# FINAL ROAD CONSTRUCTION PLAN
# HIGH RIDGE MEADOWS - SECTION ONE

## LOTS 1-54, OPEN SPACE LOTS 55 - 62
## AND NON-BUILDABLE BULK PARCEL "A"

(SFD RESIDENTIAL)
OLD SCAGGSVILLE ROAD
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. – AS SP13-007 RECEIVED APPROVAL PRIOR TO 10/6/2013, THE SUBJECT PROPERTY IS ZONED R-SC IN ACCORDANCE WITH 02/02/04 COMPREHENSIVE ZONING PLAN AND THE COMP. LITE ZONING REGULATIONS EFFECTIVE ON 7/28/06.
   – THE PROPERTY IS SUBJECT TO THE AMENDED 5TH EDITION OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS EFFECTIVE 10/7/07
6. PROPERTY OUTLINE SHOWN HEREON IS BASED ON A BOUNDARY SURVEY PREPARED BY ROBERT H. VOGEL ENGINEERING, INC., DATED FEBRUARY 2012.
7. TOPOGRAPHY SHOWN HEREON IS OBTAINED FROM AERIAL PHOTOGRAMETRY COMPILED BY POTOMAC AERIAL SURVEYS INC. JANUARY 12, 2012.
8. 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. 47H2 AND 47GC WERE USED FOR THIS PROJECT.
9. THIS PLAN IS SUBJECT TO THE AMENDED FIFTH EDITION OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS. 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.
10. TO THE BEST OF THE OWNERS KNOWLEDGE, THERE ARE NO BURIAL GROUNDS OR CEMETERIES LOCATED ON THIS PROPERTY.
11. THE ARE NO EXISTING HOMES ON THESE PARCELS.
12. OLD SCAGGSVILLE ROAD IS CLASSIFIED AS A MINOR COLLECTOR.
13. THIS PROPERTY IS LOCATED WITHIN THE METROPOLITAN DISTRICT. WATER FOR THIS PROJECT IS TO BE PUBLIC EXTENSIONS OF CONTRACT NO. 1-W. SEWER FOR THIS PROJECT IS TO BE PUBLIC EXTENSIONS OF CONTRACT NO. 30-S AND CONTRACT NO. 30-3253. SECTION ONE EXTENSIONS ARE DETAILED ON CONTRACT 24-4778-D
14. 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.
15. ANY DAMAGE INCURRED TO THE EXISTING UTILITIES, DUE TO CONTRACTOR'S OPERATIONS, SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTOR'S EXPENSE.
16. ANY DAMAGE TO PUBLIC RIGHT-OF-WAY, PAVING, OR EXISTING UTILITIES WILL BE CORRECTED AT THE CONTRACTOR'S EXPENSE.
17. THE PROPOSED UNITS SHALL HAVE AN AUTOMATIC FIRE PROTECTION SPRINKLER SYSTEM.
18. SOIL TYPES SHOWN HEREON ARE IN ACCORDANCE WITH THE WEB SOIL SURVEY - HOWARD COUNTY, MARYLAND.
19. THE OFFICIAL PRE-SUBMISSION COMMUNITY MEETING WAS HELD FOR THIS PROJECT ON FEBRUARY 28, 2012 AT SAINT VINCENT PALOTTI HIGH SCHOOL. ON APRIL 12, 2012 A SECOND, NON-OFFICIAL, MEETING WAS HELD AT THE LAUREL COMMUNITY CENTER.
20. NO FLOODPLAINS EXIST ONSITE.
21. STEEP SLOPES ARE LOCATED AND SHOWN HEREON.
22. WETLANDS AND STREAMS SHOWN HEREON ARE BASED ON DELINEATION BY MCCARTHY & ASSOCIATES, INC., DECEMBER 2011. THE REPORT WAS AMENDED OCTOBER 2012.
23. 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.
   – THE PROPOSED SUBDIVISION (SECTION ONE) AND RELATED CONSTRUCTION WILL NOT IMPACT ENVIRONMENTAL FEATURES OR BUFFERS.
24. A FOREST STAND DELINEATION PLAN WAS PREPARED BY MCCARTHY & ASSOCIATES, INC., APRIL 2012 AND AMENDED OCTOBER 2012.
25. A TRAFFIC STUDY FOR THIS PROJECT PREPARED BY THE TRAFFIC GROUP, INC., DATED AUGUST 2012, WAS APPROVED 3/2013.
26. A NOISE STUDY IS NOT REQUIRED FOR THIS PROJECT. NOISE WALL MITIGATION CURRENTLY EXISTS ALONG INTERSTAE 95.
27. A GEOTECHNICAL REPORT FOR THIS PROJECT WAS PREPARED BY HILLIS CARNES ENGINEERING ASSOCIATES, INC., DATED AUGUST 2012.
28. AN ENVIRONMENTAL CONCEPT PLAN (ECP12-047) WAS APPROVED ON OCTOBER 1, 2012.
29. A PRELIMINARY EQUIVALENT SKETCH PLAN (SP13-007) WAS APPROVED ON JULY 3, 2013.
30. STORMWATER MANAGEMENT FOR THE PROJECT IS PROVIDED BY THE USE OF ALTERNATIVE SURFACES, NON STRUCTURAL PRACTICES & MICRO-SCALE PRACTICES IN ACCORDANCE WITH ENVIRONMENTAL SITE DESIGN CRITERIA. NON STRUCTURAL PRACTICES INCLUDE ROOFTOP DISCONNECTIONS. MICRO-SCALEPRACTICES INCLUDE MICRO-BIORETENTION, BIO SWALES, DRYWELLS, RAIN BARRELS AND RAIN GARDENS. ALTERNATIVE SURFACES INCLUDE PERMEABLE SURFACES. TYPICALLY ALTERNATIVE SURFACE, NON STRUCTURAL AND MICRO-SCALE FACILITIES ONLOT WILL BE PRIVATELY OWNED AND MAINTAINED (H.O.A.). MICRO-SCALE FACILITIES MANAGING ROAD RUNOFF SHALL BE DESIGNATED AS PUBLICLY OWNED AND JOINTLY MAINTAINED FACILITIES (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.
31. 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 $ 47,340 FOR THE PERIMETER LANDSCAPING (REQUIRED 87 SHADE TREES AND 128 EVERGREENS), 8 SHRUBS (TRASH PAD LANDSCAPING) AND 6 SHADE TREES (SPECIMEN TREE REPLACEMENT) SHALL BE POSTED WITH THE DEVELOPERS AGREEMENT FOR THIS PLAN.
32. 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 ($ 49,800) SHALL BE POSTED AS PART OF THIS FINAL PLAN DEVELOPER'S AGREEMENT FOR THE REQUIRED 166 STREET TREES.
33. A FOREST CONSERVATION PLAN PREPARED BY ROBERT H. VOGEL ENGINEERING, INC. IS PART OF THIS FINAL PLAN.
34. – 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.

   A PORTION OF THE REQUIRED FOREST CONSERVATION WILL BE PROVIDED ON NON-BUILDABLE BULK PARCEL "B", WHICH WILL BECOME OPEN SPACE LOT 145 WITH PHASE II (F-14-023) AND SHALL MEET THE INTENT OF SECTION 16.117 OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS.

   – TOTAL FOREST CONSERVATION OBLIGATION OF THIS PROJECT TO BE FULFILLED BY ONSITE RETENTION OF 5.85 AC. (NO SURETY REQ), REFORESTATION OF 2.20 AC. AND PURCHASE OF 1.71 ACRES OF REFORESTATION CREDIT IN THE BRIGHTON MILL PROPERTY FOREST BANK SDP 11-056
   – FINANCIAL SURETY FOR THE REQUIRED REFORESTATION = $47,916 (2.20 AC OR 95,832 SF @ $0.50/SF) SHALL BE POSTED WITH THE DEVELOPERS AGREEMENT.
35. IN ACCORDANCE WITH SECTION 16.121(A)(2) OF THE HOWARD COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS THE OPEN SPACE REQUIREMENTS FOR THIS RSC PROJECT IS 25% OF GROSS AREA (36.9420 AC. GROSS AREA X 25% = 9.24 AC. REQUIRED).
   – OPEN SPACE LOT 57 TO BE OWNED AND MAINTAINED BY THE HOWARD COUNTY DEPARTMENT OF RECREATION AND PARK.
   – OPEN SPACE LOTS 55, 56 AND 58 – 68 TO BE OWNED AND MAINTAINED BY THE HOMEOWNERS ASSOCIATION.
   – TOTAL OPEN SPACE PROVIDED UNDER F14-022 SECTION ONE = 9.92 ACRES
   – ADDITIONAL OPEN SPACE SHALL BE PROVIDED UNDER F14-023 SECTION TWO
36. THE RECREATIONAL OPEN SPACE AREA (OPEN SPACE LOT 61) IS DESIGNATED FOR THE RESIDENTS AND IS AN AREA AVAILABLE TO SIT, PICNIC, PLAY, DOG WALK AND ENJOY THE SURROUNDING AREA. REFER TO RECREATION OPEN SPACE TABULATION, THIS SHEET
37. – 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 BELOW
38. ALL DRIVEWAY ENTRANCES SHALL UTILIZE HOWARD COUNTY STANDARD DETAIL NO. R-6.06.
39. LOTS 26 – 31 AND OPEN SPACE LOT 57 & 68 SHALL UTILIZE THE USE-IN-COMMON ACCESS EASEMENT. A USE-IN-COMMON MAINTENANCE AGREEMENT WILL BE RECORDED SIMULTANEOUSLY WITH THE FINAL PLAT.
40. DRIVEWAY(S) SHALL BE PROVIDED PRIOR TO RESIDENTIAL OCCUPANCY TO INSURE 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 INSURE ALL WEATHER USE.
41. FOR FLAG OR PIPE STEM LOTS, REFUSE COLLECTION, SNOW REMOVAL AND ROAD MAINTENANCE TO BE PROVIDED AT THE JUNCTION OF FLAG OR PIPE STEM AND THE ROAD R/W AND NOT ONTO THE FLAG OR PIPE STEM DRIVEWAY.
42. A PRIVATE RANGE OF ADDRESS SIGN ASSEMBLY FOR THE USE-IN-COMMON DRIVEWAY AT THE END OF CLARKE SPRINGS RIDGE SHALL BE FABRICATED AND INSTALLED BY HOWARD COUNTY – BUREAU OF HIGHWAYS AT THE DEVELOPERS/OWNERS EXPENSE. CONTACT HOWARD COUNTY TRAFFIC DIVISION AT 410-313-5752 FOR DETAILS AND COST ESTIMATES.
43. 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.
44. 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.
45. THIS PROJECT IS SUBJECT TO A DESIGN MANUAL WAIVER. ON DECEMBER 4, 2012, THE CHIEF OF THE DEVELOPMENT ENGINEERING DIVISION APPROVED THE REQUEST TO WAIVE THE REQUIREMENTS OF SECTION 2.5 AND APPENDIX A OF DESIGN MANUAL VOLUME III; WHICH REQUIRES AN 85TH PERCENTILE SPEED STUDY AND PUBLIC ROADWAY SECTION DESIGN. THE DIVISION APPROVED THE REQUEST 1. BASED ON CONDITIONS MADE IN THE REQUEST. 2) THE ASSUMED 85TH PERCENTILE SPEED IS IN LINE WITH THE ACTUAL STUDY MADE BY THE ENGINEER AT THE NEXT INTERSECTION 3. MINIMUM CURVE RADIUS HAS BEEN REDUCED WITHIN RESIDENTIAL AREA PROVIDING SPEED CONTROL WITHIN THIS PORTION OF THE SUBDIVISION. IT IS NOTED THAT ALL RADII WITHIN THE SUBDIVISION MEETS THE HOWARD COUNTY FIRE DEPARTMENT REQUIREMENTS. THE REQUESTED WAIVER TO DESIGN MANUAL VOLUME 4, DETAIL R1.02 HAS BEEN DEFERRED UNTIL THE SUBMISSION OF THIS FINAL PLAN.
46. TRAFFIC CONTROL WILL BE PROVIDED FOR THE PROPOSED OLD SCAGGSVILLE ROAD IMPROVEMENTS IN ACCORDANCE WITH THE LATEST MUTCD.
47. PATHWAY IMPROVEMENTS ALONG THE ENTIRE FRONTAGE OF THE PROJECT BOUNDARY, PEDESTRIAN CROSSING ACROSS OLD SCAGGSVILLE ROAD AND THE FINAL LOCATION OF SIDEWALKS AND CROSSINGS INTERNAL TO THE DEVELOPMENT ARE SHOWN HEREON.

## PARKING TABULATION:

TOTAL NUMBER OF DWELLING UNITS PROPOSED : 54

1. OFF-STREET PARKING SPACES REQUIRED: 2 SPACES PER UNIT = 108 SPACES
   PARKING SPACES PROVIDED:
   SFD = 1 GARAGE/1 DRIVEWAY
   1 SPACE IN GARAGE = 54 SPACES (FOR 54 UNITS)
   2 SPACES ON DRIVEWAY = 108 SPACES (FOR 54 UNITS)
   TOTAL OFF STREET PARKING SPACES PROVIDED: = 162 SPACES OFF-STREET

2. ON-STREET PARKING REQUIRED:
   OVERFLOW / GUEST PARKING SPACES REQUIRED:
   0.5 SPACES PER SFD UNIT X 54 = 27 SPACES REQUIRED
   TOTAL OVERFLOW PARKING SPACES PROVIDED: = 54 SPACES (DRIVEWAYS)

* NOTE: ADDITIONAL UN-CALCULATED PARKING PROVIDED ON-STREET

APPROVED: DEPARTMENT OF PUBLIC WORKS

[signature] 4/1/2016
CHIEF, BUREAU OF HIGHWAYS — DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

[signature] 3-28-16
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

[signature] 5-5-16
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

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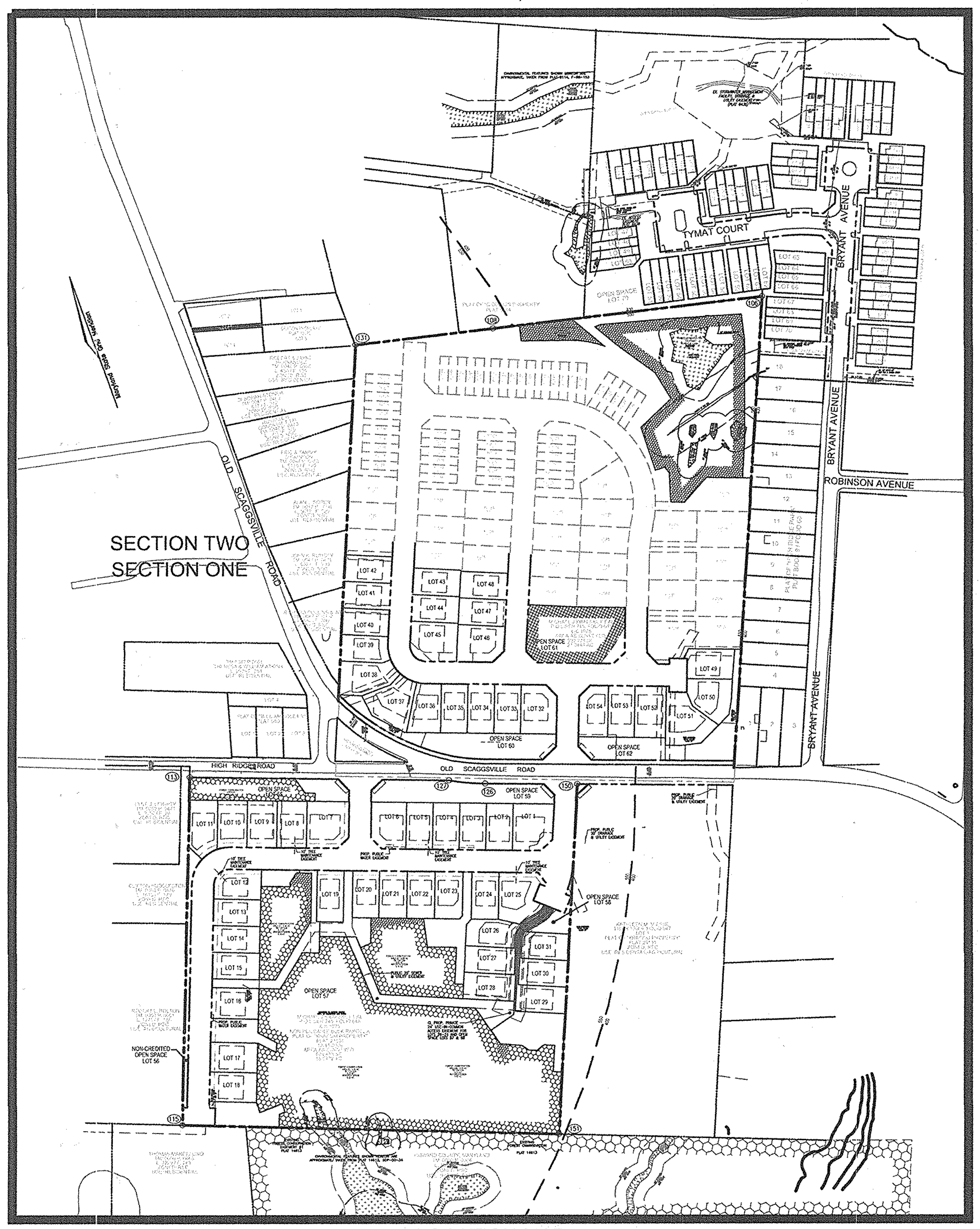



LOCATION MAP
SCALE: 1"=200'

## GENERAL NOTES (CON'T)

48. THIS PROJECT IS SUBJECT TO WP-13-080. ON MARCH 27, 2013; THE PLANNING DIRECTOR APPROVED THE REQUEST, TO WAIVE SECTION 16.116(A) FOR DISTURBANCE TO STREAM, STREAM BUFFERS, WETLANDS AND WETLAND BUFFERS ON THE NORTHEAST PORTION OF THE PROJECT FOR A STORM DRAINAGE PIPE, AND SECTION 16.1205(A)(7) TO REMOVE UP TO 3 SPECIMEN TREES THE PLANNING DIRECTOR DENIED YOUR REQUEST TO WAIVE SECTION 16.120(B)(6)(V)(C) TO ALLOW PIPESTEM LOTS ON MULTIPLE SIDES OF A FRONTAGE LOT IN THE SAME SUBDIVISION.
    APPROVAL OF THE WAIVER TO SECTION 16.116(A) AND SECTION 16.1205(A)(7) IS SUBJECT TO THE FOLLOWING CONDITIONS:
    1. ENVIRONMENTAL DISTURBANCE MUST BE LIMITED TO THE AREAS INDICATED ON THE WAIVER PETITION PLAN EXHIBIT. ANY EXPANSION OF THE DISTURBED AREA MAY REQUIRE ADDITIONAL WAIVER APPROVAL IF DETERMINED SIGNIFICANT.
    2 PRIOR TO INITIATING ANY CONSTRUCTION ACTIVITIES THAT RESULT IN THE APPROVED ENVIRONMENTAL DISTURBANCES, ALL APPROVALS FROM MDE, APPLICABLE SRC AGENCIES AND PERMISSIONS FROM ADJOINLNG/AFFECTED PROPERTY OWNERS MUST BE OBTAINED AND DOCUMENTED. COPIES OF DOCUMENTATION MUST BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING PRIOR TO THE FINAL PLAN APPROVAL (OR PRIOR TO SITE DEVELOPMENT PLAN APPROVAL, AT THE DISCRETION OF DPZ).
    3. PRIOR TO REMOVAL OF THE TWO OAK SPECIMEN TREES, PLEASE REVIEW THE PROPOSED DESIGN AFTERNATIVES RECOMMENDED BY THE DIVISION OF LAND DEVELOPMENT IN THE REVISED SUBMISSION COMMENTS DATED MARCH 28, 2013. INCORPORATE DESIGN RECOMMENDATIONS OR PROVIDE AMPLE JUSTIFICATION TO THE DEPARTMENT OF PLANNING AND ZONING IF NOT FEASIBLE (LOSS OF LOT YIELD ALONE WILL NOT BE CONSIDERED AMPLE JUSTIFICATION).
    4. REMOVAL OF EACH SPECIMEN TREE WILL REQUIRE MITIGATION WITH THE PLANTING OF TWO NEW NATIVE SHADE TREES (FOR UP TO 6 NEW SHADE TREES) WITH A MINIMUM 2-1/2" CALIPER TRUNK- SURETY OF THESE SHADE TREES SHALL BE INCORPORATED INTO THE LANDSCAPE SURETY WITH THE FINAL ROAD CONSTRUCTION DRAWINGS.
    5. PRIOR TO REMOVING THE SILVER MAPLE SPECIMEN TREE ON THE NORTH PARCEL, THE DEVELOPER SHALL FIRST ATTEMPT DESIGN ALTERNATIVES THAT WOULD ALLOW PRESERVATION OF THE TREE. IF REMOVED, THE TWO TREES PLANTED FOR MITIGATION SHOULD BE PLACED WITHIN THE PROXIMITY OF THE REMOVED TREE OR AT LEAST ON THE PORTION OF THE PROPERTY BOUNDARY SHARED BY PARCEL 396.

    DENIAL OF THE WAIVE TO SECTION 16.120(B)(6)(V)(C) WAS BASED ON THE FOLLOWING REASONS:
    1. EXTRAORDINARY CIRCUMSTANCES OR DESIGN CONSTRAINTS RESULTING IN SIGNIFICANT HARDSHIP WERE NOT INDICATED IN THE WAIVER JUSTIFICATION.
    2. DESIGN ALTERNATIVES EXIST THAT WOULD PREVENT THE LOT BEING SURROUNDED ON FOUR SIDES BY PAVED DRIVE LANES. PLEASE SEE DLD COMMENTS DATED MARCH 28, 2013.
    3. THE DESIGN PROPOSAL APPEARS GEARED TO ENSURING AN OPTIMAL LOT YIELD. THE DEVELOPER HAS THE OPTION OF INCORPORATING ADDITIONAL TOWNHOME LOTS TO OBTAIN DESIRED LOT YIELD IN THE PROPOSED SUBDIVISION DESIGN.
    4. THE WAIVER, IF APPROVED WOULD' NULLIFY THE INTENT AND PURPOSE OF THE REGULATIONS, WHICH IS TO ACHIEVE A WELL THOUGHT-OUT DESIGN THAT PROVIDES ORDERLY SUBDIVISION LAYOUT AND AVOIDS ORIENTATION AND PRIVACY PROBLEMS FOR NEW HOUSES ON PIPESTEM AND FRONTAGE LOTS. AS PROPOSED, LOT 74 WOULD HAVE LIMITED USABILITY AND PRIVACY. DLD RECOMMENDS A SUBDIVISION REDESIGN TO REMOVE AND RELOCATE LOTS 72, 73, AND 74 ELSEWHERE IN THE DEVELOPMENT. IN LAYING OUT THE SUBDIVISION DESIGN, THE DEVELOPER SHOULD GIVE MORE CONSIDERATION TO THE ARRANGEMENT OF LOTS SO THAT PROPOSED HOUSES WILL NOT LOOK INTO NEIGHBORING REAR YARDS OF THE FRONT LOTS. EACH NEW LOT IN THE SUBDIVISION SHOULD INCORPORATE GOOD LOT DESIGN AND PLANNED AS TO THE SIZE, SHAPE AND ORIENTATION TO . AVOID UNDESIRABLE VIEWS FROM ADJOINING LOTS. WAIVERS SHALL NOT BE USED TO ACHIEVE MAXIMUM LOT YIELD AT THE EXPENSE OF GOOD SUBDIVISION DESIGN.

    ON JUNE 3, 2013, A REQUEST FOR RECONSIDERATION WAS SUBMITTED WHICH AMENDED THE REQUESTED SPECIMEN TREES TO BE REMOVED. TO SPECIMEN TREES # 3 AND #4 PREVIOUSLY APPROVED TO BE REMOVED AND IN CONJUNCTION WITH THE REVISED LAYOUT, ARE NOW PROPOSED TO REMAIN. AS A RESULT OF THE REVISED LAYOUT, SPECIMEN TREE # 15 AND 16 (35"/ 37" TWIN TRUNK SOUTHERN RED OAK IN FAIR CONDITION) IS PROPOSED TO BE REMOVED.

## 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 |

## SHEET INDEX



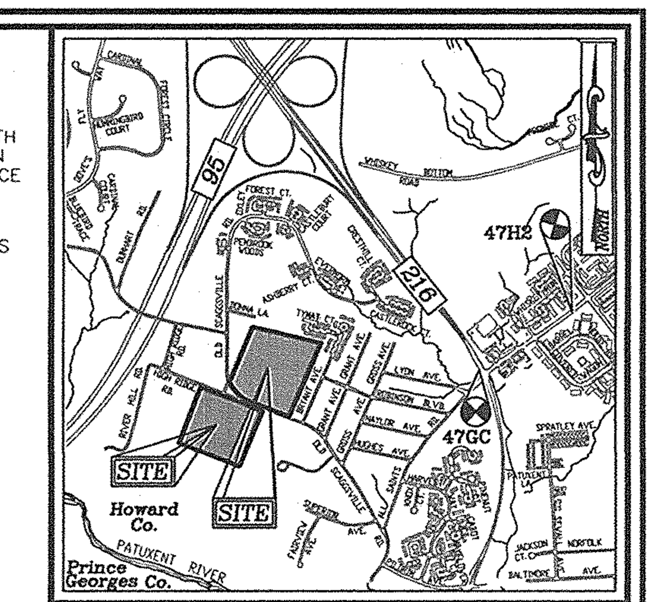
| DESCRIPTION | SHEET NO. |
|---|---|
| COVER SHEET | 1 OF 32 |
| ROAD PROFILE AND PLAN DETAILS – OLD SCAGGSVILLE ROAD | 2 OF 32 |
| ROAD PROFILE AND PLAN DETAILS – CLARKE SPRINGS RIDGE<br>DEER SPRINGS PLACE | 3 OF 32 |
| ROAD PROFILE AND PLAN DETAILS – TWIN FAWN TRAIL<br>RUNNING DEER DRIVE | 4 OF 32 |
| ROAD PROFILE AND PLAN DETAILS – DEER RUN<br>DEER VILLAGE DRIVE<br>PEACE SPRINGS RIDGE | 5 OF 32 |
| SOILS MAP & PHASE 1 GRADING, SOIL EROSION AND SEDIMENT CONTROL PLAN | 6 OF 32 |
| SOILS MAP & PHASE 1 GRADING, SOIL EROSION AND SEDIMENT CONTROL PLAN | 7 OF 32 |
| SOILS MAP & PHASE 2 GRADING, SOIL EROSION AND SEDIMENT CONTROL PLAN | 8 OF 32 |
| SOILS MAP & PHASE 2 GRADING, SOIL EROSION AND SEDIMENT CONTROL PLAN | 9 OF 32 |
| GRADING, SOIL EROSION AND SEDIMENT CONTROL NOTES AND DETAILS | 10 OF 32 |
| GRADING, SOIL EROSION AND SEDIMENT CONTROL NOTES AND DETAILS | 11 OF 32 |
| SEDIMENT BASIN #4 – SEDIMENT TRAP #3 – NOTES & DETAILS | 12 OF 32 |
| STORM DRAIN DRAINAGE AREA MAP | 13 OF 32 |
| STORM DRAIN DRAINAGE AREA MAP | 14 OF 32 |
| STORM DRAIN PROFILES | 15 OF 32 |
| STORM DRAIN PROFILES | 16 OF 32 |
| STORM DRAIN PROFILES | 17 OF 32 |
| LANDSCAPE AND FOREST CONSERVATION PLAN | 18 OF 32 |
| LANDSCAPE AND FOREST CONSERVATION PLAN | 19 OF 32 |
| FOREST CONSERVATION PLAN | 20 OF 32 |
| LANDSCAPE AND FOREST CONSERVATION NOTES AND DETAILS | 21 OF 32 |
| ESDv – DRAINAGE AREA MAP SOUTH AREA | 22 OF 32 |
| ESDv – DRAINAGE AREA MAP NORTH AREA 2 | 23 OF 32 |
| STORMWATER MANAGEMENT NOTES AND DETAILS | 24 OF 32 |
| STORMWATER MANAGEMENT NOTES AND DETAILS | 25 OF 32 |
| MICRO–BIORETENTION – PLANTING DETAILS | 26 OF 32 |
| OLD SCAGGSVILLE ROAD – TRAFFIC CIRCLE DETAILING | 27 OF 32 |
| PHASE ONE – MAINTENANCE OF TRAFFIC PLAN | 28 OF 32 |
| PHASE TWO – MAINTENANCE OF TRAFFIC PLAN | 29 OF 32 |
| DETOUR PLAN | 30 OF 32 |
| TRAFFIC CIRCLE – PAVEMENT MARKINGS, TRAFFIC SIGNS AND DETAILS | 31 OF 32 |
| SECTION ONE – TRAFFIC SIGNAGE & STREET LIGHT LOCATION PLAN | 32 OF 32 |



## BENCHMARKS

HOWARD COUNTY BENCHMARK 47H2 (CONC. MON.)
N 529706.4221 E 1355445.3364 ELEV. 256.068
LOCATION: ALL SAINTS ROAD, 240'+/– SOUTH OF NORTH LAUREL ROAD 2.89 FEET FROM STORM DRAIN INLET; 1' EAST OF CURB, 0.6 BELOW SURFACE

HOWARD COUNTY BENCHMARK 47GC (CONC. MON.)
N 528939.7281 E 1354223.5536 ELEV. 226.272
LOCATION: MEDIAN ISLAND 29 FEET WEST OF ALL SAINTS RD / RT 216 INTERSECTION; 1.4 FEET WEST OF SOUTHWEST INLET CORNER




VICINITY MAP
SCALE: 1"=2,000'
ADC MAP COORDINATE: 5169 B1/5169 B2
5169 C1/5169 C2

## SITE DATA

DEED REFERENCE: PARCEL 363: L 619 / F 519
PARCEL 542: L 619 / F 519
ELECTION DISTRICT: 6TH
LOCATION: OLD SCAGGSVILLE ROAD, WEST OF BRYANT AVENUE
EXISTING ZONING: R-SC
GROSS AREA: 36.94 AC
SECTION ONE: 23.90 AC.+/–
SECTION TWO: 13.04 AC.+/–
NON-BUILDABLE BULK PARCEL B
AREA OF 100 YEAR FLOODPLAIN: N/A
AREA OF STEEP SLOPES: 0.34 AC
AREA OF WETLANDS & BUFFERS: 1.61 AC.
NET AREA (GROSS–STEEP SLOPES & FLOODPLAIN): 36.60 AC.

BASE DENSITY:
4 LOTS PER NET ACRE (4X36.60): 146 LOTS
NUMBER OF PROPOSED RESIDENTIAL LOTS: 129 LOTS
SECTION 1 54 SFD
SECTION 2 27 SFD / 48 SFA
AREA OF PROPOSED RESIDENTIAL LOTS (SFD): 18.86 AC
AREA OF ROAD RIGHT OF WAY (ON–SITE): 4.13 AC
OPEN SPACE REQUIRED: 25% OF GROSS AREA = 9.24 AC
TOTAL AREA OF OPEN SPACE PROPOSED: 9.92 AC+/–
LIMIT OF DISTURBANCE: 20.0 AC
REC OPEN SPACE: 300 SF/DWELLING UNIT x 54: 16,200 SF
REC OPEN SPACE PROVIDED: 25,742 SF*
* SEE TABULATION HEREON
EXISTING USE OF SITE: RESIDENTIAL, SFD
PROPOSED USE OF SITE: SINGLE FAMILY DETACHED
PROPOSED WATER SYSTEM: PUBLIC
PROPOSED SEWER SYSTEM: PUBLIC
MINIMUM LOT AREA: 6,000 SF

200' 0 200' 400' 600'

## DEER SPRING - DENSITY TABULATION

| FINAL PLAN # | SECTION | GROSS AREA | FLOODPLAIN | STEEP SLOPES | NET AREA | UNITS ALLOWED | UNITS PROP. | OPEN SPACE REQ. | OPEN SPACE PROV. | |
|---|---|---|---|---|---|---|---|---|---|---|
| F14-022 | SEC. 1 | 36.94 ACRES | 0.00 ACRES | 0.34 ACRES | 36.60 ACRES | 146 | 54 SFD ** | 9.24 ACRES | 9.92 ACRES | |
| F14-023 | SEC. 2 | 13.04* ACRES | 0.00 ACRES | 0.00 ACRES | 36.60 ACRES | | 27 SFD 48 SFA | 0.00 ACRES | 4.65 ACRES | |
| TOTAL | – | – | 0.00 ACRES | 0.34 ACRES | 36.60 ACRES | 146 | 81 SFD 48 SFA | 9.24 ACRES | 14.57 ACRES | |

** F14-022 – NON-BUILDABLE BULK PARCEL "B" RESUBDIVIDED UNDER F14-023 INTO 27 SFD / 48 SFA

## RECREATION OPEN SPACE TABULATION:

TOTAL RECREATION OPEN SPACE REQUIRED FOR DEER SPRINGS
SECTION ONE F14-022 AND SECTION TWO F14-023 = 43,500SF
TOWNHOMES SFA = 400 SF/UNIT X 48 UNITS = 19,200 SF
SINGLE FAMILY HOMES SFD = 300 SF/UNIT X 81 UNITS = 24,300 SF

– SECTION ONE F14-022 = 54 SFD X 300 SF = 16,200 SF REQUIRED
– SECTION TWO F14-023 = 27 SFD X 300 SF = 8,100 SF REQUIRED
= 48 SFD X 400 SF = 19,200 SF REQUIRED

TOTAL RECREATION OPEN SPACE PROVIDED FOR DEER SPRINGS
SECTION ONE AND SECTION TWO AS LISTED BELOW = 59,822 SF
RECREATION OPEN SPACE – SECTION ONE F14-022 = 25,742 SF PROVIDED
OPEN SPACE LOT 61
34,080 SF PROVIDED *
TOTAL = 59,822 SF PROVIDED

* AMENITIES INCLUDE THE PROPOSED 1,420 LF OF 8' PATHWAY CONNECTION (1,420'X8'=11,360SF) WHERE 3SF OF RECREATION AREA = 1 SF OF PAVED PATH = 34,080 SF OF AMENITY CREDIT PROVIDED. THE PATHWAY IS PROVIDED THROUGH THE FOREST CONSERVATION AREA ON OPEN SPACE HOWARD COUNTY OPEN SPACE LOT 57 FROM TWIN FAWN TRAIL TOWARD ADJOINING HIGH RIDGE PARK (MOSTLY ALONG THE SEWER ALIGNMENT)

RECREATION OPEN SPACE – SECTION TWO F14-023 = N/A
REQUIREMENT MET UNDER SECTION ONE F14-022

## OWNER


KATHY MIESSE, PERSONAL REPRESENTATIVE,
ESTATE OF ARTHUR P. KRAESKI
9222 OLD SCAGGSVILLE ROAD
LAUREL, MD 20723-1730
ATTN: MR. DONALD R. REUWER
443-367-0422


## DEVELOPER


LAND DESIGN & DEVELOPMENT, INC.
5300 DORSEY HALL DRIVE, STE 102
ELLICOTT CITY, MARYLAND 21042-7819
ATTN: MR. DONALD R. REUWER
443-367-0422


| NO. | REVISION | DATE |
|---|---|---|
| 5 | ADD 10' TREE MAINTENANCE EASEMENT. SHIFT MBR FACILITIES. | 9 / 2015 |
| 4 | MODIFY PAVEMENT SECTION. | 3 / 2015 |
| 3 | REVISE STORM DRAIN LAYOUT ALONG OLD SCAGGSVILLE ROAD | 1 / 2015 |
| 2 | REVISE SUBDIVISION NAME | 7/18/14 |

REVISED FINAL ROAD CONSTRUCTION PLAN

# COVER SHEET
# HIGH RIDGE MEADOWS - SEC. 1

## LOTS 1 - 54, OPEN SPACE LOTS 55 - 68
## AND NON-BUILDABLE BULK PARCEL "B"

A SUBDIVISION OF TAX MAP 50 – PARCEL 363
AND A RESUBDIVISION OF TAX MAP 50 – PARCEL 542
KRAESKI PROPERTY NON-BUILDABLE BULK PARCEL "A" (PLAT 21191)

6TH ELECTION DISTRICT – TAX MAP: 50 GRID: 1 — ZONED: R-SC
DPZ REF'S: F-10-065, WP-10-087, ECP-12-047, WP-13-080, SP 13-007 — PARCELS: 363 & 542
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 — 2/22/16

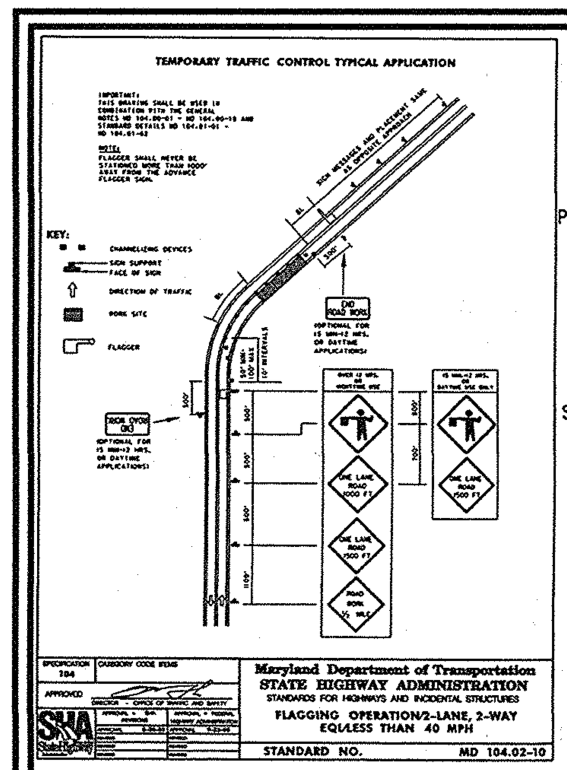
ROBERT H. VOGEL, PE No.16193

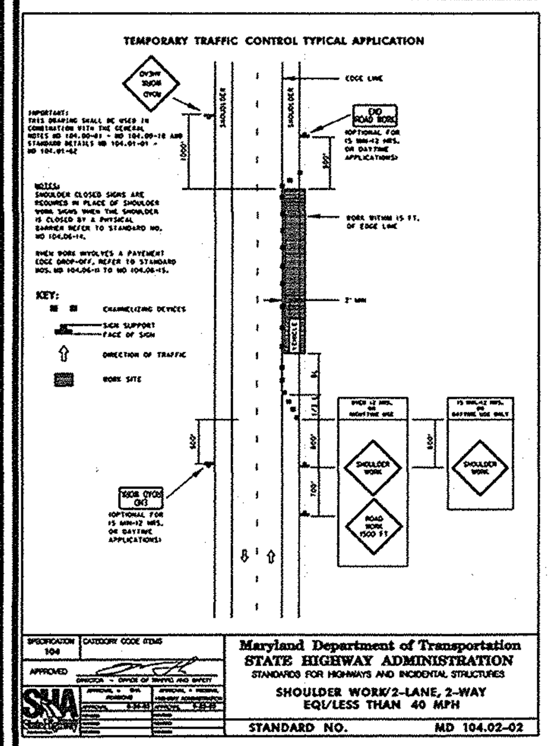
DESIGN BY: EDS
DRAWN BY: EDS/RVE/KG
CHECKED BY: RHV
DATE: SEPTEMBER 2015
SCALE: AS SHOWN
W.O. NO.: 11-28

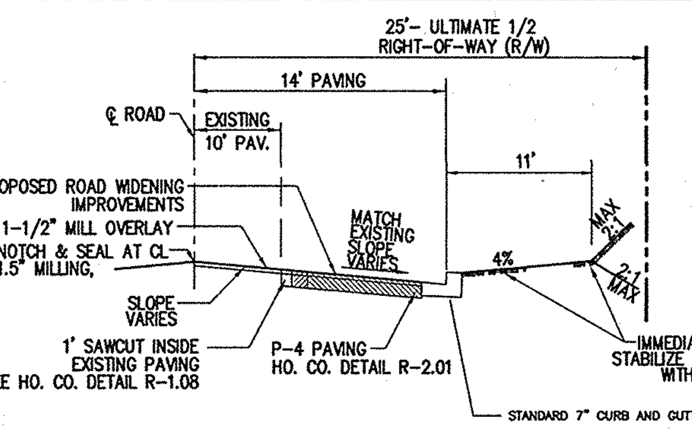
PROFESSIONAL CERTIFICATE
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193 EXPIRATION DATE: 09-27-2016



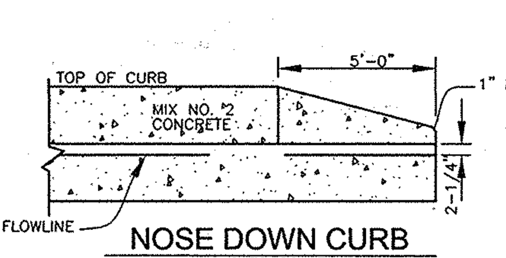
F-14-022



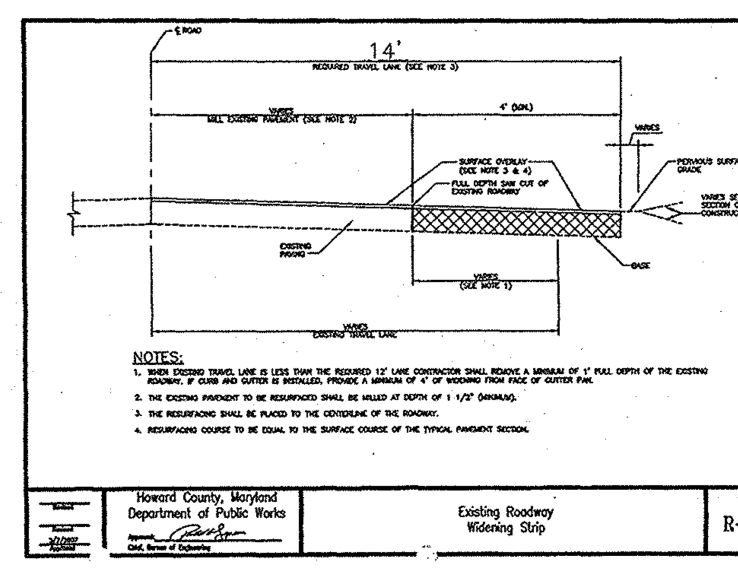



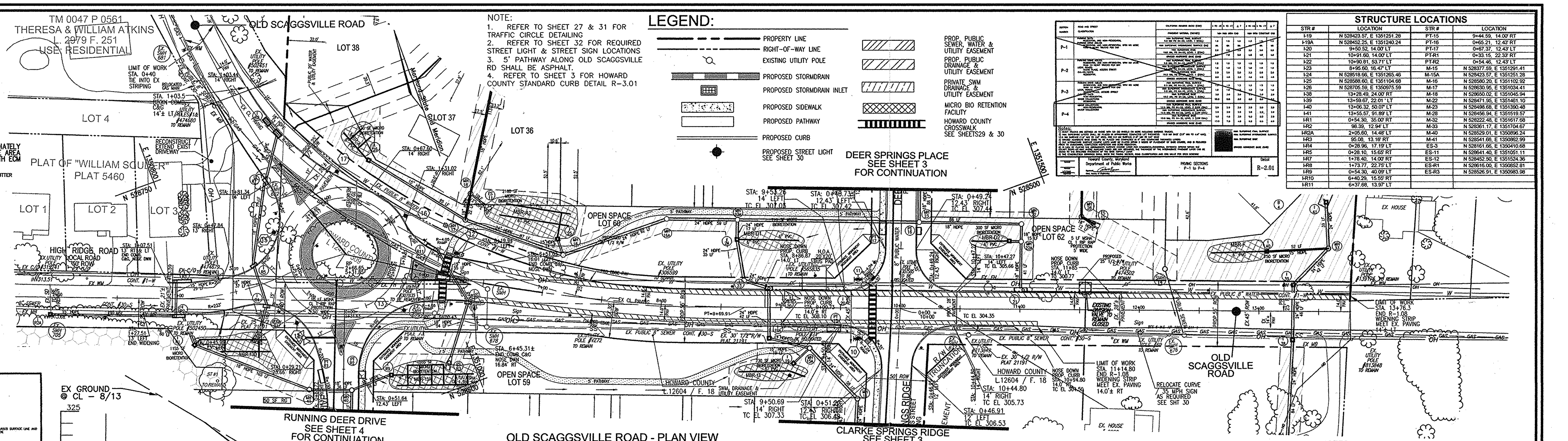




**OLD SCAGGSVILLE ROAD**
TYPICAL WIDENING SECTION - R-1.02
CLASSIFICATION: MINOR COLLECTOR
SECTION NOT TO SCALE




**NOSE DOWN CURB**
NO TO SCALE




**OLD SCAGGSVILLE ROAD - PLAN VIEW**
**MINOR COLLECTOR ROAD**
DESIGN SPEED: 25 MPH
SCALE: 1"=50'

NOTE:
1. REFER TO SHEET 27 & 31 FOR TRAFFIC CIRCLE DETAILING
2. REFER TO SHEET 32 FOR REQUIRED STREET LIGHT & STREET SIGN LOCATIONS
3. 5' PATHWAY ALONG OLD SCAGGSVILLE RD SHALL BE ASPHALT.
4. REFER TO SHEET 3 FOR HOWARD COUNTY STANDARD CURB DETAIL R-3.01

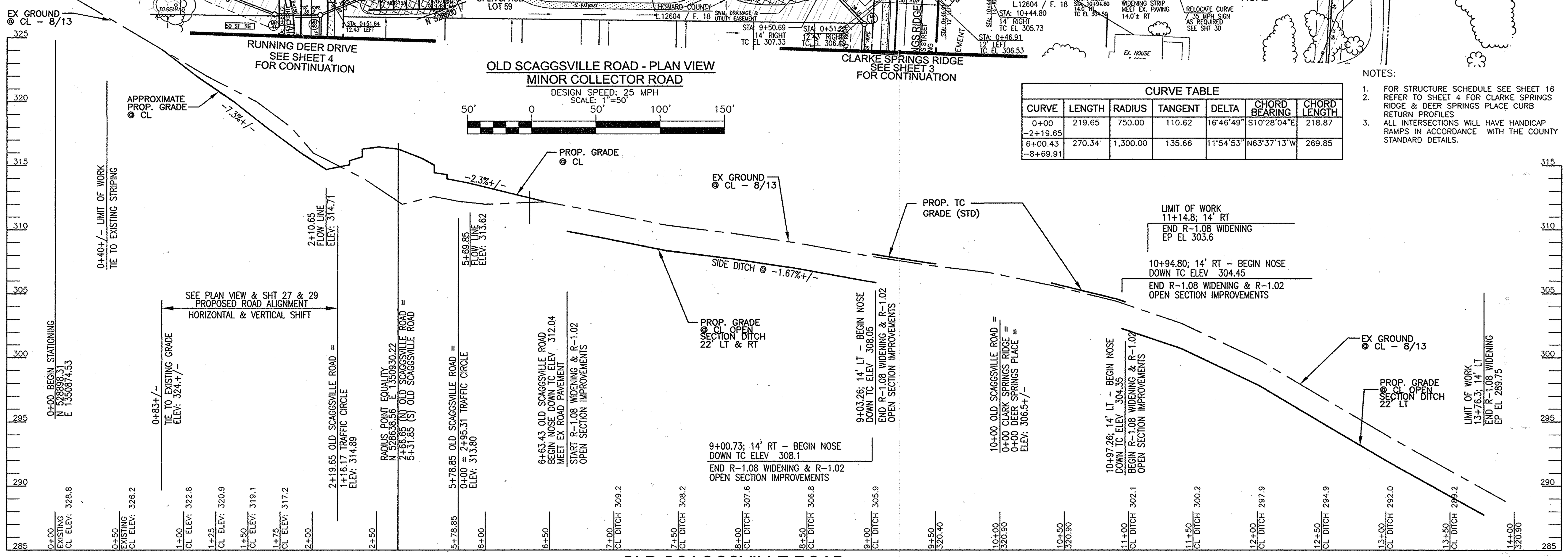
**LEGEND:**
- PROPERTY LINE
- RIGHT-OF-WAY LINE
- EXISTING UTILITY POLE
- PROPOSED STORMDRAIN
- PROPOSED STORMDRAIN INLET
- PROPOSED SIDEWALK
- PROPOSED PATHWAY
- PROPOSED CURB
- PROPOSED STREET LIGHT SEE SHEET 30
- PROP. PUBLIC SEWER, WATER & UTILITY EASEMENT
- PROP. PUBLIC DRAINAGE & UTILITY EASEMENT
- PRIVATE SWM DRAINAGE & UTILITY EASEMENT
- MICRO BIO RETENTION FACILITY
- HOWARD COUNTY CROSSWALK SEE SHEETS29 & 30

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

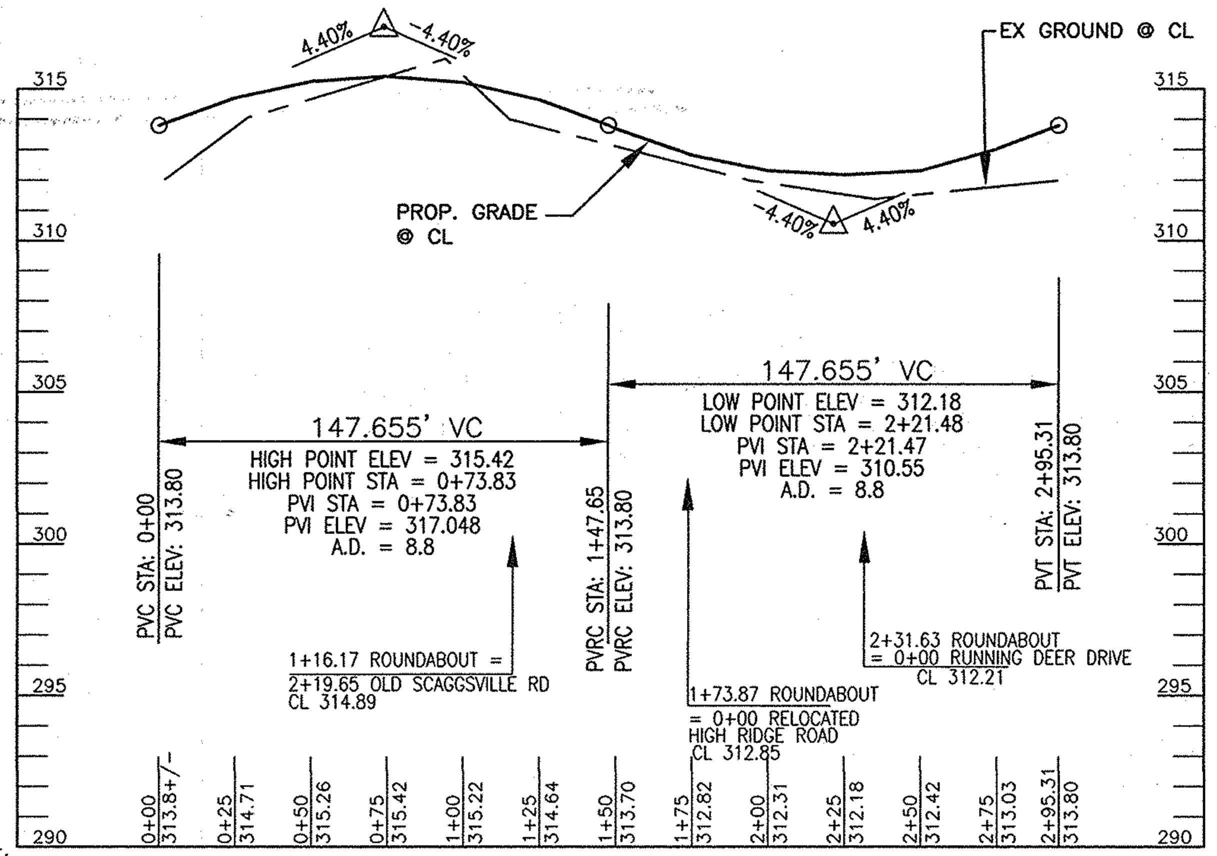
| STRUCTURE LOCATIONS | | | |
|---|---|---|---|
| STR # | LOCATION | STR # | LOCATION |
| I-19 | N 528423.57, E 1351251.28 | PT-15 | 9+44.59, 14.00' RT |
| I-19A | N 528452.25, E 1351240.24 | PT-16 | 0+65.21, 12.43' RT |
| I-20 | 9+50.52, 14.00' LT | PT-17 | 0+67.37, 12.43' LT |
| I-21 | 10+91.60, 14.00' LT | PT-R1 | 0+33.15, 22.33' RT |
| I-22 | 10+90.81, 53.71' LT | PT-R2 | 0+54.46, 12.43' LT |
| I-23 | 8+95.60, 16.47' LT | M-15 | N 528377.59, E 1351291.41 |
| I-24 | N 528518.66, E 1351265.46 | M-15A | N 528423.57, E 1351251.28 |
| I-25 | N 528588.60, E 1351104.68 | M-16 | N 528580.20, E 1351102.92 |
| I-26 | N 528705.59, E 1350975.59 | M-17 | N 528630.95, E 1351034.41 |
| I-38 | 13+28.49, 24.00' RT | M-18 | N 528650.02, E 1351045.94 |
| I-39 | 13+59.67, 22.01' LT | M-22 | N 528471.95, E 1351461.10 |
| I-40 | 13+06.32, 50.07' LT | M-23 | N 528498.68, E 1351390.48 |
| I-41 | 13+55.57, 91.89' LT | M-28 | N 528456.94, E 1351519.57 |
| I-R1 | 0+54.30, 35.00' RT | M-32 | N 528222.48, E 1351617.68 |
| I-R2 | 98.39, 12.94' LT | M-33 | N 528361.17, E 1351704.67 |
| I-R2A | 2+05.60, 14.48' LT | M-40 | N 528529.01, E 1350896.24 |
| I-R3 | 95.08, 13.16' RT | M-41 | N 528541.66, E 1350862.99 |
| I-R4 | 0+28.96, 17.19' LT | ES-3 | N 528161.66, E 1350410.68 |
| I-R5 | 0+28.10, 15.65' RT | ES-11 | N 528641.40, E 1351051.11 |
| I-R7 | 1+78.40, 14.00' RT | ES-12 | N 528452.50, E 1351524.36 |
| I-R8 | 1+73.77, 22.75' LT | ES-R1 | N 528616.00, E 1350852.81 |
| I-R9 | 0+54.30, 40.09' LT | ES-R3 | N 528526.91, E 1350983.98 |
| I-R10 | 6+40.29, 15.55' RT | | |
| I-R11 | 6+37.68, 13.97' LT | | |

| CURVE TABLE | | | | | | |
|---|---|---|---|---|---|---|
| CURVE | LENGTH | RADIUS | TANGENT | DELTA | CHORD BEARING | CHORD LENGTH |
| 0+00 -2+19.65 | 219.65 | 750.00 | 110.62 | 16°46'49" | S10°28'04"E | 218.87 |
| 6+00.43 -8+69.91 | 270.34' | 1,300.00 | 135.66 | 11°54'53" | N63°37'13"W | 269.85 |

NOTES:
1. FOR STRUCTURE SCHEDULE SEE SHEET 16
2. REFER TO SHEET 4 FOR CLARKE SPRINGS RIDGE & DEER SPRINGS PLACE CURB RETURN PROFILES
3. ALL INTERSECTIONS WILL HAVE HANDICAP RAMPS IN ACCORDANCE WITH THE COUNTY STANDARD DETAILS.

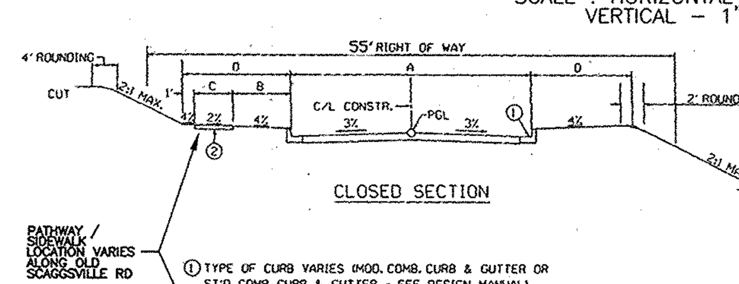



**OLD SCAGGSVILLE ROAD**
SCALE : HORIZONTAL - 1"=50'
VERTICAL - 1"=5'




NOTE:
REFER TO SHEET 27 FOR TRAFFIC CIRCLE DETAILING

**TRAFFIC CIRCLE CL PROFILE**
SCALE : HORIZONTAL - 1"=50'
VERTICAL - 1"=5'




① TYPE OF CURB VARIES (MOD. COMB. CURB & GUTTER OR ST'D. COMB. CURB & GUTTER - SEE DESIGN MANUAL).
② 4' CONCRETE SIDEWALK AS REQUIRED BY SUB-DIVISION REGULATIONS.

| CLASSIFICATION | A | B | C | D | PAVING SECTION |
|---|---|---|---|---|---|
| MINOR COLLECTOR 2000 A.D.T. | 28' | 6' | 4' | 11' | P-3 |
| ~~ACCESS STREET 1000 A.D.T.~~ | *24' | 8' | 4' | 10' | P-2 |
| ~~ACCESS PLACE 200 A.D.T.~~ | *24' | 8' | 4' | 10' | P-2 |

*TOWNHOUSE, CONDOMINIUM/APARTMENT DEVELOPMENTS REQUIRE 26' MINIMUM PAVING (WITH P-2 PAVING SECTION).

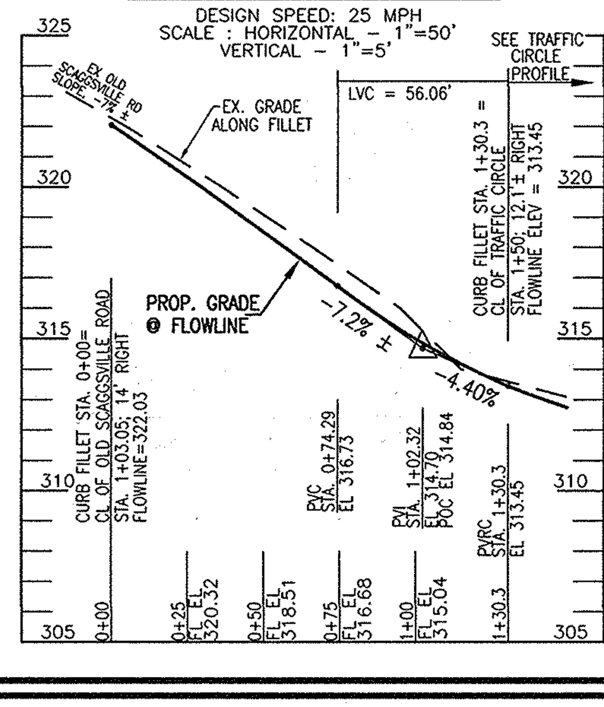
NOTE:
THIS PROJECT IS SUBJECT TO A DESIGN MANUAL WAIVER. ON 12/4/2013, THE CHIEF OF THE DEVELOPMENT ENGINEERING DIVISION DEFFERED THE REQUESTED WAIVER TO DESIGN MANUAL VOLUME 4, DETAIL R1.02 UNTIL THE SUBMISSION OF THIS FINAL PLAN.

FOR REFERENCE PURPOSE ONLY — TYPICAL SECTION - Residential Streets ~~Access Place/Access Street~~, Minor Collector (Closed Section) — R-1.02

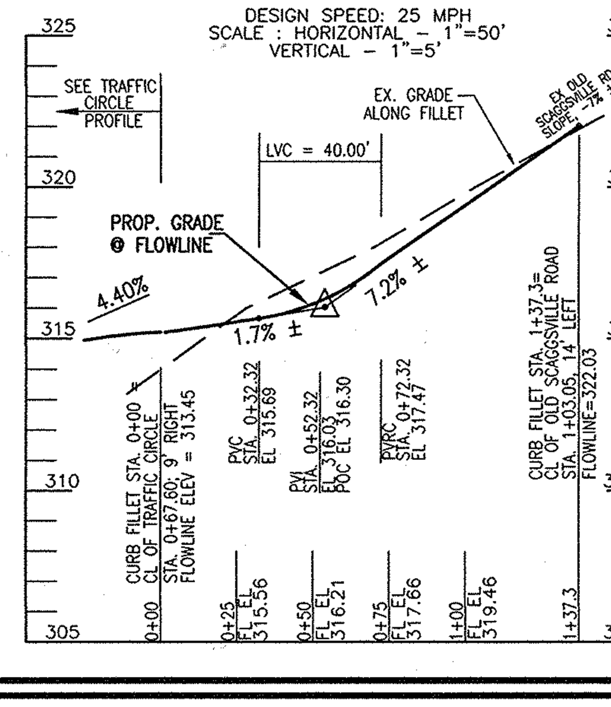
| | | | | | |
|---|---|---|---|---|---|
| EX. UTILITY POLE# 139173 | TO REMAIN | | EX. UTILITY POLE# 69 | TO REMAIN | NO WORK PROPOSED |
| EX. UTILITY POLE# 474502 | TO REMAIN | CURBING EXTENDED | EX. UTILITY POLE# 813849 | TO REMAIN | FACE OF EXISTING POLE LOCATED 2.7' +BEHIND PROPOSED CURBING |
| EX. UTILITY POLE# 307585 | TO BE RELOCATED | MIDDLE OF INTERSECTION "DEER SPRING PLACE" | EX. UTILITY POLE# 71 | TO BE RELOCATED | FACE OF EXISTING POLE AT BACK OF CURB |
| EX. UTILITY POLE# 565835 | TO REMAIN | FACE EXISTING POLE LOCATED 4'+BEHIND PROP. CURBING | EX. UTILITY POLE# VZ72 | TO REMAIN | FACE LOCATED SOUTH OF OPEN SECTION SWALE |
| EX. UTILITY POLE# 306599 | TO REMAIN | SHIFTED CL PLACE POLE BETWEEN SWALE | EX. UTILITY POLE# 307835 | TO BE RELOCATED | IN TRAFFIC CIRCLE SPLITTER ISLAND |
| EX. UTILITY POLE# 474680 AND #502451 | TO REMAIN | | EX. UTILITY POLE# 474679 | TO REMAIN | |
| EX. UTILITY POLE# 813848 | TO REMAIN | | EX. UTILITY POLE# 502450 | TO REMAIN | |

**NOTE:**
NO PART OF UTILITY POLE SHALL BE WITHIN 3' OF EDGE OF PAVEMENT.

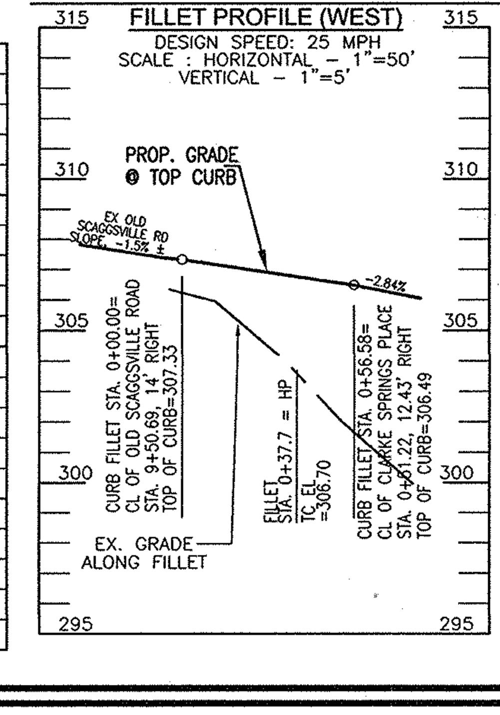
**OLD SCAGGSVILLE ROAD AND TRAFFIC CIRCLE - FLOWLINE FILLET PROFILE (SOUTHBOUND)**
DESIGN SPEED: 25 MPH
SCALE : HORIZONTAL - 1"=50'
VERTICAL - 1"=5'



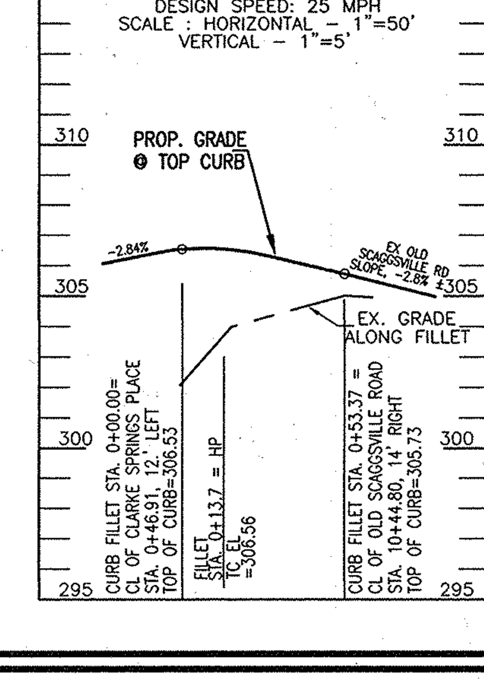

**OLD SCAGGSVILLE ROAD AND TRAFFIC CIRCLE - FLOWLINE FILLET PROFILE (NORTHBOUND)**
DESIGN SPEED: 25 MPH
SCALE : HORIZONTAL - 1"=50'
VERTICAL - 1"=5'



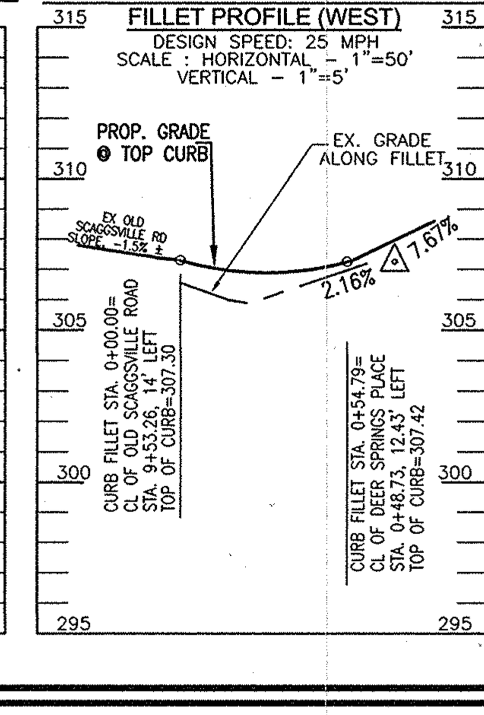

**OLD SCAGGSVILLE ROAD AND CLARKE SPRINGS PLACE - TOP OF CURB FILLET PROFILE (WEST)**
DESIGN SPEED: 25 MPH
SCALE : HORIZONTAL - 1"=50'
VERTICAL - 1"=5'



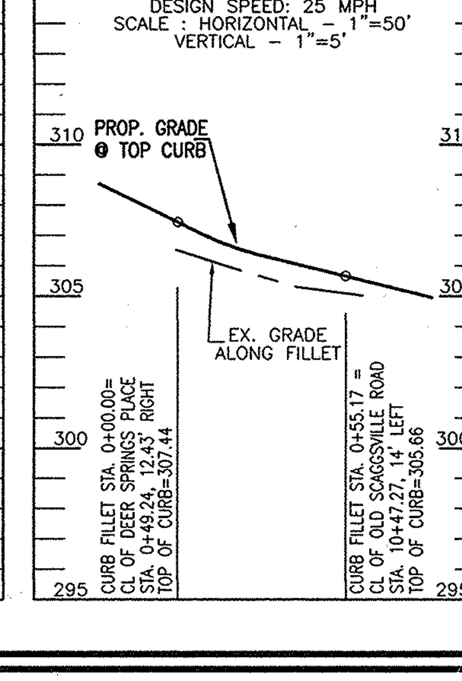

**OLD SCAGGSVILLE ROAD AND CLARKE SPRINGS PLACE - TOP OF CURB FILLET PROFILE (EAST)**
DESIGN SPEED: 25 MPH
SCALE : HORIZONTAL - 1"=50'
VERTICAL - 1"=5'




**OLD SCAGGSVILLE ROAD AND DEER SPRINGS PLACE - TOP OF CURB FILLET PROFILE (WEST)**
DESIGN SPEED: 25 MPH
SCALE : HORIZONTAL - 1"=50'
VERTICAL - 1"=5'




**OLD SCAGGSVILLE ROAD AND DEER SPRINGS PLACE - TOP OF CURB FILLET PROFILE (EAST)**
DESIGN SPEED: 25 MPH
SCALE : HORIZONTAL - 1"=50'
VERTICAL - 1"=5'




**OWNER**
KATHY MIESSE, PERSONAL REPRESENTATIVE,
ESTATE OF ARTHUR P. KRAESKI
9222 OLD SCAGGSVILLE ROAD
LAUREL, MD 20723-1730
ATTN: MR. DONALD R. REUWER
443-367-0422

**DEVELOPER**
LAND DESIGN & DEVELOPMENT, INC.
5300 DORSEY HALL DRIVE, STE 102
ELLICOTT CITY, MARYLAND 21042-7819
ATTN: MR. DONALD R. REUWER
443-367-0422

| NO. | REVISION | DATE |
|---|---|---|
| 3 | REVISE STORM DRAIN LAYOUT ALONG OLD SCAGGSVILLE ROAD | 1 / 2015 |
| 2 | REVISE SUBDIVISION NAME | 7/18/14 |
| 1 | REVISE OLD SCAGGSVILLE ROAD CENTERLINE RADIUS AND AMEND UTILITY POLE DESIGNATION | 7/8/14 |

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 5/11/2015
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 5.18.15
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5-19-15

*REVISED* FINAL ROAD CONSTRUCTION PLAN
ROAD PROFILE & PLAN DETAILS
OLD SCAGGSVILLE ROAD IMPROVEMENTS

# HIGH RIDGE MEADOWS - SEC. 1

LOTS 1 - 54, OPEN SPACE LOTS 55 - 68
AND NON-BUILDABLE BULK PARCEL "B"
A SUBDIVISION OF TAX MAP 50 - PARCEL 363
AND A RESUBDIVISION OF TAX MAP 50 - PARCEL 542
KRAESKI PROPERTY NON-BUILDABLE BULK PARCEL "A" (PLAT 21191)

6TH ELECTION DISTRICT - TAX MAP: 50 GRID: 1
DPZ REF'S: F-10-065, WP-10-087, ECP-12-047, WP-13-080, SP 13-007
ZONED: R-SC
PARCELS: 363 & 542
HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL ENGINEERING, INC.
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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

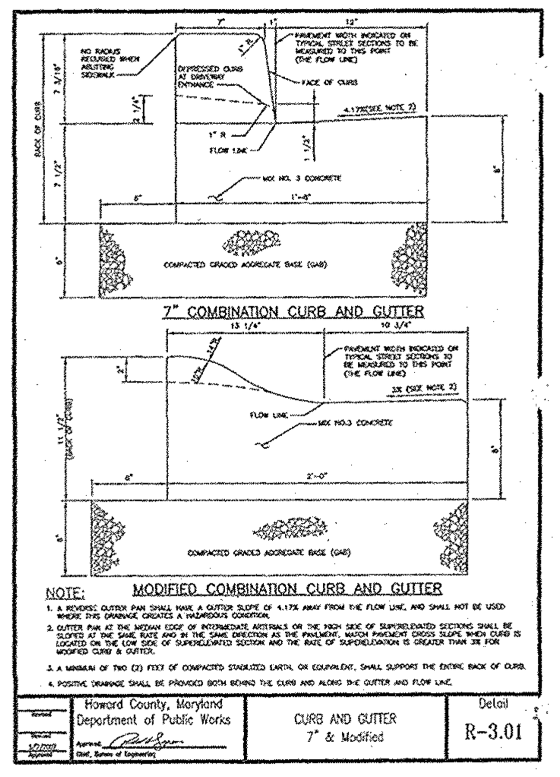
STATE OF MARYLAND — ROBERT HARRIS VOGEL — NO.16193 REGISTERED PROFESSIONAL ENGINEER — 4/28/15
ROBERT H. VOGEL, PE No.16193

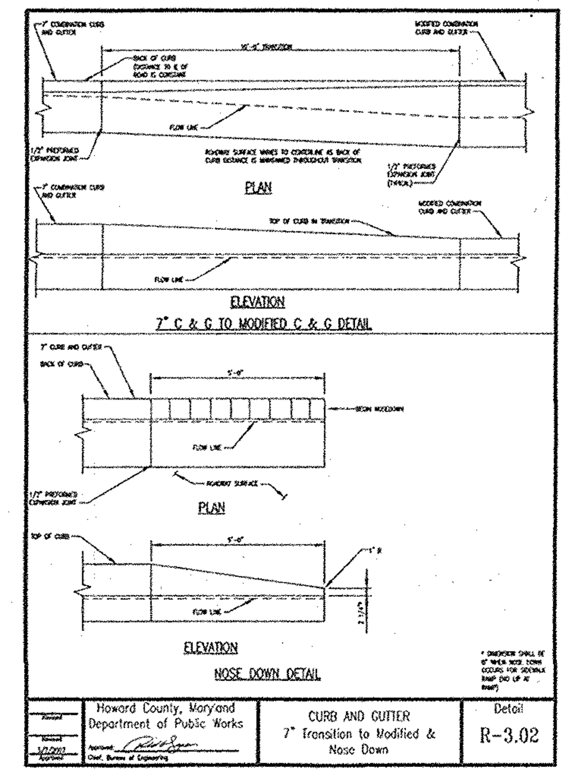
DESIGN BY: EDS
DRAWN BY: EDS/RVE/KG
CHECKED BY: RHV
DATE: APRIL 2015
SCALE: AS SHOWN
W.O. NO.: 11-28

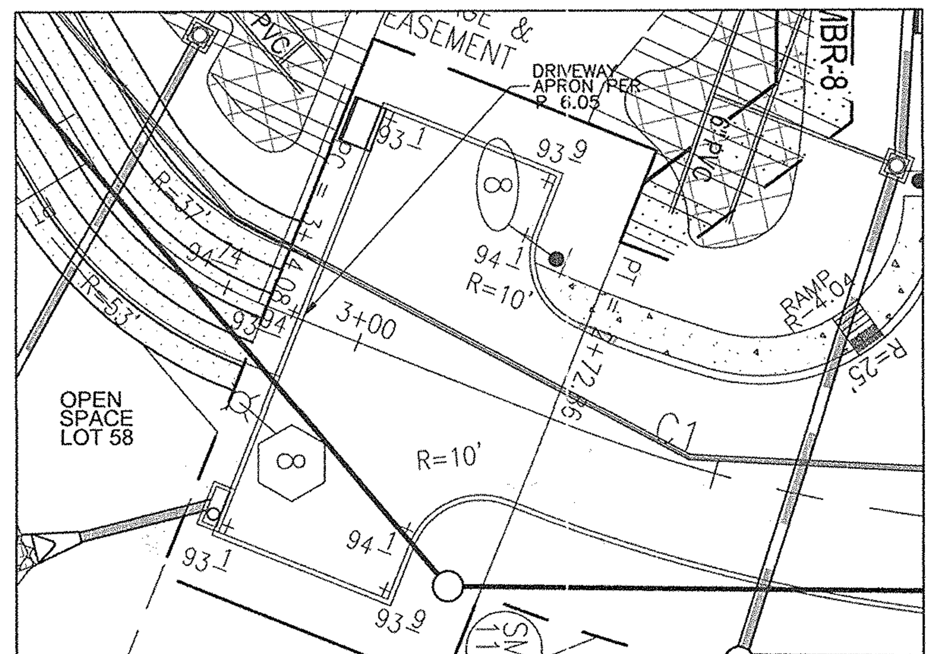


F-14-022

K:\Projects\11-28\ENGR\dwg\FINAL ROAD P1\REDLINE 2 CONSTRUCTION CHANGES\REDLINE-REPLACEMENT\02-OLD SCAGGSVILLE PP-REPLACEMENT.dwg, 4/24/2015 11:26:08 AM



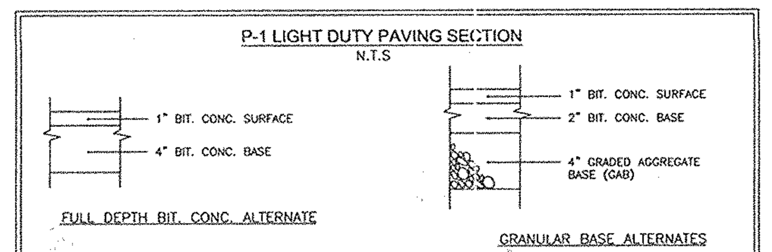

A PRIVATE RANGE OF ADDRESS SIGN SHALL BE FABRICATED AND INSTALLED BY HOWARD COUNTY - BUREAU OF HIGHWAYS AT THE DEVELOPERS / OWNERS EXPENSE. CONTACT HOWARD COUNTY TRAFFIC DIVISION AT 410-313-2430 FOR DETAILS AND COST ESTIMATES.

