

CONSTRUCTION PLANS HUNTINGTON POINT LOTS 1-8, OPEN SPACE LOT 9 6TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

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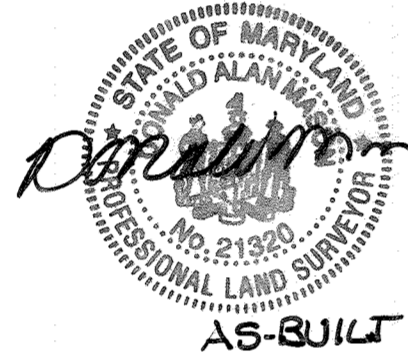
ADDRESS CHART	
LOT NO.	ADDRESS
1	9456 VOLLMERHAUSEN DRIVE
2	9454 VOLLMERHAUSEN DRIVE
3	9452 VOLLMERHAUSEN DRIVE
4	9450 VOLLMERHAUSEN DRIVE
5	9448 VOLLMERHAUSEN DRIVE
6	9446 VOLLMERHAUSEN DRIVE
7	9444 VOLLMERHAUSEN DRIVE
8	9442 VOLLMERHAUSEN DRIVE

Minimum Lot Size Chart			
Lot	Total Area (sf)	Flagstem Area (sf)	Min Lot Area (sf)
3	8,193	646	7,547
4	8,907	1,005	7,902
5	7,543	1,003	6,540
6	6,822	642	6,180

Note: Minimum lot size per zoning regulations (Section 110.0.D.2) is 6,000 sf.

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.

License No. **21443**, Expiration Date: **12-21-24**



AS-BUILT CERTIFICATION
I hereby certify, by my seal, that to the best of my knowledge and belief the facilities shown on this "AS-BUILT" Plan meet the Approved Plans and Specifications.

Donald Mason, P.E. Date: **12/2/22**

SITE DATA TABULATION

- GENERAL SITE DATA
 - PRESENT ZONING: R-SC
 - LOCATION: TAX MAP 42 - GRID 22 - PARCEL 167
 - APPLICABLE DPZ FILE REFERENCES: ECP-19-042, S-19-08, WP-19-081, P-20-004, 24-5125-D
 - DEED REFERENCE: L18641, F.320
 - PROPOSED USE OF SITE: 8 SINGLE FAMILY DETACHED RESIDENCES, & 1 OPEN SPACE LOT
 - PROPOSED WATER AND SEWER: PUBLIC AND PUBLIC
- AREA TABULATION
 - TOTAL AREA OF SITE..... 2.02 AC±
 - AREA OF 100 YEAR FLOODPLAIN (APPROX.)..... 0.00 AC±
 - AREA OF STEEP SLOPES (25% OR GREATER)..... 0.00 AC±
 - NET AREA OF SITE..... 2.02 AC±
 - AREA OF THIS PLAN SUBMISSION..... 2.02 AC±
 - LIMIT OF DISTURBANCE (APPROX.)..... 1.88 AC±
 - AREA OF PROPOSED BUILDABLE LOTS..... 1.32 AC±
 - AREA OF OPEN SPACE LOTS..... 0.70 AC±
 - AREA OF PROPOSED PUBLIC ROAD..... 0.00 AC±
 - AREA OF PROPOSED PUBLIC R/W DEDICATION..... 0.00 AC±
- DENSITY TABULATION
 - NET AREA OF SITE..... 2.02 AC±
 - TOTAL NUMBER OF LOTS ALLOWED PER ZONING..... 8
 - UNITS PER NET ACRE ALLOWED BY RIGHT
- UNITY/LOT TABULATION
 - REQUIRED OPEN SPACE (FULL OBLIGATION)..... 0.51 AC±
 - OPEN SPACE PROVIDED..... 0.70 AC±
 - NON-CREDIT OPEN SPACE..... 0.03 AC±
 - CREDITED OPEN SPACE..... 0.67 AC±
 - PERCENT OF CREDITED OPEN SPACE PROVIDED..... 33%
 - FEE-IN-LIEU OF OPEN SPACE REQUIREMENT..... NA

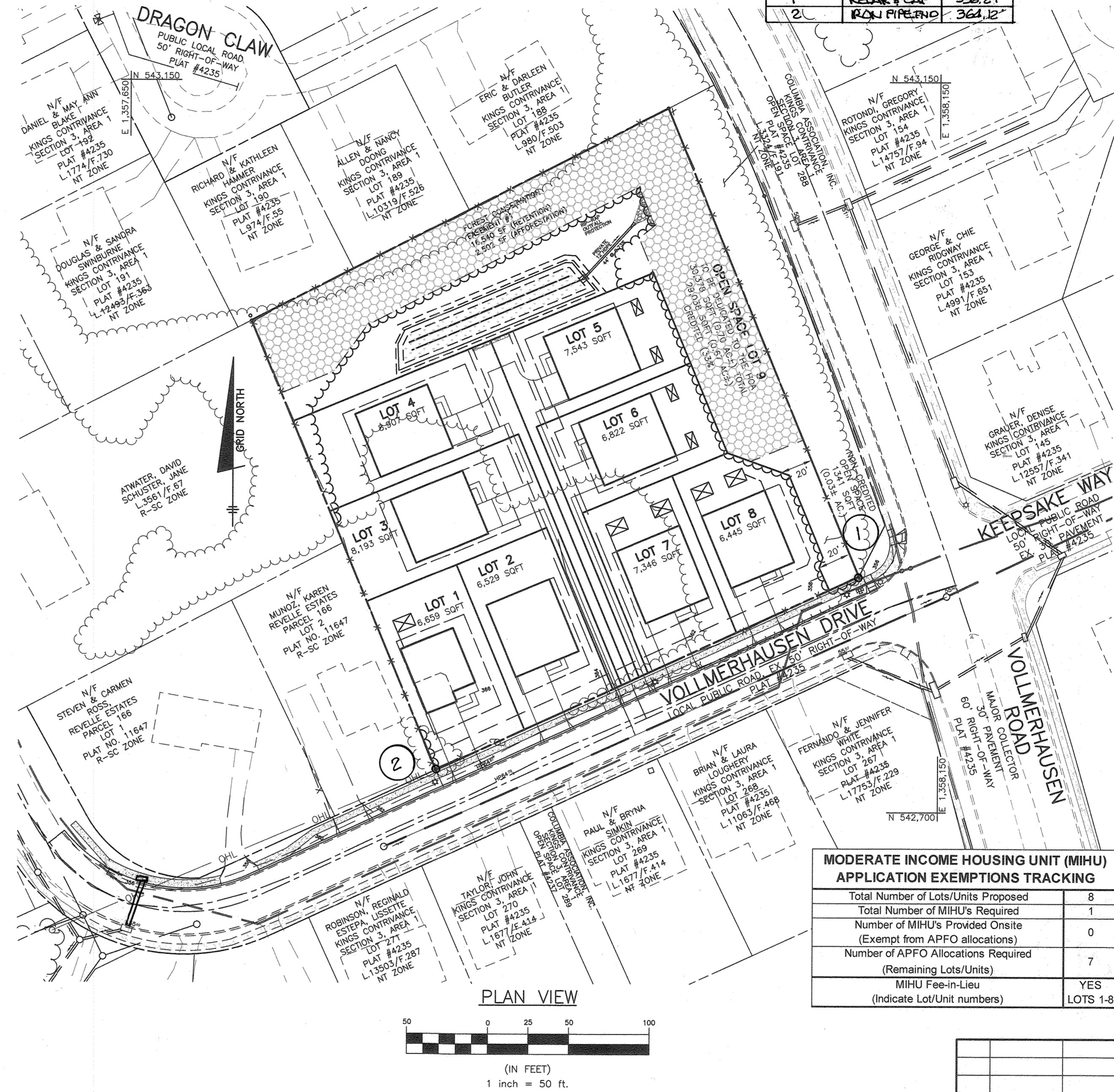
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 [Signature] 12/2/2020
 CHIEF, BUREAU OF HIGHWAYS MK

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 [Signature] 1/14/23
 CHIEF, DIVISION OF LAND DEVELOPMENT

APPROVED: [Signature] 1-14-23
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

