SITE DEVELOPMENT PLAN
HORVATH PROPERTY
LOTS 1 AND 2
HOWARD COUNTY, MD

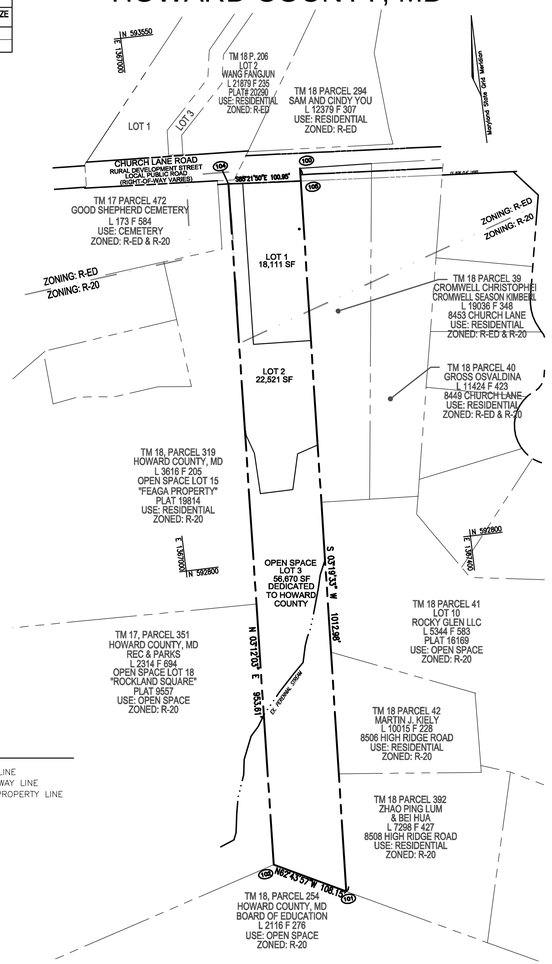
GENERAL NOTES

1. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS/BUREAU OF ENGINEERING/CONSTRUCTION INSPECTION DIVISION AT (410) 313-1880 AT LEAST FIVE (5) WORKING DAYS PRIOR TO START OF WORK.
2. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
3. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS IF APPLICABLE UNLESS ALTERNATIVE COMPLIANCE REQUESTS HAVE BEEN APPROVED.
4. – THE SUBJECT PROPERTY IS SPLIT ZONED R-ED AND R-20, IN ACCORDANCE WITH THE ZONING REGULATIONS EFFECTIVE ON OCT. 06, 2013.
   – THIS PROPERTY IS BEING SUBDIVIDED UNDER THE R-20 ZONING REGULATIONS PER SECTION 107.0.I.1
5. THE PROJECT BOUNDARY IS BASED ON A BOUNDARY SURVEY PREPARED BY ROBERT H. VOGEL ENGINEERING DATED JULY 2016.
6. THE EXISTING TOPOGRAPHY SHOWN HEREON IS BASED ON FIELD RUN SURVEY PERFORMED BY ROBERT H. VOGEL ENGINEERING, INC DATED JULY 2016, FROM FINAL PLAN F-19-074, AND HOWARD COUNTY GIS.
7. THE COORDINATES SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL, WHICH IS BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM. HOWARD COUNTY MONUMENTS 17FB AND 18DB WERE USED FOR THIS PROJECT.
8. THIS PLAN IS SUBJECT TO THE AMENDED FIFTH EDITION OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS.
9. STORMWATER MANAGEMENT FOR THE PROJECT IS PROVIDED BY THE USE OF MICRO-SCALE PRACTICES IN ACCORDANCE WITH ENVIRONMENTAL SITE DESIGN CRITERIA. MICRO-SCALE PRACTICES INCLUDE 2 MICRO-BIORETENTIONS (M-6). THESE FACILITIES WILL BE PRIVATELY OWNED AND MAINTAINED. REFER TO F-19-074.
10. THE PROPOSED UNITS SHALL HAVE AN AUTOMATIC FIRE PROTECTION SPRINKLER SYSTEM.
11. EXISTING UTILITIES LOCATED FROM ROAD CONSTRUCTION PLANS AND AVAILABLE RECORD DRAWINGS. APPROXIMATE LOCATION OF EXISTING UTILITIES ARE SHOWN FOR THE CONTRACTORS INFORMATION. CONTRACTOR SHALL LOCATE EXISTING UTILITIES WELL IN ADVANCE OF CONSTRUCTION ACTIVITIES AND TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES AND TO MAINTAIN UNINTERRUPTED SERVICE.
12. ANY DAMAGE TO THE COUNTY'S RIGHTS-OF-WAY, PAVING, OR EXISTING UTILITIES SHALL BE CORRECTED AT THE CONTRACTOR'S EXPENSE.
13. SHC ELEVATIONS ARE LOCATED AT THE PROPERTY LINE/EDGE OF EASEMENT.
14. THE CONTRACTOR IS TO NOTIFY THE FOLLOWING UTILITIES OR AGENCIES AT LEAST FIVE DAYS BEFORE STARTING

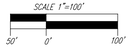
MISS UTILITY:	1-800-257-7777
VERIZON TELEPHONE COMPANY:	1-410-954-6281
HOWARD COUNTY BUREAU OF UTILITIES:	410-313-2366
AT&T CABLE LOCATION DIVISION:	1-800-393-3553
B.G.&E. CO. CONTRACTOR SERVICES:	410-850-4620
B.G.&E. CO. UNDERGROUND DAMAGE CONTROL:	410-787-4620
STATE HIGHWAY ADMINISTRATION:	410-531-5533

15. THIS SITE IS NOT LOCATED IN A HISTORIC DISTRICT. THERE IS EXISTING HOUSE ON PROPERTY TO BE REMOVED.
16. IN ACCORDANCE WITH SECTION 128 OF THE HOWARD COUNTY ZONING REGULATIONS, BAY WINDOWS, CHIMNEYS, OR EXTERIOR STAIRWAYS NOT MORE THAN 16 FEET IN WIDTH MAY PROJECT NOT MORE THAN 4 FEET INTO ANY SETBACKS. PORCHES OR DECKS, OPEN OR ENCLOSED MAY PROJECT NOT MORE THAN 10 FEET INTO THE FRONT OR REAR YARD SETBACK.
17. 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' (16' SERVING MORE THAN ONE RESIDENCE)
    B) SURFACE – 6" OF COMPACTED CRUSHER RUN BASE W/TAR AND CHIP COATING (1"-1 1/2" MIN.)
    C) GEOMETRY – MAXIMUM 15% GRADE, MAXIMUM 10% GRADE CHANGE, AND MINIMUM 45 FOOT TURNING RADIUS
    D) STRUCTURES (CULVERTS/BRIDGES) – CAPABLE OF SUPPORTING 25 GROSS TONS (H25 LOADING)
    E) DRAINAGE ELEMENTS – CAPABLE OF SAFELY PASSING 100 YEAR FLOOD EVENTS WITH NO MORE THAN 1 FOOT DEPTH OVER DRIVEWAY SURFACE
    F) STRUCTURE CLEARANCES – MINIMUM 12 FEET
    G) MAINTENANCE – SUFFICIENT TO ENSURE ALL WEATHER USE
18. NO GRADING, REMOVAL OF VEGETATIVE COVER OR TREES, PAVING AND NEW STRUCTURES SHALL BE PERMITTED WITHIN THE LIMITS OF WETLANDS, STREAM(S) OR THEIR REQUIRED BUFFERS, FLOODPLAIN AND FOREST CONSERVATION EASEMENT AREAS.
19. REFUSE COLLECTION, SNOW REMOVAL AND ROAD MAINTENANCE FOR LOTS 1-2 ARE PROVIDED TO THE JUNCTION OF THE PIPESTEM AND THE PROPOSED ROAD RIGHT-OF-WAY LINE AND NOT ONTO THE PIESTEM LOT DRIVEWAY. TRASH AND RECYCLING WILL BE COLLECTED WITHIN 5' OF THE COUNTY ROADWAY.
20. THE PROPERTY IS LOCATED WITHIN THE METROPOLITAN DISTRICT.
    – WATER SERVICE CONNECTION FOR THIS PROJECT WILL BE FROM CONTRACT NO. 70-W.
    – SEWER SERVICE CONNECTION FOR THIS PROJECT WILL BE FROM CONTRACT NO. 14-4432-D.
21. WATER AND SEWER SERVICE TO THESE LOTS WILL BE GRANTED UNDER THE PROVISIONS OF SECTION 18.122.B OF THE HOWARD COUNTY CODE.
22. PUBLIC WATER AND SEWER ALLOCATION WILL BE GRANTED AT THE TIME OF ISSUANCE OF THE BUILDING PERMIT IF CAPACITY IS AVAILABLE AT THAT TIME.
23. ALL WATER HOUSE CONNECTIONS SHALL BE OUTSIDE METER SETTING UNLESS OTHERWISE NOTED ON THE PLANS OR IN SPECIFICATIONS.
24. TO THE BEST OF THE OWNERS KNOWLEDGE, THERE ARE NO BURIAL GROUNDS OR CEMETERIES LOCATED ON THIS PROPERTY OR THE COUNTY'S CEMETERY SITE MAP.
25. CHURCH LANE ROAD IS CLASSIFIED AS A LOCAL ROAD/NEIGHBORHOOD YIELD STREET, AND IT IS NOT A SCENIC ROAD.
26. WETLANDS ARE PRESENT ONSITE PER ECO-SCIENCE PROFESSIONALS, INC. C/O MR. JOHN CANOLES, SEPTEMBER, 2018. THE PROJECT SITE WAS EVALUATED FOR THE PRESENCE OF ENVIRONMENTAL FEATURES AND A LETTER HAS BEEN PREPARED BY ECO-SCIENCE PROFESSIONALS, INC. C/O MR. JOHN CANOLES, MARCH 13, 2019. THE PROPOSED SUBDIVISION AND RELATED CONSTRUCTION WILL NOT AFFECT ENVIRONMENTAL FEATURES OR BUFFERS. FOREST STAND EVALUATION WAS DONE AND A LETTER HAS BEEN PREPARED BY ECO-SCIENCE PROFESSIONALS, INC. C/O MR. JOHN CANOLES, MARCH 13, 2019. MR. CANOLES NOTED A SMALL OUTCROPPING OF TREES BUT FOUND IT DID NOT CONSTITUTE A FOREST. 7 SPECIMEN TREES WERE FOUND ON THE PROJECT SITE. THIS PLAN REQUIRES THE REMOVAL OF 3 SPECIMEN TREES.
27. THE SUBJECT PROPERTY IS EXEMPT FROM THE FOREST CONSERVATION ACT PER COUNTY CODE SECTION 16.1202.(B)(1)(Vii), A MINOR SUBDIVISION THAT CREATES ONE ADDITIONAL LOT AND HAS NO FURTHER SUBDIVISION POTENTIAL.
28. IN ACCORDANCE WITH HOWARD COUNTY DESIGN MANUAL VOLUME 3, CHAPTER 4 – SECTION 4.7(B)(5), A TRAFFIC STUDY IS NOT REQUIRED FOR THIS PROJECT.
29. A NOISE STUDY IS NOT REQUIRED FOR THIS SITE.
30. CERTIFIED TEST PITS HAD BEEN PROVIDED TO VERIFY THE LOCATIONS OF GROUNDWATER AND/OR ROCK. OPEN TEST PITS WERE OBSERVED BY VOGEL ENGINEERING + TIMMONS GROUP ON JULY 2019. UNDER F-19-074.
31. THE PRE-SUBMISSION COMMUNITY MEETING WAS HELD FOR THIS PROJECT ON SEPTEMBER 13, 2018 AT LINDEN HALL.
32. AN ENVIRONMENTAL CONCEPT PLAN (ECP-19-013) WAS APPROVED ON FEBRUARY 25, 2019.
33. A FINAL PLAN (F-19-074) WAS APPROVED ON MAY 20, 2024.
34. PUBLIC STREET TREES ARE NOT REQUIRED FOR THIS PLAN.
35. THE LANDSCAPE PLAN WAS PREPARED IN ACCORDANCE WITH SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL.
    –FINANCIAL SURETY IN THE AMOUNT OF $ 5,550.00 (LOT 1, $ 2,700 AND LOT 2, $ 2,850) FOR THE
    – 16 SHADE TREES ($4,800)
    – 5 EVERGREEN TREES ($750)
    SHALL BE POSTED WITH THE BUILDERS GRADING PERMIT.
36. THE PROPOSED SUBDIVISION AND RELATED CONSTRUCTION WILL NOT IMPACT ENVIRONMENTAL FEATURES OR BUFFERS.
37. THERE IS NO 100-YR FLOODPLAIN WITHIN THE LIMITS OF THIS SITE.
38. NO STEEP SLOPES OVER 20,000 SF CONTIGUOUS ARE LOCATED ONSITE.
39. IN ACCORDANCE WITH DESIGN MANUAL-VOLUME 3, CHAPTER 2 – SECTION 2.9.B. PARKING IS REQUIRED AT TWO (2) SPACES PER UNIT OFF STREET PARKING TO INCLUDE GARAGE SPACE, DRIVEWAY AND PARKING PADS. GARAGES COUNT AS A FULL SPACE. THE GARAGE SPACE MAY NOT BE CONVERTED TO LIVING SPACE AND SHALL ONLY BE UTILIZED FOR VEHICULAR PARKING SPACE. REFER TO PARKING TABULATION.
40. A PRIVATE RANGE OF ADDRESS SIGN SHALL BE FABRICATED AND INSTALLED BY HOWARD COUNTY BUREAU OF HIGHWAYS AT THE DEVELOPERS/OWNERS EXPENSE. CONTACT HOWARD COUNTY TRAFFIC DIVISION AT 410-313-5752 FOR DETAILS AND COST ESTIMATES. SEE F-19-074.
41. IN ACCORDANCE WITH SECTION 107.0.E AND 108.0.E OF THE 10/6/2013 HOWARD COUNTY ZONING REGULATIONS, THIS SUBDIVISION IS SUBJECT TO MODERATE INCOME HOUSING UNITS. A MIHU AGREEMENT AND MIHU COVENANTS WILL BE REQUIRED IN ACCORDANCE WITH SECTION 13.402 OF THE HOWARD COUNTY CODE. THE MIHU REQUIREMENTS FOR THIS SUBDIVISION WILL BE 1 UNIT (10% OF 2 UNITS).
42. IF ANY PRIVATE WELL AND/OR SEPTIC SYSTEMS COMPONENTS ARE DISCOVERED ON THE SUBJECT PROPERTY, THEY SHALL BE PROPERLY ABANDONED WITH PROPER DOCUMENTATION SENT TO THE HEALTH DEPARTMENT PRIOR TO THE FINAL RECORD PLAT RECEIVING HEALTH SIGNATURE.
43. THIS DEVELOPMENT IS DESIGNED TO BE IN ACCORDANCE WITH SECTION 16.127 OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS
    –RESIDENTIAL INFILL DEVELOPMENT. THE DESIGN PROPOSES SINGLE FAMILY DETACHED HOMES, THE ENVIRONMENTAL AREAS SHALL BE PROTECTED WITHIN AN OPEN SPACE LOT, SOME SPECIMEN TREES HAVE BEEN PRESERVED, STREETSCAPE SHALL REMAIN UNCHANGED, LOT CONFIGURATION AND PROJECT DESIGN MAXIMIZES PRIVACY. THIS R-20 PROJECT PROPOSES A SHARED DRIVEWAY, THE FRONT YARD SETBACK OF LOT 1 HAS BEEN SET BY THE REQUIREMENTS OF THE ABOVE SECTION, DRAINAGE PATTERNS HAVE BEEN REVIEWED TO MINIMIZE IMPACTS TO ADJOINING PROPERTIES AND NO NON-STRUCTURAL STORMWATER MANAGEMENT (ESD) ARE PROPOSED.
44. FOR DRIVEWAY ENTRANCE DETAILS REFER TO THE HOWARD COUNTY DESIGN MANUAL, VOLUME IV, STANDARD R-6.06.
45. THIS PROJECT IS SUBJECT TO WP-24-057. ON 01/03/2024 THE DIRECTOR OF THE DEPARTMENT OF PLANNING AND ZONING, APPROVED THE REQUEST FOR AN ALTERNATIVE COMPLIANCE REQUEST TO SECTION 16.144(P) AND SECTION 16.144(Q) OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS TO REQUEST A 60-DAY EXTENSION THE DEADLINE FOR THE COMPLETION OF THE DEVELOPER AGREEMENTS AND SUBMISSION OF THE FINAL PLAT ORIGINALS.
    APPROVAL OF THIS ALTERNATIVE COMPLIANCE IS SUBJECT TO THE FOLLOWING CONDITIONS:
    1. COMPLETION OF THE DEVELOPER'S AGREEMENT AND PAYMENT OF FEES FOR F-19-074 ON OR BEFORE JANUARY 28, 2024.
    2. SUBMISSION OF THE ORIGINAL FINAL PLAT TO THE DIVISION OF LAND DEVELOPMENT FOR SIGNATURE APPROVAL AND RECORDATION ON OR BEFORE MARCH 28, 2024.

MINIMUM LOT SIZE CHART				
LOT	GROSS AREA SF	PIPESTEM AREA SF	NET AREA SF	MIN. LOT SIZE SF
1	18,111	–	18,111	18,000
2	22,521	4,515	18,006	18,000



LOCATION MAP
SCALE: 1"=100'



LEGEND

PROPERTY LINE
RIGHT-OF-WAY LINE
ADJACENT PROPERTY LINE
LOT LINES

SITE ANALYSIS DATA

A.	TOTAL PROJECT AREA:	0.93 AC.
B.	AREA OF PLAN SUBMISSION:	0.93 AC.
C.	LIMIT OF DISTURBANCE:	0.81 AC
D.	PRESENT ZONING DESIGNATION:	R-ED & R-20
E.	PROPOSED USES FOR SITE AND STRUCTURES:	SINGLE FAMILY DETACHED
F.	TOTAL NUMBER OF UNITS ALLOWED FOR PROJECT AS SHOWN ON FINAL PLAT:	2 LOTS
G.	TOTAL NUMBER OF UNITS PROPOSED: ON THIS SUBMISSION:	2 BUILDABLE LOTS
H.	NUMBER OF PARKING SPACES REQUIRED BY HO.CO. ZONING REGULATIONS:	2 PER UNIT
I.	NUMBER OF PARKING SPACES PROVIDED ON SITE:	(SEE PARKING TABULATION HEREON)
J.	OPEN SPACE ON SITE:	1.30 AC. (56,670 S.F.) F-19-074
K.	ANY OTHER INFORMATION WHICH MAY BE RELEVANT:	TAX MAP 18, GRID 13, PARCEL 38 2ND ELECTION DISTRICT
L.	FLOOR AREA RATIO:	N/A
M.	WETLAND/WETLAND BUFFER	0.00 AC (LOTS 1 & 2)
N.	STREAM BANK BUFFER	0.00 AC (LOTS 1 & 2)
O.	FLOODPLAIN	0.00 AC (LOTS 1 & 2)
P.	STEEP SLOPES	0.00 AC (LOTS 1 & 2)
Q.	FOREST (ONSITE)	0.00 AC (LOTS 1 & 2)

PARKING TABULATION:

TOTAL NUMBER OF DWELLING UNITS PROPOSED : SINGLE FAMILY DETACHED (SFD) = 2 LOTS

PARKING REQUIRED = 2 SPACES PER SFD LOT
0.5 SPACES OVERFLOW / GUEST PARKING
2.5 SPACES TOTAL PER LOT

TOTAL OFF-STREET PARKING SPACES REQUIRED: 2.5 SPACES PER UNIT
2 x 2.5 = 5 SPACES REQUIRED

OFF-STREET PARKING SPACES PROVIDED:
2 SPACES IN GARAGE = 4 SPACES (FOR 2 UNITS)
2 SPACES ON DRIVEWAY = 4 SPACES (FOR 2 UNITS)

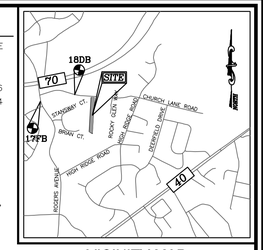
TOTAL OFF STREET PARKING SPACES PROVIDED: = 8 SPACES

BENCHMARKS

COORDINATES BASED ON NAD 83 MARYLAND COORDINATE SYSTEM AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS 17FB, 18DB.
HOWARD COUNTY BENCHMARK
17FB N 593214.43 E 1365669.114 ELEV. 456.236
18DB N 593414.58 E 1366491.104 ELEV. 474.964

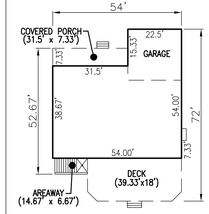
NOTES:

1. ALL WATER CONNECTIONS SHALL BE 1-1/2" WITH 1" OUTSIDE METER SETTINGS, UNLESS OTHERWISE NOTED. REFER TO HOWARD COUNTY DETAIL W-3.28 OUTSIDE METER SETTINGS.

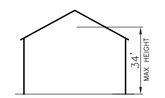


VICINITY MAP
SCALE: 1"=2000'
ADC MAP 21 GRIDS B-4 & B-5

ARCHITECTURAL DETAIL



BUILDING FOOTPRINT
SCALE 1"= 30'



TYP. ELEVATION
SCALE: N.T.S.

* AREAWAY/DECKS MUST CONFORM TO SECTION 128.0.A OF THE HOWARD COUNTY ZONING REGULATIONS; SEE HOUSE TYPE NOTE 5.

