

**GENERAL NOTES**

- THE SUBJECT PROPERTY IS ZONED R-20 PER THE 10-6-13 COMPREHENSIVE ZONING PLAN.
- THIS PROJECT IS SUBJECT TO THE AMENDED FIFTH EDITION OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS.
- EXISTING TOPOGRAPHY SHOWN HEREON IS BASED ON A FIELD RUN SURVEY PREPARED BY BENCHMARK ENGINEERING, INC. DATED AUGUST 2015 AND HOWARD COUNTY 2008 GIS AND ARE 2' INTERVALS.
- IN ACCORDANCE WITH SECTION 128.0 OF THE HOWARD COUNTY ZONING REGULATIONS, BAY WINDOWS, CHIMNEYS OR EXTERIOR STAIRWAYS NOT MORE THAN 18 FEET IN WIDTH MAY PROJECT NOT MORE THAN 4 FEET INTO ANY SETBACKS, PORCHES, OR DECKS, OPEN OR ENCLOSED MAY PROJECT NOT MORE THAN 10 FEET INTO THE FRONT OR REAR YARD SETBACK.
- NO GRADING, REMOVAL OR VEGETATIVE COVER AND TREES, AND PAVING ARE NOT PERMITTED IN WETLANDS, STREAMS, FLOODPLAIN, FOREST CONSERVATION EASEMENT AREAS AND WETLAND AND STREAM BUFFERS EXCEPT AS APPROVED BY THE DEPARTMENT ON PLANNING AND ZONING. THE EXTENSION OF SEWER LINES AND THE DRAINAGE OUTFALL WITHIN THE ENVIRONMENTAL AREAS ARE PERMITTED AS NECESSARY DISTURBANCES.
- THERE ARE NO ONSITE STEEP SLOPES GREATER THAN 25%.
- TO THE BEST OF OUR KNOWLEDGE THERE ARE NO CEMETERIES OR HISTORIC STRUCTURES LOCATED ON THIS SITE.
- THIS SITE IS LOCATED WITHIN THE METROPOLITAN DISTRICT. THE DRAINAGE AREA IS THE PATAPSCO.
- WATER WILL BE FROM PUBLIC WATER MAIN CONTRACT NUMBER 24-4796-D.
- SEWER WILL BE FROM PUBLIC SEWER MAIN CONTRACT NUMBER 24-4796-D.
- DRIVEWAYS SHALL BE PROVIDED PRIOR TO RESIDENTIAL OCCUPANCY 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 TAR AND CHIP COATING (1-1/2" MIN.).
  - GEOMETRY - MAXIMUM 15% GRADE, MAXIMUM 10% GRADE CHANGE AND MINIMUM 45° TURNING RADIUS.
  - STRUCTURES (CULVERTS/BRIDGES) - CAPABLE OF SUPPORTING 20 GROSS TONS (425 LOADING).
  - DRAINAGE ELEMENTS - CAPABLE OF SAFELY PASSING 100 YEAR FLOODPLAIN WITH NO MORE THAN 1 FOOT DEPTH OVER DRIVEWAY.
  - STRUCTURE CLEARANCES - MINIMUM 12 FEET.
  - MAINTENANCE - SUFFICIENT TO INSURE ALL WEATHER USE.
- FLAG AND PIPESTEM LOTS, REFUSE COLLECTION, SNOW REMOVAL, AND ROAD MAINTENANCE ARE PROVIDED TO THE JUNCTION OF THE FLAG OR PIPESTEM AND RIGHT-OF-WAY AND NOT ONTO THE PIPESTEM LOT DRIVEWAY.
- LANDSCAPING WAS PREVIOUSLY PROVIDED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND LANDSCAPE MANUAL AS SHOWN ON THE CONSTRUCTION PLANS F-13-106. SURETY WAS POSTED WITH THE DEVELOPERS AGREEMENT FOR THE FINAL CONSTRUCTION PLANS F-13-106.
- THE FOREST CONSERVATION EASEMENTS HAS BEEN ESTABLISHED TO FULFILL THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY CODE AND FOREST CONSERVATION ACT. ON-SITE RETENTION OF 0.25 ACRES AND 0.54 ACRES OF OFF-SITE PLANTING ON THE CATTAL CREEK FOREST MITIGATION BANK WAS APPROVED UNDER F-13-106. 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.
- PREVIOUS FILE COUNTY FILES NUMBERS: F-13-106, ECP-13-067, PLAT 4250, F-79-120, PLAT 24559-60.
- THE FIELD RUN BOUNDARY SURVEY PERFORMED BY BENCHMARK ENGINEERING, INC. ON ABOUT NOVEMBER, 2012.
- THE LOTS SHOWN HEREON COMPLY WITH THE MINIMUM OWNERSHIP WIDTH AND LOT AREA AS REQUIRED BY THE MARYLAND STATE DEPARTMENT OF THE ENVIRONMENT.
- BRL INDICATES BUILDING RESTRICTION LINE.
- THE MODERATE INCOME HOUSING UNIT REQUIREMENTS, COUNCIL BILL 35-2013, FOR THIS SUBDIVISION WILL BE FULFILLED BY PAYMENT OF FEE-IN-LIEU OF CONSTRUCTION PER AGREEMENT RECORDED AT LIBER 18045, FOLIO 307 WITH THE LAND RECORDS OF HOWARD COUNTY.
- STORMWATER MANAGEMENT FOR THESE LOTS IS PROVIDED IN ACCORDANCE WITH THE STORMWATER MANAGEMENT ACT OF 2007. ENVIRONMENTAL SITE DESIGN (ESD) HAS BEEN IMPLEMENTED TO THE MAXIMUM EXTENT PRACTICAL. (MEP) BY THE USE OF (M-6) MICRO-BIORETENTION, (M-8) GRASS SWALE, AND (M-3) LANDSCAPING INFILTRATION PRACTICES LOCATED ON THE INDIVIDUAL LOT IN WHICH IT SERVES. THE USE-IN-COMMON DRIVEWAY IS TREATED BY (M-8) GRASS SWALE AND (M-6) MICRO-BIORETENTION. ALL ESD PRACTICES SHALL BE PRIVATELY OWNED AND MAINTAINED.
- THE WETLANDS DELINEATION FOR THIS PROJECT WAS PREPARED BY ECO-SCIENCE AND DATED MARCH 27, 2013.
- THERE IS NO 100-YR. FLOODPLAIN ON THIS SITE.
- THE TRAFFIC STUDY FOR THIS PROJECT WAS PREPARED BY MARS TRAFFIC, DATED APRIL, 2013, AND WAS APPROVED ON OCTOBER 14, 2013.
- NO NOISE STUDY IS REQUIRED FOR THIS PROJECT.
- THE REQUIRED OPEN SPACE ASSOCIATED WITH THIS SUBDIVISION WAS DEDICATED TO THE HOMEOWNERS ASSOCIATION, IT SHALL BE PRIVATELY OWNED AND MAINTAINED BY THE HOME OWNERS ASSOCIATION. FOR LOTS THAT ARE 20,000 SQUARE FEET OR GREATER, A 6% OPEN SPACE AREA IS REQUIRED AND THIS SUBDIVISION PROVIDED 0.37 ACRES.
- THE ARTICLES OF INCORPORATION FOR THE HOMEOWNERS ASSOCIATION WERE ACCEPTED BY THE STATE DEPARTMENT OF ASSESSMENTS AND TAXATION ON 10/10/2017, DEPARTMENT ID D18328104. THE PROTECTIVE COVENANTS WERE RECORDED IN LIBER 18045 AT FOLIO 271.
- THE COMMUNITY MEETING FOR THIS SUBDIVISION WAS HELD ON FEBRUARY 20, 2013.
- THERE ARE EXISTING WETLANDS, WETLANDS BUFFERS, STREAMS AND STREAM BUFFER ON-SITE.
- ALL ASPECTS OF THIS PROJECT ARE IN CONFORMANCE WITH THE LATEST HOWARD COUNTY STANDARDS UNLESS WAIVERS HAVE BEEN APPROVED.
- THE PRIVATE MAINTENANCE ACCESS AGREEMENT FOR LOTS 1-6 WAS RECORDED SIMULTANEOUSLY WITH THE PLAT (F-13-106).
- THIS DEVELOPMENT IS DESIGNED TO BE IN ACCORDANCE WITH SECTION 16.127 - RESIDENTIAL INFILL DEVELOPMENT - OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS. THE DEVELOPER OF THIS PROJECT SHALL CREATE COMPATIBILITY WITH THE EXISTING NEIGHBORHOOD THROUGH THE USE OF ENHANCED PERIMETER LANDSCAPING, BERMS, FENCES, SIMILAR HOUSING UNIT TYPES AND DIRECTIONAL ORIENTATION OF THE PROPOSED HOUSES.
- THIS SUBDIVISION IS SUBJECT TO SECTION 18.122B OF THE HOWARD COUNTY CODE. PUBLIC WATER AND SEWERAGE ALLOCATIONS WILL BE GRANTED AT TIME OF BUILDING PERMIT IF CAPACITY IS AVAILABLE AT THAT TIME.
- THE GEOTECHNICAL REPORT WAS PREPARED BY GEOLABS IN JULY, 2013.
- THERE IS NO RECREATIONAL OPEN SPACE REQUIREMENT FOR THIS PROJECT SINCE THERE ARE LESS THAN 10 LOTS.
- HOWARD COUNTY STANDARD DETAIL R-6.03 SHALL BE UTILIZED FOR DRIVEWAY APRONS.
- A PRIVATE DRIVEWAY SIGN SHALL BE FABRICATED AND INSTALLED BY HOWARD COUNTY BUREAU OF HIGHWAYS AT THE DEVELOPER'S EXPENSE.
- THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
- 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.
- TRAFFIC CONTROL AND SIGNAGE NOTES:
  - THE R1-1 ("STOP") SIGN AND THE STREET NAME SIGN (SNS) ASSEMBLY FOR THIS DEVELOPMENT MUST BE INSTALLED BEFORE THE BASE PAVING IS COMPLETED.
  - THE TRAFFIC CONTROL DEVICE LOCATIONS SHOWN ON THE 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" (MDMUTCD).
  - ALL SIGN POSTS USED FOR TRAFFIC CONTROL SIGNS INSTALLED IN THE COUNTY RIGHT-OF-WAY SHALL BE MOUNTED ON A 2" GALVANIZED STEEL "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.
  - A PRIVATE ROAD STREET NAME SIGN ASSEMBLY SHALL BE FABRICATED AND INSTALLED BY HOWARD COUNTY BUREAU OF HIGHWAYS AT THE DEVELOPER'S/OWNER'S EXPENSE. CONTACT HOWARD COUNTY TRAFFIC DIVISION AT 410-313-2430 FOR DETAILS AND COST ESTIMATES.
- THE COORDINATES SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL, WHICH IS BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM. HOWARD COUNTY MONUMENT NOS. 186A AND 186I WERE USED FOR THIS PROJECT.
- EXISTING UTILITIES ARE BASED ON CONTRACT DRAWINGS AND CONTRACT NUMBERS SHOWN ON PLAN.
- ANY DAMAGE TO THE COUNTY'S RIGHT-OF-WAY SHALL BE CORRECTED AT THE DEVELOPER'S EXPENSE.
- SHC ELEVATIONS SHOWN ARE LOCATED AT THE PROPERTY LINE OR EASEMENT LINE.

