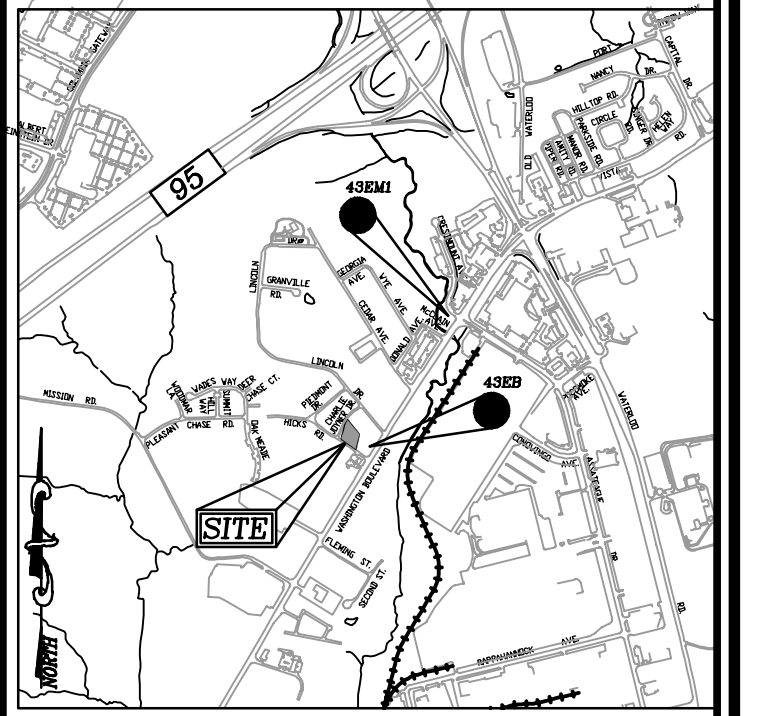


SITE DEVELOPMENT PLAN GREENFIELDS COMMUNITY LIVING LOTS 1, 2 AND 3 A SUBDIVISION OF TAX MAP 43 AND PARCEL 491 LIBER 18385 FOLIO 491 HOWARD COUNTY, MD

BENCHMARKS
HOWARD COUNTY BENCHMARK - 43EM1
N 545924.87 E 1371561.74 ELEV.: 200.14
HOWARD COUNTY BENCHMARK - 43EB
N 545963.84 E 1371573.84 ELEV.: 216.32



VICINITY MAP
SCALE: 1"=2,000'
ADC MAP = 34 CB

LEGEND:
- - - - - PROPERTY LINE
- - - - - RIGHT-OF-WAY LINE
- - - - - ADJACENT PROPERTY LINE
- - - - - EXISTING PAVING
- - - - - EX. CURB AND GUTTER

SHEET INDEX	
DESCRIPTION	SHEET NO.
COVER SHEET	1 OF 6
SITE LAYOUT, LANDSCAPE PLAN AND HOUSE TYPES	2 OF 6
SOILS MAP, GRADING, SOIL EROSION AND SEDIMENT CONTROL PLAN	3 OF 6
SOIL EROSION AND SEDIMENT CONTROL PLAN - NOTES AND DETAILS	4 OF 6
STORMWATER MANagements PLAN, NOTES & DETAILS	5 OF 6
SWM PLANTING & DETAILS	6 OF 6

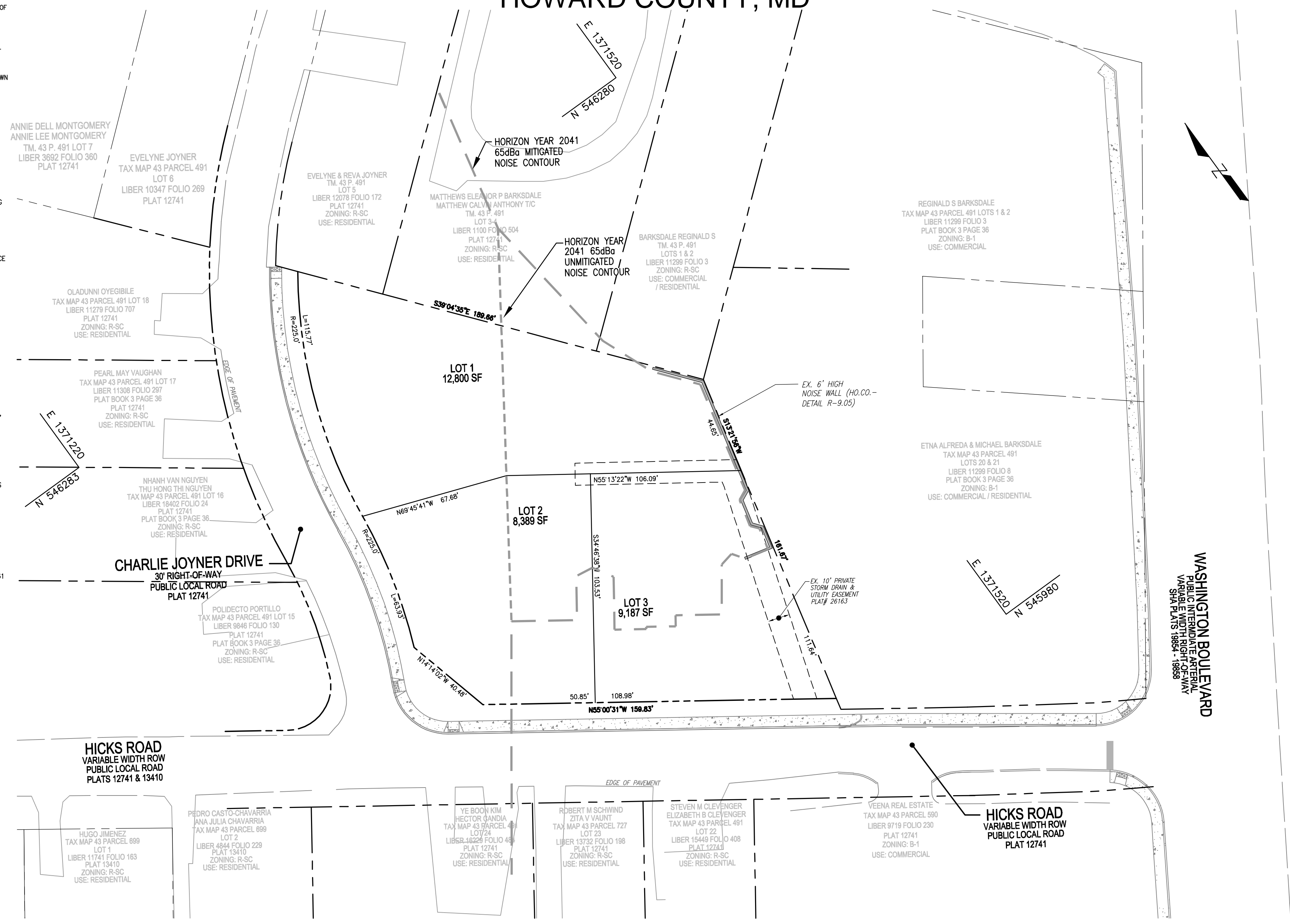
SITE ANALYSIS DATA	
A. TOTAL PROJECT AREA:	0.70 AC
B. AREA OF PLAN SUBMISSION:	0.70 AC (LOTS 1-3)
C. LIMIT OF DISTURBANCE:	0.39 AC
D. PRESENT ZONING DESIGNATION:	R-SC
E. PROPOSED USES FOR SITE AND STRUCTURES:	SINGLE FAMILY DETACHED
F. FLOOR SPACE ON EACH LEVEL OF BUILDING PER USE:	N/A
G. TOTAL NUMBER OF UNITS ALLOWED FOR PROJECT AS SHOWN ON FINAL PLAN:	3 BUILDABLE LOTS (THIS SDP)
H. TOTAL NUMBER OF UNITS PROPOSED ON THIS SUBMISSION:	3 BUILDABLE LOTS (THIS SDP)
I. MAXIMUM NUMBER OF EMPLOYEES, TENANTS ON SITE PER USE:	N/A
J. NUMBER OF PARKING SPACES REQUIRED BY H.O.C.O. ZONING REGULATIONS:	2.5 PER UNIT
K. NUMBER OF PARKING SPACES PROVIDED ON SITE:	SEE PARKING TABULATION HEREON 2 DRIVEWAY SPACES PER SFD REFER TO F-21-051 = 0 AC
L. OPEN SPACE ON SITE:	REFER TO F-21-051 = 0 SF
M. AREA OF RECREATION OPEN SPACE REQUIRED BY SUBDIVISION & LAND DEVELOPMENT REGULATIONS:	REFER TO F-21-051 = 0 SF
N. BUILDING COVERAGE OF SITE:	N/A
O. APPLICABLE DRZ FILE REFERENCES:	ECP-20-033, F-21-051
P. ANY OTHER INFORMATION WHICH MAY BE RELEVANT:	TAX MAP 43, GRID 14, PARCEL 491 6TH ELECTION DISTRICT
F. FLOOR AREA RATIO:	N/A

MIHU AGREEMENT
PLEASE NOTE THAT ALL NEW LOTS/RESIDENTIAL UNITS IN THIS SUBDIVISION (LOTS 1-3) ARE SUBJECT TO THE MODERATE INCOME HOUSING UNIT (MIHU) REQUIREMENTS. LOTS 1-3 HAVE BEEN DEDICATED AS MIHU TO FULFILL THE MIHU OBLIGATION.

DEVELOPER
STANDARD ENERGY SOLUTIONS
9520 GERMIG LANE, SUITES Q-1
COLUMBIA, MD 21046
PHONE: 410-844-3500
STEVE.WELSH@STANDARDENERGYSOLUTIONS.COM

OWNER
IHOMES, INC
6355 WOODSIDE COURT
COLUMBIA, MD 21046
PHONE: 443-218-8558

- GENERAL NOTES:**
- THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS/BUREAU OF ENGINEERING/CONSTRUCTION INSPECTION DIVISION AT (410) 313-1880 AT LEAST FIVE (5) WORKING DAYS PRIOR TO START OF WORK.
 - THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK.
 - ALL ASPECTS OF THE PROJECT ARE IN CONFORMANCE WITH THE LATEST HOWARD COUNTY STANDARDS UNLESS ALTERNATIVE COMPLIANCE REQUESTS HAVE BEEN APPROVED.
 - THE SUBJECT PROPERTY IS ZONED R-SC IN ACCORDANCE WITH THE 10/06/2013 COMPREHENSIVE ZONING PLAN AND IS SUBJECT TO THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS EFFECTIVE 10/02/2013 PER COUNCIL BILL 75-2003.
 - THE EXISTING ON-SITE TOPOGRAPHY IS BASED ON A TOPOGRAPHIC SURVEY BY VOGEL ENGINEERING + TIMMONS GROUP DATED JUNE, 2019. OFF-SITE AREAS HAVE BEEN SUPPLEMENTED WITH HO CO GIS TOPOGRAPHICAL INFORMATION.
 - BOUNDARY INFORMATION IS FROM BOUNDARY SURVEY BY VOGEL ENGINEERING + TIMMONS GROUP DATED JUNE, 2019.
 - IN ACCORDANCE WITH SECTION 12B OF THE HOWARD COUNTY ZONING REGULATIONS, BAY WINDOWS, CHIMNEYS, OR EXTERIOR STAIRWAYS NOT MORE THAN 16 FEET IN WIDTH MAY PROJECT NOT MORE THAN 4 FEET INTO ANY SETBACKS, PORCHES OR DECKS, OPEN OR ENCLOSED MAY PROJECT NOT MORE THAN 16 FEET INTO THE FRONT OR REAR YARD SETBACK.
 - THE COORDINATES HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL WHICH IS BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM. HOWARD COUNTY MONUMENTS 43EM1 AND 43EB WERE USED FOR THIS PROJECT.
 - THIS PLAN IS SUBJECT TO THE AMENDED FIFTH EDITION OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS. DEVELOPMENT OR CONSTRUCTION OF THESE LOTS MUST COMPLY WITH SETBACK AND BUFFER REGULATIONS IN EFFECT AT THE TIME OF SUBMISSION OF THE SITE DEVELOPMENT PLAN, ALTERNATIVE COMPLIANCE, OR BUILDING AND GRADING PERMITS.
 - STORMWATER MANAGEMENT WAS REVIEWED AND APPROVED UNDER F-21-051. STORMWATER MANAGEMENT FOR THIS PROJECT IS PROVIDED BY THE USE OF ON-LOT MICRO-SCALE PRACTICES IN ACCORDANCE WITH ENVIRONMENTAL SITE DESIGN CRITERIA. ON-LOT MICRO-SCALE PRACTICES INCLUDE MODIFIED DRYWELLS (M-5), RAIN BARRELS (M-1), AND MICRO-BIORETENTION (M-6). ON-LOT FACILITIES WILL BE PRIVATELY OWNED AND MAINTAINED. THE DECLARATION OF COVENANTS AND MAINTENANCE AND RIGHT OF ENTRY AGREEMENT FOR PRIVATE STORMWATER MANAGEMENT FACILITIES WAS RECORDED AMONG THE LAND RECORDS OF HOWARD COUNTY, MARYLAND.
 - REFER TO THE STORMWATER MANAGEMENT INFORMATION CHART FOR FACILITIES UNDER F-21-051 AND THE STORMWATER MANAGEMENT PRACTICE CHART FOR THE FACILITIES TO BE CONSTRUCTED UNDER THIS SDP.
 - THE PROPOSED HOUSES SHALL HAVE AN AUTOMATIC FIRE PROTECTION SPRINKLER SYSTEM.
 - EXISTING UTILITIES LOCATED FROM ROAD CROSSINGS AND PUBLIC WATER AND SEWER. APPROXIMATE LOCATION OF EXISTING UTILITIES ARE SHOWN FOR THE CONTRACTORS INFORMATION. CONTRACTOR SHALL LOCATE EXISTING UTILITIES WELL IN ADVANCE OF CONSTRUCTION ACTIVITIES AND TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES AND TO MAINTAIN UNINTERRUPTED SERVICE.
 - ANY DAMAGE TO THE COUNTY'S RIGHTS-OF-WAY, PAVING, OR EXISTING UTILITIES SHALL BE CORRECTED AT THE CONTRACTOR'S EXPENSE.
 - SIC ELEVATIONS ARE LOCATED AT THE PROPERTY LINE/EDGE OF EASEMENT.
 - THE CONTRACTOR IS TO NOTIFY THE FOLLOWING UTILITIES OR AGENCIES AT LEAST FIVE DAYS BEFORE STARTING:
AT&T 1-800-252-1133
BIE (CONSTRUCTION SERVICES) 410-637-6713
BIE (EMERGENCY) 410-685-0123
BUREAU OF UTILITIES 410-313-4900
COLORADO PIPELINE CO 410-795-1390
MISS UTILITY 1-800-257-7777
STATE HIGHWAY ADMINISTRATION 410-531-5533
VERIZON 1-800-743-0033
 - DRIVEWAYS SHALL BE PROVIDED PRIOR TO RESIDENTIAL OCCUPANCY TO ENSURE SAFE ACCESS FOR FIRE AND EMERGENCY VEHICLES PER THE FOLLOWING MINIMUM REQUIREMENTS:
A) WIDTH - 12 FEET (16 FEET IF SERVING MORE THAN ONE RESIDENCE)
B) SURFACE - 6" OF COMPACTED CRUSHER RUN BASE W/ TAR AND CHIP COATING (1-1/2" MIN.)
C) GEOMETRY - MAXIMUM 15% GRADE, MAXIMUM 10% GRADE CHANGE, AND MINIMUM 45 FOOT TURNING RADIUS
D) STRUCTURES (CULVERTS/BRIDGES) - CAPABLE OF SUPPORTING 25 GROSS TONS (HQS LOADS)
E) DRAINAGE ELEMENTS - CAPABLE OF SAFELY PASSING 100 YEAR FLOOD EVENTS WITH NO MORE THAN 1 FOOT DEPTH OVER DRIVEWAY SURFACE
F) MAINTENANCE - SUFFICIENT TO ENSURE ALL WEATHER USE
 - UTILIZE HOWARD COUNTY STANDARD DETAIL NO. R-6.02 FOR DRIVEWAY ENTRANCES AT HICKS ROAD AND CHARLIE JOYNER DRIVE.
 - TRASH AND RECYCLING COLLECTION WILL BE AT HICKS ROAD AND CHARLIE JOYNER DRIVE WITHIN 5' OF THE EDGE OF THE COUNTY ROADWAY.
 - THIS PROPERTY IS WITHIN THE METROPOLITAN DISTRICT.
-WATER SERVICE CONNECTIONS (WIC) FOR THIS PROJECT ARE FROM PUBLIC CONTRACT NO. 44-3451-D AND 76-W.
-SEWER SERVICE CONNECTIONS (SIC) FOR THIS PROJECT ARE FROM PUBLIC CONTRACT NO. 678-S.
 - PUBLIC WATER AND SEWER SERVICE TO LOTS 1-3 WILL BE GRANTED UNDER THE PROVISIONS OF SECTION 15.122.8 OF THE HOWARD COUNTY CODE.
 - ALL WATER HOUSE CONNECTIONS SHALL BE OUTSIDE METER SETTING UNLESS OTHERWISE NOTED ON THE PLANS OR IN SPECIFICATIONS.
 - TO THE BEST OF THE OWNER'S KNOWLEDGE, THERE ARE NO BURIAL GROUNDS OR CEMETERIES LOCATED ON THIS PROPERTY OR THE COUNTY'S CEMETERY SITE MAP.
 - HICKS ROAD AND CHARLIE JOYNER DRIVE ARE CLASSIFIED AS A LOCAL ROAD.
 - THERE ARE NO WETLANDS, STREAMS AND THEIR BUFFERS PRESENT ON THE SITE.
 - THIS PROPERTY IS LESS THAN 40,000 SF. FOREST CONSERVATION IS NOT REQUIRED FOR THIS SUBDIVISION.
 - IN ACCORDANCE WITH HOWARD COUNTY DESIGN MANUAL VOLUME 3, CHAPTER 4 - SECTION 4.7(B)(5), A TRAFFIC STUDY IS NOT REQUIRED FOR THIS PROJECT.
 - A NOISE STUDY FOR THIS PROJECT WAS PREPARED BY VOGEL ENGINEERING+TIMMONS GROUP UNDER F-21-051, DATED OCTOBER 2021 AND APPROVED, DECEMBER 2021.
 - CERTIFIED TEST PITS HAVE BEEN PROVIDED TO VERIFY THE LOCATIONS OF GROUNDWATER AND/OR ROCK. OPEN TEST PITS WERE OBSERVED BY VOGEL ENGINEERING + TIMMONS GROUP ON FEBRUARY 26TH, 2020, AND WAS APPROVED AS PART OF F-21-051 PLAN.
 - THE PRE-SUBMISSION COMMUNITY MEETING WAS HELD FOR THIS PROJECT ON DECEMBER 2ND, 2019 AT HOWARD COUNTY LIBRARY-ELKRIODE BRANCH AT 6 PM.
 - THE ENVIRONMENTAL CONCEPT PLAN (ECP-20-033) WAS APPROVED ON NOVEMBER 9TH, 2020.
 - THE LANDSCAPE PLAN WAS PREPARED IN ACCORDANCE WITH SECTION 16.214 OF THE HOWARD COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS AND THE LANDSCAPE MANUAL. THE FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING HAS BEEN POSTED AS PART OF THE DEVELOPER'S AGREEMENT FOR THIS SITE DEVELOPMENT PLAN IN THE AMOUNT OF \$3,000.00 FOR THE REQUIRED 9 SHADE AND 2 EVERGREEN TREES.
 - A FINAL SUPPLEMENTAL PLAN (F-21-051) WAS APPROVED ON DECEMBER 9, 2021 AND WAS SIGNED ON FEBRUARY 22, 2022.
 - SOIL TYPES SHOWN HEREON ARE IN ACCORDANCE WITH THE SOIL SURVEY HOWARD COUNTY, MARYLAND.
 - THERE IS NO FLOODPLAIN ON SITE.
 - IN ACCORDANCE WITH DESIGN MANUAL-VOLUME 3, CHAPTER 2 - SECTION 2.8.B, PARKING IS REQUIRED AT TWO (2) SPACES PER UNIT OFF STREET PARKING TO INCLUDE DRIVEWAY AND PARKING SPACE. DRIVEWAY COUNT AS A FULL SPACE.
 - IN ACCORDANCE WITH SECTION 110.0.E OF THE 10/06/13 COMPREHENSIVE ZONING REGULATIONS, THIS SUBDIVISION IS SUBJECT TO MODERATE INCOME HOUSING UNITS (MIHU). TO FULFILL THE MIHU OBLIGATION, LOTS 1, 2 AND 3 HAVE BEEN DEDICATED AS MIHU. THE MIHU AGREEMENT AND MIHU DECLARATION OF COVENANTS AND RESTRICTIONS WERE RECORDED AMONG THE LAND RECORDS OF HOWARD COUNTY, MARYLAND IN LIBER 21700 FOLIO 61 AND LIBER 21700 FOLIO 69 ON SEPTEMBER 1, 2022.
 - FOR STORMWATER MANAGEMENT SOIL BORING LOSS SEE SHEET 6 OF THIS SDP.

