FINAL ROAD CONSTRUCTION PLAN
MAPLE LAWN SOUTH
PHASE 1 - SECTION 1
LOTS 1 - 64, NON-BUILDABLE BULK PARCEL 'A', NON-BUILDABLE BULK PARCEL 'B' AND OPEN SPACE LOTS 65 - 69
HOWARD COUNTY, MARYLAND

GENERAL NOTES

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS IF APPLICABLE UNLESS WAIVERS HAVE BEEN APPROVED.
2. 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:	410-313-2366
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:	410-787-4620
STATE HIGHWAY ADMINISTRATION:	410-531-5533

3. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK.
4. 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.
5. 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 75-2003.
   – DEVELOPMENT OR CONSTRUCTION OF THESE LOTS MUST COMPLY WITH SETBACK AND BUFFER REGULATIONS IN EFFECT AT THE TIME OF SUBMISSION OF THE SITE DEVELOPMENT PLAN, WAIVER PETITION, OR BUILDING AND GRADING PERMITS.
6. THE PROJECT BOUNDARY IS BASED ON A BOUNDARY SURVEY PREPARED BY ROBERT H. VOGEL ENGINEERING, INC., DATED APRIL 30, 2014.
7. THE EXISTING TOPOGRAPHY SHOWN HEREON IS BASED ON A TOPOGRAPHIC SURVEY PREPARED BY POTOMAC AERIAL SURVEYS, DATED FEBRUARY 26, 2014. OFFSITE TOPOGRAPHY FROM HOWARD COUNTY GIS.
8. SOIL TYPES SHOWN HEREON ARE IN ACCORDANCE WITH THE WEB SOIL SURVEY HOWARD COUNTY, MARYLAND – CLARKSVILLE SE MAP #23.
9. 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. 41GE AND 46AA WERE USED FOR THIS PROJECT.
10. TO THE BEST OF THE OWNERS KNOWLEDGE, THERE ARE NO BURIAL GROUNDS OR CEMETERIES LOCATED ON THIS PROPERTY OR THE COUNTY'S CEMETERY SITE MAP.
11. THERE IS A HISTORIC HOUSE (AS DEFINED BY HDC) LOCATED ON PARCEL 113 TO BE DEMOLISHED, THAT IS LOCATED AT THE SITE OF PROPOSED LOT 58. THIS PLAN WAS PRESENTED TO THE HISTORIC PRESERVATION COMMISSION IN DECEMBER 2014. THE COMMISSION WANTED THE HOUSE TO REMAIN ON-SITE. THE HOUSE IS NOT LISTED ON THE HISTORIC SITES INVENTORY.
   –AN INSPECTION OF THIS HOUSE WAS CONDUCTED BY A CONSULTANT IN 2014 AND IT WAS DETERMINED THAT THIS HOUSE IS IN VERY POOR CONDITION, IS BEYOND LIFE EXPECTANCY AND SHOULD BE REMOVED FOR SAFETY REASONS.
   –ACCORDING TO THE HOWARD COUNTY CEMETERY INVENTORY, THIS PARCEL DOES NOT CONTAIN A CEMETERY. TO THE BEST OF THE OWNERS KNOWLEDGE, THERE ARE NO BURIAL GROUNDS OR CEMETERIES LOCATED ON THE PROJECT SITE. AS MENTIONED PREVIOUSLY IN THE HISTORIC PRESERVATION COMMISSION MEETING, THERE ARE RECORDS THAT SHOW A CEMETERY ONCE EXISTED ON THE PROPERTY. AS THE LAND HAS BEEN SUBDIVIDED BY DEED (PRIOR TO THE ENACTION OF THE HOWARD COUNTY SUBDIVISION REGULATIONS), THE CEMETERY MAY NO LONGER BE PART OF THIS ACTUAL SITE AS THE LOCATION IS NOT KNOWN.
12. THE OFFICIAL PRE-SUBMISSION COMMUNITY MEETING WAS HELD FOR THIS PROJECT ON JUNE 5, 2014 AT NORTH LAUREL COMMUNITY CENTER.
13. MD ROUTE 216/SCAGGSVILLE ROAD IS CLASSIFIED AS A MINOR ARTERIAL.
   THE PROPOSED ACCESS POINT IS SHOWN HEREON.
   – THE PROPOSED STREETS ARE CLASSIFIED AS PUBLIC MINOR COLLECTOR, ACCESS STREET OR ACCESS PLACE.
   – MURPHY ROAD IS CLASSIFIED AS A MINOR COLLECTOR
14. DRIVEWAY(S) SHALL BE PROVIDED PRIOR TO RESIDENTIAL OCCUPANCY TO ENSURE SAFE ACCESS FOR FIRE AND EMERGENCY VEHICLES 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 CLIP COATING.
   C) GEOMETRY – MAXIMUM 15% GRADE, MAXIMUM 10% CHANGE AND MINIMUM OF 45-FOOT DEPTH TURNING RADIUS.
   D) STRUCTURES (CULVERT/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.
15. 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.
   WATER FOR THIS PROJECT IS TO BE PUBLIC EXTENSIONS OF CONTRACT NO. 44-3505-W. REFER TO CONTRACT 24-4914-D
   SEWER FOR THIS PROJECT IS TO BE PUBLIC EXTENSIONS OF CONTRACT NO. 20-3506-S. REFER TO CONTRACT 24-4914-D
   –THE AMENDMENT TO THE WATER AND SEWER MASTER PLAN WAS PASSED BY A COUNTY COUNCIL RESLOUTION (CR-36-2016) ON MAY 2, 2016 AND BECOME EFFECTIVE ON MAY 5, 2016.
16. THE PROPOSED UNITS SHALL HAVE AN AUTOMATIC FIRE PROTECTION SPRINKLER SYSTEM.
17. EXISTING UTILITIES LOCATED FROM ROAD CONSTRUCTION PLANS, TOPOGRAPHIC SURVEY, PUBLIC WATER AND AND SEWER EXTENSION PLANS, AND AS-BUILT DRAWINGS. 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.
18. ANY DAMAGE INCURRED TO THE EXISTING UTILITIES, DUE TO CONTRACTOR'S OPERATIONS, SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTOR'S EXPENSE.
19. ANY DAMAGE TO PUBLIC RIGHT-OF-WAY, PAVING, OR EXISTING UTILITIES WILL BE CORRECTED AT THE CONTRACTOR'S EXPENSE.
20. THE PROPOSED UNITS SHALL HAVE AN AUTOMATIC FIRE PROTECTION SPRINKLER SYSTEM.
21. A NON CRITICAL FLOODPLAIN IS LOCATED ONSITE.
22. STEEP SLOPES ARE LOCATED AND SHOWN WITHIN OPEN SPACE LOT 189.
23. WETLANDS AND STREAMS SHOWN ONSITE ARE BASED ON THE DELINEATION BY ENVIRONMENTAL SYSTEMS ANALYSIS, INC. (ESA). AUGUST 2013.
24. 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.
25. FOREST STAND DELINEATION PLAN PREPARED BY KLEBASKO ENVIRONMENTAL, LLC. C/O MR. MICHAEL J. KLEBASKO, P.W.S., DATED MAY 2014.
26. – FOREST CONSERVATION EASEMENTS HAVE BEEN ESTABLISHED TO FULFILL A PORTION OF THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY FOREST CONSERVATION MANUAL. 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.
   – TOTAL FOREST CONSERVATION OBLIGATION OF THIS PROJECT TO BE FULFILLED BY:
   1. TOTAL ONSITE RETENTION = 7.88 AC, CREDITED FOREST RETENTION = 6.96 ACRES.
   2. REFORESTATION / AFFORESTATION OF 6.99 AC.
   FINANCIAL SURETY SHALL BE POSTED WITH THE DEVELOPERS AGREEMENT FOR THIS FINAL PLAN.
27. A TRAFFIC STUDY FOR THIS PROJECT PREPARED BY THE TRAFFIC GROUP, INC., DATED DECEMBER 19, 2014, WAS APPROVED APRIL 2015.
28. A NOISE STUDY BEEN PREPARED BY ROBERT H. VOGEL ENGINEERING, INC., DATED JANUARY 2015. THE STUDY UTILIZES PROPOSED BERMS AND PROPOSED HOMES AS SHIELDING BARRIERS TO REDUCE THE NOISE EXPOSURE TO ACCEPTABLE LEVELS.
   –THE 65 DBA NOISE CONTOUR LINE DRAWN ON THIS SUBDIVISION PLAN IS ADVISORY AS REQUIRED BY THE HOWARD COUNTY DESIGN MANUAL, CHAPTER 5, REVISED FEBRUARY, 1992 AND CANNOT BE CONSIDERED TO EXACTLY LOCATE THE 65 DBA NOISE EXPOSURE. THE 65 DBA NOISE LINE WAS ESTABLISHED BY HOWARD COUNTY TO ALERT DEVELOPERS, BUILDERS AND FUTURE RESIDENTS THAT AREAS BEYOND THIS THRESHOLD MAY EXCEED GENERALLY ACCEPTED NOISE LEVELS ESTABLISHED BY THE U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT.
29. A TEST PIT REPORT FOR THIS PROJECT WAS PREPARED BY ROBERT H. VOGEL ENGINEERING, INC., DATED FEBRUARY 2015.
30. AN ENVIRONMENTAL CONCEPT PLAN (ECP-14-093) WAS APPROVED ON NOVEMBER 21, 2014.
31. A PRELIMINARY EQUIVALENT SKETCH PLAN (SP-15-014) WAS APPROVED ON SEPTEMBER 18, 2015.
32. STORMWATER MANAGEMENT FOR THE PROJECT IS PROVIDED BY THE USE OF NON STRUCTURAL PRACTICES & MICRO-SCALE PRACTICES IN ACCORDANCE WITH ENVIRONMENTAL SITE DESIGN CRITERIA. MICRO-SCALE PRACTICES INCLUDE MICRO-BIORETENTION, BIO SWALES AND DRYWELLS. ONLOT FACILITIES WILL BE PRIVATELY OWNED. OFF-LOT AND MICRO-SCALE FACILITIES MANAGING ROAD RUNOFF SHALL BE DESIGNATED AS 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.
33. 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 $34,050 FOR THE PERIMETER LANDSCAPING (REQUIRED 90 SHADE TREES $27,000 AND 27 EVERGREENS $4,050), AND 10 SHADE TREES (SPECIMEN TREE REPLACEMENT $3,000) SHALL BE POSTED WITH THE DEVELOPERS AGREEMENT FOR THIS PLAN.
34. PUBLIC STREET TREES ARE PROVIDED FOR THIS PROJECT IN ACCORDANCE WITH SECTION 16.124(e)(1) OF THE SUBDIVISION REGULATIONS AND THE LANDSCAPE MANUAL. FINANCIAL SURETY ($ 65,700) SHALL BE POSTED AS PART OF THIS FINAL PLAN DEVELOPER'S AGREEMENT FOR THE REQUIRED 219 STREET TREES.
35. IN ACCORDANCE WITH SECTION 16.121(A)(2) OF THE HOWARD COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS, THE OPEN SPACE REQUIREMENTS FOR THIS R-ED-MXD-3 PROJECT IS 50% OF GROSS AREA (91.3136 AC. GROSS AREA X 50% = 45.6568 AC.).
   – OPEN SPACE LOT 65 TO BE OWNED BY HOWARD COUNTY AND MAINTAINED BY THE HOWARD COUNTY DEPARTMENT OF RECREATION AND PARKS. (20.2504 ACRES)
   – OPEN SPACE LOTS 66-69 TO BE OWNED AND MAINTAINED BY THE HOMEOWNERS ASSOCIATION. (13.0816 ACRES)
   – ADDITIONAL OPEN SPACE SHALL BE PROVIDED UNDER FUTURE PHASE 1, SECTION 2.
36. IN ACCORDANCE WITH SECTION 16.121(A)(4) OF THE HOWARD COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS, RECREATION OPEN SPACE FOR THIS R-ED-MXD-3 PROJECT IS 300 SF / UNIT (176 X 300 = 52,800 SF). THE OVERALL REQUIREMENT SHALL BE MET PER REGULATION OR IN COMBINATION WITH THE JUNE 2012 POLICY REGARDING THE ALLOWANCE OF A MAXIMUM 50% CREDIT FOR RECREATIONAL OPEN SPACE IN LIEU OF LAND AREA.
   PHASE 1 – SECTION 1 WILL PROVIDE 8' WIDE MULTI USE ASPHALT PATHWAY
   PHASE 1 – SECTION 2 (F16-072) WILL PROVIDE A H.O.A. OPEN SPACE LOT WITH CLUBHOUSE, COMMUNITY POOL AND TOT LOT AMENITIES AND ADDITIONAL 8' WIDE MULTI USE ASPHALT PATHWAY
37. PER SECTION 107.0.E OF THE ZONING REGULATIONS, AT LEAST 10% OF THE DWELLINGS IN A R-ED DEVELOPMENT SHALL BE MODERATE INCOME HOUSING UNITS (MIHU). 176 x 10% = 17.6. 18 UNITS OR THE EQUIVALENT SHALL BE PROVIDED FOR THIS PROJECT.
38. – IN ACCORDANCE WITH DESIGN MANUAL-VOLUME 3, CHAPTER 2 – SECTION 2.9.B. PARKING IS REQUIRED AT TWO (2) SPACES PER UNIT OFF STREET PARKING TO INCLUDE GARAGE SPACE, DRIVEWAY AND PARKING PADS. GARAGES COUNT AS A FULL SPACE. SEE TABULATION HEREON.
39. ALL DRIVEWAY ENTRANCES SHALL UTILIZE HOWARD COUNTY STANDARD DETAIL NO. R-6.06.
40. TRAFFIC CONTROL WILL BE PROVIDED FOR THE PROPOSED ROAD WIDENING IN ACCORDANCE WITH THE LATEST MDMUTCD.
41. TRAFFIC CONTROL DEVICES:
   A. THE R1-1(STOP) SIGNS AND STREET NAME SIGN (SNS) ASSEMBLIES FOR THIS DEVELOPMENT MUST BE INSTALLED BEFORE THE BASE PAVING IS COMPLETE.
   B. THE TRAFFIC CONTROL DEVICE LOCATIONS SHOWN ON THE PLANS ARE APPROXIMATE AND MUST BE FIELD APPROVED BY HOWARD COUNTY TRAFFIC DIVISION (410-313-2430) PRIOR TO THE INSTALLATION OF ANY OF THE TRAFFIC CONTROL DEVICES.
   C. ALL TRAFFIC CONTROL DEVICES AND THEIR LOCATIONS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE 'MARYLAND MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES' (MDMUTCD).
   D. ALL SIGN POST USED FOR TRAFFIC CONTROL SIGNS INSTALLED IN THE COUNTY RIGHT-OF-WAY SHALL BE MOUNTED ON A 2" GALVANIZED STEEL, PERFORATED, ("QUICK PUNCH") SQUARE TUBE POST (14 GAUGE) INSERTED INTO A 2-½" GALVANIZED STEEL, PERFORATED, SQUARE TUBE SLEEVE (12 GAUGE – 3' LONG). THE ANCHOR SHALL NOT EXTEND MORE THAN TWO "QUICK PUNCH" HOLES ABOVE GROUND LEVEL. A GALVANIZED STEEL POLE CAP SHALL BE MOUNTED ON THE TOP OF EACH POST.
42. STREET LIGHTING IS REQUIRED FOR THIS SITE IN ACCORDANCE WITH SECTION 16.135 OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS. STREET LIGHT PLACEMENT AND THE TYPE OF FIXTURES AND POLES SHALL BE IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL, VOLUME SECTION 5.5.A. A MINIMUM OF 20 FEET SHALL BE MAINTAINED BETWEEN ANY STREET LIGHT AND ANY TREE.
43. THIS PLAN IS SUBJECT TO PLANNING BOARD CASE # PB 415. ON JUNE 30, 2015, THE PLANNING BOARD OF HOWARD COUNTY, MARYLAND 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.
44. THIS SUBDIVISION, LOCATED IN THE WEST SCHOOL REGION, THE FULTON ELEMENTARY SCHOOL DISTRICT AND THE LIME KILN MIDDLE SCHOOL DISTRICT, HAS PASSED THE APFO SCHOOL TEST FOR THE ALLOCATION YEAR 2017, BUT HAS FAILED THE APFO SCHOOLS TEST FOR THE ALLOCATION YEAR OF 2018 FOR THE 4 TENTATIVE HOUSING UNITS BECAUSE OF A CLOSED ELEMENTARY SCHOOL. THEREFORE, THIS SUBDIVISION WILL HAVE TO BE PHASED INTO TWO PARTS.
45. THIS PROJECT IS SUBJECT TO A DESIGN MANUAL WAIVER. ON MAY 22, 2015, THE CHIEF OF THE DEVELOPMENT ENGINEERING DIVISION:
   1. APPROVED THE REQUEST TO WAIVE VOL. III – SECTION 2.5.B.9 AND 2.2D TABLE 2.01, WHICH REQUIRES THAT A NEWLY PROPOSED INTERSECTION MUST MEET THE MINIMUM REQUIREMENTS FOR INTERSECTION AND/OR STOPPING SIGHT DISTANCE. APPROVAL IS SUBJECT TO THE FOLLOWING DPW RECOMMENDATIONS:
      A. PROVIDING SIGHT DISTANCE EASEMENTS AS SHOWN ON THE SIGHT DISTANCE ANALYSIS.
   2. APPROVED THE REQUEST TO WAIVE VOL. III – SECTION 2.3.A.1.A (AND APPENDIX A) TO REDUCE THE MINIMUM ROAD RADIUS FOR NUMEROUS ROADWAYS WITHIN THE SUBDIVISION. THE WAIVER FOR ROADWAYS B AND E ARE APPROVED SUBJECT TO THE FOLLOWING DPW REQUIREMENTS:
      A. ROAD B – DPW REQUESTS 26' PAVEMENT WIDTH ALONG THE REDUCED CURVE AND FLATTENING THE NW INTERSECTION FILLET.
      B. ROAD E – DPW REQUESTS 26' PAVEMENT WIDTH ALONG THE REDUCED CURVES. ESPECIALLY FROM STATION 0+00 TO 16+00
      THE REQUESTED WAIVER FOR ROAD G IS DENIED. ROAD G IS TO CONNECT TO MURPHY ROAD. THIS ROAD WILL SERVE AS THE SECONDARY ACCESS TO THIS MAJOR DEVELOPMENT.
   3. APPROVED THE REQUEST TO WAIVE VOL. III – SECTION 2.2.C AND 2.4.A TO REVISE THE TYPICAL SECTIONS FOR AN ACCESS PLACE, ACCESS STREET, AND MINOR COLLECTOR TO INCLUDE A 5-FOOT SIDEWALK ADJACENT TO THE CURB. APPROVAL SUBJECT TO THE FOLLOWING DPW REQUIREMENTS:
      A. PLEASE ENSURE THAT NO STREET TREES ARE PLANTED WITHIN 50 FEET OF ANY STOP SIGN.
46. ALL SIDEWALKS ADJACENT TO PUBLIC STORMWATER MANAGEMENT EASEMENTS SHALL BE TRAFFIC BEARING FOR THE LIMITS OF THE PUBLIC EASEMENT. REINFORCEMENT SHALL BE IN ACCORDANCE WITH hOWARD COUNTY DETAIL R-6.03.
47. THE ONE (1) GARAGE SPACE MAY NOT BE CONVERTED TO LIVING SPACE AND SHALL ONLY BE UTILIZED FOR VEHICULAR PARKING SPACE. REFER TO PARKING TABULATION.
48. THIS PROJECT IS SUBJECT TO WP-15-136. ON MAY 26, 2015, THE PLANNING DIRECTOR APPROVED THE REQUEST TO WAIVE SECTION 16.1205(A)(7) OF THE AMENDED FIFTH EDITION WHICH REQUIRES THE RETENTION OF SPECIMEN TREES HAVING A DIAMETER OF 30" OR MORE AND SECTION 16.121(e)(1) OF THE AMENDED FIFTH EDITION WHICH REQUIRES OPEN SPACE LOTS TO HAVE A MINIMUM OF 40 FEET OF FRONTAGE ON A PUBLIC ROAD FOR ACCESS BY PEDESTRIANS AND MAINTENANCE VEHICLES.
   APPROVAL IS SUBJECT TO THE FOLLOWING FIVE (5) CONDITIONS:
   1) REMOVAL OF THE ELEVEN (11) SPECIMEN TREES WILL REQUIRE MITIGATION WITH THE PLANTING OF 2 TO 1 REPLACEMENT TREES (22 TOTAL) WITH A MINIMUM 3" CALIPER TRUNK. THE REPLACEMENT TREES SHALL BE BONDED AND SHOWN ON EITHER THE LANDSCAPE OR FOREST CONSERVATION PLAN WITH THE FINAL PLAN.
   2) THE FORTY-THREE (43) REMAINING SPECIMEN TREES MUST REMAIN UNDISTURBED, UNLESS A NEW WAIVER PETITION IS FILED WITH ADEQUATE JUSTIFICATION.
   3) ANY SPECIMEN TREE THAT SHALL REMAIN ONSITE (THAT ARE WITHIN THE LIMIT OF DISTURBANCE) MUST BE PROTECTED WITH TREE PROTECTION DEVICES AND, SUCH DEVICES MUST BE DEPICTED ON FOREST CONSERVATION PLANS AND THE SITE DEVELOPMENT PLAN.
   4) ALL PROPOSED OPEN SPACE LOTS MUST PROVIDE THE MINIMUM PUBLIC ROAD FRONTAGE AS SHOWN AND APPROVED ON THE SP PLAN (SP-15-014). OPEN SPACE LOTS 177, 178 AND 179 SHOULD HAVE AT LEAST ONE PUBLIC ROAD FRONTAGE STRIP OF 20 FEET IN WIDTH.
   5) PROVIDE A NOTE ON SP-15-014, THE FINAL PLAN AND THE SITE DEVELOPMENT PLAN THAT INCLUDES THIS WAIVER'S FILE NUMBER THE SECTIONS TO BE WAIVED, THE WAIVER DECISION, THE DATE OF THE DECISION AND ALL CONDITIONS OF APPROVAL.
49. PRIOR TO HEALTH DEPARTMENT APPROVAL OF THE FINAL PLAN FOR THIS PROPOSAL, ALL WELLS ON (TAX MAP 46) PARCEL 113 MUST BE SEALED, AND ALL SEPTIC SYSTEM COMPONENTS MUST BE PROPERLY ABANDONED. THE HEALTH DEPARTMENT STRONGLY ENCOURAGES THE DEVELOPER TO SEAL WELLS AND ABANDON SEPTIC SYSTEM COMPONENTS PRIOR TO COMMENCEMENT OF MASS GRADING OPERATIONS. THE HEALTH DEPARTMENT CONSIDERS A WELL TO BE SEALED WHEN THE WELL ABANDONMENT REPORT IS RECEIVED AT THE HEALTH DEPARTMENT AND REVIEWED BY AN ENVIRONMENTAL HEALTH SPECIALIST. SIMILARLY, THE SEPTIC SYSTEM COMPONENTS MAY BE CONSIDERED PROPERLY ABANDONED WHEN THE SUPPORTING DOCUMENTATION IS DELIVERED TO THE HEALTH DEPARTMENT AND IS REVIEWED BY AN ENVIRONMENTAL HEALTH SPECIALIST.
50. THE FOLLOWING STANDARDS (CONSTRUCTION AND TEMPORARY TRAFFIC CONTROL) ARE REQUIRED FOR THIS PROJECT:
   a. MD-104.03-01 – SHOULDER WORK/MULTILANE UNDIV. GREATER THAN 40 MPH
   b. MD-104.03-05 – RIGHT LANE CLOSURE/MULTILANE UNDIV. GREATER THAN 40 MPH
   c. MD-374.62 – PRECAST OR CAST IN PLACE CIRCULAR COG INLETS 5, 10', 15' & 20'
   d. MD-374.68 – PRECAST OR CAST IN PLACE COG/COS OPENING FOR 8" CURB 5' OR 10'
   e. MD-384.01 – 48" DIAMETER PRECAST MANHOLE FOR 12" TO 24" PIPES
   f. MD-620.02 – STANDARD TYPES A & B CONCRETE CURB AND COMBINATION CONCRETE CURB & GUTTER
   g. MD-655.12 – SIDEWALK RAMPS PERPENDICUAR
   h. MD-655.21 – CUT-THROUGH MEDIAN AND ISLAND OPENING
   i. MD-578.01 – REPAIRING PAVEMENT OPENINGS FOR UTILITY TRENCHES
   j. MD-354.01 – STANDARD TYPE C ENDWALL – METAL OR CONCRETE ROUND PIPE
   k. MD-655.40 – DETECTABLE WARNING SURFACES
   –FOR ALL STANDARDS REFERRED TO ON THIS PLAN THE CONTRACTOR MUST GO TO THE BOOK OF STANDATDS WHICH WILL HAVE THE MOST CURRENT VERSION. THE BOOK OF STANDARDS CAN BE ACCESSED AT:
   http://apps.roads.maryland.gov/businesswithsha/bizzStdSpecs/desManualStdPub/%%upublicationsonline/ohd/bookstd/index.asp
   –ALL ITEMS ARE TO BE CONSTRUCTED IN ACCORDANCE WITH THE CURRENT VERSION OF THE REFERENCED STANDARD AT THE AT THE TIME OF CONSTRUCTION.
51. THE MAPLE LAWN PROJECT INCREASES THE RUNOFF OVER THE EXISTING CONDITIONS. THE OFFSITE DRIVEWAY OF PARCEL 46 IS CURRENTLY OVERTOPPED. THIS DRIVEWAY WILL BE OVERTOPPED IN THE POST DEVELOPMENT CONDITION INCREASING THE WATER SURFACE BY 6.6". THIS INCREASE SHOULD BE CONSIDERED IN CONFORMANCE WITH THE HOWARD COUNTY DESIGN MANUAL – VOLUME 1 CHAPTER 4, SECTION 4.3.1.A.1; LESS THAN 1 FOOT INCREASE ABOVE THE EXISTING CONDITION.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS	
CHIEF, BUREAU OF HIGHWAYS	DATE 10/25/2016
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING	
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 11/3/16
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 11-4-16

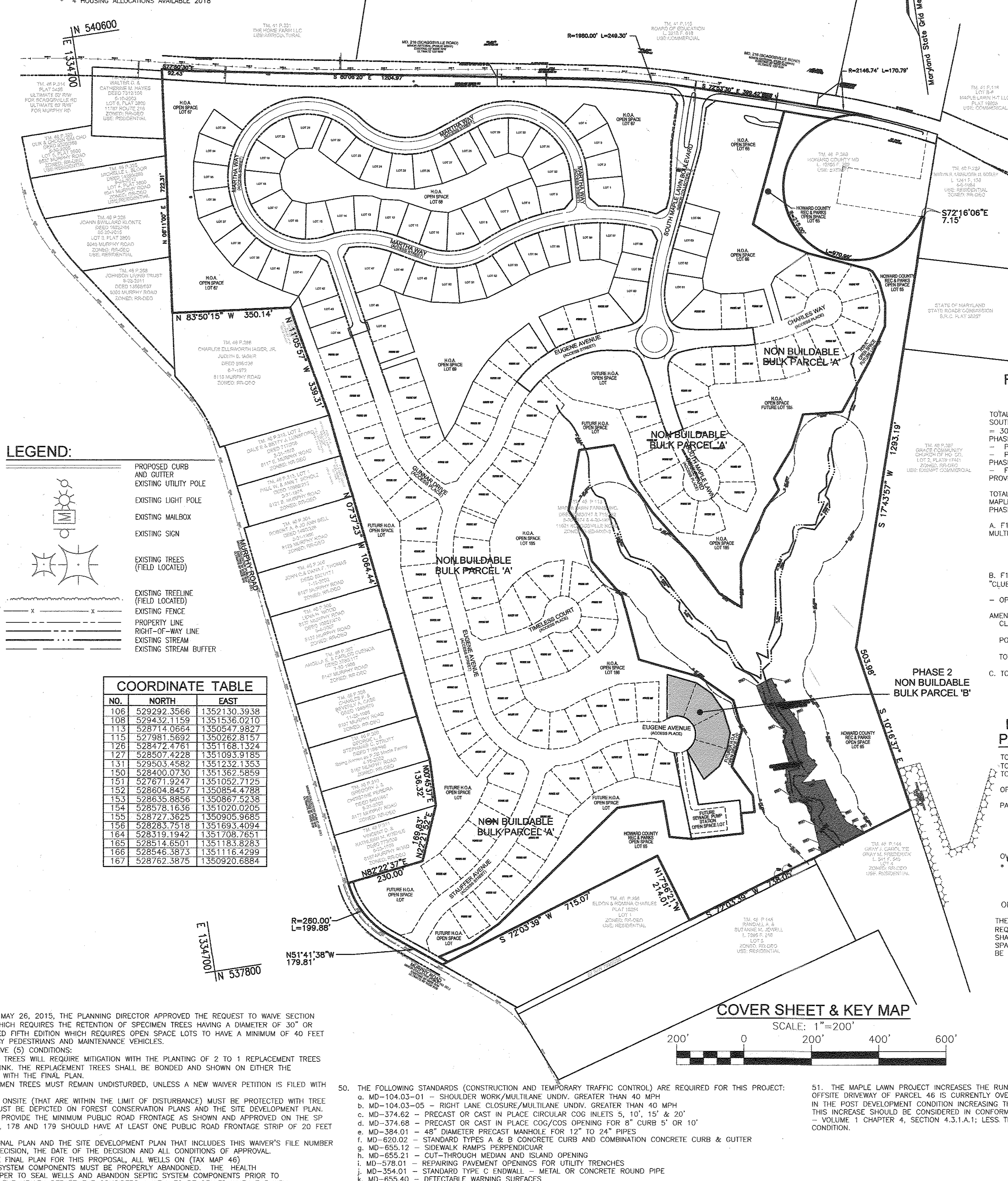
MAPLE LAWN SOUTH APFO PHASING

PHASE NUMBER	ALLOCATION YEAR	TOTAL NO. OF ALLOCATIONS
I	2017	172
II	2018	4

MAPLE LAWN SOUTH - DENSITY TABULATION

PHASE	GROSS AREA	FLOODPLAIN STEEP SLOPES	NET AREA	UNITS PERMITTED BY NET	UNITS PROPOSED	OPEN SPACE REQUIRED	TOTAL OPEN SPACE PROVIDED	NON CREDITED OPEN SPACE PROVIDED	CREDITED OPEN SPACE PROVIDED
PHASE 1/SECTION 1	51.8736 AC±	1.5400 AC±	50.3336 AC±	101	64 SFD	25.9329 AC±	33.2899 AC±	0.42 AC±	32.8699 AC±
FUTURE PHASE 1/SECTION 2	38.6936 AC±	0.0000 AC±	38.6936 AC±	77	108 SFD	19.3507 AC±	TBD	TBD	TBD
FUTURE PHASE 2*	0.7464 AC±	0.0000 AC±	0.7464 AC±	1	4 SFD	0.3732 AC±	TBD	TBD	TBD
TOTAL	91.3136 AC±	1.5400 AC±	89.7736 AC±	179	176 SFD	45.6568 AC±	TBD	TBD	TBD

* 4 HOUSING ALLOCATIONS AVAILABLE 2018



LEGEND:

- PROPOSED CURB AND GUTTER
- EXISTING UTILITY POLE
- EXISTING LIGHT POLE
- EXISTING MAILBOX
- EXISTING SIGN
- EXISTING TREES (FIELD LOCATED)
- EXISTING TREELINE (FIELD LOCATED)
- EXISTING FENCE
- PROPERTY LINE
- RIGHT-OF-WAY LINE
- EXISTING STREAM
- EXISTING STREAM BUFFER

COORDINATE TABLE

NO.	NORTH	EAST
106	529292.3566	1352130.3938
108	529432.1159	1351536.0210
113	528714.0664	1350547.9827
115	527981.5692	1350262.8157
126	528472.4761	1351168.1324
127	528507.4228	1351093.9185
131	529503.4582	1351232.1353
150	528400.0730	1351362.5859
151	527671.9247	1351052.7125
152	528604.8457	1350854.4788
153	528635.8856	1350867.5238
154	528578.1636	1351020.0205
155	528727.3625	1350905.9685
156	528283.7518	1351693.4094
164	528319.1942	1351708.7651
165	528514.6501	1351183.8283
166	528546.3873	1351116.4299
167	528762.3875	1350920.6884

COVER SHEET & KEY MAP

SCALE: 1"=200'

200' 0 200' 400' 600'

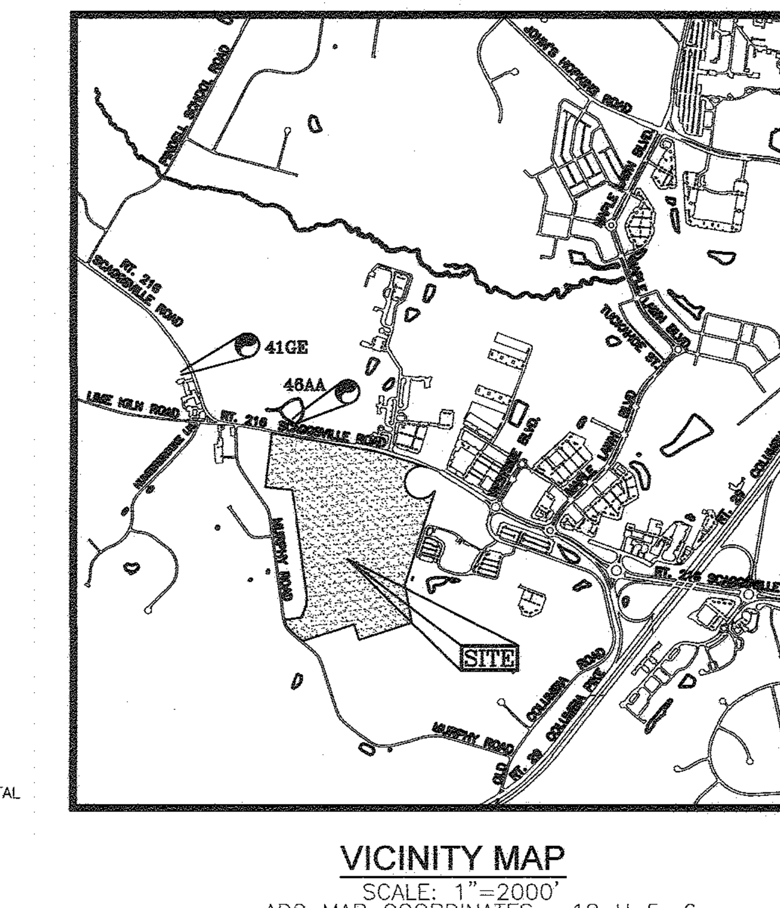
BENCHMARKS

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 41GE
N 541,559.78 E 1,333,698.38 ELEV.: 465.05 FT.
RT. 216, 82.4' WEST OF BG & E#557787

SITE DATA

DEED REFERENCE: PARCEL 113: L 683 / F 747
ELECTION DISTRICT: 5TH
LOCATION: SCAGGSVILLE ROAD (MD 216) WEST OF US 29
EXISTING ZONING: R-ED-MXD-3
GROSS AREA: 91.31 AC
 PHASE 1, SECTION 1: 51.87 AC.± (44.78+R/W DED.)
 PHASE 1, SECTION 2: 38.69 AC.±
 NON-BUILDABLE BULK PARCEL A
 PHASE 2: 0.75 AC.±
 NON-BUILDABLE BULK PARCEL B
AREA OF 100 YEAR FLOODPLAIN: 0.92 AC+/– NON-CRITICAL (SEE NOTE: 21)
AREA OF STEEP SLOPES(15% & GREATER): 27,207 S.F. OR 0.62 AC.
AREA OF WETLANDS & BUFFERS: WETLAND: 5,866 S.F. OR 0.13 AC. BUFFER: 26,142 S.F. OR 0.60 AC. *INCLUDES WETLAND
NET AREA (GROSS–STEEP SLOPES & FLOODPLAIN): 89.77 ACRES± (91.31 – 0.92 – 0.62= 89.77)
BASE DENSITY: 179 LOTS (89.77 X 2)
NUMBER OF PROPOSED RESIDENTIAL LOTS: 176 LOTS
 PHASE 1, SECTION 1= 64 SFD
 PHASE 1, SECTION 2 = 108 SFD
 PHASE 2 = 4 SFD
AREA OF PROPOSED RESIDENTIAL LOTS (SFD): 11.49 AC
AREA OF ROAD RIGHT OF WAY (ON-SITE): 5.51 AC
AREA OF ROAD DEDICATION (MD 216): 1.58 AC
OPEN SPACE REQUIRED: 50% OF GROSS AREA = 45.66 AC± PROJECT TOTAL
 OPEN SPACE PROVIDED: SEE TABULATION
REC OPEN SPACE: 300 SF/DWELLING UNIT x 176: 52,800SF
 REC OPEN SPACE PROVIDED: SEE TABULATION
LIMIT OF DISTURBANCE: 36.00 AC±
EXISTING USE OF SITE: AGRICULTURE / FARM
PROPOSED USE OF SITE: RESIDENTIAL, SFD
PROPOSED WATER SYSTEM: PUBLIC
PROPOSED SEWER SYSTEM: PUBLIC
MINIMUM LOT AREA: 6,000 SF



VICINITY MAP

SCALE: 1"=2000'
ADC MAP COORDINATES: 18 H 5, 6
J 5, 6

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OPEN SPACE TABULATION:

IN ACCORDANCE WITH SECTION 16.121(A)(2) OF THE HOWARD COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS, THE OPEN SPACE REQUIREMENTS FOR THIS R-ED-MXD-3 PROJECT IS 50% OF GROSS AREA (91.31 AC. GROSS AREA x 50% = 45.66 AC.).

OPEN SPACE PROVIDED (F16-021, PH.1 – SECT.1) 33.29 ACRES±
 CREDITED 32.87 ACRES±
 NON-CREDITED 0.42 ACRES±

REMAINING PROJECT REQUIREMENT = 12.8 AC +/– SHALL BE PROVIDED UNDER FUTURE PLAN F-16-072, PH.1 – SECT. 2

RECREATION OPEN SPACE TABULATION:

TOTAL RECREATION OPEN SPACE REQUIRED FOR MAPLE LAWN SOUTH – SINGLE FAMILY HOMES SFD
= 300 SF/UNIT X 176 UNITS = 52,800 SF
PHASE 1
– PH 1 – SEC 1 F16-021 = 64 SFD = 19,200 SF
– PH 1 – SEC 2 F16-072 = 108 SFD = 32,400 SF
PHASE 2
– FUTURE PHASE 2 = 4 SFD = 1,200 SF
PROVIDED UNDER PHASE 1 – SEC 1

TOTAL RECREATION OPEN SPACE TO BE PROVIDED FOR MAPLE LAWN SOUTH
PHASE 1

A. F16-021 – PH 1 – SEC 1
MULTI USE PATHWAY AMENITY:
 4,069 LF OF 8' ASPHALT PATHWAY
 (4,069' X 8' = 32,552 SF)
 3SF/1SF PATH = 97,656 SF OF CREDIT

B. F16-072 – PH 1 – SEC 2
"CLUBHOUSE/POOL" /OPEN SPACE LOT

– OPEN SPACE LOT @ APPROXIMATELY 40,250 SF±

AMENITIES:
 CLUBHOUSE = 2,265 SF BUILDING
 (2,265 SF / 10 SF PER D.U. X 176 D.U = 39,864 SF)
 POOL = 2,875 SF POOL
 (2,875 / 10 SF PER D.U. X 176 D.U = 50,600 SF)
 TOT LOT = 2,000 SF

C. TOTAL PROVIDED (F16-021 & F16-072):
 "CLUBHOUSE" OPEN SPACE LOT 40,250 SF±
 AMENITY CREDITS = 190,120 SF

PHASE 1 - SECTION 1 PARKING TABULATION:

TOTAL NUMBER OF DWELLING UNITS PROPOSED : 64
TOTAL PARKING REQUIRED: 160 (64 X 2.5)
TOTAL PARKING PROVIDED: 192

OFF-STREET PARKING SPACES REQUIRED: 2 SPACES PER UNIT = 128 SPACES

PARKING SPACES PROVIDED:
 SFD = 1 GARAGE/1 DRIVEWAY
 1 SPACE IN GARAGE = 64 SPACES (FOR 64 UNITS)
 2 SPACES ON DRIVEWAY = 128 SPACES (FOR 64 UNITS)
 TOTAL PARKING SPACES PROVIDED: = 192 SPACES OFF-STREET

OVERFLOW / GUEST PARKING SPACES REQUIRED:
* NOTE: 0.5 SPACES PER SFD UNIT X 64 = 32 SPACES
 REQUIRED TOTAL OVERFLOW PARKING SPACES PROVIDED:
 = 32 SPACES (DRIVEWAY) REFER TO OFF-STREET EXCESS.

ONSTREET PARKING AS DIRECTED BY TRAFFIC ENGINEERING

THE H.O.A SHALL BE RESPONSIBLE FOR ENFORCING THE PARKING REQUIREMENTS ON EACH RESIDENTIAL LOT. ONE (1) GARAGE SPACE SHALL REMAIN OPEN FOR VEHICLE PARKING USE. THE GARAGE SPACE MAY NOT BE CONVERTED TO LIVING SPACE AND SHALL ONLY BE UTILIZED FOR VEHICULAR PARKING SPACE

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

NO.	REVISION	DATE

FINAL ROAD CONSTRUCTION PLAN

COVER SHEET & KEY MAP

MAPLE LAWN SOUTH PHASE 1 - SECTION 1

LOTS 1-64, NON-BUILDABLE BULK PARCEL 'A', NON-BUILDABLE BULK PARCEL 'B', AND OPEN SPACE LOTS 65-69

TAX MAP 46 – GRID 2 – PARCEL 113
5TH ELECTION DISTRICT
DPZ REF: ECP-14-093, WP-15-136, PB#415, SP-15-014
ZONED: R-ED-MXD-3
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

STATE OF MARYLAND – ROBERT HARRIS VOGEL – NO. 16193 – REGISTERED PROFESSIONAL ENGINEER

ROBERT H. VOGEL, PE No.16193

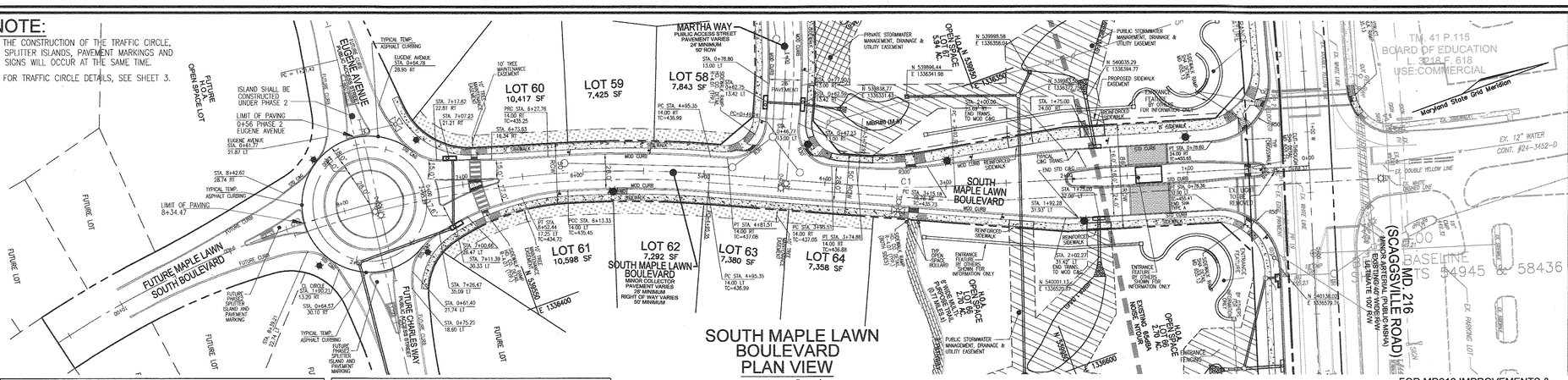
DESIGN BY:	RVE
DRAWN BY:	RVE
CHECKED BY:	RHV
DATE:	SEPTEMBER 2016
SCALE:	AS SHOWN
W.O. NO.:	11-34

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: 09-27-2018

NOTE:

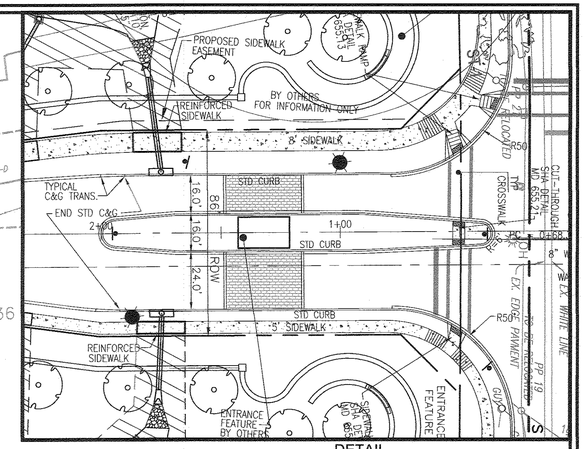
1. THE CONSTRUCTION OF THE TRAFFIC CIRCLE, SPLITTER ISLANDS, PAVEMENT MARKINGS AND SIGNS WILL OCCUR AT THE SAME TIME.
2. FOR TRAFFIC CIRCLE DETAILS, SEE SHEET 3.



SOUTH MAPLE LAWN BOULEVARD PLAN VIEW

SCALE: 1"=50'

FOR MD216 IMPROVEMENTS & DETAILS REFER TO SHEETS 43-46



DETAIL

SCALE: 1"=30'

LEGEND:

- EXISTING CURB AND GUTTER
- PROPOSED CURB AND GUTTER
- EXISTING UTILITY POLE
- EXISTING LIGHT POLE
- PROPOSED STORM DRAIN
- PROPOSED STORM DRAIN INLET
- EXISTING FENCE
- PROPERTY LINE
- RIGHT-OF-WAY LINE
- PROPOSED SIDEWALK
- PROPOSED REINFORCED SIDEWALK
- PUBLIC STORMWATER MANAGEMENT, DRAINAGE & UTILITY EASEMENT
- PRIVATE STORMWATER MANAGEMENT, DRAINAGE & UTILITY EASEMENT
- PROPOSED STREET LIGHT
- PROPOSED STREET SIGN
- 10' TREE MAINTENANCE EASEMENT

TRAFFIC CONTROL SIGN LOCATION CHART

ROAD NAME	STATION	OFFSET	TYPE
SOUTH MAPLE LAWN BOULEVARD	0+36.00	55.10' L	R1-1 STOP SIGN
SOUTH MAPLE LAWN BOULEVARD	0+40.00	0 FT	R4-7 KEEP RIGHT SIGN
SOUTH MAPLE LAWN BOULEVARD	1+65.00	30.00' R	R2-1 SPEED LIMIT SIGN
SOUTH MAPLE LAWN BOULEVARD	1+96.00	00.00	R4-7 KEEP RIGHT SIGN
SOUTH MAPLE LAWN BOULEVARD	2+54.00	28.00' L	R3-8 LANE USE SIGN - 'C'
SOUTH MAPLE LAWN BOULEVARD	2+78.00	25.00' R	R7-1 NO PARKING SIGN - 'A'
SOUTH MAPLE LAWN BOULEVARD	5+46.00	17.00' R	W3-2 & W13-1 (15 MPH) SIGN
SOUTH MAPLE LAWN BOULEVARD	6+11.00	17.00' R	R7-1 NO PARKING SIGN - 'A' W2-6 ROUNDABOUT SIGN
SOUTH MAPLE LAWN BOULEVARD	5+75.00	17.00' L	R2-1 "SPEED LIMIT 25" SIGN
SOUTH MAPLE LAWN BOULEVARD	6+75.00	00.00'	R4-7 KEEP RIGHT SIGN
SOUTH MAPLE LAWN BOULEVARD	6+20.00	17.00' L	R7-1 NO PARKING SIGN - 'E'
MARTHA WAY	0+46.00	17.00' L	R1-1 STOP SIGN

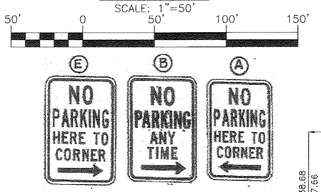
NOTE: ALL SIGN LOCATIONS ARE APPROXIMATE. HOWARD COUNTY TRAFFIC SHALL FIELD APPROVE OR MARK ALL SIGN LOCATIONS PRIOR TO ANY SIGNS BEING INSTALLED. CALL 410-313-5752.

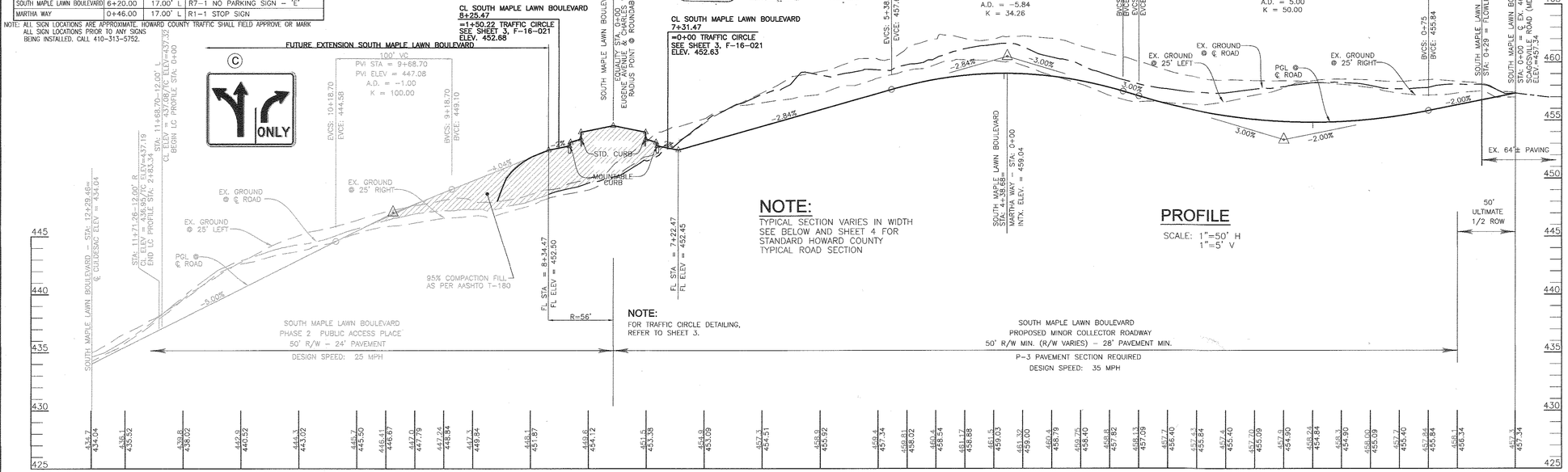
STREET LIGHT LOCATIONS

ROAD NAME	STATION	OFFSET	FIXTURE/POLE TYPE
SOUTH MAPLE LAWN BOULEVARD	1+00.00	35.00' R	LED-150 WATT COLONIAL FIXTURE MOUNTED ON A 14' BLACK FIBERGLASS POLE
SOUTH MAPLE LAWN BOULEVARD	1+87.26	35.00' L	
SOUTH MAPLE LAWN BOULEVARD	2+98.00	22.00' R	
SOUTH MAPLE LAWN BOULEVARD	4+13.00	25.00 R	LED-100 WATT COLONIAL FIXTURE MOUNTED ON A 14' BLACK FIBERGLASS POLE
SOUTH MAPLE LAWN BOULEVARD	5+75.00	17.00' L	
SOUTH MAPLE LAWN BOULEVARD	7+29.21	43.20' R	
SOUTH MAPLE LAWN BOULEVARD	7+39.52	49.50' L	
SOUTH MAPLE LAWN BOULEVARD	8+16.89	51.00' R	
SOUTH MAPLE LAWN BOULEVARD	8+33.64	37.00' L	

CURVE TABLE

ROAD	CURVE	LENGTH	RADIUS*	DELTA ANGLE	TANGENT	CHORD DIRECTION	CHORD LENGTH
SOUTH MAPLE LAWN BOULEVARD	C1	80.60	600.00	7°41'49"	40.36	S20°32'14"W	80.54
SOUTH MAPLE LAWN BOULEVARD	C2	734.11	860.00	48°54'31"	391.10	S00°04'06"W	712.02





NOTE:

TYPICAL SECTION VARIES IN WIDTH SEE BELOW AND SHEET 4 FOR STANDARD HOWARD COUNTY TYPICAL ROAD SECTION

PROFILE

SCALE: 1"=50' H
1"=5' V

NOTE: FOR TRAFFIC CIRCLE DETAILING, REFER TO SHEET 3.

SOUTH MAPLE LAWN BOULEVARD

PROPOSED MINOR COLLECTOR ROADWAY
50' R/W MIN. (R/W VARIES) - 28' PAVEMENT MIN.
P.3 PAVEMENT SECTION REQUIRED
DESIGN SPEED: 35 MPH

NOTES:

1. REFER TO SHEETS 23 TO 25 FOR STORMDRAIN PROFILES.
2. REFER TO SHEET 25 FOR STORMDRAIN STRUCTURE SCHEDULE.
3. FOR STREET TREE LOCATIONS, REFER TO SHEETS 26-27.
4. FOR MD 216 IMPROVEMENTS, REFER TO SHEETS 43-46.
5. ALL STREET TREES AND/OR SIGN SHALL BE LOCATED 5' MIN. FROM PROPOSED DRAINAGE, UTILITY STRUCTURE.
6. THERE SHOULD BE A MINIMUM OF 20' BETWEEN STREET LIGHTS AND STREET TREES.
7. SEE SHEET 3 FOR CIRCLE DETAILING.
8. IN THE DIRECTION FACING A TRAFFIC CONTROL SIGN:
   1) THERE SHALL BE A MINIMUM OF 40' BETWEEN THE SIGN FACE AND CLOSEST TREE FOR ALL STOP SIGNS.
   2) THERE SHALL BE A MINIMUM OF 35' BETWEEN THE SIGN FACE AND CLOSEST TREE FOR ALL SIGNS OTHER THAN A STOP SIGN.
9. SEE SHEET 4 FOR PAVING SECTION DETAILS

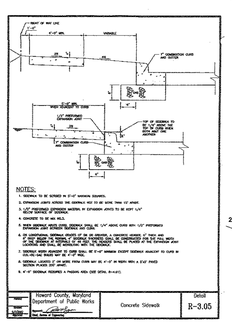
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

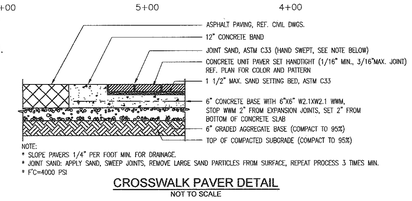
CHIEF, BUREAU OF HIGHWAYS — DATE 10/25/2016

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 11/3/16

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11-4-16

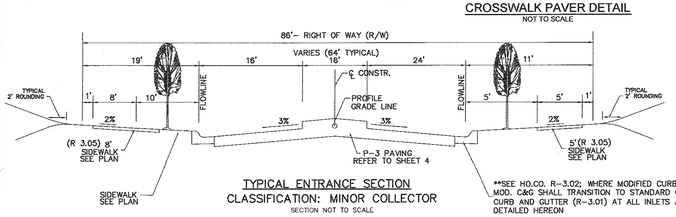




NOTE:
* SLOPE PAVERS 1/4" PER FOOT MIN. FOR DRAINAGE.
* JOINT SAND: APPLY SAND, SWEEP JOINTS, REMOVE LARGE SAND PARTICLES FROM SURFACE, REPEAT PROCESS 3 TIMES MIN.
* F'C=4000 PSI

CROSSWALK PAVER DETAIL

NOT TO SCALE

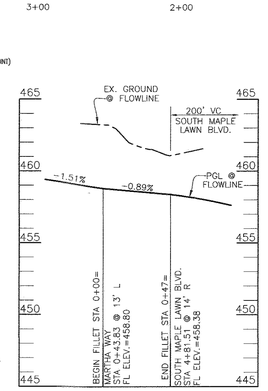


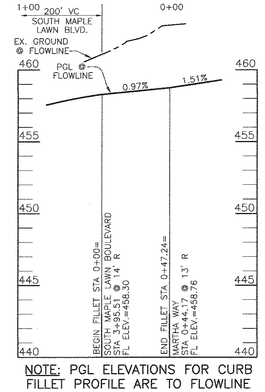
TYPICAL ENTRANCE SECTION

CLASSIFICATION: MINOR COLLECTOR

SECTION NOT TO SCALE

**SEE HO.CO. R-3.02; WHERE MODIFIED CURBING IS PROPOSED, MOD. C&G SHALL TRANSITION TO STANDARD COMBINATION CURB AND GUTTER (R-3.01) AT ALL INLETS AND WHERE DETAILED HEREON





NOTE: PGL ELEVATIONS FOR CURB FILLET PROFILE ARE TO FLOWLINE

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

NO.	REVISION	DATE

FINAL ROAD CONSTRUCTION PLAN

ROAD PLAN AND PROFILE
SOUTH MAPLE LAWN BOULEVARD

MAPLE LAWN SOUTH PHASE 1 - SECTION 1

LOTS 1-54, NON-BUILDABLE BULK PARCEL 'A', NON-BUILDABLE BULK PARCEL 'B', AND OPEN SPACE LOTS 65-69

TAX MAP 46 - GRID 2 - PARCEL 113
5TH ELECTION DISTRICT
GPZ REF: ECP-14-093, WP-15-136, PB#415, SP-15-014

ZONED: R-ED-MXD-3
HOWARD COUNTY, MARYLAND

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TEL: 410.461.7666
FAX: 410.461.8961

STATE OF MARYLAND ROBERT HARRIS VOGEL No. 16193 REGISTERED PROFESSIONAL ENGINEER 9/26/16

ROBERT H. VOGEL, PE No.16193

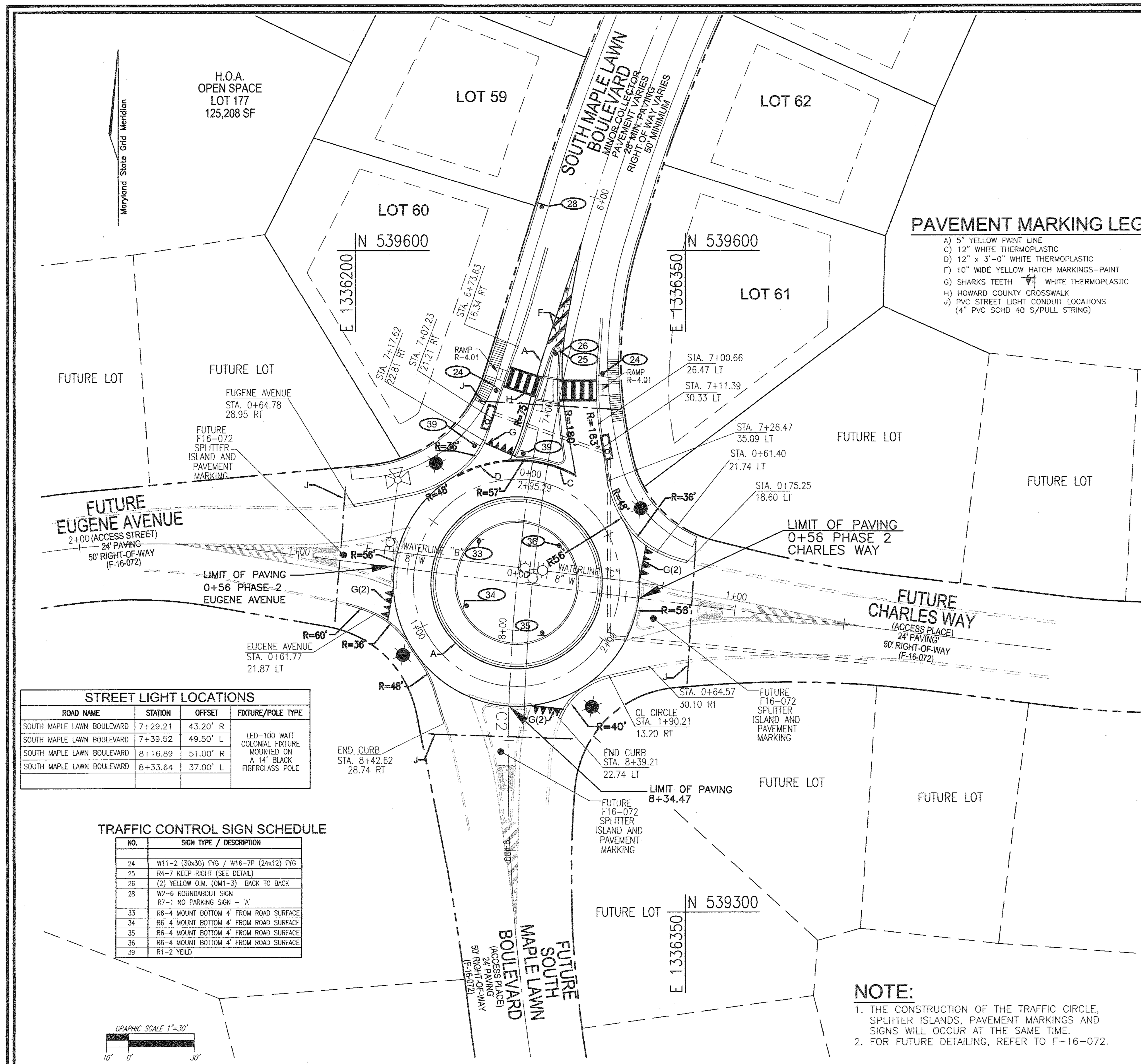
DESIGN BY: RVE
DRAWN BY: RVE
CHECKED BY: RHV
DATE: SEPTEMBER 2016
SCALE: AS SHOWN
W.O. NO.: 11-34

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: 09-27-2018

SHEET 2 OF 48

F-16-021



TRAFFIC CIRCLE - PLAN VIEW

SCALE: 1"=30'

STREET LIGHT LOCATIONS

ROAD NAME	STATION	OFFSET	FIXTURE/POLE TYPE
SOUTH MAPLE LAWN BOULEVARD	7+29.21	43.20' R	LED-100 WATT COLONIAL FIXTURE MOUNTED ON A 14' BLACK FIBERGLASS POLE
SOUTH MAPLE LAWN BOULEVARD	7+39.52	49.50' L	
SOUTH MAPLE LAWN BOULEVARD	8+16.89	51.00' R	
SOUTH MAPLE LAWN BOULEVARD	8+33.64	37.00' L	

TRAFFIC CONTROL SIGN SCHEDULE

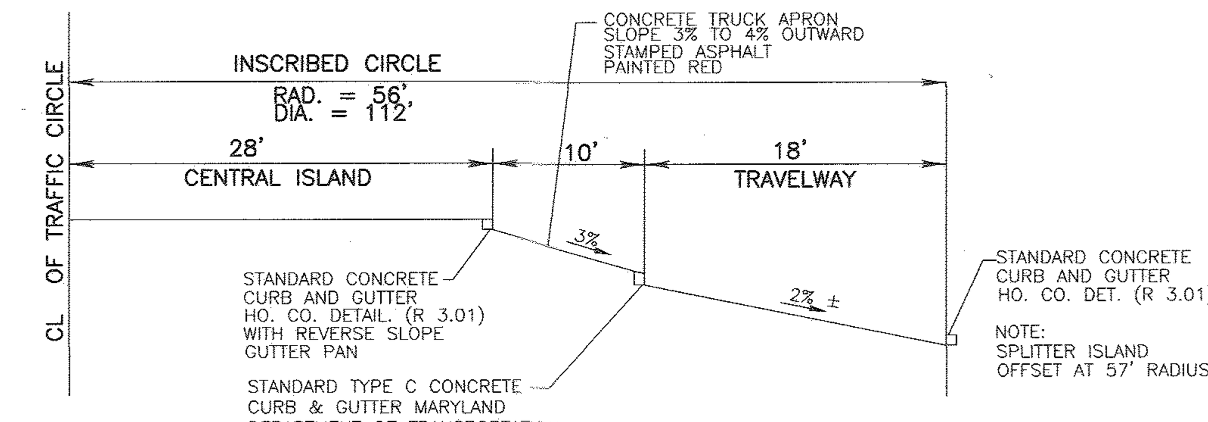
NO.	SIGN TYPE / DESCRIPTION
24	W11-2 (30x30) FYG / W16-7P (24x12) FYG
25	R4-7 KEEP RIGHT (SEE DETAIL)
26	(2) YELLOW O.M. (OM1-3) BACK TO BACK
28	W2-6 ROUNDABOUT SIGN R7-1 NO PARKING SIGN - 'A'
33	R6-4 MOUNT BOTTOM 4' FROM ROAD SURFACE
34	R6-4 MOUNT BOTTOM 4' FROM ROAD SURFACE
35	R6-4 MOUNT BOTTOM 4' FROM ROAD SURFACE
36	R6-4 MOUNT BOTTOM 4' FROM ROAD SURFACE
39	R1-2 YEILD

PAVEMENT MARKING LEGEND

A) 5" YELLOW PAINT LINE
C) 12" WHITE THERMOPLASTIC
D) 12" x 3'-0" WHITE THERMOPLASTIC
F) 10" WIDE YELLOW HATCH MARKINGS-PAINT
G) SHARKS TEETH WHITE THERMOPLASTIC
H) HOWARD COUNTY CROSSWALK
J) PVC STREET LIGHT CONDUIT LOCATIONS (4" PVC SCHD 40 S/PULL STRING)

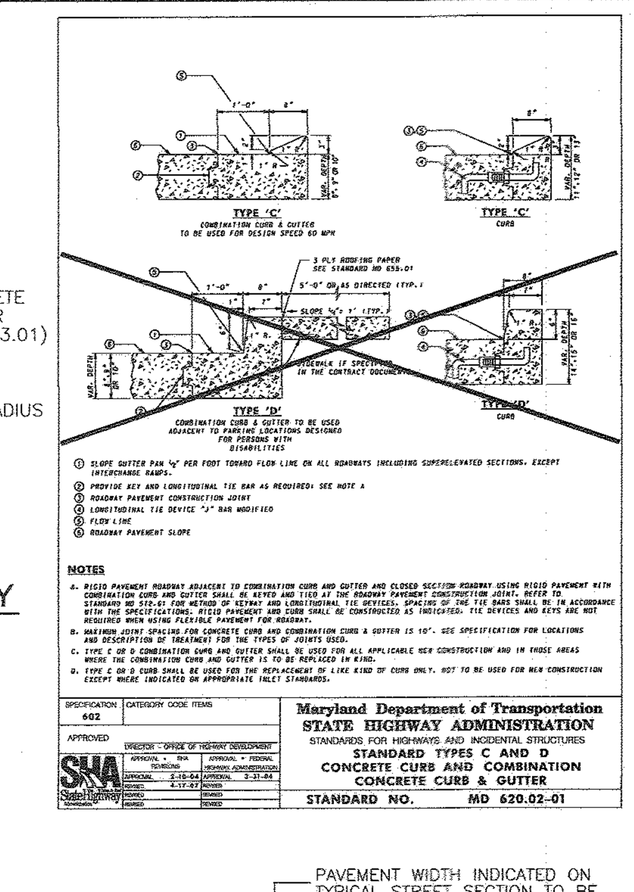
NOTE:

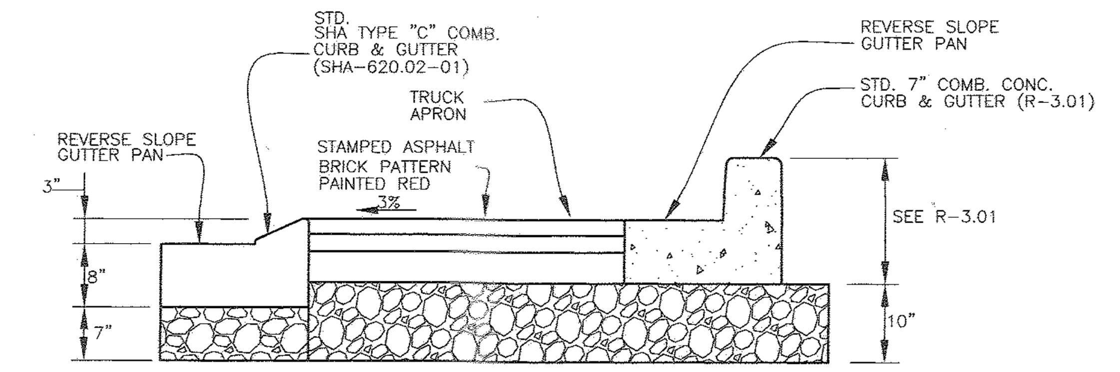
1. THE CONSTRUCTION OF THE TRAFFIC CIRCLE, SPLITTER ISLANDS, PAVEMENT MARKINGS AND SIGNS WILL OCCUR AT THE SAME TIME.
2. FOR FUTURE DETAILING, REFER TO F-16-072.



CROSS SECTION TRAFFIC CIRCLE AT INTERSECTION OF SOUTH MAPLE LAWN BOULEVARD FUTURE EUGENE AVENUE & CHARLES WAY

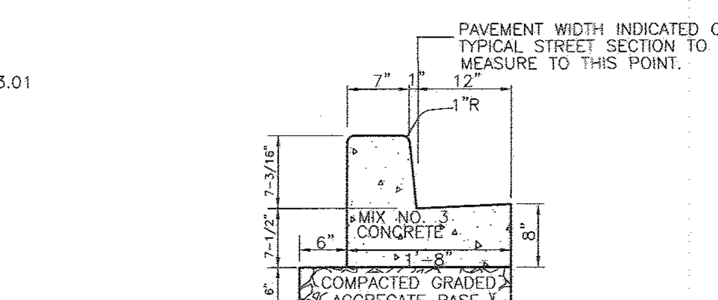
SECTION NOT TO SCALE





TRAFFIC CIRCLE TRUCK APRON.

NO TO SCALE



R-3.01 STANDARD 7" COMB. CURB AND GUTTER

NO TO SCALE

1. CONTRACTOR IS RESPONSIBLE FOR ALL TRAFFIC CONTROL MEASURES AND SHALL WORK WITH THE COUNTY ON THE BEST TIME FOR WORK TO TAKE PLACE.
2. LANDSCAPE MATERIAL SHALL BE PLANTED BETWEEN APRIL AND MAY OR SEPTEMBER AND OCTOBER.
3. ALL EXISTING PLANT MATERIAL SHALL BE REMOVED FROM ISLAND.
4. THE OUTER SIX FEET OF THE ISLAND SHALL BE DUG TO THE DEPTH OF THREE INCHES BELOW CURB AND SOIL REMOVED.
5. THE DUG OUT AREA SHALL BE COMPACTED USING A SMALL VIBRATOR.
6. LANDSCAPE FABRIC SHALL COVER THE COMPACTED AREA AND GO UP THE INNER SOIL EDGE. JOINTS IN FABRIC SHALL OVERLAP BY A FOOT.
7. "BARN RED STONE" (3-4 INCHES IN DIA) SHALL BE ADDED TO THE COMPACTED AREA AND BROUGHT UP TO JUST ABOVE THE TOP OF THE CURB AND INNER CIRCLE OF SOIL.
8. THE INNER CIRCLE OF SOIL SHALL BE LOOSEN TO A ONE-FOOT DEPTH.
9. 3 INCHES THICK OF LEAFGRO OVER TOTAL PLANTING AREA SHALL BE TILLED INTO TOP 6 INCHES.
10. CREATE A SLIGHT CROWN IN THE CENTER OF THE ISLAND.
11. SHREDDED HARDWOOD MULCH SHALL BE ADDED TO THE DEPTH OF 2-3 INCHES WITH IT NOT TOUCHING THE BASE OF PLANTS.
12. PLANTS SHALL MEET MARYLAND NURSERYMEN SPECIFICATIONS.
13. A CENTER TREE (6-8 FT IN HEIGHT AND 1.5 INCH CALIBER) SHALL BE SELECTED FROM THE FOLLOWING LIST:

ACER GINNALA	AMUR MAPLE
ACER BUERGERANUM	TRIDENT MAPLE
AMERLANCHIER LAEVIS 'CUMULUS'	CUMULUS SERVICEBERRY
CERCIS CANADENSIS 'OKLAHOMA'	OKLAHOMA REDBUD
CORNUS MAS	CORNELIANCHERRY DOGWOOD
HAMMELIS VIRGINIANA	WITCHHAZEL
LAGERSTROEMIA INDICA	CRAPEMYRTLE

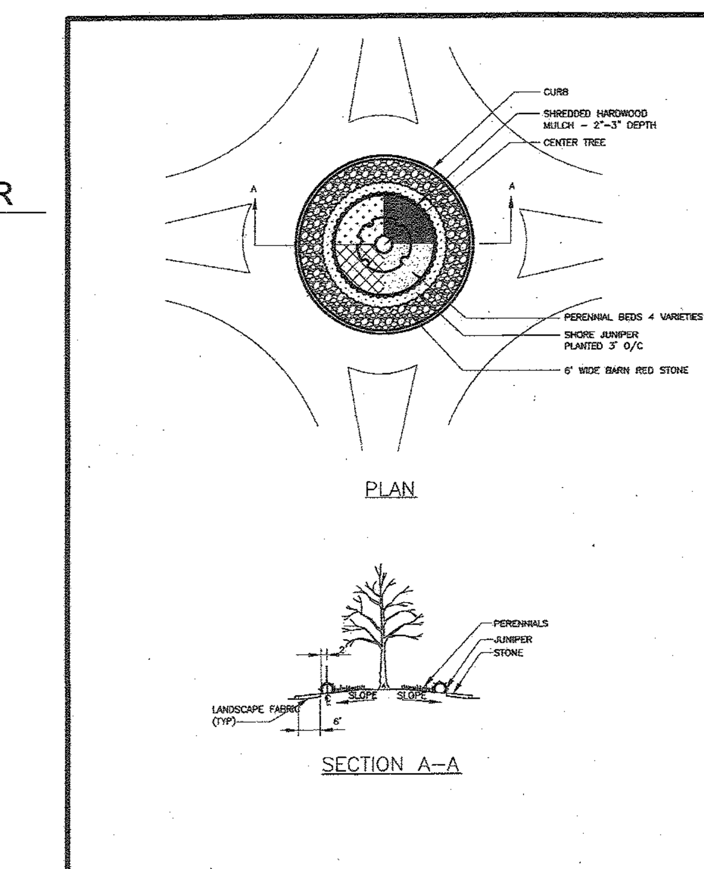
(A CULTIVAR MATURING AT 18 FEET, MILDEW RESISTANT AND FOR THIS HARDINESS ZONE)

MALUS SPP. (ANY HIGHLY DISEASE RESISTANT CULTIVAR)	CRABAPPLE
SYRINGA RETICULATA	JAPANESE TREE LILAC
VIBURNUM LENTAGO	NANNYBERRY (TREE FORM) VIBURNUM

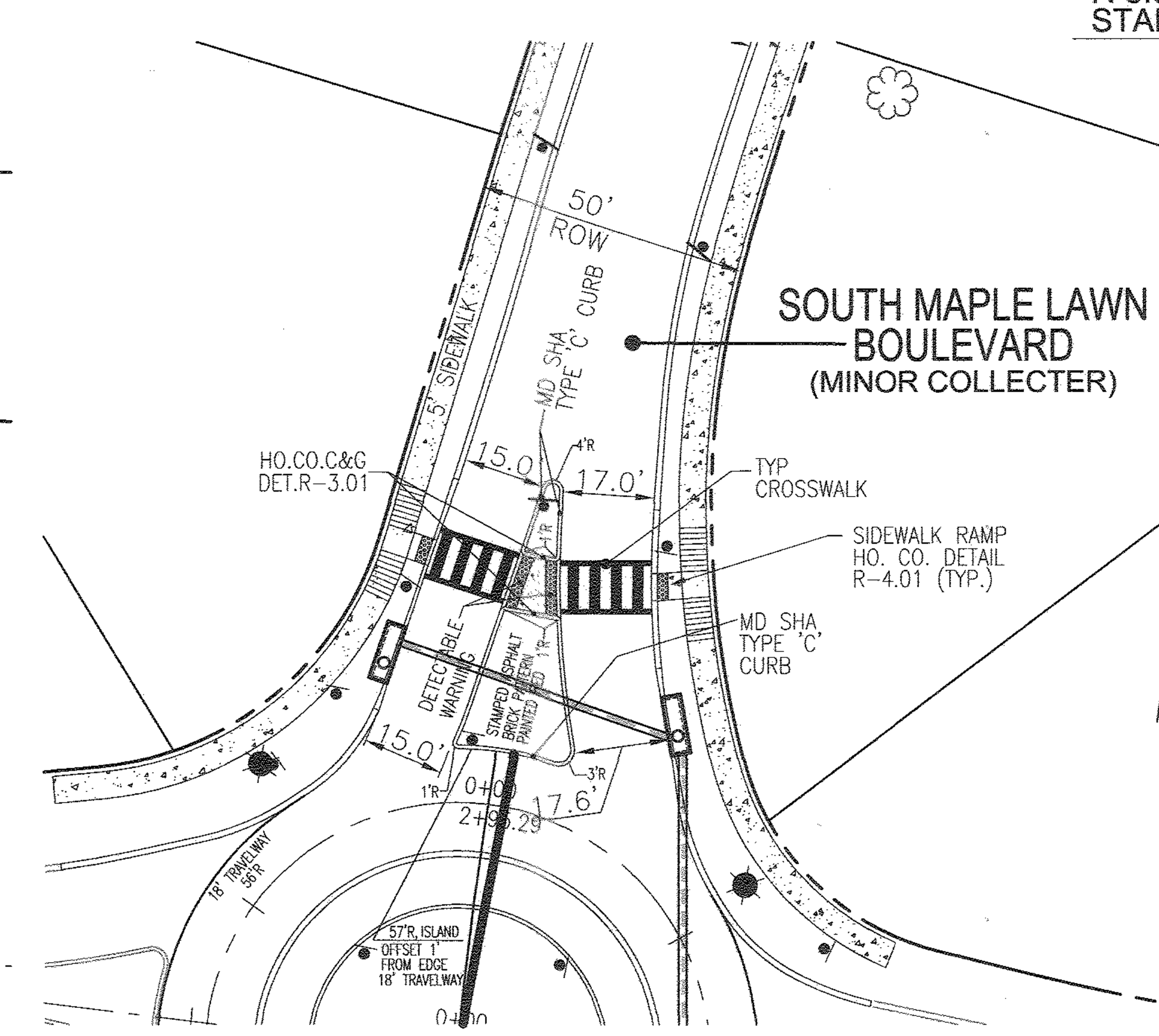
14. A RING OF SHORE JUNIPER (JUNIPERUS CONFERTA) SHALL BE PLANTED AT A THREE FOOT SPACING ON CENTER AND TWO-FEET FROM THE STONE RING (1 PER NINE SQ FT). PLANTS SHALL BE OF A 3 GALLON SIZE.
15. A SELECTION OF FOUR PERENNIALS FROM THE FOLLOWING LIST SHALL BE PLANTED AT 18" ON CENTER (1 PER 2.25 SQ FT) IN 4 LARGE GROUP CLUSTERS BETWEEN THE CENTER TREE AND SHORE JUNIPER. DO NOT PLANT PERENNIALS CLOSER THAN 2 FT FROM THE CENTER TREE OR SHORE JUNIPER. PLANTS SHALL BE A 1-GALLON SIZE. (N-NATIVE)

AMSONIA TABERNAEMONTANA 'BLUE ICE'	DWARF BLUESTAR	N
ASCLEPIAS TUBEROSA	BUTTERFLYWEED	N
CHRYSOPIS MARIANA	MARYLAND GOLDENASTER	N
COREOPSIS VERTICILLATA 'ZAGREB'	THREADLEAF COREOPSIS	N
ECHINACEA PUPUREA 'KIM'S KNEE HIGH'	DWARF PURPLE CONEFLOWER	

Howard County, Maryland Department of Public Works	Traffic Circle Generic Landscape Design Information	Detail L-1.02
Approved: Chief, Bureau of Engineering		



Howard County, Maryland Department of Public Works	Traffic Circle Generic Landscape Design Layout	Detail L-1.03
Approved: Chief, Bureau of Engineering		



TYPICAL SPLITTER ISLAND

NO TO SCALE

OWNER

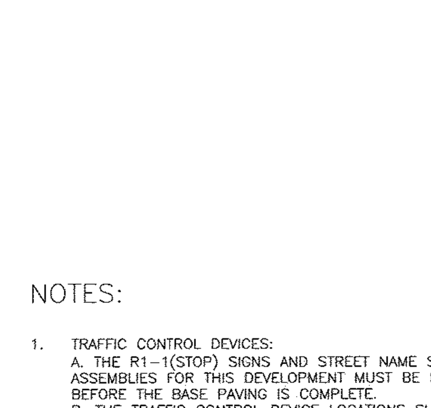
MAPLE LAWN FARMS, INC.
11788 SCAGGSVILLE ROAD
FULTON, MD 20759-0562
301-725-2074

DEVELOPER

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

NOTES

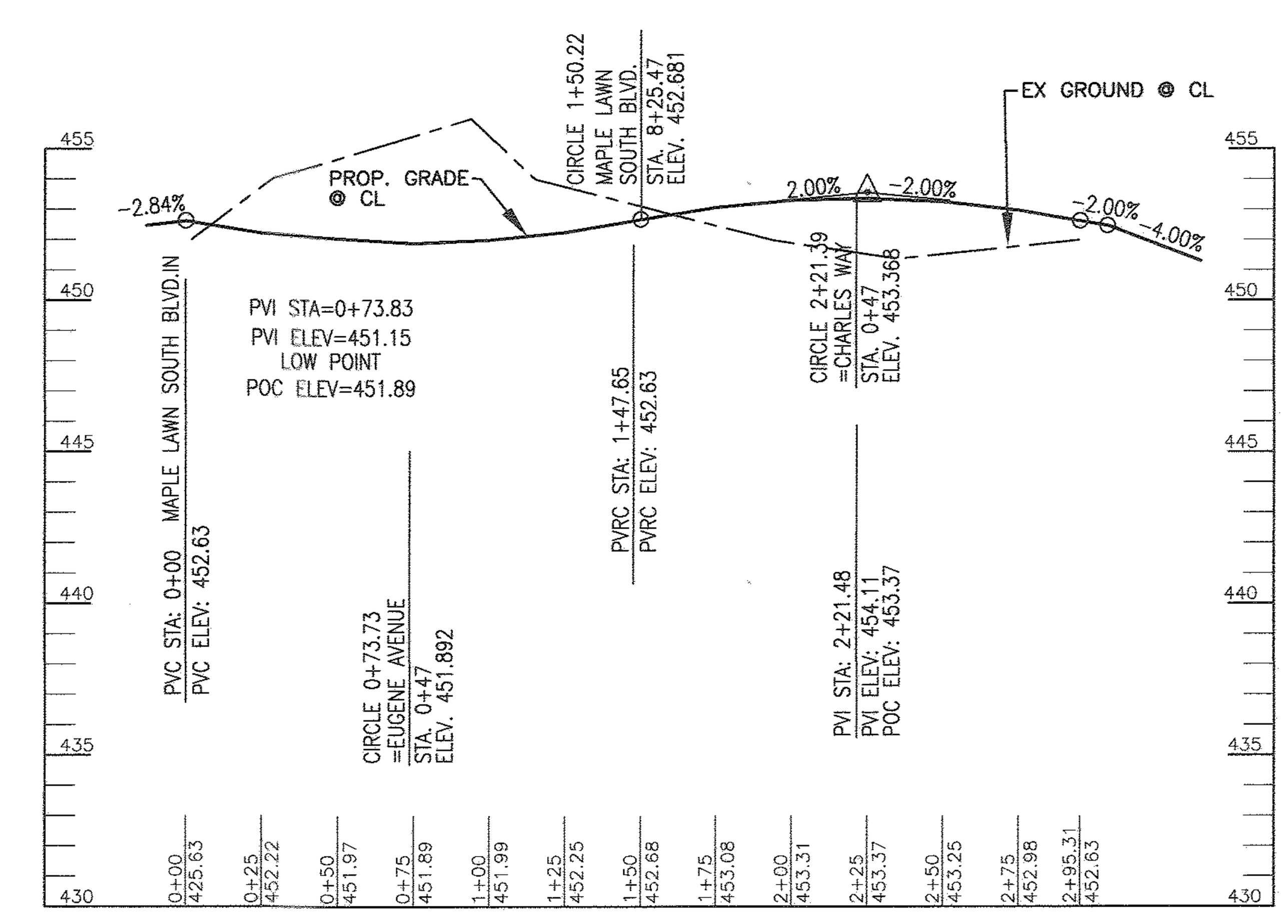
1. ALL SIGN LOCATIONS ARE APPROXIMATE. HOWARD COUNTY TRAFFIC SHALL FIELD APPROVE OR MARK ALL SIGN LOCATIONS PRIOR TO ANY SIGNS BEING INSTALLED. CALL 410-313-5752.
2. ALL ROUNDABOUT MARKINGS SHALL BE LAID OUT BY HOWARD COUNTY TRAFFIC.
3. TOTAL NUMBER OF 'SHARKS TEETH' NEEDED WILL BE DETERMINED IN THE FIELD.
4. STREET NAME SIGNS WILL BE MOUNTED ON THE R1-2 SIGNS IN THE ROUNDABOUT AS DIRECTED BY THE COUNTY TRAFFIC ENGINEER.
5. "NO PARKING" SIGNS TO BE INSTALLED AS NEEDED NEAR ROUNDABOUT. TRAFIC DIVISION WILL FIELD DETERMINE LOCATIONS.
6. IN THE DIRECTION FACING A TRAFFIC CONTROL SIGN:
   1) THERE SHALL BE A MINIMUM OF 40' BETWEEN THE SIGN FACE AND CLOSEST TREE FOR ALL STOP SIGNS.
   2) THERE SHALL BE A MINIMUM OF 35' BETWEEN THE SIGN FACE AND CLOSEST TREE FOR ALL SIGNS OTHER THAN A STOP SIGN.



DETAIL - SIGN # 25, 26,

NOTES:

1. TRAFFIC CONTROL DEVICES:
   A. THE R1-1(STOP) SIGNS AND STREET NAME SIGN (SNS) ASSEMBLIES FOR THIS DEVELOPMENT MUST BE INSTALLED BEFORE THE BASE PAVING IS COMPLETE.
   B. THE TRAFFIC CONTROL DEVICE LOCATIONS SHOWN ON THE PLANS ARE APPROXIMATE AND MUST BE FIELD APPROVED BY HOWARD COUNTY TRAFFIC DIVISION (410-313-2430) PRIOR TO THE INSTALLATION OF ANY OF THE TRAFFIC CONTROL DEVICES.
   C. ALL TRAFFIC CONTROL DEVICES AND THEIR LOCATIONS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE 'MARYLAND MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES' (MDMUTCD).
   D. ALL SIGN POST USED FOR TRAFFIC CONTROL SIGNS INSTALLED IN THE COUNTY RIGHT-OF-WAY SHALL BE MOUNTED ON A 2" GALVANIZED STEEL, PERFORATED, ("QUICK PUNCH") SQUARE TUBE POST (14 GAUGE) INSERTED INTO A 2-1/2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE SLEEVE (12 GAUGE - 3' LONG). THE ANCHOR SHALL NOT EXTEND MORE THAN TWO "QUICK PUNCH" HOLES ABOVE GROUND LEVEL. A GALVANIZED STEEL POLE CAP SHALL BE MOUNTED ON THE TOP OF EACH POST.
2. STREET LIGHT PLACEMENT AND THE TYPE OF FIXTURE AND POLE SHALL BE IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL, VOLUME III (2006), SECTION 5.5.A A MINIMUM SPACING OF 20' SHALL BE MAINTAINED BETWEEN ANY STREET LIGHT AND ANY TREE.



