

GENERAL NOTES

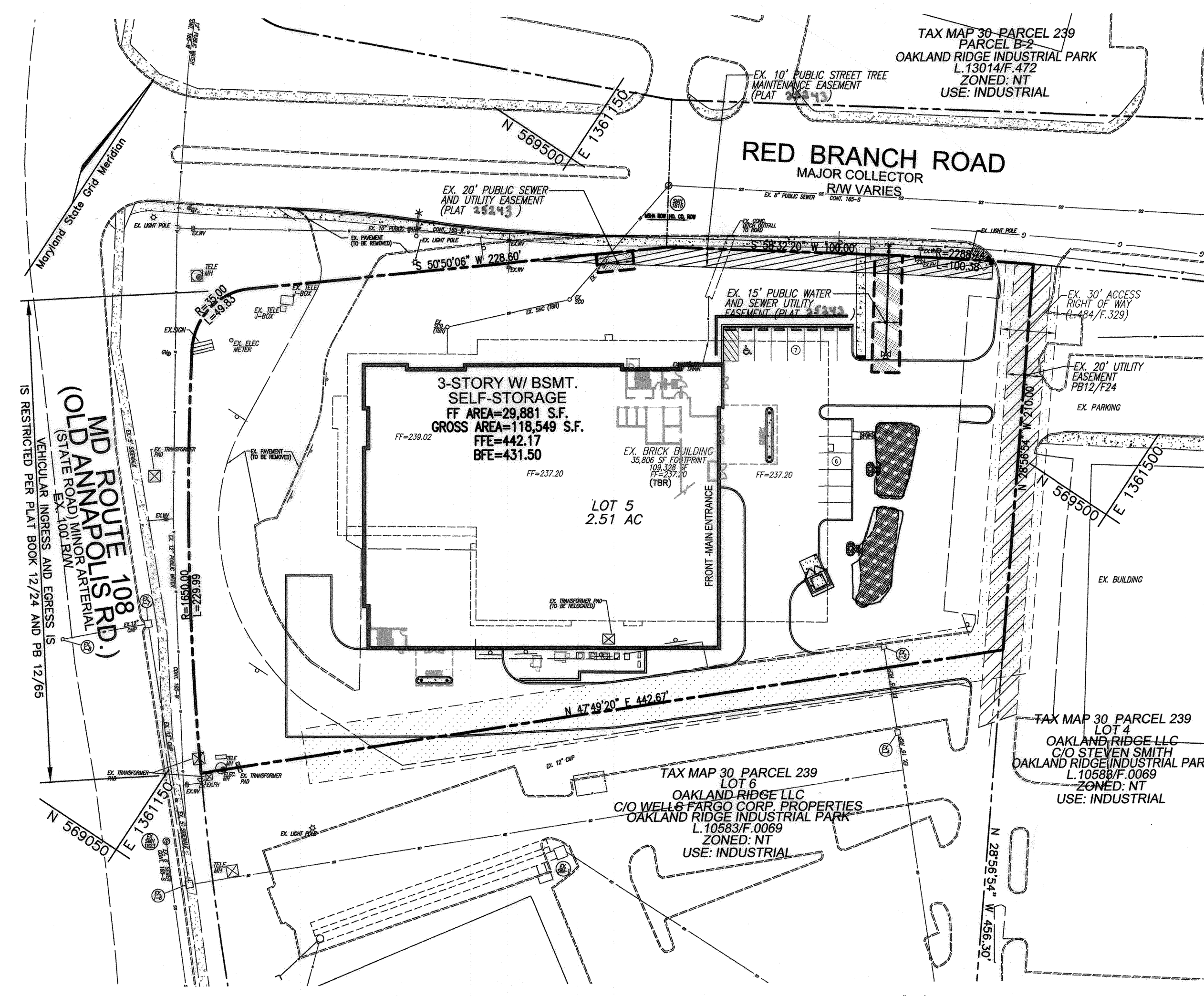
- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY STANDARDS AND SPECIFICATIONS. ALL WORK AND MATERIALS SHALL COMPLY WITH O.S.H.A. STANDARDS.
- THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK.
- THE CONTRACTOR IS TO NOTIFY THE FOLLOWING UTILITIES OR AGENCIES AT LEAST FIVE DAYS BEFORE STARTING WORK ON THESE DRAWINGS:
 MISS UTILITY: 1-800-257-7777
 BUREAU OF UTILITIES: 1-800-743-0033
 AT&T: 1-800-252-1133
 B.G.&E. (CONSTRUCTION SERVICES): 410-637-8713
 B.G.&E. (EMERGENCY): 410-637-8713
 STATE HIGHWAY ADMINISTRATION: 410-531-5533
 COLONIAL PIPELINE CO.: 410-795-1390
- SITE ANALYSIS:
 TOTAL PARCEL AREA: 2.51 AC.
 PRESENT ZONING: NT
 USE OF STRUCTURE: SELF STORAGE
 TOTAL BUILDING COVERAGE (FOOTPRINT AREA): 30,056 SF (0.69 AC. OR 27.49% OF GROSS AREA)
 PAVED PARKING LOT/AREA ON SITE: 23,958 SF (0.55 AC. OR 21.91% OF GROSS AREA)
 GREEN AREAS: 55,757 SF (1.28 AC. OR 50.20% OF GROSS AREA)
 LIMIT OF DISTURBED AREA: 123,590 SF (OR 2.84 AC)
 CUT: 8,760 CY FILL: 4,093 CY NET: 4,667 CY (CUT)
- PROJECT BACKGROUND:
 LOCATION: COLUMBIA, MD; TAX MAP 30, BLOCK 17, PARCEL 239
 ZONING: NT
 SUBDIVISION: OAKLAND RIDGE INDUSTRIAL PARK
 SECTION/AREA: SECTION 1 LOT 5
 SITE AREA: 2.51 AC
 DPZ REFERENCES: PB. 12-24, PB. 12-65, FDP-3A, L15428/F.351, ECP-19-015, F-20-033
- THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS/BUREAU OF ENGINEERING/ CONSTRUCTION INSPECTION DIVISION AT (410) 313-1880 AT LEAST FIVE (5) WORKING DAYS PRIOR TO START OF WORK.
- ANY DAMAGE TO RIGHT-OF-WAY, PAVING, OR EXISTING UTILITIES WILL BE CORRECTED AT THE CONTRACTOR'S EXPENSE.
- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS ANY STANDARDS AND SPECIFICATIONS, IF APPLICABLE.
- EXISTING UTILITIES LOCATED FROM ROAD CONSTRUCTION PLANS, FIELD SURVEYS, PUBLIC WATER AND AND SEWER EXTENSION PLANS AND AVAILABLE RECORD DRAWINGS. APPROXIMATE LOCATION OF EXISTING UTILITIES ARE SHOWN FOR THE CONTRACTOR'S INFORMATION. CONTRACTOR SHALL LOCATE EXISTING UTILITIES WELL IN ADVANCE OF CONSTRUCTION ACTIVITIES AND TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES AND TO MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE INCURRED DUE TO CONTRACTOR'S OPERATION SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTOR'S EXPENSE.
- ALL REINFORCED CONCRETE FOR STORM DRAIN STRUCTURES SHALL HAVE A MINIMUM OF 28 DAYS STRENGTH OF 3,500 P.S.I.
- TRAFFIC CONTROL DEVICES, MARKINGS AND SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MARYLAND MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUMTOD). ALL STREET AND REGULATORY SIGNS SHALL BE IN PLACE PRIOR TO THE PLACEMENT OF AND ASPHALT.
- ESTIMATES OF EARTHWORK QUANTITIES ARE PROVIDED SOLELY FOR THE PURPOSE OF CALCULATING FEES.
- SOIL COMPACTION SPECIFICATIONS, REQUIREMENTS, METHODS AND MATERIALS ARE TO BE IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE PROJECT GEOTECHNICAL ENGINEER. GEOTECHNICAL ENGINEER TO CONFIRM ACCEPTABILITY OF PROPOSED PAVING SECTION, BASED ON SOIL TEST PRIOR TO CONSTRUCTION.
- COORDINATES AND ELEVATIONS ARE BASED ON MARYLAND COORDINATE SYSTEM - NAD83(1991) AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATION 301E AND 301F.
- THE PROPERTY LINES SHOWN HEREON IS BASED ON A FIELD-RUN BOUNDARY SURVEY PERFORMED BY ROBERT H. VOGEL ENGINEERING, INC. DATED JULY, 2014.
- EXISTING TOPOGRAPHY SHOWN HEREON IS TAKEN FROM BOTH A FIELD-RUN TOPOGRAPHIC SURVEY WITH 2-FOOT CONTOUR INTERVALS PREPARED BY ROBERT H. VOGEL ENGINEERING, INC. DATED SEPTEMBER 17, 2009. OFFSITE AND SUPPLEMENTAL TOPOGRAPHY FROM HOWARD COUNTY GIS.
- GEOTECHNICAL REPORT PREPARED BY HILLIS CARNES, DATED APRIL 29, 2019.
- THE GEOTECHNICAL ENGINEER TO CONFIRM PAVING SECTION PRIOR TO CONSTRUCTION.
- ALL CURB AND GUTTER TO BE HOWARD COUNTY STANDARD DETAIL 3.01 UNLESS OTHERWISE NOTED (SEE DETAIL SHEET 3).
- WHERE DRAINAGE FLOWS AWAY FROM CURB, CONTRACTOR TO REVERSE THE GUTTER PAN.
- ALL ELEVATIONS ARE TO FLOWLINE/ BOTTOM OF CURB UNLESS OTHERWISE NOTED.
- ALL DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
- CONTRACTOR RESPONSIBLE FOR CONSTRUCTING ALL HANDICAP RAMPS AND HANDICAP ACCESS IN ACCORDANCE WITH CURRENT ADA REQUIREMENTS.
- STREET LIGHT PLACEMENT AND THE TYPE OF FIXTURE AND POLE SHALL BE IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL, VOLUME III (2017) A MINIMUM SPACING OF 20' SHALL BE MAINTAINED BETWEEN ANY STREET LIGHT AND ANY TREE.
- ALL SIGN POSTS USED FOR TRAFFIC CONTROL SIGNS INSTALLED IN THE COUNTY RIGHT-OF-WAY SHALL BE MOUNTED ON A 2" GALVANIZED STEEL PERFORATED SQUARE TUBE POST (14 GAUGE) INSERTED INTO A 2-1/2" GALVANIZED STEEL SQUARE TUBE SLEEVE (12 GAUGE) - 3' LONG. A GALVANIZED STEEL POLE CAP SHALL BE MOUNTED ON TOP OF EACH POST.
- ALL STORMDRAIN PIPE BEDDING IS TO BE CLASS 'C' AS REQUIRED BY ASHTO-180.
- THE PROPOSED BUILDING TO HAVE ROOF LEADERS WHICH COLLECT INTO THE PROVIDED ROOF DRAIN SYSTEM, WHICH EMPTIES INTO THE STORMWATER MANAGEMENT FACILITY BEFORE ULTIMATELY ENTERING THE STORM DRAIN SYSTEM.
- PUBLIC WATER AND SEWER AVAILABLE THROUGH 18"-WS.
- TRAFFIC IMPACT ANALYSIS PREPARED BY THE TRAFFIC GROUP, DATED JUNE 20, 2019; APPROVED AUG. 19, 2019.
- THE SUBJECT PROPERTY IS ZONED NT IN ACCORDANCE WITH THE 10/06/13 COMPREHENSIVE ZONING PLAN.
- THIS PROJECT IS SUBJECT TO COMPLIANCE WITH THE AMENDED FIFTH EDITION OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS. DEVELOPMENT OR CONSTRUCTION ON THIS PROPERTY MUST COMPLY WITH SETBACK AND BUFFER REGULATIONS IN EFFECT AT THE TIME OF SUBMISSION OF THE SITE DEVELOPMENT PLAN, WAIVER PETITION APPLICATION OR BUILDING/GRADING PERMIT APPLICATIONS.
- RED BRANCH ROAD IS CLASSIFIED AS A MAJOR COLLECTOR.
- THE ENVIRONMENTAL REPORT WAS PREPARED BY ECO-SCIENCE PROFESSIONALS, INC.; DATED SEPTEMBER 17, 2014.
- THERE IS NO STEEP SLOPES, WETLANDS, STREAMS, AND THEIR BUFFERS, SPECIMEN OR CHAMPION TREES, OR 100-YEAR FLOODPLAIN LOCATED ON-SITE.
- THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE, AND THE LANDSCAPE MANUAL.
- FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING HAS BEEN POSTED AS PART OF THE DEVELOPER'S AGREEMENT FOR THIS SITE DEVELOPMENT PLAN IN THE AMOUNT OF \$12,300.00 FOR THE REQUIRED 30 SHADE TREES (1 PARKING LOT SHADE TREE INCLUDED), 18 EVERGREEN TREES, AND 20 SHRUBS.
- FINANCIAL SURETY FOR THE REQUIRED STREET TREE PLANTING FOR THIS PROJECT HAS BEEN POSTED AS PART OF THE DEVELOPER'S AGREEMENT WITH THIS PLAN, IN THE AMOUNT OF \$3,600.00 FOR 12 REQUIRED SHADE TREES. THE PUBLIC SURETY WILL BE INCLUDED IN THE DED'S COST ESTIMATE.
- THIS PROJECT IS EXEMPT FROM FOREST CONSERVATION IN ACCORDANCE WITH SECTION 16.1202(b)(1)(iv) OF THE HOWARD COUNTY CODE AND FOREST CONSERVATION MANUAL SINCE IT IS A PLANNED UNIT DEVELOPMENT WHICH HAS PRELIMINARY PLAN APPROVAL AND 50% OR MORE OF THE LAND IS RECORDED AND SUBSTANTIALLY DEVELOPED BEFORE DECEMBER 31, 1992.
- ANY EXISTING STREET TREES DAMAGED OR DESTROYED DURING CONSTRUCTION WILL BE REPLACED BY THE CONTRACTOR.
- THERE ARE NO BURIAL GROUNDS, CEMETERIES OR HISTORIC STRUCTURES LOCATED ON THIS PROPERTY.
- THIS PROPERTY IS WITHIN THE METROPOLITAN DISTRICT.
- THE PROPOSED BUILDING WILL HAVE AN INSIDE METER SETTING. THE BUILDING WILL ALSO HAVE AN AUTOMATIC FIRE PROTECTION SPRINKLER SYSTEM.
- A KNOX BOX IS REQUIRED TO BE PLACED ON THE FRONT OF THE MAIN ENTRANCE OF THE BUILDING. IT SHALL BE PLACED TO THE RIGHT OF THE MAIN ENTRANCE AT A RANGE OF 4'-5" IN HEIGHT AND NO MORE THAN 6' LATERALLY FROM THE DOOR. ITS LOCATION IS SHOWN ON THESE PLANS. THE BOX SHALL BE ELECTRONICALLY SUPERVISED TO NOTIFY THE OWNER THAT IT IS BEING ACCESSSED (INTEGRATED WITH THE FIRE ALARM SYSTEM).
- LANDSCAPING IS NOT PERMITTED WITHIN 7'-1/2' OF EACH SIDE OF THE FIRE DEPARTMENT CONNECTION. PROVIDE A CLEAR UNOBSTRUCTED ACCESS PATH TO THE FIRE DEPARTMENT CONNECTION. NFPA-1 13.1.4
- SIGNAGE SHALL BE PROVIDED ON THE BUILDING IDENTIFYING NAME OF THE SELF STORAGE AND THE ADDRESS.
- TRASH COLLECTION AND RECYCLABLE TO BE PRIVATE.
- STORMWATER MANAGEMENT FOR THE PROJECT IS PROVIDED BY ENVIRONMENTAL SITE DESIGN UTILIZING TWO MICRO-BIORETENTION (M-6) FACILITIES (WITH ADDITIONAL STONE DEPTH) TO ACCOMMODATE THE TOTAL ESD VOLUME REQUIRED. SWM FACILITY TO BE PRIVATELY OWNED AND MAINTAINED.
- ALL OUTDOOR LIGHTING SHALL BE IN ACCORDANCE WITH SECTION 134.0 OF THE ZONING REGULATIONS.
- A COMMUNITY MEETING WAS HELD FOR THIS PROJECT AT LINDEN HALL, 4765 DORSEY HALL DRIVE, ELLICOTT CITY, MD 21042 AT 6:00PM ON NOVEMBER 27, 2018.

SITE DEVELOPMENT PLAN

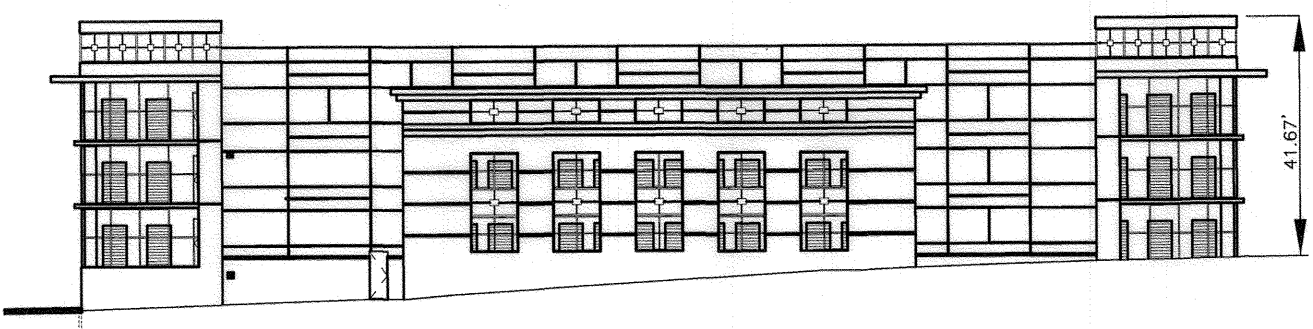
9199 RED BRANCH ROAD

COLUMBIA, OAKLAND RIDGE INDUSTRIAL PARK

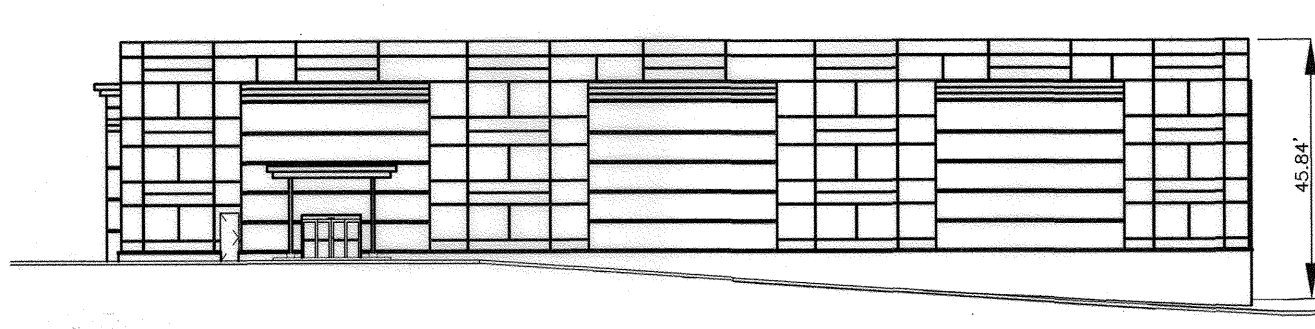
SECTION 1, LOT 5



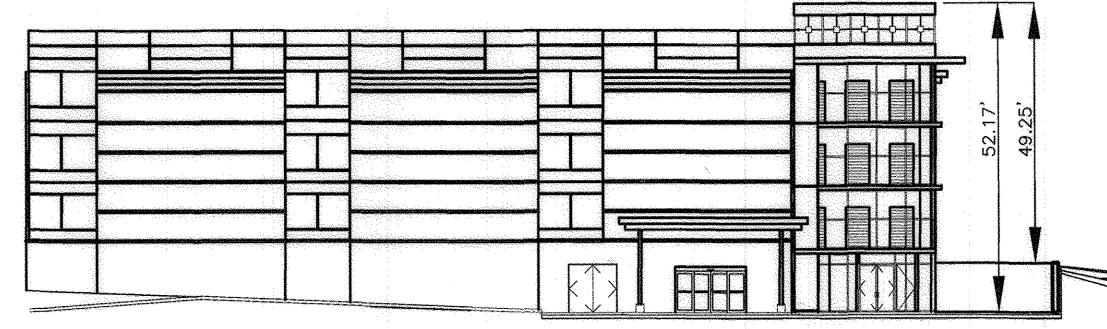
LOCATION MAP
SCALE: 1"=50'



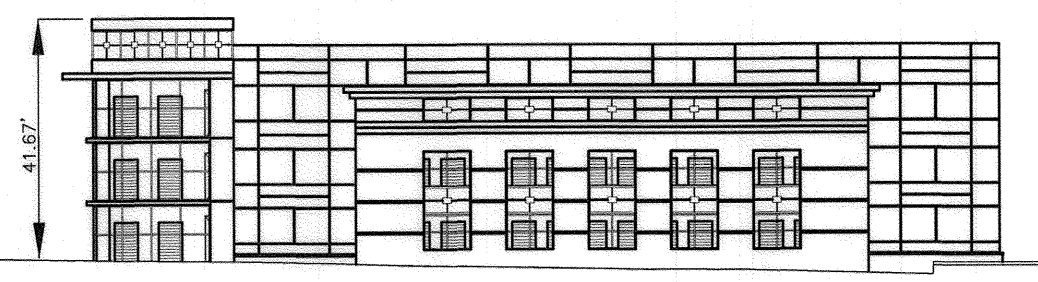
NORTH ELEVATION - FRONT VIEW FROM RED BRANCH ROAD
NOT TO SCALE



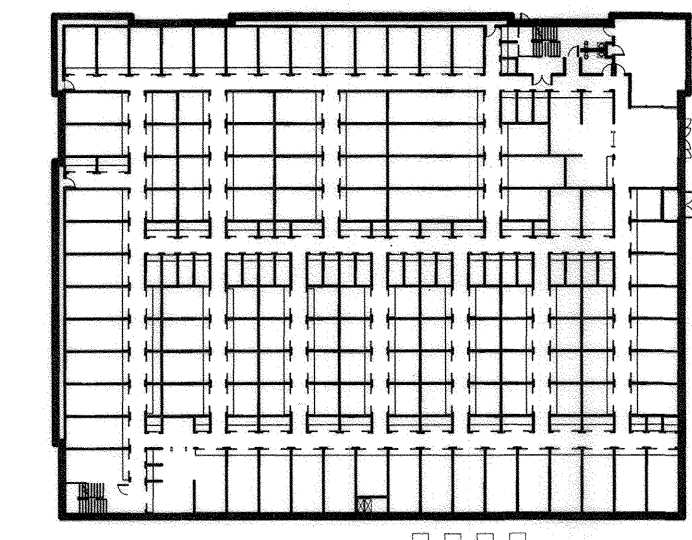
SOUTH ELEVATION - REAR OF BUILDING
NOT TO SCALE



EAST ELEVATION - MAIN ENTRANCE
NOT TO SCALE



WEST ELEVATION - VIEW FROM ROUTE 108
NOT TO SCALE



FLOOR PLAN
NOT TO SCALE

PARKING TABULATION

SELF STORAGE BUILDING: 118,549 SF (ALL FLOORS)	REQUIRED
STORAGE:	
4.0 SPACES/1000 SF OF OFFICE (540 SF)	3 SPACES
PER SECTION 133.0.D.5.4 OF THE ZONING REGULATIONS	
TOTAL SPACES REQUIRED:	3 SPACES
TOTAL SPACES PROVIDED:	13 SPACES*
	*INCLUDES 1 HANDICAP SPACE

DPZ/DEED REFERENCES: PB. 12-24, PB. 12-65, FDP-3A, L15428/F.351

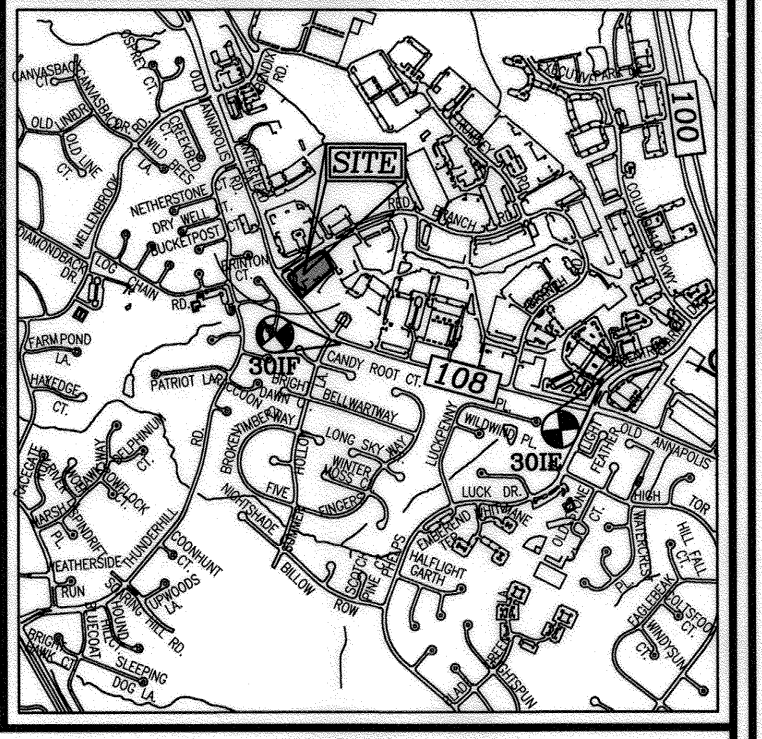
ADDRESS CHART					
BUILDING NO.	STREET ADDRESS				
EX. BUILDING	9199 RED BRANCH ROAD				
PERMIT INFORMATION CHART					
SUBDIVISION NAME	SECTION/AREA	LOT/PARCEL NUMBER			
COLUMBIA, OAKLAND RIDGE INDUSTRIAL PARK	SECTION 1	LOT 5/PARCEL 239			
PLAT OR L/F	GRID NO.	ZONING	TAX MAP NO.	ELECT. DIST.	CENSUS TR.
(PB. 12-65) L15428/F.351	17	NT	30	2ND	602302
WATER CODE: G04	SEWER CODE: 5657400				