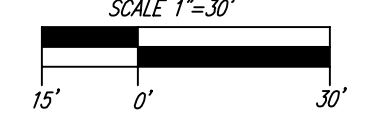


NOTE
THE EXISTING CONTOURS SHOWN HEREON HAVE BEEN ESTABLISHED UNDER THE FINAL SUPPLEMENTAL PLAN AND STORM DRAIN CONSTRUCTION PLANS FOR GREENFIELDS COMMUNITY LIVING F-21-051.

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

STORMWATER MANAGEMENT PRACTICE CHART				
LOT #	STREET ADDRESS	MICRO-BIORETENTION M-6	RAIN BARELL M-1	MODIFIED DRYWELL(M-5)
LOT 1	7411 CHARLIE JOYNER DRIVE	2	-	-
LOT 2	8124 HICKS ROAD	1	-	1
LOT 3	8120 HICKS ROAD	1	2	1

COVER SHEET
SCALE: 1"=30'



PARKING TABULATION:
TOTAL NUMBER OF DWELLING UNITS PROPOSED : 3
OFF-STREET PARKING SPACES REQUIRED:
2 SPACES PER UNIT = 6 SPACES
PARKING SPACES PROVIDED:
2 SPACES ON DRIVEWAY = 6 SPACES (FOR 3 UNITS)
TOTAL PARKING SPACES PROVIDED: = 6 SPACES OFF-STREET
OVERFLOW / GUEST PARKING SPACES REQUIRED:
0.5 SPACES PER SFD UNIT X 3 = 1.5 SPACES
TOTAL OVERFLOW PARKING SPACES PROVIDED:
= 2 SPACES (ON A ROAD)

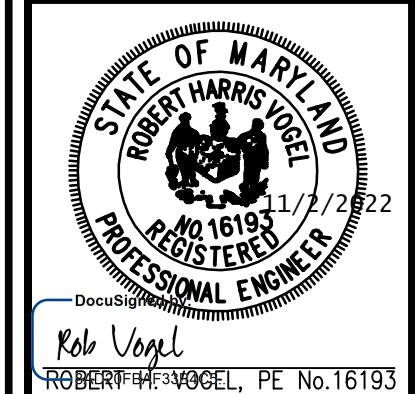
PERMIT INFORMATION CHART					
SUBDIVISION NAME		SECTION/AREA LOTS/PARCEL #			
GREENFIELDS COMMUNITY LIVING		N/A 491			
PLAT # OR L/F	BLOCK NO.	ZONE	TAX MAP	ELECT. DIST.	CENSUS TR.
26163	14	R-SC	43	6TH	606901

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
11/17/2022
CHIEF, DEVELOPMENT AND ENGINEERING DIVISION
CHIEF, DIVISION OF LAND DEVELOPMENT
DIRECTOR

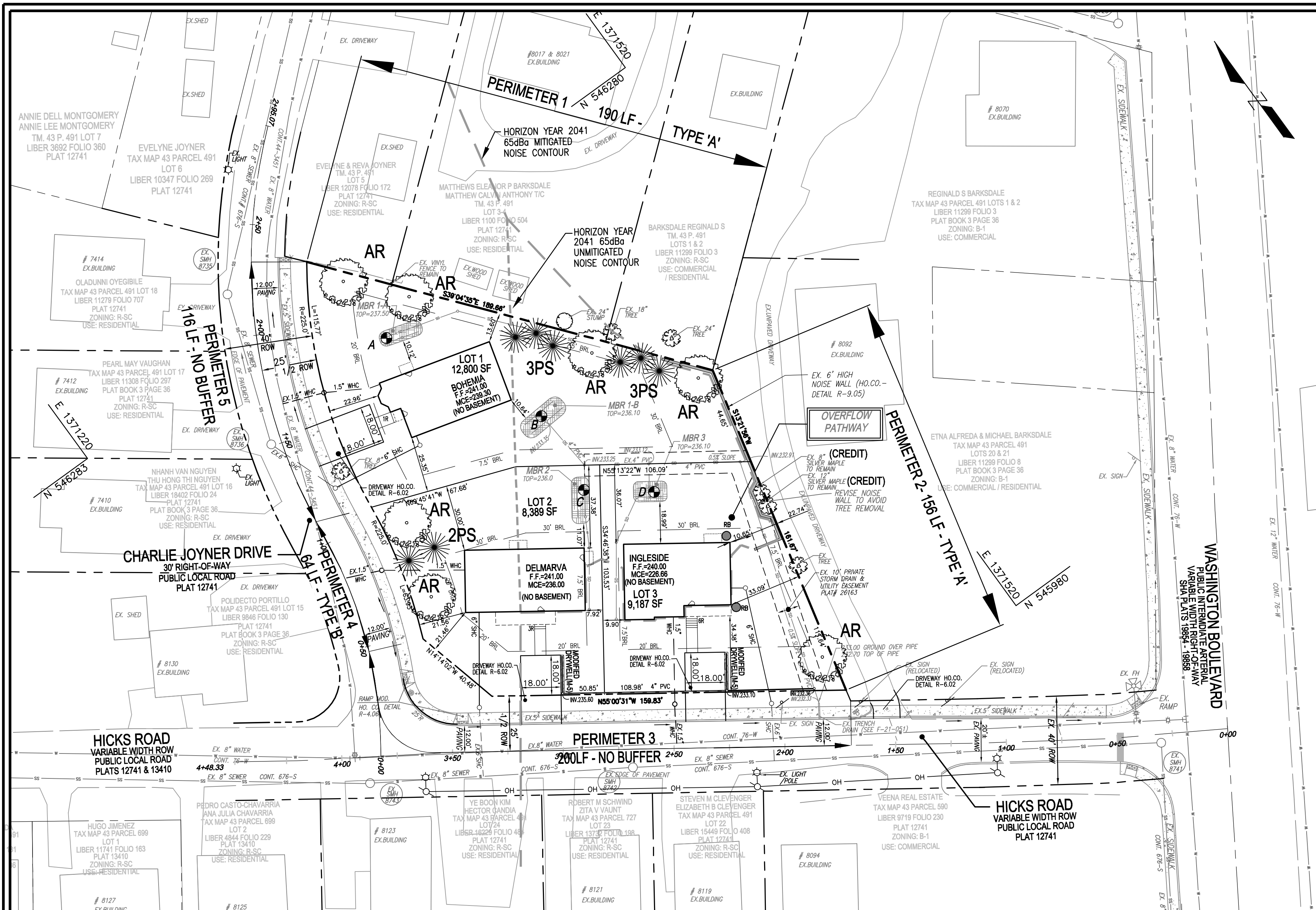
NO.	REVISION	DATE

SITE DEVELOPMENT PLAN
COVER SHEET
GREENFIELDS COMMUNITY LIVING
LOTS 1, 2 & 3
A SUBDIVISION OF TAX MAP 43 PARCEL 491
LIBER 18385 FOLIO 341
PLAT 26163
TAX MAP: 43 BLOCK: 14
6TH ELECTION DISTRICT
PARCEL: 491 ZONING: R-SC
HOWARD COUNTY, MARYLAND

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



DESIGN BY: RHV
DRAWN BY: KG
CHECKED BY: RHV
DATE: SEPTEMBER 2022
SCALE: 1"=30'
W.O. NO.: 43808
PROFESSIONAL CERTIFICATE
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193, EXPIRATION DATE: 09-27-2024.
1 SHEET OF 6



NOTE:

- 1. TYPICAL DRIVEWAY WIDTH SHOWN HEREON IS 18 FEET WIDE FOR THE PROPOSED 2 CAR PARKING SPACE. WIDTH SUBJECT TO CHANGE WITH BUILDER RESIST.
- 2. DRIVEWAYS: THE SHOWN DRIVEWAY LOCATION CANNOT CHANGE UNLESS NOTED ON THIS SDP. CONFIRMING THAT THE GRADING AND DRIVEWAY SLOPES WILL REMAIN THE SAME WHETHER THE DRIVEWAY IS ON THE RIGHT OR LEFT SIDE OF THE HOUSE.

NOTES:

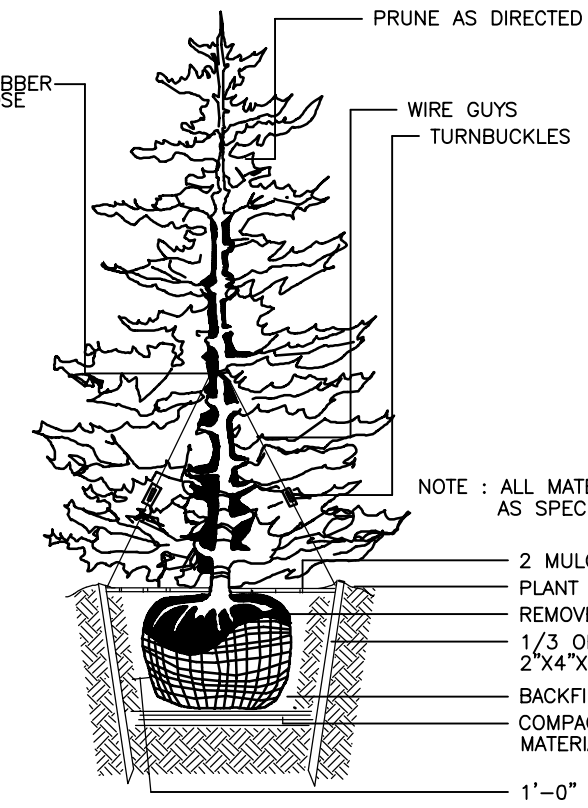
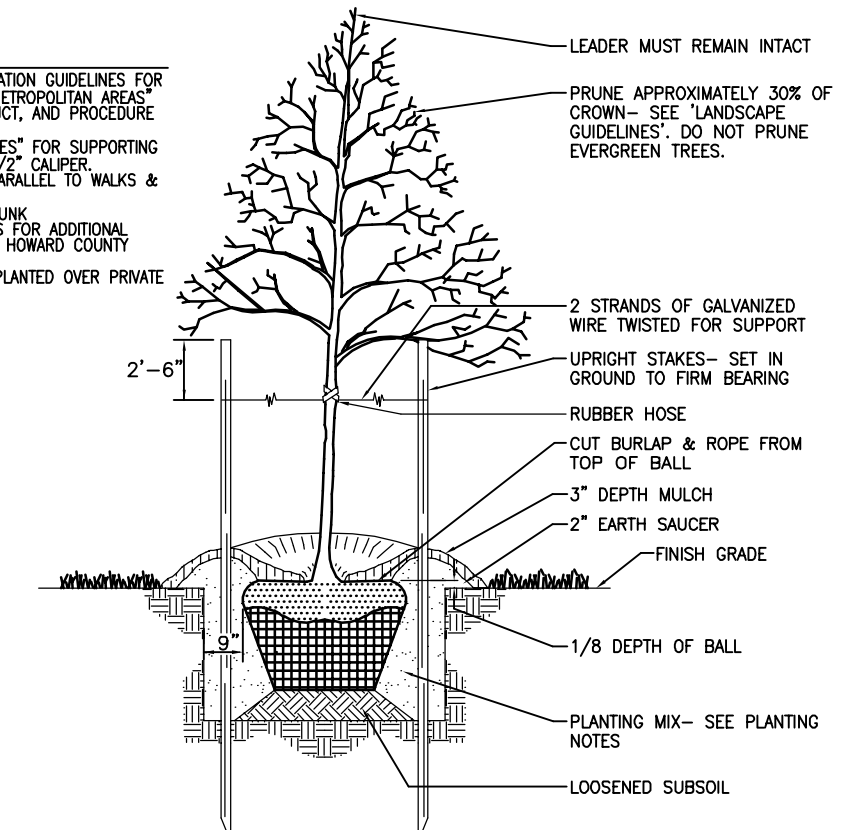
- 1. ALL WATER CONNECTIONS SHALL BE 1-1/2" WITH 1" OUTSIDE METER SETTINGS, UNLESS OTHERWISE NOTED. REFER TO HOWARD COUNTY DETAILS W-3.28 OUTSIDE METER SETTINGS.

NOTES:

- 1. SEE "LANDSCAPE SPECIFICATION GUIDELINES FOR LANDSCAPE SPECIFICATIONS" FOR ALL MATERIAL, PRODUCT, AND PROCEDURE REQUIREMENTS.
- 2. SEE "LANDSCAPE SPECIFICATION GUIDELINES FOR SUPPORTING STRUCTURES" FOR SUPPORTING STRUCTURES.
- 3. PLACE UPRIGHT STAKES PARALLEL TO WALKS & BUILDINGS.
- 4. KEEP MULCH 1" FROM TRUNK.
- 5. PRE-APPROPRIATE PLANS FOR ADDITIONAL PLANTINGS WHICH EXCEED HOWARD COUNTY MINIMUM REQUIREMENTS SHALL BE PLANTED OVER PRIVATE SERVICE EASEMENT.

TREE PLANTING AND STAKING

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



TYPICAL EVERGREEN TREE PLANTING DETAIL

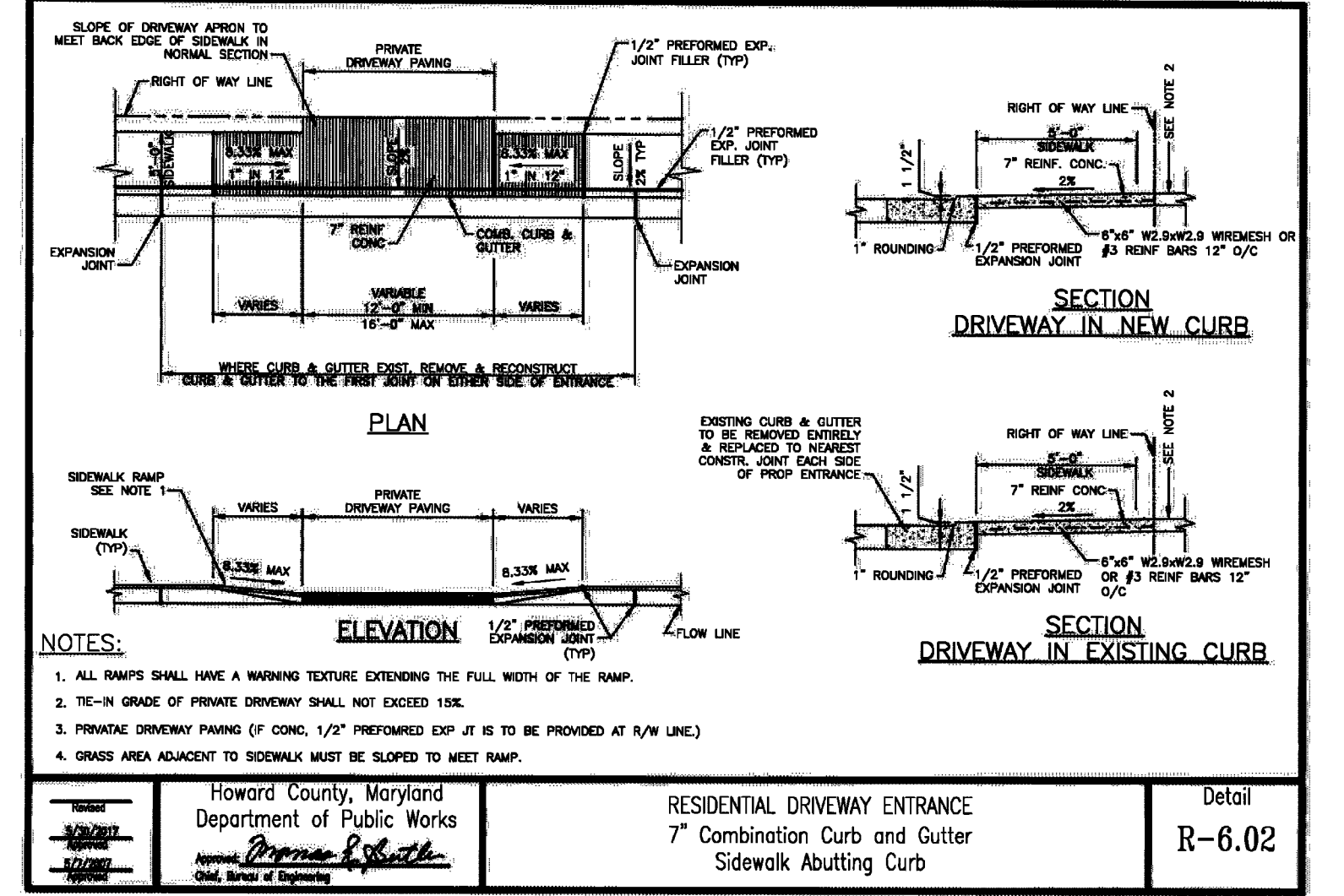
NOT TO SCALE

NOTES:

- 1. SEE SHEET 5 OF THIS SET FOR MODIFIED DRYWELL (M-5) SIZE, NOTES & DETAILS.

