

ROAD CONSTRUCTION PLANS

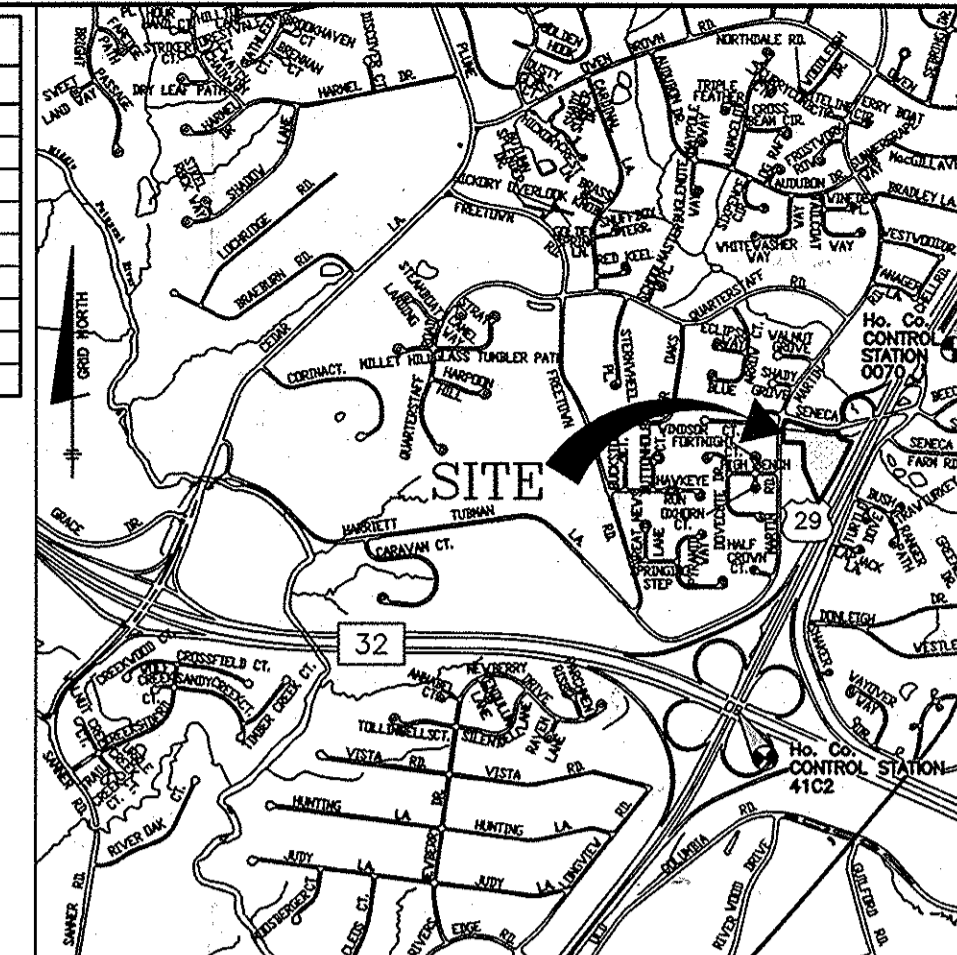
ATHOL WOODS

LOTS 1 thru 12 AND OPEN SPACE LOT 13, 14 & 15

5th ELECTION DISTRICT

HOWARD COUNTY, MARYLAND

NO.	DESCRIPTION
1	COVER SHEET AND EXISTING CONDITIONS PLAN
2	LAYOUT PLAN
3	ROAD PROFILE
4	GRADING, SEDIMENT & EROSION CONTROL AND SOILS PLAN
5	GRADING, SEDIMENT & EROSION CONTROL DETAILS
6	LANDSCAPE AND FOREST CONSERVATION PLAN
7	FOREST CONSERVATION DETAILS
8	STORM DRAIN DRAINAGE AREA MAP
9	STORM DRAIN PROFILES AND SWM DETAILS



BENCH MARKS

HO. CO. #0070 (NAD '83)	ELEV. 406.357
STANDARD DISC ON CONCRETE MONUMENT	E OF RTE 29, NORTH OF SENECA DRIVE BRIDGE
N 556041.765	E 1350374.642
HO. CO. #41C2 (NAD '83)	ELEV. 395.193
STANDARD DISC ON CONCRETE MONUMENT	ISLE RTE 32 100' EAST OF RTE 29 NBL
N 551616.419	E 1348104.192

GENERAL NOTES

- SUBJECT PROPERTY ZONED R-12 PER THE 10-6-13 COMPREHENSIVE ZONING PLAN. SCALE: 1"=200'
- THIS PROJECT IS IN CONFORMANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS IF APPLICABLE.
- 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.
- STREET LIGHT PLACEMENT AND THE TYPE FF FIXTURE AND POLE SHALL BE IN ACCORDANCE WITH THE HOWARD COUNTY STANDARD SPECIFICATIONS (2008) SECTION 5.5.A. A MINIMUM SPACING OF 20' SHALL BE MAINTAINED BETWEEN STREETLIGHTS AND ANY TREE.
- EXISTING TOPOGRAPHY IS TAKEN FROM A FIELD RUN SURVEY PREPARED BY BENCHMARK ENGINEERING, INC. DATED NOVEMBER 2013 AND HOWARD COUNTY 2008 GIS AND ARE 2" INTERVALS.
- 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. 0070 AND 4122 WERE USED FOR THIS PROJECT.
- WATER IS PUBLIC TIED TO CONTRACT NUMBER 24-0553-D, DRAINAGE AREA IS PATAPSCO. PROPOSED CONCRETE PIPE 18" DIA. 15' LONG.
- SEWER IS PUBLIC TIED TO CONTRACT NUMBER 24-0553-D, DRAINAGE AREA IS PATAPSCO. PROPOSED CONCRETE PIPE 18" DIA. 15' LONG.
- STORMWATER MANAGEMENT FOR THIS SITE WILL BE ONE BIoretention SWALE AND TWO BIoretention FACILITIES FOR THE PROPOSED PUBLIC ROAD. THE PRIVATE DRIVE SHALL BE CONSTRUCTED TO THE PUBLIC ROAD AND SHALL BE MAINTAINED BY THE OWNER. STORMWATER MANAGEMENT DEVICES TREATING PUBLIC AND PRIVATE RUNOFF WILL BE PRIVATELY OWNED. PROPERTY MAINTAINED. THE OWNER SHALL MAINTAIN THE BIoretention FACILITIES AND BIoretention SWALE. BIoretention FACILITIES SHALL BE MAINTAINED BY THE OWNER. PRIVATE RUNOFF ONLY BUT WILL TREAT MULTIPLE LOTS WILL BE PRIVATELY OWNED AND MAINTAINED.
- THE EXISTING UTILITIES ARE BASED ON FIELD RUN TOPOGRAPHY, HOWARD COUNTY GIS AND SHA CONTRACT DRAWINGS.
- FLOODPLAIN IS BASED ON HOWARD COUNTY DFRM. ELEVATIONS ARE APPROXIMATE.
- A FOREST STAND DELINEATION AND WETLANDS DELINEATION IS PREPARED BY KLEBASCO ENVIRONMENTAL, LLC DATED FEBRUARY 2014 AND APPROVED UNDER SP-15-008.
- THE TRAFFIC STUDY FOR THIS PROJECT WAS PREPARED BY MARS GROUP DATED MAY 2014 AND APPROVED UNDER SP-15-008.
- NO GRADING, REMOVAL OF VEGETATIVE COVER OR TREES, PAVING AND NEW STRUCTURES SHALL BE PERMITTED WITHIN THE STREAMS, OR THEIR REQUIRED BUFFERS AND FLOODPLAIN EXCEPT FOR THE PROPOSED ENTRANCE ROAD GRADING CONSIDERED TO BE NECESSARY TO ENTER THE SITE PER SECTION 16.116(G) AS DEEMED NECESSARY BY THE DEPARTMENT OF PLANNING AND ZONING.
- THERE ARE NO IMPACTS TO THE ON-SITE STEEP SLOPES.
- TO THE BEST OF OUR KNOWLEDGE THERE ARE NO CEMETERIES LOCATED IN THE DEVELOPMENT AREA. THE HOWARD COUNTY HISTORIC PRESERVATION DOCUMENTS (HO-037) INDICATED THE PRESENCE OF GRAVES WITHIN OR NEAR THE SITE BUT THE LOCATION OF OR IF STANDING GRAVES OR TOMB STONES WAS NOT DETERMINED. THE HOWARD COUNTY HISTORIC PRESERVATION ADVISORY BOARD HAS VISITED THE SITE AND NO CEMETERIES OR GRAVE STONES WERE OBSERVED. THE HOWARD COUNTY HISTORIC PRESERVATION ADVISORY BOARD HAS ADVISED THAT IF GRAVES ARE DISCOVERED DURING CONSTRUCTION PER SECTION 16.1305 OF THE HOWARD COUNTY ZONING REGULATIONS THAT THE CONSTRUCTION SHALL BE STOPPED IN THAT AREA UNTIL A DETERMINATION CAN BE MADE BY DPZ AS TO HOW TO ADDRESS THE SITE.
- A NOISE STUDY FOR THIS PROJECT WAS PREPARED BY BENCHMARK ENGINEERING, INC. DATED MAY 2014. THE FUTURE NOISE WALL ALONG US 29 IS PART OF SHA PROJECT HOS17_21 AND WAS CONSIDERED IN PLACE FOR THE ANALYSIS.
- THE GEOTECHNICAL REPORT FOR THIS PROJECT WAS PREPARED BY GEOTECHNICAL LABORATORIES DATED JUNE 10, 2014 AND LETTER DATED SEPTEMBER 11, 2014.
- THIS SITE IS LOCATED WITHIN THE METROPOLITAN DISTRICT.
- ALL LANDSCAPING REQUIREMENTS SHALL BE FULFILLED IN ACCORDANCE WITH THE HOWARD COUNTY CODE SECTION 16.124 AND THE LANDSCAPE MANUAL SURETY FOR THE REQUIRED 3 PERIMETER SHADE TREES (\$800.00) AND 19 PERIMETER EVERGREEN TREES (\$2,850.00) FOR A TOTAL OF \$3,750.00 SURETY FOR THE 37 STREET TREES (\$11,100.00) HAS BEEN POSTED AS PART OF THE DPW DEVELOPER'S AGREEMENT.
- THE FOREST CONSERVATION OBLIGATIONS FOR THIS PROJECT WILL BE MET BY THE ON-SITE RETENTION OF 1.07 ACRES OF FOREST AND FEE-IN-LIEU 0.98 ACRES OF AFForestation OR (\$32,017.00).
- PREVIOUS DPZ FILES: EOP-14-065, SP-15-008, WP-16-046
- A PRE-SUBMISSION COMMUNITY MEETING FOR THIS PROJECT WAS HELD ON MARCH 25, 2014 IN ACCORDANCE WITH SECTION 16.128 AND 16.147(1)(1) OF THE SUBDIVISION REGULATIONS.
- THE PLAN WAS PRESENTED TO THE HISTORIC DISTRICT COMMISSION DATED JUNE 5, 2014.
- OPEN SPACE TO BE OWNED AND MAINTAINED BY HOWARD COUNTY DEPARTMENT OF RECREATION AND PARKS. LOTS 14 & 15 TO BE OWNED AND MAINTAINED BY THE HOA.
- THE EXISTING ON-SITE WELL AND SEPTIC SYSTEM FOR LOT 12 MUST BE PROPERLY ABANDONED WITH DOCUMENTATION SUBMITTED TO THE HEALTH DEPARTMENT PRIOR TO HEALTH DEPARTMENT SIGNATURE OF THE FINAL RECORD PLAT. THE EXISTING ON-SITE WELL IS TO BE REMOVED.
- TRAFFIC CONTROL DEVICES:
 - A. THE R1-1 (STOP) SIGN AND THE STREET NAME SIGN (SNS) ASSEMBLY FOR THIS DEVELOPMENT MUST BE INSTALLED
 - 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 (MUTCD).
 - D. ALL SIGN POSTS USED FOR TRAFFIC CONTROL SIGNS INSTALLED IN THE COUNTY RIGHT-OF-WAY SHALL BE MOUNTED ON A 2" X 4" PERFORATED SQUARE TUBE (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 (2) INCHES ABOVE GROUND LEVEL. A GALVANIZED STEEL POLE CAP SHALL BE MOUNTED ON TOP OF EACH POST.
- THE PROPOSED LOT SIZES ARE BASED ON SECTION 16.121(a)(2) OF THE HOWARD COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS.
- THE EXISTING HOUSE LOCATED ON LOT 12 IS TO REMAIN DUE TO ITS LOCATION. THE HOUSE IS IN NON-COMPLIANCE WITH THE ZONING REGULATIONS. NO NEW BUILDINGS, EXTENSIONS, OR ADDITIONS TO THE EXISTING DWELLING ARE TO BE CONSTRUCTED AT A DISTRICTED RESIDENTIAL ADDRESS. THE ZONING REGULATIONS REQUIREMENTS, ANY MODIFICATIONS THAT WOULD INCREASE AND EXACERBATE THE NON-COMPLIANCE WILL NOT BE PERMITTED WITHOUT A VARIANCE.
- THIS PLAN IS SUBJECT TO A DESIGN MANUAL W/AVE APPROVED FEBRUARY 25, 2015 TO VOLUME III, APPENDIX "A" AND THE RELATED VOLUME II STANDARD W/AVE APPROVED APRIL 6, 2015 TO VOLUME III, SECTION 2.5.B, TABLE 2.07 TO REDUCE THE REQUIRED INTERSECTION SPACING FOR A MAJOR COLLECTOR FROM 500' TO 252'. THERE WERE NO CONDITIONS OF THE APPROVAL.
 - PROVIDE A 10' UTILITY EASEMENT FOR PRIVATE UTILITIES ALONG THE PROPOSED ROAD. NO PRIVATE UTILITY SHOULD BE LOCATED WITHIN THE PAVED ROAD AREA.
 - STREET TREES SHOULD BE LOCATED OUTSIDE OF THE PUBLIC R/W AND UTILITY EASEMENT.
 - PROVIDE SIGHT DISTANCE EASEMENT INSIDE HORIZONTAL CURVE 'C1' PER TRAFFIC'S DIVISION'S DIRECTION.
- THIS PLAN IS SUBJECT TO A DESIGN MANUAL W/AVE APPROVED APRIL 6, 2015 TO VOLUME III, SECTION 2.5.B, TABLE 2.07 TO REDUCE THE REQUIRED INTERSECTION SPACING FOR A MAJOR COLLECTOR FROM 500' TO 252'. THERE WERE NO CONDITIONS OF THE APPROVAL.
- IN ACCORDANCE WITH SECTION 110.0.E OF THE ZONING REGULATIONS AT LEAST 10% OF THE DWELLING UNITS SHALL BE MODERATE INCOME HOUSING UNITS (MIHU). THIS DEVELOPMENT PROJECT REQUIRES 2 UNITS AND IS PROPOSING A FEE-IN-LIEU.

- LEGEND**
- EXISTING CONTOURS
 - EXISTING TREELINE
 - PROPOSED TREELINE
 - EXISTING STREAM
 - EXISTING STREAM BUFFER
 - APPROXIMATE 100 YEAR FLOODPLAIN LIMITS
 - EXISTING STRUCTURE
 - PROPOSED STRUCTURE
 - SLOPES 25% OR GREATER
 - SLOPES 15% TO 24.9%
 - LIMIT OF WETLANDS
 - 100 YEAR FLOODPLAIN
 - FOREST CONSERVATION EASEMENT
 - FOREST CONSERVATION SIGN
 - PUBLIC SWM, DRAINAGE & UTILITY EASEMENT
 - PRIVATE USE-IN-COMMON ACCESS EASEMENT
 - PRIVATE UTILITY EASEMENT
 - PUBLIC SEWER & UTILITY EASEMENT
 - PROP. STREET TREE
 - PROP. SIDEWALK/PEDESTRIAN IMPROVEMENTS
 - PROP. MICRO-BIoretENTION FACILITY
 - PROP. BIO-SWALE
 - PROP. DRYWELL
 - SOIL DELINEATION
 - SOIL DELINEATION GnA

GENERAL NOTES CONTINUED:

34. THIS PLAN IS SUBJECT TO WP-16-046 APPROVED NOVEMBER 2, 2015 TO WAVE SECTION 16.121(a)(4) RECREATION OPEN SPACE, WHICH STATES THAT AT LEAST 20 FEET OF THE PERIMETER OF THE RECREATIONAL OPEN SPACE MUST FRONT ON A PUBLIC OR PRIVATE ROAD AND THE RECREATIONAL AREA SHOULD BE LOCATED TO THE LOTS IT SERVES. THE PLANNING DIRECTOR HAS ALSO APPROVED THE REQUEST TO WAVE SECTION 12.1205(d)(7) ON-SITE FOREST RETENTION WHICH REQUIRES THAT STATE CHAMPION TREES, TREES 75% OF THE DIAMETER OF THE STATE CHAMPION TREES, AND TREES 30" IN DIAMETER OR LARGER ARE CONSIDERED PRIORITY FOR ON-SITE RETENTION AND PROTECTION IN THE COUNTY. APPROVAL IS SUBJECT TO THE FOLLOWING CONDITIONS:

- COMPLY WITH ALL SRC AGENCY COMMENTS ON THE SUBMITTED FINAL PLANS. F-16-007.
- FOUR (4) 3" CALIBER NATIVE SHADE TREES AS MITIGATION FOR THE TWO (2) BLACK CHERRY TREES PROPOSED TO BE REMOVED ON THE PROPERTY. THESE WILL BE IN ADDITION TO ANY STREET TREE AND PERIMETER LANDSCAPING REQUIREMENTS COMPLIANT WITH ALL ATTACHED DEVELOPMENT ENGINEERING DIVISION COMMENTS DATED OCTOBER 2014.
- THE APPLICANT SHALL IDENTIFY THE LOCATION FOR THE RECREATIONAL OPEN SPACE AND ACCESS WITH BOLLARD AND SIGNAGE AT THE ACCESS ENTRANCE ONTO ATHOL WOODS LANE.

35. A USE-IN-COMMON MAINTENANCE AGREEMENT FOR LOTS 9 AND 10 IS TO BE RECORDED TOGETHER WITH THE RECORDING OF THE FINAL PLAT IN THE LAND RECORDS OF HOWARD COUNTY.

36. PROPOSED ROADWAY AND INFRASTRUCTURE INCLUDES DISTURBANCE TO THE ON-SITE STREAM BUFFER DUE TO THE LOCATION OF THE EXISTING STREAM AND ENVIRONMENTAL FEATURES ON-SITE AND THE LIMITED ACCESS TO A PUBLIC ROAD RIGHT-OF-WAY.

SITE ANALYSIS DATA/TABULATION

A) TOTAL PROJECT AREA	6.69± AC.
B) AREA OF WETLANDS AND BUFFER	5.07± AC. (P. 04 & 108)
C) AREA OF 100-YR. FLOODPLAIN	1.62± AC. (P. 495)
D) AREA OF STEEP SLOPES 25% OF GREATER	0.27 AC. ON-SITE
E) NET AREA OF SITE	0.16 AC. OUTSIDE FLOODPLAIN
F) PUBLIC ROAD DEDICATION	6.08 AC.
G) NUMBER OF RESIDENTIAL UNITS PROPOSED	0.70± AC.
H) AREA OF BUIDABLE LOTS	12(11 PROP. 1 EX.)
I) OPEN SPACE PROVIDED	2.11± AC. (NEW LOTS)
J) OPEN SPACE PROVIDED TO HOWARD COUNTY	0.92± AC. (EX. LOT)
K) AREA DEDICATED TO THE HOA	2.87 AC. OR 40%
L) AREA OF NON-CREDITED OPEN SPACE	2.96 AC. OR 44%
M) AREA OF CREDITED OPEN SPACE	1.96 AC. (LOT 13)
N) RECREATIONAL OPEN SPACE REQUIRED	1.01 AC. (LOTS 14&15)
O) RECREATIONAL OPEN SPACE PROVIDED	0.06 AC.
P) PRESENT ZONING DESIGNATION	2.91 AC.
Q) PROPOSED USE	2,400 SF (12-200)
R) LIMIT OF DISTURBANCE	RECREATIONAL OPEN SPACE PROVIDED: 2,400 SF
	R-12
	SINGLE FAMILY DWELLING
	3.88 AC.

MINIMUM LOT SIZE CHART

LOT #	GROSS AREA	PIPESTEM AREA	NET AREA
9	10,458 SF	1,287 SF	9,171 SF
10	10,920 SF	1,287 SF	9,633 SF

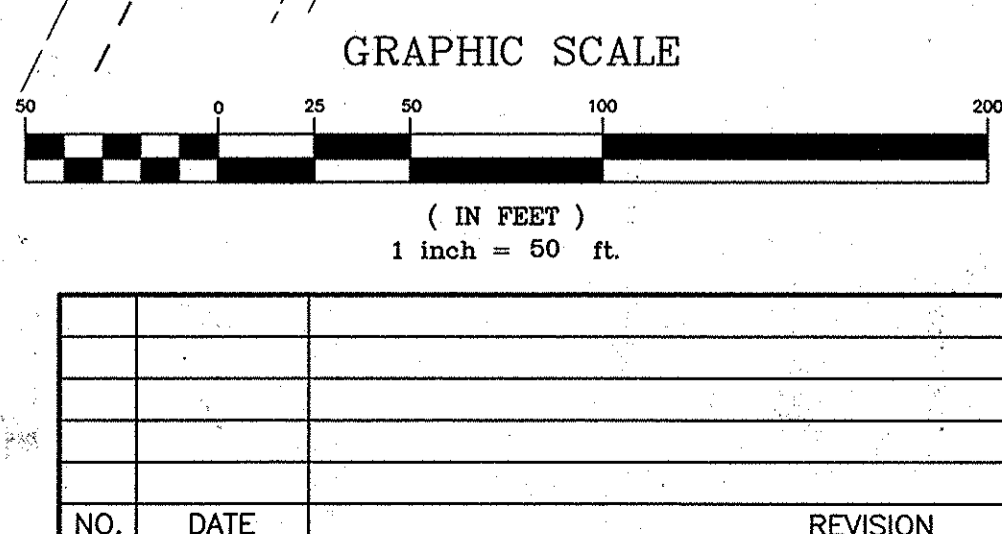
APPROVED: DEPARTMENT OF PUBLIC WORKS

Melanie *skrbau*
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Kristen Jones *6-23-16*
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

And *6-29-16*
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE



BENCHMARK
ENGINEERS & LAND SURVEYORS & PLANNERS

ENGINEERING, INC.

