
 - Wherever possible, lay sod with the long edges parallel to the contour and with staggering joints. Roll and tamp, peg or otherwise secure the sod to prevent slippage on slopes. Ensure solid contact exists between sod roots and the underlying soil surface.
 - Water the sod immediately following rolling and tamping until the underside of the new sod pad and soil surface below the sod are thoroughly wet. Complete the operations of laying, tamping and irrigating for any piece of sod within eight hours.
- Sod Maintenance
 - In the absence of adequate rainfall, water daily during the first week or as often and sufficiently as necessary to maintain moist soil to a depth of 4 inches. Water sod during the heat of the day to prevent wilting.
 - After the first week, sod watering is required as necessary to maintain adequate moisture content.
 - Do not mow until the sod is firmly rooted. No more than ½ of the grass leaf must be removed by the initial cutting or subsequent cuttings. Maintain a grass height of at least 3 inches unless otherwise specified.



THE EXCAVATOR MUST NOTIFY ALL PUBLIC UTILITY COMPANIES WITH UNDERGROUND FACILITIES IN THE AREA OF THE PROPOSED EXCAVATION AND HAVE THOSE FACILITIES LOCATED BY THE UTILITY COMPANIES PRIOR TO COMMENCING EXCAVATION. THE EXCAVATOR IS RESPONSIBLE FOR COMPLIANCE WITH ALL APPLICABLE REQUIREMENTS OF THE PRINCE GEORGE'S COUNTY CODE.

THIS PLAN IS FOR STORMWATER MANAGEMENT PURPOSES ONLY. THIS PLAN TO BE USED FOR STORMWATER MANAGEMENT ONLY. ALL OTHER INFORMATION, INCLUDING OTHER STORMWATER MANAGEMENT FACILITIES, ARE SHOWN FOR REFERENCE PURPOSES ONLY. SEE APPROPRIATE CONSTRUCTION DRAWING FOR ALL OTHER INFORMATION.

THIS PLAN IS FOR EXISTING STORMWATER MANAGEMENT POND RETROFIT PURPOSES ONLY. THIS PLAN TO BE USED FOR RETROFIT OF THE EXISTING STORMWATER MANAGEMENT POND ONLY. ALL OTHER INFORMATION, INCLUDING OTHER STORMWATER MANAGEMENT FACILITIES, ARE SHOWN FOR REFERENCE PURPOSES ONLY. SEE APPROPRIATE CONSTRUCTION DRAWING FOR ALL OTHER INFORMATION.

REVISION	DATE	REVISION	DATE	REVISION	DATE

Applicant:

CS PATUXENT GREENS, LLC.
6290 MONTROSE ROAD
ROCKVILLE, MD 20852
PHONE: 301-692-4000
CONTACT: ALAN COHEN

PATUXENT GREENS

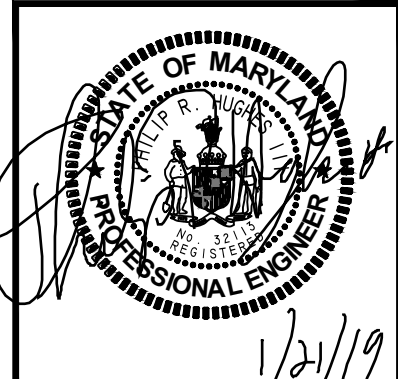
PARCEL A, NLP 126 P.59
L.6008 F.266
ELECTION DISTRICT No. 10
CITY OF LAUREL, PRINCE GEORGE'S COUNTY, MARYLAND

RODGERS CONSULTING

1101 Mercantile Lane, Suite 280 Largo, Maryland 20774
Ph: 301.948.4700 Fx: 301.948.6256 www.rodgers.com

	BY	DATE
BASE DATA	CADD	FEB 2018
DESIGNED	INDKM	NOV 2018
DRAWN	INDKM	NOV 2018
REVIEWED	PRH	NOV 2018
RODGERS CONTACT: Philip R. Hughes III		
RELEASE FOR <input type="checkbox"/>		
BY: _____ DATE: _____		

**Stormwater Management Plan
Landscape Details**



PROFESSIONAL CERTIFICATION

"I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 22113, Expiration Date 9/15/19."

