DocuSign Envelope ID: 79E9DBFB-CDDB-4FF4-A258-614B911C4A9B

FINAL ROAD CONSTRUCTION, GRADING AND STORMWATER MANAGEMENT PLANS

LACEY PROPERTY

LOTS 1 THRU 13 AND OPEN SPACE LOTS 14 THRU 17

SHEET INDEX

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	DEMOLITION PLAN
3	MILL CREEK WAY PLAN, PROFILE AND DETAILS
4	PRIVATE USE-IN-COMMON DRIVEWAY PROFILES AND DETAILS
5	GRADING & SEDIMENT CONTROL PLAN
6	SEDIMENT AND EROSION CONTROL NOTES & DETAILS
7	SEDIMENT AND EROSION CONTROL NOTES, DETAILS AND BORING LOGS
8	STORMWATER MANAGEMENT NOTES & DETAILS
9	STORMWATER MANAGEMENT PLAN VIEWS, PROFILES & DETAILS - MICRO BIO-RETENTION #1
10	STORMWATER MANAGEMENT PLAN VIEWS, PROFILES & DETAILS - MICRO BIO-RETENTION #2
11	STORMWATER MANAGEMENT PLAN & PROFILES - POND #1
12	STREET TREE & LANDSCAPE PLAN
13	MICRO BIO-RETENTION PLANTING PLANS, LANDSCAPING NOTES, DETAILS & SPECIFICATIONS
14	STORM DRAIN PROFILES
15	STORM DRAIN DRAINAGE AREA & SOILS MAP
16	PARTIAL PLAN
17	NORTH WALL ELEVATIONS
18	NORTH WALL SECTIONS
19	NORTH WALL SECTIONS
20	NORTH WALL SECTIONS
21	TYPICAL DETAILS
22	GENERAL NOTES & TYPICAL DETAILS
23	FOREST CONSERVATION PLAN
24	TSWM - BASIN #1 PROFILES AND DETAILS

TRAFFIC CONTROL SIGNS

ROAD NAME	CENTERLINE STA.	OFFSET	POSTED SIGN	SIGN CODE
MILL CREEK WAY	0+22	21.3'R	STREET SIGN & NO OUTLET SIGN	SNS & W14-2A
	0+25	18'L	STOP	R1-1
	0+75	14'R	SPEED LIMIT 25 M.P.H.	R2-1
	1+72.3	38.8'L&R	RANGE OF ADDRESS SIGNS	-

STREET LIGHT CHART

STREET NAME	STATION	OFFSET	FIXTURE/POLE TYPE
MILL CREEK WAY	0+18	22'R	100 watt LED-150 COLONIAL POST-TOP FIXTURE MOUNTED ON A 14' BLACK FIBERGLASS POLE
	1+91.34	2' BEHIND CURB	

ROADWAY INFORMATION CHART

ROAD NAME	CLASSIFICATION	DESIGN SPEED	POSTED SPEED LIMIT	R/W WIDTH
MILL CREEK WAY	PUBLIC ACCESS PLACE	25 M.P.H.	25 M.P.H.	50'

STORMWATER MANAGEMENT PRACTICES

LOT No.	MICRO BIO-RETENTION M-6 (NUMBER)	SAND FILTER F-1 (NUMBER)	DRY WELLS M-5 (NUMBER)
O.S. 14	YES - (2)	YES - (1)	NO
1	NO	NO	YES - (3)
2	NO	NO	YES - (4)
3	NO	NO	YES - (3)
4	NO	NO	YES - (3)
5	NO	NO	YES - (3)
6	NO	NO	YES - (3)
7	NO	NO	YES - (3)
8	NO	NO	YES - (3)
9	NO	NO	YES - (2)
10	NO	NO	YES - (2)
11	NO	NO	YES - (2)
12	NO	NO	YES - (3)
13	NO	NO	YES - (3)

SWM NOTE: SINCE THE SP-15-013 PLAN WAS APPROVED PRIOR TO THE APPROVAL OF C.B. No. 80-2016, THIS PROJECT IS EXEMPT FROM THE REQUIREMENTS OF THAT BILL TO PROVIDE ADDITIONAL REDUCTION IN PEAK RUNOFF. CONSERVATIVE DESIGN HAS PROVIDED A 16.5% REDUCTION AND 8.50% REDUCTION AS A BONUS CREDIT.

SWM DRAINAGE AREA SUMMARY TABLE (Proposed Conditions)

Drainage Area	Area (ac.+/-)	RCN	T/C (hrs.)	100-Year Peak Q	E.C. Peak Q	Remarks
A	1.81	61	0.22	5.82	9.18	Bypass Area
A-1	4.32	70	0.18	23.29 in/13.67 out @380.78	31.63 in/23.87 out @341.39	Pocket Sand Filter
A-2	0.76	77	0.12	4.36 in/4.33 out @336.41	7.32 in/7.28 out @336.40'	Bio #1
B	0.92	69	0.11	4.57	7.24	Bypass Area
B-1	0.37	77	0.18	1.90 in/1.31 out @360.64	3.26 in/2.91 out @360.82	Bio #2
D.P.#1 Total				**+ 22.00**	**+ 37.72**	**Total @ D.P.#1 (EC watershed)**
C	1.03	70	0.12	5.13	8.19	Total @ D.P.#2 (Sucker Branch)

SWM DRAINAGE AREA SUMMARY TABLE (Existing Conditions)

Drainage Area	Area (ac.+/-)	RCN	T/C (hrs.)	100-Year Peak Q	E.C. Peak Q	Remarks
A	6.58	61	0.21	21.6	34.04	
B	1.33	60	0.1	5.25	7.7	
D.P.#1 Total				**+ 25.64**	**+ 40.91**	**Total @ D.P.#1**
C	0.8	60	0.1	3.16	4.63	Total @ D.P.#2
				16.50%	8.50%	% Decrease @ D.P.#1

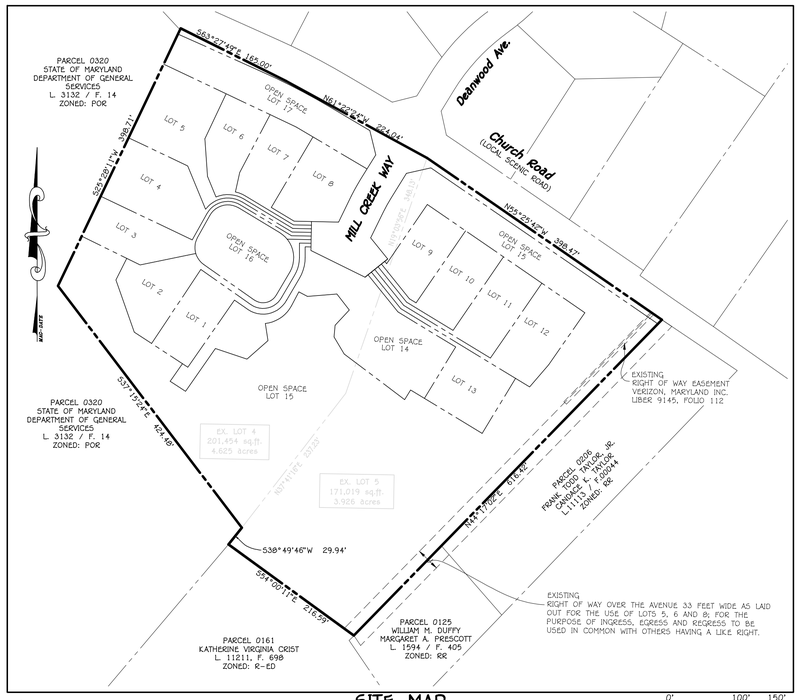
* THESE PEAK FLOW VALUES ARE REFLECTIVE OF THE TR-20 PROGRAM OUTPUT. THE PROGRAM ADDS VARIOUS HYDROGRAPHS TOGETHER TO PRODUCE A VALUE WHICH IS NOT THE SAME AS THE MATH ADDITION OF EACH AREAS PEAK VALUE.

COMMUNITY MEETINGS

NO.	DATE	LOCATION	PRESUBMISSION COMMUNITY MEETING (Y/N)
1	APRIL 30, 2013	MILLER BRANCH LIBRARY	YES
2	JUNE 11, 2014	HOWARD COUNTY GEORGE HOWARD BLDG	YES
3 *	JULY 28, 2014	HOWARD COUNTY GEORGE HOWARD BLDG	NO, CHARRETTE
4 *	AUGUST 26, 2014	HOWARD COUNTY GEORGE HOWARD BLDG	NO, GENERAL MEETING
5 **	SEPTEMBER 2, 2014	DW TAYLOR ASSOCIATES, INC.	NO, MEETING WITH A COMMUNITY REPRESENTATIVE
6 *	SEPTEMBER 22, 2014	HOWARD COUNTY GEORGE HOWARD BLDG	NO, GENERAL MEETING
7 **	NOVEMBER 13, 2014	DW TAYLOR ASSOCIATES, INC.	NO, MEETING WITH TWO COMMUNITY REPRESENTATIVES
8	JULY 13, 2015	HOWARD COUNTY GEORGE HOWARD BLDG	YES

* CHARRETTE AND GENERAL COMMUNITY MEETINGS WERE HELD WITH THE COMMUNITY AS A MEANS OF INFORMING THE COMMUNITY OF DESIGN PROGRESS AS WELL AS TO SOLICIT IDEAS / REQUEST CHANGES TO DESIGN CONCEPTS.

** MEETINGS WERE HELD WITH COMMUNITY REPRESENTATIVES SELECTED BY THE COMMUNITY DURING THE CHARETTE / GENERAL COMMUNITY MEETINGS TO FURTHER THE COMMUNITY INPUT AT A MORE FINITE DESIGN LEVEL. THE COMMUNITY REPRESENTATIVES WERE A RETIRED LAND PLANNER AND LANDSCAPE ARCHITECT FROM ELLICOTT CITY.



SITE MAP

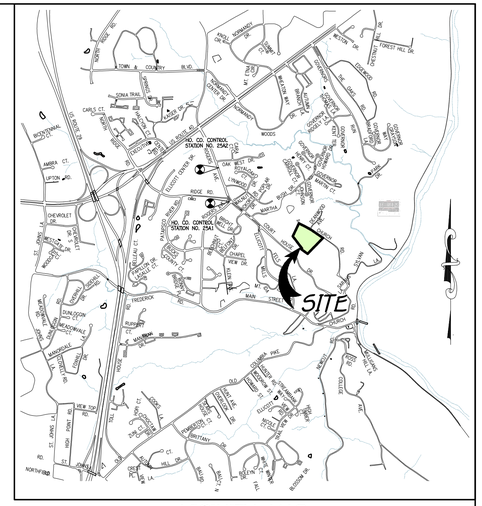
SCALE: 1" = 100'

0' 100' 150' 200'

Scale: 1" = 100'

LEGEND

SYMBOL	DESCRIPTION
352	EXISTING CONTOUR 2' INTERVAL
350	EXISTING CONTOUR 10' INTERVAL
S	EXISTING SAN. SEWER LINE
D	EXISTING STORM DRAIN LINE
	EXISTING WATER LINE
	EXISTING OVERHEAD ELECTRIC LINE
X	EXISTING FENCE
352	PROPOSED CONTOUR 2' INTERVAL
350	PROPOSED CONTOUR 10' INTERVAL
+ 344.29	PROPOSED SPOT ELEVATION
	PROPOSED CONCRETE WALK
	PROPOSED MACADAM PAVING
	EXISTING TREES
	EXISTING TREELINE
	PROPOSED TREELINE
8" W	PROPOSED PUBLIC WATER
18" RCCP	PROPOSED STORMDRAIN
8" S	PROPOSED PUBLIC SEWER
	SOILS DELINEATION
SSF	SUPER SILT FENCE
	FOREST CONSERVATION AREA
	RIPRAP OUTLET PROTECTION
	DEMOLITION
	STEEP SLOPE TO BE REMOVED
	STEEP SLOPES 15% - 24.9%
	STEEP SLOPES 25.0% OR GREATER



VICINITY MAP

SCALE: 1" = 2000'

MD. CO. MD. ADC MAP 21, GRID B7

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.
2. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS / BUREAU OF ENGINEERING / CONSTRUCTION INSPECTION DIVISION AT 410-313-1880 AT LEAST (5) WORKING DAYS PRIOR TO THE START OF WORK.
3. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
4. THIS SUBDIVISION PLAN IS SUBJECT TO THE AMENDED FIFTH EDITION OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS AND THE 10-06-13 ZONING REGULATIONS PER COUNCIL BILL NO. 32-2013. DEVELOPMENT OR CONSTRUCTION ON THESE LOTS OR PARCELS MUST COMPLY WITH SETBACKS AND BUFFER REGULATIONS IN EFFECT AT THE TIME OF SUBMISSION OF A BUILDING OR GRADING PERMIT APPLICATION.
5. COORDINATES BASED ON NAD'83 MARYLAND COORDINATE SYSTEM AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS NO. 25A1 AND NO. 25A2
   HO. CO. CONTROL STATION #25A1 - HORIZONTAL - NAD '83\ N 596,557.549 E 1,366,847.099 ELEVATION = 396.343 (NAVD '88)
   HO. CO. CONTROL STATION #25A2 - HORIZONTAL - (NAD '83) N 587,502.730 E 1,366,556.378 ELEVATION = 348.145 (NAVD '88)
6. SUBJECT PROPERTY IS ZONED R-ED PER 10/06/2013 COMPREHENSIVE ZONING PLAN.
7. BACKGROUND INFORMATION:
   a. SUBDIVISION NAME: LACEY PROPERTY
   b. TAX MAP NO.: 25
   c. PARCEL NO.: 13
   d. ZONING: R-ED
   e. ELECTION DISTRICT: SECOND
   f. GROSS AREA OF THIS SUBMISSION = 8.551 AC.+
   g. NUMBER OF BUILDABLE LOTS: 13
   h. NUMBER OF OPEN SPACE LOTS: 4
   i. AREA OF BUILDABLE LOTS: 2.876 AC.+
   j. AREA OF OPEN SPACE LOTS: 5.277 AC.+
   k. AREA OF PUBLIC ROADWAY TO BE DEDICATED: 0.398 AC.+
   l. PREVIOUS FILE NUMBERS: ECP-15-044, WP-16-022, SP-15-013, PB CASE 418, HPC-15-78, HPC-16-06 (a), HPC-16-06 (b) & HPC-16-061 (SEE G.N. #35).
   m. AREA OF FLOODPLAIN = 0.00 AC.
   n. AREA OF 25% OR GREATER SLOPES = 1.35 AC.+
   o. NET AREA OF SUBMISSION = 7.201 AC.+
8. OPEN SPACE REQUIRED: 8.551 AC. X 0.50% = 4.276 AC.+
   OPEN SPACE PROVIDED: 5.277 AC.+
   RECREATIONAL OPEN SPACE REQUIRED FOR PROJECT TOTAL = (300 SQ.FT. PER UNIT) = 3,900 SQ.FT.
   PROVIDED RECREATIONAL OPEN SPACE (LOT 16) = 3,900 SQ.FT.
9. ALL FILL AREAS WITHIN ROADWAYS AND UNDER STRUCTURES SHALL BE COMPACTED TO A MINIMUM OF 95% COMPACTION OF AASHTO T-180.
10. NO NOISE STUDY IS REQUIRED FOR THIS PROJECT.
11. PROPERTY IS LOCATED WITHIN THE METROPOLITAN DISTRICT. WATER AND SEWER IS PUBLIC, CONTRACT NO. 14-4913-D. EXISTING SEPTIC SYSTEM TO BE ABANDONED IN ACCORDANCE WITH HEALTH DEPARTMENT REQUIREMENTS. EXISTING UTILITIES ARE BASED ON FIELD LOCATION OF MISS UTILITY MARKINGS AS A PART OF THE TOPOGRAPHIC SURVEY.
12. SOILS ARE BASED ON THE NRCS WEBSOIL SURVEY AND HOWARD COUNTY SOIL MAP 12.
13. BOUNDARY SHOWN HEREON IS BASED ON A FIELD RUN MONUMENTED BOUNDARY SURVEY DATED AUGUST, 2014. THE EXISTING TOPOGRAPHY IS TAKEN FROM FIELD RUN SURVEY WITH MAXIMUM TWO FOOT CONTOUR INTERVALS PREPARED BY FISHER, COLLINS & CARTER, INC. DATED SEPTEMBER 2013 AND SUPPLEMENTED BY HOWARD COUNTY GIS TOPOGRAPHY.
14. EXISTING STRUCTURES ON-SITE, OUT BUILDINGS AND SWIMMING POOL HAVE ALL BEEN REMOVED UNDER DEMOLITION PERMIT NUMBER B-18003545 DATED FEBRUARY 7, 2019.
15. THERE ARE NO WETLANDS ON THIS SITE PER INVESTIGATION BY ECO-SCIENCE PROFESSIONALS, INC. DATED SEPTEMBER, 2014.
16. A WETLAND DELINEATION & FOREST STAND DELINEATION REPORT FOR THIS PROJECT DATED SEPTEMBER 2014 PREPARED BY ECO-SCIENCE PROFESSIONALS AND APPROVED UNDER SP-15-013. STEEP SLOPES, STREAM AND ITS BUFFERS EXIST ON-SITE.
17. STEEP SLOPES, STREAM AND ITS BUFFERS EXIST ON-SITE.
18. NO 100 YEAR FLOODPLAIN, CEMETERIES, NOR GRAVESITES EXIST ON THE PROPERTY.
19. NO CLEARING, GRADING, REMOVAL OF VEGETATIVE COVER OR TREES, PAVING AND NEW STRUCTURES SHALL BE PERMITTED WITHIN THE LIMITS OF STREAM BUFFERS AND FOREST CONSERVATION EASEMENT AREAS.
20. THE TRAFFIC STUDY FOR THIS PROJECT WAS PREPARED BY MARS GROUP IN JUNE 2015, AND WAS APPROVED ON DECEMBER 21, 2015.
21. SITE HAS FRONTAGE ON CHURCH ROAD, A COUNTY, LOCAL, SCENIC ROAD.
22. EXCAVATIONS TO VERIFY DEPTH TO ROCK AND WATER WERE CONDUCTED ON JUNE 8, 2015.
23. DESIGN MANUAL WAIVER TO ALLOW 9 LOTS (8 BUILDABLE AND 1 OPEN SPACE) ON A USE-IN-COMMON DRIVEWAY WAS APPROVED ON OCTOBER 5, 2015 AND IS SUBJECT TO THE FOLLOWING CONDITIONS:
   1. THE MINIMUM WIDTH OF THE USE-IN-COMMON DRIVEWAY SHOULD INCREASE TO 20 FEET DUE TO ITS CURVATURE.
   2. PROVIDE FLUSH CURB AND GUTTER ALONG THE USE-IN-COMMON DRIVEWAY.
24. STORM WATER MANAGEMENT IS IN ACCORDANCE WITH THE M.D.E. STORM WATER DESIGN MANUAL, VOLUMES I & II, REVISED 2009. NON-STRUCTURAL PRACTICES (MICRO BIO-RETENTION FACILITIES (M-6) AND DRYWELLS (M-5)) IN ACCORDANCE WITH CHAPTER 5 ARE BEING UTILIZED. 100 YEAR MANAGEMENT AND THE 3.55 HR / 6.6 IN STORM EVENT ARE BEING PROVIDED IN THE PROPOSED POCKET SAND FILTER.
25. THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL. FINANCIAL SURETY FOR THE REQUIRED 26 SHADE, 5 EVERGREEN TREES & 7 SHRUBS (PROVIDED 19 SHADE, 6 ORNAMENTAL, 11 EVERGREEN & 7 SHRUBS) HAS BEEN POSTED AS PART OF THE DEVELOPER'S AGREEMENT IN THE AMOUNT OF $8,460.00.
26. THE FOREST CONSERVATION REQUIREMENTS PER SECTION 16.1200 OF THE HOWARD COUNTY CODE AND THE FOREST CONSERVATION MANUAL FOR THIS SUBDIVISION HAS BEEN FULFILLED BY PROVIDING 2.916 AC.+ OF ON-SITE FOREST RETENTION. NO SURETY IS REQUIRED FOR RETENTION. A DEED OF FOREST CONSERVATION EASEMENT AND AGREEMENT WILL BE EXECUTED SIMULTANEOUSLY WITH THE DPW DEVELOPER AGREEMENT.
27. WAIVER PETITION, WP-16-022, REQUESTING A WAIVER FROM HOWARD COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS SPECIFICALLY SECTION 16.1205(A)(7) FOREST RETENTION PRIORITIES - RETENTION OF SPECIMEN TREES, SECTION 16.1161(B)(1) STATING THAT GRADING, REMOVAL OF VEGETATIVE COVER AND TREES, NEW STRUCTURES, AND PAVING SHALL NOT BE PERMITTED ON LAND WITH EXISTING STEEP SLOPES IN AREAS GREATER THAN 20,000 SQ.FT. IS SIZE, SECTION 16.134(A)(1)(I) SIDEWALKS ARE REQUIRED ON ONLY ONE SIDE OF CUL-DE-SACS AND LOCAL STREETS OF SINGLE-FAMILY DETACHED SUBDIVISIONS, AND SECTION 16.125(B)(1)(II)(A)(2) REQUIRING MINIMIZATION OF TREE AND VEGETATION REMOVAL ALONG A SCENIC ROAD AND REQUIRING RETENTION OF FOREST OR WOODED AREAS OF 35-FOOT IN WIDTH, HAS BEEN APPROVED ON DEC. 5, 2016. APPROVAL OF WP-16-022 IS SUBJECT TO THE FOLLOWING CONDITIONS:
   a. COMPLIANCE WITH SRC COMMENTS FOR SP-15-013 AND PLANNING BOARD APPROVAL OF THE PROPOSED SUBDIVISION PLAN DESIGN, LAYOUT AND LOCATION OF LOTS, ROADS AND SHARED DRIVEWAYS.
   b. NO ADDITIONAL DISTURBANCE OR GRADING SHALL OCCUR BEYOND THE LIMIT OF DISTURBANCE (L.O.D.) OF THE 25% STEEP SLOPES THAT ARE DETAILED ON THE PRELIMINARY GRADING PLAN AND AS APPROVED BY THE PLANNING BOARD, UNLESS IT CAN BE SUFFICIENTLY DEMONSTRATED TO BE WARRANTED OR JUSTIFIED BY THE APPLICANT.
   c. THE AFFECTED STEEP SLOPE AREAS WHERE THE BUILDING LOTS ARE PLANNED MUST BE SUFFICIENTLY STABILIZED WITH RETAINING WALL AND/OR SOIL STABILIZATION DEVICES/METHODS THAT SHALL LESSEN THE POSSIBILITY OF SOILS AND RUNOFF. THE IMPACTED STEEP SLOPE AREAS MUST BE REVEGETATED OR STABILIZED WITH SUITABLE NATIVE SPECIES THAT WILL BIND THE SURFACE TIGHTLY. THESE STABILIZATION TECHNIQUES MUST BE CLEARLY DEMONSTRATED ON BOTH THE ROAD CONSTRUCTION DRAWINGS (WITH THE FINAL PLAT) AND THE SITE DEVELOPMENT PLAN.
   d. THE REMOVAL OF THE EIGHT (8) SPECIMEN TREES WILL REQUIRE MITIGATION WITH THE PLANTING OF 2:1 REPLACEMENT TREES (16 TOTAL) WITH A MINIMUM 3" CALIPER NATIVE PLANT SPECIES. THE REPLACEMENT TREES SHALL BE BONDED AND SHOWN ON THE LANDSCAPE PLAN WITH THE FORTHCOMING FINAL PLAN.
   e. THE REMAINING 35 SPECIMEN TREES SHALL BE SAVED AND PROTECTED DURING CONSTRUCTION ACTIVITY. ANY ADDITIONAL REMOVAL OF SPECIMEN TREES SHALL REQUIRE THE SUBMITTAL OF A NEW ALTERNATIVE COMPLIANCE PETITION APPLICATION.
   f. PROVIDE TREE PROTECTION FENCING AT THE TREES DRIP LINE, OR FARTHER OUT, TO PREVENT TREE DAMAGES FROM EXCAVATION, SOIL COMPACTION OF SOIL OVER ROOTS. THESE PROTECTION TECHNIQUES MUST BE DEMONSTRATED ON BOTH THE ROAD CONSTRUCTION DRAWINGS (WITH THE FINAL PLAT) AND THE SITE DEVELOPMENT PLAN.
   g. COMPLIANCE WITH THE CERTIFICATE OF APPROVAL ISSUED BY THE HISTORIC PRESERVATION COMMISSION FOR DEVELOPMENT OF THIS PROPERTY.
   h. THE CONSTRUCTION OF THE NEW HOUSES FACING TOWARDS CHURCH ROAD SHALL BE ADEQUATELY SCREENED USING BERMS, ENHANCED LANDSCAPING AND HOUSE SITING TO MINIMIZE IMPACTING THE NATURAL SETTING ALONG THE SCENIC ROAD. THIS CONDITION WILL BE EVALUATED FURTHER AT THE SITE DEVELOPMENT PLAN STAGE.
   i. PROVIDE A NOTE ON THE SP PLAN, THE FINAL PLAT AND THE SITE DEVELOPMENT PLAN REGARDING THIS ALTERNATIVE COMPLIANCE PETITION APPROVAL. THIS NOTE SHALL INCLUDE THOSE SUBDIVISION REGULATION SECTIONS PETITIONED, THE DATE OF THE ALTERNATIVE COMPLIANCE APPROVAL, AND THE CONDITIONS OF APPROVAL.
28. TRASH AND RECYCLABLES COLLECTION WILL BE AT MILL CREEK WAY WITHIN 5' OF THE COUNTY ROADWAY.
29. TWO PRIVATE RANGE OF ADDRESS SIGN ASSEMBLIES 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 ESTIMATE.
30. SUBDIVISION IS REQUIRED TO PROVIDE M.I.H.U. (MODERATE INCOME HOUSING UNIT). IT IS ANTICIPATED AT THIS TIME THAT A FEE-IN-LIEU WILL BE PAID. MIHU AGREEMENT WILL BE SUBMITTED WITH THIS FINAL PLAN OUTLINING HOW THE MIHU REQUIREMENT WILL BE MET.
   A. M.I.H.U. REQUIRED = 1.2 M.I.H.U.
      (12 LOTS X 10% M.I.H.U./LOT)
   B. ONE UNIT IS EXEMPT FROM MIHU REQUIREMENTS. (ONE EXISTING LOT)
31. STREET LIGHTS WILL BE REQUIRED IN THIS DEVELOPMENT IN ACCORDANCE WITH THE DESIGN MANUAL STREET LIGHT PLACEMENT AND THE TYPE OF FIXTURE AND POLE SELECTED SHALL BE IN ACCORDANCE WITH THE LATEST HOWARD COUNTY DESIGN MANUAL, VOLUME III (1993) AND AS REQUIRED BY "GUIDELINES FOR STREET LIGHTS IN RESIDENTIAL DEVELOPMENTS (JUNE 1993)." THE JUNE 1993 POLICY INCLUDES GUIDELINES FOR LATERAL AND LONGITUDINAL PLACEMENT. A MINIMUM SPACING OF 20' SHALL BE MAINTAINED BETWEEN ANY STREET LIGHT AND ANY TREE.
32. PLAN IS SUBJECT TO PLANNING BOARD APPROVAL ON NOVEMBER 17, 2016 AND SIGNED DECISION & ORDER ON MARCH 2, 2017, IN ACCORDANCE WITH SECTION 107.0 OF THE ZONING REGULATIONS.
33. THIS SUBDIVISION IS SUBJECT TO THE PROTECTION OF SCENIC ROADS, PER SECTION 16.125 OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS.

GENERAL NOTES continued

34. TRAFFIC CONTROL DEVICES:
   (a) THE R1-1 ("STOP") SIGN, R2-1 ("SPEED LIMIT 25"), W14-2a (NO OUTLET), AND THE STREET NAME SIGN (SNS) ASSEMBLY FOR THIS DEVELOPMENT MUST BE INSTALLED BEFORE THE BASE PAVING IS COMPLETED.
   (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 POSTS 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 POKE CAP SHALL BE MOUNTED ON TOP OF EACH POST.
35. ON APRIL 4, 2013 AND NOVEMBER 6, 2014, THE HISTORIC PRESERVATION COMMISSION (HPC) PROVIDED ADVISORY COMMENTS ON THE PROPOSED SUBDIVISION/SITE DEVELOPMENT PLAN IN CASES HDC-13-17 AND HPC-14-82. ON DECEMBER 3, 2015, THE HPC APPROVED THE DEMOLITION OF THE EXISTING STRUCTURES IN CASE HPC-15-78. THE REQUEST FOR TREE REMOVAL AND RETAINING WALL CONSTRUCTION WAS WITHDRAWN FROM THE HPC-15-78 APPLICATION. THE TREE REMOVAL AND RETAINING WALL CONSTRUCTION WAS RESUBMITTED FOR APPROVAL AND THE CONSTRUCTION OF THE RETAINING WALLS WAS APPROVED WITH CONDITIONS ON FEBRUARY 4, 2016 IN CASE HPC-16-06A. THE REQUEST FOR TREE REMOVAL WAS CONTINUED TO MARCH 3, 2016 AND APPROVED WITH AMENDMENTS IN CASE HPC-16-06B. ON DECEMBER 6, 2018, CASE No. HPC-18-61 WAS HELD TO REINSTATE THE PREVIOUS CASE No. HPC-15-078 AND HPC-16-06 (A) & (B). HOWEVER, SINCE THE APPROVED PROJECT (SP-15-013) HAD BEEN ON HOLD DUE TO COUNTY APFO REGULATIONS, IT HAS BEEN DETERMINED THAT THE REINSTATEMENT CASE HPC-18-61 IS NOT REQUIRED IF THE PROJECT CONTINUES WITHIN THE PLAN REVIEW PROCESS POST SP-15-013 AND THIS PLAN.
36. IN ACCORDANCE WITH SECTION 16.128 OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS, PRE-SUBMISSION COMMUNITY MEETINGS WERE HELD ON APRIL 3, 2013, JUNE 11, 2014, AND JULY 13, 2015 FOR THE DEVELOPER TO PROVIDE INFORMATION TO THE COMMUNITY REGARDING THE PROPOSED INITIAL PLAN SUBMITTAL AND TO ALLOW COMMUNITY RESIDENTS TO ASK QUESTIONS AND TO MAKE COMMENTS.
37. THE HOWARD COUNTY PLANNING BOARD SIGNED THE DECISION & ORDER GRANTING APPROVAL OF THE SP PLAN ON MARCH 2, 2017. BASED UPON THAT APPROVAL, DPZ HEREBY GRANTS TENTATIVE ALLOCATIONS FOR 12 HOUSING UNITS FOR THIS SUBDIVISION YEAR 2019.
38. THIS PROPERTY IS LOCATED WITHIN THE ELLICOTT CITY HISTORIC DISTRICT.
39. DRIVEWAYS SHALL BE PROVIDED PRIOR TO RESIDENTIAL OCCUPANCY TO ENSURE SAFE ACCESS FOR FIRE AND EMERGENCY VEHICLES PER THE FOLLOWING (MINIMUM) REQUIREMENTS:
   a. WIDTH - 12 FEET (16 FEET SERVING MORE THAN ONE RESIDENCE)
   b. SURFACE - SIX (6") INCHES OF COMPACTED CRUSHER RUN BASE WITH TAR AND CHIP COATING.
   c. GEOMETRY - MAXIMUM 15% GRADE, MAXIMUM 10% GRADE CHANGE AND MINIMUM OF 45 TURNING RADIUS.
   d. STRUCTURES (CULVERTS/BRIDGES) CAPABLE OF SUPPORTING 25 GROSS TONS (H 25 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.
40. AN EXISTING (EASEMENT) "RIGHT OF WAY OVER THE AVENUE 33 FEET IN WIDTH, 16.5 FEET OF WHICH IS LOCATED ON THIS PROPERTY, WAS LAID OUT FOR THE USE OF LOTS 5, 6 AND 8; SAID RIGHT OF WAY TO BE FOR THE PURPOSE OF INGRESS, EGRESS AND REGRESS TO BE USED IN COMMON WITH OTHERS HAVING A LIKE RIGHT UNDER THE EXISTING PROPERTY DEED." THIS EASEMENT IS FOR THE BENEFIT OF LYNWOOD FARM, LOT 5 WHICH IS THE SECOND PARCEL IN DEED FOR THIS SUBDIVISION, LOT 6 WHICH IS MADE UP OF CURRENT PARCELS 206 & 125, AND LOT 8 WHICH IS PARCEL 161. EASEMENT IS REFERENCE IN CURRENT DEED FOR THE PROPERTY UNDER LIBER 8317, FOLIO 657.
41. THIS SUBDIVISION IS NOT SUBJECT TO COUNCIL BILL 76-2018 (ELECTRIC VEHICLE CHARGING STATIONS) BECAUSE THE PRELIMINARY EQUIVALENT SKETCH PLAN FOR THIS SUBDIVISION WAS SIGNED PRIOR TO THE BILL'S EFFECTIVE DATE OF JAN. 11, 2019.
42. THIS FINAL PLAN IS NOT SUBJECT TO COUNCIL BILLS 61-2019, 62-2019 AND 63-2019 BECAUSE THE PRELIMINARY SKETCH PLAN (SP-15-013) WAS SIGNED ON APRIL 11, 2017 WHICH IS PRIOR TO THE FEBRUARY 5, 2020 ENACTMENT DATE OF THESE BILLS, PER SECTION 16.1202(B)(1) OF THE SUBDIVISION REGULATIONS.
43. WATERSHEDS: 0.95 AC TO THE SUCKER BRANCH TO THE PATAPSCO RIVER LOWER NORTH BRANCH (02130906) AND 7.60 AC TO UNNAMED TRIBUTARY OF THE HUDSON BRANCH TO

DocuSign Envelope ID: 79E9DBFB-CDDB-4FF4-A258-614B911C4A9B

SPECIMEN TREE TABLE

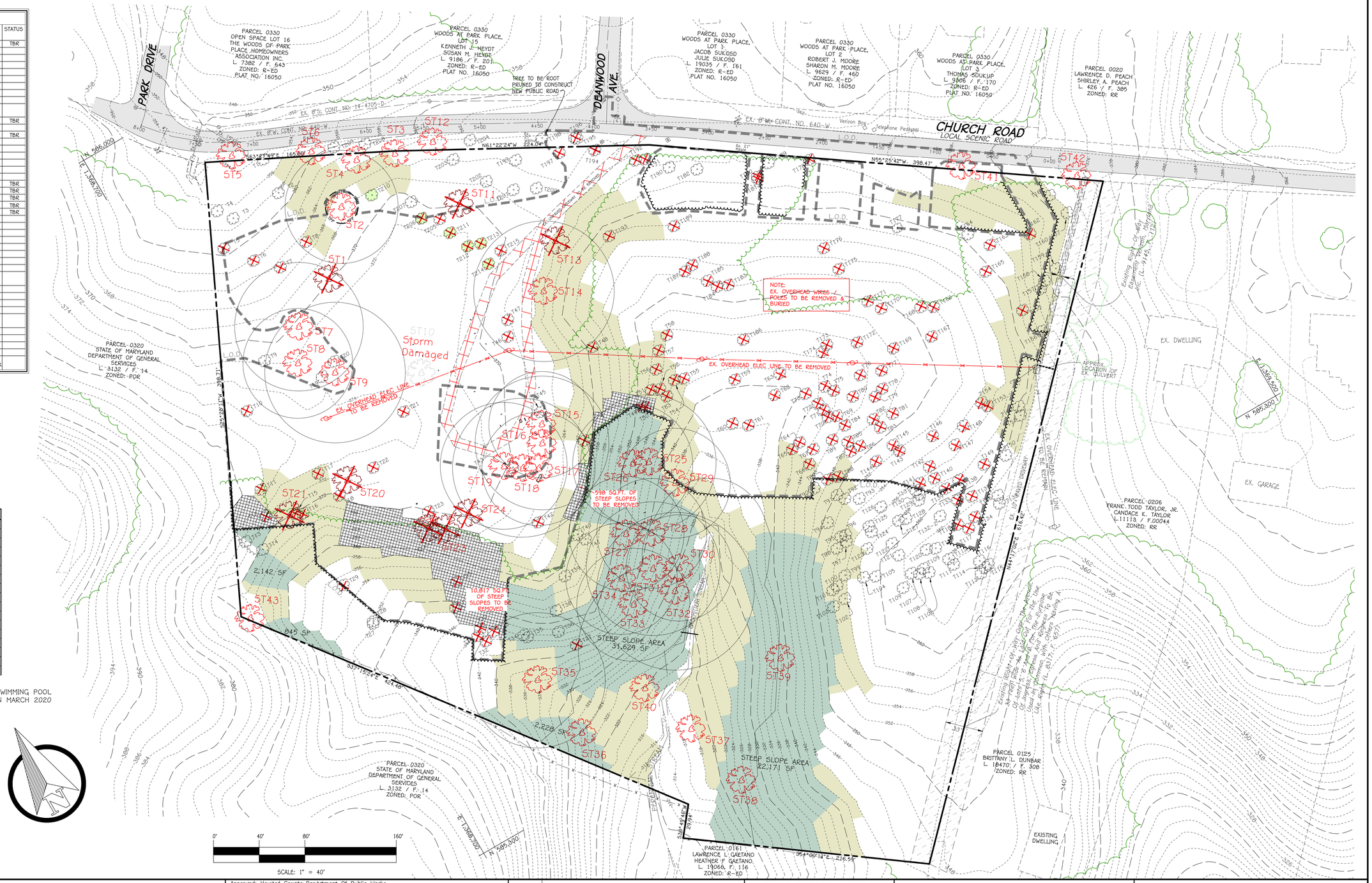
KEY	SPECIES	SIZE (DBH)	CRZ (FT RADIUS)	COMMENTS	STATUS
1	HEMLOCK	35"	52.5		TBR
2	NORWAY SPRUCE	33"	49.5		
3	WHITE PINE	37"	55.5		
4	WHITE PINE	38.5"	57.75		
5	SILVER MAPLE	49.5"	89.25		
6	SILVER MAPLE	36.5"	54.75		
7	BLACK WALNUT	37.5"	56.25		
8	BLACK WALNUT	32"	48		
9	BLACK WALNUT	41"	61.5		
11	SILVER MAPLE	42"	63	VERY POOR, TRUNK ROT	TBR
12	SILVER MAPLE	45.5"	68.25	POOR, TRUNK ROT	
13	SILVER MAPLE	52"	78	POOR, TRUNK ROT	TBR
14	ENGLISH WALNUT	41"	61.5		
15	SILVER MAPLE	31"	46.5	FAIR, LIMITED CROWN SPREAD	
16	SILVER MAPLE	39"	58.5		
17	SILVER MAPLE	33"	49.5	FAIR, LEANING	
18	SILVER MAPLE	40.5"	60.75	FAIR, NARROW CROWN	
19	SILVER MAPLE	37"	55.5	FAIR, LIMITED CROWN SPREAD	
20	SILVER MAPLE	45"	67.5	FAIR, LIMITED CROWN SPREAD	TBR
21	SILVER MAPLE	41"	61.5	FAIR, MAJOR LIMB BROKEN	TBR
22	SILVER MAPLE	32"	48		TBR
23	SILVER MAPLE	34"	51	FAIR, LIMITED CROWN SPREAD	TBR
24	SILVER MAPLE	35"	52.5	POOR, TRUNK ROT	TBR
25	TULIP POPLAR	39.5"	59.25		
26	TULIP POPLAR	35"	52.5	TWIN STEMS	
27	TULIP POPLAR	33.5"	50.25		
28	TULIP POPLAR	32"	48		
29	TULIP POPLAR	32"	48	TWIN STEMS	
30	TULIP POPLAR	31"	46.5		
31	TULIP POPLAR	39"	58.5		
32	TULIP POPLAR	46"	69		
33	TULIP POPLAR	33"	49.5	2 ADDITIONAL NEAR SPECIMEN SIZE TRUNKS	
34	TULIP POPLAR	32.5"	48.75		
35	TULIP POPLAR	39.5"	59.25		
36	TULIP POPLAR	40"	60		
37	TULIP POPLAR	55"	82.5		
38	TULIP POPLAR	61"	91.5	SPLITS INTO 2 TRUNKS ABOVE DBH	
39	TULIP POPLAR	41"	61.5		
40	SYCAMORE	31"	46.5		
41	SILVER MAPLE	31.5"	47.25	POOR, VERY LIMITED CROWN	
42	SILVER MAPLE	39.5"	59.25	POOR, CROWN REDUCED	
43	SILVER MAPLE	39"/32"	58.5	POOR, SPLIT TRUNK ABOVE BREAST HEIGHT, TRUNK ROT, AND LIMB DIEBACK	

NOTE: "TBR" REFERS TO EXISTING SPECIMEN TREES TO BE REMOVED.