BENCHMARKS

HOWARD COUNTY BENCHMARK 30E
 N 568536.34 E 1364955.61 ELEV.: 504.10'
 HOWARD COUNTY BENCHMARK 30F
 N 568033.11 E 1363934.26 ELEV.: 473.36'

LEGEND

- PROPERTY LINE
- RIGHT-OF-WAY LINE
- ADJACENT PROPERTY LINE
- EXISTING CURB AND GUTTER
- PROPOSED CURB AND GUTTER
- PROPOSED SIDEWALK
- EX. UTILITY EASEMENT (PLAT 246943)
- EXISTING 10' PUBLIC STREET TREE MAINTENANCE ESM (PLAT 246943)
- EXISTING 20' UTILITY EASEMENT PB12/F24
- EXISTING 30' ACCESS RIGHT OF WAY EASEMENT (LIBER 484 FOLD 329)



VICINITY MAP
SCALE: 1"=2000'
ADC MAP COORDINATE: 4936-AS

STORMWATER MANAGEMENT INFORMATION CHART					
LOT/PARCEL #	FACILITY NAME & NUMBER	PRACTICE TYPE (QUANTITY)	PUBLIC	PRIVATE	MAINTENANCE RESPONSIBILITY
LOT 5	SWMF #1	M-6 Micro-Bio-retention		X	Owner
LOT 5	SWMF #2	M-6 Micro-Bio-retention		X	Owner

SHEET INDEX		
DESCRIPTION	SHEET NO.	
COVER SHEET	1 OF 8	
SITE LAYOUT AND EXISTING CONDITION/DEMOLITION PLAN	2 OF 8	
SITE DETAILS	3 OF 8	
GRADING, SEDIMENT AND EROSION CONTROL PLAN; SOILS MAP	4 OF 8	
SEDIMENT AND EROSION CONTROL NOTES AND DETAILS	5 OF 8	
STORM DRAIN DRAINAGE AREA MAP AND UTILITY PROFILES	6 OF 8	
STORMWATER MANAGEMENT NOTES AND DETAILS	7 OF 8	
LANDSCAPE PLAN, NOTES AND DETAILS	8 OF 8	

OWNER
 BRABHAM OIL COMPANY, INC.
 525 MIDWAY ST.
 BAMBERG, SC 29003

DEVELOPER
 RED BRANCH ROAD
 SELF STORAGE LLC
 1276 ASSEMBLY STREET
 COLUMBIA, SC 29201
 C/O RYAN HYLER
 (803) 206-1438

NO.	REVISION	DATE
2	REVISE THE PLAN TO SHOW THE INSTALLATION OF M-6, A RELOCATION OF M-1 AND A REALIGNMENT OF THE STORM DRAIN CONNECTION	6-15-20
1	REVISE THE PLAN TO REALIGN A PORTION OF THE 6' PRIVATE V.H.C., RELOCATE MANHOLE #14 AND THE 6" ROOF DRAIN, AND THE 8" DRAINS NEAR THE RETAINING WALL	3-10-20

SITE DEVELOPMENT PLAN
COVER SHEET

9199 RED BRANCH ROAD
 COLUMBIA, OAKLAND RIDGE INDUSTRIAL PARK
 SECTION 1, LOT 5
 TAX MAP: 30 BLOCK: 17
 2ND ELECTION DISTRICT

ZONED: NT
 PARCEL 239
 SELF-STORAGE FACILITY
 (PB. 12-65) L15428/F.351
 HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL ENGINEERING, INC.
 ENGINEERS • SURVEYORS • PLANNERS
 3300 N. RIDGE ROAD, SUITE 110, ELLICOTT CITY, MD 21043
 TEL: 410.461.7666 FAX: 410.461.8961

DESIGN BY: LRC
 DRAWN BY: LRC
 CHECKED BY: RHV
 DATE: NOV 2019
 SCALE: AS SHOWN
 W.O. NO.: 11-43

PROFESSIONAL CERTIFICATE
 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. 16193 EXPIRATION DATE: 09-27-2020

1 SHEET OF 8

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

[Signature] 12-13-19
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

[Signature] 12-23-19
 CHIEF, DIVISION OF LAND DEVELOPMENT

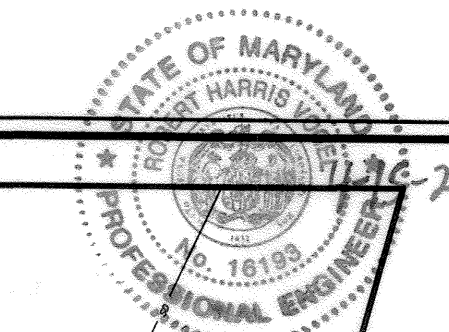
[Signature] 12-24-19
 DIRECTOR

AS-BUILT CERTIFICATION FOR PSWM

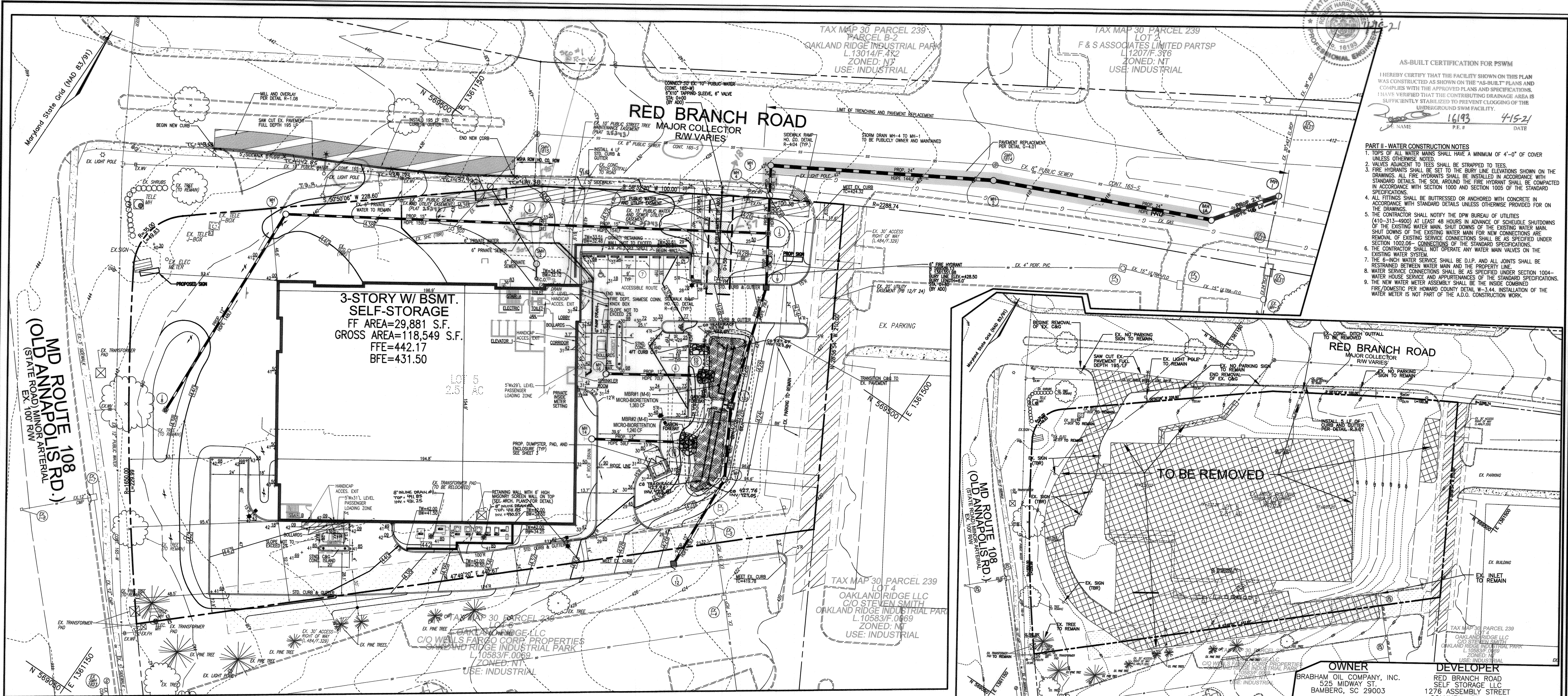
I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND COMPLIES WITH THE APPROVED PLANS AND SPECIFICATIONS. I HAVE VERIFIED THAT THE CONTRIBUTING DRAINAGE AREA IS SUFFICIENTLY STABILIZED TO PREVENT CLOGGING OF THE UNDERGROUND SWM FACILITY.

P.E. NAME: *[Signature]* 16193
 DATE: 4-15-21

AS-BUILT, MARCH 2021



AS-BUILT CERTIFICATION FOR PSWM
 I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND COMPLIES WITH THE APPROVED PLANS AND SPECIFICATIONS. I HAVE VERIFIED THAT THE CONTRIBUTING DRAINAGE AREA IS SUFFICIENTLY STABILIZED TO PREVENT CLOGGING OF THE UNDERGROUND SWM FACILITY.
 DRAWN BY: RLC
 CHECKED BY: RHY
 DATE: NOV 2019
 SCALE: AS SHOWN
 W.O. NO.: 11-43
 DATE: 4-15-21



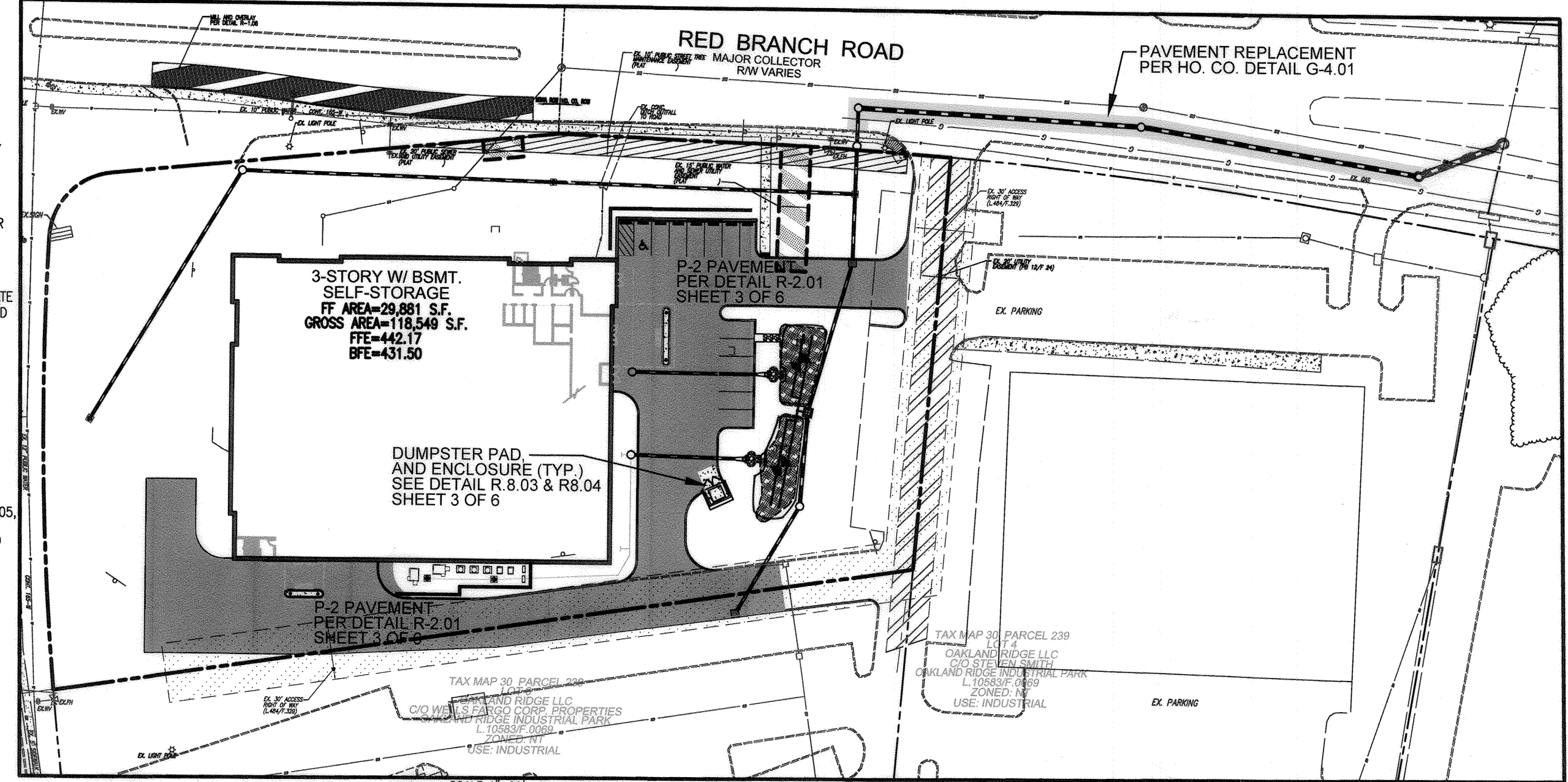
3-STORY W/ BSMT. SELF-STORAGE
 FF AREA=29,881 S.F.
 GROSS AREA=118,549 S.F.
 FFE=442.17
 BFE=431.50

MD ROUTE 108 (OLD ANNAPOLIS RD.)
 (STATE EXD. 100 R/W)

MD ROUTE 108 (OLD ANNAPOLIS RD.)
 (STATE EXD. 100 R/W)

PLAN VIEW
 SCALE: 1"=30'

EXISTING CONDITION/DEMOLITION PLAN
 SCALE: 1"=50'



PAVING EXHIBIT P-2
 SCALE: 1"=60'

CONSTRUCTION NOTES FOR ADO
 PART I - GENERAL CONSTRUCTION NOTES
 1. FOR DETAILS NOT SHOWN ON THE DRAWINGS, AND FOR MATERIALS AND CONSTRUCTION METHODS USE, HOWARD COUNTY DESIGN MANUAL VOLUME IV, STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION (LATEST EDITION). THE CONTRACTOR SHALL HAVE A COPY OF VOLUME IV ON THE JOB.
 2. THE ADO CONSTRUCTION WORK MUST BE PERFORMED UNDER THE CONTINUOUS INSPECTION OF THE CONSTRUCTION INSPECTIONS DIVISION OF THE DEPARTMENT OF PUBLIC WORKS. THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION INSPECTIONS DIVISION (410) 313-1800 AT LEAST (5) WORKING DAYS PRIOR TO THE START OF ANY CONSTRUCTION FOR THIS ADO.
 3. THE CONTRACTOR SHALL NOTIFY ALL UTILITY AND AGENCIES AND MISS UTILITY AT TWO (2) WORKING DAYS BEFORE STARTING WORK SHOWN ON THESE PLANS.
 4. WORK PERFORMED WITHIN MARYLAND STATE HIGHWAY ADMINISTRATION (MSHA) RIGHT-OF-WAY SHALL BE PERFORMED IN ACCORDANCE WITH THE MSHA PERMIT ISSUED FOR THE CONTRACT. THE CONTRACTOR SHALL NOTIFY THE MARYLAND STATE HIGHWAY ADMINISTRATION, 410-531-5533, AT LEAST FIVE (5) WORKING DAYS BEFORE EXCAVATING WITHIN THE MARYLAND STATE HIGHWAY RIGHT-OF-WAY FOR LAYING WATER OR SEWER MAINS OR SERVICE CONNECTIONS.
 5. EXISTING UTILITIES IN THE VICINITY OF THE PROPOSED WORK FOR WHICH TEST PITS HAVE NOT BEEN DUG SHALL BE LOCATED BY THE CONTRACTOR IN ADVANCE OF CONSTRUCTION OPERATIONS AT HIS OWN EXPENSE.
 6. CLEAR ALL UTILITIES BY A MINIMUM OF 12 INCHES. CLEAR ALL POLES BY 5'-0" MINIMUM OR TUNNEL AS REQUIRED UNLESS OTHERWISE NOTED. THE OWNER HAS CONTACTED THE UTILITY COMPANIES AND HAS MADE ARRANGEMENTS FOR BRACING OF POLES AS SHOWN ON DRAWINGS. THE CONTRACTOR SHALL COORDINATE WITH THE UTILITY COMPANIES TO SCHEDULE THE BRACING OF THE POLES.
 7. EXCAVATIONS MUST BE SUPPORTED FOR THE PROTECTION OF WORKERS, THE CONSTRUCTION WORK AREA AND ADJACENT PROPERTY. REFER TO TEMPORARY EXCAVATION SUPPORT SYSTEMS UNDER SECTION 1000.03.03 OF THE STANDARD SPECIFICATIONS.
 8. EXCAVATIONS MUST BE KEPT WELL DRAINED AT ALL TIMES. DEWATERING, DRAINAGE AND PUMPING IS REQUIRED DURING CONSTRUCTION. REFER TO Dewatering, Drainage and Pumping UNDER SECTION 1000.03.03 OF THE STANDARD SPECIFICATIONS. PUMPS MUST BE PROPERLY SIZED AND CAPACITIES TO MAINTAIN A DRY WORK AREA.
 9. THE USE OF STEEL PLATES TO PROTECT THE TRENCH AND ROADWAY SHALL BE AS SPECIFIED UNDER SECTION 1000.03.05, SECTION 104 AND STANDARD DETAIL G-4.02 OF THE STANDARD SPECIFICATIONS.
 10. TEMPORARY AND PERMANENT REPAIR OF ROADWAY OPENINGS SHALL BE AS SPECIFIED UNDER SECTION 1000.03.08 AND STANDARD DETAIL G-4.01 OF THE STANDARD SPECIFICATIONS UNLESS OTHERWISE SPECIFIED BY PERMIT FROM THE AUTHORITY HAVING JURISDICTION. TEMPORARY PAVING SHALL CONSIST OF NOT LESS THAN 12 (TWELVE) INCHES OF CRUSHED STONE AND 2 (TWO) INCHES OF BITUMINOUS COLD PATCH MATERIAL.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 CHIEF, DIVISION OF LAND DEVELOPMENT
 DIRECTOR
 DATE: 12-13-19
 DATE: 12-13-19
 DATE: 12-24-19

LEGEND:

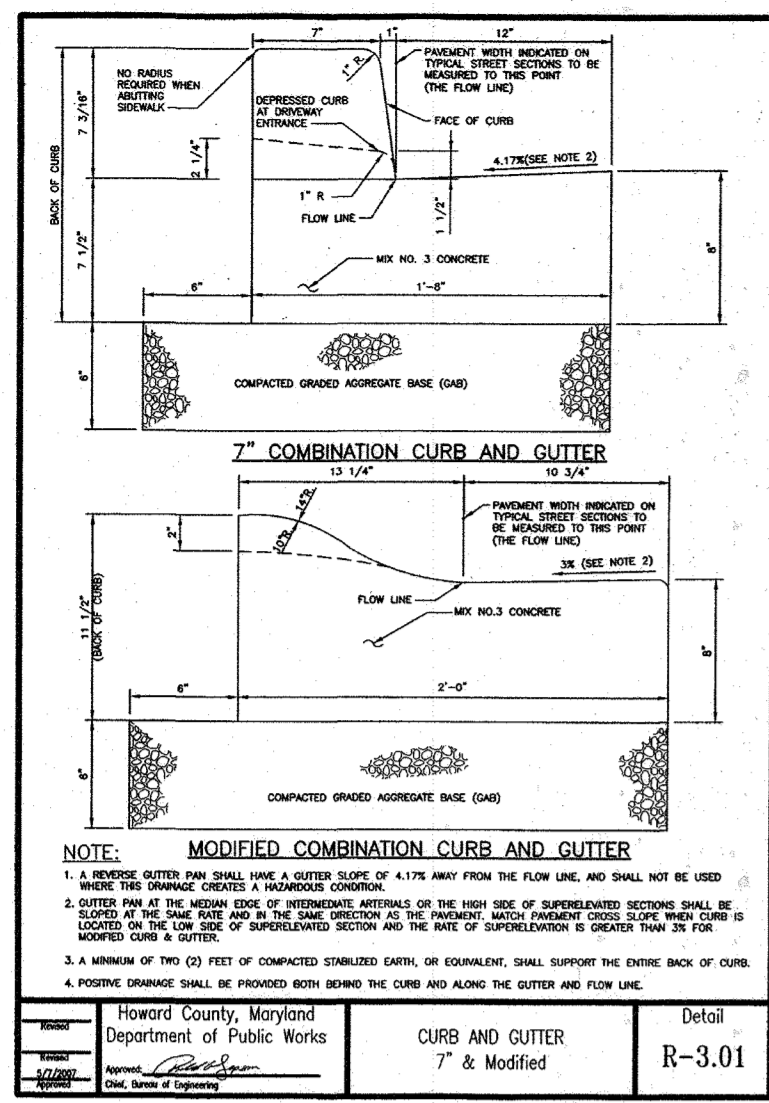
EXISTING CURB AND GUTTER	EXISTING UTILITY POLE	EXISTING LIGHT POLE	EXISTING MAILBOX	EXISTING SIGN	EXISTING SANITARY MANHOLE	EXISTING SANITARY LINE	EXISTING CLEANOUT	EXISTING FIRE HYDRANT	EXISTING WATER LINE	PROPOSED STORM DRAIN	PROPOSED STORM DRAIN INLET	EXISTING TREES (FIELD LOCATED)	PROPOSED LIGHTING
PROPOSED CURB AND GUTTER	PROPOSED UTILITY POLE	PROPOSED LIGHT POLE	PROPOSED MAILBOX	PROPOSED SIGN	PROPOSED SANITARY MANHOLE	PROPOSED SANITARY LINE	PROPOSED CLEANOUT	PROPOSED FIRE HYDRANT	PROPOSED WATER LINE	PROPOSED STORM DRAIN	PROPOSED STORM DRAIN INLET	EXISTING TREES (FIELD LOCATED)	PROPOSED LIGHTING
EXISTING FENCE	PROPERTY LINE	RIGHT-OF-WAY LINE	PROPOSED SIDEWALK	EXISTING 20' UTILITY EASEMENT (PER DETAIL P812/F24)	EXISTING 30' RIGHT OF WAY EASEMENT (LIBER 484 FOLD 329)	UTILITY EASEMENT (PLAT LOCATED)	STREET TREE MAINTENANCE ESMT (PLAT 367/23)	PROPOSED MICRO-BRETENTION FACILITY (M-6)	DEMOLITION	P-2 PAVEMENT	PAVEMENT REPLACEMENT	MILL AND OVERLAY PAVEMENT	

NO.	REVISION	DATE
2	REVISE THE PLAN TO SHOW THE INSTALLATION OF M-H-1A, A RELOCATION OF M-H-1 AND A REALIGNMENT OF THE STORM DRAIN CONNECTION.	6-16-20
1	REVISE THE PLAN TO REALIGN A PORTION OF THE 6" FERRULE W/RE. RELOCATE MANHOLE #16 AND THE 6" STORM DRAIN AND THE 8" DRAIN NEAR THE RETAINING WALLS.	3-10-20

SITE DEVELOPMENT PLAN
SITE LAYOUT AND EXISTING CONDITION/DEMOLITION PLAN
 9199 RED BRANCH ROAD
 COLUMBIA, OAKLAND RIDGE INDUSTRIAL PARK
 SECTION 1, LOT 5
 SELF-STORAGE FACILITY
 (PB. 12-65) L.15428/F.351
 TAX MAP 30, BLOCK 17
 2ND ELECTION DISTRICT
 ZONED: NT
 PARCEL 239
 HOWARD COUNTY, MARYLAND

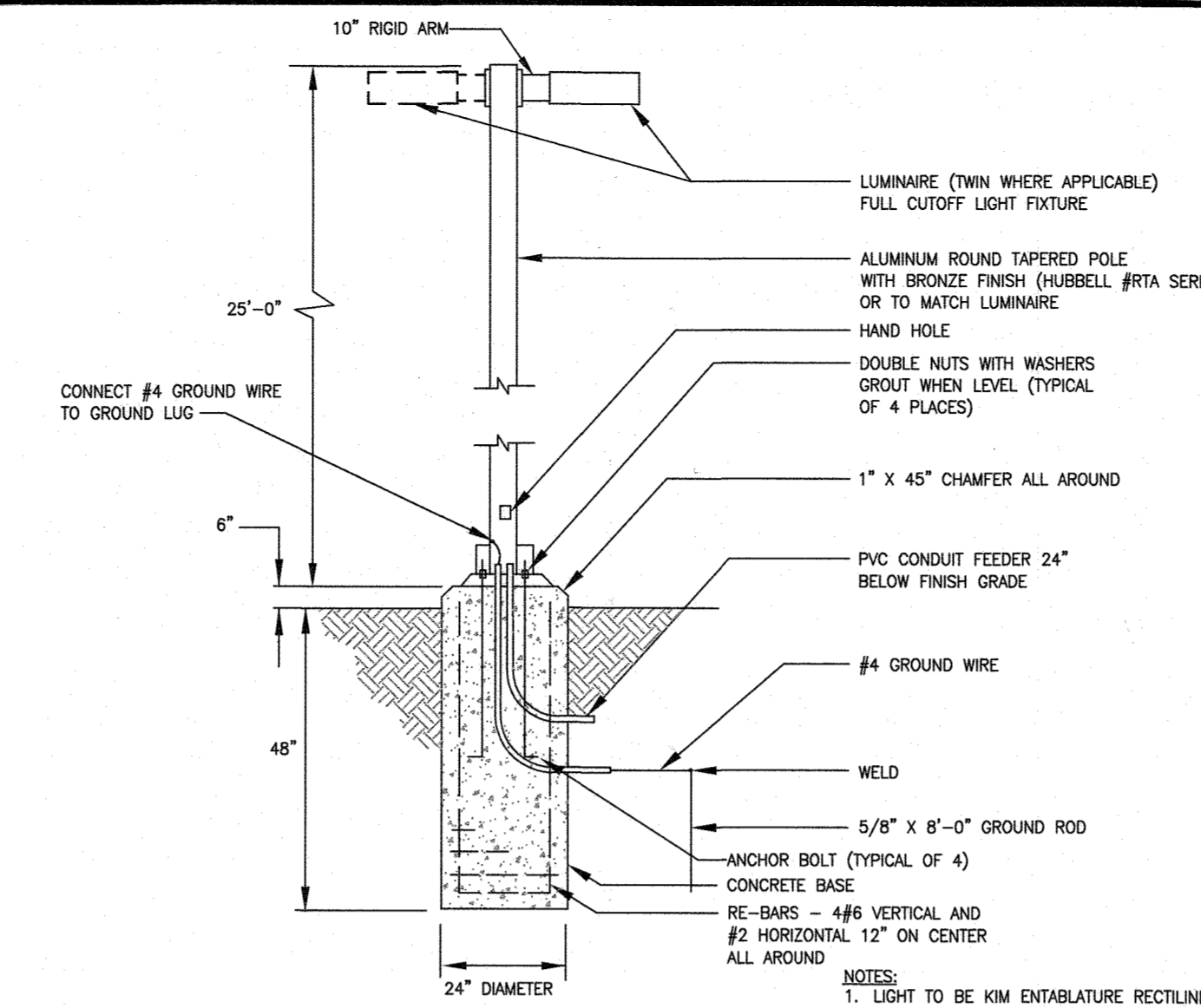
ROBERT H. VOGEL ENGINEERING, INC.
 ENGINEERS • SURVEYORS • PLANNERS
 3300 N. RIDGE ROAD, SUITE 110, ELLICOTT CITY, MD 21043
 TEL: 410.461.7666 FAX: 410.461.8961