TRAFFIC CIRCLE CL PROFILE

SCALE : HORIZONTAL - 1"=50'
VERTICAL - 1"=5'

P-3 PAVEMENT SECTION REQUIRED

NOTES:

1. REFER TO SHEETS 23 TO 25 FOR STORMDRAIN PROFILES.
2. REFER TO SHEET 25 FOR STORMDRAIN STRUCTURE SCHEDULE.
3. FOR STREET TREE LOCATIONS, REFER TO SHEETS 26-32.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 10/25/2016

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 11/3/16

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11-4-16

NO.	REVISION	DATE

FINAL ROAD CONSTRUCTION PLAN

TRAFFIC CIRCLE DETAILS PAVEMENT MARKINGS AND SIGNAGE PLAN

MAPLE LAWN SOUTH PHASE 1 - SECTION 1

LOTS 1-64, NON-BUILDABLE BULK PARCEL 'A', NON-BUILDABLE BULK PARCEL 'B', AND OPEN SPACE LOTS 65-69

TAX MAP 46 - GRID 2 - PARCEL 113
5TH ELECTION DISTRICT
DPZ REF: ECP-14-093, WP-15-136, PB#415, SP-15-014

ZONED: R-ED-MXD-3
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

STATE OF MARYLAND — ROBERT HARRIS VOGEL — NO. 16193 — REGISTERED PROFESSIONAL ENGINEER

ROBERT H. VOGEL, PE No.16193

DESIGN BY:	RVE
DRAWN BY:	RVE
CHECKED BY:	RHV
DATE:	SEPTEMBER 2016
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: 09-27-2018

F-16-021

STREET LIGHT LOCATIONS

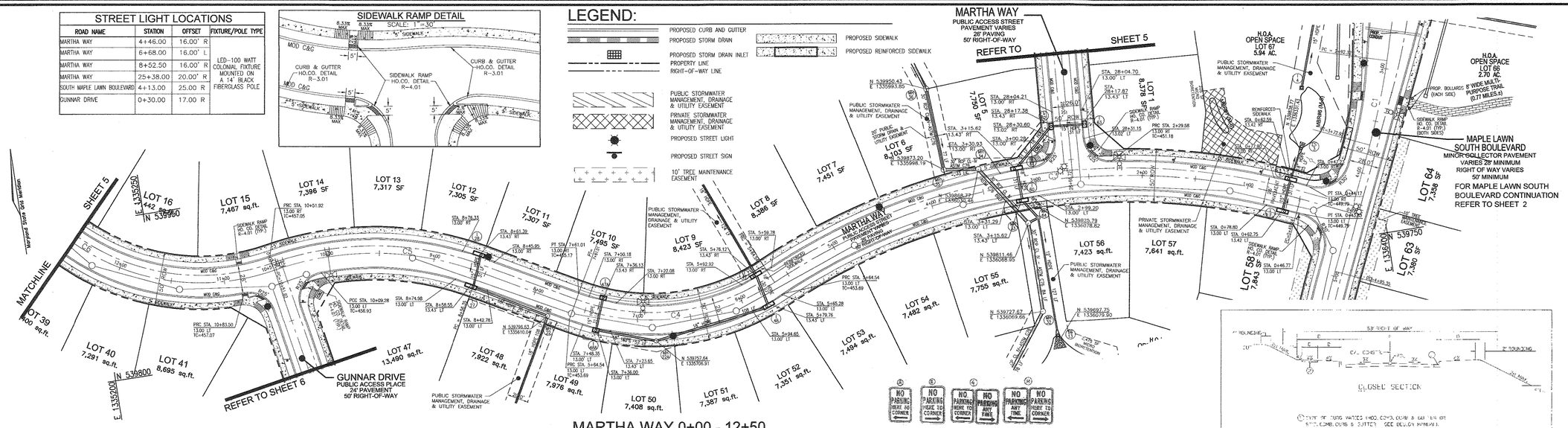
ROAD NAME	STATION	OFFSET	FIXTURE/POLE TYPE
MARTHA WAY	4+46.00	16.00' R	LED-100 WATT COLONIAL FIXTURE MOUNTED ON A 14' BLACK FIBERGLASS POLE
MARTHA WAY	6+68.00	16.00' L	
MARTHA WAY	8+52.50	16.00' R	
MARTHA WAY	25+38.00	20.00' R	
SOUTH MAPLE LAWN BOULEVARD	4+13.00	25.00 R	
GUNNAR DRIVE	0+30.00	17.00 R	

SIDEWALK RAMP DETAIL

SCALE: 1"=30'

LEGEND:

- PROPOSED CURB AND GUTTER
- PROPOSED STORM DRAIN
- PROPOSED STORM DRAIN INLET
- PROPERTY LINE
- RIGHT-OF-WAY LINE
- PUBLIC STORMWATER MANAGEMENT, DRAINAGE & UTILITY EASEMENT
- PRIVATE STORMWATER MANAGEMENT, DRAINAGE & UTILITY EASEMENT
- PROPOSED STREET LIGHT
- PROPOSED STREET SIGN
- 10' TREE MAINTENANCE EASEMENT
- PROPOSED SIDEWALK
- PROPOSED REINFORCED SIDEWALK



MARTHA WAY 0+00 - 12+50 PLAN VIEW

SCALE: 1"=50'

50' 0 50' 100' 150'

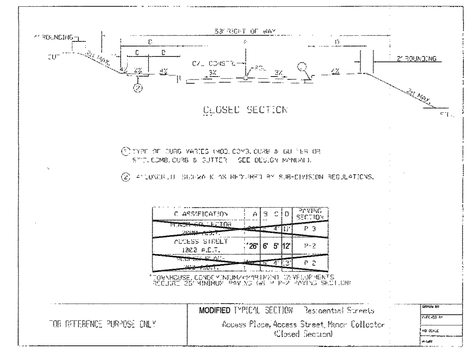
TRAFFIC CONTROL SIGN LOCATION CHART

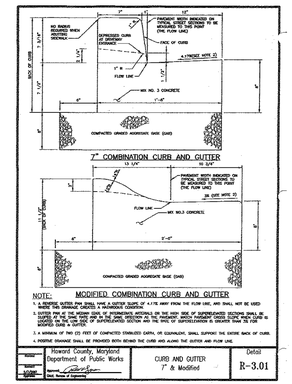
ROAD NAME	STATION	OFFSET	TYPE
MAPLE LAWN SOUTH BOULEVARD	2+54.00	30.00' L	R3-8 LANE USE SIGN
MAPLE LAWN SOUTH BOULEVARD	2+78.00	25.00' R	R7-1 NO PARKING SIGN - 'A'
MARTHA WAY	0+46.00	17.00' L	R1-1 STOP SIGN
MARTHA WAY	0+91.00	16.00' R	R7-1 NO PARKING SIGN - 'H'
MARTHA WAY	1+72.00	16.00' R	R2-1 SPEED LIMIT SIGN (25 MPH) R7-1 NO PARKING SIGN - 'G'
MARTHA WAY	28+04.00	16.00' L	R7-1 NO PARKING SIGN - 'E'
MARTHA WAY	28+32.00	16.00' R	R1-1 STOP SIGN
GUNNAR DRIVE	0+36.00	16.00' L	R1-1 STOP SIGN
GUNNAR DRIVE	0+84.00	16.00' R	R7-1 NO PARKING SIGN - 'E'

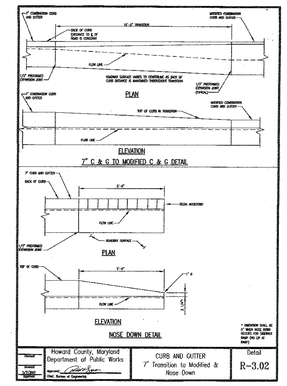
NOTE: ALL SIGN LOCATIONS ARE APPROXIMATE. HOWARD COUNTY TRAFFIC SHALL FIELD APPROVE OR MARK.
ALL SIGN LOCATIONS PRIOR TO ANY SIGNS BEING INSTALLED. CALL 410-313-5752.

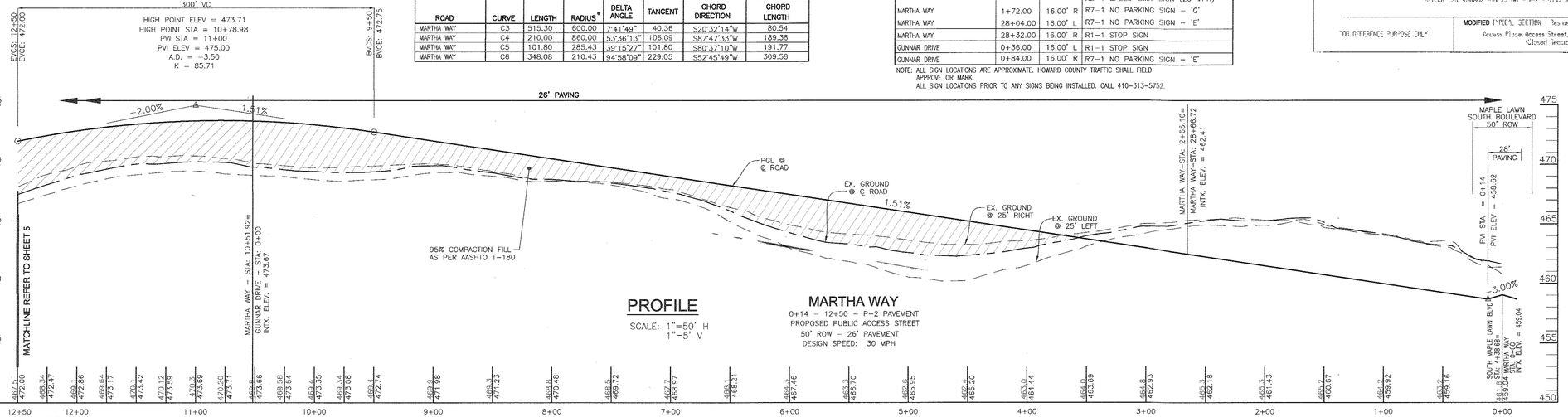
CURVE TABLE

ROAD	CURVE	LENGTH	RADIUS*	DELTA ANGLE	TANGENT	CHORD DIRECTION	CHORD LENGTH
MARTHA WAY	C3	515.30	600.00	7°41'49"	40.36	S20°32'14"W	80.54
MARTHA WAY	C4	210.00	860.00	5°36'13"	106.09	S87°47'33"W	189.38
MARTHA WAY	C5	101.80	285.43	19°15'27"	101.80	S80°37'10"W	191.77
MARTHA WAY	C6	348.08	210.43	94°58'09"	229.05	S52°45'49"W	309.58









PROFILE

SCALE: 1"=50' H
1"=5' V

MARTHA WAY

0+14 - 12+50 - P-2 PAVEMENT
PROPOSED PUBLIC ACCESS STREET
50' ROW - 26' PAVEMENT
DESIGN SPEED: 30 MPH

NOTES:

1. REFER TO SHEETS 23 TO 25 FOR STORMDRAIN PROFILES.
2. REFER TO SHEET 25 FOR STORMDRAIN STRUCTURE SCHEDULE.
3. FOR STREET TREE LOCATIONS, REFER TO SHEETS 26-27.
4. FOR MD 216 IMPROVEMENTS REFER TO SHEETS 43-46.
5. ALL STREET TREES AND/OR SIGN SHALL BE LOCATED 5' MIN. FROM PROPOSED DRAINAGE, UTILITY STRUCTURE.
6. THERE SHOULD BE A MINIMUM OF 20' BETWEEN STREET LIGHTS AND STREET TREES.
7. FOR MARTHA WAY INTERSECTION FILLETS, REFER TO SHEET 5
8. IN THE DIRECTION FACING A TRAFFIC CONTROL SIGN:
   1) THERE SHALL BE A MINIMUM OF 40' BETWEEN THE SIGN FACE AND CLOSEST TREE FOR ALL STOP SIGNS.
   2) THERE SHALL BE A MINIMUM OF 35' BETWEEN THE SIGN FACE AND CLOSEST TREE FOR ALL SIGNS OTHER THAN A STOP SIGN.

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

NO.	REVISION	DATE

CBU BOX LOCATIONS: SUBJECT TO CHANGE

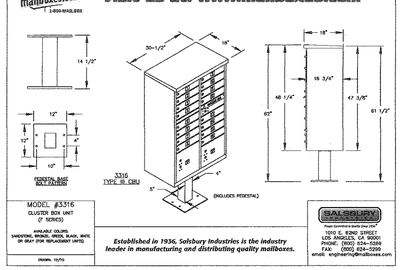
- ONE 16 UNIT "CLUSTER BOX UNIT" HAS BEEN PLACED NEAR LOT 5 TO SERVE LOTS 1 - 8, 31 - 32 & 52 - 57.
- ONE 12 UNIT "CLUSTER BOX UNIT" HAS BEEN PLACED NEAR LOT 25 TO SERVE LOTS 22 - 30.
- ONE 16 UNIT "CLUSTER BOX UNIT" HAS BEEN PLACED NEAR LOT 18 TO SERVE LOTS 15 - 21 & 34 - 41.
- ONE 16 UNIT "CLUSTER BOX UNIT" HAS BEEN PLACED NEAR LOT 47 TO SERVE LOTS 9 - 14 & 42 - 51.
- ONE 12 UNIT "CLUSTER BOX UNIT" HAS BEEN PLACED NEAR LOT 62 TO SERVE LOTS 58 - 64 & 5 FUTURE LOTS.

SALSBURY INDUSTRIES MANUFACTURES CBU'S THAT ARE OFFICIALLY LICENSED BY THE U.S.P.S. SALSBURY 3300 SERIES CLUSTER BOX UNITS ARE MANUFACTURED TO U.S.P.S. "T" SPECIFICATIONS. THEY ARE AN OFFICIALLY LICENSED PRODUCT OF THE U.S. POSTAL SERVICE FOR CENTRALIZED MAIL DELIVERY. LICENSE NUMBER 1CDSEQ-08-B-0026

TYPICAL CENTRAL MAIL DELIVERY BOX (CBU) OR APPROVED EQUAL

mailboxes.com 1-800-843-8.888

Visit us at: www.mailboxes.com



MODEL #3316
CLUSTER BOX UNIT (7 SERVICE)

AVAILABLE COLORS: SHADSTONE, BRONZE, GREEN, BLACK, WHITE OR GRAY (FOR REPLACEMENT UNITS)

DRAWN: 10/10

Established in 1936, Salsbury Industries is the industry leader in manufacturing and distributing quality mailboxes.

PLAN CONFIGURATIONS INCLUDE:
1010 E. 62ND STREET
LOS ANGELES, CA 90001
PHONE: (800) 624-5269
FAX: (800) 624-5299
email: engineering@mailboxes.com

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS	DATE 10/25/2016
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 11/3/16
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 11-4-16

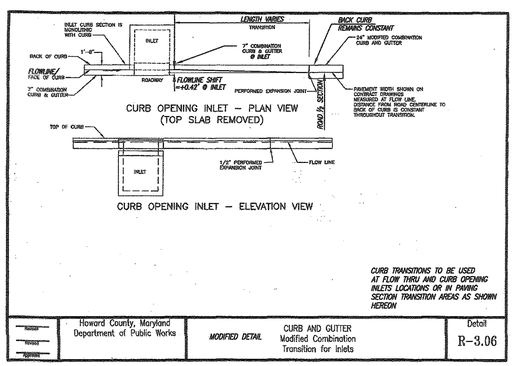
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

SECTION NUMBER	ROAD AND STREET CLASSIFICATION	CALIFORNIA BEARING RATIO (CBR)	3 TO <5	5 TO <7	≥ 7	3 TO <5	5 TO <7	≥ 7
		PAVEMENT MATERIAL (INCHES)	MIN. HMA, MIN. GAB			HMA, WITH CONSTANT GAB		
P-1	PARKING BAYS: PARKING DRIVE AISLES: RESIDENTIAL AND NON-RESIDENTIAL WITH NO MORE THAN 2 HEAVY TRUCKS PER DAY	HMA SURFACE/ FINAL SURFACE	1.5	1.5	1.5	1.5	1.5	1.5
		9.5 MM, PG 64-22, LEVEL 1 (SMA)						
		HMA SUPERPAVE INTERMEDIATE SURFACE (IN)	NA	NA	NA	NA	NA	NA
		HMA SUPERPAVE BASE	2.0	2.0	2.0	3.5	3.0	2.5
		19.0 MM, PG 64-22, LEVEL 1 (SMA)	2.5			4.0	4.0	4.0
		GRADED AGGREGATE BASE (GAB)						
P-2	PARKING DRIVE AISLES: RESIDENTIAL AND NON-RESIDENTIAL WITH NO MORE THAN 50 HEAVY TRUCKS PER DAY LOCAL ROAD: ACCESS PLACE, ACCESS STREET CUL-DE-SACS: RESIDENTIAL	HMA SUPERPAVE FINAL SURFACE	1.5	1.5	1.5	1.5	1.5	1.5
		9.5 MM, PG 64-22, LEVEL 1 (SMA)	1.0	1.0	1.0	1.0	1.0	1.0
		HMA SUPERPAVE INTERMEDIATE SURFACE						
		9.5 MM, PG 64-22, LEVEL 1 (SMA)	2.0	2.0	2.0	3.5	2.0	2.0
		HMA SUPERPAVE BASE	8.0	4.0	3.0	4.0	4.0	4.0
		19.0 MM, PG 64-22, LEVEL 1 (SMA)						
		GRADED AGGREGATE BASE (GAB)						
P-3	PARKING DRIVE AISLES: RESIDENTIAL AND NON-RESIDENTIAL WITH NO MORE THAN 150 HEAVY TRUCKS PER DAY LOCAL ROADS: ACCESS PLACE, ACCESS STREET CUL-DE-SACS: NON-RESIDENTIAL MINOR COLLECTORS	HMA SUPERPAVE FINAL SURFACE	1.5	1.5	1.5	1.5	1.5	1.5
		9.5 MM, PG 64-22, LEVEL 1 (SMA)	1.0	1.0	1.0	1.0	1.0	1.0
		HMA SUPERPAVE INTERMEDIATE SURFACE						
		9.5 MM, PG 64-22, LEVEL 1 (SMA)	3.0	3.0	3.0	4.0	3.0	3.0
		HMA SUPERPAVE BASE	10.0	6.0	5.0	6.0	6.0	6.0
		19.0 MM, PG 64-22, LEVEL 1 (SMA)						
		GRADED AGGREGATE BASE (GAB)						
P-4	MAJOR COLLECTORS: MINOR COLLECTORS	HMA SUPERPAVE FINAL SURFACE	1.5	1.5	1.5	1.5	1.5	1.5
		12.5 MM, PG 64-22, LEVEL 2 (SMA)	3.0	3.0	3.0	3.0	3.0	3.0
		HMA SUPERPAVE INTERMEDIATE SURFACE	2.0	2.0	2.0	2.0	2.0	2.0
		19.0 MM, PG 64-22, LEVEL 2 (SMA)	4.0	4.0	3.0	6.0	5.0	3.0
		HMA SUPERPAVE BASE	12.0	7.0	6.0	8.0	8.0	6.0
		19.0 MM, PG 64-22, LEVEL 2 (SMA)						
		GRADED AGGREGATE BASE (GAB)						

Notes:
1) HEAVY TRUCKS ARE DEFINED AS THOSE WITH SIX (6) WHEELS OR MORE INCLUDING GARBAGE TRUCKS.
2) HMA SUPERPAVE LAYERS SHALL BE PLACED IN ACCORDANCE WITH THE FOLLOWING: 19.0 MM BASE (2.0" MIN TO 4.0" MAX), 12.5 MM BASE (1.5" MIN TO 3.0" MAX), 9.5 MM SURFACE (1.0" MIN TO 2.0" MAX).
3) GRADED AGGREGATE BASE (GAB) TO BE PLACED AND COMPACTED IN 6" MAX COMPACTED THICKNESS LAYERS.
4) THE INTERMEDIATE SURFACE COURSE LAYER MUST BE PLACED WITHIN 2 WEEKS OF PLACEMENT OF BASE COURSE, AND IS REQUIRED PRIOR TO SUBSEQUENTIAL COMPLETION INSPECTION AND BOND REDUCTION.
5) IN LIEU OF PLACING THE INTERMEDIATE SURFACE COURSE LAYER FOR COMMERCIAL/INDUSTRIAL ENTRANCE AREAS WITHIN THE PUBLIC RIGHT-OF-WAY, THE PAVEMENT SECTION SHALL BE ADJUSTED SO THAT THE THICKNESS OF THE INTERMEDIATE PAVEMENT LAYER CAN BE ADDED TO THE REQUIRED THICKNESS OF THE BASE ASPHALT LAYER.
6) THE CONSTRUCTION DRAWINGS SHALL SHOW THE PAVING SECTION, ROAD CLASSIFICATION AND CRB VALUE FOR EACH ROADWAY

HMA SURFACE/FINAL SURFACE
HMA SURFACE/INTERMEDIATE SURFACE
HMA SURFACE/BASE
GRADED AGGREGATE BASE (GAB)

Howard County, Maryland Department of Public Works — PAVING SECTIONS P-1 to P-4 — Detail R-2.01



Howard County, Maryland Department of Public Works — MODIFIED DETAIL — CURB AND GUTTER Modified Combination Transition for Inlets — Detail R-3.06

FINAL ROAD CONSTRUCTION PLAN

ROAD PLAN AND PROFILE
MARTHA WAY

MAPLE LAWN SOUTH PHASE 1 - SECTION 1

LOTS 1-64, NON-BUILDABLE BULK PARCEL 'A', NON-BUILDABLE BULK PARCEL 'B', AND OPEN SPACE LOTS 65-69

TAX MAP 46 - GRID 2 - PARCEL 113
5TH ELECTION DISTRICT
DPZ REF: ECP-14-093, WP-15-136, PB-415, SP-15-014

ZONED: R-ED-MXD-3
HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL ENGINEERING, INC.
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8407 MAIN STREET
ELLICOTT CITY, MD 21043
TEL: 410.461.7666
FAX: 410.461.5961

STATE OF MARYLAND ROBERT HARRIS VOGEL No. 16193 REGISTERED PROFESSIONAL ENGINEER 3/16/16

ROBERT H. VOGEL, PE No.16193

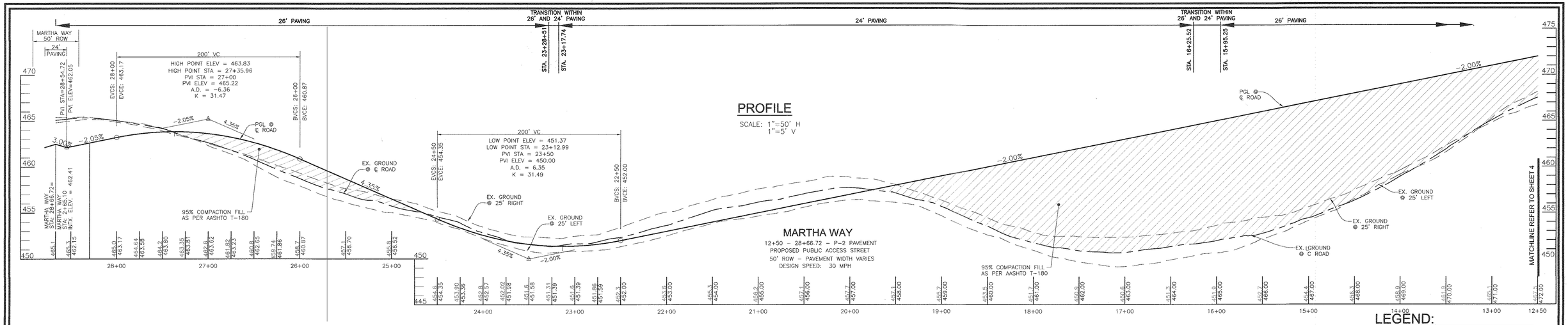
DESIGN BY: RVE
DRAWN BY: RVE
CHECKED BY: RHV
DATE: SEPTEMBER 2016
SCALE: AS SHOWN
W.O. NO.: 11-34

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: 09-27-2018

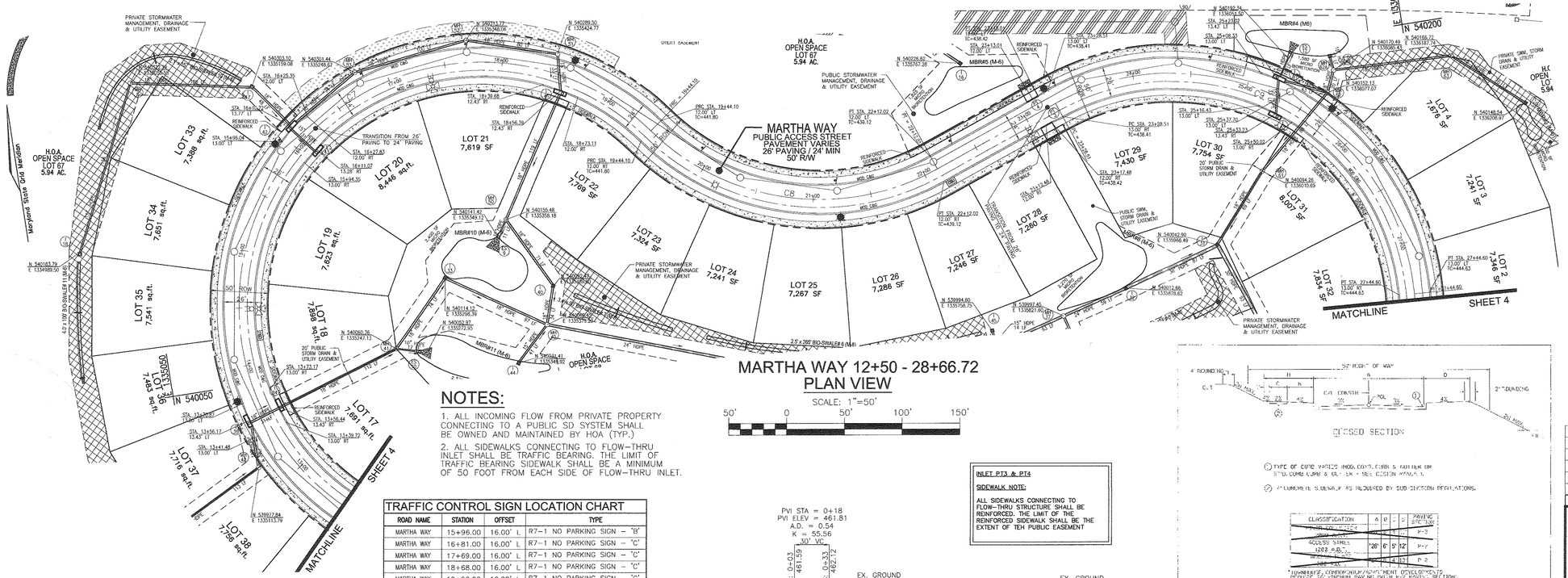
SHEET 4 OF 48

F-16-021



PROFILE

SCALE: 1"=50' H
1"=5' V



MARTHA WAY 12+50 - 28+66.72
PLAN VIEW

SCALE: 1"=50'

LEGEND:

- EXISTING CURB AND GUTTER
- PROPOSED CURB AND GUTTER
- PROPOSED STORM DRAIN
- PROPOSED STORM DRAIN INLET
- EXISTING FENCE
- PROPERTY LINE
- RIGHT-OF-WAY LINE
- PROPOSED SIDEWALK
- PROPOSED REINFORCED SIDEWALK
- PUBLIC STORMWATER MANAGEMENT, DRAINAGE & UTILITY EASEMENT
- PRIVATE STORMWATER MANAGEMENT, DRAINAGE & UTILITY EASEMENT
- PROPOSED STREET LIGHT
- PROPOSED STREET SIGN
- 10' TREE MAINTENANCE EASEMENT

NOTES:

1. REFER TO SHEETS 24 TO 26 FOR STORMDRAIN PROFILES.
2. REFER TO SHEET 26 FOR STORMDRAIN STRUCTURE SCHEDULE.
3. FOR STREET TREE LOCATIONS, REFER TO SHEET 25.
4. FOR MD RT 216 IMPROVEMENTS REFER TO SHEETS 42-45.
5. ALL STREET TREES AND/OR SIGN SHALL BE LOCATED 5' MIN. FROM PROPOSED DRAINAGE, UTILITY STRUCTURE.
6. THERE SHOULD BE A MINIMUM OF 20' BETWEEN STREET LIGHTS AND STREET TREES.
7. IN THE DIRECTION FACING A TRAFFIC CONTROL SIGN:
   1) THERE SHALL BE A MINIMUM OF 40' BETWEEN THE SIGN FACE AND CLOSEST TREE FOR ALL STOP SIGNS.
   2) THERE SHALL BE A MINIMUM OF 35' BETWEEN THE SIGN FACE AND CLOSEST TREE FOR ALL SIGNS OTHER THAN A STOP SIGN.
8. SEE SHEET 4 FOR PAVEING SECTION DETAILS

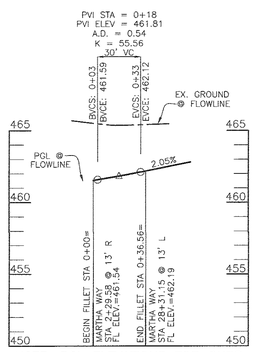
NOTES:

1. ALL INCOMING FLOW FROM PRIVATE PROPERTY CONNECTING TO A PUBLIC SD SYSTEM SHALL BE OWNED AND MAINTAINED BY HOA (TYP.)
2. ALL SIDEWALKS CONNECTING TO FLOW-THRU INLET SHALL BE TRAFFIC BEARING. THE LIMIT OF TRAFFIC BEARING SIDEWALK SHALL BE A MINIMUM OF 50 FOOT FROM EACH SIDE OF FLOW-THRU INLET.

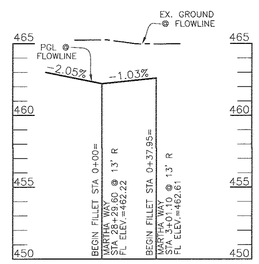
INLET PT3 & PT4

SIDEWALK NOTE:

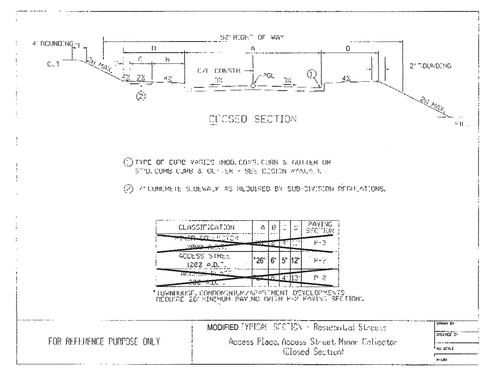
ALL SIDEWALKS CONNECTING TO FLOW-THRU STRUCTURE SHALL BE REINFORCED. THE LIMIT OF THE REINFORCED SIDEWALK SHALL BE THE EXTENT OF TEH PUBLIC EASEMENT

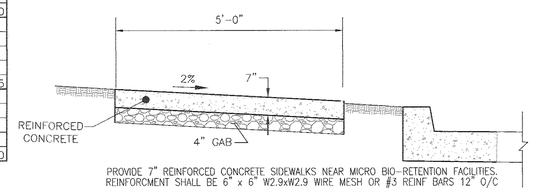


NOTE: PGL ELEVATIONS FOR CURB FILLET PROFILE ARE TO FLOWLINE



SEE SHEET 4





PROVIDE 7" REINFORCED CONCRETE SIDEWALKS NEAR MICRO BIO-RETENTION FACILITIES. REINFORCMENT SHALL BE 6" x 6" W2.9xW2.9 WIRE MESH OR #3 REINF BARS 12" O/C

DETAIL - REINFORCED CONCRETE SIDEWALK
NOT TO SCALE

TRAFFIC CONTROL SIGN LOCATION CHART

ROAD NAME	STATION	OFFSET	TYPE
MARTHA WAY	15+96.00	16.00' L	R7-1 NO PARKING SIGN - 'B'
MARTHA WAY	16+81.00	16.00' L	R7-1 NO PARKING SIGN - 'C'
MARTHA WAY	17+69.00	16.00' L	R7-1 NO PARKING SIGN - 'C'
MARTHA WAY	18+68.00	16.00' L	R7-1 NO PARKING SIGN - 'C'
MARTHA WAY	19+90.00	16.00' L	R7-1 NO PARKING SIGN - 'C'
MARTHA WAY	21+20.00	16.00' L	R7-1 NO PARKING SIGN - 'C'
MARTHA WAY	22+33.00	16.00' L	R7-1 NO PARKING SIGN - 'C'
MARTHA WAY	23+35.00	16.50' L	R7-1 NO PARKING SIGN - 'C'
MARTHA WAY	24+64.00	16.50' L	R7-1 NO PARKING SIGN - 'C'
MARTHA WAY	25+78.00	16.50' L	R7-1 NO PARKING SIGN - 'D'

NOTE: ALL SIGN LOCATIONS ARE APPROXIMATE. HOWARD COUNTY TRAFFIC SHALL FIELD APPROVE OR MARK ALL SIGN LOCATIONS PRIOR TO ANY SIGNS BEING INSTALLED. CALL 410-313-5752.

STREET LIGHT LOCATIONS

ROAD NAME	STATION	OFFSET	FIXTURE/POLE TYPE
MARTHA WAY	13+73.83	17.00' L	LED-100 WATT COLONIAL FIXTURE MOUNTED ON A 14' BLACK FIBERGLASS POLE
MARTHA WAY	15+91.5	16.00' L	
MARTHA WAY	18+59.09	16.50' O	
MARTHA WAY	21+20.39	16.00' R	
MARTHA WAY	23+26.00	16.00' L	
MARTHA WAY	25+72.00	16.00' L	

CURVE TABLE

ROAD	CURVE	LENGTH	RADIUS*	DELTA ANGLE	TANGENT	CHORD DIRECTION	CHORD LENGTH
MARTHA WAY	C7	544.10	210.00	148°27'06"	743.40	S68°56'48"W	404.18
MARTHA WAY	C8	267.92	210.00	73°05'53"	155.67	S73°22'35"W	250.11
MARTHA WAY	C9	416.09	210.00	113°31'26"	320.45	S53°09'49"W	351.29

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 10/25/2016

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 11/3/16

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11-4-16

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

NO.	REVISION	DATE

FINAL ROAD CONSTRUCTION PLAN
ROAD PLAN AND PROFILE
MARTHA WAY

MAPLE LAWN SOUTH PHASE 1 - SECTION 1

LOTS 1-64, NON-BUILDABLE BULK PARCEL 'A', NON-BUILDABLE BULK PARCEL 'B', AND OPEN SPACE LOTS 65-69

TAX MAP 46 - GRID 2 - PARCEL 113
5TH ELECTION DISTRICT
DPZ REF: ECP-14-093, WP-15-136, PB#415, SP-15-014

ZONED: R-ED-MXD-3
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

STATE OF MARYLAND ROBERT HARRIS VOGEL No. 16193 REGISTERED PROFESSIONAL ENGINEER

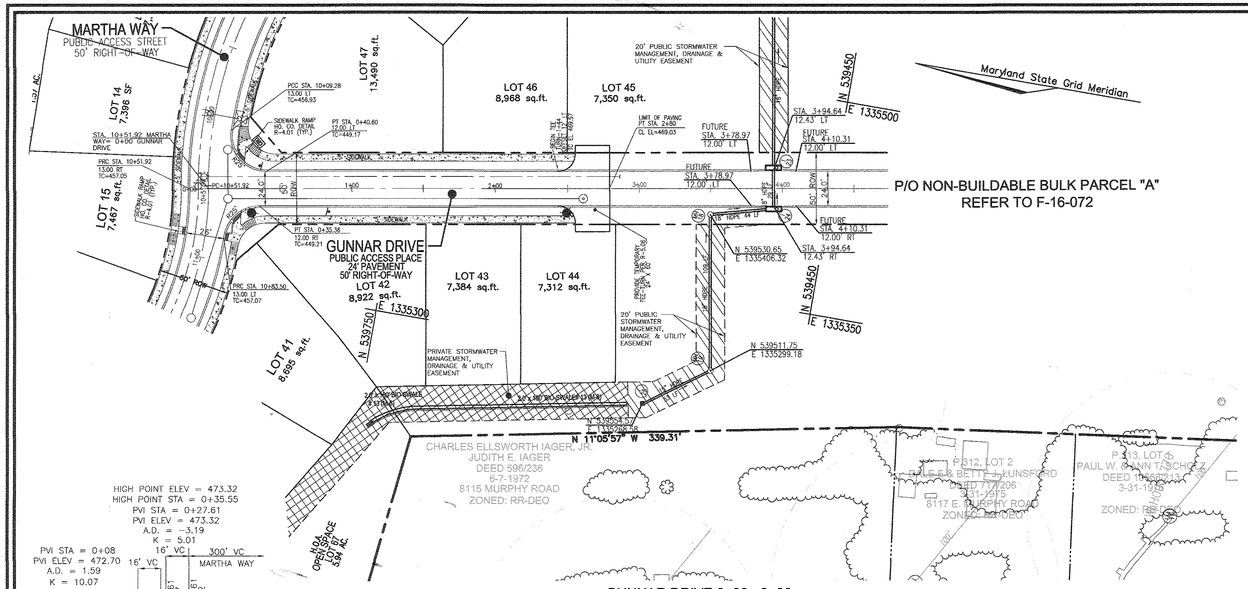
ROBERT H. VOGEL, PE No.16193

DESIGN BY:	RVE
DRAWN BY:	RVE
CHECKED BY:	RHV
DATE:	SEPTEMBER 2016
SCALE:	AS SHOWN
W.O. NO.:	11-34

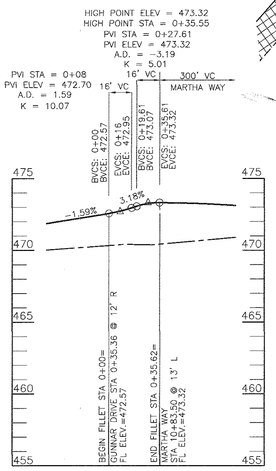
PROFESSIONAL CERTIFICATE

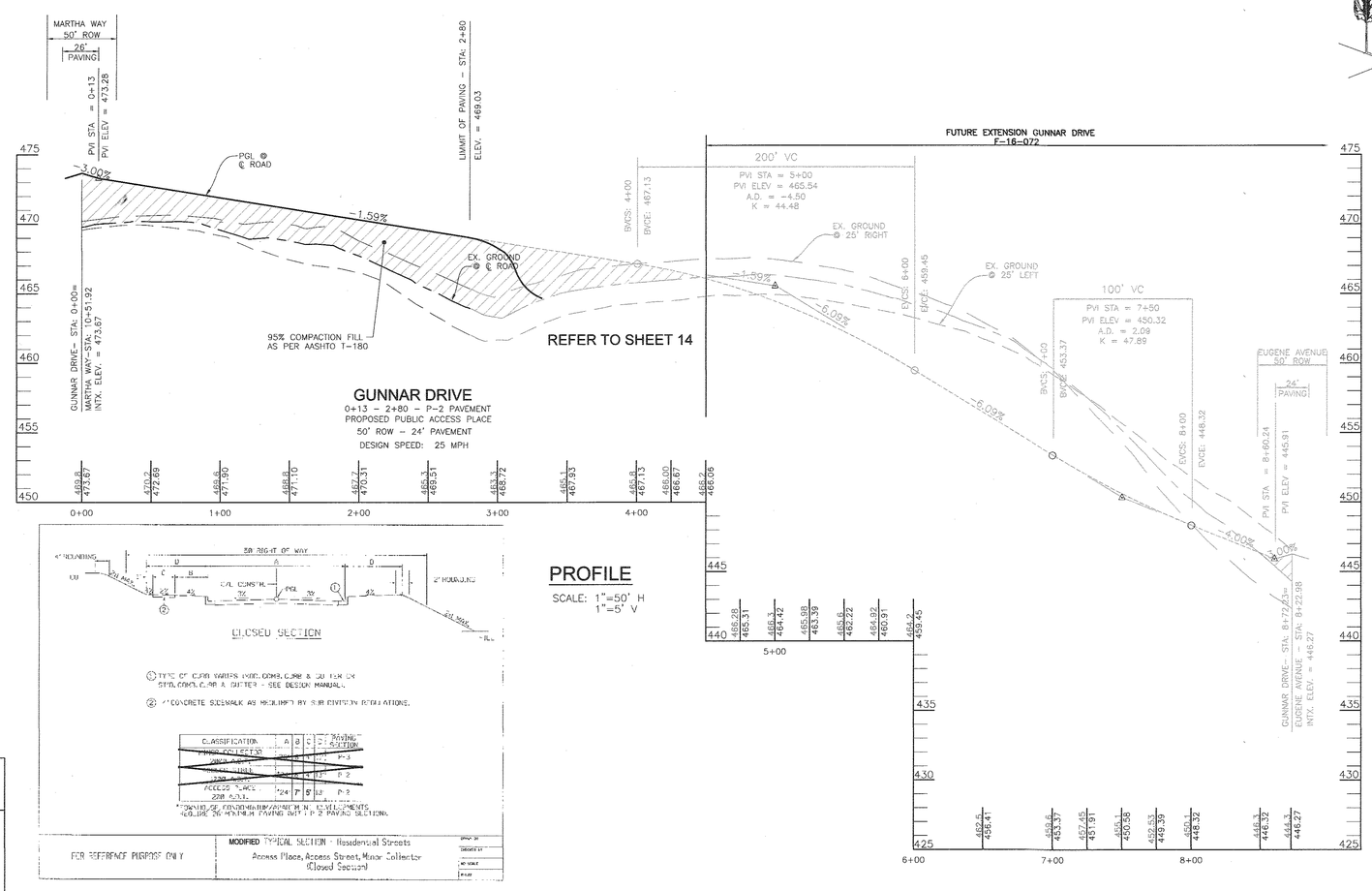
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193 EXPIRATION DATE: 09-27-2018

F-16-021



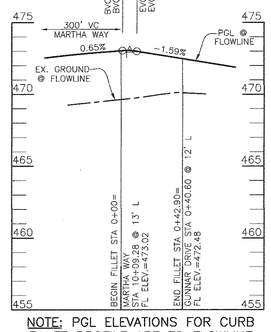
GUNNAR DRIVE 0+00 - 2+80
PLAN VIEW
SCALE: 1"=50'





GUNNAR DRIVE
0+13 - 2+80 - P-2 PAVEMENT
PROPOSED PUBLIC ACCESS PLACE
50' ROW - 24' PAVEMENT
DESIGN SPEED: 25 MPH

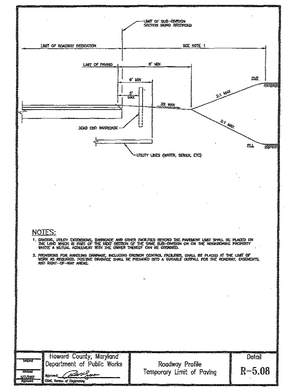
PROFILE
SCALE: 1"=50' H
1"=5' V

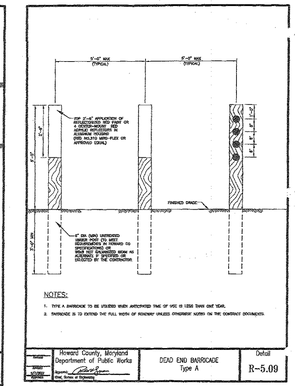


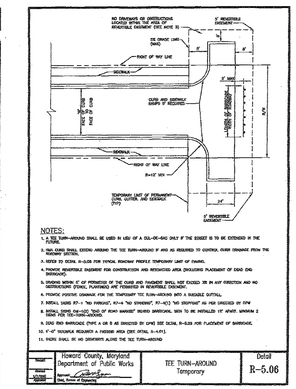
NOTE: PGL ELEVATIONS FOR CURB FILLET PROFILE ARE TO FLOWLINE

LEGEND:

- PROPOSED CURB AND GUTTER
- PROPOSED STORM DRAIN
- PROPOSED STORM DRAIN INLET
- PROPERTY LINE
- RIGHT-OF-WAY LINE
- PROPOSED SIDEWALK
- PROPOSED REINFORCED SIDEWALK
- PUBLIC STORMWATER MANAGEMENT, DRAINAGE & UTILITY EASEMENT
- PRIVATE STORMWATER MANAGEMENT, DRAINAGE & UTILITY EASEMENT
- PROPOSED STREET LIGHT
- PROPOSED STREET SIGN
- 10' TREE MAINTENANCE EASEMENT







NOTES:

1. REFER TO SHEETS 23 TO 25 FOR STORMDRAIN PROFILES.
2. REFER TO SHEET 25 FOR STORMDRAIN STRUCTURE SCHEDULE.
3. FOR STREET TREE LOCATIONS, REFER TO SHEETS 26-32.
4. ALL STREET TREES AND/OR SIGN SHALL BE LOCATED 5' MIN. FROM PROPOSED DRAINAGE, UTILITY STRUCTURE.
5. THERE SHOULD BE A MINIMUM OF 20' BETWEEN STREET LIGHTS AND STREET TREES.
6. IN THE DIRECTION FACING A TRAFFIC CONTROL SIGN:
   1) THERE SHALL BE A MINIMUM OF 40' BETWEEN THE SIGN FACE AND CLOSEST TREE FOR ALL STOP SIGNS.
   2) THERE SHALL BE A MINIMUM OF 35' BETWEEN THE SIGN FACE AND CLOSEST TREE FOR ALL SIGNS OTHER THAN A STOP SIGN.

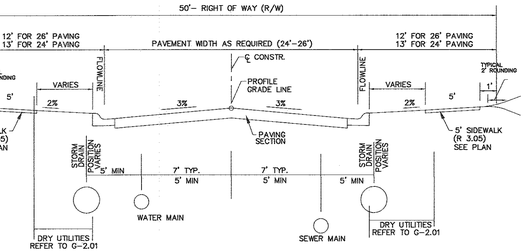
TRAFFIC CONTROL SIGN LOCATION CHART

ROAD NAME	STATION	OFFSET	TYPE
GUNNAR DRIVE	0+36.00	16.00' L	R1-1 STOP SIGN
GUNNAR DRIVE	0+84.00	16.00' R	R7-1 NO PARKING SIGN - "E"

FIELD APPROVE OR MARK ALL SIGN LOCATIONS PRIOR TO ANY SIGNS BEING BEING INSTALLED. CALL 410-313-5752.

STREET LIGHT LOCATIONS

ROAD NAME	STATION	OFFSET	FIXTURE/POLE TYPE
GUNNAR DRIVE	2+50.00	17.00' R	LED-100 WATT COLONIAL FIXTURE MOUNTED ON A 14' BLACK FIBERGLASS POLE
MARTHA WAY	10+71.30	22.00' L	



TYPICAL PUBLIC UTILITY LAYOUT
CLOSED SECTION - PUBLIC R/W
SECTION NOT TO SCALE
REFER TO G-2.01 FOR STANDARD

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

NO.	REVISION	DATE

FINAL ROAD CONSTRUCTION PLAN

ROAD PLAN AND PROFILE
GUNNAR DRIVE

MAPLE LAWN SOUTH PHASE 1 - SECTION 1

LOTS 1-64, NON-BUILDABLE BULK PARCEL 'A', NON-BUILDABLE BULK PARCEL 'B', AND OPEN SPACE LOTS 65-69

TAX MAP 46 - GRID 2 - PARCEL 113
5TH ELECTION DISTRICT
SPZ REF: ECP-14-093, WP-15-136, PB#415, SP-15-014

ZONED: R-ED-MXD-3
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

STATE OF MARYLAND — ROBERT HARRIS VOGEL — No. 16193 — REGISTERED PROFESSIONAL ENGINEER — 9/27/16
ROBERT H. VOGEL, PE No.16193

DESIGN BY:	RVE
DRAWN BY:	RVE
CHECKED BY:	RHV
DATE:	SEPTEMBER 2016
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: 09-27-2018

SHEET 6 OF 48

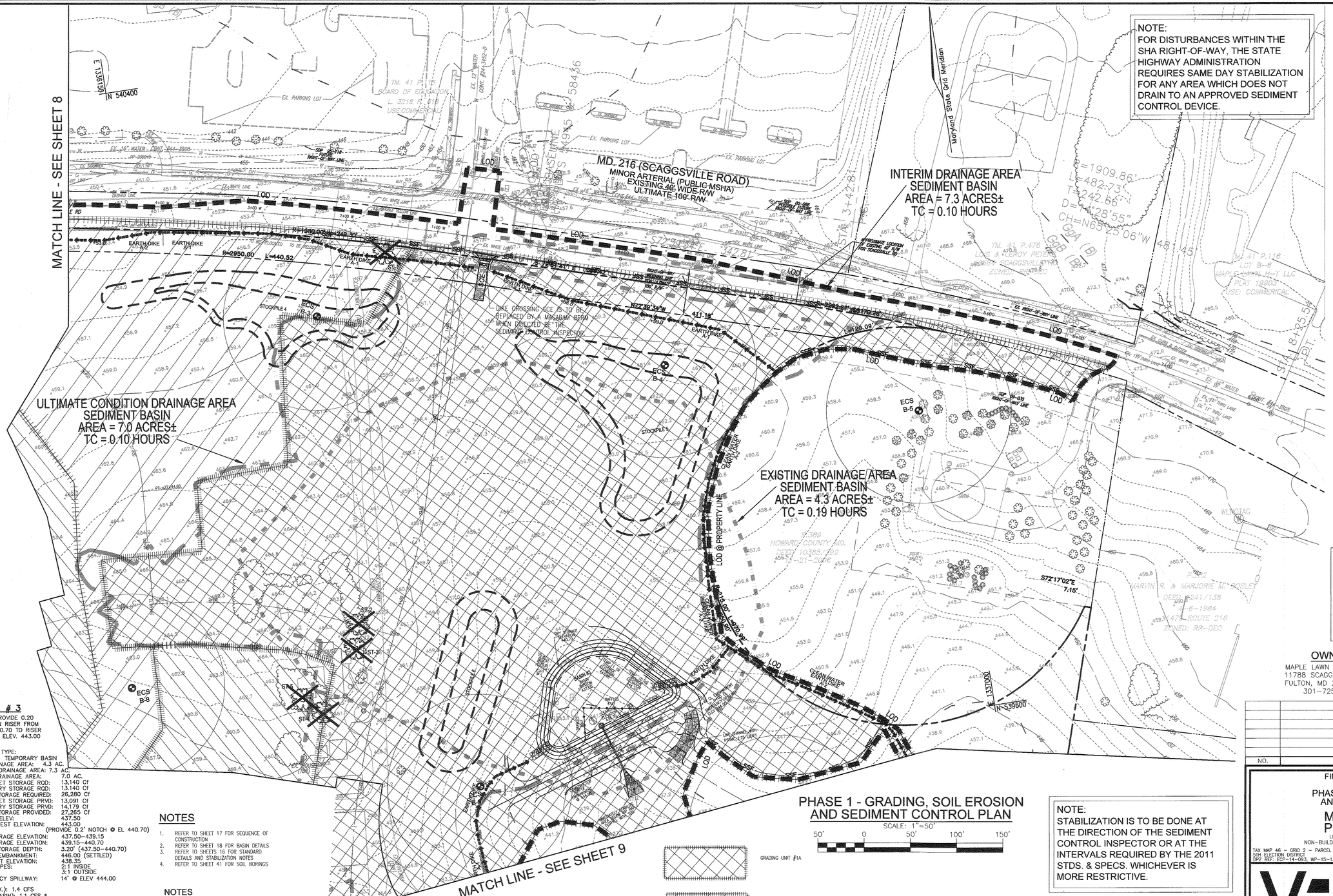
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS	DATE 10/25/2016

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION JP	DATE 11/3/11
CHIEF, DIVISION OF LAND DEVELOPMENT DJ	DATE 11-4-16

F-16-021



NOTE:
FOR DISTURBANCES WITHIN THE SHA RIGHT-OF-WAY, THE STATE HIGHWAY ADMINISTRATION REQUIRES SAME DAY STABILIZATION FOR ANY AREA WHICH DOES NOT DRAIN TO AN APPROVED SEDIMENT CONTROL DEVICE.

LEGEND:

- EXISTING CONTOUR
- PROPOSED CONTOUR
- PROPOSED SPOT ELEVATION
- EXISTING SPOT ELEVATION
- EXISTING CURB AND GUTTER
- PROPOSED 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 SPECIMEN TREE TO BE REMOVED
- EXISTING TREELINE
- EXISTING FENCE
- PROPERTY LINE
- RIGHT-OF-WAY LINE
- SOILS BOUNDARY
- SUPER SILT FENCE
- STABILIZED CONSTRUCTION ENTRANCE
- BAFFLE
- LIMIT OF DISTURBANCE
- EARTH DIKE / CLEAN WATER DIVERSION
- EXISTING DRAINAGE DIVIDE
- PROPOSED DRAINAGE DIVIDE
- GABION PROTECTION
- REMOVABLE PUMP STATION
- SOIL BORING

NOTE:
- SILT FENCE IS TO BE REPLACED WITH SUPER SILT FENCE AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR.
- SILT FENCE 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.

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

DEVELOPER
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2661 RIVA ROAD, SUITE 220
ANNAPOLIS, MARYLAND 21401
443-472-2846

NO.	REVISION	DATE

BASIN # 3

NOTE: PROVIDE 0.20 NOTCH IN RISER FROM ELEV. 440.70 TO RISER CREST @ ELEV. 443.00

FACILITY TYPE: TEMPORARY BASIN
EX. DRAINAGE AREA: 4.3 AC.
INTERIM DRAINAGE AREA: 7.3 AC.
PROP. DRAINAGE AREA: 7.0 AC.
TOTAL WET STORAGE RQD: 13,140 Cf
TOTAL DRY STORAGE RQD: 13,140 Cf
TOTAL STORAGE REQUIRED: 26,280 Cf
TOTAL WET STORAGE PRVD: 13,091 Cf
TOTAL DRY STORAGE PRVD: 14,179 Cf
TOTAL STORAGE PROVIDED: 27,265 Cf
BOTTOM ELEV: 437.50
RISER CREST ELEVATION: 443.00 (PROVIDE 0.2' NOTCH @ EL 440.70)
WET STORAGE ELEVATION: 437.50-439.15
DRY STORAGE ELEVATION: 439.15-440.70
TOTAL STORAGE DEPTH: 3.20' (437.50-440.70)
TOP OF EMBANKMENT: 446.00 (SETTLED)
CLEANOUT ELEVATION: 438.35
SIDE SLOPES: 2:1 INSIDE, 3:1 OUTSIDE
EMERGENCY SPILLWAY: 14' @ ELEV 444.00

Q1 (EX.): 1.4 CFS
Q1 (BASIN): 1.1 CFS *
*THROUGH DEWATER DEVICE ORIFICE & RISER NOTCH
1 YR TSWM WSEL= 441.88
10 YR TSWM WSEL= 444.20
BAFFLE DESIGN: SEE SHT 17

NOTES

1. REFER TO SHEET 17 FOR SEQUENCE OF CONSTRUCTION
2. REFER TO SHEET 18 FOR BASIN DETAILS
3. REFER TO SHEETS 16 FOR STANDARD DETAILS AND STABILIZATION NOTES
4. REFER TO SHEET 41 FOR SOIL BORINGS

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.

PHASE 1 - GRADING, SOIL EROSION AND SEDIMENT CONTROL PLAN

SCALE: 1"=50'
50' 0 50' 100' 150'

GRADING UNIT #1A
GRADING UNIT #1B
GRADING UNIT #2

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.

MAPPED SOILS TYPES - CLARKSVILLE SE MAP #23

SYMBOL	NAME / DESCRIPTION	GROUP	HYDRIC	HYDRIC INCLUSIONS	K FACTOR	PRIME FARMLAND	CLYDE SLOPE W/ EROSION POTENTIAL
BoA	BAILE SILT LOAM, 0 TO 3 PERCENT SLOPES	D	YES	YES	0.32	NO	YES
GgA	GLENELG LOAM, 0 TO 3 PERCENT SLOPES	B	NO	NO	0.20	YES	NO
GgB	GLENELG LOAM, 3 TO 8 PERCENT SLOPES	B	NO	NO	0.20	YES	NO
GmB	GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES	C	NO	NO	0.37	YES	YES
GnB	GLENVILLE-BAILE SILT LOAM, 0 TO 8 PERCENT SLOPES	C	PARTIALLY*	PARTIALLY*	0.37	NO	PARTIAL
MoC	MANOR LOAM, 8 TO 15 PERCENT SLOPES	B	NO	NO	0.24	YES	NO

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

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

*BAILE COMPONENT OF GnB, ERODIBILITY FACTOR IS 0.32 AND IS CONSIDERED HYDRIC

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 10/25/2016

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 11/3/16
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11-4-16

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/OR MDE."
OWNER/DEVELOPER SIGNATURE — DATE 9/26/16
Chris Murn
PRINTED NAME & TITLE

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."
DESIGNER'S SIGNATURE — DATE 9/26/16
ROBERT H. VOGEL — MD REGISTRATION NO. 16193
PRINTED NAME — (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.
HOWARD S.C.D. — DATE 10/20/16

FINAL ROAD CONSTRUCTION PLAN

PHASE 1 - GRADING, SOIL EROSION AND SEDIMENT CONTROL PLAN

MAPLE LAWN SOUTH PHASE 1 - SECTION 1

LOTS 1-64, NON-BUILDABLE BULK PARCEL 'A', NON-BUILDABLE BULK PARCEL 'B', AND OPEN SPACE LOTS 65-69

TAX MAP 46 - GRID 2 - PARCEL 113
5TH ELECTION DISTRICT
DPZ REF: ECP-14-093, WP-15-136, PB#415, SP-15-014
ZONED: R-ED-MXD-3
HOWARD COUNTY, MARYLAND

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ENGINEERS • SURVEYORS • PLANNERS
8407 MAIN STREET
ELLICOTT CITY, MD 21043
TEL: 410.461.7666
FAX: 410.461.8961

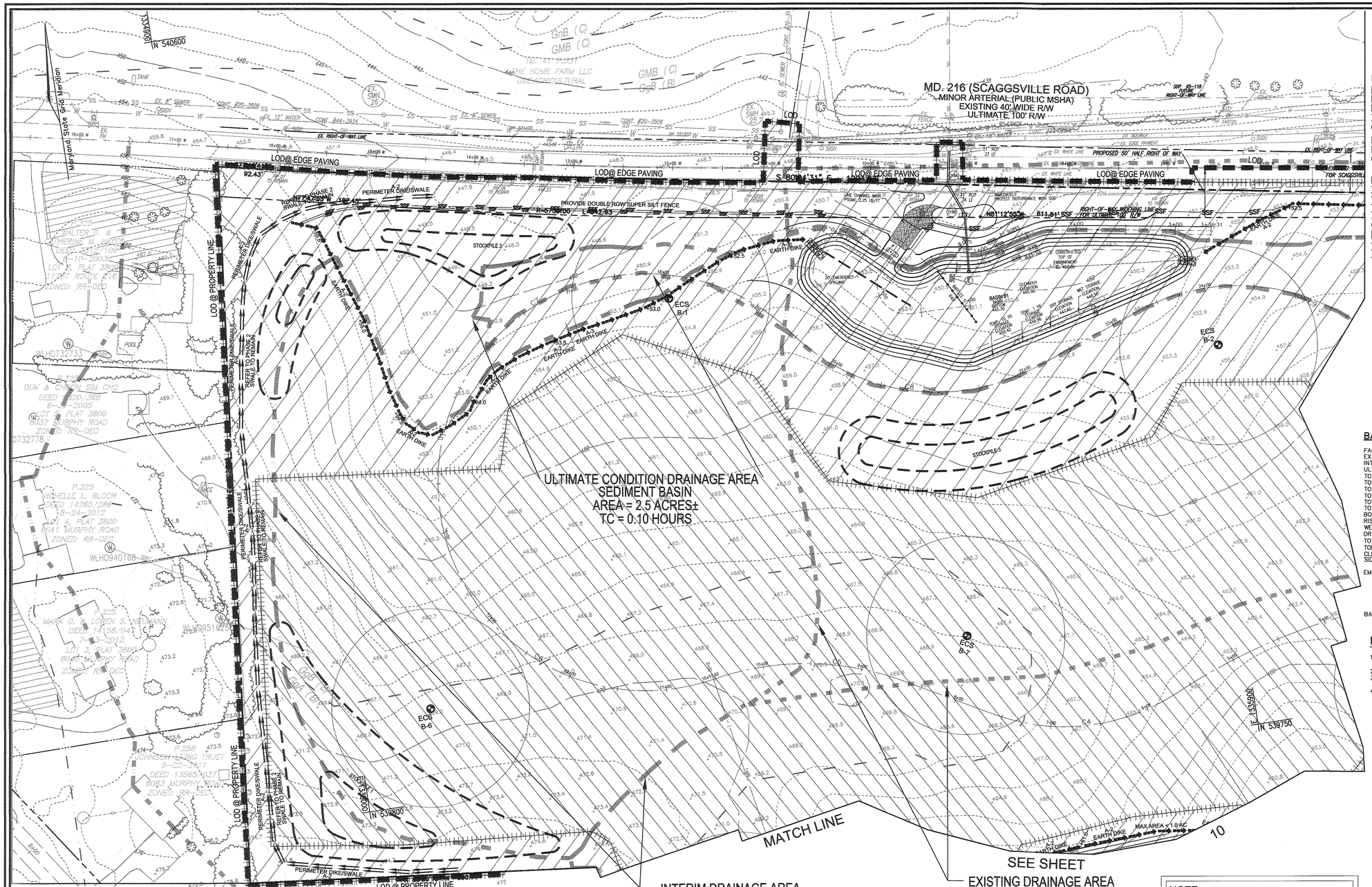
STATE OF MARYLAND — ROBERT HARRIS VOGEL — No. 16193 — REGISTERED PROFESSIONAL ENGINEER — 9/26/16
ROBERT H. VOGEL, PE No.16193

DESIGN BY: RVE
DRAWN BY: RVE
CHECKED BY: RHV
DATE: SEPTEMBER 2016
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: 09-27-2018

SHEET 7 OF 48

F-16-021



LEGEND:

- EXISTING CONTOUR
- PROPOSED CONTOUR
- PROPOSED SPOT ELEVATION
- EXISTING SPOT ELEVATION
- EXISTING CURB AND GUTTER
- PROPOSED 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 TREELINE
- EXISTING FENCE
- PROPERTY LINE
- RIGHT-OF-WAY LINE
- SOILS BOUNDARY
- SUPER SILT FENCE
- LIMIT OF DISTURBANCE
- EARTH DIKE
- EXISTING DRAINAGE DIVIDE
- PROPOSED DRAINAGE DIVIDE
- PERIMETER DIKE / SWALE
- GABION PROTECTION
- REMOVABLE PUMP STATION
- BAFFLE
- SOIL BORING
- GRADING UNIT #1A
- GRADING UNIT #1B
- GRADING UNIT #2

BASIN # 1

FACILITY TYPE:	TEMPORARY BASIN
EX. DRAINAGE AREA:	11.0 AC.
INTERIM DRAINAGE AREA:	14.5 AC.
ULTIMATE DRAINAGE AREA:	2.5 AC.
TOTAL WET STORAGE RQD:	26,100 Cf
TOTAL DRY STORAGE RQD:	26,100 Cf
TOTAL STORAGE REQUIRED:	52,200 Cf
TOTAL WET STORAGE PRVD:	26,849 Cf
TOTAL DRY STORAGE PRVD:	27,468 Cf
TOTAL STORAGE PROVIDED:	54,317 Cf
BOTTOM ELEV:	445.30
RISER CREST ELEVATION:	449.00
WET STORAGE ELEVATION:	445.30–446.50
DRY STORAGE ELEVATION:	446.50–447.60
TOTAL STORAGE DEPTH:	2.3' (447.60–445.30)
TOP OF EMBANKMENT:	452.00 (SETTLED)
CLEANOUT ELEVATION:	445.90
SIDE SLOPES:	2:1 INSIDE 3:1 OUTSIDE
EMERGENCY SPILLWAY:	20'

Q1 (EX.): 1.0 CFS
Q1 (BASIN): 1.0 CFS +
+THROUGH DEWATER DEVICE ORIFICE
1 YR TSWM WSEL= 448.96
10 YR TSWM WSEL= 450.46

BAFFLE DESIGN:
SEE SHT 17

NOTES

1. REFER TO SHEET 16 FOR SEQUENCE OF CONSTRUCTION
2. REFER TO SHEET 17 FOR BASIN / TRAP DETAILS
3. REFER TO SHEETS 16 FOR STANDARD DETAILS AND STABILIZATION NOTES
4. REFER TO SHEET 40 FOR SOIL BORINGS

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

NO.	REVISION	DATE

NOTE:
- SILT FENCE IS TO BE REPLACED WITH SUPER SILT FENCE AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR.
- SILT FENCE 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.

NOTE:
FOR DISTURBANCES WITHIN THE SHA RIGHT-OF-WAY, THE STATE HIGHWAY ADMINISTRATION REQUIRES SAME DAY STABILIZATION FOR ANY AREA WHICH DOES NOT DRAIN TO AN APPROVED SEDIMENT CONTROL DEVICE.

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.

PHASE 1 - GRADING, SOIL EROSION AND SEDIMENT CONTROL PLAN

SCALE: 1"=50'

50' 0 50' 100' 150'

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.

MAPPED SOILS TYPES - CLARKSVILLE SE MAP #23

SYMBOL	NAME / DESCRIPTION	GROUP	HYDRIC	HYDRIC INCLUSIONS	K FACTOR	PRIME FARMLAND	CTVR SLOPE W/ EROSION POTENTIAL
BaA	BALE SILT LOAM, 0 TO 3 PERCENT SLOPES	D	YES	YES	0.32	NO	YES
GgA	GLENELG LOAM, 0 TO 3 PERCENT SLOPES	B	NO	NO	0.20	YES	NO
GgB	GLENELG LOAM, 3 TO 8 PERCENT SLOPES	B	NO	NO	0.20	YES	NO
GmB	GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES	C	NO	NO	0.37	YES	YES
GnB	GLENVILLE-BALE SILT LOAM, 0 TO 8 PERCENT SLOPES	C	PARTIALLY*	PARTIALLY*	0.37	NO	PARTIAL
MoC	MANOR LOAM, 8 TO 15 PERCENT SLOPES	B	NO	NO	0.24	YES	NO

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

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

*BALE COMPONENT OF GnB, ERODIBILITY FACTOR IS 0.32 AND IS CONSIDERED HYDRIC

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 10/25/2016

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 11/3/16

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11-4-16

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/OR MDE."

OWNER/DEVELOPER SIGNATURE — DATE 9/26/16

Chris Murn
PRINTED NAME & TITLE

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."

DESIGNER'S SIGNATURE — DATE 9/26/16

ROBERT H. VOGEL
PRINTED NAME

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.

HOWARD S.C.D. — DATE 10/20/16

FINAL ROAD CONSTRUCTION PLAN

PHASE 1 - GRADING, SOIL EROSION AND SEDIMENT CONTROL PLAN

MAPLE LAWN SOUTH PHASE 1 - SECTION 1

LOTS 1–64, NON-BUILDABLE BULK PARCEL 'A', NON-BUILDABLE BULK PARCEL 'B', AND OPEN SPACE LOTS 65–69

TAX MAP 46 – GRID 2 – PARCEL 113
5TH ELECTION DISTRICT
DPZ REF: ECP-14-093, WP-15-136, PB#415, SP-15-014

ZONED: R-ED-MXD-3
HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL ENGINEERING, INC.
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STATE OF MARYLAND — ROBERT HARRIS VOGEL — NO. 16193 — REGISTERED PROFESSIONAL ENGINEER — 9/26/16

ROBERT H. VOGEL, PE No.16193

DESIGN BY:	RVE
DRAWN BY:	RVE
CHECKED BY:	RHV
DATE:	SEPTEMBER 2016
SCALE:	AS SHOWN
W.O. NO.:	11–34

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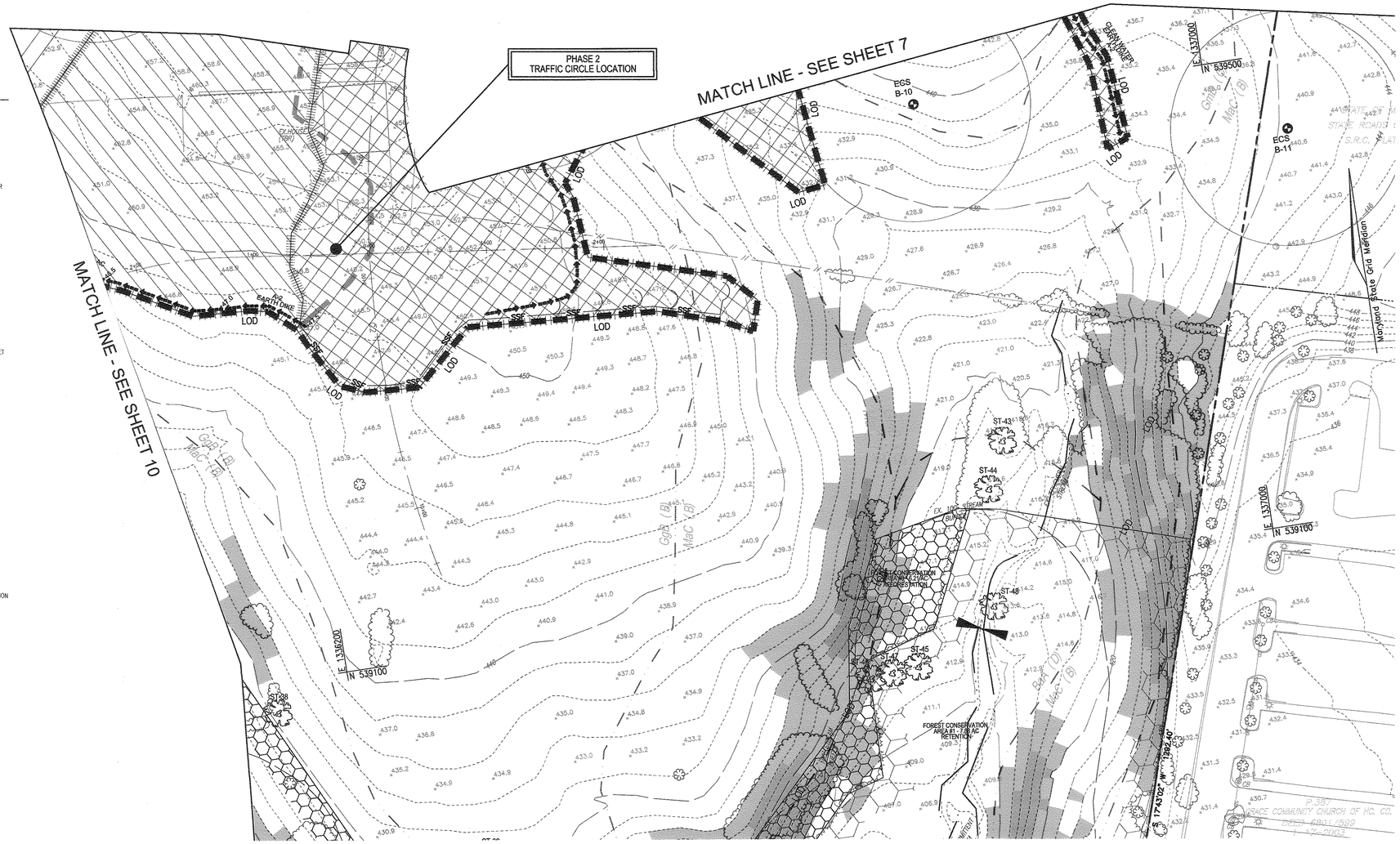
SHEET 8 OF 48

F-16-021

LEGEND:

- EXISTING CONTOUR
- PROPOSED CONTOUR
- PROPOSED SPOT ELEVATION
- EXISTING SPOT ELEVATION
- EXISTING CURB AND GUTTER
- PROPOSED 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 SPECIMEN TREE
- EXISTING TREELINE
- EXISTING FENCE
- PROPERTY LINE
- RIGHT-OF-WAY LINE
- SOILS BOUNDARY
- SUPER SILT FENCE
- LIMIT OF DISTURBANCE
- EARTH DIKE
- EXISTING DRAINAGE DIVIDE
- PROPOSED DRAINAGE DIVIDE
- PROPOSED FOREST RETORESTATION/ AFFORESTATION EASEMENT OUTSIDE OF LIMITS OF DISTURBANCE
- SOIL BORING
- GRADING UNIT #1A
- GRADING UNIT #1B
- GRADING UNIT #2



PHASE 1 - GRADING, SOIL EROSION AND SEDIMENT CONTROL PLAN

SCALE: 1"=50'

50' 0 50' 100' 150'

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:
- SILT FENCE IS TO BE REPLACED WITH SUPER SILT FENCE AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR.
- SILT FENCE 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.

NOTES

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2. IMBRICATE SF/SSF IN 35' SEGMENTS AS REQUIRED UPHILL BY 2' IN ELEVATION.
3. REFER TO SHEET 41 FOR SOIL BORINGS.

NOTES

1. REFER TO SHEET 17 FOR SEQUENCE OF CONSTRUCTION
2. REFER TO SHEET 18 FOR BASIN DETAILS
3. REFER TO SHEETS 16 FOR STANDARD DETAILS AND STABILIZATION NOTES

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 10/25/2016

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION JR — DATE 11/1/16

CHIEF, DIVISION OF LAND DEVELOPMENT DJ — DATE 11-4-16

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/OR MDE."

OWNER/DEVELOPER SIGNATURE — DATE 9/26/16

Chris Munn
PRINTED NAME & TITLE

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."

DESIGNER'S SIGNATURE — DATE 9/26/16

ROBERT H. VOGEL
PRINTED NAME

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.

HOWARD S.C.D. — DATE 10/24/16

MAPPED SOILS TYPES - CLARKSVILLE SE MAP #23

SYMBOL	NAME / DESCRIPTION	GROUP	HYDRIC	HYDRIC INCLUSIONS	K FACTOR	PRIME FARMLAND	CLOSE SLOPE W/ EROSION POTENTIAL
BaA	BAILE SILT LOAM, 0 TO 3 PERCENT SLOPES	D	YES	YES	0.32	NO	YES
GgA	GLENELG LOAM, 0 TO 3 PERCENT SLOPES	B	NO	NO	0.20	YES	NO
GgB	GLENELG LOAM, 3 TO 8 PERCENT SLOPES	B	NO	NO	0.20	YES	NO
GmB	GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES	C	NO	NO	0.37	YES	YES
GnB	GLENVILLE-BAILE SILT LOAM, 0 TO 8 PERCENT SLOPES	C	PARTIALLY*	PARTIALLY*	0.37	NO	PARTIAL
MoC	MANOR LOAM, 8 TO 15 PERCENT SLOPES	B	NO	NO	0.24	YES	NO

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

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

*BAILE COMPONENT OF GnB, ERODIBILITY FACTOR IS 0.32 AND IS CONSIDERED HYDRIC

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

NO.	REVISION	DATE

FINAL ROAD CONSTRUCTION PLAN

PHASE 1 - GRADING, SOIL EROSION AND SEDIMENT CONTROL PLAN

MAPLE LAWN SOUTH PHASE 1 - SECTION 1

LOTS 1-64, NON-BUILDABLE BULK PARCEL 'A', NON-BUILDABLE BULK PARCEL 'B', AND OPEN SPACE LOTS 65-69

TAX MAP 46 - GRID 2 - PARCEL 113
5TH ELECTION DISTRICT
SPZ REF: ECP-14-093, WP-15-136, PB#415, SP-15-014

ZONED: R-ED-MXD-3
HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL ENGINEERING, INC.
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ELLICOTT CITY, MD 21043
TEL: 410.461.7666
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STATE OF MARYLAND ROBERT HARRIS VOGEL No. 16193 REGISTERED PROFESSIONAL ENGINEER 9/26/16

ROBERT H. VOGEL, PE No.16193

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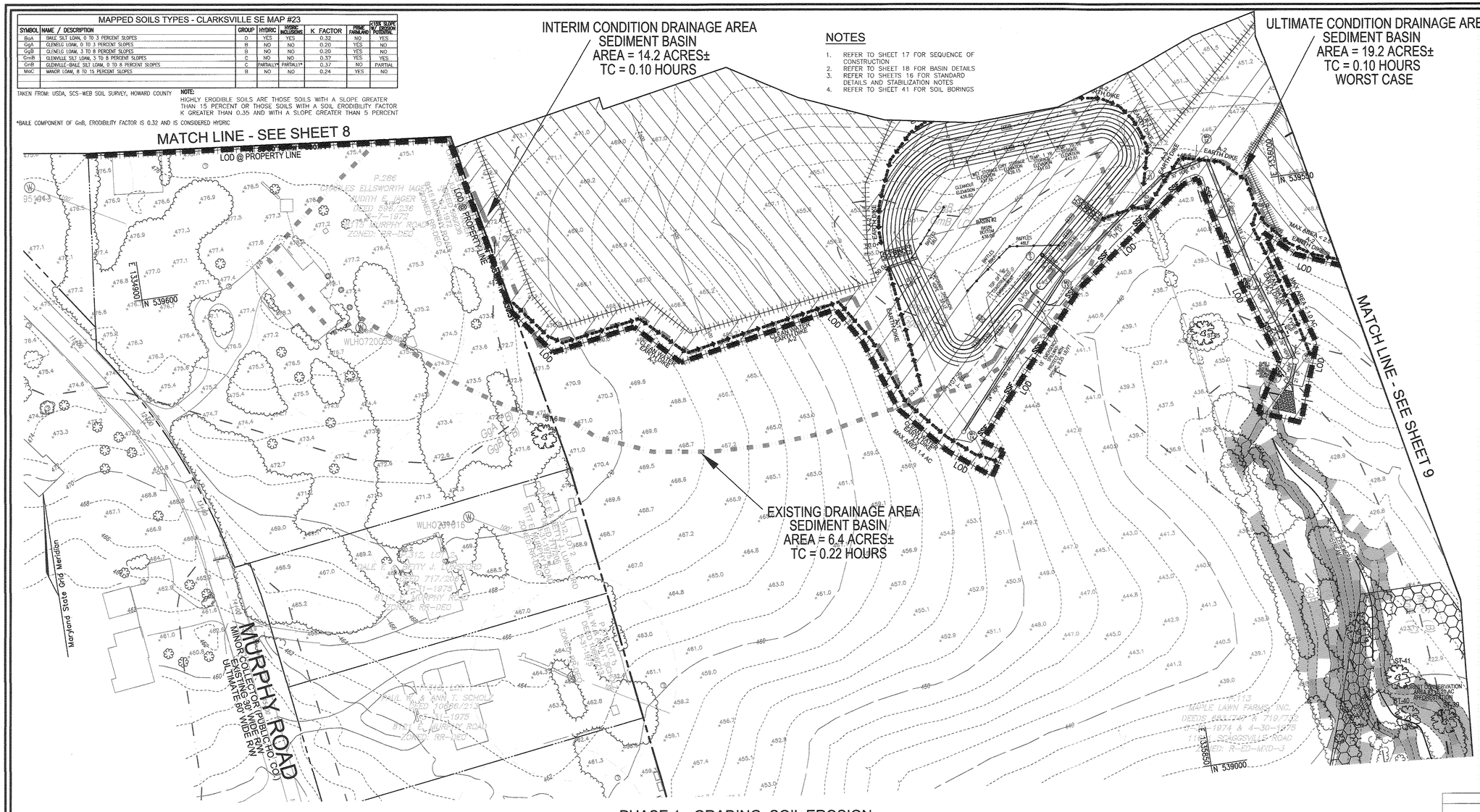
F-16-021

MAPPED SOILS TYPES - CLARKSVILLE SE MAP #23							
SYMBOL	NAME / DESCRIPTION	GROUP	HYDRIC	HYDRIC INCLUSIONS	K FACTOR	PRIME FARMLAND	CLASS SLOPE W/ EROSION POTENTIAL
BaA	BAILE SILT LOAM, 0 TO 3 PERCENT SLOPES	D	YES	YES	0.32	NO	YES
GgA	GLENELG LOAM, 0 TO 3 PERCENT SLOPES	B	NO	NO	0.20	YES	NO
GgB	GLENELG LOAM, 3 TO 8 PERCENT SLOPES	B	NO	NO	0.20	YES	NO
GmB	GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES	C	NO	NO	0.37	YES	YES
GnB	GLENVILLE-BAILE SILT LOAM, 0 TO 8 PERCENT SLOPES	C	PARTIALLY*	PARTIALLY*	0.37	NO	PARTIAL
MoC	MANOR LOAM, 8 TO 15 PERCENT SLOPES	B	NO	NO	0.24	YES	NO

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

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

*BAILE COMPONENT OF GnB, ERODIBILITY FACTOR IS 0.32 AND IS CONSIDERED HYDRIC



NOTES

1. REFER TO SHEET 17 FOR SEQUENCE OF CONSTRUCTION
2. REFER TO SHEET 18 FOR BASIN DETAILS
3. REFER TO SHEETS 16 FOR STANDARD DETAILS AND STABILIZATION NOTES
4. REFER TO SHEET 41 FOR SOIL BORINGS

LEGEND:

- EXISTING CONTOUR
- PROPOSED CONTOUR
- PROPOSED SPOT ELEVATION
- EXISTING SPOT ELEVATION
- EXISTING CURB AND GUTTER
- PROPOSED CURB AND GUTTER
- EXISTING UTILITY POLE
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OWNER

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11788 SCAGGSVILLE ROAD
FULTON, MD 20759-0562
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DEVELOPER

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

PHASE 1 - GRADING, SOIL EROSION AND SEDIMENT CONTROL PLAN

SCALE: 1"=50'

50' 0 50' 100' 150'

BASIN # 2

FACILITY TYPE:	TEMPORARY BASIN
EX. DRAINAGE AREA:	6.4 AC.
INTERIM DRAINAGE AREA:	14.2 AC.
PROP. DRAINAGE AREA:	19.2 AC.
TOTAL WET STORAGE RQD:	34,560 Cf
TOTAL DRY STORAGE RQD:	34,560 Cf
TOTAL STORAGE REQUIRED:	69,120 Cf
TOTAL WET STORAGE PRVD:	35,308 Cf
TOTAL DRY STORAGE PRVD:	35,049 Cf
TOTAL STORAGE PROVIDED:	70,357 Cf
BOTTOM ELEV:	436.00
RISER CREST ELEVATION:	441.00
WET STORAGE ELEVATION:	436.00-437.60
DRY STORAGE ELEVATION:	437.60-439.05
TOTAL STORAGE DEPTH:	3.15' (439.15-436.00)
TOP OF EMBANKMENT:	444.00 (SETTLED)
CLEANOUT ELEVATION:	436.82
SIDE SLOPES:	2:1 INSIDE 3:1 OUTSIDE
EMERGENCY SPILLWAY:	18'

Q1 (EX.): 1.0 CFS
Q1 (BASIN): 1.0 CFS *
*THROUGH DEWATER DEVICE ORIFICE AND RISER NOTCH
1 YR TSWM WSEL= 441.03
10 YR TSWM WSEL= 442.79

BAFFLE DESIGN:
SEE SHT 17

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.

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:
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- SILT FENCE 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.

NO.	REVISION	DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 10/28/2016

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 11/2/16

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11-4-16

OWNER/DEVELOPER CERTIFICATION:
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OWNER/DEVELOPER SIGNATURE — DATE 9/26/16
Chris Murvin
PRINTED NAME & TITLE

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."

DESIGNER'S SIGNATURE — DATE 9/26/16
ROBERT H. VOGEL — MD REGISTRATION NO. 16193
PRINTED NAME — (P.E., R.L.S., OR R.L.A. (circle one))

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HOWARD S.C.D. — DATE 10/20/16

FINAL ROAD CONSTRUCTION PLAN

PHASE 1 - GRADING, SOIL EROSION AND SEDIMENT CONTROL PLAN

MAPLE LAWN SOUTH PHASE 1 - SECTION 1

LOTS 1-64, NON-BUILDABLE BULK PARCEL 'A', NON-BUILDABLE BULK PARCEL 'B', AND OPEN SPACE LOTS 65-69

TAX MAP 46 - GRID 2 - PARCEL 113
5TH ELECTION DISTRICT
DPZ REF: ECP-14-093, WP-15-136, PB#415, SP-15-014

ZONED: R-ED-MXD-3
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ROBERT H. VOGEL, PE No.16193

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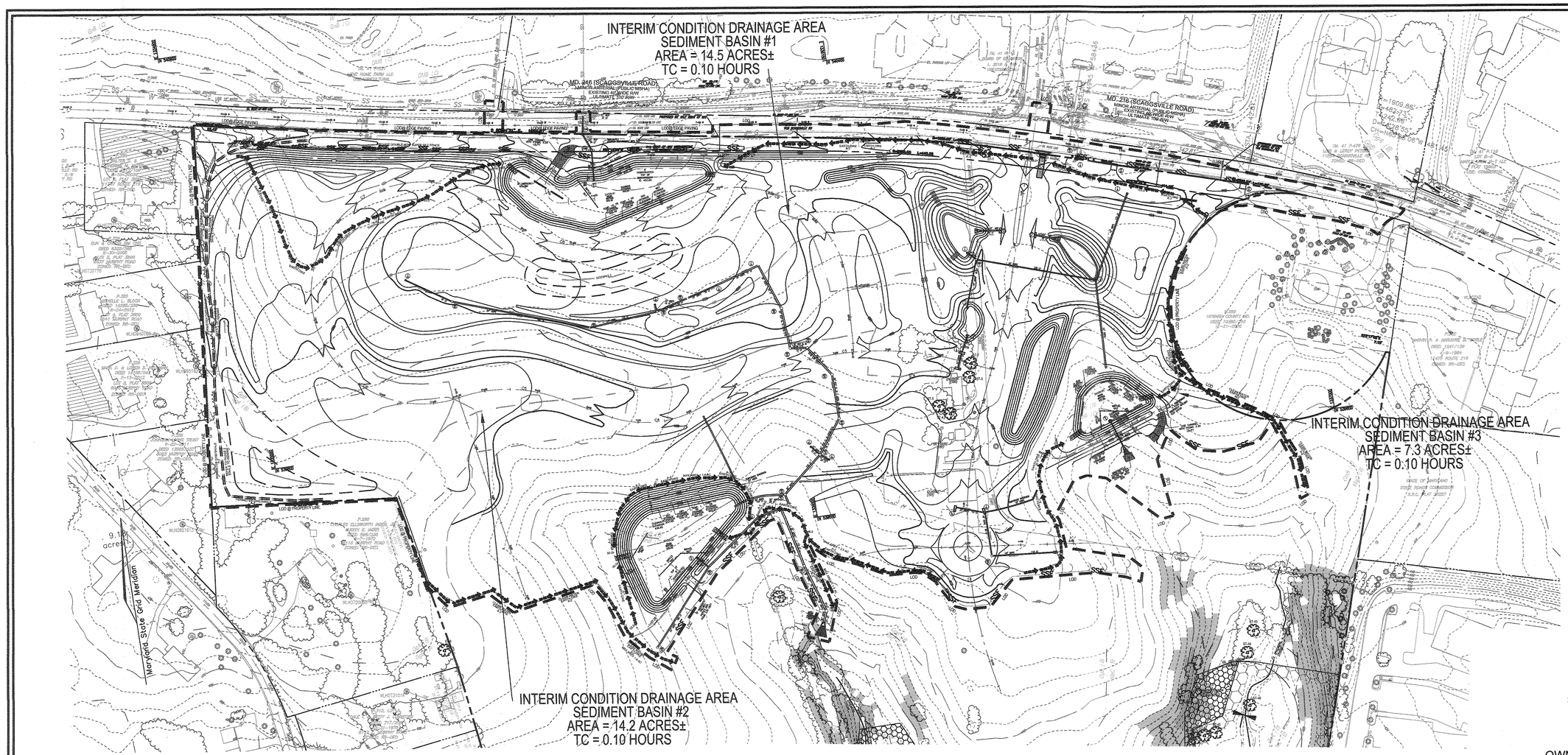
CHECKED BY:	RHV
DATE:	SEPTEMBER 2016
SCALE:	AS SHOWN
W.O. NO.:	11-34

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: 09-27-2018

F-16-021



LEGEND:

- EXISTING CONTOUR
- PROPOSED CONTOUR
- PROPOSED SPOT ELEVATION
- EXISTING SPOT ELEVATION
- EXISTING CURB AND GUTTER
- PROPOSED 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 SPECIMEN TREE TO BE REMOVED
- EXISTING TREELINE
- EXISTING FENCE
- PROPERTY LINE
- RIGHT-OF-WAY LINE
- SOILS BOUNDARY
- SUPER SILT FENCE
- STABILIZED CONSTRUCTION ENTRANCE
- LIMIT OF DISTURBANCE
- EARTH DIKE / CLEAN WATER DIVERSION
- INTERIM DRAINAGE DIVIDE

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.

THERE ARE 3 AREAS OF STUDY; 36 ACRES+/- DISTURBED.

THE INTERIM CONDITION IS AS DESCRIBED IN THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL AS THE "IN-BETWEEN". IT ACCOUNTS FOR THE ADDITIONAL AREA DRAINING FROM THE EXISTING DRAINAGE DIVIDES TOWARD THE PERIMETER EARTH DIKES/CONTROLS WHICH EXPAND THE EXISTING CONDITIONS TO CAPTURE THE DISTURBED AREA. THIS PORTION OF THE PROJECT IS A DYNAMIC DRAINAGE AREA WHICH MAY EXPAND OR CONTRACT AND EVENTUALLY TRANSITIONS TO THE ULTIMATE AREA VIA THE STORM DRAIN AND PROPOSED ROAD GRADES.