# RESIDENTIAL SITE DEVELOPMENT PLAN

## MELVIN PROPERTY

### LOTS 1 THRU 6

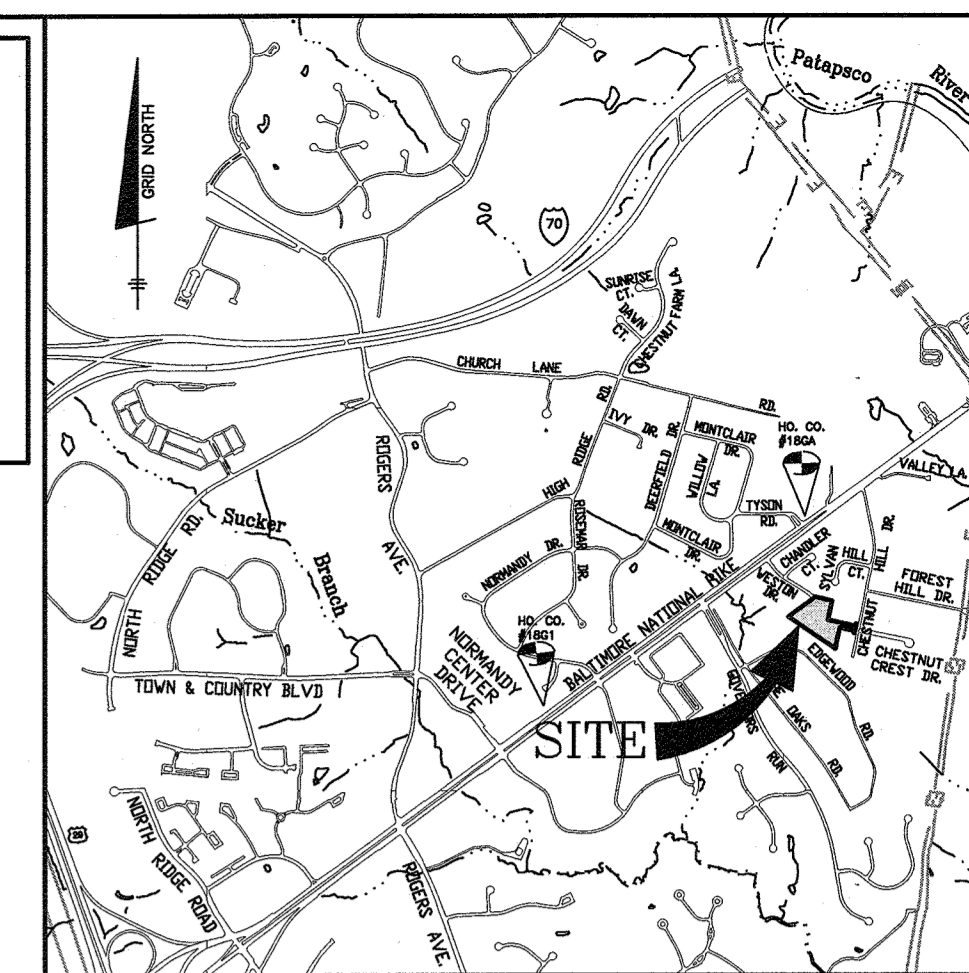
## HOWARD COUNTY, MARYLAND

**BENCHMARK**  
 HO. CO. #186A  
 STAMPED DISK SET ON TOP OF  
 CONCRETE BASE.  
 N 591872.0034' E 1370380.4297'  
 ELEVATION: 445.769'

HO. CO. #186I  
 STAMPED DISK SET ON TOP OF  
 CONCRETE BASE.  
 N 589985.0097' E 1367750.2346'  
 ELEVATION: 407.734'

**LEGEND**

- LIMIT OF SUBMISSION
- LOT LINES
- WETLAND LIMITS
- ADJACENT PROPERTY LINES



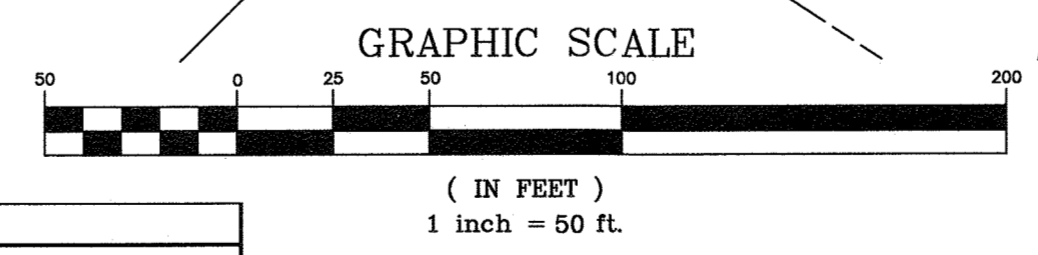
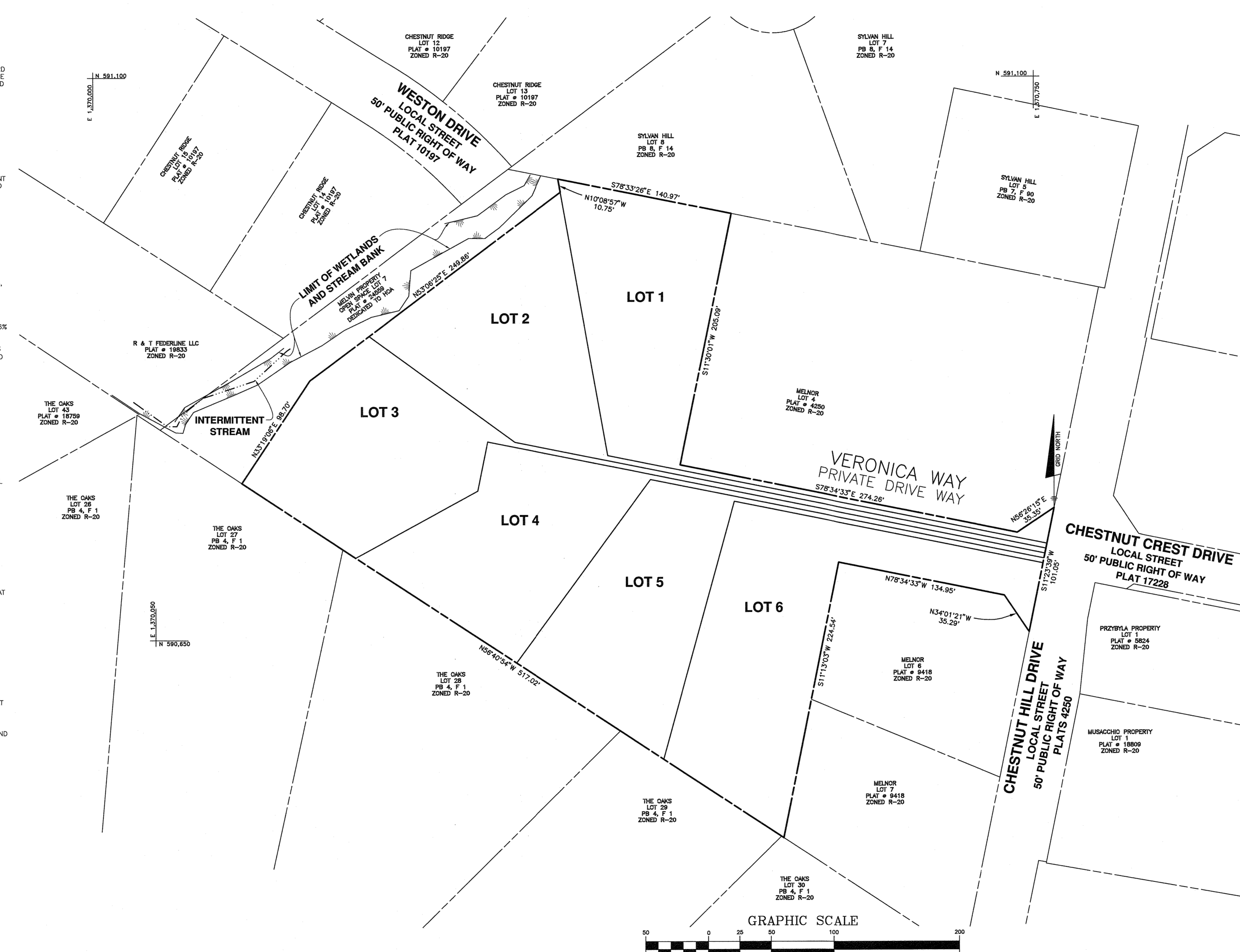
ADC MAP 21 GRID C6  
**VICINITY MAP**  
 SCALE: 1" = 2000'

SHEET INDEX	
SHEET	TITLE
1	COVER SHEET
2	RESIDENTIAL SITE DEVELOPMENT PLAN
3	SEDIMENT AND EROSION CONTROL PLAN
4	SEDIMENT & EROSION CONTROL DETAILS
5	DRAINAGE AREA MAP
6	STORMWATER MANAGEMENT DETAILS

MINIMUM LOT SIZE CHART			
LOT NO.	GROSS AREA	PIPESTEM AREA	MIN. LOT SIZE
1	22,312 S.F.	1,510 S.F.	20,802 S.F.
2	22,352 S.F.	1,429 S.F.	20,923 S.F.
3	22,569 S.F.	1,920 S.F.	20,649 S.F.
4	21,361 S.F.	1,280 S.F.	20,081 S.F.
5	21,236 S.F.	1,005 S.F.	20,231 S.F.
6	28,603 S.F.	5,324 S.F.	23,279 S.F.

**SITE ANALYSIS DATA/TABULATION**

- A) TOTAL PROJECT AREA..... 3.18± AC.
- B) AREA OF WETLANDS AND BUFFER..... 0.08± AC.
- C) AREA OF 100-YR. FLOODPLAIN..... 0.00 AC.
- D) AREA OF FOREST..... 0.00 AC.
- E) AREA OF STEEP SLOPES 25% OF GREATER... 0.00 AC.
- F) AREA OF DEDICATION..... 0.00 AC.
- G) HIGHLY ERODIBLE SOILS (K > 0.35) ..... 0.00 AC.
- H) NUMBER OF UNITS ALLOWED ..... 6
- I) NUMBER OF RESIDENTIAL UNITS PROPOSED... 6
- J) AREA OF PLAN SUBMISSION..... 3.18± AC.
- K) LIMIT OF DISTURBED AREA..... 1.4± AC.
- L) PRESENT ZONING DESIGNATION..... R-20
- M) PROPOSED USE: SINGLE FAMILY DETACHED DWELLINGS
- N) IMPERVIOUS COVER..... 0.68± AC.