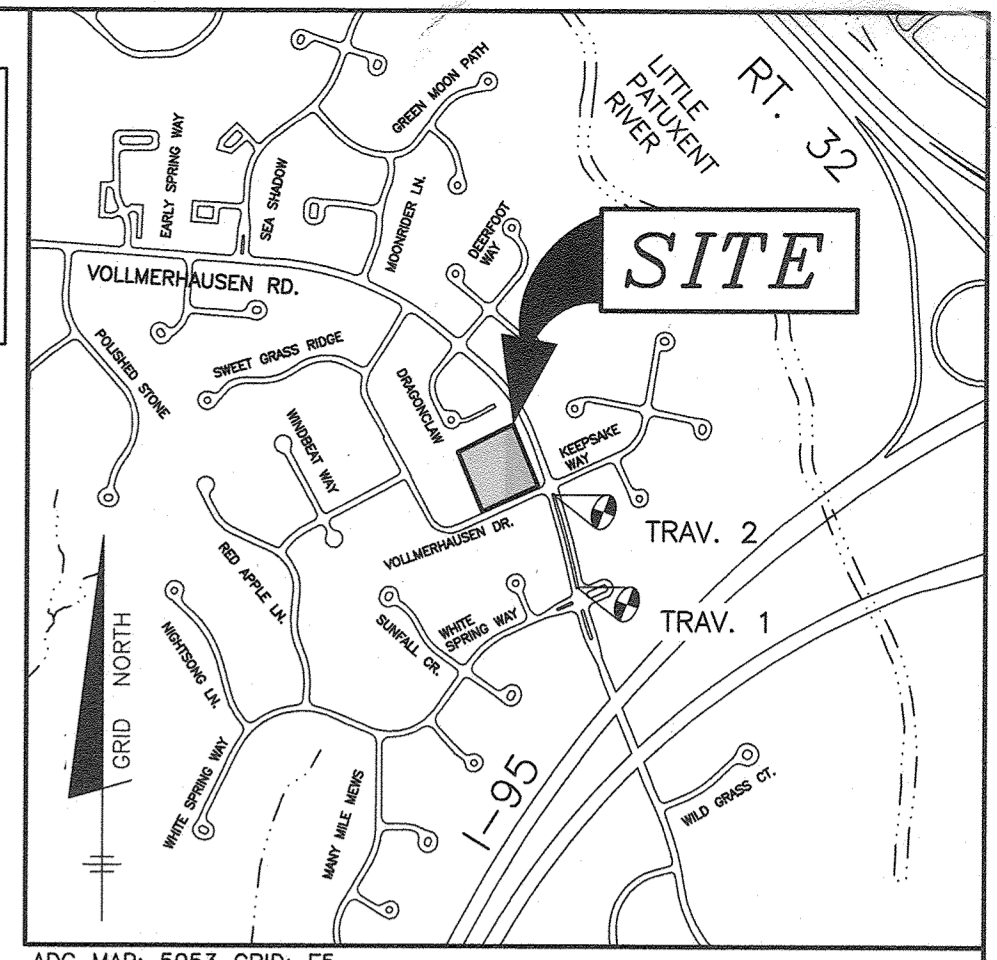
GENERAL NOTES

- THIS PROJECT IS IN CONFORMANCE WITH THE LATEST HOWARD COUNTY STANDARDS UNLESS WAIVERS HAVE BEEN APPROVED.
- SUBJECT PROPERTY ZONED R-SC PER THE 10-06-2013 COMPREHENSIVE ZONING PLAN.
- THE EXISTING TOPOGRAPHY ON-SITE IS TAKEN FROM FIELD SURVEY WITH 2 FOOT CONTOUR INTERVALS PREPARED BY BENCHMARK ENGINEERING, INC. DATED FEBRUARY, 2019. SURROUNDING TOPOGRAPHY IS TAKEN FROM HOWARD COUNTY GIS. THE EXISTING UTILITIES SHOWN ARE TAKEN FROM FIELD SURVEY, CONTRACT DRAWINGS, AND COUNTY GIS INFORMATION.
- THE COORDINATES SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL WHICH IS BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM AS ESTABLISHED FROM GIS OBSERVATION. MONUMENTS "TRAV.1" & "TRAV.2" WERE USED FOR THIS PROJECT.
- PROJECT BOUNDARY IS BASED ON A SURVEY BY BENCHMARK ENGINEERING, INC., DATED FEBRUARY, 2019.
- A NOISE STUDY IS NOT REQUIRED FOR THIS PROJECT AS IT DOES NOT MEET ANY OF THE REQUIREMENTS FOR A NOISE STUDY AS DEFINED IN SECTION 5.2.F.2 OF THE HOWARD COUNTY DESIGN MANUAL, VOLUME III.
- THE FOREST STAND DELINEATION REPORT AND THE WETLANDS CERTIFICATION LETTER WERE PREPARED BY ECO-SCIENCE PROFESSIONALS, INC., DATED MARCH, 2019 AND APPROVED UNDER S-19-008.
- TRAFFIC STUDY WAS PREPARED BY MARS GROUP FEBRUARY, 2019 AND APPROVED UNDER THE REVIEW OF S-19-008 ON 6/19/19.
- THE GEOTECHNICAL REPORT FOR THIS PROJECT WAS PREPARED BY GEOTECHNICAL LABORATORIES, INC., DATED SEPTEMBER, 2019 AND APPROVED UNDER P-20-004.
- TO THE BEST OF OUR KNOWLEDGE, THERE ARE NO CEMETERY LOCATIONS ON-SITE.
- THERE ARE NO HISTORIC SITES/STRUCTURES LOCATED ON THIS SITE. THE PREVIOUSLY EXISTING STRUCTURES ON-SITE HAVE BEEN REMOVED UNDER DEMO PERMIT #19002675.
- THERE ARE NO WETLANDS, WETLANDS BUFFERS, STREAMS, STREAM BANK BUFFERS, 100-YR FLOODPLAIN, OR STEEP SLOPES 25% AND GREATER THAT ARE MORE THAN 20,000 SF OF CONTIGUOUS AREA LOCATED ON THIS SITE PER THE WETLAND CERTIFICATION & FOREST STAND DELINEATION REPORT PREPARED BY ECO-SCIENCE PROFESSIONALS, INC., DATED MARCH, 2019 AND APPROVED UNDER S-19-008.
- THERE APPEARS TO BE EXISTING WELL(S) ON THE PROPERTY. THOSE SHALL BE PROPERLY ABANDONED IN ACCORDANCE WITH THE HOWARD COUNTY BUREAU OF ENVIRONMENTAL HEALTH. THIS WILL BE DONE PRIOR TO FINAL PLAT APPROVAL.
- THE REQUIRED PRE-SUBMISSION COMMUNITY MEETING WAS HELD ON FEBRUARY 28, 2019 AT 6:00PM IN THE HOWARD COUNTY PUBLIC LIBRARY EAST COLUMBIA BRANCH.
- THIS SUBDIVISION IS SUBJECT TO SECTION 18.122B OF THE HOWARD COUNTY CODE. PUBLIC WATER AND/OR SEWER SERVICE HAS BEEN GRANTED UNDER THE TERMS AND PROVISIONS, THEREOF, EFFECTIVE 11/21/2020 ON WHICH DATE, DEVELOPERS AGREEMENT NUMBER F-20-081 WAS FILED AND ACCEPTED.
- THIS PROPERTY IS LOCATED WITHIN THE METROPOLITAN DISTRICT. PUBLIC WATER WILL CONNECT TO EX. CONTRACTS 24-0833-D & 24-0817-D; SEWER MAIN WILL CONNECT TO EX. CONTRACT 24-0833-D. DRAINAGE IS LITTLE PATUXENT WRP.
- FREE FLOW SPEED STUDY WAS PREPARED BY MARS GROUP ON MARCH, 2019 AND THE SIGHT DISTANCE ANALYSIS WAS APPROVED UNDER S-19-008.
- 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 FLAG OR PIPESTEM LOT DRIVEWAY.
- DRIVEWAYS SHALL BE PROVIDED PRIOR TO ISSUANCE OF A USE AND OCCUPANCY PERMIT FOR ANY NEW DWELLINGS TO INSURE SAFE ACCESS FOR FIRE AND EMERGENCY VEHICLES PER THE FOLLOWING MINIMUM REQUIREMENTS:
 - WIDTH - 12' (16' SERVING MORE THAN ONE RESIDENCE).
 - SURFACE - 6" OF COMPACT CRUSHER RUN BASE WITH 1-1/2" MIN. TAR & CHIP COATING.
 - GEOMETRY - MAX. 15% GRADE, MAX. 10% GRADE CHANGE & MIN. 45' TURNING RADIUS.
 - STRUCTURES/CULVERTS/BRIDGES - CAPABLE OF SUPPORTING 25 GROSS TONS (H25 LOAD)
 - DRAINAGE ELEMENTS - CAPABLE OF SAFELY PASSING 100 YEAR FLOODPLAIN WITH NO MORE THAN 1 FOOT DEPTH OVER DRIVEWAY.
 - MAINTENANCE - SUFFICIENT TO ENSURE ALL WEATHER USE.
 - STRUCTURE CLEARANCE - MINIMUM 12 FEET
- A PRIVATE RANGE OF ADDRESS SIGN ASSEMBLY SHALL BE FABRICATED AND INSTALLED BY HOWARD COUNTY BUREAU OF HIGHWAYS AT THE DEVELOPERS/OWNERS EXPENSE. CONTACT HOWARD COUNTY TRAFFIC DIVISION AT 410-313-2430 FOR DETAILS AND COST ESTIMATES.
- THE TRAFFIC CONTROL DEVICE LOCATIONS SHOWN ON THE BASE PLANS ARE APPROXIMATE AND MUST BE FIELD APPROVED BY HOWARD COUNTY TRAFFIC DIVISION (410-313-2430) PRIOR TO THE INSTALLATION OF ANY OF THE TRAFFIC CONTROL DEVICES.
- ALL TRAFFIC CONTROL DEVICES AND THEIR LOCATIONS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE "MARYLAND MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUMUTCD).
- ALL SIGN POSTS USED FOR TRAFFIC CONTROL SIGNS INSTALLED IN THE COUNTY RIGHT-OF-WAY SHALL BE MOUNTED ON A 2" GALVANIZED STEEL, PERFORATED ("QUICK PUNCH"), SQUARE TUBE POST (14 GAUGE) INSERTED INTO A 2-1/2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE SLEEVE (12 GAUGE) - 3' LONG. THE ANCHOR SHALL NOT EXTEND MORE THAN TWO "QUICK PUNCH" HOLES ABOVE GROUND LEVEL. A GALVANIZED STEEL POLE CAP SHALL BE MOUNTED ON TOP OF EACH POST.
- THE FOREST CONSERVATION REQUIREMENTS FOR THIS SUBDIVISION SHALL BE ADDRESSED PRIOR TO RECORDATION OF THE FINAL SUBDIVISION PLAT AND SHALL BE PROVIDED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.1200 OF THE SUBDIVISION REGULATIONS AND FOREST CONSERVATION MANUAL. THE FOREST CONSERVATION OBLIGATION FOR THIS SUBDIVISION SHALL BE SATISFIED BY THE USE OF ON-SITE RETENTION OF 0.4 ACRES WITHIN A FOREST CONSERVATION EASEMENT; REFORESTATION OF 0.06 ACRES WITHIN A FOREST CONSERVATION EASEMENT AND A FEE-IN-LIEU PAYMENT OF \$7,623.00 FOR 0.14 ACRES OF REMAINING OBLIGATIONS.
- THIS DEVELOPMENT IS DESIGNED TO BE IN ACCORDANCE WITH SECTION 16.127 - RESIDENTIAL INFILL DEVELOPMENT - OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS. THIS PROJECT IS COMPATIBLE WITH THE ADJACENT RESIDENTIAL NEIGHBORHOOD BY CONSISTING OF THE SAME UNIT TYPES (SFD). THIS PROJECT IS INTEGRATED WITH THE SURROUNDING RESIDENTIAL DEVELOPMENT BY INTERCONNECTING SIDEWALKS & OPEN SPACE WITH THOSE LOCATED OFF-SITE, AND BY INCORPORATING & PRESERVING THE FOREST CONSERVATION & SPECIMEN TREE PROTECTION ALONG THE NORTHWESTERN BOUNDARY LINE. LOTS, BUILDINGS & SITE IMPROVEMENTS ARE CONFIGURED TO PROVIDE PRIVACY BY THE LOCATION OF THE FOREST CONSERVATION EASEMENT, NON-CREDITED FOREST RETENTION, OPEN SPACE, ORIENTATION OF THE HOUSES, PERIMETER LANDSCAPING, AND MITIGATION TREE PLANTING ALONG THE BOUNDARY.
- THIS PROJECT IS SUBJECT TO THE AMENDED FIFTH EDITION OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS PER COUNCIL BILL 45-2003 AND THE ZONING REGULATIONS AS AMENDED BY COUNCIL BILL 75-2003. DEVELOPMENT OR CONSTRUCTION ON THESE LOTS MUST COMPLY WITH SETBACK AND BUFFER REGULATIONS IN EFFECT AT THE TIME OF SUBMISSION OF THE SITE DEVELOPMENT PLAN, WAIVER PETITION APPLICATION, OR BUILDING/GRADING PERMIT.
- LANDSCAPING FOR LOTS 1 THRU 8 IS PROVIDED WITH A CERTIFIED LANDSCAPE PLAN IN ACCORDANCE WITH SECTION 16.124 OF THE HOWARD COUNTY CODE AND LANDSCAPE MANUAL. FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING IN THE AMOUNT OF \$14,820 FOR 37 SHADE TREES, 24 UNDERSTORY/ORNAMENTAL TREES, & 4 SHRUBS, SHALL BE POSTED WITH THE FINAL PLAT.
- THIS PROJECT IS SUBJECT TO SECTION 13.402 OF THE COUNTY CODE FOR MODERATE INCOME HOUSING UNITS (MIHU). PER SECTION 13.402C, THIS REQUIREMENT SHALL BE MET BY A FEE-IN-LIEU PAYMENT THAT IS TO BE CALCULATED AND PAID TO THE DEPARTMENT OF INSPECTIONS LICENSES AND PERMITS AT THE TIME OF BUILDING PERMIT ISSUANCE.
- PER SECTION 16.121(a)(2), THIS PROJECT IS SUBJECT TO 25% OPEN SPACE OR 21,998 SF. THERE IS NO RECREATIONAL OPEN SPACE REQUIREMENT FOR THIS PROJECT, SINCE THERE ARE LESS THAN 10 LOTS PER SECTION 16.121(a)(4)(i) OF THE SUBDIVISION REGULATIONS. OPEN SPACE LOT 9 SHALL BE ACCESSED THROUGH THE USE-IN-COMMON DRIVEWAY, PER SECTION 16.121(a)(2) OF THE SUBDIVISION REGULATIONS.
- STORMWATER MANAGEMENT ENVIRONMENTAL SITE DESIGN (ESD) HAS BEEN PROVIDED IN ACCORDANCE WITH THE "MARYLAND DEPARTMENT OF THE ENVIRONMENT STORMWATER MANAGEMENT ACT OF 2007" AND THE "HOWARD COUNTY DESIGN MANUAL VOLUME I, CHAPTER 5" TO THE MAXIMUM EXTENT PRACTICAL. STORMWATER MANAGEMENT IS PROVIDED BY ONE (M-6) MICRO-BIORETENTION PRACTICES, NINE (M-5) DRY WELLS, AND FOUR (N-2) NON-ROOFTOP DISCONNECTION. ALL FACILITIES ARE PRIVATELY OWNED AND PRIVATELY MAINTAINED. THE STORMWATER MANAGEMENT SYSTEM SHOWN ON THESE PLANS IS AN APPROXIMATION OF SIZE, SHAPE, AND LOCATION. IT IS UNDERSTOOD THAT THIS SYSTEM HAS NOT BEEN FINALIZED AND THE ACTUAL DESIGN MAY CHANGE ALTERING THE NUMBER OF UNITS ALLOCATED FOR THIS PROJECT.
- MODIFIED CURB & GUTTER AND ROADWAY IMPROVEMENTS SHALL BE INSTALLED APPROXIMATELY 250' TO THE WEST THRU THE CURVE ALONG VOLLMERHAUSEN DRIVE FROM THE SUBJECT SITE. THE DEVELOPER'S SIDEWALK IMPROVEMENTS SHALL EXTEND FROM THE BOUNDARY APPROXIMATELY 30' TO THE EAST AT THE INTERSECTION OF VOLLMERHAUSEN ROAD, AND APPROXIMATELY 127' TO THE WEST UNTIL THE DRIVEWAY OF REVELLE ESTATES, LOT 1.
- ALTERNATIVE COMPLIANCE, WP-19-081, WAS APPROVED BY THE DIRECTOR ON MAY 30, 2019, TO SECTION 16.1205(a)(7), WHICH ALLOWS FOR REMOVAL OF 22 SPECIMEN TREES. THE ALTERNATIVE TO SPECIMEN TREE RETENTION WAS PLANTING OF LANDSCAPE TREES AT A 2:1 RATIO. THE ALTERNATIVE COMPLIANCE WAS APPROVED SUBJECT TO THE FOLLOWING CONDITION:
 - REMOVAL OF THE TWENTY-TWO (22) SPECIMEN TREES WILL REQUIRE REPLACEMENT MITIGATION AT A RATIO OF TWO (2) LARGE CALIPER NATIVE TREE SPECIES (AT LEAST THREE (3) INCHES DBH) FOR EACH SPECIMEN TREE REMOVED (44 TREES TOTAL). THE MITIGATION PLANTING CAN BE PROVIDED AS PART OF THE REQUIRED LANDSCAPING FOR THIS PROJECT. YOU MUST SUBMIT A REVISED LANDSCAPE PLAN WITH YOUR FINAL SUBDIVISION PLAN FOR THIS PROPERTY, THAT SHOWS HOW YOU PLAN TO ADDRESS THIS ALTERNATIVE FOREST CONSERVATION MITIGATION.
- HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING HAS REVIEWED AND APPROVED THE USE OF UPPER AND UNDERSTORY TREES TO ADDRESS THE SPECIMEN TREE REMOVAL MITIGATION.
- DESIGN MANUAL WAVEY DMV2-20-006 WAS APPROVED BY LETTER DATED NOVEMBER 21, 2019, TO HOWARD COUNTY DESIGN MANUAL VOL. II, SECTION 5.4.8.5 TO ALLOW FOR PERMANENT STRUCTURE TO BE WITHIN 10' OF A SHARED PUBLIC WATER, SEWER, & UTILITY EASEMENT.
 - IN REVIEW OF THE PROPOSED WAIVER, IT WAS NOTED THAT WHILE THE FULL 30' WATER & SEWER EASEMENT WILL BE PROVIDED FOR ACCESS TO THE UTILITIES, ACCESS WILL HAVE TO BE PERFORMED CAUTIOUSLY BECAUSE STRUCTURES WILL ONLY BE 7' FROM HEAVY CONSTRUCTION EQUIPMENT. HOWEVER, IN CONSIDERATION OF THE BUILDING CONSTRAINTS CITED, CONSIDERING THE UTILITIES ARE SMALL DIAMETER AND THE SEWER IS NOT EXCESSIVELY DEEP (APPROXIMATELY 13' MAXIMUM), AND THAT THE PROPOSED UTILITIES WILL BE NEW WITH A DESIGN LIFE OF 50 YEARS OR MORE, THIS WAIVER REQUEST IS APPROVED.
- STREET LIGHT PLACEMENT AND TYPE OF FIXTURES AND POLE SHALL BE IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL, VOLUME III (DECEMBER 2017) AND AS MODIFIED BY "GUIDELINES FOR STREET LIGHTS IN RESIDENTIAL DEVELOPMENTS (JUNE 1993)." A MINIMUM SPACING OF 20' SHALL BE MAINTAINED BETWEEN ANY STREETLIGHT AND ANY TREE.
- THE PRIVATE USE-IN-COMMON MAINTENANCE ACCESS AGREEMENT FOR LOTS 3 THRU 6 & OPEN SPACE LOT 9 SHALL BE RECORDED SIMULTANEOUSLY WITH THE RECORDATION OF THE SUBDIVISION PLAT.
- THE ARTICLES OF INCORPORATION FOR THE HOMEOWNERS ASSOCIATION HAVE BEEN ACCEPTED BY THE STATE DEPARTMENT OF ASSESSMENTS AND TAXATION, ID #20721072. THE HOMEOWNER'S DECLARATION OF COVENANTS AND RESTRICTIONS ARE RECORDED WITH THE PLAT.
- 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.
- THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS IF APPLICABLE.
- THE FOREST CONSERVATION EASEMENT HAS BEEN ESTABLISHED TO FULFILL THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY CODE AND FOREST CONSERVATION ACT. NO CLEARING, GRADING, OR CONSTRUCTION IS PERMITTED WITHIN THE FOREST CONSERVATION EASEMENT, HOWEVER FOREST MANAGEMENT PRACTICES AS DEFINED IN THE DEED OF FOREST CONSERVATION EASEMENT ARE ALLOWED.
- THE RESIDENTIAL DRIVEWAYS FOR LOTS 1, 2, 7, & 8, AND USE-IN-COMMON DRIVE CONNECTIONS ALONG VOLLMERHAUSEN DRIVE SHALL CONFORM TO HO.CO. STD. R-6.03.



RIGHT OF WAY ELEVATION		
R/W PNT NO.	DESCRIPTION	ELEVATION
1	REBAR & CAP	356.29'
2	RAW PIPELINE	364.12'

BENCHMARKS NAD83 HORIZONTAL	
TRAV. 1 REBAR AND CAP	N542370.1616', E1358287.1054' ELEVATION: 361.128'
TRAV. 2 REBAR AND CAP	N542808.3770', E1358170.8510' ELEVATION: 356.641'



VICINITY MAP
SCALE: 1" = 2000'

LEGEND

- EXISTING CONTOURS
- SOILS TYPE (ENTIRE SITE)
- PROJECT BOUNDARY
- EXISTING TREELINE
- EXISTING STRUCTURES
- SPECIMEN TREE TO REMAIN
- SPECIMEN TREE TO BE REMOVED
- SPECIMEN TREE TO REMAIN CRITICAL ROOT ZONE
- PROPOSED CONTOURS
- PROPOSED TREELINE
- PROPOSED SEWER
- PROPOSED WATER
- PROPOSED MICRO-BIORETENTION FACILITY (M-6)
- PROPOSED DRYWELL (M-5)
- NON-ROOFTOP DISCONNECTION AREA (N-2)
- SWM DRAINAGE AREA TO MBR-1
- SWM DRAINAGE AREA TO DRYWELLS
- DRAINAGE AREA DESIGNATION
- BORING LOCATION
- FOREST CONSERVATION EASEMENT

MODERATE INCOME HOUSING UNIT (MIHU) APPLICATION EXEMPTIONS TRACKING	
Total Number of Lots/Units Proposed	8
Total Number of MIHUs Required	1
Number of MIHUs Provided Onsite (Exempt from APFO allocations)	0
Number of APFO Allocations Required (Remaining Lots/Units)	7
MIHU Fee-in-Lieu (Indicate Lot/Unit numbers)	YES LOTS 1-8

PRIVATE ESD STORMWATER MANAGEMENT INFORMATION									
LOT	Street Address	Practice		Name	Quantity	Ownership	HOA Maintenance	Misc.	
		MDE	Type						
LOT 1	9456 Vollmerhausen Drive	(M-5)	Drywell	DW-1	1	Private	N/A		
		(N-2)	Non-Rooftop Disconnection	NRDC-1	1	Private	N/A		
LOT 2	9454 Vollmerhausen Drive	(N-2)	Non-Rooftop Disconnection	NRDC-2	1	Private	N/A		
LOT 5	9448 Vollmerhausen Drive	(M-5)	Drywell	DW-2	2	Private	N/A		
		(M-5)	Drywell	DW-3	2	Private	N/A		
LOT 6	9446 Vollmerhausen Drive	(M-5)	Drywell	DW-4	2	Private	N/A		
		(M-5)	Drywell	DW-5	2	Private	N/A		
LOT 7	9444 Vollmerhausen Drive	(M-5)	Drywell	DW-6	2	Private	N/A		
		(N-2)	Non-Rooftop Disconnection	NRDC-3	1	Private	N/A		
LOT 8	9442 Vollmerhausen Drive	(M-5)	Drywell	DW-8	2	Private	N/A		
		(N-2)	Non-Rooftop Disconnection	NRDC-4	1	Private	N/A		

H.O.A. ESD STORMWATER MANAGEMENT INFORMATION									
LOT	Street Address	Practice		No.	Quantity	Ownership	HOA Maintenance	Misc.	
		MDE	Type						
OS 9	N/A	(M-6)	Micro-Bioretenion	MB-1	1	H.O.A.	YES		

NO.	DATE	REVISION
1	6/30/21	REVISE EX. & PROP. LOCATIONS OF 1-2 AND SO PIPE

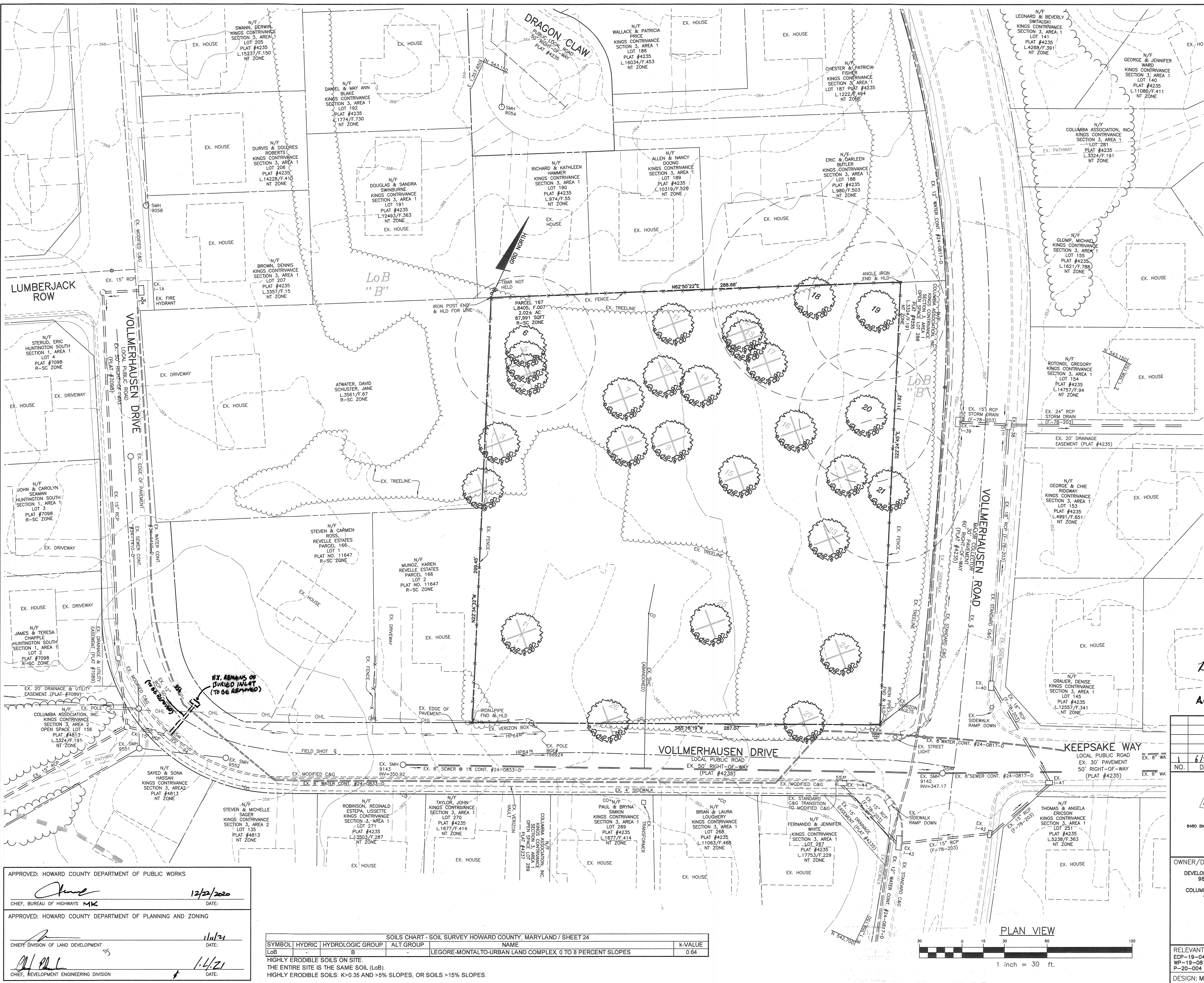
BENCHMARK ENGINEERING, INC.
 ENGINEERS & LAND SURVEYORS & PLANNERS
 8480 BALTIMORE NATIONAL PIKE SUITE 315A ELLICOTT CITY, MARYLAND 21043
 (P) 410-465-8105 (F) 410-465-8664
 WWW.BE-CIVLENGINEERING.COM