SCALE: 1"=30'
JOB No. 1262A
DATE: JAN 2019
SWM-30
SHEET No. 30 of 32

Table B.2: Recommended Permanent Seeding Mixtures by Site Condition or Purpose

Site Condition or Purpose of the Planting	Recommended Mix (See Table B.3)												
	1	2	3	4	5	6	7	8	9	10	11	12	13
Steep Slopes, Roadsides	R	R	R	A	R	A				A	A	R	R
Sand and Gravel Pits, Sanitary Landfills	R	R	R	A	R	A				A	A	R	
Salt Damaged Areas	A												R
Mine Spoil, Dredged Material, and Spoil Banks	A		R	A	A								
Utility Rights-of-Way	R	R	R	R	R	R	A				R	R	R
Dikes and Dams	A		R	A	A								
Berms and Low Embankments (not on Ponds)	R	R	R	R	R	R	A	A			R	R	R
Pond and Channel Banks, Streambanks	R	R	R	A	A	A					A	A	
Grassed Waterways, Diversions, Terraces, Spillways	A				A	R	R	A	R		R		A
Bottom of Drainage Channels, Swales, Detention Basins					A	R	A			A	R		R
Field Borders, Filter Strips, Contour Buffer Strips	R	R	R	A	A	R	A	R	R	R	R	R	A
Wastewater Treatment Strips and Areas										R	A	A	
Heavy Use Areas (Grass Loafing Paddocks for Livestock)									R				
Athletic Fields, Residential and Commercial Lawns							A	R	R		R		
Recreation Areas							R	R	R		R		

R = Recommended mix for this site condition or purpose.
A = Alternative mix, depending on site conditions.

Table B.3: Selected List of Permanent Herbaceous Seeding Mixtures

Mix	Recommend Cultivar	Seeding Rate ¹ lb/ac	lb/1000 ft ²	Soil Drainage Class ²	Max Height (inch)	Maint. Level ³	Remarks
Warm-Season/Cool-Season Grass Mixes							
1. Select <u>ONE</u> Warm-Season Grass:							All species are native to Maryland
Switch Grass (<i>Panicum virgatum</i>)	Blackwell, Carthage, Cave-In-Rock, or Shelter	10	0.23				Plant this mix with a regular grass drill.
OR							
Coastal Panic Grass (<i>Panicum amaranum</i> var. <i>amaranum</i>)	Atlantic	10	0.23				Coastal panicgrass is best adapted to Zones 7a and 7b.
AND ADD:							
Creeping Red Fescue (<i>Festuca rubra</i> var. <i>rubra</i>)	Dawson, Pennlawn, Flyer, Fortress, Ruby, or Salem	15	0.34	E-P	4-7	C-D	Creeping red fescue is a cool-season grass that will provide erosion protection while the warm season grass (switchgrass or coastal panicgrass) is becoming established.
PLUS <u>ONE</u> OF THE FOLLOWING LEGUMES:							
Partridge Pea (<i>Chamaecrista fasciculata</i>)	Common	4	0.09				Switchgrass, coastal panicgrass, the Dawson variety of creeping red fescue, and partridge pea are moderately salt-tolerant. Do not use bush clover or wild indigo on wet sites.
Bush Clover (<i>Lespedeza capitata</i>)	Common	2	0.05				
Wild Indigo (<i>Baptisia tinctoria</i>)	Common	2	0.05				
2. Blue Bluestem (<i>Andropogon gerardi</i>)	Niagra or Rountree	6	0.14				All species are native to Maryland
Indiangrass (<i>Sorghastrum nutans</i>)	Rumsey	6	0.14				The Indiangrass and bluestems have fully seeds. Plant with a specialized native seed drill.
Little Bluestem (<i>Schizachyrium scoparium</i>)	Aldous or Blaze	4	0.09				Creeping red fescue is a cool-season grass that will provide erosion protection while the warm season grasses are becoming established.
Creeping Red Fescue (<i>Festuca rubra</i> var. <i>rubra</i>)	Dawson, Pennlawn, Flyer, Fortress, Ruby, or Salem	15	0.34	E-MW	6-8	C-D	
PLUS <u>ONE</u> OF THE FOLLOWING LEGUMES:							
Partridge Pea (<i>Chamaecrista fasciculata</i>)	Common	4	0.09				
Bush Clover (<i>Lespedeza capitata</i>)	Common	2	0.05				
Wild Indigo (<i>Baptisia tinctoria</i>)	Common	2	0.05				
Showy Tick-Trefoil (<i>Desmodium canadense</i>)	Common	1	0.02				

Table B.3: Selected List of Permanent Herbaceous Seeding Mixtures (Continued)