LEGEND:

- PROPERTY LINE
- RIGHT-OF-WAY LINE
- ADJACENT PROPERTY LINE
- EXISTING PAVING
- EXISTING TREELINE
- EXISTING SANITARY MAINLINE
- EXISTING CLEANOUT
- EXISTING FIRE HYDRANT
- EXISTING WATER LINE
- EXISTING STORM DRAIN
- EXISTING CHAIN LINK FENCE
- EX. CURB AND GUTTER
- EXISTING MAILBOX
- EXISTING SIGN
- EXISTING UTILITY POLE
- EXISTING TREE
- EX. MICRO BIO-RETENTION
- MODIFIED DRYWELL (M-5)
- RAIN BARRELS
- STORMWATER MANAGEMENT TEST PIT
- UNMITIGATED NOISE CONTOUR
- MITIGATED NOISE CONTOUR
- PROPOSED TREES
- PROPOSED LANDSCAPE BUFFER

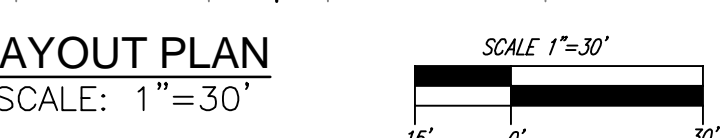


NOTES: 1. ALL RAMPS SHALL HAVE A WARNING TEXTURE EXTENDING THE FULL WIDTH OF THE RAMP. 2. THE IN-GRADE OF PRIVATE DRIVEWAY SHALL NOT EXCEED 1%. 3. PRIVATE DRIVEWAY PAVING (EX. CONC.) 1/2" PREFORMED EXP. JOINT TO BE PROVIDED AT R/W LINE. 4. GRASS AREA ADJACENT TO SIDEWALK MUST BE SLOPED TO MEET RAMP.

DEVELOPER: STANDARD ENERGY SOLUTIONS, 9520 GERWIG LANE, SUITES Q-1, COLUMBIA, MD 21046. OWNER: IHOMES, INC, 6355 WOODSIDE COURT, COLUMBIA, MD 21046.

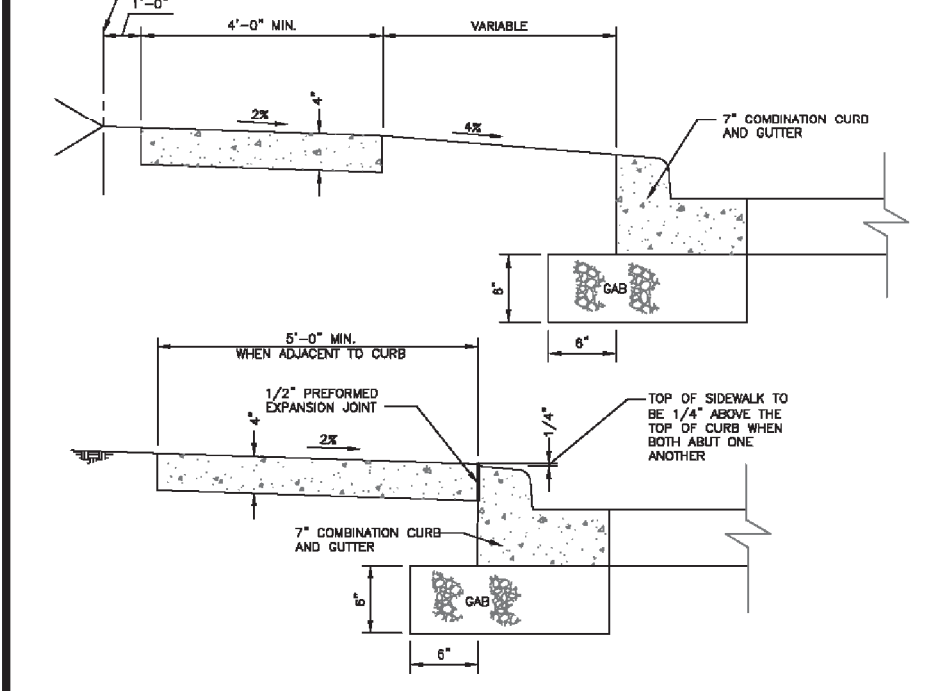
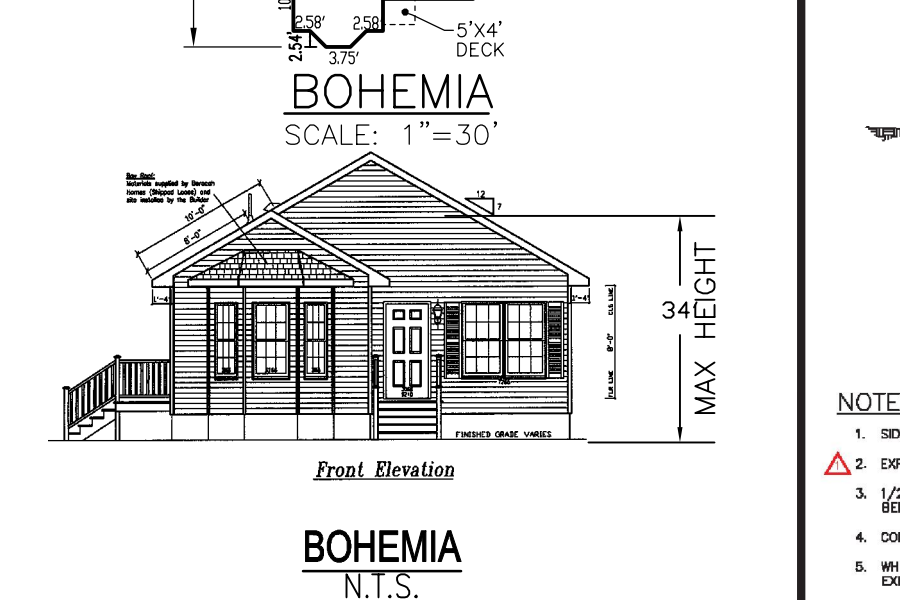
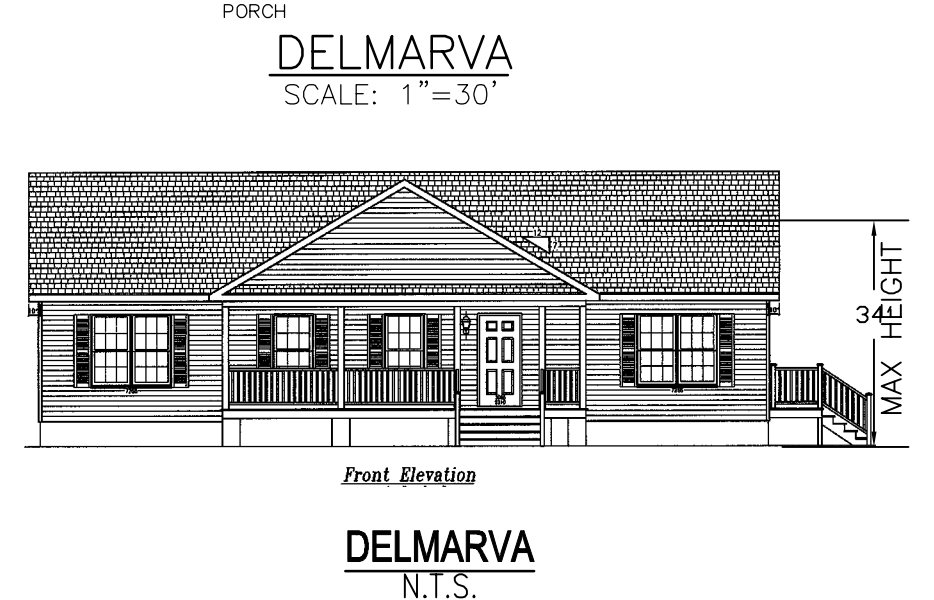
SCHEDULE A PERIMETER LANDSCAPE EDGE table with columns for category, adjacent to perimeter, and total.

SCHEDULE A PERIMETER LANDSCAPE EDGE table with columns for key, quantity, botanical name, size, and category.



LANDSCAPE SCHEDULE NOTES: 1. ALL PLANT MATERIALS SHALL BE FULL AND HEAVY, BE WELL FORMED AND SYMMETRICAL, CONFORM TO THE MOST CURRENT AN SPECIFICATIONS AND BE INSTALLED IN ACCORDANCE WITH HRD PLANTING SPECIFICATIONS.

GENERAL NOTES: 1. THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL. THE REQUIRED PERIMETER LANDSCAPING WILL BE BONDED PER THIS SUBMISSION.



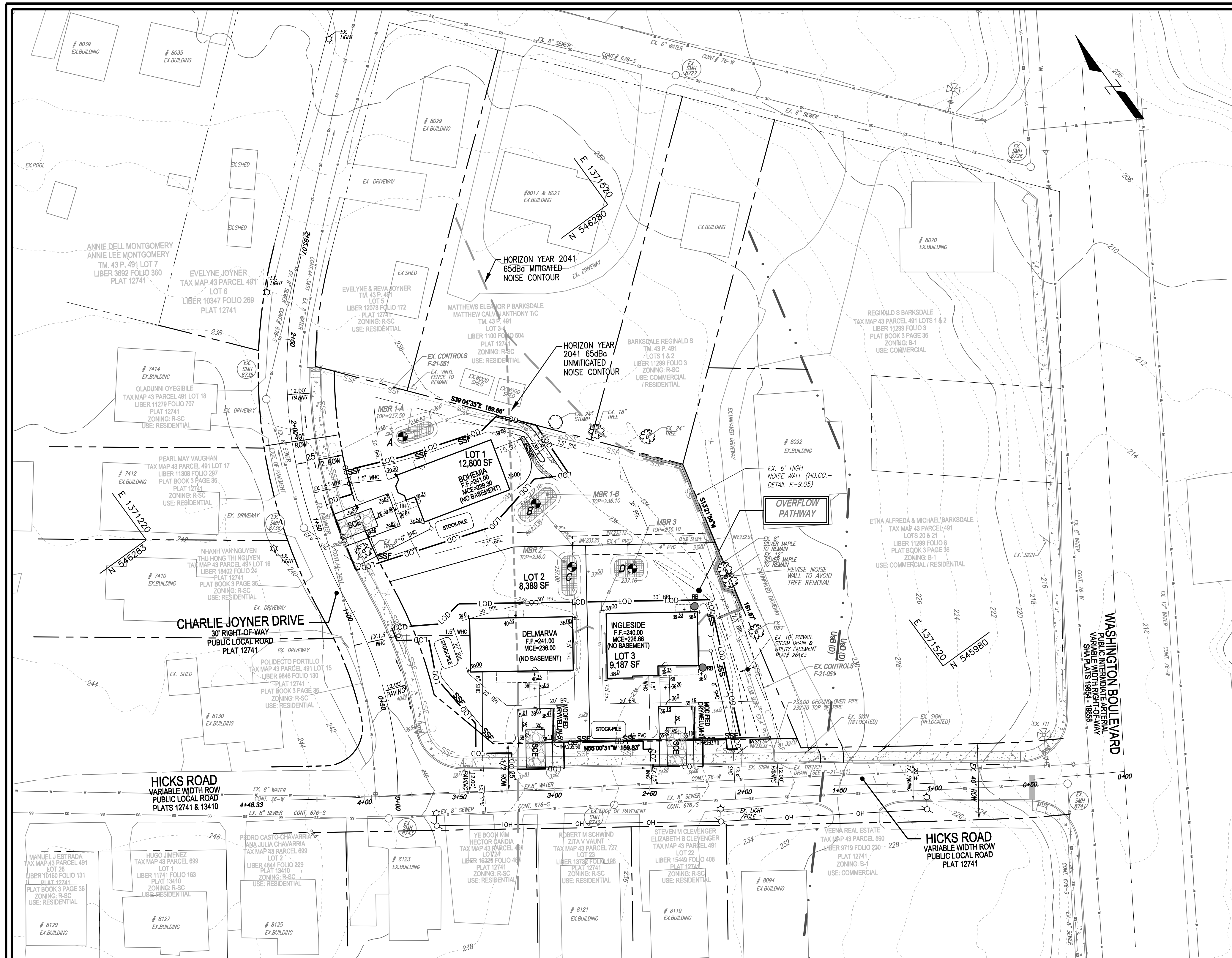
- NOTES: 1. SIDEWALK TO BE INSTALLED IN 6'-0" MINIMUM SECTIONS. 2. EXPANSION JOINTS ACROSS THE SIDEWALK NOT TO BE MORE THAN 12' APART, OR 18' FOR 4" WIDE SIDEWALK. 3. 1/2" PREFORMED EXPANSION MATERIAL IN EXPANSION JOINTS TO BE NOTED 1/4" BELOW SURFACE OF SIDEWALK. 4. CONCRETE TO BE 4000 PSI. 5. WHEN SIDEWALK ABUTS CURB, SIDEWALK SHALL BE 1/4" ABOVE CURB WITH 1/2" PREFORMED EXPANSION JOINT BETWEEN SIDEWALK AND CURB. 6. ON UNLEVELING, SIDEWALK GRASSES OF 24" OR GREATER, A CONCRETE HEADER 4" THICK AND 4" DEEP BELOW THE SURFACE OF SIDEWALK THROUGHOUT SHALL BE PROVIDED FOR THE FULL WIDTH OF THE SIDEWALK AT INTERVALS OF 40 FEET. THE HEADERS SHALL BE PLACED AT 1/4" ABOVE THE FINISH GRADE AND SHALL BE WELDED TO THE SIDEWALK. 7. SIDEWALK WIDTH ADJACENT TO CURB SHALL BE 5'-0" MINIMUM (EXCEPT SIDEWALK ADJACENT TO CURB IN CURB-TO-CURB AREAS MAY BE 4'-0" WIDE). 8. SIDEWALK LOCATED AT OR MORE FROM CURB MAY BE 4'-0" IN WIDTH WITH A 5'-0" FINISHED SECTION PLACED OVER AREAS. 9. 4'-0" SIDEWALK REQUIRES A PARKING AREA (SEE DETAIL R-4.01).

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING table with columns for name, title, and date.

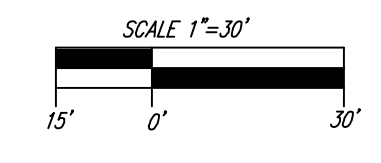
DEVELOPER'S/BUILDER'S CERTIFICATE: I/WE CERTIFY THAT THE LANDSCAPING SHOWN ON THIS PLAN WILL BE DONE ACCORDING TO THE PLAN, SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE HOWARD COUNTY LANDSCAPE MANUAL.

Table with columns for material type and detail number.

Professional Engineer information for Robert Vogel, including design by, drawn by, checked by, date, and scale.



GRADING, SOIL EROSION AND SEDIMENT CONTROL PLAN
SCALE: 1"=30'



LEGEND:

	EXISTING CONTOUR		EXISTING TREES (FIELD LOCATED)
	PROPOSED CONTOUR		EXISTING TREE LINE (FIELD LOCATED)
	PROPOSED SPOT ELEVATION		EXISTING FENCE
	EXISTING SPOT ELEVATION		PROPERTY LINE
	EXISTING PAVING		RIGHT-OF-WAY LINE
	EX. CURB AND GUTTER		SOILS BOUNDARY
	EXISTING UTILITY POLE		EX. SIDEWALK
	EXISTING LIGHT POLE		SUPER SILT FENCE
	EXISTING MAILBOX		LIMIT OF DISTURBANCE
	EXISTING SIGN		STABILIZED CONSTRUCTION ENTRANCE
	EXISTING SANITARY MANHOLE		MODIFIED DRYWELL(M-S)
	EXISTING SANITARY LINE		EX. MICRO BIO-RETENTION (F-21-051)
	EXISTING STORM DRAIN		PERMANENT SOILS STABILIZATION MATTING
	EXISTING CLEANOUT		
	EXISTING FIRE HYDRANT		
	EXISTING WATER LINE		
	STORMWATER MANAGEMENT TEST PIT		
	UNMITIGATED NOISE CONTOUR		
	MITIGATED NOISE CONTOUR		
	RAIN BARRELS		

MAPPED SOILS TYPES - HOWARD COUNTY, MARYLAND

SYMBOL NAME / DESCRIPTION	GROUP	HYDRIC	Kw	RANGE	HIGHLY ERODIBLE
Urb	URBAN LAND-SASSAFRAS BELTSVILLE COMPLEX 0 TO 5% SLOPES				

NOTE: TAKEN FROM: USDA, SCS-HEB SOIL SURVEY AND HOWARD COUNTY SOIL CONSERVATION DISTRICT WEBSITE DOCUMENTS
HTS://WWW.HOWARDSCD.GOV/DOCUMENTS
HIGHLY ERODIBLE SOILS ARE THOSE SOILS WITH A SLOPE GREATER THAN 15 PERCENT OR THOSE SOILS WITH A SOIL ERODIBILITY FACTOR K GREATER THAN 0.35 AND WITH A SLOPE GREATER THAN 5 PERCENT

DEVELOPER
STANDARD ENERGY SOLUTIONS
9520 GERWIG LANE, SUITES Q-T
COLUMBIA, MD 21046
PHONE: 410-844-3800
STEVE.WELSH@STANDARDENERGYSOLUTIONS.COM

OWNER
IHOMES, INC
6355 WOODSIDE COURT
COLUMBIA, MD 21046
PHONE: 443-218-8558

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

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

DocuSigned by: *David Edwards* 11/17/2022
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

DocuSigned by: *Stephan B. Welsh* 11/16/2022
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

DocuSigned by: *Stephan B. Welsh* 11/17/2022
DIRECTOR DATE

OWNER/DEVELOPER CERTIFICATION:
I/WE CERTIFY THAT ANY CLEARING, GRADING, CONSTRUCTION, OR DEVELOPMENT WILL BE DONE PURSUANT TO THIS APPROVED EROSION AND SEDIMENT CONTROL PLAN, INCLUDING INSPECTING AND MAINTAINING CONTROLS, AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A MARYLAND DEPARTMENT OF THE ENVIRONMENT (MDE) APPROVED TRAINING PROGRAM FOR THE CONTROL ON EROSION AND SEDIMENT PRIOR TO BEGINNING THE PROJECT. I CERTIFY RIGHT-OF-ENTRY FOR PERIODIC ON-SITE EVALUATION BY HOWARD COUNTY, THE HOWARD SOIL CONSERVATION DISTRICT AND/OR MDE.

