GENERAL NOTES ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST

TANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA TANDARDS AND SPECIFICATIONS, IF APPLICABLE, SUBJECT PROPERTY ZONED RR-DEO PER THE 10-6-2013

THIS PROJECT IS SUBJECT TO THE AMENDED FIFTH EDITION OF THE JBDIVISION AND LAND DEVELOPMENT REGULATIONS THE COORDINATES SHOWN HEREON ARE BASED UPON THE HOWARD OUNTY GEODETIC CONTROL WHICH IS BASED UPON THE MARYLAND TATE PLANE COORDINATE SYSTEM. HOWARD COUNTY MONUMENTS NO.

TRACT BOUNDARY IS BASED ON FIELD RUN BOUNDARY SURVEY PERFORMED ON OR ABOUT SEPTEMBER 25, 2018, BY BENCHMARK

TOPOGRAPHY SHOWN IS BASED ON FIELD-RUN SURVEY PERFORMED EXISTING UTILITIES SHOWN ARE BASED ON FIELD LOCATIONS BY BENCHMARK ENGINEERING, INC, HOWARD COUNTY GIS, F-18-081 AND

. WETLAND AND FOREST STAND DELINEATION WAS PREPARED BY ECO-SCIENCE PROFESSIONALS, INC., DATED MARCH, 2018 AND APPROVED ON 12/17/2021.

THE GEOTECHNICAL REPORTS WERE PREPARED BY HILLLIS-CARNES NGINEERING ASSOCIATES, INC. IN APRIL, 2007 AND BY GEOLAB EOTECHNICAL LABORATORIES, INC. IN OCTOBER, 2013.

NO GRADING, REMOVAL OF VEGETATIVE COVER OR TREES, PAVING ND NEW STRUCTURES SHALL BE PERMITTED WITHIN THE LIMITS OF WETLANDS, STREAMS, THEIR REQUIRED BUFFERS, 100YR FLOODPLAIN. STEEP SLOPES OR FOREST CONSERVATION FASEMENTS, EXCEPT AS APPROVED BY THE HOWARD COUNTY DEPARTMENT OF PLANNING AND

. THE 100-YEAR FLOODPLAIN STUDY WAS PREPARED BY BENCHMARK INGINEERING, INC. IN MARCH, 2018. THERE IS NO CHANGE IN LAND USE WITHIN THE DRAINAGE AREA LIMITS FROM WHAT WAS USED IN THAT OODPLAIN ANALYSIS. THIS STUDY WAS APPROVED UNDER THE REVIEW F F-18-081 AND APPROVED ON 10/2/2018. NO NEW FLOODPLAIN

2. TO THE BEST OF OUR KNOWLEDGE, THERE ARE NO CEMETERIES OR HISTORIC STRUCTURES LOCATED ON THIS SITE. THIS SITE IS NOT LOCATED WITHIN THE METROPOLITAN DISTRICT. WATER AND SEWER WILL BE PRIVATE ON-SITE FACILITIES AND IN ACCORDANCE WITH THE PERCOLATION CERTIFICATION PLAN APPROVED AS

RT OF SP-20-001 AND AS REVISED. 14. A NOISE STUDY IS NOT REQUIRED FOR THIS PROJECT PER

5. A TRAFFIC STUDY WAS REQUIRED FOR THIS SUBDIVISION, IT IS ROVIDED BY MARS GROUP, INC., DATED AUGUST, 2019, AND APPROVED UNDER SP-20-001 ON 12/17/2021.

BASED ON THE DATA AND ANALYSIS PRESENTED IN THE TRAFFIC STUDY IT WAS DETERMINED THAT THE PROPOSED DEVELOPMENT CAN 4. COMPLIANCE WITH PREVIOUS COMMENTS FROM THE DEVELOPMENT BE ADEQUATELY ACCOMMODATED BY THE SURROUNDING AREA ROAD REPORT COMPILED ON: JUNE 23, 2022 PLAN NUMBER THE REPORT WAS SUBMITTED UNDER: SP-23-002 KEY INTERSECTIONS IDENTIFIED FOR THE STUDY:

HIGHLAND ROAD @ MINK HOLLOW ROAD MD 216 @ MD 108 AND HIGHLAND ROAD MD 108 @ GUILFORD ROAD AND CHURCH/SCHOOL ENTRANCE JURISDICTION OVER THE KEY INTERSECTIONS: FIRST INTERSECTION IS

KEY INTERSECTION VOLUME COUNT COLLECTED ON: JUNE 13, 2019. KEY INTERSECTION COUNT WERE COLLECTED WHILE: HOWARD COUNTY PUBLIC SCHOOL 2019-2020 WAS IN SESSION DESIGN YEAR LEVEL-OF-SERVICE AT KEY INTERSECTION: HIGHLAND RD @ MINK HOLLOW RD: AM PEAK "A"; PM PEAK "A" MD 216 @ MD 108 & HIGHLAND RD: AM PEAK "B": PM PEAK "C" MD 108 @ GUILFORD RD & ENTRANCE: AM PEAK "A"; PM PEAK "A"

MITIGATION REQUIREMENT: NONE. 6. STORMWATER MANAGEMENT ENVIRONMENTAL SITE DESIGN (ESD) HAS EEN PROVIDED TO THE MAXIMUM EXTENT PRACTICAL (MEP). TH ECLARATION OF COVENANTS SHALL BE RECORDED FOR ON-LOT DEVICES D ALL SHARED SWM DEVICES SHALL BE PRIVATELY OWNED AND AINTAINED IN ACCORDANCE WITH MAINTENANCE FASEMENT AGREEMENT. HE STORMWATER PRACTICES INCLUDES ONE REVISED SHARED AINTAINED MICRO-BIORETENTION FACILITY (M-6); 4 INDIVIDUALLY

NON-ROOFTOP DISCONNECTIÓN. SEE STORMWATER MANAGEMENT DETAIL

HEET FOR OPERATION AND MAINTENANCE SCHEDULES. THIS SUBDIVISION COMPLIES WITH THE REQUIREMENTS OF SECTION 3.200 OF THE HOWARD COUNTY CODE FOR FOREST CONSERVATION AS WAS PREVIOUSLY PROVIDED BY F-22-035 AND IS NOT TO BE VISED BY THIS PLAN. FOREST CONSERVATION OBLIGATION WAS TO BE JLFILLED BY RETENTION OF 3.66 ACRES, ON-SITE REFORESTATION OF .43 ACRES, AND A PREVIOUSLY PURCHASED FOREST BANK OF 0.3 ACRES (PROPERTY OF FOREVER A FARM, INC., SDP-14-005).

AINTAINED DRYWELLS (M-5): AND ONE INDIVIDUALLY MAINTAINEI

8. LANDSCAPING IS PROVIDED WITH A CERTIFIED LANDSCAPE PLAN IN ACCORDANCE ACCORDANCE WITH SECTION 16.124 OF THE HOWARD OUNTY CODE AND LANDSCAPE MANUAL FINANCIAL POSTING OF SURETY R REQUIRED LANDSCAPING IN ACCORDANCE WITH SECTION 16.124 OF E LANDSCAPE MANUAL WILL BE REQUIRED. FINANCIAL SURETY IN THE ANDSCAPING MUST BE POSTED AS PART OF THE GRADING PERMIT.

. 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 THE START OF WORK.

SITE DATA TABULATION 1) GENERAL SITE DATA

a. PRESENT ZONING: RR-DEO

a. TOTAL AREA OF OVERALL SITE

b. LOCATION: TAX MAP 34 - GRID 23 - P/O PARCEL 301 c. APPLICABLE DPZ FILE REFERENCES: ECP-13-077, SP-07-013, F-14-048, WP-13-075, WP-14-006, WP-14-053, WP-18-099, F-18-081, WP-20-016, SP-20-001, F-22-035

d. DEED REFERENCE: L. 18416 F. 0195 e. PROPOSED USE OF SITE: 1 SFD LOT; 1 BUILDABLE PRESERVATION PARCEL

f. PROPOSED WATER AND SEWER: PRIVATE WATER AND PRIVATE SEWER SYSTEMS 2) AREA TABULATION

b. AREA OF 100 YEAR FLOODPLAIN (APPROX.) c. AREA OF STEEP SLOPES (25% OR GREATER) .0.00 Ac. AREA OF STEEP SLOPES LESS THAN 10 VERT. FEET PLUS AREAS OF STEEP SLOPES WITHIN FLOODPLAIN 0.16 Ac. ± d. NET AREA OF SITE (PHASE 2, AREA 2) . 3.23 Ac.± e. AREA OF THIS PLAN SUBMISSION 3.24 Ac.± LIMIT OF DISTURBANCE (APPROX.) 1.5 Ac.± AREA OF PROPOSED BUILDABLE LOT 1.28 Ac.± . AREA OF NON-BUILDABLE LOTS 0.00 Ac. AREA OF BUILDABLE PRESERVATION PARCELS ..1.96 Ac.± AREA OF PROPOSED PUBLIC ROAD .0.00 Ac. AREA OF PROPOSED PUBLIC R/W DEDICATION . 0.00 Ac. DENSITY TABULATION a. NET AREA OF OVERALL SITE .. 22.45 Ac.± . TOTAL NUMBER OF LOTS ALLOWED PER ZONING 1 UNIT PER 4.25 GROSS ACRES ALLOWED BY RIGHT...

1 UNIT PER 2 NET ACRES (MAX) PER DEO PROVISION....... 1° 4) UNIT/LOT TABULATION

a. TOTAL NUMBER OF BUILDABLE LOTS PROPOSED ON THIS SUBMISSION, F-22-035 & F-18-081 ... b. TOTAL NUMBER OF NON-BUILDABLE PRESERVATION PARCELS PROPOSED ON THIS SUBMISSION c. TOTAL NUMBER OF BUILDABLE PRESERVATION PARCELS PROPOSED ON THIS SUBMISSION

d. TOTAL NUMBER OF LOTS PROPOSED ON

APPROVED: DEPARTMENT OF PUBLIC WORKS

3/5/2024 CHIEF. BUREAU OF HIGHWAYS 4DA4C2 APPROVED: DEPARTMENT OF PLANNING AND ZONING 3/6/2024 CHIEF, DIVISION OF LAND DEVELOPMENT

(HdD Edmondson

CHIEF, DEVELOPMENT ENGINEERING DIVISION

3/4/2024

DATE

20. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE. 21. THERE ARE NO EXISTING STRUCTURES ON NON-BUILDABLE BULK

22. AN ALTERNATIVE COMPLIANCE (WP-24-028, CLARKSVILLE CROSSING, PHASE 2. AREA 1) TO SECTION 16.114 (r) AND (a) OF THE HOWARD COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATION WAS APPROVED ON OCTOBER 11, 2023. THE ALTERNATIVE COMPLIANCE WAS APPROVED SUBJECT TO ONE CONDITION: THE DEADLINE FOR SUBMISSION OF FINAL PLAT ORIGINALS IS EXTENDED 100 DAYS FROM THE ORIGINAL SUBMISSION DATE OF AUGUST 26TH, 2023 (ON OR BEFORE DECEMBER 4, 2023).

THIS AREA DESIGNATES A PRIVATE SEWAGE DISPOSAL AREA OF AT LEAST 10,000 SQUARE FEET AS REQUIRED BY THE MARYLAND DEPARTMENT OF THE ENVIRONMENT FOR INDIVIDUAL SEWAGE DISPOSAL. IMPROVEMENTS OF ANY NATURE IN THIS AREA ARE RESTRICTED. THIS SEWAGE DISPOSAL AREA SHALL BECOME NULL AND VOID UPON CONNECTION TO A PUBLIC SEWERAGE SYSTEM THE COUNTY HEALTH OFFICER SHALL HAVE AUTHORITY TO GRANT ADJUSTMENTS TO THE PRIVATE SEWAGE DISPOSAL AREA. RECORDATION OF A REVISED SEWAGE DISPOSAL AREA SHALL NOT BE NECESSARY.

24. THE LOTS SHOWN HEREON COMPLY WITH THE MINIMUM OWNERSHIP WIDTH AND LOT AREA AS REQUIRED BY THE MARYLAND DEPARTMENT OF THE ENVIRONMENT 25. ALL WELLS AND SEPTIC FIELDS WITHIN 100 FEET OF THE PROPERTY HAVE BEEN SHOWN.

26. ALL WELLS ARE TO BE DRILLED PRIOR TO SUBMITTAL OF THE RECORD PLAT FOR SIGNATURE, IT IS THE DEVELOPERS RESPONSIBILITY TO SCHEDULE THE WELL DRILLING PRIOR TO THE FINAL PLAT SUBMISSION. IT WILL NOT BE CONSIDERED 'GOVERNMENT DELAY' IF THE WELL DRILLING HOLDS UP THE HEALTH DEPARTMENT'S SIGNATURE OF THE RECORD PLAT. ALL PROPOSED LOTS ALREADY CONTAIN A DRILLED WELL. 27. WAIVER PETITION WP-13-075. A REQUEST TO WAIVE SUBSECTIONS

16 144(K)(3)(i) OF THE HOWARD COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS WAS APPROVED ON DECEMBER 20, 2012 SUBJECT TO THE FOLLOWING CONDITIONS THE ENVIRONMENTAL CONCEPT PLAN WAS SUBMITTED 30-DAYS PRIOR TO THE SUBMISSION OF THE FINAL PLAN. 2. THE FINAL PLAN SUBMISSION WAS SUBMITTED TO DPZ ON JULY 28.

3. COMPLIANCE WITH PREVIOUS COMMENTS FROM THE DEVELOPMENT ENGINEERING DIVISION AND THE HEALTH DEPARTMENT. 28. WAIVER PETITION, WP-14-006, A REQUEST TO WAIVE SUBSECTIONS 16.144(K)(3)(I) OF THE HOWARD COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS WAS APPROVED ON AUGUST 22, 2013 SUBJECT TO THE FOLLOWING CONDITIONS:

1 THE APPLICANT MUST REDESIGN THE STORMWATER MANAGEMENT FOR THIS SUBDIVISION TO MEET THE CURRENT ENVIRONMENTAL SITE DESIGN (ESD) REQUIREMENTS, AND THEREFORE, THE MAY 4, 2013 MDE GRAND-FATHERING DEADLINE IS NO LONGER APPLICABLE TO THIS PROJECT'S DEADLINE. THE ENVIRONMENTAL CONCEPT PLAN MUST BE APPROVED PRIOR TO

THE SUBMISSION OF THE FINAL PLAN. THE FINAL PLAN SUBMISSION WAS SUBMITTED TO DPZ ON JANUARY ENGINEERING DIVISION AND THE HEALTH DEPARTMENT PER

5. ADVISORY: FUTURE REQUESTS FOR ADDITIONAL EXTENSIONS TO THE VARIOUS DEADLINE DATES WILL NOT BE GRANTED. 29. WAIVER PETITION, WP-14-053, WAS APPROVED ON JANUARY 6 2014 TO SECTION 16.116(a)(1) AND 16.116(a)(2)(i) WHICH STATES GRADING, REMOVAL OF VEĞÉTATIVE COVER AND TRÊÉS, PAVING AND NEW STRUCTURES SHALL NOT BE PERMITTED WITHIN 25' OF A WETLAND AND WITHIN 50' OF AN INTERMITTENT STREAMBANK: SECTION 16.120(b)(4)(iii)b HOWARD COUNTY CONTROLLED, LAST TWO INTERSECTIONS ARE STATE WHICH PROHIBITS STREAM BUFFERS ON RESIDENTIAL LOTS LESS THAN 10 ACRES; AND SECTION 16.1205(a)(10) WHICH CONSIDERS SPECIMEN ON OCTOBER 10, 2008 PRIOR TO THE STATES ADOPTION OF SB-666 IT WAS DETERMINED THAT THE WAIVER FOR SPECIMEN TREE REMOVAL IS NOT REQUIRED SINCE THIS PROJECT WOULD BE CONSIDERED

> GRAND—FATHERED. APPROVAL IS SUBJECT TO THE FOLLOWING THE APPLICANT MUST CONTACT MDE FOR ANY NECESSARY PERMITS FOR DISTURBANCES TO THE ENVIRONMENTAL FEATURES. THE MDE TRACKING PERMIT NUMBER MUST BE ADDED TO ALL PLAN SUBMISSIONS

DEVELOPMENT ENGINEERING DIVISION ISSUED UNDER F-14-048 AND ECP-13-072 ON ALL FUTURE SUBDIVISION PLANS AND BUILDING PERMIT

PLANS, PROVIDE A BRIEF DESCRIPTION OF WAIVER PETITION WP-14-053, AS A GENERAL NOTE TO INCLUDE REQUESTS, ECTIONS OF THE REGULATIONS AND DATE. WAIVER PETITIONS WP-13-075 WP-14-006 AND WP-14-05 HAVE EXCEEDED THE MILESTONE DATES ASSOCIATED WITH THEIR VALIDITY DRIVEWAYS SHALL BE PROVIDED PRIOR TO ISSUANCE OF A USE AND CCUPANCY PERMIT FOR ANY NEW DWELLINGS FOR FIRE AND WIDTH - 12' AND (16' SERVING MORE THAN ONE RESIDENCE).

) SURFACE - 6" OF COMPACT CRUSHER RUN BASE WITH TAR AND C) GEOMETRY - MAX. 15% GRADE, MAX. 10% GRADE CHANGE & MIN. 45' TURNING RADIUS. D) STRUCTURES (CULVERTS/BRIDGES) - CAPABLE OF SUPPORTING 25

GROSS TONS (H25 LOAD) DRAINAGE FLEMENTS - CAPABLE OF SAFELY PASSING 100 YEAR FLOOD PLAIN WITH NO MORE THAN 1 FOOT DEPTH OVER DRIVEWAY. STRUCTURE CLEARANCES - MINIMUM 12 FEET MAINTENANCE - SUFFICIENT TO INSURE ALL WEATHER USE

PREVIOUS HOWARD COUNTY FILE NUMBERS: ECP-13-077 SP-07-013, F-14-048, WP-13-075, WP-14-006, WP-14-053, WP-18-099, F-18-081, WP-20-016, SP-20-01, WP-23-045,

33. ALTERNATIVE COMPLIANCE, WP-18-099, HAS BEEN APPROVED BY HOWARD COUNTY DIRECTOR OF PLANNING AND ZONING DATED JUNE 13, 2018. APPROVAL IS SUBJECT TO THE FOLLOWING CONDITIONS: THE ALTERNATIVE COMPLIANCE PETITION NUMBER (WP-18-099) AND ITS CONDITIONS OF APPROVAL MUST BE ADDED TO ALL

SUBDIVISION PLANS AND FINAL PLAT, F-18-081. THE DEVELOPER SHALL PLANT TWENTY-FOUR (24) 3" MINIMUM CALIPER NATIVE SHADE TREES IN ADDITION TO THE REQUIRED PERIMETER LANDSCAPING TO MITIGATE THE REMOVAL OF THE SPECIMEN TREES WILL BE BOUNDED WITH THE DEVELOPER'S AGREEMENT UNDER THE FINAL SUBDIVISION PLAN.