Mix	Recommend Cultivar	Seeding Rate ¹		Soil Drainage Class ²	Max Height (inch)	Maint. Level ³	Remarks
Warm-Season/Cool-Season Grass Mixes							
3. SELECT <u>THREE</u> GRASSES:							
Deertongue (<i>Diachanthelium clandestinum</i>)	Toga	20	0.46				Excellent for excessively droughty, low pH soils.
Sheep Fescue (<i>Festuca ovina</i>)	Common or Bighorn	20	0.46				Sheep fescue, Canada wild rye, and redbow are cool-season grasses that will provide erosion protection while the warm-season grass (deertongue) is becoming established.
OR							
Canada Wild Rye (<i>Elymus canadensis</i>)	Common	3	0.07	E-MW	4-6	C-D	
Redtop (<i>Argemone gigantea</i>)	Streaker	1	0.02				
PLUS <u>ONE</u> OF THE FOLLOWING LEGUMES:							
Common Lespedeza (<i>Lespedeza striata</i>)	Kobe	10	0.23				Common lespedeza (Kobe) variety is more tolerant of low acidity and high manganese concentrations than Korean lespedeza. These lespedeza are reseeding annuals.
Korean Lespedeza (<i>Lespedeza stipulacea</i>)	Climax or Rowan	10	0.23				
4. Deertongue (<i>Diachanthelium clandestinum</i>)	Toga	15	0.34				
Creeping Red Fescue (<i>Festuca rubra</i> var. <i>rubra</i>)	Dawson, Pennlawn, Flyer, Fortress, Ruby, or Salem	20	0.46	W-P	2-3	C-D	Use Virginia wild rye on moist, shady sites.
OR							
Virginia Wild Rye (<i>Elymus virginicus</i>)	Common	5	0.11				Use Virginia wild rye on moist, shady sites.
OR							
Canada Wild Rye (<i>Elymus canadensis</i>)	Common	5	0.11				Use Canada wild rye on droughty sites.

Table B.3: Selected List of Permanent Herbaceous Seeding Mixtures (Continued)

Mix	Recommend Cultivar	Seeding Rate ¹		Soil Drainage Class ²	Max Height (inch)	Maint. Level ³	Remarks
		lb/ac	lb/1000 m ²				
Cool-Season Grass Mixes							
5. SELECT <u>TWO</u> GRASSES:							
Creeping Red Fescue (<i>Festuca rubra</i> var. <i>rubra</i>)	Toga	20	0.46				Use creeping red fescue in heavy shade and on moist sites.
OR							
Hard Fescue (<i>Festuca trachyphylla</i>)	Common	20	0.46				
Perennial Ryegrass (<i>Lolium perenne</i>)	Streaker	10	0.23				Perennial ryegrass and redbow will establish more rapidly than either fescue. Redtop tolerates wet sites better than ryegrass.
OR							
Redtop (<i>Agrostis gigantea</i>)	Kobe	1	0.02	E-SP	2-3	B-D	
AND ADD THE FOLLOWING LEGUME							
Flatpea (<i>Lathyrus sylvestris</i>)	Lathco	15	0.34				Flatpea will suppress woody vegetation. It should be planted in the spring, or as a dormant seeding in late fall or winter. It must be incorporated into the soil or covered with mulch. It may not be winter-hardy if planted late (summer/late fall). Caution: Flatpea can spread aggressively and can be toxic to livestock.
6. Tall Fescue (<i>Lolium arundinaceum</i>)	Recommended MD turf types ⁴	40	0.93				
Perennial Ryegrass (<i>Lolium perenne</i>)	Blazer II, Pennfine	25	0.57	W-P	2-3	C-D	
PLUS ONE OF THE FOLLOWING LEGUMES:							
Birdfoot Trefoil (<i>Lotus corniculatus</i>)	Empire, Viking, Norden, Leo, Common	8	0.18				Birdfoot trefoil is suitable for use only in Zones 5b and 6a.
White Clover (<i>Trifolium repens</i>)	Common	5	0.11				
7. Creeping Red Fescue (<i>Festuca rubra</i> var. <i>rubra</i>)	Dawson, Pennlawn, Flyer, Fortress, Ruby, or Salem	60	1.38	W-MW	1-2	C-D	This mix has good shade tolerance.
Kentucky Bluegrass (<i>Poa pratensis</i>)	Recommended MD turf types ⁴	15	0.34				

