

GENERAL NOTES

- 1.) ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS, IF APPLICABLE.
- 2.) BOUNDARY IS BASED ON A FIELD RUN MONUMENTED SUBURBAN BOUNDARY SURVEY PERFORMED BY JOHN A. MILDBERG IN MARCH, 2006.
- 3.) THE SUBJECT PROPERTY IS ZONED PGCC PER THE 10-6-2013 COMPREHENSIVE ZONING PLAN.
- 4.) THE EXISTING TOPOGRAPHY SHOWN IS BASED ON AERIAL TOPOGRAPHIC SURVEY PERFORMED BY WINGS AERIAL MAPPING CO., INC. FLOWN ON OR ABOUT JANUARY, 2006. TOPOGRAPHY WITHIN THE STREAM CHANNEL IS BASED ON FIELD RUN SURVEY PERFORMED BY BENCHMARK ENGINEERING, INC. IN MAY, 2015.
- 5.) 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. 161A AND 161B WERE USED FOR THIS PROJECT.
- 6.) WATER IS PUBLIC. THE CONTRACT NUMBER IS 44-4934-D. THE DRAINAGE AREA IS LITTLE PATUXENT.
- 7.) SEWER IS PUBLIC. THE CONTRACT NUMBER IS 24-4354-D. THE DRAINAGE AREA IS LITTLE PATUXENT.
- 8.) THIS PROJECT IS LOCATED WITHIN THE METROPOLITAN DISTRICT.
- 9.) EXISTING UTILITIES SHOWN ARE BASED ON CONTRACT DRAWINGS, AERIAL AND FIELD SURVEYED LOCATIONS.
- 10.) THE FLOODPLAIN STUDY FOR THIS PROJECT WAS PREPARED BY BENCHMARK ENGINEERING, INC. IN JULY, 2015 AND APPROVED BY THE DEPARTMENT OF PLANNING AND ZONING ON SEPTEMBER 30, 2015.
- 11.) A NOISE STUDY IS NOT REQUIRED FOR THIS PROJECT SINCE NO RESIDENTIAL LOTS/UNITS ARE PROPOSED.
- 12.) A TRAFFIC STUDY IS NOT NEEDED FOR THIS PROJECT AS IT CREATES NO NEW (ADDITIONAL) LOTS.
- 13.) A GEOTECHNICAL REPORT WAS PREPARED BY HILLIS-CARNES ENGINEERING ASSOCIATES, INC. IN JUNE, 2015 AND BY BENCHMARK ENGINEERING, INC. IN JULY 2015.
- 14.) THERE ARE NO EXISTING STRUCTURES LOCATED ON-SITE.
- 15.) TO THE BEST OF OUR KNOWLEDGE, THERE ARE NO BURIAL GROUNDS, CEMETERIES OR HISTORIC STRUCTURES LOCATED ON THIS SITE.
- 16.) THE GRADING, REMOVAL OF VEGETATIVE COVER OR TREES, AND PAVING ASSOCIATED WITH THE CONSTRUCTION OF RESORT ROAD WITHIN THE LIMITS OF WETLANDS, STREAM, THEIR BUFFERS, 100-YEAR FLOODPLAIN AND STEEP SLOPES GREATER THAN 25% IN EXCESS OF 20,000 CONTIGUOUS SQUARE FEET HAS BEEN DEEMED NECESSARY BY THE DEPARTMENT OF PLANNING AND ZONING BASED ON THE APPROVAL OF THE FOURTH AMENDMENT TO THE TURF VALLEY COMPREHENSIVE SKETCH PLAN (S-88-013, PB 368) ON 7-28-2006. THE MDE PERMIT ASSOCIATED WITH THIS DISTURBANCE IS #02-NI-009/200261464.
- 17.) LANDSCAPING FOR THIS SUBDIVISION IS PROVIDED IN ACCORDANCE WITH A CERTIFIED LANDSCAPE PLAN INCLUDED WITH THIS ROAD CONSTRUCTION PLAN SET IN ACCORDANCE WITH SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL. FINANCIAL SURETY FOR THE REQUIRED STREET TREES SHALL BE PROVIDED AS A PART OF THE DPW DEVELOPER'S AGREEMENT.
- 18.) THIS PROJECT IS SUBJECT TO THE REQUIREMENTS OF SECTION 16.1202 OF THE HOWARD COUNTY CODE FOR FOREST CONSERVATION. THE REQUIREMENT HAS BEEN DEFERRED PER APPROVAL OF WP-15-153. SEE GENERAL NOTE #27 BELOW.
- 19.) THE FOREST STAND DELINEATION FOR THIS PARCEL WAS PREPARED BY ECO-SCIENCE PROFESSIONALS, INC. ON JULY 16 2007.
- 20.) THE WETLANDS DELINEATION FOR THIS PARCEL WAS PREPARED BY ECO-SCIENCE PROFESSIONALS, INC. ON SEPTEMBER 29, 2009.
- 21.) STREET LIGHT PLACEMENT AND THE TYPE OF FIXTURES AND POLES SHALL BE IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL, VOLUME III (2006), SECTION 5.5.A. A MINIMUM OF 20' SHALL BE MAINTAINED BETWEEN ANY STREET LIGHT AND ANY TREE.
- 22.) TRAFFIC CONTROL DEVICES:
 - A) THE R1-1 "STOP" SIGN AND STREET NAME SIGN (SNS) ASSEMBLY FOR THIS DEVELOPMENT MUST BE INSTALLED BEFORE THE BASE PAVING IS COMPLETED.
 - B) 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.
 - C) ALL TRAFFIC CONTROL DEVICES AND THEIR LOCATIONS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE "MARYLAND MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUMTCD)".
 - D) ALL SIGN POSTS USED FOR TRAFFIC CONTROL SIGNS INSTALLED IN THE COUNTY RIGHT-OF-WAY SHALL BE MOUNTED ON A 2" GALVANIZED STEEL, PERFORATED "QUICK PUNCH", SQUARE TUBE POST (14 GAUGE) INSERTED INTO A 2-1/2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE SLEEVE (12 GAUGE) - 3' LONG. THE ANCHOR SHALL NOT EXTEND MORE THAN TWO "QUICK PUNCH" HOLES ABOVE GROUND LEVEL. A GALVANIZED STEEL POLE CAP SHALL BE MOUNTED ON TOP OF EACH POST.
- 23.) THE PROJECT SHALL COMPLY WITH THE REQUIREMENTS OF SECTION 16.129 OF THE HOWARD COUNTY CODE.
- 24.) PROPERTIES DEPICTED ON THESE PLANS ARE ZONED "PGCC" UNLESS OTHERWISE NOTED.
- 25.) ALL FILL AREAS SHALL BE AT 95% COMPACTION IN ACCORDANCE WITH AASHTO T-180 STANDARDS
- 26.) STORMWATER MANAGEMENT IS PROVIDED BY TWO (M-6) MICRO BIO-RETENTION PRACTICES AND ONE (F-6) BIO-RETENTION FACILITY. THESE PRACTICES SHALL BE PRIVATELY OWNED AND JOINTLY MAINTAINED.
- 27.) WP-15-153, TO WAIVE SECTION 16.146 AND SECTION 16.1202(G) OF THE HOWARD COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS WAS APPROVED ON JUNE 16, 2015 WITH THE FOLLOWING CONDITIONS:
 - A. THE PETITIONER SHALL SUBMIT TO DPZ A PRELIMINARY PLAN IN ACCORDANCE WITH S-11-002 AND THE REQUIREMENTS OF SECTION 16.146 OF THE COUNTY CODE ON OR BEFORE JUNE 5, 2016. THIS PLAN MAY OMIT THE AREA WITHIN THE LIMITS OF THE BLUFFS AT TURF VALLEY, RESORT ROAD EXTENSION FINAL SUBDIVISION PLAN.
 - B. THE PETITIONER SHALL INDICATE THE BULK PARCELS RECORDED AS PART OF THE FINAL SUBDIVISION PLAN FOR THE BLUFFS AT TURF VALLEY, RESORT ROAD EXTENSION AS NON-BUILDABLE.
 - C. THE PETITIONER SHALL SUBMIT A FOREST CONSERVATION PLAN TO INCLUDE THE RELATED DATA WITHIN THE LIMITS OF DISTURBANCE OF THE FINAL SUBDIVISION PLAN SUBMITTED FOR THE BLUFFS AT TURF VALLEY, RESORT ROAD EXTENSION UPON SUBMISSION OF THE FIRST OF THE FOLLOWING:
 1. A FINAL SUBDIVISION PLAN SUBDIVIDING PARCEL 706
 2. A FINAL SUBDIVISION PLAN RESUBDIVIDING BULK PARCELS RECORDED AS PART OF THE BLUFFS AT TURF VALLEY, RESORT ROAD EXTENSION OR
 3. A SITE DEVELOPMENT PLAN LOCATED ON PARCEL 706.
- 28.) THIS PROJECT IS SUBJECT TO THE AMENDED FIFTH EDITION OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS AND THE 2ND AMENDMENT TO THE TURF VALLEY RESIDENTIAL SUBDISTRICT FINAL DEVELOPMENT PLAN.
- 29.) RESORT ROAD IS CLASSIFIED AS A LOCAL ROAD PER THE HOWARD COUNTY GENERAL PLAN. IT SHALL BE DESIGNED AND CONSTRUCTED AS A MINOR COLLECTOR.
- 30.) BULK PARCELS 'A' AND 'B' SHALL BE RE-SUBDIVIDED UNDER A FUTURE PHASE.
- 31.) WP-16-029, TO WAIVE SECTION 16.1205(A)(1) OF THE HOWARD COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS WAS APPROVED ON SEPTEMBER 15, 2015 WITH THE FOLLOWING CONDITION:
 1. THE PETITIONER SHALL PLANT TWO SHADE TREES AS REPLACEMENTS FOR THE SPECIMEN TREES REMOVED. THE REPLACEMENT PLANTINGS SHALL BE ADDED TO THE F-16-009 LANDSCAPE PLAN OR TO LANDSCAPE PLANS SUBMITTED AS PART OF THE FUTURE BLUFFS AT TURF VALLEY SUBDIVISION, LANDSCAPING SURETY SHALL BE POSTED FOR THE REPLACEMENT PLANTINGS.