## CLARKE SPRINGS RIDGE 24' X 60' T-TURN AROUND DETAIL

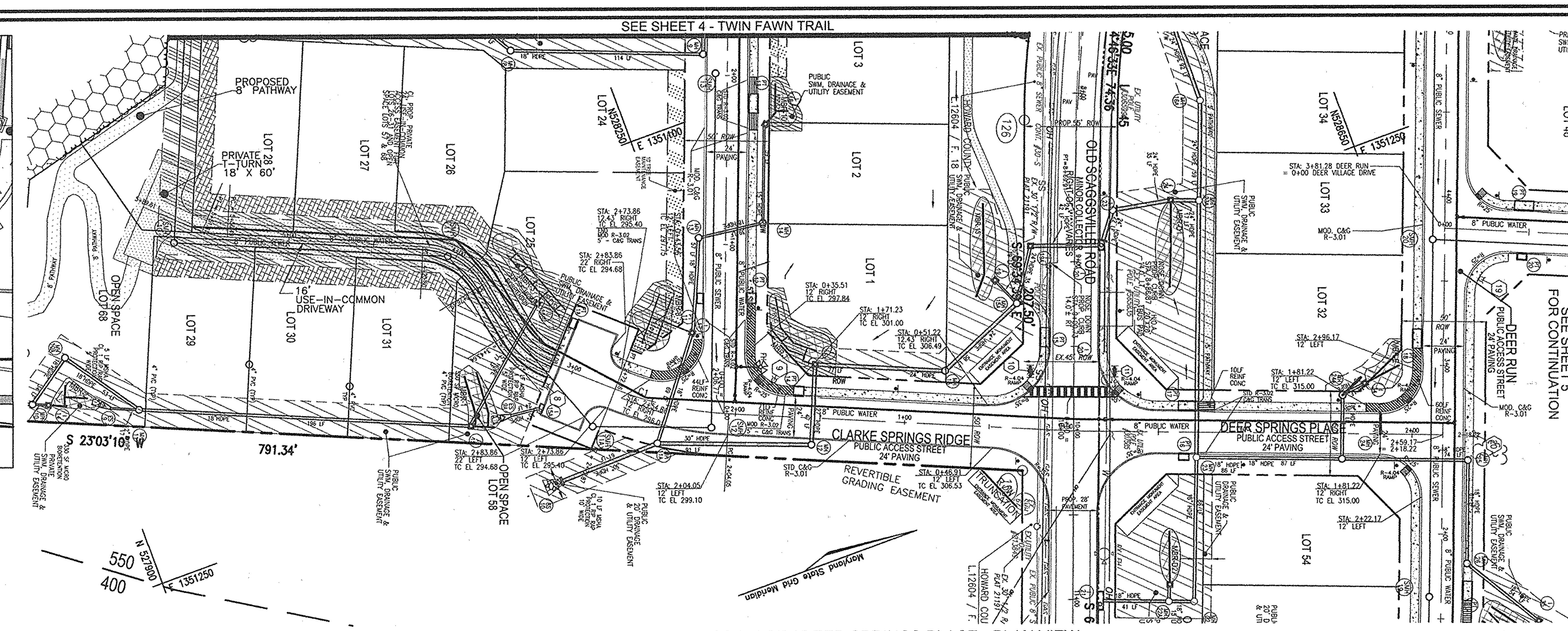
SCALE: 1"=20'

## LEGEND:

- PROPERTY LINE
- RIGHT-OF-WAY LINE
- EXISTING UTILITY POLE
- PROPOSED STORMDRAIN
- PROPOSED STORMDRAIN INLET
- PROPOSED SIDEWALK
- PROPOSED CURB AND GUTTER (R 3.01)
- PROPOSED STREET LIGHT 100 WAT HPS VAPOR PREMIER POST TOP
- PROPOSED STREET LIGHT 150 WATT HPS VAPOR PREMIER POST TOP
- MICRO BIO RETENTION FACILITY
- PROP. PUBLIC SEWER, WATER & UTILITY EASEMENT
- PROP. PUBLIC DRAINAGE & UTILITY EASEMENT
- PRIVATE SWM DRAINAGE & UTILITY EASEMENT




## USE-IN-COMMON DRIVEWAY PAVING SECTION




## CLARKE SPRINGS RIDGE / DEER SPRINGS PLACE - PLAN VIEW

### PUBLIC ACCESS PLACE

DESIGN SPEED: 25 MPH
SCALE: 1"=50'

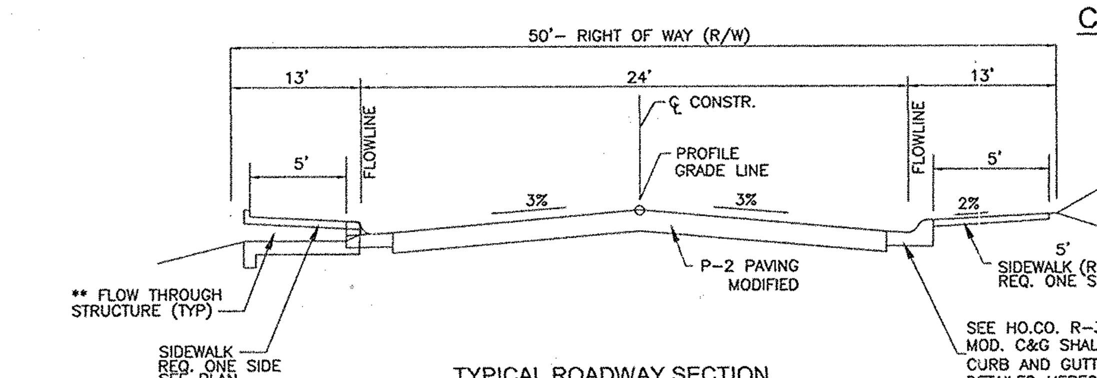
NOTE:
FOR SIDEWALK AREAS ADJACENT TO MICRO-BIORETENTION FACILITIES, SIDEWALKS SHALL BE TRAFFIC BEARING, SEE DETAIL HEREON

## LEGEND:

- REINFORCED CONCRETE SIDEWALK

NOTES:

1. FOR STRUCTURE SCHEDULE SEE SHEET 16
2. REFER TO SHEET 2 FOR OLD SCAGGSVILLE ROAD / CLARKE SPRINGS RIDGE & DEER SPRINGS PLACE CURB RETURN PROFILES AND PLAN DETAILING
3. ALL INTERSECTIONS WILL HAVE HANDICAP RAMPS IN ACCORDANCE WITH THE COUNTY STANDARD DETAILS.
4. REFER TO SHEET 32 FOR REQUIRED STREET LIGHT & STREET SIGN LOCATIONS



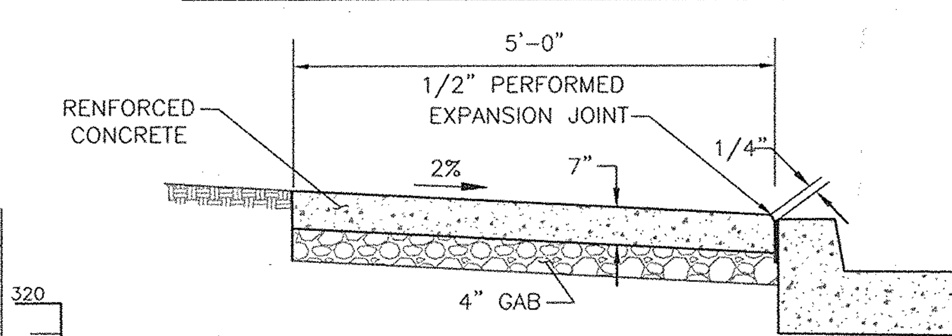

SEE HO.CO. R-3.02; WHERE MODIFIED CURBING IS PROPOSED, MOD. C&G SHALL TRANSITION TO STANDARD COMBINATION CURB AND GUTTER (R-3.01) AT ALL INLETS AND WHERE DETAILED HEREON

** MODIFIED CURBING SHALL TRANSITION TO STANDARD COMBINATION CURB AND GUTTER (R 3.01) AT ALL INLETS. SEE R-3.02 OR AS DETAILED HEREON

## TYPICAL ROADWAY SECTION

PUBLIC ACCESS STREET
CLASSIFICATION: PUBLIC ACCESS PLACE
SECTION NOT TO SCALE

| CURVE TABLE | | | | | | |
|---|---|---|---|---|---|---|
| CURVE | LENGTH | RADIUS | TANGENT | DELTA | CHORD BEARING | CHORD LENGTH |
| C1 | 68.82 | 210.00 | 34.72 | 18°46'32" | S32°26'26"W | 68.51 |




PROVIDE 7" REINFORCED CONCRETE SIDEWALKS NEAR MICRO BIO-RETENTION FACILITIES.

## DETAIL - CONCRETE SIDEWALK

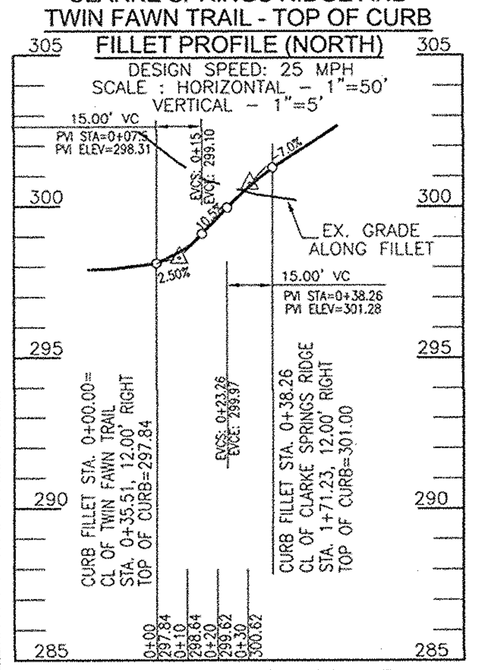
NOT TO SCALE

## STRUCTURE LOCATIONS

| STR # | LOCATION | STR # | LOCATION |
|---|---|---|---|
| I-12 | N 528157.38, E 1350995.62 | PT-20 | 0+41.36, 12.43' RT |
| I-14 | N 527873.12, E 1351127.47 | PT-21 | 1+66.73, 12.43' RT |
| I-15 | N 528103.33, E 1351225.41 | M-8 | N 528201.99, E 1351024.80 |
| I-15A | N 528146.79, E 1351231.02 | M-9 | N 528308.05, E 1351066.10 |
| I-15B | N 528160.96, E 1351174.58 | M-10 | N 527864.47, E 1351123.78 |
| I-16 | 1+54.20, 31.69' RT | M-10A | N 527892.16, E 1351104.55 |
| I-17 | N 528245.17, E 1351218.71 | M-11 | N 527922.50, E 1351148.56 |
| I-18 | N 528328.20, E 1351117.59 | M-11A | N 528203.24, E 1351272.98 |
| I-19 | N 528423.57, E 1351251.28 | M-12 | N 528288.32, E 1351220.92 |
| I-19A | N 528452.25, E 1351240.24 | M-13 | N 528268.06, E 1351167.28 |
| I-20 | 9+50.52, 14.00' LT | M-14 | N 528306.77, E 1351172.06 |
| I-21 | 10+91.60, 14.00' LT | M-15 | N 528377.59, E 1351291.41 |
| I-22 | 10+90.81, 53.71' LT | M-15A | N 528423.57, E 1351251.28 |
| I-23 | 8+95.60, 16.47' LT | M-22 | N 528471.95, E 1351461.10 |
| I-24 | N 528518.66, E 1351265.46 | M-23 | N 528498.68, E 1351390.48 |
| PT-11 | 0+68.01, 12.43' LT | M-24 | N 528579.64, E 1351421.14 |
| PT-11A | 3+07.91, 27.00' RT | M-24A | N 528592.98, E 1351385.89 |
| PT-12 | 0+68.48, 12.43' RT | M-25 | N 528649.26, E 1351447.49 |
| PT-13 | 1+83.68, 12.43' RT | M-26 | N 528627.53, E 1351504.89 |
| PT-14 | 1+63.23, 12.43' RT | ES-6 | N 528101.04, E 1350971.65 |
| PT-15 | 9+44.59, 14.00' RT | ES-7 | N 528188.81, E 1351002.53 |
| PT-16 | 0+65.21, 12.43' RT | ES-8 | N 527814.03, E 1351102.28 |
| PT-17 | 0+67.37, 12.43' LT | ES-9 | N 527906.85, E 1351141.74 |
| PT-18 | 3+15.77, 12.43' LT | ES-9A | N 528127.53, E 1351227.64 |
| PT-19 | 0+38.69, 12.43' LT | ES-10 | N 528142.22, E 1351274.73 |

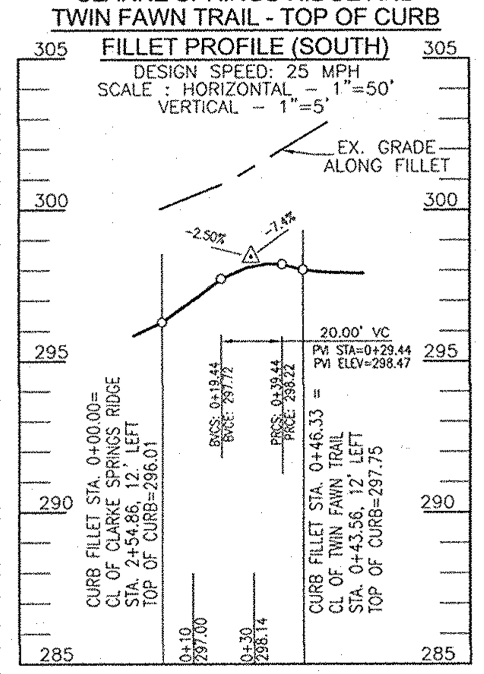
## CLARKE SPRINGS RIDGE AND TWIN FAWN TRAIL - TOP OF CURB FILLET PROFILE (NORTH)

DESIGN SPEED: 25 MPH
SCALE : HORIZONTAL - 1"=50'
VERTICAL - 1"=5'



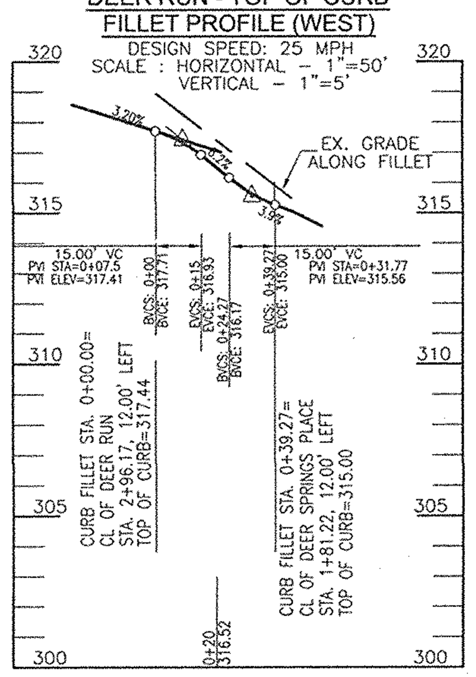

## CLARKE SPRINGS RIDGE AND TWIN FAWN TRAIL - TOP OF CURB FILLET PROFILE (SOUTH)

DESIGN SPEED: 25 MPH
SCALE : HORIZONTAL - 1"=50'
VERTICAL - 1"=5'



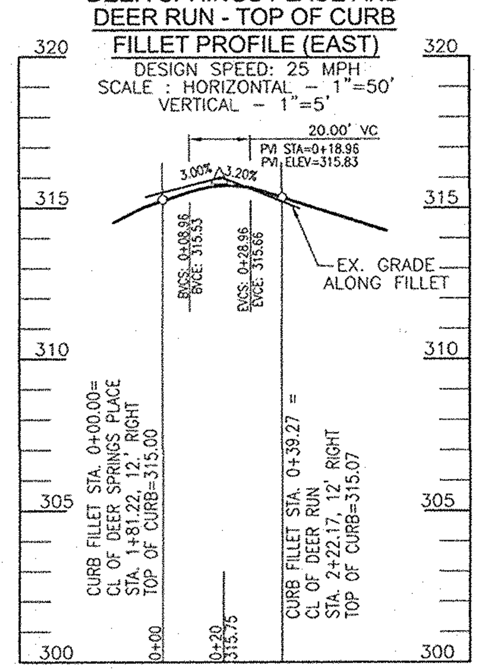

## DEER SPRINGS PLACE AND DEER RUN - TOP OF CURB FILLET PROFILE (WEST)

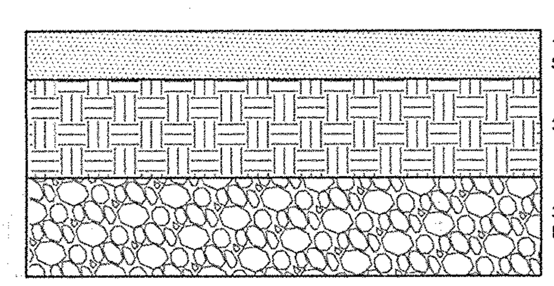
DESIGN SPEED: 25 MPH
SCALE : HORIZONTAL - 1"=50'
VERTICAL - 1"=5'




## DEER SPRINGS PLACE AND DEER RUN - TOP OF CURB FILLET PROFILE (EAST)

DESIGN SPEED: 25 MPH
SCALE : HORIZONTAL - 1"=50'
VERTICAL - 1"=5'

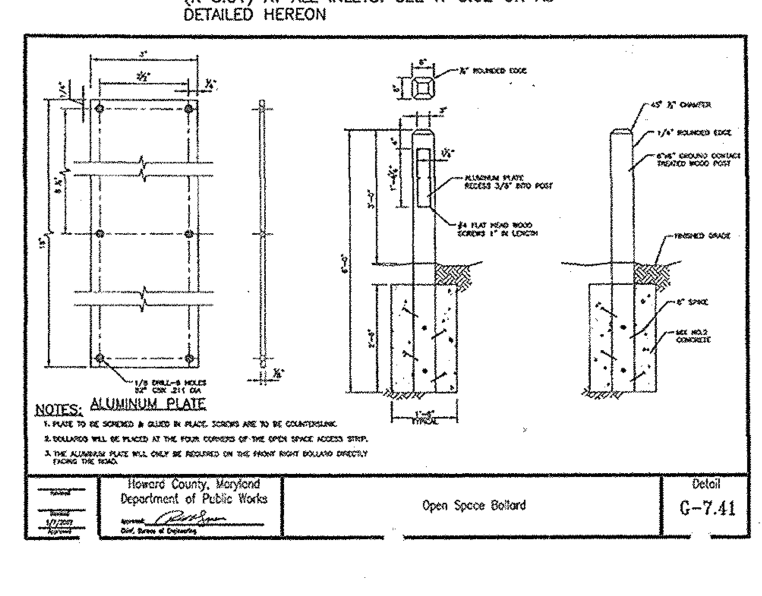


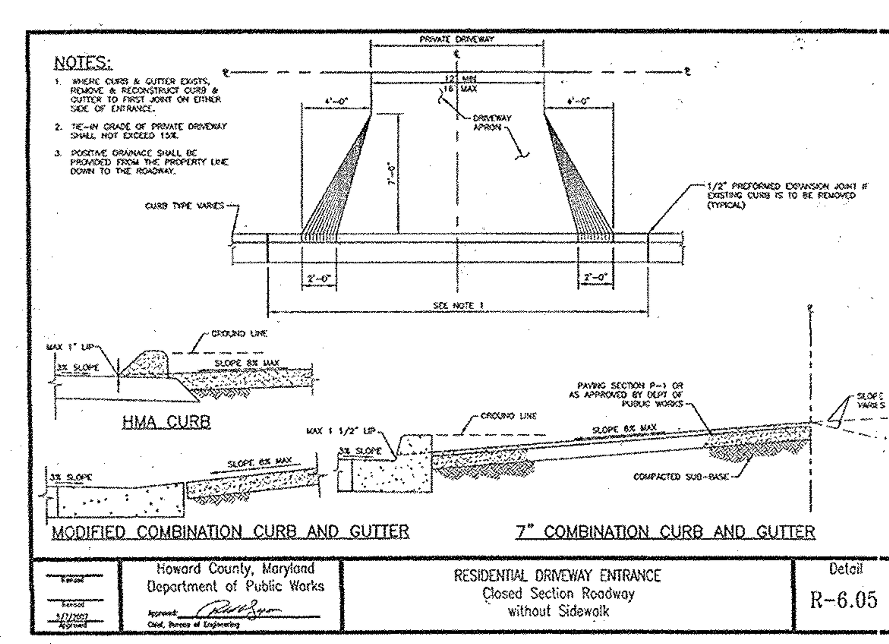



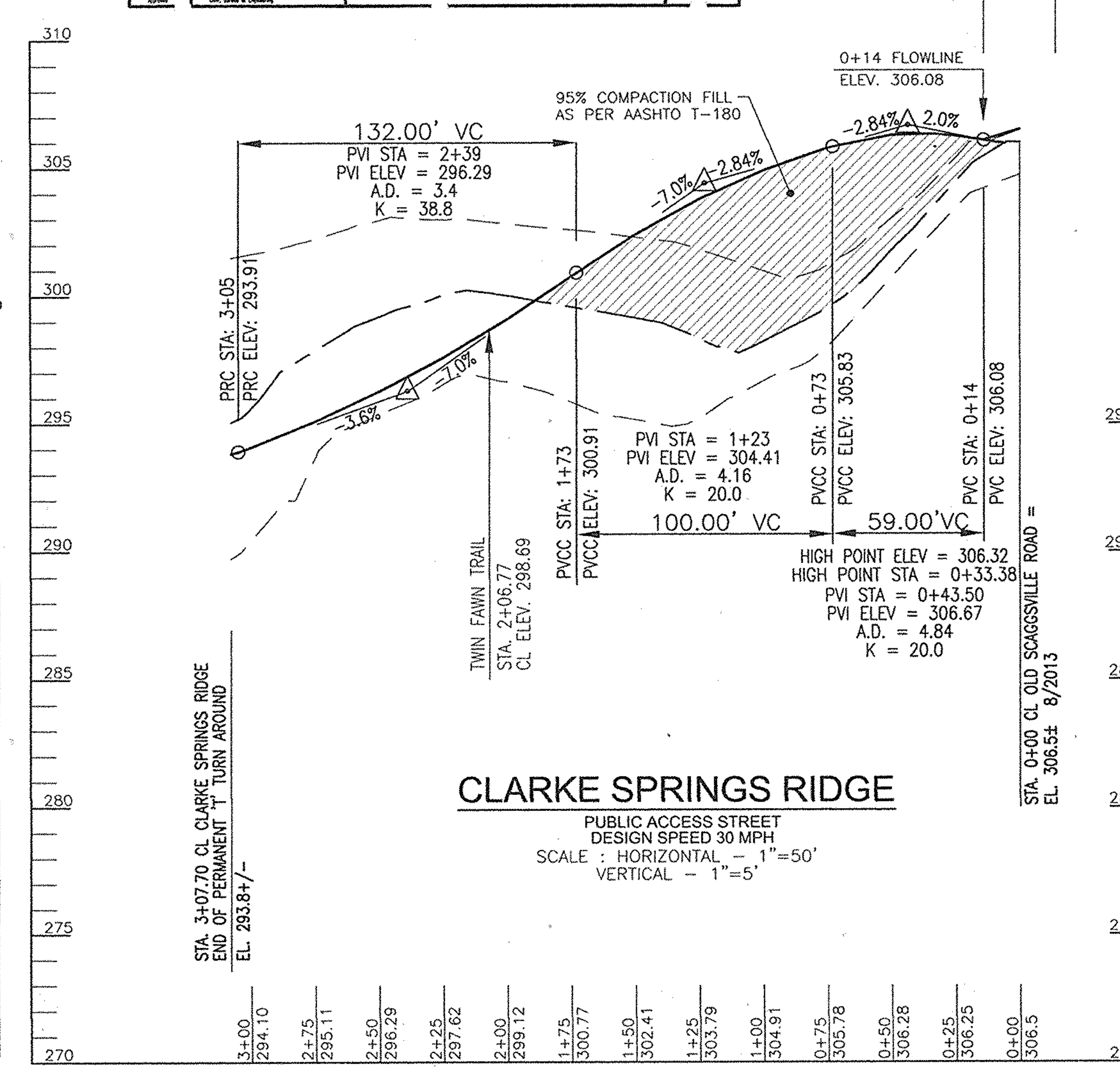

## MODIFIED P-2 PAVING SECTION

N.T.S

NOTE: IMPROVED SUBGRADE REQUIRED (55.4 lbs/sqyd @ 12")
TOP 12" OF PAVEMENT SUBGRADE MODIFIED IN ACCORDANCE WITH HOWARD COUNTY "CEMENT MODIFIED SOIL" (CMS) POLICY

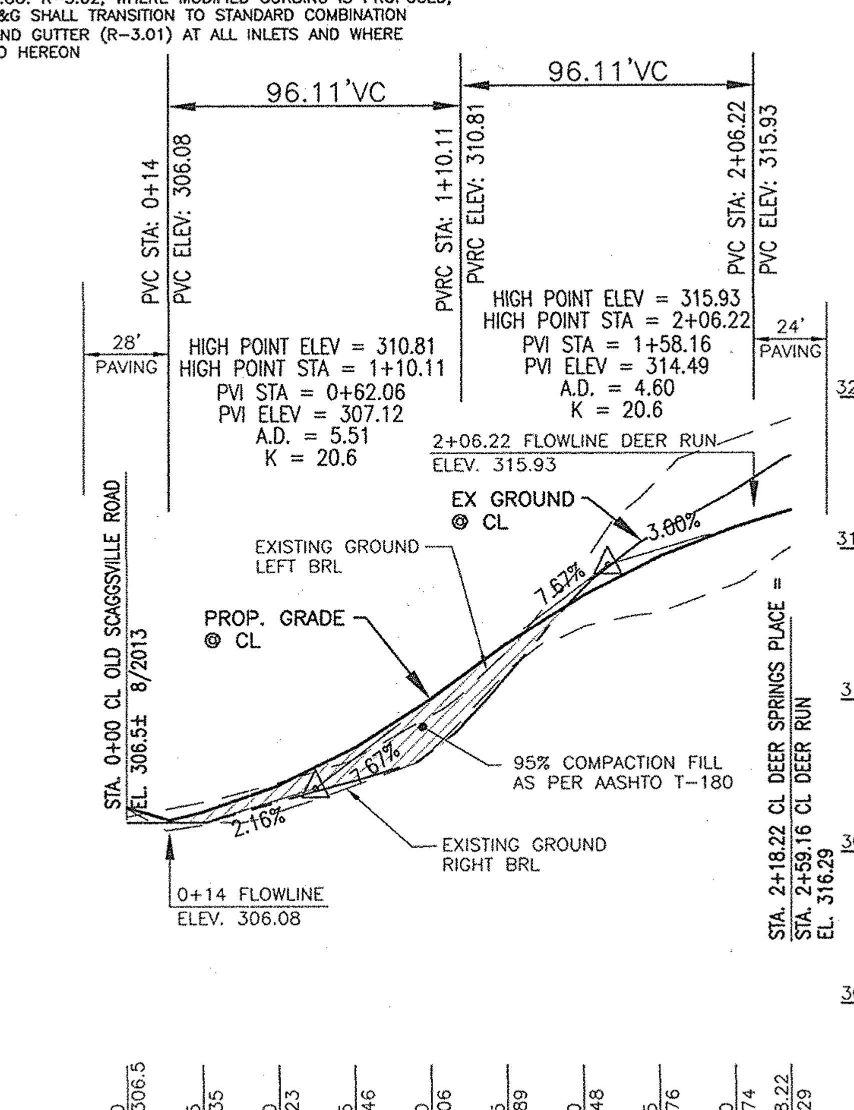


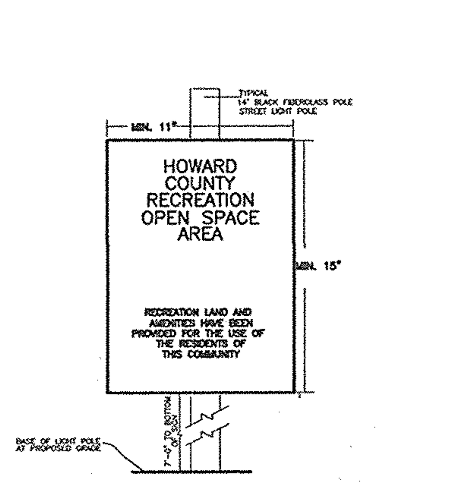

## CLARKE SPRINGS RIDGE

PUBLIC ACCESS STREET
DESIGN SPEED 30 MPH
SCALE : HORIZONTAL - 1"=50'
VERTICAL - 1"=5'

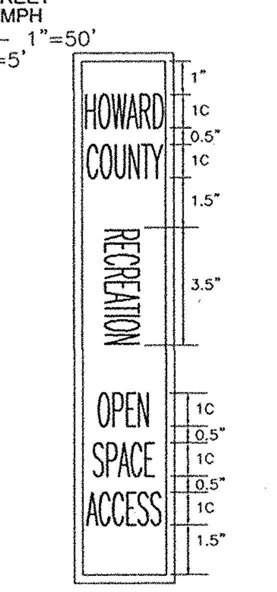



## DEER SPRINGS PLACE

PUBLIC ACCESS STREET
DESIGN SPEED 30 MPH
SCALE : HORIZONTAL - 1"=50'
VERTICAL - 1"=5'




RECREATION OPEN SPACE SIGN DETAIL
NOT TO SCALE




RECREATION OPEN SPACE G-7.41 - 3" X 16" BOLLARD SIGN DETAIL
NOT TO SCALE

| | |
|---|---|
| OWNER | DEVELOPER |
| KATHY MIESSE, PERSONAL REPRESENTATIVE, ESTATE OF ARTHUR P. KRAESKI, 9222 OLD SCAGGSVILLE ROAD, LAUREL, MD 20723-1730, ATTN: MR. DONALD R. REUWER, 443-367-0422 | LAND DESIGN & DEVELOPMENT, INC., 5300 DORSEY HALL DRIVE, STE 102, ELLICOTT CITY, MARYLAND 21042-7819, ATTN: MR. DONALD R. REUWER, 443-367-0422 |

| NO. | REVISION | DATE |
|---|---|---|
| 5 | ADD 10' TREE MAINTENANCE EASEMENT. SHIFT MBR FACILITIES. | 9 / 2015 |
| 4 | MODIFY PAVEMENT SECTION. | 3 / 2015 |
| 3 | REVISE STORM DRAIN LAYOUT ALONG OLD SCAGGSVILLE ROAD | 1 / 2015 |
| 2 | REVISE SUBDIVISION NAME | 7/18/14 |

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 4/1/2016
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 3.28.16
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5-5-16

# REVISED FINAL ROAD CONSTRUCTION PLAN
## ROAD PROFILE & PLAN DETAILS
## CLARKE SPRINGS RIDGE
## DEER SPRINGS PLACE
# HIGH RIDGE MEADOWS - SEC. 1
## LOTS 1 - 54, OPEN SPACE LOTS 55 - 68 AND NON-BUILDABLE BULK PARCEL "B"

A SUBDIVISION OF TAX MAP 50 - PARCEL 363
AND A RESUBDIVISION OF TAX MAP 50 - PARCEL 542
KRAESKI PROPERTY NON-BUILDABLE BULK PARCEL "A" (PLAT 21191)

6TH ELECTION DISTRICT - TAX MAP: 50 GRID: 1
DPZ REF'S: F-10-065, WP-10-087, ECP-12-047, WP-13-080, SP 13-007
ZONED: R-SC
PARCELS: 363 & 542
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

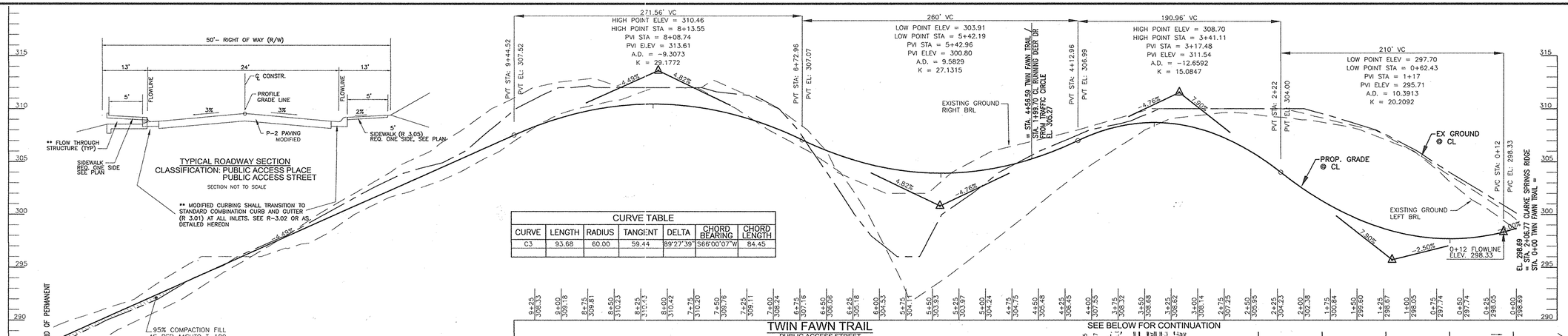

STATE OF MARYLAND — ROBERT HARRIS VOGEL — No. 16193 — REGISTERED PROFESSIONAL ENGINEER — 2/22/16
ROBERT H. VOGEL, PE No.16193

DESIGN BY: EDS
DRAWN BY: EDS/RVE/KG
CHECKED BY: RHV
DATE: SEPTEMBER 2015
SCALE: AS SHOWN
W.O. NO.: 11-28

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




K:\Projects\11-28\ENGR\dwg\FINAL ROAD P1\REDLINE 4 - BGE BIOREDLINE - REPLACEMENT\03-CLARKE-DEER-REPLACEMENT.dwg, 2/22/2016 11:19:07 AM







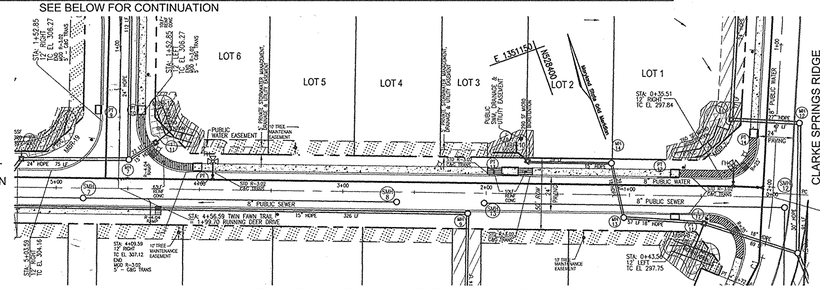
TYPICAL ROADWAY SECTION
CLASSIFICATION: PUBLIC ACCESS PLACE
PUBLIC ACCESS STREET
SECTION NOT TO SCALE

| CURVE TABLE | | | | | | |
|---|---|---|---|---|---|---|
| CURVE | LENGTH | RADIUS | TANGENT | DELTA | CHORD BEARING | CHORD LENGTH |
| C3 | 93.68 | 60.00 | 59.44 | 89°27'39" | S66°00'07"W | 84.45 |
| | | | | | | |

NOTES:
1. FOR STRUCTURE SCHEDULE SEE SHEET 16
2. ALL INTERSECTIONS WILL HAVE HANDICAP RAMPS IN ACCORDANCE WITH THE COUNTY STANDARD DETAILS.
3. REFER TO SHEET 32 FOR REQUIRED STREET LIGHT & STREET SIGN LOCATIONS

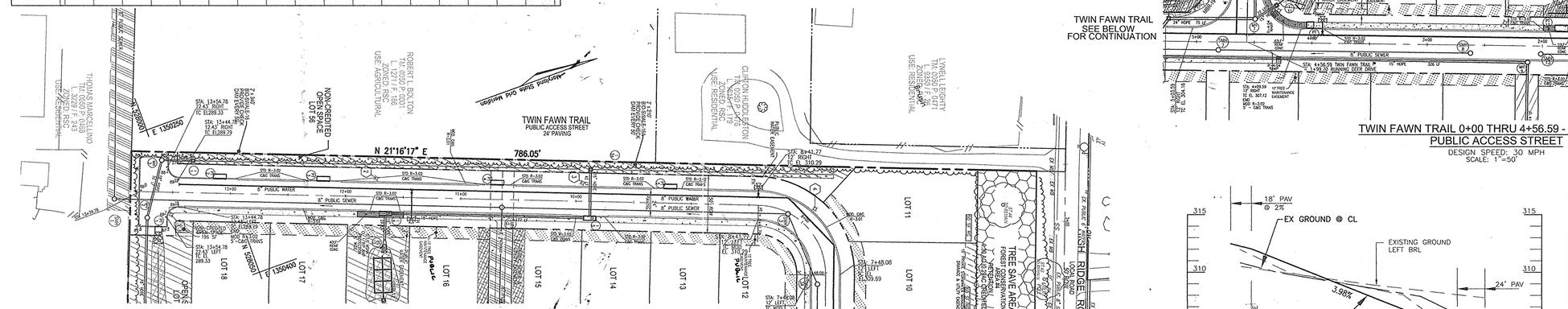
TWIN FAWN TRAIL
PUBLIC ACCESS STREET
DESIGN SPEED 30 MPH
SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'

SEE BELOW FOR CONTINUATION



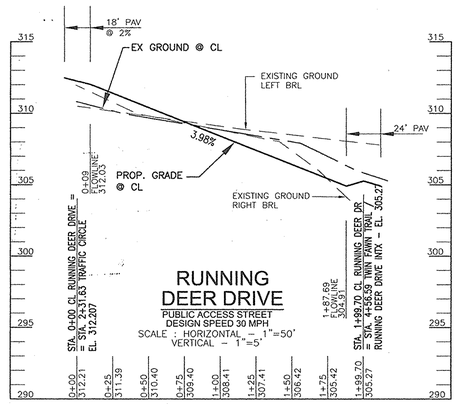

TWIN FAWN TRAIL
SEE BELOW
FOR CONTINUATION

TWIN FAWN TRAIL 0+00 THRU 4+56.59 - PLAN VIEW
PUBLIC ACCESS STREET
DESIGN SPEED: 30 MPH
SCALE: 1"=50'




TWIN FAWN TRAIL 4+56.59 THRU 13+78.78 - PLAN VIEW
PUBLIC ACCESS STREET
DESIGN SPEED: 30 MPH
SCALE: 1"=50'

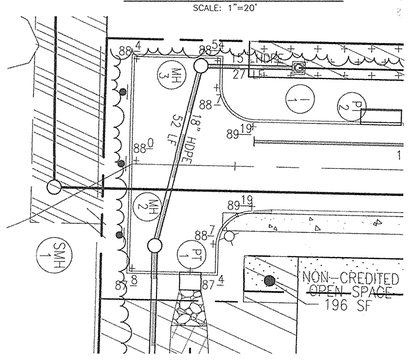
TRAFFIC CIRCLE
SEE SHEET 27
FOR CONTINUATION



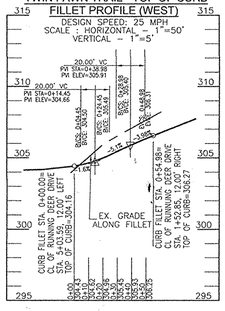

NOTE: FOR SIDEWALK AREAS ADJACENT TO MICRO-BIORETENTION FACILITIES, SIDEWALK SHALL BE TRAFFIC BEARING. SEE DETAIL ON SHEET 3.

LEGEND:
REINFORCED CONCRETE SIDEWALK

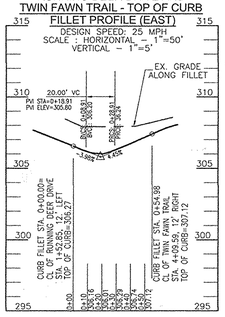
TWIN FAWN TRAIL
24' X 60' T-TURN AROUND DETAIL
SCALE: 1"=20'




RUNNING DEER DRIVE AND TWIN FAWN TRAIL - TOP OF CURB
FILLET PROFILE (WEST)
DESIGN SPEED: 25 MPH
SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'




RUNNING DEER DRIVE AND TWIN FAWN TRAIL - TOP OF CURB
FILLET PROFILE (EAST)
DESIGN SPEED: 25 MPH
SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'




## STRUCTURE LOCATIONS

| STR # | LOCATION | STR # | LOCATION |
|---|---|---|---|
| I-1 | 13+32.86, 27.80' RT | M-1 | N 527937.94, E 1350415.21 |
| I-2 | N 527951.01 E 1350415.27 | M-2 | N 527974.46, E 1350322.06 |
| I-3 | N 528142.93 E 1350459.60 | M-3 | N 528003.67, E 1350279.17 |
| I-4 | 11+65.23,13.1' LT | M-4 | N 528288.90, E 1350693.84 |
| I-5 | 9+87.80, 13.1' LT | M-4A | N 528288.90, E 1350693.84 |
| I-5A | 9+87.80, 28.03' LT | M-5 | N 528422.20, E 1350744.30 |
| I-6 | N 528253.54, E 1350787.37 | M-6 | N 528453.79, E 1350660.72 |
| I-7 | 6+43.13, 41.46' LT | M-7 | N 528424.15, E 1350858.55 |
| I-8 | 6+43.49, 37.61' RT | M-8 | N 528201.99, E 1351024.80 |
| I-9 | 5+99.21, 12.43' LT | M-9 | N 528308.05, E 1351066.10 |
| I-10 | N 528450.35, E 1350786.29 | M-40 | N 528529.01, E 1350896.24 |
| I-11 | N 528428.99, E 1350878.09 | M-41 | N 528541.66, E 1350992.99 |
| I-12 | N 528157.38, E 1350995.62 | ES-1 | N 527939.36, E 1350463.00 |
| I-13 | 5+39.19, 12.43' LT | ES-2 | N 528084.86, E 1350511.91 |
| I-24 | N 528518.66, E 1351285.46 | ES-3 | N 528161.66, E 1350410.68 |
| PT-15 | 9+44.59, 14.00' RT | ES-4 | N 528282.47, E 1350691.41 |
| PT-R1 | 0+33.15, 22.33' RT | ES-R1 | N 528616.00, E 1350852.81 |
| PT-R2 | 0+54.46, 12.43' LT | ES-R3 | N 528526.91, E 1350983.98 |

**OWNER**
KATHY MIESSE, PERSONAL REPRESENTATIVE, ESTATE OF ARTHUR P. KRAESKI
9222 OLD SCAGGSVILLE ROAD
LAUREL, MD 20723–1730
ATTN: MR. DONALD R. REUWER
443–367–0422

**DEVELOPER**
LAND DESIGN & DEVELOPMENT, INC.
5300 DORSEY HALL DRIVE, STE 102
ELLICOTT CITY, MARYLAND 21042–7819
ATTN: MR. DONALD R. REUWER
443–367–0422

| NO. | REVISION | DATE |
|---|---|---|
| | | |
| | | |
| 5 | ADD 10' TREE MAINTENANCE EASEMENT. SHIFT MBR FACILITIES. | 9 / 2015 |
| 4 | MODIFY PAVEMENT SECTION. | 3 / 2015 |
| 3 | REVISE STORM DRAIN LAYOUT ALONG OLD SCAGGSVILLE ROAD | 1 / 2015 |
| 2 | REVISE SUBDIVISION NAME | 7/18/14 |

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 4/1/2016
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 3-28-16
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5-6-16

# REVISED FINAL ROAD CONSTRUCTION PLAN
## ROAD PROFILE & PLAN DETAILS
## TWIN FAWN TRAIL
## RUNNING DEER DRIVE
# HIGH RIDGE MEADOWS - SEC. 1
## LOTS 1 - 54, OPEN SPACE LOTS 55 - 68 AND NON-BUILDABLE BULK PARCEL "B"

A SUBDIVISION OF TAX MAP 50 – PARCEL 363
AND A RESUBDIVISION OF TAX MAP 50 – PARCEL 542
KRAESKI PROPERTY NON–BUILDABLE BULK PARCEL "A" (PLAT 21191)

6TH ELECTION DISTRICT – TAX MAP: 50 GRID: 1 — ZONED: R–SC
DPZ FILE'S: F-10-065, WP-10-087, ECP-12-047, WP-13-080, SP 13-007 — PARCELS: 363 & 542 — 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 — 3/22/16
ROBERT H. VOGEL, PE No.16193

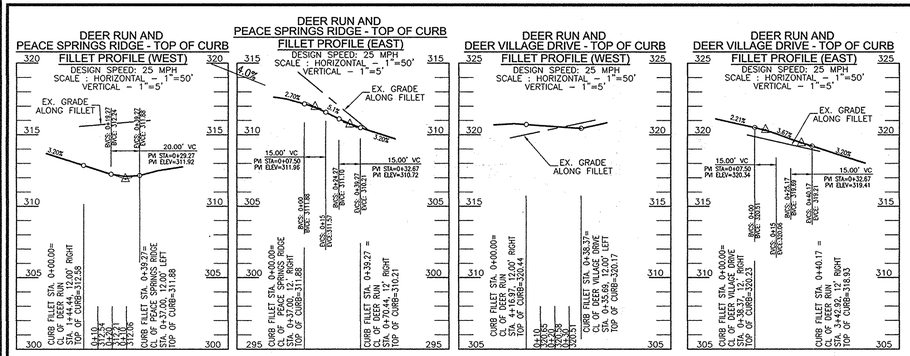
| | |
|---|---|
| DESIGN BY: | EDS |
| DRAWN BY: | EDS/RVE/KG |
| CHECKED BY: | RHV |
| DATE: | SEPTEMBER 2015 |
| SCALE: | AS SHOWN |
| W.O. NO.: | 11–28 |

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

SHEET 4 OF 32

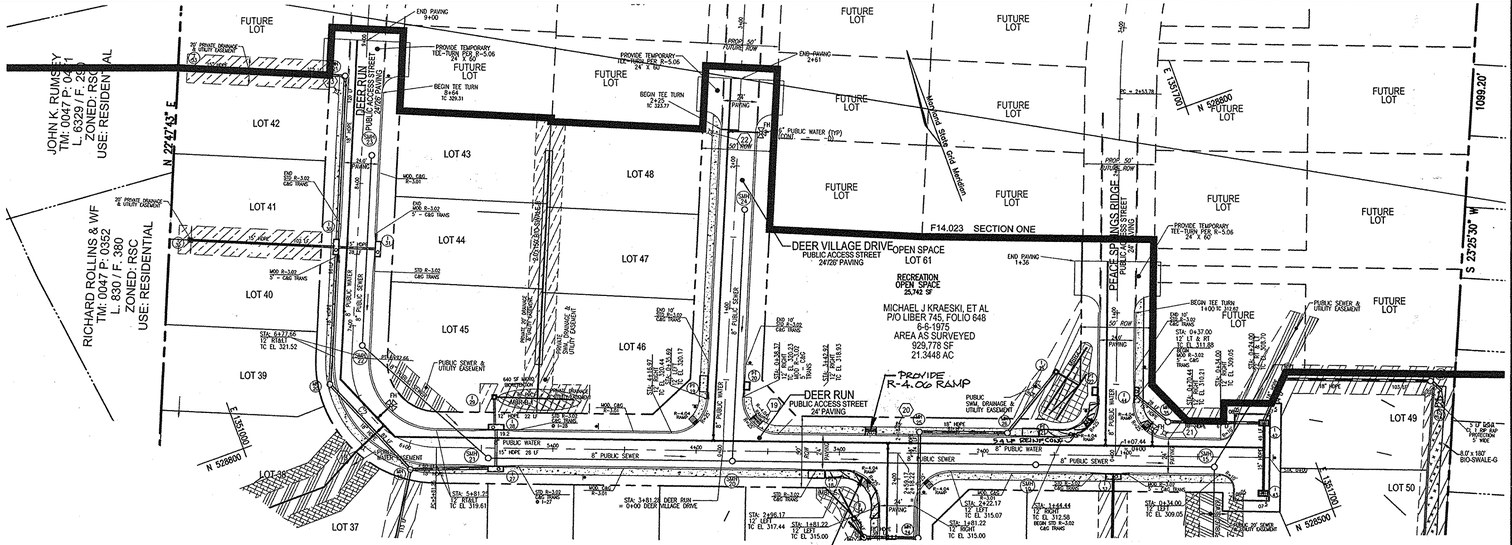
F-14-022

K:\Projects\11-28\ENGR\dwg\FINAL ROAD PLS\RECONS_4 - EDGE BOUNDED.DWG - REPLACEMENT\A-RUNDEER-TWIN\TWIN\PP.dwg, 2/22/2016 11:21:08 AM




## STRUCTURE LOCATIONS

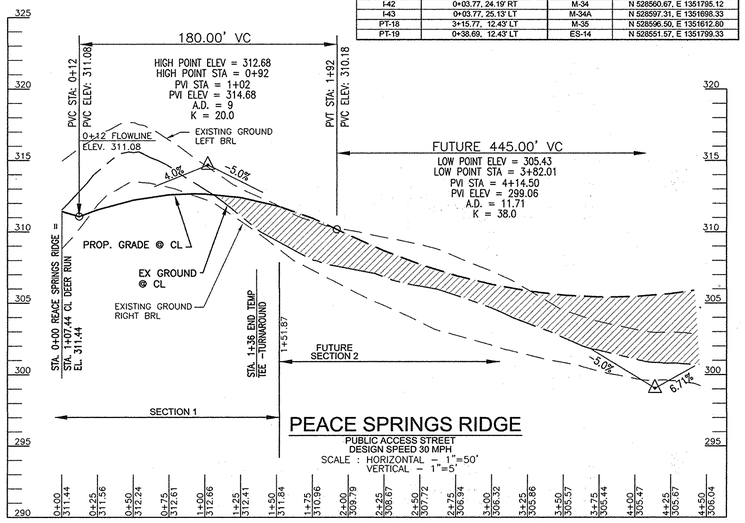
| STR # | LOCATION | STR # | LOCATION |
|---|---|---|---|
| I-27 | 5+39.64, 12.43' LT | PT-20 | 0+41.36, 12.43' RT |
| I-28 | 5+39.64, 12.68' RT | PT-21 | 1+66.73, 12.43' RT |
| I-29 | 5+47.77, 34.21' RT | PT-22 | 0+45.00, 12.43' LT |
| I-30 | 7+54.51, 12.43' LT | M-19 | N 528746.30, E 1351104.59 |
| I-31 | 7+54.51, 12.31' RT | M-20 | N 528821.54, E 1351072.28 |
| I-32 | 7+54.56, 116.52' LT | M-21 | N 529020.92, E 1351156.07 |
| I-33 | 8+74.56, 116.62' RT | M-24 | N 528579.64, E 1351421.14 |
| I-34 | 1+61.81, 29.85' LT | M-24A | N 528592.98, E 1351385.89 |
| I-35 | 0+58.25, 41.99' LT | M-25 | N 528649.26, E 1351447.49 |
| I-37 | 1+08.67, 12.43' LT | M-26 | N 528627.53, E 1351504.89 |
| I-41 | 13+55.57, 91.89' LT | M-27 | N 528692.24, E 1351593.91 |
| I-42 | 0+03.77, 24.19' RT | M-34 | N 528560.67, E 1351795.12 |
| I-43 | 0+03.77, 25.13' LT | M-34A | N 528597.31, E 1351888.33 |
| PT-18 | 3+15.77, 12.43' LT | M-35 | N 528596.50, E 1351612.80 |
| PT-19 | 0+38.69, 12.43' LT | ES-14 | N 528551.57, E 1351799.33 |

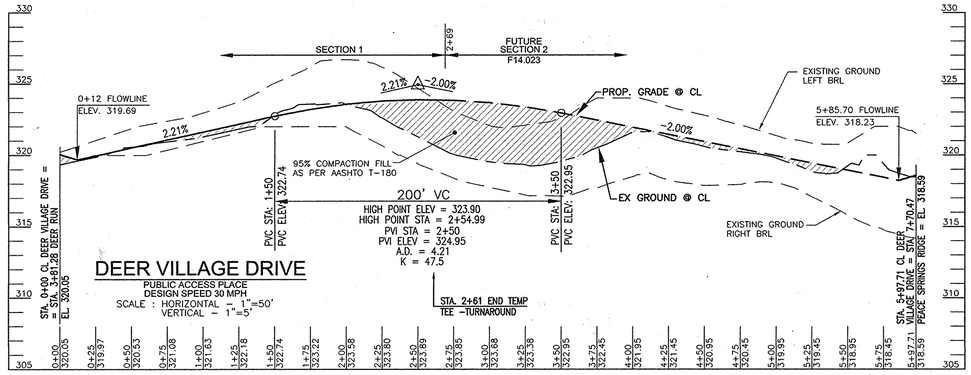



DEER RUN
DEER VILLAGE DRIVE
PEACE SPRINGS RIDGE - PLAN VIEW
PUBLIC ACCESS STREET
DESIGN SPEED: 30 MPH
SCALE: 1"=50'

## CURVE TABLE

| CURVE | LENGTH | RADIUS | TANGENT | DELTA | CHORD BEARING | CHORD LENGTH |
|---|---|---|---|---|---|---|
| C2 | 96.40 | 60.00 | 62.20 | 92°03'47" | S23°14'10"W | 86.36 |



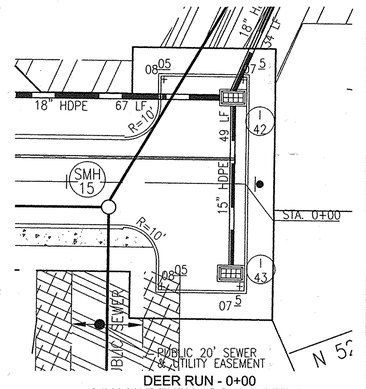




NOTES:

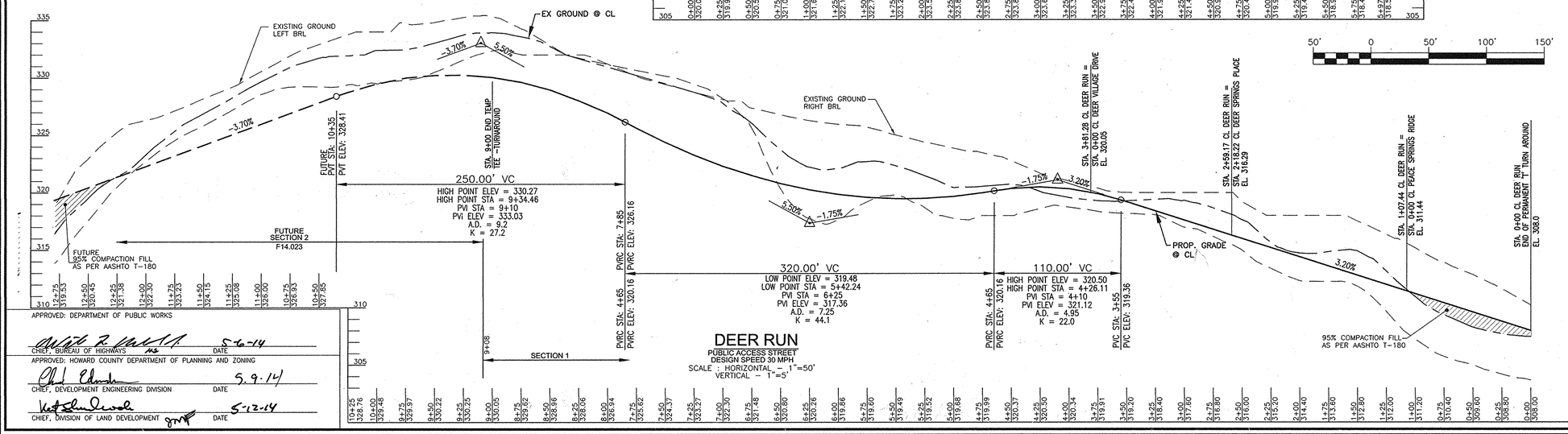
1. FOR STRUCTURE SCHEDULE SEE SHEET 16
2. FOR TYPICAL ROADWAY SECTION, REFER TO SHEET 3 OR 4.
3. REFER TO SHEET 32 FOR REQUIRED STREET LIGHT & STREET SIGN LOCATIONS
4. FOR SIDEWALK AREAS ADJACENT TO MICRO-DIRECTIONAL FACILITIES, SIDEWALK SHALL BE TRAFFIC BEARING. SEE DETAIL ON SHEET 3

LEGEND:

▨ - REINFORCED CONCRETE SIDEWALK




DEER RUN - 0+00
24' X 60' T-TURN AROUND DETAIL
SCALE: 1"=20'




50' 0 50' 100' 150'

## OWNER

KATHY MIESSE, PERSONAL REPRESENTATIVE,
ESTATE OF ARTHUR P. KRAESKI
9222 OLD SCAGGSVILLE ROAD
LAUREL, MD 20723-1730
ATTN: MR. DONALD R. REUWER
443-367-0422

## DEVELOPER

LAND DESIGN & DEVELOPMENT, INC.
5300 DORSEY HALL DRIVE, STE 102
ELLICOTT CITY, MARYLAND 21042-7819
ATTN: MR. DONALD R. REUWER
443-367-0422

| NO. | REVISION | DATE |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| 4 | DRAW ADA RAMPS ALONG DEER RUN | 4/09/15 |
| 2 | REVISE SUBDIVISION NAME | 7/18/14 |

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 5-6-14

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 5.9.14

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5-12-14

FINAL ROAD CONSTRUCTION PLAN
ROAD PROFILE & PLAN DETAILS
DEER RUN, DEER VILLAGE DRIVE AND
PEACE SPRINGS RIDGE

# HIGH RIDGE MEADOWS-SECTION 1

LOTS 1 - 54, OPEN SPACE LOTS 55 - 68
AND NON-BUILDABLE BULK PARCEL "B"
A SUBDIVISION OF TAX MAP 50 - PARCEL 363
AND A RESUBDIVISION OF TAX MAP 50 - PARCEL 542
KRAESKI PROPERTY NON-BUILDABLE BULK PARCEL "A" (PLAT 21191)

6TH ELECTION DISTRICT – TAX MAP: 50 GRID: 1
DPZ REF'S: F-10-065, WP-10-087, ECP-12-047, WP-13-080, SP 13-007
ZONED: R-SC
PARCELS: 363 & 542
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 — PROFESSIONAL ENGINEER — 8/8/14
ROBERT H. VOGEL, PE No.16193

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: 09-27-2014

| | |
|---|---|
| DESIGN BY: | EDS |
| DRAWN BY: | EDS/RVE |
| CHECKED BY: | RHV |
| DATE: | MARCH 2014 |
| SCALE: | AS SHOWN |
| W.O. NO.: | 11-28 |

SHEET 5 OF 32

F 14-022

K:\Projects\11-28\ENGR\dwg\FINAL ROAD P1\05-DEER RUN-PEACE SPRINGS RIDGE\FINAL ROAD P1\05-DEER RUN P2-PP.dwg, 3/27/2014 2:02:12 PM

K:\PROJECTS\11-28\ENGR\DWG\FINAL ROAD P1\05-DEER RUN--PP.DWG

## LEGEND:

- PROPERTY LINE
- RIGHT-OF-WAY LINE
- ADJACENT PROPERTY LINE
- EXISTING CURB AND GUTTER
- EXISTING UTILITY POLE
- EXISTING LIGHT POLE
- EXISTING MAILBOX
- EXISTING SIGN
- EXISTING SANITARY MANHOLE
- EXISTING SANITARY LINE
- EXISTING CLEANOUT
- EXISTING FIRE HYDRANT
- EXISTING WATER LINE
- EXISTING TREELINE
- PROPOSED STORMDRAIN
- PROPOSED STORMDRAIN INLET
- PROPOSED TREELINE
- WATER ZONE DIVIDE (W 550 / 400)
- EX MODERATE SLOPES
- EX STEEP SLOPES
- EXISTING SPECIMEN TREE
- PROPOSED FOREST CONSERVATION RETENTION AREA
- PROPOSED STABILIZED CONSTRUCTION ENTRANCE
- PROPOSED SUPER SILT FENCE
- PROPOSED LIMIT OF DISTURBANCE
- PROPOSED SILT FENCE
- PROPOSED INLET PROTECTION
- PROPOSED TREE PROTECTION FENCE
- EARTH DIKE (A-2)
- PERIMETER DIKE SWALE (PDS-2)
- PROPOSED 10' CONTOUR
- PROPOSED 2' CONTOUR
- PROPOSED DRAINAGE DIVIDE
- EXISTING DRAINAGE DIVIDE

### SEDIMENT TRAP #1 TSWM DATA

REFER TO SHEET 11 FOR TRAP SCHEDULE

| | |
|---|---|
| EX. Q1 | 0.0 CFS |
| PROP. Q1 | 0.0 CFS |
| Q1 STORAGE PROVIDED: | 24,993 CF± @ 281.33 |

### SEDIMENT TRAP #2 TSWM DATA

REFER TO SHEET 11 FOR TRAP SCHEDULE

| | |
|---|---|
| EX. Q1 | 0.4 CFS |
| PROP. Q1 | 0.0 CFS |
| Q1 STORAGE PROVIDED: | 14,453 CF± @ 288.82 |

### SEDIMENT TRAP #3 TSWM DATA

REFER TO SHEET 12 FOR TRAP SCHEDULE

| | |
|---|---|
| EX. Q1 | 1.95 CFS |
| PROP. Q1 | 0.2 CFS |
| Q1 STORAGE PROVIDED: | 28721 CF± @ 288.42 |

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

KATHY MIESSE, PERSONAL REPRESENTATIVE,
ESTATE OF ARTHUR P. KRAESKI
9222 OLD SCAGGSVILLE ROAD
LAUREL, MD 20723-1730
ATTN: MR. DONALD R. REUWER
443-367-0422

### DEVELOPER

LAND DESIGN & DEVELOPMENT, INC.
5300 DORSEY HALL DRIVE, STE 102
ELLICOTT CITY, MARYLAND 21042-7819
ATTN: MR. DONALD R. REUWER
443-367-0422

| NO. | REVISION | DATE |
|---|---|---|
| | | |
| | | |
| | | |
| 3 | REVISE STORM DRAIN ALIGNMENT TO AVOID CONFLICT WITH OTHER UTILITIES | 3/12/15 |
| 2. | REVISE SUBDIVISION NAME | 7/18/14 |

## NOTES

1. REFER TO SHEET 11 FOR SEQUENCE OF CONSTRUCTION
2. REFER TO SHEET 11 & 12 FOR TRAP SCHEDULE/DETAILS
3. REFER TO SHEETS 10 & 11 FOR STANDARD DETAILS AND STABILIZATION NOTES

NOTE:
THIS PLAN MAY NOT BE USED TO OBTAIN PERMITS FOR HOUSE CONSTRUCTION.

## PHASE 1 - GRADING PLAN

SCALE: 1"=50'

50' 0 50' 100' 150'

NOTE: LOCATE STOCKPILE AS SHOWN HEREON OR AS DIRECTED BY THE SEDIMENT CONTROL INSPECTOR. STOCKPILES EXCEEDING 15 FEET IN HEIGHT SHALL BE BENCHED. SEE STABILIZATION SPEC.S SHEET 10

NOTE:
ALL EARTH DIKES AND/OR ALL SEDIMENT CONTROLS INTERRUPTED BY THE INSTALLATION OF A STORM DRAIN ARE TO BE REPAIRED IMMEDIATELY.

NOTE:
EITHER PERMANENT OR TEMPORARY STABILIZATION IS TO BE APPLIED AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR REGARDLESS OF DAYS/DATES IN THE STANDARD SEDIMENT CONTROL NOTES AND/OR SEEDING SPECIFICATIONS.

### MAPPED SOILS TYPES

| SYMBOL | NAME / DESCRIPTION | GROUP | HYDRIC | HYDRIC INCLUSIONS | Kw RANGE* | ROSE FLOODING | CLOSE SLOPE W/ EROSION POTENTIAL |
|---|---|---|---|---|---|---|---|
| CeB | CHILLUM LOAM, 2 TO 5 PERCENT SLOPES | B | NO | | 0.15 – 0.37 | | NO |
| CeC | CHILLUM LOAM, 5 TO 10 PERCENT SLOPES | B | NO | | 0.15 – 0.37 | | PARTIAL |
| CrD | CROOM & EVESBORO, 10 TO 15 PERCENT SLOPES | C | NO | | 0.28 | | NO |
| Fa | FALLSINGTON SANDY LOAM, 0 TO 2 PERCENT SLOPES | D | YES | | 0.02 – 0.24 | | NO |
| SrB | SASSAFRAS GRAVELLY SANDY LOAM, 2 TO 5 PERCENT SLOPES | B | NO | | 0.17 – 0.24 | | NO |
| SrD | SASSAFRAS AND CROOM SOILS, 10 TO 15 PERCENT SLOPES | B | NO | | 0.32 – 0.37 | | PARTIAL |
| UcB | URBAN LAND-CHILLUM-BELTSVILLE COMPLEX, 0 TO 5 PERCENT SLOPES | D | NO | | 0.37 | | NO |

TAKEN FROM: USDA, SCS-WEB SOIL SURVEY, HOWARD COUNTY
K-FACTOR = Kw @ 0-4" DEPTH
* BASED UPON ESTIMATED CUTS

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

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 5-6-14

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 5.9.14

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5-12-14

BY THE DEVELOPER:

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

K. Shoichkov — SIGNATURE OF DEVELOPER — 4/11/14 DATE

BY THE ENGINEER:

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

SIGNATURE OF ENGINEER — 4/2/14 DATE

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

John R Robertson — HOWARD S.C.D. — 4/17/14 DATE

# FINAL ROAD CONSTRUCTION PLAN
## PHASE 1 - GRADING AND SOIL EROSION, AND SEDIMENT CONTROL PLAN
## HIGH RIDGE MEADOWS- SECTION 1
LOTS 1-54, OPEN SPACE LOTS 55-68
AND NON-BUILDABLE BULK PARCEL "B"
A SUBDIVISION OF TAX MAP 50 – PARCEL 363
AND A RESUBDIVISION OF TAX MAP 50 – PARCEL 542
KRAESKI PROPERTY NON-BUILDABLE BULK PARCEL "A" (PLAT 21191)

6TH ELECTION DISTRICT – TAX MAP: 50 GRID: 1 — ZONED: R-SC
DPZ REF'S: F-10-065, WP-10-087, ECP-12-047, WP-13-080, SP 13-007 — PARCELS: 363 & 542
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 — PROFESSIONAL ENGINEER — 4/2/14

ROBERT H. VOGEL, PE No.16193

DESIGN BY: EDS
DRAWN BY: EDS/RVE
CHECKED BY: RHV
DATE: MARCH 2014
SCALE: AS SHOWN
W.O. NO.: 11-28

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: 09-27-2014

SHEET 6 OF 32

F 14-022

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# PHASE 1 - GRADING PLAN

SCALE: 1"=50'

50' 0 50' 100' 150'

**NOTE:**
THIS PLAN MAY NOT BE USED TO OBTAIN PERMITS FOR HOUSE CONSTRUCTION.

**NOTE:**
ALL EARTH DIKES AND/OR ALL SEDIMENT CONTROLS INTERRUPTED BY THE INSTALLATION OF A STORM DRAIN ARE TO BE REPAIRED IMMEDIATELY.

## LEGEND:

- PROPERTY LINE
- RIGHT-OF-WAY LINE
- ADJACENT PROPERTY LINE
- EXISTING CURB AND GUTTER
- EXISTING UTILITY POLE
- EXISTING LIGHT POLE
- EXISTING MAILBOX
- EXISTING SIGN
- EXISTING SANITARY MANHOLE
- EXISTING SANITARY LINE
- EXISTING CLEANOUT
- EXISTING FIRE HYDRANT
- EXISTING WATER LINE
- EXISTING TREELINE
- PROPOSED STORMDRAIN
- PROPOSED STORMDRAIN INLET
- PROPOSED TREELINE
- WATER ZONE DIVIDE (W 550 / 400)
- EX MODERATE SLOPES
- EX STEEP SLOPES
- EXISTING SPECIMEN TREE
- PROPOSED FROST CONSERVATION RETENTION AREA
- PROPOSED 10' CONTOUR / PROPOSED 2' CONTOUR
- PROPOSED STABILIZED CONSTRUCTION ENTRANCE
- PROPOSED SUPER SILT FENCE / PROPOSED LIMIT OF DISTURBANCE
- PROPOSED TREE PROTECTION FENCE
- PROPOSED DRAINAGE DIVIDE
- EXISTING DRAINAGE DIVIDE
- EARTH DIKE (A-2)
- PROPOSED STANDARD INLET PROTECTION
- CLEAN WATER DIVERSION DIKE (A-1)

**NOTE:**
DURING PHASE 1, PROVIDE EROSION CONTROL MATTING IN SWALE TOWARD I-39.

PHASE 1 SWALE SHALL BE CONVERTED TO A BIOSWALE UNDER PHASE 2

**NOTE:**
IMMEDIATELY STABILIZE WITH PERMANENT STABILIZATION LOCATE SILT FENCE AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR.

BRIG & TAMMY DICKINSON TM: 0047 P: 0953 L: 5170 / F: 662 ZONED: RSC USE: RESIDENTIAL

ALAN J. SOPER TM: 0047 P: 0396 L: 5616 / F: 0239 ZONED: RSC USE: RESIDENTIAL

JOHN M. F TM: 0047 L: 6089 ZONED: RSC USE: RESI

RICHARD ROBINS & WF TM: 0047 P: 0352 L: 830 / F: 380 ZONED: RSC USE: RESIDENTIAL

TM 0047 P 0561 THERESA & WILLIAM ATKINS L 2979 F 251 USE: RESIDENTIAL

PLAT OF "WILLIAM SOPER" PLAT 5460

SECTION TWO

SECTION ONE

OLD SCAGGSVILLE ROAD MINOR COLLECTOR FUTURE 4'-RSH SIDEWALK

DEER RUN

DEER VILLAGE DRIVE

PEACE SPRINGS RIDGE

DEER SPRINGS PLACE

BRYANT AVENUE

NON-BUILDABLE BULK PARCEL "B"

OPEN SPACE LOT 61 RECREATION OPEN SPACE 25,745 SF

MICHAEL J KRAESKI, ET AL P/O LIBER 745, FOLIO 648 6-5-1976 AREA AS SURVEYED 929,778 SF 21.3448 AC

OPEN SPACE LOT 60

OPEN SPACE LOT 62

STOCKPILE LOCATION REFER TO STOCKPILE NOTE THIS SHEET

BASIN #4

EX DA 1.4 AC
PRO DA 8.2 AC

PROVIDE 24" CULVERT UNDER SCE

A-1 EARTH DIKE

A-2 EARTH DIKE

LOD

N 529000

E 535500

N 528750

E 535000

R=445.00 L=471.45 CH=S48°33'36"E 450.36

R=750.00 L=189.90 CH=S77°23'43"E 189.39

S 69°16'04" E 163.05

S 69°34'39" E 560.28

# PHASE 2 BORROW AREA

MATCHLINE SHEET 6

MATCHLINE SHEET 6

## OWNER

KATHY MIESSE, PERSONAL REPRESENTATIVE,
ESTATE OF ARTHUR P. KRAESKI
9222 OLD SCAGGSVILLE ROAD
LAUREL, MD 20723-1730
ATTN: MR. DONALD R. REUWER
443-367-0422

## DEVELOPER

LAND DESIGN & DEVELOPMENT, INC.
5300 DORSEY HALL DRIVE, STE 102
ELLICOTT CITY, MARYLAND 21042-7819
ATTN: MR. DONALD R. REUWER
443-367-0422

**Standard Stabilization Note**

Following initial soil disturbance or re-disturbance, permanent or temporary stabilization must be completed within:

a.) Three (3) calendar days as to the surface of all perimeter dikes, swales, ditches, perimeter slopes, and all slopes steeper than 3 horizontal to 1 vertical (3:1); and

b.) Seven (7) calendar days as to all other disturbed or graded areas on the project site not under active grading.

**NOTE:**
EITHER PERMANENT OR TEMPORARY STABILIZATION IS TO BE APPLIED AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR REGARDLESS OF DAYS/DATES IN THE STANDARD SEDIMENT CONTROL NOTES AND/OR SEEDING SPECIFICATIONS.