NOTES:

1. ADDITIONAL HOUSE TYPES AND OPTIONS MAY FIT ON ANY GIVEN LOT.
2. THE STAKING OF FOUNDATIONS PRIOR TO CONSTRUCTION TO ENSURE COMPLIANCE WITH REGULATORY BUILDING RESTRICTION LINES IS RECOMMENDED.
3. A MINIMUM OF 10 FEET SHALL BE PROVIDED BETWEEN THE CHOSEN HOME MODEL AND A MICRO-BIORETENTION / RAIN GARDEN OR DRYWELL ESD STORMWATER FACILITY.
4. MODEL ELEVATION SHALL NOT EXCEED 34' MAX HEIGHT AS ALLOWED BY R-20 & R-ED ZONE.
5. IN ACCORDANCE WITH SECTION 128.0.A OF THE HOWARD COUNTY ZONING REGULATIONS;
   A. MAX ENCROACHMENT INTO SETBACK FOR CORNICES, EAVES AND CANTILEVERED BUILDING FEATURES WHICH DO NOT CONTAIN ANY FLOOR AREA OR EXTENSION OF INTERIOR LIVING SPACE IS: 3 FEET INTO ANY SETBACK
   B. MAX ENCROACHMENT INTO SETBACK FOR BAY WINDOWS, WINDOW WELLS, ORIELS, VESTIBULES, BALCONIES AND CHIMNEYS IS: 4 FEET INTO ANY SETBACK OR A REQUIRED DISTANCE BETWEEN BUILDINGS, PROVIDED THE FEATURE HAS A MAXIMUM WIDTH OF 16 FEET AS MEASURED HORIZONTALLY ALONG THE WALL FROM WHICH THE FEATURE EXTENDS.
   C. MAX ENCROACHMENT INTO SETBACK FOR EXTERIOR STAIRWAYS OR RAMPS, ABOVE OR BELOW GROUND LEVEL EXCLUDING THOSE ATTACHED TO A PORCH OR DECK IS: 10 FEET INTO A FRONT SETBACK OR A SETBACK FROM A PROJECT BOUNDARY OR DIFFERENT ZONING DISTRICT; 16 FEET INTO A REAR SETBACK; 4 FEET INTO A SIDE SETBACK OR A REQUIRED DISTANCE BETWEEN BUILDINGS.
   D. MAX ENCROACHMENT INTO SETBACK FOR OPEN OR ENCLOSED PORCHES AND DECKS, AND THE STAIRWAYS OR RAMPS ATTACHED THERETO IS: 10 FEET INTO A FRONT OR REAR SETBACK, A SETBACK FROM A PROJECT BOUNDARY, A SETBACK FROM A DIFFERENT ZONING DISTRICT, OR A REQUIRED DISTANCE BETWEEN BUILDINGS.

SHEET INDEX	
DESCRIPTION	SHEET NO.
COVER SHEET AND ARCHITECTURAL DETAILS	1 OF 6
LAYOUT PLAN	2 OF 6
GRADING, AND SOIL EROSION AND SEDIMENT CONTROL PLAN	3 OF 6
GRADING, SOIL EROSION AND SEDIMENT CONTROL PLAN-NOTES AND DETAILS	4 OF 6
LANDSCAPE PLAN, NOTES & DETAILS	5 OF 6
ESD STORMWATER MANAGEMENT NOTES, DETAILS, AND HOUSE TYPES	6 OF 6

MODERATE INCOME HOUSING UNITS (MIHU) ALLOCATION EXEMPTIONS TRACKING	
TOTAL NUMBER OF LOTS/UNITS PROPOSED	2 SFD UNITS
NUMBER OF MIHU REQUIRED	1 SFD (2 X 10%)
NUMBER OF MIHU PROVIDED ONSITE (EXEMPT FROM APFO ALLOCATIONS)	0
NUMBER OF APFO ALLOCATIONS REQUIRED (REMAINING LOTS/UNITS)	1 UNIT
MIHU FEE-IN-LIEU (INDICATE LOT/UNIT NUMBERS)	LOTS 1-2

F-19-074 - MIHU AGREEMENT

PLEASE NOTE THAT ALL LOTS/RESIDENTIAL UNITS IN THIS SUBDIVISION (LOTS 1 & 2) ARE SUBJECT TO THE MIHU FEE-IN-LIEU REQUIREMENT THAT IS TO BE CALCULATED AND PAID TO THE DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS AT THE TIME OF BUILDING PERMIT ISSUANCE BY THE PERMIT APPLICANT. REFER TO L.22356 F.001

OWNER/DEVELOPER
ZABLAH REAL ESTATE, LLC
224 N. FRANKLINTOWN ROAD
BALTIMORE, MD 21223
(443) 841-8920

NO.	REVISION	DATE

SUMMARY OF FINDINGS FOR APFO TRAFFIC ANALYSIS:

IN ACCORDANCE WITH HOWARD COUNTY DESIGN MANUAL VOLUME 3, CHAPTER 4 SECTION 4.7(B)(5), A TRAFFIC STUDY IS NOT REQUIRED FOR THIS PROJECT.

A. DATE OF REPORT: NOT APPLICABLE
B. DATE OF COUNT(S): NOT APPLICABLE
C. REPORT SUBMITTED AS PART OF PLAN NUMBER: NOT APPLICABLE
D. PROVIDE STATEMENT THAT SCHOOLS WERE IN SESSION ON THAT DATE(S).
   NOT APPLICABLE
E. LIST INTERSECTIONS STUDIED, IDENTIFY INTERSECTION AS STATE OR COUNTY JURISDICTION, AND LABEL LOS FOR THE HORIZON YEAR OF EACH INTERSECTION:
   NOT APPLICABLE
F. PROVIDE STATEMENT AS TO WHETHER MITIGATION IS REQUIRED AND EXPLAIN THE METHOD OF MITIGATION/IN LIEU FEE.
   NOT APPLICABLE

ADDRESS & STORMWATER MANAGEMENT PRACTICE CHART		
LOT #	STREET ADDRESS	ESD PRACTICE
LOT 1	8457 CHURCH LANE ROAD	MICRO-BIORETENTION (M-6)
LOT 2	8461 CHURCH LANE ROAD	MICRO-BIORETENTION (M-6)

PERMIT INFORMATION CHART					
SUBDIVISION NAME: HORVATH PROPERTY			SECTION/AREA: N/A		LOTS/PARCEL #: 38
PLAT # OR L/F: PLAT# 26632	BLOCK NO.: 13	ZONE: R-ED & R-20	TAX MAP: 18	ELECT. DIST.: 2ND	CENSUS TR.: 602600

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

DocuSigned by: Chad Edmondson	8/10/2024
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE
DocuSigned by:	7/30/2024
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE
DocuSigned by: Lynda Eisenberg	8/10/2024
DIRECTOR	DATE

42208635863942E...

SITE DEVELOPMENT PLAN
COVER SHEET AND ARCHITECTURAL DETAILS
HORVATH PROPERTY
LOTS 1 AND 2
ZONED: R-ED & R-20
L.21961/ F.00193

TAX MAP 18 BLOCK 13 PARCEL 38
2ND ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DPZ REFERENCES: ECP-19-013, F-19-074, WP-24-057

VOGEL ENGINEERING
TIMMONS GROUP
3300 NORTH RIDGE ROAD, SUITE 110, ELLICOTT CITY, MD 21043
P: 410.461.7666 F: 410.461.8961 www.timmons.com

STATE OF MARYLAND
ROBERT HARRIS VOGEL
No. 16193
REGISTERED
PROFESSIONAL ENGINEER
5/25/2024
DocuSigned by:
Robert H. Vogel
ROBERT HARRIS VOGEL PE No.16193

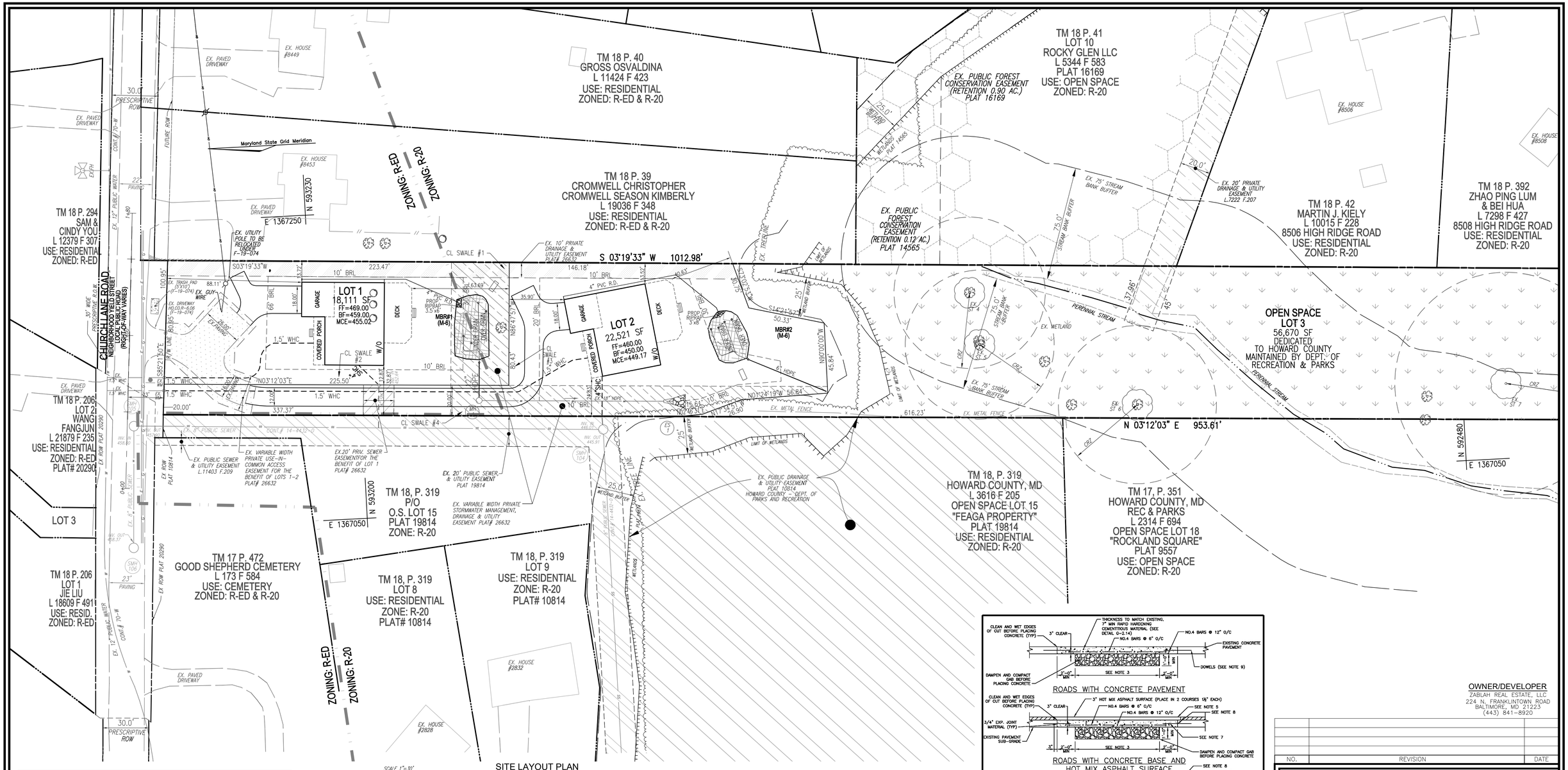
DESIGN BY:	RVE
DRAWN BY:	KG
CHECKED BY:	RHV/EDS
DATE:	MAY 2024
SCALE:	AS SHOWN
W.O. NO.:	16-05

PROFESSIONAL CERTIFICATE

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193 EXPIRATION DATE: 09-27-2024

1 SHEET OF 6

SDP-24-001



SITE LAYOUT PLAN

SCALE: 1"= 30'

MCE CHART							
DROP THRU SLAB = 2.5'							
LOT#	EL @ MAIN	TYPE	DIST. TO R/W	EL @ ESMT.	DIST. ESMT. TO HOUSE	EL @ HOUSE	MCE*
1	451.70	SHC	27	452.24	23	452.70 (1)	455.02
2	446.01	SHC	9	446.19	24	446.67 (1)	449.17

(1) SHC @ 2%

MCE NOTE:

1. BUILDER TO CHECK THE BASEMENT FLOOR ELEVATION AGAINST THE MCE BEFORE EXCAVATING THE BUILDING FOUNDATION.

WATER NOTES:

1. ALL WATER CONNECTIONS SHALL BE 1-1/2" WITH 1" OUTSIDE METER SETTINGS, UNLESS OTHERWISE NOTED. REFER TO HOWARD COUNTY DETAILS W-3.28 OUTSIDE METER SETTINGS.
2. COPPER SHALL BE USED FOR THE 1.5" WHC.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

DocuSigned by: Chad Edmondson	8/10/2024
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE
DocuSigned by:	7/30/2024
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE
DocuSigned by: Lynda Eisenberg 4220B635863942E...	8/10/2024
DIRECTOR	DATE

NOTES:

1. ANY DAMAGE TO PUBLIC RIGHT-OF-WAY PAVING (CHURCH LANE ROAD), OR EXISTING UTILITIES WILL BE CORRECTED AT THE CONTRACTOR'S EXPENSE.
2. EXISTING UTILITIES LOCATED FROM TOPOGRAPHIC SURVEY AND AS-BUILT DRAWINGS. CONTRACTOR SHALL LOCATE EXISTING UTILITIES WELL IN ADVANCE OF CONSTRUCTION ACTIVITIES AND TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES AND TO MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE INCURRED DUE TO CONTRACTOR'S OPERATION SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTOR'S EXPENSE.
3. THE WHC, STORM DRAIN, AND UIC DRIVEWAY CONSTRUCTION WILL OCCUR UNDER THE F-19-074 PLAN.

LEGEND:

EXISTING EDGE PAVING
EXISTING UTILITY POLE
EXISTING MAILBOX
EXISTING SIGN
EXISTING SANITARY MANHOLE
EXISTING SANITARY LINE
EXISTING CLEANOUT
EXISTING FIRE HYDRANT
EXISTING WATER LINE
EXISTING OVER HEAD LINE
EXISTING STORM DRAIN LINE
EXISTING GAS LINE
EXISTING TREELINE
PROPOSED TREELINE
PROPOSED SIGN
EX. WETLANDS
EX. WETLAND BUFFER
EX. STREAM
EX. STREAM BUFFER
EX. FOREST CONSERVATION EASEMENT (RETENTION) PLATS 14565 & 16169
EX. 20' PUBLIC SEWER & UTILITY EASEMENT PLAT#19814 & L.11403F. 209
EX. PUBLIC DRAINAGE & UTILITY EASEMENT PLAT 10814
EX. VARIABLE WIDTH PRIVATE USE-IN-COMMON ACCESS EASEMENT FOR BENEFIT OF LOTS 1-2 PLAT# 26632
PROPERTY LINE
RIGHT-OF-WAY LINE
EXISTING SPECIMEN TREE WITH CRITICAL ROOT ZONE DELINEATION
EX. VARIABLE WIDTH PRIVATE STORMWATER MANAGEMENT, DRAINAGE & UTILITY EASEMENT PLAT# 26632
EX. 10' PRIVATE DRAINAGE & UTILITY EASEMENT PLAT# 26632
EX. 20' PRIVATE DRAINAGE & UTILITY EASEMENT L. 7222 F. 207
EX. MICRO-BIORETENTION (M-6) F-19-074
EX. 20' PRIVATE SEWER EASEMENT FOR BENEFIT LOT 1 PLAT# 26632

STORM WATER MANAGEMENT NOTE:

1. REFER TO SHEET 6 FOR MICRO BIO-RETENTION SIZE, NOTES & DETAILS.

NOTES:

1. WHEREVER A TRENCH CROSSES A CONCRETE ROADWAY THAT HAS JOINT INSTALLATIONS THE ENTIRE SLAB BETWEEN THE EDGE OF THE TRENCH AND THE NEAREST JOINT SHALL BE REMOVED IF THE DISTANCE IS LESS THAN 10 FEET.
2. CLEAN AND WET EDGES OF CUT AND SUBGRADE BEFORE PLACING CONCRETE.
3. AGGREGATE SUB-BASE WIDTH SHALL BE 6 FT MINIMUM OR ACTUAL TRENCH WIDTH, WHICH EVER IS GREATER.
4. HOT MIX ASPHALT PAVEMENT PATCH THICKNESS SHALL BE EQUAL TO THE EXISTING PAVING SECTION OR AS APPROVED BY DPW. THE MINIMUM PAVING PATCH SHALL CONSIST OF 2" HMA SURFACE COURSE OVER 4" HMA BASE COURSE, GRADED AGGREGATE BASE (GAB) SHALL BE PLACED AND COMPACTED IN 6" MAXIMUM COMPACTED THICKNESS LAYERS.
5. CLEAN EXPOSED VERTICAL SURFACE OF ADJACENT PAVEMENT AND PLACE TACK COAT ON ALL VERTICAL SURFACES PRIOR TO PLACING HMA.
6. IF THE REMAINING EXISTING PAVEMENT IS LESS THAN 4' WIDE , THE RESIDUAL PAVEMENT SHALL BE REMOVED IN ITS ENTIRETY AND REPLACED.
7. CONCRETE REPLACEMENT SHALL BE 10" MINIMUM MIX NO. 6.
8. SAW CUT FULL DEPTH ALL JOINTS OF EXISTING CONCRETE, BITUMINOUS, AND BASE PAVEMENTS.
9. REINFORCEMENT OF CONCRETE PAVING SHALL BE ACCOMPLISHED BY DOWELING. DOWELS SHALL BE CENTERED IN PAVEMENT THICKNESS. NEW REINFORCING SHALL BE TIED TO DOWELS.
10. TOTAL REPAIR WIDTH SHALL BE EQUAL TO THE LANE WIDTH IN ACCORDANCE WITH THE SPECIFICATIONS.

5/30/2017 Approved 5/1/2014 Approved 5/1/2007 Approved	Howard County, Maryland Department of Public Works Approved: Thomas E. Butler Chief, Bureau of Engineering	Utility Trench Roadway Repaving	Detail G-4.01

OWNER/DEVELOPER
ZABLAH REAL ESTATE, LLC
224 N. FRANKLINTOWN ROAD
BALTIMORE, MD 21223
(443) 841-8920

NO.	REVISION	DATE

SITE DEVELOPMENT PLAN

SITE LAYOUT PLAN

HORVATH PROPERTY

LOTS 1 AND 2
ZONED: R-ED & R-20
L.21961/ F.00193

TAX MAP 18 BLOCK 13
2ND ELECTION DISTRICT
OPZ REFERENCES: ECP-19-013, F-19-074, WP-24-057

PARCEL 38
HOWARD COUNTY, MARYLAND

VOGEL ENGINEERING
⊕
TIMMONS GROUP
3300 NORTH RIDGE ROAD, SUITE 110, ELLICOTT CITY, MD 21043
P: 410.461.7666 F: 410.461.8961 www.timmons.com

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

DESIGN BY:	RVE
DRAWN BY:	KG
CHECKED BY:	RHV/EDS
DATE:	MAY 2024
SCALE:	AS SHOWN
W.O. NO.:	16-05

PROFESSIONAL CERTIFICATE

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193 EXPIRATION DATE: 09-27-2024

SHEET 2 OF 6

NOTE:
1. STABILIZATION IS TO BE DONE AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR OR AT THE INTERVALS REQUIRED BY THE 2011 STDS. & SPECS. WHICHEVER IS MORE RESTRICTIVE.
2. LOCATE STOCKPILE AS SHOWN HEREON OR AS DIRECTED BY THE SEDIMENT CONTROL INSPECTOR. ANY STOCKPILES EXCEEDING 15 FEET IN HEIGHT SHALL BE BENCHED.
3. SILT FENCE IS TO BE REPLACED WITH SUPER SILT FENCE AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR.
4. SILT FENCE SHALL BE CURLED UPHILL NO MORE THAN 35 FEET APART.
5. DOUBLE ROWS OF SUPER SILT FENCE SHALL BE INSTALLED AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR.

24'– USE-IN-COMMON ACCESS EASEMENT
BOUNDARY LINE
2'
EX. 16' PAVING (F-19-074)
6'
EASEMENT LINE
℄ CONSTR.
3%
P-1 PAVING

USE-IN-COMMON DRIVEWAY
TYPICAL ROADWAY SECTION
STA. 0+00 TO 0+66.81
STA. 0+00 = PROPOSED ROW
SECTION NOT TO SCALE

24'– USE-IN-COMMON ACCESS EASEMENT
BOUNDARY LINE
6'
EX. 12' PAVING (F-19-074)
6'
EASEMENT LINE
℄ CONSTR.
3%
P-1 PAVING

USE-IN-COMMON DRIVEWAY
TYPICAL ROADWAY SECTION
STA. 0+66.81 TO 2+24.40
STA. 2+24.40 = LOT 2 BOUNDARY LINE
SECTION NOT TO SCALE

EROSION AND SEDIMENT CONTROL NOTES:

1. EITHER PERMANENT OR TEMPORARY STABILIZATION IS TO BE APPLIED AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR REGARDLESS OF DAYS/DATES IN THE STANDARD SEDIMENT CONTROL NOTES AND/OR SEEDING SPECIFICATIONS.
2. AT NO TIME DURING CONSTRUCTION WILL FENCING BE ALLOWED TO INTERCEPT CONCENTRATED FLOWS.
3. SOILS CONSIDERED HIGHLY ERODIBLE BY THE HOWARD SOIL CONSERVATION DISTRICT MAY REQUIRE MORE STRINGENT SEEDING AND STABILIZATION METHODS.