ESD PRACTICE SUMMARY TABLE														
Pe= 1.4 inches			Qe= 0.35 inches			ESDv= 3951 cf for site			Rev					
Practice	Lot	Ref.	Address	DA to practice	Imp Area to practice	Required	Provided	2% DA?	Req. for DA	ESDv Provided	ESDv Req?	Area	Volume	
(N-2) Non-roof-top	N-2	#1	1 FS Lot 1	Veronica Way	1,858	929			108	77	not fully met	0.021	138	
(M-8) Grass Swale	M-8	#1	1-6 GS 1	Veronica Way	12,793	6,365	256	1248	PASS	743	743	PASS	53	
(M-8) Grass Swale	M-8	#2	4 GS 2	Veronica Way	6,840	2,323	137	478	PASS	284	284	PASS	439	
(M-3) Landscape Infiltration	M-3	#1	1 LSI 1	Veronica Way	4,119	2,500	82	176	PASS	287	439	PASS	0	
(M-6) Micro-Bioreten-tion	M-6	#2	2 MBR 2	Veronica Way	7,138	3,726	143	359	PASS	433	619	PASS	0	
(M-6) Micro-Bioreten-tion	M-6	#3	3 MBR 3	Veronica Way	7,229	4,251	145	282	PASS	489	541	PASS	0	
(M-8) Micro-Bioreten-tion	M-6	#4	4 MBR 4	Veronica Way	3,833	2,900	77	211	PASS	327	407	PASS	0	
(M-8) Micro-Bioreten-tion	M-6	#5	5 MBR 5	Veronica Way	6,241	3,722	125	331	PASS	427	574	PASS	0	
(M-3) Landscape Infiltration	M-3	#6	6 LSI 6	Veronica Way	5,856	3,453	117	236	PASS	397	581	PASS	0	
30169 TOTAL =											3494	4254	0.021	1210
											Rev Required =	0.15	605	
											Percent of Requirement =	14%	200%	
											Rev requirement met?		True	

ADDRESS CHART	
LOT	STREET ADDRESS
1	8107 VERONICA WAY
2	8111 VERONICA WAY
3	8116 VERONICA WAY
4	8112 VERONICA WAY
5	8108 VERONICA WAY
6	8104 VERONICA WAY

PLEASE NOTE THAT ALL LOTS/RESIDENTIAL UNITS IN THIS SUBDIVISION ARE SUBJECT TO THE MIHU FEE-IN-LIEU REQUIREMENT THAT IS TO BE CALCULATED AND PAID TO THE DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS AT THE TIME OF BUILDING PERMIT ISSUANCE BY THE PERMIT APPLICANT.

PERMIT INFORMATION CHART					
SUBDIVISION NAME:		SECTION/AREA:		LOT/PARCEL#	
MELVIN PROPERTY		N/A		LOTS 1-6	
PLAT No.	GRID No.	ZONE	TAX MAP	ELECTION DISTRICT	CENSUS TRACT
24559-60	20	R-20	18	2nd	602900

APPROVED: DEPARTMENT OF PLANNING AND ZONING

*Chad P. ...* 10-26-18  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

*Kevin ...* 11-01-18  
 CHIEF, DIVISION OF LAND DEVELOPMENT

*William ...* 11-1-18  
 DIRECTOR

NO.	DATE	REVISION

**BENCHMARK**  
 ENGINEERS & LAND SURVEYORS & PLANNERS  
**ENGINEERING, INC.**  
 8480 BALTIMORE NATIONAL PIKE A SUITE 315 & ELLICOTT CITY, MARYLAND 21045  
 (P) 410-465-6105 (F) 410-465-6644  
 WWW.BE-CVLENGINEERING.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. 45571, Expiration Date: 06-08-2020.

*John M. ...* 10/9/18  
 PROFESSIONAL ENGINEER

OWNER/BUILDER:

PATAPSCO BUILDERS, LLC  
 5850 WATERLOO RD.  
 SUITE 140  
 COLUMBIA, MD 21045  
 240-375-1052

**MELVIN PROPERTY**  
 LOTS 1 thru 6

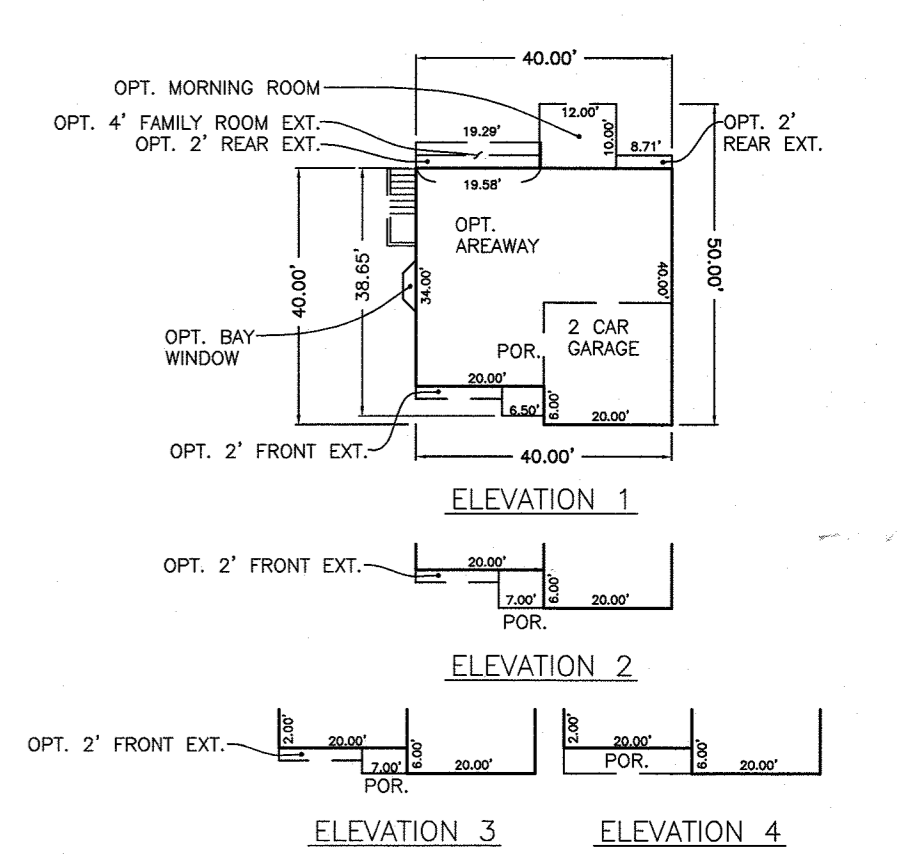
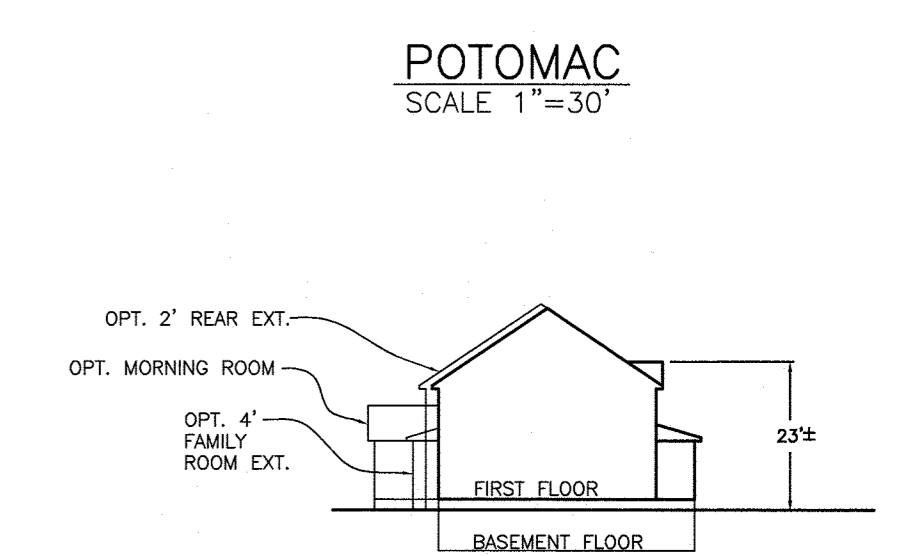
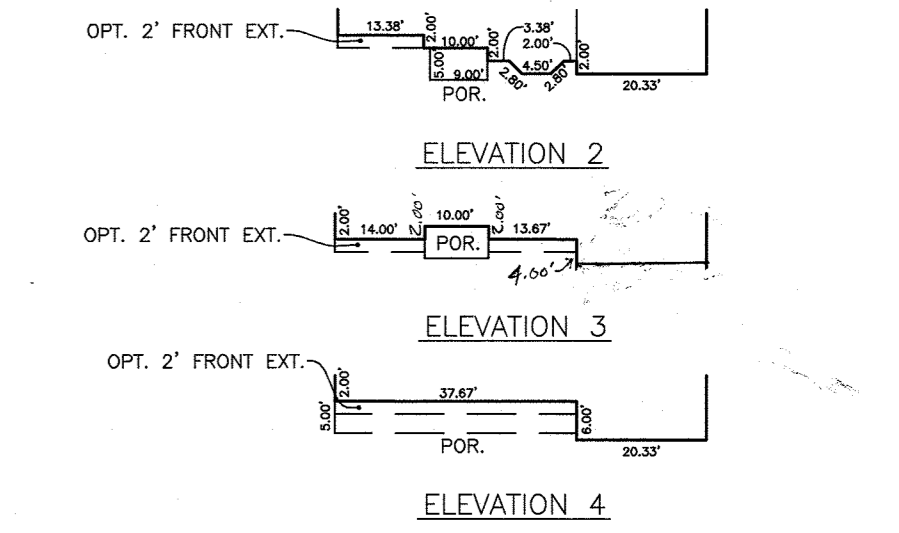
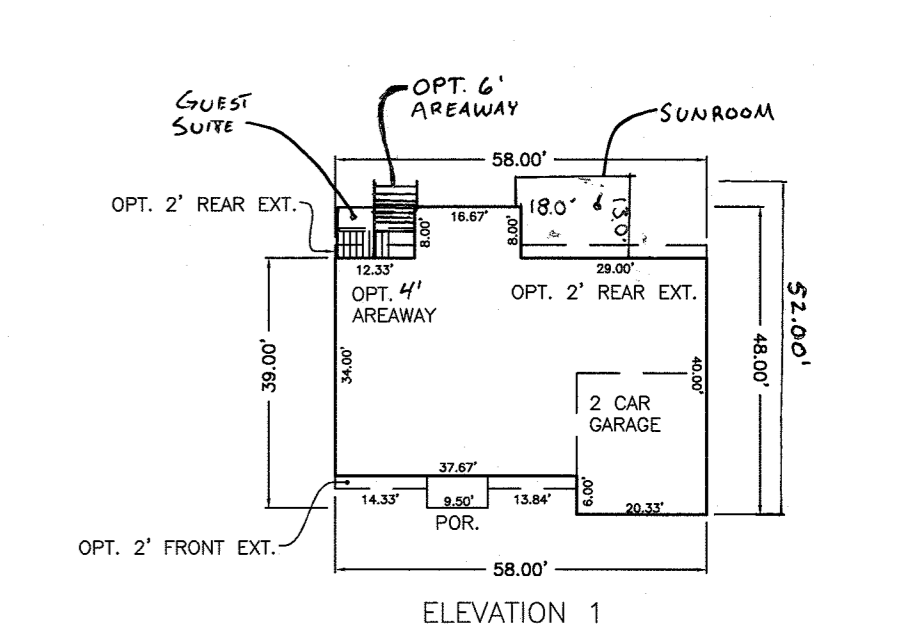
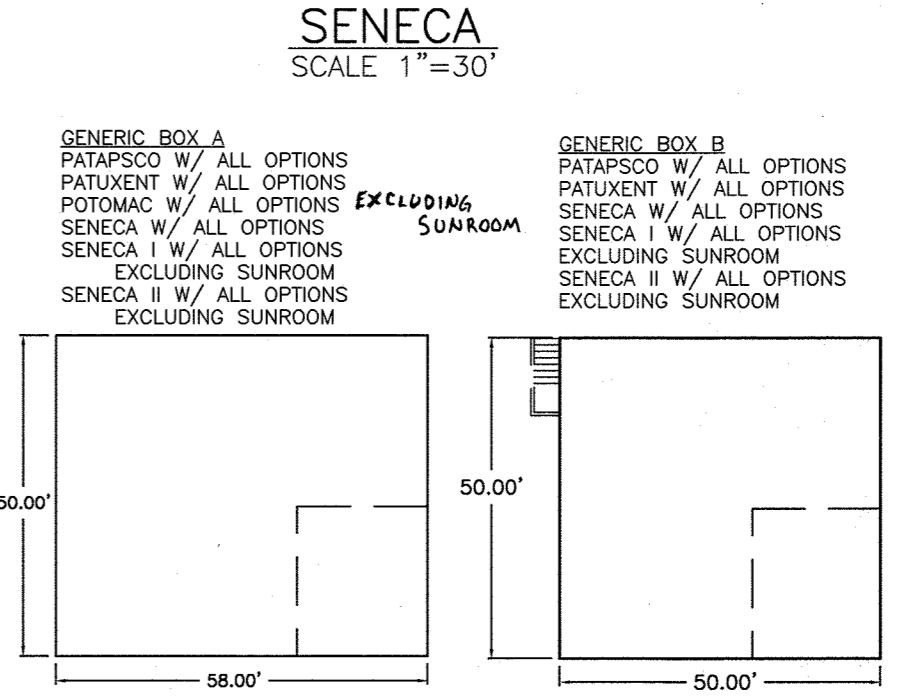
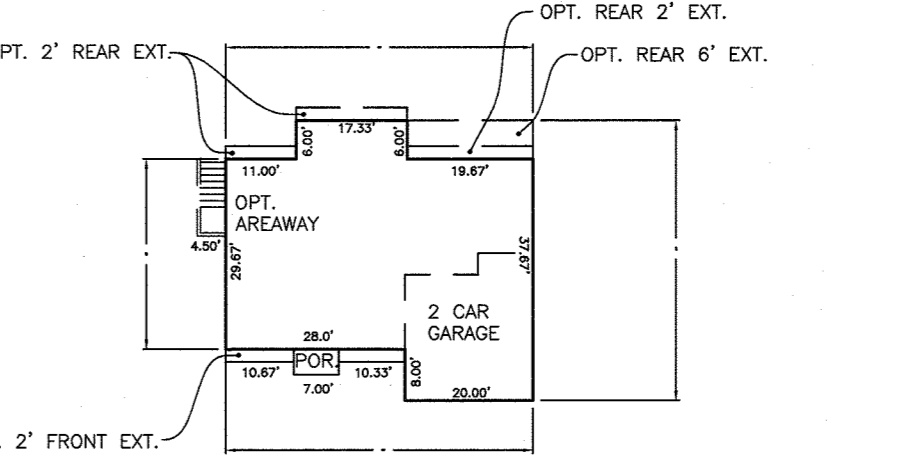
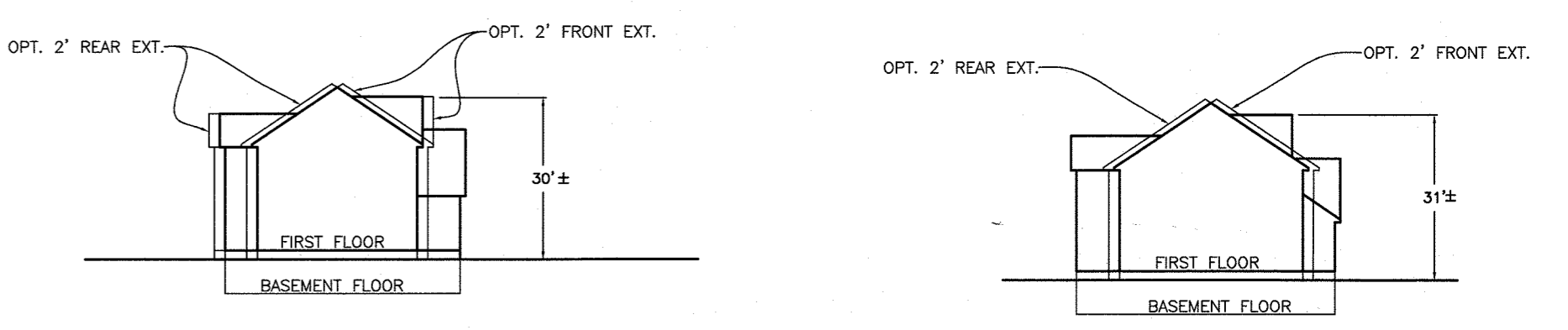
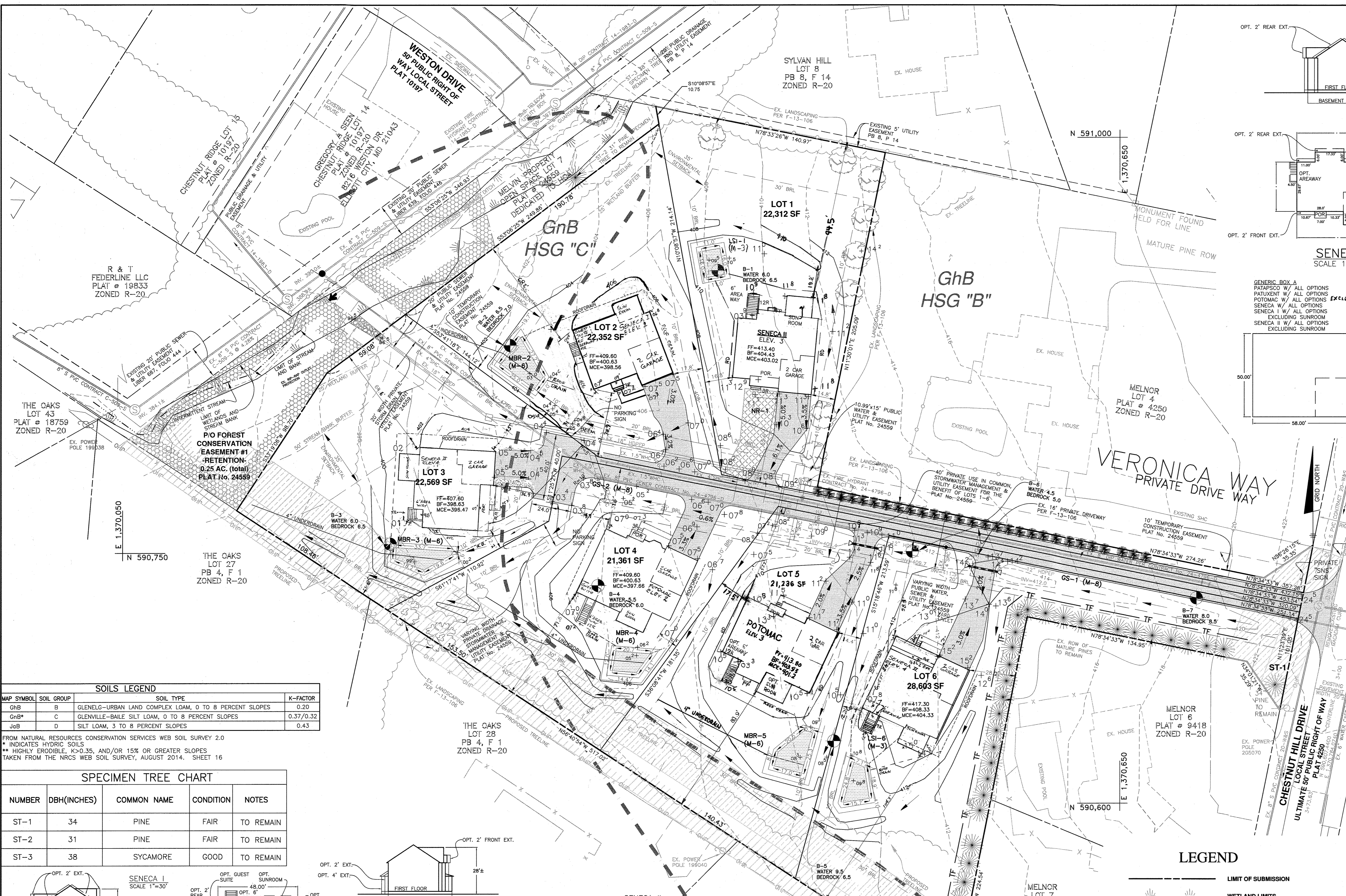
TAX MAP: 18 GRID: 20 PARCEL: 351  
 ZONED: R-20  
 ELECTION DISTRICT NO. 2  
 HOWARD COUNTY, MARYLAND

**RESIDENTIAL SITE DEVELOPMENT PLAN**  
**COVER SHEET**

DATE: OCTOBER, 2018 BEI PROJECT NO: 2515  
 SCALE: AS SHOWN SHEET 1 OF 6

DESIGN: JMC DRAWN: MDP





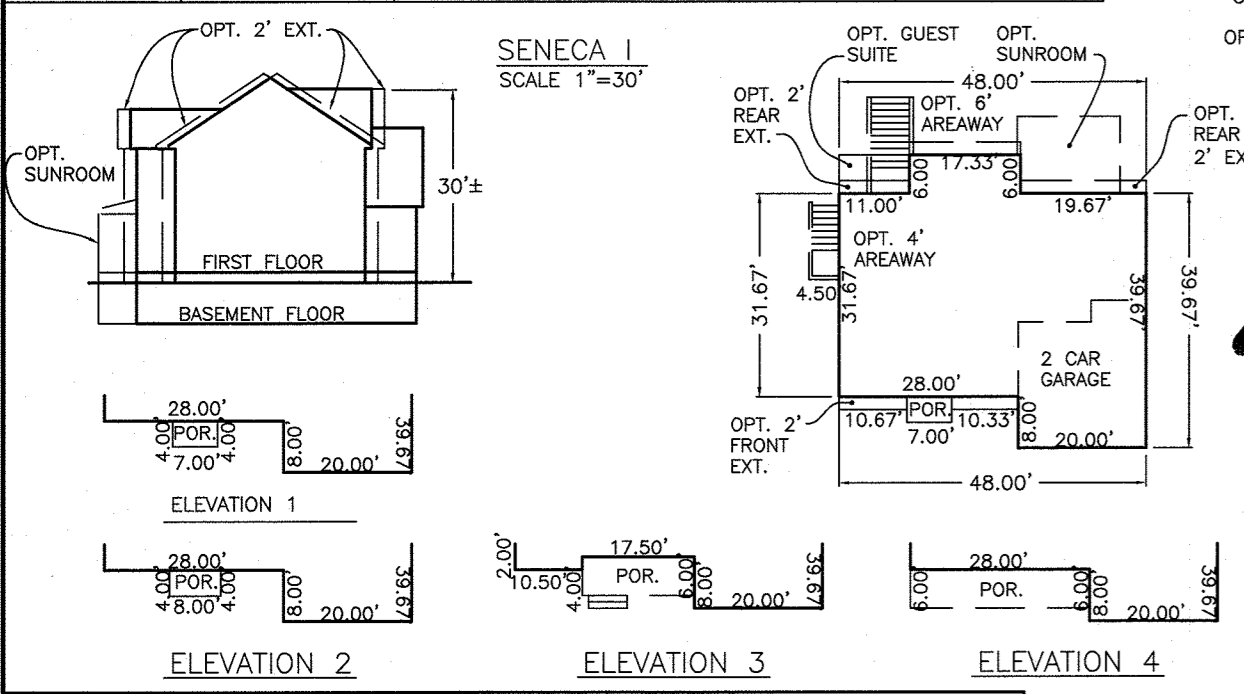
**SOILS LEGEND**

MAP SYMBOL	SOIL GROUP	SOIL TYPE	K-FACTOR
GhB	B	GLENELG-URBAN LAND COMPLEX LOAM, 0 TO 8 PERCENT SLOPES	0.20
GhB*	C	GLENVILLE-BAILE SILT LOAM, 0 TO 8 PERCENT SLOPES	0.37/0.32
Job	D	SILT LOAM, 3 TO 8 PERCENT SLOPES	0.43