LEGEND

SYMBOL	DESCRIPTION
352	EXISTING CONTOUR 2' INTERVAL
350	EXISTING CONTOUR 10' INTERVAL
S	EXISTING SAN. SEWER LINE
D	EXISTING STORM DRAIN LINE
W	EXISTING WATER LINE
OHE	EX. OVERHEAD ELECTRIC LINE & POWER POLE
x x	EXISTING FENCE
	EXISTING PAVING
	EXISTING TREES
	EXISTING TREES TO BE REMOVED
T19	SPECIMEN TREES
	EXISTING TREELINE
	SLOPES 15% - 24.9%
	SLOPES 25% OR GREATER
	EX. DRIVEWAY DEMOLITION
	STEEP SLOPE TO BE REMOVED

NOTE: EXISTING STRUCTURES, OUT BUILDINGS AND SWIMMING POOL HAVE BEEN RAZED AND REMOVED FROM THE SITE IN MARCH 2020 UNDER DEMOLITION PERMIT NUMBER B-18003545.



FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855

Approved: Howard County Department Of Public Works
Chief, Bureau Of Highways — 9/11/2023 Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
Chief, Development Engineering Division — 9/11/2023 Date
Chief, Division of Land Development — 9/13/2023 Date

DATE	DESCRIPTION
	REVISIONS

"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY 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. 20748, EXPIRATION DATE: 2-22-25."

STATE OF MARYLAND — ALDO MICHAEL VITUCCI — 20748 — PROFESSIONAL ENGINEER

Aldo M. Vitucci, P.E.

ALDO M. VITUCCI, P.E.

OWNERS
LACEY FAMILY REVOCABLE TRUST
12351 WILD ROSE COURT
MARRIOTTSVILLE, MD 21104
ATTN: MR. VINCENT LACEY

DEVELOPER
LAND HOLDINGS LLC
C\O B. JAMES GREENFIELD
6420 AUTUMN SKY WAY
COLUMBIA, MD 21044
443-324-4732

PROJECT			SECTION/AREA		PARCEL
LACEY PROPERTY			N/A		13
PLAT NOS.	BLOCK NO.	ZONE	TAX MAP	ELEC. DIST.	CENSUS TR.
-	1	R-ED	25	SECOND	602900

DEMOLITION PLAN

LACEY PROPERTY
LOTS 1 THRU 13 AND OPEN SPACE LOTS 14 THRU 17

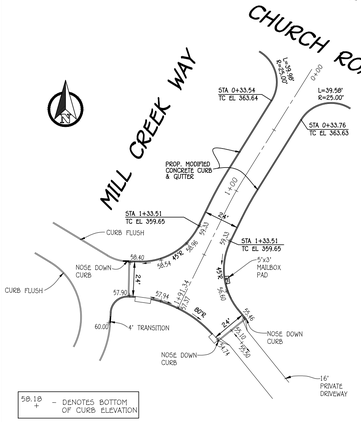
ZONED: R-ED
PARCEL No.: 13
TAX MAP No.: 25 GRID No.: 1
SECOND ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: AS SHOWN DATE: APRIL 4, 2023
SHEET 2 OF 24

F-21-015

DocuSign Envelope ID: 79E9DBFB-CDDB-4FF4-A258-614B911C4A9B

LEGEND	
SYMBOL	DESCRIPTION
——— S ———	EXISTING SAN. SEWER LINE
——— SD ———	EXISTING STORM DRAIN LINE
----------	EXISTING WATER LINE
+ 344.29	PROPOSED SPOT ELEVATION
	PROPOSED CONCRETE WALK
	PROPOSED MACADAM PAVING
8" W	PROPOSED PUBLIC WATER
18" RCCP	PROPOSED STORMDRAIN
8" S	PROPOSED PUBLIC SEWER
	FOREST CONSERVATION AREA

CURVE TABLE						
CURVE #	LENGTH	RADIUS	TANGENT	DELTA	CHORD BEARING	CHORD LENGTH
C1	24.14'	230.00'	12.08'	05° 48' 40"	S29° 00' 46"W	24.14'
C2	21.45	41.00'	10.74'	029° 22' 00"	S73° 36' 14"E	20.79'
C3	62.58'	39.00'	40.34'	091° 56' 19"	S75° 06' 37"W	56.08'
C4	57.41'	39.00'	35.33'	084° 20' 55"	S13° 01' 59"E	52.37'
C5	59.17'	35.00'	39.47'	096° 51' 54"	N76° 21' 36"E	52.37'
C6	22.79'	53.00'	11.57'	024° 38' 17"	N15° 36' 31"E	22.62'
C7	31.86'	92.00'	16.09'	019° 50' 19"	S48° 48' 44"E	31.70'

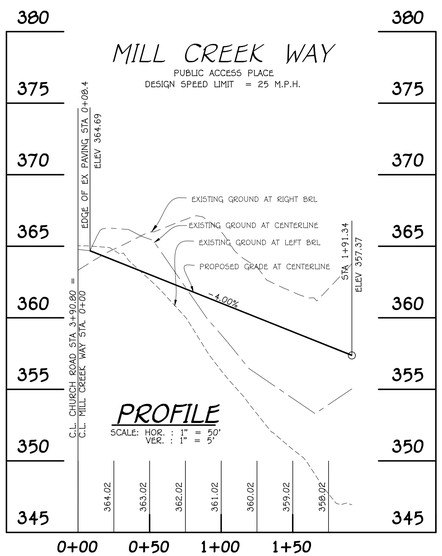


TURN AROUND DETAIL

Y-TURNAROUND HO.CO. DETAIL R-5.07

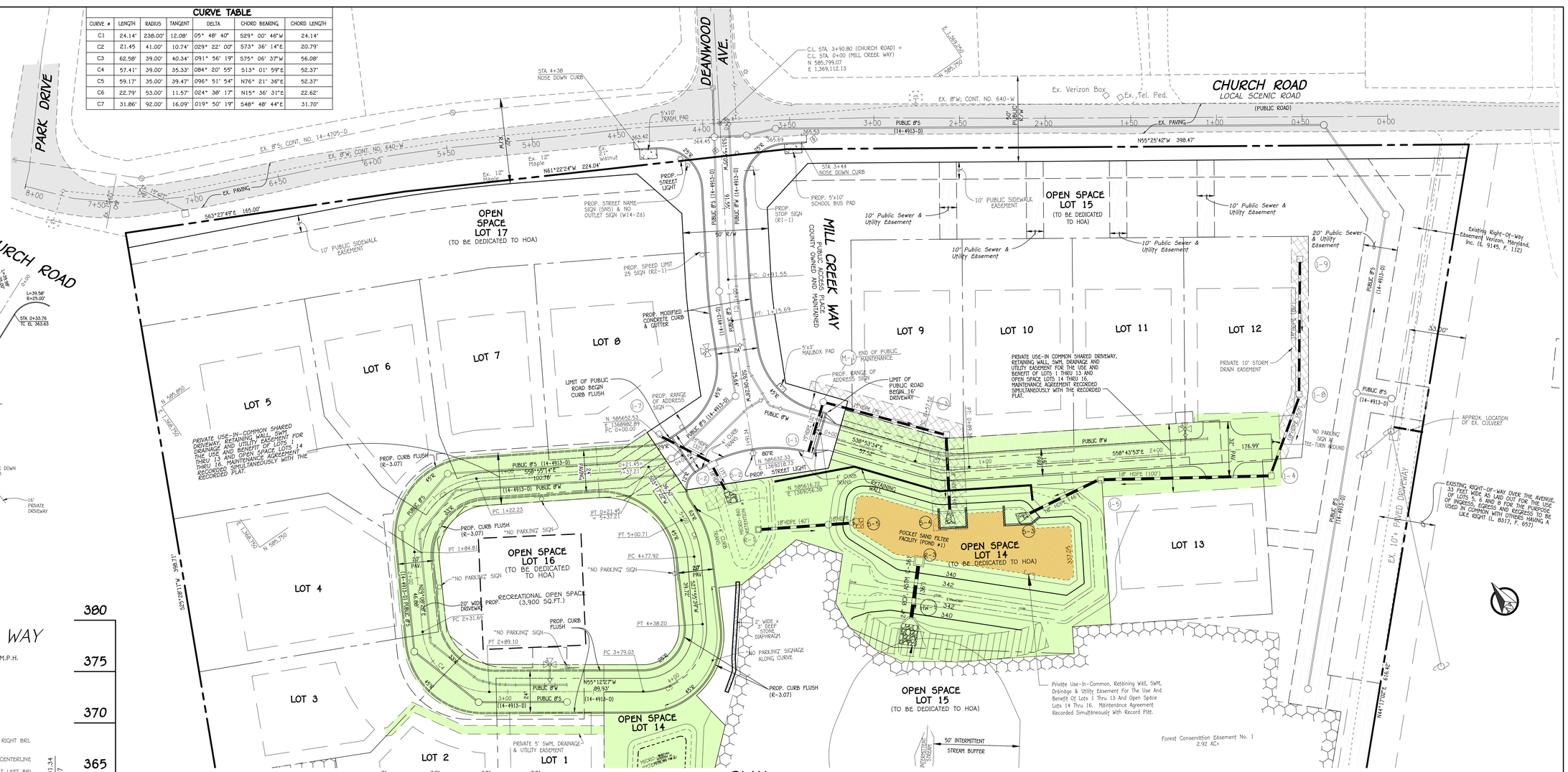
0' 50' 100' 150'

Scale: 1" = 50'

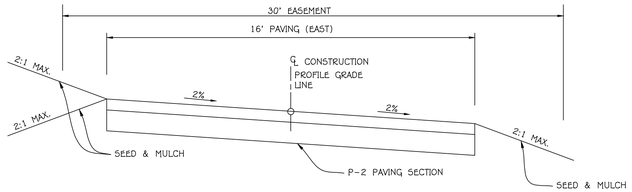


PROFILE

SCALE: HOR. : 1" = 50'
VER. : 1" = 5'

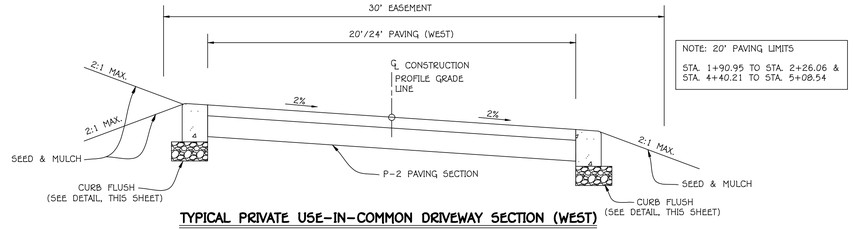

PARK DRIVE
DEANWOOD AVE.
CHURCH ROAD
LOCAL SCENIC ROAD
(PUBLIC ROAD)
MILL CREEK WAY
COUNTY DESIGNED AND MAINTAINED PUBLIC ACCESS PLACE
OPEN SPACE LOT 17 (TO BE DEDICATED TO HOA)
OPEN SPACE LOT 16 (TO BE DEDICATED TO HOA)
OPEN SPACE LOT 15 (TO BE DEDICATED TO HOA)
OPEN SPACE LOT 14 (TO BE DEDICATED TO HOA)
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
RECREATIONAL OPEN SPACE (3,900 SQ.FT.)
POCKET SAND FILTER FACILITY (POND #1)
RETAINING WALL
PRIVATE USE-IN-COMMON SHARED DRIVEWAY, RETAINING WALL, SWM, DRAINAGE AND UTILITY EASEMENT FOR THE USE AND BENEFIT OF LOTS 1 THRU 13 AND OPEN SPACE LOTS 14 THRU 16. MAINTENANCE AGREEMENT RECORDED SIMULTANEOUSLY WITH THE RECORDED PLAT.
Private Use-In-Common, Retaining Wall, SWM, Drainage & Utility Easement For The Use And Benefit Of Lots 1 Thru 13 And Open Space Lots 14 Thru 16. Maintenance Agreement Recorded Simultaneously With Record Plat.
Forest Conservation Easement No. 1 2.92 AC±
50' INTERMITTENT STREAM BUFFER
Ex. Verizon Box
Ex. Tel. Ped.
Ex. 12" Maple
Ex. Walnut
Ex. 8"S; CONT. NO. 14-4705-D
Ex. 8"W; CONT. NO. 640-W
EX. PAVING
PROP. STREET LIGHT
PROP. STOP SIGN (R1-1)
PROP. 5'x10' SCHOOL BUS PAD
PROP. SPEED LIMIT 25 SIGN (R2-1)
PROP. MODIFIED CONCRETE CURB & GUTTER
PROP. RANGE OF ADDRESS SIGN
PROP. CURB FLUSH (R-3.07)
PROP. STREET NAME SIGN (SNS) & NO OUTLET SIGN (W14-2a)
10' PUBLIC SIDEWALK EASEMENT
10' Public Sewer & Utility Easement
20' Public Sewer & Utility Easement
5'x3' MAILBOX PAD
END OF PUBLIC MAINTENANCE
LIMIT OF PUBLIC ROAD BEGIN CURB FLUSH
LIMIT OF PUBLIC ROAD BEGIN 16' DRIVEWAY
4' CURB WALL
18" HDPE (100')
"NO PARKING" SIGN AT TEE-TURN AROUND
PRIVATE 10' STORM DRAIN EASEMENT
APPROX. LOCATION OF EX. CULVERT
EXISTING RIGHT-OF-WAY OVER THE AVENUE, 33 FEET WIDE AS LAID OUT FOR THE USE OF INGRESS, EGRESS AND ACCESS TO BE USED IN COMMON WITH OTHERS HAVING A LIKE RIGHT (L. 8317, F. 657)
EX. 10'± PAVED DRIVEWAY
Existing Right-Of-Way Easement Verizon, Maryland, Inc. (L. 9145, F. 112)
"NO PARKING" SIGN
2' WIDE x 3' DEEP STONE DIAPHRAGM
NO PARKING" SIGNAGE ALONG CURVE
PROP. CURB FLUSH (R-3.07)
PRIVATE 5' SWM, DRAINAGE & UTILITY EASEMENT
C.L. STA. 3+90.80 (CHURCH ROAD) = C.L. STA. 0+00 (MILL CREEK WAY) N 585,799.07 E 1,369,112.13
N55°25'42"W 398.47'
N61°22'24"W 224.04'
S63°27'49"E 165.00'
S25°28'14"W 398.71'
N14°17'02"E 616.42'
PUBLIC 8"S (14-4913-D)
PUBLIC 8"W (14-4913-D)
PUBLIC 6"S (14-4913-D)
PUBLIC 6"W (14-4913-D)
PUBLIC 12"S (14-4913-D)
PUBLIC 12"W (14-4913-D)
PUBLIC 18"S (14-4913-D)
PUBLIC 18"W (14-4913-D)
PUBLIC 24"S (14-4913-D)
PUBLIC 24"W (14-4913-D)
PUBLIC 30"S (14-4913-D)
PUBLIC 30"W (14-4913-D)
PUBLIC 36"S (14-4913-D)
PUBLIC 36"W (14-4913-D)
PUBLIC

DocuSign Envelope ID: 79E9DBFB-CDDB-4FF4-A258-614B911C4A9B



TYPICAL PRIVATE USE-IN-COMMON DRIVEWAY SECTION (EAST)

NO SCALE



NOTE: 20' PAVING LIMITS

STA. 1+90.95 TO STA. 2+26.06 &
STA. 4+40.21 TO STA. 5+08.54

TYPICAL PRIVATE USE-IN-COMMON DRIVEWAY SECTION (WEST)

NO SCALE

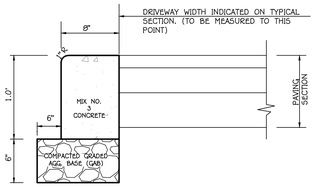
USE-IN-COMMON DRIVEWAY INFORMATION CHART

ROAD NAME	CLASSIFICATION	DESIGN SPEED	ZONING	℄ STATION LIMITS	PAVING SECTION
PRIVATE DRIVEWAY (EAST)	USE-IN-COMMON DRIVEWAY	15 M.P.H.	R-ED	0+00 TO 2+66.37	P-2

USE-IN-COMMON DRIVEWAY INFORMATION CHART

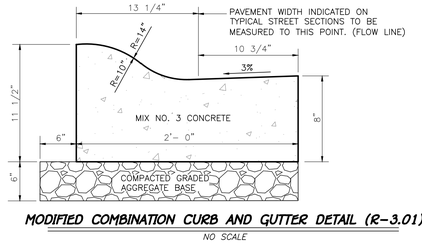
ROAD NAME	CLASSIFICATION	DESIGN SPEED	ZONING	℄ STATION LIMITS	PAVING SECTION
PRIVATE DRIVEWAY (WEST)	USE-IN-COMMON DRIVEWAY	15 M.P.H.	R-ED	0+00 TO 5+31.07	P-2

SECTION NUMBER	ROAD AND STREET CLASSIFICATION	CALIFORNIA BEARING RATIO (CBR)	3 TO <5	5 TO <7	≥7	3 TO <5	5 TO <7	≥7
		PAVEMENT MATERIAL (INCHES)	MIN HMA WITH GAB			HMA WITH CONSTANT GAB		
P-2	PARKING DRIVE AISLES: RESIDENTIAL AND NON-RESIDENTIAL WITH NO MORE THAN 10 HEAVY TRUCKS PER DAY LOCAL ROADS: ACCESS PLACE, ACCESS STREET CUL-DE-SACS: RESIDENTIAL	SUPERPAVE ASPHALT MIX FINAL SURFACE 9.5 MM, PG 64-22, LEVEL 1 (ESAL)	1.5	1.5	1.5	1.5	1.5	1.5
		SUPERPAVE ASPHALT MIX INTERMEDIATE SURFACE 9.5 MM, PG 64-22S; LEVEL 1 (ESAL)	1.5	1.5	1.5	1.5	1.5	1.5
		SUPERPAVE ASPHALT MIX BASE 19.0 MM, PG 64-22S, LEVEL 1 (ESAL)	2.0	2.0	2.0	3.5	2.0	2.0
		GRADED AGGREGATE BASE (GAB)	8.0	4.0	3.0	4.0	4.0	4.0



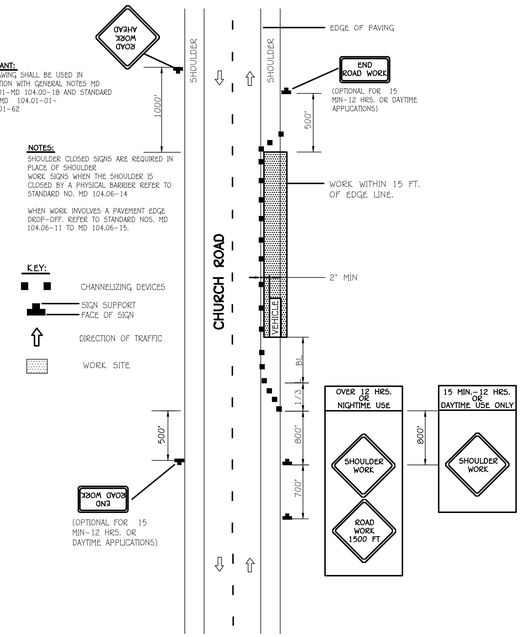
CURB FLUSH DETAIL (R-3.07)

NO SCALE



MODIFIED COMBINATION CURB AND GUTTER DETAIL (R-3.01)

NO SCALE



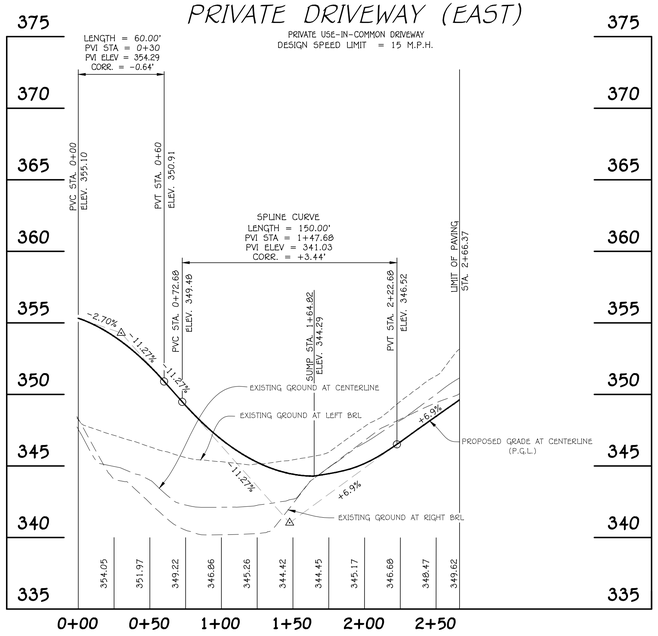
SHOULDER WORK/2-LANE, 2-WAY EQL/LESS THAN 40 MPH

NO SCALE

NOTE:
SEE SHEET 6 FOR "FLAGGING OPERATION 1/-LANE, 2-WAY EQUAL/LESS THAN 40 MPH" DETAIL.

PRIVATE DRIVEWAY (EAST)

PRIVATE USE-IN-COMMON DRIVEWAY
DESIGN SPEED LIMIT = 15 M.P.H.

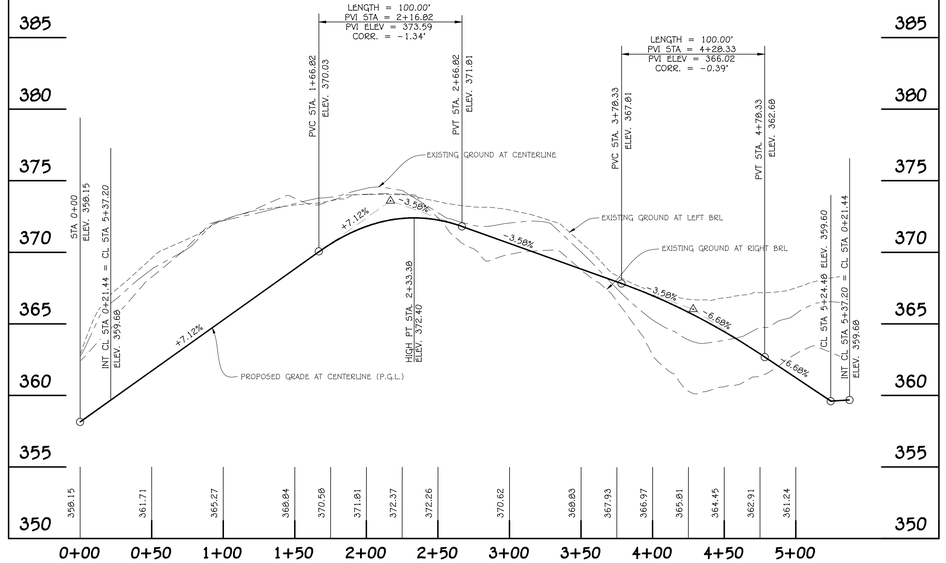


PROFILE

SCALE: HOR. : 1" = 50'
VER. : 1" = 5'

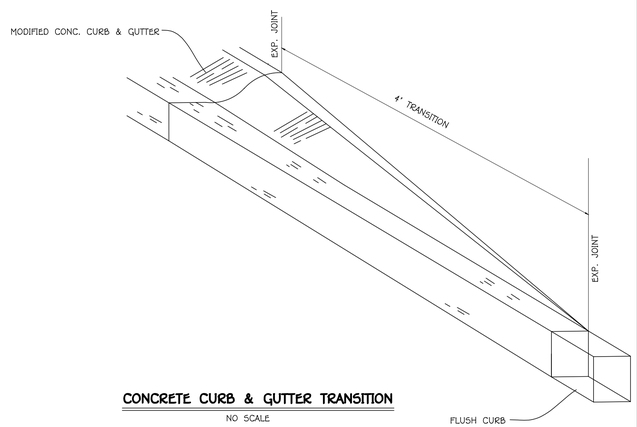
PRIVATE DRIVEWAY (WEST)

PRIVATE USE-IN-COMMON DRIVEWAY
DESIGN SPEED LIMIT = 15 M.P.H.



PROFILE

SCALE: HOR. : 1" = 50'
VER. : 1" = 5'



CONCRETE CURB & GUTTER TRANSITION

NO SCALE

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855

Approved: Howard County Department Of Public Works
DocuSigned by: [signature] 5C2B5821AE4D4C2...
Chief, Bureau Of Highways — 9/11/2023 Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
DocuSigned by: Child Edmondson 7063F754EE41469...
Chief, Development Engineering Division — 9/11/2023 Date
DocuSigned by: [signature] 4D7B4F8A0D0B4A4...
Chief, Division of Land Development — 9/13/2023 Date

DATE	DESCRIPTION
	REVISIONS

"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY 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. 20748, EXPIRATION DATE: 2-22-25."

STATE OF MARYLAND · ALDO MICHAEL VITUCCI · No. 20748 · PROFESSIONAL ENGINEER

Aldo M. Vitucci, P.E.

ALDO M. VITUCCI, P.E.

OWNERS
LACEY FAMILY REVOCABLE TRUST
1235 WILD ROSE COURT
MARRIOTTSVILLE, MD 21104
ATTN: MR. VINCENT LACEY

DEVELOPER
LAND HOLDINGS LLC
C\O B. JAMES GREENFIELD
6420 AUTUMN SKY WAY
COLUMBIA, MD 21044
443-324-4732

PROJECT			SECTION/AREA		PARCEL
LACEY PROPERTY			N/A		13
PLAT NOS.	BLOCK NO.	ZONE	TAX MAP	ELEC. DIST.	CENSUS TR.
-	1	R-ED	25	SECOND	602900

PRIVATE USE-IN-COMMON DRIVEWAY PROFILES AND DETAILS

LACEY PROPERTY
LOTS 1 THRU 13 AND OPEN SPACE LOTS 14 THRU 17

ZONED: R-ED
PARCEL No.: 13
TAX MAP No.: 25 GRID No.: 1
SECOND ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: AS SHOWN DATE: JULY 10, 2023
SHEET 4 OF 24

F-21-015

DocuSign Envelope ID: 79E9DBFB-CDDB-4FF4-A258-614B911C4A9B

LEGEND	
SYMBOL	DESCRIPTION
352	EXISTING CONTOUR 2' INTERVAL
350	EXISTING CONTOUR 10' INTERVAL
	EXISTING SAN. SEWER LINE
	EXISTING STORM DRAIN LINE
	EXISTING WATER LINE
	EXISTING OVERHEAD ELECTRIC LINE
	EXISTING FENCE
352	PROPOSED CONTOUR 2' INTERVAL
350	PROPOSED CONTOUR 10' INTERVAL
+ 344.29	PROPOSED SPOT ELEVATION
	PROPOSED CONCRETE WALK
	EXISTING MACADAM PAVING
	EXISTING TREES
	EXISTING TREELINE
	PROPOSED TREELINE
8" W	PROPOSED PUBLIC WATER
18" RCCP	PROPOSED STORMDRAIN
8" S	PROPOSED PUBLIC SEWER
	SOILS DELINEATION
SSF	SUPER SILT FENCE
	FOREST CONSERVATION AREA
	RIPRAP OUTLET PROTECTION
	STEEP SLOPES 15% - 24.9%
	STEEP SLOPES 25.0% OR GREATER
TPF	TREE PROTECTION FENCE
SSF	DOUBLE ROW SUPER SILT FENCE
L.O.D.	LIMIT OF DISTURBANCE (L.O.D.)

NOTES:

1. FOR DRYWELL DETAIL SEE SHEET 10.
2. FOR TGOS SEE DETAIL SEE SHEET 10.

NOTE: SEE SHEET 24 FOR SEDIMENT BASIN #1 PROFILES & DETAILS

NOTE: SEE SHEET 11 FOR FINAL SWM CONVERSION

PARK DRIVE

PARCEL 0330 OPEN SPACE LOT 16 THE WOODS OF PARK PLACE HOMEOWNERS ASSOCIATION INC. L. 7382 / F. 643 ZONED: R-ED PLAT NO. 16050

WOODS AT PARK PLACE LOT 15 KENNETH J. HEYDT SUSAN M. HEYDT L. 9186 / F. 201 ZONED: R-ED PLAT NO. 16050

DEANWOOD AVE.

PARCEL 0330 WOODS AT PARK PLACE, LOT 1 JACOB SUKOSD JULIE SUKOSD L. 19035 / F. 16 ZONED: R-ED PLAT NO. 16050

LAND DEDICATED TO HOWARD COUNTY, MD. FOR THE PURPOSE OF A PUBLIC ROAD

PARCEL 0330 WOODS AT PARK PLACE, LOT 2 ROBERT J. MOORE SHARON M. MOORE L. 9629 / F. 460 ZONED: R-ED PLAT NO. 16050

PARCEL 0330 WOODS AT PARK PLACE, LOT 3 THOMAS SOUKUP L. 9306 / F. 170 ZONED: R-ED PLAT NO. 16050

PARCEL 0020 LAWRENCE D. PEACH SHIRLEY A. PEACH L. 426 / F. 385 ZONED: RR

CHURCH ROAD LOCAL SCENIC ROAD

N 586,000

E 1,368,700

OPEN SPACE LOT 17 (TO BE DEDICATED TO HOA)

OPEN SPACE LOT 15 (TO BE DEDICATED TO HOA)

OPEN SPACE LOT 16 (TO BE DEDICATED TO HOA)

OPEN SPACE LOT 14 (TO BE DEDICATED TO HOA)

OPEN SPACE LOT 15 (TO BE DEDICATED TO HOA)

MILL CREEK WAY PUBLIC ACCESS PLACE

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

STOCKPILE AREA

STOCKPILE & STAGING AREA

20' WIDE PROP. DRIVEWAY

DRIVEWAY ENTRANCE PER R-6.05

PROP. CURB FLUSH

NOSE DOWN CURB TYP.

PARCEL 0320 STATE OF MARYLAND DEPARTMENT OF GENERAL SERVICES L. 3132 F. 14 ZONED: POR

PSSMC #4

PSSMC #3

PSSMC #2

PSSMC #1

Ex. Old Wire Fence

APPROX. LOCATION OF EX. CULVERT

INV. 15" TEMP. CLEANWATER DIVERSION PIPE 359.0

PARCEL 0206 FRANK TODD TAYLOR, JR. CANDACE K. TAYLOR L. 11113 / F. 00044 ZONED: RR

50' INTERMITTENT STREAM BUFFER

75' PERENNIAL STREAM BUFFER

INTERMITTENT STREAM

S63°27'49"E 165.00'

N61°22'24"W 224.04'

N25°25'42"W 398.47'

S37°15'24"E 424.48'

N44°17'02"E 615.42'

SCALE: 1" = 30'

AS-BUILT CERTIFICATION

I Hereby Certify That The Facility Shown On This Plan Was Constructed As Shown On The " As-Built" Plans And Meets The Approved Plans And Specifications.

Signature P.E. No.

Date:

Certify Means To State Or Declare A Professional Opinion Based Upon Onsite Inspections And Material Tests Which Are Conducted During Construction. The Onsite Inspections And Material Tests Are Those Inspections And Tests Deemed Sufficient And Appropriate Commonly Accepted Engineering Standards. Certify Does Not mean Or Imply A Guarantee By The Engineer Nor Does An Engineer's Certification Relieve Any Other Party From Meeting Requirements Imposed By Contract, Employment, Or Other Means, Including Meeting Commonly Accepted Industry Practices.

By The Developer:
"I/we Certify That All Development And/Or Construction Will Be Done According To These Plans, Registered Professional Engineer To Supervise Pond Construction And Provide The Howard Soil And That Any 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 Shall Engage A Conservation District With An "As-Built" Plan Of The Pond within 30 Days Of Completion. I Also Authorize Periodic On-Site Inspections By The Howard Soil Conservation District."