SECTION NUMBER	NEW STREET TYPE	RETROFIT PROJECTS ONLY	PAVEMENT MATERIAL (INCHES)	3 TO <5	5 TO <7	≥ 7	3 TO <5	5 TO <7	≥ 7
			CALIFORNIA BEARING RATIO (CBR)	MIN. SUPERPAVE ASPHALT MIX WITH GAB			SUPERPAVE ASPHALT MIX WITH CONSTANT GAB		
P-1		PARKING BAYS: RESIDENTIAL AND NON-RESIDENTIAL PARKING DRIVE AISLES: RESIDENTIAL AND NON-RESIDENTIAL WITH NO MORE THAN 2 HEAVY TRUCKS PER DAY	SUPERPAVE ASPHALT MIX FINAL 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 INTERMEDIATE SURFACE (NA)	NA	NA	NA	NA	NA	NA
			SUPERPAVE ASPHALT MIX BASE 19.0 MM, PG 64-22S, LEVEL 1 (ESAL)	2.0	2.0	2.0	3.5	3.0	2.5
			GRADED AGGREGATE BASE (GAB)	8.5	7.0	5.0	4.0	4.0	4.0

NOTES
1. HEAVY TRUCKS ARE DEFINED AS THOSE WITH SIX (6) WHEELS OR MORE INCLUDING GARBAGE TRUCKS.
2. SUPERPAVE ASPHALT MIX LAYERS SHALL BE PLACED IN APPROPRIATE COMPACTED LIFT THICKNESS: 19.0 MM BASE (2.0" MIN. TO 4.0" MAX.), 12.5 MM SURFACE (1.5" MIN. TO 3.0" MAX.), AND 9.5 MM SURFACE (1.0" MIN. TO 2.0" MAX.)
3. GRADED AGGREGATE BASE (GAB) TO BE PLACED AND COMPACTED IN 6" MAX. COMPACTED THICKNESS LAYERS.
4. THE INTERMEDIATE SURFACE COURSE LAYER MUST BE PLACED WITHIN 2 WEEKS OF PLACEMENT OF BASE COURSE, AND IS REQUIRED PRIOR TO SUBSTANTIAL COMPLETION INSPECTION AND BOND REDUCTION.
5. IN LIEU OF PLACING THE INTERMEDIATE SURFACE COURSE LAYER FOR COMMERCIAL/INDUSTRIAL ENTRANCE APRONS WITHIN THE COUNTY RIGHT-OF-WAY WHERE AUXILIARY LANES ARE NOT REQUIRED, THE THICKNESS OF THE INTERMEDIATE PAVEMENT LAYER CAN BE ADDED TO THE REQUIRED THICKNESS OF THE BASE ASPHALT LAYER.
6. THE CONSTRUCTION DRAWINGS SHALL SHOW THE PAVING SECTION, ROAD CLASSIFICATION AND CBR VALUE FOR EACH ROADWAY.

SUPERPAVE ASPHALT MIX FINAL SURFACE
SUPERPAVE ASPHALT MIX INTERMEDIATE SURFACE
SUPERPAVE ASPHALT MIX BASE
GRADED AGGREGATE BASE (GAB)

2/7/2022 Revised; 5/30/2017 Revised; 5/7/2007 Approved
Howard County, Maryland Department of Public Works
Approved: [illegible] Chief, Bureau of Engineering
PAVING SECTIONS P-1 to P-4
Detail R-2.01

MAPPED SOILS TYPES					
SYMBOL	NAME / DESCRIPTION	GROUP	HYDRIC	Kw	<15% SLOPE W/ EROSION POTENTIAL
GhB	GLENELG-URBAN LAND COMPLEX, 0 TO 8 PERCENT SLOPES	B	NO	0.43	YES
LmB	LEGORE-MONTALTO SILT LOAMS, 3 TO 8 PERCENT SLOPES	C	NO	0.64	YES
JaB	JACKLAND SILT LOAM, 3 TO 8 PERCENT SLOPES	D	NO	0.37	YES
LoB	LEGORE-MONTALTO-URBAN LAND COMPLEX, 0 TO 8 PERCENT SLOPES	C	NO	0.64	YES

TAKEN FROM: USDA, NRCS-WEB SOIL SURVEY, HOWARD COUNTY
https://websoilsurvey.sc.egov.usda.gov – https://www.howardscd.org/documents

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

NOTES
1. REFER TO SHEETS 4 FOR STANDARD DETAILS AND STABILIZATION NOTES.
2. REFER TO SHEET 6 FOR TEST PIT DATA.

OWNER/DEVELOPER
ZABLAH REAL ESTATE, LLC
224 N. FRANKLINTOWN ROAD
BALTIMORE, MD 21223
(443) 841-8920

GRADING, SOIL EROSION AND SEDIMENT CONTROL PLAN

SCALE: 1"= 30'

SCALE 1"=30'
15' 0' 30'

LEGEND:

398	EXISTING CONTOUR
406	PROPOSED CONTOUR
+ 402.68	PROPOSED SPOT ELEVATION
× 402.68	EXISTING SPOT ELEVATION
	EXISTING EDGE PAVING
	EXISTING UTILITY POLE
⊠	EXISTING MAILBOX
	EXISTING SIGN
Ⓢ	EXISTING SANITARY MANHOLE
SS	EXISTING SANITARY LINE
○CO	EXISTING CLEANOUT
FH	EXISTING FIRE HYDRANT
W	EXISTING WATER LINE
OH	EXISTING OVER HEAD LINE
SD	EXISTING STORM DRAIN LINE
G	EXISTING GAS LINE
	EXISTING TREELINE
	PROPOSED TREELINE
	PROPOSED SIGN
	PROPERTY LINE
	RIGHT-OF-WAY LINE
	EX. WETLANDS
	EX. WETLAND BUFFER
	EX. STREAM
	EX. STREAM BUFFER
	EX. FOREST CONSERVATION EASEMENT (RETENTION) PLATS 14565 & 16169
	EX. 20' PUBLIC SEWER & UTILITY EASEMENT PLAT#19814 & L. 11403F. 209
	EX. PUBLIC DRAINAGE & UTILITY EASEMENT PLAT 10814
	EX. VARIABLE WIDTH PRIVATE UIC ACCESS EASEMENT FOR BENEFIT OF LOTS 1-2 PLAT# 26632
ST	EXISTING SPECIMEN TREE WITH CRITICAL ROOT ZONE DELINEATION
	EXISTING EARTH DIKE F-19-074
	EX. VARIABLE WIDTH PRIVATE STORMWATER MANAGEMENT, DRAINAGE & UTILITY EASEMENT PLAT# 26632
	EX. 10' PRIVATE DRAINAGE & UTILITY EASEMENT PLAT# 26632
	EX. 20' PRIVATE DRAINAGE & UTILITY EASEMENT L. 7222 F. 207
	EX. MICRO-BIORETENTION (M-6) F-19-074
	EX. 20' PRIVATE SEWER EASEMENT FOR BENEFIT LOT 1 PLAT# 26632
LOD	LIMIT OF DISTURBANCE
SCE	STABILIZED CONSTRUCTION ENTRANCE
	PROP. STABILIZATION MATTING
SSF	EX. SUPER SILT FENCE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

DocuSigned by: Chad Edmondson 8/10/2024
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

DocuSigned by: [illegible] 7/30/2024
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

DocuSigned by: Lynda Eisenberg 8/10/2024
4220B635863942E...
DIRECTOR — DATE

OWNER/DEVELOPER CERTIFICATION:
"I/WE CERTIFY THAT ANY CLEARING, GRADING, CONSTRUCTION, OR DEVELOPMENT WILL BE DONE PURSUANT TO THIS APPROVED EROSION AND SEDIMENT CONTROL PLAN, INCLUDING INSPECTING AND MAINTAINING CONTROLS, AND THAT 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 OF 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."

DocuSigned by: [illegible] 6/12/2024
OWNER/DEVELOPER SIGNATURE — DATE
Ramadan Zablah
PRINTED NAME & TITLE

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

DocuSigned by: Robert H. Vogel 6/14/2024
DESIGNER'S SIGNATURE — DATE
ROBERT H. VOGEL — MD REGISTRATION NO. 16193
PRINTED NAME — [✓ P.E.], R.L.S., OR R.L.A. (circle one)

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

DocuSigned by: Alexander Bratchie 7/29/2024
65648D5BA9B64C1...
HOWARD SOIL CONSERVATION DISTRICT — DATE

NO.	REVISION	DATE

SITE DEVELOPMENT PLAN
GRADING, SOIL EROSION AND SEDIMENT CONTROL PLAN

HORVATH PROPERTY

LOTS 1 AND 2
ZONED: R-ED & R-20
L.21961/ F.00193

TAX MAP 18 BLOCK 13
2ND ELECTION DISTRICT
DPZ REFERENCES: ECP-19-013, F-19-074, WP-24-057
PARCEL 38
HOWARD COUNTY, MARYLAND

VOGEL ENGINEERING
⊕
TIMMONS GROUP
3300 NORTH RIDGE ROAD, SUITE 110, ELLICOTT CITY, MD 21043
P: 410.461.7666 F: 410.461.8961 www.timmons.com

STATE OF MARYLAND — ROBERT HARRIS VOGEL — No.16193 — REGISTERED — PROFESSIONAL ENGINEER
6/14/2024
DocuSigned by: Robert H. Vogel
ROBERT H. VOGEL, PE No.16193

DESIGN BY: RVE
DRAWN BY: KG
CHECKED BY: RHV/EDS
DATE: MAY 2024
SCALE: AS SHOWN
W.O. NO.: 16-05

PROFESSIONAL CERTIFICATE
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193 EXPIRATION DATE: 09-27-2024

SHEET 3 OF 6

HOWARD SOIL CONSERVATION DISTRICT
STANDARD SEDIMENT CONTROL NOTES

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

   OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE. OTHER RELATED STATE AND FEDERAL PERMITS SHALL BE REFERENCED, TO ENSURE COORDINATION AND TO AVOID CONFLICTS WITH THIS PLAN.
2. ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, AND REVISIONS THERETO.
3. FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION IS REQUIRED WITHIN THREE (3) CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER CONTROLS, DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES STEEPER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1); AND SEVEN (7) CALENDAR DAYS AS TO ALL OTHER DISTURBED AREAS ON THE PROJECT SITE EXCEPT FOR THOSE AREAS UNDER ACTIVE GRADING.
4. ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR TOPSOIL (SEC. B-4-2), PERMANENT SEEDING (SEC. B-4-5), TEMPORARY SEEDING (SEC. B-4-4) AND MULCHING (SEC. B-4-3). TEMPORARY STABILIZATION WITH MULCH ALONE CAN ONLY BE APPLIED BETWEEN THE FALL AND SPRING SEEDING DATES IF THE GROUND IS FROZEN. INCREMENTAL STABILIZATION (SEC. B-4-1) SPECIFICATIONS SHALL BE ENFORCED IN AREAS WITH >15' OF CUT AND/OR FILL. STOCKPILES (SEC. B-4-8) IN EXCESS OF 20 FT. MUST BE BENCHED WITH STABLE OUTLET. ALL CONCENTRATED FLOW, STEEP SLOPE, AND HIGHLY ERODIBLE AREAS SHALL RECEIVE SOIL STABILIZATION MATTING (SEC. B-4-6).
5. ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE, AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMISSION FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE CID.
6. SITE ANALYSIS:

TOTAL AREA OF SITE:	0.93	ACRES
AREA DISTURBED:	0.81	ACRES
AREA TO BE ROOFED OR PAVED:	0.23	ACRES
AREA TO BE VEGETATIVELY STABILIZED:	0.58	ACRES
TOTAL CUT:	864	CU. YDS. TOTAL
TOTAL FILL:	864	CU. YDS. TOTAL
OFFSITE WASTE/BORROW AREA LOCATION:	N/A	

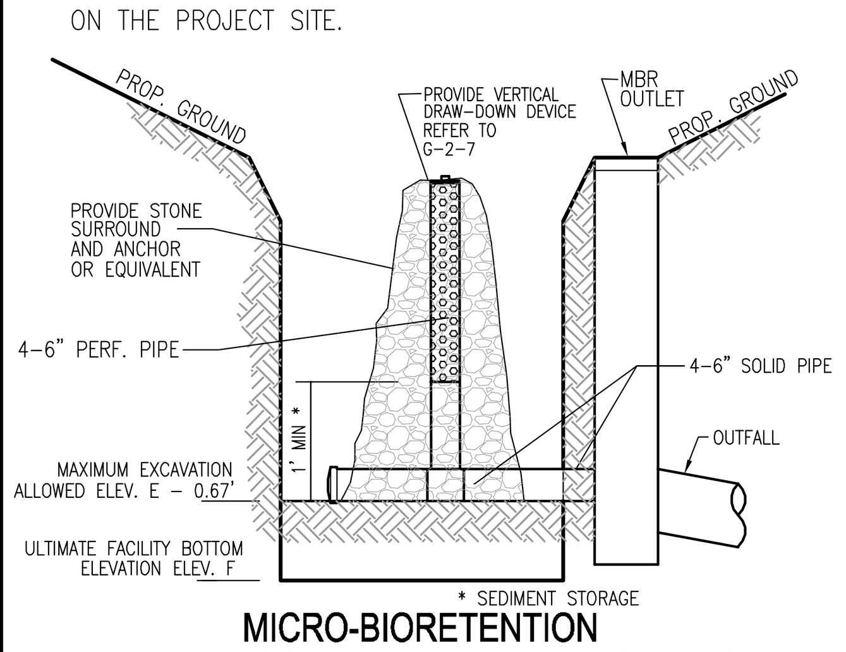
(1) REFER TO ITEM 11 BELOW

7. ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
8. ADDITIONAL SEDIMENT CONTROL MUST BE PROVIDED, IF DEEMED NECESSARY BY THE CID. THE SITE AND ALL CONTROLS SHALL BE INSPECTED BY THE CONTRACTOR WEEKLY; AND THE NEXT DAY AFTER EACH RAIN EVENT. A WRITTEN REPORT BY THE CONTRACTOR, MADE AVAILABLE UPON REQUEST, IS PART OF EVERY INSPECTION AND SHOULD INCLUDE:
   - INSPECTION DATE
   - INSPECTION TYPE (ROUTINE, PRE-STORM EVENT, DURING RAIN EVENT)
   - NAME AND TITLE OF INSPECTOR
   - WEATHER INFORMATION (CURRENT CONDITIONS AS WELL AS TIME AND AMOUNT OF LAST RECORDED PRECIPITATION)
   - BRIEF DESCRIPTION OF PROJECT'S STATUS (E.G., PERCENT COMPLETE) AND/OR CURRENT ACTIVITIES
   - EVIDENCE OF SEDIMENT DISCHARGES
   - IDENTIFICATION OF PLAN DEFICIENCIES
   - IDENTIFICATION OF SEDIMENT CONTROLS THAT REQUIRE MAINTENANCE
   - IDENTIFICATION OF MISSING OR IMPROPERLY INSTALLED SEDIMENT CONTROLS
   - COMPLIANCE STATUS REGARDING THE SEQUENCE OF CONSTRUCTION AND STABILIZATION REQUIREMENTS
   - PHOTOGRAPHS
   - MONITORING/SAMPLING
   - MAINTENANCE AND/OR CORRECTIVE ACTION PERFORMED
   - OTHER INSPECTION ITEMS AS REQUIRED BY THE GENERAL PERMIT FOR STORMWATER ASSOCIATED WITH CONSTRUCTION ACTIVITIES (NPDES, MDE).
9. TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE LENGTHS OR THAT WHICH CAN AND SHALL BE BACK-FILLED AND STABILIZED BY THE END OF EACH WORKDAY, WHICHEVER IS SHORTER.
10. ANY MAJOR CHANGES OR REVISIONS TO THE PLAN OR SEQUENCE OF CONSTRUCTION MUST BE REVIEWED AND APPROVED BY THE HSCD PRIOR TO PROCEEDING WITH CONSTRUCTION. MINOR REVISIONS MAY ALLOWED BY THE CID PER THE LIST OF HSCD-APPROVED FIELD CHANGES.
11. DISTURBANCE SHALL NOT OCCUR OUTSIDE THE L.O.D. A PROJECT IS TO BE SEQUENCED SO THAT GRADING ACTIVITIES BEGIN ON ONE GRADING UNIT (MAXIMUM ACREAGE OF 20 AC. PER GRADING UNIT) AT A TIME. WORK MAY PROCEED TO A SUBSEQUENT GRADING UNIT WHEN AT LEAST 50 PERCENT OF THE DISTURBED AREA IN THE PRECEDING GRADING UNIT HAS BEEN STABILIZED AND APPROVED BY THE CID. UNLESS OTHERWISE SPECIFIED AND APPROVED BY THE CID, NO MORE THAN 30 ACRES CUMULATIVELY MAY BE DISTURBED AT A GIVEN TIME.
12. WASH WATER FROM ANY EQUIPMENT, VEHICLES, WHEELS, PAVEMENT, AND OTHER SOURCES MUST BE TREATED IN A SEDIMENT BASIN OR OTHER APPROVED WASHOUT STRUCTURE.
13. TOPSOIL SHALL BE STOCKPILED AND PRESERVED ON-SITE FOR REDISTRIBUTION ONTO FINAL GRADE.
14. ALL SILT FENCE AND SUPER SILT FENCE SHALL BE PLACED ON-THE-CONTOUR, AND BE IMBRICATED AT 25' MINIMUM INTERVALS, WITH LOWER ENDS CURLED UPHILL BY 2' IN ELEVATION.
15. STREAM CHANNELS MUST NOT BE DISTURBED DURING THE FOLLOWING RESTRICTED TIME PERIODS (INCLUSIVE):
   - USE I AND IP MARCH 1 - JUNE 15
   - USE III AND IIIP OCTOBER 1 - APRIL 30
   - USE IV MARCH 1 - MAY 31
16. A COPY OF THIS PLAN, THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, AND ASSOCIATED PERMITS SHALL BE ON-SITE AND AVAILABLE WHEN THE SITE IS ACTIVE.

REV. 8/2015

NOTES

DURING GRADING AND AFTER EACH RAINFALL, THE CONTRACTOR SHALL INSPECT AND PROVIDE THE NECESSARY MAINTENANCE ON THE SEDIMENT AND EROSION CONTROL MEASURES SHOWN HEREON.
FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN:
A. 3 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERIMETER SLOPES AND ALL SLOPES GREATER THAN 3:1.
B. 7 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.



MICRO-BIORETENTION
SEDIMENT CONTROL DEWATERING DEVICE
NOT TO SCALE

B-4-5 STANDARDS AND SPECIFICATIONS FOR PERMANENT STABILIZATION

DEFINITION

TO STABILIZE DISTURBED SOILS WITH PERMANENT VEGETATION.