FROM NATURAL RESOURCES CONSERVATION SERVICES WEB SOIL SURVEY 2.0  
 \*\* INDICATES HYDRIC SOILS  
 \*\*\* HIGHLY ERODIBLE, K<0.35, AND/OR 15% OR GREATER SLOPES  
 TAKEN FROM THE NRCS WEB SOIL SURVEY, AUGUST 2014. SHEET 16

**SPECIMEN TREE CHART**

NUMBER	DBH(INCHES)	COMMON NAME	CONDITION	NOTES
ST-1	34	PINE	FAIR	TO REMAIN
ST-2	31	PINE	FAIR	TO REMAIN
ST-3	38	SYCAMORE	GOOD	TO REMAIN

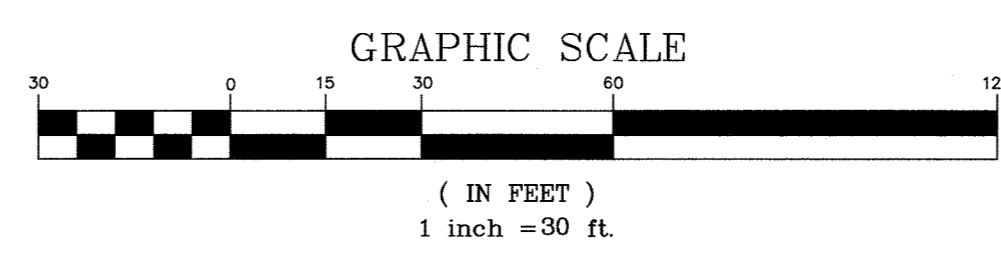
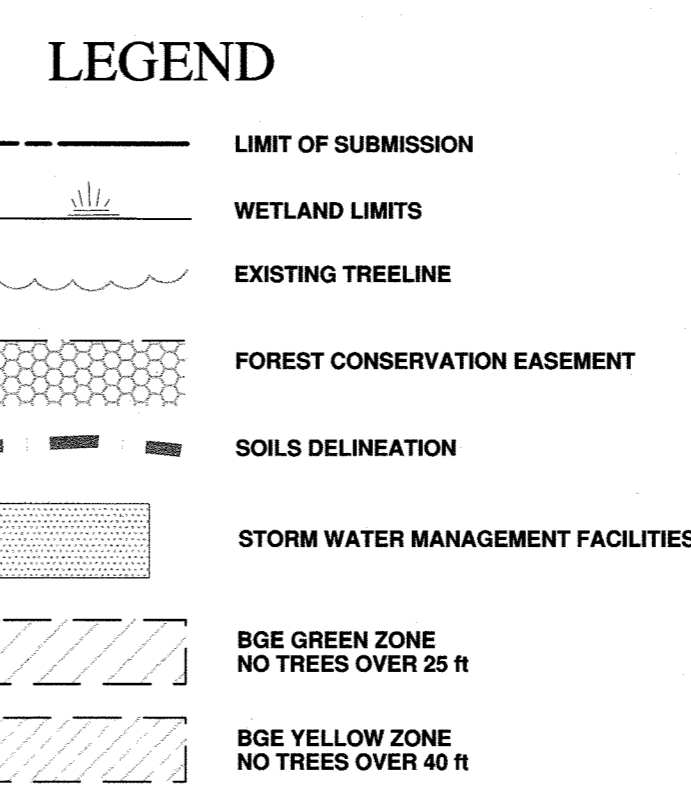


APPROVED: DEPARTMENT OF PLANNING AND ZONING

*Kent Schumacher* 3-12-19  
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

*Chad Alford* 3-7-19  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

*Nathan Zyllic* 3-12-19  
 DIRECTOR DATE



**PATUXENT SCALE 1" = 30'**

NO.	DATE	REVISION
6	6-15-20	REVISE LOT 6 FOOTPRINT OPTIONS.
5	11/1/19	REVISE LOTS 3 & 4 TO SENECA II, LOT 4 TO POTOMAC, LOT 5 SUNROOM, AND POTOMAC FOOTPRINT.
4	9/18/19	REVISE LOT 2 TO SENECA I.
3	8/1/2019	REVISE LOT 5 TO POTOMAC AND REVISE POTOMAC HOUSE FOOTPRINT
2	7/11/2019	REVISE LOT 1 TO SENECA III
1	2/8/2019	ADD SENECA I&II, ADJUST HOUSE BOX, SHOW SPECIFIC HOUSE ON LOT 1, REVISE LOT 6 CULVERT, AND ADJUST GRADE OVER LOT 4 SHC.

**BENCHMARK ENGINEERING, INC.**  
 8480 BALTIMORE NATIONAL PIKE & SUITE 315 & ELLIOTT CITY, MARYLAND 21043  
 (410) 466-8108 (410) 466-6944  
 WWW.BE-ENGINEERING.COM

**MELVIN PROPERTY LOTS 1 thru 6**

TAX MAP: 18 GRID: 20 PARCEL: 351  
 ZONED: R-20  
 ELECTION DISTRICT NO. 2  
 HOWARD COUNTY, MARYLAND

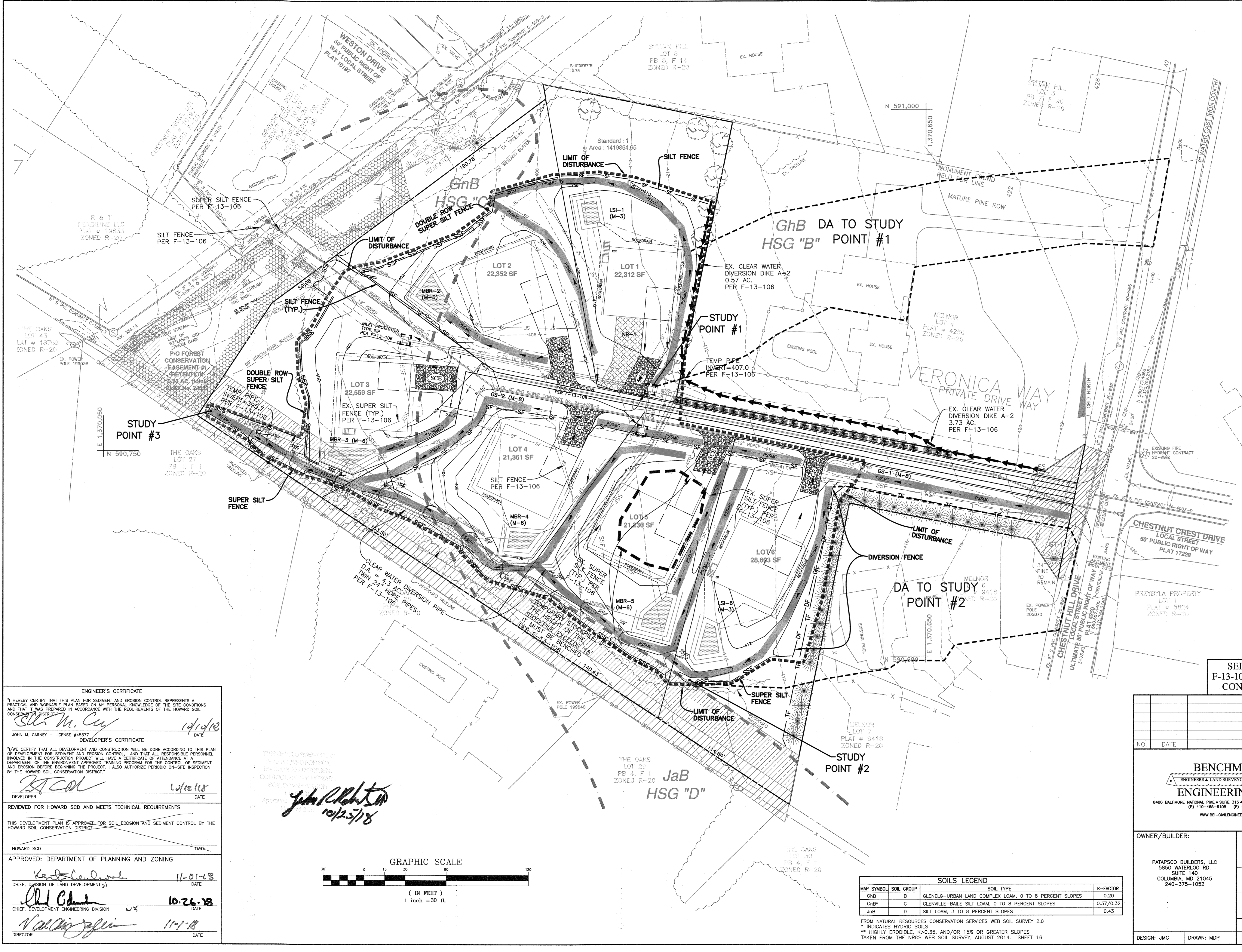
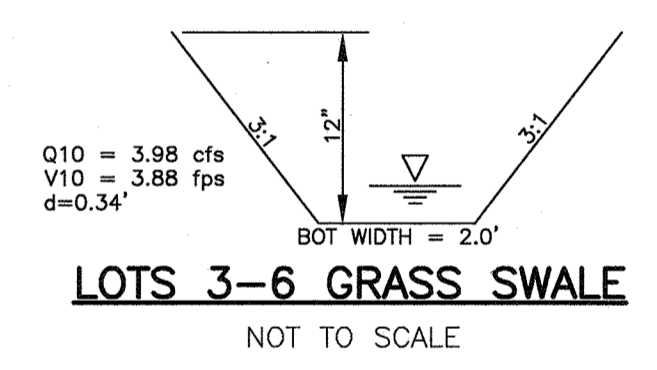
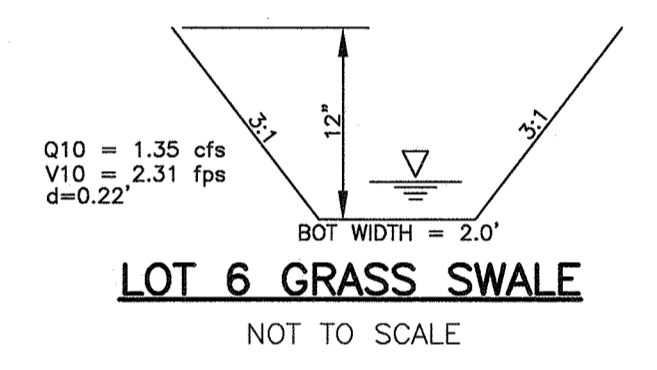
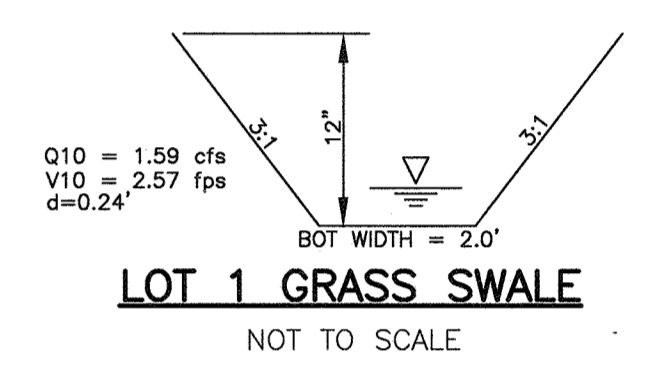
**REVISED RESIDENTIAL SITE DEVELOPMENT PLAN**