Jim Greenfield 9/1/2023

Signature Of Developer Date

Jim Greenfield

Printed Name Of Developer

By The Engineer:
"I Certify That This Plan For Pond Construction, Erosion And Sediment Control Represents A Practical And Workable Plan Based On My Personal Knowledge Of The Site Conditions. This Plan Was Prepared In Accordance With The Requirements Of The Howard Soil Conservation District. "As-Built" Plan Of The Pond Within 30 Days Of Completion." I Have Notified The Developer That He/She Must Engage A Registered Professional Engineer To Supervise Pond Construction And Provide The Howard Soil Conservation District With An

Aldo M. Vitucci, P.E. 9/5/2023

Signature Of Engineer Date

Aldo M. Vitucci, P.E.

Printed Name Of Engineer

These Plans For Small Pond Construction, Soil Erosion And Sediment Control Meet The Requirements Of The Howard Soil Conservation District.

DocuSigned by: Alexander Bratchie 9/11/2023

Howard Soil Conservation District Date

DESIGN CERTIFICATE

"I hereby certify that this plan has been designed in Accordance with current Maryland erosion and sediment control laws, regulations, and standards, that it represents a practical and workable plan based on my personal knowledge of the site, and that it was prepared in accordance with the requirements of the Howard Soil Conservation District."

Aldo M. Vitucci, P.E. 3/20/23

Designer's Signature Date

ALDO MICHAEL VITUCCI MD Registration No. 20748 (P.E. R.L.S., or R.L.A. (circle one)

Printed Name

OWNER'S/DEVELOPER CERTIFICATE

"I/We hereby certify that any clearing, grading, construction, or development will be done pursuant to this approved erosion and sediment control plan, including inspecting and maintaining controls, and that the responsible personnel involved in the construction project will have a Certificate of Training at a Maryland Department of the Environment (MDE) approved training program for the control on erosion and sediment prior to beginning the project. I certify right-of-entry for periodic on-site evaluation by Howard County, the Howard Soil Conservation District and/or MDE."

Jim Greenfield 9/5/2023

Owner's/Developer's Signature Date

Jim Greenfield

Printed Name & Title

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855

Approved: Howard County Department Of Public Works

Chief, Bureau Of Highways 9/11/2023 Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division 9/11/2023 Date

Chief, Division of Land Development 9/13/2023 Date

This development plan is approved for soil erosion and sediment control by the HOWARD SOIL CONSERVATION DISTRICT.

Howard Soil Conservation District. 9/11/2023 Date

DATE	DESCRIPTION
	REVISIONS

"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY 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. 20748, EXPIRATION DATE: 2-22-25."

STATE OF MARYLAND ALDO MICHAEL VITUCCI No. 20748 PROFESSIONAL ENGINEER

Aldo M. Vitucci, P.E.

ALDO M. VITUCCI, P.E.

OWNERS
LACEY FAMILY REVOCABLE TRUST
1235 WILD ROSE COURT
MARRIOTTSVILLE, MD 21104
ATTN: MR. VINCENT LACEY

DEVELOPER
LAND HOLDINGS LLC
C\O B. JAMES GREENFIELD
6420 AUTUMN SKY WAY
COLUMBIA, MD 21044
443-324-4732

PROJECT			SECTION/AREA		PARCEL
LACEY PROPERTY			N/A		13
PLAT NOS.	BLOCK NO.	ZONE	TAX MAP	ELEC. DIST.	CENSUS TR.
-	1	R-ED	25	SECOND	602900

GRADING & SEDIMENT CONTROL PLAN

LACEY PROPERTY
LOTS 1 THRU 13 AND OPEN SPACE LOTS 14 THRU 17

ZONED: R-ED
PARCEL No.: 13
TAX MAP No.: 25 GRID No.: 1
SECOND ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: AS SHOWN DATE: JULY 10, 2023
SHEET 5 OF 24

F-21-015

DocuSign Envelope ID: 79E9DBFB-CDDB-4FF4-A258-614B911C4A9B

SOIL PREPARATION, TOPSOILING AND SOIL AMENDMENTS (B-4-2)

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 DISCING 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 DISCING 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 CONCERN 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 FURNISH 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, TREES, BRUSH, OR OTHER MATERIALS LARGER THAN 1 1/2 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.

TEMPORARY SEEDING NOTES (B-4-4)

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 B.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 B.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): 6b				FERTILIZER RATE (10-20-20)	LIME RATE
SEED MIXTURE (FROM TABLE B.1):					
SPECIES	APPLICATION RATE (LB/AC)	SEEDING DATES	SEEDING DEPTHS		
BARLEY	96	3/1 - 5/15, 8/15 - 10/15	1"	436 LB/AC (10 LB/ 1000 SF)	2 TONS/AC (90 LB/ 1000 SF)
OATS	72	3/1 - 5/15, 8/15 - 10/15	1"		
RYE	112	3/1 - 5/15, 8/15 - 10/15	1"		
FOXTAIL MILLET	30	6/1 - 7/31	0.50"		

PERMANENT SEEDING NOTES (B-4-5)

A. SEED MIXTURES

1. GENERAL USE

A. SELECT ONE OR MORE OF THE SPECIES OR MIXTURES LISTED IN TABLE B.3 FOR THE APPROPRIATE PLANT HARDINESS ZONE (FROM FIGURE B.3) AND BASED ON THE SITE CONDITION OR PURPOSE FOUND ON TABLE B.2. ENTER SELECTED MIXTURE(S), APPLICATION RATES, AND SEEDING DATES IN THE PERMANENT SEEDING SUMMARY. THE SUMMARY IS TO BE PLACED ON THE PLAN.

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: 1 1/2 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, "MEANS OF SUCH RECOMMENDATIONS".

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 TYPE GRASS MIXTURES WESTERN MD: MARCH 15 TO JUNE 1, AUGUST 1 TO OCTOBER 1 (HARDINESS ZONES: 5B, 6A) CENTRAL MD: MARCH 1 TO MAY 15, AUGUST 15 TO OCTOBER 15 (HARDINESS ZONE: 6A) 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 1 1/2 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.

PERMANENT SEEDING SUMMARY

HARDINESS ZONE (FROM FIGURE B.3): 6B				FERTILIZER RATE (10-20-20)			LIME RATE
SEED MIXTURE (FROM TABLE B.3): 8							
NO.	SPECIES	APPLICATION RATE (LB/AC)	SEEDING DATES	SEEDING DEPTHS	N	P_2O_5	K_2O	
8	TALL FESCUE	100	MAR. 1-MAY 15 AUG. 15 - NOV. 15	1/4-1/2 IN.	45 LBS. PER ACRE (1.0 LB/ 1000 SF)	90 LB/AC (2 LB/ 1000 SF)	90 LB/AC (2 LB/ 1000 SF)	2 TONS/AC (90 LB/ 1000 SF)
8	MILLET FOXTAIL	50	MAY 15-JUNE15	1/4-1/2 IN.				
8	SOD	100	Mar. 15-May 31 May 16-Sept.14 Sept.15-Nov.15	1/4-1/2 in.				
8	SWITCH GRASS or HIGH CLOVER (LEGUME)	10 2	June 1-July 31	4-7 in. Max.				

STANDARD STABILIZATION NOTE

FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL 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.

STANDARDS AND SPECIFICATIONS FOR STOCKPILE AREA (B-4-8)

DEFINITION

THE 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 THA 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. CLEAN 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.

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

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 REQUIREMENT 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 WEEDCONTROL 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.
INCORPORATE SEED INTO THE SUBSOIL AT THE RATES PRESCRIBED ON TEMPORARY SEEDING TABLE B.1; PERMANENT SEEDING TABLE B.3, OR SITE-SPECIFIC SEEDING SPECIFICATIONS.
2. APPLY SEED IN TWO DIRECTIONS, PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION. ROLL THE SEEDED AREA WITH WEIGHTED ROLLER TO PROVIDE GOOD SEED TO SOIL CONTACT.
B. DRILL OR CULTIPACKER SEEDING: MECHANIZED SEEDERS THAT APPLY AND COVER SEED WITH SOIL.
1. CULTIPACKING SEEDERS ARE REQUIRED TO BURY THE SEED IN SOIL IN A FASHION AS TO PROVIDE AT LEAST 1/4 INCH OF SOIL COVERING. SEEDBED MUST BE FIRM AFTER PLANTING.
2.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).
1. IF FERTILIZER IS BEING APPLIED AT THE TIME OF SEEDING, THE APPLICATION RATES SHOULD NOT EXCEED THE FOLLOWING: NITROGEN, 100 POUNDS PER ACRE (2.5 POUNDS PER 1000 SQUARE FEET); N (PHOSPHORUS), 200 POUNDS PER ACRE; K O (POTASSIUM), 200 POUNDS PER ACRE.
2. LIME: LIME USE ONLY GROUND AGRICULTURAL LIMESTONE (SEE 17 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.
3. MIX SEED AND FERTILIZER ON SITE AND SEED IMMEDIATELY AND WITHOUT INTERRUPTION.
4. 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, RYE, OAT, OR BARLEY AND REASONABLY BRIGHT IN COLOR. STRAW IS TO BE FREE OF NOXIOUS WEED SEEDS AS SPECIFIED IN THE MARYLAND SEED LAW AND NOT MOLDY, MOLDED, 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 UNIFORM FIBROUS PHYSICAL STATE.
1. WCFM IS TO BE DYED GREEN OR CONTAIN A GREEN DYE IN THE PACKAGE THAT WILL PROVIDE AN APPROPRIATE COLOUT TO FACILITATE VISUAL INSPECTION OF THE UNIFORMITY OF SPREAD SLURRY.
2. WCFM, INCLUDING DYE, MUST CONTAIN NO GERMINATION OR GROWTH INHIBITING FACTORS.
3. WCFM MATERIALS ARE TO BE MANUFACTURED AND PROCESSED IN SUCH A MANNER THAT THE WOOD CELLULOSE FIBER MULCH WILL REMAIN IN A 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 REGULATING PROPERTIES AND MUST COVER AND HOLD GRASS SEED IN CONTACT WITH THE SOIL WITHOUT INHIBITING THE GROWTH OF THE GRASS SEEDLINGS.
4. WCFM MATERIAL MUST NOT CONTAIN ELEMENTS OR COMPOUNDS AT CONCENTRATION LEVELS THAT WILL BY PHYTO-TOXIC.
5. 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.
1. 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 THIS MULCH TOOL, INCREASE THE APPLICATION RATE TO 2.5 TONS PER ACRE.
C. WOOD CELLULOSE FIBER MULCH MUST BE APPLIED TO 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.
2. 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 IN ORDER OF PREFERENCE), DEPENDING UPON THE SIZE OF THE AREA AND EROSION HAZARD:
1. A STRAIGHT 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.
2. 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.
3. SYNTHETIC BINDERS SUCH AS ACRYLIC DLR (AGRO-MUL), 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 CREESTS OF BANKS, USE 3/4" ASPHALT BINDERS IS STRICTLY PROHIBITED.
4. LIGHTWEIGHT PLASTIC NETTING MAY BE STAPLED OVER THE MULCH ACCORDING TO MANUFACTURER RECOMMENDATIONS. NETTING IS USUALLY AVAILABLE IN ROLLS 4-15 FEET WIDE AND 300 TO 3,000 FEET LONG.

DUST CONTROL

DEFINITION

CONTROLLING DUST BLOWING AND MOVEMENT ON CONSTRUCTION SITES AND ROADS.

PURPOSE

TO PREVENT BLOWING AND MOVEMENT OF DUST FROM EXPOSED SOIL SURFACES, REDUCE ON AND OFF-SITE DAMAGE, HEALTH HAZARDS AND IMPROVE TRAFFIC SAFETY.

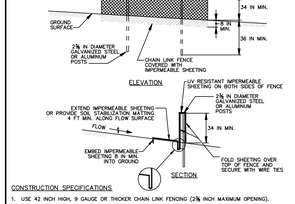
CONDITIONS WHERE PRACTICE APPLIES
THIS PRACTICE IS APPLICABLE TO AREAS SUBJEC

DocuSign Envelope ID: 79E9DBFB-CDDB-4FF4-A258-614B911C4A9B

DETAIL C-9 DIVERSION FENCE

STANDARD SYMBOL: DF

MAXIMUM DRAINAGE AREA = 2 ACRES



CONSTRUCTION SPECIFICATIONS

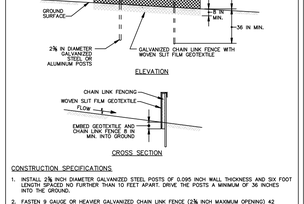
1. USE 42 INCH HIGH, 9 GAUGE OR THICKER CHAIN LINK FENCING (2⅜ INCH MAXIMUM OPENING).
2. USE 2⅜ INCH DIAMETER GALVANIZED STEEL POSTS OF 0.095 INCH WALL THICKNESS AND SIX FOOT LENGTH SPACED NO FURTHER THAN 10 FEET APART. THE POSTS DO NOT NEED TO BE SET IN CONCRETE.
3. FASTEN CHAIN LINK FENCE SECURELY 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 TRIPLE 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

DETAIL E-3 SUPER SILT FENCE

STANDARD SYMBOL: SSF



CONSTRUCTION SPECIFICATIONS

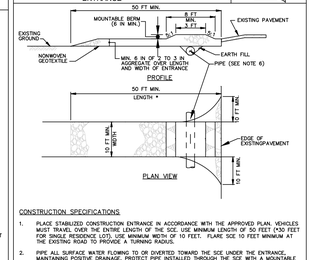
1. INSTALL 2⅜ INCH DIAMETER GALVANIZED STEEL POSTS OF 0.095 INCH WALL THICKNESS AND SIX FOOT LENGTH SPACED NO FURTHER THAN 10 FEET APART. DRIVE THE POSTS A MINIMUM OF 36 INCHES INTO THE GROUND.
2. FASTEN 9 GAUGE OR HEAVIER GALVANIZED CHAIN LINK FENCE (2⅜ INCH MAXIMUM OPENING) 42 INCHES IN HEIGHT SECURELY TO THE FENCE POSTS WITH WIRE TIES OR HOG 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 B-1 STABILIZED CONSTRUCTION ENTRANCE

STANDARD SYMBOL: SCE



CONSTRUCTION SPECIFICATIONS

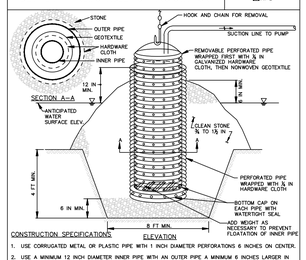
1. PLACE STABILIZED CONSTRUCTION ENTRANCE IN ACCORDANCE WITH THE APPROVED PLAN. VEHICLES MUST TRAVEL OVER THE ENTIRE LENGTH OF THE SCE. USE MINIMUM LENGTH OF 50 FEET (150 FEET FOR SINGLE RESIDENCE LOT). USE MINIMUM WIDTH OF 10 FEET. FLARE SCE TO FEET MINIMUM AT THE EXISTING ROAD TO PROVIDE A TURNING 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 PIPE 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 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 ⅜ 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 FROM 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.

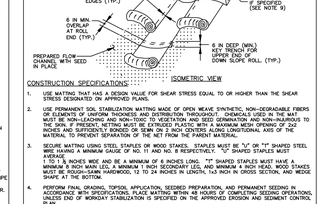
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

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

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

STANDARD SYMBOL: PSSMC

PSSMC = # lb/ft² (# MUDDE 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 ON THE MAT. CHEMICALS USED IN THE MAT MUST BE NON-LEACHING AND NON-TOXIC TO VEGETATION AND SEED GERMINATION AND NON-INJURIOUS TO SKIN. MATTING MUST BE NETTED ON BOTH SIDES WITH A LIGHTWEIGHT, FLEXIBLE NETTING. STAPLES ARE INCHES AND SUFFICIENTLY BIODEGRADABLE SO AS TO ALLOW 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 HAVE A MINIMUM 6 INCHES AND BE A MINIMUM OF 6 INCHES LONG. "T" SHAPED STAPLES MUST HAVE A MINIMUM 6 INCHES AND BE A MINIMUM OF 8 INCHES LONG. WOOD STAKES MUST BE A MINIMUM OF 1 INCH SQUARE HARDWOOD, 12 TO 24 INCHES IN LENGTH, TAPERED 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. KEEP POINT OF DISCHARGE FREE OF EROSION.
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 SOIL SURFACE. DO NOT STRETCH THE MATERIAL.
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 END IN THE TRENCH, STAPLING THE MAT IN PLACE, REFILLING AND COMPACTING 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. AS SPECIFIED BY MANUFACTURER, BACKFILL AND TAMP TOPSOIL OR SUITABLE SOIL INTO THE TOP OF MAT BEING INSTALLED, SPREAD WITH A BROOM AND STAPLED IN PLACE. FILL THE MAT VOIDS WITH TOP SOIL OR SUITABLE 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.

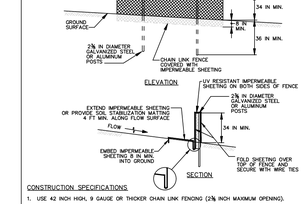
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

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

DETAIL C-9 DIVERSION FENCE

STANDARD SYMBOL: DF

MAXIMUM DRAINAGE AREA = 2 ACRES



CONSTRUCTION SPECIFICATIONS

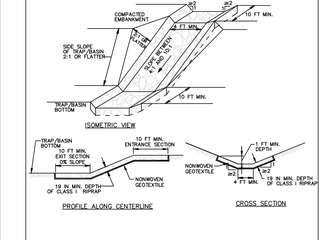
1. USE 42 INCH HIGH, 9 GAUGE OR THICKER CHAIN LINK FENCING (2⅜ INCH MAXIMUM OPENING).
2. USE 2⅜ INCH DIAMETER GALVANIZED STEEL POSTS OF 0.095 INCH WALL THICKNESS AND SIX FOOT LENGTH SPACED NO FURTHER THAN 10 FEET APART. THE POSTS DO NOT NEED TO BE SET IN CONCRETE.
3. FASTEN CHAIN LINK FENCE SECURELY 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 TRIPLE 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

DETAIL D-3-1 RIPRAP INFLOW PROTECTION

STANDARD SYMBOL: RIP-



CONSTRUCTION SPECIFICATIONS

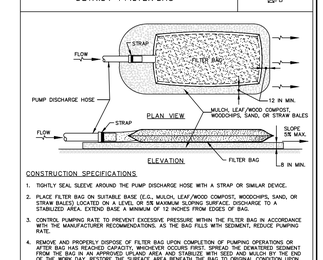
1. PROVIDE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS, UNDER THE BOTTOM AND ALONG SIDES OF ALL RIPRAP.
2. CONSTRUCT INFLOW CHANNEL WITH CLASS I RIPRAP OR EQUIVALENT RECYCLED CONCRETE LINING TO A MINIMUM DEPTH OF 19 INCHES (2 x D_{50}) AND A 1 FOOT DEEP FLOW CHANNEL. INFLOW RIPRAP PROTECTION CHANNEL MUST HAVE A TRAPEZOIDAL CROSS SECTION WITH 2:1 OR FLATTER SIDE SLOPES AND A 4 FOOT MINIMUM BOTTOM WIDTH.
3. INSTALL ENTRANCE AND EXIT SECTIONS AS SHOWN ON THE PROFILE.
4. BLEND RIPRAP INTO EXISTING GROUND.
5. 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 F-4 FILTER BAG

STANDARD SYMBOL: ⊠FB



CONSTRUCTION SPECIFICATIONS

1. TIGHTLY SEAL SLEEVE AROUND THE PUMP DISCHARGE HOSE WITH A STRAP OR SIMILAR DEVICE.
2. PLACE FILTER BAG ON SUITABLE BASE (E.G., MULCH, LEAF/WOOD COMPOST, WOODCHIPS, SAND, OR STRAW BALES) LOCATED ON A LEVEL OR 5% MAXIMUM SLOPING SURFACE. DISCHARGE TO A STABILIZED AREA, EXTEND BASE A MINIMUM OF 12 INCHES FROM SIDES OF BAG.
3. CONTROL PUMPING RATE TO PREVENT EXCESSIVE PRESSURE WITHIN THE FILTER BAG IN ACCORDANCE WITH THE MANUFACTURER RECOMMENDATIONS. AS THE BAG FILLS WITH SEDIMENT, REDUCE PUMPING RATE.
4. REMOVE AND PROPERLY DISPOSE OF FILTER BAG UPON COMPLETION OF PUMPING OPERATIONS OR AFTER BAG HAS REACHED CAPACITY, WHICHEVER OCCURS FIRST. SPREAD THE DEWATERED SEDIMENT FROM THE BAG IN AN APPROVED UPLAND AREA AND STABILIZE WITH SEED AND MULCH BY THE END OF THE WORK DAY. RESTORE THE SURFACE AREA BENEATH THE BAG TO ORIGINAL CONDITION UPON REMOVAL OF THE DEVICE.
5. USE NONWOVEN GEOTEXTILE WITH DOUBLE STITCHED SEAMS USING HIGH STRENGTH THREAD. SIZE SLEEVE TO ACCOMMODATE A MAXIMUM IN EACH DIAMETER PUMP DISCHARGE HOSE. THE BAG MUST BE MANUFACTURED FROM A NONWOVEN GEOTEXTILE THAT MEETS OR EXCEEDS MINIMUM AVERAGE ROLL VALUES (MARV) FOR THE FOLLOWING:

GRAB TENSILE	250 LB	ASTM D-4632
PUNCTURE	150 LB	ASTM D-4833
FLOW RATE	70 GAL/MIN/FT	ASTM D-4491
PERMITTIVITY (SEC⁻¹)	1.4 SEC⁻¹	ASTM D-4491
UV RESISTANCE	10% STRENGTH @ 500 HOURS	ASTM D-4355
APPARENT OPENING SIZE (AOS)	0.15-0.18 MM	ASTM D-4751
SEAM STRENGTH	90%	ASTM D-4632

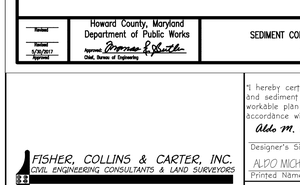
6. REPLACE FILTER BAG IF BAG CLOGS OR HAS RIPS, TEARS, OR PUNCTURES. DURING OPERATION KEEP CONNECTION BETWEEN PUMP HOSE AND FILTER BAG WATER TIGHT. REPLACE BEDDING IF IT BECOMES DISPLACED.

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-A ROCK OUTLET PROTECTION I

STANDARD SYMBOL: ROP1



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

CONSTRUCTION SPECIFICATIONS

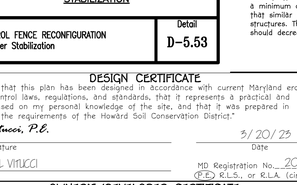
1. RIPRAP AND STONE MUST CONFORM TO THE SPECIFIED CLASS.
2. USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS, AND PROTECT FROM PUNCTURING, CUTTING, OR TEARING. REPAIR ANY DAMAGE EITHER THAN AN OCCASIONAL SMALL HOLE BY PLACING ANOTHER PIECE OF GEOTEXTILE OVER THE DAMAGED PART OR BY COMPLETELY 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 STONE FOR 8 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 THE 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 STONE 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 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 E-9-1 STANDARD INLET PROTECTION

STANDARD SYMBOL: SIP



1 OF 2

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.

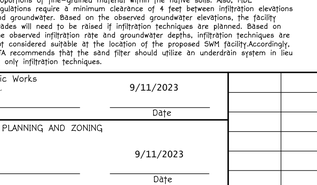
2 OF 2

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 E-4 CLEAR WATER PIPE THROUGH SILT FENCE OR SUPER SILT FENCE

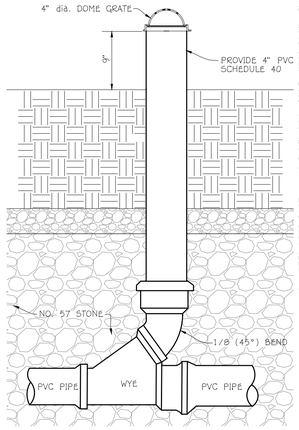
STANDARD SYMBOL: CWP


⅜ IN PLYWOOD BAFFLE ATTACHED TO STAKES OR POST

DocuSign Envelope ID: 79E9DBFB-CDDB-4FF4-A258-614B911C4A9B

TABLE B.3.1 MATERIAL SPECIFICATIONS FOR SAND FILTERS

MATERIAL	SPECIFICATIONS/TEST METHOD	SIZE	NOTES
SAND	CLEAN AASHTO-M-6 OF ASTM-CCONCRETE SAND	0.02" TO 0.04"	SAND SUBSTITUTIONS SUCH AS DIABASE AND GRAYSTONE #10 ARE NOTE ACCEPTABLE. NO CALCIUM CARBONATED OR DOLOMITIC SAND SUBSTITUTIONS ARE ACCEPTABLE. NO "ROCK DUST" CAN BE USED FOR SAND:
PEAT	ASH CONTENT: < 15% PH RANGE: 5.2 TO 4.9 LOOSE BULK DENSITY 0.12 TO 0.15 G/CC	N/A	THE MATERIAL MUST BE REED-SEDGE HEMIC PEAT, SHREDDED, UNCOMPACTED, UNIFORM, AND CLEAN.
LEAF COMPOST		N/A	
UNDERDRAIN GRAVEL	AASHTO-M-43	0.375" TO 0.75"	
GEOTEXTILE FABRIC (IF REQUIRED)	ASTM-D-4833 (PUNCTURE STRENGTH LB.) ASTM-D-4632 (TENSILE STRENGTH lb.)	0.08" THICK EQUIVALENT OPENING SIZE OF #80 SIEVE	MUST MAINTAIN 125 GPM PER SQ. FT. FLOW RATE. NOTE: A 4" PEA GRAVEL LAYER MAY BE SUBSTITUTED FOR GEOTEXTILES MEANT TO "SEPARATE" SAND FILTER LAYERS.
IMPERMEABLE LINER (IF REQUIRED)	ASTM-D-4833 (THICKNESS) ASTM-D-412 (TENSILE STRENGTH 1,100 lb., ELONGATION 200%) ASTM-D-624 (TEAR RESISTANCE - 150 LB./IN) ASTM-D-471 (WATER ADSORPTION: +8 TO -2% MASS)	30 MIL THICKNESS	LINER TO BE ULTRAVIOLET RESISTANT. A GEOTEXTILE FABRIC SHOULD BE USED TO PROTECT THE LINER FROM PUNCTURE.
UNDERDRAIN PIPING	F 758, TYPE PS 28 OR AASHTO-M-278	4" - 6" RIGID SCHEDULE 40 PVC OR SDR35	3/8" PERF. @ 6" ON CENTER, 4 HOLES PER ROW; MINIMUM OF 3" OF GRAVEL OVER PIPES; NOT NECESSARY UNDERNEATH PIPES
CONCRETE (CAST-IN-PLACE)	MSHA STANDARDS AND SPECS. SECTION 902, MIX NO. 3, F'C = 3500 PSI, 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 PRECAST) 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
CONCRETE (PRE-CAST)	PER PRE-CAST MANUFACTURER	N/A	SEE ABOVE NOTE
NON-REBAR STEEL	ASTM A-36	N/A	STRUCTURAL STEEL TO BE HOT-DIPPED GALVANIZED ASTM-A-123



TYPICAL CLEAN-OUT DETAIL (4" OVERFLOW DISTRIBUTION PIPE)

NOT TO SCALE

SWM DRAINAGE AREA SUMMARY TABLE (Proposed Conditions)

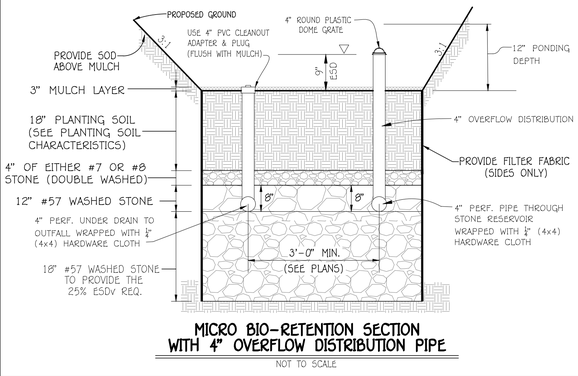
Drainage Area	Area (ac.+/-)	RCN	T/C (hrs.)	100-Year Peak Q	E.C. Peak Q	Remarks
A	1.81	61	0.22	5.82	9.18	Bypass Area
A-1	4.32	70	0.18	23.29 in/13.67 out @340.78	31.63 in/23.87 out @341.39	Pocket Sand Filter
A-2	0.76	77	0.12	4.36 in/4.33 out @356.31	7.32 in/7.28 out @356.49	Bio #1
B	0.92	69	0.11	4.57	7.24	Bypass Area
B-1	0.37	77	0.18	1.90 in/1.31 out @361.64	3.26 in/2.91 out @361.82	Bio #2
D.P.#1 Total				22.00	37.72	Total @ D.P.#1 (EC watershed)
C	1.03	70	0.12	5.13	8.19	Total @ D.P.#2 (Sucker Branch)

SWM DRAINAGE AREA SUMMARY TABLE (Existing Conditions)

Drainage Area	Area (ac.+/-)	RCN	T/C (hrs.)	100-Year Peak Q	E.C. Peak Q	Remarks
A	6.58	61	0.21	21.6	34.04	
B	1.33	60	0.1	5.25	7.7	
D.P.#1 Total				25.64	40.91	Total @ D.P.#1
C	0.8	60	0.1	3.16	4.63	Total @ D.P.#2
				16.50%	8.50%	% Decrease @ D.P.#1

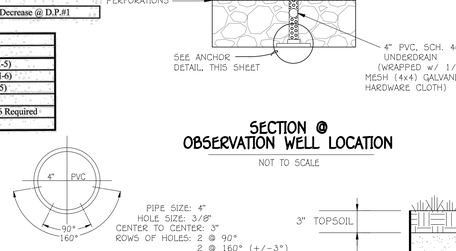
WATER QUALITY SWM SUMMARY TABLE

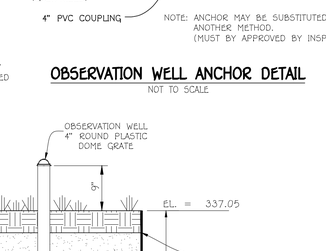
Area I.D.	ESDvol Required	ESDvol Required	Remarks
Site	5,131 cu. ft.	8,481 cu. ft.	Provided by 23-Drywells (Type M-5)
			Two-Micro Bio-retetnion (Type M-6)
			One-Pocket Sand Filter (Type F-5)
			REv Note: 3,057 cu. ft. Provided vs 1,176 Required
Site Total	5,131 cu. ft.	8,481 cu. ft.	



MICRO BIO-RETENTION SECTION WITH 4" OVERFLOW DISTRIBUTION PIPE

NOT TO SCALE





OBSERVATION WELL ANCHOR DETAIL

NOT TO SCALE

SECTION @ OBSERVATION WELL LOCATION

NOT TO SCALE

4" SCH. 40 PVC PERFORATED UNDERDRAIN PIPE DETAIL FOR HORIZONTAL DRAIN PIPE

NOT TO SCALE

NOTES:
UNDERDRAIN PIPE SHALL BE 4" 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 OR HDPE).

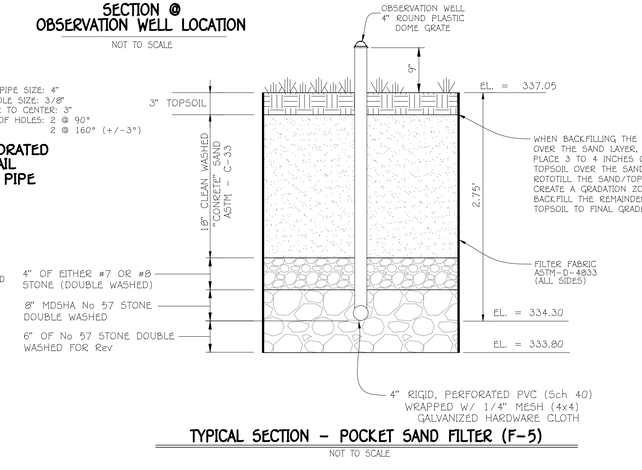
PERFORATIONS SHALL BE 3/8" DIAMETER LOCATED 6" ON CENTER WITH A MINIMUM OF FOUR HOLES PER ROW. PIPE SHALL BE WRAPPED WITH A 1/4" (No. 4 OR 4 x 4) GALVANIZED HARDWARE CLOTH.

GRAVEL LAYER SHALL BE (No. 57 STONE PREFERRED) AT LEAST 3" THICK ABOVE AND BELOW THE UNDERDRAIN.

THE MAIN COLLECTOR PIPE SHALL BE AT A MINIMUM 0.5% SLOPE.

A RIGID, NON PERFORATED OBSERVATION WELL MUST BE PROVIDED (ONE PER EVERY 1,000 SQ.FT.) TO PROVIDE A CLEANOUT 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 INTO THE UNDERDRAIN. THIS LAYER MAY BE CONSIDERED PART OF THE FILTER BED WHEN BED THICKNESS EXCEEDS 24".



TYPICAL SECTION - POCKET SAND FILTER (F-5)

NOT TO SCALE

OPERATION AND MAINTENANCE SCHEDULE FOR HOMEOWNERS ASSOCIATION OWNED & MAINTAINED POCKET SAND FILTER (F-5)

1. THE STORMWATER WETLAND FACILITY SHALL BE INSPECTED ANNUALLY AND AFTER MAJOR STORMS. INSPECTIONS SHALL BE PERFORMED DURING WET WEATHER TO DETERMINE IF THE FACILITY IS FUNCTIONING PROPERLY.
2. THE TOP AND SIDE SLOPES OF THE EMBANKMENT SHALL BE MOWED A MINIMUM OF ONCE PER YEAR. WHEN VEGETATION REACHES 18" IN HEIGHT OR AS NEEDED.
3. FILTERS THAT HAVE A GRASS COVER SHALL BE MOWED A MINIMUM OF THREE (3) TIMES PER GROWING SEASON TO MAINTAIN A MAXIMUM GRASS HEIGHT OF LESS THAN 12 INCHES.
4. DEBRIS AND LITTER SHALL BE REMOVED DURING REGULAR MOWING OPERATIONS AND AS NEEDED.
5. VISIBLE SIGNS OF EROSION IN THE FACILITY SHALL BE REPAIRED AS SOON AS IT IS NOTICED. REMOVE SILT WHEN IT EXCEEDS FOUR (4) INCHES DEEP IN THE FOREBAY.
7. 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 AFTER A 10 YEAR STORM EVENT.
8. A LOGBOOK SHALL BE MAINTAINED TO DETERMINE THE RATE AT WHICH THE FACILITY DRAINS.
9. THE MAINTENANCE LOGBOOK SHALL BE AVAILABLE TO HOWARD COUNTY FOR INSPECTION TO INSURE COMPLIANCE WITH OPERATION AND MAINTENANCE CRITERIA.
10. ONCE THE PERFORMANCE CHARACTERISTICS OF THE INFILTRATION SYSTEM HAVE BEEN VERIFIED, THE MONITORING SCHEDULE CAN BE REDUCED TO AN ANNUAL BASIS UNLESS THE PERFORMANCE DATA INDICATES THAT A MORE FREQUENT SCHEDULE IS REQUIRED.

SAND FILTER SPECIFICATIONS

1. MATERIAL SPECIFICATIONS FOR SAND FILTERS THE ALLOWABLE MATERIALS FOR SAND FILTER CONSTRUCTION ARE DETAILED IN TABLE B.3.1.
2. SAND FILTER TESTING SPECIFICATIONS UNDERGROUND SAND FILTERS, FACILITIES WITHIN SENSITIVE GROUNDWATER AQUIFERS, AND FILTERS DESIGNED TO SERVE URBAN HOT SPOTS ARE TO BE TESTED FOR WATER TIGHTNESS PRIOR TO PLACEMENT OF FILTER MEDIA. ENTRANCES AND EXITS SHOULD BE PLUGGED AND THE SYSTEM COMPLETELY FILLED WITH WATER TO DEMONSTRATE WATER TIGHTNESS. WATER TIGHTNESS MEANS NO LEAKAGE FOR A PERIOD OF 8 HOURS. ALL OVERFLOW WEIRS, MULTIPLE ORIFICES AND FLOW DISTRIBUTION SLOTS ARE TO BE FIELD-TESTED TO VERIFY ADEQUATE DISTRIBUTION OF FLOWS.
3. SAND FILTER CONSTRUCTION SPECIFICATIONS PROVIDE SUFFICIENT MAINTENANCE ACCESS (I.E., 12-FOOT-WIDE ROAD WITH LEGALLY RECORDED EASEMENT). VEGETATED ACCESS SLOPES ARE TO BE A MAXIMUM OF 10%; GRAVEL SLOPES TO 15% ; PAVED SLOPES TO 25%. ABSOLUTELY NO RUNOFF IS TO ENTER THE FILTER UNTIL ALL CONTRIBUTING DRAINAGE AREAS HAVE BEEN STABILIZED. SURFACE OF FILTER BED IS TO BE LEVEL. ALL UNDERGROUND SAND FILTERS SHOULD BE CLEARLY DELINEATED WITH SIGNS SO THAT THEY MAY BE LOCATED WHEN MAINTENANCE IS DUE. SURFACE SAND FILTERS MAY BE PLANTED WITH APPROPRIATE GRASSES; SEE MAA APPROVED SPECIES LIST. "POCKET" SANDFILTERS (AND RESIDENTIAL BIO-RETENTION FACILITIES TREATING AREAS LARGER THAN AN ACRE) SHALL BE SIZED WITH A' STONE "WINDOW" THAT COVERS APPROXIMATELY 10% OF THE FILTER AREA. THIS "WINDOW" SHALL BE FILLED PEA GRAVEL (3/4 INCH STONE).

