

NOTES:

- EXISTING ZONING: R-SC
- DEED REFERENCE: 18445/00001
- SITE ANALYSIS DATA:
 - GROSS AREA OF SITE: 0.59 AC. (25,531 SF)
 - EXISTING IMPERVIOUS AREA: 0.19 AC. (ON-SITE)
 - EXISTING GREEN AREA: 0.40 AC.
 - EXISTING FORESTED AREA: 0.0 AC.
 - EXISTING SITE USE: SFD WITH SOME COMMERCIAL USE
 - EXISTING WETLANDS AND THEIR BUFFERS: 0.0 AC.
 - EXISTING FLOODPLAINS: 0.0 AC.
 - EXISTING STEEP SLOPES: 13% AND GREATER: 0.0 AC.
 - EXISTING ERODIBLE SOILS: 0.00 AC.
- AREA OF PLAN SUBMISSION: 0.59 AC.
 - LIMIT OF DISTURBANCE: 0.56 AC.
 - IMPERVIOUS AREA: 0.19 AC.
 - REVEGETATED AREA: 0.44 AC.
- PROPOSED USE: SFD AND SEMI-DETACHED UNITS
- PREVIOUS SUBMITTAL: PLAT BOOK 111, FOLIO 597
- THIS DISTURBANCE WILL UTILIZE SEDIMENT AND EROSION CONTROL FEATURES PREPARED UNDER AN APPROVED SITE DEVELOPMENT PLAN (SDP).
- TOPOGRAPHY SHOWN HEREON IS BASED ON 2018 HOWARD COUNTY GIS CONTOURS.
- THERE ARE NO IDENTIFIABLE ENVIRONMENTAL FEATURES ON SITE.
- TO THE BEST OF OUR KNOWLEDGE AND BELIEF THERE ARE NO CEMETERIES ONSITE.
- THE SITE AREA IS LESS THAN 40,000 SF, THEREFORE, THE SITE SHALL BE EXEMPT FROM THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY CODE FOR FOREST CONSERVATION PER SECTION 16.1202(b)(1)(v) OF THE SUBDIVISION REGULATIONS FOR DEVELOPMENT ON LAND WHICH IS LESS THAN 40,000 SF IN SIZE.
- APPROVAL OF THIS ECP DOES NOT CONSTITUTE AN APPROVAL OF ANY SUBSEQUENT AND ASSOCIATED SUBDIVISION PLAN/PLAT AND/OR SITE DEVELOPMENT PLAN AND/OR RED-LINE REVISION PLAN. REVIEW OF THIS PROJECT FOR COMPLIANCE WITH THE HOWARD COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS SHALL OCCUR AT THE SUBDIVISION PLAN/PLAT AND/OR SITE DEVELOPMENT PLAN STAGES AND/OR RED-LINE REVISION PROCESS. THE APPLICANT AND CONSULTANT SHOULD EXPECT ADDITIONAL AND MORE DETAILED REVIEW COMMENTS (INCLUDING COMMENTS THAT MAY ALTER THE OVERALL SITE DESIGN) AS THIS PROJECT PROGRESSES THROUGH THE PLAN REVIEW PROCESS.