PROFESSIONAL CERTIFICATE
 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. 16193, EXPIRATION DATE: 09-27-2020
 DESIGN BY: LRC
 DRAWN BY: LRC
 CHECKED BY: RHY
 DATE: NOV 2019
 SCALE: AS SHOWN
 W.O. NO.: 11-43
 2 SHEET OF 8



SECTION	ROAD AND STREET CLASSIFICATION	CALIFORNIA BEARING RATIO (CBR)	1 TO 4 1/2 FT	4 1/2 TO 7 FT	7 TO 10 FT	10 TO 15 FT	15 TO 20 FT	20 TO 25 FT	25 TO 30 FT	30 TO 45 FT	45 TO 60 FT	60 TO 75 FT	75 TO 100 FT
P-1	PAVING SECTION FOR HIGHWAY	100	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
P-2	PAVING SECTION FOR HIGHWAY WITH NO MORE THAN 10% TRAFFIC FROM TRUCKS	100	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
P-3	PAVING SECTION FOR HIGHWAY WITH NO MORE THAN 20% TRAFFIC FROM TRUCKS	100	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
P-4	PAVING SECTION FOR HIGHWAY WITH NO MORE THAN 30% TRAFFIC FROM TRUCKS	100	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5

NOTES:
 1. HEAVY TRUCKS ARE DEFINED AS THOSE WITH 100,000 LB OR MORE INCLUDING GARAGE BUSES.
 2. SUPERFICIAL ASPHALT LAYERS SHALL BE PLACED BY APPROPRIATE COMPACTED LIFT PROCEDURE. 3.0 IN BASE SUPERFICIAL ASPHALT SHALL BE PLACED IN 1.5 IN LIFTS.
 3. GARAGED ASPHALT SHALL BE PLACED IN 1.5 IN LIFTS.
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HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
 RECORD OF SOIL EXPLORATION

Project Name: 9199 Red Branch Road
 Location: Columbia, MD
 Boring No: TP-2
 Job #: 19168A

Date: 03/20/19
 Date Completed: 03/20/19

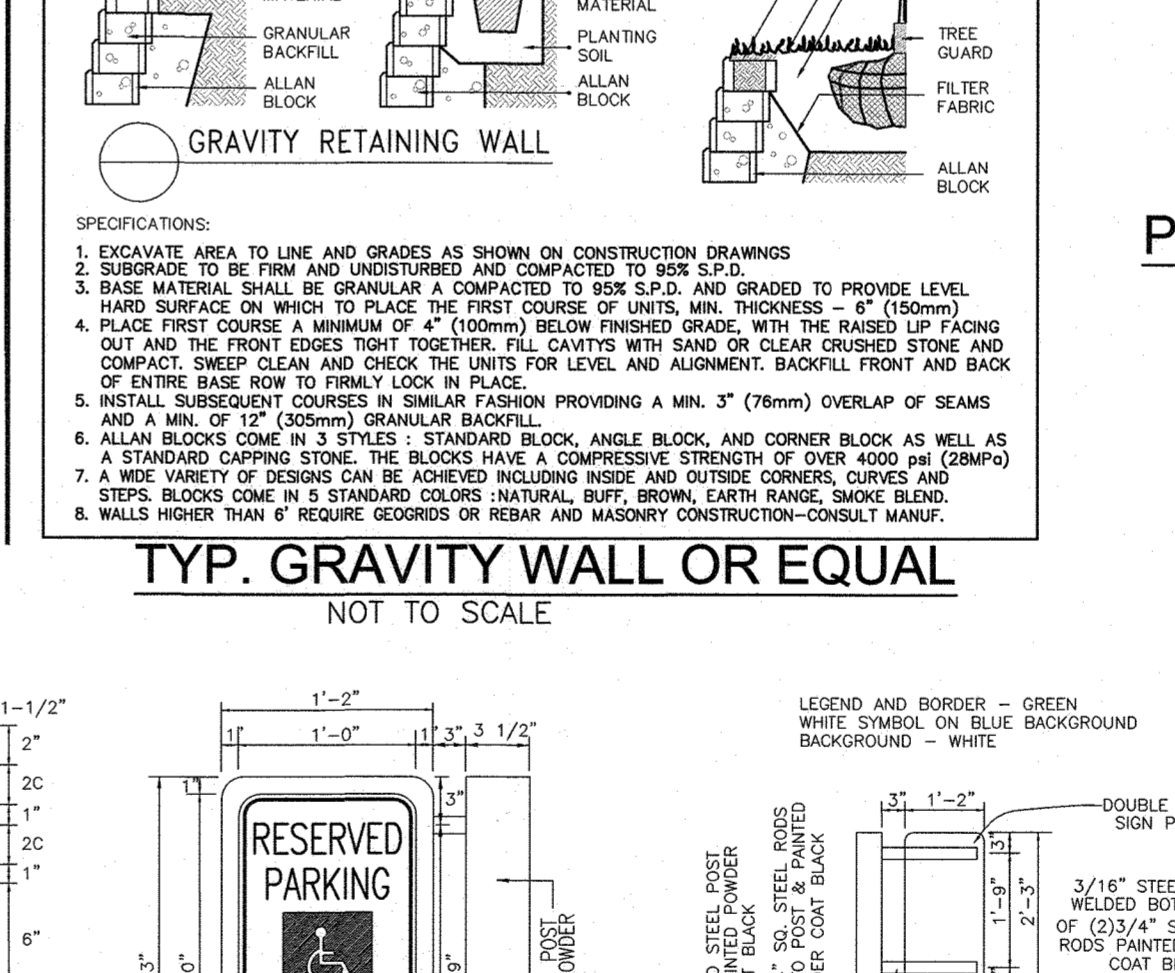
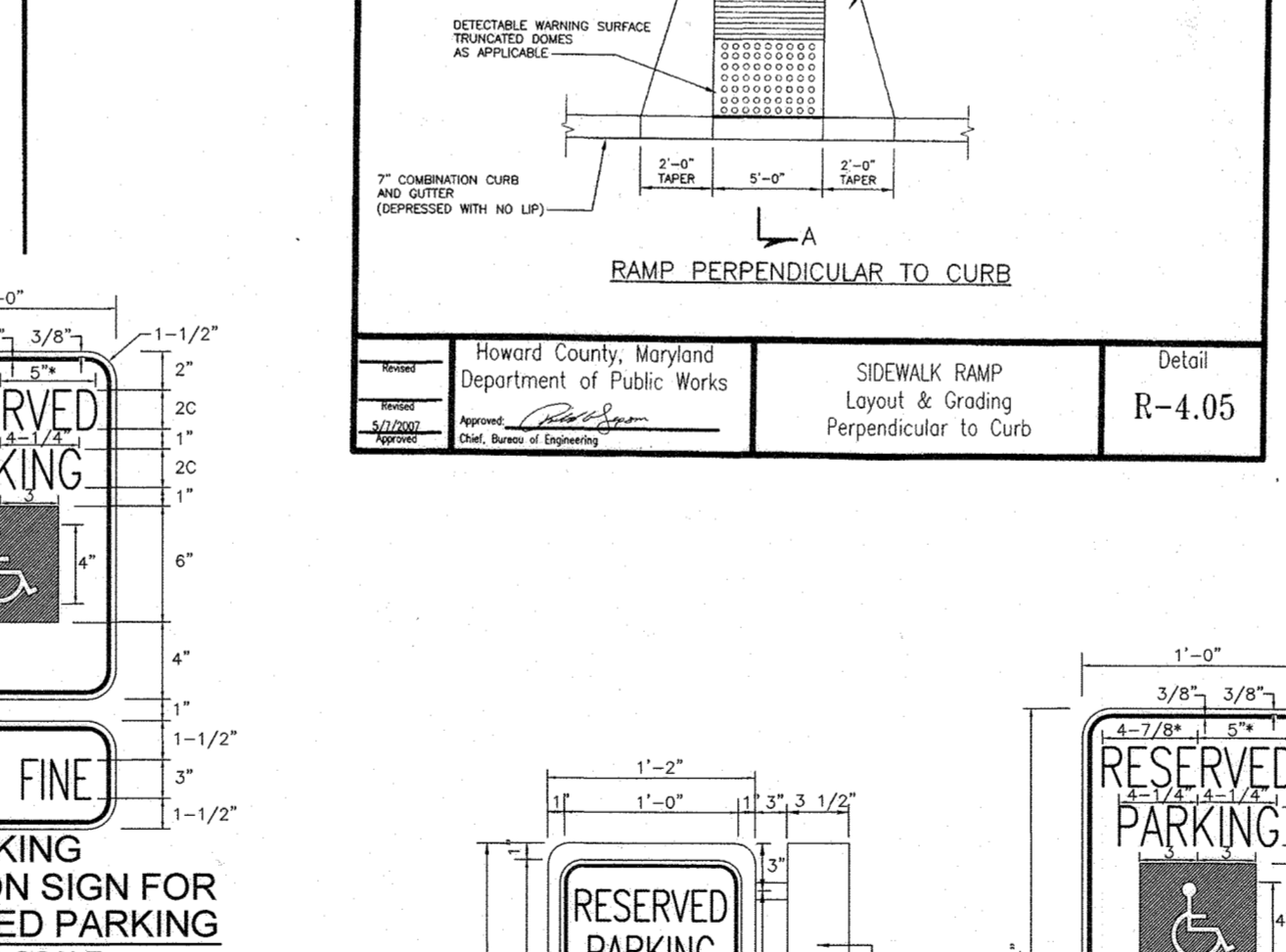
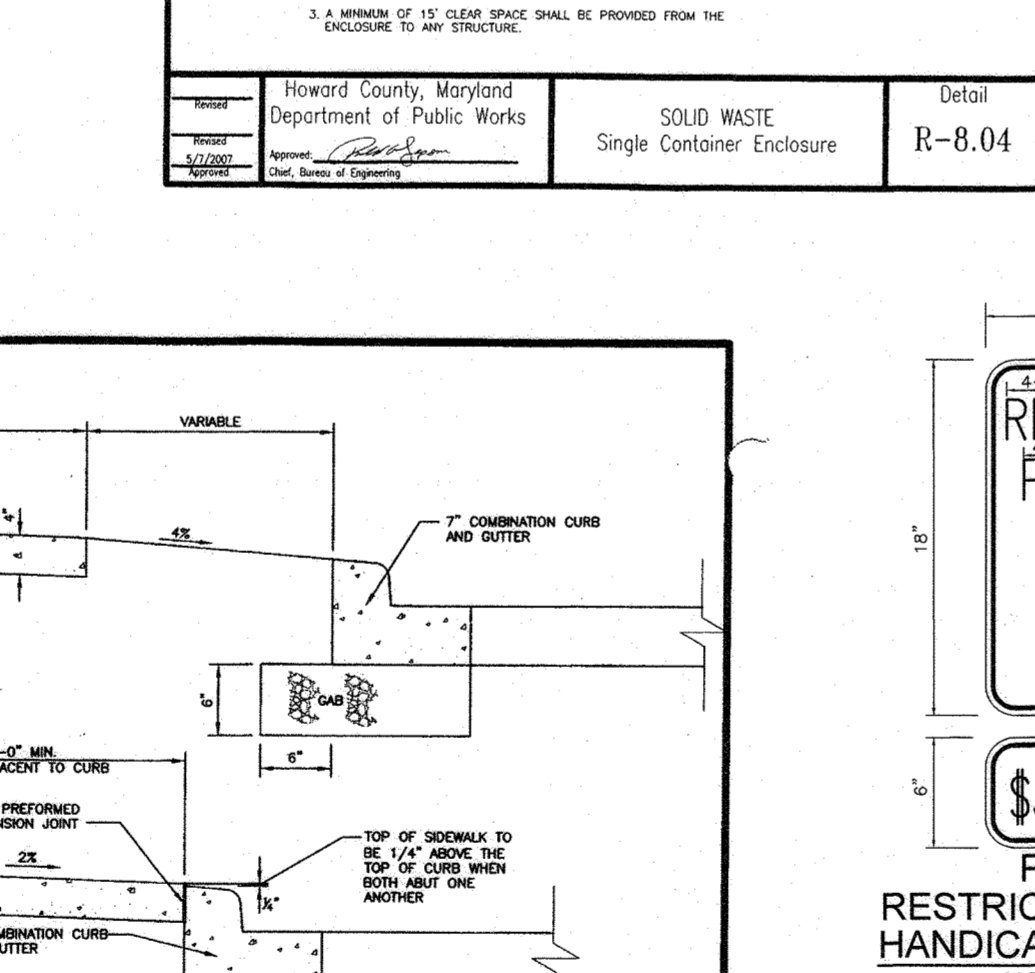
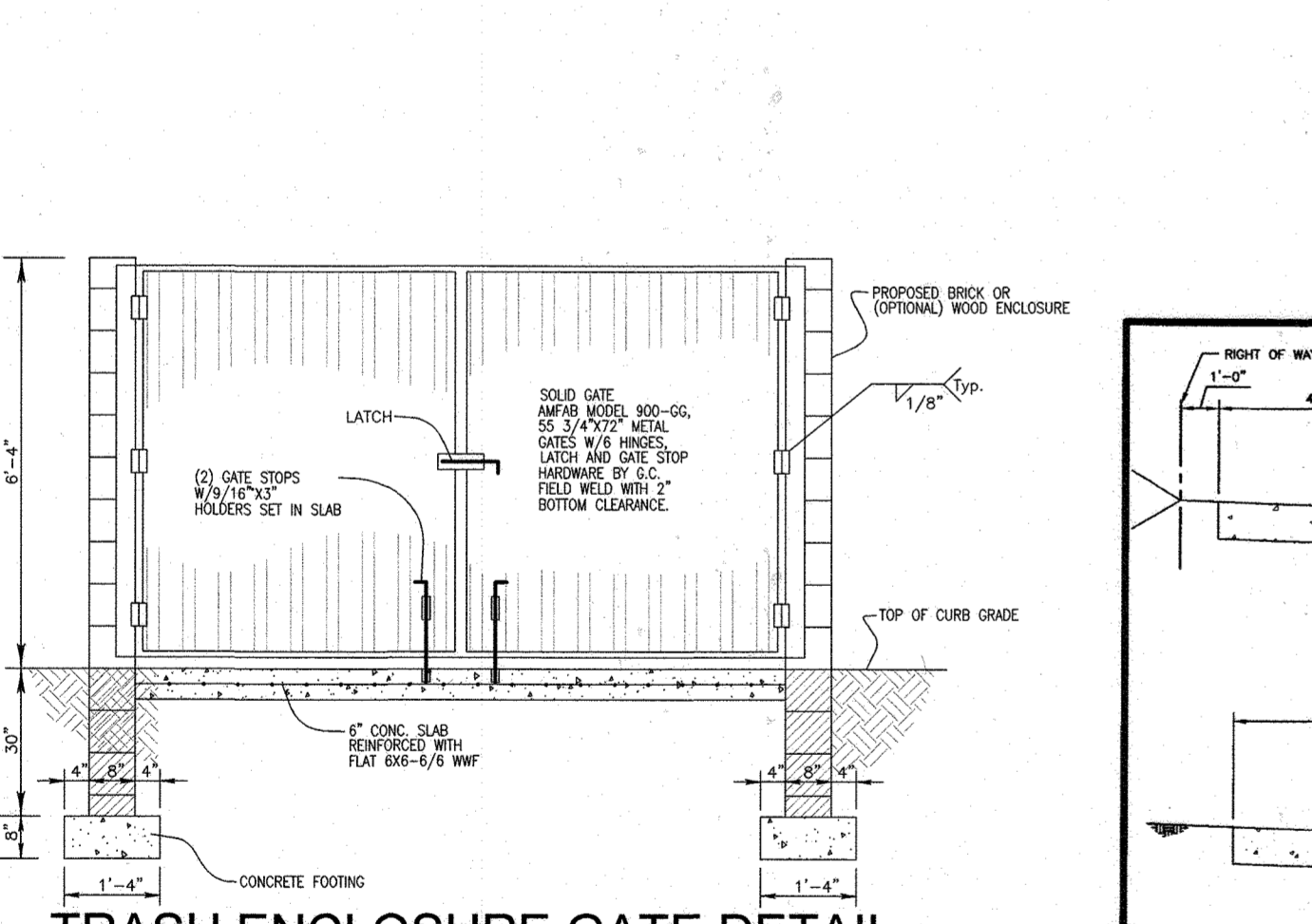
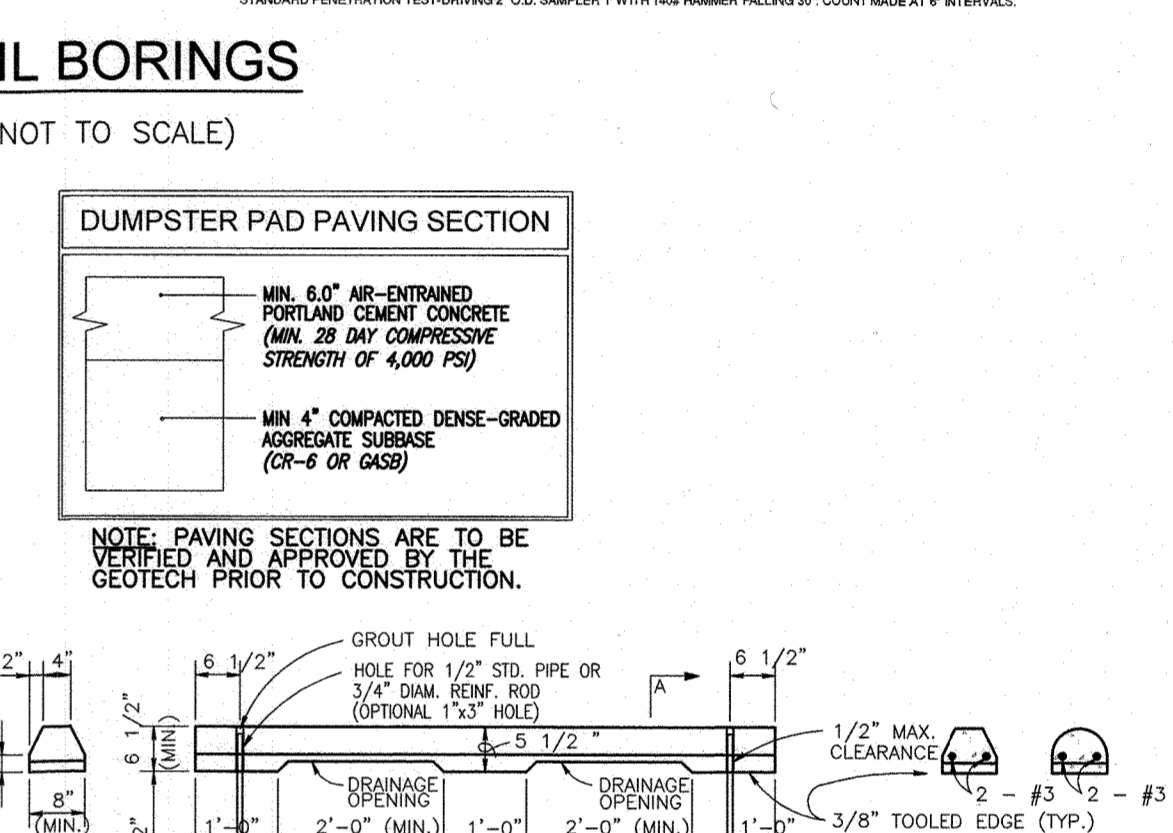
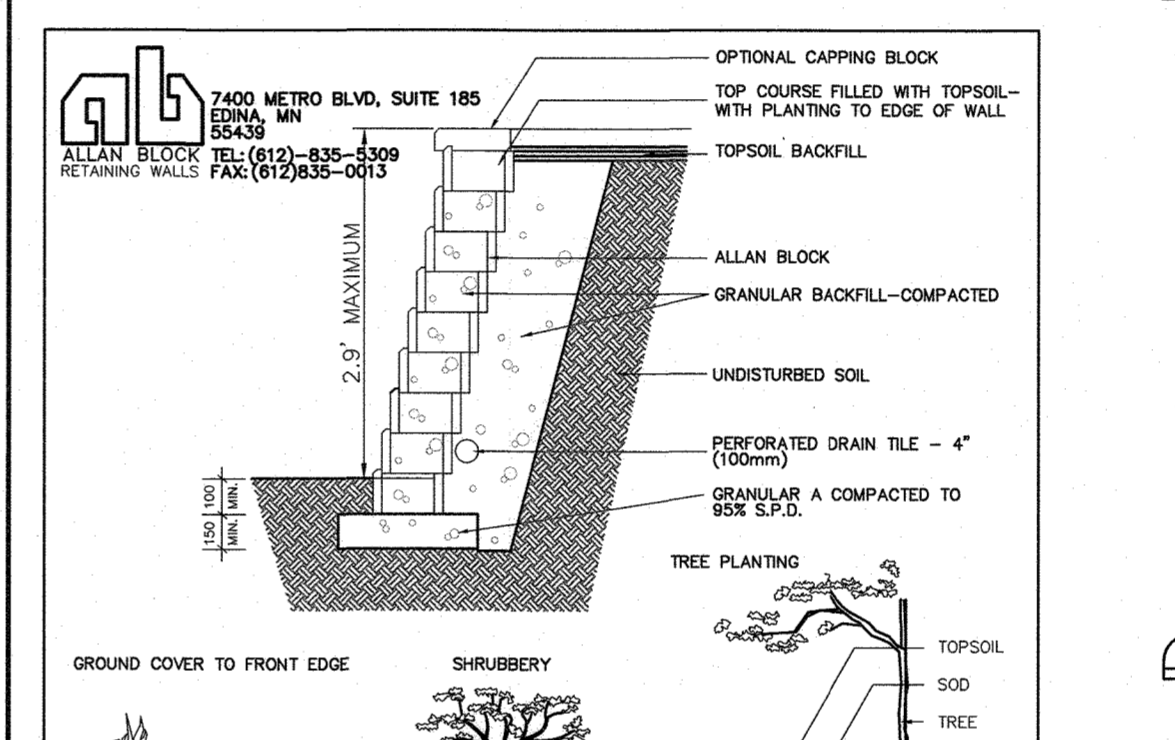
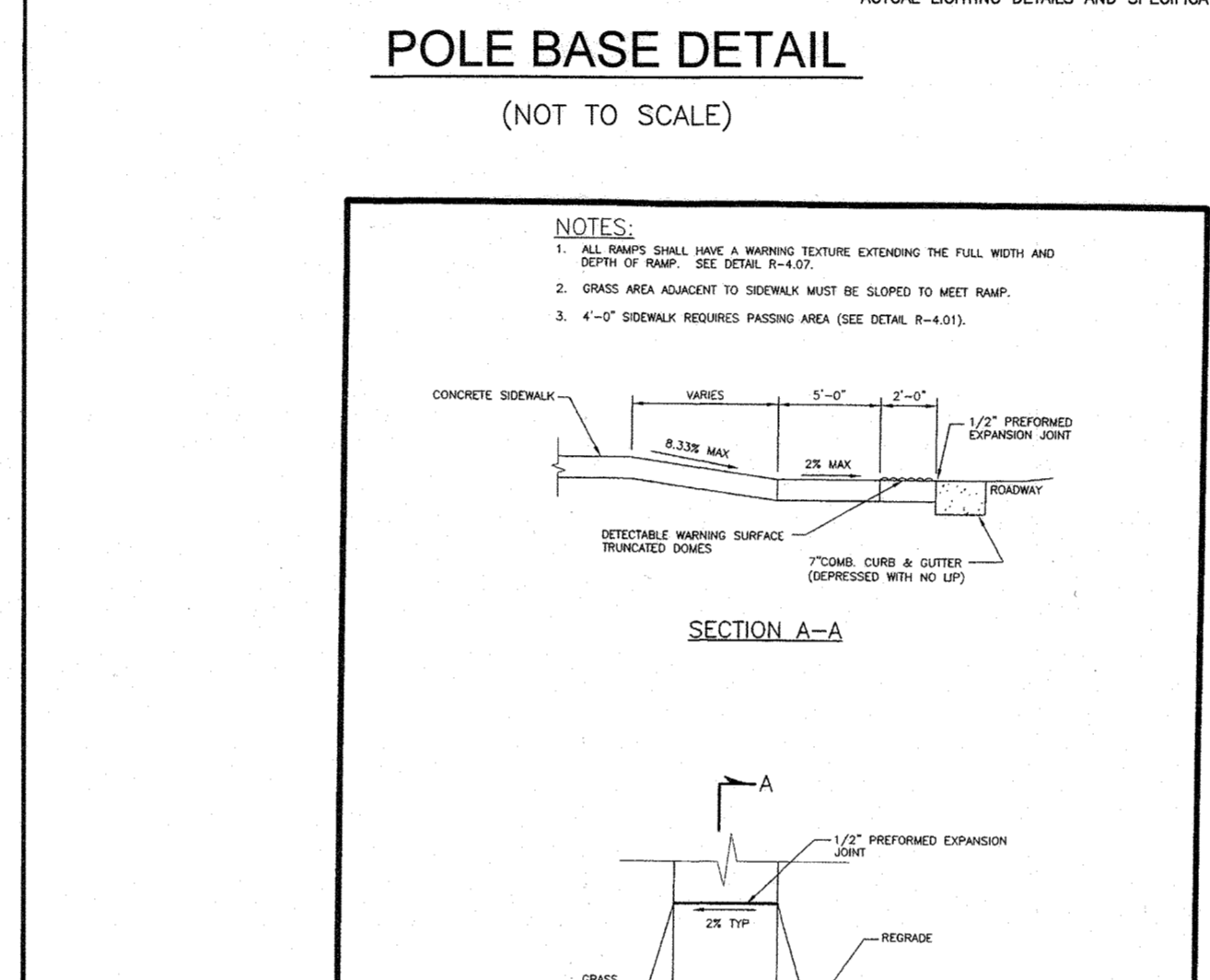
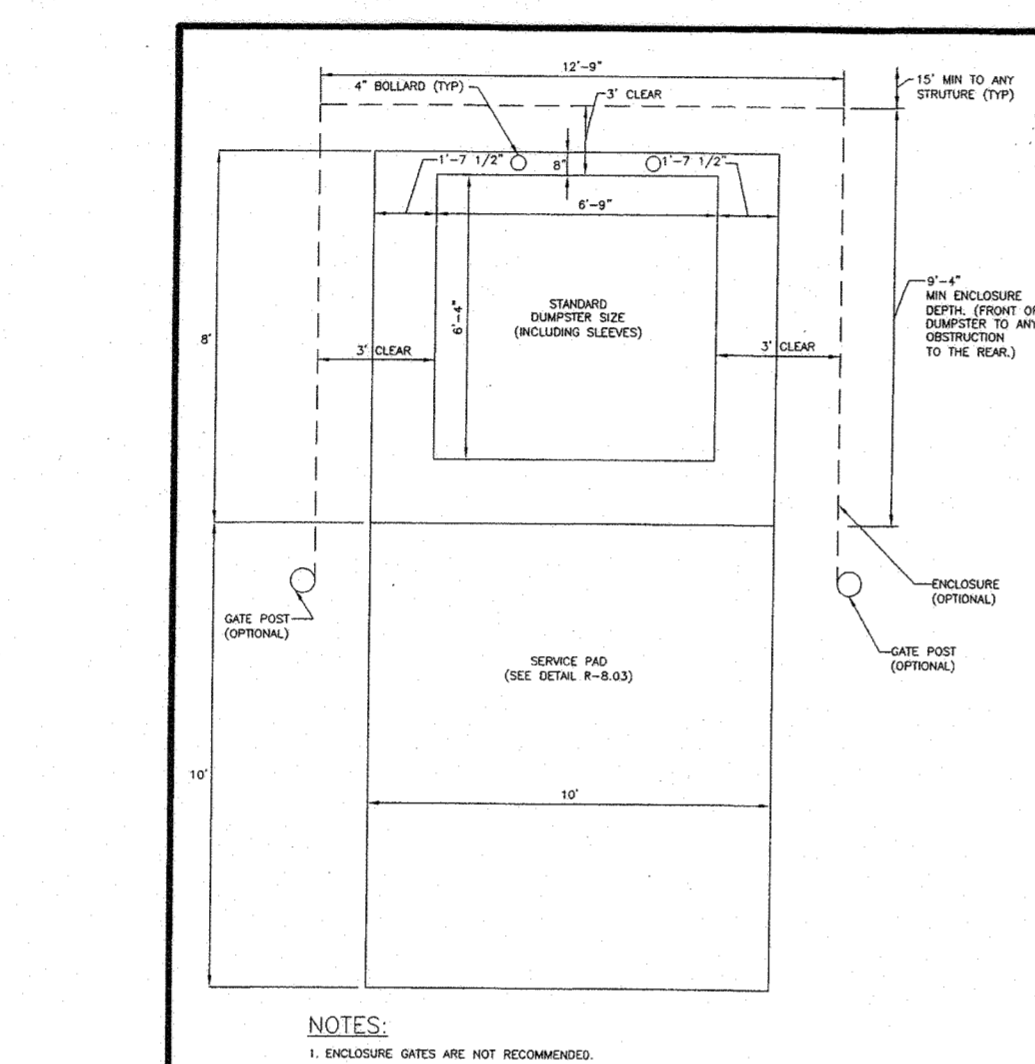
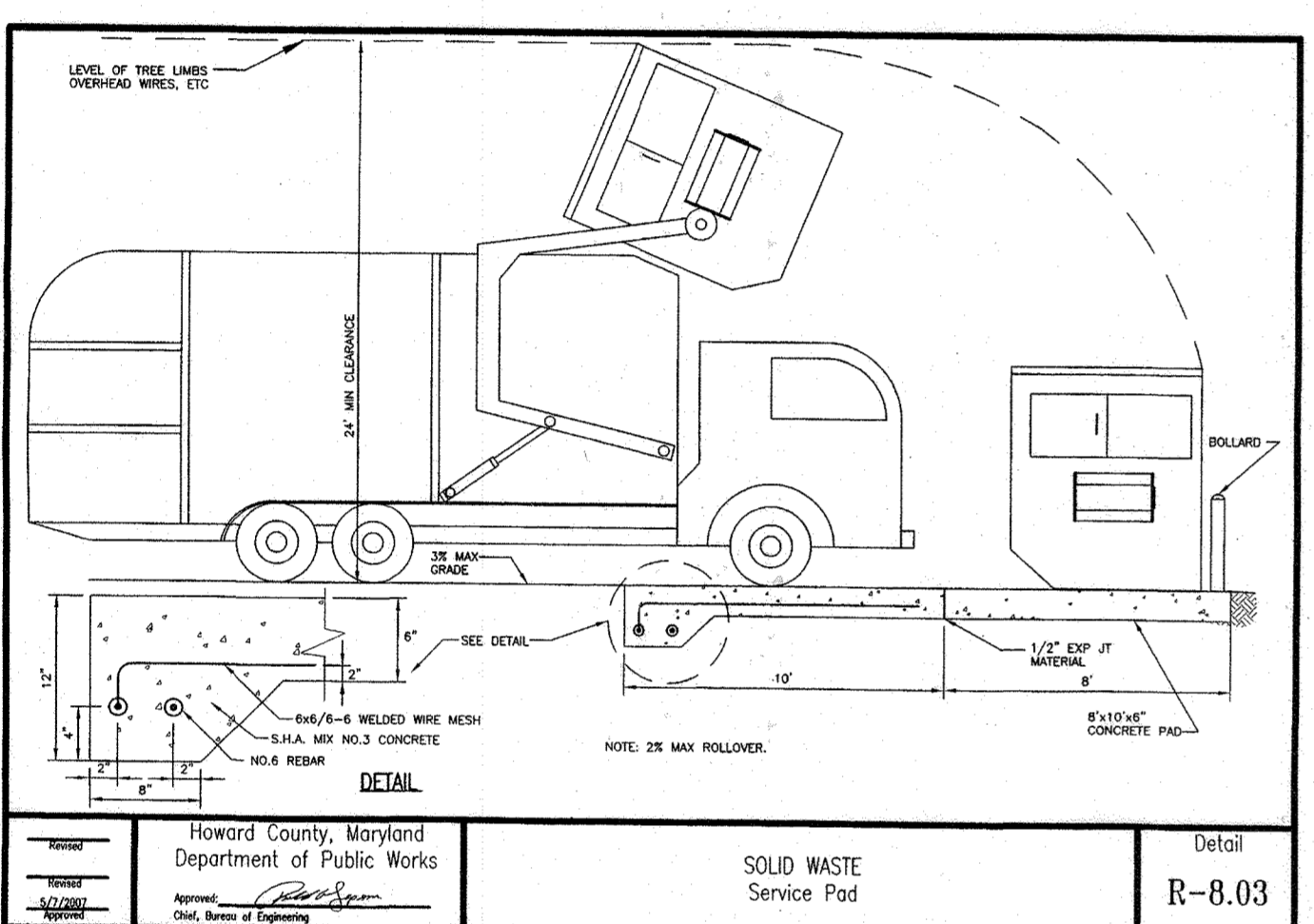
Elevation	Depth	Description	Boring and Sampling	Notes	SPT Blows	Flow	Gravel	Clay	Silt	Water
420	0	Surface	4\"/>							
425	5	Dark brown moist medium silty clay (CL, ML, FI)	4\"/>							
430	10	Trace organics	4\"/>							
435	15	No groundwater encountered while drilling	4\"/>							
440	20	End of boring at 8 ft	4\"/>							

