

GENERAL NOTES

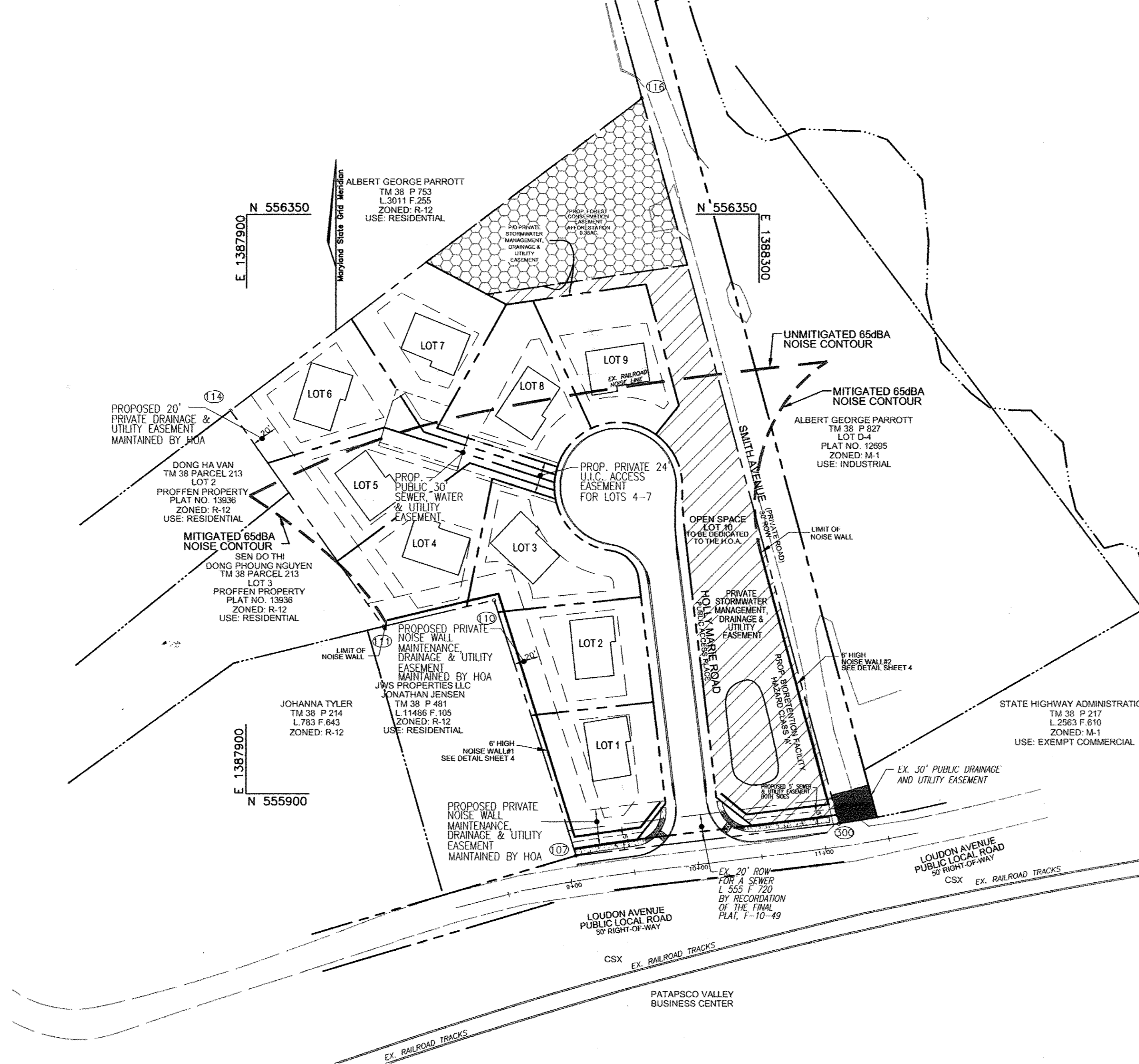
- THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK.
- THE CONTRACTOR IS TO NOTIFY THE FOLLOWING UTILITIES OR AGENCIES AT LEAST FIVE DAYS BEFORE STARTING WORK ON THESE DRAWINGS:
 - MISS UTILITY: 1-800-257-7777
 - VERIZON TELEPHONE COMPANY: 410-954-6291
 - HOWARD COUNTY BUREAU OF UTILITIES: 410-313-2366
 - AT&T CABLE LOCATION DIVISION: 410-393-3553
 - B.G.&E. CO. CONTRACTOR SERVICES: 410-850-4620
 - B.G.&E. CO. UNDERGROUND DAMAGE CONTROL: 410-787-4620
 - STATE HIGHWAY ADMINISTRATION: 410-531-5533
- THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS/BUREAU OF ENGINEERING/CONSTRUCTION INSPECTION DIVISION AT (410) 313-1880 AT LEAST FIVE (5) WORKING DAYS PRIOR TO START OF WORK.
- ANY DAMAGE TO PUBLIC RIGHTS-OF-WAY, PAVING, OR EXISTING UTILITIES WILL BE CORRECTED AT THE CONTRACTOR'S EXPENSE.
- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS IF APPLICABLE.
- TRAFFIC CONTROL DEVICES, MARKINGS AND SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
- DRIVEWAYS SHALL BE PROVIDED PRIOR TO RESIDENTIAL OCCUPANCY TO INSURE SAFE ACCESS FOR FIRE AND EMERGENCY VEHICLES PER THE FOLLOWING MINIMUM REQUIREMENTS:
 - A) WIDTH - 12 FEET (16 FEET IF SERVING MORE THAN ONE RESIDENCE)
 - B) SURFACE - 6 INCHES OF COMPACTED CRUSHER RUN BASE WITH TAR AND CHIP COATING
 - C) GEOMETRY - MAXIMUM 14% GRADE, MAXIMUM 10% GRADE CHANGE, AND MINIMUM 45 FOOT TURNING RADIUS
 - D) STRUCTURES (CULVERTS/BRIDGES) - MUST SUPPORT 25 GROSS TON LOADING (H25 LOADING)
 - E) DRAINAGE ELEMENTS - CAPABLE OF SAFELY PASSING 100 YEAR FLOOD EVENTS WITH NO MORE THAN 1 FOOT DEPTH OVER DRIVEWAY SURFACE
 - F) STRUCTURE CLEARANCES - MINIMUM 12 FEET
 - G) MAINTENANCE - SUFFICIENT TO INSURE ALL WEATHER USE
- STREET LIGHT PLACEMENT AND THE TYPE OF FIXTURE 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.
- DEED REFERENCE: L.9363/F.299.
- THE PROJECT BOUNDARY AND TOPOGRAPHY IS TAKEN FROM FIELD SURVEY WITH TWO FOOT CONTOUR INTERVALS PREPARED BY ROBERT H. VOGEL ENGINEERING, INC., JULY 2005 OF PARCEL 46 AND 815.
- WATER AND SEWER FOR THIS PROJECT WILL BE PUBLIC CONTRACT #14-4638-D.
- STORMWATER MANAGEMENT TO BE PROVIDED FOR THIS DEVELOPMENT. WOV AND REV ARE PROVIDED BY A BIORETENTION FACILITY AND RAINGARDENS. THE BIORETENTION FACILITY IS LOCATED ON HOA OPEN SPACE LOT 10 AND ARE TO BE PRIVATELY OWNED AND MAINTAINED BY THE HOME OWNERS ASSOCIATION.
- THERE ARE NO WETLANDS OR STREAMS LOCATED ON-SITE.
- NO 100-YR FLOODPLAIN IS LOCATED ON-SITE.
- A FOREST STAND DELINEATION PLAN WAS PREPARED BY ROBERT H. VOGEL ENGINEERING, INC DATED OCTOBER 2005. FOREST CONSERVATION REQUIREMENTS ARE COMPLIED WITH PER SECTION 16.1202 OF THE HOWARD COUNTY CODE. THE FOREST CONSERVATION OBLIGATIONS FOR THIS PROJECT IN ACCORDANCE WITH SECTION 16.1202 OF THE HOWARD COUNTY CODE AND FOREST CONSERVATION MANUAL REQUIRING 0.48 ACRES OF AFFORESTATION SHALL BE MET BY PLACEMENT OF 0.35 ACRES OF AFFORESTATION EASEMENT ON SITE AND THE REMAINDER OF 0.13 ACRES PLACED IN TO AN OFF-SITE EASEMENT IDENTIFIED AS TRINITY HOMES AT CYPRESS SPRINGS FOREST CONSERVATION RETENTION BANK SDP-09-61; MAP 38, BLOCK 3, PARCELS 42, 44, 45, AND 46. THE OFF-SITE 0.13 ACRES OF AFFORESTATION WILL BE MET AT A 2:1 RATIO REQUIRING 0.26 ACRES OF RETENTION. SURETY IN THE AMOUNT OF \$7,250.00 FOR 0.35 ACRES OF ON-SITE AFFORESTATION (15,246 SF x 0.50) WILL BE POSTED WITH THE DEVELOPERS AGREEMENT FOR THIS FINAL PLAN, F-10-49.
- APPO TRAFFIC STUDY PREPARED BY THE TRAFFIC GROUP, DATED SEPTEMBER 2005.
- TO THE BEST OF THE OWNERS KNOWLEDGE, THERE ARE NO BURIAL/CEMETERY LOCATIONS ON SITE.
- A NOISE STUDY WAS PERFORMED BY ROBERT H. VOGEL ENGINEERING DATED JULY 2009. NOISE MITIGATION IS PROVIDED BY TWO 6' HIGH NOISE WALLS.
- NO GRADING, REMOVAL OF VEGETATIVE COVER OR TREES, OR PLACEMENT OF NEW STRUCTURES IS PERMITTED WITHIN THE FOREST CONSERVATION EASEMENT EXCEPT AS APPROVED BY THE DEPARTMENT OF PLANNING AND ZONING.