Table B.3: Selected List of Permanent Herbaceous Seeding Mixtures (Continued)

Mix	Recommend Cultivar	Seeding Rate ¹		Soil Drainage Class ²	Max Height (inch)	Maint. Level ³	Remarks
		lb/ac	lb/1000 ft ²				
8. Tall Fescue (<i>Lolium arundinaceum</i>)	Recommended MD turf-types ⁴	100	2.3	E-SP	2-3	A-D	Tall fescue provides a dense turf if frequently mowed, but tends to be clumpy if mowed only occasionally. For best results, recommend using a blend of 3 cultivars. Use low-endophyte cultivars in areas where livestock may graze.
9. SELECT <u>ONE</u> SPECIES OF FESCUE:							
Tall Fescue (<i>Lolium arundinaceum</i>)	Recommended MD turf-types ⁴	60	1.38				Good for highly managed athletic fields. Tall fescue is more suitable for compacted, high use areas and on moist sites.
OR							
Hard Fescue (<i>Festuca trachyphylla</i>)	Common	40	0.46	W-SP	2-3	A-B	Hard fescue produces a finer-textured turf with more shade tolerance.
AND ADD:							
Kentucky Bluegrass (<i>Poa pratensis</i>)	Recommended MD turf-types ⁴	40	0.92				Use tall fescue instead of high fescue for wastewater treatment strips and areas.
Perennial Ryegrass (<i>Lolium perenne</i>)	Blazer II, Pennfine	20	0.46				For best results, recommend using a blend of 3 cultivars each for tall fescue and Kentucky bluegrass.
10. Orchardgrass (<i>Dactylis glomerata</i>)	Any	25	0.57				Low maintenance mix that is easy to establish.
Creeping Red Fescue (<i>Festuca rubra</i> var. <i>rubra</i>)	Dawson, Pennlawn, Flyer, Fortress, Ruby, or Salem	10	0.23				
Redtop (<i>Argostis gigantea</i>)	Streaker	1	0.02	W-SP	2-3	C-D	
Alsike Clover (<i>Trifolium hybridum</i>)	Streaker	8	0.18				Alsike clover can be toxic to horses. Omit the clovers if using this mix for wastewater treatment strips and areas.
White Clover (<i>Trifolium repens</i>)	Common	5	0.11				
11. Creeping Red Fescue (<i>Festuca rubra</i> var. <i>rubra</i>)	Dawson, Pennlawn, Flyer, Fortress, Ruby, or Salem	30	0.69				
Chewing Fescue (<i>Festuca rubra</i> ssp. <i>commutata</i>)	Common	30	0.69	E-MW	2-3	B-D	
Kentucky Bluegrass (<i>Poa pratensis</i>)	Recommended MD turf-types ⁴	20	0.46				
OPTIONAL ADDITION							
Rough Bluegrass (<i>Poa trivialis</i>)	Common	15	0.34				Add rough bluegrass in moist, shady conditions.
12. Creeping Red Fescue (<i>Festuca rubra</i> var. <i>rubra</i>)	Dawson, Pennlawn, Flyer, Fortress, Ruby, or Salem	25	0.57				Alternative mix or inter-seeders and wildflowers for low maintenance conditions. Once well established by broadcasting and cultipacking on a prepared seedbed, drilling can also be used. But care must be taken so that seeds are not diluted too deep.
Hard Fescue (<i>Festuca trachyphylla</i>)	Common	25	0.57				Hydroseeding is not recommended for this mix if wildflowers are used. (They have very small seeds.)
Sheep Fescue (<i>Festuca ovina</i>)	Common or Bighorn	20	0.57				
PLUS WILDFLOWER MIX							
Black-eyed Susan (<i>Rudbeckia hirta</i>)	Common	2	0.05	E-MW	2-3	C-D	
Lance-leaved Coreopsis (<i>Coreopsis lanceolata</i>)	Common	2	0.05				
Purple Coneflower (<i>Echinacea purpurea</i>)	Common	8	0.18				
Patridge Pea (<i>Chamaecrista fasciculata</i>)	Common	5	0.11				
OR ADD CLOVER MIX							
White Clover (<i>Trifolium repens</i>)	Common	3	0.07				
Red Clover (<i>Trifolium pratense</i>)	Any	3	0.07				
13. Alkali Saltgrass (<i>Puccinellia distans</i>)	Fults or Salty	20	0.46				This is the recommended mix for saline sites. Saltgrass will persist only under saline conditions. For the best results, use only the Dawson variety of creeping red fescue. It is a salt-tolerant variety.
Creeping Red Fescue (<i>Festuca rubra</i> var. <i>rubra</i>)	Dawson	15	0.34	W-P	2-3	B-D	
Fowl Meadowgrass (<i>Poa palustris</i>)	Common	2	0.05				
OPTIONAL ADDITION							
Creeping Bentgrass (<i>Argostis stolonifera</i>)	Seaside	2	0.05				Add bentgrass for wetter conditions.