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
 RECORD OF SOIL EXPLORATION

Project Name: 9199 Red Branch Road
 Location: Columbia, MD
 Boring No: TP-2
 Job #: 19168A

Date: 03/20/19
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430	10	Trace organics	4\"/>							
435	15	No groundwater encountered while drilling	4\"/>							
440	20	End of boring at 8 ft	4\"/>							



AS-BUILT CERTIFICATION FOR PSWM

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND SPECIFICATIONS. I HAVE VERIFIED THAT THE CONTRIBUTING DRAINAGE AREA IS SUFFICIENTLY STABILIZED TO PREVENT CLOGGING OF THE UNDERGROUND SWM FACILITY.

DATE: 12-13-19
 DATE: 12-23-19
 DATE: 12-24-19

NOTES:
 1. SIDEWALK TO BE Scribed IN 5'-0\"/>

NOTES:
 1. SIGNS TO BE APPLIED TO METAL SIGN PANELS WITH SHEET METAL SCREWS PAINTED TO MATCH BACKGROUND.
 2. FINE AMOUNT TO BE DETERMINED BY HOWARD COUNTY RESOLUTION. CONTACT HOWARD COUNTY DEPARTMENT OF INSPECTIONS AND PERMITS.
 3. * REduce SPACING SOX

NO AS-BUILT INFORMATION ON THIS SHEET

SITE DEVELOPMENT PLAN
 SITE DETAILS

9199 RED BRANCH ROAD
 COLUMBIA, OAKLAND RIDGE INDUSTRIAL PARK
 SECTION 1, LOT 5
 SELF-STORAGE FACILITY
 (PB-12-68) L154289F.351 HOWARD COUNTY, MARYLAND

TAX MAP: 30 BLOCK 17
 2ND ELECTION DISTRICT

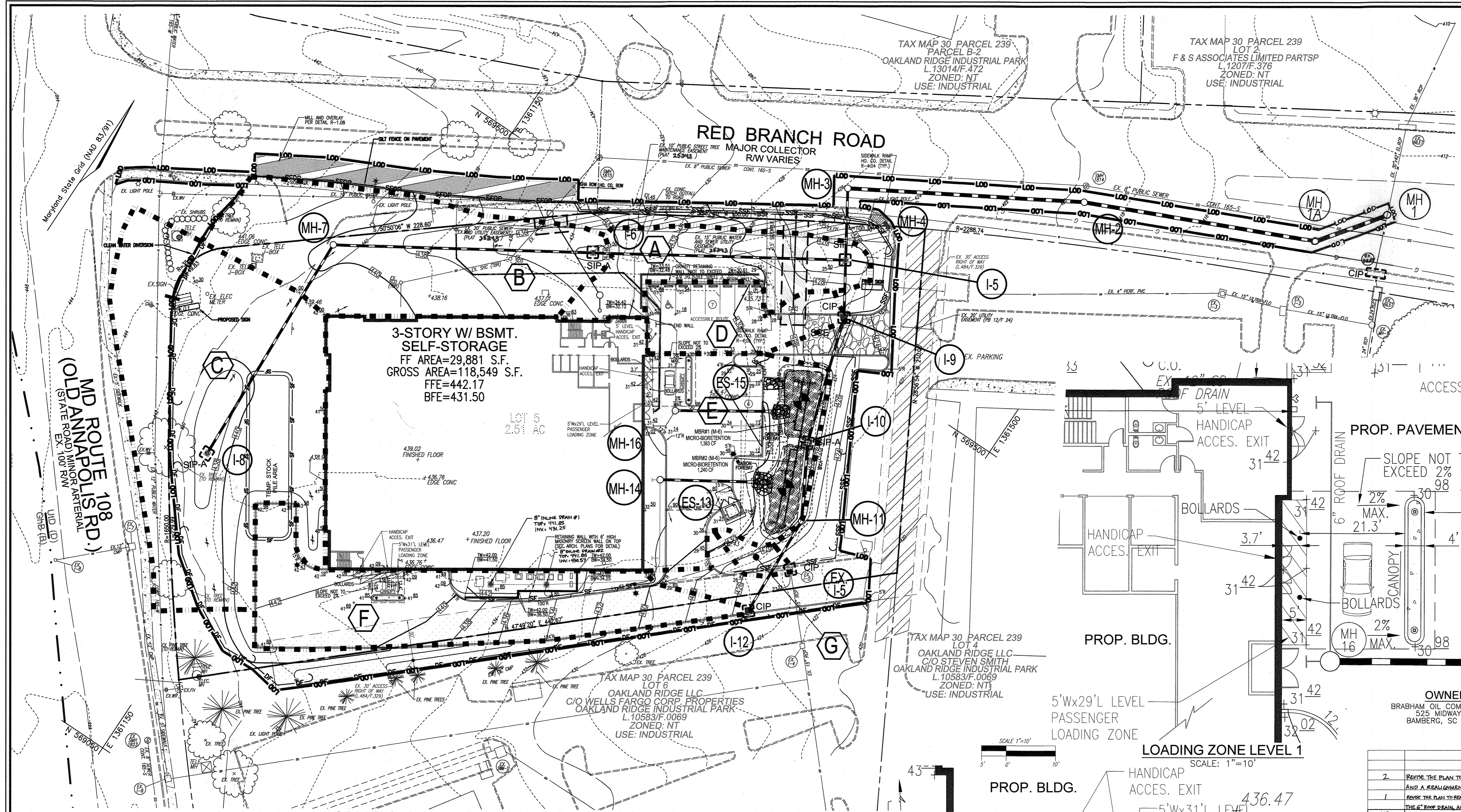
ZONED: NT
 PARCEL: 239

ROBERT H. VOGEL ENGINEERING, INC.
 ENGINEERS • SURVEYORS • PLANNERS
 3300 N. RIDGE ROAD, SUITE 110, ELLICOTT CITY, MD 21043
 TEL: 410.461.7666 FAX: 410.461.8961

DESIGN BY: LRC
 DRAWN BY: LRC
 CHECKED BY: RHC
 DATE: NOV 2019
 SCALE: AS SHOWN
 W.O. NO.: 11-43

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. 16193 EXPIRATION DATE: 08-27-2020

3 SHEET OF 8



LEGEND:

	PROPERTY LINE
	RIGHT-OF-WAY LINE
	ADJACENT PROPERTY LINE
	EXISTING CURB AND GUTTER
	EXISTING UTILITY POLE
	EXISTING LIGHT POLE
	EXISTING MAILBOX
	EXISTING SIGN
	EXISTING SANITARY MANHOLE
	EXISTING SANITARY LINE
	EXISTING CLEANOUT
	EXISTING FIRE HYDRANT
	EXISTING WATER LINE
	EXISTING 10' CONTOUR
	EXISTING 2' CONTOUR
	PROPOSED STORMWATER INLET
	PROPOSED SIDEWALK
	PROPOSED 10' CONTOUR
	PROPOSED 2' CONTOUR
	PROPOSED SPOT ELEVATION
	PROPOSED CURB
	EXISTING 20' UTILITY EASEMENT
	EXISTING 30' RIGHT OF WAY EASEMENT (LIBER 484 FOLIO 329)
	PROPOSED MICRO-BIORETENTMENT FACILITY (M-6)
	M1B2 SOILS BOUNDARY
	M1O3 SOILS BOUNDARY
	LIMIT OF DISTURBANCE
	SUPER SILT FENCE
	DIVERSION FENCE
	AT GRADE INLET PROTECTION
	STANDARD INLET PROTECTION
	STABILIZED CONSTRUCTION ENTRANCE
	ACCESSIBLE ROUTE (NOT TO EXCEED 2% CROSS SLOPE)

GRADING, SEDIMENT AND EROSION CONTROL PLAN
SCALE: 1"=30'

SOILS LEGEND
HOWARD COUNTY SOILS MAP #18

SYMBOL NAME / DESCRIPTION	GROUP	HYDRIC	ERODIBLE	Kw
U1D URBAN LAND-UDORTMENTS COMPLEX, 0 TO 15 PERCENT SLOPES	D	NO	NO	0.28

TAKEN FROM: USDA, SCS-NRCS SOIL SURVEY, HOWARD COUNTY, MARYLAND
* BASED UPON ESTIMATED CUTS

NOTE: HIGHLY ERODIBLE SOILS ARE THOSE SOILS WITH A SLOPE GREATER THAN 15 PERCENT OR THOSE SOILS WITH A SOIL ERODIBILITY FACTOR K GREATER THAN 0.35 AND WITH A SLOPE GREATER THAN 5 PERCENT

AS-BUILT CERTIFICATION FOR PSWMM

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND COMPLIES WITH THE APPROVED PLANS AND SPECIFICATIONS. I HAVE VERIFIED THAT THE CONTRIBUTING DRAINAGE AREA IS SUFFICIENTLY STABILIZED TO PREVENT CLOGGING OF THE UNDERGROUND SWM FACILITY.

16193 4-15-21
P.E.# DATE

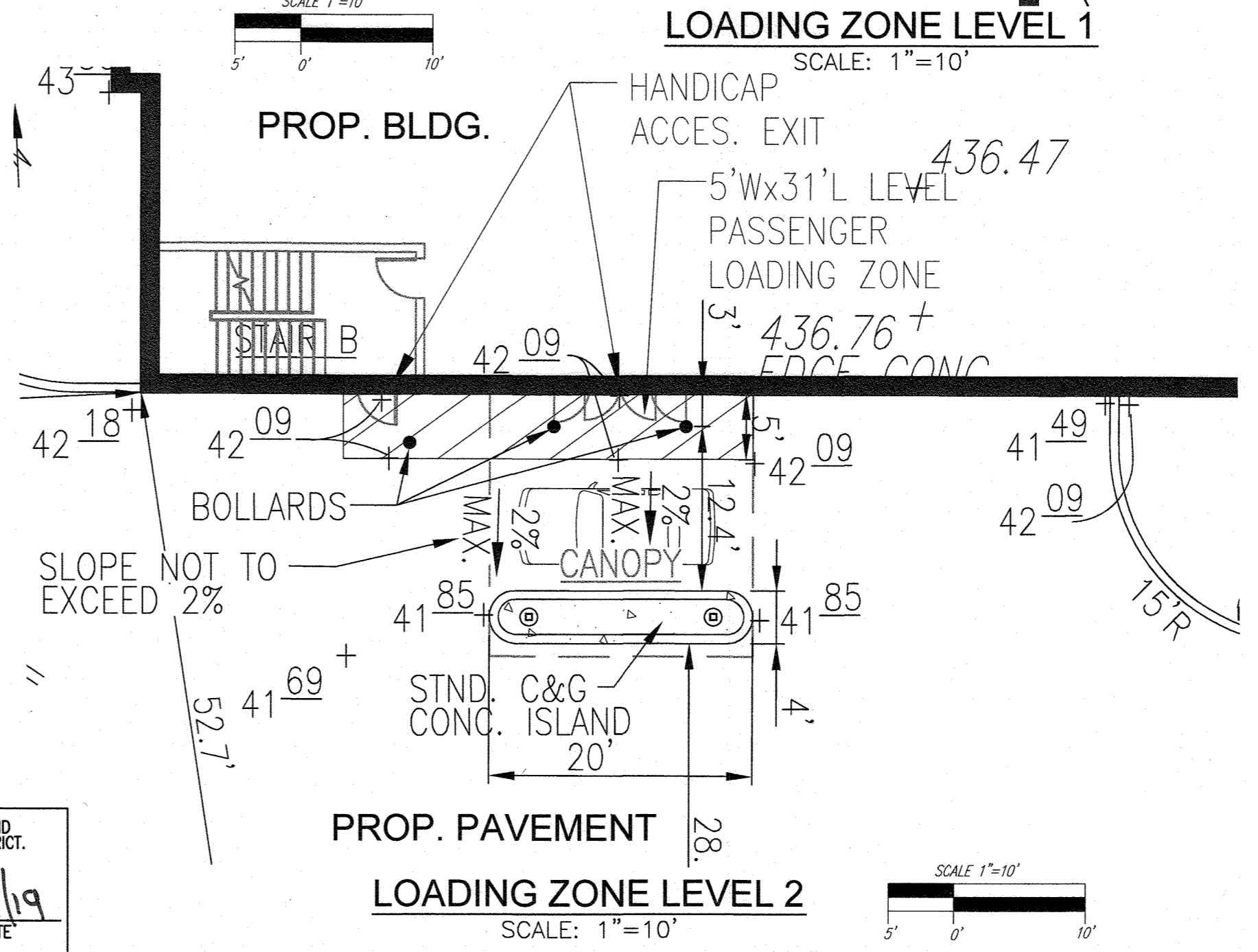
STATE OF MARYLAND
ROBERT HARRIS VOGEL
PROFESSIONAL ENGINEER
NO. 18193
EXPIRES 12-31-21

DRAINAGE AREAS FOR SEDIMENT CONTROL

AREA NO.	AREA (AC.)	PRACTICE TYPE	DETAIL NO.
A	0.19	STANDARD INLET PROTECTION (TYPE "A")	E-9-1
B	0.39	STANDARD INLET PROTECTION (TYPE "A")	E-9-1
C	0.55	STANDARD INLET PROTECTION (TYPE "A")	E-9-1
D	0.10	CURB INLET PROTECTION	E-9-3
E	0.97	STANDARD INLET PROTECTION (TYPE "A")	E-9-1
F	0.28	CURB INLET PROTECTION	E-9-3
G	0.02	CURB INLET PROTECTION	E-9-3

NOTE:

- SILT FENCE IS TO BE REPLACED WITH SUPER SILT FENCE AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR.
- SILT FENCE SHALL BE CURLED UP HILL, NO MORE THAN 35 FEET APART
- DOUBLE ROWS OF SUPER SILT FENCE SHALL BE INSTALLED AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR.



LOADING ZONE LEVEL 1
SCALE: 1"=10'

LOADING ZONE LEVEL 2
SCALE: 1"=10'

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

12-17-19
DATE

12-23-19
DATE

12-24-19
DATE

BY THE DEVELOPER:

I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION CONTROL AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT.

11/22/19
DATE

BY THE ENGINEER:

I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

11/21/19
DATE

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

12/10/19
DATE

OWNER
BRABHAM OIL COMPANY, INC.
525 MIDWAY ST.
BAMBERG, SC 29003

DEVELOPER
RED BRANCH ROAD
SELF STORAGE LLC
1276 ASSEMBLY STREET
COLUMBIA, SC 29201
C/O RYAN HYLER
(803) 206-1438

NO.	REVISION	DATE
2	REVISE THE PLAN TO SHOW THE INSTALLATION OF MH-1A, A RELOCATION OF MH-1 AND A REALIGNMENT OF THE STORM DRAIN CONNECTION	6-16-20
1	REVISE THE PLAN TO REALIGN A PORTION OF THE 6" FRENCH W/IC, RELOCATE MANHOLE #16 AND THE 6" ROOF DRAIN, AND THE 8" DRAINS NEAR THE RETAINING WALLS	3-10-20

SITE DEVELOPMENT PLAN
GRADING, SEDIMENT AND EROSION CONTROL PLAN

9199 RED BRANCH ROAD
COLUMBIA, OAKLAND RIDGE INDUSTRIAL PARK

SECTION 1: LOT 5
SELF-STORAGE FACILITY
(PB. 12-65) L.15428/F.351

TAX MAP: 30 BLOCK: 17
2ND ELECTION DISTRICT

ZONED: NT
PARCEL 239
HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL ENGINEERING, INC.
ENGINEERS • SURVEYORS • PLANNERS

3300 N. RIDGE ROAD, SUITE 110, ELLICOTT CITY, MD 21043
TEL: 410.461.7666 FAX: 410.461.8961

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DESIGN BY: LRC
DRAWN BY: LRC
CHECKED BY: RHW
DATE: NOV 2019
SCALE: AS SHOWN
W.O. NO.: 11-43

4 SHEET OF 8

AS-BUILT, MARCH 2021

SDP-19-049

B-2-4 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

A. 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 DISCHARGERS 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 SHOULD BE TRACKED WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE.
 - APPLY FERTILIZER AND LIME AS PRESCRIBED ON THE PLAN.
 - INCORPORATE LIME AND FERTILIZER INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS.
- 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 TO LOGGRASS 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.
- SOIL CONDITIONS ARE FOUND TO BE REPRESENTATIVE SOIL PROFILE SECTION IN 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.
- EACH DISTURBED AREA TO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS, RAKE LAWN AREAS TO SMOOTH THE SURFACE, REMOVE LARGE OBJECTS, LIME STONES AND BRANCHES, AND READY THE AREA FOR SEED APPLICATION. LOOSEN SOIL BY DISKING WITH A HEAVY CHAIN OR OTHER EQUIPMENT TO ROUGHEN THE SURFACE WHERE SITE CONDITIONS WILL NOT PERMIT NORMAL SEEDBED PREPARATION. TRACK RIDGES 3:1 OR FLATTER SHOULD BE TRACKED WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE. LEAVE THE TOP 1 TO 3 INCHES OF SOIL UNDISTURBED. SEEDBED LOOSENING MAY BE UNNECESSARY ON NEWLY DISTURBED AREAS.