DocuSigned by: *Stephan B. Welsh* 10/31/2022
OWNER/DEVELOPER SIGNATURE DATE
Stephan B. Welsh
PRINTED NAME & TITLE

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

DocuSigned by: *Robert H. Vogel* 11/2/2022
DESIGNER'S SIGNATURE DATE
ROBERT H. VOGEL MD REGISTRATION NO. 16193
PRINTED NAME P.E., R.L.S., OR R.L.A. (circle one)

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

DocuSigned by: *Alexandra Bratschie* 11/16/2022
HOWARD S.C.D. DATE

SITE DEVELOPMENT PLAN
SOILS MAP, GRADING, SOIL EROSION AND SEDIMENT CONTROL PLAN
GREENFIELDS COMMUNITY LIVING
LOTS 1, 2 & 3
A SUBDIVISION OF TAX MAP 43 PARCEL 491 LIBER 18385 FOLIO 341 PLAT 26163

TAX MAP: 43 BLOCK: 14 6TH ELECTION DISTRICT
PARCEL: 491 ZONING: R-SC HOWARD COUNTY, MARYLAND

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

PROFESSIONAL CERTIFICATE

DESIGN BY: *RHV*
DRAWN BY: *KG*
CHECKED BY: *RHV*
DATE: SEPTEMBER 2022
SCALE: 1"=30'
W.O. NO.: 4.3808

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193 EXPIRATION DATE: 09-21-2024

3 SHEET OF 6

HOWARD SOIL CONSERVATION DISTRICT STANDARD SEDIMENT CONTROL NOTES

- 1. A PRE-CONSTRUCTION MEETING MUST OCCUR WITH THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS, CONSTRUCTION INSPECTION DIVISION (CID), 410-313-1855 AFTER THE FUTURE LOT AND PROTECTED AREAS ARE MARKED CLEARLY IN THE FIELD...

- 2. ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL...

Table with 2 columns: SITE ANALYSIS, ACRES. Rows include: TOTAL AREA OF SITE, DISTURBED, TO BE ROOFED OR PAVED, TO BE VEGETATIVELY STABILIZED, TOTAL CUT, TOTAL FILL, OFFSITE WASTE/BORROW AREA LOCATION.

- (1) REFER TO ITEM 11 BELOW ON-SITE
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...

ITEM 11, REGARDING PRIORITY DISTURBANCE IS NO LONGER A REQUIREMENT OF THE STATE OF MARYLAND, HOWEVER REMAINS A REQUIREMENT OF HOWARD COUNTY.

B-4-5 STANDARDS AND SPECIFICATIONS FOR PERMANENT STABILIZATION

DEFINITION TO STABILIZE DISTURBED SOILS WITH PERMANENT VEGETATION. PURPOSE TO USE LONG-LEAF PERENNIAL GRASSES AND LEGUMES TO ESTABLISH PERMANENT GROUND COVER ON DISTURBED SOILS.

- 1. GENERAL USE
A. SELECT ONE OR MORE OF THE SPECIES OR MIXTURES LISTED IN TABLE B.3 FOR THE APPROPRIATE PLANT HARDNESS ZONE (FROM FIGURE B.3) AND BASED ON THE SITE CONDITION OR PURPOSE FOUND ON TABLE B.2...

- 2. TURFGRASS MIXTURES
A. AREAS WHERE TURFGRASS MAY BE DESIRED INCLUDE LAWNS, PARKS, PLAYGROUNDS, AND COMMERCIAL SITES WHICH WILL RECEIVE A MEDIUM TO HIGH LEVEL OF MAINTENANCE. B. SELECT ONE OR MORE OF THE SPECIES MIXTURES LISTED BELOW BASED ON THE SITE CONDITION OR PURPOSE...

- 3. IDEAL TIMES OF SEEDING FOR TURF GRASS MIXTURES
WESTERN MD: MARCH 15 TO JUNE 1, AUGUST 10 TO OCTOBER 1 (HARDNESS ZONES: 5B, 6A)
CENTRAL MD: MARCH 1 TO MAY 15, AUGUST 15 TO OCTOBER 15 (HARDNESS ZONE: 5B)
SOUTHERN MD, EASTERN SHORE: MARCH 1 TO MAY 15, AUGUST 15 TO OCTOBER 15 (HARDNESS ZONES: 7A, 7B)

- 4. 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 1/4 INCHES IN DIAMETER...

- 1. GENERAL SPECIFICATIONS
A. CLASS OF TURFGRASS SOD MUST BE MARYLAND STATE CERTIFIED. SOD LABELS MUST BE MADE AVAILABLE TO THE JOB FOREMAN AND INSPECTOR.
B. SOD MUST BE MACHINE CUT AT A UNIFORM SOIL THICKNESS OF 3/4 INCH, PLUS OR MINUS 1/8 INCH AT THE TIME OF CUTTING...

PERMANENT SEEDING SUMMARY table with columns: HARDNESS ZONE, SEED MIXTURE, FERTILIZER, LINE RATE. Includes rows for COIL SEASON TALL FESCUE and WARM/COOL SEASON MIX.

FOR ALTERNATES, REFER TO THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL - PAGES B.26 - B.32

OWNER/DEVELOPER CERTIFICATION: I HEREBY CERTIFY THAT THIS PLAN HAS BEEN DESIGNED IN ACCORDANCE WITH CURRENT MARYLAND EROSION AND SEDIMENT CONTROL PRACTICES AND STANDARDS...

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

DEFINITION THE PROCESS OF PREPARING THE SOILS TO SUSTAIN ADEQUATE VEGETATIVE STABILIZATION. PURPOSE TO PROVIDE A SUITABLE SOIL MEDIUM FOR VEGETATIVE GROWTH.

- 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...

- 2. PERMANENT STABILIZATION
A. SOIL TEST IS REQUIRED FOR ANY EARTH DISTURBANCE OF 5 ACRES OR MORE. THE MINIMUM SOIL CONDITIONS REQUIRED FOR PERMANENT VEGETATIVE ESTABLISHMENT ARE: I. SOIL BETWEEN 0.0 AND 7.0...

- 3. TOPSOILING IS LIMITED TO AREAS HAVING 2:1 OR FLATTER SLOPES WHERE:
A. THE TEXTURE OF THE EXPOSED SUBSOIL/PARENT MATERIAL IS NOT ADEQUATE TO PRODUCE VEGETATIVE GROWTH.
B. THE SOIL MATERIAL IS SO SHALLOW THAT THE ROOTING ZONE IS NOT DEEP ENOUGH TO SUPPORT PLANTS OR FURNISH CONTINUING SUPPLIES OF MOISTURE AND PLANT NUTRIENTS...

- 4. SOIL AMENDMENTS (FERTILIZER AND LIMING SPECIFICATIONS)
A. 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 ANALYSES MAY BE PERFORMED BY A RECOGNIZED PRIVATE OR COMMERCIAL LABORATORY...

- 1. GENERAL SPECIFICATIONS
A. ALL SEED MUST MEET THE REQUIREMENTS OF THE MARYLAND STATE SEED LAW. ALL SEED MUST BE SUBJECT TO RE-TESTING BY A RECOGNIZED SEED LABORATORY...

TEMPORARY SEEDING SUMMARY table with columns: HARDNESS ZONE, SEED MIXTURE, FERTILIZER, LINE RATE. Includes rows for COIL SEASON ANNUAL PERGRASS and WARM SEASON FORTAL OR EQUAL.

FOR ALTERNATES, REFER TO THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL PAGE B.20, TABLE B.1, SHOWN ON SHEET X

OWNER/DEVELOPER CERTIFICATION: I HEREBY CERTIFY THAT THIS PLAN HAS BEEN DESIGNED IN ACCORDANCE WITH CURRENT MARYLAND EROSION AND SEDIMENT CONTROL PRACTICES AND STANDARDS...

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

DEFINITION THE APPLICATION OF SEED AND MULCH TO ESTABLISH VEGETATIVE COVER. PURPOSE TO PROTECT DISTURBED SOILS FROM EROSION DURING AND AT THE END OF CONSTRUCTION.

- 1. SEEDING
A. ALL SEED MUST MEET THE REQUIREMENTS OF THE MARYLAND STATE SEED LAW. ALL SEED MUST BE SUBJECT TO RE-TESTING BY A RECOGNIZED SEED LABORATORY...

- 2. APPLICATION
A. DRY SEEDING: THIS INCLUDES USE OF CONVENTIONAL DROP OR BROADCAST SPREADERS. I. INCREASED SEEDING RATES SHOULD BE USED FOR TEMPORARY SEEDING TABLE B.1, PERMANENT SEEDING TABLE B.3, OR SITE-SPECIFIC SEEDING MIXTURES...

- 3. MULCHING
I. MULCH MATERIALS (IN ORDER OF PREFERENCE)
A. STRAW CONSISTING OF THOROUGHLY THRESHED WHEAT, RYE, OAT, OR BARLEY AND REASONABLY BRIGHT IN COLOR...

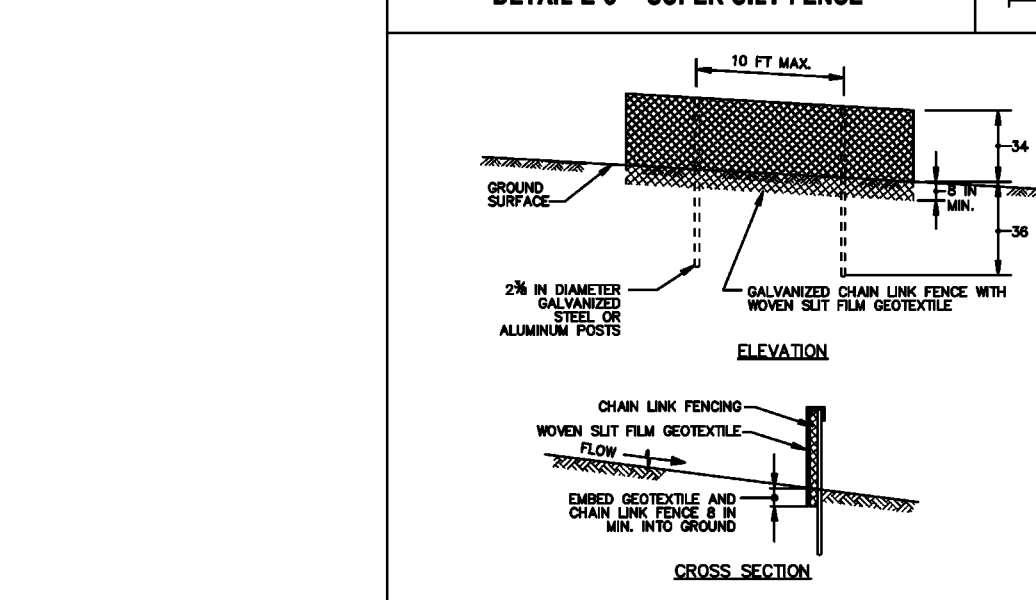
- 4. MULCH MATERIALS (IN ORDER OF PREFERENCE)
A. STRAW CONSISTING OF THOROUGHLY THRESHED WHEAT, RYE, OAT, OR BARLEY AND REASONABLY BRIGHT IN COLOR. STRAW IS TO BE FREE OF NOXIOUS WOOD SEEDS AS SPECIFIED IN THE MARYLAND SEED LAW AND NOT MUSTY, MOLLY, CAKED, DECAYED, OR EXCESSIVELY DUSTY...

- 1. SELECT ONE OR MORE OF THE SPECIES OR SEED MIXTURES LISTED IN TABLE B.1 FOR THE APPROPRIATE PLANT HARDNESS ZONE (FROM FIGURE B.3), AND ENTER THEM IN THE TEMPORARY SEEDING SUMMARY BELOW ALONG WITH APPLICATION RATES, SEEDING DATES AND SEEDING DEPTHS...

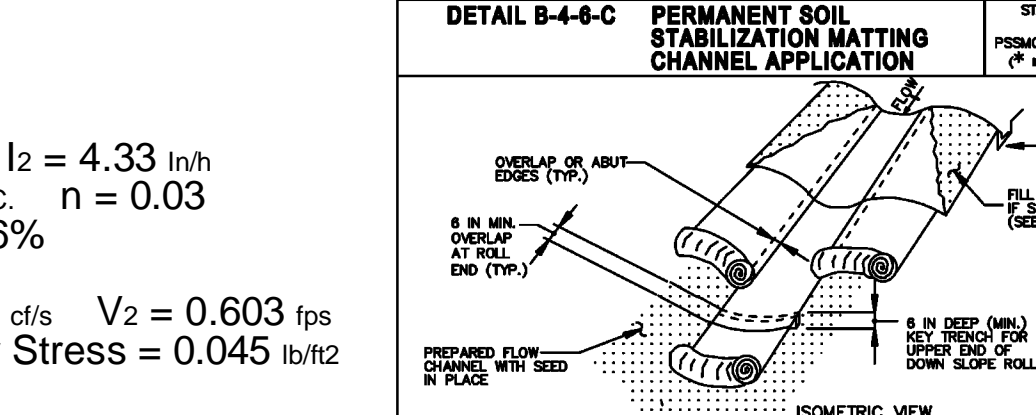
TEMPORARY SEEDING SUMMARY table with columns: HARDNESS ZONE, SEED MIXTURE, FERTILIZER, LINE RATE. Includes rows for COIL SEASON ANNUAL PERGRASS and WARM SEASON FORTAL OR EQUAL.

FOR ALTERNATES, REFER TO THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL PAGE B.20, TABLE B.1, SHOWN ON SHEET X

OWNER/DEVELOPER CERTIFICATION: I HEREBY CERTIFY THAT THIS PLAN HAS BEEN DESIGNED IN ACCORDANCE WITH CURRENT MARYLAND EROSION AND SEDIMENT CONTROL PRACTICES AND STANDARDS...



- CONSTRUCTION SPECIFICATIONS
1. INSTALL 24 INCH DIAMETER GALVANIZED STEEL POSTS OF CLASS 300 WALL THICKNESS AND SIX FOOT HEIGHT IN HEIGHT REGULARLY TO THE FENCE POSTS WITH ONE FOOT OF HOLE BENEATH THE POSTS...



- CONSTRUCTION SPECIFICATIONS
1. USE MATTING OF ADEQUATE STRENGTH FOR SHEAR STRESS EQUAL TO OR GREATER THAN THE SHEAR STRESS DEVELOPED ON APPROVED PLANS.
2. USE PERFORATED SOIL STABILIZATION MATTING WITH A MINIMUM PERCENTAGE OF 100% PERFORATION...

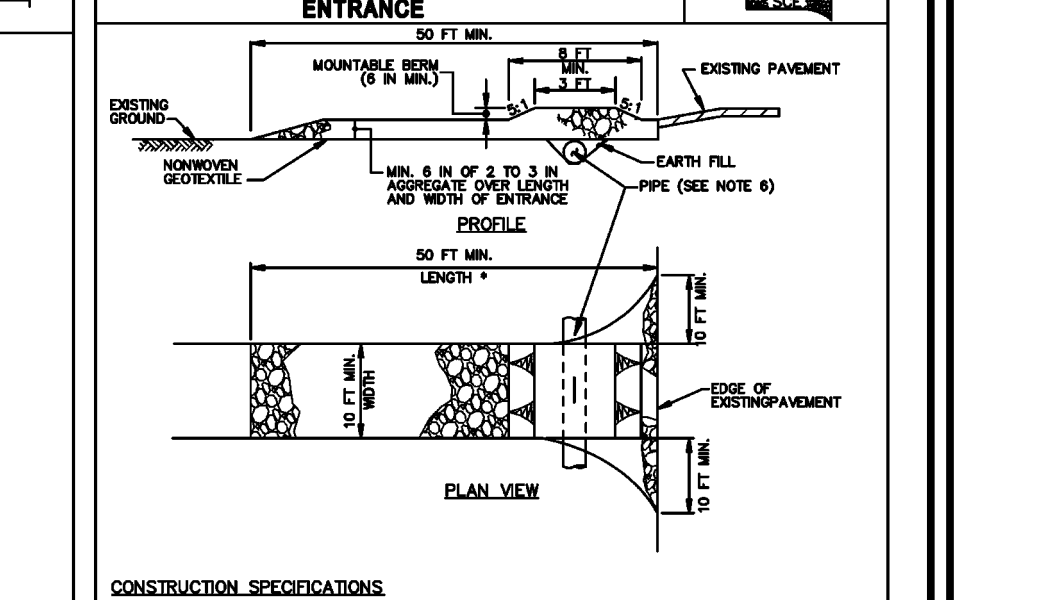
- 1. GENERAL SPECIFICATIONS
A. CLASS OF TURFGRASS SOD MUST BE MARYLAND STATE CERTIFIED. SOD LABELS MUST BE MADE AVAILABLE TO THE JOB FOREMAN AND INSPECTOR.
B. SOD MUST BE MACHINE CUT AT A UNIFORM SOIL THICKNESS OF 3/4 INCH, PLUS OR MINUS 1/8 INCH AT THE TIME OF CUTTING...