NOTES:

- Seeding Rates: Seeding rates for the warm-season grasses are in pounds of Pure Live Seed (PLS). Actual planting rates must be adjusted to reflect percent seed germination and purity, as tested. Adjustments are usually not needed for the cool-season grasses, legumes, or wildflowers. All legume seeds must be inoculated before planting with the appropriate Rhizobium bacteria. When feasible, hard-seeded legumes should be scarified to improve germination.
- Soil Drainage Class (refer to the county soil survey for further information):
E- Excessively Drained; W- Well Drained; MW- Moderately Well Drained; SP- Somewhat Poorly Drained; P- Poorly Drained
- Maintenance Level:
A- Intensive mowing (every 2-4 days), fertilization, lime, insect and weed control, and watering (examples: high maintenance lawns and athletic fields).
B- Frequent mowing (every 4-7 days), occasional fertilization, lime, pest control, and watering (examples: residential, school, and commercial lawns).
C- Periodic mowing (every 7-14 days), occasional fertilization and lime (examples: residential lawns, parks).
D- Infrequent or no mowing, fertilization, or lime after the first year of establishment (examples: wildlife areas, roadsides, break banks).
- Turf-type cultivars of tall fescue and Kentucky bluegrass must be selected based on recommendations of the University of Maryland Cooperative Extension Service, Agronomy Memo 77. Recommendations are as follows:
A. Kentucky Bluegrass:
1. The following Kentucky bluegrass cultivars are suitable for general use, and are also noted for shade tolerance:
American Coventry Quantum Leap
Ascot Liberator Showcase
Brilliant Moonlight SR 2000
Champagne Nuglade Unique
Compact Princeton 105
2. The following Kentucky bluegrass cultivars are suitable for general use, and are also noted for tolerance of low maintenance conditions:
Barrius Haga Monopoly
Caliber Livingston Washington
Eagleton Merit
Freedom Midnight
B. Tall Fescue - The following turf-type cultivars are suitable for general use:
Alamo E Debutante Micro DD Scorpio
Apache II Dominion Millennium Shenandoah
Avant* Duke Olympic Gold Shenandoah II
Axiom Duster* Southern Choice*
Bandana Eldorado* Pixie SR 8200
Barlexus Empress* Pixie E+ SR 8300
Barrington Falcon II* Plantation Stetson
Bonanza* Pyramid Tarheel
Bonanza II Genesis Rebel 200 TF6
Buildwag Good-En Rebel 300 Titan 2
Chapel Hill Grande Rebel III* Tomahawk*
Chieftain II* Guardian Rebel Jr. Trailblazer II*
Chinook Heritage Rebel Sentry Twilight II*
Cochise II Hounddog 5 Red Coat Virtue*
Comstock Jaguar III Regiment* Watchdog
Coyote Lancer Rembrandt Wolfpack
Crossfire* Leprechaun WPEZE
Masterpiece II Reserve Wyatt

Tall fescue cultivar names that are followed by an asterisk (*) have low endophyte levels (20% or lower based on seed analysis). To avoid livestock health problems due to endophyte toxicity, use low-endophyte cultivars for critical area plantings where livestock may be allowed to graze (e.g., heavy use grass loafing paddocks). Please note that endophyte level in plantings can vary between varieties, between fields of the same variety, and with the time of the year. For areas where livestock will not have access, cultivars with higher endophyte levels are desirable because they tend to be more drought tolerant and more resistant to disease and insect damage.