B. 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 REPRESENTATIVE SOIL PROFILE SECTION IN THE SOIL SURVEY PUBLISHED BY USDA-NRCS.
- TOPSOILING IS LIMITED TO AREAS WHERE THE FOLLOWING CRITERIA APPLY:
 - THE TEXTURE OF THE EXPOSED SUBSOIL/FLATTER MATERIAL IS NOT ADEQUATE TO PRODUCE VEGETATIVE GROWTH.
 - SOIL GRADATION 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 CONTAINS A HEAVY CHAIN OR OTHER EQUIPMENT TO ROUGHEN THE SOIL.
 - 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, SILTY LOAM, SANDY CLAY LOAM, OR LOAM FINE. OTHER SOIL TYPES ARE NOT ACCEPTABLE FOR USE AS TOPSOIL.
 - TOPSOIL MUST BE APPROVED BY THE APPROPRIATE AUTHORITY. TOPSOIL MUST NOT BE A MIXTURE OF DISTURBED SOILS. TOPSOIL MUST BE A MIXTURE OF DISTURBED SOILS THAT IS 5 PERCENT BY VOLUME OF GROUNDERS, STICKS, SLAG, COARSE FRAGMENTS, GRAVEL, STICKS, ROOTS, TRASH, OR OTHER MATERIALS LARGER THAN 1/8 INCH IN DIAMETER.
 - TOPSOIL MUST BE FREE OF NOXIOUS PLANTS OR PLANT PARTS SUCH AS BERBERIS 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 AUTHORITY, MAY BE USED IN PLACE OF NATURAL TOPSOIL.
- EROSION AND SEDIMENT CONTROL PRACTICES MUST BE MAINTAINED WHEN APPLYING TOPSOIL.
- UNLESS OTHERWISE SPECIFIED, TOPSOIL IS 4 TO 8 INCH LAYER AND LIGHTLY COMPACT TO A MINIMUM THICKNESS OF 4 INCHES. SPREADING IS TO BE PERFORMED IN SUCH A MANNER THAT SOODING 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.
- TOPSOIL MUST NOT BE PLACED IF THE TOPSOIL OR SUBSOIL IS IN A FROZEN OR MUDDY CONDITION WHEN THE TOPSOIL IS PLACED. IN A CONDITION THAT IS OTHERWISE BE DETRIMENTAL TO PROPER GRADING AND SEEDBED PREPARATION.

C. 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 ANALYSIS.
- FERTILIZERS MUST BE UNIFORM IN COMPOSITION, FLOW EVENLY AND SUITABLE FOR ACCURATE APPLICATION WITH APPROPRIATE EQUIPMENT. FERTILIZER MUST BE DELIVERED TO THE SITE FULLY LABELED ACCORDING TO 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 80 TO 100 PERCENT WILL PASS THROUGH A #200 MESH SIEVE. 4. 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 RESTORE DISTURBED SOILS FROM EROSION DURING AND AT THE END OF CONSTRUCTION.

CONDITIONS WHERE PRACTICE APPLIES
ON ALL PERMETER CONTROLS, SLOPES, AND ANY DISTURBED AREA NOT UNDER ACTIVE GRADING.

CRITERIA

A. SEEDING

- 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 SLOPE OR FLATTER. THE QUALITY OF SEED, SEED TREATMENT, AND SEEDING RATE MUST BE AVAILABLE UPON REQUEST TO THE INSPECTOR TO VERIFY TYPE OF SEED AND SEEDING RATE.
- MULCH ALONE MAY BE APPLIED BEFORE THE FALL AND SPRING SEEDING DATES ONLY IF THE GROUND IS FROZEN OR OTHERWISE UNAVAILABLE. MULCH MUST BE APPLIED WHEN THE GROUND THAWES.
- INOCULANTS: THE INOCULANT FOR TREATING LEGUME SEED IN THE SEED MIXTURES MUST BE A PURE CULTURE OF NITROGEN FIXING BACTERIA FOR THE SPECIES. INOCULANTS MUST NOT BE USED LATER THAN THE DATE INDICATED ON THE CONTAINER. ADD FRESH INOCULANTS AS DIRECTED ON THE CONTAINER. SEED FERTILIZER SHOULD BE APPLIED AT THE RECOMMENDED RATE. IT IS VERY IMPORTANT TO KEEP INOCULANTS AS COOL AS POSSIBLE UNTIL USED. TEMPERATURES ABOVE 75 TO 80 DEGREES FAHRENHEIT CAN WEAKEN BACTERIA AND MAKE THE INOCULANT LESS EFFECTIVE.
- SOIL 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 DISAPPEARANCE OF PHYTO-TOXIC MATERIALS.

B. APPLICATION

- DRY SEEDING: THIS INCLUDES USE OF CONVENTIONAL DRIP OR BROADCAST SPREADERS. THAT INCORPORATE SEED INTO THE SUBSOIL AT THE RATE PRESCRIBED OR OTHERWISE SEEDING TABLE 8.1. PERMANENT SEEDING TABLE 8.3, 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 CULPICKER SEEDING: MECHANIZED SEEDERS THAT APPLY AND COVER SEED WITH SOIL. 1. CULPICKER SEEDERS ARE REQUIRED TO BURY THE SEED IN SUCH A FASHION AS TO PROVIDE AT LEAST 1/2 INCH OF SOIL COVERING SEED. MULCH WILL RECEIVE MEDIUM TO INTENSIVE MANAGEMENT. IRRIGATION REQUIRED IN THE AREAS OF CENTRAL, MARYLAND AND EASTERN SHORE. 2. DRILL SEEDING: DRILL SEEDING IS PERMITTED ON SLOPES OF 3:1 TO 2:0 POUNDS PER 1000 SQUARE FEET. CHOOSE A MINIMUM OF THREE KENTUCKY BLUEGRASS CULTIVARS WITH EACH RANGING FROM 10 TO 50 PERCENT OF THE TOTAL MIXTURE BY WEIGHT.
- KENTUCKY BLUEGRASS/PERENNIAL RYE: FULL SUN MIXTURE. FOR USE IN FULL SUN AREAS WHERE PERMANENT VEGETATION IS NECESSARY AND WHEN TURF WILL RECEIVE MEDIUM TO INTENSIVE MANAGEMENT. IRRIGATION REQUIRED IN THE AREAS OF CENTRAL, MARYLAND AND EASTERN SHORE. 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.
- KENTUCKY BLUEGRASS/FINE FESCUE: SHADY MIXTURE. FOR USE IN AREAS WITH SHADE IN FULL SUN TO MEDIUM SHADE. RECOMMENDED MIXTURE INCLUDES: CERTIFIED TALL FESCUE CULTIVARS 95 TO 100 PERCENT, KENTUCKY BLUEGRASS CULTIVARS 5 TO 10 PERCENT, SEEDING RATE 5 TO 8 POUNDS PER 1000 SQUARE FEET. ONE OR MORE CULTIVARS MAY BE BLENDED.
- PERENNIAL RYEGRASS/FINE FESCUE: SHADY MIXTURE. FOR USE IN AREAS WITH SHADE IN FULL SUN TO MEDIUM SHADE. RECOMMENDED MIXTURE INCLUDES: CERTIFIED PERENNIAL RYEGRASS CULTIVARS 30 TO 40 PERCENT AND CERTIFIED FINE FESCUE AND 60 TO 70 PERCENT. SEEDING RATE 10 TO 13 POUNDS PER 1000 SQUARE FEET.

C. 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 (PHOSPHOROUS), 200 POUNDS PER ACRE; K2O (POTASSIUM), 200 POUNDS PER ACRE.
- IF LIME OR OTHER SOIL AMENDMENTS ARE BEING APPLIED AT THE TIME OF SEEDING, APPLY BY HYDROSEEDING. LIME SHOULD NOT BE APPLIED BY HYDROSEEDING. NORMAL RATE IS 2 TONS PER ACRE. LIME SHOULD BE APPLIED AT ANY ONE TIME. DO NOT USE BURNT OR HYDRATED LIME WHEN HYDROSEEDING.
- APPLY SEED AND FERTILIZER ON SITE AND SEED IMMEDIATELY AND WITHOUT INTERRUPTION.
- WHEN HYDROSEEDING DO NOT INCORPORATE SEED INTO THE SOIL.

D. MULCHING

- MULCH MATERIALS (IN ORDER OF PREFERENCE):
 - STRAW CONSISTING OF THOROUGHLY DRYED WHEAT, LIME, 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 CONTAIN ANY EXCESSIVE DUST.
 - 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 TO FACILITATE APPLICATION.
 - WCFM IS TO BE DIED GREEN OR CONTAIN A GREEN DYE IN THE PACKAGE THAT WILL PROVIDE AN APPROPRIATE COLOR TO FACILITATE IDENTIFICATION OF THE MULCH.
 - 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 UNIFORM SUSPENSION IN WATER. UNDER AGITATION AND WILL BLEND WITH SEED, FERTILIZER AND OTHER ADDITIVES TO FORM A HOMOGENEOUS MIXTURE.
 - THE MULCH MATERIAL MUST FORM A THICK, EVEN COATING OVER EXISTING STONES AND DEBRIS.
 - HAVING MOISTURE ABSORPTION AND PERCOLATION PROPERTIES AND MUST COVER AND HOLD GRASS SEEDS IN CONTACT WITH THE SOIL WITHOUT INHIBITING THE GROWTH OF THE SEEDS.
 - WCFM MATERIAL MUST NOT CONTAIN ELEMENTS OR COMPOUNDS AT CONCENTRATION LEVELS THAT WILL BE PHYTO-TOXIC.
 - WCFM MUST BE APPLIED TO THE FOLLOWING PHYSICAL REQUIREMENTS: FIBER LENGTH OF APPROXIMATELY 10 MILLIMETERS, DIAMETER APPROXIMATELY 1 MILLIMETER, PH RANGE OF 4.0 TO 8.5, ASH CONTENT OF 1.6 PERCENT MAXIMUM AND WATER HOLDING CAPACITY OF 90 PERCENT MINIMUM.
- 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 SPREADER, INCREASE THE 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 1000 SQUARE FEET. WCFM MUST BE APPLIED AT A NET DRY WEIGHT OF 1500 POUNDS PER 1000 SQUARE FEET. WCFM MUST BE APPLIED AT A NET DRY WEIGHT OF 750 POUNDS PER ACRE. MIX THE WOOD CELLULOSE FIBER WITH WATER AT A MAXIMUM OF 50 GALLONS OF WATER PER 100 GALLONS OF WCFM.
- SYNTHETIC BINDERS SUCH AS ACRYLIC DR (AGRO-TACK), DCA-70, PESTROLET, TERRA TACK, THERM TACK OR OTHER APPROVED EQUAL MAY BE USED. FOLLOW APPLICATION INSTRUCTIONS ON THE MANUFACTURER'S LABEL. BINDERS SHOULD BE APPLIED AT A RATE HEAVIER AT THE EDGES WHERE WIND CATCHES MULCH, SUCH AS IN VALLEYS AND ON CRESTS OF BROADWAY DRIVE ENGINES. BINDERS SHOULD BE APPLIED TO SUPPORT THE MULCH AND RETAIN THEIR SIZE AND SHAPE WHEN SUSPENDED VERTICALLY WITH A FIRM GRASP ON THE UPPER TO LOWER PORTION OF THE MULCH.
- SOIL MUST NOT BE HARVESTED OR TRANSPORTED WHEN MOISTURE CONTENT (EXCESSIVELY DRY OR WET) MAY ADVERSELY AFFECT ITS SURVIVAL.
- SOIL MUST BE HARVESTED, DELIVERED, AND INSTALLED WITHIN A PERIOD OF 36 HOURS. SOIL NOT TRANSPORTED WITHIN THIS PERIOD MUST BE APPROVED BY AN AGRONOMIST OR SOIL SCIENTIST PRIOR TO ITS INSTALLATION.
- SOIL INSTALLATION
 - DURING PERIODS OF EXCESSIVELY HIGH TEMPERATURE OR IN AREAS HAVING DRY SUBSOIL, LIGHTLY IRRIGATE THE SUBSOIL IMMEDIATELY PRIOR TO LAYING THE SOIL.
 - LAY THE FIRST ROW OF SOIL IN A STRAIGHT LINE WITH SUBSEQUENT ROWS PLACED PARALLEL TO IT AND THIGHTLY NEEDED AGAINST EACH OTHER. STRIPPER LATERAL JOINTS TO PROMOTE MORE UNIFORM GROWTH AND STRENGTH. ENSURE THAT SOIL IS NOT STRETCHED OR OVERLAPPED AND THAT ALL JOINTS ARE BUTTED TIGHT IN ORDER TO PREVENT AIR FROM ENTERING THE JOINTS.
 - WHEREVER POSSIBLE, LAY SOIL WITH THE LONG EDGES PARALLEL TO THE CONTOUR AND WITH STRAGGLING JOINTS. STRIPPER LATERAL JOINTS SHOULD BE STROPPED TO PREVENT SURFACE ON SLOPES. ENSURE SOLID CONTACT EXISTS BETWEEN SOIL ROOTS AND THE UNDERLYING SOIL SURFACE.
 - LAYER THE SOIL IMMEDIATELY FOLLOWING ROLLING AND TAMPING UNTIL THE UNDERSIDE OF THE NEW SOIL PAD AND SOIL SURFACE BELOW THE SOIL ARE THOROUGHLY WET. COMPLETE THE OPERATIONS OF WATERING, TAMPING AND IRRIGATING FOR ANY PORE OF SOIL WITHIN EIGHT HOURS.
 - SOIL MAINTENANCE
 - IN THE ABSENCE OF ADEQUATE RAINFALL, WATER DAILY DURING THE FIRST WEEK OR AS OFTEN AND SUFFICIENTLY NECESSARY TO MAINTAIN MOISTURE TO A DEPTH OF 4 INCHES. WATER SO DURING THE HEAT OF THE DAY TO PREVENT WILTING.
 - AFTER THE FIRST WEEK, SOIL WATERING IS REQUIRED AS NECESSARY TO MAINTAIN ADEQUATE MOISTURE CONTENT.
 - DO NOT MOW UNTIL THE SOIL IS FIRMLY ROOTED. NO MORE THAN 1/3 OF THE GRASS LEAF SHOULD BE REMOVED BY THE INITIAL CUTTING OR SUBSEQUENT CUTTINGS. MAINTAIN A GRASS HEIGHT OF AT LEAST 3 INCHES UNLESS OTHERWISE SPECIFIED.

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 GRADING COVER IS NEEDED FOR 6 MONTHS OR MORE.

CRITERIA

A. SEED MIXTURES

- GENERAL USE
 - USE ONE OR MORE OF THE SPECIES OR MIXTURES LISTED IN TABLE 8.3 FOR THE APPROPRIATE PLANT HARDNESS ZONE (FROM FIGURE 8.3) AND BASED ON THE SITE CONDITION OR PURPOSE. FOUND ON TABLE 8.2. EITHER SELECTED MIXTURE(S), APPLICATION RATES, AND SEEDING DATES IN THE PERMANENT SEEDING SUMMARY. SEEDING DATES TO BE PLACED ON THE PLAN.
 - USE ADDITIONAL SPECIFICATIONS FOR EXCEPTIONAL SITES SUCH AS SHORELINES, STREAM BANKS, OR SITES OF SPECIAL PURPOSES SUCH AS WETLANDS. SUCH MIXTURES 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 URFA FORM FERTILIZER (40-0-0) AT 3-1/2 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. SEEDING DATES 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. 2 POUNDS MIXTURE PER 1000 SQUARE FEET. CHOOSE A MINIMUM OF THREE KENTUCKY BLUEGRASS CULTIVARS WITH EACH RANGING FROM 10 TO 50 PERCENT OF THE TOTAL MIXTURE BY WEIGHT.
 - KENTUCKY BLUEGRASS/PERENNIAL RYE: FULL SUN MIXTURE. FOR USE IN FULL SUN AREAS WHERE PERMANENT VEGETATION IS NECESSARY AND WHEN TURF WILL RECEIVE MEDIUM TO INTENSIVE MANAGEMENT. IRRIGATION REQUIRED IN THE AREAS OF CENTRAL, MARYLAND AND EASTERN SHORE. 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 BROADWAY DRIVE 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, KENTUCKY BLUEGRASS CULTIVARS 5 TO 10 PERCENT, SEEDING RATE 5 TO 8 POUNDS PER 1000 SQUARE FEET. ONE OR MORE CULTIVARS MAY BE BLENDED.
 - PERENNIAL RYEGRASS/FINE FESCUE: SHADY MIXTURE. FOR USE IN AREAS WITH SHADE IN FULL SUN TO MEDIUM SHADE. RECOMMENDED MIXTURE INCLUDES: CERTIFIED PERENNIAL RYEGRASS CULTIVARS 30 TO 40 PERCENT AND CERTIFIED FINE FESCUE AND 60 TO 70 PERCENT. SEEDING RATE 10 TO 13 POUNDS PER 1000 SQUARE FEET.

NOTES:

- DURING GRADING AND AFTER EACH RAINFALL, CONTRACTOR WILL INSPECT AND PROVIDE NECESSARY MAINTENANCE TO THE SEDIMENT CONTROL MEASURES ON THIS PLAN.
- FOLLOWING INITIAL SOIL DISTURBANCES OR REDISTURBANCE, PERMANENT VEGETATION STABILIZATION SHALL BE COMPLETED WITHIN THE FOLLOWING TIME FRAME:
 - THREE (3) CALENDAR DAYS AS TO THE SURFACE OF ALL PERMETER CONTROLS.
 - SEVEN (7) CALENDAR DAYS AS TO THE SURFACE OF ALL SLOPES STEEPER THAN 3:1 HORIZONTAL TO 1 VERTICAL (3:1V).
 - SEVEN (7) CALENDAR DAYS AS TO THE SURFACE OF ALL FLATTER AREAS ON THE PROJECT SITE NOT UNDER ACTIVE GRADING.

3. Verify the need for SWA permit to construct sidewalk/curb within SWA portion of RED network Road.

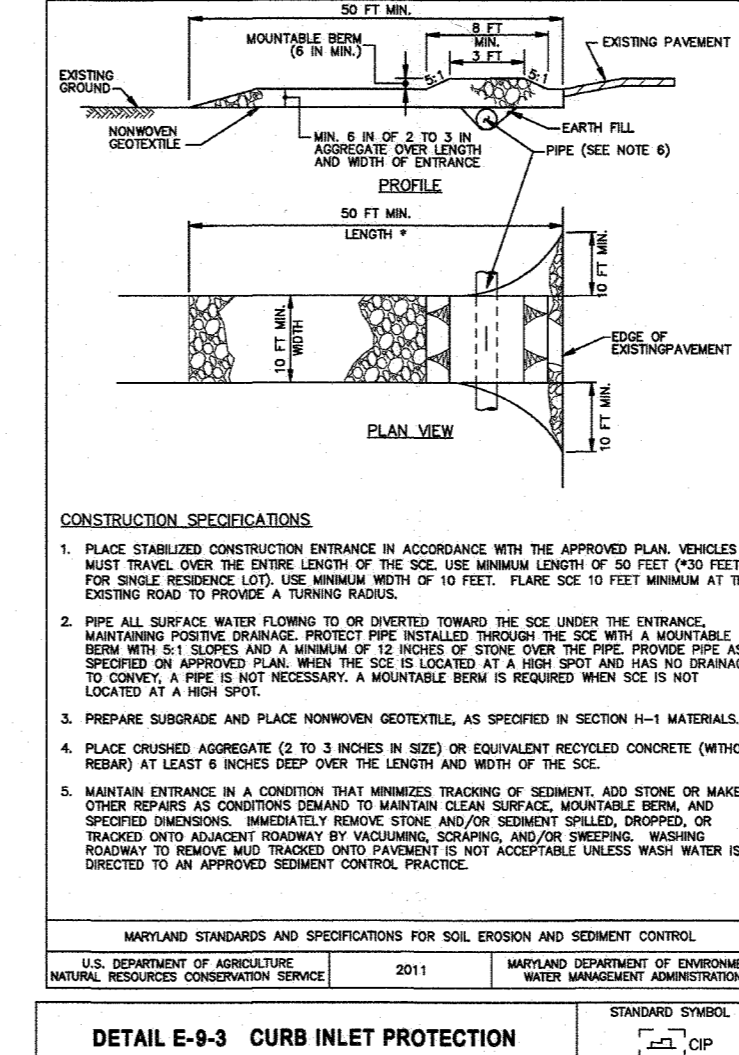
SECTION OF CONSTRUCTION

- OBTAIN HOWARD COUNTY GRADING PERMIT (WEEK 1)
- NOTIFY HOWARD COUNTY AT LEAST 48 HOURS PRIOR TO START OF CONSTRUCTION (WEEK 1)
- CONDUCT A PRE-CONSTRUCTION MEETING WITH THE SEDIMENT CONTROL INSPECTOR PRIOR TO ANY LAND DISTURBANCE (WEEK 1)
- INSTALL STABILIZED CONSTRUCTION ENTRANCE WITH MOUNTABLE BERM (WEEK 2)
- CLEARING AND LOGGING AS NECESSARY FOR THE INSTALLATION OF FERTILIZER CONTROLS. (2 DAYS)
- INSTALL ALL PERMETER CONTROLS INCLUDING SILT FENCE, SUPER SILT FENCE AND EARTH DIKES, AS INDICATED ON PLANS (WEEK 2)
- WITH APPROVAL OF SEDIMENT CONTROL INSPECTOR, CLEAR AND GRASS ALL AREAS TO BE SEEDING (WEEK 3)
- BEFORE SITE GRADING AND UTILITY CONSTRUCTION, PROVIDE INLET PROTECTION AS SHOWN ON THESE PLANS (4 WEEKS)
- INSTALL AND COMPLETE FINE GRADE AS REQUIRED TO DIRECT RUNOFF TO INLETS.
- BEGIN BUILDING CONSTRUCTION. (2 WEEKS)
- WITH INSPECTOR'S APPROVAL, BEGIN INSTALLATION OF CURB AND GUTTER AND ON-SITE SOURCE PAVING. (3 WEEKS)
- COMPLETE BUILDING AND UTILITY CONSTRUCTION.
- COMPLETE ALL CURB & GUTTER CONSTRUCTION. (1 WEEK)
- COMPLETE ALL SOURCE PAVEMENT CONSTRUCTION. (1 WEEK)
- CONSTRUCT SURFACE COURSE PAVING AND SIDEWALKS. (1 WEEK)
- REMOVE ALL TRASH JUNK AND DEBRIS FROM ENTIRE PARCEL. (1 WEEK)
- INSTALL SITE LANDSCAPING. (WEEK 15)
- FLUSH STORM DRAIN SYSTEM AND REMOVE ALL REMAINING SEDIMENT CONTROLS AFTER RECEIVING APPROVAL FROM THE SEDIMENT CONTROL INSPECTOR. STABILIZE ALL REMAINING DISTURBED AREAS.

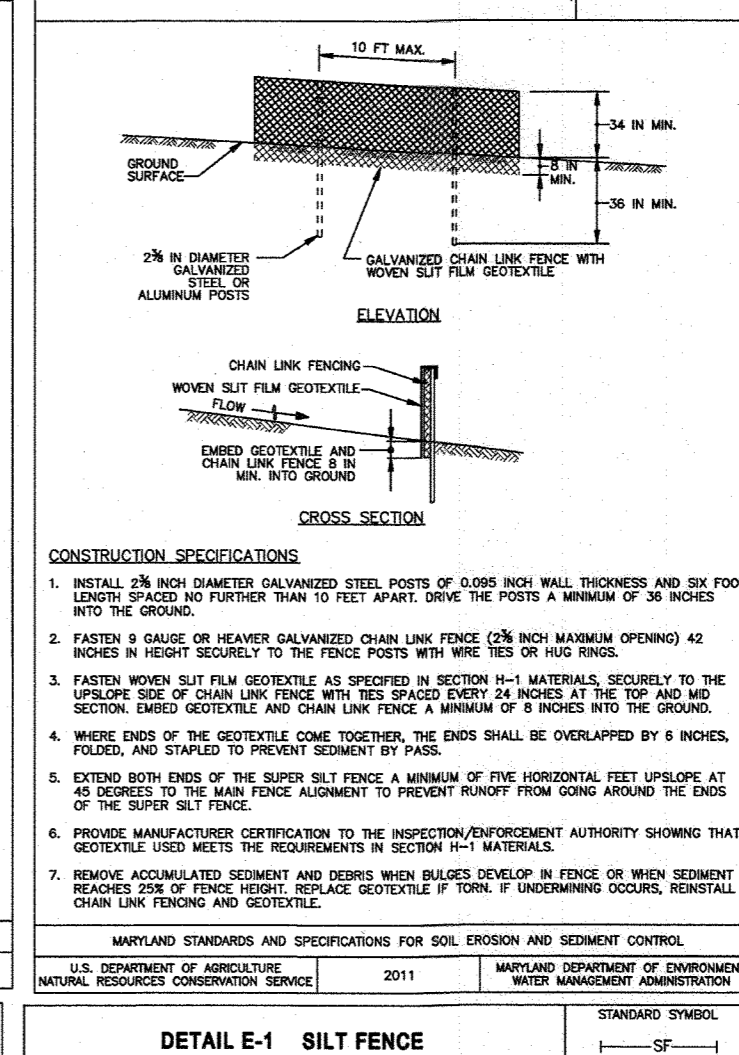
NOTES:

- DURING GRADING AND AFTER EACH RAINFALL, CONTRACTOR WILL INSPECT AND PROVIDE NECESSARY MAINTENANCE TO THE SEDIMENT CONTROL MEASURES ON THIS PLAN.
- FOLLOWING INITIAL SOIL DISTURBANCES OR REDISTURBANCE, PERMANENT VEGETATION STABILIZATION SHALL BE COMPLETED WITHIN THE FOLLOWING TIME FRAME:
 - THREE (3) CALENDAR DAYS AS TO THE SURFACE OF ALL PERMETER CONTROLS.
 - SEVEN (7) CALENDAR DAYS AS TO THE SURFACE OF ALL SLOPES STEEPER THAN 3:1 HORIZONTAL TO 1 VERTICAL (3:1V).
 - SEVEN (7) CALENDAR DAYS AS TO THE SURFACE OF ALL FLATTER AREAS ON THE PROJECT SITE NOT UNDER ACTIVE GRADING.