OWNER/DEVELOPER:
 DEVELOPMENT PARTNERS, LLC
 9693 GERWING LANE
 SUITE 1
 COLUMBIA, MARYLAND 21046
 410-792-2565

HUNTINGTON POINT
 LOTS 1 thru 8 and OPEN SPACE LOT 9
 9454 VOLLMERHAUSEN DR. COLUMBIA, MARYLAND 21046
 TAX MAP: 42, GRID: 22 PARCEL: 167
 ZONED: R-SC
 ELECTION DISTRICT NO. 6 - HOWARD COUNTY, MARYLAND

RELEVANT FILE NUMBERS:
 ECP-19-042, S-19-008,
 WP-19-081, DMV2-20-006,
 P-20-004
 DESIGN: MP/MR DRAFT: MP/MR

COVER SHEET
 DATE: NOVEMBER, 2020 BEI PROJECT NO. 2952
 SCALE: AS SHOWN SHEET 1 OF 10



Specimen Tree Chart						
No.	Species	Size (in. dbh)	CRZ (ft. radius)	Condition	Status	
1	Tulip Poplar	55	82.5	Fair, Some Dieback	TBR	
2	Tulip Poplar	38	57	Fair, Limited Crown	TBR	
3	Tulip Poplar	34	51	Fair, Limited Crown	TBR	
4	Tulip Poplar	32	48	Fair, Limited Crown	TBR	
5	Tulip Poplar	35	52.5	Fair, Limited Crown	TBR	
6	Tulip Poplar	33	49.5	Fair, Limited Crown	SAVE	
7	Tulip Poplar	30	45	Fair, Limited Crown	TBR	
8	Tulip Poplar	31	46.5	Fair, Limited Crown	TBR	
9	Tulip Poplar	43	64.5	Fair, Limited Crown	TBR	
10	Tulip Poplar	31.5	47.25	Fair, Limited Crown	TBR	
11	Tulip Poplar	39	58.5	Fair, Limited Crown	TBR	
12	Tulip Poplar	34.5	51.75	Fair, Limited Crown	TBR	
13	Tulip Poplar	46.5	69.75	Fair, Limited Crown	TBR	
14	Tulip Poplar	32	48	Fair, Limited Crown	TBR	
15	Tulip Poplar	35.5	53.25	Fair, Limited Crown	TBR	
16	Tulip Poplar	37	55.5	Fair, Limited Crown	TBR	
17	Tulip Poplar	30	45	Fair, Limited Crown	TBR	
18	Tulip Poplar	48	72	Fair, Limited Crown	SAVE	
19	Tulip Poplar	32.5	48.75	Fair, Limited Crown	SAVE	
20	Tulip Poplar	31.5	47.25	Fair, Limited Crown	SAVE	
21	Tulip Poplar	34	51	Fair, Limited Crown	SAVE	
22	Tulip Poplar	30	45	Fair, Limited Crown	TBR	
23	Tulip Poplar	39.5	59.25	Fair, Limited Crown	TBR	
24	Tulip Poplar	30	45	Fair, Limited Crown	TBR	
25	Willow Oak	38	57	Fair, Some Dieback, CRZ Impact	TBR	
26	Tulip Poplar	39.5	59.25	Fair, Some Dieback, CRZ Impact	TBR	
27	Tulip Poplar	47	70.5	Fair, Some Dieback, CRZ Impact	TBR	

"NO AS-BUILT INFORMATION IS PROVIDED ON THIS SHEET"



Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
 License No. 21443, Expiration Date: 12-21-24

NO.	DATE	REVISION
1	6/30/24	REVISE EX. & PROP. LOCATIONS OF 1-2 AND SD PIPE

BENCHMARK ENGINEERS & LAND SURVEYORS & PLANNERS
 ENGINEERING, INC.
 9480 BALTIMORE NATIONAL PARK, SUITE 3104 ELICOTT CITY, MARYLAND 21043
 (P) 410-465-8100 (F) 410-465-4644
 WWW.BE-COENGINEERING.COM

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
 License No. 45577, Expiration Date: 6-08-2022

OWNER/DEVELOPER:
 DEVELOPMENT PARTNERS, LLC
 9993 GERWIG LANE
 SUITE L
 COLUMBIA, MARYLAND 21046
 410-792-2955

HUNTINGTON POINT
 LOTS 1 thru 8 and OPEN SPACE LOT 9

9454 VOLLMERHAUSEN DR. COLUMBIA, MARYLAND 21046
 TAX MAP: 42, GRID: 22, PARCEL: 167
 ZONED: R-5C
 ELECTION DISTRICT NO. 6 - HOWARD COUNTY, MARYLAND

EXISTING CONDITIONS PLAN

DATE: NOVEMBER, 2020 BEI PROJECT NO. 2952
 DESIGN: MP/MR DRAFT: MP/MR SCALE: AS SHOWN SHEET 2 OF 10

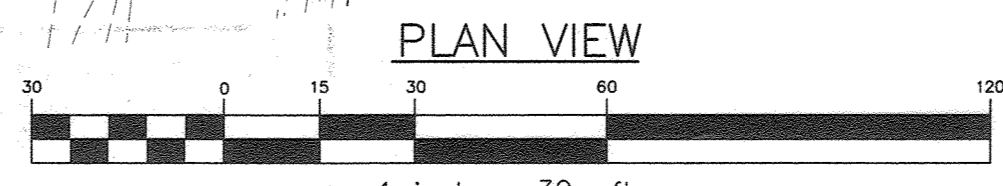
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 12/22/2020
 CHIEF, BUREAU OF HIGHWAYS MK

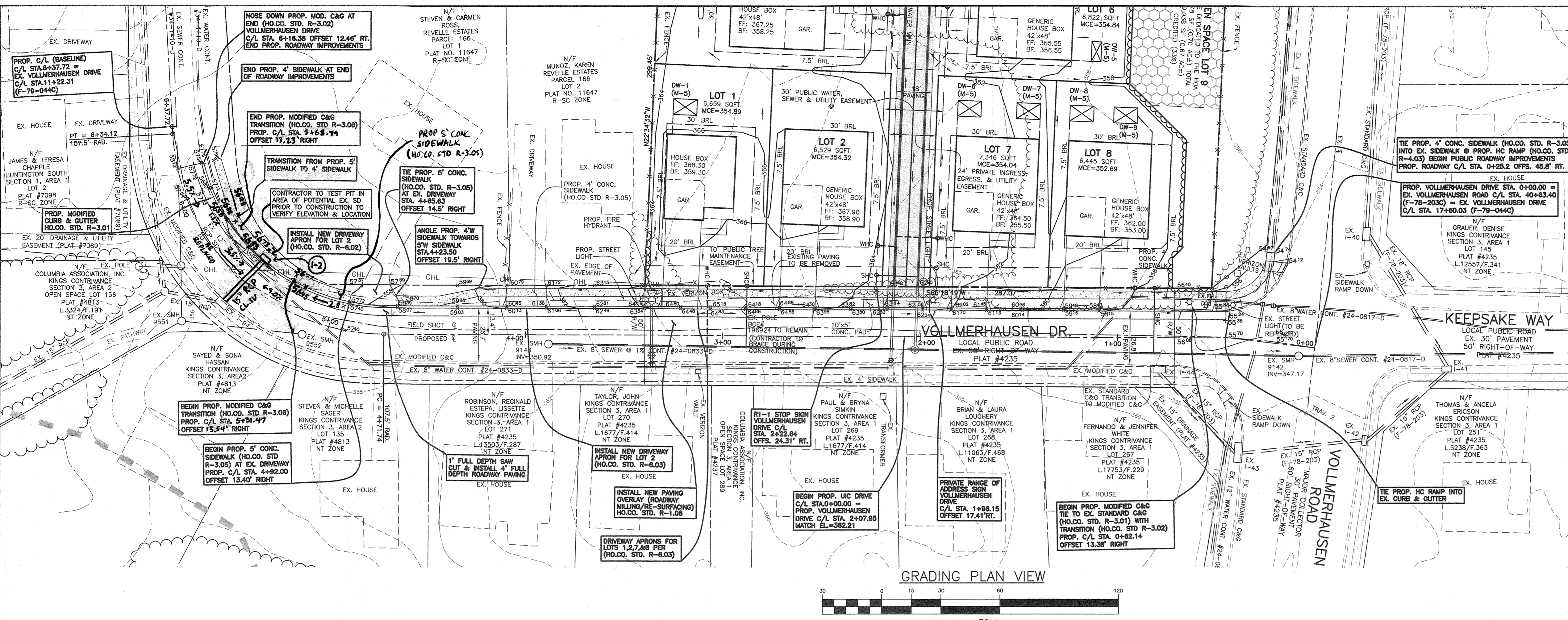
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 11/1/24
 CHIEF DIVISION OF LAND DEVELOPMENT

1/4/21
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

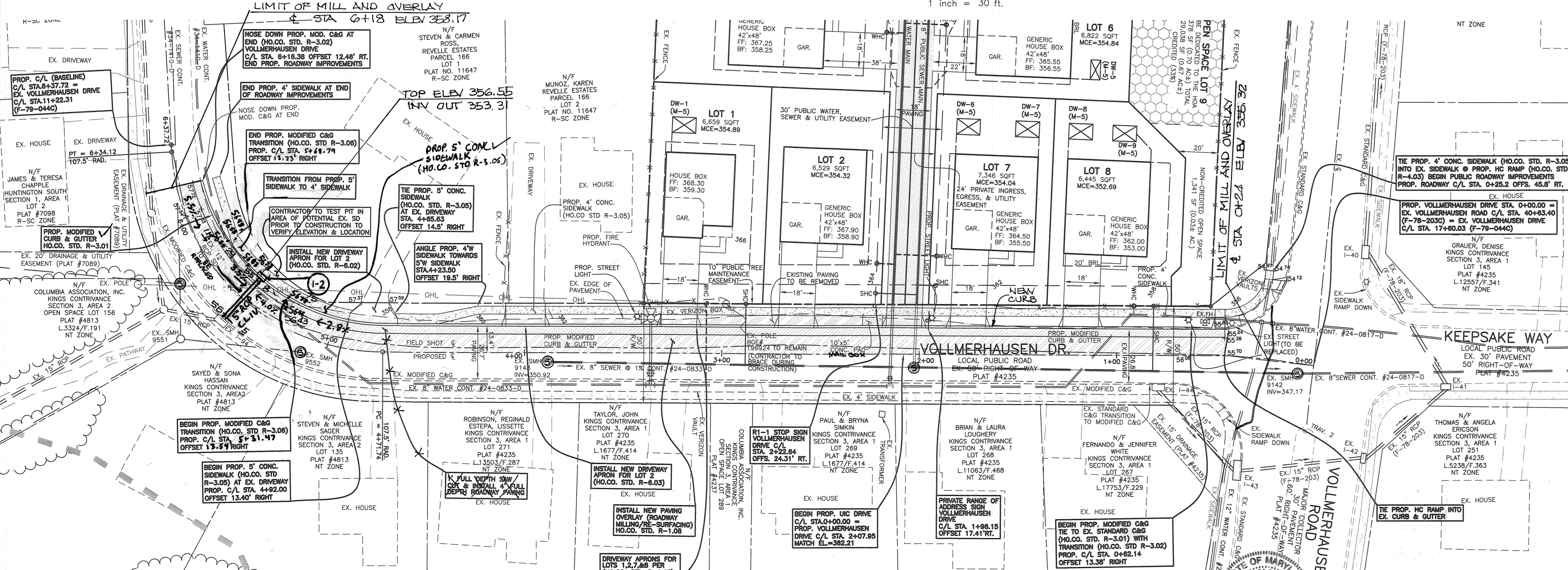
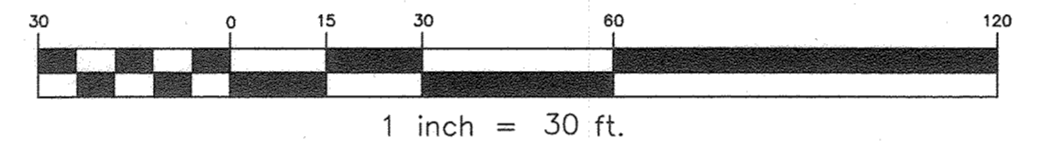
SOILS CHART - SOIL SURVEY HOWARD COUNTY, MARYLAND / SHEET 24			
SYMBOL	HYDRIC	HYDROLOGIC GROUP	ALT. GROUP
LoB	-	B	LEGORE-MONTALTO-URBAN LAND COMPLEX 0 TO 8 PERCENT SLOPES

HIGHLY ERODIBLE SOILS ON SITE.
 THE ENTIRE SITE IS THE SAME SOIL (LoB).
 HIGHLY ERODIBLE SOILS: K<0.35 AND >5% SLOPES, OR SOILS >15% SLOPES.

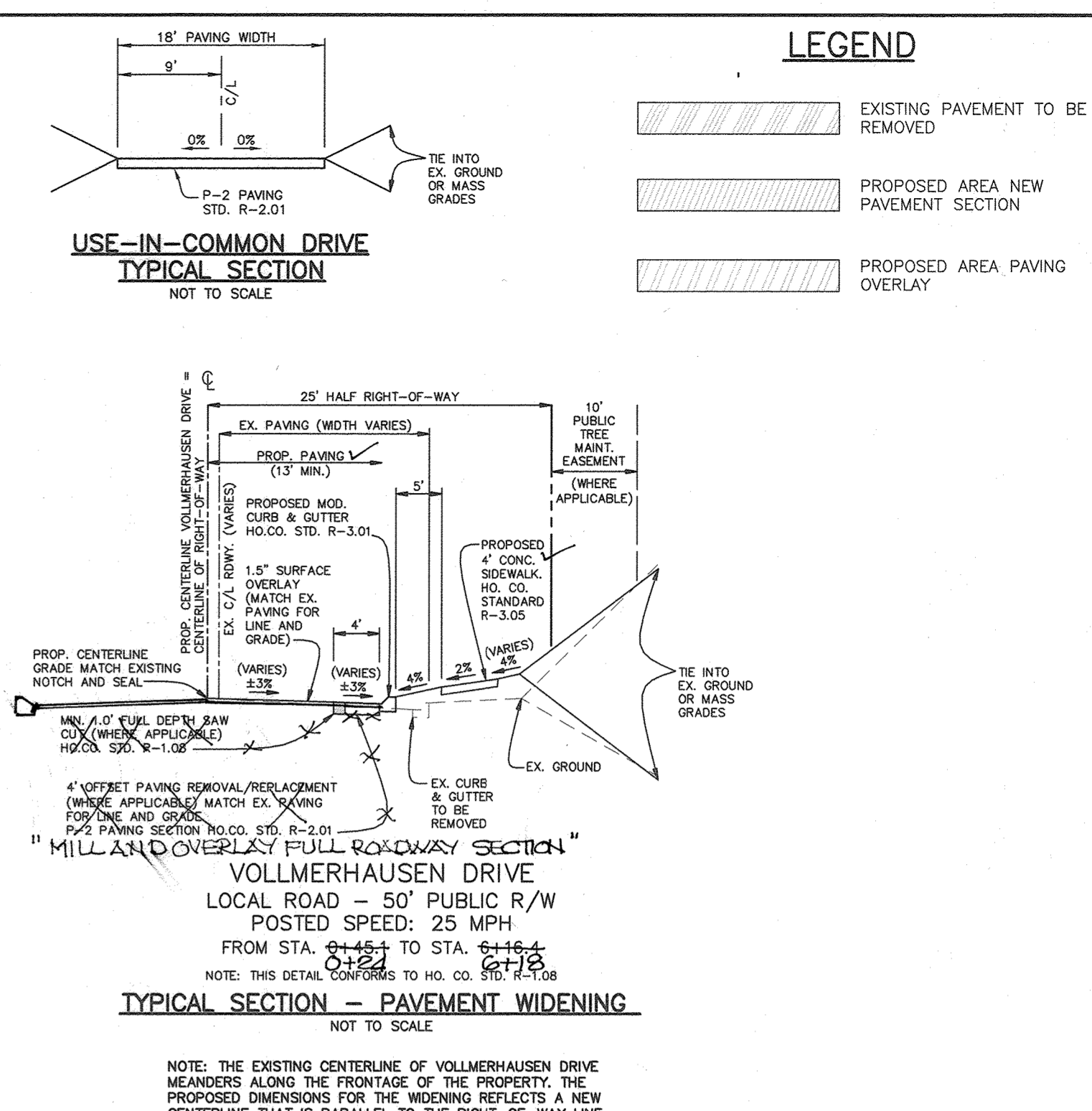
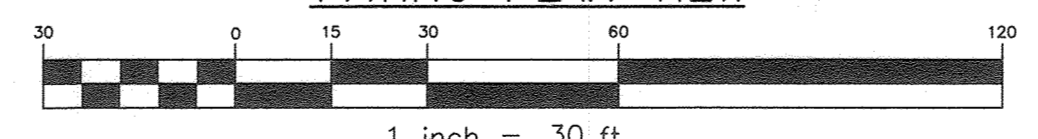