INFILTRATION AND FILTER SYSTEM CONSTRUCTION SPECIFICATIONS

INFILTRATION AND FILTER SYSTEMS EITHER TAKE ADVANTAGE OF EXISTING PERMEABLE SOILS OR CREATE A PERMEABLE MEDIUM SUCH AS SAND FOR WQ1 AND RE V. IN SOME INSTANCES WHERE PERMEABILITY IS GREAT, THESE FACILITIES MAY BE USED FOR QP AS WELL. THE MOST COMMON SYSTEMS INCLUDE INFILTRATION TRENCHES, INFILTRATION BASINS, SAND FILTERS, AND ORGANIC FILTERS.

WHEN PROPERLY PLANTED, VEGETATION WILL THRIVE AND ENHANCE THE FUNCTIONING OF THESE SYSTEMS. FOR EXAMPLE, PRE-TREATMENT BUFFERS WILL TRAP SEDIMENTS THAT OFTEN ARE BOUND WITH PHOSPHOROUS AND METALS. VEGETATION PLANTED IN THE FACILITY WILL AID IN NUTRIENT UPTAKE AND WATER STORAGE. ADDITIONALLY, PLANT ROOTS WILL PROVIDE ARTERIES FOR STORMWATER TO PERMEATE SOIL FOR GROUNDWATER RECHARGE. FINALLY, SUCCESSFUL PLANTINGS PROVIDE AESTHETIC VALUE AND WILDLIFE HABITAT MAKING THESE FACILITIES MORE DESIRABLE TO THE PUBLIC.

DESIGN CONSTRAINTS:

> PLANTING BUFFER STRIPS OF AT LEAST 20 FEET WILL CAUSE SEDIMENTS TO SETTLE OUT BEFORE REACHING THE FACILITY, THEREBY REDUCING THE POSSIBILITY OF CLOGGING.
> DETERMINE AREAS THAT WILL BE SATURATED WITH WATER AND WATER TABLE DEPTH SO THAT APPROPRIATE PLANTS MAY BE SELECTED (HYDROLOGY WILL BE SIMILAR TO BIORETENTION FACILITIES, SEE FIGURE A.5 AND TABLE A.4 FOR PLANTING MATERIAL GUIDANCE).
> PLANTS KNOWN TO SEND DOWN DEEP TAPROOTS SHOULD BE AVOIDED IN SYSTEMS WHERE FILTER FABRIC IS USED AS PART OF FACILITY DESIGN.
> TEST SOIL CONDITIONS TO DETERMINE IF SOIL AMENDMENTS ARE NECESSARY.
> PLANTS SHALL BE LOCATED SO THAT ACCESS IS POSSIBLE FOR STRUCTURE MAINTENANCE.
> STABILIZE HEAVY FLOW AREAS WITH EROSION CONTROL MATS OR SOD.
> TEMPORARILY DIVERT FLOWS FROM SEEDED AREAS UNTIL VEGETATION IS ESTABLISHED.
> SEE TABLE A.5 FOR ADDITIONAL DESIGN CONSIDERATIONS.

BIO-RETENTION

SOIL BED CHARACTERISTICS THE CHARACTERISTICS OF THE SOIL FOR THE BIORETENTION FACILITY ARE PERHAPS AS IMPORTANT AS THE FACILITY LOCATION, SIZE, AND TREATMENT VOLUME. THE SOIL MUST BE PERMEABLE ENOUGH TO ALLOW RUNOFF TO FILTER THROUGH THE MEDIA WHILE HAVING CHARACTERISTICS SUITABLE TO PROMOTE AND SUSTAIN A ROBUST VEGETATIVE COVER CROP. IN ADDITION, MUCH OF THE NUTRIENT POLLUTANT UPTAKE (NITROGEN AND PHOSPHORUS) IS ACCOMPLISHED THROUGH ABSORPTION AND MICROBIAL ACTIVITY WITHIN THE SOIL PROFILE. THEREFORE, SOILS MUST BALANCE THEIR CHEMICAL AND PHYSICAL PROPERTIES TO SUPPORT BIOTIC COMMUNITIES ABOVE AND BELOW GROUND.

THE PLANTING SOIL SHOULD BE A SANDY LOAM, LOAMY SAND, LOAM (USDA), OR A LOAM/SAND MIX (SHOULD CONTAIN A MINIMUM 35 TO 60% SAND, BY VOLUME). THE CLAY CONTENT FOR THESE SOILS SHOULD BE LESS THAN 25% BY VOLUME (ENVIRONMENTAL QUALITY RESOURCES (EQR), 1996; ENGINEERING TECHNOLOGY INC. AND BIOHABITATS, INC. (ETAB), 1993). SOILS SHOULD FALL WITHIN THE SM, ML, SC CLASSIFICATIONS OR THE UNIFIED SOIL CLASSIFICATION SYSTEM (USCS). A PERMEABILITY OF AT LEAST 1.0 FEET PER DAY (0.5"/HR) IS REQUIRED (A CONSERVATIVE VALUE OF 0.5 FEET PER DAY IS USED FOR DESIGN). THE SOIL SHOULD BE FREE OF STONES, STUMPS, ROOTS, OR OTHER WOODY MATERIAL OVER 1" IN DIAMETER. BRUSH OR SEEDS FROM NOXIOUS WEEDS (E.G., JOHNSON GRASS, MUGWORT, NUTSEDGE, AND CANADA THISTLE OR OTHER NOXIOUS WEEDS AS SPECIFIED UNDER COMAR 15.08.01.05.) SHOULD NOT BE PRESENT IN THE SOILS. PLACEMENT OF THE PLANTING SOIL SHOULD BE IN 12 TO 18 LIFTS THAT ARE LOOSELY COMPACTED (TAMPED LIGHTLY WITH A BACKHOE BUCKET OR TRAVERSED BY DOZER TRACKS). THE SPECIFIC CHARACTERISTICS ARE PRESENTED IN TABLE A.3.

Table A.3 Planting Soil Characteristics

Parameter	Value
pH range	5.2 to 7.00
Organic matter	1.5 to 4.0% (by weight)
Magnesium	35 lbs. per acre, minimum
Phosphorus (phosphate - P205)	75 lbs. per acre, minimum
Potassium (potash -(K20)	85 lbs. per acre, minimum
Soluble salts	500 ppm
Clay	0 to 5%
Silt	30 to 55%
Sand	35 to 60%

MULCH LAYER

THE MULCH LAYER PLAYS AN IMPORTANT ROLE IN THE PERFORMANCE OF THE BIORETENTION SYSTEM. THE MULCH LAYER HELPS MAINTAIN SOIL MOISTURE AND AVOIDS SURFACE SEALING, WHICH REDUCES PERMEABILITY. MULCH HELPS PREVENT EROSION, AND PROVIDES A MICROENVIRONMENT SUITABLE FOR SOIL BIOTA AT THE MULCH/SOIL INTERFACE. IT ALSO SERVES AS A PRETREATMENT LAYER, TRAPPING THE FINER SEDIMENTS, WHICH REMAIN SUSPENDED AFTER THE PRIMARY PRETREATMENT.

THE MULCH LAYER SHOULD BE STANDARD LANDSCAPE STYLE, SINGLE OR DOUBLE SHREDDED HARDWOOD MULCH OR CHIPS. THE MULCH LAYER SHOULD BE WELL AGED (STOCKPILED OR STORED FOR AT LEAST 12 MONTHS), UNIFORM IN COLOR, AND FREE OF OTHER MATERIALS, SUCH AS WEED SEEDS, SOIL, ROOTS, ETC. THE MULCH SHOULD BE APPLIED TO A MAXIMUM DEPTH OF THREE INCHES. GRASS CLIPPINGS SHOULD NOT BE USED AS A MULCH MATERIAL.

PLANTING GUIDANCE

PLANT MATERIAL SELECTION SHOULD BE BASED ON THE GOAL OF SIMULATING A TERRESTRIAL FORESTED COMMUNITY OF NATIVE SPECIES. BIORETENTION SIMULATES AN UPLAND-SPECIES ECOSYSTEM. THE COMMUNITY SHOULD BE DOMINATED BY TREES, BUT HAVE A DISTINCT COMMUNITY OF UNDERSTORY TREES, SHRUBS AND HERBACEOUS MATERIALS, BY CREATING A DIVERSE, DENSE PLANT COVER. A BIORETENTION FACILITY WILL BE ABLE TO TREAT STORMWATER RUNOFF AND WITHSTAND URBAN STRESSES FROM INSECTS, DISEASE, DROUGHT, TEMPERATURE, WIND, AND EXPOSURE.

THE PROPER SELECTION AND INSTALLATION OF PLANT MATERIALS IS KEY TO A SUCCESSFUL SYSTEM. THERE ARE ESSENTIALLY THREE ZONES WITHIN A BIORETENTION FACILITY (FIGURE A.5). THE LOWEST ELEVATION SUPPORTS PLANT SPECIES ADAPTED TO STANDING AND FLUCTUATING WATER LEVELS. THE MIDDLE ELEVATION SUPPORTS PLANTS THAT LIKE DRIER SOIL CONDITIONS, BUT CAN STILL TOLERATE OCCASIONAL INUNDATION BY WATER. THE OUTER EDGE IS THE HIGHEST ELEVATION AND GENERALLY SUPPORTS PLANTS ADAPTED TO DRYER CONDITIONS. FOR APPROPRIATE PLANT MATERIALS FOR BIORETENTION FACILITIES, REFER TO MAA APPROVED SPECIES LIST. THE LAYOUT OF PLANT MATERIAL SHOULD BE FLEXIBLE, BUT SHOULD FOLLOW THE GENERAL PRINCIPALS DESCRIBED IN TABLE A.5. THE OBJECTIVE IS TO HAVE A SYSTEM, WHICH RESEMBLES A RANDOM, AND NATURAL PLANT LAYOUT, WHILE MAINTAINING OPTIMAL CONDITIONS FOR PLANT ESTABLISHMENT AND GROWTH. FOR A MORE EXTENSIVE BIORETENTION PLAN, CONSULT ETAB, 1993 OR CLAYTOR AND SCHUELER, 1997.

OPERATION AND MAINTENANCE SCHEDULE FOR BIO-RETENTION AREAS (M-6)

1. THE OWNER SHALL MAINTAIN THE PLANT MATERIAL, MULCH LAYER AND SOIL LAYER ANNUALLY. MAINTENANCE OF MULCH AND SOIL IS LIMITED TO CORRECTING AREAS OF EROSION OR WASH OUT. ANY MULCH REPLACEMENT SHALL BE DONE IN THE SPRING. PLANT MATERIAL SHALL BE CHECKED FOR DISEASE AND INSECT INFESTATION AND MAINTENANCE WILL ADDRESS DEAD MATERIAL AND PRUNING. ACCEPTABLE REPLACEMENT PLANT MATERIAL IS LIMITED TO THE FOLLOWING: 2000 MARYLAND STORMWATER DESIGN MANUAL VOLUME II, TABLE A.4.1 AND 2.
2. THE OWNER SHALL PERFORM A PLANT IN THE SPRING AND IN THE FALL EACH YEAR. DURING THE INSPECTION, THE OWNER SHALL REMOVE DEAD AND DISEASED VEGETATION CONSIDERED BEYOND TREATMENT, REPLACE DEAD PLANT MATERIAL WITH ACCEPTABLE REPLACEMENT PLANT MATERIAL, TREAT DISEASED TREES AND SHRUBS AND REPLACE ALL DEFICIENT STAKES AND WIRES.
3. THE OWNER SHALL INSPECT THE MULCH EACH SPRING. THE MULCH SHALL BE REPLACED EVERY TWO TO THREE YEARS. THE PREVIOUS MULCH LAYER SHALL BE REMOVED BEFORE THE NEW LAYER IS APPLIED.
4. THE OWNER SHALL CORRECT SOIL EROSION ON AN AS NEEDED BASIS, WITH A MINIMUM OF ONCE PER MONTH AND AFTER EACH HEAVY STORM.
5. THE OWNER SHALL MAINTAIN ALL OBSERVATION WELLS, CLEAN-OUTS AND PERFORATED UNDERDRAINS.
6. 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.

B.4.C SPECIFICATIONS FOR MICRO-BIORETENTION. RAIN GARDENS, 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, QUACK GRASS, 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 CONTENT - MINIMUM 10% BY DRY WEIGHT (ASTM D 2974). IN GENERAL, THIS CAN BE MET WITH A MIXTURE OF LOAMY SAND (60%-65%) AND COMPOST (35% TO 40%) OR SANDY LOAM (30%), COARSE SAND (30%), AND COMPOST (40%).

CLAY CONTENT - MEDIA SHALL HAVE A CLAY CONTENT OF LESS THAN 5%.

PH RANGE - SHOULD BE BETWEEN 5.5 - 7.0. AMENDMENTS (E.G., LIME, IRON SULFATE PLUS SULFUR) MAY BE MIXED INTO 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 A 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 A 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 BIORETENTION FACILITY BEFORE BACKFILLING THE OPTIONAL SAND LAYER. PUMP ANY PONDED WATER BEFORE PREPARING (ROTOTILLING) BASE. TABLE A.3.

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. FINE 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 1/8 TH 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.

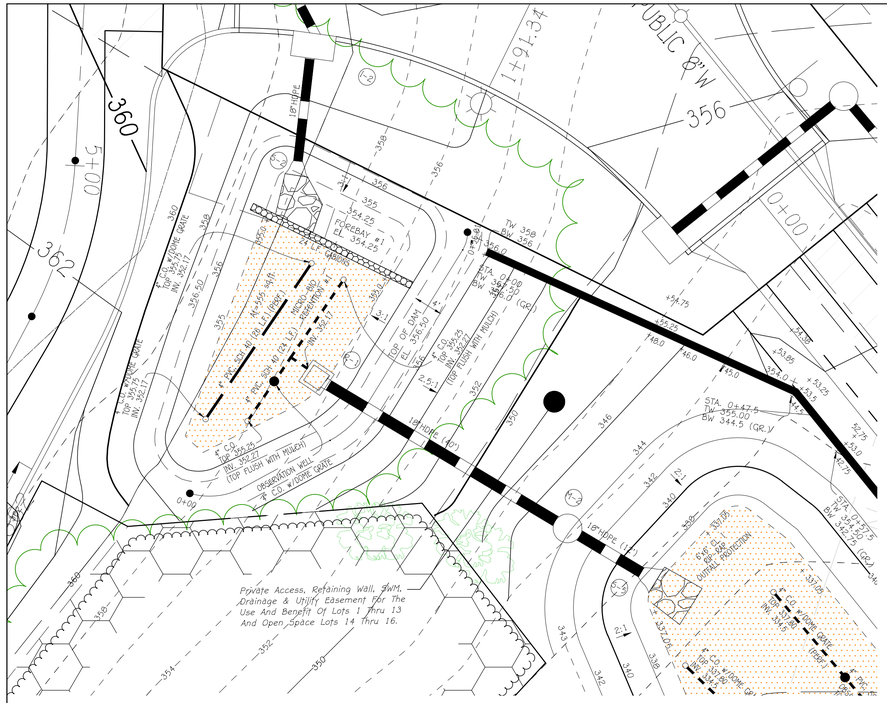
THE TOPSOIL SPECIFICATIONS PROVIDE ENOUGH ORGANIC MATERIAL TO ADEQUATELY SUPPLY NUTRIENTS FROM NATURAL CYCLING. THE PRIMARY FUNCTION OF THE BIORETENTION STRUCTURE IS TO IMPROVE WATER QUALITY. ADDING FERTILIZERS DEFEATS, OR AT A MINIMUM, IMPEDES THIS GOAL. ONLY ADD FERTILIZER IF WOOD CHIPS OR MULCH ARE 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:

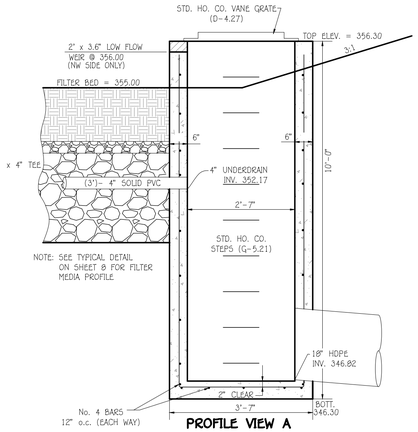
PIPE- SHOULD BE 4 "TO 6 "DIAMETER, SLO

DocuSign Envelope ID: 79E9DBFB-CDDB-4FF4-A258-614B911C4A9B



PROPOSED MICRO BIO-RETENTION #1 (M-6) PLAN VIEW

0' 10' 15' 20'
Scale: 1" = 10'

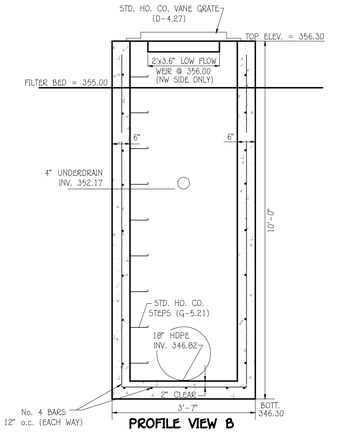


PROFILE VIEW A

(MODIFIED) '5' INLET CONCRETE RISER DETAIL

R 1

SCALE : 1" = 2'

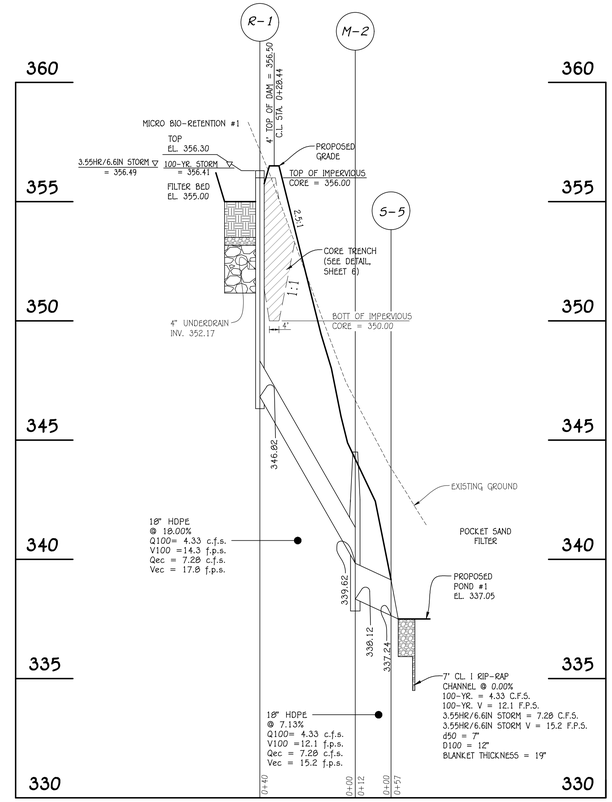


PROFILE VIEW B

(MODIFIED) '5' INLET CONCRETE RISER DETAIL

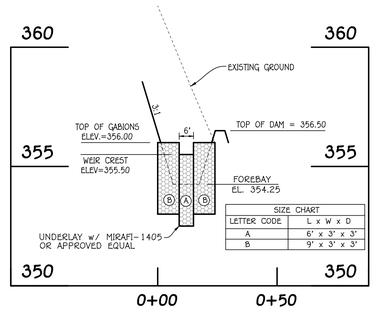
R 1

SCALE : 1" = 2'



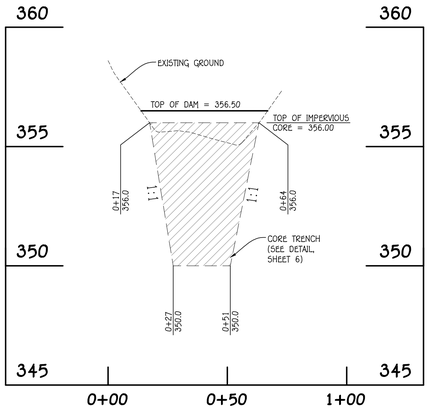
PROFILE THRU PRINCIPLE SPILLWAY (MICRO BIO #1)

SCALE HORZ. 1" = 30'
VERT. 1" = 3'



PROFILE GABION FOREBAY #1

SCALE HORZ. 1" = 30'
VERT. 1" = 3'



PROFILE CL EMBANKMENT (MICRO BIO #1)

SCALE HORZ. 1" = 30'
VERT. 1" = 3'

IN ADDITION TO THE ESD VOLUME MANAGEMENT, THIS POND PROVIDES 100-YEAR, AND QUANTITY MANAGEMENT FOR 3.55 HR/6.6 IN STORM EVENT.

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855

Approved: Howard County Department Of Public Works

DocuSigned by: 2465821AE4DA4C2...

Chief, Bureau Of Highways — 9/11/2023 Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

DocuSigned by: Chad Edmondson 1D07F1D3F...

Chief, Development Engineering — 9/11/2023 Date

DocuSigned by: 9/13/2023

Chief, Division of Land Development — Date

DATE	DESCRIPTION
	REVISIONS

"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY 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. 20748, EXPIRATION DATE: 2-22-25."

STATE OF MARYLAND — ALDO MICHAEL VITUCCI — No. 20748 — PROFESSIONAL ENGINEER

Aldo M. Vitucci, P.E.

ALDO M. VITUCCI, P.E.

OWNERS
LACEY FAMILY REVOCABLE TRUST
1235 WILD ROSE COURT
MARRIOTTSVILLE, MD 21104
ATTN: MR. VINCENT LACEY

DEVELOPER
LAND HOLDINGS LLC
C\O B. JAMES GREENFIELD
6420 AUTUMN SKY WAY
COLUMBIA, MD 21044
443-324-4732

PROJECT			SECTION/AREA		PARCEL
LACEY PROPERTY			N/A		13
PLAT NOS.	BLOCK NO.	ZONE	TAX MAP	ELEC. DIST.	CENSUS TR.
-	1	R-ED	25	SECOND	602900

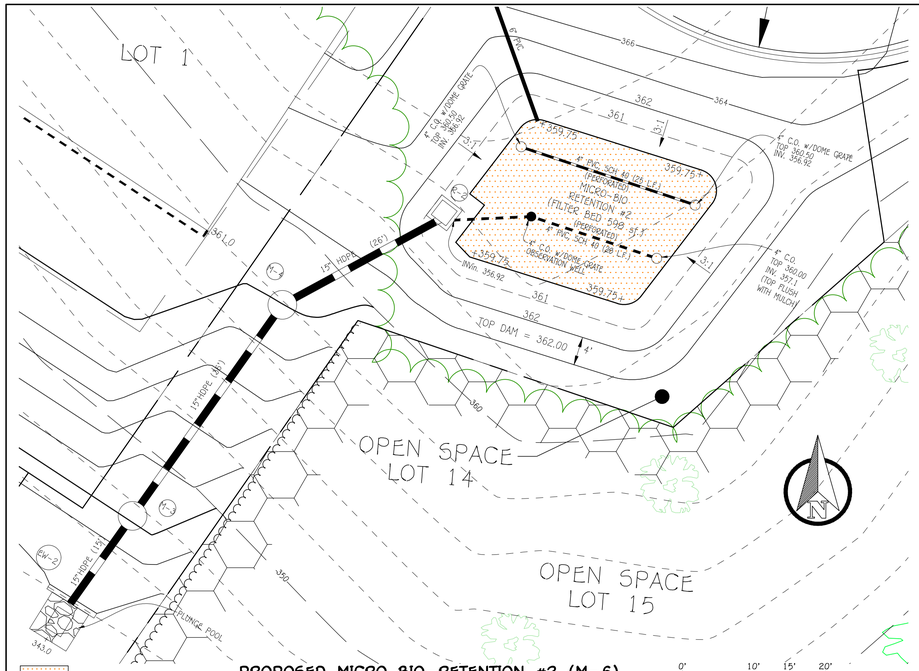
STORMWATER MANAGEMENT PLAN VIEW, PROFILES & DETAILS - MICRO BIO-RETENTION #1

LACEY PROPERTY
LOTS 1 THRU 13 AND OPEN SPACE LOTS 14 THRU 17

ZONED: R-ED
PARCEL No.: 13
TAX MAP No.: 25 GRID No.: 1
SECOND ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: AS SHOWN DATE: JULY 10, 2023
SHEET 9 OF 24

F-21-015

DocuSign Envelope ID: 79E9DBFB-CDDB-4FF4-A258-614B911C4A9B



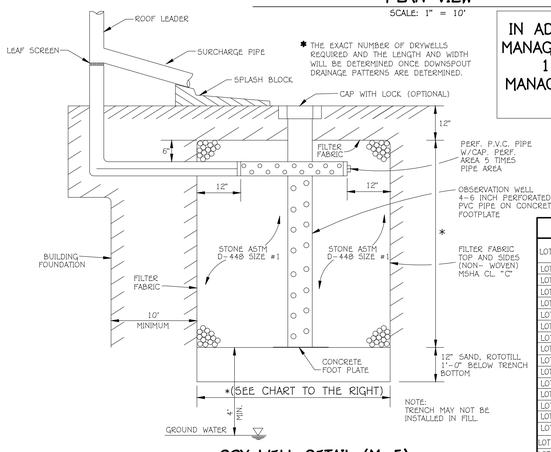
– DENOTES FILTER MEDIA AREA

PROPOSED MICRO BIO-RETENTION #2 (M-6) PLAN VIEW

SCALE: 1" = 10'

0' 10' 15' 20'
Scale: 1" = 10'

IN ADDITION TO THE ESD VOLUME MANAGEMENT, THIS POND PROVIDES 100-YEAR, AND QUANTITY MANAGEMENT FOR 3.55 HR/6.6 IN STORM EVENT.



* THE EXACT NUMBER OF DRYWELLS REQUIRED AND THE LENGTH AND WIDTH WILL BE DETERMINED ONCE DOWNSPOUT DRAINAGE PATTERNS ARE DETERMINED.

NOTE: TRENCH MAY NOT BE INSTALLED IN FILL.

DRY WELL DETAIL (M-5)

NOT TO SCALE

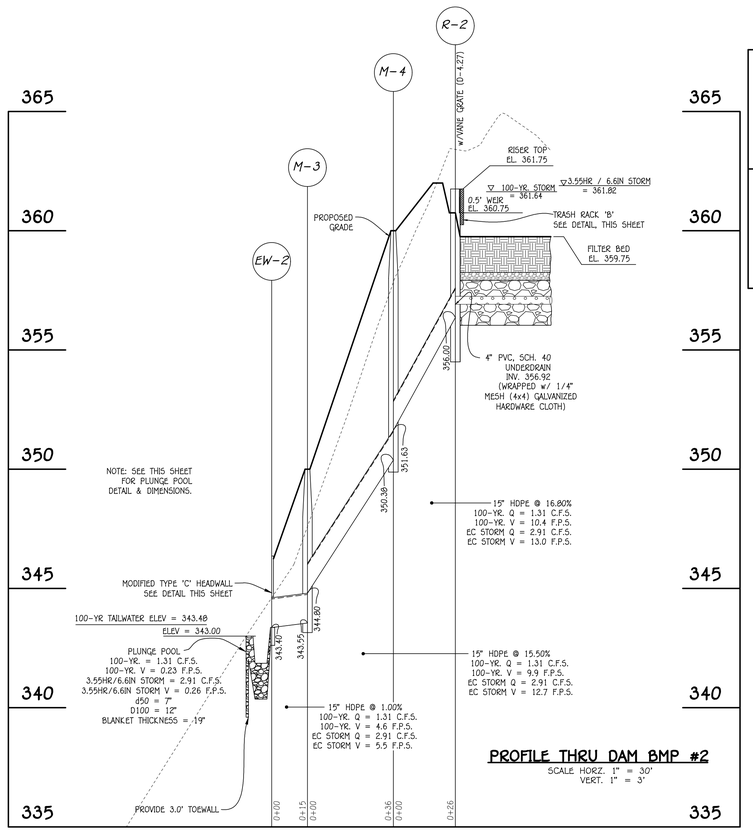
NOTE: ALL DRY WELLS WILL BE INSTALLED AT SDP STAGE WITH THE CONSTRUCTION OF HOUSES.

DRY WELL CHART

LOT NO.	ROOF AREA SQ.FT.	ESD REQUIRED (CUBIC FEET)	ESD PROVIDED (CUBIC FEET)	NO. OF DRYWELLS	*D x L x W
LOT 1A	900	114 CU.FT.	130 CU.FT.	1	4' x 9' x 9'
LOT 2A	900	114 CU.FT.	130 CU.FT.	1	4' x 9' x 9'
LOT 3A	900	114 CU.FT.	130 CU.FT.	1	4' x 9' x 9'
LOT 4A	900	114 CU.FT.	220 CU.FT.	1	5' x 11' x 10'
LOT 4B	900	114 CU.FT.	200 CU.FT.	1	5' x 9' x 9'
LOT 5A	900	114 CU.FT.	200 CU.FT.	1	5' x 10' x 10'
LOT 5B	900	114 CU.FT.	200 CU.FT.	1	5' x 10' x 10'
LOT 6A	900	114 CU.FT.	220 CU.FT.	1	5' x 11' x 10'
LOT 6B	900	114 CU.FT.	200 CU.FT.	1	5' x 10' x 10'
LOT 7A	900	114 CU.FT.	220 CU.FT.	1	5' x 11' x 10'
LOT 7B	900	114 CU.FT.	220 CU.FT.	1	5' x 11' x 10'
LOT 8A	964	123 CU.FT.	220 CU.FT.	1	5' x 11' x 10'
LOT 8B	964	123 CU.FT.	220 CU.FT.	1	5' x 11' x 10'
LOT 9A	1125	143 CU.FT.	220 CU.FT.	1	5' x 11' x 10'
LOT 9B	1125	143 CU.FT.	220 CU.FT.	1	5' x 11' x 10'
LOT 10A	1125	143 CU.FT.	220 CU.FT.	1	5' x 11' x 10'
LOT 10B	1125	143 CU.FT.	220 CU.FT.	1	5' x 11' x 10'
LOT 11A	1125	143 CU.FT.	220 CU.FT.	1	5' x 11' x 10'
LOT 11B	1125	143 CU.FT.	220 CU.FT.	1	5' x 11' x 10'
LOT 12A	1125	143 CU.FT.	220 CU.FT.	1	5' x 11' x 10'
LOT 12B	1125	143 CU.FT.	220 CU.FT.	1	5' x 11' x 10'
LOT 13A	790	143 CU.FT.	220 CU.FT.	1	5' x 11' x 10'
LOT 13B	790	143 CU.FT.	220 CU.FT.	1	5' x 11' x 10'

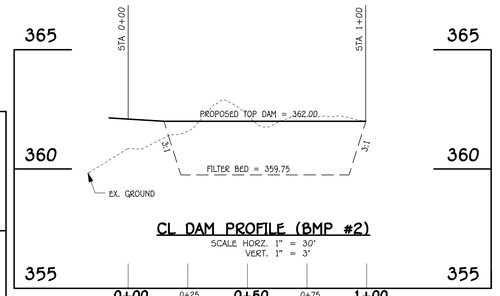
OPERATION AND MAINTENANCE SCHEDULE FOR DRYWELLS (M-5)

1. THE OWNER SHALL INSPECT THE MONITORING WELLS AND STRUCTURES ON A QUARTERLY BASIS AND AFTER EVERY HEAVY STORM EVENT.
2. THE OWNER SHALL RECORD THE WATER LEVELS AND SEDIMENT BUILD UP IN THE MONITORING WELLS OVER A PERIOD OF SEVERAL DAYS TO INSURE TRENCH DRAINAGE.
3. THE OWNER SHALL MAINTAIN A LOG BOOK TO DETERMINE THE RATE AT WHICH THE FACILITY DRAINS.
4. WHEN THE FACILITY BECOMES CLOGGED SO THAT IT DOES NOT DRAIN DOWN WITHIN A SEVENTY TWO (72) HOUR TIME PERIOD, CORRECTIVE ACTION SHALL BE TAKEN.
5. THE MAINTENANCE LOG BOOK SHALL BE AVAILABLE TO HOWARD COUNTY FOR INSPECTION TO INSURE COMPLIANCE WITH OPERATION AND MAINTENANCE CRITERIA.
6. ONCE THE PERFORMANCE CHARACTERISTICS OF THE INFILTRATION FACILITY HAVE BEEN VERIFIED, THE MONITORING SCHEDULE CAN BE REDUCED TO AN ANNUAL BASIS UNLESS THE PERFORMANCE DATA INDICATES THAT A MORE FREQUENT SCHEDULE IS REQUIRED.



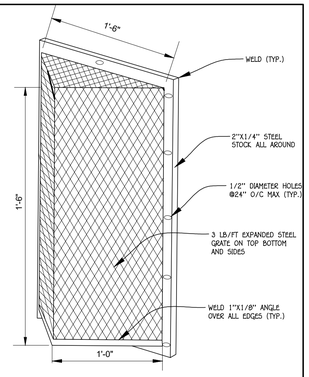
PROFILE THRU DAM BMP #2

SCALE HORZ. 1" = 30'
VERT. 1" = 3'



CL DAM PROFILE (BMP #2)

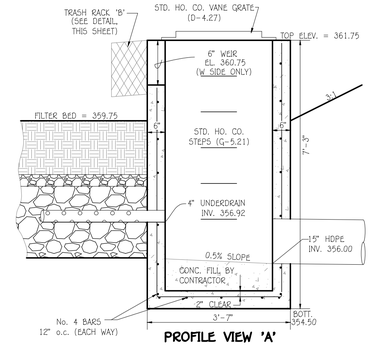
SCALE HORZ. 1" = 30'
VERT. 1" = 3'



TRASH RACK 'B' DETAIL FOR 6" WEIR OPENING

(NTS)

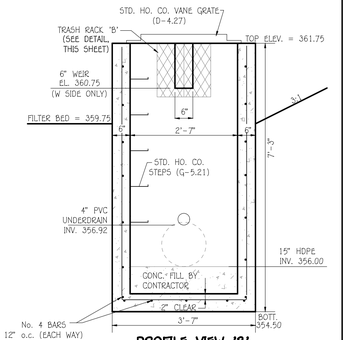
NOTES:
1. TRASH RACK TO BE CENTERED OVER WEIR OPENING .
2. STEEL TO CONFORM TO ASTM A-36.
3. ALL SURFACES TO BE COATED WITH ZRC COLD GALVANIZING COMPOUND AFTER WELDING.
4. TRASH RACK TO BE FASTENED TO THE WALL WITH 1/2" MASONRY ANCHORS. TRASH RACK TO BE REMOVABLE.



PROFILE VIEW 'A' (MODIFIED '5' INLET) CONCRETE RISER DETAIL

R-2

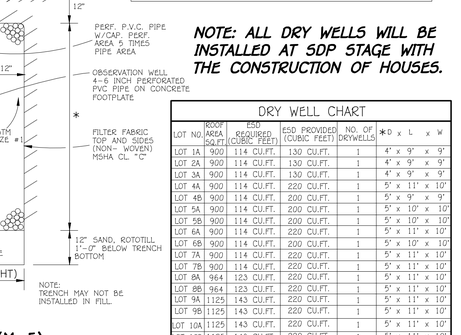
SCALE : 1" = 2'



PROFILE VIEW 'B' (MODIFIED '5' INLET) CONCRETE RISER DETAIL

R-2

SCALE : 1" = 2'

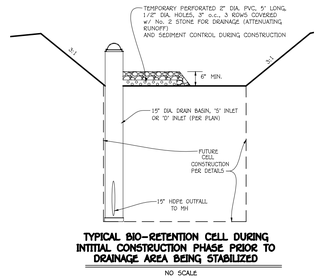


REINFORCING: DEFORMED STEEL BARS (1/2" DIA.)
CHAMFER: ALL EXPOSED EDGES 1"x 1" OR AS DIRECTED.
CONC. SHALL BE S.H.A. A. MIX No. 2.