PROTECTIVE MEASURES SHALL BE UTILIZED DURING

CONSTRUCTION TO PROTECT THE SPECIMEN TREES THAT ARE PROPOSED TO REMAIN. INCLUDE DETAILS OF THE PROPOSED TREE PROTECTION MEASURES ON THE FINAL PLAN. THE ALTERNATIVE COMPLIANCE APPROVAL APPLIES ONLY TO THE TWELVE (12) SPECIMEN TREES TO BE REMOVED AS SHOWN ON THE WAIVER PLAN EXHIBIT. THE REMOVAL OF ANY OTHER SPECIMEN TREES ON THE PROPERTY IS NOT PERMITTED UNLESS CAN BE SUFFICIENTLY DEMONSTRATED BY THE APPLICANT TO NO DISTURBANCE SHALL BE PERMITTED WITHIN ENVIRONMENTAL

ISE-IN-COMMON DRIVEWAY ENTRANCE AS SHOWN ON FINAL

FEATURES AND REQUIRED BUFFERS EXCEPT FOR THE

NECESSARY ENVIRONMENTAL DISTURBANCES FOR THE

34. THE PREVIOUSLY EXISTING WELL, HO-81-1246, WAS SEALED AND THE WELL ABANDONMENT REPORT SUBMITTED TO THE HEALTH DEPARTMENT PRIOR TO HEALTH DEPARTMENT SIGNATURE OF THE RECORD PLAT FOR

35. ALL WELLS ESTABLISHED IN THIS SUBDIVISION MUST BE SAMPLED AT YIELD TEST AND SAMPLES ANALYZED FOR RADIUM AND/OR DEGRADATION PRODUCTS GROSS ALPHA AND GROSS BÉTA. 36. THE DEVELOPER REQUESTED A WAIVER TO DESIGN MANUAL, VOLUME II

SECTION 2.6.B. THAT REQUIRES A SHARED DRIVEWAY THAT CROSSES A 100-YEAR FLOODPLAIN TO BE A PUBLIC ACCESS PLACE AND THE DRAINAGE ELEMENT WITHIN THE 100-YEAR FLOODPLAIN TO OVERTOP THE EXISTING DRIVEWAY BY NO MORE THAN 1'. BASED ON THE INFORMATION PROVIDED WITH THE SUBMITTAL, HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING HAS APPROVED THE REQUEST IN A LETTER DATED JUNE 20, 2018. STORMWATER MANAGEMENT SHALL BE PROVIDED FOR THIS PROJECT

BASED ON GUIDELINES ESTABLISHED BY THE 2000 MARYLAND STORMWATER DESIGN MANUAL VOLUMES I & II AS AMENDED BY THE STORMWATER MANAGEMENT ACT OF 2007. ENVIRONMENTAL SITE DESIGN METHODS SHALL BE UTILIZED, INCLUDING NON-ROOFTOP DISCONNECTION (N-2), DRY WELLS (M-5), AND MICRO-BIORETENTION (M-6) FACILITIES. ALL FACILITIES ARE TO BE PRIVATELY OWNED AND .38. THE STORMWATER MANAGEMENT SYSTEMS SHOWN ON THIS PLAN AR

SUBJECT TO DESIGN CHANGES ON THE BUILDING PERMIT PLAN THAT 39. A PLANNING BOARD HEARING AND APPROVAL IS REQUIRED FOR THIS SUBDIVISION. THE PRELIMINARY FOUIVALENT SKETCH PLAN WAS APPROVED BY THE THE PLANNING BOARD ON JUNE 30, 2021, PB

DISTRICT VOLUNTEER FIRE DEPARTMENT. 41. PER SECTION 105.0.G.2. OF THE ZONING REGULATIONS, THE DESIGN OF THIS CLUSTER SUBDIVISION REFLECTS THE INTENDED PRINCIPAL USE OF THE PRESERVATION PARCEL, RESIDENTIAL USE, BY PROVIDING A BUFFER BETWEEN CLUSTER LOTS AND ADJACENT NON-CLUSTER LOT HAVING THE SIZE OF THE PARCEL LIMITED TO LESS THAN 2.0 ACRES WITHOUT ENVIRONMENTAL FEATURES AND BY AVOIDING FRAGMENTATION

OF PRESERVATION PARCELS. THIS PARCEL WILL BE ENCUMBERED WITH A PERPETUAL FASEMENT RECORDED SIMULTANEOUSLY WITH THE PLAT THE DEVELOPER WILL ENTER INTO AN AGREEMENT TO PAY A FEE-IN-LIEU OF THE CONSTRUCTION FOR THE MODERATE INCOME HOUSING UNIT REQUIREMENT AT THE FINAL PLAN STAGE 43. THIS PROPERTY IS DESIGNATED A TIER III PROPERTY PER THE

SUSTAINABLE GROWTH AND AGRICULTURAL PRESERVATION ACT OF 2012. MAP 34 . AS APPROVED BY THE HOWARD COUNTY COUNCIL AS PART OF PLAN HOWARD 2030. PERCOLATION CERTIFICATION PLAN

45. THIS SUBDIVISION IS NOT LOCATED ON A SCENIC ROAD. 46. ALTERNATIVE COMPLIANCE (WP-20-016) TO THE HOWARD COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS FOR CLARKSVILLE CROSSING, PHASE 2, WAS APPROVED.

ON SEPTEMBER 17, 2020, AND PURSUANT TO SECTION 16.1216, THE DIRECTOR OF THE DEPARTMENT OF PLANNING AND ZONING, DIRECTOR OF RECREATION AND PARKS AND ADMINISTRATOR OF COMMUNITY SUSTAINABILITY CONSIDERED AND APPROVED A REQUEST FOR A VARIANCE WITH RESPECT TO SECTION 16.1205(A)(3) OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS TO REMOVE 13 OR THE 104 SPECIMEN TREES IDENTIFIED ON SITE. THE FINAL DECISION ACTION PLAN REPORT CONTAINS ADDITIONAL INFORMATION. CONDITIONS FOR APPROVAL OF SECTION

THE ALTERNATIVE COMPLIANCE APPROVAL APPLIES ONLY TO SPECIMEN TREES #3, #4, #24, #31, #34, #35, #40, #41, #57, #74, #77, #80, AND #83 AS SHOWN ON THE ALTERNATIVE COMPLIANCE PLAN EXHIBIT. THE REMOVAL OF ANY OTHER SPECIMEN TREES ON THE SUBJECT PROPERTY IS NOT PERMITTED UNDER THIS APPROVAL. PROTECTIVI MEASURES SHALL BE UTILIZED DURING CONSTRUCTION TO PROTECT TH SPECIMEN TREES THAT ARE PROPOSED TO REMAIN. INCLUDE DETAILS SUBDIVISION PLANS.

THE REMOVAL OF SPECIMEN TREES #3, #4, #24, #31, #34, #35, #40, #41, #57, #74, #77, #80, AND #83 WILL REQUIRE THE PLANTING OF OF 3" DIAMETER AT BREAST HEIGHT AND SHALL BE SHOWN ON THE LANDSCAPE AND FOREST CONSERVATION PLAN SHEETS AS PART OF THE FINAL SUBDIVISION PLANS FOR PHASE 2. THE TREES WILL BE BONDED ALONG WITH THE REQUIRED PERIMETER LANDSCAPING

DIRECTOR OF THE DEPARTMENT OF PLANNING AND ZONING. CONSIDERED AND APPROVED A REQUEST FOR ALTERNATIVE COMPLIANCE WITH RESPEC TO SECTION 16.120(C)(2) OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS TO ALLOW LOTS 7-12 (NOW 6-11) OF THE CLARKSVILLE CROSSING SUBDIVISION TO SHARE AN ACCESS EASEMENT INSTEAD OF PROVIDING PUBLIC ROAD FRONTAGE. CONDITIONS FOR APPROVAL OF SECTION 16.120(C)(2)

1. A PLAT OF REVISION FOR LOT 19 OF THE GREENE FIELDS SUBDIVISION PROVIDING THE SHARED ACCESS EASEMENT TO SERVE LOTS 7-12 (NOW 6-11) MUST BE RECORDED PRIOR TO THE RECORDATION OF THE FINAL PLAT FOR CLARKSVILLE CROSSING, PHASE 2. 2. A USE-IN-COMMON MAINTENANCE AGREEMENT FOR LOTS 7-12 (NOW 6-11) MUST BE RECORDED WITH THE PLAT OF REVISION OF LOT 19 OF 47. ON AUGUST 1, 2019, BGE APPROVED THE PLAN AS LONG AS TREES WERE NOT PLANTED UNDER THE POWELINES.

48. ALL WELL LOCATIONS AND REPLACEMENT AREAS MUST BE AT LEAST 50 FEET FROM ALL ROADSIDE SWALES OR. AS AN ALTERNATIVE. UTILIZE CURB AND GUTTER ROADWAY DESIGN.

49. THE PRIVATE MAINTENANCE ACCESS AGREEMENT FOR CLARKSVILLE CROSSING, LOTS 1, 2, & 4 AND CLARKSVILLE CROSSING, PHASE 2, AREA 2. PARCEL 'D' AND LOT 11 SHALL BE RECORDED SIMULTANEOUSLY WITH THE RECORDATION OF THIS PLAT

50. DECLARATION OF COVENANTS. CONDITIONS AND RESTRICTIONS AND A DEED OF FOREST CONSERVATION EASEMENT IS TO BE RECORDED IN THE LAND RECORDS WITH THE RECORDATION OF CLARKSVILLE CROSSING, PHASE 2, AREA 1, PLAT. DECLARATION OF SHARED INGRESS, EGRESS, MAINTENANCE AND UTILITY EASEMENT IS RECORDED IN THE LAND RECORDS AT BOOK, 18836, PAGE 248, DATED JUNE 11, 2019.

51. THE ARTICLES OF INCORPORATION FOR CLARKSVILLE CROSSING HOMEOWNERS ASSOCIATION, INC., WERE FILED ON 10/01/2021, DEPARTMENT ID D22239404. . USING THE CEO/DEO DESCRIBED IN SECTION 106 OF THE ZONING REGULATIONS, THE DEVELOPMENT RIGHTS FOR CLARKSVILLE CROSSING OF THESE 2 RESIDENTIAL UNITS HAVE BEEN TRANSFERRED BY THE CLARKSVILLE CROSSING. PHASE 2. AREA 1 PLAT. THE CREATION OF THESE LOTS IS BASED ON A MAXIMUM DENSITY OF ONE RESIDENTIAL UNIT FOR EVERY TWO NET ACRES (GROSS MINUS FLOODPLAIN AND

53. FOR FLAG OR PIPESTEM LOTS REFUSE COLLECTION, SNOW REMOVAL
AND ROAD MAINTENANCE ARE PROVIDED TO THE JUNCTION OF THE FLAG OR PIPESTEM AND THE ROAD RIGHT-OF-WAY ONLY AND NOT ONTO THE 54. PRESERVATION PARCEL D IS ENCUMBERED BY AN EASEMENT AGREEMENT WITH HOWARD COUNTY AND CLARKSVILLE CROSSING HOA AS THE EASEMENT HOLDERS. THIS AGREEMENT PROHIBITS FURTHER

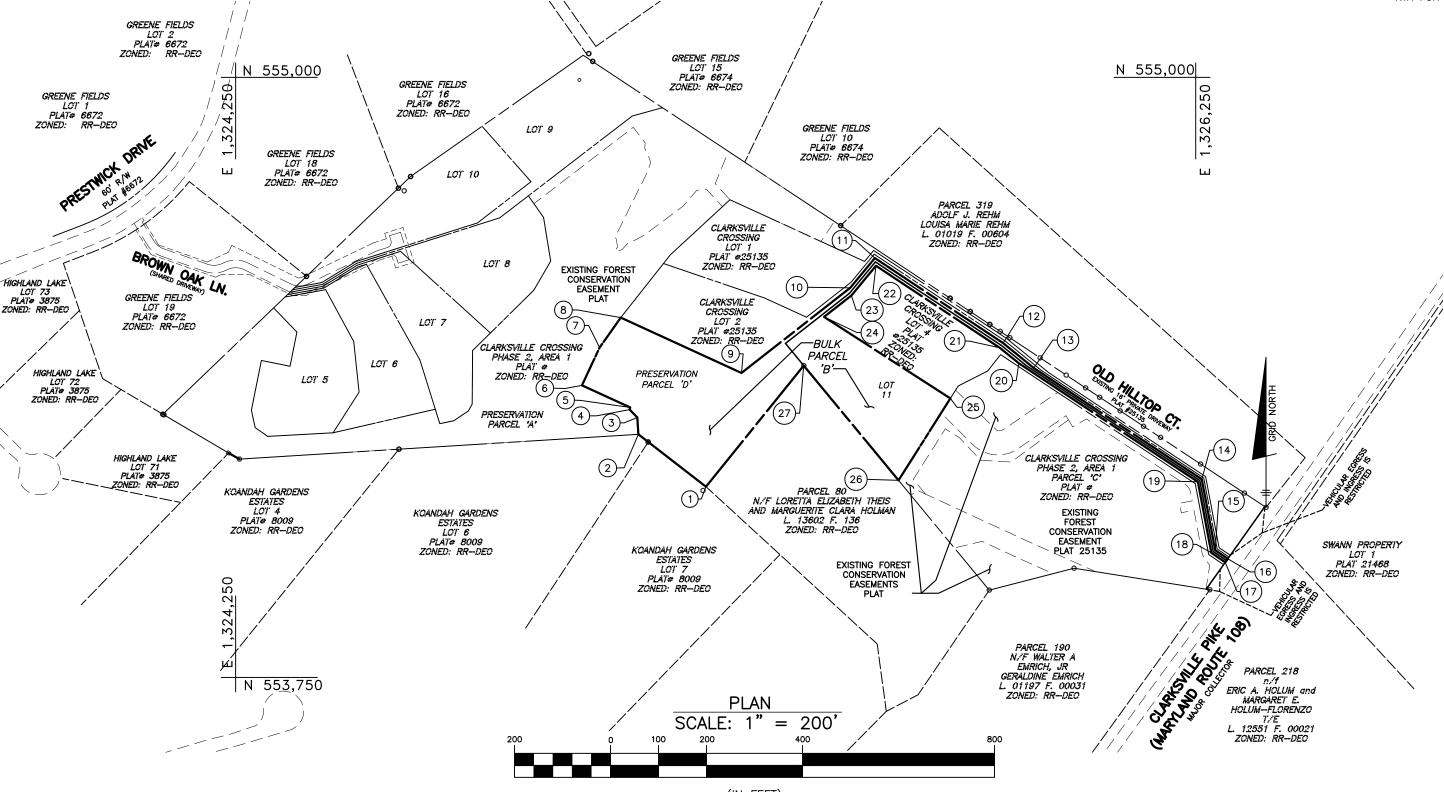
RESPONSIBILITIES OF ITS OWNER AND ENUMERATES THE USES PERMITTED 55. PARCEL 'A' IS OWNED BY THE HOA WITH AN EASEMENT HELD BY HOWARD COUNTY, MARYLAND. PARCEL 'A' IS FOR ENVIRONMENTAL PRESERVATION. PARCEL 'C' IS OWNED BY THE HOA WITH AN EASEMENT HELD BY HOWARD COUNTY, MARYLAND. PARCEL 'C' IS FOR ENVIRONMENTAL PRESERVATION. PARCEL 'D' IS PRIVATELY OWNED WITH AN FASEMENT HELD BY HOWARD COUNTY MARYLAND AND THE

HOMEOWNERS ASSOCIATION. PARCEL 'D' IS A BUILDABLE PRESERVATION

SUBDIVISION OF THE PARCEL, OUTLINES THE MAINTENANCE

CLARKSVILLE CROSSING, PHASE 2, AREA 2 FINAL PLAN

BUILDABLE LOT 11 AND BUILDABLE PRESERVATION PARCEL 'D' TAX MAP 34, GRID 23, P/O PARCEL 301 5TH ELECTION DISTRICT, HOWARD COUNTY, MD



Number

11 6517 Old Hilltop Court

MBR #6

DW Lot 7 #6 - #9

Parcel 'D' 6513 Old Hilltop Court

All lots are in Highland, MD 20777

Parcel 'D'

DENSITY C	HART
RECEIVING PARCEL INFORMATION	TAX MAP 34, GRID 23, PARCEL 301
TOTAL AREA OF SUBDIVISION	24.55 AC
DENSITY UNITS ALLOWED BY RIGHT	24.53 / 4.25 = 5 D.U.
MAXIMUM DEO UNITS ALLOWED	22.45 / 2 = 11 D.U.*
TOTAL NUMBER OF UNITS PROPOSED (LOTS 1-4 AND PHASE 2, AREA 1)	9 (6 CLUSTER LOTS, PHASE 2, AREA 1) AND 3 EX. LOTS (F18–081 LOTS 1, 2 & 4).
CEO DENSITY UNITS RECEIVED FROM SENDING PARCEL	5
OFFICING DARGE	

NON-BUILDABLE BULK PARCEL 'B' SUBDIVISION HAS BEEN PROVIDED 2 DENSITY UNITS. THE TOTAL NUMBER OF UNITS HAS BEEN PROVIDED BY THE CLARKSVILLE CROSSING, PHASE 2, AREA 1 (F-22-035) PLAT. *NTA FOR MAXIMUM DENSITY UNITS ALLOWED AS FOLLOWS:

INFORMATION

TOTAL TRACT AREA (24.55 ac.) FLOODPLAIN AREA (-2.10 ac. STEEP SLOPES AREA (-0.16 ac.)

PHASE 2, AREA 1,

POINT #	NORTHING	EASTING
1	554159.1374	1325248.1999
2	554268.2421	1325107.2782
3	554303.1748	1325105.1085
4	554319.8099	1325089.0469
5	554324.1667	1325090.2608
6	554370.2344	1324989.7914
7	554448.8579	1325026.4823
8	554511.3674	1325070.6705
9	554396.0762	1325322.1094
10	554573.3010	1325548.5812
11	554635.3126	1325599.8644
12	554458.2919	1325867.1769
13	554406.4289	1325931.0041
14	554174.6473	1326281.0091
15	554026.7624	1326308.9967
16	554008.9199	1326335.1690
17	554001.5837	1326329.9524
18	554021.4259	1326300.8469
19	554169.2410	1326272.8725
20	554416.1955	1325899.9555
21	554448.6099	1325860.0635
22	554619.3499	1325602.2353
23	554557.4541	1325551.0478
24	554512.9031	1325494.1170
25	554342.9875	1325757.1774
26	554172.3631	1325649.3082
27	554411.4735	1325451.8093

ROAD AND STREET CLASSIFICATION

ARKING DRIVE AISLES: RESIDENTIAL AND

NON-RESIDENTIAL WITH NO MORE THAN

10 HEAVY TRUCKS PER DAY

LOCAL ROADS: ACCESS PLACE,

CUL-DE-SAC: RESIDENTIAL

ACCESS STREET

I NUMBER

No

No

No

Minimum

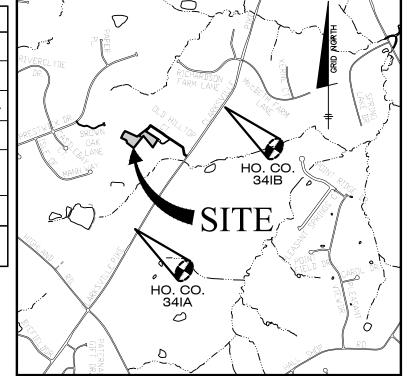
78.100

49.881

Yes

Yes

Yes



ADC MAP 31; GRID C4

HOWARD COUNTY BENCHMARKS

34IA: N 553,271.9128 E 1,325,838.7488 ELEV. 471.944	34IB: N 554,973.523 E 1,327,078.7 ELEV. 442.80
LEGEN	I <u>D</u>
SOILS CLASSIFICATION	GaB
SOILS DELINEATION	
EXISTING CONTOURS	<u>480</u> 478
PROPOSED CONTOURS	
EXISTINGTREE LINE	
PROPOSED TREE LINE	.~~~~
LIMIT OF DISTURBANCE	
DRAINAGE AREA	**********
PROPOSED STRUCTURE	
EXISTING STRUCTURE	

WELL BOX SEWAGE DISPOSAL AREA NON ROOFTOP DISCONNECT

SLOPES 15% TO 19.99%

SLOPES 20% TO 24.99% SLOPES 25% AND GREATER

CALIFORNIA BEARING RATIO (CBR) | 3 TO <5 | 5 TO <7 | >7 | 3 TO <5 | 5 TO <7 | >7 PAVEMENT MATERIAL (INCHES) | MIN HMA WITH GAB | HMA WITH CONSTANT GAB HMA SUPERPAVE FINAL SURFACE
9.5 MM PG 64-22, LEVEL 1 (LOW ESAL)
1.5 HMA SUPERPAVE INTERMEDIATE SURFACE 9.5 MM PG 64-22, LEVEL 1 (LOW ESAL) 1.5 HMA SUPERPAVE BASE 19.0 MM PG 64-22, LEVEL 1 (LOW ESAL) 2.0 2.0 2.0 3.5 GRADED AGGREGATE BASE (GAB) 8.0 4.0 3.0 4.0 4.0 4.0

P-2 PAVING DETAIL NOTE: ANY REPAIRS TO OLD HILLTOP LANE

HMA SUPERPAVE FINAL SURFACE (USE-IN-COMMON SHARED DRIVEWAY) IS TO HMA SUPERPAVE BASE-E P-2 PAVING SECTION. THE DESIGN GRADED AGGREGATE SPEED FOR OLD HILLTOP LANE IS 15 MPH.