8460 BALTIMORE NATIONAL PIKE, SUITE 316 ELLOTT CITY, MARYLAND 21043
(P) 410-465-6105 (F) 410-465-6444
WWW.BB-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 #202200018. Expiration Date: 6/30/17.

OWNER:
PARCELS 04 & 108
LISA MARIE SMITH
6128 EDWARD HILL ROAD
ELLOTT CITY, MD 21043

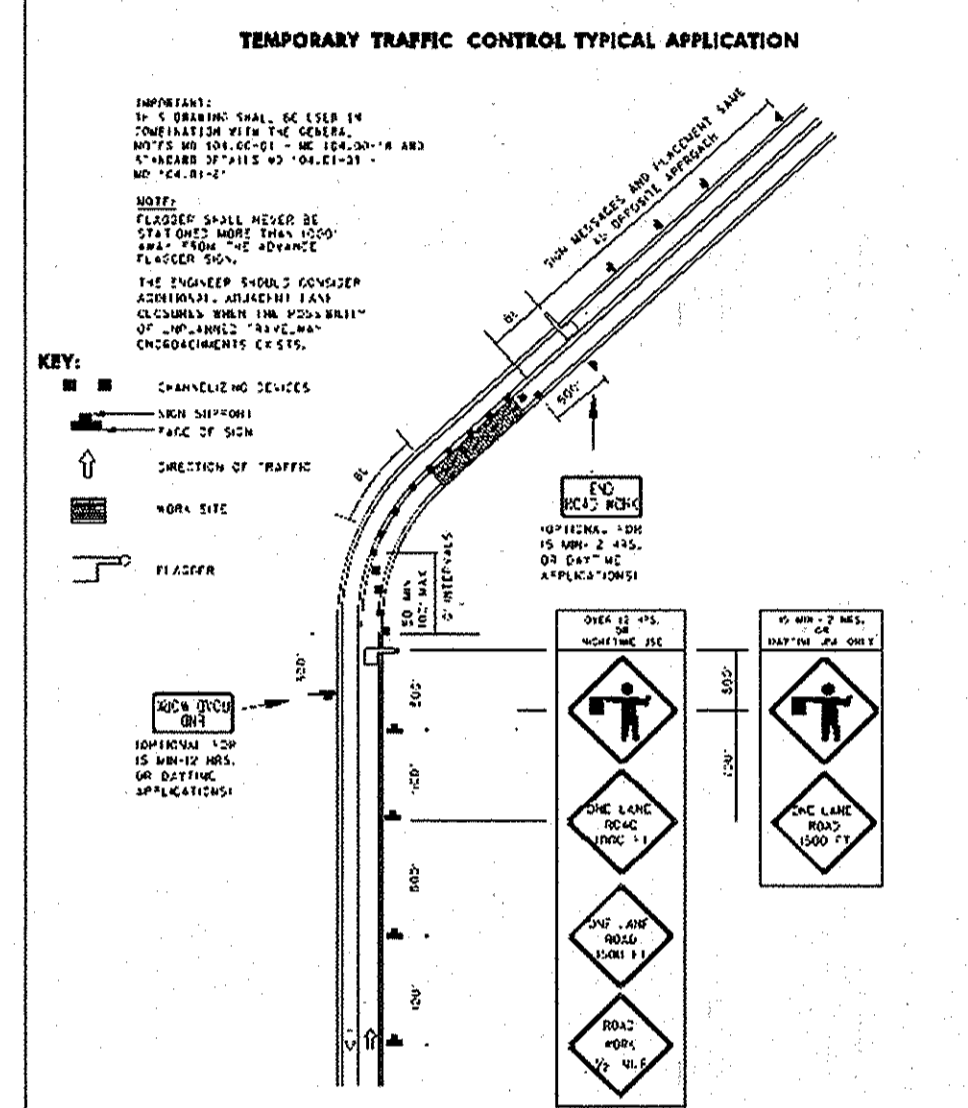
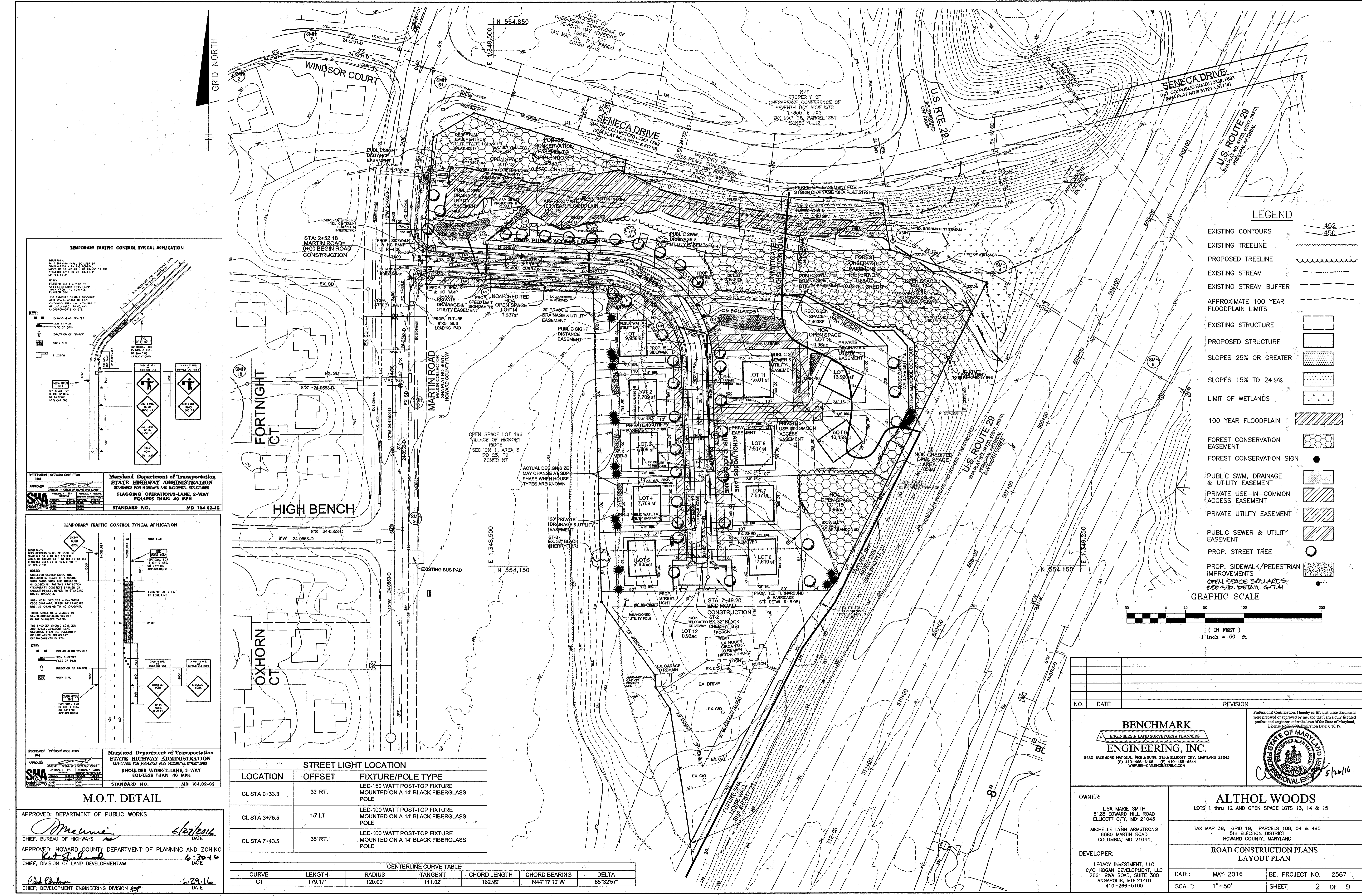
DEVELOPER:
LEGACY INVESTMENT, LLC
C/O HOGAN DEVELOPMENT, LLC
2681 RIVA ROAD, SUITE 300
ANNAPOLIS, MD 21401
410-266-5100

ATHOL WOODS
LOTS 1 thru 12 AND OPEN SPACE LOTS 13, 14 & 15

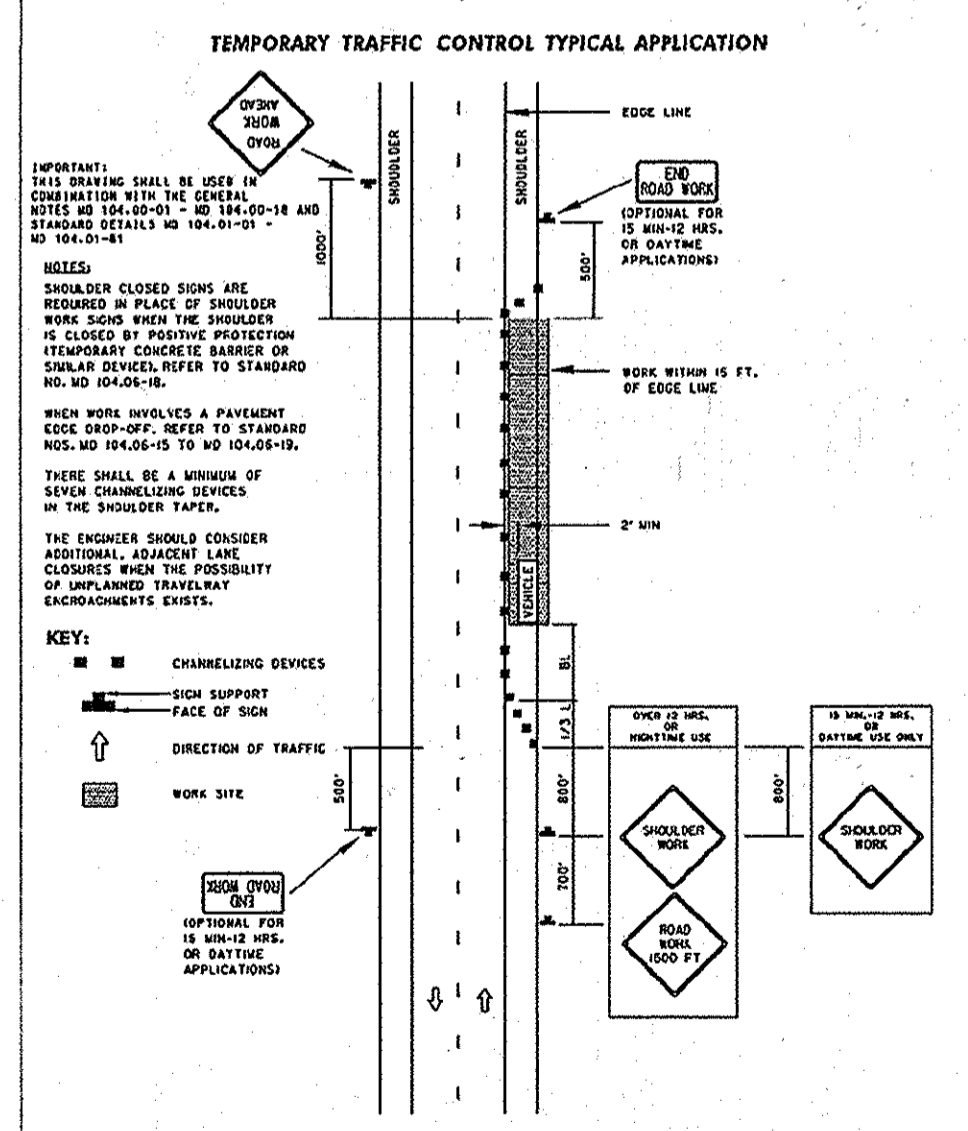
TAX MAP 36, GRID 19, PARCELS 108, 04 & 495
5th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

ROAD CONSTRUCTION PLANS
COVER SHEET AND EXISTING
CONDITIONS PLAN

DATE: MAY 2016	BEI PROJECT NO. 2567
SCALE: 1"=50'	SHEET 1 OF 9



Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
 STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
FLAGGING OPERATION-2-LANE, 2-WAY
 EQUALS LESS THAN 40 MPH
 STANDARD NO. MD 104.02-10



Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
 STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
SHOULDER WORK-2-LANE, 2-WAY
 EQUALS LESS THAN 40 MPH
 STANDARD NO. MD 104.02-02

M.O.T. DETAIL
 APPROVED: DEPARTMENT OF PUBLIC WORKS
 [Signature] DATE 6/27/2016
 APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 [Signature] DATE 6-30-16
 [Signature] DATE 6-29-16

STREET LIGHT LOCATION		
LOCATION	OFFSET	FIXTURE/POLE TYPE
CL STA 0+33.3	33' RT.	LED-150 WATT POST-TOP FIXTURE MOUNTED ON A 14' BLACK FIBERGLASS POLE
CL STA 3+75.5	15' LT.	LED-100 WATT POST-TOP FIXTURE MOUNTED ON A 14' BLACK FIBERGLASS POLE
CL STA 7+43.5	35' RT.	LED-100 WATT POST-TOP FIXTURE MOUNTED ON A 14' BLACK FIBERGLASS POLE

CENTERLINE CURVE TABLE						
CURVE	LENGTH	RADIUS	TANGENT	CHORD LENGTH	CHORD BEARING	DELTA
C1	179.17'	120.00'	111.02'	162.99'	N44°17'10"W	85°32'57"

LEGEND

- EXISTING CONTOURS
- EXISTING TREELINE
- PROPOSED TREELINE
- EXISTING STREAM
- EXISTING STREAM BUFFER
- APPROXIMATE 100 YEAR FLOODPLAIN LIMITS
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- PUBLIC SEWER & UTILITY EASEMENT
- PROP. STREET TREE
- PROP. SIDEWALK/PEDESTRIAN IMPROVEMENTS
- OPEN SPACE BOLLARDS

GRAPHIC SCALE
 (IN FEET)
 1 inch = 50 ft

NO.	DATE	REVISION

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. 33394, Registration Date: 6.30.17.

BENCHMARK ENGINEERING, INC.
 8480 BALTIMORE NATIONAL PIKE SUITE 315 ELLICOTT CITY, MARYLAND 21043
 (P) 410-465-6105 (F) 410-465-6644
 WWW.BE-CIVILENGINEERING.COM

OWNER:
 LISA MARIE SMITH
 6128 EDWARD HILL ROAD
 ELLICOTT CITY, MD 21043

MICHELLE LYNN ARMSTRONG
 6880 MARTIN ROAD
 COLUMBIA, MD 21044

DEVELOPER:
 LEGACY INVESTMENT, LLC
 C/O HOGAN DEVELOPMENT, LLC
 2661 RIVA ROAD, SUITE 300
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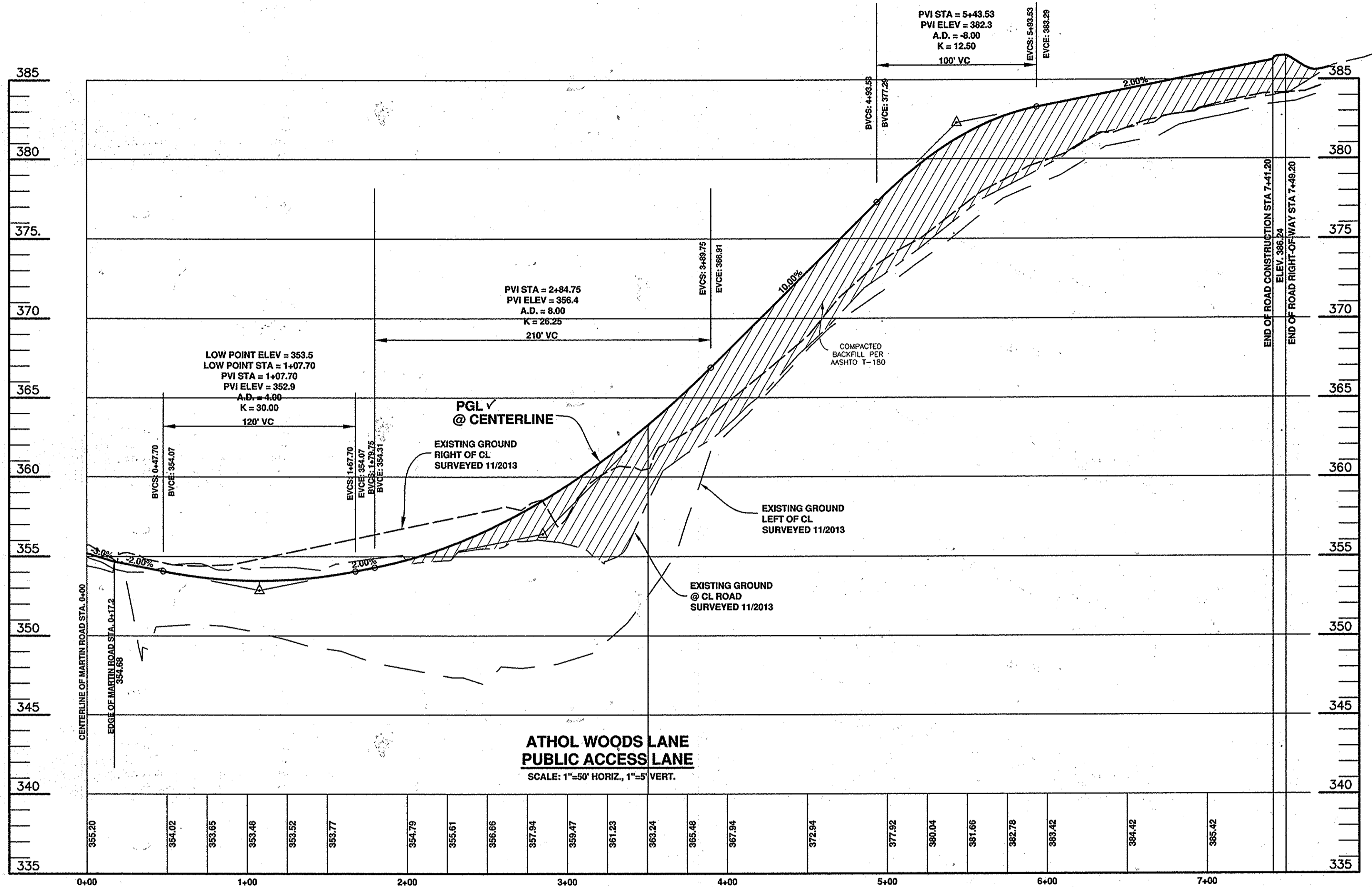
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 HOWARD COUNTY, MARYLAND