-BASIN 1 - THIS BASIN IS LOCATED IN A NATURAL "DRAW" TOWARD MD 216. THE EXISTING CONDITION MODELS THE AREA WHICH DRAINS TO THE OUTFALL POINT. THE ULTIMATE CONDITION MODELS THAT AFTER STORM DRAIN AND PROPOSED GRADING CREATES THE GRADE BREAKS AND DRAINAGE AREAS TOWARD THE OUTFALL POINT.

THE NATURAL DIVIDE MAKES THE EXISTING CONDITIONS THE DRIVING DESIGN PARAMETER. FOR THE INTERIM CONDITION, THE PHASE 1 WORK ASSOCIATED WITH BASIN #3 IMMEDIATELY REDUCES THE NATURAL AREA TO THE OUTFALL. THE INSTALLATION OF THE EARTH DIKE ALONG NATURAL GROUND, FEEDING THE BASIN FROM THE WEST, ALSO DECREASES THE AREA TO THE OUTFALL. IN THE INTERIM CONDITION, THE MARTHA WAY RIGHT OF WAY IS PLACED TO SUBGRADE, AND THE STORM DRAIN IN THE CENTER OF THE MARTHA WAY "CIRCLE" IS BEING INSTALLED. THIS STORM DRAIN CONVEYS RUNOFF TOWARD BASIN #2 FURTHER DECREASING THE INTERIM DRAINAGE AREA TO BASIN #1. AS WORK PROGRESSES, THE AREA DRAINING TOWARD BASIN #1 CONTINUALLY DECREASES THE INTERIM CONDITION TO THE ULTIMATE AREA OF 2.5 ACRES. THIS ULTIMATE AREA IS MOSTLY STABILIZED BERM SLOPES AND THE NORTHERN ½ RIGHT-OF-WAY OF MARTHA WAY. 10+50 - 28+00.

-BASIN 2 - THIS BASIN IS LOCATED IN A NATURAL "DRAW", JUST SOUTH OF THE PROPERTIES NATURAL DRAINAGE DIVIDE. THE EXISTING CONDITION MODELS THE AREA WHICH DRAINS TO THE OUTFALL POINT. THE ULTIMATE CONDITION MODELS THAT AFTER STORM DRAIN AND PROPOSED GRADE CREATE THE GRADE BREAKS AND DRAINAGE

AREAS TOWARD THE OUTFALL POINT. THIS INCLUDE THE LOW AREA AT THE CENTER OF MARTHA WAY "CIRCLE" WHICH INITIALLY DRAINS TOWARD BASIN #1.

FROM THE NATURAL DRAINAGE DIVIDE SOUTH TO THE BASIN, THE INITIAL INTERIM CONDITION EXPANDS THE EXISTING DRAINAGE AREA TO THE LIMITS OF THE CONTRIBUTING TEMPORARY EARTH DIKES. PER THE SEQUENCE OF CONSTRUCTION, THE STORM DRAIN WHICH HEADS INTO THE MARTHA WAY "CIRCLE" IS TO BE INSTALLED WHICH DIVERTS BASIN #1 AREA TOWARD BASIN #2.

AS THE BASIN #1 AREA DECREASES AND STORM DRAINS AND GRADING IN THE MARTHA WAY "CIRCLE" ARE SET, THE INTERIM CONDITION QUICKLY CONVERTS TO THE ULTIMATE CONDITION; DRAINING THE "CIRCLE" TOWARD BAIN #2.

-BASIN 3 - THIS BASIN IS LOCATED IN A NATURAL "DRAW". THE EXISTING CONDITION MODELS THE AREA WHICH DRAINS TO THE OUTFALL POINT AS THE SITE LAYS TODAY. THE ULTIMATE CONDITION MODELS THAT AFTER STORM DRAINS AND PROPOSED ROAD GRADES CREATE THE GRADE BREAKS AND INDIVIDUAL DRAINAGE AREAS WHICH DRAIN TOWARD THE OUTFALL POINT.

IN THE CASE OF BASIN #3, THE SEQUENCE OF CONSTRUCTION REQUIRES THAT BASIN #3 BE CONSTRUCTED FIRST AS "PHASE 1". THIS WILL CAPTURE RUNOFF FROM THE EXISTING DRAINAGE AREA AND AS EXPANDED OR REDUCED BY THE INSTALLATION OF THE PERIMETER CONTROLS (EARTH DIKE OR CLEAN WATER DIVERSION DIKE) AS THE ENTRANCE ROAD IS PROPOSED TO FALL INTO THE PROJECT SITE, THE REQUIRED DIFFERENCE IN PRE & POST GRADING EXPANDS ONLY SLIGHTLY OVER THE EXISTING DRAINAGE AREA. THE ADDITION OF A DIVERSION PIPE FROM INLET 10 AT THE TRAFFIC CIRCLE TO BASIN #3 HAS BEEN ADDED. THIS INITIAL AREA OF THE PROJECT SHALL BE PLACED TO GRADE, STABILIZED AND PLACED TO BASE PAVEMENT IN ACCORDANCE WITH THE SEQUENCE OF CONSTRUCTION.

PER THE "GRADING UNIT" POLICY, WHERE NO MORE THAN 30 ACRES CUMULATIVELY MAY BE DISTURBED AT A GIVEN TIME (SECTION A.3 OF THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL), THE STABILIZATION OF THIS "BASIN #3" AREA REDUCES THE TOTAL DISTURBED AREA TO LESS THAN 30 ACRES. ANY EXCESS CUT MATERIAL CAN BE PLACED IN THE FILL AREAS OF THE BASIN #1 DRAINAGE AREA. THE CHANGE IN SEDIMENT CONTROLS, AS DISCUSSED IN SECTION A.4 OF THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL IS THE INSTALLATION OF THE DIVERSION PIPE.

INTERIM - GRADING, SOIL EROSION AND SEDIMENT CONTROL PLAN

SCALE: 1"=100'

100' 0 100' 200' 300'

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

NO.	REVISION	DATE

FINAL ROAD CONSTRUCTION PLAN

INTERIM - GRADING, SOIL EROSION AND SEDIMENT CONTROL PLAN

MAPLE LAWN SOUTH PHASE 1 - SECTION 1

LOTS 1-64, NON-BUILDABLE BULK PARCEL 'A', NON-BUILDABLE BULK PARCEL 'B', AND OPEN SPACE LOTS 65-69

TAX MAP 46 - GRID 2 - PARCEL 113
5TH ELECTION DISTRICT
DPZ REF: ECP-14-093, WP-15-136, PB#415, SP-15-014

ZONED: R-ED-MXD-3
HOWARD COUNTY, MARYLAND

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TEL: 410.461.7666
FAX: 410.461.5961

STATE OF MARYLAND ROBERT HARRIS VOGEL No. 16193 PROFESSIONAL ENGINEER 9/26/16

ROBERT H. VOGEL, PE. No.16193

DESIGN BY:	RVE
DRAWN BY:	RVE
CHECKED BY:	RHV
DATE:	SEPTEMBER 2016
SCALE:	AS SHOWN
W.O. NO.:	11-34

PROFESSIONAL CERTIFICATE

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EXPIRATION DATE: 09-27-2018

SHEET 11 OF 48

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 10/25/2016

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 11/3/16

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11-4-16

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/OR MDE."

OWNER/DEVELOPER SIGNATURE — DATE 9/20/16
PRINTED NAME & TITLE: Chris Muvin

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."

DESIGNER'S SIGNATURE — DATE 9/26/16
ROBERT H. VOGEL — MD REGISTRATION NO. 16193
PRINTED NAME — (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.

HOWARD S.C.D. — DATE 10/20/16

NOTES

1. REFER TO SHEET 17 FOR SEQUENCE OF CONSTRUCTION
2. REFER TO SHEET 18 FOR BASIN / TRAP DETAILS
3. REFER TO SHEETS 16 FOR STANDARD DETAILS AND STABILIZATION NOTES
4. REFER TO SHEET 41 FOR SOIL BORINGS

MAPPED SOILS TYPES - CLARKSVILLE SE MAP #23

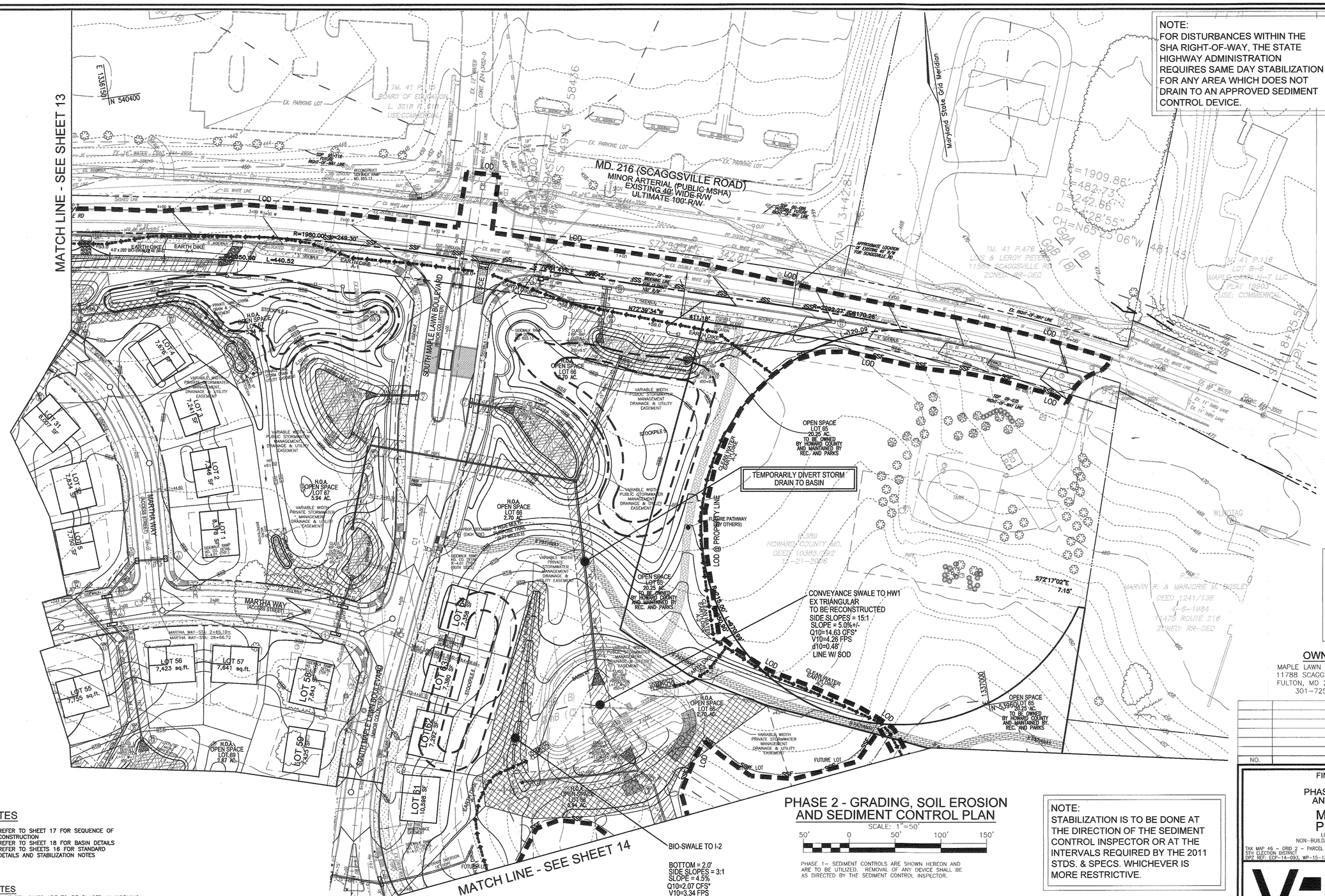
SYMBOL	NAME / DESCRIPTION	GROUP	HYDRIC	HYDRIC INCLUSIONS	K FACTOR	PRIME FARMLAND	CLOSE SLOPE W/ EROSION POTENTIAL
BoA	BALE SILT LOAM, 0 TO 3 PERCENT SLOPES	D	YES	YES	0.32	NO	YES
GgA	GLENELG LOAM, 0 TO 3 PERCENT SLOPES	B	NO	NO	0.20	YES	NO
GgB	GLENELG LOAM, 3 TO 8 PERCENT SLOPES	B	NO	NO	0.20	YES	NO
GmB	GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES	C	NO	NO	0.37	YES	YES
GnB	GLENVILLE-BALE SILT LOAM, 0 TO 8 PERCENT SLOPES	C	PARTIALLY*	PARTIALLY*	0.37	NO	PARTIAL
MoC	MANOR LOAM, 8 TO 15 PERCENT SLOPES	B	NO	NO	0.24	YES	NO

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

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

*BALE COMPONENT OF GnB, ERODIBILITY FACTOR IS 0.32 AND IS CONSIDERED HYDRIC

F-16-021



NOTE:
FOR DISTURBANCES WITHIN THE SHA RIGHT-OF-WAY, THE STATE HIGHWAY ADMINISTRATION REQUIRES SAME DAY STABILIZATION FOR ANY AREA WHICH DOES NOT DRAIN TO AN APPROVED SEDIMENT CONTROL DEVICE.

LEGEND:

- EXISTING CONTOUR
- PROPOSED CONTOUR
- PROPOSED SPOT ELEVATION
- EXISTING SPOT ELEVATION
- EXISTING CURB AND GUTTER
- PROPOSED CURB AND GUTTER
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- EXISTING FENCE
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- STABILIZED CONSTRUCTION ENTRANCE
- LIMIT OF DISTURBANCE
- EARTH DIKE
- CURB INLET PROTECTION
- PUBLIC STORMWATER MANAGEMENT, DRAINAGE & UTILITY EASEMENT
- PRIVATE STORMWATER MANAGEMENT, DRAINAGE & UTILITY EASEMENT

NOTE:
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OWNER
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FULTON, MD 20759-0562
301-725-2074

DEVELOPER
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2661 RIVA ROAD, SUITE 220
ANNAPOLIS, MARYLAND 21401
443-472-2846

NO.	REVISION	DATE

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PHASE 2 - GRADING, SOIL EROSION AND SEDIMENT CONTROL PLAN

SCALE: 1"=50'

50' 0 50' 100' 150'

PHASE 1– SEDIMENT CONTROLS ARE SHOWN HEREON AND ARE TO BE UTILIZED. REMOVAL OF ANY DEVICE SHALL BE AS DIRECTED BY THE SEDIMENT CONTROL INSPECTOR.

NOTE:
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MAPPED SOILS TYPES - CLARKSVILLE SE MAP #23

SYMBOL	NAME / DESCRIPTION	GROUP	HYDRIC	HYDRIC INCLUSIONS	K FACTOR	PRIME FARMLAND	SLOPE GREATER THAN 15 PERCENT
BaA	BALE SILT LOAM, 0 TO 3 PERCENT SLOPES	D	YES	YES	0.32	NO	YES
GgA	GLENELG LOAM, 0 TO 3 PERCENT SLOPES	B	NO	NO	0.20	YES	NO
GgB	GLENELG LOAM, 3 TO 8 PERCENT SLOPES	B	NO	NO	0.20	YES	NO
GmB	GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES	C	NO	NO	0.37	YES	YES
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FINAL ROAD CONSTRUCTION PLAN

PHASE 2 - GRADING, SOIL EROSION AND SEDIMENT CONTROL PLAN

MAPLE LAWN SOUTH PHASE 1 - SECTION 1

LOTS 1-64, NON-BUILDABLE BULK PARCEL 'A', NON-BUILDABLE BULK PARCEL 'B', AND OPEN SPACE LOTS 65-69

TAX MAP 46 - GRID 2 - PARCEL 113
5TH ELECTION DISTRICT
DPZ REF: ECP-14-093, WP-15-136, PB#415, SP-15-014

ZONED: R-ED-MXD-3
HOWARD COUNTY, MARYLAND

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APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 10/25/2016

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION JR — DATE 11/3/16

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11-4-16

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Chris Mum
PRINTED NAME & TITLE

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ROBERT H. VOGEL
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HOWARD S.C.D. — DATE 10/20/16

STATE OF MARYLAND ROBERT HARRIS VOGEL No. 16193 REGISTERED PROFESSIONAL ENGINEER

ROBERT H. VOGEL, PE No.16193

DESIGN BY:	RVE
DRAWN BY:	RVE
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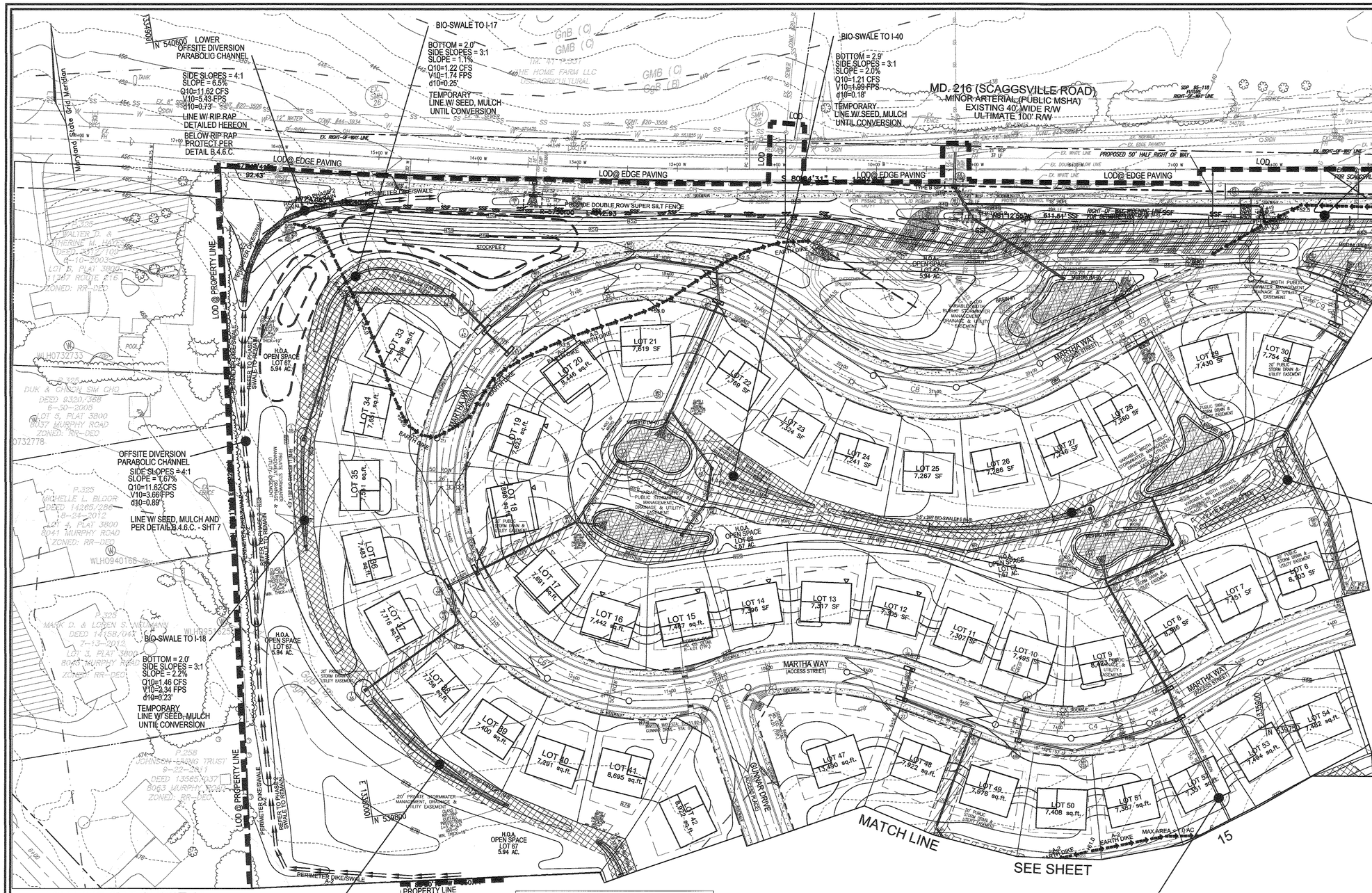
SHEET 12 OF 48

F-16-021



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- PERIMETER DIKE / SWALE
- STANDARD INLET PROTECTION
- PUBLIC STORMWATER MANAGEMENT, DRAINAGE & UTILITY EASEMENT
- PRIVATE STORMWATER MANAGEMENT, DRAINAGE & UTILITY EASEMENT
- PUBLIC SEWER & UTILITY EASEMENT

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NOTES

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PHASE 2 - GRADING, SOIL EROSION AND SEDIMENT CONTROL PLAN

SCALE: 1"=50'

50' 0 50' 100' 150'

PHASE 1– SEDIMENT CONTROLS ARE SHOWN HEREON AND ARE TO BE UTILIZED. REMOVAL OF ANY DEVICE SHALL BE AS DIRECTED BY THE SEDIMENT CONTROL INSPECTOR.

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FINAL ROAD CONSTRUCTION PLAN

PHASE 2 - GRADING, SOIL EROSION AND SEDIMENT CONTROL PLAN

MAPLE LAWN SOUTH PHASE 1 - SECTION 1

LOTS 1-64, NON-BUILDABLE BULK PARCEL 'A', NON-BUILDABLE BULK PARCEL 'B', AND OPEN SPACE LOTS 65-69

TAX MAP 46 - GRID 2 - PARCEL 113
5TH ELECTION DISTRICT
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OWNER/DEVELOPER SIGNATURE — DATE 9/26/16
Chris Murn
PRINTED NAME & TITLE

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HOWARD S.C.D. — DATE 10/20/16

MAPPED SOILS TYPES - CLARKSVILLE SE MAP #23

SYMBOL	NAME / DESCRIPTION	GROUP	HYDRIC	HYDRIC INCLUSIONS	K FACTOR	PRIME FARMLAND	>15% SLOPE W/ EROSION POTENTIAL
BeA	BAILE SILT LOAM, 0 TO 3 PERCENT SLOPES	D	YES	YES	0.32	NO	YES
GcA	GLENELG LOAM, 0 TO 3 PERCENT SLOPES	B	NO	NO	0.20	YES	NO
GcB	GLENELG LOAM, 3 TO 8 PERCENT SLOPES	B	NO	NO	0.20	YES	NO
GmB	GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES	C	NO	NO	0.37	YES	YES
GnB	GLENVILLE-BAILE SILT LOAM, 0 TO 8 PERCENT SLOPES	C	PARTIALL***	PARTIALL**	0.37	NO	PARTIAL
MoC	MANOR LOAM, 8 TO 15 PERCENT SLOPES	B	NO	NO	0.24	YES	NO

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

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

*BAILE COMPONENT OF GnB, ERODIBILITY FACTOR IS 0.32 AND IS CONSIDERED HYDRIC

STATE OF MARYLAND — ROBERT HARRIS VOGEL — No. 16193 — REGISTERED PROFESSIONAL ENGINEER — 9/26/16

ROBERT H. VOGEL, PE No.16193

DESIGN BY:	RVE
DRAWN BY:	RVE
CHECKED BY:	RHV
DATE:	SEPTEMBER 2016
SCALE:	AS SHOWN
W.O. NO.:	11-34

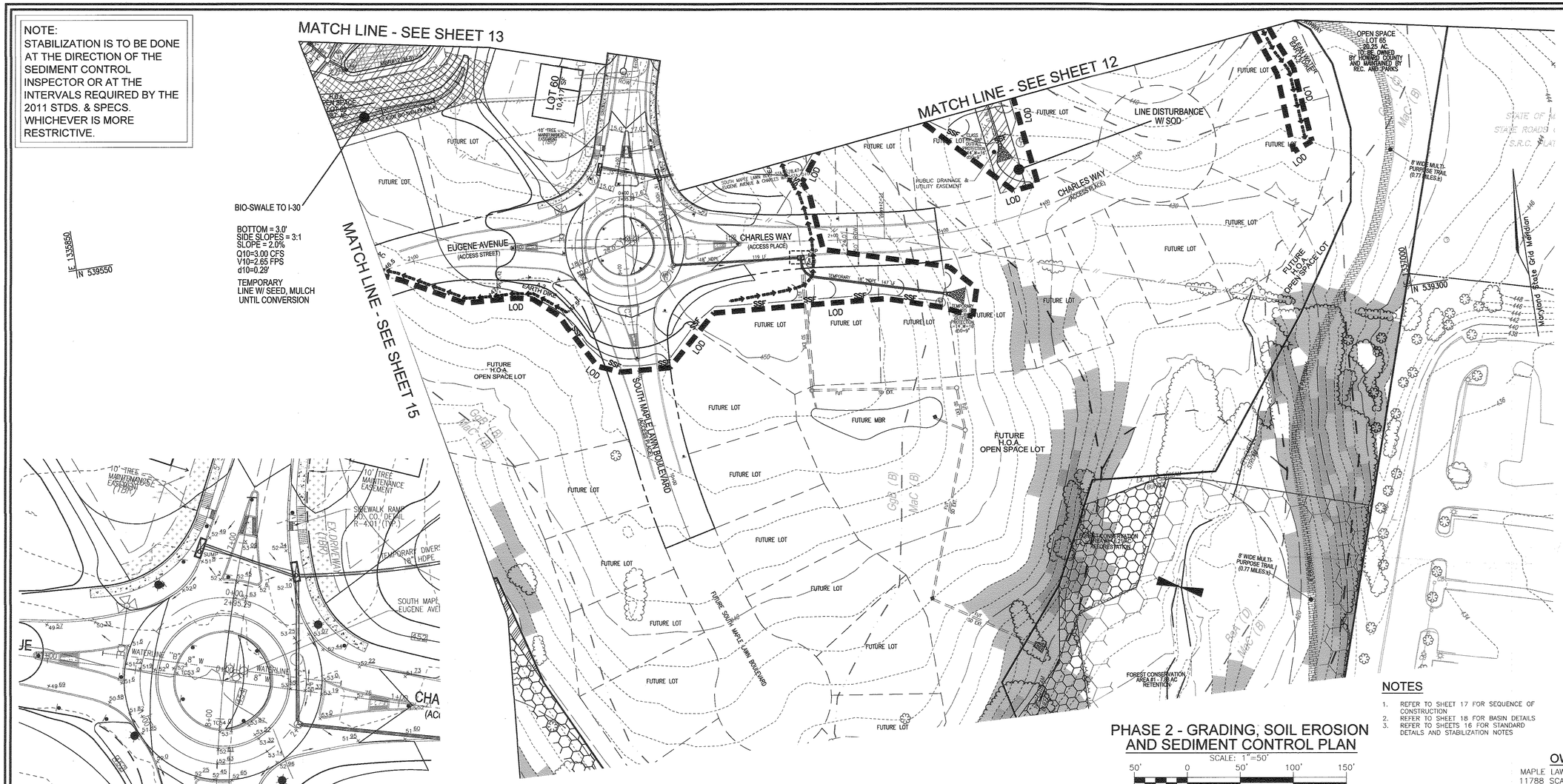
PROFESSIONAL CERTIFICATE

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: 09-27-2018

SHEET 13 OF 48

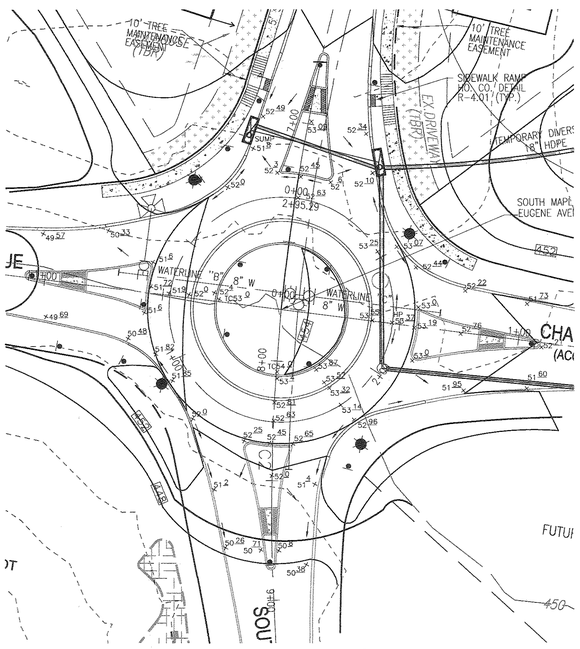
F-16-021

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.



LEGEND:

- EXISTING CONTOUR
- PROPOSED CONTOUR
- PROPOSED SPOT ELEVATION
- EXISTING SPOT ELEVATION
- EXISTING CURB AND GUTTER
- PROPOSED 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 SPECIMEN TREE
- EXISTING TREELINE
- EXISTING FENCE
- PROPERTY LINE
- RIGHT-OF-WAY LINE
- SOILS BOUNDARY
- SUPER SILT FENCE
- LIMIT OF DISTURBANCE
- EARTH DIKE
- EXISTING DRAINAGE DIVIDE
- PROPOSED DRAINAGE DIVIDE
- CURB INLET PROTECTION
- PUBLIC STORMWATER MANAGEMENT, DRAINAGE & UTILITY EASEMENT
- PRIVATE STORMWATER MANAGEMENT, DRAINAGE & UTILITY EASEMENT
- FOREST CONSERVATION AREA AFFORESTATION
- FOREST CONSERVATION AREA RETENTION



TRAFFIC CIRCLE ENLARGEMENT

SCALE: 1"=30'

PHASE 2 - GRADING, SOIL EROSION AND SEDIMENT CONTROL PLAN

SCALE: 1"=50'

50' 0 50' 100' 150'

PHASE 1– SEDIMENT CONTROLS ARE SHOWN HEREON AND ARE TO BE UTILIZED. REMOVAL OF ANY DEVICE SHALL BE AS DIRECTED BY THE SEDIMENT CONTROL INSPECTOR.

NOTES

1. REFER TO SHEET 17 FOR SEQUENCE OF CONSTRUCTION
2. REFER TO SHEET 18 FOR BASIN DETAILS
3. REFER TO SHEETS 16 FOR STANDARD DETAILS AND STABILIZATION NOTES

NOTE:
- SILT FENCE IS TO BE REPLACED WITH SUPER SILT FENCE AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR.
- SILT FENCE 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.

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.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 10/25/2016

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 11/2/16

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11-4-16

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/OR MDE."

OWNER/DEVELOPER SIGNATURE — DATE 9/26/16
Chris Mum
PRINTED NAME & TITLE

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."

DESIGNER'S SIGNATURE — DATE 9/26/16
ROBERT H. VOGEL — MD REGISTRATION NO. 16193
PRINTED NAME — (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.

HOWARD S.C.D. — DATE 10/20/16

MAPPED SOILS TYPES - CLARKSVILLE SE MAP #23

SYMBOL	NAME / DESCRIPTION	GROUP	HYDRIC	HYDRIC INCLUSIONS	K FACTOR	PRIME FARMLAND	STEEP SLOPE W/ ERODIBILITY POTENTIAL
BaA	BAILE SILT LOAM, 0 TO 3 PERCENT SLOPES	D	YES	YES	0.32	NO	YES
GgA	GLENELG LOAM, 0 TO 3 PERCENT SLOPES	B	NO	NO	0.20	YES	NO
GgB	GLENELG LOAM, 3 TO 8 PERCENT SLOPES	B	NO	NO	0.20	YES	NO
GmB	GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES	C	NO	NO	0.37	YES	YES
GnB	GLENVILLE-BAILE SILT LOAM, 0 TO 8 PERCENT SLOPES	C	PARTIALLY*	PARTIALLY*	0.37	NO	PARTIAL
MaC	MANOR LOAM, 8 TO 15 PERCENT SLOPES	B	NO	NO	0.24	YES	NO

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

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

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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

NO.	REVISION	DATE

FINAL ROAD CONSTRUCTION PLAN

PHASE 2 - GRADING, SOIL EROSION AND SEDIMENT CONTROL PLAN

MAPLE LAWN SOUTH PHASE 1 - SECTION 1

LOTS 1-64, NON-BUILDABLE BULK PARCEL 'A', NON-BUILDABLE BULK PARCEL 'B', AND OPEN SPACE LOTS 65-69

TAX MAP 46 - GRID 2 - PARCEL 113
5TH ELECTION DISTRICT
DPZ REF: ECP-14-093, WP-15-136, PB#415, SP-15-014

ZONED: R-ED-MXD-3
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

STATE OF MARYLAND — ROBERT HARRIS VOGEL — No. 16193 — REGISTERED PROFESSIONAL ENGINEER — 9/26/16

ROBERT H. VOGEL, P.E. No.16193

DESIGN BY: RVE
DRAWN BY: RVE
CHECKED BY: RHV
DATE: SEPTEMBER 2016
SCALE: AS SHOWN
W.O. NO.: 11-34

PROFESSIONAL CERTIFICATE

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EXPIRATION DATE: 09-27-2018

SHEET 14 OF 48

F-16-021

MAPPED SOILS TYPES - CLARKSVILLE SE MAP #23							
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BaA	BAILE SILT LOAM, 0 TO 3 PERCENT SLOPES	D	YES	YES	0.32	NO	YES
GgA	GLENELG LOAM, 0 TO 3 PERCENT SLOPES	B	NO	NO	0.20	YES	NO
GgB	GLENELG LOAM, 3 TO 8 PERCENT SLOPES	B	NO	NO	0.20	YES	NO
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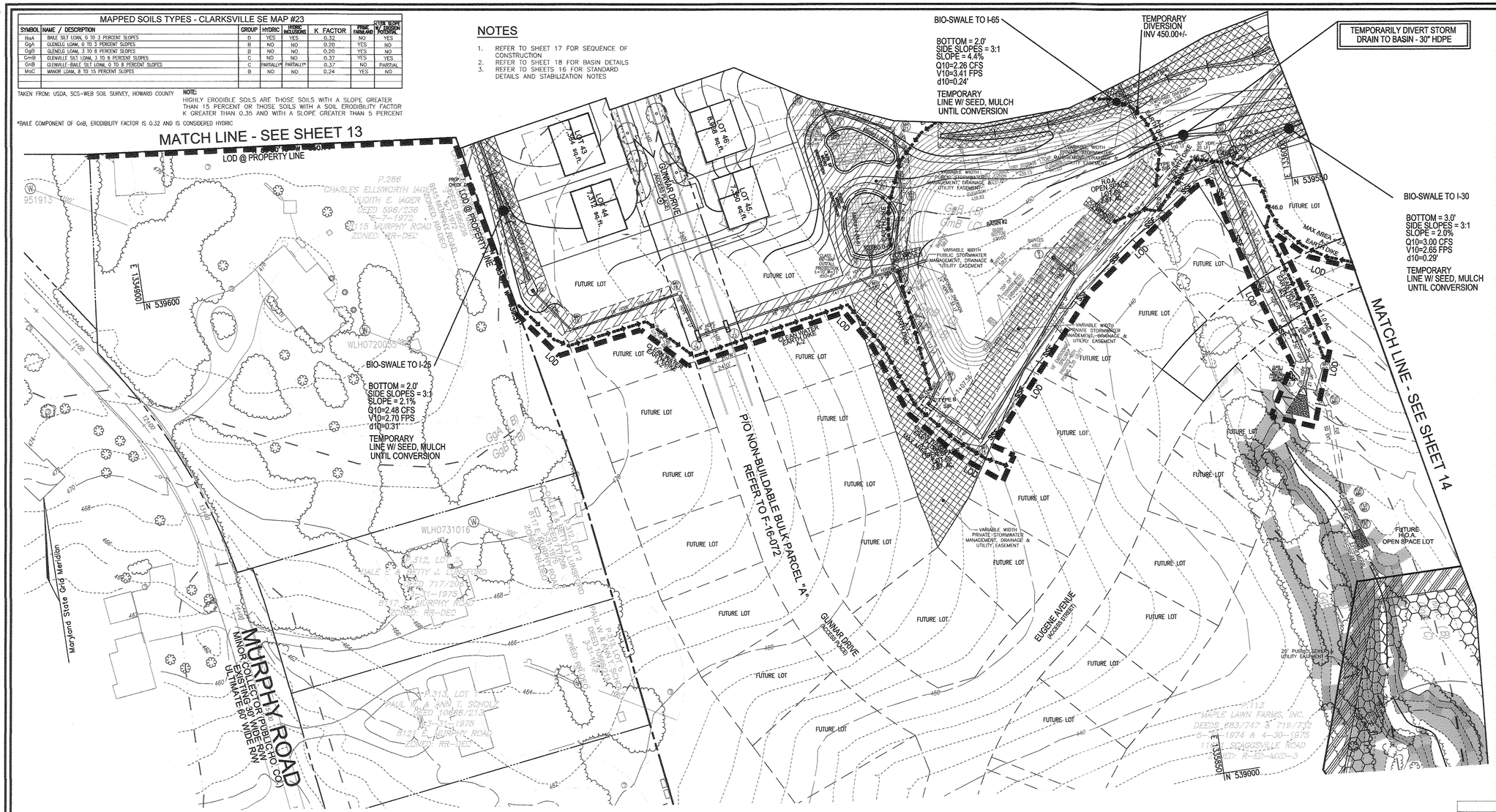

PHASE 2 - GRADING, SOIL EROSION AND SEDIMENT CONTROL PLAN

SCALE: 1"=50'

50' 0 50' 100' 150'

PHASE 1– SEDIMENT CONTROLS ARE SHOWN HEREON AND ARE TO BE UTILIZED. REMOVAL OF ANY DEVICE SHALL BE AS DIRECTED BY THE SEDIMENT CONTROL INSPECTOR.

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- PROPOSED SPOT ELEVATION
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- RIGHT-OF-WAY LINE
- SOILS BOUNDARY
- SUPER SILT FENCE
- STABILIZED CONSTRUCTION ENTRANCE
- LIMIT OF DISTURBANCE
- EARTH DIKE
- EXISTING DRAINAGE DIVIDE
- PROPOSED DRAINAGE DIVIDE
- PERIMETER DIKE / SWALE
- PUBLIC STORMWATER MANAGEMENT, DRAINAGE & UTILITY EASEMENT
- PRIVATE STORMWATER MANAGEMENT, DRAINAGE & UTILITY EASEMENT
- FOREST CONSERVATION AREA AFFORESTATION
- FOREST CONSERVATION AREA RETENTION
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DEVELOPER
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NO.	REVISION	DATE

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APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 10/25/2016

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 11/3/16
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11-4-16

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OWNER/DEVELOPER SIGNATURE — DATE 9/26/16
Chris Murn
PRINTED NAME & TITLE

DESIGN CERTIFICATION:
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DESIGNER'S SIGNATURE — DATE 9/26/16
ROBERT H. VOGEL — MD REGISTRATION NO. 16193
PRINTED NAME — 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.
HOWARD S.C.D. — DATE 10/20/16

FINAL ROAD CONSTRUCTION PLAN

PHASE 2 - GRADING, SOIL EROSION AND SEDIMENT CONTROL PLAN

MAPLE LAWN SOUTH PHASE 1 - SECTION 1

LOTS 1-64, NON-BUILDABLE BULK PARCEL "A", NON-BUILDABLE BULK PARCEL "B", AND OPEN SPACE LOTS 65-69

TAX MAP 46 - GRID 2 - PARCEL 113 — ZONED: R-ED-MXD-3
5TH ELECTION DISTRICT — HOWARD COUNTY, MARYLAND
DPZ REF: ECP-14-093, WP-15-136, PB-415, SP-15-014

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EXPIRATION DATE: 09-27-2018

SHEET 15 OF 48

F-16-021

HOWARD SOIL CONSERVATION DISTRICT
STANDARD SEDIMENT CONTROL NOTES

1. A PRE-CONSTRUCTION MEETING MUST OCCUR WITH THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS, CONSTRUCTION INSPECTION DIVISION (CID), 410-313-1855 AFTER THE FUTURE LOD AND PROTECTED AREAS ARE MARKED CLEARLY IN THE FIELD. A MINIMUM OF 48 HOUR NOTICE TO CID MUST BE GIVEN AT THE FOLLOWING STAGES:
   A. PRIOR TO THE START OF EARTH DISTURBANCE,
   B. UPON COMPLETION OF THE INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS, BUT BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING,
   C. PRIOR TO THE START OF ANOTHER PHASE OF CONSTRUCTION OR OPENING OF ANOTHER GRADING UNIT,
   D. PRIOR TO THE REMOVAL OR MODIFICATION OF SEDIMENT CONTROL PRACTICES.

   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.

2. 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 THERETO.
3. FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION IS REQUIRED WITHIN THREE (3) CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER CONTROLS, DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES STEEPER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1); AND SEVEN (7) CALENDAR DAYS AS TO ALL OTHER DISTURBED AREAS ON THE PROJECT SITE EXCEPT FOR THOSE AREAS UNDER ACTIVE GRADING.
4. 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-4-2), PERMANENT SEEDING (SEC. B-4-5), TEMPORARY SEEDING (SEC. B-4-4) AND MULCHING (SEC. B-4-3). TEMPORARY STABILIZATION WITH MULCH ALONE CAN ONLY BE APPLIED BETWEEN THE FALL AND SPRING SEEDING DATES IF THE GROUND IS FROZEN. INCREMENTAL STABILIZATION (SEC. B-4-1) SPECIFICATIONS SHALL BE ENFORCED IN AREAS WITH >15' OF CUT AND/OR FILL. STOCKPILES (SEC. B-4-8) IN EXCESS OF 20 FT. MUST BE BENCHED WITH STABLE OUTLET. ALL CONCENTRATED FLOW, STEEP SLOPE, AND HIGHLY ERODIBLE AREAS SHALL RECEIVE SOIL STABILIZATION MATTING (SEC. B-4-6).
5. ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE, AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMISSION FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE CID.
6. SITE ANALYSIS:

TOTAL AREA OF SITE: F16-021 L.O.D.	36.0	ACRES
AREA DISTURBED:	20.0	ACRES GRADING UNIT #1 (A&B)
AREA TO BE ROOFED OR PAVED:	2.5	ACRES
AREA TO BE VEGETATIVELY STABILIZED:	17.5	ACRES
TOTAL CUT:	80,569	CU. YDS. TOTAL
TOTAL FILL:	118,918	CU. YDS. TOTAL
OFFSITE WASTE/BORROW AREA LOCATION:	F16-072	

SITE ANALYSIS:

TOTAL AREA OF SITE: F16-021 L.O.D.	36.0	ACRES
AREA DISTURBED:	12.00	ACRES (1) GRADING UNIT #2
AREA TO BE ROOFED OR PAVED:	1.4	ACRES
AREA TO BE VEGETATIVELY STABILIZED:	10.6	ACRES
TOTAL CUT:	SEE ABOVE	CU. YDS.
TOTAL FILL:	SEE ABOVE	CU. YDS.
OFFSITE WASTE/BORROW AREA LOCATION:	F16-072	

(1) REFER TO ITEM 11 BELOW

7. ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
8. ADDITIONAL SEDIMENT CONTROL MUST BE PROVIDED, IF DEEMED NECESSARY BY THE CID. THE SITE AND ALL CONTROLS SHALL BE INSPECTED BY THE CONTRACTOR WEEKLY; AND THE NEXT DAY AFTER EACH RAIN EVENT. A WRITTEN REPORT BY THE CONTRACTOR, MADE AVAILABLE UPON REQUEST, IS PART OF EVERY INSPECTION AND SHOULD INCLUDE:
   - INSPECTION DATE
   - INSPECTION TYPE (ROUTINE, PRE-STORM EVENT, DURING RAIN EVENT)
   - NAME AND TITLE OF INSPECTOR
   - WEATHER INFORMATION (CURRENT CONDITIONS AS WELL AS TIME AND AMOUNT OF LAST 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 (NPDES, MDE).
9. 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.
10. 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 CID PER THE LIST OF HSCD-APPROVED FIELD CHANGES.
11. DISTURBANCE 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 CID. UNLESS OTHERWISE SPECIFIED AND APPROVED BY THE CID, NO MORE THAN 30 ACRES CUMULATIVELY MAY BE DISTURBED AT A GIVEN TIME.
12. WASH WATER FROM ANY EQUIPMENT, VEHICLES, WHEELS, PAVEMENT, AND OTHER SOURCES MUST BE TREATED IN A SEDIMENT BASIN OR OTHER APPROVED WASHOUT STRUCTURE.
13. TOPSOIL SHALL BE STOCKPILED AND PRESERVED ON-SITE FOR REDISTRIBUTION ONTO FINAL GRADE.
14. ALL SILT FENCE AND SUPER SILT FENCE SHALL BE PLACED ON-THE-CONTOUR, AND BE IMBRICATED AT 25' MINIMUM INTERVALS, WITH LOWER ENDS CURLED UPHILL BY 2' IN ELEVATION.
15. STREAM CHANNELS MUST NOT BE DISTURBED DURING THE FOLLOWING RESTRICTED TIME PERIODS (INCLUSIVE):
   - USE I AND IP MARCH 1 - JUNE 15
   - USE III AND IIIP OCTOBER 1 - APRIL 30
   - USE IV MARCH 1 - MAY 31
16. 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

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/OR MDE."

OWNER/DEVELOPER SIGNATURE

Chris Murn
PRINTED NAME & TITLE

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."

DESIGNER'S SIGNATURE — DATE 9/26/16

ROBERT H. VOGEL — PRINTED NAME
MD REGISTRATION NO. 16193
P.E., R.L.S., OR R.L.A. (circle one)

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 10/25/2016

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 11/3/16

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11-4-16

B-4-5 STANDARDS AND SPECIFICATIONS FOR PERMANENT STABILIZATION

DEFINITION

TO STABILIZE DISTURBED SOILS WITH PERMANENT VEGETATION.

PURPOSE

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

CONDITIONS WHERE PRACTICE APPLIES

EXPOSED SOILS WHERE GROUND COVER IS NEEDED FOR 6 MONTHS OR MORE.

CRITERIA

A. SEED MIXTURES
1. GENERAL USE
A. SELECT ONE OR MORE OF THE SPECIES OR MIXTURES LISTED IN TABLE 8.3 FOR THE APPROPRIATE PLANT HARDINESS ZONE (FROM FIGURE 8.3) AND BASED ON THE SITE CONDITION OR PURPOSE FOUND ON TABLE 8.2. ENTER SELECTED MIXTURE(S), APPLICATION RATES, AND SEEDING DATES IN THE PERMANENT SEEDING SUMMARY. THE SUMMARY IS TO BE PLACED ON THE PLAN.
B. 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.
C. FOR SITES HAVING DISTURBED AREA OVER 5 ACRES, USE AND SHOW THE RATES RECOMMENDED BY THE SOIL TESTING AGENCY.
D. FOR AREAS RECEIVING LOW MAINTENANCE, APPLY UREA FORM FERTILIZER (46-0-0) 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.
2. TURFGRASS MIXTURES
A. AREAS WHERE TURFGRASS MAY BE DESIRED INCLUDE LAWNS, PARKS, PLAYGROUNDS, AND COMMERCIAL SITES WHICH WILL RECEIVE A MEDIUM TO HIGH LEVEL OF MAINTENANCE.
B. 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.
I. KENTUCKY BLUEGRASS: FULL SUN MIXTURE: FOR USE IN AREAS THAT RECEIVE INTENSIVE MANAGEMENT. IRRIGATION REQUIRED IN THE AREAS OF CENTRAL MARYLAND AND EASTERN SHORE. RECOMMENDED CERTIFIED KENTUCKY BLUEGRASS CULTIVARS SEEDING RATE: 1.5 TO 2.0 POUNDS PER 1000 SQUARE FEET. CHOOSE A MINIMUM OF THREE KENTUCKY BLUEGRASS CULTIVARS WITH EACH RANGING FROM 10 TO 35 PERCENT OF THE TOTAL MIXTURE BY WEIGHT.
II. KENTUCKY BLUEGRASS/PERENNIAL RYE: FULL SUN MIXTURE: FOR USE IN FULL SUN AREAS WHERE RAPID ESTABLISHMENT IS NECESSARY AND WHEN TURF WILL RECEIVE MEDIUM TO INTENSIVE MANAGEMENT. CERTIFIED PERENNIAL RYEGRASS CULTIVARS/ CERTIFIED KENTUCKY BLUEGRASS SEEDING RATE: 2 POUNDS MIXTURE PER 1000 SQUARE FEET. CHOOSE A MINIMUM OF THREE KENTUCKY BLUEGRASS CULTIVARS WITH EACH RANGING FROM 10 TO 35 PERCENT OF THE TOTAL MIXTURE BY WEIGHT.
III. TALL FESCUE/KENTUCKY BLUEGRASS: FULL SUN MIXTURE: FOR USE IN DROUGHT PRONE AREAS AND/OR FOR AREAS RECEIVING LOW TO MEDIUM MANAGEMENT IN FULL SUN TO MEDIUM SHADE. RECOMMENDED MIXTURE INCLUDES; CERTIFIED TALL FESCUE CULTIVARS 95 TO 100 PERCENT, CERTIFIED KENTUCKY BLUEGRASS CULTIVARS 0 TO 5 PERCENT. SEEDING RATE: 5 TO 8 POUNDS PER 1000 SQUARE FEET. ONE OR MORE CULTIVARS MAY BE BLENDED.
IV. KENTUCKY BLUEGRASS/FINE FESCUE: SHADE MIXTURE: FOR USE IN AREAS WITH SHADE IN BLUEGRASS LAWNS. FOR ESTABLISHMENT IN HIGH QUALITY, INTENSIVELY MANAGED TURF AREA. MIXTURE INCLUDES; CERTIFIED KENTUCKY BLUEGRASS CULTIVARS 30 TO 40 PERCENT AND CERTIFIED FINE FESCUE AND 60 TO 70 PERCENT. SEEDING RATE: 1½ TO 3 POUNDS PER 1000 SQUARE FEET.

NOTES:
SELECT TURFGRASS VARIETIES FROM THOSE LISTED IN THE MOST CURRENT UNIVERSITY OF MARYLAND PUBLICATION, AGRONOMY MEMO #77, "TURFGRASS CULTIVAR RECOMMENDATIONS FOR MARYLAND" CHOOSE CERTIFIED MATERIAL. CERTIFIED MATERIAL IS THE BEST GUARANTEE OF CULTIVAR PURITY. THE CERTIFICATION PROGRAM OF THE MARYLAND DEPARTMENT OF AGRICULTURE, TURF AND SEED SECTION, PROVIDES A RELIABLE MEANS OF CONSUMER PROTECTION AND ASSURES A PURE GENETIC LINE

C. IDEAL TIMES OF SEEDING FOR TURF GRASS MIXTURES

- WESTEM MD: MARCH 15 TO JUNE 1, AUGUST ITO OCTOBER 1 (HARDINESS ZONES: SB, 6A)
- CENTRAL MD: MARCH 1 TO MAY 15, AUGUST 15 TO OCTOBER 15 (HARDINESS ZONE: 6B)
- SOUTHERN MD, EASTERN SHORE: MARCH 1 TO MAY 15, AUGUST 15 TO OCTOBER 15 (HARDINESS ZONES: 7A, 7B)

D. TILL AREAS TO RECEIVE SEED BY DISKING OR OTHER APPROVED METHODS TO A DEPTH OF 2 TO 4 INCHES, LEVEL AND RAKE THE AREAS TO PREPARE A PROPER SEEDBED. REMOVE STONES AND DEBRIS OVER 1¼ INCHES IN DIAMETER. THE RESULTING SEEDBED MUST BE IN SUCH CONDITION THAT FUTURE MOWING OF GRASSES WILL POSE NO DIFFICULTY.
E. IF SOIL MOISTURE IS DEFICIENT, SUPPLY NEW SEEDINGS WITH ADEQUATE WATER FOR PLANT GROWTH (1/2 TO 1 INCH EVERY 3 TO 4 DAYS DEPENDING ON SOIL TEXTURE) UNTIL THEY ARE FIRMLY ESTABLISHED. THIS IS ESPECIALLY TRUE WHEN SEEDINGS ARE MADE LATE IN THE PLANTING SEASON, IN ABNORMALLY DRY OR HOT SEASONS, OR ON ADVERSE SITES.

B. SOD: TO PROVIDE QUICK COVER ON DISTURBED AREAS (2:1 GRADE OR FLATTER).

1. GENERAL SPECIFICATIONS
A. CLASS OF TURFGRASS SOD MUST BE MARYLAND STATE CERTIFIED. SOD LABELS MUST BE MADE AVAILABLE TO THE JOB FOREMAN AND INSPECTOR.
B. SOD MUST BE MACHINE CUT AT A UNIFORM SOIL THICKNESS OF 3/4 INCH, PLUS OR MINUS ¼ INCH, AT THE TIME OF CUTTING. MEASUREMENT FOR THICKNESS MUST EXCLUDE TOP GROWTH AND THATCH. BROKEN PADS AND TOM OR UNEVEN ENDS WILL NOT BE ACCEPTABLE.
C. STANDARD SIZE SECTIONS OF SOD MUST BE STRONG ENOUGH TO SUPPORT THEIR OWN WEIGHT AND RETAIN THEIR SIZE AND SHAPE WHEN SUSPENDED VERTICALLY WITH A FIRM GRASP ON THE UPPER 10 PERCENT OF THE SECTION.
D. SOD MUST NOT BE HARVESTED OR TRANSPLANTED WHEN MOISTURE CONTENT (EXCESSIVELY DRY OR WET) MAY ADVERSELY AFFECT ITS SURVIVAL.
E. SOD MUST BE HARVESTED, DELIVERED, AND INSTALLED WITHIN A PERIOD OF 36 HOURS. SOD NOT TRANSPLANTED WITHIN THIS PERIOD MUST BE APPROVED BY AN AGRONOMIST OR SOIL SCIENTIST PRIOR TO ITS INSTALLATION.

2. SOD INSTALLATION
A. DURING PERIODS OF EXCESSIVELY HIGH TEMPERATURE OR IN AREAS HAVING DRY SUBSOIL, LIGHTLY IRRIGATE THE SUBSOIL IMMEDIATELY PRIOR TO LAYING THE SOD.
B. LAY THE FIRST ROW OF SOD IN A STRAIGHT LINE WITH SUBSEQUENT ROWS PLACED PARALLEL TO IT AND TIGHTLY WEDGED AGAINST EACH OTHER. STAGGER LATERAL JOINTS TO PROMOTE MORE UNIFORM GROWTH AND STRENGTH. ENSURE THAT SOD IS NOT STRETCHED OR OVERLAPPED AND THAT ALL JOINTS ARE BUTTED TIGHT IN ORDER TO PREVENT VOIDS WHICH WOULD CAUSE AIR DRYING OF THE ROOTS.
C. WHEREVER POSSIBLE, LAY SOD WITH THE LONG EDGES PARALLEL TO THE CONTOUR AND WITH STAGGERING JOINTS. ROLL AND TAMP, PEG OR OTHERWISE SECURE THE SOD TO PREVENT SLIPPAGE ON SLOPES. ENSURE SOLID CONTACT EXISTS BETWEEN SOD ROOTS AND THE UNDERLYING SOIL SURFACE.
D. WATER THE SOD IMMEDIATELY FOLLOWING ROLLING AND TAMPING UNTIL THE UNDERSIDE OF THE NEW SOD PAD AND SOIL SURFACE BELOW THE SOD ARE THOROUGHLY WET. COMPLETE THE OPERATIONS OF LAYING, TAMPING AND IRRIGATING FOR ANY PIECE OF SOD WITHIN EIGHT HOURS.

3. SOD MAINTENANCE
A. IN THE ABSENCE OF ADEQUATE RAINFALL, WATER DAILY DURING THE FIRST WEEK OR AS OFTEN AND SUFFICIENTLY AS NECESSARY TO MAINTAIN MOIST SOIL TO A DEPTH OF 4 INCHES. WATER SOD DURING THE HEAT OF THE DAY TO PREVENT WILTING.
B. AFTER THE FIRST WEEK, SOD WATERING IS REQUIRED AS NECESSARY TO MAINTAIN ADEQUATE MOISTURE CONTENT.
C. DO NOT MOW UNTIL THE SOD IS FIRMLY ROOTED. NO MORE THAN 1/3 OF THE GRASS LEAF MUST BE REMOVED BY THE INITIAL CUTTING OR SUBSEQUENT CUTTINGS. MAINTAIN A GRASS HEIGHT OF AT LEAST 3 INCHES UNLESS OTHERWISE SPECIFIED.

PERMANENT SEEDING SUMMARY

HARDINESS ZONE (FROM FIGURE B.3): ZONE 6b SEED MIXTURE (FROM TABLE B.3): 9					FERTILIZER RATE (10-20-20)			LIME RATE
NO	SPECIES	APPLICATION RATE (LB/AC)	SEEDING DATES	SEEDING DEPTHS	N	P_2O_5	K_2O	
1	COOL SEASON TALL FESCUE & KENTUCKY BLUEGRASS OR EQUAL	T.F. 60 LB / AC K.B. 40 LB / AC	MAR 1 TO MAY 15 AUG 15 TO OCT 15	1/4-1/2 IN.	45 LB/AC (1 LB PER 1000 SF)	90 LB/AC (2 LB PER 1000 SF)	90 LB/AC (2 LB PER 1000 SF)	2 TONS/AC (90 LB PER 1000 SF)

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

HOWARD S.C.D. — DATE 10/26/16

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

DEFINITION

THE PROCESS OF PREPARING THE SOILS TO SUSTAIN ADEQUATE VEGETATIVE STABILIZATION.

PURPOSE

TO PROVIDE A SUITABLE SOIL MEDIUM FOR VEGETATIVE GROWTH.

CONDITIONS WHERE PRACTICE APPLIES

WHERE VEGETATIVE STABILIZATION IS TO BE ESTABLISHED.

CRITERIA

A. SOIL PREPARATION

1. TEMPORARY STABILIZATION
A. SEEDBED PREPARATION CONSISTS OF LOOSENING SOIL TO A DEPTH OF 3 TO 5 INCHES BY MEANS OF SUITABLE AGRICULTURAL OR CONSTRUCTION EQUIPMENT, SUCH AS DISC HARROWS OR CHISEL PLOWS OR RIPPERS MOUNTED ON CONSTRUCTION EQUIPMENT. AFTER THE SOIL IS LOOSENED, IT MUST NOT BE ROLLED OR DRAGGED SMOOTH BUT LEFT IN THE ROUGHENED CONDITION. SLOPES 3:1 OR FLATTER ARE TO BE TRACKED WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE.
B. APPLY FERTILIZER AND LIME AS PRESCRIBED ON THE PLANS.
C. INCORPORATE LIME AND FERTILIZER INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS.
2. PERMANENT STABILIZATION
A. A SOIL TEST IS REQUIRED FOR ANY EARTH DISTURBANCE OF 5 ACRES OR MORE. THE MINIMUM SOIL CONDITIONS REQUIRED FOR PERMANENT VEGETATIVE ESTABLISHMENT ARE:
I. SOIL PH BETWEEN 6.0 AND 7.0.
II. SOLUBLE SALTS LESS THAN 500 PARTS PER MILLION (PPM).
III. SOIL CONTAINS LESS THAN 40 PERCENT CLAY BUT ENOUGH FINE GRAINED MATERIAL (GREATER THAN 30 PERCENT SILT PLUS CLAY) TO PROVIDE THE CAPACITY TO HOLD A MODERATE AMOUNT OF MOISTURE. AN EXCEPTION: IF LOVEGRASS WILL BE PLANTED, THEN A SANDY SOIL (LESS THAN 30 PERCENT SILT PLUS CLAY) WOULD BE ACCEPTABLE.
IV. SOIL CONTAINS 1.5 PERCENT MINIMUM ORGANIC MATTER BY WEIGHT.
V. SOIL CONTAINS SUFFICIENT PORE SPACE TO PERMIT ADEQUATE ROOT PENETRATION.
B. APPLICATION OF AMENDMENTS OR TOPSOIL IS REQUIRED IF ON-SITE SOILS DO NOT MEET THE ABOVE CONDITIONS.
C. 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.
D. APPLY SOIL AMENDMENTS AS SPECIFIED ON THE APPROVED PLAN OR AS INDICATED BY THE RESULTS OF A SOIL TEST.
E. MIX SOIL AMENDMENTS INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS. RAKE LAWN AREAS TO SMOOTH THE SURFACE, REMOVE LARGE OBJECTS LIKE STONES AND BRANCHES, AND READY THE AREA FOR SEED APPLICATION. LOOSEN SURFACE SOIL BY DRAGGING WITH A HEAVY CHAIN OR OTHER EQUIPMENT TO ROUGHEN THE SURFACE WHERE SITE CONDITIONS WILL NOT PERMIT NORMAL SEEDBED PREPARATION. TRACK SLOPES 3:1 OR FLATTER WITH TRACKED EQUIPMENT LEAVING THE SOIL IN AN IRREGULAR CONDITION WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE. LEAVE THE TOP 1 TO 3 INCHES OF SOIL LOOSE AND FRIABLE. SEEDBED LOOSENING MAY BE UNNECESSARY ON NEWLY DISTURBED AREAS.

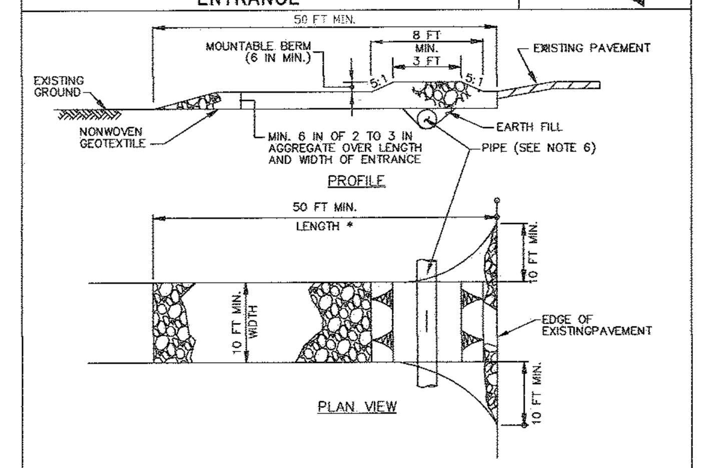
B. TOPSOILING

1. 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 CONCEM HAVE LOW MOISTURE CONTENT, LOW NUTRIENT LEVELS, LOW PH, MATERIALS TOXIC TO PLANTS, AND/OR UNACCEPTABLE SOIL GRADATION.
2. TOPSOIL SALVAGED FROM AN EXISTING SITE MAY BE USED PROVIDED IT MEETS THE STANDARDS AS SET FORTH IN THESE SPECIFICATIONS. TYPICALLY, THE DEPTH OF TOPSOIL TO BE SALVAGED FOR A GIVEN SOIL TYPE CAN BE FOUND IN THE REPRESENTATIVE SOIL PROFILE SECTION IN THE SOIL SURVEY PUBLISHED BY USDA-NRCS.
3. TOPSOILING IS LIMITED TO AREAS HAVING 2:1 OR FLATTER SLOPES WHERE:
A. THE TEXTURE OF THE EXPOSED SUBSOIL/PARENT MATERIAL IS NOT ADEQUATE TO PRODUCE VEGETATIVE GROWTH.
B. THE SOIL MATERIAL IS SO SHALLOW THAT THE ROOTING ZONE IS NOT DEEP ENOUGH TO SUPPORT PLANTS OR FLIRNISH CONTINUING SUPPLIES OF MOISTURE AND PLANT NUTRIENTS.
C. THE ORIGINAL SOIL TO BE VEGETATED CONTAINS MATERIAL TOXIC TO PLANT GROWTH.
D. THE SOIL IS SO ACIDIC THAT TREATMENT WITH LIMESTONE IS NOT FEASIBLE.
4. AREAS HAVING SLOPES STEEPER THAN 2:1 REQUIRE SPECIAL CONSIDERATION AND DESIGN.
5. TOPSOIL SPECIFICATIONS: SOIL TO BE USED AS TOPSOIL MUST MEET THE FOLLOWING CRITERIA:
A. TOPSOIL MUST BE A LOAM, SANDY LOAM, CLAY LOAM, SILT LOAM, SANDY CLAY LOAM, OR LOAMY SAND. OTHER SOILS MAY BE USED IF RECOMMENDED BY AN AGRONOMIST OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY. TOPSOIL MUST NOT BE A MIXTURE OF CONTRASTING TEXTURED SUBSOILS AND MUST CONTAIN LESS THAN 5 PERCENT BY VOLUME OF CINDERS, STONES, SLAG, COARSE FRAGMENTS, GRAVEL, STICKS, ROOTS, TRASH, OR OTHER MATERIALS LARGER THAN 1½ INCHES IN DIAMETER.
B. TOPSOIL MUST BE FREE OF NOXIOUS PLANTS OR PLANT PARTS SUCH AS BERMUDA GRASS, QUACK GRASS, JOHNSON GRASS, NUT SEDGE, POISON IVY, THISTLE, OR OTHERS AS SPECIFIED.
C. TOPSOIL SUBSTITUTES OR AMENDMENTS, AS RECOMMENDED BY A QUALIFIED AGRONOMIST OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY, MAY BE USED IN LIEU OF NATURAL TOPSOIL.
6. TOPSOIL APPLICATION
A. EROSION AND SEDIMENT CONTROL PRACTICES MUST BE MAINTAINED WHEN APPLYING TOPSOIL.
B. UNIFORMLY DISTRIBUTE TOPSOIL IN A 5 TO 8 INCH LAYER AND LIGHTLY COMPACT TO A MINIMUM THICKNESS OF 4 INCHES. SPREADING IS TO BE PERFORMED IN SUCH A MANNER THAT SODDING OR SEEDING CAN PROCEED WITH A MINIMUM OF ADDITIONAL SOIL PREPARATION AND TILLAGE. ANY IRREGULARITIES IN THE SURFACE RESULTING FROM TOPSOILING OR OTHER OPERATIONS MUST BE CORRECTED IN ORDER TO PREVENT THE FORMATION OF DEPRESSIONS OR WATER POCKETS.
C. TOPSOIL MUST NOT BE PLACED IF THE TOPSOIL OR SUBSOIL IS IN A FROZEN OR MUDDY CONDITION, WHEN THE SUBSOIL IS EXCESSIVELY WET OR IN A CONDITION THAT MAY OTHERWISE BE DETRIMENTAL TO PROPER GRADING AND SEEDBED PREPARATION.

C. SOIL AMENDMENTS (FERTILIZER AND LIME SPECIFICATIONS)
1. SOIL TESTS MUST BE PERFORMED TO DETERMINE THE EXACT RATIOS AND APPLICATION RATES FOR BOTH LIME AND FERTILIZER ON SITES HAVING DISTURBED AREAS OF 5 ACRES OR MORE. SOIL ANALYSIS MAY BE PERFORMED BY A RECOGNIZED PRIVATE OR COMMERCIAL LABORATORY. SOIL SAMPLES TAKEN FOR ENGINEERING PURPOSES MAY ALSO BE USED FOR CHEMICAL ANALYSES.
2. FERTILIZERS MUST BE UNIFORM IN COMPOSITION, FREE FLOWING AND SUITABLE FOR ACCURATE APPLICATION BY APPROPRIATE EQUIPMENT. MANURE MAY BE SUBSTITUTED FOR FERTILIZER WITH PRIOR APPROVAL FROM THE APPROPRIATE APPROVAL AUTHORITY. FERTILIZERS MUST ALL BE DELIVERED TO THE SITE FULLY LABELED ACCORDING TO THE APPLICABLE LAWS AND MUST BEAR THE NAME, TRADE NAME OR TRADEMARK AND WARRANTY OF THE PRODUCER.
3. LIME MATERIALS MUST BE GROUND LIMESTONE (HYDRATED OR BURNT LIME MAY BE SUBSTITUTED EXCEPT WHEN HYDROSEEDING) WHICH CONTAINS AT LEAST 50 PERCENT TOTAL OXIDES (CALCIUM OXIDE PLUS MAGNESIUM OXIDE). LIMESTONE MUST BE GROUND TO SUCH FINENESS THAT AT LEAST 50 PERCENT WILL PASS THROUGH A #100 MESH SIEVE AND 98 TO 100 PERCENT WILL PASS THROUGH A #20 MESH SIEVE.
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.
5. 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.

DETAIL B-1 STABILIZED CONSTRUCTION ENTRANCE

STANDARD SYMBOL: SCE



CONSTRUCTION SPECIFICATIONS

1. PLACE STABILIZED CONSTRUCTION ENTRANCE IN ACCORDANCE WITH THE APPROVED PLAN. VEHICLES MUST TRAVEL OVER THE ENTIRE LENGTH OF THE SCE. USE MINIMUM LENGTH OF 50 FEET (*30 FEET FOR SINGLE RESIDENCE LOT). USE MINIMUM WIDTH OF 10 FEET. FLARE SCE 10 FEET MINIMUM AT THE EXISTING ROAD TO PROVIDE A TURNING RADIUS.
2. PIPE ALL SURFACE WATER FLOWING TO OR DIVERTED TOWARD THE SCE UNDER THE ENTRANCE, MAINTAINING POSITIVE DRAINAGE. PROTECT PIPE INSTALLED THROUGH THE SCE WITH A MOUNTABLE BERM WITH 5:1 SLOPES AND A MINIMUM OF 12 INCHES OF STONE OVER THE PIPE. PROVIDE PIPE AS SPECIFIED ON APPROVED PLAN. WHEN THE SCE IS LOCATED AT A HIGH SPOT AND HAS NO DRAINAGE TO CONVEY, A PIPE IS NOT NECESSARY. A MOUNTABLE BERM IS REQUIRED WHEN SCE IS NOT LOCATED AT A HIGH SPOT.
3. PREPARE SUBGRADE AND PLACE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS.
4. PLACE CRUSHED AGGREGATE (2 TO 3 INCHES IN SIZE) OR EQUIVALENT RECYCLED CONCRETE (WITHOUT REBAR) AT LEAST 6 INCHES DEEP OVER THE LENGTH AND WIDTH OF THE SCE.
5. MAINTAIN ENTRANCE IN A CONDITION THAT MINIMIZES TRACKING OF SEDIMENT. ADD STONE OR MAKE OTHER REPAIRS AS CONDITIONS DEMAND TO MAINTAIN CLEAN SURFACE, MOUNTABLE BERM, AND SPECIFIED DIMENSIONS. IMMEDIATELY REMOVE STONE AND/OR SEDIMENT SPILLED, DROPPED, OR TRACKED ONTO ADJACENT ROADWAY BY VACUUMING, SCRAPING, AND/OR SWEEPING. WASHING ROADWAY TO REMOVE MUD TRACKED ONTO PAVEMENT IS NOT ACCEPTABLE UNLESS WASH WATER IS DIRECTED TO AN APPROVED SEDIMENT CONTROL PRACTICE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE | 2011 | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

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

DEFINITION

THE APPLICATION OF SEED AND MULCH TO ESTABLISH VEGETATIVE COVER.

PURPOSE

TO PROTECT DISTURBED SOILS FROM EROSION DURING AND AT THE END OF CONSTRUCTION.

CONDITIONS WHERE PRACTICE APPLIES

TO THE SURFACE OF ALL PERIMETER CONTROLS, SLOPES, AND ANY DISTURBED AREA NOT UNDER ACTIVE GRADING.

CRITERIA

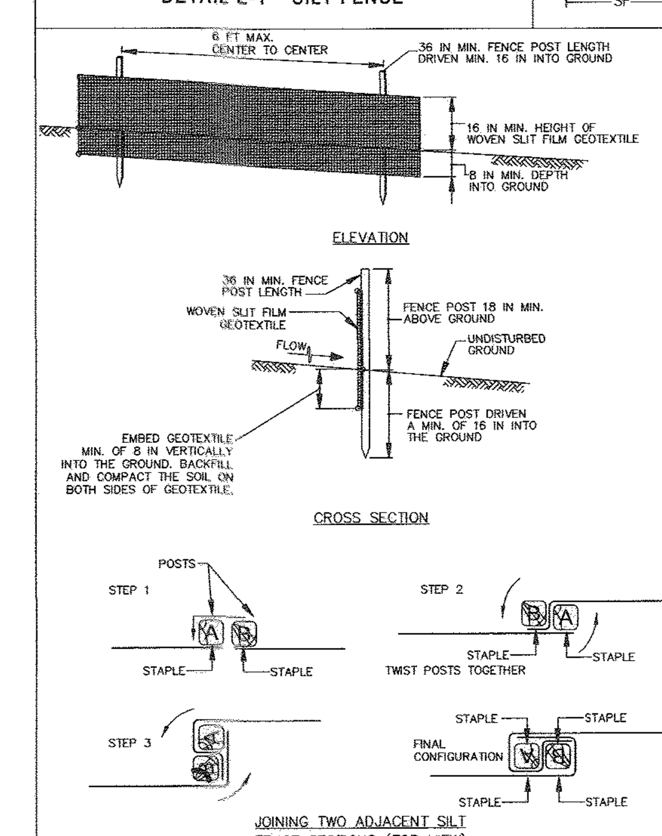
A. SEEDING
1. SPECIFICATIONS
A. ALL SEED MUST MEET THE REQUIREMENTS OF THE MARYLAND STATE SEED LAW. ALL SEED MUST BE SUBJECT TO RE-TESTING BY A RECOGNIZED SEED LABORATORY. ALL SEED USED MUST HAVE BEEN TESTED WITHIN THE 6 MONTHS IMMEDIATELY PRECEDING THE DATE OF SOWING SUCH MATERIAL ON ANY PROJECT. REFER TO TABLE B.4 REGARDING THE QUALITY OF SEED. SEED TAGS MUST BE AVAILABLE UPON REQUEST TO THE INSPECTOR TO VERIFY TYPE OF SEED AND SEEDING RATE.
B. MULCH ALONE MAY BE APPLIED BETWEEN THE FALL AND SPRING SEEDING DATES ONLY IF THE GROUND IS FROZEN. THE APPROPRIATE SEEDING MIXTURE MUST BE APPLIED WHEN THE GROUND THAWS.
C. INOCULANTS: THE INOCULANT FOR TREATING LEGUME SEED IN THE SEED MIXTURES MUST BE A PURE CULTURE OF NITROGEN FIXING BACTERIA PREPARED SPECIFICALLY FOR THE SPECIES. INOCULANTS MUST NOT BE USED LATER THAN THE DATE INDICATED ON THE CONTAINER. ADD FRESH INOCULANTS AS DIRECTED ON THE PACKAGE. USE FOUR TIMES THE RECOMMENDED RATE WHEN HYDROSEEDING. NOTE: IT IS VERY IMPORTANT TO KEEP INOCULANT AS COOL AS POSSIBLE UNTIL USED. TEMPERATURES ABOVE 75 TO 80 DEGREES FAHRENHEIT CAN WEAKEN BACTERIA AND MAKE THE INOCULANT LESS EFFECTIVE.
D. SOD OR SEED MUST NOT BE PLACED ON SOIL WHICH HAS BEEN TREATED WITH SOIL STERILANTS OR CHEMICALS USED FOR WEED CONTROL UNTIL SUFFICIENT TIME HAS ELAPSED (14 DAYS MIN.) TO PERMIT DISSIPATION OF PHYTO-TOXIC MATERIALS.
2. APPLICATION
A. DRY SEEDING: THIS INCLUDES USE OF CONVENTIONAL DROP OR BROADCAST SPREADERS.
I. INCORPORATE SEED INTO THE SUBSOIL AT THE RATES PRESCRIBED ON TEMPORARY SEEDING TABLE 8.1, PERMANENT SEEDING TABLE 8.3, OR SITE-SPECIFIC SEEDING SUMMARIES.
II. 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.
B. DRILL OR CULTIPACKER SEEDING: MECHANIZED SEEDERS THAT APPLY AND COVER SEED WITH SOIL.
I. CULTIPACKING SEEDERS ARE REQUIRED TO BURY THE SEED IN SUCH A FASHION AS TO PROVIDE AT LEAST 1/4 INCH OF SOIL COVERING. SEEDBED MUST BE FIRM AFTER PLANTING.
II. APPLY SEED IN TWO DIRECTIONS, PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION.
C. HYDROSEEDING: APPLY SEED UNIFORMLY WITH HYDROSEEDER (SLURRY INCLUDES SEED AND FERTILIZER).
I. 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; P205 (PHOSPHOROUS), 200 POUNDS PER ACRE; K20 (POTASSIUM), 200 POUNDS PER ACRE.
II. LIME: USE ONLY GROUND AGRICULTURAL LIMESTONE (UP TO 3 TONS PER ACRE MAY BE APPLIED BY HYDROSEEDING). NORMALLY, NOT MORE THAN 2 TONS ARE APPLIED BY HYDROSEEDING AT ANY ONE TIME. DO NOT USE BURNT OR HYDRATED LIME WHEN HYDROSEEDING.
III. MIX SEED AND FERTILIZER ON SITE AND SEED IMMEDIATELY AND WITHOUT INTERRUPTION.
IV. WHEN HYDROSEEDING DO NOT INCORPORATE SEED INTO THE SOIL.

B. MULCHING
I. MULCH MATERIALS (IN ORDER OF PREFERENCE)
A. STRAW CONSISTING OF THOROUGHLY THRESHED WHEAT, LYE, OAT, OR BARLEY AND REASONABLY BRIGHT IN COLOR. STRAW IS TO BE FREE OF NOXIOUS WEED SEEDS AS SPECIFIED IN THE MARYLAND SEED LAW AND NOT MUSTY, MOLDY, CAKED, DECAYED, OR EXCESSIVELY DUSTY. NOTE: USE ONLY STERILE STRAW MULCH IN AREAS WHERE ONE SPECIES OF GRASS IS DESIRED.
B. WOOD CELLULOSE FIBER MULCH (WCFM) CONSISTING OF SPECIALLY PREPARED WOOD CELLULOSE PROCESSED INTO A UNIFORM FIBROUS PHYSICAL STATE.
I. WCFM IS TO BE DYED GREEN OR CONTAIN A GREEN DYE IN THE PACKAGE THAT WILL PROVIDE AN APPROPRIATE COLOR TO FACILITATE VISUAL INSPECTION OF THE UNIFORMLY SPREAD SLURRY.
II. WCFM, INCLUDING DYE, MUST CONTAIN NO GERMINATION OR GROWTH INHIBITING FACTORS.
III. WCFM MATERIALS ARE TO BE MANUFACTURED AND PROCESSED IN SUCH A MANNER THAT THE WOOD CELLULOSE FIBER MULCH WILL REMAIN IN UNIFORM SUSPENSION IN WATER UNDER AGITATION AND WILL BLEND WITH SEED, FERTILIZER AND OTHER ADDITIVES TO FORM A HOMOGENEOUS SLURRY. THE MULCH MATERIAL MUST FORM A BLOTTER-LIKE GROUND COVER, ON APPLICATION, HAVING MOISTURE ABSORPTION AND PERCOLATION PROPERTIES AND MUST COVER AND HOLD GRASS SEED IN CONTACT WITH THE SOIL WITHOUT INHIBITING THE GROWTH OF THE GRASS SEEDLINGS.
IV. WCFM MATERIAL MUST NOT CONTAIN ELEMENTS OR COMPOUNDS AT CONCENTRATION LEVELS THAT WILL BE PHYTO-TOXIC.
V. WCFM MUST CONFORM 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.

2. APPLICATION
A. APPLY MULCH TO ALL SEEDED AREAS IMMEDIATELY AFTER SEEDING.
B. WHEN STRAW MULCH IS USED, SPREAD IT OVER ALL SEEDED AREAS AT THE RATE OF 2 TONS PER ACRE TO A UNIFORM LOOSE DEPTH OF 1 TO 2 INCHES. APPLY MULCH TO ACHIEVE A UNIFORM DISTRIBUTION AND DEPTH SO THAT THE SOIL SURFACE IS NOT EXPOSED. WHEN USING A MULCH ANCHORING TOOL, INCREASE THE APPLICATION RATE TO 2.5 TONS PER ACRE.
C. WOOD CELLULOSE FIBER USED AS MULCH MUST BE APPLIED AT A NET DRY WEIGHT OF 1500 POUNDS PER ACRE. MIX THE WOOD CELLULOSE FIBER WITH WATER TO ATTAIN A MIXTURE WITH A MAXIMUM OF 50 POUNDS OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.
3. ANCHORING
A. PERFORM MULCH ANCHORING IMMEDIATELY FOLLOWING APPLICATION OF MULCH TO MINIMIZE LOSS BY WIND OR WATER. THIS MAY BE DONE BY ONE OF THE FOLLOWING METHODS (LISTED BY PREFERENCE), DEPENDING UPON THE SIZE OF THE AREA AND EROSION HAZARD:
I. A MULCH ANCHORING TOOL IS A TRACTOR DRAWN IMPLEMENT DESIGNED TO PUNCH AND ANCHOR MULCH INTO THE SOIL SURFACE A MINIMUM OF 2 INCHES. THIS PRACTICE IS MOST EFFECTIVE ON LARGE AREAS, BUT IS LIMITED TO FLATTER SLOPES WHERE EQUIPMENT CAN OPERATE SAFELY. IF USED ON SLOPING LAND, THIS PRACTICE SHOULD FOLLOW THE CONTOUR.
II. WOOD CELLULOSE FIBER MAY BE USED FOR ANCHORING STRAW. APPLY THE FIBER BINDER AT A NET DRY WEIGHT OF 750 POUNDS PER ACRE. MIX THE WOOD CELLULOSE FIBER WITH WATER AT A MAXIMUM OF 50 POUNDS OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.
III. SYNTHETIC BINDERS SUCH AS ACRYLIC DLR (AGRO-TACK), DCA-70, PETROSET, TERRA TAX II, TERRA TACK AR OR OTHER APPROVED EQUAL MAY BE USED. FOLLOW APPLICATION RATES AS SPECIFIED BY THE MANUFACTURER. APPLICATION OF LIQUID BINDERS NEEDS TO BE HEAVIER AT THE EDGES WHERE WIND CATCHES MULCH, SUCH AS IN VALLEYS AND ON CRESTS OF BANKS. USE OF ASPHALT BINDERS IS STRICTLY PROHIBITED.
IV. LIGHTWEIGHT PLASTIC NETTING MAY BE STAPLED OVER THE MULCH ACCORDING TO MANUFACTURER RECOMMENDATIONS. NETTING IS USUALLY AVAILABLE IN ROLLS 4 TO 15 FEET WIDE AND 300 TO 3,000 FEET LONG.

DETAIL E-1 SILT FENCE

STANDARD SYMBOL: SF



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MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE | 2011 | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-1 SILT FENCE

STANDARD SYMBOL: SF

CONSTRUCTION SPECIFICATIONS

1. USE WOOD POSTS 1¾ X 1¾ ± 1/16 INCH (MINIMUM) SQUARE CUT OF SOUND QUALITY HARDWOOD. AS AN ALTERNATIVE TO WOODEN POST USE STANDARD "T" OR "U" SECTION STEEL POSTS WEIGHING NOT LESS THAN 1 POUND PER LINEAR FOOT.
2. USE 36 INCH MINIMUM POSTS DRIVEN 16 INCH MINIMUM INTO GROUND NO MORE THAN 6 FEET APART.
3. USE WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS AND FASTEN GEOTEXTILE SECURELY TO UPSLOPE SIDE OF FENCE POSTS WITH WIRE TIES OR STAPLES AT TOP AND MID-SECTION.
4. PROVIDE MANUFACTURER CERTIFICATION TO THE AUTHORIZED REPRESENTATIVE OF THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT THE GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS.
5. EMBED GEOTEXTILE A MINIMUM OF 8 INCHES VERTICALLY INTO THE GROUND. BACKFILL AND COMPACT THE SOIL ON BOTH SIDES OF FABRIC.
6. WHERE TWO SECTIONS OF GEOTEXTILE ADJOIN: OVERLAP, TWIST, AND STAPLE TO POST IN ACCORDANCE WITH THIS DETAIL.
7. EXTEND BOTH ENDS OF THE SILT FENCE A MINIMUM OF FIVE HORIZONTAL FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT TO PREVENT RUNOFF FROM GOING AROUND THE ENDS OF THE SILT FENCE.
8. REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN SILT FENCE OR WHEN SEDIMENT REACHES 25% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN. IF UNDERMINING OCCURS, REINSTALL FENCE.

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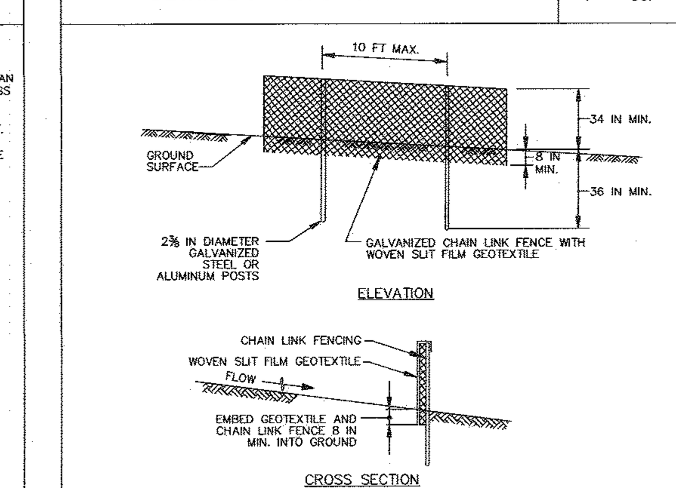
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE | 2011 | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-3 SUPER SILT FENCE

STANDARD SYMBOL: SSF



CONSTRUCTION SPECIFICATIONS

1. INSTALL 2⅜ INCH DIAMETER GALVANIZED STEEL POSTS OF 0.095 INCH WALL THICKNESS AND SIX FOOT LENGTH SPACED NO FURTHER THAN 10 FEET APART. DRIVE THE POSTS A MINIMUM OF 36 INCHES INTO THE GROUND.
2. FASTEN 9 GAUGE OR HEAVIER GALVANIZED CHAIN LINK FENCE (2⅜ INCH MAXIMUM OPENING) 42 INCHES IN HEIGHT SECURELY TO THE FENCE POSTS WITH WIRE TIES OR HUG RINGS.
3. FASTEN WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS, SECURELY TO THE UPSLOPE SIDE OF CHAIN LINK FENCE WITH TIES SPACED EVERY 24 INCHES AT THE TOP AND MID SECTION. EMBED GEOTEXTILE AND CHAIN LINK FENCE A MINIMUM OF 8 INCHES INTO THE GROUND.
4. WHERE ENDS OF THE GEOTEXTILE COME TOGETHER, THE ENDS SHALL BE OVERLAPPED BY 6 INCHES, FOLDED, AND STAPLED TO PREVENT SEDIMENT BY PASS.
5. EXTEND BOTH ENDS OF THE SUPER SILT FENCE A MINIMUM OF FIVE HORIZONTAL FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT TO PREVENT RUNOFF FROM GOING AROUND THE ENDS OF THE SUPER SILT FENCE.
6. PROVIDE MANUFACTURER CERTIFICATION TO THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS.
7. REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN FENCE OR WHEN SEDIMENT REACHES 25% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN. IF UNDERMINING OCCURS, REINSTALL CHAIN LINK FENCING AND GEOTEXTILE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL
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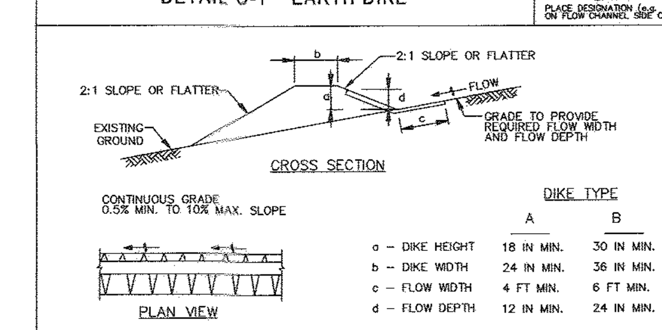
DETAIL C-1 EARTH DIKE

STANDARD SYMBOL: A-1 — PLACE DESIGNATION (e.g. A-1) ON FLOW CHANNEL SIDE OF DIKE.



	DIKE TYPE A	DIKE TYPE B
a - DIKE HEIGHT	18 IN MIN.	30 IN MIN.
b - DIKE WIDTH	24 IN MIN.	36 IN MIN.
c - FLOW WIDTH	4 FT MIN.	6 FT MIN.
d - FLOW DEPTH	12 IN MIN.	24 IN MIN.

FLOW CHANNEL STABILIZATION

A-1	SEED WITH STRAW MULCH AND TACK. (NOT ALLOWED FOR CLEAR WATER DIVERSION.)
A-2/B-2	SEED WITH SOIL STABILIZATION MATTING OR LINE WITH SOD.
A-3/B-3	4 TO 7 INCH STONE OR EQUIVALENT RECYCLED CONCRETE PRESSED INTO SOIL A MINIMUM OF 7 INCHES AND FLUSH WITH GROUND.