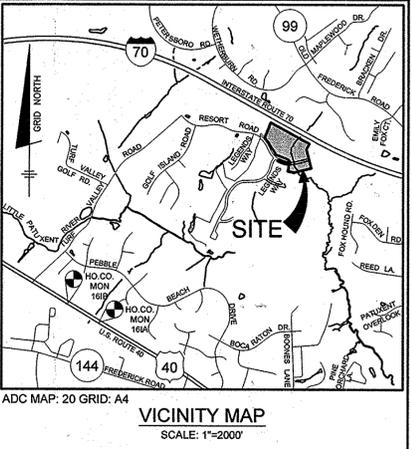
ROAD CONSTRUCTION PLANS

THE BLUFFS AT TURF VALLEY

RESORT ROAD EXTENSION

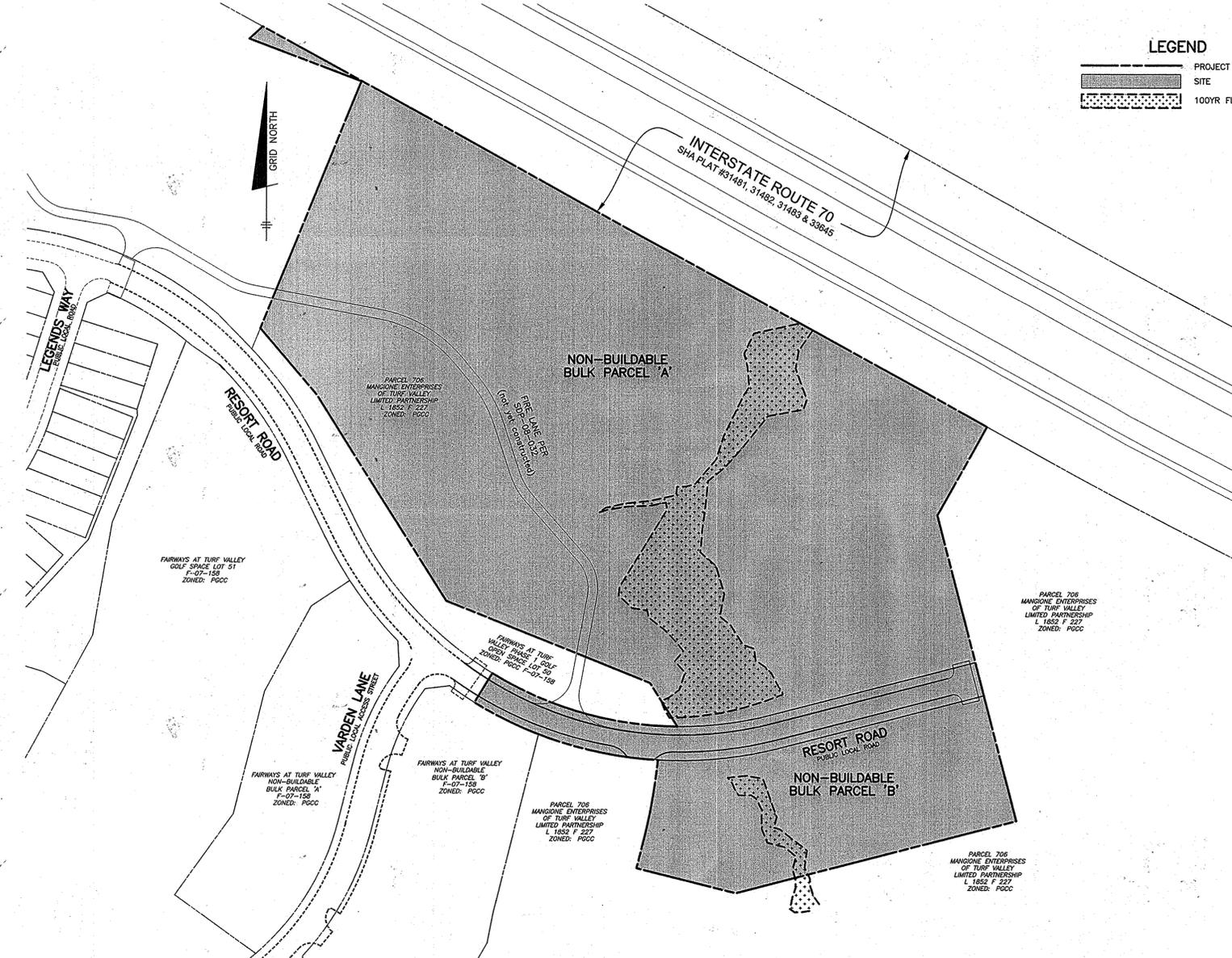
HOWARD COUNTY, MARYLAND

BENCHMARKS			
NUMBER	NORTHING	EASTING	DESCRIPTION
161A	589,509.3676	1,348,343.632	462.988 RT. 40 0.35 MILES WEST OF RT-144 JOINT
161B	590,475.2538	1,344,753.9350	469.892 RT. 40 0.8 MILES EAST OF MARRIOTTSVILLE ROAD



LEGEND	
	PROJECT BOUNDARY
	SITE
	100YR FLOODPLAIN LIMIT

SHEET INDEX	
SHEET	TITLE
1	TITLE SHEET
2	ROAD PLAN, PROFILE AND DETAILS
3	STRIPING, SIGNAGE, & STREET LIGHTING PLAN AND CURB FILLET PROFILES
4	STORM DRAIN DRAINAGE AREA MAP
5	100YR FLOODPLAIN CROSS-SECTION & ELEVATION PLAN
6	STORM DRAIN PROFILES AND DETAILS
7	TWIN 60" CULVERT PROFILE AND DETAILS
8	ESD STORMWATER MANAGEMENT NOTES AND DETAILS
9	ESD STORMWATER MANAGEMENT NOTES AND DETAILS
10	LANDSCAPE PLAN
11	GRADING, SEDIMENT & EROSION CONTROL PLAN
12	SEDIMENT & EROSION CONTROL NOTES AND SEQUENCE OF CONSTRUCTION
13	SEDIMENT & EROSION CONTROL DETAILS
14	TEMPORARY STREAM DIVERSION PLAN & DETAILS
15	SOIL BORING LOGS



SITE ANALYSIS DATA CHART

GENERAL SITE DATA

- 1.) PRESENT ZONING: PGCC
- 2.) APPLICABLE DPZ FILE REFERENCES: S-86-13, S-11-002, ECP-11-053, ECC-11-062, F-07-158, WP-15-153, WP-16-029
- 3.) PROPOSED USE OF SITE: PUBLIC ROAD
- 4.) PROPOSED WATER AND SEWER SYSTEMS: PUBLIC

AREA TABULATION

- 1.) GROSS TRACT AREA: 16.19± AC.
- 2.) AREA WITHIN 100-YEAR FLOODPLAIN: 1.27± AC.
- 3.) TOTAL AREA OF 25% OR GREATER STEEP SLOPES (AREA NOT IN FLOODPLAIN FOR NTA CALC): 0.78± AC.
- 4.) NET TRACT AREA: 14.14± AC.
- 5.) TOTAL NUMBER OF LOTS ALLOWED PER ZONING: N/A
- 6.) TOTAL NUMBER OF RESIDENTIAL UNITS/LOTS PROPOSED ON THIS SUBMISSION: 0
- 7.) AREA OF BUILDABLE LOTS: 0
- 8.) AREA OF OPEN SPACE LOTS: 0
- 9.) AREA OF BULK PARCELS: 15.33± AC.
- 10.) AREA OF PUBLIC RIGHT-OF-WAY: 0.86± AC.

NO.	DATE	REVISION

BENCHMARK ENGINEERING, INC.
 8480 BALTIMORE NATIONAL PIKE & SUITE 315 A ELLICOTT CITY, MARYLAND 21043
 (P) 410-465-6105 (F) 410-465-6844
 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 # 16000, Exp. Date: 6-30-17

THE BLUFFS AT TURF VALLEY
RESORT ROAD EXTENSION
 NON-BUILDABLE BULK PARCELS 'A' AND 'B'
 A SUBDIVISION OF PART OF PARCEL 706

TAX MAP: 17 - GRID: 13 - PARCEL: p/o 706
 ZONED: PGCC
 ELECTION DISTRICT NO. 2 - HOWARD COUNTY, MARYLAND

TITLE SHEET

DATE: SEPTEMBER, 2015 BEI PROJECT NO. 2697
 DESIGN: DBT DRAFT: DBT SCALE: AS SHOWN SHEET 1 OF 15

APPROVED: DEPARTMENT OF PUBLIC WORKS

[Signature] 10/19/15
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

[Signature] 10-22-15
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

[Signature] 10-19-15
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

SWM DESIGN NARRATIVE:

NATURAL RESOURCES SHALL BE PRESERVED AS NO RESOURCES ARE BEING IMPACTED BY THE IMPLEMENTATION OF THE SWM ESD PRACTICES.

EXISTING FLOW PATTERNS SHALL BE MAINTAINED. THE SITE HAS A STREAM BI-SECTING IT THAT FLOWS FROM THE NORTH TO THE SOUTH. THE ESD PRACTICE UNDERDRAINS SHALL DISCHARGE TOWARDS THE STREAM CHANNEL. THIS MIMICS THE EXISTING DRAINAGE PATTERN.

IMPERVIOUS AREA IS BEING HELD TO A MINIMUM BY UTILIZING THE SMALLEST ROAD PAVEMENT WIDTH (24 FEET) ALLOWED BASED ON ROAD CLASSIFICATION.

SEDIMENT AND EROSION CONTROL SHALL BE PROVIDED MAINLY THROUGH THE IMPLEMENTATION OF SUPER SILT FENCES AROUND THE PERIMETER EDGE. OFF-SITE DRAINAGE SHALL BE BYPASSED AROUND THE SITE VIA CLEAN WATER DIVERSION DIKES OR THROUGH THE SITE VIA DIKES DISCHARGING TO A TEMPORARY DIVERSION PIPE. NO TRAPS OR BASINS SHALL BE NEEDED. THERE ARE NO IMPACTS TO SWM DESIGN BASED ON SEDIMENT AND EROSION CONTROL.

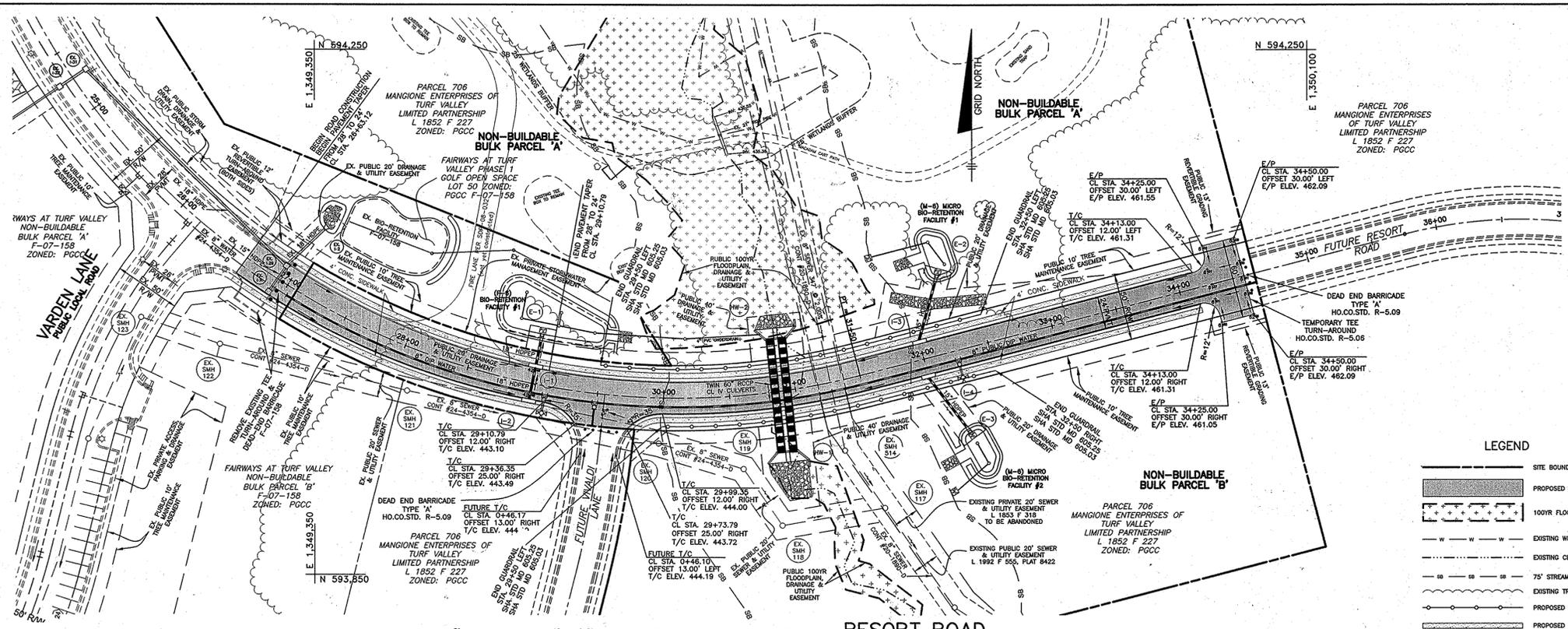
THE PROPOSED TWO (M-6) MICRO BIO-RETENTION PRACTICES AND ONE (F-6) BIO-RETENTION PRACTICE ADEQUATELY TREAT THE PROPOSED IMPERVIOUS AREAS. THE PRACTICES SHALL ALL DISCHARGE AT A LOCATION THAT IS NOT DETRIMENTAL TO THE ADJACENT PROPERTIES. INLETS SHALL BE PLACED IN THE MB'S WHERE HIGHER STORMS MIGHT CREATE OVERFLOW ISSUES. FULL TREATMENT IS BEING PROVIDED THEREFORE THIS PROJECT CAN BE CONSIDERED TO BE TREATED TO THE MAXIMUM EXTENT PRACTICAL.