GRADING PLAN VIEW



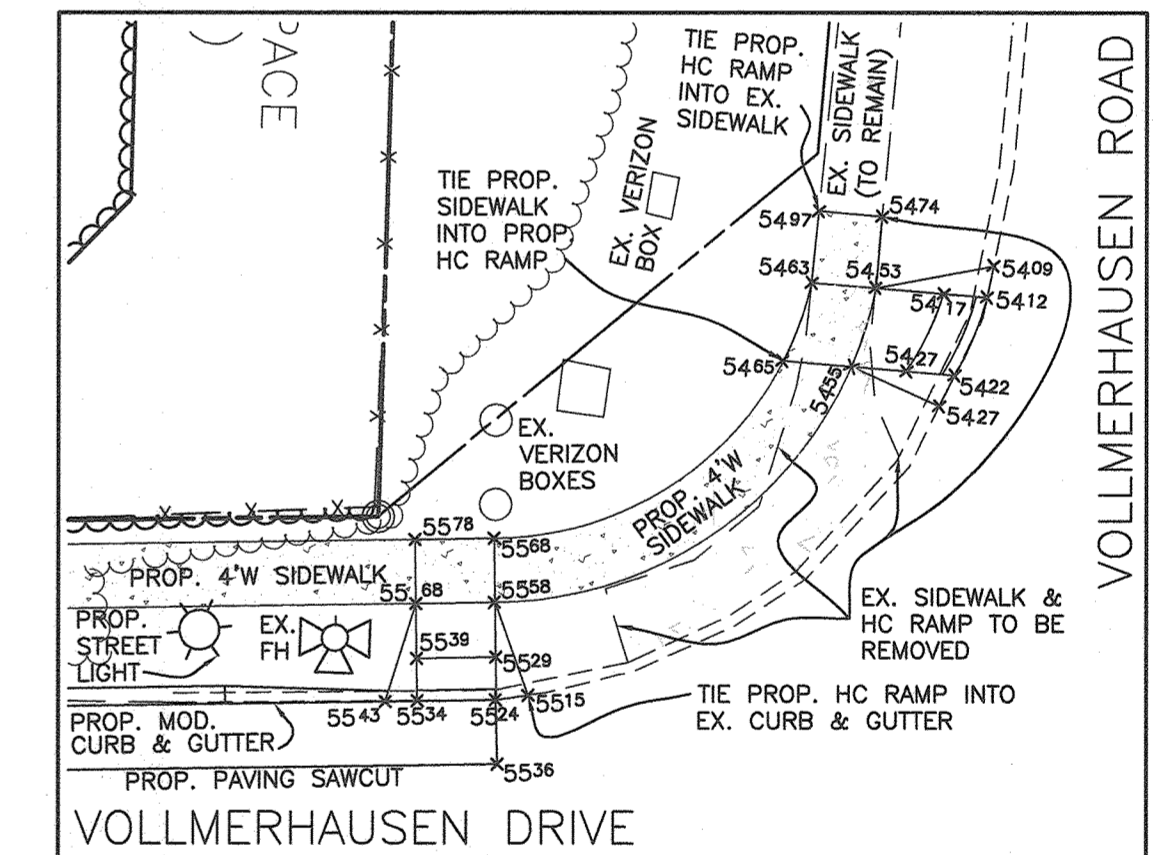
PAVING PLAN VIEW



DRIVEWAY APRONS FOR LOTS 1,2,7,&8, AND THE USE-IN-COMMON DRIVE PER HO.CO. STD. R-6.03

ROADWAY PATCHING FOR UTILITY CONNECTIONS PER HO.CO. STD. G-4.01

STREET LIGHT SCHEDULE			
SYMBOL	STREET	LOCATION	NOTES
	VOLLMERHAUSEN DRIVE	(EXISTING) C/L STA. 0+43.3' 16.8' OFFSET RT.	LED 100 COLONIAL POST TOP FIXTURE MOUNTED ON A 14" BLACK FIBERGLASS POLE
	VOLLMERHAUSEN DRIVE	C/L STA. 1+03.8' 18.4' OFFSET RT.	LED 100 COLONIAL POST TOP FIXTURE MOUNTED ON A 14" BLACK FIBERGLASS POLE
	VOLLMERHAUSEN DRIVE	C/L STA. 3+42.9' 18.4' OFFSET RT.	LED 100 COLONIAL POST TOP FIXTURE MOUNTED ON A 14" BLACK FIBERGLASS POLE



HC RAMP DETAIL

SCALE: 1" = 12"

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 [Signature] 12/23/2020
 CHIEF, BUREAU OF HIGHWAYS MK
 DATE: 12/23/2020

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 [Signature] 1/14/21
 CHIEF, DIVISION OF LAND DEVELOPMENT
 DATE: 1/14/21

NOTE: IMPROVEMENTS TO ADJOINING NEIGHBOR DRIVEWAYS ARE TO BE LIMITED TO WHAT CAN BE BUILT & STABILIZED IN SINGLE DAY'S ACTIVITY

NOTE: UTILITY WORK WITHIN EXISTING ROADWAYS SHALL BE LIMITED TO THAT WHICH CAN BE BACKFILLED AND/OR STABILIZED BY THE END OF THE DAY'S CONSTRUCTION ACTIVITIES

NOTE: CONTRACTORS TO EXERCISE EXTREME CAUTION WHEN WORKING IN THE AREA OF EXISTING OVERHEAD LINES

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
 License No. 21443 Expiration Date: 12-21-24

SEE SHEET 6 FOR MAINTENANCE OF TRAFFIC DETAILS

1 6/2021 REVISE EX. & PROP. LOCATIONS OF I-2 AND 50 RPE

NO.	DATE	REVISION
1	6/2021	REVISE EX. & PROP. LOCATIONS OF I-2 AND 50 RPE

BENCHMARK ENGINEERING, INC.
 8480 BALTIMORE NATIONAL PIKE SUITE 315A ELLOTT CITY, MARYLAND 21043
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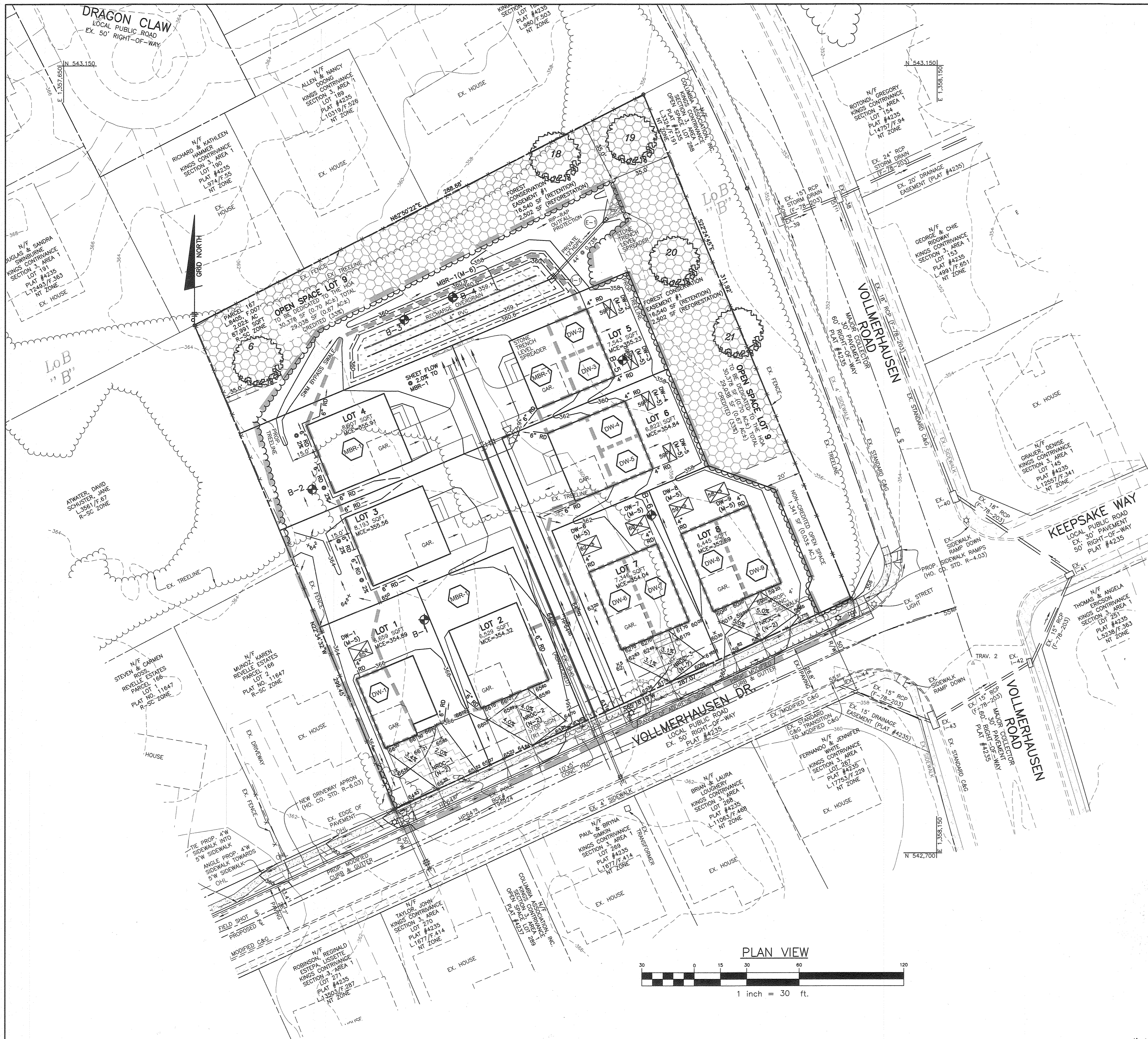
OWNER/DEVELOPER:
 DEVELOPMENT PARTNERS, LLC
 9693 GERWING LANE
 COLUMBIA, MARYLAND 21046
 410-792-2955

HUNTINGTON POINT
 LOTS 1 thru 8 and OPEN SPACE LOT 9

9454 VOLLMERHAUSEN DR. COLUMBIA, MARYLAND 21046
 TAX MAP: 42, GRID: 22, PARCEL: 167
 ZONED: R-3C
 ELECTION DISTRICT NO. 6 - HOWARD COUNTY, MARYLAND

RELEVANT FILE NUMBERS:
 ECP-19-042, S-19-008,
 WP-19-081, DMV-20-006,
 P-20-004

ROADWAY IMPROVEMENTS PLAN
 DATE: NOVEMBER, 2020 BEI PROJECT NO. 2952
 DESIGN: MP/MR DRAFT: MP/MR SCALE: AS SHOWN SHEET 3 OF 10



LEGEND

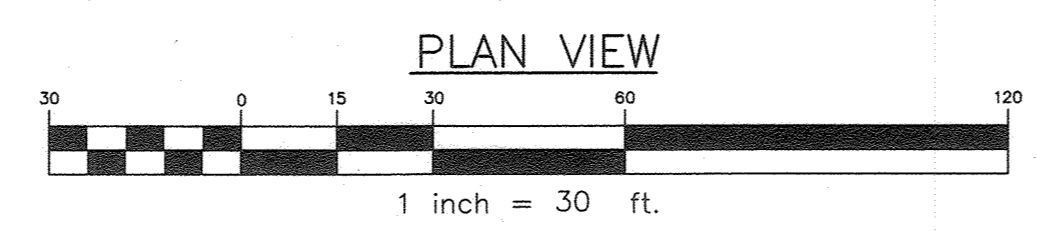
- EXISTING CONTOURS
- SOILS DELINEATION LINE
- SOILS TYPE
- PROPOSED BOUNDARY
- ADJACENT PROPERTY OWNER
- EXISTING TREELINE
- SPECIMEN TREE TO REMAIN
- PROPOSED CONTOURS
- PROPOSED TREELINE
- PROPOSED SEWER
- PROPOSED WATER
- PROPOSED MICRO-BIORETENTION FACILITY (M-6)
- PROPOSED DRYWELL (M-5)
- NON-ROOFTOP DISCONNECTION AREA (N-2)
- SWM DRAINAGE AREA TO MBR-1
- SWM DRAINAGE AREA TO DRYWELLS
- DRAINAGE AREA DESIGNATION
- BORING LOCATION

ESD STORMWATER MANAGEMENT SUMMARY TABLE

LOT	MDE	Practice Type	No.	DA (sf)	Imp Area (sf)	% Imp	Rv	Pe required	Required	At (sf)	2% DA?	ESDv (cf)	Pe Provided	Rev Required	Rev Provided	Ownership	
OS 9	(M-6)	Micro-Bioretenion	MB-1	28,700	13,737	48%	0.48	1.8	574	1833.3	PASS	2070	2,857	2.5	590	609	H.O.A.
LOT 1	(M-5)	Drywell	DW-1	805	805	100%	0.95	1.8	0	96	PASS	115	192				Private
LOT 5	(M-5)	Drywell	DW-2	504	504	100%	0.95	1.8	0	50	PASS	72	100				Private
LOT 5	(M-5)	Drywell	DW-3	504	504	100%	0.95	1.8	0	50	PASS	72	100				Private
LOT 6	(M-5)	Drywell	DW-4	504	504	100%	0.95	1.8	0	50	PASS	72	100				Private
LOT 6	(M-5)	Drywell	DW-5	504	504	100%	0.95	1.8	0	50	PASS	72	100				Private
LOT 7	(M-5)	Drywell	DW-6	1,008	1,008	100%	0.95	1.8	0	96	PASS	144	192				Private
LOT 7	(M-5)	Drywell	DW-7	1,008	1,008	100%	0.95	1.8	0	96	PASS	144	192				Private
LOT 8	(M-5)	Drywell	DW-8	1,008	1,008	100%	0.95	1.8	0	96	PASS	144	192				Private
LOT 8	(M-5)	Drywell	DW-9	1,008	1,008	100%	0.95	1.8	0	96	PASS	144	192				Private
LOT 1	(N-2)	Non-Rooftop Disconnection	NRDC-1	1,016	332	33%	0.34	1.8	332	684	N/A	29	20				Private
LOT 2	(N-2)	Non-Rooftop Disconnection	NRDC-2	824	342	42%	0.42	1.8	342	482	N/A	29	17				Private
LOT 7	(N-2)	Non-Rooftop Disconnection	NRDC-3	699	313	45%	0.45	1.8	313	368	N/A	26	15				Private
LOT 8	(N-2)	Non-Rooftop Disconnection	NRDC-4	700	293	42%	0.43	1.8	293	407	N/A	25	14				Private

Totals per individual Drainage Area: 38,792 21,870 56% 0.56 3156 4283
 Totals per Overall Site: 70,208 26,350 38% 0.39 1.8 4084 4283

Notes:
 1. The Pe required column is based on total site Pe calculation. The Rv is based on individual drainage area percent impervious (per DED)
 2. Total Site Pe and Total Site ESDv numbers are based on the LOD within the Effective Area.
 3. Infiltration rates (at least 0.52 inches/hour) in borings B-1, B-2, B-5 and B-6 suggest infiltration practices are acceptable, see Geotechnical Report.



SOILS CHART - SOIL SURVEY HOWARD COUNTY, MARYLAND / SHEET 24

SYMBOL	HYDRIC	HYDROLOGIC GROUP	ALT. GROUP	NAME	K-VALUE
LoB		B		LEGORE-MONTALTO-URBAN LAND COMPLEX 0 TO 8 PERCENT SLOPES	0.64

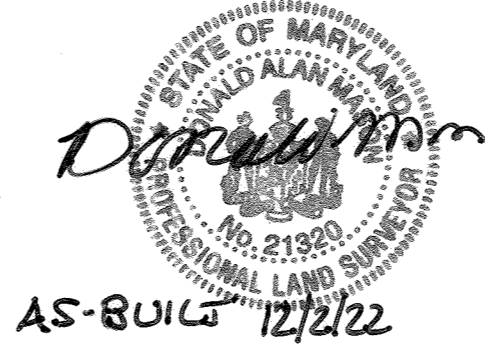
HIGHLY ERODIBLE SOILS ON SITE
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APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 [Signature] 1/4/23/2020
 CHIEF, BUREAU OF HIGHWAYS MK
 DATE: 1/4/23

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 [Signature] 1/4/23
 CHIEF, DIVISION OF LAND DEVELOPMENT
 DATE: 1/4/23

CHIEF, DEVELOPMENT ENGINEERING DIVISION
 DATE: 1/4/23

"NO AS-BUILT INFORMATION IS PROVIDED ON THIS SHEET"



Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
 License No. 21443, Expiration Date: 12-21-24

NO. DATE REVISION

BENCHMARK ENGINEERS, INC.
 ENGINEERS & LAND SURVEYORS & PLANNERS
 8480 BALTIMORE NATIONAL PIKE SUITE 3154 ELICOTT CITY, MARYLAND 21043
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 License No. 45577, Expiration Date: 6-08-2022
 [Signature] 4/13/20

OWNER/DEVELOPER:
 DEVELOPMENT PARTNERS, LLC
 9693 GERWIG LANE
 SUITE L
 COLUMBIA, MARYLAND 21046
 410-792-2885

HUNTINGTON POINT
 LOTS 1 thru 8 and OPEN SPACE LOT 9

9454 VOLLMERHAUSEN DR. COLUMBIA, MARYLAND 21046
 TAX MAP: 42, GRID: 22, PARCEL: 167
 ELECTION DISTRICT NO. 6 - HOWARD COUNTY, MARYLAND

RELEVANT FILE NUMBERS:
 ECP-19-042, S-19-008,
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 P-20-004

DATE: NOVEMBER, 2020 BEI PROJECT NO. 2952

DESIGN: MP/MR DRAFT: MP/MR SCALE: AS SHOWN SHEET 4 OF 10

CONSTRUCTION SPECIFICATIONS

B.4.C Specifications for Micro-Bioretentation, Rain Gardens, Landscape Infiltration & Infiltration Basins

1. Material Specifications:

The allowable materials to be used in these practices are detailed in Table B.4.1.

2. Filtering Media or Planting Soil:

The soil shall be a uniform mix, free of stones, stumps, roots or other similar objects larger than two inches. No other materials or substances shall be mixed or dumped within the micro-bioretentation 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 (80%-65%) and compost (35% to 40%) or sandy loam (30%), coarse sand (30%), and compost (40%).
- Clay Content - Media shall have a clay content of less than 5%.
- pH Range - Should be between 5.5 - 7.0. Amendments (e.g., lime, iron sulfate plus sulfur) may be mixed into the soil to increase or decrease pH.

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

3. Compaction:

It is very important to minimize compaction of both the base of bioretention practices and the required backfill. When possible, use excavation hoists 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 restructure 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.

4. Plant Material:

Recommended plant material for micro-bioretentation practices can be found in Appendix A, Section A.2.3.

5. Plant Installation:

Compost is a better organic material source, is less likely to float, and should be placed in the invert and other low areas. Mulch should be placed in surrounding to a uniform thickness of 2" to 3". Shredded or chipped hardwood mulch is the only accepted mulch. Pine mulch and wood chips will float and move to the perimeter of the bioretention area during a storm event and are not acceptable. Shredded mulch must be well aged (6 to 12 months) for acceptance.

Rootstock of the plant material shall be kept moist during transport and on-site storage. The plant root ball should be planted so 1/8th of the ball is above final grade surface. The diameter of the planting pit shall be at least six inches larger than the diameter of the planting ball. Set and maintain the plant straight during the entire planting process. Thoroughly water ground bed cover after installation.

Trees shall be braced using 2" by 2" stakes only as necessary and for the first growing season only. Stakes are to be equally spaced on the outside of the tree ball.

Grasses and legume seed should be drilled into the soil to a depth of at least one inch. Grass and legume plugs shall be planted following the non-grass ground cover planting specifications.

The topsoil specifications provide enough organic material to adequately supply nutrients from natural cycling. The primary function of the bioretention structure is to improve water quality. Adding fertilizers defeats, or at a minimum, impedes this goal. Only add fertilizer if wood chips or mulch are used to amend the soil. Rototill urea fertilizer at a rate of 2 pounds per 1000 square feet.