PURPOSE

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

CONDITIONS WHERE PRACTICE APPLIES

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

CRITERIA

A. SEED MIXTURES
I. GENERAL USE
A. SELECT ONE OR MORE OF THE SPECIES OR MIXTURES LISTED IN TABLE 8.3 FOR THE APPROPRIATE PLANT HARDINESS ZONE (FROM FIGURE 8.3) AND BASED ON THE SITE CONDITION OR PURPOSE FOUND ON TABLE 8.2. ENTER SELECTED MIXTURE(S), APPLICATION RATES, AND SEEDING DATES IN THE PERMANENT SEEDING SUMMARY. THE SUMMARY IS TO BE PLACED ON THE PLAN.
B. ADDITIONAL PLANTING SPECIFICATIONS FOR EXCEPTIONAL SITES SUCH AS SHORELINES, STREAM BANKS, OR DUNES OR FOR SPECIAL PURPOSES SUCH AS WILDLIFE OR AESTHETIC TREATMENT MAY BE FOUND IN USDA-NRCS TECHNICAL FIELD OFFICE GUIDE, SECTION 342 - CRITICAL AREA PLANTING.
C. FOR SITES HAVING DISTURBED AREA OVER 5 ACRES, USE AND SHOW THE RATES RECOMMENDED BY THE SOIL TESTING AGENCY.
D. FOR AREAS RECEIVING LOW MAINTENANCE, APPLY UREA FORM FERTILIZER (46-0-0) AT 3-1/2 POUNDS PER 1000 SQUARE FEET (150 POUNDS PER ACRE) AT THE TIME OF SEEDING IN ADDITION TO THE SOIL AMENDMENTS SHOWN IN THE PERMANENT SEEDING SUMMARY.
2. TURFGRASS MIXTURES
A. AREAS WHERE TURFGRASS MAY BE DESIRED INCLUDE LAWNS, PARKS, PLAYGROUNDS, AND COMMERCIAL SITES WHICH WILL RECEIVE A MEDIUM TO HIGH LEVEL OF MAINTENANCE.
B. SELECT ONE OR MORE OF THE SPECIES OR MIXTURES LISTED BELOW BASED ON THE SITE CONDITIONS OR PURPOSE. ENTER SELECTED MIXTURE(S), APPLICATION RATES, AND SEEDING DATES IN THE PERMANENT SEEDING SUMMARY. THE SUMMARY IS TO BE PLACED ON THE PLAN.
I. KENTUCKY BLUEGRASS: FULL SUN MIXTURE: FOR USE IN AREAS THAT RECEIVE INTENSIVE MANAGEMENT. IRRIGATION REQUIRED IN THE AREAS OF CENTRAL MARYLAND AND EASTERN SHORE. RECOMMENDED CERTIFIED KENTUCKY BLUEGRASS CULTIVARS SEEDING RATE: 1.5 TO 2.0 POUNDS PER 1000 SQUARE FEET. CHOOSE A MINIMUM OF THREE KENTUCKY BLUEGRASS CULTIVARS WITH EACH RANGING FROM 10 TO 35 PERCENT OF THE TOTAL MIXTURE BY WEIGHT.
II. KENTUCKY BLUEGRASS/PERENNIAL RYE: FULL SUN MIXTURE: FOR USE IN FULL SUN AREAS WHERE RAPID ESTABLISHMENT IS NECESSARY AND WHEN TURF WILL RECEIVE MEDIUM TO INTENSIVE MANAGEMENT. CERTIFIED PERENNIAL RYEGRASS CULTIVARS/ CERTIFIED KENTUCKY BLUEGRASS SEEDING RATE: 2 POUNDS MIXTURE PER 1000 SQUARE FEET. CHOOSE A MINIMUM OF THREE KENTUCKY BLUEGRASS CULTIVARS WITH EACH RANGING FROM 10 TO 35 PERCENT OF THE TOTAL MIXTURE BY WEIGHT.
III. TALL FESCUE/KENTUCKY BLUEGRASS: FULL SUN MIXTURE: FOR USE IN DROUGHT PRONE AREAS AND/OR FOR AREAS RECEIVING LOW TO MEDIUM MANAGEMENT IN FULL SUN TO MEDIUM SHADE. RECOMMENDED MIXTURE INCLUDES; CERTIFIED TALL FESCUE CULTIVARS 95 TO 100 PERCENT, CERTIFIED KENTUCKY BLUEGRASS CULTIVARS 0 TO 5 PERCENT. SEEDING RATE: 5 TO 8 POUNDS PER 1000 SQUARE FEET. ONE OR MORE CULTIVARS MAY BE BLENDED.
IV. KENTUCKY BLUEGRASS/FINE FESCUE: SHADE MIXTURE: FOR USE IN AREAS WITH SHADE IN BLUEGRASS LAWNS. FOR ESTABLISHMENT IN HIGH QUALITY, INTENSIVELY MANAGED TURF AREA. MIXTURE INCLUDES; CERTIFIED KENTUCKY BLUEGRASS CULTIVARS 30 TO 40 PERCENT AND CERTIFIED FINE FESCUE AND 60 TO 70 PERCENT. SEEDING RATE: 1½ TO 3 POUNDS PER 1000 SQUARE FEET.

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

C. IDEAL TIMES OF SEEDING FOR TURF GRASS MIXTURES

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

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

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

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

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

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

PERMANENT SEEDING SUMMARY

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

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

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

PURPOSE
TO PROVIDE A SUITABLE SOIL MEDIUM FOR VEGETATIVE GROWTH.

CONDITIONS WHERE PRACTICE APPLIES
WHERE VEGETATIVE STABILIZATION IS TO BE ESTABLISHED.

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

B. TOPSOILING
1. TOPSOIL IS PLACED OVER PREPARED SUBSOIL PRIOR TO ESTABLISHMENT OF PERMANENT VEGETATION. THE PURPOSE IS TO PROVIDE A SUITABLE SOIL MEDIUM FOR VEGETATIVE GROWTH. SOILS OF CONCEM HAVE LOW MOISTURE CONTENT, LOW NUTRIENT LEVELS, LOW PH, MATERIALS TOXIC TO PLANTS, AND/OR UNACCEPTABLE SOIL GRADATION.
2. TOPSOIL SALVAGED FROM AN EXISTING SITE MAY BE USED PROVIDED IT MEETS THE STANDARDS AS SET FORTH IN THESE SPECIFICATIONS. TYPICALLY, THE DEPTH OF TOPSOIL TO BE SALVAGED FOR A GIVEN SOIL TYPE CAN BE FOUND IN THE REPRESENTATIVE SOIL PROFILE SECTION IN THE SOIL SURVEY PUBLISHED BY USDA-NRCS.
3. TOPSOILING IS LIMITED TO AREAS HAVING 2:1 OR FLATTER SLOPES WHERE:
A. THE TEXTURE OF THE EXPOSED SUBSOIL/PARENT MATERIAL IS NOT ADEQUATE TO PRODUCE VEGETATIVE GROWTH.
B. THE SOIL MATERIAL IS SO SHALLOW THAT THE ROOTING ZONE IS NOT DEEP ENOUGH TO SUPPORT PLANTS OR FLIRNISH CONTINUING SUPPLIES OF MOISTURE AND PLANT NUTRIENTS.
C. THE ORIGINAL SOIL TO BE VEGETATED CONTAINS MATERIAL TOXIC TO PLANT GROWTH.
D. THE SOIL IS SO ACIDIC THAT TREATMENT WITH LIMESTONE IS NOT FEASIBLE.
4. AREAS HAVING SLOPES STEEPER THAN 2:1 REQUIRE SPECIAL CONSIDERATION AND DESIGN.
5. TOPSOIL SPECIFICATIONS: SOIL TO BE USED AS TOPSOIL MUST MEET THE FOLLOWING CRITERIA:
A. TOPSOIL MUST BE A LOAM, SANDY LOAM, CLAY LOAM, SILT LOAM, SANDY CLAY LOAM, OR LOAMY SAND. OTHER SOILS MAY BE USED IF RECOMMENDED BY AN AGRONOMIST OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY. TOPSOIL MUST NOT BE A MIXTURE OF CONTRASTING TEXTURED SUBSOILS AND MUST CONTAIN LESS THAN 5 PERCENT BY VOLUME OF CINDERS, STONES, SLAG, COARSE FRAGMENTS, GRAVEL, STICKS, ROOTS, TRASH, OR OTHER MATERIALS LARGER THAN 1½ INCHES IN DIAMETER.
B. TOPSOIL MUST BE FREE OF NOXIOUS PLANTS OR PLANT PARTS SUCH AS BERMUDA GRASS, QUACK GRASS, JOHNSON GRASS, NUT SEDGE, POISON IVY, THISTLE, OR OTHERS AS SPECIFIED.
C. TOPSOIL SUBSTITUTES OR AMENDMENTS, AS RECOMMENDED BY A QUALIFIED AGRONOMIST OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY, MAY BE USED IN LIEU OF NATURAL TOPSOIL.
6. TOPSOIL APPLICATION
A. EROSION AND SEDIMENT CONTROL PRACTICES MUST BE MAINTAINED WHEN APPLYING TOPSOIL.
B. UNIFORMLY DISTRIBUTE TOPSOIL IN A 5 TO 8 INCH LAYER AND LIGHTLY COMPACT TO A MINIMUM THICKNESS OF 4 INCHES. SPREADING IS TO BE PERFORMED IN SUCH A MANNER THAT SODDING OR SEEDING CAN PROCEED WITH A MINIMUM OF ADDITIONAL SOIL PREPARATION AND TILLAGE. ANY IRREGULARITIES IN THE SURFACE RESULTING FROM TOPSOILING OR OTHER OPERATIONS MUST BE CORRECTED IN ORDER TO PREVENT THE FORMATION OF DEPRESSIONS OR WATER POCKETS.
C. TOPSOIL MUST NOT BE PLACED IF THE TOPSOIL OR SUBSOIL IS IN A FROZEN OR MUDDY CONDITION, WHEN THE SUBSOIL IS EXCESSIVELY WET OR IN A CONDITION THAT MAY OTHERWISE BE DETRIMENTAL TO PROPER GRADING AND SEEDBED PREPARATION.
C. SOIL AMENDMENTS (FERTILIZER AND LIME SPECIFICATIONS)
I. SOIL TESTS MUST BE PERFORMED TO DETERMINE THE EXACT RATIOS AND APPLICATION RATES FOR BOTH LIME AND FERTILIZER ON SITES HAVING DISTURBED AREAS OF 5 ACRES OR MORE. SOIL ANALYSIS MAY BE PERFORMED BY A RECOGNIZED PRIVATE OR COMMERCIAL LABORATORY. SOIL SAMPLES TAKEN FOR ENGINEERING PURPOSES MAY ALSO BE USED FOR CHEMICAL ANALYSES.
2. FERTILIZERS MUST BE UNIFORM IN COMPOSITION, FREE FLOWING AND SUITABLE FOR ACCURATE APPLICATION BY APPROPRIATE EQUIPMENT. MANURE MAY BE SUBSTITUTED FOR FERTILIZER WITH PRIOR APPROVAL FROM THE APPROPRIATE APPROVAL AUTHORITY. FERTILIZERS MUST ALL BE DELIVERED TO THE SITE FULLY LABELED ACCORDING TO THE APPLICABLE LAWS AND MUST BEAR THE NAME, TRADE NAME OR TRADEMARK AND WARRANTY OF THE PRODUCER.
3. LIME MATERIALS MUST BE GROUND LIMESTONE (HYDRATED OR BURNT LIME MAY BE SUBSTITUTED EXCEPT WHEN HYDROSEEDING) WHICH CONTAINS AT LEAST 50 PERCENT TOTAL OXIDES (CALCIUM OXIDE PLUS MAGNESIUM OXIDE). LIMESTONE MUST BE GROUND TO SUCH FINENESS THAT AT LEAST 50 PERCENT WILL PASS THROUGH A #100 MESH SIEVE AND 98 TO 100 PERCENT WILL PASS THROUGH A #20 MESH SIEVE.
4. LIME AND FERTILIZER ARE TO BE EVENLY DISTRIBUTED AND INCORPORATED INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS.
5. WHERE THE SUBSOIL IS EITHER HIGHLY ACIDIC OR COMPOSED OF HEAVY CLAYS, SPREAD GROUND LIMESTONE AT THE RATE OF 4 TO 8 TONS/ACRE (200-400 POUNDS PER 1,000 SQUARE FEET) PRIOR TO THE PLACEMENT OF TOPSOIL.

B-4-4 STANDARDS AND SPECIFICATIONS FOR TEMPORARY STABILIZATION

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

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

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

CRITERIA
1. SELECT ONE OR MORE OF THE SPECIES OR SEED MIXTURES LISTED IN TABLE 8.1 FOR THE APPROPRIATE PLANT HARDINESS ZONE (FROM FIGURE B.3), AND ENTER THEM IN THE TEMPORARY SEEDING SUMMARY BELOW ALONG WITH APPLICATION RATES, SEEDING DATES AND SEEDING DEPTHS. IF THIS SUMMARY IS NOT PUT ON THE PLAN AND COMPLETED, THEN TABLE 8.1 PLUS FERTILIZER AND LIME RATES MUST BE PUT ON THE PLAN.
2. FOR SITES HAVING SOIL TESTS PERFORMED, USE AND SHOW THE RECOMMENDED RATES BY THE TESTING AGENCY. SOIL TESTS ARE NOT REQUIRED FOR TEMPORARY SEEDING.
3. WHEN STABILIZATION IS REQUIRED OUTSIDE OF A SEEDING SEASON, APPLY SEED AND MULCH OR STRAW MULCH ALONE AS PRESCRIBED IN SECTION B-4-3.A.1.B AND MAINTAIN UNTIL THE NEXT SEEDING SEASON.

TEMPORARY SEEDING SUMMARY

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

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

DEFINITION

THE APPLICATION OF SEED AND MULCH TO ESTABLISH VEGETATIVE COVER.

PURPOSE

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

CONDITIONS WHERE PRACTICE APPLIES

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

CRITERIA

A. SEEDING
1.SPECIFICATIONS
A. ALL SEED MUST MEET THE REQUIREMENTS OF THE MARYLAND STATE SEED LAW. ALL SEED MUST BE SUBJECT TO RE-TESTING BY A RECOGNIZED SEED LABORATORY. ALL SEED USED MUST HAVE BEEN TESTED WITHIN THE 6 MONTHS IMMEDIATELY PRECEDING THE DATE OF SOWING SUCH MATERIAL ON ANY PROJECT. REFER TO TABLE B.4 REGARDING THE QUALITY OF SEED. SEED TAGS MUST BE AVAILABLE UPON REQUEST TO THE INSPECTOR TO VERIFY TYPE OF SEED AND SEEDING RATE.
B. MULCH ALONE MAY BE APPLIED BETWEEN THE FALL AND SPRING SEEDING DATES ONLY IF THE GROUND IS FROZEN. THE APPROPRIATE SEEDING MIXTURE MUST BE APPLIED WHEN THE GROUND THAWS.
C. INOCULANTS: THE INOCULANT FOR TREATING LEGUME SEED IN THE SEED MIXTURES MUST BE A PURE CULTURE OF NITROGEN FIXING BACTERIA PREPARED SPECIFICALLY FOR THE SPECIES. INOCULANTS MUST NOT BE USED LATER THAN THE DATE INDICATED ON THE CONTAINER. ADD FRESH INOCULANTS AS DIRECTED ON THE PACKAGE. USE FOUR TIMES THE RECOMMENDED RATE WHEN HYDROSEEDING. NOTE: IT IS VERY IMPORTANT TO KEEP INOCULANT AS COOL AS POSSIBLE UNTIL USED. TEMPERATURES ABOVE 75 TO 80 DEGREES FAHRENHEIT CAN WEAKEN BACTERIA AND MAKE THE INOCULANT LESS EFFECTIVE.
D. SOD OR SEED MUST NOT BE PLACED ON SOIL WHICH HAS BEEN TREATED WITH SOIL STERILANTS OR CHEMICALS USED FOR WEED CONTROL UNTIL SUFFICIENT TIME HAS ELAPSED (14 DAYS MIN.) TO PERMIT DISSIPATION OF PHYTO-TOXIC MATERIALS.
2. APPLICATION
A. DRY SEEDING: THIS INCLUDES USE OF CONVENTIONAL DROP OR BROADCAST SPREADERS.
I. INCORPORATE SEED INTO THE SUBSOIL AT THE RATES PRESCRIBED ON TEMPORARY SEEDING TABLE 8.1, PERMANENT SEEDING TABLE 8.3, OR SITE-SPECIFIC SEEDING SUMMARIES.
II. APPLY SEED IN TWO DIRECTIONS, PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION. ROLL THE SEEDED AREA WITH A WEIGHTED ROLLER TO PROVIDE GOOD SEED TO SOIL CONTACT.
B. DRILL OR CULTIPACKER SEEDING: MECHANIZED SEEDERS THAT APPLY AND COVER SEED WITH SOIL.
I. CULTIPACKING SEEDERS ARE REQUIRED TO BURY THE SEED IN SUCH A FASHION AS TO PROVIDE AT LEAST 1/4 INCH OF SOIL COVERING. SEEDBED MUST BE FIRM AFTER PLANTING.
II. APPLY SEED IN TWO DIRECTIONS, PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION.
C. HYDROSEEDING: APPLY SEED UNIFORMLY WITH HYDROSEEDER (SLURRY INCLUDES SEED AND FERTILIZER).
I. IF FERTILIZER IS BEING APPLIED AT THE TIME OF SEEDING, THE APPLICATION RATES SHOULD NOT EXCEED THE FOLLOWING: NITROGEN, 100 POUNDS PER ACRE TOTAL OF SOLUBLE NITROGEN; P205 (PHOSPHOROUS), 200 POUNDS PER ACRE; K20 (POTASSIUM), 200 POUNDS PER ACRE.
II. LIME: USE ONLY GROUND AGRICULTURAL LIMESTONE (UP TO 3 TONS PER ACRE MAY BE APPLIED BY HYDROSEEDING). NORMALLY, NOT MORE THAN 2 TONS ARE APPLIED BY HYDROSEEDING AT ANY ONE TIME. DO NOT USE BURNT OR HYDRATED LIME WHEN HYDROSEEDING.
III. MIX SEED AND FERTILIZER ON SITE AND SEED IMMEDIATELY AND WITHOUT INTERRUPTION.
IV. WHEN HYDROSEEDING DO NOT INCORPORATE SEED INTO THE SOIL.

B. MULCHING
I. MULCH MATERIALS (IN ORDER OF PREFERENCE)
A. STRAW CONSISTING OF THOROUGHLY THRESHED WHEAT, LYE, OAT, OR BARLEY AND REASONABLY BRIGHT IN COLOR. STRAW IS TO BE FREE OF NOXIOUS WEED SEEDS AS SPECIFIED IN THE MARYLAND SEED LAW AND NOT MUSTY, MOLDY, CAKED, DECAYED, OR EXCESSIVELY DUSTY. NOTE: USE ONLY STERILE STRAW MULCH IN AREAS WHERE ONE SPECIES OF GRASS IS DESIRED.
B. WOOD CELLULOSE FIBER MULCH (WCFM) CONSISTING OF SPECIALLY PREPARED WOOD CELLULOSE PROCESSED INTO A UNIFORM FIBROUS PHYSICAL STATE.
I. WCFM IS TO BE DYED GREEN OR CONTAIN A GREEN DYE IN THE PACKAGE THAT WILL PROVIDE AN APPROPRIATE COLOR TO FACILITATE VISUAL INSPECTION OF THE UNIFORMLY SPREAD SLURRY.
II. WCFM, INCLUDING DYE, MUST CONTAIN NO GERMINATION OR GROWTH INHIBITING FACTORS.
III. WCFM MATERIALS ARE TO BE MANUFACTURED AND PROCESSED IN SUCH A MANNER THAT THE WOOD CELLULOSE FIBER MULCH WILL REMAIN IN UNIFORM SUSPENSION IN WATER UNDER AGITATION AND WILL BLEND WITH SEED, FERTILIZER AND OTHER ADDITIVES TO FORM A HOMOGENEOUS SLURRY. THE MULCH MATERIAL MUST FORM A BLOTTER-LIKE GROUND COVER, ON APPLICATION, HAVING MOISTURE ABSORPTION AND PERCOLATION PROPERTIES AND MUST COVER AND HOLD GRASS SEED IN CONTACT WITH THE SOIL WITHOUT INHIBITING THE GROWTH OF THE GRASS SEEDLINGS.
IV. WCFM MATERIAL MUST NOT CONTAIN ELEMENTS OR COMPOUNDS AT CONCENTRATION LEVELS THAT WILL BE PHYTO-TOXIC.
V. WCFM MUST CONFORM TO THE FOLLOWING PHYSICAL REQUIREMENTS: FIBER LENGTH OF APPROXIMATELY 10 MILLIMETERS, DIAMETER APPROXIMATELY 1 MILLIMETER, PH RANGE OF 4.0 TO 8.5, ASH CONTENT OF 1.6 PERCENT MAXIMUM AND WATER HOLDING CAPACITY OF 90 PERCENT MINIMUM.

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

B-4-8 STANDARDS AND SPECIFICATIONS FOR STOCKPILE AREA

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

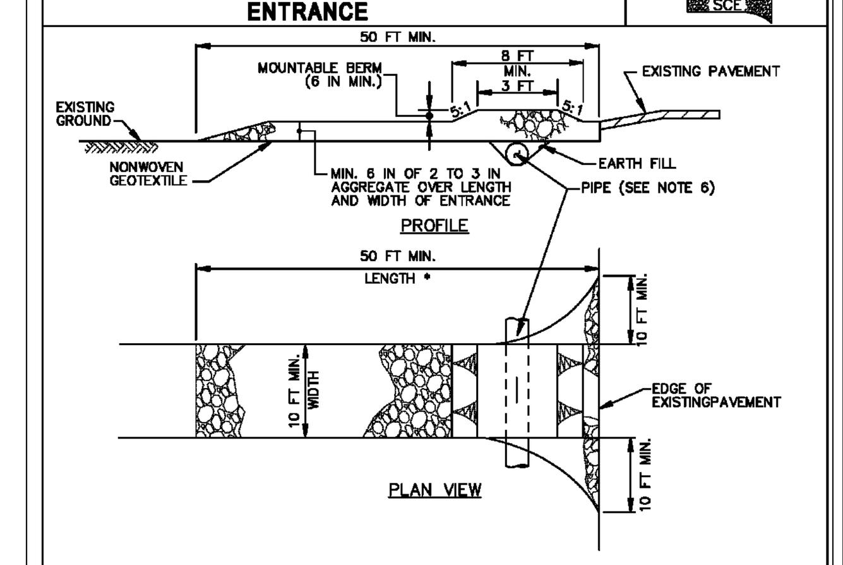
PURPOSE
TO PROVIDE A DESIGNATED LOCATION FOR THE TEMPORARY STORAGE OF SOIL THAT CONTROLS THE POTENTIAL FOR EROSION, SEDIMENTATION, AND CHANGES TO DRAINAGE PATTERNS.

