

GENERAL NOTES

- ALL ASPECTS OF THE PROJECT ARE IN CONFORMANCE WITH THE LATEST HOWARD COUNTY STANDARDS PLUS MSHA STANDARDS AND SPECIFICATIONS IF APPLICABLE UNLESS WAIVERS HAVE BEEN APPROVED.
- 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
 VERIZON TELEPHONE COMPANY 1-410-954-6281
 HOWARD COUNTY BUREAU OF UTILITIES 410-313-2166
 AT&T CABLE LOCATION DIVISION 1-800-393-3553
 B.G.&E. CO. CONTRACTOR SERVICES 410-850-4620
 B.G.&E. CO. UNDERGROUND DAMAGE CONTROL 410-780-4620
 STATE HIGHWAY ADMINISTRATION 410-531-5533
- THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK.
- 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. IN ADDITION, THE CONTRACTOR OR DEVELOPER SHALL CONTACT THE CONSTRUCTION INSPECTION DIVISION 24 HOUR IN ADVANCE OF COMMENCEMENT OF WORK AT (410) 313-1880.
- 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.
- ANY DAMAGE TO PUBLIC RIGHT-OF-WAY, PAVING, OR EXISTING UTILITIES WILL BE CORRECTED AT THE CONTRACTOR'S EXPENSE.
- THE SUBJECT PROPERTY IS ZONED R-ED-MXD-3 IN ACCORDANCE WITH THE 10/6/13 ZONING REGULATIONS, AND IS SUBJECT TO THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS EFFECTIVE 10/2/03 PER COUNCIL BILL 15-2033.
- 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.
- THE PROJECT BOUNDARY IS BASED ON A BOUNDARY SURVEY PREPARED BY ROBERT H. VOGEL ENGINEERING, INC., DATED APRIL 30, 2014.
- THE EXISTING ON-SITE TOPOGRAPHY SHOWN HEREON IS BASED ON THE PROPOSED CONTOURS OF THE F-16-072 PLAN SUBMISSION. AREAS OUTSIDE OF THE F-16-072 LIMITS OF DISTURBANCE AREA BASED UPON A TOPOGRAPHIC SURVEY PREPARED BY POTOMAC AERIAL SURVEYS, DATED FEBRUARY 26, 2014.
- THE OFFICIAL PRE-SUBMISSION COMMUNITY MEETING FOR THE MAPLE LAWN SOUTH PROJECT WAS HELD ON JUNE 5, 2014 AT NORTH LAUREL COMMUNITY CENTER.
- SOIL TYPES SHOWN HEREON ARE IN ACCORDANCE WITH THE WEB SOIL SURVEY HOWARD COUNTY, MARYLAND - CLARKSVILLE SE MAP #23.
- THE COORDINATES SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL WHICH IS BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM. HOWARD COUNTY MONUMENT NOS. 410E AND 46AA WERE USED FOR THIS PROJECT.
- AN ENVIRONMENTAL CONCEPT PLAN (ECP-14-093) WAS APPROVED ON NOVEMBER 21, 2014.
- A PRELIMINARY EQUIVALENT SKETCH PLAN (SP-15-014) WAS APPROVED ON SEPTEMBER 18, 2015.
- ALL DRIVEWAY ENTRANCES SHALL UTILIZE HOWARD COUNTY STANDARD DETAIL NO. R-6-06.
- DRIVEWAYS(S) SHALL BE PROVIDED PRIOR TO RESIDENTIAL OCCUPANCY TO ENSURE SAFE ACCESS FOR FIRE AND EMERGENCY SERVICES PER THE FOLLOWING MINIMUM REQUIREMENTS:
 A) WIDTH - 12 FEET (16 FEET SERVING MORE THAN ONE RESIDENCE).
 B) SURFACE - 6 INCHES OF COMPACTED CRUSHER RUN BASE WITH TAR AND CHIP COATING.
 C) GEOMETRY - MAXIMUM 15% GRADE, MAXIMUM 10% CHANGE AND MINIMUM OF 45-FOOT DEPTH TURNING RADIUS.
 D) STRUCTURES (CULVERTS/BRIDGES) - CAPABLE OF SUPPORTING 25 GROSS TONS (H25 LOADING).
 E) DRAINAGE ELEMENTS-CAPABLE OF SAFELY PASSING 100-YEAR FLOOD WITH NO MORE THAN 1 FOOT DEPTH OVER DRIVEWAY SURFACE.
 F) STRUCTURE CLEARANCES-MINIMUM 12 FEET.
 G) MAINTENANCE - SUFFICIENT TO ENSURE ALL WEATHER USE.
- THIS PROPERTY WAS INCORPORATED INTO THE METROPOLITAN DISTRICT BY CB-19-2016 BY THE COUNTY COUNCIL ON MAY 2, 2016 AND SHALL BECOME EFFECTIVE AS LAW ON JULY 5, 2016. THE AMENDMENT TO THE WATER AND SEWER MASTER PLAN WAS PASSED BY A COUNTY COUNCIL RESOLUTION (CR-36-2016) ON MAY 2, 2016 AND BECOME EFFECTIVE ON MAY 5, 2016.
 -THE PROJECT FORCEMAIN, GRAVITY SEWER AND WATER HOUSE CONNECTION TO OPEN SPACE LOT 182 SHALL BE CONSTRUCTED AS PART OF CONTRACT CONTRACT 24-4989-D
 -PUMPING STATION SHALL BE CONSTRUCTED UNDER CONTRACT NO. 20-4955
- SOIL COMPACTION SPECIFICATIONS, REQUIREMENTS, METHODS AND MATERIALS ARE TO BE IN ACCORDANCE WITH HOWARD COUNTY SPECIFICATIONS AND WITH THE RECOMMENDATIONS OF THE PROJECT GEOTECHNICAL ENGINEER. GEOTECHNICAL ENGINEER TO CONFIRM ACCEPTABILITY OF PROPOSED PAVING SECTION, BASED ON SOIL TEST PRIOR TO CONSTRUCTION.
- TO THE BEST OF THE OWNERS KNOWLEDGE, THERE ARE NO BURIAL GROUNDS OR CEMETERIES LOCATED ON THIS PROPERTY.
 - THIS SITE IS NOT LOCATED IN A HISTORIC DISTRICT.
- NO STEEP SLOPES OVER 20,000 SF CONTIGUOUS ARE LOCATED ON-SITE.
- NO APTD TRAFFIC STUDY IS REQUIRED FOR THIS PUMP STATION PROJECT.
 -A TRAFFIC STUDY FOR THIS PROJECT PREPARED BY THE TRAFFIC GROUP, INC., DATED DECEMBER 19, 2014, WAS APPROVED APRIL 2015.
- THE PROPOSED ACCESS POINT IS SHOWN HEREON FROM THE MAPLE LAWN SOUTH PROJECT STREET EUGENE AVENUE.
 - THE PROPOSED PROJECT STREETS ARE CLASSIFIED AS PUBLIC MINOR COLLECTOR, ACCESS STREET OR ACCESS PLACE.
- A NOISE STUDY IS NOT REQUIRED FOR THIS PROJECT.
- THERE ARE NO FLOODPLAIN, WETLANDS, WETLAND BUFFERS, STREAMS, STREAM BUFFERS OR STEEP SLOPES WITHIN THE PROJECT.
- TEST PITS WERE COMPLETED BY ROBERT H. VOGEL ENGINEERING, INC. DATED FEBRUARY 2015 FOR THE PROJECTS ESD STORMWATER MANAGEMENT PRACTICES.
- SOIL BORINGS WERE COMPLETED BY EGS LLC - JANUARY 2015.
- THE PROPOSED BUILDINGS SHALL HAVE AN AUTOMATIC FIRE PROTECTION SPRINKLER SYSTEM INSTALLED.
- ALL EXTERIOR LIGHTING TO COMPLY WITH THE REQUIREMENTS FOUND IN ZONING SECTION 134 OF THE HOWARD COUNTY ZONING REGULATIONS.
 -THE EXTERIOR LIGHTING OF THE PUMP STATION STRUCTURE SHALL BE DIRECTED DOWNWARD.
- SIGNAGE SHALL BE PROVIDED ON THE BUILDING AND ON THE ENTRANCE GATES IDENTIFYING THE BUILDING ADDRESS.
- PARKING DATA:
 A. INTENDED USE OF STRUCTURE: WASTEWATER PUMPING STATION (GOVERNMENT USE)
 B. NUMBER OF SPACES REQUIRED: 2
 C. NUMBER OF SPACES PROVIDED: 2
- WETLANDS AND STREAMS SHOWN ON-SITE ARE BASED ON THE DELINEATION BY ENVIRONMENTAL SYSTEMS ANALYSIS, INC. (ESA), AUGUST 2013.
- NO GRADING, REMOVAL OF VEGETATIVE COVER OR TREES, PAVING AND NEW STRUCTURES SHALL BE PERMITTED WITHIN THE REQUIRED WETLANDS, STREAM(S) OR THEIR BUFFERS, FOREST CONSERVATION EASEMENT AREAS AND 100-YEAR FLOODPLAIN.
- FOREST STAND DELINEATION PLAN PREPARED BY KLEBASKO ENVIRONMENTAL, LLC. C/O MR. MICHAEL J. KLEBASKO, P.W.S., DATED MAY 2014.
 - FOREST CONSERVATION HAS BEEN ADDRESSED UNDER F16-021 TO FULFILL THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY FOREST CONSERVATION ACT.
 NO CLEARING, GRADING OR CONSTRUCTION IS PERMITTED WITHIN THE FOREST CONSERVATION EASEMENT, HOWEVER, FOREST MANAGEMENT PRACTICES AS DEFINED IN THE DEED OF FOREST CONSERVATION EASEMENT ARE ALLOWED.
- STORMWATER MANAGEMENT FOR THIS PROJECT IS PROVIDED BY A MICRO-SCALE PRACTICE IN ACCORDANCE WITH ENVIRONMENTAL SITE DESIGN CRITERIA. A MICRO-BIORETENTION FACILITY WILL BE PRIVATELY OWNED AND JOINTLY MAINTAINED (H.O.A. AND HOWARD COUNTY); HOWARD COUNTY WILL MAINTAIN OUTLET STRUCTURES AND PIPES WHILE THE H.O.A. SHALL MAINTAIN MULCH, WEEDING, PLANTINGS, PERFORATED UNDERDRAINS, FEEDER PIPES, AND ROUTINE SOIL REPLACEMENT.
- THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL.
 A FINANCIAL SURETY IN THE AMOUNT OF \$6,750.00 FOR THE PERIMETER LANDSCAPING (REQUIRED 17 SHADE TREES \$5,100 AND 11 EVERGREENS \$1,650.00), SHALL BE POSTED WITH THE DEVELOPERS AGREEMENT FOR THIS PLAN.
 -STREET TREES HAVE BEEN PROVIDED UNDER F16-072.
- THE MAPLE LAWN SOUTH PROJECT IS SUBJECT TO PLANNING BOARD #PB 415, ON JUNE 30, 2015, THE PLANNING BOARD OF HOWARD COUNTY APPROVED SP-15-014 FOR THE SUBDIVISION OF 176 SINGLE FAMILY DETACHED RESIDENTIAL LOTS AND THIRTEEN OPEN SPACE LOTS ON 91.31 ACRES OF LAND ZONED R-ED-MXD-3.
- THIS PROJECT IS SUBJECT TO WP-19-002. ON JULY 26, 2018, THE PLANNING DIRECTOR APPROVED THE REQUEST FOR AN ALTERNATIVE COMPLIANCE TO SECTION 16.156(W) OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS WHICH REQUIRE WITHIN 180 DAYS OF APPROVAL OF THE SITE DEVELOPMENT PLAN, THE DEVELOPER SHALL SUBMIT THE ORIGINAL MYLAR PLANS CORRECTED TO MEET THE REQUIREMENTS OF THE VARIOUS STATE AND COUNTY AGENCIES AND THE PLANNING BOARD. APPROVAL IS SUBJECT TO THE FOLLOWING CONDITIONS:
 1. THE APPROVAL OF SDP-17-005 IS HEREBY REACTIVATED AND EXTENDED FOR 9 MONTHS FROM THE DATE OF THIS ALTERNATIVE COMPLIANCE APPROVAL LETTER TO SUBMIT THE SDP ORIGINALS FOR SIGNATURE (ON OR BEFORE APRIL 26, 2019).
 2. INCLUDE THIS ALTERNATIVE COMPLIANCE PETITION FILE NUMBER, THE REGULATORY SECTION NOTE SHALL INCLUDE THE ALTERNATIVE COMPLIANCE PETITION FILE NUMBER, THE REGULATORY SECTION REQUESTED, THE DECISION OF REQUEST, DATE AND THE CONDITIONS OF APPROVAL.