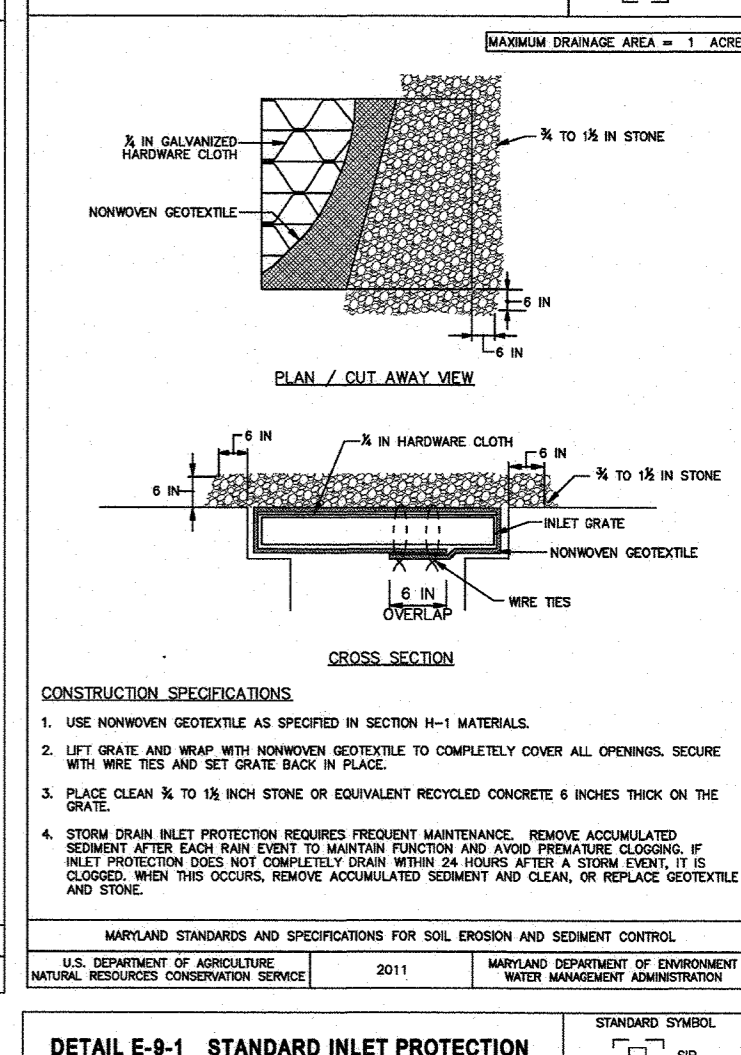
DETAIL B-1 - STABILIZED CONSTRUCTION ENTRANCE



DETAIL E-3 - SUPER SILT FENCE



DETAIL E-2 AT-GRADE INLET PROTECTION



B-4-2 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 GRADING COVER IS NEEDED FOR 6 MONTHS OR LESS. FOR LONGER DURATION OF TIME, PERMANENT STABILIZATION PRACTICES ARE REQUIRED.

CRITERIA

- GENERAL USE
 - USE ONE OR MORE OF THE SPECIES OR MIXTURES LISTED IN TABLE 8.1 FOR THE APPROPRIATE PLANT HARDNESS ZONE (FROM FIGURE 8.3), AND ENTER THEM IN THE TEMPORARY SEEDING SUMMARY BELOW ALONG WITH APPLICATION RATES, SEEDING DATES AND SEEDING DEPTHS. IF THIS SUMMARY IS NOT PUT ON THE PLAN AND COMPLETED, THEN TABLE 8.1 PLUS FERTILIZER AND LIME RATES MUST BE PUT ON THE PLAN.
 - FOR SITES HAVING SOIL TESTS PERFORMED, USE AND SHOW THE RECOMMENDED RATES BY THE TESTING AGENCY. SOIL TESTS ARE NOT REQUIRED FOR TEMPORARY SEEDING.
 - WHEN STABILIZATION IS REQUIRED OUTSIDE OF A SEEDING SEASON, APPLY SEED AND MULCH OR STRAW MULCH ALONE AS PRESCRIBED IN SECTION 8-4-3.1.B AND MAINTAIN UNTIL THE NEXT SEEDING SEASON.
- TEMPORARY SEEDING SUMMARY

HARDNESS ZONE (FROM FIGURE 8.3)	ZONE 6b	ZONE 6c	FELDER RATE (10-20-20)	LIME RATE	
NO	SPECIES	APPLICATION RATE (LB/AC)	SEEDING DATES	SEEDING DEPTHS	
1	COOL SEASON PERENNIAL RYEGRASS	40 LB/AC	MAY 1 TO MAY 15	0.5 IN.	436 LB/AC (10 LB PER 1000 SF)
2	WARM SEASON FOLIATE PERENNIAL	30 LB/AC	MAY 16 TO JUL 31	0.5 IN.	2 TONS/AC (90 LB PER 1000 SF)
- 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 DISCHARGERS 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 SHOULD BE TRACKED WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE.
 - APPLY FERTILIZER AND LIME AS PRESCRIBED ON THE PLAN.
 - INCORPORATE LIME AND FERTILIZER INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS.
 - 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 TO LOGGRASS 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.
 - SOIL CONDITIONS ARE FOUND TO BE REPRESENTATIVE SOIL PROFILE SECTION IN 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.
 - EACH DISTURBED AREA TO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS, RAKE LAWN AREAS TO SMOOTH THE SURFACE, REMOVE LARGE OBJECTS, LIME STONES AND BRANCHES, AND READY THE AREA FOR SEED APPLICATION. LOOSEN SOIL BY DISKING WITH A HEAVY CHAIN OR OTHER EQUIPMENT TO ROUGHEN THE SURFACE WHERE SITE CONDITIONS WILL NOT PERMIT NORMAL SEEDBED PREPARATION. TRACK RIDGES 3:1 OR FLATTER SHOULD BE TRACKED WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE. LEAVE THE TOP 1 TO 3 INCHES OF SOIL UNDISTURBED. 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 REPRESENTATIVE SOIL PROFILE SECTION IN THE SOIL SURVEY PUBLISHED BY USDA-NRCS.
 - TOPSOILING IS LIMITED TO AREAS WHERE THE FOLLOWING CRITERIA APPLY:
 - THE TEXTURE OF THE EXPOSED SUBSOIL/FLATTER MATERIAL IS NOT ADEQUATE TO PRODUCE VEGETATIVE GROWTH.
 - SOIL GRADATION 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 CONTAINS A HEAVY CHAIN OR OTHER EQUIPMENT TO ROUGHEN THE SOIL.
 - 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, SILTY LOAM, SANDY CLAY LOAM, OR LOAM FINE. OTHER SOIL TYPES ARE NOT ACCEPTABLE FOR USE AS TOPSOIL.
 - TOPSOIL MUST BE APPROVED BY THE APPROPRIATE AUTHORITY. TOPSOIL MUST NOT BE A MIXTURE OF DISTURBED SOILS. TOPSOIL MUST BE A MIXTURE OF DISTURBED SOILS THAT IS 5 PERCENT BY VOLUME OF GROUNDERS, STICKS, SLAG, COARSE FRAGMENTS, GRAVEL, STICKS, ROOTS, TRASH, OR OTHER MATERIALS LARGER THAN 1/8 INCH IN DIAMETER.
 - TOPSOIL MUST BE FREE OF NOXIOUS PLANTS OR PLANT PARTS SUCH AS BERBERIS 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 AUTHORITY, MAY BE USED IN PLACE OF NATURAL TOPSOIL.
 - EROSION AND SEDIMENT CONTROL PRACTICES MUST BE MAINTAINED WHEN APPLYING TOPSOIL.
 - UNLESS OTHERWISE SPECIFIED, TOPSOIL IS 4 TO 8 INCH LAYER AND LIGHTLY COMPACT TO A MINIMUM THICKNESS OF 4 INCHES. SPREADING IS TO BE PERFORMED IN SUCH A MANNER THAT SOODING 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.
 - TOPSOIL MUST NOT BE PLACED IF THE TOPSOIL OR SUBSOIL IS IN A FROZEN OR MUDDY CONDITION WHEN THE TOPSOIL IS PLACED. IN A CONDITION THAT IS 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 ANALYSIS.
 - FERTILIZERS MUST BE UNIFORM IN COMPOSITION, FLOW EVENLY AND SUITABLE FOR ACCURATE APPLICATION WITH APPROPRIATE EQUIPMENT. FERTILIZER MUST BE DELIVERED TO THE SITE FULLY LABELED ACCORDING TO 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 80 TO 100 PERCENT WILL PASS THROUGH A #200 MESH SIEVE. 4. 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-4-1 STANDARDS AND SPECIFICATIONS FOR PERMANENT STABILIZATION

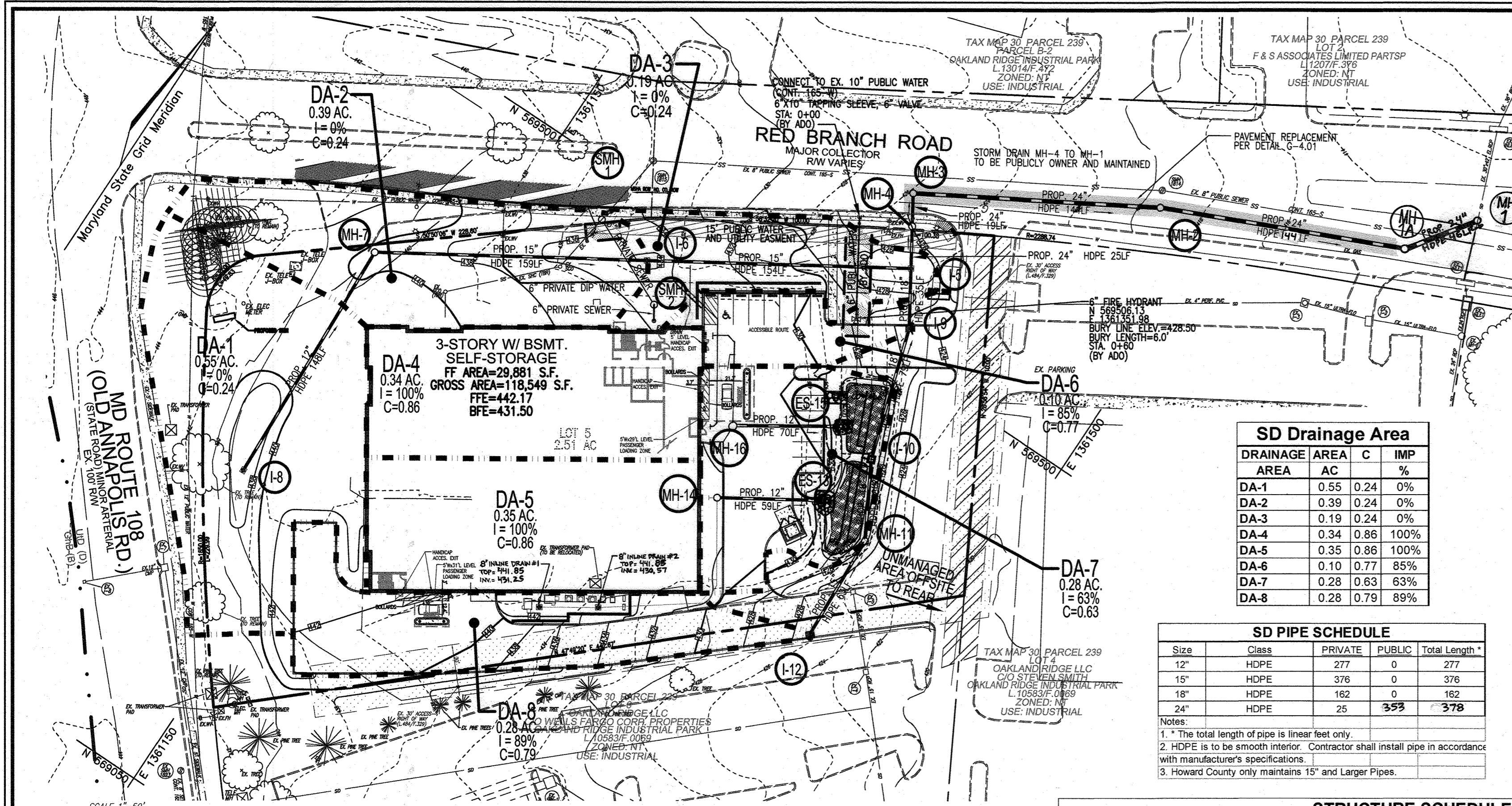
DEFINITION
TO STABILIZE DISTURBED SOILS WITH PERMANENT VEGETATION.

PURPOSE
TO USE LONG-LIVED PERENNIAL GRASSES AND LEGUMES TO ESTABLISH PERMANENT GROUND COVER ON DISTURBED SOILS.

CONDITIONS WHERE PRACTICE APPLIES
EXPOSED SOILS WHERE GRADING COVER IS NEEDED FOR 6 MONTHS OR MORE.

CRITERIA

- GENERAL USE
 - USE ONE OR MORE OF THE SPECIES OR MIXTURES LISTED IN TABLE 8.3 FOR THE APPROPRIATE PLANT HARDNESS ZONE (FROM FIGURE 8.3) AND BASED ON THE SITE CONDITION OR PURPOSE. FOUND ON TABLE 8.2. EITHER SELECTED MIXTURE(S), APPLICATION RATES, AND SEEDING DATES IN THE PERMANENT SEEDING SUMMARY. SEEDING DATES TO BE PLACED ON THE PLAN.
 - USE ADDITIONAL SPECIFICATIONS FOR EXCEPTIONAL SITES SUCH AS SHORELINES, STREAM BANKS, OR SITES OF SPECIAL PURPOSES SUCH AS WETLANDS. SUCH MIXTURES 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 URFA FORM FERTILIZER (40-0-0) AT 3-1/2 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. SEEDING DATES TO BE PLACED ON THE PLAN.
 - KENTUCKY BLUEGR



UTILITY PLAN AND STORM DRAIN DRAINAGE AREA MAP
SCALE: 1"=50'

PIPE SCHEDULE (PRIVATE)

SIZE (IN)	TYPE/CLASS	TOTAL LENGTH*
8	DIP (PRIVATE WHC)	206
6	PVC (PRIVATE SHC)	67

* THE TOTAL LENGTH OF PIPE IS LINEAR FEET ONLY

PIPE SCHEDULE (PUBLIC - BY ADO)

SIZE (IN)	TYPE/CLASS	TOTAL LENGTH*
6	DIP (WATER - PUBLIC BY ADO)	60

* THE TOTAL LENGTH OF PIPE IS LINEAR FEET ONLY

SD Drainage Area

DRAINAGE AREA	AC	C	IMP	%
DA-1	0.55	0.24	0%	0%
DA-2	0.39	0.24	0%	0%
DA-3	0.19	0.24	0%	0%
DA-4	0.34	0.86	100%	100%
DA-5	0.35	0.86	100%	100%
DA-6	0.10	0.77	85%	85%
DA-7	0.28	0.63	63%	63%
DA-8	0.28	0.79	89%	89%

SD PIPE SCHEDULE

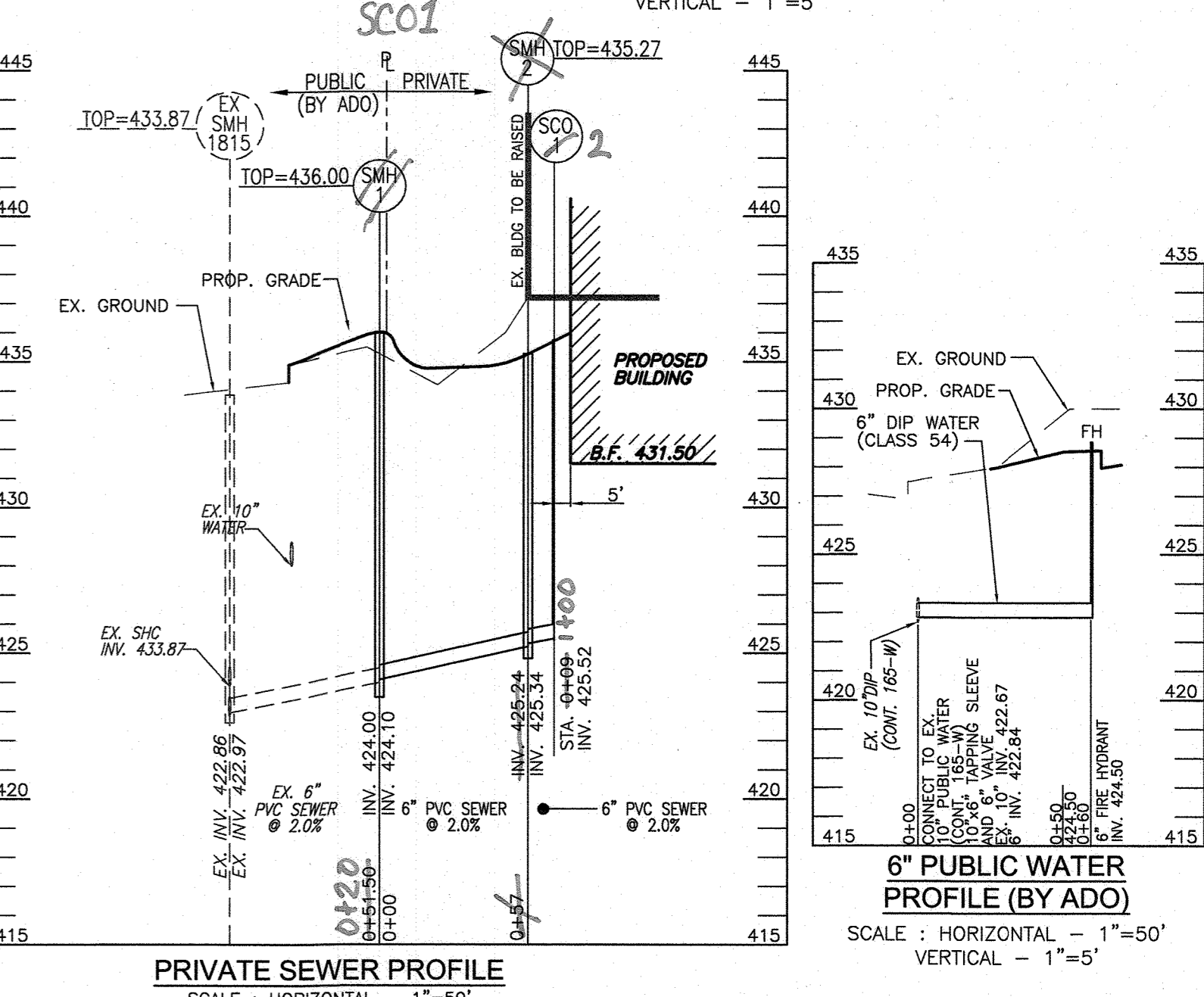
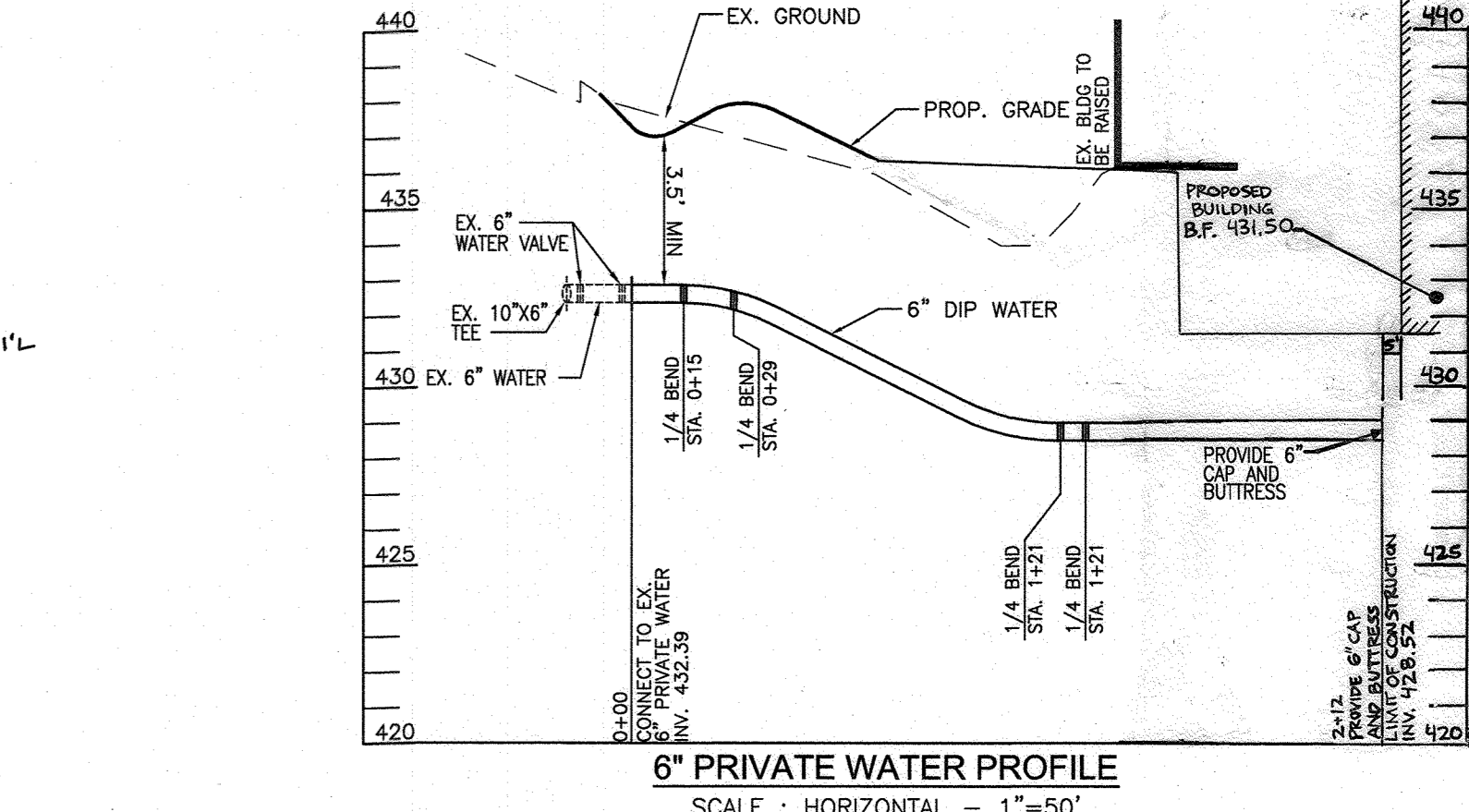
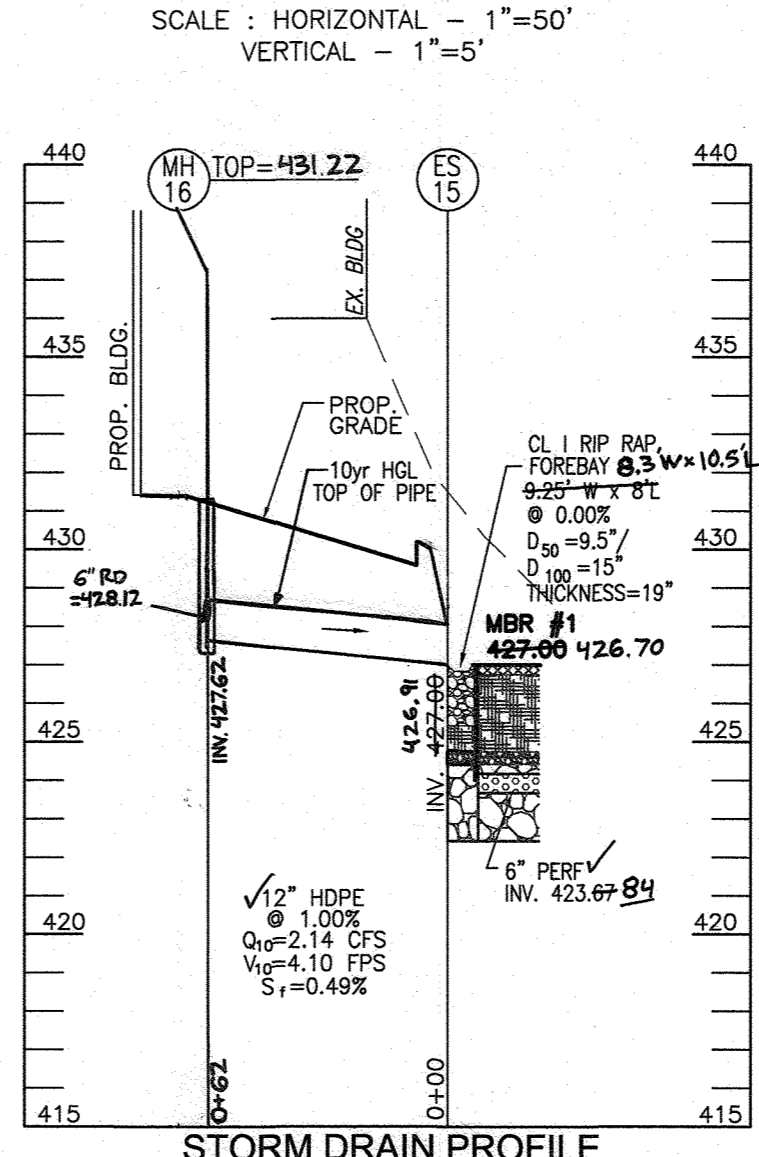
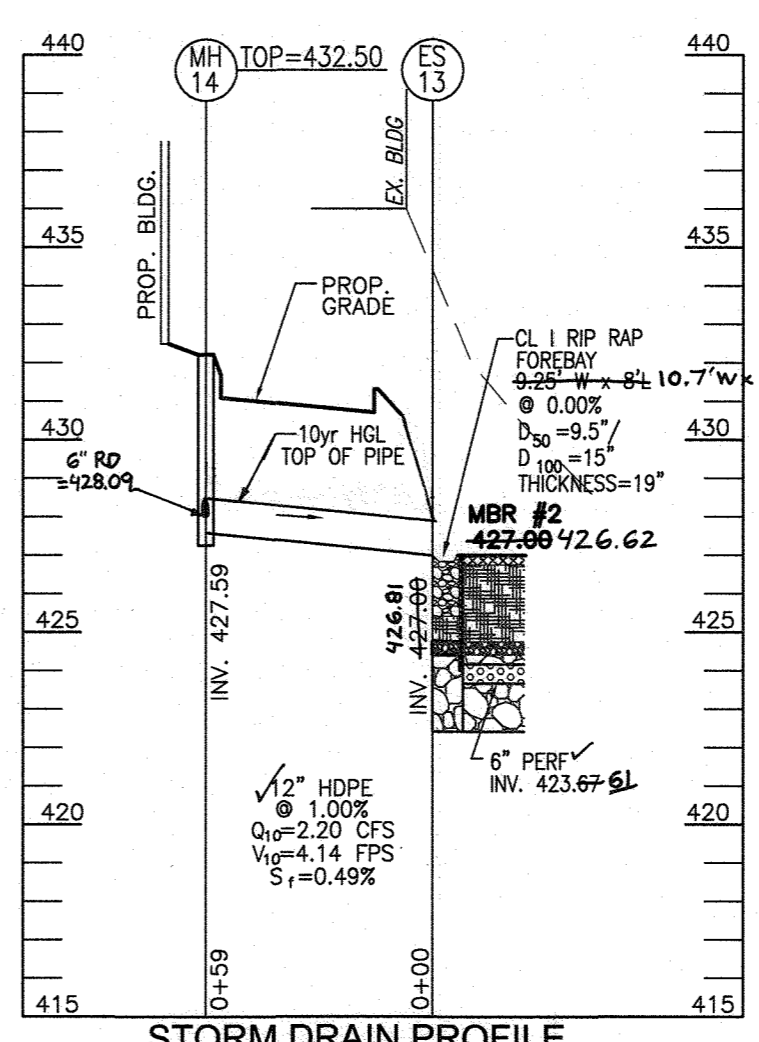
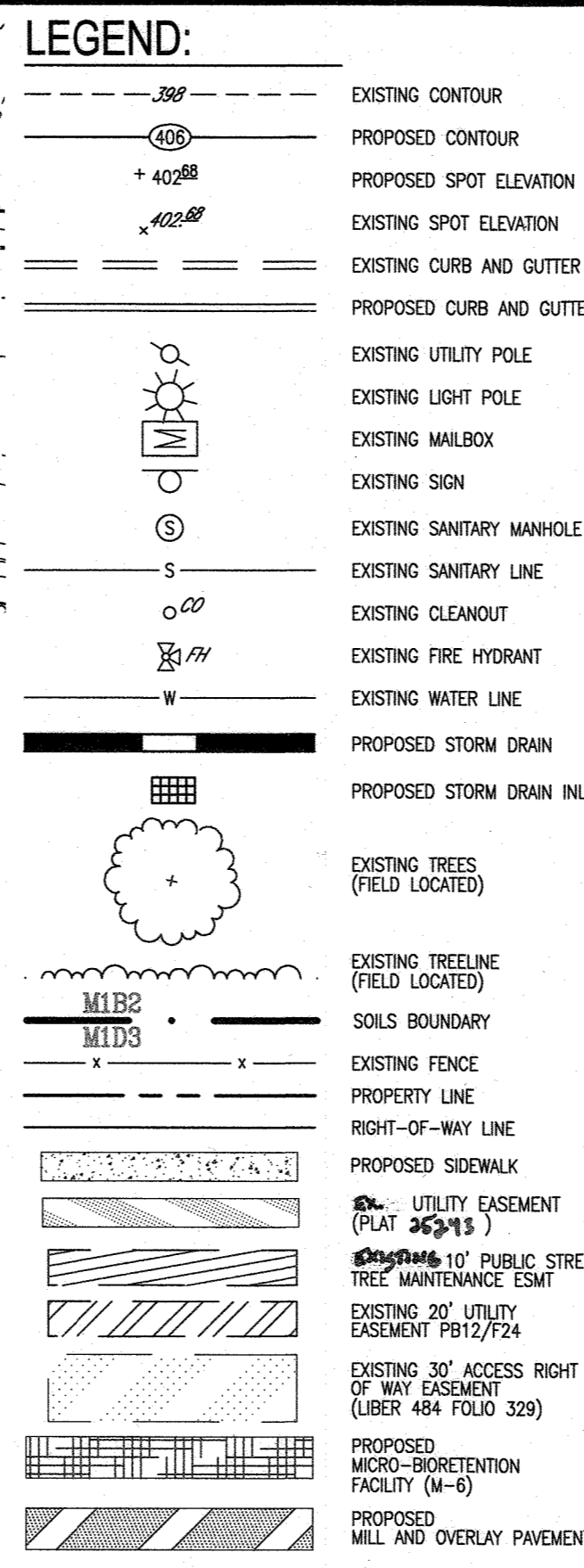
Size	Class	PRIVATE	PUBLIC	Total Length*
12"	HOPE	277	0	277
15"	HOPE	376	0	376
18"	HOPE	162	0	162
24"	HOPE	25	353	378

Notes:
 1. * The total length of pipe is linear feet only.
 2. HOPE is to be smooth interior. Contractor shall install pipe in accordance with manufacturer's specifications.
 3. Howard County only maintains 15" and Larger Pipes.