6. Underdrains:

Underdrains should meet the following criteria:

- Pipe - Should be 4" to 6" diameter, slotted or perforated rigid plastic pipe (ASTM F 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 3/4" diameter located 6" on center with a minimum of four holes per row. Pipe shall be wrapped with 3/4" (No. 4 or 4x) 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 1,000 square feet) to provide a clean-out port and monitor performance of the filter.
- A 4" layer of pea gravel (3/4" to 1 1/4" stone) shall be located between the filter media and underdrain to prevent migration of fines into the underdrain. This layer may be considered part of the filter bed when bed thickness exceeds 24".

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).

7. Miscellaneous:

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

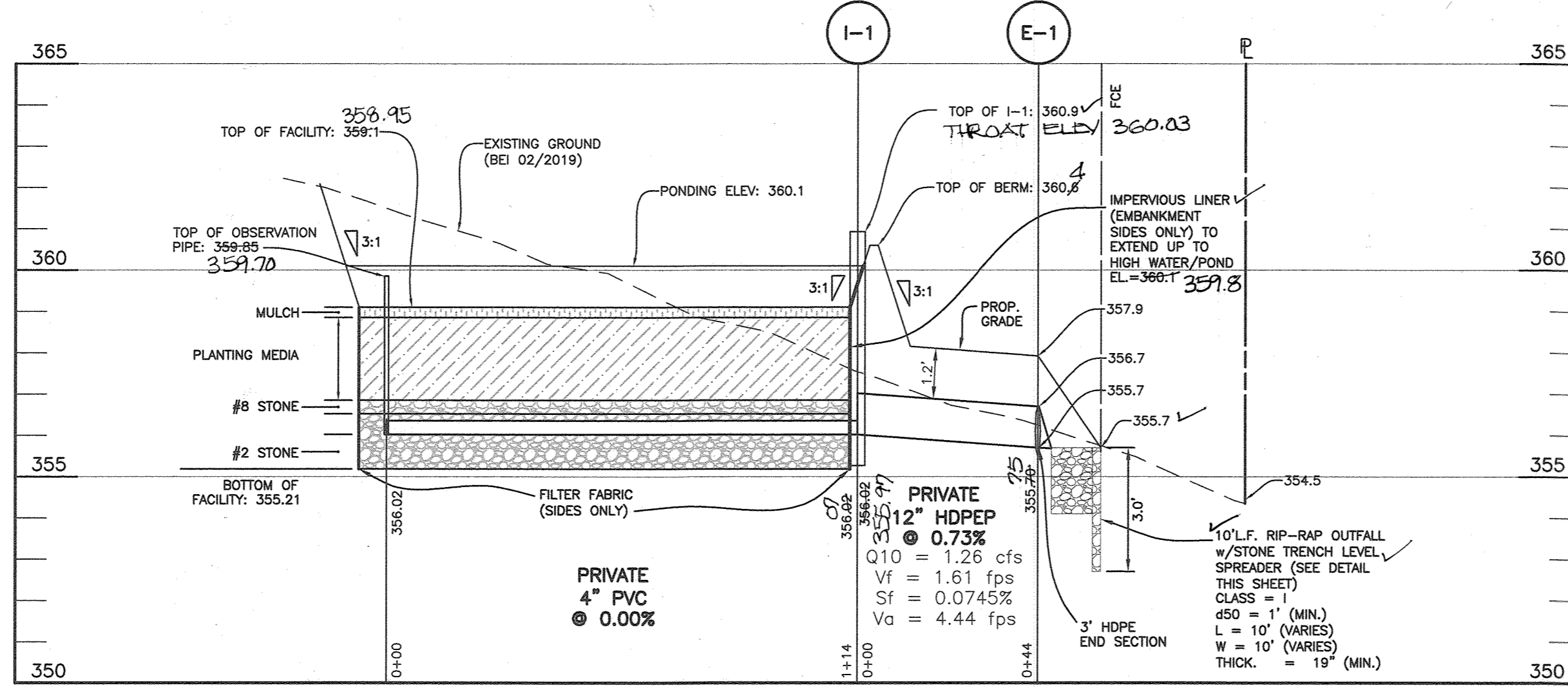
MATERIAL	SPECIFICATION	SIZE	NOTES:
PLANTINGS	SEE APPENDIX A; TABLE A.5	N/A	PLANTINGS ARE SITE SPECIFIC
PLANTING SOIL (2.0' TO 4.0' DEEP)	LOAMY SAND 60-65% COMPOST 35-40% OR SANDY LOAM 30% COARSE SAND 30% & COMPOST 40%	N/A	USDA SOIL TYPES: LOAMY SAND OR SANDY LOAM; CLAY CONTENT <5%
ORGANIC CONTENT	MIN 10% BY DRY WEIGHT ASTM D 2974	N/A	AGED 6 MONTHS, MINIMUM, NO PINE OR WOOD CHIPS
MULCH	SHREDDED HARDWOOD	N/A	PE TYPE 1 NONWOVEN
GEOTEXTILE (CLASS "C")	1/4" WIRE MESH	1/4" WIRE MESH	1/4" WIRE MESH
UNDERDRAIN GRAVEL	AASHTO M-43	NO. 57 OR NO. 6 (0.375" TO 0.750")	
UNDERDRAIN PIPING	F758, TYPE PS28 OR AASHTO M-278	4" TO 6" RIGID SCH 40 PVC, SDR35 OR HDPE	3/8" PERF. @ 8" O/C, 4 HOLES PER ROW; MINIMUM OF 3" OF GRAVEL OVER PIPES; NOT NECESSARY UNDERNEATH PIPES; PIPE SHALL BE WRAPPED WITH 1/4"-INCH GALVANIZED HARDWARE CLOTH
IMPERVIOUS LINER	ASTM-D-4833 (THICKNESS) ASTM-D-412 (TENSILE STRENGTH 1,100 LB./INCH ELONGATION 200%) ASTM-D-624 (TEAR RESISTANCE - 150 LB./IN) ASTM-D-4171 (WATER ADSORPTION: +8 TO -2% MASS)	30 MIL THICK	LINER TO BE ULTRAVIOLET RESISTANT; A GEOTEXTILE FABRIC SHOULD BE USED TO PROTECT THE LINER FROM PUNCTURE.
GEOTEXTILE (BELOW IMPERV. LINER)	ASTM-D-4833 (PUNCTURE STRENGTH 125LB) ASTM-D-4832 (TENSILE STRENGTH 300 LB.)		

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 DATE: 12/21/2020
 CHIEF, BUREAU OF HIGHWAYS MK

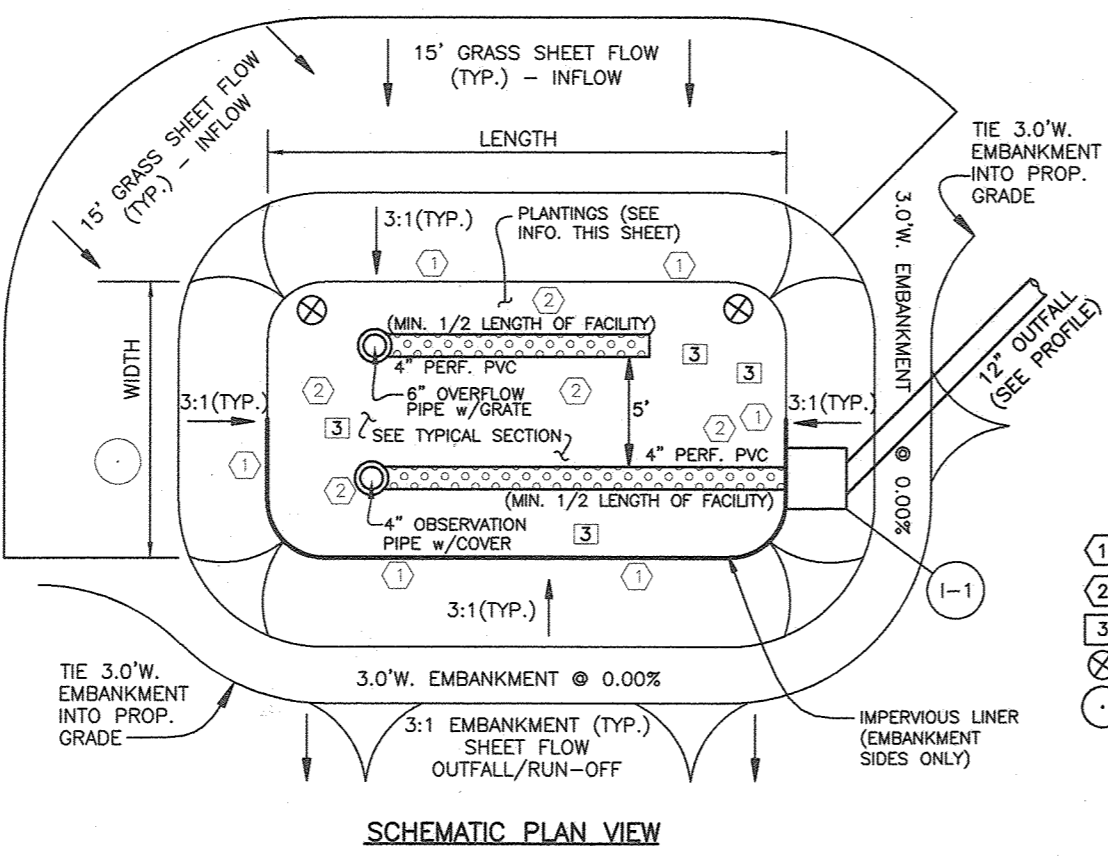
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 DATE: 1/1/21
 CHIEF, DIVISION OF LAND DEVELOPMENT

APPROVED: CHIEF, DEVELOPMENT ENGINEERING DIVISION
 DATE: 1/4/21

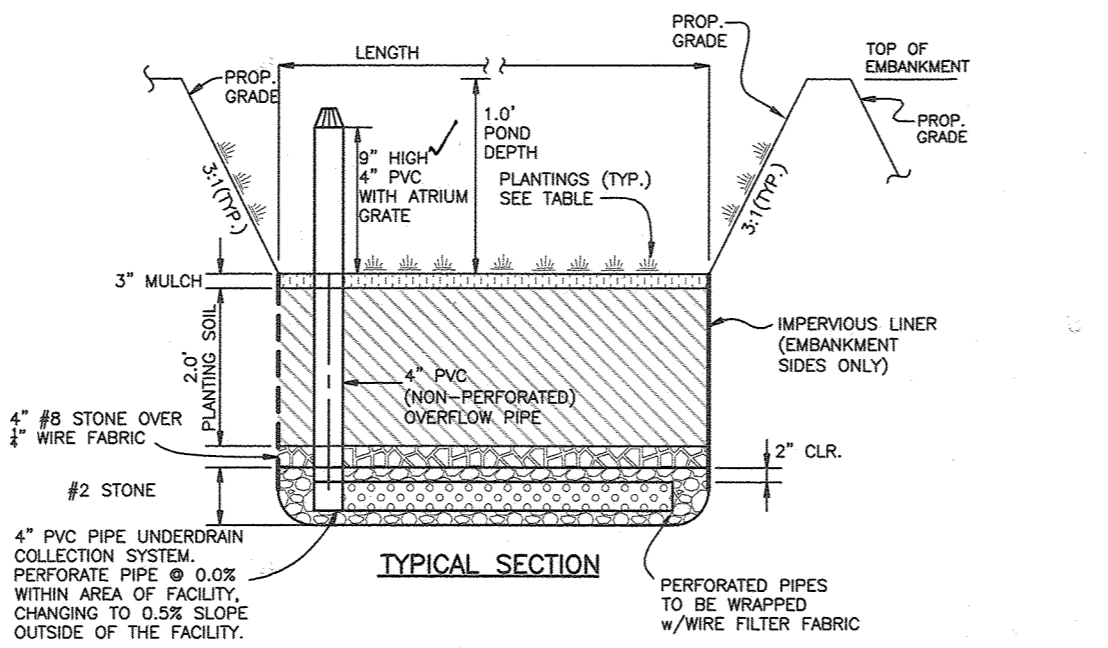
MB-1 (M-6) 4" PVC	Elevation A	Elevation B	Elevation C	Elevation D	Elevation E	Elevation F	Elevation G	Elevation H
	360.89	360.40	360.10	358.93	356.93	356.60	356.02	355.49



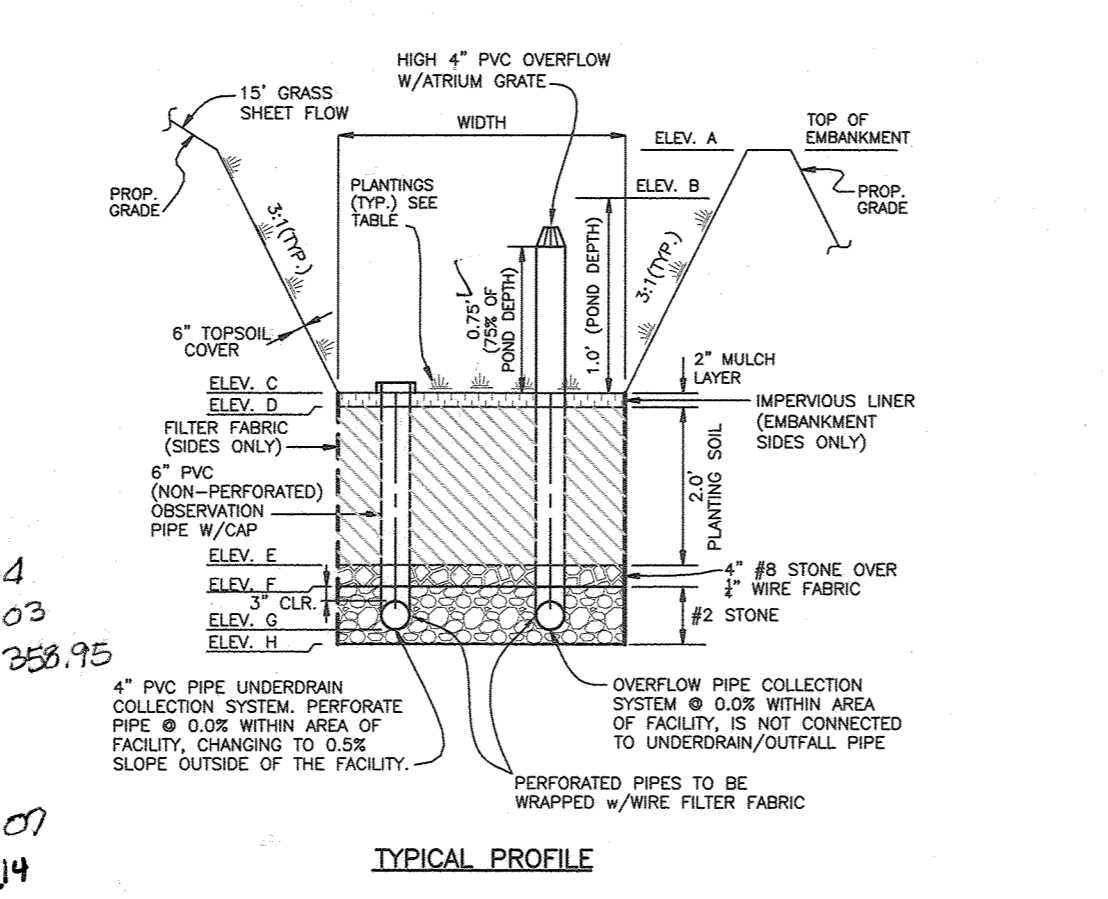
(M-6) MB-1 PROFILE
 HORIZONTAL SCALE: 1"=30'
 VERTICAL SCALE: 1"=3'



MICRO-BIORETENTION DETAILS
 NOT TO SCALE



TYPICAL SECTION



TYPICAL PROFILE

MICROBIORETENTION PLANTING DATA

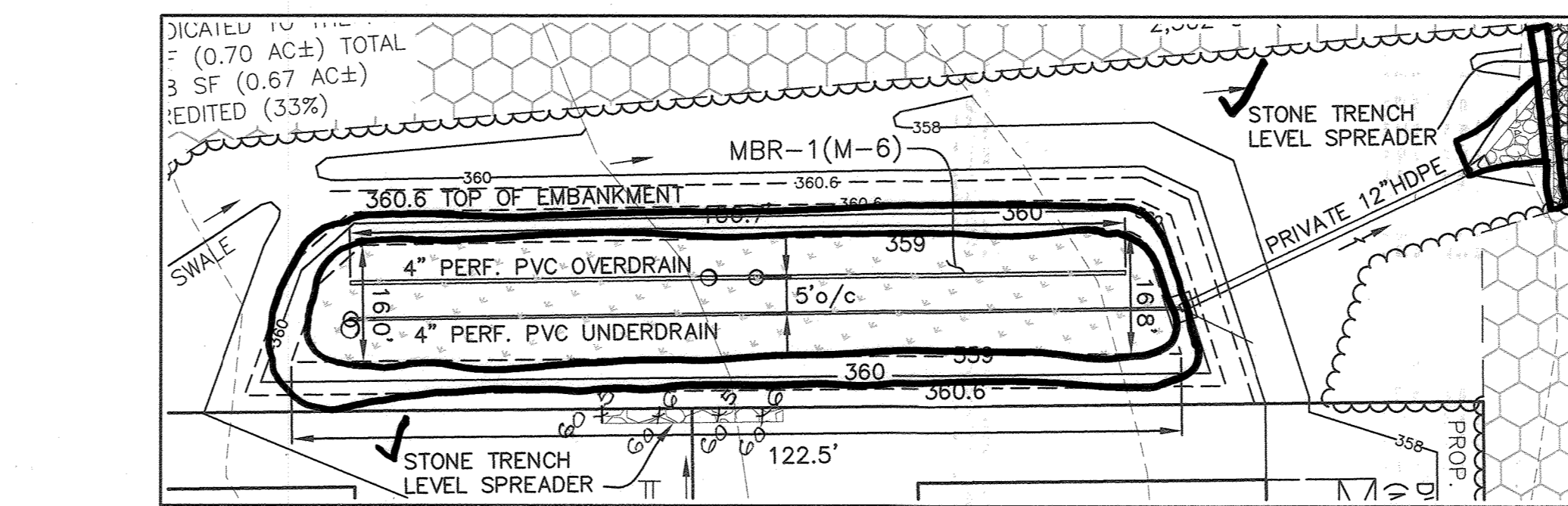
- PLANTINGS WITHIN THE PONDING AREA OF THE FACILITY ARE TO BE OF A MEDIUM TO HIGH WATER TOLERANCE
- PLANTINGS ALONG THE PERIMETER (BERM) AREA OF THE FACILITY ARE TO BE OF A LOW TO MEDIUM WATER TOLERANCE
- AVOID PLANTINGS WITH EXCESSIVE ROOT MASS IN POND AREA OF THE MICRO-BIORETENTION NEAR O.B. PIPE AND UNDERDRAIN.