SHEET INDEX TITLE NAL PLAN COVER SHEET NAL PLAN LAYOUT PLAN, EXISTING CONDITIONS AND SOILS MAP NAL PLAN GRADING, SEDIMENT & EROSION CONTROL PLAN AND SEDIMENT NTROL DRAINAGE AREA MAP
NAL PLAN COVER SHEET NAL PLAN LAYOUT PLAN, EXISTING CONDITIONS AND SOILS MAP NAL PLAN GRADING, SEDIMENT & EROSION CONTROL PLAN AND SEDIMENT
NAL PLAN LAYOUT PLAN, EXISTING CONDITIONS AND SOILS MAP NAL PLAN GRADING, SEDIMENT & EROSION CONTROL PLAN AND SEDIMENT
IAL PLAN GRADING, SEDIMENT & EROSION CONTROL PLAN AND SEDIMENT
•
NITROL DRAINAGE AREA MAR
IN INCL DIVALINAGE AND WAY
IAL PLAN SEDIMENT AND EROSION CONTROL NOTES & DETAILS
IAL PLAN STORMWATER MANAGEMENT PLAN
IAL PLAN STORMWATER MANAGEMENT NOTES AND DETAILS
IAL PLAN LANDSCAPE PLAN, NOTES AND DETAILS
NAL PLAN BORING LOGS
1



6800 DEERPATH ROAD SUITE 100 ELKRIDGE, MD 21075 410-579-2442 **DEVELOPER:** ROCK REALTY, INC, C/O H & H ROCK COMPANIES 6800 DEERPATH ROAD SUITE #100

ELKRIDGE, MARŸLAND 21075

410-579-2442

ESIGN: JC

DRAWN: JC

TO CREATE LOT 11 AND BUILDABLE PRESERVATION PARCEL 'D' GRID: 23 P/O PARCEL: 301 ZONED: RR-DEO ELECTION DISTRICT NO. 5 HOWARD COUNTY, MARYLAND FINAL PLAN **COVER SHEET**

BULK PARCEL 'B' (PLAT #)

FEBRUARY, 2024 BEI PROJECT NO: 2525 AS SHOWN SHEET of 10 F-24-032

Specimen Tree Chart - CLARKSVILLE CROSSING, PHASE 2, AREA 2 ONLY Size CRZ Remove or
 (X#)
 (inches DBH)
 (ft radius)
 Retain

 101
 Red Oak
 37.5
 56.25
 Retain

 102
 Tulip poplar
 36
 54.00
 Retain
 Minimum Lot Size Chart Pipestem Gross 103 Tulip poplar 32 48.00 Retain Area (SF) Area (SF) NOTE: ONLY THE SPECIMEN TREES IN THE VICINITY OF PHASE 2 85.080 6,980 AREA 2 ARE SHOWN. FOR A FULL LIST OF THE SPECIMEN TREES ON THE CLARKSVILLE CROSSING PROPERTY SEE F-22-035. 55.850 5.969 11

STORMWATER MANAGMENT PRACTICES

Non-Rooftop

Lots containing stormwater management practices are subject to a Declaration of Covenents

Disconnection

Well | Bioretention

Micro-bioretention M-6

Non-rooftop Disconnection N-2

Dry Well M-5

Non-rooftop Disconnection N-2

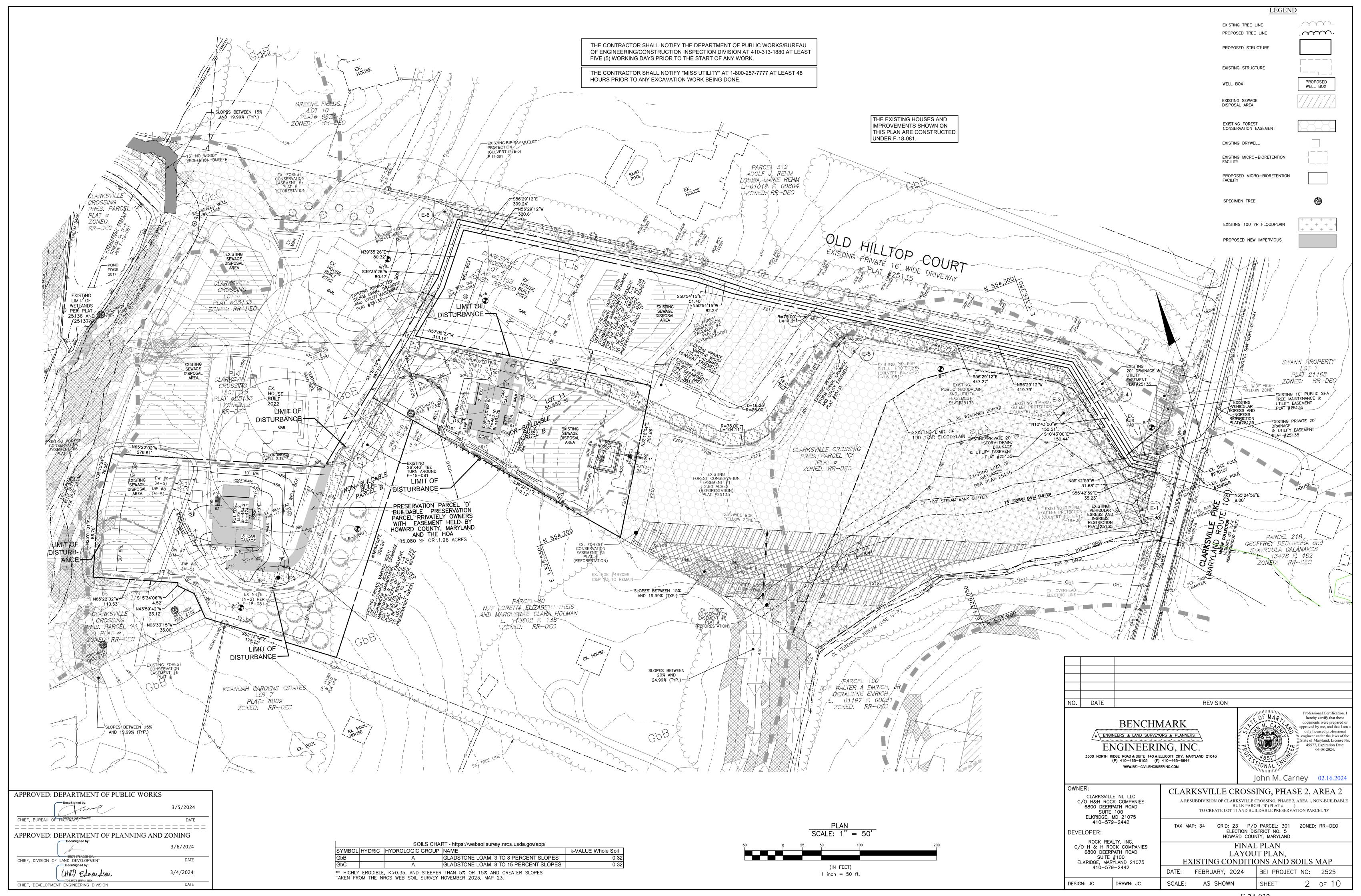
(M-6)

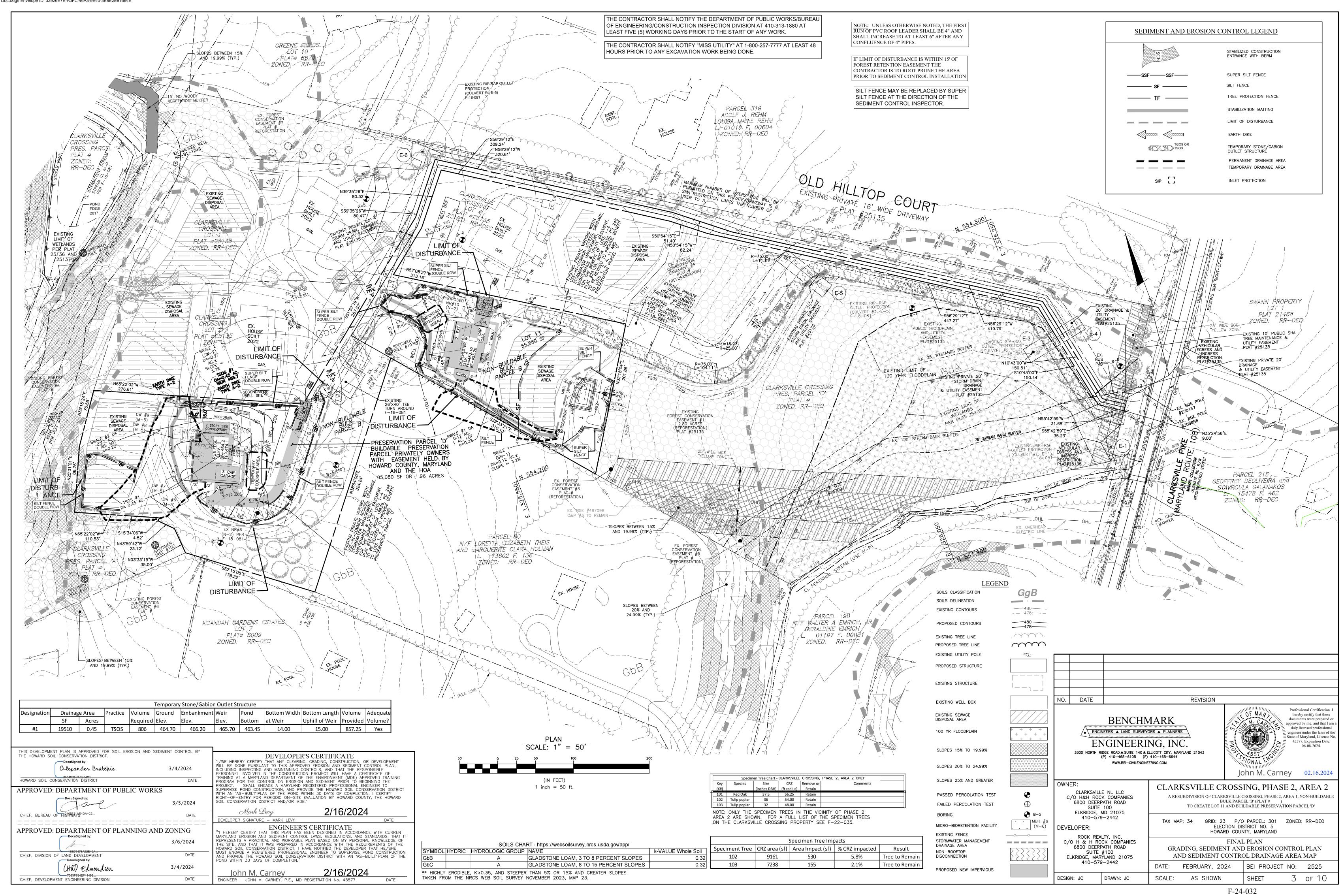
(M-5)

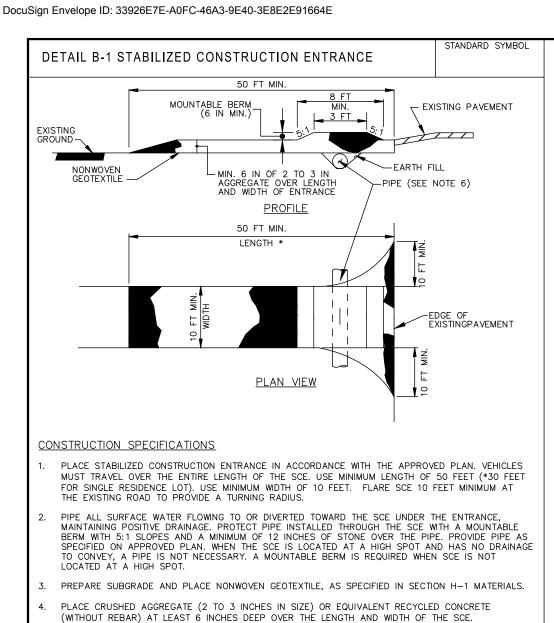
Stormwater Management Information

Lot/Parcel Number | Facility Name & Number | Practice Type (Quantity) | Public | Private | HOA Maintains |

SCALE:







MAINTAIN ENTRANCE IN A CONDITION THAT MINIMIZES TRACKING OF SEDIMENT. ADD STONE OR MAKE

ROADWAY TO REMOVE MUD TRACKED ONTO PAVEMENT IS NOT ACCEPTABLE UNLESS WASH WATER IS

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 VACULIMING SCRAPING AND/OR SWEEPING WASHING

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

DIRECTED TO AN APPROVED SEDIMENT CONTROL PRACTICE.

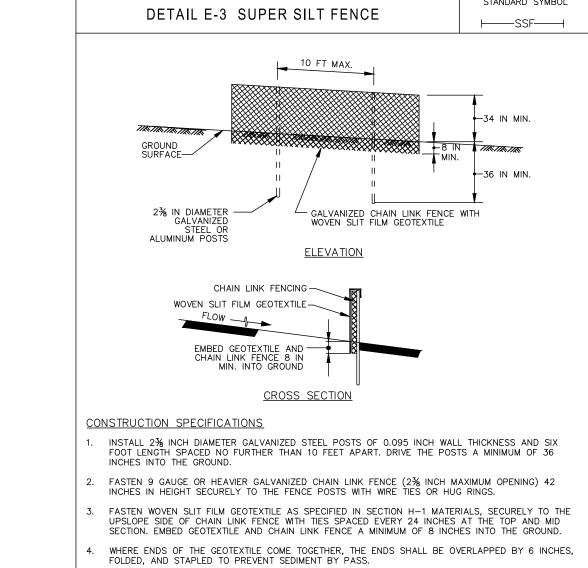
CHIEF, BUREAU OF HIGHWAYSE4DA4C2...

CHIEF, DIVISION OF LAND DEVELOPMENT

CHIEF, DEVELOPMENT ENGINEERING DIVISION

APPROVED: DEPARTMENT OF PLANNING AND ZONING

(HD) Edmondson

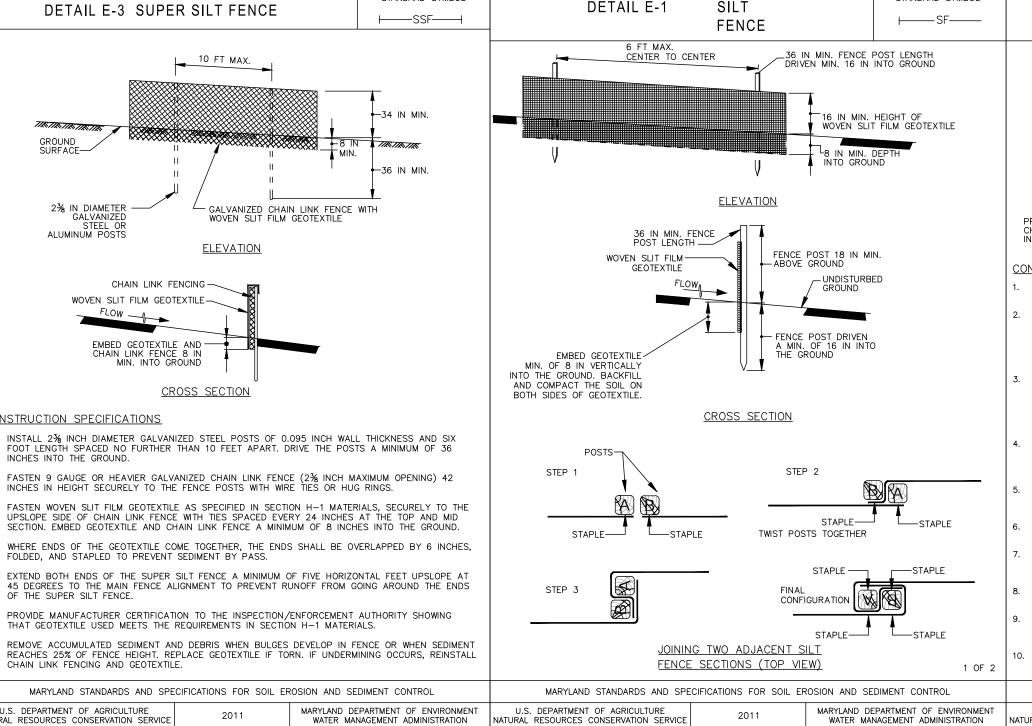


EXTEND BOTH ENDS OF THE SUPER SILT FENCE A MINIMUM OF FIVE HORIZONTAL FEET UPSLOPE AT

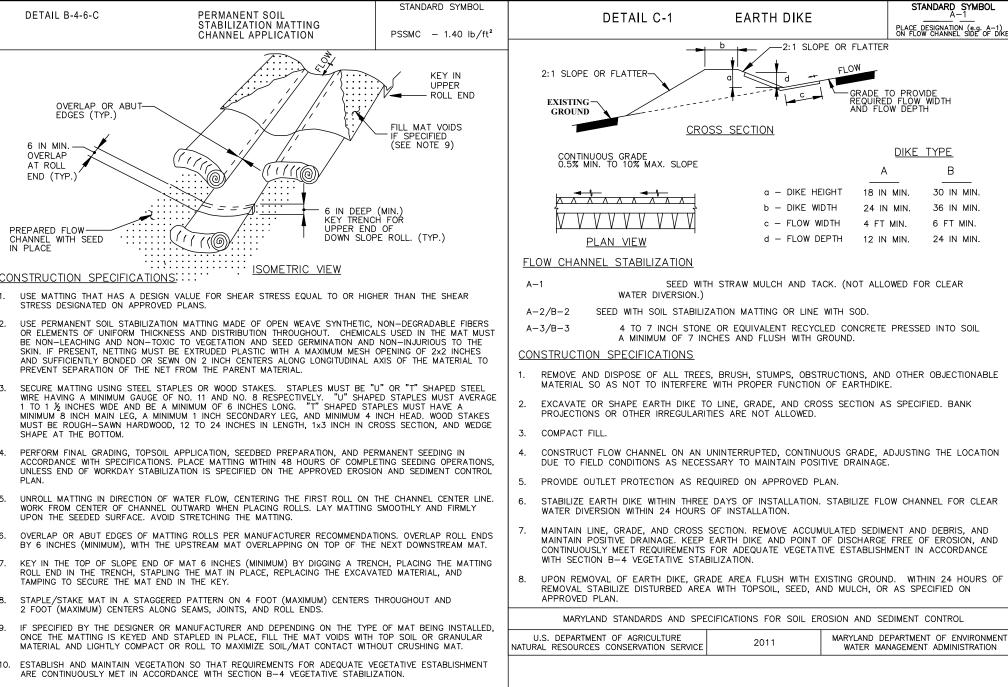
PROVIDE MANUFACTURER CERTIFICATION TO THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING

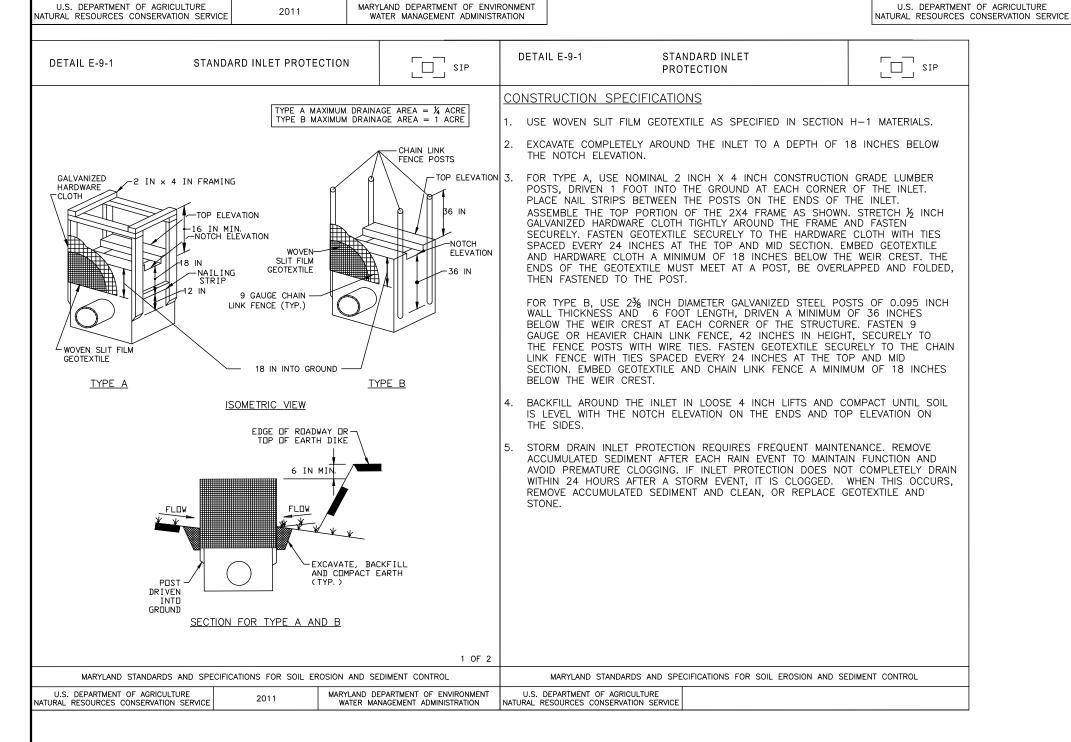
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

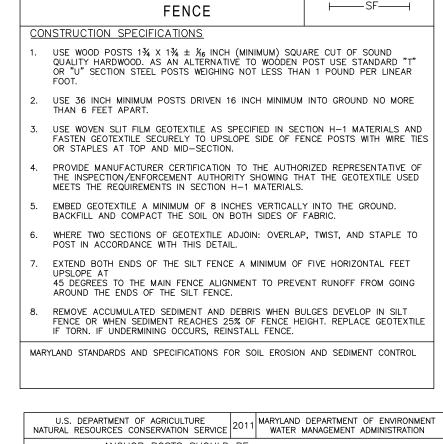
THAT GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS.