CONSTRUCTION SPECIFICATIONS

1. REMOVE AND DISPOSE OF ALL TREES, BRUSH, STUMPS, OBSTRUCTIONS, AND OTHER OBJECTIONABLE MATERIAL SO AS NOT TO INTERFERE WITH PROPER FUNCTION OF EARTHDIKE.
2. EXCAVATE OR SHAPE EARTH DIKE TO LINE, GRADE, AND CROSS SECTION AS SPECIFIED. BANK PROJECTIONS OR OTHER IRREGULARITIES ARE NOT ALLOWED.
3. COMPACT FILL.
4. CONSTRUCT FLOW CHANNEL ON AN UNINTERRUPTED, CONTINUOUS GRADE, ADJUSTING THE LOCATION DUE TO FIELD CONDITIONS AS NECESSARY TO MAINTAIN POSITIVE DRAINAGE.
5. PROVIDE OUTLET PROTECTION AS REQUIRED ON APPROVED PLAN.
6. STABILIZE EARTH DIKE WITHIN THREE DAYS OF INSTALLATION. STABILIZE FLOW CHANNEL FOR CLEAR WATER DIVERSION WITHIN 24 HOURS OF INSTALLATION.
7. MAINTAIN LINE, GRADE, AND CROSS SECTION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS, AND MAINTAIN POSITIVE DRAINAGE. KEEP EARTH DIKE AND POINT OF DISCHARGE FREE OF EROSION, AND CONTINUOUSLY MEET REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.
8. UPON REMOVAL OF EARTH DIKE, GRADE AREA FLUSH WITH EXISTING GROUND. WITHIN 24 HOURS OF REMOVAL STABILIZE DISTURBED AREA WITH TOPSOIL, SEED, AND MULCH, OR AS SPECIFIED ON APPROVED PLAN.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL
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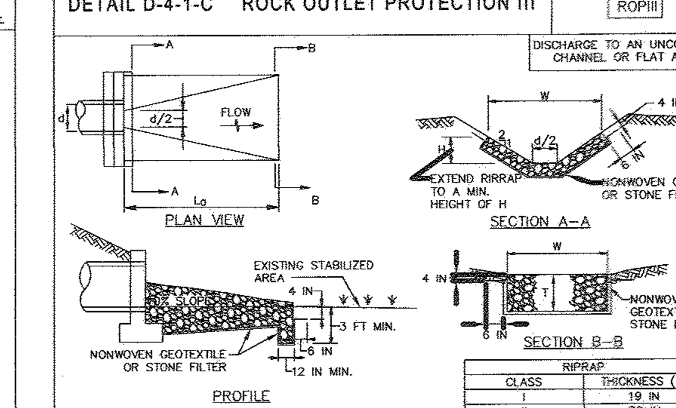
DETAIL D-4-1-C ROCK OUTLET PROTECTION III

STANDARD SYMBOL: ROPIII



RIPRAP	
CLASS	THICKNESS (T)
I	19 IN
II	32 IN
III	46 IN

CONSTRUCTION SPECIFICATIONS

1. RIPRAP AND STONE MUST CONFORM TO THE SPECIFIED CLASS.
2. USE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS, AND PROTECT FROM PUNCTURING, CUTTING, OR TEARING. REPAIR ANY DAMAGE OTHER THAN AN OCCASIONAL SMALL HOLE BY PLACING ANOTHER PIECE OF GEOTEXTILE OVER THE DAMAGED PART OR BY COMPLETELY REPLACING THE GEOTEXTILE. PROVIDE A MINIMUM OF ONE FOOT OVERLAP FOR ALL REPAIRS AND FOR JOINING TWO PIECES OF GEOTEXTILE TOGETHER.
3. PREPARE THE SUBGRADE FOR GEOTEXTILE OR STONE FILTER (⅜ TO 1½ INCH MINIMUM STONE FOR 6 INCH MINIMUM DEPTH) AND RIPRAP TO THE REQUIRED LINES AND GRADES. COMPACT ANY FILL REQUIRED IN THE SUBGRADE TO A DENSITY OF APPROXIMATELY THAT OF THE SURROUNDING UNDISTURBED MATERIAL.
4. EXTEND GEOTEXTILE AT LEAST 6 INCHES BEYOND EDGES OF RIPRAP AND EMBED AT LEAST 4 INCHES AT SIDES OF RIPRAP.
5. CONSTRUCT RIPRAP OUTLET TO FULL COURSE THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO AVOID DISPLACEMENT OF UNDERLYING MATERIALS. PLACE STONE FOR RIPRAP OUTLET IN A MANNER THAT WILL ENSURE THAT IT IS REASONABLY HOMOGENOUS WITH THE SMALLER STONES AND SPALLS FILLING THE VOIDS BETWEEN THE LARGER STONES. PLACE RIPRAP IN A MANNER TO PREVENT DAMAGE TO THE FILTER BLANKET OR GEOTEXTILE. HAND PLACE TO THE EXTENT NECESSARY.
6. WHERE NO ENDWALL IS USED, CONSTRUCT THE UPSTREAM END OF THE APRON SO THAT THE WIDTH IS TWO TIMES THE DIAMETER OF THE OUTLET PIPE, AND EXTEND THE STONE UNDER THE OUTLET BY A MINIMUM OF 18 INCHES.
7. CONSTRUCT APRON WITH 0% SLOPE ALONG ITS LENGTH AND WITHOUT OBSTRUCTIONS. PLACE STONE SO THAT IT BLENDS IN WITH EXISTING GROUND.
8. MAINTAIN LINE, GRADE, AND CROSS SECTION. KEEP OUTLET FREE OF EROSION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. AFTER HIGH FLOWS INSPECT FOR SCOUR AND RIPRAP DISLODGED RIPRAP. MAKE NECESSARY REPAIRS IMMEDIATELY.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL
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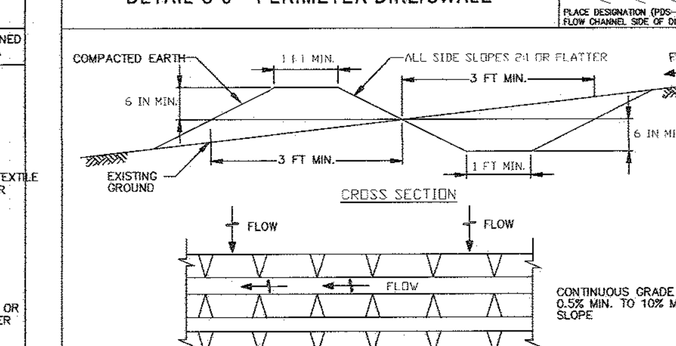
DETAIL C-3 PERIMETER DIKE/SWALE

STANDARD SYMBOL: PDS-1 — PLACE DESIGNATION (PDS-1 OR 2) ON FLOW CHANNEL SIDE OF DIKE-SWALE.



FLOW CHANNEL STABILIZATION

PDS-1	SEED AND MULCH AND TACK (DRAINING < 1 ACRE) (NOT ALLOWED FOR CLEAR WATER DIVERSION.)
PDS-2	SEED WITH SOIL STABILIZATION MATTING OR LINE WITH SOD (DRAINING BETWEEN 1 AND 2 ACRES)

NOTE: THE MAXIMUM DRAINAGE AREA FOR THIS PRACTICE IS 2 ACRES.

CONSTRUCTION SPECIFICATIONS

1. REMOVE AND DISPOSE OF ALL TREES, BRUSH, STUMPS, OBSTRUCTIONS, AND OTHER OBJECTIONABLE MATERIAL SO AS NOT TO INTERFERE WITH PROPER FUNCTION OF DIKE/SWALE.
2. EXCAVATE OR SHAPE DIKE/SWALE TO LINE, GRADE, AND CROSS SECTION AS SPECIFIED. BANK PROJECTIONS OR OTHER IRREGULARITIES ARE NOT ALLOWED.
3. COMPACT FILL.
4. CONSTRUCT DIKE/SWALE ON AN UNINTERRUPTED, CONTINUOUS GRADE, ADJUSTING THE LOCATION DUE TO FIELD CONDITIONS AS NECESSARY TO MAINTAIN POSITIVE DRAINAGE.
5. PROVIDE OUTLET PROTECTION AS REQUIRED ON APPROVED PLAN.
6. STABILIZE DIKE/SWALE WITHIN 3 DAYS OF INSTALLATION. STABILIZE DIKE/SWALES USED FOR CLEAR WATER DIVERSION WITHIN 24 HOURS OF INSTALLATION.
7. MAINTAIN LINE, GRADE, AND CROSS SECTION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS, AND MAINTAIN POSITIVE DRAINAGE. KEEP PERIMETER DIKE/SWALE AND POINT OF DISCHARGE FREE OF EROSION AND CONTINUOUSLY MEET REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.
8. UPON REMOVAL OF DIKE/SWALE, GRADE AREA FLUSH WITH EXISTING GROUND. WITHIN 24 HOURS OF REMOVAL STABILIZE DISTURBED AREA WITH TOPSOIL, SEED, MULCH, OR AS SPECIFIED ON APPROVED PLAN.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL
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B-4-4 STANDARDS AND SPECIFICATIONS FOR TEMPORARY STABILIZATION

DEFINITION

TO STABILIZE DISTURBED SOILS WITH VEGETATION FOR UP TO 6 MONTHS.

PURPOSE

TO USE FAST GROWING VEGETATION THAT PROVIDES COVER ON DISTURBED SOILS.

CONDITIONS WHERE PRACTICE APPLIES

EXPOSED SOILS WHERE GROUND COVER IS NEEDED FOR A PERIOD OF 6 MONTHS OR LESS. FOR LONGER DURATION OF TIME, PERMANENT STABILIZATION PRACTICES ARE REQUIRED.

CRITERIA

1. SELECT ONE OR MORE OF THE SPECIES OR SEED MIXTURES LISTED IN TABLE 8.1 FOR THE APPROPRIATE PLANT HARDINESS ZONE (FROM FIGURE B.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.
2. FOR SITES HAVING SOIL TESTS PERFORMED, USE AND SHOW THE RECOMMENDED RATES BY THE TESTING AGENCY. SOIL TESTS ARE NOT REQUIRED FOR TEMPORARY SEEDING.
3. WHEN STABILIZATION IS REQUIRED OUTSIDE OF A SEEDING SEASON, APPLY SEED AND MULCH OR STRAW MULCH ALONE AS PRESCRIBED IN SECTION B-4-3.A.1.B AND MAINTAIN UNTIL THE NEXT SEEDING SEASON.

TEMPORARY SEEDING SUMMARY

HARDINESS ZONE (FROM FIGURE B.3): ZONE 6b SEED MIXTURE (FROM TABLE B.1):					FERTILIZER RATE (10-20-20)	LIME RATE
NO	SPECIES	APPLICATION RATE (LB/AC)	SEEDING DATES	SEEDING DEPTHS		
1	COOL SEASON ANNUAL RYEGRASS OR EQUAL	40 LB / AC	MAR 1 TO MAY 15 AUG 1 TO OCT 15	1/2 IN.	436 LB/AC (10 LB PER 1000 SF)	2 TONS/AC (90 LB PER 1000 SF)
2	WARM SEASON FOXTAIL MILLET OR EQUAL	30 LB / AC	MAY 16 TO JUL 31	1/2 IN.		

B-4-8 STANDARDS AND SPECIFICATIONS FOR STOCKPILE AREA

DEFINITION
A MOUND OR PILE OF SOIL PROTECTED BY APPROPRIATELY DESIGNED EROSION AND SEDIMENT CONTROL MEASURES.

PURPOSE

TO PROVIDE A DESIGNATED LOCATION FOR THE TEMPORARY STORAGE OF SOIL THAT CONTROLS THE POTENTIAL FOR EROSION, SEDIMENTATION, AND CHANGES TO DRAINAGE PATTERNS.

CONDITIONS WHERE PRACTICE APPLIES

STOCKPILE AREAS ARE UTILIZED WHEN IT IS NECESSARY TO SALVAGE AND STORE SOIL FOR LATER USE.

CRITERIA

1. THE STOCKPILE LOCATION AND ALL RELATED SEDIMENT CONTROL PRACTICES MUST BE CLEARLY INDICATED ON THE EROSION AND SEDIMENT CONTROL PLAN.
2. THE FOOTPRINT OF THE STOCKPILE MUST BE SIZED TO ACCOMMODATE THE ANTICIPATED VOLUME OF MATERIAL AND BASED ON A SIDE SLOPE RATIO NO STEEPER THAN 2:1. BENCHING MUST BE PROVIDED IN ACCORDANCE WITH SECTION B-3 LAND GRADING.
3. RUNOFF FROM THE STOCKPILE AREA MUST DRAIN TO A SUITABLE SEDIMENT CONTROL PRACTICE.
4. ACCESS THE STOCKPILE AREA FROM THE UPGRADE SIDE.
5. CLEAR WATER RUNOFF INTO THE STOCKPILE AREA MUST BE MINIMIZED BY USE OF A DIVERSION DEVICE SUCH AS AN EARTH DIKE, TEMPORARY SWALE OR DIVERSION FENCE. PROVISIONS MUST BE MADE FOR DISCHARGING CONCENTRATED FLOW IN A NON-EROSIVE MANNER.
6. WHERE RUNOFF CONCENTRATES ALONG THE TOE OF THE STOCKPILE FILL, AN APPROPRIATE EROSION/SEDIMENT CONTROL PRACTICE MUST BE USED TO INTERCEPT THE DISCHARGE.
7. STOCKPILES MUST BE STABILIZED IN ACCORDANCE WITH THE 3/7 DAY STABILIZATION REQUIREMENT AS WELL AS STANDARD B-4-1 INCREMENTAL STABILIZATION AND STANDARD B-4-4 TEMPORARY STABILIZATION.
8. IF THE STOCKPILE IS LOCATED ON AN IMPERVIOUS SURFACE, A LINER SHOULD BE PROVIDED BELOW THE STOCKPILE TO FACILITATE CLEANUP. STOCKPILES CONTAINING CONTAMINATED MATERIAL MUST BE COVERED WITH IMPERMEABLE SHEETING.

MAINTENANCE

THE STOCKPILE AREA MUST CONTINUOUSLY MEET THE REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION. SIDE SLOPES MUST BE MAINTAINED AT NO STEEPER THAN A 2:1 RATIO. THE STOCKPILE AREA MUST BE KEPT FREE OF EROSION. IF THE VERTICAL HEIGHT OF A STOCKPILE EXCEEDS 20 FEET FOR 2:1 SLOPES, 30 FEET FOR 3:1 SLOPES, OR 40 FEET FOR 4:1 SLOPES, BENCHING MUST BE PROVIDED IN ACCORDANCE WITH SECTION B-3 LAND GRADING.

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

NO.	REVISION	DATE

FINAL ROAD CONSTRUCTION PLAN

GRADING AND SOIL EROSION, AND SEDIMENT CONTROL PLAN - DETAILS

MAPLE LAWN SOUTH PHASE 1 - SECTION 1

LOTS 1-64, NON-BUILDABLE BULK PARCEL 'A', NON-BUILDABLE BULK PARCEL 'B', AND OPEN SPACE LOTS 65-69

TAX MAP 46 - GRID 2 - PARCEL 113
5TH ELECTION DISTRICT
DPZ REF: ECP-14-093, WP-15-136, PB#415, SP-15-014

ZONED: R-ED-MXD-3
HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL ENGINEERING, INC.
ENGINEERS • SURVEYORS • PLANNERS
8407 MAIN STREET
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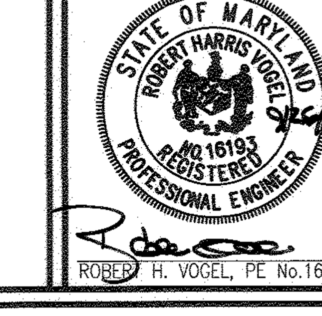


ROBERT H. VOGEL, PE No.16193

DESIGN BY:	RVE
DRAWN BY:	RVE
CHECKED BY:	RHV
DATE:	SEPTEMBER 2016
SCALE:	AS SHOWN
W.O. NO.:	11-34

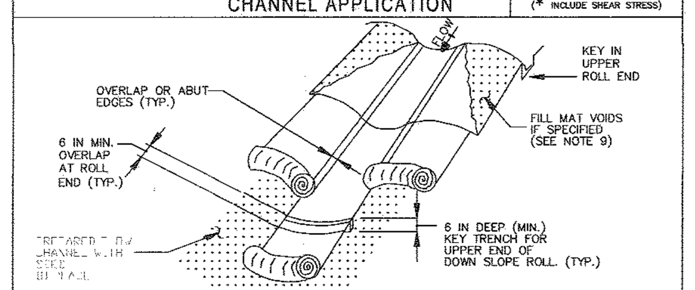
PROFESSIONAL CERTIFICATE

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: 09-27-2018

F-16-021

DETAIL B-4-6-C PERMANENT SOIL STABILIZATION MATTING CHANNEL APPLICATION

STANDARD SYMBOL: PSSMC – * lb/ft² (* INCLUDE SHEAR STRESS)



CONSTRUCTION SPECIFICATIONS

1. USE MATTING THAT HAS A DESIGN VALUE FOR SHEAR STRESS EQUAL TO OR HIGHER THAN THE SHEAR STRESS DESIGNATED ON APPROVED PLANS.
2. USE PERMANENT SOIL STABILIZATION MATTING MADE OF OPEN WEAVE SYNTHETIC, NON-DEGRADABLE FIBERS OR ELEMENTS OF UNIFORM THICKNESS AND DISTRIBUTION THROUGHOUT. CHEMICALS USED IN THE MAT MUST BE NON-LEACHING AND NON-TOXIC TO VEGETATION AND SEED GERMINATION AND NON-INJURIOUS TO THE SKIN. IF PRESENT, NETTING MUST BE EXTRUDED PLASTIC WITH A MAXIMUM MESH OPENING OF 2x2 INCHES AND SUFFICIENTLY BONDED OR SEWN ON 2 INCH CENTERS ALONG LONGITUDINAL AXIS OF THE MATERIAL TO PREVENT SEPARATION OF THE NET FROM THE PARENT MATERIAL.
3. SECURE MATTING USING STEEL STAPLES OR WOOD STAKES. STAPLES MUST BE "U" OR "T" SHAPED STEEL WIRE HAVING A MINIMUM GAUGE OF NO. 11 AND NO. 8 RESPECTIVELY. "U" SHAPED STAPLES MUST AVERAGE 1 TO 1½ INCHES WIDE AND BE A MINIMUM OF 6 INCHES LONG. "T" SHAPED STAPLES MUST HAVE A MINIMUM 8 INCH MAIN LEG, A MINIMUM 1 INCH SECONDARY LEG, AND MINIMUM 4 INCH HEAD. WOOD STAKES MUST BE ROUGH-SAWN HARDWOOD, 12 TO 24 INCHES IN LENGTH, 1x3 INCH IN CROSS SECTION, AND WEDGE SHAPE AT THE BOTTOM.
4. PERFORM FINAL GRADING, TOPSOIL APPLICATION, SEEDBED PREPARATION, AND PERMANENT SEEDING IN ACCORDANCE WITH SPECIFICATIONS. PLACE MATTING WITHIN 48 HOURS OF COMPLETING SEEDING OPERATIONS, UNLESS END OF WORKDAY STABILIZATION IS SPECIFIED ON THE APPROVED EROSION AND SEDIMENT CONTROL PLAN.
5. UNROLL MATTING IN DIRECTION OF WATER FLOW, CENTERING THE FIRST ROLL ON THE CHANNEL CENTER LINE. WORK FROM CENTER OF CHANNEL OUTWARD WHEN PLACING ROLLS. LAY MATTING SMOOTHLY AND FIRMLY UPON THE SEEDED SURFACE. AVOID STRETCHING THE MATTING.
6. OVERLAP OR ABUT EDGES OF MATTING ROLLS PER MANUFACTURER RECOMMENDATIONS. OVERLAP ROLL ENDS BY 6 INCHES (MINIMUM), WITH THE UPSTREAM MAT OVERLAPPING ON TOP OF THE NEXT DOWNSTREAM MAT.
7. KEY IN THE TOP OF SLOPE END OF MAT 6 INCHES (MINIMUM) BY DIGGING A TRENCH, PLACING THE MATTING ROLL END IN THE TRENCH, STAPLING THE MAT IN PLACE, REPLACING THE EXCAVATED MATERIAL, AND TAMPING TO SECURE THE MAT END IN THE KEY.
8. STAPLE/STAKE MAT IN A STAGGERED PATTERN ON 4 FOOT (MAXIMUM) CENTERS THROUGHOUT AND 2 FOOT (MAXIMUM) CENTERS ALONG SEAMS, JOINTS, AND ROLL ENDS.
9. IF SPECIFIED BY THE DESIGNER OR MANUFACTURER AND DEPENDING ON THE TYPE OF MAT BEING INSTALLED, ONCE THE MATTING IS KEYED AND STAPLED IN PLACE, FILL THE MAT VOIDS WITH TOP SOIL OR GRANULAR MATERIAL AND LIGHTLY COMPACT OR ROLL TO MAXIMIZE SOIL/MAT CONTACT WITHOUT CRUSHING MAT.
10. ESTABLISH AND MAINTAIN VEGETATION SO THAT REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT ARE CONTINUOUSLY MET IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL
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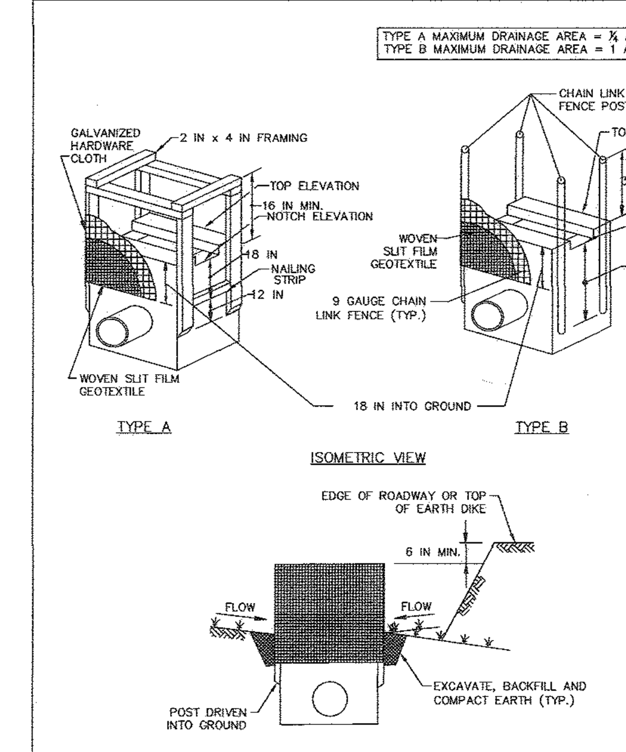
DETAIL E-9-1 STANDARD INLET PROTECTION

STANDARD SYMBOL: SIP

TYPE A MAXIMUM DRAINAGE AREA = ¼ ACRE
TYPE B MAXIMUM DRAINAGE AREA = 1 ACRE



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MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL
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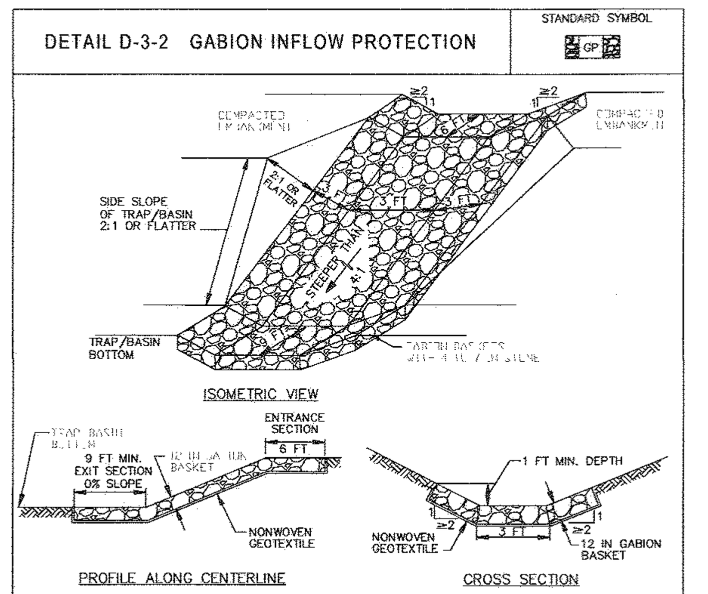
DETAIL D-3-2 GABION INFLOW PROTECTION

STANDARD SYMBOL: GP



CONSTRUCTION SPECIFICATIONS

1. PROVIDE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS, UNDER THE BOTTOM AND ALONG SIDES OF ALL GABION BASKETS.
2. USE BASKETS MADE OF MINIMUM 11 GAUGE WIRE.
3. CONSTRUCT GABION INFLOW PROTECTION BY ARRANGING 9 X 3 X 1 FOOT GABION BASKETS TO FORM A TRAPEZOIDAL SECTION WITH A 3 FOOT BOTTOM WIDTH, 1 FOOT MINIMUM DEPTH, 3 FOOT SIDE WALLS, AND 2:1 OR FLATTER SIDE SLOPES. FILL GABION BASKETS WITH 4 TO 7 INCH STONE OR EQUIVALENT RECYCLED CONCRETE WITHOUT REBAR OR WEIR MESH.
4. INSTALL ENTRANCE AND EXIT SECTIONS AS SHOWN ON THE PROFILE.
5. INSTALL GABIONS IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS.
6. BLEND GABIONS INTO EXISTING GROUND.
7. MAINTAIN LINE, GRADE, AND CROSS SECTION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. KEEP POINTS OF INFLOW AND OUTFLOW FREE OF EROSION.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL
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COLLAR SIZE

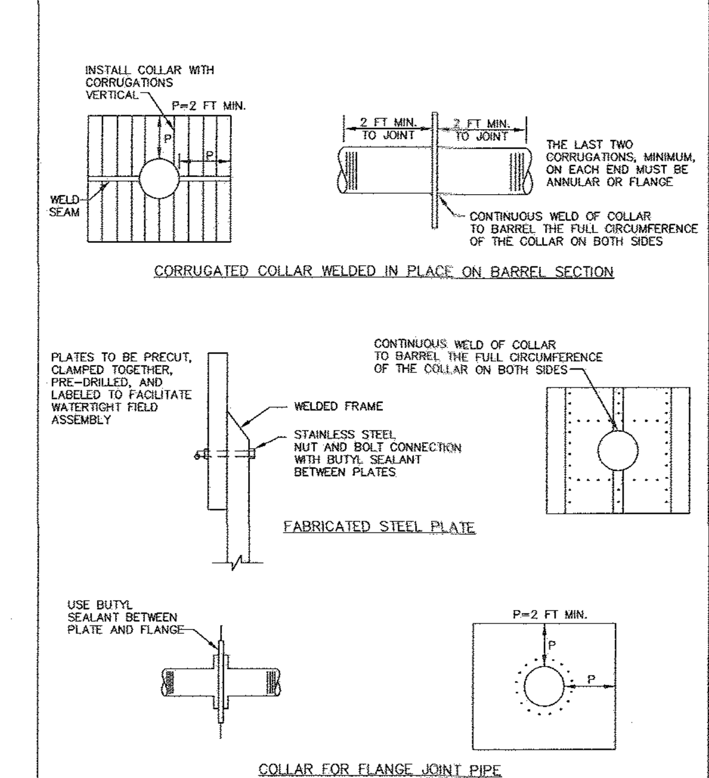
BASIN #1
1 COLLAR @ 6.6' X 6.6'
15" BARREL

BASIN #2
1 COLLAR @ 6.5' X 6.5'
18" BARREL

BASIN #3
2 COLLAR @ 6.5' X 6.5'
15" BARREL

DETAIL G-2-1 TYPICAL ANTI-SEEP COLLARS

STANDARD SYMBOL



MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL
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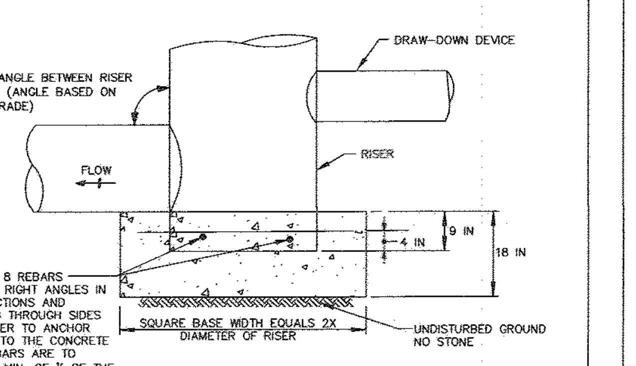
DETAIL G-2-2 CORRUGATED RISER BASE

STANDARD SYMBOL



CONSTRUCTION SPECIFICATIONS

1. BOTTOM OF CONCRETE BASE TO BE PLACED ON UNDISTURBED, NATURAL GROUND.
2. NO STONE IS ALLOWED UNDER BASE. IF NECESSARY, TO ACHIEVE STABILITY INCREASE DEPTH OF CONCRETE BASE.

RISER BASE

BASIN #1
27" = 4.5 x 4.5

BASIN #2
30" = 5 x 5

BASIN #3
21" 3.5 x 3.5

FOR TRASH RACK & ANTI VORTEX DEVICE INFORMATION REFER TO MANUAL G-2-3 (2 OF 2)

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL
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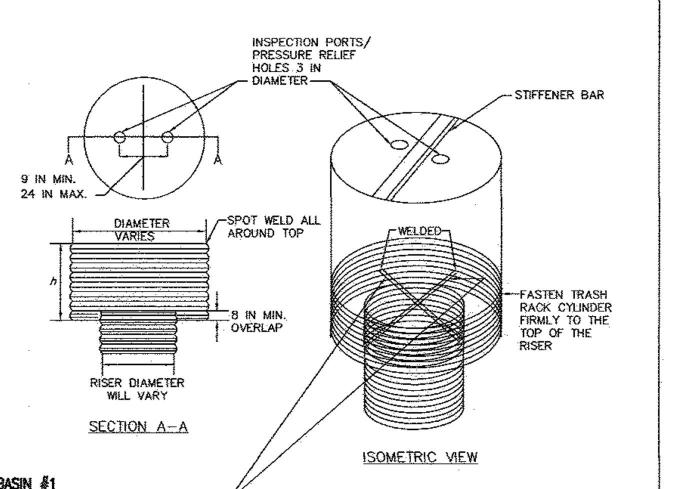
DETAIL G-2-3 CONCENTRIC TRASH RACK AND ANTI-VORTEX DEVICE

STANDARD SYMBOL: TR



BASIN #1
27" RISER
42" TRASH RACK

BASIN #2
30" RISER
48" TRASH RACK

BASIN #3
21" RISER
30" TRASH RACK

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MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL
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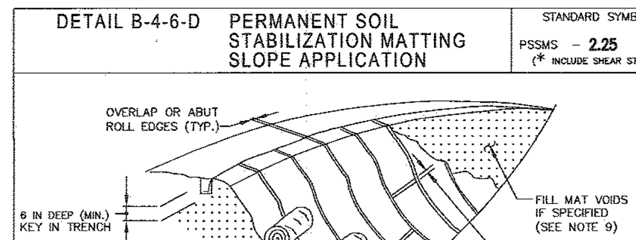
DETAIL B-4-6-D PERMANENT SOIL STABILIZATION MATTING SLOPE APPLICATION

STANDARD SYMBOL: PSSMS – 2.25 lb/ft² (* INCLUDE SHEAR STRESS)



CONSTRUCTION SPECIFICATIONS

1. USE MATTING THAT HAS A DESIGN VALUE FOR SHEAR STRESS EQUAL TO OR HIGHER THAN THE SHEAR STRESS DESIGNATED ON APPROVED PLANS.
2. USE PERMANENT SOIL STABILIZATION MATTING MADE OF OPEN WEAVE SYNTHETIC, NON-DEGRADABLE FIBERS OR ELEMENTS OF UNIFORM THICKNESS AND DISTRIBUTION THROUGHOUT. CHEMICALS USED IN THE MAT MUST BE NON-LEACHING AND NON-TOXIC TO VEGETATION AND SEED GERMINATION AND NON-INJURIOUS TO THE SKIN. IF PRESENT, NETTING MUST BE EXTRUDED PLASTIC WITH A MAXIMUM MESH OPENING OF 2x2 INCHES AND SUFFICIENTLY BONDED OR SEWN ON 2 INCH CENTERS ALONG LONGITUDINAL AXIS OF THE MATERIAL TO PREVENT SEPARATION OF THE NET FROM THE PARENT MATERIAL.
3. SECURE MATTING USING STEEL STAPLES OR WOOD STAKES. STAPLES MUST BE "U" OR "T" SHAPED STEEL WIRE HAVING A MINIMUM GAUGE OF NO. 11 AND NO. 8 RESPECTIVELY. "U" SHAPED STAPLES MUST AVERAGE 1 TO 1½ INCHES WIDE AND BE A MINIMUM OF 6 INCHES LONG. "T" SHAPED STAPLES MUST HAVE A MINIMUM 8 INCH MAIN LEG, A MINIMUM 1 INCH SECONDARY LEG, AND MINIMUM 4 INCH HEAD. WOOD STAKES MUST BE ROUGH-SAWN HARDWOOD, 12 TO 24 INCHES IN LENGTH, 1x3 INCH IN CROSS SECTION, AND WEDGE SHAPE AT THE BOTTOM.
4. PERFORM FINAL GRADING, TOPSOIL APPLICATION, SEEDBED PREPARATION, AND PERMANENT SEEDING IN ACCORDANCE WITH SPECIFICATIONS. PLACE MATTING WITHIN 48 HOURS OF COMPLETING SEEDING OPERATIONS, UNLESS END OF WORKDAY STABILIZATION IS SPECIFIED ON THE APPROVED EROSION AND SEDIMENT CONTROL PLAN.
5. UNROLL MATTING DOWN SLOPE. LAY MATTING SMOOTHLY AND FIRMLY UPON THE SEEDED SURFACE. AVOID STRETCHING THE MATTING.
6. OVERLAP OR ABUT EDGES OF MATTING ROLLS PER MANUFACTURER RECOMMENDATIONS. OVERLAP ROLL ENDS BY 6 INCHES (MINIMUM), WITH THE UPSTREAM MAT OVERLAPPING ON TOP OF THE DOWNSLOPE MAT.
7. KEY IN THE TOP OF SLOPE END OF MAT 6 INCHES (MINIMUM) BY DIGGING A TRENCH, PLACING THE MATTING ROLL END IN THE TRENCH, STAPLING THE MAT IN PLACE, REPLACING THE EXCAVATED MATERIAL, AND TAMPING TO SECURE THE MAT END IN THE KEY.
8. STAPLE/STAKE MAT IN A STAGGERED PATTERN ON 4 FOOT (MAXIMUM) CENTERS THROUGHOUT AND 2 FOOT (MAXIMUM) CENTERS ALONG SEAMS, JOINTS, AND ROLL ENDS.
9. IF SPECIFIED BY THE DESIGNER OR MANUFACTURER AND DEPENDING ON THE TYPE OF MAT BEING INSTALLED, ONCE THE MATTING IS KEYED AND STAPLED IN PLACE, FILL THE MAT VOIDS WITH TOP SOIL OR GRANULAR MATERIAL AND LIGHTLY COMPACT OR ROLL TO MAXIMIZE SOIL/MAT CONTACT WITHOUT CRUSHING MAT.
10. ESTABLISH AND MAINTAIN VEGETATION SO THAT REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT ARE CONTINUOUSLY MET IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL
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DETAIL E-9-1 STANDARD INLET PROTECTION

STANDARD SYMBOL: SIP

CONSTRUCTION SPECIFICATIONS

1. USE WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS.
2. EXCAVATE COMPLETELY AROUND THE INLET TO A DEPTH OF 18 INCHES BELOW THE NOTCH ELEVATION.
3. FOR TYPE A, USE NOMINAL 2 INCH X 4 INCH CONSTRUCTION GRADE LUMBER POSTS, DRIVEN 1 FOOT INTO THE GROUND AT EACH CORNER OF THE INLET. PLACE NAIL STRIPS BETWEEN THE POSTS ON THE ENDS OF THE INLET. ASSEMBLE THE TOP PORTION OF THE 2X4 FRAME AS SHOWN. STRETCH ½ INCH GALVANIZED HARDWARE CLOTH TIGHTLY AROUND THE FRAME AND FASTEN SECURELY. FASTEN GEOTEXTILE SECURELY TO THE HARDWARE CLOTH WITH TIES SPACED EVERY 24 INCHES AT THE TOP AND MID SECTION. EMBED GEOTEXTILE AND HARDWARE CLOTH A MINIMUM OF 18 INCHES BELOW THE WEIR CREST. THE ENDS OF THE GEOTEXTILE MUST MEET AT A POST, BE OVERLAPPED AND FOLDED, THEN FASTENED TO THE POST.

   FOR TYPE B, USE 2⅜ INCH DIAMETER GALVANIZED STEEL POSTS OF 0.095 INCH WALL THICKNESS AND 6 FOOT LENGTH, DRIVEN A MINIMUM OF 36 INCHES BELOW THE WEIR CREST AT EACH CORNER OF THE STRUCTURE. FASTEN 9 GAUGE OR HEAVIER CHAIN LINK FENCE, 42 INCHES IN HEIGHT, SECURELY TO THE FENCE POSTS WITH WIRE TIES. FASTEN GEOTEXTILE SECURELY TO THE CHAIN LINK FENCE WITH TIES SPACED EVERY 24 INCHES AT THE TOP AND MID SECTION. EMBED GEOTEXTILE AND CHAIN LINK FENCE A MINIMUM OF 18 INCHES BELOW THE WEIR CREST.
4. BACKFILL AROUND THE INLET IN LOOSE 4 INCH LIFTS AND COMPACT UNTIL SOIL IS LEVEL WITH THE NOTCH ELEVATION ON THE ENDS AND TOP ELEVATION ON THE SIDES.
5. STORM DRAIN INLET PROTECTION REQUIRES FREQUENT MAINTENANCE. REMOVE ACCUMULATED SEDIMENT AFTER EACH RAIN EVENT TO MAINTAIN FUNCTION AND AVOID PREMATURE CLOGGING. IF INLET PROTECTION DOES NOT COMPLETELY DRAIN WITHIN 24 HOURS AFTER A STORM EVENT, IT IS CLOGGED. WHEN THIS OCCURS, REMOVE ACCUMULATED SEDIMENT AND CLEAN, OR REPLACE GEOTEXTILE AND STONE.

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MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL
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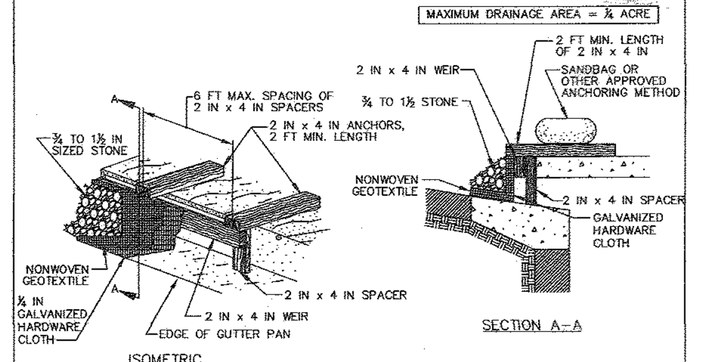
DETAIL E-9-3 CURB INLET PROTECTION

STANDARD SYMBOL: CIP

MAXIMUM DRAINAGE AREA = ¼ ACRE



CONSTRUCTION SPECIFICATIONS

1. USE NOMINAL 2 INCH x 4 INCH LUMBER
2. USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS.
3. NAIL THE 2x4 WEIR TO 9 INCH LONG VERTICAL SPACERS (MAXIMUM 6 FEET APART).
4. ATTACH A CONTINUOUS PIECE OF ¼ INCH GALVANIZED HARDWARE CLOTH, WITH A MINIMUM WIDTH OF 30 INCHES AND A MINIMUM LENGTH OF 4 FEET LONGER THAN THE THROAT OPENING, TO THE 2x4 WEIR, EXTENDING IT 2 FEET BEYOND THROAT ON EACH SIDE.
5. PLACE A CONTINUOUS PIECE OF NONWOVEN GEOTEXTILE OF THE SAME DIMENSIONS AS THE HARDWARE CLOTH OVER THE HARDWARE CLOTH AND SECURELY ATTACH TO THE 2x4 WEIR.
6. PLACE THE ASSEMBLY AGAINST THE INLET THROAT AND NAIL TO 2x4 ANCHORS (MINIMUM 2 FEET LENGTH). EXTEND THE ANCHORS ACROSS THE INLET TOP AND HOLD IN PLACE BY SANDBAGS OR OTHER APPROVED ANCHORING METHOD.
7. INSTALL END SPACERS A MINIMUM OF 1 FOOT BEYOND THE ENDS OF THE THROAT OPENING.
8. FORM THE HARDWARE CLOTH AND THE GEOTEXTILE TO THE CONCRETE GUTTER AND FACE OF CURB TO SPAN THE INLET OPENING. COVER THE HARDWARE CLOTH AND GEOTEXTILE WITH CLEAN ¾ TO 1½ INCH STONE OR EQUIVALENT RECYCLED CONCRETE.
9. AT NON-SUMP LOCATIONS, INSTALL A TEMPORARY SANDBAG OR ASPHALT BERM TO PREVENT INLET BYPASS.
10. STORM DRAIN INLET PROTECTION REQUIRES FREQUENT MAINTENANCE. REMOVE ACCUMULATED SEDIMENT AFTER EACH RAIN EVENT TO MAINTAIN FUNCTION AND AVOID PREMATURE CLOGGING. IF INLET PROTECTION DOES NOT COMPLETELY DRAIN WITHIN 24 HOURS AFTER A STORM EVENT, IT IS CLOGGED. WHEN THIS OCCURS, REMOVE ACCUMULATED SEDIMENT AND CLEAN, OR REPLACE GEOTEXTILE AND STONE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL
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BAFFLE DESIGN
BASIN #1

AREA WET STORAGE EL = 24,028 SF
We = (A/2)^0.5
We = 109.6'
MIN Le = We X 2 = 219'

INFLOW WEST	INFLOW EAST
L1= 170'	N/A
L2= 49'	
PROVIDED Le = 219'	

BAFFLE DESIGN
BASIN #2

AREA WET STORAGE EL = 22,418 SF
We = (A/2)^0.5
We = 105.9'
MIN Le = We X 2 = 212'

INFLOW WEST	INFLOW EAST
L1= 51'	L1= 81'
L2= 84'	L2= 59'
L3= 79'	L3= 79'
PROVIDED Le = 214'	PROVIDED Le = 219'

BAFFLE DESIGN
BASIN #3

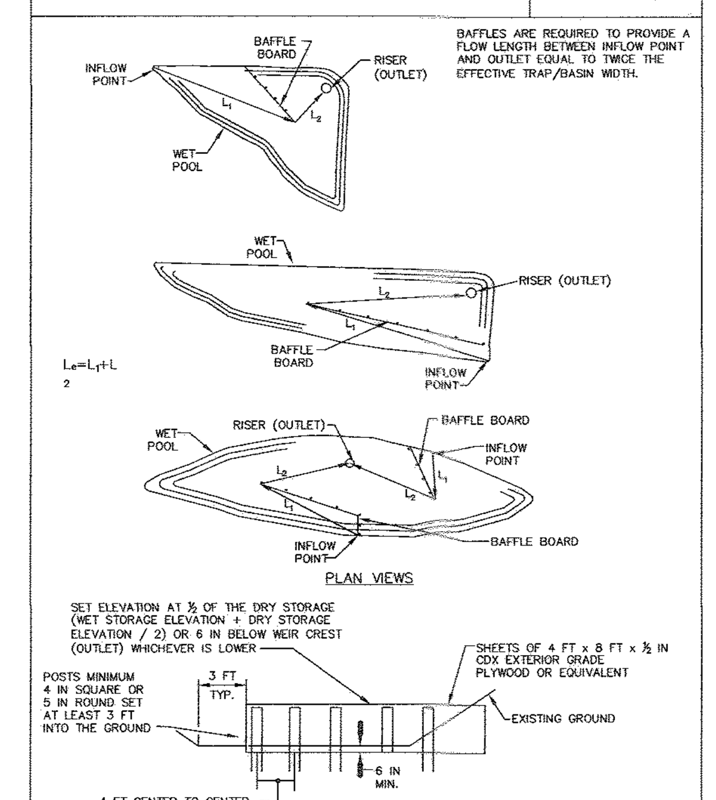
AREA WET STORAGE EL = 8,579 SF
We = (A/2)^0.5
We = 65.5'
MIN Le = We X 2 = 131'

INFLOW NORTH	INFLOW SOUTH
L1= 50'	L1= 29'
L2= 64'	L2= 37'
L3= 45'	L3= 77'
PROVIDED Le = 159'	PROVIDED Le = 138'

DETAIL G-2-4 BAFFLE BOARDS

STANDARD SYMBOL: BB

BAFFLES ARE REQUIRED TO PROVIDE A FLOW LENGTH BETWEEN INFLOW POINT AND OUTLET EQUAL TO TWICE THE EFFECTIVE TRAP/BASIN WIDTH.



MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL
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DRAWDOWN DEVICE DESIGN
BASIN #1

10" HORIZ DRAWDOWN DEVICE W/ 4.0" INTERNAL ORIFICE

PERFORATED LENGTH =11LF W/ 86, 1" DIA HOLES MINIMUM

DRAWDOWN DEVICE DESIGN
BASIN #2

8" HORIZ DRAWDOWN DEVICE W/ 4.0" INTERNAL ORIFICE

PERFORATED LENGTH =13LF W/ 98, 1" DIA HOLES MINIMUM

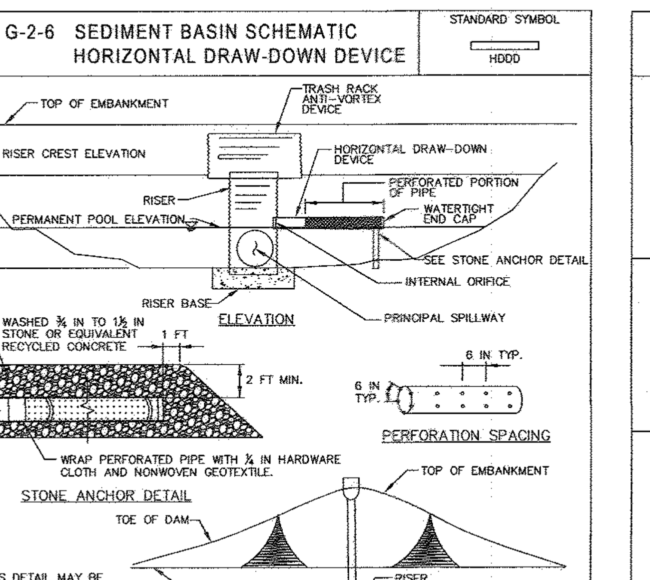
DRAWDOWN DEVICE DESIGN
BASIN #3

10" HORIZ DRAWDOWN DEVICE W/ 3.0" INTERNAL ORIFICE

PERFORATED LENGTH =5LF W/ 38, 1" DIA HOLES MINIMUM

DETAIL G-2-6 SEDIMENT BASIN SCHEMATIC HORIZONTAL DRAW-DOWN DEVICE

STANDARD SYMBOL: HDDD



CONSTRUCTION SPECIFICATIONS

1. PERFORATE PIPE WITH 1 INCH DIAMETER PERFORATIONS SPACED 6 INCHES APART LONGITUDINALLY AND RADIALLY OR IN ACCORDANCE WITH APPROVED PLAN.
2. WRAP THE PERFORATED PORTION OF THE DRAW-DOWN DEVICE FIRST WITH ¼ INCH GALVANIZED HARDWARE CLOTH, THEN WITH NONWOVEN GEOTEXTILE. USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS. DO NOT WRAP WITH MORE THAN ONE LAYER OF GEOTEXTILE.
3. AS AN ALTERNATE TO STONE ANCHORING, SECURE DRAW-DOWN DEVICE WITH TWO 1 INCH STEEL ANGLES SET 3 FEET MINIMUM INTO THE GROUND ATTACHED TO DRAW-DOWN DEVICE BY A 1 INCH WIDE GALVANIZED STEEL STRAP OR 12 GAUGE OR HEAVIER WIRE.
4. REMOVE SEDIMENT WHEN IT ACCUMULATES TO CLEANOUT ELEVATION (50% OF THE WET STORAGE DEPTH). DEPOSIT REMOVED SEDIMENT IN AN APPROVED AREA IN A SUCH A MANNER THAT IT WILL NOT ERODE. MAINTAIN WATER TIGHT CONNECTIONS. REPLACE GEOTEXTILE AROUND PERFORATED RISER IF DRY STORAGE VOLUME DOES NOT DRAW DOWN WITHIN 10 HOURS.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL
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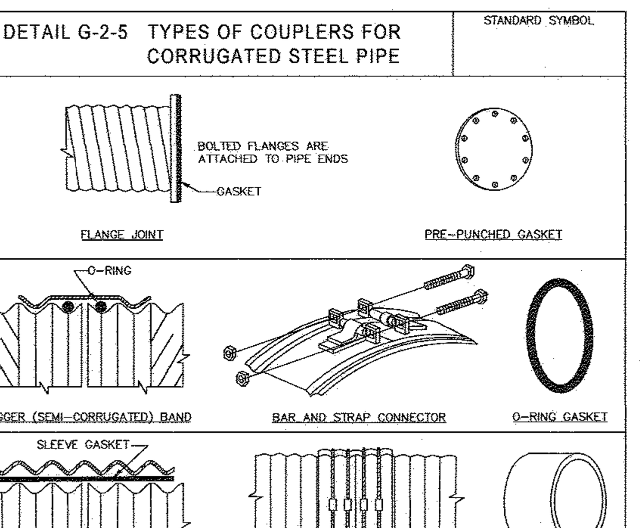
DETAIL G-2-5 TYPES OF COUPLERS FOR CORRUGATED STEEL PIPE

STANDARD SYMBOL



NOTE:
UNDER NO CIRCUMSTANCE IS A DIMPLE (UNIVERSAL) BAND ACCEPTABLE FOR USE IN A SEDIMENT CONTROL OR STORMWATER MANAGEMENT STRUCTURE.

CONSTRUCTION SPECIFICATIONS

1. USE A RUBBER OR NEOPRENE GASKET WHEN JOINING PIPE SECTIONS. THE END OF EACH PIPE SHALL BE RE-ROLLED WITH AN ADEQUATE NUMBER OF CORRUGATIONS TO ACCOMMODATE THE BAND WIDTH.
2. FOR PIPES LESS THAN 24 INCHES IN DIAMETER, PROVIDE ONE OF THE FOLLOWING TYPES OF CONNECTIONS:
   a. FLANGED JOINTS WITH ⅜ INCH CLOSED CELL GASKET THE FULL WIDTH OF THE FLANGE, PRE-PUNCHED TO THE FLANGE BOLT CIRCLES, SANDWICHED BETWEEN ADJACENT FLANGES, OR
   b. 12 INCH WIDE HUGGER TYPE BAND WITH O-RING GASKET HAVING A MINIMUM DIAMETER OF ½ INCH GREATER THAN THE CORRUGATION DEPTH.
3. FOR PIPES 24 INCHES IN DIAMETER AND LARGER, PROVIDE ONE OF THE FOLLOWING TYPES OF CONNECTIONS:
   a. 24 INCH WIDE ANNULAR CORRUGATED BAND WITH 24 INCH WIDE BY ⅜ INCH THICK CLOSED CELL CIRCULAR SLEEVE GASKET WITH 12 INCHES ON THE END OF EACH PIPE, CONNECTED WITH A MINIMUM OF 4 RODS AND LUGS, 2 ON EACH CONNECTING PIPE END, OR
   b. FLANGED JOINTS WITH ⅜ INCH CLOSED CELL GASKET THE FULL WIDTH OF THE FLANGE, PRE-PUNCHED TO THE FLANGE BOLT CIRCLES, AND SANDWICHED BETWEEN ADJACENT FLANGES.

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NOTE:
FOR DISTURBANCES WITHIN THE SHA RIGHT-OF-WAY, THE STATE HIGHWAY ADMINISTRATION REQUIRES SAME DAY STABILIZATION FOR ANY AREA WHICH DOES NOT DRAIN TO AN APPROVED SEDIMENT CONTROL DEVICE.

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

John R Robertson — 10/20/16
HOWARD S.C.D. — DATE

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/OR MDE."

OWNER/DEVELOPER SIGNATURE
Chris Mum
PRINTED NAME & TITLE

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."

DESIGNER'S SIGNATURE — DATE 9/26/16
ROBERT H. VOGEL — PRINTED NAME
MD REGISTRATION NO. 16193
P.E., R.L.S., OR R.L.A. (circle one)

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 10/25/2016

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
CHIEF, DEVELOPMENT ENGINEERING DIVISION JP — DATE 11/3/16
CHIEF, DIVISION OF LAND DEVELOPMENT DJ — DATE 11-4-16

SEQUENCE OF CONSTRUCTION

1. OBTAIN MDSHA ACCESS PERMIT AND 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

DISTUBANCE NOTE:
THE PROJECT IS TO BE SEQUENCED SO THAT GRADING ACTIVITIES BEGIN ON ONE GRADING UNIT (MAXIMUM ACREAGE OF 20 ACRES 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 ENFORCEMENT AUTHORITY. UNLESS OTHERWISE SPECIFIED AND APPROVED BY THE APPROVAL AUTHORITY, NO MORE THAN 30 ACRES CUMULATIVELY MAY BE DISTURBED AT A GIVEN TIME.

PHASE 1 GRADING WORK – SHEETS 7-10 (TOTAL GRADING UNIT 1 – 20 ACRES)

GRADING UNIT 1A – 8 ACRES

1. INSTALL STABILIZED CONSTRUCTION ENTRANCE, WHERE SHOWN HEREON. – 1 DAY
2. COMPLETE AND CLEARING AND GRUBBING ONSITE AREA FOR THE INSTALLATION OF PERIMETER CONTROLS (1 DAY)
3. ALL PIPE MATERIALS FOR THE CONSTRUCTION OF SEDIMENT BASIN #3 SHALL BE ONSITE PRIOR TO THE CONSTRUCTION OF THE BASIN.
4. WITH PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, CONSTRUCT SEDIMENT BASIN # 3 PER THE DETAILS AND SPECIFICATIONS SHOWN HEREON AND INSTALL PERIMETER CONTROLS AT THE LIMIT OF DISTURBANCE, WHERE SHOWN OR AS DIRECTED BY THE SEDIMENT CONTROL INSPECTOR. – 7 DAYS
5. EARTH DIKES DIRECTING SITE DISTURBANCES TO THE BASIN SHALL BE CONSTRUCTED AT THE SAME TIME AS THE SEDIMENT BASIN. EARTH DIKES SHALL BE LINED AS DETAILED HEREON. TEMPORARY MATTING IS MADE WITH DEGRADEABLE (6 MONTH), NATURAL OR MANMADE FIBERS OF UNIFORM THICKNESS AND DISTRIBUTION OF FIBERS THROUGHOUT AND IS SMOLDER RESISTANT.
6. STABILIZE THE DISTURBED AREAS FROM THE AFOREMENTIONED DISTURBANCES WITH TEMPORARY SEEDING MIXTURE AND STRAW MULCH – 1 DAY
7. THE SEDIMENT SHALL BE REMOVED FROM THE SEDIMENT BASIN WHEN THE CLEANOUT ELEVATION HAS BEEN REACHED. – 2 DAYS
8. THE CONTRACTOR SHALL INSPECT AND PROVIDE NECESSARY MAINTENANCE ON THE SEDIMENT AND EROSION CONTROLS SHOWN HEREON AFTER EACH RAINFALL AND ON A DAILY BASIS – 1 DAY
9. THE SEDIMENT BASIN SHALL BE DEWATERED BY PUMPING. THE ACCUMULATED SEDIMENT FROM THE BASIN SHALL BE PLACED UP GRADE FROM THE STRUCTURE IN SUCH A MANNER AS NOT TO INTERFERE WITH CONSTRUCTION OPERATIONS OR CAUSE EROSION DOWN GRADE FROM THE STRUCTURE. – 2 DAYS

BEGIN PHASE 2 GRADING WORK SHEETS 12 AND 14.

10. COMPLETE GRADING REQUIRED TO BRING MD 216 IMPROVEMENTS AND SOUTH MAPLE LAWN BOULEVARD TO SUBGRADE TO AND INCLUDE THE TRAFFIC CIRCLE AND DRAINAGE AREA TO BASIN #3 TO FINAL GRADE (REFER TO PHASE 2 GRADING PLANS). – 10 DAYS
11. INSTALL UTILITIES (WATER, SEWER AND STORMDRAIN) WITHIN MD216, THE SOUTH MAPLE LAWN BOULEVARD CORRIDOR AND THE UP TO THE 2+60 = 28+66 MARTHA WAY INTERSECTION. INSTALL STORM DRAIN DIVERSION FROM INLET 10 TO DIVERT SOUTH MAPLE LAWN BOULEVARD DRAINAGE TOWARD BASIN #3 – 3 WEEKS
12. ONCE GRADING OPERATIONS AND UTILITY DISTURBANCES ARE COMPLETE, STABILIZE WITH PERMANENT SEDDING MIXTURE AND STRAW MULCH. -2 DAYS
13. INSTALL CURB & GUTTER FOR ROADS DESCRIBED IN ITEM 11, INSTALL ROAD SUBBASE AND BASE COURSE PAVING – 4 DAYS

REFER TO "DISTURBANCE NOTE" ABOVE.

AT THIS TIME, GRADING UNIT 1A – LAND AREA LOTS 58 – 64 AND EASTWARD SHOULD BE AT GRADE AND STABILIZED ACCOUNTING FOR 8 ACRES OF DISTURBANCE

WITH AT LEAST 50 PERCENT OF THE DISTURBED AREA DRAINING TOWARD BASIN #3 STABILIZED AND WITH PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, PROCEED TO THE CONSTRUCTION OF BASIN #1 & #2

GRADING UNIT #1B – 12 ACRES

14. COMPLETE ANY CLEARING AND GRUBBING ONSITE AREA FOR THE INSTALLATION OF PERIMETER CONTROLS TOWARD BASIN #1 & 2 – (1 DAY)
15. ALL PIPE MATERIALS FOR THE CONSTRUCTION OF THE SEDIMENT BASIN#1 & #2 SHALL BE ONSITE PRIOR TO THE CONSTRUCTION OF THE BASINS.

NOTE:
-BASIN #1 REQUIRES THE STORM DRAIN CROSSING MD 216 TO BE RECONSTRUCTED, LOWERING THE PIPE CROSSING UNDER MD 216, RECONSTRUCTING 216A AND ADDING THE PIPE EXTENSION TO 216B. BASIN #1 WILL OUTFALL INTO 216B.
-INSTALL HW3 EXTENSION TO WESTERN MD216 CORSS CULVERT. IMMEDIATLEY STABILIZE DISTURBANCES IN THIS AREA.
-BASIN #2 REQUIRES THE CONSTRUCTION OF THE STORM DRAIN SYSTEM ES6 THROUGH MH14. BASIN RISER (B2) AND BARREL SHALL OUTFALL INTO MH13 OF THE AFOREMENTIONED SYSTEM.

16. WITH PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, INSTALL STORM DRAIN SYSTEM ES6 THROUGH MH14, INSTALL SEWER RUN ON LOW SIDE OF BASIN EMBANKMENT, COMPLETE STORM DRAIN 216A TO 216B, CONSTRUCT SEDIMENT BASIN#1 AND #2 PER THE DETAILS AND SPECIFICATIONS SHOWN HEREON AND INSTALL PERIMETER CONTROLS AT THE LIMIT OF DISTURBANCE, WHERE SHOWN OR AS DIRECTED BY THE SEDIMENT CONTROL INSPECTOR.
    -AT THIS TIME, DISTURBANCES TOWARD BASIN #2 SHALL BE KEPT TO A MINIMUM. UNTIL AREAS IN THE BASIN #1 DRAINAGE AREA ARE PERMANENTLY STABILIZED. REFERENCE "DISTURBANCE NOTE"- 7 DAYS
17. EARTH DIKES DIRECTING SITE DISTURBANCES TO THE BASINS SHALL BE CONSTRUCTED AT THE SAME TIME AS THE SEDIMENT BASINS. EARTH DIKES SHALL BE LINED AS DETAILED HEREON. TEMPORARY MATTING IS MADE WITH DEGRADEABLE (6 MONTH), NATURAL OR MANMADE FIBERS OF UNIFORM THICKNESS AND DISTRIBUTION OF FIBERS THROUGHOUT AND IS SMOLDER RESISTANT.
18. STABILIZE THE DISTURBED AREAS FROM THE AFOREMENTIONED DISTURBANCES WITH TEMPORARY SEEDING MIXTURE AND STRAW MULCH – 1 DAY
19. THE SEDIMENT SHALL BE REMOVED FROM THE SEDIMENT BASINS WHEN THE CLEANOUT ELEVATION HAS BEEN REACHED. – 2 DAYS
20. THE CONTRACTOR SHALL INSPECT AND PROVIDE NECESSARY MAINTENANCE ON THE SEDIMENT AND EROSION CONTROLS SHOWN HEREON AFTER EACH RAINFALL AND ON A DAILY BASIS – 1 DAY
21. THE SEDIMENT BASINS SHALL BE DEWATERED BY PUMPING. THE ACCUMULATED SEDIMENT FROM THE BASINS SHALL BE PLACED UP GRADE FROM THE STRUCTURE IN SUCH A MANNER AS NOT TO INTERFERE WITH CONSTRUCTION OPERATIONS OR CAUSE EROSION DOWN GRADE FROM THE STRUCTURE. – 2 DAYS

BEGIN PHASE 2 GRADING WORK SHEETS 13 AND 15.

22. BEGIN GRADING REQUIRED TO BRING THE MARTHA WAY RIGHT-OF-WAY STATION 14+50 – 27+50 TO SUBGRADE AND FILL SLOPES TOWARD MD 216 TO FINAL GRADE (REFER TO PHASE 2 GRADING PLANS). PERMANENTLY STABILIZE AND LINE FILL SLOPE TOWARD MD 216 WITH PSSMS SHEAR STREANGTH = 2.25 LB/FT2.
    SUMP AT STATION 23+10+/- SHALL BE CONSTRUCTED SO AS TO DRAIN THE MARTHA WAY RIGHT-OF-WAY / INTERIM DRAINAGE AREA AS SHOWN HEREON TO BASIN #1. – 10 DAYS

REFER TO "DISTURBANCE NOTE" ABOVE. AT THIS TIME, LAND AREA LOTS 33 – 41 SHOULD BE AT GRADE AND STABILIZED ACCOUNTING FOR 4 ACRES OF DISTURBANCE. THIS WILL ALLOW FOR DISTURBANCE WITHIN THE INTERIOR OF THE MARTHA WAY CIRCLE (MH-12 TO I-33).

23. COMPLETE THE INSTALLATION OF THE STORM DRAINS WITHIN THE INTERIOR OF THE MARTHA WAY CIRCLE (MH-12 TO I-33). TEMPORARILY DIVERT STORM DRAINAGE FROM MH-30 TOWARD BASIN #2. AT THIS TIME, THE LIMIT DISTURBANCE TOWARD BASIN #2 TO THAT REQUIRED FOR STORM DRAIN INSTALLATION. – 2 WEEKS
24. – COMPLETE THE INSTALLATION OF UTILITIES (WATER, SEWER AND STORMDRAIN) WITHIN THE ABOVE MD 216 / MARTHA WAY CORRIDOR CONNECTION TO ITEM 23 WORK. IMMEDIATELY STABILIZE DISTURBANCES WITH PERMANENT SEEDING MIX AND STRAW MULCH.
    – COMPLETE REMAINING MARTHA WAY / OPEN SPACE LOT STORM DRAINS AND GRADING OPERATIONS. STABILIZE WITH PERMANENT SEDDING MIXTURE AND STRAW MULCH. – 3 WEEKS

WITH AT LEAST 50 PERCENT OF THE DISTURBED AREA DRAINING TOWARD BASIN #1 PERMANETLY STABILIZED AND WITH PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, BEGIN DISTURBANCE AREA TRANSITION FROM GRADING UNIT #1B TO GRADING UNIT #2

GRADING UNIT #2 – 12 ACRES –
UP TO 20 ACRES IS ALLOWED FOR FIINE GRADING OPERATIONS TO ACHIEVE PHASE 2 FINISHED GRADES IN ACCORDANCE WITH SHEETS 12-15.

25. COMPLETE REMAINING MAPLE LAWN SOUTH PHASE 1 SECTION 1 GRADING WORK. MAINTAIN STORM DRAIN TEMPORARILY DIVERSIONS. – 2 WEEKS
26. INSTALL CURB & GUTTER, PLACE MARTHA WAY TO STONE BASE AND INSTALL BASE COURSE PAVING. LEAVE AN OPENING AT THE MARTHA WAY / GUNNAR DRIVE INTERSECTION FOR ANY REMAINING GRADING OPERATIONS REQUIRED WITHIN THE MARTHA WAY "CIRCLE" – 1 WEEK
27. WITH ALL AREAS DRAINING TOWARD BASIN #1 STABILIZED AND WITH PERMISSION FROM THE SEDIMENT CONTROL INSPECTOR, BACKFILL BASIN #1 AND STABILIZE WITH PERMANENT SEEDING MIXTURE AND STRAW MULCH. INSTALL INLET PROTECTION AT PT 4. 2 DAYS
28. WITH CONTRIBUTING AREA STABILIZED, CONSTRUCT STORMWATER FEATURE MICRO-BIORETENTION TO RECEIVE CLEANWATER RUNOFF TRHOUGH PT 4. – 5 DAYS
29. COMPLETE REMAINING BASIN #2 SITE GRADING, BRINGING MATERIAL THROUGH THE OPENING AT THE MARTHA WAY / GUNNAR DRIVE INTERSCETION FOR THE GUNNAR DRIVE AND SOUTH SIDE OF MARTHA WAY PHASE 2 SUBGRADE ELEVATIONS AND COMPACTED FILLS FOR PROPOSED HOME PADS – 1 MONTH
30. INSTALL REMAINING UTILITIES (WATER, SEWER AND STORMDRAIN) ALLOW FOR CONTINUED CONVEYANCE OF SEDIMENT LADEN WATER TO BASIN #2. – 2 WEEKS

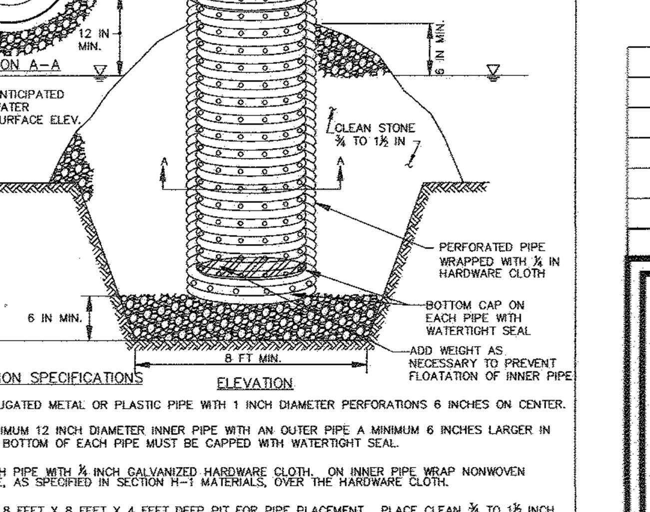
    – WITH ROADS TO SUBGRADE AND WITH PERMISSION OF SEDIMENT CONTROL INSPECTOR, EXPAND LOD TO ALLOW FOR STORM DRAIN TO CONVEY WATER TO THE BASINS THROUGH TEMPORARY PIPE DIVERSIONS. – 5 DAYS

31. WITH MASS GRADING COMPLETE, STABILIZE COMPLETED AREAS WITH PERMANENT SEEDING MIXTURE AND STRAW MULCH OR AS DIRECTED BY THE SEDIMENT CONTROL INSPECTOR. – 2 DAYS
32. ON GUNNAR DRIVE, INSTALL CURB & GUTTER, SUBBASE AND BASE COURSE PAVEMENT – 2 WEEKS
33. INSTALL INLET PROTECTION FOR AREAS NOT DRAINING TO BASINS OR TO STORMWATER FEATURES. – 1 DAY
34. WITH CONTRIBUTING AREA STABILIZED, CONSTRUCT STORMWATER FEATURES MICRO-BIORETENTION AND BIO-SWALES TO RECEIVE CLEANWATER RUNOFF. PROTECT INSTALLED FACILITIES DURNIG HOME CONSTRUCTION. – 2 MONTHS
35. BASIN #2 AND #3 SHALL REMAIN AS DIRECTED BY SEDIMENT CONTROL INSPECTOR AND SHALL BE BACKFILLED ONLY WITH PERMISSION OF SEDIMENT CONTROL INSPECTOR.
36. FINE GRADE SITE NEAR CURBING, INSTALL SIDEWALK AND PATHWAY. STABILIZE DISTURBNCES WITH PERMANENT SEEDING MIXTURE AND STRAW MULCH. OBTAIN PERMISSION FROM THE SEDIMENT CONTROL INSPECTOR TO PROCEED. – 10 DAYS
37. WITH PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, COMPLETE ANY REMAINING FINE GRADING IN ACCORDANCE WITH STORMWATER MANAGEMENT CRITERIA, ADD TOPSOIL PER THE SPECIFICATIONS SHOWN HEREON, AND STABILIZE DISTURBED AREAS WITH PERMANENT SEEDING MIXTURE AND STRAW MULCH – 1 WEEK
38. INSTALL LANDSCAPING – 2 WEEKS DAYS
39. AFTER PERMISSION HAS BEEN GIVEN BY SEDIMENT CONTROL INSPECTOR, REMOVE ANY REMAINING E/S CONTROLS AND STABILIZE THE DISTURBED AREAS FROM THE AFOREMENTIONED DISTURBANCES WITH PERMANENT SEEDING MIXTURE AND STRAW MULCH – 1 WEEK

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

DETAIL F-1 REMOVABLE PUMPING STATION

STANDARD SYMBOL: RPS



CONSTRUCTION SPECIFICATIONS

1. USE CORRUGATED METAL OR PLASTIC PIPE WITH 1 INCH DIAMETER PERFORATIONS 6 INCHES ON CENTER.
2. USE A MINIMUM 12 INCH DIAMETER INNER PIPE WITH AN OUTER PIPE A MINIMUM 6 INCHES LARGER IN DIAMETER. BOTTOM OF EACH PIPE MUST BE CAPPED WITH WATERTIGHT SEAL.
3. WRAP EACH PIPE WITH ¼ INCH GALVANIZED HARDWARE CLOTH. ON INNER PIPE WRAP NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS, OVER THE HARDWARE CLOTH.
4. EXCAVATE 8 FEET X 8 FEET X 4 FEET DEEP PIT FOR PIPE PLACEMENT. PLACE CLEAN ¾ TO 1½ INCH STONE OR EQUIVALENT RECYCLED CONCRETE, 6 INCHES IN DEPTH PRIOR TO PIPE PLACEMENT.
5. SET TOP OF INNER AND OUTER PIPES MINIMUM 12 INCHES ABOVE ANTICIPATED WATER SURFACE ELEVATION (OR RISER CREST ELEVATION WHEN DEWATERING A BASIN).
6. BACKFILL PIT AROUND THE OUTER PIPE WITH ¾ TO 1½ INCH CLEAN STONE OR EQUIVALENT RECYCLED CONCRETE AND EXTEND STONE A MINIMUM OF 6 INCHES ABOVE ANTICIPATED WATER SURFACE ELEVATION.
7. DISCHARGE TO A STABLE AREA AT A NONEROSIVE RATE.
8. A REMOVABLE PUMPING STATION REQUIRES FREQUENT MAINTENANCE. IF SYSTEM CLOGS, PULL OUT INNER PIPE AND REPLACE GEOTEXTILE. KEEP POINT OF DISCHARGE FREE OF EROSION.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE | 2011 | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

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

NO.	REVISION	DATE

FINAL ROAD CONSTRUCTION PLAN

GRADING AND SOIL EROSION, AND SEDIMENT CONTROL PLAN - DETAILS

MAPLE LAWN SOUTH PHASE 1 - SECTION 1

LOTS 1-64, NON-BUILDABLE BULK PARCEL 'A', NON-BUILDABLE BULK PARCEL 'B', AND OPEN SPACE LOTS 65-69

TAX MAP 46 – GRID 2 – PARCEL 113
5TH ELECTION DISTRICT
DPZ REF: ECP-14-093, WP-15-136, PB#415, SP-15-014
ZONED: R-ED-MXD-3
HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL ENGINEERING, INC.
ENGINEERS • SURVEYORS • PLANNERS
8407 MAIN STREET ELLICOTT CITY, MD 21043
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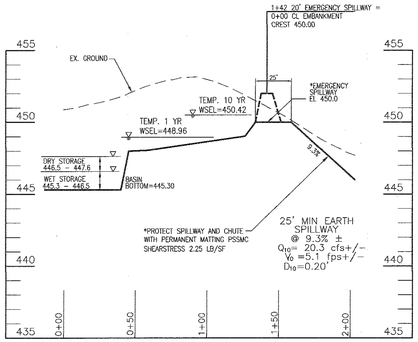
STATE OF MARYLAND — ROBERT HARRIS VOGEL — NO. 16193 — REGISTERED PROFESSIONAL ENGINEER
ROBERT H. VOGEL, PE No.16193

DESIGN BY: RVE
DRAWN BY: RVE
CHECKED BY: RHV
DATE: SEPTEMBER 2016
SCALE: AS SHOWN
W.O. NO.: 11-34

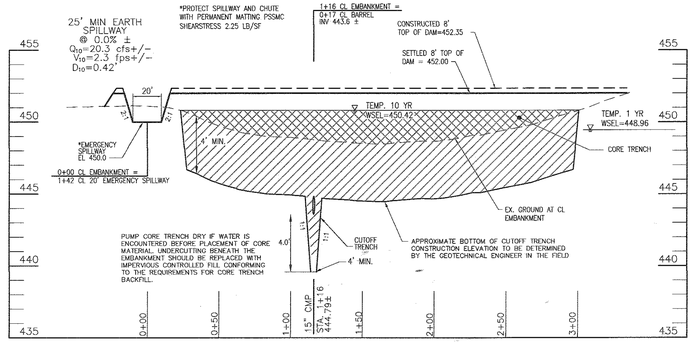
PROFESSIONAL CERTIFICATE
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193 EXPIRATION DATE: 09-27-2018

F-16-021



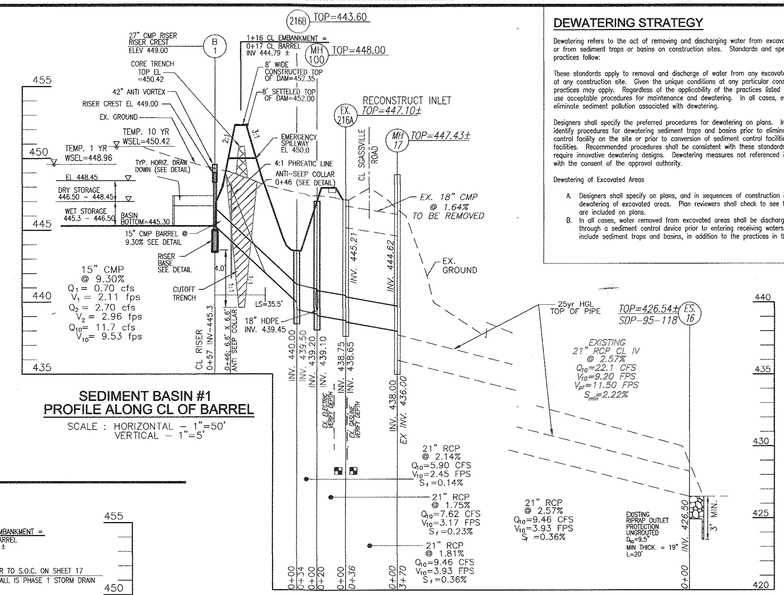
SEDIMENT BASIN #1
PROFILE ALONG CL EMERGENCY SPILLWAY

SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'



SEDIMENT BASIN #1
PROFILE ALONG CL OF EMBANKMENT

SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'



SEDIMENT BASIN #1
PROFILE ALONG CL OF BARREL

SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'

DEWATERING STRATEGY

Dewatering refers to the act of removing and discharging water from excavated areas on construction sites or from sediment traps or basins on construction sites. Standards and specifications for dewatering practices follow:

These standards apply to removal and discharge of water from any excavated area or sediment trap or basin at any construction site. Given the unique conditions at any particular construction site, any or all of the practices may apply. Regardless of the applicability of the practices listed herein, operators are required to use acceptable procedures for maintenance and dewatering. In all cases, every effort shall be made to eliminate sediment pollution associated with dewatering.

Designers shall specify the preferred procedures for dewatering on plans. In particular, designers should identify procedures for dewatering sediment traps and basins prior to elimination of the last sediment control feature on the site or prior to conversion of sediment control facilities to stormwater management facilities. Recommended procedures shall be consistent with these standards. Atypical site conditions may require innovative dewatering designs. Dewatering measures not referenced in this standard may be used with the consent of the approval authority.

Dewatering of Excavated Areas

A. Designers shall specify on plans, and in sequences of construction included on plans, practices for dewatering of excavated areas. Plan reviewers shall check to see that procedures for dewatering are included on plans.
B. In all cases, water removed from excavated areas shall be discharged such that it shall pass through a sediment control device prior to entering receiving waters. Sediment control devices include sediment traps and basins, in addition to the practices in this section.

Approved Practices for Dewatering of Excavated Areas

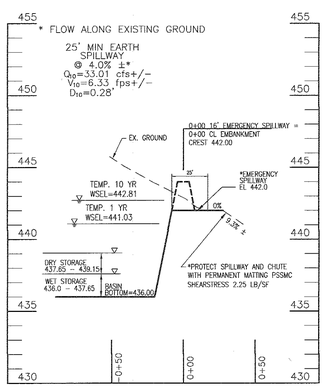
1. Pumping of water to an existing sediment basin or trap in which the entire volume of water from the area to be dewatered can be contained without discharge to receiving waters.
2. Pumping of water to an existing sediment basin or trap such that the entire volume of water from the area to be dewatered can be managed without exceeding the design outflow from the sediment control structure.
3. Removable Pumping Station ? Standards and specifications for Removable Pumping Station are on Detail 20A.
4. Use of a Sump Pit: Standards and specifications for a sump pit are on Detail 20B.
5. Sediment Tank Standards and specifications for a sump pit are on Detail 21.

Dewatering of Sediment Traps and Basins

Designers shall specify on plans, and in sequences of construction included on plans, the practices for dewatering of traps and basins. Plan reviewers shall check to see that procedures for dewatering to be used are included on plans. In all cases, water removed from traps and basins shall be discharged so that it passes through a sediment control device prior to entering receiving waters.

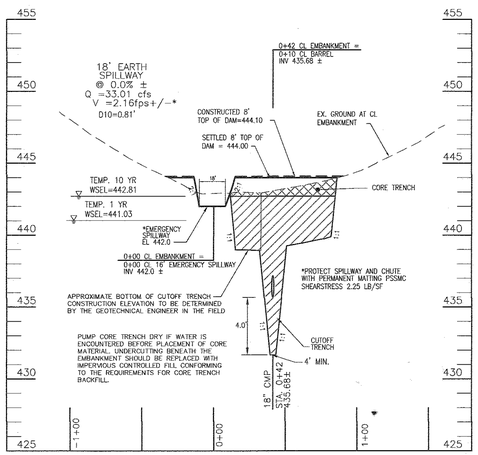
Approved Practices for Dewatering of Traps and Basins

1. Removable pumping station.
2. Use of a Sump Pit.
3. Use of a floating suction hose to pump the cleaner water from the top of the pond. As the cleaner water is pumped the suction hose will lower and eventually encounter sediment laden water. When this happens the pumping operation will cease. Provisions shall be made to filter water



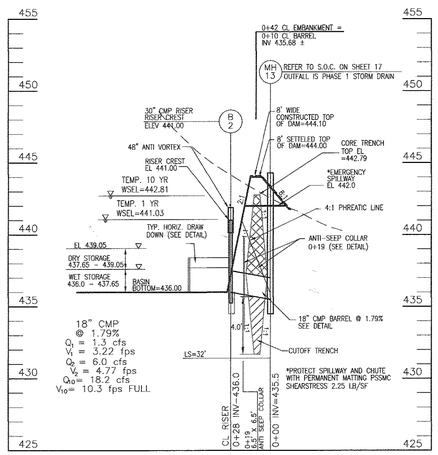
SEDIMENT BASIN #2
PROFILE ALONG CL EMERGENCY SPILLWAY

SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'



SEDIMENT BASIN #2
PROFILE ALONG CL OF EMBANKMENT

SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'



SEDIMENT BASIN #2
PROFILE ALONG CL OF BARREL

SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'

CONSTRUCTION SPECIFICATIONS

1. INSTALL SEDIMENT CONTROL PRACTICES NECESSARY TO CONSTRUCT BASIN. CLEAR AND GRUB TO REMOVE TREES, VEGETATION, ROOTS OR OTHER OBJECTIONABLE MATERIAL FROM THE AREAS WHERE THE EMBANKMENT IS TO BE PLACED. DO NOT CLEAR THE POOL AREA UNTIL COMPLETION OF THE EMBANKMENT; UNLESS THE POOL AREA IS TO BE USED FOR BORROW. SALVAGE TOPSOIL FOR LATER USE.
2. EXCAVATE CUT-OFF TRENCH ALONG CENTERLINE OF PROPOSED EMBANKMENT A MINIMUM DEPTH OF 4 FEET AND A BOTTOM (MIN. 4 FEET) WIDE ENOUGH TO PERMIT OPERATION OF EXCAVATION AND COMPACTION EQUIPMENT. CONSTRUCT SIDE SLOPES 1:1 OR FLATTER. CUT-OFF TRENCH MUST BE CONTINUOUS AND EXTEND THE ENTIRE LENGTH OF EMBANKMENT. COMPACTION REQUIREMENTS ARE THE SAME AS THOSE FOR THE EMBANKMENT. DEWATER THE TRENCH DURING THE BACKFILLING COMPACTION OPERATIONS, USING AN APPROVED PRACTICE.
3. CONSTRUCT EMBANKMENT OF CLEAN SOIL FREE OF ROOTS, WOODY VEGETATION, OVERSIZED STONES, ROCKS, OR OTHER OBJECTIONABLE MATERIAL. FILL MATERIAL FOR IMPERVIOUS CORE AND CUT-OFF TRENCH MUST CONFORM TO UNIFIED SOIL CLASSIFICATION GC, SC, CH, OR CL AND MUST HAVE AT LEAST 30 PERCENT PASSING THE #200 SIEVE. USE FILL MATERIAL CONTAINING SUFFICIENT MOISTURE SO THAT THE SOIL CAN BE FORMED BY HAND INTO A BALL WITHOUT CRUMBLING. IF WATER CAN BE SQUEEZED OUT OF THE BALL, IT IS TOO WET FOR PROPER COMPACTION. PLACE FILL MATERIAL IN SIX-INCH TO EIGHT INCH THICK CONTINUOUS LIFTS OVER THE ENTIRE LENGTH OF THE FILL. OBTAIN COMPACTION BY PASSING CONSTRUCTION EQUIPMENT OR COMPACTOR OVER THE FILL, SO THAT THE ENTIRE SURFACE OF EACH LAYER OF FILL IS TRAVERSED AT LEAST FOUR TIMES. CONSTRUCT THE EMBANKMENT TO AN ELEVATION A MINIMUM OF 10 PERCENT HIGHER THAN THE DESIGN HEIGHT TO ALLOW FOR SETTLEMENT.
4. INSTALL PRINCIPAL SPILLWAY PRIOR TO, OR CONCURRENTLY WITH, FILL PLACEMENT. DO NOT EXCAVATE EMBANKMENT FOR PLACEMENT OF SPILLWAY. ALL PIPE CONNECTIONS, INCLUDING ANTI-SEEP COLLARS MUST BE COMPLETELY WATERTIGHT. INSTALL FILTER DIAPHRAGM WHEN SPECIFIED ON PLAN. BARREL CONNECTION TO RISER MUST BE WELDED ALL AROUND WHEN THE PIPE AND RISER ARE METAL. ATTACH BARREL STUB TO RISER AT THE SAME PERCENT (SLOPE) OF GRADE AS THE BARREL. FOR CONCRETE RISER/BARREL ASSEMBLY, POUR RISER WITH BARREL IN PLACE OR SET PRE-CAST RISER AND INSTALL PROJECTION COLLAR FOR WATERTIGHT CONNECTION. PLACE FILL MATERIAL AROUND THE PIPE SPILLWAY IN FOUR (4) INCH LIFTS AND HAND COMPACT AROUND THE PIPE TO A DEPTH OF 1.5 TIMES THE PIPE DIAMETER (MINIMUM). SECURELY INSTALL ANTI-VORTEX DEVICE AND TRASH RACK AS SHOWN ON PLAN.
5. INSTALL THE EMERGENCY SPILLWAY IN UNDISTURBED NATURAL GROUND. CONSTRUCT SPILLWAY WITHIN A TOLERANCE OF ± 0.2 FEET.
6. STABILIZE EMBANKMENT AND ASSOCIATED DISTURBED AREAS WITHIN THREE (3) DAYS OF COMPLETION WITH SEED AND MULCH. MONITOR EMBANKMENT AND MAINTAIN EROSION FREE DURING THE LIFE OF THE BASIN.
7. INSTALL FENCING AND SIGNAGE IN ACCORDANCE WITH THE APPROVED PLAN.
8. REMOVE SEDIMENT WHEN ACCUMULATED MATERIAL HAS REACHED 25 PERCENT OF THE TOTAL STORAGE DEPTH. RESTORE BASIN TO ORIGINAL DESIGN VOLUME. PLACE REMOVED SEDIMENTS IN A CONTROLLED AREA AND STABILIZE. DO NOT DEPOSIT SEDIMENT DOWNSTREAM OF THE EMBANKMENT, ADJACENT TO A STREAM OR FLOODPLAIN.
9. WHEN THE CONTRIBUTING DRAINAGE AREA IS STABLE, THE BASIN CAN BE REMOVED IN ACCORDANCE WITH THE APPROVED SEDIMENT CONTROL PLAN.
10. A SEDIMENT BASIN DESIGNED, BUILT, AND CERTIFIED AS A STORMWATER MANAGEMENT STRUCTURE, MAY BE CONVERTED WHEN THE CONTRIBUTORY DRAINAGE AREA IS STABLE. PROPERLY DEWATER BASIN, MODIFY OUTLET STRUCTURE, PERFORM ADDITIONAL GRADING, AND PROVIDE REQUIRED STORAGE VOLUME IN ACCORDANCE WITH APPROVED STORMWATER MANAGEMENT PLANS.

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

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

HOWARD S.C.D. — DATE 10/20/16

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/OR MDE."

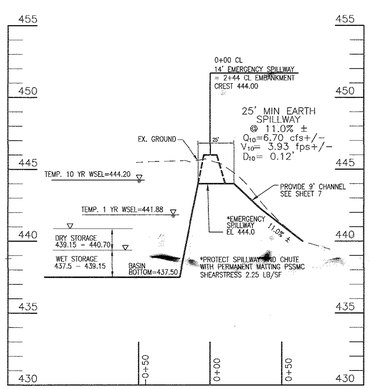
OWNER/DEVELOPER SIGNATURE
Chris Mum
PRINTED NAME & TITLE

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."