- ALL SIGN POST USED FOR TRAFFIC CONTROL SIGNS INSTALLED IN THE COUNTY RIGHT-OF-WAY SHALL BE MOUNTED ON A 2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE POST (14 GAUGE) INSERTED INTO A 2-1/2" GALVANIZED, PERFORATED, SQUARE TUBE SLEEVE (12 GAUGE-3" LONG). A GALVANIZED STEEL POLE CAP SHALL BE MOUNTED ON THE TOP OF EACH POST.
- DPZ REFERENCE: P-10-02, S-06-05, WP-10-81.
- HOLLY MARIE ROAD IS A PUBLIC ACCESS STREET.
- SEDIMENT AND EROSION CONTROL WILL BE PROVIDED FOR THIS SITE.
- PERIMETER LANDSCAPING AND TRASH PAD SCREENING SHALL BE PROVIDED IN ACCORDANCE WITH THE HOWARD COUNTY LANDSCAPE MANUAL. SURETY IN THE TOTAL AMOUNT OF \$1,950.00 FOR 6 SHADE TREES AND 5 SHRUBS SHALL BE POSTED WITH THE DEVELOPERS AGREEMENT FOR THIS FINAL PLAN, F-10-49. NOISE WALLS AND FENCING ARE CREDITED TOWARDS PERIMETER LANDSCAPING IN PERIMETERS 1, 2, 5 AND 7.
- STREET LIGHTING IS REQUIRED AND SHALL BE COMPLIED WITH FOR THIS DEVELOPMENT.
- THE COORDINATES SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL WHICH ARE BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM. HOWARD COUNTY MONUMENT NOS. 380A AND 380S WERE USED FOR THIS PROJECT.
- THIS PLAN IS SUBJECT TO THE AMENDED FIFTH EDITION OF THE SUBDIVISION REGULATIONS AND TO THE FEBRUARY 2, 2004 ZONING REGULATIONS.
- SOILS INFORMATION WAS TAKEN FROM THE USDA WEB SOIL SURVEY.
- LOTS 4-7 TO BE SERVED BY A USE-IN-COMMON DRIVEWAY.
- REFUSE COLLECTION, SNOW REMOVAL AND MAINTENANCE FOR LOTS 4-7 SHALL BE PROVIDED AT THE JUNCTION OF THE PRIVATE USE-IN-COMMON ACCESS EASEMENT AND THE EXISTING ROAD RIGHT-OF-WAY.
- OPEN SPACE LOT 10 TO BE PRIVATELY OWNED AND MAINTAINED BY THE HOA.
- THERE ARE NO SLOPES IN EXCESS OF 15% ON THE PROPERTY.
- THE SITE IS LOCATED IN THE METROPOLITAN DISTRICT.
- THE GEOTECHNICAL REPORT FOR THIS PROJECT WAS PREPARED BY HILLES-CARNES, DATED APRIL 2009.
- THIS 4'X10' CONCRETE TRASH PAD (6 INCHES IN DEPTH) WILL BE MAINTAINED BY THE OWNERS OF LOTS 4-7 PURSUANT TO THE DECLARATION OF RIGHT OF ACCESS AND MAINTENANCE OBLIGATIONS RECORDED AMONG THE LAND RECORDS OF HOWARD COUNTY.
- A PRIVATE RANGE OF ADDRESS SIGN ASSEMBLY SHALL BE FABRICATED AND INSTALLED BY HOWARD COUNTY BUREAU OF HIGHWAYS AT THE DEVELOPERS/ OWNERS EXPENSE. CONTACT HOWARD COUNTY TRAFFIC DIVISION AT 410-313-5752 FOR DETAILS AND COST ESTIMATES.
- STREET TREES ARE REQUIRED FOR THIS SUBDIVISION IN ACCORDANCE WITH SECTION 16.1246(c)(1) OF THE SUBDIVISION REGULATIONS AND THE LANDSCAPE MANUAL. THE SURETY SHALL BE PROVIDED WITH THE DEVELOPER'S AGREEMENT FOR THIS FINAL PLAN IN THE AMOUNT OF \$7,500.00 FOR 20 STREET TREES. A MINIMUM OF 20' SHALL BE MAINTAINED BETWEEN STREET LIGHTS AND TREES.
- 95% COMPACTION IN ALL FILLED AREAS SHALL BE IN ACCORDANCE WITH AASHTO T-180 STANDARDS.
- A PRIVATE RANGE OF ADDRESS SIGN ASSEMBLY SHALL BE FABRICATED AND INSTALLED BY HOWARD COUNTY BUREAU OF HIGHWAYS AT THE DEVELOPERS/OWNERS EXPENSE. CONTACT HOWARD COUNTY TRAFFIC DIVISION AT 410-313-5752 FOR DETAILS AND COST ESTIMATES.
- HOMEOWNERS ASSOCIATION DOCUMENTS HAVE BEEN FILED WITH THE MARYLAND STATE DEPARTMENT OF ASSESSMENTS.
- THE 6' HIGH NOISE WALL #1 LOCATED ACROSS LOTS 1 TO 4 SHALL BE MAINTAINED BY THE HOMEOWNERS ASSOCIATION. THE MAINTENANCE AGREEMENT FOR THIS WALL WILL BE RECORDED IN THE LAND RECORDS OFFICE OF HOWARD COUNTY.
- THE 6' HIGH NOISE WALL #2 AND THE 6' HIGH WOODEN NOISE FENCE LOCATED ON OPEN SPACE LOT 10 SHALL BE MAINTAINED BY THE HOMEOWNERS ASSOCIATION. THE MAINTENANCE AGREEMENT FOR THESE WALLS WILL BE RECORDED IN THE LAND RECORDS OFFICE OF HOWARD COUNTY. * WOODEN NOISE FENCE REQUIRES NO SETBACK PER ZONING REGULATIONS.
- THIS PLAN IS SUBJECT TO WP-10-081 APPROVED JANUARY 21, 2010 TO SECTION 16.120(b)(5)(i) REQUIRING NOISE WALLS TO BE LOCATED ON AN OPEN SPACE LOT AND MAINTAINED BY A HOMEOWNER'S ASSOCIATION WHEN OPEN SPACE IS BEING CREATED WITHIN A SUBDIVISION, SUBJECT TO THE FOLLOWING:
 - A MAINTENANCE AGREEMENT FOR THE NOISE WALL WHICH WILL BE CONSTRUCTED WITHIN THE 20' PRIVATE NOISE WALL MAINTENANCE DRAINAGE AND UTILITY EASEMENT LOCATED ALONG THE WESTERN PROPERTY BOUNDARY OF THIS SITE (LOTS 1 TO 4) SHALL BE RECORDED IN THE LAND RECORDS OFFICE OF HOWARD COUNTY, MD SIMULTANEOUSLY WITH THE FINAL PLAT, F-10-049/EAGLE VALLEY.