STANDARD SYMBOL

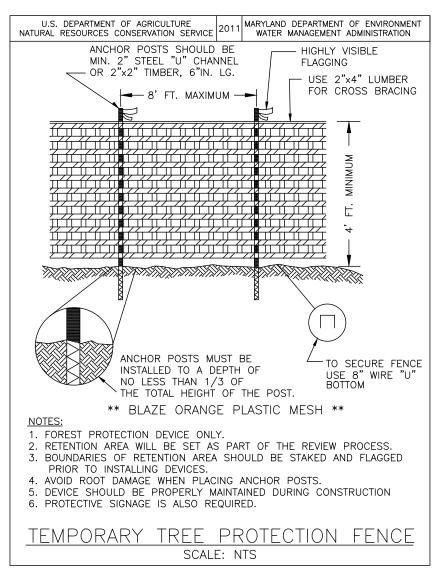


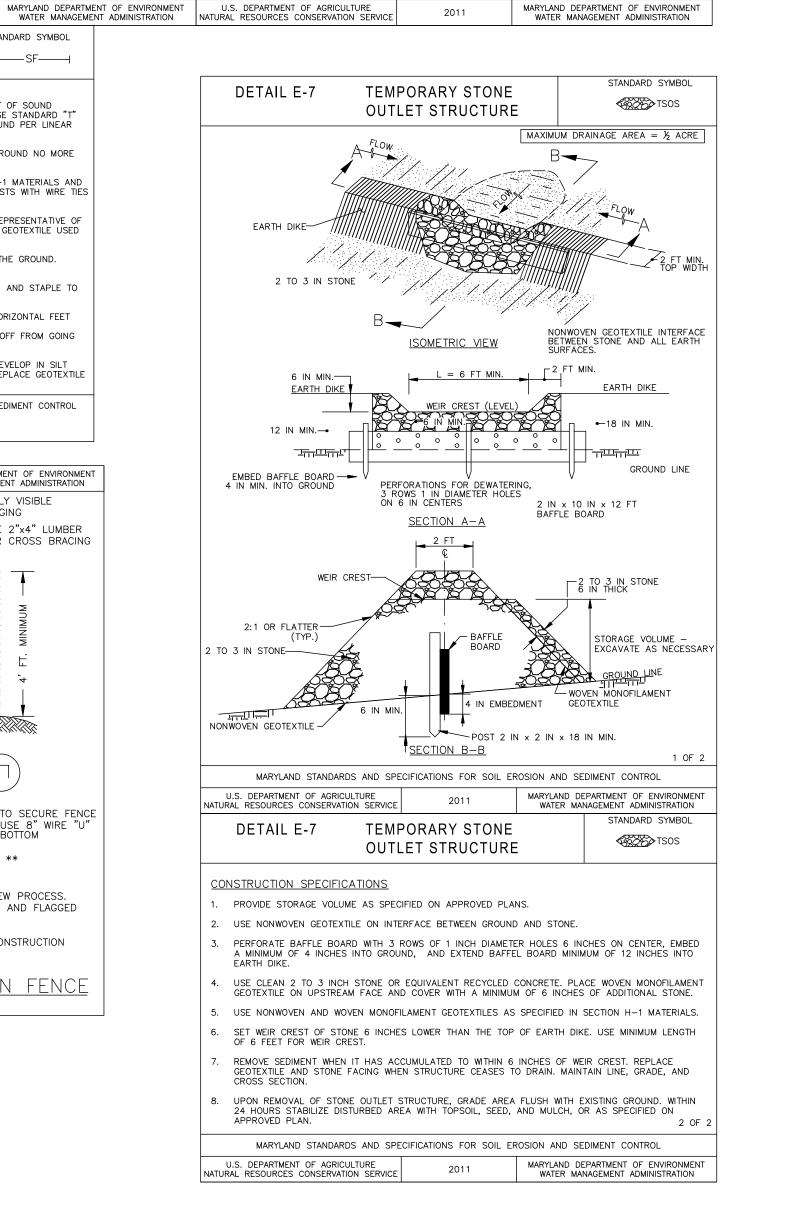




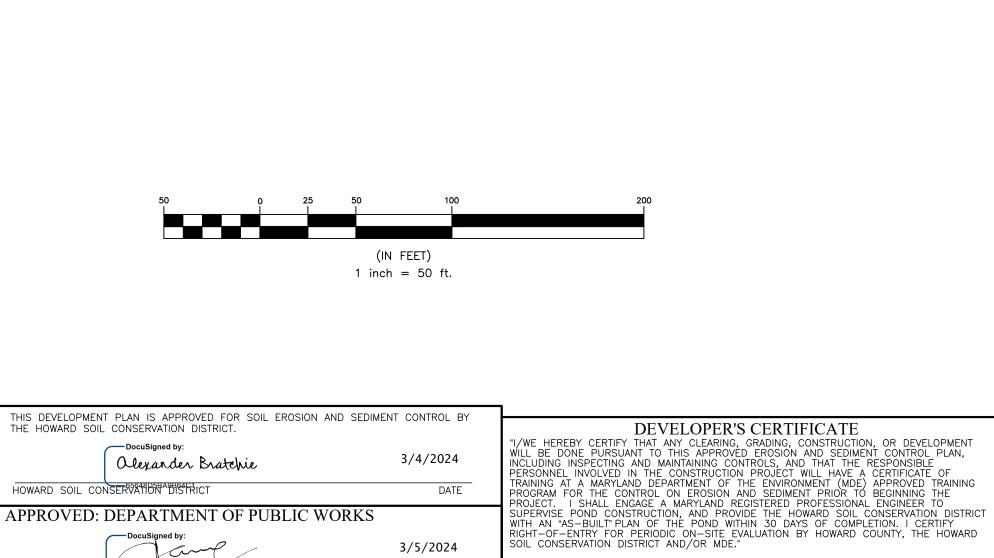
SILT

DETAIL E-1





MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL



3/6/2024

3/4/2024

DATE

Mark Levy

John M. Carney

SILT FENCE MAY BE REPLACED BY SUPER SILT FENCE AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR.

2/16/2024

2/16/2024

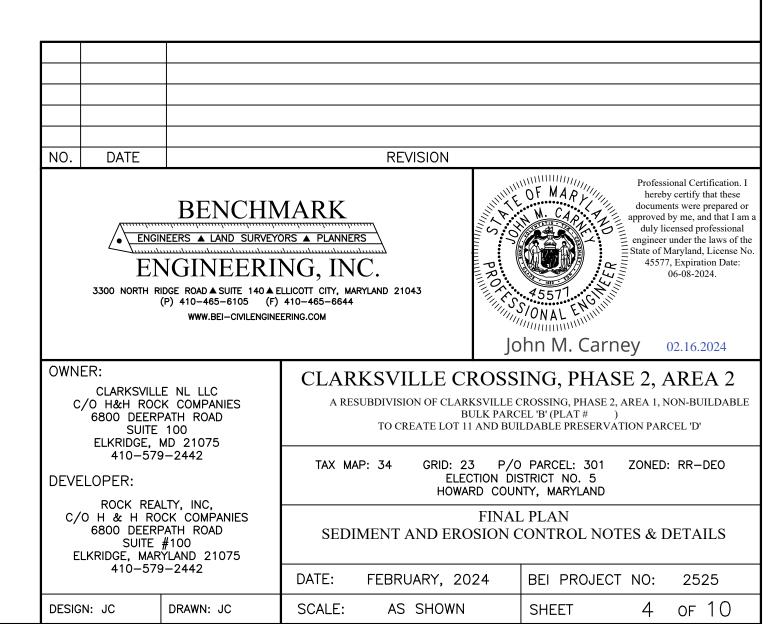
ENGINEER'S CERTIFICATE

ENGINEER'S CERTIFICATE

""I HEREBY CERTIFY THAT THIS PLAN HAS BEEN DESIGNED IN ACCORDANCE WITH CURRENT MARYLAND EROSION AND SEDIMENT CONTROL LAWS, REGULATIONS, AND STANDARDS, THAT IT REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE, AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

FNGINFER - JOHN M. CARNEY, P.F., MD REGISTRATION No. 45577

IF LIMIT OF DISTURBANCE IS WITHIN 15' OF FOREST RETENTION EASEMENT THE CONTRACTOR IS TO ROOT PRUNE THE AREA PRIOR TO SEDIMENT CONTROL INSTALLATION



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

<u>DIKE TYPE</u>

B-4 STANDARDS AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION utilion: Using vegetation as cover to protect exposed soil from erosion. To promote the establishment of vegetation on exposed soil. Conditions Where Practice Applies: On all disturbed areas not stabilized by other methods This specification is divided into sections on incremental stabilization; soil preparation, soil amendments and topsoiling; seeding and mulching; temporary stabilization; and permanent

Effects on Water Quality and Quantity: Stabilization practices are used to promote the establishment of vegetation on exposed soil. When soil is stabilized with vegetation, the soil is less likely to erode and more likely to allow infiltration of rainfall, thereby reducing sediment oads and runoff to downstream areas. Planting vegetation in disturbed areas will have an effect on the water budget, especially on volumes and rates of runoff, infiltration, evaporation. ranspiration, percolation, and groundwater recharge. Over time, vegetation will increase organic matter content and improve the water holding capacity of the soil and subsequent plant growth. Vegetation will help reduce the movement of sediment, nutrients, and other chemicals carried by runoff to receiving waters. Plants will also help protect groundwater supplies by assimilating those substances present within the root zone. Sediment control practices must remain in place during grading, seedbed preparation, seeding, mulching, and regetative establishment.

Adequate Vegetative Establishment
Inspect seeded areas for vegetative establishment and make necessary repairs, replacements, and reseedings within the planting season.

- . Adequate vegetative stabilization requires 95 percent groundcover 2. If an area has less than 40 percent groundcover, restabilize following the original B.
- mendations for lime, fertilizer, seedbed preparation, and seeding. 3. If an area has between 40 and 94 percent groundcover, over-seed and fertilize using half of the rates originally specified. Maintenance fertilizer rates for permanent seeding are shown in Table B.6.

B-4-1 STANDARDS AND SPECIFICATIONS FOR INCREMENTAL STABILIZATION finition: Establishment of vegetative cover on cut and fill slopes. <u>Purpose:</u> To provide timely vegetative cover on cut and fill slopes as work progresses.

Conditions Where Practice Applies: Any cut or fill slope greater than 15 feet in height. This practice also applies to stockpiles.

A. Incremental Stabilization - Cut Slopes 1. Excavate and stabilize cut slopes in increments not to exceed 15 feet in height. Prepare seedbed and apply seed and mulch on all cut slopes as the work progresses.

- 2. Construction sequence example (Refer to Figure B.1): a. Construct and stabilize all temporary swales or dikes that will be used to convey runoff around the excavation. b. Perform Phase 1 excavation, prepare seedbed, and stabilize.
- c. Perform Phase 2 excavation, prepare seedbed, and stabilize. Overseed Phase 1 areas as necessary. d. Perform final phase excavation, prepare seedbed, and stabilize. Overseed
- previously seeded areas as necessary.

 Note: Once excavation has begun the operation should be continuous from grubbing through he completion of grading and placement of topsoil (if required) and permanent seed and mulch. Any interruptions in the operation or completing the operation out of the seeding season will necessitate the application of temporary stabilization Incremental stabilization - fill slopes . Construct and stabilize fill slopes in increments not to exceed 15 feet in height.
- prepare seedbed and apply seed and mulch on all slopes as the work progres 2. Stabilize slopes immediately when the vertical height of a lift reaches 15 feet, or when the grading operation ceases as prescribed in the plans. 3. At the end of each day, install temporary water conveyance practice(s), as necessary, to intercept surface runoff and convey it down the slope in a non-erosive
- 4. Construction sequence example (refer to figure b.2): a. Construct and stabilize all temporary swales or dikes that will be used to divert runoff around the fill. construct silt fence on low side of fill unless other methods shown on the plans address this area. b. At the end of each day, install temporary water conveyance practice(s), as
- necessary, to intercept surface runoff and convey it down the slope in a c. Place phase 1 fill, prepare seedbed, and stabilize. d. Place phase 2 fill, prepare seedbed, and stabilize
- e. Place final phase fill, prepare seedbed, and stabilize. overseed previously seeded areas as necessary Note: once the placement of fill has begun the operation should be continuous from grubbing through the completion of grading and placement of topsoil (if required) and permanent seed and mulch, any interruptions in the operation or completing the operation out of the seeding season will necessitate the application of temporary stabilization. figure b.

B-4-2 STANDARDS AND SPECIFICATIONS FOR SOIL PREPARATION, TOPSOILING,
AND SOIL AMENDMENTS <u>Definition:</u> The process of preparing the soils to sustain adequate vegetative stabilization. o provide a suitable soil medium for vegetative growth. <u>Purpose: To provide a suitable soil medium for vegetative growar.</u>
<u>Conditions Where Practice Applies:</u> Where vegetative stabilization is to be established.

running parallel to the contour of the slope.

Soil Preparation

Designation

SW-|1

SW-l2

- 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 equipmen 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
- . 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
- 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

Study | Depth 'A' |

1.00

1.00

Point

| End |

l End l

Bottom | Side Slopes | Q2

3:1,3:1

3:1,3:1

2.00

2.00

FOR CONVEYANCE ONLY

GRASS SWALE TYPICAL SECTION DETAIL

BOTTOM WIDTH VARIES BETWEEN 0.0' AND 2.0'

SWALES SW-1 AND SW-2

i. Soil pH between 6.0 and 7.0

- ii. Soluble salts less than 500 parts per million (ppm). ii. 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 oderate amount of moisture. An exception: if love-grass 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. 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. Graded areas must be maintained in a true and even grade as specified on e approved plan, then scarified or otherwise loosened to a depth of 3 to 5 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.

1 Topsoil is placed over prepared subsoil prior to establishment of permanent regetation. The purpose is to provide a suitable soil medium for vegetative growth. Soils of concern have low moisture content, low nutrient levels, low pH, materials toxic to plants, and/or unacceptable soil gradation. 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. . Topsoiling is limited to areas having 2:1 or flatter slopes where: a. The texture of the exposed subsoil/parent material is not adequate to produce

vegetative growth.
b. The soil material is so shallow that the rooting zone is not deep enough to support plants or furnish continuing supplies of moisture and plant nutrients. . 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. 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 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 Topsoil substitutes or amendments, as recommended by a qualified agronomi or soil scientist and approved by the appropriate approval authority, may be used n lieu of natural topsoil. 6. Topsoil Application

a. Erosion and sediment control practices must be maintained when applying 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 c. Topsoil must not be placed if the topsoil or subsoil is in a frozen or muddy condition, when the subsoil is excessively wet or in a condition that may otherwise

be detrimental to proper grading and seedbed preparation.

C. Soil Amendments (Fertilizer and Lime Specifications)

1. Soil tests must be performed to determine the exact ratios and application rates for both lime and fertilizer on sites having disturbed areas of 5 acres or more. Soil analysis may be performed by a recognized private or commercial laboratory. Soil samples taken for engineering purposes may also be used for chemical analyses. 2. Fertilizers must be uniform in composition, free flowing and suitable for accurate application by appropriate equipment. Manure may be substituted for fertilizer with prior approval from the appropriate approval authority. Fertilizers must all be delivered to the site fully labeled according to the applicable laws and must bear the name, trade name or trademark and warranty of the producer. 3. Lime materials must be ground limestone (hydrated or burnt lime may be substituted except when hydroseeding) which contains at least 50 percent total oxides (calcium oxide plus magnesium oxide). Limestone must be ground to such fineness that at east 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 imestone at the rate of 4 to 8 tons/acre (200-400 pounds per 1,000 square feet) prior

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.

V2

EROSION CONTROL

MATTING REQUIRED

PLANTINGS

DESIGN FLOW

EROSION CONTROL

DATE

d2

0.12 | 1.12 | 0.05 | 0.18 | 1.16

0.26 | 1.45 | 0.08 | 0.39 | 1.70

Q10

V10

0.07

a All seed must meet the requirements of the Maryland State Seed I aw 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 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 c. Inoculants: The inoculant for treating legume seed in the seed mixtures must be a Conditions Where Practice Applies: Exposed soils where ground cover is needed for 6 pure culture of nitrogen fixing bacteria prepared specifically for the species. Inoculants nust not be used later than the date indicated on the container. Add fresh inoculants <u>Criteria</u>: 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. Application

d. Dry Seeding: This includes use of conventional drop or broadcast spreaders.

Incorporate seed into the subsoil at the rates prescribed on Temporary Seeding Table B.1, Permanent Seeding Table B.3, or site-specific seeding 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 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 Apply seed in two directions, perpendicular to each other. Apply half the seeding rate in each direction. :. Hydroseeding: Apply seed uniformly with hydroseeder (slurry includes seed and i. If fertilizer is being applied at the time of seeding, the application rates should no exceed the following: nitrogen, 100 pounds per acre total of soluble nitrogen; P2O5 (phosphorous), 200 pounds per acre; K2O (potassium), 200 pounds per 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 b hydroseeding at any one time. Do not use burnt or hydrated lime when

iii. Mix seed and fertilizer on site and seed immediately and without interruption. When hydroseeding do not incorporate seed into the soil. . Mulch Materials (in order of preference) a. Straw consisting of thoroughly threshed wheat, rve. 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 b. Wood Cellulose Fiber Mulch (WCFM) consisting of specially prepared wood celluloseprocessed into a uniform fibrous physical state.
i. WCFM is to be dyed green or contain a green dye in the package that will

ii.WĆFM, 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 atconcentration levels that will be phyto-toxic. v. WCFM must conform to the following physical requirements: fiber length of ximately 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.

rovide an appropriate color to facilitate visual inspection of the uniformly spread

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. 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 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

Lightweight plastic netting may be stapled over the mulch according to

manufacturer recommendations. Netting is usually available in rolls 4 to 15 feet

and on crests of banks. Use of asphalt binders is strictly prohibited.

needs to be heavier at the edges where wind catches mulch, such as in valleys

wide and 300 to 3,000 feet long. 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 B-4-5 STANDARDS AND SPECIFICATION FOR PERMANENT STABILIZATION ition: To stabilize disturbed soils with permanent vegetation. 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

<u>Purpose</u>: To use long-lived perennial grasses and legumes to establish permanent ground which would cause air drying of the roots. 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.