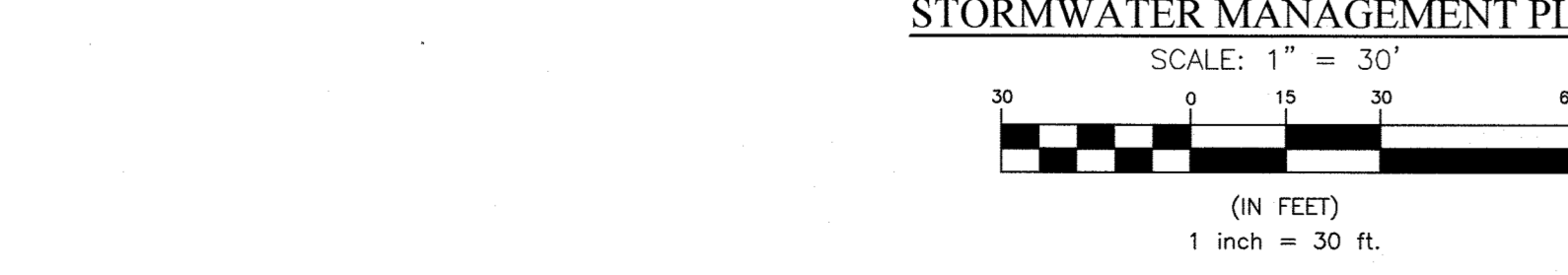
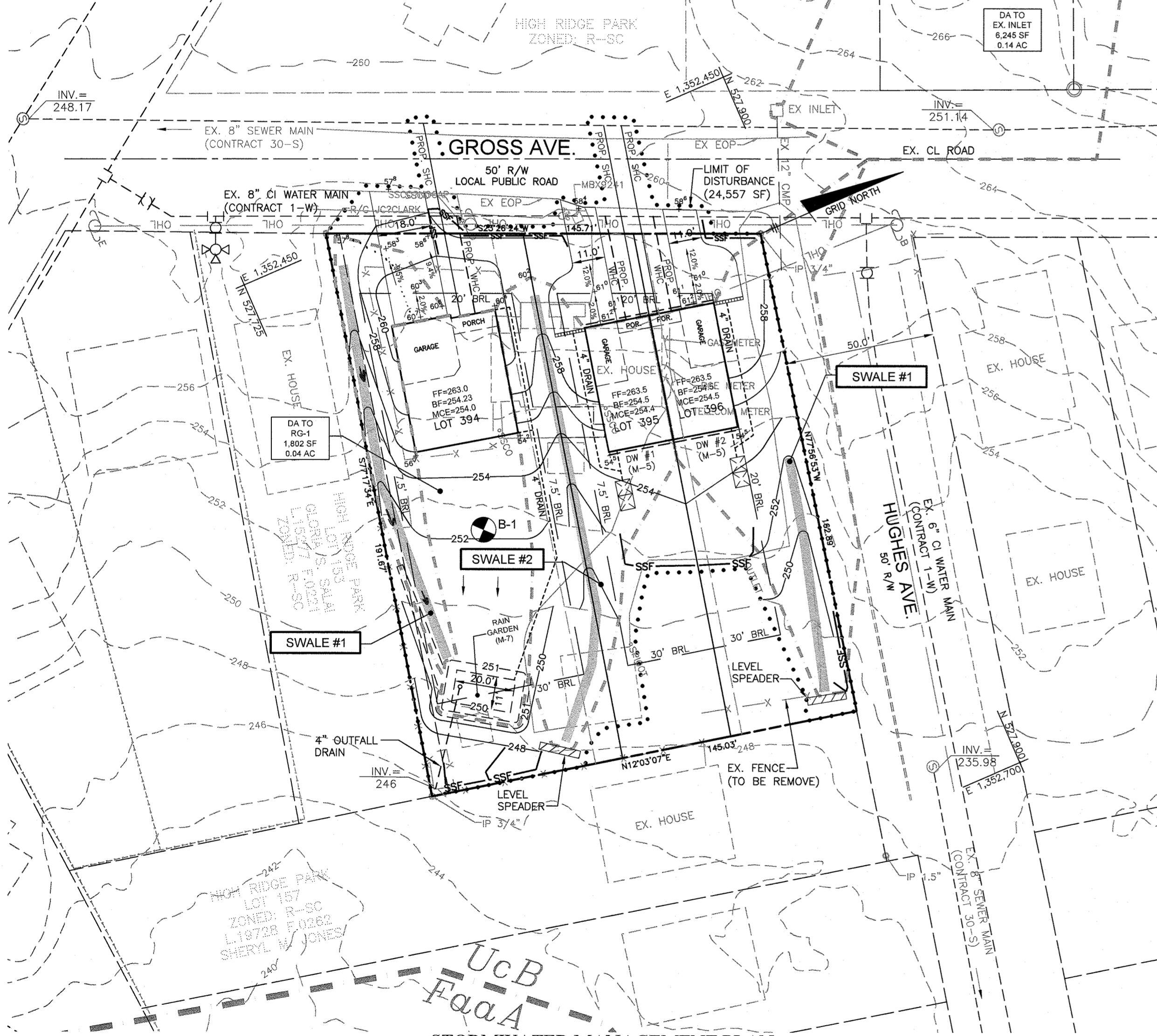
SWM DESIGN NARRATIVE:

LOTS 394, 395 AND 396 PROVIDES SWM BY USING ENVIRONMENTAL SITE DESIGN PRACTICES AS OUTLINED IN CHAPTER 5 OF THE 2000 MARYLAND STORMWATER DESIGN MANUAL AS AMENDED BY MARYLAND STORMWATER MANAGEMENT ACT OF 2007. FULL TREATMENT OF THE TARGET PE WILL BE PROVIDED BY ONE (1) RAIN GARDEN. A RAIN GARDEN WAS CHOSEN BECAUSE IT ONLY REQUIRES THAT THE BOTTOM OF THE FACILITY TO BE 2' ABOVE GROUNDWATER. THIS PRACTICE IS ADEQUATE FOR THIS SITE CONDITION. THE FACILITY PROVIDES TREATMENT FOR THE ROOF TOP AND THE DRIVEWAY. THE FACILITY WILL BE PRIVATELY OWNED. DRIVEWAY RUNOFF WILL BE CHANNELIZED IN THE SWALE AND CAPTURED INTO THE RAIN GARDEN. THE M-7 RAIN GARDEN HAS BEEN DESIGNED TO TREAT ALL THE RUNOFF FROM THE ROOF AND MOST OF THE DRIVEWAY FOR LOT 394. A SMALL PORTION OF THE DRIVEWAY DRAINS TO THE ROAD, APPROXIMATELY 472 SF AND THEREFORE CANNOT BE CAPTURED WITH THE ON-LOT PRACTICE. APPROX. 42% MORE VOLUME HAS BEEN PROVIDED IN THE RAIN GARDEN TO ACCOUNT FOR THE UNCAPTURED DRIVEWAY. IT WAS DISCUSSED AND AGREED WITH THE HOWARD COUNTY DEVELOPMENT ENGINEERING DIVISION THAT SOME COMMERCIAL USE OCCURRED ON THE SUBJECT SITE, BUT DIDN'T FULLY MEET THE REDEVELOPMENT CRITERIA BASED ON THE EXISTING COMMERCIAL USE. IT WAS AGREED THAT A "HYBRID" APPROACH IS JUSTIFIABLE. THE REDUCED IMPERVIOUS MITIGATES ANY INCREASED RUNOFF VOLUMES FROM THE PROPOSED DEVELOPMENT. THEREFORE, THE COUNTY WILL SUPPORT DRYWELLS (S/C SOILS) SIZED FOR A P₆ OF 1" FOR THE LOTS 395/396. THEREFORE ESD TO THE MEP FOR WATER QUALITY HAS BEEN ACHIEVED.

GROUNDWATER RECHARGE (REV) IS FULLY ADDRESSED BY THE USE OF A STONE CHAMBER BENEATH THE M-7 RAIN GARDEN FACILITY. THERE ARE NO REQUIRED DRAINAGE EASEMENTS. THE DESIGN INCORPORATES ADEQUATE TREATMENT AND STORAGE IN ORDER TO CREATE THE LEAST POSSIBLE STORMWATER RUNOFF AND PREVENT ANY ADVERSE EFFECTS TO THE DEVELOPMENT AND ITS ADJACENT PROPERTIES.

SEDIMENT AND EROSION CONTROLS SHALL COMPLY WITH THE 2011 MARYLAND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, AND WILL BE DESIGNED ON A SITE DEVELOPMENT PLAN THAT WILL BE REVIEWED AND APPROVED BY HOWARD COUNTY CONSERVATION DISTRICT. IT WILL BE THE OBLIGATION OF THE CONTRACTOR TO INSTALL, INSPECT AND MAINTAIN THESE PRACTICES.