SITE DEVELOPMENT PLAN EUGENE AVENUE SEWER PUMPING STATION MAPLE LAWN SOUTH - PHASE 1 - SECTION 2 OPEN SPACE LOT 182 HOWARD COUNTY, MARYLAND



LOCATION MAP
SCALE: 1"=600'

SITE ANALYSIS DATA CHART

SUBJECT PROPERTY:	TAX MAP 46 GRID 2 P/O PARCEL 113 OPEN SPACE LOT 182 F-16-072
PROPERTY REFERENCE:	A. TOTAL PROJECT AREA: 0.4700 AC. B. AREA OF PLAN SUBMISSION: 0.4700 AC. C. LIMIT OF DISTURBED AREA: SEE SHEET 4, 0.41 AC D. PRESENT ZONING DESIGNATION: R-ED-MXD-3 E. PROPOSED USES FOR SITE AND STRUCTURES: 342 SF± FLOOR AREA PUMP STATION BUILDING F. FLOOR SPACE ON EACH LEVEL: N/A G. TOTAL NUMBER OF UNITS ALLOWED: 1 BUILDING. H. TOTAL NUMBER OF UNITS PROPOSED: NORMALLY 1 VISIT PER DAY BY BUREAU OF UTILITIES MAINTENANCE PERSONNEL I. MAXIMUM # OF EMPLOYEES: N/A
	J. NUMBER OF PARKING SPACES REQUIRED: SEE NOTE 30 K. NUMBER OF PARKING SPACES PROVIDED: SEE NOTE 30 L. OPEN SPACE ON-SITE: N/A M. AREA OF RECREATION OPEN SPACE: N/A N. BUILDING COVERAGE: 1.4% O. DPZ FILE REFERENCES: ECP-14-093, WP-15-136, PB#415, SP-15-014, F-16-021, F16-072, CONT# 24-4989-D, CONT# 20-4955, WP-19-002
	P. ANY OTHER INFORMATION Q. FLOOR AREA RATIO (FAR) N/A

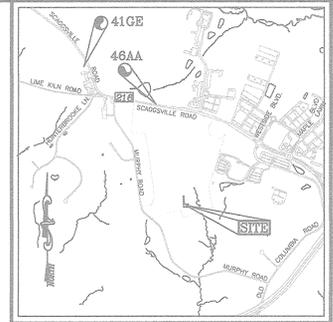
NOTE
F16-072 - MAPLE LAWN SOUTH PHASE 1 - SECTION 2, OPEN SPACE LOT 182 SHALL BE DEDICATED TO HOWARD COUNTY FOR THE PURPOSE OF A WASTEWATER PUMPING STATION

NOTE
THE EXISTING GRADES SHOWN HEREON WILL BE ESTABLISHED UNDER THE FINAL ROAD AND STORM DRAIN CONSTRUCTION PLANS FOR MAPLE LAWN SOUTH PHASE 1 - SECTION 2 F16-072

SURVEY CONTROL

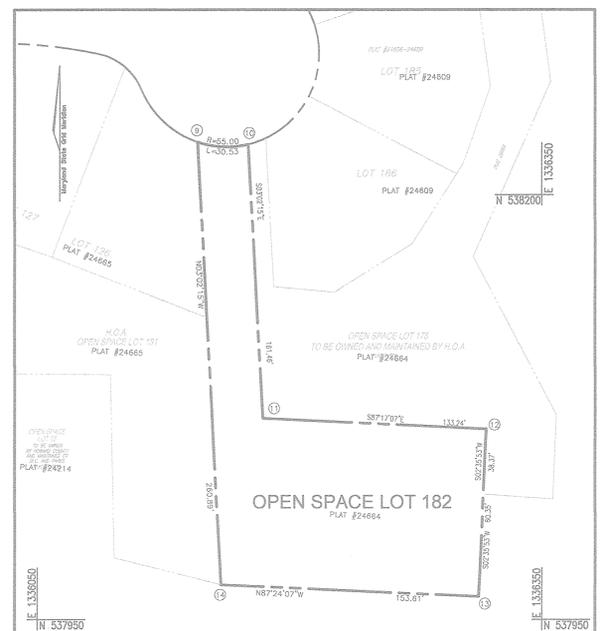
HOWARD COUNTY BENCHMARK 46AA
N 540.396+42 E 1.335,505.31 ELEV: 447.01 FT.
RT. 216, 33.2' WEST OF BG& E POLE#315163

HOWARD COUNTY BENCHMARK 410E
N 541.559+78 E 1.333,898.38 ELEV: 465.05 FT.
RT. 216, 82.4' WEST OF BG & E#557878



VICINITY MAP
SCALE: 1"=2000'
ADC MAP COORDINATES: 181 5, 6
181 5, 6

SHEET INDEX	
DESCRIPTION	SHEET NO.
COVER SHEET	1 OF 7
SITE LAYOUT AND LANDSCAPE PLAN	2 OF 7
GRADING, SOILS MAP, SOIL EROSION AND SEDIMENT CONTROL PLAN	3 OF 7
GRADING AND SOIL EROSION & SEDIMENT CONTROL - NOTES AND DETAILS	4 OF 7
DRIVEWAY / PAVING DETAILS AND SOIL BORING LOGS	5 OF 7
BUILDING PROFILES AND MISCELLANEOUS DETAILS	6 OF 7
STORMWATER MANAGEMENT NOTES AND DETAILS AND CONTRACT 24-4989-D SEWER PROFILES	7 OF 7



OPEN SPACE LOT 182: METES AND BOUNDS

SCALE: 1"=50'

PROPERTY STAKEOUT SCHEDULE			
POINT #	NOTHING	EASTING	GROUND ELEVATION
9	538231.04	1336145.13	426.5
10	538229.73	1336175.24	426.2
11	538090.90	1336183.79	409.5
12	538062.19	1336316.88	395.0
13	537963.56	1336312.40	399.0
14	537970.53	1336158.95	410.0

OWNER
MAPLE LAWN FARMS, INC.
11788 SCAGGSVILLE ROAD
FULTON, MD 20759-0562
301-725-2074

DEVELOPER
MAPLE LAWN PARTNERS, LLC
2681 RIVA ROAD, SUITE 220
ANNAPOLIS, MARYLAND 21401
443-472-2846

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Chad E. ... 9-10-18
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Robert ... 9-12-18
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

William ... 9-21-18
DIRECTOR DATE

ADDRESS CHART

LOT NUMBER	STREET ADDRESS
OPEN SPACE LOT 182	11214 EUGENE AVENUE

PERMIT INFORMATION CHART

SUBDIVISION NAME	SECTION/AREA	LOTS/PARCEL #			
MAPLE LAWN SOUTH	N/A	113			
PLAT # OR L/F	BLOCK NO.	ZONE	TAX MAP	ELECT. DIST.	CENSUS TR.
24664 F-16-072	2	R-ED MXD-3	46	5TH	605102

SITE DEVELOPMENT PLAN
COVER SHEET

EUGENE AVENUE SEWER PUMPING STATION

MAPLE LAWN SOUTH - PHASE 1 - SECTION 2
OPEN SPACE LOT 182

TAX MAP 46 - GRID 2 ZONED: R-ED-MXD-3 PARCEL 113
5TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

**ROBERT H. VOGEL
ENGINEERING, INC.**
ENGINEERS • SURVEYORS • PLANNERS
8407 MAIN STREET
ELICOTT CITY, MD 21043 TEL: 410.461.7866
FAX: 410.461.7891

DESIGN BY: RHV/EDS
DRAWN BY: KG
CHECKED BY: RHV
DATE: AUG 2018
SCALE: AS SHOWN
W.O. NO.: 11-34

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: 09-25-2020

1 SHEET OF 7



NOTE
 THE REQUIRED PUMP STATION LANDSCAPING IS LOCATED OFFSITE AS REQUESTED BY HOWARD COUNTY. THE MAINTENANCE OF THE REQUIRED PLANTINGS IS THE RESPONSIBILITY OF THE COMMUNITY H.O.A.

LANDSCAPE NOTES

- 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 ACCORDANCE WITH THE HOWARD COUNTY LANDSCAPE MANUAL. IN ADDITION, NO 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 MAY RESULT IN DENIAL OR DELAY 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, TENANT 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 MATERIALS 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" IN CALIPER AND INSTALLED AS REQUIRED IN THE HOWARD COUNTY LANDSCAPE MANUAL.
- PLANTINGS SHOWN HEREON ARE THE RESPONSIBILITY OF THE DEVELOPER TO INSTALL DURING THE CONSTRUCTION OF THE FINAL PLAN.
- SURETY FOR THE PROPOSED LANDSCAPING SHALL BE BASED ON THE NUMBER OF PLANTINGS REQUIRED.

THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL. A FINANCIAL SURETY IN THE AMOUNT OF \$6,750.00 FOR THE PERIMETER LANDSCAPING (REQUIRED 17 SHADE TREES \$5,100 AND 11 EVERGREENS \$1,650.00), SHALL BE POSTED WITH THE DEVELOPER'S AGREEMENT FOR THIS PLAN.

SCHEDULE A PERIMETER LANDSCAPE EDGE

CATEGORY	ADJACENT TO PERIMETER PROPERTIES			TOTAL
PERIMETER/FRONTAGE DESIGNATION	G	A	C	
LANDSCAPE TYPE	87	611	104	
LINEAR FEET OF ROADWAY FRONTAGE/PERIMETER				
CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET DESCRIBE BELOW IF NEEDED)	NO	NO	NO	
CREDIT FOR WALL FENCE OR BERM (YES, NO, LINEAR FEET DESCRIBE BELOW IF NEEDED)	NO	NO	NO	
NUMBER OF PLANTS REQUIRED				
SHADE TREES	140	3	11	17
EVERGREEN TREES	120	5	6	11
NUMBER OF PLANTS PROVIDED				
SHADE TREES	5	11	3	15
EVERGREEN TREES	1	6	11	
OTHER TREES (21 SUBSTITUTION)	20	-	-	-
SHRUBS (101 SUBSTITUTION)	-	-	-	-
EX. SPECIMEN TREES TO REMAIN DESCRIBE PLANT SUBSTITUTION CREDITS BELOW IF NEEDED	-	-	-	-



LANDSCAPE SCHEDULE

KEY	QUAN.	BOTANICAL NAME	SIZE	CAT.
AR	15	ACER FRAXINUM	2 1/2"-3" CAL.	B & B
PS	11	OCTOBER GLORY RED MAPLE	6"-8" HT.	B & B
TM	20	TAXUS MEDIA 'DENSIFORMIS'	2 1/2"-3" HT.	B & B

LANDSCAPE SCHEDULE NOTES:

- ALL PLANT MATERIALS SHALL BE FULL AND HEAVY, BE WELL FORMED AND SYMMETRICAL, CONFORM TO THE MOST CURRENT AMERICAN SPECIFICATIONS AND BE INSTALLED IN ACCORDANCE WITH HRD 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 PLAN DIFFERS FROM LANDSCAPE SCHEDULE, THE PLAN SHALL GOVERN.

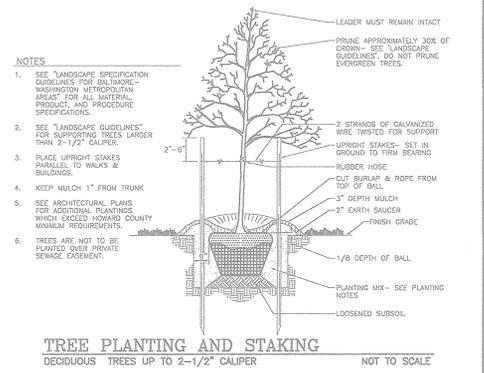
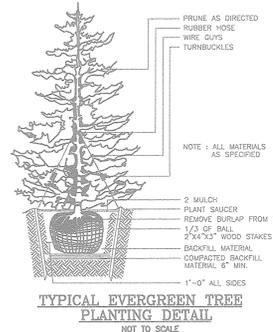
FENCE STAKEOUT SCHEDULE

POINT #	NORTHING	EASTING	GROUND ELEVATION
1	538070.09	1336175.70	410.5
2	538059.61	1336182.42	409.9
3	538054.00	1336194.52	408.8
4	538050.87	1336263.38	407.0
5	538042.88	1336271.52	407.0
6	537974.57	1336268.45	407.0
7	537979.51	1336159.46	408.5
8	538068.98	1336154.73	411.2

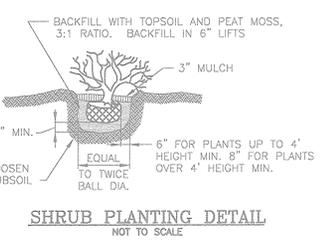
PROPERTY STAKEOUT SCHEDULE

POINT #	NORTHING	EASTING	GROUND ELEVATION
9	538231.04	1336149.13	426.2
10	538229.73	1336175.24	426.2
11	538068.50	1336183.79	409.5
12	538062.19	1336181.88	399.0
13	537963.56	1336312.40	399.0
14	537970.53	1336158.95	410.0

NOTE
 1. REFER TO SHEET 6 FOR FENCE AND GATE DETAILS.



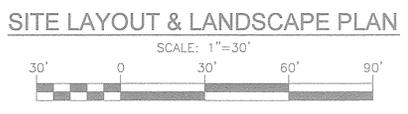
NOTES
 1. REFER TO SHEET 6 FOR FENCE AND GATE DETAILS.
 2. REFER TO SHEET 5 FOR SOIL BORING LOGS.



TURN-AROUND NOTE:
 FOR INCOMING TRUCK TURNING ANALYSIS REFER TO SHEET 5

CURVE TABLE

CURVE	LENGTH	RADIUS	DELTA ANGLE	TANGENT	CHORD DIRECTION	CHORD LENGTH
DRIVEWAY - 1+68.28 - 2+25.18	58.90'	40.00'	84°21'53"	36.25'	N45°13'11"W	53.72'



APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Chad Clark 9-10-18
 CHIEF, DEVELOPMENT ENGINEERING DIVISION JP
Ken S. ... 9-12-18
 CHIEF, DIVISION OF LAND DEVELOPMENT
Nathan ... 9-12-18
 DIRECTOR

DEVELOPER'S/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.