ESD STORMWATER MANAGEMENT SUMMARY TABLE													
Practice	DA to practice (sf)	Imp Area to practice (sf)	Pe	Qe	Af (s.f.)			ESDv			REV		Ownership
					Required	Provided	2% DA?	Required	Provided	Pe Provided	Required	Provided	
(M-6) MicroBioRetention #1	12,651	4,520	1.8	0.74	253	460	PASS	594	593	1.8	459 of or 0.13 acres	461 cf	Private
(M-6) MicroBioRetention #2	13,732	4,520	1.8	0.86	275	448	PASS	564	568	1.8			Private
(F-6) BioRetention #1	30,701	18,371	1.9	1.12	614	1988	PASS	2151	2289	1.9			Private
Total Treated	57,084	27,411			1142	2896		3298	3450				

* Required ESDv for Bio-Retentions and Micro Bio-Retentions is based on 75% of total ESDv/calculated per MDE treatment criteria
 Rev is met via 7" stone chamber below outlet pipe in F-6 Bio-Retention Facility

THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS/BUREAU OF ENGINEERING/CONSTRUCTION INSPECTION DIVISION AT 410-313-1880 AT LEAST FIVE (5) WORKING DAYS PRIOR TO THE START OF WORK.

THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.



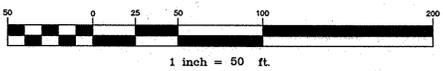
ROAD CHART				
ROAD	LIMITS	CLASSIFICATION	DESIGN SPEED	PVMT TYPE
RESORT ROAD	26+92.88 TO 34+50.00	PUBLIC LOCAL ROAD	35 MPH	P-3

CENTER LINE CURVE DATA						
CURVE	STATION	RADIUS	ARC	DELTA	TANGENT	CHORD
1	26+92.88 TO 31+50.00	550.00'	457.12'	47°37'14"	242.70'	S80°44'15"E 444.08'

CENTER CONTROL DATA		
STATION	NORTHING	EASTING
26+82.88	594073.98	1349323.64
29+55.51	593987.60	1349569.03
31+50.00	594002.50	1349761.93
34+50.00	594071.85	1350052.31

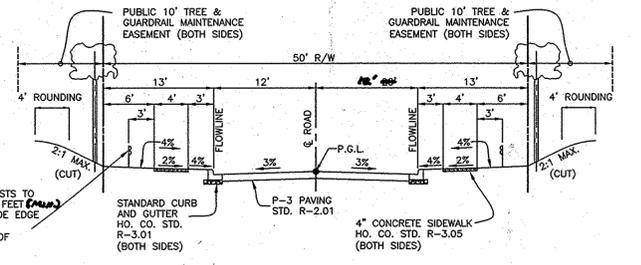
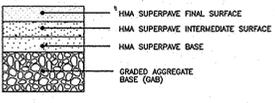
RESORT ROAD
PUBLIC LOCAL ROAD
DESIGNED AS MINOR COLLECTOR
DESIGN SPEED: 35 MPH

- LEGEND**
- SITE BOUNDARY
 - PROPOSED PAVING
 - 100YR FLOODPLAIN LIMIT
 - EXISTING WETLANDS
 - EXISTING CL STREAM
 - 75' STREAM BUFFER
 - EXISTING TREE LINE
 - PROPOSED GUARDRAIL
 - PROPOSED SIDEWALK

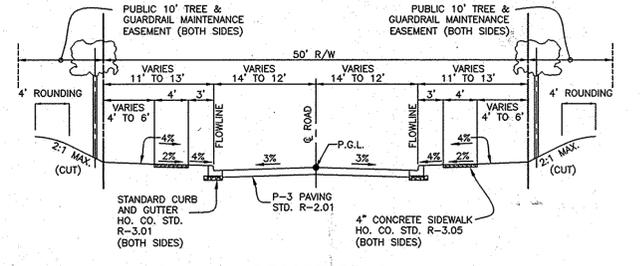


SECTION NUMBER	ROAD AND STREET CLASSIFICATION	CALIFORNIA BEARING RATIO (CBR)			
		3 TO <5	5 TO <7	>7	3 TO <5
P-3	PARKING DRIVE ASILES: RESIDENTIAL AND NON-RESIDENTIAL WITH NO MORE THAN 10 HEAVY TRUCKS PER DAY LOCAL: ACCESS PLACE, ACCESS STREET CUL-DE-SACS: NON-RESIDENTIAL MINOR COLLECTORS RESIDENTIAL	PAVEMENT MATERIAL (INCHES)			
		HMA SUPERPAVE FINAL SURFACE			
		MIN HMA WITH GAB			
		HMA WITH CONSTANT GAB			
		1.5	1.5	1.5	1.5
		1.0	1.0	1.0	1.0
		3.0	3.0	3.0	4.5
		10.0	8.0	3.0	6.0

P-3 PAVING DETAIL

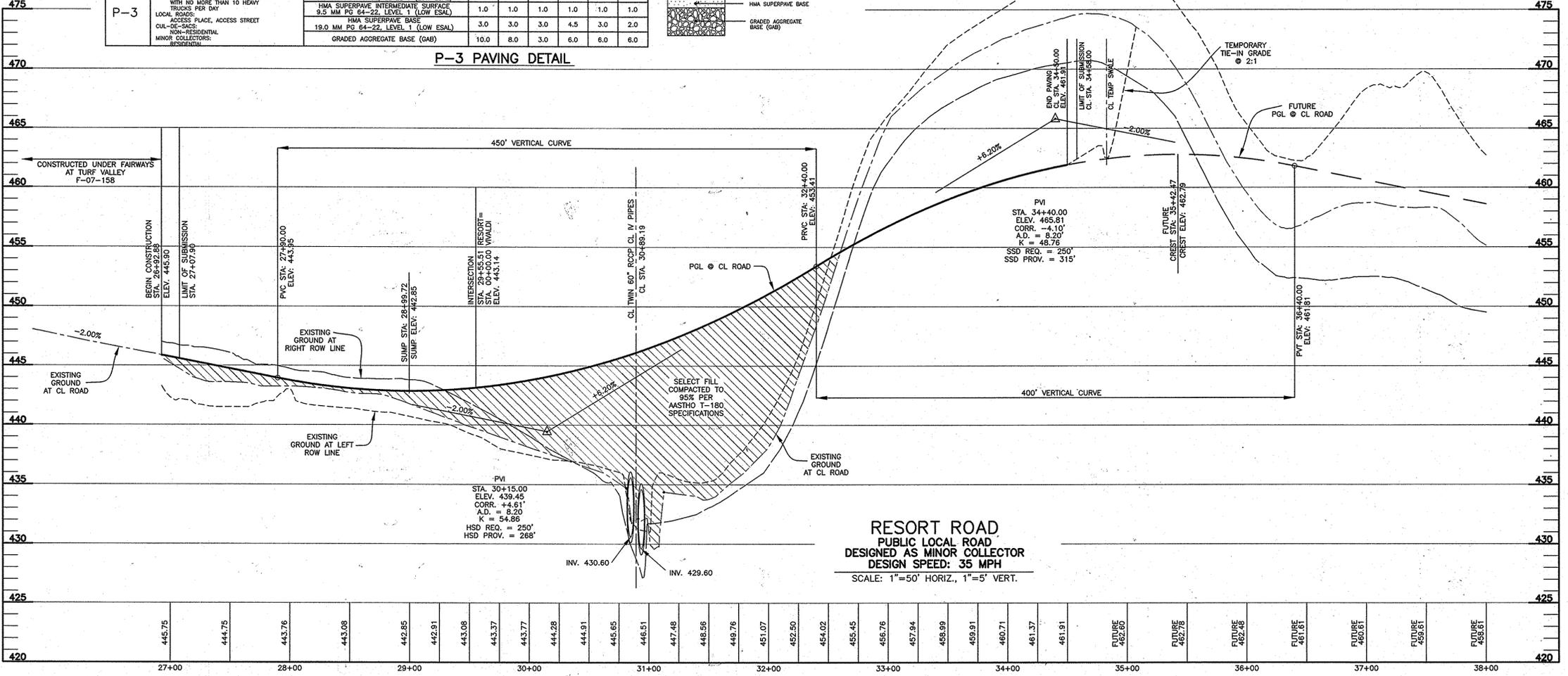


RESORT ROAD
STA. 29+10.79 TO 34+13.00
TYPICAL ROADWAY SECTION
PUBLIC LOCAL ROAD
DESIGNED AS MINOR COLLECTOR
DESIGN SPEED: 35 MPH
SCALE: 1" = 10'



RESORT ROAD
STA. 26+63.12 TO 29+10.79
TYPICAL ROADWAY SECTION
PUBLIC LOCAL ROAD
DESIGNED AS MINOR COLLECTOR
DESIGN SPEED: 35 MPH
SCALE: 1" = 10'

APPROVED: DEPARTMENT OF PUBLIC WORKS
Muenich 10/19/2015
CHIEF, BUREAU OF HIGHWAYS
APPROVED: DEPARTMENT OF PLANNING AND ZONING
Kesteloh 10-22-15
CHIEF, DIVISION OF LAND DEVELOPMENT
W. E. Hall 10/19/15
CHIEF, DEVELOPMENT ENGINEERING DIVISION



RESORT ROAD
PUBLIC LOCAL ROAD
DESIGNED AS MINOR COLLECTOR
DESIGN SPEED: 35 MPH
SCALE: 1"=50' HORIZ., 1"=5' VERT.

NO.	DATE	REVISION

BENCHMARK ENGINEERING, INC.
ENGINEERS & LAND SURVEYORS & PLANNERS
8450 BALTIMORE NATIONAL PIKE & SUITE 315 A BELLOTT CITY, MARYLAND 21043
(P) 410-485-8105 (F) 410-485-8644
WWW.BE-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. 22268-Ex-01, Issue Date: 6-30-2017.

THE BLUFFS AT TURF VALLEY
RESORT ROAD EXTENSION
NON-BUILDABLE BULK PARCELS 'A' AND 'B'
A SUBDIVISION OF PART OF PARCEL 706

TAX MAP: 17 - GRID: 13 - PARCEL: p/o 706
ZONED: PGCC
ELECTION DISTRICT NO. 2 - HOWARD COUNTY, MARYLAND

ROAD PLAN, PROFILE AND DETAILS

OWNER: MANGIONE ENTERPRISES OF TURF VALLEY, LIMITED PARTNERSHIP
1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093 410-825-8400

DEVELOPER: MANGIONE ENTERPRISES OF TURF VALLEY, LIMITED PARTNERSHIP
1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093 410-825-8400

DATE: SEPTEMBER, 2015 BEI PROJECT NO. 2697
DESIGN: DBT DRAFT: DBT SCALE: AS SHOWN SHEET 2 OF 15

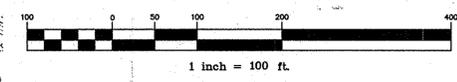
NRCS SOILS CHART - HoCo Soils Map No. 12				MAP UNIT NAME
GbA	HYDRIC	GROUP	Kw	B
GbB			0.28	GLADSTONE LOAM, 0 TO 3 PERCENT SLOPES
GbC			0.28	GLADSTONE LOAM, 3 TO 8 PERCENT SLOPES
GbC			0.28	GLADSTONE LOAM, 8 TO 15 PERCENT SLOPES
GbB*	YES	C	0.43	GLENNVILLE-BAILE SILT LOAM, 0 TO 8 PERCENT SLOPES
BaA*	YES	D	0.43	BAILE SILT LOAM, 0 TO 3 PERCENT SLOPES
GIB		B	0.28	GLADSTONE-URBAN LAND COMPLEX, 0 TO 8 PERCENT SLOPES
GIC		B	0.28	GLADSTONE-URBAN LAND COMPLEX, 8 TO 15 PERCENT SLOPES
UaF			-	UDORTHERTS, HIGHWAY, 0 TO 65 PERCENT

LEGEND

- DRAINAGE AREA
- ZONING LINE
- TRAVEL PATH
- EXISTING TOPOGRAPHY ON-SITE (AERIAL)
- OFF-SITE (HO.CO. GIS)
- EXISTING TREELINE
- NRCS SOILS LINE
- NRCS SOILS TYPE
- 100YR FLOODPLAIN
- HW-3 DRAINAGE AREA DESIGNATION