DATE: OCTOBER, 2018 BEI PROJECT NO: 2515  
 SCALE: AS SHOWN SHEET 2 OF 6



**LEGEND**

- LIMIT OF SUBMISSION
- - - EXISTING CONTOUR
- WETLAND LIMITS
- EXISTING TREELINE
- LIMIT OF DISTURBANCE
- SSF SUPER SILT FENCE
- SF SILT FENCE
- SCS STABILIZED CONSTRUCTION ENTRANCE
- PSSMC EROSION CONTROL MATTING
- CLEAR WATER DIVERSION PIPE PER F-13-106
- EARTH DIKE PER F-13-106
- SOILS DELINEATION
- SSF SUPER SILT FENCE PER F-13-106
- SF SILT FENCE PER F-13-106
- DF DIVERSION FENCE PER F-13-106

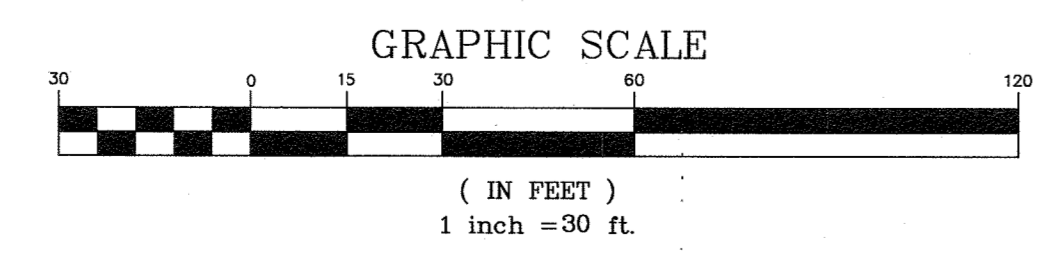


**SEDIMENT CONTROLS INSTALLED UNDER F-13-106 ARE TO BE USED AND MAINTAINED FOR CONTROLS ON THIS PLAN WHERE POSSIBLE.**

**ENGINEER'S CERTIFICATE**  
 I HEREBY 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.  
 John M. Carney - LICENSE #45577  
 DATE: 10/10/18

**DEVELOPER'S CERTIFICATE**  
 I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT 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.  
 DATE: 10/26/18

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
 DATE: 11-01-18  
 DATE: 10-26-18  
 DATE: 11-1-18



SOILS LEGEND			
MAP SYMBOL	SOIL GROUP	SOIL TYPE	K-FACTOR
GnB	B	GLENELG-URBAN LAND COMPLEX LOAM, 0 TO 8 PERCENT SLOPES	0.20
GnB*	C	GLENVILLE-BAILE SILT LOAM, 0 TO 8 PERCENT SLOPES	0.37/0.32
JaB	D	SILT LOAM, 3 TO 8 PERCENT SLOPES	0.43

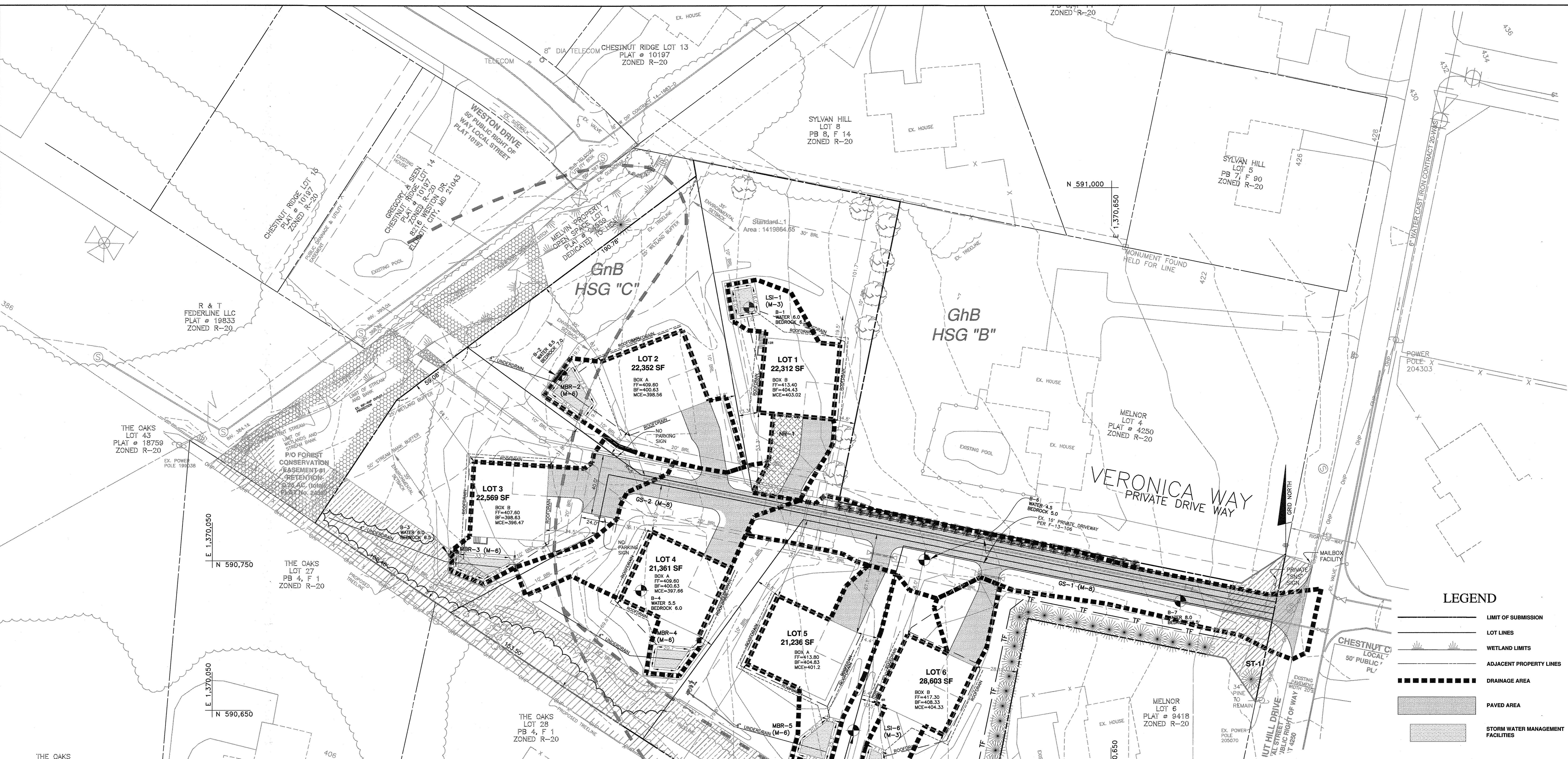
FROM NATURAL RESOURCES CONSERVATION SERVICES WEB SOIL SURVEY 2.0  
 \* INDICATES HYDRIC SOILS  
 \*\* HIGHLY ERODIBLE, K<0.35, AND/OR 15% OR GREATER SLOPES  
 TAKEN FROM THE NRCS WEB SOIL SURVEY, AUGUST 2014. SHEET 16

NO.		DATE		REVISION	
<b>BENCHMARK</b> ENGINEERS & LAND SURVEYORS & PLANNERS <b>ENGINEERING, INC.</b> 8480 BALTIMORE NATIONAL PIKE, SUITE 315 & ELLIOTT CITY, MARYLAND 21043 (P) 410-465-8105 (F) 410-465-6644 WWW.BE-CVLENGINEERS.COM					
OWNER/BUILDER:			MELVIN PROPERTY LOTS 1 thru 6 TAX MAP: 18 GRID: 20 PARCEL: 351 ZONED: R-20 ELECTION DISTRICT NO. 2 HOWARD COUNTY, MARYLAND		
PATAPSCO BUILDERS, LLC 5850 WATERLOO RD. SUITE 140 COLUMBIA, MD 21045 240-375-1052			SEDIMENT & EROSION CONTROL PLAN DATE: OCTOBER, 2018 BEI PROJECT NO: 2515 SCALE: AS SHOWN SHEET 3 OF 6		
DESIGN: JMC			DRAWN: MDP		









APPROVED: DEPARTMENT OF PLANNING AND ZONING

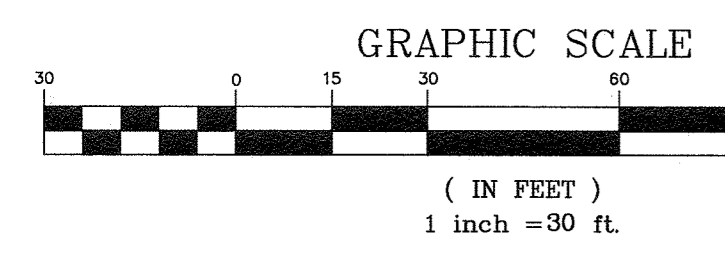
*Kentley Oswald* 11-01-18  
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