DESIGNER'S SIGNATURE — DATE 9/26/16
ROBERT H. VOGEL — MD REGISTRATION NO. 16193
PRINTED NAME — (P.E.), R.L.S., OR R.L.A. (circle one)

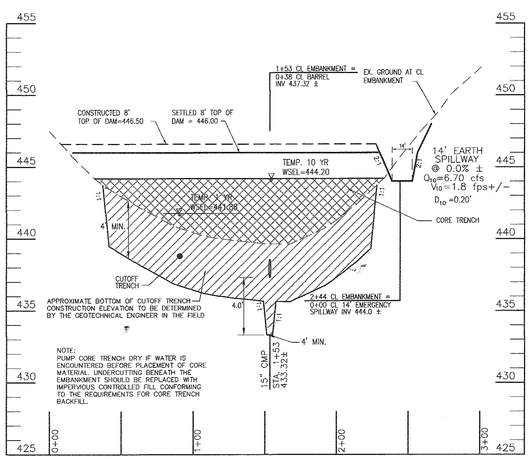
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 10/25/2016

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 11/2/16
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11-4-16



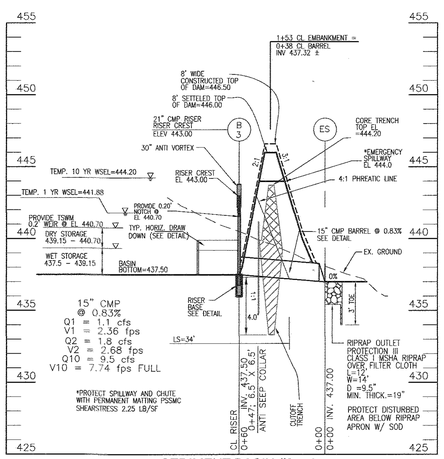
SEDIMENT BASIN #3
PROFILE ALONG CL EMERGENCY SPILLWAY

SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'



SEDIMENT BASIN #3
PROFILE ALONG CL OF EMBANKMENT

SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'



SEDIMENT BASIN #3
PROFILE ALONG CL OF BARREL

SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'

NO.	REVISION	DATE

FINAL ROAD CONSTRUCTION PLAN

SEDIMENT BASIN - NOTES AND DETAILS

MAPLE LAWN SOUTH PHASE 1 - SECTION 1

LOTS 1-64, NON-BUILDABLE BULK PARCEL 'A', NON-BUILDABLE BULK PARCEL 'B', AND OPEN SPACE LOTS 65-69

TAX MAP 46 – GRID 2 – PARCEL 113 — ZONED: R-ED-MXD-3
5TH ELECTION DISTRICT — HOWARD COUNTY, MARYLAND
DPZ REF: ECP-14-093, WP-15-136, PB#415, SP-15-014

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FAX: 410.461.8961

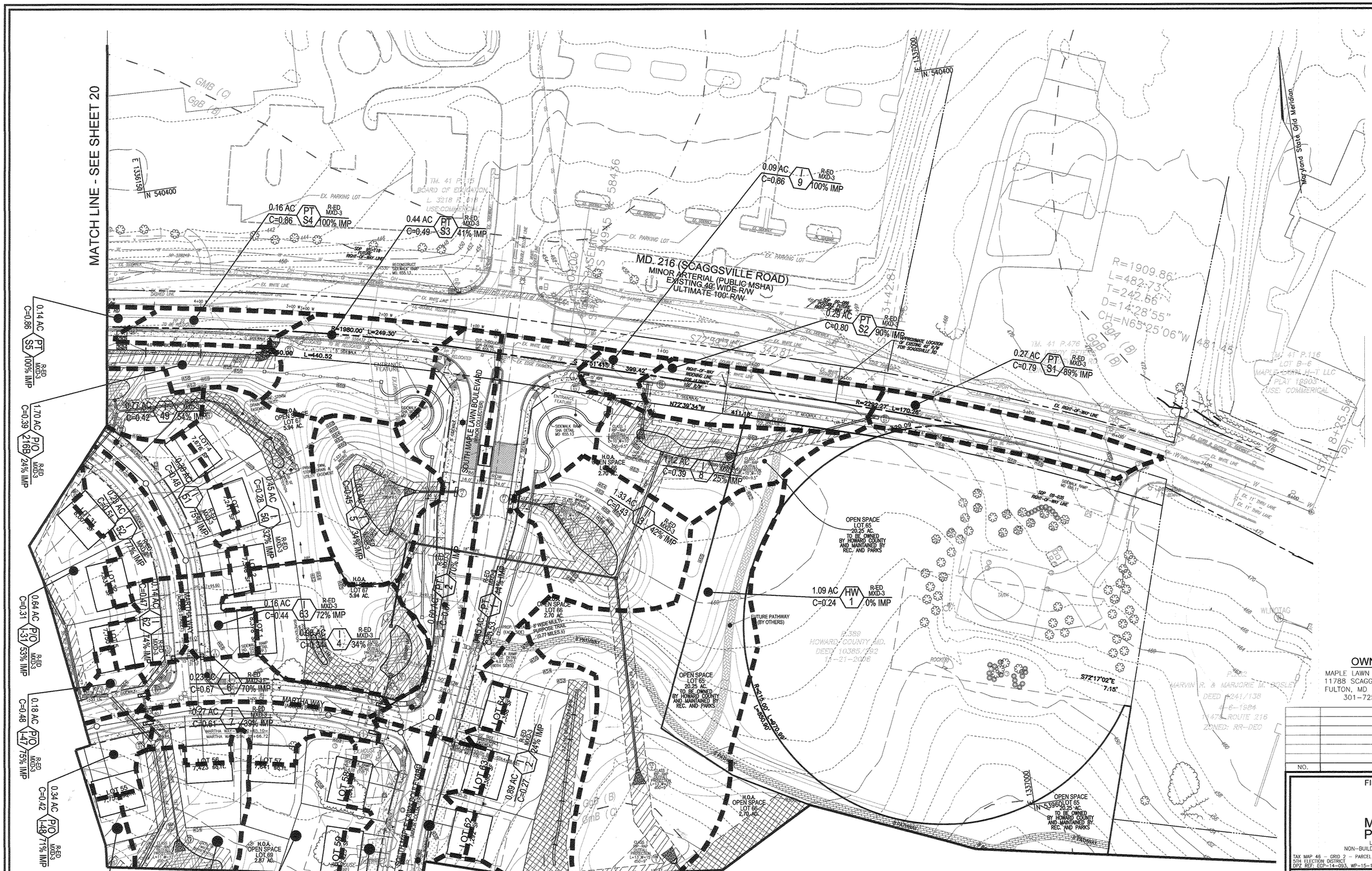
STATE OF MARYLAND — ROBERT HARRIS VOGEL — No. 16193 — REGISTERED PROFESSIONAL ENGINEER
ROBERT H. VOGEL, PE No.16193

DESIGN BY: RVE
DRAWN BY: RVE
CHECKED BY: RHV
DATE: SEPTEMBER 2016
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: 09-27-2018

SHEET 18 OF 48

F-16-021



LEGEND:

- EXISTING CONTOUR
- EXISTING SPOT ELEVATION
- EXISTING CURB AND GUTTER
- PROPOSED 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
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- EXISTING TREELINE
- EXISTING FENCE
- PROPERTY LINE
- RIGHT-OF-WAY LINE
- PROPOSED SIDEWALK
- PROPOSED 10' CONTOUR / PROPOSED 2' CONTOUR
- DRAINAGE AREA 'C' FACTOR / INLET # / ZONING % IMPERVIOUS
- DRAINAGE AREA DIVIDE
- PROPOSED STREET LIGHT
- 10' TREE MAINTENANCE EASEMENT
- PUBLIC STORMWATER MANAGEMENT, DRAINAGE & UTILITY EASEMENT
- PRIVATE STORMWATER MANAGEMENT, DRAINAGE & UTILITY EASEMENT

NOTES:

1. WORST CASE 5 MIN. TC ASSUMED THROUGHOUT DESIGN.
2. PERCENT IMPERVIOUS SHOWN, IGNORES STORMWATER MANAGEMENT "CREDITS"; I.E. ROOFTOP DISCONNECTS
3. DESIGN ASSUMES COMPLETE FAILURE OF PROPOSED MICRO-SCALE PRACTICES

STORM DRAIN DRAINAGE AREA MAP

SCALE: 1"=50'

50' 0 50' 100' 150'

MAPPED SOILS TYPES - CLARKSVILLE SE MAP #23

SYMBOL	NAME / DESCRIPTION	GROUP	HYDRIC	HYDRIC INCLUSIONS	K FACTOR	PRIME FARMLAND	CLYDE SLOPE W/ POORER POTENTIAL
BaA	BAILE SILT LOAM, 0 TO 3 PERCENT SLOPES	D	YES	YES	0.32	NO	YES
GgA	GLENELG LOAM, 0 TO 3 PERCENT SLOPES	B	NO	NO	0.20	YES	NO
GgB	GLENELG LOAM, 3 TO 8 PERCENT SLOPES	B	NO	NO	0.20	YES	NO
GmB	GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES	C	NO	NO	0.37	YES	YES
GnB	GLENVILLE-BAILE SILT LOAM, 0 TO 8 PERCENT SLOPES	C	PARTIALL1*	PARTIALL1*	0.37	NO	PARTIAL
MoC	MANOR LOAM, 8 TO 15 PERCENT SLOPES	B	NO	NO	0.24	YES	NO

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

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

*BAILE COMPONENT OF GnB, ERODIBILITY FACTOR IS 0.32 AND IS CONSIDERED HYDRIC

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DEVELOPER

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443-472-2846

NO.	REVISION	DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 10/25/2016

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION JP — DATE 11/3/16

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11-4-16

FINAL ROAD CONSTRUCTION PLAN

STORM DRAIN
DRAINAGE AREA MAP

MAPLE LAWN SOUTH PHASE 1 - SECTION 1

LOTS 1-64, NON-BUILDABLE BULK PARCEL 'A', NON-BUILDABLE BULK PARCEL 'B', AND OPEN SPACE LOTS 65-69

TAX MAP 46 - GRID 2 - PARCEL 113
5TH ELECTION DISTRICT
ZONED: R-ED-MXD-3
HOWARD COUNTY, MARYLAND
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STATE OF MARYLAND — ROBERT HARRIS VOGEL — No. 16193 — REGISTERED PROFESSIONAL ENGINEER — 9/26/16

ROBERT H. VOGEL, PE No.16193

DESIGN BY: RVE
DRAWN BY: RVE
CHECKED BY: RHV
DATE: SEPTEMBER 2016
SCALE: AS SHOWN
W.O. NO.: 11-34

PROFESSIONAL CERTIFICATE

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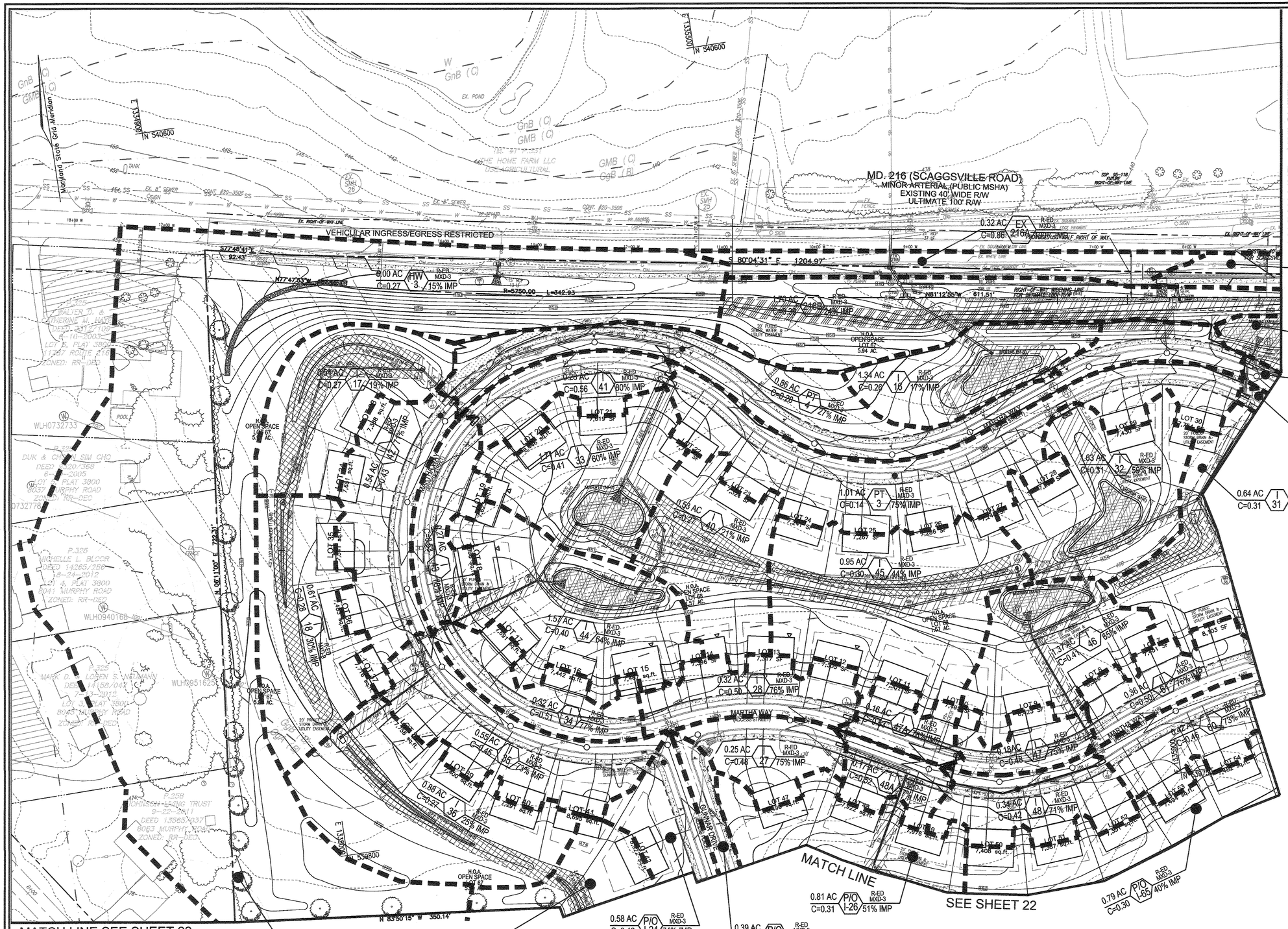
EXPIRATION DATE: 09-27-2018

SHEET 19 OF 48

F-16-021



MATCH LINE - SEE SHEET 19

LEGEND:

- EXISTING CONTOUR
- EXISTING SPOT ELEVATION
- EXISTING CURB AND GUTTER
- PROPOSED CURB AND GUTTER
- EXISTING UTILITY POLE
- EXISTING LIGHT POLE
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- PUBLIC STORMWATER MANAGEMENT, DRAINAGE & UTILITY EASEMENT
- PRIVATE STORMWATER MANAGEMENT, DRAINAGE & UTILITY EASEMENT
- PUBLIC SEWER & UTILITY EASEMENT

NOTES:

1. WORST CASE 5 MIN. TC ASSUMED THROUGHOUT DESIGN.
2. PERCENT IMPERVIOUS SHOWN, IGNORES STORMWATER MANAGEMENT "CREDITS"; I.E. ROOFTOP DISCONNECTS
3. DESIGN ASSUMES COMPLETE FAILURE OF PROPOSED MICRO-SCALE PRACTICES

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NO.	REVISION	DATE

FINAL ROAD CONSTRUCTION PLAN

STORM DRAIN
DRAINAGE AREA MAP

MAPLE LAWN SOUTH PHASE 1 - SECTION 1

LOTS 1-64, NON-BUILDABLE BULK PARCEL 'A',
NON-BUILDABLE BULK PARCEL 'B', AND OPEN SPACE LOTS 65-69

TAX MAP 46 - GRID 2 - PARCEL 113
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STATE OF MARYLAND ROBERT HARRIS VOGEL No. 16193 REGISTERED PROFESSIONAL ENGINEER

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EXPIRATION DATE: 09-27-2018

SHEET 20 OF 48

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 10/25/2016

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 11/3/16

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11-4-16

STORM DRAIN DRAINAGE AREA MAP

SCALE: 1"=50'

50' 0 50' 100' 150'

MAPPED SOILS TYPES - CLARKSVILLE SE MAP #23

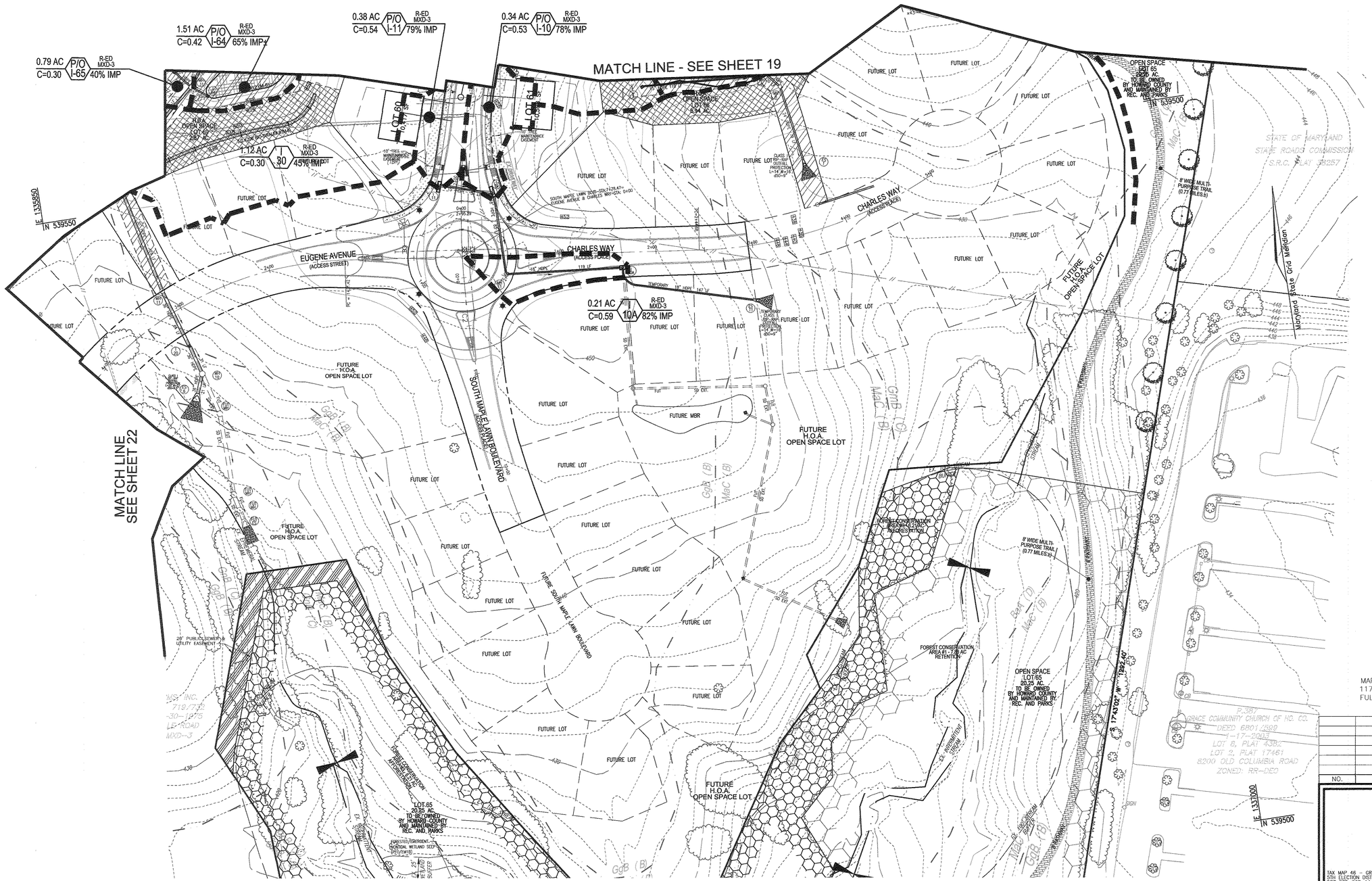
SYMBOL	NAME / DESCRIPTION	GROUP	HYDRIC	HYDRIC INCLUSIONS	K FACTOR	HIGHWAY FAVORABLE	CYMA SLOPE W/ EROSION POTENTIAL
BaA	BAILE SILT LOAM, 0 TO 3 PERCENT SLOPES	D	YES	YES	0.32	NO	YES
GgA	GLENELG LOAM, 0 TO 3 PERCENT SLOPES	B	NO	NO	0.20	YES	NO
GgB	GLENELG LOAM, 3 TO 8 PERCENT SLOPES	B	NO	NO	0.20	YES	NO
GmB	GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES	C	NO	NO	0.37	YES	YES
GnB	GLENVILLE-BAILE SILT LOAM, 0 TO 8 PERCENT SLOPES	C	PARTIALLY*	PARTIALLY*	0.37	NO	PARTIAL
MoC	MANOR LOAM, 8 TO 15 PERCENT SLOPES	B	NO	NO	0.24	YES	NO

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

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

*BAILE COMPONENT OF GnB, ERODIBILITY FACTOR IS 0.32 AND IS CONSIDERED HYDRIC

F-16-021



LEGEND:

- EXISTING CONTOUR
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- EXISTING LIGHT POLE
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- EXISTING SANITARY MANHOLE
- EXISTING SANITARY LINE
- EXISTING CLEANOUT
- EXISTING FIRE HYDRANT
- EXISTING WATER LINE
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- DRAINAGE AREA DIVIDE
- PROPOSED PUBLIC PRIVATE DRAINAGE AND UTILITY EASEMENT
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- 10' TREE MAINTENANCE EASEMENT
- PUBLIC STORMWATER MANAGEMENT, DRAINAGE & UTILITY EASEMENT
- PRIVATE STORMWATER MANAGEMENT, DRAINAGE & UTILITY EASEMENT
- FOREST CONSERVATION AREA AFFORESTATION
- FOREST CONSERVATION AREA RETENTION
- PUBLIC SEWER & UTILITY EASEMENT

OWNER
MAPLE LAWN FARMS, INC.
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FINAL ROAD CONSTRUCTION PLAN

STORM DRAIN
DRAINAGE AREA MAP

MAPLE LAWN SOUTH PHASE 1 - SECTION 1

LOTS 1-64, NON-BUILDABLE BULK PARCEL 'A', NON-BUILDABLE BULK PARCEL 'B', AND OPEN SPACE LOTS 65-69

TAX MAP 46 - GRID 2 - PARCEL 113
5TH ELECTION DISTRICT
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FAX: 410.461.5961

STATE OF MARYLAND ROBERT HARRIS VOGEL No. 16193 REGISTERED PROFESSIONAL ENGINEER 9/26/16
ROBERT H. VOGEL, PE No.16193

DESIGN BY:	RVE
DRAWN BY:	RVE
CHECKED BY:	RHV
DATE:	SEPTEMBER 2016
SCALE:	AS SHOWN
W.O. NO.:	11-34

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SHEET 21 OF 48

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS	DATE 10/25/2016

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION JP	DATE 11/3/16
CHIEF, DIVISION OF LAND DEVELOPMENT DJ	DATE 11/4/16

NOTES:

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STORM DRAIN
DRAINAGE AREA MAP

SCALE: 1"=50'

50' 0 50' 100' 150'

MAPPED SOILS TYPES - CLARKSVILLE SE MAP #23

SYMBOL	NAME / DESCRIPTION	GROUP	HYDRIC	HYDRIC INCLUSIONS	K FACTOR	PRIME FARMLAND	CURB SLOPE W/ EROSION POTENTIAL
BaA	BAILE SILT LOAM, 0 TO 3 PERCENT SLOPES	D	YES	YES	0.32	NO	YES
GgA	GLENELG LOAM, 0 TO 3 PERCENT SLOPES	B	NO	NO	0.20	YES	NO
GgB	GLENELG LOAM, 3 TO 8 PERCENT SLOPES	B	NO	NO	0.20	YES	NO
GmB	GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES	C	NO	NO	0.37	YES	YES
GnB	GLENVILLE-BAILE SILT LOAM, 0 TO 8 PERCENT SLOPES	C	PARTIALLY*	PARTIALLY*	0.37	NO	PARTIAL
MuC	MANOR LOAM, 8 TO 15 PERCENT SLOPES	B	NO	NO	0.24	YES	NO

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STORM DRAIN
DRAINAGE AREA MAP

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TAX MAP 46 - GRID 2 - PARCEL 113
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SHEET 22 OF 48

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CHIEF, BUREAU OF HIGHWAYS	DATE 10/25/2016

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 11/3/16
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 11-4-16

STORM DRAIN DRAINAGE AREA MAP

SCALE: 1"=50'

50' 0 50' 100' 150'

MAPPED SOILS TYPES - CLARKSVILLE SE MAP #23

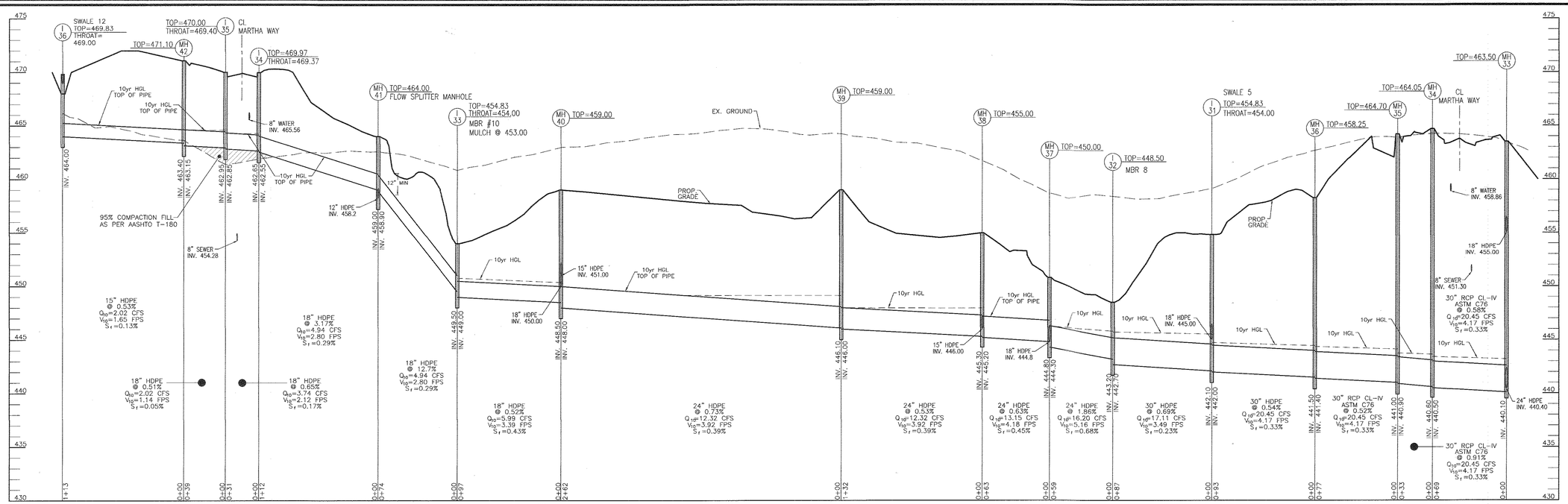
SYMBOL	NAME / DESCRIPTION	GROUP	HYDRIC	HYDRIC INCLUSIONS	K FACTOR	PRIME FARMLAND	>15% SLOPE W/ EROSION POTENTIAL
BaA	BAILE SILT LOAM, 0 TO 3 PERCENT SLOPES	D	YES	YES	0.32	NO	YES
GgA	GLENELG LOAM, 0 TO 3 PERCENT SLOPES	B	NO	NO	0.20	YES	NO
GgB	GLENELG LOAM, 3 TO 8 PERCENT SLOPES	B	NO	NO	0.20	YES	NO
GmB	GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES	C	NO	NO	0.37	YES	YES
GnB	GLENVILLE-BAILE SILT LOAM, 0 TO 8 PERCENT SLOPES	C	PARTIALLY*	PARTIALLY*	0.37	NO	PARTIAL
MaC	MANOR LOAM, 8 TO 15 PERCENT SLOPES	B	NO	NO	0.24	YES	NO

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

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

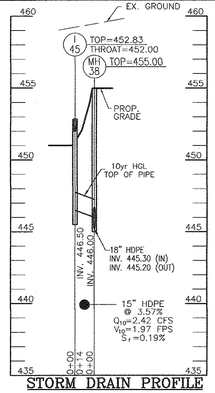
*BAILE COMPONENT OF GnB, ERODIBILITY FACTOR IS 0.32 AND IS CONSIDERED HYDRIC

F-16-021



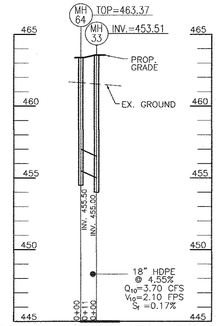
STORM DRAIN PROFILE I-36 TO MH-33

SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'



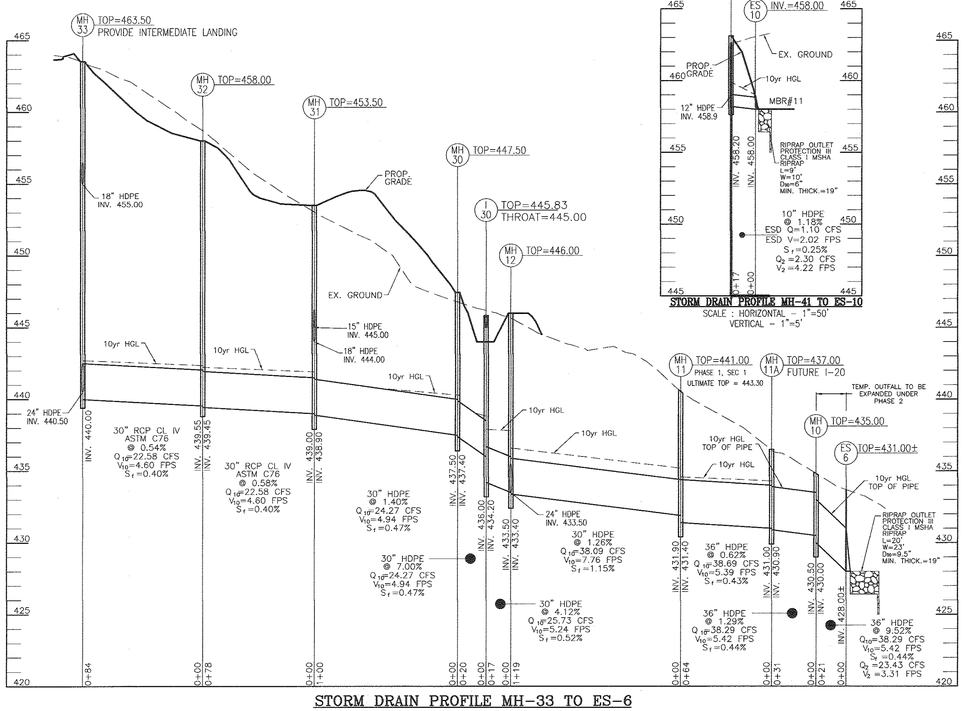
STORM DRAIN PROFILE I-45 TO MH-38

SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'



STORM DRAIN PROFILE MH-64 TO MH-33

SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'

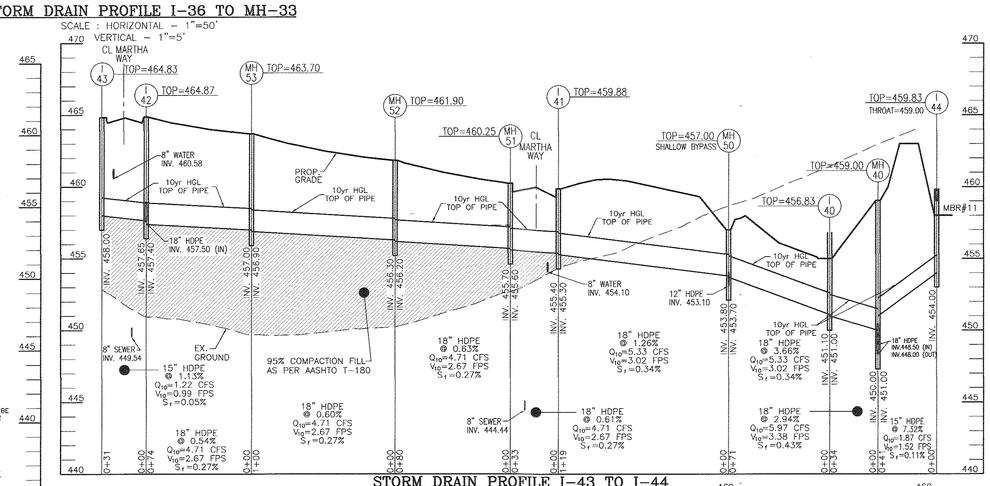


STORM DRAIN PROFILE MH-33 TO ES-6

SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'

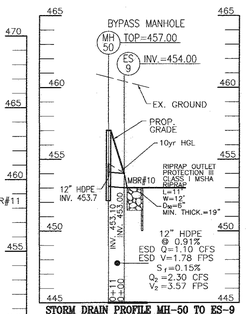
STORM DRAIN PROFILE MH-41 TO ES-10

SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'



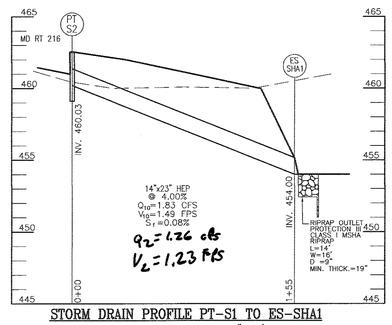
STORM DRAIN PROFILE I-43 TO I-44

SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'



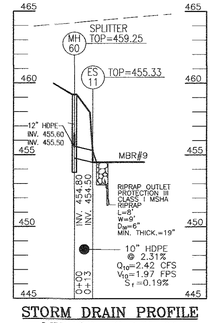
STORM DRAIN PROFILE MH-50 TO ES-9

SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'



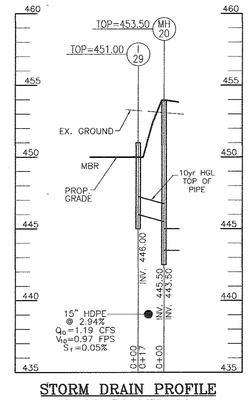
STORM DRAIN PROFILE PT-S1 TO ES-SHA1

SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'



STORM DRAIN PROFILE MH-60 TO ES-11

SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'



STORM DRAIN PROFILE I-29 TO MH-20

SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'

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

NO.	REVISION	DATE

FINAL ROAD CONSTRUCTION PLAN

STORM DRAIN PROFILES

MAPLE LAWN SOUTH PHASE 1 - SECTION 1

LOTS 1-64, NON-BUILDABLE BULK PARCEL 'A', NON-BUILDABLE BULK PARCEL 'B', AND OPEN SPACE LOTS 65-69

TAX MAP 46 – GRID 2 – PARCEL 113
5TH ELECTION DISTRICT
DPZ REF: ECP-14-093, WP-15-138, PB#415, SP-15-014

ZONED: R-ED-MXD-3
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

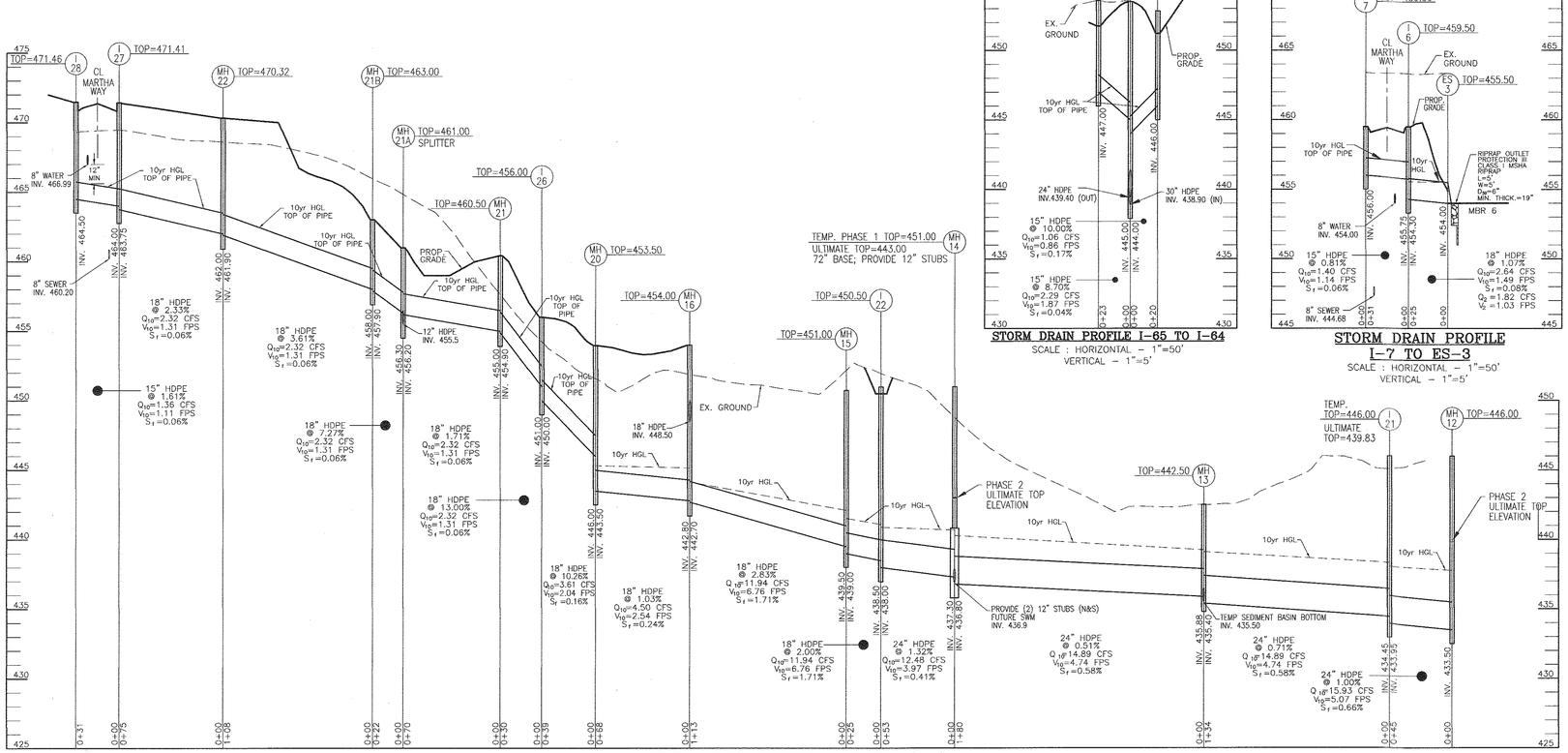
STATE OF MARYLAND ROBERT HARRIS VOGEL No. 16193 REGISTERED PROFESSIONAL ENGINEER
9/26/16
ROBERT H. VOGEL, PE No.16193

DESIGN BY: RVE
DRAWN BY: RVE
CHECKED BY: RHV
DATE: SEPTEMBER 2016
SCALE: AS SHOWN
W.O. NO.: 11-34

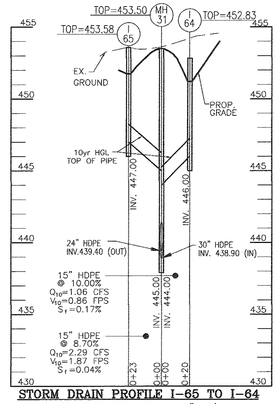
PROFESSIONAL CERTIFICATE
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193
EXPIRATION DATE: 09-27-2018

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 10/26/2016
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 11/3/16
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11-4-16

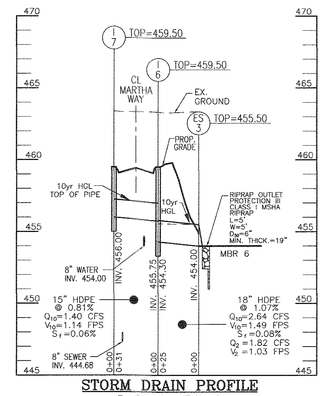
F-16-021



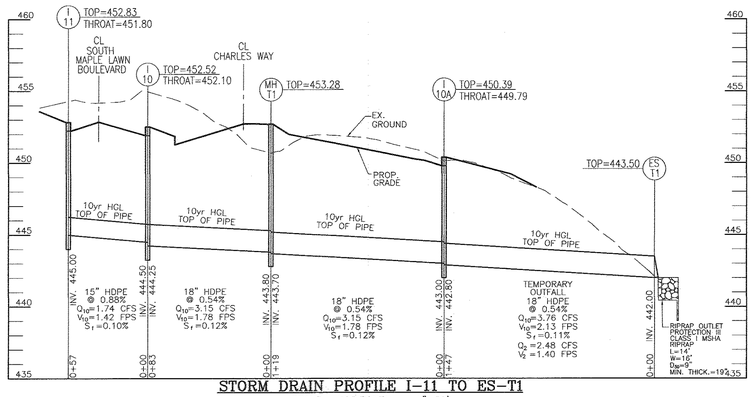
STORM DRAIN PROFILE I-28 TO MH-12
SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'



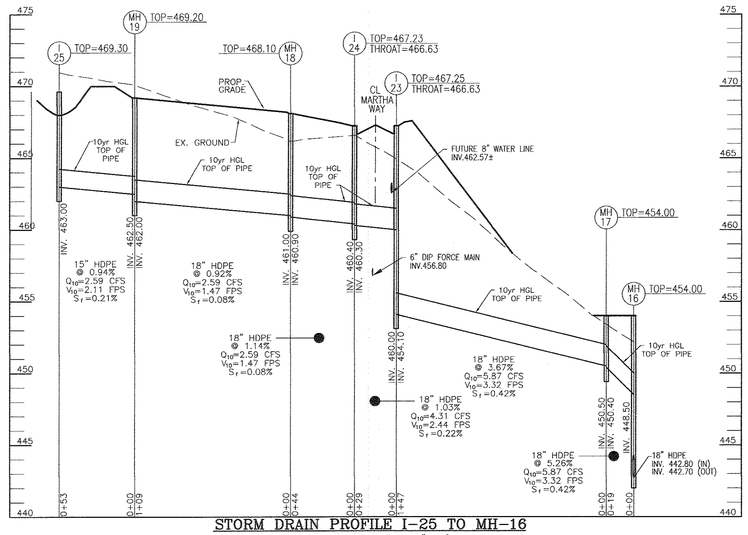
STORM DRAIN PROFILE I-65 TO I-64
SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'



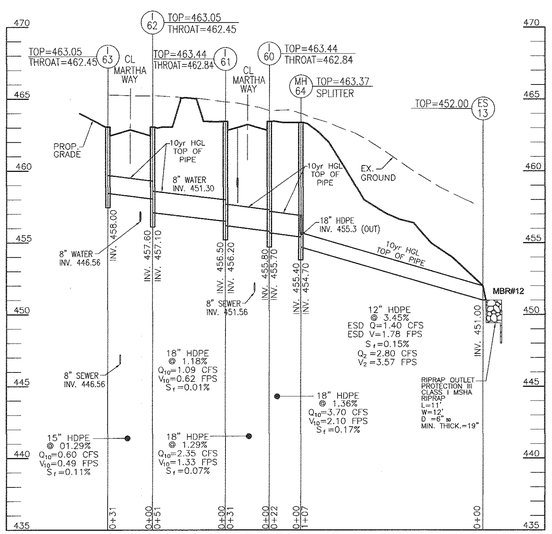
STORM DRAIN PROFILE I-7 TO ES-3
SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'



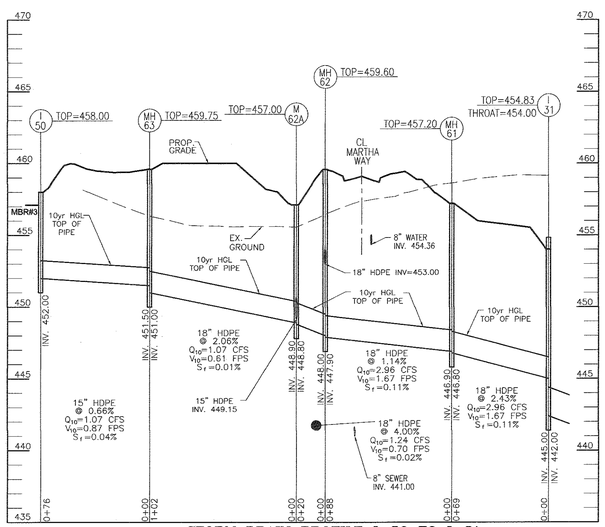
STORM DRAIN PROFILE I-11 TO ES-T1
SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'



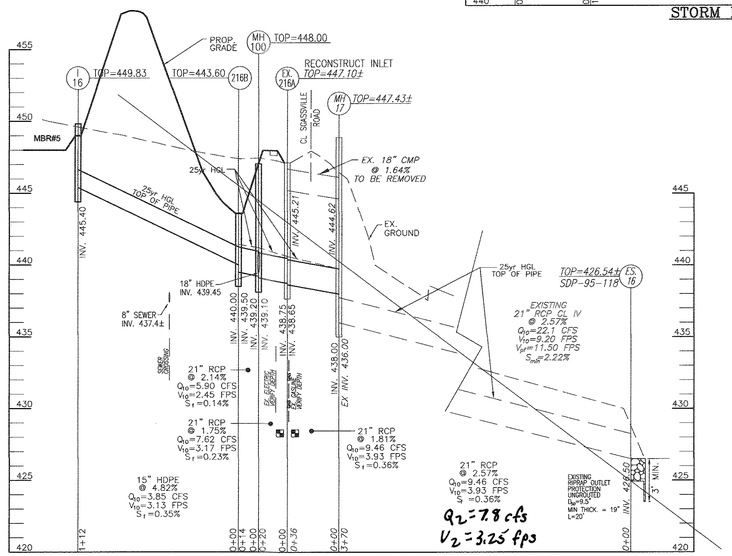
STORM DRAIN PROFILE I-25 TO MH-16
SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'



STORM DRAIN PROFILE I-63 TO ES-13
SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'



STORM DRAIN PROFILE I-50 TO I-31
SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'



STORM DRAIN PROFILE I-16 TO EX. ES
SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'

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

NO.	REVISION	DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS	DATE 10/25/2016

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 11/3/16
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 11-4-16

FINAL ROAD CONSTRUCTION PLAN

STORM DRAIN PROFILES

MAPLE LAWN SOUTH PHASE 1 - SECTION 1

LOTS 1-64, NON-BUILDABLE BULK PARCEL 'A', NON-BUILDABLE BULK PARCEL 'B', AND OPEN SPACE LOTS 65-69

TAX MAP 46 – GRID 2 – PARCEL 113
5TH ELECTION DISTRICT
DPZ REF: ECP-14-093, WP-15-136, PB#415, SP-15-014

ZONED: R-ED-MXD-3
HOWARD COUNTY, MARYLAND

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STATE OF MARYLAND ROBERT HARRIS VOGEL No. 16193 REGISTERED PROFESSIONAL ENGINEER

ROBERT H. VOGEL, PE No.16193

DESIGN BY:	RVE
DRAWN BY:	RVE
CHECKED BY:	RHV
DATE:	SEPTEMBER 2016
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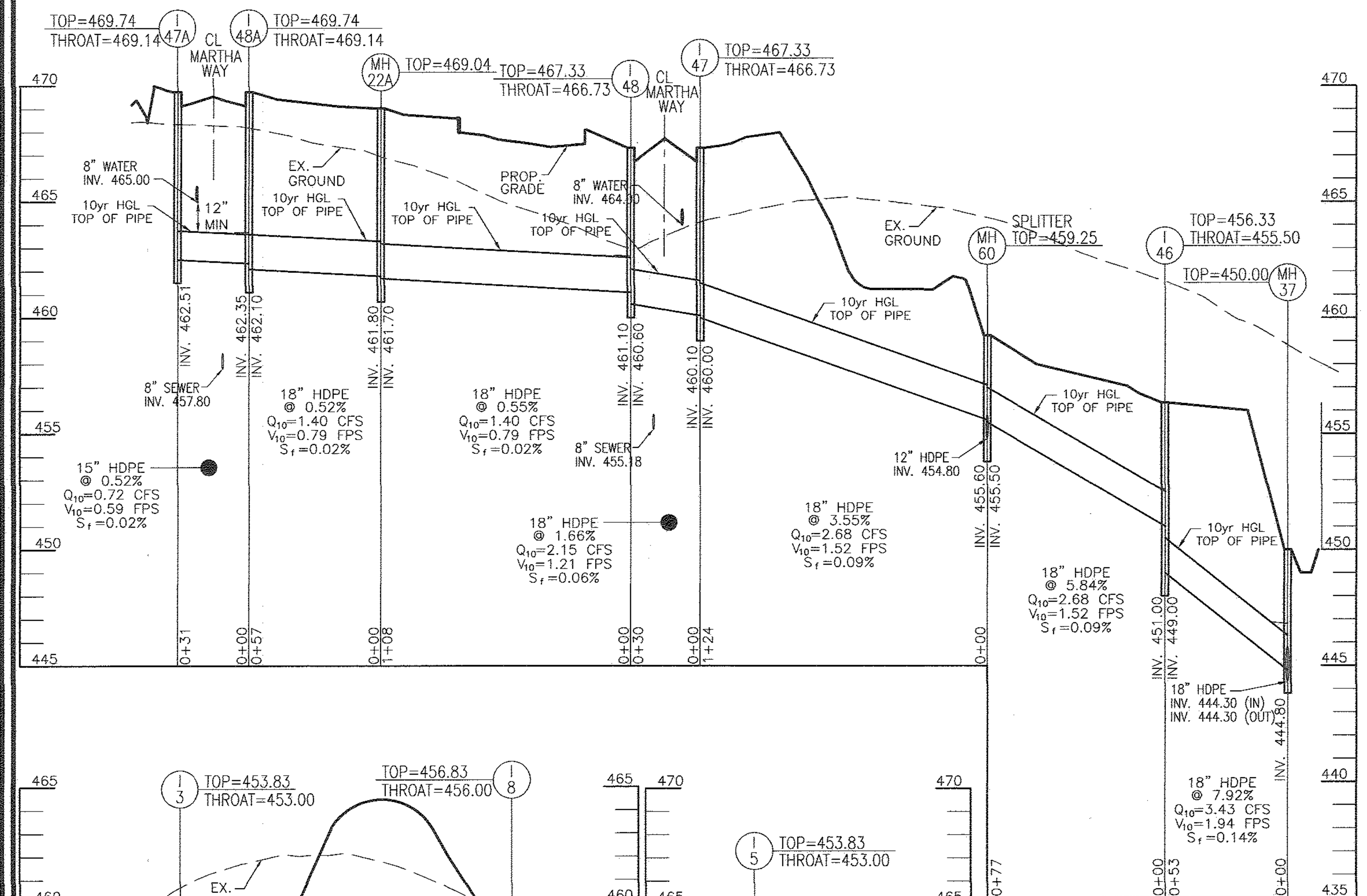
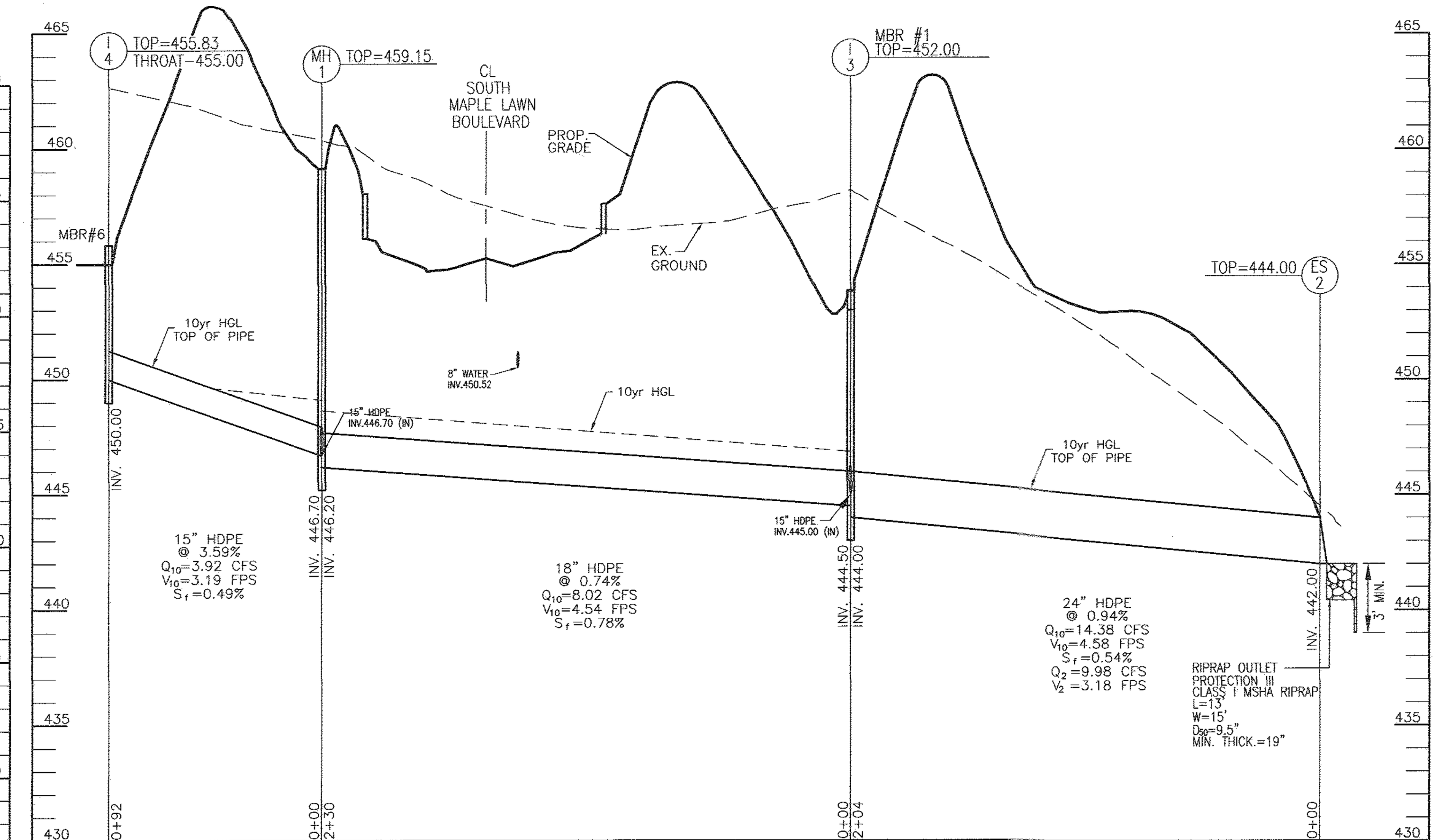
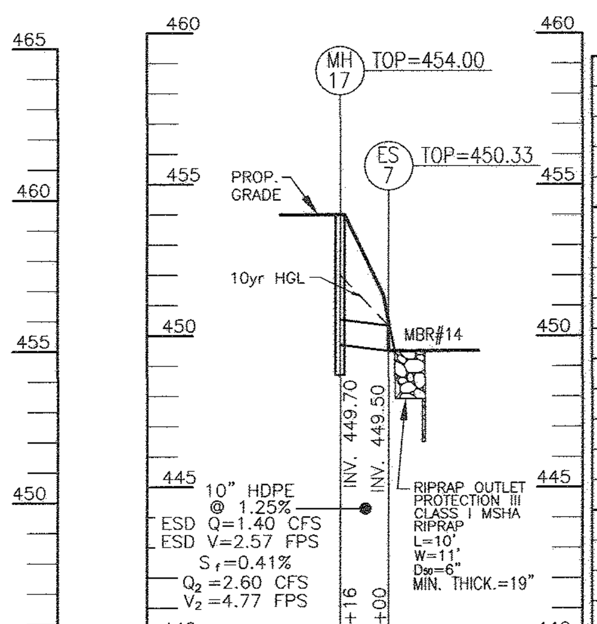
F-16-021

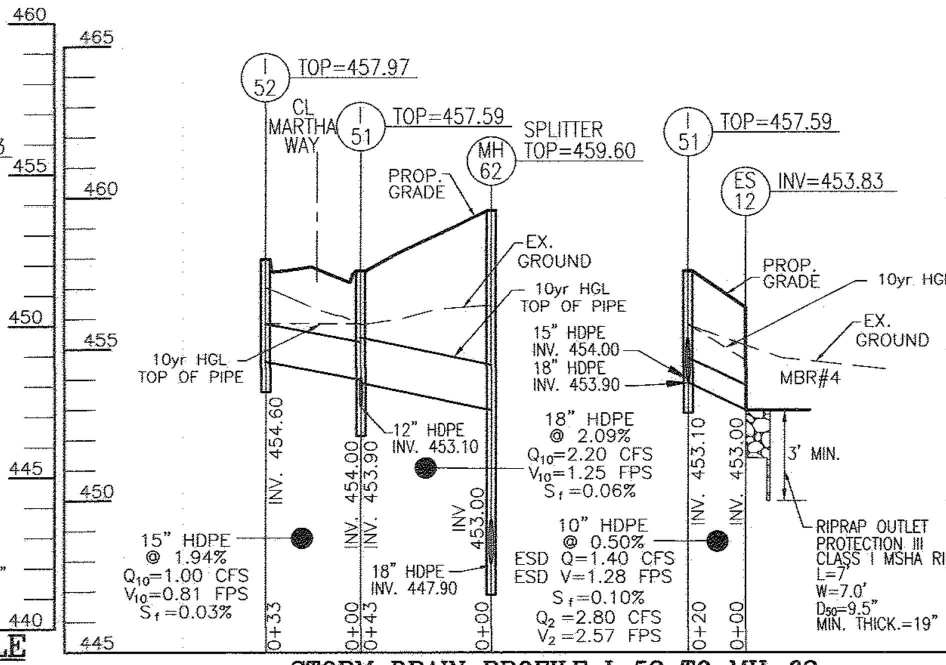




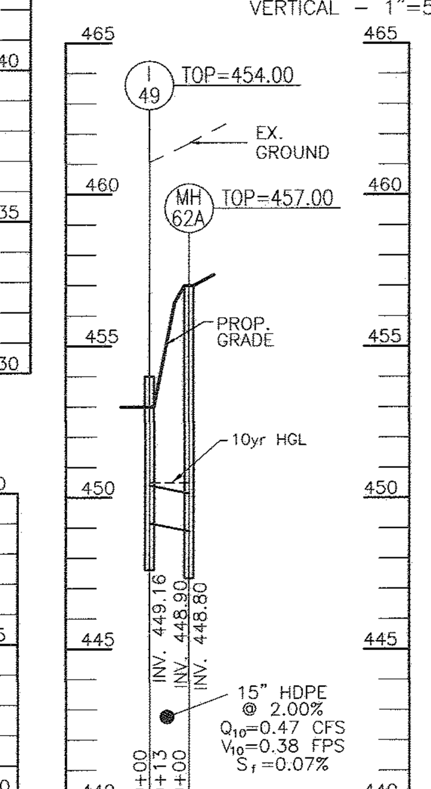
STORM DRAIN PROFILE I-4 TO ES-2
SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'



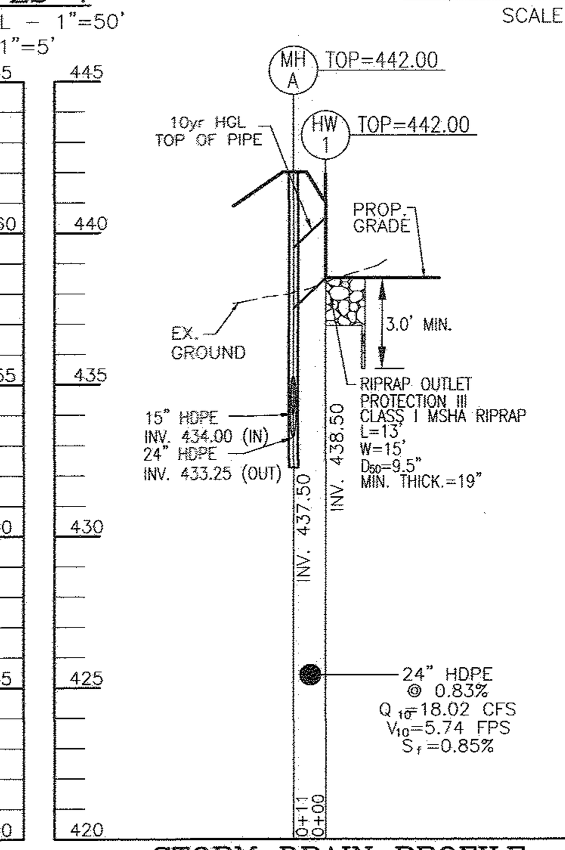
STORM DRAIN PROFILE MH-17 TO ES-7
SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'



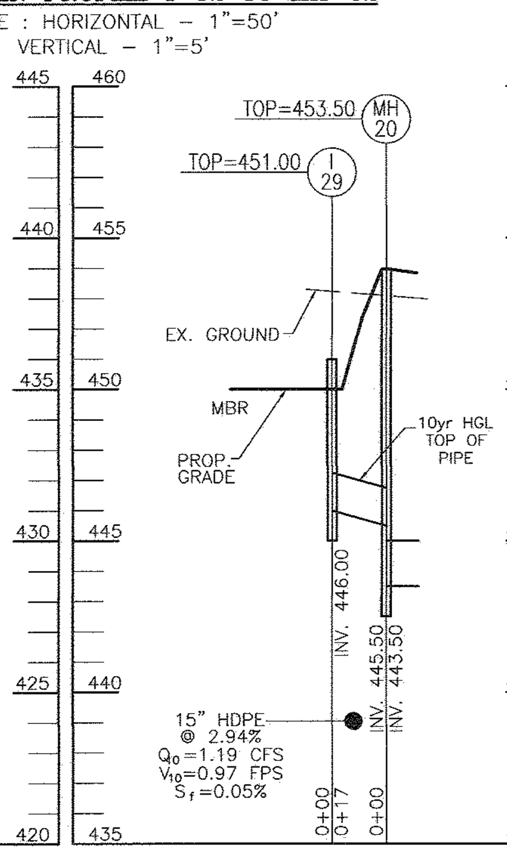
STORM DRAIN PROFILE I-52 TO MH-62
SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'



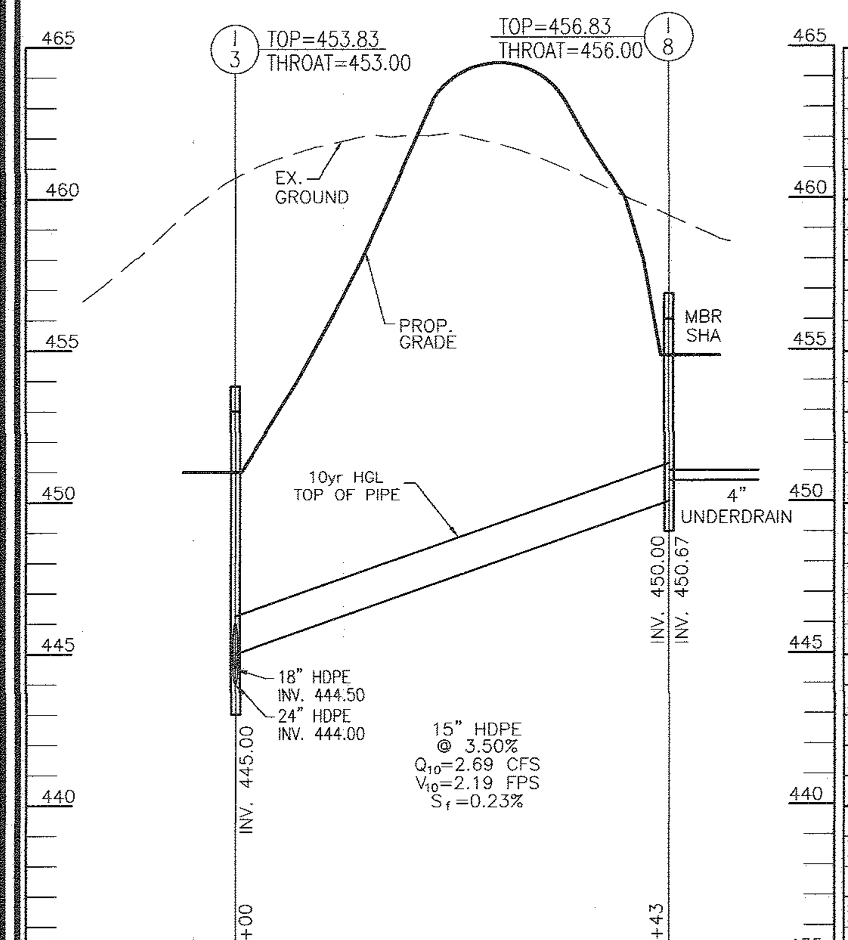
STORM DRAIN PROFILE I-49 TO M-62A
SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'



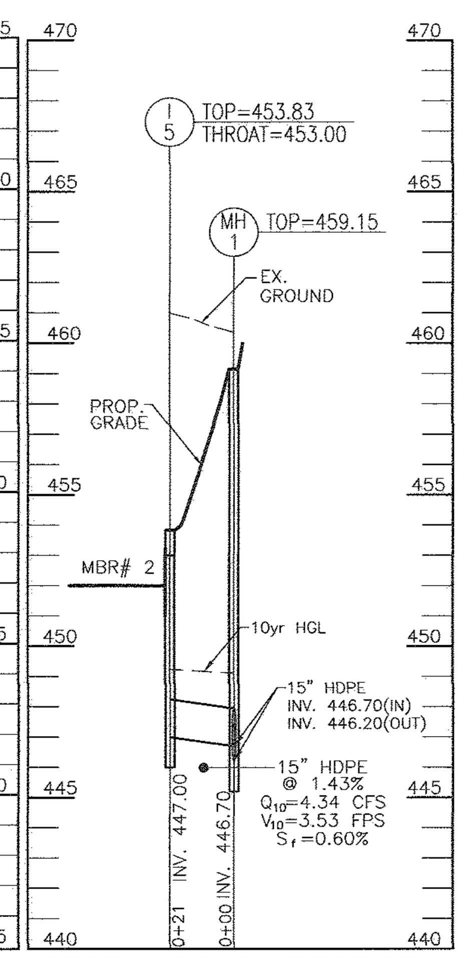
STORM DRAIN PROFILE MH-A TO HW-1
SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'



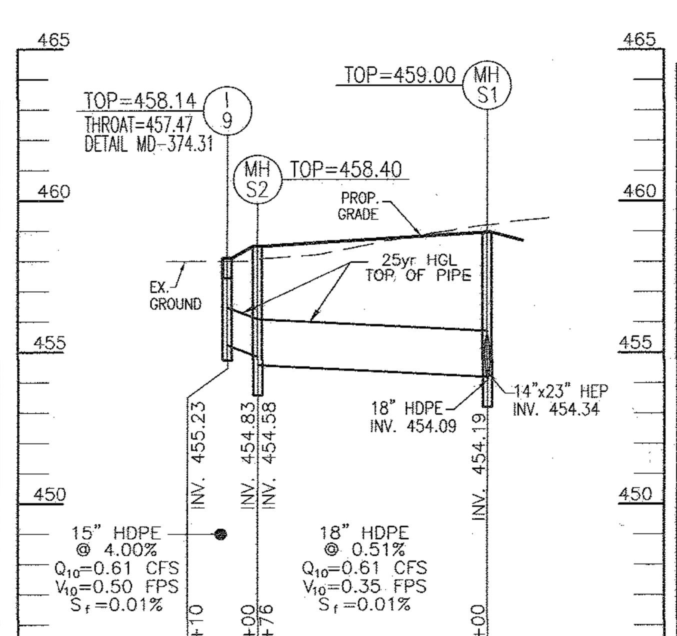
STORM DRAIN PROFILE I-29 TO MH-20
SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'



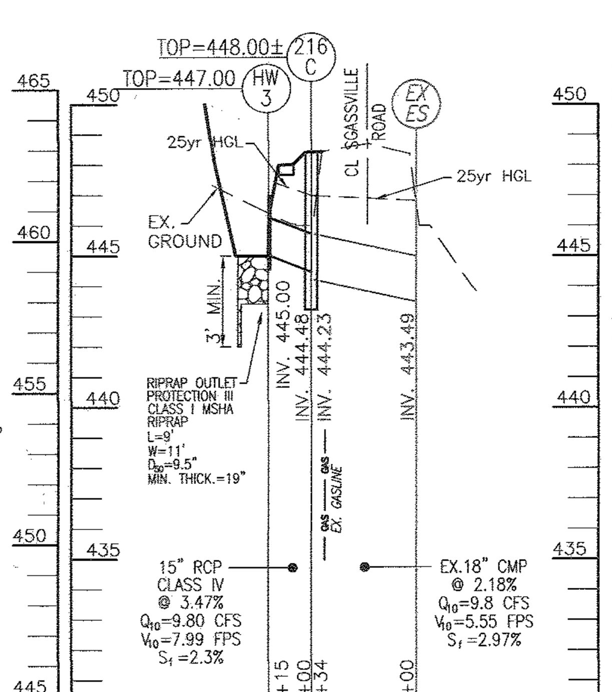
STORM DRAIN PROFILE I-3 TO I-8
SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'



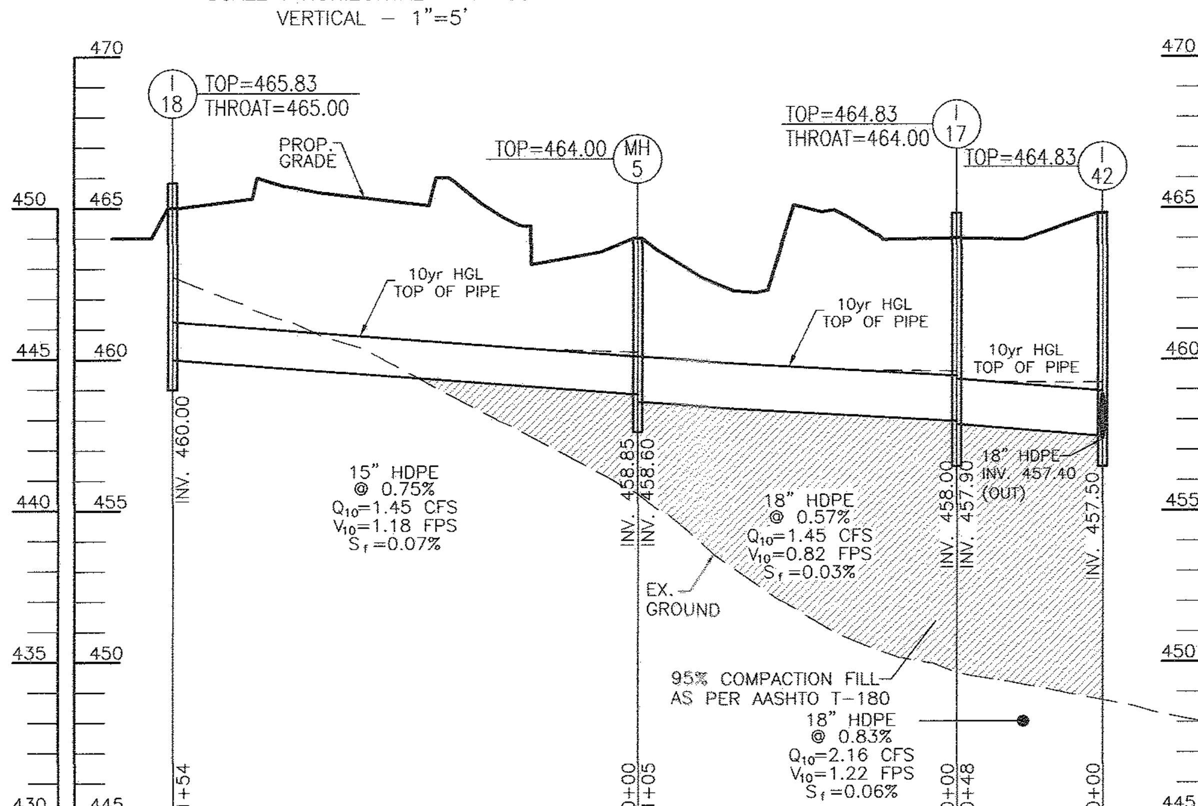
STORM DRAIN PROFILE I-5 TO MH-1
SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'



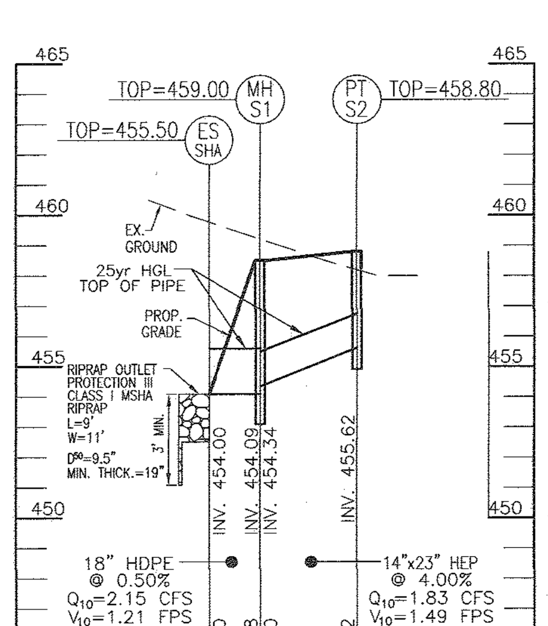
STORM DRAIN PROFILE I-9 TO MH-S1
SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'



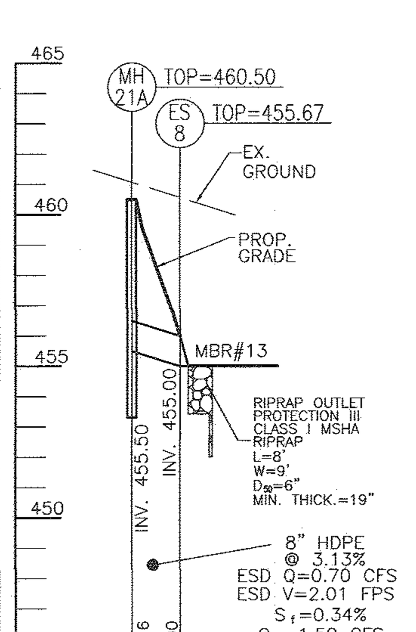
STORM DRAIN PROFILE HW-3 TO EX. ES
SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'



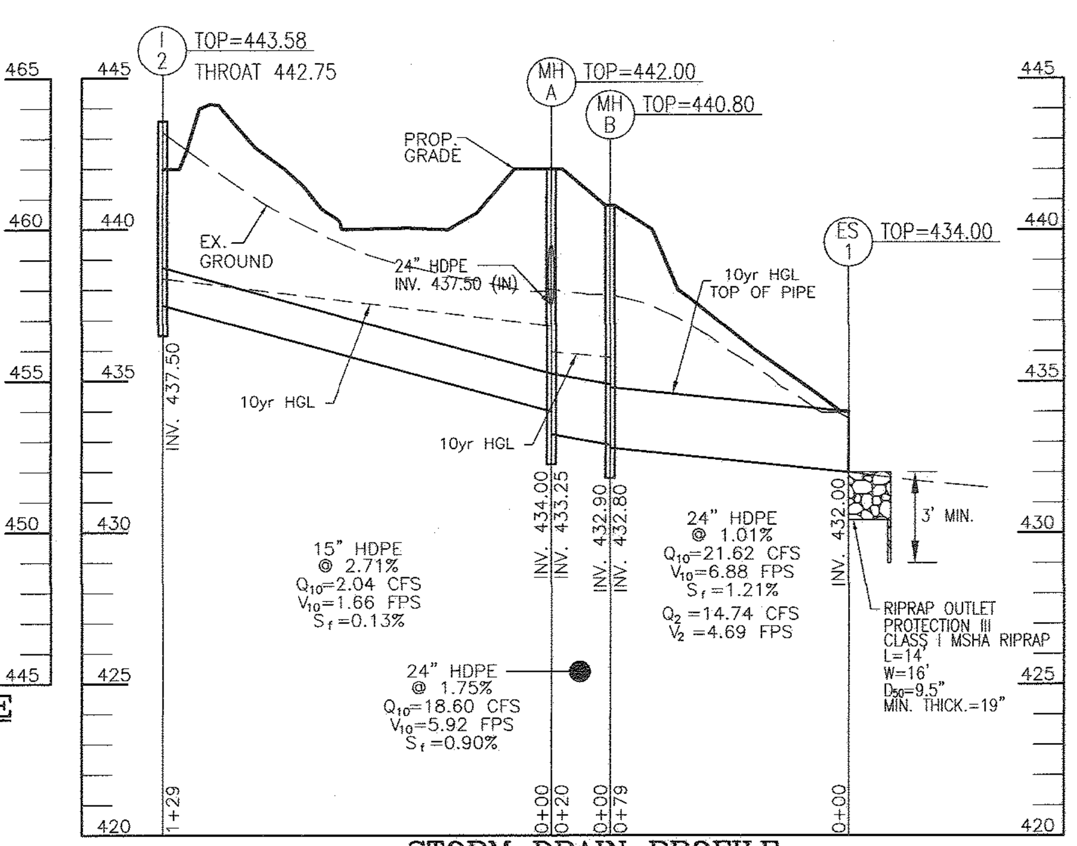
STORM DRAIN PROFILE I-18 TO I-42
SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'



STORM DRAIN PROFILE PT-S2 TO ES
SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'



STORM DRAIN PROFILE MH-21A TO ES-8
SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'



STORM DRAIN PROFILE I-2 TO ES-1
SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'

PIPE SCHEDULE

Size	Class	Total Length *
8"	HDPE	16
10"	HDPE	53
12"	HDPE	118
15"	HDPE	1294
18"	HDPE	3451
24"	HDPE	1242
30"	HDPE	436
36"	HDPE	116
15"	RCP	15
18"	RCP	313
21"	RCP	70
30"	RCP	341
14"X23"	HEP	32

* The total length of pipe is linear feet only.

HDPE is to be smooth interior. Contractor shall install pipe in accordance with manufacturer's specifications.

STRUCTURE SCHEDULE

STR #	TYPE	DEPTH REQUIREMENT	TOP ELEV CL STRUCTURE	DETAIL	LOCATION	REMARKS
PT-1	SHALLOW COG	STD DEPTH INLET TOP	454.48	MD 374.66	1+75.00, 32.00' LT	INV OUT PIPE 451.00
PT-2	SHALLOW COG	STD DEPTH INLET TOP	454.48	MD 374.66	1+75.00, 32.00' RT	INV OUT PIPE 452.00
PT-3	PASS THRU	11.9' DEPTH INLET TOP	451.61	MD 374.68	23+12.48, 12.00' RT	Top L=6' Depth=11.9'
PT-4	PASS THRU	11.9' DEPTH INLET TOP	451.61	MD 374.68	23+13.01, 12.00' LT	Top L=6' Depth=11.9'
PT-S1	SHALLOW COG	3' DEPTH INLET TOP	462.53	MD 374.66	3+38.70, 28.00' RT	Top L=11' Depth=3'
PT-S2	SHALLOW GOG	3' DEPTH INLET TOP	458.80	MD 374.66	1+91.40, 28.00' RT	Top L=11' Depth=3'
PT-S3	PASS THRU	6' DEPTH INLET TOP	453.54	MD 374.68	3+17.47W, 29.00' LT	Top L=6' Depth=6'
PT-S4	PASS THRU	6' DEPTH INLET TOP	450.83	MD 374.68	4+84.67W, 29.00' LT	Top L=6' Depth=6'
PT-S5	PASS THRU	6' DEPTH INLET TOP	449.18	MD 374.68	6+29.50W, 29.00' LT	Top L=6' Depth=6'

NOTE: 1. STANDARD INLET DEPTH AS NOTED IS 6 FEET. DIMENSION FROM FLOWLINE / FACE CURB (R-3.01) TO BACK OF 4" LIP
STD 8" CURB DEPTH + 5' CONC WALK + 4" LIP = TOTAL REQUIRED DEPTH = 6.0'
2. MINIMUM DEPTH = MINIMUN MANUFACTURED DEPTH. FOR USE IN NON-SIDEWALK AREAS

STRUCTURE SCHEDULE

STR #	TYPE	INV. IN	INV. OUT	TOP OR UPPER/LOWER	DETAIL	LOCATION	REMARKS
ES	18" HDPE	-	454.00	455.50	HDPE		(2) MBR SHA
ES-01	24" HDPE	-	432.00	434.00	HDPE	N 539494.32 E 1336636.22	(2)
ES-02	24" HDPE	-	442.00	444.00	HDPE	N 539697.11 E 1336581.84	(2)
ES-03	18" HDPE	-	454.00	455.50	HDPE	N 539838.77 E 1336331.43	(2) MBR 6
ES-06	36" HDPE	-	428.00	431.00	HDPE	N 539353.71 E 1335978.59	(2)
ES-07	10" HDPE	-	449.50	450.33	HDPE	N 539534.72 E 1335591.42	(2) MBR 14
ES-08	8" HDPE	-	455.00	455.67	HDPE	N 539667.24 E 1335571.51	(2) MBR 13
ES-09	12" HDPE	-	453.00	454.00	HDPE	N 540141.42 E 1335349.12	(2) MBR 10
ES-10	10" HDPE	-	458.00	458.83	HDPE	N 540052.97 E 1335272.95	(2) MBR 11
ES-11	10" HDPE	-	454.50	455.33	HDPE	N 539936.94 E 1335762.9	(2) MBR 9
ES-12	10" HDPE	-	453.00	453.83	HDPE	N 540192.34 E 1336051.50	(2) MBR 4
ES-13	12" HDPE	-	451.00	452.00	HDPE	N 539697.75 E 1336079.91	(2) MBR 12
ES-T1	18" HDPE	-	440.00	441.50	HDPE		
HW-1	24" TYPE "A"	438.50	438.50	442.00	D 5.11	N 539596.80 E 1336606.91	(1)
HW-3	TYPE "C"	445.00	445.00	447.00	MD-354.01		(1)
MH-A	48" MANHOLE	434.00	433.25	442.00	G 5.12	N 539587.29 E 1336611.76	(1)
MH-B	48" MANHOLE	432.90	432.80	440.80	G 5.12	N 539572.30 E 1336624.21	(1)
MH-T1	48" MANHOLE	443.80	443.70	453.28	G 5.12		(1)
MH-01	48" MANHOLE	446.7/446.7	446.20	459.15	G 5.12	N 539983.58 E 1336372.75	(1)
MH-05	48" MANHOLE	458.85	458.60	464.00	G 5.12	N 540322.79 E 1335055.55	(1)
MH-10	60" MANHOLE	430.50	430.00	435.00	G 5.13	N 539371.69 E 1335989.36	(1) ROTATE TOP NE
MH-11	60" MANHOLE	431.90	431.40	441.00	G 5.13	N 539462.40 E 1335961.39	(1) P1/S2 TOP EL 443.3
MH-11A (Future 1-20)	60" MANHOLE	431.00	430.90	437.00	G 5.13	N 539462.40 E 1335961.39	(1) P1/S2 TOP EL 444
MH-12	60" MANHOLE	433.5/433.5	433.40	446.00	G 5.13	N 539577.96 E 1335934.09	(1)
MH-13	48" MANHOLE	435.88	435.40	443.00	G 5.12	N 539488.66 E 1335782.26	(1)
MH-14	48" MH W/ 72" BASE	437.3/(2)436.9	436.80	451.00	G 5.12 *	N 539353.37 E 1335663.03	(1) * MD384.05 BASE
MH-15	48" MANHOLE	439.50	439.00	451.00	G 5.12	N 539410.94 E 1335639.74	(1)
MH-16	48" MANHOLE	442.8/448.50	442.70	454.00	G 5.12	N 539519.71 E 1335609.82	(1)
MH-17	48" MANHOLE	450.50	450.4/449.70	454.00	G 5.12	N 539518.35 E 1335590.72	(1) FLOW SPLITTER
MH-18	48" MANHOLE	461.00	460.90	468.10	G 5.12	N 539530.65 E 1335406.32	(1)
MH-19	48" MANHOLE	462.50	462.00	469.20	G 5.12	N 539511.75 E 1335299.18	(1)
MH-20	48" MANHOLE	446.00/445.50	443.50	453.50	G 5.12	N 539585.57 E 1335628.53	(1)
MH-21	48" MANHOLE	455.00	454.90	460.50	G 5.12	N 539653.90 E 1335631.00	(1)
MH-21A	48" MANHOLE	456.30	455.50/456.20	461.00	G 5.12	N 539682.77 E 1335567.35	(1) FLOW SPLITTER
MH-21B	48" MANHOLE	458.00	457.90	463.00	G 5.12	N 539702.67 E 1335557.80	(1)
MH-22	48" MANHOLE	462.00	461.90	470.32	G 5.12	N 539796.63 E 1335610.04	(1)
MH-22A	48" MANHOLE	461.80	461.70	469.04	G 5.12	N 539757.64 E 1335706.91	(1)
MH-30	60" MANHOLE	437.50	437.40	447.50	G 5.13	N 539601.36 E 1335946.19	(1)
MH-31	60" MANHOLE	439.0/444.0/445.0	438.90	453.50	G 5.13	N 539665.30 E 1336022.86	(1)
MH-32	60" MANHOLE	439.55	439.45	458.00	G 5.13	N 539727.67 E 1336069.66	(1)
MH-33	60" MANHOLE	440.1/455.0	440.00	463.50	G 5.13	N 539811.46 E 1336068.95	(1)
MH-34	60" MANHOLE	440.60	440.50	464.05	G 5.13	N 539868.77 E 1336030.46	(1)
MH-35	60" MANHOLE	441.00	440.90	464.70	G 5.13	N 539873.20 E 1335998.19	(1)
MH-36	60" MANHOLE	441.50	441.40	458.25	G 5.13	N 539950.43 E 1335993.85	(1)
MH-37	48" MANHOLE	444.8/444.8	444.30	450.00	G 5.12	N 539997.45 E 1335821.60	(1)
MH-38	48" MANHOLE	445.30/446.00	445.20	455.00	G 5.12	N 539981.23 E 1335760.79	(1)
MH-39	48" MANHOLE	446.10	446.00	459.00	G 5.12	N 539980.18 E 1335628.88	(1)
MH-40	48" MANHOLE	448.5/450.0/451.0	448.00	459.00	G 5.12	N 540060.46 E 1335379.24	(1)
MH-41	48" MANHOLE	459.00	458.90/458.20	464.00	G 5.12	N 540060.36 E 1335247.13	(1) FLOW SPLITTER
MH-42	48" MANHOLE	463.40	463.15	471.10	G 5.12	N 539977.84 E 1335113.79	(1)
MH-50	48" MANHOLE	453.80	453.70/453.10	457.00	G 5.12	N 540155.48 E 1335358.18	(1) FLOW SPLITTER
MH-51	48" MANHOLE	455.70	455.60	460.25	G 5.12	N 540289.50 E 1335424.77	(1)
MH-52	48" MANHOLE	456.30	456.20	461.90	G 5.12	N 540313.77 E 1335348.06	(1)
MH-53	48" MANHOLE	457.00	456.90	463.70	G 5.12	N 540301.44 E 1335248.67	(1)
MH-60	48" MANHOLE	455.60	454.80/455.50	459.25	G 5.12	N 539918.47 E 1335763.82	(1) FLOW SPLITTER
MH-61	48" MANHOLE	446.90	446.80	457.20	G 5.12	N 540094.26 E 1336010.69	(1)
MH-62	48" MANHOLE	448.00/453.00	447.90	459.60	G 5.12	N 540152.13 E 1336077.07	(1)
MH-62A	48" MANHOLE	448.9/449.15	448.80	457.00	G 5.12		(1)
MH-63	48" MANHOLE	451.50	451.00	459.75	G 5.12	N 540166.72 E 1336187.74	(1)
MH-64	48" MANHOLE	454.50	455.3/454.7	463.37	G 5.12	N 539825.79 E 1336078.82	(1) FLOW SPLITTER
MH-S1	48" MANHOLE	454.34	454.09	458.50	G 5.12		(1)
MH-S2	48" MANHOLE	454.83	454.58	458.40	MD-383.01		(1)
MH-S3	48" MANHOLE	444.48	444.23	446.00	MD-383.01		(1)
MH-100	48" MANHOLE	439.45/439.20	439.10	448.00	MD-383.01		
MH-101	48" MANHOLE	442.60	442.50	449.40	MD-383.01		

(1) Coordinate for Proposed Structure = Centerline of Structure
(2) Coordinate for End Section = Centerline of Pipe @ Downstream Face

STRUCTURE SCHEDULE

STR #	TYPE	INV. IN	INV. OUT	TOP OR UPPER/LOWER	DETAIL	LOCATION	REMARKS
I-02	D	-	437.50	443.58	D-4.10	N 539594.17 E 1336483.13	THROAT 4 SIDES
I-03	S	445.00	444.00	452.00	D-4.22	N 539909.98 E 1336590.75	
I-04	D	-	450.00	455.83	D-4.10	N 539898.44 E 1336341.98	THROAT 2 SIDES
I-05	D	-	447.00	453.83	D-4.10	N 539990.30 E 1336352.85	THROAT 3 SIDES
I-06	A-10	455.75	454.30	459.50	D-4.03	0+62.59, 13.43 RT	
I-07	A-10	-	456.00	459.50	D-4.03	0+62.75, 13.43 LT	
I-08	D	-	450.00	455.83	D-4.10	N 540029.03 E 1336655.89	THROAT 3 SIDES
I-09	COG 10	-	-	459.14	MD 374.31	N 540143.36 E 1336592.60	
I-10A	A-5	443.00	442.80	450.39	D-4.01		
I-10	A-10	444.50	444.25	452.70	D-4.03	7+11.39, 30.33 LT	
I-11	A-10	-	445.00	452.40	D-4.03	7+07.23, 21.21 RT	
I-16	D	-	445.40	449.83	D-4.10	N 540226.62 E 1335767.28	THROAT 2 SIDES
I-17	D	458.00	457.90	462.83	D-4.10	N 540303.10 E 1335159.08	THROAT 4 SIDES
I-18	D	-	460.00	465.83	D-4.10	N 540183.79 E 1334989.50	THROAT 4 SIDES
I-21	D	434.45	433.95	446.0/439.83	D-4.10	N 539567.55 E 1335890.02	
I-22	S	438.50	438.00	450.50	D-4.22	N 539390.02 E 1335625.33	
I-23	A-10	460.00	454.10	467.25	D-4.03	3+94.64, 12.43 LT	
I-24	A-10	460.40	460.30	467.23	D-4.03	3+94.64, 12.43 RT	
I-25	D	-	463.00	469.63	D-4.10	N 539554.57 E 1335268.58	
I-26	S	451.00	450.00	456.00	D-4.22	N 539623.97 E 1335631.58	
I-27	A-10	464.00	463.75	471.41	D-4.03	8+58.55, 13.43 LT	
I-28	A-10	-	464.50	471.46	D-4.03	8+61.39, 13.43 RT	
I-29	S	-	446.00	450.50	D-4.22	N 539590.77 E 1335611.81	
I-30	D	436.00	434.20	445.83	D-4.10	N 539581.90 E 1335950.79	
I-31	D	442.1/445.00	442.00	454.83	D-4.10	N 540042.90 E 1335966.49	
I-32	S	443.20	442.70	448.50	D-4.22	N 540012.66 E 1335878.62	
I-33	D	449.50	449.00	454.63	D-4.10	N 540114.12 E 1335298.39	THROAT 4 SIDES
I-34	A-10	462.65	462.55	469.97	D-4.03	13+56.44, 13.43 RT	
I-35	A-10	462.95	462.85	470.00	D-4.03	13+56.17, 13.43 LT	
I-36	D	-	464.00	469.83	D-4.10	N 539926.45 E 1335012.67	THROAT 4 SIDES
I-40	D	451.10	451.00	456.83	D-4.10	N 540092.47 E 1335389.80	THROAT 4 SIDES
I-41	A-10	455.40	455.30	459.88	D-4.03	18+56.38, 12.43 RT	
I-42	A-10	457.65/457.50	457.40	464.87	D-4.03	16+10.72, 13.77 LT	
I-43	A-10	-	458.00	464.83	D-4.03	16+11.07, 13.28 RT	
I-44	D	-	454.00	459.83	D-4.10	N 540031.41 E 1335349.92	THROAT 4 SIDES
I-45	D	-	446.50	452.83	D-4.10	N 539994.60 E 1335758.75	THROAT 4 SIDES
I-46	D	451.00	449.00	456.33	D-4.22	N 539946.48 E 1335835.26	THROAT 4 SIDES
I-47	A-10	460.10	460.00	467.33	D-4.03	5+76.12, 13.43 RT	
I-47A	A-5	-	462.51	469.74	D-4.01	7+36.13, 13.43 RT	
I-48	A-10	461.10	460.60	467.33	D-4.03	5+79.76, 13.43 LT	
I-48A	A-5	462.35	462.10	469.74	D-4.01	7+36.00, 13.43 LT	
I-49	D	-	449.40	454.83	D-4.10	N 540170.49 E 1336085.43	THROAT 4 SIDES
I-50	S		452.00	456.00	D-4.22	N 540148.54 E 1336208.97	
I-51	A-10	454.00	453.9/453.1	457.59	D-4.03	25+23.02, 13.37 LT	
I-52	A-10	-	454.60	457.97	D-4.03	25+33.23, 13.43 RT	
I-60	A-10	455.80	455.70	463.44	D-4.03	3+15.62, 13.43 LT	
I-61	A-10	456.50	456.20	463.44	D-4.03	3+15.62, 13.43 RT	
I-62	A-5	457.60	457.10	463.05	D-4.01	28+17.38, 13.43 RT	
I-63	A-5	-	458.00	463.05	D-4.01	28+17.87, 13.43 LT	
I-64	D	-	446.00	452.83	D-4.10	N 539653.50 E 1336038.59	
I-65	D	-	447.00	453.58	D-4.10	N 539682.95 E 1336008.14	
I-90	D	444.00	442.75	-	D-4.03		THROAT 3 SIDES
216A	K	438.75	438.65	447.10	MD-378.05	DBL	
216B	K	440.00	439.50	443.60	MD-378.05	DBL	
216C	K	444.48	444.23	448.00	MD-378.05	DBL	EX PIPE OUT

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

NO.	REVISION	DATE

FINAL ROAD CONSTRUCTION PLAN

STORM DRAIN PROFILES

MAPLE LAWN SOUTH
PHASE 1 - SECTION 1

LOTS 1-64, NON-BUILDABLE BULK PARCEL 'A',
NON-BUILDABLE BULK PARCEL 'B', AND OPEN SPACE LOTS 65-69

TAX MAP 46 – GRID 2 – PARCEL 113
5TH ELECTION DISTRICT
DPZ REF: ECP-14-093, WP-15-136, PB#415, SP-15-014

ZONED: R-ED-MXD-3
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

STATE OF MARYLAND ROBERT HARRIS VOGEL NO.16193 REGISTERED PROFESSIONAL ENGINEER 9/26/16

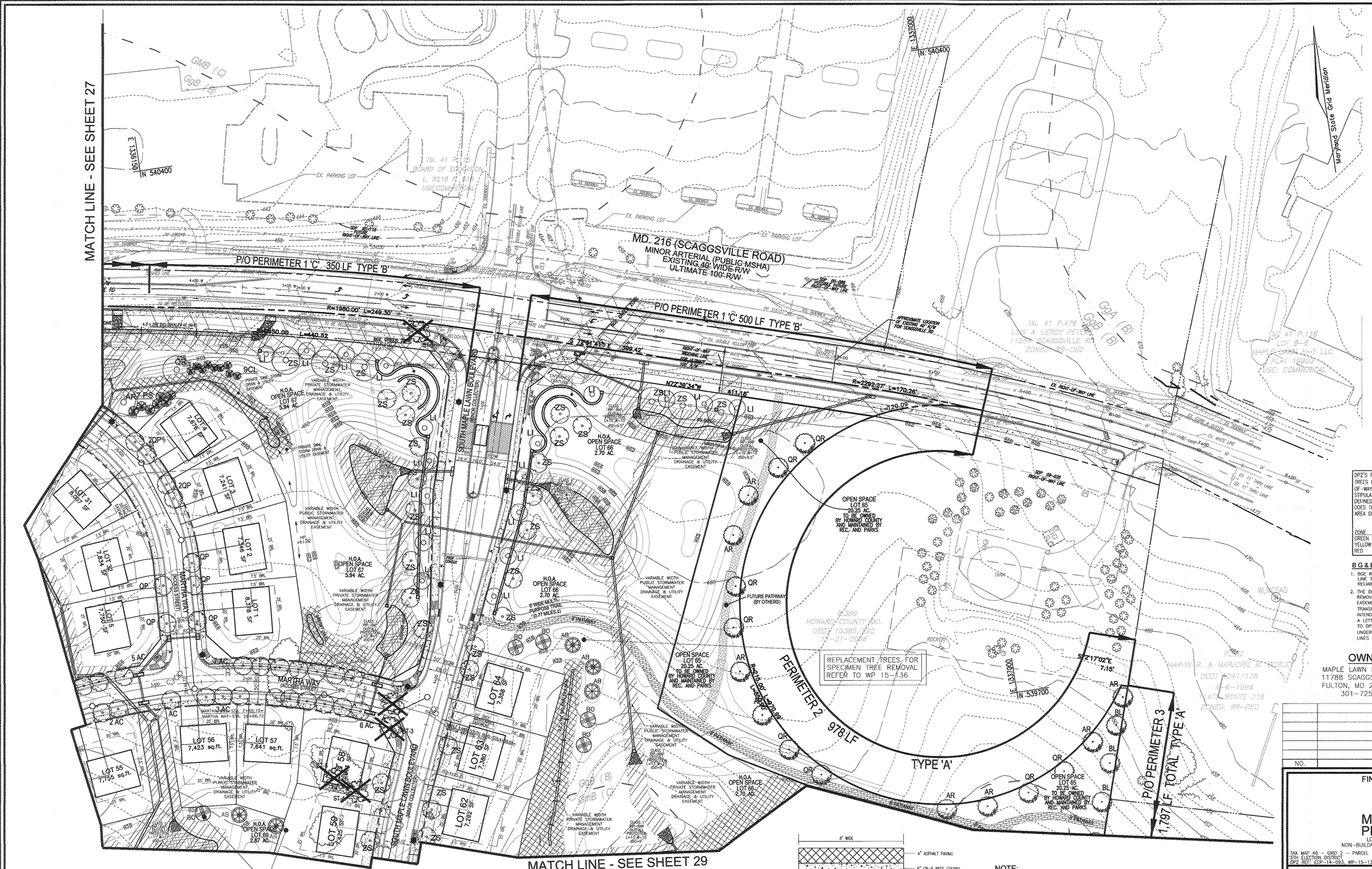
ROBERT H. VOGEL, PE No.16193

DESIGN BY: RVE
DRAWN BY: RVE
CHECKED BY: RHV
DATE: SEPTEMBER 2016
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: 09-27-2018

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 10/25/2016
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
CHIEF, DEVELOPMENT ENGINEERING DIVISION JR — DATE 11/3/16
CHIEF, DIVISION OF LAND DEVELOPMENT DJ — DATE 11-4-16

F-16-021



LEGEND:

- EXISTING CONTOUR
- PROPOSED CONTOUR
- PROPOSED SPOT ELEVATION
- EXISTING SPOT ELEVATION
- EXISTING CURB AND GUTTER
- PROPOSED 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
- EXISTING OVER HEAD LINE
- PROPOSED STORM DRAIN INLET
- EXISTING TREELINE
- PROPERTY LINE
- RIGHT-OF-WAY LINE
- SOILS BOUNDARY
- PERIMETER LANDSCAPING
- PROPOSED STREET TREE
- BGE GREEN ZONE
- BGE YELLOW ZONE
- PROPOSED STREET LIGHT
- FUTURE 8' PATHWAY BY OTHERS
- 8' PATHWAY
- 10' TREE MAINTENANCE EASEMENT
- EXISTING SPECIMEN TREE
- EXISTING SPECIMEN TREE TO BE REMOVED

DPZ'S POLICIES GOVERNING THE PLACEMENT OF LANDSCAPING AND STREET TREES IN PROXIMITY TO BGE'S POWER LINES OR TRANSMISSION RIGHT-OF-WAY ARE BASED ON BGE'S PUBLISHED "PLANTING ZONE CONCEPT" WHICH STIPULATES THE MAXIMUM ALLOWABLE SIZE OF PLANT MATERIALS FOR THREE DEFINED ZONES. AS THE DISTANCE FROM BGE EQUIPMENT INCREASES, SO DOES THE SIZE OF THE ALLOWABLE PLANT MATERIALS. THESE THREE ZONES AREA DEFINED AS FOLLOWS:

ZONE	DISTANCE FROM THE BGE POWER LINE OR TRANSMISSION RIGHT-OF-WAY	MAXIMUM HEIGHT OF VEGETATION
GREEN	UP TO 20 FEET	25 FEET
YELLOW	BETWEEN 20 FEET AND 45 FEET	40 FEET
RED	BEYOND 45 FEET	ABOVE 40 FEET

B G & E NOTES:

1. BGE RESERVES THE RIGHT TO TRIM, TOP OR CUT DOWN ANY TREE IN PROXIMITY TO THE LINE THAT IN THE OPINION OF BGE SHALL BE DEEMED A HAZARD TO THE SAFE AND RELIABLE DELIVERY OF ELECTRICITY.
2. THE DEPARTMENT OF PLANNING AND ZONING MAY AUTHORIZE THE TRIMMING OR REMOVAL OF TREES OR VEGETATION IMMEDIATELY ADJACENT TO THE BGE R/W OR EASEMENT, IF BGE DETERMINES THE TREES ARE COMPROMISING THE SAFETY OR A TRANSMISSION LINE LOCATED WITHIN THEIR UTILITY R/W OR EASEMENT. IF BGE INTENDS TO TRIM OR REMOVE TREES WITHIN A FOREST CONSERVATION EASEMENT, A LETTER SPECIFYING THE LOCATION AND SCOPE OF WORK NEEDS TO BE SENT TO DPZ AT LEAST 30 DAYS IN ADVANCE OF UNDERTAKING THE WORK. DPZ UNDERSTANDS CONSTELLATION ENERGY'S NEED TO PROTECT ITS TRANSMISSION LINES AND WILL NOT UNREASONABLE WITHHOLD PERMISSION.