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

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

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

DETAIL B-1 STABILIZED CONSTRUCTION ENTRANCE
STANDARD SYMBOL: SCE

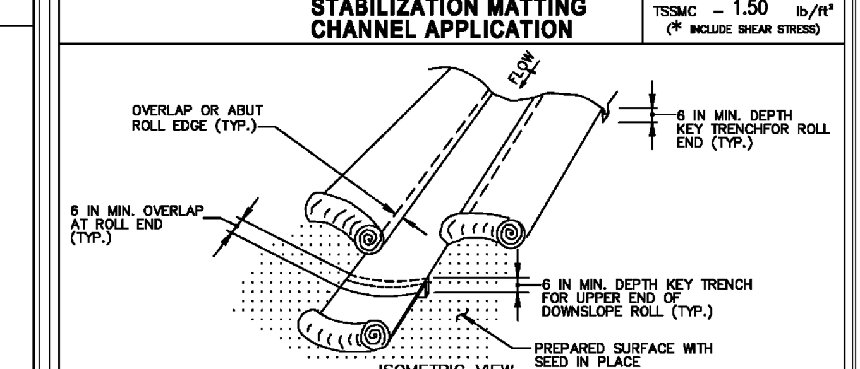


CONSTRUCTION SPECIFICATIONS

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

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

DETAIL B-4-6-A TEMPORARY SOIL STABILIZATION MATTING CHANNEL APPLICATION
STANDARD SYMBOL: TSSMC – 1.50 lb/ft² (* INCLUDE SHEAR STRESS)



CONSTRUCTION SPECIFICATIONS

1. USE MATTING THAT HAS A DESIGN VALUE FOR SHEAR STRESS EQUAL TO OR HIGHER THAN THE SHEAR STRESS DESIGNATED ON APPROVED PLANS.
2. USE TEMPORARY SOIL STABILIZATION MATTING MADE OF DEGRADABLE (LASTS 6 MONTHS MINIMUM) NATURAL OR MAN-MADE FIBERS (MOSTLY ORGANIC). MAT MUST HAVE UNIFORM THICKNESS AND DISTRIBUTION OF FIBERS THROUGHOUT AND BE SMOLDER RESISTANT. CHEMICALS USED IN THE MAT MUST BE NON-LEACHING AND NON-TOXIC TO VEGETATION AND SEED GERMINATION AND NON-INJURIOUS TO THE SKIN. IF PRESENT, NETTING MUST BE EXTRUDED PLASTIC WITH A MAXIMUM MESH OPENING OF 2x2 INCHES AND SUFFICIENTLY BONDED OR SEWN ON 2 INCH CENTERS ALONG LONGITUDINAL AXIS OF THE MATERIAL TO PREVENT SEPARATION OF THE NET FROM THE PARENT MATERIAL.
3. SECURE MATTING USING STEEL STAPLES, WOOD STAKES, OR BIODEGRADABLE EQUIVALENT. STAPLES MUST BE "U" OR "T" SHAPED STEEL WIRE HAVING A MINIMUM GAUGE OF NO. 11 AND NO. 8 RESPECTIVELY. "U" SHAPED STAPLES MUST AVERAGE 1 TO 1½ INCHES WIDE AND BE A MINIMUM OF 6 INCHES LONG. "T" SHAPED STAPLES MUST HAVE A MINIMUM 8 INCH MAIN LEG, A MINIMUM 1 INCH SECONDARY LEG, AND A MINIMUM 4 INCH HEAD. WOOD STAKES MUST BE ROUGH-SAWN HARDWOOD, 12 TO 24 INCHES IN LENGTH, 1x3 INCH IN CROSS SECTION, AND WEDGE SHAPED AT THE BOTTOM.
4. PERFORM FINAL GRADING, TOPSOIL APPLICATION, SEEDBED PREPARATION, AND PERMANENT SEEDING IN ACCORDANCE WITH SPECIFICATIONS. PLACE MATTING WITHIN 48 HOURS OF COMPLETING SEEDING OPERATIONS UNLESS END OF WORKDAY STABILIZATION IS SPECIFIED ON THE APPROVED EROSION AND SEDIMENT CONTROL PLAN.
5. UNROLL MATTING IN DIRECTION OF WATER FLOW, CENTERING THE FIRST ROLL ON THE CHANNEL CENTERLINE. WORK FROM CENTER OF CHANNEL OUTWARD WHEN PLACING ROLLS. LAY MAT SMOOTHLY AND FIRMLY ON THE SEEDED SURFACE. AVOID STRETCHING THE MATTING.
6. KEY-IN UPSTREAM END OF EACH MAT ROLL BY DIGGING A 6 INCH (MINIMUM) TRENCH AT THE UPSTREAM END OF THE MATTING, PLACING THE ROLL END IN THE TRENCH, STAPLING THE MAT IN PLACE, REPLACING THE EXCAVATED MATERIAL, AND TAMPING TO SECURE THE MAT END.
7. OVERLAP OR ABUT THE ROLL EDGES PER MANUFACTURER RECOMMENDATIONS. OVERLAP ROLL ENDS BY 6 INCHES (MINIMUM), WITH THE UPSTREAM MAT OVERLAPPING ON TOP OF THE NEXT DOWNSTREAM MAT.
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. ESTABLISH AND MAINTAIN VEGETATION SO THAT REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT ARE CONTINUOUSLY MET IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL
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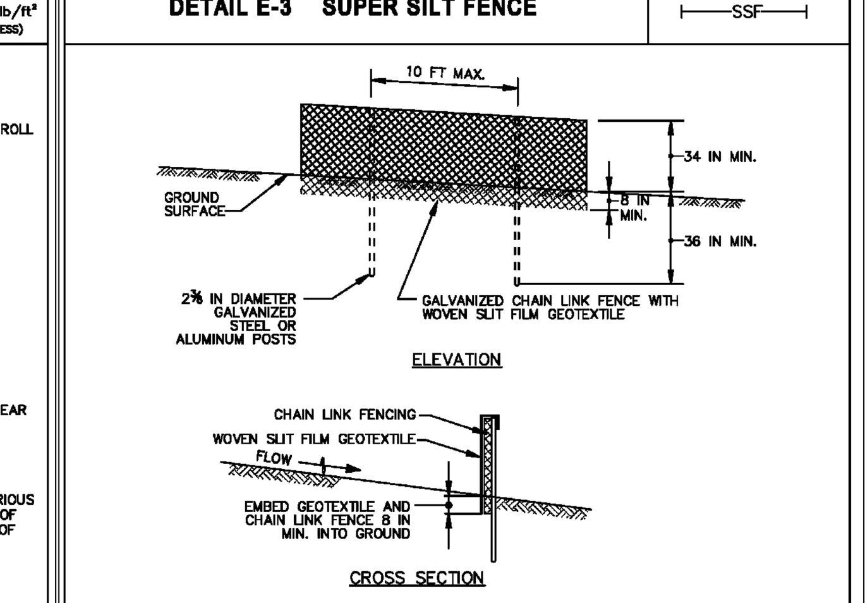
DETAIL E-3 SUPER SILT FENCE
STANDARD SYMBOL: SSF



CONSTRUCTION SPECIFICATIONS

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

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

SEQUENCE OF CONSTRUCTION

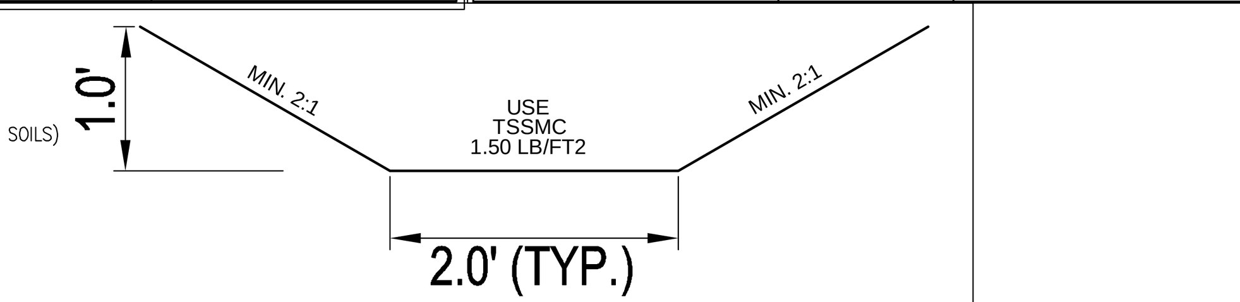
1. OBTAIN GRADING PERMIT. (1 DAY)
2. NOTIFY HOWARD COUNTY BUREAU OF INSPECTIONS AND PERMITS (410-313-1880) AT LEAST 24 HOURS BEFORE STARTING ANY WORK. (1 DAY)
3. DRY UTILITIES (CABLE, GAS, ELECTRIC) MUST BE INSTALLED AFTER F-19-074 CONSTRUCTION ACTIVITIES AND PRIOR TO THE INSTALLATION OF THE ON-LOT MICRO-BIORETENTION FACILITIES.

REFER TO F-19-074 FOR USE-IN-COMMMON DRIVEWAY, PUBLIC UTILITY EXTENSIONS AND SEDIMENT CONTROLS.

4. STAKEOUT LIMITS OF DISTURBANCE. (1 DAY)
5. INSTALL STABILIZED CONSTRUCTION ENTRANCES FOR LOT 1 AND 2 FROM THE F-19-074 USE-IN-COMMON DRIVEWAY. (1 DAY)
6. IN ACCORDANCE WITH DETAILS HEREON, INSTALL SEDIMENT CONTROL MEASURES AS SHOWN IN PLAN VIEW AND/OR ADDRESS AND UTILIZE THE EXISTING CONTROLS INSTALLED UNDER F-19-074 OR AS DIRECTED BY SEDIMENT CONTROL INSPECTOR. F-19-074 SEDIMENT TRAP SHALL BE BACKFILLED UNDER F-19-074 OR UPON THE COMPLETION OF THE HOME ON LOT 2. EXISTING GRADES SHOWN HEREON ARE THE PROPOSED GRADES FROM F-19-074 FOR THE USE-IN-COMMMON DRIVEWAY AND PUBLIC UTILITY EXTENSIONS. (1 DAY)
7. AFTER OBTAINING PERMISSION FROM THE SEDIMENT CONTROL INSPECTOR TO PROCEED, ROUGH GRADE INDIVIDUAL LOT FOR HOUSE CONSTRUCTION. (1 DAY)
8. STOCKPILING SHALL BE LIMITED TO ONLOT OR AS SHOWN HEREON. STOCKPILES SHALL BE STABILIZED AS DETAILED HEREON. (1 DAY)
9. PROJECT STORMWATER ESD - MICROBIORETENTION SYSTEMS CAN BE EXCAVATED AT THIS POINT TO AN ELEVATION AT LEAST 1 FOOT ABOVE ULTIMATE UNDERDRAIN PIPE INVERT ELEVATION, THIS WILL ALLOW THE INCOMING RUNOFF TO BE CAPTURED WHILE THIS MATERIAL CAN BE UTILIZED FOR ONSITE OVER LOT GRADING FILL MATERIALS AS WELL AS PROVIDE POCKETS OF SEDIMENT STORAGE FOR THE ALLOWANCE OF THE EVENTUAL TRAP BACKFILL OPERATIONS.
   - CONVERSION OF A PROJECT STORMWATER ESD - MICROBIORETENTION SYSTEMS SHALL ONLY OCCUR WHEN ITS CONTRIBUTING DRAINAGE AREA IS STABILIZED - (DAILY)
10. CONSTRUCT HOUSES. THE FIRST FLOOR ELEVATIONS CANNOT BE MORE THAN 1' HIGHER OR 0.2' LOWER THAN THE ELEVATIONS SHOWN ON THIS PLAN. (6 MONTHS)
11. UPON COMPLETION OF HOME CONSTRUCTION AND WITH PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, COMPLETE ANY REMAINING FINE GRADING, INSTALL ON-LOT STORMWATER MANAGEMENT MICRO-BIORETENTION FACILITIES.
   -INSTALL ROOF GUTTER DOWNSPOUTS TO DIRECT ROOFTOP RUNOFF TO THE STORMWATER DEVICE. (1 WEEK)
12. ADD TOPSOIL PER THE SPECIFICATIONS SHOWN HEREON. (1 DAY)
13. WITH ALL ON-LOT DISTURBANCES COMPLETED, STABILIZE WITH PERMANENT SEEDING MIXTURE AND STRAW MULCH OR EQUAL STABILIZATION. (1 DAY)
14. COMPLETE THE INSTALLATION OF THE PROJECTS LANDSCAPING. (1 DAY)
15. AFTER PERMISSION HAS BEEN GIVEN BY SEDIMENT CONTROL INSPECTOR, REMOVE ANY REMAINING E/S CONTROLS AND STABILIZE THE DISTURBED AREAS FROM THE AFOREMENTIONED DISTURBANCES WITH PERMANENT SEEDING MIXTURE AND STRAW MULCH. (1 DAY)

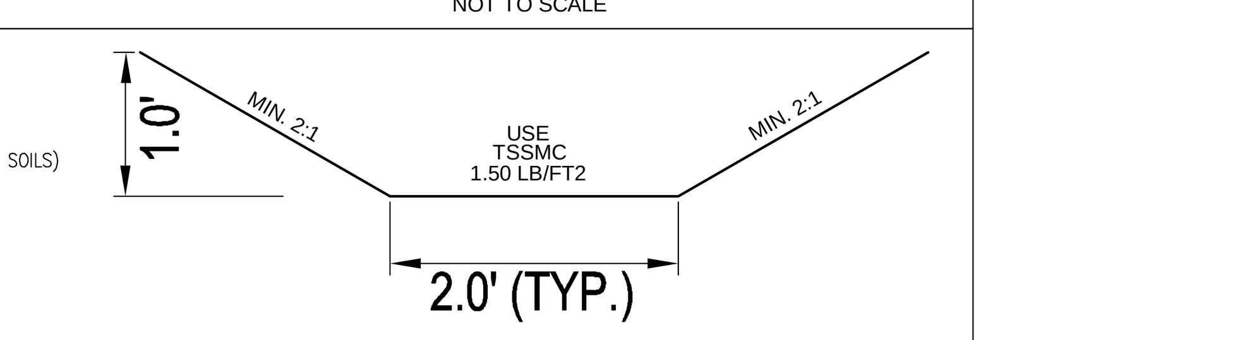
NOTE: ANY CHANGES OR REVISIONS TO THE SEQUENCE OF CONSTRUCTION MUST BE REVIEWED AND APPROVED BY THE PLAN APPROVAL AUTHORITY PRIOR TO PROCEEDING WITH CONSTRUCTION.

Q = (C)(I)(A)
C=0.29 (B SOILS-5% SLOPE-1/4 AC. LOT)
C=0.31 (C SOILS-5% SLOPE-1/4 AC. LOT)
I10=8.50
A=2.00 AC. (1.74 AC. 'B' SOIL, 0.26 AC. 'C' SOILS)
n=0.03
SLOPE=5.0%
Q10=(0.29)(8.50)(2.0)=4.97 cfs
V10=4.77 fps
MAX. SHEAR STRESS=1.19 lb/ft2



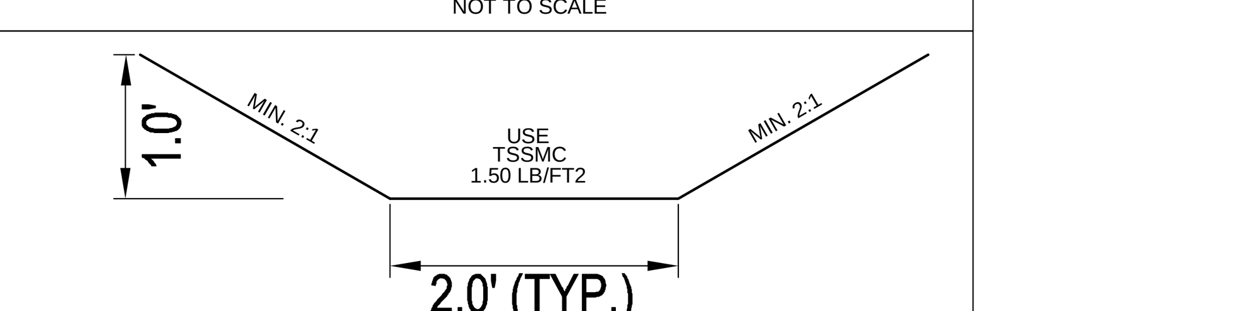
GRASS SWALE #1
TYPICAL CROSS SECTION
NOT TO SCALE

Q = (C)(I)(A)
C=0.33 (B SOILS-8% SLOPE-1/4 AC. LOT)
C=0.36 (C SOILS-8% SLOPE-1/4 AC. LOT)
I10=8.50
A=0.24 AC. (0.19 AC. 'B' SOIL, 0.05 AC. 'C' SOILS)
n=0.03
SLOPE=8.0%
Q10=(0.33)(8.50)(0.19)=0.53 cfs
Q10=(0.36)(8.50)(0.05)=0.15 cfs
TOTAL Q10=0.68 cfs
V10=2.91 fps
MAX. SHEAR STRESS=0.53 lb/ft2



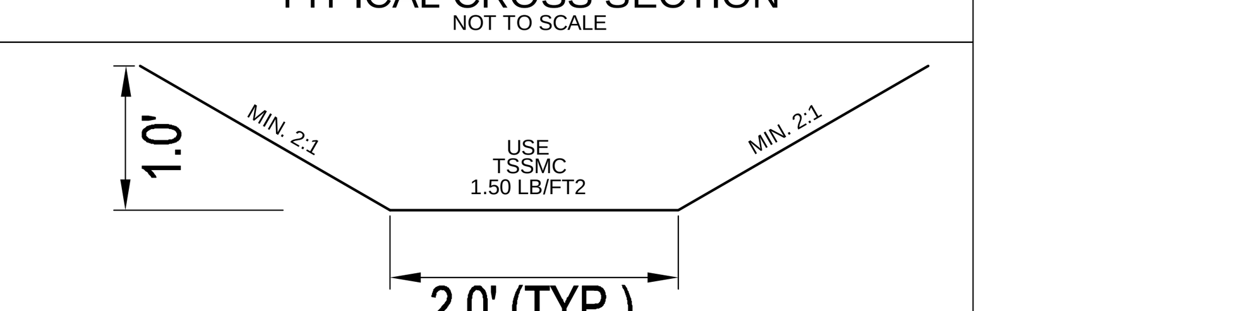
GRASS SWALE #2
TYPICAL CROSS SECTION
NOT TO SCALE

Q = (C)(I)(A)
C=0.86 (C SOILS)
I10=8.50
A=0.05 AC.
n=0.03
SLOPE=2.0%
Q10=(0.86)(8.50)(0.05)=0.37 cfs
V10=1.50 fps
MAX. SHEAR STRESS=0.14 lb/ft2

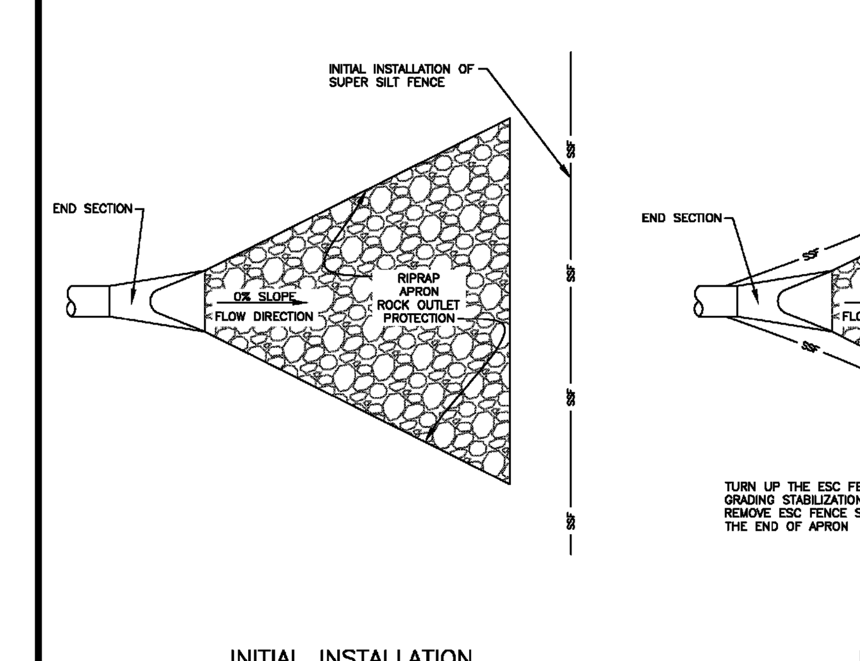


GRASS SWALE #3
TYPICAL CROSS SECTION
NOT TO SCALE

Q = (C)(I)(A)
C=0.29 (B SOILS-1/4 AC. LOT)
C=0.31 (C SOILS-1/4 AC. LOT)
C=0.86 (D SOILS-1/4 AC. LOT)
C=0.86 (D SOILS-IMP)
I10=8.50
A=0.47 AC.
n=0.03
SLOPE=7.0%
Q10=(0.45)(8.50)(0.47)=1.80 cfs
V10=3.89 fps
MAX. SHEAR STRESS=0.83 lb/ft2



GRASS SWALE #4
TYPICAL CROSS SECTION
NOT TO SCALE



Revised / Revised 5/30/2017 / Approved	Howard County, Maryland Department of Public Works Approved: [signature] Chief, Bureau of Engineering	SEDIMENT CONTROL FENCE RECONFIGURATION After Stabilization	Detail D-5.53

OWNER/DEVELOPER
ZABLAH REAL ESTATE, LLC
224 N. FRANKLINTOWN ROAD
BALTIMORE, MD 21223
(443) 841-8920

NO.	REVISION	DATE

SITE DEVELOPMENT PLAN
GRADING, SOIL EROSION AND
SEDIMENT CONTROL PLAN - NOTES AND DETAILS

HORVATH PROPERTY

LOTS 1 AND 2
ZONED: R-ED & R-20
L.21961/ F.00193

TAX MAP 18 BLOCK 13
2ND ELECTION DISTRICT
DPZ REFERENCES: ECP-19-013, F-19-074, WP-24-057
PARCEL 38
HOWARD COUNTY, MARYLAND