MAPPED SOILS TYPES

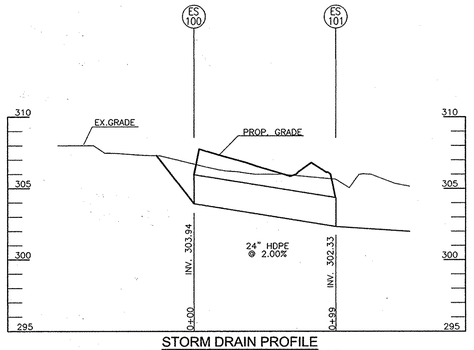
| SYMBOL | NAME / DESCRIPTION | GROUP | HYDRIC | HYDRIC INCLUSIONS | Kw RANGE* | PRIME FARMLAND | CLYEY SLOPE W/ EROSION POTENTIAL |
|---|---|---|---|---|---|---|---|
| CvB | CHILLUM LOAM, 2 TO 5 PERCENT SLOPES | B | NO | | 0.15 – 0.37 | | NO |
| CvC | CHILLUM LOAM, 5 TO 10 PERCENT SLOPES | B | NO | | 0.15 – 0.37 | | PARTIAL |
| GrD | GROOM & EVESBORO, 10 TO 15 PERCENT SLOPES | C | NO | | 0.28 | | NO |
| Fo | FALLSINGTON SANDY LOAM, 0 TO 2 PERCENT SLOPES | D | YES | | 0.02 – 0.24 | | NO |
| SfB | SASSAFRAS GRAVELLY SANDY LOAM, 2 TO 5 PERCENT SLOPES | B | NO | | 0.17 – 0.24 | | NO |
| SrD | SASSAFRAS AND CROOM SOILS, 10 TO 15 PERCENT SLOPES | B | NO | | 0.32 – 0.37 | | PARTIAL |
| UrB | URBAN LAND-CHILLUM-BELTSVILLE COMPLEX, 0 TO 5 PERCENT SLOPES | D | NO | | 0.37 | | NO |

TAKEN FROM: USDA, SCS-WEB SOIL SURVEY, HOWARD COUNTY
K=FACTOR = Kw @ 0'-4" DEPTH
* BASED UPON ESTIMATED CUTS

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

## NOTES

1. REFER TO SHEET 11 FOR SEQUENCE OF CONSTRUCTION
2. REFER TO SHEET 12 FOR BASIN DETAILS




STORM DRAIN PROFILE
TEMPORARY PIPE UNDER SCE
SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'

**BASIN # 4** SEE SHT 12

| | |
|---|---|
| FACILITY TYPE: | TEMPORARY BASIN |
| EX. DRAINAGE AREA: | 1.4 AC. |
| PROP. DRAINAGE AREA: | 8.2 AC. |
| TOTAL WET STORAGE RQD: | 14,760 Cf |
| TOTAL DRY STORAGE RQD: | 14,760 Cf |
| TOTAL STORAGE REQUIRED: | 29,520 Cf |
| TOTAL WET STORAGE PRVD: | 15,282 Cf |
| TOTAL DRY STORAGE PRVD: | 15,790 Cf |
| TOTAL STORAGE PROVIDED: | 31,072 Cf |
| BOTTOM ELEV: | 292.00 |
| CREST ELEVATION: | 297.00 |
| WET STORAGE ELEVATION: | 292.00–293.70 |
| DRY STORAGE ELEVATION: | 293.70–295.20 |
| TOTAL STORAGE DEPTH: | 3.2' (292.0–295.2) |
| TOP OF EMBANKMENT: | 300.00 (SETTLED) |
| CLEANOUT ELEVATION: | 292.90 |
| SIDE SLOPES: | 2:1 INSIDE<br>3:1 OUTSIDE |
| EMERGENCY SPILLWAY: | 8' |

Q1 (EX.): 0.1 CFS
Q1 (BASIN): 0.6 CFS *
*THROUGH DEWATER DEVICE ORIFICE
1 YR TSWM WSEL= 295.78
10 YR TSWM WSEL= 298.16

BAFFLE DESIGN:
SEE SHT 12

**NOTE:**
CONTRACTOR TO PROVIDE IMMEDIATE REPAIR OF ANY EARTH DIKES INTERRUPTED DURING CONSTRUCTION.

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 5-6-14

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 5.9.14

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5-12-14

BY THE DEVELOPER:

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

SIGNATURE OF DEVELOPER — DATE 4/1/14

BY THE ENGINEER:

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

SIGNATURE OF ENGINEER — DATE 4/2/14

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

HOWARD S.C.D. — DATE 4/17/14

| NO. | REVISION | DATE |
|---|---|---|
| | | |
| | | |
| | | |
| 3 | REVISE STORM DRAIN ALIGNMENT TO AVOID CONFLICT WITH OTHER UTILITIES | 3/12/15 |
| 2 | REVISE SUBDIVISION NAME | 7/8/14 |

# FINAL ROAD CONSTRUCTION PLAN
## PHASE 1 - GRADING AND SOIL EROSION, AND SEDIMENT CONTROL PLAN
## HIGH RIDGE MEADOWS - SECTION 1

LOTS 1 - 54, OPEN SPACE LOTS 55 - 68
AND NON-BUILDABLE BULK PARCEL "B"
A SUBDIVISION OF TAX MAP 50 – PARCEL 363
AND A RESUBDIVISION OF TAX MAP 50 – PARCEL 542
KRAESKI PROPERTY NON-BUILDABLE BULK PARCEL "A" (PLAT 21191)

6TH ELECTION DISTRICT – TAX MAP: 50 GRID: 1 — ZONED: R-SC
DPZ REF'S: F-10-055, WP-10-087, ECP-12-047, WP-13-080, SP 13-007 — PARCELS: 363 & 542
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 — PROFESSIONAL ENGINEER — 4/2/14

ROBERT H. VOGEL, PE No.16193

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: 09-27-2014

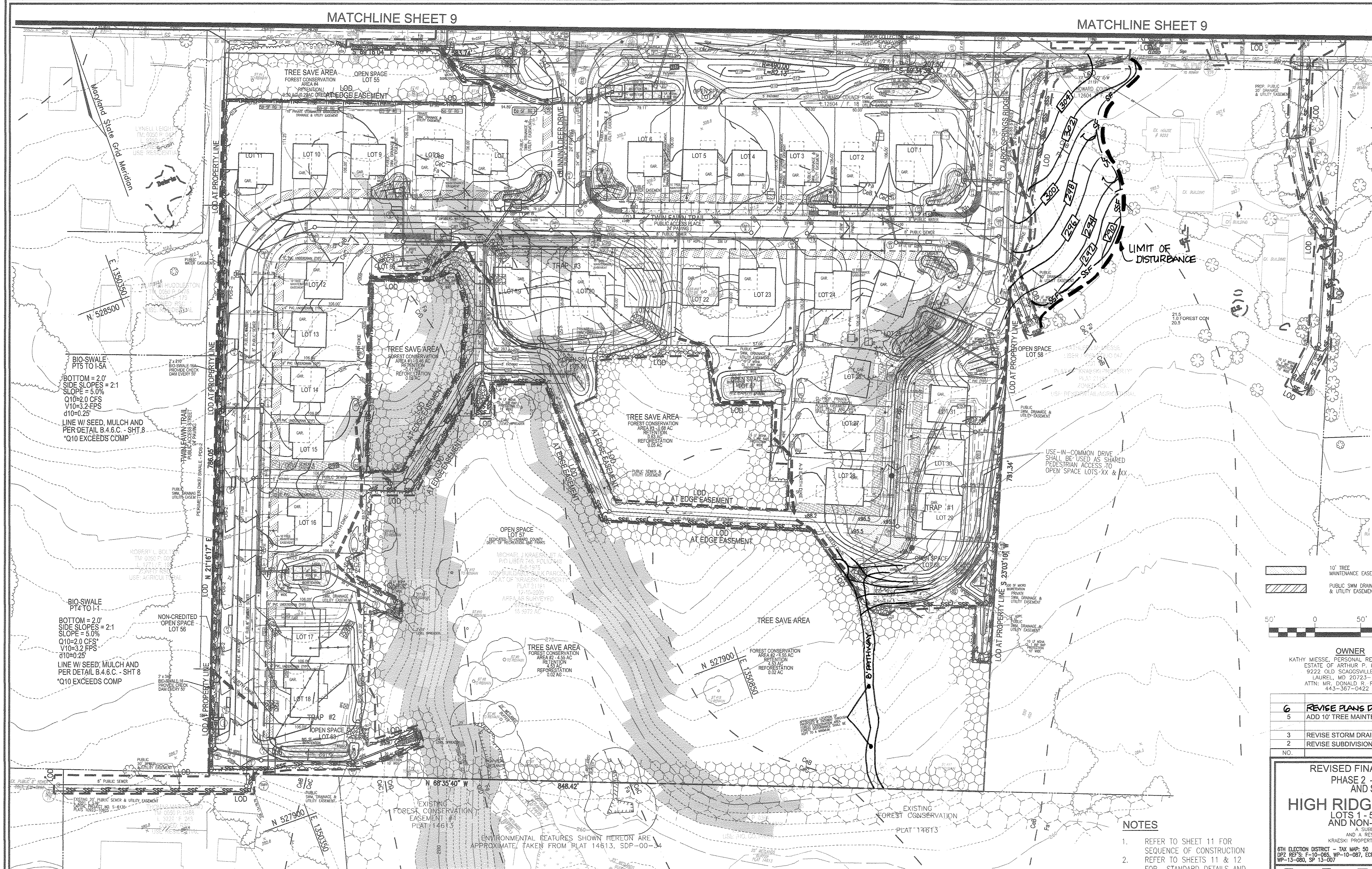
| | |
|---|---|
| DESIGN BY: | EDS |
| DRAWN BY: | EDS/RVE |
| CHECKED BY: | RHV |
| DATE: | MARCH 2014 |
| SCALE: | AS SHOWN |
| W.O. NO.: | 11-28 |

SHEET 7 OF 32

F 14-022

K:\Projects\11-28\ENGR\dwg\FINAL ROAD P1\07-GRADING P1.dwg, 3/27/2014 2:54:58 PM

K:\PROJECTS\11-28\ENGR\DWG\FINAL ROD P1\7-GRADING P1.DWG




## LEGEND:

- PROPERTY LINE
- RIGHT-OF-WAY LINE
- ADJACENT PROPERTY LINE
- EXISTING CURB AND GUTTER
- EXISTING UTILITY POLE
- EXISTING LIGHT POLE
- EXISTING MAILBOX
- EXISTING SIGN
- EXISTING SANITARY MANHOLE
- EXISTING SANITARY LINE
- EXISTING CLEANOUT
- EXISTING FIRE HYDRANT
- EXISTING WATER LINE
- EXISTING TREELINE
- PROPOSED STORMDRAIN
- PROPOSED STORMDRAIN INLET
- PROPOSED TREELINE
- WATER ZONE DIVIDE (550 / 400)
- EX MODERATE SLOPES
- EX STEEP SLOPES
- EXISTING SPECIMEN TREE
- PROPOSED FOREST CONSERVATION RETENTION AREA
- PROPOSED 10' CONTOUR
- PROPOSED 2' CONTOUR
- PROPOSED STABILIZED CONSTRUCTION ENTRANCE (SCE)
- PROPOSED SUPER SILT FENCE (SSF)
- PROPOSED LIMIT OF DISTURBANCE (LOD)
- PROPOSED TREE PROTECTION FENCE (TPF)
- PROPOSED DRAINAGE DIVIDE
- EXISTING DRAINAGE DIVIDE
- EARTH DIKE
- PERIMETER DIKE SWALE
- STANDARD INLET PROTECTION (SIP)
- 10' BUFFER FROM SEWER / WATER UTILITY
- 10' TREE MAINTENANCE EASEMENT
- PUBLIC SWM DRAINAGE & UTILITY EASEMENT

**NOTE:**
ALL EARTH DIKES AND/OR ALL SEDIMENT CONTROLS INTERRUPTED BY THE INSTALLATION OF A STORM DRAIN ARE TO BE REPAIRED IMMEDIATELY.

50' 0 50' 100' 150'

**NOTE:**
THIS PLAN MAY NOT BE USED TO OBTAIN PERMITS FOR HOUSE CONSTRUCTION.

## PHASE 2 - GRADING PLAN

SCALE: 1"=50'

## NOTES

1. REFER TO SHEET 11 FOR SEQUENCE OF CONSTRUCTION
2. REFER TO SHEETS 11 & 12 FOR STANDARD DETAILS AND STABILIZATION NOTES
3. SUPER SILT FENCE CAN BE SUBSTITUTED WITH STANDARD SILT FENCE WITH PERMISSION FROM SEDIMENT CONTROL INSPECTOR.

### OWNER

KATHY MIESSE, PERSONAL REPRESENTATIVE,
ESTATE OF ARTHUR P. KRAESKI
9222 OLD SCAGGSVILLE ROAD
LAUREL, MD 20723-1730
ATTN: MR. DONALD R. REUWER
443-367-0422

### DEVELOPER

LAND DESIGN & DEVELOPMENT, INC.
5300 DORSEY HALL DRIVE, STE 102
ELLICOTT CITY, MARYLAND 21042-7819
ATTN: MR. DONALD R. REUWER
443-367-0422

| NO. | REVISION | DATE |
|---|---|---|
| | | |
| 6 | REVISE PLANS DUE TO DRY UTILITY LOCATIONS | 8/9/16 |
| 5 | ADD 10' TREE MAINTENANCE EASEMENT. SHIFT MBR FACILITIES. | 9 / 2015 |
| | | |
| 3 | REVISE STORM DRAIN LAYOUT ALONG OLD SCAGGSVILLE ROAD | 1 / 2015 |
| 2 | REVISE SUBDIVISION NAME | 7/18/14 |

# REVISED FINAL ROAD CONSTRUCTION PLAN

## PHASE 2 - GRADING AND SOIL EROSION, AND SEDIMENT CONTROL PLAN

# HIGH RIDGE MEADOWS - SEC. 1

## LOTS 1 - 54, OPEN SPACE LOTS 55 - 68 AND NON-BUILDABLE BULK PARCEL "B"

A SUBDIVISION OF TAX MAP 50 – PARCEL 363
AND A RESUBDIVISION OF TAX MAP 50 – PARCEL 542
KRAESKI PROPERTY NON-BUILDABLE BULK PARCEL "A" (PLAT 21191)

6TH ELECTION DISTRICT – TAX MAP: 50 GRID: 1
DPZ REF'S: F-10-065, WP-10-087, ECP-12-047, WP-13-080, SP 13-007

ZONED: R-SC
PARCELS: 363 & 542
HOWARD COUNTY, MARYLAND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ELLICOTT CITY, MD 21043
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FAX: 410.461.8961


STATE OF MARYLAND – ROBERT HARRIS VOGEL – NO.16193 – REGISTERED PROFESSIONAL ENGINEER – 2/22/16

ROBERT H. VOGEL, PE No.16193

DESIGN BY: EDS
DRAWN BY: EDS/RVE/KG
CHECKED BY: RHV
DATE: SEPTEMBER 2015
SCALE: AS SHOWN
W.O. NO.: 11-28

**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

SHEET 8 OF 32

### MAPPED SOILS TYPES

| SYMBOL | NAME / DESCRIPTION | GROUP | HYDRIC | HYDRIC INCLUSIONS | Kw RANGE* | PRIME FARMLAND | <15% SLOPE W/ EROSION POTENTIAL |
|---|---|---|---|---|---|---|---|
| CeB | CHILLUM LOAM, 2 TO 5 PERCENT SLOPES | B | NO | | 0.15 – 0.37 | | NO |
| CeC | CHILLUM LOAM, 5 TO 10 PERCENT SLOPES | B | NO | | 0.15 – 0.37 | | PARTIAL |
| CrD | CROOM & EVESBORO, 10 TO 15 PERCENT SLOPES | C | NO | | 0.28 | | NO |
| Fa | FALLSINSTON SANDY LOAM, 0 TO 2 PERCENT SLOPES | D | YES | | 0.02 – 0.24 | | NO |
| SfB | SASSAFRAS GRAVELLY SANDY LOAM, 2 TO 5 PERCENT SLOPES | B | NO | | 0.17 – 0.24 | | NO |
| SrD | SASSAFRAS AND CROOM SOILS, 10 TO 15 PERCENT SLOPES | B | NO | | 0.32 – 0.37 | | PARTIAL |
| UcB | URBAN LAND-CHILLUM-BELTSVILLE COMPLEX, 0 TO 5 PERCENT SLOPES | D | NO | | 0.37 | | NO |

TAKEN FROM: USDA, SCS-WEB SOIL SURVEY, HOWARD COUNTY
K-FACTOR = Kw @ 0-4" DEPTH
* BASED UPON ESTIMATED CUTS

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

APPROVED: DEPARTMENT OF PUBLIC WORKS
[signature] 4/1/2016
CHIEF, BUREAU OF HIGHWAYS — DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
[signature] 3.28.16
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE
[signature] 5-5-16
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

BY THE DEVELOPER:
"I/WE CERTIFY THAT ALL DEVELOPEMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION CONTROL, AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT."
[signature] 2/24/16
SIGNATURE OF DEVELOPER — DATE

BY THE ENGINEER:
"I HEREBY CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."
[signature] 2/22/16
SIGNATURE OF ENGINEER — DATE

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
[signature] 3/16/16
HOWARD S.C.D. — DATE

F-14-022

K:\Projects\11-28\ENGR\dwg\FINAL ROAD P1\REDLINE 4 - BGE BIOREDLINE - REPLACEMENT\08-GRADING P2.dwg, 2/22/2016 11:22:43 AM

## MAPPED SOILS TYPES

| SYMBOL | NAME / DESCRIPTION | GROUP | HYDRIC | HYDRIC INCLUSIONS | Kw RANGE* | PRIME FARMLAND | CLOSE SLOPE W/ EROSION POTENTIAL |
|---|---|---|---|---|---|---|---|
| CeB | CHILLUM LOAM, 2 TO 5 PERCENT SLOPES | B | NO | | 0.15 – 0.37 | | NO |
| CeC | CHILLUM LOAM, 5 TO 10 PERCENT SLOPES | B | NO | | 0.15 – 0.37 | | PARTIAL |
| CrD | CROOM & EVESBORO, 10 TO 15 PERCENT SLOPES | C | NO | | 0.28 | | NO |
| Fa | FALLSINGTON SANDY LOAM, 0 TO 2 PERCENT SLOPES | D | YES | | 0.02 – 0.24 | | NO |
| SrB | SASSAFRAS GRAVELLY SANDY LOAM, 2 TO 5 PERCENT SLOPES | B | NO | | 0.17 – 0.24 | | NO |
| SrD | SASSAFRAS AND CROOM SOILS, 10 TO 15 PERCENT SLOPES | B | NO | | 0.32 – 0.37 | | PARTIAL |
| UcB | URBAN LAND–CHILLUM–BELTSVILLE COMPLEX, 0 TO 5 PERCENT SLOPES | D | NO | | 0.37 | | NO |

TAKEN FROM: USDA, SCS–WEB SOIL SURVEY, HOWARD COUNTY
K–FACTOR = Kw @ 0–4" DEPTH
* BASED UPON ESTIMATED CUTS

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

# PHASE 1 - GRADING PLAN

SCALE: 1"=50'

50' 0 50' 100' 150'

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: LOCATE STOCKPILE AS SHOWN HEREON OR AS DIRECTED BY THE SEDIMENT CONTROL INSPECTOR. STOCKPILES EXCEEDING 15 FEET IN HEIGHT SHALL BE BENCHED.

**Standard Stabilization Note**

Following initial soil disturbance or re-disturbance, permanent or temporary stabilization must be completed within:

a.) Three (3) calendar days as to the surface of all perimeter dikes, swales, ditches, perimeter slopes, and all slopes steeper than 3 horizontal to 1 vertical (3:1); and

b.) Seven (7) calendar days as to all other disturbed or graded areas on the project site not under active grading.

NOTE:
EITHER PERMANENT OR TEMPORARY STABILIZATION IS TO BE APPLIED AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR REGARDLESS OF DAYS/DATESIN THE STANDARD SEDIMENT CONTROL NOTES AND/OR SEEDING SPECIFICATIONS.

## NOTES

1. REFER TO SHEET 11 FOR SEQUENCE OF CONSTRUCTION
2. REFER TO SHEETS 11 & 12 FOR STANDARD DETAILS AND STABILIZATION NOTES
3. SUPER SILT FENCE CAN BE SUBSTITUTED WITH STANDARD SILT FENCE WITH PERMISSION FROM SEDIMENT CONTROL INSPECTOR.

## LEGEND:

- PROPERTY LINE
- RIGHT–OF–WAY LINE
- ADJACENT PROPERTY LINE
- EXISTING CURB AND GUTTER
- EXISTING UTILITY POLE
- EXISTING LIGHT POLE
- EXISTING MAILBOX
- EXISTING SIGN
- EXISTING SANITARY MANHOLE
- EXISTING SANITARY LINE
- EXISTING CLEANOUT
- EXISTING FIRE HYDRANT
- EXISTING WATER LINE
- EXISTING TREELINE
- PROPOSED STORMDRAIN
- PROPOSED STORMDRAIN INLET
- PROPOSED TREELINE
- WATER ZONE DIVIDE (550 / 400)
- EX MODERATE SLOPES
- EX STEEP SLOPES
- EXISTING SPECIMEN TREE
- PROPOSED FROST CONSERVATION RETENTION AREA
- PROPOSED 10' CONTOUR
- PROPOSED 2' CONTOUR
- PROPOSED STABILIZED CONSTRUCTION ENTRANCE
- PROPOSED SUPER SILT FENCE
- PROPOSED LIMIT OF DISTURBANCE
- PROPOSED TREE PROTECTION FENCE
- PROPOSED DRAINAGE DIVIDE
- EXISTING DRAINAGE DIVIDE
- EARTH DIKE
- PERIMETER DIKE SWALE
- STANDARD INLET PROTECTION
- 10' BUFFER FROM SEWER / WATER UTILITY

NOTE:
ALL EARTH DIKES AND/OR ALL SEDIMENT CONTROLS INTERRUPTED BY THE INSTALLATION OF A STORM DRAIN ARE TO BE REPAIRED IMMEDIATELY.

SECTION TWO
SECTION ONE

MATCHLINE SHEET 8

MATCHLINE SHEET 8

### OWNER
KATHY MIESSE, PERSONAL REPRESENTATIVE,
ESTATE OF ARTHUR P. KRAESKI
9222 OLD SCAGGSVILLE ROAD
LAUREL, MD 20723–1230
ATTN: MR. DONALD R. REUWER
443–367–0422

### DEVELOPER
LAND DESIGN & DEVELOPMENT, INC.
5300 DORSEY HALL DRIVE, STE 102
ELLICOTT CITY, MARYLAND 21042–7819
ATTN: MR. DONALD R. REUWER
443–367–0422

| NO. | REVISION | DATE |
|---|---|---|
| 3 | REVISE STORM DRAIN LAYOUT ALONG OLD SCAGGSVILLE ROAD | 1 / 2015 |
| 2 | REVISE SUBDIVISION NAME | 7/18/14 |
| 1 | REVISE OLD SCAGGSVILLE ROAD CENTERLINE RADIUS AND AMEND UTILITY POLE DESIGNATION | 7/8/14 |

REVISED
# FINAL ROAD CONSTRUCTION PLAN
## PHASE 2 - GRADING AND SOIL EROSION, AND SEDIMENT CONTROL PLAN
# HIGH RIDGE MEADOWS - SEC. 1
LOTS 1 - 54, OPEN SPACE LOTS 55 - 68
AND NON-BUILDABLE BULK PARCEL "B"
A SUBDIVISION OF TAX MAP 50 – PARCEL 363
AND A RESUBDIVISION OF TAX MAP 50 – PARCEL 542
KRAESKI PROPERTY NON–BUILDABLE BULK PARCEL "A" (PLAT 21191)

6TH ELECTION DISTRICT – TAX MAP: 50 GRID: 1 ZONED: R–SC
DPZ REF'S. F–10–065, WP–10–067, ECP–12–047, WP–13–080, SP 13–007 PARCELS: 363 & 542
HOWARD COUNTY, MARYLAND

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

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

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

DESIGN BY: EDS
DRAWN BY: EDS/RVE/KG
CHECKED BY: RHV
DATE: APRIL 2015
SCALE: AS SHOWN
W.O. NO.: 11–28

SHEET 9 OF 32

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 5/11/2015

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 5.18.15
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5-19-15

BY THE DEVELOPER:
"I/WE CERTIFY THAT ALL DEVELOPEMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION CONTROL, AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON–SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT."
SIGNATURE OF DEVELOPER — DATE 4/28/15

BY THE ENGINEER:
"I HEREBY CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."
SIGNATURE OF ENGINEER — DATE 4/28/15

NOTE:
THIS PLAN MAY NOT BE USED TO OBTAIN PERMITS FOR HOUSE CONSTRUCTION.

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
HOWARD S.C.D. — DATE 5/5/15

NOTE:
CONTRACTOR TO PROVIDE IMMEDIATE REPAIR OF ANY EARTH DIKES INTERRUPTED DURING CONSTRUCTION.

F-14-022

K:\Projects\11-28\ENGR\dwg\FINAL ROAD PHREDLINE 2 CONSTRUCTION CHANGES\REDLINE REPLACEMENT\09-GRADING PLREPLACEMENT.dwg, 4/28/2015 9:48:22 AM

## HOWARD SOIL CONSERVATION DISTRICT
# STANDARD SEDIMENT CONTROL NOTES

1. A MINIMUM OF 48 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS, SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION, (313-1855).
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 MOST CURRENT "MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL", AND REVISIONS THERETO.
3. FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN: A) 3 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERIMETER SLOPES AND ALL SLOPES GREATER THAN 3:1, B) 7 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
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 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 DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES.
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 HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
7. SITE ANALYSIS:

| | | |
|---|---|---|
| TOTAL AREA OF SITE | 36.9 | ACRES |
| AREA DISTURBED | 20.4 | ACRES** |
| AREA TO BE ROOFED OR PAVED | 6.3 | ACRES |
| AREA TO BE VEGETATIVELY STABILIZED | 13.6 | ACRES |
| TOTAL CUT | 43,300 | CU. YDS.* |
| TOTAL FILL | 36,900 | CU. YDS.* |
| OFFSITE WASTE/BORROW AREA LOCATION | ONSITE | |

8. ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
9. ADDITIONAL SEDIMENT CONTROL MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
10. ON ALL SITES WITH DISTURBED AREAS IN EXCESS OF 2 ACRES, APPROVAL OF THE INSPECTION AGENCY SHALL BE REQUESTED UPON COMPLETION OF INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS, BUT BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING. OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE.
11. TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE LENGTHS OR THAT WHICH CAN BE BACK FILLED AND STABILIZED WITHIN ONE WORKING DAY, WHICHEVER IS SHORTER.
12. A 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 ATA GIVEN TIME.

* ESTIMATE ONLY; CONTRACTOR SHALL VERIFY QUANTITIES TO HIS OWN SATISFACTION.
** AREA INCLUDES EXISTING OLD SCAGGSVILLE ROAD RIGHT-OF-WAY

## 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<br>SEED MIXTURE (FROM TABLE B.1): | | | | | FELIZER 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<br>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. | | |

BY THE DEVELOPER:

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

[signature] SIGNATURE OF DEVELOPER — 4/4/14 DATE

BY THE ENGINEER:

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

[signature] SIGNATURE OF ENGINEER — 4/7/14 DATE

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

John R. Robertson — HOWARD S.C.D. — 4/17/14 DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS

[signature] CHIEF, BUREAU OF HIGHWAYS — 5-6-14 DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

[signature] CHIEF, DEVELOPMENT ENGINEERING DIVISION — 5.9.14 DATE

[signature] CHIEF, DIVISION OF LAND DEVELOPMENT — 5-12-14 DATE

## 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<br>SEED MIXTURE (FROM TABLE B.3): 9 | | | | | FELIZER 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<br>K.B. 40 LB / AC | MAR 1 TO MAY 15<br>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 ) |
| | | | | | | | | |
| | | | | | | | | |

## 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.

## 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

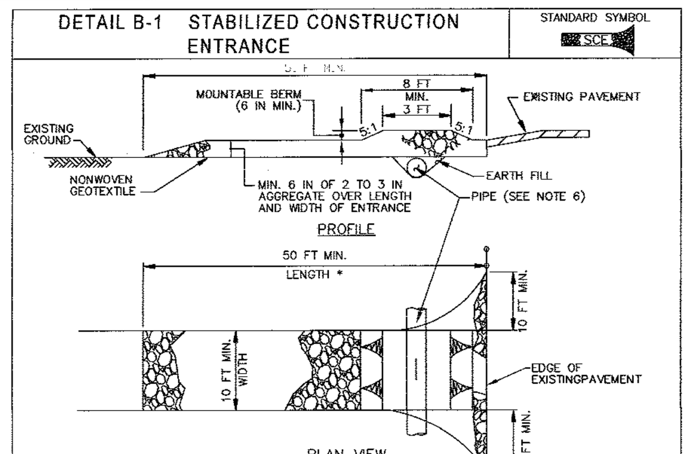
A. SEEDING
1. SPECIFICATIONS
A. ALL SEED MUST MEET THE REQUIREMENTS OF THE MARYLAND STATE SEED LAW. ALL SEED MUST BE SUBJECT TO RE-TESTING BY A RECOGNIZED SEED LABORATORY. ALL SEED USED MUST HAVE BEEN TESTED WITHIN THE 6 MONTHS IMMEDIATELY PRECEDING THE DATE OF SOWING SUCH MATERIAL ON ANY PROJECT. REFER 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
1. 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 B-1 STABILIZED CONSTRUCTION ENTRANCE

STANDARD SYMBOL: SCE



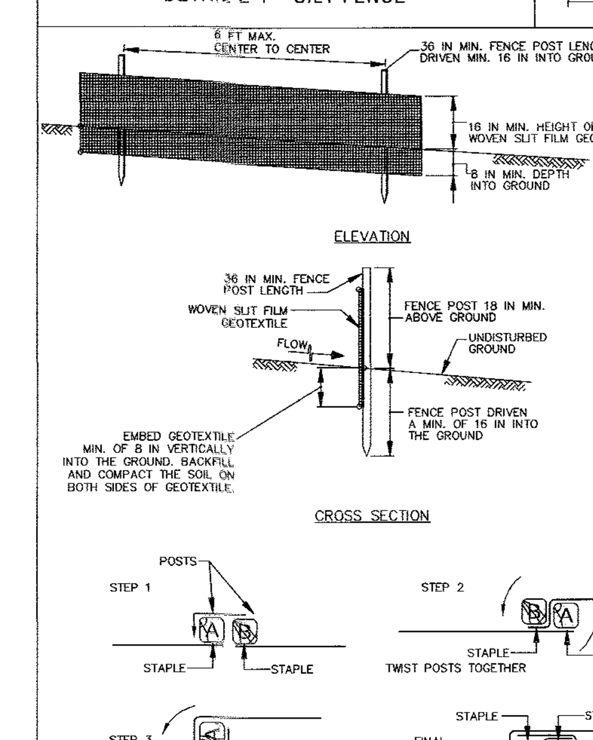

CONSTRUCTION SPECIFICATIONS

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

## DETAIL E-1 SILT FENCE

STANDARD SYMBOL: SF




1 OF 2

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

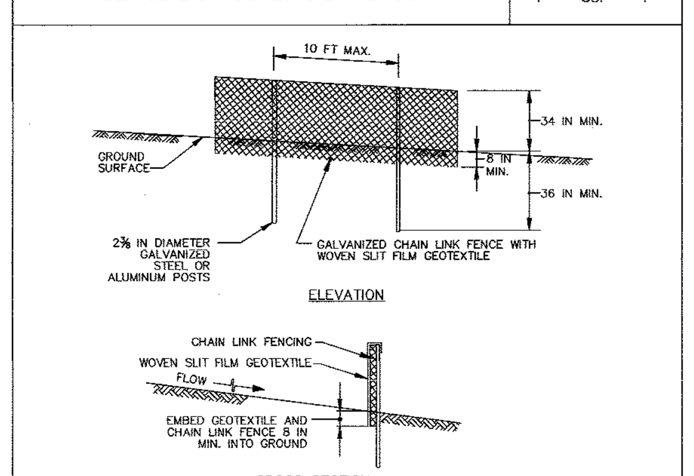
1. USE WOOD POSTS 1¾ X 1¾ ± ⅙ INCH (MINIMUM) SQUARE CUT OF SOUND QUALITY HARDWOOD. AS AN ALTERNATIVE TO WOODEN POST USE STANDARD "T" OR "U" SECTION STEEL POSTS WEIGHING NOT LESS THAN 1 POUND PER LINEAR FOOT.
2. USE 36 INCH MINIMUM POSTS DRIVEN 16 INCH MINIMUM INTO GROUND NO MORE THAN 6 FEET APART.
3. 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.

2 OF 2

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



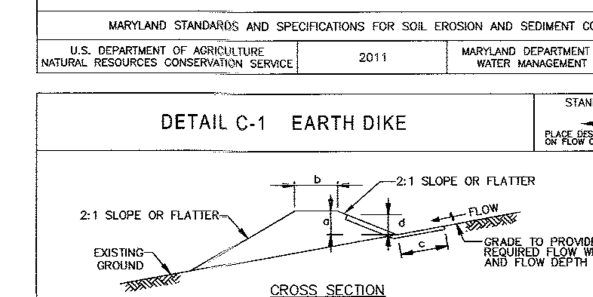

CONSTRUCTION SPECIFICATIONS

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
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE | 2011 | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

## DETAIL C-1 EARTH DIKE

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




| DIKE TYPE | A | 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

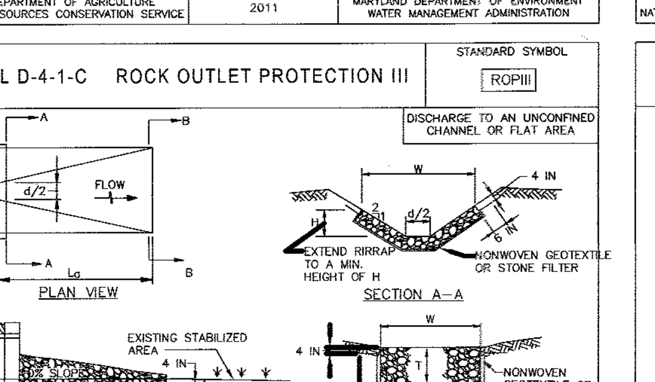
1. REMOVE AND DISPOSE OF ALL TREES, BRUSH, STUMPS, OBSTRUCTIONS, AND OTHER OBJECTIONABLE MATERIAL SO AS NOT TO INTERFERE WITH PROPER FUNCTION OF EARTHDIKE.
2. EXCAVATE OR SHAPE EARTH DIKE TO LINE, GRADE, AND CROSS SECTION AS SPECIFIED. BANK PROJECTIONS OR OTHER IRREGULARITIES ARE NOT ALLOWED.
3. COMPACT 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
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE | 2011 | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

## DETAIL D-4-1-C ROCK OUTLET PROTECTION III

STANDARD SYMBOL: ROPIII

DISCHARGE TO AN UNCONFINED CHANNEL OR FLAT AREA




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

CONSTRUCTION SPECIFICATIONS

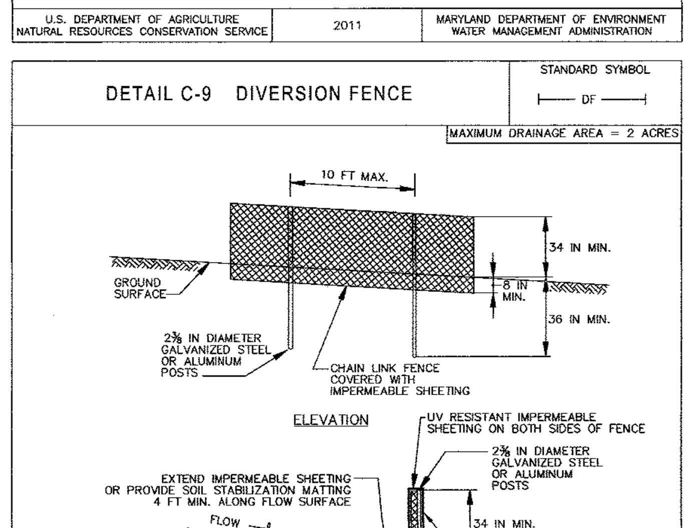
1. RIPRAP AND STONE MUST CONFORM TO THE SPECIFIED CLASS.
2. USE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS, AND PROTECT FROM PUNCTURING, CUTTING, OR TEARING. REPAIR ANY DAMAGE OTHER THAN AN OCCASIONAL SMALL HOLE BY PLACING ANOTHER PIECE OF GEOTEXTILE OVER THE DAMAGED PART OR BY COMPLETELY 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
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE | 2011 | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

## DETAIL C-9 DIVERSION FENCE

STANDARD SYMBOL: DF

MAXIMUM DRAINAGE AREA = 2 ACRES




CONSTRUCTION SPECIFICATIONS

1. USE 42 INCH HIGH, 9 GAUGE OR THICKER CHAIN LINK FENCING (2⅜ INCH MAXIMUM OPENING).
2. USE 2⅜ INCH DIAMETER GALVANIZED STEEL POSTS OF 0.095 INCH WALL THICKNESS AND SIX FOOT LENGTH SPACED NO FURTHER THAN 10 FEET APART. THE POSTS DO NOT NEED TO BE SET IN CONCRETE.
3. FASTEN CHAIN LINK FENCE SECURELY TO THE FENCE POSTS WITH WIRE TIES.
4. SECURE 10 MIL OR THICKER UV RESISTANT, IMPERMEABLE SHEETING TO CHAIN LINK FENCE WITH TIES SPACED EVERY 24 INCHES AT TOP, MID SECTION, AND BELOW GROUND SURFACE.
5. EXTEND SHEETING A MINIMUM OF 4 FEET ALONG FLOW SURFACE AND EMBED END A MINIMUM OF 8 INCHES INTO GROUND. SOIL STABILIZATION MATTING MAY BE USED IN LIEU OF IMPERMEABLE SHEETING ALONG FLOW SURFACE.
6. WHEN TWO SECTIONS OF SHEETING ADJOIN EACH OTHER, OVERLAP BY 6 INCHES AND FOLD WITH SEAM FACING DOWNGRADE.
7. KEEP FLOW SURFACE ALONG DIVERSION FENCE AND POINT OF DISCHARGE FREE OF EROSION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. MAINTAIN POSITIVE DRAINAGE. REPLACE IMPERMEABLE SHEETING IF TORN. IF UNDERMINING OCCURS, REINSTALL FENCE.

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-4-8 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

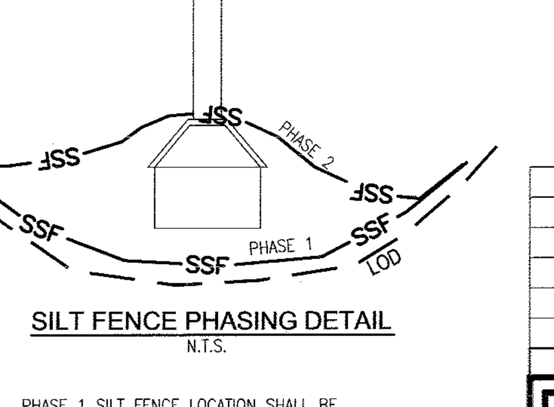
STOCKPILE AREAS ARE UTILIZED WHEN IT IS NECESSARY TO SALVAGE AND STORE SOIL FOR LATER USE.

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.




## SILT FENCE PHASING DETAIL

N.T.S.

PHASE 1 SILT FENCE LOCATION SHALL BE REMOVED AND RELOCATED ABOVE THE OUTFALL ONCE OUTFALL INSTALLATION IS COMPLETE, AREA STABILIZED AND PERMISSION HAS BEEN OBTAINED BY THE SEDIMENT CONTROL INSPECTOR


**OWNER**
KATHY MIESSE, PERSONAL REPRESENTATIVE,
ESTATE OF ARTHUR P. KRAESKI
9222 OLD SCAGGSVILLE ROAD
LAUREL, MD 20723-1730
ATTN: MR. DONALD R. REUWER
443-367-0422

**DEVELOPER**
LAND DESIGN & DEVELOPMENT, INC.
5300 DORSEY HALL DRIVE, STE 102
ELLICOTT CITY, MARYLAND 21042-7819
ATTN: MR. DONALD R. REUWER
443-367-0422


| NO. | REVISION | DATE |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| 6 | REVISE PLANS DUE TO DRY UTILITY LOCATIONS | 8/9/16 |
| 2 | REVISE SUBDIVISION NAME | 7/18/14 |

# FINAL ROAD CONSTRUCTION PLAN
# GRADING AND SOIL EROSION, AND SEDIMENT CONTROL PLAN - DETAILS
# HIGH RIDGE MEADOWS - SECTION 1
## LOTS 1 - 54, OPEN SPACE LOTS 55 - 68 AND NON-BUILDABLE BULK PARCEL "B"

A SUBDIVISION OF TAX MAP 50 - PARCEL 363
AND A RESUBDIVISION OF TAX MAP 50 - PARCEL 542
KRAESKI PROPERTY NON-BUILDABLE BULK PARCEL "A" (PLAT 21191)

6TH ELECTION DISTRICT - TAX MAP: 50 GRID: 1 — ZONED: R-SC
DPZ REF'S: F-10-065, WP-10-087, ECP-12-047, WP-13-080, SP 13-007 — PARCELS: 363 & 542
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 — PROFESSIONAL ENGINEER
[signature] ROBERT H. VOGEL, PE No.16193

| | |
|---|---|
| DESIGN BY: | EDS |
| DRAWN BY: | EDS/RVE |
| CHECKED BY: | RHV |
| DATE: | MARCH 2014 |
| SCALE: | AS SHOWN |
| W.O. NO.: | 11-28 |

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: 09-27-2014



F 14-022

K:\PROJECTS\10-30\ENGR\DWG\FINAL ROAD P1\10_SEDCON_NOTES.DWG

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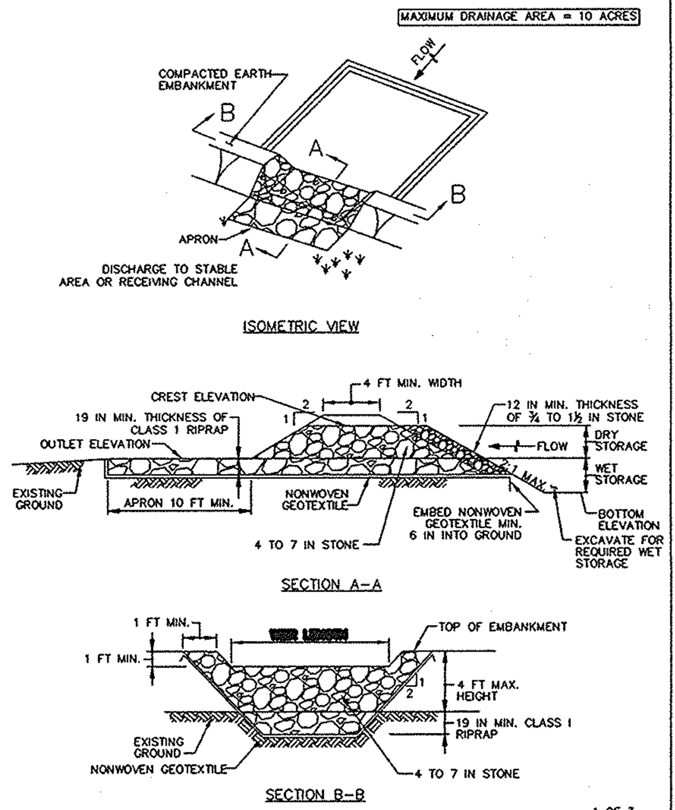
## DETAIL G-1-2 STONE/RIPRAP OUTLET SEDIMENT TRAP ST-II

STANDARD SYMBOL: ST-II

MAXIMUM DRAINAGE AREA = 10 ACRES




1 OF 3

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 G-1-2 STONE/RIPRAP OUTLET SEDIMENT TRAP ST-II

STANDARD SYMBOL: ST-II

| STONE/RIPRAP OUTLET SEDIMENT TRAP ST-II, TRAP NO. 1 | | |
|---|---|---|
| DRAINAGE AREA – INITIAL | 1.9 | ACRES |
| DRAINAGE AREA – INTERIM | 1.9 | ACRES |
| DRAINAGE AREA – FINAL | 4.3 | ACRES |
| TOTAL STORAGE REQUIRED | 15,480 | CF |
| TOTAL STORAGE PROVIDED | 16,778 | CF |
| WET STORAGE REQUIRED | 7,740 | CF |
| WET STORAGE PROVIDED | 7,940 | CF |
| DRY STORAGE REQUIRED | 7,740 | CF |
| DRY STORAGE PROVIDED EL 279.90 | 8,838 | CF |
| EXISTING GROUND ELEVATION AT OUTLET (WET STORAGE ELEVATION) | 279.00 | FT |
| TRAP BOTTOM ELEVATION | 278.00 | FT |
| TRAP BOTTOM DIMENSIONS * APPROX | 50' X 175'+/- | FT x FT |
| WEIR LENGTH | 20.0 | FT |
| WEIR CREST (DRY STORAGE) ELEVATION | 282.00 | FT |
| CLEANOUT ELEVATION 3,870 | 278.50 | FT |
| TOP OF EMBANKMENT ELEVATION | 283.00 | FT |
| SIDE SLOPE | 2 : 1 | H:V RATIO |
| EMBANKMENT TOP WIDTH | 4' | FT |
| OUTLET PROTECTION – LENGTH | 10 | FT |
| OUTLET PROTECTION – DEPTH | 19 | IN |

BAFFLE DESIGN

AREA WET STORAGE EL = 8880 SF
We = (A/2)^0.5
We = 66.6'
MIN Le = We X 2 = 134'

| GM INFLOW | GM INFLOW |
|---|---|
| L1= 76' | L1= 148' |
| L2= 63' | L2= 65' |
| PROVIDED Le = 139' WEST | PROVIDED Le = 213' NORTH |

3 OF 3

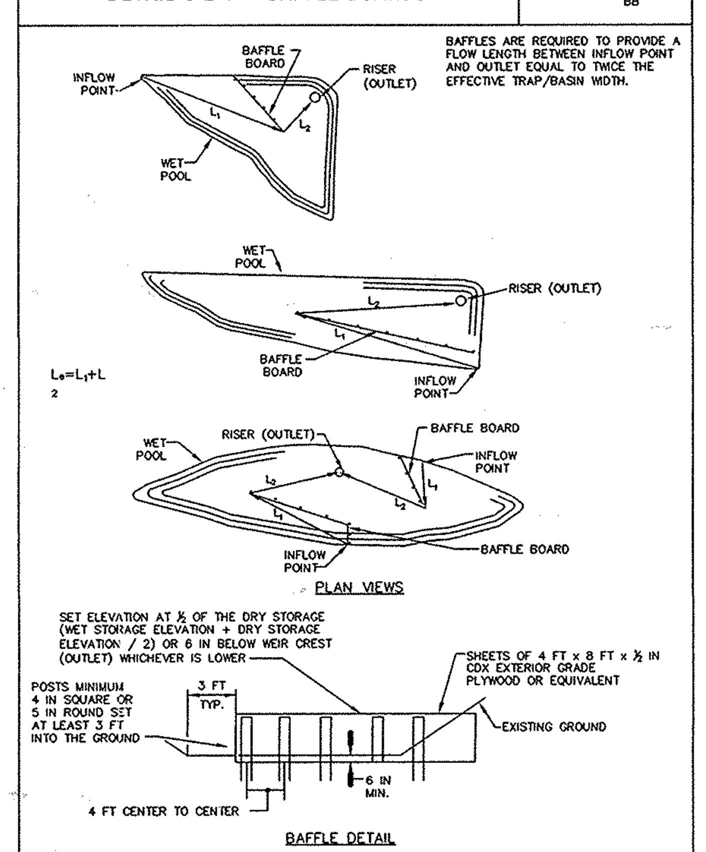
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE | 2011 | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

## DETAIL 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.

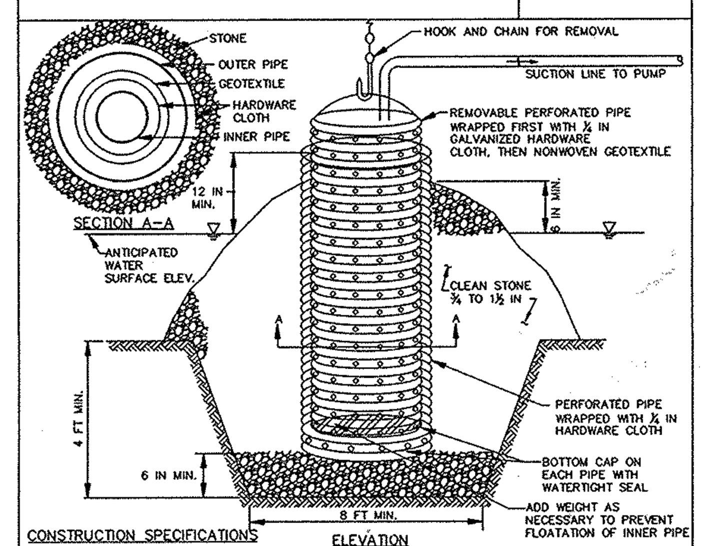



MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE | 2011 | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

## DETAIL F-1 REMOVABLE PUMPING STATION

STANDARD SYMBOL: RPS




CONSTRUCTION SPECIFICATIONS

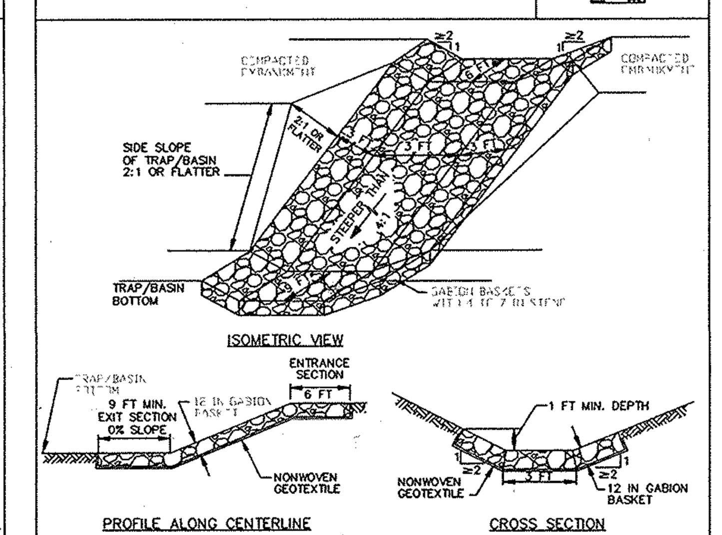
1. USE CORRUGATED METAL OR PLASTIC PIPE WITH 1 INCH DIAMETER PERFORATIONS 6 INCHES ON CENTER.
2. USE A MINIMUM 12 INCH DIAMETER INNER PIPE WITH AN OUTER PIPE A MINIMUM 6 INCHES LARGER IN DIAMETER. BOTTOM OF EACH PIPE MUST BE CAPPED WITH WATERTIGHT SEAL.
3. WRAP EACH PIPE WITH ¼ INCH GALVANIZED HARDWARE 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

## 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

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE | 2011 | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

## DETAIL G-1-2 STONE/RIPRAP OUTLET SEDIMENT TRAP ST-II

STANDARD SYMBOL: ST-II

CONSTRUCTION SPECIFICATIONS

1. CONSTRUCT TRAP IN SUCH A MANNER THAT EROSION AND WATER POLLUTION ARE AVOIDED.
2. CLEAR, GRUB, AND STRIP ANY VEGETATION AND ROOT MAT FROM THE AREA UNDER THE EMBANKMENT AND TRAP BOTTOM.
3. USE FILL MATERIAL FREE OF ROOTS, WOODY VEGETATION, OVERSIZED STONES, ROCKS, ORGANIC MATERIAL, OR OTHER OBJECTIONABLE MATERIAL FOR THE EMBANKMENT.
4. CONSTRUCT TOP OF EMBANKMENT 1 FOOT MINIMUM ABOVE WEIR CREST. COMPACT THE EMBANKMENT BY TRAVERSING WITH EQUIPMENT WHILE IT IS BEING CONSTRUCTED.
5. MAKE ALL CUT AND FILL SLOPES 2:1 OR FLATTER.
6. PLACE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS, OVER THE BOTTOM AND SIDES OF OUTLET AND APRON PRIOR TO PLACEMENT OF RIPRAP. OVERLAP SECTIONS OF GEOTEXTILE AT LEAST 1 FOOT WITH THE SECTION NEARER TO THE TRAP PLACED ON TOP. EMBED GEOTEXTILE AT LEAST 6 INCHES INTO EXISTING GROUND AT ENTRANCE OF OUTLET CHANNEL.
7. USE CLEAN 4 TO 7 INCH RIPRAP TO CONSTRUCT THE WEIR. USE CLASS I RIPRAP FOR THE APRON. USE OF RECYCLED CONCRETE EQUIVALENT IS ACCEPTABLE.
8. PLACE 1 FOOT OF CLEAN ¾ TO 1½ INCH STONE OR EQUIVALENT RECYCLED CONCRETE ON THE UPSTREAM FACE OF THE WEIR.
9. CONSTRUCT AND MAINTAIN THE OUTLET ACCORDING TO APPROVED PLAN, AND IN SUCH A MANNER THAT EROSION AT OR BELOW THE OUTLET DOES NOT OCCUR.
10. STABILIZE THE EMBANKMENT AND INTERIOR SLOPES WITH SEED AND MULCH. STABILIZE POINTS OF CONCENTRATED INFLOW AS SHOWN ON APPROVED PLAN.
11. REMOVE SEDIMENT AND RESTORE TRAP TO ORIGINAL DIMENSIONS WHEN SEDIMENT HAS ACCUMULATED TO CLEANOUT ELEVATION (50% OF WET STORAGE DEPTH). DEPOSIT REMOVED SEDIMENT IN AN APPROVED AREA AND IN SUCH A MANNER THAT IT WILL NOT ERODE. KEEP POINTS OF INFLOW AND OUTFLOW AS WELL AS INTERIOR OF THE TRAP FREE FROM EROSION, AND REMOVE ACCUMULATED DEBRIS. MAINTAIN EMBANKMENTS TO CONTINUOUSLY MEET REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION. REMOVE ANY TREES, BRUSH, OR OTHER WOODY VEGETATION GROWING ON EMBANKMENT OR NEAR PRINCIPAL SPILLWAY. MAINTAIN LINE, GRADE, AND CROSS SECTION.
12. WHEN DEWATERING TRAP, PASS REMOVED WATER THROUGH AN APPROVED SEDIMENT CONTROL PRACTICE.
13. UPON REMOVAL, GRADE AND STABILIZE THE AREA OCCUPIED BY TRAP.

2 OF 3

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 G-1-2 STONE/RIPRAP OUTLET SEDIMENT TRAP ST-II

STANDARD SYMBOL: ST-II

| STONE/RIPRAP OUTLET SEDIMENT TRAP ST-II, TRAP NO. 2 | | |
|---|---|---|
| DRAINAGE AREA – INITIAL | 0.4 | ACRES |
| DRAINAGE AREA – INTERIM | 0.4 | ACRES |
| DRAINAGE AREA – FINAL | 2.4 | ACRES |
| TOTAL STORAGE REQUIRED | 8,640 | CF |
| TOTAL STORAGE PROVIDED | | CF |
| WET STORAGE REQUIRED | 4,320 | CF |
| WET STORAGE PROVIDED | 4,827 | CF |
| DRY STORAGE REQUIRED | 4,320 | CF |
| DRY STORAGE PROVIDED | 9,632 | CF |
| EXISTING GROUND ELEVATION AT OUTLET (WET STORAGE ELEVATION) | 271.30 | FT |
| TRAP BOTTOM ELEVATION | 270.00 | FT |
| TRAP BOTTOM DIMENSIONS * APPROX | 45' X 145' | FT x FT |
| WEIR LENGTH | 20 | FT |
| WEIR CREST (DRY STORAGE) ELEVATION | 272.50 | FT |
| CLEANOUT ELEVATION 2,160 | 270.70 | FT |
| TOP OF EMBANKMENT ELEVATION | 274.00 | FT |
| SIDE SLOPE | 2 : 1 | H:V RATIO |
| EMBANKMENT TOP WIDTH | 4' | FT |
| OUTLET PROTECTION – LENGTH | 10 | FT |
| OUTLET PROTECTION – DEPTH | 19 | IN |

BAFFLE DESIGN

AREA WET STORAGE EL = 9424 SF
We = (A/2)^0.5
We = 68.6'
MIN Le = We X 2 = 137'

| GM INFLOW | GM INFLOW |
|---|---|
| L1= 60' | L1= 40' |
| L2= 78' | L2= 99' |
| PROVIDED Le = 138' WEST | PROVIDED Le = 139' NORTH |

3 OF 3

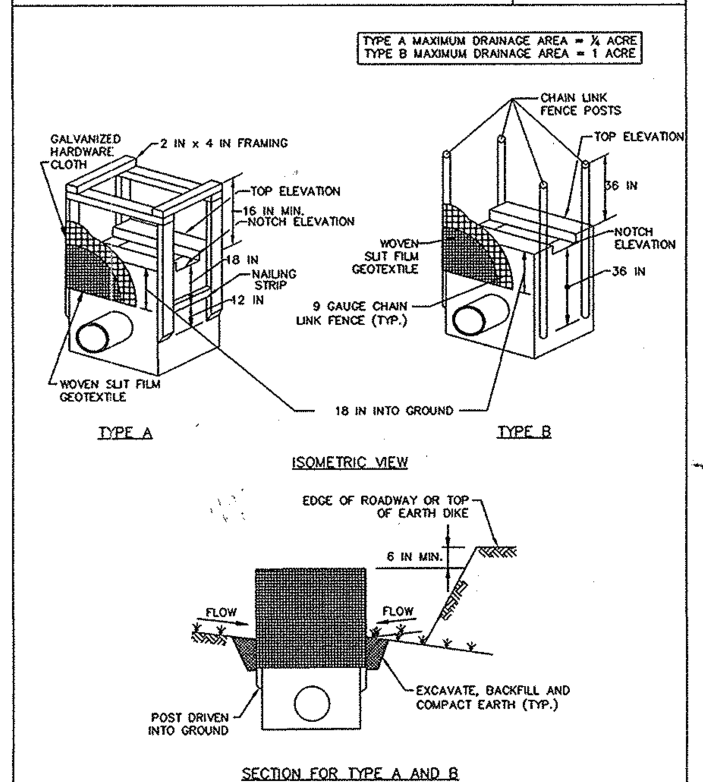
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE | 2011 | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

## DETAIL E-9-1 STANDARD INLET PROTECTION

STANDARD SYMBOL: SIP

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




1 OF 2

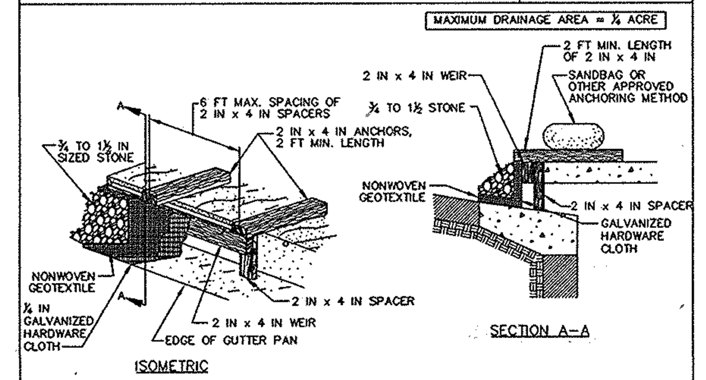
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE | 2011 | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

## DETAIL E-9-3 CURB INLET PROTECTION

STANDARD SYMBOL: CIP

MAXIMUM DRAINAGE AREA = ¼ ACRE




CONSTRUCTION SPECIFICATIONS

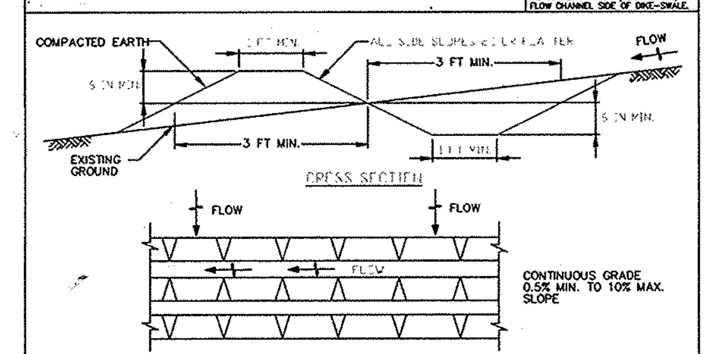
1. USE NOMINAL 2 INCH x 4 INCH LUMBER
2. USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS.
3. NAIL THE 2x4 WEIR TO 9 INCH LONG VERTICAL SPACERS (MAXIMUM 6 FEET APART).
4. ATTACH A CONTINUOUS PIECE OF ¼ INCH GALVANIZED HARDWARE CLOTH, WITH A MINIMUM WIDTH OF 30 INCHES AND A MINIMUM LENGTH 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

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE | 2011 | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

## 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

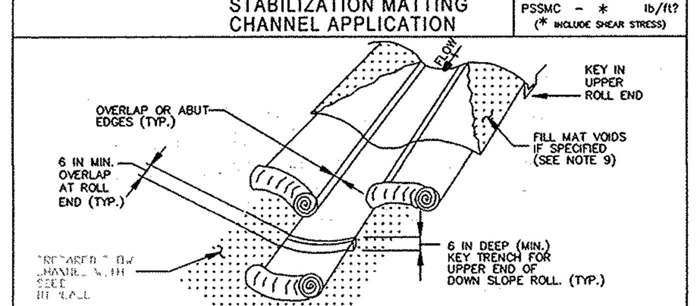
1. REMOVE AND DISPOSE OF ALL TREES, BRUSH, STUMPS, OBSTRUCTIONS, AND OTHER OBJECTIONABLE MATERIAL SO AS NOT TO INTERFERE WITH PROPER FUNCTION OF DIKE/SWALE.
2. EXCAVATE OR SHAPE DIKE/SWALE TO LINE, GRADE, AND CROSS SECTION AS SPECIFIED. BANK PROJECTIONS OR OTHER IRREGULARITIES ARE NOT ALLOWED.
3. COMPACT 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

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE | 2011 | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

## 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

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE | 2011 | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

## 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.

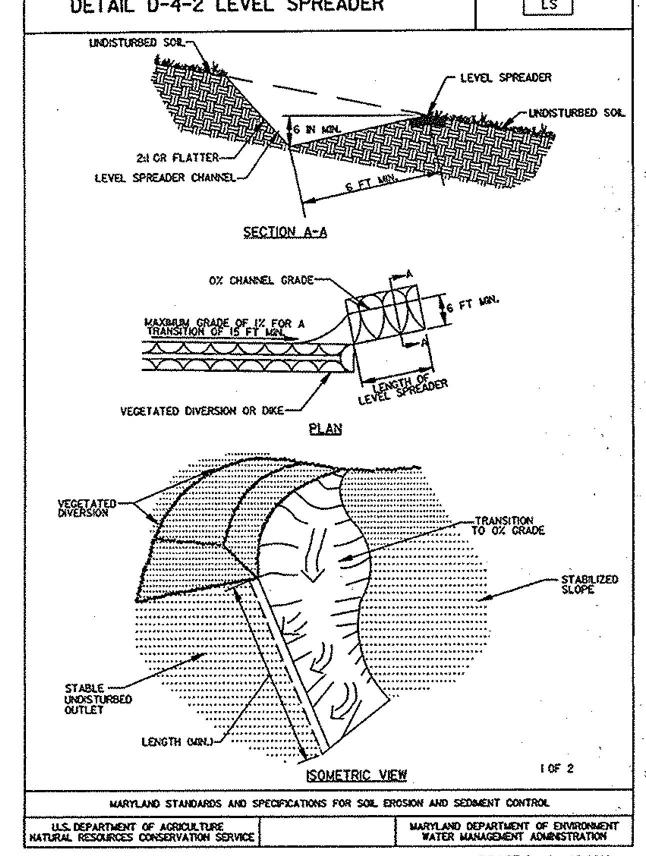
2 OF 2

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 D-4-2 LEVEL SPREADER

STANDARD SYMBOL: LS




1 OF 2

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE | | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

D.27 DRAFT October 15, 2009

## DETAIL D-4-2 LEVEL SPREADER

STANDARD SYMBOL: LS

CONSTRUCTION SPECIFICATIONS

1. CONSTRUCT THE LEVEL SPREADER OF PRETREATED LUMBER, CONCRETE OR OTHER STRUCTURAL MATERIALS.
2. CONSTRUCT THE LIP OF THE LEVEL SPREADER IN UNDISTURBED SOIL (NOT FILL) AT A ZERO PERCENT GRADE ON THE CONTOUR.
3. OUTFALL THE LEVEL SPREADER TO AN EXISTING UNDISTURBED STABILIZED AREA.
4. THE MINIMUM WIDTH WILL BE 6 FEET AND THE DEPTH WILL BE 6 INCHES MINIMUM MEASURED FROM THE LIP OF THE SPREADER AND BE UNIFORM ACROSS THE ENTIRE LENGTH.
5. THE MINIMUM LENGTH WILL BE DETERMINED BASED ON THE 10-YEAR, 24-HOUR STORM FLOW.

| Q(10-YEAR (CFS)) | MINIMUM LENGTH (FEET) |
|---|---|
| UP TO 10 | 10 |
| 10 TO 20 | 20 |
| 20 TO 30 | 30 |
| 30 TO 40 | 40 |
| 40 TO 50 | 50 |

6. PROVIDE A SLOPE OF 2:1 OR FLATTER ON THE BACKSIDE OF THE SPREADER.
7. THE RUNOFF TO THE SPREADER MUST BE SEDIMENT FREE.
8. THE RUNOFF FROM THE SPREADER CAN NOT CONCENTRATE AFTER RELEASE UNTIL IT REACHES AN OUTLET DESIGNED FOR CONCENTRATED FLOW.
9. THE GRADE OF THE CHANNEL COMING INTO THE SPREADER MUST HAVE A SLOPE OF 1 PERCENT OR LESS FOR THE LAST 15 FEET. GRADE THE ENTRANCE FROM THE CHANNEL TO DIRECT THE RUNOFF INTO THE ZERO PERCENT GRADED CHANNEL OF THE SPREADER.

2 OF 2

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE | | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

D.28 DRAFT October 15, 2009

BY THE DEVELOPER:

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

SIGNATURE OF DEVELOPER 4/4/14

BY THE ENGINEER:

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

SIGNATURE OF ENGINEER 4/7/14

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

John K Robertson — HOWARD S.C.D. — DATE 4/17/14

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 5-6-14

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 5.9.14

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5-12-14

K:\PROJECTS\10-30\ENGR\DWG\FINAL ROAD P1\11_SEDCON_NOTES.DWG

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## SEQUENCE OF CONSTRUCTION

1. OBTAIN GRADING PERMIT. – 1 DAY
2. DEVELOPER / CONTRACTOR SHALL REQUEST A PRE-CONSTRUCTION MEETING WITH THE APPROPRIATE ENFORCEMENT AUTHORITY PRIOR TO BEGINNING CONSTRUCTION.(1 DAY)
3. NOTIFY HOWARD COUNTY BUREAU OF INSPECTIONS AND PERMITS (410-313-1880) AT LEAST 24 HOURS BEFORE STARTING ANY WORK. (1 DAY)
4. STAKEOUT LIMITS OF DISTURBANCE. – 3 DAYS

PHASE 1

1. CLEAR AND GRUB FOR THE INSTALLATION OF PERIMETER CONTROLS (1 DAY)
2. INSTALL STABILIZED CONSTRUCTION ENTRANCES (SCE), AS SHOWN HEREON. NORTH SIDE OF OLD SCAGGSVILLE ROAD SHALL HAVE A PIPE TO CONVEY DRAINAGE TO BASIN #4, REFER TO PIPE PROFILE, SHT 7. – 1 DAY
3. INSTALL SILT FENCE (SF), SUPER SILT FENCE (SSF) AND OTHER E/S CONTROLS AT THE LIMIT OF DISTURBANCE, WHERE SHOWN OR AS DIRECTED BY SEDIMENT CONTROL INSPECTOR FOR CONSTRUCTION COMMON TO # 4. – 3 DAYS
4. CLEAR & GRUB AREA COMMON TO THE PHASE 1 DIVERSION STORM DRAIN OUTFALLS ES13 TO I-41 "MIESSE PROPERTY" AND ES4 TO I-R3 "HIGH RIDGE ROAD BYPASS" – (2 DAYS)
5. INSTALL STORM DRAIN SYSTEM FROM ES13 TO I-41 (INCLUDING MANHOLES IN THE RUN) TO PROVIDE STABLE STORM DRAIN OUTFALL FOR BASIN 4. – 5 DAYS
6. INSTALL STORM DRAIN ES4 TO I-R3 TO DIVERT OFFSITE "HIGH RIDGE" DRAINAGE AREAS THROUGH THE SITE AND PROVIDE STABLE STORM DRAIN OUTFALL FOR TRAP 3. – 5 DAYS

NOTE:
1. ES13 TO I-41 "MIESSE PROPERTY" MUST BE IN PLACE PRIOR TO THE CONSTRUCTION OF BASIN #4
2. ES4 TO I-R3 "HIGH RIDGE ROAD BYPASS" MUST BE IN PLACE PRIOR TO THE CONSTRUCTION OF TRAPS 1-3.

7. UPON COMPLETION OF ABOVE STORM DRAINS AND WITH PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, PROCEED TO ITEM 8.
8. CLEAR & GRUB AREA COMMON TO THE THREE (3) SEDIMENT TRAPS ON THE SOUTH SIDE OF OLD SCAGGSVILLE ROAD AND THE SEDIMENT BASIN ON THE NORTH SIDE OF OLD SCAGGSVILLE ROAD. – 5 DAYS
9. CONSTRUCT SEDIMENT TRAP # 1, #2, #3 AND BASIN #4 PER THE DETAILS AND SPECIFICATIONS SHOWN HEREON. EXCAVATED MATERIAL SHALL BE STOCKPILED OR USED AS FILL MATERIAL PER THE OVERALL SITE GRADING PROPOSAL (PHASE 2). EARTH DIKES AND PERIMETER DIKE/SWALE SHALL BE CONSTRUCTED AT THE SAME TIME AS THE SEDIMENT TRAPS. EARTH DIKES (TEMPORARY CHANNELS) SHALL BE LINED WITH TEMPORARY SOIL STABILIZATION MATTING. TEMPORARY MATTING IS MADE WITH DEGRADEABLE (6 MONTH), NATURAL OR MANMADE FIBERS OF UNIFORM THICKNESS AND DISTRIBUTION OF FIBERS THROUGHOUT AND IS SMOLDER RESISTANT. EXCAVATED MATERIAL SHALL BE STOCKPILED OR USED AS FILL MATERIAL PER THE OVERALL SITE GRADING PROPOSAL (PHASE 2).

NO SITE GRADING (PHASE 2) OR CLEARING IS ALLOWED UNTIL THE MATERIALS NECESSARY TO CONSTRUCT THE BASIN ARE ONSITE

10. STABILIZE THE DISTURBED AREAS FROM THE AFOREMENTIONED DISTURBANCES WITH TEMPORARY SEEDING MIXTURE AND STRAW MULCH – 1 DAY
11. THE SEDIMENT SHALL BE REMOVED FROM THE SEDIMENT TRAPS WHEN THE CLEANOUT ELEVATION HAS BEEN REACHED. – 2 DAYS
12. 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
13. THE SEDIMENT TRAPS SHALL BE DEWATERED BY PUMPING. THE ACCUMULATED SEDIMENT FROM THE TRAPS 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
14. WITH PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, PROCEED TO PHASE 2.

PHASE 2

1. CLEAR & GRUB REMAINING SITE WITHIN THE LIMITS OF DISTURBANCE. – 5 DAYS
2. COMPLETE TRAFFIC CIRCLE CONSTRUCTION TO INCLUDE TEMPORARY TRAFFIC PATTERNS IN ACCORDANCE WITH DETAILS SHOWN HEREON. – 3 WEEKS

SEDIMENT CONTROL FOR TRAFFIC CIRCLE WORK IS PROVIDED BY TRAP 3, CIRCLE AREA NATURALLY DRAINS TOWARD TRAP 3.

3. COMPLETE SITE MASS GRADING AS SHOWN HEREON, BRINGING SITE TO ROAD SUBGRADE ELEVATIONS AND COMPACTED FILLS FOR PROPOSED HOME CONSTRUCTION. 3 WEEKS
4. WITH MASS GRADING COMPLETE, STABILIZE THOSE AREAS WITH PERMANENT SEEDING MIXTURE AND STRAW MULCH OR AS DIRECTED BY THE SEDIMENT CONTROL INSPECTOR. – 2 DAYS
5. INSTALL REMAINING STORM DRAIN SYSTEMS AND INLET PROTECTION AS WORK PROGRESSES. INSTALL STORM DRAIN DIVERSIONS TO TRAPS AS SHOWN HEREON (INLET 4, 13, 15) – 1 MONTH
6. WITH TRAFFIC CIRCLE CONSTRUCTION COMPLETE AND STORM DRAINS IN PLACE, WITH APPROVAL OF HOWARD COUNTY TRAFFIC AND C.I.D., PROCEED WITH OLD SCAGGSVILLE ROAD WIDENING TO INCLUDE OPEN SECTION GRADING. DISTURBANCE SHALL BE MANAGED TO THAT WHICH CAN BE COMPLETED ON A DAILY BASIS. STABILIZE THOSE AREAS WITH PERMANENT SEEDING MIXTURE AND STRAW MULCH OR AS DIRECTED BY THE SEDIMENT CONTROL INSPECTOR. – 1 WEEK
7. INSTALL WATER MAIN & SEWER EXTENSIONS. ALLOW FOR CONTINUED CONVEYANCE OF SEDIMENT LADEN WATER TO THE TRAPS. – 1 MONTH
8. TRAPS SHALL REMAIN AS DIRECTED BY SEDIMENT CONTROL INSPECTOR AND SHALL BE BACKFILLED WITH PERMISSION OF SEDIMENT CONTROL INSPECTOR AND/OR AS FILL SLOPES / PHASE 2 GRADING OPERATIONS ARE COMPLETED.
9. WITH PHASE 2 GRADING COMPLETE, IMMEDIATELY STABILIZE WITH PERMANENT SEEDING MIXTURE AND STRAW MULCH. – DAILY
10. INSTALL CURB & GUTTER, BASE COURSE PAVEMENT, PATHWAY AND SIDEWALKS – 2 WEEKS
11. WITH CONTRIBUTING AREA STABILIZED, CONSTRUCT BIO-SWALE TO RECEIVE ROAD RUNOFF FROM TWIN FAWN DRIVE. PHASE 1 PERIMETER DIKE/SWALE ALONG WESTERN BOUNDARY LINE (SOUTH) SHALL BE CONVERTED TO BIOSWALE PER DETAILS HEREON. BIOSWALE SHALL NOT RECEIVE "DIRTY" WATER TWIN FAWN DRIVE. – 5 DAYS
12. IMMEDIATELY STABILIZE PERMANENT SEEDING MIXTURE AND STRAW MULCH – 1 DAY
13. FINE GRADE SITE NEAR CURBING AND STABILIZE WITH TEMPORARY SEEDING MIXTURE AND STRAW MULCH. OBTAIN PERMISSION FROM THE SEDIMENT CONTROL INSPECTOR TO PROCEED. – 2 DAYS
14. COMPLETE INSTALLATION OF ANY REMAINING SIDEWALK. – 5 DAYS
15. 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
16. WITH THE COMPLETION OF ITEM 15, CONSTRUCT THE MICRO-BIORETENTION FACILITIES AS SHOWN AND DETAILED HEREON – 1 WEEK
17. INSTALL REQUIRED LANDSCAPING AND FOREST CONSERVATION PLANTINGS – 5 DAYS
18. 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

THIS PLAN MAY NOT BE USED TO OBTAIN PERMITS FOR HOUSE CONSTRUCTION

**Table B.1: Temporary Seeding for Site Stabilization**

| Plant Species | Seeding Rate [1/] lb/ac | Seeding Rate [1/] lb/1000 ft² | Seeding Depth [2/] (inches) | Recommended Seeding Dates by Plant Hardiness Zone [3/] 5b and 6a | 6b | 7a and 7b |
|---|---|---|---|---|---|---|
| Cool-Season Grasses | | | | | | |
| Annual Ryegrass (*Lolium perenne ssp. multiflorum*) | 40 | 1.0 | 0.5 | Mar 15 to May 31; Aug 1 to Sep 30 | Mar 1 to May 15; Aug 1 to Oct 15 | Feb 15 to Apr 30; Aug 15 to Nov 30 |
| Barley (*Hordeum vulgare*) | 96 | 2.2 | 1.0 | Mar 15 to May 31; Aug 1 to Sep 30 | Mar 1 to May 15; Aug 1 to Oct 15 | Feb 15 to Apr 30; Aug 15 to Nov 30 |
| Oats (*Avena sativa*) | 72 | 1.7 | 1.0 | Mar 15 to May 31; Aug 1 to Sep 30 | Mar 1 to May 15; Aug 1 to Oct 15 | Feb 15 to Apr 30; Aug 15 to Nov 30 |
| Wheat (*Triticum aestivum*) | 120 | 2.8 | 1.0 | Mar 15 to May 31; Aug 1 to Sep 30 | Mar 1 to May 15; Aug 1 to Oct 15 | Feb 15 to Apr 30; Aug 15 to Nov 30 |
| Cereal Rye (*Secale cereale*) | 112 | 2.8 | 1.0 | Mar 15 to May 31; Aug 1 to Oct 31 | Mar 1 to May 15; Aug 1 to Nov 15 | Feb 15 to Apr 30; Aug 15 to Dec 15 |
| Warm-Season Grasses | | | | | | |
| Foxtail Millet (*Setaria italica*) | 30 | 0.7 | 0.5 | Jun 1 to Jul 31 | May 16 to Jul 31 | May 1 to Aug 14 |
| Pearl Millet (*Pennisetum glaucum*) | 20 | 0.5 | 0.5 | Jun 1 to Jul 31 | May 16 to Jul 31 | May 1 to Aug 14 |

NOTES:

1/ Seeding rates for the warm-season grasses are in pounds of Pure Live Seed (PLS). Actual planting rates shall be adjusted to reflect percent seed germination and purity, as tested. Adjustments are usually not needed for the cool-season grasses.

Seeding rates listed above are for temporary seedings, when planted alone. When planted as a nurse crop with permanent seed mixes, use 1/3 of the seeding rate listed above for barley, oats, and wheat. For smaller-seeded grasses (annual ryegrass, pearl millet, foxtail millet), do not exceed more than 5% (by weight) of the overall permanent seeding mix. Cereal rye generally should not be used as a nurse crop, unless planting will occur in very late fall beyond the seeding dates for other temporary seedings. Cereal rye has allelopathic properties that inhibit the germination and growth of other plants. If it must be used as a nurse crop, seed at 1/3 of the rate listed above.

Oats are the recommended nurse crop for warm-season grasses.

2/ For sandy soils, plant seeds at twice the depth listed above.
3/ The planting dates listed are averages for each Zone and may require adjustment to reflect local conditions, especially near the boundaries of the zone.