STRUCTURE SCHEDULE

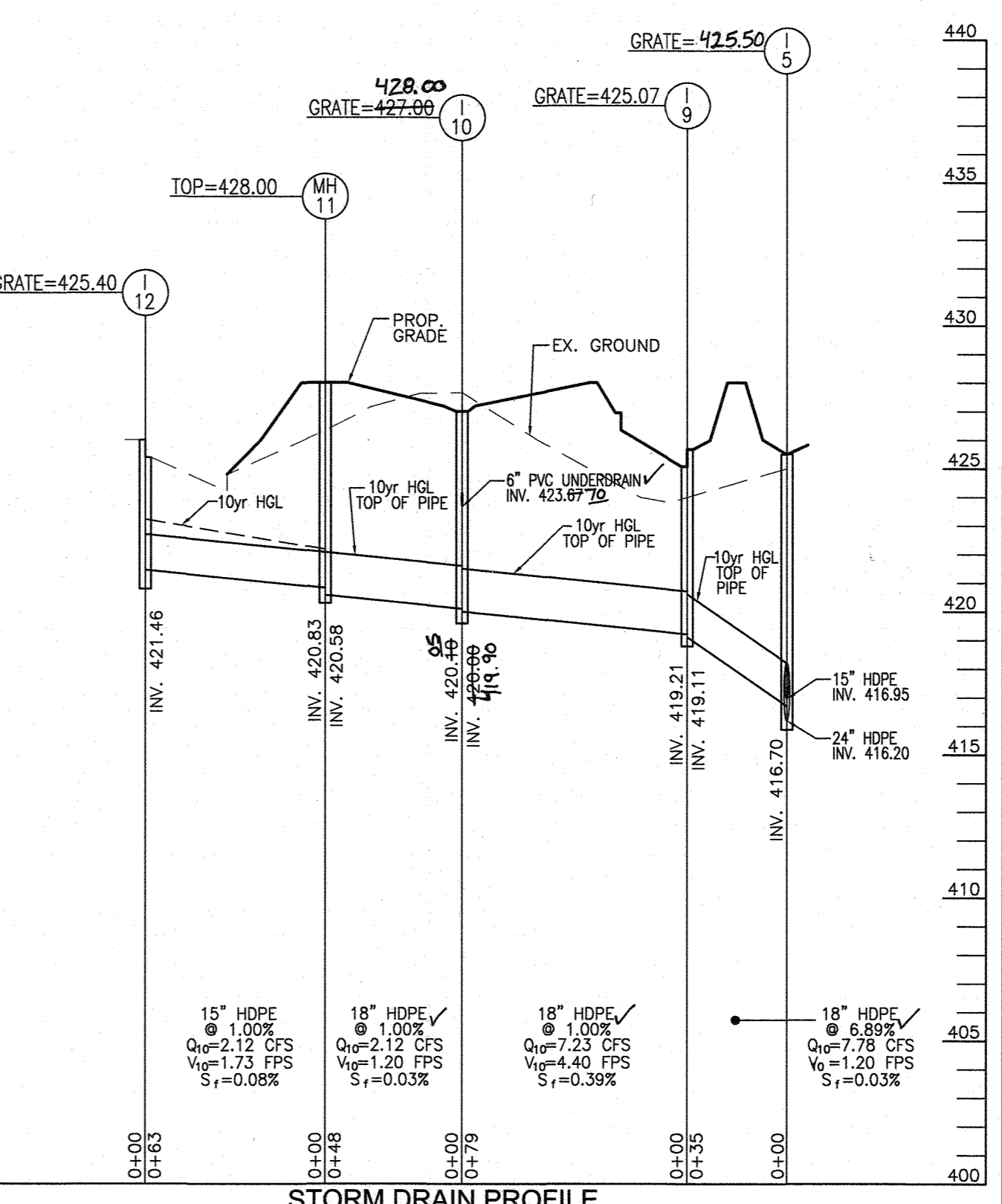
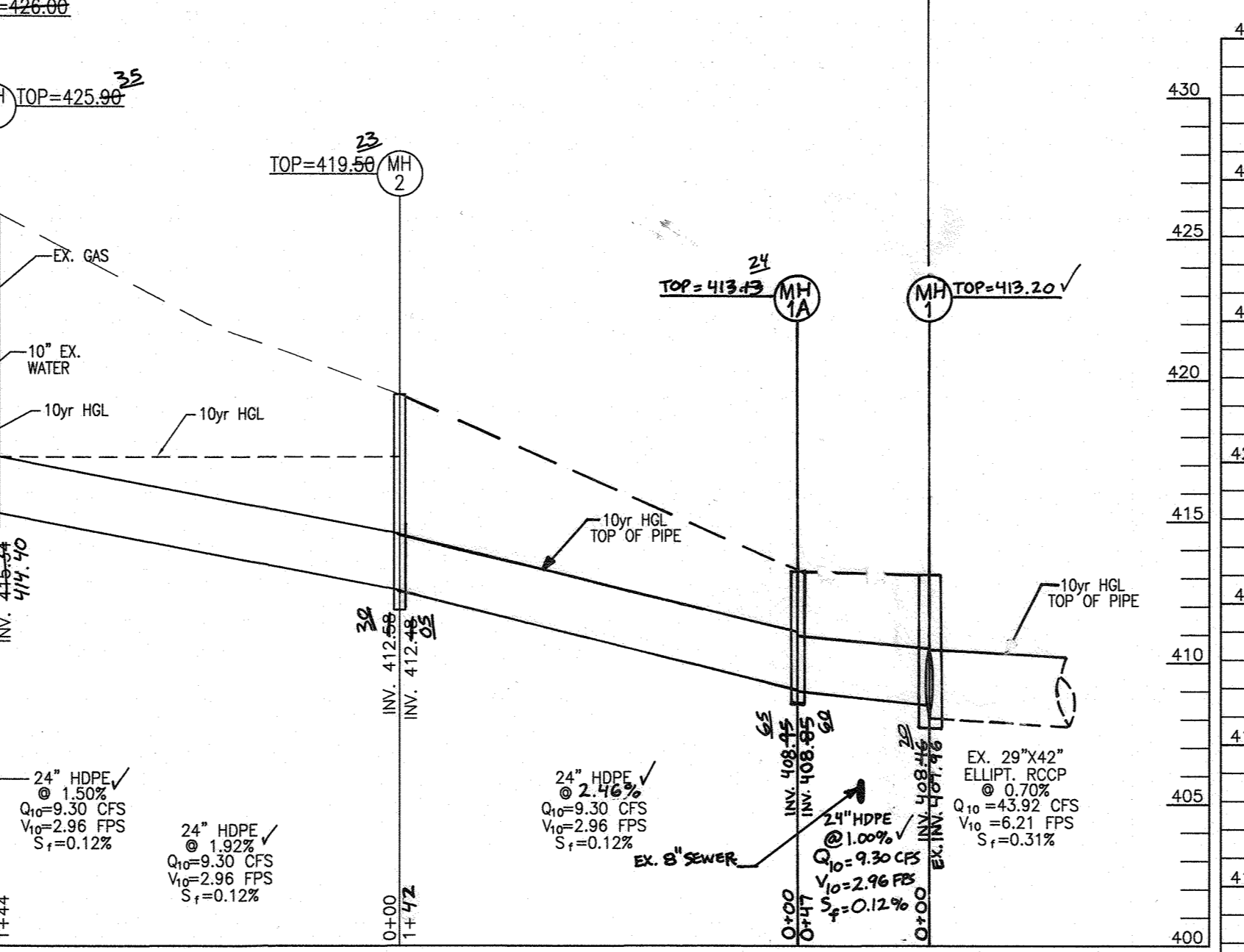
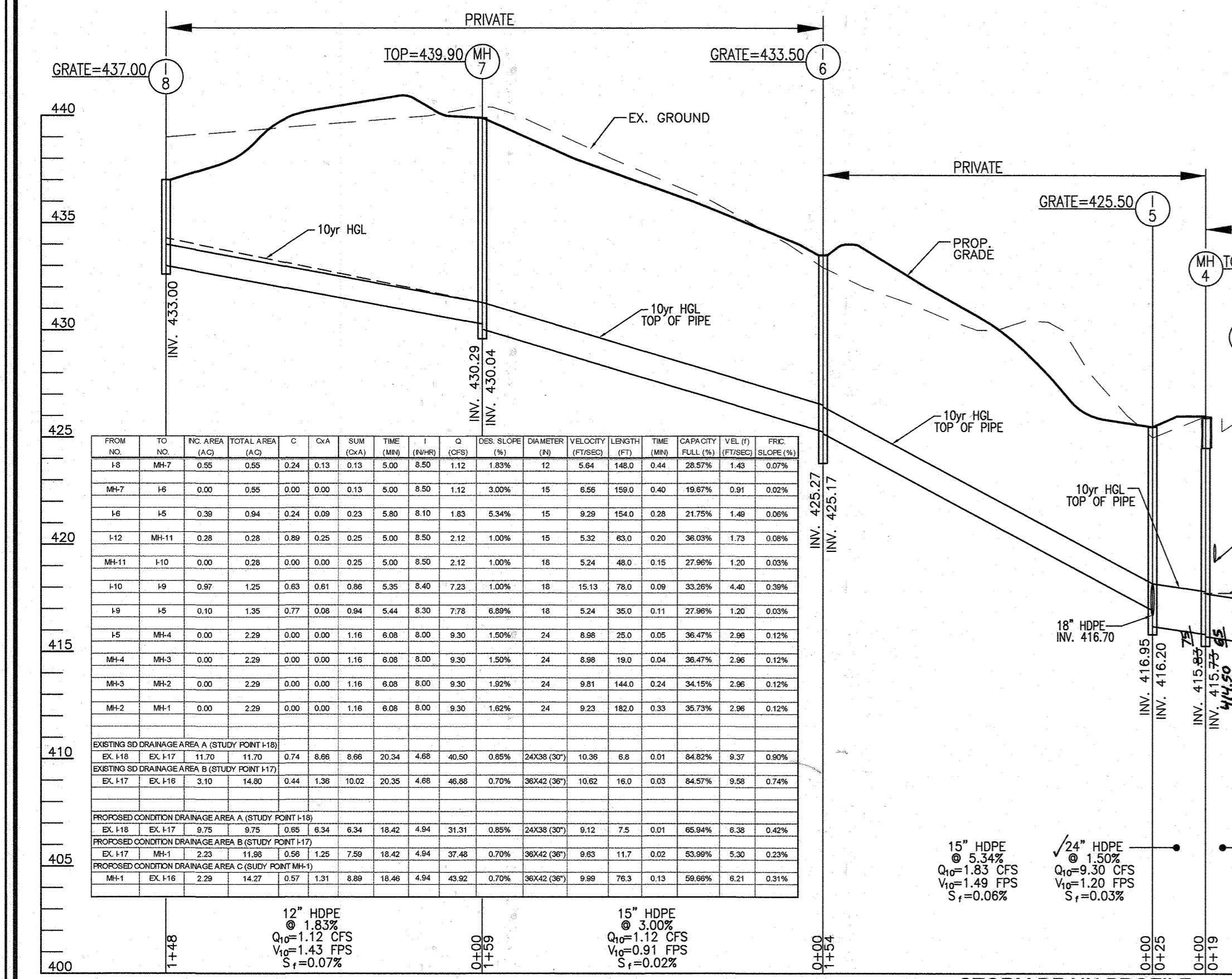
STR #	TYPE	LOCATION	TOP	THROAT	INV. IN	INV. OUT	DETAIL	REMARKS
I-5	YARD INLET	N 569548.35, N 1361362.25	425.50	-	416.95/416.70	416.20	D-4.12	PRIVATE
I-6	YARD INLET	N 569468.72 E 1361231.73	433.50	-	425.27	425.17	D-4.12	PRIVATE
I-8	YARD INLET	N 569234.52 E 1361103.78	437.00	-	429.00	428.00	D-4.12	PRIVATE
I-9	SINGLE WR	N 569518.94 E 1361380.65	-	425.07	419.21	418.11	D-4.32	PRIVATE
I-10	TYPE 'S'	N 569443.07 E 1361404.65	-	420.10	420.00	420.00	D-4.24	PRIVATE
I-12	SINGLE WR	N 569543.17 E 1361571.04	-	425.40	422.31	421.31	D-4.32	PRIVATE
M-1	STD. 8" PRECAST MANHOLE	N 569751.56 E 1364271.70	413.20	406.46	407.96	407.96	G-5.12	PUBLIC
M-2	STD. 4" PRECAST MANHOLE	N 569568.56 E 1361463.63	419.50	412.58	412.48	G-5.12	PUBLIC	
M-3	STD. 4" PRECAST MANHOLE	N 569568.56 E 1361339.04	425.90	415.44	415.34	G-5.12	PUBLIC	
M-4	STD. 4" PRECAST MANHOLE	N 569569.15 E 1361349.24	426.00	415.83	415.73	G-5.12	PUBLIC	
M-7	STD. 4" PRECAST MANHOLE	N 569563.61 E 1361097.25	439.90	430.29	430.04	G-5.12	PRIVATE	
M-11	STD. 4" PRECAST MANHOLE	N 569401.38 E 1361427.99	428.00	420.68	420.58	G-5.12	PRIVATE	
M-14	STD. 4" PRECAST MANHOLE	N 569374.58 E 1361342.24	432.50	428.09	427.59	G-5.12	PRIVATE	
M-16	STD. 4" PRECAST MANHOLE	N 569444.21 E 1361326.93	431.22	428.12	427.62	G-5.12	PRIVATE	
ES-13	END SECTION	N 569468.19 E 1361362.28	-	-	427.00	427.00	G-5.11	PRIVATE
ES-15	END SECTION	N 569448.19 E 1361371.36	-	-	427.00	427.00	G-5.11	PRIVATE
SMH-2	STD. 4" PRECAST MANHOLE	N 569447.64 E 1361249.33	435.27	425.23	425.13	G-5.12	PRIVATE	

NOTE: 1. TOP ELEVATIONS ARE AT CENTER TOP OF HEADPIECE FOR TYPE 'A-S', 'A-10', TOP OF GRATE FOR ALL TYPE 'S' INLETS, AND TOP OF MANHOLE COVER FOR 'D' INLETS AND PRECAST MANHOLES.
 2. FOR TOP SLAB SLOPES SEE GRADING PLAN.
 3. SEE ARCHITECTURAL PLANS FOR DOWNSPUT AND ROOF DRAIN DETAILS.
 4. ALL CUSTOM AND NON-STANDARD STRUCTURES TO BE DESIGNED BY A QUALIFIED STRUCTURAL ENGINEER.



STRUCTURE SCHEDULE (PUBLIC - BY ADO)

STR #	TYPE	LOCATION	TOP	THROAT	INV. IN	INV. OUT	DETAIL	REMARKS
SMH1	STD. 4" PRECAST MANHOLE	N 569468.06 E 1361195.78	436.00	423.87	423.87	423.87	G-5.12	PUBLIC



OWNER
BRABHAM OIL COMPANY, INC.
525 MIDWAY ST.
BAMBERG, SC 29003

DEVELOPER
RED BRANCH ROAD
SELF STORAGE LLC
1276 ASSEMBLY STREET
COLUMBIA, SC 29201
C/O RYAN HYLER
(803) 206-1438

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 12-13-19
 12/23/19
 12-24-19

AS-BUILT CERTIFICATION FOR PSWM
 I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND COMPLIES WITH THE APPROVED PLANS AND SPECIFICATIONS. I HAVE VERIFIED THAT THE CONTRIBUTING DRAINAGE AREA IS SUFFICIENTLY STABILIZED TO PREVENT CLOGGING OF THE UNDERGROUND SWM FACILITY.
 16193
 4-15-21

SOILS LEGEND
HOWARD COUNTY SOILS MAP #18

SYMBOL	NAME / DESCRIPTION	GROUP	HYDRIC	ERODIBLE	Kw
LUD	URBAN LAND-UDRTHMENTS COMPLEX, 0 TO 15 PERCENT SLOPES	D	NO	NO	0.28

TAKEN FROM: USDA, SCS-WE8 SOIL SURVEY, HOWARD COUNTY
 * BASED UPON ESTIMATED CUTS
 NOTE: HIGHLY ERODIBLE SOILS ARE THOSE SOILS WITH A SLOPE GREATER THAN 15 PERCENT OR THOSE SOILS WITH A SOIL ERODIBILITY FACTOR K GREATER THAN 0.35 AND WITH A SLOPE GREATER THAN 6 PERCENT

NO.	REVISION	DATE
2	REVISE THE PLAN TO SHOW THE INSTALLATION OF MH-1A, A RELOCATION OF MH-16, G-16-2-P AND A REALIGNMENT OF THE STORM DRAIN CONNECTION	3-10-20
1	REVISE THE PLAN TO REALIGN A PORTION OF THE 6" PRIVATE WHC, RELOCATE MANHOLE #16 AND THE 6" DRAIN AND THE 8" DRAIN NEAR THE RETAINING WALLS	3-10-20

SITE DEVELOPMENT PLAN
STORM DRAIN DRAINAGE AREA MAP AND UTILITY PROFILES
 9199 RED BRANCH ROAD
 COLUMBIA, OAKLAND RIDGE INDUSTRIAL PARK
 SECTION 1, LOT 5
 SELF-STORAGE FACILITY
 (PB. 12-65) L-15428/F.351 HOWARD COUNTY, MARYLAND
 ZONED: NT
 PARCEL 239
 TAX MAP: 30 BLOCK: 17
 2ND ELECTION DISTRICT

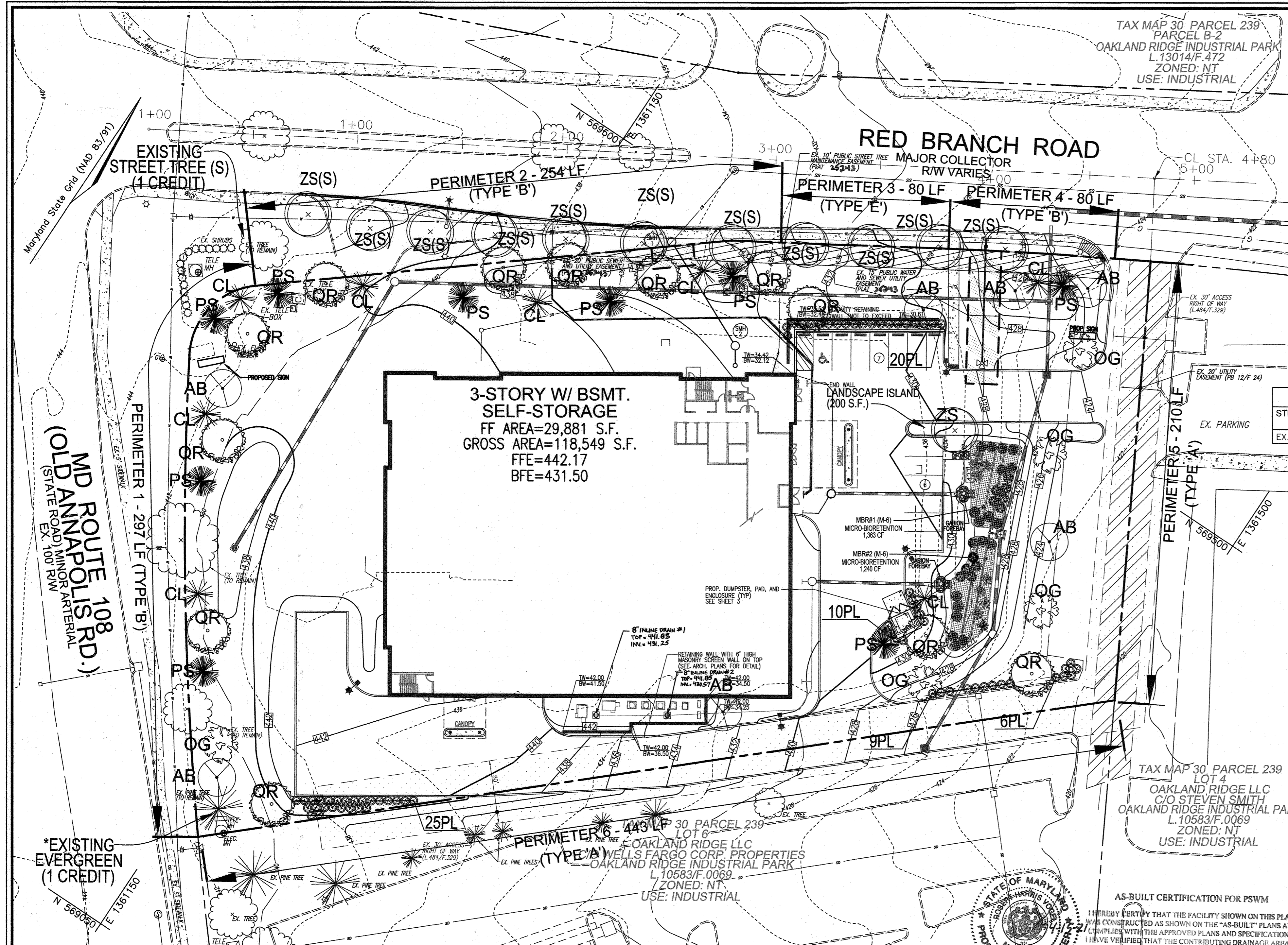
ROBERT H. VOGEL ENGINEERING, INC.
 ENGINEERS • SURVEYORS • PLANNERS
 3300 N. RIDGE ROAD, SUITE 110, ELLICOTT CITY, MD 21043
 TEL: 410.461.7666 FAX: 410.461.8961

DESIGN BY: LRC
 DRAWN BY: LRC
 CHECKED BY: RHV
 DATE: NOV 2019
 SCALE: AS SHOWN
 W.O. NO.: 11-43

PROFESSIONAL CERTIFICATE
 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. 16193 EXPIRATION DATE: 09-27-2020

6 SHEET OF 8

AS-BUILT, MARCH 2021
 SDP-19-049



BIORETENTION PLANTING SCHEDULE (SHRUB/ORNAMENTAL GRASSES)

LEGEND/KEY	QTY	BOTANICAL NAME/COMMON NAME	SIZE	REMARKS
IG	6	ILEX GLABRA 'SHAMROCK' INKBERRY HOLLEY	1 GALLON	18" O.C.
IV	7	ITEA VIRGINICA 'HENRY'S GARNETT' VIRGINIA SWEETSPICE	1 GALLON	18" O.C.
HQ	7	HYDRANGEA QUERCIFOLIA OAKLEAF HYDRANGEA	1 GALLON	30" O.C.
LR	9	LEUCOTHEO RACEMOSA FETTERBUSH	1 GAL.	30" O.C.
FV	9	PANICUM VIRGATUM SWITCHGRASS	1 GAL.	36" O.C.