VOGEL ENGINEERING
+
TIMMONS GROUP
3300 NORTH RIDGE ROAD, SUITE 110, ELLICOTT CITY, MD 21043
P: 410.461.7666 F: 410.461.8961 www.timmons.com

STATE OF MARYLAND ROBERT HARRIS VOGEL No.16193 REGISTERED PROFESSIONAL ENGINEER
6/14/2024
DocuSigned by: Robert H. Vogel
ROBERT H. VOGEL, PE No.16193

DESIGN BY:	RVE
DRAWN BY:	KG
CHECKED BY:	RHV/EDS
DATE:	MAY 2024
SCALE:	AS SHOWN
W.O. NO.:	16-05

PROFESSIONAL CERTIFICATE
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193 EXPIRATION DATE: 09-27-2024

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
DocuSigned by: Chad Edmondson 8/10/2024
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE
DocuSigned by: 7/30/2024
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE
DocuSigned by: Lynda Eisenberg 8/10/2024 4220B635863942E...
DIRECTOR — DATE

OWNER/DEVELOPER CERTIFICATION:
"I/WE CERTIFY THAT ANY CLEARING, GRADING, CONSTRUCTION, OR DEVELOPMENT WILL BE DONE PURSUANT TO THIS APPROVED EROSION AND SEDIMENT CONTROL PLAN, INCLUDING INSPECTING AND MAINTAINING CONTROLS, AND THAT 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 OF 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."
DocuSigned by: 6/12/2024
OWNER/DEVELOPER SIGNATURE — DATE
Ramadan Zablah
PRINTED NAME & TITLE

DESIGN CERTIFICATION:
"I HEREBY CERTIFY THAT THIS PLAN HAS BEEN DESIGNED IN ACCORDANCE WITH CURRENT MARYLAND EROSION AND SEDIMENT CONTROL LAWS, REGULATIONS, AND STANDARDS, THAT IT REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE, AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."
DocuSigned by: Robert H. Vogel 6/14/2024
DESIGNER'S SIGNATURE — DATE
ROBERT H. VOGEL — MD REGISTRATION NO. 16193
PRINTED NAME — P.E., R.L.S., OR R.L.A. (circle one)

THIS PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
DocuSigned by: Alexander Bratchie 7/29/2024 65648D5BA9B64C1...
HOWARD SOIL CONSERVATION DISTRICT — DATE

SDP-24-001

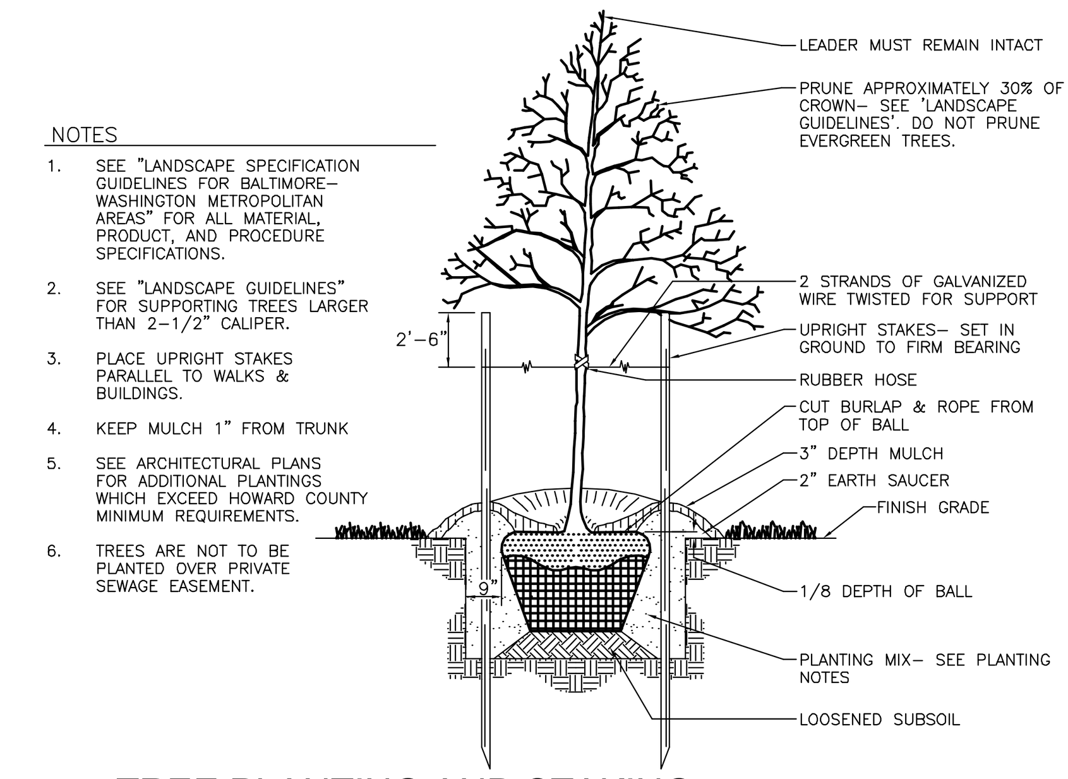
LEGEND:

▨	BGE "GREEN ZONE" TREE HEIGHT LIMITED (TREE HEIGHT 25' MAX.)
▨	BGE "YELLOW ZONE" TREE HEIGHT LIMITED (TREE HEIGHT 25'-40' MAX.)
▨	MICRO-BIORETENTION (M-6)
▨	EXISTING FOREST CONSERVATION EASEMENT (RETENTION) PLATS 14565 AND 16169
▨	EX. 20' PUBLIC SEWER UTILITY EASEMENT PLAT#19814
▨	EX. PUBLIC SEWER & UTILITY EASEMENT L.11403F. 209
▨	EX. PUBLIC DRAINAGE & UTILITY EASEMENT PLAT 10814
▨	VARIABLE WIDTH PRIVATE UIC ACCESS EASEMENT FOR BENEFIT OF LOTS 1&2 PLAT# 26632
▨	VARIABLE WIDTH PRIVATE STORMWATER MANAGEMENT, DRAINAGE & UTILITY EASEMENT PLAT# 26632
▨	10' PRIVATE DRAINAGE & UTILITY EASEMENT PLAT# 26632
▨	20' PRIVATE SEWER EASEMENT FOR BENEFIT OF LOT 1 PLAT# 26632
▨	EX. 20' PRIVATE DRAINAGE & UTILITY EASEMENT L.7222 F. 207
ST 4	SPECIMEN TREE WITH CRITICAL ROOT ZONE DELINEATION
	PROPERTY LINE
	RIGHT-OF-WAY LINE
	ADJACENT PROPERTY LINE
	EXISTING CURB AND GUTTER
	EXISTING PAVING
	EXISTING UTILITY POLE
	EXISTING LIGHT POLE
	EXISTING MAILBOX
	EXISTING SIGN
SMH 2	EXISTING SANITARY MANHOLE
SS	EXISTING SANITARY LINE
CO	EXISTING CLEANOUT
FH	EXISTING FIRE HYDRANT
W	EXISTING WATER LINE
	EXISTING STORM DRAIN
//	EXISTING WOOD FENCE
x	EXISTING METAL FENCE
330	EXISTING 10' CONTOUR
328	EXISTING 2' CONTOUR
LmB GhB	SOILS BOUNDARY
	EXISTING TREELINE (FIELD LOCATED)
	PROPOSED TREELINE
	EXISTING TREES (FIELD LOCATED)
	LANDSCAPING
	EXISTING WETLAND

LANDSCAPE PLAN

SCALE: 1"= 50'

50' 0 50' 100' 150'

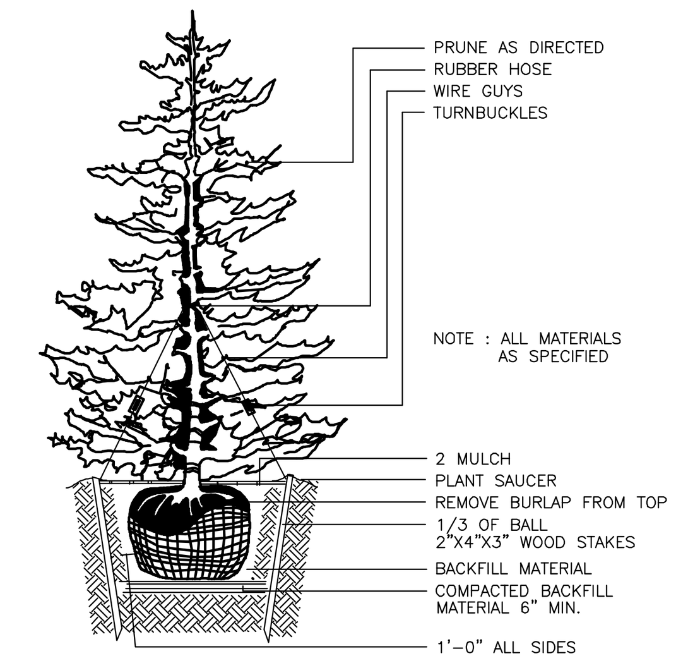


NOTES

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

TREE PLANTING AND STAKING

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



TYPICAL EVERGREEN TREE PLANTING DETAIL

NOT TO SCALE

NOTES:

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

GENERAL NOTES:

1. THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL.
2. FINANCIAL SURETY IN THE AMOUNT OF $5,550.00 (LOT 1 – $ 2,700 AND LOT 2 $ 2,850) FOR THE
   – 16 SHADE TREES (4,800)
   – 5 EVERGREEN TREES (750)
   SHALL BE POSTED WITH THE BUILDERS GRADING PERMIT.
3. THIS PLAN IS SUBJECT TO THE AMENDED FIFTH EDITION OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS. DEVELOPMENT OR CONSTRUCTION OF THESE LOTS MUST COMPLY WITH SETBACK AND BUFFER REGULATIONS IN EFFECT AT THE TIME OF SUBMISSION OF THE SITE DEVELOPMENT PLAN, ALTERNATIVE COMPLIANCE, OR BUILDING AND GRADING PERMITS.
4. NO LANDSCAPING TO BE INSTALLED WITHIN ANY PUBLIC EASEMENT FOR WATER, SEWER, OR STORMDRAIN.
5. ANY EXISTING STREET TREES DAMAGED OR DESTROYED DURING CONSTRUCTION WILL BE REPLACED BY THE CONTRACTOR.

LANDSCAPING NOTES

1. AT THE TIME OF PLANT INSTALLATION, ALL SHRUBS AND TREES LISTED AND APPROVED ON THE LANDSCAPE PLAN, SHALL COMPLY WITH THE PROPER HEIGHT REQUIREMENT IN ACCORDANCE WITH THE HOWARD COUNTY LANDSCAPE MANUAL. IN ADDITION, NO SUBSTITUTIONS OR RELOCATIONS OF THE REQUIRED PLANTINGS MAY BE MADE WITHOUT PRIOR REVIEW AND APPROVAL FROM THE DEPARTMENT OF PLANNING AND ZONING, ANY DEVIATION FROM THE APPROVED LANDSCAPE PLAN MAY RESULT IN DENIAL OR DELAY IN THE RELEASE OF LANDSCAPE SURETY UNTIL SUCH TIME AS ALL REQUIRED MATERIALS ARE PLANTED AND/OR REVISIONS ARE MADE TO THE APPLICABLE PLANS.
2. THE OWNER, TENANT AND/OR THEIR AGENTS SHALL BE RESPONSIBLE FOR MAINTENANCE OF THE REQUIRED LANDSCAPING INCLUDING BOTH PLANT MATERIALS AND BERMS, FENCES AND WALLS. ALL PLANT MATERIALS SHALL BE MAINTAINED IN GOOD GROWING CONDITION, AND WHEN NECESSARY, REPLACED WITH NEW MATERIALS TO ENSURE CONTINUED COMPLIANCE WITH APPLICABLE REGULATIONS. ALL OTHER REQUIRED LANDSCAPING SHALL BE PERMANENTLY MAINTAINED IN GOOD CONDITION, AND WHEN NECESSARY, REPAIRED OR REPLACED.
3. SHOULD ANY TREE DESIGNATED FOR PRESERVATION FOR WHICH LANDSCAPING CREDIT IS GIVEN, DIE PRIOR TO RELEASE OF BONDS, THE OWNER WILL BE REQUIRED TO REPLACE THE TREE WITH THE EQUIVALENT SPECIES OR WITH A TREE WHICH WILL OBTAIN THE SAME HEIGHT, SPREAD, AND GROWTH CHARACTERISTICS. THE REPLACEMENT TREE MUST BE A MINIMUM OF 3 INCHES IN CALIPER AND INSTALLED AS REQUIRED IN THE HOWARD COUNTY LANDSCAPE MANUAL.
4. PLANTINGS SHOWN HEREON ARE THE RESPONSIBLITY OF THE DEVELOPER TO INSTALL DURING THE CONSTRUCTION OF THE FINAL PLAN.
5. SURETY FOR THE PROPOSED LANDSCAPING SHALL BE BASED ON THE NUMBER OF PLANTINGS REQUIRED.
6. THE REMOVAL OF TREES 30" OR GREATER DHB IS PROHIBITED WITHOUT COUNTY APPROVAL.

SCHEDULE 'A'
PERIMETER LANDSCAPE EDGE

CATEGORY	ADJACENT TO ROADWAYS & PERIMETER PROPERTIES		TOTAL
PERIMETER/FRONTAGE DESIGNATION LANDSCAPE TYPE	1 NONE	2 A	
LINEAR FEET OF ROADWAY FRONTAGE/PERIMETER	101'	933	–
CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET DESCRIBE BELOW IF NEEDED)	NO	NO 933	–
CREDIT FOR WALL, FENCE OR BERM (YES, NO, LINEAR FEET DESCRIBE BELOW IF NEEDED)	NO	NO	–
NUMBER OF PLANTS REQUIRED SHADE TREES EVERGREEN TREES SHRUBS	 – – –	933 1:60 15.6 – –	 16 – –
NUMBER OF PLANTS PROVIDED SHADE TREES EVERGREEN TREES OTHER TREES (2:1 SUBSTITUTION) SHRUBS (10:1 SUBSTITUTION) DESCRIBE PLANT SUBSTITUTION CREDITS BELOW IF NEEDED)	 – – – –	 16 – – –	 16 – – –

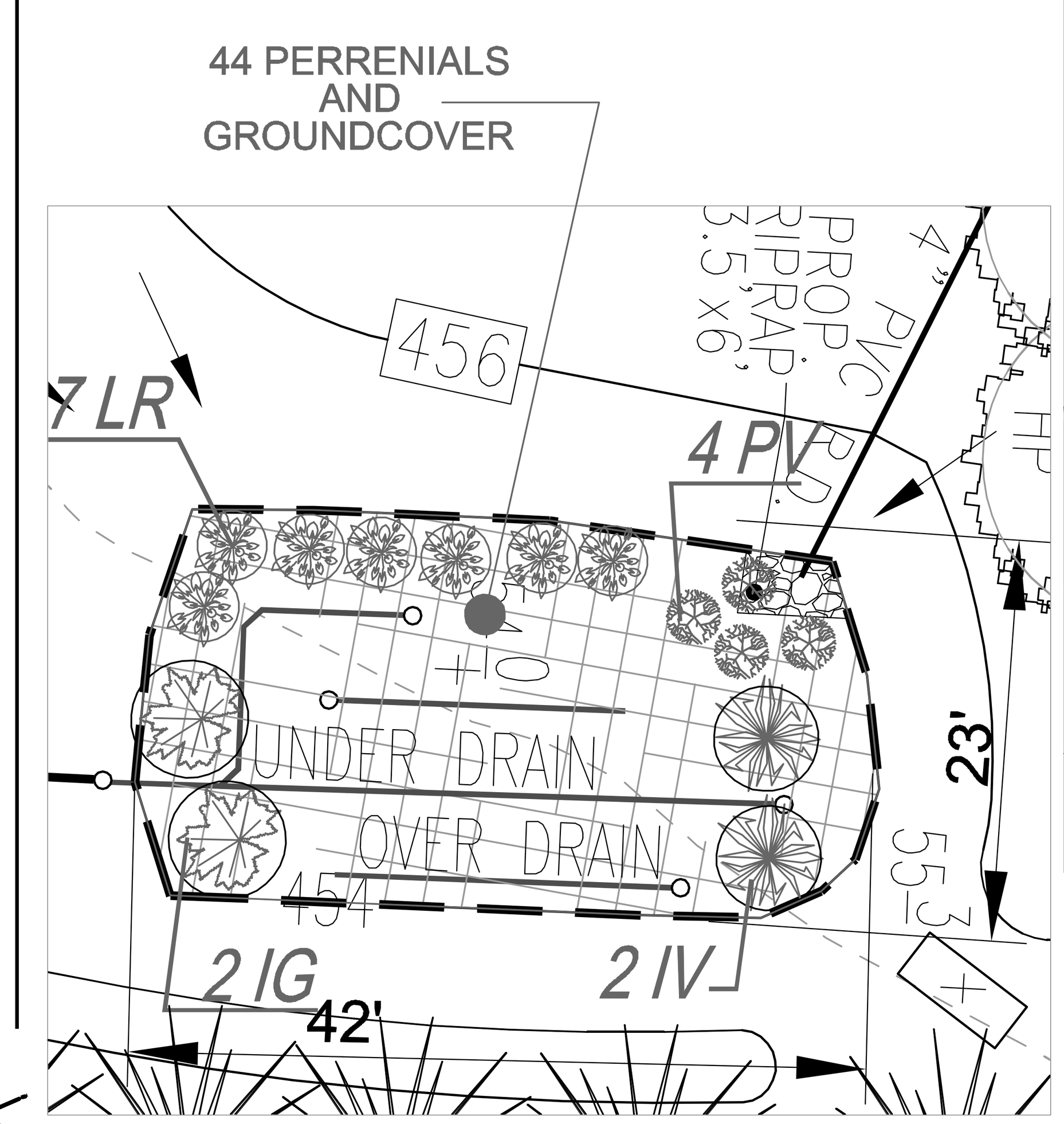
LANDSCAPE SCHEDULE - REQUIRED PLANTING

SYMB.	KEY	QUAN.	BOTANICAL NAME	SIZE	CAT
⊙	QC	7	QUERCUS COCCINEA SCARLET OAK	2.5"-3" CAL	B & B
⊗	AC	4	ACER RUBRUM 'OCTOBER GLORY' OCOTBER GLORY RED MAPLE	2.5"-3" CAL	B & B
○	TM	5	ACER BUERGERIANUM TRIDENT MAPLE	1.5"-3" CAL. MAX.HEIGHT=25'	B & B
✱	PA	5	THUJA OCCIDENTALIS "PYRAMIDALIS" EMERALD GREEN PYRAMIDAL ARBORVITAE	6 – 8' HT	B & B

NOTE: WITH PERMISSION FROM HOWARD COUNTY, PLANTINGS SPECIFIED HEREON MAY BE SUBSTITUTED WITH APPROVED SPECIES LISTED IN APPENDIX B & C OF THE HOWARD COUNTY LANDSCAPE MANUAL.

LANDSCAPE SCHEDULE NOTE:

1. ALL PLANT MATERIALS SHALL BE FULL AND HEAVY, BE WELL FORMED AND SYMMETRICAL, CONFORM TO THE MOST CURRENT AAN SPECIFICATIONS AND BE INSTALLED IN ACCORDANCE WITH HRD PLANTING SPECIFICATIONS.
2. CONTRACTOR SHALL VERIFY LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO DIGGING.
3. FINAL LOCATION OF PLANT MATERIAL MAY NEED TO VARY TO MEET FINAL FIELD CONDITIONS. TREES SHALL NOT BE PLANTED IN THE BOTTOM OF DRAINAGE SWALES.
4. CONTRACTOR SHALL VERIFY PLANT QUANTITIES PRIOR TO BIDDING. IF PLAN DIFFERS FROM LANDSCAPE SCHEDULE, THE PLAN SHALL GOVERN.