Sod Maintenance

next seeding season.

d. Water the sod immediately following rolling and tamping until the underside

Complete the operations of laying, tamping and irrigating for any piece of

of the new sod pad and soil surface below the sod are thoroughly well

a. In the absence of adequate rainfall, water daily during the first week or as

inches. Water sod during the heat of the day to prevent wilting.

a grass height of at least 3 inches unless otherwise specified.

B-4-4 STANDARDS AND SPECIFICATIONS FOR TEMPORARY STABLIZATION nition: To stabilize disturbed soils with vegetation for up to 6 months.

To use fast growing vegetation that provides cover on disturbed soils.

b. After the first week, sod watering is required as necessary to maintain

c. Do not mow until the sod is firmly rooted. No more than 1/3 of the grass

ns Where Practice Applies: Exposed soils where ground cover is needed for a period

remporary Seeding Summary below along with application rates, seeding dates

and seeding depths. If this Summary is not put on the plan and completed, ther

2. For sites having soil tests performed, use and show the recommended rates by

or straw mulch alone as prescribed in Section B-4-3.A.1.b and maintain until the

1. The stockpile location and all related sediment control practices must be clearly

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

3. Runoff from the stockpile area must drain to a suitable sediment control practice.

5.Clear water runoff into the stockpile area must be minimized by use of a diversion

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 stabilizatio

device such as an earth dike, temporary swale or diversion fence. Provisions must be

requirement as well as Standard B-4-1 Incremental Stabilization and Standard B-4-4

below the stockpile to facilitate cleanup. Stockpiles containing contaminated material

8. If the stockpile is located on an impervious surface, a liner should be provided

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

slopes, or 40 feet for 4:1 slopes, benching must be provided in accordance with

H-5 STANDARDS AND SPECIFICATIONS FOR DUST CONTROL
Controlling the suspension of dust particles from construction activities.

Section B-4-3 Seeding and Mulching, and Section B-4-4 Temporary Stabilization.

spring-toothed harrows, and similar plows are examples of equipment that may

similar material can be used to control air currents and soil blowing. 6. Chemical Treatment: Use of chemical treatment requires approval by the appropriate plan review authority.

Induce the desired effect.

Irrigation: Sprinkle site with water until the surface is moist. Repeat as needed. The site must not be irrigated to the point that runoff occurs.

5. <u>Barriers</u>: Solid board fences, silt fences, snow fences, burlap fences, straw bales.

windward side of site. Chisel-type plows spaced about 12 inches apart,

Vegetative Cover: See Section B-4-4 Temporary Stabilization.

Tillage: Till to roughen surface and bring clods to the surface. Begin plowing on

To prevent blowing and movement of dust from exposed soil surfaces to reduce on

dicated on the erosion and sediment control plan.

provided in accordance with Section B-3 Land Grading.

made for discharging concentrated flow in a non-erosive manner.

4. Access the stockpile area from the upgrade side.

must be covered with impermeable sheeting.

Mulch must be anchored to prevent blowing.

Section B-3 Land Grading.

produce the desired effect.

3. When stabilization is required outside of a seeding season, apply seed and mulch

1. Select one or more of the species or seed mixtures listed in Table B.1 for the

appropriate Plant Hardiness Zone (from Figure B.3), and enter them in the

the testing agency. Soil tests are not required for Temporary Seeding.

Table B.1 plus fertilizer and lime rates must be put on the plan.

longer duration of time, permanent stabilization practices are regid

leaf must be removed by the initial cutting or subsequent cuttings. Maintain

often and sufficiently as necessary to maintain moist soil to a depth of 4

a. Select one or more of the species or mixtures listed in Table B.3 for the appropriate Plant Hardiness Zone (from Figure B.3) and based on the site condition or purpose found on Table B.2. Enter selected mixture(s), application ates, 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

a. Areas where turfgrass may be desired include lawns, parks, playgrounds.

treatment may be found in USDA-NRCS Technical Field Office Guild, Section 342 - Critical Area Planting.
c. For sites having disturbed areas over 5 acres, use and show the rates ecommended by the soil testing agency.
d. For areas receiving low maintenance, apply urea form fertilizer (46-0-0) at $3\frac{1}{2}$ 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.

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 <u>Criteria</u>: site conditions or purpose. Enter selected mixture(s), application rates, and seeding dates in the PermanentSeeding Summary. The summary is to be placed 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 B-4-8 STANDARDS AND SPECIFICATIONS FOR STOCKPILE AREA inition: A mound or pile of soil protected by appropriately designed erosion and sediment o 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 Purpose: To provide a designated location for the temporary storage of soil that controls the rom 10 to 30 percent of the total mixture by weight. iii.Tall Fescue/Kentucky Bluegrass: Full Sun Mixture: For use in drought prone potential for erosion, sedimentation, and changes to drainage patterns. areas and/or for areas receiving low to medium management in full sun to medium shade. Recommended mixture includes; Certified Tall Fescue Cultivars alvage and store soil for later use. 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

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 10 percent and Certified Fine Fescue and 60 to 70 percent. Seeding Rate: 1 ½ to 3 pounds per 1000 squarefeet. 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

 Ideal Times of Seeding for Turf Grass Mixtures Western MD: March 15 to June 1, August 1 to October 1 (Hardiness Zones: 5b,6a) Central MD: March 1 to May 15, August 15 to October 15 ardiness Zone: 6b) Southern MD, Eastern Shore: March 1 to May 15, August 15 to October 15
(Hardiness Zones: 7a, 7b).

Maintenance:

The stockpile area must continuously meet the requirements for Adequate Vegetative

nsumer protection and assures a pure genetic line.

Till areas to receive seed by disking or other approved methods to a depth of 2 to 4 inches, level and rake the areas to prepare a proper seedbed. Remove stones and debris over 1 ½ 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 ant growth (½ to 1 inch every 3 to 4 days depending on soil texture) until they are firmly established. This is not especially true when seedings are made late in e planting season, in abnormally dry or hot seasons, or on adverse sites.

and off-site damage including health and traffic hazards. Sod: to provide quick cover on disturbed areas (2:1 grade or flatter). Conditions Where Practice Applies: Areas subject to dust blowing and movement where on and off-site damage is likely without treatment. General Specifications a. Class of turfgrass 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 Specifications:

1. Mulches: See Section B-4-2 Soil Preparation, Topsoiling, and Soil Amendments, minus ¼ inch, at the time of cutting. Measurement for thickness must exclude top growth and thatch. Broken pads and torn or uneven ends will not be 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.

(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. a. During periods of excessively high temperature or in areas having dry

subsoil, lightly irrigate the subsoil immediately prior to laying the sod.

d. Sod must not be harvested or transplanted when moisture content

Seeding Rate 1/ Recommended Seeding Dates by Plant Hardiness Zone 3/ lb/ac | lb/1000 ft² 5b and 6a 6b Annual Ryegrass (Lolium perent r 1 to May 15: A eb 15 to Apr 30; At 1.0 Mar 15 to May 31; Aug 1 to Ser ssp. multiflorum) to Nov 30 ar 1 to May 15: A eb 15 to Apr 30: A Barley (Hordeum vulgare) Mar 15 to May 31; Aug 1 to Sep 3 to Nov 30 ar I to May 15; Au eb 15 to Apr 30: Ai ats (Avena sativa 1.0 Mar 15 to May 31; Aug 1 to Sep 3 to Nov 30 ar 1 to May 15; Aug eb 15 to Apr 30: At Wheat (Triticum aestivum) 2.8 Mar 15 to May 31; Aug 1 to Sep 3 5 to Nov 30 far 1 to May 15; Aug eb 15 to Apr 30; Au ereal Rye (Secale cereale) Mar 15 to May 31; Aug 1 to Oct to Dec 15 Foxtail Millet (Setaria italica) 0.7 0.5 Jun 1 to Jul 31 May 16 to Jul 31 y I to Aug 14 Pearl Millet (Pennisetum glaucum) 0.5 Jun 1 to Jul 31 May 16 to Jul 31 y I to Aug 14

Table B.1: Temporary Seeding for Site Stabilization

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

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

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

The second secon		Plant Hardiness Zones				
Type of Plant Material	5b and 6a	6b	7a and 7b			
Seeds - Cool-Season Grasses (includes mixes with forbs and/or legumes)	Mar 15 to May 31 Aug 1 to Sep 30	Mar 1 to May 15 Aug 1 to Oct 15	Feb 15 to Apr 30 Aug 15 to Oct 31 Nov 1 to Nov 30 ◆			
Seeds - Warm-Season/Cool-Season Grass Mixes (includes mixes with forbs and/or legumes)	Mar 15 to May 31 ♦ ♦ Jun 1 to Jun 15*	Mar 1 to May 15♦♦ May 16 to Jun 15*	Feb 15 to Apr 30 ♦ ♦ May 1 to May 31*			
Sod - Cool-Season	Mar 15 to May 31 Jun 1 to Aug 31* Sep 1 to Nov 1*+	Mar 1 to May 15 May 16 to Sep 14* Sep 15 to Nov 15*+	Feb 15 to Apr 30 May 1 to Sep 30* Oct 1 to Dec 1*+			
Unrooted Woody Materials; Bare-Root Plants; Bulbs, Rhizomes, Corms, and Tubers 21	Mar 15 to May 31 Jun 1 to Jun 30*	Mar 1 to May 15 May 16 to Jun 30*	Feb 15 to Apr 30 May 1 to Jun 30*			
Containerized Stock; Balled-and-Burlapped Stock	Mar 15 to May 31 Jun 1 to Jun 30* Sep 1 to Nov 15*+	Mar 1 to May 15 May 16 to Jun 30* Sep 15 to Nov 30*+	Feb 15 to Apr 30 May 1 to Jun 30* Oct 1 to Dec 15*+			

Table B.3 Notes

. The planting dates listed are averages for each zone. These dates may require adjustment to reflect local conditions, especially near the boundaries of the zones. When seeding toward the end of the listed planting dates, or when conditions are expected to be less than optimal, select an appropriate nurse crop from Table 1 an

plant with the permanent seeding mix. (See Table B.2, Note 1, for more information.) . When planted during the growing season, most of these materials must be purchased and kept in a dormant condition until planting. Bare-root grasses are the exception—they may be supplied as growing (non-dormant) plants.

Additional planting dates for the lower Coastal Plain, dependent on annual rainfall and temperature trends. Recommend adding a nurse crop, as noted above, if

• Warm-season grasses need a soil temperature of at least 50 degrees F in order to germinate. If soil temperatures are colder than 50 degrees, or moisture is not adequate, the seeds will remain dormant until conditions are favorable. In general, planting during the latter portion of this period allows more time for weed emergence and weed control prior to planting. When selecting a planting date, consider the need for weed control vs. the likelihood of having sufficient moisture for later plantings, especially on droughty sites.

Additional planting dates during which supplemental watering may be needed to ensure plant establishment Frequent freezing and thawing of wet soils may result in frost-heaving of materials planted in late fall, if plants have not sufficiently rooted in place.

Sod usually needs 4 to 6 weeks to become sufficiently rooted. Large containerized and balled-and-burlapped stock may be planted into the winter months as long as the ground is not frozen and soil moisture is adequate

SEQUENCE OF CONSTRUCTION - INDIVIDUAL HOUSE (SEE GRADING PERMIT PLAN FOR ADDITIONAL INFORMATION)

OBTAIN GRADING PERMIT AND HOLD A PRE-CONSTRUCTION MEETING. STEP DURATION 1 DAY. 2.) DAY 2 THE CONTRACTOR(S) IS TO IDENTIFY AND MARK ANY HAZARDOUS CONDITIONS THAT MAY EXIST ONSITE. SUCH AS OVERHEAD POWERLINES, OLD WELLS, GAS LINES, ETC. STEP DURATION 1 DAY.

3.) DAY 3-9 INSTALL STABILIZED CONSTRUCTION ENTRANCES AND THE INLET PROTECTIONS FOR THE LOTS. CLEAR AND GRUB FOR PERIMETER CONTROLS ONLY. INSTALL TSOS, SUPER SILT FENCE, AND SILT FENCES. NOTE THAT PART OF THIS SITE IS TIER II HIGH QUALITY WATERSHED WITH NO ASSIMILATION CAPACITY. STEP DURATION 7 DAYS.

IF NECESSARY. STABILIZE THE DISTURBED LOT AREAS IN ACCORDANCE WITH TEMPORARY SEEDBED NOTES. STEP DURATION 12 DAYS.

5.) DAY 22 INSTALL SWALES. INSTALL EROSION CONTROL MATTING WITHIN THE DITCHES AND SWALES. STEP DURATION 1 DAY

6.) DAY 23-100 BUILD THE HOUSES. INSTALL UTILITIES. STEP DURATION 78 DAYS.

7.) DAY 101-103 REMOVE THE INDIVIDUAL STABILIZED CONSTRUCTION ENTRANCES AND PAVE THE DRIVEWAYS, FINE GRADE AND STABILIZE REMAINING DISTURBED AREAS IN ACCORDANCE WITH PERMANENT SEEDBED NOTES. REMOVE TEMPORARY STONE OUTLET STRUCTURE. STEP DURATION 3 DAYS.

8.) DAY 104-106 INSTALL DRY WELLS, NON-ROOFTOP DISCONNECTIONS AND MICRO-BIORETENTION FACILITY, PLANT THE FACILITY. PERMANENTLY STABILIZE ANY DISTURBED AREAS. INSTALL SOD OR PERMANENT MATTING IN PERMANENT SWALES. STEP DURATION 3 DAYS.

9.) DAY 107-108 UPON APPROVAL OF HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, REMOVE ALL SEDIMENT CÓNTROL DEVICES AND INLET PROTECTIONS. PERMANENTLY STABILIZE AS REQUESTED. STEP DURATION 2 DAYS.

TIER II HIGH QUALITY WATERSHED HOWARD SOIL CONSERVATION DISTRICT (HSCD) STANDARD SEDIMENT CONTROL NOTES

1. A pre-construction meeting must occur with the Howard County Department of Public Works, Construction Inspection Division (CID), 410-3133-1855 after the future LOD and protected areas are marked clearly in the field. A minimum of 48 hours 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

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 <u>2011 MARYLAND STANDARDS AND SPECIFICATIONS</u> FOR SOIL EROSION AND SEDIMENT CONTROL, and revisions thereto.

Accelerated stabilization (same day stabilization) is necessary due to this site being in a Tier II watershed. At a minimum, the 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. 3-4-4) 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 feet must be benched with stable outlet. All concentrated flow, steep slope, and highly erodible areas shall receive soil stabilization matting

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: *CUT/FILL NUMBERS 3.24 Acres CONTROL PURPOSES ARE FOR SEDIMENT Total Area of Site: 1.52 Acres ONLY. CONTRACTOR Area Disturbed: TO VERIFY. $_{0.27}$ Acres Area to be roofed or paved: 1.25 Acres Area to be vegetatively stabilized: 1,000 * Cu Yds Total fill: SITE WITH AN ACTIVE Off-site waste/borrow area location: GRADING_PERMIT

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 every four days; 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 Brief description of project's status (e.g. percent complete) and/or current activities Evidence of sediment discharges
- Identification of plan deficiencie 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 work day, 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 be 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 great

in the preceding grading unit has been stabilized and approved by the CID. Unless otherwise

specified and approved by the HSCD, no more than 30 acres cumulatively may be disturbed at

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

> SILT FENCE MAY BE REPLACED BY SUPER SILT FENCE AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR.

IF LIMIT OF DISTURBANCE IS WITHIN 15' OF FOREST RETENTION EASEMENT THE CONTRACTOR IS TO ROOT PRUNE THE AREA PRIOR TO SEDIMENT CONTROL INSTALLATION

REVISION

Table B.1: Temporary Seeding for Site Stabilization

Dlant Cassiss	Jeeum	g Nate 1/	Domath 3/	Necom			
Plant Species	lb/ac	lb/1000 ft2	Depth 2/ (inches)	5b and 6a	6b	7a and 7b	
Cool-Season Grasses							
Annual Ryegrass (Lolium perenne ssp. Multiflorum	40	1.0	0.5		Mar 1 to May 15; Aug 1 to Oct 31		
Barley (Hordeum vulgare)	96	2.2	1.0		Mar 1 to May 15; Aug 1 to Oct 31		
Oats (Avena sativa)	72	1.7	1.0		Mar 1 to May 15; Aug 1 to Oct 31		
Wheat (Triticum aestivum)	120	2.8	1.0		Mar 1 to May 15; Aug 1 to Oct 31		
Cereal Rye (Secale cereale)	112	2.8	1.0		Mar 1 to May 15; Aug 1 to Nov 15		
Warm-Season Grasses							
Foxtail Millet (Serataria italica)	30	0.7	0.5		May 16 to Jul 31		
Pearl Millet (Pennisetum glaucum	20	0.5	0.5		May 16 to Jul 31		
Notes:	i	1					

Seeding Rate 1/ Seeding

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

Aug 1 to Oct 19

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

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

Rate (lb/ac.)

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

Hardiness Zone (from Figure B.3):

Seed Misture (from Table B.3):

Fescue, Tall

Bluegrass, Kentucky

Permanent Seeding Summary

1/4 - 1/2 in

Fertilizer Rate (10-20-20) Tall Fescue/Kentucky Bluegrass Lime Rate P2O5 K2O Mar 1 to May 15 1/4 - 1/2 in Aug 1 to Oct 15 90 lb/ac 90 lb/ac Mar 1 to May 15 per acre 2 tons/ac 1/4 - 1/2 in

(1.0 lb/

100 sf)

(2 lb/

1000 sf)

2 lb/

1000 sf)

(90lb/

1000 sf)

Recommended Seeding Dates by Plant Hardiness Zone 3/

ENGINEERING, INC. 3300 NORTH RIDGE ROAD A SUITE 140 A ELLICOTT CITY, MARYLAND 21043 (P) 410-465-6105 (F) 410-465-6644 WWW.BEI-CIVILENGINEERING.COM

DEVELOPER:

NO. | DATE

Professional Certification hereby certify that these documents were prepared of approved by me, and that I am duly licensed profession engineer under the laws of t State of Maryland, License N 45577, Expiration Date: 06-08-2024. 3/ONAL John M. Carney 02.16.2024

OWNER: CLARKSVILLE NL LLC C/O H&H ROCK COMPANIES 6800 DEERPATH ROAD SUITE 100 ELKRIDGE, MD 21075 410-579-2442

CLARKSVILLE CROSSING, PHASE 2, AREA 2 A RESUBDIVISION OF CLARKSVILLE CROSSING, PHASE 2, AREA 1, NON-BUILDABLE BULK PARCEL 'B' (PLAT #) TO CREATE LOT 11 AND BUILDABLE PRESERVATION PARCEL 'D'

GRID: 23 P/O PARCEL: 301 ZONED: RR-DEO ELECTION DISTRICT NO. 5 FINAL PLAN

HOWARD COUNTY, MARYLAND ROCK REALTY, INC, C/O H & H ROCK COMPANIES 6800 DEERPATH ROAD SEDIMENT AND EROSION CONTROL NOTES & DETAILS SUITE #100 ELKRIDGE, MARŸLAND 21075 410-579-2442 FEBRUARY, 2024 BEI PROJECT NO: 2525 DATE:

(IN FEET)

1 inch = 50 ft

3/4/2024

APPROVED: DEPARTMENT OF PUBLIC WORKS 3/5/2024

CHIEF, BUREAU OF HIGHWAYS LABOR CO. APPROVED: DEPARTMENT OF PLANNING AND ZONING 3/6/2024

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY

Olexander Bratchie

THE HOWARD SOIL CONSERVATION DISTRICT

CHIEF. DEVELOPMENT ENGINEERING DIVISION

HOWARD SOIL CONSERVATION DISTRIC

CHIEF, DIVISION OF LAND DEVELOPMENT 3/4/2024 (Hd1) Edmondson

DEVELOPER'S CERTIFICATE

PROJECT. I SHALL ENGAGE A MARYLAND REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION, AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS—BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I CERTIFY RIGHT—OF—ENTRY FOR PERIODIC ON—SITE EVALUATION BY HOWARD COUNTY, THE HOWARD SOIL CONSERVATION DISTRICT AND/OR MDE.