FINAL ROAD CONSTRUCTION PLAN

EAGLE VALLEY

LOTS 1-9 AND OPEN SPACE LOT 10

HOWARD COUNTY, MARYLAND



LEGEND

- EXISTING CONTOUR
- PROPOSED CONTOUR
- EXISTING SPOT ELEVATION
- PROPOSED SPOT ELEVATION
- DIRECTION OF FLOW
- EXISTING TREES TO REMAIN
- LIGHT POLES
- SOIL TYPE
- CONCRETE
- PRIVATE SWM, DRAINAGE AND UTILITY EASEMENT
- PROP. FOREST CONSERVATION EASEMENT (AFFORESTATION)
- PROP. FOREST CONSERVATION EASEMENT



VICINITY MAP

SCALE: 1"=2000'
ADC MAP COORDINATE: 17 / F10

BENCHMARKS

HOWARD COUNTY BENCHMARK 380A (CONCRETE MONUMENT)
N 556796.292 E 1390721.486 ELEV. 126.075
HOWARD COUNTY BENCHMARK 380S (CONCRETE MONUMENT)
N 558378.575 E 1386524.158 ELEV. 192.964

SITE DATA

LOCATION: TAX MAP 38, GRID 14, PARCEL 215
EXISTING ZONING: R-12
GROSS AREA OF PARCEL: 3.22 AC.
AREA OF PROPOSED RIGHT-OF-WAY (HOLLY MARIE ROAD): 17,968 SF
AREA OF PROPOSED RIGHT-OF-WAY DEDICATION (LOUDON AVENUE): 1,374 SF
AREA OF 100-YR FLOODPLAIN: N/A
AREA OF STEEP SLOPES: N/A
NET AREA OF PROJECT: 3.22 AC.
NUMBER OF PROPOSED RESIDENTIAL LOTS: 9
AREA OF PROPOSED RESIDENTIAL LOTS: 1.81 AC.
AREA OF SMALLEST BUILDABLE LOT PROPOSED: 8,400 SF - LOT 7
NUMBER OF PROPOSED OPEN SPACE LOTS: 1 (LOT 10)
AREA OF OPEN SPACE REQUIRED: 0.97 AC. (3.22 x 30%)
AREA OF CREDITED OPEN SPACE PROVIDED: 0.97 AC. OR 30% (42,530 SF)
AREA OF NON-CREDITED OPEN SPACE: 0.00 AC.
TOTAL AREA OF OPEN SPACE: 0.97 AC.