B-4-4 STANDARDS AND SPECIFICATIONS FOR TEMPORARY STABILIZATION

DEFINITION TO STABILIZE DISTURBED SOILS WITH VEGETATION FOR UP TO 6 MONTHS. PURPOSE TO USE FAST GROWING VEGETATION THAT PROVIDES COVER ON DISTURBED SOILS.

- 1. GENERAL SPECIFICATIONS
A. ALL SEED MUST MEET THE REQUIREMENTS OF THE MARYLAND STATE SEED LAW. ALL SEED MUST BE SUBJECT TO RE-TESTING BY A RECOGNIZED SEED LABORATORY...

- 1. STOCKPILE LOCATION AND ALL RELATED SEDIMENT CONTROL PRACTICES MUST BE CLEARLY INDICATED ON THE EROSION AND SEDIMENT CONTROL PLAN. 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...



- CONSTRUCTION SPECIFICATIONS
1. PLACE STABILIZED CONSTRUCTION ENTRANCE IN ACCORDANCE WITH THE APPROVED PLAN. VEHICLES MUST TRAVEL OVER THE ENTIRE LENGTH OF THE FENCE POSTS WITH ONE FOOT OF HOLE BENEATH THE POSTS...

SEQUENCE OF CONSTRUCTION

- 1. OBTAIN GRADING PERMIT. (1 DAY)
2. OBTAIN WRITING NOTICE OF INTENT FOR CONSTRUCTION ACTIVITIES PERMIT. (1 DAY)
3. NOTIFY HOWARD COUNTY BUREAU OF INSPECTIONS AND PERMITS (410-313-1880) AT LEAST 24 HOURS BEFORE STARTING ANY PERMIT (1 DAY)
4. ANY UTILITIES (CABLE, GAS, ELECTRIC) MUST BE INSTALLED PRIOR TO THE INSTALLATION OF THE F-21-051 MICRO BIO RETENTION FACILITIES...

- 1. GENERAL SPECIFICATIONS
A. CLASS OF TURFGRASS SOD MUST BE MARYLAND STATE CERTIFIED. SOD LABELS MUST BE MADE AVAILABLE TO THE JOB FOREMAN AND INSPECTOR.
B. SOD MUST BE MACHINE CUT AT A UNIFORM SOIL THICKNESS OF 3/4 INCH, PLUS OR MINUS 1/8 INCH AT THE TIME OF CUTTING...

DEVELOPER OWNER

STANDARD ENERGY SOLUTIONS 9520 GERWIG LANE, SUITES Q-T COLUMBIA, MD 21046
IOWNER IOWNS, INC 6355 WOODSIDE COURT COLUMBIA, MD 21046

Table with columns: NO., REVISION, DATE. Includes revision 1: SITE DEVELOPMENT PLAN, GRADING AND SOIL EROSION, & SEDIMENT CONTROL PLAN-NOTES & DETAILS GREENFIELDS COMMUNITY LIVING.

TAX MAP: 43 BLOCK: 14 6TH ELECTION DISTRICT
PARCEL: 491 ZONING: R-SC HOWARD COUNTY, MARYLAND

VOGEL ENGINEERING

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

PROFESSIONAL CERTIFICATE
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND I AM A duly LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND...

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
Chief, Development Engineering Division
Stephan B. Wells
11/17/2022

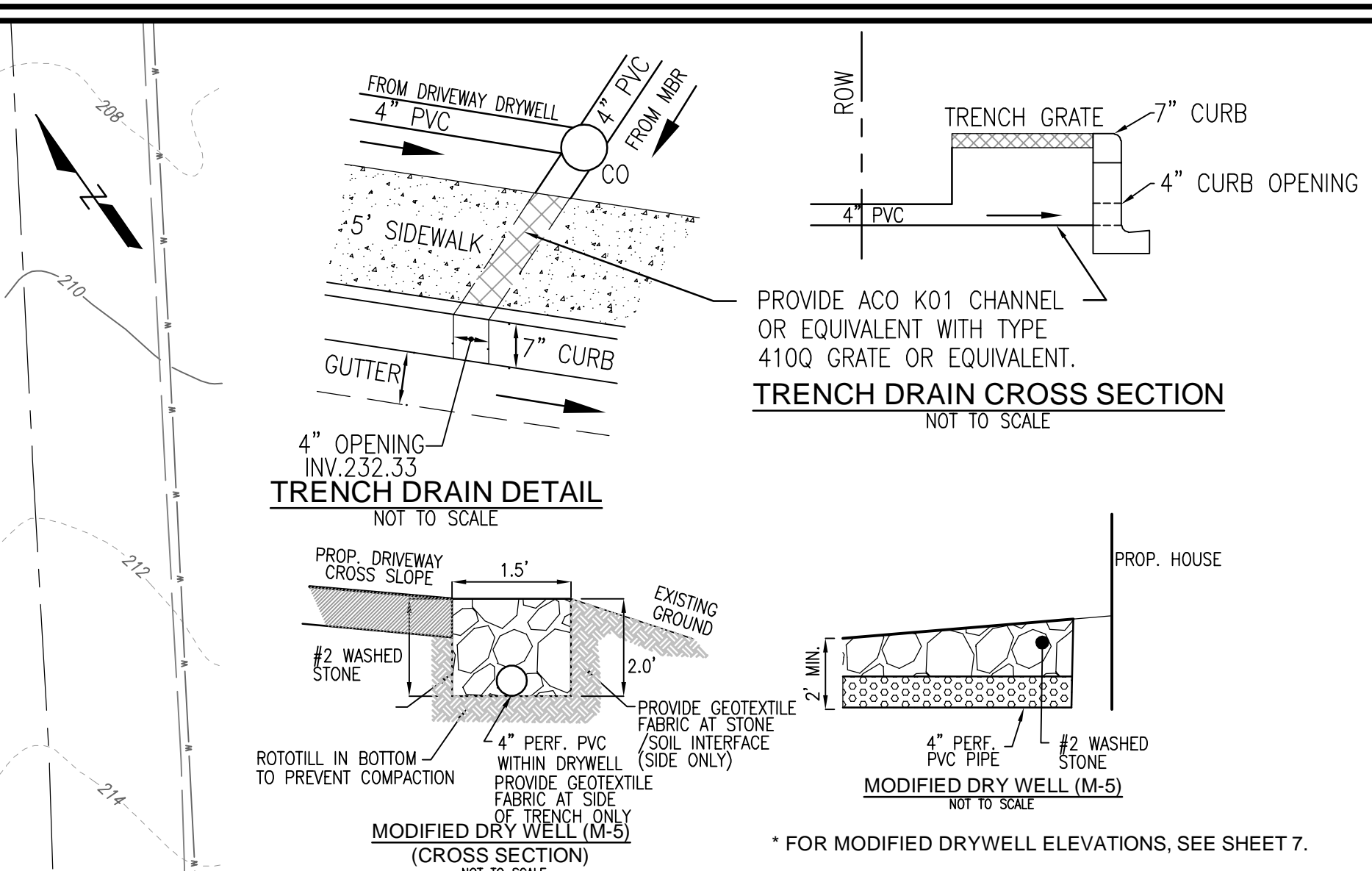
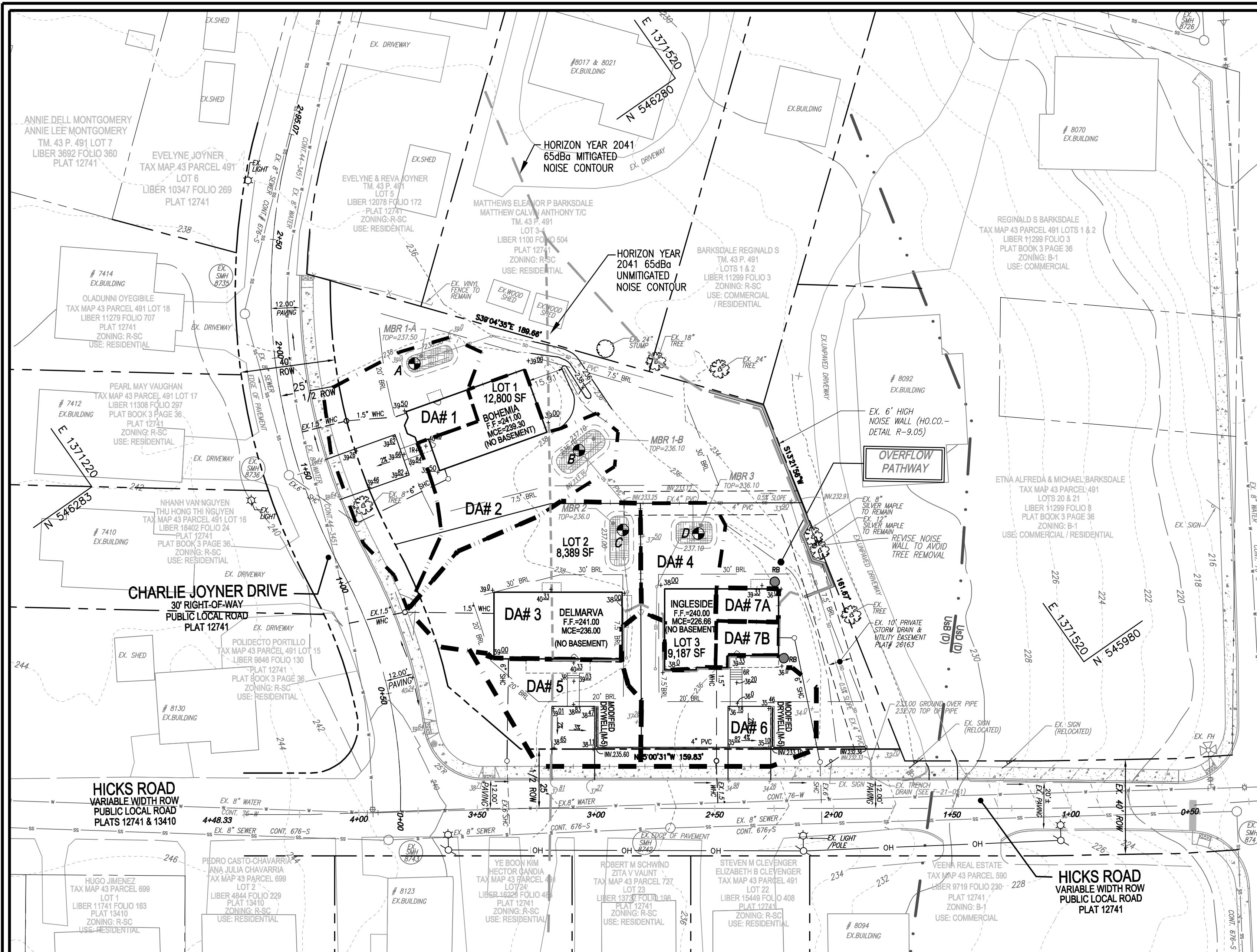
OWNER/DEVELOPER CERTIFICATION: I HEREBY CERTIFY THAT THIS PLAN HAS BEEN DESIGNED IN ACCORDANCE WITH CURRENT MARYLAND EROSION AND SEDIMENT CONTROL PRACTICES AND STANDARDS...

DESIGN CERTIFICATION: I HEREBY CERTIFY THAT THIS PLAN HAS BEEN DESIGNED IN ACCORDANCE WITH CURRENT MARYLAND EROSION AND SEDIMENT CONTROL PRACTICES AND STANDARDS...

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
Alexander Bratkov
11/16/2022

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
Chief, Division of Land Development
Stephan B. Wells
11/17/2022

DESIGN BY: RHW
DRAWN BY: KG
CHECKED BY: RHW
DATE: SEPTEMBER 2022
SCALE: 1"=30'
W.O. NO.: 43808
4 SHEET OF 6



ON-LOT MODIFIED DRYWELL - SIZING CHART

LOT #	DW NO.	DW LOCATION	NUMBER OF DW'S	SURFACE SIZE FT X FT	STONE DEPTH FT	SAND DEPTH FT
2	2A	F	1	18.00 X 1.50	1	1
3	3A	F	1	18.00 X 1.50	1	1

OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED STORMWATER DRY WELLS (M-5)

1. THE MONITORING WELLS AND STRUCTURES SHALL BE INSPECTED ON A QUARTERLY BASIS AND AFTER EVERY LARGE STORM EVENT.
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. IF 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 INSPECTION TO INSURE COMPLIANCE WITH OPERATION AND MAINTENANCE CRITERIA.
6. ONCE THE PERFORMANCE CHARACTERISTICS OF THE INFILTRATION FACILITY HAVE BEEN ESTABLISHED, THE MONITORING SCHEDULE MAY BE ADJUSTED ON AN ANNUAL BASIS UNLESS THE PERFORMANCE DATA INDICATES THAT A MORE FREQUENT SCHEDULE IS REQUIRED.

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

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

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

- * SOIL COMPONENT - LOAMY SAND OR SANDY LOAM (USDA SOIL TEXTURAL CLASSIFICATION).
- * ORGANIC CONTENT - MINIMUM LOAM BY DRY WEIGHT (ASTM D 1974). IN GENERAL, THIS CAN BE MET WITH A Mixture OF LOAMY SAND (60%/35%) AND COMPOST (35% TO 40%) OR SANDY LOAM (30%), COARSE SAND (30%), AND COMPOST (40%).
- * CLAY CONTENT - MEDIA SHALL HAVE A CLAY CONTENT OF LESS THAN 5%.
- * PH RANGE - SHOULD BE BETWEEN 5.5 - 7.0. AMENDMENTS (E.G., LIME, IRON SULFATE PLUS SULFUR) MAY BE MIXED IN TO THE SOIL TO INCREASE OR DECREASE PH.

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

3. COMPACTION
IT IS VERY IMPORTANT TO MINIMIZE COMPACTION OF BOTH THE BASE OF BIORETENTION PRACTICES AND THE REQUIRED BACKFILL WHEN POSSIBLE. USE EXCAVATION HOES TO REMOVE ORIGINAL SOIL. IF PRACTICES ARE EXCAVATED USING LOADERS, THE CONTRACTOR SHOULD USE WIDE TRACK OR MARSH TRACK EQUIPMENT, OR LIGHT EQUIPMENT WITH TIRE TRENCHERS. USE EQUIPMENT WITH NARROW TRACKS OR NARROW TIRES. RUBBER TIRES WITH LARGE LUGS, OR HIGH-PRESSURE TIRES WILL CAUSE EXCESSIVE COMPACTION RESULTING IN REDUCED INFILTRATION RATES AND IS NOT ACCEPTABLE. COMPACTION WILL SIGNIFICANTLY CONTRIBUTE TO DESIGN FAILURE.

COMPACTION CAN BE ALLEVIATED AT THE BASE OF THE BIORETENTION FACILITY BY USING A PRIMARY TILLING OPERATION SUCH AS CHISEL BLOW PIPEPER, OR SUBSOIL THESE TILLING OPERATIONS ARE TO RESTRUCTURE THE SOIL PROFILE THROUGHOUT THE 12 INCH COMPACTION ZONE. SUBSTITUTE METHODS MUST BE APPROVED BY THE ENGINEER. ROTILLERS TYPICALLY DO NOT TILL DEEP ENOUGH TO REDUCE THE EFFECTS OF COMPACTION FROM HEAVY EQUIPMENT.

ROTILL TO 2 TO 3 INCHES OF SAND INTO THE BASE OF THE BIORETENTION FACILITY BEFORE BACKFILLING THE OPTIONAL SAND LAYER. PUMP ANY PONDING WATER BEFORE PREPARING (ROTILLING) BASE. WHEN BACKFILLING THE TOPSOIL OVER THE SAND LAYER, FIRST PLACE 3 TO 4 INCHES OF TOPSOIL OVER THE SAND, THEN ROTILL THE SAND/TOPSOIL TO CREATE A GRADATION ZONE. BACKFILL THE REMAINDER OF THE TOPSOIL TO FINAL GRADE. WHEN BACKFILLING THE BIORETENTION FACILITY, PLACE SOIL IN LIFTS 12" TO 18". DO NOT USE HEAVY EQUIPMENT WITHIN THE BIORETENTION BASIN. HEAVY EQUIPMENT CAN BE USED AROUND THE PERIMETER OF THE BASIN TO SUPPLY SOILS AND SAND. GRADE BIORETENTION MATERIALS WITH LIGHT EQUIPMENT SUCH AS A COMPACT LOADER OR A DOZER/LOADER WITH MARSH TRACKS.