Table B.4: Quality of Seed

Species	Minimum Seed Purity (%)	Minimum Seed Germination (%)	Species	Minimum Seed Purity (%)	Minimum Seed Germination (%)
Cool-Season Grasses			Warm-Season Grass		
Barley	98	85	Bluestem, Big	60	60
Bentgrass, Creeping	95	85	Bluestem, Little	55	60
Bluegrass, Canada	90	80	Deertongue	98	75
Bluegrass, Kentucky	97	80	Indiangrass	60	60
Bluegrass, Rough	96	80	Millet, Foxtail or Pearl	98	80
Fescue, Chewing	97	85	Panicgrass, Coastal	95	70
Fescue, Creeping Red	97	85	Switchgrass	95	75
Fescue, Hard	97	85	Legumes/Forbs		
Fescue, Sheep	97	85	Clover, Alsike	99	85
Fescue, Tall	97	85	Clover, Bush	--	--
Meadowgrass, Fowl	--	--	Clover, Red	99	85
Oats	98	85	Clover, White	98	90
Orchardgrass	90	80	Flatpea	98	75
Redtop	92	80	Indigo, Wild	--	--
Rye, Cereal	98	85	Lespedeza, Common	98	80
Ryegrass, Annual or Perennial	97	85	Lespedeza, Korean	98	80
Saltgrass, Alkali	85	80	Pea, Partridge	98	70
Wheat	98	85	Tick-Trefoil, Showy	--	--
Wild Rye, Canada	85	70	Trefoil, Birdsfoot	98	85
Wild Rye, Virginia	--	--	Wildflowers	--	--

NOTE: All seed must comply with the Maryland State Seed Law. Seed must be free of prohibited or restricted noxious weeds, as currently listed by the Maryland Department of Agriculture, Turf and Seed Selection.

Table B.5: Recommended Planting Dates for Permanent Cover in Maryland¹

Type of Plant Material	Plant Hardness zones			
	5b and 6a	6b	7a and 7b	
Seeds - Cool-Season Grasses (includes mixes with forbs and/or legumes)	Mar 15 to May 31 Aug 1 to Sep 30	Mar 1 to May 15 Aug 1 to Oct 15	Feb 15 to Apr 30 Aug 15 to Oct 31 Nov 1 to Nov 30	
Seeds - Warm-Season/Cool-Season Grass Mixes (includes mixes with forbs and/or legumes)	Mar 15 to May 31** Jun 1 to Jun 15*	Mar 1 to May 15** May 16 to Jun 15*	Feb 15 to Apr 30** May 1 to May 31*	
Sod - Cool-Season	Mar 15 to May 31 Jun 1 to Aug 31* Sep 1 to Nov 1*†	Mar 1 to May 15 May 16 to Sep 14* Sep 15 to Nov 15*†	Feb 15 to Apr 30 May 1 to Sep 30* Oct 1 to Dec 1*†	
Unrooted Woody Materials; Bare-Root Plants; Bulbs, Rhizomes, Corms, and Tubers ²	Mar 15 to May 31 Jun 1 to Jun 30*	Mar 1 to May 15 May 16 to Jun 30*	Feb 15 to Apr 3 May 1 to Jun 30*	
Containerized Stock; Balled-and-Burlapped Stock	Mar 15 to May 31 Jun 1 to Jun 30* Sep 1 to Nov 15*†	Mar 1 to May 15 May 16 to Jun 30* Sep 15 to Nov 30*†	Feb 15 to Apr 30 May 1 to Jun 30* Oct 1 to Dec 15*†	

NOTES:

- The planting dates are listed as averages for each zone. These dates may require adjustment to reflect local conditions, especially near the boundaries of the zones. When seeding towards the end of the listed planting dates, or when conditions are expected to be less than optimal, select and appropriate nurse crop from Table B.1 Temporary Seeding for Site Stabilization and plant together with the permanent seeding mix.
 - When planted during the growing season, most of these materials must be purchased and kept in a dormant condition until planting. Bare-root grasses are the exception- they may be supplied as growing (non-dormant) plants.
- ¹

LOG OF BORING NO. RD-1

Sheet 1 of 1

PROJECT: Patuxent Greens Golf Club

PROJECT NO.: 171358

PROJECT LOCATION: Prince George's County, Maryland

WATER LEVEL (ft): ☐ Dry ☒ 4.2

DATE: 11-27-2017 11-28-2017

CAVED (ft): 3.9

DATE STARTED: 11-27-2017

DATE COMPLETED: 11-27-2017

DRILLING CONTRACTOR: Geo-Technology Associates, Inc.