NO WAIVERS OR ALTERNATIVE COMPLIANCE'S ARE CURRENTLY ANTICIPATED.



APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT
DATE: 10/23/21
CHIEF, DEVELOPMENT ENGINEERING DIVISION

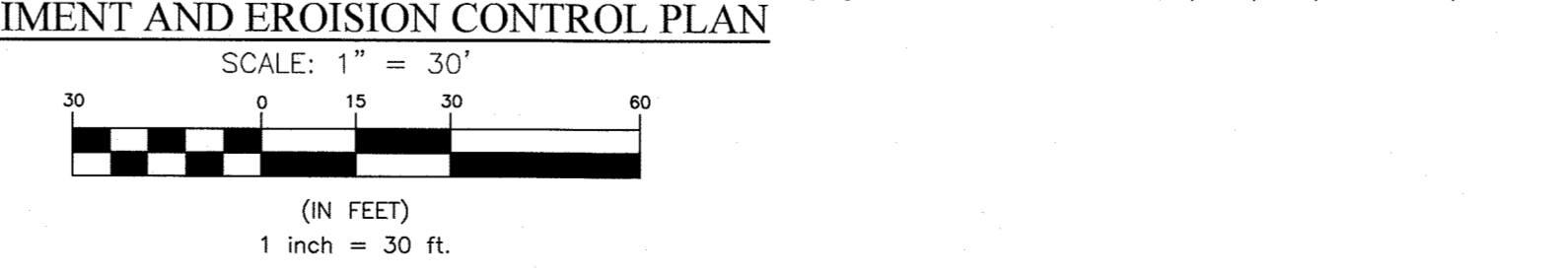
SOILS LEGEND

MAP SYMBOL	SOIL TYPE	MAPPING UNIT	Kw FACTOR
UcB	B/C	Urban land-Chillum-Beltville complex, 0 to 5 percent slopes	0.37