ENGINEER'S CERTIFICATE ""I HEREBY CERTIFY THAT THIS PLAN HAS BEEN DESIGNED IN ACCORDANCE WITH CURRENT MARYLAND EROSION AND SEDIMENT CONTROL LAWS, REGULATIONS, AND STANDARDS, THAT IT REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE, AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

2/16/2024 John M. Carney

CERTIFY THAT ANY CLEARING, GRADING, CONSTRUCTION, OR DEVELOPMEN' PURSUANT TO THIS APPROVED EROSION AND SEDIMENT CONTROL PLAN, NCLUDING INSPECTING AND MAINTAINING CONTROLS, AND THAT THE RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF TRAINING AT A MARYLAND DEPARTMENT OF THE ENVIRONMENT (MDE) APPROVED TRAINING PROGRAM FOR THE CONTROL ON EROSION AND SEDIMENT PRIOR TO BEGINNING THE

2/16/2024 Mark Levy

ENGINEER - JOHN M. CARNEY, P.E., MD REGISTRATION No. 45577

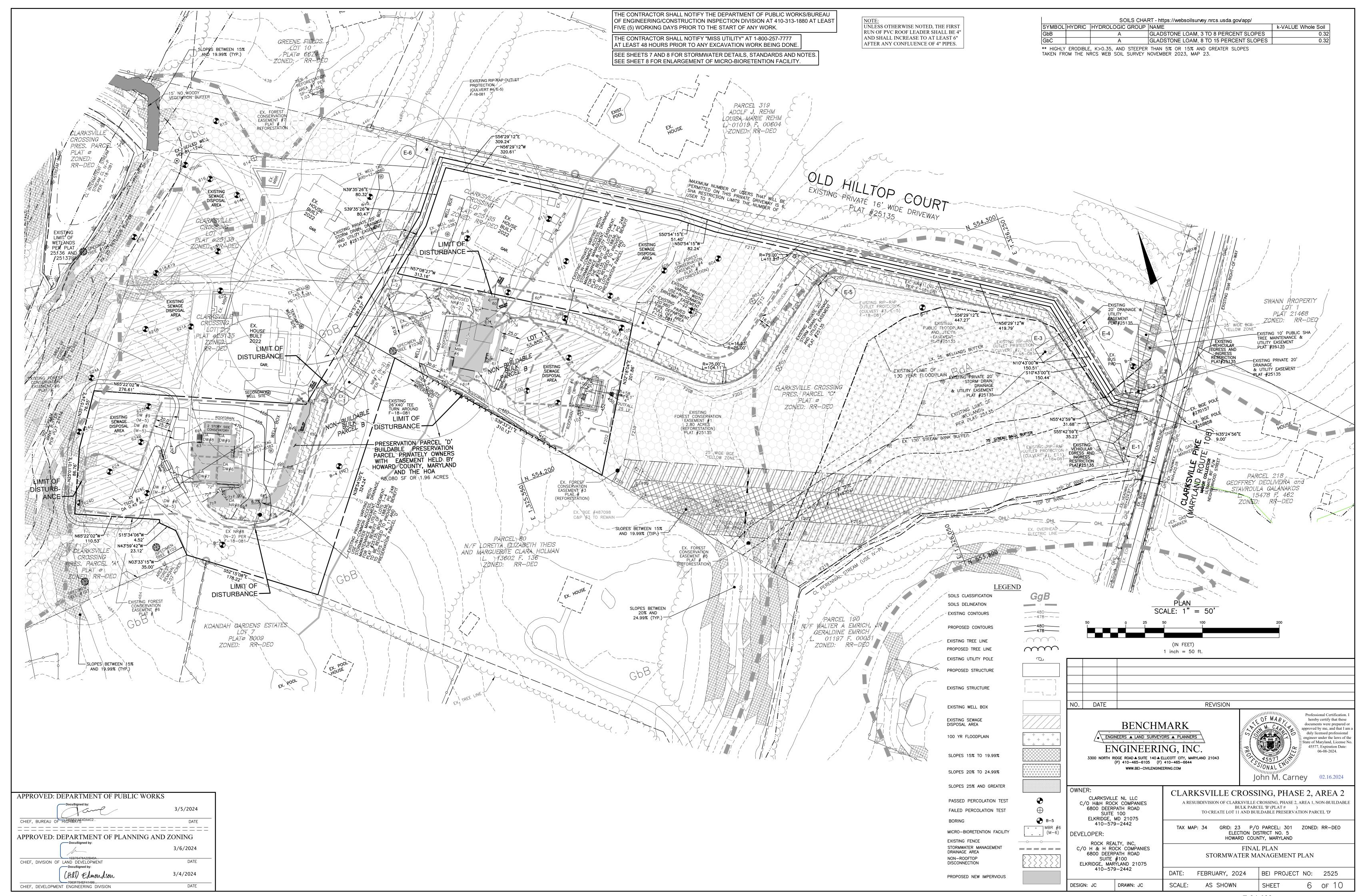
ESIGN: JC DRAWN: JC SCALE: AS SHOWN

BENCHMARK

ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS

SHEET

5 of 10



CONSTRUCTION SPECIFICATIONS

B.4.C Specifications for Micro-Bioretention. Rain Gardens, Landscape Infiltration & Infiltration Berms

. 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 Content - Minimum 10% by dry weight (ASTM D 2974). In general, this can be met with a mixture of loamy and (60%-65%) and compost (35% to 40%) or sandy loam (30%), coarse sand (30%), and compost (40%). Clay Content - Media shall have a clay content of less than 5%.

pH Range - Should be between 5.5 - 7.0. Amendments (e.g., lime, iron sulfate plus sulfur) may be mixed into the soil to increase or decrease pH.

here shall be at least one soil test per project. Each test shall consist of both the standard soil test for pH, and additional tests of organic matter, and soluble salts. A textural analysis is required from the site stockpiled topsoil. If topsoil is imported, then a texture analysis shall be performed for each location where the topsoil was excavated.

. Compaction:

It is very important to minimize compaction of both the base of bioretention practices and the required backfill. When possible, use excavation hoes to remove original soil. If practices are excavated using a loader, the contractor should use wide track or marsh track equipment, or light equipment with turf type tires. Use of equipment with narrow tracks or narrow tires, rubber tires with large lugs, or high-pressure tires will cause excessive compaction resulting in reduced infiltration rates and is not acceptable. Compaction will significantly contribute to design failure.

compaction can be alleviated at the base of the bioretention facility by using a primary tilling operation such as a chisel plow, ripper, or subsoiler. These tilling operations are to refracture the soil profile through the 12 inch compaction zone. Substitute methods must be approved by the engineer. Rototillers typically do not till deep enough to reduce the effects of compaction from heavy equipment.

Rototill 2 to 3 inches of sand into the base of the bioretention facility before backfilling the optional sand layer. Pump any ponded water before preparing (rototilling) base.

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.

I. 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.

rees 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 minin this goal. Only add fertilizer if wood chips or mulch are used to amend the soil. Rototill urea fertilizer at a rate of 2 pounds per 1000 square feet.

. Underdrains:

Underdrains should meet the following criteria:

- Pipe- Should be 4" to 6" diameter, slotted or perforated rigid plastic pipe (ASTMF 758, Type PS 28, or AASHTO-M-278) in a gravel layer. The preferred material is slotted, 4" rigid pipe (e.g., PVC or HDPE)
- Perforations If perforated pipe is used, perforations should be 36 diameter located 6 on center with a minimum of four holes per row. Pipe shall be wrapped with a ¼" (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 (1/6" to 3/6" stone) shall be located between the filter media and underdrain to prevent migration of fines into the underdrain. This layer may be considered part of the filter bed when bed thickness

The main collector pipe for underdrain systems shall be constructed at a minimum slope of 0.5%. Observation wells

and/or clean-out pipes must be provided (one minimum per every 1000 square feet of surface area). Miscellaneous:

5. HAULED AWAY.

hese practices may not be constructed until all contributing drainage area has been stabilized

EXCAVATED PONDS THAT CREATE A FAILURE POTENTIAL THROUGH A CONSTRUCTED OR CREATED EMBANKMENT WILL BE DESIGNED AS EMBANKMENT PONDS EXCAVATED PONDS THAT INCLUDE A PIPE OR WEIR OUTLET CONTROL SYSTEM FOR URBAN STORMWATER MANAGEMENT SHALL BE DESIGNED USING THE PRINCIPAL AND EMERGENCY SPILLWAY HYDROLOGIC CRITERIA FOR EMBANKMENT PONDS, SIDE SLOPES - SIDE SLOPES OF EXCAVATED PONDS SHALL BE SUCH THAT THEY WILL BE STABLE AND SHALL NOT BE STEEPER THAN 1 IORIZONTAL TO 1 VERTICAL. FLATTER SLOPES ARE TO BE UTILIZED WHERE SAFETY FOR CHILDREN, LIVESTOCK WATERING, ETC. IS A DESIGN PERIMETER FORM - WHERE THE STRUCTURES ARE USED FOR RECREATION OR ARE LOCATED IN HIGH PUBLIC VIEW, THE PERIMETER OR

EDGE SHOULD BE SHAPED TO A CURVILINEAR FORM. INLET PROTECTION - WHEN THE EXCAVATED POND IS A BYPASS TYPE AND WATER IS BEING DIVERTED FROM A STREAM, THE MINIMUM SIZE INLET LINE SHALL BE A 4-INCH DIAMETER PIPE. ALL STATE LAWS CONCERNING WATER USE AND DOWNSTREAM RIGHTS SHALL BE STRICTLY ADHERED TO. WHERE SURFACE WATER ENTERS THE POND IN A NATURAL OR EXCAVATED CHANNEL, THE SIDE SLOPE OF THE POND SHALL BE PROTECTED AGAINST EROSION. OUTLET PROTECTION – AN EXCAVATED POND WITH A LOW EMBANKMENT (COMBINATION EXCAVATION / EMBANKMENT POND SHALL BE

DESIGNED TO ENSURE A STABLE OUTFALL FOR THE 10-YEAR, 24-HOUR FREQUENCY STORM. PLACEMENT OF EXCAVATED MATERIAL — THE MATERIAL EXCAVATED FROM THE POND SHALL BE PLACED IN ONE OF THE FOLLOWING WAYS THAT ITS WEIGHT WILL NOT ENDANGER THE STABILITY OF THE POND SIDE SLOPES AND WHERE IT WILL NOT BE WASHED BACK INTO . UNIFORMLY SPREAD TO A HEIGHT NOT EXCEEDING 3 FEET WITH THE TOP GRADED TO A CONTINUOUS SLOPE AWAY FROM THE POND;

. UNIFORMLY PLACED OR SHAPED REASONABLY WELL WITH SIDE SLOPES NO STEEPER THAN 2 TO 1. THE EXCAVATED MATERIAL WILL BE

3/4/2024

DATE

PLACED AT A DISTANCE EQUAL TO THE DEPTH OF THE POND, BUT NOT LESS THAN 12 FEET FROM THE EDGE OF THE POND; . SHAPED TO A DESIGNED FORM THAT BLENDS VISUALLY WITH THE LANDSCAPE; . USED FOR LOW EMBANKMENT AND LEVELING; OR

(Hdl) Edmondson

CHIEF, DEVELOPMENT ENGINEERING DIVISION

APPROVED: DEPARTMENT OF PUBLIC WORKS 3/5/2024 CHIEF, BUREAU OF HIGHWAYS LANGE ADDAGS DATE APPROVED: DEPARTMENT OF PLANNING AND ZONING 3/6/2024 CHIEF, DIVISION OF LAND DEVELOPMENT

NOTE: FACILITIES WITHIN 100' OF A WELL MUST BE CONSTRUCTED WITH IMPERMEABLE LINER. IN THIS CASE THE LINER SHALL INCLUDE ENTIRE SIDES AND BOTTOM OF THE EXCAVATION, EXTENDED TO TOP OF EMBANKMENT. 15' GRASS SHEET FLOW (TYP.) - INFLOW FACILITIES IN A FILL CONDITION MAY USE AN 10 MILS IMPERMEABLE LINER AS A REPLACEMENT FOR THE CLAY CORE AND CUTOFF TRENCH. IN THIS CASE THE LINER SHALL INCLUDE THE SIDES ONLY FROM A DEPTH OF 1.0 FEET BELOW THE BOTTOM OF THE FACILITY AND SHALL EXTEND UP TO THE WATER SURFACE ELEVATION. **EMBANKMENT** INTO PROP. GRADE — PLANTINGS (SEE INFO. THIS SHEET) IN ALL CASES THE IMPERMEABLE LINES IS TO BE BELOW TOP SOIL. SEE SPECIFICATIONS CHART THIS SHEET. 3:1(TYP.) MICROBIORETENTION AND BIORETENTION <u>PLANTING DATA</u> 1. PLANTINGS WITHIN THE PONDING AREA OF THE MICRO-BIORETENTION FACILITY ARE TO BE OF A MEDIUM TO HIGH WATER TOLERANCE 4" OVERFLOW
PIPE W/ATRIUM
GRATE
SEE TYPICAL SECTION
COO COO COO COO
GRATE
TO THE TYPICAL SECTION
TO THE TYPICAL SE PLANTINGS ALONG THE PERIMETER (BERM) AREA OF THE MICRO-BIORETENTION FACILITY ARÈ TO BE OF A LOW TO MEDIUM WATER TOLERANCE 3. AVOID PLANTINGS WITH EXCESSIVE ROOT MASS IN POND AREA OF THE MICRO-BIORETENTION FACILITY NEAR O.B. PIPE AND UNDERDRAIN. ____4" PERF. PVC MICROBIORETENTION AND BIORETENTION 4" OBSERVATION 3
PIPE w/COVER PLANTING SCHEDULE PIPE w/COVER SPECIFIC NUMBER OF PLANTINGS SHAL BE DETERMINED WITH FINAL DESIGN AT 3:1(TYP.) PLOT PLAN PHASE) (1) VINCA MINOR (COMMON PERIWINKLE) 5' WIDE EMBANKMENT @ WSE 6.0' WIDE AJUSTA REPTAS (CREEPING BUNGLEWEED) SPILLWAY AT IRIS VERSICOLOR (IRIS) 0.00% SLOPE CALLUNA VULGARIS (HEATHER) (2 PER FACILITY) 3:1 EMBANKMENT (TYP. (SEE PLAN VIEW) SHEET FLOW √4" PVC OUTFALL OUTFALL/RUN-OFF (NON-PERFORATED) MIN. 0.5% DISCHARGE

DATE: 11/29/23

BIORETENTION FACILITIES

450.50

450.00

120

120

(inches)

1.0

0.40

0.40

0.40

Req'd Stone Storage

Storage (cf) Provided (cf)

Ratio

DRY WELL (M-5)

ESDv (cf) Length (ft) Width (ft) Depth (ft) Porosity Grade

1.0

5.25

5.25

494 CF greater than required

951 CF greater than required

5.25

449.17

Total ESDv

(cf)

621

621

469.0

FILTER

16.0

22.6

2.00

469.0 | 467.0 | 461.75 |

467.0

Provided (cf) | Maintenance

296.24 Parcel D

146.60 Lot 11

120

Stone Sand Stored (cf)

461.75

473.5 470.5 465.25 713.42 2.60 207.33 Parcel D

473.0 471.0 465.75 713.42 2.60 205.34 Parcel D

680.01

LENGTH (ft) | WIDTH (ft) | AREA (sf) | 1 | 2 |

PLANTINGS

Provided

832.32

361 | 35 | 30 | 16 |

Lot 11

LINER

5' MIN. FROM P/L

ELEVATIONS (SEE TYPICAL BIORETENTION DETAIL)

Ponded

Storage

(75%)

279.3

NON-ROOFTOP DISCONNECTION (N-2)

Length (ft) Length (ft) Length (ft)

Contrib. Pervious Contrib. Imp. Disconnection

450.83

MICRO-BIORETENTION FACILITIES (M-6)

Volume

Provided (cf)

12 | 12 |

14.50 13.38

501.3

60 60 1.0

14.50 13.38 5.25

13.38

11.88

452.83

ESDv Reg'd (c

372.37

372

0 |

18

97.95

108.87

397.01

CF

CF

DATE: 11/29/23

SCHEMATIC PLAN VIEW

453.00

355.49

0.95

0.95

0.95

1395

*The ESDv summary table portrays storage in excess of that required for Environmental Site Design requirements

Clarksville Crossing, Phase 2, Area 2

454.00

Facility Dimensions

454.50

Facility Summary

Drainage | Impervious

Area (SF) Area (SF)

TOTALS 4179 4179.00

The total ESDv provided by this design is

The total Rev provided by this design is:

impermeable liner.

Pe: 1.20 inches

Area (SF)

PROJECT: Clarksville Crossing, Phase 2, Area 2

(SF)

3,310

3538 7414 0.48

NR-10 (N-2) 1707 4458 0.39 175.92

14,894 3,310 22% 0.25

Area (SF) Area (SF) Runoff Required (CF)

1041 1041 100% 0.95

Micro-Bioretention facilities within the 100' well radius must be provided with an

100%

1031 100%

1146 1146 100%

FACILTY

MBR-6

Facility

TOTALS

TOTALS 5245

4" PVC WITH ATRIUM GRATE (NON-PERFORATED OVERFLOW PIPE 4" #8 STONE OVER 1/4" WIRE FABRIC (DEPTH VARIES) 4" PVC PIPE UNDERDRAIN : COLLECTION SYSTEM. PERFORATE PIPE © 0.0% WITHIN AREA OF FACILITY, CHANGING TO A MINIMUM OF 0.5% SLOPE (NON-PERFORATED OUTSIDE OF THE FACILITY. UNDERDRAIN COLLECTION SYSTEM AND RECHARGE PIPE ARE NOT

MICRO-BIORETENTION DETAILS (TYPICAL)

NOT TO SCALE

MATERIAL

EOTEXTILE (CLASS '

GRADE --PLANTINGS (TYP.) SEE TABLE THIS → ELEV. B (SIDES ONLY) OR IMPERVIOUS LINER (SIDES) (NON-PERFORATED WITHIN PLANTING
MEDIA, PERFORATED
WITHIN STONES)
OBSERVATION
PIPE W/CAP

WITHIN STONES

C CLE
FIPE W/CAP

ELEV. G ELEV. F 2" CLEAR #2 STONE COLLECTION SYSTEM. PERFORATE PIPE @ 0.0% WITHIN AREA OF CHANGING TO A MINIMUM OF 0.5% SLOPE (NON-PERFORATED)
OUTSIDE OF THE FACILITY. BIO-RETENTION DIMENSION

LEGEND

NAME

TOP OF EMBANKMENT

TOP OF PONDING (WEIR)

TOP OF MULCH

TOP OF SOIL

TOP OF STONE FILTER

TOP OF STONE STORAGE

UNDERDRAIN INVERT

BOTTOM OF STONE

PE TYPE 1 NONWOVEN

-SPLASH BLOCK

-OBSERVATION PORT

-VENT PERFORATIONS

-GEOTEXTILE FABRIC

NOTES:

FACILITY

D. THE OWNER SHALL CORRECT SOIL EROSION ON AN AS NEEDED BASIS. WITH A MINIMUM

OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED $\frac{1}{4}$ #8 STONE OVER - 1/4" WIRE FABRIC DISCONNECTION OF NON-ROOFTOP RUNOFF (N-2) A. MAINTENANCE OF AREAS RECEIVING DISCONNECTED RUNOFF IS GENERALLY NO DIFFERENT THAN THAT REQUIRED FOR OTHER LAWN OR LANDSCAPED AREAS. THE OWNER SHALL ENSURE THE AREAS RECEIVING RUNOFF ARE PROTECTED FROM FUTURE COMPACTION OR

DISCOURAGED AS WELL.