OPENINGS		DIMENSIONS							VOLUME	STEEL
D IN.	AREA SQ.FT	A	B	C	E	F	H	L	CONC C.Y.	LBS.
15"	1.23	9"	6"	6"	1'-9"	9"	3'-0"	7'-9	2.33	47

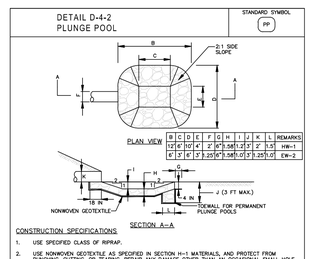
MODIFIED TYPE 'C' ENDWALL

NO SCALE



TYPICAL BIO-RETENTION CELL DURING INITIAL CONSTRUCTION PHASE PRIOR TO DRAINAGE AREA BEING STABILIZED

NO SCALE



B	C	D	E	F	G	H	I	J	K	L	REMARKS
12'	8'	10'	3'	2'-6"	3.58'	1.21'	2'	2'	3.5'		MW-1
6'	3'	6'	3'	3.25'	3.58'	1.0'	3'	3.25'	1.0'		EW-2

CONSTRUCTION SPECIFICATIONS

1. USE SPECIFIED CLASS OF RIPRAP.
2. USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION M-I MATERIALS, AND PROTECT FROM PUNCHING, 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.
3. PREPARE THE SUBGRADE FOR THE PLUNGE POOL 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. EMBED THE GEOTEXTILE A MINIMUM OF 4 INCHES AND EXTEND THE GEOTEXTILE A MINIMUM OF 6 INCHES BEYOND THE EDGE OF THE SCOUR HOLE.
5. STONE FOR THE PLUNGE POOL MAY BE PLACED BY EQUIPMENT. CONSTRUCT TO THE FULL COURSE THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO AVOID DISPLACEMENT OF UNDERLYING MATERIALS. PLACE THE STONE SO AS TO OBTAIN THE REQUIRED DENSITY IN A MANNER THAT WILL ENSURE THAT IT IS REASONABLY HOMOGENEOUS WITH THE SMALLER STONES AND SPALLS FILLING THE VOIDS BETWEEN THE LARGER STONES. PLACE STONE FOR THE PLUNGE POOL IN A MANNER TO PREVENT DAMAGE TO THE GEOTEXTILE. HAND PLACE TO THE EXTENT NECESSARY.
6. AT THE PLUNGE POOL OUTLET, PLACE THE STONE SO THAT IT MEETS THE EXISTING GRADE.
7. MAINTAIN LINE, GRADE, AND CROSS SECTION. KEEP OUTLET FREE OF EROSION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. AFTER HIGH FLOWS INSPECT FOR SCOUR AND 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

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK – 10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855

Approved: Howard County Department Of Public Works

Chief, Bureau Of Highways — 9/11/2023 Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — 9/11/2023 Date

Chief, Division of Land Development — 9/13/2023 Date

DATE	DESCRIPTION
	REVISIONS

"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY 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. 20748, EXPIRATION DATE: 2-22-25."

STATE OF MARYLAND — ALDO MICHAEL VITUCCI — No. 20748 — PROFESSIONAL ENGINEER

Aldo M. Vitucci, P.E.

ALDO M. VITUCCI, P.E.

OWNERS
LACEY FAMILY REVOCABLE TRUST
12235 WILD ROSE COURT
MARRIOTTSVILLE, MD 21104
ATTN: MR. VINCENT LACEY

DEVELOPER
LAND HOLDINGS LLC
C\O B. JAMES GREENFIELD
6420 AUTUMN SKY WAY
COLUMBIA, MD 21044
443-324-4732

PROJECT			SECTION/AREA		PARCEL
LACEY PROPERTY			N/A		13
PLAT NOS.	BLOCK NO.	ZONE	TAX MAP	ELEC. DIST.	CENSUS TR.
-	1	R-ED	25	SECOND	602900

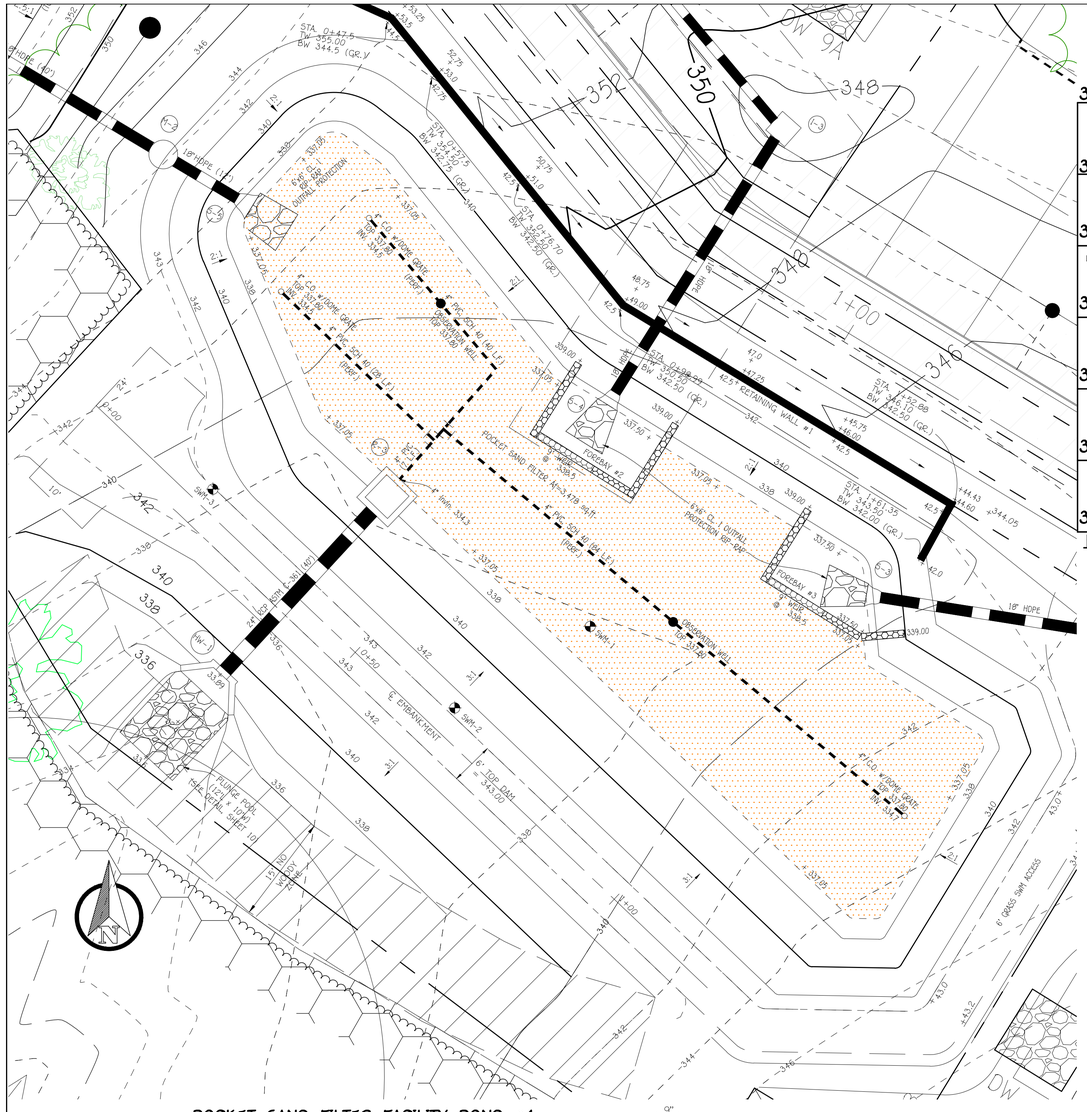
STORMWATER MANAGEMENT PLAN VIEW, PROFILES & DETAILS-MICRO BIO-RETENTION #2

LACEY PROPERTY
LOTS 1 THRU 13 AND OPEN SPACE LOTS 14 THRU 17

ZONED: R-ED
PARCEL No.: 13
TAX MAP No.: 25 GRID No.: 1
SECOND ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: AS SHOWN DATE: JULY 10, 2023
SHEET 10 OF 24

F-21-015

DocuSign Envelope ID: 79E9DBFB-CDDB-4FF4-A258-614B911C4A9B



DocuSign Envelope ID: 79E9DBFB-CDDB-4FF4-A258-614B911C4A9B

SPECIMEN TREE TABLE

KEY	SPECIES	SIZE (DBH)	CRZ (FT RADIUS)	COMMENTS	STATUS
T1	HEMLOCK	35"	52.5		TBR
T2	NORWAY SPRUCE	33"	49.5		
T3	WHITE PINE	37"	55.5		
T4	WHITE PINE	38.5"	57.75		
T5	SILVER MAPLE	49.5"	89.25		
T6	SILVER MAPLE	36.5"	54.75		
T7	BLACK WALNUT	37.5"	56.25		TBR
T8	BLACK WALNUT	32"	48		TBR
T9	BLACK WALNUT	41"	61.5		TBR
T11	SILVER MAPLE	42"	63	VERY POOR, TRUNK ROT	TBR
T12	SILVER MAPLE	45.5"	68.25	POOR, TRUNK ROT	TBR
T13	SILVER MAPLE	52"	78	POOR, TRUNK ROT	TBR
T14	ENGLISH WALNUT	41"	61.5		
T15	SILVER MAPLE	31"	46.5	FAIR, LIMITED CROWN SPREAD	
T16	SILVER MAPLE	39"	58.5		
T17	SILVER MAPLE	33"	49.5	FAIR, LEANING	
T18	SILVER MAPLE	40.5"	60.75	FAIR, NARROW CROWN	
T19	SILVER MAPLE	37"	55.5	FAIR, LIMITED CROWN SPREAD	
T20	SILVER MAPLE	45"	67.5	FAIR, LIMITED CROWN SPREAD	TBR
T21	SILVER MAPLE	41"	61.5	FAIR, MAJOR LIMB BROKEN	TBR
T22	SILVER MAPLE	32"	48		TBR
T23	SILVER MAPLE	34"	51	FAIR, LIMITED CROWN SPREAD	TBR
T24	SILVER MAPLE	35"	52.5	POOR, TRUNK ROT	TBR
T25	TULIP POPLAR	39.5"	59.25		
T26	TULIP POPLAR	35"	52.5	TWIN STEMS	
T27	TULIP POPLAR	33.5"	50.25		
T28	TULIP POPLAR	32"	48		
T29	TULIP POPLAR	32"	48	TWIN STEMS	
T30	TULIP POPLAR	31"	46.5		
T31	TULIP POPLAR	39"	58.5		
T32	TULIP POPLAR	46"	69		
T33	TULIP POPLAR	33"	49.5	2 ADDITIONAL NEAR SPECIMEN SIZE TRUNKS	
T34	TULIP POPLAR	32.5"	48.75		
T35	TULIP POPLAR	39.5"	59.25		
T36	TULIP POPLAR	40"	60		
T37	TULIP POPLAR	55"	82.5		
T38	TULIP POPLAR	61"	91.5	SPLITS INTO 2 TRUNKS ABOVE DBH	
T39	TULIP POPLAR	41"	61.5		
T40	SYCAMORE	31"	46.5		
T41	SILVER MAPLE	31.5"	47.25	POOR, VERY LIMITED CROWN	TBR
T42	SILVER MAPLE	39.5"	59.25	POOR, CROWN REDUCED	TBR
T43	SILVER MAPLE	39"/32"	58.5	POOR, SPLIT TRUNK ABOVE BREAST HEIGHT, TRUNK ROT, AND LIMB DIEBACK	

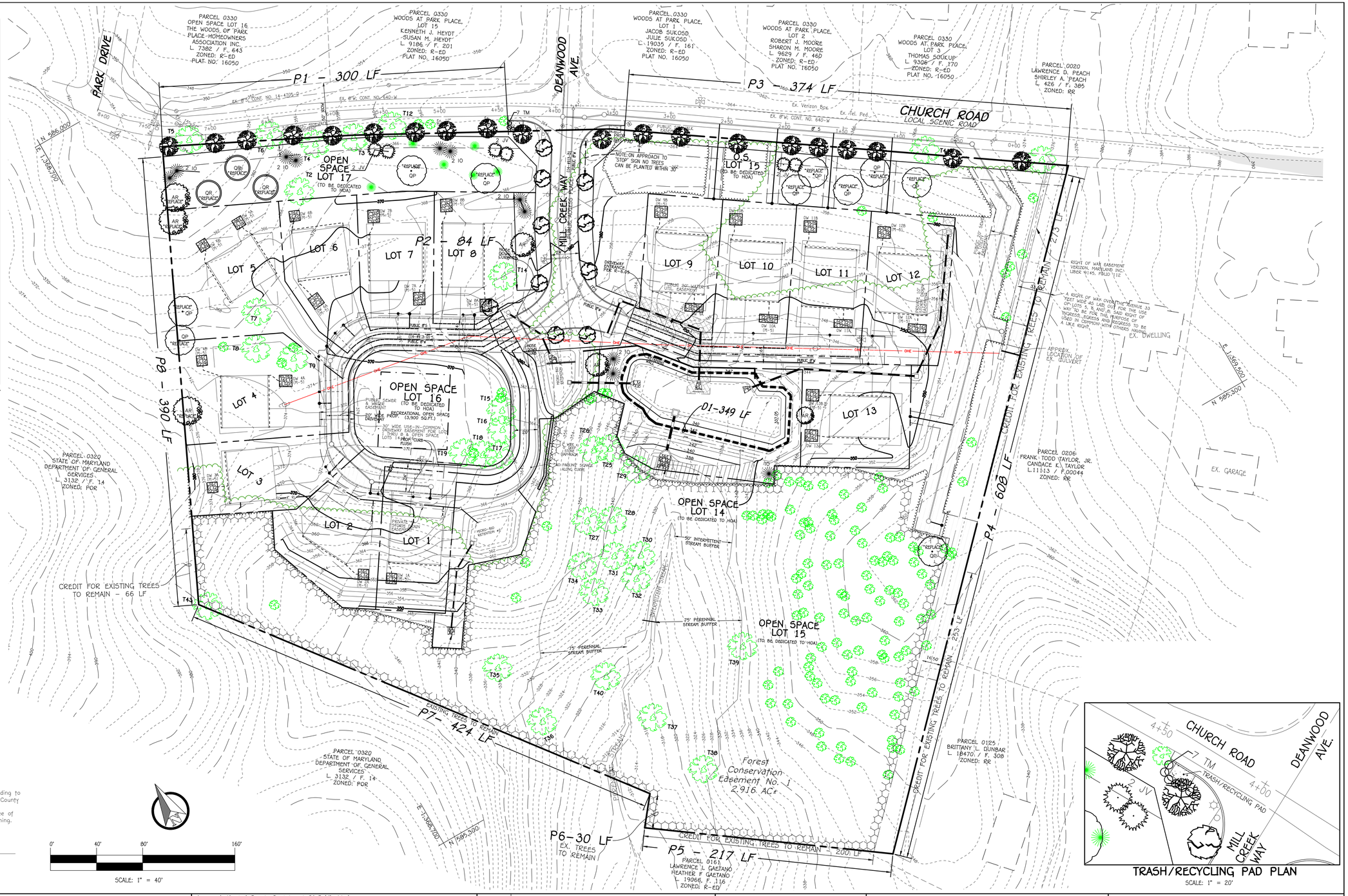
NOTE: "TBR" REFERS TO EXISTING SPECIMEN TREES PROPOSED TO BE REMOVED.

NOTE: IN ACCORDANCE WITH WP-16-022, 16 REPLACEMENT TREES HAVE BEEN ADDED TO THIS PLAN. SEE SCHEDULE 'A' ON SHEET 13.

"REPLACE" REFERS TO PROPOSED TREES PER WP-16-022.

LEGEND

SYMBOL	DESCRIPTION
352	EXISTING CONTOUR 2' INTERVAL
350	EXISTING CONTOUR 10' INTERVAL
	EXISTING SAN. SEWER LINE
	EXISTING STORM DRAIN LINE
	EXISTING WATER LINE
x	EXISTING FENCE
352	PROPOSED CONTOUR 2' INTERVAL
350	PROPOSED CONTOUR 10' INTERVAL
	PROPOSED CONCRETE WALK
	EXISTING TREES
	EXISTING TREELINE
	PROPOSED TREELINE
8" W	PROPOSED PUBLIC WATER
18" RCCP	PROPOSED STORMDRAIN
8" S	PROPOSED PUBLIC SEWER
	FOREST CONSERVATION AREA
	RIPRAP OUTLET PROTECTION



LANDSCAPE DEVELOPER'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 letter of landscape installation accompanied by an executed one year guarantee of plant materials will be submitted to the Department of Planning and Zoning.

Jim Greenfield — Name
9/1/2023 — Date

Approved: Howard County Department Of Public Works
DocuSigned by: Kent Sheubrooks
Chief, Bureau Of Highways — 9/11/2023 — Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
DocuSigned by: (Amy) Edmondson
Chief, Development Engineering Division — 9/11/2023 — Date
DocuSigned by:
Chief, Division of Land Development — 9/13/2023 — Date

DATE	DESCRIPTION
	REVISIONS

"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY 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. 20748, EXPIRATION DATE: 2-22-25."

STATE OF MARYLAND — ALDO MICHAEL VITUCCI — No. 20748 — PROFESSIONAL ENGINEER

Aldo M. Vitucci
ALDO M. VITUCCI, P.E.

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855

OWNERS
LACEY FAMILY REVOCABLE TRUST
1235 WILD ROSE COURT
MARRIOTTSVILLE, MD 21104
ATTN: MR. VINCENT LACEY

DEVELOPER
LAND HOLDINGS LLC
C\O B. JAMES GREENFIELD
6420 AUTUMN SKY WAY
COLUMBIA, MD 21044
443-324-4732

PROJECT				SECTION/AREA		PARCEL
LACEY PROPERTY				N/A		13
PLAT NOS.	BLOCK NO.	ZONE	TAX MAP	ELEC. DIST.	CENSUS TR.	
-	1	R-ED	25	SECOND	602900	

STREET TREE & LANDSCAPE PLAN

LACEY PROPERTY
LOTS 1 THRU 13 AND OPEN SPACE LOTS 14 THRU 17

ZONED: R-ED
PARCEL No.: 13
TAX MAP No.: 25 GRID No.: 1
SECOND ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: AS SHOWN DATE: JULY 10, 2023
SHEET 12 OF 24

F-21-015

DocuSign Envelope ID: 79E9DBFB-CDDB-4FF4-A258-614B911C4A9B

NOTES:

1. "Should any tree designated for preservation for which landscaping credit is given, die prior to release of bonds, the 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 be a minimum of 2.5 inches in caliper and installed as required in the Howard County Landscape Manual."

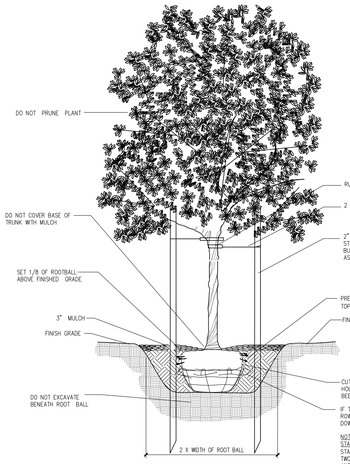
2. "At the time of plant installation, all shrubs and trees listed and approved on the landscape Plan, shall comply with the proper height requirement in accordance with the Howard County Landscape Manual. In addition, no substitutions or relocations of the required plantings may be made without prior review and approval from the Department of Planning and Zoning. Any deviation from the approved Landscape Plan may result in denial or delay in the release of landscape surety until such time as all required materials are planted and/or revisions are made to the applicable plans".

3. "The Owner, tenants and/or their agents shall be responsible for maintenace of the required perimeter landscaping including both plant materials and berms, fences and walls. All plant materials shall be maintained in good growing condition, and when necessary, replaced with new materials to ensure continued compliance with applicable regulations. All the other required landscaping shall be permanently maintained in good condition, and when necessary, repaired or replaced".

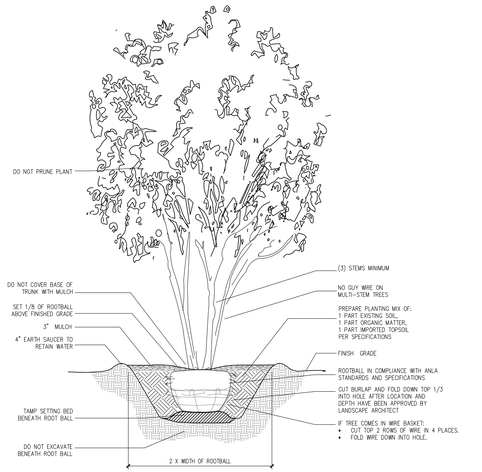
4. This Plan Has Been Prepared In Accordance With The Provisions Of Section 16.124 Of The Howard County Code And The Landscape Manual". Financial Surety For The Required 26 Shade, 5 Evergreen Trees & 7 Shrubs (Provided 19 Shade, 6 Ornamental, 11 Evergreen & 7 Shrubs) Has Been Posted As Part Of The Developer's Agreement In The Amount Of $8,460.00.

5. This Plan Provides 16 Replacement Trees For The Removal Of 8 Specimen Trees Per WP-16-022.

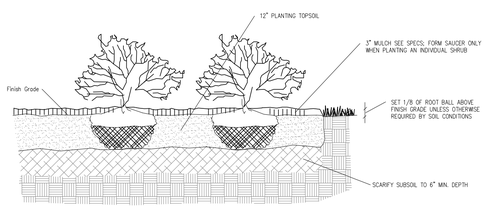
SCHEDULE D STORMWATER MANAGEMENT AREA LANDSCAPING	
LINEAR FEET OF PERIMETER	349'
NUMBER OF TREES REQUIRED/PROVIDED: SHADE TREES (349'-243' = 106'/50) EVERGREEN TREES (349'-243' = 106'/40)	2 3
CREDIT FOR EXISTING VEGETATION (NO, YES AND %)	YES 133' (FCE)
CREDIT FOR OTHER (LANDSCAPE, WALL, ETC.) (NO, YES AND %)	YES, 110' (WALL)



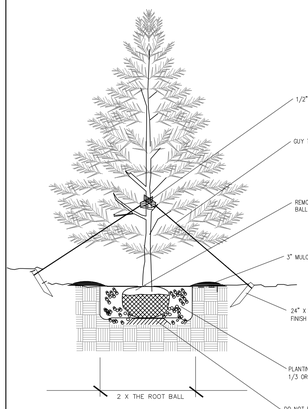
DECIDUOUS TREE - TYPICAL PLANTING DETAIL



MULTISTEM TREE - TYPICAL PLANTING DETAIL



SHRUB AND HEDGEROW - TYPICAL PLANTING DETAIL



EVERGREEN TREE - TYPICAL PLANTING DETAIL

PLANTING SPECIFICATIONS

1. CLEAR & GRUB ALL PLANTING AREAS AS INDICATED ON THE DRAWINGS.
2. PROVIDE PROTECTION FOR TREES, SHRUBS, AND PERENNIALS/GROUND COVERS THAT ARE TO BE PRESERVED.
3. CONTRACTOR SHALL VERIFY THE CORRECT LOCATION OF ALL UNDERGROUND UTILITIES IN THE FIELD PRIOR TO INSTALLATION OF ANY PLANT MATERIALS.
4. ALL PLANTING SHALL BE DONE AS PER PLANTING DETAILS AND SPECIFICATIONS.
5. NO CHANGES SHALL BE MADE WITHOUT WRITTEN CONSENT OF THE OWNER OR LANDSCAPE ARCHITECT.
6. PRIOR TO CONSTRUCTION OF PLANTING BEDS, THE CONTRACTOR SHALL STAKE OUT PLANTING BED LINES IN THE FIELD FOR REVIEW BY THE LANDSCAPE ARCHITECT. LANDSCAPE ARCHITECT SHALL MAKE ADJUSTMENTS IN THE FIELD AS NECESSARY. ALL FINAL PLANTING BED LOCATIONS ARE TO BE APPROVED BY THE LANDSCAPE ARCHITECT. FOR LAYOUT REVIEW, CONTRACTOR SHALL NOTIFY LANDSCAPE ARCHITECT A MINIMUM OF THREE DAYS IN ADVANCE.
7. INSTALL ALL REQUIRED PLANTING AND LAWN SOILS AS PER DETAILS AND SPECIFICATIONS, AND ALL SHRUBS, GROUND COVERS, AND PERENNIALS SHALL BE PLANTED IN PLANTING BEDS PREPARED AS REQUIRED BY THE DETAILS AND SPECIFICATIONS.
8. MAINTAIN POSITIVE DRAINAGE OUT OF PLANTING BEDS AT A MINIMUM 2% SLOPE AND MAINTAIN POSITIVE DRAINAGE OF ALL LAWN AREAS, UNLESS OTHERWISE NOTED ON DRAWINGS. ALL GRADES, DIMENSIONS, AND EXISTING CONDITIONS SHALL BE VERIFIED BY THE CONTRACTOR ON SITE BEFORE CONSTRUCTION BEGINS. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE LANDSCAPE ARCHITECT OR OWNER.
9. ALL PLANT BEDS SHALL BE CONTAINED WITH A SPADED EDGE UNLESS OTHERWISE NOTED ON DRAWINGS.
10. IN THE EVENT OF A DISCREPANCY BETWEEN QUANTITIES SHOWN ON THE DRAWINGS AND QUANTITIES SHOWN ON THE PLANT LIST, THE QUANTITIES ON THE DRAWINGS SHALL APPLY. REPORT DISCREPANCIES TO THE LANDSCAPE ARCHITECT FOR CLARIFICATION PRIOR TO BIDDING.
11. ALL PLANTS SHALL CONFORM TO THE SIZES GIVEN IN THE PLANT LIST AND SHALL BE NURSERY GROWN IN ACCORDANCE WITH THE "AMERICAN STANDARD FOR NURSERY STOCK" (ANSI Z60.1), LATEST EDITION.
12. PLANTS SHALL BE LOCATED AS SHOWN ON THE DRAWINGS. PRIOR TO PLANTING, THE CONTRACTOR SHALL STAKE OUT THE LOCATIONS OF ALL PLANTS IN THE FIELD FOR REVIEW BY THE LANDSCAPE ARCHITECT. LANDSCAPE ARCHITECT SHALL MAKE ADJUSTMENTS IN THE FIELD AS NECESSARY. ALL FINAL PLANT LOCATIONS ARE TO BE APPROVED BY THE LANDSCAPE ARCHITECT. FOR LAYOUT REVIEW, CONTRACTOR SHALL NOTIFY LANDSCAPE ARCHITECT A MINIMUM OF THREE DAYS IN ADVANCE.
13. ALL DISTURBED AREAS SHALL BE FINE GRADED AND SEEDED OR SODDED; SEE PLAN FOR LOCATIONS.
14. CONTRACTOR SHALL BE RESPONSIBLE FOR WATERING AND MAINTAINING ALL PLANTS DURING THE WARRANTY PERIOD; REFER TO SPECIFICATIONS.

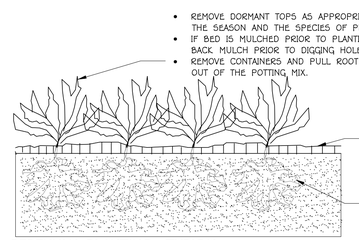
SCHEDULE A - PERIMETER LANDSCAPE EDGE											
PERIMETER	1	2	3	4	5	6	7	8	9		TOTAL
CATEGORY	ADJACENT TO ROADWAY	ADJACENT TO ROADWAY	ADJACENT TO ROADWAY	ADJACENT TO PERIMETER PROPERTIES	ADJACENT TO PERIMETER PROPERTIES	ADJACENT TO PERIMETER PROPERTIES	ADJACENT TO PERIMETER PROPERTIES	ADJACENT TO PERIMETER PROPERTIES	TRASH/RECYLING PAD	SPECIMEN TREE REPLACEMENTS	
LANDSCAPE TYPE	N/A (FRONT)	B (SIDE TO ROAD)	N/A (FRONT)	A	A	A	A	A	--		
LINEAR FEET OF PERIMETER	300 L.F.	84 L.F.	374 L.F.	608 L.F.	217 L.F.	30 L.F.	424 L.F.	390 L.F.	20 L.F.		
CREDIT FOR EXISTING TREES (YES/NO, LENGTH)	N/A	N/A	N/A	YES, 526 L.F. (82 L.F. REMAINING)	YES, 200 L.F. (17 L.F. REMAINING)	YES, 30 L.F. (0 L.F. REMAINING)	YES, 424 L.F. (0 L.F. REMAINING)	YES, 66 L.F. (324 L.F. REMAINING)	N/A		
NUMBER OF PLANTS REQUIRED SHADE TREES/EVERGREENS SHRUBS	0	2/2 (84'/50' = 1.7 OR 2) (84'/40' = 2.1 OR 2)	0	1 (82'/60' = 1.4 OR 1)	0 (17'/60' = 0.3 OR 0)	0	0	5 (324'/60' = 5.4 OR 5)	0 7	16 SHADE (WP-16-22)	24 / 2 7
CREDIT FOR EXISTING VEGETATION SHADE TREES SMALL/MEDIUM DECIDUOUS TREES/ EVERGREENS SHRUBS	0 0 0 0	1 (T14) 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	1 0 0 0
NUMBER OF PLANTS PROVIDED SHADE TREES SMALL/MEDIUM DECIDUOUS TREES/ EVERGREENS SHRUBS	0 0 0 0	1 0 2 0	0 0 0 0	1 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	5 0 0 0	0 0 0 7	10 6 6 0	17 6 8 7

NOTES: 1. THE TRASH/RECYCLE PAD LANDSCAPING WILL BE MAINTAINED BY THE USERS OF THE PRIVATE USE-IN-COMMON MAINTENANCE AGREEMENT.

2. THE LANDSCAPING SHALL BE INSTALLED AROUND THE PERIMETER OF THE PAD EXCLUDING THE SIDE ADJACENT TO THE PUBLIC ROAD RIGHT-OF-WAY.

REQUIRED LANDSCAPING PLANT LIST (SCHEDULE 'A' & 'D')			
QTY.	KEY	NAME	SIZE
6	AR	ACER RUBRUM 'RED SUNSET' (RED SUNSET RED MAPLE)	2.5"-3" CAL. FULL CROWN, B&B
10	QP	QUERCUS PALUSTRIS (PIN OAK)	2.5"-3" CAL. FULL CROWN, B&B
3	de	QUERCUS ROBUR "FASTIGIATA" (COLUMNAR ENGLISH OAK)	2.5"-3" CAL. FULL CROWN, B&B
11	IO	ILEX OPACA (AMERICAN HOLLY)	5' - 6' HT. B&B
6	JV	JUNIPERUS VIRGINIANA (EASTERN RED CEDAR)	5' - 6' HT. B&B
7	TM	TAXUS MEDIA 'HICKSII' (HICKSII YEW)	18"-24" SPREAD

TOTAL: 19 SHADE TREES, 6 ORNAMENTAL, 11 EVERGREENS & 7 SHRUBS.

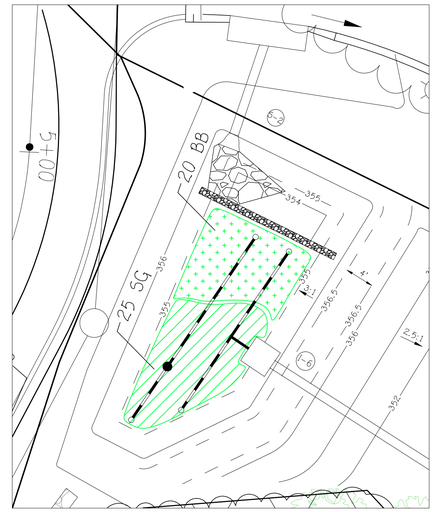


PERENNIAL PLANTING - TYPICAL

STREET TREE SCHEDULE				
QTY. REQ'D.	QTY. PROV'D.	SIZE	BOTANICAL AND COMMON NAME	COMMENTS
ROW LENGTH = 785' 785'/40 = 19.6 20 TREES	20 TREES	2 1/2 - 3" CAL.	CLADRASTIS LUTEA YELLOWWOOD	40' APART ON PUBLIC R/W (CHURCH ROAD)
TOTAL ROW LENGTH = 180' (180'/40) x 2 = 10 10 TREES	10 TREES	2 1/2 - 3" CAL.	PRUNUS SARGENTII SARGENT CHERRY	40' APART ON PUBLIC R/W (MILL CREEK WAY)

NOTE: FINAL PLACEMENT OF STREET TREES WILL OCCUR IN THE FIELD AND BE PLACED A MINIMUM OF 30 FEET FROM ALL SIGNS AND INTERSECTIONS WHEN PLANTED BETWEEN SIDEWALK AND CURB, BE LOCATED WITHIN CONSIDERATION OF UNDERGROUND UTILITIES AND STRUCTURES AND MAINTAIN A MINIMUM 5 FEET DISTANCE ON CENTER FROM A DRAIN INLET STRUCTURE, 5 FEET FROM AN OPEN SPACE ACCESS STRIP AND 10 FEET AWAY FROM A DRIVEWAY.

PUBLIC STREET TREES ARE PROVIDED IN ACCORDANCE WITH SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL. FINANCIAL SURETY FOR THE REQUIRED 30 STREET TREES IN THE AMOUNT OF $9,000.00 SHALL BE COLLECTED WITH THE DEPARTMENT OF PUBLIC WORKS COST ESTIMATE.



MICRO BIO-RETENTION #1 PLANTING PLAN

Scale: 1" = 10'

BIORETENTION FACILITY (BMP) PLANTING SCHEDULE

KEY	PLANT NAME	MIN. SIZE	MICRO-BIO #1 QUANTITY	MICRO-BIO #2 QUANTITY		NOTES	SYMBOL
SG	SWITCH GRASS *(Panicum virgatum)*	1 qt	25	15		Grass @ 3' c/c min.	
BB	BEEBALM *(Monarda didyma)*	1 qt	20	14		Grass @ 3' c/c min.	
NEA	NEW ENGLAND ASTER *(Aster novae angliae)*	1 qt	0	8		Grass @ 3' c/c min.	
	TOTAL		45	37			

PLANTING SPECIFICATIONS:
1. PLANT INSTALLATION SHALL BE PER MDE SPECIFICATIONS IN THE 2000 STORMWATER DESIGN MANUAL, PER THE PROJECT SPECIFICATIONS, AND AS BELOW.

ADDITIONAL SPECIFICATIONS:
1. PLANT BMP LEVEL SURFACE AS SHOWN IN THE ABOVE TABLE WITH AN EVEN DISTRIBUTION DENSITY. STABILIZE BMP SIDE SLOPES WITH PERMANENT GRASS SEED PER NRCS SPECIFICATIONS. SIDE SLOPE PERMANENT GRASS AREAS SHALL HAVE 3" OF CLEAN TOPSOIL ON TILLED SUB-SOIL AND CURLEX MATTING. WATER AS NECESSARY UNTIL ESTABLISHED VEGETATION.

2. THE CONTRACTOR SHALL PROVIDE PLANT MAINTENANCE AND GUARANTEE IN ACCORDANCE WITH THE PROJECT LANDSCAPING SPECIFICATIONS.

3. PLANT MATERIAL SHALL CONFORM TO THE U.S. STANDARD FOR NURSERY STOCK BY THE AMERICAN ASSOCIATION OF NURSERYMEN.

4. PLANTING PERENNIALS & GRASSES: ROOT SYSTEMS SHALL BE SPLIT OR CRUMBLED. POTTED PLANTS SHALL BE SET SO THAT THE TOP OF THE POT IS EVEN WITH EXISTING GRADE. TREAT THE MULCHED AND PLANTED AREA WITH A PRE-EMERGENT HERBICIDE.