COORDINATE TABLE

POINT	NORTH	EAST
107	555852.25983	1388157.65527
110	556050.55223	1388093.45122
111	556030.15750	1388007.11370
114	556197.76046	1387887.45207
116	556439.99824	1388208.45019
300	555876.98880	1388362.76996

MINIMUM LOT SIZE CHART

LOT NO.	GROSS AREA	PIPESTEM AREA	MINIMUM LOT SIZE
4	8,953 SF	302 SF	8,651 SF
5	8,824 SF	409 SF	8,415 SF
6	9,136 SF	651 SF	8,485 SF
7	8,992 SF	593 SF	8,400 SF

SHEET INDEX

SHEET NO.	TITLE
1	COVER SHEET
2	FINAL ROAD CONSTRUCTION PLAN, PROFILE, CROSS SECTIONS & DETAILS
3	GRADING, SEDIMENT & EROSION CONTROL PLAN
4	SEDIMENT & EROSION CONTROL DETAILS
5	STORMWATER DRAINAGE AREA MAP & SOILS MAP
6	STORM DRAIN PROFILES
7	LANDSCAPE AND FOREST CONSERVATION PLAN & DETAILS
8	FOREST CONSERVATION DETAILS AND BIORETENTION PLANTINGS

NO.	REVISION	DATE

FINAL ROAD CONSTRUCTION PLAN
COVER SHEET
EAGLE VALLEY
LOTS 1-9 AND OPEN SPACE LOT 10

TAX MAP 38 BLOCK 14 1ST ELECTION DISTRICT PARCEL 215 HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL ENGINEERING, INC.
ENGINEERS • SURVEYORS • PLANNERS
8407 MAIN STREET ELLICOTT CITY, MD 21043 TEL: 410.461.7666 FAX: 410.461.8961