PHASE	INLET #	ZONING (Z)	SUBAREA (B)	AREA (Ac) (A)	"C" FACTOR (C)-25	% IMPERVIOUS (P)-25
NA	I-1	PGCC	NA	0.29	0.86	100.0
NA	I-2	PGCC	NA	0.30	0.86	100.0
NA	I-3	PGCC	NA	0.16	0.86	100.0
NA	I-4	PGCC	NA	0.16	0.86	100.0

NOTE:
SEE SHEET 5 FOR 100-YEAR FLOODPLAIN CROSS-SECTION AND ELEVATION INFORMATION

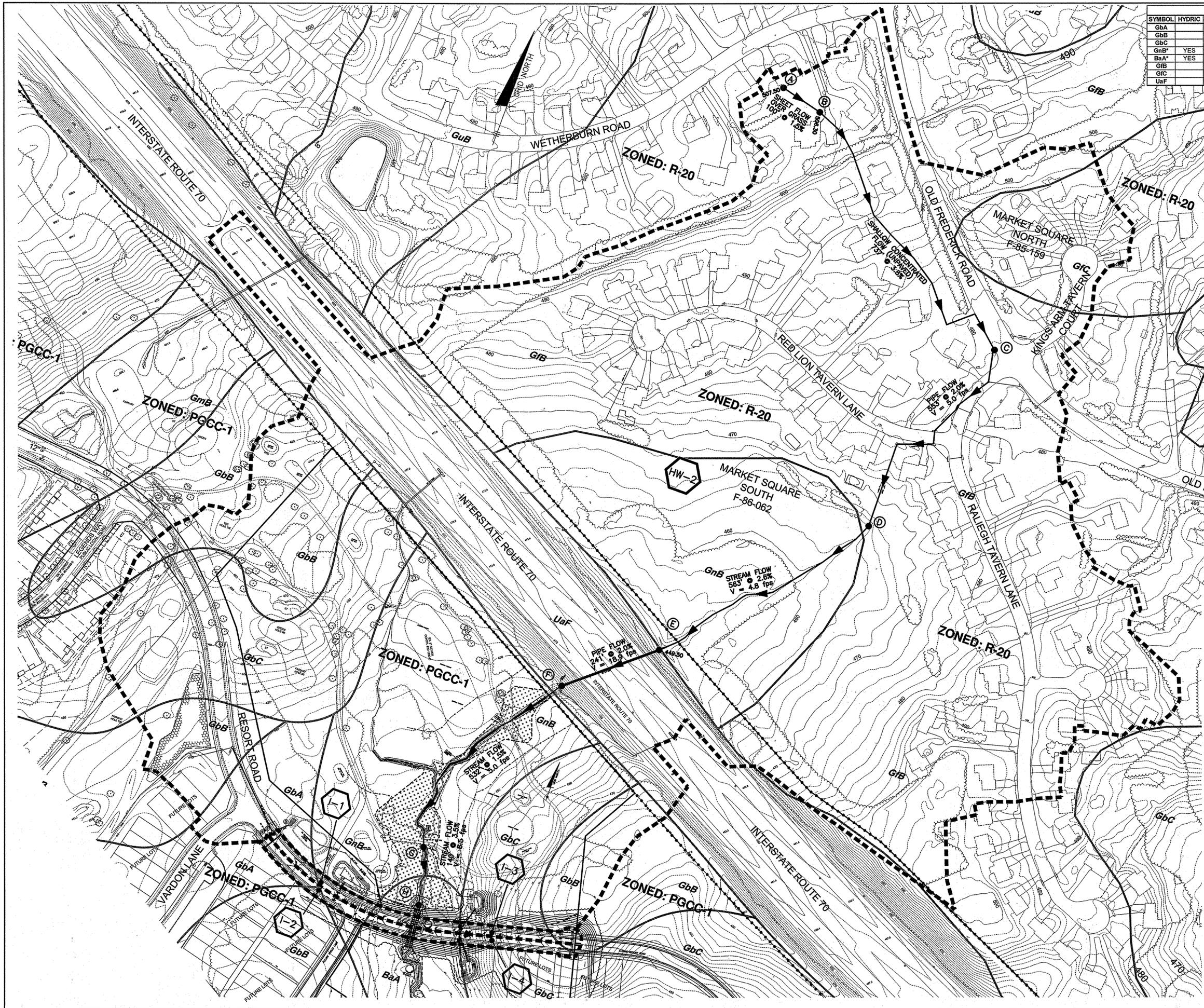


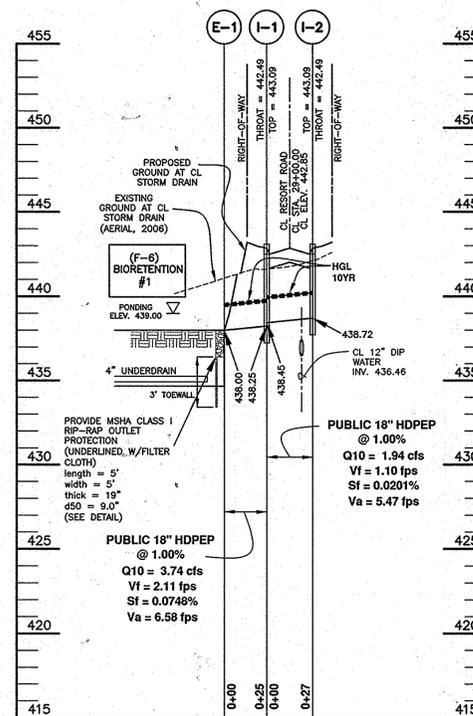
APPROVED: DEPARTMENT OF PUBLIC WORKS
M. Meunier 10/19/2015
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Robert S. ... 10-22-15
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

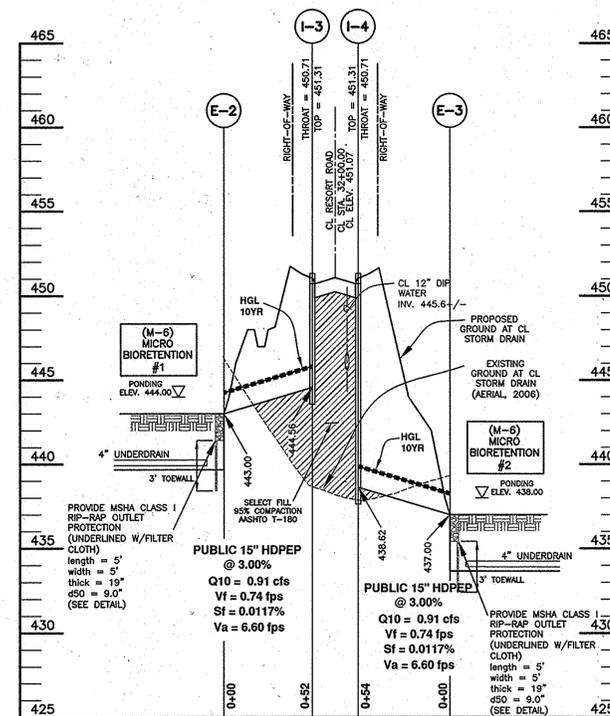
David ... 10-19-15
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

NO. DATE REVISION	
BENCHMARK ENGINEERS & LAND SURVEYORS & PLANNERS ENGINEERING, INC. 8480 BALTIMORE NATIONAL PIKE & SUITE 315 & ELLICOTT CITY, MARYLAND 21043 (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. 22390, Expiration Date: 6-30-2017.	
OWNER: MANGIONE ENTERPRISES OF TURF VALLEY, LIMITED PARTNERSHIP 1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093 410-825-8400	THE BLUFFS AT TURF VALLEY RESORT ROAD EXTENSION NON-BUILDABLE BULK PARCELS 'A' AND 'B' A SUBDIVISION OF PART OF PARCEL 706 TAX MAP: 17 - GRID: 13 - PARCEL: p/o 706 ZONED: PGCC ELECTION DISTRICT NO. 2 - HOWARD COUNTY, MARYLAND
DEVELOPER: MANGIONE ENTERPRISES OF TURF VALLEY, LIMITED PARTNERSHIP 1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093 410-825-8400	STORM DRAIN DRAINAGE AREA MAP DATE: SEPTEMBER, 2015 BEI PROJECT NO. 2697 DESIGN: DBT DRAFT: DBT SCALE: AS SHOWN SHEET 4 OF 15





STORM DRAIN PROFILE
SCALE: 1" = 50' HORZ., 1" = 5' VERT.



STORM DRAIN PROFILE
SCALE: 1" = 50' HORZ., 1" = 5' VERT.

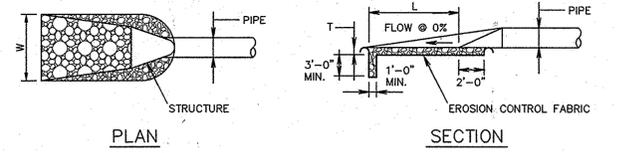
PIPE SCHEDULE			
SIZE	TYPE	LENGTH (L.F.)	MAINTENANCE
15"	HDPEP	106	PUBLIC
18"	HDPEP	52	PUBLIC
60"	RCCP CL IV	176	PUBLIC

All HDPEP pipes shall have smooth interior. No interior corrugations.

STRUCTURE TABLE									
STRUCTURE	TYPE	LOCATION	INVERT (IN)	INVERT (OUT)	TOP ELEV.	THROAT ELEV.	STD. DETAIL	INLET NOTES	MAINTENANCE
INLETS									
I-1	A-10	CL STA. 29+00 RESORT ROAD, OFFSET 12.09' LEFT	-	438.45 (18")	438.25 (18")	443.09	442.49	HO.CO.STD. D-4.03	3.0' WIDTH PUBLIC
I-2	A-10	CL STA. 29+00 RESORT ROAD, OFFSET 12.09' RIGHT	-	-	438.72 (18")	443.09	442.49	HO.CO.STD. D-4.03	3.0' WIDTH PUBLIC
I-3	A-10	CL STA. 32+00 RESORT ROAD, OFFSET 12.00' LEFT	-	-	444.56 (15")	451.31	450.71	HO.CO.STD. D-4.03	3.0' WIDTH PUBLIC
I-4	A-10	CL STA. 32+00 RESORT ROAD, OFFSET 12.00' RIGHT	-	-	438.62 (15")	451.31	450.71	HO.CO.STD. D-4.03	3.0' WIDTH PUBLIC
END SECTIONS & HEADWALLS									
E-1	18" HDPEP	N 594033.58 E 1349521.83	-	-	438.00	-	-	NA	PUBLIC
E-2	15" HDPEP	N 594078.56 E 1349820.04	-	-	443.00	-	-	NA	PUBLIC
E-3	15" HDPEP	N 593958.65 E 1349845.70	-	-	437.00	-	-	NA	PUBLIC
HW-1	CONCRETE	CL STA. 30+87.17 RESORT ROAD, OFFSET 54.60' RIGHT	-	-	-	-	-	NA	PUBLIC
HW-2	CONCRETE	CL STA. 30+91.34 RESORT ROAD, OFFSET 48.32' LEFT	432.00 (pipe 1)	431.00 (pipe 2)	429.00 (pipe 1)	428.00 (pipe 2)	-	NA	PUBLIC

STRUCTURE LOCATION FOR INLETS IS AT THE CENTER OF THE INLET FACE.
STRUCTURE LOCATION FOR THE END-SECTIONS/HEADWALLS IS AT THE MIDPOINT OF THE END OF THE STRUCTURE.
PRECAST STRUCTURES MEETING HS-20 LOADING MAY BE USED.