MBR#1 DETAIL(F-19-074)

SCALE: 1"= 10'

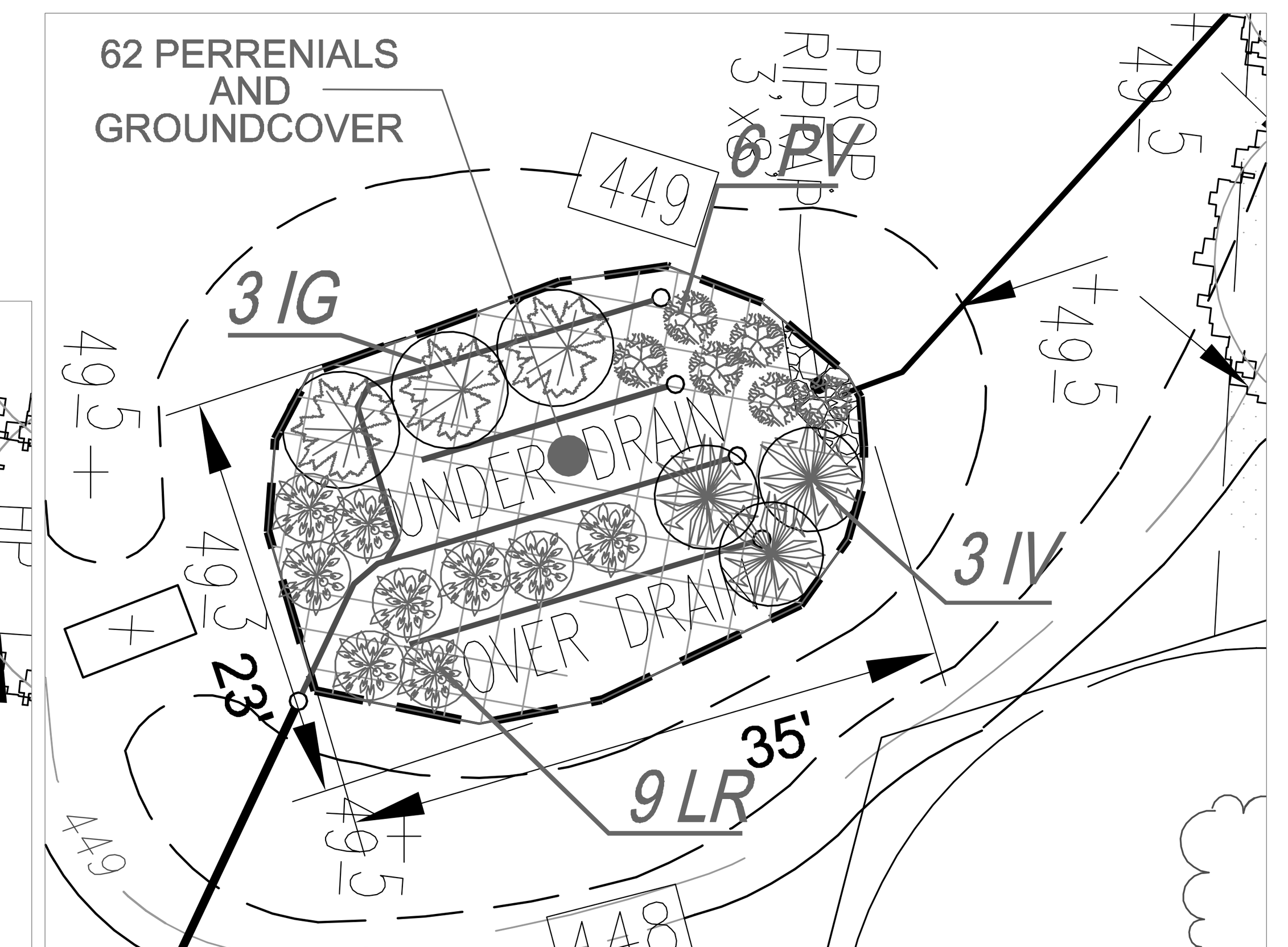
BIORETENTION PLANTING SCHEDULE (SHRUB/ORNIMENTAL GRASSES)				
LEGEND/KEY	QTY	BOTANICAL NAME/COMMON NAME	SIZE	REMARKS
IG	5	ILEX GLABRA 'SHAMROCK' INKBERRY HOLLY	1 GALLON	–
IV	5	ITEA VIRGINICA 'HENRY'S GARNETT' VIRGINIA SWEETSPIRE	1 GALLON	–
LR	16	LEUCOTHEO RACEMOSA FETTERBUSH	1 GAL.	–
PV	10	PANICUM VIRGATUM SWITCHGRASS	1 GAL.	–

BIORETENTION PERENNIALS/GROUNDCOVER PLANTING SCHEDULE				
LEGEND	QTY	BOTANICAL NAME/COMMON NAME	SIZE	REMARKS
▨	53	BAPTISIA AUSTRALIS FALSE INDIGO	4" POT	12"-15" O.C. FOR SIDES AND BOTTOM OF MBR, MIX ALL VARIETIES IN A NATURALIZED RANDOM PATTERN THROUGHOUT, PLANT IN GROUPS OF NO LESS THAN 6 PLANTS PER CLUMP
	53	ACORUS GRAMINEUS 'OGON' GOLDEN VARIEGATED SWEET FLAG	1 QT.	

–PLANTINGS SUBSTITUTIONS SHALL BE WITH APPROVAL OF HOWARD COUNTY AND IN ACCORDANCE WITH THE 2000 MARYLAND STORMWATER DESIGN MANUAL VOLUME II – APPENDIX A – TABLE A-4.

"MICRO-BIORETENTION/RAINGARDEN" PLANTING SCHEDULE NOTES:

1. ALL PLANT MATERIALS SHALL BE FULL AND HEAVY, BE WELL FORMED AND SYMMETRICAL, CONFORM TO THE MOST CURRENT AAN SPECIFICATIONS AND BE INSTALLED IN ACCORDANCE WITH HOWARD COUNTY PLANTING SPECIFICATIONS.
2. CONTRACTOR SHALL VERIFY LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO DIGGING.
3. FINAL LOCATION OF PLANT MATERIAL MAY NEED TO VARY TO MEET FINAL FIELD CONDITIONS. TREES SHALL NOT BE PLANTED IN THE BOTTOM OF DRAINAGE SWALES.
4. CONTRACTOR SHALL VERIFY PLANT QUANTITIES PRIOR TO BIDDING. IF PLAN DIFFERS FROM LANDSCAPE SCHEDULE, THE PLAN SHALL GOVERN.
5. MICROBIORETENTION AREAS ARE TO BE PLANTED BASED ON A MINIMUM DENSITY OF 1000 STEMS PER PLANTED ACRE (.0229 STEMS PER SQUARE FOOT). ABOVE PLANTING RATIOS ARE TO BE APPLIED TO THE AREAS PROVIDED IN THE ESDv SUMMARY.
6. FILTER AREA SHALL BE 50% COVERED BY PLANTINGS AT FULL GROWTH



MBR#2 DETAIL(F-19-074)

SCALE: 1"= 10'

Appendix A. Landscaping Guidance for Stormwater BMPs........Specific Landscaping Criteria

Table A.4 Commonly Used Species for Bioretention Areas

Trees	Shrubs	Herbaceous Species
Acer rubrum Red Maple	*Aesculus pariviflora* Bottlebrush Buckeye	*Andropogon virginicus* Broomsedge
Betula nigra River Birch	*Cephalanthus occidentalis* Buttonbush	*Eupatorium perpurea* Joe Pye Weed
Juniperus virginiana Eastern Red Cedar	*Hamemelis virginiana* Witch Hazel	*Scirpus pungens* Three Square Bulrush
Chionanthus virginicus Fringe-tree	*Vaccinium corymbosum* Highbush Blueberry	*Iris versicolor* Blue Flag
Nyssa sylvatica Black Gum	*Ilex glabra* Inkberry	*Lobelia cardinalis* Cardinal Flower
Diospyros virginiana Persimmon	*Ilex verticillata* Winterberry	*Panicum virgatum* Switchgrass
Platanus occidentalis Sycamore	*Viburnum dentatum* Arrowwood	*Dichanthelium scoparium* Broom Panic Grass
Quercus palustris Pin Oak	*Lindera benzoin* Spicebush	*Rudbeckia laciniata* Tall Coneflower
Quercus phellos Willow Oak	*Myrica pennsylvanica* Bayberry	*Scirpus cyperinus* Woolgrass
Salix nigra Black willow		*Vernonia noveboracensis* New York Ironweed

Note 1: For more options on plant selection for bioretention, consult Bioretention Manual (ETAB, 1993) or the Design of Stormwater Filtering Systems (Claytor and Schueler, 1997).

1. TABLE A.4 IS TAKEN FROM THE "2000 MARYLAND STORMWATER DESIGN MANUAL VOLUME II – APPENDIX A.
2. CONTRACTOR SHALL BE FAMILIAR WITH APPENDIX B.4.C. CONSTRUCTION SPECIFICATIONS AND TABLE B.4.1 MATERIAL SPECFICAITIONS. IN ADDITION THE "2000 MARYLAND STORMWATER DESIGN MANUAL – VOLUME II – APPENDIX A OFFERS ADDITIONAL HELPFUL INFORMATION.
3. NO TREES SHALL BE PLANTED WITHIN A MICRO-BIORETENTION FACILITY. USE ONLY SHRUB OR HERBACEOUS SPECIES.
4. ABOVE TABLE A.4. IS FOR INFORMATIONAL PURPOSES ONLY. LANDSCAPE CONTRACTOR SHALL CHOOSE FROM THE ABOVE TABLE OR USE APPROVED EQUAL SPECIES WHICH ARE TOLERANT TO FLUCTUATING WATER LEVELS.
5. PLANTINGS SHOWN HEREON ARE THE RESPONSIBILITY OF THE DEVELOPER TO INSTALL DURING THE CONSTRUCTION OF THIS FINAL PLAN.

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

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

B G & E NOTES:

1. BGE RESERVES THE RIGHT TO TRIM, TOP OR CUT DOWN ANY TREE IN PROXIMITY TO THE LINE THAT IN THE OPINION OF BGE SHALL BE DEEMED A HAZARD TO THE SAFE AND RELIABLE DELIVERY OF ELECTRICITY.
2. THE DEPARTMENT OF PLANNING AND ZONING MAY AUTHORIZE THE TRIMMING OR REMOVAL OF TREES OR VEGETATION IMMEDIATELY ADJACENT TO THE BGE R/W OR EASEMENT, IF BGE DETERMINES THE TREES ARE COMPROMISING THE SAFETY OR A TRANSMISSION LINE LOCATED WITHIN THEIR UTILITY R/W OR EASEMENT. IF BGE INTENDS TO TRIM OR REMOVE TREES WITHIN A FOREST CONSERVATION EASEMENT, A LETTER SPECIFYING THE LOCATION AND SCOPE OF WORK NEEDS TO BE SENT TO DPZ AT LEAST 30 DAYS IN ADVANCE OF UNDERTAKING THE WORK. DPZ UNDERSTANDS CONSTELLATION ENERGY'S NEED TO PROTECT ITS TRANSMISSION LINES AND WILL NOT UNREASONABLE WITHHOLD PERMISSION.
3. CALL MISS UTILITY TO MARK UP THE LOCATION OF EXISTING GAS LINE BEFORE PLANTING ALONG TREES CHURCH LANE ROAD & PLANT STREET TREES 10'AWAY FROM EXISTING GASLINE AS REQUIRED.

OWNER/DEVELOPER
ZABLAH REAL ESTATE, LLC
224 N. FRANKLINTOWN ROAD
BALTIMORE, MD 21223
(443) 841-8920

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

DocuSigned by: CHAD Edmondson 7063F754EF41499... — 8/10/2024

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DocuSigned by: [illegible] 1EB75478A22B49A... — 7/30/2024 DATE

CHIEF, DIVISION OF LAND DEVELOPMENT — DocuSigned by: Lynda Eisenberg 4220B635863942E... — 8/10/2024 DATE

DIRECTOR — DATE

DEVELOPER'S/BUILDER'S CERTIFICATE

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

DocuSigned by: [illegible] — 6/12/2024

SIGNATURE OF DEVELOPER — DATE

NO.	REVISION	DATE

SITE DEVELOPMENT PLAN

LANDSCAPE PLAN
NOTES & DETAILS

HORVATH PROPERTY

LOTS 1 AND 2
ZONED: R-ED & R-20
L.21961/ F.00193

TAX MAP 18 BLOCK 13
2ND ELECTION DISTRICT — PARCEL 38
DPZ REFERENCES: ECP-19-013, F-19-074, WP-24-057 — HOWARD COUNTY, MARYLAND

VOGEL ENGINEERING ⊕ TIMMONS GROUP
3300 NORTH RIDGE ROAD, SUITE 110, ELLICOTT CITY, MD 21043
P: 410.461.7666 F: 410.461.8961 www.timmons.com

STATE OF MARYLAND — ROBERT HARRIS VOGEL — No.16193 — REGISTERED PROFESSIONAL ENGINEER — 6/14/2024

DocuSigned by: Robert H. Vogel

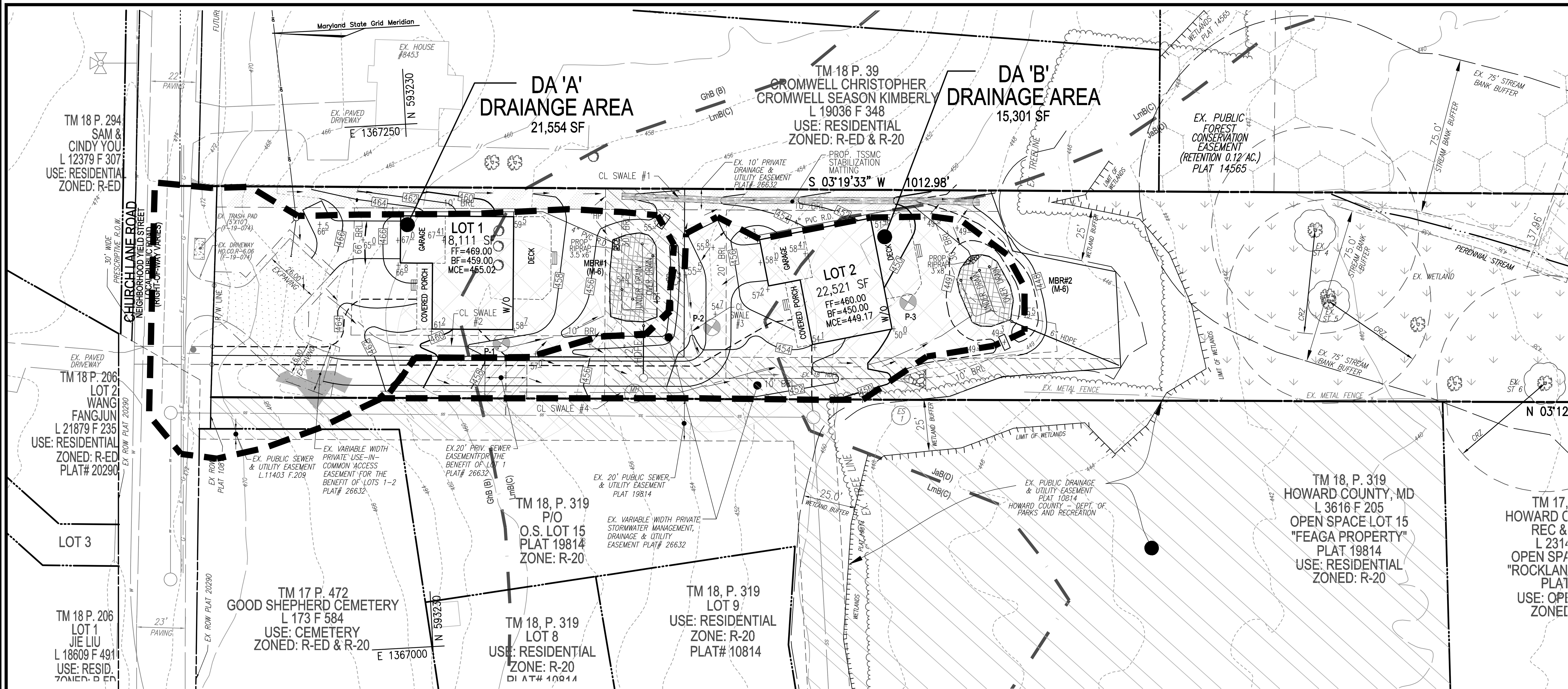
ROBERT H. VOGEL, PE No.16193

DESIGN BY:	RVE
DRAWN BY:	KG
CHECKED BY:	RHV/EDS
DATE:	MAY 2024
SCALE:	AS SHOWN
W.O. NO.:	16-05

PROFESSIONAL CERTIFICATE

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193 EXPIRATION DATE: 09-27-2024

SHEET 5 OF 6

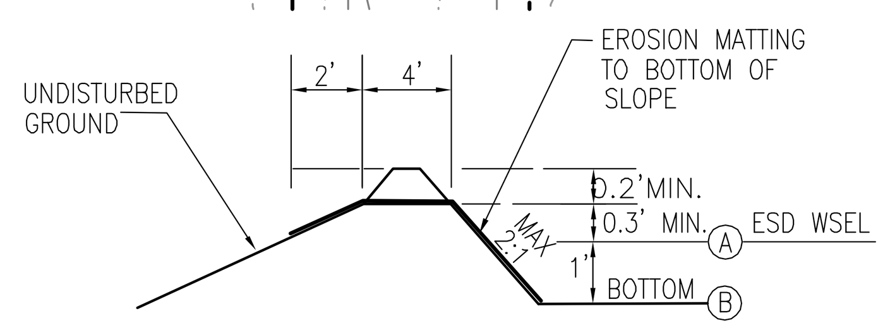


STORMWATER MANAGEMENT DRAINAGE AREA MAP

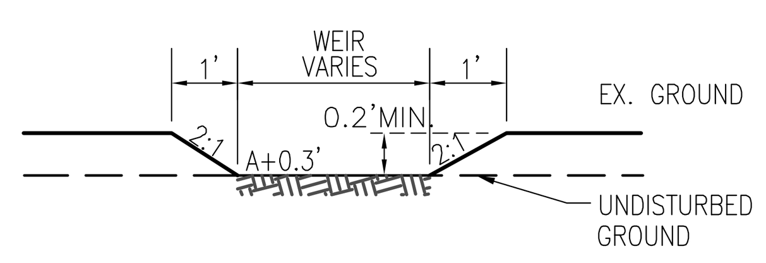
SCALE: 1"= 30'

LEGEND:

- EXISTING CONTOUR
- PROPOSED CONTOUR
- PROPOSED SPOT ELEVATION
- EXISTING SPOT ELEVATION
- EXISTING EDGE PAVING
- EXISTING UTILITY POLE
- EXISTING MAILBOX
- EXISTING SIGN
- EXISTING SANITARY MANHOLE
- EXISTING SANITARY LINE
- EXISTING CLEANOUT
- EXISTING FIRE HYDRANT
- EXISTING WATER LINE
- EXISTING OVER HEAD LINE
- EXISTING STORM DRAIN LINE
- EXISTING TREELINE
- PROPOSED TREELINE
- PROPOSED SIGN
- EX. WETLANDS
- EX. WETLAND BUFFER
- EX. STREAM
- EX. STREAM BUFFER
- EX. FOREST CONSERVATION EASEMENT (RETENTION) PLATS 14565 & 16169
- EX. 20' PUBLIC SEWER & UTILITY EASEMENT PLAT#19814 & L. 11403F. 209
- EX. PUBLIC DRAINAGE & UTILITY EASEMENT PLAT 10814
- EX. VARIABLE WIDTH PRIVATE UIC ACCESS EASEMENT FOR BENEFIT OF LOTS 1&2 PLAT# 26632
- PROPERTY LINE
- RIGHT-OF-WAY LINE
- EXISTING SPECIMEN TREE WITH CRITICAL ROOT ZONE DELINEATION
- EX. VARIABLE WIDTH PRIVATE STORMWATER MANAGEMENT, DRAINAGE & UTILITY EASEMENT
- EX. 10' PRIVATE DRAINAGE & UTILITY EASEMENT PLAT# 26632
- EX. 20' PRIVATE DRAINAGE & UTILITY EASEMENT L. 7222 F. 207
- EX. MICRO-BIORETENTION (M-6) F-19-074
- EX. 20' PRIVATE SEWER EASEMENT FOR BENEFIT LOT 1 PLAT# 26632
- ESD DRAINAGE AREA DIVIDE
- TESTPIT