PLANT NAME	COMMON NAME	TYPE	Surface Area	SIZE	QUANTITY	MB-1
Iris Fulva	Copper Iris	perennial herbaceous plant		quart bulb	68	1833.3
Lobelia cardinalis	Cardinal flower	perennial herbaceous plant		quart bulb	68	
Rudbeckia Submontosa	Sweet Cornflower	perennial herbaceous plant		quart bulb	68	
Calluna Vulgaris	Heather	shrub		2.5'-3' ht	1	
Acer Ginnala	Armour Maple	tree		2.5'-3.0' cal.	1	

(PLANTING SPECIES AND DENSITY CAN BE CHANGED OR SUBSTITUTED BY A LANDSCAPE ARCHITECT OR QUALIFIED DESIGNER)

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

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



(M-6) MB-1 SCHEMATIC
 SCALE: 1"=20'

Field Infiltration Results

The following table summarizes our infiltration test results:

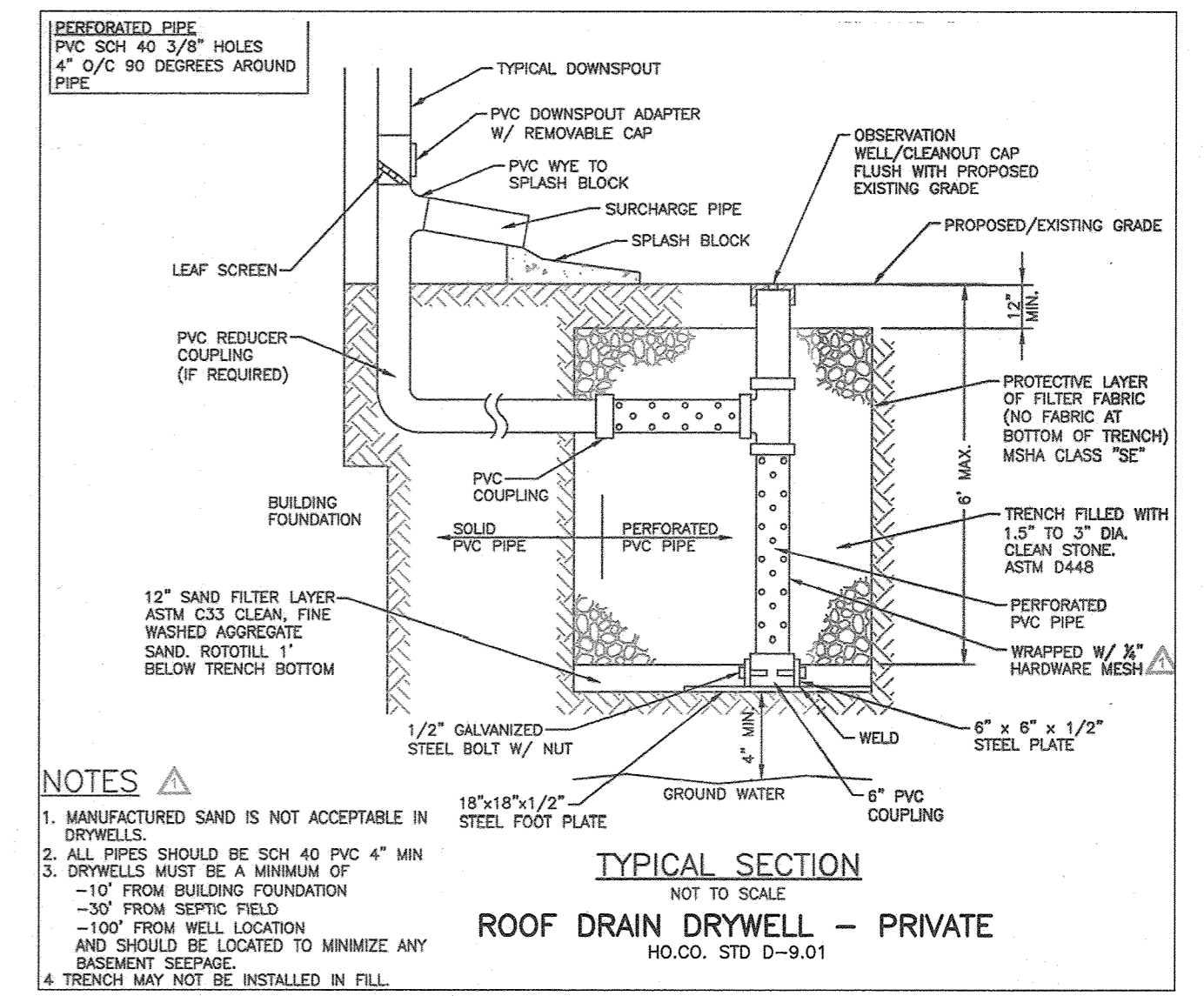
Boring No.	Average Infiltration Rate (inches/hour)
B-1	1.14
B-2	1.81
B-5	1.57
B-6	0.52

The field infiltration results indicated that a minimum infiltration rate of 0.52 inches per hour was obtained at Test Boring Nos. B-1, B-2, B-5 and B-6.

It should be recognized that the rates obtained by field testing are different than the laboratory derived USDA infiltration rates. The difference may be due to variations in the overall subsurface profile not revealed by the test borings performed for this study. In our view however, the field results are more indicative of the actual conditions and should be applied.

OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED (M-6) DRY WELLS

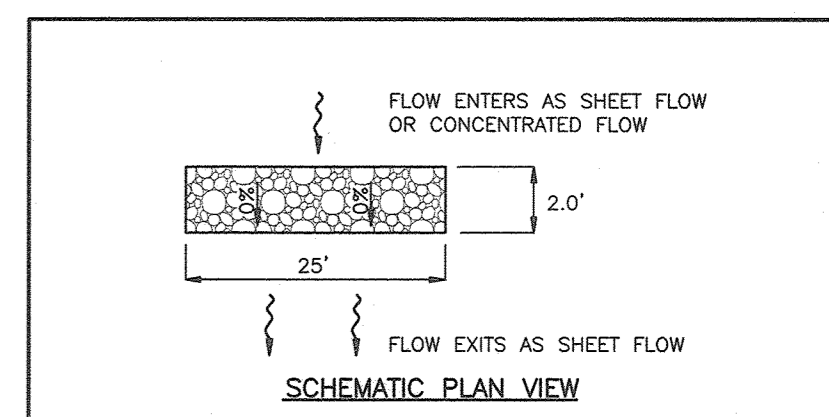
- The monitoring wells and structures shall be inspected on a quarterly basis and after every large storm event.
- Water levels and sediment build up in the monitoring wells shall be recorded over a period of several days to insure trench drainage.
- A log book shall be maintained to determine the rate at which the facility drains.
- When the facility becomes clogged so that it does not drain down within the 72 hour time period, corrective action shall be taken.
- The maintenance log book shall be available to Howard County for inspection to insure compliance with operation and maintenance criteria.
- Once the performance characteristics of the infiltration facility have been verified, the monitoring schedule can be reduced to an annual basis unless the performance data indicates that a more frequent schedule is required.



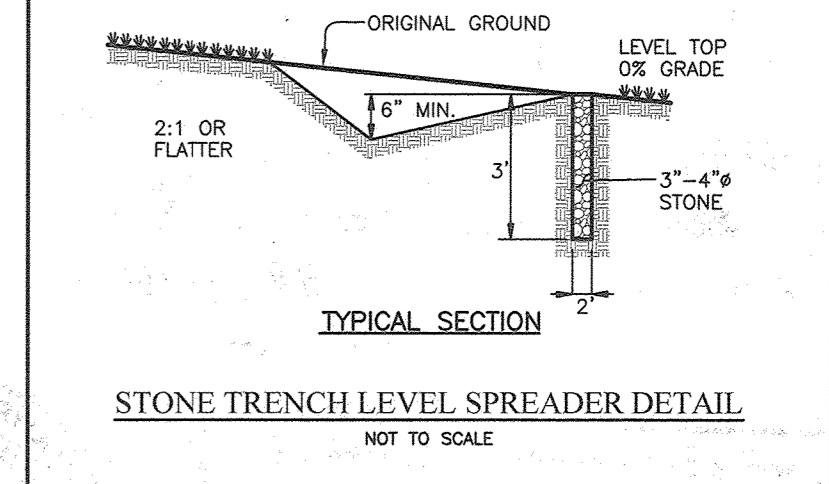
TYPICAL SECTION
 ROOF DRAIN DRYWELL - PRIVATE
 H.O.C. STD. D-9.01

- NOTES**
- MANUFACTURED SAND IS NOT ACCEPTABLE IN DRYWELLS.
 - ALL PIPES SHOULD BE SCH 40 PVC 4" MIN. DRYWELLS MUST BE A MINIMUM OF 1'-10" FROM BUILDING FOUNDATION -30" FROM SEPTIC FIELD -100" FROM WELL LOCATION AND SHOULD BE LOCATED TO MINIMIZE ANY BASEMENT SEEPAGE.
 - TRENCH MARK NOT BE INSTALLED IN FILL.

Dry Well	Lot No.	Length (ft)	Width (ft)	Depth of Filter (ft)	Grade Elevation	Top of Stone Elevation	Bottom of Stone Elevation	Bottom of Sand Elevation	Comment
DW-1	LOT 1	12.00	8.00	5.00	365.00	363.00	359.00	358.00	(B-1)
DW-2	LOT 5	10.00	5.00	5.00	359.00	357.00	353.00	352.00	(B-5)
DW-3	LOT 5	10.00	5.00	5.00	359.00	357.00	353.00	352.00	(B-5)
DW-4	LOT 6	10.00	5.00	5.00	359.00	357.00	353.00	352.00	(B-5)
DW-5	LOT 6	10.00	5.00	5.00	359.00	357.00	353.00	352.00	(B-5)
DW-6	LOT 7	12.00	8.00	5.00	362.50	360.50	356.50	355.50	(B-6)
DW-7	LOT 7	12.00	8.00	5.00	360.50	358.50	354.50	353.50	(B-6)
DW-8	LOT 8	12.00	8.00	5.00	359.00	357.00	353.00	352.00	(B-6)
DW-9	LOT 8	12.00	8.00	5.00	358.50	356.50	352.50	351.50	(B-6)



SCHEMATIC PLAN VIEW

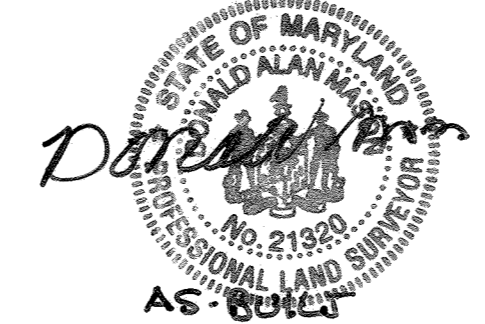


TYPICAL SECTION
 NOT TO SCALE

OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED DISCONNECTION OF ROOFTOP RUNOFF (N-1), DISCONNECTION OF NON-ROOFTOP RUNOFF (N-2)

- 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 COMPACTION OR DEVELOPMENT OF IMPERVIOUS AREA. IN COMMERCIAL AREAS, FOOT TRAFFIC SHOULD BE DISCOURAGED AS WELL.

AS-BUILT CERTIFICATION
 I hereby certify, by my seal, that to the best of my knowledge and belief the facilities shown on this "AS-BUILT" Plan meet the Approved Plans and Specifications
 Donald Mason, P.E. Date: 12-2-22



Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
 License No. 21443 Expiration Date: 12-2-24

NO.	DATE	REVISION

BENCHMARK ENGINEERS & PLANNERS
 ENGINEERING, INC.
 8480 BALTIMORE NATIONAL PIKE SUITE 315A ELICOTT CITY, MARYLAND 21043
 (P) 410-465-8100 (F) 410-465-6644
 WWW.BE-CMENGINEERING.COM

HUNTINGTON POINT
 LOTS 1 thru 8 and OPEN SPACE LOT 9
 9454 VOLLMERHAUSEN DR. COLUMBIA, MARYLAND 21046
 TAX MAP: 42, GRID: 22, PARCEL: 167
 ZONED: R-3C
 ELECTION DISTRICT NO. 6 - HOWARD COUNTY, MARYLAND

STORMWATER MANAGEMENT NOTES & DETAILS
 DATE: NOVEMBER, 2020 BEI PROJECT NO. 2952
 DESIGN: MP/MR DRAFT: MP/MR SCALE: AS SHOWN SHEET 5 OF 10

BORING LOG		GEOLAB INC.	
Client: Development Partners, LLC Project: Huntington Point: 9454 Vollmerhausen Drive, Columbia Boring No. B-1 (1 of 1) Type of Boring: Hand Auger Date: 9/13/2019 Project No. 119-141 Location: See Boring Location Plan Order: T. Coleman & A. Collins			
Elevation (Feet)	Depth (Feet)	DESCRIPTION OF MATERIALS (Classification)	REMARKS
361.29	0.0	Forest litter with topsoil and root matter	Groundwater was not encountered during drilling or at completion.
361.84	0.55	Brown SILT with some fine to medium sand, little clay and little to some gravel, moist to wet (USCS: ML, USDA: Loam)	
362.04	2.0		27.6
362.09	2.5		
363.09	5.0	Dark reddish-brown silty CLAY with some fine sand, wet (USCS: CL, USDA: Clay Loam)	40.5
363.09	6.0		
363.09	6.5		
364.09	8.0	Red-brown clayey fine to coarse SAND with some gravel, wet (USCS: SC, USDA: Sandy Clay Loam)	48.9
364.09	10.0		
364.09	10.5		
365.09	12.0	End of Boring	

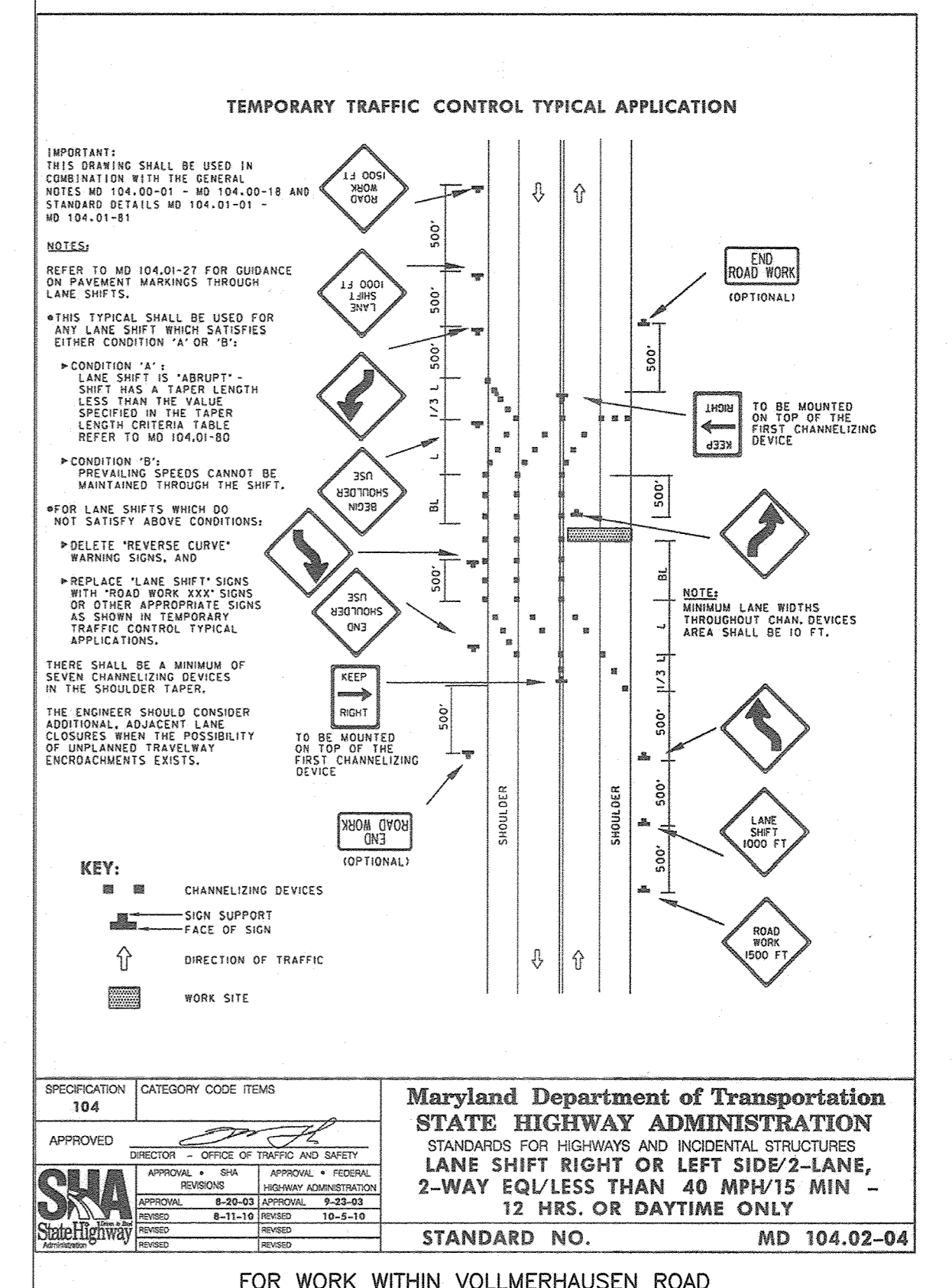
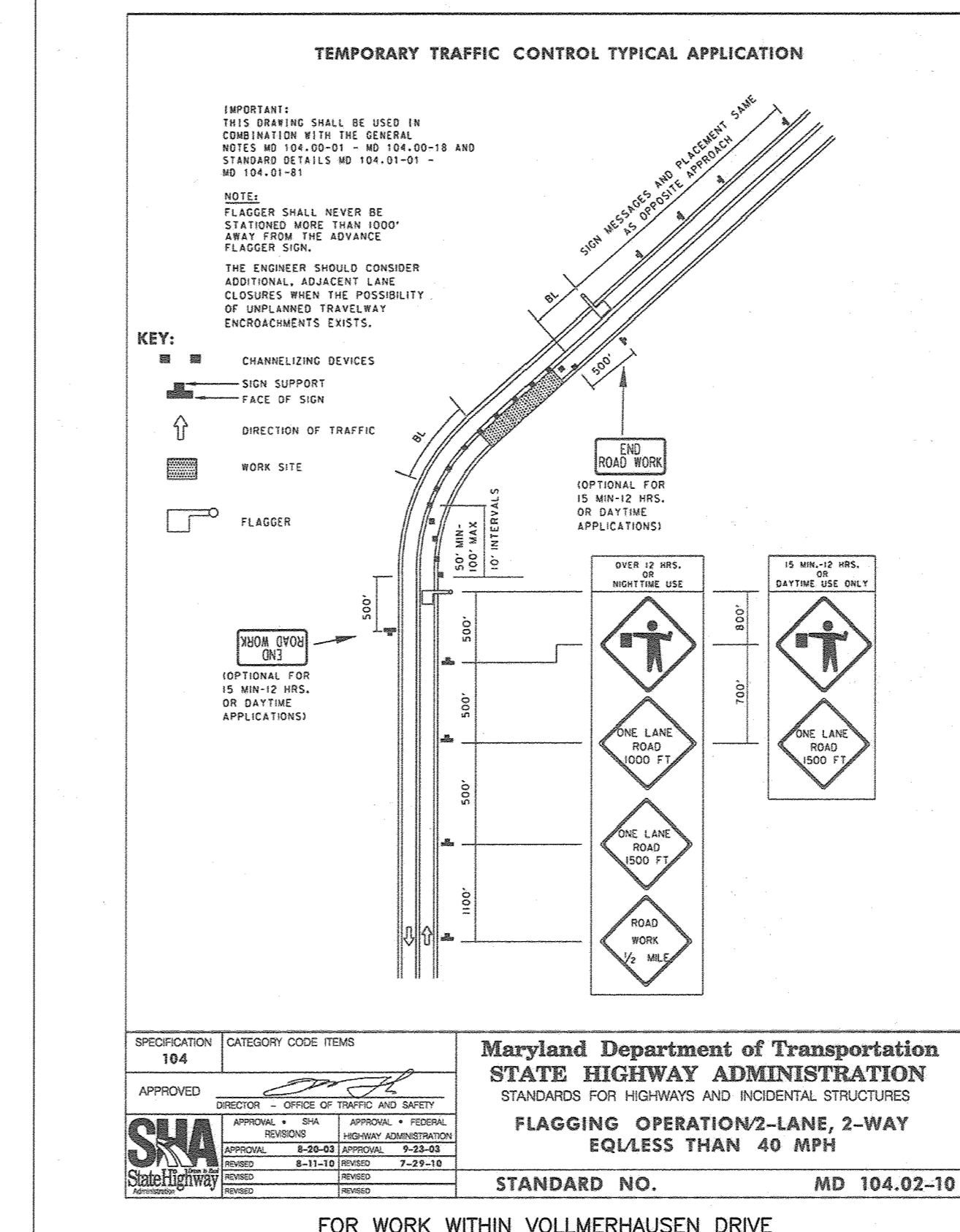
BORING LOG		GEOLAB INC.	
Client: Development Partners, LLC Project: Huntington Point: 9454 Vollmerhausen Drive, Columbia Boring No. B-2 (1 of 1) Type of Boring: Hand Auger Date: 9/13/2019 Project No. 119-141 Location: See Boring Location Plan Order: T. Coleman & A. Collins			
Elevation (Feet)	Depth (Feet)	DESCRIPTION OF MATERIALS (Classification)	REMARKS
362.02	0.0	Forest litter with topsoil and root matter	Groundwater was not encountered during drilling or at completion.
362.18	0.18	Orange-brown fine to coarse sandy SILT with little clay, moist to wet (USCS: CL, USDA: Silty Clay)	
363.02	4.0		29.2
363.02	4.5		
365.02	8.0		33.9
365.02	8.5		
364.02	9.5	Orange-brown clayey fine to coarse SAND with some silt and gravel, wet (USCS: SC, USDA: Sandy Clay Loam)	41.6
364.02	11.5		
365.02	12.0	End of Boring	