William ... 8-7-18
 SIGNATURE OF DEVELOPER DATE

OWNER
 MAPLE LAWN FARMS, INC.
 11788 SCAGGSVILLE ROAD
 FULTON, MD 20759-0562
 301-725-2074

DEVELOPER
 MAPLE LAWN PARTNERS, LLC
 2661 RIVA ROAD, SUITE 220
 ANNAPOLIS, MARYLAND 21401
 443-472-2846

SITE DEVELOPMENT PLAN
 SITE LAYOUT & LANDSCAPE PLAN
EUGENE AVENUE SEWER PUMPING STATION
 MAPLE LAWN SOUTH - PHASE 1 SECTION 2
 OPEN SPACE LOT 182

TAX MAP 46 - GRID 2 ZONED: R-ED-MXD-3 PARCEL 113
 5TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL ENGINEERING, INC.
 ENGINEERS • SURVEYORS • PLANNERS
 8407 MAIN STREET ELLICOTT CITY, MD 21043 TEL: 410.461.7666 FAX: 410.461.8961

PROFESSIONAL CERTIFICATE

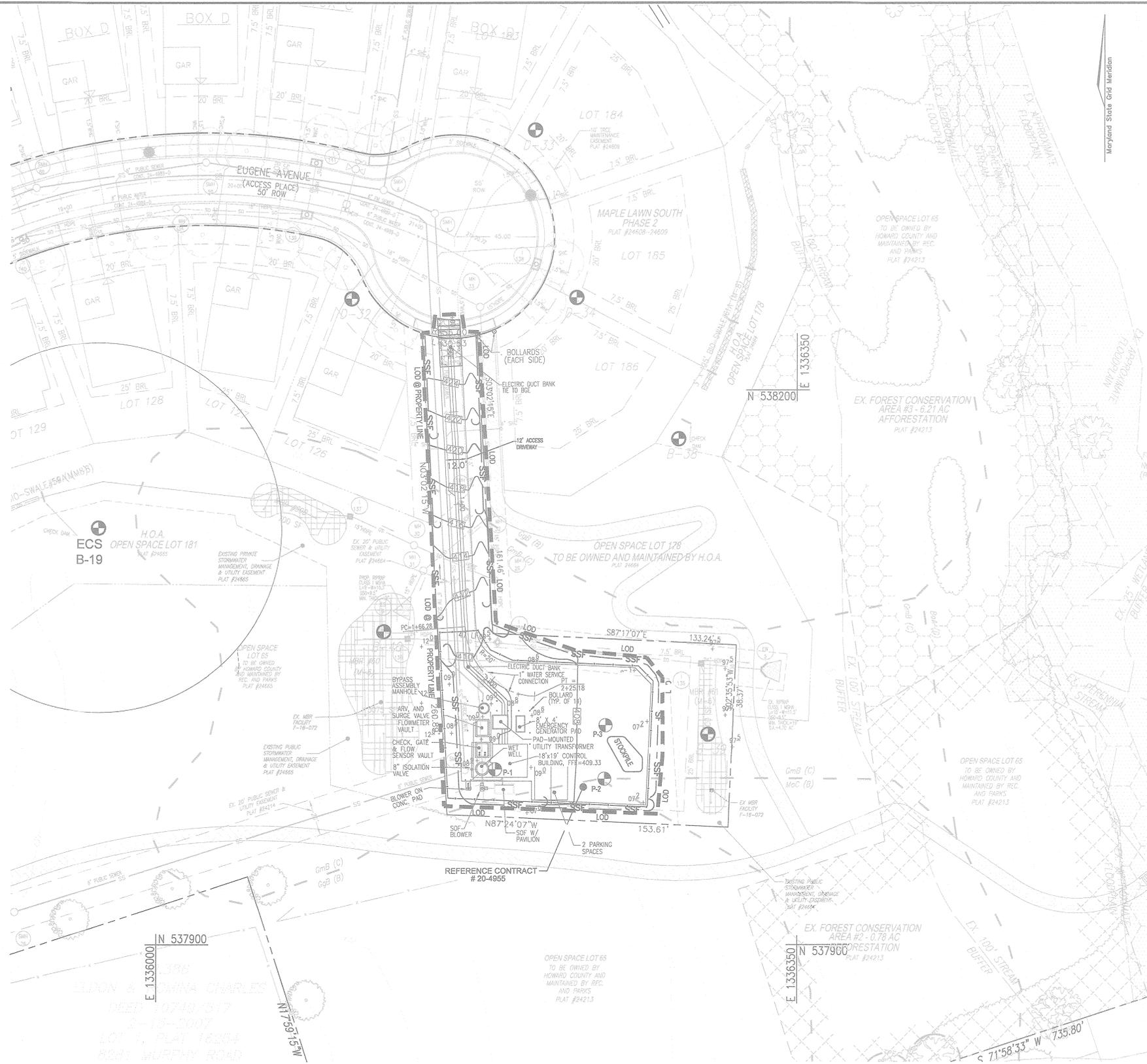
DESIGN BY: RHV/EDS
 DRAWN BY: KG
 CHECKED BY: RHV
 DATE: AUG 2018
 SCALE: AS SHOWN
 W.O. NO.: 11-34

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR PROVIDED BY ME, AND THAT I AM A DAILY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193 EXPIRATION DATE: 08-27-2018

2 SHEET OF 7

LEGEND:

- EXISTING CONTOUR
- PROPOSED CONTOUR
- + 402.88 PROPOSED SPOT ELEVATION
- EXISTING SPOT ELEVATION
- EXISTING CURB AND GUTTER
- EXISTING UTILITY POLE
- EXISTING LIGHT POLE
- EXISTING SIGN
- EXISTING SANITARY MANHOLE
- EXISTING SANITARY LINE 24-4989-D
- EXISTING CLEANOUT
- EXISTING FIRE HYDRANT
- EXISTING WATER LINE 24-4989-D
- EXISTING STORM DRAIN LINE F-16-072
- EXISTING FORCE MAIN LINE 24-4989-D
- EXISTING SPECIMEN TREE
- EXISTING TREELINE
- 6" HIGH CHAIN LINK FENCE
- PROPERTY LINE
- RIGHT-OF-WAY LINE
- EXISTING SIDEWALK F-16-072
- EXISTING FOREST CONSERVATION AFFORESTATION EASEMENT F-16-021
- EXISTING FOREST CONSERVATION REFORESTATION EASEMENT F-16-021
- EXISTING FLOODPLAIN F-16-021
- EXISTING 8' PATHWAY
- EXISTING MICRO-BIORETENTION F-16-021
- EXISTING 25" PUBLIC SEWER EASEMENT
- EXISTING PUBLIC SWIM EASEMENT
- SOILS BOUNDARY
- SSF SUPER SILT FENCE
- STABILIZED CONSTRUCTION ENTRANCE
- LOD LIMIT OF DISTURBANCE
- ECS LL - MID ATLANTIC SOIL BORING
- ESD - TEST PIT



SEQUENCE OF CONSTRUCTION

1. OBTAIN GRADING PERMIT - 1 DAY
 2. DEVELOPER / CONTRACTOR SHALL REQUEST A PRE-CONSTRUCTION MEETING WITH THE APPROPRIATE ENFORCEMENT AUTHORITY PRIOR TO BEGINNING CONSTRUCTION (1 DAY)
 3. NOTIFY HOWARD COUNTY BUREAU OF INSPECTIONS AND PERMITS (410-313-1880) AT LEAST 24 HOURS BEFORE STARTING ANY WORK (1 DAY)
 4. STAKEOUT LIMITS OF DISTURBANCE - 3 DAYS
- ON-SITE WORK
1. INSTALL STABILIZED CONSTRUCTION ENTRANCE, WHERE SHOWN HEREON - 1 DAY
 2. COMPLETE THE INSTALLATION OF FURROW CONTROLS - (1 DAY)
 3. STABILIZE THE DISTURBED AREAS FROM THE FOREMENTIONED DISTURBANCES WITH TEMPORARY SEEDING MIXTURE AND STRAW MULCH - 1 DAY
 4. COMPLETE GRADING AS REQUIRED TO BRING THE ACCESS DRIVEWAY AND WASTEWATER PUMP STATION TO SUBGRADE - 2 DAYS
 5. STOCKPILING SHALL OCCUR AS SHOWN HEREON. STOCKPILES SHALL BE STABILIZED AS DETAILED HEREON. (1 DAY)
 6. CONSTRUCT ON-SITE PUMP STATION AND UTILITIES - 2 MONTHS
 7. PAVE ACCESS DRIVEWAY AND LOT 185 REVEALED HEREON. (1 DAY)
 8. FINE GROUND LOT AS DETAILED HEREON. ADD TOPSOIL PER THE SPECIFICATIONS SHOWN HEREON AND PER SPOT ELEVATIONS AS SHOWN TO BE IN CONFORMANCE WITH STORMWATER MANAGEMENT SCHEME APPROVED FOR THE F-16-072 PROJECT. (1 DAY)
 9. WITH ALL GRADING COMPLETED, STABILIZE WITH PERMANENT SEEDING MIXTURE AND STRAW MULCH OR EQUAL STABILIZATION. (1 DAY)
 10. INSTALL LANDSCAPING AND ON-SITE FENCING. (2 DAYS)
 11. AFTER PERMISSION HAS BEEN GIVEN BY SEDIMENT CONTROL INSPECTOR, REMOVE ANY REMAINING E/S CONTROLS AND STABILIZE THE DISTURBED AREAS FROM THE FOREMENTIONED DISTURBANCES WITH PERMANENT SEEDING MIXTURE AND STRAW MULCH. (1 DAY)
- NOTE: ANY CHANGES OR REVISIONS TO THE SEQUENCE OF CONSTRUCTION MUST BE REVIEWED AND APPROVED BY THE PLAN APPROVAL AUTHORITY PRIOR TO PROCEEDING WITH CONSTRUCTION

NOTES

1. ALL EARTH DIKES ARE TO BE PLACED IN WORKING ORDER AT THE END OF EACH WORKING DAY.
2. IMBRICATE SF/SSF IN 35' SEGMENTS AS REQUIRED UPHILL BY 2" IN ELEVATION.

NOTES

1. REFER TO SHEET 4 FOR STANDARD DETAILS AND STABILIZATION NOTES.
2. REFER TO SHEET 5 FOR SOIL BORINGS.

NOTE:
STABILIZATION IS TO BE DONE AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR OR AT THE INTERVALS REQUIRED BY THE 2011 STDS. & SPECS. WHICHEVER IS MORE RESTRICTIVE.

NOTE:
- FENCING SHALL BE CURLED UPHILL NO MORE THAN 35 FEET APART
- DOUBLE ROWS OF SUPER SILT FENCE SHALL BE INSTALLED AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR.

MAPPED SOILS TYPES - CLARKSVILLE SE MAP #23

SYMBOL NAME / DESCRIPTION	GROUP	HYDRIC	INCLUDES	K FACTOR	PERCENT SAND	PERCENT SILT	PERCENT CLAY
GMB	G	NO	NO	0.20	YES	NO	NO
GMB	G	NO	NO	0.37	YES	NO	NO
MGC	M	NO	NO	0.24	YES	NO	NO

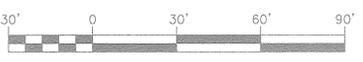
TAKEN FROM USDA, SCS-WEB SOIL SURVEY, HOWARD COUNTY

NOTE
THE EXISTING GRADES SHOWN HEREON WILL BE ESTABLISHED UNDER THE FINAL ROAD AND STORM DRAIN CONSTRUCTION PLANS FOR MAPLE LAWN SOUTH PHASE 1 - SECTION 2 F-16-072. PROPOSED GRADES OF THE F-16-072 PLAN SHALL BE COMPACTED TO 95%. SEE NOTE 19, SHEET 1 SDP-17-005.

OWNER
MAPLE LAWN FARMS, INC.
11788 SCAGGSVILLE ROAD
FULTON, MD 20759-0562
301-725-2074

DEVELOPER
MAPLE LAWN PARTNERS, LLC
2661 RIVA ROAD, SUITE 220
ANNAPOLIS, MARYLAND 21401
443-472-2846

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



APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Chad Clark
CHIEF, DEVELOPMENT ENGINEERING DIVISION
DATE: 9-10-18

Neil Seligson
CHIEF, DIVISION OF LAND DEVELOPMENT
DATE: 9-12-18

William H. Dadd
DIRECTOR
DATE: 9-12-18

OWNER/DEVELOPER CERTIFICATION:
I/WE CERTIFY THAT ANY CLEARING, GRADING, CONSTRUCTION, OR DEVELOPMENT WILL BE DONE PURSUANT TO THIS APPROVED EROSION AND SEDIMENT CONTROL PLAN, INCLUDING INSPECTING AND MAINTAINING CONTROLS, AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A MARYLAND DEPARTMENT OF THE ENVIRONMENT (MDE) APPROVED TRAINING PROGRAM FOR THE CONTROL ON EROSION AND SEDIMENT PRIOR TO BEGINNING THE PROJECT. I CERTIFY RIGHT-OF-ENTRY FOR PERIODIC ON-SITE EVALUATION BY HOWARD COUNTY, THE HOWARD SOIL CONSERVATION DISTRICT, AND MDE.

William H. Dadd
OWNER/DEVELOPER SIGNATURE
DATE: 9-10

DESIGN CERTIFICATION:
I HEREBY CERTIFY THAT THIS PLAN HAS BEEN DESIGNED IN ACCORDANCE WITH CURRENT MARYLAND EROSION AND SEDIMENT CONTROL LAWS, REGULATIONS, AND STANDARDS, THAT IT REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE, AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

Robert H. Vogel
DESIGNER'S SIGNATURE
DATE: 8/1/18

ROBERT H. VOGEL
MD REGISTRATION NO. 16193
P.E. R.L.S., OR R.L.A. (Circle one)

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

John R. Rhoton
DATE: 8/28/18

NO.	REVISION	DATE



PROFESSIONAL CERTIFICATE

DESIGN BY: RHV/EDS
DRAWN BY: KG
CHECKED BY: RHV
DATE: AUG 2018
SCALE: AS SHOWN
W.O. NO.: 11-34

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: 09-27-2018

3 SHEET OF 7

HOWARD SOIL CONSERVATION DISTRICT
STANDARD SEDIMENT CONTROL NOTES

- A PRE-CONSTRUCTION MEETING MUST OCCUR WITH THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS CONSTRUCTION INSPECTION DIVISION (C.D.) 410-333-1865 AFTER THE FUTURE LOD AND PROTECTED AREAS ARE MARKED CLEARLY IN THE FIELD. A MINIMUM OF 48 HOUR NOTICE TO C.D. MUST BE GIVEN AT THE FOLLOWING STAGES:
 - PRIOR TO THE START OF EARTH DISTURBANCE.
 - UPON COMPLETION OF THE INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROL, BUT BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING.
 - PRIOR TO THE START OF ANOTHER PHASE OF CONSTRUCTION OR OPENING OF ANOTHER GRADING UNIT.
 - PRIOR TO THE REMOVAL OR MODIFICATION OF SEDIMENT CONTROL STRUCTURES.

OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE. OTHER RELATED STATE AND FEDERAL PERMITS SHALL BE REFERENCED, TO ENSURE COORDINATION AND TO AVOID CONFLICTS WITH THIS PLAN.

- ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL AND REVISIONS THEREOF.
- FOLLOWING WITHIN SOIL DISTURBANCE OR RE-OCCUPANCE, PERMANENT OR TEMPORARY STABILIZATION IS REQUIRED WITHIN THREE (3) CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER CONTROLS, DICES, SHALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES STEEPER THAN 3 HORIZONTAL TO 1 VERTICAL (6:1) AND SEVEN (7) CALENDAR DAYS AS TO ALL OTHER DISTURBED AREAS ON THE PROJECT SITE EXCEPT FOR THOSE AREAS UNDER ACTIVE GRADING.
- ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR TOPSOIL (SEC. B-4-4.2), PERMANENT SEEDING (SEC. B-4-4.3), TEMPORARY SEEDING (SEC. B-4-4.4) AND MULCHING (SEC. B-4-4.5). TEMPORARY STABILIZATION WITH MULCH alone can ONLY BE APPLIED BETWEEN THE FALL AND SPRING SEEDING DATES IF THE GROUND IS FROZEN, IRREGULAR, UNSTABILIZED, OR OTHERWISE UNSUITABLE FOR SEEDING. STABILIZATION IN AREAS WITH >1% OF CUT AND/OR FILL STOCKPILES (SEC. B-4-4.8) IN EXCESS OF 20 FT. MUST BE BLENDED WITH STABLE OUTLET, ALL CONCENTRATED FLOW, STEEP SLOPE, AND HIGHLY ERODIBLE AREAS SHALL RECEIVE SOIL STABILIZATION MATING (SEC. B-4-4.6).
- ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE, AND ARE TO BE MAINTAINED IN OPERATIONAL CONDITION UNTIL PERMISSION FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE C.D.

6. SITE ANALYSIS:

TOTAL AREA OF SITE:	0.51	ACRES
AREA DISTURBED:	0.11	ACRES
AREA TO BE ROOPED OR PAVED:	0.19	ACRES
AREA TO BE VEGETATED/STABILIZED:	0.21	ACRES
TOTAL CUT:	**	CU. YDS.
TOTAL FILL:	**	CU. YDS.
OFFSITE WASH/BORROW AREA LOCATION:	F-16-072	

(1) REFER TO ITEM 11 BELOW

5. ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.

- ADDITIONAL SEDIMENT CONTROL MUST BE PROVIDED; IF DEEMED NECESSARY BY THE C.D. THE SITE AND ALL CONTROLS SHALL BE INSPECTED BY THE CONTRACTOR WEEKLY AND THE NEXT DAY AFTER EACH RAIN EVENT AS WRITTEN BY THE CONTRACTOR. INSPECTION MADE AVAILABLE UPON REQUEST, IS PART OF EVERY INSPECTION AND SHOULD INCLUDE:
 - INSPECTION DATE (ROUTINE, PRE-STORM EVENT, DURING RAIN EVENT)
 - NAME AND TITLE OF INSPECTOR
 - WEATHER INFORMATION (CURRENT CONDITIONS AS WELL AS TIME AND AMOUNT OF LATEST RECORDED PRECIPITATION)
 - BRIEF DESCRIPTION OF PROJECT'S STATUS (E.G., PERCENT COMPLETE) AND/OR CURRENT ACTIVITIES
 - EVIDENCE OF SEDIMENT DISCHARGES
 - IDENTIFICATION OF PLAN DEFICIENCIES
 - IDENTIFICATION OF SEDIMENT CONTROLS THAT REQUIRE MAINTENANCE
 - IDENTIFICATION OF MISSING OR IMPROPERLY INSTALLED SEDIMENT CONTROLS
 - COMPLIANCE STATUS REGARDING THE SEQUENCE OF CONSTRUCTION AND STABILIZATION REQUIREMENTS
 - PHOTOGRAPHS
 - MONITORING/SAMPLING
 - MAINTENANCE AND/OR CORRECTIVE ACTION PERFORMED
 - OTHER INSPECTION ITEMS AS REQUIRED BY THE GENERAL PERMIT FOR STORMWATER ASSOCIATED WITH CONSTRUCTION ACTIVITIES (NPSDS, MDC).

- TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE LENGTHS OR THAT WHICH CAN AND SHALL BE BACK-FILLED AND STABILIZED BY THE END OF EACH WORKDAY, WHICHEVER IS SHORTER.
- ANY MAJOR CHANGES OR REVISIONS TO THE PLAN OR SEQUENCE OF CONSTRUCTION MUST BE REVIEWED AND APPROVED BY THE HSCD PRIOR TO PROCEEDING WITH CONSTRUCTION. MINOR REVISIONS MAY ALLOWED BY THE C.D. PER THE LIST OF HSCD-APPROVED FIELD CHANGES.
- DISTURBING SHALL NOT OCCUR OUTSIDE THE L.O.D. A PROJECT IS TO BE SEQUENCED SO THAT GRADING ACTIVITIES BEGIN ON ONE GRADING UNIT (MAXIMUM ACREAGE OF 20 AC. PER GRADING UNIT) AT A TIME. WORK MAY PROCEED TO A SUBSEQUENT GRADING UNIT WHEN AT LEAST 50 PERCENT OF THE DISTURBED AREA IN THE PRECEDING GRADING UNIT HAS BEEN STABILIZED AND APPROVED BY THE HSCD, UNLESS OTHERWISE SPECIFIED AND APPROVED BY THE HSCD, NO MORE THAN 30 ACRES CUMULATIVELY MAY BE DISTURBED AT A GIVEN TIME.
- WASH WATER FROM ANY EQUIPMENT, VEHICLES, WHEELS, PAVEMENT, AND OTHER SOURCES MUST BE TREATED IN A SEDIMENT BASIN OR OTHER APPROVED WASHOUT STRUCTURE.
- TOPSOIL SHALL BE STOCKPILED AND PRESERVED ON-SITE FOR REDISTRIBUTION ONTO FINAL GRADE.
- ALL SILT FENCE AND SUPER SILT FENCE SHALL BE PLACED ON THE-CONTOUR, AND BE IMBEDDED AT 25" MINIMUM INTERVALS, WITH LOWER ENDS CURLED UPWARD BY 2" IN ELEVATION.
- STREAM CHANNELS MUST NOT BE DISTURBED DURING THE FOLLOWING RESTRICTED TIME PERIODS (INCLUDES):
 - USE I AND II: MARCH 1 - JUNE 15
 - USE III AND IV: MARCH 1 - APRIL 30
 - USE V: MARCH 1 - MAY 31
- A COPY OF THIS PLAN, THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, AND ASSOCIATED PERMITS SHALL BE ON-SITE AND AVAILABLE WHEN THE SITE IS ACTIVE.

REV. 8/2015

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.

A. SOIL PREPARATION

- GENERAL USE
 - SELECT ONE OR MORE OF THE SPECIES OR MIXTURES LISTED IN TABLE B.5 FOR THE APPROPRIATE PLANT HARDNESS ZONE (FROM FIGURE B.3) AND BASED ON THE SITE CONDITION OR PRACTICE 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 3-1/2 POUNDS PER 1000 SQUARE FEET (50 POUNDS PER ACRE) AT THE TIME OF SEEDING IN ADDITION TO THE SOIL AMENDMENTS SHOWN IN THE PERMANENT SEEDING SUMMARY.
- TURFGRASS
 - 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 REGULAR IRRADIATION 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 DROUGHT PRONO AREAS AND/OR FOR AREAS RECEIVING LOW TO MEDIUM MAINTENANCE IN FULL SUN TO MEDIUM TO INTENSIVE MAINTENANCE. 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 PRONO AREAS AND/OR FOR AREAS RECEIVING LOW TO MEDIUM MAINTENANCE IN FULL SUN TO MEDIUM SHADE. RECOMMENDED MIXTURE INCLUDES: CERTIFIED TALL FESCUE CULTIVARS 85 TO 100 PERCENT, CERTIFIED KENTUCKY BLUEGRASS CULTIVARS 8 TO 15 PERCENT, SEEDING RATE: 5 TO 10 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: 1 1/2 TO 3 POUNDS PER 1000 SQUARE FEET.

NOTES:
- SELECT TURFGRASS VARIETIES FROM THOSE LISTED IN THE MOST CURRENT VERSION 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 10 TO OCTOBER 1 (HARDNESS ZONES: SB, BA)
 - CENTRAL MD: MARCH 1 TO MAY 15, AUGUST 15 TO OCTOBER 15 (HARDNESS ZONE: 6B)
 - SOUTHERN MD: EASTERN SHORE: MARCH 1 TO OCTOBER 15, AUGUST 15 TO OCTOBER 15 (HARDNESS ZONES: 7A, 7B)
- TALL 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 1/8 INCHES IN DIAMETER. THE RESULTING SURFACE SHOULD BE IN SUCH CONDITION THAT FUTURE WINDING GRASSES WILL GROW NO DIFFICULTY.
- IF SOIL MOISTURE IS DEFICIENT, SUPPLY NEW SEEDINGS WITH ADEQUATE WATER FOR PLANT ROOTS (1/2 TO 1 INCH EVERY 1 TO 4 DAYS DEPENDING ON SOIL TEXTURE) UNTIL THEY ARE FIRMLY ESTABLISHED. THIS IS ESPECIALLY TRUE WHEN SEEDINGS ARE MADE LAITE IN THE PLANTING SEASON, IN ABNORMALLY DRY OR HOT SEASONS, OR ON ADVERSE SITES.

- GENERAL SPECIFICATIONS
 - CLASS OF TURFGRASS/SOD MUST BE MARYLAND STATE CERTIFIED. SOD LABELS MUST BE MADE AVAILABLE TO THE SOIL FERTILIZER AND INSPECTION AGENCY.
 - SOD MUST BE MACHINE CUT AT A UNIFORM SOIL THICKNESS OF 3/4 INCH, PLUS OR MINUS 1/8 INCH, AT THE TIME OF CUTTING. MEASUREMENT FOR THICKNESS MUST EXCLUDE TOP GROWTH AND THATCH. BROKEN PLANTS AND TORN OR UNVEN ENDS WILL NOT BE ACCEPTABLE.
 - STANDARD SIZE SECTIONS OF SOD MUST BE STRONG ENOUGH TO SUPPORT THEIR OWN WEIGHT AND RETURN 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 TRANSPORTED WHEN MOISTURE CONTENT EXCEEDS 10% (BY WET) OR 10% (BY DRY) SUBSTRATE.
 - SOD MUST BE HARVESTED, DELIVERED, AND INSTALLED WITHIN A PERIOD OF 36 HOURS. SOD NOT TRANSPORTED WITHIN THIS PERIOD MUST BE APPROVED BY AN AGRONOMIST OR SOIL SCIENTIST PRIOR TO ITS INSTALLATION.
- SOD MAINTENANCE
 - IN THE ABSENCE OF ADEQUATE RAINFALL, WATER DAILY DURING THE FIRST WEEK OR AS OFTEN AND SUFFICIENTLY AS NECESSARY TO MAINTAIN MOST SOIL TO 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 1/3 OF THE GRASS LEAF MUST BE REMOVED BY THE MOWER CUTTING OR SUBSEQUENT CUTTINGS. MAINTAIN A GRASS HEIGHT OF AT LEAST 3 INCHES UNLESS OTHERWISE SPECIFIED.

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 - DO NOT MOW UNTIL THE SOD IS FIRMLY ROOTED, NO MORE THAN 1/3 OF THE GRASS LEAF MUST BE REMOVED BY THE MOWER CUTTING OR SUBSEQUENT CUTTINGS. MAINTAIN A GRASS HEIGHT OF AT LEAST 3 INCHES UNLESS OTHERWISE SPECIFIED.

- GENERAL SPECIFICATIONS
 - CLASS OF TURFGRASS/SOD MUST BE MARYLAND STATE CERTIFIED. SOD LABELS MUST BE MADE AVAILABLE TO THE SOIL FERTILIZER AND INSPECTION AGENCY.
 - SOD MUST BE MACHINE CUT AT A UNIFORM SOIL THICKNESS OF 3/4 INCH, PLUS OR MINUS 1/8 INCH, AT THE TIME OF CUTTING. MEASUREMENT FOR THICKNESS MUST EXCLUDE TOP GROWTH AND THATCH. BROKEN PLANTS AND TORN OR UNVEN ENDS WILL NOT BE ACCEPTABLE.
 - STANDARD SIZE SECTIONS OF SOD MUST BE STRONG ENOUGH TO SUPPORT THEIR OWN WEIGHT AND RETURN 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 TRANSPORTED WHEN MOISTURE CONTENT EXCEEDS 10% (BY WET) OR 10% (BY DRY) SUBSTRATE.
 - SOD MUST BE HARVESTED, DELIVERED, AND INSTALLED WITHIN A PERIOD OF 36 HOURS. SOD NOT TRANSPORTED WITHIN THIS PERIOD MUST BE APPROVED BY AN AGRONOMIST OR SOIL SCIENTIST PRIOR TO ITS INSTALLATION.
- SOD MAINTENANCE
 - IN THE ABSENCE OF ADEQUATE RAINFALL, WATER DAILY DURING THE FIRST WEEK OR AS OFTEN AND SUFFICIENTLY AS NECESSARY TO MAINTAIN MOST SOIL TO 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 1/3 OF THE GRASS LEAF MUST BE REMOVED BY THE MOWER CUTTING OR SUBSEQUENT CUTTINGS. MAINTAIN A GRASS HEIGHT OF AT LEAST 3 INCHES UNLESS OTHERWISE SPECIFIED.