PROFESSIONAL CERTIFICATE
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193 EXPIRATION DATE: 09-27-2010

DESIGN BY: JCO
DRAWN BY: KG
CHECKED BY: RHV
DATE: FEBRUARY 2010
SCALE: 1"=60'
W.O. NO.: 05-61

OWNER/DEVELOPER
MICHAEL L. PFAU
3875 PARK AVENUE
ELLICOTT CITY, MD 21043
PHONE 410-480-0023

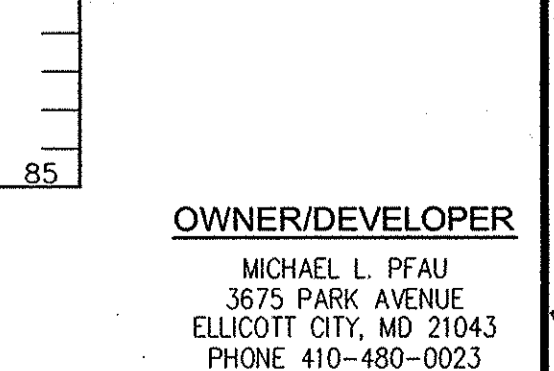
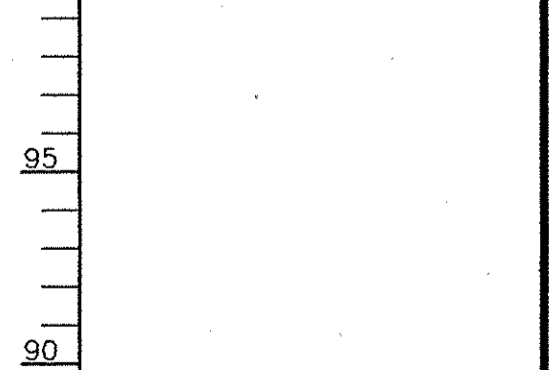
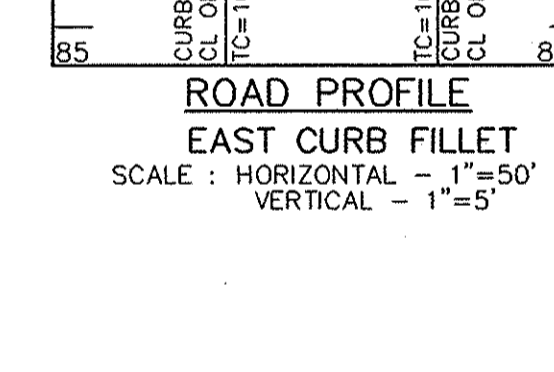
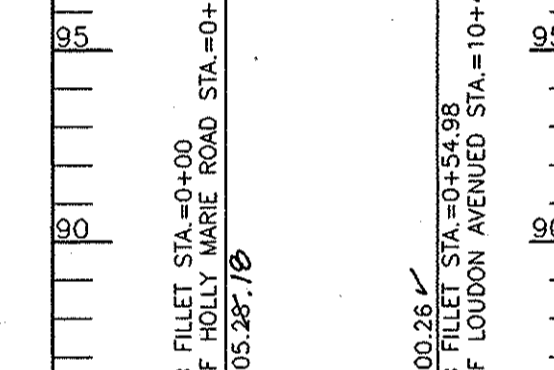
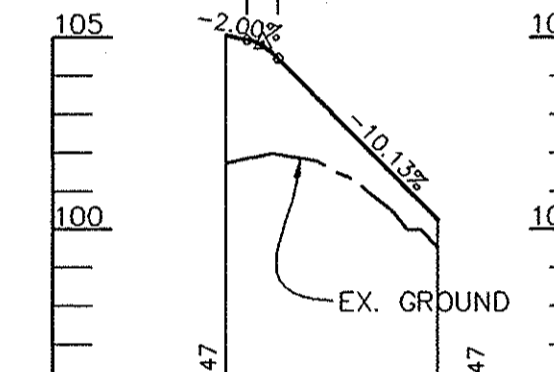
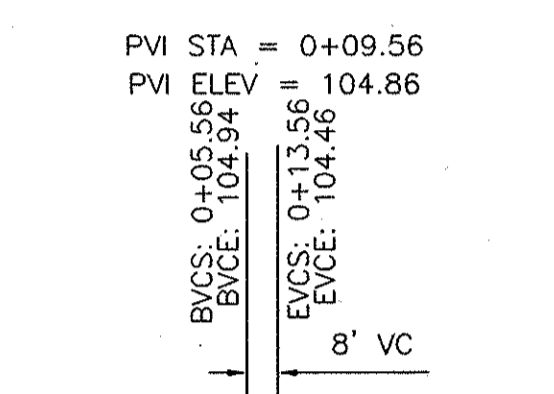
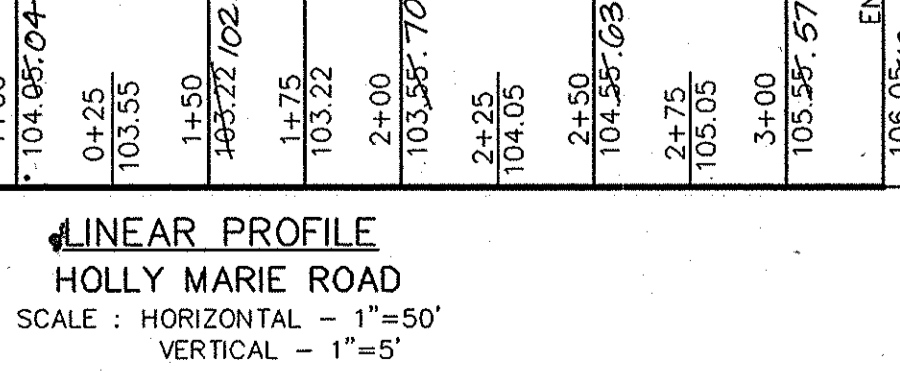
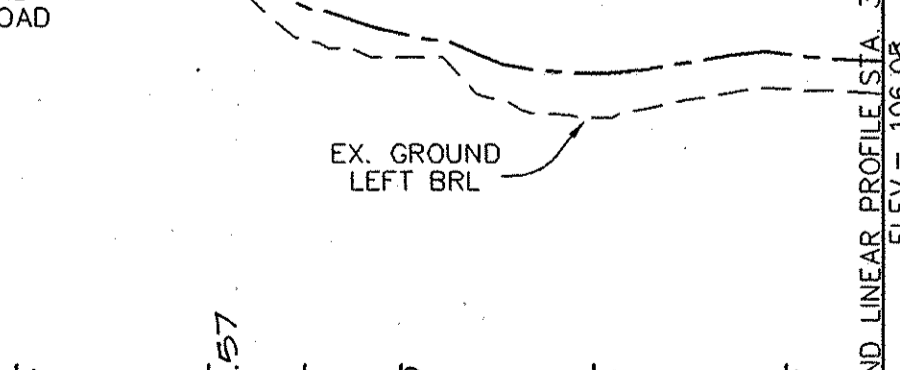