OWNER

KATHY MIESSE, PERSONAL REPRESENTATIVE,
ESTATE OF ARTHUR P. KRAESKI
9222 OLD SCAGGSVILLE ROAD
LAUREL, MD 20723-1730
ATTN: MR. DONALD R. REUWER
443-367-0422

DEVELOPER

LAND DESIGN & DEVELOPMENT, INC.
5300 DORSEY HALL DRIVE, STE 102
ELLICOTT CITY, MARYLAND 21042-7819
ATTN: MR. DONALD R. REUWER
443-367-0422


| NO. | REVISION | DATE |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| 2 | REVISE SUBDIVISION NAME | 7/18/14 |

# FINAL ROAD CONSTRUCTION PLAN
# GRADING AND SOIL EROSION, AND SEDIMENT CONTROL PLAN - DETAILS
# HIGH RIDGE MEADOWS-SECTION 1

LOTS 1 - 54, OPEN SPACE LOTS 55 - 68
AND NON-BUILDABLE BULK PARCEL "B"
A SUBDIVISION OF TAX MAP 50 – PARCEL 363
AND A RESUBDIVISION OF TAX MAP 50 – PARCEL 542
KRAESKI PROPERTY NON-BUILDABLE BULK PARCEL "A" (PLAT 21191)

6TH ELECTION DISTRICT – TAX MAP: 50 GRID: 1
DPZ REF'S: F-10-065, WP-10-087, ECP-12-047, WP-13-080, SP 13-007

ZONED: R-SC
PARCELS: 363 & 542
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 — PROFESSIONAL ENGINEER — 3/27/14

ROBERT H. VOGEL, PE No.16193

DESIGN BY: EDS
DRAWN BY: EDS/RVE
CHECKED BY: RHV
DATE: MARCH 2014
SCALE: AS SHOWN
W.O. NO.: 11-28

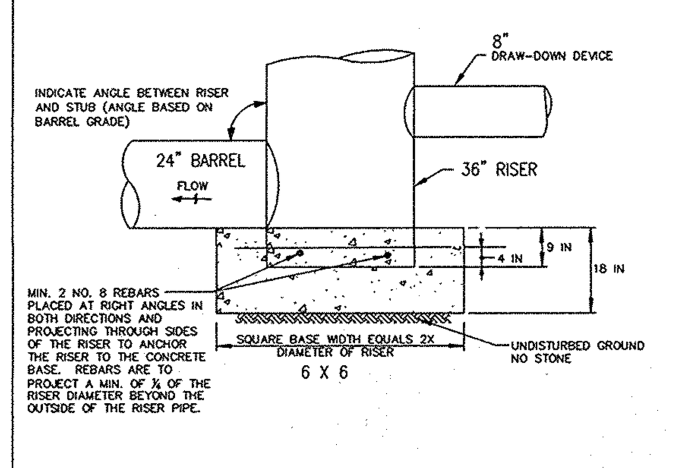
PROFESSIONAL CERTIFICATE
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193 EXPIRATION DATE: 09-27-2014

SHEET 11 OF 32

F 14-022

## DETAIL G-2-2 CORRUGATED RISER BASE

STANDARD SYMBOL




CONSTRUCTION SPECIFICATIONS

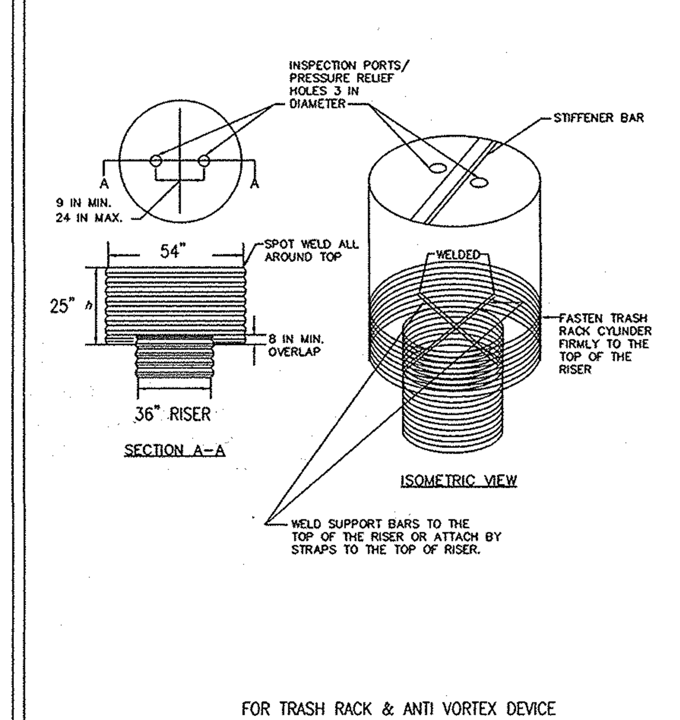
1. BOTTOM OF CONCRETE BASE TO BE PLACED ON UNDISTURBED, NATURAL GROUND.
2. NO STONE IS ALLOWED UNDER BASE. IF NECESSARY, TO ACHIEVE STABILITY INCREASE DEPTH OF CONCRETE BASE.

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 G-2-3 CONCENTRIC TRASH RACK AND ANTI-VORTEX DEVICE

STANDARD SYMBOL TR




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

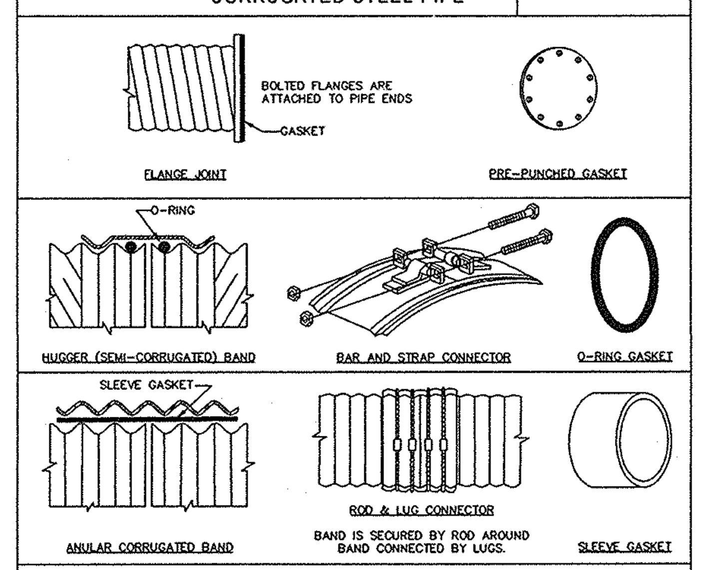
1 OF 2

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 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.

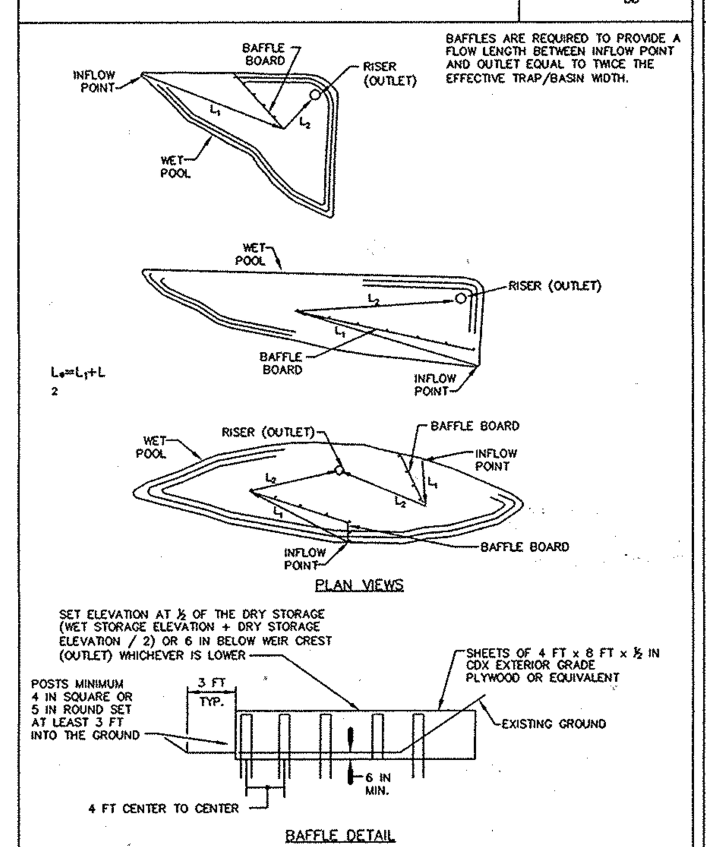
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE | 2011 | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

## DETAIL 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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BAFFLE DESIGN

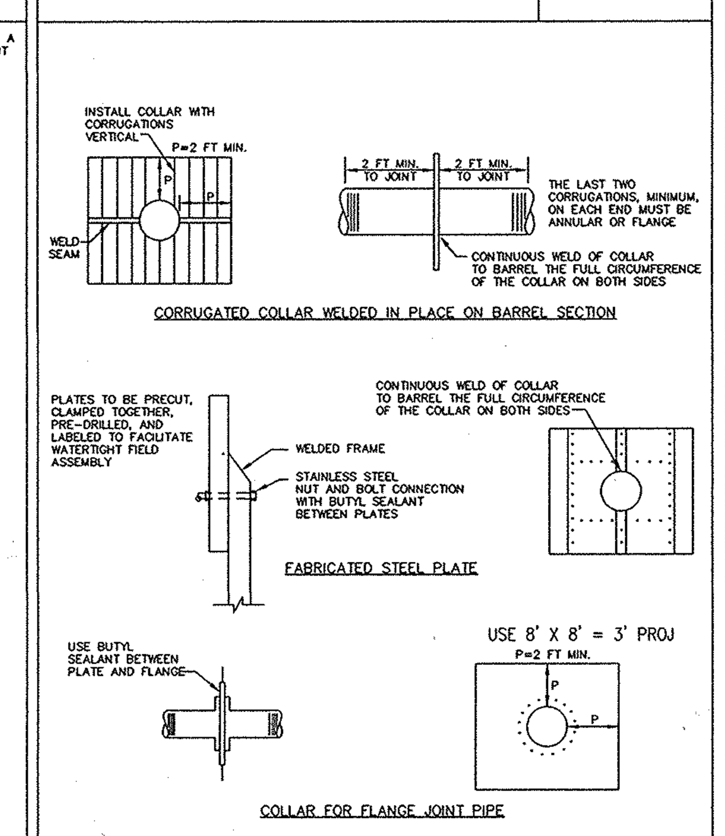
AREA WET STORAGE EL = 9822 SF
We = (A/2)^0.5
We = 70'
MIN Le = We X 2 = 140'

GM INFLOW

L1= 74'
L2= 71'
PROVIDED Le = 145'

## DETAIL G-2-1 TYPICAL ANTI-SEEP COLLARS

STANDARD SYMBOL

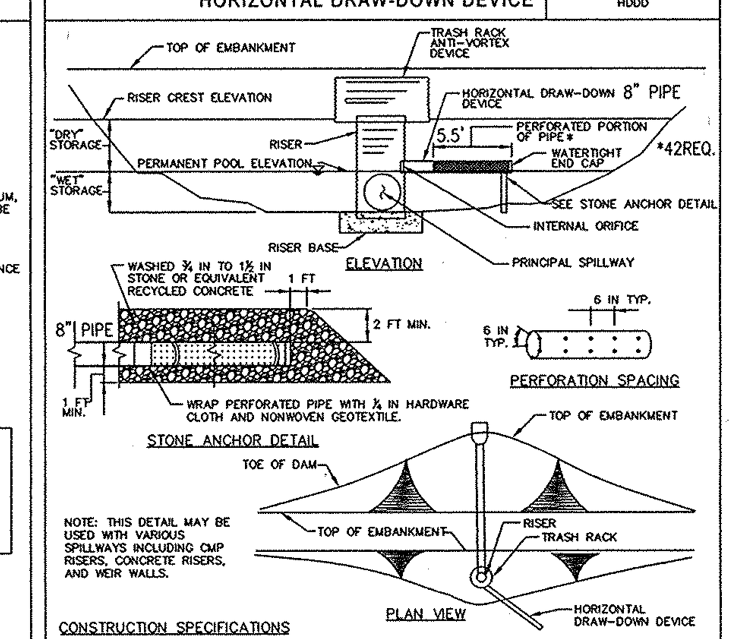



MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE | 2011 | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

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

STANDARD SYMBOL HDDD




CONSTRUCTION SPECIFICATIONS

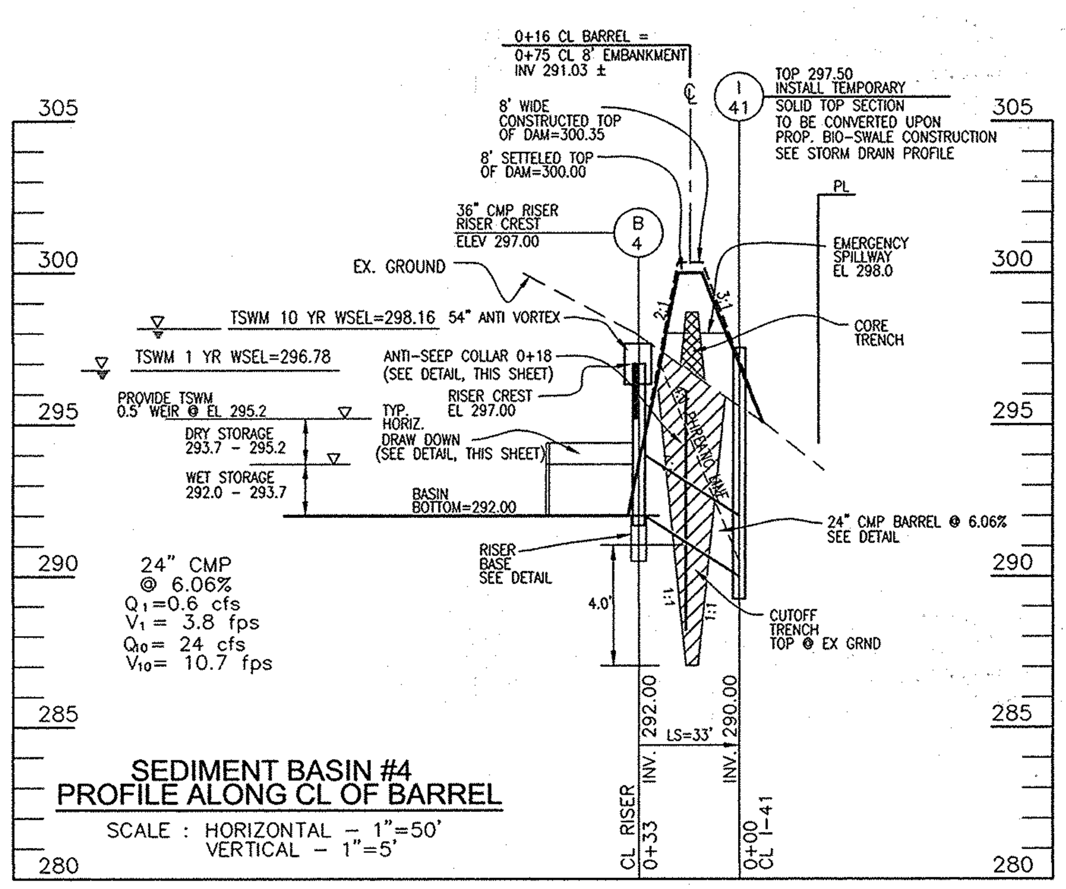
1. PERFORATE PIPE WITH 1 INCH DIAMETER PERFORATIONS SPACED 6 INCHES APART LONGITUDINALLY AND RADIALLY OR IN ACCORDANCE WITH APPROVED PLAN.
2. WRAP THE PERFORATED PORTION OF THE DRAW-DOWN DEVICE FIRST WITH ¼ INCH GALVANIZED HARDWARE CLOTH, THEN WITH NONWOVEN GEOTEXTILE. USE NONWOVEN GEOTEXTILE AS SPECIFIED 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

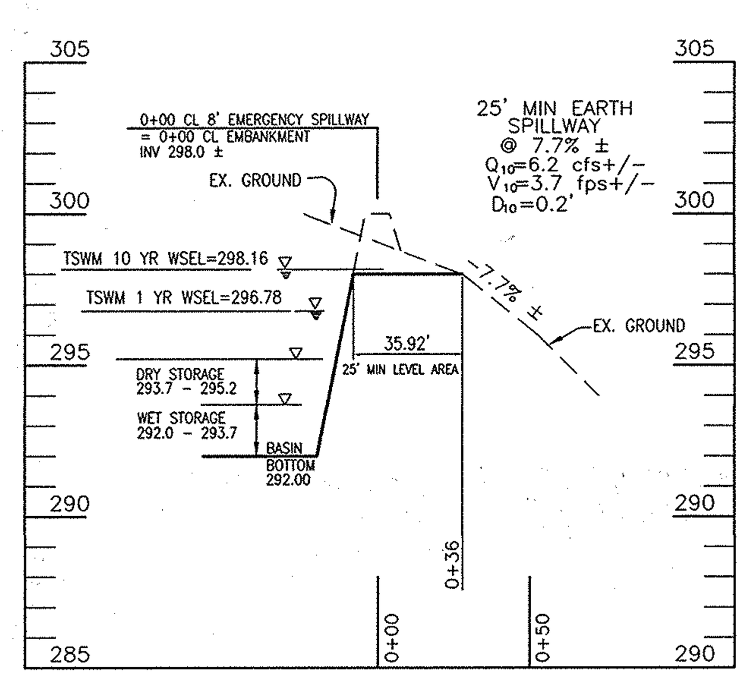
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE | 2011 | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

## 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.




SEDIMENT BASIN #4
PROFILE ALONG CL OF BARREL
SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'

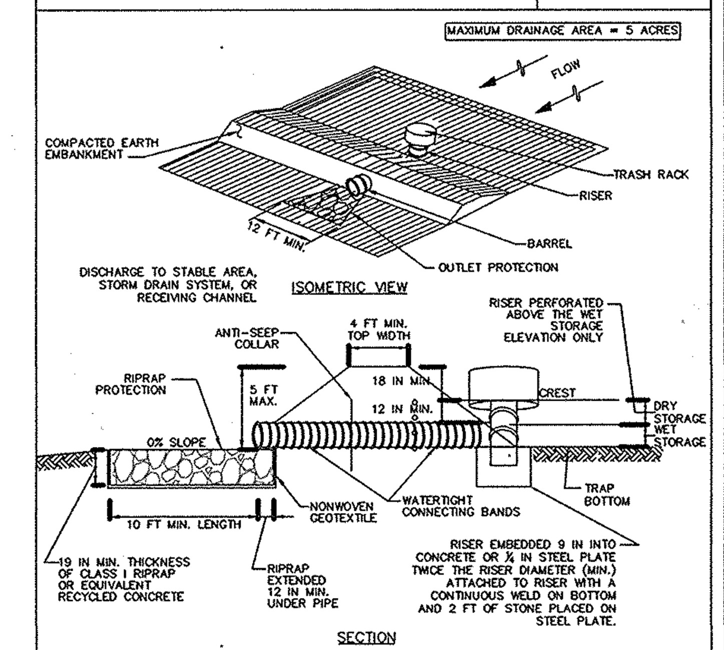



SEDIMENT BASIN #4
PROFILE ALONG CL EMERGENCY SPILLWAY
SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'

## DETAIL G-1-1 PIPE OUTLET SEDIMENT TRAP ST-I

STANDARD SYMBOL ST-I

MAXIMUM DRAINAGE AREA = 5 ACRES




NOTE:
REFER TO DETAIL G-2-1 – TYPICAL ANTI-SEEP COLLARS
REFER TO DETAIL G-2-2 – RISER BASE
REFER TO DETAIL G-2-3 – CONCENTRIC TRASH RACK AND ANTI-VORTEX DEVICE

1 OF 3

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 G-1-1 PIPE OUTLET SEDIMENT TRAP ST-I

STANDARD SYMBOL ST-I

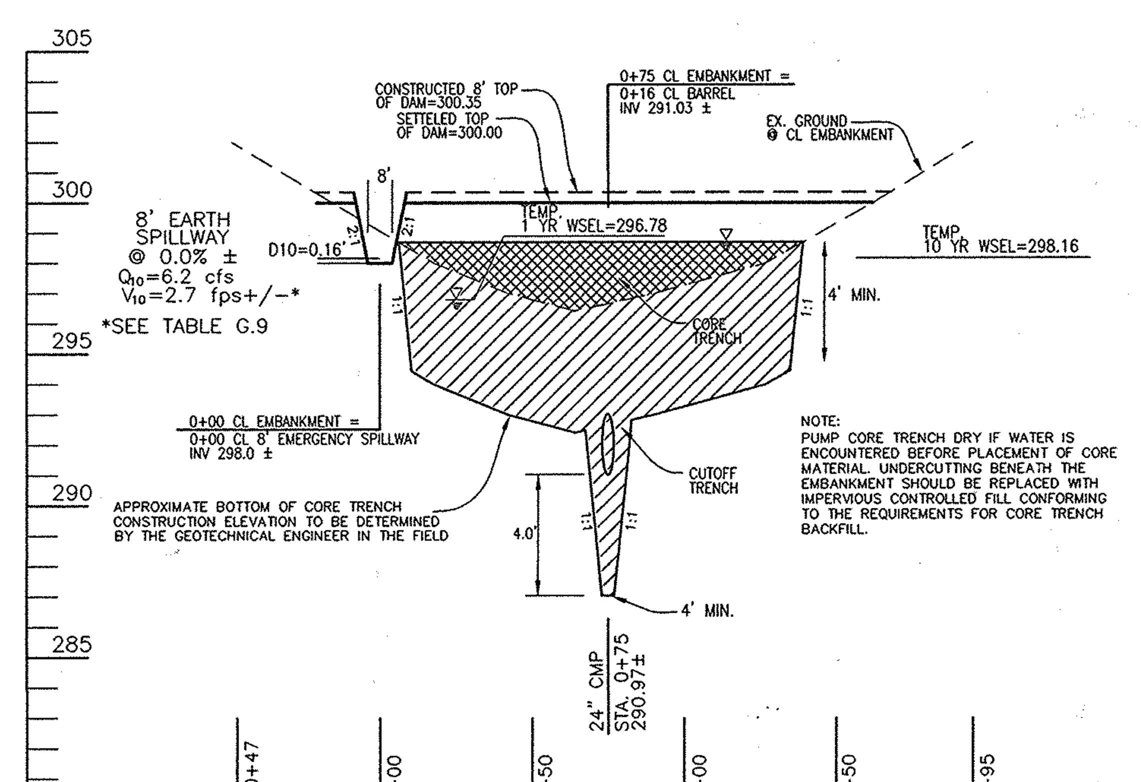
CONSTRUCTION SPECIFICATIONS

1. CONSTRUCT TRAP IN SUCH A MANNER THAT EROSION AND WATER POLLUTION ARE AVOIDED.
2. CLEAR, GRUB, AND STRIP ANY VEGETATION AND ROOT MAT FROM THE AREA UNDER THE EMBANKMENT AND TRAP BOTTOM.
3. PERFORATE THE RISER WITH 1 INCH DIAMETER HOLES SPACED 6 INCHES ON CENTER WITH THE LOWEST PERFORATIONS AT THE WET STORAGE ELEVATION OR PROVIDE A HORIZONTAL OR VERTICAL DRAW-DOWN DEVICE PERFORATED ACCORDING TO APPROVED PLAN. DO NOT PERFORATE THE RISER WITHIN 6 INCHES OF THE TOP OF THE HORIZONTAL BARREL.
4. SET RISER/BARREL ASSEMBLY PRIOR TO EMBANKMENT CONSTRUCTION. MAKE ALL PIPE CONNECTIONS WATERTIGHT. OFFSET RISER FROM EMBANKEMENT TO ACCOMODATE PLACEMENT OF THE TRASH RACK. ANCHOR THE RISER WITH EITHER A REINFORCED CONCRETE BASE OR STEEL PLATE BASE TO PREVENT FLOTATION. MAKE CONCRETE BASES AT LEAST TWICE THE RISER DIAMETER AND 18 INCHES THICK WITH THE RISER EMBEDDED 9 INCHES.
5. USE FILL MATERIAL FREE OF ROOTS, WOODY VEGETATION, OVERSIZED STONES, ROCKS, ORGANIC MATERIAL, OR OTHER OBJECTIONABLE MATERIAL FOR THE EMBANKMENT.
6. HAND COMPACT IN 4 INCH LAYERS FILL MATERIAL AROUND THE PIPE SPILLWAY. PLACE A MINIMUM OF 2 FEET OF HAND COMPACTED BACKFILL OVER THE PIPE SPILLWAY BEFORE CROSSING IT WITH CONSTRUCTION EQUIPMENT.
7. CONSTRUCT TOP OF EMBANKMENT 1 FOOT MINIMUM ABOVE RISER CREST. COMPACT THE EMBANKMENT BY TRAVERSING WITH EQUIPMENT WHILE IT IS BEING CONSTRUCTED.
8. MAKE ALL CUT AND FILL SLOPES 2:1 OR FLATTER.
9. WRAP THE RISER WITH ¼ INCH GALVANIZED HARDWARE CLOTH THEN WRAP WITH NONWOVEN GEOTEXTILE. DO NOT WRAP WITH MORE THAN ONE LAYER OF GEOTEXTILE. EXTEND HARDWARE CLOTH AND GEOTEXTILE AT LEAST 6 INCHES ABOVE THE HIGHEST PERFORATIONS AND AT LEAST 6 INCHES BELOW THE LOWEST PERFORATIONS. OVERLAP, FOLD AND FASTEN WHERE ENDS OF GEOTEXTILE COME TOGETHER TO PREVENT BYPASS. REPLACE GEOTEXTILE AS NECESSARY TO PREVENT CLOGGING.
10. USE STRAPS OR CONNECTING BANDS AT THE TOP AND BOTTOM OF THE GEOTEXTILE TO HOLD THE GEOTEXTILE AND HARDWARE CLOTH IN PLACE.
11. USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS.
12. STABILIZE THE EMBANKMENT AND INTERIOR SLOPES WITH SEED AND MULCH. STABILIZE POINTS OF CONCENTRATED INFLOW AS SHOWN ON APPROVED PLAN.
13. CONSTRUCT AND MAINTAIN THE OUTLET ACCORDING TO THE APPROVED PLAN AND IN SUCH A MANNER THAT EROSION AT OR BELOW THE OUTLET DOES NOT OCCUR.
14. REMOVE SEDIMENT AND RESTORE TRAP TO ORIGINAL DIMENSIONS WHEN SEDIMENT HAS ACCUMULATED TO CLEANOUT ELEVATION (50% OF WET STORAGE DEPTH). DEPOSIT REMOVED SEDIMENT IN AN APPROVED AREA AND IN SUCH A MANNER THAT IT WILL NOT ERODE. KEEP POINTS OF INFLOW AND OUTFLOW AS WELL AS INTERIOR OF THE TRAP FREE FROM EROSION, AND REMOVE ACCUMULATED DEBRIS. MAINTAIN EMBANKMENTS TO CONTINUOUSLY MEET REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION. REMOVE ANY TREES, BRUSH, OR OTHER WOODY VEGETATION GROWING ON EMBANKMENT OR NEAR PRINCIPAL SPILLWAY. MAINTAIN LINE, GRADE, AND CROSS SECTION. MAINTAIN WATER TIGHT CONNECTIONS. REPLACE GEOTEXTILE AROUND PERFORATED RISER IF DRY STORAGE VOLUME DOES NOT DRAW DOWN WITHIN 10 HOURS.
15. WHEN DEWATERING TRAP, PASS REMOVED WATER THROUGH AN APPROVED SEDIMENT CONTROL PRACTICE.
16. UPON REMOVAL, GRADE AND STABILIZE THE AREA OCCUPIED BY TRAP.

2 OF 3

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




SEDIMENT BASIN #4
PROFILE ALONG CL OF EMBANKMENT
SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'

## DETAIL G-1-1 PIPE OUTLET SEDIMENT TRAP ST-I

STANDARD SYMBOL ST-I

| PIPE OUTLET SEDIMENT TRAP ST-I, TRAP NO. 3 | | |
|---|---|---|
| DRAINAGE AREA – INTIAL | 3.4 | ACRES |
| DRAINAGE AREA – INTERIM | 3.4 | ACRES |
| DRAINAGE AREA – FINAL | 4.9 | ACRES |
| TOTAL STORAGE REQUIRED | 17,640 | CF |
| TOTAL STORAGE PROVIDED | 23.136 | CF |
| WET STORAGE REQUIRED | 8,820 | CF |
| WET STORAGE PROVIDED | 11,149 | CF |
| DRY STORAGE REQUIRED | 8,820 | CF |
| DRY STORAGE PROVIDED | 11,987 | CF |
| TRAP BOTTOM ELEVATION | 286.00 | FT |
| TRAP BOTTOM DIMENSIONS | 85' X 150'+/- | FT x FT |
| RISER CREST (DRY STORAGE) ELEVATION | 289.00 (1) | FT |
| OUTLET (WET STORAGE) ELEVATION | 287.00 | FT |
| CLEANOUT ELEVATION | 286.40 | FT |
| TOP OF EMBANKMENT ELEVATION | 290.50 | FT |
| SIDE SLOPE | 2 : 1 | H:V RATIO |
| EMBANKMENT TOP WIDTH | 4' | FT |
| PRINCIPAL SPILLWAY MATERIAL (BARREL, RISER, ANTI-SEEP COLLAR) | PER STD. DETAIL | |
| RISER DIAMETER | 42" | IN |
| BARREL DIAMETER | 30" | IN |
| TRASH RACK DIAMETER | 60" | IN |
| TRASH RACK HEIGHT | 37" | IN |
| ANTI-SEEP COLLAR DIMENSIONS | 6.5' X 6.5' | FT |
| OUTLET PROTECTION – LENGTH | N/A* | FT |
| OUTLET PROTECTION – WIDTH | N/A* | FT |
| OUTLET PROTECTION – DEPTH | N/A* | IN |

(1) ELEV 288.0 IS DRY STORAGE ELEV
PROVIDE 0.1' NOTCH AT ELEV 288.00 TO RISER TOP AT 289.00

* OUTFALL TIED INTO BYPASS STORM DRAIN @ MH-4A THEN ONTO OUTFALL @ ES-4, SEE PHASE 1 SEQUENCE OF OF CONSTRUCTION

3 OF 3

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

TRAP #3 – BAFFLE DESIGN

AREA WET STORAGE EL = 11,568 SF
We = (A/2)^0.5
We = 76.1'
MIN Le = We X 2 = 152'

| GM INFLOW | GM INFLOW |
|---|---|
| L1= 75' | L1= 64' |
| L2= 77' | L2= 88' |
| PROVIDED Le = 152' WEST | PROVIDED Le = 152' EAST |

## 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 facility 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

APPROVED: DEPARTMENT OF PUBLIC WORKS

[signature] 5-6-14
CHIEF, BUREAU OF HIGHWAYS — DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

[signature] 5.9.14
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

[signature] 5-12-14
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

BY THE DEVELOPER:

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

K. Stoitchkov 4/1/14
SIGNATURE OF DEVELOPER

BY THE ENGINEER:

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

[signature] 4/2/14
SIGNATURE OF ENGINEER

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

[signature] 4/17/14
HOWARD S.C.D. — DATE


**OWNER**
KATHY MIESSE, PERSONAL REPRESENTATIVE,
ESTATE OF ARTHUR P. KRAESKI
9222 OLD SCAGGSVILLE ROAD
LAUREL, MD 20723-1730
ATTN: MR. DONALD R. REUWER
443-367-0422

**DEVELOPER**
LAND DESIGN & DEVELOPMENT, INC.
5300 DORSEY HALL DRIVE, STE 102
ELLICOTT CITY, MARYLAND 21042-7819
ATTN: MR. DONALD R. REUWER
443-367-0422


| NO. | REVISION | DATE |
|---|---|---|
| 2 | REVISE SUBDIVISION NAME | 7/18/14 |

# FINAL ROAD CONSTRUCTION PLAN
# SEDIMENT BASIN #4 - NOTES AND DETAILS
# SEDIMENT TRAP # 3 - DETAILS
# HIGH RIDGE MEADOWS - SECTION I

LOTS 1 - 54, OPEN SPACE LOTS 55 - 68
AND NON-BUILDABLE BULK PARCEL "B"
A SUBDIVISION OF TAX MAP 50 – PARCEL 363
AND A RESUBDIVISION OF TAX MAP 50 – PARCEL 542
KRAESKI PROPERTY NON-BUILDABLE BULK PARCEL "A" (PLAT 21191)

6TH ELECTION DISTRICT – TAX MAP: 50 GRID: 1
DPZ REF'S: F-10-065, WP-10-087, ECP-12-047, WP-13-080, SP 13-007
ZONED: R-SC
PARCELS: 363 & 542
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 — PROFESSIONAL ENGINEER — 4/2/14

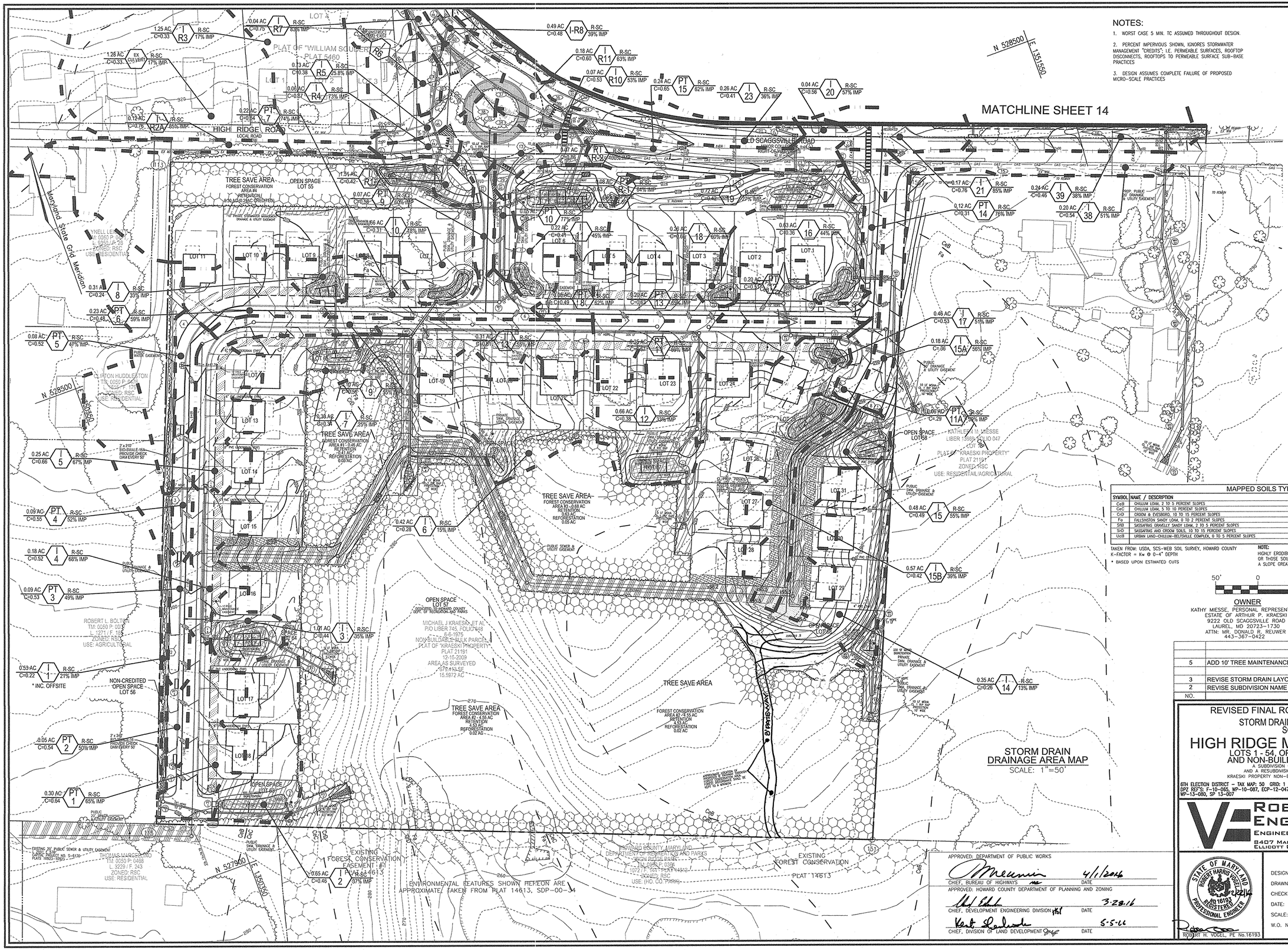
ROBERT H. VOGEL, PE No.16193

DESIGN BY: EDS
DRAWN BY: EDS/RVE
CHECKED BY: RHV
DATE: MARCH 2014
SCALE: AS SHOWN
W.O. NO.: 11-28

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: 09-27-2014



K:\PROJECTS\10-30\ENGR\DWG\FINAL ROAD P1\12_SED BASIN4.DWG
K:\Projects\11-28\ENGR\dwg\FINAL ROAD P1\12_SED BASIN4.dwg, 3/27/2014 2:14:27 PM




## NOTES:

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

## LEGEND:

- PROPERTY LINE
- RIGHT-OF-WAY LINE
- ADJACENT PROPERTY LINE
- EXISTING CURB AND GUTTER
- EXISTING UTILITY POLE
- EXISTING LIGHT POLE
- EXISTING MAILBOX
- EXISTING SIGN
- EXISTING SANITARY MANHOLE
- SS — EXISTING SANITARY LINE
- CO — EXISTING CLEANOUT
- FH — EXISTING FIRE HYDRANT
- W — EXISTING WATER LINE
- 330 — EXISTING 10' CONTOUR
- 328 — EXISTING 2' CONTOUR
- SoE / SkC2 — SOILS
- EXISTING TREELINE
- EXISTING TREES
- EXISTING FENCE
- CENTERLINE OF EXISTING STREAM
- PROPOSED STORMDRAIN
- PROPOSED STORMDRAIN INLET
- PROPOSED SIDEWALK
- PROPOSED TREELINE
- PROPOSED CURB
- PROPOSED STREET LIGHT
- PROPOSED 10' CONTOUR / PROPOSED 2' CONTOUR
- EXISTING WETLAND

DRAINAGE AREA / 'C' FACTOR — INLET # — ZONING / % IMPERVIOUS

- FOREST CONSERVATION RETENTION AREA
- 10' TREE MAINTENANCE EASEMENT
- PUBLIC SWM DRAINAGE & UTILITY EASEMENT

### MAPPED SOILS TYPES

| SYMBOL | NAME / DESCRIPTION | GROUP | HYDRIC | HYDRIC INCLUSIONS | Kw RANGE* | PRIME FARMLAND | STEEP SLOPE (>15%) / ERODIBLE (K>0.35) |
|---|---|---|---|---|---|---|---|
| CeB | CHILLUM LOAM, 2 TO 5 PERCENT SLOPES | B | NO | | 0.15 – 0.37 | | NO |
| CeC | CHILLUM LOAM, 5 TO 10 PERCENT SLOPES | B | NO | | 0.15 – 0.37 | | PARTIAL |
| CrD | CROOM & DVERSBORO, 10 TO 15 PERCENT SLOPES | C | NO | | 0.28 | | NO |
| Fo | FALLSINGTON SANDY LOAM, 0 TO 2 PERCENT SLOPES | D | YES | | 0.02 – 0.24 | | NO |
| SrB | SASSAFRAS GRAVELLY SANDY LOAM, 2 TO 5 PERCENT SLOPES | B | NO | | 0.17 – 0.24 | | NO |
| SrD | SASSAFRAS AND CROOM SOILS, 10 TO 15 PERCENT SLOPES | B | NO | | 0.32 – 0.37 | | PARTIAL |
| UcB | URBAN LAND–CHILLUM–BELTSVILLE COMPLEX, 0 TO 5 PERCENT SLOPES | D | NO | | 0.37 | | NO |

TAKEN FROM: USDA, SCS-WEB SOIL SURVEY, HOWARD COUNTY
K-FACTOR = Kw @ 0-4" DEPTH
* BASED UPON ESTIMATED CUTS

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

50' 0 50' 100' 150'

**OWNER**
KATHY MIESSE, PERSONAL REPRESENTATIVE,
ESTATE OF ARTHUR P. KRAESKI
9222 OLD SCAGGSVILLE ROAD
LAUREL, MD 20723-1730
ATTN: MR. DONALD R. REUWER
443-367-0422

**DEVELOPER**
LAND DESIGN & DEVELOPMENT, INC.
5300 DORSEY HALL DRIVE, STE 102
ELLICOTT CITY, MARYLAND 21042-7819
ATTN: MR. DONALD R. REUWER
443-367-0422

| NO. | REVISION | DATE |
|---|---|---|
| | | |
| | | |
| 5 | ADD 10' TREE MAINTENANCE EASEMENT, SHIFT MBR FACILITIES. | 9 / 2015 |
| | | |
| 3 | REVISE STORM DRAIN LAYOUT ALONG OLD SCAGGSVILLE ROAD | 1 / 2015 |
| 2 | REVISE SUBDIVISION NAME | 7/18/14 |

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 4/1/2016

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 3.28.16
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5-5-16

# REVISED FINAL ROAD CONSTRUCTION PLAN
## STORM DRAIN DRAINAGE AREA MAP SOUTH AREA
# HIGH RIDGE MEADOWS - SEC. 1
## LOTS 1 - 54, OPEN SPACE LOTS 55 - 68 AND NON-BUILDABLE BULK PARCEL "B"

A SUBDIVISION OF TAX MAP 50 – PARCEL 363
AND A RESUBDIVISION OF TAX MAP 50 – PARCEL 542
KRAESKI PROPERTY NON-BUILDABLE BULK PARCEL "A" (PLAT 21191)

6TH ELECTION DISTRICT – TAX MAP: 50 GRID: 1 — ZONED: R-SC
DPZ REF'S: F-10-065, WP-10-087, ECP-12-047, WP-13-080, SP 13-007 — PARCELS: 363 & 542
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

ROBERT H. VOGEL, PE No.16193

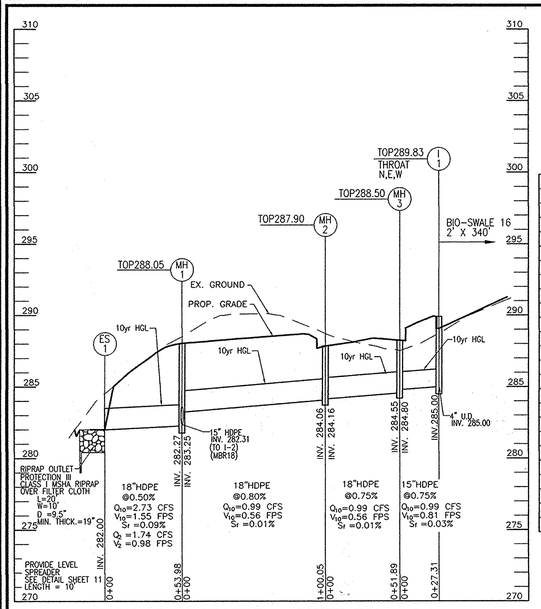
DESIGN BY: EDS
DRAWN BY: EDS/RVE/KG
CHECKED BY: RHV
DATE: SEPTEMBER 2015
SCALE: AS SHOWN
W.O. NO.: 11-28

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

SHEET 13 OF 32

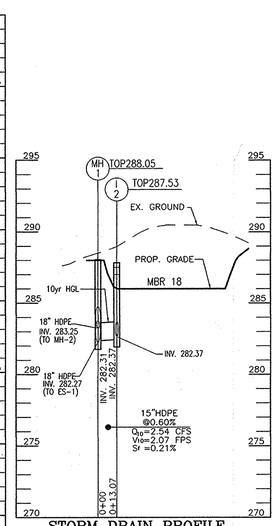
F-14-022

K:\Projects\11-28\SDR\dwg\FINAL ROAD PYPE\ENLINE 4 - BOB BROWER.DWG - REPLACEMENT\19-SD-DAY.dwg, 2/2/2016 11:12:57 AM



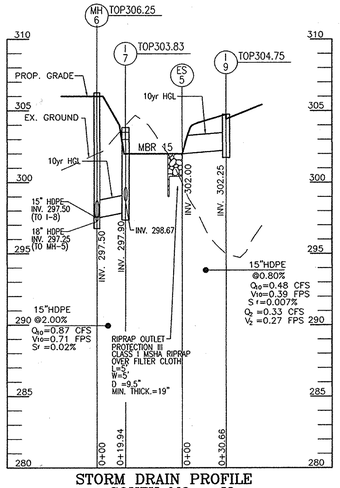

## STORM DRAIN PROFILE – SOUTH ES1 – I 1

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



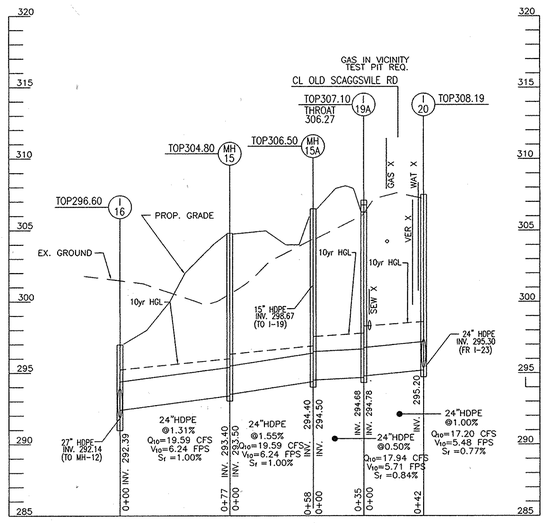

## STORM DRAIN PROFILE SOUTH M1 – I2

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



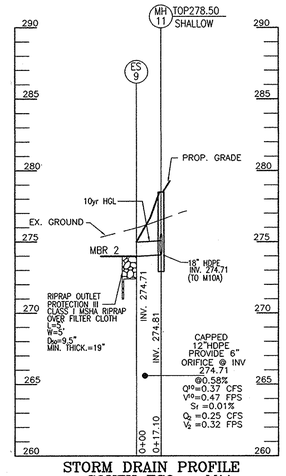

## STORM DRAIN PROFILE SOUTH M6 – I9

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




## STORM DRAIN PROFILE SOUTH I–16 – I–20

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




## STORM DRAIN PROFILE SOUTH ES9 – M11

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

## LEGEND:

- PROPERTY LINE
- RIGHT-OF-WAY LINE
- ADJACENT PROPERTY LINE
- EXISTING CURB AND GUTTER
- EXISTING UTILITY POLE
- EXISTING LIGHT POLE
- EXISTING MAILBOX
- EXISTING SIGN
- EXISTING SANITARY MANHOLE
- SS — EXISTING SANITARY LINE
- CO — EXISTING CLEANOUT
- FH — EXISTING FIRE HYDRANT
- W — EXISTING WATER LINE
- 330 — EXISTING 10' CONTOUR
- 328 — EXISTING 2' CONTOUR
- SsE, SfC2 — SOILS
- EXISTING TREELINE
- EXISTING TREES
- DRAINAGE DIVIDE
- DA-3 — DRAINAGE AREA DESIGNATION
- PROPOSED STORMDRAIN
- PROPOSED STORMDRAIN INLET
- PUBLIC SEWER, WATER & UTILITY EASEMENT
- PUBLIC DRAINAGE & UTILITY EASEMENT
- DRAINAGE AREA / 'C' FACTOR — INLET # — ZONING / % IMPERVIOUS
- PRIVATE SWM DRAINAGE & UTILITY EASEMENT

### MAPPED SOILS TYPES

| SYMBOL | NAME / DESCRIPTION | GROUP | HYDRIC | HYDRIC INCLUSIONS | Kw RANGE* | PRIME FARMLAND | 0%-5% SLOPE W/ K FACTOR GREATER THAN 0.35 |
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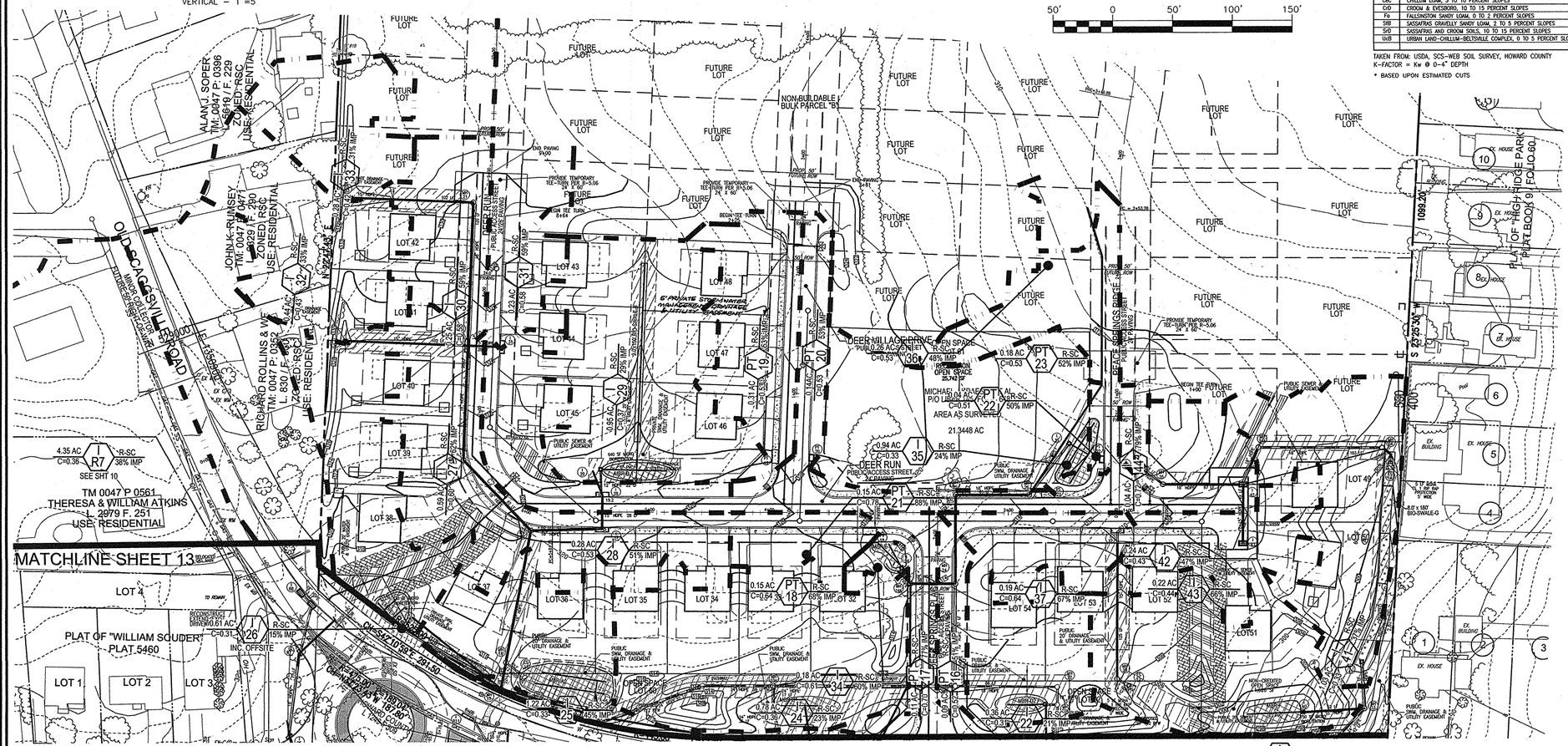
| CeC | CHILLUM LOAM, 5 TO 10 PERCENT SLOPES | B | NO | | 0.15 – 0.37 | | PARTIAL |
| CrD | CROOM & EVESBORO, 10 TO 15 PERCENT SLOPES | C | NO | | 0.28 | | NO |
| Fe | FALLSINGTON SANDY LOAM, 0 TO 2 PERCENT SLOPES | D | YES | | 0.02 – 0.24 | | NO |
| SrB | SASSAFRAS GRAVELLY SANDY LOAM, 2 TO 5 PERCENT SLOPES | B | NO | | 0.17 – 0.24 | | NO |
| SrD | SASSAFRAS AND CROOM SOILS, 10 TO 15 PERCENT SLOPES | B | NO | | 0.32 – 0.37 | | PARTIAL |
| UcB | URBAN LAND-CHILLUM-BELTSVILLE COMPLEX, 0 TO 5 PERCENT SLOPES | D | NO | | 0.37 | | NO |

TAKEN FROM: USDA, SCS-WEB SOIL SURVEY, HOWARD COUNTY
K-FACTOR = Kw @ 0'-4" DEPTH
* BASED UPON ESTIMATED CUTS

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




## STORM DRAIN DRAINAGE AREA MAP

SCALE: 1"=50'

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 5/19/2015

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 5.18.15

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5-19-15

### OWNER

KATHY MIESSE, PERSONAL REPRESENTATIVE,
ESTATE OF ARTHUR P. KRAESKI
9222 OLD SCAGGSVILLE ROAD
LAUREL, MD 20723-1730
ATTN: MR. DONALD R. REUWER
443-367-0422

### DEVELOPER

LAND DESIGN & DEVELOPMENT, INC.
5300 DORSEY HALL DRIVE, STE 102
ELLICOTT CITY, MARYLAND 21042-7819
ATTN: MR. DONALD R. REUWER
443-367-0422

| NO. | REVISION | DATE |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| 3 | REVISE STORM DRAIN LAYOUT ALONG OLD SCAGGSVILLE ROAD | 1 / 2015 |
| 2 | REVISE SUBDIVISION NAME | 7/18/14 |

REVISED FINAL ROAD CONSTRUCTION PLAN
STORM DRAIN DRAINAGE AREA MAP
NORTH AREA

# HIGH RIDGE MEADOWS - SEC. 1

LOTS 1 - 54, OPEN SPACE LOTS 55 - 68
AND NON-BUILDABLE BULK PARCEL "B"
A SUBDIVISION OF TAX MAP 50 – PARCEL 363
AND A RESUBDIVISION OF TAX MAP 50 – PARCEL 542
KRAESKI PROPERTY NON-BUILDABLE BULK PARCEL "A" (PLAT 21191)

6TH ELECTION DISTRICT – TAX MAP: 50 GRID: 1 — ZONED: R-SC
DPZ REF'S: F-10-055, WP-10-087, ECP-12-047, WP-13-080, SP 13-007 — PARCELS: 363 & 542
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 — 4/28/15
ROBERT H. VOGEL, PE No.16193

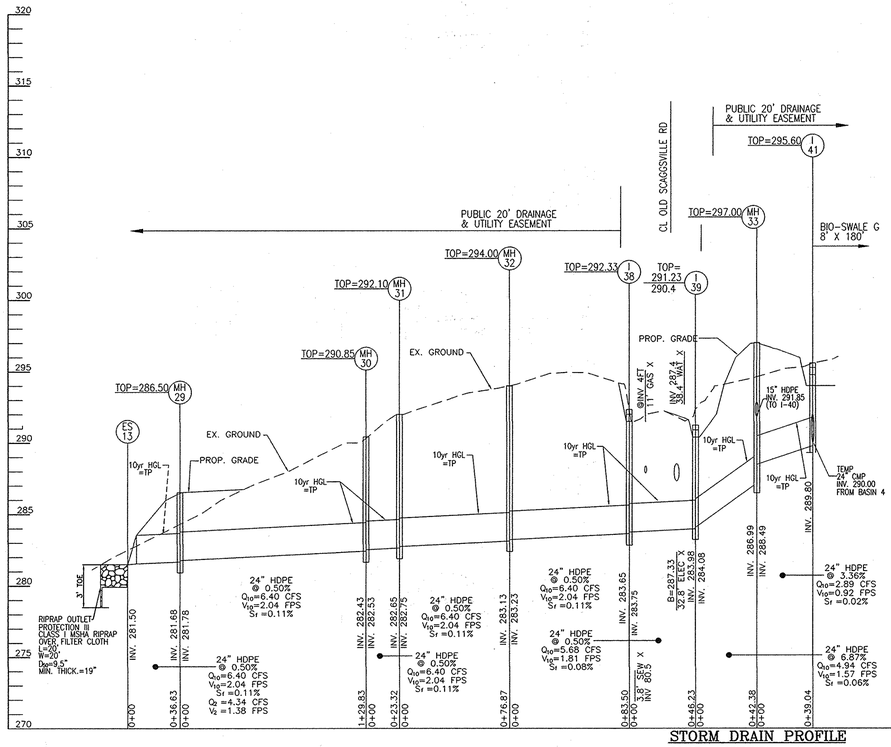
DESIGN BY: EDS
DRAWN BY: EDS/RVE/KG
CHECKED BY: RHV
DATE: APRIL 2015
SCALE: AS SHOWN
W.O. NO.: 11-28

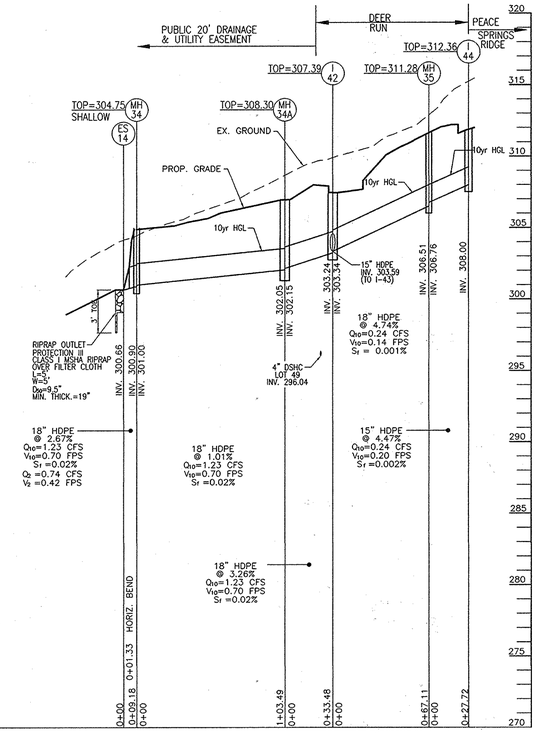
PROFESSIONAL CERTIFICATE
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193 EXPIRATION DATE: 09-27-2016

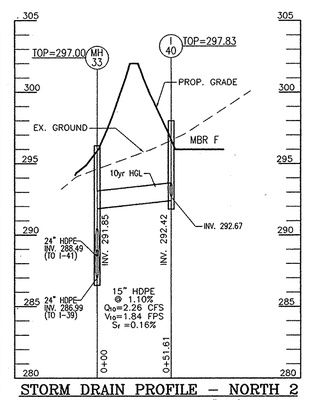
SHEET 14 OF 32

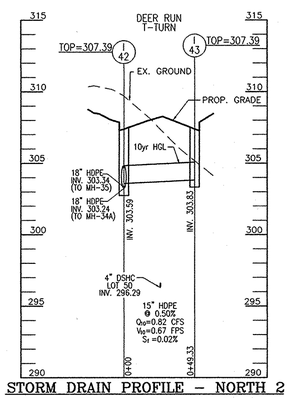
F-14-022

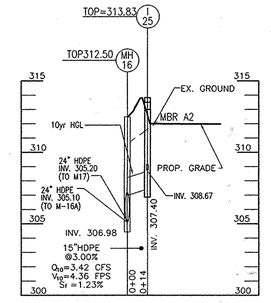
K:\Projects\11-28\ENGR\dwg\FINAL ROAD P\REDLINE 2 CONSTRUCTION CHANGES\REDLINE-REPLACEMENT\HRM-1D DAIL_REPLACEMENT.dwg, 4/1/2015 8:22:34 AM



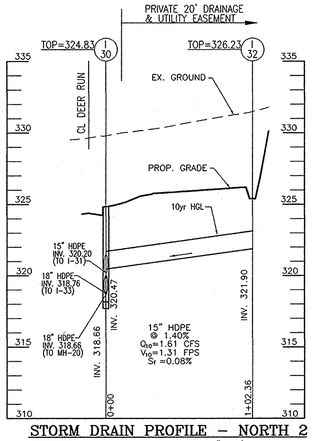



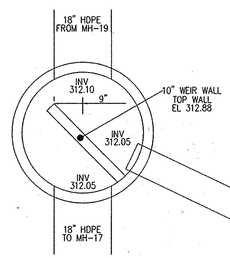



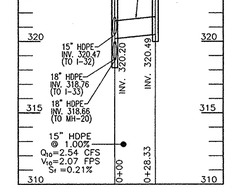


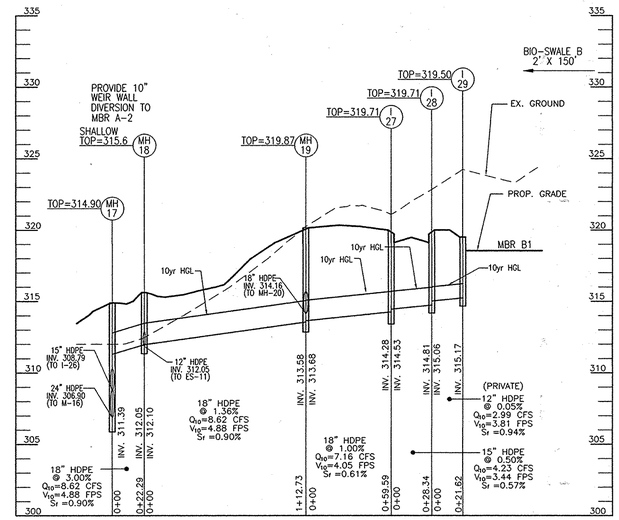


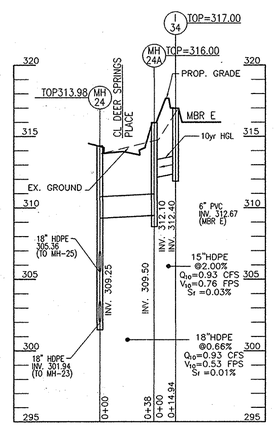


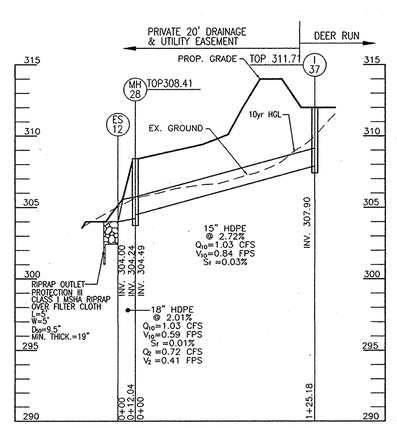




MH-18 DIVERSION MANHOLE
N.T.S.




**OWNER**

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| NO. | REVISION | DATE |
|---|---|---|
| | | |
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| | | |
| | | |
| 3 | REVISE STORM DRAIN PROFILES | 1 / 2015 |
| 2 | REVISE SUBDIVISION NAME | 7/18/14 |

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 5/11/2015

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 5.18.15

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5-19-15

REVISED FINAL ROAD CONSTRUCTION PLAN

STORM DRAIN PROFILES

# HIGH RIDGE MEADOWS - SEC. 1

LOTS 1 - 54, OPEN SPACE LOTS 55 - 68
AND NON-BUILDABLE BULK PARCEL "B"

A SUBDIVISION OF TAX MAP 50 – PARCEL 363
AND A RESUBDIVISION OF TAX MAP 50 – PARCEL 542
KRAESKI PROPERTY NON-BUILDABLE BULK PARCEL "A" (PLAT 21191)

6TH ELECTION DISTRICT – TAX MAP: 50 GRID: 1 — ZONED: R-SC
DPZ REF'S: F-10-065, WP-10-087, ECP-12-047, WP-13-080, SP 13-007 — PARCELS: 363 & 542
HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL ENGINEERING, INC.
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TEL: 410.461.7666 FAX: 410.461.8961

STATE OF MARYLAND — ROBERT HARRIS VOGEL — No. 16193 — REGISTERED PROFESSIONAL ENGINEER — 12/22/15

ROBERT H. VOGEL, PE No.16193

DESIGN BY: EDS
DRAWN BY: EDS/RVE/KG
CHECKED BY: RHV
DATE: APRIL 2015
SCALE: AS SHOWN
W.O. NO.: 11-28

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

SHEET 15 OF 32

F-14-022

K:\Projects\11-28\ENGR\dwg\FINAL ROAD P\RELINE 2 CONSTRUCTION CHANGES\RELINE-RE\REPLACEMENT\15_SD_PROFILES_REPLACEMENT.dwg, 4/24/2015 11:02:44 AM

## STRUCTURE SCHEDULE

| STR # | TYPE | INV. IN | INV. OUT | TOP OR UPPER/LOWER | DETAIL | LOCATION | REMARKS |
|---|---|---|---|---|---|---|---|
| I-1 | D | - | 285.00 | 289.83 | D-4.10 | 13+32.86, 27.80' RT | THROAT 3 SIDES (N,E,W) |
| I-2 | D | 282.37 | 282.37 | 287.53 | D-4.10 | N 527951.01 E 1350415.27 | |
| I-3 | D | 289.67 | 289.40 | 294.83 | D-4.10 | N 528142.93 E 1350459.60 | |
| I-4 | A-10 | 293.69 | 293.59 | 297.84 | D-4.03 | 11+65.23,12.43' LT | |
| I-5 | A-10 | 300.89 | 300.64 | 305.81 | D-4.03 | 9+87.80, 12.43' LT | |
| I-5A | D | - | 301.80 | 306.00 | D-4.10 | 9+87.80, 28.03' LT | |
| I-6 | D | 288.67 | 286.00 | 293.83 | D-4.10 | N 528253.54, E 1350787.37 | |
| I-7 | D | 298.67 | 297.90 | 303.83 | D-4.10 | 6+43.13, 41.46' LT | |
| I-8 | S | 300.67 | 299.50 | 305.00 | D-4.22 | 6+43.49, 37.61' RT | W/ RETICULAR F&C |
| I-9 | A-5 | - | 302.25 | 304.75 | D-4.01 | 5+99.21, 12.43' LT | |
| I-10 | S | 298.47/295.6 | 295.50 | 302.80 | D-4.22 | N 528450.35, E 1350786.29 | W/ RETICULAR F&C |
| I-11 | S | 301.67 | 301.00 | 306.00 | D-4.22 | N 528428.99, E 1350878.09 | W/ RETICULAR F&C |
| I-12 | D | 293.67 | 293.22 | 298.83 | D-4.10 | N 528157.38, E 1350995.62 | |
| I-13 | A-5 | - | 299.77 | 304.16 | D-4.01 | 5+39.19, 12.43' LT | |
| I-14 | D | 271.38 | 271.38 | 276.54 | D-4.10 | N 527873.12, E 1351127.47 | |
| I-15 | S | 283.67/282.23 | 281.98 | 288.00 | D-4.22 | N 528103.33, E 1351225.41 | W/ RETICULAR F&C |
| I-15A | A-5 | - | 287.35 | 293.70 | D-4.01 | N 528146.79, E 1351231.02 | |
| I-15B | S | 288.07 | 283.00 | 292.40 | D-4.22 | N 528160.96, E 1351174.58 | W/ RETICULAR F&C |
| I-16 | S | 292.27/292.39 | 292.14 | 296.60 | D-4.22 | 1+54.20, 31.69' RT | W/ RETICULAR F&C |
| I-17 | S | 292.10 | 292.00 | 296.60 | D-4.22 | N 528245.17, E 1351218.71 | W/ RETICULAR F&C |
| I-18 | NYLOPLAST | 295.87 | 295.80 | 300.20 | - | N 528328.20, E 1351117.59 | |
| I-19 | D | 298.67 | 298.40 | 303.83 | D-4.10 | N 528423.57, E 1351251.28 | |
| I-19A | D | 294.78 | 294.68 | 307.10 | D-4.10 | N 528450.31, E 1351239.51 | |
| I-20 | A-5 | 295.30 | 295.20 | 308.19 cl | D-4.01 | 8+90.06, 14.00' LT | |
| I-21 | A-10 | - | 298.50 | 304.20 cl | D-4.03 | 11+00.63, 14.00' LT | |
| I-22 | D | - | 298.38 | 306.83 | D-4.10 | 10+90.81, 53.71' LT | |
| I-23 | TYPE "K" | 295.51 | 295.41 | 306.50 | D-4.12 | 8+69.32, 22.48' LT | |
| I-24 | D | 295.78 | 295.68 | 307.83 | D-4.10 | N 528518.66, E 1351265.46 | |
| I-25 | D | 308.67 | 307.40 | 313.83 | D-4.10 | N 528589.34, E 1351101.72 | |
| I-26 | D | 310.67 | 310.40 | 315.83 | D-4.10 | N 528705.59, E 1350975.59 | |
| I-27 | A-10 | 314.53 | 314.28 | 319.71 | D-4.03 | 5+39.64, 12.43' LT | |
| I-28 | A-5 | 315.06 | 314.81 | 319.71 | D-4.01 | 5+39.64, 12.43' RT | |
| I-29 | S | 315.17 | 315.17 | 319.50 | D-4.22 | 5+47.77, 34.21' RT | W/ RETICULAR F&C |
| I-30 | A-10 | 320.47/320.2/318.76 | 318.66 | 324.83 | D-4.03 | 7+54.51, 12.43' LT | |
| I-31 | A-10 | - | 320.49 | 324.83 | D-4.03 | 7+54.51, 12.43' RT | |
| I-32 | D | - | 321.90 | 326.23 | D-4.10 | 7+54.56, 116.52' LT | |
| I-33 | D | - | 328.00 | 332.33 | D-4.10 | 8+74.56, 116.62' RT | |
| I-34 | S | 312.67 | 312.40 | 317.00 | D-4.22 | 1+61.81, 29.85' LT | W/ RETICULAR F&C |
| I-35 | D | 306.67 | 306.50 | 311.00 | D-4.10 | 0+58.25, 41.99' LT | |
| I-37 | A-10 | | 307.90 | 311.71 | D-4.03 | 1+08.67, 12.43' LT | |
| I-38 | D | 283.75 | 283.65 | 292.33 | D-4.10 | 13+28.49, 24.00' RT | |
| I-39 | D | 284.08 | 283.98 | 291.23 | D-4.10 | 13+59.67, 22.01' LT | |
| I-40 | D | - | 292.67 | 297.83 | D-4.10 | 13+06.32, 50.07' LT | |
| I-41 | D | - | 289.80 | 295.60 | D-4.10 | 13+55.57, 91.89' LT | |
| I-42 | DBL S | 303.34/303.59 | 303.24 | 307.39 | D-4.23 | 0+03.77, 24.19' RT | RETICULAR GRATE |
| I-43 | DBL S | - | 303.83 | 307.37 | D-4.23 | 0+03.77, 25.13' LT | RETICULAR GRATE |
| I-44 | A-5 | - | 308.00 | 312.36 | D-4.01 | 0+45.17, 12.43' RT | |
| I-R1 | D | 305.00 | 304.90 | 310.48 | D-4.10 | N 528609.53, E 1350785.70 | |
| I-R2 | COG-10 | 309.42/307.5 | 307.17 | 314.60 | MD 374.62 | 98.39, 12.94' LT | |
| I-R2A | D | EX 313.02 | 310.00 | 314.83 | D-4.10 | 2+05.60, 14.48' LT | THROAT WEST/SOUTH SIDE ONLY |
| I-R3 | COG-15 | - | 310.00 | 314.60 | MD 374.62 | 95.08, 13.16' RT | |
| I-R4 | A-5 | 308.82 | 308.72 | 313.15 | D-4.01 | 0+28.96, 17.19' LT | |
| I-R5 | A-5 | 309.65 | 309.55 | 313.15 | D-4.01 | 0+28.10, 15.65' RT | |
| I-R7 | A-5 | 312.66 | 312.56 | 317.18 | D-4.01 | 1+78.40, 14.00' RT | |
| I-R8 | DBL WR | 314.10 | 313.85 | 318.50 | G 4.35 | N 528752.67, E 1350911.24 | |
| I-R8A | DBL WR | - | 314.50 | 320.00 UP | G 4.35 | N 528765.09, E 1350906.45 | |
| I-R9 | D | 302.67 | 302.00 | 307.83 | D-4.10 | 0+54.30, 40.09' LT | |
| I-R10 | A-5 | 308.19 | 307.94 | 312.60 | D-4.01 | 6+40.29, 15.55' RT | |
| I-R11 | COG-10 | - | 308.47 | 313.86 | MD 374.62 | N 528617.25, E 1350998.94 | |

## STRUCTURE SCHEDULE

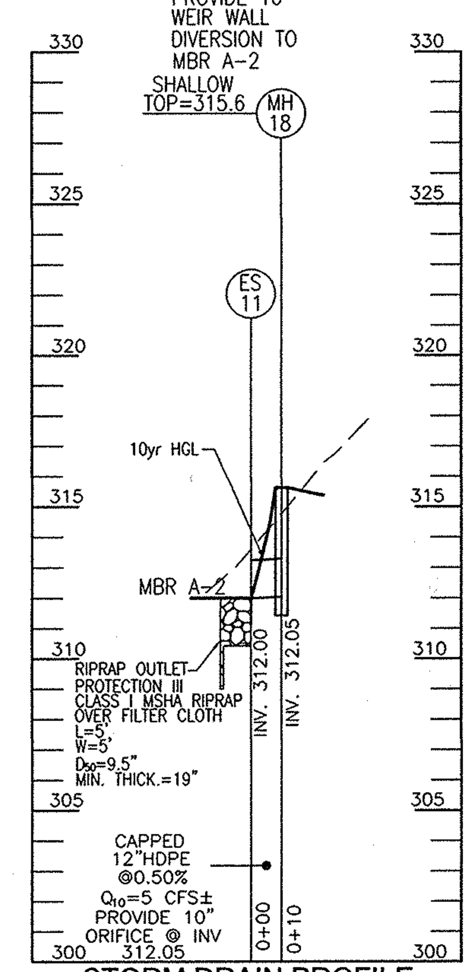
| STR # | TYPE | INV. IN | INV. OUT | TOP OR UPPER/LOWER | DETAIL | LOCATION | REMARKS |
|---|---|---|---|---|---|---|---|
| M-1 | 48" MANHOLE | 283.25 / 282.31 | 282.27 | 288.05 | G 5.12 | N 527937.94, E 1350415.21 | (1) |
| M-2 | 48" MANHOLE | 284.16 | 284.06 | 287.90 | G 5.12 | N 527974.46, E 1350322.06 | (1) |
| M-3 | 48" MANHOLE | 284.80 | 284.55 | 288.50 | G 5.12 | N 528003.67, E 1350279.17 | (1) |
| M-4 | 48" MANHOLE | 284.96 / 284.21 | 284.11 | 288.20 | G 5.12 | N 528288.90, E 1350693.84 | (1) |
| M-4A | 48" MANHOLE | 285.10 / 287.04 | 285.00 | 295.75 | G 5.12 | N 528288.90, E 1350693.84 | (1) |
| M-5 | 48" MANHOLE | 294.20 / 294.12 | 291.62 | 304.10 | G 5.12 | N 528422.20, E 1350744.30 | (1) |
| M-6 | 48" MANHOLE | 297.50 (2) | 297.25 | 305.96 | G 5.12 | N 528453.79, E 1350660.72 | (1) |
| M-7 | 48" MANHOLE | 300.00 / 297.74 | 296.35 | 305.02 | G 5.12 | N 528424.15, E 1350856.55 | (1) |
| M-8 | 48" MANHOLE | 297.26 | 297.16 | 301.30 | G 5.12 | N 528201.99, E 1351024.80 | (1) |
| M-9 | 48" MANHOLE | 298.14 | 297.89 | 303.28 | G 5.12 | N 528308.05, E 1351066.10 | (1) |
| M-10 | 48" MANHOLE | 271.15 / 271.33 | 271.04 | 277.00 | G 5.12 | N 527864.47, E 1351123.78 | (1) |
| M-10A | 48" MANHOLE | 272.60 | 272.50 | 278.00 | G 5.12 | N 527892.16, E 1351104.55 | (1) |
| M-11 | 48" MANHOLE | 274.81 | 274.71(2) | 278.50 | G 5.12 | N 527922.50, E 1351148.56 | (1) |
| M-11A | 48" MANHOLE | 290.39 | 290.29 | 297.50 | G 5.12 | N 528203.24, E 1351272.98 | (1) |
| M-12 | 48" MANHOLE | 291.55 | 291.30 | 302.19 | G 5.12 | N 528288.32, E 1351220.92 | (1) |
| M-13 | 48" MANHOLE | 293.10 | 293.00 | 298.16 | G 5.12 | N 528268.06, E 1351167.28 | (1) |
| M-14 | 48" MANHOLE | 294.15 | 293.90 | 298.49 | G 5.12 | N 528306.77, E 1351172.06 | (1) |
| M-15 | 48" MANHOLE | 293.50 | 293.40 | 304.80 | G 5.12 | N 528377.59, E 1351291.41 | (1) |
| M-15A | 48" MANHOLE | 298.09/294.50 | 294.40 | 306.50 | G 5.12 | N 528423.57, E 1351251.28 | (1) |
| M-16 | 48" MANHOLE | 306.98 / 305.20 | 305.10 | 312.50 | G 5.12 | N 528580.20, E 1351102.92 | (1) |
| M-16A | 48" MANHOLE | 303.25 | 303.15 | 312.00 | G 5.12 | N 528573.95, E 1351193.05 | |
| M-17 | 48" MANHOLE | 311.39 / 308.79 | 306.90 | 314.90 | G 5.12 | N 528630.95, E 1351034.41 | (1) |
| M-18 | 48" MANHOLE | 312.10 | 312.05 | 315.60 | G 5.12 | N 528650.02, E 1351045.94 | (1) |
| M-19 | 48" MANHOLE | 314.16 / 313.68 | 313.58 | 319.87 | G 5.12 | N 528746.30, E 1351104.59 | (1) |
| M-20 | 48" MANHOLE | 316.01 | 315.91 | 321.19 | G 5.12 | N 528821.54, E 1351072.28 | (1) |
| M-21 | 48" MANHOLE | 323.90 | 323.65 | 329.61 | G 5.12 | N 529020.92, E 1351156.07 | (1) |
| M-22 | 48" MANHOLE | 297.72 | 297.65 | 308.50 | G 5.12 | N 528468.41, E 1351468.45 | (1) |
| M-22A | 48" MANHOLE | 298.07 | 297.82 | 307.50 | G 5.12 | N 528454.50, E 1351465.19 | |
| M-23 | 48" MANHOLE | 297.22 | 296.72 | 308.33 | G 5.12 | N 528499.15, E 1351390.68 | (1) |
| M-23A | 48" MANHOLE | 297.22 | 296.72 | 308.33 | G 5.12 | N 528499.15, E 1351390.68 | |
| M-24 | 48" MANHOLE | 305.36/309.25 | 301.94 | 313.98 | G 5.12 | N 528579.64, E 1351421.14 | (1) |
| M-24A | 48" MANHOLE | 312.10 | 309.50 | 316.00 | G 5.12 | N 528592.98, E 1351385.89 | (1) |
| M-25 | 48" MANHOLE | 305.83 | 305.73 | 315.83 | G 5.12 | N 528649.26, E 1351447.49 | (1) |
| M-26 | 48" MANHOLE | 306.23 | 306.13 | 313.87 | G 5.12 | N 528627.53, E 1351504.89 | (1) |
| M-28 | 48" MANHOLE | 304.49 | 304.24 | 308.00 | G 5.12 | N 528456.94, E 1351519.57 | (1) |
| M-29 | 48" MANHOLE | 281.78 | 281.68 | 286.50 | G 5.12 | N 528004.90, E 1351563.93 | (1) |
| M-30 | 48" MANHOLE | 282.53 | 282.43 | 290.85 | G 5.12 | N 528124.38, E 1351614.75 | (1) |
| M-31 | 48" MANHOLE | 282.75 | 282.65 | 292.10 | G 5.12 | N 528146.36, E 1351606.96 | (1) |
| M-32 | 48" MANHOLE | 283.23 | 283.13 | 294.00 | G 5.12 | N 528222.48, E 1351617.68 | (1) Match Drive Grade |
| M-33 | 48" MANHOLE | 291.85 / 288.49 | 286.99 | 297.00 | G 5.12 | N 528361.17, E 1351704.67 | (1) |
| M-34 | 48" MANHOLE | 301.00 | 300.90 | 304.75 | G 5.12 | N 528560.67, E 1351795.12 | (1) |
| M-34A | 48" MANHOLE | 302.05 | 302.15 | 308.30 | G 5.12 | N 528597.31, E 1351698.33 | (1) |
| M-35 | 48" MANHOLE | 306.76 | 306.51 | 311.28 | G 5.12 | N 528596.50, E 1351612.80 | (1) |
| M-40 | 48" MANHOLE | 301.50 | 301.00 | 309.49 | G 5.12 | N 528529.01, E 1350896.24 | (1) |
| M-41 | 48" MANHOLE | 303.40 | 302.21 | 311.00 | G 5.12 | N 528541.66, E 1350862.99 | (1) |
| ES-1 | 18" END SEC. | - | 282.00 | 283.50 | HDPE | N 527939.36, E 1350463.00 | (2) |
| ES-2 | 15" END SEC. | - | 288.98 | 290.23 | HDPE | N 528084.86, E 1350511.91 | (2) |
| ES-3 | 18" END SEC. | - | 293.00 | 294.50 | HDPE | N 528161.66, E 1350410.68 | (2) |
| ES-4 | 30" END SEC. | - | 284.00 | 286.50 | HDPE | N 528282.47, E 1350691.41 | (2) |
| ES-5 | 15" END SEC. | - | 302.00 | 303.25 | HDPE | N 528430.30, E 1350685.68 | (2) |
| ES-6 | 12" ENDWALL | - | 292.00 | 293.75 | D-5.21 | N 528101.04, E 1350971.65 | "C" ENDWALL |
| ES-7 | 18" END SEC. | - | 297.00 | 298.50 | HDPE | N 528188.81, E 1351002.53 | (2) |
| ES-8 | 18" ENDWALL | - | 270.77 | 273.02 | D-5.21 | N 527814.03, E 1351102.28 | "C" ENDWALL |
| ES-9 | 12" END SEC. | - | 274.71 | 275.71 | HDPE | N 527906.85, E 1351141.74 | (2) |
| ES-9A | 15" END SEC. | - | 287.00 | 288.25 | HDPE | N 528127.53, E 1351227.64 | (2) |
| ES-10 | 30" ENDWALL | - | 289.67 | 293.17 | D-5.21 | N 528142.22, E 1351274.73 | "C" ENDWALL |
| ES-11 | 12" END SEC. | - | 312.00 | 313.00 | HDPE | N 528641.40, E 1351051.11 | (2) |
| ES-12 | 18" END SEC. | - | 304.00 | 305.50 | HDPE | N 528452.50, E 1351524.36 | (2) |
| ES-13 | 24" END SEC. | - | 281.50 | 283.50 | HDPE | N 527984.97, E 1351541.47 | (2) |
| ES-14 | 18" END SEC. | - | 300.66 | 302.16 | HDPE | N 528551.57, E 1351799.33 | (2) |
| ES-R1 | 18" END SEC. | - | 308.65 | 310.15 | HDPE | N 528606.54, E 1350843.93 | (2) |
| ES-R3 | 18" END SEC. | - | 306.00 | 307.50 | HDPE | N 528526.91, E 1350983.98 | (2) |