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PERMANENT SEEDING SUMMARY

NO	SPECIES	HARDNESS ZONE (FROM TABLE B.3):		SEEDING DATES	SEEDING DEPTHS	N	P	K	LIME RATE
		ZONE 6b	ZONE 9b						
1	COOL SEASON TALL FESCUE OR EQUAL	1.5 - 2.0 LB/AC	1.5 - 2.0 LB/AC	MAY 15 TO OCT 15	1/4-1/2 IN.	45	10	0	2 TONS/AC (80 LB PER 1000 SF)
		1.5 - 2.0 LB/AC	1.5 - 2.0 LB/AC	MAY 15 TO OCT 15	1/4-1/2 IN.	45	10	0	2 TONS/AC (80 LB PER 1000 SF)

TEMPORARY SEEDING SUMMARY

NO	SPECIES	HARDNESS ZONE (FROM TABLE B.3):		SEEDING DATES	SEEDING DEPTHS	N	P	K	LIME RATE
		ZONE 6b	ZONE 9b						
1	COOL SEASON TALL FESCUE OR EQUAL	40 LB/AC	40 LB/AC	MAY 15 TO OCT 15	1/2 IN.	45	10	0	2 TONS/AC (80 LB PER 1000 SF)
2	WARM SEASON FORTAL OR EQUAL	30 LB/AC	30 LB/AC	MAY 15 TO JUL 31	1/2 IN.	45	10	0	2 TONS/AC (80 LB PER 1000 SF)

TEMPORARY SEEDING SUMMARY

NO	SPECIES	HARDNESS ZONE (FROM TABLE B.3):		SEEDING DATES	SEEDING DEPTHS	N	P	K	LIME RATE
		ZONE 6b	ZONE 9b						
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2	WARM SEASON FORTAL OR EQUAL	30 LB/AC	30 LB/AC	MAY 15 TO JUL 31	1/2 IN.	45	10	0	2 TONS/AC (80 LB PER 1000 SF)

OWNER/DEVELOPER CERTIFICATION:
I/WE CERTIFY THAT ANY CLEARING, GRADING, CONSTRUCTION, OR DEVELOPMENT WILL BE DONE PURSUANT TO THE APPROVED EROSION AND SEDIMENT CONTROL PLAN, INCLUDING INSPECTING AND MAINTAINING CONTROLS, AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A MARYLAND DEPARTMENT OF THE ENVIRONMENT (MDE) APPROVED TRAINING PROGRAM FOR THE CONTROL OF EROSION AND SEDIMENT CONTROL TO BE CONDUCTED BY THE HOWARD COUNTY DEPARTMENT OF PERIODIC ON-SITE EVALUATION BY HOWARD COUNTY, THE HOWARD SOIL CONSERVATION DISTRICT, OR AN AGRONOMIST.

DESIGN CERTIFICATION:
I HEREBY CERTIFY THAT THIS PLAN HAS BEEN DESIGNED IN ACCORDANCE WITH CURRENT MARYLAND REGULATIONS AND STANDARDS FOR EROSION AND SEDIMENT CONTROL. IT REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 Chief, Engineering Division JP
 Chief, Division of Land Development
 Director

DATE: 9-10-18
 DATE: 9-12-18
 DATE: 9-12-18

OWNER/DEVELOPER SIGNATURE: William H. Dadd
 DATE: 8-7-18

DESIGNER SIGNATURE: Robert H. Vogel
 DATE: 8/1/18

MD REGISTRATION NO. 16193
 P.E., R.L.S., OR R.L.A. (circle one)

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
WHERE VEGETATIVE STABILIZATION IS TO BE ESTABLISHED.

CRITERIA
A. SOIL PREPARATION

1. TEMPORARY STABILIZATION

- SEEDING PREPARATION: AGGREGATES OF LOOSENING SOIL TO A DEPTH OF 3 TO 5 INCHES BY MEANS OF SUITABLE AGGREGATORS OR CONSTRUCTION EQUIPMENT, SUCH AS DISK HARROWS OR CHISEL PLOWS, OR BELLETS 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 ROVERS 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 HIGH CONDITIONS MUST BE MET FOR PERMANENT VEGETATIVE ESTABLISHMENT ARE:
 - SOIL PH BETWEEN 6.0 AND 7.0.
 - SULFUR SALTS LESS THAN 50 POUNDS PER MILLION (PPM).
 - SOIL CONTAINS LESS THAN 40 PERCENT CLAY BUT ENOUGH FINE GRANDED MATERIAL (GREATER THAN 30 PERCENT SILT PLUS CLAY) TO PROVIDE THE CAPACITY TO HOLD A MODERATE AMOUNT OF MOISTURE, AN EXCEPTION: IF LOOSESSSES ARE SUCH THAT THE HIGH CONDITIONS ARE NOT MET, A SOIL TEST IS REQUIRED TO DETERMINE IF THE SOIL IS ACCEPTABLE.
 - SOIL CONTAINS 1.5 PERCENT MINIMUM ORGANIC MATTER BY WEIGHT.
- SOIL CONDITIONS 1/4 INCH OR DEEPER 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 AND AS INDICATED BY THE RESULTS OF A SOIL TEST.
- MAX 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 ROCKS AND BRANDED MATERIALS, 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 SEEDING PREPARATION. TRACK SLOPES 3:1 OR FLATTER WITH TRACKED EQUIPMENT LEAVING THE SOIL IN AN IRREGULAR CONDITION WITH ROVERS RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE. TRACKED EQUIPMENT SHOULD BE USED TO PREPARE THE SEEDBED. SEEDING LOSSING MAY BE UNNECESSARY ON NEWLY DISTURBED AREAS.

- CUTTING AND SEEDING: MECHANIZED SEEDERS THAT APPLY AND COVER SEED WITH THE RESULTS OF A SOIL TEST.
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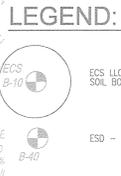
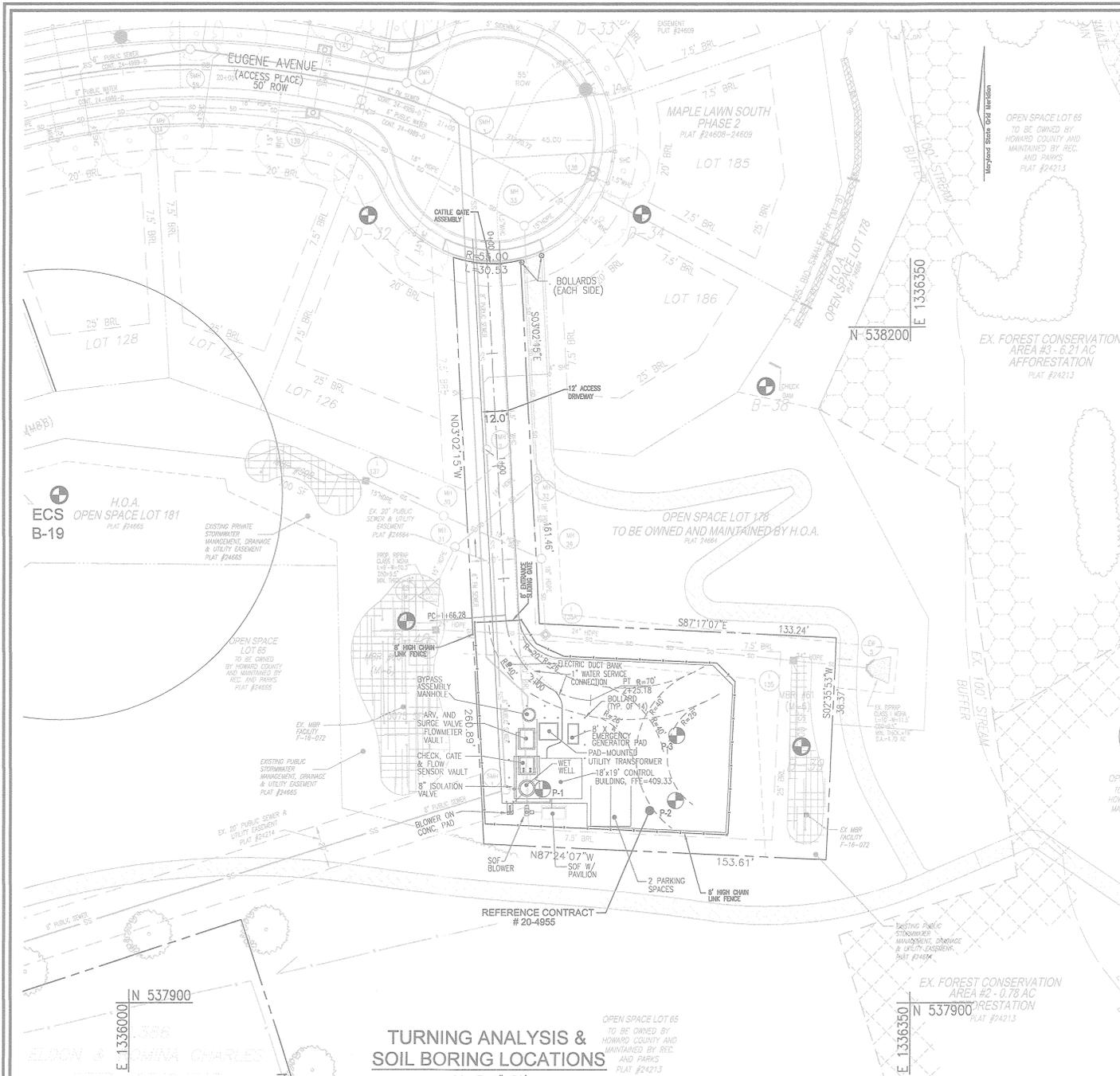
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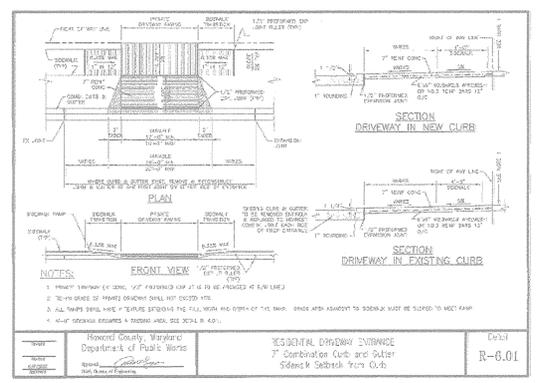
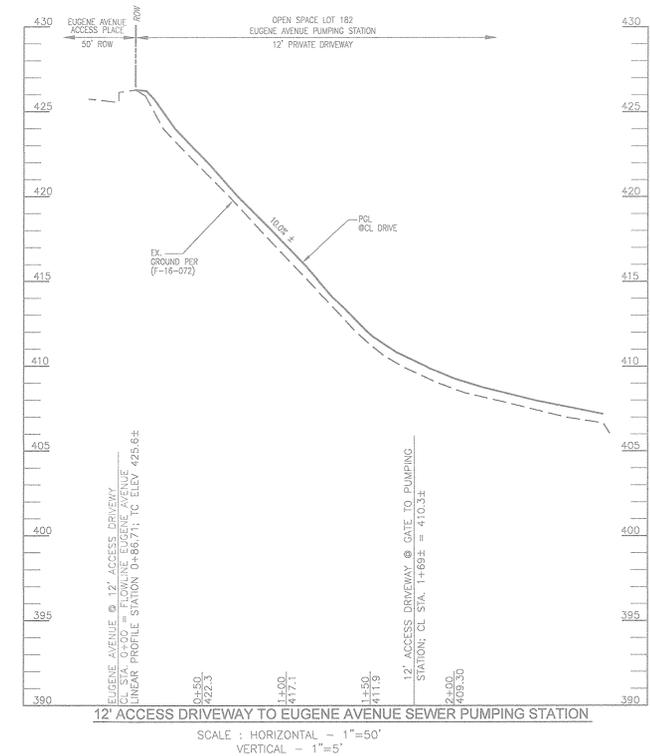
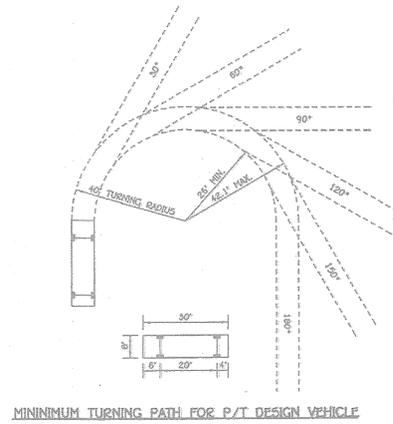
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- CUTTING AND SEEDING: MECHANIZED SEEDERS



NOTE
 THE EXISTING GRADES SHOWN HEREON WILL BE ESTABLISHED UNDER THE FINAL ROAD AND STORM DRAIN CONSTRUCTION PLANS FOR MAPLE LAWN SOUTH PHASE 1 - SECTION 2 F-16-072

ECS - SOIL BORING LOGS

Soil Boring No.	Soil Boring Description	Soil Boring Log	Soil Boring Log	Soil Boring Log
B-1
B-2
B-3
B-4
B-5
B-6
B-7
B-8
B-9
B-10
B-11
B-12
B-13
B-14
B-15
B-16
B-17
B-18
B-19



SECTION	ROAD AND STREET	EXISTING FINISHED ROAD SURFACE	PROPOSED FINISHED ROAD SURFACE						
P-1
P-2
P-3
P-4

OWNER
 MAPLE LAWN FARMS, INC.
 11788 SCAGSVILLE ROAD
 FULTON, MD 20759-0562
 301-725-2074

DEVELOPER
 MAPLE LAWN PARTNERS, LLC
 2861 RIVA ROAD, SUITE 220
 ANNAPOLIS, MARYLAND 21401
 443-472-2846

SITE DEVELOPMENT PLAN
 DRIVEWAY / PAVING DETAILS
 AND SOIL BORING LOGS

EUGENE AVENUE
 SEWER PUMPING STATION

MAPLE LAWN SOUTH - PHASE 1 - SECTION 2
 OPEN SPACE LOT 182

TAX MAP 46 - GRID 2 ZONED: R-ED-MXD-3 PARCEL 113
 5TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL ENGINEERING, INC.
 ENGINEERS • SURVEYORS • PLANNERS
 8407 MAIN STREET ELLICOTT CITY, MD 21043 TEL: 410.461.7666 FAX: 410.461.8961