- CONSTRUCTION SPECIFICATIONS**
- THE SUBGRADE FOR THE FILTER, RIP-RAP, OR GABION SHALL BE PREPARED TO THE REQUIRED LINES AND GRADES. ANY FILL REQUIRED IN THE SUBGRADE SHALL BE COMPACTED TO A DENSITY OF APPROXIMATELY THAT OF THE SURROUNDING UNDISTURBED MATERIAL.
 - THE ROCK OR GRAVEL SHALL CONFORM TO THE SPECIFIED GRADING LIMITS WHEN INSTALLED RESPECTIVELY IN THE RIP-RAP OR FILTER.
 - GEOTEXTILE CLASS C28 OR BETTER SHALL BE PROTECTED FROM PUNCHING, CUTTING, OR TEARING. ANY DAMAGE OTHER THAN AN OCCASIONAL SMALL HOLE SHALL BE PREPARED BY PLACING ANOTHER PIECE OF GEOTEXTILE FABRIC OVER THE DAMAGED PART OR BY COMPLETELY REPLACING THE GEOTEXTILE FABRIC. ALL OVERLAPS WHETHER FOR REPAIRS OR FOR JOINING TWO PIECES OF GEOTEXTILE FABRIC SHALL BE A MINIMUM OF ONE FOOT.
 - STONE FOR THE RIP-RAP OR GABION OUTLETS MAY BE PLACED BY EQUIPMENT. THEY SHALL BE CONSTRUCTED TO THE FULL COURSE THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO AVOID DISPLACEMENT OF UNDERLYING MATERIALS. THE STONE FOR THE RIP-RAP OR GABION OUTLETS SHALL BE DELIVERED AND PLACED IN A MANNER THAT WILL ENSURE THAT IT IS REASONABLY HOMOGENOUS WITH THE SMALLER STONES AND SPALLS FILLING THE VOIDS BETWEEN THE LARGER STONES. RIP-RAP SHALL BE PLACED IN A MANNER TO PREVENT DAMAGE TO THE FILTER BLANKET OR GEOTEXTILE FABRIC. HAND PLACEMENT WILL BE REQUIRED TO THE EXTENT NECESSARY TO PREVENT DAMAGE TO THE PERMANENT WORKS.
 - THE STONE SHALL BE PLACED SO THAT IT BLENDS IN WITH THE EXISTING GROUND. IF THE STONE IS PLACED TOO HIGH THEN THE FLOW WILL BE FORCED OUT OF THE CHANNEL AND SCOUR ADJACENT TO THE STONE WILL OCCUR.



STRUCTURE	V10 fps	d10 (ft)	d50	LENGTH(L)	WIDTH(W)	THICK.(T)	SHA CLASS
E-1	NA	NA	9.0"	5'	5'	19"	I
E-2	NA	NA	9.0"	5'	5'	19"	I
E-3	NA	NA	9.0"	5'	5'	19"	I
HW-1	16.0	2.26'	16"	26'	CHANNEL	32"	II
HW-2	NA	NA	16"	10'	CHANNEL	32"	II

OUTLET PROTECTION DETAIL
NOT TO SCALE

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[Signature] 10/19/2015
 CHIEF, BUREAU OF HIGHWAYS

APPROVED: DEPARTMENT OF PLANNING AND ZONING
[Signature] 10-22-15
 CHIEF, DIVISION OF LAND DEVELOPMENT

APPROVED: DEPARTMENT OF ENGINEERING
[Signature] 10-19-15
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

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. 22390, Expiration Date: 6-30-2017.

BENCHMARK ENGINEERING, INC.
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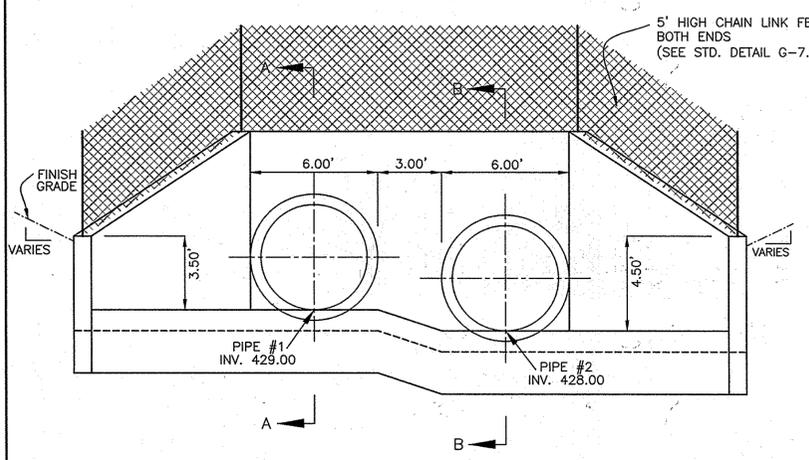
THE BLUFFS AT TURF VALLEY RESORT ROAD EXTENSION
 NON-BUILDABLE BULK PARCELS 'A' AND 'B'
 A SUBDIVISION OF PART OF PARCEL 706
 TAX MAP: 17 - GRID: 13 - PARCEL: p/o 706
 ZONED: PGCC
 ELECTION DISTRICT NO. 2 - HOWARD COUNTY, MARYLAND

STORM DRAIN PROFILES AND DETAILS

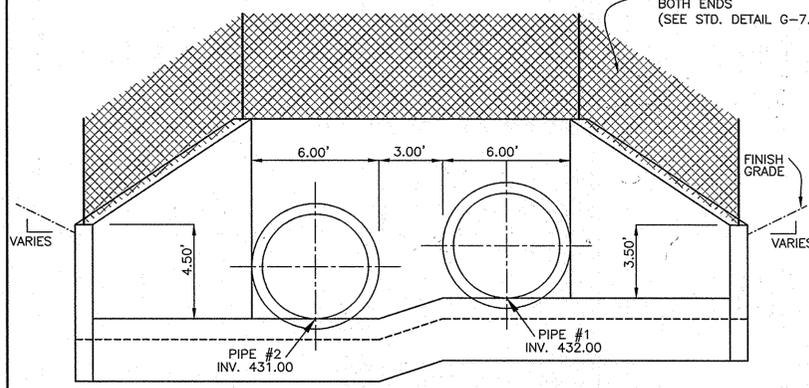
OWNER: MANGIONE ENTERPRISES OF TURF VALLEY, LIMITED PARTNERSHIP
 1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093
 410-825-8400

DEVELOPER: MANGIONE ENTERPRISES OF TURF VALLEY, LIMITED PARTNERSHIP
 1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093
 410-825-8400

DATE: SEPTEMBER, 2015 | BEI PROJECT NO. 2697
 DESIGN: DBT | DRAFT: DBT | SCALE: AS SHOWN | SHEET 6 OF 15



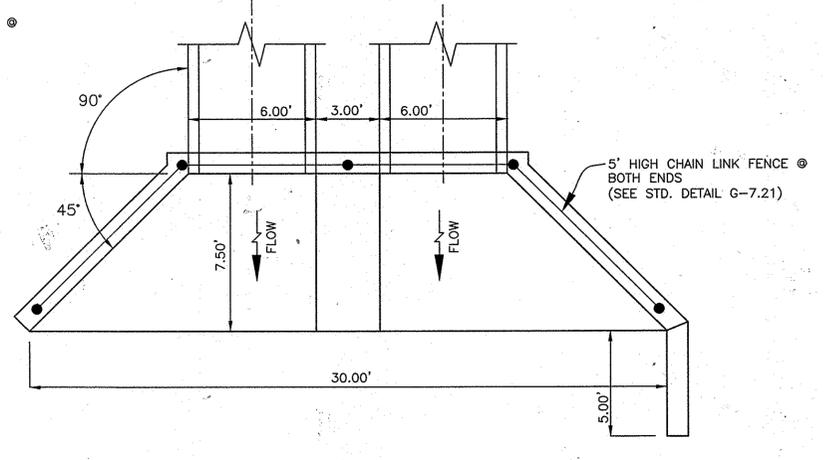
HW-1: LOOKING UPSTREAM



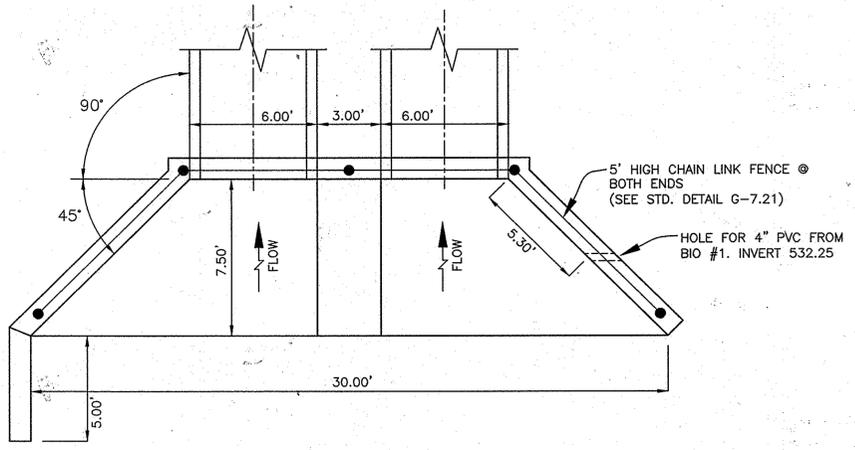
HW-2: LOOKING DOWNSTREAM

NOTE:
CONTRACTOR SHALL PROVIDE 3"-45° BEVEL
AROUND PIPE OPENINGS ON UP-STREAM
HEADWALL.

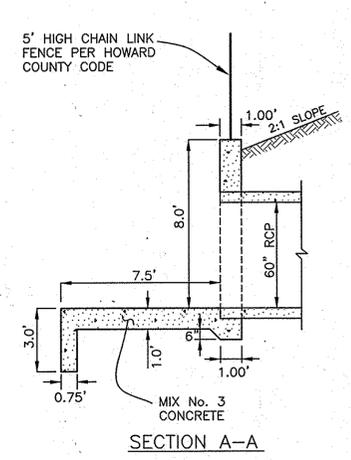
HW-1 AND HW-2 CONCRETE HEADWALL DETAIL
MODIFIED HO.CO.STD. D-5.11
SCALE: 1" = 4'