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

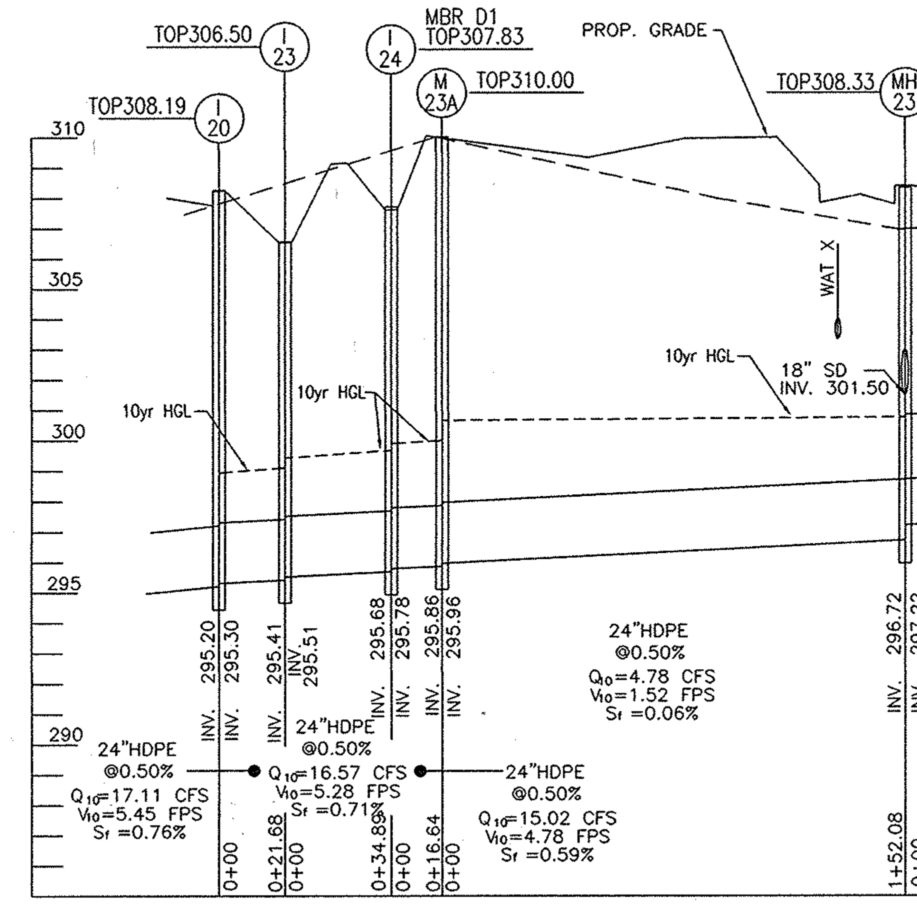
## STRUCTURE SCHEDULE

| STR # | TYPE | DEPTH REQUIREMENT | TOP ELEV CL STRUCTURE | DETAIL | LOCATION | REMARKS |
|---|---|---|---|---|---|---|
| PT-1 | PASS THRU | MIN. DEPTH INLET TOP | 288.00 | MD 374.68 | 13+61.75, 30.00' LT | Top L=6' Depth=Min. |
| PT-2 | PASS THRU | MIN. DEPTH INLET TOP | 291.36 | MD 374.68 | 13+09.50, 12.43' RT | Top L=10' Depth=Min. |
| PT-3 | PASS THRU | MIN. DEPTH INLET TOP | 295.40 | MD 374.68 | 12+19.61, 12.43' RT | Top L=10' Depth=Min. |
| PT-4 | PASS THRU | MIN. DEPTH INLET TOP | 302.18 | MD 374.68 | 10+68.58, 12.43' RT | Top L=10' Depth=Min. |
| PT-5 | PASS THRU | MIN. DEPTH INLET TOP | 308.81 | MD 374.68 | 9+18.32, 12.43' RT | Top L=10' Depth=Min. |
| PT-6 | PASS THRU | MIN. DEPTH INLET TOP | 306.31 | MD 374.68 | 6+50.44, 12.43' RT | Top L=10' Depth=Min. |
| PT-7 | PASS THRU | MIN. DEPTH INLET TOP | 304.16 | MD 374.68 | 5+39.19, 12.43' RT | Top L=6' Depth=Min. |
| PT-8 | PASS THRU | STD. DEPTH INLET TOP | 307.73 | MD 374.68 | 4+01.60, 12.43' RT | Top L=6' Depth=6' |
| PT-9 | PASS THRU | MIN. DEPTH INLET TOP | 306.85 | MD 374.68 | 1+44.70, 12.43' RT | Top L=6' Depth=Min. |
| PT-10 | PASS THRU | STD. DEPTH INLET TOP | 306.85 | MD 374.68 | 1+44.70, 12.43' LT | Top L=6' Depth=6' |
| PT-11 | PASS THRU | MIN. DEPTH INLET TOP | 297.94 | MD 374.68 | 0+68.01, 12.43' LT | Top L=6' Depth=Min. |
| PT-11A | PASS THRU | MIN. DEPTH INLET TOP | 293.70 | MD 374.68 | 3+07.91, 27.00' RT | Top L=6' Depth=Min. |
| PT-12 | PASS THRU | STD. DEPTH INLET TOP | 297.94 | MD 374.68 | 0+68.48, 12.43' RT | Top L=6' Depth=6' |
| PT-13 | PASS THRU | STD. DEPTH INLET TOP | 301.57 | MD 374.68 | 1+83.68, 12.43' RT | Top L=10' Depth=6' |
| PT-14 | PASS THRU | STD. DEPTH INLET TOP | 301.80 | MD 374.68 | 1+63.23, 12.43' RT | Top L=6' Depth=6' |
| PT-15 | PASS THRU | STD. DEPTH INLET TOP | 307.33 LOW | MD 374.68 | 9+44.59, 14.00' RT | Top L=10' Depth=6' |
| PT-16 | PASS THRU | MIN. DEPTH INLET TOP | 308.17 | MD 374.68 | 0+65.21, 12.43' RT | Top L=6' Depth=Min. |
| PT-17 | PASS THRU | STD. DEPTH INLET TOP | 308.28 | MD 374.68 | 0+67.37, 12.43' LT | Top L=10' Depth=6' |
| PT-18 | PASS THRU | STD. DEPTH INLET TOP | 318.34 | MD 374.68 | 3+15.77, 12.43' LT | Top L=10' Depth=6' |
| PT-19 | PASS THRU | STD. DEPTH INLET TOP | 320.68 | MD 374.68 | 0+46.36, 12.43' LT | Top L=10' Depth=6' |
| PT-20 | PASS THRU | MIN. DEPTH INLET TOP | 320.68 | MD 374.68 | 0+46.36, 12.43' RT | Top L=6' Depth=Min. |
| PT-21 | PASS THRU | STD. DEPTH INLET TOP | 313.57 | MD 374.68 | 1+66.73, 12.43' RT | Top L=10' Depth=6' |
| PT-22 | PASS THRU | MIN. DEPTH INLET TOP | 312.36 | MD 374.68 | 0+45.00, 12.43' LT | Top L=6' Depth=Min. |
| PT-R1 | PASS THRU | MIN. DEPTH INLET TOP | 310.30 | MD 374.68 | 0+33.15, 22.33' RT | Top L=10' Depth=Min. |
| PT-R2 | PASS THRU | STD. DEPTH INLET TOP | 310.57 HIGH | MD 374.68 | 0+54.46, 12.43' LT | Top L=6' Depth=6' |

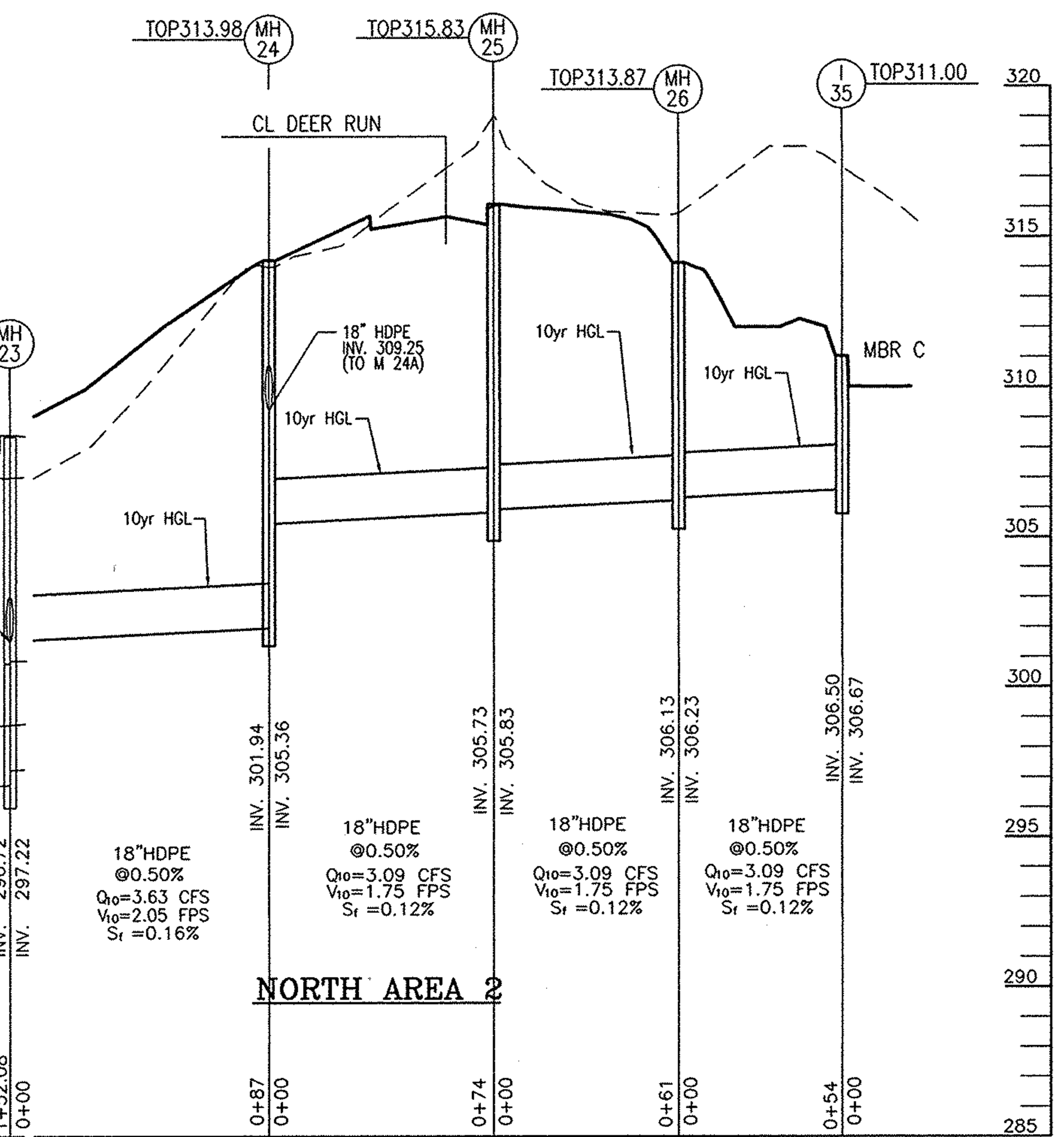
NOTE: 1. STANDARD INLET DEPTH AS NOTED IS 6 FEET. DIMENSION FROM FLOWLINE / FACE CURB (R-3.01) TO BACK OF 4" LIP
STD 8" CURB DEPTH + 5' CONC WALK + 4" LIP = TOTAL REQUIRED DEPTH = 6.0'
2. MINIMUM DEPTH = MINIMUN MANUFACTURED DEPTH. FOR USE IN NON-SIDEWALK AREAS



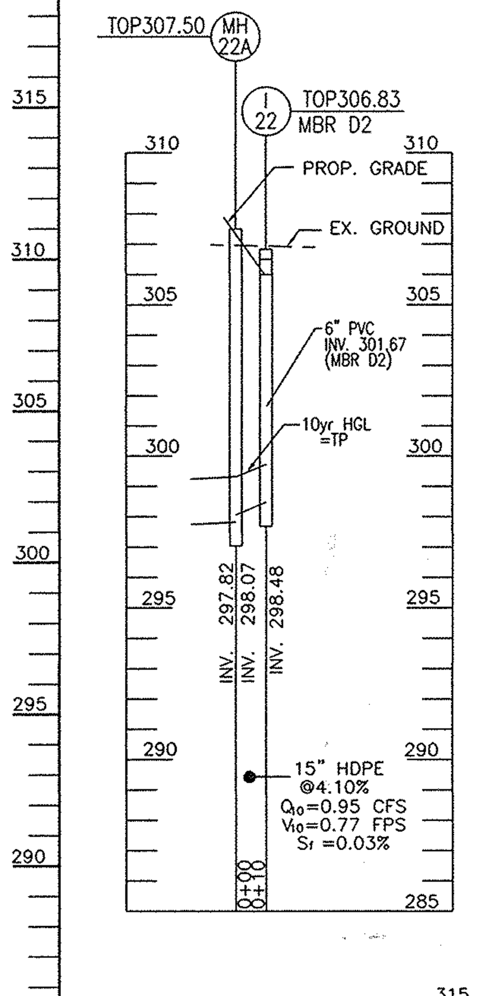

STORM DRAIN PROFILE
SCALE : HORIZONTAL - 1"=50'
VERTICAL - 1"=5'

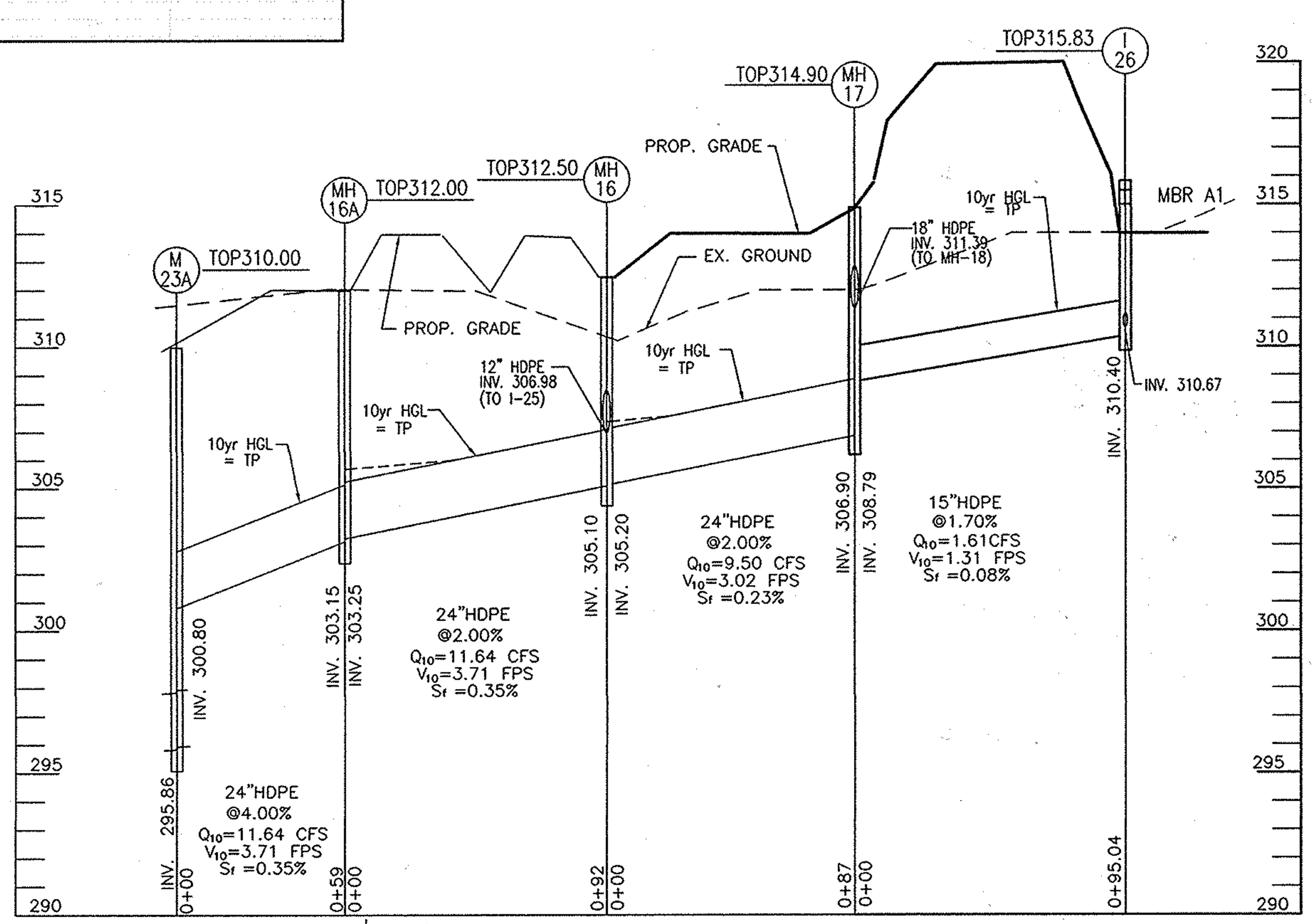



NORTH AREA




STORM DRAIN PROFILE
SCALE : HORIZONTAL - 1"=50'
VERTICAL - 1"=5'




STORM DRAIN PROFILE - NORTH 2
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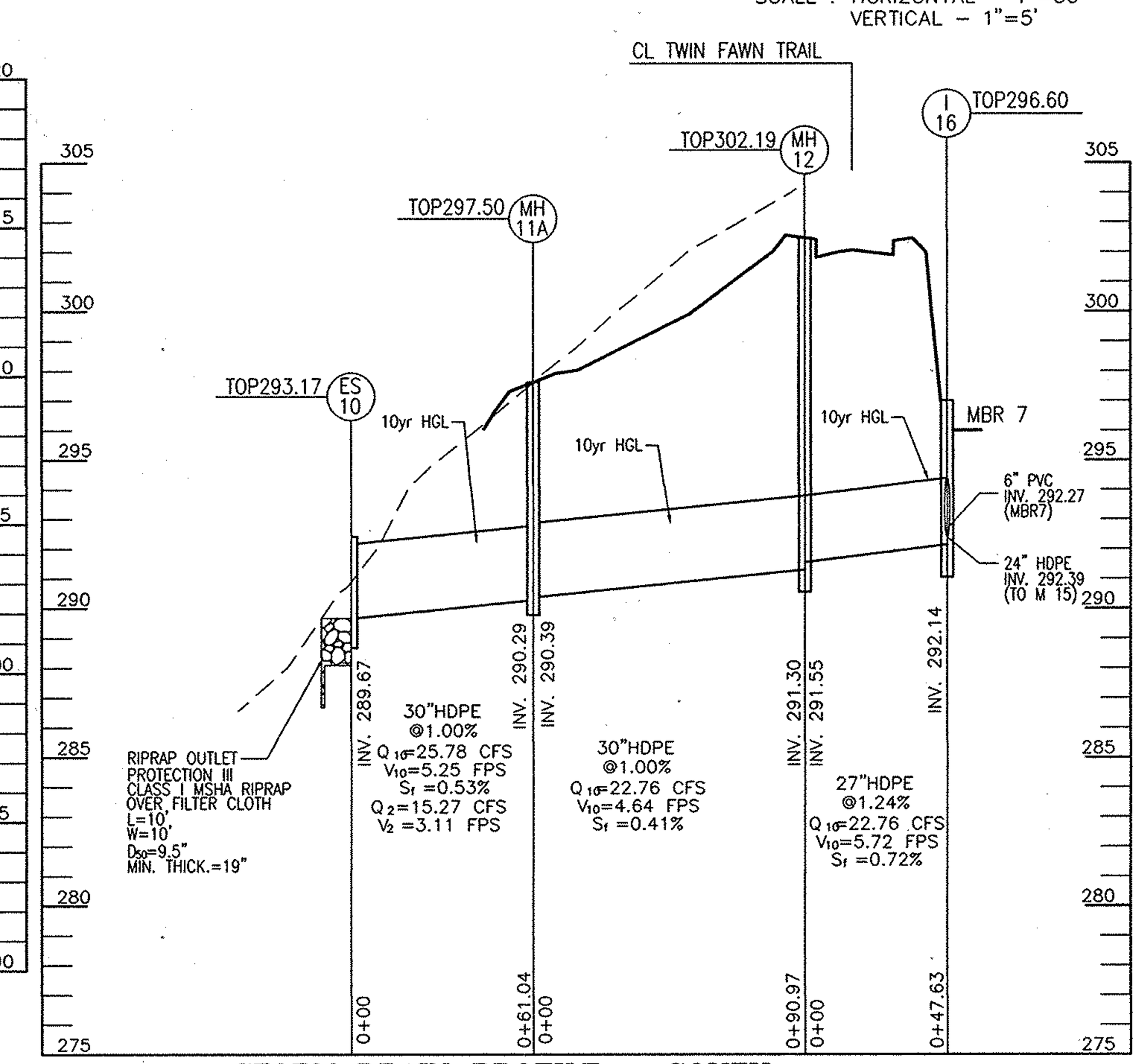
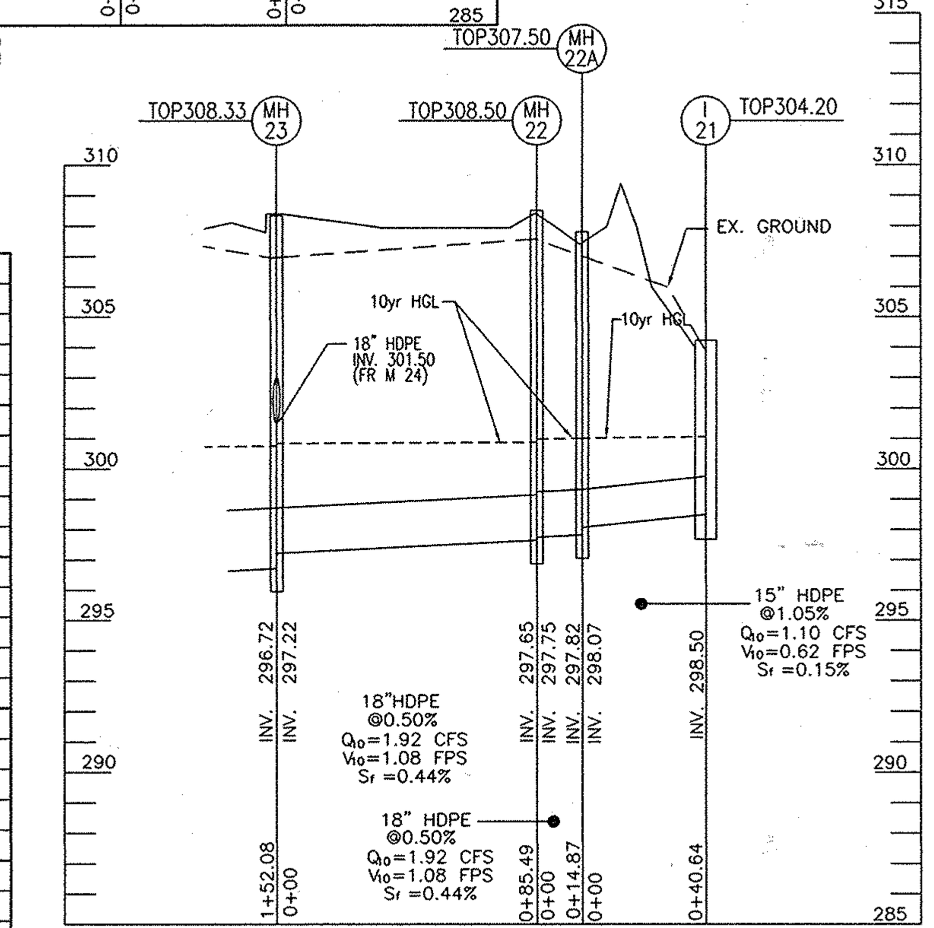
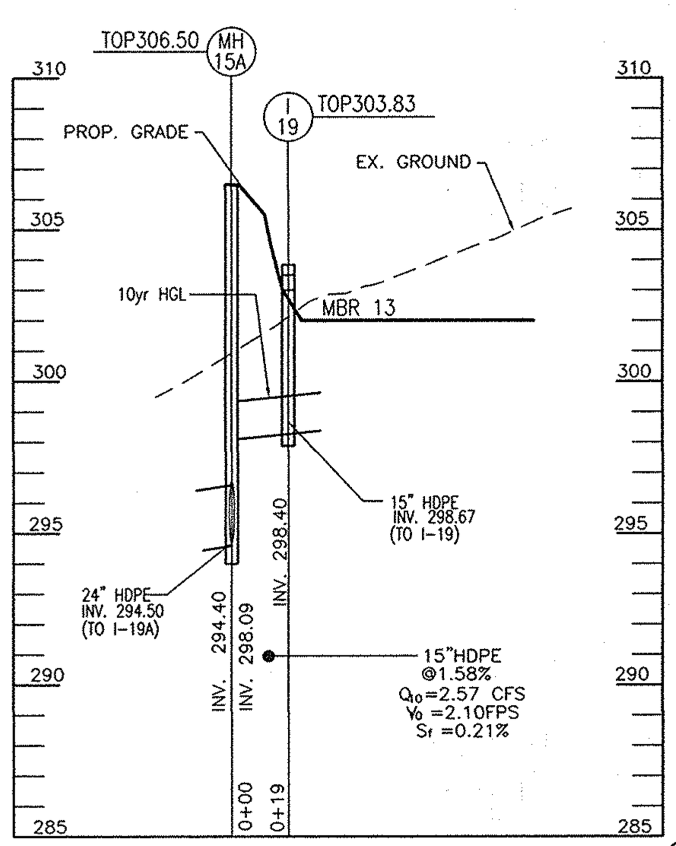
VERTICAL - 1"=5'



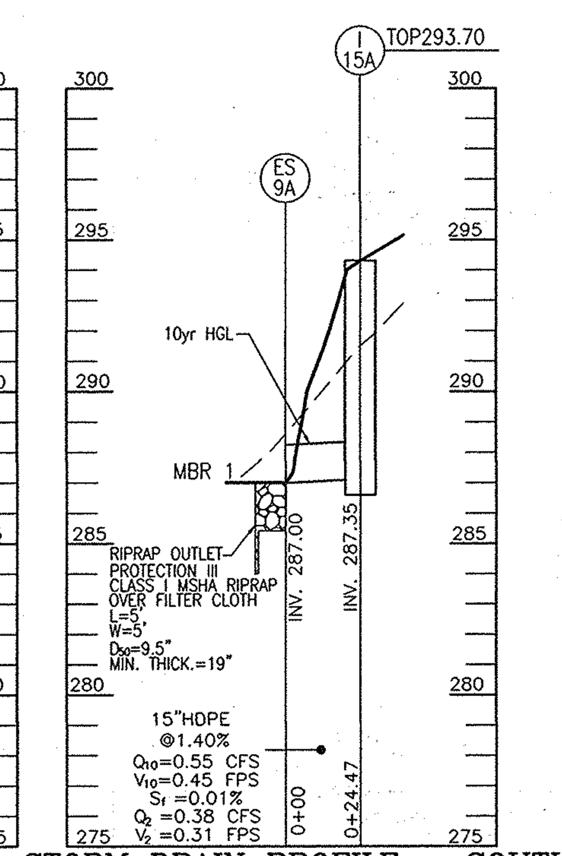

STORM DRAIN PROFILE - SOUTH
SCALE : HORIZONTAL - 1"=50'
VERTICAL - 1"=5'



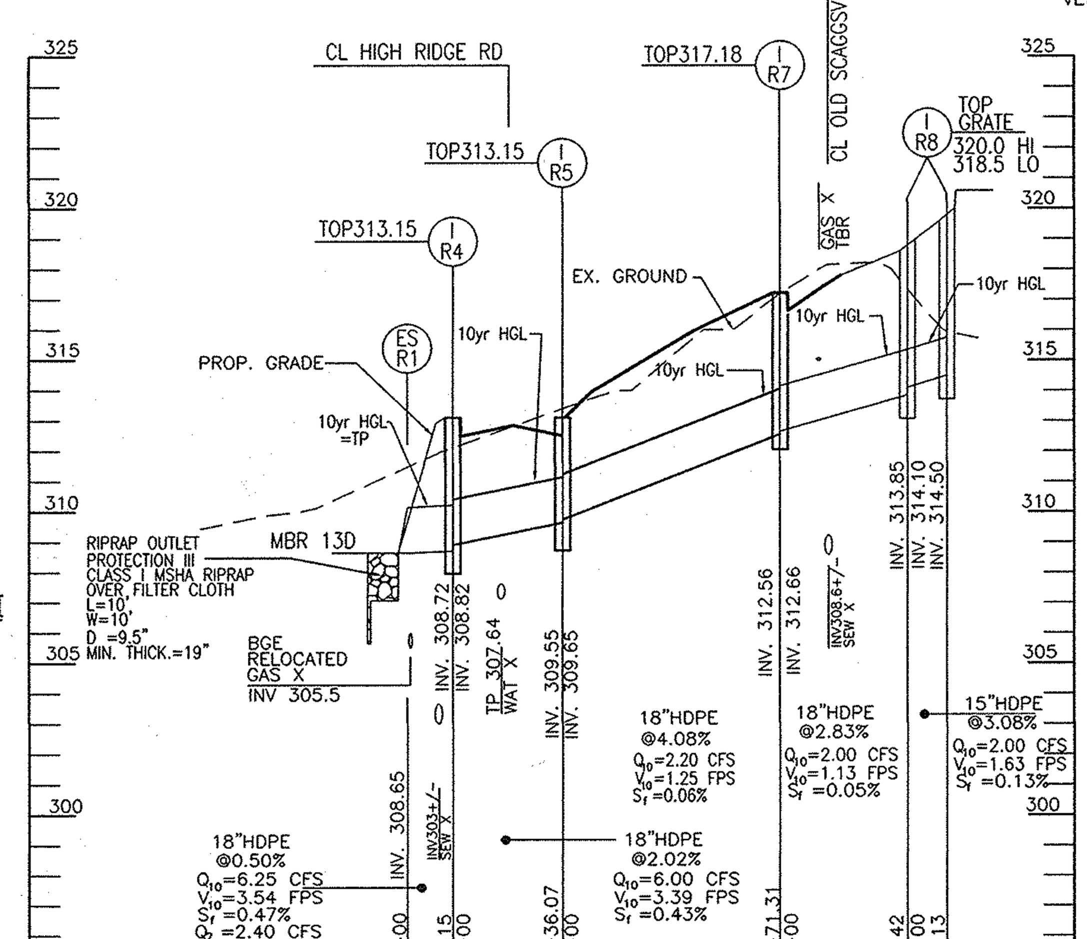

STORM DRAIN PROFILE
SCALE : HORIZONTAL - 1"=50'
VERTICAL - 1"=5'



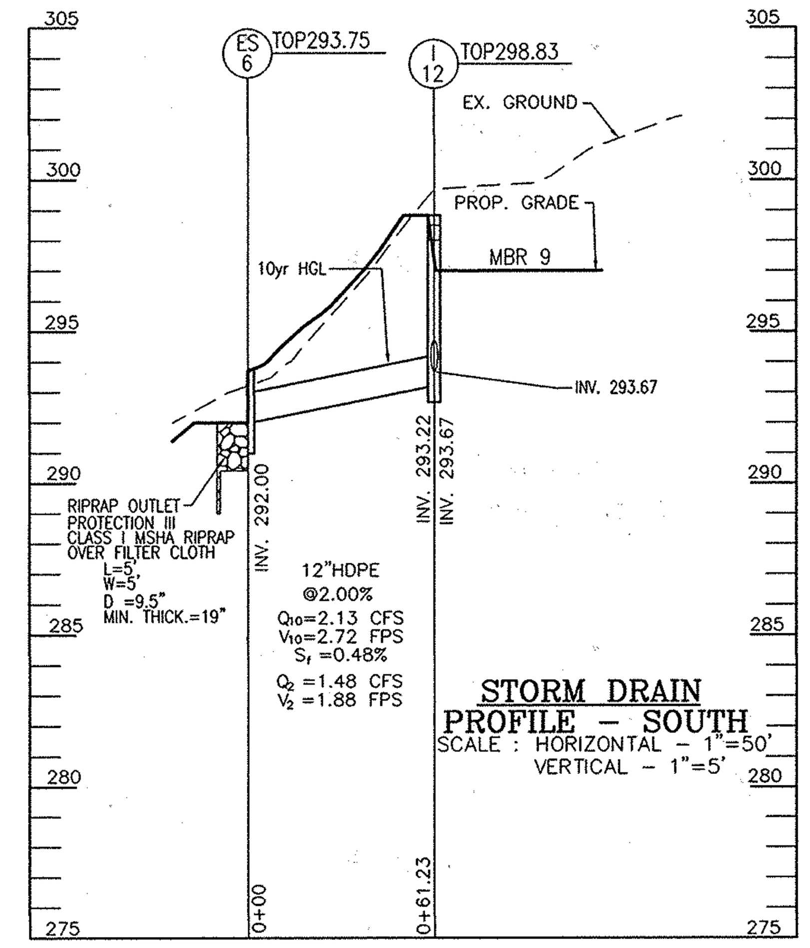

STORM DRAIN PROFILE - SOUTH
SCALE : HORIZONTAL - 1"=50'
VERTICAL - 1"=5'




STORM DRAIN PROFILE - SOUTH
SCALE : HORIZONTAL - 1"=50'
VERTICAL - 1"=5'




STORM DRAIN PROFILE - TRAFFIC CIRCLE
SCALE : HORIZONTAL - 1"=50'
VERTICAL - 1"=5'



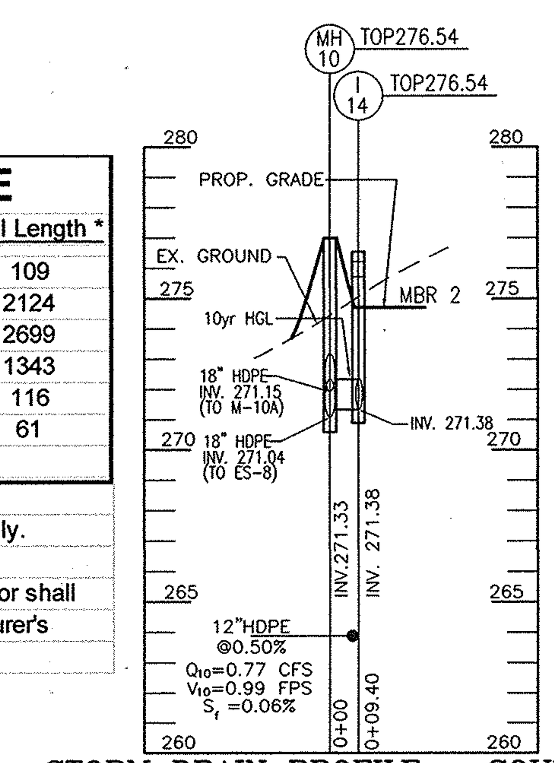

STORM DRAIN PROFILE - SOUTH
SCALE : HORIZONTAL - 1"=50'
VERTICAL - 1"=5'

## PIPE SCHEDULE

| Size | Class | Total Length * |
|---|---|---|
| 12" | HDPE | 109 |
| 15" | HDPE | 2124 |
| 18" | HDPE | 2699 |
| 24 | HDPE | 1343 |
| 27" | HDPE | 116 |
| 30" | HDPE | 61 |

* 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




STORM DRAIN PROFILE - SOUTH
SCALE : HORIZONTAL - 1"=50'
VERTICAL - 1"=5'

**OWNER**
KATHY MIESSE, PERSONAL REPRESENTATIVE,
ESTATE OF ARTHUR P. KRAESKI
9222 OLD SCAGGSVILLE ROAD
LAUREL, MD 20723-1730
ATTN: MR. DONALD R. REUWER
443-367-0422

**DEVELOPER**
LAND DESIGN & DEVELOPMENT, INC.
5300 DORSEY HALL DRIVE, STE 102
ELLICOTT CITY, MARYLAND 21042-7819
ATTN: MR. DONALD R. REUWER
443-367-0422

| NO. | REVISION | DATE |
|---|---|---|
| | | |
| | | |
| | | |
| 3 | REVISE STORM DRAIN PROFILES | 1 / 2015 |
| 2 | REVISE SUBDIVISION NAME | 7/18/14 |

APPROVED: DEPARTMENT OF PUBLIC WORKS
(signature) 5/11/2015
CHIEF, BUREAU OF HIGHWAYS — DATE
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
(signature) 5.18.15
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE
(signature) 5-19-15
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

*REVISED* FINAL ROAD CONSTRUCTION PLAN

STORM DRAIN PROFILES

# HIGH RIDGE MEADOWS - SEC. 1

LOTS 1 - 54, OPEN SPACE LOTS 55 - 68
AND NON-BUILDABLE BULK PARCEL "B"
A SUBDIVISION OF TAX MAP 50 - PARCEL 363
AND A RESUBDIVISION OF TAX MAP 50 - PARCEL 542
KRAESKI PROPERTY NON-BUILDABLE BULK PARCEL "A" (PLAT 21191)

6TH ELECTION DISTRICT - TAX MAP: 50 GRID: 1
DPZ REF'S: F-10-065, WP-10-087, ECP-12-047, WP-13-080, SP 13-007
ZONED: R-SC
PARCELS: 363 & 542
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

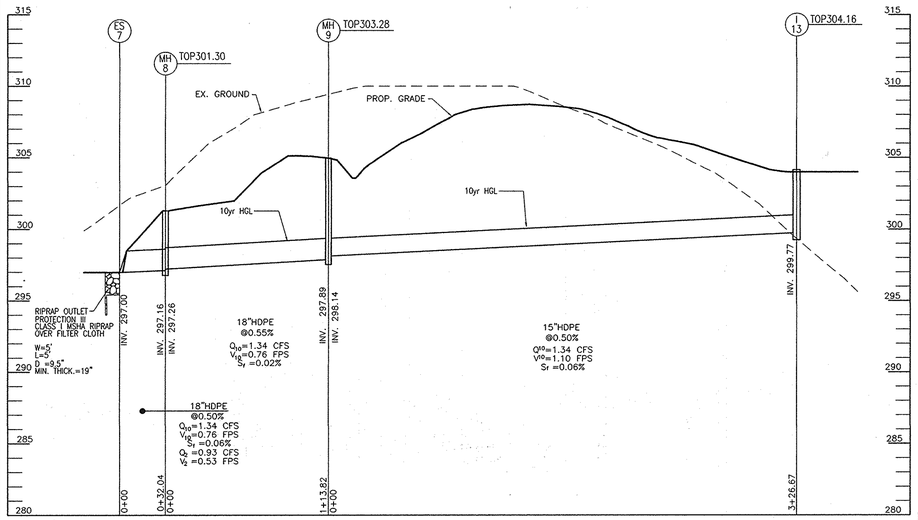
PROFESSIONAL CERTIFICATE
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193 EXPIRATION DATE: 09-27-2016

DESIGN BY: EDS
DRAWN BY: EDS/RVE/KG
CHECKED BY: RHV
DATE: APRIL 2015
SCALE: AS SHOWN
W.O. NO.: 11-28

SHEET 16 OF 32

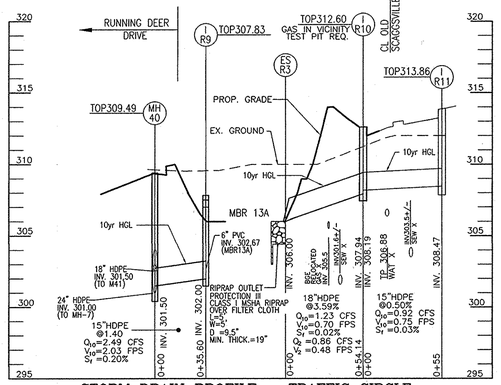
F-14-022

K:\Projects\11-28\ENGR\dwg\FINAL ROAD P1\REDLINE 2 CONSTRUCTION CHANGES\REDLINE-REPLACEMENT\16_SD_PROFILES_REPLACEMENT.dwg, 4/24/2015 11:04:10 AM



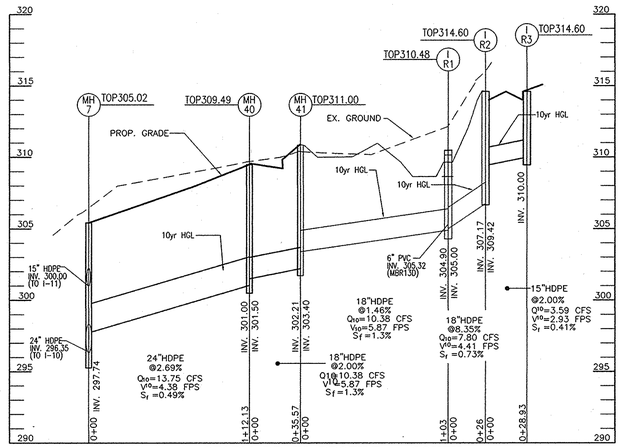

STORM DRAIN PROFILE – SOUTH

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




STORM DRAIN PROFILE – TRAFFIC CIRCLE

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

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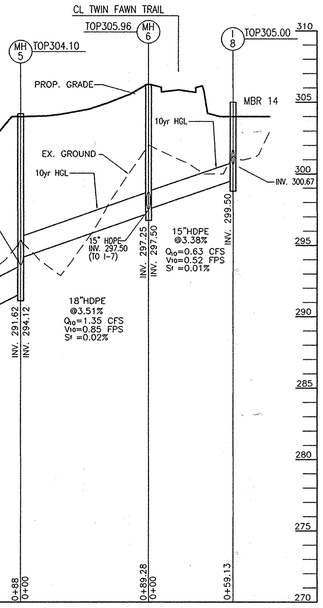


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SCALE : HORIZONTAL – 1"=50'
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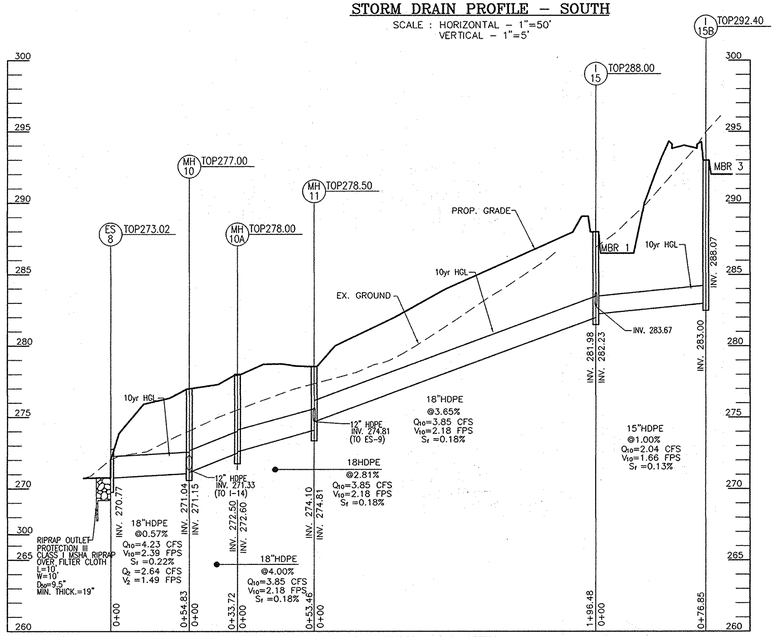


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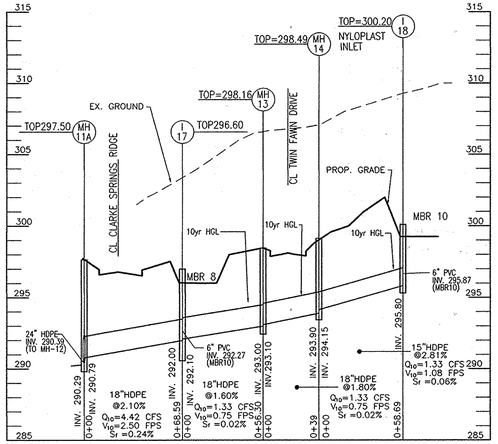
VERTICAL – 1"=5'

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SCALE : HORIZONTAL – 1"=50'
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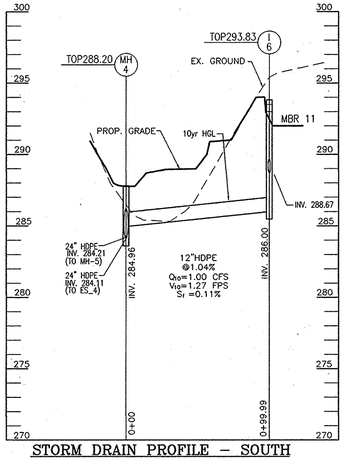


STORM DRAIN PROFILE – SOUTH

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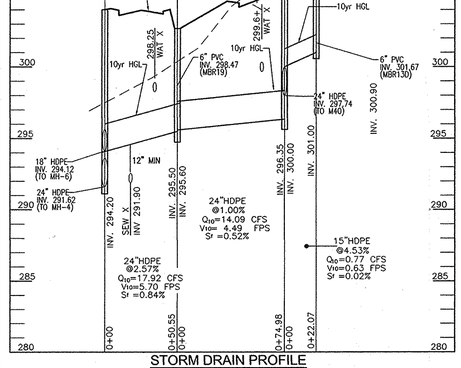


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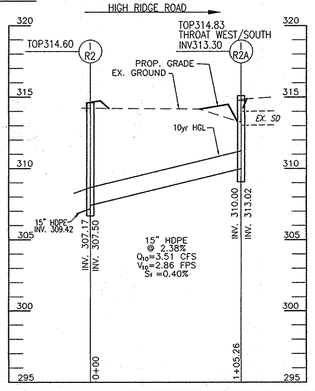


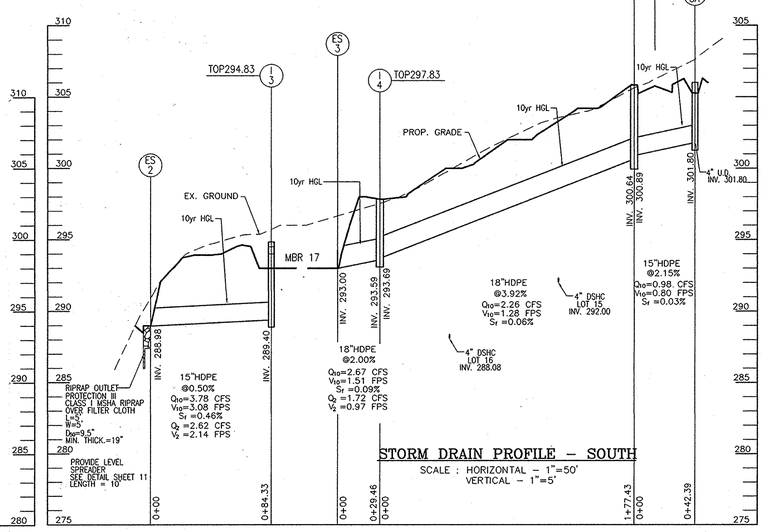


STORM DRAIN PROFILE – SOUTH

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

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 5/11/2015

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 5.18.15

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5-19-15

**OWNER**

KATHY MIESSE, PERSONAL REPRESENTATIVE,
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5300 DORSEY HALL DRIVE, STE 102
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443-367-0422

| NO. | REVISION | DATE |
|---|---|---|
| 3 | REVISE STORM DRAIN PROFILES | 1 / 2015 |
| 2 | REVISE SUBDIVISION NAME | 7/18/14 |

REVISED FINAL ROAD CONSTRUCTION PLAN

STORM DRAIN PROFILES

# HIGH RIDGE MEADOWS - SEC. 1

LOTS 1 - 54, OPEN SPACE LOTS 55 - 68
AND NON-BUILDABLE BULK PARCEL "B"

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6TH ELECTION DISTRICT – TAX MAP: 50 GRID: 1 — ZONED: R-SC
DPZ REF'S: F-10-065, WP-10-087, ECP-12-047, WP-13-080, SP 13-007 — PARCELS: 363 & 542
HOWARD COUNTY, MARYLAND

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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: | EDS |
| DRAWN BY: | EDS/RVE/KG |
| CHECKED BY: | RHV |
| DATE: | APRIL 2015 |
| SCALE: | AS SHOWN |
| W.O. NO.: | 11-28 |

PROFESSIONAL CERTIFICATE

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SHEET 17 OF 32

F-14-022

K:\Projects\11-28\ENGR\dwg\FINAL ROAD PHREDLINE 2 CONSTRUCTION CHANGES\REDLINE-REPLACEMENT\17_SD_PROFILES_REPLACEMENT.dwg, 4/24/2015 11:29:13 AM

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 $ 47,340 FOR THE PERIMETER LANDSCAPING (REQUIRED 87 SHADE TREES AND 128 EVERGREENS), 8 SHRUBS (TRASH PAD LANDSCAPING) AND 6 SHADE TREES (SPECIMEN TREE REPLACEMENT) SHALL BE POSTED WITH THE DEVELOPERS AGREEMENT FOR THIS PLAN.

# LANDSCAPE & FOREST CONSERVATION PLAN

SCALE: 1"=50'

## NOTES

1. THIS SHEET SHALL NOT BE USED FOR GRADING PURPOSES SEE SHEET 8
2. REFER TO SHEET 15-17 FOR STORM DRAIN PROFILES, STRUCTURE AND PIPE SCHEDULES.
3. REFER TO SHEET 19 FOR BGE NOTES

## 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 6/6/16

MATCHLINE SHEET 19

PERIMETER 4 — HIGH RIDGE ROAD — 237 LF CREDIT

PERIMETER 5 — TYPE 'C' — 873 LF

PERIMETER 3 — TYPE 'C' — 786 LF

PERIMETER 1-A — TYPE 'C' — 180 LF

TYPE 'C' 933 LF

PERIMETER 1-B — TYPE 'A' — 611 LF

PERIMETER 2 — TYPE 'A' — 848 LF

661 LF CREDIT

140 LF CREDIT

OLD SCAGGSVILLE ROAD — MINOR COLLECTOR — 40' R/W

TWIN FAWN TRAIL — PUBLIC ACCESS PLACE — 24' PAVING

S.R.A. — 8' PATHWAY

OPEN SPACE LOT 55 — FOREST CONSERVATION AREA #4 RETENTION 0.36 AC (0.24AC CREDITED)

OPEN SPACE LOT 56 — FOREST CONSERVATION AREA #1 - 0.46 AC RETENTION 0.41 AC REFORESTATION 0.05 AC

OPEN SPACE LOT 57 — DEDICATED TO HOWARD COUNTY DEPT. OF RECREATION AND PARKS — FOREST CONSERVATION AREA #3 - 0.68 AC RETENTION 3.05 AC REFORESTATION 3.05 AC

OPEN SPACE LOT 58 — FOREST CONSERVATION AREA #2 - 4.55 AC RETENTION 4.53 AC REFORESTATION 0.02 AC

OPEN SPACE LOT 59 — NON-CREDITED OPEN SPACE LOT 58

OPEN SPACE LOT 60

OPEN SPACE LOT 61

OPEN SPACE LOT 62

OPEN SPACE LOT 63

OPEN SPACE LOT 64

NON-CREDITED OPEN SPACE LOT 56

LOTS 1 - 28

LOT 31

PLAT OF "WILLIAM SCUDERI" PLAT 5460

LYNELL LEIGHTY TM: 0050 P: 0421 L: 5253 F: 0 ZONED: RSC USE: RESIDENTIAL

ROBERT L. BOLTEN TM: 0050 P: 0019 L: 1271 / F. 155 ZONED: RSC USE: AGRICULTURAL

CLIFTON HUDDLESTON TM: 0050 P: 0470 L: 1453 / F. 179 ZONED: RSC USE: RESIDENTIAL

THOMAS MARCELLO TM: 0050 P: 0468 L: 3229 / F. 243 ZONED: RSC USE: RESIDENTIAL

KATHLEEN M. MIESSE LIBER 13990 FOLIO 0[illegible] LOT 58 PLAT OF "KRAESKI PROPERTY" PLAT 21191 ZONED: RSC USE: RESIDENTIAL/AGRICULTURAL

MICHAEL J KRAESKI ET AL P/O LIBER 745, FOLIO 348 6-6-1978 NON-BUILDABLE BULK PARCEL A PLAT OF "KRAESKI PROPERTY" PLAT 21191 12-15-2009 AREA AS SURVEYED 672,433 SF 15.5972 AC

ENVIRONMENTAL FEATURES SHOWN HEREON ARE APPROXIMATE, TAKEN FROM PLAT 14613, SDP-0C-34

## H.O.A. - TRASH PAD LANDSCAPING

| SYM. | QTY. | DESCRIPTION | SIZE | REMARKS |
|---|---|---|---|---|
| ◎ | 8 | DWARF JAPANESE YEW TAXUS CUSPIDATA NANA | 18"-24" SP | B&B |

SEE CLARKE SPRINGS RIDGE T-TURN

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 4/12/2016

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 3.28.16

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5.5.16

## LEGEND:

- EXISTING CONTOUR
- PROPOSED CONTOUR
- 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 FENCE
- PROPERTY LINE
- RIGHT-OF-WAY LINE
- SOILS BOUNDARY
- PROPOSED STORM DRAIN
- PROPOSED STORM DRAIN INLET
- PROPOSED SIDEWALK
- PROPOSED LIGHT POLE
- PROPOSED SHADE TREE
- PROPOSED EVERGREEN TREE
- PROPOSED SHRUBS
- LANDSCAPE PERIMETER
- MICRO BIO RETENTION FACILITY
- BIO SWALE
- EXISTING SPECIMEN TREE
- EXISTING SPECIMEN TREE TO BE REMOVED
- WATER ZONE DIVIDE
- PRIVATE 24' USE-IN-COMMON ACCESS EASEMENT
- PROP. PUBLIC SEWER, WATER & UTILITY EASEMENT
- PROP. PUBLIC DRAINAGE & UTILITY EASEMENT
- BGE ZONE
- FOREST CONSERVATION EASEMENT
- REFORESTION AREA EASEMENT
- TYP. FOREST CONSERVATION EASEMENT SIGN
- PRIVATE SWM DRAINAGE & UTILITY EASEMENT
- RECREATION OPEN SPACE
- 10' TREE MAINTENANCE EASEMENT
- PUBLIC SWM DRAINAGE & UTILITY EASEMENT

50' 0 50' 100' 150'

## OWNER

KATHY MIESSE, PERSONAL REPRESENTATIVE, ESTATE OF ARTHUR P. KRAESKI
9222 OLD SCAGGSVILLE ROAD
LAUREL, MD 20723-1730
ATTN: MR. DONALD R. REUWER
443-367-0422

## DEVELOPER

LAND DESIGN & DEVELOPMENT, INC.
5300 DORSEY HALL DRIVE, STE 102
ELLICOTT CITY, MARYLAND 21042-7819
ATTN: MR. DONALD R. REUWER
443-367-0422

| NO. | REVISION | DATE |
|---|---|---|
| 5 | ADD 10' TREE MAINTENANCE EASEMENT. SHIFT MBR FACILITIES. | 9 / 2015 |
| 3 | REVISE STORM DRAIN LAYOUT ALONG OLD SCAGGSVILLE ROAD | 1 / 2015 |
| 2 | REVISE SUBDIVISION NAME | 7/18/14 |

REVISED FINAL ROAD CONSTRUCTION PLAN

LANDSCAPE AND FOREST CONSERVATION PLAN

# HIGH RIDGE MEADOWS - SEC. 1

LOTS 1 - 54, OPEN SPACE LOTS 55 - 68
AND NON-BUILDABLE BULK PARCEL "B"
A SUBDIVISION OF TAX MAP 50 - PARCEL 363
AND A RESUBDIVISION OF TAX MAP 50 - PARCEL 542
KRAESKI PROPERTY NON-BUILDABLE BULK PARCEL "A" (PLAT 21191)

6TH ELECTION DISTRICT - TAX MAP: 50 GRID: 1 — ZONED: R-SC
DPZ REF'S: F-10-065, WP-10-087, ECP-12-047, WP-13-080, SP 13-007 — PARCELS: 363 & 542
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 — 6/22/16

ROBERT H. VOGEL, PE No.16193

PROFESSIONAL CERTIFICATE

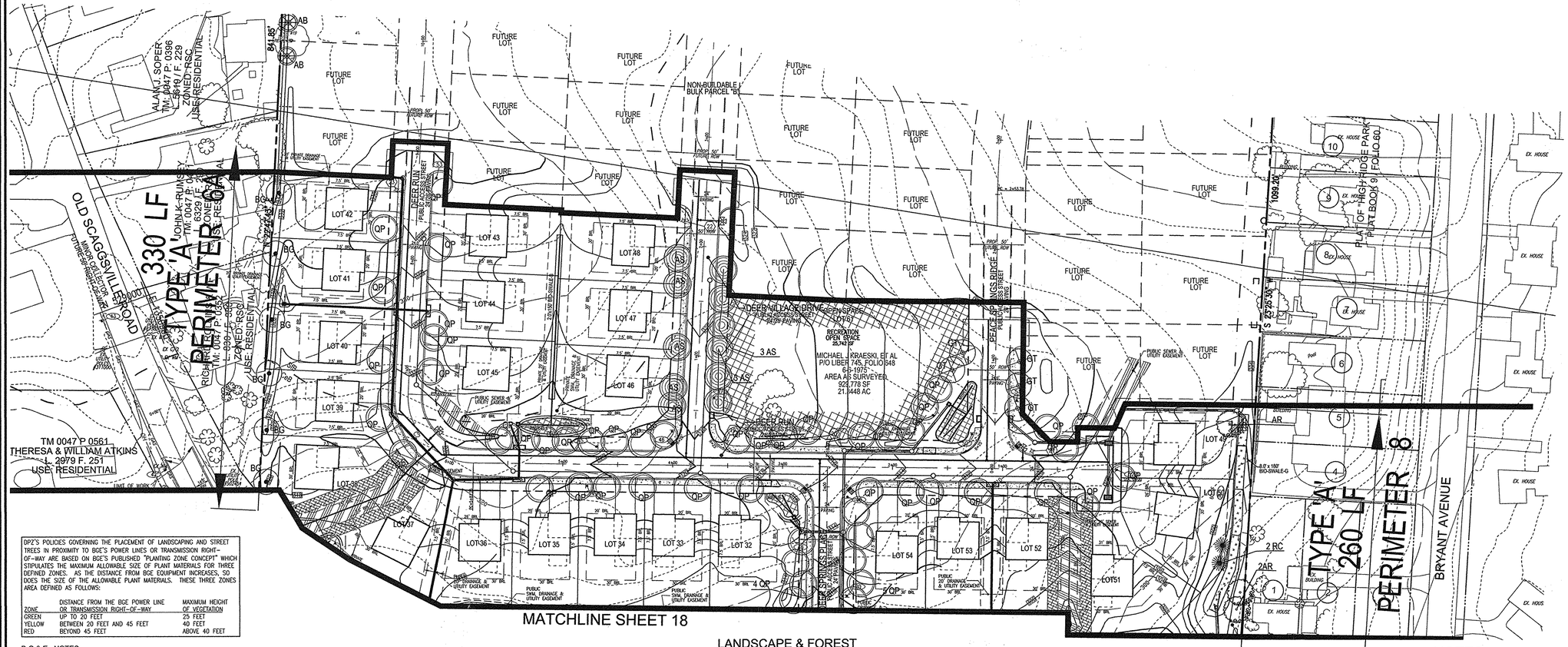
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193 EXPIRATION DATE: 09-27-2016

| | |
|---|---|
| DESIGN BY: | EDS |
| DRAWN BY: | EDS/RVE/KG |
| CHECKED BY: | RHV |
| DATE: | SEPTEMBER 2015 |
| SCALE: | AS SHOWN |
| W.O. NO.: | 11-28 |

18 SHEET OF 32

F-14-022

K:\Projects\11-28\ENGR\engFINAL ROAD PI\RELINE 1 - BGE BOUNDELINE - REPLACEMENT\18-LAND-FORESTCON_REPLACEMENT.dwg, 2/22/2016 11:25:56 AM




## LEGEND:

- EXISTING CONTOUR
- PROPOSED CONTOUR
- EXISTING CURB AND GUTTER
- PROPOSED CURB AND GUTTER
- EXISTING UTILITY POLE
- EXISTING LIGHT POLE
- EXISTING MAILBOX
- EXISTING SIGN
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- PROPOSED LIGHT POLE
- PROPOSED LANDSCAPE TREE
- LANDSCAPE PERIMETER
- MICRO BIO RETENTION FACILITY
- BIO SWALE
- EXISTING SPECIMEN TREE
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- PROP. PUBLIC DRAINAGE & UTILITY EASEMENT
- BGE ZONE
- TYP. FOREST CONSERVATION EASEMENT SIGN
- FOREST CONSERVATION EASEMENT
- PRIVATE SWM DRAINAGE & UTILITY EASEMENT
- RECREATION OPEN SPACE

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.
3. CALL MISS UTILITY TO MARK UP THE LOCATION OF EXISTING GAS LINE BEFORE PLANTING STREET TREES ALONG HANOVER ROAD & PLANT STREET TREES 10' AWAY FROM EXISTING GASLINE AS REQUIRED.
4. BGE ISSUED THEIR APPROVAL OF THE LANDSCAPING SHOWN HEREON ON NOV. 21, 2013

## LANDSCAPE & FOREST CONSERVATION PLAN

SCALE: 1"=50'

## NOTES

1. THIS SHEET SHALL NOT BE USED FOR GRADING PURPOSES SEE SHEET 9
2. REFER TO SHEET 15-17 FOR STORM DRAIN PROFILES, STRUCTURE AND PIPE SCHEDULES.

50' 0 50' 100' 150'

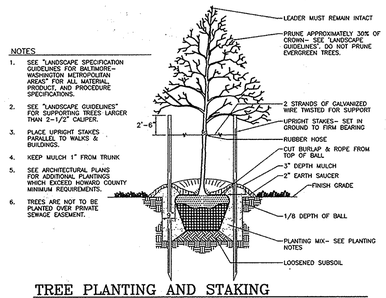
### OWNER

KATHY MIESSE, PERSONAL REPRESENTATIVE,
ESTATE OF ARTHUR P. KRAESKI
9222 OLD SCAGGSVILLE ROAD
LAUREL, MD 20723-1730
ATTN: MR. DONALD R. REUWER
443-367-0422

### DEVELOPER

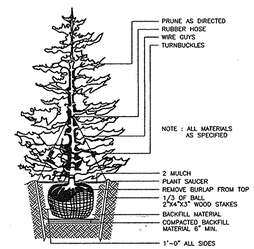
LAND DESIGN & DEVELOPMENT, INC.
5300 DORSEY HALL DRIVE, STE 102
ELLICOTT CITY, MARYLAND 21042-7819
ATTN: MR. DONALD R. REUWER
443-367-0422

| NO. | REVISION | DATE |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| 2. | REVISE SUBDIVISION NAME | 7/18/14 |




### TREE PLANTING AND STAKING

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

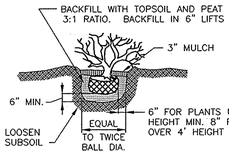



### TYPICAL EVERGREEN TREE PLANTING DETAIL

NOT TO SCALE

## GENERAL NOTES

1. NO CLEARING OF EXISTING VEGETATION IS PERMITTED WITHIN THE LANDSCAPE EDGE FOR WHICH CREDIT IS BEING TAKEN; HOWEVER, LANDSCAPE MAINTENANCE IS AUTHORIZED."
2. THE OWNER, TENANT AND/OR THEIR AGENTS SHALL BE RESPONSIBLE FOR MAINTENANCE OF THE REQUIRED LANDSCAPING, PLANT MATERIALS, 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 REQUIRED LANDSCAPING SHALL BE PERMANENTLY MAINTAINED IN GOOD CONDITION, AND WHEN NECESSARY, REPAIRED OR REPLACED.
3. AT THE TIME OF INSTALLMENT, ALL SHRUBS AND OTHER PLANTINGS HEREWITH LISTED AND APPROVED FOR THIS SITE SHALL BE OF THE PROPER HEIGHT REQUIREMENTS IN ACCORDANCE WITH THE HOWARD COUNTY LANDSCAPE MANUAL. IN ADDITION, NO SUBSTITUTIONS OR RELOCATION OF REQUIRED PLANTINGS MAYBE MADE WITHOUT PRIOR REVIEW AND APPROVAL FROM THE DEPARTMENT OF PLANNING AND ZONING. ANY DEVIATION FROM THIS 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 APPLICABLE PLANS AND CERTIFICATES.
4. SHOULD ANY TREE DESIGNATED FOR PRESERVATION, FOR WHICH CREDIT IS GIVEN, DIE PRIOR TO RELEASE OF BONDS, THE OWNER / DEVELOPER 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 MEET THE MINIMUM SIZE REQUIREMENT AND MUST BE INSTALLED AS REQUIRED IN THE LANDSCAPE MANUAL
5. PLANTINGS SHOWN HEREON ARE THE RESPONSIBILITY OF THE DEVELOPER TO INSTALL DURING THE CONSTRUCITON OF THE FINAL PLAN.
6. 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 $ 47,240 FOR THE PERIMETER LANDSCAPING (REQUIRED 87 SHADE TREES AND 128 EVERGREENS), 8 SHRUBS (TRASH PAD LANDSCAPING) AND 6 SHADE TREES (SPECIMEN TREE REPLACEMENT) SHALL BE POSTED WITH THE DEVELOPERS AGREEMENT FOR THIS PLAN.




### SHRUB PLANTING DETAIL

NOT TO SCALE

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 5-6-14

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 5.9.14

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5.12.14

### 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.

K. Shaffenkron — SIGNATURE OF DEVELOPER — DATE 4/11/14

FINAL ROAD CONSTRUCTION PLAN

LANDSCAPE AND FOREST CONSERVATION PLAN

# HIGH RIDGE MEADOWS-SECTION 1

LOTS 1 - 54, OPEN SPACE LOTS 55 - 68
AND NON-BUILDABLE BULK PARCEL "B"

A SUBDIVISION OF TAX MAP 50 - PARCEL 363
AND A RESUBDIVISION OF TAX MAP 50 - PARCEL 542
KRAESKI PROPERTY NON-BUILDABLE BULK PARCEL "A" (PLAT 21191)

6TH ELECTION DISTRICT - TAX MAP: 50 GRID: 1 — ZONED: R-SC
DPZ REF'S: F-10-065, WP-10-087, ECP-12-047, WP-13-080, SP 13-007 — PARCELS: 363 & 542 — 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 — PROFESSIONAL ENGINEER

ROBERT H. VOGEL, PE No.16193

| | |
|---|---|
| DESIGN BY: | EDS |
| DRAWN BY: | EDS/RVE |
| CHECKED BY: | RHV |
| DATE: | MARCH 2014 |
| SCALE: | AS SHOWN |
| W.O. NO.: | 11-28 |

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: 09-27-2014

SHEET 19 OF 32

F 14-022

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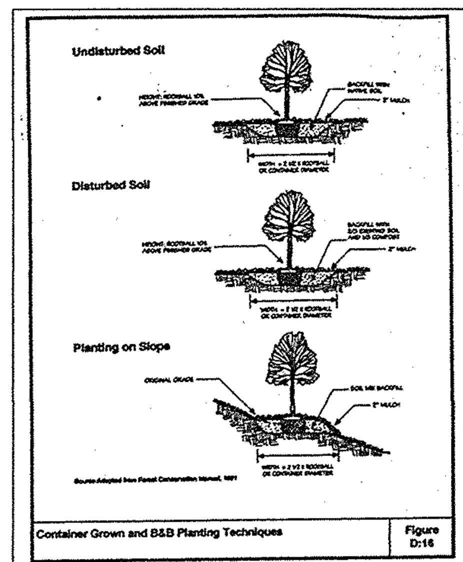
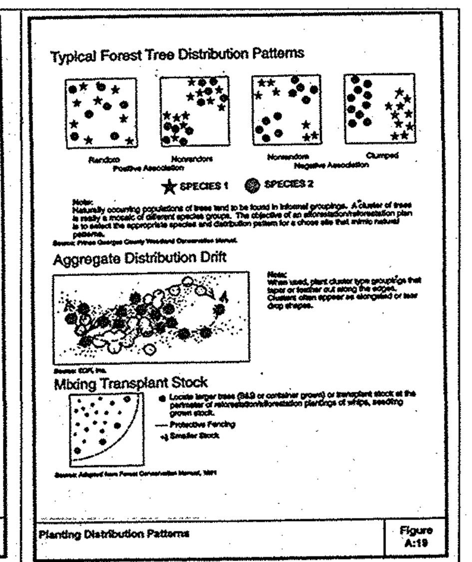
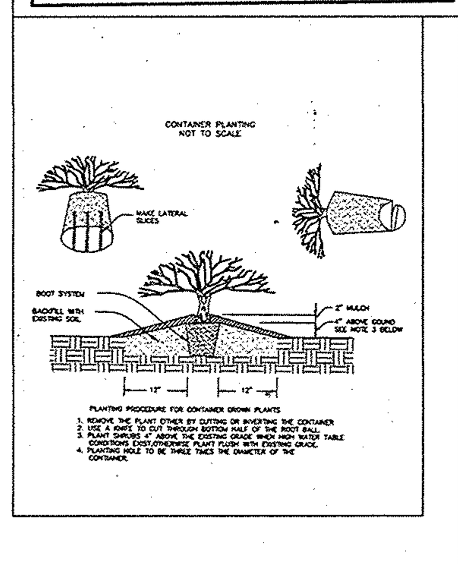
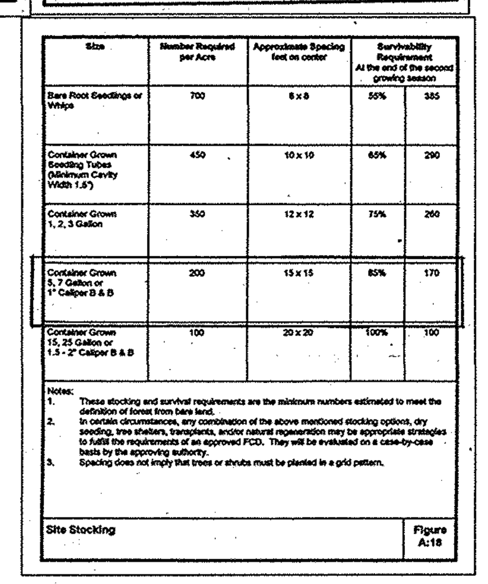


| Size | Number Required per Acre | Approximate Spacing feet on center | Survivability Requirement At the end of the second growing season | |
|---|---|---|---|---|
| Bare Root Seedlings or Whips | 700 | 8 x 8 | 55% | 385 |
| Container Grown Seedling Tubes (Minimum Cavity Width 1.5") | 450 | 10 x 10 | 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 FCD. 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

## HOWARD COUNTY FOREST CONSERVATION WORKSHEET

ZONED R-SC

NET TRACT AREA:

A. TOTAL TRACT AREA (PROJECT TOTAL) 36.94 AC.
B. AREA WITHIN 100 YEAR FLOODPLAIN 0.00 AC
C. AREA IN PRESERVATION PARCEL 0.00 AC
D. NET TRACT AREA 36.94 AC

LAND USE CATEGORY

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

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

E. AFFOREST THRESHOLD 15% X 36.94 = 5.54 AC
F. CONSERVATION THRESHOLD 20% X 36.94 = 7.39 AC

EXISTING FOREST COVER:

G. EXISTING FOREST COVER = 10.74 AC (FSD REPORT)
H. AREA OF FOREST ABOVE AFFORESTATION THRESHOLD = 5.20 AC
I. AREA OF FOREST ABOVE CONSERVATION THRESHOLD = 3.35 AC

BREAK EVEN POINT:

(.2 X I ) + F = BREAK EVEN POINT (0 AC)

J. FOREST RETENTION WITH NO MITIGATION = 8.06 AC
K. CLEARING PERMITTED WITHOUT MITIGATION = 2.68 AC

PROPOSED FOREST CLEARING:

L. TOTAL AREA OF FOREST TO BE CLEARED = 4.89 AC
M. TOTAL AREA OF FOREST TO BE RETAINED = 5.86 AC (IN FCE)

PLANTING REQUIREMENTS:

N. REFORESTATION FOR CLEARING ABOVE CONSERVATION THRESHOLD (L X.25) = 0.84 AC
P. REFORESTATION FOR CLEARING BELOW CONSERVATION THRESHOLD = 3.08 AC
Q. CREDIT FOR RETENTION ABOVE CONSERVATION THRESHOLD (M–F) = 0.00 AC
R. TOTAL REFORESTATION REQUIRED (N+P–Q) = 3.91 AC
S. TOTAL AFFORESTATION REQUIRED = 0.00 AC
T. TOTAL REFORESTATION AND AFFORESTATION REQUIRED = 3.91 AC (1)

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.