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

NO.	REVISION	DATE

FINAL ROAD CONSTRUCTION PLAN

LANDSCAPE PLAN

MAPLE LAWN SOUTH PHASE 1 - SECTION 1

LOTS 1-64, NON-BUILDABLE BULK PARCEL 'A', NON-BUILDABLE BULK PARCEL 'B', AND OPEN SPACE LOTS 65-69

TAX MAP 46 - GRID 2 - PARCEL 113
5TH ELECTION DISTRICT
DPZ REF: ECP-14-093, WP-15-136, PB/415, SP-15-014

ZONED: R-ED-MXD-3
HOWARD COUNTY, MARYLAND

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STATE OF MARYLAND ROBERT HARRIS VOGEL No. 16193 REGISTERED PROFESSIONAL ENGINEER
ROBERT H. VOGEL, PE No.16193

DESIGN BY:	RVE
DRAWN BY:	RVE
CHECKED BY:	RHV
DATE:	SEPTEMBER 2016
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: 09-27-2018

SHEET 26 OF 48

F-16-021

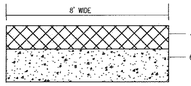
NOTE:

1. IN THE DIRECTION FACING A TRAFFIC CONTROL SIGN:
   1) THERE SHALL BE A MINIMUM OF 40' BETWEEN THE SIGN FACE AND CLOSEST TREE FOR ALL STOP SIGNS.
   2) THERE SHALL BE A MINIMUM OF 35' BETWEEN THE SIGN FACE AND CLOSEST TREE FOR ALL SIGNS OTHER THAN A STOP SIGN.

REPLACEMENT TREES FOR SPECIMEN TREE REMOVAL REFER TO WP 15-136

SCALE: 1"=50'

50' 0 50' 100' 150'



NOTES:
1. * SLOPE 1/4" PER FOOT MIN. FOR DRAINAGE
2. PATH SHALL BE ADA COMPLIANT

8' ASPHALT PATHWAY DETAIL
NOT TO SCALE

NOTE:

THE H.O.A. SHALL MAINTAIN ANY AND ALL ORNAMENTAL PLANTINGS WITHIN THE NON-FOREST CONSERVATION EASEMENT PORTIONS OF OPEN SPACE LOT 65 THROUGH A MAINTENANCE EASEMENT WITH HOWARD COUNTY

MAPPED SOILS TYPES - CLARKSVILLE SE MAP #23

SYMBOL	NAME / DESCRIPTION	GROUP	HYDRIC	HYDRIC INCLUSIONS	K FACTOR	PRIME FARMLAND	STEEP SLOPE W/ ERODIBILITY POTENTIAL
BaA	BAILE SILT LOAM, 0 TO 3 PERCENT SLOPES	D	YES	YES	0.32	NO	YES
GgA	GLENELG LOAM, 0 TO 3 PERCENT SLOPES	B	NO	NO	0.20	YES	NO
GgB	GLENELG LOAM, 3 TO 8 PERCENT SLOPES	B	NO	NO	0.20	YES	NO
GmB	GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES	C	NO	NO	0.37	YES	YES
GnB	GLENVILLE-BAILE SILT LOAM, 0 TO 8 PERCENT SLOPES	C	PARTIALLY*	PARTIALLY*	0.37	NO	PARTIAL
MoC	MANOR LOAM, 8 TO 15 PERCENT SLOPES	B	NO	NO	0.24	YES	NO

TAKEN FROM: USDA, SCS-WCB SOIL SURVEY, HOWARD COUNTY

*BAILE COMPONENT OF GnB, ERODIBILITY FACTOR IS 0.32 AND IS CONSIDERED HYDRIC

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

NOTE:

NO FOREST CONSERVATION EASEMENT OR PORTIONS THEREOF ARE PROPOSED ON THIS SHEET

NOTE:

* LANDSCAPING PROPOSED IN PERIMETER 1 AND ALONG ROAD A HAVE BEEN PROPOSED AS PART OF A LANDSCPE PLAN PREPARED BY: THE LAND PLANNING & DESIGN GROUP INC.
5300 WESTVIEW DRIVE, SUITE 103
FREDERICK, MARYLAND 21703
(301)-695-6172 - FAX (301)-695-6219

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 10/25/2016

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

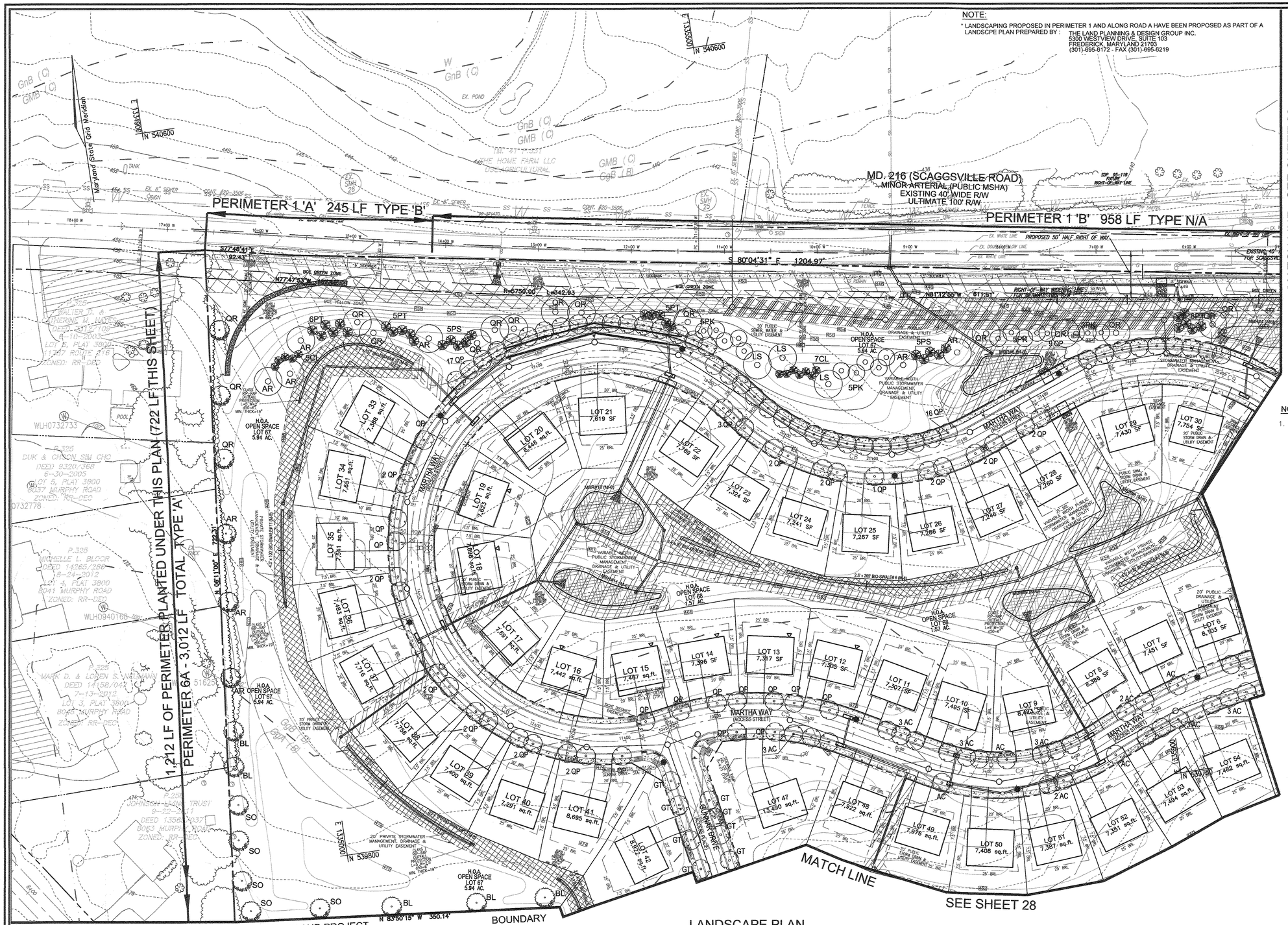
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 11/3/16

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11-4-16

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.

SIGNATURE OF DEVELOPER — DATE 9/26/16



NOTE:

* LANDSCAPING PROPOSED IN PERIMETER 1 AND ALONG ROAD A HAVE BEEN PROPOSED AS PART OF A LANDSCPE PLAN PREPARED BY : THE LAND PLANNING & DESIGN GROUP INC.
5300 WESTVIEW DRIVE, SUITE 103
FREDERICK, MARYLAND 21703
(301)-695-6172 - FAX (301)-695-6219

MATCH LINE - SEE SHEET 26

LEGEND:

- EXISTING CONTOUR
- PROPOSED CONTOUR
- PROPOSED SPOT ELEVATION
- EXISTING SPOT ELEVATION
- EXISTING CURB AND GUTTER
- PROPOSED 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 OVER HEAD LINE
- PROPOSED STORM DRAIN
- PROPOSED STORM DRAIN INLET
- EXISTING TREES
- EXISTING TREELINE
- EXISTING FENCE
- PROPERTY LINE
- RIGHT-OF-WAY LINE
- SOILS BOUNDARY
- PERIMETER LANDSCAPING
- PROPOSED STREET TREE
- BGE GREEN ZONE
- BGE YELLOW ZONE
- PROPOSED STREET LIGHT

NOTE:

1. IN THE DIRECTION FACING A TRAFFIC CONTROL SIGN:
   1) THERE SHALL BE A MINIMUM OF 40' BETWEEN THE SIGN FACE AND CLOSEST TREE FOR ALL STOP SIGNS.
   2) THERE SHALL BE A MINIMUM OF 35' BETWEEN THE SIGN FACE AND CLOSEST TREE FOR ALL SIGNS OTHER THAN A STOP SIGN.

DPZ'S POLICIES COVERNING THE PLACEMENT OF LANDSCAPING AND STREET TREES IN PROXIMITY TO BGE'S POWER LINES OR TRANSMISSION RIGHT-OF-WAY ARE BASED ON BGE'S PUBLISHED "PLANTING ZONE CONCEPT" WHICH STIPULATES THE MAXIMUM ALLOWABLE SIZE OF PLANT MATERIALS FOR THREE DEFINED ZONES. AS THE DISTANCE FROM BGE EQUIPMENT INCREASES, SO DOES THE SIZE OF THE ALLOWABLE PLANT MATERIALS. THESE THREE ZONES AREA DEFINED AS FOLLOWS:

ZONE	DISTANCE FROM THE BGE POWER LINE OR TRANSMISSION RIGHT-OF-WAY	MAXIMUM HEIGHT OF VEGETATION
GREEN	UP TO 20 FEET	25 FEET
YELLOW	BETWEEN 20 FEET AND 45 FEET	40 FEET
RED	BEYOND 45 FEET	ABOVE 40 FEET

B G & E NOTES:

1. BGE RESERVES THE RIGHT TO TRIM, TOP OR CUT DOWN ANY TREE IN PROXIMITY TO THE LINE THAT IN THE OPINION OF BGE SHALL BE DEEMED A HAZARD TO THE SAFE AND RELIABLE DELIVERY OF ELECTRICITY.
2. THE DEPARTMENT OF PLANNING AND ZONING MAY AUTHORIZE THE TRIMMING OR REMOVAL OF TREES OR VEGETATION IMMEDIATELY ADJACENT TO THE BGE R/W OR EASEMENT, IF BGE DETERMINES THE TREES ARE COMPROMISING THE SAFETY OR A TRANSMISSION LINE LOCATED WITHIN THEIR UTILITY R/W OR EASEMENT. IF BGE INTENDS TO TRIM OR REMOVE TREES WITHIN A FOREST CONSERVATION EASEMENT, A LETTER SPECIFYING THE LOCATION AND SCOPE OF WORK NEEDS TO BE SENT TO DPZ AT LEAST 30 DAYS IN ADVANCE OF UNDERTAKING THE WORK. DPZ UNDERSTANDS CONSTELLATION ENERGY'S NEED TO PROTECT ITS TRANSMISSION LINES AND WILL NOT UNREASONABLE WITHHOLD PERMISSION.

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

NO.	REVISION	DATE

FINAL ROAD CONSTRUCTION PLAN

LANDSCAPE PLAN

MAPLE LAWN SOUTH PHASE 1 - SECTION 1

LOTS 1-54, NON-BUILDABLE BULK PARCEL 'A'
NON-BUILDABLE BULK PARCEL 'B', AND OPEN SPACE LOTS 65-69

TAX MAP 46 GRID 2 - PARCEL 113
5TH ELECTION DISTRICT ZONED: R-ED-MXD-3
DPZ REF: ECP-14-093, WP-15-136, PB#415, SP-15-014 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

LANDSCAPE PLAN

SCALE: 1"=50'

50' 0 50' 100' 150'

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 10/25/2016

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 11/3/16

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11/4/16

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.

SIGNATURE OF DEVELOPER — DATE 9/20/16

NOTE:

NO FOREST CONSERVATION EASEMENT OR PORTIONS THEREOF ARE PROPOSED ON THIS SHEET

MAPPED SOILS TYPES - CLARKSVILLE SE MAP #23

SYMBOL	NAME / DESCRIPTION	GROUP	HYDRIC	HYDRIC INCLUSIONS	K FACTOR	PRIME FARMLAND	>15% SLOPE W/ EROSION POTENTIAL
BmA	BAILE SILT LOAM, 0 TO 3 PERCENT SLOPES	D	YES	YES	0.32	NO	YES
GcA	GLENELG LOAM, 0 TO 3 PERCENT SLOPES	B	NO	NO	0.20	YES	NO
GcB	GLENELG LOAM, 3 TO 8 PERCENT SLOPES	B	NO	NO	0.20	YES	NO
GmB	GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES	C	NO	NO	0.37	YES	YES
GnB	GLENVILLE-BAILE SILT LOAM, 0 TO 8 PERCENT SLOPES	C	PARTIALLY*	PARTIALLY*	0.37	NO	PARTIAL
MoC	MANOR LOAM, 8 TO 15 PERCENT SLOPES	B	NO	NO	0.24	YES	NO

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

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

*BAILE COMPONENT OF GnB, ERODIBILITY FACTOR IS 0.32 AND IS CONSIDERED HYDRIC

STATE OF MARYLAND ROBERT HARRIS VOGEL No. 16193 REGISTERED PROFESSIONAL ENGINEER

ROBERT H. VOGEL, PE No.16193

DESIGN BY: RVE
DRAWN BY: RVE
CHECKED BY: RHV
DATE: SEPTEMBER 2016
SCALE: AS SHOWN
W.O. NO.: 11-34

PROFESSIONAL CERTIFICATE

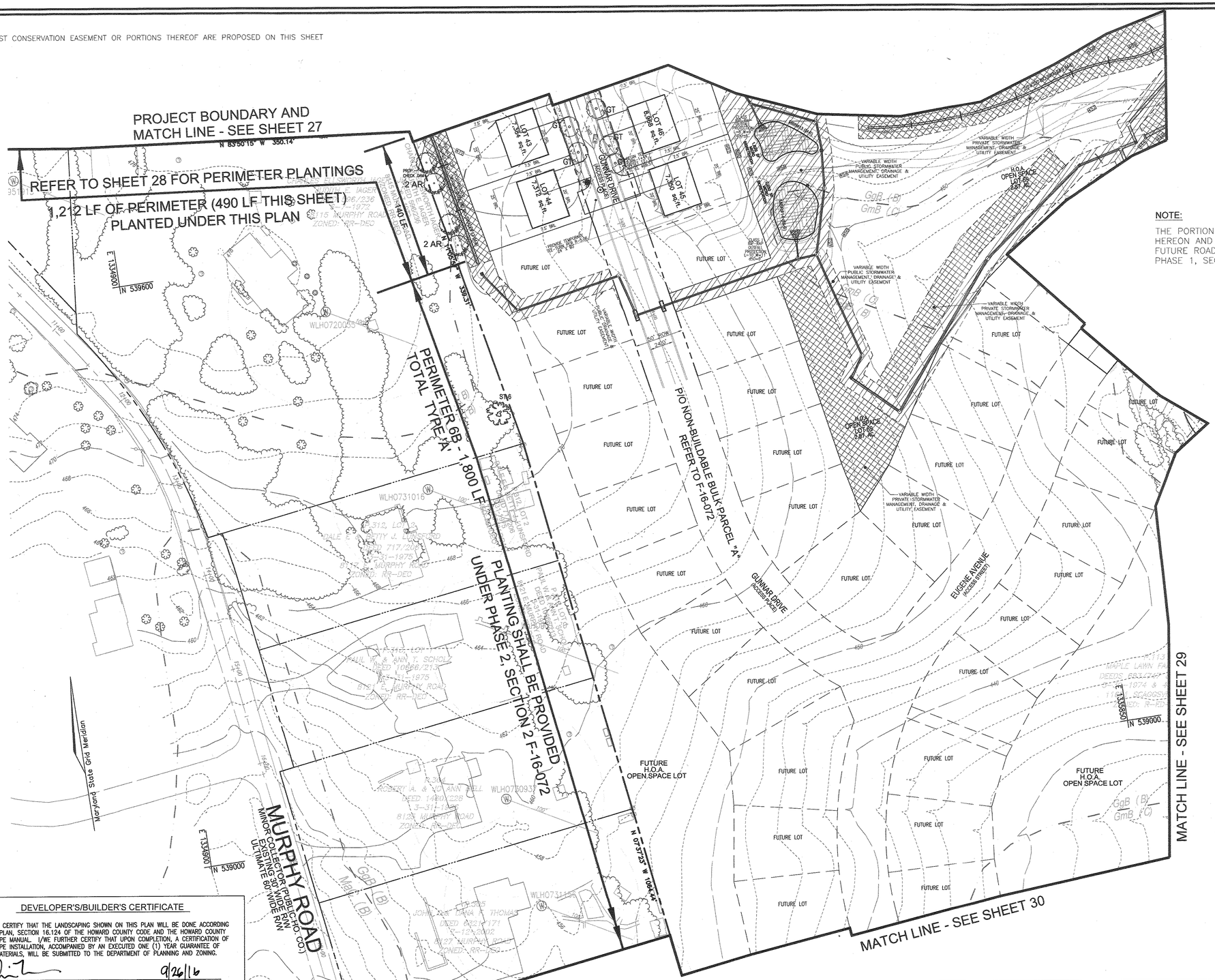
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193
EXPIRATION DATE: 09-27-2018

SHEET 27 OF 48

F-16-021

NOTE:

NO FOREST CONSERVATION EASEMENT OR PORTIONS THEREOF ARE PROPOSED ON THIS SHEET



LEGEND:

- EXISTING CONTOUR
- PROPOSED CONTOUR
- PROPOSED SPOT ELEVATION
- EXISTING SPOT ELEVATION
- EXISTING CURB AND GUTTER
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- EXISTING MAILBOX
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- EXISTING SANITARY LINE
- EXISTING CLEANOUT
- EXISTING FIRE HYDRANT
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- PROPOSED STORM DRAIN
- PROPOSED STORM DRAIN INLET
- EXISTING TREES
- EXISTING TREELINE
- EXISTING FENCE
- PROPERTY LINE
- RIGHT-OF-WAY LINE
- SOILS BOUNDARY
- PROPOSED SIDEWALK
- PERIMETER LANDSCAPING
- PROPOSED STREET TREE
- PROPOSED STREET LIGHT

NOTE:

THE PORTION OF PERIMETER 6 AS SHOWN HEREON AND THE STREET TREES FOR THE FUTURE ROADS SHALL BE PROVIDED UNDER PHASE 1, SECTION 2, F-16-072.

NOTE:

1. IN THE DIRECTION FACING A TRAFFIC CONTROL SIGN:
   1) THERE SHALL BE A MINIMUM OF 40' BETWEEN THE SIGN FACE AND CLOSEST TREE FOR ALL STOP SIGNS.
   2) THERE SHALL BE A MINIMUM OF 35' BETWEEN THE SIGN FACE AND CLOSEST TREE FOR ALL SIGNS OTHER THAN A STOP SIGN.

OWNER
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FULTON, MD 20759-0562
301-725-2074

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

NO.	REVISION	DATE

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SIGNATURE OF DEVELOPER — DATE 9/26/16

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 10/25/2016

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 11/3/16

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11-4-16

LANDSCAPE PLAN

SCALE: 1"=50'

50' 0 50' 100' 150'

MAPPED SOILS TYPES - CLARKSVILLE SE MAP #23

SYMBOL	NAME / DESCRIPTION	GROUP	HYDRIC	HYDRIC INCLUSIONS	K FACTOR	PRIME FARMLAND	STEEP SLOPE W/ ERODIBLE PROFILE
BaA	BAILE SILT LOAM, 0 TO 3 PERCENT SLOPES	D	YES	YES	0.32	NO	YES
GgA	GLENELG LOAM, 0 TO 3 PERCENT SLOPES	B	NO	NO	0.20	YES	NO
GgB	GLENELG LOAM, 3 TO 8 PERCENT SLOPES	B	NO	NO	0.20	YES	NO
GmB	GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES	C	NO	NO	0.37	YES	YES
GnB	GLENVILLE-BAILE SILT LOAM, 0 TO 8 PERCENT SLOPES	C	PARTIALLY*	PARTIALLY*	0.37	NO	PARTIAL
MoC	MANOR LOAM, 8 TO 15 PERCENT SLOPES	B	NO	NO	0.24	YES	NO

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

NOTE:
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*BAILE COMPONENT OF GnB, ERODIBILITY FACTOR IS 0.32 AND IS CONSIDERED HYDRIC

FINAL ROAD CONSTRUCTION PLAN

LANDSCAPE PLAN

MAPLE LAWN SOUTH PHASE 1 - SECTION 1

LOTS 1-64, NON-BUILDABLE BULK PARCEL 'A',
NON-BUILDABLE BULK PARCEL 'B', AND OPEN SPACE LOTS 65-69

TAX MAP 46 - GRID 2 - PARCEL 113
5TH ELECTION DISTRICT
DPZ REF: (CP-14-092, WP-15-136, PB#415, SP-15-014

ZONED: R-ED-MXD-3
HOWARD COUNTY, MARYLAND

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

STATE OF MARYLAND — ROBERT HARRIS VOGEL — No. 16193 — REGISTERED PROFESSIONAL ENGINEER — 9/26/16

ROBERT H. VOGEL, PE No.16193

DESIGN BY:	RVE
DRAWN BY:	RVE
CHECKED BY:	RHV
DATE:	SEPTEMBER 2016
SCALE:	AS SHOWN
W.O. NO.:	11-34

PROFESSIONAL CERTIFICATE

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EXPIRATION DATE: 09-27-2018

SHEET 28 OF 48

F-16-021

LEGEND:

- EXISTING CONTOUR
- PROPOSED CONTOUR
- PROPOSED SPOT ELEVATION
- EXISTING SPOT ELEVATION
- EXISTING CURB AND GUTTER
- PROPOSED 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 OVER HEAD LINE
- PROPOSED STORM DRAIN
- PROPOSED STORM DRAIN INLET
- EXISTING TREES
- EXISTING TREELINE
- EXISTING FENCE
- PROPERTY LINE
- RIGHT-OF-WAY LINE
- SOILS BOUNDARY
- PROPOSED SIDEWALK
- PERIMETER LANDSCAPING
- PROPOSED STREET TREE
- PROPOSED FOREST REFORESTATION/ AFFORESTATION EASEMENT
- PROPOSED STREET LIGHT
- 8' PATHWAY
- 10' TREE MAINTENANCE EASEMENT
- EXISTING SPECIMEN TREE
- EXISTING SPECIMEN TREE TO BE REMOVED

NOTE:

THE H.O.A. SHALL MAINTAIN ANY AND ALL ORNAMENTAL PLANTINGS WITHIN THE NON-FOREST CONSERVATION EASEMENT PORTIONS OF OPEN SPACE LOT 65 THROUGH A MAINTENANCE EASEMENT WITH HOWARD COUNTY

LANDSCAPE PLAN

SCALE: 1"=50'

50' 0 50' 100' 150'

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

NO.	REVISION	DATE

FINAL ROAD CONSTRUCTION PLAN

LANDSCAPE PLAN

MAPLE LAWN SOUTH PHASE 1 - SECTION 1

LOTS 1-64, NON-BUILDABLE BULK PARCEL 'A', NON-BUILDABLE BULK PARCEL 'B', AND OPEN SPACE LOTS 65-69

TAX MAP 46 - GRID 1 - PARCEL 113 — ZONED: R-ED-MXD-3
5TH ELECTION DISTRICT — HOWARD COUNTY, MARYLAND
DPZ REF: ECP-14-093, WP-15-136, PB#415, SP-15-014

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

STATE OF MARYLAND ROBERT HARRIS VOGEL No. 16193 PROFESSIONAL ENGINEER — 9/26/16

ROBERT H. VOGEL, PE No.16193

DESIGN BY: RVE
DRAWN BY: RVE
CHECKED BY: RHV
DATE: SEPTEMBER 2016
SCALE: AS SHOWN
W.O. NO.: 11-34

PROFESSIONAL CERTIFICATE

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EXPIRATION DATE: 09-27-2018

SHEET 29 OF 48

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 10/25/2016

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 11/1/16

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11/1/16

DEVELOPER'S/BUILDER'S CERTIFICATE

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SIGNATURE OF DEVELOPER — DATE 9/26/16

NOTE:

1. IN THE DIRECTION FACING A TRAFFIC CONTROL SIGN:
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MAPPED SOILS TYPES - CLARKSVILLE SE MAP #23

SYMBOL	NAME / DESCRIPTION	GROUP	HYDRIC	HYDRIC INCLUSIONS	K FACTOR	PRIME FARMLAND	CLOSE SLOPE W/ ERODIBLE POTENTIAL
BaA	BAILE SILT LOAM, 0 TO 3 PERCENT SLOPES	D	YES	YES	0.32	NO	YES
GgA	GLENELG LOAM, 0 TO 3 PERCENT SLOPES	B	NO	NO	0.20	YES	NO
GgB	GLENELG LOAM, 3 TO 8 PERCENT SLOPES	B	NO	NO	0.20	YES	NO
GmB	GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES	C	NO	NO	0.37	YES	YES
GnB	GLENVILLE-BAILE SILT LOAM, 0 TO 8 PERCENT SLOPES	C	PARTIALLY*	PARTIALLY*	0.37	NO	PARTIAL
MaC	MANOR LOAM, 8 TO 15 PERCENT SLOPES	B	NO	NO	0.24	YES	NO

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

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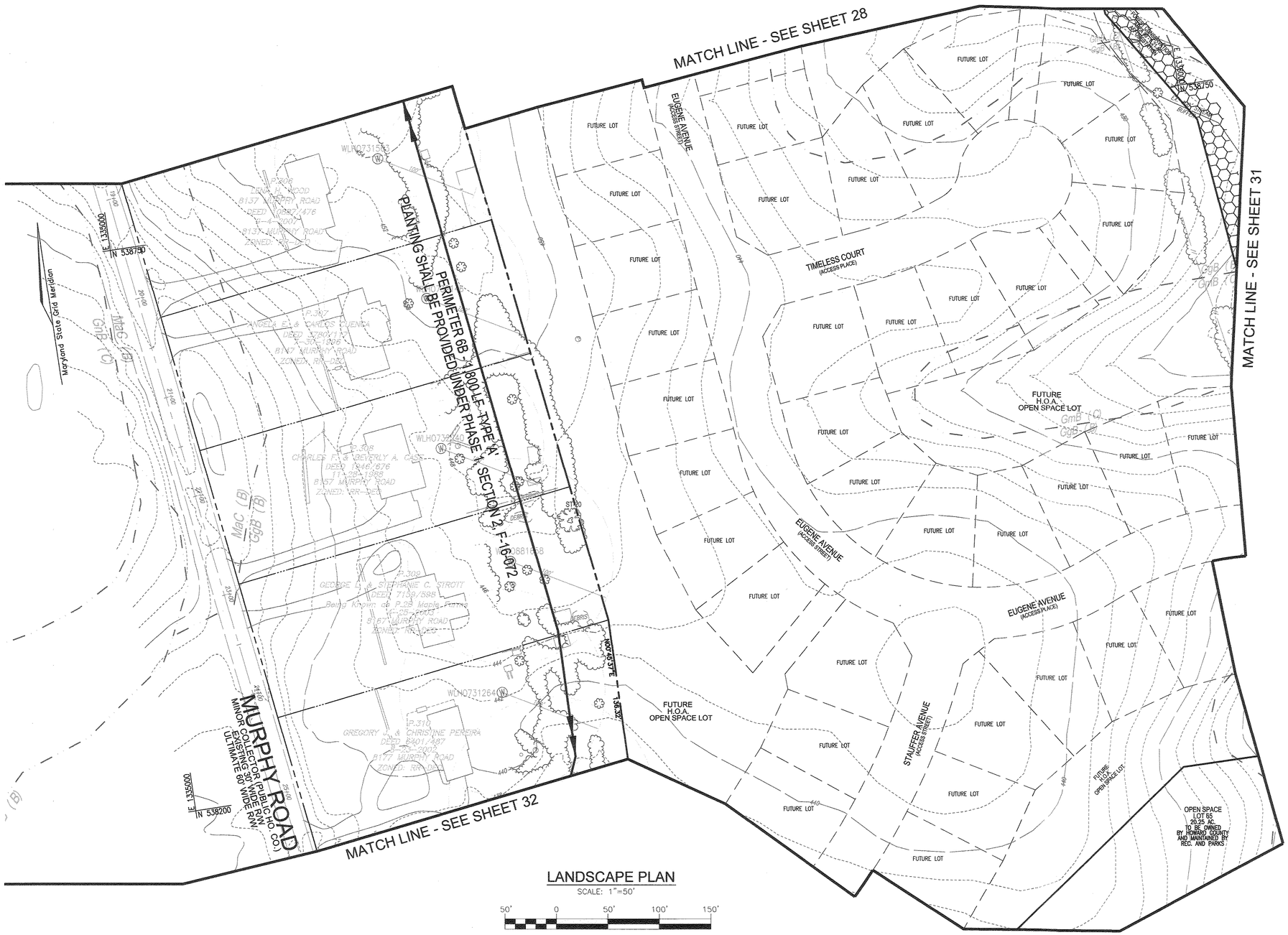
F-16-021



LEGEND:

395	EXISTING CONTOUR
406	PROPOSED CONTOUR
+ 402.68	PROPOSED SPOT ELEVATION
× 402.68	EXISTING SPOT ELEVATION
	EXISTING CURB AND GUTTER
	PROPOSED CURB AND GUTTER
	EXISTING UTILITY POLE
	EXISTING LIGHT POLE
M	EXISTING MAILBOX
	EXISTING SIGN
S	EXISTING SANITARY MANHOLE
S	EXISTING SANITARY LINE
CO	EXISTING CLEANOUT
FH	EXISTING FIRE HYDRANT
W	EXISTING WATER LINE
OH	EXISTING OVER HEAD LINE
	PROPOSED STORM DRAIN
	PROPOSED STORM DRAIN INLET
	EXISTING TREES
	EXISTING TREELINE
	EXISTING FENCE
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	RIGHT-OF-WAY LINE
MlB2 MlD3	SOILS BOUNDARY
	PROPOSED SIDEWALK
	PROPOSED FOREST REFORESTATION/ AFFORESTATION EASEMENT

NOTE:

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LANDSCAPE PLAN

SCALE: 1"=50'

50' 0 50' 100' 150'

OWNER
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NO.	REVISION	DATE

FINAL ROAD CONSTRUCTION PLAN

LANDSCAPE PLAN

MAPLE LAWN SOUTH PHASE 1 - SECTION 1

LOTS 1-64, NON-BUILDABLE BULK PARCEL 'A', NON-BUILDABLE BULK PARCEL 'B', AND OPEN SPACE LOTS 65-69

TAX MAP 46 - GRID 2 - PARCEL 113
5TH ELECTION DISTRICT
DPZ REF: ECP-14-093, WP-15-136, PB#415, SP-15-014

ZONED: R-ED-MXD-3
HOWARD COUNTY, MARYLAND

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STATE OF MARYLAND ROBERT HARRIS VOGEL No. 16193 REGISTERED PROFESSIONAL ENGINEER

ROBERT H. VOGEL, PE No.16193

DESIGN BY:	RVE
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CHECKED BY:	RHV
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SHEET 30 OF 48

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 10/25/2016

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 11/3/16

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11-4-16

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SIGNATURE OF DEVELOPER — DATE 9/26/16

MAPPED SOILS TYPES - CLARKSVILLE SE MAP #23

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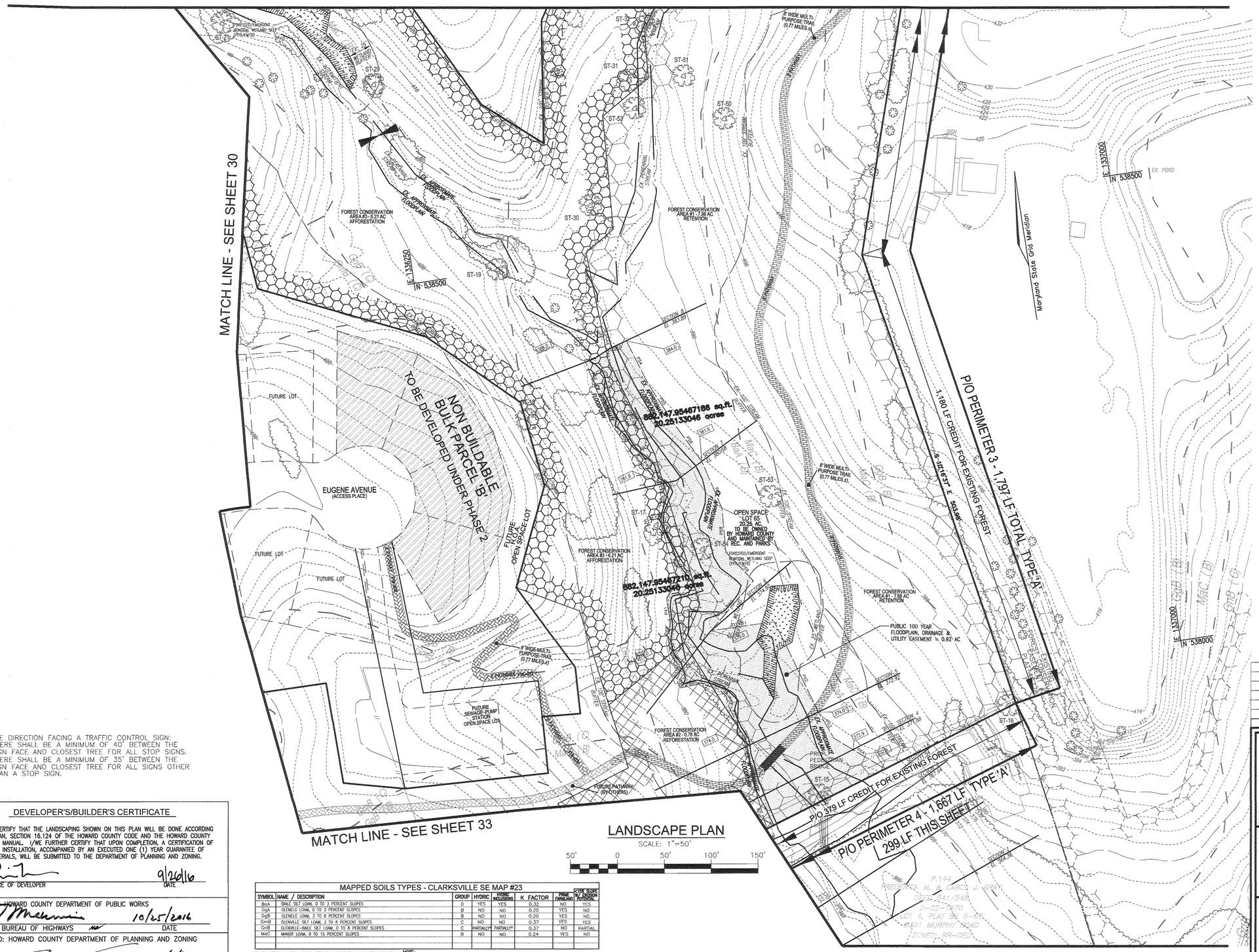
F-16-021



LEGEND:

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- PROPOSED SIDEWALK
- PERIMETER LANDSCAPING
- PROPOSED STREET TREE
- EXISTING WETLAND
- PROPOSED FOREST CONSERVATION EASEMENT (RETENTION)
- PROPOSED FOREST CONSERVATION EASEMENT (AFFORESTATION)
- PROPOSED FOREST CONSERVATION EASEMENT (REFORESTATION)
- PROPOSED STREET LIGHT
- FUTURE 8' PATHWAY BY OTHERS
- 8' PATHWAY
- PROPOSED 8' PATHWAY PHASE 1, SECTION 2
- PUBLIC 100 YEAR FLOODPLAIN, DRAINAGE & UTILITY EASEMENT

NOTE:

THE H.O.A. SHALL MAINTAIN ANY AND ALL ORNAMENTAL PLANTINGS WITHIN THE NON-FOREST CONSERVATION EASEMENT PORTIONS OF OPEN SPACE LOT 65 THROUGH A MAINTENANCE EASEMENT WITH HOWARD COUNTY

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

NO.	REVISION	DATE

NOTE:

1. IN THE DIRECTION FACING A TRAFFIC CONTROL SIGN:
   1) THERE SHALL BE A MINIMUM OF 40' BETWEEN THE SIGN FACE AND CLOSEST TREE FOR ALL STOP SIGNS.
   2) THERE SHALL BE A MINIMUM OF 35' BETWEEN THE SIGN FACE AND CLOSEST TREE FOR ALL SIGNS OTHER THAN A STOP SIGN.

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.

SIGNATURE OF DEVELOPER — DATE 9/26/16

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 10/25/2016

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 11/6/16

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11-4-16

MAPPED SOILS TYPES - CLARKSVILLE SE MAP #23

SYMBOL	NAME / DESCRIPTION	GROUP	HYDRIC	HYDRIC INCLUSIONS	K FACTOR	PRIME FARMLAND	<15% SLOPE W/ EROSION POTENTIAL
BraA	BAILE SILT LOAM, 0 TO 3 PERCENT SLOPES	D	YES	YES	0.32	NO	YES
GgA	GLENELG LOAM, 0 TO 3 PERCENT SLOPES	B	NO	NO	0.20	YES	NO
GgB	GLENELG LOAM, 3 TO 8 PERCENT SLOPES	B	NO	NO	0.20	YES	NO
GmB	GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES	C	NO	NO	0.37	YES	YES
GnB	GLENVILLE-BAILE SILT LOAM, 0 TO 8 PERCENT SLOPES	C	PARTIALLY*	PARTIALLY*	0.37	NO	PARTIAL
MaC	MANOR LOAM, 8 TO 15 PERCENT SLOPES	B	NO	NO	0.24	YES	NO

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

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

*BAILE COMPONENT OF GnB, ERODIBILITY FACTOR IS 0.32 AND IS CONSIDERED HYDRIC

FINAL ROAD CONSTRUCTION PLAN

LANDSCAPE PLAN

MAPLE LAWN SOUTH PHASE 1 - SECTION 1

LOTS 1-64, NON-BUILDABLE BULK PARCEL 'A', NON-BUILDABLE BULK PARCEL 'B', AND OPEN SPACE LOTS 65-69

TAX MAP 46 - GRID 2 - PARCEL 113
5TH ELECTION DISTRICT
GPZ REF: ECP-14-093, WP-15-136, PB#415, SP-15-014

ZONED: R-ED-MXD-3
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

STATE OF MARYLAND — ROBERT HARRIS VOGEL — No. 16193 — REGISTERED PROFESSIONAL ENGINEER — 9/26/16

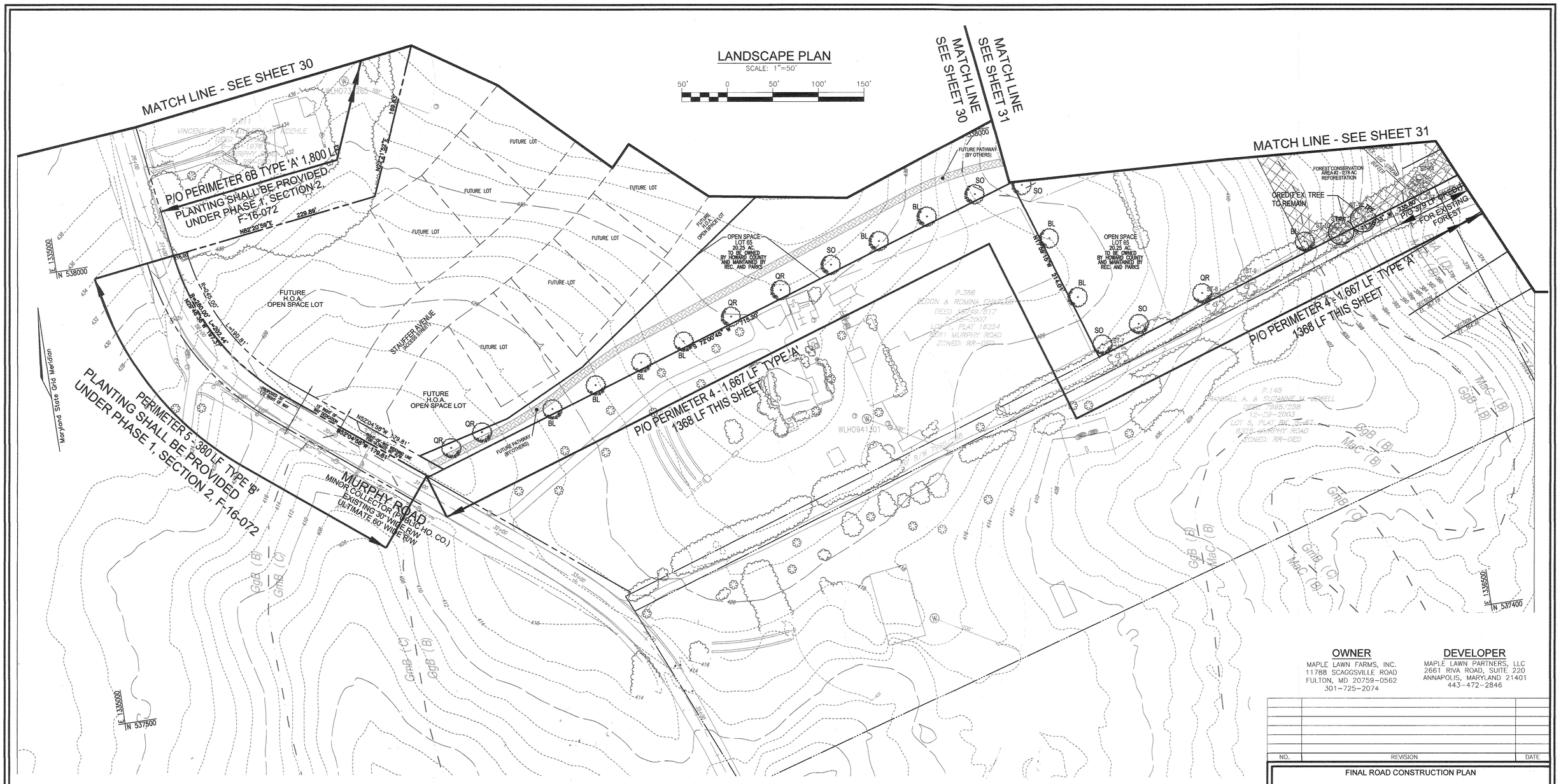
ROBERT H. VOGEL, PE No.16193

DESIGN BY: RVE
DRAWN BY: RVE
CHECKED BY: RHV
DATE: SEPTEMBER 2016
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: 09-27-2018

F-16-021



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

NO.	REVISION	DATE

FINAL ROAD CONSTRUCTION PLAN

LANDSCAPE PLAN

MAPLE LAWN SOUTH PHASE 1 - SECTION 1

LOTS 1-64, NON-BUILDABLE BULK PARCEL 'A', NON-BUILDABLE BULK PARCEL 'B', AND OPEN SPACE LOTS 65-69

TAX MAP 46 - GRID 2 - PARCEL 113
5TH ELECTION DISTRICT
DPZ REF: ECP-14-093, WP-15-136, PB#415, SP-15-014

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STATE OF MARYLAND ROBERT HARRIS VOGEL No. 16193 REGISTERED PROFESSIONAL ENGINEER

ROBERT H. VOGEL, PE No.16193

DESIGN BY:	RVE
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EXPIRATION DATE: 09-27-2018

SHEET 32 OF 48

MAPPED SOILS TYPES - CLARKSVILLE SE MAP #23

SYMBOL	NAME / DESCRIPTION	GROUP	HYDRIC	HYDRIC INCLUSIONS	K FACTOR	PRIME FARMLAND	>15% SLOPE W/ EROSION POTENTIAL
BoA	BAILE SILT LOAM, 0 TO 3 PERCENT SLOPES	D	YES	YES	0.32	NO	YES
GgA	GLENELG LOAM, 0 TO 3 PERCENT SLOPES	B	NO	NO	0.20	YES	NO
GgB	GLENELG LOAM, 3 TO 8 PERCENT SLOPES	B	NO	NO	0.20	YES	NO
GmB	GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES	C	NO	NO	0.37	YES	YES
GnB	GLENVILLE-BAILE SILT LOAM, 0 TO 8 PERCENT SLOPES	C	PARTIALLY*	PARTIALLY*	0.37	NO	PARTIAL
MaC	MANOR LOAM, 8 TO 15 PERCENT SLOPES	B	NO	NO	0.24	YES	NO

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

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

*BAILE COMPONENT OF GnB, ERODIBILITY FACTOR IS 0.32 AND IS CONSIDERED HYDRIC

NOTE:

1. IN THE DIRECTION FACING A TRAFFIC CONTROL SIGN:
   1) THERE SHALL BE A MINIMUM OF 40' BETWEEN THE SIGN FACE AND CLOSEST TREE FOR ALL STOP SIGNS.
   2) THERE SHALL BE A MINIMUM OF 35' BETWEEN THE SIGN FACE AND CLOSEST TREE FOR ALL SIGNS OTHER THAN A STOP SIGN.

LEGEND:

- EXISTING CONTOUR
- PROPOSED CONTOUR
- PROPOSED SPOT ELEVATION
- EXISTING SPOT ELEVATION
- EXISTING CURB AND GUTTER
- PROPOSED 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 OVER HEAD LINE
- PROPOSED STORM DRAIN
- PROPOSED STORM DRAIN INLET
- EXISTING TREES
- EXISTING TREELINE
- EXISTING FENCE
- PROPERTY LINE
- RIGHT-OF-WAY LINE
- SOILS BOUNDARY
- PROPOSED SIDEWALK
- PERIMETER LANDSCAPING
- PROPOSED STREET TREE
- PROPOSED FOREST REFORESTATION/ AFFORESTATION EASEMENT
- PROPOSED STREET LIGHT
- FUTURE 8' PATHWAY BY OTHERS
- PROPOSED FOREST CONSERVATION EASEMENT (REFORESTATION)

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 10/25/2016

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION JR — DATE 11/3/16

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11-4-16

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.

SIGNATURE OF DEVELOPER — DATE 9/26/16

F-16-021

GENERAL NOTES

WATERSHED NAME: ROCKY GORGE DAM
WATERSHED NUMBER: 02131107

A. GROSS SITE AREA:	91.31 AC. +/-
NET SITE AREA:	89.9 AC.
B. AREA OF 100-YEAR FLOODPLAIN:	0.92 AC NON-CRITICAL
C. AREA OF WETLANDS AND BUFFERS(ONSITE):	0.60 AC.*
AREA OF STREAM AND BUFFERS(ONSITE):	0.79 AC.*
D. AREA OF > 25% STEEP SLOPES:	0.62 AC.
E. EXISTING FOREST:	8.27 AC. (REFER TO FSD)
F. ZONED:	R-ED-MXD-3
G. EXISTING USE:	FARMLAND
H. PROPOSED USE:	RESIDENTIAL

* WETLAND & STREAM BUFFERS OVERLAP, TOTAL ONSITE ENVIRONMENTAL AREAS= 1.41 AC.

GENERAL NOTES

1. STEEP SLOPES ARE AS SHOWN HEREON.
2. IN ACCORDANCE WITH THE WILDLIFE & HERITAGE SERVICE LETTER DATED MAY 16, 2014 "... THERE ARE NO STATE OR FEDERAL RECORDS FOR RARE, THREATENED OR ENDANGERED STATE OR FEDERAL RECORDS FOR RARE, THREATENED OR ENDANGERED SPECIES WITHIN THE BOUNDARIES OF THE PROJECT SITE AS DELINEATED." REFERENCE ER#2014.0686.HO
3. FOREST RESOURCES IDENTIFIED IN FOREST STAND DELINEATION BY KLEBASKO ENVIRONMENTAL, LLC. C/O MR. MICHAEL J. KLEBASKO, P.W.S., DATED MAY 2014.
4. FOR SPECIMEN TREE LIST, REFER TO SHEET 34.
5. WETLANDS AND STREAMS SHOWN ONSITE ARE BASED ON THE DELINEATION BY ENVIRONMENTAL SYSTEMS ANALYSIS, INC. (ESA). AUGUST 2013
6. NONE OF THE ENVIRONMENTALLY SENSITIVE AREAS WILL BE DISTURBED.
7. PER WP-15-136, ANY SPECIMEN TREES THAT SHALL REMAIN ONSITE (THAT ARE WITHIN THE LIMIT OF DISTURBANCE) MUST BE PROTECTED WITH TREE PROTECTION DEVICES.

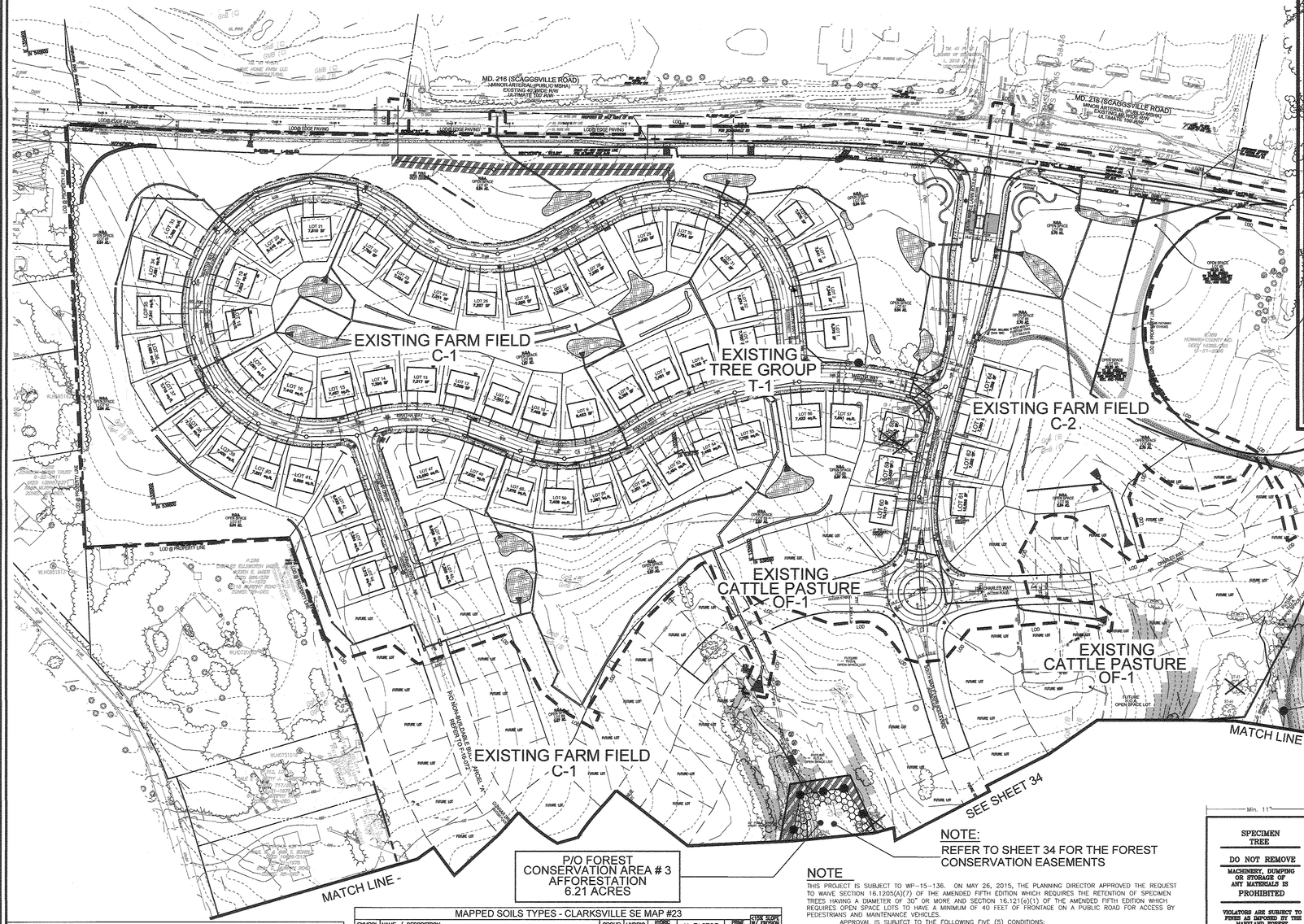
LEGEND:

- EXISTING CONTOUR
- EXISTING CURB AND GUTTER
- EXISTING UTILITY POLE
- EXISTING LIGHT POLE
- EXISTING MAILBOX
- EXISTING SIGN
- EXISTING SANITARY MANHOLE
- EXISTING SANITARY LINE
- EXISTING CLEANOUT
- EXISTING SPECIMEN TREE TO BE REMOVED
- EXISTING FIRE HYDRANT
- EXISTING WATER LINE
- EXISTING OVER HEAD LINE
- EXISTING TREELINE
- EXISTING FENCE
- PROPERTY LINE
- RIGHT-OF-WAY LINE
- SOILS BOUNDARY
- LIMIT OF DISTURBANCE
- PROPOSED STREET LIGHT
- MODERATE SLOPES (15% - 24.99%)
- STEEP SLOPES (>25%)

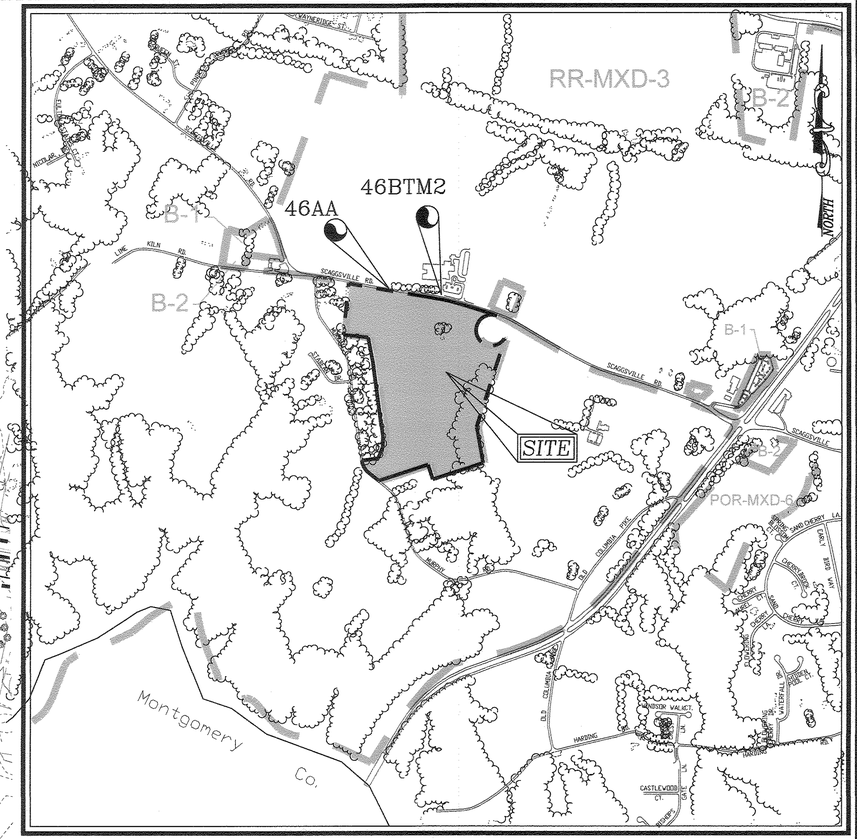
FOREST CONSERVATION PLAN

SCALE: 1"=100'

100' 0 100' 200' 300'



NOTE:
REFER TO SHEET 34 FOR THE FOREST CONSERVATION EASEMENTS



VICINITY MAP

SCALE: 1"=1000'
ADC MAP COORDINATES: 5052-D7

BENCHMARKS

HOWARD COUNTY BENCHMARK 41GE
N 541,559.779 E 1,333,698.385 ELEV.: 465.047 FT.
HOWARD COUNTY BENCHMARK 46AA
N 540,396.42 E 1,335,505.32 ELEV.: 447.014 FT.

FOREST STAND DELINEATION PLAN
PREPARED BY
MICHAEL J. KLEBASKO
QUALIFIED PROFESSIONAL
PER COMAR 08.19.06.01

Klebasko Environmental, LLC
8373 Piney Orchard Parkway, Suite 207
Odenton, Maryland 21113
Phone: (410) 672-5990
FAX: (410) 672-5993

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

NO.	REVISION	DATE

FINAL ROAD CONSTRUCTION PLAN

FOREST CONSERVATION PLAN

MAPLE LAWN SOUTH PHASE 1 - SECTION 1

LOTS 1-64, NON-BUILDABLE BULK PARCEL 'A',
NON-BUILDABLE BULK PARCEL 'B', AND OPEN SPACE LOTS 65-69

TAX MAP 46 - GRID 2 - PARCEL 113
5TH ELECTION DISTRICT
DPZ REF: ECP-14-093, WP-15-136, PB#415, SP-15-014

ZONED: R-ED-MXD-3
HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL ENGINEERING, INC.
ENGINEERS • SURVEYORS • PLANNERS
8407 MAIN STREET
ELLICOTT CITY, MD 21043
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STATE OF MARYLAND ROBERT HARRIS VOGEL No. 16193 REGISTERED PROFESSIONAL ENGINEER
9/27/16
ROBERT H. VOGEL, PE No.16193

DESIGN BY:	RVE
DRAWN BY:	RVE
CHECKED BY:	RHV
DATE:	SEPTEMBER 2016
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: 09-27-2018

SHEET 33 OF 48

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 10/25/2016

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 11/3/16

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11/4/16

MAPPED SOILS TYPES - CLARKSVILLE SE MAP #23

SYMBOL	NAME / DESCRIPTION	GROUP	HYDRIC	HYDRIC INCLUSIONS	K FACTOR	PRIME FARMLAND	CSTR SLOPE W/ ERODIBLE POTENTIAL
BoA	BAILE SILT LOAM, 0 TO 3 PERCENT SLOPES	D	YES	YES	0.32	NO	YES
GgA	GLENELG LOAM, 0 TO 3 PERCENT SLOPES	B	NO	NO	0.20	YES	NO
GgB	GLENELG LOAM, 3 TO 8 PERCENT SLOPES	B	NO	NO	0.20	YES	NO
GmB	GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES	C	NO	NO	0.37	YES	YES
GnB	GLENVILLE-BAILE SILT LOAM, 0 TO 8 PERCENT SLOPES	C	PARTIALLY*	PARTIALLY*	0.37	NO	PARTIAL
MoC	MANOR LOAM, 8 TO 15 PERCENT SLOPES	B	NO	NO	0.24	YES	NO

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

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

*BAILE COMPONENT OF GnB, ERODIBILITY FACTOR IS 0.32 AND IS CONSIDERED HYDRIC

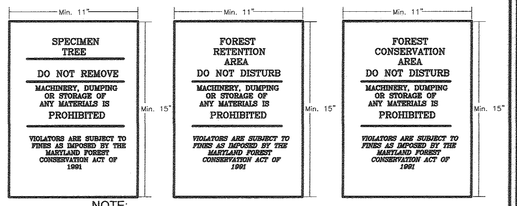
NOTE

THIS PROJECT IS SUBJECT TO WP-15-136. ON MAY 26, 2015, THE PLANNING DIRECTOR APPROVED THE REQUEST TO WAIVE SECTION 16.1205(A)(7) OF THE AMENDED FIFTH EDITION WHICH REQUIRES THE RETENTION OF SPECIMEN TREES HAVING A DIAMETER OF 30" OR MORE AND SECTION 16.121(E)(1) OF THE AMENDED FIFTH EDITION WHICH REQUIRES OPEN SPACE LOTS TO HAVE A MINIMUM OF 40 FEET OF FRONTAGE ON A PUBLIC ROAD FOR ACCESS BY PEDESTRIANS AND MAINTENANCE VEHICLES.

APPROVAL IS SUBJECT TO THE FOLLOWING FIVE (5) CONDITIONS:

1) REMOVAL OF THE ELEVEN (11) SPECIMEN TREES WILL REQUIRE MITIGATION WITH THE PLANTING OF 2 TO 1 REPLACEMENT TREES (22 TOTAL) WITH A MINIMUM 3" CALIPER TRUNK. THE REPLACEMENT TREES SHALL BE BONDED AND SHOWN ON EITHER THE LANDSCAPE OR FOREST CONSERVATION PLAN WITH THE FINAL PLAN.
2) THE FORTY-THREE (43) REMAINING SPECIMEN TREES MUST REMAIN UNDISTURBED, UNLESS A NEW WAIVER PETITION IS FILED WITH ADEQUATE JUSTIFICATION.
3) ANY SPECIMEN TREE THAT SHALL REMAIN ONSITE (THAT ARE WITHIN THE LIMIT OF DISTURBANCE) MUST BE PROTECTED WITH TREE PROTECTION DEVICES AND, SUCH DEVICES MUST BE DEPICTED ON FOREST CONSERVATION PLANS AND THE SITE DEVELOPMENT PLAN.
4) ALL PROPOSED OPEN SPACE LOTS MUST PROVIDE THE MINIMUM PUBLIC ROAD FRONTAGE AS SHOWN AND APPROVED ON THE SP PLAN (SP-15-014). OPEN SPACE LOTS 177, 178 AND 179 SHOULD HAVE AT LEAST ONE PUBLIC ROAD FRONTAGE STRIP OF 20 FEET IN WIDTH.
5) PROVIDE A NOTE ON SP-15-014, THE FINAL PLAN AND THE SITE DEVELOPMENT PLAN THAT INCLUDES THIS WAIVER'S FILE NUMBER THE SECTIONS TO BE WAIVED, THE WAIVER DECISION, THE DATE OF THE DECISION AND ALL CONDITIONS OF APPROVAL.

FOREST CONSERVATION AREA SIGNS



NOTE:
1. BOTTOM OF SIGNS TO BE HIGHER THAN TOP OF TREE PROTECTION FENCE.
2. SIGNS TO BE PLACED APPROXIMATELY 50-100' FEET APART. CONDITIONS ON SITE AFFECTING VISIBILITY MAY WARRANT PLACING SIGNS CLOSER OR FARTHER APART. WHERE SIGNS ARE TO BE PLACED AT THE REAR OF PROPOSED LOTS, SPACING SHAL BE APPROX. 25-30'+/-
3. ATTACHMENT OF SIGNS TO TREES IS PROHIBITED.
4. ALL FOREST CONSERVATION SIGNAGE SHALL BE IN PLACE FOR PERPETUITY.
5. SIGN LOCATION SYMBOL = ●

F-16-021

FOREST STAND DELINEATION PLAN
PREPARED BY
MICHAEL J. KLEBASKO
QUALIFIED PROFESSIONAL
PER COMAR 08.19.06.01

Klebasko Environmental, LLC
8373 Piney Orchard Parkway, Suite 207
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Phone: (410) 672-5990
FAX: (410) 672-5993

FOREST CONSERVATION PLAN

SCALE: 1"=100'

100' 0 100' 200' 300'

SPECIMEN TREE TABLE

NO.		COMMON NAME	SCIENTIFIC NAME	DBH (INCHES)	CONDITION RATING	CONDITION / COMMENTS
1	REMOVE	BLACK WALNUT	JUGLANS NIGRA	44	POOR	POWER LINE PRUNING; LARGE CAVITY IN TRUNK; BROKEN LIMBS
2	REMOVE	BASSWOOD	TILIA AMERICANA	49	POOR	CAVITY IN TRUNK; 3 CO-DOMINANT LEADERS; BROKEN LIMBS; WEAK CROTCH
3	REMOVE	WHITE ASH	FRAXIMUS AMERICANA	30	POOR	CAVITY; BROKEN OFF MAIN LEADER BROKEN LIMBS
4	REMOVE	SILVER MAPLE	ACER SACCHARINUM	48	POOR	CRITICAL ROOT ZONE DISTURBANCE; BROKEN LIMBS; EPICORMIC BRANCHING
5	REMOVE	CATALPA	CATALPA SPECIOSA	37	POOR	BROKEN LIMBS; VERY HEAVY VINE COVER (ENGLISH IVY)
6	OFFSITE	PIN OAK	QUERCUS PALUSTRIS	35	GOOD	
7	OFFSITE	YELLOW POPLAR	LIRIODENDRON TULIPIFERA	32	GOOD	
8	OFFSITE	YELLOW POPLAR	LIRIODENDRON TULIPIFERA	37	VERY POOR	LARGE CAVITY IN TRUNK
9	OFFSITE	SCARLET OAK	QUERCUS COCCINEA	66	FAIR	TWIN; SPLIT AT 6'; WEAK CROTCH; SOME BROKEN LIMBS
10	OFFSITE	YELLOW POPLAR	LIRIODENDRON TULIPIFERA	40	FAIR	TWIN; SPLIT AT 6'; CO-DOMINANT LEADER
11	REMAIN	YELLOW POPLAR	LIRIODENDRON TULIPIFERA	45	GOOD	
12	REMAIN	SCARLET OAK	QUERCUS COCCINEA	53	POOR	TWIN; SPLIT AT 7'; WEAK CROTCH; POOR STRUCTURE
13	REMAIN	YELLOW POPLAR	LIRIODENDRON TULIPIFERA	37	VERY POOR	LARGE CAVITY AT BASE, BROKEN LIMBS
14	REMAIN	RED MAPLE	ACER RUBRUM	38	FAIR	SLIGHT LEAN; SOME BROKEN LIMBS
15	REMAIN	RED MAPLE	ACER RUBRUM	31	POOR	MULTI-TRUNK WITH WEAK CROTCH; BROKEN LIMBS
16	REMAIN	SOUTHERN RED OAK	QUERCUS FALCATA	36	FAIR	BROKEN LIMBS; VINE COVER (ENGLISH IVY)
17	REMAIN	YELLOW POPLAR	LIRIODENDRON TULIPIFERA	37	POOR	BROKEN LIMBS
18	REMAIN	YELLOW POPLAR	LIRIODENDRON TULIPIFERA	37	GOOD	
19	REMAIN	YELLOW POPLAR	LIRIODENDRON TULIPIFERA	34	POOR	TWIN; SPLIT AT 3'; HEAVY VINE COVER (TRUMPET CREEPER); BROKEN LIMBS
20	OFFSITE	WHITE OAK	QUERCUS ALBA	36	GOOD	TWIN; SPLIT AT 6'
21	REMAIN	RED MAPLE	ACER RUBRUM	49	FAIR	EXPOSED ROOTS ON STEEP SLOPE; POOR FORM
22	REMAIN	YELLOW POPLAR	LIRIODENDRON TULIPIFERA	38	GOOD	
23	REMAIN	SYCAMORE	PLATANUS OCCIDENTALIS	37	POOR	BROKEN LIMBS; CROWN DIE-BACK
24	REMAIN	WHITE OAK	QUERCUS ALBA	44	POOR	CAVITY AT BASE OF TRUNK
25	REMOVE	SYCAMORE	PLATANUS OCCIDENTALIS	38	POOR	BROKEN OFF MAIN LEADER
26	REMAIN	WHITE OAK	QUERCUS ALBA	36	GOOD	
27	REMAIN	WHITE OAK	QUERCUS ALBA	49	GOOD	
28	REMAIN	WHITE OAK	QUERCUS ALBA	31	GOOD	
29	REMAIN	YELLOW POPLAR	LIRIODENDRON TULIPIFERA	31	FAIR	BROKEN LIMBS; EPICORMIC BRANCHING
30	REMAIN	YELLOW POPLAR	LIRIODENDRON TULIPIFERA	35	POOR	CROWN DIE-BACK; BROKEN LIMBS
31	REMAIN	YELLOW POPLAR	LIRIODENDRON TULIPIFERA	36	FAIR	BROKEN LIMBS
32	REMAIN	YELLOW POPLAR	LIRIODENDRON TULIPIFERA	36	VERY POOR	LIGHTENING STRIKE; BROKEN LIMBS
33	REMAIN	SYCAMORE	PLATANUS OCCIDENTALIS	34	GOOD	TWIN TRUNKS; SPLIT AT 9'
34	REMAIN	SYCAMORE	PLATANUS OCCIDENTALIS	30	GOOD	
35	REMAIN	RED MAPLE	ACER RUBRUM	36	FAIR	TWIN TRUNKS; LEANING
36	REMOVE	SYCAMORE	PLATANUS OCCIDENTALIS	32	POOR	BROKEN LIMBS; CROWN DIE-BACK
37	REMOVE	SYCAMORE	PLATANUS OCCIDENTALIS	32	GOOD	
38	REMOVE	SYCAMORE	PLATANUS OCCIDENTALIS	34	POOR	BROKEN LIMBS; STORM DAMAGE; BROKEN OFF TWIN
39	REMAIN	SYCAMORE	PLATANUS OCCIDENTALIS	38	POOR	BROKEN LIMBS; CROWN DIE-BACK
40	REMAIN	SYCAMORE	PLATANUS OCCIDENTALIS	30	FAIR	BROKEN LIMBS
41	REMAIN	YELLOW POPLAR	LIRIODENDRON TULIPIFERA	37	FAIR	TWIN; SPLIT AT 5.5'; POOR STRUCTURE
42	REMOVE	SYCAMORE	PLATANUS OCCIDENTALIS	36	GOOD	
43	REMOVE	PIN OAK	QUERCUS PALUSTRIS	41	GOOD	
44	REMAIN	PIN OAK	QUERCUS PALUSTRIS	35	GOOD	
45	REMAIN	YELLOW POPLAR	LIRIODENDRON TULIPIFERA	31	FAIR	BROKEN LIMBS
46	REMAIN	YELLOW POPLAR	LIRIODENDRON TULIPIFERA	31	POOR	BROKEN OFF MAIN LEADER; LEANING
47	REMAIN	YELLOW POPLAR	LIRIODENDRON TULIPIFERA	32	POOR	CAVITY; SEVERE LEAN
48	REMAIN	RED MAPLE	ACER RUBRUM	35	GOOD	
49	REMAIN	YELLOW POPLAR	LIRIODENDRON TULIPIFERA	33	POOR	HEAVY VINE COVER (POISON IVY); LEANING
50	REMAIN	WHITE OAK	QUERCUS ALBA	53	GOOD	
51	REMAIN	YELLOW POPLAR	LIRIODENDRON TULIPIFERA	34	GOOD	
52	REMAIN	YELLOW POPLAR	LIRIODENDRON TULIPIFERA	41	POOR	LARGE CAVITY; BROKEN LIMBS
53	REMAIN	SCARLET OAK	QUERCUS COCCINEA	30	FAIR	BROKEN LIMBS; WIRE THROUGH TRUNK
54	REMAIN	YELLOW POPLAR	LIRIODENDRON TULIPIFERA	38	FAIR	POOR STRUCTURE

1. * 11 SPECIMEN TREES DESIGNATED AS "REMOVE", REQUIRE REMOVAL PER PROJECT PROPOSAL TO INCLUDE: PROPOSED ROAD CONSTRUCTION, UTILITY INSTALLATION, GRADING REFER TO GENERAL NOTE 48, SHEET 1 OR NOTE ON SHEET 33, REGARDING WP 15-136.
2. ANY SPECIMEN TREE DESIGNATED AS TO REMAIN AND LOCATED WITHIN THE LIMITS OF DISTURBANCE SHALL BE PROTECTED WITH BLAZE ORANGE TREE PROTECTION FENCING, DETAIL ON SHEET 35

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

NO.	REVISION	DATE

LEGEND:

EXISTING CONTOUR
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 OVER HEAD LINE
EXISTING TREELINE
EXISTING FENCE
PROPERTY LINE
RIGHT-OF-WAY LINE
SOILS BOUNDARY
TYP. FOREST CONSERVATION EASEMENT SIGN
LIMIT OF DISTURBANCE
PROPOSED FOREST RETENTION EASEMENT
PROPOSED FOREST REFORESTATION EASEMENT
PROPOSED FOREST AFFORESTATION EASEMENT
EXISTING SPECIMEN TREE TO BE REMOVED
MODERATE SLOPES (15% - 24.99%)
STEEP SLOPES (>25%)

MAPPED SOILS TYPES - CLARKSVILLE SE MAP #23

SYMBOL	NAME / DESCRIPTION	GROUP	HYDRIC	HYDRIC INCLUSIONS	K FACTOR	PRIME FARMLAND	>15% SLOPE / ERODIBLE POTENTIAL
BaA	BAILE SILT LOAM, 0 TO 3 PERCENT SLOPES	D	YES	YES	0.32	NO	YES
GgA	GLENELG LOAM, 0 TO 3 PERCENT SLOPES	B	NO	NO	0.20	YES	NO
GgB	GLENELG LOAM, 3 TO 8 PERCENT SLOPES	B	NO	NO	0.20	YES	NO
GmB	GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES	C	NO	NO	0.37	YES	YES
GnB	GLENVILLE-BAILE SILT LOAM, 0 TO 8 PERCENT SLOPES	C	PARTIALLY*	PARTIALLY*	0.37	NO	PARTIAL
MaC	MANOR LOAM, 8 TO 15 PERCENT SLOPES	B	NO	NO	0.24	YES	NO

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

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

*BAILE COMPONENT OF GnB, ERODIBILITY FACTOR IS 0.32 AND IS CONSIDERED HYDRIC

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 10/25/2016
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 11/3/16
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11-4-16

FINAL ROAD CONSTRUCTION PLAN

FOREST CONSERVATION PLAN

MAPLE LAWN SOUTH PHASE 1 - SECTION 1

LOTS 1-64, NON-BUILDABLE BULK PARCEL 'A',
NON-BUILDABLE BULK PARCEL 'B', AND OPEN SPACE LOTS 65-69

TAX MAP: 46 - GRID 2 - PARCEL 113
5TH ELECTION DISTRICT
DPZ REF: ECP-14-093, WP-15-136, PB#415, SP-15-014
ZONED: R-ED-MXD-3
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

STATE OF MARYLAND — ROBERT HARRIS VOGEL — No. 16193 — REGISTERED PROFESSIONAL ENGINEER — 9/26/16
ROBERT H. VOGEL, PE No.16193

DESIGN BY: RVE
DRAWN BY: RVE
CHECKED BY: RHV
DATE: SEPTEMBER 2016
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: 09-27-2018

SHEET 34 OF 48

F-16-021

AFFORESTATION PLAN

A. PLANTING PLAN AND METHODS

PLANT SPECIES SELECTION WAS BASED ON OUR KNOWLEDGE REGARDING PLANT COMMUNITIES IN MARYLAND'S PIEDMONT PLATEAU AND INFORMATION PROVIDED IN THE SOIL SURVEY ON TYPICAL VEGETATION FOR THE SOIL TYPE ON THE PLANTING SITE. SPECIES SELECTION WAS ALSO BASED ON OUR KNOWLEDGE OF PLANT AVAILABILITY IN THE NURSERY INDUSTRY.

AFFORESTATION WILL BE ACCOMPLISHED THROUGH A MIXED PLANTING OF WHIPS AND BRANCHED TRANSPLANTS. CONTAINER GROWN STOCK IS RECOMMENDED BUT BAREROOT STOCK MAY BE USED TO HELP CONTROL AFFORESTATION COSTS. IF BAREROOT STOCK IS USED THE ROOT SYSTEMS OF ALL PLANTS WILL BE DIPPED IN AN ANTI-DESICCANT GEL PRIOR TO PLANTING TO IMPROVE MOISTURE RETENTION IN THE ROOT SYSTEMS.

PRIOR TO PLANTING THE PROPOSED FOREST CONSERVATION EASEMENTS ALL MULTIFLORA ROSE IN THE PLANTING AREA SHALL BE REMOVED. REMOVAL OF THE ROSE MAY BE PERFORMED WITH MOWING AND HERBICIDE TREATMENTS. PHYSICAL REMOVAL OF ALL TOP GROWTH FOLLOWING BY A PERIODIC HERBICIDE TREATMENT OF STUMP SPROUTS IS RECOMMENDED. NATIVE TREE AND SHRUB SPECIES OCCURRING WITHIN THE ROSE THICKETS SHOULD BE RETAINED WHEREVER POSSIBLE. HERBICIDES TREATMENTS SHALL OCCUR ON 2 MONTH INTERVALS DURING THE FIRST GROWING SEASON AND ONCE EACH IN THE SPRING AND FALL FOR SUBSEQUENT YEARS. HERBICIDE USED SHALL BE MADE SPECIFICALLY TO ADDRESS WOODY PLANT MATERIAL AND SHALL BE APPLIED AS PER MANUFACTURERS SPECIFICATIONS. CARE SHOULD BE TAKEN NOT TO SPRAY PLANTED TREES OR NATURALLY OCCURRING NATIVE TREE/SHRUB SEEDLINGS. IT IS RECOMMENDED THAT INITIATION OF ROSE REMOVAL BEGIN AT LEAST SIX MONTHS PRIOR TO PLANTING.