ASTM-D-4833 (PUNCTURE STRENGTH 125LB)

THE NEW LAYER IS APPLIED.

REPLACE ALL DEFICIENT STAKES AND WIRES.

OF ONCE PER MONTH AND AFTER EACH HEAVY STORM.

MATERIALS & SPECIFICATIONS FOR MICRO-BIORETENTION MATERIAL SPECIFICATION SIZE NOTES: E APPENDIX A; PLANTINGS ARE SITE SPECIFIC LOAMY SAND 60-65% COMPOST 35-40% USDA SOIL TYPES: LOAMY SAND OR SANDY LOAM; PLANTING SOI (2.0' TO 4.0' DEEP) CLAY CONTENT <5% SANDY LOAM 30% COARSE SAND 30% & ORGANIC CONTENT MIN 10% BY DRY WEIGHT ASTM D 2974 AGED 6 MONTHS, MINIMUM, NO PINE OR WOOD CHIP SHREDDED HARDWOOD EOTEXTILE (CLASS " PE TYPE 1 NONWOVEN 1/4" WIRE MESH 1/4" WIRE MESH 1/4" WIRE MESH NDERDRAIN GRAVEL AASHTO M-43 4" TO 6" RIGID 3/8" PERF. @ 6" O/C, 4 HOLES PER ROW; MINIMUM OF 2" OF GRAVEL OVER PIPES, NOT NECESSARY UNDERNEATH PIPES. F758, TYPE PS28 OR AASHTO M-278 JNDERDRAIN PIPING LINER TO BE ULTRAVIOLET RESISTANT. A GEOTEXTILE ASTM-D-4833 (THICKNESS) IMPERVIOUS LINER 30 MIL. THICK ASTM-D-412 (TENSILE STRENGTH 1 FABRIC SHOULD BE USED TO PROTECT THE LINER FROM ., ELONGATION 200%) ASTM-D-624 (TEAR RESISTANCE ASTM-D-471 (WATER ADSORPTION: +8 0 -2% MASS)

OPERATION AND MAINTENANCE SCHEDULE FOR MICRO-BIORETENTION (M-6) AND BIORETENTION (F-6)

A. THE OWNER SHALL MAINTAIN THE PLANT MATERIAL, MULCH LAYER AND SOIL LAYER

ANNUALLY. MAINTENANCE OF MULCH AND SOIL IS LIMITED TO CORRECTING AREAS OF

EROSION OR WASH OUT. ANY MULCH REPLACEMENT SHALL BE DONE IN THE SPRING.

MAINTENANCE WILL ADDRESS DEAD MATERIAL AND PRUNING. ACCEPTABLE REPLACEMENT

PLANT MATERIAL IS LIMITED TO THE FOLLOWING: 2000 MARYLAND STORMWATER DESIGN

THE OWNER SHALL PERFORM A PLANT INSPECTION IN THE SPRING AND IN THE FALL OF

EACH YEAR, DURING THE INSPECTION, THE OWNER SHALL REMOVE DEAD AND DISEASED

ACCEPTABLE REPLACEMENT PLANT MATERIAL, TREAT DISEASED TREES AND SHRUBS, AND

THE OWNER SHALL INSPECT THE MULCH EACH SPRING. THE MULCH SHALL BE REPLACED

EVERY TWO TO THREE YEARS. THE PREVIOUS MULCH LAYER SHALL BE REMOVED BEFORE

DEVELOPMENT OF IMPERVIOUS AREA. IN COMMERCIAL AREAS, FOOT TRAFFIC SHOULD BE

VEGETATION CONSIDERED BEYOND TREATMENT, REPLACE DEAD PLANT MATERIAL WITH

PLANT MATERIAL SHALL BE CHECKED FOR DISEASE AND INSECT INFESTATION AND

1/2" TO 2 1/2" 4" TO 6" RIGID 3/8" PERF. @ 6" O/C, 4 HOLES SCH.40 PVC, PER ROW: MINIMUM OF 2" OF UNDERDRAIN PIPING AASHTO M-278 PER ROW; MINIMUM OF 2" OF ASTM-C-33DIABASE AND GRAYSTONE BELOW IMPERV. LINER) ASTM-D-4632 (TENSILE STRENGTH 300 LB. (AASHTO) #10 ARE NOT ACCEPTÁBLE, NO CALCIUM CARBONATED OR DOLOMITIC SAI SUBSTITUTIONS ARE ACCEPTABLE NO ROCK DUST CAN BE USED FOR SAND. Drywell Length Width Depth Top of Bottom Grade (ft) Designation (ft) Stone of Sand

SIZE

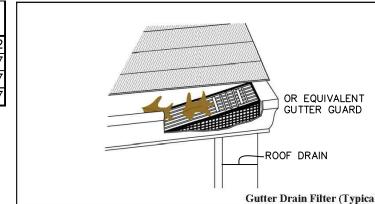
MATERIALS & SPECIFICATIONS FOR DRY WELLS

SPECIFICATION

13.38 5.25 470.5 465.2 14.50 473.5 471.0 465. 14.50 13.38 5.25 15.81 13.38 5.25 469.0 15.73 11.88 5.25 469.0 467.0 461.

-SURCHARGE PIPE

ROOFTOP RUNOFF



OPERATION AND MAINTENANCE SCHEDULE FOR (M-5) DRY WELLS 1. The monitoring wells and structures shall be inspected on a quarterly basis and after

2. Water levels and sediment build up in the monitoring wells shall be recorded over a period of several days to insure trench drainage.

3. A log book shall be maintained to determine the rate at which the facility drains

4. When the facility becomes clogged so that it does not drain down within the 72 hour time period, corrective action shall be taken. 5. The maintenance log book shall be available to Howard County for inspection to insure

compliance with operation and maintenance criteria.

monitoring schedule can be reduced to an annual basis unless the performance data indicates that a more frequent schedule is required.

INFORMATION

BUILDING FOUNDATION

MINIMUM

(SEE PLAN

MANUFACTURE'S DETAILS FOR ADDITIONAL

INFORMATION

FOR CALCULATION FOR SIZE LOCATION) AND CONFIGURATION GEOTEXTILE OR EQUAL

(IN FEET)

1 inch = 20 ft.

FOR SEQUENCE OF OPERATIONS

PLEASE SEE SEDIMENT CONTROL NOTES

AND DETAILS.

FINAL STORMWATER MANAGEMENT WILL BE

AND UPDATED BY REDLINE REVISION.

DESIGNED UNDER THE BUILDING PERMIT PLAN

DRY WELL 6, 7, 8 & 9 NOTE: SEE <u>R-TANK DETAIL</u> MANUFACTURE'S DETAILS FOR ADDITIONAL

4" STONE (BOTTOM) NO. DATE

6" STONE OVER TOP OF

EQUAL

PFRFORATED

STAND PIPE

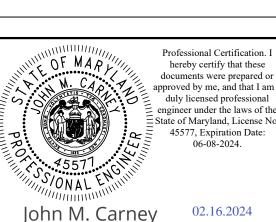
➤ M200 WOVEN

GEOTEXTILE OR

(ALL SIDES)

∠ GEOTEXTILE

REVISION BENCHMARK ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS ENGINEERING, INC. 3300 NORTH RIDGE ROAD ▲ SUITE 140 ▲ ELLICOTT CITY, MARYLAND 21043 (P) 410-465-6105 (F) 410-465-6644 WWW.BEI-CIVILENGINEERING.COM



OWNER: CLARKSVILLE NL LLC C/O H&H ROCK COMPANIES 6800 DEERPATH ROAD SUITE 100 ELKRIDGE, MD 21075 410-579-2442 DEVELOPER: ROCK REALTY, INC,

C/O H & H ROCK COMPANIES

6800 DEERPATH ROAD

SUITE #100

ELKRIDGE, MARŸLAND 21075 410-579-2442

DESIGN: JC

DRAWN: JC

CLARKSVILLE CROSSING, PHASE 2, AREA 2 A RESUBDIVISION OF CLARKSVILLE CROSSING, PHASE 2, AREA 1, NON-BUILDABLE BULK PARCEL 'B' (PLAT #) TO CREATE LOT 11 AND BUILDABLE PRESERVATION PARCEL 'D'

GRID: 23 P/O PARCEL: 301 ZONED: RR-DEO ELECTION DISTRICT NO. 5 HOWARD COUNTY, MARYLAND FINAL PLAN

STORMWATER MANAGEMENT NOTES AND DETAIL DATE: FEBRUARY, 2024 BEI PROJECT NO: 2525 SCALE: AS SHOWN 7 of 10 SHEET

	URFACE STORAGE SYSTEM V-6 and DW-7		RFACE STORAGE SYSTEM DW-8	NK ^{HD} SUBSURFACE STORAGE SYSTEM DW-9		
R-TANK ^{HD} DESIGN		R-T/	ANK ^{HD} DESIGN	R-TA	R-TANK DESIGN There of R-Tank Modules Ith of R-Tank Ith of R-Tanks Ith of R-	
Number of R-Tank Modules	32 ENTER VALUE	Number of R-Tank Modules	36 ENTER VALUE	Number of R-Tank Modules	30 ENTER VALUE	
Width of R-Tank	1.312500 ft	Width of R-Tank	1.312500 ft	Width of R-Tank	1.312500 ft	
Length of R-Tank	2.345833 ft	Length of R-Tank	2.345833 ft	Length of R-Tank	2.345833 ft	
R-Tank Selected	Triple+Mini SELECT FROM LIST	R-Tank Selected	Triple+Mini SELECT FROM LIST	R-Tank Selected	Triple+Mini SELECT FROM LIST	
Height of R-Tank	4.92 ft	Height of R-Tank	4.92 ft	Height of R-Tank	4.92 ft	
Volume of Storage per Module	14.40 cf	Volume of Storage per Module	14.40 cf	Volume of Storage per Module	14.40 cf	
Number of R-Tanks Wide	8 ENTER VALUE	Number of R-Tanks Wide	9 ENTER VALUE	Number of R-Tanks Wide	6 ENTER VALUE	
Number of R-Tanks Length	4	Number of R-Tanks Length	4	Number of R-Tanks Length	5	
R-Tank System Width	10.50 ft	R-Tank System Width	11.81 ft	R-Tank System Width	7.88 ft	
R-Tank System Length	9.38 ft	R-Tank System Length	9.38 ft	R-Tank System Length	11.73 ft	
Stone Perimeter Width (2ft typ)	2 ft ENTER VALUE	Stone Perimeter Width (2ft typ)	2 ft ENTER VALUE	Stone Perimeter Width (2ft typ)	2 ft ENTER VALUE	
R-Tank System Width with stone	14.50 ft	R-Tank System Width with stone	15.81 ft	R-Tank System Width with stone	11.88 ft	
R-Tank System Length with stone	13.38 ft	R-Tank System Length with stone	13.38 ft	R-Tank System Length with stone	15.73 ft	
Footprint of System	194.06 sq.ft.	Footprint of System	211.62 sq.ft.	Footprint of System	186.78 sq.ft.	
Stone Base Thickness*	4 inches ENTER VALUE	Stone Base Thickness*	4 inches ENTER VALUE	Stone Base Thickness*	4 inches ENTER VALUE	
Stone Cover Thickness	6 inches ENTER VALUE	Stone Cover Thickness	6 inches ENTER VALUE	Stone Cover Thickness	6 inches ENTER VALUE	
Volume Provided in R-Tank only	460.6618479 cf	Volume Provided in R-Tank only	518.2445789 cf	Volume Provided in R-Tank only	431.8704824 cf	
Total System Storage Volume	713.42 cf	Total System Storage Volume	787.19 cf	Total System Storage Volume	680.01 cf	
Volume of Stone Req'd	23.40 CY	Volume of Stone Req'd	24.90 CY	Volume of Stone Req'd	22.98 CY	

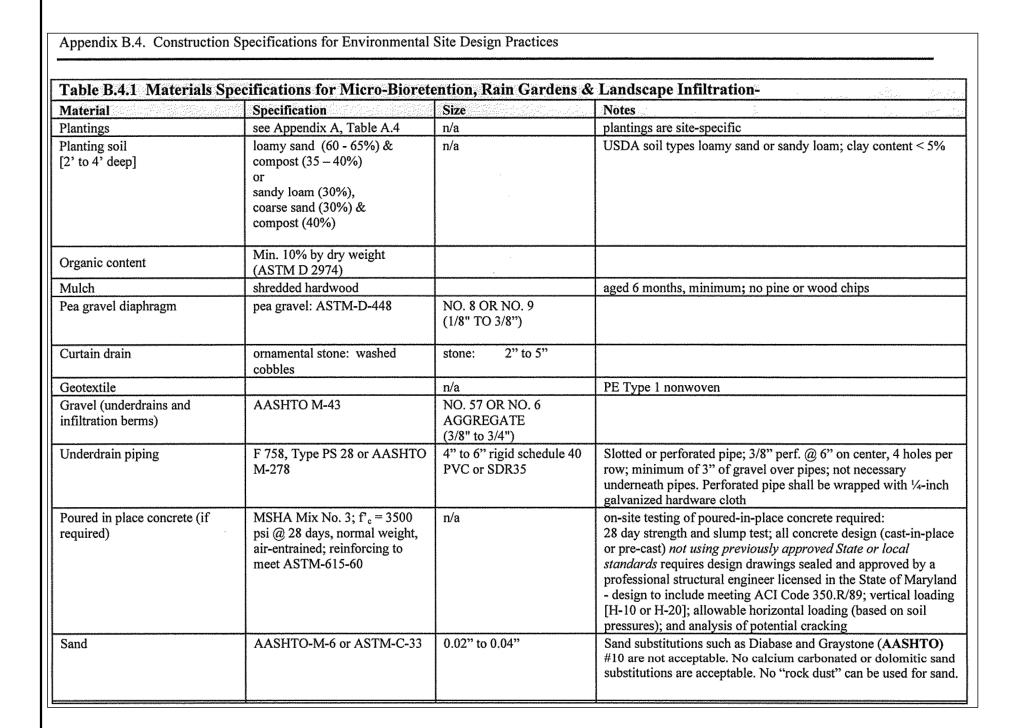
Non-Rooftop Discon. Target Pe = 1.20 Disconnection Impervious Drainage Volumetric ESDv Contrib. Pervious Contrib. Imp. Disconnection Ratio Pe Treated Volume Designation Area (SF) Area (SF) Runoff Required (CF) Length (ft) Length (ft) (inches) Provided (CF) 1.0 1.0 1323.64 Shared Driveway EX NR-1 15830 32733 0.49 1,588.37 16 16 EX. NR-8 3538 7414 0.48 355.49 12 12 1.0 1.0 296.24 Parcel D Driveway NR-10 1707 4458 0.39 175.92 18 1.0 1.0 146.60 Lot 11 Driveway 1619.88 296 sf of existing driveway it was designed to treat under F-18-081

EX NR-8 contains 903 sf of existing driveway that ws previously treated in ex. NR-1 under F-18-081 NR-10 contains

Total F-18-081 Impervious 1199 sf

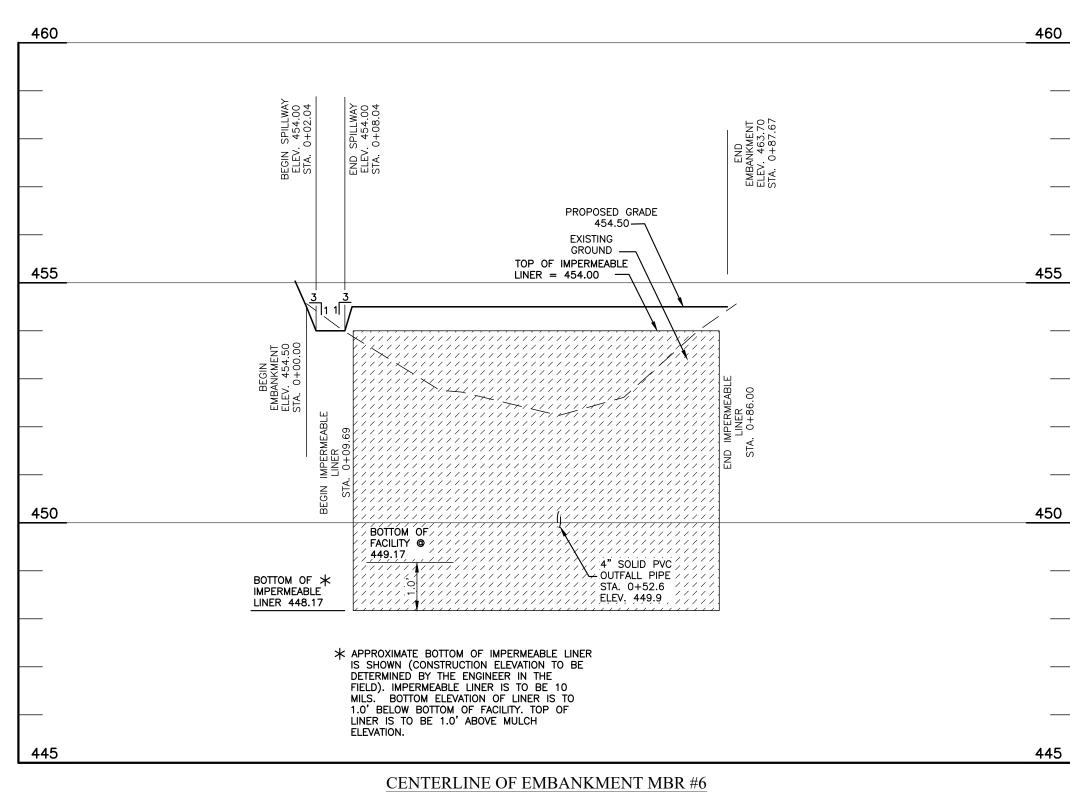
EX. NR-1 is presented to verify the treatment is provided for that area of existing imervious. The limits of EX. NR-1 are revised by this plan.

F-24-032



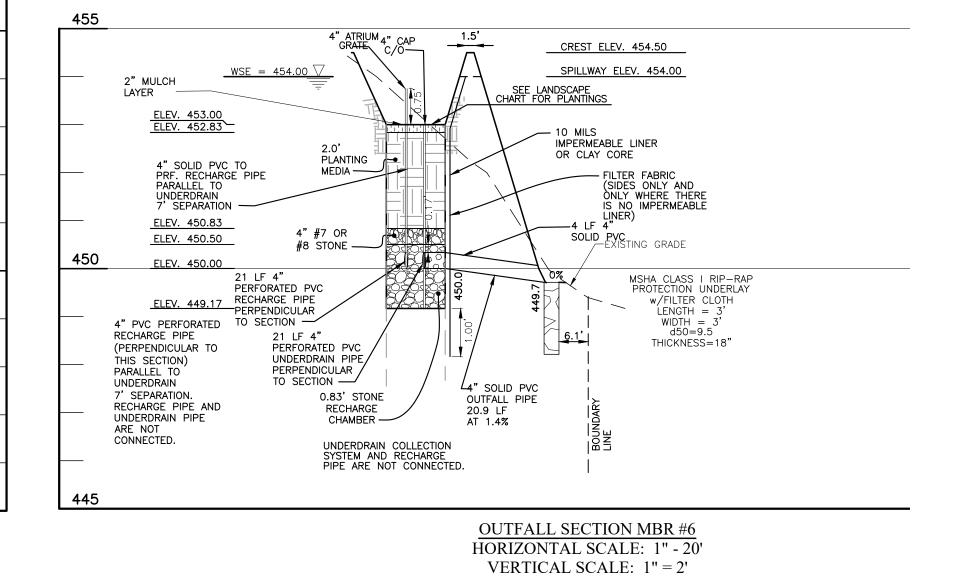
Material	Specification	Size	Notes
Plantings	see Appendix A, Table A.4	n/a	plantings are site-specific
planting soil [2.5' to 4' deep]	sand 35 - 60% silt 30 - 55% clay 10 - 25%	n/a	USDA soil types loamy sand, sandy loam or loam
mulch	shredded hardwood		aged 6 months, minimum
pea gravel diaphragm and curtain drain	pea gravel: ASTM-D-448 ornamental stone: washed cobbles	pea gravel: No. 6 stone: 2" to 5"	
geotextile	Class "C" - apparent opening size (ASTM-D-4751), grab tensile strength (ASTM-D- 4632), puncture resistance (ASTM-D-4833)	n/a	for use as necessary beneath underdrains only
underdrain gravel	AASHTO M-43	0.375" to 0.75"	
underdrain piping	F 758, Type PS 28 or AASHTO M-278	4" to 6" rigid schedule 40 PVC or SDR35	3/8" perf. @ 6" on center, 4 holes per row; minimum of 3" of gravel over pipes; not necessary underneath pipes
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 [1' deep]	AASHTO-M-6 or ASTM-C-33	0.02" to 0.04"	Sand substitutions such as Diabase and Graystone #10 are not acceptable. No calcium carbonated or dolomitic sand substitutions are acceptable. No "rock dust" can be used for sand.