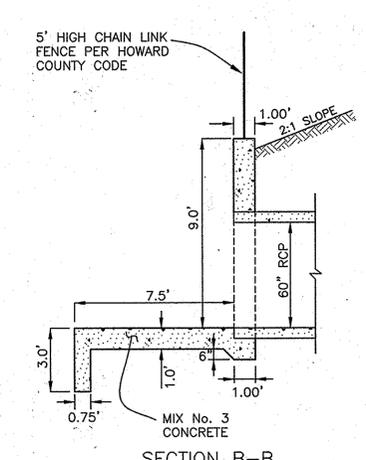
HW-1: PLAN VIEW



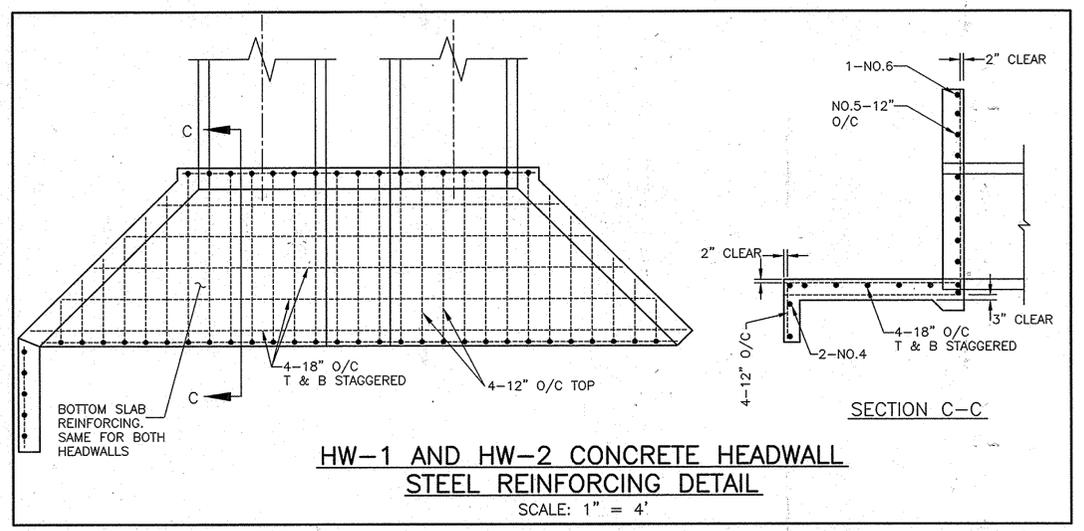
HW-2: PLAN VIEW



SECTION A-A



SECTION B-B



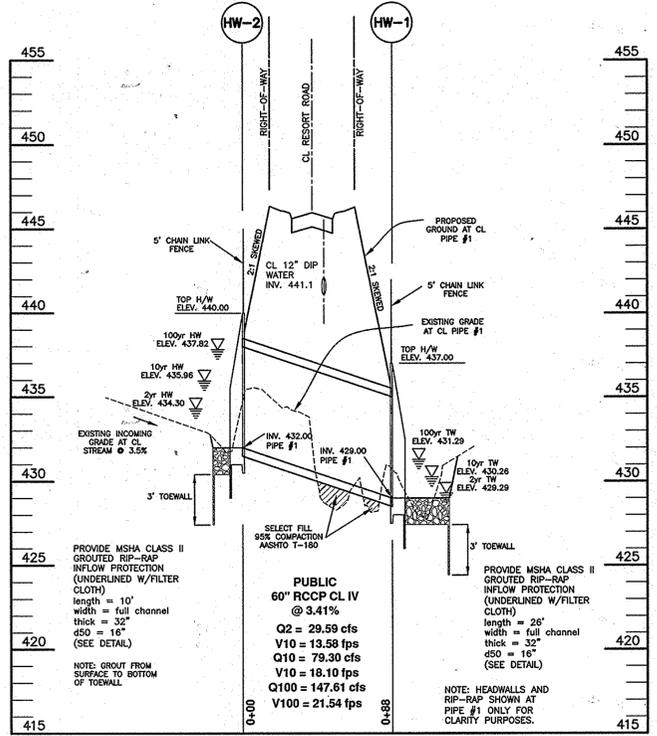
**HW-1 AND HW-2 CONCRETE HEADWALL
STEEL REINFORCING DETAIL**
SCALE: 1" = 4'

NOTE:
CONTRACTOR SHALL VARY REBAR SIZE AND SPACING ON
THE SHOP DRAWINGS.

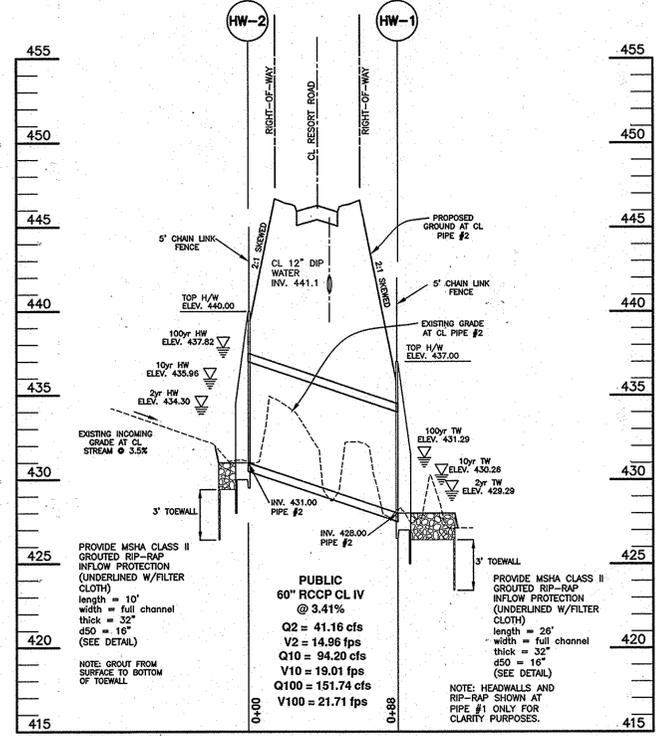
APPROVED: DEPARTMENT OF PUBLIC WORKS
[Signature] 10/19/15
CHIEF, BUREAU OF HIGHWAYS
DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
[Signature] 10-22-15
CHIEF, DIVISION OF LAND DEVELOPMENT
DATE

[Signature] 10-19-15
CHIEF, DEVELOPMENT ENGINEERING DIVISION
DATE



STORM DRAIN PROFILE - TWIN 60" CULVERT #1
SCALE: 1" = 50' HORIZ., 1" = 5' VERT.



STORM DRAIN PROFILE TWIN 60" CULVERT #2
SCALE: 1" = 50' HORIZ., 1" = 5' VERT.

NO.	DATE	REVISION

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OWNER: MANGIONE ENTERPRISES OF TURF VALLEY, LIMITED PARTNERSHIP 1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093 410-825-8400	<p>THE BLUFFS AT TURF VALLEY RESORT ROAD EXTENSION NON-BUILDABLE BULK PARCELS 'A' AND 'B' A SUBDIVISION OF PART OF PARCEL 706</p> <p>TAX MAP: 17 - GRID: 13 - PARCEL: p/o 706 ELECTION DISTRICT NO. 2 - HOWARD COUNTY, MARYLAND</p>	<p>Professional Engineer Seal</p>
DEVELOPER: MANGIONE ENTERPRISES OF TURF VALLEY, LIMITED PARTNERSHIP 1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093 410-825-8400	<p>TWIN 60" CULVERT PROFILE AND DETAILS</p>	
DESIGN: DBT	DATE: SEPTEMBER, 2015	BEI PROJECT NO. 2697
DRAFT: DBT	SCALE: AS SHOWN	SHEET 7 OF 15

CONSTRUCTION SPECIFICATIONS

B.4.C Specifications for Micro-Bioretenion, Rain Gardens, 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-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 and (60%-65%) and compost (35% to 40%) or sandy loam (30%), coarse sand (30%), and compost (40%).
- Clay Content - Media shall have a clay content of less than 5%.
- pH Range - Should be between 5.5 - 7.0. Amendments (e.g., lime, iron sulfate plus sulfur) may be mixed into the soil to increase or decrease pH.

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

3. Compaction:

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

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

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

When backfilling the topsoil over the sand layer, first place 3 to 4 inches of topsoil over the sand, then rototill the sand/topsoil to create a gradation zone. Backfill the remainder of the topsoil to final grade.

When backfilling the bioretention facility, place soil in lifts 12" to 18". Do not use heavy equipment within the bioretention basin. Heavy equipment can be used around the perimeter of the basin to supply soils and sand. Grade bioretention materials with light equipment such as a compact loader or a dozer/loader with marsh tracks.

4. Plant Material:

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

5. Plant Installation:

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

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

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

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

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

6. Underdrains:

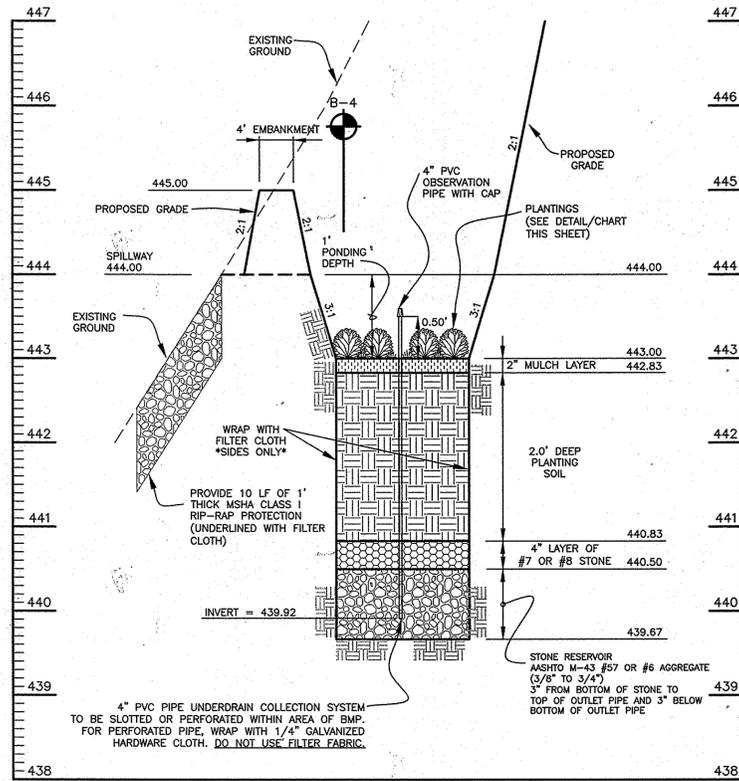
Underdrains should meet the following criteria:

- Pipe - Should be 4" to 6" diameter, slotted or perforated rigid plastic pipe (ASTM F 758, Type PS 28, or AASHTO-M-278) in a gravel layer. The preferred material is slotted, 4" rigid pipe (e.g., PVC or HDPE).
- Perforations - If perforated pipe is used, perforations should be 3/4" diameter located 6" on center with a minimum of four holes per row. Pipe shall be wrapped with a 7/4" (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 (3/4" to 1" stone) shall be located between the filter media and underdrain to prevent migration of fines into the underdrain. This layer may be considered part of the filter bed when bed thickness exceeds 24".

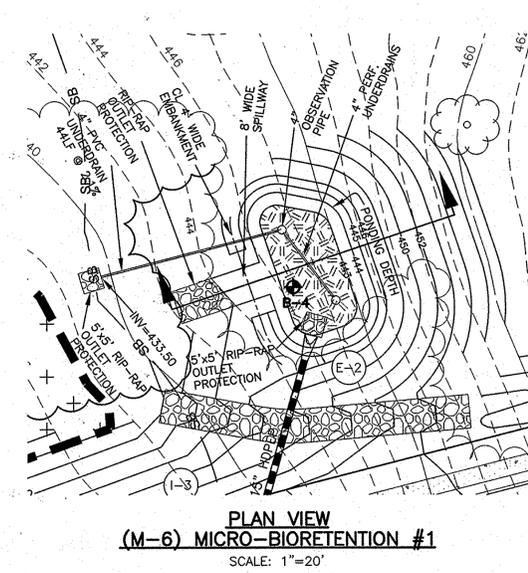
The main collector pipe for underdrain systems shall be constructed at a minimum slope of 0.5%. Observation wells and/or clean-out pipes must be provided (one minimum per every 1000 square feet of surface area).

7. Miscellaneous:

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

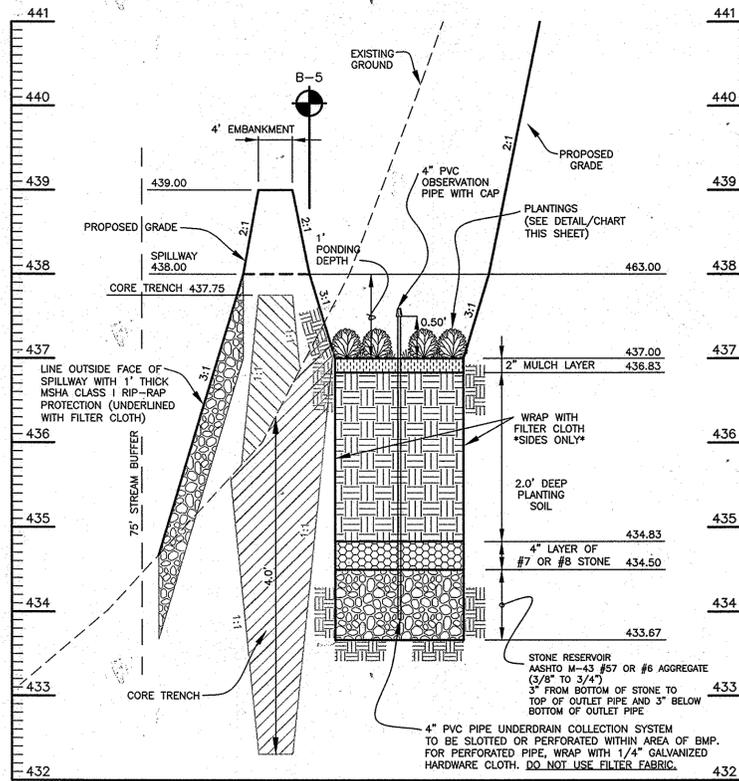


CROSS-SECTION THROUGH (M-6) MICRO-BIORETENTION #1
SCALE: 1"=10' HORIZ., 1"=1' VERT.