*Chad Edmund* 10-28-18  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

*N. A. [Signature]* 11-1-18  
 DIRECTOR DATE

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

Material	Specification	Size	Notes
Plantings	see Appendix A, Table A.4	n/a	plantings are site-specific
Planting soil [2' to 4' deep]	loamy sand (60-65%) & compost (35-40%) or sandy loam (30%), coarse sand (30%) & compost (40%)	n/a	USDA soil types loamy sand or sandy loam; clay content < 5%
Organic content	Min. 10% by dry weight (ASTM D 2974)	n/a	
Mulch	shredded hardwood		aged 6 months, minimum; no pine or wood chips
Pea gravel diaphragm	pea gravel: ASTM-D-448	NO. 8 OR NO. 9 (1/8" TO 3/8")	
Curtain drain	ornamental stone: washed cobbles	stone: 2" to 5"	
Geotextile		n/a	PE Type 1 nonwoven
Gravel (underdrains and infiltration berms)	AASHTO M-43	NO. 57 OR NO. 6 AGGREGATE (3/8" to 3/4")	
Underdrain piping	F 758, Type PS 28 or AASHTO M-278	4" to 6" rigid schedule 40 PVC or SDR35	Slotted or perforated pipe; 3/8" perf. @ 6" on center, 4 holes per row; minimum of 3" of gravel over pipes; not necessary underneath pipes. Perforated pipe shall be wrapped with 1/4-inch galvanized hardware cloth.
Poured in place concrete (if required)	MSHA Mix No. 3; f'c = 3500 psi @ 28 days, normal weight, air-entrained; reinforcing to meet ASTM-G15-60	n/a	on-site testing of poured-in-place concrete required: 28 day strength and slump test; all concrete design (cast-in-place or pre-cast) not using previously approved State or local standards requires design drawings sealed and approved by a professional structural engineer licensed in the State of Maryland - design to include meeting ACI Code 350.R/89; vertical loading [H-10 or H-20]; allowable horizontal loading (based on soil pressure); and analysis of potential cracking.
Sand	AASHTO-M-6 or ASTM-C-33	0.02" to 0.04"	Sand substitutions such as Diabase and Graystone (AASHTO) #10 are not acceptable. No calcium carbonated or dolomitic sand substitutions are acceptable. No "rock dust" can be used for sand.



**LEGEND**

- LIMIT OF SUBMISSION
- LOT LINES
- WETLAND LIMITS
- ADJACENT PROPERTY LINES
- DRAINAGE AREA
- PAVED AREA
- STORM WATER MANAGEMENT FACILITIES

NO.	DATE	REVISION
<p>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. 45571, Expiration Date: 06-08-2020.</p> <p><b>BENCHMARK</b>        ENGINEERS &amp; LAND SURVEYORS &amp; PLANNERS  <b>ENGINEERING, INC.</b>        8480 BALTIMORE NATIONAL PIKE, SUITE 315 • ELLIOTT COTT. MARYLAND 21043        (P) 410-465-6105 (F) 410-465-6644        WWW.BEI-CIVILENGINEERING.COM</p>		
<p>OWNER/BUILDER:</p> <p>PATAPSCO BUILDERS, LLC        5850 WATERLOO RD.        SUITE 140        COLUMBIA, MD 21045        240-375-1052</p>		
<p><b>MELVIN PROPERTY</b>        LOTS 1 thru 6</p> <p>TAX MAP: 18 GRID: 20 PARCEL: 351        ZONED: R-20        ELECTION DISTRICT NO. 2        HOWARD COUNTY, MARYLAND</p>		
<p><b>DRAINAGE AREA MAP</b></p>		
DESIGN: JMC	DRAWN: MDP	DATE: OCTOBER, 2018 BEI PROJECT NO: 2515
SCALE: AS SHOWN		SHEET 5 OF 6

SEE F-13-106 FOR BORING INFORMATION



**CONSTRUCTION SPECIFICATIONS**

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

- Material Specifications**  
The allowable materials to be used in these practices are detailed in Table B.4.1.
- 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-bioretenion 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 sand (60%-65%) and compost (35% to 40%) or sandy loam (30%), coarse sand (30%), and compost (40%).
  - Clay Content - Media shall have a clay content of less than 5%.
  - pH Range - Should be between 5.5 - 7.0. Amendments (e.g., lime, iron sulfate plus sulfur) may be mixed into the soil to increase or decrease pH.

- Compaction**  
It is very important to minimize compaction of both the base of bioretention practices and the required backfill. When possible, use excavation hoes to remove original soil. If practices are excavated using a loader, the contractor should use wide track or marsh track equipment, or light equipment with turf-type tires. Use of equipment with narrow tracks or narrow tires, rubber tires with large lugs, or high-pressure tires will cause excessive compaction resulting in reduced infiltration rates and is not acceptable. Compaction will significantly contribute to design failure.  
Compaction can be alleviated at the base of the bioretention facility by using a primary tilling operation such as a chisel plow, ripper, or subsoiler. These tilling operations are to 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.

- Plant Material**  
Recommended plant material for micro-bioretenion practices can be found in Appendix A, Section A.2.3.
- 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 1/8" 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.

- 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 ASHTO-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 a 1/2" (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 (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".

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

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.

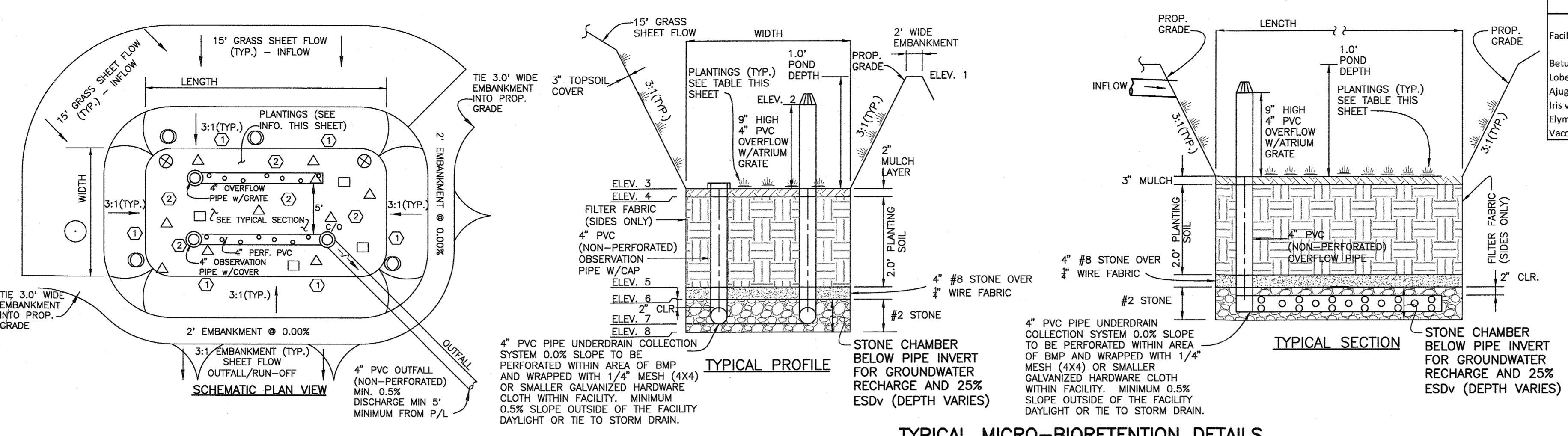
The topsoil specifications provide enough organic material to adequately supply nutrients from natural cycling. The primary function of the bioretention structure is to improve water quality. Adding fertilizers, defats, or a minimum, impedes this goal. Only add fertilizer if wood chips or mulch are used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

APPROVED: DEPARTMENT OF PLANNING AND ZONING

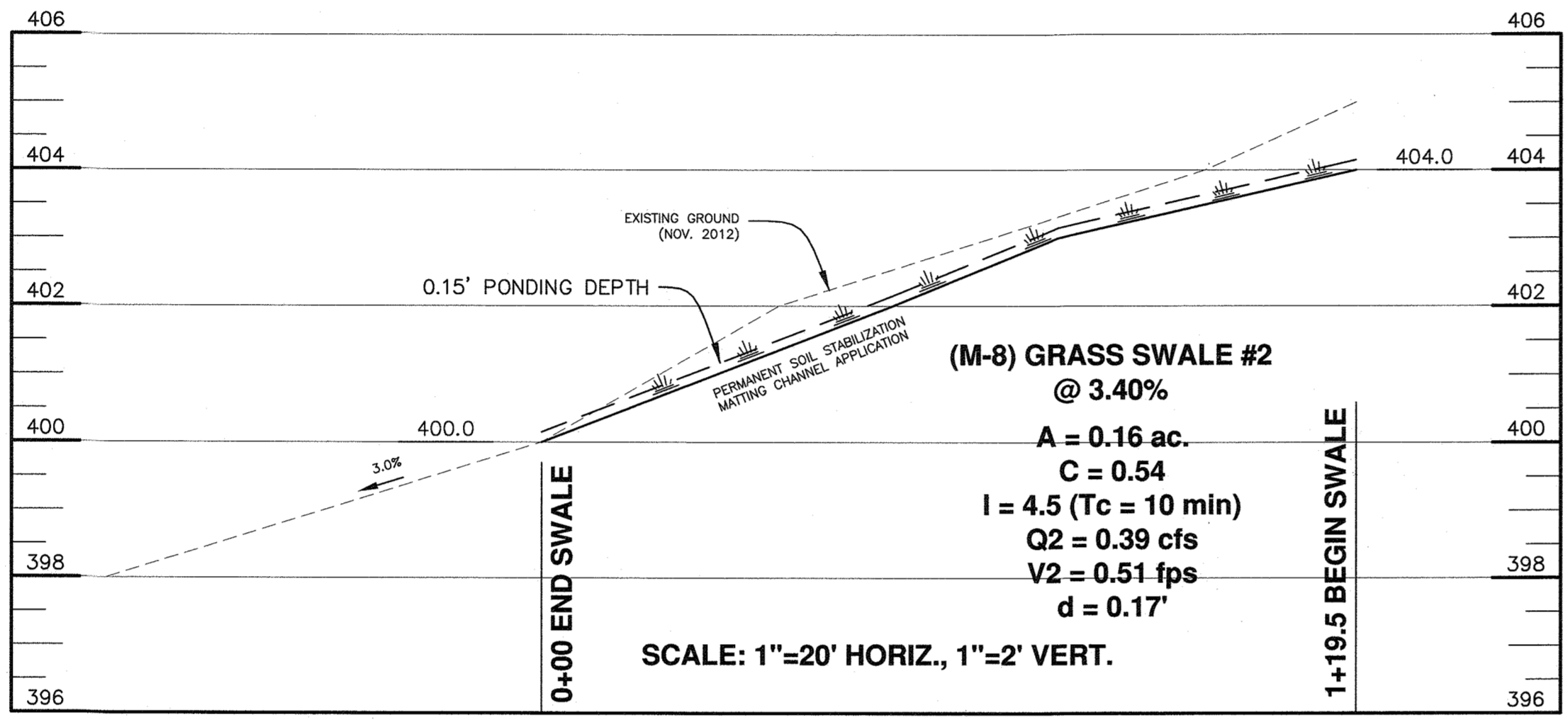
*Keith Landwehr* 11-01-18  
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