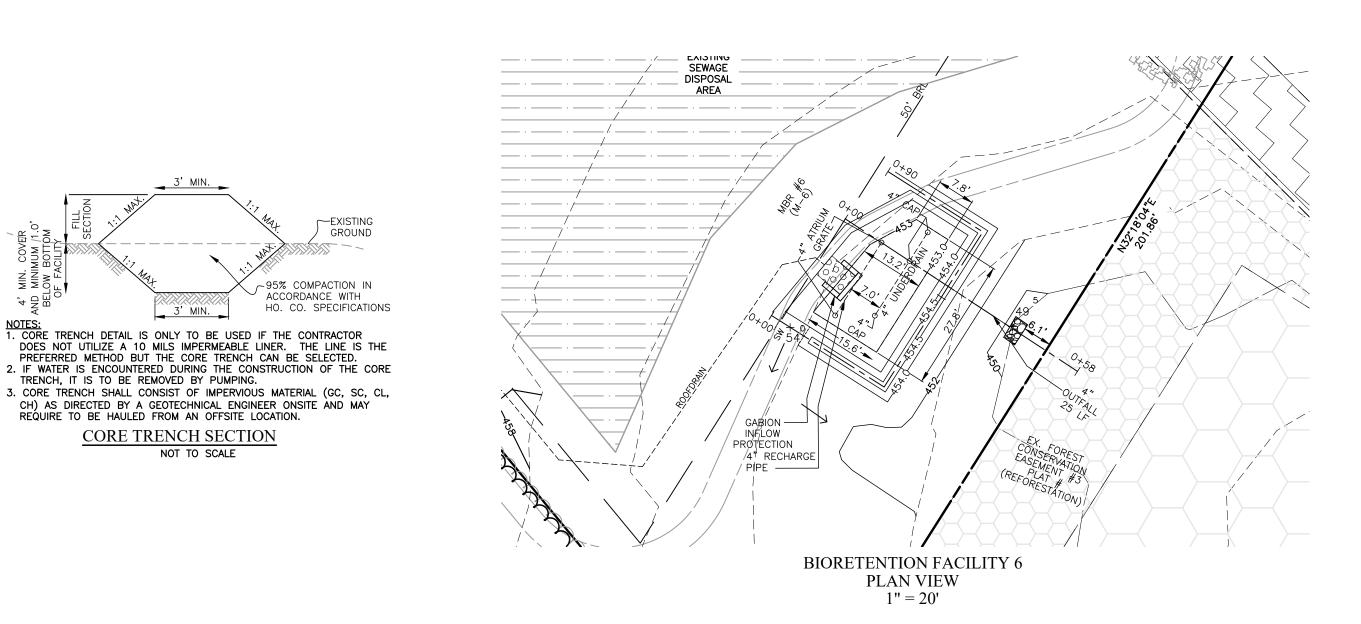
APPROVED: DEPARTMENT OF PUBLIC WO	RKS
DocuSigned by:	3/5/2024
CHIEF, BUREAU OF HIGHWAYS 4DA4C2	DATE
============	=======
APPROVED: DEPARTMENT OF PLANNING A	AND ZONING
DocuSigned by:	3/6/2024
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE
DocuSigned by: CHD Edmondson 7063E754EE41400	3/4/2024
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE



HORIZONTAL SCALE: 1" - 20'

VERTICAL SCALE: 1'' = 2'





(IN FEET)

1 inch = 20 ft.

FOR SEQUENCE OF OPERATIONS PLEASE SEE SEDIMENT CONTROL NOTES AND DETAILS.

NO. DATE REVISION Professional Certification. hereby certify that these BENCHMARK documents were prepared o approved by me, and that I am a duly licensed professiona ► ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS engineer under the laws of the State of Maryland, License No ENGINEERING, INC. 45577, Expiration Date: 06-08-2024. 3300 NORTH RIDGE ROAD ▲ SUITE 140 ▲ ELLICOTT CITY, MARYLAND 21043 (P) 410-465-6105 (F) 410-465-6644 WWW.BEI-CIVILENGINEERING.COM John M. Carney 02.16.2024 OWNER: CLARKSVILLE CROSSING, PHASE 2, AREA 2 CLARKSVILLE NL LLC A RESUBDIVISION OF CLARKSVILLE CROSSING, PHASE 2, AREA 1, NON-BUILDABLE C/O H&H ROCK COMPANIES BULK PARCEL 'B' (PLAT #)

TO CREATE LOT 11 AND BUILDABLE PRESERVATION PARCEL 'D' 6800 DEERPATH ROAD SUITE 100 ELKRIDGE, MD 21075 410-579-2442 GRID: 23 P/O PARCEL: 301 ZONED: RR-DEO ELECTION DISTRICT NO. 5 HOWARD COUNTY, MARYLAND DEVELOPER:

DATE: FEBRUARY, 2024

SCALE: AS SHOWN

ELEVATION VIEW

GABIONS MAY BE CUSTOM SIZES.

GABION INFLOW DETAIL SCALE: 1" = 5'

GABION BASKET 1'x1'x4' PLAN VIEW

ROCK REALTY, INC,

C/O H & H ROCK COMPANIES 6800 DEERPATH ROAD

SUITE #100 ELKRIDGE, MARYLAND 21075

410-579-2442

DRAWN: JC

DESIGN: JC

F-24-032

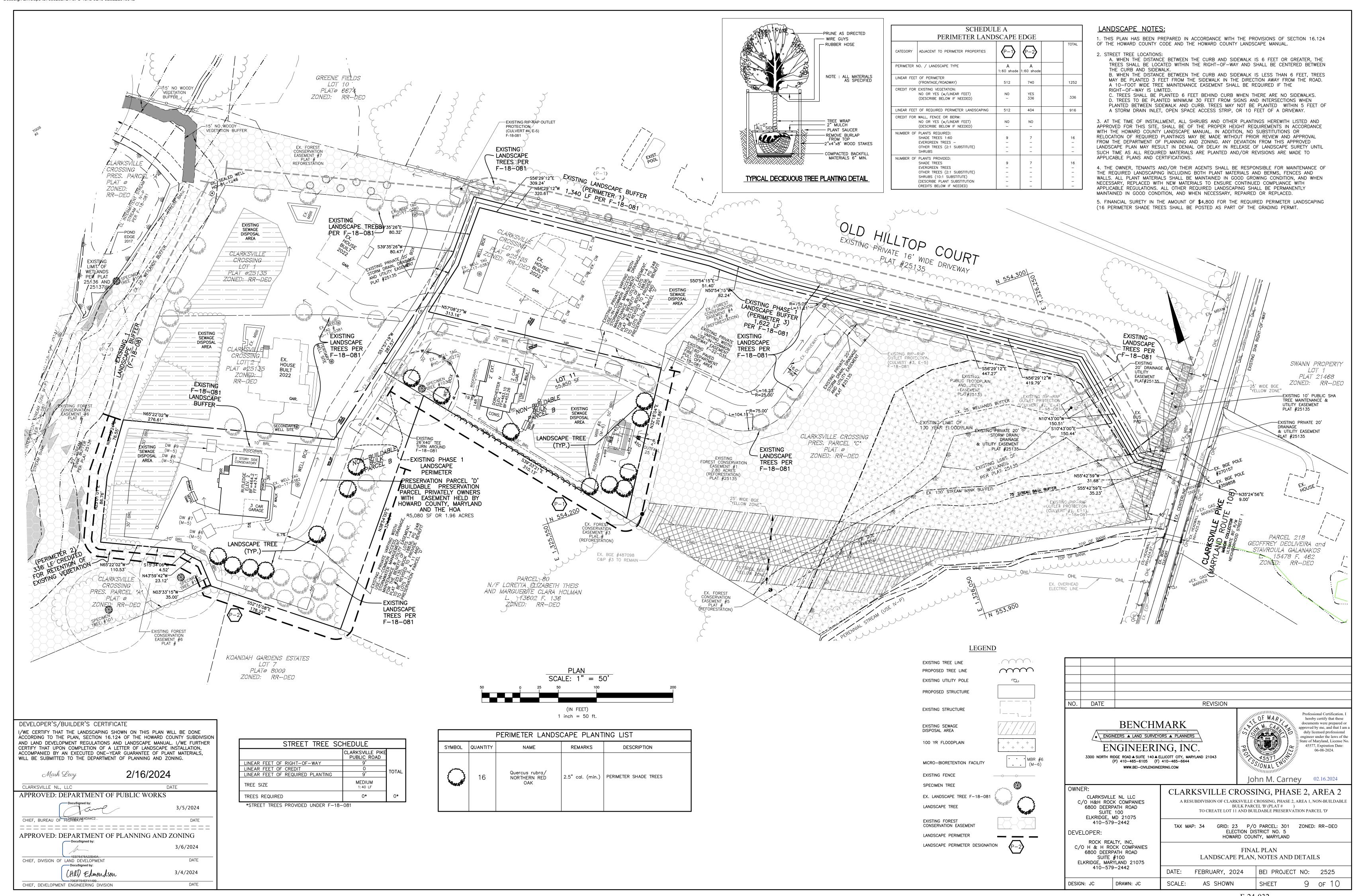
SHEET

BEI PROJECT NO: 2525

8 of 10

FINAL PLAN

STORMWATER MANAGEMENT NOTES AND DETAIL





October 23, 2013

Mr. Jason Vankirk
Elm Street Development
5704 Dorsey Hall Road, Suite 205
Ellicott City, Maryland 21042

Re: Clarksville Crossing Proposed SWM Project No. 113-097

Dear Mr. Vankirk:

On October 14 and 15, 2013 Geolab personnel conducted nine soil test borings at the above referenced site to determine the feasibility of the use of infiltration-based structures. These test borings were drilled with the intent of verifying that bedrock was not present to the minimum design depth and to verify the groundwater table. Each test boring was drilled using a hand-auger and advanced to a depth of 10 or 12 feet, auger refusal or groundwater.

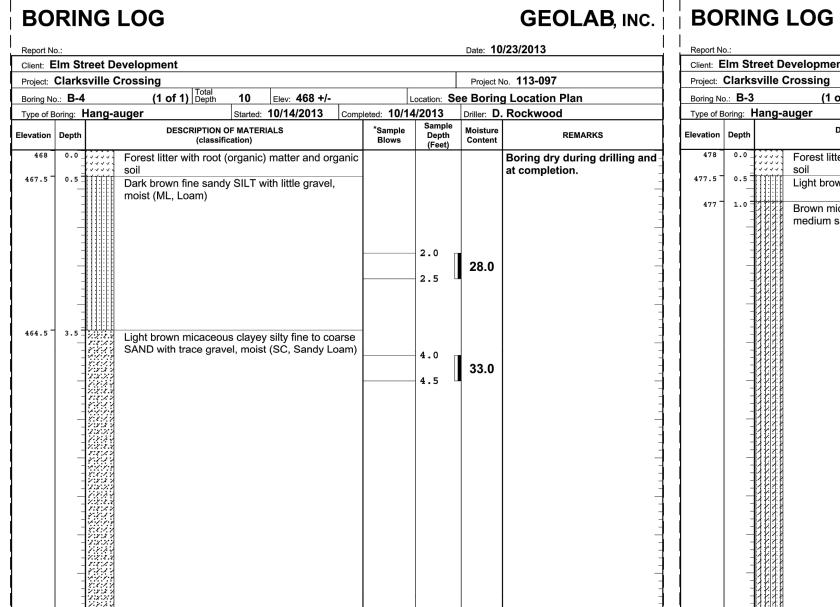
The project site is currently a single family residence which consists of both open fields and woodland areas. The current site grading consists of hills and valleys that ultimately are sloping downward to the east-southeast. A natural drainage feature, a small stream, is located in the southeast corner of the property. This stream flows to the east-southeast. The property is accessed by a single lane driveway leading from Clarksville Pike (Route 108).

Groundwater was encountered in Test Boring Nos. B-5, B-7 and B-8 during drilling at depths of 5.0 to 6.0 feet. After 24 hours, the water levels rose approximately 2 feet. Groundwater was not encountered in Test Boring Nos. B-1 through B-4, B-6 and B-9. Bedrock was not encountered in any of the test borings to the depths explored.

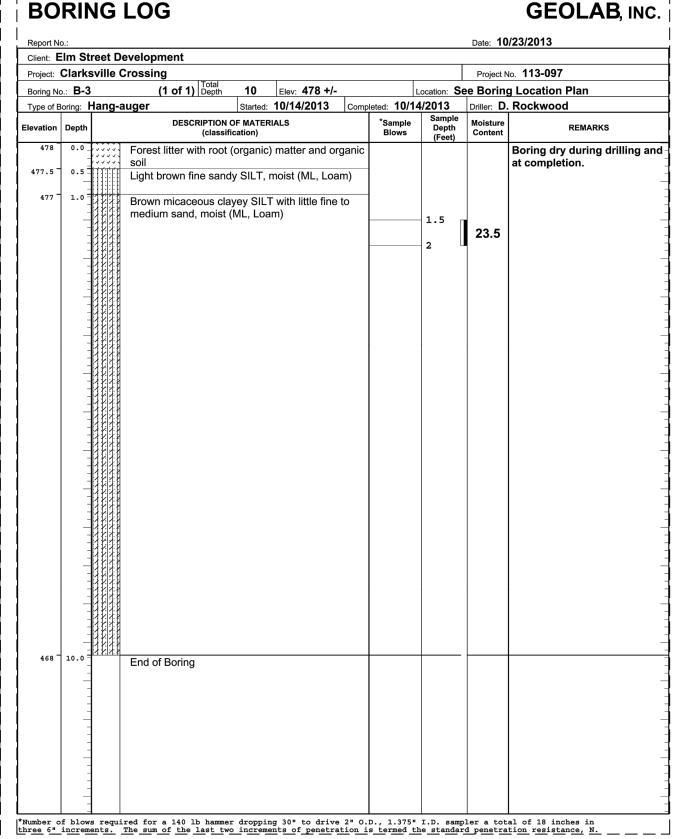
Laboratory tested was performed on representative samples at the approximate bottom of storm water device depth. The soils encountered in the test borings were classified using the USDA system as Sand, Sandy Loam, Silt Loam and Loam. The following hydrologic soil properties and infiltration rates are assigned to the USDA soil type recorded at the explored locations:

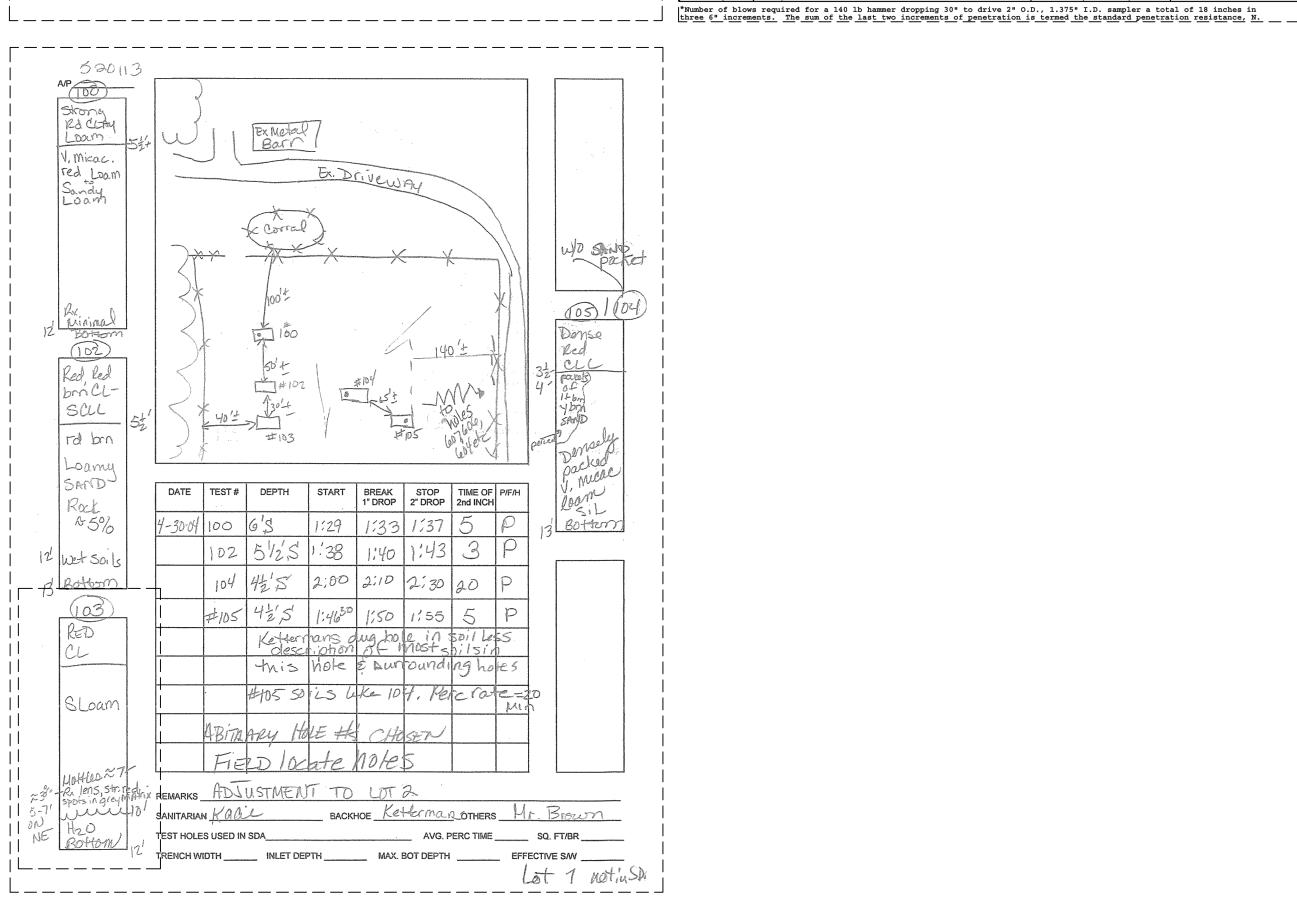
Texture Class	Effective Water Capacity (inches/hour)	Minimum Infiltration Rate (inches/hour)	Hydrologic Soil Group
SANDY LOAM	0.25	1.02	В
LOAM	0.19	0.52	В
SAND	0.34	8.27	A
SILT LOAM	0.17	0.27	С

8980 Route 108, Suite D, Columbia, Maryland 21045



End of Boring





	Clarksville Crossing, Phase 2, Area 2 - Geotechnical Analysis									
							Depth Media			
			Bottom	Test	Depth to		to Bottom of			
Facility	Туре	MDE	Media	Designation	Restriction*	Restriction Type	Test	Note		
MBR 6	Micro-bioretention	M-6	450.8	103	444.0	Excavation Depth	6.8			

* Water Restriction