5. ALL PLANTS MUST BE THOROUGHLY AND REGULARLY WATERED PRIOR TO ACCEPTANCE.

6. DO NOT PLANT VEGETATION WITHIN 1.5 ft OF THE FOREBAY WEIR SPLASH APRONS AND IN THE NO PLANTING ZONE NEAR THE RISER.

MICRO BIO-RETENTION #2 PLANTING PLAN

Scale: 1" = 10'

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855

LANDSCAPE DEVELOPER'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 letter of landscape installation accompanied by an executed one year guarantee of plant materials will be submitted to the Department of Planning and Zoning.

Jim Greenfield — Name
8/11/2023 — Date

Approved: Howard County Department Of Public Works

DocuSigned by: 2455821AE4D44C2...

Chief, Bureau Of Highways — 9/11/2023 — Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

DocuSigned by: Chad Edmondson 9/11/2023

Chief, Development Engineering Division — Date

DocuSigned by: 9/13/2023

Chief, Division of Land Development — Date

DATE	DESCRIPTION
	REVISIONS

"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY 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. 20748, EXPIRATION DATE: 2-22-25."

STATE OF MARYLAND — ALDO MICHAEL VITUCCI — No. 20748 — PROFESSIONAL ENGINEER

Aldo M. Vitucci, P.E.

ALDO M. VITUCCI, P.E.

OWNERS
LACEY FAMILY REVOCABLE TRUST
1235 WILD ROSE COURT
MARRIOTTSVILLE, MD 21104
ATTN: MR. VINCENT LACEY

DEVELOPER
LAND HOLDINGS LLC
C\O B. JAMES GREENFIELD
6420 AUTUMN SKY WAY
COLUMBIA, MD 21044
443-324-4732

PROJECT			SECTION/AREA		PARCEL
LACEY PROPERTY			N/A		13
PLAT NOS.	BLOCK NO.	ZONE	TAX MAP	ELEC. DIST.	CENSUS TR.
-	1	R-ED	25	SECOND	602900

MICRO BIO-RETENTION PLANTING PLANS, LANDSCAPING NOTES, DETAILS & SPECIFICATIONS

LACEY PROPERTY
LOTS 1 THRU 13 AND OPEN SPACE LOTS 14 THRU 17

ZONED: R-ED
PARCEL No.: 13
TAX MAP No.: 25 GRID No.: 1
SECOND ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: AS SHOWN DATE: JULY 10, 2023
SHEET 13 OF 24

F-21-015

DocuSign Envelope ID: 79E9DBFB-CDDB-4FF4-A258-614B911C4A9B

STRUCTURE SCHEDULE

STRUCTURE NO.	OWNERSHIP AND MAINTENANCE	TOP ELEVATION	INV.IN	INV.OUT	COORDINATES	WIDTH	TYPE	REMARKS
I-1	PUBLIC	355.80	–	351.93 (15")	N 585,611.99 E 1,369,044.68	2.50'	A-5 INLET	D-4.02
I-2	PUBLIC	358.57	355.08 (15")	354.83 (18")	N 585,639.70 E 1,368,994.37	2.50'	A-5 INLET	D-4.02
I-3	PRIVATE	348.33 *	343.26 (15")	337.96 (18")	N 585,573.44 E 1,369,115.51	--	D INLET	D-4.11
I-4	PRIVATE	347.75 *	–	344.56 (18")	N 585,449.69 E 1,369,259.11	--	D INLET	D-4.11
I-5	PRIVATE	343.75 *	344.49 (18")	344.39 (18")	N 585,500.79 E 1,369,175.09	--	D INLET	D-4.11
I-7	PUBLIC	359.03 *	–	355.25 (15")	N 585,670.75 E 1,368,978.94	--	D INLET	D-4.11
I-8	PRIVATE	351.83 *	347.46 (15")	347.21 (18")	N 585,475.49 E 1,369,298.62	--	D INLET	D-4.11
I-9	PRIVATE	357.75 *	–	351.08 (15")	N 585,540.55 E 1,369,343.07	--	D INLET	D-4.11
M-1	PUBLIC	356.18	351.61 (15")	351.51 (15")	N 585,630.97 E 1,369,068.25	--	4' STD. MANHOLE	G - 5.12
M-2	PRIVATE	344.50	339.62 (18")	338.12 (18")	N 585,570.56 E 1,369,029.67	--	4' STD. MANHOLE	G - 5.12
M-3	PRIVATE	350.00	344.80 (15")	343.55 (15")	N 585,470.73 E 1,368,808.06	--	4' STD. MANHOLE	G - 5.12
M-4	PRIVATE	360.00	351.63 (15")	350.38 (15")	N 585,500.24 E 1,368,829.00	--	4' STD. MANHOLE	G - 5.12
R-1	PRIVATE	356.30	352.17 (4")	346.82 (18")	N 585,531.04 E 1,369,080.93	--	MODIFIED S INLET	SEE SHEET 9
R-2	PRIVATE	361.75	356.92 (4")	356.00 (15")	N 585,513.16 E 1,368,851.56	--	MODIFIED S INLET	SEE SHEET 10
R-3	PRIVATE	342.00	334.30 (4")	334.23 (24")	N 585,473.52 E 1,369,216.30	--	CONC. RISER	SEE SHEET 11
S-1	PRIVATE	–	335.00 (18")	–	N 585,531.04 E 1,369,080.93	--	18" HDPE END SECTION	ADS NYLOPLAST or EQUAL
S-2	PUBLIC	–	354.75 (18")	–	N 585,622.13 E 1,368,990.52	--	18" HDPE END SECTION	ADS NYLOPLAST or EQUAL
S-3	PRIVATE	–	337.05 (18")	–	N 585,513.90 E 1,369,123.08	--	18" HDPE END SECTION	ADS NYLOPLAST or EQUAL
S-4	PRIVATE	–	337.05 (18")	–	N 585,535.56 E 1,369,091.76	--	18" HDPE END SECTION	ADS NYLOPLAST or EQUAL
S-5	PRIVATE	–	337.24 (18")	–	N 585,409.08 E 1,368,843.71	--	18" HDPE END SECTION	ADS NYLOPLAST or EQUAL
HW-1	PRIVATE	–	333.87 (24")	–	N 585,496.53 E 1,369,035.68	--	# TYPE A HEADWALL	D - 5.11
EW-2	PRIVATE	346.40	343.40 (15")	–	N 585,458.50 E 1,368,799.38	--	MODIFIED TYPE C ENDWALL	SEE DETAIL SHEET 10

*DENOTES TOP OF 'D' TYPE INLET. (THROAT ELEV = TOP ELEV. - 0.83')
I-4 & I-9 (THROAT ON 4 SIDES)
I-6, I-7 & I-8 (THROAT ON 3 SIDES)
I-5 (THROAT ON 2 SIDES)

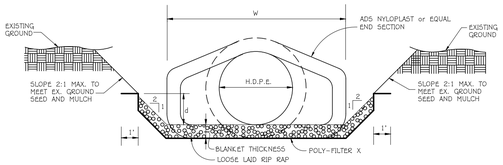
USE A 'TYPE A' HEADWALL w/DIMENSIONS FOR A 36" PIPE

PIPE SCHEDULE (PRIVATE)

SIZE	CLASS	LENGTH
15"	HDPE	176 L.F.
18"	HDPE	310 L.F.
36"	ASTM, C-361	36 L.F.
4"	PERF PVC	132 L.F.
4"	SOLID PVC	3 L.F.

PIPE SCHEDULE (PUBLIC)

SIZE	CLASS	LENGTH
15"	RCCP, CL. IV	65 L.F.
18"	HDPE	15 L.F.



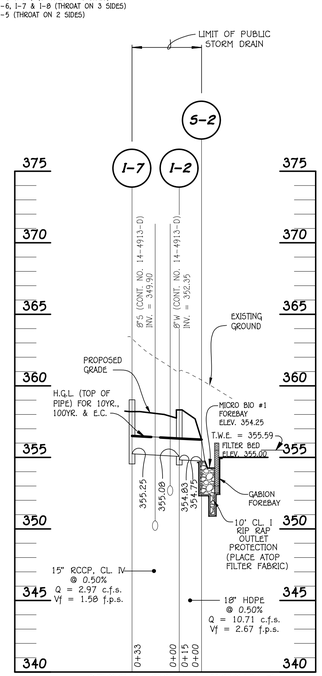
RIP RAP CHANNEL DETAIL
NO SCALE

RIP-RAP CHANNEL DESIGN DATA

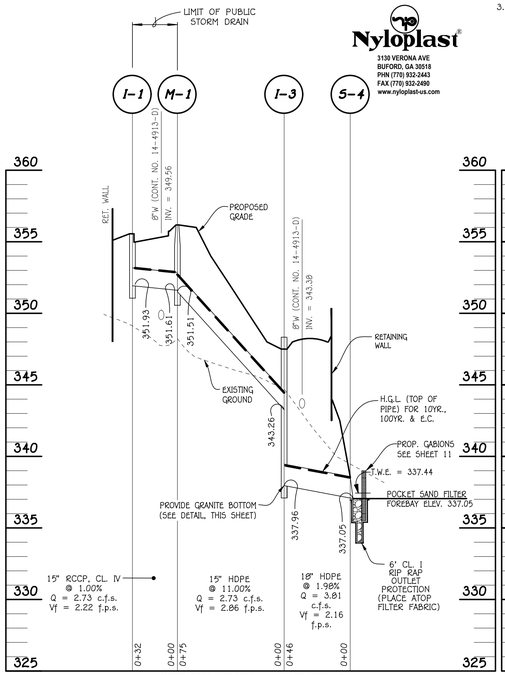
STRUCTURE	AREA	WETTED PERIMETER	R	R 2/3	S	S 1/2	W	d	N	V (f.p.s.)	Q (c.f.s.)	RIP-RAP SIZE D_{50}	RIP-RAP SIZE T_{MIN}	BLANKET THICKNESS
S-2	1.96	5.82	0.3367	0.4822	0.0050	0.0707	5.63	0.41	0.04	1.27	2.48	9.5"	15"	19"
S-3	5.80	8.36	0.6938	0.7827	0.0050	0.0707		0.41	0.04		11.88	9.5"	15"	19"
S-4	2.24	6.04	0.3727	0.5162	0.0050	0.0707		0.41	0.04		2.99	9.5"	15"	19"
S-6	1.05	5.05	0.2079	0.3491	0.0050	0.0707		0.41	0.04		0.96	9.5"	15"	19"

NOTES:

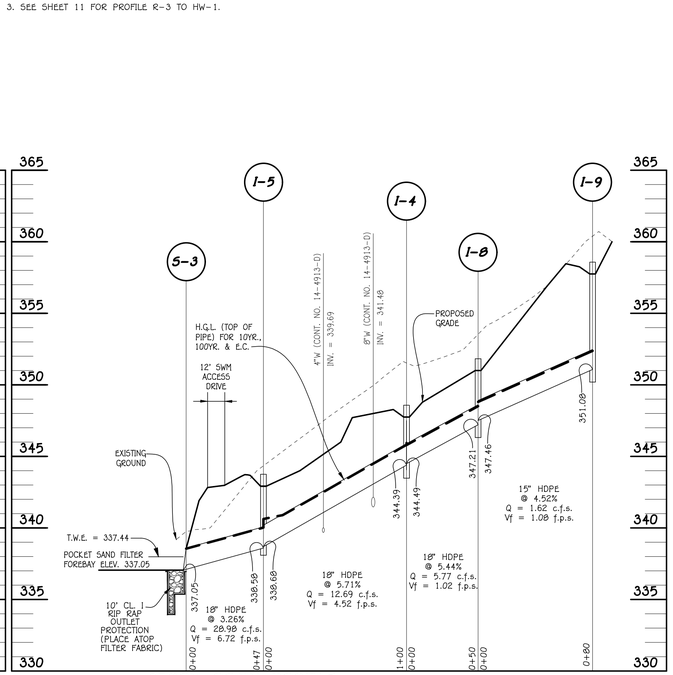
1. SEE SHEET 9 FOR PROFILE R-1 TO S-5.
2. SEE SHEET 10 FOR PROFILE R-2 TO EW-2.
3. SEE SHEET 11 FOR PROFILE R-3 TO HW-1.



STORM DRAIN PROFILE
SCALE: HORIZ. : 1" = 50'
VERT. : 1" = 5'



STORM DRAIN PROFILE
SCALE: HORIZ. : 1" = 50'
VERT. : 1" = 5'

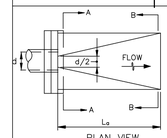


STORM DRAIN PROFILE
SCALE: HORIZ. : 1" = 50'
VERT. : 1" = 5'

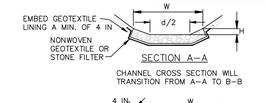
DETAIL D-4-1-A ROCK OUTLET PROTECTION

STANDARD SYMBOL

DISCHARGE TO SEMI CONFINED CHANNEL SECTION

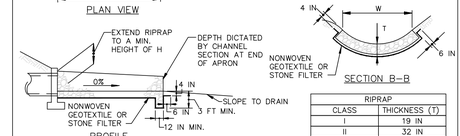


PLAN VIEW



SECTION A-A

CHANNEL CROSS SECTION WILL TRANSITION FROM A-A TO B-B



PROFILE

SECTION B-B

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

CONSTRUCTION SPECIFICATIONS

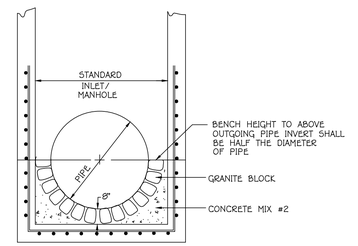
1. RIPRAP AND STONE MUST CONFORM TO THE SPECIFIED CLASS.
2. USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS, AND PROTECT FROM PUNCTURING, CUTTING, OR TEARING. REPAIR ANY DAMAGE OTHER THAN AN OCCASIONAL SMALL HOLE BY PLACING ANOTHER PIECE OF GEOTEXTILE OVER THE DAMAGED PART OR BY COMPLETELY 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 (3/8 TO 1½ INCH 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 THE 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 STONE 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 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

CONSTRUCTION SPECIFICATIONS FOR RIP-RAP OUTFALLS

1. The subgrade for the filter, riprap or gabion shall be prepared to the required lines and grades. Any fill required in the subgrade shall be compacted to a density of approximately that of the surrounding undisturbed material.
2. The rock or gravel shall conform to the specified grading limits when installed respectively in the riprap or filter.
3. Filter cloth shall be protected from punching, cutting or tearing. Any damage other than an occasional shall hole shall be repaired by placing another piece of cloth over the damaged part or by completely replacing the cloth. All overlaps whether for repairs or for joining two pieces of cloth shall be a minimum of one foot.
4. Stone for the riprap or gabion outlets may be placed by equipment. Both shall each be constructed to the full course thickness in one operation and in such a manner as to avoid displacement of underlying materials. The stone for riprap or gabion outlets shall be delivered and placed in a manner that will insure that it is reasonably homogenous with the smaller stones and spalls filling the voids between the larger stones. Riprap shall be placed in a manner to prevent damage to the filter blanket or filter cloth. Hand placement will be required to the extent necessary to prevent damage to the permanent works.



GRANITE BLOCK DETAIL
NOT TO SCALE

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855

Approved: Howard County Department Of Public Works
DocuSigned by: 2485821AE4DA4C2...
Chief, Bureau Of Highways — 9/11/2023 Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
DocuSigned by: Chad Edmondson 9887E7462F744409...
Chief, Development Engineering Division — 9/11/2023 Date
DocuSigned by: 5B1B7A7BA22B49A...
Chief, Division of Land Development — 9/13/2023 Date

DATE	DESCRIPTION
	REVISIONS

"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY 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. 20748, EXPIRATION DATE: 2-22-25."

STATE OF MARYLAND · ALDO MICHAEL VITUCCI · No. 20748 · PROFESSIONAL ENGINEER

Aldo M. Vitucci, P.E.

ALDO M. VITUCCI, P.E.

OWNERS
LACEY FAMILY REVOCABLE TRUST
12235 WILD ROSE COURT
MARRIOTTSVILLE, MD 21104
ATTN: MR. VINCENT LACEY

DEVELOPER
LAND HOLDINGS LLC
C\O B. JAMES GREENFIELD
6420 AUTUMN SKY WAY
COLUMBIA, MD 21044
443-324-4732

PROJECT			SECTION/AREA		PARCEL
LACEY PROPERTY			N/A		13
PLAT NOS.	BLOCK NO.	ZONE	TAX MAP	ELEC. DIST.	CENSUS TR.
–	1	R-ED	25	SECOND	602900

STORM DRAIN PROFILES

LACEY PROPERTY
LOTS 1 THRU 13 AND OPEN SPACE LOTS 14 THRU 17

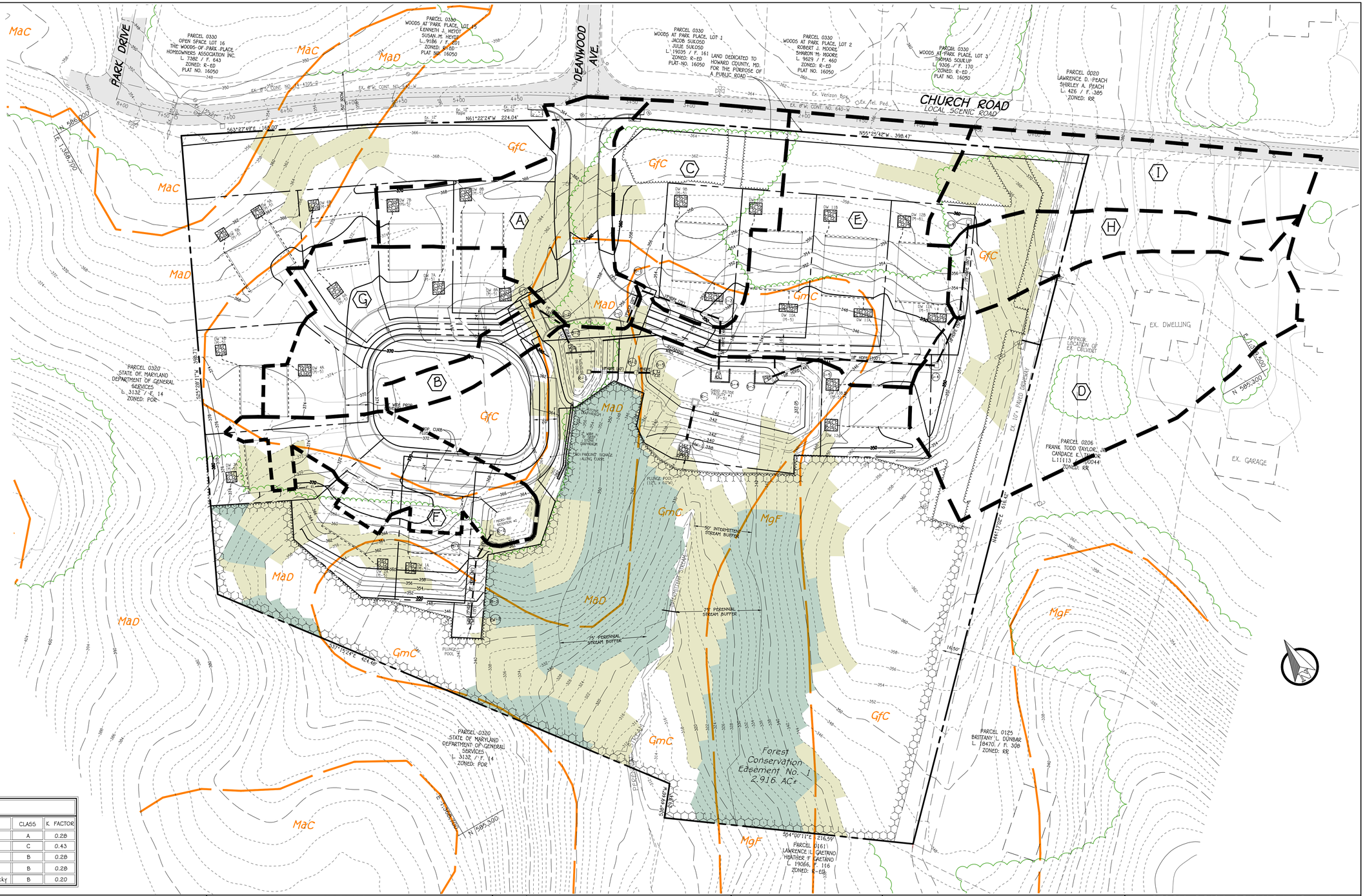
ZONED: R-ED
PARCEL No.: 13
TAX MAP No.: 25 GRID No.: 1
SECOND ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: AS SHOWN DATE: JULY 10, 2023
SHEET 14 OF 24

F-21-015

DocuSign Envelope ID: 79E9DBFB-CDDB-4FF4-A258-614B911C4A9B

DRAINAGE AREA DATA

STRUCTURE NO.	DRAINAGE AREA	AREA	'C'	ZONED	% IMP.
I-1	A	0.51 AC.	0.54	R-ED	40%
I-2	B	0.11 AC.	0.38	R-ED	31%
I-3	C	0.54 AC.	0.28	R-ED	16%
I-4	D	1.07 AC.	0.50	R-ED	23%
I-5	E	0.85 AC.	0.42	R-ED	39%
I-6	F	0.44 AC.	0.51	R-ED	55%
I-7	G	0.54 AC.	0.52	R-ED	48%
I-8	H	0.31 AC.	0.40	R-ED	10%
I-9	I	0.48 AC.	0.52	R-ED	23%



0' 40' 80' 160'

SCALE: 1" = 40'

SOILS LEGEND

SOIL	NAME	CLASS	K FACTOR
GfC	Gladstone-Urban land complex, 8 to 15 percent slopes	A	0.28
GmC	Glenville silt loam, 8 to 15 percent slopes	C	0.43
MaC	Manor loam, 8 to 15 percent slopes	B	0.28
MaD	Manor loam, 15 to 25 percent slopes	B	0.28
MgF	Manor-Bannertown sandy loams, 25 to 65 percent slopes, rocky	B	0.20

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855

Approved: Howard County Department Of Public Works

Chief, Bureau Of Highways — 9/11/2023 — Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — 9/11/2023 — Date

Chief, Division of Land Development — 9/13/2023 — Date

DATE	DESCRIPTION
	REVISIONS

"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY 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. 20748, EXPIRATION DATE: 2-22-25."

STATE OF MARYLAND — ALDO MICHAEL VITUCCI — NO. 20748 — PROFESSIONAL ENGINEER

Aldo M. Vitucci, P.E.

ALDO M. VITUCCI, P.E.

OWNERS
LACEY FAMILY REVOCABLE TRUST
12316 WILD ROSE COURT
MARRIOTTSVILLE, MD 21104
ATTN: MR. VINCENT LACEY

DEVELOPER
LAND HOLDINGS LLC
C\O B. JAMES GREENFIELD
6420 AUTUMN SKY WAY
COLUMBIA, MD 21044
443-324-4732

PROJECT			SECTION/AREA		PARCEL
LACEY PROPERTY			N/A		13
PLAT NOS.	BLOCK NO.	ZONE	TAX MAP	ELEC. DIST.	CENSUS TR.
-	1	R-ED	25	SECOND	602900

STORM DRAIN DRAINAGE AREA & SOILS MAP

LACEY PROPERTY
LOTS 1 THRU 13 AND OPEN SPACE LOTS 14 THRU 17

ZONED: R-ED
PARCEL No.: 13
TAX MAP No.: 25 GRID No.: 1
SECOND ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: AS SHOWN DATE: JULY 10, 2023
SHEET 15 OF 24

F-21-015

DocuSign Envelope ID: 79E9DBFB-CDDB-4FF4-A258-614B911C4A9B

RETAINING WALL GENERAL NOTES

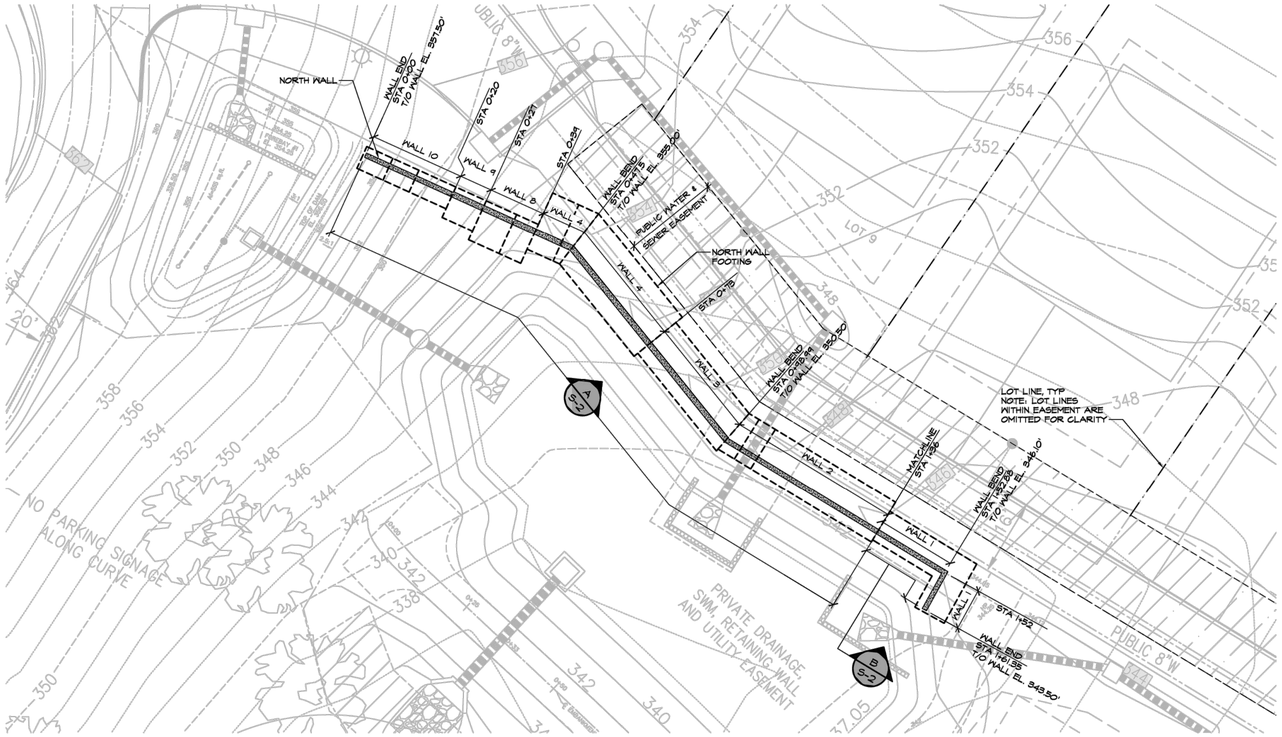
A. RETAINING WALLS SHALL ONLY BE CONSTRUCTED UNDER THE OBSERVATION OF A REGISTERED PROFESSIONAL ENGINEER AND A (NICET, MAGEL, OR EQUIVALENT) CERTIFIED SOILS TECHNICIAN.

B. THE REQUIRED BEARING PRESSURE BENEATH THE FOOTING OF THE WALL SHALL BE VERIFIED IN THE FIELD BY A CERTIFIED SOILS TECHNICIAN. TESTING DOCUMENTATION SHALL BE PROVIDED TO THE HOWARD COUNTY INSPECTOR PRIOR TO THE START OF CONSTRUCTION. THE REQUIRED TEST PROCEDURE SHALL BE THE DYNAMICCONE PENETROMETER TEST ASTM STP-399.

C. THE SUITABILITY OF FILL MATERIAL SHALL BE CONFIRMED BY THE ONSITE SOILS TECHNICIAN. EACH EIGHT (8) INCH LIFT SHALL BE COMPACTED TO A MINIMUM OF 95% STANDARD PROCTER DENSITY AND THE TESTING REPORT SHALL BE MADE AVAILABLE TO THE HOWARD COUNTY INSPECTOR UPON COMPLETION OF THE CONSTRUCTION.

D. FOR "CRITICAL" WALLS, ONE SOIL BORING SHALL BE REQUIRED EVERY 100' ALONG THE ENTIRE LENGTH OF THE WALL. COPIES OF ALL BORING REPORTS SHALL BE PROVIDED TO THE HOWARD COUNTY INSPECTOR PRIOR TO THE START OF CONSTRUCTION.

E. THE RETAINING WALLS SHALL BE PRIVATELY OWNED AND MAINTAINED BY THE HOME OWNER'S ASSOCIATION.



PARTIAL PLAN (NORTH)

SCALE: 1" = 15'-0"

NOTES:

1. LOCATION AND ELEVATION OF WALLS BASED ON CIVIL DRAWINGS PROVIDED BY FISHER, COLLINS & CARTER DATED 12/8/2022.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

DocuSigned by: — 9/11/2023
CHIEF, BUREAU OF HIGHWAYS — DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

DocuSigned by: — 9/13/2023
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

DocuSigned by: — 9/11/2023
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

OWNERS

CHARLES T LACEY SR (DECEASED) &
KARLOS LACEY CO-TRUSTEES
1235 WILD ROSE COURT
MARRIOTTSVILLE, MD 21104

DEVELOPER

LAND HOLDINGS LLC
C\O B. JAMES GREENFIELD
6420 AUTUMN SKY WAY
COLUMBIA, MD 21044
443-324-4732

PROJECT			SECTION/AREA		PARCEL
LACEY PROPERTY			N/A		13
PLAT NOS.	BLOCK NO.	ZONE	TAX MAP	ELEC. DIST.	CENSUS TR.
–	1	R-ED	25	SECOND	602900

LACEY PROPERTY
PARTIAL PLANS

ZONED: R-ED
PARCEL No.: 13
TAX MAP No.: 25 GRID No.: 1
SECOND ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: 1" = 15'-0"

County File Reference: F-21-015

MRA
Buildings Group
MORRIS & RITCHIE ASSOCIATES, INC.
Architects, Engineers, Planners, Surveyors, and Landscape Architects
1220-C East Joppa Road
Suite 505
Towson, Maryland 21286
410-821-1690
410-821-1748 Fax

Lacey Property (Retaining Walls)

Ellicott City, Maryland

STATE OF MARYLAND — CHARLES BRUCE SCHMUCKER — No. 30729 — PROFESSIONAL ENGINEER

PROFESSIONAL CERTIFICATION

I hear/by 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. 30729, Expiration Date: 07/11/2023.

© CONTENTS COPYRIGHT 2023
MORRIS AND RITCHIE ASSOC., INC.

NO.	REVISION	DATE

FILE	DRAWN	ISSUED
21040	JAG	03/08/23

SHEET TITLE

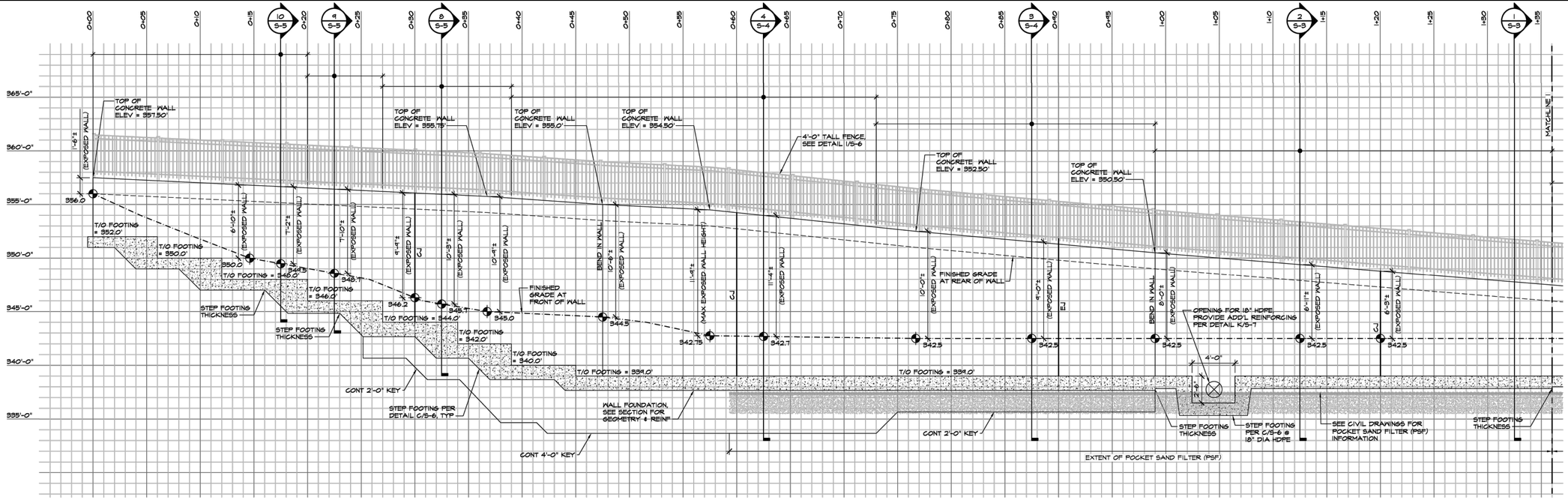
Partial Plans

SHEET NUMBER

S-1

Sheet 16 of 24

DocuSign Envelope ID: 79E9DBFB-CDDB-4FF4-A258-614B911C4A9B

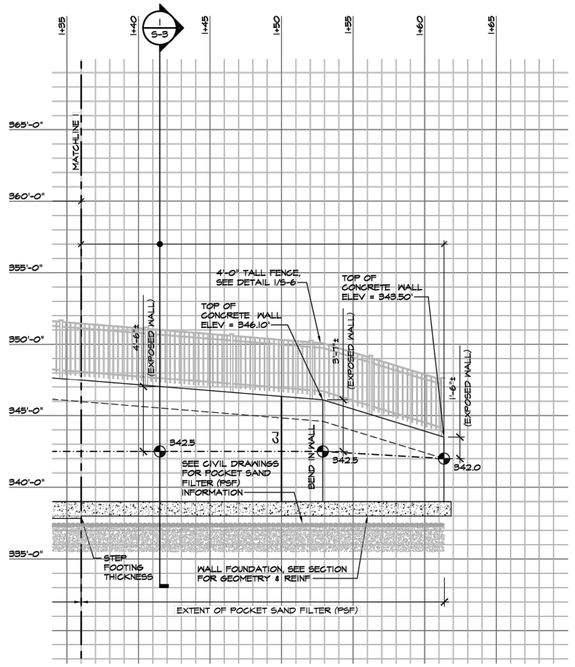


A S-1 NORTH RETAINING WALL ELEVATION 1

SCALE: 1" = 5'-0"

NOTES:

1. SEE CIVIL DRAWINGS FOR ADDITIONAL DETAILS.
2. "CJ" IN ELEVATION INDICATES LOCATION OF WALL CONSTRUCTION JOINT, SEE DETAIL H/S-6 FOR ADD'L INFORMATION.
3. "EJ" IN ELEVATION INDICATES LOCATION OF WALL CONSTRUCTION JOINT, SEE DETAIL G/S-6 FOR ADD'L INFORMATION.
4. "BEND IN WALL" IN ELEVATION INDICATES LOCATIONS OF WALL CORNERS, SEE DETAIL A/S-6 & E/S-6 FOR ADD'L INFORMATION.