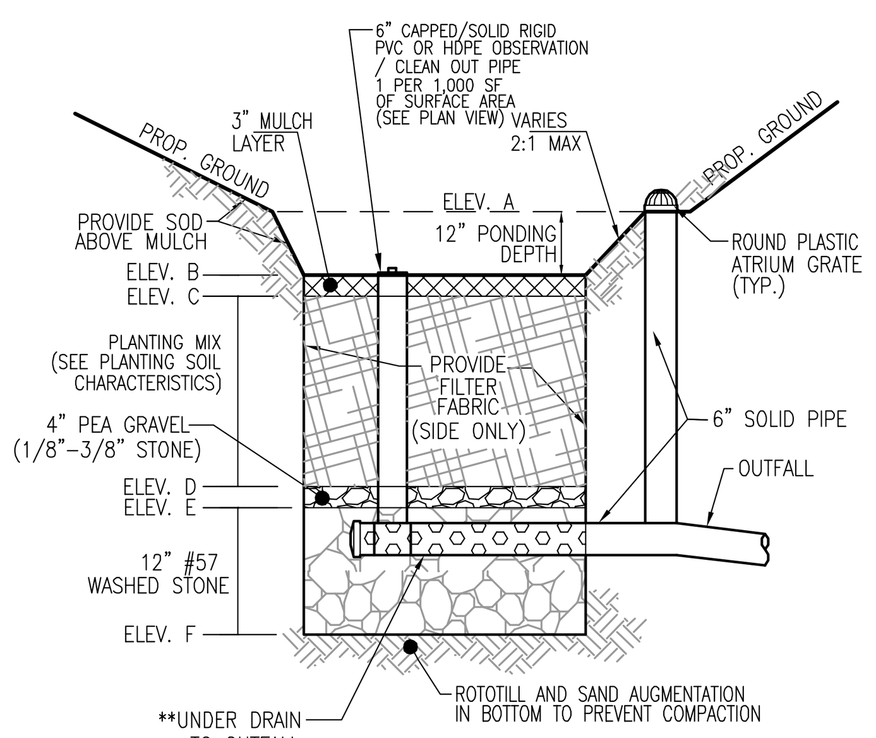


TYPICAL SPILLWAY SECTION
NOT TO SCALE

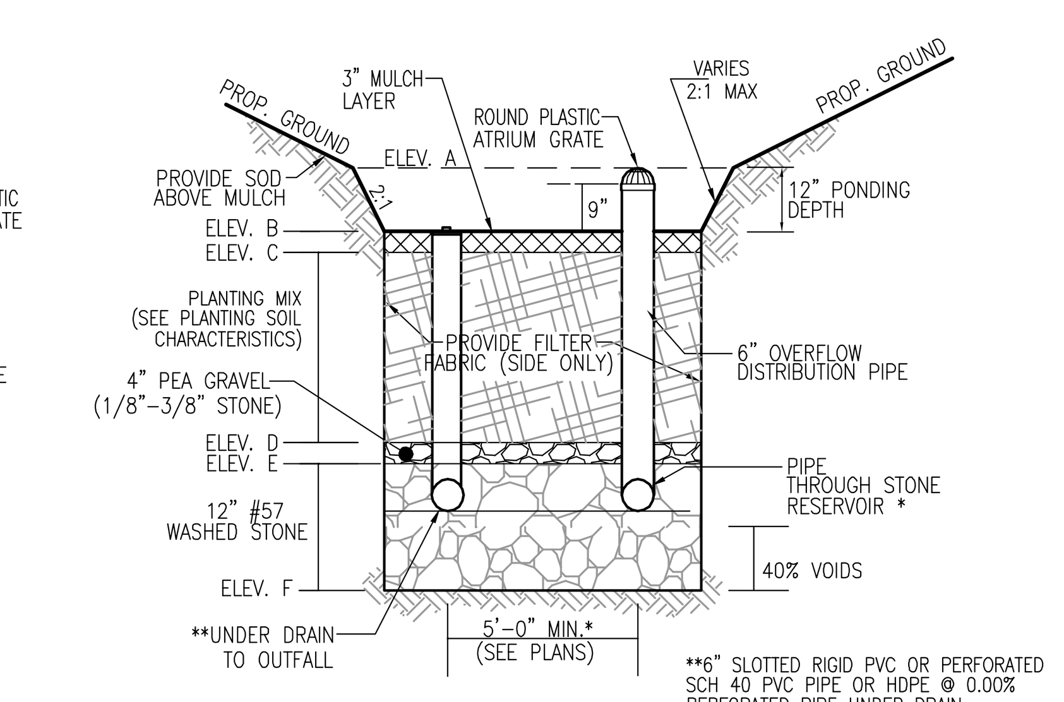


TYPICAL SPILLWAY PROFILE
NOT TO SCALE

DETAILS OF WEIR OUTLET MICRO-BIORETENTION



TYPICAL DETAIL
MICRO-BIORETENTION (UNDERDRAIN) (M-6)
NOT TO SCALE



TYPICAL DETAIL
MICRO-BIORETENTION (OVERFLOW) (M-6)
NOT TO SCALE

MICRO-BIORETENTION NOTES:

1. ONLY THE SIDES OF MICRO-BIORETENTION ARE TO BE WRAPPED IN FILTER FRABRIC. FILTER FABRIC BETWEEN LAYER OR AT THE BOTTOM OF THE MICRO-BIORETENTION WILL CAUSE THE MBR TO FAIL, AND THEREFORE SHALL NOT BE INSTALLED.
2. WRAP THE PERFORATED MBR UNDERDRAIN PIPE WITH 1/4" MESH (4X4) OR SMALLER GALVANIZED HARDWARE CLOTH. SEE APPENDIX B.4.C.6.
3. PROVIDE 5' MINIMUM SPACING BETWEEN UNDER DRAIN AND PERFORATED PIPE THROUGH STONE RESERVOIR OR SPACE PIPE EQUALLY ACCROSS BOTTOM FOR SMALL BIOS.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

DocuSigned by:
CHAD Edmondson
8/10/2024
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

DocuSigned by:
[illegible]
7/30/2024
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

DocuSigned by:
Lynda Eisenberg
4220B635863942E...
8/10/2024
DIRECTOR — DATE

OPERATION AND MAINTENANCE SCHEDULE FOR (M-6) MICROBIORETENTION AREAS

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

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

Table B.4.1 Materials Specifications for Micro-Bioretention, Rain Gardens & Landscape Infiltration-

Material	Specification	Size	Notes
Plantings	see Appendix A, Table A.4	n/a	plantings are site-specific
Planting soil [2' to 4' deep]	loamy sand (60 - 65%) & compost (35 – 40%) or sandy loam (30%), coarse sand (30%) & compost (40%)	n/a	USDA soil types loamy sand or sandy loam; clay content < 5%
Organic content	Min. 10% by dry weight (ASTM D 2974)		
Mulch	shredded hardwood		aged 6 months, minimum; no pine or wood chips
Pea gravel diaphragm	pea gravel: ASTM-D-448	NO. 8 OR NO. 9 (1/8" TO 3/8")	
Curtain drain	ornamental stone: washed cobbles	stone: 2" to 5"	
Geotextile		n/a	PE Type 1 nonwoven
Gravel (underdrains and infiltration berms)	AASHTO M-43	NO. 57 OR NO. 6 AGGREGATE (3/8" to 3/4")	
Underdrain piping	F 758, Type PS 28 or AASHTO M-278	4" to 6" rigid schedule 40 PVC or SDR35	Slotted or perforated pipe; 3/8" perf. @ 6" on center, 4 holes per row; minimum of 3" of gravel over pipes; not necessary underneath pipes. Perforated pipe shall be wrapped with ¼-inch galvanized hardware cloth
Poured in place concrete (if required)	MSHA Mix No. 3; f'_c = 3500 psi @ 28 days, normal weight, air-entrained; reinforcing to meet ASTM-615-60	n/a	on-site testing of poured-in-place concrete required: 28 day strength and slump test; all concrete design (cast-in-place or pre-cast) *not using previously approved State or local standards* requires design drawings sealed and approved by a professional structural engineer licensed in the State of Maryland - design to include meeting ACI Code 350.R/89; vertical loading [H-10 or H-20]; allowable horizontal loading (based on soil pressures); and analysis of potential cracking
Sand	AASHTO-M-6 or ASTM-C-33	0.02" to 0.04"	Sand substitutions such as Diabase and Graystone (**AASHTO**) #10 are not acceptable. No calcium carbonated or dolomitic sand substitutions are acceptable. No "rock dust" can be used for sand.

MICRO-BIORETENTION DATA CHART

Facility #	Ponding Depth (ft)	Ponding Elevation ELEV. A	Top of Mulch ELEV. B	Bottom of Mulch ELEV. C	Depth of Plant Mix	Bottom of Plant Mix ELEV. D	Bottom of Pea Gravel ELEV. E	Depth of Stone (ft.)	Bottom of Stone ELEV. F	Invert of Underdrain	Surface Area (SF)	Approx. Dimensions (at midpoint)
MBR#1	1.00	455.00	**454.00**	453.75	2.00	451.75	451.42	1.00	450.42	**450.67**	880	SEE PLAN
MBR#2	1.00	449.00	**448.00**	447.75	1.50	446.25	445.92	1.00	444.92	**445.17**	678	SEE PLAN

MAPPED SOILS TYPES

SYMBOL	NAME / DESCRIPTION	GROUP	HYDRIC	Kw	<15% SLOPE W/ EROSION POTENTIAL
GhB	GLENELG-URBAN LAND COMPLEX, 0 TO 8 PERCENT SLOPES	B	NO	0.43	YES
LmB	LEGORE-MONTALTO SILT LOAMS, 3 TO 8 PERCENT SLOPES	C	NO	0.64	YES
JaB	JACKLAND SILT LOAM, 3 TO 8 PERCENT SLOPES	D	NO	0.37	YES
LoB	LEGORE-MONTALTO-URBAN LAND COMPLEX, 0 TO 8 PERCENT SLOPES	C	NO	0.64	YES

TAKEN FROM: USDA, NRCS-WEB SOIL SURVEY, HOWARD COUNTY
https://websoilsurvey.sc.egov.usda.gov – https://www.howardscd.org/documents

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

TEST PIT DATA

BORING #	APPROX. EXIST GROUND ELEV	APPROX. PROP GROUND ELEV	INVERT FACILITY / PRACTICE	MIN. DEPTH TO GROUNDWATER	BOTTOM PIT	REQ PIT DEPTH*	OBSERVATION
TEST PITS							
P-1	457.50	457.00	452.00	4	448.0	10	NO ROCK, WATER @ 8'
P-2	453.50	450.00	445.00	4	441.0	13	NO ROCK, WATER @ 7.5'
P-3	450.00	449.00	444.00	4	440.0	10	NO ROCK OR WATER

HORVATH - MEASURED SUBAREA - ESDv COMPUTATIONS

SITE DEVELOPABLE AREA: 0.98 AC
TARGET Pe: 1.67 IN
SITE IMPERVIOUS: 26.3 PERCENT
SITE Rv: 0.2867

Rv=0.05+0.009XI
V min=1.0" rainfall (1.0x0.95xA)/12
Vmax= 1yr rainfall=2.6" (2.6x0.95xA)/12

DA #	% IMPERV	Rv	DA (SF)	DA (AC)	1.0" MIN. VOLUME	2.6" MAX VOLUME	1.67" REQ. VOLUME	VOLUME PROVIDED*	IMPERV (SF)	IMPERV (AC)	GREEN AREA	REMARKS
A	35.27	0.3674	21554	0.49	660	1716	1102	1173	7602	0.17	0.32	MICROSCALE MICRO-BIO RETENTION 2 1173 880 SF MBR @ 1.0 PONDING
B	36.76	0.3808	15301	0.35	486	1262	811	904	5624	0.13	0.22	MICROSCALE MICRO-BIO RETENTION 1 904 678 SF MBR @ 1.0 PONDING
PROJECT TOTALS	35.9	0.3730	**36855**	0.85			**1913**	**2077**	**13226**	0.30	0.54	

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

1. MATERIAL SPECIFICATIONS

THE ALLOWABLE MATERIALS TO BE USED IN THESE PRACTICES ARE DETAILED IN TABLE B.4.1.

2. FILTERING MEDIA OR PLANTING SOIL

THE SOIL SHALL BE A UNIFORM MIX, FREE OF STONES, STUMPS, ROOTS OR OTHER SIMILAR OBJECTS LARGER THAN TWO INCHES. NO OTHER MATERIALS OR SUBSTANCES SHALL BE MIXED OR DUMPED WITHIN THE MICRO-BIORETENTION PRACTICE THAT MAY BE HARMFUL TO PLANT GROWTH, OR PROVE A HINDRANCE TO THE PLANTING OR MAINTENANCE OPERATIONS. THE PLANTING SOIL SHALL BE FREE OF BERMUDA GRASS, QUACKGRASS, JOHNSON GRASS, OR OTHER NOXIOUS WEEDS AS SPECIFIED UNDER COMAR 15.08.01.05.
THE PLANTING SOIL SHALL BE TESTED AND SHALL MEET THE FOLLOWING CRITERIA:

* SOIL COMPONENT – LOAMY SAND OR SANDY LOAM (USDA SOIL TEXTURAL CLASSIFICATION).
* ORGANIC CONTEN – MINIMUM 10% BY DRY WEIGHT (ASTM D 2974). IN GENERAL, THIS CAN BE MET WITH A MIXTURE OF LOAMY SAND (60%-65%) AND COMPOST (35% TO 40%) OR SANDY LOAM (30%), COARSE SAND (30%), AND COMPOST (40%).
* CLAY CONTENT – MEDIA SHALL HAVE A CLAY CONTENT OF LESS THAN 5%.
* PH RANGE – SHOULD BE BETWEEN 5.5 – 7.0. AMENDMENTS (E.G., LIME, IRON SULFATE PLUS SULFUR) MAY BE MIXED IN TO THE SOIL TO INCREASE OR DECREASE PH.

THERE SHALL BE AT LEAST ONE SOIL TEST PER PROJECT. EACH TEST SHALL CONSIST OF BOTH THE STANDARD SOIL TEST FOR PH, AND ADDITIONAL TESTS OF ORGANIC MATTER, AND SOLUBLE SALTS. A TEXTURAL ANALYSIS IS REQUIRED FROM THE SITE STOCKPILED TOPSOIL. IF TOPSOIL IS IMPORTED, THEN A TEXTURE ANALYSIS SHALL BE PERFORMED FOR EACH LOCATION WHERE THE TOPSOIL WAS EXCAVATED.

3. COMPACTION

IT IS VERY IMPORTANT TO MINIMIZE COMPACTION OF BOTH THE BASE OF BIORETENTION PRACTICES AND THE REQUIRED BACKFILL. WHEN POSSIBLE, USE EXCAVATION HOES TO REMOVE ORIGINAL SOIL. IF PRACTICES ARE EXCAVATED USING LOADER, THE CONTRACTOR SHOULD USE WIDE TRACK OR MARSH TRACK EQUIPMENT, OR LIGHT EQUIPMENT WITH TURF TYPE TIRES. USE OF EQUIPMENT WITH NARROW TRACKS OR NARROW TIRES, RUBBER TIRES WITH LARGE LUGS, OR HIGH-PRESSURE TIRES WILL CAUSE EXCESSIVE COMPACTION RESULTING IN REDUCED INFILTRATION RATES AND IS NOT ACCEPTABLE. COMPACTION WILL SIGNIFICANTLY CONTRIBUTE TO DESIGN FAILURE.
COMPACTION CAN BE ALLEVIATED AT THE BASE OF THE BIORETENTION FACILITY BY USING A PRIMARY TILLING OPERATION SUCH AS CHISEL PLOW, RIPPER, OR SUBSOILER. THESE TILLING OPERATIONS ARE TO REFRACTURE THE SOIL PROFILE THROUGH THE 12 INCH COMPACTION ZONE. SUBSTITUTE METHODS MUST BE APPROVED BY THE ENGINEER. ROTOTILLERS TYPICALLY DO NOT TILL DEEP ENOUGH TO REDUCE THE EFFECTS OF COMPACTION FROM HEAVY EQUIPMENT.
ROTOTILL 2 TO 3 INCHES OF SAND INTO THE BASE OF THE BIORETENION FACILITY BEFORE BACKFILLING THE OPTIONAL SAND LAYER. PUMP ANY PONDED WATER BEFORE PREPARING (ROTOTILLING) BASE.
WHEN BACKFILLING THE TOPSOIL OVER THE SAND LAYER, FIRST PLACE 3 TO 4 INCHES OF TOPSOIL OVER THE SAND, THEN ROTOTILL THE SAND/TOPSOIL TO CREATE A GRADATION ZONE. BACKFILL THE REMAINDER OF THE TOPSOIL TO FINAL GRADE.
WHEN BACKFILLING THE BIORETENTION FACILITY, PLACE SOIL IN LIFTS 12" TO 18". DO NOT USE HEAVY EQUIPMENT WITHIN THE BIORETENTION BASIN. HEAVY EQUIPMENT CAN BE USED AROUND THE PERIMETER OF THE BASIN TO SUPPLY SOILS AND SAND. GRADE BIORETENTION MATERIALS WITH LIGHT EQUIPMENT SUCH AS A COMPACT LOADER OR A DOZER/LOADER WITH MARSH TRACKS.

4. PLANT MATERIAL

RECOMMENDED PLANT MATERIAL FOR MICRO-BIORETENTION PRACTICES CAN BE FOUND IN APPENDIX A, SECTION A.2.3.

5. PLANT INSTALLATION

COMPOST IS A BETTER ORGANIC MATERIAL SOURCE, IS LESS LIKELY TO FLOAT, AND SHOULD BE PLACED IN THE INVERT AND OTHER LOW AREAS. MULCH SHOULD BE PLACED IN SURROUNDING TO A UNIFORM THICKNESS OF 2" TO 3". SHREDDED OR CHIPPED HARDWOOD MULCH IS THE ONLY ACCEPTED MULCH. PINE MULCH AND WOOD CHIPS WILL FLOAT AND MOVE TO THE PERIMETER OF THE BIORETENTION AREA DURING A STORM EVENT AND ARE NOT ACCEPTABLE. SHREDDED MULCH MUST BE WELL AGED (6 TO 12 MONTHS) FOR ACCEPTANCE.
ROOTSTOCK OF THE PLANT MATERIAL SHALL BE KEPT MOIST DURING TRANSPORT AND ON-SITE STORAGE. THE PLANT ROOT BALL SHOULD BE PLANTED SO 1/8TH OF THE BALL IS ABOVE FINAL GRADE SURFACE. THE DIAMETER OF THE PLANTING PIT SHALL BE AT LEAST SIX INCHES LARGER THAN THE DIAMETER OF THE PLANTING BALL. SET AND MAINTAIN THE PLANT STRAIGHT DURING THE ENTIRE PLANTING PROCESS. THOROUGHLY WATER GROUND BED COVER AFTER INSTALLATION. TREES SHALL BE BRACED USING 2" BY 2" STAKES ONLY AS NECESSARY AND FOR THE FIRST GROWING SEASON ONLY. STAKES ARE TO BE EQUALLY SPACED ON THE OUTSIDE OF THE TREE BALL.
GRASSES AND LEGUME SEED SHOULD BE DRILLED INTO THE SOIL TO A DEPTH OF AT LEAST ONE INCH. GRASS AND LEGUME PLUGS SHALL BE PLANTED FOLLOWING THE NON-GRASS GROUND COVER PLANTING SPECIFICATIONS.
THE TOPSOIL SPECIFICATIONS PROVIDE ENOUGH ORGANIC MATERIAL TO ADEQUATELY SUPPLY NUTRIENTS FROM NATURAL CYCLING. THE PRIMARY FUNCTION OF THE BIORETENTION STRUCTURE IS TO IMPROVE WATER QUALITY. ADDING FERTILIZERS DEFEATS, OR AT A MINIMUM, IMPEDES THIS GOAL. ONLY ADD FERTILIZER IF WOOD CHIPS OR MULCH ARE USED TO AMEND THE SOIL. ROTOTILL UREA FERTILIZER AT A RATE OF 2 POUNDS PER 1000 SQUARE FEET.

6. UNDERDRAINS

UNDERDRAINS SHOULD MEET THE FOLLOWING CRITERIA:

* PIPE – SHOULD BE 4" TO 6" DIAMETER, SLOTTED OR PERFORATED RIGID PLASTIC PIPE (ASTMF 758, TYPE PS 28, OR AASHTO-M-278) IN A GRAVEL LAYER. THE PREFERRED MATERIAL IS SLOTTED, 4" RIGID PIPE (E.G., PVC OF HDPE).
* PERFORATIONS – IF PERFORATED PIPE IS USED, PERFORATIONS SHOULD BE 3/8" DIAMETER LOCATED 6" ON CENTER WITH A MINIMUM OF FOUR HOLES PER ROW. PIPE SHALL BE WRAPPED WITH A 1/4" (NO. 4 OR 4x4) GALVANIZED HARDWARE CLOTH.
* GRAVEL – THE GRAVEL LAYER (NO. 57 STONE PREFERRED) SHALL BE AT LEAST 3" THICK ABOVE AND BELOW THE UNDERDRAIN.
* THE MAIN COLLECTOR PIPE SHALL BE AT A MINIMUM 0.5% SLOPE.
* A RIGID, NON-PERFORATED OBSERVATION WELL MUST BE PROVIDED (ONE PER EVERY 1,0000 SQUARE FEET) TO PROVIDE A CLEAN-OUT PORT AND MONITOR PERFORMANCE OF THE FILTER.
* A 4" LAYER OF PEA GRAVEL (1/8" TO 3/8" STONE) SHALL BE LOCATED BETWEEN THE FILTER MEDIA AND UNDERDRAIN TO PREVENT MIGRATION OF FINES IN TO THE UNDERDRAIN. THIS LAYER MAY BE CONSIDERED PART OF THE FILTER BED WHEN BED THICKNESS EXCEEDS 24".

THIS MAIN COLLECTOR PIPE FOR UNDERDRAIN SYSTEMS SHALL BE CONSTRUCTED AT A MINIMUM SLOPE OF 0.5%. OBSERVATION WELLS AND/OR CLEAN-OUT PIPES MUST BE PROVIDED (ONE MINIMUM PER EVERY 1000 SQUARE FEET OF SURFACE AREA).

7. MISCELLANEOUS

THESE PRACTICES MAY NOT BE CONSTRUCTED UNTIL ALL CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED.

OWNER/DEVELOPER
ZABLAH REAL ESTATE, LLC
224 N. FRANKLINTOWN ROAD
BALTIMORE, MD 21223
(443) 841-8920

NO.	REVISION	DATE

SITE DEVELOPMENT PLAN
ESD STROMWATER MANAGEMENT
NOTES AND DETAILS

HORVATH PROPERTY

LOTS 1 AND 2
ZONED: R-ED & R-20
L.21961/ F.00193

TAX MAP 18 BLOCK 13
2ND ELECTION DISTRICT
DPZ REFERENCES: ECP-19-013, F-19-074, WP-24-057
PARCEL 38
HOWARD COUNTY, MARYLAND

VOGEL ENGINEERING
⊕
TIMMONS GROUP
3300 NORTH RIDGE ROAD, SUITE 110, ELLICOTT CITY, MD 21043
P: 410.461.7666 F: 410.461.8961 www.timmons.com

STATE OF MARYLAND
ROBERT HARRIS VOGEL
NO.16193
REGISTERED
PROFESSIONAL ENGINEER
6/4/2024

DocuSigned by:
Robert H. Vogel
ROBERT H. VOGEL, PE No.16193

DESIGN BY: RVE
DRAWN BY: KG
CHECKED BY: RHV/EDS
DATE: MAY 2024
SCALE: AS SHOWN
W.O. NO.: 16-05

PROFESSIONAL CERTIFICATE
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193 EXPIRATION DATE: 09-27-2024