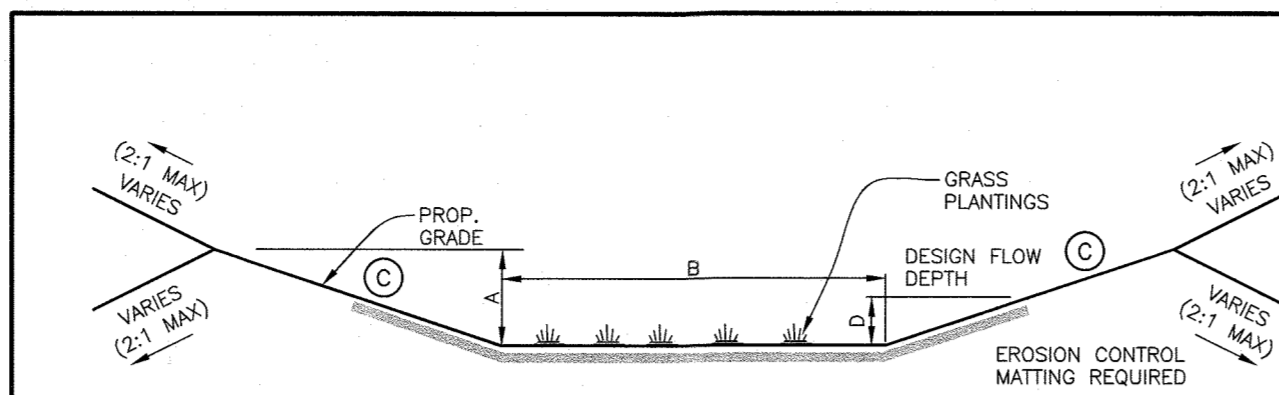
USDA - NRCS WEBSITE - SOIL SURVEY MAP No. 25 - NO HYDRIC SOILS

RAIN GARDEN (M-7) AND DRYWELLS (M-5) - LOT 394 THRU 396

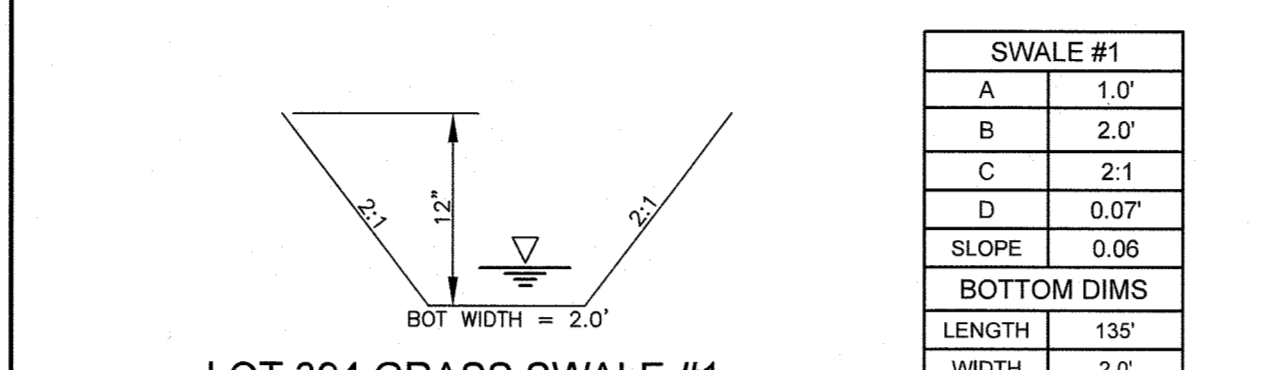
Facility	Drainage Area	Impervious	I (%)	Rv	ESDv Req'd (cft)	Ponded Storage (75%)	Req'd Volume Provided (cft)	Stone Storage (cft)	Total ESDv	Pe Prov	Rev (cft)	Notes
RG-1 (M-7)	7,011	1,802	26%	0.281	247	185	330	66	396	2.4	140	
DW-1 (M-5)	1,000	1,000	100%	0.950	119	89	120	30	120	1.5	24	
DW-2 (M-5)	1,000	1,000	100%	0.950	119	89	120	30	120	1.5	24	
TOTALS		3,802			484		570	306	636		188	



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CHIEF, DIVISION OF LAND DEVELOPMENT
DATE: 10/23/21
CHIEF, DEVELOPMENT ENGINEERING DIVISION



LOT 396 GRASS SWALE #1
NOT TO SCALE



LOT 395 GRASS SWALE #2
NOT TO SCALE

SWALE #1

A	1.0'
B	2.0'
C	2.1
D	0.07'
SLOPE	0.06
BOTTOM DIMS	
LENGTH	135'
WIDTH	2.0'

TSOS-1 Lot 394

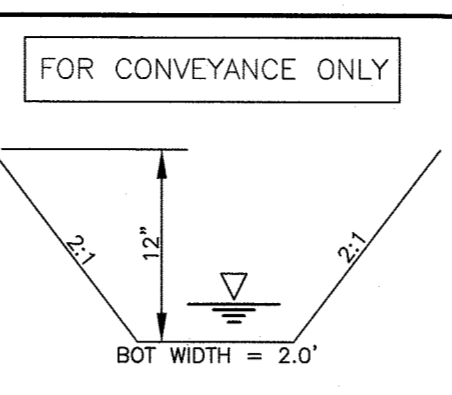
Volume required = (Drainage Area) x 3600 cft/ac
0.06 ac. x 1800 cft. = 108 cft.

Elev. 249 = 96 s.f.
Elev. 251 = 248 s.f.
Total Volume Provided = 334 cft.

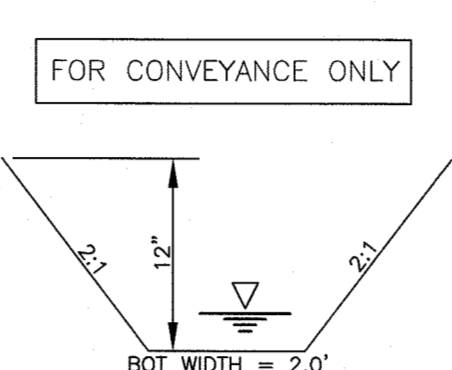
TSOS-2 Lot #394

Volume required = (Drainage Area) x 3600 cft/ac
0.12 ac. x 1800 cft. = 216 cft.