BORING LOG		GEOLAB INC.	
Client: Development Partners, LLC Project: Huntington Point: 9454 Vollmerhausen Drive, Columbia Boring No. B-3 (1 of 1) Type of Boring: Hand Auger Date: 9/13/2019 Project No. 119-141 Location: See Boring Location Plan Order: T. Coleman & A. Collins			
Elevation (Feet)	Depth (Feet)	DESCRIPTION OF MATERIALS (Classification)	REMARKS
362.42	0.0	Forest litter with topsoil and root matter	Groundwater was not encountered during drilling or at completion.
362.5	0.18	Light brown silty CLAY with little fine to medium sand, moist (USCS: CL, USDA: Silty Clay)	
363.42	4.0		21.9
363.42	4.5		
364.42	8.0		35.3
364.42	8.5		
365.42	11.0	Orange-brown clayey fine to coarse SAND with some gravel, wet (USCS: SC, USDA: Sandy Clay Loam)	43.4
365.42	11.5		
366.42	12.0	End of Boring	

BORING LOG		GEOLAB INC.	
Client: Development Partners, LLC Project: Huntington Point: 9454 Vollmerhausen Drive, Columbia Boring No. B-4 (1 of 1) Type of Boring: Hand Auger Date: 9/13/2019 Project No. 119-141 Location: See Boring Location Plan Order: T. Coleman & A. Collins			
Elevation (Feet)	Depth (Feet)	DESCRIPTION OF MATERIALS (Classification)	REMARKS
363.41	0.0	Forest litter with topsoil and root matter	Groundwater was not encountered during drilling or at completion.
363.44	0.4	Brown sandy SILT with some clay, moist (USCS: ML, USDA: Loam)	
364.41	2.0		15.7
364.41	2.5		
364.41	4.5	Orange-brown CLAY with some silt and little fine to medium sand, moist to wet (USCS: CL, USDA: Clay Loam)	34.4
364.41	7.5		
364.41	8		
364.41	11.5		54.3
364.41	12.0	End of Boring	

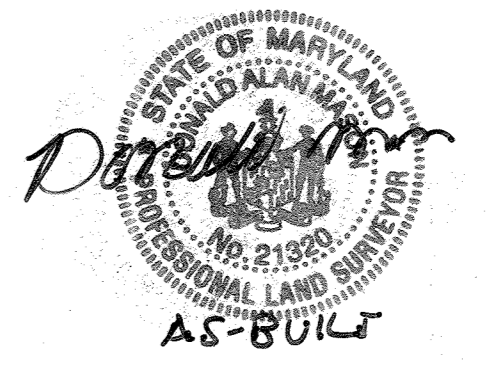
BORING LOG		GEOLAB INC.	
Client: Development Partners, LLC Project: Huntington Point: 9454 Vollmerhausen Drive, Columbia Boring No. B-5 (1 of 1) Type of Boring: Hand Auger Date: 9/13/2019 Project No. 119-141 Location: See Boring Location Plan Order: T. Coleman & A. Collins			
Elevation (Feet)	Depth (Feet)	DESCRIPTION OF MATERIALS (Classification)	REMARKS
363.24	0.0	Forest litter with topsoil and root matter	Groundwater was not encountered during drilling or at completion.
363.44	0.2	Red-brown silty CLAY with trace fine sand, moist to wet (USCS: CL, USDA: Clay)	
363.24	4.0		30.1
363.24	5.0		
363.24	8.0		30.4
363.24	8.5		
364.24	9.5		35.2
364.24	10		
364.24	10.5	End of Boring - Auger Refusal	

BORING LOG		GEOLAB INC.	
Client: Development Partners, LLC Project: Huntington Point: 9454 Vollmerhausen Drive, Columbia Boring No. B-6 (1 of 1) Type of Boring: Hand Auger Date: 9/12/2019 Project No. 119-141 Location: See Boring Location Plan Order: T. Coleman & T. Brown			
Elevation (Feet)	Depth (Feet)	DESCRIPTION OF MATERIALS (Classification)	REMARKS
363.61	0.0	Forest litter with topsoil and root matter	Groundwater was not encountered during drilling or at completion.
363.64	0.3	Red CLAY with little silt and trace fine to coarse sand, moist to wet (USCS: CL, USDA: Clay)	
364.61	2.0		25.6
364.61	2.5		
365.61	6.0		39.6
365.61	6.5		
366.61	8.0		42.7
366.61	8.5		
367.61	11.0		
367.61	11.5	End of Boring - Auger Refusal	



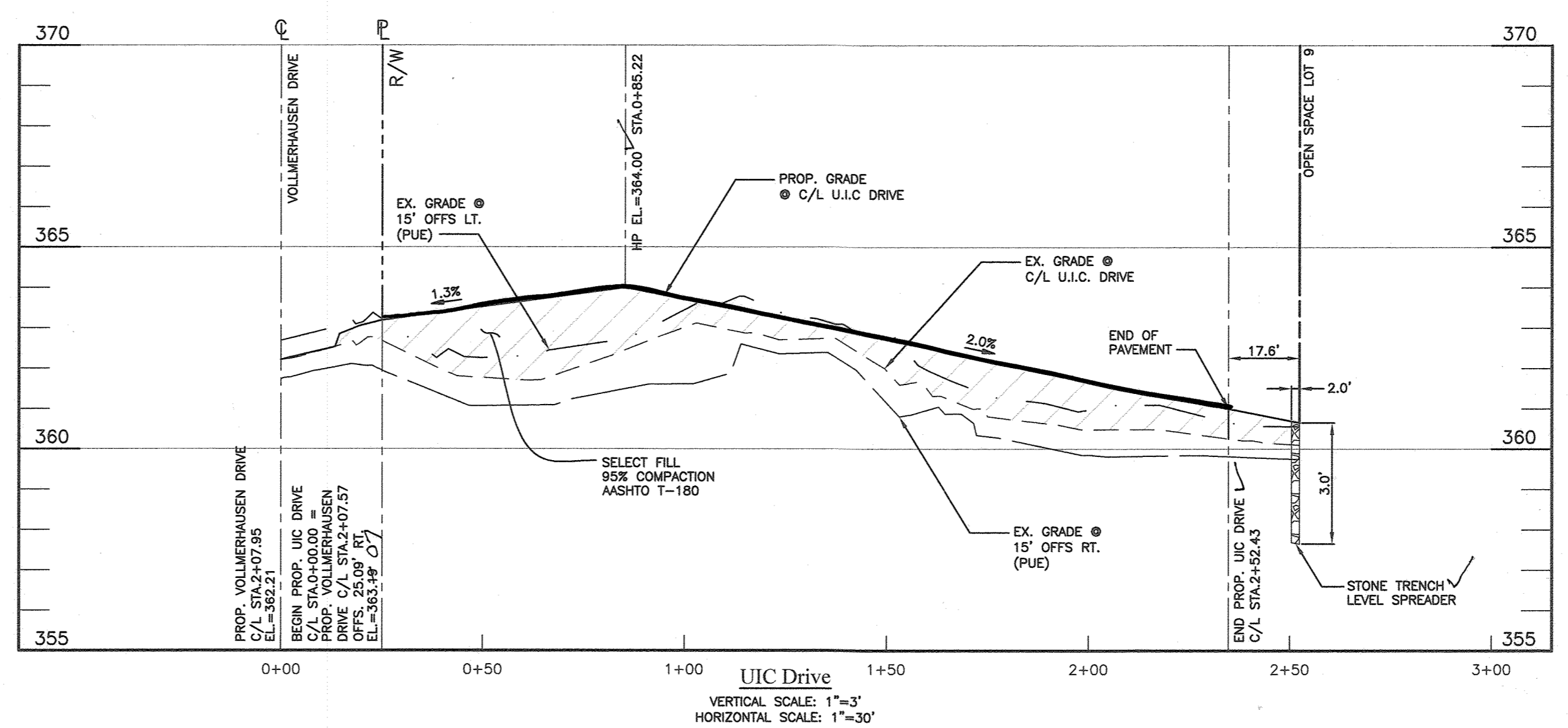
MAINTENANCE OF TRAFFIC DETAILS
NOT TO SCALE

AS-BUILT CERTIFICATION
I hereby certify, by my seal, that to the best of my knowledge and belief the facilities shown on this "AS-BUILT" Plan meet the Approved Plans and Specifications
Donald Mason, P.E. Date: 12-2-22



Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
License No. 21243, Expiration Date: 12-21-24

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
12/22/2020
CHIEF, BUREAU OF HIGHWAYS MK
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
11/1/21
CHIEF, DIVISION OF LAND DEVELOPMENT
1/4/21
CHIEF, DEVELOPMENT ENGINEERING DIVISION



NO.	DATE	REVISION

BENCHMARK ENGINEERS & LAND SURVEYORS & PLANNERS
ENGINEERING, INC.
6480 BALTIMORE NATIONAL PIKE, SUITE 3104 ELICOTT CITY, MARYLAND 21043
(P) 410-465-8100 (F) 410-465-8644
WWW.BE-CVLENGINEERING.COM

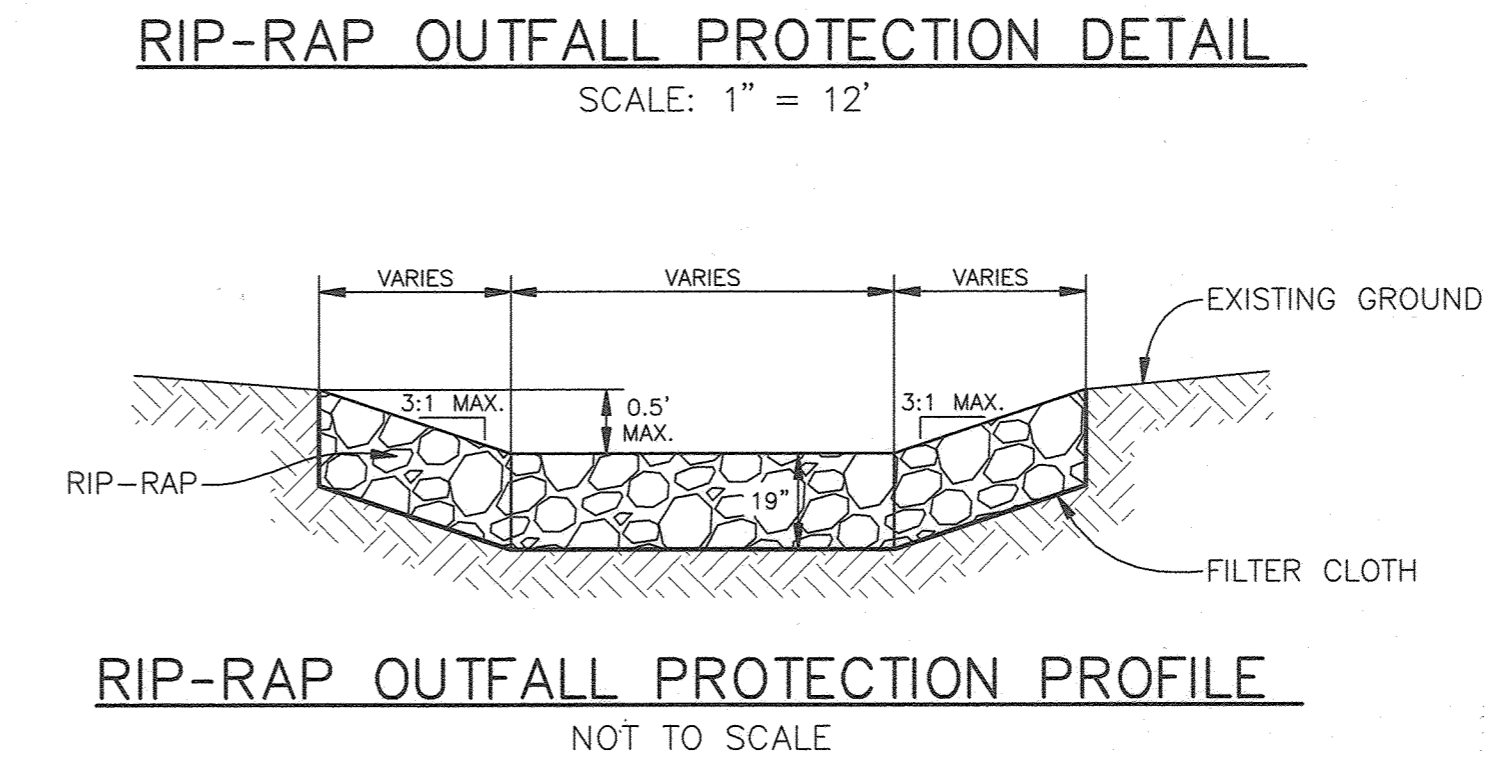
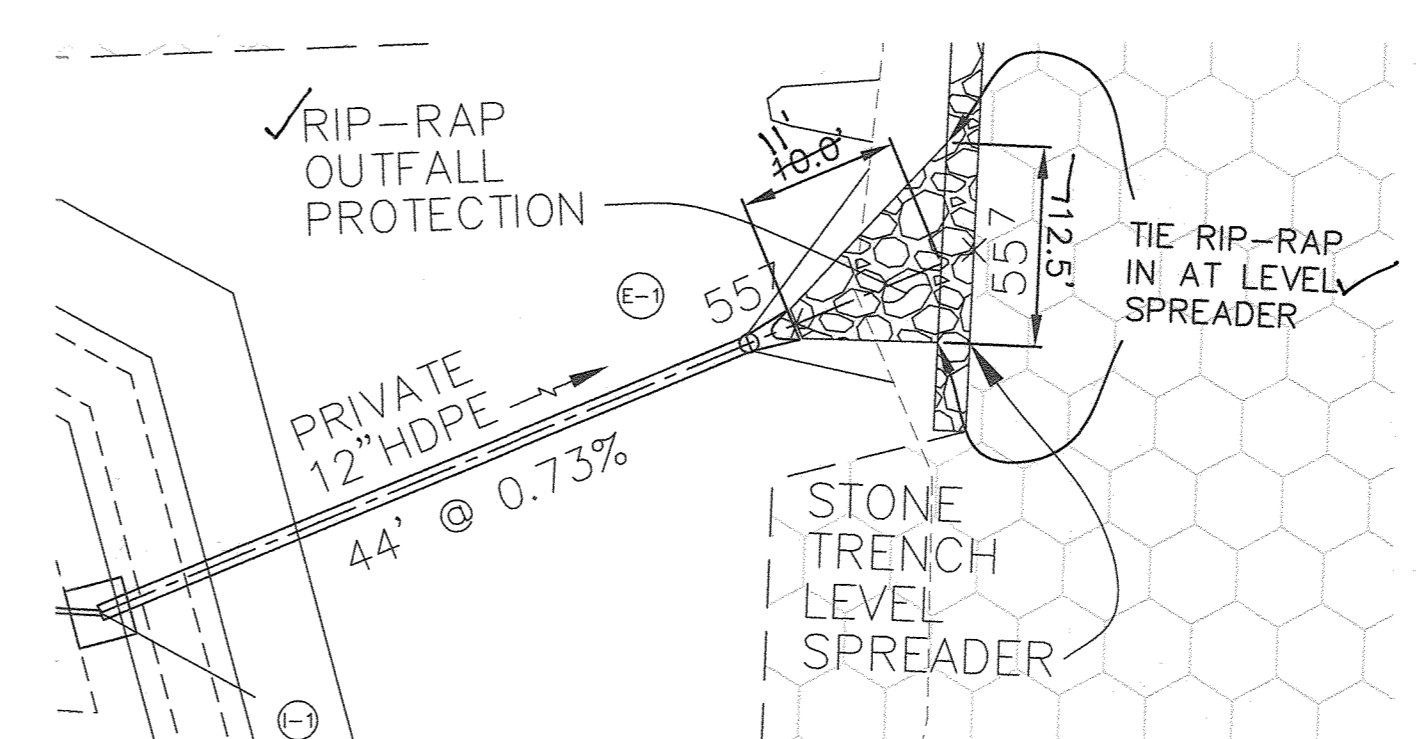
HUNTINGTON POINT
LOTS 1 thru 8 and OPEN SPACE LOT 9
9454 VOLLMERHAUSEN DR. COLUMBIA, MARYLAND 21046
TAX MAP: 42, GRID: 22, PARCEL: 167
ZONED: R-3C
ELECTION DISTRICT NO. 6 - HOWARD COUNTY, MARYLAND

OWNER/DEVELOPER:
DEVELOPMENT PARTNERS, LLC
9693 GERWIG LANE
SUITE L
COLUMBIA, MARYLAND 21046
410-792-2555

RELEVANT FILE NUMBERS:
ECP-19-042, S-19-008,
WP-19-081, DMV2-20-006,
P-20-004

DESIGN: MP/MR DRAFT: MP/MR SCALE: AS SHOWN SHEET 6 OF 10

BORING LOGS AND TRAFFIC CONTROL DETAILS
DATE: NOVEMBER, 2020 BEI PROJECT NO. 2952



LEGEND

--- PROPOSED DRAINAGE DIVIDE

PIPE SCHEDULE

SIZE	TYPE	LENGTH (L.F.)	MAINTENANCE
12"	HDPEP	44	PRIVATE
15"	RCP CL. 12"	38	PUBLIC

ALL PIPES SHALL HAVE SMOOTH INTERIOR. NO INTERIOR CORRUGATIONS.