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

5. PLANT INSTALLATION
COMPOST IS A BETTER ORGANIC MATERIAL SOURCE, IS LESS LIKELY TO FLOAT, AND SHOULD BE PLACED IN THE INVERT AND OTHER LOW AREAS. MULCH SHOULD BE PLACED IN SURROUNDING TO A UNIFORM THICKNESS OF 2" TO 3". SHREDED OR CHIPPED HARDWOOD MULCH IS THE ONLY ACCEPTED MULCH. PINE MULCH AND WOOD CHIPS WILL FLOAT TO THE PERIMETER OF THE BIORETENTION AREA DURING A STORM EVENT AND ARE NOT ACCEPTABLE. SHREDED MULCH MUST BE WELL AGED (6 TO 12 MONTHS) FOR ACCEPTANCE. THE ROOTSTOCK OF THE PLANT MATERIAL SHALL BE KEPT MOST DURING TRANSPORT AND ON-SITE STORAGE. PLANT ROOT BALL SHOULD BE PLANTED 90% 1/8TH OF THE BALL IS ABOVE THE 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 THROUGH THE ENTIRE PLANTING PROCESS. FINALLY, 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 ORGANIC MATERIAL TO ADEQUATELY SUPPLY NUTRIENTS FROM NATURAL CYCLING. THE PRIMARY FUNCTION OF THE BIORETENTION STRUCTURE IS TO IMPROVE WATER QUALITY. ADDING FERTILIZERS, DEBRIS, OR AT A MINIMUM, IMPROVES THIS GOAL. ONLY ADD FERTILIZER IF WOOD CHIPS OR MULCH ARE USED TO AMEND THE SOIL. ROTILLURE 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 789, TYPE PS 28, OR AASHTO M-278) IN A GRAVEL LAYER. THE PREFERRED MATERIAL IS SLOTTED, 4" RIGID PIPE (E.G., PVC OF HDPE).
- * PERFORATIONS - IF PERFORATED PIPE IS USED, PERFORATIONS SHOULD BE 3/8" DIAMETER LOCATED 6" ON CENTER WITH A MINIMUM OF FOUR HOLES PER ROW. PIPE SHALL BE WRAPPED WITH A 1/4" (NO. 4 OR 4x4) GALVANIZED HARDWARE CLOTH.
- * GRAVEL - THE GRAVEL LAYER (NO. 57 STONE PREFERRED) SHALL BE AT LEAST 3" THICK ABOVE AND BELOW THE UNDERDRAIN.
- * THE MAIN COLLECTOR PIPE SHALL BE AT A MINIMUM 0.5% SLOPE.
- * A RIGID, NON-PERFORATED OBSERVATION WELL MUST BE PROVIDED (ONE PER EVERY 1,000 SQUARE FEET) TO PROVIDE A CLEAN-OUT PORT AND MONITOR PERFORMANCE OF THE FILTER.
- * A 4" LAYER OF PEA GRAVEL (1/8" TO 3/8" STONE) SHALL BE LOCATED BETWEEN THE FILTER MEDIA AND UNDERDRAIN TO PREVENT MIGRATION OF FINES INTO THE UNDERDRAIN. THIS LAYER MAY BE CONSIDERED PART OF THE FILTER BED WHEN BED THICKNESS EXCEEDS 24".

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

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

OPERATION AND MAINTENANCE SCHEDULE FOR LANDSCAPE INFILTRATION (M-3), MICRO-BIORETENTION (M-6), RAIN GARDENS (M-7), BIORETENTION SWALE (M-8), AND ENHANCED FILTERS (M-9)

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

NOTES:

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

OPERATION AND MAINTENANCE SCHEDULE FOR LANDSCAPE INFILTRATION (M-3), MICRO-BIORETENTION (M-6), RAIN GARDENS (M-7), BIORETENTION SWALE (M-8), AND ENHANCED FILTERS (M-9)

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

STORMWATER MANAGEMENT PRACTICE CHART

LOT #	STREET ADDRESS	MICRO-BIORETENTION M-6	RAIN BARELL M-1	MODIFIED DRYWELL(M-5)
LOT 1	7411 CHARLIE JOYNER DRIVE	2	—	—
LOT 2	8124 HICKS ROAD	1	—	1
LOT 3	8120 HICKS ROAD	1	2	1

DEVELOPER: STANDARD ENERGY SOLUTIONS
9520 GERVAISE LANE, SUITES Q-T
COLUMBIA, MD 21046
PHONE: 410-844-3800
STEVE.WELSH@STANDARDENERGY SOLUTIONS.COM

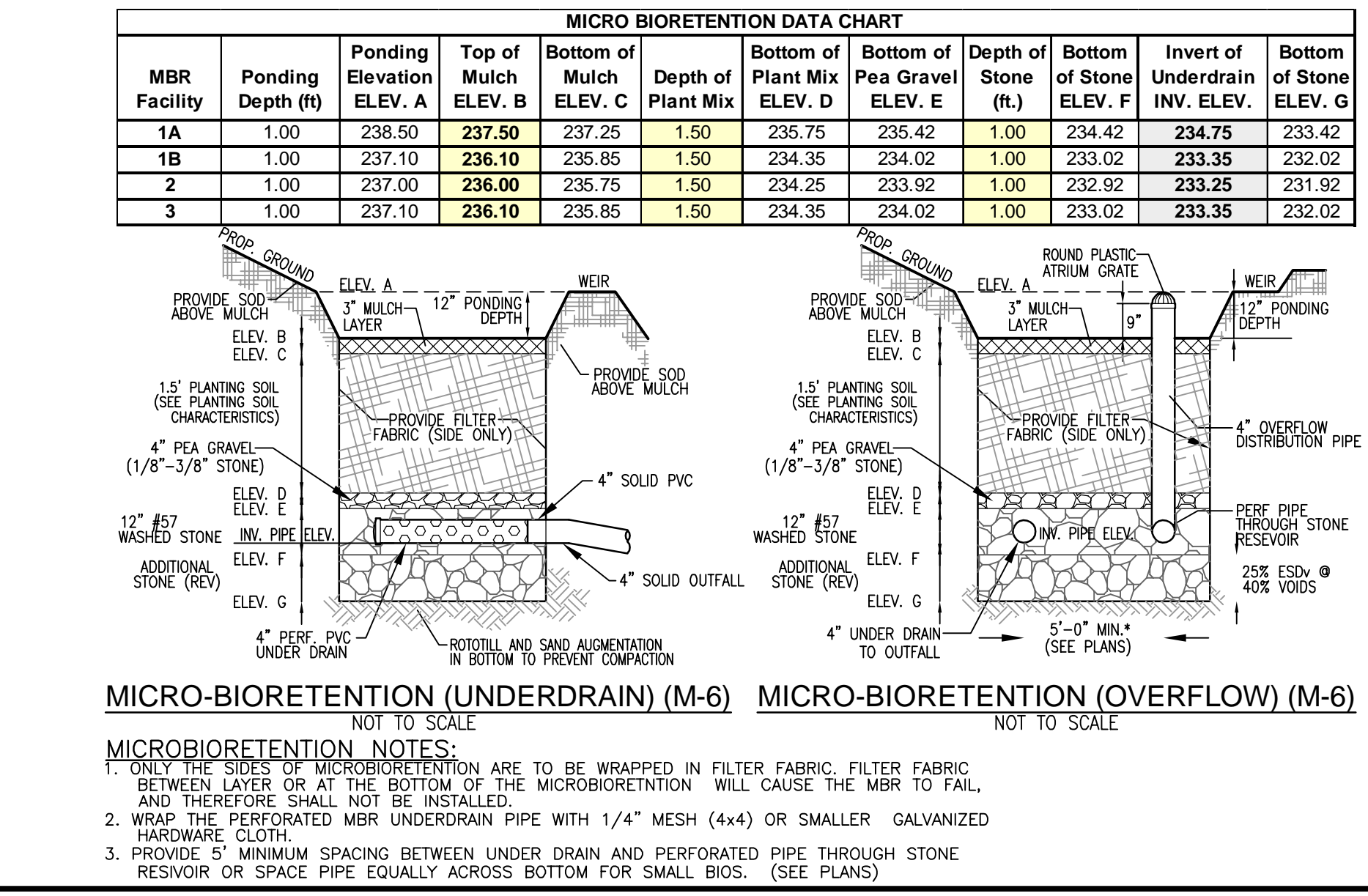
OWNER: IHOMES, INC
6355 WOODSIDE COURT
COLUMBIA, MD 21046
PHONE: 443-218-8558

STORMWATER MANAGEMENT PLAN
SCALE: 1"=30'

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

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

Material	Specification	Unit	Notes
Planting Soil (2" to 4" deep)	loamy sand (60 - 65%) & compost (35 - 40%) or sandy loam (20%), coarse sand (30%) & compost (40%)	c/yd	USDA soil types loamy sand or sandy loam; clay content < 5%
Organic content	Mix: 10% by dry weight (ASTM D 2951)	—	aged 6 months, minimum no pine or wood chips
Pea gravel diaphragm	pea gravel: ASTM-D-448 NO. 6 OR NO. 9 (1/8" TO 3/8")	sq/yd	—
Curb/drain	ornamental stone: washed cobble	sq/lin	2" to 5"
Concrete	—	—	PS Type I concrete
Gravel (underdrain and infiltration berms)	AASHTO M-43 NO. 57 OR NO. 6 AGGREGATE (DOT 3287)	—	—
Underdrain piping	M-78, Type PS 28 or AASHTO M-278 4" to 6" rigid schedule 40 PVC or SDR35	lin/ft	Shaded or perforated pipe; 3/8" perf. @ 6" on center, 4 holes per row; minimum of 2" of gravel over pipe; not necessary underdrain pipe. Perforated pipe shall be wrapped with 1/4 inch galvanized hardware cloth
Found in place concrete (if required)	MSHA Mix No. 3, F - 3500 psi @ 28 days, normal weight, air-entrained, resurfacing to meet ASTM A615-60	c/yd	on-site testing of placed in-place concrete required; 28 day strength and slump test; all concrete design (cast-in-place or precast) not using previously approved shop or lead standards requires design drawings sealed and approved by a professional structural engineer registered in the State of Maryland; design to include meeting ACI Code 318.1R; vertical loading (H-10 or H-20); allowable horizontal loading (based on soil parameters) and analysis of potential cracking
Sand	AASHTO M-6 or ASTM-C-33 0.075 to 0.04"	cu/yd	Sand substitutions such as Database and Graystone (AASHTO 119) are not acceptable. No calcium or dolomite sand substitutions are acceptable. No "rock dust" can be used for sand.



APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division: *Chad Edmondson*, DATE: 11/17/2022

Chief, Division of Land Development: *Angela Scalet*, DATE: 11/16/2022

DIRECTOR: *Angela Scalet*, DATE: 11/17/2022

OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED RAINWATER HARVESTING (M-1)

- A. THE OWNER SHALL EMPTY BARRELS ON A MONTHLY BASIS AND CLEAN BARRELS WITH A HOSE.
- B. THE OWNER SHALL VERIFY INTEGRITY OF LEAF SCREENS, GUTTERS, DOWNSPOUTS, SPIGOTS, AND MOSQUITO SCREENS, AND CLEAN AND REMOVE ANY DEBRIS.
- C. THE OWNER SHALL REPLACE DAMAGED COMPONENTS AS NEEDED.
- D. THE OWNER SHALL ALLOW THE BARREL TO DRAIN BY BOTTOM SPIGOT DURING THE WINTER SEASON.

SITE DEVELOPMENT PLAN
STORMWATER MANAGEMENT PLAN,
NOTES & DETAILS
GREENFIELDS
COMMUNITY LIVING
LOTS 1, 2 & 3
A SUBDIVISION OF LOT 43 PARCEL 491
LIBER 18385 FOLIO 341
PLAT 26163

TAX MAP: 43 BLOCK-14
6TH ELECTION DISTRICT

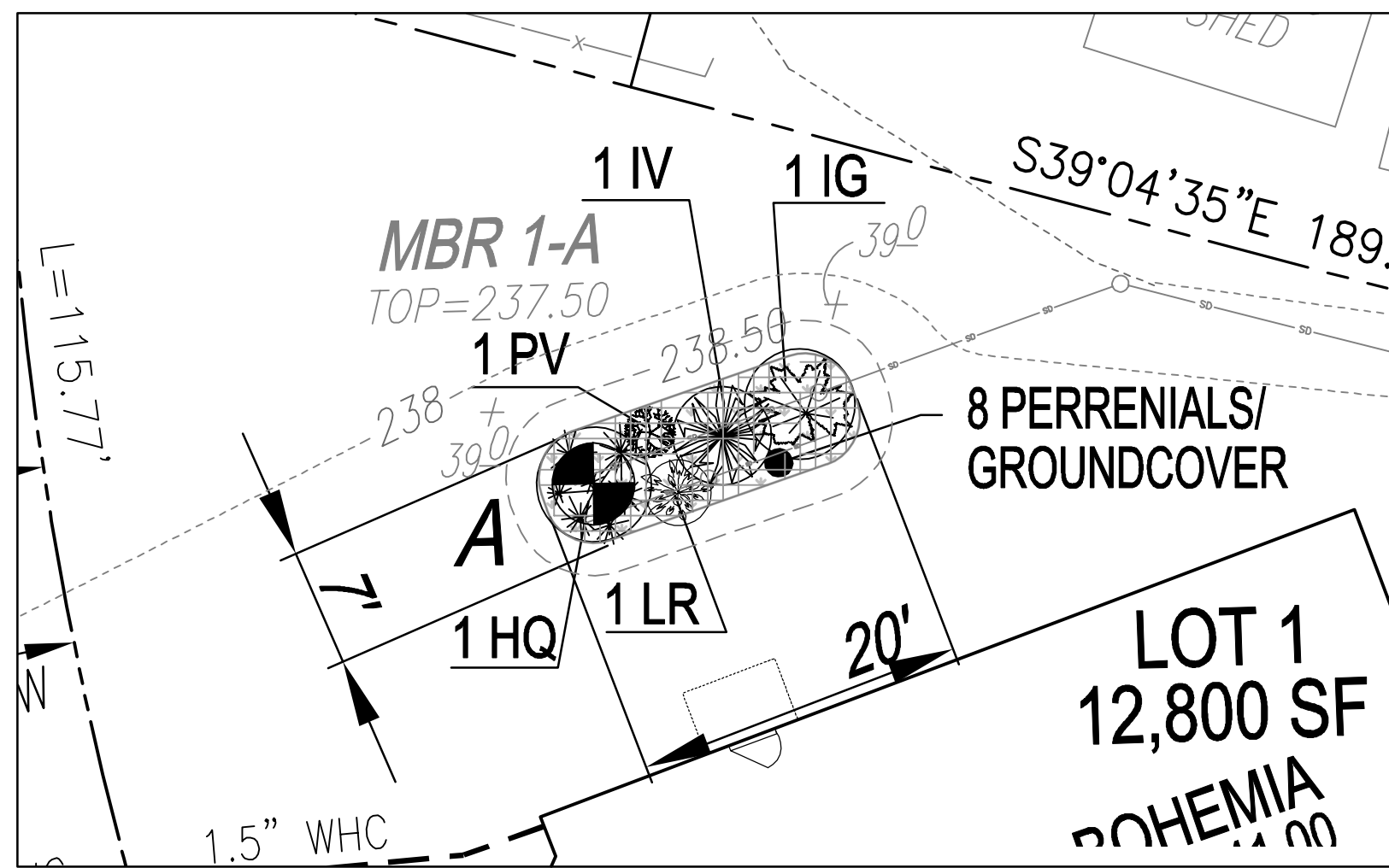
PARCEL - 491 ZONING: R-3C
HOWARD COUNTY, MARYLAND