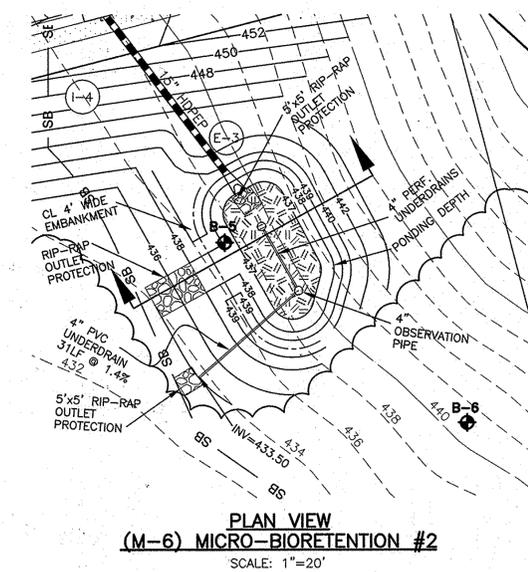


PLAN VIEW (M-6) MICRO-BIORETENTION #1
SCALE: 1"=20'

ESD PRACTICE INTERNAL LANDSCAPING CHART								
Facility square footage	PLANT NAME	COMMON NAME	TYPE	SIZE	BIO #1	MB #1	MB #2	TOTAL
					1988	460	448	2896
	Ilex verticillata	Common Winterberry	shrub	2.5'-3' ht	20	5	4	29
	Lobelia cardinalis	Cardinal flower	perennial herbaceous plant	quart bulb	133	31	30	193
	Lobelia siphilitica	Great Blue Lobelia	perennial herbaceous plant	quart bulb	133	31	30	193
	Carex stricta	Upright Sedge	grass	quart bulb	133	31	30	193
	Iris versicolor	Blue Water Iris	perennial herbaceous plant	quart bulb	133	31	30	193
	Liatris spicata	Prairie Gay Feather	perennial herbaceous plant	quart bulb	133	31	30	193

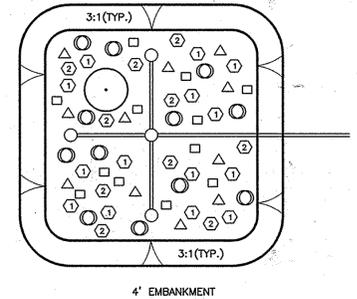


CROSS-SECTION THROUGH (M-6) MICRO-BIORETENTION #2
SCALE: 1"=10' HORIZ., 1"=1' VERT.



PLAN VIEW (M-6) MICRO-BIORETENTION #2
SCALE: 1"=20'

PLANTING LEGEND	
SYMBOL	NAME
①	LOBELIA CARDINALIS
②	LOBELIA SIPHILITICA
□	CAREX STRICTA
△	IRIS VERSICOLOR
○	LIATRIS SPICATA
●	ILEX VERTICILLATA



SCHEMATIC PLANTING DETAIL FOR (M-6) MICRO-BIORETENTION & (F-6) BIORETENTION FACILITIES
NOT TO SCALE

OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND JOINTLY MAINTAINED MICRO BIO-RETENTION (M-6) AND BIO-RETENTION (F-6),

Routine - (H.O.A.)

- Annual maintenance of plant material, mulch layer and soil layer is required. Maintenance of mulch and soil is limited to correcting areas of erosion or wash out. Any mulch replacement shall be done in the spring. Plant material shall be checked for disease and insect infestation and maintenance will address dead material and pruning. Acceptable replacement plant material is limited to the following: 2000 Maryland Stormwater Design Manual Volume II, Table A.4.1 and 2.
- Schedule of plant inspection will be twice a year in spring and fall. This inspection will include removal of dead and diseased vegetation considered beyond treatment, treatment of all diseased trees and shrubs and replacement of all deficient stakes and wires.
- Mulch shall be inspected each spring. Remove previous mulch layer before applying new layer once every 2 to 3 years.
- Soil erosion to be addressed on an as needed basis, with a minimum of once per month and after heavy storm events.

Non-Routine - (Howard County)

- Maintenance of public storm drain pipe and end-section from public right-of-way to facility.

APPROVED: DEPARTMENT OF PUBLIC WORKS
 [Signature] 10/19/2015
 CHIEF, BUREAU OF HIGHWAYS
 APPROVED: DEPARTMENT OF PLANNING AND ZONING
 [Signature] 10-22-15
 CHIEF, DIVISION OF LAND DEVELOPMENT
 [Signature] 10-19-15
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

NO. DATE REVISION

BENCHMARK ENGINEERING, INC.
 ENGINEERS & LAND SURVEYORS & PLANNERS
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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. 22384-0001, Issue: 6-30-2017.

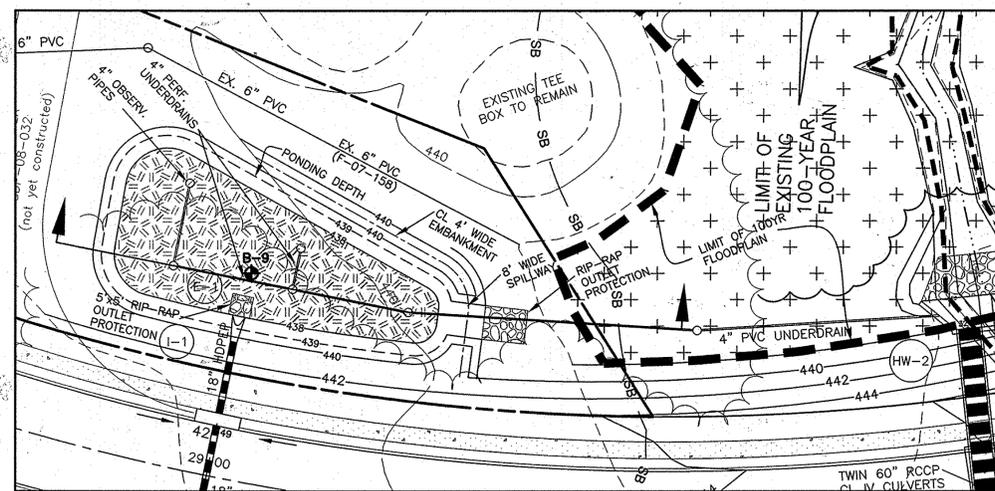
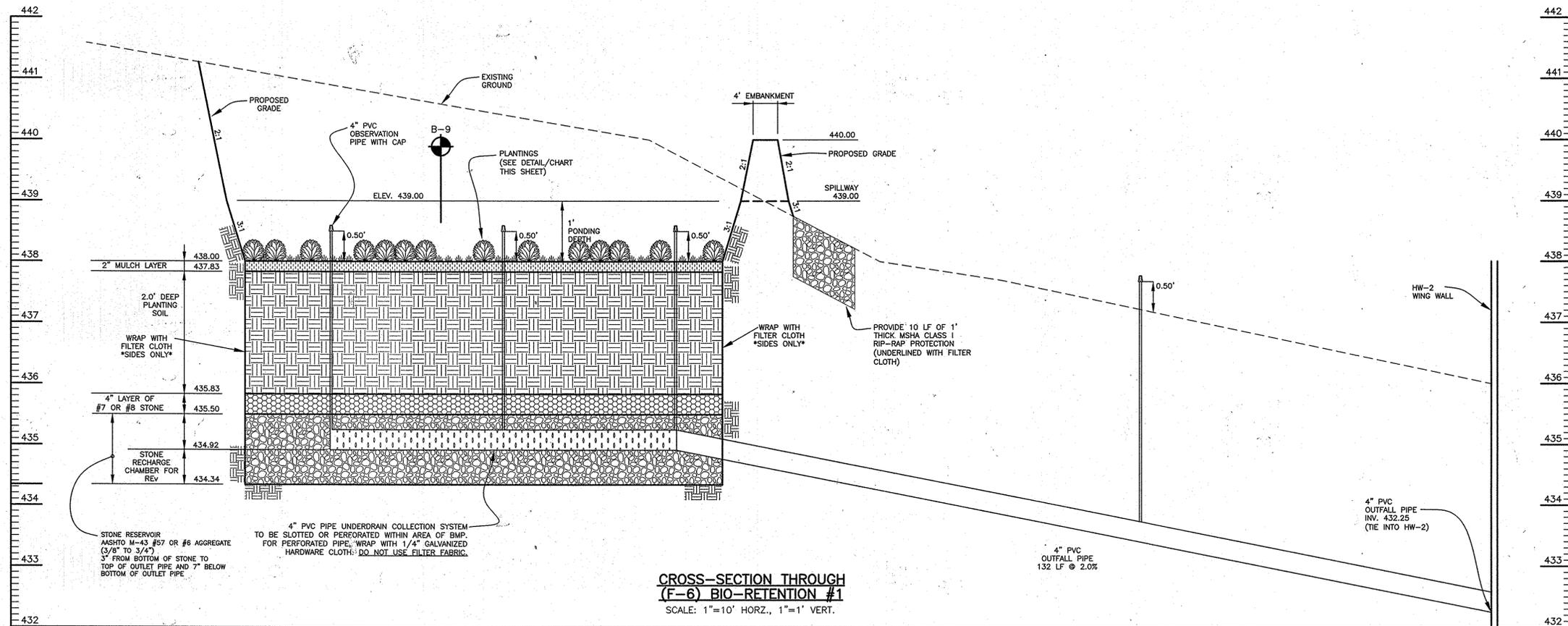
THE BLUFFS AT TURF VALLEY RESORT ROAD EXTENSION
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 A SUBDIVISION OF PART OF PARCEL 706
 TAX MAP: 17 - GRID: 13 - PARCEL: p/o 706
 ZONED: PGCC
 ELECTION DISTRICT NO. 2 - HOWARD COUNTY, MARYLAND

ESD STORMWATER MANAGEMENT NOTES AND DETAILS

OWNER: MANGIONE ENTERPRISES OF TURF VALLEY, LIMITED PARTNERSHIP
 1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093
 410-825-8400

DEVELOPER: MANGIONE ENTERPRISES OF TURF VALLEY, LIMITED PARTNERSHIP
 1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093
 410-825-8400

DATE: SEPTEMBER, 2015 BEI PROJECT NO. 2697
 SCALE: AS SHOWN SHEET 8 OF 15



NOTE:
SEE SHEET 8 FOR CONSTRUCTION SPECIFICATIONS, PLANTING SCHEDULE, AND OPERATION & MAINTENANCE SCHEDULE.