B S-1 NORTH RETAINING WALL ELEVATION 2

SCALE: 1" = 5'-0"

NOTES:

1. SEE CIVIL DRAWINGS FOR ADDITIONAL DETAILS.
2. "CJ" IN ELEVATION INDICATES LOCATION OF WALL CONSTRUCTION JOINT, SEE DETAIL H/S-6 FOR ADD'L INFORMATION.
3. "EJ" IN ELEVATION INDICATES LOCATION OF WALL CONSTRUCTION JOINT, SEE DETAIL G/S-6 FOR ADD'L INFORMATION.
4. "BEND IN WALL" IN ELEVATION INDICATES LOCATIONS OF WALL CORNERS, SEE DETAIL A/S-6 & E/S-6 FOR ADD'L INFORMATION.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

DocuSigned by: 9/11/2023
CHIEF, BUREAU OF HIGHWAYS — DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

DocuSigned by: 9/13/2023
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

DocuSigned by: 9/11/2023
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

OWNERS
CHARLES T LACEY SR (DECEASED) &
KARLOS LACEY CO-TRUSTEES
1235 WILD ROSE COURT
MARRIOTTSVILLE, MD 21104

DEVELOPER
LAND HOLDINGS LLC
C\O B. JAMES GREENFIELD
6420 AUTUMN SKY WAY
COLUMBIA, MD 21044
443-324-4732

PROJECT			SECTION/AREA	PARCEL
LACEY PROPERTY			N/A	13
PLAT NOS.	BLOCK NO.	ZONE	TAX MAP	ELEC. DIST.	CENSUS TR.
-	1	R-ED	25	SECOND	602900

LACEY PROPERTY
NORTH WALL ELEVATIONS

ZONED: R-ED
PARCEL No.: 13
TAX MAP No.: 25 GRID No.: 1
SECOND ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: 1" = 5'-0"

County File Reference: F-21-015

MRA Buildings Group
MORRIS & RITCHIE ASSOCIATES, INC.
Architects, Engineers, Planners, Surveyors, and Landscape Architects
1220-C East Joppa Road
Suite 505
Towson, Maryland 21286
410-821-1690
410-821-1748 Fax

Lacey Property (Retaining Walls)

Ellicott City, Maryland

STATE OF MARYLAND — JAMES A. GREENFIELD — No. 30729 — PROFESSIONAL ENGINEER

PROFESSIONAL CERTIFICATION

I hereby certify that these documents were prepared or approved by me, and that I am a duly Licensed Professional Engineer under the laws of The State of Maryland, License No. 30729, Expiration Date: 07/11/2023.

© CONTENTS COPYRIGHT 2023
MORRIS AND RITCHIE ASSOC., INC.

NO.	REVISION	DATE

FILE	DRAWN	ISSUED
21040	JAG	03/08/23

SHEET TITLE

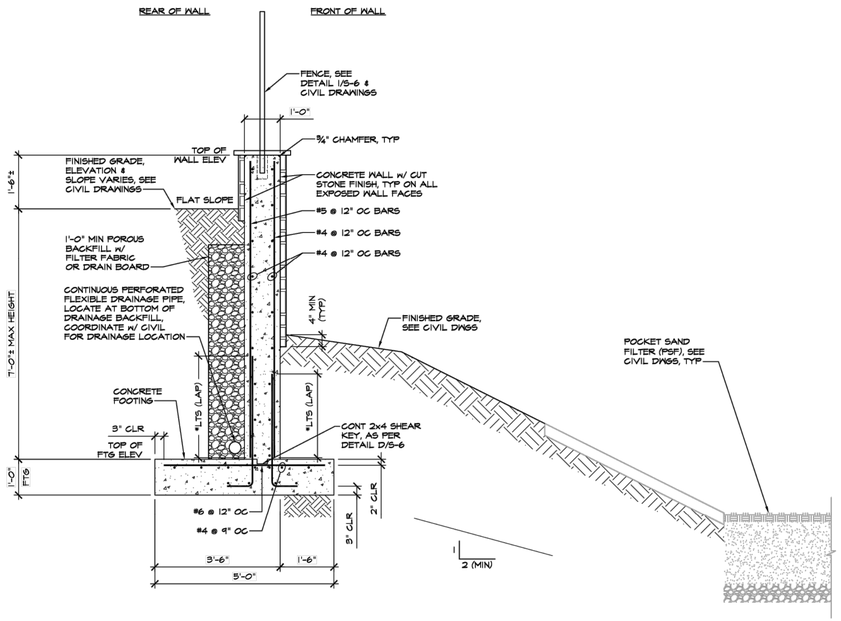
North Wall Elevations

SHEET NUMBER

S-2

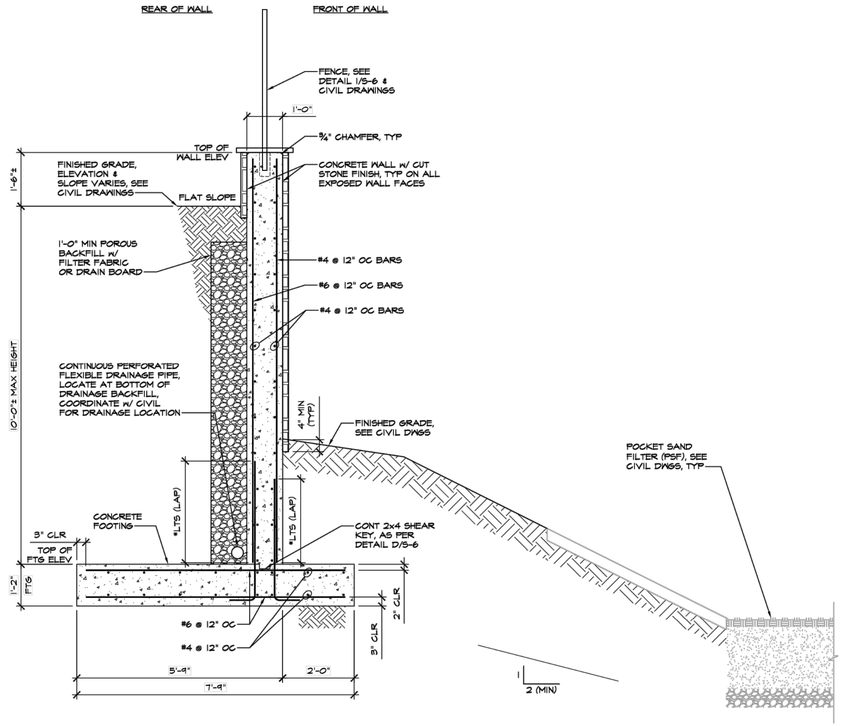
Sheet 17 of 24

DocuSign Envelope ID: 79E9DBFB-CDDB-4FF4-A258-614B911C4A9B



1 S-2 NORTH RETAINING WALL SECTION AT POCKET SAND FILTER - WALL 1

SCALE: ½" = 1'-0"



2 S-2 NORTH RETAINING WALL SECTION AT POCKET SAND FILTER - WALL 2

SCALE: ½" = 1'-0"

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

DocuSigned by: [signature] 9/11/2023

CHIEF, BUREAU OF HIGHWAYS — DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

DocuSigned by: 9/13/2023

DATE

CHIEF, DIVISION OF LAND DEVELOPMENT

DocuSigned by: (Hill) Edmondson 9/11/2023

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

OWNERS

CHARLES T LACEY SR (DECEASED) &
KARLOS LACEY CO-TRUSTEES
1235 WILD ROSE COURT
MARRIOTTSVILLE, MD 21104

DEVELOPER

LAND HOLDINGS LLC
C\O B. JAMES GREENFIELD
6420 AUTUMN SKY WAY
COLUMBIA, MD 21044
443-324-4732

PROJECT			SECTION/AREA		PARCEL
LACEY PROPERTY			N/A		13
PLAT NOS.	BLOCK NO.	ZONE	TAX MAP	ELEC. DIST.	CENSUS TR.
-	1	R-ED	25	SECOND	602900

LACEY PROPERTY
NORTH WALL SECTIONS

ZONED: R-ED
PARCEL No.: 13
TAX MAP No.: 25 GRID No.: 1
SECOND ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: 1/2" = 1'-0"

County File Reference: F-21-015

MRA
Buildings Group
MORRIS & RITCHIE ASSOCIATES, INC.
Architects, Engineers, Planners, Surveyors, and Landscape Architects
1220-C East Joppa Road
Suite 505
Towson, Maryland 21286
410-821-1690
410-821-1748 Fax

Lacey Property (Retaining Walls)

Ellicott City, Maryland

STATE OF MARYLAND — JAMES BUDDY GREENFIELD — No. 30729 — PROFESSIONAL ENGINEER — 03/07/23

PROFESSIONAL CERTIFICATION

I hearby 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. 30729, Expiration Date: 07/1/2023.

© CONTENTS COPYRIGHT 2023
MORRIS AND RITCHIE ASSOC., INC.

NO.	REVISION	DATE

FILE	DRAWN	ISSUED
21040	JAG	03/08/23

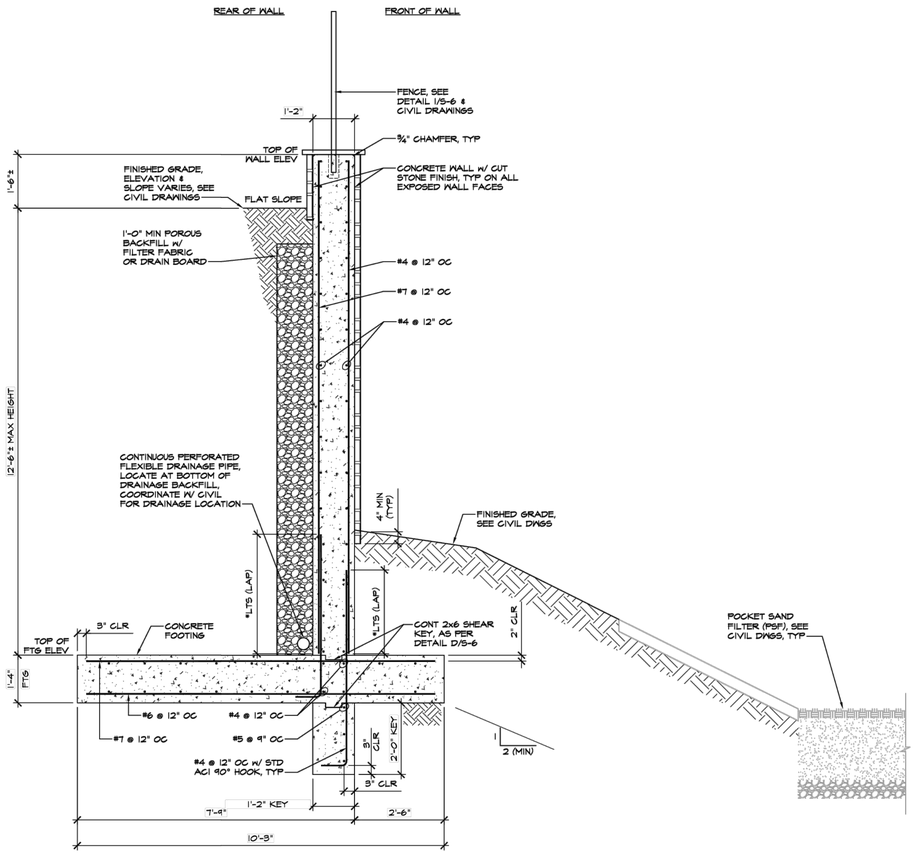
SHEET TITLE

North Wall Sections

SHEET NUMBER

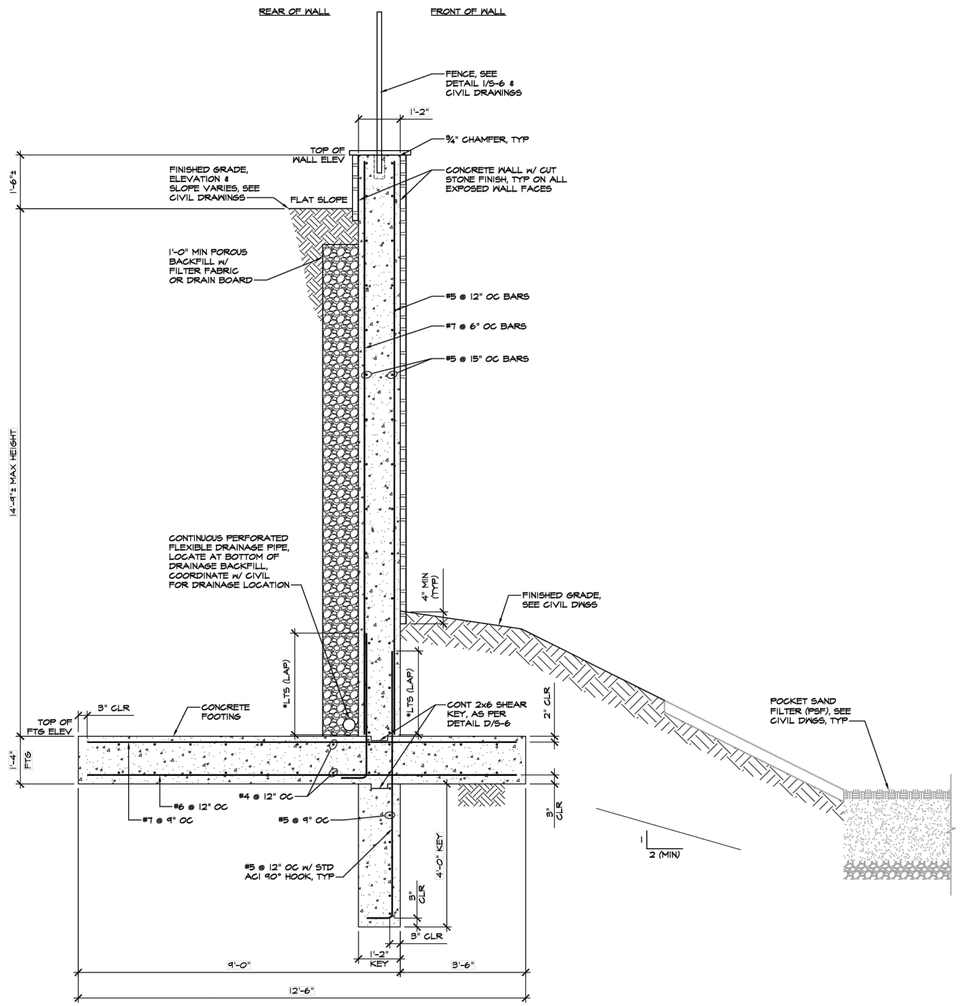
S-3

DocuSign Envelope ID: 79E9DBFB-CDDB-4FF4-A258-614B911C4A9B



3 S-2 NORTH RETAINING WALL SECTION AT POCKET SAND FILTER - WALL 3

SCALE: ½" = 1'-0"



4 S-2 NORTH RETAINING WALL SECTION AT POCKET SAND FILTER - WALL 4

SCALE: 1/2" = 1'-0"

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

DocuSigned by: 9/11/2023
CHIEF, BUREAU OF HIGHWAYS — DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

DocuSigned by: 9/13/2023
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

DocuSigned by: 9/11/2023
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

OWNERS
CHARLES T LACEY SR (DECEASED) &
KARLOS LACEY CO-TRUSTEES
1235 WILD ROSE COURT
MARRIOTTSVILLE, MD 21104

DEVELOPER
LAND HOLDINGS LLC
C\O B. JAMES GREENFIELD
6420 AUTUMN SKY WAY
COLUMBIA, MD 21044
443-324-4732

PROJECT			SECTION/AREA	ELEC. DIST.	PARCEL
LACEY PROPERTY			N/A		13
PLAT NOS.	BLOCK NO.	ZONE	TAX MAP	ELEC. DIST.	CENSUS TR.
–	1	R-ED	25	SECOND	602900

LACEY PROPERTY
NORTH WALL SECTIONS

ZONED: R-ED
PARCEL No.: 13
TAX MAP No.: 25 GRID No.: 1
SECOND ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: 1/2" = 1'-0"

County File Reference: F-21-015

MRA
Buildings Group
MORRIS & RITCHIE ASSOCIATES, INC.
Architects, Engineers, Planners, Surveyors, and Landscape Architects
1220-C East Joppa Road
Suite 505
Towson, Maryland 21286
410-821-1690
410-821-1748 Fax

Lacey Property (Retaining Walls)

Ellicott City, Maryland

STATE OF MARYLAND — JAMES BUCHER — 07/11/2023 — No. 30729 — PROFESSIONAL ENGINEER

PROFESSIONAL CERTIFICATION

I hearby 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. 30729, Expiration Date: 07/11/2023.

© CONTENTS COPYRIGHT 2023
MORRIS AND RITCHIE ASSOC., INC.

NO.	REVISION	DATE

FILE	DRAWN	ISSUED
21040	JAG	03/08/23

SHEET TITLE

North Wall Sections

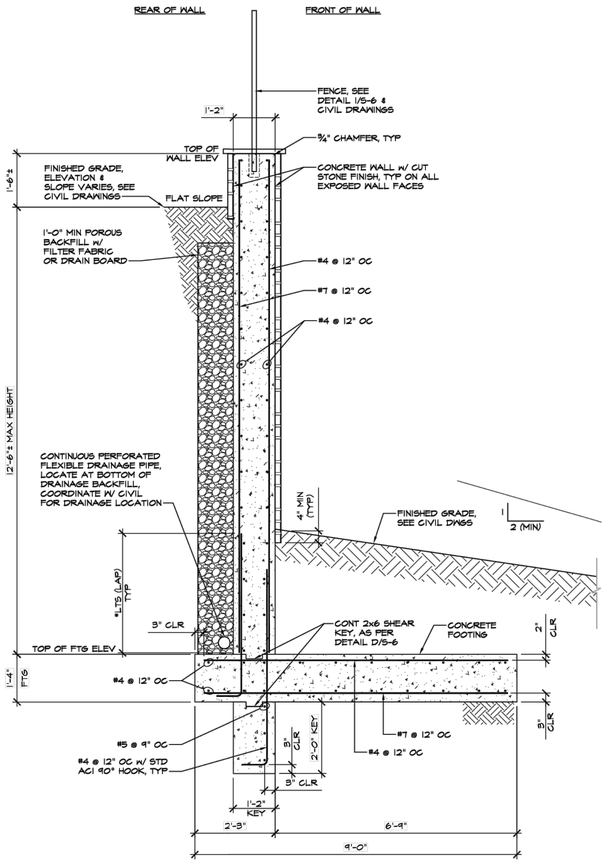
SHEET NUMBER

S-4

Sheet 19 of 24

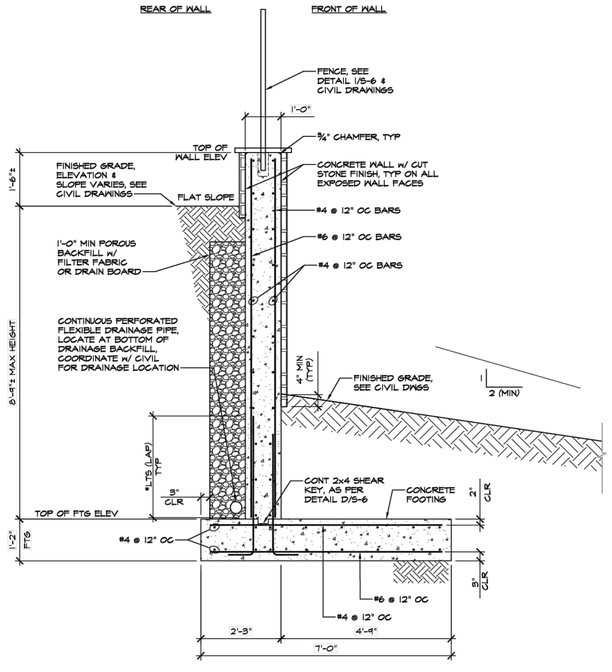
V:\bg_PROJECTS\21000-21099\21040 - Lacey Property Retaining Wall\300 Structural\306 Construction Documents\Structural Set S-X
3/8/2023

DocuSign Envelope ID: 79E9DBFB-CDDB-4FF4-A258-614B911C4A9B



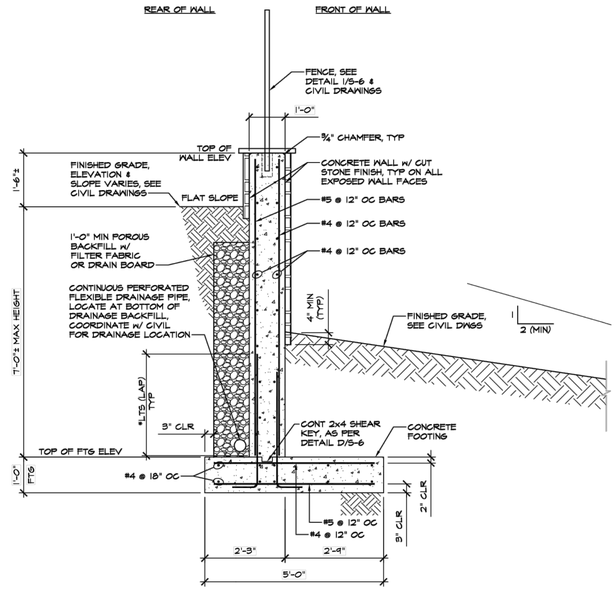
8 S-2 NORTH RETAINING WALL SECTION - WALL 8

SCALE: ½" = 1'-0"



9 S-2 NORTH RETAINING WALL SECTION - WALL 9

SCALE: ½" = 1'-0"



10 S-2 NORTH RETAINING WALL SECTION - WALL 10

SCALE: ½" = 1'-0"

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

DocuSigned by: 9/11/2023

CHIEF, BUREAU OF HIGHWAYS — DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

DocuSigned by: 9/13/2023

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

DocuSigned by: 9/11/2023

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

OWNERS

CHARLES T LACEY SR (DECEASED) &
KARLOS LACEY CO-TRUSTEES
1235 WILD ROSE COURT
MARRIOTTSVILLE, MD 21104

DEVELOPER

LAND HOLDINGS LLC
C\O B. JAMES GREENFIELD
6420 AUTUMN SKY WAY
COLUMBIA, MD 21044
443-324-4732

PROJECT			SECTION/AREA		PARCEL
LACEY PROPERTY			N/A		13
PLAT NOS.	BLOCK NO.	ZONE	TAX MAP	ELEC. DIST.	CENSUS TR.
–	1	R-ED	25	SECOND	602900

LACEY PROPERTY
NORTH WALL SECTIONS

ZONED: R-ED
PARCEL No.: 13
TAX MAP No.: 25 GRID No.: 1
SECOND ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: 1/2" = 1'-0"

County File Reference: F-21-015

MRA
Buildings Group
MORRIS & RITCHIE ASSOCIATES, INC.
Architects, Engineers, Planners, Surveyors, and Landscape Architects
1220-C East Joppa Road
Suite 505
Towson, Maryland 21286
410-821-1690
410-821-1748 Fax

Lacey Property (Retaining Walls)

Ellicott City, Maryland

STATE OF MARYLAND — JAMES GREENFIELD — No. 30729 — PROFESSIONAL ENGINEER

PROFESSIONAL CERTIFICATION

I hearby 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. 30729, Expiration Date: 07/11/2023.

© CONTENTS COPYRIGHT 2023
MORRIS AND RITCHIE ASSOC., INC.

NO.	REVISION	DATE

FILE	DRAWN	ISSUED
21040	JAG	03/08/23

SHEET TITLE

North Wall Sections

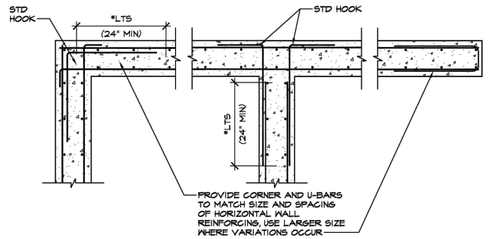
SHEET NUMBER

S-5

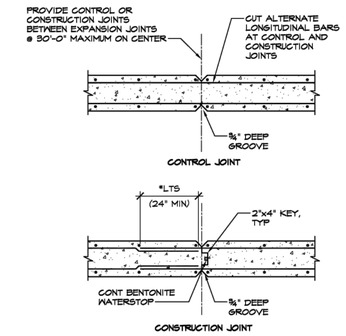
Sheet 20 of 24

V:\bg_PROJECTS\21000-21099\21040 - Lacey Property Retaining Wall\300 Structural\306 Construction Documents\Structural Set S-X
3/7/2023

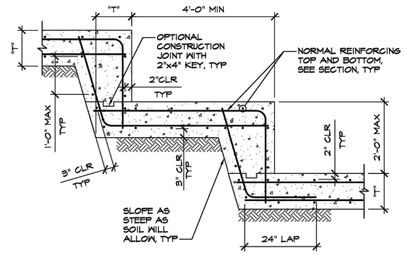
DocuSign Envelope ID: 79E9DBFB-CDDB-4FF4-A258-614B911C4A9B



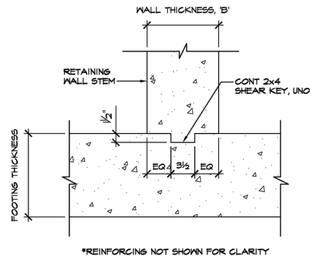
A CONCRETE WALL CORNER REINFORCING
SCALE: NTS



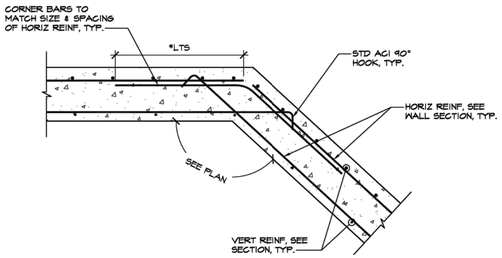
B CONTROL STRUCTURE WALL JOINTS
SCALE: NTS



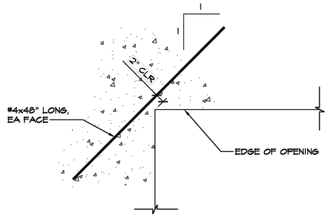
C TYPICAL STEPPED RETAINING WALL FOOTING
SCALE: NTS



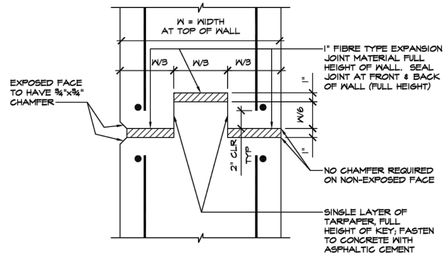
D RETAINING WALL KEY
SCALE: NTS



E REINFORCING @ BEND IN WALL
SCALE: NTS



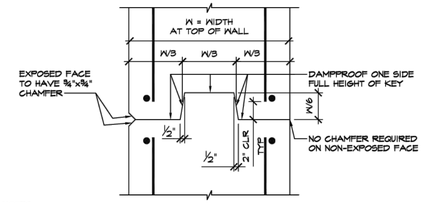
F ADDITIONAL REINFORCING
SCALE: NTS



NOTES:

1. CONCRETE RETAINING WALLS SHALL HAVE EXPANSION JOINTS WITH 1" SPONGE TYPE MATERIAL A MAXIMUM OF EVERY 90'-0".
2. STOP KEY 9" BELOW TOP OF WALL, CHAMFER TO CONTINUE TO TOP OF WALL.
3. REINFORCING STEEL SHALL NOT PASS THROUGH EXPANSION JOINT.
4. ALL KEYS ARE NOMINAL SIZE.
5. ONLY PLACE EXPANSION JOINTS IN STEMS (NO JOINT IN FOOTINGS).

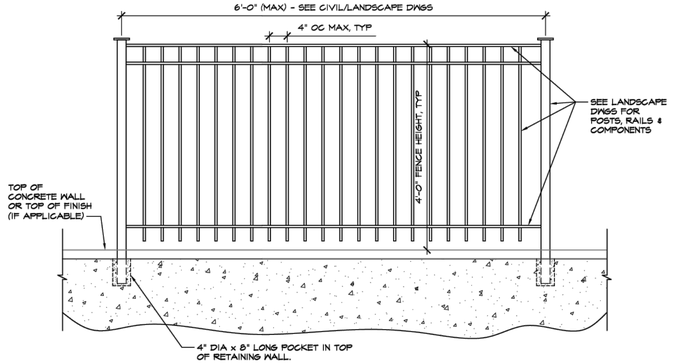
G CONCRETE WALL EXPANSION JOINTS
SCALE: NTS



NOTES:

1. CONCRETE RETAINING WALLS SHALL HAVE CONTROL/CONSTRUCTION JOINTS SPACED ROUGHLY 3 TIMES THE WALL HEIGHT NOT TO EXCEED 30'-0".
2. STOP KEY 9" BELOW TOP OF WALL, CHAMFER TO CONTINUE TO TOP OF WALL.
3. REINFORCING STEEL SHALL NOT PASS THROUGH CONSTRUCTION JOINT.
4. ALL KEYS ARE NOMINAL SIZE.
5. ONLY PLACE CONTROL/CONSTRUCTION JOINTS IN STEMS (NO JOINT IN FOOTINGS).

H CONCRETE WALL CONTROL/CONSTRUCTION JOINTS
SCALE: NTS



HANDRAIL ASSEMBLY SHALL MEET ALL CODE REQUIREMENTS, INCLUDING HAVING CAPACITY TO SUPPORT THE FOLLOWING LOADS (LOADS A & B DO NOT ACT CONCURRENT):

LOAD A = 200 LBS CONCENTRATED LOAD (IN ANY DIRECTION AT ANY POINT ALONG TOP RAIL)

LOAD B = 50 LB/FT (IN ANY DIRECTION APPLIED ALONG TOP RAIL).

PICKETS SHALL BE SPACED A MAXIMUM OF 4" OC, TYP.

I RETAINING WALL WITH HANDRAIL
SCALE: ¾" = 1'-0"

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

DocuSigned by: [signature] 9/11/2023
CHIEF, BUREAU OF HIGHWAYS — DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

DocuSigned by: [signature] 9/13/2023
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

DocuSigned by: Chad Edmondson 9/11/2023
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

OWNERS
CHARLES T LACEY SR (DECEASED) &
KARLOS LACEY CO-TRUSTEES
1235 WILD ROSE COURT
MARRIOTTSVILLE, MD 21104

DEVELOPER
LAND HOLDINGS LLC
C\O B. JAMES GREENFIELD
6420 AUTUMN SKY WAY
COLUMBIA, MD 21044
443-324-4732

PROJECT			SECTION/AREA		PARCEL
LACEY PROPERTY			N/A		13
PLAT NOS.	BLOCK NO.	ZONE	TAX MAP	ELEC. DIST.	CENSUS TR.
–	1	R-ED	25	SECOND	602900

LACEY PROPERTY
TYPICAL DETAILS

ZONED: R-ED
PARCEL No.: 13
TAX MAP No.: 25 GRID No.: 1
SECOND ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: AS SHOWN

County File Reference: F-21-015

MRA
Buildings Group
MORRIS & RITCHIE ASSOCIATES, INC.
Architects, Engineers, Planners, Surveyors, and Landscape Architects
1220-C East Joppa Road
Suite 505
Towson, Maryland 21286
410-821-1690
410-821-1748 Fax

Lacey Property (Retaining Walls)

Ellicott City, Maryland

STATE OF MARYLAND — JAMES BURNHAM — No. 30729 — PROFESSIONAL ENGINEER — 07/11/2023

PROFESSIONAL CERTIFICATION
I hearby 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. 30729, Expiration Date: 07/11/2023.

© CONTENTS COPYRIGHT 2023
MORRIS AND RITCHIE ASSOC., INC.

NO.	REVISION	DATE

FILE	DRAWN	ISSUED
21040	JAG	03/08/23

SHEET TITLE
Typical Details

SHEET NUMBER
S-6

Sheet 21 of 24

V:\bg_PROJECTS\21000-21099\21040 - Lacey Property Retaining Wall\300 Structural\306 Construction Documents\Structural Set S-X
3/8/2023

DocuSign Envelope ID: 79E9DBFB-CDDB-4FF4-A258-614B911C4A9B

STRUCTURAL NOTES

BUILDING CODES

A. ALL CONSTRUCTION SHALL CONFORM WITH:
- THE INTERNATIONAL BUILDING CODE (IBC-2015) AND ALL APPLICABLE SUPPLEMENTS.
- MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES (ASCE7-10).

B. IN ADDITION, ALL CONSTRUCTION SHALL CONFORM WITH THE GOVERNING LOCAL BUILDING CODE.

DESIGN LOAD

A. THE DESIGN DEAD LOADING FOR ALL FRAMING IS BASED ON THE CONSTRUCTION MATERIALS SHOWN ON THE DRAWINGS AND INDICATED IN THE SPECIFICATIONS.

B. RISK CATEGORY: I

C. THE CONTRACTOR SHALL NOT STORE ANY CONSTRUCTION MATERIALS OR UNDERTAKE ANY CONSTRUCTION OPERATION WHICH WILL EXCEED THE DESIGN LIVE LOADINGS NOTED.

D. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE DESIGN, INSTALLATION AND REMOVAL OF TEMPORARY BRACING AND CONSTRUCTION SUPPORTS FOR NEW AND EXISTING STRUCTURES, AS REQUIRED TO COMPLETE THE PROJECT. THE STABILITY OF THE STRUCTURE IS DEPENDENT UPON THE DIAPHRAGM ACTION OF THE FLOORS AND ROOF. THE CONTRACTOR IS COMPLETELY RESPONSIBLE FOR THE METHOD OF CONSTRUCTION AND SHALL PROVIDE ALL TEMPORARY BRACING AND SHORING REQUIRED TO MAINTAIN THE STABILITY OF THE STRUCTURE AND TO SUPPORT CONSTRUCTION LOADS DURING CONSTRUCTION. CONTRACTOR SHALL RETAIN STRUCTURAL ENGINEER LICENSED IN THE STATE IN WHICH PROJECT IS LOCATED TO DESIGN TEMPORARY BRACING AND CONSTRUCTION SUPPORTS.

MISCELLANEOUS

A. SHOP DRAWINGS FOR ALL STRUCTURAL ELEMENTS SHOWN ON THE CONTRACT DOCUMENTS MUST BE SUBMITTED BY THE CONTRACTOR OR OWNER FOR REVIEW BY THE ENGINEER. IF THE CONTRACTOR OR OWNER FAILS TO SUBMIT THE SHOP DRAWINGS, THE ENGINEER WILL NOT BE RESPONSIBLE FOR STRUCTURAL CERTIFICATION AND DESIGN OF THE PROJECT. THE SHOP DRAWINGS SHALL INDICATE ANY DEVIATIONS OR OMISSIONS FROM THE CONTRACT DOCUMENTS. THE GENERAL CONTRACTOR SHALL REVIEW ALL SHOP DRAWINGS PRIOR TO SUBMISSION AND MAKE ALL CORRECTIONS DEEMED NECESSARY.

B. SEE CIVIL CONTRACT DOCUMENTS FOR ADDITIONAL INFORMATION RELATING TO THE COORDINATION OF STRUCTURAL COMPONENTS.

C. THE CONTRACTOR SHALL REVIEW THE CIVIL DRAWINGS FOR LOCATION AND DIMENSION OF CHASES, INSERTS, OPENINGS, SLEEVES, DEPRESSIONS AND OTHER PROJECT REQUIREMENTS WHICH IMPACT THE STRUCTURAL COMPONENTS. THE STRUCTURAL CONSTRUCTION DRAWINGS DO NOT SHOW ALL OPENINGS REQUIRED. ADDITIONAL OPENINGS, BLOCKOUTS AND SLEEVES MAY BE REQUIRED BY OTHER DISCIPLINES AND SHALL BE CONSTRUCTED USING THE TYPICAL DETAILS AND/OR CRITERIA INDICATED THE STRUCTURAL DRAWINGS. OPENINGS REQUIRED BUT NOT SHOWN ON THE STRUCTURAL DRAWINGS MUST BE APPROVED BY THE STRUCTURAL ENGINEER.

D. IN CASES OF CONFLICT BETWEEN THE DRAWINGS AND/OR SPECIFICATIONS AND OTHER DISCIPLINES OR EXISTING CONDITIONS, CONTRACTOR SHALL NOTIFY THE DESIGN PROFESSIONALS AND OBTAIN CLARIFICATION PRIOR TO BIDDING AND PROCEEDING WITH WORK.

E. THE CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS SHOWN ON THE CONTRACT DRAWINGS BEFORE PROCEEDING WITH CONSTRUCTION. ALL DISCREPANCIES AND OMISSIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT.

F. THE CONTRACTOR SHALL NOT SUBMIT REPRODUCTIONS OF THE STRUCTURAL CONTRACT DOCUMENTS AS SHOP DRAWINGS.

G. SCALES SHOWN ON THE STRUCTURAL CONTRACT DRAWINGS ARE FOR GENERAL INFORMATION ONLY. DIMENSIONAL INFORMATION SHALL NOT BE OBTAINED BY SCALING THE DRAWINGS.

H. APPLY DETAILS, SECTIONS AND NOTES ON THE DRAWINGS WHERE CONDITIONS ARE SIMILAR TO THOSE INDICATED BY DETAIL, DETAIL TITLE OR NOTE.

I. CENTERLINES OF FOUNDATIONS COINCIDE WITH GRID LINE INTERSECTIONS, UNLESS NOTED OTHERWISE.

J. CENTERLINE OF WALLS COINCIDE WITH CENTERLINES OF FOUNDATIONS, UNLESS OTHERWISE NOTED.

K. THE CONTRACTOR SHALL VERIFY THAT CONSTRUCTION LOADS DO NOT EXCEED THE CAPACITY OF THE STRUCTURE AT THE TIME THE LOAD IS APPLIED.