Elev. 246 = 36 s.f.
Elev. 248 = 191 s.f.
Total Volume Provided = 216.5 cft.



LOT 394 GRASS SWALE #1
NOT TO SCALE



SWALE #1

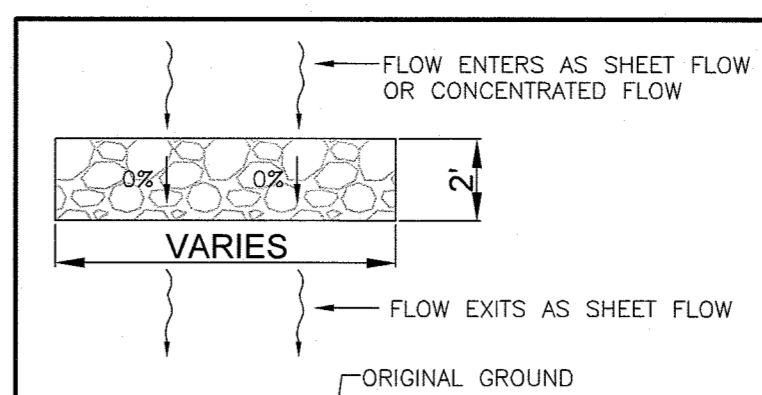
A	1.0'
B	2.0'
C	2.1
D	0.15'
SLOPE	0.07
BOTTOM DIMS	
LENGTH	141'
WIDTH	2.0'

STORM Q (RUNOFF) VELOCITY
2 YR 0.88 CFS 3.00 FPS
10 YR 1.47 CFS 3.46 FPS

SWALE #2

A	1.0'
B	2.0'
C	2.1
D	0.12'
SLOPE	0.06
BOTTOM DIMS	
LENGTH	153'
WIDTH	2.0'