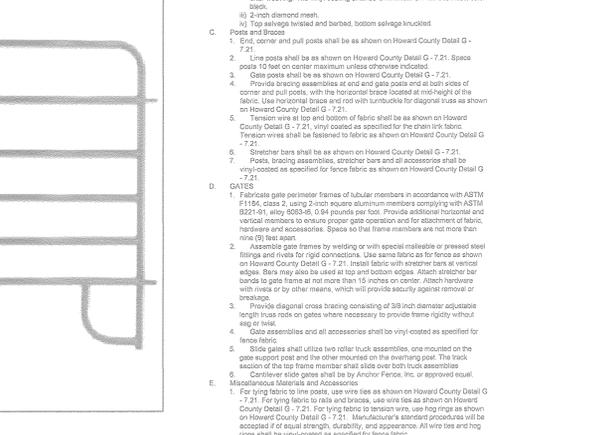
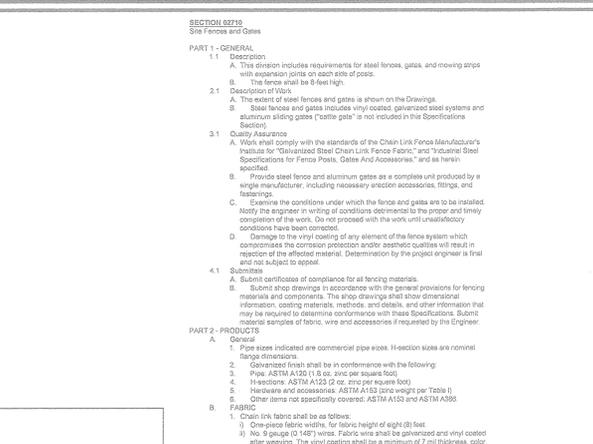
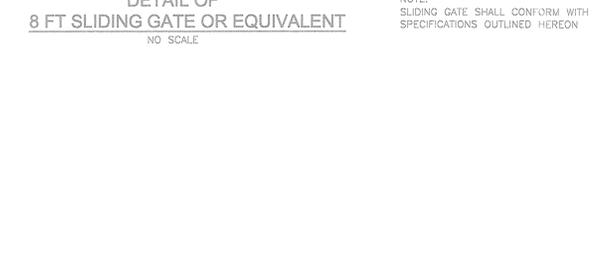
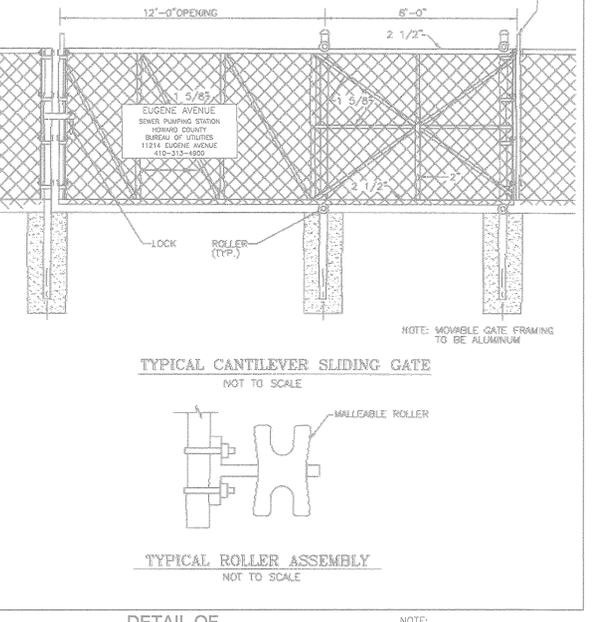
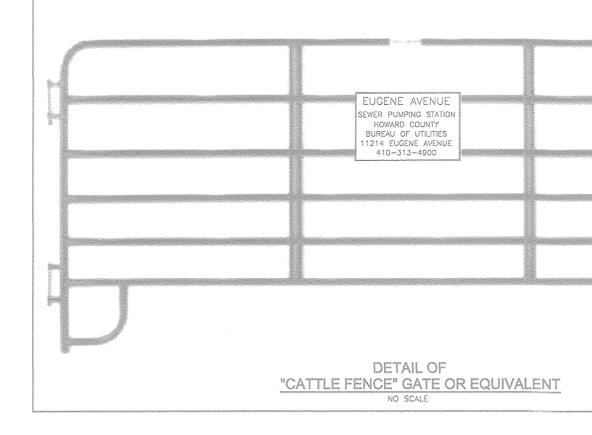
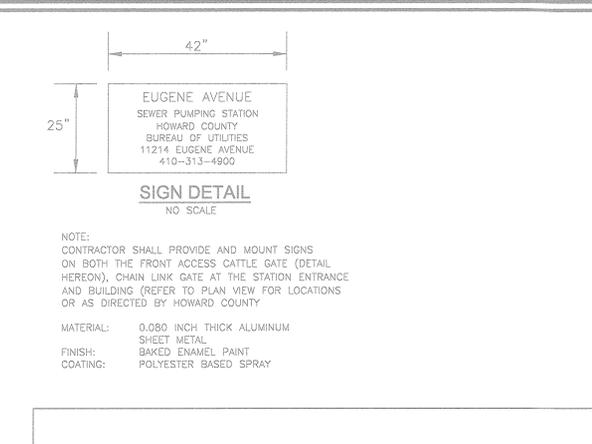
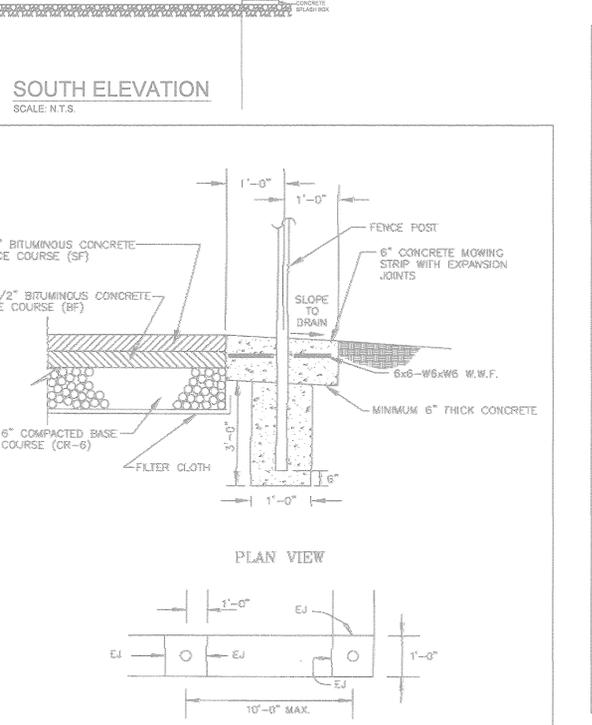
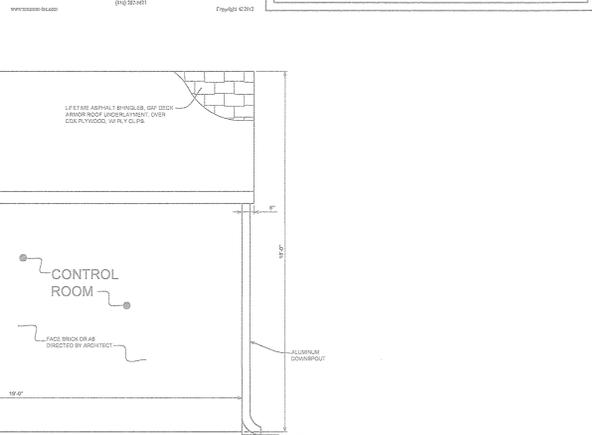
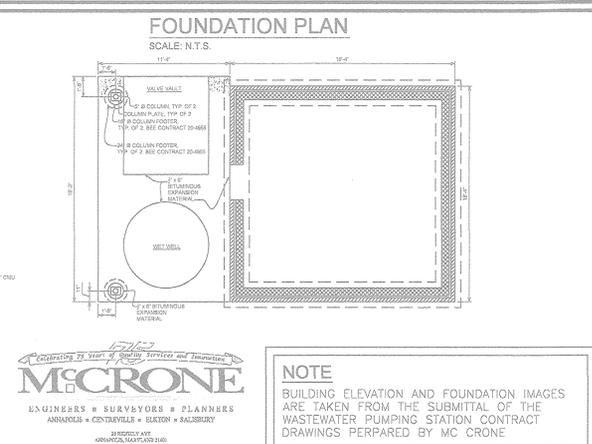
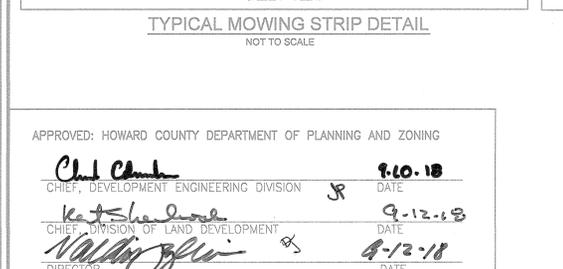
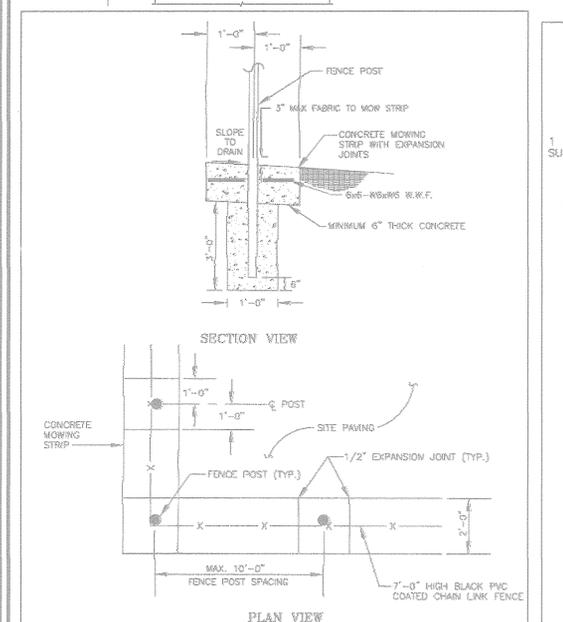
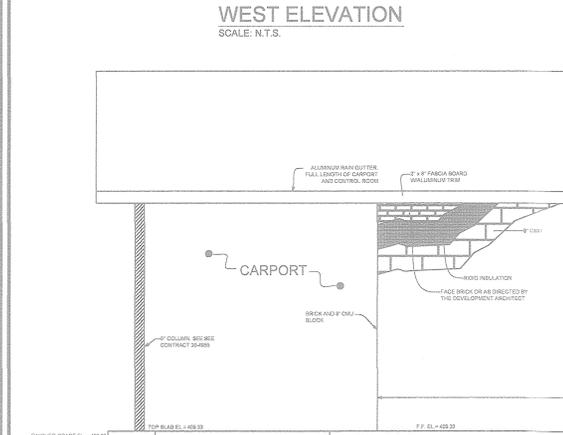
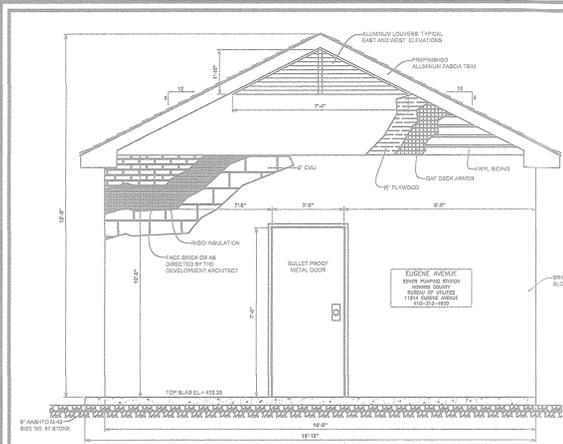
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Chad Clark 4-10-18
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

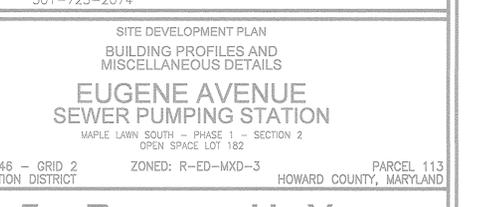
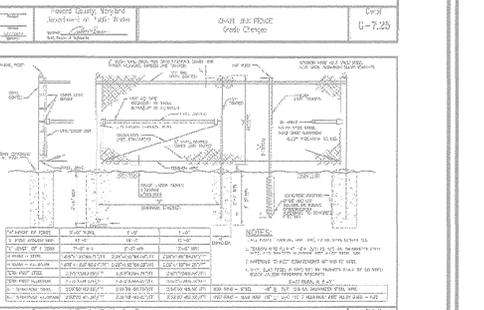
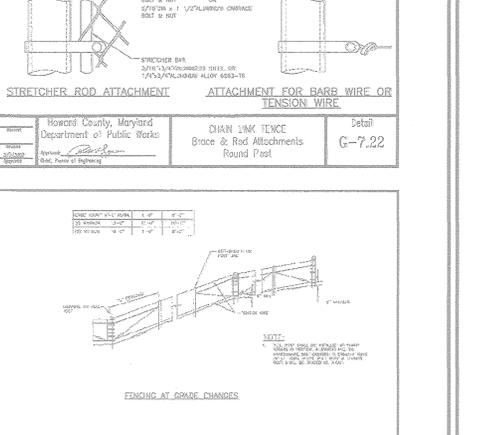
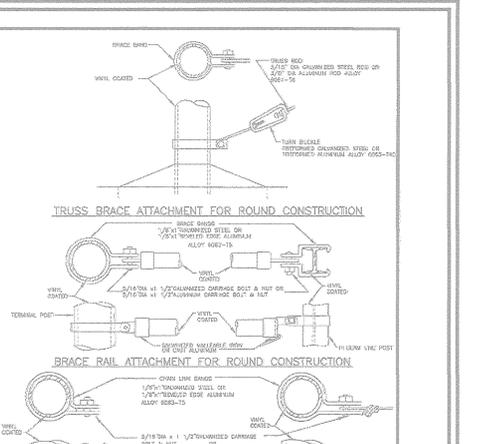
Neil W. Joffe 4-12-18
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

Neil W. Joffe 4-12-18
 DIRECTOR DATE

NO.	REVISION	DATE



NO.	REVISION	DATE



NO.	REVISION	DATE

NO.	REVISION	DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Chad Campbell 9-10-18
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Kate Schaefer 9-12-18
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

Nathan Griffin 9-12-18
DIRECTOR DATE

NOTE
REFER TO SHEET 5 FOR STANDARD HOWARD COUNTY P-2 PAVEMENT SECTION DETAIL

NOTE:
SLIDING GATE SHALL CONFORM WITH SPECIFICATIONS OUTLINED HEREON

SECTION 0210
Site Fences and Gates

PART 1 - GENERAL

1. Description
A. This division includes requirements for steel fences, gates, and mowing strips with expansion joints on each side of posts.
B. The fence shall be 6 feet high.