*Paul Chubb* 10-26-18  
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

*Natalia Joffe* 11-1-18  
DIRECTOR DATE

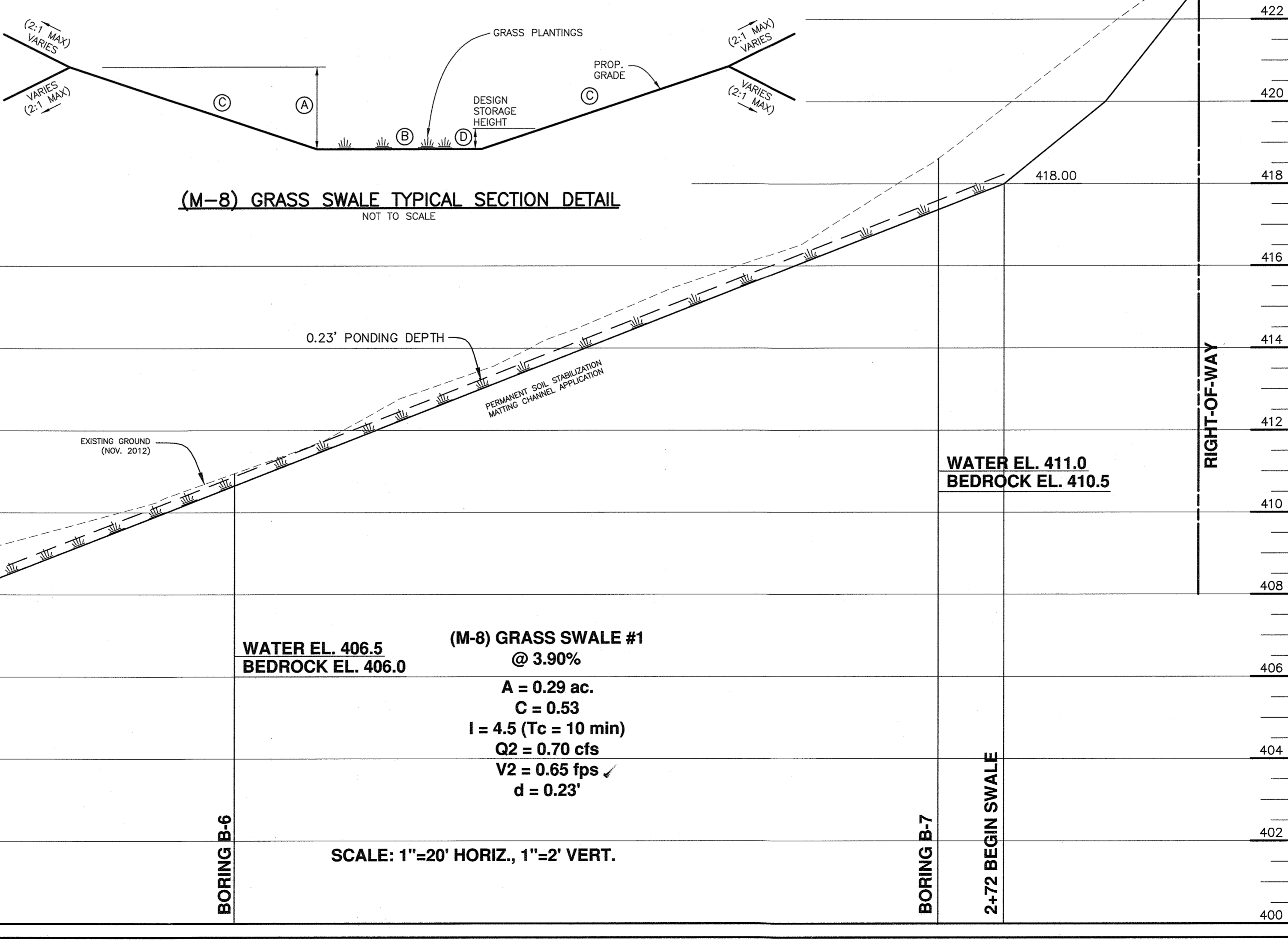


**TYPICAL MICRO-BIORETENION DETAILS**  
NOT TO SCALE



SWALE #1		SWALE #2	
A	1.5'	A	1.2
B	4.0'	B	4.0'
C	3:1	C	3:1
D	0.23'	D	0.17'
SLOPE	4.0%	SLOPE	4.0%
BOTTOM DIMS		BOTTOM DIMS	
LENGTH	312'	LENGTH	119.5'
WIDTH	4.0'	WIDTH	4.0'
TOTAL SF	1,248	TOTAL SF	478

**(M-8) GRASS SWALE DESIGN TABLE**  
NOTE: ELEVATIONS LISTED IN CHART ARE ELEVATIONS AT BOTTOM OF THE SWALE.



**(M-8) GRASS SWALE #1 @ 3.90%**  
A = 0.29 ac.  
C = 0.53  
I = 4.5 (Tc = 10 min)  
Q2 = 0.70 cfs  
V2 = 0.65 fps  
d = 0.23'

**SWM PRACTICE INTERNAL LANDSCAPING CHART**

Facility square footage	PLANT NAME	COMMON NAME	TYPE	SIZE	LF #1	MB #2	MB #3	MB #4	MB #5	LF#6
					QUANTITY	QUANTITY	QUANTITY	QUANTITY	QUANTITY	QUANTITY
176	Betula nigra	RIVER BIRCH	tree	5' height	1	1	1	1	1	1
22	Lobelia cardinalis	CARDINAL FLOWER	herbaceous	quart bulb	22	45	35	26	41	30
22	Alyssa reptans	CREeping BUGLEWEED	herbaceous	quart bulb	22	45	35	26	41	30
22	Irish versicolor	IRISH	herbaceous	quart bulb	22	45	35	26	41	30
22	Elymus virginicus	VIRGINIA WILD RYE	herbaceous	quart bulb	22	45	35	26	41	30
2	Vaccinium atrococcum	HIGHBUSH BLUEBERRY	shrub	2.5' x 3' ht	2	4	3	3	4	3

**PLANTING LEGEND**

SYMBOL	NAME
①	AJISSA REPTANS (CREeping BUGLEWEED)
②	IRIS VERSICOLOR (IRIS)
□	Lobelia cardinalis (CARDINAL FLOWER)
△	ELYMUS VIRGINICUS (VIRGINIA WILD RYE)
○	VACCINIUM ATROCOCIMUM (HIGHBUSH BLUEBERRY)
●	BETULA NIGRA (RIVER BIRCH)

**(M-6) MICRO-BIORETENION DESIGN TABLES**

**M-6 Micro-Bioretenion #2**

Elev.	Description	Elevation	Dimensions	
			Length	Width
1	top of embankment	404.00	Length	19.7
2	recharge pipe inlet	403.75	Length	25.0
3	top of mulch	403.00	Total SF	359
4	top of soil	402.83	Outlet Pipe	
5	top of stone layer	400.83	Size (inches)	4
6	top of stone chamber	400.50	Length (feet)	53
7	outlet pipe invert	400.00	Slope (%)	1.5%
8	bottom of stone chamber	399.17	daylight invert	399.2

**M-6 Micro-Bioretenion #3**

Elev.	Description	Elevation	Dimensions	
			Length	Width
1	top of embankment	400.20	Length	33.7
2	recharge pipe inlet	399.95	Length	12.4
3	top of mulch	399.20	Total SF	282
4	top of soil	399.03	Outlet Pipe	
5	top of stone layer	397.03	Size (inches)	4
6	top of stone chamber	396.70	Length (feet)	92
7	outlet pipe invert	396.20	Slope (%)	1.8%
8	bottom of stone chamber	395.20	daylight invert	394.5

**M-6 Micro-Bioretenion #4**

Elev.	Description	Elevation	Dimensions	
			Length	Width
1	top of embankment	406.20	Length	20.7
2	recharge pipe inlet	405.95	Length	12.0
3	top of mulch	405.20	Total SF	211
4	top of soil	405.03	Outlet Pipe	
5	top of stone layer	403.03	Size (inches)	4
6	top of stone chamber	402.70	Length (feet)	88
7	outlet pipe invert	402.20	Slope (%)	2.5%
8	bottom of stone chamber	401.20	daylight invert	404.4

**M-6 Micro-Bioretenion #5**

Elev.	Description	Elevation	Dimensions	
			Length	Width
1	top of embankment	409.50	Length	25.3
2	recharge pipe inlet	409.25	Length	17.0
3	top of mulch	408.50	Total SF	331
4	top of soil	408.33	Outlet Pipe	
5	top of stone layer	406.33	Size (inches)	4
6	top of stone chamber	405.80	Length (feet)	83
7	outlet pipe invert	405.30	Slope (%)	1.1%
8	bottom of stone chamber	404.47	daylight invert	404.4

**(M-3) LANDSCAPE INFILTRATION DESIGN TABLES**

**M-3 Landscape Infiltration #1**

Elev.	Description	Elevation	Dimensions	
			Length	Width
1	top of embankment	410.50	Length	11.0
2	top of mulch	409.50	Length	16.0
3	top of soil	409.33	Total SF	176
4	top of gravel layer	408.33		
5	top of stone chamber	408.00		
6	top of sand layer	407.00		
7	bottom of facility	406.00		

**M-3 Landscape Infiltration #6**

Elev.	Description	Elevation	Dimensions	
			Length	Width
1	top of embankment	410.80	Length	24.9
2	top of mulch	409.80	Length	15.8
3	top of soil	409.63	Total SF	236
4	top of gravel layer	408.63		
5	top of stone chamber	408.30		
6	top of sand layer	407.30		
7	bottom of facility	406.30		

- UNDERDRAIN, OVERFLOW AND OUTFALL NOTES**
- THE LAST CLEAN-OUT LOCATION WITHIN EACH MICRO-BIORETENION FACILITY SHALL BE FITTED WITH A NON-CLOGGING SURFACE DRAIN (EXAMPLE: 4" ABS ROOF DRAIN W/CAST ALUMINUM DOME) AT THE POND SURFACE ELEVATION INDICATED IN THE CORRESPONDING TABLE ELEV. 2.
  - THE PVC WITHIN THE FACILITY SHALL BE PERFORATED.
  - THE UNDER-DRAIN AND PIPE TO OUTFALL SHALL BE INSTALLED TO A MINIMUM DEPTH OF 2' BELOW FINISHED GRADE AND SHALL MAINTAIN A MINIMUM 1% SLOPE AND MAINTAIN A MINIMUM OF 1' OF SEPARATION AT ALL CROSSINGS.

NO. DATE REVISION

**BENCHMARK ENGINEERING, INC.**  
8480 BALTIMORE NATIONAL PIKE SUITE 315 ELLICOTT CITY, MARYLAND 21043  
(P) 410-465-6105 (F) 410-465-6444  
WWW.BEI-CIVILENGINEERING.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. 45527, Expiration Date: 06-08-2020.

*Melvin Property*  
MELVIN PROPERTY  
LOTS 1 thru 6

TAX MAP: 18 GRID: 20 PARCEL: 351  
ZONED: R-20  
ELECTION DISTRICT NO. 2  
HOWARD COUNTY, MARYLAND

**STORMWATER MANAGEMENT DETAILS**

OWNER/BUILDER: PATAPSCO BUILDERS, LLC  
5850 WATERLOO RD.  
SUITE 140  
COLUMBIA, MD 21045  
240-375-1052

DATE: OCTOBER, 2018 BEI PROJECT NO: 2515  
SCALE: AS SHOWN SHEET 6 OF 6