PERENNIALS/GROUNDCOVER PLANTING SCHEDULE

LEGEND	QTY	BOTANICAL NAME/COMMON NAME	SIZE	REMARKS
	54	BAPTISIA AUSTRALIS FALSE INDIGO	4" POT	12"-15" O.C. FOR SIDES AND BOTTOM OF MBR, MIX ALL VARIETIES IN A NATURALIZED RANDOM PATTERN THROUGHOUT. PLANT IN GROUPS OF NO LESS THAN 9 PLANTS PER CLUMP
	56	ACORUS GRAMINEUS 'OGON' GOLDEN VARIEGATED SWEET FLAG	1 QT.	

PLANT LIST - SCHEDULE C (STREET TREES)

KEY	QUAN	BOTANICAL NAME	SIZE	CAT
ZS	11	ZELKOVA SERRATA 'VILLAGE GREEN' VILLAGE GREEN JAPANESE ZELKOVA	2.5"-3" CAL	B & B

PLANT LIST - SCHEDULE A (PERIMETER)

KEY	QUAN	BOTANICAL NAME	SIZE	CAT
OG	5	ACER RUBRUM 'OCTOBER GLORY' OCTOBER GLORY RED MAPLE	2.5"-3" CAL	B & B
QR	12	QUERCUS RUBRA NORTHERN RED OAK	2.5"-3" CAL	B & B
AB	7	FAGUS GRANDIFOLIA AMERICAN BEECH	2.5"-3" CAL	B & B
PS	9	PINUS STROBUS EASTERN WHITE PINE	6"-8" HGT.	B & B
CL	8	CUPRESSOCYPARIS LEYLANDI LEYLAND CYPRESS	5"-6" HGT.	B & B
PL	70	PRUNUS LAUROCARPUS 'OTTO LUTYKEN' OTTO LUTYKEN CHERRY LAUREL	2"-2.5" HGT.	B & B

PLANT LIST - SCHEDULE B (PARKING LOT)

KEY	QUAN	BOTANICAL NAME	SIZE	CAT
ZS	1	ZELKOVA SERRATA 'VILLAGE GREEN' VILLAGE GREEN JAPANESE ZELKOVA	2.5"-3" CAL	B & B

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

DATE: 12-13-19

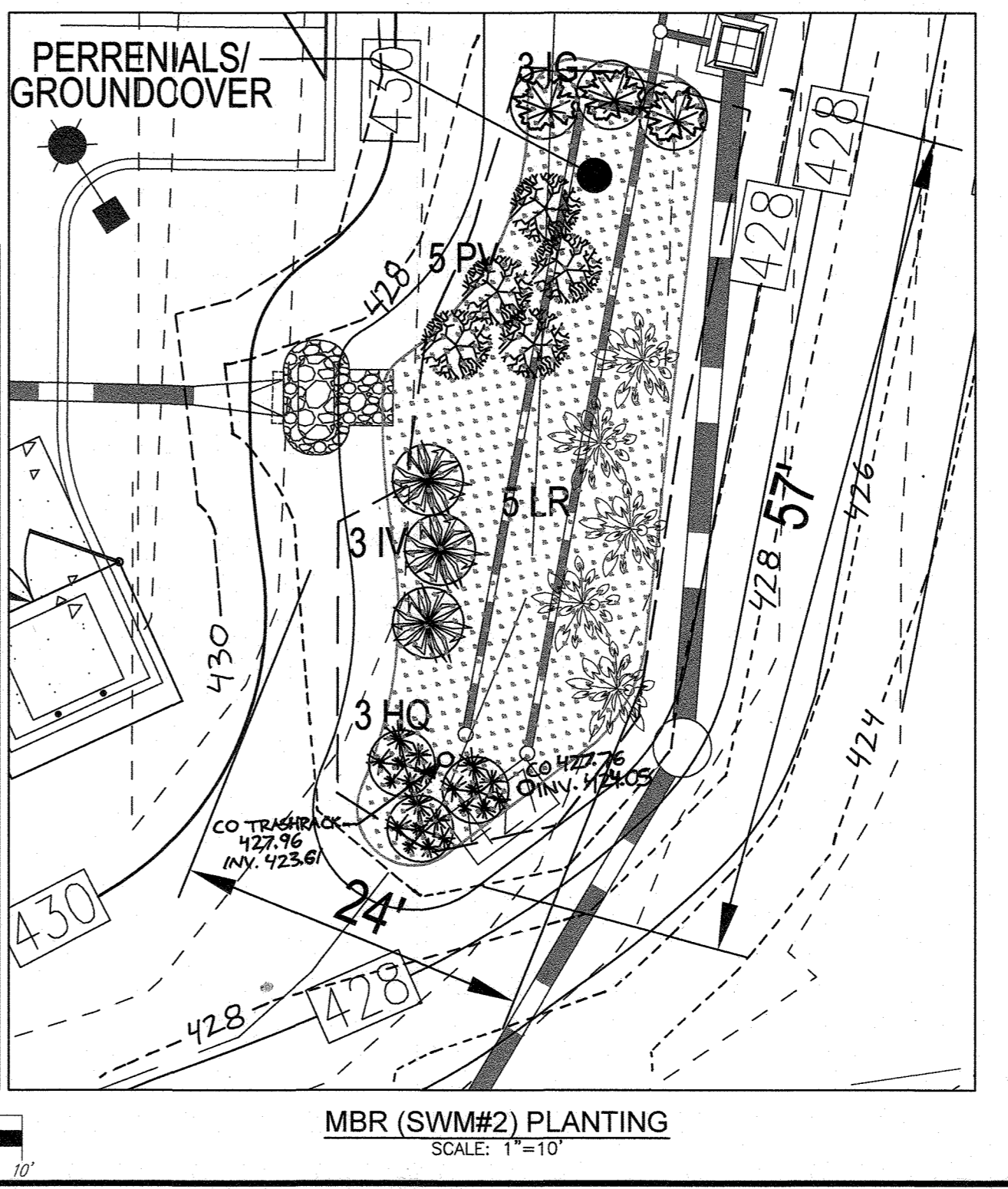
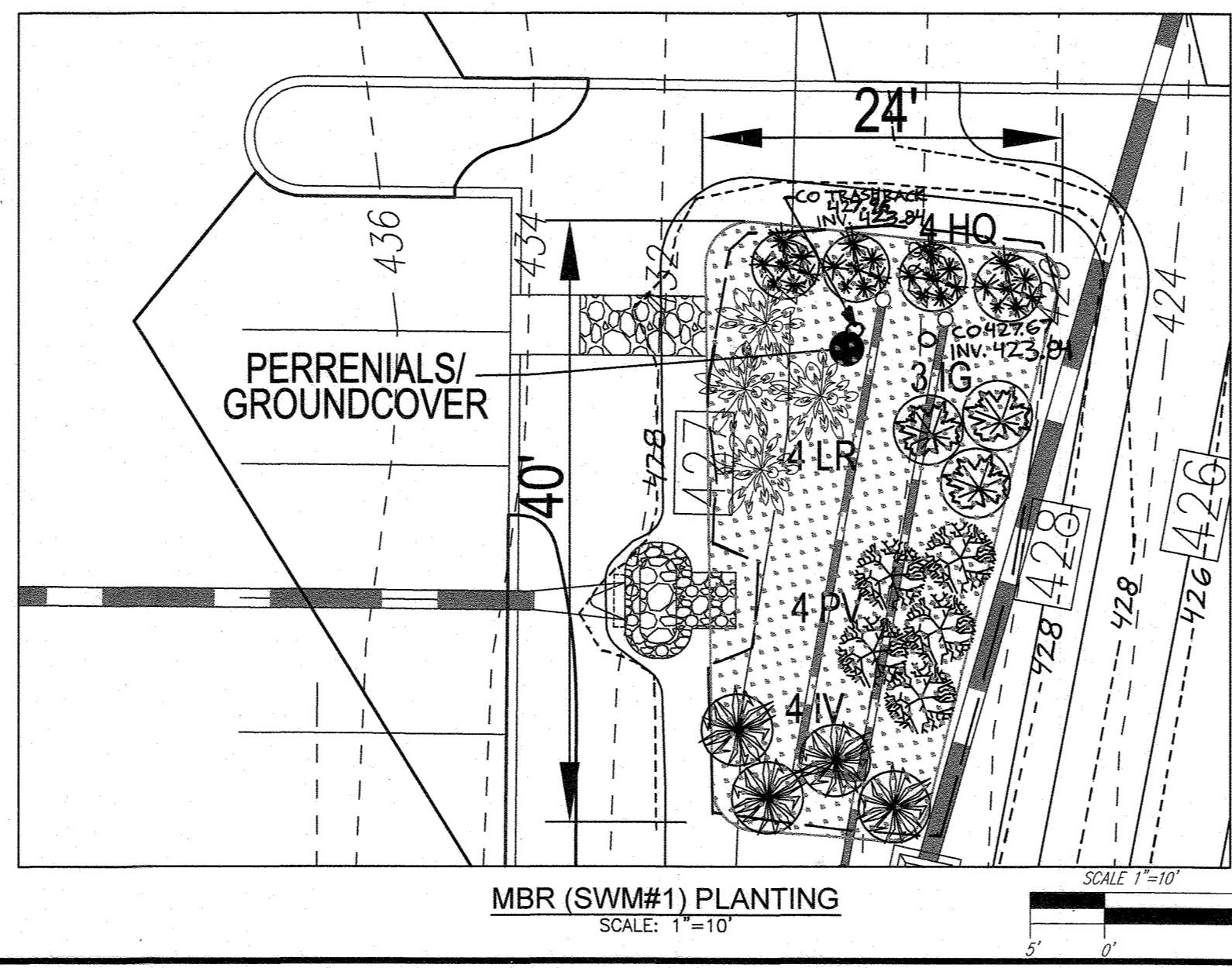
DATE: 12-23-19

DATE: 12-24-19

BUILDER'S CERTIFICATE

I/WE CERTIFY THAT THE LANDSCAPING SHOWN ON THIS PLAN WILL BE DONE ACCORDING TO THE PLAN, SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE HOWARD COUNTY LANDSCAPE MANUAL. I/WE FURTHER CERTIFY THAT UPON COMPLETION, A CERTIFICATION OF LANDSCAPE INSTALLATION, ACCOMPANIED BY AN EXECUTED ONE (1) YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.

DATE: 11/22/19



GENERAL NOTES:

- THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL. THE REQUIRED PARKING AND PERIMETER LANDSCAPING WILL BE BONDED FOR THIS SUBMISSION.
- FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING HAS BEEN POSTED AS PART OF THE DEVELOPER'S AGREEMENT IN THE AMOUNT OF \$12,300.00 FOR THE REQUIRED 30 SHADE TREES (1 PARKING LOT SHADE TREE INCLUDED), 18 EVERGREEN TREES, AND 20 SHRUBS.
- FINANCIAL SURETY FOR THE REQUIRED STREET TREE PLANTING FOR THIS PROJECT HAS BEEN POSTED AS PART OF THE DEVELOPER'S AGREEMENT WITH THIS PLAN, IN THE AMOUNT OF \$3,600.00 FOR 12 REQUIRED SHADE TREES. THE PUBLIC SURETY WILL BE INCLUDED IN THE DED'S COST ESTIMATE.

LANDSCAPE SCHEDULE NOTE:

- ALL PLANT MATERIALS SHALL BE FULL AND HEAVY, BE WELL FORMED AND SYMMETRICAL, CONFORM TO THE MOST CURRENT ANY SPECIFICATIONS AND BE INSTALLED IN ACCORDANCE WITH HED PLANTING SPECIFICATIONS.
- CONTRACTOR SHALL VERIFY LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO DIGGING. FINAL LOCATION OF PLANT MATERIAL MAY NEED TO VARY TO MEET FINAL FIELD CONDITIONS. TREES SHALL NOT BE PLANTED IN THE BOTTOM OF DRAINAGE SWALES.
- CONTRACTOR SHALL VERIFY PLANT QUANTITIES PRIOR TO BIDDING. IF PLANT DIFFERS FROM LANDSCAPE SCHEDULE, THE PLAN SHALL GOVERN.
- NO SUBSTITUTION SHALL BE MADE WITHOUT PRIOR APPROVAL FROM HOWARD COUNTY DPZ AND THE OWNER OR HIS REPRESENTATIVE.
- AT THE TIME OF PLANT INSTALLATION, ALL SHRUBS AND TREES LISTED AND APPROVED ON THE LANDSCAPE PLAN, SHALL COMPLY WITH THE PROPER HEIGHT REQUIREMENT IN SUBSTITUTIONS OR RELOCATIONS OF THE REQUIRED PLANTINGS MAY BE MADE WITHOUT PRIOR REVIEW AND APPROVAL FROM THE DEPARTMENT OF PLANNING AND ZONING. ANY DEVIATION FROM THE APPROVED LANDSCAPE PLAN WILL RESULT IN DENIAL IN THE RELEASE OF LANDSCAPE SURETY UNTIL SUCH TIME AS ALL REQUIRED MATERIALS ARE PLANTED AND/OR REVISIONS ARE MADE TO THE APPLICABLE PLANS.
- THE OWNER, TENANTS AND/OR THEIR AGENTS SHALL BE RESPONSIBLE FOR MAINTENANCE OF THE REQUIRED LANDSCAPING INCLUDING BOTH PLANT MATERIALS AND BERMS, FENCES AND WALLS. ALL PLANT MATERIALS SHALL BE MAINTAINED IN GOOD GROWING CONDITION, AND WHEN NECESSARY, REPLACED WITH NEW MATERIAL TO ENSURE CONTINUED COMPLIANCE WITH APPLICABLE REGULATIONS. ALL OTHER REQUIRED LANDSCAPING SHALL BE PERMANENTLY MAINTAINED IN GOOD CONDITION, AND WHEN NECESSARY, REPAIRED OR REPLACED.
- SHOULD ANY TREE DESIGNATED FOR PRESERVATION FOR WHICH LANDSCAPING CREDIT IS GIVEN DIE PRIOR TO RELEASE OF BONDS, THE OWNER WILL BE REQUIRED TO REPLACE THE TREE WITH THE EQUIVALENT SPECIES OR WITH A TREE WHICH WILL OBTAIN THE SAME HEIGHT, SPREAD AND GROWTH CHARACTERISTICS. THE REPLACEMENT TREE MUST BE A MINIMUM OF 3 INCHES IN CALIPER AND INSTALLED AS REQUIRED IN THE HOWARD COUNTY LANDSCAPE MANUAL.

STREET TREE CALCULATIONS - SCHEDULE C

STREET NAME	STATION	LINEAR FEET	NO. REQUIRED	EX. TREE CREDIT	NO. PROVIDED
EX. RED BRANCH ROAD	0+00 TO 4+80 ± RT.	480/40	12	1	11

SCHEDULE 'A' PERIMETER LANDSCAPE EDGE

PERIMETER/FRONTAGE DESIGNATION	1	2	3	4	5	6	DUMPS/TER
LINEAR FEET OF ROADWAY	297'	254'	80'	80'	210'	443'	45'
CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET DESCRIBE BELOW IF NEEDED)	(1)	No	No	No	No	No	No
CREDIT FOR WALL, FENCE OR BERM (YES, NO, LINEAR FEET DESCRIBE BELOW IF NEEDED)	No	No	No	No	No	No	No
NUMBER OF PLANTS REQUIRED	1:50 6	1:50 5	1:40 2	1:50 2	1:60 4	1:60 8	1:40 2
SHADE TREES	1:40 7	1:40 7	-	1:40 2	-	1:20 2	29
EVERGREEN TREES	-	-	1:4 20	-	-	-	18
SHRUBS	-	-	-	-	-	-	20
NUMBER OF PLANTS PROVIDED	6	5	2	2	4	4	24
SHADE TREES	6	5	2	2	4	4	17
EVERGREEN TREES	-	-	-	-	-	-	2
SHRUBS (1:1 SUBSTITUTION)	-	-	-	-	-	-	1
OTHER TREES (2:1 SUBSTITUTION)	-	-	-	-	-	-	10**
TOTALS	-	-	20	-	-	40**	70

* CREDIT FOR 1 EXISTING TREE.
** SUBSTITUTE 1 SHADE TREE FOR 10 SHRUBS.

BIORETENTION PLANTING REQUIREMENTS

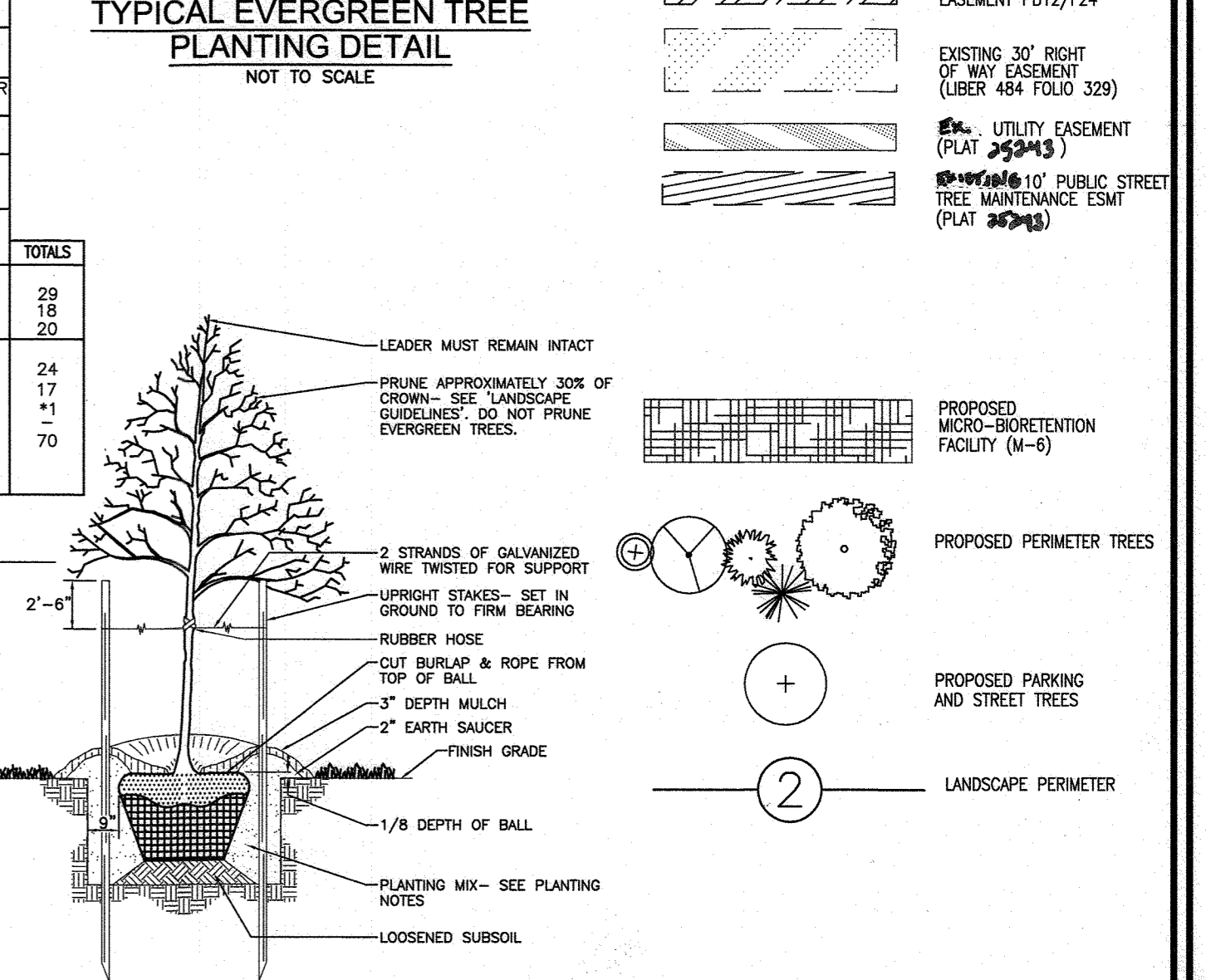
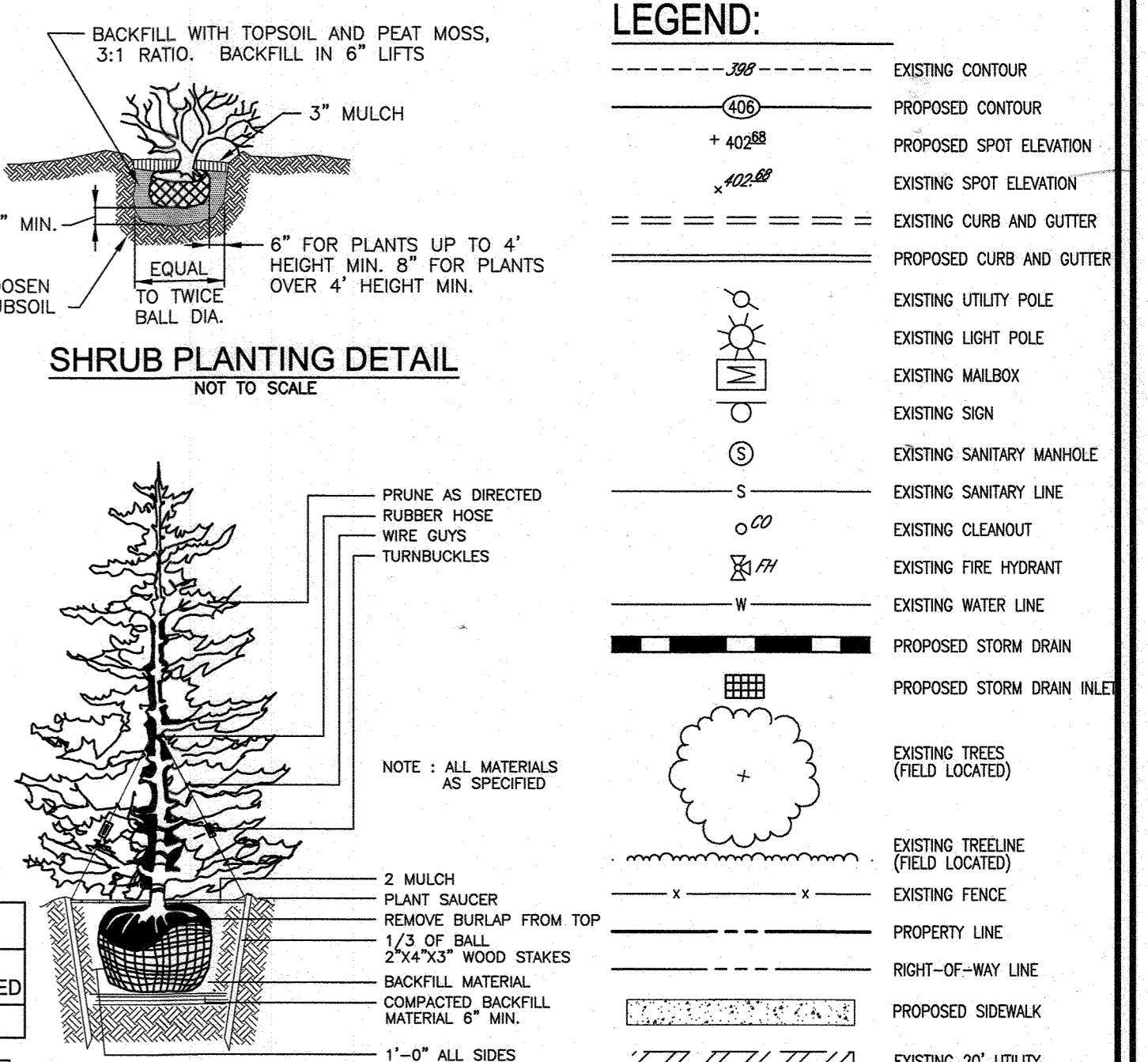
MBR AREA	STEMS REQUIRED	STEMS PROVIDED
1	773 SF	18
2	808 SF	19

BIORETENTION AREAS ARE TO BE PLANTED BASED ON A MINIMUM DENSITY OF 1000 STEMS PER PLANTED ACRE (4229 STEMS PER SQ. FT.)

SCHEDULE B PARKING LOT INTERNAL LANDSCAPING

NUMBER OF PARKING SPACES	NUMBER OF TREES REQUIRED (1:20)	NUMBER OF TREES PROVIDED
13	1	1

SHADE TREES
OTHER TREES (2:1 SUBSTITUTION)



OWNER
BRABHAM OIL COMPANY, INC.
525 MIDWAY ST.
BAMBERG, SC 29003

DEVELOPER
RED BRANCH ROAD SELF STORAGE LLC
1276 ASSEMBLY STREET
COLUMBIA, SC 29201
C/O RYAN HYLER
(803) 206-1438

NO.	REVISION	DATE
1	REVISE THE PLAN TO REACH A PORTION OF THE 6" PRIVATE INVC. RELOCATE MANHOLE #16 AND THE 6" BOB DRAIN AND THE 8" DRAINS NEAR THE RETAINING WALLS	3-10-20

SITE DEVELOPMENT PLAN
LANDSCAPE PLAN, NOTES AND DETAILS

9199 RED BRANCH ROAD
COLUMBIA, OAKLAND RIDGE INDUSTRIAL PARK

SECTION 1, LOT 5
SELF STORAGE FACILITY
(PB. 12-65) L.15428/F.351

ZONED: NT
PARCEL 239
HOWARD COUNTY, MARYLAND

TAX MAP: 30 BLOCK: 17
2ND ELECTION DISTRICT

ROBERT H. VOGEL ENGINEERING, INC.
ENGINEERS • SURVEYORS • PLANNERS

3300 N. RIDGE ROAD, SUITE 110, ELLICOTT CITY, MD 21043
TEL: 410.461.7666 FAX: 410.461.8961

PROFESSIONAL CERTIFICATE

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193 EXPIRATION DATE: 09-27-2020

DESIGN BY: LRC
DRAWN BY: LRC
CHECKED BY: RHY
DATE: NOV 2019
SCALE: AS SHOWN
W.O. NO.: 11-43

8 SHEET OF 8

AS-BUILT, MARCH 2021

SDP-19-049