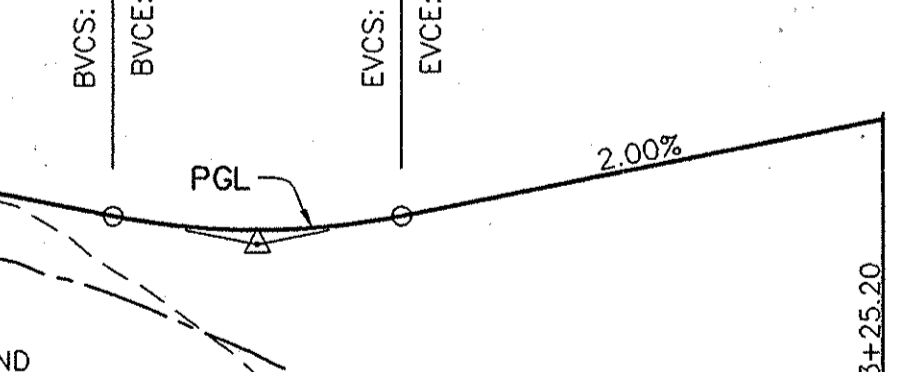
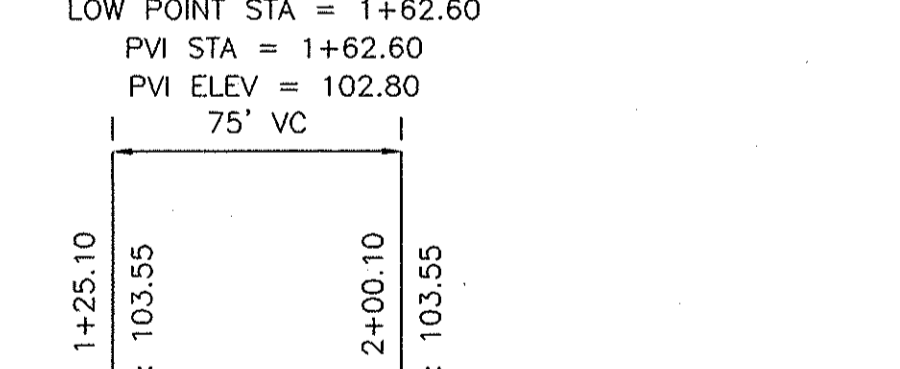
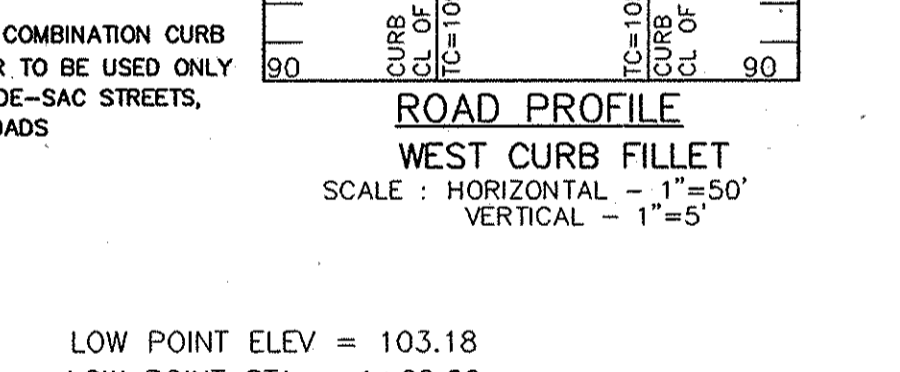
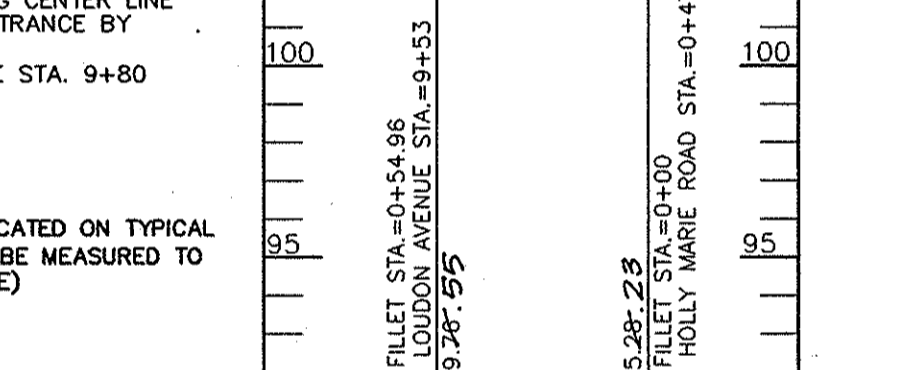
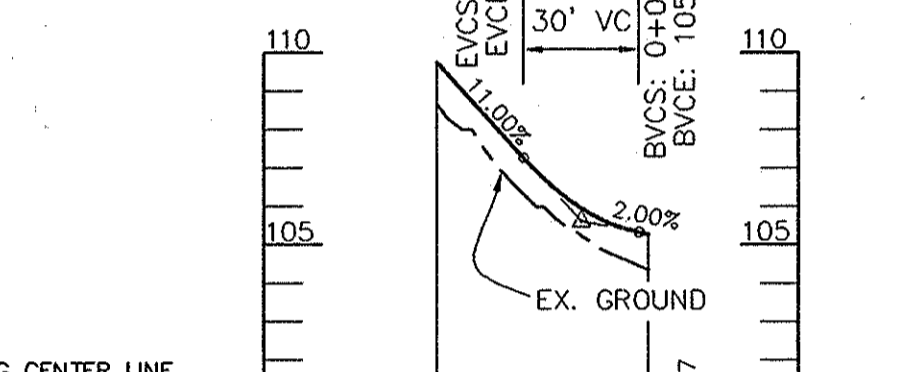
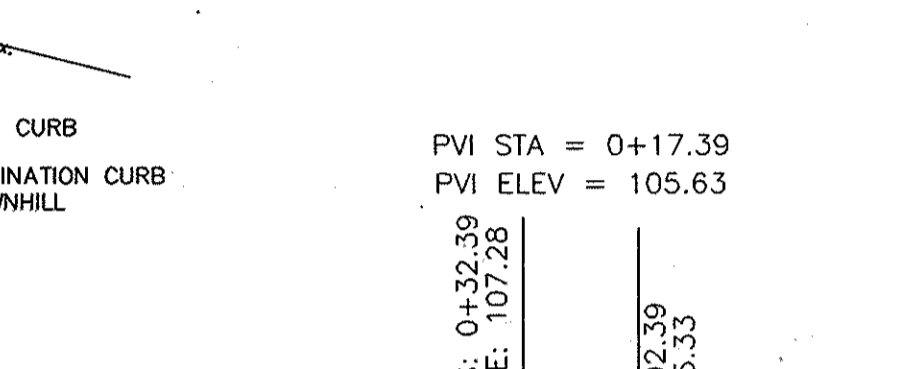
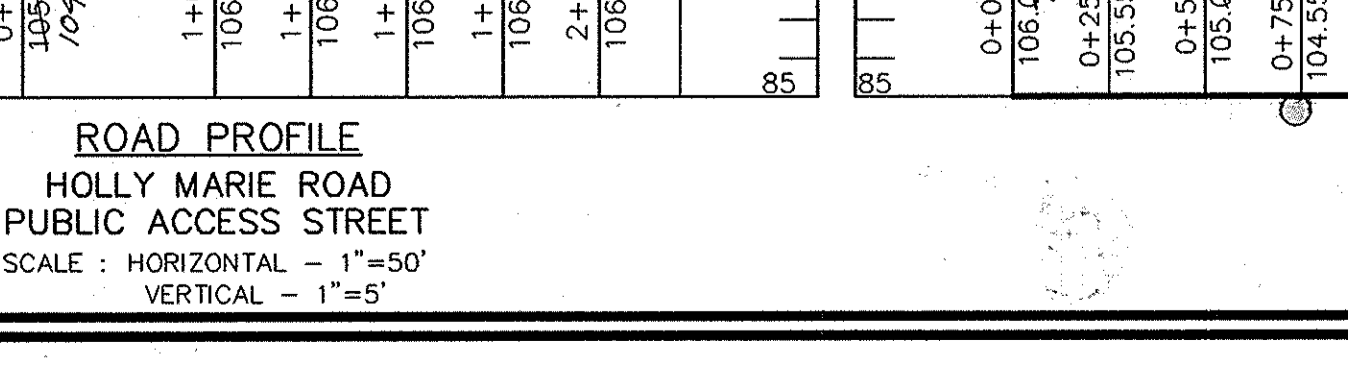