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

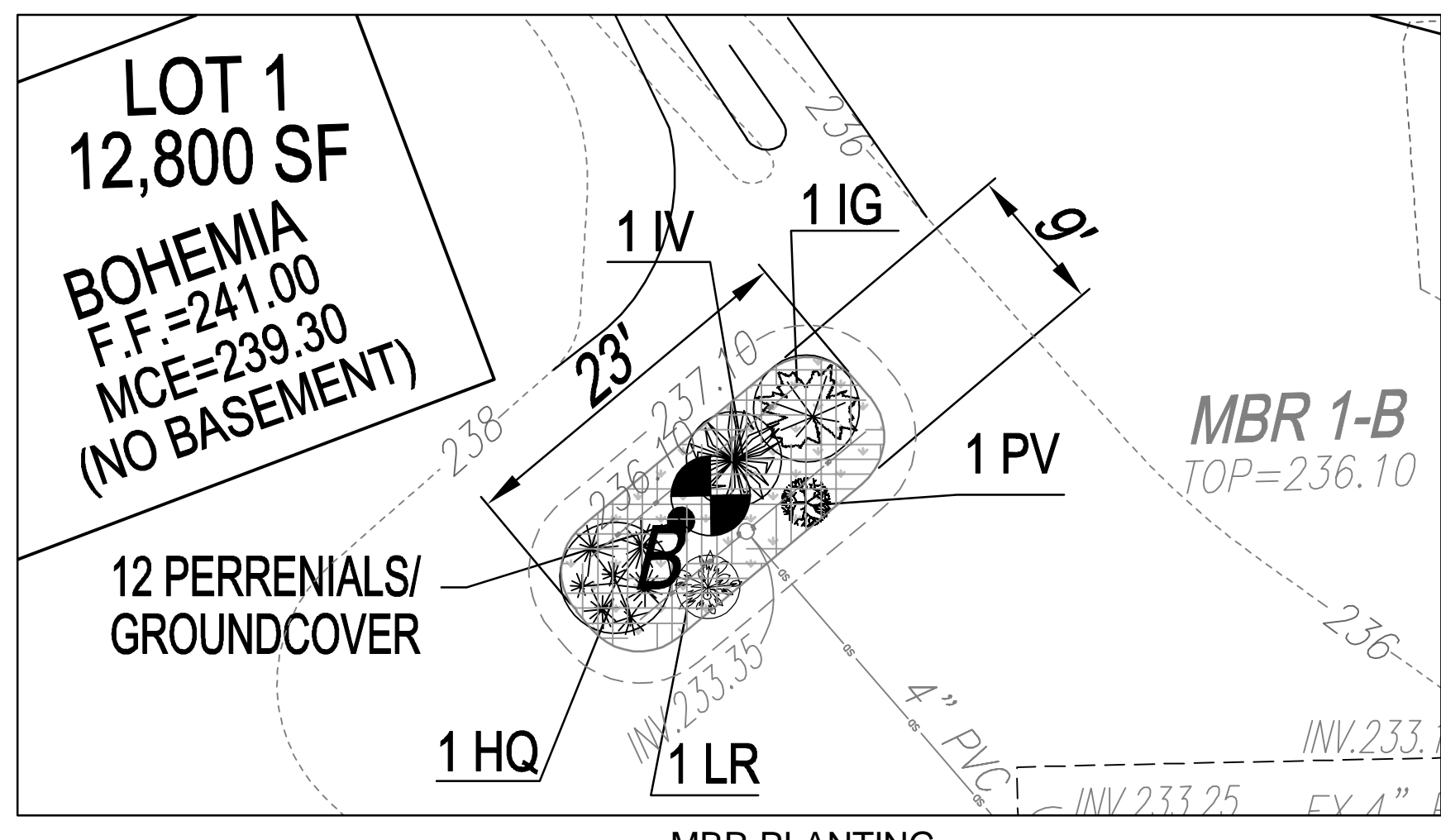
TIMMONS GROUP
PROFESSIONAL CERTIFICATE

DESIGN BY: RHW
DRAWN BY: KG
CHECKED BY: RHW
DATE: SEPTEMBER 2022
SCALE: 1"=30'
W.O. NO.: 43808

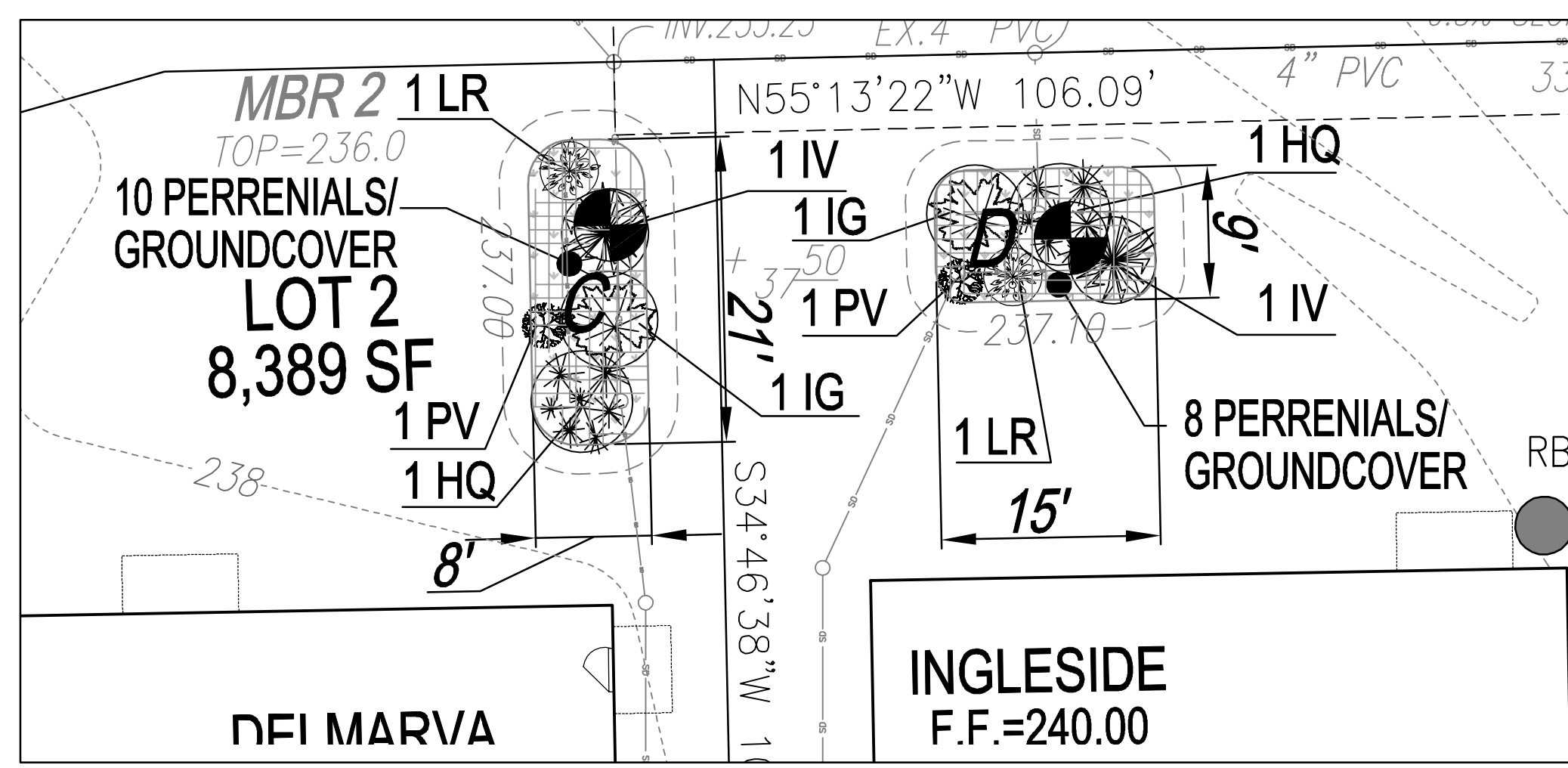
5 SHEET OF 6



MBR 1-A
SCALE: 1"=10'



MBR 1-B
SCALE: 1"=10'

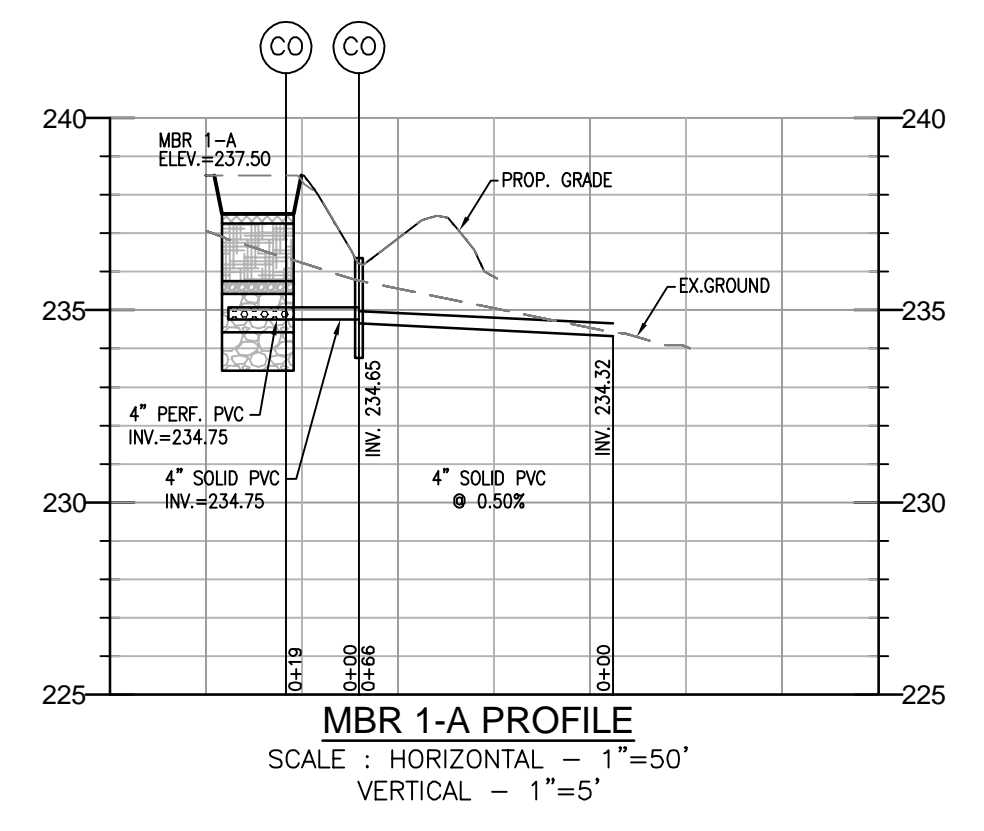


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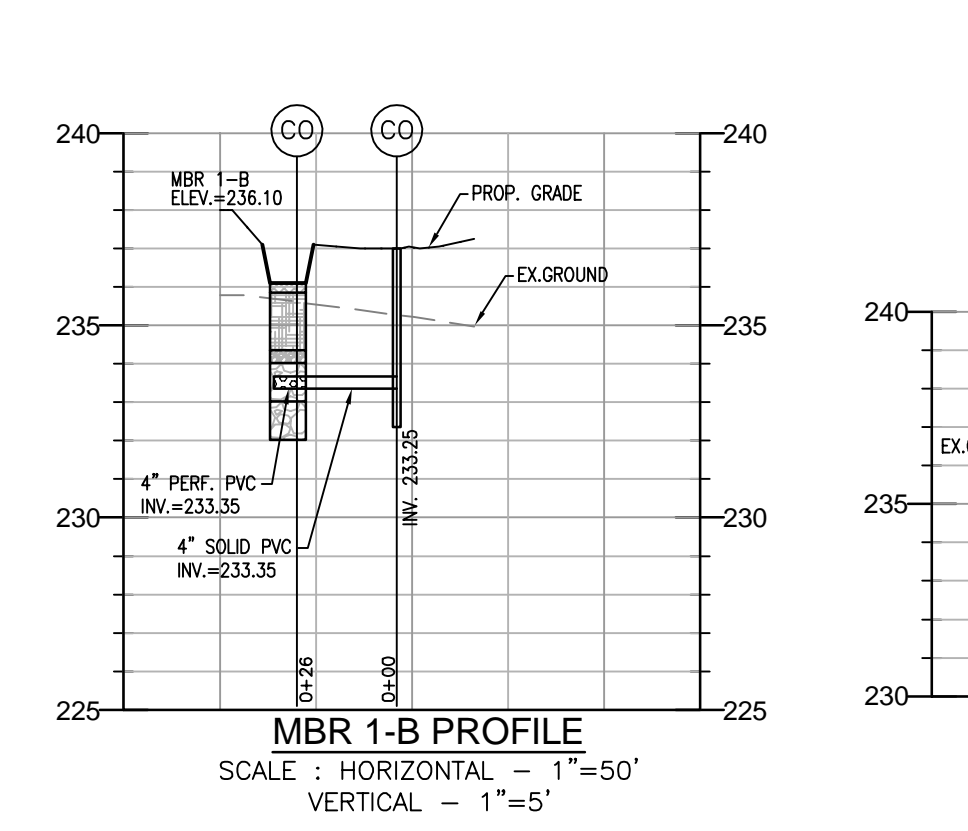
Table A.4 Commonly Used Species for Bioretention Areas

Trees	Shrubs	Herbaceous Species
<i>Acer rubrum</i>	<i>Aerucular parviflora</i>	<i>Andropogon virginicus</i>
<i>Ael Maple</i>	<i>Botanobasis Buckeye</i>	<i>Broomrape</i>
<i>Amelias nigra</i>	<i>Cypripedium occidentale</i>	<i>Eupatorium purpureum</i>
<i>River Birch</i>	<i>Bursera</i>	<i>Joe Pye Weed</i>
<i>Juncus virginicus</i>	<i>Hemerocallis virginiana</i>	<i>Scirpus pungens</i>
<i>Eastern Red Cedar</i>	<i>Witch Hazel</i>	<i>Three Square Bulrush</i>
<i>Chionodoxa virginiana</i>	<i>Vaccinium corymbosum</i>	<i>Iris versicolor</i>
<i>Fringe-tree</i>	<i>Highbush Blueberry</i>	<i>Blue Flag</i>
<i>Nyssa sylvatica</i>	<i>Ilex glabra</i>	<i>Lobelia cardinalis</i>
<i>Black Gum</i>	<i>hibernica</i>	<i>Cardinal Flower</i>
<i>Thuja occidentalis</i>	<i>Ilex verticillata</i>	<i>Panicum virgatum</i>
<i>Swamp White Pine</i>	<i>Wineberry</i>	<i>Switchgrass</i>
<i>Platanus occidentalis</i>	<i>Viburnum dentatum</i>	<i>Dichanthium scoparium</i>
<i>Sycamore</i>	<i>Astragalus</i>	<i>Broom Panic Grass</i>
<i>Quercus prinus</i>	<i>Lindera benzoin</i>	<i>Budleja lindlneri</i>
<i>Pine Oak</i>	<i>Spiraea</i>	<i>Tall Coneflower</i>
<i>Quercus phellos</i>	<i>Myrica pennsylvanica</i>	<i>Scirpus operatus</i>
<i>Willow Oak</i>	<i>Bayberry</i>	<i>Woolgrass</i>
<i>Black Willow</i>		<i>Vernonia noveboracensis</i>
		<i>New York Ironweed</i>

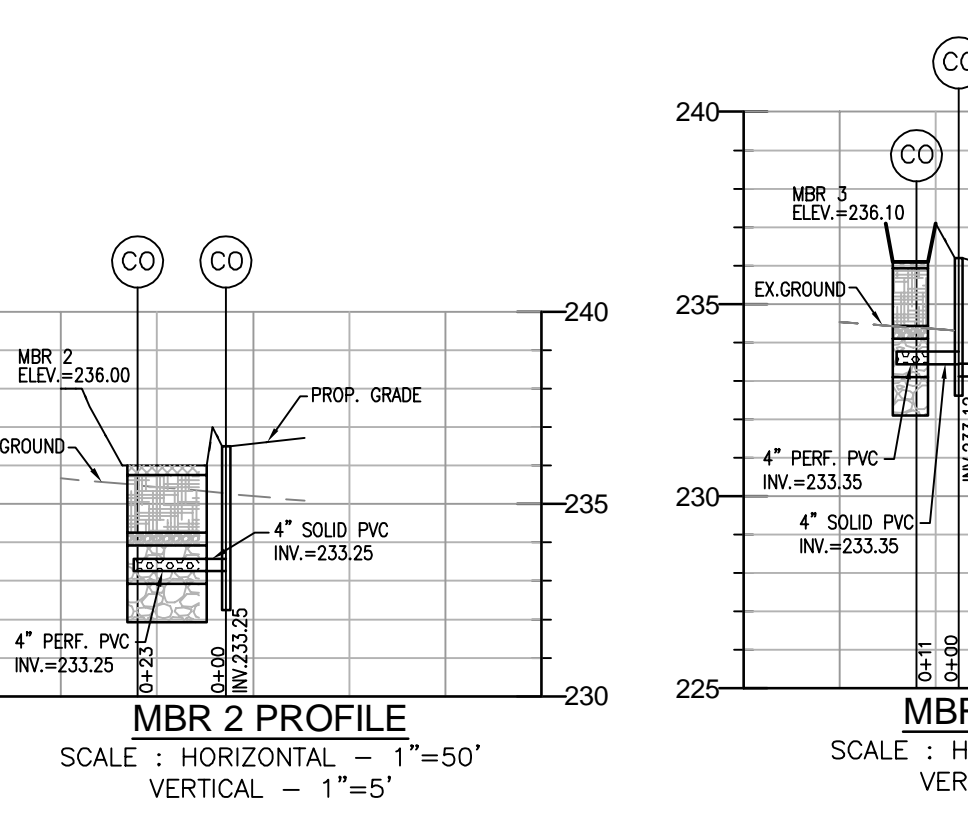
Note 1: For more options on plant selection for bioretention, consult Bioretention Manual (ETAB, 1993) or the Design of Stormwater Filtering Systems (Clayton and Schaefer, 1997).



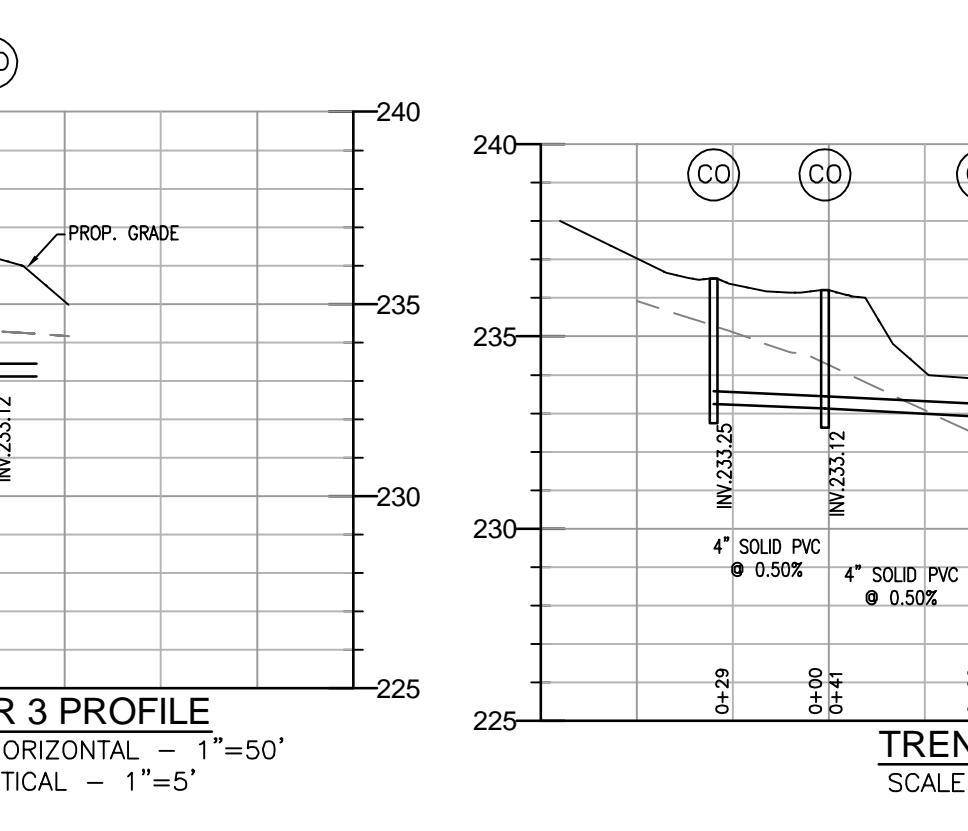
MBR 1-A PROFILE
SCALE: HORIZONTAL - 1"=50'
VERTICAL - 1"=5'