STORM Q (RUNOFF) VELOCITY
2 YR 0.38 CFS 1.94 FPS
10 YR 0.63 CFS 2.34 FPS



LOT 394 SWALE #1 STUDY POINT

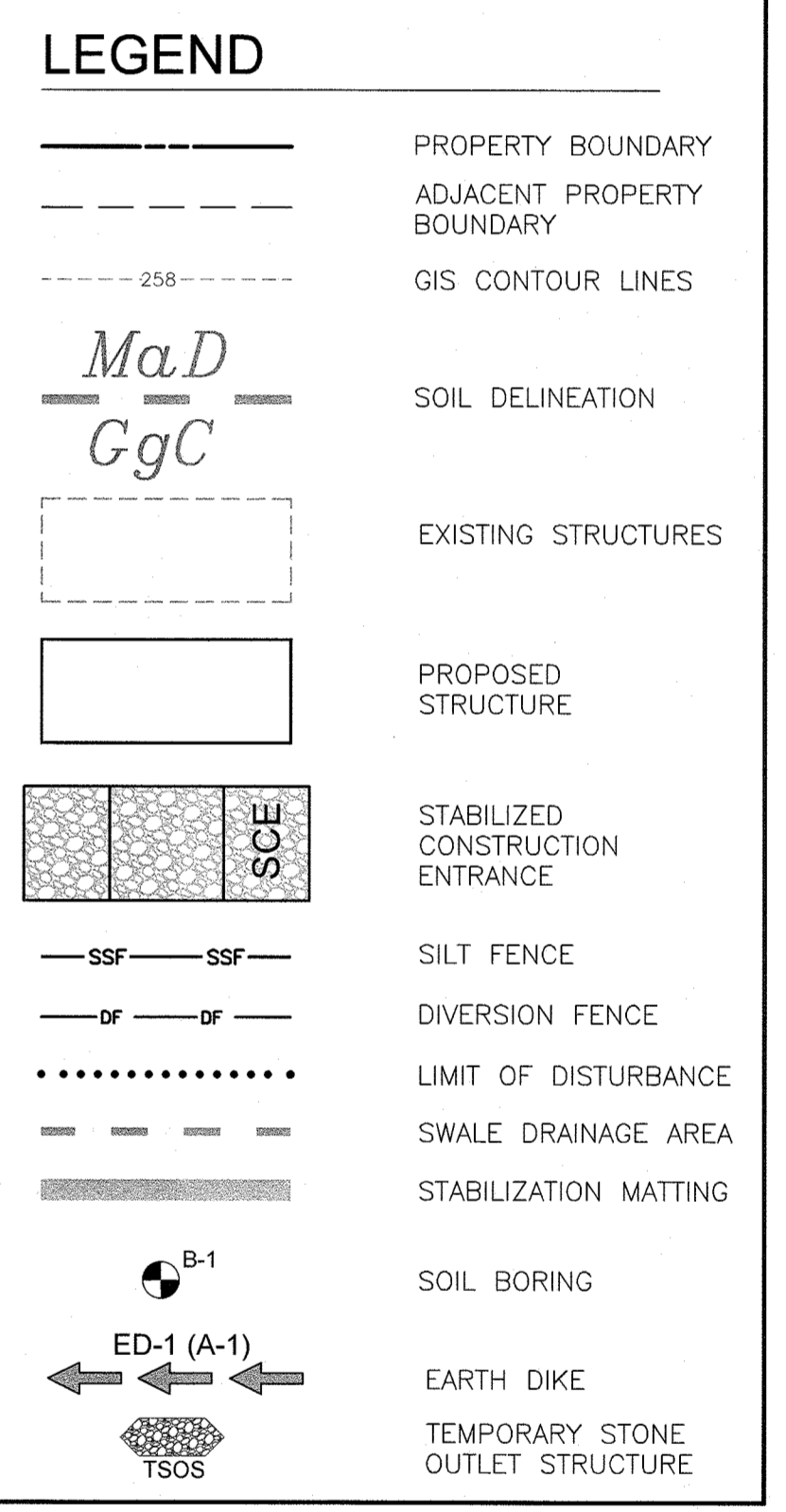
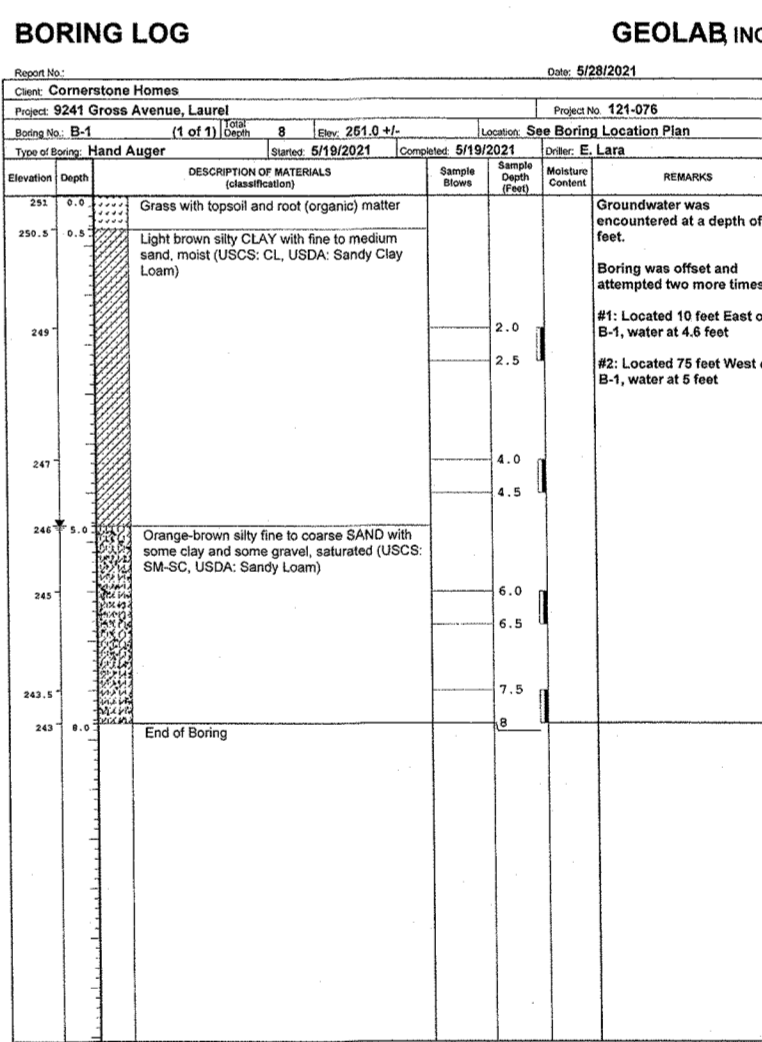
Event	DA	Q	Slope	Mannings	Width	Bank	Channel Depth	Flow Depth	Velocity	Shear Stress	V less than 8.57	V less than 4.07	Shear Stress less than 2.07
	SQFT	CFS	%	'n'	FT	FT	FT	FT	FPS	LB/SQFT	ok	ok	ok
2 Year	2,614	0.17	6.0%	0.03	2	3:1-3:1	1.0	0.06	1.34	0.22	okay	okay	okay
10 Year	2,614	0.29	6.0%	0.03	2	3:1-3:1	1.0	0.09	1.94	0.34	okay	okay	okay