ROAD CONSTRUCTION PLANS
 LAYOUT PLAN

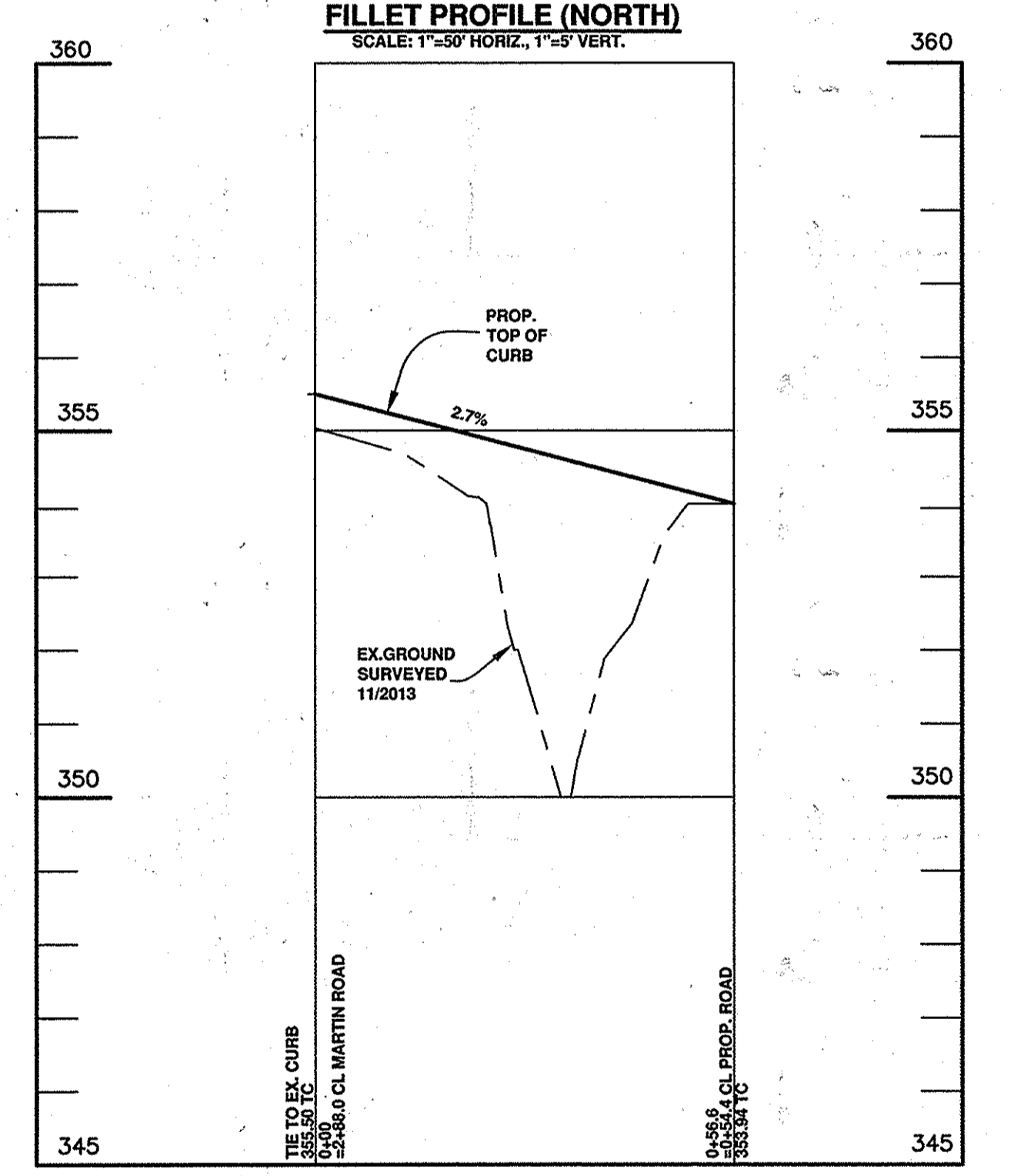
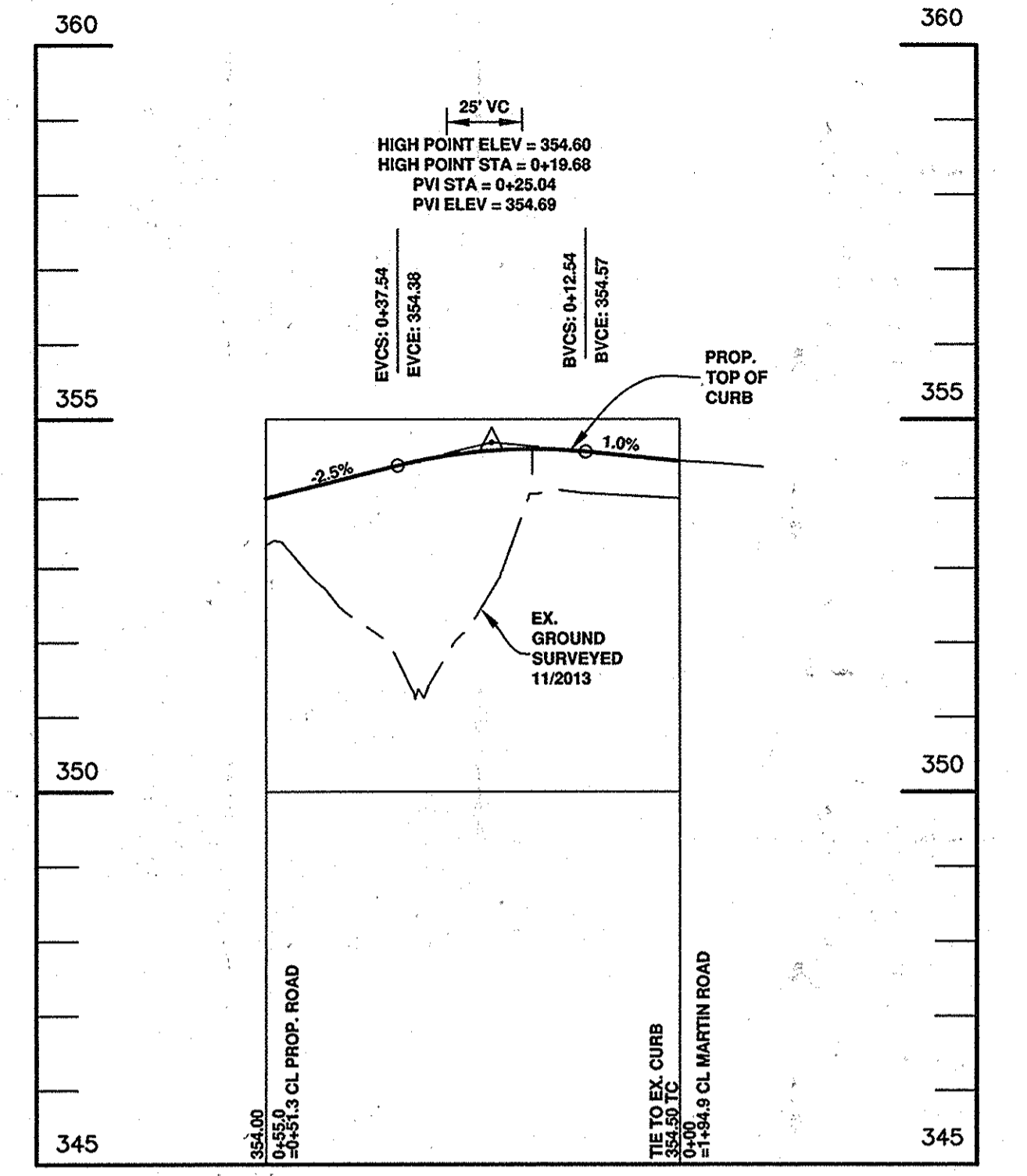
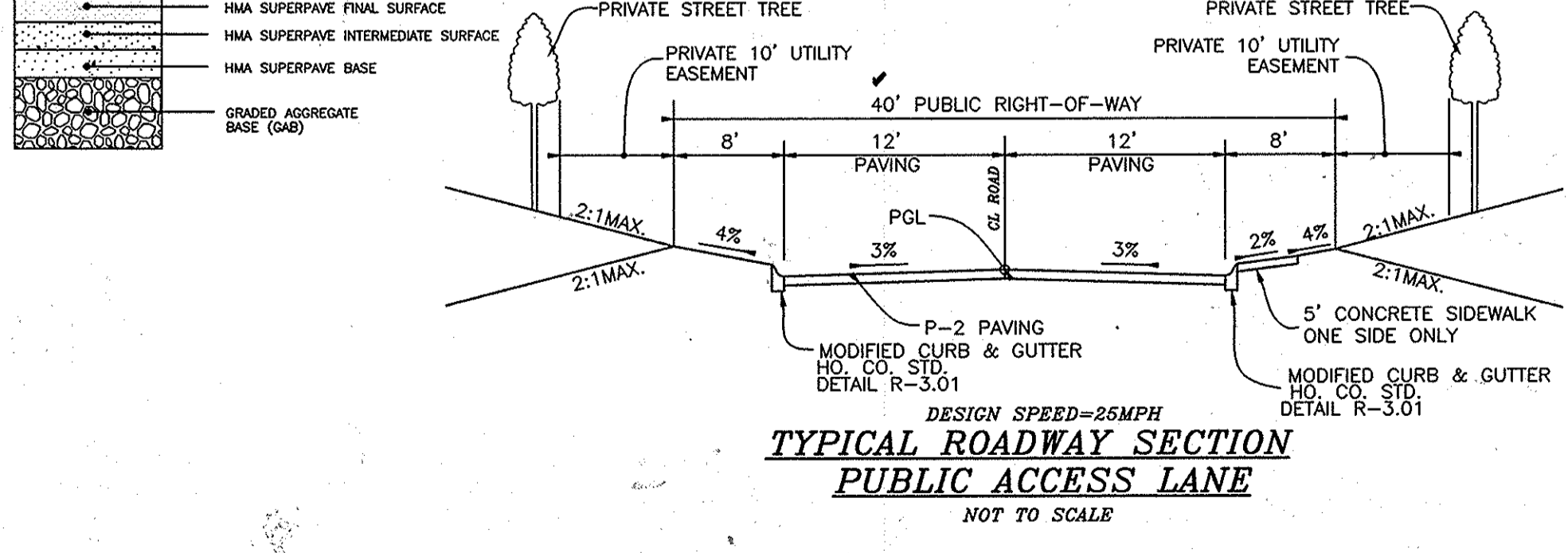
DATE: MAY 2016
 SCALE: 1"=50'

BEI PROJECT NO. 2567
 SHEET 2 OF 9

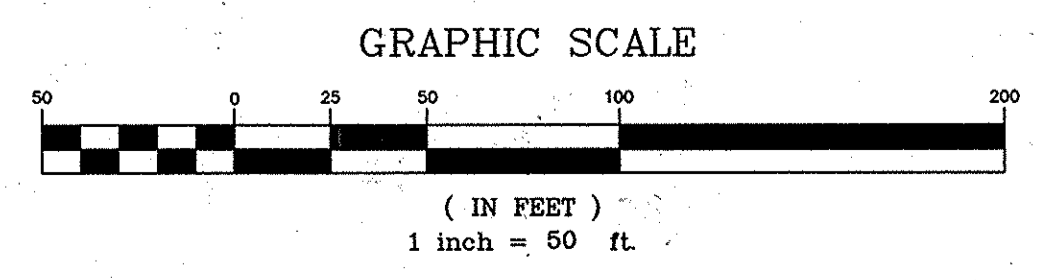


PAVING SECTION

SECTION NUMBER	ROAD AND STREET CLASSIFICATION	CALIFORNIA BEARING RATIO (CBR)			
		3 TO <5	5 TO <7	7	3 TO <5
P-2	PARKING DRIVE AISLES: RESIDENTIAL AND NON-RESIDENTIAL WITH NO MORE THAN 10 HEAVY TRUCKS PER DAY LOCAL ROADS: ACCESS PLACE, ACCESS STREET CUL-DE-SAC: RESIDENTIAL	PAVEMENT MATERIAL (INCHES)		MIN HMA WITH GAB	
		HMA SUPERPAVE FINAL SURFACE 9.5 MM PG 64-22, LEVEL 1 (LOW ESAL)		1.5	1.5
		HMA SUPERPAVE INTERMEDIATE SURFACE 9.5 MM PG 64-22, LEVEL 1 (LOW ESAL)		1.0	1.0
		HMA SUPERPAVE BASE 19.0 MM PG 64-22, LEVEL 1 (LOW ESAL)		2.0	2.0
		GRADED AGGREGATE BASE (GAB)		8.0	4.0



NO. DATE REVISION		Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer in the State of Maryland, License No. 14000, Expiration Date: 6/30/17.
 8400 BALTIMORE NATIONAL PIKE A SUITE 315 ELLICOTT CITY, MARYLAND 21043 (P) 410-465-6100 (F) 410-465-6844 WWW.BE-CHALLENGERING.COM		
OWNER: LISA MARIE SMITH 6128 EDWARD HILL ROAD ELLICOTT CITY, MD 21043		ATHOL WOODS LOTS 1 thru 12 AND OPEN SPACE LOTS 13, 14 & 15
DEVELOPER: LEGACY INVESTMENT, LLC C/O HOGAN DEVELOPMENT, LLC 2651 RIVA ROAD, SUITE 300 ANNAPOLIS, MD 21401 410-266-5100		TAX MAP 36, GRID 19, PARCELS 108, 04 & 495 5th ELECTION DISTRICT HOWARD COUNTY, MARYLAND
ROAD CONSTRUCTION PLANS ROAD PROFILE		DATE: MAY 2016 SCALE: 1"=50'
BEI PROJECT NO. 2567 SHEET 3 OF 9		



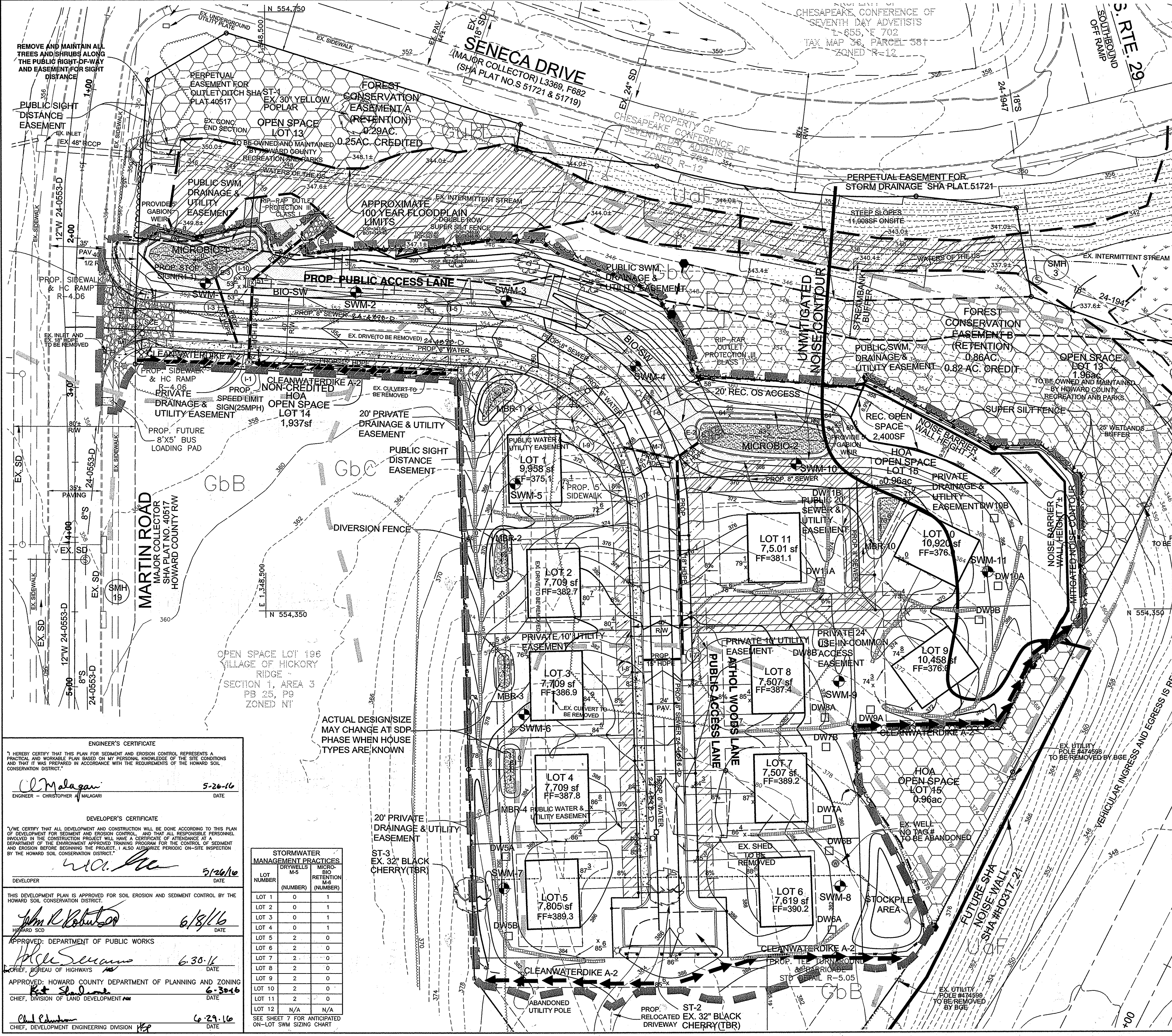
APPROVED: DEPARTMENT OF PUBLIC WORKS

 CHIEF, BUREAU OF HIGHWAYS DATE 6/27/16

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

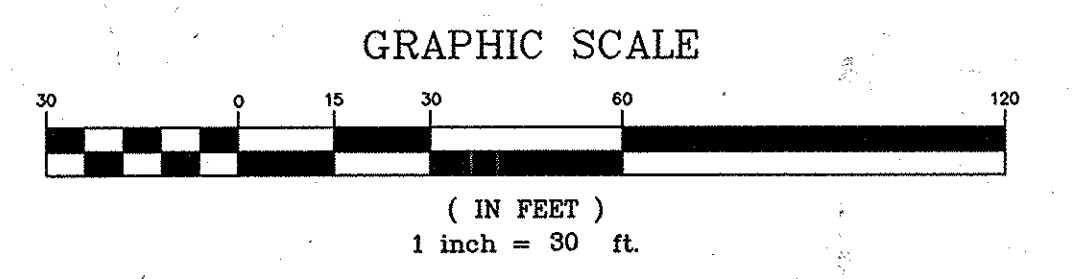
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE 6-30-16

CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE 6-29-16



SOILS LEGEND			
SYMBOL	NAME/DESCRIPTION	K VALUE	GROUP
GbB	GLADSTONE LOAM, 3 TO 8 PERCENT SLOPES	0.32	B
GbC	GLADSTONE LOAM, 8 TO 15 PERCENT SLOPES	0.32	B
GbB	GLADSTONE-URBAN LAND COMPLEX, 0 TO 8 PERCENT SLOPES	0.32	B
GbB	GLADSTONE-URBAN-UDORTHENTS COMPLEX, 0 TO 8 PERCENT SLOPES	0.43	C
UoF	UDORTHENTS HIGHWAY, 0 TO 65 PERCENT SLOPES		D

LEGEND	
EXISTING CONTOURS	452, 450
EXISTING TREELINE	
PROPOSED TREELINE	
EXISTING STREAM	
EXISTING STREAM BUFFER	
APPROXIMATE 100 YEAR FLOODPLAIN LIMITS	
EXISTING STRUCTURE	
PROPOSED STRUCTURE	
SLOPES 25% OR GREATER	
SLOPES 15% TO 24.9%	
LIMIT OF WETLANDS	
100 YEAR FLOODPLAIN	
FOREST CONSERVATION EASEMENT	
FOREST CONSERVATION SIGN	
PUBLIC SWM, DRAINAGE & UTILITY EASEMENT	
PRIVATE USE-IN-COMMON ACCESS EASEMENT	
PRIVATE UTILITY EASEMENT	
PUBLIC SEWER & UTILITY EASEMENT	
PROP. STREET TREE	
PROP. SIDEWALK/PEDESTRIAN IMPROVEMENTS	
PROP. MICRO-BIORETENTION FACILITY	
PROP. BIO-SWALE	
PROP. DRYWELL	
SOIL DELINEATION	GnA
SOILS DELINEATION	
SUPER SILT FENCE	
EARTH DIKE	
EROSION CONTROL MATTING	
STORMWATER MANAGEMENT BORINGS	
LIMIT OF DISTURBANCE	



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.
 Christopher A. Malagan, 5-26-16
 ENGINEER - CHRISTOPHER A. MALAGANI

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.
 [Signature], 5/26/16
 DEVELOPER

APPROVED: DEPARTMENT OF PUBLIC WORKS
 [Signature], 6/8/16
 DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 [Signature], 6-30-16
 DATE

APPROVED: CHIEF, DEVELOPMENT ENGINEERING DIVISION
 [Signature], 6-29-16
 DATE

STORMWATER MANAGEMENT PRACTICES			
LOT NUMBER	(NUMBER)	DRYWELL M-5	MICRO-BIO RETENTION M-6 (NUMBER)
LOT 1	0	1	
LOT 2	0	1	
LOT 3	0	1	
LOT 4	0	1	
LOT 5	2	0	
LOT 6	2	0	
LOT 7	2	0	
LOT 8	2	0	
LOT 9	2	0	
LOT 10	2	0	
LOT 11	2	0	
LOT 12	N/A	N/A	

SEE SHEET 7 FOR ANTICIPATED ON-LOT SWM SIZING CHART

BENCHMARK ENGINEERING, INC.
 ENGINEERS & LAND SURVEYORS & PLANNERS
 8480 BALTIMORE NATIONAL PIKE SUITE 315 ELLICOTT CITY, MARYLAND 21043
 (P) 410-465-0105 (F) 410-465-6644
 WWW.BE-CIVILENGINEERING.COM

ATHOL WOODS
 LOTS 1 thru 12 AND OPEN SPACE LOTS 13, 14 & 15

OWNER:
 LISA MARIE SMITH
 6128 EDWARD HILL ROAD
 ELLICOTT CITY, MD 21043

DEVELOPER:
 LEGACY INVESTMENT, LLC
 C/O HOGAN DEVELOPMENT, LLC
 2861 RIVA ROAD, SUITE 300
 ANNAPOLIS, MD 21401
 410-266-5100

TAX MAP 36, GRID 19, PARCELS 108, 04 & 495
 5th ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