DRILLER: G. Palmer

DRILLING METHOD: HSA

SAMPLING METHOD: Split Spoon / Automatic Hammer

WATER ENCOUNTERED DURING DRILLING (ft): ☒ Dry

GROUND SURFACE ELEVATION: 123

DATUM: Topo

EQUIPMENT: CME-550

LOGGED BY: TLC

CHECKED BY: JPE

SAMPLE NUMBER	SAMPLE DEPTH (ft)	SAMPLE RECOVERY (ft)	SAMPLE BLOW COUNT	N (blows/ft)	ELEVATION (ft)	DEPTH (ft)	USCS	GRAVIMETRIC	DESCRIPTION	REMARKS
S-1	0.0	6	2-2-2	4	123.0	0	FILL		Light Brown, moist, very loose, Silty SAND with Gravel, trace Organics (FILL).	Topsoil: 3 in.
S-2	2.5	10	5-6-8	14	121.0		FILL		Gray, moist, stiff, Lean CLAY with Sand, trace Plastic Fibers, Organics (Root Fragments) (FILL).	
S-3	5.0	18	3-4-5	9	119.0	4	ML		Brown to Gray, moist, stiff, Elastic SILT.	
S-4	8.5	18	3-5-5	10	116.0	8	CL		Brown to Light Gray, moist, stiff, Sandy Lean CLAY.	
					113.0				Boring terminated at 10 feet.	
					12					
					16					
					20					
					24					

NOTES: Boring was offset approximately 36 feet northeast to avoid damage to existing landscaping. Ground surface elevation should be considered approximate.

GTA

GEO-TECHNOLOGY ASSOCIATES, INC.

14280 Park Center Drive, Suite A Laurel, MD 20707

LOG OF BORING NO. RD-1

Sheet 1 of 1

LOG OF BORING NO. RD-4

Sheet 1 of 1

PROJECT: Patuxent Greens Golf Club

PROJECT NO.: 171358

PROJECT LOCATION: Prince George's County, Maryland

WATER LEVEL (ft): ☐ 9.0 ☒ 5.0

DATE: 11-27-2017 11-28-2017

CAVED (ft): 5.7 5.6

DATE STARTED: 11-27-2017

DATE COMPLETED: 11-27-2017

DRILLING CONTRACTOR: Geo-Technology Associates, Inc.

DRILLER: G. Palmer

DRILLING METHOD: HSA

SAMPLING METHOD: Split Spoon / Automatic Hammer

WATER ENCOUNTERED DURING DRILLING (ft): ☒ 8

GROUND SURFACE ELEVATION: 118

DATUM: Topo

EQUIPMENT: CME-550

LOGGED BY: TLC

CHECKED BY: JPE

SAMPLE NUMBER	SAMPLE DEPTH (ft)	SAMPLE RECOVERY (ft)	SAMPLE BLOW COUNT	N (blows/ft)	ELEVATION (ft)	DEPTH (ft)	USCS	GRAVIMETRIC	DESCRIPTION	REMARKS
S-1	0.0	6	4-3-4	7	118.0	0	ML		Brown, dry, medium stiff, Sandy SILT with Gravel.	Topsoil: 3 in.
S-2	2.5	18	3-3-5	8	116.0		CL		Light Gray with Light Brown, moist, medium stiff, Sandy Lean CLAY.	
S-3	5.0	18	5-5-5	10	113.0		SM		Light Brown to Light Gray, moist to wet, loose to very loose, Silty SAND.	
S-4	8.5	7	1-2-1	3	108.0				Boring terminated at 10 feet.	
					12				Note: At completion groundwater readings was taken prior to auger removal.	
					16					
					20					
					24					

NOTES: Boring was offset approximately 16 feet east due to close proximity with an existing irrigation line. Ground surface elevation should be considered approximate.

GTA

GEO-TECHNOLOGY ASSOCIATES, INC.

14280 Park Center Drive, Suite A Laurel, MD 20707

LOG OF BORING NO. RD-4

Sheet 1 of 1

LOG OF BORING NO. RD-7

Sheet 1 of 1

PROJECT: Patuxent Greens Golf Club

PROJECT NO.: 171358

PROJECT LOCATION: Prince George's County, Maryland

WATER LEVEL (ft): ☐ 9.6 ☒ 4.5

DATE: 11-27-2017 11-28-2017

CAVED (ft): 6.2 4.7

DATE STARTED: 11-27-2017

DATE COMPLETED: 11-27-2017

DRILLING CONTRACTOR: Geo-Technology Associates, Inc.