B. PLANTING AND SOIL SPECIFICATIONS

PLANT MATERIAL WILL BE INSTALLED IN ACCORDANCE WITH THE PLANTING DETAIL AND PLANTING SPECIFICATIONS SHOWN ON THE FOREST CONSERVATION PLAN.

AMENDMENTS TO EXISTING SOIL WILL BE IN ACCORDANCE WITH THE PLANTING SPECIFICATIONS SHOWN ON THE FOREST CONSERVATION PLAN. SOIL DISTURBANCE WILL BE LIMITED TO INDIVIDUAL PLANTING LOCATIONS.

C. MAINTENANCE OF PLANTINGS

FOR INFORMATION REGARDING MAINTENANCE OF THE AFFORESTATION PLANTINGS, SEE SECTION VIII B.

D. GUARANTEE REQUIREMENTS

A 90 PERCENT SURVIVAL RATE OF THE AFFORESTATION PLANTINGS WILL BE REQUIRED AFTER ONE GROWING SEASON. ALL PLANT MATERIAL BELOW THE 90 PERCENT SURVIVAL THRESHOLD WILL BE REPLACED AT THE BEGINNING OF THE SECOND GROWING SEASON. AT THE END OF THE SECOND GROWING SEASON, A 75 PERCENT SURVIVAL RATE WILL BE REQUIRED. ALL PLANT MATERIAL BELOW THE 75 PERCENT SURVIVAL THRESHOLD WILL BE REPLACED BY THE BEGINNING OF THE NEXT GROWING SEASON.

E. SECURITY FOR AFFORESTATION

SECTION 16-1209 OF THE HOWARD COUNTY FOREST CONSERVATION ACT REQUIRES THAT A DEVELOPER SHALL POST A SECURITY (BOND, LETTER OF CREDIT, ETC.) WITH THE COUNTY TO INSURE THAT ALL WORK IS DONE IN ACCORDANCE WITH THE FCP.

CONSTRUCTION PERIOD PROTECTION PROGRAM

A. FOREST PROTECTION TECHNIQUES

1. SOIL PROTECTION AREA (CRITICAL ROOT ZONE)

THE SOIL PROTECTION AREA, OR CRITICAL ROOT ZONE, OF A TREE IS THAT PORTION OF THE SOIL COLUMN WHERE MOST OF A ITS ROOTS MAY BE FOUND. THE MAJORITY OF ROOTS RESPONSIBLE FOR WATER AND NUTRIENT UPTAKE ARE LOCATED JUST BELOW THE SOIL SURFACE. TEMPORARY FENCING SHALL BE PLACED AROUND THE CRITICAL ROOT ZONE OF THE FOREST IN AREAS WHERE THE FOREST LIMITS OCCUR WITHIN 25 FEET OF THE LIMIT OF DISTURBANCE.

2. FENCING AND SIGNAGE

EXISTING FOREST LIMITS OCCURRING WITHIN 25 FEET OF THE LIMITS OF DISTURBANCE SHALL BE PROTECTED USING TEMPORARY PROTECTIVE FENCING. PERMANENT SIGNAGE SHALL BE PLACED AROUND THE AFFORESTATION AREA PRIOR TO PLANT INSTALLATION, AS SHOWN ON THE PLAN.

B. PRE-CONSTRUCTION MEETING

UPON STAKING OF LIMITS OF DISTURBANCE A PRE-CONSTRUCTION MEETING WILL BE HELD BETWEEN THE DEVELOPER, CONTRACTOR AND APPROPRIATE COUNTY INSPECTOR. THE PURPOSE OF THE MEETING WILL BE TO VERIFY THAT ALL SEDIMENT CONTROL IS IN ORDER, AND TO NOTIFY THE CONTRACTOR OF POSSIBLE PENALTIES FOR NON-COMPLIANCE WITH THE FCP.

C. STORAGE FACILITIES/EQUIPMENT CLEANING

ALL EQUIPMENT STORAGE, PARKING, SANITARY FACILITIES, MATERIAL STOCKPILING, ETC. ASSOCIATED WITH CONSTRUCTION OF THE PROJECT WILL BE RESTRICTED TO THOSE AREAS OUTSIDE OF THE PROPOSED FOREST CONSERVATION EASEMENT. CLEANING OF EQUIPMENT WILL BE LIMITED TO AREA WITHIN THE LOD OF THE PROPOSED HOMESITES. WASTEWATER RESULTING FROM EQUIPMENT CLEANING WILL BE CONTROLLED TO PREVENT RUNOFF INTO ENVIRONMENTALLY SENSITIVE AREAS.

D. SEQUENCE OF CONSTRUCTION

THE FOLLOWING TIMETABLE REPRESENTS THE PROPOSED TIMETABLE FOR DEVELOPMENT. THE ITEMS OUTLINED IN THE FOREST CONSERVATION PLAN WILL BE ENACTED WITHIN TWO (2) YEARS OF SUBDIVISION APPROVAL.

BELOW FIND A PROPOSED SEQUENCE OF CONSTRUCTION.

1. INSTALL ALL SIGNAGE AND SEDIMENT CONTROL DEVICES.
2. HOLD PRE-CONSTRUCTION MEETING BETWEEN DEVELOPER, CONTRACTOR AND COUNTY INSPECTOR.
3. BUILD ACCESS ROADS, INSTALL UTILITIES, AND CONSTRUCT HOME. STABILIZE ALL DISTURBED AREAS ACCORDINGLY.
4. BEGIN MULTIFLORA ROSE REMOVAL, AS NEEDED. INSTALL PERMANENT PROTECTIVE SIGNAGE FOR EASEMENTS AND INITIATE PLANTINGS IN ACCORDANCE WITH FOREST CONSERVATION PLAN. PLANTINGS WILL BE COMPLETED WITHIN TWO (2) YEARS OF SUBDIVISION APPROVAL.
5. REMOVE SEDIMENT CONTROL.
6. HOLD POST-CONSTRUCTION MEETING WITH COUNTY INSPECTORS TO ASSURE COMPLIANCE WITH FCP. SUBMIT CERTIFICATION OF INSTALLATION.
7. MONITOR AND MAINTAIN PLANTINGS FOR 2 YEARS.

E. CONSTRUCTION MONITORING

ECO-SCIENCE PROFESSIONALS, OR ANOTHER QUALIFIED PROFESSIONAL DESIGNATED BY THE DEVELOPER, WILL MONITOR CONSTRUCTION OF THE PROJECT TO ENSURE THAT ALL ACTIVITIES ARE IN COMPLIANCE WITH THE FOREST CONSERVATION PLAN.

F. POST-CONSTRUCTION MEETING

UPON COMPLETION OF CONSTRUCTION, ECO-SCIENCE PROFESSIONALS, OR ANOTHER QUALIFIED PROFESSIONAL DESIGNATED BY THE DEVELOPER, WILL NOTIFY THE COUNTY THAT CONSTRUCTION HAS BEEN COMPLETED AND ARRANGE FOR A POST-CONSTRUCTION MEETING TO REVIEW THE PROJECT SITE. THE MEETING WILL ALLOW THE COUNTY INSPECTOR TO VERIFY THAT AFFORESTATION PLANTINGS HAVE BEEN INSTALLED.

POST-CONSTRUCTION MANAGEMENT PLAN

HOWARD COUNTY REQUIRES A TWO YEAR POST-CONSTRUCTION MANAGEMENT PLAN BE PREPARED AS PART OF THE FOREST CONSERVATION PLAN. THE PLAN GOES INTO EFFECT UPON ACCEPTANCE OF THE CONSTRUCTION CERTIFICATION OF COMPLETION BY THE COUNTY. ECO-SCIENCE PROFESSIONALS, OR ANOTHER QUALIFIED PROFESSIONAL DESIGNATED BY THE DEVELOPER, WILL BE RESPONSIBLE FOR IMPLEMENTATION OF THE POST-CONSTRUCTION MANAGEMENT PLAN.

THE FOLLOWING ITEMS WILL BE INCORPORATED INTO THE PLAN:

A. FENCING AND SIGNAGE

PERMANENT SIGNAGE INDICATING THE LIMITS OF THE RETENTION/AFFORESTATION AREA SHALL BE MAINTAINED.

B. GENERAL SITE INSPECTIONS/MAINTENANCE OF PLANTINGS

SITE INSPECTIONS WILL BE PERFORMED A MINIMUM OF THREE TIMES DURING THE GROWING SEASON. THE PURPOSE OF THE INSPECTIONS WILL BE TO ASSESS THE HEALTH OF THE AFFORESTATION PLANTINGS. APPROPRIATE MEASURES WILL BE TAKEN TO RECTIFY ANY PROBLEMS WHICH MAY ARISE.

IN ADDITION, MAINTENANCE OF THE AFFORESTATION PLANTINGS WILL INVOLVE THE FOLLOWING STEPS:

1. WATERING – ALL PLANT MATERIAL SHALL BE WATERED TWICE A MONTH DURING THE 1ST GROWING SEASON, MORE OR LESS FREQUENTLY DEPENDING ON WEATHER CONDITIONS. DURING THE SECOND GROWING SEASON, ONCE A MONTH DURING MAY-SEPTEMBER, IF NEEDED.
2. REMOVAL OF INVASIVE EXOTICS AND NOXIOUS WEEDS. OLD FIELD SUCCESSIONAL SPECIES WILL BE RETAINED.
3. IDENTIFICATION OF SERIOUS PLANT PESTS AND DISEASES, TREATMENT WITH APPROPRIATE AGENT.
4. PRUNING OF DEAD BRANCHES.
5. AFTER 12 AND 24 MONTHS, REPLACEMENT OF PLANTS, IF REQUIRED, IN ACCORDANCE WITH THE GUARANTEE REQUIREMENTS SHOWN ON THE FCP.

C. EDUCATION

THE DEVELOPER WILL PROVIDE APPROPRIATE MATERIALS TO PROPERTY OWNERS INFORMING THEM OF THE LOCATION AND PURPOSE OF THE AFFORESTATION AREA. MATERIALS MAY INCLUDE SITE PLANS AND INFORMATION EXPLAINING THE INTENT OF THE FOREST CONSERVATION LAW.

D. FINAL INSPECTION

AT THE END OF THE TWO YEAR POST-CONSTRUCTION MANAGEMENT PERIOD, ECO-SCIENCE PROFESSIONALS, OR ANOTHER QUALIFIED PROFESSIONAL, WILL SUBMIT TO THE ADMINISTRATOR OF THE HOWARD COUNTY FOREST CONSERVATION PROGRAM CERTIFICATION THAT ALL RETENTION/AFFORESTATION REQUIREMENTS HAVE BEEN MET. UPON ACCEPTANCE OF THIS CERTIFICATION, THE COUNTY WILL RELEASE THE DEVELOPER FROM ALL FUTURE OBLIGATIONS AND RELEASE THE DEVELOPER'S BOND.

APPROVED: ~~HOWARD~~ COUNTY DEPARTMENT OF PUBLIC WORKS

[signature] 10/25/2016

CHIEF, BUREAU OF HIGHWAYS — DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

[signature] 11/3/16

CHIEF, DEVELOPMENT ENGINEERING DIVISION JP — DATE

[signature] 11-4-16

CHIEF, DIVISION OF LAND DEVELOPMENT DJ — DATE

HOWARD COUNTY FOREST CONSERVATION WORKSHEET

ZONED R-ED-MXD-3

NET TRACT AREA:

TOTAL TRACT AREA	91.33 AC.
AREA WITHIN 100 YEAR FLOODPLAIN	0.92 AC
AREA TO REMAIN IN AGRICULTURAL PRESERVATION	0.00 AC
NET TRACT AREA	90.39 AC

LAND USE CATEGORY

INPUT THE NUMBER "1" UNDER THE APPROPIATE LAND USE ZONING, AND LIMIT TO ONLY ONE ENTRY. ZONED R-20

ARA	MDR	IDA	HDR	MPD	CIA
0	0	0	1	0	0

AFFOREST THRESHOLD 15% X 90.39 = 13.56 AC
CONSERVATION THRESHOLD 20% X 90.39 = 18.08 AC

EXISTING FOREST COVER:

EXISTING FOREST COVER (EXCLUDING FLOODPLAIN) = 7.35 AC = 8.27 FSD REP – 0.92 FP
AREA OF FOREST ABOVE AFFORESTATION THRESHOLD = 0 AC
AREA OF FOREST ABOVE CONSERVATION THRESHOLD = 0 AC

BREAK EVEN POINT:

(.2 X I) + F = BREAK EVEN POINT (0 AC)
FOREST RETENTION ABOVE THRESHOLD W/ NO MITIGATION = 0 AC
CLEARING PERMITTED WITHOUT MITIGATION = 0 AC

PROPOSED FOREST CLEARING:

TOTAL AREA OF FOREST TO BE CLEARED = 0.39 AC
TOTAL AREA OF FOREST TO BE RETAINED = 6.96 AC – CREDITED RETENTION IN FOREST CON EASEMENT

PLANTING REQUIREMENTS:

REFORESTATION FOR CLEARING ABOVE CONSERVATION THRESHOLD (L X.25)	= 0.00 AC
REFORESTATION FOR CLEARING BELOW CONSERVATION THRESHOLD	= 0.78 AC
CREDIT FOR RETENTION ABOVE CONSERVATION THRESHOLD (M-F)	= 0.00 AC
TOTAL REFORESTATION REQUIRED (N+P-Q)	= 0.78 AC
TOTAL AFFORESTATION REQUIRED	= 6.21 AC
TOTAL PLANTING REQUIREMENT (REFORESTATION AND AFFORESTATION)	= 6.99 AC

FOREST CONSERVATION EASEMENT HAVE BEEN ESTABLISHED TO FULFILL THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY FOREST CONSERVATION MANUAL.

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.

THE REQUIRED FOREST CONSERVATION OBLIGATION WILL BE PROVIDED ON OPEN SPACE LOT 65 (F-16-021) AND MEETS THE INTENT OF SECTION 16.117 OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS BY:

(1) ONSITE RETENTION OF 7.88 AC. (NO SURETY REQ), CREDITED RETENTION = 6.96 ACRES

(2) ONSITE REFORESTATION/AFFORESTATION PLANTINGS OF 6.99 AC.
FINANCIAL SURETY FOR THE REQUIRED REFORESTATION = $152,242 (6.99 AC OR 304,484 SF @ $0.50/SF) SHALL BE POSTED WITH THE DEVELOPERS AGREEMENT.

PLANTING NOTES:

– PLANTING DENSITY BASED SPACING REQUIREMENTS WHIPS WITH SHELTER @ 11' ON CENTER.
– PLANTING MAY BE MADE IN A CURVILINEAR FASHION ALONG CONTOUR. THE PLANTING SHOULD AVOID A GRID APPEARANCE BUT SHOULD BE SPACED TO FACILITATE MAINTENANCE
– MULTIFLORA ROSE/HEAVY BRUSH REMOVAL/CONTROL MAY BE REQUIRED PRIOR TO INSTALLATION OF PLANTING.
– ALL WHIPS ARE REQUIRED TO BE INSTALLED WITH TREE SHELTERS PER HOWARD COUNTY FCA REQUIREMENTS.
– PLANTING UNITS DEFINED BY THE SPACING REQUIREMENTS ESTABLISHED IN THE FCA MANUAL. ONE PLANT UNIT IS DEFINED AS 1 SEEDLING OR WHIP WITHOUT SHELTER. THE MANUAL STATES THAT 700 SEEDLINGS/WHIPS WITHOUT SHELTERS ARE REQUIRED PER ACRE, OR 350 WHIPS W/SHELTERS, OR 200 1" CALIPER TREES, OR 100 2" CALIPER TREES. BY CONVERSION IT HAS BEEN DETERMINED THAT A SEEDING OR WHIP WITHOUT SHELTER = 1 UNIT, WHIP WITH SHELTER = 2 UNITS, 1"CALIPER TREE = 3.5 UNITS AND 2" CALIPER TREE =7 UNITS. THE USE OF PLANT UNITS SIMPLIFIES THE PLANT DENSITY CALCULATIONS WHEN MIXING STOCK SIZE.

PLANTING/SOIL SPECIFICATIONS

1. INSTALLATION OF BAREROOT/PLUG PLANT STOCK SHALL TAKE PLACE BETWEEN MARCH 15 – APRIL 20; B&B/CONTAINER STOCK MARCH 15 –MAY 30 OR SEPTEMBER 15 – NOVEMBER 15. FALL PLANTING OF B&B STOCK IS NOT RECOMMENDED.
2. DISTURBED AREAS SHALL BE SEEDED AND STABILIZED AS PER GENERAL CONSTRUCTION PLAN FOR PROJECT. PLANTING AREAS NOT IMPACTED BY SITE GRADING SHALL HAVE NO ADDITIONAL TOPSOIL INSTALLED.
3. BAREROOT PLANTS SHALL BE INSTALLED SO THAT THE TOP OF ROOT MASS IS LEVEL WITH THE TOP OF EXISTING GRADE. ROOTS SHALL BE DIPPED IN AN ANTI-DESICCANT GEL PRIOR TO PLANTING. BACKFILL IN THE PLANTING PITS SHALL CONSIST OF 3 PARTS EXISTING SOIL TO 1 PART PINE FINES OR EQUIVALENT.
4. FERTILIZER SHALL CONSIST OF AGRIFORM 22-8-2, OR EQUIVALENT, APPLIED AS PER MANUFACTURER'S SPECIFICATIONS, FOR WOODY PLANTS. HERBACEOUS PLANT SHALL BE FERTILIZED WITH OSMOCOTE 8-6-12.
5. PLANT MATERIAL SHALL BE TRANSPORTED TO THE SITE IN A TARPED OR COVERED TRUCK. PLANTS SHALL BE KEPT MOIST PRIOR TO PLANTING.
6. THE CONTRACTOR SHALL REMOVE ALL NON-ORGANIC DEBRIS ASSOCIATED WITH THE PLANTING OPERATION FROM THE SITE.

SEQUENCE OF CONSTRUCTION

1. SEDIMENT CONTROL SHALL BE INSTALLED IN ACCORDANCE WITH GENERAL CONSTRUCTION PLAN FOR SITE.
2. PLANTS SHALL BE INSTALLED AS PER PLANT SCHEDULE AND THE PLANTING/SOIL SPECIFICATIONS FOR THE PROJECT.
3. UPON COMPLETION OF THE PLANTING, SIGNAGE SHALL BE INSTALLED AS SHOWN.
4. PLANTINGS SHALL BE MAINTAINED AND GUARANTEED IN ACCORDANCE WITH THE MAINTENANCE AND GUARANTEE REQUIREMENTS FOR PROJECT.

MAINTENANCE OF PLANTINGS

1. MAINTENANCE OF PLANTINGS SHALL LAST FOR A PERIOD OF TWO YEARS.
2. PLANTINGS MUST RECEIVE 2 GALLONS OF WATER, EITHER THROUGH PRECIPITATION OR WATERING, WEEKLY DURING THE 1ST GROWING SEASON, AS NEEDED. DURING SECOND GROWING SEASON, ONCE A MONTH DURING MAY-SEPTEMBER, IF NEEDED.
3. INVASIVE EXOTICS AND NOXIOUS WEEDS WILL BE REMOVED, AS REQUIRED, FROM PLANTING AREAS MECHANICALLY AND/OR WITH LIMITED HERBICIDE. OLD FIELD SUCCESSIONAL SPECIES WILL BE RETAINED.
4. PLANTS SHALL BE EXAMINED A MINIMUM TWO TIMES DURING THE GROWING SEASON FOR SERIOUS PLANT PESTS AND DISEASES. SERIOUS PROBLEMS WILL BE TREATED WITH THE APPROPRIATE AGENT.
5. DEAD BRANCHES WILL BE PRUNED FROM PLANTINGS.

GUARANTEE REQUIREMENTS

1. A 90 PERCENT SURVIVAL RATE OF THE REFORESTATION PLANTINGS WILL BE REQUIRED AFTER ONE GROWING SEASON. ALL PLANT MATERIAL BELOW THE 90 PERCENT SURVIVAL THRESHOLD WILL BE REPLACED AT THE BEGINNING OF THE SECOND GROWING SEASON. AT THE END OF THE SECOND GROWING SEASON, A 75 PERCENT SURVIVAL RATE WILL BE REQUIRED. ALL PLANT MATERIAL BELOW THE 75 PERCENT SURVIVAL THRESHOLD WILL BE REPLACED BY THE BEGINNING OF THE NEXT GROWING SEASON.

EDUCATION OF NEW OCCUPANTS

1. THE DEVELOPER SHALL PROVIDE EDUCATIONAL INFORMATION TO ALL PROPERTY OWNERS WITHIN THE NEW DEVELOPMENT/HOME ABOUT THE PROPER USE OF FOREST CONSERVATION AREAS.

FINAL INSPECTION AND RELEASE OF OBLIGATIONS

1. AT THE END OF THE POST-CONSTRUCTION MANAGEMENT AND PROTECTION PERIOD THE DEVELOPER SHALL SUBMIT A CERTIFICATION TO THE COUNTY THAT ALL FOREST CONSERVATION AREAS HAVE REMAINED INTACT OR HAVE BEEN RESTORED TO APPROPRIATE CONDITION, THAT THE STIPULATED SURVIVAL RATES HAVE BEEN ACHIEVED, AND THAT ANY PERMANENT PROTECTION MEASURES REQUIRED BY THE PLAN ARE IN PLACE. UPON REVIEW AND ACCEPTANCE, THE COUNTY WILL INFORM THE DEVELOPED OF THEIR RELEASE THE DEVELOPMENT OF FUTURE OBLIGATIONS RELATED TO THE FOREST CONSERVATION ACT.

SEQUENCE OF CONTRUCTION-FOREST CONSERVATION

1. PRECONSTRUCTION MEETING /SITE WALK WITH CONTRACTORS AND OTHER RESPONSIBLE PARTIES TO DEFINE PROTECTION MEASURES TO BE UTILIZED AND TO POINT OUT PARTICULAR TREES TO BE SAVED.
2. STAKE OUT LIMITS OF DISTURBANCE AND TREE PROTECTION FENCING LOCATIONS.
3. INSTALL TREE PROTECTION FENCING: FENCING TO BE INSPECTED BY THE PROJECT ENGINEER OR THE PROJECT ECOLOGIST AND HOWARD COUNTY PLANNING AND ZONING.
4. PROCEED WITH TREE REMOVAL AND SITE IMPROVEMENTS AS PER APPROVED SEDIMENT CONTROL PLAN – TO BE INSPECTED BY HOWARD COUNTY PLANNING AND ZONING.
5. TEMPORARY TREE PROTECTION DEVICES SHALL BE REMOVED AFTER ALL FINISHED GRADING AND UTILITY CONSTRUCTION HAS OCCURED AND WITH APPROVAL FROM THE HOWARD COUNTY OFFICE OF PLANNING AND ZONING.

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.

[signature] 9/26/16

SIGNATURE OF DEVELOPER — DATE

FOREST CONSERVATION EASEMENT TABLE

EASEMENT	RETENTION CREDITED	RETENTION NON-CREDITED	REFORESTATION / AFFORESTATION	TOTAL
FCE#1	6.96 AC	0.92 AC	0 AC	7.88 AC
FCE#2	–	–	0.78 AC (R)	0.78 AC
FCE#3	–	–	6.21 AC (A)	6.21 AC
TOTAL	6.96 AC	0.92 AC	6.99 AC	14.87 AC

NOTE: –TOTAL FOREST CONSERVATION REQUIREMENT IS PROVIDED ON-SITE.

REFORESTATION / AFFORESTATION PLANTING SCHEDULE FOREST CONSERVATION EASEMENTS 6.99 ACRES

EASEMENT #2: 0.78 AC. (REFORESTATION) @ 200 TREES/AC. = 156 TREES

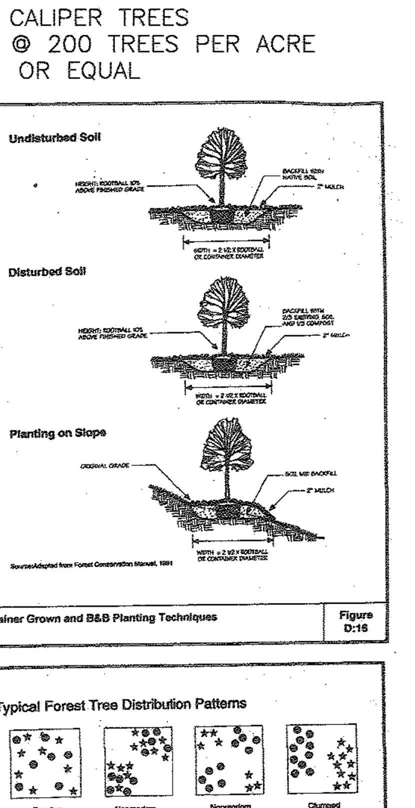
QTY.	BOTANICAL NAME	SIZE	SPACING
31	BETULA NIGRA RIVER BIRCH	1" CAL.	15' x 15'
31	PLATANUS OCCIDENTALIS AMERICAN SYCAMORE	1" CAL.	15' x 15'
31	NYSSA SYLVATICA BLACK GUM	1" CAL.	15' x 15'
31	QUERCUS RUBRA RED OAK	1" CAL.	15' x 15'
32	TAXODIUM DISTICHUM COMMON BALDCYPRESS	1" CAL.	15' x 15'

EASEMENT #3: 6.21 AC. (AFFORESTATION) @ 200 TREES/AC. = 1,242 TREES

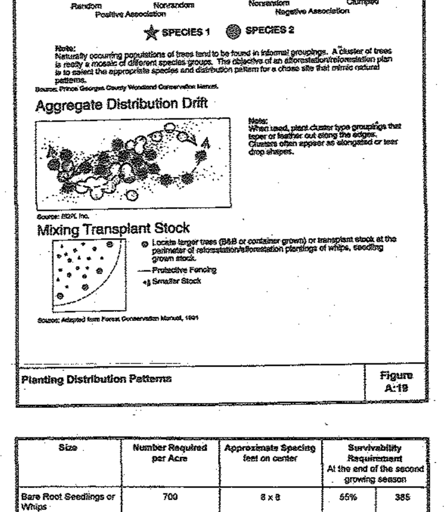
QTY.	BOTANICAL NAME	SIZE	SPACING
248	BETULA NIGRA RIVER BIRCH	1" CAL.	15' x 15'
248	PLATANUS OCCIDENTALIS AMERICAN SYCAMORE	1" CAL.	15' x 15'
248	NYSSA SYLVATICA BLACK GUM	1" CAL.	15' x 15'
248	QUERCUS RUBRA RED OAK	1" CAL.	15' x 15'
250	TAXODIUM DISTICHUM COMMON BALDCYPRESS	1" CAL.	15' x 15'

REFORESTATION / AFFORESTATION PROVIDED

6.99 ACRES
1" CALIPER TREES
1,398 TREES @ 200 TREES PER ACRE OR EQUAL



Container Grown and B&B Planting Techniques — Figure D:16



Planting Distribution Patterns — Figure A:19

Size	Number Required per Acre	Approximate Spacing feet on center	Survivability Requirement At the end of the second growing season	
Bare Root Seedlings or Whips	700	8 x 8	55%	385
Container Grown Seedling Tubes (Minimum Cavity Width 1.5")	450	10 x 10	65%	290
Container Grown 1, 2, 3 Gallon	350	12 x 12	75%	260
Container Grown 5, 7 Gallon or 1" Caliper B & B	200	15 x 15	85%	170
Container Grown 15, 25 Gallon or 1.5 - 2" Caliper B & B	100	20 x 20	100%	100

Notes:
1. These stocking and survival requirements are the minimum numbers estimated to meet the definition of forest from bare land.
2. In certain circumstances, any combination of the above mentioned stocking options, dry seeding, tree shelters, transplants, and/or natural regeneration may be appropriate strategies to fulfill the requirements of an approved FCP. They will be evaluated on a case-by-case basis by the approving authority.
3. Spacing does not imply that trees or shrubs must be planted in a grid pattern.

Site Stocking — Figure A:18

FOREST RETENTION AREAS AND NOTES

1. THE WETLANDS AND WETLAND BUFFERS ARE LOCATED ON OPEN SPACE LOT 65.
2. NO RARE, THREATENED OR ENDANGERED SPECIES WERE OBSERVED ON THIS SITE.
3. FORESTED AREAS ADJACENT TO FLOODPLAINS AND STREAM BUFFERS ARE SUBSTANTIALLY RETAINED IN OPEN SPACE LOTS.
4. CHANGES IN GRADING AND RUNOFF WITHIN CONSTRUCTION/INSTALLATION AREAS WILL NOT ADVERSELY AFFECT THE SOILS WITHIN THE FOREST RETENTION AREA. SEDIMENT CONTROL MEASURES WILL REDIRECT CONCENTRATED FLOW RUNOFF TO STORMWATER MANAGEMENT FACILITIES, RETAIN SEDIMENT WITHIN THE CONSTRUCTION SITE, AND/OR REDIRECT CLEAN WATER AWAY FROM CONSTRUCTION AREAS.
5. THE FOREST CONSERVATION EASEMENT HAS BEEN ESTABLISHED TO FULFILL THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY CODE. 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.

THE LAND PLANNING & DESIGN GROUP INC.
5300 WESTVIEW DRIVE, SUITE 103
FREDERICK, MARYLAND 21703
(301)-695-6172 - FAX (301)-695-6219

GENERAL NOTES:

1. THE SCAGGSVILLE ROAD AND ROAD 'A' STREET TREE PLANTINGS UP TO THE ROAD 'D' INTERSECTION HAVE BEEN PROPOSED by the Land Planning & Design Group, Inc. No changes shall be made to this plan without permission from The Land Planning & Design Group, Inc. Any unauthorized changes by other parties will not be the responsibility of The Land Planning & Design Group, Inc.

2. This plan for landscape purposes only. See Site Plan for all layout and grading information.

3. Plants shall meet or exceed current "American Standards for Nursery Stock" by American Association of Nurserymen (AAN), particularly with regards to size, growth, size of ball, and density of branch structure.

4. All plants (B & B or container) shall be properly identified by weatherproof labels securely attached thereto before delivery to project site. Labels shall identify plants by name species and size. Labels shall not be removed until the final inspection by the Landscape Architect.

5. Any materials and/or work may be rejected by the Landscape Architect if it does not meet the requirements of the specifications. All rejected materials shall be removed from the site by the contractor.

6. Plant quantities shown in the plant list are for Landscape Architects convenience only. Prior to submitting a bid or estimate, Contractors shall verify that total quantities shown on the plan match quantities indicated in plant list. Should discrepancies occur, plan information shall take priority, and Landscape Architect shall be notified immediately.

7. The Contractor shall furnish all plants to complete the work as indicated on the plan and specified in the plant list.

8. Substitutions in plant species or size shall not be permitted except with the written approval of the Landscape Architect.

9. Plants shall be located as shown on the drawings and by scaling or as designated in the field by the Landscape Architect. All locations are to be approved by the Landscape Architect before excavation.

10. All tree trunks shall be located outside of the sight distance easements. Any limbs or foliage disrupting clear sight lines shall be removed.

11. The Land Planning & Design Group, Inc. is not responsible for the accuracy of the storm drain inlets, pipes or utilities as shown on these plans or which may differ from these plans as a result of any field adjustments.

12. Contractor shall contact Miss Utility (1-800-257-7777) prior to any excavation and shall take all necessary precautions to protect the existing utilities and maintain uninterrupted services. Any damage incurred due to the contractor's operation shall be repaired immediately at contractor's expense.

13. The Contractor must verify all utility locations prior to construction. Should any conflicts occur between proposed construction or planting and actual utility locations, the owner and the landscape architect must be notified prior to any excavation or grading. All entrance walls, piers, and planting bed locations must be field staked by the contractor and the location approved by the owner prior to construction.

14. If utility lines are encountered in excavation of tree pits, other locations for the trees shall be selected by the Landscape Architect. Such changes shall be made by the Contractor without additional compensation. No changes of location shall be made without the approval of the Landscape Architect.

15. No work in public right-of-way shall be done unless all the required permits are obtained.

16. All equipment and tools shall be placed so as to not interfere or hinder the pedestrian and vehicular traffic flow.

17. During planting operations, excess and waste materials shall be promptly and frequently removed from the site.

18. Notify LPDG to review and approve final grading and stakeout prior to construction.

19. All tree trunks shall be located outside of easements.

STREET TREE CALCULATIONS

STREET NAME	LINEAR FEET	NO. REQUIRED	NO. PROVIDED
SOUTH MAPLE LAWN BOULEVARD	1,400 / 40	35	35
MARTHA WAY	5,600 / 40	140	140
GUNNAR DRIVE	510 / 40	13	13
SCAGGSVILLE ROAD	1,226 / 40	31	31
	TOTAL	219	219

PHASE 1 – SECTION 2 (F-16-072) WILL PROVIDE THE REMAINING STREET TREE REQUIREMENTS FOR THE FUTURE ROADS AND/OR EXTENSIONS

PUBLIC STREET TREES ARE PROVIDED FOR THIS PROJECT IN ACCORDANCE WITH SECTION 16.124(e)(1) OF THE SUBDIVISION REGULATIONS AND THE LANDSCAPE MANUAL. FINANCIAL SURETY ($ 65,700) SHALL BE POSTED AS PART OF THIS FINAL PLAN DEVELOPER'S AGREEMENT FOR THE REQUIRED 219 STREET TREES.

STREET TREE PLANTING SCHEDULE

KEY	QUAN.	BOTANICAL NAME	SIZE	REM.
ZS	12*	ZELKOVA SERRATA 'VILLAGE GREEN' VILLAGE GREEN JAPANESE ZELKOVA	2 1/2"-3" CAL.	B & B
QP	90	QUERCUS PHELLOS WILLOW OAK	2 1/2"-3" CAL.	B & B
AC	50	ACER RUBRUM "ARMSTRONG' ARMSTRONG COLUMBAR RED MAPLE	2 1/2"-3" CAL.	B & B
GT	13	GLEDITSIA TRIACANTHOS INERMIS 'IMPERIAL' /IMPERIAL THRONLESS HONEY LOCUST	2 1/2"-3" CAL.	B & B

* THE LAND PLANNING & DESIGN GROUP INC. PROVIDED:
23 OF 35 REQUIRED FOR SOUTH MAPLE LAWN BLVD, SEE BELOW
12 + 23 = 35 REQUIRED FOR SOUTH MAPLE LAWN BLVD

THE LAND PLANNING & DESIGN GROUP INC. SOUTH MAPLE LAWN BLVD - STREET TREE PLANTING SCHEDULE

KEY	QUAN.	BOTANICAL NAME	SIZE	REM.
SHADE				
ZS	18	ZELKOVA SERRATA 'VILLAGE GREEN' VILLAGE GREEN JAPANESE ZELKOVA	2 1/2"-3" CAL.	B & B
ORNAMENTAL				
LI	10	LAGERSTROEMA INDICA 'WILLIAM TOOVEY RED' – RED CRAPEMYTLE	10'-12' Ht.	B & B

– SOUTH MAPLE LAWN BLVD REQUIREMENT = (700 X 2) / 40 = 35
– THE LAND PLANNING & DESIGN GROUP INC. STREETSCAPE PLAN PROVIDED: 23 OF 35 REQUIRED FOR SOUTH MAPLE LAWN BLVD
– SURETY ACCOUNTED FOR BELOW
– 'LI' IS AN ORNAMENTAL TREE AND THEY COUNTED FOR 5 SHADE TREES. (RATIO 2:1)

NOTE:

1. IN THE DIRECTION FACING A TRAFFIC CONTROL SIGN:
   1) THERE SHALL BE A MINIMUM OF 40' BETWEEN THE SIGN FACE AND CLOSEST TREE FOR ALL STOP SIGNS.
   2) THERE SHALL BE A MINIMUM OF 35' BETWEEN THE SIGN FACE AND CLOSEST TREE FOR ALL SIGNS OTHER THAN A STOP SIGN.
   3) A MINIMUM SPACING OF 20' SHALL BE MAINTAINED BETWEEN ANY STREET LIGHT AND ANY TREE.

SCHEDULE A - PERIMETER LANDSCAPE EDGE

CATEGORY	1 A*	1 B*	1 C*	2	3	4	5 (1)	6A (1)	TOTAL
(ADJACENT TO ROADWAYS AND PERIMETER PROPERTIES)									
PERIMETER/FRONTAGE DESIGNATION LANDSCAPE TYPE	B	N/A	B	A	A	A	B	A	
LINEAR FEET OF ROADWAY FRONTAGE/PERIMETER	245	958	850	978	1,797	1,667	380	1,212 (2)	
CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET DESCRIBE BELOW IF NEEDED)	NO	NO	NO	NO	YES 1180	YES 379 2 ST.**	NO	NO	
CREDIT FOR WALL, FENCE OR BERM (YES, NO, LINEAR FEET DESCRIBE BELOW IF NEEDED)	NO	NO	NO	NO	NO	NO	NO	NO	
NUMBER OF PLANTS REQUIRED				978	617	1288		1212	
SHADE TREES	1:50 5	-	1:50 17	1:60 16	1:60 11	1:60 21	(1)	1:60 20	90
EVERGREEN TREES	1:40 6	-	1:40 21	-	-	-		-	27
SHRUBS	-	-	-	-	-	-		-	-
NUMBER OF PLANTS PROVIDED									
SHADE TREES	22			16	11	**19	-	20	88
EVERGREEN TREES	27			-	-	-	-	-	27
OTHER TREES (2:1 SUBSTITUTION)	17***			-	-	-	-	-	17
SHRUBS (10:1 SUBSTITUTION)				-	-	-	-	-	-
EX. SPECIMEN TREES TO REMAIN / DESCRIBE PLANT SUBSTITUTION CREDITS BELOW IF NEEDED	*** REMAINING LPDG, INC. PLANTINGS AFTER ALL PERIMETER 1 OBLIGATIONS			-	-	-	-	-	-

* LANDSCAPING PROPOSED IN PERIMETER 1 AND ALONG ROAD A HAVE BEEN PROPOSED AS PART OF A LANDSCPE PLAN PREPARED BY : THE LAND PLANNING & DESIGN GROUP INC. 5300 WESTVIEW DRIVE, SUITE 103 FREDERICK, MARYLAND 21703 (301)-695-6172 - FAX (301)-695-6219

** TAKE CREDIT OF SPECIMEN TREES 11 AND 12 IN PERIMETER 4 TO REMAIN.
(1) THE PLANTINGS FOR PERIMETER 5 AND PERIMETER 6B SHALL BE PROVIDED UNDER FUTURE PHASE 1 - SECTION 2 (F16-072) SURETY FOR THESE PLANTINGS SHALL BE PROVIDED UNDER THE FUTURE PHASE
(2) 1,212 OF THE TOTAL 3,012 LF OF PERIMETER 6 (6A) IS PROPOSED UNDER THIS PLAN

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 $34,050 FOR THE PERIMETER LANDSCAPING (REQUIRED 90 SHADE TREES $27,000 AND 27 EVERGREENS $4,050), AND 10 SHADE TREES (SPECIMEN TREE REPLACEMENT $3,000) SHALL BE POSTED WITH THE DEVELOPERS AGREEMENT FOR THIS PLAN.

THE LAND PLANNING & DESIGN GROUP INC. PERIMETER 1 - LANDSCAPE SCHEDULE AND MD 216 - STREET TREE PLANTING SCHEDULE

KEY	QUAN.	BOTANICAL NAME	SIZE	REM.
SHADE = 31 (1) PART OF THE STREET TREE SURETY				
QR (1)	7	Quercus rubra NORTHERN RED OAK	2 1/2"-3" CAL.	B & B
AR (1)	15	ACER RUBRUM 'OCTOBER GLORY OCTOBER GLORY RED MAPLE	2 1/2"-3" CAL.	B & B
LS (1)	3	LIQUIDAMBAR STYRACIFLUA SWEETGUM (SEEDLESS CULTIVAR)	2 1/2"-3" CAL.	B & B
ZS (1)	6	ZELKOVA SERRATA 'VILLAGE GREEN' VILLAGE GREEN JAPANESE ZELKOVA	2 1/2"-3" CAL.	B & B
ORNAMENTAL = 28				
LI	10	LAGERSTROEMA INDICA 'WILLIAM TOOVEY RED' – RED CRAPEMYTLE	10'-12' Ht.	B & B
PC	10	PYRUS CALLERYANA 'ARISTOCRAT' ARISTOCRAT PEAR	2"-2 1/2" CAL.	B & B
PK	8	PRUNUS SERRULATA 'KWANZAN' KWANZAN CHERRY	2"-2 1/2" CAL.	B & B
EVERGREEN = 60				
CL	21	CUPRESSOCYPARIS LEYLANDII LEYLAND CYPRESS	8'-10' Ht.	B & B
PS	17	PINUS STROBUS EASTERN WHITE PINE	8'-10' Ht.	B & B
PT	22	PINUS THUNBERGIANA EASTERN WHITE PINE	8'-10' Ht.	B & B

THE LAND PLANNING & DESIGN GROUP INC. PROVIDED: STREETSCAPE PLANTINGS OUTSIDE RIGHT-OF-WAY ALONG PERIMETER 1

(1) MD 216 STREET TREE REQUIREMENT = 1226/40 = 31
31 SHADE PROVIDED
PART OF THE STREET TREE SURETY, SEE BELOW

– PERIMETER 1 REQUIREMENT = 22 SHADE AND 27 EVERGREEN
28 ORNAMENTAL AND 60 EVERGREEN PROVIDED

LANDSCAPING PROVIDED:

A. 28 ORNAMENTAL PROVIDED
= 14 SHADE @ 2:1 SUBSTITUTION (22-14=8 REMAIN)
B. 60 EVERGREEN PROVIDED – 27 REQUIRED
= 33 REMAINING TO BE UTILIZED AS PLANTING CREDITS
C. 33 REMAINING EVERGREENS
= 8 REMAINING SHADE OBLIGATION @ 2:1 SUBSTITUTION
= 16 EVERGREENS
D. THERE ARE 17 ADDITIONAL EVERGREEN PLANTING UNITS PROVIDED WITHIN PERIMETER 1 (33-16=17)

LANDSCAPE SCHEDULE - PERIMETERS 2 - 6

KEY	QUAN.	BOTANICAL NAME	SIZE	REM.
SHADE = 66				
QR	13	Quercus rubra NORTHERN RED OAK	2 1/2"-3" CAL.	B & B
AR	18	ACER RUBRUM 'OCTOBER GLORY OCTOBER GLORY RED MAPLE	2 1/2"-3" CAL.	B & B
BL	20	PLAEANUS X ACERIFOLIA BLOODGOOD LONDON PLANE	2 1/2"-3" CAL.	B & B
SO	15	QUERCUS COCCINEA SCARLET OAK	2 1/2"-3" CAL.	B & B

LANDSCAPE SCHEDULE NOTES:

1. ALL PLANT MATERIALS SHALL BE FULL AND HEAVY, BE WELL FORMED AND SYMMETRICAL, CONFORM TO THE MOST CURRENT AAN SPECIFICATIONS AND BE INSTALLED IN ACCORDANCE WITH HRD PLANTING SPECIFICATIONS.

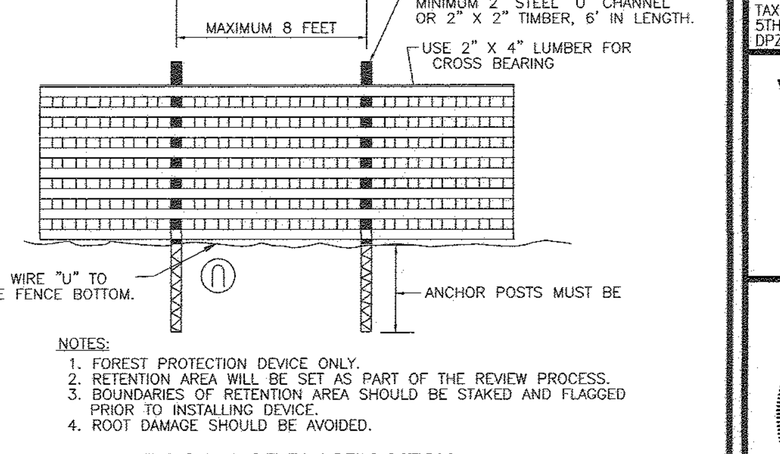
2. CONTRACTOR SHALL VERIFY LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO DIGGING. FINAL LOCATION OF PLANT MATERIAL MAY NEED TO VARY TO MEET FINAL FIELD CONDITIONS.

3. TREES SHALL NOT BE PLANTED IN THE BOTTOM OF DRAINAGE SWALES.

4. CONTRACTOR SHALL VERIFY PLANT QUANTITIES PRIOR TO BIDDING. IF PLAN DIFFERS FROM LANDSCAPE SCHEDULE, THE PLAN SHALL GOVERN.

LANDSCAPE NOTES

1. 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.
2. 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.
3. 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.
4. PLANTINGS SHOWN HEREON ARE THE RESPONSIBLITY OF THE DEVELOPER TO INSTALL DURING THE CONSTRUCTION OF THE FINAL PLAN.
5. SURETY FOR THE PROPOSED LANDSCAPING SHALL BE BASED ON THE NUMBER OF PLANTINGS REQUIRED.
6. **REFER TO SHA ACCESS PERMIT PLAN SET (SHA 15APH0004XX) FOR APPLICABLE MARYLAND STATE HIGHWAY ADMINISTRATION LANDSCAPING NOTES PER THE SHA ENVIRONMENTAL GUIDE FOR ACCESS AND DISTRICT PERMIT APPLICANTS 11-6-15**



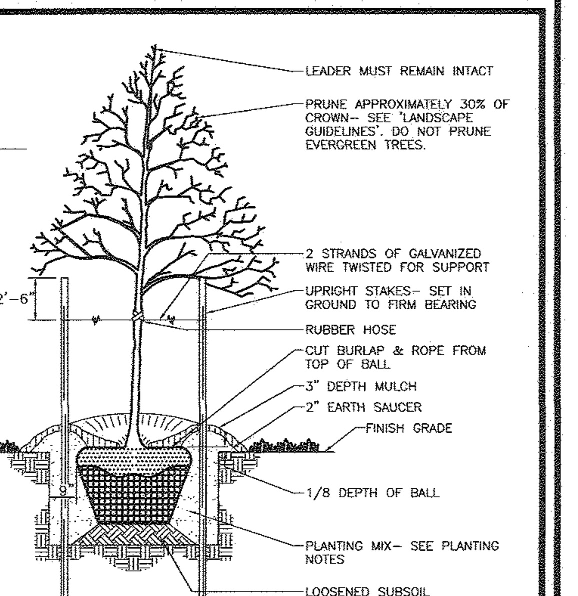
NOTES:
1. FOREST PROTECTION DEVICE ONLY.
2. RETENTION AREA WILL BE SET AS PART OF THE REVIEW PROCESS.
3. BOUNDARIES OF RETENTION AREA SHOULD BE STAKED AND FLAGGED PRIOR TO INSTALLING DEVICE.
4. ROOT DAMAGE SHOULD BE AVOIDED.

BLAZE ORANGE PLASTIC MESH

TYPICAL TREE PROTECTION FENCE DETAIL

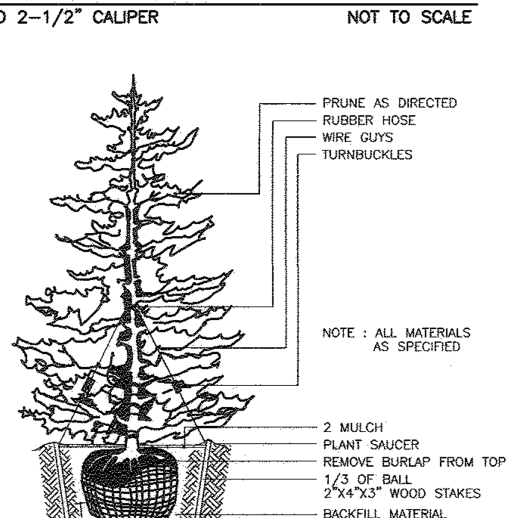
ANY SPECIMEN TREE DESIGNATED AS TO REMAIN AND LOCATED WITHIN THE LIMITS OF DISTURBANCE SHALL BE PROTECTED WITH BLAZE ORANGE TREE PROTECTION FENCING.

NOTES
1. SEE "LANDSCAPE SPECIFICATION GUIDELINES FOR BALTIMORE-WASHINGTON METROPOLITAN AREAS" FOR ALL MATERIAL, PRODUCT, AND PROCEDURE SPECIFICATIONS.
2. SEE "LANDSCAPE GUIDELINES" FOR SUPPORTING TREES LARGER THAN 2-1/2" CALIPER.
3. PLACE UPRIGHT STAKES PARALLEL TO WALKS & BUILDINGS.
4. KEEP MULCH 1" FROM TRUNK
5. SEE ARCHITECTURAL PLANS FOR ADDITIONAL PLANTINGS WHICH EXCEED HOWARD COUNTY MINIMUM REQUIREMENTS.
6. TREES ARE NOT TO BE PLANTED OVER PRIVATE SEWAGE EASEMENT.



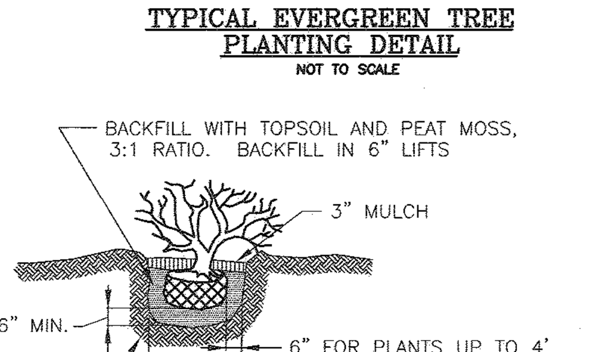
TREE PLANTING AND STAKING

DECIDUOUS TREES UP TO 2-1/2" CALIPER — NOT TO SCALE



TYPICAL EVERGREEN TREE PLANTING DETAIL

NOT TO SCALE



SHRUB PLANTING DETAIL

NOT TO SCALE

SPECIMEN TREE REPLACEMENT - PLANTING SCHEDULE

KEY	QUAN.	BOTANICAL NAME	SIZE	REM.
BO	5	QUERCUS MACROCARPA BUR OAK	3" CAL.	B & B
AB	5	ACER RUBRUM "BOWHALL' BOWHALL RED MAPLE	3" CAL.	B & B

NOTE:
- REPLACEMENT TREES REQUIRED PER THE APPROVED REMOVAL OF 5 OF THE 11 SPECIMEN TREES. REFER TO WP-15-136 DECISION SHEET 33.
- REPLACEMENT TREES FOR THE REMOVAL OF THE REMAINING 6 SPECIMEN TREES SHALL BE PROVIDED UNDER FUTURE PHASE ONE - SECTION TWO F16-072

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

NO.	REVISION	DATE

FINAL ROAD CONSTRUCTION PLAN

LANDSCAPE & FOREST CONSERVATION NOTES & DETAILS

MAPLE LAWN SOUTH PHASE 1 - SECTION 1

LOTS 1-64, NON-BUILDABLE BULK PARCEL 'A', NON-BUILDABLE BULK PARCEL 'B', AND OPEN SPACE LOTS 65-69

TAX MAP 46 – GRID 2 – PARCEL 113
5TH ELECTION DISTRICT
DPZ REF: ECP-14-093, WP-15-136, PB#415, SP-15-014

ZONED: R-ED-MXD-3
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

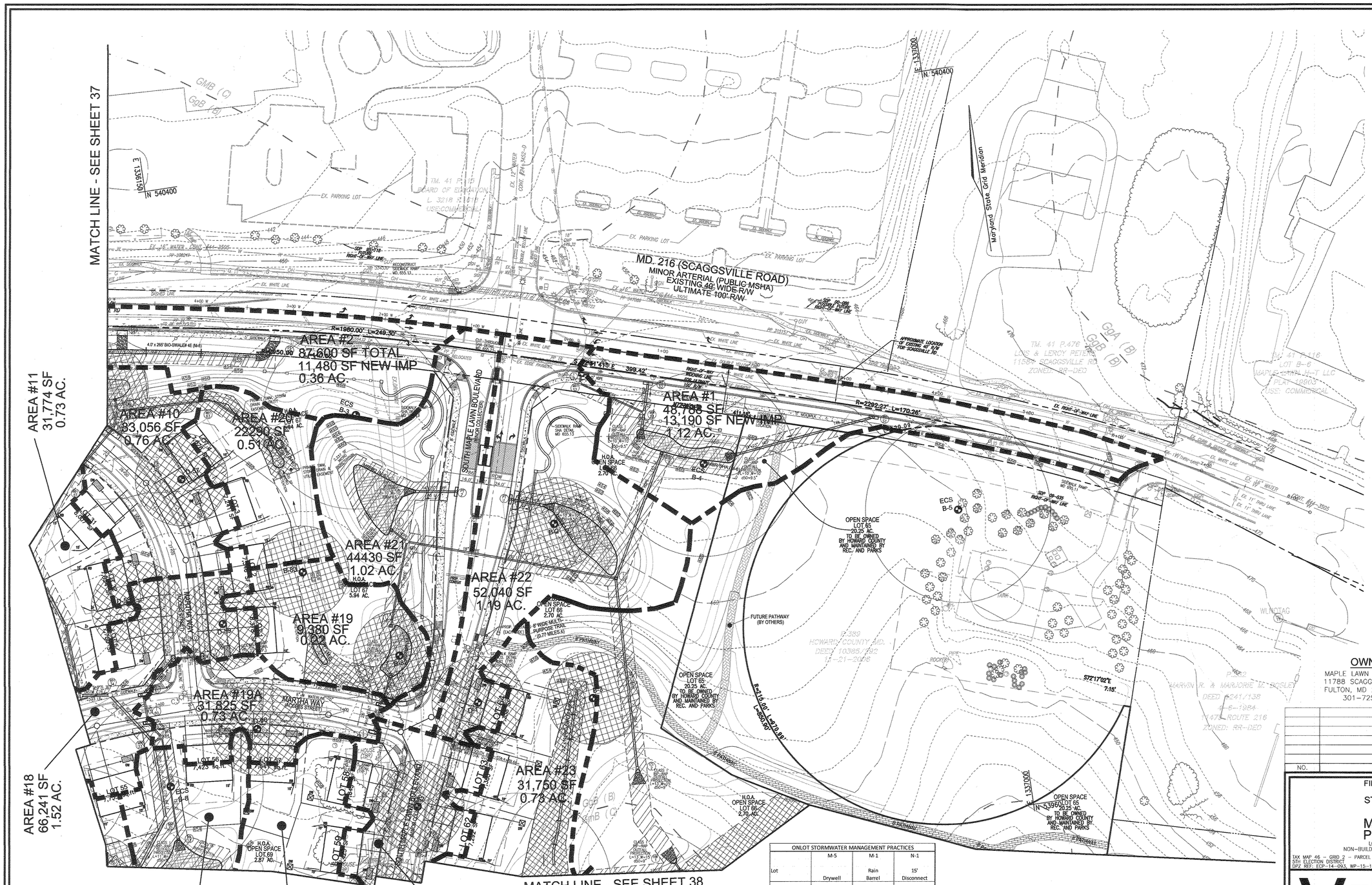
STATE OF MARYLAND — ROBERT HARRIS VOGEL — No.16193 REGISTERED PROFESSIONAL ENGINEER — 9/26/16

[signature]
ROBERT H. VOGEL, PE No.16193

DESIGN BY: RVE
DRAWN BY: RVE
CHECKED BY: RHV
DATE: SEPTEMBER 2016
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: 09-27-2018



LEGEND:

- EXISTING CONTOUR
- PROPOSED CONTOUR
- PROPOSED SPOT ELEVATION
- EXISTING SPOT ELEVATION
- EXISTING CURB AND GUTTER
- PROPOSED 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 TREELINE
- EXISTING FENCE
- PROPERTY LINE
- RIGHT-OF-WAY LINE
- PROPOSED SIDEWALK
- NON-STRUCTURAL ROOFTOP DISCONNECTIONS
- MICRO-SCALE PRACTICE BIO-SWALE (M-8)
- MICRO-SCALE PRACTICE MICRO BIORETENTION / BIORETENTION (M-6)
- 200 GAL RAIN BARREL
- DRAINAGE DIVIDE
- AREA #3 DRAINAGE AREA DESIGNATION
- PROPOSED DRYWELL
- STORMWATER MANAGEMENT TEST PIT
- ECS B-10 SOIL BORING

OWNER

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301-725-2074

DEVELOPER

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2661 RIVA ROAD, SUITE 220
ANNAPOLIS, MARYLAND 21401
443-472-2846

NO.	REVISION	DATE

FINAL ROAD CONSTRUCTION PLAN

STORMWATER MANAGEMENT
DRAINAGE AREA MAP

MAPLE LAWN SOUTH PHASE 1 - SECTION 1

LOTS 1-64, NON-BUILDABLE BULK PARCEL 'A',
NON-BUILDABLE BULK PARCEL 'B', AND OPEN SPACE LOTS 65-69

TAX MAP 46 - GRID 2 - PARCEL 113
5TH ELECTION DISTRICT
DPZ REF: ECP-14-093, WP-15-136, PB#415, SP-15-014

ZONED: R-ED-MXD-3
HOWARD COUNTY, MARYLAND

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STATE OF MARYLAND ROBERT HARRIS VOGEL No. 16193 REGISTERED PROFESSIONAL ENGINEER

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DESIGN BY:	RVE
DRAWN BY:	RVE
CHECKED BY:	RHV
DATE:	SEPTEMBER 2016
SCALE:	AS SHOWN
W.O. NO.:	11-34

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EXPIRATION DATE: 09-27-2018

SHEET 36 OF 48

F-16-021

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 10/25/2016

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 11/3/16

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NOTE:

ESDv EQUAL TO PE = 1.6" IS PROVIDED WITHIN EACH SUB DRAINAGE AREA

STORMWATER MANAGEMENT DRAINAGE AREA MAP

SCALE: 1"=50'

50' 0 50' 100' 150'

ONLOT STORMWATER MANAGEMENT PRACTICES

Lot	M-5 Drywell	M-1 Rain Barrel	N-1 15' Disconnect
Lot 1	1	1	1
Lot 2	1	1	1
Lot 3	1	1	1
Lot 4	1	1	1
Lot 5	1	1	1
Lot 31	1	1	2
Lot 32	1	1	2
Lot 55	1	1	2
Lot 56	1	1	1
Lot 57	2	1	1
Lot 58	2	1	1
Lot 59	2	1	1
Lot 62	2	1	1
Lot 63	2	1	1
Lot 64	2	1	1

MAPPED SOILS TYPES - CLARKSVILLE SE MAP #23

SYMBOL	NAME / DESCRIPTION	GROUP	HYDRIC	HYDRIC INCLUSIONS	K FACTOR	PRIME FARMLAND	STEEP SLOPE W/ EROSION POTENTIAL
BoA	BAILE SILT LOAM, 0 TO 3 PERCENT SLOPES	D	YES	YES	0.32	NO	YES
GgA	GLENELG LOAM, 0 TO 3 PERCENT SLOPES	B	NO	NO	0.20	YES	NO
GgB	GLENELG LOAM, 3 TO 8 PERCENT SLOPES	B	NO	NO	0.20	YES	NO
GmB	GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES	C	NO	NO	0.37	YES	YES
GnB	GLENVILLE-BAILE SILT LOAM, 0 TO 8 PERCENT SLOPES	C	PARTIALLY*	PARTIALLY*	0.37	NO	PARTIAL
MoC	MANOR LOAM, 8 TO 15 PERCENT SLOPES	B	NO	NO	0.24	YES	NO

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

NOTE:
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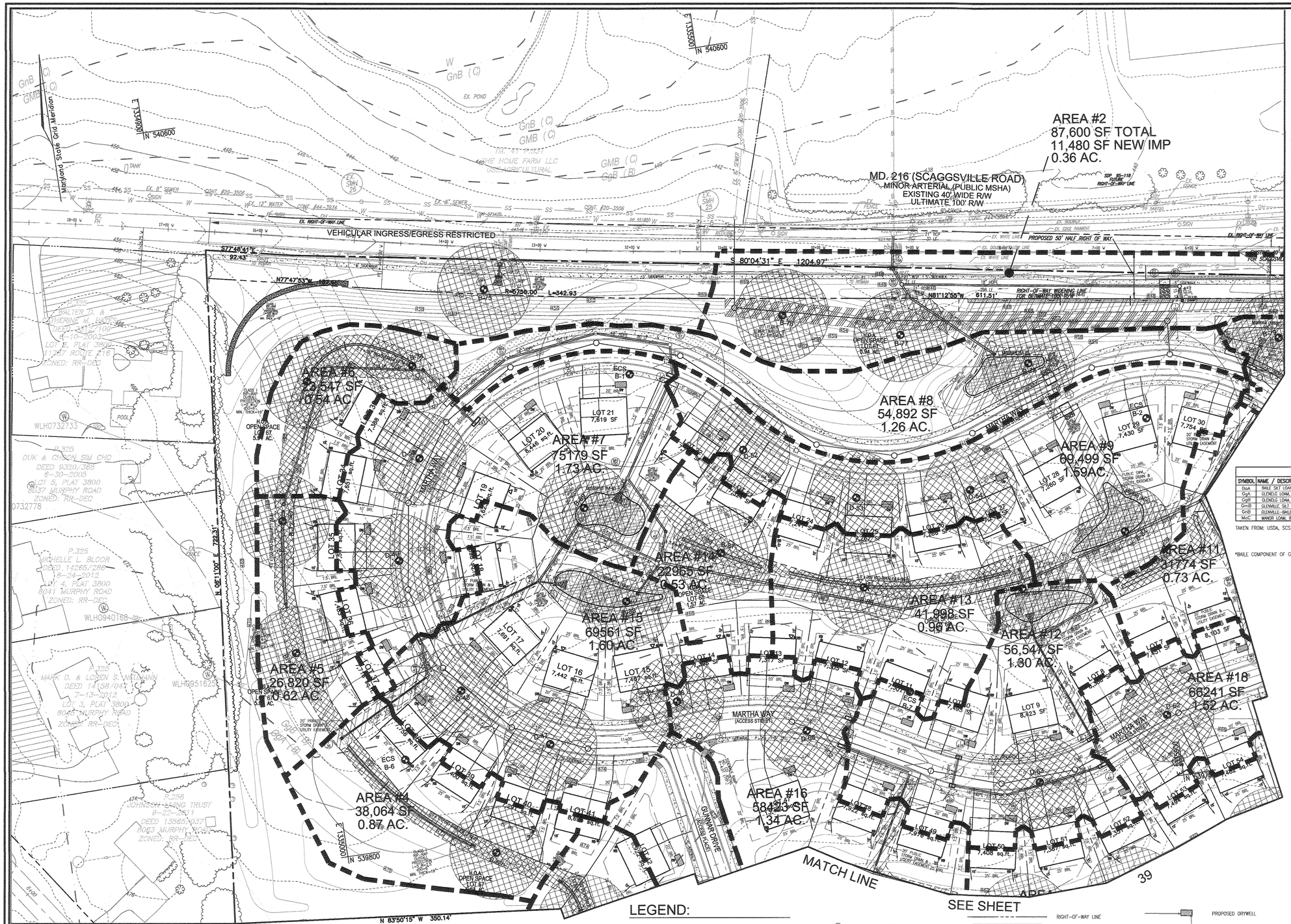
*BAILE COMPONENT OF GnB, ERODIBILITY FACTOR IS 0.32 AND IS CONSIDERED HYDRIC



MATCH LINE - SEE SHEET 36

ONLOT STORMWATER MANAGEMENT PRACTICES			
Lot	M-5 Drywell	M-1 Rain Barrel	N-1 15' Disconnect
Lot 6	1	1	2
Lot 7	1	1	2
Lot 8	1	1	2
Lot 9	1	1	2
Lot 10	1	1	2
Lot 11	1	1	1
Lot 12	1	1	1
Lot 13	1	1	2
Lot 14	1	1	2
Lot 15	1	1	2
Lot 16	1	1	2
Lot 17	1	1	2
Lot 18	1	1	2
Lot 19	1	1	2
Lot 20	1	1	2
Lot 21	1	1	2
Lot 22	1	1	2
Lot 23	1	1	2
Lot 24	1	1	2
Lot 25	1	1	2
Lot 26	1	1	2
Lot 27	1	1	1
Lot 28	1	1	1
Lot 29	1	1	1
Lot 30	1	1	2
Lot 33	1	1	2
Lot 34	1	1	2
Lot 35	1	1	2
Lot 36	1	1	2
Lot 37	1	1	2
Lot 38	1	1	2
Lot 39	1	1	2
Lot 40	1	1	2
Lot 41	1	1	1
Lot 42	1	1	1
Lot 47	1	1	1
Lot 48	1	1	2
Lot 49	1	1	2
Lot 50	1	1	2
Lot 51	1	1	2
Lot 52	1	1	2
Lot 53	1	1	2
Lot 54	1	1	2

MAPPED SOILS TYPES - CLARKSVILLE SE MAP #23

SYMBOL	NAME / DESCRIPTION	GROUP	HYDRIC	HYDRIC INCLUSIONS	K FACTOR	PRIME FARMLAND	>15% SLOPE W/ EROSION POTENTIAL
BaA	BAILE SILT LOAM, 0 TO 3 PERCENT SLOPES	D	YES	YES	0.32	NO	YES
GgA	GLENELG LOAM, 0 TO 3 PERCENT SLOPES	B	NO	NO	0.20	YES	NO
GgB	GLENELG LOAM, 3 TO 8 PERCENT SLOPES	B	NO	NO	0.20	YES	NO
GmB	GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES	C	NO	NO	0.37	YES	YES
GnB	GLENVILLE-BAILE SILT LOAM, 0 TO 8 PERCENT SLOPES	C	PARTIALLY*	PARTIALLY*	0.37	NO	PARTIAL
MaC	MANOR LOAM, 8 TO 15 PERCENT SLOPES	B	NO	NO	0.24	YES	NO

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

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FINAL ROAD CONSTRUCTION PLAN

STORMWATER MANAGEMENT DRAINAGE AREA MAP

MAPLE LAWN SOUTH PHASE 1 - SECTION 1

LOTS 1-64, NON-BUILDABLE BULK PARCEL 'A', NON-BUILDABLE BULK PARCEL 'B', AND OPEN SPACE LOTS 65-69

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DPZ REF: ECP-14-033, WP-15-136, PB#415, SP-15-014

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CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 11/1/16
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11/4/16

STORMWATER MANAGEMENT DRAINAGE AREA MAP
SCALE: 1"=50'
50' 0 50' 100' 150'

LEGEND:

EXISTING CONTOUR
PROPOSED CONTOUR
PROPOSED SPOT ELEVATION
EXISTING SPOT ELEVATION
EXISTING CURB AND GUTTER
PROPOSED 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 TREELINE
EXISTING FENCE
PROPERTY LINE
RIGHT-OF-WAY LINE
PROPOSED SIDEWALK
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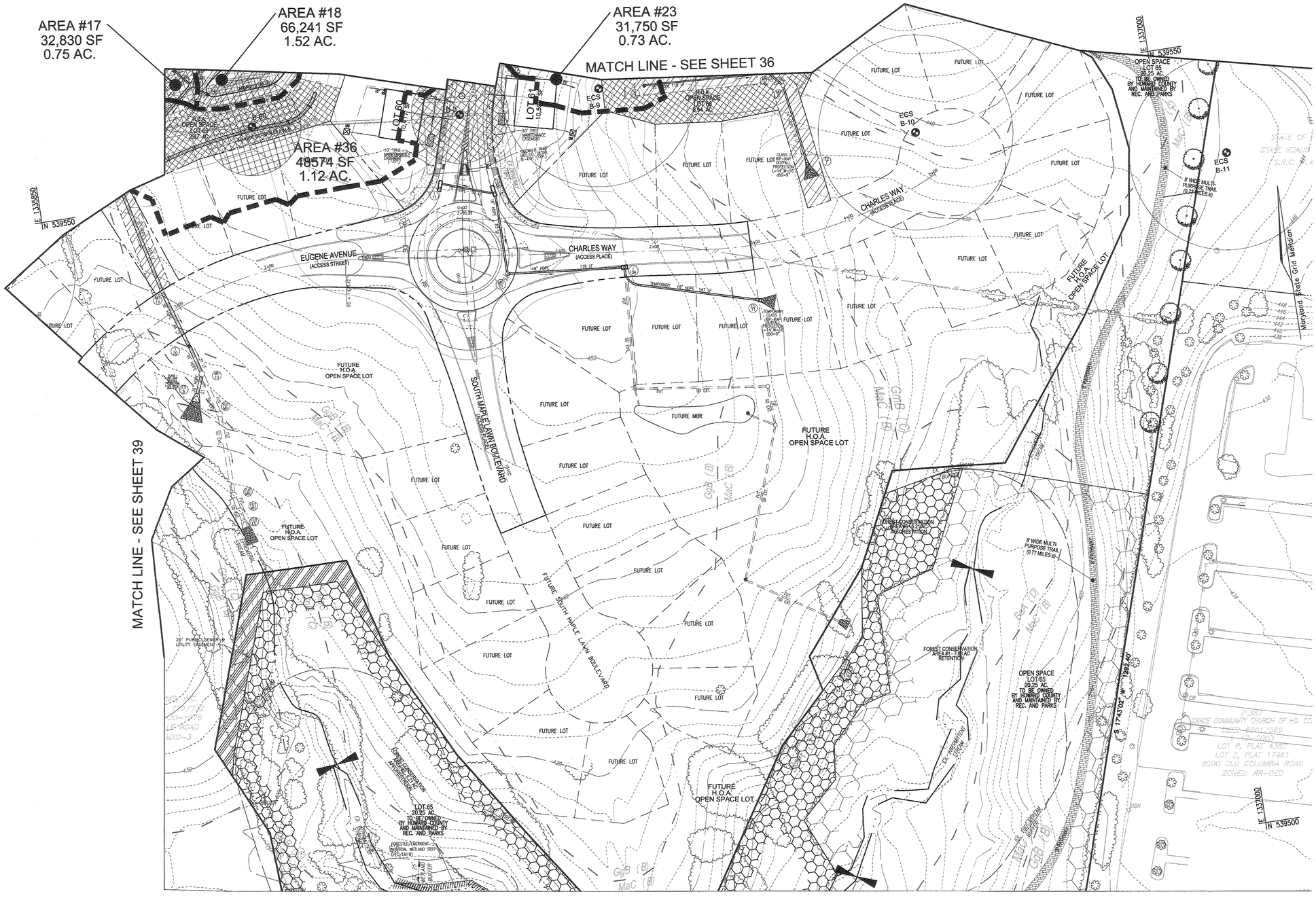
MICRO-SCALE PRACTICE BIO-SWALE (M-8)
MICRO-SCALE PRACTICE MICRO BIORETENTION / BIORETENTION (M-6)
200 GAL RAIN BARREL
DRAINAGE DIVIDE
AREA #3 DRAINAGE AREA DESIGNATION
PROPOSED DRYWELL
STORMWATER MANAGEMENT TEST PIT
ECS B-10 SOIL BORING

SEE SHEET 39

F-16-021



LEGEND:

- EXISTING CONTOUR
- PROPOSED CONTOUR
- PROPOSED SPOT ELEVATION
- EXISTING SPOT ELEVATION
- EXISTING CURB AND GUTTER
- PROPOSED 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 TREELINE
- EXISTING FENCE
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- DRAINAGE DIVIDE
- AREA #3 — DRAINAGE AREA DESIGNATION
- PROPOSED DRYWELL
- B-2 — STORMWATER MANAGEMENT TEST PIT
- ECS B-10 — SOIL BORING
- PUBLIC STORMWATER MANAGEMENT, DRAINAGE & UTILITY EASEMENT
- PRIVATE STORMWATER MANAGEMENT, DRAINAGE & UTILITY EASEMENT
- 10' TREE MAINTENANCE EASEMENT

NOTE:

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FINAL ROAD CONSTRUCTION PLAN

STORMWATER MANAGEMENT
DRAINAGE AREA MAP

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STATE OF MARYLAND — ROBERT HARRIS VOGEL — No. 16193 — REGISTERED PROFESSIONAL ENGINEER — 9/26/16
ROBERT H. VOGEL, PE No.16193

DESIGN BY:	RVE
DRAWN BY:	RVE
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CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11-4-16

MAPPED SOILS TYPES - CLARKSVILLE SE MAP #23

SYMBOL	NAME / DESCRIPTION	GROUP	HYDRIC	HYDRIC INCLUSIONS	K FACTOR	FARMLAND	>15% SLOPE W/ EROSION POTENTIAL
BaA	BAILE SILT LOAM, 0 TO 3 PERCENT SLOPES	D	YES	YES	0.32	NO	YES
GyA	GLENELG LOAM, 0 TO 3 PERCENT SLOPES	B	NO	NO	0.20	YES	NO
GgB	GLENELG LOAM, 3 TO 8 PERCENT SLOPES	B	NO	NO	0.20	YES	NO
GmB	GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES	C	NO	NO	0.37	YES	YES
GnB	GLENVILLE-BAILE SILT LOAM, 0 TO 8 PERCENT SLOPES	C	PARTIALLY*	PARTIALLY*	0.37	NO	PARTIAL
MoC	MANOR LOAM, 8 TO 15 PERCENT SLOPES	B	NO	NO	0.24	YES	NO

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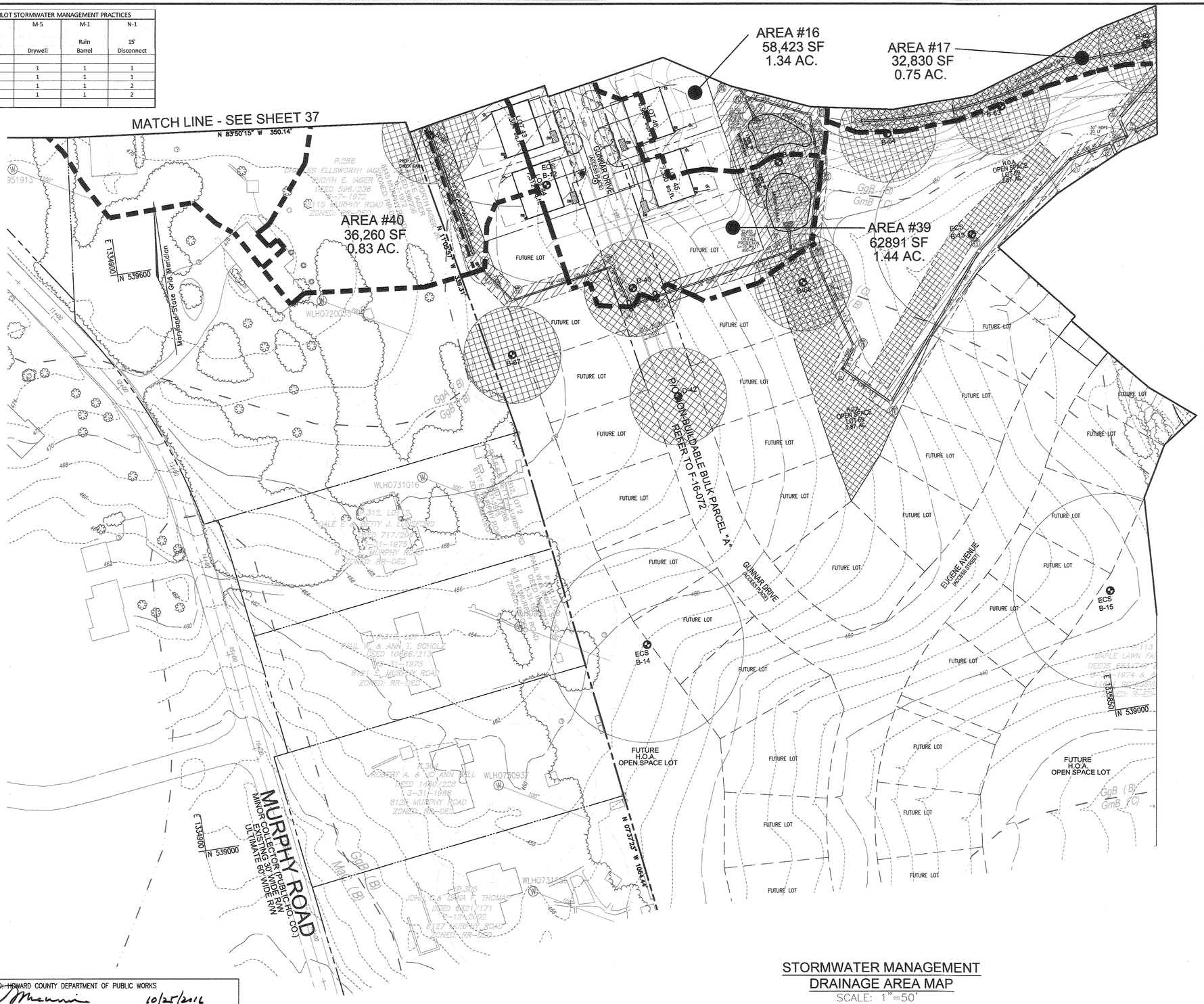
STORMWATER MANAGEMENT
DRAINAGE AREA MAP
SCALE: 1"=50'

50' 0 50' 100' 150'

ONLOT STORMWATER MANAGEMENT PRACTICES

Lot	M-5 Drywell	M-1 Rain Barrel	N-1 15' Disconnect
Lot 60	2	1	1
Lot 61	2	1	1

ONLOT STORMWATER MANAGEMENT PRACTICES			
Lot	M-5 Drywell	M-1 Rain Barrel	N-1 15' Disconnect
Lot 43	1	1	1
Lot 44	1	1	1
Lot 45	1	1	2
Lot 46	1	1	2



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- 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)
- EXISTING TREELINE (FIELD LOCATED)
- EXISTING VEGETATION (APPROXIMATE LOCATION)
- EXISTING FENCE
- PROPERTY LINE
- RIGHT-OF-WAY LINE
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MATCH LINE - SEE SHEET 38

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SCALE: 1"=50'

50' 0 50' 100' 150'

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

1. MATERIAL SPECIFICATIONS

THE ALLOWABLE MATERIALS TO BE USED IN THESE PRACTICES ARE DETAILED IN TABLE B.4.1.

2. 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 PROVE A HINDRANCE 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 15.08.01.05.
THE PLANTING SOIL SHALL BE TESTED AND SHALL MEET THE FOLLOWING CRITERIA:

* SOIL COMPONENT – LOAMY SAND OR SANDY LOAM (USDA SOIL TEXTURAL CLASSIFICATION).
* ORGANIC CONTEN – 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 5%.
* 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.

THERE 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.

3. 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 LOADER, THE CONTRACTOR SHOULD USE WIDE TRACK OR MARSH TRACK EQUIPMENT, OR LIGHT EQUIPMENT WITH TURF TYPE TIRES. 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 REFRACTURE 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 BIORETENION FACILITY BEFORE BACKFILLING THE OPTIONAL SAND LAYER. PUMP ANY PONDED 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 MARSH TRACKS.

4. PLANT MATERIAL

RECOMMENDED PLANT MATERIAL FOR MICRO-BIORETENTION PRACTICES CAN BE FOUND IN APPENDIX A, SECTION A.2.3.

5. 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 1/8TH 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 BED COVER AFTER INSTALLATION.
TREES SHALL BE BRACED 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.

THE TOPSOIL SPECIFICATIONS PROVIDE ENOUGH ORGANIC MATERIAL TO ADEQUATELY SUPPLY NUTRIENTS FROM NATURAL CYCLING. THE PRIMARY FUNCTION OF THE BIORETENTION STRUCTURE IS TO IMPROVE WATER QUALITY. ADDING FERTILIZERS DEFEATS, OR AT A MINIMUM, IMPEDES 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.

6. UNDERDRAINS

UNDERDRAINS SHOULD MEET THE FOLLOWING CRITERIA:

* PIPE – SHOULD BE 4" TO 6" DIAMETER, SLOTTED OR PERFORATED RIGID PLASTIC PIPE (ASTMF 758, TYPE PS 28, OR AASHTO-M-278) IN A GRAVEL LAYER. THE PREFERRED MATERIAL IS SLOTTED, 4" RIGID PIPE (E.G., PVC OF HDPE).
* 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 4x4) 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 1,0000 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).

7. MISCELLANEOUS

THESE PRACTICES MAY NOT BE CONSTRUCTED UNTIL ALL CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED.

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

Table B.4.1 Materials Specifications for Micro-Bioretention, Rain Gardens & Landscape Infiltration-

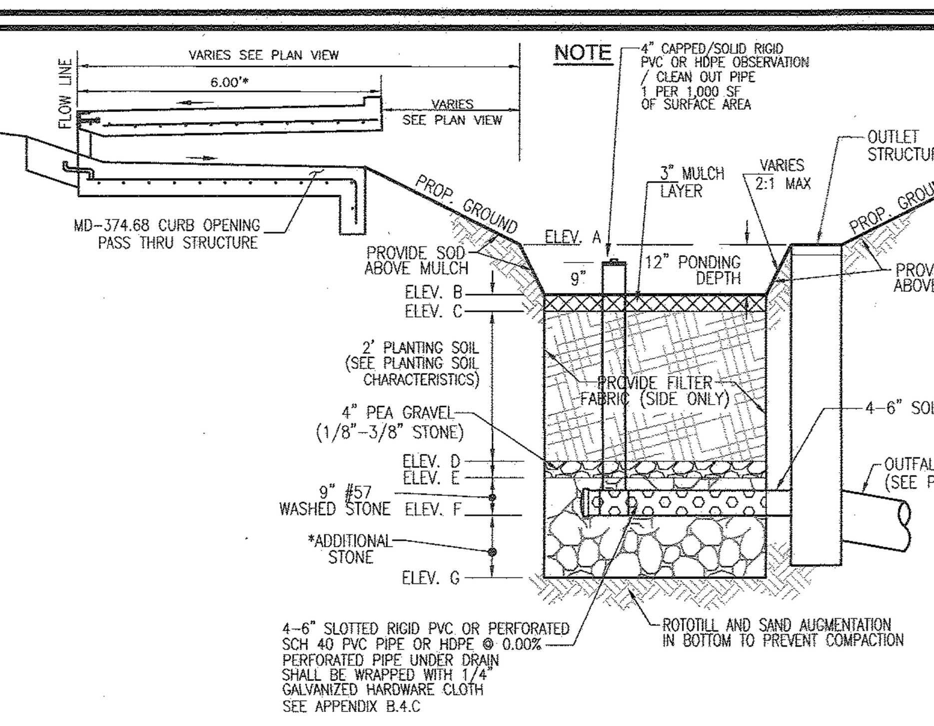
Material	Specification	Size	Notes
Plantings	see Appendix A, Table A.4	n/a	plantings are site-specific
Planting soil [2' to 4' deep]	loamy sand (60 - 65%) & compost (35 – 40%) or sandy loam (30%), coarse sand (30%) & compost (40%)	n/a	USDA soil types loamy sand or sandy loam; clay content < 5%
Organic 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		n/a	PE Type 1 nonwoven
Gravel (underdrains and infiltration berms)	AASHTO M-43	NO. 57 OR NO. 6 AGGREGATE (3/8" to 3/4")	
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 pipes; not necessary underneath pipes. Perforated pipe shall be wrapped with ¼-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 350.R/89; 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 Diabase and Graystone (**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 / BIO-SWALE AREAS

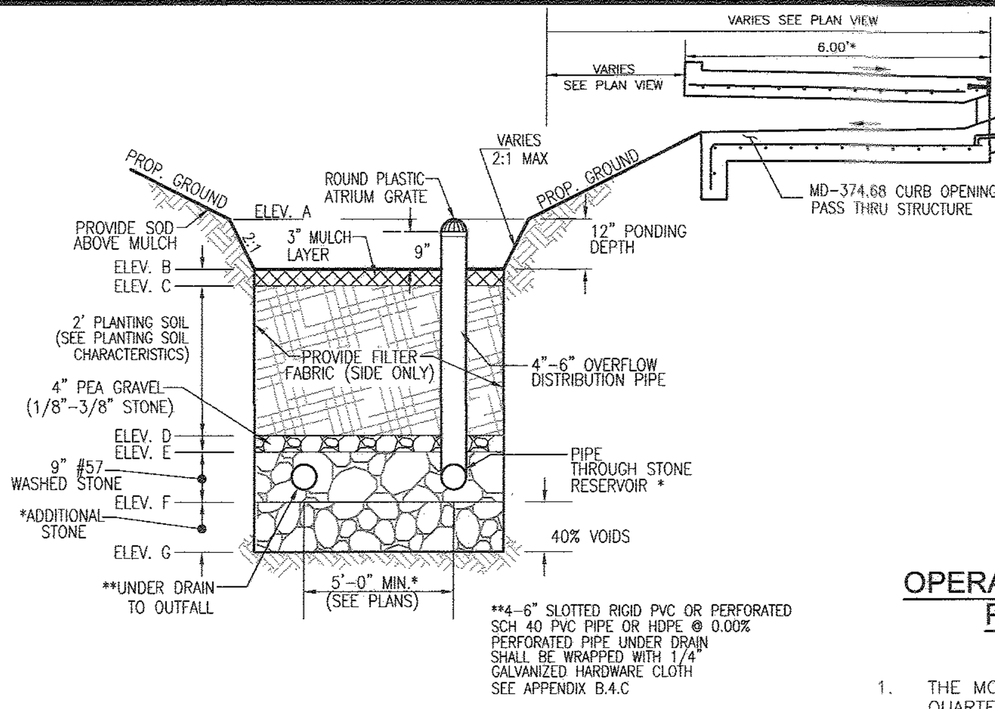
1. ANNUAL MAINTENANCE OF PLANT MATERIAL, MULCH LAYER AND SOIL LAYER IS REQUIRED. MAINTENANCE OF MULCH AND SOIL IS LIMITED TO CORRECTING AREAS OF EROSION OR WASH OUT. ANY MULCH REPLACEMENT SHALL BE DONE IN THE SPRING. PLANT MATERIAL SHALL BE CHECKED FOR DISEASE AND INSECT INFESTATION AND MAINTENANCE WILL ADDRESS DEAD MATERIAL AND PRUNING. ACCEPTABLE REPLACEMENT PLANT MATERIAL IS LIMITED TO THE FOLLOWING: 2000 MARYLAND STORMWATER DESIGN MANUAL VOLUME II, TABLE A.4.1 AND 2.
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 WIRES.
3. MULCH SHALL BE INSPECTED EACH SPRING. REMOVE PREVIOUS MULCH LAYER BEFORE APPLYING NEW LAYER ONCE EVERY 2 TO 3 YEARS.
4. SOIL EROSION TO BE ADDRESSED ON AN AS NEEDED BASIS WITH A MINIMUM OF ONCE PER MONTH AND AFTER HEAVY STORM EVENTS.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
[signature] 10/25/2016
CHIEF, BUREAU OF HIGHWAYS — DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
[signature] 11/3/16
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE
[signature] 11-4-16
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE



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

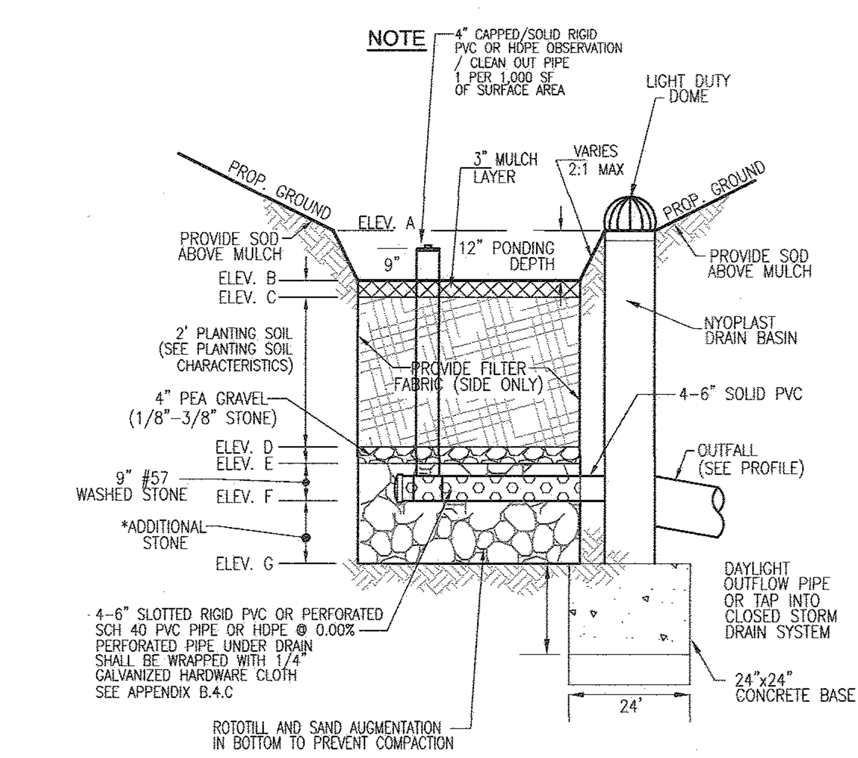


MICRO-BIORETENTION (OVERFLOW)
NOT TO SCALE
*ADDITIONAL STONE PROVIDED FOR 10 YEAR ATTENUATION/REV

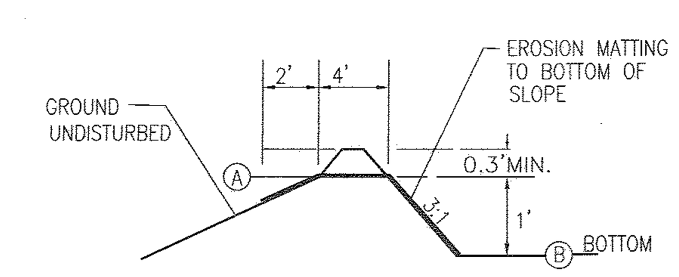
MICROBIORETENTION NOTES:

1. ONLY THE SIDES OF MICRO BIORETENTION ARE TO BE WRAPPED IN FILTER FABRIC. FILTER FABRIC BETWEEN LAYER OR AT THE BOTTOM OF THE MICRO BIORETENTION 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 5' MINIMUM SPACING BETWEEN UNDER DRAIN AND PERFORATED PIPE THROUGH STONE RESERVOIR OR SPACE PIPE EQUALLY ACROSS BOTTOM FOR SMALL BIOS. (SEE PLANS)

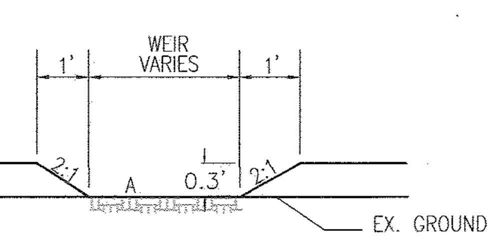
NOTE:
REFER TO SHEET 42 FOR MBR DESIGN ELEVATION CHART



TYPICAL SMALL MICRO-BIORETENTION MBR#7
NOT TO SCALE
*ADDITIONAL STONE PROVIDED FOR 10 YEAR ATTENUATION/REV

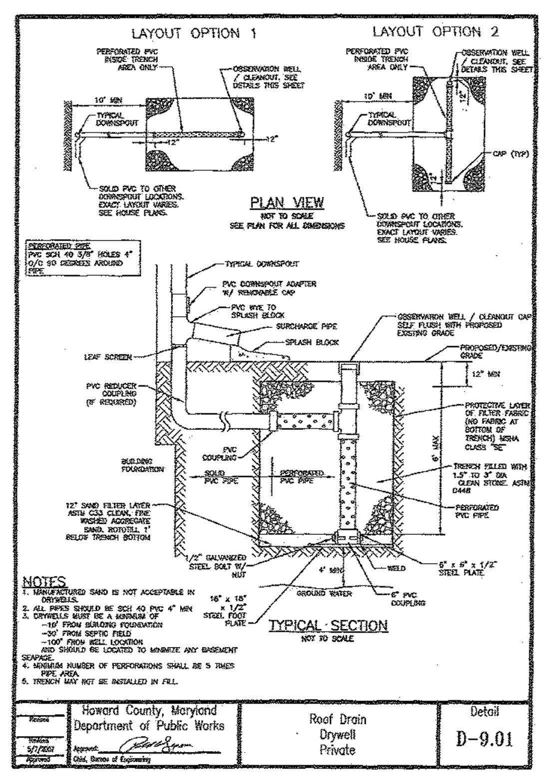


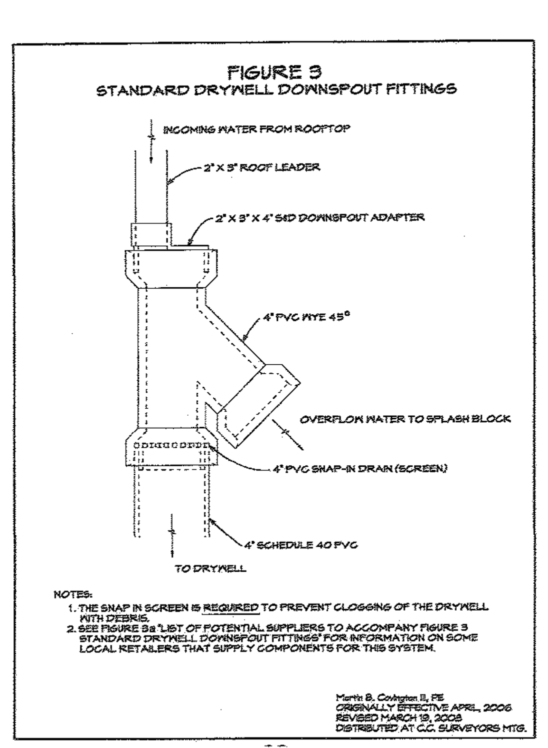
TYPICAL SPILLWAY SECTION
NOT TO SCALE



TYPICAL SPILLWAY PROFILE
NOT TO SCALE

DETAILS OF WEIR OUTLET MICRO-BIORETENTION/BIO-SWALE





OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED STORMWATER DRY WELLS (M-5)

1. THE MONITORING WELLS AND STRUCTURES SHALL BE INSPECTED ON A QUARTERLY BASIS AND AFTER EVERY LARGE STORM EVENT.
2. WATER LEVELS AND SEDIMENT BUILD UP IN THE MONITORING WELLS SHALL BE RECORDED OVER A PERIOD OF SEVERAL DAYS TO INSURE TRENCH DRAINAGE.
3. A LOG BOOK SHALL BE MAINTAINED TO DETERMINE THE RATE AT WHICH THE FACILITY DRAINS.
4. WHEN THE FACILITY BECOMES CLOGGED SO THAT IT DOES NOT DRAIN DOWN WITHIN THE 72 HOUR TIME PERIOD, CORRECTIVE ACTION SHALL BE TAKEN.
5. THE MAINTENANCE LOG BOOK SHALL BE AVAILABLE TO HOWARD COUNTY FOR INSPECTION TO INSURE COMPLIANCE WITH OPERATION AND MAINTENANCE CRITERIA.
6. ONCE THE PERFORMANCE CHARACTERISTICS OF THE INFILTRATION FACILITY HAVE BEEN VERIFIED, THE MONITORING SCHEDULE CAN BE REDUCED TO AN ANNUAL BASIS UNLESS THE PERFORMANCE DATA INDICATES THAT A MORE FREQUENT SCHEDULE IS REQUIRED.