ROAD CONSTRUCTION PLANS
GRADING, SEDIMENT & EROSION CONTROL
AND SOILS PLAN

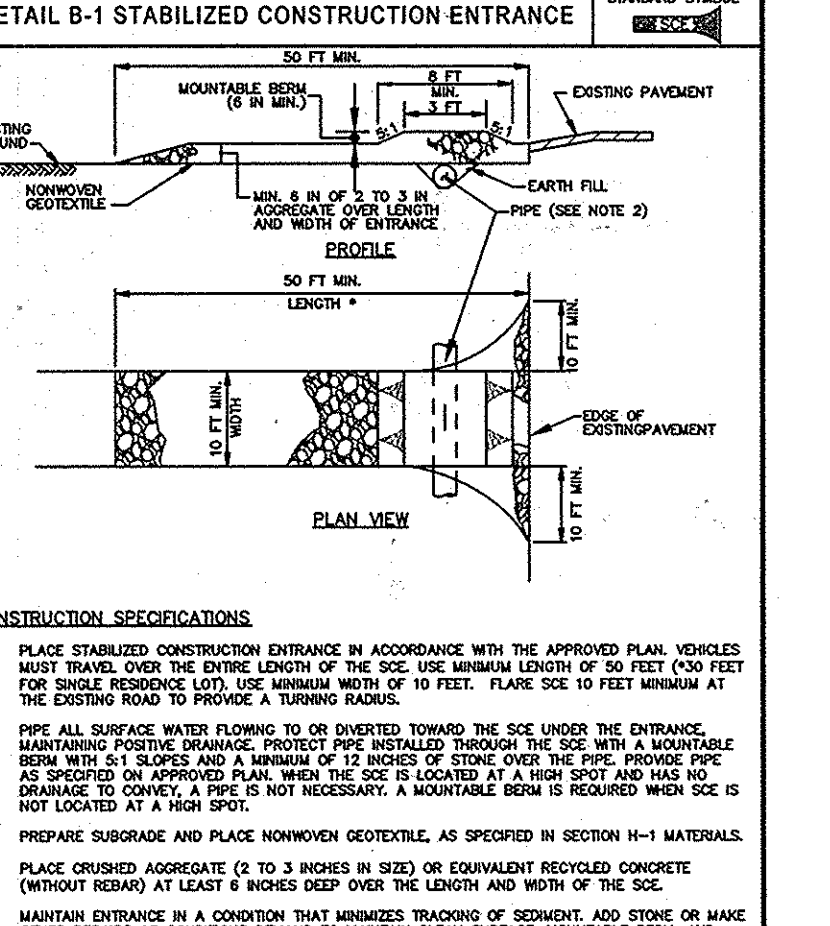
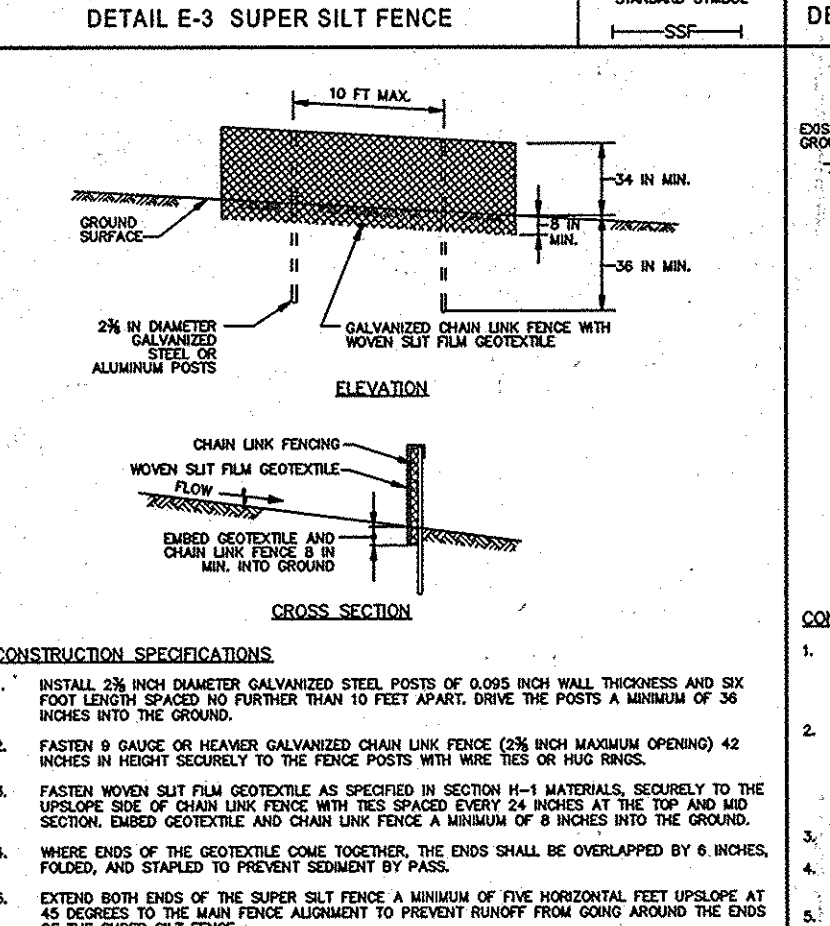
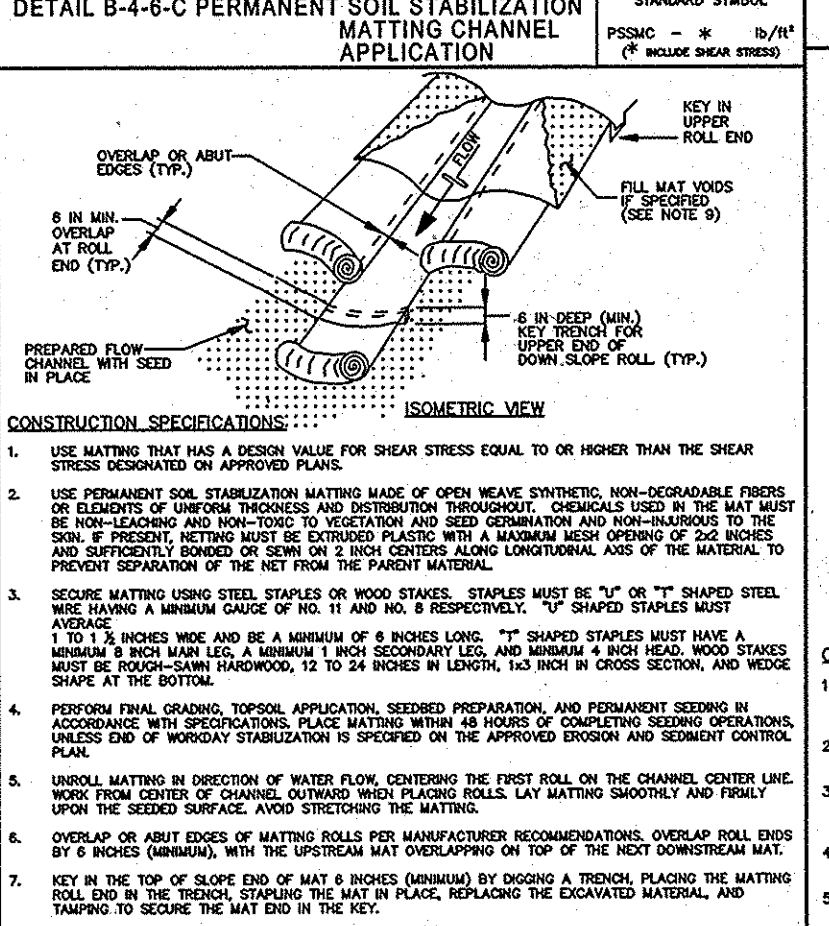
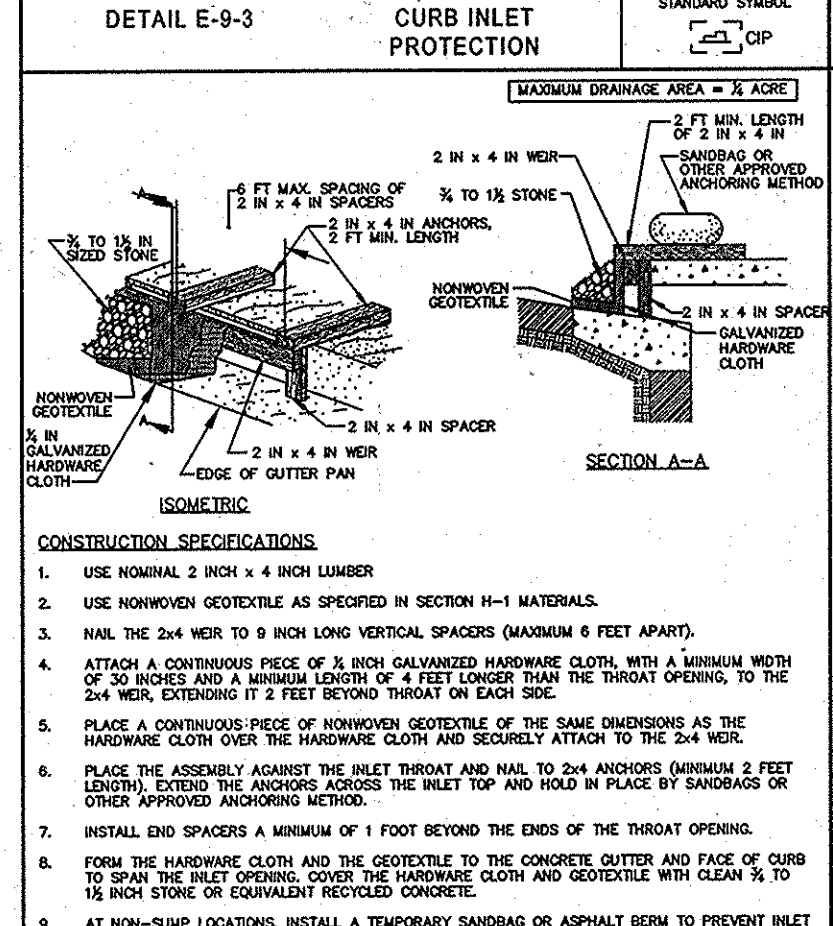
DATE: MAY 2016 BEI PROJECT NO. 2567
 SCALE: 1"=30' SHEET 4 OF 9

B-4 STANDARDS AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION... Using vegetation to cover exposed soil from erosion... Purpose: To promote the establishment of vegetation on exposed soil...

B-4-2 STANDARDS AND SPECIFICATIONS FOR SOIL PREPARATION, TOPSOILING, AND SOIL AMENDMENTS... Purpose: To process the soils to sustain adequate vegetative stabilization... Where vegetative stabilization is to be established...

B-4-3 STANDARDS AND SPECIFICATIONS FOR SEEDING AND MULCHING... Purpose: To apply seed and mulch to establish vegetative cover... To protect disturbed soils from erosion during and at the end of construction...

B-4-4 STANDARDS AND SPECIFICATIONS FOR STOCKPILE AREA... Purpose: To provide a designated location for the temporary storage of soil that controls the potential for erosion, sedimentation, and chemical hazards...

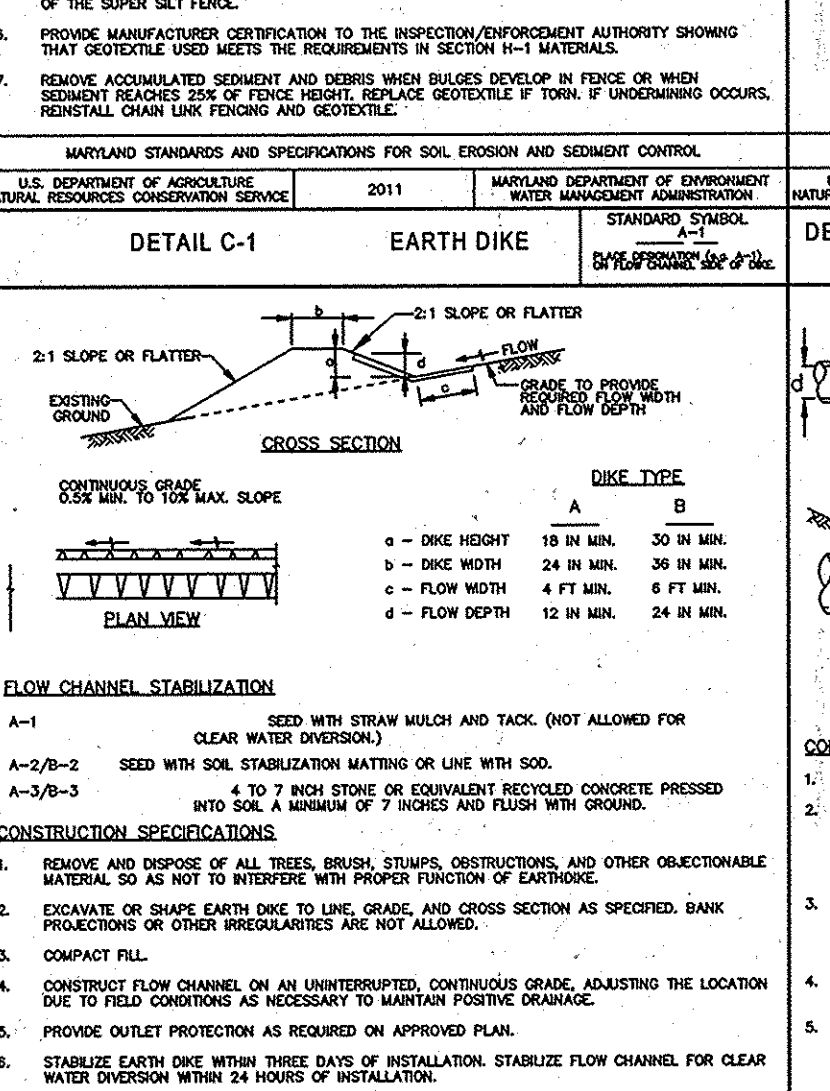
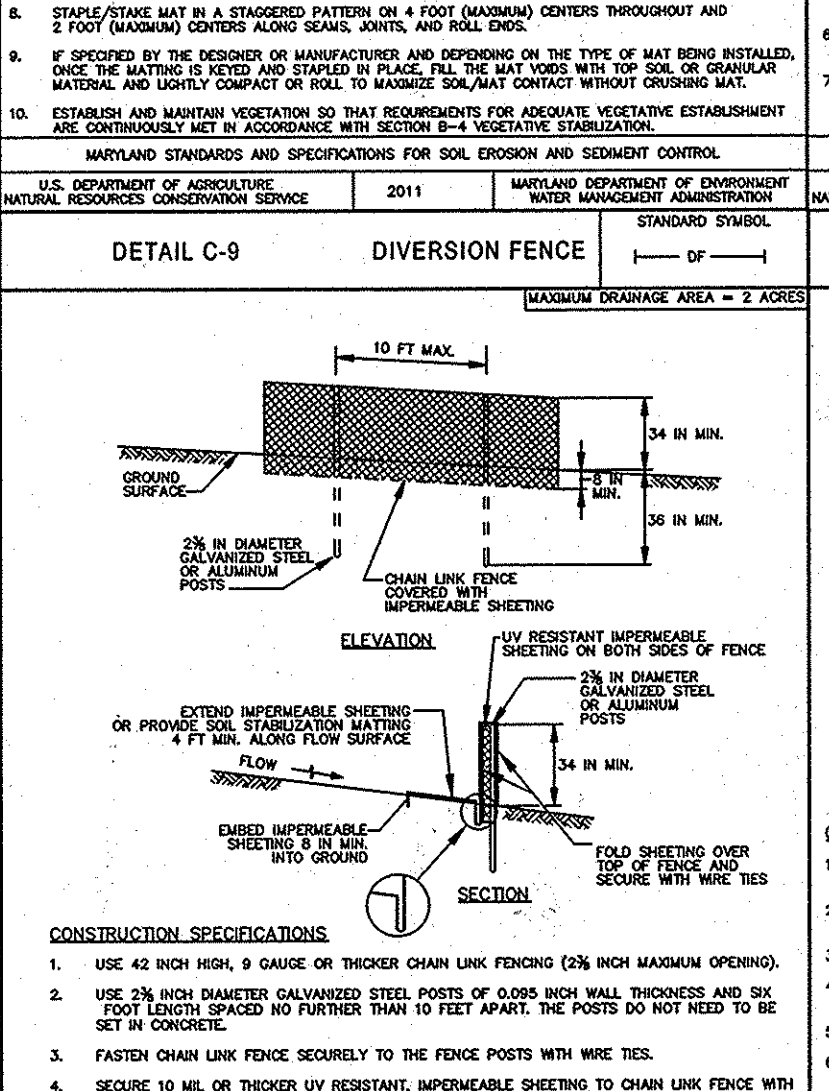
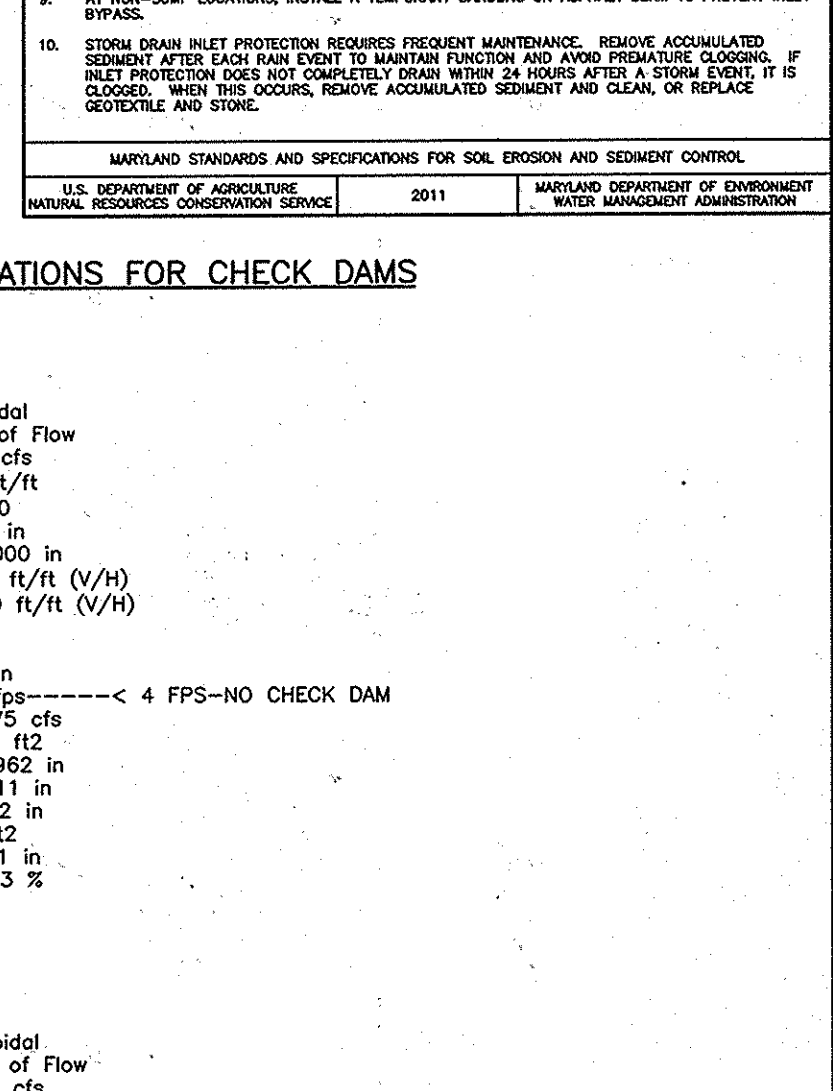


B-4 STANDARDS AND SPECIFICATIONS FOR INCREMENTAL STABILIZATION... Purpose: To establish vegetative cover on cut and fill slopes... To provide timely vegetative cover on cut and fill slopes as work progresses...

B-4-2 STANDARDS AND SPECIFICATIONS FOR TOPSOILING... Purpose: To provide a suitable soil medium for vegetative growth... To process the soils to sustain adequate vegetative stabilization...

B-4-3 STANDARDS AND SPECIFICATIONS FOR SEEDING AND MULCHING... Purpose: To apply seed and mulch to establish vegetative cover... To protect disturbed soils from erosion during and at the end of construction...

B-4-4 STANDARDS AND SPECIFICATIONS FOR STOCKPILE AREA... Purpose: To provide a designated location for the temporary storage of soil that controls the potential for erosion, sedimentation, and chemical hazards...



PROPOSED SWALE COMPUTATIONS FOR CHECK DAMS

Table with columns: Given Input Data (Slope, Flow rate, Manning's n, Height, Bottom width, Left slope, Right slope), Computed Results (Depth, Velocity, Full Flow rate, Flow area, Hydraulic radius, Top width, Perimeter, Percent full).

LOTS 1-5 Velocity Check

Table with columns: Given Input Data (Slope, Flow rate, Manning's n, Height, Bottom width, Left slope, Right slope), Computed Results (Depth, Velocity, Full Flow rate, Flow area, Hydraulic radius, Top width, Perimeter, Percent full).

PROPOSED SWALE COMPUTATIONS SHEAR STRESS

Table with columns: Given Input Data (Slope, Flow rate, Manning's n, Height, Bottom width, Left slope, Right slope), Computed Results (Depth, Velocity, Full Flow rate, Flow area, Hydraulic radius, Top width, Perimeter, Percent full).

STANDARD SEDIMENT CONTROL NOTES

- 1. A PRE-CONSTRUCTION MEETING MUST OCCUR WITH THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS... 2. ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL...

SEQUENCE OF CONSTRUCTION

- 1. OBTAIN GRADING PERMIT. DAY 1
2. INSTALL PERIMETER SEDIMENT CONTROLS, SUPER SILT FENCE, CLEANWATER DIKES AND STABILIZED CONSTRUCTION ENTRANCE. DAY 2 - 5
3. WITH PERIMETER CONTROLS IN PLACE BEGIN SITE CLEARING AND REMOVE EXISTING SHED. DAY 6 - 13
4. INSTALL BYPASS STORM DRAIN SYSTEM, 1-1, 1-10, 1-1 AND 1-2 AND BRING TO GRADE TO ALLOW DIKES TO OUTFLOW INTO 1-1 AND STABILIZE AREA. DAY 14 - 21
5. ROUGH GRADE SITE PER PLAN. DAY 22 - 28
6. INSTALL WATER & SEWER MAINS. DAY 29 - 60
7. WITH WATER & SEWER MAINS IN PLACE INSTALL REMAINING STORM DRAIN SYSTEM AND BLOCK INLETS. DAY 61 - 75
8. WITH STORM DRAIN AND WATER & SEWER IN PLACE FINE GRADE ROAD AND BEGIN INSTALLATION OF CURB AND GUTTER. DAY 76 - 81
9. PAVE ROAD AND STABILIZE DISTURBED AREAS. DAY 82 - 85
10. WITH AREAS STABILIZED CONSTRUCT BIO SWALE AND BIO RETENTION FACILITIES. DAY 86 - 100
11. INSTALL STREET TREES PER LANDSCAPE PLAN. DAY 101 - 104
12. WITH THE APPROVAL OF THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR REMOVE SEDIMENT CONTROL DEVICES AND STABILIZE ANY REMAINING DISTURBED AREAS. DAY 105 - 112