L. PROVIDE SHORING AND PROTECTION FOR EXCAVATION BANKS AS NECESSARY TO PREVENT CAVINS AND COMPLY WITH ALL APPLICABLE OSHA RULES AND REGULATIONS.

RETAINING WALLS

A. FOOTINGS FOR ALL RETAINING WALLS HAVE BEEN DESIGNED FOR AN ASSUMED NET ALLOWABLE SOIL BEARING PRESSURE OF 2000 PSF. THE ALLOWABLE SOIL BEARING PRESSURE SHALL BE FIELD VERIFIED BY A REGISTERED GEOTECHNICAL ENGINEER AND APPROVED PRIOR TO PLACING FOOTINGS. SHOULD THE ACTUAL SOIL BEARING PRESSURE BE LESS THAN 2000 PSF, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER.

B. RETAINING WALLS HAVE BEEN DESIGNED WITH BACKFILL MATERIAL HAVING THE FOLLOWING CHARACTERISTICS:

γ	=	120 PCF
φ	=	30 DEGREES
Ka	=	0.33 (+EFFECTS DUE TO INCLINED EARTH LOAD)
COEFFICIENT OF FRICTION=		0.35
COHESION	=	0

IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO INSURE THE BACK FILL MATERIAL MEETS THESE CHARACTERISTICS.

C. THE RETAINING WALLS HAVE BEEN DESIGNED FOR THE FOLLOWING SURCHARGE LOADS IN ADDITION TO THE LATERAL LOADS ASSOCIATED WITH THE BACKFILL MATERIAL ABOVE:

SURCHARGE = 200 PSF

D. RETAINING WALLS HAVE BEEN DESIGNED FOR THE FOLLOWING MINIMUM FACTORS OF SAFETY:

SLIDING	1.5
OVERTURNING	2.0

E. CONSTRUCTION OF ALL RETAINING WALLS SHALL BE PERFORMED UNDER THE SUPERVISION OF A REGISTERED GEOTECHNICAL ENGINEER.

F. ALL RETAINING WALLS SHALL BE BRACED AND SHORED AS REQUIRED DURING BACKFILLING. BOTH SUPPORTING ELEMENTS SHALL BE IN PLACE AND DEVELOPING FULL REQUIRED STRENGTH PRIOR TO BACK FILLING OF WALLS SUPPORTED AT TOP AND BOTTOM.

J. THE CONTRACTOR IS RESPONSIBLE FOR NOTIFYING IMMEDIATELY THE GEOTECHNICAL ENGINEER OF RECORD IF SOIL OR SITE CONDITIONS ARE NOT AS NOTED ON THE APPROVED RETAINING WALL PLANS OR IF GROUND WATER IS ENCOUNTERED DURING CONSTRUCTION.

K. SUBGRADE CONDITIONS NOT MEETING THE REQUIRED STRENGTH (ALLOWABLE SOIL BEARING PRESSURE DESCRIBED ABOVE) SHALL BE REMOVED AND REPLACED IN ACCORDANCE WITH THE RECOMMENDATIONS OF GEOTECHNICAL ENGINEER OF RECORD.

L. CONSTRUCTION JOINT BETWEEN WALL AND FOOTING SHALL BE ROUGH FLOATED SUFFICIENTLY TO THOROUGHLY CONSOLIDATE THE SURFACE AND SHALL BE INTENTIONALLY LEFT IN A ROUGHENED CONDITION. ALL KEYS ARE NOMINAL SIZE.

CAST IN PLACE CONCRETE

A. ALL CONCRETE CONSTRUCTION SHALL CONFORM TO THE "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS (ACI 301)", AND TO THE "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE (ACI 318)".

B. IN ADDITION TO THE ABOVE, ALL CONCRETE WORK SHALL CONFORM TO THE FOLLOWING:

RECOMMENDED PRACTICE FOR HOT WEATHER CONCRETING (ACI 305).
RECOMMENDED PRACTICE FOR COLD WEATHER CONCRETING (ACI 306).
RECOMMENDED PRACTICE FOR CONCRETE FORMWORK (ACI 347).
STANDARD SPECIFICATION FOR TOLERANCES FOR CONCRETE CONSTRUCTION AND MATERIALS (ACI 117).
CHEMICAL ADMIXTURES FOR CONCRETE (ACI 212.3R).
STANDARD SPECIFICATION FOR CURING CONCRETE (ACI 308.1).
CODE REQUIREMENTS FOR ENVIRONMENTAL ENGINEERING CONCRETE STRUCTURES AND COMMENTARY (ACI 350).

C. ALL CONCRETE EXPOSED TO PUBLIC VIEW SHALL CONFORM TO THE REQUIREMENTS FOR ARCHITECTURAL CONCRETE CONTAINED IN ACI 301.

D. ALL CONCRETE, UNLESS NOTED OTHERWISE, SHALL BE NORMAL WEIGHT STONE AGGREGATE CONCRETE HAVING THE FOLLOWING MINIMUM 28 DAY COMPRESSIVE STRENGTHS:

	f'c	MAX w/c RATIO	SLUMP	AIR CONTENT
WALLS & FOOTINGS	4000 PSI	0.45	4"	6.0%

ALL CONCRETE EXPOSED TO WEATHER SHALL HAVE AN AIR ENTRAINMENT OF 6% +/- 1%. NO ADMIXTURES CONTAINING CALCIUM CHLORIDE SHALL BE PERMITTED. MAXIMUM AGGREGATE SIZE SHALL BE 1", AND MAXIMUM SLUMP SHALL BE 4", 3" FOR SLABS ON GRADE. ALL CONCRETE, EXCEPT FOOTINGS, SHALL CONTAIN A WATER REDUCING ADMIXTURE. PORTLAND CEMENT SHALL CONFORM TO ASTM C150 AND NORMAL WEIGHT AGGREGATES SHALL CONFORM ASTM C33.

E. ALL CONCRETE MIX DESIGNS, INCLUDING CEMENT CONTENT, WATER CEMENT RATIO, FINE AND COARSE AGGREGATE CONTENT AND ALL ADMIXTURES, SHALL BE REVIEWED BY ENGINEER PRIOR TO PLACING FIRST CONCRETE.

F. ALL CONCRETE SHALL BE SAMPLED AND TESTED BY THE TESTING AGENCY. THE CONTRACTOR SHALL NOTIFY THE TESTING AGENCY 48 HOURS PRIOR TO THE PLACING OF ANY CONCRETE. TESTING SHALL BE IN ACCORDANCE WITH ASTM C172.

G. THE CONCRETE STRUCTURE SHALL NOT SUPPORT THE DESIGN LIVE LOAD FOR A MINIMUM OF 28 DAYS AND ALL SHORING AND RE-SHORING REQUIRED TO SUPPORT THE CONCRETE STRUCTURE DURING CONSTRUCTION SHALL BE DESIGNED AND PROVIDED BY THE CONTRACTOR. SHOP DRAWINGS, SIGNED AND SEALED BY A REGISTERED ENGINEER IN THE STATE OF MARYLAND, SHALL BE SUBMITTED FOR REVIEW. SHOP DRAWINGS SHALL INDICATE THE TYPE, EXTENT, SIZE, AND LOCATION OF ALL SHORING AND RE-SHORING AS WELL AS THE SEQUENCE OF CONSTRUCTION.

H. GROUND BLAST FURNACE SLAG MAY BE USED TO REPLACE UP TO 50 PERCENT OF THE PORTLAND CEMENT IN A CONCRETE MIX, AND FLY ASH OR POZZOLAN MAY BE USED TO REPLACE UP TO 25 PERCENT OF PORTLAND CEMENT, SUBJECT TO THE APPROVAL OF THE STRUCTURAL ENGINEER AND SHALL CONFORM TO ASTM C494.

I. ALL REINFORCING BARS SHALL BE NEW BILLET STEEL CONFORMING TO ASTM A615 GRADE 60 (f_y = 60 KSI).

J. LAP ALL REINFORCING BARS A MINIMUM OF 48 BAR DIAMETERS, UNLESS OTHERWISE INDICATED.

K. ALL REINFORCING SHALL BE DETAILED, FABRICATED AND PLACED IN ACCORDANCE WITH THE CRSI "MANUAL OF STANDARD PRACTICE", ACI 315 "DETAILS AND DETAILING OF CONCRETE REINFORCEMENT", ACI SP 66 "DETAILING MANUAL".

L. DOWELS SHALL MATCH SIZE AND SPACING OF MAIN REINFORCEMENT, UNLESS NOTED OTHERWISE.

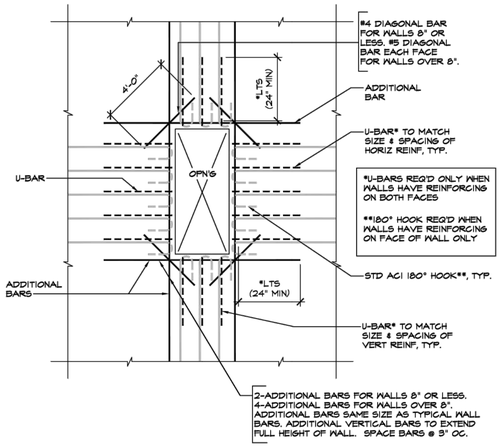
M. WHERE A 90°, 135° OR 180° HOOK IS GRAPHICALLY INDICATED, PROVIDE CORRESPONDING ACI STANDARD HOOKS, UNLESS NOTED OTHERWISE.

N. MINIMUM COVER FOR ALL REINFORCING SHALL BE AS FOLLOWS UNLESS OTHERWISE INDICATED:

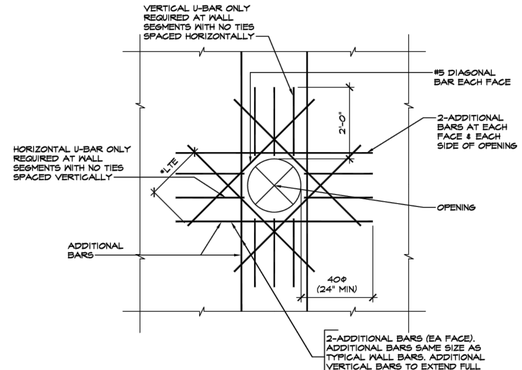
FOOTINGS	3 INCHES (BOTTOM & SIDES), 2 INCHES (TOP)
RETAINING WALLS	2 INCHES
SLABS ON GRADE	2 INCHES (TOP)

O. PROVIDE LAP LOCATIONS AS FOLLOWS, UNLESS NOTED OTHERWISE:
BEAM / WALL (FRONT OF WALL HORIZONTAL REINF): AT SUPPORTS
BEAM / WALL (REAR OF WALL HORIZONTAL REINF): AT CENTER

P. UNLESS NOTED OTHERWISE, TERMINATE BARS AT DISCONTINUOUS ENDS WITH STANDARD HOOKS.



J ADD'L BARS AROUND RECTANGULAR WALL OPENINGS
SCALE: NTS



NOTES:
1. SEE TYP CONCRETE WALL CORNER REINF DETAIL FOR U-BARS
2. IF CONCRETE EDGES NEARBY DO NOT PERMIT THE DEVELOPMENT OF STRAIGHT BAR, BARS SHALL BE BENT PER ACI IN ORDER TO ACHEIVE DEVELOPMENT LENGTH

K ADD'L BARS AROUND CIRCULAR WALL OPENING
SCALE: NTS

SCHEDULE OF EMBEDMENT + SPLICE LENGTH (INCH)

BAR SIZE	COMPRESSION		TENSION (f'_c = 4,000 psi)							
	EMBEDMENT LENGTH	LAP SPLICE LENGTH	EMBEDMENT LENGTH				LAP SPLICE LENGTH			
			TOP BARS CATEGORY SEE NOTE 1 BELOW		OTHER BARS CATEGORY SEE NOTE 1 BELOW		TOP BARS CATEGORY SEE NOTE 1 BELOW		OTHER BARS CATEGORY SEE NOTE 1 BELOW	
			I	II	I	II	I	II	I	II
#3	8	12	19	28	14	21	24	36	19	28
#4	11	15	25	37	19	28	33	48	25	37
#5	14	19	31	46	24	36	40	60	31	46
#6	17	23	37	55	28	43	48	72	37	55
#7	19	27	54	81	42	62	70	105	54	81
#8	22	30	62	92	47	71	80	120	62	92
#9	25	34	70	104	54	80	90	136	70	104
#10	28	39	78	117	60	90	102	153	78	117
#11	31	43	87	130	67	100	113	170	87	130
NOTATION USED ON DRAWING	*LCE	*LCS	*LTE				*LTS			

SCHEDULES OF EMBEDMENT & SPLICE LENGTH NOTES:

1. THE SCHEDULES ABOVE INCLUDES SPLICE AND EMBEDMENT LENGTHS WHICH SATISFY THE PROJECT REQUIREMENTS AND THE FOLLOWING CRITERIA.

   f_y = 60,000 psi
   CONCRETE WEIGHT = 150 lb/cu.ft.

   TENSION EMBEDMENT AND LAP SPLICE LENGTHS ARE DIVIDED INTO TWO CATEGORIES WHICH SHALL BE APPLIED AS FOLLOWS:

   CATEGORY I: CLEAR SPACING OF BARS BEING DEVELOPED OR SPLICED NOT LESS THAN d_b, CLEAR COVER NOT LESS THAN d_b, AND BEAM STIRRUPS OR COLUMN TIES THROUGHOUT d NOT LESS THAN THE CODE MINIMUM OR CLEAR SPACING OF BARS BEING DEVELOPED OR SPLICED NOT LESS THAN $2d_b$ & CLEAR COVER NOT LESS THAN d_b.

   CATEGORY II: BARS NOT COVERED BY CATEGORY I.

2. THE STANDARD LAP SPLICE (0.0005 X f_y X D) IS USED FOR COMPRESSION SPLICES AND THE CLASS "B" SPLICE IS USED FOR TENSION SPLICES. THE CONTRACTOR MAY SUBMIT LESSER SPLICE LENGTHS FOR REVIEW AND APPROVAL AT THE SAME TIME PROVIDING THE FOLLOWING INFORMATION.
   A. DETAILS PREPARED AND SUBMITTED BY THE CONTRACTOR INDICATING LOCATION AND PROPOSED LAYOUT OF REBAR AND LENGTHS OF SPLICES.
   B. WHERE THE SIZE AND NUMBER OF TIES OR SPIRALS PERMITS THE REDUCTION OF LAP LENGTH, THOSE BARS SHALL BE INDICATED ON THE DETAILS.
   C. WHERE COMPUTED STRESS VALUES PERMIT THE REDUCTION OF LAP LENGTH, COMPUTATIONS SHALL BE SUBMITTED FOR REVIEW.
   D. THE APPLICABLE SECTION OF THE ACI-318 CODE PERMITTING THE LESSER SPLICE LENGTH SHALL BE INDICATED ON THE SUBMITTED MATERIAL.

3. TOP BARS ARE HORIZONTAL BARS PLACED SO THAT MORE THAN 12 INCHES OF CONCRETE IS CAST IN THE MEMBER BELOW THE BAR.

A SCHEDULE OF REINF EMBEDMENT & SPLICE LENGTHS
SCALE: NTS

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

DocuSigned by: [signature] 9/11/2023
CHIEF, BUREAU OF HIGHWAYS — DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

DocuSigned by: [signature] 9/13/2023
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

DocuSigned by: Chad Edmondson 9/11/2023
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

OWNERS
CHARLES T LACEY SR (DECEASED) &
KARLOS LACEY CO-TRUSTEES
1235 WILD ROSE COURT
MARRIOTTSVILLE, MD 21104

DEVELOPER
LAND HOLDINGS LLC
C\O B. JAMES GREENFIELD
6420 AUTUMN SKY WAY
COLUMBIA, MD 21044
443-324-4732

PROJECT			SECTION/AREA	PARCEL
LACEY PROPERTY			N/A	13
PLAT NOS.	BLOCK NO.	ZONE	TAX MAP	ELEC. DIST.	CENSUS TR.
-	1	R-ED	25	SECOND	602900

LACEY PROPERTY
GENERAL NOTES & TYPICAL DETAILS

ZONED: R-ED
PARCEL No.: 13
TAX MAP No.: 25 GRID No.: 1
SECOND ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: AS SHOWN

County File Reference: F-21-015

MRA Buildings Group
MORRIS & RITCHIE ASSOCIATES, INC.
Architects, Engineers, Planners, Surveyors, and Landscape Architects
1220-C East Joppa Road
Suite 505
Towson, Maryland 21286
410-821-1690
410-821-1748 Fax

Lacey Property (Retaining Walls)

Ellicott City, Maryland

STATE OF MARYLAND — JAMES BUCKLEY — No. 30729 — PROFESSIONAL ENGINEER

PROFESSIONAL CERTIFICATION
I hearby 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. 30729, Expiration Date: 07/11/2023.

© CONTENTS COPYRIGHT 2023
MORRIS AND RITCHIE ASSOC., INC.

NO.	REVISION	DATE

FILE	DRAWN	ISSUED
21040	JAG	03/08/23

SHEET TITLE
General Notes & Typical Details

SHEET NUMBER
S-7

Sheet 22 of 24

V:\bg_PROJECTS\21000-21099\21040 - Lacey Property Retaining Wall\300 Structural\306 Construction Documents\Structural Set S-X
3/8/2023

DocuSign Envelope ID: 79E9DBFB-CDDB-4FF4-A258-614B911C4A9B

NOTES

1. WP-16-022 WAS APPROVED ON PERMITTING REMOVAL OF 8 SPECIMEN TREES.
2. 16 TREES HAVE BEEN PROPOSED AS REPLACEMENTS FOR THE REMOVAL OF THE 8 SPECIMEN TREES.
3. THIS PLAN COMPLIES WITH THE REQUIREMENTS OF SECTION 16.1200 OF THE COUNTY CODE FOR FOREST CONSERVATION BY RETAINING A TOTAL OF 2.916 ACRES OF FOREST. NO SURETY WILL BE REQUIRED. A FOREST CONSERVATION AGREEMENT WILL BE REQUIRED FOR THE FOREST CONSERVATION RETENTION AREA WITH THIS FINAL PLAN.

FOREST PROTECTION GENERAL NOTES

1. ALL FOREST RETENTION AREAS SHALL BE TEMPORARILY PROTECTED BY WELL ANCHORED BLAZE ORANGE PLASTIC MESH FENCING, AS NECESSARY, AND SIGNAGE AS INDICATED ON THE PLANS. THE DEVICES SHALL BE INSTALLED ALONG THE FOREST RETENTION BOUNDARY PRIOR TO ANY LAND CLEARING, GRUBBING, OR GRADING ACTIVITIES.
2. THE FOREST PROTECTION DEVICES SHALL BE INSTALLED SUCH THAT THE CRITICAL ROOT ZONES OF ALL TREES WITHIN THE RETENTION AREA NOT OTHERWISE PROTECTED WILL BE WITHIN FOREST PROTECTION DEVICES, UNLESS ROOT PRUNING IS PROPOSED.
3. ALL PROTECTION DEVICES SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION, INCLUDING SILT FENCE BEING USED AS PROTECTIVE FENCING. ALL DEVICES SHALL REMAIN IN PLACE UNTIL ALL CONSTRUCTION HAS CEASED IN THE IMMEDIATE VICINITY.
4. ATTACHMENT OF SIGNS, OR ANY OTHER OBJECTS TO TREES IS PROHIBITED. NO EQUIPMENT, MACHINERY, VEHICLES, MATERIALS OR EXCESSIVE PEDESTRIAN TRAFFIC SHALL BE ALLOWED WITHIN THESE PROTECTED AREAS.
5. INSTALLATION AND MAINTENANCE OF PROTECTIVE FENCING AND SIGNAGE SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR. THE GENERAL CONTRACTOR SHALL TAKE THE UTMOST CARE TO PROTECT TREE ROOT SYSTEMS DURING ALL CONSTRUCTION ACTIVITIES. TREE ROOT SYSTEMS SHALL BE PROTECTED FROM SMOTHERING, FLOODING, EXCESSIVE WETTING FROM DE-WATERING OPERATIONS, OFF-SITE RUN OFF, SPILLAGE AND DRAINING OF MATERIALS THAT MAY BE HARMFUL TO TREES.
6. THE GENERAL CONTRACTOR SHALL PREVENT PARKING OF CONSTRUCTION VEHICLES AND EQUIPMENT, AND THE STORING OF BUILDING SUPPLIES OR STOCKPILING OF EARTH WITHIN THE FOREST CONSERVATION EASEMENT.
7. REMOVAL OF TOPSOIL OR ROOT MAT WITHIN THE TREE PRESERVATION AREA SHALL BE PROHIBITED.
8. THE GENERAL CONTRACTOR SHALL BE HELD RESPONSIBLE FOR ANY TREES DAMAGED OR DESTROYED WITHIN THE FOREST CONSERVATION EASEMENTS.
9. ROOT PRUNING SHALL BE USED AT THE LIMIT OF DISTURBANCE OR LIMIT OF GRADING WITHIN AND ADJACENT TO ALL PRESERVATION AREAS, AS NECESSARY.

PRE-CONSTRUCTION MEETING

1. AFTER THE BOUNDARIES OF THE FOREST RETENTION AREAS HAVE BEEN FIELD LOCATED AND MARKED, AND AFTER THE FOREST PROTECTION DEVICES HAVE BEEN INSTALLED, AND BEFORE ANY OTHER DISTURBANCE HAS TAKEN PLACE ON SITE, A PRE-CONSTRUCTION MEETING SHALL TAKE PLACE ON SITE. THE DEVELOPER, CONTRACTOR OR PROJECT MANAGER, AND HOWARD COUNTY INSPECTORS SHALL ATTEND. THE PURPOSE OF THIS MEETING WILL BE:
   A. TO IDENTIFY THE LOCATIONS OF THE FOREST RETENTION AREAS, SPECIMEN TREES WITHIN 50 FEET OF THE LIMIT OF DISTURBANCE, LIMITS OF CONSTRUCTION, EMPLOYEE PARKING AREAS AND EQUIPMENT STAGING AREAS;
   B. INSPECT ALL FLAGGED BOUNDARIES AND PROTECTION DEVICES;
   C. MAKE ALL NECESSARY ADJUSTMENTS;
   D. ASSIGN RESPONSIBILITIES AS APPROPRIATE AND DISCUSS PENALTIES.

CONSTRUCTION MONITORING

1. THE SITE SHALL BE INSPECTED PERIODICALLY DURING THE CONSTRUCTION PHASE OF THE PROJECT. A QUALIFIED PROFESSIONAL SHALL BE RESPONSIBLE FOR IDENTIFYING DAMAGE TO PROTECTED FOREST AREAS OR INDIVIDUAL TREES WHICH MAY HAVE BEEN CAUSED BY CONSTRUCTION ACTIVITIES, SUCH AS SOIL COMPACTION, ROOT INJURY, TRUNK WOUNDS, LIMB INJURY, OR STRESS CAUSED BY FLOODING OR DROUGHT CONDITIONS.
2. ANY SUCH DAMAGE THAT MAY OCCUR SHALL BE REMEDIED IMMEDIATELY USING APPROPRIATE MEASURES. SEVERE PROBLEMS MAY REQUIRE CONSULTATION WITH A PROFESSIONAL ARBORIST.
3. THE CONSTRUCTION PROCEDURE SHALL NOT DAMAGE AREAS OUTSIDE OF THE LIMITS OF DISTURBANCE AS DESIGNATED ON THE PLANS. ANY DAMAGE SHALL BE RESTORED BY THE CONTRACTOR AT HIS EXPENSE AND TO THE SATISFACTION OF THE DESIGN TEAM OR ENGINEER.

MULTIFLORA ROSE CONTROL NOTE:

PRIOR TO PLANTING ALL MULTIFLORA ROSE WITHIN PLANTING AREAS SHALL BE REMOVED. Removal Of The Multiflora Rose May Be Performed With Mowing And Herbicide Treatments. Physical Removal Of All Top Growth Followed By A Periodic Herbicide Treatment Of Stump Sprouts Is Recommended. Native Tree And Shrub Species Occurring Within The Rose Thickets Should Be Retained Wherever Possible. Herbicide Treatments Shall Occur On Two (2) Month Intervals During The First Growing Seaseon And Once In The Spring And Once In the Fall For Subsequent Years. Herbicide Used Shall Be Made Specifically To Address Woody Plant Material And Shall Be Applied As Per Manufacturers Specifications. Care Should Be Taken Not To Spray Planted Trees Or Naturally Occurring Native Tree And Shrub Seedlings. It Is Recommended That Initiation Of Rose Removal Begin At Least Six Months Prior To Planting So That New Growth OF Roses Is Able To Be More Successfully Managed.

FOREST CONSERVATION WORKSHEET
VERSION 1.0

BASIC SITE DATA:

A. TOTAL TRACT AREA	=	8.55 Ac
B. AREA WITHIN 100 YEAR FLOODPLAIN	=	0
AREA TO REMAIN IN AGRICULTURAL PRODUCTION	=	0
C. NET TRACT AREA	=	8.55 Ac

LAND USE CATEGORY: (from table 3.2.1, page40, Manual)

ARA	MDR	IDA	HDR	MPD	CIA
	X				

INFORMATION FOR CALCULATIONS:

D. AFFORESTATION THRESHOLD 0.15% x 8.55 =		1.28 Ac.
E. FOREST CONSERVATION THRESHOLD 0.20% x 8.55 =		1.71 Ac.

EXISTING FOREST COVER:

F. EXISTING FOREST COVER (EXCLUDING FLOODPLAIN)	=	4.40 Ac.
G. AREA OF FOREST ABOVE CONSERVATION THRESHOLD	=	2.69 Ac.

BREAK EVEN POINT:

H. BREAK-EVEN POINT	=	2.25 Ac.
I. CLEARING PERMITTED WITHOUT MITIGATION	=	2.15 Ac.

PROPOSED FOREST CLEARING:

J. TOTAL AREA OF FOREST TO BE CLEARED	=	1.49 Ac.
K. TOTAL AREA OF FOREST TO BE RETAINED	=	2.92 Ac.

PLANTING REQUIREMENTS:

L. REFORESTATION FOR CLEARING ABOVE CONSERVATION THRESHOLD	=	0
M. REFORESTATION FOR CLEARING BELOW CONSERVATION THRESHOLD	=	0
N. CREDIT FOR RETENTION ABOVE CONSERVATION THRESHOLD	=	1.21 Ac.
P. TOTAL REFORESTATION REQUIRED	=	0
Q. TOTAL AFFORESTATION REQUIRED	=	0
R. TOTAL REFORESTATION AND AFFORESTATION REQUIRED	=	0
S. EXCESS FOREST CREDIT	=	0.67 Ac.

NOTE: THE PROTECTIVE SIGNAGE SHALL BE IN PLACE FOR PERPETUITY.

FOREST CONSERVATION SIGN DETAIL

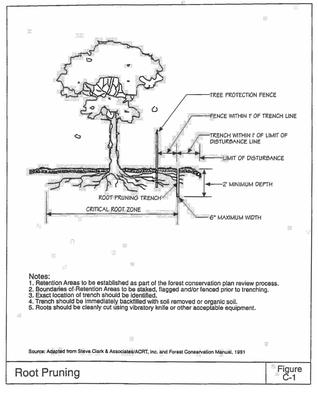
NOT TO SCALE

SPECIMEN TREE TABLE

KEY	SPECIES	SIZE (DBH)	CRZ (FT RADIUS)	COMMENTS	STATUS
T1	HEMLOCK	35"	52.5		TBR
T2	NORWAY SPRUCE	33"	49.5		
T3	WHITE PINE	37"	55.5		
T4	WHITE PINE	38.5"	57.75		
T5	SILVER MAPLE	49.5'	89.25		
T6	SILVER MAPLE	36.5"	54.75		
T7	BLACK WALNUT	37.5"	56.25		
T8	BLACK WALNUT	32"	48		
T9	BLACK WALNUT	41"	61.5		
T11	SILVER MAPLE	42"	63	VERY POOR, TRUNK ROT	TBR
T12	SILVER MAPLE	45.5"	68.25	POOR, TRUNK ROT	
T13	SILVER MAPLE	52"	78	POOR, TRUNK ROT	TBR
T14	ENGLISH WALNUT	41"	61.5		
T15	SILVER MAPLE	31"	46.5	FAIR, LIMITED CROWN SPREAD	
T16	SILVER MAPLE	39"	58.5		
T17	SILVER MAPLE	33"	49.5	FAIR, LEANING	
T18	SILVER MAPLE	40.5"	60.75	FAIR, NARROW CROWN	
T19	SILVER MAPLE	37"	55.5	FAIR, LIMITED CROWN SPREAD	
T20	SILVER MAPLE	45"	67.5	FAIR, LIMITED CROWN SPREAD	TBR
T21	SILVER MAPLE	41"	61.5	FAIR, MAJOR LIMB BROKEN	TBR
T22	SILVER MAPLE	32"	48		TBR
T23	SILVER MAPLE	34"	51	FAIR, LIMITED CROWN SPREAD	TBR
T24	SILVER MAPLE	35"	52.5	POOR, TRUNK ROT	TBR
T25	TULIP POPLAR	39.5"	59.25		
T26	TULIP POPLAR	35"	52.5	TWIN STEMS	
T27	TULIP POPLAR	33.5"	50.25		
T28	TULIP POPLAR	32"	48		
T29	TULIP POPLAR	32"	48	TWIN STEMS	
T30	TULIP POPLAR	31"	46.5		
T31	TULIP POPLAR	39"	58.5		
T32	TULIP POPLAR	46"	69		
T33	TULIP POPLAR	33"	49.5	2 ADDITIONAL NEAR SPECIMEN SIZE TRUNKS	
T34	TULIP POPLAR	32.5"	48.75		
T35	TULIP POPLAR	39.5"	59.25		
T36	TULIP POPLAR	40"	60		
T37	TULIP POPLAR	55"	82.5		
T38	TULIP POPLAR	61"	91.5	SPLITS INTO 2 TRUNKS ABOVE DBH	
T39	TULIP POPLAR	41"	61.5		
T40	SYCAMORE	31"	46.5		
T41	SILVER MAPLE	31.5"	47.25	POOR, VERY LIMITED CROWN	
T42	SILVER MAPLE	39.5"	59.25	POOR, CROWN REDUCED	
T43	SILVER MAPLE	39"/32"	58.5	POOR, SPLIT TRUNK ABOVE BREAST HEIGHT, TRUNK ROT, AND LIMB DIEBACK	

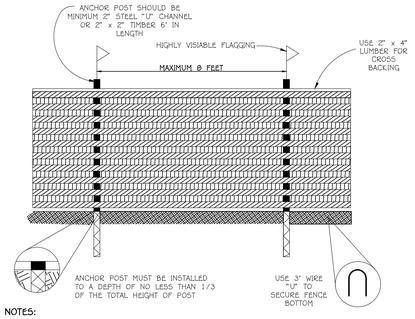
NOTE: "TBR" REFERS TO EXISTING SPECIMEN TREES TO BE REMOVED.

- DENOTES SPECIMEN TREES TO BE REMOVED.



Root Pruning | Figure C-1

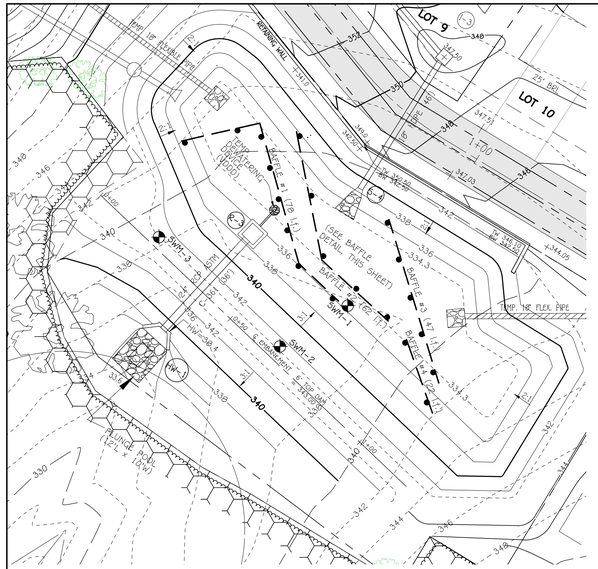
BLAZE ORANGE PLASTIC MESH



NOTES:
1. TREE PROTECTION FENCE TO BE INSTALLED AT FOREST CONSERVATION AREAS AND SPECIMEN TREES, AS SHOWN ON SHEET 5.
2. BOUNDARIES OF RETENTION AREA SHOULD BE STAKED AND FLAGGED PRIOR TO INSTALLING TREE PROTECTION FENCE.
3. ROOT DAMAGE SHOULD BE AVOIDED DURING INSTALLATION.
4. TREE PROTECTION FENCE SHOULD BE MAINTAINED THROUGHOUT CONSTRUCTION.

TREE PROTECTION FENCE DETAIL

NOT TO SCALE

PARK DRIVE
DAWNWOOD AVE.
MILL CREEK WAY
CHURCH ROAD
LOCAL SCENIC ROAD
OPEN SPACE LOT 17
(TO BE DEDICATED TO HOA)
OPEN SPACE LOT 15
(TO BE DEDICATED TO HOA)
OPEN SPACE LOT 16
(TO BE DEDICATED TO HOA)
OPEN SPACE LOT 14
(TO BE DEDICATED TO HOA)
OPEN SPACE LOT 15
(TO BE DEDICATED TO HOA)
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
Forest Conservation Edesement No. 1 2.916 AC±
PARCEL 0330 OPEN SPACE LOT 16 THE WOODS OF PARK PLACE HOMEOWNERS ASSOCIATION INC. L. 7382 / F. 643 ZONED: R-ED PLAT NO. 16050
PARCEL 0330 WOODS AT PARK PLACE LOT 15 KENNETH J. HIRSCH SUSAN M. HIRSCH L. 9186 / F. 201 ZONED: R-ED PLAT NO. 16050
PARCEL 0330 WOODS AT PARK PLACE LOT 14 JACOB SUKOSD JULIE SUKOSD L. 19035 / F. 161 ZONED: R-ED PLAT NO. 16050
PARCEL 0330 WOODS AT PARK PLACE LOT 13 ROBERT B. MOORE SHARON R. MOORE L. 9629 / F. 460 ZONED: R-ED PLAT NO. 16050
PARCEL 0330 WOODS AT PARK PLACE LOT 3 THOMAS SOKUP NICK / F. 170 ZONED: R-ED PLAT NO. 16050
PARCEL 0020 LAWRENCE D. PEACH SHIRLEY A. PEACH L. 426 / F. 385 ZONED: RR
PARCEL 0321 "STATE OF MARYLAND DEPARTMENT OF GENERAL SERVICES" L. 3132 / F. 14 ZONED: POR
PARCEL 0320 STATE OF MARYLAND DEPARTMENT OF GENERAL SERVICES L. 3132 / F. 14 ZONED: POR
PARCEL 0206 FRANK TODD TAYLOR, JR. CANDACE L. TAYLOR L. 11113 / F. 00044 ZONED: RR
PARCEL 0125 BRITTANY L. DUNBAR L. 18470 / F. 308 ZONED: RR
PARCEL 0161 LAWRENCE J. GAETANO HEATHER F. GAETANO L. 19086 / F. 116 ZONED: R-ED
RIGHT OF WAY EASEMENT VERIZON MARYLAND INC. LIBER 11145, FOLIO 112
A RIGHT OF WAY OVERHANG EASEMENT 3 FEET WIDE BY 6 FEET LONG TO BE USED BY UTILITY COMPANIES FOR THE USE AND MAINTENANCE OF GUYS AND ANCHORS FOR THE PURPOSE OF GUYING THE POLES OF LINES IN CONFORM WITH STANDARDS ADOPTED BY THE PUBLIC SERVICE COMMISSION OF MARYLAND
EX. DWELLING
EX. GARAGE
APPROX. LOCATION OF EX. CULVERT
EX. 10' PAVED ROADWAY
EX. 12" WATER
EX. 8" SEWER
EX. 6" WATER
EX. 4" GAS
EX. 8" WATER
EX. 12" WATER
EX. 8" WATER
EX. 6" WATER
EX. 8" SEWER
EX. 4" GAS

DocuSign Envelope ID: 79E9DBFB-CDDB-4FF4-A258-614B911C4A9B