DRILLER: G. Palmer

DRILLING METHOD: HSA

SAMPLING METHOD: Split Spoon / Automatic Hammer

WATER ENCOUNTERED DURING DRILLING (ft): ☒ 8

GROUND SURFACE ELEVATION: 116.3

DATUM: Survey

EQUIPMENT: CME-550

LOGGED BY: TLC

CHECKED BY: JPE

SAMPLE NUMBER	SAMPLE DEPTH (ft)	SAMPLE RECOVERY (ft)	SAMPLE BLOW COUNT	N (blows/ft)	ELEVATION (ft)	DEPTH (ft)	USCS	GRAVIMETRIC	DESCRIPTION	REMARKS
S-1	0.0	7	5-4-7	11	116.3	0	ML		Light Gray with Orangish Brown Mottling, moist, stiff SILT with Sand.	Topsoil: 4 in.
S-2	2.5	18	10-10-10	20	114.3		ML		Light Gray, moist, very stiff, Sandy SILT.	
S-3	5.0	18	6-7-6	13	112.3	4	CL		Brown, moist, stiff, Lean CLAY with Sand.	
S-4	8.5	4	5-7-8	15	109.3		CL		Light Brown, wet, stiff, Sandy Lean CLAY with Gravel.	
					106.3				Boring terminated at 10 feet.	
					12				Note: At completion groundwater readings was taken prior to auger removal.	
					16					
					20					
					24					

NOTES:

GTA

GEO-TECHNOLOGY ASSOCIATES, INC.

14280 Park Center Drive, Suite A Laurel, MD 20707

LOG OF BORING NO. RD-7

Sheet 1 of 1

CALL "MISS UTILITY" AT 1-800-257-7777 48 Hours Before Start Of Construction

THE EXCAVATOR MUST NOTIFY ALL PUBLIC UTILITY COMPANIES WITH UNDERGROUND FACILITIES IN THE AREA OF THE PROPOSED EXCAVATION AND HAVE THOSE FACILITIES LOCATED BY THE UTILITY COMPANIES PRIOR TO COMMENCING EXCAVATION. THE EXCAVATOR IS RESPONSIBLE FOR COMPLIANCE WITH ALL APPLICABLE REQUIREMENTS OF THE PRINCE GEORGE'S COUNTY CODE.

THIS PLAN IS FOR STORMWATER MANAGEMENT PURPOSES ONLY

THIS PLAN TO BE USED FOR RETROFIT OF THE EXISTING STORMWATER MANAGEMENT POND ONLY. ALL OTHER INFORMATION, INCLUDING OTHER STORMWATER MANAGEMENT FACILITIES, ARE SHOWN FOR REFERENCE PURPOSES ONLY AND ARE NOT COVERED UNDER THIS PERMIT. SEE APPROPRIATE CONSTRUCTION DRAWING FOR ALL OTHER INFORMATION.

THIS PLAN IS FOR EXISTING STORMWATER MANAGEMENT POND RETROFIT PURPOSES ONLY

THIS PLAN TO BE USED FOR RETROFIT OF THE EXISTING STORMWATER MANAGEMENT POND ONLY. ALL OTHER INFORMATION, INCLUDING OTHER STORMWATER MANAGEMENT FACILITIES, ARE SHOWN FOR REFERENCE PURPOSES ONLY AND ARE NOT COVERED UNDER THIS PERMIT. SEE APPROPRIATE CONSTRUCTION DRAWING FOR ALL OTHER INFORMATION.

REVISION

DATE

REVISION

DATE

REVISION

DATE

Applicant:

CS PATUXENT GREENS, LLC.

6290 MONTROSE ROAD

ROCKVILLE, MD 20852

PHONE: 301-692-4000

CONTACT: ALAN COHEN

PATUXENT GREENS

PARCEL A, NLP 126 P.59

L.6008 F.266

ELECTION DISTRICT No. 10

CITY OF LAUREL, PRINCE GEORGE'S COUNTY, MARYLAND

RODGERS CONSULTING

1101 Mercantile Lane, Suite 280 Largo, Maryland 20774

Ph: 301.948.4700 Fx: 301.948.6256 www.rodgers.com

RELEASE FOR

BY: DATE:

Stormwater Management Plan

Boring Log

SCALE: NTS

JOB No: 1262A

DATE: JAN 2019

SWM-32

SHEET No: 32 of 32

N:\MD--Prince Georges\Patuxent Green\outcad\Plot Plans\SWM Final - Pond\32 Boring Log.dwg