ON-LOT DRYWELL - DESIGN ELEVATION CHART

SWM DA	DW LOT #	DW LOCATION	NUMBER OF DW'S	PROP GRADE* OVER	TOP STONE*	INV STONE*	SURFACE SIZE FT X FT	STONE DEPTH FT	SAND DEPTH FT
21	64	F	1	457.00	456.00	452.00	6X12	4	1
23	64	R	1	451.00	450.00	446.00	6X6	4	1
	63	R	1	450.50	449.50	445.50	6X6	4	1
	62	R	1	449.00	448.00	444.00	6X6	4	1
	61	R	1	448.50	447.50	443.50	6X6	4	1
28	58	F	1	459.00	458.00	454.00	6X12	4	1
	59	F	1	447.80	446.80	442.80	6X12	4	1
	60	F	1	455.00	454.00	450.00	6X12	4	1
	61	F	1	455.00	454.00	450.00	6X12	4	1
	62	F	1	457.50	456.50	452.50	6X12	4	1
	63	F	1	459.00	458.00	454.00	6X12	4	1
36	57	R	1	454.00	453.00	449.00	6X6	4	1
	58	R	1	457.00	456.00	452.00	6X6	4	1
	59	R	1	455.00	454.00	450.00	6X6	4	1
	60	R	1	454.00	453.00	449.00	6X6	4	1
7	18	F	1	469.00	468.00	464.00	6X12	4	1
	19	F	1	467.00	466.00	462.00	6X12	4	1
	20	F	1	464.00	463.00	459.00	6X12	4	1
	21	F	1	461.50	460.50	456.50	6X12	4	1
	33	F	1	466.50	465.50	461.50	6X12	4	1
	34	F	1	467.50	466.50	462.50	6X12	4	1
	35	F	1	469.00	468.00	464.00	6X12	4	1
	36	F	1	469.50	468.50	464.50	6X12	4	1
	37	F	1	470.50	469.50	465.50	6X12	4	1
9	22	F	1	459.50	458.50	454.50	6X12	4	1
	23	F	1	458.00	457.00	453.00	6X12	4	1
	24	F	1	457.00	456.00	452.00	6X12	4	1
	25	F	1	455.50	454.50	450.50	6X12	4	1
	26	F	1	455.00	454.00	450.00	6X12	4	1
	27	F	1	453.50	452.50	448.50	6X12	4	1
	28	F	1	452.00	451.00	447.00	6X12	4	1
	29	F	1	452.00	451.00	447.00	6X12	4	1
	30	F	1	455.50	454.50	450.50	6X12	4	1
10	31	F	1	460.50	459.50	455.50	6X12	4	1
	32	F	1	464.50	463.50	459.50	6X12	4	1
	3	F	1	463.50	462.50	458.50	6X12	4	1
	4	F	1	462.50	461.50	457.50	6X12	4	1
12	9	F	1	468.50	467.50	463.50	6X12	4	1
	10	F	1	470.00	469.00	465.00	6X12	4	1
	11	F	1	471.50	470.50	466.50	6X12	4	1
	48	F	1	471.00	470.00	466.00	6X12	4	1
	49	F	1	470.00	469.00	465.00	6X12	4	1
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	51	F	1	469.00	468.00	464.00	6X12	4	1
	52	F	1	468.50	467.50	463.50	6X12	4	1
15	15	F	1	474.50	473.50	469.50	6X12	4	1
	16	F	1	473.50	472.50	468.50	6X12	4	1
	17	F	1	471.50	470.50	466.50	6X12	4	1
	38	F	1	472.00	471.00	467.00	6X12	4	1
	39	F	1	473.00	472.00	468.00	6X12	4	1
	40	F	1	473.50	472.50	468.50	6X12	4	1
	41	F	1	474.20	473.20	469.20	6X12	4	1
16	12	F	1	472.20	471.20	467.20	6X12	4	1
	13	F	1	473.00	472.00	468.00	6X12	4	1
	14	F	1	473.50	472.50	468.50	6X12	4	1
	47	F	1	473.00	472.00	468.00	6X12	4	1
18	1	F	1	464.00	463.00	459.00	6X12	4	1
	2	F	1	465.00	464.00	460.00	6X12	4	1
	5	F	1	464.00	463.00	459.00	6X12	4	1
	6	F	1	465.00	464.00	460.00	6X12	4	1
	7	F	1	465.50	464.50	460.50	6X12	4	1
	8	F	1	467.50	466.50	462.50	6X12	4	1
	53	F	1	467.50	466.50	462.50	6X12	4	1
	54	F	1	465.50	464.50	460.50	6X12	4	1
	55	F	1	464.50	463.50	459.50	6X12	4	1
19A	56	F	1	463.00	462.00	458.00	6X12	4	1
	57	F	1	462.00	461.00	457.00	6X12	4	1
39	42	F	1	472.00	471.00	467.00	6X12	4	1
	43	F	1	471.00	470.00	466.00	6X12	4	1
	44	F	1	469.50	468.50	464.50	6X12	4	1
	45	F	1	468.50	467.50	463.50	6X12	4	1
	46	F	1	470.50	469.50	465.50	6X12	4	1

* DESIGN SHALL BE FINE TUNED UNDER FUTURE SITE DEVELOPMENT PLAN
R= REAR OF LOT
F= FRONT OF LOT

BUSHMAN BRTT205 (205 GALLON) RAIN HARVESTING SYSTEM OR EQUIVALENT

RAIN BARREL DETAIL

NOT TO SCALE

TYPICAL RAIN BARREL DESIGN

205 GAL / 7.48 GAL/CUFT = 27.41 CUFT

500 SF X (X") / 12 = 27.41 CUFT

OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED RAINWATER HARVESTING (M-1)

A. THE OWNER SHALL EMPTY BARRELS ON A MONTHLY BASIS AND CLEAN BARREL WITH A HOSE.
B. THE OWNER SHALL VERIFY INTEGRITY OF LEAF SCREENS, GUTTERS, DOWNSPOUTS, SPIGOTS, AND MOSQUITO SCREENS, AND CLEAN AND REMOVE ANY DEBRIS.
C. THE OWNER SHALL REPLACE DAMAGED COMPONENTS AS NEEDED.
D. THE OWNER SHALL ALLOW THE BARREL TO DRAIN BY BOTTOM SPIGOT DURING THE WINTER SEASON.

N-1. DISCONNECTION OF ROOFTOP RUNOFF

CONSTRUCTION CRITERIA:

THE FOLLOWING ITEMS SHOULD BE ADDRESSED DURING THE CONSTRUCTION OF PROJECTS WITH PLANNED ROOFTOP DISCONNECTIONS:

– EROSION AND SEDIMENT CONTROL: EROSION AND SEDIMENT CONTROL PRACTICES (E.G., SEDIMENT TRAPS) SHALL NOT BE LOCATED IN VEGETATED AREAS RECEIVING DISCONNECTED RUNOFF

– SITE DISTURBANCE: CONSTRUCTION VEHICLES AND EQUIPMENT SHOULD AVOID AREAS RECEIVING DISCONNECTED RUNOFF TO MINIMIZE DISTURBANCE AND COMPACTION. SHOULD AREAS RECEIVING DISCONNECTED RUNOFF BECOME COMPACTED, SCARIFYING THE SURFACE OR ROTOTILLING THE SOIL TO A DEPTH OF FOUR TO SIX INCHES SHALL BE PERFORMED TO ENSURE PERMEABILITY. ADDITIONALLY, AMENDMENTS MAY BE NEEDED FOR TIGHT, CLAYEY SOILS.

INSPECTION:

A FINAL INSPECTION SHALL BE CONDUCTED BEFORE USE AND OCCUPANCY APPROVAL TO ENSURE THAT SIZING FOR TREATMENT AREAS HAVE BEEN MET AND PERMANENT STABILIZATION HAS BEEN ESTABLISHED.

MAINTENANCE CRITERIA:

MAINTENANCE OF AREAS RECEIVING DISCONNECTED RUNOFF IS GENERALLY NO DIFFERENT THAN THAT REQUIRED FOR OTHER LAWN OR LANDSCAPED AREAS. THE AREAS RECEIVING RUNOFF SHOULD BE PROTECTED FROM FUTURE COMPACTION (E.G., BY PLANTING TREES OR SHRUBS ALONG THE PERIMETER). IN COMMERCIAL AREAS, FOOT TRAFFIC SHOULD BE DISCOURAGED AS WELL.

HOWARD COUNTY – OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED DISCONNECTION OF ROOFTOP RUNOFF (N-1), DISCONNECTION OF NON-ROOFTOP RUNOFF (N-2)

A. MAINTENANCE OF AREAS RECEIVING DISCONNECTED RUNOFF IS GENERALLY NO DIFFERENT THAN THAT REQUIRED FOR OTHER LAWN OR LANDSCAPED AREAS. THE OWNER SHALL ENSURE THE AREAS RECEIVING RUNOFF ARE PROTECTED FROM FUTURE COMPACTION OR DEVELOPMENT OF IMPERVIOUS AREA. IN COMMERCIAL AREAS, FOOT TRAFFIC SHOULD BE DISCOURAGED AS WELL.

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

NO.	REVISION	DATE

FINAL ROAD CONSTRUCTION PLAN

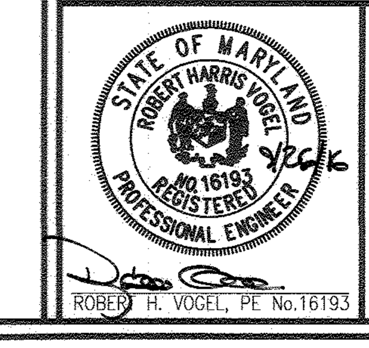
STORMWATER MANAGEMENT NOTES AND DETAILS

MAPLE LAWN SOUTH PHASE 1 - SECTION 1

LOTS 1-64, NON-BUILDABLE BULK PARCEL 'A', NON-BUILDABLE BULK PARCEL 'B', AND OPEN SPACE LOTS 65-69

TAX MAP 46 – GRID 2 – PARCEL 113 — ZONED: R-ED-MXD-3
5TH ELECTION DISTRICT — HOWARD COUNTY, MARYLAND
DPZ REF: ECP-14-093, WP-15-136, PB#415, SP-15-014

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

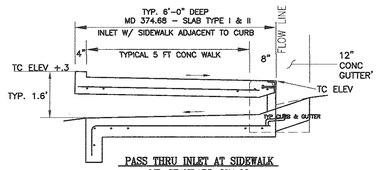


ROBERT H. VOGEL, PE No.16193

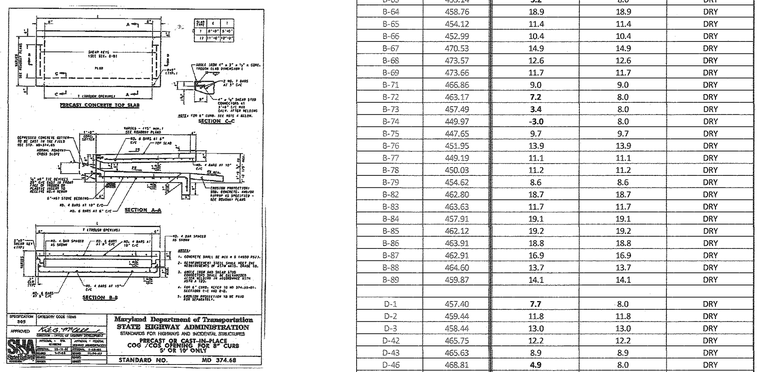
DESIGN BY: RVE
DRAWN BY: RVE
CHECKED BY: RHV
DATE: SEPTEMBER 2016
SCALE: AS SHOWN
W.O. NO.: 11-34

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: 09-27-2018

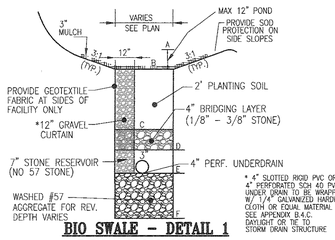
F-16-021



PASS THRU INLET AT SIDEWALK
MD STANDARD 374.68
(NOT TO SCALE)



TYPICAL CURB OPENING INLETS

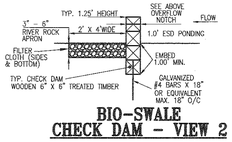


* 4" SLOTTED RIGID PVC OR HDPE OR 4" PERFORATED SCH 40 PVC UNDER DRAIN TO BE WRAPPED W/ 1/4" GALVANIZED HARDWARE CLOTH OR EQUAL MATERIAL SEE APPENDIX B.4.C. DAYLIGHT OR TIE TO STORM DRAIN STRUCTURE

BIO SWALE – DETAIL 1

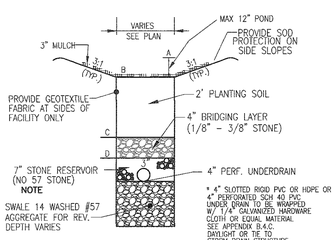
TYPICAL CROSS SECTION
(NOT TO SCALE)

* GRAVEL CURTAIN SHALL BYPASS OFF-SITE OVERLAND RUNOFF TO SYSTEM/UNDERDRAIN. MANAGEMENT OF OFF-SITE WATER IS NOT REQUIRED.



BIO-SWALE CHECK DAM – VIEW 2

TYPICAL CROSS SECTION

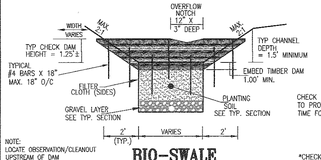


NOTE

* 4" SLOTTED RIGID PVC OR HDPE OR 4" PERFORATED SCH 40 PVC UNDER DRAIN TO BE WRAPPED W/ 1/4" GALVANIZED HARDWARE CLOTH OR EQUAL MATERIAL SEE APPENDIX B.4.C. DAYLIGHT OR TIE TO STORM DRAIN STRUCTURE

BIO SWALE – DETAIL 2

TYPICAL CROSS SECTION
(NOT TO SCALE)



CHECK DAM SHALL BE PROVIDED TO PROVIDE INFILTRATION RESONANCE TIME FOR RUNOFF / WATER QUALITY

NOTE:
LOCATE OBSERVATION/CLEANOUT UPSTREAM OF DAM

BIO-SWALE CHECK DAM – VIEW 1

TYPICAL CROSS SECTION
(NOT TO SCALE)

*CHECK DAM
WOODEN 6" X 6" TREATED TIMBER AWPA STANDARD C6
KEYED 12" INTO CHANNEL BANKS / BOTH SIDES

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 10/25/2016

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 11/3/16

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11/4/16

STORMWATER MANAGEMENT TEST PIT DATA

Maple Lawn South - Phase 1 Test Pit Data

Test Pit No.	Ex. Ground FIELD	Test Pit Prop. Depth	Test Pit Depth Excavated	Test Pit Condition *
MICROSCALE - MBR, DRYWELL AND BIOSWALE TEST PITS				
B-2	458.91	16.2	16.2	DRY
B-3	448.62	9.3	9.3	DRY
B-60	454.14	15.5	15.5	DRY
B-62	451.51	8.8	8.8	DRY
B-63	453.14	5.2	8.0	DRY
B-64	458.76	18.9	18.9	DRY
B-65	454.12	11.4	11.4	DRY
B-66	452.99	10.4	10.4	DRY
B-67	470.53	14.9	14.9	DRY
B-68	473.57	12.6	12.6	DRY
B-69	473.66	11.7	11.7	DRY
B-71	465.86	9.0	9.0	DRY
B-72	463.17	7.2	8.0	DRY
B-73	457.49	3.4	8.0	DRY
B-74	449.97	-3.0	8.0	DRY
B-75	447.65	9.7	9.7	DRY
B-76	451.95	13.9	13.9	DRY
B-77	449.19	11.1	11.1	DRY
B-78	450.08	11.2	11.2	DRY
B-79	454.62	8.6	8.6	DRY
B-82	462.80	18.7	18.7	DRY
B-83	463.63	11.7	11.7	DRY
B-84	457.91	19.1	19.1	DRY
B-85	462.12	19.2	19.2	DRY
B-86	463.91	18.8	18.8	DRY
B-87	462.91	16.9	16.9	DRY
B-88	464.60	13.7	13.7	DRY
B-89	459.87	14.1	14.1	DRY
D-1	457.40	7.7	8.0	DRY
D-2	459.44	11.8	11.8	DRY
D-3	458.44	13.0	13.0	DRY
D-42	465.75	12.2	12.2	DRY
D-43	465.63	8.9	8.9	DRY
D-46	468.81	4.9	8.0	DRY
D-47	469.78	6.9	8.0	DRY
D-48	465.83	4.9	8.0	DRY
D-49	456.77	-1.2	8.0	DRY
D-50	452.40	-3.6	8.0	DRY
D-52	458.98	10.9	10.9	DRY
D-53	458.70	12.7	12.7	DRY
D-54	456.27	12.5	12.5	DRY
D-57	459.23	6.3	8.0	DRY
D-58	463.75	9.8	9.8	DRY
D-59	464.71	10.8	10.8	DRY
D-60	464.72	12.8	12.8	DRY
D-62	462.16	6.3	8.0	DRY
D-63	465.38	7.6	8.0	DRY
D-65	469.89	8.0	8.0	DRY

BIO-SWALE - DESIGN ELEVATION CHART

SWALE FACILITY #	BIOSWALE DETAIL	LOW PT. ESD WSEL A	TOP MULCH B	BOTTOM PLANT SOIL C	BOTTOM PEA GRAVEL D	INV PIPE (1) E	ADDITIONAL STONE *	INV STONE F	WIDTH FT	LENGTH FT
3	2	442.75	441.75	439.50	439.17	438.59	2.70	435.89	2.2	191
SHA 4	SHA (2)									
5	2	454.00	453.00	450.75	450.42	449.84	2.70	447.14	4	130
6	2	452.00	451.00	448.75	448.42	447.84	2.70	445.14	2.5	265
7	2	456.00	455.00	452.75	452.42	451.84	2.70	449.14	3.4	90
8	2	445.00	444.00	441.75	441.42	440.84	2.70	438.14	3	200
9	2	452.75	451.75	449.50	449.17	448.59	2.70	445.89	2	320
10	2	464.00	463.00	460.75	460.42	459.84	2.70	457.14	2.1	157
11	1	465.00	464.00	461.75	461.42	460.84	2.70	458.14	4	100
12	1	469.00	468.00	465.75	465.42	464.84	2.70	462.14	2.5	170
13	1	468.80	467.80	465.55	465.22	464.64	2.70	461.94	2	180

* 10 YEAR STORM ATTENUATION / REV
(1) UNDERDRAIN PIPE AND OVERFLOW DISTRIBUTION PIPE
(2) REFER TO SWALE SHA 4 NOTE BELOW

SWALE SHA 4 SHALL BE CONSTRUCTED IN ACCORDANCE WITH MDSHA CRITERIA. CONTRACTOR SHALL REFERENCE THE SHA ACCESS PERMIT DRAWINGS (SHA 15APH0004XX) FOR APPROPRIATE NOTES, SPECIFICATIONS AND DETAILS

BIO-SWALE PLANTING SCHEDULE

BOTANICAL NAME/COMMON NAME	SIZE	REMARKS
PANICUM VIRGATUM SWITCHGRASS	1 GALLON	CONT
IRIS VERSICOLOR BLUE FLAG	2" POT	1' O.C.
LIRIOPE MUSCARI "MAJESTIC" MAJESTIC LILY TURF	2" POT	1' O.C.

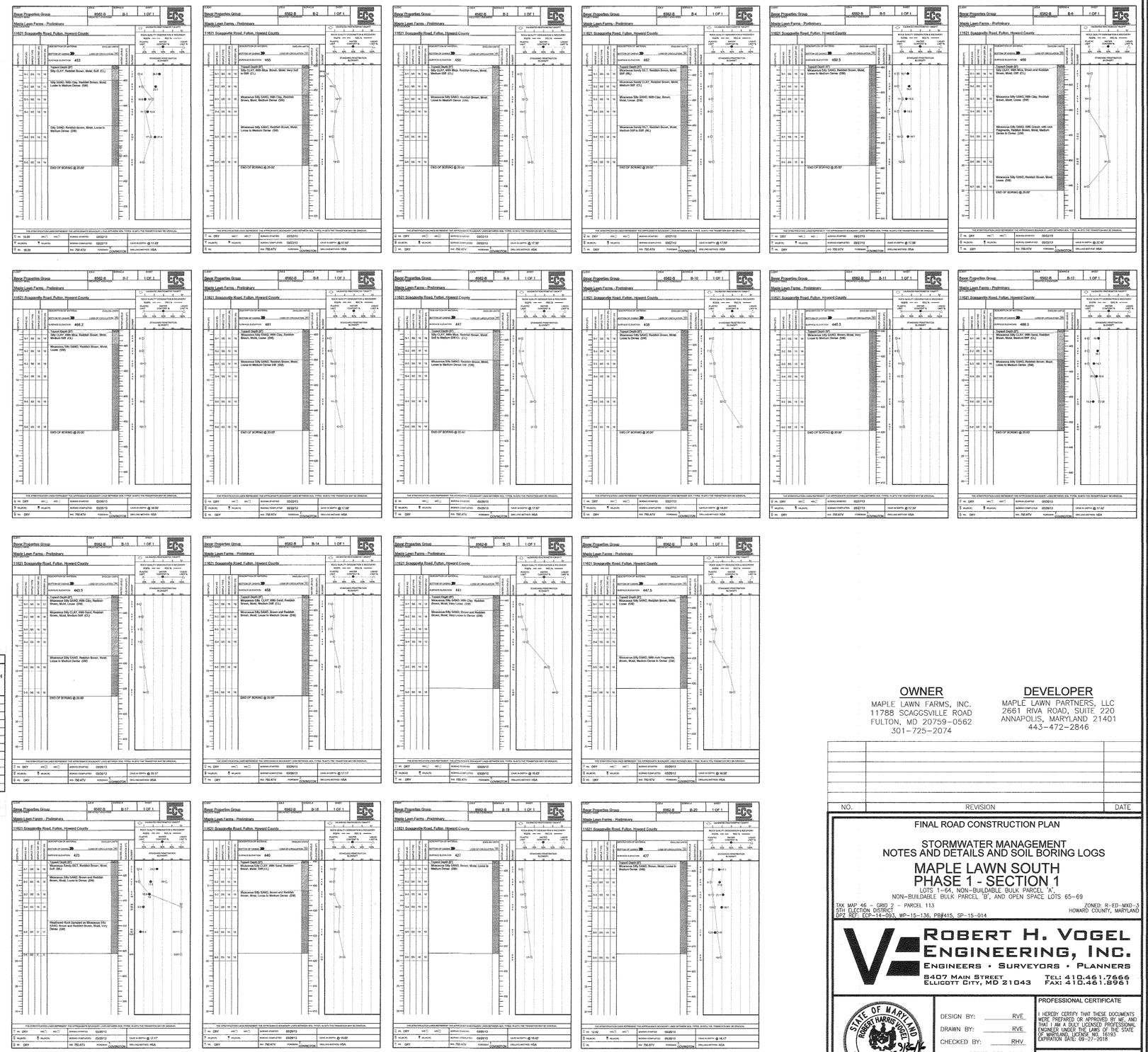
1. BIO SWALE AREAS ARE TO BE PLANTED BASED ON A MINIMUM DENSITY OF 1000 STEMS PER PLANTED ACRE (.0229 STEMS PER SQ. FT).
2. 50 SF MAJESTIC LILY TURF / BLUE FLAG = 1 PLANTING UNIT
3. PLANTINGS SHALL BE AS DETAILED ABOVE OR WITH EQUAL SUBSTITUTION

PLANTING REQUIREMENTS

SWALE FACILITY #	MULCH FOOTPRINT SF	PLANTINGS REQUIRED TOTAL	PLANTINGS OR EQUAL SUBSTITUTION SWITCHGRASS NUMBER	SF	BLUE FLAG - IRIS VERSICOLOR	LILY TURF SF
3	420	10	6	100		100
SHA 4	0	REFER TO SHA ACCESS PERMIT FOR REQUIRED PLANTINGS				
5	520	12	8	100		100
6	663	15	9	200		100
7	306	7	3	100		100
8	600	14	8	200		100
9	640	15	8	200		100
10	330	8	4	100		100
11	400	9	5	100		100
12	425	10	4	100		100
13	360	8	4	100		100

50 SF MAJESTIC LILY TURF OR BLUE FLAG = 1 PLANTING UNIT (LOCATE AT INFLOW & OUTFALL POINTS)

ECS - SOIL BORING LOGS



BIO-SWALE - DESIGN ELEVATION CHART

SWALE FACILITY #	BIOSWALE DETAIL	LOW PT. ESD WSEL A	INV SWALE MULCH B	BOTTOM PLANT SOIL C	BOTTOM SAND D	BOTTOM PEA GRAVEL E	INV PIPE (1) F	INV STONE G	WIDTH FT	LENGTH FT
SHA 4E	SHA (2)	448.70	447.70	445.70	445.37	445.04	444.04	443.54	4	265
SHA 4W	SHA (2)	445.60	444.60	442.60	442.27	441.94	440.94	440.44	4	220

SWALE SHA 4 SHALL BE CONSTRUCTED IN ACCORDANCE WITH MDSHA CRITERIA. CONTRACTOR SHALL REFERENCE THE SHA ACCESS PERMIT DRAWINGS (SHA 15APH0004XX) FOR APPROPRIATE NOTES, SPECIFICATIONS AND DETAILS

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

NO.	REVISION	DATE

FINAL ROAD CONSTRUCTION PLAN

STORMWATER MANAGEMENT
NOTES AND DETAILS AND SOIL BORING LOGS

MAPLE LAWN SOUTH PHASE 1 - SECTION 1

LOTS 1-64, NON-BUILDABLE BULK PARCEL 'A', NON-BUILDABLE BULK PARCEL 'B', AND OPEN SPACE LOTS 65-69

TAX MAP 46 – GRID 2 – PARCEL 113 — ZONED: R-ED-MXD-3
5TH ELECTION DISTRICT — HOWARD COUNTY, MARYLAND
DPZ REF: ECP-14-093, WP-15-136, PB#415, SP-15-014

ROBERT H. VOGEL ENGINEERING, INC.
ENGINEERS • SURVEYORS • PLANNERS
8407 MAIN STREET
ELLICOTT CITY, MD 21043
TEL: 410.461.7666
FAX: 410.461.8951

STATE OF MARYLAND — ROBERT HARRIS VOGEL — No. 16193 — REGISTERED PROFESSIONAL ENGINEER — 9/26/16

ROBERT H. VOGEL, PE No.16193

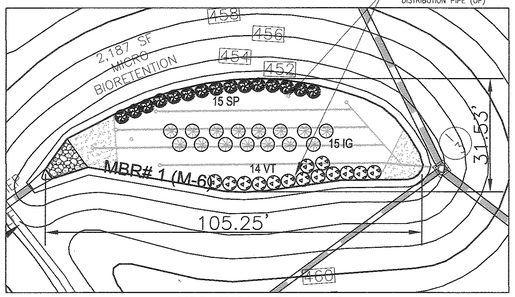
DESIGN BY:	RVE
DRAWN BY:	RVE
CHECKED BY:	RHV
DATE:	SEPTEMBER 2016
SCALE:	AS SHOWN
W.O. NO.:	11-34

PROFESSIONAL CERTIFICATE

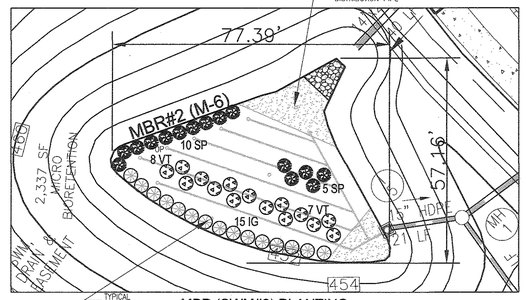
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193
EXPIRATION DATE: 09-27-2018

SHEET 41 OF 48

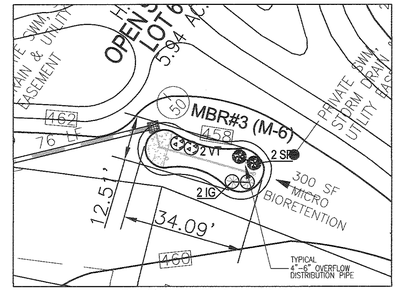
F-16-021



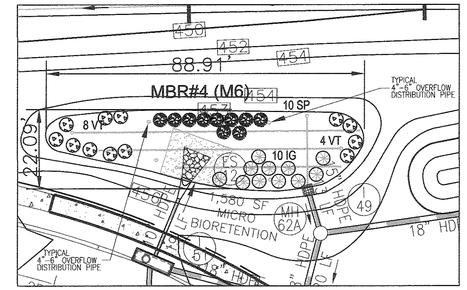
MBR (SWM#1) PLANTING
SCALE: 1"=20'



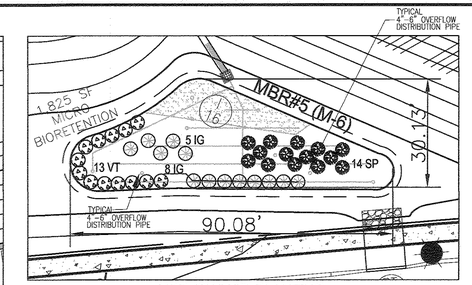
MBR (SWM#2) PLANTING
SCALE: 1"=20'



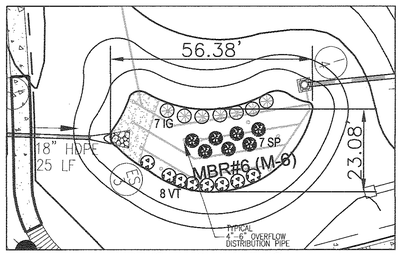
MBR (SWM#3) PLANTING
SCALE: 1"=20'



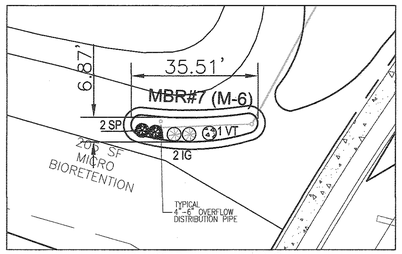
MBR (SWM#4) PLANTING
SCALE: 1"=20'



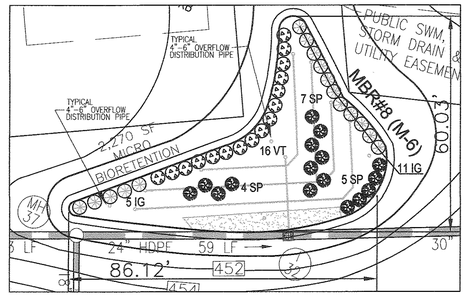
MBR (SWM#5) PLANTING
SCALE: 1"=20'



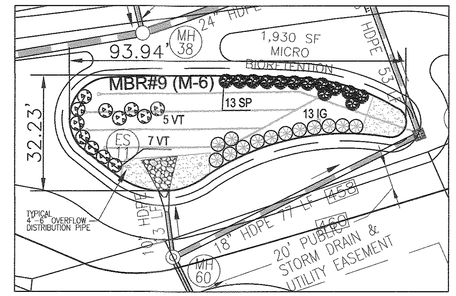
MBR (SWM#6) PLANTING
SCALE: 1"=20'



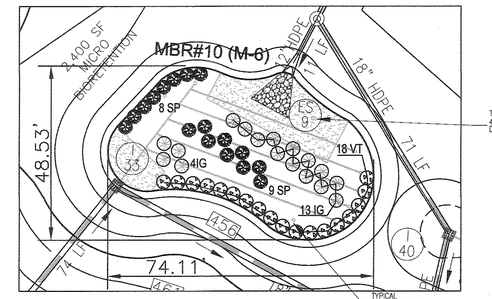
MBR (SWM#7) PLANTING
SCALE: 1"=20'



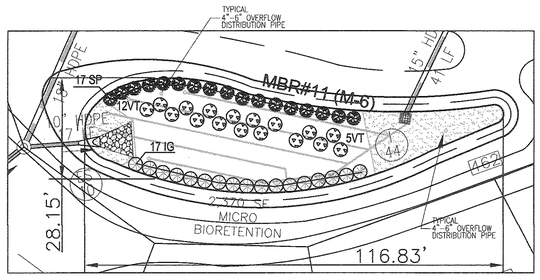
MBR (SWM#8) PLANTING
SCALE: 1"=20'



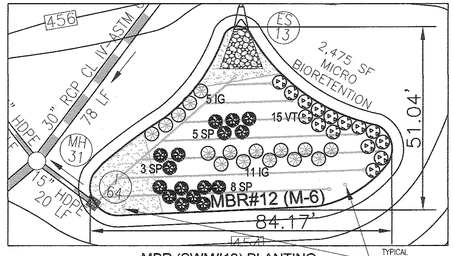
MBR (SWM#9) PLANTING
SCALE: 1"=20'



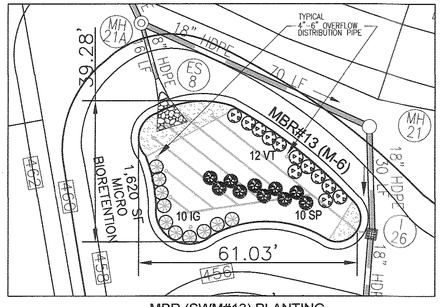
MBR (SWM#10) PLANTING
SCALE: 1"=20'



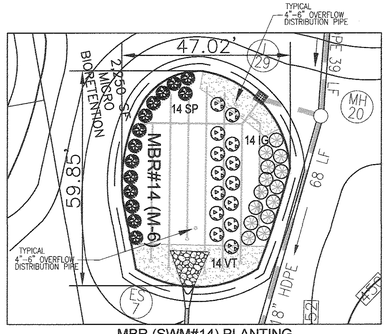
MBR (SWM#11) PLANTING
SCALE: 1"=20'



MBR (SWM#12) PLANTING
SCALE: 1"=20'



MBR (SWM#13) PLANTING
SCALE: 1"=20'



MBR (SWM#14) PLANTING
SCALE: 1"=20'

MICRO-BIORETENTION PLANTING SCHEDULE NOTES

1. ALL PLANT MATERIALS SHALL BE FULL AND HEAVY, BE WELL FORMED AND SYMMETRICAL, CONFORM TO THE MOST CURRENT AAN SPECIFICATIONS AND BE INSTALLED IN ACCORDANCE WITH HOWARD COUNTY PLANTING SPECIFICATIONS.
2. CONTRACTOR SHALL VERIFY LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO DIGGING.
3. 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.
4. CONTRACTOR SHALL VERIFY PLANT QUANTITIES PRIOR TO BIDDING. IF PLAN DIFFERS FROM LANDSCAPE SCHEDULE, THE PLAN SHALL GOVERN.
5. MICROBIORETENTION AREAS ARE TO BE PLANTED BASED ON A MINIMUM DENSITY OF 1000 STEMS PER PLANTED ACRE (.0229 STEMS PER SQUARE FOOT). ABOVE PLANTING RATIOS ARE TO BE APPLIED TO THE AREAS PROVIDED IN THE ESD$_V$ SUMMARY.
6. FILTER AREA SHALL BE 50% COVERED BY PLANTINGS AT FULL GROWTH

MICRO-BIORETENTION FACILITY PLANTING REQUIREMENTS

MBR FACILITY #	MULCH FOOTPRINT SF	PLANTINGS REQUIRED TOTAL	PLANTINGS OR EQUAL SUBSTITUTION SPICEBUSH NUMBER	INKBERRY NUMBER	CRANBERRY NUMBER	LILY TURF SF
1	2187	50	15	15	14	300
2	2337	54	15	15	15	450
3	300	7	2	2	2	50
4	1580	36	10	10	12	200
5	1825	42	14	13	13	100
6	1100	25	7	7	8	150
7	205	5	2	2	1	0
8	2270	52	16	16	16	200
9	1930	44	13	13	12	300
10	2400	55	17	17	18	150
11	2370	54	17	17	17	150
12	2475	57	16	16	15	500
13	1620	37	10	10	12	250
14	2250	52	14	14	14	500
SHA	1500	34	8	8	8	500

MICRO-BIORETENTION PLANTING SCHEDULE

SYMBOL	BOTANICAL NAME/COMMON NAME	SIZE	REMARKS
VT	VIBURNUM DENTATUM ARROWWOOD	5 GALLON	CONT
IG	ILEX GLABRA INKBERRY	3 GALLON	CONT
SP	LINDERA BENZOIN SPICEBUSH	3 GALLON	CONT
	IRIS VERSICOLOR BLUE FLAG	2" POT	1' O.C.

1. MICRO-BIORETENTION AREAS ARE TO BE PLANTED BASED ON A MINIMUM DENSITY OF 1000 STEMS PER PLANTED ACRE (.0229 STEMS PER SQ. FT).
2. (50 SF) MAJESTIC LILY TURF = 1 PLANTING UNIT

Table A.4 Commonly Used Species for Bioretention Areas

Trees	Shrubs	Herbaceous Species
Acer rubrum Red Maple	*Aesculus parviflora* Bottlebrush Buckeye	*Andropogon virginicus* Broomsedge
Betula nigra River Birch	*Cephalanthus occidentalis* Buttonbush	*Eupatorium perpurea* Joe Pye Weed
Juniperus virginiana Eastern Red Cedar	*Hamemelis virginiana* Witch Hazel	*Scirpus pungens* Three Square Bulrush
Chionanthus virginicus Fringe-tree	*Vaccinium corymbosum* Highbush Blueberry	*Iris versicolor* Blue Flag
Nyssa sylvatica Black Gum	*Ilex glabra* Inkberry	*Lobelia cardinalis* Cardinal Flower
Diospyros virginiana Persimmon	*Ilex verticillata* Winterberry	*Panicum virgatum* Switchgrass
Platanus occidentalis Sycamore	*Viburnum dentatum* Arrowwood	*Dichanthelium scoparium* Broom Panic Grass
Quercus palustris Pin Oak	*Lindera benzoin* Spicebush	*Rudbeckia laciniata* Tall Coneflower
Quercus phellos Willow Oak	*Myrica pennsylvanica* Bayberry	*Scirpus cyperinus* Woolgrass
Salix nigra Black willow		*Vernonia noveboracensis* New York Ironweed

Note 1: For more options on plant selection for bioretention, consult Bioretention Manual (ETAB, 1993) or the Design of Stormwater Filtering Systems (Claytor and Schueler, 1997).

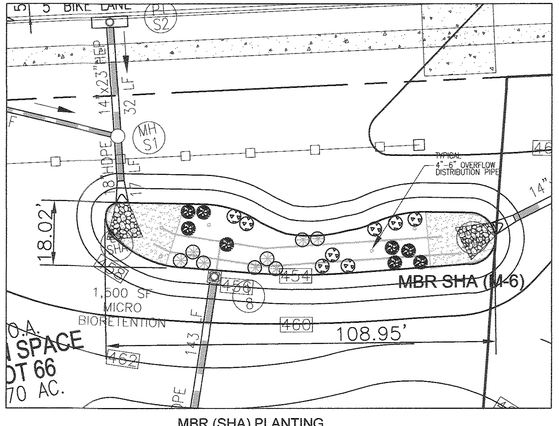
1. TABLE A.4 IS TAKEN FROM THE "2000 MARYLAND STORMWATER DESIGN MANUAL VOLUME II – APPENDIX A.
2. CONTRACTOR SHALL BE FAMILIAR WITH APPENDIX B.4.C. CONSTRUCTION SPECIFICATIONS AND TABLE B.4.1 MATERIAL SPECIFICATIONS. IN ADDITION THE "2000 MARYLAND STORMWATER DESIGN MANUAL – VOLUME II – APPENDIX A OFFERS ADDITIONAL HELPFUL INFORMATION.
3. NO TREES SHALL BE PLANTED WITHIN A MICRO–BIORETENTION FACILITY. USE ONLY SHRUB OR HERBACEOUS SPECIES.
4. ABOVE TABLE A.4. IS FOR INFORMATIONAL PURPOSES ONLY. LANDSCAPE CONTRACTOR SHALL INSTALL PLANTINGS SPECIFIED IN THE PLANTING SCHEDULE HEREON, CHOOSE FROM THE ABOVE TABLE OR USE APPROVED EQUAL SPECIES WHICH ARE TOLERANT TO FLUCTUATING WATER LEVELS. IF SUBSTITUTIONS ARE CHOSEN, APPROVAL FROM THE ENGINEER IS REQUIRED.
5. PLANTINGS SHOWN HEREON ARE THE RESPONSIBILITY OF THE DEVELOPER TO INSTALL DURING THE CONSTRUCTION OF THIS FINAL PLAN.

MICRO-BIORETENTION FACILITY - DESIGN ELEVATION CHART

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 *	INV STONE G	SURFACE AREA SF	APPROX DIM
1	452.00	451.00	450.75	448.75	448.42	447.67	2.70	444.97	2187	SEE PLAN
2	453.00	452.00	451.75	449.75	449.42	448.67	2.70	445.97	2337	SEE PLAN
3	458.00	457.00	456.75	454.75	454.42	453.67	2.70	450.97	300	SEE PLAN
4	454.00	453.00	452.75	450.75	450.42	449.67	2.70	446.97	1580	SEE PLAN
5	449.00	448.00	447.75	445.75	445.42	444.67	2.70	441.97	1825	SEE PLAN
6	455.00	454.00	453.75	451.75	451.42	450.67	2.70	447.97	1100	SEE PLAN
7	460.00	459.00	458.75	456.75	456.42	455.67	2.70	452.97	205	SEE PLAN
8	448.50	447.50	447.25	445.25	444.92	444.17	2.70	441.47	2270	SEE PLAN
9	455.50	454.50	454.25	452.25	451.92	451.17	2.70	448.47	1930	SEE PLAN
10	454.00	453.00	452.75	450.75	450.42	449.67	2.70	446.97	2400	SEE PLAN
11	459.00	458.00	457.75	455.75	455.42	454.67	2.70	451.97	2370	SEE PLAN
12	452.00	451.00	450.75	448.75	448.42	447.67	2.70	444.97	2475	SEE PLAN
13	456.00	455.00	454.75	452.75	452.42	451.67	2.70	448.97	1620	SEE PLAN
14	450.50	449.50	449.25	447.25	446.92	446.17	2.70	443.47	2250	SEE PLAN
SHA	455.00	454.00	453.75	451.75	451.42	450.67	0.00	450.67	1500	SEE PLAN

* 10 YEAR STORM ATTENUATION / REV

(1) UNDERDRAIN PIPE AND OVERFLOW DISTRIBUTION PIPE



MBR (SHA) PLANTING
SCALE: 1"=20'

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 10/25/2016

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 11/3/16

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11-4-16

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

NO.	REVISION	DATE

FINAL ROAD CONSTRUCTION PLAN

MICRO-BIORETENTION FACILITIES
PLANTING NOTES AND DETAILS

MAPLE LAWN SOUTH PHASE 1 - SECTION 1

LOTS 1–64, NON–BUILDABLE BULK PARCEL 'A',
NON–BUILDABLE BULK PARCEL 'B', AND OPEN SPACE LOTS 65–69

TAX MAP 46 – GRID 2 – PARCEL 113
5TH ELECTION DISTRICT
DPZ REF: ECP–14–093, WP–15–136, PB#415, SP–15–014

ZONED: R–ED–MXD–3
HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL ENGINEERING, INC.
ENGINEERS • SURVEYORS • PLANNERS
8407 MAIN STREET
ELLICOTT CITY, MD 21043
TEL: 410.461.7666
FAX: 410.461.5961

STATE OF MARYLAND — ROBERT HARRIS VOGEL — No. 16193 — REGISTERED PROFESSIONAL ENGINEER — 9/26/16

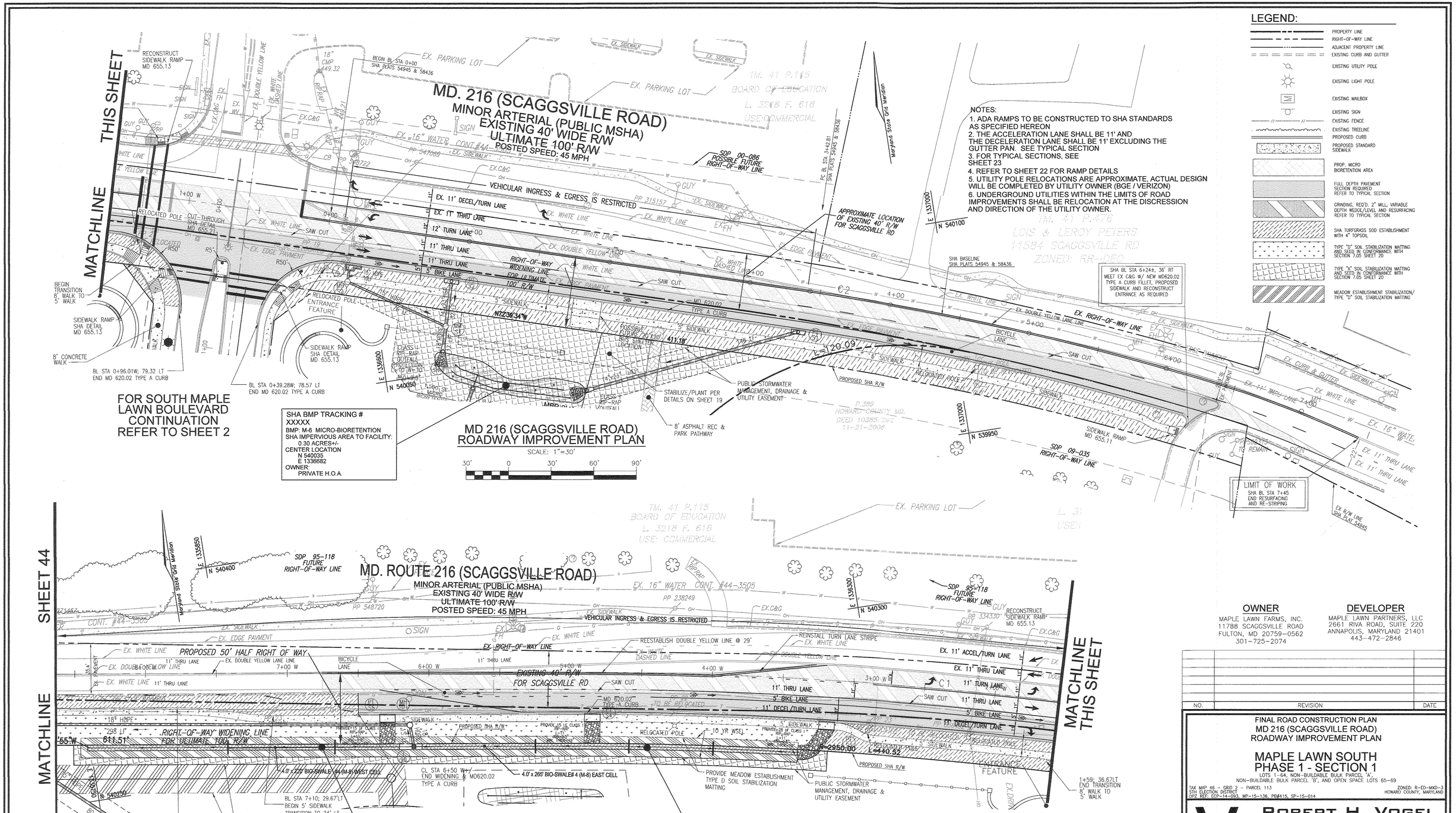
ROBERT H. VOGEL, PE No.16193

DESIGN BY: RVE
DRAWN BY: RVE
CHECKED BY: RHV
DATE: SEPTEMBER 2016
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: 09–27–2016

F-16-021



OWNER	DEVELOPER
MAPLE LAWN FARMS, INC.	MAPLE LAWN PARTNERS, LLC
11788 SCAGGSVILLE ROAD	2661 RIVA ROAD, SUITE 220
FULTON, MD 20759-0562	ANNAPOLIS, MARYLAND 21401
301-725-2074	443-472-2846

NO.	REVISION	DATE

FINAL ROAD CONSTRUCTION PLAN
MD 216 (SCAGGSVILLE ROAD)
ROADWAY IMPROVEMENT PLAN

MAPLE LAWN SOUTH PHASE 1 - SECTION 1

LOTS 1-64, NON-BUILDABLE BULK PARCEL 'A', NON-BUILDABLE BULK PARCEL 'B', AND OPEN SPACE LOTS 65-69

TAX MAP 46 - GRID 2 - PARCEL 113
5TH ELECTION DISTRICT
ZONED: R-ED-MXD-3
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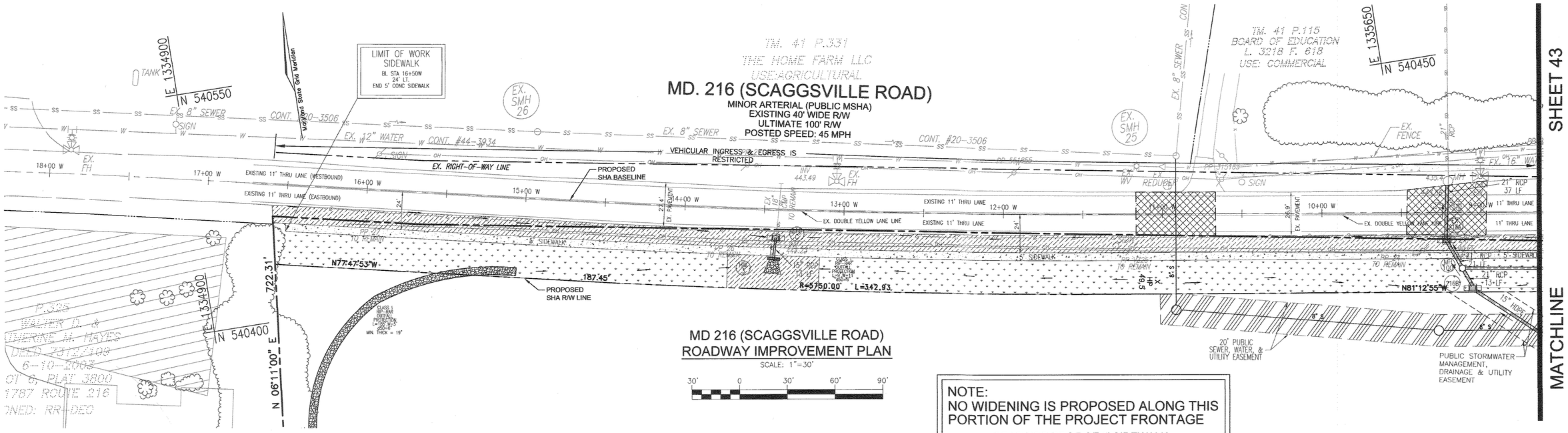
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS	DATE 10/25/2016

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 11/3/16
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 11-4-16

F-16-021



MD 216 (SCAGGSVILLE ROAD) ROADWAY IMPROVEMENT PLAN

SCALE: 1"=30'

30' 0 30' 60' 90'

NOTE:
NO WIDENING IS PROPOSED ALONG THIS PORTION OF THE PROJECT FRONTAGE

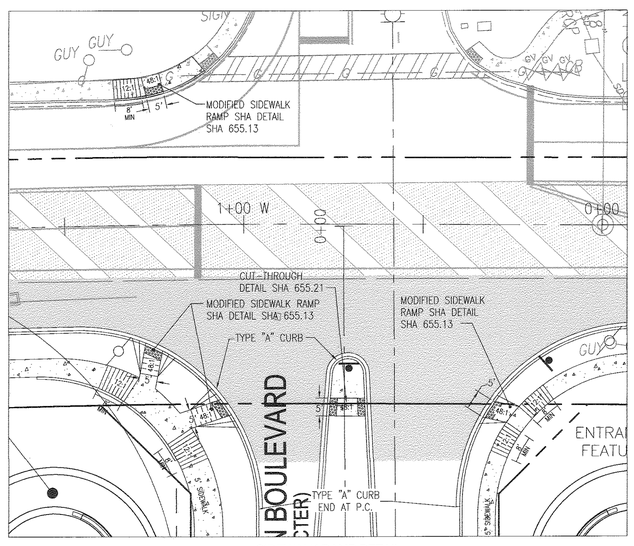
ROADSIDE EDGE OF 5' SIDEWALK OFFSET 24 FEET LEFT OF BASELINE

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 FENCE
- EXISTING TREELINE
- PROPOSED CURB
- PROPOSED STANDARD SIDEWALK
- SHA TURFGRASS SOD ESTABLISHMENT WITH 4" TOPSOIL
- TYPE "D" SOIL STABILIZATION MATTING AND SEED IN CONFORMANCE WITH SECTION 7.05 SHEET 20
- TYPE "A" SOIL STABILIZATION MATTING AND SEED IN CONFORMANCE WITH SECTION 7.05 SHEET 20
- MEADOW ESTABLISHMENT STABILIZATION/ TYPE "D" SOIL STABILIZATION MATTING

NOTES:

1. ADA RAMPS TO BE CONSTRUCTED TO SHA STANDARDS AS SPECIFIED HEREON
2. THE DECELERATION LANE SHALL BE 11' EXCLUDING THE GUTTER PAN. SEE TYPICAL SECTION



SIDEWALK RAMP DETAIL

SCALE: 1"=20'

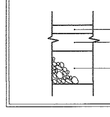
CURVE TABLE							
ROAD	CURVE	LENGTH	RADIUS*	DELTA ANGLE	TANGENT	CHORD DIRECTION	CHORD LENGTH
SCAGGSVILLE ROAD	C3	339.95'	5700.00	3°25'02"	170.03	S79°30'24"E	339.90

TRENCH BACKFILL

TRENCH BACKFILL FOR STORM DRAINS AND UTILITIES SHALL CONFORM TO STANDARD DETAIL MD-578.01 OR AS DETAILED ON THE PLANS. IF STEEL PLATES ARE USED, THEY MUST BE 1" THICK MINIMUM, PROPERLY SECURED WITH ANCHORS AND TEMPORARY PAVEMENT WEDGING, AND EXTEND 1 FOOT MINIMUM BEYOND ALL EDGES OF THE TRENCH. THE TRENCH SHALL BE BACKFILLED WITH FLOWABLE BACKFILL FOR UTILITY CUTS OR OTHER APPROVED MATERIAL UP TO THE BOTTOM OF THE FULL DEPTH PAVEMENT PATCHING SECTION. THE FULL DEPTH PATCHING PAVEMENT SECTION, CONSISTING OF THE SPECIFIED GRADED AGGREGATE AND HOT MIX ASPHALT, SHALL BE PLACED AND CONSTRUCTED TO BE FLUSH WITH EXISTING ROAD SURFACE GRADE. FOLLOWING THIS, THE PAVEMENT SHALL BE RESURFACED AS SHOWN ON THE PLANS. IF RESURFACING OF THE EXISTING ROADWAY IS NOT SHOWN ON THE PLANS, THE EXISTING PAVEMENT SHALL BE MILLED AND OVERLAID FOR 25 FEET IN EACH DIRECTION (MEASURED FROM THE CENTERLINE OF THE TRENCH) FOR THE FULL WIDTH OF THE ROADWAY. MILL OR GRIND 2" AND REPLACE WITH 2" OF THE ABOVE-NOTED HOT MIX ASPHALT SUPERPAVE MIX.

MD 216 (SHA) PAVING SECTION

N.T.S



- 2" HOT MIX ASPHALT SUPERPAVE 12.5mm SURFACE
- 6" HOT MIX ASPHALT SUPERPAVE 19.0mm FOR BASE (2-3" LIFTS)
- 12" BASE COURSE USING GRADED AGGREGATE (2-6" LIFTS)
- (PG 64-22, LEVEL 2 MIX TO BE USED FOR THE HOT MIX ASPHALT)

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 10/25/2016

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 11/3/16

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11-4-16

OWNER
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301-725-2074

DEVELOPER
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ANNAPOLIS, MARYLAND 21401
443-472-2846

NO.	REVISION	DATE

FINAL ROAD CONSTRUCTION PLAN
MD 216 (SCAGGSVILLE ROAD)
ROADWAY IMPROVEMENT PLAN

MAPLE LAWN SOUTH PHASE 1 - SECTION 1

LOTS 1-64, NON-BUILDABLE BULK PARCEL 'A', NON-BUILDABLE BULK PARCEL 'B', AND OPEN SPACE LOTS 65-69

TAX MAP 46 - GRID 2 - PARCEL 113
5TH ELECTION DISTRICT
DPZ REF: ECP-14-093, WP-15-136, PB#415, SP-15-014

ZONED: R-ED-MXD-3
HOWARD COUNTY, MARYLAND

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STATE OF MARYLAND — ROBERT HARRIS VOGEL — NO. 16193 — REGISTERED PROFESSIONAL ENGINEER

ROBERT H. VOGEL, PE No.16193

DESIGN BY: RVE
DRAWN BY: RVE
CHECKED BY: RHV
DATE: SEPTEMBER 2016
SCALE: AS SHOWN
W.O. NO.: 11-34

PROFESSIONAL CERTIFICATE

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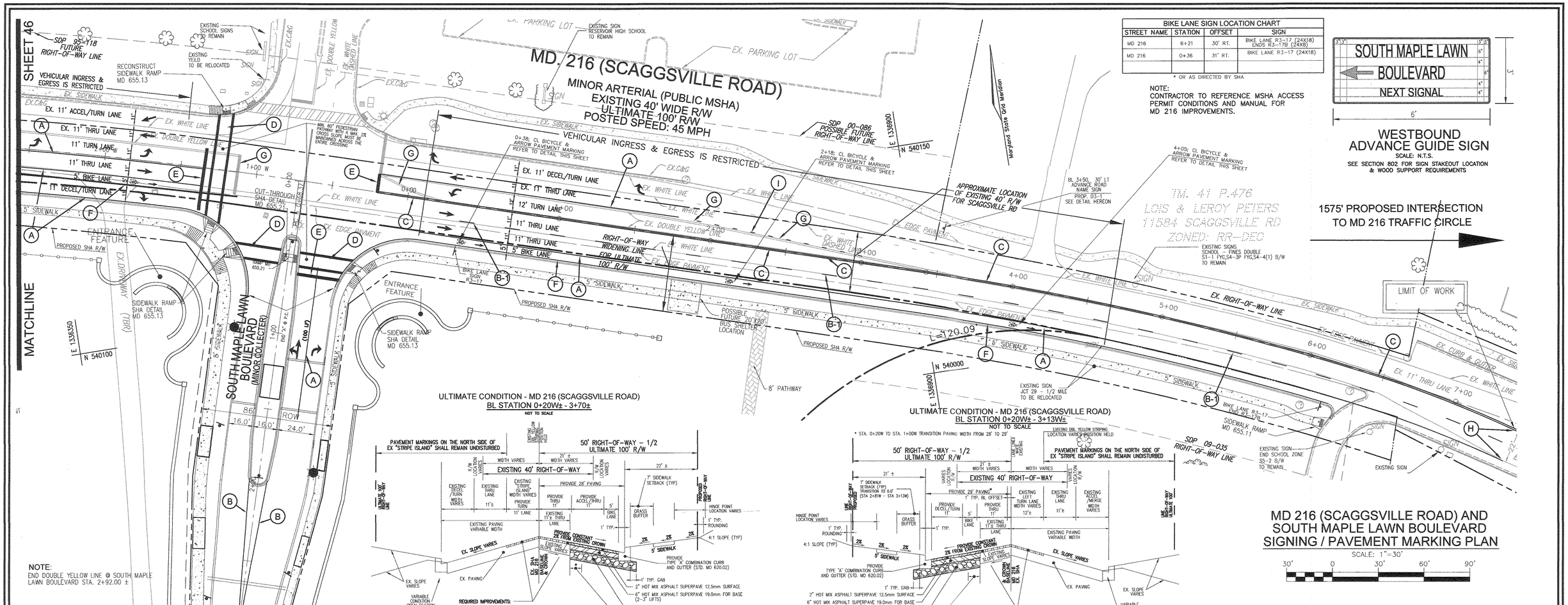
SHEET 44 OF 48

F-16-021



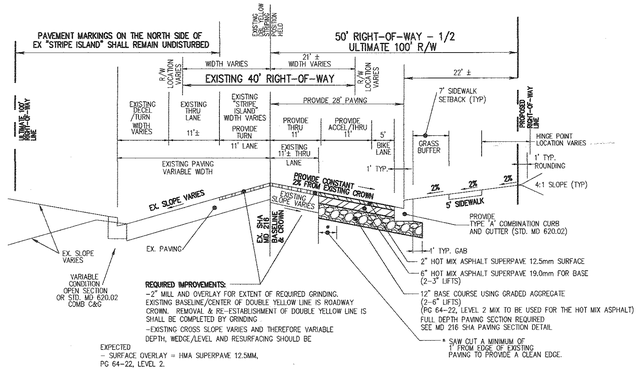
BIKE LANE SIGN LOCATION CHART			
STREET NAME	STATION	OFFSET	SIGN
MD 216	6+21	30' RT.	BIKE LANE R3-17 (24X18) ENDS R3-17B (24X8)
MD 216	0+36	31' RT.	BIKE LANE R3-17 (24X18)

* OR AS DIRECTED BY SHA

NOTE:
CONTRACTOR TO REFERENCE MSHA ACCESS PERMIT CONDITIONS AND MANUAL FOR MD 216 IMPROVEMENTS.

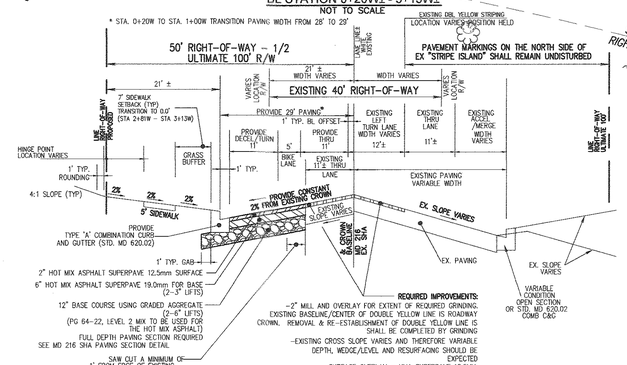
WESTBOUND ADVANCE GUIDE SIGN
SCALE: N.T.S.
SEE SECTION 802 FOR SIGN STAKEOUT LOCATION & WOOD SUPPORT REQUIREMENTS

ULTIMATE CONDITION - MD 216 (SCAGGSVILLE ROAD)
BL STATION 0+20W± - 3+70±
NOT TO SCALE



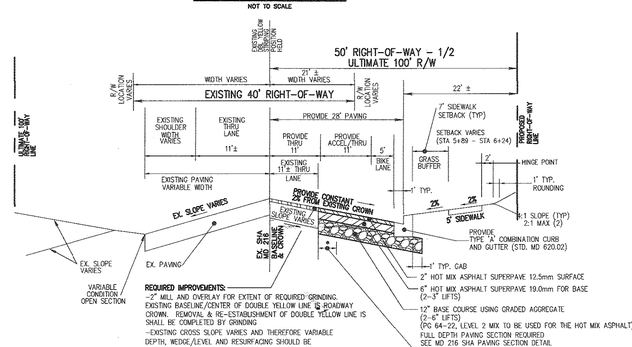
NOTE: CONTRACTOR TO REFERENCE MSHA ACCESS PERMIT CONDITIONS AND MANUAL FOR MD 216 IMPROVEMENTS.

ULTIMATE CONDITION - MD 216 (SCAGGSVILLE ROAD)
BL STATION 0+20W± - 3+13W±
NOT TO SCALE



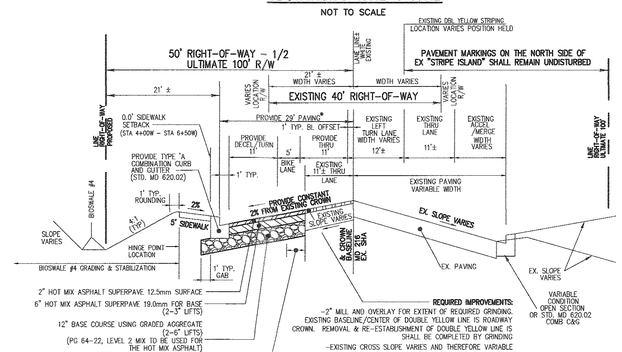
NOTE: CONTRACTOR TO REFERENCE MSHA ACCESS PERMIT CONDITIONS AND MANUAL FOR MD 216 IMPROVEMENTS.

ULTIMATE CONDITION - MD 216 (SCAGGSVILLE ROAD)
BL STATION 3+70± - 6+45±
NOT TO SCALE



NOTE: 1. CONTRACTOR TO REFERENCE MSHA ACCESS PERMIT CONDITIONS AND MANUAL FOR MD 216 IMPROVEMENTS.
2. STEEPER SLOPE REQUIRED ACROSS PARCEL 389 – HOWARD COUNTY PROPERTY (WATER TOWER) TO TIE BACK TO EXISTING GROUND IN SHORTER DISTANCE

ULTIMATE CONDITION - MD 216 (SCAGGSVILLE ROAD)
BL STATION 3+13W± - 6+50W±
NOT TO SCALE



NOTE: CONTRACTOR TO REFERENCE MSHA ACCESS PERMIT CONDITIONS AND MANUAL FOR MD 216 IMPROVEMENTS.

MD 216 (SCAGGSVILLE ROAD) AND SOUTH MAPLE LAWN BOULEVARD SIGNING / PAVEMENT MARKING PLAN

SCALE: 1"=30'

30' 0 30' 60' 90'

PAVEMENT MARKING DETAILS

A. INSTALL 5 IN. WIDE WHITE SOLID PAVEMENT MARKING FOR LANE LINE.
B. INSTALL 5 IN. WIDE YELLOW SOLID PAVEMENT MARKING FOR LANE LINE.
B-1. INSTALL 5 IN. WIDE BROKEN PAVEMENT MARKING (10FT. SEGMENT – 30 FT. GAP) FOR LANE LINE.
C. INSTALL 5 IN. WIDE DOUBLE YELLOW PAVEMENT MARKING – FOR CENTER LINE.
D. INSTALL CROSSWALK PAVEMENT MARKINGS 12" WIDE.
E. INSTALL 24 IN. WIDE WHITE SOLID PAVEMENT MARKING FOR STOP LINE.
F. INSTALL 5 IN.* WIDE WHITE SOLID PAVEMENT MARKING FOR BIKE LANE DELINEATION.
G. REMOVE EXISTING PAVEMENT MARKINGS BY GRINDING.
H. TIE TO EXISTING MARKINGS.
I. INSTALL 5 IN. WIDE WHITE BROKEN PAVEMENT MARKING (TYPE 1 – 3-9-3)
* WIDER LINES MAY BE INSTALLED AT THE DISCRETION OF THE ASSISTANT DISTRICT ENGINEER FOR TRAFFIC

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS	DATE 10/25/2016
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 11/3/16
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 11-4-16

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

NO.	REVISION	DATE

FINAL ROAD CONSTRUCTION PLAN
MD 216 (SCAGGSVILLE ROAD) AND SOUTH MAPLE LAWN BOULEVARD SIGNING / PAVEMENT MARKING PLAN

MAPLE LAWN SOUTH PHASE 1 - SECTION 1

LOTS 1-64, NON-BUILDABLE BULK PARCEL 'A', NON-BUILDABLE BULK PARCEL 'B', AND OPEN SPACE LOTS 65-69

TAX MAP 46 – GRID 2 – PARCEL 113
5TH ELECTION DISTRICT
ZONED: R-ED-MXD-3
HOWARD COUNTY, MARYLAND
DPZ REF: ECP-14-095, WP-15-136, PB#415, SP-15-014

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STATE OF MARYLAND ROBERT HARRIS VOGEL No. 16193 REGISTERED PROFESSIONAL ENGINEER
ROBERT H. VOGEL, PE No.16193

DESIGN BY:	RVE
DRAWN BY:	RVE
CHECKED BY:	RHV
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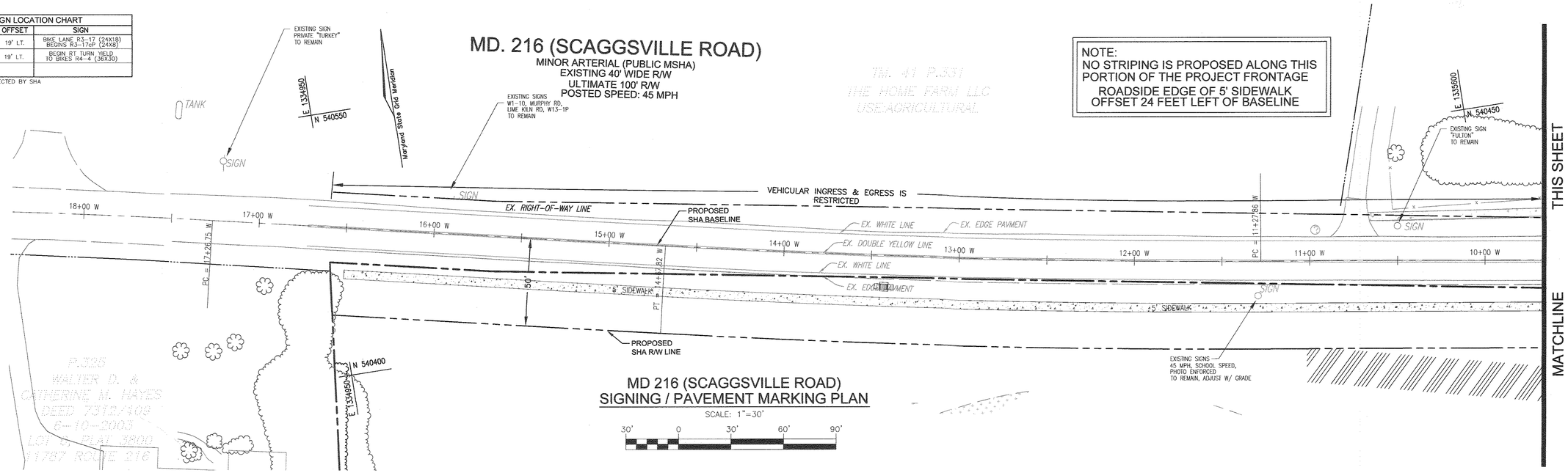
EXPIRATION DATE: 09-27-2018

SHEET 45 OF 48

F-16-021

BIKE LANE SIGN LOCATION CHART			
STREET NAME	STATION	OFFSET	SIGN
MD 216	7+33W	19' LT.	BIKE LANE R3-17 (24X18) BEGINS R3-17cP (24X8)
MD 216	6+60W	19' LT.	BEGIN RT TURN YIELD TO BIKES R4-4 (36X30)

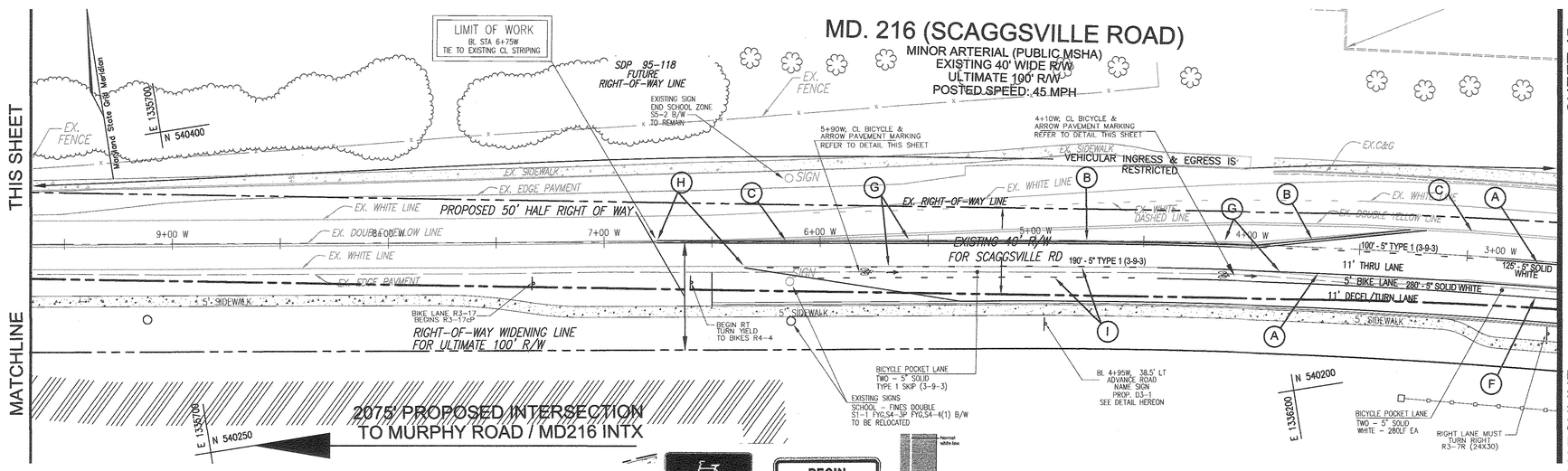
* OR AS DIRECTED BY SHA



MD 216 (SCAGGSVILLE ROAD) SIGNING / PAVEMENT MARKING PLAN

SCALE: 1"=30'

30' 0 30' 60' 90'



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A. INSTALL 5 IN. WIDE WHITE SOLID PAVEMENT MARKING FOR LANE LINE.
C. INSTALL 5 IN. WIDE DOUBLE YELLOW PAVEMENT MARKING
C. RE-INSTALL 5 IN. WIDE DOUBLE YELLOW PAVEMENT MARKING - FOR CENTER LINE.
D. INSTALL CROSSWALK PAVEMENT MARKINGS 12" WIDE
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SYMBOL AND ARROW PAVEMENT MARKING
N.T.S

NOTE:
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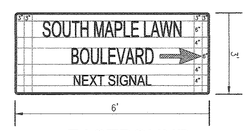

EASTBOUND ADVANCE GUIDE SIGN
SCALE: N.T.S.
SEE SECTION 802 FOR SIGN STAKEOUT LOCATION & WOOD SUPPORT REQUIREMENTS
SEE NOTES SHEET 25

OWNER	DEVELOPER
MAPLE LAWN FARMS, INC.	MAPLE LAWN PARTNERS, LLC
11788 SCAGGSVILLE ROAD	2661 RIVA ROAD, SUITE 220
FULTON, MD 20759-0562	ANNAPOLIS, MARYLAND 21401
301-725-2074	443-472-2846

NO.	REVISION	DATE

FINAL ROAD CONSTRUCTION PLAN
MD 216 (SCAGGSVILLE ROAD) AND
SOUTH MAPLE LAWN BOULEVARD
SIGNING / PAVEMENT MARKING PLAN

MAPLE LAWN SOUTH PHASE 1 - SECTION 1

LOTS 1-64, NON-BUILDABLE BULK PARCEL 'A',
NON-BUILDABLE BULK PARCEL 'B', AND OPEN SPACE LOTS 65-69

TAX MAP 46 - GRID 2 - PARCEL 113
5TH ELECTION DISTRICT
DPZ REF: ECP-14-093, WP-15-136, PB#415, SP-15-014

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5/24/16
ROBERT H. VOGEL, PE No.16193

DESIGN BY:	RVE
DRAWN BY:	RVE
CHECKED BY:	RHV
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EXPIRATION DATE: 09-27-2018

SHEET 46 OF 48

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 10/25/2016

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F-16-021

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LOTS 1-64, NON-BUILDABLE BULK PARCEL 'A', NON-BUILDABLE BULK PARCEL 'B', AND OPEN SPACE LOTS 65-69

TAX MAP 46 - GRID 2 - PARCEL 113
5TH ELECTION DISTRICT
DPZ REF: ECP-14-093, WP-15-136, PB-415, SP-15-014

ZONED: R-ED-MXD-3
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

STATE OF MARYLAND
ROBERT HARRIS VOGEL
No. 16193
REGISTERED PROFESSIONAL ENGINEER
ROBERT H. VOGEL, PE No.16193

DESIGN BY:	RVE
DRAWN BY:	RVE
CHECKED BY:	RHV
DATE:	AUGUST 2016
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: 09-27-2018

LANDSCAPE ARCHITECT
1168
JAMES LOUIS BASH
STATE OF MARYLAND

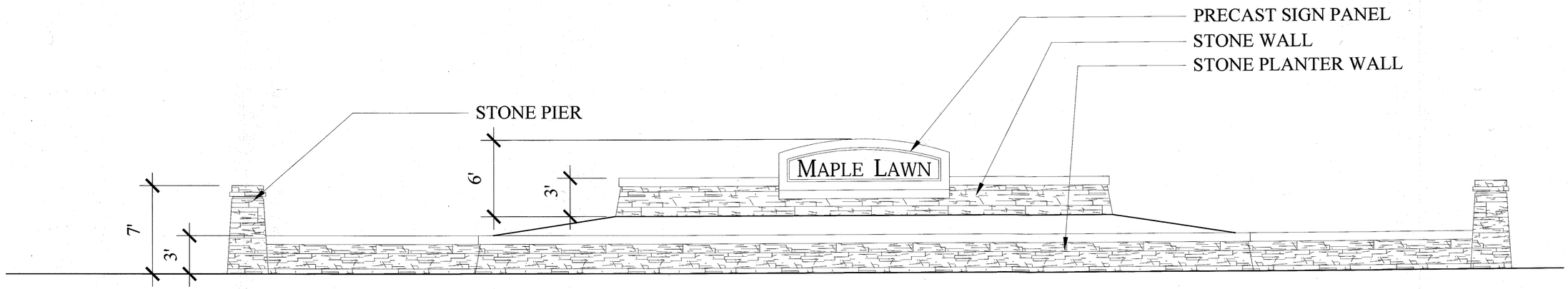
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS	DATE 10/25/2016

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 11/9/16
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 11-9-16

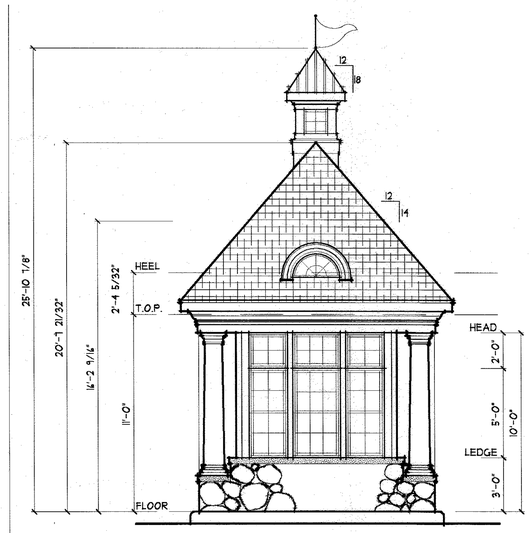
THE LAND PLANNING & DESIGN GROUP INC.
5300 WESTVIEW DRIVE
SUITE 103
FREDERICK, MD. 21701
(301)-695-6172
FAX (301)-695-6219
LAND PLANNING • SITE PLANNING • LANDSCAPE ARCHITECTURE
LPDG



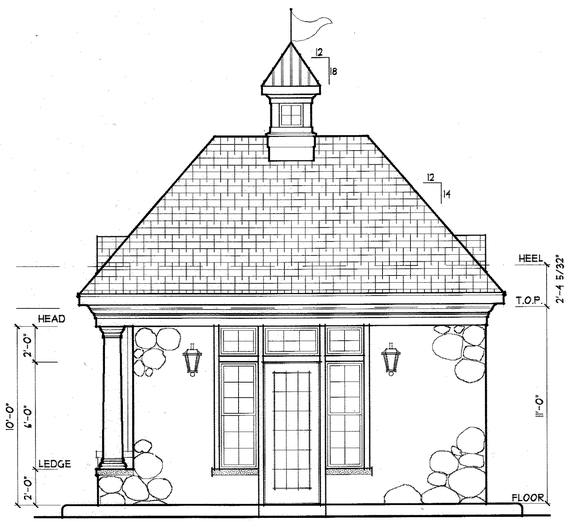
ENTRANCE ELEVATION

SCALE: 1/4" = 1'-0"

NOTE: FINAL DESIGN AND APPEARANCE MAY VARY DEPENDING ON FINAL SITE PLAN AND ENGINEERING CONSTRAINTS



FRONT ELEVATION

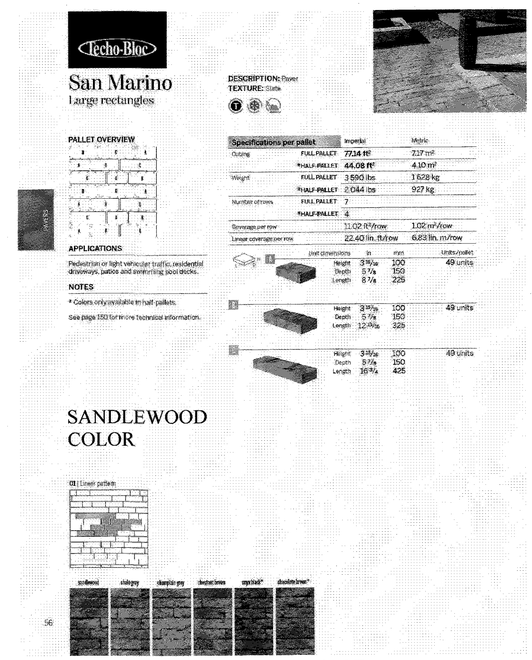


RIGHT SIDE ELEVATION

GATEHOUSE DETAIL

SCALE: 1/4" = 1'-0"

NOTE: FINAL DESIGN AND APPEARANCE MAY VARY DEPENDING ON FINAL SITE PLAN AND ENGINEERING CONSTRAINTS



PAVER DETAIL

SCALE: NTS

NOTE: FINAL DESIGN AND APPEARANCE MAY VARY OR APPROVED EQUAL FOR PAVER DETAIL

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

NO.	REVISION	DATE

FINAL ROAD CONSTRUCTION PLAN

MAPLE LAWN SOUTH PHASE 1 - SECTION 1

LOTS 1-64, NON-BUILDABLE BULK PARCEL 'A'
NON-BUILDABLE BULK PARCEL 'B', AND OPEN SPACE LOTS 65-69

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No. 16193
REGISTERED PROFESSIONAL ENGINEER

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DESIGN BY: RVE
DRAWN BY: RVE
CHECKED BY: RHV
DATE: AUGUST 2016
SCALE: AS SHOWN
W.O. NO.: 11-34

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CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 11/1/16
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 11-4-16

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