STRUCTURE SCHEDULE

STRUCTURE	TYPE	LOCATION	INVERT IN	INVERT OUT	TOP ELEV.	THROAT ELEV.	STD. DETAIL	MAINTENANCE
I-1	Type 'D' w/3 side open	N 543,028.45 E 1,357,929.53	356.07 INLETS	355.97	360.86	360.10	D-4.11	PRIVATE
I-2	A-5	N 542,656.76 E 1,357,641.11	356.02(4")	355.82	357.13	355.80	D-4.02	PUBLIC
					MANHOLES	353.31	356.55	
HEADWALLS/END SECTIONS								
E-1	HDPE Endsection (12")	N 559300.62 E 1343169.6743			356.70		D-5.21	PRIVATE

STRUCTURE LOCATION FOR MANHOLES IS AT THE CENTER OF THE MANHOLE RIM.
 STRUCTURE LOCATION FOR INLETS IS AT THE CENTER OF THE TOP.
 STRUCTURE LOCATION FOR END SECTIONS IS AT THE MIDPOINT OF THE END OF THE STRUCTURE
 PRECAST STRUCTURES MEETING HS-20 LOADING MAY BE USED.

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
 License No. 21443, Expiration Date: 12-21-24

AS-BUILT CERTIFICATION

I hereby certify, by my seal, that to the best of my knowledge and belief the facilities shown on this "AS-BUILT" Plan meet the Approved Plans and Specifications

Donald Mason, P.E. Date: 12-2-22

BENCHMARK ENGINEERING, INC.
 9480 BALTIMORE NATIONAL, PLEA SUITE 3154, ELLOTT CITY, MARYLAND 21043
 (P) 410-465-6105 (F) 410-465-6844
 WWW.BE-CIVILENGINEERING.COM

HUNTINGTON POINT
 LOTS 1 thru 8 and OPEN SPACE LOT 9

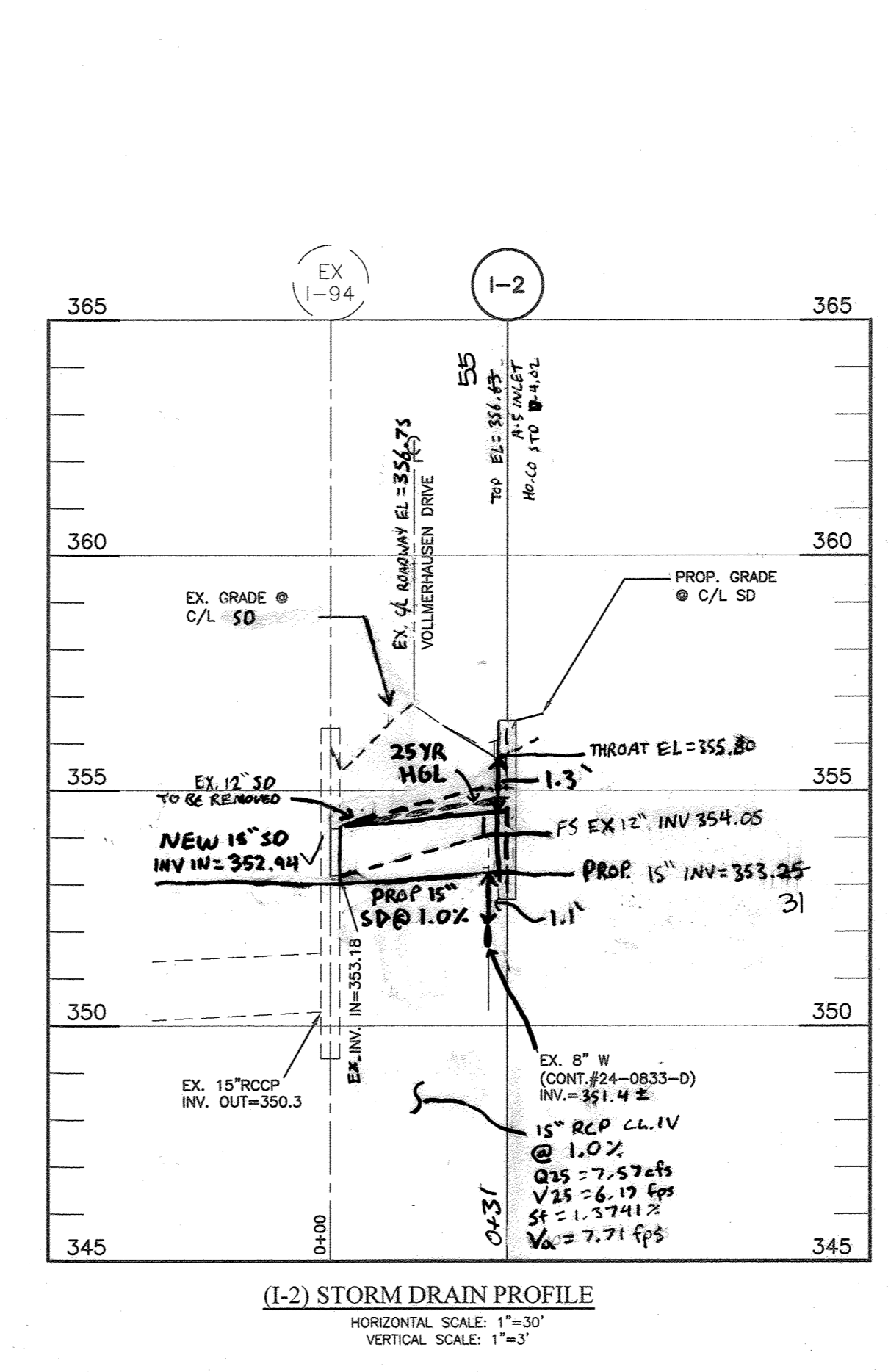
9454 VOLLMERHAUSEN DR, COLUMBIA, MARYLAND 21046
 TAX MAP: 42, GRID: 22, PARCEL: 167
 ZONED: R-5C
 ELECTION DISTRICT NO. 6 - HOWARD COUNTY, MARYLAND

STORM DRAIN DRAINAGE AREA PLAN AND PROFILES

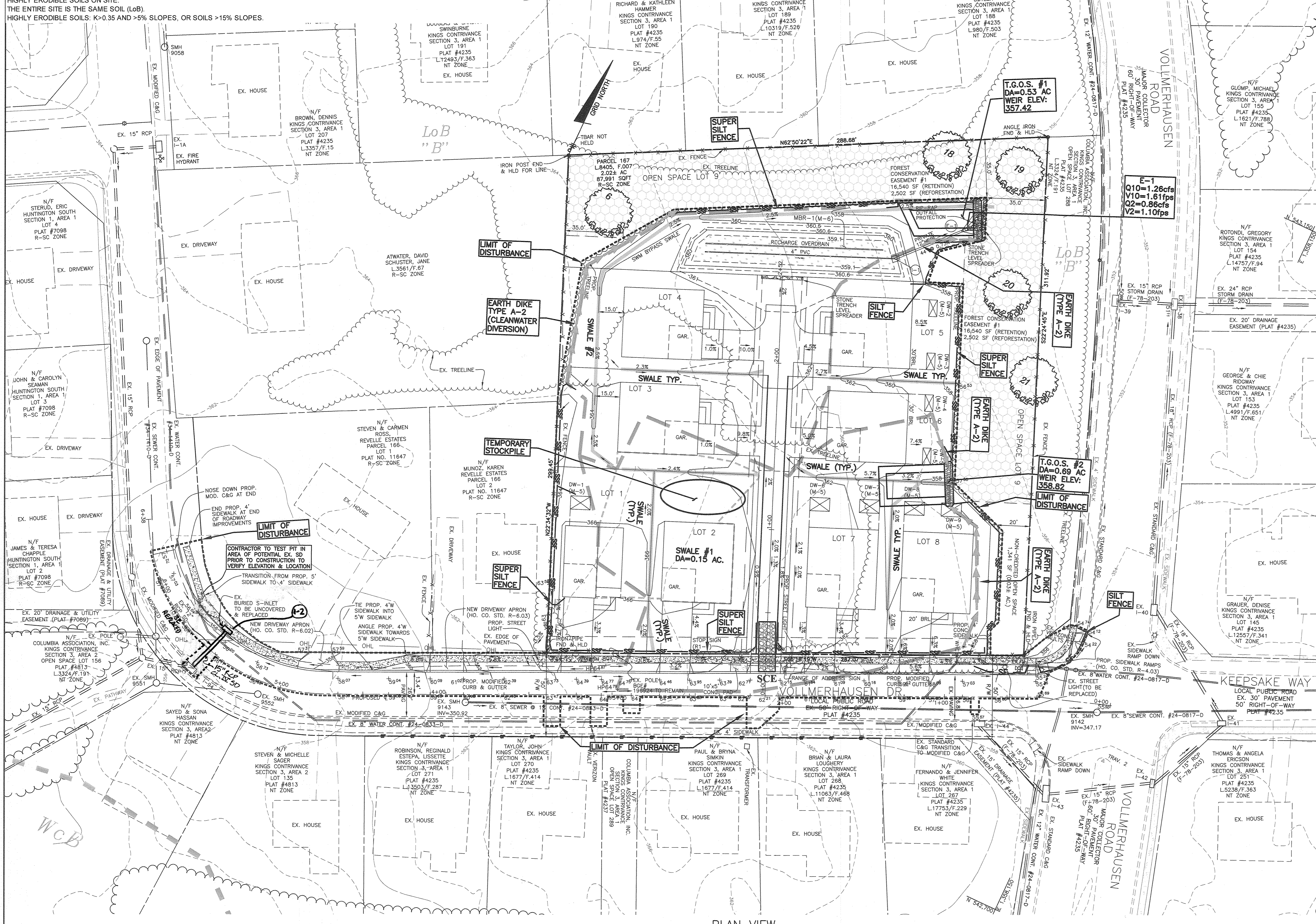
RELEVANT FILE NUMBERS:
 ECP-19-042, S-19-008,
 WP-19-081, DMW2-20-006,
 P-20-004

DESIGN: MP/MR DRAFT: MP/MR

DATE: NOVEMBER, 2020 BEI PROJECT NO. 2952
 SCALE: AS SHOWN SHEET 7 OF 10



SYMBOL	HYDRIC	HYDROLOGIC GROUP	SOILS CHART - SOIL SURVEY HOWARD COUNTY, MARYLAND / SHEET 24
LoB	B	ALT. GROUP	NAME
HIGHLY ERODIBLE SOILS ON SITE. THE ENTIRE SITE IS THE SAME SOIL (LoB). HIGHLY ERODIBLE SOILS: K>0.35 AND >5% SLOPES, OR SOILS >15% SLOPES.			K-VALUE
			0.64



LEGEND

- LIMIT OF DISTURBANCE
- EROSION CONTROL MATTING
- TGOSS DRAINAGE AREA DIVIDE
- SWALE DRAINAGE AREA DIVIDE
- SF SILT FENCE
- SSF SUPER SILT FENCE
- EARTH DIKE
- STABILIZED CONSTRUCTION ENTRANCE
- TEMPORARY STONE/GABION OUTLET STRUCTURE

NOTE: CONTRACTORS TO EXERCISE EXTREME CAUTION WHEN WORKING IN THE AREA OF EXISTING OVERHEAD LINES

NOTE: ALL SUPER SILT FENCES TO BE CHECKED DAILY TO ENSURE COMPLIANCE AND REPAIRED IMMEDIATELY AS REQUIRED

NOTE: UTILITY WORK WITHIN EXISTING ROADWAYS SHALL BE LIMITED TO THAT WHICH CAN BE BACKFILLED AND/OR STABILIZED BY THE END OF THE DAY'S CONSTRUCTION ACTIVITIES

NOTE: IMPROVEMENTS TO ADJOINING NEIGHBOR DRIVEWAYS ARE TO BE LIMITED TO WHAT CAN BE BUILT & STABILIZED IN SINGLE DAY'S ACTIVITY

"NO AS-BUILT INFORMATION IS PROVIDED ON THIS SHEET"

Professional Certification: I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.

License No. **21443** Expiration Date: **12-2-24**

AS-BUILT 12-2-22

DETAIL E-8 TEMPORARY GABION OUTLET STRUCTURE

CONSTRUCTION SPECIFICATIONS:

- PROVIDE STORAGE VOLUME AS SPECIFIED ON APPROVED PLANS.
- USE BASKETS MADE OF 1 1/2" GALV. WIRE OR HEAVIER.
- USE NONWOVEN AND WOVEN NONWOVEN GEOTEXTILES AS SPECIFIED IN SECTION H-1 MATERIALS.
- INSTALL GABIONS IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS.
- EMBED THE GABION OUTLET STRUCTURE INTO THE SOIL A MINIMUM OF 6" BENEATH NONWOVEN GEOTEXTILE UNDER ALL GABION TYPES. PROVIDE REINFORCED CONCRETE WITHOUT REBAR OR WIRE MESH.
- FILL GABION BASKETS WITH CLEAN 4 TO 7" HIGH STONE OR EQUIVALENT RECYCLED CONCRETE WITHOUT REBAR OR WIRE MESH.
- PROVIDE A MINIMUM MERGERS OF 8 FEET.
- ATTACH NONWOVEN GEOTEXTILE TO THE UPSTREAM FACE OF GABION BASKETS AND COVER WITH 4 TO 7" HIGH STONE.
- REMOVE SEDIMENT WHEN IT HAS ACCUMULATED TO WITHIN 12" BENEATH THE MERGERS. REPLACE GEOTEXTILE AND STONE FACING WITH STRUCTURE CAPABLE OF FUNCTION. MAINTAIN LINE, GRADE, AND CROSS SECTION.
- UPON REMOVAL OF GABION OUTLET STRUCTURE, GRADE AREA FLUSH WITH EXISTING GROUND. WITHIN 24 HOURS STABILIZE DISTURBED AREA WITH TOPSOIL, SEED, AND MULCH, OR AS SPECIFIED ON APPROVED PLAN.

Designation	Drainage Area SF	Practice Acres	Temporary Stone/Gabion Outlet Structure		Weir Length	Uphill Length	Volume Provided	Adequate?	
			Volume Required	Volume Available					
#1	24872	0.57	1028	356.5	357.92	18	24	1034	Yes
#2	30062	0.69	1242	357.4	359.57	20	27	1283	Yes

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

ENGINEER'S CERTIFICATE

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

DEVELOPER'S CERTIFICATE

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

PLAN VIEW

1 inch = 30 ft.

GRASS SWALE TYPICAL SECTION DETAIL

NOT TO SCALE

swale	A	B	C	D	V2	V2	V2	V2	V2	V2	V2	V2
SW-1	1.00	2.00	3.1	0.38	1.48	0.11	0.70	1.91	0.15			

THE DESIGN FOR SW-1 IS UTILIZED FOR ALL THE SWALES SHOWN ON THIS PLAN AS IT REPRESENTS THE "WORST CASE SCENARIO" ONSITE.

CONVEYANCE SWALE ONLY NOT FOR SWM

EROSION CONTROL MATTING REQUIRED

GRASS PLANTINGS

DESIGN FLOW DEPTH

BENCHMARK ENGINEERS, INC.

8480 BALTIMORE NATIONAL PIKE SUITE 2104 ELLETT CITY, MARYLAND 21043

OWNER/DEVELOPER: HUNTINGTON POINT LOTS 1 thru 8 and OPEN SPACE LOT 9

9454 VOLLMERHAUSEN DR. COLUMBIA, MARYLAND 21046

RELEVANT FILE NUMBERS: ECP-19-042, S-19-008, WP-19-081, DMV-20-006, P-20-004

GRADING AND SEDIMENT & EROSION CONTROL PLAN

DATE: NOVEMBER, 2020 BEI PROJECT NO. 2952

DESIGN: MP/MR DRAFT: MP/MR SCALE: AS SHOWN SHEET 8 OF 10