LOT 395 SWALE #1 STUDY POINT

Event	DA	Q	Slope	Mannings	Width	Bank	Channel Depth	Flow Depth	Velocity	Shear Stress	V less than 8.57	V less than 4.07	Shear Stress less than 2.07
	SQFT	CFS	%	'n'	FT	FT	FT	FT	FPS	LB/SQFT	ok	ok	ok
2 Year	5,227	0.38	6.0%	0.03	2	3:1-3:1	1.0	0.11	1.94	0.41	okay	okay	okay
10 Year	5,227	0.63	6.0%	0.03	2	3:1-3:1	1.0	0.14	2.34	0.52	okay	okay	okay

LOT 396 SWALE #2 STUDY POINT

Event	DA	Q	Slope	Mannings	Width	Bank	Channel Depth	Flow Depth	Velocity	Shear Stress	V less than 8.57	V less than 4.07	Shear Stress less than 2.07
	SQFT	CFS	%	'n'	FT	FT	FT	FT	FPS	LB/SQFT	ok	ok	ok
2 Year	12,197	0.88	7.0%	0.03	2	3:1-3:1	1.0	0.18	3.00	0.79	okay	okay	okay
10 Year	12,197	1.47	7.0%	0.03	2	3:1-3:1	1.0	0.24	3.46	1.05	okay	okay	okay



NO.	DATE	REVISION

BENCHMARK ENGINEERS & LAND SURVEYORS & PLANNERS ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE & SUITE 315 A ELICOTT CITY, MARYLAND 21043
(P) 410-465-6105 (F) 410-465-6644
WWW.BEI-CIVILENGINEERING.COM

OWNER/DEVELOPER:
CORNERSTONE HOMES, LLC
9603 GERWIG LANE, SUITE L
COLUMBIA, MD 21046
410-792-2565

HIGH RIDGE PARK
LOTS 394-396
SINGLE FAMILY DETACHED AND COMMERCIAL/MULTI-FAMILY RESIDENTIAL

LAUREL, MD 21075
TAX MAP: 50 GRID: 02 PARCEL: 413
ZONED: R-SC
ELECTION DISTRICT NO. 6 HOWARD COUNTY, MARYLAND

STORMWAER MANAGMENT AND SEDIMENT & EROSION CONTROL PLAN

DATE: SEPTEMBER, 2021 | BEI PROJECT NO. 3054
DESIGN: LDD | DRAFT: LDD | SCALE: AS SHOWN | SHEET 1 OF 1