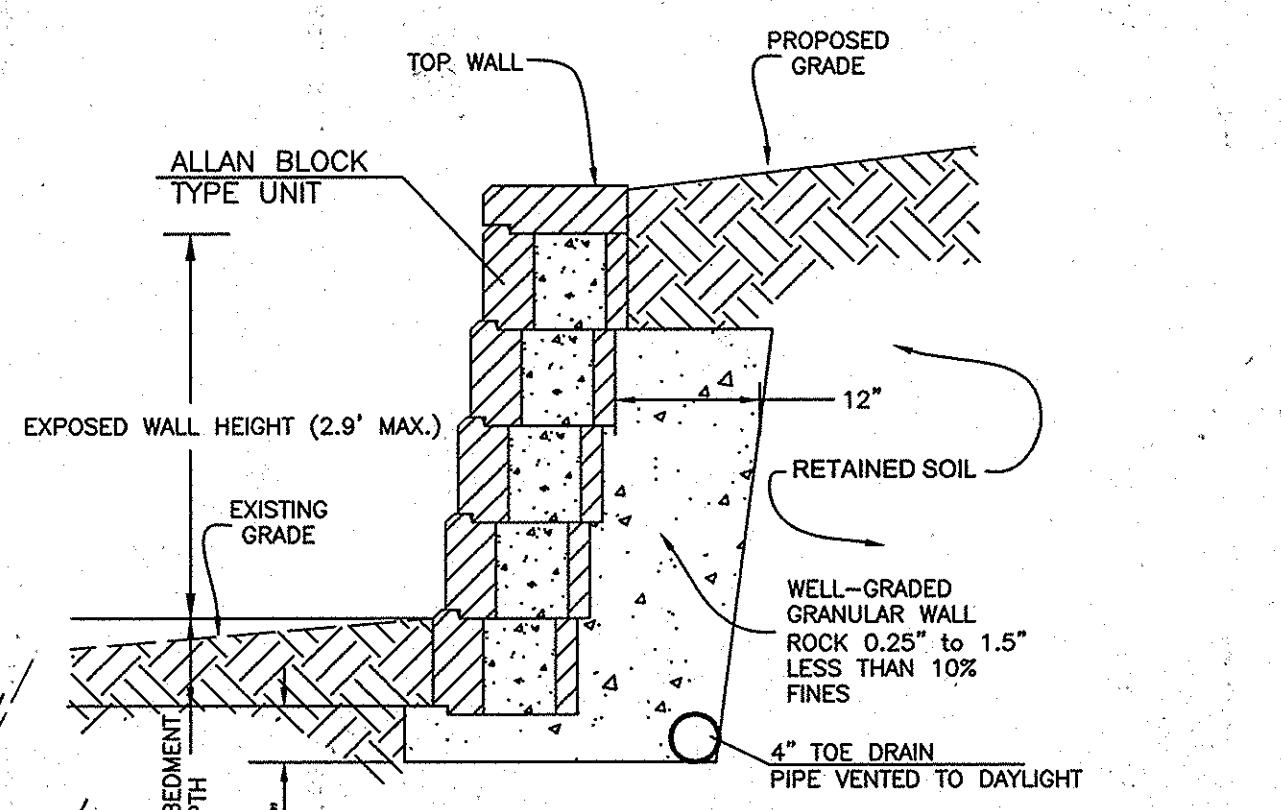
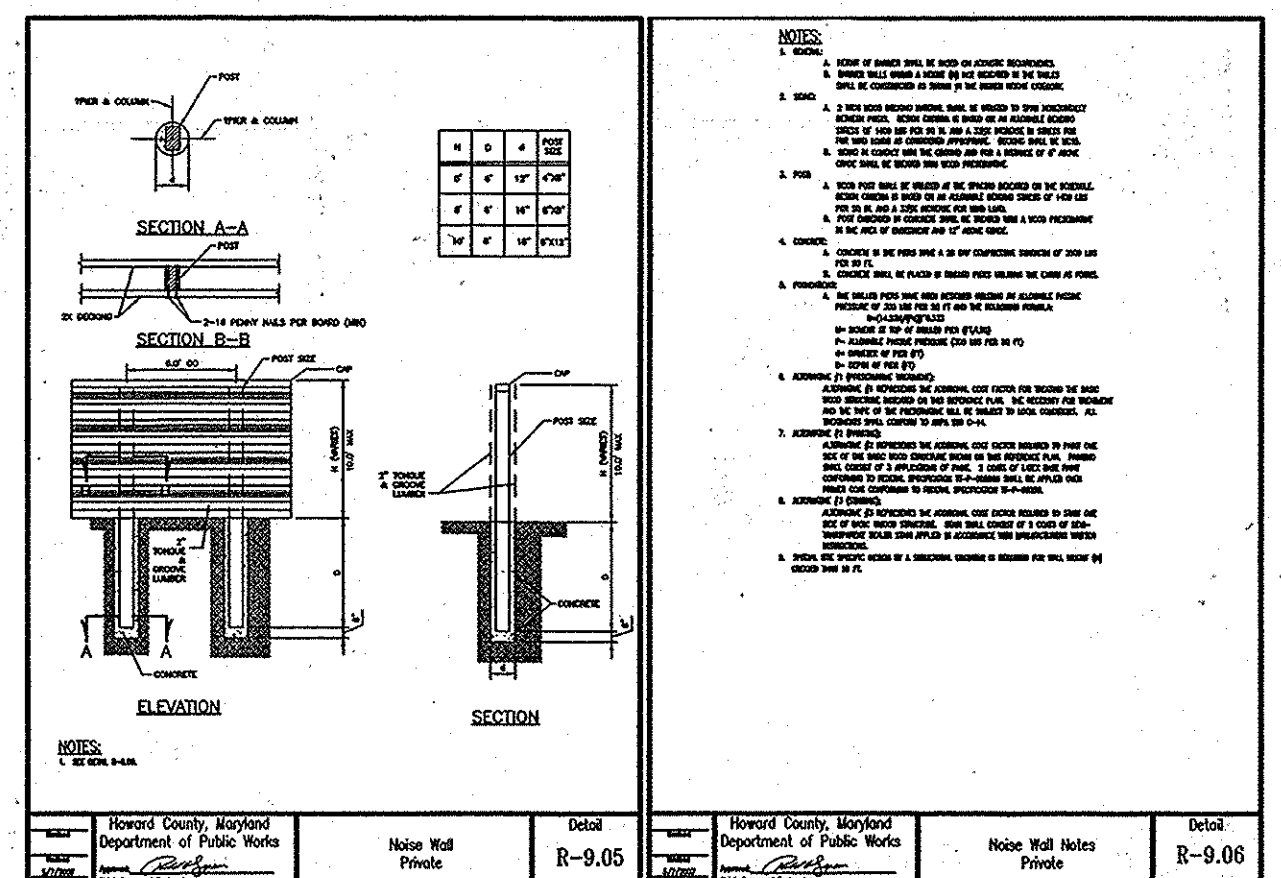
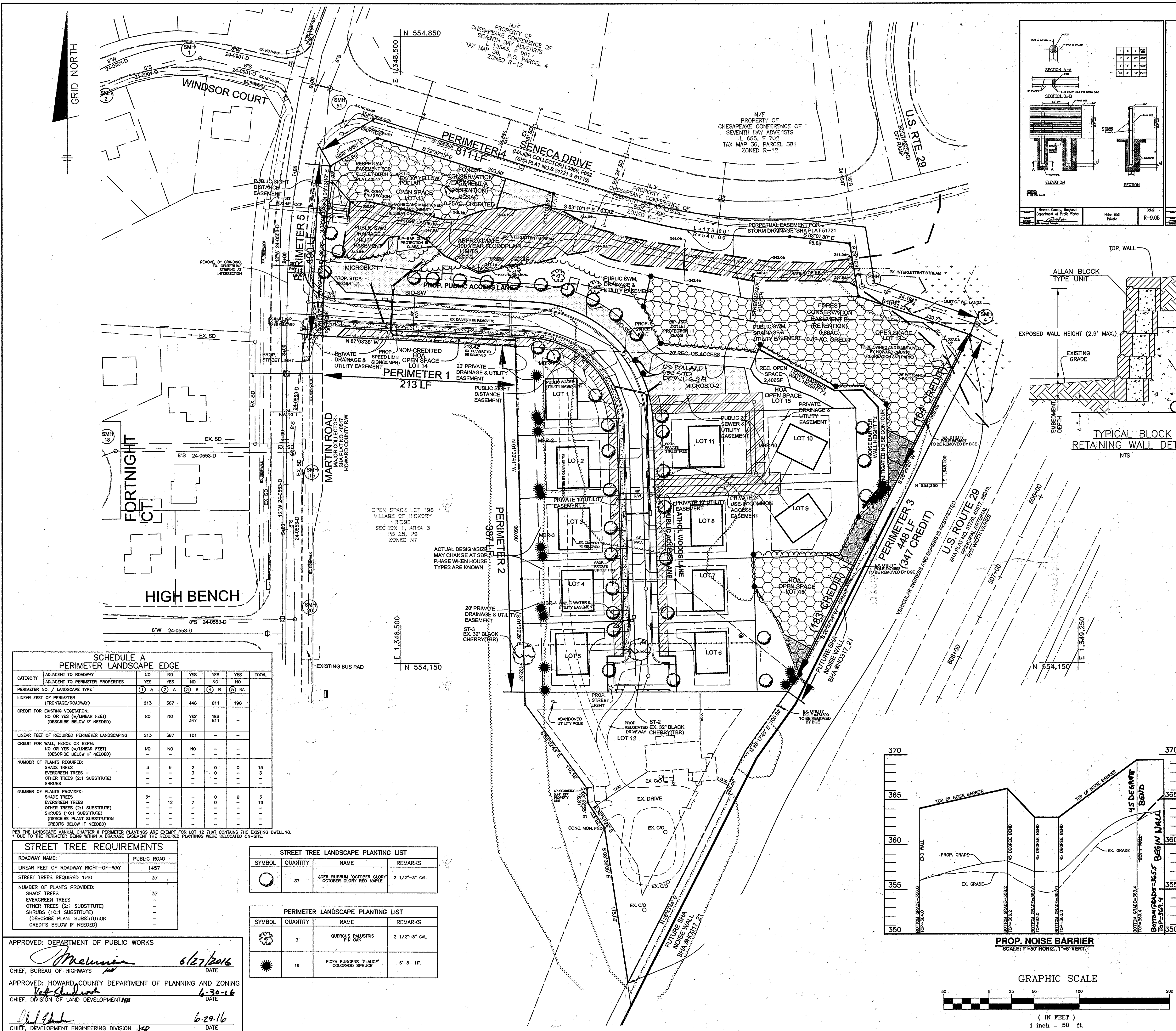
ENGINEER'S CERTIFICATE: I HEREBY CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

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

B-4-4 STANDARDS AND SPECIFICATIONS FOR STOCKPILE AREA... Purpose: To provide a designated location for the temporary storage of soil that controls the potential for erosion, sedimentation, and chemical hazards...

Table with columns: Given Input Data (Slope, Flow rate, Manning's n, Height, Bottom width, Left slope, Right slope), Computed Results (Depth, Velocity, Full Flow rate, Flow area, Hydraulic radius, Top width, Perimeter, Percent full).

BENCHMARK ENGINEERING, INC. logo and contact information. Includes address: 8480 BALTIMORE NATIONAL PIKE SUITE 315 ELICOTT CITY, MARYLAND 21043. Phone: (410) 465-8100. Website: www.benchmarkengineering.com.



LEGEND

- EXISTING CONTOURS
- EXISTING TREELINE
- PROPOSED TREELINE
- EXISTING STREAM
- EXISTING STREAM BUFFER
- APPROXIMATE 100 YEAR FLOODPLAIN LIMITS
- EXISTING STRUCTURE
- PROPOSED STRUCTURE
- SLOPES 25% OR GREATER
- SLOPES 15% TO 24.9%
- LIMIT OF WETLANDS
- 100 YEAR FLOODPLAIN
- FOREST CONSERVATION EASEMENT
- FOREST CONSERVATION SIGN
- PUBLIC SWM, DRAINAGE & UTILITY EASEMENT
- PRIVATE USE-IN-COMMON ACCESS EASEMENT
- PRIVATE UTILITY EASEMENT
- PUBLIC SEWER & UTILITY EASEMENT
- NON CREDITED FOREST CONSERVATION EASEMENT AREAS

- ### LANDSCAPING NOTES
- THE PROPOSED LANDSCAPING SHALL BE PROVIDED BY THE PLANTINGS AS SHOWN ON THESE PLANS.
 - THE DEVELOPER SHALL BE RESPONSIBLE FOR ALL INTERNAL PLANTINGS; THE PRESERVATION OF THE EXISTING PERIMETER VEGETATION; AND FOR THE PERIMETER PLANTINGS AS SHOWN ON THESE PLANS. BONDING FOR THE PROPOSED PLANTINGS IS THE OBLIGATION OF THE DEVELOPER AS PART OF THE DEVELOPER'S AGREEMENT.
 - TREES MUST BE A MINIMUM OF FOUR (4) FEET FROM THE CURB OR SIDEWALK AND MUST BE A MINIMUM OF FIVE (5) FEET FROM ANY STORM DRAIN.
 - A MINIMUM DISTANCE OF TWENTY (20) FEET MUST BE MAINTAINED BETWEEN ANY TREES LOCATED ALONG THE CURB LINE AND FROM STREET LIGHTS.
 - TREE MUST BE PLANTED A MINIMUM OF FIVE (5) FEET FROM AN OPEN SPACE ACCESS STRIP AND TEN (10) FEET FROM A DRIVEWAY.
 - THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND LANDSCAPE MANUAL.
 - STREET TREES SHALL BE PLANTED SIX (6) FEET BEHIND FACE OF CURB WHEN THERE ARE NO SIDEWALKS.
 - ALL LANDSCAPING PLANT TYPES SHOWN ON THESE PLANS ARE RECOMMENDATIONS AND MAY BE SUBSTITUTED WITH APPROVED EQUIVALENTS FROM THE HOWARD COUNTY LANDSCAPE MANUAL.
 - NO TREES SHALL BE PLACED WITHIN 10' BEHIND A RETAINING WALL OR WITHIN A RELATED MAINTENANCE EASEMENT, WHICHEVER IS GREATER.
 - THE SURETY FOR THE 3 PERIMETER SHADE TREES (\$900.00) AND 19 PERIMETER EVERGREEN TREES (2,850.00) IN THE AMOUNT OF \$3,750.00 HAS BEEN POSTED AS A LANDSCAPE BOND. THE SURETY REQUIRED 37 STREET TREES IN THE AMOUNT OF (\$11,100.00) HAS BEEN POSTED AS PART OF THE DPW DEVELOPER'S AGREEMENT.

DEVELOPER'S/BUILDER'S CERTIFICATE

I/WE CERTIFY THAT THE LANDSCAPING SHOWN ON THIS PLAN WILL BE DONE ACCORDING TO THE PLAN, SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE HOWARD COUNTY LANDSCAPE MANUAL. I/WE FURTHER CERTIFY THAT UPON COMPLETION OF A LETTER OF LANDSCAPE INSTALLATION, ACCOMPANIED BY AN EXECUTED ONE-YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.

DEVELOPER: *[Signature]* DATE: 5/20/16

J. CHRIS COLE DNR QUALIFIED PROFESSIONAL

SCHEDULE A PERIMETER LANDSCAPE EDGE

CATEGORY	ADJACENT TO ROADWAY		ADJACENT TO PERIMETER PROPERTIES		TOTAL
	NO	YES	NO	YES	
PERIMETER NO. / LANDSCAPE TYPE	① A	② B	③ A	④ B	⑤ NA
LINEAR FEET OF PERIMETER (FRONTAGE/ROADWAY)	213	387	448	811	180
CREDIT FOR EXISTING VEGETATION (NO OR YES (4/LINEAR FEET) (DESCRIBE BELOW IF NEEDED))	NO	NO	YES 347	YES 811	-
LINEAR FEET OF REQUIRED PERIMETER LANDSCAPING	213	387	101	-	-
CREDIT FOR WALL, FENCE OR BERM (NO OR YES (4/LINEAR FEET) (DESCRIBE BELOW IF NEEDED))	NO	NO	NO	-	-
NUMBER OF PLANTS REQUIRED:					
SHADE TREES	3	6	2	0	15
EVERGREEN TREES	-	-	3	0	3
OTHER TREES (2:1 SUBSTITUTE)	-	-	-	-	-
SHRUBS	-	-	-	-	-
NUMBER OF PLANTS PROVIDED:					
SHADE TREES	3*	-	0	0	3
EVERGREEN TREES	-	12	7	0	19
OTHER TREES (2:1 SUBSTITUTE)	-	-	-	-	-
SHRUBS (10:1 SUBSTITUTE)	-	-	-	-	-
(DESCRIBE PLANT SUBSTITUTION CREDITS BELOW IF NEEDED)					

STREET TREE REQUIREMENTS

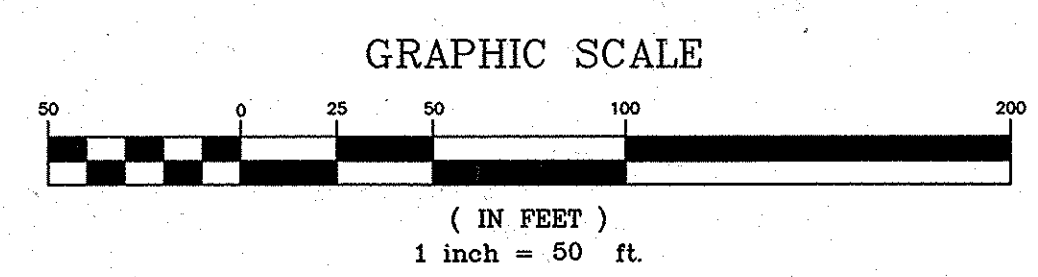
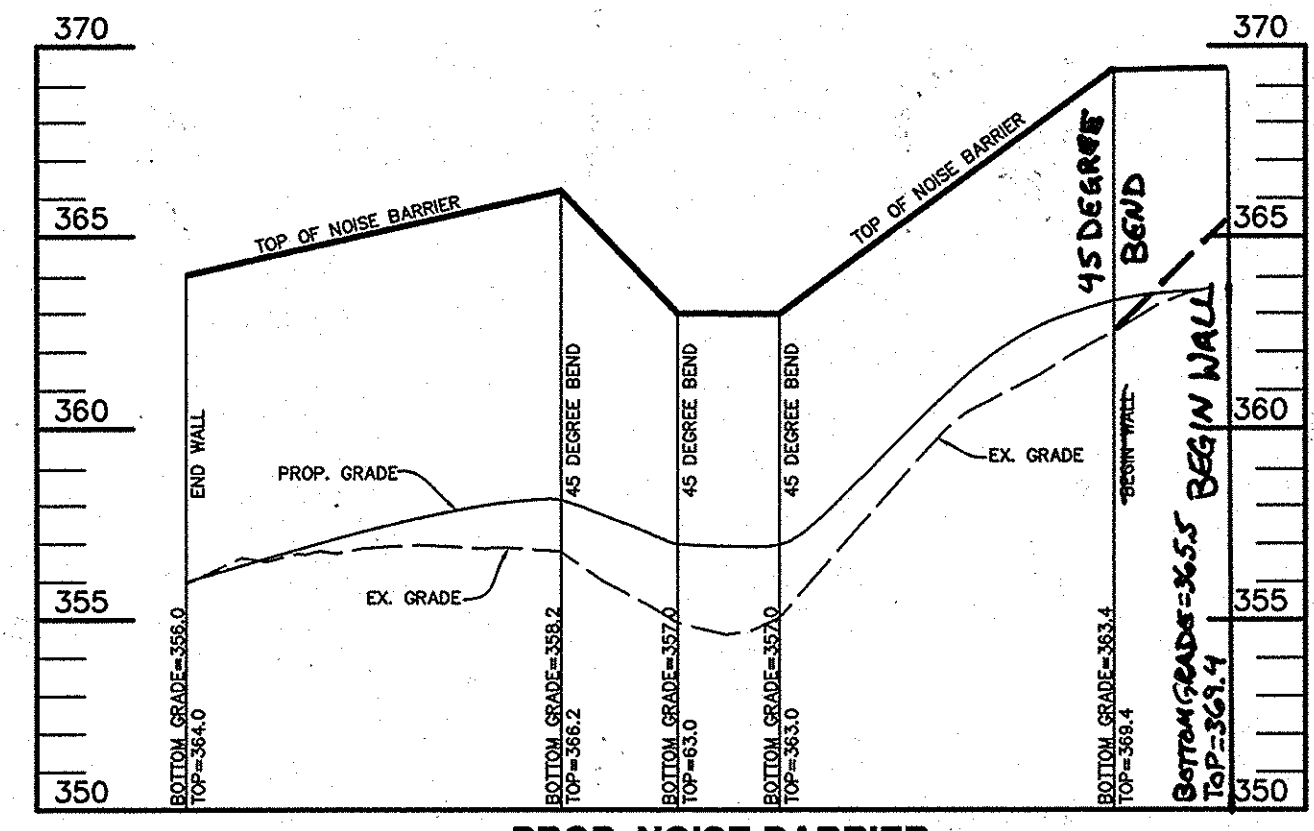
ROADWAY NAME:	PUBLIC ROAD
LINEAR FEET OF ROADWAY RIGHT-OF-WAY	1457
STREET TREES REQUIRED 1:40	37
NUMBER OF PLANTS PROVIDED:	
SHADE TREES	-
EVERGREEN TREES	-
OTHER TREES (2:1 SUBSTITUTE)	-
SHRUBS (10:1 SUBSTITUTE)	-
(DESCRIBE PLANT SUBSTITUTION CREDITS BELOW IF NEEDED)	

STREET TREE LANDSCAPE PLANTING LIST

SYMBOL	QUANTITY	NAME	REMARKS
🌳	37	ACER RUBRUM 'OCTOBER GLORY' OCTOBER GLORY RED MAPLE	2 1/2"-3" CAL.

PERIMETER LANDSCAPE PLANTING LIST

SYMBOL	QUANTITY	NAME	REMARKS
🌳	3	QUERCUS PALustris PIN OAK	2 1/2"-3" CAL.
🌳	19	PIETA PINUS 'GLAUCO' COLORADO SPRUCE	6"-8" HT.



APPROVED: DEPARTMENT OF PUBLIC WORKS
[Signature] 6/27/2016 DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
[Signature] 6-30-16 DATE

[Signature] 6-29-16 DATE

NO. DATE REVISION

BENCHMARK ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE SUITE 315 ELLICOTT CITY, MARYLAND 21043
(P) 410-465-8103 (F) 410-465-6844
WWW.BE-CIVILENGINEERING.COM

OWNER: LISA MARIE SMITH 6128 EDWARD HILL ROAD ELLICOTT CITY, MD 21043

DEVELOPER: MICHELLE LYNN ARMSTRONG 6680 MARTIN ROAD COLUMBIA, MD 21044

ATHOL WOODS
LOTS 1 thru 12 AND OPEN SPACE LOTS 13, 14 & 15

TAX MAP 36, GRID 19, PARCELS 108, 04 & 495
5th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

ROAD CONSTRUCTION PLANS
LANDSCAPE AND FOREST CONSERVATION PLAN

DATE: MAY 2016 BEI PROJECT NO. 2567

SCALE: 1"=50' SHEET 6 OF 9

FOREST CONSERVATION NOTES:

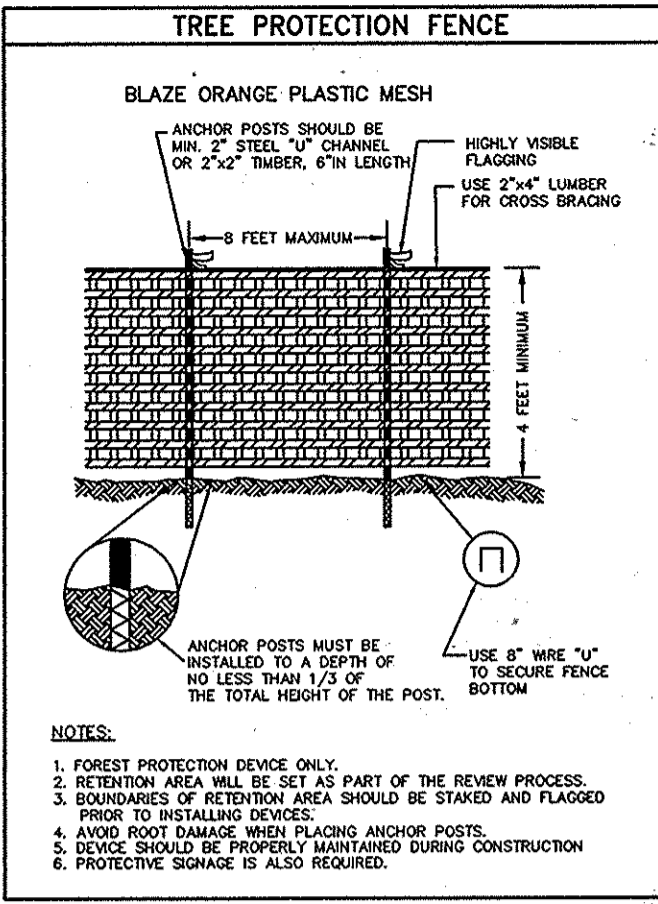
1. ANY FOREST CONSERVATION EASEMENT (FCE) AREA SHOWN HEREON IS SUBJECT TO PROTECTIVE COVENANTS WHICH MAY BE FOUND IN THE LAND RECORDS OF HOWARD COUNTY WHICH RESTRICT THE DISTURBANCE AND USE OF THESE AREAS.
2. THE FOREST CONSERVATION EASEMENTS HAVE BEEN ESTABLISHED TO FULFILL THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY CODE, FOREST CONSERVATION ACT - NO CLEARING, GRADING, OR CONSTRUCTION IS PERMITTED WITHIN THE FOREST CONSERVATION EASEMENTS; HOWEVER, FOREST MANAGEMENT PRACTICES AS DEFINED IN THE DEED OF FOREST CONSERVATION EASEMENT ARE ALLOWED.
3. LIMITS OF DISTURBANCE SHALL BE RESTRICTED TO AREAS OUTSIDE THE LIMIT OF TEMPORARY FENCING OR THE FCE BOUNDARY, WHICHEVER IS GREATER.
4. THERE SHALL BE NO CLEARING, GRADING, CONSTRUCTION OR DISTURBANCE OF VEGETATION IN THE FOREST CONSERVATION EASEMENT, EXCEPT AS PERMITTED BY HOWARD COUNTY DPZ.
5. NO STOCKPILES, PARKING AREAS, EQUIPMENT CLEANING AREAS, ETC. SHALL OCCUR WITHIN AREAS DESIGNATED AS FOREST CONSERVATION EASEMENTS.
6. TEMPORARY FENCING SHALL BE USED TO PROTECT FOREST RESOURCES DURING CONSTRUCTION. THE FENCING SHALL BE PLACED ALONG ALL FCE BOUNDARIES WHICH OCCUR WITHIN 15 FEET OF THE PROPOSED LIMITS OF DISTURBANCE.
7. PERMANENT SIGNAGE SHALL BE PLACED 50-100' APART ALONG THE BOUNDARIES OF ALL AREAS INCLUDED IN FOREST CONSERVATION EASEMENTS.
8. THE FOREST CONSERVATION OBLIGATION FOR THIS SITE SHALL BE MET BY THE ON-SITE RETENTION AMOUNT OF 1.07 ACRES. THE REMAINING 0.98 WILL BE PROVIDED BY **AN OFFSITE BANK (FOD) OR FEE-IN-LIEU (\$32,017.00).**

THE WATERSHED FOR THIS DRAINAGE AREA IS THE MIDDLE PATUXENT RIVER, DNR LISTING NUMBER 2111306.