2.1 Description of Work
A. The extent of steel fences and gates is shown on the Drawings.
B. Steel fences and gates include vinyl coated, galvanized steel systems and aluminum sliding gates ("cattle gate" is not included in the Specifications Section).

3.1 Quality Assurance
A. Work shall comply with the standards of the Chain Link Fence Manufacturer's Institute for "Minimum Steel Chain Link Fence Fabric" and "Industrial Steel Specifications for Fence Posts, Gates and Accessories," and as hereinafter specified.
B. Provide steel fence and aluminum gates as a complete unit produced by a single manufacturer, including necessary erection accessories, fittings and fastenings.
C. Examine the conditions under which the fence and gates are to be installed. Notify the engineer in writing of conditions and details, and stop work until proper completion of the work. Do not proceed with the work until unsatisfactory conditions have been corrected.
D. Damage to the vinyl coating of any element of the fence system which compromises the corrosion resistance and aesthetic qualities will result in rejection of the affected material. Determination by the project engineer is final and not subject to appeal.

4.1 Submittals
A. Submit certification of compliance for all fencing materials.
B. Submit shop drawings in accordance with the general provisions for fencing materials and components. The shop drawings shall show dimensional information, coating materials, methods and details, and other information that may be required to determine conformance with these Specifications. Submit material samples of fabric, wire and accessories as required by the Engineer.

PART 2 - PRODUCTS

A. General
1. Pipe sizes indicated are commercial pipe sizes. H-section sizes are nominal flange dimensions.
2. Galvanized finish shall be in conformance with the following:
a. Pipe ASTM A138 (2 in. and per square foot)
b. H-sections ASTM A138 (2 in. and per square foot)
c. Hardware and accessories ASTM A153 (zinc weight per Table 1)
d. Other items not specifically covered ASTM A153 and ASTM A388

B. FABRIC
1. Chain link fabric shall be as follows:
a. One-piece fabric widths, for fabric height of eight (8) feet.
b. No. 6 gauge (1.42) wires. Fabric wire shall be galvanized and vinyl coated after weaving. The vinyl coating shall be a minimum of 2 mil thickness, color black.
c. 2-inch diamond mesh.
d. Top selvage finished and beveled, bottom selvage finished.
e. Posts and pull posts shall be as shown on Howard County Detail G-7.21.

2. Line posts shall be as shown on Howard County Detail G-7.21. Space posts 12 feet on center maximum unless otherwise indicated.
3. Gate posts shall be as shown on Howard County Detail G-7.21.
4. Provide bracing assemblies at each end gate posts and at top of corner and pull posts, with the horizontal brace located at mid height of the fabric. Use horizontal brace and pin hangers for diagonal bracing as shown on Howard County Detail G-7.21.
5. Tension wire at top and bottom of fabric shall be as shown on Howard County Detail G-7.21. Vinyl coated as specified for the chain link fabric.
6. Tension wires shall be fastened to fabric as shown on Howard County Detail G-7.21.
7. Stretcher bars shall be as shown on Howard County Detail G-7.21.
8. Posts, bracing assemblies, stretcher bars and all accessories shall be vinyl coated as specified for fence fabric as shown on Howard County Detail G-7.21.

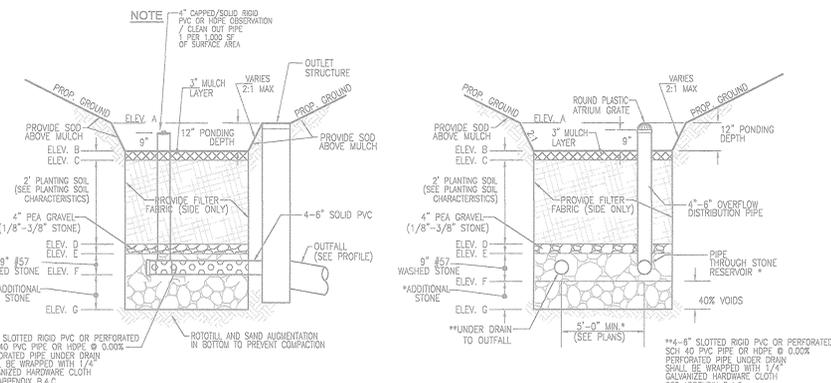
C. GATES
1. Fabricate gate perimeter frames of tubular members in accordance with ASTM F1554, Class 2, using 2-inch square aluminum members complying with ASTM B201-01, and 2x4x8, 2x6x8, 2x8x8, 2x10x8, 2x12x8, 2x14x8, 2x16x8, 2x18x8, 2x20x8, 2x22x8, 2x24x8, 2x26x8, 2x28x8, 2x30x8, 2x32x8, 2x34x8, 2x36x8, 2x38x8, 2x40x8, 2x42x8, 2x44x8, 2x46x8, 2x48x8, 2x50x8, 2x52x8, 2x54x8, 2x56x8, 2x58x8, 2x60x8, 2x62x8, 2x64x8, 2x66x8, 2x68x8, 2x70x8, 2x72x8, 2x74x8, 2x76x8, 2x78x8, 2x80x8, 2x82x8, 2x84x8, 2x86x8, 2x88x8, 2x90x8, 2x92x8, 2x94x8, 2x96x8, 2x98x8, 2x100x8, 2x102x8, 2x104x8, 2x106x8, 2x108x8, 2x110x8, 2x112x8, 2x114x8, 2x116x8, 2x118x8, 2x120x8, 2x122x8, 2x124x8, 2x126x8, 2x128x8, 2x130x8, 2x132x8, 2x134x8, 2x136x8, 2x138x8, 2x140x8, 2x142x8, 2x144x8, 2x146x8, 2x148x8, 2x150x8, 2x152x8, 2x154x8, 2x156x8, 2x158x8, 2x160x8, 2x162x8, 2x164x8, 2x166x8, 2x168x8, 2x170x8, 2x172x8, 2x174x8, 2x176x8, 2x178x8, 2x180x8, 2x182x8, 2x184x8, 2x186x8, 2x188x8, 2x190x8, 2x192x8, 2x194x8, 2x196x8, 2x198x8, 2x200x8, 2x202x8, 2x204x8, 2x206x8, 2x208x8, 2x210x8, 2x212x8, 2x214x8, 2x216x8, 2x218x8, 2x220x8, 2x222x8, 2x224x8, 2x226x8, 2x228x8, 2x230x8, 2x232x8, 2x234x8, 2x236x8, 2x238x8, 2x240x8, 2x242x8, 2x244x8, 2x246x8, 2x248x8, 2x250x8, 2x252x8, 2x254x8, 2x256x8, 2x258x8, 2x260x8, 2x262x8, 2x264x8, 2x266x8, 2x268x8, 2x270x8, 2x272x8, 2x274x8, 2x276x8, 2x278x8, 2x280x8, 2x282x8, 2x284x8, 2x286x8, 2x288x8, 2x290x8, 2x292x8, 2x294x8, 2x296x8, 2x298x8, 2x300x8, 2x302x8, 2x304x8, 2x306x8, 2x308x8, 2x310x8, 2x312x8, 2x314x8, 2x316x8, 2x318x8, 2x320x8, 2x322x8, 2x324x8, 2x326x8, 2x328x8, 2x330x8, 2x332x8, 2x334x8, 2x336x8, 2x338x8, 2x340x8, 2x342x8, 2x344x8, 2x346x8, 2x348x8, 2x350x8, 2x352x8, 2x354x8, 2x356x8, 2x358x8, 2x360x8, 2x362x8, 2x364x8, 2x366x8, 2x368x8, 2x370x8, 2x372x8, 2x374x8, 2x376x8, 2x378x8, 2x380x8, 2x382x8, 2x384x8, 2x386x8, 2x388x8, 2x390x8, 2x392x8, 2x394x8, 2x396x8, 2x398x8, 2x400x8, 2x402x8, 2x404x8, 2x406x8, 2x408x8, 2x410x8, 2x412x8, 2x414x8, 2x416x8, 2x418x8, 2x420x8, 2x422x8, 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2x1080x8, 2x1082x8, 2x1084x8, 2x1086x8, 2x1088x8, 2x1090x8, 2x1092x8, 2x1094x8, 2x1096x8, 2x1098x8, 2x1100x8, 2x1102x8, 2x1104x8, 2x1106x8, 2x1108x8, 2x1110x8, 2x1112x8, 2x1114x8, 2x1116x8, 2x1118x8, 2x1120x8, 2x1122x8, 2x1124x8, 2x1126x8, 2x1128x8, 2x1130x8, 2x1132x8, 2x1134x8, 2x1136x8, 2x1138x8, 2x1140x8, 2x1142x8, 2x1144x8, 2x1146x8, 2x1148x8, 2x1150x8, 2x1152x8, 2x1154x8, 2x1156x8, 2x1158x8, 2x1160x8, 2x1162x8, 2x1164x8, 2x1166x8, 2x1168x8, 2x1170x8, 2x1172x8, 2x1174x8, 2x1176x8, 2x1178x8, 2x1180x8, 2x1182x8, 2x1184x8, 2x1186x8, 2x1188x8, 2x1190x8, 2x1192x8, 2x1194x8, 2x1196x8, 2x1198x8, 2x1200x8, 2x1202x8, 2x1204x8, 2x1206x8, 2x1208x8, 2x1210x8, 2x1212x8, 2x1214x8, 2x1216x8, 2x1218x8, 2x1220x8, 2x1222x8, 2x1224x8, 2x1226x8, 2x1228x8, 2x1230x8, 2x1232x8, 2x1234x8, 2x1236x8, 2x1238x8, 2x1240x8, 2x1242x8, 2x1244x8, 2x1246x8, 2x1248x8, 2x1250x8, 2x1252x8, 2x1254x8, 2x1256x8, 2x1258x8, 2x1260x8, 2x1262x8, 2x1264x8, 2x1266x8, 2x1268x8, 2x1270x8, 2x1272x8, 2x1274x8, 2x1276x8, 2x1278x8, 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2x1880x8, 2x1882x8, 2x1884x8, 2x1886x8,

APPENDIX B.4.C SPECIFICATIONS FOR MICRO-BIORETENTION, RAIN GARDEN, LANDSCAPE INFILTRATION & INFILTRATION BERMS

- MATERIAL SPECIFICATIONS**
THE ALLOWABLE MATERIALS TO BE USED IN THESE PRACTICES ARE DETAILED IN TABLE B.4.1.
- FILTERING MEDIA OR PLANTING SOIL**
THE SOIL SHALL BE A UNIFORM MIX, FREE OF STONES, STUMPS, ROOTS OR OTHER SIMILAR OBJECTS LARGER THAN TWO INCHES. NO OTHER MATERIALS OR SUBSTANCES SHALL BE MIXED OR DUMPED WITHIN THE MICRO-BIORETENTION PRACTICE THAT MAY BE HARMFUL TO PLANT GROWTH, OR PROVIDE A HURDLE TO THE PLANTING OR MAINTENANCE OPERATIONS. THE PLANTING SOIL SHALL BE FREE OF BERMUDA GRASS, QUACKGRASS, JOHNSON GRASS, OR OTHER NOXIOUS WEEDS AS SPECIFIED UNDER COMAR 15.06.01.05.
THE PLANTING SOIL SHALL BE TESTED AND SHALL MEET THE FOLLOWING CRITERIA:
* SOIL COMPONENT - LOAMY SAND OR SANDY LOAM (USDA SOIL TEXTURAL CLASSIFICATION)
* ORGANIC CONTENT - MINIMUM 10% BY DRY WEIGHT (ASTM D 2974). IN GENERAL, THIS CAN BE MET WITH A MIXTURE OF LOAMY SAND (60%-65%) AND COMPOST (35% TO 40%) OR SANDY LOAM (30%), COARSE SAND (30%), AND COMPOST (40%).
* CLAY CONTENT - MEDIA SHALL HAVE A CLAY CONTENT OF LESS THAN 3%
* PH RANGE - SHOULD BE BETWEEN 5.5 - 7.0. AMENDMENTS (E.G., LIME, IRON SULFATE PLUS SULFUR) MAY BE MIXED IN TO THE SOIL TO INCREASE OR DECREASE PH.
THESE SHALL BE AT LEAST ONE SOIL TEST PER PROJECT. EACH TEST SHALL CONSIST OF BOTH THE STANDARD SOIL TEST FOR PH AND ADDITIONAL TESTS OF ORGANIC MATTER, AND SOLUBLE SALTS. A TEXTURAL ANALYSIS IS REQUIRED FROM THE SITE STOCKPILED TOPSOIL IF TOPSOIL IS IMPORTED, THEN A TEXTURE ANALYSIS SHALL BE PERFORMED FOR EACH LOCATION WHERE THE TOPSOIL WAS EXCAVATED.