A PORTION OF THE REQUIRED FOREST CONSERVATION WILL BE PROVIDED ON NON–BUILDABLE BULK PARCEL "B", WHICH WILL BECOME OPEN SPACE LOT 145 WITH PHASE II (F–14–023) AND SHALL MEET THE INTENT OF SECTION 16.117 OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS.

(1) TOTAL FOREST CONSERVATION OBLIGATION OF THIS PROJECT TO BE FULFILLED BY ONSITE RETENTION OF 5.85 AC. (NO SURETY REQ), ON–SITE REFORESTATION OF 2.20 AC. AND PURCHASE OF THE EQUIVALENT OF 1.71 ACRES OF REFORESTATION CREDIT IN THE BRIGHTON MILL PROPERTY FOREST BANK SDP 11–056

FINANCIAL SURETY FOR THE REQUIRED REFORESTATION = $47,916 (2.20 AC OR 95,832 SF @ $0.50/SF) SHALL BE POSTED WITH THE DEVELOPERS AGREEMENT.

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

Plan prepared by:
[signature] 4-3-14
Kenneth R. Wallis
Qualified Professional
CoMar 08.19.06.01

### FOREST CONSERVATION EASEMENT TABLE

| EASEMENT | RETENTION CREDITED | RETENTION NON–CREDITED | REFORESTATION CREDITED | TOTAL |
|---|---|---|---|---|
| FCE#1 | 0.41 AC | | 0.05 AC | 0.46 AC |
| FCE#2 | 4.53 AC | | 0.02 AC | 4.55 AC |
| FCE#3 | 0.63 AC | | 0.05 AC | 0.68 AC |
| FCE#4 | 0.29 AC | 0.01 AC | – | 0.30 AC |
| FCE#5A | – | | 1.93 AC | 1.93 AC |
| FCE#5B | – | | 0.15 AC | 0.15 AC |
| | | | | |
| TOTALS | 5.86 AC | 0.01 AC | 2.20 AC | 8.07 AC. |
| | | | | |
| | | | | |
| | | | | |
| TOTAL CREDITED | 5.86 AC | | 2.20 AC | 8.06 AC. |

NOTE: 3.91 AC – 2.20 AC = 1.71 AC OFFSITE OBLIGATION
* EASEMENT AREA EXPANDED TO COVER SPECIMEN TREE #1
OFFSITE REFORESTATION OBLIGATION PROVIDED AT BRIGHTON MILL PROPERTY FOREST BANK BY ECO–TONE INC. REFER TO SDP 11–056

### REFORESTATION PLANT SCHEDULE FOREST CONSERVATION EASEMENTS 2.20 ACRES

| QTY. | BOTANICAL NAME | SIZE | SPACING |
|---|---|---|---|
| EASEMENT #1: 0.05 AC. (REFORESTATION) @ 200 TREES/AC. = 10 TREES | | | |
| 2 | ACER RUBRUM<br>RED MAPLE | 1" CAL. | 15' x 15' |
| 2 | PLATANUS OCCIDENTALIS<br>AMERICAN SYCAMORE | 1" CAL. | 15' x 15' |
| 2 | CORNUS KOUSA<br>KOUSA DOGWOOD | 1" CAL. | 15' x 15' |
| 4 | QUERCUS RUBRA<br>RED OAK | 1" CAL. | 15' x 15' |
| | | | |
| EASEMENT #2: 0.02 AC. (REFORESTATION) @ 200 TREES/AC. = 4 TREES | | | |
| 1 | ACER RUBRUM<br>RED MAPLE | 1" CAL. | 15' x 15' |
| 1 | PLATANUS OCCIDENTALIS<br>AMERICAN SYCAMORE | 1" CAL. | 15' x 15' |
| 1 | CORNUS KOUSA<br>KOUSA DOGWOOD | 1" CAL. | 15' x 15' |
| 1 | QUERCUS RUBRA<br>RED OAK | 1" CAL. | 15' x 15' |
| | | | |
| EASEMENT #3: 0.05 AC. (REFORESTATION) @ 200 TREES/AC. = 10 TREES | | | |
| 3 | PLATANUS OCCIDENTALIS<br>AMERICAN SYCAMORE | 1" CAL. | 15' x 15' |
| 1 | CIRCIS CANADENSIS<br>RED BUD | 1" CAL. | 15' x 15' |
| 1 | CORNUS KOUSA<br>KOUSA DOGWOOD | 1" CAL. | 15' x 15' |
| 5 | QUERCUS RUBRA<br>RED OAK | 1" CAL. | 15' x 15' |
| | | | |
| EASEMENT #5A: 1.93 AC. (REFORESTATION) @ 200 TREES/AC. = 386 TREES | | | |
| 77 | ACER RUBRUM<br>RED MAPLE | 1" CAL. | 15' x 15' |
| 77 | PLATANUS OCCIDENTALIS<br>AMERICAN SYCAMORE | 1" CAL. | 15' x 15' |
| 77 | CIRCIS CANADENSIS<br>RED BUD | 1" CAL. | 15' x 15' |
| 78 | CORNUS KOUSA<br>KOUSA DOGWOOD | 1" CAL. | 15' x 15' |
| 77 | QUERCUS RUBRA<br>RED OAK | 1" CAL. | 15' x 15' |
| EASEMENT #5B: 0.15 AC. (REFORESTATION) @ 200 TREES/AC. = 30 TREES | | | |
| 6 | ACER RUBRUM<br>RED MAPLE | 1" CAL. | 15' x 15' |
| 6 | PLATANUS OCCIDENTALIS<br>AMERICAN SYCAMORE | 1" CAL. | 15' x 15' |
| 6 | CIRCIS CANADENSIS<br>RED BUD | 1" CAL. | 15' x 15' |
| 6 | CORNUS KOUSA<br>KOUSA DOGWOOD | 1" CAL. | 15' x 15' |
| 6 | QUERCUS RUBRA<br>RED OAK | 1" CAL. | 15' x 15' |

**REFORESTATION PROVIDED**

2.20 ACRES
1" CALIPER TREES
440 TREES @ 200 TREES PER ACRE

### SCHEDULE A PERIMETER LANDSCAPE EDGE

| CATEGORY | ADJACENT TO ROADWAYS AND PERIMETER PROPERTIES | | | | | | | | TOTAL |
|---|---|---|---|---|---|---|---|---|---|
| PERIMETER/FRONTAGE DESIGNATION<br>LANDSCAPE TYPE | 1-A<br>C | 1-B<br>A | 2<br>A | 3<br>C | 4<br>C | 5<br>C | P/O 6-A<br>A | P/O 8<br>A | |
| LINEAR FEET OF ROADWAY FRONTAGE/PERIMETER | 180 | 611 | 848 | 786 | 873* | 933* | 330** | 260** | |
| CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET DESCRIBE BELOW IF NEEDED) | NO | YES<br>140 | YES<br>661 | NO | YES<br>237 | NO | 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<br>SHADE TREES<br>EVERGREEN TREES<br>SHRUBS | 180<br>1:40 5<br>1:20 9<br>- | 471<br>1:60 8<br>-<br>- | 187<br>1:60 4<br>-<br>- | 1:40 20<br>1:20 40<br>- | 636<br>1:40 16<br>1:20 32<br>- | 1:40 24<br>1:20 47<br>- | 1:60 6<br>-<br>- | 1:60 4<br>-<br>- | 87<br>128<br>- |
| NUMBER OF PLANTS PROVIDED<br>SHADE TREES<br>EVERGREEN TREES<br>OTHER TREES (2:1 SUBSTITUTION)<br>SHRUBS (10:1 SUBSTITUTION)<br>DESCRIBE PLANT SUBSTITUTION CREDITS BELOW IF NEEDED) | SEE NOTE 1 | 8<br>-<br>-<br>- | 4<br>-<br>-<br>- | 11<br>42<br>-<br>80 | -<br>40<br>24*<br>- | -<br>47<br>48*<br>- | 6<br>-<br>-<br>- | 3<br>2<br>-<br>- | 32<br>131<br>72<br>80 |

* SHADE TREES ARE TO BE SUBSTITUTED WITH SMALLER TREES AT 2:1 AS REQUIRED BY THE BGE PLANTING ZONES
** REMAINING PORTION (6-A - 218 & 8 - 839) PROVIDED ON SECTION TWO (F14-023)

NOTE 1: THE HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING DETERMINED THE STREET TREE REQUIREMENT WOULD FULFILL THE LANDSCAPE OBLIGATIONS IN THIS AREA SINCE ONLY A STREET IS PROPOSED TO BE CONSTRUCTED AT THIS LOCATION AND THERE IS LIMITED PLANTING AREA

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 $ 47,340 FOR THE PERIMETER LANDSCAPING (REQUIRED 87 SHADE TREES AND 128 EVERGREENS), 8 SHRUBS (TRASH PAD LANDSCAPING) AND 6 SHADE TREES (SPECIMEN TREE REPLACEMENT) SHALL BE POSTED WITH THE DEVELOPERS AGREEMENT FOR THIS PLAN.

## LANDSCAPE SCHEDULE NOTE:

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.
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.

### PERIMETER LANDSCAPE SCHEDULE - REQUIRED PLANTING

| SYM | KEY | QUAN. | BOTANICAL NAME | SIZE | CAT |
|---|---|---|---|---|---|
| | SHADE | | | | |
| | AR | 11 | ACER RUBRUM 'OCTOBER GLORY'<br>OCTOBER GLORY RED MAPLE | 2 1/2"–3" CAL. | B & B |
| | BG | 6 | NYSSA SYLVATICA<br>BLACK GUM | 2 1/2"–3" CAL. | B & B |
| | GT | 4 | GLEDITSIA TRIACANTHOS INERMIS 'IMPERIAL'<br>/IMPERIAL THRONLESS HONEY LOCUST | 2 1/2"–3" CAL. | B & B |
| | LL | 11 | TILIA CORDATA 'GREENSPIRE'<br>LITTLELEAF LINDEN | 2 1/2"–3" CAL. | B & B |
| | | | | | |
| | | | | | |
| | | | | | |
| | EVERGREENS | | | | |
| | PS | 14 | PINUS STROBUS<br>EASTERN WHITE PINE | 8' HT. | B & B |
| | NS | 27 | ILEX 'NELLIE R. STEVENS'<br>NELLIE R. STEVENS HOLLY (BGE COMPLIANT) | 5'–6' HT. | B & B |
| | RC | 34 | JUNIPERUS VIRGINANA<br>EASTERN RED CEDAR (BGE COMPLIANT) | 5–6' HT. | B & B |
| | AH | 31 | ILEX OPACA<br>AMERICAN HOLLY (BGE COMPLIANT) | 5–6' HT. | B & B |
| | PN | 25 | PINUS NIGRA<br>AUSTRIAN PINE | 8' HT. | B & B |
| | SMALL | | | | |
| | LT | 24 | LAGERSTROEMIA TUSCARORA<br>TUSCARORA CRAPE MYRTLE (BGE COMPLIANT) | 4'–6' HT.<br>(MAX. HEIGHT=25') | B & B |
| | CF | 23 | CORNUS FLORIDA 'RUBRA'<br>RED FLOWERING DOGWOOD | 8'–10' HT. | B & B |
| | MW | 25 | CARPINUS CAROLINIANA<br>MUSCLEWOOD (BGE COMPLIANT) | | B & B |
| O | SHRUBS | | | | |
| | NB | 30 | MYRICA PENNSYLVANICA<br>NORTHERN BAYBERRY | 2'–2 1/2' HT. | B & B |
| | TD | 50 | TAXUS MEDIA 'DENSIFORMIS'<br>DENSIFORMIS YEW | 2 1/2'–3' HT. | B & B |
| | | | | | |

### STREET TREE CALCULATIONS

| STREET NAME | LINEAR FEET | NO. REQUIRED | NO. PROVIDED |
|---|---|---|---|
| CLARKE SPRINGS RIDGE | 616/40 | 16 | 16 |
| TWIN FAWN TRAIL (1) | 912/40 | 23 | 23 |
| TWIN FAWN TRAIL (2) | 1845/40 | 46 | 46 |
| RUNNING DEER DRIVE | 400/40 | 10 | 10 |
| DEER SPRINGS PLACE | 436/40 | 11 | 11 |
| DEER RUN 870LF | 1740/40 | 44 | 44 |
| DEER VILLAGE DRIVE 220LF | 440/40 | 11 | 11 |
| PEACE SPRINGS RIDGE | 200/40 | 5 | 5 |
| | TOTAL | 166 | 166 |

SECTION TWO (F–14–023) WILL PROVIDE THE REMAINING STREET TREE REQUIREMENT (90) OF 256 TREES TOTAL

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 ($ 49,800) SHALL BE POSTED AS PART OF THIS FINAL PLAN DEVELOPER'S AGREEMENT FOR THE REQUIRED 166 STREET TREES.

### STREET TREE PLANTING SCHEDULE

| KEY | QUAN. | BOTANICAL NAME | SIZE | REM. |
|---|---|---|---|---|
| AC | 72 | ACER RUBRUM "ARMSTRONG'<br>ARMSTRONG COLUMBAR RED MAPLE | 2 1/2"–3" CAL. | B & B |
| AS | 11 | ACER SACCHARUM<br>GREEN MOUNTAIN SUGAR MAPLE | 2 1/2"–3" CAL. | B & B |
| QP | 78 | QUERCUS PHELLOS<br>WILLOW OAK | 2 1/2"–3" CAL. | B & B |
| GT | 5 | GLEDITSIA TRIACANTHOS INERMIS 'IMPERIAL'<br>/IMPERIAL THRONLESS HONEY LOCUST | 2 1/2"–3" CAL. | B & B |

NOTE:
- A MINIMUM SPACING OF 20' SHALL BE MAINTAINED BETWEEN ANY STREET LIGHT AND ANY TREE.

### SPECIMEN TREE REPLACEMENT - PLANTING SCHEDULE

| KEY | QUAN. | BOTANICAL NAME | SIZE | REM. |
|---|---|---|---|---|
| BO | 4 | QUERCUS MACROCARPA<br>BUR OAK | 2 1/2"–3" CAL. | B & B |
| AB | 2 | ACER RUBRUM "BOWHALL'<br>BOWHALL RED MAPLE | 2 1/2"–3" CAL. | B & B |

NOTE:
- REPLACEMENT TREES PER THE REMOVAL OF SPECIMEN TREE 15, 16 AND 19. PLANTED AS PART OF THIS F14-022 PLAN

## REFORESTATION AREA MONITORING NOTES

1. MONTHLY VISITS DURING THE FIRST GROWING SEASON ARE TO ASSESS THE SUCCESS OF THE PLANTINGS AND TO DETERMINE IF SUPPLEMENTAL WATERING, PEST CONTROL OR OTHER ACTIONS ARE NECESSARY. EARLY SPRING VISITS WILL DOCUMENT WINTER KILL AND AUTUMN VISITS WILL DOCUMENT SUMMER KILL.
2. THE MINIMUM SURVIVAL RATE SHALL BE 75% OF THE TOTAL NUMBER OF TREES PLANTED PER ACRE AT THE END OF THE TWO YEAR MAINTENANCE PERIOD. WILD TREE SEEDLINGS FROM NATURAL REGENERATION ON THE PLANTING SITE MAY BE COUNTED UP TO 50% TOWARD THE TOTAL SURVIVAL NUMBER IF THE ARE HEALTHY NATIVE SPECIES AT LEAST 12 INCHES TALL.
3. SURVIVAL WILL BE DETERMINED BY A STRATIFIED RANDOM SAMPLING OF THE PLANTINGS. THE SPECIES COMPOSITION OF THE SAMPLE POPULATION SHOULD BE PROPORTIONATE TO THE AMOUNT OF EACH SPECIES IN THE ENTIRE PLANTING TO BE SAMPLED.
4. EFFECTIVE MONITORING WILL ASSESS PLANT SURVIVABILITY DURING THE FIRST GROWING SEASON AND MAKE RECOMMENDATIONS FOR REINFORCEMENT PLANTINGS IF REQUIRED AT THAT TIME.

## REFORESTATION PLANTING NOTES

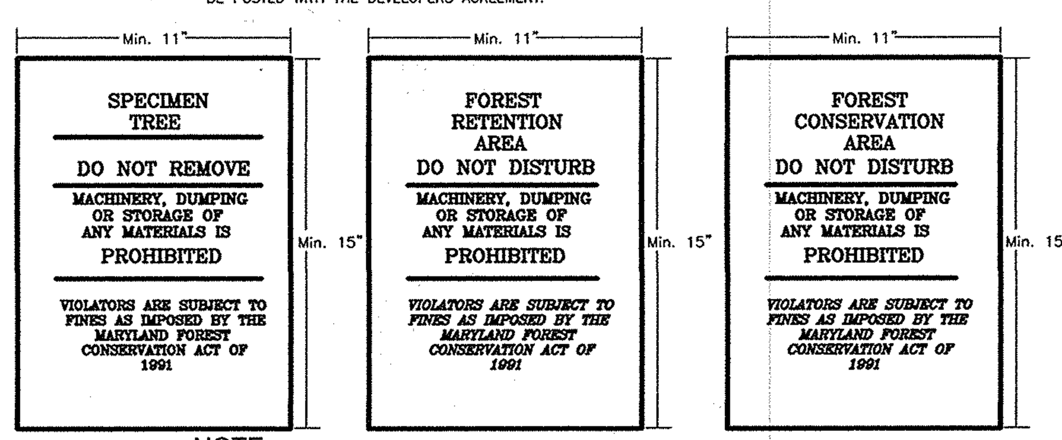
1. AFFORESTATION AREAS MAY BE PLANTED AS SOON AS REASONABLE TO DO SO. LATE WINTER–EARLY SPRING PLANTINGS ARE PREFERRED. EARLIEST PLANTING DATES WILL VARY FROM YEAR TO YEAR BUT PLANTING MAY GENERALLY BEGIN AS SOON AS THE GROUND IS NO LONGER FROZEN. ALTERNATE PLANTING DATES MAY BE CONSIDERED AS CONDITION WARRANTS.
2. SOIL AMENDMENTS AND FERTILIZATION RECOMMENDATIONS WILL BE MADE BASED UPON THE RESULTS OF SOIL ANALYSIS FOR NITROGEN, PHOSPHORUS, POTASSIUM, ORGANIC MATTER CONTENT AND pH. IF REQUIRED, FERTILIZER WILL BE PROVIDED USING A SLOW RELEASE, SOLUBLE 16–8–16 ANALYSIS DESIGNED TO LAST 5–8 YEARS CONTAINED IN POLYETHYLENE PERFORATED BAGS SUCH AS MANUFACTURED BY ADCO WORKS, P.O. BOX 310 HOLLINS, N.Y. 11423 OR APPROVED EQUAL.
3. PLANT MATERIALS WILL BE PLANTED IN ACCORDANCE WITH THE PLANTING DETAILS AND PLANT SCHEDULE.
4. PLANT MATERIAL SHALL BE NURSERY GROWN AND INSPECTED PRIOR TO PLANTING. PLANTS NOT CONFORMING TO THE AMERICAN STANDARD FOR NURSERY STOCK SPECIFICATIONS FOR SIZE, FORM, VIGOR, OR ROOTS, OR DUE TO TRUNK WOUNDS, BREAKAGE, DESICCATION, INSECT OR DISEASE MUST BE REPLACED.
5. PLANTING STOCK MUST BE PROTECTED FROM DESICCATION AT ALL TIMES PRIOR TO PLANTING. MATERIALS HELD FOR PLANTING SHALL BE MOISTENED AND PLACED IN COOL SHADED AREAS UNTIL READY FOR PLACEMENT.
6. NEWLY PLANTED TREES MAY REQUIRE WATERING AT LEAST ONCE PER WEEK DURING THE FIRST GROWING SEASON DEPENDING ON RAINFALL IN ORDER TO GET ESTABLISHED. THE INITIAL PLANTING OPERATION SHOULD ALLOW FOR WATERING DURING INSTALLATION TO COMPLETELY SOAK BACKFILL MATERIAL.
7. MULCH SHALL BE APPLIED IN ACCORDANCE WITH THE DIAGRAM PROVIDED AND SHALL CONSIST OF COMPOSTED, SHREDDED HARDWOOD BARK MULCH, FREE OF WOOD ALCOHOL.
8. ALL NURSERY STOCK TO BE SPRAYED WITH DEER REPELLENT CONTAINING BITREX, SUCH AS REPELLEX. ALL NURSERY STOCK TO BE GROWN WITH DEER REPELLENT TABLETS IN GROWING MEDIUM, SUCH AS REPELLEX TABLETS.

## CONSTRUCTION PERIOD PROTECTION AND MANAGEMENT NOTES FOR FOREST CONSERVATION

PRE-CONSTRUCTION PHASE
1. FOR RETENTION AREAS, INSTALL BLAZE ORANGE FENCE AND RETENTION SIGNS BEFORE CONSTRUCTION BEGINS.
2. FENCING SHALL BE MAINTAINED IN GOOD CONDITION AND PROMPTLY REPAIRED OR RESTORED AS THE SITUATION WARRANTS.
3. A QUALIFIED TREE CARE EXPERT SHALL DETERMINE IF ROOT PRUNING IS REQUIRED ALONG THE LIMIT OF DISTURBANCE. ROOT PRUNE TREES AS REQUIRED. WATER ANY ROOT–PRUNED TREES IMMEDIATELY AFTER ROOT–PRUNING AND MONITOR FOR SIGNS OF STRESS DURING CONSTRUCTION.

CONSTRUCTION PHASE
1. NO DISTURBANCE OR DUMPING IS ALLOWED INSIDE THE TREE RETENTION AREA.
2. NO EQUIPMENT SHALL BE OPERATED, STAGED OR STORED INSIDE THE TREE RETENTION AREA INCLUDING TREE CANOPIES.
3. IN THE EVENT OF DROUGHT, THE PROTECTED TREES SHALL BE MONITORED FOR SIGNS OF STRESS AND WATERED AS NEEDED.

POST-CONSTRUCTION PHASE
1. AT THE DIRECTION OF A QUALIFIED TREE CARE EXPERT, DAMAGES TO RETAINED TREES SHALL BE REPAIRED BY THE CONTRACTOR.
2. FENCE REMOVAL AND STABILIZATION SHALL BE AS PER THE SEDIMENT AND EROSION CONTROL PLAN.
3. POST CONSTRUCTION MANAGEMENT PROGRAM (FOREST CONSERVATION MANUAL)
   – INSPECTION
   – NOTICE OF TWO YEAR GROWING SEASON MANAGEMENT PROGRAM
   – MANAGEMENT OF RETENTION AREAS
   – MANAGEMENT OF REFORESTATION AREAS (WATERING SCHEDULE, FERTILIZING, CONTROL OF INVASIVES AND PROTECTION FROM PESTS, DISEASES AND MECHANICAL INJURY)
   – REPLACEMENT OF DEAD MATERIAL
   – EDUCATION OF NEW RESIDENTS
4. DO NOT REMOVE 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 = ●

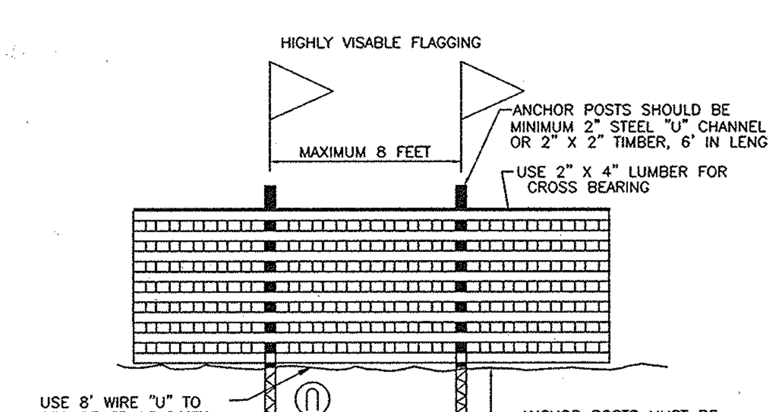
FOREST CONSERVATION AREA SIGNS

## 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.

## FOREST RETENTION AREAS AND NOTES

1. THE WETLANDS AND WETLAND BUFFERS ARE LOCATED ON AN OPEN SPACE LOT.
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.




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. ROOF DAMAGE SHOULD BE AVOIDED.

BLAZE ORANGE PLASTIC MESH
TYPICAL TREE PROTECTION FENCE DETAIL

APPROVED: DEPARTMENT OF PUBLIC WORKS

[signature] 5-6-14
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

[signature] 5.9.14
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

[signature] 5-12-14
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

## 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] 4/1/14
SIGNATURE OF DEVELOPER DATE

OWNER
KATHY MIESSE, PERSONAL REPRESENTATIVE,
ESTATE OF ARTHUR P. KRAESKI
9222 OLD SCAGGSVILLE ROAD
LAUREL, MD 20723–1730
ATTN: MR. DONALD R. REUWER
443–367–0422

DEVELOPER
LAND DESIGN & DEVELOPMENT, INC.
5300 DORSEY HALL DRIVE, STE 102
ELLICOTT CITY, MARYLAND 21042–7819
ATTN: MR. DONALD R. REUWER
443–367–0422

| NO. | REVISION | DATE |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| 2 | REVISE SUBDIVISION NAME | 7/18/14 |

# FINAL ROAD CONSTRUCTION PLAN

LANDSCAPE & FOREST CONSERVATION NOTES & DETAILS

HIGH RIDGE MEADOWS - SECTION I

LOTS 1 - 54, OPEN SPACE LOTS 55 - 68 AND NON-BUILDABLE BULK PARCEL "B"
A SUBDIVISION OF TAX MAP 50 – PARCEL 363
AND A RESUBDIVISION OF TAX MAP 50 – PARCEL 542
KRAESKI PROPERTY NON–BUILDABLE BULK PARCEL "A" (PLAT 21191)

6TH ELECTION DISTRICT – TAX MAP: 50 GRID: 1
DPZ REF'S: F–10–065, WP–10–087, ECP–12–047, WP–13–080, SP 13–007
ZONED: R–SC
PARCELS: 363 & 542
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 — PROFESSIONAL ENGINEER
ROBERT H. VOGEL, PE No.16193

DESIGN BY: EDS
DRAWN BY: EDS/RVE
CHECKED BY: RHV
DATE: MARCH 2014
SCALE: AS SHOWN
W.O. NO.: 11–28

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: 09-27-2014

SHEET 20 OF 32

F 14-022

K:\PROJECTS\11–28\ENGR\DWG\FINAL ROAD P1\20–LAND–FORCON NOTES.DWG
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## GENERAL NOTES

1. STEEP SLOPES ARE AS SHOWN HEREON
2. IN ACCORDANCE WITH THE WILDLIFE & HERITAGE SERVICE, THERE ARE NO STATE OR FEDERAL RECORDS FOR RARE, THREATENED OR ENDANGERED SPECIES WITHIN THE BOUNDARIES OF THE PROJECT SITE AS DELINEATED.
3. THIS PROJECT IS SUBJECT TO WP-13-080. ON MARCH 27, 2013; THE PLANNING DIRECTOR APPROVED THE REQUEST, TO WAIVE SECTION 16.116(A) FOR DISTURBANCE TO STREAM, STREAM BUFFERS, WETLANDS AND WETLAND BUFFERS ON THE NORTHEAST PORTION OF THE PROJECT FOR A STORM DRAINAGE PIPE, AND SECTION 16.1205(A)(7) TO REMOVE UP TO 3 SPECIMEN TREES THE PLANNING DIRECTOR DENIED YOUR REQUEST TO WAIVE SECTION 16.120(B)(6)(V)(C) TO ALLOW PIPESTEM LOTS ON MUTIPLE SIDES OF A FRONTAGE LOT IN THE SAME SUBDIVISION.
   APPROVAL OF THE WAIVER TO SECTION 16.116(A) AND SECTION 16.1205(A)(7) IS SUBJECT TO THE FOLLOWING CONDITIONS:
   1. ENVIRONMENTAL DISTURBANCE MUST BE LIMITED TO THE AREAS INDICATED ON THE WAIVER PETITION PLAN EXHIBIT, ANY EXPANSION OF THE DISTURBED AREA MAY REQUIRE ADDITIONAL WAIVER APPROVAL IF DETERMINED SIGNIFICANT.
   2 PRIOR TO INITIATING ANY CONSTRUCTION ACTIVITIES THAT RESULT IN THE APPROVED ENVIRONMENTAL DISTURBANCES, ALL APPROVALS FROM MDE, APPLICABLE SRC AGENCIES AND PERMISSIONS FROM ADJOINING/AFFECTED PROPERTY OWNERS MUST BE OBTAINED AND DOCUMENTED. COPIES OF DOCUMENTATION MUST BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING PRIOR TO THE FINAL PLAN APPROVAL (OR PRIOR TO SITE DEVELOPMENT PLAN APPROVAL, AT THE DISCRETION OF DPZ).
   3. PRIOR TO REMOVAL OF THE TWO OAK SPECIMEN TREES, PLEASE REVIEW THE PROPOSED DESIGN AFTERNATIVES RECOMMENDED BY THE DIVISION OF LAND DEVELOPMENT IN THE REVISED SUBMISSION COMMENTS DATED MARCH 28, 2013. INCORPORATE DESIGN RECOMMENDATIONS OR PROVIDE AMPLE JUSTIFICATION TO THE DEPARTMENT OF PLANNING AND ZONING IF NOT FEASIBLE (LOSS OF LOT YIELD ALONE WILL NOT BE CONSIDERED AMPLE JUSTIFICATION).
   4. REMOVAL OF EACH SPECIMEN TREE WILL REQUIRE MITIGATION WITH THE PLANTING OF TWO NEW NATIVE SHADE TREES (FOR UP TO 6 NEW SHADE TREES) WITH A MINIMUM 2-1/2" CALIPER TRUNK- SURETY OF THESE SHADE TREES SHALL BE INCORPORATED INTO THE LANDSCAPE SURETY WITH THE FINAL ROAD CONSTRUCTION DRAWINGS.
   5. PRIOR TO REMOVING THE SILVER MAPLE SPECIMEN TREE ON THE NORTH PARCEL, THE DEVELOPER SHALL FIRST ATTEMPT DESIGN ALTERNATIVES THAT WOULD ALLOW PRESERVATION OF THE TREE. IF REMOVED, THE TWO TREES PLANTED FOR MITIGATION SHOULD BE PLACED WITHIN THE PROXIMITY OF THE REMOVED TREE OR AT LEAST ON THE PORTION OF THE PROPERTY BOUNDARY SHARED BY PARCEL 396.

   DENIAL OF THE WAIVE TO SECTION 16.120(B)(6)(V)(C) WAS BASED ON THE FOLLOWING REASONS:
   1. EXTRAORDINARY CIRCUMSTANCES OR DESIGN CONSTRAINTS RESULTING IN SIGNIFICANT HARDSHIP WERE NOT INDICATED IN THE WAIVER JUSTIFICATION.
   2. DESIGN ALTERNATIVES EXIST THAT WOULD PREVENT THE LOT BEING SURROUNDED ON FOUR SIDES BY PAVED DRIVE LANES. PLEASE SEE DLD COMMENTS DATED MARCH 28, 2013.
   3. THE DESIGN PROPOSAL APPEARS GEARED TO ENSURING AN OPTIMAL LOT YIELD. THE DEVELOPER HAS THE OPTION OF INCORPORATING ADDITIONAL TOWNHOME LOTS TO OBTAIN DESIRED LOT YIELD IN THE PROPOSED SUBDIVISION DESIGN.
   4. THE WAIVER, IF APPROVED WOULD' NULLIFY THE INTENT AND PURPOSE OF THE REGULATIONS, WHICH IS TO ACHIEVE A WELL THOUGHT-OUT DESIGN THAT PROVIDES ORDERLY SUBDIVISION LAYOUT AND AVOIDS ORIENTATION AND PRIVACY PROBLEMS FOR NEW HOUSES ON PIPESTEM AND FRONTAGE LOTS. AS PROPOSED, LOT 74 WOULD HAVE LIMITED USABILITY AND PRIVACY. DLD RECOMMENDS A SUBDIVISION REDESIGN TO REMOVE AND RELOCATE LOTS 72, 73, AND 74 ELSEWHERE IN THE DEVELOPMENT. IN LAYING OUT THE SUBDIVISION DESIGN, THE DEVELOPER SHOULD GIVE MORE CONSIDERATION TO THE ARRANGEMENT OF LOTS SO THAT PROPOSED HOUSES WILL NOT LOOK INTO NEIGHBORING REAR YARDS OF THE FRONT LOTS. EACH NEW LOT IN THE SUBDIVISION SHOULD INCORPORATE GOOD LOT DESIGN AND PLANNED AS TO THE SIZE, SHAPE AND ORIENTATION TO , AVOID UNDESIRABLE VIEWS FROM ADJOINING LOTS. WAIVERS SHALL NOT BE USED TO ACHIEVE MAXIMUM LOT YIELD AT THE EXPENSE OF GOOD SUBDIVISION DESIGN.

   ON JUNE 3, 2013, A REQUEST FOR RECONSIDERATION WAS SUBMITTED WHICH AMENDED THE REQUESTED SPECIMEN TREES TO BE REMOVED. TO SPECIMEN TREES # 3 AND #4 PREVIOUSLY APPROVED TO BE REMOVED AND IN CONJUNCTION WITH THE REVISED LAYOUT, ARE NOW PROPOSED TO REMAIN. AS A RESULT OF THE REVISED LAYOUT, SPECIMEN TREE # 15 AND 16 (35" / 37" TWIN TRUNK SOUTHERN RED OAK IN FAIR CONDITION) IS PROPOSED TO BE REMOVED.

KLEBASKO ENVIRONMENTAL, LLC
8373 PINEY ORCHARD PARKWAY, SUITE 207
ODENTON, MD 21113
PHONE: 410-672-5940
4-3-14
KENNETH R. WALLIS
QUALIFIED PROFESSIONAL
COMAR 08.19.06.01

**Specimen Tree List for the 9222 Old Scaggsville Road**

| Number | Common Name | Species Name | DBH (inches) | Condition |
|---|---|---|---|---|
| 1 | white oak | *Quercus alba* | 31 | Fair |
| 2 | white oak | *Quercus alba* | 38 | Fair |
| 3 | white oak | *Quercus alba* | 38 | Fair |
| 4 | white oak | *Quercus alba* | 38 | Good |
| 5 | black oak | *Quercus velutina* | 31 | Good |
| 6 | yellow-poplar | *Liriodendron tulipifera* | 38 | Good |
| 7 | yellow-poplar | *Liriodendron tulipifera* | 39 | Good |
| 8 | yellow-poplar | *Liriodendron tulipifera* | 41 | Good |
| 9 | yellow-poplar | *Liriodendron tulipifera* | 47 | Fair |
| 10 | yellow-poplar | *Liriodendron tulipifera* | 30 | Fair |
| 11 | southern red oak | *Quercus falcata* | 31 | Fair |
| 12 | yellow-poplar | *Liriodendron tulipifera* | 33 | Fair |
| 13 | white oak | *Quercus alba* | 35 | Fair |
| 14 | yellow-poplar | *Liriodendron tulipifera* | 30 | Good |
| * 15 | southern red oak | *Quercus falcata* | 35 | Fair |
| * 16 | southern red oak | *Quercus falcata* | 37 | Fair |
| 17 | yellow-poplar | *Liriodendron tulipifera* | 35 | Good |
| 18 | yellow-poplar | *Liriodendron tulipifera* | 32 | Fair |
| * 19 | silver maple | *Acer saccharinum* | 32 | Good |
| 20 | chestnut oak | *Quercus montana* | 33 | Fair |
| 21 | yellow-poplar | *Liriodendron tulipifera* | 54 | Good |
| 22 | chestnut oak | *Quercus montana* | 32 | Fair |
| 23 | white oak | *Quercus alba* | 31 | Good |
| 24 | black oak | *Quercus velutina* | 35 | Good |
| 25 | black oak | *Quercus velutina* | 30 | Poor-Fair |
| 26 | white oak | *Quercus alba* | 31 | Good |

* SPECIMEN TREE #15 / 16 REMOVAL FOR PROPOSED LOT

* SPECIMEN TREE #19 REMOVAL BASED UPON REQUIRED PROPOSED GRADES / CUT SLOPE

FOREST CONSERVATION AREA #5B 0.15 ACRES REFORESTATION 0.15 AC

FOREST CONSERVATION AREA #5A 1.93 ACRES REFORESTATION 1.93 AC.

FOREST CONSERVATION AREA #4 0.29 ACRES RETENTION: 0.29 AC

FOREST CONSERVATION AREA #3 0.68 ACRES RETENTION: 0.63 AC REFORESTATION 0.05 AC

FOREST CONSERVATION AREA #2 4.55 ACRES RETENTION: 4.53AC REFORESTATION 0.02 AC

FOREST CONSERVATION AREA #1 0.46 ACRES RETENTION: 0.41 AC REFORESTATION 0.05 AC

SECTION TWO

SECTION ONE

100' 0 100' 200' 300'

APPROVED: DEPARTMENT OF PUBLIC WORKS

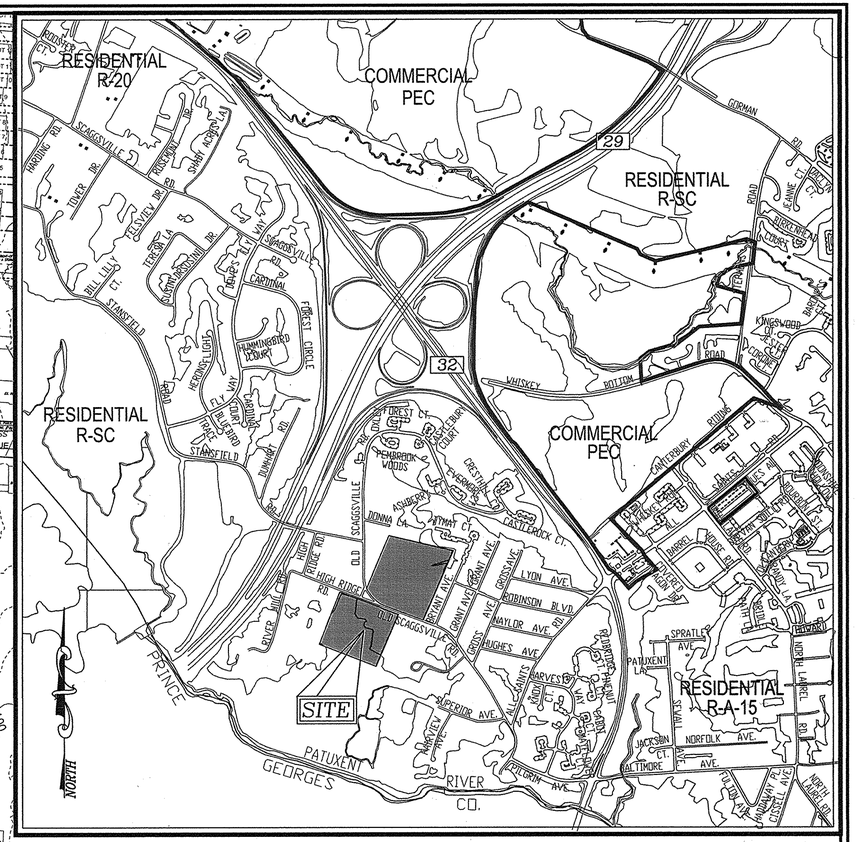
CHIEF, BUREAU OF HIGHWAYS — DATE 5-6-14

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 5.9.14

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5.12.14

PLAN SCALE 1" = 100'




## VICINITY MAP

SCALE: 1"=1,000'
ADC MAP COORDINATE: 5169 B1/5169 B2
5169 C1/5169 C2

## GENERAL NOTES

WATERSHED NAME: PATUXENT RIVER UPPER
WATERSHED NUMBER: 2131104

| | |
|---|---|
| A. GROSS SITE AREA: | 36.94 AC. |
| NET SITE AREA: | 36.60 AC. |
| B. AREA OF 100-YEAR FLOODPLAIN: | 0.00 AC. |
| C. AREA OF WETLANDS AND BUFFERS(ONSITE): | 1.12 AC.* |
| AREA OF STREAM AND BUFFERS(ONSITE): | 0.68 AC.* |
| D. AREA OF > 25% STEEP SLOPES: | 0.34 AC. |
| E. EXISTING FOREST: | 10.74 AC. |
| F. ZONED: | R-SC |
| G. EXISTING USE: | FARMLAND |
| H. PROPOSED USE: | RESIDENTIAL |

* WETLAND & STREAM BUFFERS OVERLAP, TOTAL ONSITE ENVIRONMENTAL AREAS= 1.61 AC.

## BENCHMARKS

HOWARD COUNTY BENCHMARK 47H2 (CONC. MON.)
N 529706.4221 E 1355445.3364 ELEV. 256.068
LOCATION: ALL SAINTS ROAD, 240'+/- SOUTH OF NORTH LAUREL ROAD 2.89 FEET FROM STORM DRAIN INLET; 1' EAST OF CURB, 0.6 BELOW SURFACE

HOWARD COUNTY BENCHMARK 47GC (CONC. MON.)
N 528939.7281 E 1354223.5536 ELEV. 226.272
LOCATION: MEDIAN ISLAND 29 FEET WEST OF ALL SAINTS RD RT 216 INTERSECTION; 1.4 FEET WEST OF SOUTHWEST INLET CORNER

## OWNER

KATHY MIESSE, PERSONAL REPRESENTATIVE,
ESTATE OF ARTHUR P. KRAESKI
9222 OLD SCAGGSVILLE ROAD
LAUREL, MD 20723-1730
ATTN: MR. DONALD R. REUWER
443-367-0422

## DEVELOPER

LAND DESIGN & DEVELOPMENT, INC.
5300 DORSEY HALL DRIVE, STE 102
ELLICOTT CITY, MARYLAND 21042-7819
ATTN: MR. DONALD R. REUWER
443-367-0422

## LEGEND:

- PROPERTY LINE
- RIGHT-OF-WAY LINE
- ADJACENT PROPERTY LINE
- EXISTING TREELINE
- EXISTING TREES
- PROPOSED SIDEWALK
- PROPOSED TREELINE
- MICRO BIO RETENTION FACILITY
- EXISTING SPECIMEN TREE
- EXISTING SPECIMEN TREE TO BE REMOVED
- FOREST CONSERVATION EASEMENT
- TYP. FOREST CONSERVATION EASEMENT SIGN

| NO. | REVISION | DATE |
|---|---|---|
| 2 | REVISE SUBDIVISION NAME | 7/18/14 |

# FINAL ROAD CONSTRUCTION PLAN

## FOREST CONSERVATION PLAN

## HIGH RIDGE MEADOWS - SECTION 1

LOTS 1 - 54, OPEN SPACE LOTS 55 - 68
AND NON-BUILDABLE BULK PARCEL "B"
A SUBDIVISION OF TAX MAP 50 - PARCEL 396
AND A RESUBDIVISION OF TAX MAP 50 - PARCEL 542
KRAESKI PROPERTY NON-BUILDABLE BULK PARCEL "A" (PLAT 21191)

6TH ELECTION DISTRICT — TAX MAP: 50 GRID: 1 — ZONED: R-SC
DPZ REF'S: F-10-055, WP-10-087, ECP-12-047, WP-13-080, SP 13-007 — PARCELS: 363 & 542
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 — PROFESSIONAL ENGINEER
ROBERT H. VOGEL, PE No.16193

DESIGN BY: EDS
DRAWN BY: EDS/RVE
CHECKED BY: RHV
DATE: MARCH 2014
SCALE: AS SHOWN
W.O. NO.: 11-28

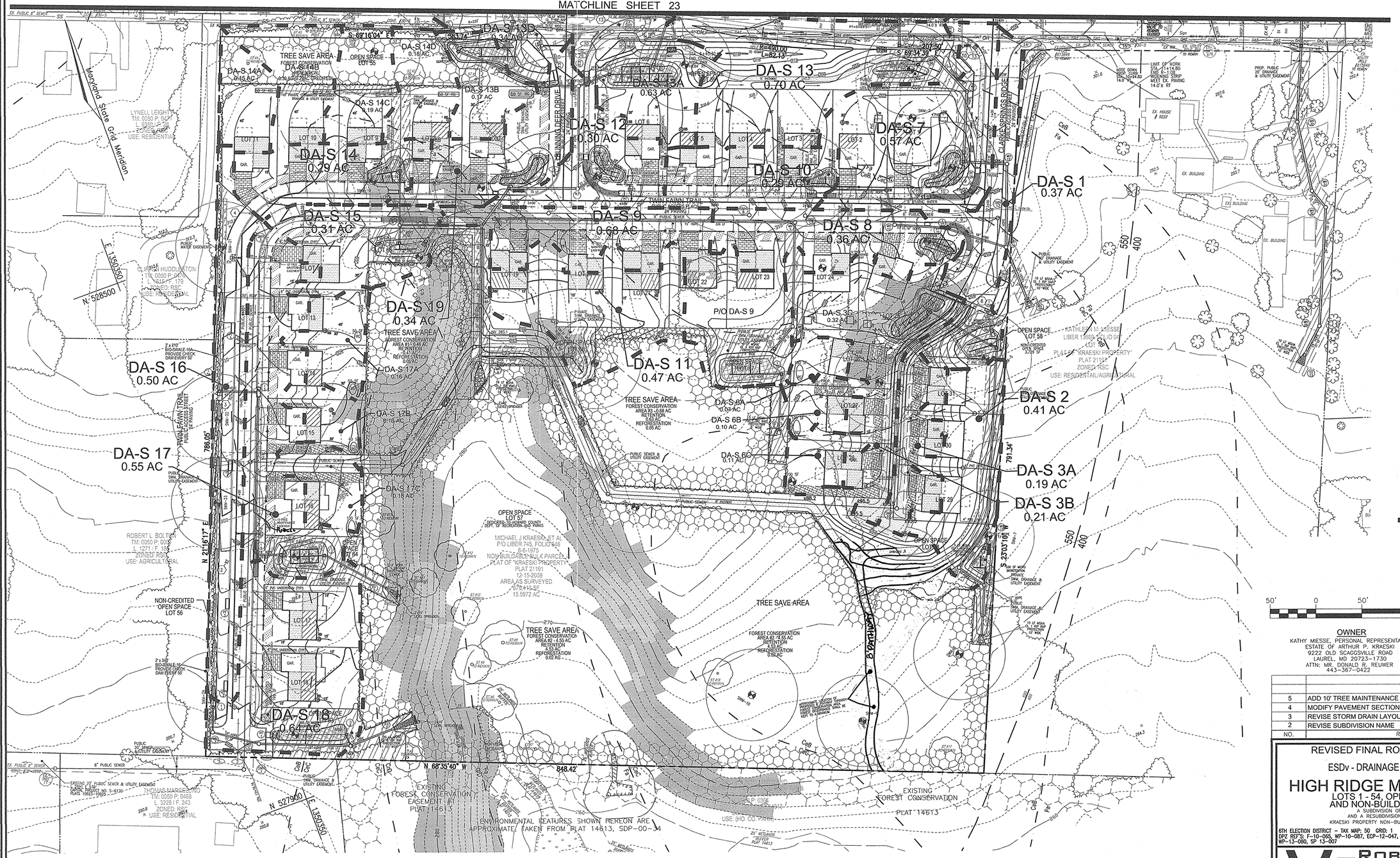
PROFESSIONAL CERTIFICATE
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193 EXPIRATION DATE: 09-27-2014

SHEET 21 OF 32

F 14-022

K:\Projects\11-28\ENGR\dwg\FINAL ROAD P1\21-FORCON.DWG, 7/17/2014 2:02:44 PM

MATCHLINE SHEET 23


DA-S 1 0.37 AC
DA-S 2 0.41 AC
DA-S 3A 0.19 AC
DA-S 3B 0.21 AC
DA-S 3C 0.32 AC
DA-S 3D 0.34 AC
DA-S 4 0.63 AC
DA-S 5 0.70 AC
DA-S 6A 0.09 AC
DA-S 6B 0.10 AC
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DA-S 7 0.57 AC
DA-S 8 0.36 AC
DA-S 9 0.68 AC
DA-S 10 0.79 AC
DA-S 11 0.47 AC
DA-S 12 0.30 AC
DA-S 13 0.70 AC
DA-S 13B 0.17 AC
DA-S 14 0.29 AC
DA-S 14A 0.15 AC
DA-S 14B 0.09 AC
DA-S 14C 0.19 AC
DA-S 14D 0.18 AC
DA-S 15 0.31 AC
DA-S 16 0.50 AC
DA-S 17 0.55 AC
DA-S 17A 0.16 AC
DA-S 17B 0.16 AC
DA-S 17C 0.18 AC
DA-S 18 0.64 AC
DA-S 19 0.34 AC
TREE SAVE AREA
FOREST CONSERVATION AREA #1 0.46 AC
RETENTION 0.05 AC
REFORESTATION 0.05 AC
TREE SAVE AREA
FOREST CONSERVATION AREA #2 4.55 AC
RETENTION 4.53 AC
REFORESTATION 0.02 AC
TREE SAVE AREA
FOREST CONSERVATION AREA #3 0.68 AC
RETENTION 0.05 AC
REFORESTATION 0.05 AC
TREE SAVE AREA
FOREST CONSERVATION AREA #5 2.55 AC
RETENTION 0.19 AC
REFORESTATION 0.19 AC
OPEN SPACE LOT 55
OPEN SPACE LOT 57
OPEN SPACE LOT 64
OPEN SPACE LOT 66
OPEN SPACE LOT 68
NON-CREDITED OPEN SPACE LOT 55
DEDICATED TO HOWARD COUNTY DEPT. OF RECREATION AND PARKS
MICHAEL J KRAESKI, ET AL P/O LIBER 745, FOLIO 548 6-6-1975 NON-BUILDABLE BULK PARCEL "B" PLAT OF "KRAESKI PROPERTY" PLAT 21191 12-15-2009 AREA AS SURVEYED 679,413 SF 15.5972 AC
KATHLEEN M. MIESSE LIBER 11559, FOLIO 047 LOT 1 PLAT OF "KRAESKI PROPERTY" PLAT 21191 ZONED: RSC USE: RESIDENTIAL/AGRICULTURAL
LYNELL LEIGHTY TM: 0050 P: 0427 L: 1258 F: 0257 ZONED: RSC USE: RESIDENTIAL
CLIFFORD HUDDLESTON TM: 0050 P: 0478 L: 1258 F: 179 ZONED: RSC USE: RESIDENTIAL
ROBERT L. BOLTON TM: 0050 P: 0035 L: 1271 / F: 183 ZONED: RSC USE: AGRICULTURAL
THOMAS MARCELLINO TM: 0050 P: 0468 L: 3228 / F: 243 ZONED: RSC * USE: RESIDENTIAL
EXISTING FOREST CONSERVATION EASEMENT #1 PLAT 14613
EXISTING FOREST CONSERVATION PLAT 14613
ENVIRONMENTAL FEATURES SHOWN HEREON ARE APPROXIMATE/ TAKEN FROM PLAT 14613, SDP-00-34
Maryland State Grid Meridian
E 1350350
N 528500
N 527900
E 1350350
N 21°16'17" E 786.05'
S 69°16'04" E 683.74'
S 69°34'39" E 207.50'
S 23°03'16" W 791.34'
N 68°35'40" W 848.42'
R=490.00' L=82.13'
TOWN FAWN TRAIL PUBLIC ACCESS STREET 24' PAVING
CLARKSPRINGS BRIDGE
BEAUMANOR DRIVE
BEAUMANOR PLACE
PUBLIC 20' DRAINAGE & UTILITY EASEMENT
PUBLIC SWM, DRAINAGE & UTILITY EASEMENT
PUBLIC WATER EASEMENT
EX. PUBLIC 8" SEWER
8" PUBLIC SEWER
EXISTING 20' PUBLIC SEWER & UTILITY EASEMENT PLAT 14613
PUBLIC PROJECT NO. S-5720 PLATS 10923-10925
EX. HOUSE 9222
EX. BUILDING
PROP. PUBLIC 20' DRAINAGE & UTILITY EASEMENT
LIMIT OF WORK STA. 11+14.80 END 6+11.58 WIDENING STRIP MEET EX. PAVING 14.0'± RT
MATCH EX. GRADE 14.0'± RT
10' TREE MAINTENANCE EASEMENT
2 x 2½" BIO-SWALE-16A PROVIDE CHECK DAM EVERY 50'
2'x2½" BIO-SWALE-16 PROVIDE CHECK DAM EVERY 50'
NON-CREDITED OPEN SPACE LOT 55
OPEN SPACE LOT 57
OPEN SPACE LOT 64
OPEN SPACE LOT 66
OPEN SPACE LOT 68
TREE SAVE AREA
TREE SAVE AREA
TREE SAVE AREA
TREE SAVE AREA
P/O DA-S 9
P/O DA-S 10
P/O DA-S 11
P/O DA-S 13
P/O DA-S 15
P/O DA-S 16
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P/O DA-S 18
P/O DA-S 19
LOT 1 LOT 2 LOT 3 LOT 4 LOT 5 LOT 6 LOT 7 LOT 8 LOT 9 LOT 10 LOT 11 LOT 12 LOT 13 LOT 14 LOT 15 LOT 16 LOT 17 LOT 18 LOT 19 LOT 20 LOT 21 LOT 22 LOT 23 LOT 24 LOT 25 LOT 26 LOT 27 LOT 28 LOT 29 LOT 30 LOT 31 LOT 32 LOT 33 LOT 34 LOT 35 LOT 36 LOT 37 LOT 38 LOT 39 LOT 40 LOT 41 LOT 42 LOT 43 LOT 44 LOT 45 LOT 46 LOT 47 LOT 48 LOT 49 LOT 50 LOT 51 LOT 52 LOT 53 LOT 54
USE: (HO. CO. 7-DAY)
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SWM-1B
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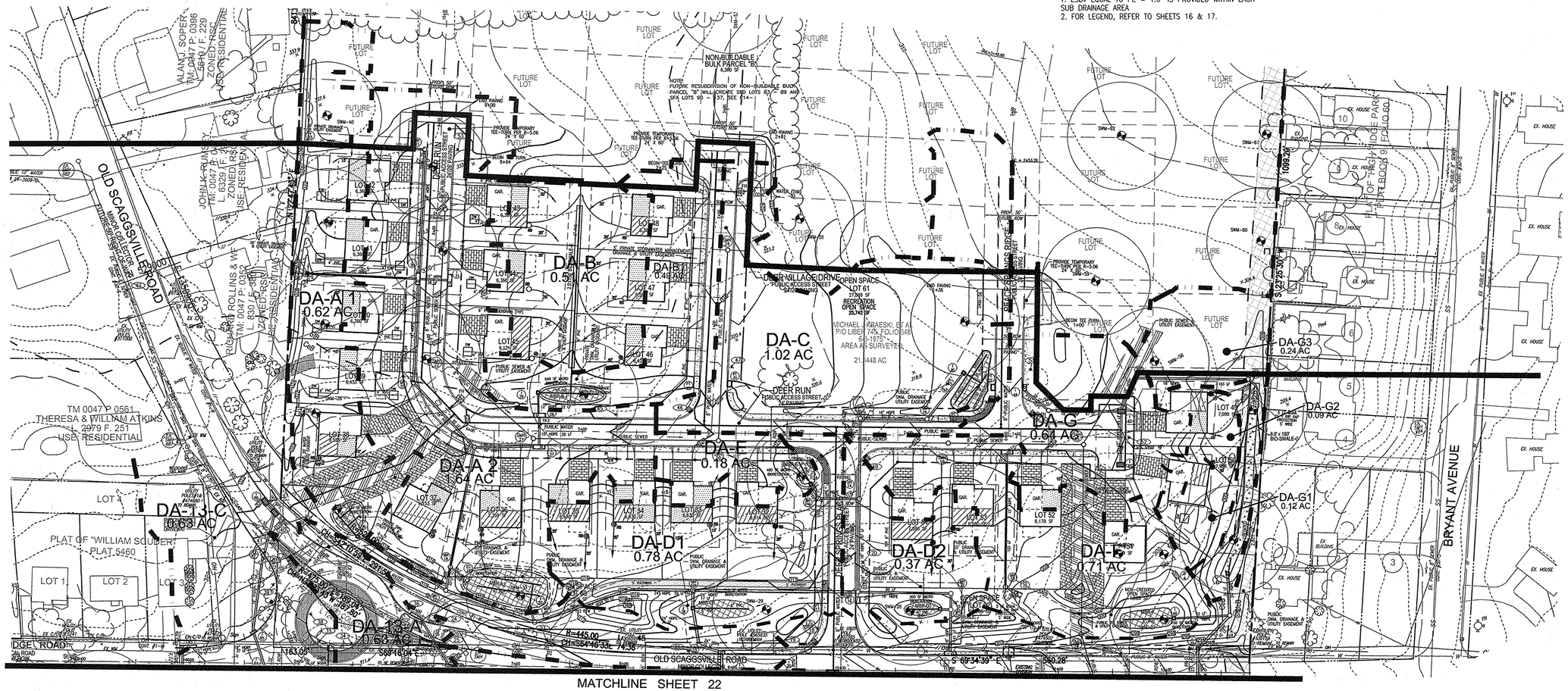
SWM-43

# ESDv - DRAINAGE AREA MAP

SCALE: 1"=50'

NOTE:

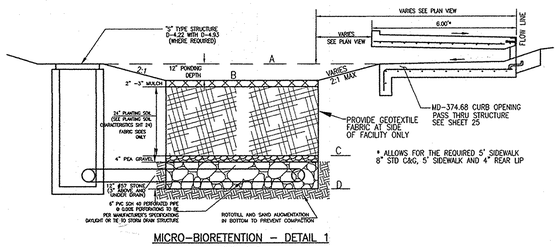
1. ESDv EQUAL TO PE = 1.6" IS PROVIDED WITHIN EACH SUB DRAINAGE AREA
2. FOR LEGEND, REFER TO SHEETS 16 & 17.




MATCHLINE SHEET 22

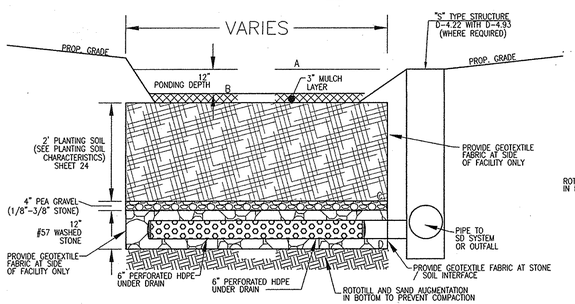
## LEGEND:

- PROPERTY LINE
- RIGHT-OF-WAY LINE
- ADJACENT PROPERTY LINE
- EXISTING CURB AND GUTTER
- EXISTING UTILITY POLE
- EXISTING LIGHT POLE
- EXISTING MAILBOX
- EXISTING SIGN
- EXISTING SANITARY MANHOLE
- SS — EXISTING SANITARY LINE
- EXISTING CLEANOUT
- EXISTING FIRE HYDRANT
- W — EXISTING WATER LINE
- EXISTING TREELINE
- PROPOSED STORMDRAIN
- PROPOSED STORMDRAIN INLET
- PROPOSED TREELINE
- W 550/400 — WATER ZONE DIVIDE
- EX MODERATE SLOPES
- EX STEEP SLOPES
- EXISTING SPECIMEN TREE
- PROPOSED FROST CONSERVATION RETENTION AREA
- NON-STRUCTURAL ROOFTOP DISCONNECTIONS
- MICRO-SCALE PRACTICE BIO-SWALE
- NON-STRUCTURAL PROP. PERMEABLE SURFACE ROAD / DRIVEWAY ROOFTOP TO PERMEABLE SURFACE SUBBASE
- MICRO-SCALE PRACTICE MICRO BIORETENTION / BIORETENTION
- ROOFTOP DISCONNECTS TO DRYWELL
- RB — 200 GAL RAIN BARREL
- ROOFTOP DISCONNECTS FLOW PATH
- ROOFTOP DISCONNECTS RAIN BARREL
- DW — PROPOSED DRYWELL
- DRAINAGE DIVIDE
- DA-3 — DRAINAGE AREA DESIGNATION



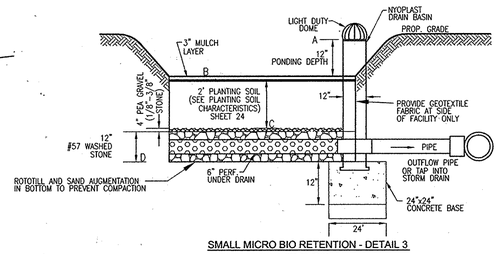

MICRO-BIORETENTION – DETAIL 1

NOT TO SCALE




MICRO-BIORETENTION - DETAIL 2

NOT TO SCALE



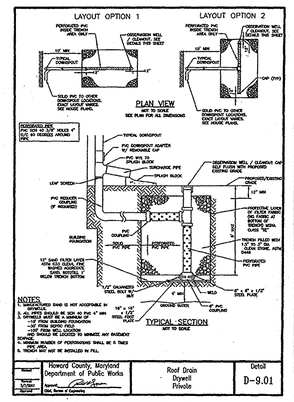

SMALL MICRO BIO RETENTION - DETAIL 3

NOT TO SCALE

**ON-LOT DRYWELL - DESIGN ELEVATION CHART**

| SWM DA | DW LOT # | NUMBER OF DW'S | PROP GRADE OVER | TOP STONE | INV STONE | SURFACE SIZE FT X FT | STONE DEPTH FT |
|---|---|---|---|---|---|---|---|
| | | | SOUTH AREA | | | | |
| S-3C | 24 R | 2 | 296.00 | 295.00 | 291.00 | 8.5X8.5 | 4 |
| | 24 R | | 295.00 | 294.00 | 290.00 | 8.5X8.5 | 4 |
| | 25 | 1 | 294.20 | 293.20 | 289.20 | 8.5X8.5 | 4 |
| S-7 | 1 | 1 | 299.00 | 298.00 | 294.00 | 8.5X8.5 | 4 |
| | 2 | 1 | 301.50 | 300.50 | 296.50 | 8.5X8.5 | 4 |
| | | | NORTH AREA 2 | | | | |
| A-1/A-2 | 38 R | 1 | 319.00 | 318.00 | 314.00 | 6X6 | 4 |
| | 39 R | 2 | 322.00 | 321.00 | 317.00 | 6X6 | 4 |
| | | | 320.00 | 319.00 | 315.00 | 8X8 | 4 |
| | 40 R | 2 | 324.00 | 323.00 | 319.00 | 6X6 | 4 |
| | | | 323.50 | 322.50 | 318.50 | 8X8 | 4 |
| | 41 R | 2 | 327.00 | 326.00 | 322.00 | 6X6 | 4 |
| | | | 325.50 | 324.50 | 320.50 | 8X8 | 4 |
| | 42 R | 2 | 331.80 | 330.80 | 326.80 | 6X6 | 4 |
| | | | 328.50 | 327.50 | 323.50 | 8X8 | 4 |
| | 43 | 1 | 328.00 | 327.00 | 323.00 | 8X8 | 4 |
| | 44 | 1 | 325.00 | 324.00 | 320.00 | 8X8 | 4 |
| | 45 | 1 | 322.00 | 321.00 | 317.00 | 8X8 | 4 |
| G-1 | 50 | 1 | 305.50 | 304.50 | 300.50 | 8X8 | 4 |

R= REAR OF LOT




NOTES:
1. WASHED GRAVEL STONE IS NOT ACCEPTABLE IN SUMP.
2. ALL PIPES SHOULD BE SCH. 40 PVC 4" MIN.
3. DRYWELL TO BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
4. TOP FILTER STONE PACK.
5. ALL DRYWELLS SHALL BE LOCATED TO MINIMIZE ANY EXCESSIVE SETTLEMENT.
6. MINIMUM NUMBER OF PENETRATIONS SHALL BE 5 TIMES PIPE AREA.
7. TRENCH MAY NOT BE INSTALLED IN FILL.

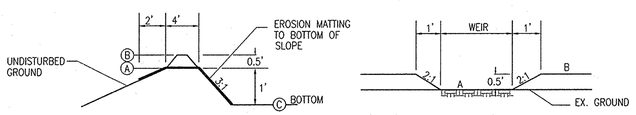
| Howard County, Maryland Department of Public Works | Roof Drain Drywell Private | Detail D-9.01 |
|---|---|---|

**OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED DRYWELL (M-5)**

A. THE OWNER SHALL INSPECT & CLEAN ANNUALLY, INCLUDING PIPES GUTTERS DOWNSPOUTS AND FILTERS.

B. PONDING STANDING WATER OR ALGAL GROWTH ON THE TOP OF A DRYWELL MAY INDICATE FAILURE DUE TO SEDIMENTATION IN THE GRAVEL MEDIA. IF WATER PONDS FOR MORE THAN 48 HOURS AFTER A MAJOR STORM OR MORE THAN SIX INCHES OF SEDIMENT HAS ACCUMULATED, THE GRAVEL MEDIA SHOULD BE EXCAVATED AND REPLACED.

## WEIR OUTLET MICRO-BIORETENTION/RAINGARDEN




TYPICAL SPILLWAY SECTION

NOT TO SCALE

TYPICAL SPILLWAY PROFILE

NOT TO SCALE

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 5/11/2015

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 5.18.15

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5-19-15

**OWNER**

KATHY MIESSE, PERSONAL REPRESENTATIVE, ESTATE OF ARTHUR P. KRAESKI
9222 OLD SCAGGSVILLE ROAD
LAUREL, MD 20723-1730
ATTN: MR. DONALD R. REUWER
443-367-0422

**DEVELOPER**

LAND DESIGN & DEVELOPMENT, INC.
5300 DORSEY HALL DRIVE, STE 102
ELLICOTT CITY, MARYLAND 21042-7819
ATTN: MR. DONALD R. REUWER
443-367-0422

| NO. | REVISION | DATE |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| 3 | REVISE STORM DRAIN LAYOUT ALONG OLD SCAGGSVILLE ROAD | 1 / 2015 |
| 2 | REVISE SUBDIVISION NAME | 7/18/14 |

REVISED FINAL ROAD CONSTRUCTION PLAN

ESDv - DRAINAGE AREA MAP - NORTH AREA 2

# HIGH RIDGE MEADOWS - SEC. 1

LOTS 1 - 54, OPEN SPACE LOTS 55 - 68
AND NON-BUILDABLE BULK PARCEL "B"

A SUBDIVISION OF TAX MAP 50 – PARCEL 363
AND A RESUBDIVISION OF TAX MAP 50 – PARCEL 542
KRAESKI PROPERTY NON-BUILDABLE BULK PARCEL "A" (PLAT 21191)

6TH ELECTION DISTRICT – TAX MAP: 50 GRID: 1 — ZONED: R-SC
DPZ REF'S: F-10-065, WP-10-087, ECP-12-047, WP-13-080, SP 13-007 — PARCELS: 363 & 542
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: EDS
DRAWN BY: EDS/RVE/KG
CHECKED BY: RHV
DATE: APRIL 2015
SCALE: AS SHOWN
W.O. NO.: 11-28

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

SHEET 23 OF 32

F-14-022

K:\Projects\11-28\ENGR\dwg\FINAL ROAD P1\REDLINE 2 CONSTRUCTION CHANGES\REDLINE-REPLACEMENT\23-SWM DAMA_REPLACEMENT.dwg, 4/28/2015 9:03:42 AM

## 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.

## OPERATION AND MAINTENANCE SCHEDULE FOR M-6, M-7 AND M-8 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.
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 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 WITH A MINIMUM OF ONCE PER MONTH AND AFTER HEAVY STORM EVENTS.
5. FILTER MATERIAL MUST BE REPLACED WHEN WATER REMAINS ON THE SURFACE OF THE FILTER BED FOR MORE THAN 24 HOURS FOLLOWING A 1- OR 2-YEAR STORM EVENT OR MORE THAN 48 HOURS FOLLOWING A 10-YEAR STORM EVENT."

NOTE: UNDERDRAIN AND CHECK DAMS OF BIOSWALE SHALL BE PUBLICALLY MAINTAINED.

## B.4.B SPECIFICATIONS FOR PERMEABLE PAVEMENTS & REINFORCED TURF

THESE SPECIFICATIONS INCLUDE INFORMATION ON ACCEPTABLE MATERIALS FOR TYPICAL APPLICATIONS AND ARE NOT EXCLUSIVE OR LIMITING. THE DESIGNER IS RESPONSIBLE FOR DEVELOPING SPECIFICATIONS FOR INDIVIDUAL PROJECTS AND SPECIFIC CONDITIONS.

**1. PERVIOUS CONCRETE SPECIFICATIONS**
DESIGN THICKNESS – PERVIOUS CONCRETE APPLICATIONS SHALL BE DESIGNED SO THAT THE THICKNESS OF THE CONCRETE SLAB SHALL SUPPORT THE TRAFFIC AND VEHICLE TYPES THAT WILL BE CARRIED. APPLICATIONS MAY BE DESIGNED USING EITHER STANDARD PAVEMENT PROCEDURES (E.G., AASHTO, ACI 325.9R, ACI 330R) OR USING STRUCTURAL VALUES DERIVED FROM FLEXIBLE PAVEMENT DESIGN PROCEDURES.
MIX & INSTALLATION – TRADITIONAL PORTLAND CEMENTS (ASTM C 150, C 1157) MAY BE USED IN PERVIOUS CONCRETE APPLICATIONS. PHOSPHORUS ADMIXTURES MAY ALSO BE USED. MATERIALS SHOULD BE TESTED (E.G., TRIAL BATCHING) PRIOR TO CONSTRUCTION SO THAT CRITICAL PROPERTIES (E.G., SETTLING TIME, RATE OF STRENGTH DEVELOPMENT, POROSITY, PERMEABILITY) CAN BE DETERMINED.
AGGREGATE – PERVIOUS CONCRETE CONTAINS A LIMITED FINE AGGREGATE CONTENT. COMMONLY USED GRADATIONS INCLUDE ASTM C 33 NO. 67 (3/4 IN. TO NO. 4), NO. 8 (3/8 IN. TO NO.16) AND NO. 89 (3/8 IN. TO NO.50) SIEVES. SINGLE-SIZED AGGREGATE (UP TO 1 INCH) MAY ALSO BE USED.
WATER CONTENT – WATER-TO-CEMENT RATIOS BETWEEN 0.27 AND 0.30 ARE USED ROUTINELY WITH PROPER INCLUSION OF CHEMICAL ADMIXTURES. WATER QUALITY SHOULD MEET ACI 30A. AS A GENERAL RULE, POTABLE WATER SHOULD BE USED ALTHOUGH RECYCLED CONCRETE PRODUCTION WATER MEETING ASTM C 94 OR AASHTO M 157 MAY ALSO BE USED.
ADMIXTURES – CHEMICAL ADMIXTURES (E.G., RETARDERS OR HYDRATION-STABILIZERS) ARE USED TO OBTAIN SPECIAL PROPERTIES IN PERVIOUS CONCRETE. USE OF ADMIXTURES SHOULD MEET ASTM C 494 (CHEMICAL ADMIXTURES) AND ASTM C 260 (AIR ENTRAINING ADMIXTURES) AND CLOSELY FOLLOW MANUFACTURER'S RECOMMENDATIONS.
BASE COURSE – THE BASE COURSE SHALL BE AASHTO NO. 3 OR 4 COURSE AGGREGATE WITH AN ASSUMED OPEN PORE SPACE OF 30% (n=0.30).

**2. PERMEABLE INTERLOCKING CONCRETE PAVEMENTS (PICP)**
PAVER BLOCKS – BLOCKS SHOULD BE EITHER 3? IN. OR 4 IN. THICK, AND MEET ASTM C 936 OR CSA A231.2 REQUIREMENTS. APPLICATIONS SHOULD HAVE 20% OR MORE (40% PREFERRED) OF THE SURFACE AREA OPEN. INSTALLATION SHOULD FOLLOW MANUFACTURER'S INSTRUCTIONS, EXCEPT THAT INFILL AND BASE COURSE MATERIALS AND DIMENSIONS SPECIFIED IN THIS APPENDIX SHALL BE FOLLOWED.
INFILL MATERIALS AND LEVELING COURSE – OPENINGS SHALL BE FILLED WITH ASTM C-33 GRADED SAND OR SANDY LOAM. PICP BLOCKS SHALL BE PLACED ON A ONE-INCH THICK LEVELING COURSE OF ASTM C-33 SAND.
BASE COURSE – THE BASE COURSE SHALL BE AASHTO NO. 3 OR 4 COURSE AGGREGATE WITH AN ASSUMED OPEN PORE SPACE OF 30% (n=0.30).

**3. REINFORCED TURF**
REINFORCED GRASS PAVEMENT (RGP) – WHETHER USED WITH GRASS OR GRAVEL, THE RGP THICKNESS SHALL BE AT LEAST 1-3/4" THICK WITH A LOAD CAPACITY CAPABLE OF SUPPORTING THE TRAFFIC AND VEHICLE TYPES THAT WILL BE CARRIED.

APPROVED: DEPARTMENT OF PUBLIC WORKS

[signature] 5-6-14
CHIEF, BUREAU OF HIGHWAYS — DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

[signature] 5.9.14
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

[signature] 5-12-14
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

K:\PROJECTS\11-28\ENGR\DWG\FINAL ROAD P1\24-SWM DETAILS.DWG

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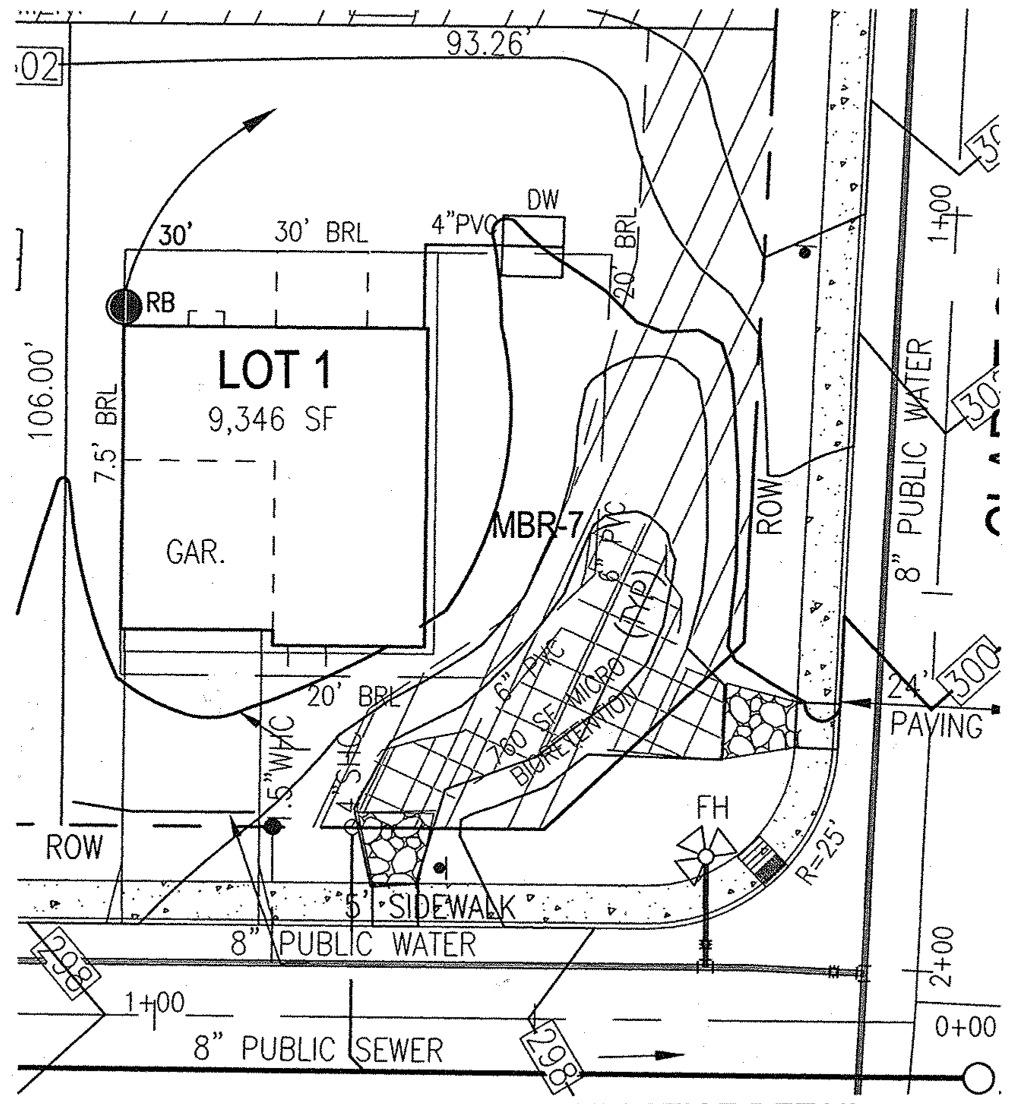



## TYPICAL HOUSE SWM PRACTICE DETAIL
SCALE: 1"=20'

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.