FOREST CONSERVATION EASEMENT CHART			
EASEMENT AREA	TYPE	AREA	CREDITED
A	RETENTION	0.29 AC.	0.25 AC.
B	RETENTION	0.86 AC.	0.82 AC.

SPECIMEN TREE TABLE						
NO.	COMMON NAME	SCIENTIFIC NAME	DBH (IN.)	CONDITION RATING	CONDITION/COMMENTS	STATUS
1	YELLOW POPLAR	LIRIODENDRON TULIPIFERA	30		MINOR BROKEN LIMBS	TO REMAIN
2	BLACK CHERRY	PRUNUS SEROTINA	32(TWIN)		BROKEN LIMBS, TRUNK DAMAGE, SPLIT @ 7'	TO BE REMOVED
3	BLACK CHERRY	PRUNUS SEROTINA	32		3-TRUNK SPLIT @ 5.5', ONE TRUNK DEAD, BROKEN LIMBS	TO BE REMOVED

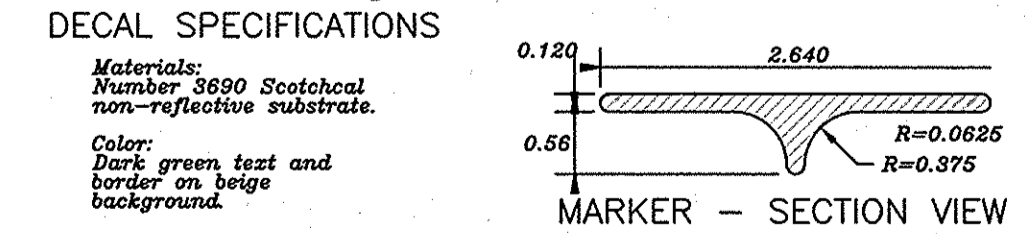
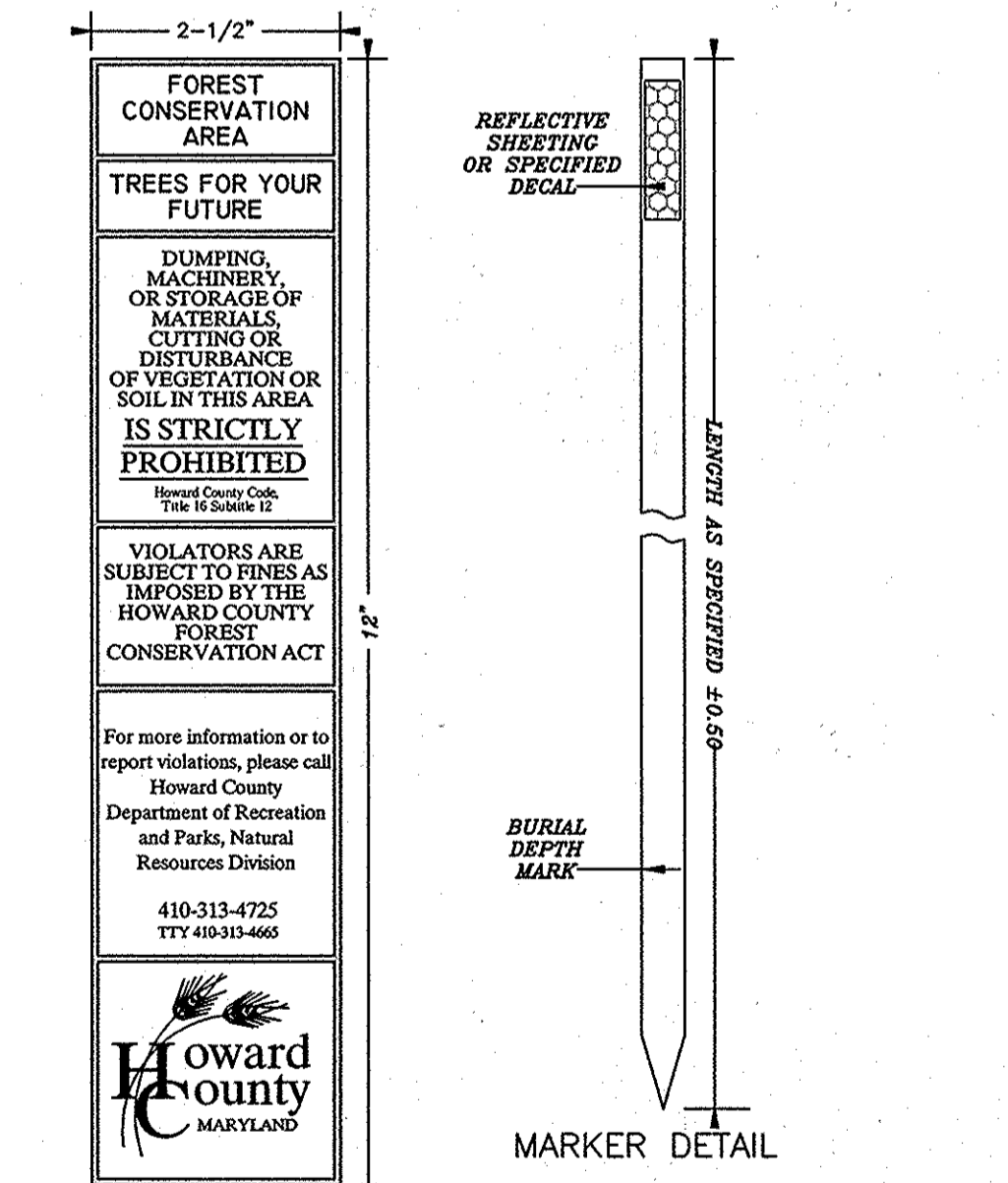
FOREST CONSERVATION WORKSHEET						
ATHOL WOODS						
NET TRACT AREA:						5-Aug-02
A. Total tract area ...						6.69
B. Land dedication acres (parks, county facility, etc.) ...						0.00
C. Land dedication for roads or utilities (not being constructed by this plan) ...						0.00
D. Area to remain in commercial agricultural production/use ...						0.00
E. Other deductions (specify) ... FLOODPLAIN						0.45
F. Net Tract Area						6.24
LAND USE CATEGORY: (from Trees Technical Manual)						
Input the number "1" under the appropriate land use, limit to only one entry.						
	ARA	MDR	IDA	HDR	MPD	CIA
	0	0	0	1	0	0
G. Afforestation Threshold ...						15% x F = 0.94
H. Conservation Threshold ...						20% x F = 1.25
EXISTING FOREST COVER:						
I. Existing forest cover						3.76
J. Area of forest above afforestation threshold						2.82
K. Area of forest above conservation threshold						2.51
BREAK EVEN POINT:						
L. Forest retention above threshold with no mitigation						1.75
M. Clearing permitted without mitigation						2.01
PROPOSED FOREST CLEARING:						
N. Total area of forest to be cleared						2.69
O. Total area of forest to be retained						1.07
PLANTING REQUIREMENTS:						
P. Reforestation for clearing above conservation threshold						0.63
Q. Reforestation for clearing below conservation threshold						0.36
R. Credit for retention above conservation threshold						0.00
S. Total reforestation required						0.98
T. Total afforestation required						0.00
U. Credit for landscaping (may not exceed 20% of "S")						0.00
V. Total reforestation and afforestation required						0.98



- FOREST PROTECTION PROCEDURES - Preconstruction Phase**
- 1) The edge of the woods to be protected will be marked (staked or flagged) in the field per the limits of forest conservation easement shown in the approved site development plan prior to the start of construction activity. All areas within protective easement are to be considered "off limits" to any construction activities. The optional protective fencing shall be installed at the outside edge of forested areas and should be combined with sediment control devices when possible. The limit of the critical root zone and therefore the location of the protective devices is to be determined as follows:
Edge of Forested Area - 1 foot of protective radius/inch of DBH or an eight foot protective radius, whichever is greater.
Critical Root Zone for the forest on this site is an average of 12 feet from the trunk of the tree. Critical root zone for the Specimen Tree is 30'.
Placing or stockpiling backfill or top soil in protected areas
Driving construction equipment into or through protected areas
Burning in or in close proximity to protected areas
Stacking or storing supplies of any kind
Concrete wash-off areas
Conducting trenching operations
Grading beyond the limits of disturbance
Parking vehicles or construction equipment
Removal of root mat or topsoil
Siting and construction of:
Utility lines
Access roads
Impervious surfaces
Stormwater management devices
Staging areas
 - 2) Construction activities expressly prohibited within the preservation areas are:
Placing or stockpiling backfill or top soil in protected areas
Driving construction equipment into or through protected areas
Burning in or in close proximity to protected areas
Stacking or storing supplies of any kind
Concrete wash-off areas
Conducting trenching operations
Grading beyond the limits of disturbance
Parking vehicles or construction equipment
Removal of root mat or topsoil
Siting and construction of:
Utility lines
Access roads
Impervious surfaces
Stormwater management devices
Staging areas
 - 3) Protective fencing (see Figure "Protective Fencing") shall be the responsibility of the general contractor. The general contractor shall affix signs to the fencing at 25' minimum intervals indicating that these areas are "Forest Retention Area" (see Figure "Signage"). The general contractor shall take great care to assure the restricted areas are not violated and that root systems are protected from smothering, flooding, excessive wetting from dewatering operations, off-site runoff, spillage, and drainage or solutions containing materials hazardous to tree roots.
 - 4) The general contractor shall be responsible for any tree damaged or destroyed within the preservation areas whether caused by the contractor, his agents, employees, subcontractors, or licensees.
 - 5) Foot traffic shall be kept to a minimum in the protective areas.
 - 6) All trees which are not to be preserved within fifty feet of any tree preservation areas are to be removed in a manner that will not damage those trees that are designated for preservation. It is highly recommended that tree stumps within this fifty foot area be ground out with a stump grinding machine to minimize damage.
 - 7) The general contractor shall designate a "wash out" area onsite for concrete trucks which will not drain toward a protected area.
 - 8) A pre-construction meeting shall be held with local authorities before any disturbance has taken place on site.

- FOREST PROTECTION PROCEDURES - Construction Phase**
- Forest and tree conditions should be monitored during construction and corrective measures taken when appropriate. The following shall be monitored:
- a) Soil compaction
 - b) Root injury - prune and monitor; consider crown reduction
 - c) Limb injury - prune and monitor
 - d) Flooded conditions - drain and monitor; correct problem
 - e) Drought conditions - water and monitor; correct problem
 - f) Other stress signs - determine reason, correct, and monitor
- FOREST PROTECTION PROCEDURES - Post Construction Phase**
- The following measures shall be taken:
- 1) Corrective measures if damages were incurred due to negligence:
 - a) Stress reduction
 - b) Removal of dead or dying trees. This may be done only if trees pose an immediate safety hazard.
 - 2) Removal of temporary structures:
 - a) No burial of discarded materials will occur onsite within the conservation area.
 - b) No open burning within 100 feet of a wooded area.
 - c) All temporary forest protection structures will be removed after construction.
 - d) Remove temporary roads by removing stone or broadcasting mulch; pre-construction elevation should be maintained.
 - e) Aerate compacted soil.
 - f) Replant disturbed sites with trees, shrubs and/or herbaceous plants.
 - g) Retain signs for retention areas or specimen trees.
 - h) A County official shall inspect the entire site.
 - 3) Future protection measures:
 - a) Howard County and the developer shall arrange for the dedication of an appropriate forest conservation easement at a later date.

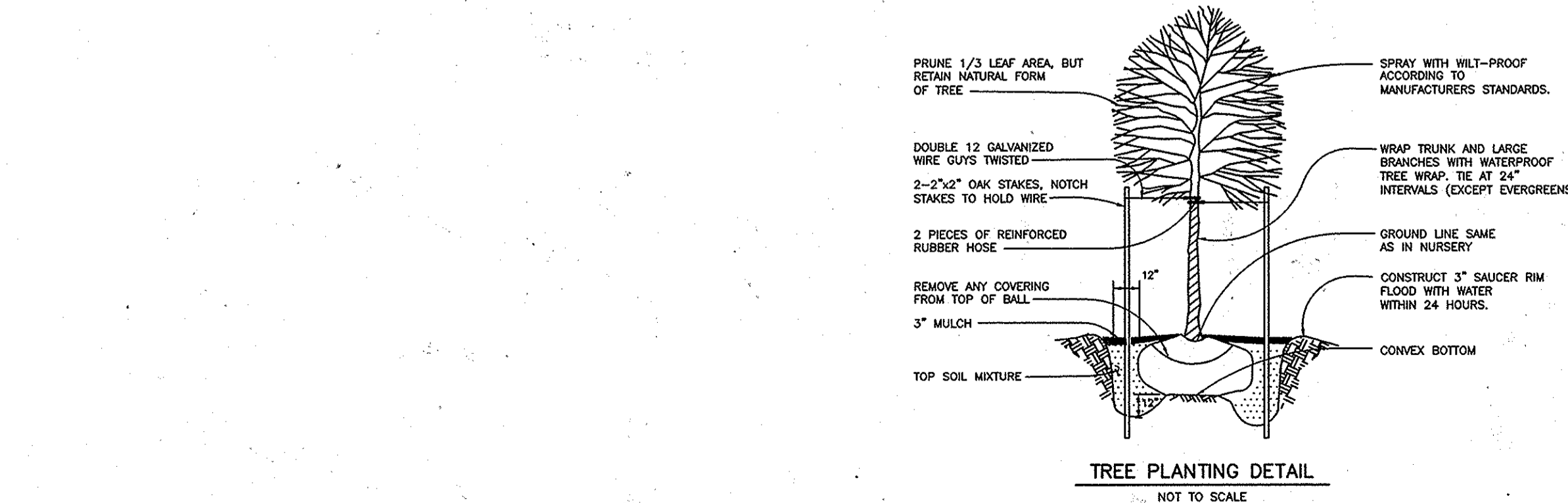
- FOREST PROTECTION PROCEDURES - Preconstruction Phase**
- Stress Reduction and Protection of Specimen Trees Isolated from Forest Retention Areas and General Forest Retention Areas (as they may apply)
- Isolated specimen trees that are to be preserved will be examined to determine if stress reduction techniques are needed. Protective measures and their evaluation criteria are provided on this plan only if they are employed herein.
- Root Pruning Evaluation Criteria
- Will the critical root zone be affected by construction activities such as grade changes, digging for foundations and roads or utility installation?
- Design Considerations
- a) Prune prior to construction as shown on the plan (see Figure "Root Pruning Detail.")
 - b) Prune root with a clean cut using proper pruning equipment such as a vibratory knife.
 - c) Exact location of pruning trench should be identified, and immediately backfilled to cover exposed roots after pruning with soil removed either topsoil, peat moss, or other suitable material or with other high organic soil.
 - d) For trees over 15" in diameter, root pruning may be done up to one year in advance of construction.
 - e) Tree(s) will be monitored for signs of stress.
- Crown Reduction or Pruning Evaluation Criteria
- Has the root system been significantly reduced (>30%) or are there dead, damaged, or diseased limbs?
- Design Considerations
- a) Reduce only at specified times of the year:
Flowering trees - only after flowering and before bud set
Non-flowering trees - in late winter, early spring or mid summer
 - b) No more than 1/3 of the crown should be removed at one time using acceptable pruning methods (see Figure "Crown Reduction Detail")
 - c) Monitor for signs of stress
- Watering Evaluation Criteria
- Will construction activities alter the hydrology of the site? Has or will root pruning occur?
- Design Considerations
- a) Water only as necessary
 - b) Monitor for signs of stress (see Figure "Tree Planting and Maintenance Calendar")
- Fertilizing Evaluation Criteria
- Is or will be tree(s) be under stressful conditions? Has or will root pruning occur?
- Design Considerations
- a) Use low nitrogen and slow release fertilizers.
 - b) Apply in late fall or early spring (see Figure "Tree Planting and Maintenance Calendar")
 - c) For small trees (<3" in diameter), use punch hole method or pressurized injection method (see Figure "Application of Fertilizers by Injection.")
 - d) For larger trees (>3" diameter), use punch hole method or pressurized injection method (see Figure "Application of Fertilizers by Injection.")
 - e) Do not apply fertilizer any closer than 3' from tree trunk for pressurized injection method.
 - f) Monitor for signs of stress.



APPROVED: DEPARTMENT OF PUBLIC WORKS
 [Signature] 6/27/2016
 CHIEF, BUREAU OF HIGHWAYS

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 [Signature] 6/30/16
 CHIEF, DIVISION OF LAND DEVELOPMENT

APPROVED: [Signature] 6-29-16
 CHIEF, DEVELOPMENT ENGINEERING DIVISION



DEVELOPER'S/BUILDER'S CERTIFICATE

I/WE CERTIFY THAT THE LANDSCAPING SHOWN ON THIS PLAN WILL BE DONE ACCORDING TO THE PLAN, SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE HOWARD COUNTY LANDSCAPE MANUAL. I/WE FURTHER CERTIFY THAT UPON COMPLETION OF A LETTER OF LANDSCAPE INSTALLATION, ACCOMPANIED BY AN EXECUTED ONE-YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.

[Signature] 5/26/16
 DEVELOPER DATE

[Signature] J. CHRIS OGLE
 DNR QUALIFIED PROFESSIONAL

NO.	DATE	REVISION

BENCHMARK ENGINEERING, INC.
 8480 BALTIMORE NATIONAL PIKE & SUITE 315 ELLICOTT CITY, MARYLAND 21043
 (P) 410-465-8105 (F) 410-465-6644
 WWW.BE-ENGINEERING.COM

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer in the State of Maryland, License No. 63817.