APPROVED: DEPARTMENT OF PUBLIC WORKS
 [Signature] 10/19/2015
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 [Signature] 10-22-15
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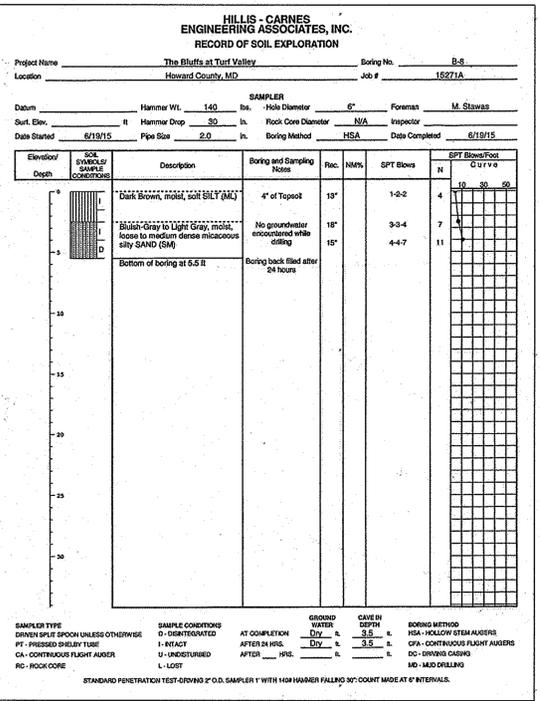
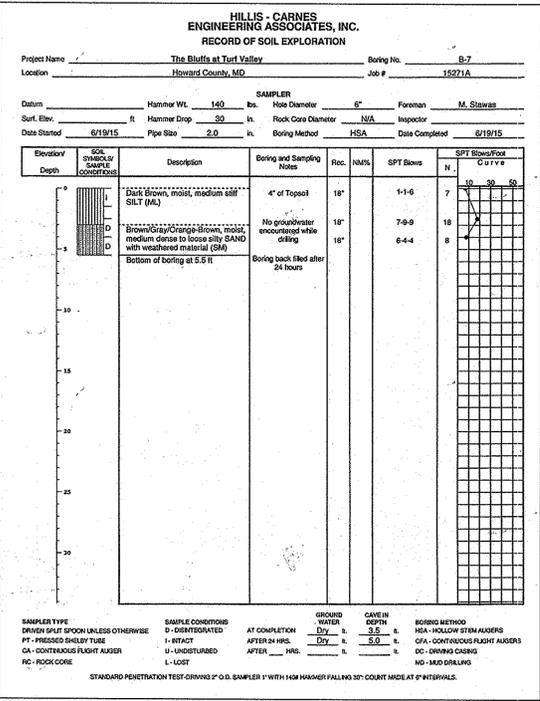
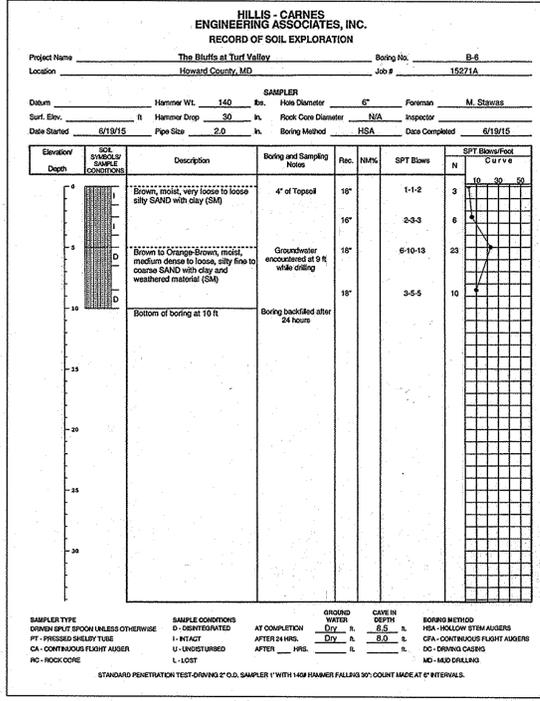
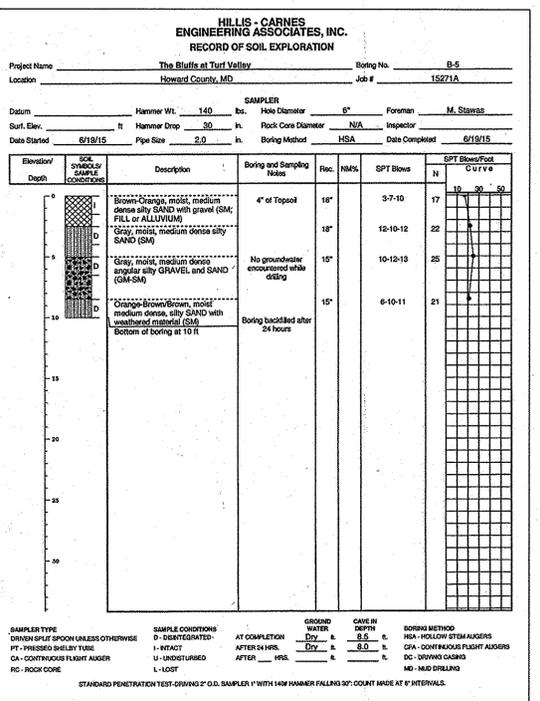
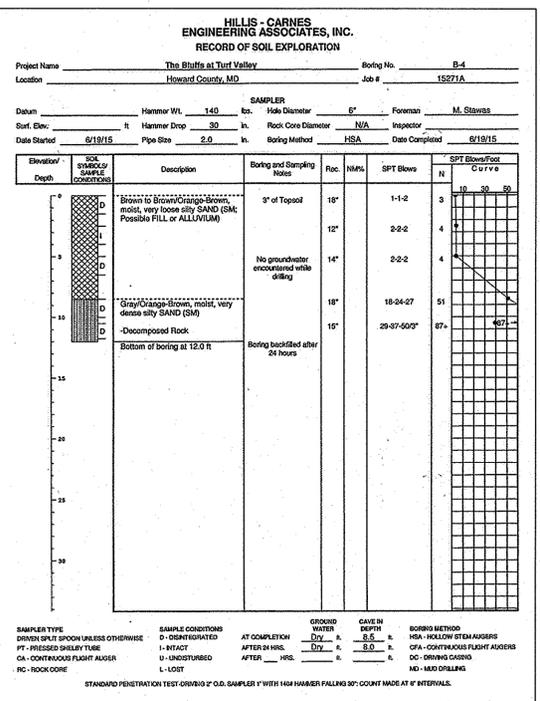
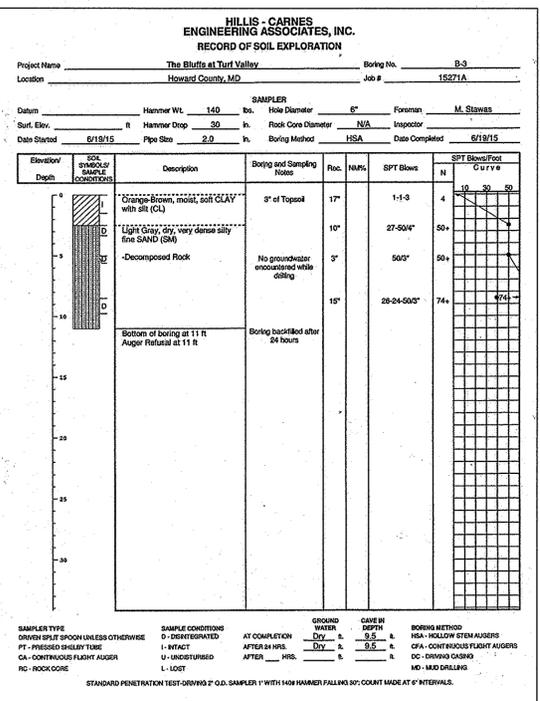
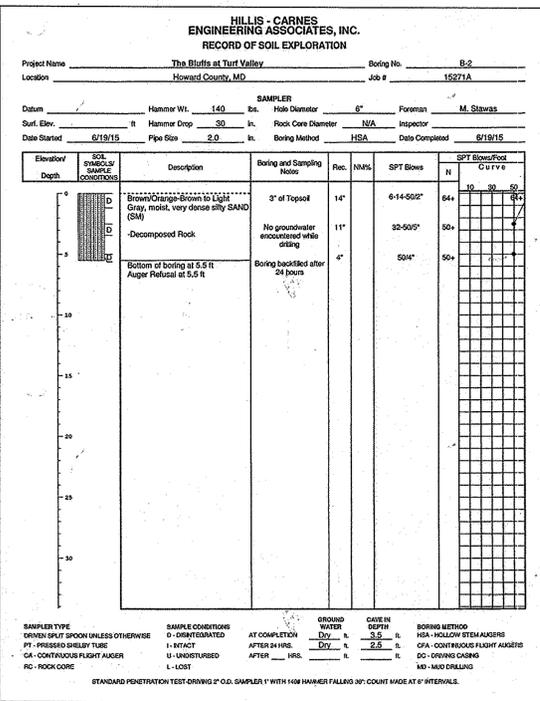
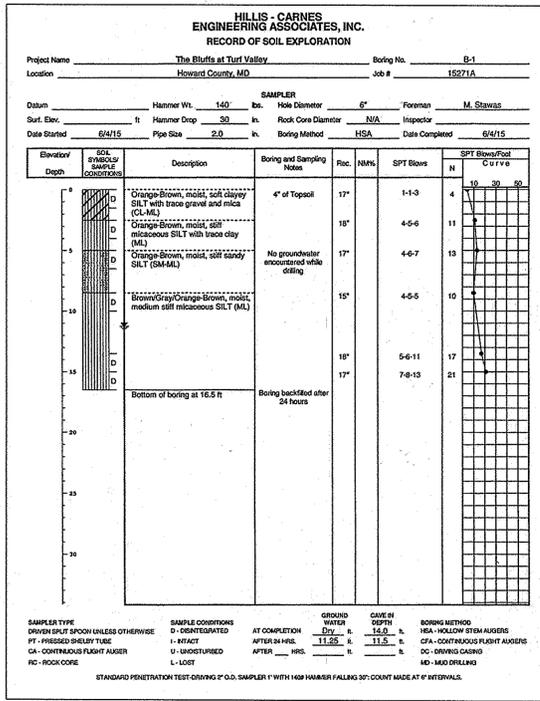
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Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland. License No. 22200. Expiration Date: 6-30-2017.

OWNER: MANGIONE ENTERPRISES OF TURF VALLEY, LIMITED PARTNERSHIP 1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093 410-825-8400	THE BLUFFS AT TURF VALLEY RESORT ROAD EXTENSION NON-BUILDABLE BULK PARCELS 'A' AND 'B' A SUBDIVISION OF PART OF PARCEL 706
DEVELOPER: MANGIONE ENTERPRISES OF TURF VALLEY, LIMITED PARTNERSHIP 1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093 410-825-8400	TAX MAP: 17 - GRID: 13 - PARCEL, p/o 706 ZONED: PGCC ELECTION DISTRICT NO. 2 - HOWARD COUNTY, MARYLAND
ESD STORMWATER MANAGEMENT NOTES AND DETAILS	
DESIGN: DBT	DATE: SEPTEMBER, 2015
DRAFT: DBT	BEI PROJECT NO. 2697
SCALE: AS SHOWN	SHEET 9 OF 15



NOTE: BORING #9 WAS DRILLED UNDER THE OBSERVATION AND INSPECTION OF BENCHMARK ENGINEERING, INC.

FIELD TEST BORING LOG 1 OF 1

BORING NO.: B-9 DRILLER: JFC START DATE: 6/22/2015

PROJECT NAME: The Bluffs at Turf Valley COMPLETION DATE: 6/22/2015

PROJECT NO.: 2697 PROJECT LOCATION:

CLIENT: Mangione Enterprises of Turf Valley, LP DRILLING METHOD: Backhoe

DEPTH	SOIL DESCRIPTION	REMARKS
0	Starting elevation = 440.50	
0'	Topsoil	
2'	Reddish brown silty sand	
10'	No water encountered during drilling	
11'	Bottom of Boring = 430.50	
12'		
13'		
14'		
15'		
16'		
17'		
18'		
19'		
20'		

BORING COMPLETED AT A DEPTH OF FEET.

GROUNDWATER WAS NOT ENCOUNTERED DURING OR UPON COMPLETION OF DRILLING.

GROUNDWATER WAS ENCOUNTERED AT A DEPTH OF FEET DURING DRILLING.

CAVE IN DEPTH: _____

ELEVATION: _____

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. 22390, expiring 06-30-2017.

BENCHMARK ENGINEERING, INC.
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OWNER: MANGIONE ENTERPRISES OF TURF VALLEY, LIMITED PARTNERSHIP
1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093
410-825-8400

DEVELOPER: MANGIONE ENTERPRISES OF TURF VALLEY, LIMITED PARTNERSHIP
1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093
410-825-8400

THE BLUFFS AT TURF VALLEY
RESORT ROAD EXTENSION
NON-BUILDABLE BULK PARCELS 'A' AND 'B'
A SUBDIVISION OF PART OF PARCEL 706

TAX MAP: 17 - GRID: 13 - PARCEL: p/o 706
ZONED: PGCC
ELECTION DISTRICT NO. 2 - HOWARD COUNTY, MARYLAND

SOILS BORING LOGS

DATE: SEPTEMBER, 2015 BEI PROJECT NO. 2697

DESIGN: DBT DRAFT: DBT SCALE: AS SHOWN SHEET 15 OF 15

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS
DATE: 10/19/15

APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT
DATE: 10-22-15

CHIEF, DEVELOPMENT ENGINEERING DIVISION
DATE: 10-19-15