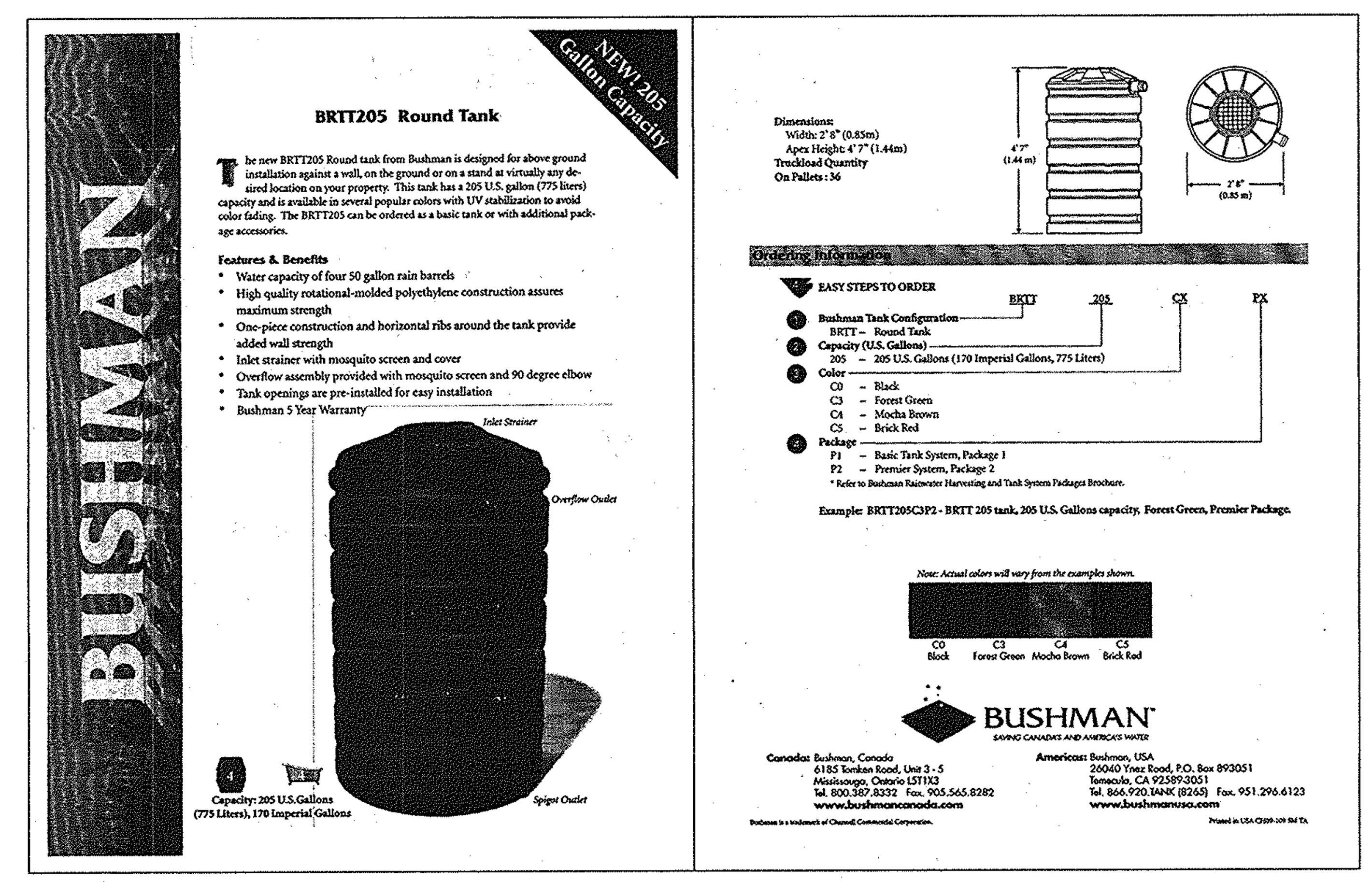
**MAINTENANCE CRITERIA:**

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.

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 SEE O&M NOTE 5 [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. |




## BUSHMAN BRTT205 (205 GALLON) RAIN HARVESTING SYSTEM OR EQUIVALENT
### RAIN BARREL DETAIL
NOT TO SCALE

**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.

**TYPICAL RAIN BARREL DESIGN**

$\frac{205\ GAL}{7.48\ GAL/CUFT} = 27.41\ CUFT$

$\frac{500\ SF \times (X")}{12} = 27.41\ CUFT$

$\frac{12\ (27.41\ CUFT)}{500\ SF} = 0.66"$

THEREFORE A 205 GALLON BARREL CAPTURES $P_E$ OF 0.66" FROM A 500 SF SECTION OF PROPOSED ROOFTOP THE REMAINING PORTION OF THE 500 SF SECTION OF ROOFTOP IS $P_E$ = 0.34". THIS CAN BE ACHIEVED BY A 40' DISCONNECTION OF ROOFTOP RUNOFF LENGTH.

A-2. PERMEABLE PAVEMENTS

**CONSTRUCTION CRITERIA:**

THE FOLLOWING ITEMS SHOULD BE ADDRESSED DURING CONSTRUCTION OF PROJECTS WITH PERMEABLE PAVEMENT:

- EROSION AND SEDIMENT CONTROL: FINAL GRADING FOR INSTALLATION SHOULD NOT TAKE PLACE UNTIL THE SURROUNDING SITE IS STABILIZED. IF THIS CANNOT BE ACCOMPLISHED, RUNOFF FROM DISTURBED AREAS SHALL BE DIVERTED AROUND PROPOSED PAVEMENT LOCATIONS.
- SOIL COMPACTION: SUB SOILS SHALL NOT BE COMPACTED. CONSTRUCTION SHOULD BE PERFORMED WITH LIGHTWEIGHT, WIDE TRACKED EQUIPMENT TO MINIMIZE COMPACTION. EXCAVATED MATERIALS SHOULD BE PLACED IN A CONTAINED AREA.
- DISTRIBUTION SYSTEMS: OVERDRAIN, UNDERDRAIN, AND DISTRIBUTION PIPES SHALL BE CHECKED TO ENSURE THAT BOTH THE MATERIAL AND PERFORATIONS MEET SPECIFICATIONS (SEE APPENDIX B. 4). THE UPSTREAM ENDS OF PIPES SHOULD BE CAPPED PRIOR TO INSTALLATION. ALL UNDERDRAIN OR DISTRIBUTION PIPES USED SHOULD BE INSTALLED FLAT ALONG THE BED BOTTOM.
- SUBBASE INSTALLATION: SUBBASE AGGREGATE SHALL BE CLEAN AND FREE OF FINES. THE SUBBASE SHALL BE PLACED IN LIFTS AND LIGHTLY ROLLED ACCORDING TO THE SPECIFICATIONS (SEE APPENDIX B.4).

**INSPECTION:**

REGULAR INSPECTIONS SHALL BE MADE DURING THE FOLLOWING STAGES OF CONSTRUCTION:

- DURING EXCAVATION TO SUB GRADE.
- DURING PLACEMENT AND BACKFILL OF ANY DRAINAGE OR DISTRIBUTION SYSTEM(S).
- DURING PLACEMENT OF THE CRUSHED STONE SUBBASE MATERIAL.
- DURING PLACEMENT OF THE SURFACE MATERIAL.
- UPON COMPLETION OF FINAL GRADING AND ESTABLISHMENT OF PERMANENT STABILIZATION.

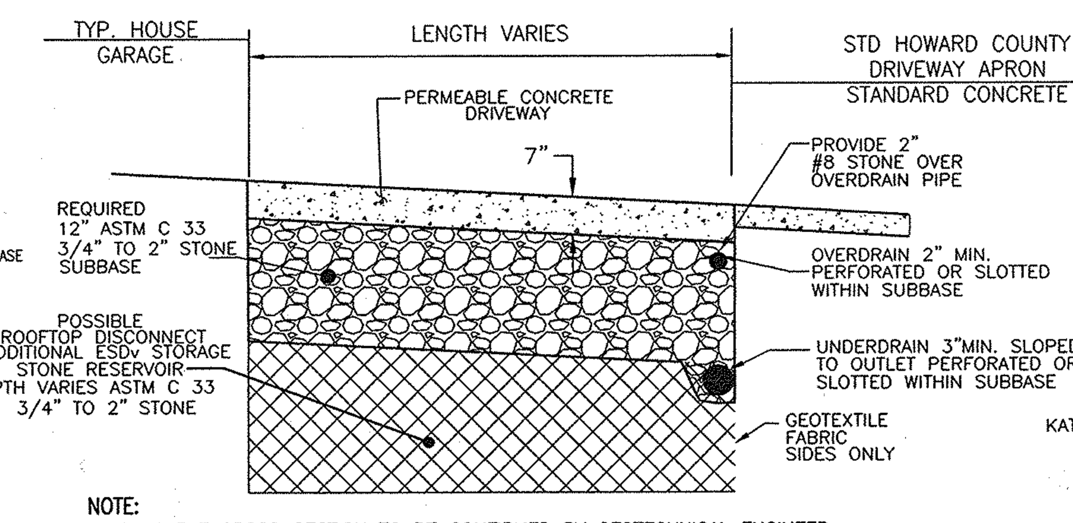
**MAINTENANCE CRITERIA:**

THE FOLLOWING PROCEDURES SHOULD BE CONSIDERED ESSENTIAL FOR MAINTAINING PERMEABLE PAVEMENT SYSTEMS:

- PAVEMENTS SHOULD BE USED ONLY WHERE REGULAR MAINTENANCE CAN BE PERFORMED. MAINTENANCE AGREEMENTS SHOULD CLEARLY SPECIFY HOW TO CONDUCT ROUTINE TASKS TO ENSURE LONG-TERM PERFORMANCE.
- PAVEMENT SURFACES SHOULD BE SWEPT AND VACUUMED TO REDUCE SEDIMENT ACCUMULATION AND ENSURE CONTINUED SURFACE POROSITY. SWEEPING SHOULD BE PERFORMED AT LEAST TWICE ANNUALLY WITH A COMMERCIAL CLEANING UNIT. WASHING SYSTEMS AND COMPRESSED AIR UNITS SHOULD NOT BE USED TO PERFORM SURFACE CLEANING.
- DRAINAGE PIPES, INLETS, STONE EDGE DRAINS, AND OTHER STRUCTURES WITHIN OR DRAINING TO THE SUBBASE SHOULD BE CLEANED OUT AT REGULAR INTERVALS.
- TRUCKS AND OTHER HEAVY VEHICLES CAN GRIND DIRT AND GRIT INTO THE POROUS SURFACES, LEADING TO CLOGGING AND PREMATURE FAILURE. THESE VEHICLES SHOULD BE PREVENTED FROM TRACKING AND SPILLING MATERIAL ONTO THE PAVEMENT.
- DEICERS SHOULD BE USED IN MODERATION. WHEN USED, DEICERS SHOULD BE NON-TOXIC AND ORGANIC AND CAN BE APPLIED EITHER AS CALCIUM MAGNESIUM ACETATE OR AS PRETREATED SALT. SNOW PLOWING SHOULD BE DONE CAREFULLY WITH BLADES SET ONE-INCH HIGHER THAN NORMAL. PLOWED SNOW PILES AND SNOW MELT SHOULD NOT BE DIRECTED TO PERMEABLE PAVEMENT.

**OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED PERMEABLE PAVEMENT (A-2)**

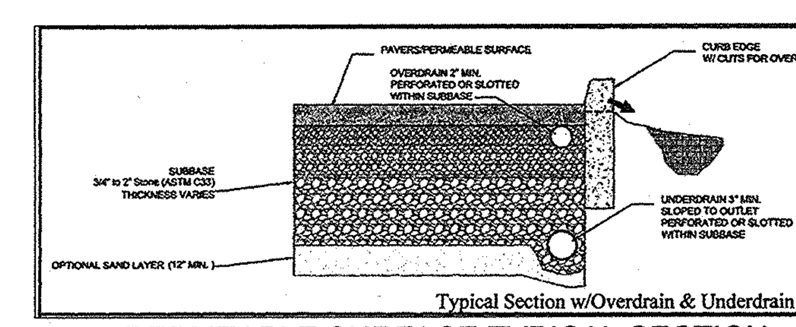
A. THE INDIVIDUAL LOT OWNER SHALL PERIODICALLY SWEEP (OR VACUUM POROUS CONCRETE PAVEMENT) THE PAVEMENT SURFACES TO REDUCE SEDIMENT ACCUMULATION AND ENSURE CONTINUED SURFACE POROSITY. SWEEPING SHOULD BE PERFORMED AT LEAST TWICE ANNUALLY WITH A COMMERCIAL CLEANING UNIT. WASHING OR COMPRESSED AIR UNITS SHOULD NOT BE USED TO PERFORM SURFACE CLEANING.
B. THE INDIVIDUAL LOT OWNER SHALL PERIODICALLY CLEAN DRAINAGE PIPES, INLETS, STONE EDGE DRAINS AND OTHER STRUCTURES WITHIN OR DRAINING TO THE SUBBASE
C. THE INDIVIDUAL LOT OWNER SHALL USE DEICERS IN MODERATION. DEICERS SHOULD BE NON-TOXIC AND BE APPLIED EITHER AS CALCIUM MAGNESIUM ACETATE OR AS PRETREATED SALT.
D. THE INDIVIDUAL LOT OWNER SHALL ENSURE SNOW PLOWING IS PERFORMED CAREFULLY WITH BLADES SET ONE-INCH ABOVE THE SURFACE. PLOWED SNOW PILES AND SNOW MELT SHOULD NOT BE DIRECTED TO PERMEABLE PAVEMENT.




NOTE:
1. PAVEMENT CROSS SECTION TO BE CONFIRMED BY GEOTECHNICAL ENGINEER
2. UNDERDRAIN SHALL BE LOCATED SUCH THAT IT CAN DAYLIGHT TO THE CURB INTO A BIO-RETENTION FACILITY OR TO THE REAR OF THE LOT
3. OVERDRAIN SHALL COMBINE WITH UNDERDRAIN OR DAYLIGHT AS DETAILED FOR UNDERDRAIN, SEE NOTE 2.

### DETAIL - PERMEABLE CONCRETE DRIVEWAY - 5% OR LESS
NOT TO SCALE

ALL PERMEABLE CONCRETE THICKNESS, MIX AND SUB-BASE TO BE DETERMINED BY GEOTECHNICAL ENGINEER ONSITE.

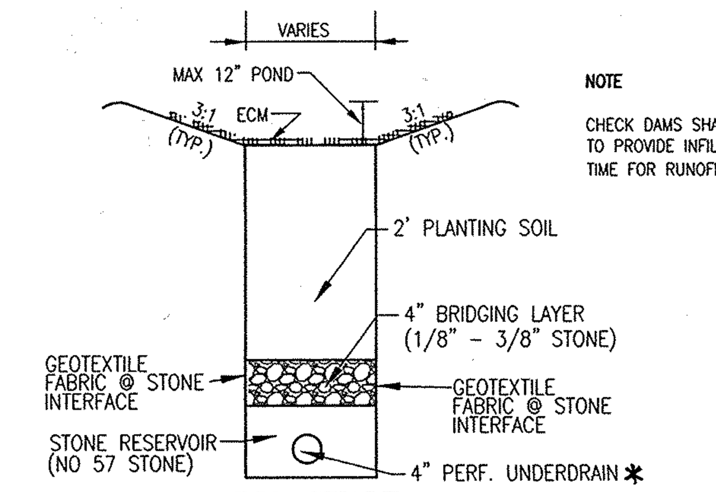



### PERMEABLE SURFACE TYPICAL SECTION
NOT TO SCALE

**[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 disconnect the barrel prior to winter, or allow the barrel to drain by bottom spigot during the winter season.

**BIO-SWALE - PLANTING**
PLANTINGS SHALL CONSIST OF A MIXTURE:
REED CANARY GRASS – PHALARIS ARUNDINACEA
SWITCHGRASS – PANICUM VIRGATUM
MAJESTIC LILY TURF - LIRIOPE MUSCARI 'MAJESTC'
OR EQUAL COMBINATION OF COOL/WARM SEASON GRASSES TOLERANT OF FREQUENT INUNDATION.




**BIO SWALE**
TYPICAL CROSS SECTION
(NOT TO SCALE)

**NOTE**
CHECK DAMS SHALL BE PROVIDED TO PROVIDE INFILTRATION RESONANCE TIME FOR RUNOFF / WATER QUALITY

* 4" SLOTTED RIGID PVC OR HDPE OR PERFORATED SCH 40 PVC WRAPPED W/ 1/4" GALVANIZED HARDWARE CLOTH OR EQUAL MATERIAL SEE APPENDIX B.4.C. DAYLIGHT OR TIE INTO STORM DRAIN STRUCTURE.

20' 0 20' 40' 60'

**OWNER**
KATHY MIESSE, PERSONAL REPRESENTATIVE, ESTATE OF ARTHUR P. KRAESKI
9222 OLD SCAGGSVILLE ROAD
LAUREL, MD 20723-1730
ATTN: MR. DONALD R. REUWER
443-367-0422

**DEVELOPER**
LAND DESIGN & DEVELOPMENT, INC.
5300 DORSEY HALL DRIVE, STE 102
ELLICOTT CITY, MARYLAND 21042-7819
ATTN: MR. DONALD R. REUWER
443-367-0422

| NO. | REVISION | DATE |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| 4 | MODIFY SWM DETAILS | 4/09/15 |
| 2 | REVISE SUBDIVISION NAME | 7/18/14 |

FINAL ROAD CONSTRUCTION PLAN
STORMWATER MANAGEMENT NOTES AND DETAILS

**HIGH RIDGE MEADOWS - SECTION 1**

LOTS 1 - 54, OPEN SPACE LOTS 55 - 68 AND NON-BUILDABLE BULK PARCEL "B"
A SUBDIVISION OF TAX MAP 50 – PARCEL 363
AND A RESUBDIVISION OF TAX MAP 50 – PARCEL 542
KRAESKI PROPERTY NON-BUILDABLE BULK PARCEL "A" (PLAT 21191)

6TH ELECTION DISTRICT – TAX MAP: 50 GRID: 1 — ZONED: R-SC
DPZ REF'S: F-10-065, WP-10-087, ECP-12-047, WP-13-080, SP 13-007 — PARCELS: 363 & 542
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 — PROFESSIONAL ENGINEER
[signature]
ROBERT H. VOGEL, PE No.16193

DESIGN BY: EDS
DRAWN BY: EDS/RVE
CHECKED BY: RHV
DATE: MARCH 2014
SCALE: AS SHOWN
W.O. NO.: 11-28

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: 09-27-2014



F 14-022

# "NORTH AREA 2" SUMMARY - SEE SHEET 23

## DEER SPRINGS - ESDv COMPUTATIONS

Site Computations: Rv = 0.2887
A = 36.94 Acres ESDv = 61940 cuft
Pe = 1.6 inches

Rv=0.05+0.009XI
V min=1.0" rainfall (1.0 x Rv x A)/12
Vmax= 1yr rainfall=2.6" (2.6 x Rv x A)/12

**NORTH AREA # 2 - REQUIRED Pe = 1.6" Provided (Underdrains / Outfall Flows Freely)** * Accounts for 75% Ponding Volume, See Computations

| DA # | % IMPERV | Rv | DA (SF) | DA (AC) | MINIMUM VOLUME | MAXIMUM VOLUME | 1.6" VOLUME | VOLUME PROVIDED* | IMPERV (SF) | IMPERV (AC) | GREEN AREA | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A-1 | 24.65 | 0.2718 | 27100 | 0.62 | 614 | 1596 | 982 | 1054 | 6680 | 0.15 | 0.47 | NON-STRUCTURAL, MICRO SCALE & MICRO BIO |
| A-2 | 53.62 | 0.5326 | 71325 | 1.64 | 3166 | 8231 | 5065 | 5075 | 38246 | 0.88 | 0.76 | NON-STRUCTURAL, MICRO SCALE, ALT. SURFACE & MICRO BIO |
| B | 21.76 | 0.2458 | 22131 | 0.51 | 453 | 1179 | 725 | 747 | 4815 | 0.11 | 0.40 | NON-STRUCTURAL & MICRO SCALE |
| B-1 | 35.85 | 0.3726 | 21345 | 0.49 | 663 | 1723 | 1061 | 1070 | 7652 | 0.18 | 0.31 | NON-STRUCTURAL, ALT. SURFACE & MICRO BIO |
| C | 23.18 | 0.2586 | 44240 | 1.02 | 954 | 2479 | 1526 | 1532 | 10256 | 0.24 | 0.78 | MICRO BIO |
| D-1 | 23.44 | 0.2610 | 33875 | 0.78 | 737 | 1915 | 1179 | 1187 | 7940 | 0.18 | 0.60 | NON-STRUCTURAL, MICRO SCALE & MICRO BIO |
| D-2 | 14.65 | 0.1818 | 16250 | 0.37 | 246 | 640 | 394 | 463 | 2380 | 0.05 | 0.32 | NON-STRUCTURAL, MICRO SCALE & MICRO BIO |
| E | 66.18 | 0.6456 | 7900 | 0.18 | 425 | 1105 | 680 | 682 | 5228 | 0.12 | 0.06 | NON-STRUCTURAL, ALT. SURFACE & MICRO BIO |
| F | 24.55 | 0.2709 | 31000 | 0.71 | 700 | 1820 | 1120 | 1136 | 7610 | 0.17 | 0.54 | ALT SURFACE, & MICRO-BIO RETENTION |
| G | 63.08 | 0.6177 | 28090 | 0.64 | 1446 | 3760 | 2314 | 2340 | 17719 | 0.41 | 0.24 | NON-STRUCTURAL, ALT. SURFACE & MICRO SCALE |
| G-1 | 15.42 | 0.1888 | 5090 | 0.12 | 80 | 208 | 128 | 154 | 785 | 0.02 | 0.10 | NON-STRUCTURAL & MICRO SCALE |
| G-2 | 20.77 | 0.2369 | 3780 | 0.09 | 75 | 194 | 119 | 122 | 785 | 0.02 | 0.07 | NON-STRUCTURAL & MICRO SCALE |
| G-3 | 24.62 | 0.2716 | 10418 | 0.24 | 236 | 613 | 377 | 381 | 2565 | 0.06 | 0.18 | NON-STRUCTURAL & MICRO SCALE |
| | 34.9 | 0.3644 | 322544 | 7.40 | 9794 | 25463 | 15670 | 15943 | 112661 | 2.59 | 4.82 | |

**NORTH TOTALS**

| % IMPERV | Rv | DA (SF) | DA (AC) | MINIMUM VOLUME | MAXIMUM VOLUME | 1.6" VOLUME | VOLUME PROVIDED | IMPERV (SF) | IMPERV (AC) | GREEN AREA |
|---|---|---|---|---|---|---|---|---|---|---|
| 34.9 | 0.3644 | 322544 | 7.40 | 9794 | 25463 | 15670 | 15943 | 112661 | 2.59 | 4.82 |

# "SOUTH AREA" SUMMARY - SEE SHEET 22

## DEER SPRINGS - ESDv COMPUTATIONS

Rv=0.05+0.009XI
V min=1.0" rainfall (1.0 x Rv x A)/12
Vmax= 1yr rainfall=2.6" (2.6 x Rv x A)/12

**SOUTH AREA - REQUIRED Pe = 1.6" Provided (Underdrains / Outfall Flows Freely)** * Accounts for 75% Ponding Volume, See Computations

| DA # | % IMPERV | Rv | DA (SF) | DA (AC) | MINIMUM VOLUME | MAXIMUM VOLUME | 1.6" VOLUME | VOLUME PROVIDED* | IMPERV (SF) | IMPERV (AC) | GREEN AREA | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S-1 | 31.66 | 0.3349 | 16000 | 0.37 | 447 | 1161 | 714 | 728 | 5065 | 0.12 | 0.25 | MICRO BIORETENTION |
| S-2 | 15.11 | 0.1860 | 17665 | 0.41 | 274 | 712 | 438 | 439 | 2670 | 0.06 | 0.34 | MICRO BIORETENTION |
| S-3A | 69.40 | 0.6746 | 8365 | 0.19 | 470 | 1223 | 752 | 1276 | 5805 | 0.13 | 0.06 | NON-STRUCTURAL, ALT. SURFACE & MICRO BIO |
| S-3B | 63.40 | 0.6206 | 9156 | 0.21 | 474 | 1231 | 758 | 757 | 5805 | 0.13 | 0.08 | NON-STRUCTURAL, ALT. SURFACE & MICRO BIO |
| S-3C | 18.29 | 0.2146 | 14000 | 0.32 | 250 | 651 | 401 | 505 | 2560 | 0.06 | 0.26 | NON-STR & MICROSCALE PRACTICES |
| S-6A | 26.17 | 0.2855 | 3000 | 0.07 | 71 | 186 | 114 | 146 | 785 | 0.02 | 0.05 | NON-STR & MICROSCALE PRACTICES |
| S-6B | 18.34 | 0.2151 | 4280 | 0.10 | 77 | 199 | 123 | 149 | 785 | 0.02 | 0.08 | NON-STR & MICROSCALE PRACTICES |
| S-6C | 16.63 | 0.1997 | 4720 | 0.11 | 79 | 204 | 126 | 150 | 785 | 0.02 | 0.09 | NON-STR & MICROSCALE PRACTICES |
| S-7 | 43.86 | 0.4447 | 24780 | 0.57 | 918 | 2388 | 1469 | 1472 | 10868 | 0.25 | 0.32 | NON-STRUCTURAL, MICRO SCALE, ALT. SURFACE & MICRO BIO |
| S-8 | 47.79 | 0.4801 | 15772 | 0.36 | 631 | 1641 | 1010 | 1013 | 7537 | 0.17 | 0.19 | NON-STRUCTURAL, ALT SURFACE & MICRO BIORETENTION |
| S-9 | 47.69 | 0.4792 | 29660 | 0.68 | 1185 | 3080 | 1895 | 1928 | 14146 | 0.32 | 0.36 | NON-STRUCTURAL, ALT. SURFACE & MICRO BIO |
| S-10 | 53.35 | 0.5301 | 12600 | 0.29 | 557 | 1447 | 891 | 932 | 6722 | 0.15 | 0.13 | NON-STRUCTURAL, MICRO SCALE, ALT. SURFACE & MICRO BIO |
| S-11 | 14.54 | 0.1809 | 20422 | 0.47 | 308 | 800 | 493 | 503 | 2970 | 0.07 | 0.40 | NON-STRUCTURAL, MICRO SCALE & MICRO BIO |
| S-12 | 64.06 | 0.6265 | 13200 | 0.30 | 689 | 1792 | 1103 | 1108 | 8456 | 0.19 | 0.11 | NON-STRUCTURAL, ALT SURFACE & MICRO BIORETENTION |
| S-13 | 26.75 | 0.2908 | 30520 | 0.70 | 740 | 1923 | 1183 | 1188 | 8165 | 0.19 | 0.51 | NON-STRUCTURAL, MICRO SCALE & MICRO BIO |
| S-13A | 38.89 | 0.4000 | 27540 | 0.63 | 918 | 2387 | 1469 | 1470 | 10710 | 0.25 | 0.39 | NON-STRUCTURAL, MICRO SCALE & MICRO BIO |
| S-13B | 6.55 | 0.1089 | 7563 | 0.17 | 69 | 178 | 110 | 116 | 495 | 0.01 | 0.16 | NON-STR & MICROSCALE PRACTICES |
| S-13C | 30.74 | 0.3267 | 27590 | 0.63 | 751 | 1953 | 1202 | 1211 | 8481 | 0.19 | 0.44 | MICRO BIORETENTION |
| S-13D | 52.36 | 0.5213 | 14800 | 0.34 | 643 | 1672 | 1029 | 1058 | 7750 | 0.18 | 0.16 | MICRO BIORETENTION |
| S-14 | 56.32 | 0.5568 | 12650 | 0.29 | 587 | 1526 | 939 | 1042 | 7124 | 0.16 | 0.13 | NON-STR, ALT SURFACES & MICRO BIO |
| S-14A | 6.97 | 0.1127 | 6384 | 0.15 | 60 | 156 | 96 | 110 | 445 | 0.01 | 0.14 | NON-STR & MICROSCALE PRACTICES |
| S-14B | 4.46 | 0.0901 | 9985 | 0.23 | 75 | 195 | 120 | 120 | 445 | 0.01 | 0.22 | NON-STR & MICROSCALE PRACTICES |
| S-14C | 5.48 | 0.0994 | 8115 | 0.19 | 67 | 175 | 108 | 112 | 445 | 0.01 | 0.18 | NON-STR & MICROSCALE PRACTICES |
| S-14D | 5.63 | 0.1006 | 7910 | 0.18 | 66 | 172 | 106 | 115 | 445 | 0.01 | 0.17 | NON-STR & MICROSCALE PRACTICES |
| S-15 | 23.05 | 0.2574 | 13625 | 0.31 | 292 | 760 | 468 | 495 | 3140 | 0.07 | 0.24 | NON-STR & MICRO BIORETENTION |
| S-16 | 31.19 | 0.3307 | 21800 | 0.50 | 601 | 1562 | 961 | 1100 | 6800 | 0.16 | 0.34 | MICRO SCALE PRACTICE - BIOSWALE |
| S-17 | 57.07 | 0.5637 | 23960 | 0.55 | 1125 | 2926 | 1801 | 1815 | 13675 | 0.31 | 0.24 | ALT SURFACES & MICRO BIORETENTION |
| S-17A | 22.01 | 0.2481 | 7133 | 0.16 | 147 | 383 | 236 | 236 | 1570 | 0.04 | 0.13 | NON-STR & MICROSCALE PRACTICES |
| S-17B | 18.02 | 0.2122 | 4356 | 0.10 | 77 | 200 | 123 | 123 | 785 | 0.02 | 0.08 | NON-STR & MICROSCALE PRACTICES |
| S-17C | 15.15 | 0.1863 | 6535 | 0.15 | 101 | 264 | 162 | 179 | 990 | 0.02 | 0.13 | NON-STR & MICROSCALE PRACTICES |
| S-18 | 36.52 | 0.3787 | 28085 | 0.64 | 886 | 2305 | 1418 | 1422 | 10258 | 0.24 | 0.41 | NON-STRUCTURAL, MICRO SCALE, ALT. SURFACE & MICRO BIO |
| S-19 | 40.51 | 0.4146 | 15000 | 0.34 | 518 | 1347 | 829 | 830 | 6076 | 0.14 | 0.20 | NON-STR, ALT SURFACES & MICRO BIORETENTION |

**SOUTH TOTALS**

| % IMPERV | Rv | DA (SF) | DA (AC) | MINIMUM VOLUME | MAXIMUM VOLUME | 1.6" VOLUME | VOLUME PROVIDED* | IMPERV (SF) | IMPERV (AC) | GREEN AREA |
|---|---|---|---|---|---|---|---|---|---|---|
| 34.8 | 0.3636 | 467171 | 10.72 | 14153 | 36799 | 22645 | 23848 | 162758 | 3.74 | 6.99 |

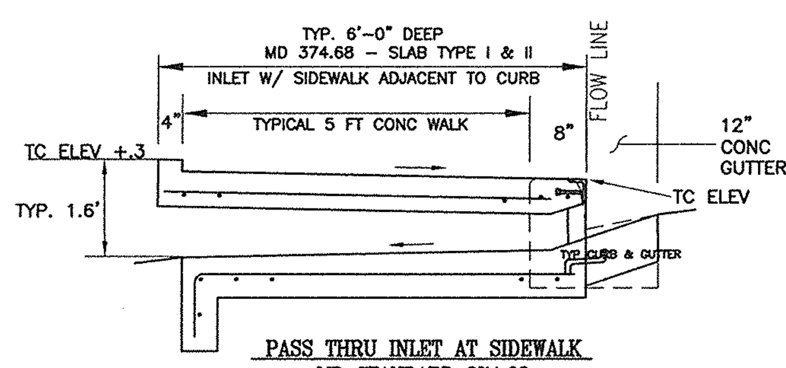
**SECTION ONE - PROJECT TOTALS**

| % IMPERV | Rv | DA (SF) | DA (AC) | MINIMUM VOLUME | MAXIMUM VOLUME | 1.6" VOLUME | VOLUME PROVIDED* | IMPERV (SF) | IMPERV (AC) | GREEN AREA |
|---|---|---|---|---|---|---|---|---|---|---|
| 34.9 | 0.3639 | 789715 | 18.13 | 23947 | 62262 | 38315 | 39791 | 275419 | 6.32 | 11.81 |

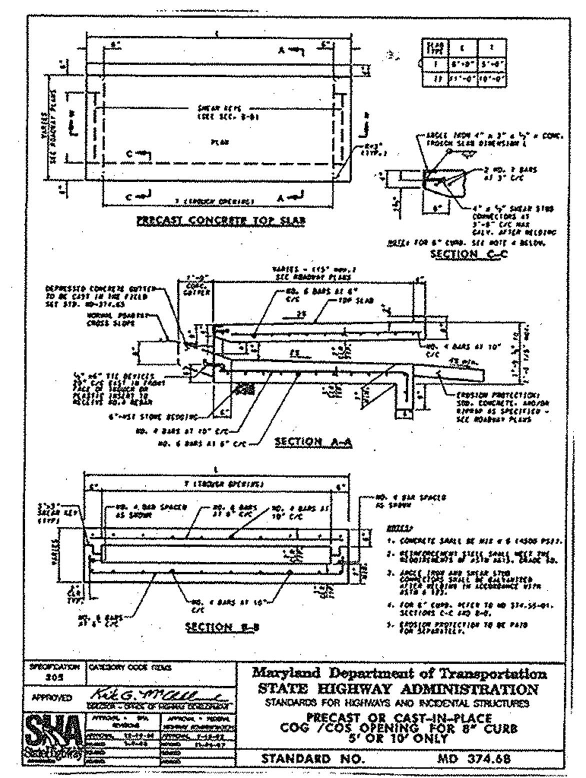
## MICRO-BIORETENTION FACILITY - DESIGN ELEVATION CHART

| MBR FACILITY # | ESD WSEL A | TOP MULCH B | BOTTOM PLANT SOIL C | INV STONE D | SURFACE AREA SF | APPROX DIM | MBR TYPE Sht 23 |
|---|---|---|---|---|---|---|---|
| SOUTH AREA | | | | | | | |
| 1 | 288.00 | 287.00 | 284.75 | 283.42 | 700 | SEE PLAN | 2 |
| 2 | 275.71 | 274.71 | 272.46 | 271.13 | 330 | SEE PLAN | 2 |
| 3 | 292.40 | 291.40 | 289.15 | 287.82 | 910 | SEE PLAN | 1 |
| 7 | 296.60 | 295.60 | 293.35 | 292.02 | 760 | SEE PLAN | 1 |
| 8 | 296.60 | 295.60 | 293.35 | 292.02 | 585 | SEE PLAN | 1 |
| 9 | 298.00 | 297.00 | 294.75 | 293.42 | 1200 | SEE PLAN | 2 |
| 10 | 300.20 | 299.20 | 296.95 | 295.62 | 290 | SEE PLAN | 1 |
| 11 | 293.00 | 292.00 | 289.75 | 288.42 | 300 | SEE PLAN | 2 |
| 12 | 306.00 | 305.00 | 302.75 | 301.42 | 900 | SEE PLAN | 1 |
| 13 | 303.00 | 302.00 | 299.75 | 298.42 | 730 | SEE PLAN | 1 |
| 13A | 307.00 | 306.00 | 303.75 | 302.42 | 1555 | SEE PLAN | 2 |
| 13D | 309.65 | 308.65 | 306.40 | 305.07 | 1155 | SEE PLAN | 1 |
| 14 | 305.00 | 304.00 | 301.75 | 300.42 | 525 | SEE PLAN | 1 |
| 15 | 303.00 | 302.00 | 299.75 | 298.42 | 350 | SEE PLAN | 2 |
| 17 | 294.00 | 293.00 | 290.75 | 289.42 | 1010 | SEE PLAN | 2 |
| 18 | 286.70 | 285.70 | 283.45 | 282.12 | 885 | SEE PLAN | 2 |
| 19 | 302.80 | 301.80 | 299.55 | 298.22 | 500 | SEE PLAN | 3 |
| NORTH AREA | | | | | | | |
| A1 | 315.00 | 314.00 | 311.75 | 310.42 | 470 | SEE PLAN | 2 |
| A2 | 313.00 | 312.00 | 309.75 | 308.42 | 2160 | SEE PLAN | 2 |
| B1 | 319.50 | 318.50 | 316.25 | 314.92 | 640 | SEE PLAN | 2 |
| C | 311.00 | 310.00 | 307.75 | 306.42 | 1150 | SEE PLAN | 1 |
| D1 | 307.00 | 306.00 | 303.75 | 302.42 | 710 | SEE PLAN | 1 |
| D2 | 306.00 | 305.00 | 302.75 | 301.42 | 300 | SEE PLAN | 1 |
| E | 317.00 | 316.00 | 313.75 | 312.42 | 400 | SEE PLAN | 1 |
| F | 297.00 | 296.00 | 293.75 | 292.42 | 750 | SEE PLAN | 2 |

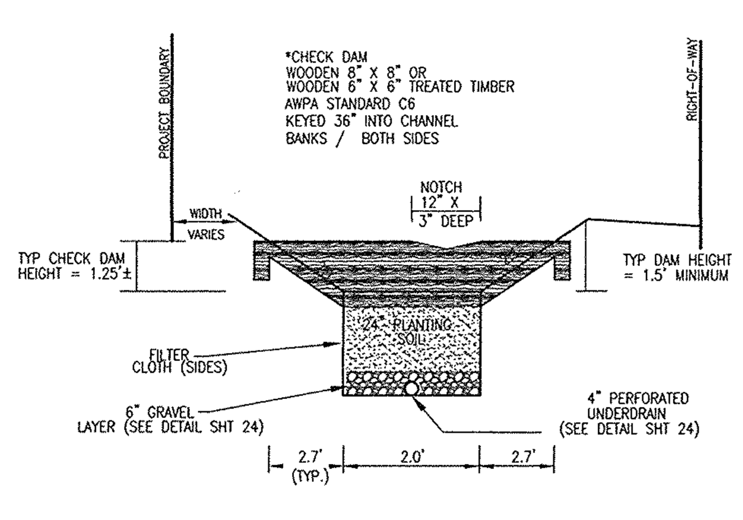
REFER TO SHEET 26 FOR PLANTING NOTES, DETAIL AND SCHEDULES




PASS THRU INLET AT SIDEWALK
MD STANDARD 374.68
(NOT TO SCALE)



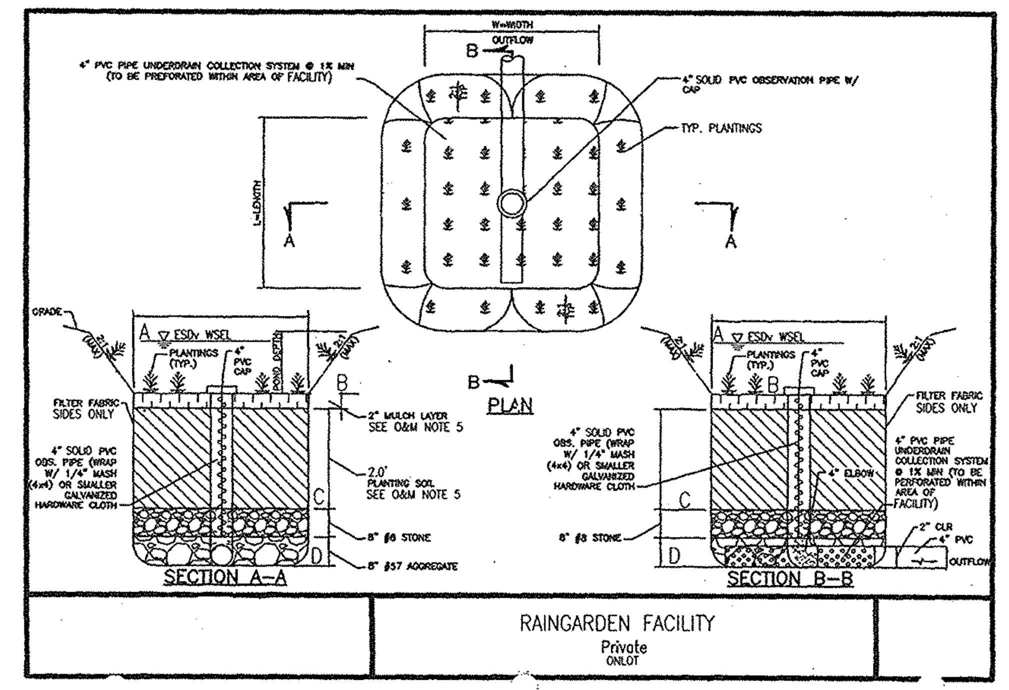

TYPICAL CURB OPENING INLETS




**BIO-SWALE**
**6" X 6" CHECK DAM**
TYPICAL CROSS SECTION
(NOT TO SCALE)
(SEE DETAIL SHT 24)

## ONLOT STORMWATER MANAGEMENT PRACTICES

| Lot | M-7 Rain Garden | M-5 Drywell | M-1 Rain Barrel | N-1 15' Disconnect | N-1 30' Disconnect | N-1 45' Disconnect | A-2 Perm. Surface Drive |
|---|---|---|---|---|---|---|---|
| Lot 1 | | 1 | 1 | | 1 | | 1 |
| Lot 2 | | 1 | 1 | | 1 | | 1 |
| Lot 3 | | | 1 | 1 | | 1 | 1 |
| Lot 4 | | 1 | 1 | 1 | | 2 | 1 |
| Lot 5 | | | 1 | 1 | | 2 | 1 |
| Lot 6 | | | 1 | 1 | 2 | | 1 |
| Lot 7 | 1 | | 1 | 2 | 1 | | 1 |
| Lot 8 | 1 | | 1 | 3 | 1 | | 1 |
| Lot 9 | 1 | | | 1 | 1 | 1 | 1 |
| Lot 10 | 1 | | | 2 | 1 | 1 | 1 |
| Lot 11 | 1 | | | 1 | | 2 | 1 |
| Lot 12 | | | | 2 | 1 | | 1 |
| Lot 13 | 1 | | 1 | | 2 | | 1 |
| Lot 14 | 1 | | 1 | | 1 | | 1 |
| Lot 15 | 1 | | 1 | | 1 | | 1 |
| Lot 16 | 1 | | 1 | 1 | 1 | | 1 |
| Lot 17 | | | 1 | 3 | | | 1 |
| Lot 18 | | | 1 | 3 | | | 1 |
| Lot 19 | | | 1 | 3 | | | 1 |
| Lot 20 | | | 1 | 3 | | | 1 |
| Lot 21 | | | 1 | 3 | | | 1 |
| Lot 22 | | | | 2 | | | 1 |
| Lot 23 | | | | 2 | | | 1 |
| Lot 24 | | 2 | | 1 | | | 1 |
| Lot 25 | | 1 | | 2 | | | 1 |
| Lot 26 | 1 | | | 2 | 1 | | 1 |
| Lot 27 | 1 | | | 2 | 1 | | 1 |
| Lot 28 | 1 | | | 2 | 1 | | 1 |
| Lot 29 | | | | 2 | | | 1 |
| Lot 30 | | | | 2 | | | 1 |
| Lot 31 | | | | 2 | | | 1 |
| Lot 32 | | | 1 | | 1 | | 1 |
| Lot 33 | | | 1 | 3 | | | 1 |
| Lot 34 | | | 1 | | 2 | | 1 |
| Lot 35 | | | 1 | | 2 | | 1 |
| Lot 36 | | | 1 | | | 2 | 1 |
| Lot 37 | | | 1 | | | 1 | 1 |
| Lot 38 | | 1 | 1 | 2 | | | 1 |
| Lot 39 | | 2 | | 1 | | | 1 |
| Lot 40 | | 2 | | 1 | | | 1 |
| Lot 41 | | 2 | | 1 | | | 1 |
| Lot 42 | | 2 | | 1 | | | 1 |
| Lot 43 | | 1 | 1 | | 2 | | 1 |
| Lot 44 | | 1 | 1 | | 2 | | 1 |
| Lot 45 | | 1 | 1 | | 2 | | 1 |
| Lot 46 | | | 1 | | 2 | | 1 |
| Lot 47 | | | 1 | | 2 | | 1 |
| Lot 48 | | | 1 | | 2 | | 1 |
| Lot 49 | | | 1 | 3 | | | 1 |
| Lot 50 | 1 | 1 | 1 | 2 | 1 | | 1 |
| Lot 51 | | | | | | | 1 |
| Lot 52 | | | | 1 | | | 1 |
| Lot 53 | | | 1 | | 1 | | 1 |
| Lot 54 | | | 1 | | 1 | | 1 |




## ON-LOT RAINGARDEN - DESIGN ELEVATION CHART

| RG FACILITY Lot # | ESD WSEL A | TOP MULCH B | BOTTOM PLANT SOIL C | INV STONE D | SURFACE AREA SF |
|---|---|---|---|---|---|
| SOUTH AREA | | | | | |
| 7 | 307.00 | 306.00 | 303.75 | 302.42 | 50 |
| 8 | 307.00 | 306.00 | 303.75 | 302.42 | 50 |
| 9 | 308.50 | 307.50 | 305.25 | 303.92 | 55 |
| 10 | 310.00 | 309.00 | 306.75 | 305.42 | 60 |
| 11 | 310.00 | 309.00 | 306.75 | 305.42 | 50 |
| 13 | 305.00 | 304.00 | 301.75 | 300.42 | 50 |
| 14 | 299.00 | 298.00 | 295.75 | 294.42 | 50 |
| 15 | 297.00 | 296.00 | 293.75 | 292.42 | 60 |
| 16 | 294.00 | 293.00 | 290.75 | 289.42 | 100 |
| 26 | 294.00 | 293.00 | 290.75 | 289.42 | 100 |
| 27 | 294.00 | 293.00 | 290.75 | 289.42 | 100 |
| 28 | 288.00 | 287.00 | 284.75 | 283.42 | 100 |
| NORTH AREA | | | | | |
| 49 | 301.00 | 300.00 | 297.75 | 296.42 | 60 |

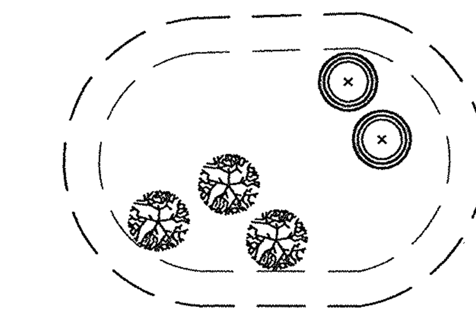
### OPERATION AND MAINTENANCE SCHEDULE FOR RAIN GARDEN AREAS

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.
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 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 WITH A MINIMUM OF ONCE PER MONTH AND AFTER HEAVY STORM EVENTS.

## ON-LOT RAINGARDEN - PLANTING SCHEDULE

| RG FACILITY Lot # | SURFACE AREA | REQUIRED PLANTINGS | PROPOSED PLANTINGS |
|---|---|---|---|
| SOUTH AREA | | | |
| 7 | 50 | 1 | 2 GLACIER OR WHITE ROSEBUD HYBRID AZALEA |
| 8 | 50 | 1 | 2 GLACIER OR WHITE ROSEBUD HYBRID AZALEA |
| 9 | 55 | 2 | 2 GLACIER OR WHITE ROSEBUD HYBRID AZALEA, 2 MOUNTAIN LAUREL |
| 10 | 60 | 2 | 2 GLACIER OR WHITE ROSEBUD HYBRID AZALEA, 2 MOUNTAIN LAUREL |
| 11 | 50 | 1 | 2 GLACIER OR WHITE ROSEBUD HYBRID AZALEA |
| 13 | 50 | 1 | 2 GLACIER OR WHITE ROSEBUD HYBRID AZALEA |
| 14 | 50 | 1 | 2 GLACIER OR WHITE ROSEBUD HYBRID AZALEA |
| 15 | 60 | 2 | 2 GLACIER OR WHITE ROSEBUD HYBRID AZALEA, 2 MOUNTAIN LAUREL |
| 16 | 100 | 2 | 2 GLACIER OR WHITE ROSEBUD HYBRID AZALEA, 2 MOUNTAIN LAUREL |
| 26 | 100 | 2 | 2 GLACIER OR WHITE ROSEBUD HYBRID AZALEA, 2 MOUNTAIN LAUREL |
| 27 | 100 | 2 | 2 GLACIER OR WHITE ROSEBUD HYBRID AZALEA, 2 MOUNTAIN LAUREL |
| 28 | 100 | 2 | 2 GLACIER OR WHITE ROSEBUD HYBRID AZALEA, 2 MOUNTAIN LAUREL |
| NORTH AREA | | | |
| 49 | 60 | 2 | 2 GLACIER OR WHITE ROSEBUD HYBRID AZALEA, 2 MOUNTAIN LAUREL |

1. RG # REFERS TO PROPOSED LOT NUMBER FOR LOCATION
2. TYP. 100 SF X 75% X .0229 STEMS PER SQUARE FOOT = 2 PLANTS



TYPICAL PLANTING DETAIL FOR RAINGARDENS
NTS

### ONLOT RAINGARDEN PLANTING SCHEDULE

| | QTY | BOTANICAL NAME/COMMON NAME | SIZE | REMARKS |
|---|---|---|---|---|
| ⊙ | 16 | KALMIA LATIFOLIA MOUNTAIN LAUREL | 5 GALLON | CONT |
| ⊛ | 26 | RHODODENDRON HY. 'GLACIER' OR 'WHITE ROSEBUD' GLACIER OR WHITE ROSEBUD HYBRID AZALEA | 3 GALLON | CONT |

TYP. 100 SF X 75% X .0229 STEMS PER SQUARE FOOT = 2 PLANTS
FILTER AREA SHALL BE 50% COVERED BY PLANTINGS AT FULL GROWTH

**Deer Springs**
**HCEA Project No. 12324A**

**Table 1. Auger Probe Summary**

| Boring | Surface Elevation | Boring Depth Proposed | Boring Depth Drilled | At Completion Water (ft) | At Completion Cave-In (ft) |
|---|---|---|---|---|---|
| SWM-1 | 304 | 14 | 14 | Dry | 8.0 |
| SWM-1A | 309 | 15 | 15 | Dry | 8.0 |
| SWM-2 | 304 | 16 | 16 | Dry | 8.5 |
| SWM-3 | 302 | 17 | 17 | Dry | 8.4 |
| SWM-4 | 304 | 19 | 19 | Dry | --- |
| SWM-5 | 296 | 11 | 11 | Dry | 5.3 |
| SWM-6 | 282 | 5 | 5 | Dry | 2.6 |
| SWM-7 | 276 | 11.5 | 11.5 | Dry | 7.0 |
| SWM-8 | 272 | 11.5 | 11.5 | Dry | 7.0 |
| SWM-9 | 273 | 13 | 14 | Dry | 8.0 |
| SWM-10 | 277 | 11 | 11 | Dry | 7.3 |
| SWM-10.5 | 288 | 5 | 5 | Dry | 2.5 |
| SWM-11 | 292 | 13 | 13 | Dry | 7.0 |
| SWM-12 | 308.5 | 23.5 | 24.5 | Dry | 13.3 |
| SWM-13 | 310 | 21 | 21 | Dry | 13.6 |
| SWM-14 | 298 | 18 | 18 | Dry | 11.3 |
| SWM-15 | 298 | 13 | 13 | Dry | 9.0 |
| SWM-16 | 292 | 16 | 16 | Dry | 12.0 |
| SWM-17 | 302 | 9 | 5.5/9 | Dry | 4.4 |
| SWM-18 | 303 | 15 | 15 | Dry | 10.0 |
| SWM-19 | 304 | 9 | 9 | Dry | 4.8 |
| SWM-20 | 312 | 13 | 13 | Dry | 7.8 |
| SWM-21 | 313 | 13 | 13 | Dry | 8.0 |
| SWM-22 | 306 | 12.5 | 12.5 | Dry | 10.0 |
| SWM-23 | 301 | 14 | 14 | Dry | 10.0 |
| SWM-24 | 289.5 | 11 | 11 | Dry | 6.8 |
| SWM-25 | 290.5 | 16.5 | 16.5 | Dry | 11.0 |
| SWM-26 | 296.5 | 16.5 | 16.5 | Dry | 12.5 |
| SWM-27 | 297 | 12 | 13 | Dry | 7.0 |
| SWM-28 | 307 | 14 | 14 | Dry | 9.0 |
| SWM-29 | 308 | 13 | 13 | Dry | 6.0 |
| SWM-30 | 312 | 13 | 13 | Dry | 12.5 |
| SWM-31 | 314 | 12 | 12 | Dry | 8.7 |
| SWM-32 | 317.5 | 12.5 | 12 | Dry | 8.3 |
| SWM-33 | 323 | 17.5 | 17.5 | Dry | 13.0 |
| SWM-34 | 326 | 16 | 16 | Dry | 11.0 |
| SWM-35 | 321 | 15 | 15 | Dry | 11.3 |
| SWM-36 | 330 | 18 | 18 | Dry | 12.0 |

**Deer Springs**
**HCEA Project No. 12324A**

**Table 1. Auger Probe Summary**

| Boring | Surface Elevation | Boring Depth Proposed | Boring Depth Drilled | At Completion Water (ft) | At Completion Cave-In (ft) | |
|---|---|---|---|---|---|---|
| SWM-37 | 332 | 18 | 18 | Dry | 17.2 | |
| SWM-38 | 330.5 | 18.5 | 18.5 | Dry | 17.3 | |
| SWM-39 | 333 | 16 | 16 | Dry | 15.0 | |
| SWM-40 | 337.4 | 13.5 | 13 | Dry | 12.0 | |
| SWM-41 | 330 | 15 | 15 | Dry | 9.5 | SEC 2 |
| SWM-42 | 324 | 16 | 16 | Dry | 8.0 | SEC 2 |
| SWM-43 | 330 | 17 | 17 | Dry | 13.0 | SEC 2 |
| SWM-44 | 324 | 15 | 15 | Dry | 10.0 | SEC 2 |
| SWM-45 | 308 | 11 | 11 | Dry | 6.0 | SEC 2 |
| SWM-46 | 306 | 14 | 14 | Dry | 6.0 | SEC 2 |
| SWM-48 | 296 | 18 | 18 | 5.0 | 7.0 | SEC 2 |
| SWM-49 | 294 | 16 | 16 | Dry | 10.0 | SEC 2 |
| SWM-50 | 324 | 18 | 18 | Dry | 13.0 | SEC 2 |
| SWM-51 | 318 | 12 | 13 | Dry | 8.2 | SEC 2 |
| SWM-52 | 306 | 13 | 13 | Dry | 9.0 | SEC 2 |
| SWM-53 | 322 | 14 | 14 | Dry | 10.3 | SEC 2 |
| SWM-54 | 301 | 14 | 14 | Dry | 8.0 | SEC 2 |
| SWM-55 | 320 | 14 | 14 | Dry | 11.5 | SEC 2 |
| SWM-56 | 314 | 14 | 14 | Dry | 7.0 | |
| SWM-57 | 301.5 | 11.5 | 11.5 | Dry | 7.0 | |
| SWM-57A | 296.5 | 9.5 | 9.5 | Dry | 6.0 | |
| SWM-57B | 303.4 | 12.9 | 12.9 | Dry | 8.3 | |
| SWM-58 | 308 | 12 | 12 | Dry | 8.6 | SEC 2 |
| SWM-59 | 308 | 12 | 12 | Dry | 8.5 | SEC 2 |
| SWM-60 | 303 | 15 | 15 | Dry | 11.6 | SEC 2 |
| SWM-61 | 297 | 14 | 14 | Dry | 10.8 | SEC 2 |
| SWM-62 | 300 | 6 | 6 | Dry | 3.3 | SEC 2 |
| SWM-63 | 298 | 10 | 10 | 6.8 | 7.3 | SEC 2 |
| SWM-64 | 293.5 | 14.5 | 14.5 | Dry | 10.5 | SEC 2 |
| SWM-65 | 291 | 13 | 13 | Dry | 8.8 | SEC 2 |
| SWM-66 | --- | 20 | 20 | Dry | 11.3 | SEC 2 |

* - Probe refused at 5.5 ft. Offset 5 ft and augered to proposed depth.

▨ - Auger Refusal encountered at depth shallower than proposed

STORMWATER MANAGEMENT TEST PIT DATA
HILLIS-CARNES ENGINEERING ASSOCIATES, INC. 9/12

APPROVED: DEPARTMENT OF PUBLIC WORKS

[signature] 5-6-14
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

[signature] 5.9.14
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

[signature] 5-12-14
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

**OWNER**
KATHY MIESSE, PERSONAL REPRESENTATIVE,
ESTATE OF ARTHUR P. KRAESKI
9222 OLD SCAGGSVILLE ROAD
LAUREL, MD 20723-1730
ATTN: MR. DONALD R. REUWER
443-367-0422

**DEVELOPER**
LAND DESIGN & DEVELOPMENT, INC.
5300 DORSEY HALL DRIVE, STE 102
ELLICOTT CITY, MARYLAND 21042-7819
ATTN: MR. DONALD R. REUWER
443-367-0422

| NO. | REVISION | DATE |
|---|---|---|
| 2 | REVISE SUBDIVISION NAME | 7/18/14 |

FINAL ROAD CONSTRUCTION PLAN

STORMWATER MANAGEMENT - NOTES & DETAILS

*HIGH RIDGE MEADOWS - SECTION I*

LOTS 1 - 54, OPEN SPACE LOTS 55 - 68
AND NON-BUILDABLE BULK PARCEL "B"
A SUBDIVISION OF TAX MAP 50 – PARCEL 363
AND A RESUBDIVISION OF TAX MAP 50 – PARCEL 542
KRAESKI PROPERTY NON-BUILDABLE BULK PARCEL "A" (PLAT 21191)

6TH ELECTION DISTRICT – TAX MAP: 50 GRID: 1
DPZ REF'S: F-10-065, WP-10-087, ECP-12-047,
WP-13-080, SP 13-007
ZONED: R-SC
PARCELS: 363 & 542
HOWARD COUNTY, MARYLAND


ROBERT H. VOGEL ENGINEERING, INC.
ENGINEERS • SURVEYORS • PLANNERS
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STATE OF MARYLAND ROBERT HARRIS VOGEL No. 16193 PROFESSIONAL ENGINEER
ROBERT H. VOGEL, PE No.16193

DESIGN BY: EDS
DRAWN BY: EDS/RVE
CHECKED BY: RHV
DATE: MARCH 2014
SCALE: AS SHOWN
W.O. NO.: 11-28

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: 09-27-2014



F 14-022

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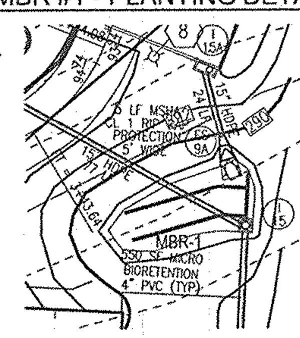
## "MICRO-BIORETENTION" PLANTING SCHEDULE NOTES:

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 ESDv SUMMARY.
6. FILTER AREA SHALL BE 50% COVERED BY PLANTINGS AT FULL GROWTH

### MBR #1 - PLANTING DETAIL:

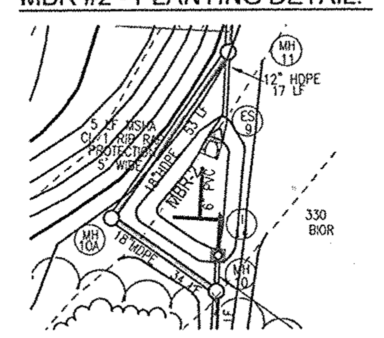


MICRO-BIORETENTION #1 PLANTING SCHEDULE

| SYMBOL | QTY | BOTANICAL NAME/COMMON NAME | SIZE | REMARKS |
|---|---|---|---|---|
| | 6 | VIBURNUM TRILOBUM AMERICAN HIGHBUSH CRANBERRY | 5 GALLON | CONT |
| | 4 | ILEX GLABRA INKBERRY | 3 GALLON | CONT |
| | 4 | SPICEBUSH LINDERA BENZOIN | 3 GALLON | CONT |
| | 150 SF | LIRIOPE MUSCARI 'MAJESTIC' MAJESTIC LILY TURF | 2" POT | 1' O.C. |

550 SF X 75% X .0229 STEMS PER SQUARE FOOT = 10 PLANTS REQUIRED
10 PROVIDED

### MBR #2 - PLANTING DETAIL:

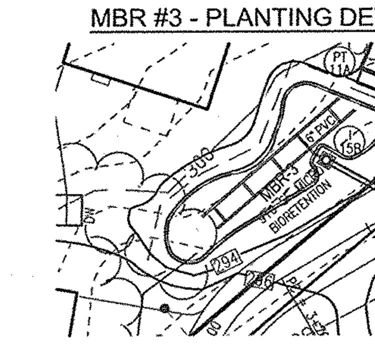


MICRO-BIORETENTION #2 PLANTING SCHEDULE

| SYMBOL | QTY | BOTANICAL NAME/COMMON NAME | SIZE | REMARKS |
|---|---|---|---|---|
| | | | 5 GALLON | CONT |
| | 6 | ILEX GLABRA INKBERRY | 3 GALLON | CONT |
| | | | | |
| | 150 SF | LIRIOPE MUSCARI 'MAJESTIC' MAJESTIC LILY TURF | 2" POT | 1' O.C. |

330 SF X 75% X .0229 STEMS PER SQUARE FOOT = 6 PLANTS REQUIRED
6 PROVIDED

### MBR #3 - PLANTING DETAIL:

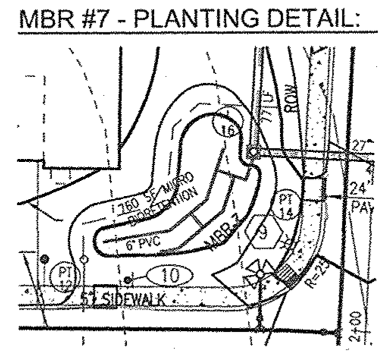


MICRO-BIORETENTION #3 PLANTING SCHEDULE

| SYMBOL | QTY | BOTANICAL NAME/COMMON NAME | SIZE | REMARKS |
|---|---|---|---|---|
| | 8 | VIBURNUM TRILOBUM AMERICAN HIGHBUSH CRANBERRY | 5 GALLON | CONT |
| | 6 | ILEX GLABRA INKBERRY | 3 GALLON | CONT |
| | 6 | SPICEBUSH LINDERA BENZOIN | 3 GALLON | CONT |
| | 300 SF | LIRIOPE MUSCARI 'MAJESTIC' MAJESTIC LILY TURF | 2" POT | 1' O.C. |

910 SF X 75% X .0229 STEMS PER SQUARE FOOT = 16 PLANTS REQUIRED
16 PROVIDED

### MBR #7 - PLANTING DETAIL:

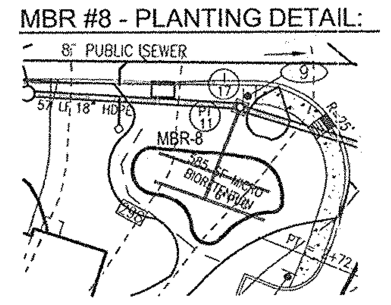


MICRO-BIORETENTION #7 PLANTING SCHEDULE

| SYMBOL | QTY | BOTANICAL NAME/COMMON NAME | SIZE | REMARKS |
|---|---|---|---|---|
| | 10 | VIBURNUM TRILOBUM AMERICAN HIGHBUSH CRANBERRY | 5 GALLON | CONT |
| | | | 5 GALLON | CONT |
| | 10 | SPICEBUSH LINDERA BENZOIN | 3 GALLON | CONT |
| | 150 SF | LIRIOPE MUSCARI 'MAJESTIC' MAJESTIC LILY TURF | 2" POT | 1' O.C. |

760 SF X 75% X .0229 STEMS PER SQUARE FOOT = 13 PLANTS REQUIRED
13 PROVIDED

### MBR #8 - PLANTING DETAIL:

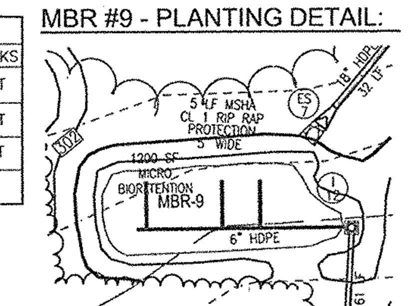


MICRO-BIORETENTION #8 PLANTING SCHEDULE

| SYMBOL | QTY | BOTANICAL NAME/COMMON NAME | SIZE | REMARKS |
|---|---|---|---|---|
| | 8 | VIBURNUM TRILOBUM AMERICAN HIGHBUSH CRANBERRY | 5 GALLON | CONT |
| | 4 | ILEX GLABRA INKBERRY | 3 GALLON | CONT |
| | 8 | SPICEBUSH LINDERA BENZOIN | 3 GALLON | CONT |
| | | | | |

585 SF X 75% X .0229 STEMS PER SQUARE FOOT = 10 PLANTS REQUIRED
10 PROVIDED

### MBR #9 - PLANTING DETAIL:

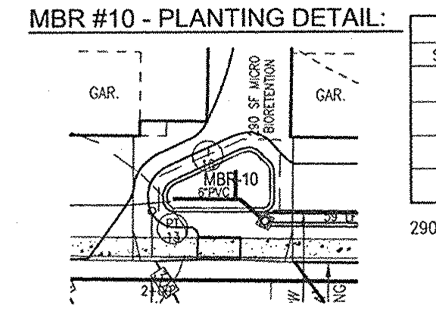


MICRO-BIORETENTION #9 PLANTING SCHEDULE

| SYMBOL | QTY | BOTANICAL NAME/COMMON NAME | SIZE | REMARKS |
|---|---|---|---|---|
| | 10 | VIBURNUM TRILOBUM AMERICAN HIGHBUSH CRANBERRY | 5 GALLON | CONT |
| | 10 | ILEX GLABRA INKBERRY | 3 GALLON | CONT |
| | 4 | SPICEBUSH LINDERA BENZOIN | 3 GALLON | CONT |
| | 450 SF | LIRIOPE MUSCARI 'MAJESTIC' MAJESTIC LILY TURF | 2" POT | 1' O.C. |

1,200 SF X 75% X .0229 STEMS PER SQUARE FOOT = 21 PLANTS REQUIRED
21 PROVIDED

### MBR #10 - PLANTING DETAIL:

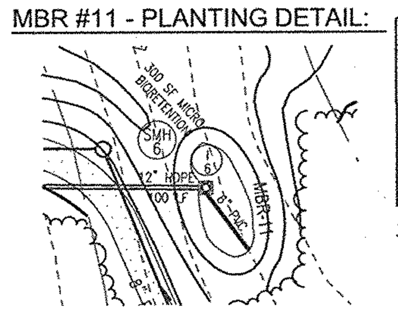


MICRO-BIORETENTION #10 PLANTING SCHEDULE

| SYMBOL | QTY | BOTANICAL NAME/COMMON NAME | SIZE | REMARKS |
|---|---|---|---|---|
| | 4 | VIBURNUM TRILOBUM AMERICAN HIGHBUSH CRANBERRY | 5 GALLON | CONT |
| | 2 | ILEX GLABRA INKBERRY | 3 GALLON | CONT |
| | 4 | SPICEBUSH LINDERA BENZOIN | 3 GALLON | CONT |
| | | | | |

290 SF X 75% X .0229 STEMS PER SQUARE FOOT = 5 PLANTS REQUIRED
5 PROVIDED

### MBR #11 - PLANTING DETAIL:

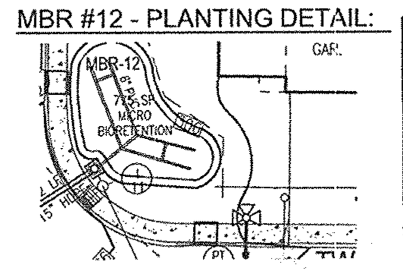


MICRO-BIORETENTION #11 PLANTING SCHEDULE

| SYMBOL | QTY | BOTANICAL NAME/COMMON NAME | SIZE | REMARKS |
|---|---|---|---|---|
| | 4 | VIBURNUM TRILOBUM AMERICAN HIGHBUSH CRANBERRY | 5 GALLON | CONT |
| | 4 | ILEX GLABRA INKBERRY | 3 GALLON | CONT |
| | 4 | SPICEBUSH LINDERA BENZOIN | 3 GALLON | CONT |
| | | | | |

300 SF X 75% X .0229 STEMS PER SQUARE FOOT = 6 PLANTS REQUIRED
6 PROVIDED

### MBR #12 - PLANTING DETAIL:

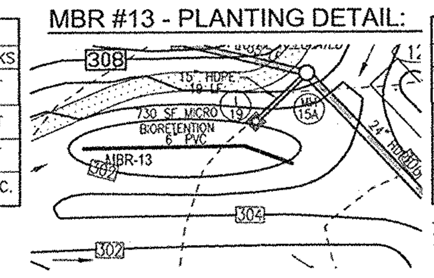


MICRO-BIORETENTION #12 PLANTING SCHEDULE

| SYMBOL | QTY | BOTANICAL NAME/COMMON NAME | SIZE | REMARKS |
|---|---|---|---|---|
| | 10 | VIBURNUM TRILOBUM AMERICAN HIGHBUSH CRANBERRY | 5 GALLON | CONT |
| | 6 | ILEX GLABRA INKBERRY | 3 GALLON | CONT |
| | 10 | SPICEBUSH LINDERA BENZOIN | 3 GALLON | CONT |
| | 150 SF | LIRIOPE MUSCARI 'MAJESTIC' MAJESTIC LILY TURF | 2" POT | 1' O.C. |

900 SF X 75% X .0229 STEMS PER SQUARE FOOT = 16 PLANTS REQUIRED
16 PROVIDED

### MBR #13 - PLANTING DETAIL:

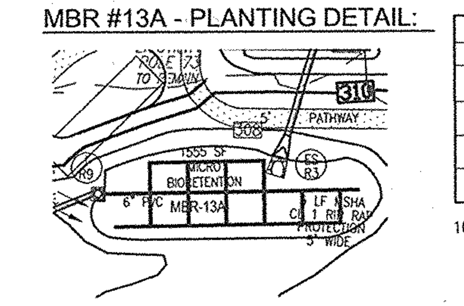


MICRO-BIORETENTION #13 PLANTING SCHEDULE

| SYMBOL | QTY | BOTANICAL NAME/COMMON NAME | SIZE | REMARKS |
|---|---|---|---|---|
| | 4 | VIBURNUM TRILOBUM AMERICAN HIGHBUSH CRANBERRY | 5 GALLON | CONT |
| | 10 | ILEX GLABRA INKBERRY | 3 GALLON | CONT |
| | 6 | SPICEBUSH LINDERA BENZOIN | 3 GALLON | CONT |
| | 150 SF | LIRIOPE MUSCARI 'MAJESTIC' MAJESTIC LILY TURF | 2" POT | 1' O.C. |

730 SF X 75% X .0229 STEMS PER SQUARE FOOT = 13 PLANTS REQUIRED
13 PROVIDED

### MBR #13A - PLANTING DETAIL:

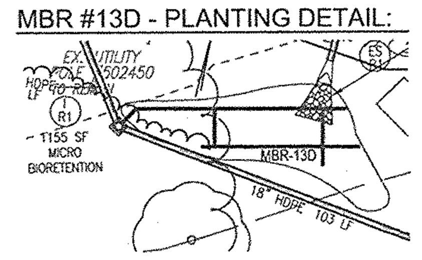


MICRO-BIORETENTION #13A PLANTING SCHEDULE

| SYMBOL | QTY | BOTANICAL NAME/COMMON NAME | SIZE | REMARKS |
|---|---|---|---|---|
| | 10 | VIBURNUM TRILOBUM AMERICAN HIGHBUSH CRANBERRY | 5 GALLON | CONT |
| | 8 | ILEX GLABRA INKBERRY | 3 GALLON | CONT |
| | 10 | SPICEBUSH LINDERA BENZOIN | 3 GALLON | CONT |
| | 200 SF | LIRIOPE MUSCARI 'MAJESTIC' MAJESTIC LILY TURF | 2" POT | 1' O.C. |

1000 SF X 75% X .0229 STEMS PER SQUARE FOOT = 18 PLANTS REQUIRED
18 PROVIDED

### MBR #13D - PLANTING DETAIL:

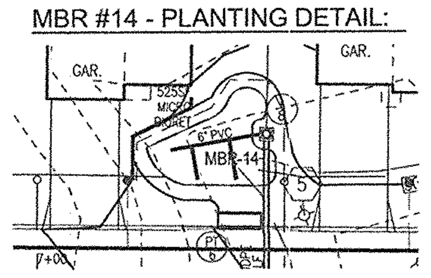


MICRO-BIORETENTION #13D PLANTING SCHEDULE

| SYMBOL | QTY | BOTANICAL NAME/COMMON NAME | SIZE | REMARKS |
|---|---|---|---|---|
| | 6 | VIBURNUM TRILOBUM AMERICAN HIGHBUSH CRANBERRY | 5 GALLON | CONT |
| | 6 | ILEX GLABRA INKBERRY | 5 GALLON | CONT |
| | 10 | SPICEBUSH LINDERA BENZOIN | 3 GALLON | CONT |
| | 150 SF | LIRIOPE MUSCARI 'MAJESTIC' MAJESTIC LILY TURF | 2" POT | 1' O.C. |

800 SF X 75% X .0229 STEMS PER SQUARE FOOT = 14 PLANTS REQUIRED
14 PROVIDED

### MBR #14 - PLANTING DETAIL:

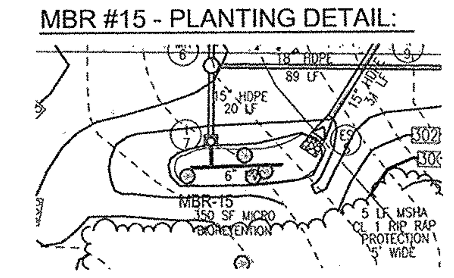


MICRO-BIORETENTION #14 PLANTING SCHEDULE

| SYMBOL | QTY | BOTANICAL NAME/COMMON NAME | SIZE | REMARKS |
|---|---|---|---|---|
| | 6 | VIBURNUM TRILOBUM AMERICAN HIGHBUSH CRANBERRY | 5 GALLON | CONT |
| | 6 | ILEX GLABRA INKBERRY | 3 GALLON | CONT |
| | 4 | SPICEBUSH LINDERA BENZOIN | 3 GALLON | CONT |
| | 50 SF | LIRIOPE MUSCARI 'MAJESTIC' MAJESTIC LILY TURF | 2" POT | 1' O.C. |

525 SF X 75% X .0229 STEMS PER SQUARE FOOT = 9 PLANTS REQUIRED
9 PROVIDED

### MBR #15 - PLANTING DETAIL:

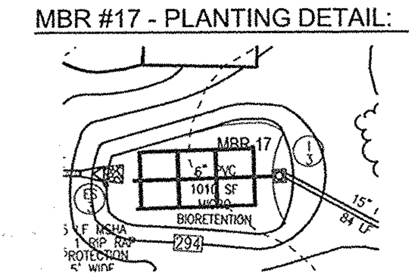


MICRO-BIORETENTION #15 PLANTING SCHEDULE

| SYMBOL | QTY | BOTANICAL NAME/COMMON NAME | SIZE | REMARKS |
|---|---|---|---|---|
| | 4 | VIBURNUM TRILOBUM AMERICAN HIGHBUSH CRANBERRY | 5 GALLON | CONT |
| | 4 | ILEX GLABRA INKBERRY | 3 GALLON | CONT |
| | 4 | SPICEBUSH LINDERA BENZOIN | 3 GALLON | CONT |
| | | | | |