- COMPACTION**
IT IS VERY IMPORTANT TO MINIMIZE COMPACTION OF BOTH THE BASE OF BIORETENTION PRACTICES AND THE REQUIRED BACKFILL. WHEN POSSIBLE, USE EXCAVATION HOES TO REMOVE ORIGINAL SOIL. IF PRACTICES ARE EXCAVATED USING LOADERS, THE CONTRACTOR SHOULD USE WIDE TRACK OR WASH TRUCK EQUIPMENT OR LIGHT EQUIPMENT WITH TURF TIRE TRES. USE OF EQUIPMENT WITH NARROW TRACKS OR NARROW TIRES, RUBBER TIRES WITH LARGE LUGS, OR HIGH-PRESSURE TIRES WILL CAUSE EXCESSIVE COMPACTION RESULTING IN REDUCED INFILTRATION RATES AND IS NOT ACCEPTABLE. COMPACTION WILL SIGNIFICANTLY CONTRIBUTE TO DESIGN FAILURE.
COMPACTION CAN BE ALLEVIATED AT THE BASE OF THE BIORETENTION FACILITY BY USING A PRIMARY TILLING OPERATION SUCH AS CHISEL PLOW, RIPPER, OR SUBSOILER. THESE TILLING OPERATIONS ARE TO REFRACATURE THE SOIL PROFILE THROUGH THE 12 INCH COMPACTION ZONE. SUBSTITUTE METHODS MUST BE APPROVED BY THE ENGINEER. ROTOTILLERS TYPICALLY DO NOT TILL DEEP ENOUGH TO REDUCE THE EFFECTS OF COMPACTION FROM HEAVY EQUIPMENT.
ROTOTILL 2 TO 3 INCHES OF SAND INTO THE BASE OF THE BIORETENTION FACILITY BEFORE BACKFILLING THE OPTIONAL SAND LAYER. PUMP ANY PONDING WATER BEFORE PREPARING (ROTOTILLING) BASE.
WHEN BACKFILLING THE TOPSOIL OVER THE SAND LAYER, FIRST PLACE 3 TO 4 INCHES OF TOPSOIL OVER THE SAND, THEN ROTOTILL THE SAND/TOPSOIL TO CREATE A GRADATION ZONE. BACKFILL THE REMAINDER OF THE TOPSOIL TO FINAL GRADE.
WHEN BACKFILLING THE BIORETENTION FACILITY, PLACE SOIL IN LIFTS 12" TO 18". DO NOT USE HEAVY EQUIPMENT WITHIN THE BIORETENTION BASIN. HEAVY EQUIPMENT CAN BE USED AROUND THE PERIMETER OF THE BASIN TO SUPPLY SOILS AND SAND. GRADE BIORETENTION MATERIALS WITH LIGHT EQUIPMENT SUCH AS A COMPACT LOADER OR A DOZER/LOADER WITH WASH TRUCKS.
- PLANT MATERIAL**
RECOMMENDED PLANT MATERIAL FOR MICRO-BIORETENTION PRACTICES CAN BE FOUND IN APPENDIX A, SECTION A.2.3.
- PLANT INSTALLATION**
COMPOST IS A BETTER ORGANIC MATERIAL SOURCE, IS LESS LIKELY TO FLOAT, AND SHOULD BE PLACED IN THE INVERT AND OTHER LOW AREAS. MULCH SHOULD BE PLACED IN SURROUNDING TO A UNIFORM THICKNESS OF 2" TO 3". SHREDDED OR CHIPPED HARDWOOD MULCH IS THE ONLY ACCEPTED MULCH. PINE MULCH AND WOOD CHIPS WILL FLOAT AND MOVE TO THE PERIMETER OF THE BIORETENTION AREA DURING A STORM EVENT AND ARE NOT ACCEPTABLE. SHREDDED MULCH MUST BE WELL AGED (6 TO 12 MONTHS) FOR ACCEPTANCE.
ROOTSTOCK OF THE PLANT MATERIAL SHALL BE KEPT MOIST DURING TRANSPORT AND ON-SITE STORAGE. THE PLANT ROOT BALL SHOULD BE PLANTED SO 1/3RD OF THE BALL IS ABOVE FINAL GRADE SURFACE. THE DIAMETER OF THE PLANTING PIT SHALL BE AT LEAST SIX INCHES LARGER THAN THE DIAMETER OF THE PLANTING BALL. SET AND MAINTAIN THE PLANT STRAIGHT DURING THE ENTIRE PLANTING PROCESS. THOROUGHLY WATER GROUND (ET) COVER AFTER INSTALLATION. TREES SHALL BE BRANDED USING 2" BY 2" STAKES ONLY AS NECESSARY AND FOR THE FIRST GROWING SEASON ONLY. STAKES ARE TO BE EQUALLY SPACED ON THE OUTSIDE OF THE TREE BALL.
GRASSES AND LEGUME SEED SHOULD BE DRILLED INTO THE SOIL TO A DEPTH OF AT LEAST ONE INCH. GRASS AND LEGUME PLUGS SHALL BE PLANTED FOLLOWING THE NON-GRASS GROUND COVER PLANTING SPECIFICATIONS.

- TOPSOIL SPECIFICATIONS**
THE TOPSOIL SPECIFICATIONS PROVIDE ENOUGH ORGANIC MATERIAL TO ADEQUATELY SUPPLY NUTRIENTS FROM NATURAL CYCLING. THE PRIMARY FUNCTION OF THE BIORETENTION STRUCTURES IS TO IMPROVE WATER QUALITY. ADDING FERTILIZERS DEFATS, OR AT A MINIMUM, IMPROVES THIS GOAL. ONLY ADD FERTILIZER IF WOOD CHIPS OR MULCH ARE USED TO AMEND THE SOIL. ROTOTILL UREA FERTILIZER AT A RATE OF 2 POUNDS PER 1000 SQUARE FEET.
- UNDERDRAINS**
UNDERDRAINS SHOULD MEET THE FOLLOWING CRITERIA:
* PIPE - SHOULD BE 4" TO 6" DIAMETER, SLOTTED OR PERFORATED RIGID PLASTIC PIPE (ASTM F 758, TYPE PS 28, OR AASHTO-M-278) IN A GRAVEL LAYER. THE PREFERRED MATERIAL IS SLOTTED, 4" RIGID PVC (E.G., PVC OF HOLES).
* PERFORATIONS - IF PERFORATED PIPE IS USED, PERFORATIONS SHOULD BE 3/8" DIAMETER LOCATED 6" ON CENTER WITH A MINIMUM OF FOUR HOLES PER ROW. PIPE SHALL BE WRAPPED WITH A 1/4" (NO. 4 OR 44) GALVANIZED HARDWARE CLOTH.
* GRAVEL - THE GRAVEL LAYER (NO. 57 STONE PREFERRED) SHALL BE AT LEAST 3" THICK ABOVE AND BELOW THE UNDERDRAIN.
* THE MAIN COLLECTOR PIPE SHALL BE AT A MINIMUM 0.5% SLOPE.
* A RIGID, NON-PERFORATED OBSERVATION WELL MUST BE PROVIDED (ONE PER EVERY 1,000 SQUARE FEET) TO PROVIDE A CLEAN-OUT PORT AND MONITOR PERFORMANCE OF THE FILTER.
* A 4" LAYER OF PEA GRAVEL (1/8" TO 3/8" STONE) SHALL BE LOCATED BETWEEN THE FILTER MEDIA AND UNDERDRAIN TO PREVENT MIGRATION OF FINES IN TO THE UNDERDRAIN. THIS LAYER MAY BE CONSIDERED PART OF THE FILTER BED WHEN BED THICKNESS EXCEEDS 24".
THIS MAIN COLLECTOR PIPE FOR UNDERDRAIN SYSTEMS SHALL BE CONSTRUCTED AT A MINIMUM SLOPE OF 0.5%. OBSERVATION WELLS AND/OR CLEAN-OUT PIPES MUST BE PROVIDED (ONE MINIMUM PER EVERY 1000 SQUARE FEET OF SURFACE AREA).
- MISCELLANEOUS**
THESE PRACTICES MAY NOT BE CONSTRUCTED UNTIL ALL CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED.



MICRO-BIORETENTION (UNDERDRAIN)
NOT TO SCALE
*ADDITIONAL STONE PROVIDED FOR 10 YEAR ATTENUATION/REV

MICRO-BIORETENTION (OVERFLOW)
NOT TO SCALE
*ADDITIONAL STONE PROVIDED FOR 10 YEAR ATTENUATION/REV

MICROBIORETENTION NOTES:
1. ONLY THE SIDES OF MICROBIORETENTION ARE TO BE WRAPPED IN FILTER FABRIC. FILTER FABRIC BETWEEN LAYER OR AT THE BOTTOM OF THE MICROBIORETENTION WILL CAUSE THE MBR TO FAIL, AND THEREFORE SHALL NOT BE INSTALLED.
2. WRAP THE PERFORATED MBR UNDERDRAIN PIPE WITH 1/4" MESH (4x4) OR SMALLER GALVANIZED HARDWARE CLOTH. SEE APPENDIX B.4.C.6.
3. PROVIDE 3" MINIMUM SPACING BETWEEN UNDER DRAIN AND PERFORATED PIPE THROUGH STONE RESERVOIR OR SPACE PIPE EQUALLY ACROSS BOTTOM FOR SMALL BIOS. (SEE PLANS)

REFER TO F 16-072

MBR FACILITY #	ESD WSEL A	TOP MULCH B	TOP PLANT SOIL C	BOTTOM PLANT SOIL D	BOTTOM PEA GRAVEL E	INV PIPE (1) F	ADDITIONAL STONE * G	INV STONE H	SURFACE AREA SF	APPROX DIM
61	396.70	395.70	395.45	393.45	393.12	392.37	2.70	389.67	1000	SEE PLAN

* 10 YEAR STORM ATTENUATION / REV
(1) UNDERDRAIN PIPE AND OVERFLOW DISTRIBUTION PIPE

NOTE:
FACILITY ONSITE WILL BE OWNED AND MAINTAINED BY HOWARD COUNTY

Appendix B.4. Construction Specifications for Environmental Site Design Practices

Material	Specification	Size	Notes
Plantings	see Appendix A, Table A.4	n/a	plantings are site-specific
Planting soil (2" to 4" deep)	loamy sand (60-65%) & compost (35-40%) or sandy loam (30%), coarse sand (30%) & compost (40%)	n/a	USDA soil types loamy sand or sandy loam; clay content < 5%
Organic content	Min. 10% by dry weight (ASTM D 2974)		
Mulch	shredded hardwood		aged 6 months, minimum; no pine or wood chips
Pea gravel diaphragm	pea gravel: ASTM-D-448	NO. 8 OR NO. 9 (1/8" TO 3/8")	
Curtain drain	ornamental stone: washed cobbles	stone: 2" to 5"	
Geotextile	AASHTO M-43	NO. 57 OR NO. 6 AGGREGATE (3/8" TO 3/4")	PE Type I nonwoven
Gravel (underdrains and infiltration berms)			
Underdrain piping	F 758, Type PS 28 or AASHTO M-278	4" to 6" rigid schedule 40 PVC or SDR35	Slotted or perforated pipe; 3/8" perf. @ 6" on center, 4 holes per row; minimum of 3" of gravel over pipe; not necessary under mesh pipes. Perforated pipe shall be wrapped with 1/4-inch galvanized hardware cloth
Poured in place concrete (if required)	MSHA Mix No. 3; F _c = 3500 psi @ 28 days, normal weight, air-entrained; reinforcing to meet ASTM-615-60	n/a	on-site testing of poured-in-place concrete required; 28 day strength and slump test; all concrete design (cast-in-place or pre-cast) not using previously approved State or local standards requires design drawings sealed and approved by a professional structural engineer licensed in the State of Maryland - design to include meeting ACI Code 309.8.09 vertical loading [H-10 or H-20]; allowable horizontal loading (based on soil pressures); and analysis of potential cracking
Sand	AASHTO-M-6 or ASTM-C-33	0.02" to 0.04"	Sand substitutions such as Dolomite and Coquimbite (AASHTO) #10 are not acceptable. No calcium carbonated or dolomitic sand substitutions are acceptable. No "rock dust" can be used for sand.

OPERATION AND MAINTENANCE SCHEDULE FOR MICROBIORETENTION AREAS

- ANNUAL MAINTENANCE OF PLANT MATERIAL, MULCH LAYER AND SOIL LAYER IS REQUIRED. MAINTENANCE OF MULCH AND SOIL IS LIMITED TO CORRECTING AREAS OF EROSION OR WASH OUT. ANY MULCH REPLACEMENT SHALL BE DONE IN THE SPRING. PLANT MATERIAL SHALL BE CHECKED FOR DISEASE AND INSECT INFESTATION AND MAINTENANCE WILL ADDRESS DEAD MATERIAL AND PRUNING. ACCEPTABLE REPLACEMENT PLANT MATERIAL IS LIMITED TO THE FOLLOWING: 2000 HIGHLAND STORMWATER DESIGN MANUAL VOLUME 1, TABLE A.4.1 AND 2.
- SCHEDULE OF PLANT INSPECTION WILL BE TWICE A YEAR IN SPRING AND FALL. THIS INSPECTION WILL INCLUDE REMOVAL OF DEAD AND DISEASED VEGETATION CONSIDERED BEYOND TREATMENT, TREATMENT OF ALL DISEASED TREES AND SHRUBS AND REPLACEMENT OF ALL DEFICIENT STAKES AND WIPES.
- MULCH SHALL BE INSPECTED EACH SPRING. REMOVE PREVIOUS MULCH LAYER BEFORE APPLYING NEW LAYER ONCE EVERY 2 TO 3 YEARS.
- SOIL EROSION TO BE ADDRESSED ON AN AS NEEDED BASIS WITH A MINIMUM OF ONCE PER MONTH AND AFTER HEAVY STORM EVENTS.