[Signature] 5/26/16

ATHOL WOODS
 LOTS 1 thru 12 AND OPEN SPACE LOTS 13, 14 & 15

TAX MAP 36, GRID 19, PARCELS 108, 04 & 495
 5th ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

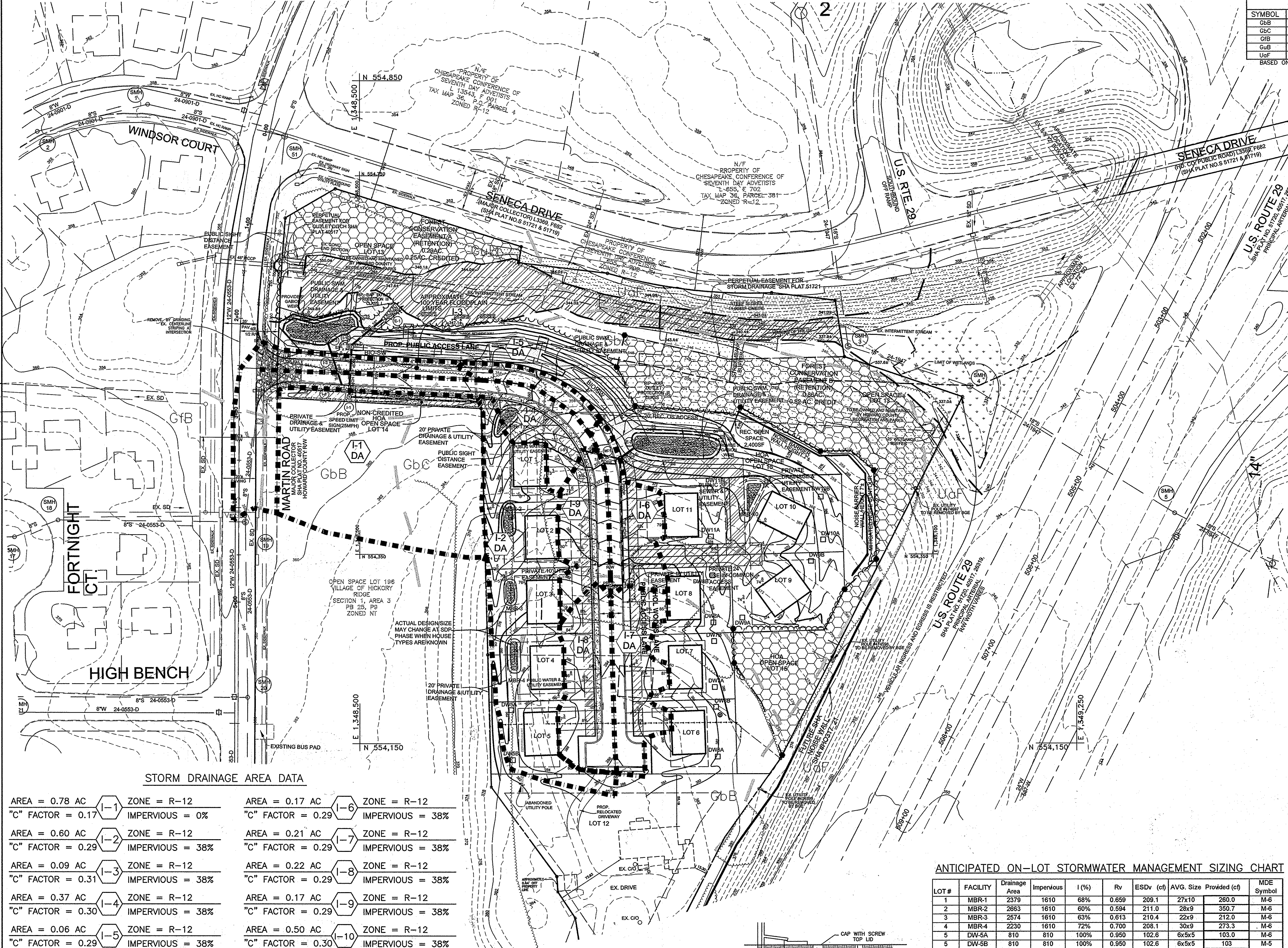
ROAD CONSTRUCTION PLANS
FOREST CONSERVATION DETAILS

OWNER:
 LISA MARIE SMITH
 6128 EDWARD HILL ROAD
 ELLICOTT CITY, MD 21043

DEVELOPER:
 LEGACY INVESTMENT, LLC
 C/O HOGAN DEVELOPMENT, LLC
 2691 RIVA ROAD, SUITE 300
 ANNAPOLIS, MD 21401
 410-266-5100

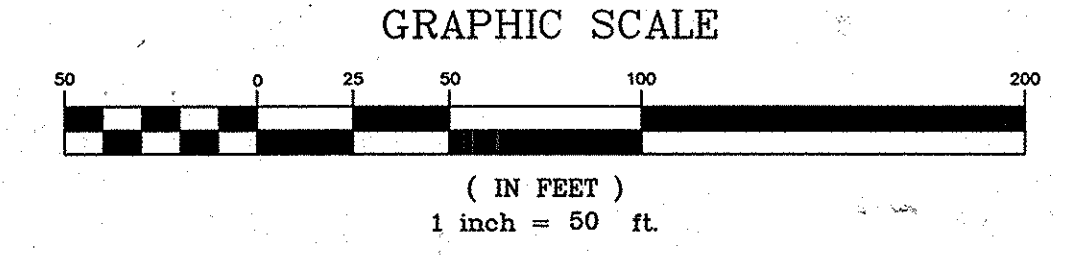
DATE: MAY 2016
 SCALE: 1"=30'

BEI PROJECT NO. 2567
 SHEET 7 OF 9



SOILS LEGEND			
SYMBOL	NAME/DESCRIPTION	K' VALUE	GROUP
GbB	GLADSTONE LOAM, 3 TO 8 PERCENT SLOPES	0.32	B
GbC	GLADSTONE LOAM, 8 TO 15 PERCENT SLOPES	0.32	B
GbB	GLADSTONE-URBAN LAND COMPLEX, 0 TO 8 PERCENT SLOPES	0.32	B
GbB	GLADSTONE-URBAN-UDORTMENTS COMPLEX, 0 TO 8 PERCENT SLOPES	0.43	C
UoF	UDORTMENTS HIGHWAY, 0 TO 65 PERCENT SLOPES		D

LEGEND	
EXISTING CONTOURS	452 450
EXISTING TREELINE	
PROPOSED TREELINE	
EXISTING STREAM	
EXISTING STREAM BUFFER	
APPROXIMATE 100 YEAR FLOODPLAIN LIMITS	
EXISTING STRUCTURE	
PROPOSED STRUCTURE	
SLOPES 25% OR GREATER	
SLOPES 15% TO 24.9%	
LIMIT OF WETLANDS	
100 YEAR FLOODPLAIN	
FOREST CONSERVATION EASEMENT	
FOREST CONSERVATION SIGN	
PUBLIC SWM, DRAINAGE & UTILITY EASEMENT	
PRIVATE USE-IN-COMMON ACCESS EASEMENT	
PRIVATE UTILITY EASEMENT	
PUBLIC SEWER & UTILITY EASEMENT	
PROP. STREET TREE	
PROP. SIDEWALK/PEDESTRIAN IMPROVEMENTS	
PROP. MICRO-BIORETENTION FACILITY	
PROP. BIO-SWALE	
PROP. DRYWELL	
SOIL DELINEATION	
SOILS DELINEATION	GnA
STORM DRAIN DRAINAGE AREA	

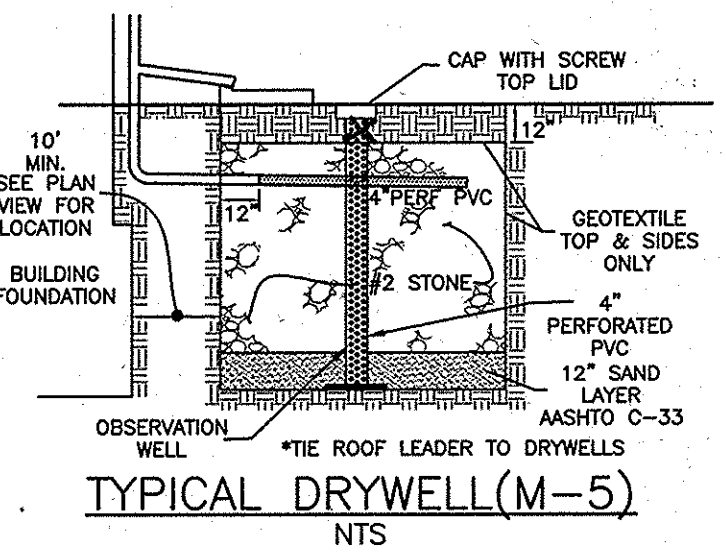


STORM DRAINAGE AREA DATA

AREA = 0.78 AC	ZONE = R-12	AREA = 0.17 AC	ZONE = R-12
"C" FACTOR = 0.17	IMPERVIOUS = 0%	"C" FACTOR = 0.29	IMPERVIOUS = 38%
AREA = 0.60 AC	ZONE = R-12	AREA = 0.21 AC	ZONE = R-12
"C" FACTOR = 0.29	IMPERVIOUS = 38%	"C" FACTOR = 0.29	IMPERVIOUS = 38%
AREA = 0.09 AC	ZONE = R-12	AREA = 0.22 AC	ZONE = R-12
"C" FACTOR = 0.31	IMPERVIOUS = 38%	"C" FACTOR = 0.29	IMPERVIOUS = 38%
AREA = 0.37 AC	ZONE = R-12	AREA = 0.17 AC	ZONE = R-12
"C" FACTOR = 0.30	IMPERVIOUS = 38%	"C" FACTOR = 0.29	IMPERVIOUS = 38%
AREA = 0.06 AC	ZONE = R-12	AREA = 0.50 AC	ZONE = R-12
"C" FACTOR = 0.29	IMPERVIOUS = 38%	"C" FACTOR = 0.30	IMPERVIOUS = 38%

ANTICIPATED ON-LOT STORMWATER MANAGEMENT SIZING CHART

LOT #	FACILITY	Drainage Area	Impervious	I (%)	Rv	ESDv (cf)	AVG. Size Provided (cf)	MDE Symbol
1	MBR-1	2379	1610	68%	0.659	209.1	27x10	M-6
2	MBR-2	2663	1610	60%	0.694	211.0	28x9	M-6
3	MBR-3	2574	1610	63%	0.613	210.4	22x9	M-6
4	MBR-4	2230	1610	72%	0.700	208.1	30x9	M-6
5	DW-5A	810	810	100%	0.950	102.6	6x5x5	M-5
6	DW-5B	810	810	100%	0.950	102.6	6x5x5	M-5
7	DW-6A	810	810	100%	0.950	102.6	6x5x5	M-5
8	DW-6B	810	810	100%	0.950	102.6	6x5x5	M-5
9	DW-7A	810	810	100%	0.950	102.6	6x5x5	M-5
10	DW-7B	810	810	100%	0.950	102.6	6x5x5	M-5
11	DW-8A	810	810	100%	0.950	102.6	6x5x5	M-5
12	DW-8B	810	810	100%	0.950	102.6	6x5x5	M-5
13	DW-9A	810	810	100%	0.950	102.6	6x5x5	M-5
14	DW-9B	810	810	100%	0.950	102.6	6x5x5	M-5
15	MBR-10	4875	2288	47%	0.472	307.1	10x28	M-6
16	DW-10A	810	810	100%	0.950	102.6	6x5x5	M-5
17	DW-10B	810	810	100%	0.950	102.6	6x5x5	M-5
18	DW-11A	810	810	100%	0.950	102.6	6x5x5	M-5
19	DW-11B	810	810	100%	0.950	102.6	6x5x5	M-5
TOTALS		26061	20068			2582		3143



APPROVED: DEPARTMENT OF PUBLIC WORKS
[Signature] 6/27/2016
 CHIEF, BUREAU OF HIGHWAYS
 APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
[Signature] 6/30/16
 CHIEF, DIVISION OF LAND DEVELOPMENT
 APPROVED: *[Signature]* 6/29/16
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

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.BE-ENGINEERING.COM

ATHOL WOODS
 LOTS 1 thru 12 AND OPEN SPACE LOTS 13, 14 & 15
 TAX MAP 36, GRID 19, PARCELS 108, 04 & 495
 5th ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

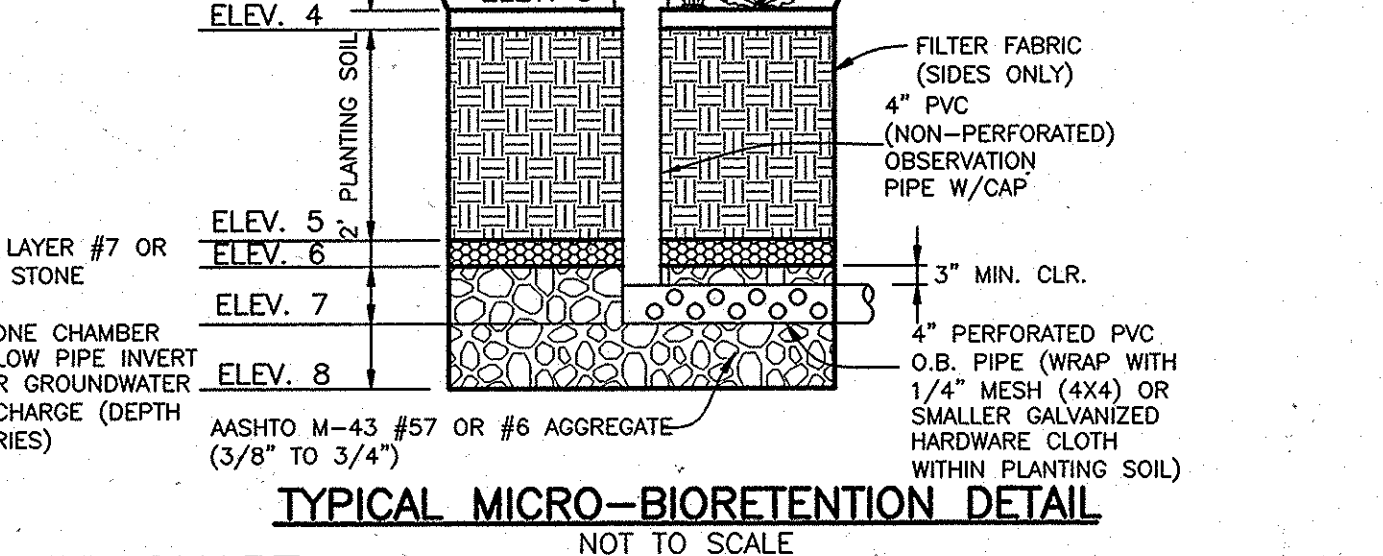
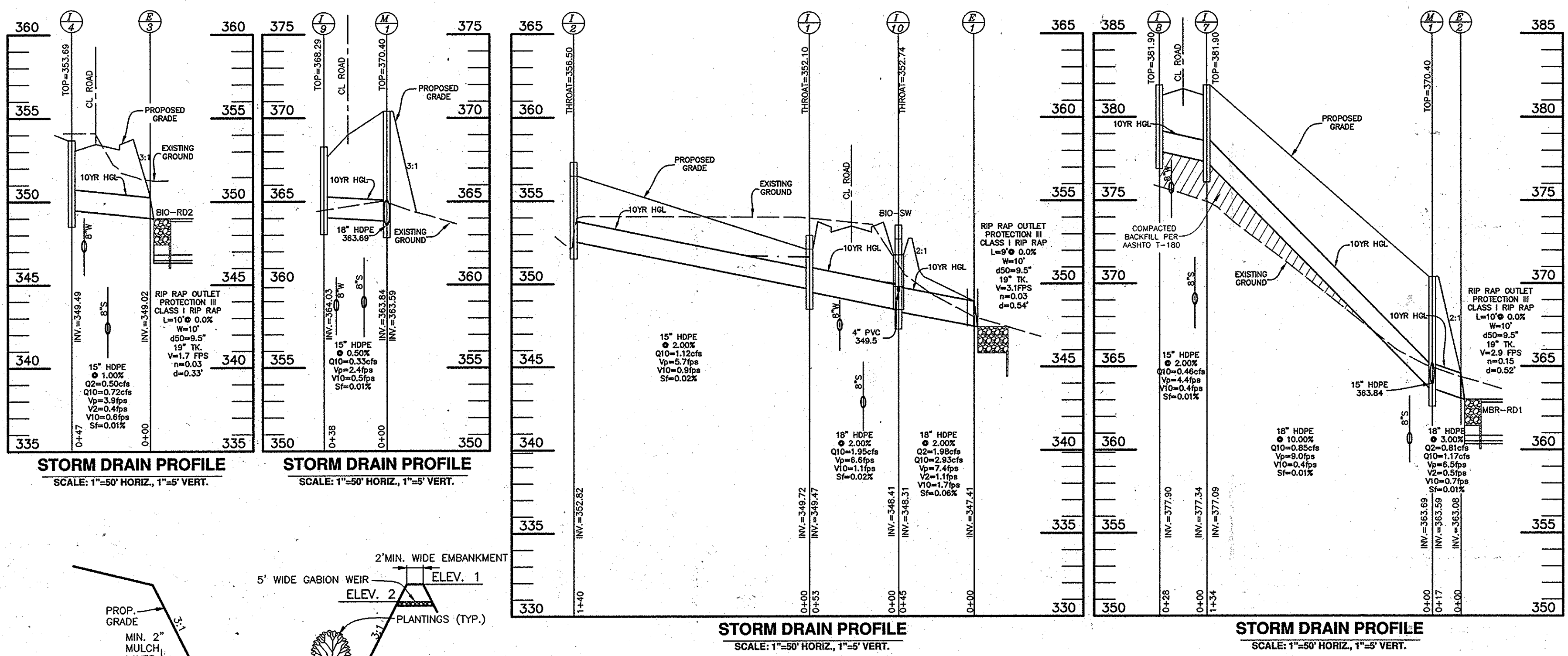
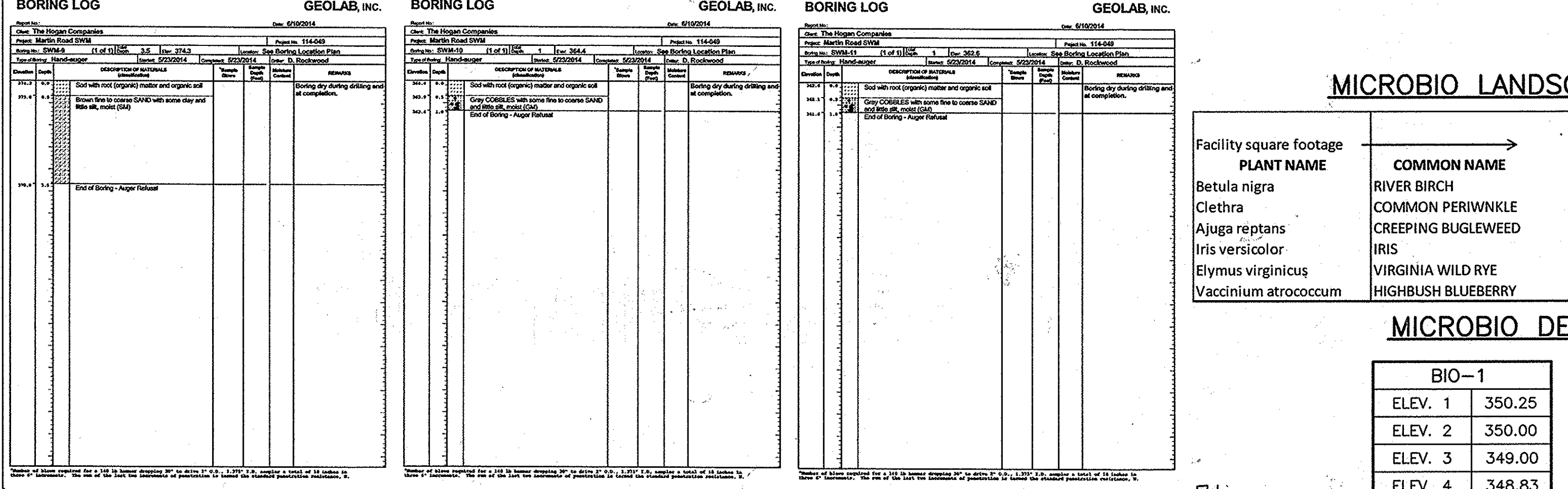
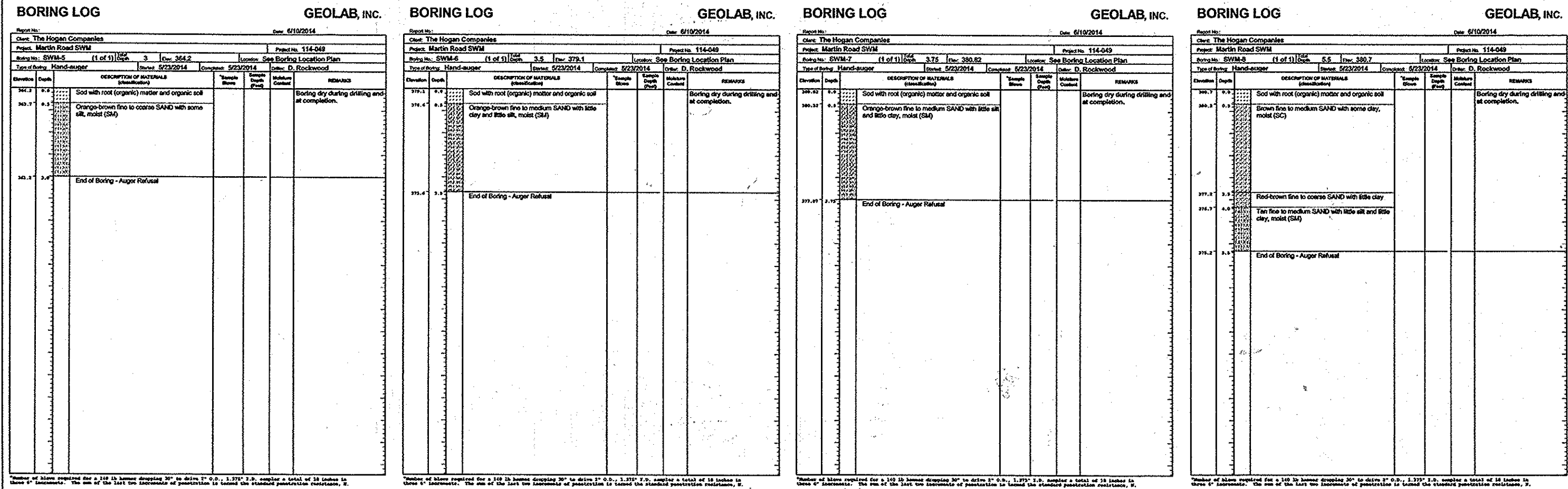
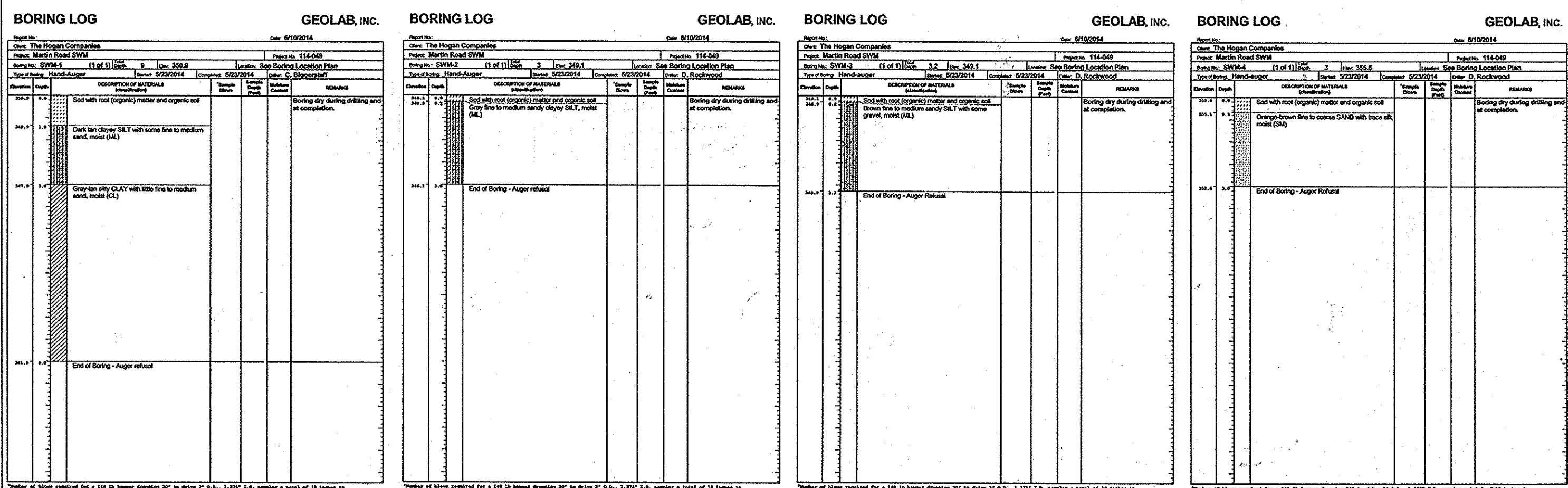
ROAD CONSTRUCTION PLANS
STORM DRAIN DRAINAGE AREA MAP