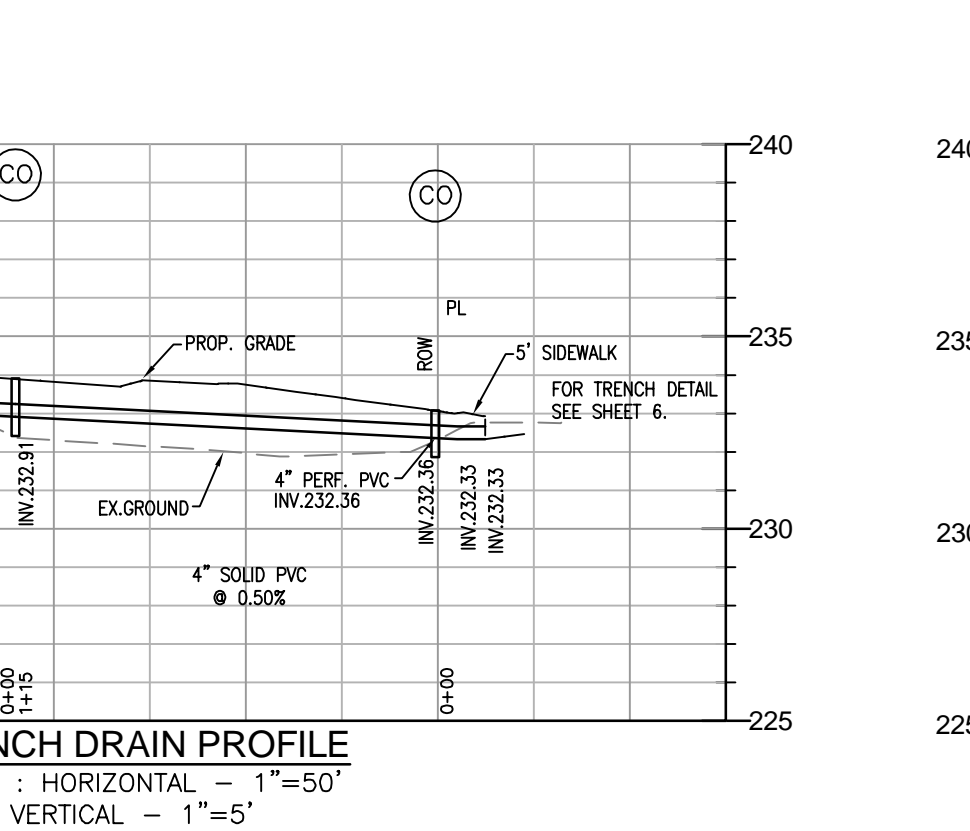
MBR 1-B PROFILE
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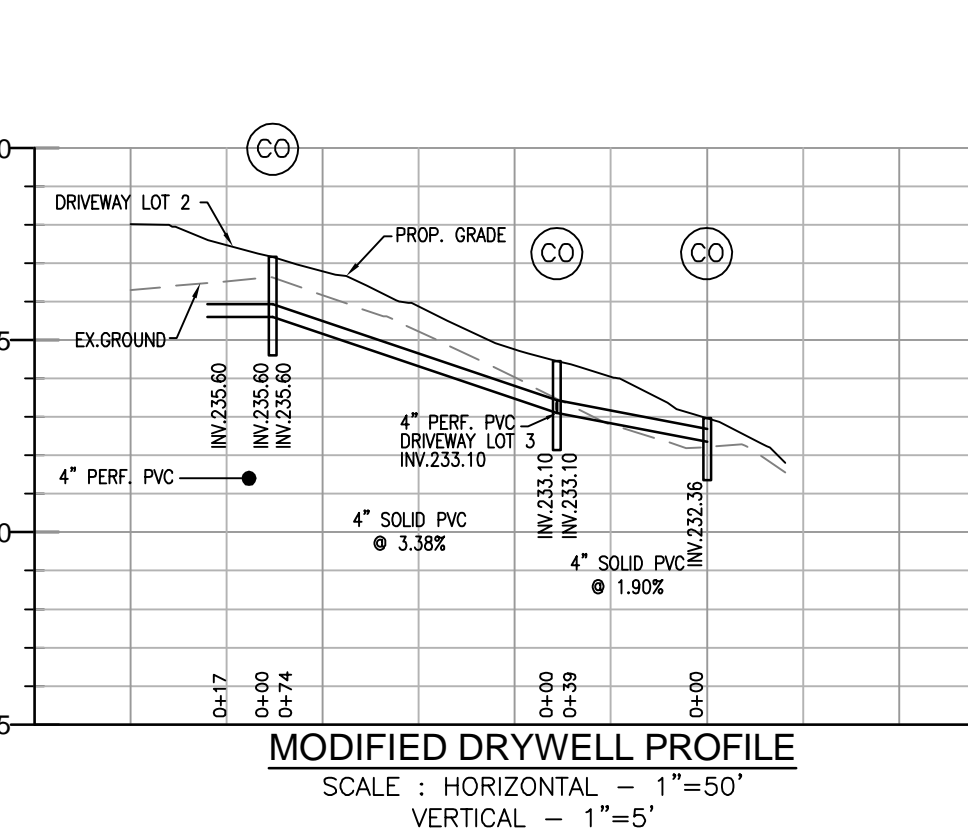
MBR 2 PROFILE
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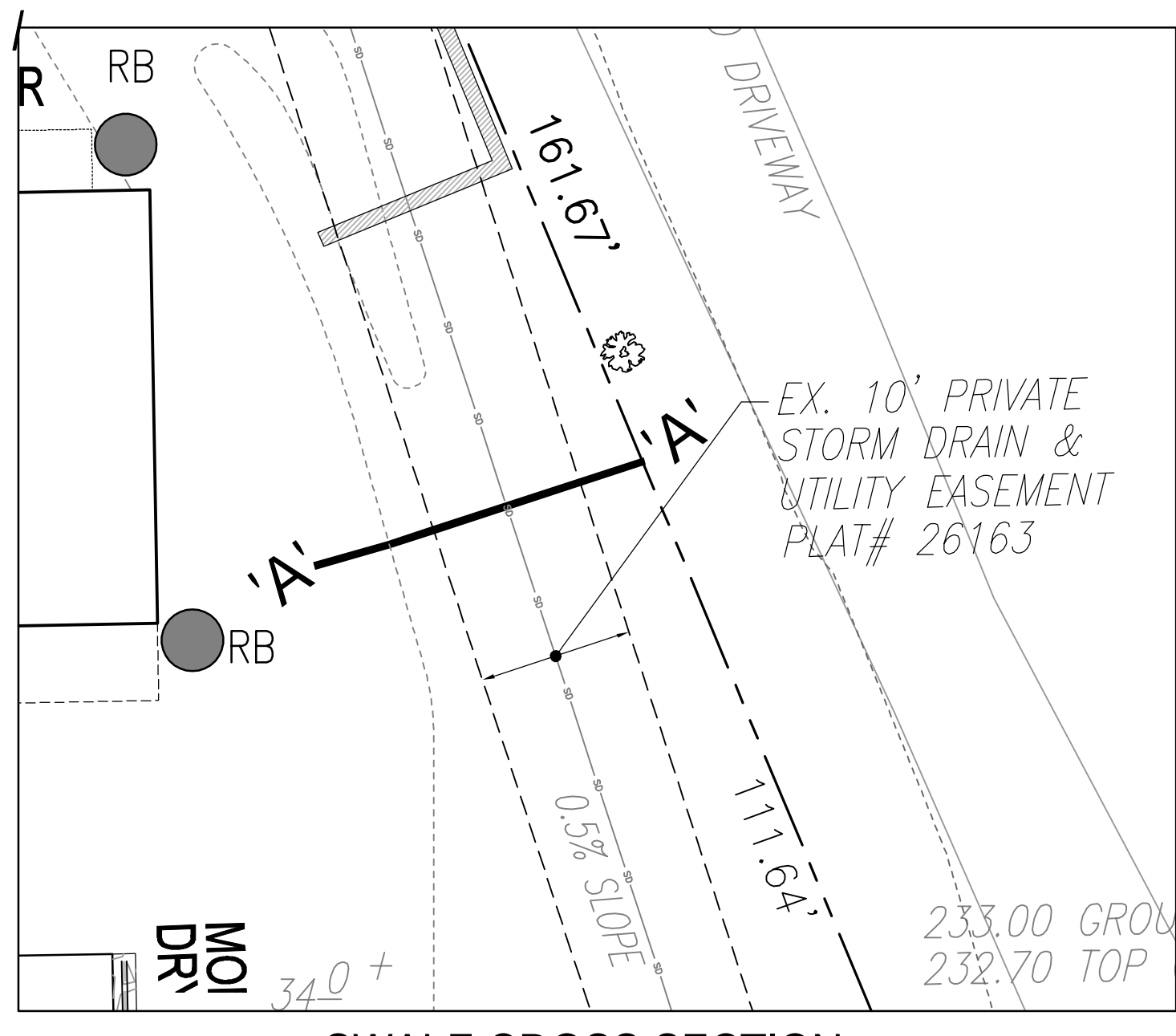
MBR 3 PROFILE
SCALE: HORIZONTAL - 1"=50'
VERTICAL - 1"=5'



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



MODIFIED DRYWELL PROFILE
SCALE: HORIZONTAL - 1"=50'
VERTICAL - 1"=5'



SWALE CROSS SECTION A-A
NTS

$Q_{10} = 1.62 \text{ CFS}$
 $V_{10} = 1.54 \text{ FPS}$
 $S = 0.5\%$
 $d = 0.40'$

"MICRO-BIORETENTION/RAINGARDEN" PLANTING SCHEDULE NOTES:

- ALL PLANT MATERIALS SHALL BE FULL AND HEAVY, BE WELL FORMED AND SYMMETRICAL, CONFORM TO THE MOST CURRENT AAM SPECIFICATIONS AND BE INSTALLED IN ACCORDANCE WITH HOWARD COUNTY PLANTING SPECIFICATIONS.
- CONTRACTOR SHALL VERIFY LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO DIGGING.
- FINAL LOCATION OF PLANT MATERIAL MAY NEED TO VARY TO MEET FINAL FIELD CONDITIONS. TREES SHALL NOT BE PLANTED IN THE BOTTOM OF DRAINAGE SWALES. CONTRACTOR SHALL VERIFY PLANT QUANTITIES PRIOR TO DIGGING. IF PLANT QUANTITIES DIFFER FROM LANDSCAPE SCHEDULE, THE PLAN SHALL GOVERN.
- MICROBIORETENTION AREAS ARE TO BE PLANTED BASED ON A MINIMUM DENSITY OF 1000 STEMS PER PLANTED ACRE (229 STEMS PER SQUARE FOOT). ABOVE PLANTING RATIOS ARE TO BE APPLIED TO THE AREAS PROVIDED IN THE ESD SUMMARY. FILTER AREA SHALL BE 50% COVERED BY PLANTINGS AT FULL GROWTH.

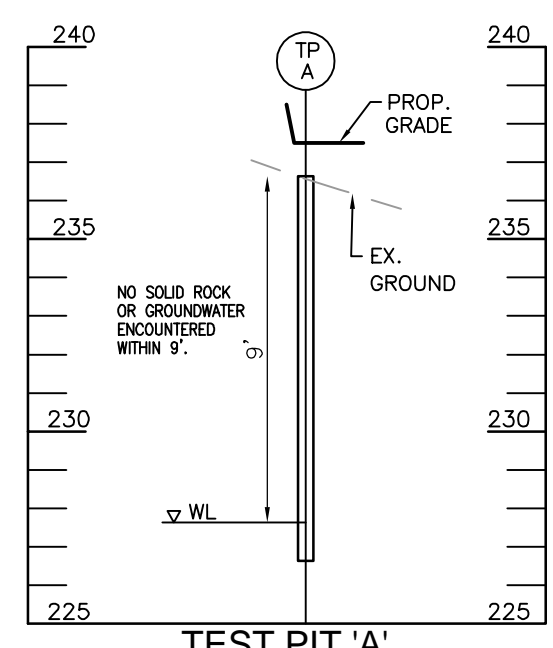
BIORETENTION PLANTING SCHEDULE (SHRUB/ORNAMENTAL GRASSES)

LEGEND/KEY	QTY	BOTANICAL NAME/COMMON NAME	SIZE	REMARKS
IG	4	ILEX GLABRA 'SHAMROCK' / INKBERRY HOLLEY	1 GALLON	-
IV	4	ITEA VIRGINICA 'HENRY'S GARNETT' / VIRGINIA SWEETSPIRE	1 GALLON	-
HQ	4	HYDRANGEA QUERCIFOLIA / OAKLEAF HYDRANGEA	1 GALLON	-
LR	4	LEUCOTHEA RACEMOSA / FETTERBUSH	1 GAL.	-
PV	4	PANICUM VIRGATUM / SWITCHGRASS	1 GAL.	-

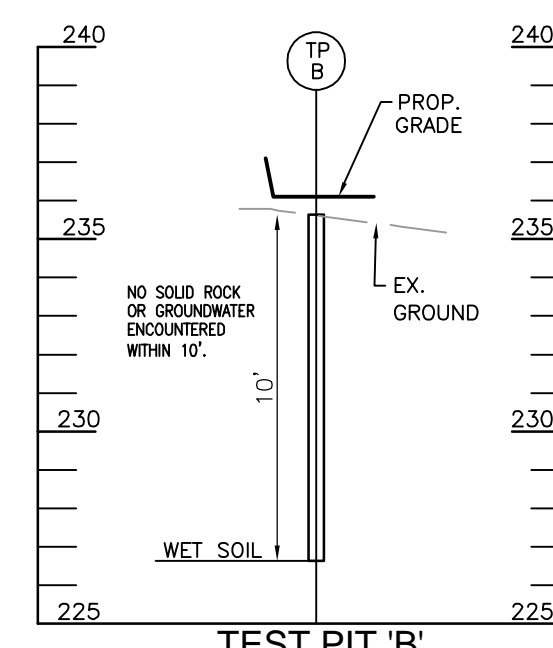
BIORETENTION PERENNIALS/GROUNDCOVER PLANTING SCHEDULE

LEGEND	QTY	BOTANICAL NAME/COMMON NAME	SIZE	REMARKS
	19	BAPTISMA AUSTRALIS / FALSE INDIGO	4" POT	12"-15" O.C. FOR SIDES AND BOTTOM OF MBR. MIX ALL VARIETIES IN A NATURALIZED RANDOM PATTERN THROUGHOUT. PLANT IN GROUPS OF NO LESS THAN 9 PLANTS PER CLUMP.
	19	ACORUS GRAMINEUS 'OGON' / GOLDEN VARIEGATED SWEET FLAG	1 QT.	

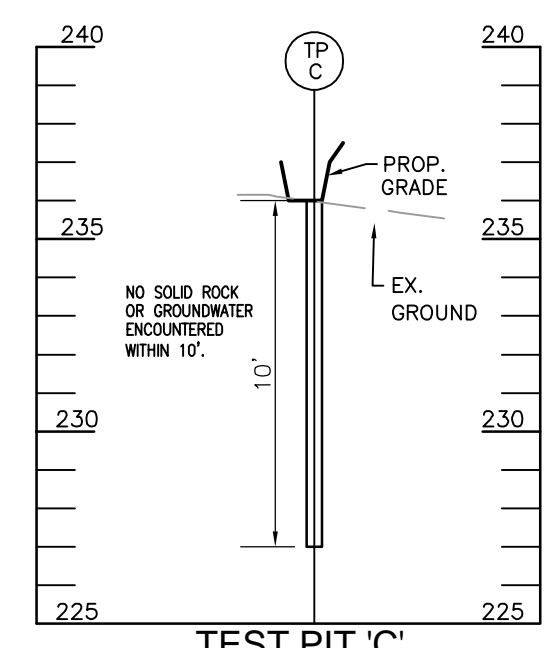
NOTE: WITH PERMISSION FROM HOWARD COUNTY, PLANTINGS SPECIFIED HEREON MAY BE SUBSTITUTED WITH APPROVED SPECIES LISTED IN TABLE A-4 AS SHOWN HEREON.



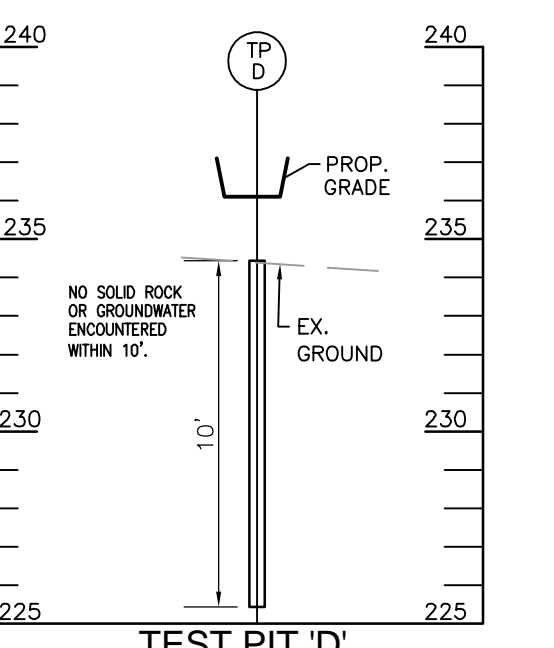
TEST PIT 'A'
SCALE: HORIZONTAL - 1"=50'
VERTICAL - 1"=5'



TEST PIT 'B'
SCALE: HORIZONTAL - 1"=50'
VERTICAL - 1"=5'



TEST PIT 'C'
SCALE: HORIZONTAL - 1"=50'
VERTICAL - 1"=5'



TEST PIT 'D'
SCALE: HORIZONTAL - 1"=50'
VERTICAL - 1"=5'

NOTES:

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

DEVELOPER
 STANDARD ENERGY SOLUTIONS
 9520 GERWIG LANE, SUITES Q-T
 COLUMBIA, MD 21046
 PHONE: 410-844-3800
 STEVE.WELSH@STANDARDENERGYSOLUTIONS.COM

OWNER
 IHOMES, INC.
 6355 WOODSIDE COURT
 COLUMBIA, MD 21046
 PHONE: 443-218-8558

APPROVED: HOWARD COUNTY, DEPARTMENT OF PLANNING AND ZONING
 11/17/2022
 Chief, Development Engineering Division
 11/16/2022
 Chief, Division of Land Development
 11/17/2022
 Director

DEVELOPER'S/BUILDER'S CERTIFICATE
 I/WE CERTIFY THAT THE LANDSCAPING SHOWN ON THIS PLAN WILL BE DONE ACCORDING TO THE PLAN, SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE HOWARD COUNTY LANDSCAPE MANUAL. I/WE FURTHER CERTIFY THAT UPON COMPLETION, A CERTIFICATION OF LANDSCAPE INSTALLATION, ACCOMPANIED BY AN EXECUTED ONE (1) YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.
 Signed by: *Stephen B. Welsh* 10/31/2022
 SIGNATURE OF DEVELOPER DATE

NO. REVISION DATE

SITE DEVELOPMENT PLAN
SWM PLANTING & DETAILS
GREENFIELDS COMMUNITY LIVING
 LOTS 1, 2 & 3
 A SUBDIVISION OF TAX MAP 43 PARCEL 491
 LIBER 18385 FOLIO 341
 PLAT 26163

TAX MAP: 43 BLOCK: 14
 6TH ELECTION DISTRICT

PARCEL: 491 ZONING: R-SC
 HOWARD COUNTY, MARYLAND

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

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

DESIGN BY: RHV
 DRAWN BY: KG
 CHECKED BY: RHV
 DATE: SEPTEMBER 2022
 SCALE: 1"=30'
 W.O. NO.: 43808

6 SHEET OF 6