350 SF X 75% X .0229 STEMS PER SQUARE FOOT = 6 PLANTS REQUIRED
6 PROVIDED

### MBR #17 - PLANTING DETAIL:

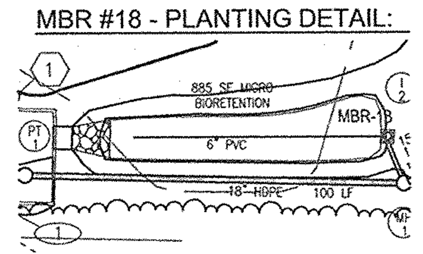


MICRO-BIORETENTION #17 PLANTING SCHEDULE

| SYMBOL | QTY | BOTANICAL NAME/COMMON NAME | SIZE | REMARKS |
|---|---|---|---|---|
| | 10 | VIBURNUM TRILOBUM AMERICAN HIGHBUSH CRANBERRY | 5 GALLON | CONT |
| | 10 | ILEX GLABRA INKBERRY | 3 GALLON | CONT |
| | 10 | SPICEBUSH LINDERA BENZOIN | 3 GALLON | CONT |
| | 150 SF | LIRIOPE MUSCARI 'MAJESTIC' MAJESTIC LILY TURF | 2" POT | 1' O.C. |

1010 SF X 75% X .0229 STEMS PER SQUARE FOOT = 18 PLANTS REQUIRED
18 PROVIDED

### MBR #18 - PLANTING DETAIL:

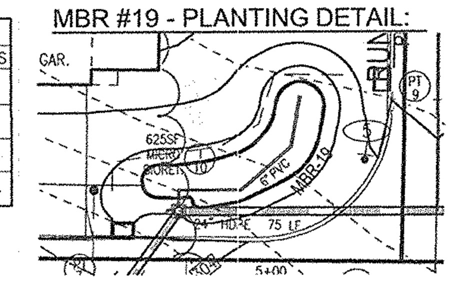


MICRO-BIORETENTION #18 PLANTING SCHEDULE

| SYMBOL | QTY | BOTANICAL NAME/COMMON NAME | SIZE | REMARKS |
|---|---|---|---|---|
| | 10 | VIBURNUM TRILOBUM AMERICAN HIGHBUSH CRANBERRY | 5 GALLON | CONT |
| | 10 | ILEX GLABRA INKBERRY | 3 GALLON | CONT |
| | 10 | SPICEBUSH LINDERA BENZOIN | 3 GALLON | CONT |
| | 50 SF | LIRIOPE MUSCARI 'MAJESTIC' MAJESTIC LILY TURF | 2" POT | 1' O.C. |

885 SF X 75% X .0229 STEMS PER SQUARE FOOT = 16 PLANTS REQUIRED
16 PROVIDED

### MBR #19 - PLANTING DETAIL:

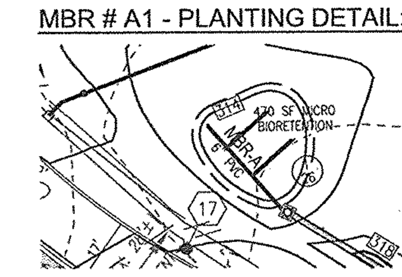


MICRO-BIORETENTION #19 PLANTING SCHEDULE

| SYMBOL | QTY | BOTANICAL NAME/COMMON NAME | SIZE | REMARKS |
|---|---|---|---|---|
| | 6 | VIBURNUM TRILOBUM AMERICAN HIGHBUSH CRANBERRY | 5 GALLON | CONT |
| | 6 | ILEX GLABRA INKBERRY | 3 GALLON | CONT |
| | 6 | SPICEBUSH LINDERA BENZOIN | 3 GALLON | CONT |
| | | | | |

500 SF X 75% X .0229 STEMS PER SQUARE FOOT = 9 PLANTS REQUIRED
9 PROVIDED

### MBR # A1 - PLANTING DETAIL:

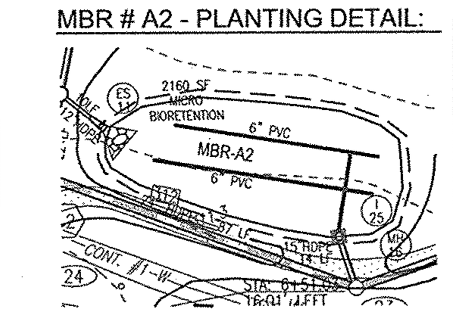


MICRO-BIORETENTION # A1 PLANTING SCHEDULE

| SYMBOL | QTY | BOTANICAL NAME/COMMON NAME | SIZE | REMARKS |
|---|---|---|---|---|
| | 4 | VIBURNUM TRILOBUM AMERICAN HIGHBUSH CRANBERRY | 5 GALLON | CONT |
| | 4 | ILEX GLABRA INKBERRY | 5 GALLON | CONT |
| | 4 | SPICEBUSH LINDERA BENZOIN | 3 GALLON | CONT |
| | 100 SF | LIRIOPE MUSCARI 'MAJESTIC' MAJESTIC LILY TURF | 2" POT | 1' O.C. |

470 SF X 75% X .0229 STEMS PER SQUARE FOOT = 8 PLANTS REQUIRED
8 PROVIDED

### MBR # A2 - PLANTING DETAIL:

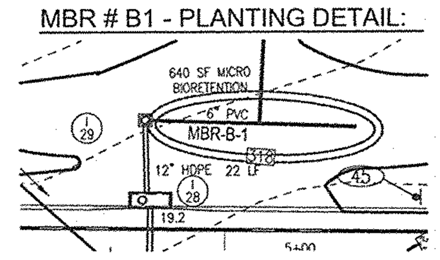


MICRO-BIORETENTION # A2 PLANTING SCHEDULE

| SYMBOL | QTY | BOTANICAL NAME/COMMON NAME | SIZE | REMARKS |
|---|---|---|---|---|
| | 20 | VIBURNUM TRILOBUM AMERICAN HIGHBUSH CRANBERRY | 5 GALLON | CONT |
| | 14 | ILEX GLABRA INKBERRY | 3 GALLON | CONT |
| | 20 | SPICEBUSH LINDERA BENZOIN | 3 GALLON | CONT |
| | 500 SF | LIRIOPE MUSCARI 'MAJESTIC' MAJESTIC LILY TURF | 2" POT | 1' O.C. |

2160 SF X 75% X .0229 STEMS PER SQUARE FOOT = 37 PLANTS REQUIRED
37 PROVIDED

### MBR # B1 - PLANTING DETAIL:

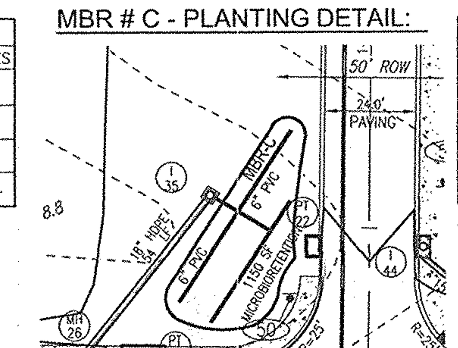


MICRO-BIORETENTION # B1 PLANTING SCHEDULE

| SYMBOL | QTY | BOTANICAL NAME/COMMON NAME | SIZE | REMARKS |
|---|---|---|---|---|
| | 6 | VIBURNUM TRILOBUM AMERICAN HIGHBUSH CRANBERRY | 5 GALLON | CONT |
| | 6 | ILEX GLABRA INKBERRY | 3 GALLON | CONT |
| | 6 | SPICEBUSH LINDERA BENZOIN | 3 GALLON | CONT |
| | 100 SF | LIRIOPE MUSCARI 'MAJESTIC' MAJESTIC LILY TURF | 2" POT | 1' O.C. |

640 SF X 75% X .0229 STEMS PER SQUARE FOOT = 11 PLANTS REQUIRED
11 PROVIDED

### MBR # C - PLANTING DETAIL:

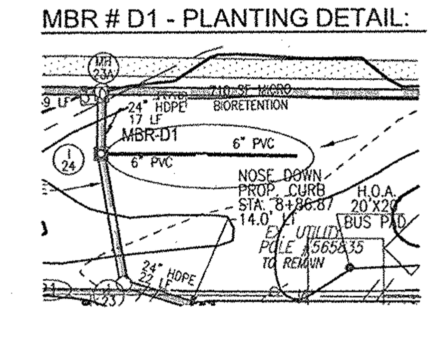


MICRO-BIORETENTION # C PLANTING SCHEDULE

| SYMBOL | QTY | BOTANICAL NAME/COMMON NAME | SIZE | REMARKS |
|---|---|---|---|---|
| | 10 | VIBURNUM TRILOBUM AMERICAN HIGHBUSH CRANBERRY | 5 GALLON | CONT |
| | 10 | ILEX GLABRA INKBERRY | 3 GALLON | CONT |
| | 10 | SPICEBUSH LINDERA BENZOIN | 3 GALLON | CONT |
| | 250 SF | LIRIOPE MUSCARI 'MAJESTIC' MAJESTIC LILY TURF | 2" POT | 1' O.C. |

1150 SF X 75% X .0229 STEMS PER SQUARE FOOT = 20 PLANTS REQUIRED
20 PROVIDED

### MBR # D1 - PLANTING DETAIL:

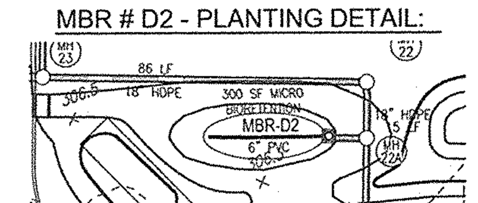


MICRO-BIORETENTION # D1 PLANTING SCHEDULE

| SYMBOL | QTY | BOTANICAL NAME/COMMON NAME | SIZE | REMARKS |
|---|---|---|---|---|
| | 6 | VIBURNUM TRILOBUM AMERICAN HIGHBUSH CRANBERRY | 5 GALLON | CONT |
| | 10 | ILEX GLABRA INKBERRY | 3 GALLON | CONT |
| | 10 | SPICEBUSH LINDERA BENZOIN | 3 GALLON | CONT |
| | | | | |

710 SF X 75% X .0229 STEMS PER SQUARE FOOT = 13 PLANTS REQUIRED
13 PROVIDED

### MBR # D2 - PLANTING DETAIL:

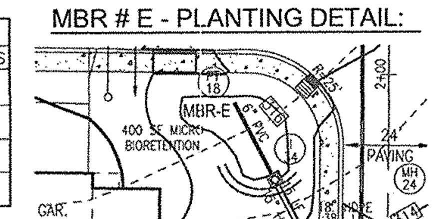


MICRO-BIORETENTION # D2 PLANTING SCHEDULE

| SYMBOL | QTY | BOTANICAL NAME/COMMON NAME | SIZE | REMARKS |
|---|---|---|---|---|
| | 4 | VIBURNUM TRILOBUM AMERICAN HIGHBUSH CRANBERRY | 5 GALLON | CONT |
| | 4 | ILEX GLABRA INKBERRY | 3 GALLON | CONT |
| | 4 | SPICEBUSH LINDERA BENZOIN | 3 GALLON | CONT |
| | | | | |

300 SF X 75% X .0229 STEMS PER SQUARE FOOT = 6 PLANTS REQUIRED
6 PROVIDED

### MBR # E - PLANTING DETAIL:

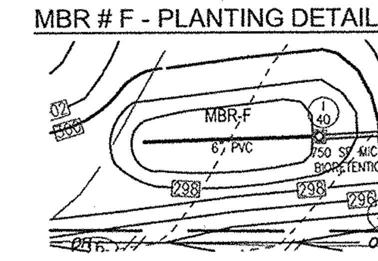


MICRO-BIORETENTION # E PLANTING SCHEDULE

| SYMBOL | QTY | BOTANICAL NAME/COMMON NAME | SIZE | REMARKS |
|---|---|---|---|---|
| | 4 | VIBURNUM TRILOBUM AMERICAN HIGHBUSH CRANBERRY | 5 GALLON | CONT |
| | 4 | ILEX GLABRA INKBERRY | 3 GALLON | CONT |
| | 6 | SPICEBUSH LINDERA BENZOIN | 3 GALLON | CONT |
| | | | | |

400 SF X 75% X .0229 STEMS PER SQUARE FOOT = 7 PLANTS REQUIRED
7 PROVIDED

### MBR # F - PLANTING DETAIL:



MICRO-BIORETENTION # F PLANTING SCHEDULE

| SYMBOL | QTY | BOTANICAL NAME/COMMON NAME | SIZE | REMARKS |
|---|---|---|---|---|
| | 6 | VIBURNUM TRILOBUM AMERICAN HIGHBUSH CRANBERRY | 5 GALLON | CONT |
| | 10 | ILEX GLABRA INKBERRY | 3 GALLON | CONT |
| | 10 | SPICEBUSH LINDERA BENZOIN | 3 GALLON | CONT |
| | | | | |

750 SF X 75% X .0229 STEMS PER SQUARE FOOT = 13 PLANTS REQUIRED
13 PROVIDED

## OPERATION AND MAINTENANCE SCHEDULE FOR M-6, M-7 AND M-8 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.
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 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 WITH A MINIMUM OF ONCE PER MONTH AND AFTER HEAVY STORM EVENTS.
5. FILTER MATERIAL MUST BE REPLACED WHEN WATER REMAINS ON THE SURFACE OF THE FILTER BED FOR MORE THAN 24 HOURS FOLLOWING A 1- OR 2-YEAR STORM EVENT OR MORE THAN 48 HOURS FOLLOWING A 10-YEAR STORM EVENT."

NOTE: 1. UNDERDRAIN AND CHECK DAMS OF BIOSWALE SHALL BE PUBLICALLY MAINTAINED.

2. MICRO-SCALE FACILITIES ONLOT WILL BE PRIVATELY OWNED AND MAINTAINED (H.O.A.). MICRO-SCALE FACILITIES MANAGING ROAD RUNOFF SHALL BE JOINTLY MAINTAINED (H.O.A. AND HOWARD COUNTY); H.O.A. - MAINTENANCE TREES, LANDSCAPING AND MOWING, HOWARD COUNTY - STORM DRAIN PIPES AND LITTER REMOVAL.

40' 0 40' 80' 120'

APPROVED: DEPARTMENT OF PUBLIC WORKS

[signature] 4/1/2016
CHIEF, BUREAU OF HIGHWAYS — DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

[signature] 3.28.16
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

[signature] 5-5-16
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE


OWNER
KATHY MIESSE, PERSONAL REPRESENTATIVE,
ESTATE OF ARTHUR P. KRAESKI
9222 OLD SCAGGSVILLE ROAD
LAUREL, MD 20723-1730
ATTN: MR. DONALD R. REUWER
443-367-0422

DEVELOPER
LAND DESIGN & DEVELOPMENT, INC.
5300 DORSEY HALL DRIVE, STE 102
ELLICOTT CITY, MARYLAND 21042-7819
ATTN: MR. DONALD R. REUWER
443-367-0422


| NO. | REVISION | DATE |
|---|---|---|
| | | |
| | | |
| 5 | ADD 10' TREE MAINTENANCE EASEMENT. SHIFT MBR FACILITIES. | 9 / 2015 |
| | | |
| 3 | REVISE STORM DRAIN LAYOUT ALONG OLD SCAGGSVILLE ROAD | 1 / 2015 |
| 2 | REVISE SUBDIVISION NAME | 7/18/14 |

REVISED FINAL ROAD CONSTRUCTION PLAN

MICRO-BIORETENTION - PLANTING DETAILS

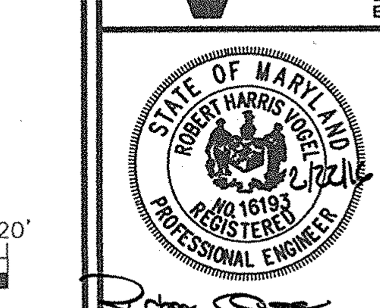
# HIGH RIDGE MEADOWS - SEC. 1

LOTS 1 - 54, OPEN SPACE LOTS 55 - 68
AND NON-BUILDABLE BULK PARCEL "B"
A SUBDIVISION OF TAX MAP 50 - PARCEL 363
AND A RESUBDIVISION OF TAX MAP 50 - PARCEL 542
KRAESKI PROPERTY NON-BUILDABLE BULK PARCEL "A" (PLAT 21191)

6TH ELECTION DISTRICT - TAX MAP: 50 GRID: 1
DPZ REF'S: F-10-065, WP-10-087, ECP-12-047, WP-13-080, SP 13-007

ZONED: R-SC
PARCELS: 363 & 542
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

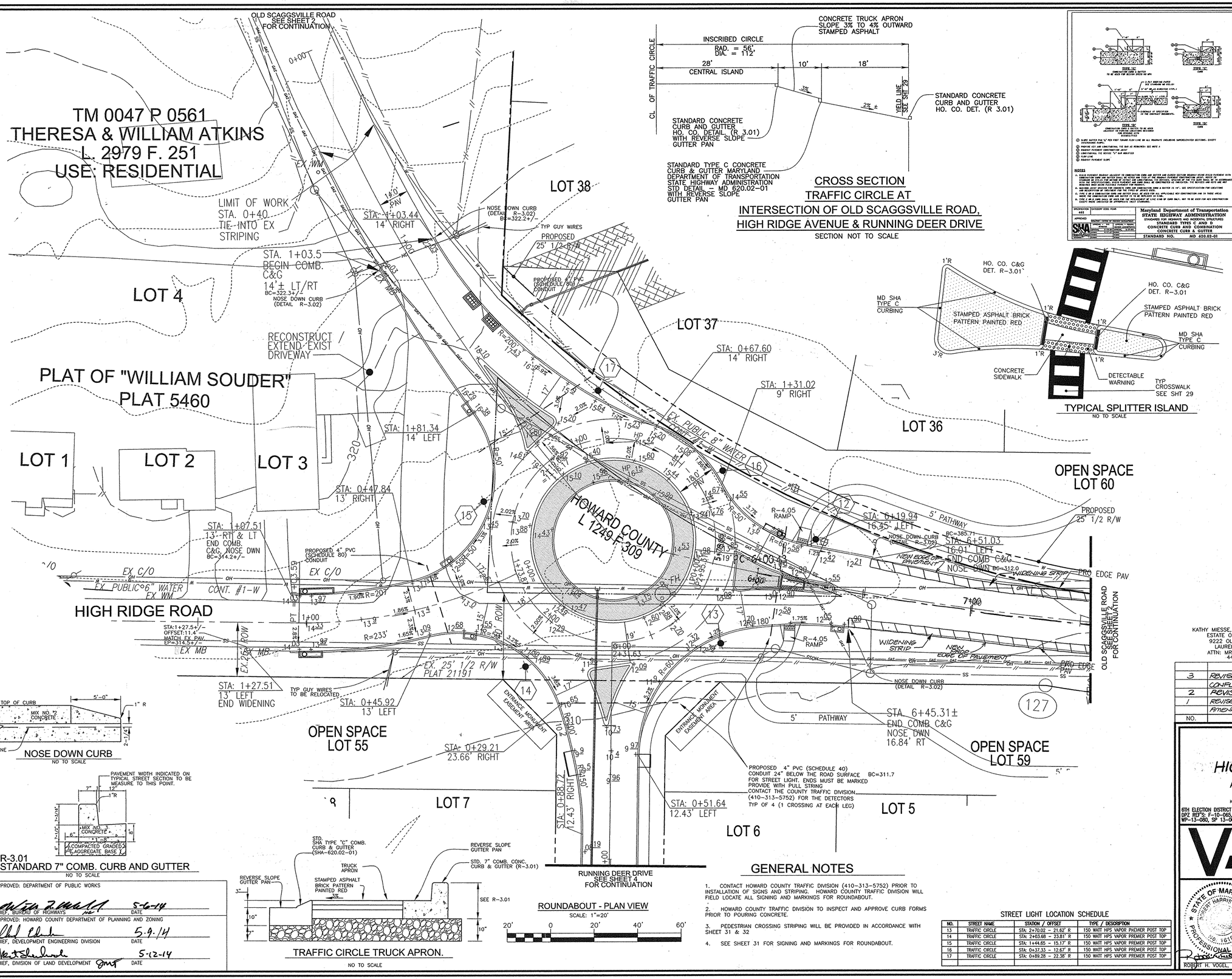

ROBERT H. VOGEL, PE No.16193

DESIGN BY: EDS
DRAWN BY: EDS/RVE/KG
CHECKED BY: RHV
DATE: SEPTEMBER 2015
SCALE: AS SHOWN
W.O. NO.: 11-28

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




K:\Projects\11-28\ENGR\dwg\FINAL ROAD P1\REDLINE 4 - BGE BIOIREDLINE - REPLACEMENT\26-102915 meeting SWM DETAILS.dwg, 2/22/2016 11:30:40 AM



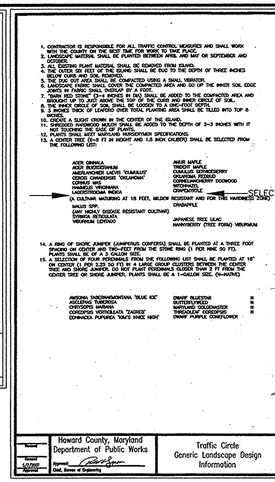

## GENERAL NOTES

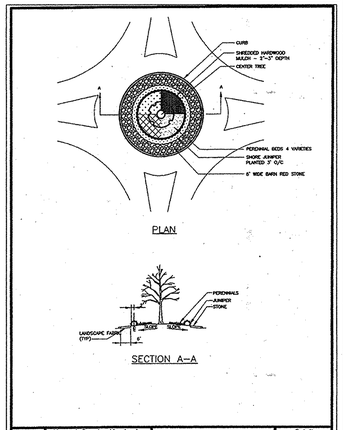
1. CONTACT HOWARD COUNTY TRAFFIC DIVISION (410-313-5752) PRIOR TO INSTALLATION OF SIGNS AND STRIPING. HOWARD COUNTY TRAFFIC DIVISION WILL FIELD LOCATE ALL SIGNING AND MARKINGS FOR ROUNDABOUT.
2. HOWARD COUNTY TRAFFIC DIVISION TO INSPECT AND APPROVE CURB FORMS PRIOR TO POURING CONCRETE.
3. PEDESTRIAN CROSSING STRIPING WILL BE PROVIDED IN ACCORDANCE WITH SHEET 31 & 32
4. SEE SHEET 31 FOR SIGNING AND MARKINGS FOR ROUNDABOUT.

### STREET LIGHT LOCATION SCHEDULE

| NO. | STREET NAME | STATION / OFFSET | TYPE / DESCRIPTION |
|---|---|---|---|
| 13 | TRAFFIC CIRCLE | STA: 2+70.02 – 21.62' R | 150 WATT HPS VAPOR PREMIER POST TOP |
| 14 | TRAFFIC CIRCLE | STA: 2+03.68 – 23.81' R | 150 WATT HPS VAPOR PREMIER POST TOP |
| 15 | TRAFFIC CIRCLE | STA: 1+44.65 – 15.17' R | 150 WATT HPS VAPOR PREMIER POST TOP |
| 16 | TRAFFIC CIRCLE | STA: 0+37.33 – 12.67' R | 150 WATT HPS VAPOR PREMIER POST TOP |
| 17 | TRAFFIC CIRCLE | STA: 0+89.28 – 22.38' R | 150 WATT HPS VAPOR PREMIER POST TOP |




### OWNER

KATHY MIESSE, PERSONAL REPRESENTATIVE,
ESTATE OF ARTHUR P. KRAESKI
9222 OLD SCAGGSVILLE ROAD
LAUREL, MD 20723-1730
ATTN: MR. DONALD R. REUWER
443-367-0422

### DEVELOPER

LAND DESIGN & DEVELOPMENT, INC.
5300 DORSEY HALL DRIVE, STE 102
ELLICOTT CITY, MARYLAND 21042-7819
ATTN: MR. DONALD R. REUWER
443-367-0422

| NO. | REVISION | DATE |
|---|---|---|
| 3 | REVISE STORM DRAIN ALIGNMENT TO AVOID CONFLICT WITH OTHER UTILITIES | 3/12/15 |
| 2 | REVISE SUBDIVISION NAME | 7/18/14 |
| 1 | REVISE OLD SCAGGSVILLE ROAD CENTERLINE RADIUS; AMEND UTILITY POLE DESIGNATION | 7/8/14 |

# FINAL ROAD CONSTRUCTION PLAN

## OLD SCAGGSVILLE ROAD
## TRAFFIC CIRCLE DETAILING

## HIGH RIDGE MEADOWS- SECTION I

LOTS 1 - 54, OPEN SPACE LOTS 55 - 68
AND NON-BUILDABLE BULK PARCEL "B"
A SUBDIVISION OF TAX MAP 50 – PARCEL 363
AND A RESUBDIVISION OF TAX MAP 50 – PARCEL 542
KRAESKI PROPERTY NON-BUILDABLE BULK PARCEL "A" (PLAT 21191)

6TH ELECTION DISTRICT – TAX MAP: 50 GRID: 1 — ZONED: R-SC
DPZ REF'S: F-10-065, WP-10-087, ECP-12-047, WP-13-080, SP 13-007 — PARCELS: 363 & 542
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

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 5-6-14

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 5.9.14

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5-12-14

STATE OF MARYLAND — ROBERT HARRIS VOGEL — No. 16193 — PROFESSIONAL ENGINEER — 6/12/14

ROBERT H. VOGEL, PE No.16193

DESIGN BY: EDS
DRAWN BY: EDS/RVE
CHECKED BY: RHV
DATE: MARCH 2014
SCALE: AS SHOWN
W.O. NO.: 11-28

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: 09-27-2014

SHEET 27 OF 32

F 14-022

K:\Projects\11-28\ENGR\dwg\FINAL ROAD PLS\27-ROUNDABOUT DETAILING.dwg, 3/27/2014 2:40:11 PM

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NOTE:

ALL TRAFFIC CONTROL SIGNAGE TO BE LOCATED IN FIELD AS DIRECTED BY HOWARD COUNTY TRAFFIC

NOTE:

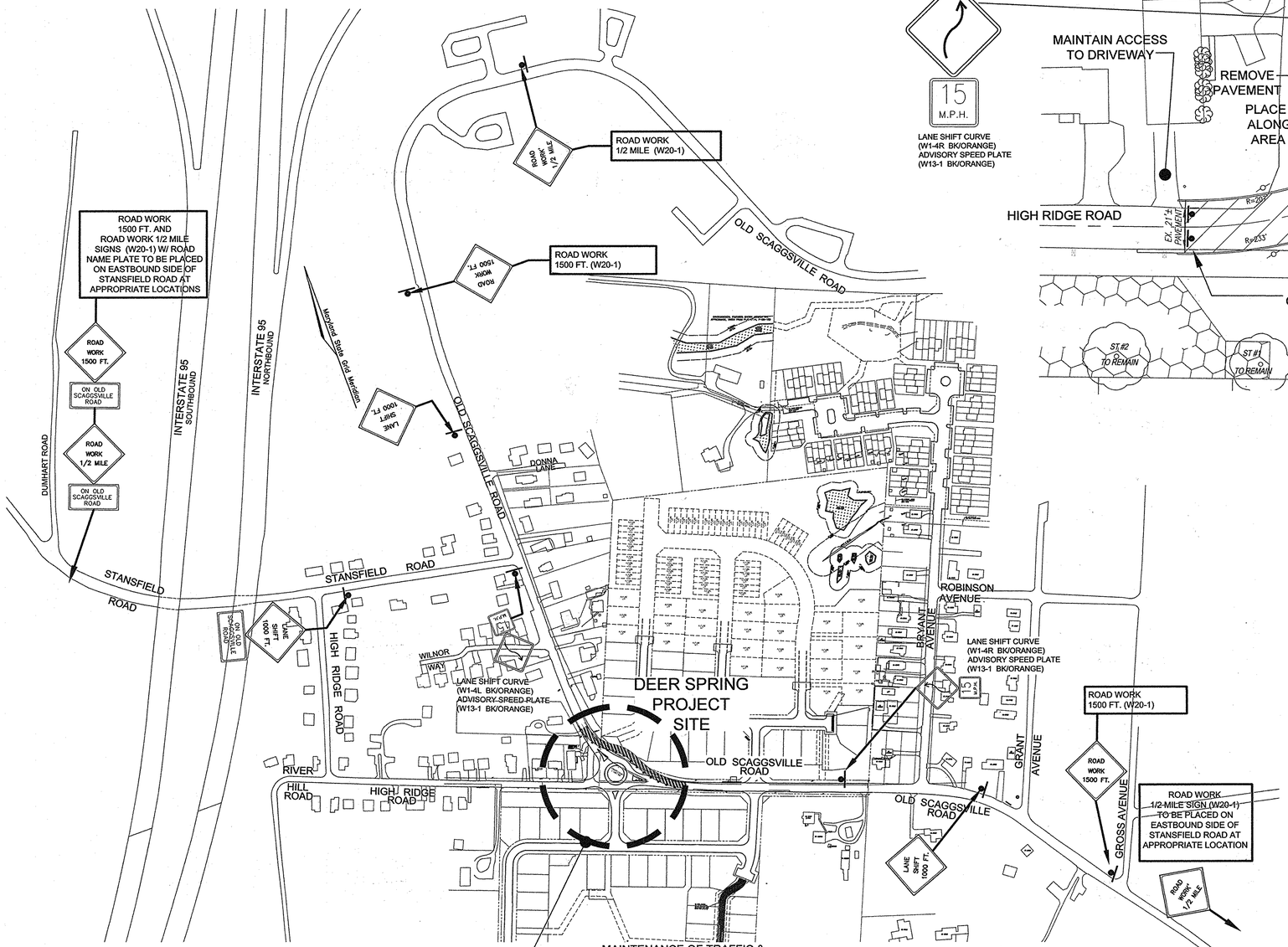
CONTACT THE HOWARD COUNTY TRAFFIC DIVISION TO FIELD LOCATE SIGNS FOR EACH REQUIRED CONSTRUCTION SEQUENCE

* NOTE:

TEMPORARY LANE MARKINGS SHALL CONSIST OF

- EDGE LANE LINES – 5" WHITE TEMPORARY TAPE
- CENTER DOUBLE YELLOW – 5" YELLOW TEMPORARY TAPE

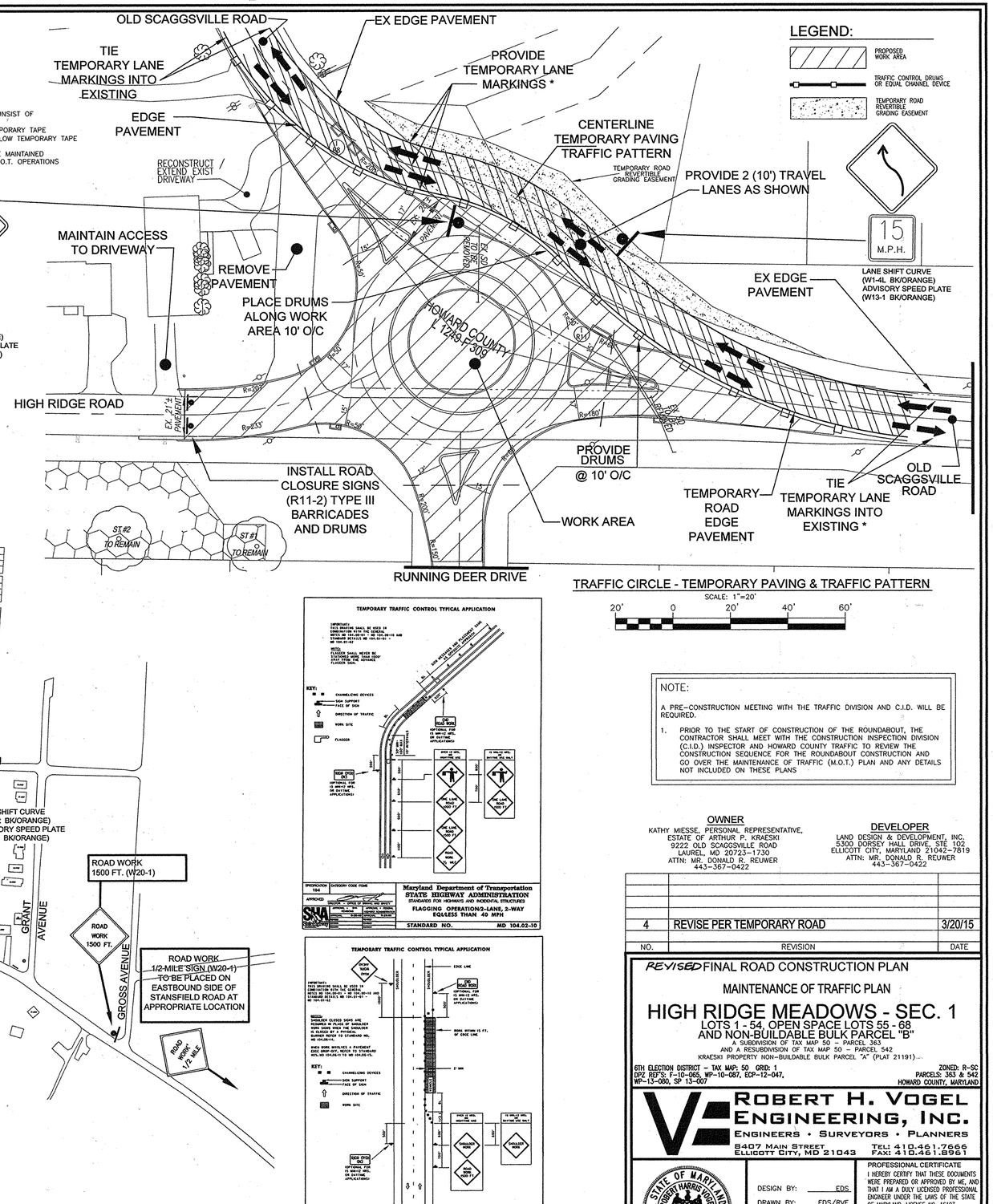
TEMPORARY LANE MARKINGS SHALL BE MAINTAINED THROUGHOUT THE ENTIRE PHASE 1 M.O.T. OPERATIONS




TRAFFIC CIRCLE CONSTRUCTION SEE DETAILS THIS SHEET AND SHEET 27

MAINTENANCE OF TRAFFIC & ADVANCE WARNING SIGN LOCATION PLAN

SCALE: 1"=200'

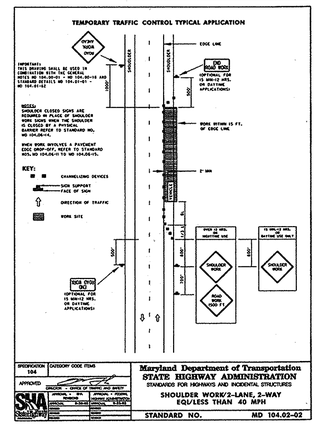



TRAFFIC CIRCLE - TEMPORARY PAVING & TRAFFIC PATTERN

SCALE: 1"=20'

20' 0 20' 40' 60'




APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 7/14/2015

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 7/17/15

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7.20.15

NOTE:

1. TRAFFIC SHALL BE DIVERTED ONTO HIGH RIDGE ROAD TOWARD STANSFIELD ROAD DURING THE CONSTRUCTION OF THE TRAFFIC CIRCLE.

   REFER TO "DETOUR PLAN", SHEET 30

NOTE:

A PRE–CONSTRUCTION MEETING WITH THE TRAFFIC DIVISION AND C.I.D. WILL BE REQUIRED.

1. PRIOR TO THE START OF CONSTRUCTION OF THE ROUNDABOUT, THE CONTRACTOR SHALL MEET WITH THE CONSTRUCTION INSPECTION DIVISION (C.I.D.) INSPECTOR AND HOWARD COUNTY TRAFFIC TO REVIEW THE CONSTRUCTION SEQUENCE FOR THE ROUNDABOUT CONSTRUCTION AND GO OVER THE MAINTENANCE OF TRAFFIC (M.O.T.) PLAN AND ANY DETAILS NOT INCLUDED ON THESE PLANS

**OWNER**

KATHY MIESSE, PERSONAL REPRESENTATIVE,
ESTATE OF ARTHUR P. KRAESKI
9222 OLD SCAGGSVILLE ROAD
LAUREL, MD 20723–1730
ATTN: MR. DONALD R. REUWER
443–367–0422

**DEVELOPER**

LAND DESIGN & DEVELOPMENT, INC.
5300 DORSEY HALL DRIVE, STE 102
ELLICOTT CITY, MARYLAND 21042–7819
ATTN: MR. DONALD R. REUWER
443–367–0422

| NO. | REVISION | DATE |
|---|---|---|
| 4 | REVISE PER TEMPORARY ROAD | 3/20/15 |

REVISED FINAL ROAD CONSTRUCTION PLAN

MAINTENANCE OF TRAFFIC PLAN

# HIGH RIDGE MEADOWS - SEC. 1

LOTS 1 - 54, OPEN SPACE LOTS 55 - 68
AND NON-BUILDABLE BULK PARCEL "B"

A SUBDIVISION OF TAX MAP 50 – PARCEL 363
AND A RESUBDIVISION OF TAX MAP 50 – PARCEL 542
KRAESKI PROPERTY NON–BUILDABLE BULK PARCEL "A" (PLAT 21191)

6TH ELECTION DISTRICT – TAX MAP: 50 GRID: 1 — ZONED: R–SC
DPZ REF'S: F–10–065, WP–10–087, ECP–12–047, WP–13–080, SP 13–007 — PARCELS: 363 & 542
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: EDS
DRAWN BY: EDS/RVE
CHECKED BY: RHV
DATE: MARCH 2015
SCALE: AS SHOWN
W.O. NO.: 11–28

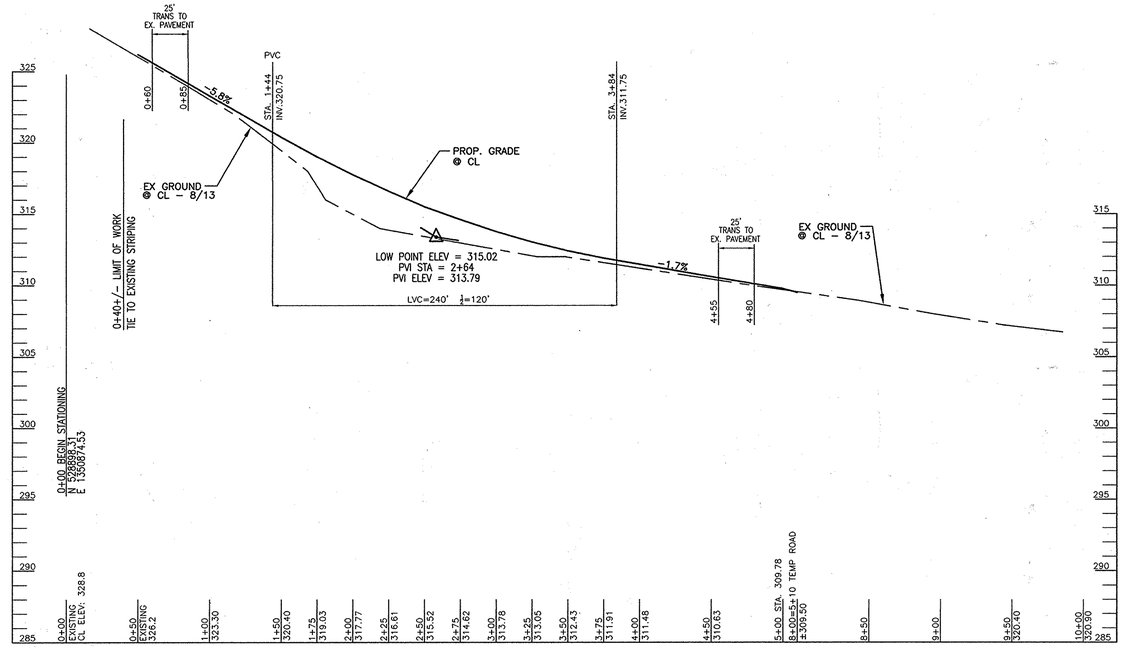
PROFESSIONAL CERTIFICATE

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

SHEET 28 OF 32

F 14-022

K:\Projects\11-28\ENGR\dwg\FINAL ROAD PI\REVLINE 3-TRAFFIC CIRCLE\28-TRAFFIC PLAN_REP MTLAR.dwg, 6/1/2015 10:49:47 AM




## OLD SCAGGSVILLE ROAD
## TEMPORARY ROAD

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

NOTE:

A PRE-CONSTRUCTION MEETING WITH THE TRAFFIC DIVISION AND C.I.D. WILL BE REQUIRED.

1. PRIOR TO THE START OF CONSTRUCTION OF THE ROUNDABOUT, THE CONTRACTOR SHALL MEET WITH THE CONSTRUCTION INSPECTION DIVISION (C.I.D.) INSPECTOR AND HOWARD COUNTY TRAFFIC TO REVIEW THE CONSTRUCTION SEQUENCE FOR THE ROUNDABOUT CONSTRUCTION AND GO OVER THE MAINTENANCE OF TRAFFIC (M.O.T.) PLAN AND ANY DETAILS NOT INCLUDED ON THESE PLANS

**OWNER**
KATHY MIESSE, PERSONAL REPRESENTATIVE,
ESTATE OF ARTHUR P. KRAESKI
9222 OLD SCAGGSVILLE ROAD
LAUREL, MD 20723-1730
ATTN: MR. DONALD R. REUWER
443-367-0422

**DEVELOPER**
LAND DESIGN & DEVELOPMENT, INC.
5300 DORSEY HALL DRIVE, STE 102
ELLICOTT CITY, MARYLAND 21042-7819
ATTN: MR. DONALD R. REUWER
443-367-0422

| NO. | REVISION | DATE |
|---|---|---|
| 4 | REVISE PER TEMPORARY ROAD | 3/20/15 |
| 2 | REVISE SUBDIVISION NAME | 7/18/14 |

REVISED FINAL ROAD CONSTRUCTION PLAN
TEMPORARY ROAD PROFILE

# HIGH RIDGE MEADOWS - SEC. 1
LOTS 1 - 54, OPEN SPACE LOTS 55 - 68
AND NON-BUILDABLE BULK PARCEL "B"
A SUBDIVISION OF TAX MAP 50 - PARCEL 363
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6TH ELECTION DISTRICT - TAX MAP: 50 GRID: 1
DPZ REF'S: F-10-065, WP-10-087, ECP-12-047, WP-13-080, SP 13-007
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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 6/15/15
ROBERT H. VOGEL, PE No.16193

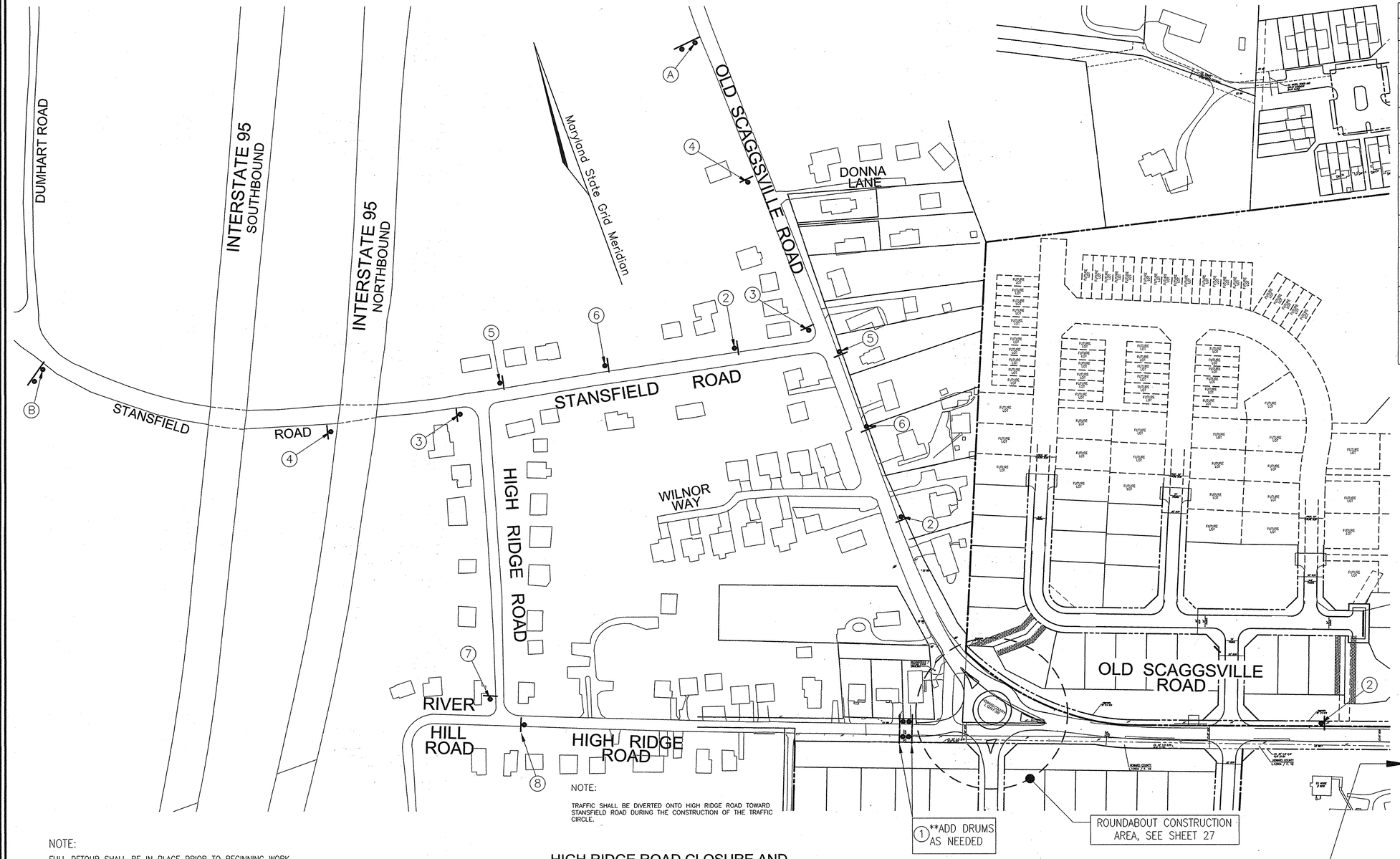
DESIGN BY: EDS
DRAWN BY: EDS/RVE
CHECKED BY: RHV
DATE: MARCH 2015
SCALE: AS SHOWN
W.O. NO.: 11-28

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

29 SHEET OF 32

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 7/14/2015
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 7/17/15
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7-20-15

F 14-022




NOTE:

TRAFFIC SHALL BE DIVERTED ONTO HIGH RIDGE ROAD TOWARD STANSFIELD ROAD DURING THE CONSTRUCTION OF THE TRAFFIC CIRCLE.

NOTE:

FULL DETOUR SHALL BE IN PLACE PRIOR TO BEGINNING WORK ON PHASE 1 TRAFFIC CIRCLE WORK (SHEET 28)

UPON COMPLETION OF TRAFFIC CIRCLE CONSTRUCTION AND PERMISSION FROM CONSTRUCTION INSPECTION DIVISION (C.I.D.) INSPECTOR AND HOWARD COUNTY TRAFFIC, REMOVE DETOUR AND OPEN TRAFFIC CIRCLE FOR PUBLIC USE

## HIGH RIDGE ROAD CLOSURE AND HIGH RIDGE ROAD & RIVER HILL ROAD DETOUR - PLAN VIEW

SCALE: 1"=100'

100' 0 100' 200' 300'

## TEMPORARY TRAFFIC CONTROL SIGN TABLE

| SYMBOL | M.U.T.C.D. DESIGNATION | MESSAGE | SIZE | QUANTITY | COLOR BACKGROUND | COLOR CHARACTERS |
|---|---|---|---|---|---|---|
| (1)* | R11-2 | ROAD CLOSED | 48"x30" | 2 | ORANGE | BLACK |
| — | ROAD NAME PANEL (MOUNT ON TOP OF ALL M4-9SIGNS) | "HIGH RIDGE RD" (5" LETTERS) | 30"x12" | 11 | WHITE | BLACK |
| (2) | M4-9 W/ ROAD NAME PANEL | HIGH RIDGE RD DETOUR | 5" LETTERS 30"x12" 30"x24" | 3 | WHITE ORANGE | BLACK |
| (3) | M4-9R W/ ROAD NAME PANEL | HIGH RIDGE RD DETOUR | 5" LETTERS 30"x12" 30"x24" | 2 | WHITE ORANGE | BLACK |
| (4) | M4-9R (MODIFIED ARROW) W/ ROAD NAME PANEL | HIGH RIDGE RD DETOUR | 5" LETTERS 30"x12" 30"x30" | 2 | WHITE ORANGE | BLACK |
| (5) | M4-9L W/ ROAD NAME PANEL | HIGH RIDGE RD DETOUR | 5" LETTERS 30"x12" 30"x24" | 2 | WHITE ORANGE | BLACK |
| (6) | M4-9L (MODIFIED ARROW) W/ ROAD NAME PANEL | HIGH RIDGE RD DETOUR | 5" LETTERS 30"x12" 30"x30" | 2 | WHITE ORANGE | BLACK |
| (7) | M4-8A | END DETOUR | 30"x24" | 1 | ORANGE | BLACK |
| (8)* ** | M4-10L W/R11-3a | DETOUR / ROAD CLOSED 800 FT. AHEAD LOCAL TRAFFIC ONLY | 48"x18" 60"x30" | 1 | WHITE | BLACK |

* MOUNT ON TYPE III BARRICADE
** CONTACT TRAFFIC ENGINEER FOR FIELD PLACMENT

NOTE:

SEE SHEETS 27, 28 & 29 OF 32 FOR FOR TRAFFIC CIRCLE CONSTRUCTION AND MAINTENANCE OF TRAFFIC PLANS

NOTES:

1. ALL SIGN LOCATIONS ON PLAN ARE APPROXIMATE. FIELD LOCATIONS TO BE MARKED BY HOWARD COUNTY TRAFFIC PRIOR TO ANY SIGN INSTALLATIONS AND MAY REQUIRE ADJUSTMENT BASED UPON CONSTRUCTION SEQUENCING.
2. SIGNS SHOULD BE MOUNTED ON 4"X4" WOOD POSTS.
3. DETOUR PLAN SHALL STAY IN PLACE DURING BOTH PHASES OF CONSTRUCTION OF THE ROUNDABOUT
4. ALL DETOUR AND ROAD WORK SIGNAGE SHALL BE INSTALLED & COVERED WITH OPAQUE MATERIAL PRIOR TO ROUNDABOUT PHASE 1 CONSTRUCTION STARTING.
5. TWO VARIABLE MESSAGE BOARDS (VMS) SHALL BE INSTALLED 14 DAYS PRIOR TO THE START OF THE ROUNDABOUT DETOUR PLAN IMPLEMENTATION. CONTACT HOWARD COUNTY TRAFFIC FOR LOCATION AND MESSAGE. DEVELOPER WILL BE RESPONSIBLE FOR VMS RENTAL.

## NOTICE SIGNS

(A) (NEED 2)

| NOTICE | |
|---|---|
| HIGH RIDGE RD | 6" LETTERS BLK/YEL |
| CLOSED | 6" LETTERS BLK/WHT |
| AT OLD SCAGGSVILLE RD | 8" LETTERS BLK/WHT |
| | 5" LETTERS BLK/WHT |
| FOLLOW DETOUR | 6" LETTERS BLK/ORNG |
| TO HIGH RIDGE RD | 5" LETTERS BLK/ORNG |
| & RIVER HILL ROAD | 5" LETTERS BLK/ORNG |

MAX. 60"

(B) (NEED 1)

| NOTICE | |
|---|---|
| HIGH RIDGE RD | 6" LETTERS BLK/YEL |
| CLOSED | 6" LETTERS BLK/WHT |
| AT | 8" LETTERS BLK/WHT |
| | 5" LETTERS BLK/WHT |
| OLD SCAGGSVILLE RD | 5" LETTERS BLK/WHT |
| FOLLOW DETOUR | 6" LETTERS BLK/ORNG |

MAX. 60"

APPROVED: DEPARTMENT OF PUBLIC WORKS

DIRECTOR, BUREAU OF HIGHWAYS — DATE 5-6-14

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 5.9.14

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5-12-14

NOTE:

A PRE-CONSTRUCTION MEETING WITH THE TRAFFIC DIVISION AND C.I.D. WILL BE REQUIRED.

1. PRIOR TO THE START OF CONSTRUCTION OF THE ROUNDABOUT, THE CONTRACTOR SHALL MEET WITH THE CONSTRUCTION INSPECTION DIVISION (C.I.D.) INSPECTOR AND HOWARD COUNTY TRAFFIC TO REVIEW THE CONSTRUCTION SEQUENCE FOR THE ROUNDABOUT CONSTRUCTION AND GO OVER THE MAINTENANCE OF TRAFFIC (M.O.T.) PLAN AND ANY DETAILS NOT INCLUDED ON THESE PLANS

**OWNER**
KATHY MIESSE, PERSONAL REPRESENTATIVE,
ESTATE OF ARTHUR P. KRAESKI
9222 OLD SCAGGSVILLE ROAD
LAUREL, MD 20723-1730
ATTN: MR. DONALD R. REUWER
443-367-0422

**DEVELOPER**
LAND DESIGN & DEVELOPMENT, INC.
5300 DORSEY HALL DRIVE, STE 102
ELLICOTT CITY, MARYLAND 21042-7819
ATTN: MR. DONALD R. REUWER
443-367-0422

| NO. | REVISION | DATE |
|---|---|---|
| 2 | REVISE SUBDIVISION NAME | 7/18/14 |

FINAL ROAD CONSTRUCTION PLAN
DETOUR PLAN FOR TRAFFIC CIRCLE CONSTRUCTION
HIGH RIDGE MEADOWS- SECTION 1
LOTS 1 - 54, OPEN SPACE LOTS 55 - 68
AND NON-BUILDABLE BULK PARCEL "B"
A SUBDIVISION OF TAX MAP 50 – PARCEL 363
AND A RESUBDIVISION OF TAX MAP 50 – PARCEL 542
KRAESKI PROPERTY NON-BUILDABLE BULK PARCEL "A" (PLAT 21191)

6TH ELECTION DISTRICT – TAX MAP: 50 GRID: 1 — ZONED: R-SC
DPZ REF'S: F-10-065, WP-10-087, ECP-12-047, WP-13-080, SP 13-007 — PARCELS: 363 & 542
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 — 16193 — PROFESSIONAL ENGINEER — 5/9/14
ROBERT H. VOGEL, PE No.16193

DESIGN BY: EDS
DRAWN BY: EDS/RVE
CHECKED BY: RHV
DATE: MARCH 2014
SCALE: AS SHOWN
W.O. NO.: 11-28

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: 09-27-2014

SHEET 30 OF 32

F 14-022

K:\PROJECTS\11-28\ENGR\dwg\FINAL ROAD P1\30-DETOUR PLAN.DWG
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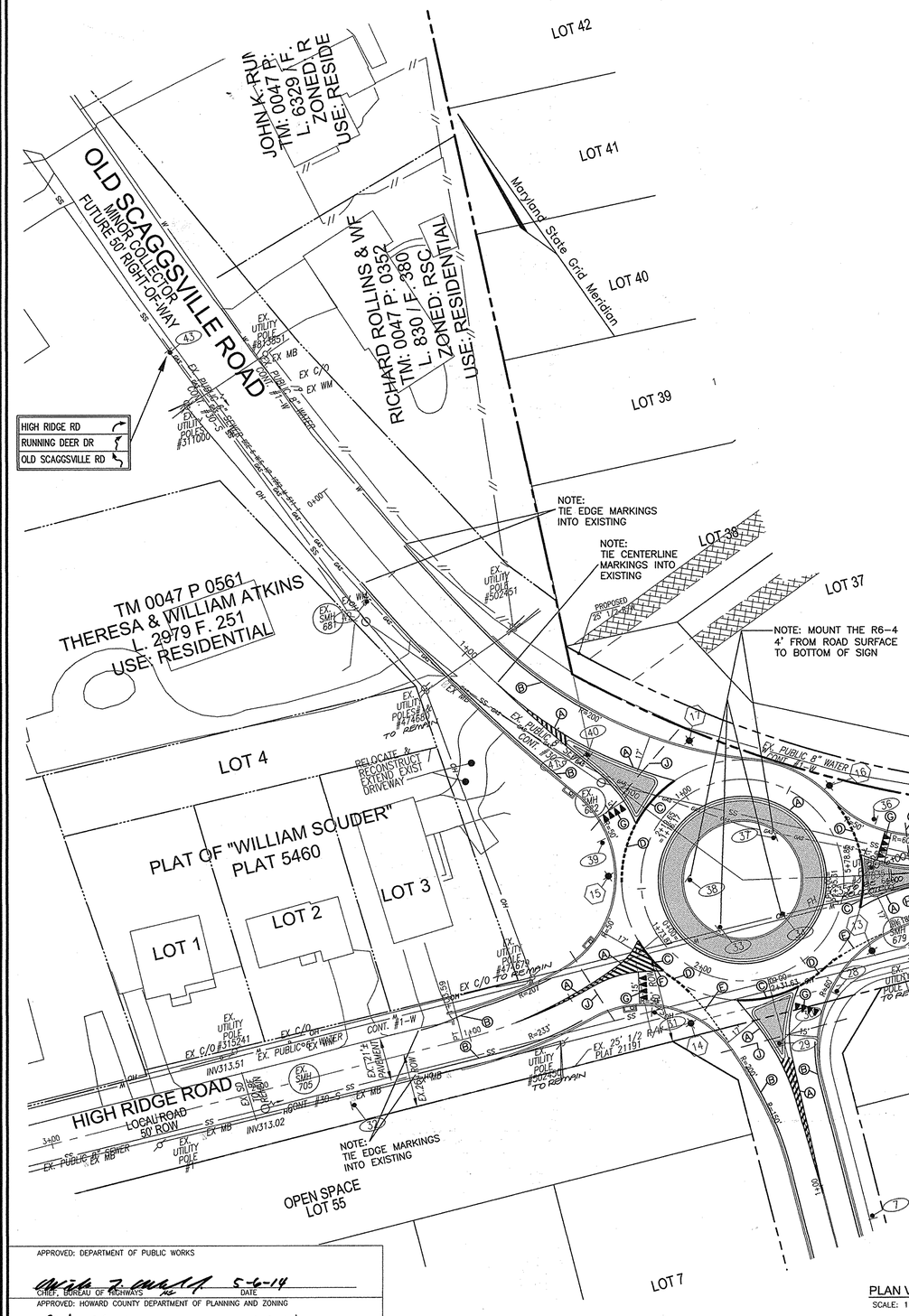
HIGH RIDGE RD
RUNNING DEER DR
OLD SCAGGSVILLE RD
OLD SCAGGSVILLE ROAD
MINOR COLLECTOR
FUTURE 50' RIGHT-OF-WAY
JOHN K. RUN
TM: 0047 P:
L.
F.
ZONED: R
USE: RESIDE
RICHARD ROLLINS & WF
TM: 0047 P: 0352
L. 830 / F. 380
ZONED: RSC
USE: RESIDENTIAL
Maryland State Grid Meridian
LOT 42
LOT 41
LOT 40
LOT 39
LOT 38
LOT 37
TM 0047 P 0561
THERESA & WILLIAM ATKINS
L. 2979 F. 251
USE: RESIDENTIAL
LOT 4
LOT 3
LOT 2
LOT 1
PLAT OF "WILLIAM SOUDER"
PLAT 5460
HIGH RIDGE ROAD
LOCAL ROAD
50' ROW
NOTE:
TIE EDGE MARKINGS
INTO EXISTING
NOTE:
TIE CENTERLINE
MARKINGS INTO
EXISTING
NOTE: MOUNT THE R6-4
4' FROM ROAD SURFACE
TO BOTTOM OF SIGN
NOTE:
TIE EDGE MARKINGS
INTO EXISTING
NOTE:
TIE EDGE MARKINGS
INTO EXISTING
RELOCATE &
RECONSTRUCT /
EXTEND EXIST.
DRIVEWAY
OPEN SPACE
LOT 55
LOT 6
LOT 7
LOT 36
LOT 35
LOT 34
LOT 33
LOT 32
OPEN SPACE
LOT 60
OPEN SPACE
LOT 59
OPEN SPACE
LOT 62
LOT 54
LOT 53
LOT 52
OLD SCAGGSVILLE ROAD
MINOR COLLECTOR
RIGHT-OF-WAY VARIES
HOWARD COUNTY
L.12604 / F. 18
EX. HOUSE
# 9222
EXISTING
DIVISION
VALVE
EX. 30' 1/2 R/W
PLAT 21191
EX. 25' 1/2 R/W
PLAT 21191
PROPOSED EDGE
OF PAVEMENT
WIDENING STRIP
5' PATHWAY
EX. PUBLIC 8" SEWER
CONT. #30-S
EX. PUBLIC 8" WATER
CONT. #1-W
EX. PUBLIC 8" WATER
CONT. #2-W
EX. PUBLIC 8" WATER
CONT. #3-W
EX. PUBLIC 8" WATER
CONT. #4-W
EX. PUBLIC 8" WATER
CONT. #5-W
EX. PUBLIC 8" WATER
CONT. #6-W
EX. PUBLIC 8" WATER
CONT.

## 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.

## LEGEND: NUMBER RELATES TO STREET SIGN TABLES BELOW

(1) PROPOSED STREET SIGN

### STREET SIGN LOCATION SCHEDULE

| NO. | STREET NAME | STATION / OFFSET | SIGN TYPE / DESCRIPTION |
|---|---|---|---|
| 1 | TWIN FAWN TRAIL | ST" 13+81.78 - 20.00' L | RED OBJECT MARKER - END OF ROAD |
| 2 | TWIN FAWN TRAIL | "A 13+81.78 - 0.00' L | RED OBJECT MARKER - END OF ROAD |
| 3 | TWIN FAWN TRAIL | STA 13+81.78 - 20.00' R | RED OBJECT MARKER - END OF ROAD |
| 4 | TWIN FAWN TRAIL | STA: 5+75.89 - 16.10' R | R2-1 SPEED LIMIT (25) |
| 5 | RUNNING DEER DRIVE | STA: 1+65.97 - 19.10' R | R1-1 STOP SIGN |
| 6 | TWIN FAWN TRAIL | STA: 3+45.26 - 16.73' L | R2-1 SPEED LIMIT (25) |
| 7 | RUNNING DEER DRIVE | STA: 1+19.46 - 19.67' L | W2-6 / W13-1(15 MPH) |
| 8 | CLARK SPRINGS RIDGE | STA: 2+79.80 - 19.80' R | W14-2 (NO OUTLET) |
| 9 | TWIN FAWN TRAIL | STA: 0+45.56 - 16.10' L | R1-1 STOP SIGN |
| 10 | TWIN FAWN TRAIL | STA: 0+62.68 - 19.72' R | R2-1 SPEED LIMIT (25) |
| 11 | CLARK SPRINGS RIDGE | STA: 1+06.01 - 19.67' R | R3-1 SPEED LIMIT (25) |
| 12 | OLD SCAGGSVILLE ROAD (EAST) | STA: 9+64.77 - 25.60' R | (2) W11-2 (30x30) FYG HUNG BACK TO BACK ON STREET LIGHT POLE |
| 13 | OLD SCAGGSVILLE ROAD (EAST) | STA: 9+64.77 - 25.60' R | (2) W16-7P (24X12) FYG HUNG BACK TO BACK ON STREET LIGHT POLE |
| 14 | CLARK SPRINGS RIDGE | STA: 0+31.94 - 19.48' L | R1-1 STOP SIGN |
| 15 | OLD SCAGGSVILLE ROAD (EAST) | STA: 11+29.36 - 17.37' R | R2-1 SPEED LIMIT (30) |
| 16 | OLD SCAGGSVILLE ROAD (EAST) | STA: 12+57.39 - 17.00' L | W11-2 (30x30) FYG / W16-9P (AHEAD) FYG |
| 17 | DEER SPRINGS PLACE | STA: 0+38.15 - 21.80' L | R1-1 STOP SIGN |
| 18 | OLD SCAGGSVILLE ROAD (EAST) | STA: 9+64.68 - 24.10' L | (2) W11-2 (30x30) FYG HUNG BACK TO BACK ON STREET LIGHT POLE |
| 19 | OLD SCAGGSVILLE ROAD (EAST) | STA: 9+64.68 - 24.10' L | (2) W16-7P (24X12) FYG HUNG BACK TO BACK ON STREET LIGHT POLE |
| 20 | DEER SPRINGS PLACE | STA: 1+00.54 - 19.10' R | R2-1 SPEED LIMIT (25) |
| 21 | OLD SCAGGSVILLE ROAD (EAST) | STA: 8+58.90 - 17.00' L | W2-6 (30x30) *ROAD NAME PANELS SEE DETAIL |
| 22 | OLD SCAGGSVILLE ROAD (EAST) | STA: 7+25.46 - 17.00' R | W11-2 (30x30) FYG / W16-9P (AHEAD) FYG |
| 23 | OLD SCAGGSVILLE ROAD (EAST) | STA: 7+25.97 - 18.10' L | W3-2 (30x30) / W13-1 (15 MPH) |
| 24 | OLD SCAGGSVILLE ROAD (EAST) | STA: 6+23.38 - 20.10' L | W11-2 (30x30) FYG / W16-7P (24x12) FYG |
| 25 | OLD SCAGGSVILLE ROAD (EAST) | STA: 6+32.62 - 1.48' R | R4-7 KEEP RIGHT (SEE DETAIL) |
| 26 | OLD SCAGGSVILLE ROAD (EAST) | STA: 6+32.62 - 1.48' R | (2) YELLOW O.M. (OM1-3) BACK TO BACK |
| 27 | OLD SCAGGSVILLE ROAD (EAST) | STA: 6+27.05 - 22.54' R | W11-2 (30x30) FYG / W16-7P (24x12) FYG |

### STREET SIGN LOCATION SCHEDULE

| NO. | STREET NAME | STATION / OFFSET | SIGN TYPE / DESCRIPTION |
|---|---|---|---|
| 28 | TRAFFIC CIRCLE | STA: 2+52.87 - 20.82' R | R1-2 YEILD |
| 29 | TRAFFIC CIRCLE | STA: 2+30.26 - 30.98' R | R4-7 KEEP RIGHT (SEE DETAIL) |
| 30 | TRAFFIC CIRCLE | STA: 2+30.26 - 30.98' R | (2) YELLOW O.M. (OM1-3) BACK TO BACK |
| 31 | TRAFFIC CIRCLE | STA: 1+92.41 - 26.82' R | R1-2 YEILD |
| 32 | HIGH RIDGE ROAD | STA: 1+59.63 - 17.12' L | W2-6 / W13-1(15 MPH) |
| 33 | TRAFFIC CIRCLE | STA: 2+60.44 - 22.67' L | R6-4 MOUNT BOTTOM 4" FROM ROAD SURFACE |
| 34 | TRAFFIC CIRCLE | STA: 1+99.05 - 22.67' L | R6-4 MOUNT BOTTOM 4" FROM ROAD SURFACE |
| 35 | TRAFFIC CIRCLE | STA: 0+02.88 - 13.09' R | R1-2 YEILD |
| 36 | TRAFFIC CIRCLE | STA: 0+18.80 - 20.17' R | R1-2 YEILD |
| 37 | TRAFFIC CIRCLE | STA: 0+42.49 - 22.67' L | R6-4 MOUNT BOTTOM 4" FROM ROAD SURFACE |
| 38 | TRAFFIC CIRCLE | STA: 1+45.96 - 22.67' L | R6-4 MOUNT BOTTOM 4" FROM ROAD SURFACE |
| 39 | TRAFFIC CIRCLE | STA: 1+33.75 - 20.24' R | R1-2 YEILD |
| 40 | OLD SCAGGSVILLE ROAD (WEST) | STA: 1+74.05 - 3.17' L | R4-7 KEEP RIGHT (SEE DETAIL) |
| 41 | OLD SCAGGSVILLE ROAD (WEST) | STA: 1+74.05 - 3.17' L | (2) YELLOW O.M. (OM1-3) BACK TO BACK |
| 42 | OLD SCAGGSVILLE ROAD (WEST) | STA: 0+51.91 - 17.00' R | W3-2 (30x30) / W13-1 (15 MPH) |
| 43 | OLD SCAGGSVILLE ROAD (WEST) | *N 528992.25, E 1350874.26 | W2-6 (30x30) *ROAD NAME PANELS SEE DETAIL |
| 44 | DEER RUN | STA: 4+77.44 - 19.67' L | R2-1 SPEED LIMIT (25) |
| 45 | DEER RUN | STA: 4+69.58 - 16.10' R | R2-1 SPEED LIMIT (25) |
| 46 | DEER VILLAGE DRIVE | STA: 0+29.88 - 20.67' L | R1-1 STOP SIGN |
| 47 | DEER VILLAGE DRIVE | STA: 0+62.62 - 16.02' R | R2-1 SPEED LIMIT (25) |
| 48 | DEER SPRINGS PLACE | STA: 1+56.19 - 19.72' L | R2-1 SPEED LIMIT (25) |
| 49 | DEER SPRINGS PLACE | STA: 1+91.05 - 18.56' R | R1-1 STOP SIGN |
| 50 | PEACE SPRINGS RIDGE | STA: 0+31.05 - 20.72' L | R1-1 STOP SIGN |
| 51 | PEACE SPRINGS RIDGE | STA: 0+62.37 - 19.67' R | R2-1 SPEED LIMIT (25) |
| 52 | DEER RUN | *STA: 0-04.00 - 0.00' R | R7-1 NO PARKING |
| 53 | DEER RUN | STA: 8+76.11 - 16.00' R | R2-1 SPEED LIMIT (25) |

*OUTSIDE LIMITS OF PROPOSED ROAD GEOMETRY

### STREET LIGHT LOCATION SCHEDULE

| NO. | STREET NAME | STATION / OFFSET | TYPE / DESCRIPTION |
|---|---|---|---|
| 1 | TWIN FAWN TRAIL | STA: 13+51.11 - 19.67' L | 100 WAT HPS VAPOR PREMIER POST TOP |
| 2 | TWIN FAWN TRAIL | STA: 11+73.64 - 16.10' R | 100 WAT HPS VAPOR PREMIER POST TOP |
| 3 | TWIN FAWN TRAIL | STA: 9+94.68 - 16.10' R | 100 WAT HPS VAPOR PREMIER POST TOP |
| 4 | TWIN FAWN TRAIL | STA: 7+99.55 - 16.10' R | 100 WAT HPS VAPOR PREMIER POST TOP |
| 5 | TWIN FAWN TRAIL | STA: 6+33.41 - 16.10' R | 100 WAT HPS VAPOR PREMIER POST TOP |
| 6 | TWIN FAWN TRAIL | STA: 4+28.95 - 27.74' R | 100 WAT HPS VAPOR PREMIER POST TOP |
| 7 | TWIN FAWN TRAIL | STA: 2+32.78 - 19.67' R | 100 WAT HPS VAPOR PREMIER POST TOP |
| 8 | CLARK SPRINGS RIDGE | STA: 3+11.51 - 13.10 ' L | 100 WAT HPS VAPOR PREMIER POST TOP |
| 9 | CLARK SPRINGS RIDGE | STA: 1+78.17 - 21.08" R | 100 WAT HPS VAPOR PREMIER POST TOP |
| 10 | OLD SCAGGSVILLE ROAD | STA: 9+64.77 - 25.60' R | 150 WATT HPS VAPOR PREMIER POST TOP |
| 11 | OLD SCAGGSVILLE ROAD | STA: 9+64.68 - 24.10' L | 150 WATT HPS VAPOR PREMIER POST TOP |
| 12 | OLD SCAGGSVILLE ROAD | STA: 6+23.38 - 20.10' L | 150 WATT HPS VAPOR PREMIER POST TOP |
| 13 | TRAFFIC CIRCLE | STA: 2+70.02 - 21.62' R | 150 WATT HPS VAPOR PREMIER POST TOP |
| 14 | TRAFFIC CIRCLE | STA: 2+03.68 - 23.81' R | 150 WATT HPS VAPOR PREMIER POST TOP |
| 15 | TRAFFIC CIRCLE | STA: 1+44.65 - 15.17' R | 150 WATT HPS VAPOR PREMIER POST TOP |
| 16 | TRAFFIC CIRCLE | STA: 0+37.33 - 12.67' R | 150 WATT HPS VAPOR PREMIER POST TOP |
| 17 | TRAFFIC CIRCLE | STA: 0+89.28 - 22.38" R | 150 WATT HPS VAPOR PREMIER POST TOP |
| 18 | DEER RUN | STA: 6+23.46 - 19.67' L | 100 WATT HPS VAPOR PREMIER POST TOP |
| 19 | DEER RUN | STA: 3+51.30 - 21.86" R | 150 WATT HPS VAPOR PREMIER POST TOP |
| 20 | DEER RUN | STA: 2+59.07 - 19.67' R | 100 WATT HPS VAPOR PREMIER POST TOP |
| 21 | DEER RUN | STA: 0+73.24 - 16.30" R | 100 WATT HPS VAPOR PREMIER POST TOP |
| 22 | DEER VILLAGE DRIVE | STA: 2+22.59 - 19.67' L | 100 WATT HPS VAPOR PREMIER POST TOP |
| 23 | DEER RUN | STA: 8+63.42 - 19.67' L | 100 WATT HPS VAPOR PREMIER POST TOP |

## LAYOUT PLAN

SCALE: 1"=50'

50' 0 50' 100' 150'

## LEGEND: NUMBER RELATES TO LIGHT TABLE TO THE LEFT

(6) PROPOSED STREET LIGHT 100 WAT HPS VAPOR PREMIER POST TOP

(11) PROPOSED STREET LIGHT 150 WATT HPS VAPOR PREMIER POST TOP

## PAVEMENT MARKING LEGEND - SEE SHT 29

- (A) 5" YELLOW PAINT LINE
- (B) 5" WHITE PAINT LINE
- (C) 12" WHITE THERMOPLASTIC
- (D) 12" x 3'-0" WHITE THERMOPLASTIC
- (E) 5" x 2'-0" PUPPY TRACKS - WHITE THERMOPLASTIC
- (F) 10" WIDE YELLOW HATCH MARKINGS - PAINT
- (G) "SHARKS TEETH" 2' 3' WHITE THERMOPLASTIC
- (H) HOWARD COUNTY CROSSWALK

## OWNER

KATHY MIESSE, PERSONAL REPRESENTATIVE,
ESTATE OF ARTHUR P. KRAESKI
9222 OLD SCAGGSVILLE ROAD
LAUREL, MD 20723-1730
ATTN: MR. DONALD R. REUWER
443-367-0422

## DEVELOPER

LAND DESIGN & DEVELOPMENT, INC.
5300 DORSEY HALL DRIVE, STE 102
ELLICOTT CITY, MARYLAND 21042-7819
ATTN: MR. DONALD R. REUWER
443-367-0422

| NO. | REVISION | DATE |
|---|---|---|
| | | |
| | | |
| | | |
| 2 | REVISE SUBDIVISION NAME | 7/18/14 |
| 1 | REVISE OLD SCAGGSVILLE ROAD CENTERLINE RADIUS, AMEND UTILITY POLE DESIGNATION | 7/8/14 |

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 5-6-14

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 5.9.14

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5-12-14

# FINAL ROAD CONSTRUCTION PLAN
## SECTION ONE - TRAFFIC SIGNAGE & STREET LIGHT LOCATION PLAN
## HIGH RIDGE MEADOWS - SECTION I
### LOTS 1 - 54, OPEN SPACE LOTS 55 - 68 AND NON-BUILDABLE BULK PARCEL "B"

A SUBDIVISION OF TAX MAP 50 - PARCEL 363
AND A RESUBDIVISION OF TAX MAP 50 - PARCEL 542
KRAESKI PROPERTY NON-BUILDABLE BULK PARCEL "A" (PLAT 21191)

6TH ELECTION DISTRICT - TAX MAP: 50 GRID: 1 — ZONED: R-SC
DPZ REF'S: F-10-055, WP-10-087, ECP-12-047, WP-13-080, SP 13-007 — PARCELS: 363 & 542
HOWARD COUNTY, MARYLAND


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TEL: 410.461.7666 FAX: 410.461.8961


STATE OF MARYLAND — ROBERT HARRIS VOGEL — No. 16193 — PROFESSIONAL ENGINEER — 5-6-14

ROBERT H. VOGEL, PE No.16193

| | |
|---|---|
| DESIGN BY: | EDS |
| DRAWN BY: | EDS/RVE |
| CHECKED BY: | RHV |
| DATE: | MARCH 2014 |
| SCALE: | AS SHOWN |
| W.O. NO.: | 11-28 |

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: 09-27-2014

SHEET 32 OF 32

F 14-022

K:\PROJECTS\11-28\ENGR\DWG\FINAL ROAD P1\30-SIGNS LIGHTS.DWG

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