OWNER: LISA MARIE SMITH
 6128 EDWARD HILL ROAD
 ELLICOTT CITY, MD 21043

DEVELOPER: LEGACY INVESTMENT, LLC
 C/O HOGAN DEVELOPMENT, LLC
 2661 RIVA ROAD, SUITE 300
 ANNAPOLIS, MD 21401
 410-266-5100

DATE: MAY 2016
 SCALE: 1"=50'

BEI PROJECT NO. 2567
 SHEET 8 OF 9

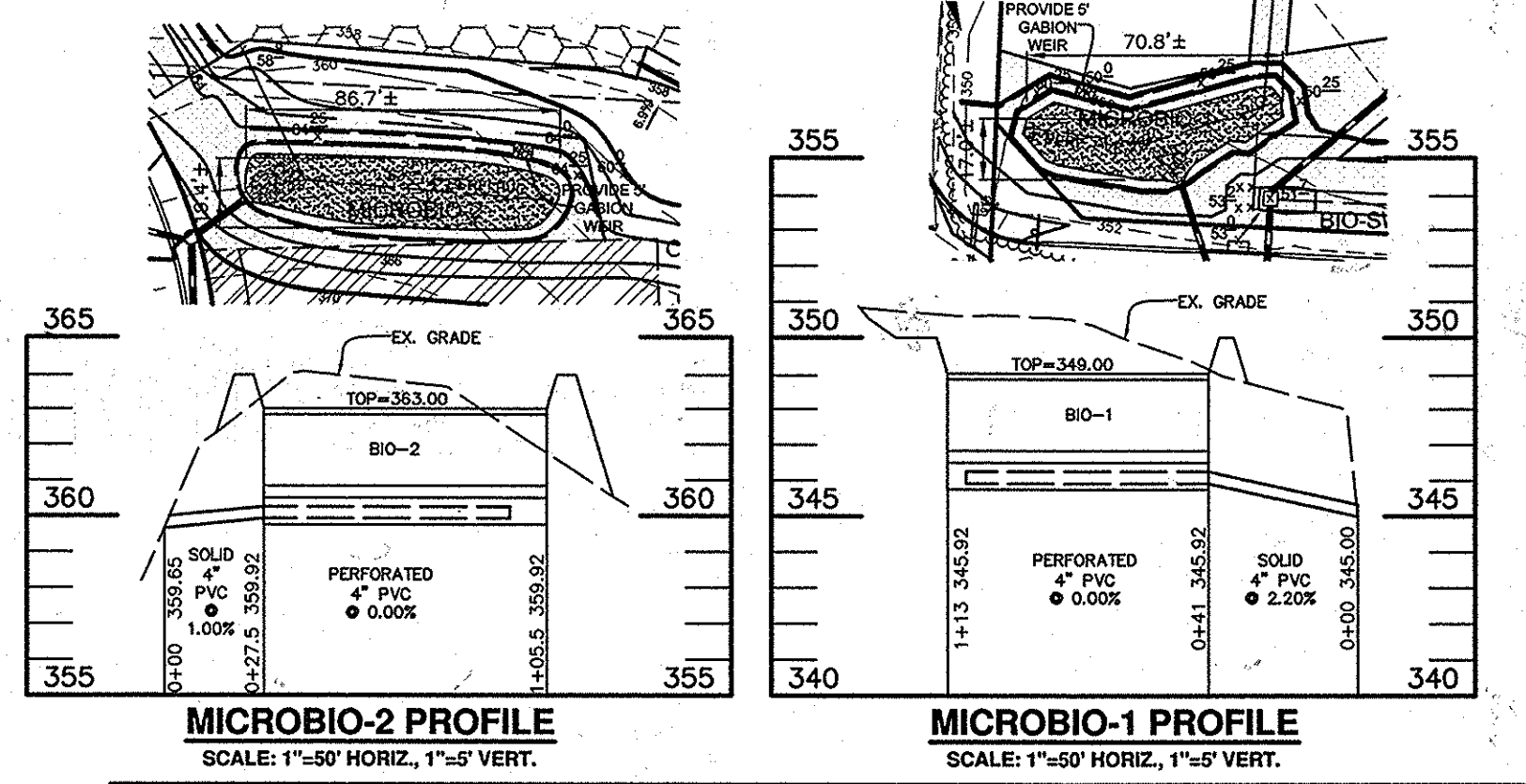
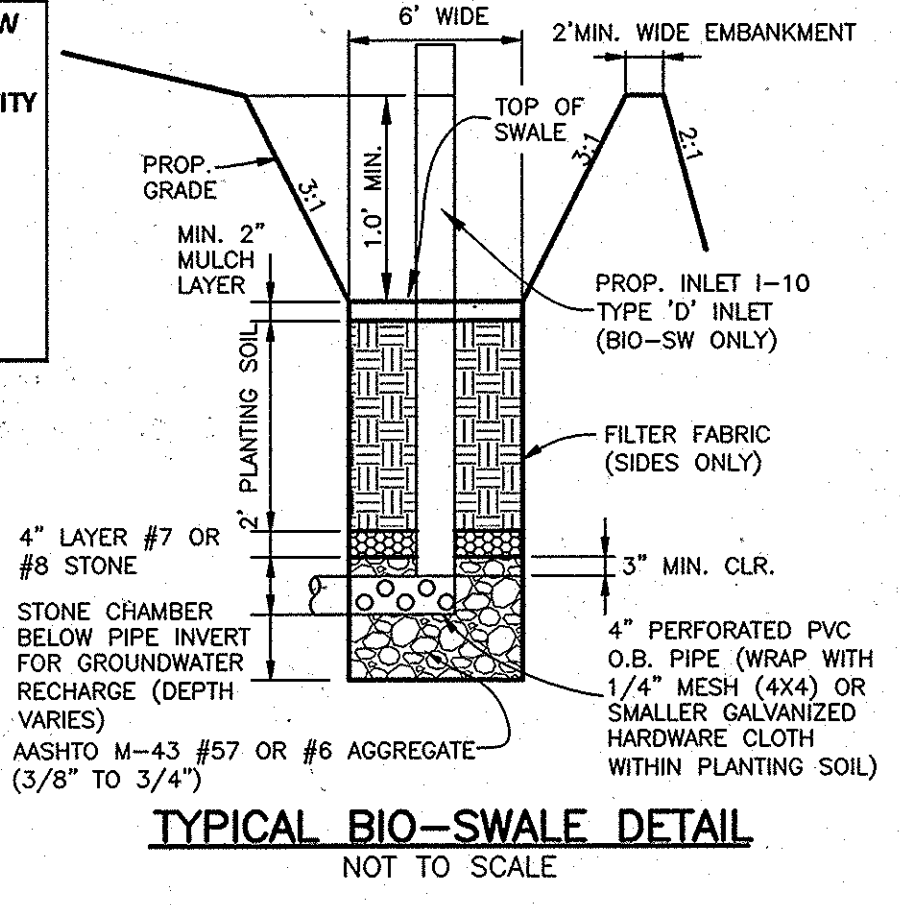


MICROBIO LANDSCAPING CHART

PLANT NAME	COMMON NAME	TYPE	BIO-1 QUANTITY	BIO-2 QUANTITY	BIO-SW QUANTITY
Betula nigra	RIVER BIRCH	tree	1	1	1
Clethra	COMMON PERIWINKLE	herbaceous	11	15	19
Ajuga reptans	CREeping BUGLEWEED	herbaceous	32	44	55
Iris versicolor	IRIS	herbaceous	32	44	55
Elymus virginicus	VIRGINIA WILD RYE	herbaceous	11	15	19
Vaccinium atrococcum	HIGHBUSH BLUEBERRY	shrub	11	15	19

MICROBIO DESIGN TABLES

ELEV.	BIO-1	BIO-2
ELEV. 1	350.25	364.25
ELEV. 2	350.00	364.00
ELEV. 3	349.00	363.00
ELEV. 4	348.83	362.83
ELEV. 5	348.83	360.83
ELEV. 6	346.50	360.50
ELEV. 7	345.92	359.92
ELEV. 8	345.75	359.75



MICRO-BIORETENTION FACILITY DESIGN FOR THE ON-LOTS FACILITIES WILL BE PROVIDED AT THE SITE DEVELOPMENT PLAN STAGE.

OPERATION AND MAINTENANCE SCHEDULE FOR BIRETENTION (M-6), (M-8)

- THE HOA SHALL MAINTAIN THE PLANT MATERIAL, MULCH LAYER AND SOIL LAYER ANNUALLY. MAINTENANCE OF MULCH AND SOIL IS LIMITED TO CORRECTING AREAS OF EROSION OR WASH OUT. ANY MULCH REPLACEMENT SHALL BE DONE IN THE SPRING. PLANT MATERIAL SHALL BE CHECKED FOR DISEASE AND INSECT INFESTATION AND MAINTENANCE WILL ADDRESS: DEAD MATERIAL AND PRUNING. ACCEPTABLE REPLACEMENT PLANT MATERIAL IS LIMITED TO THE FOLLOWING: 2000 MARYLAND STORMWATER DESIGN MANUAL VOLUME II, TABLE A-1.1 AND 2.
- THE HOA SHALL PERFORM A PLANT INSPECTION IN THE SPRING AND IN THE FALL OF EACH YEAR. DURING THE INSPECTION, THE OWNER SHALL REMOVE DEAD AND DISEASED VEGETATION CONSIDERED BEYOND TREATMENT, REPLACE DEAD PLANT MATERIAL WITH ACCEPTABLE REPLACEMENT PLANT MATERIAL, TREAT DISEASED TREES AND SHRUBS, AND REPLACE ALL DEFICIENT STAKES AND WIRES.
- THE HOA SHALL INSPECT MULCH EACH SPRING. THE MULCH SHALL BE REPLACED EVERY TWO TO THREE YEARS. THE PREVIOUS MULCH LAYER SHALL BE REMOVED BEFORE THE NEW LAYER IS APPLIED.
- THE HOA SHALL CORRECT SOIL EROSION ON AN AS NEEDED BASIS, WITH A MINIMUM OF ONCE PER MONTH AND AFTER EACH HEAVY STORM.

MATERIALS AND SPECIFICATIONS FOR (M-6) MICRO-BIORETENTION

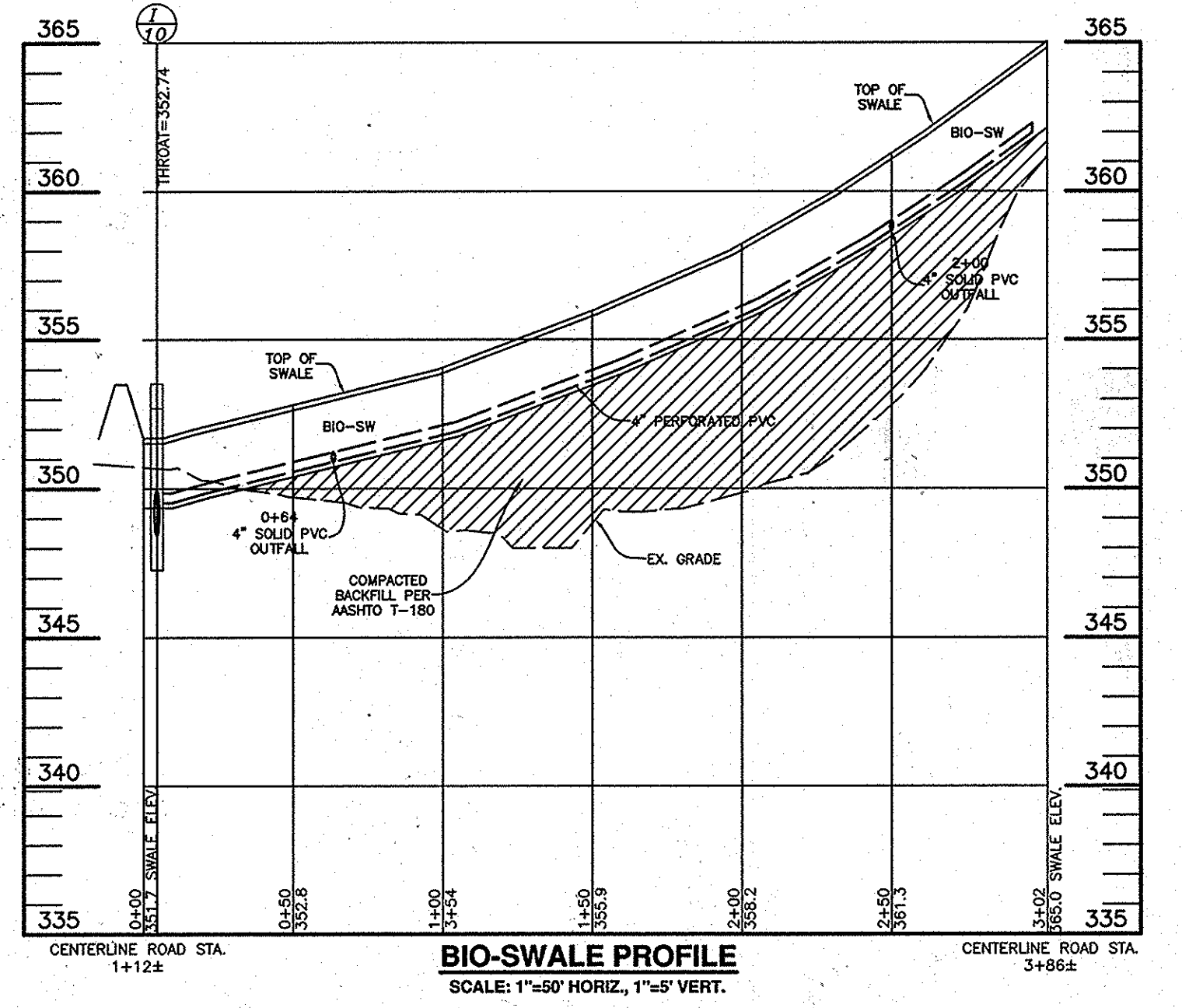
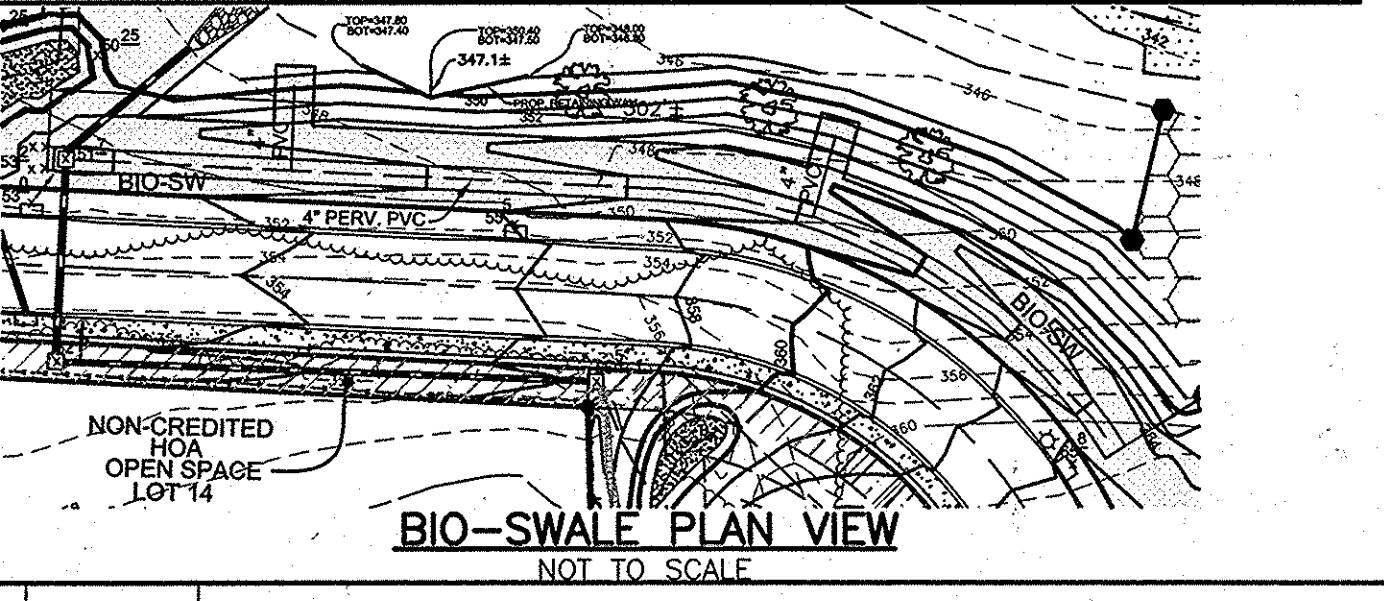
MATERIAL	SPECIFICATION	SIZE	NOTES:
PLANTINGS (IF REQUIRED)	SEE APPENDIX A; TABLE A.4	N/A	PLANTINGS ARE SITE SPECIFIC-SEE SHEET.
PLANTING SOIL (2.0' TO 4.0' DEEP)	LOAMY SAND (60-65%) & COMPOST (35-40%) OR LOAMY SAND (30%) COARSE SAND (30%) & COMPOST (35-40%)	N/A	USDA SOIL TYPES: LOAMY SAND, SANDY LOAM; CLAY CONTENT <3%
ORGANIC CONTENT	MIN. 10% BY DRY WEIGHT	N/A	
MULCH	SHREDDED HARDWOOD	N/A	AGED 6 MONTHS, MINIMUM
GEOTEXTILE	N/A	N/A	PE TYPE 1 - NONWOVEN
GRAVEL (UNDERDRAINS & BERMS)	ASHTO M-43	#57 OR #6 AGGREGATE (3/8" TO 3/4")	
UNDERDRAIN PIPING	F758, TYPE PS28 OR ASHTO M-278	4" TO 6" RIGID SCH 40 PVC OR SDR35	SLOTTED OR PERFORATED: 3/8" PERFS. @ 6" O/C, 4 HOLES PER ROW; MINIMUM OF 1" OF GRAVEL OVER PIPES. PERFORATED PIPE SHALL BE WRAPPED WITH 1/4" GALVANIZED HARDWARE CLOTH

STRUCTURE SCHEDULE

NO.	TYPE	LOCATION	PIPE INV. IN	PIPE INV. OUT	TOP ELEV.	THROAT ELEV.	OWNERSHIP	HO. CO. STD.
END SECTIONS								
E-1	18" HDPE END SECT.	N 554598.3, E 1348523.7	---	347.41	NA	NA	PUBLIC	D-5.51 & D-5.52
E-2	18" HDPE END SECT.	N 554462.0, E 1348786.1	---	363.08	NA	NA	PUBLIC	D-5.51 & D-5.52
E-3	15" HDPE END SECT.	N 554572.2, E 1348467.2	---	349.02	NA	NA	PUBLIC	D-5.51 & D-5.52
INLETS								
I-1	TYPE D	N 554516.3, E 1348488.9	349.72	349.47	---	352.10	PUBLIC	D-4.10
I-2	TYPE D	N 554510.9, E 1348629.1	---	352.82	---	356.50	PUBLIC	D-4.10
I-3	5' CONC. FLOW THRU	CL STA. 1+04.9, 12.43' LT.	---	---	392.40	391.70	PUBLIC	SHA MD-374.68
I-4	TYPE A-5	CL STA. 1+04.9, 12.43' RT.	---	---	353.69	NA	PUBLIC	D-4.01
I-5	5' CONC. FLOW THRU	CL STA. 2+33.6, 12.43' LT.	---	---	392.56	394.20	NA	SHA MD-374.68
I-6	5' CONC. FLOW THRU	CL STA. 3+83.5, 12.43' LT.	---	---	392.29	396.30	NA	SHA MD-374.68
I-7	TYPE A-5	CL STA. 5+50.3, 12.43' LT.	377.34	---	377.09	381.90	NA	D-4.01
I-8	TYPE A-5	CL STA. 5+50.3, 12.43' RT.	---	---	377.90	381.90	NA	D-4.01
I-9	TYPE A-5	CL STA. 4+01.4, 12.43' RT.	---	---	364.03	368.29	NA	D-4.01
I-10	TYPE D	N 554569.2, E 1348491.5	348.41	348.31	---	352.74	PUBLIC	D-4.10
MANHOLES								
M-1	4'-0" MANHOLE	CL STA. 4+20.0, 18.2' LT.	363.89	363.59	370.40	---	NA	G-5.12

STORMDRAIN PIPE SCHEDULE

PIPE SIZE	LENGTH	TYPE
15"	253'	HDPE
18"	249'	HDPE
4"	430'	PERFORATED PVC
4"	113'	SOLID PVC



APPROVED: DEPARTMENT OF PUBLIC WORKS
 [Signature]
 CHIEF, BUREAU OF HIGHWAYS
 DATE: 6/27/2016

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 [Signature]
 CHIEF, DIVISION OF LAND DEVELOPMENT
 DATE: 4/30/16

[Signature]
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 DATE: 6-29-16

NO. DATE REVISION

BENCHMARK ENGINEERING, INC.
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 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 in the State of Maryland, License No. 156614, Date: 6/30/17.

ATHOL WOODS
 LOTS 1 thru 12 AND OPEN SPACE LOTS 13, 14 & 15

TAX MAP 36, GRID 19, PARCELS 108, 04 & 495
 5th ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

ROAD CONSTRUCTION PLANS
STORM DRAIN PROFILES AND SWM DETAILS

OWNER: LISA MARIE SMITH
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 410-266-5100

DATE: MAY 2016
 SCALE: AS SHOWN

BEI PROJECT NO. 2567
 SHEET 9 OF 9