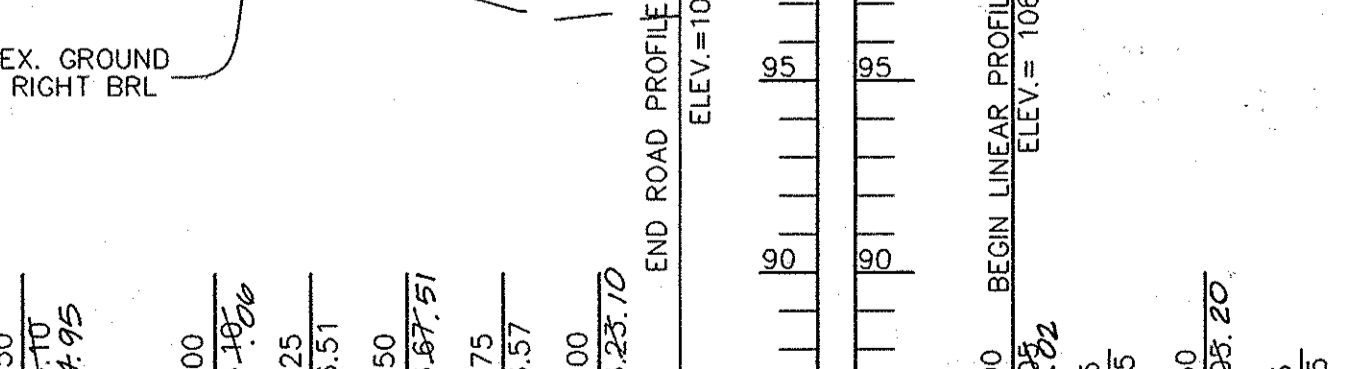
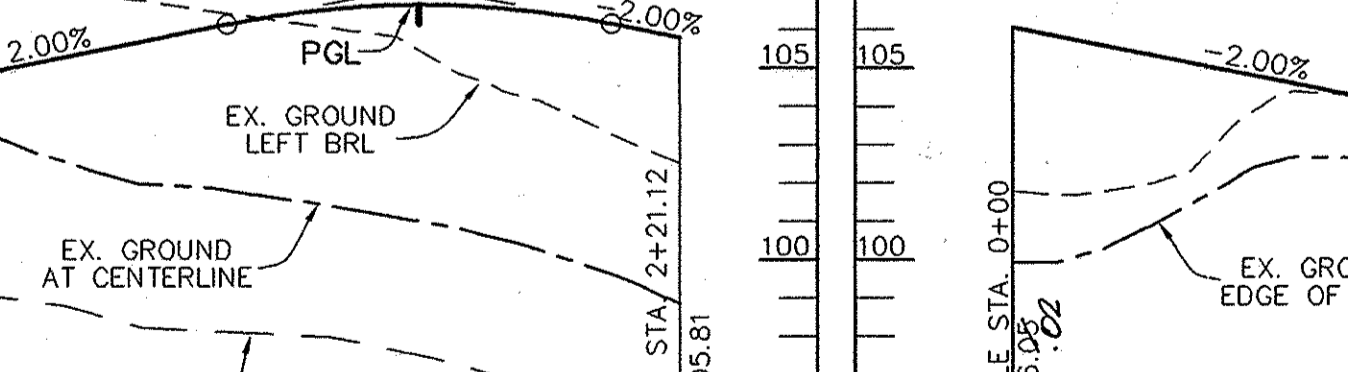
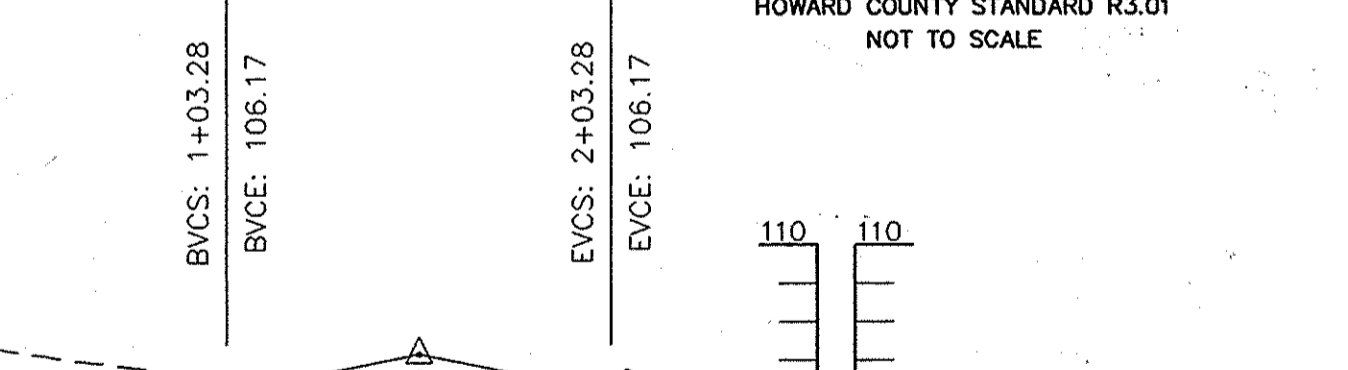
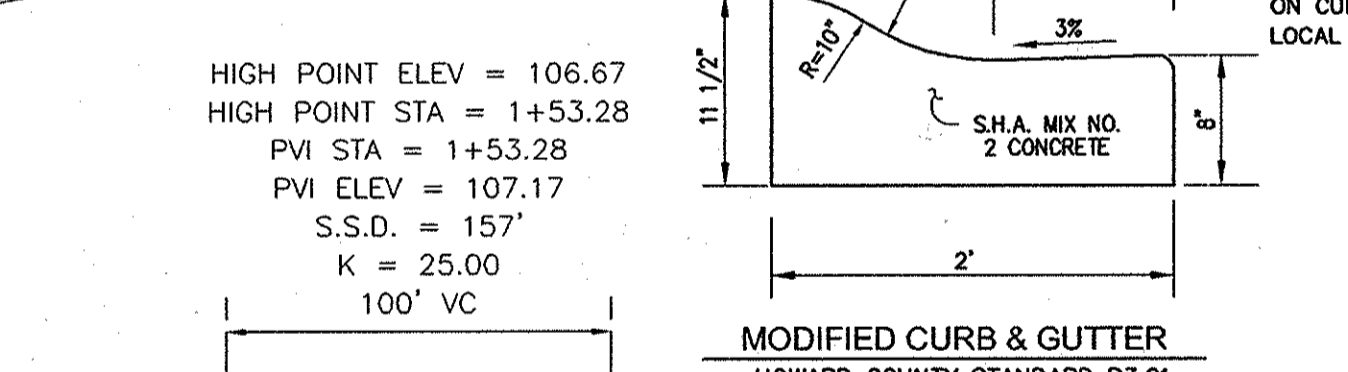
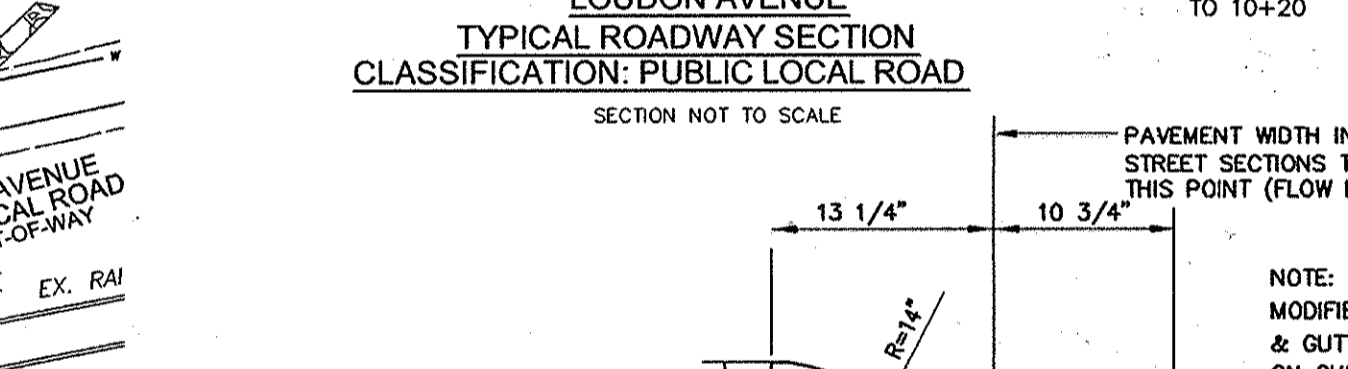
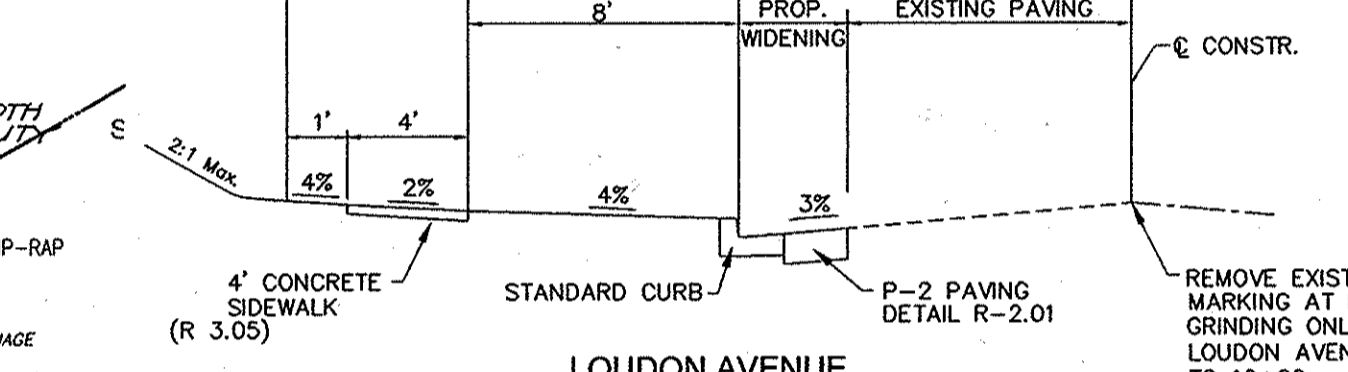
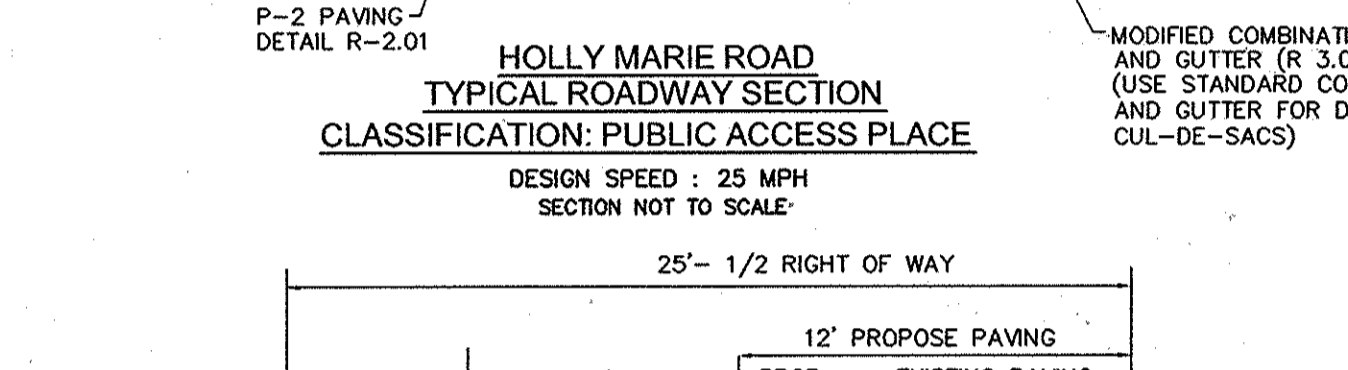
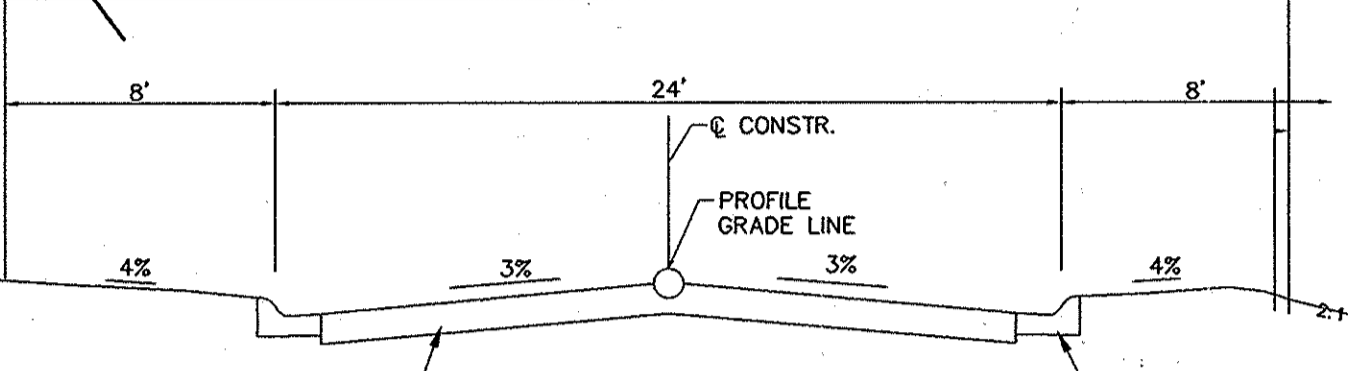
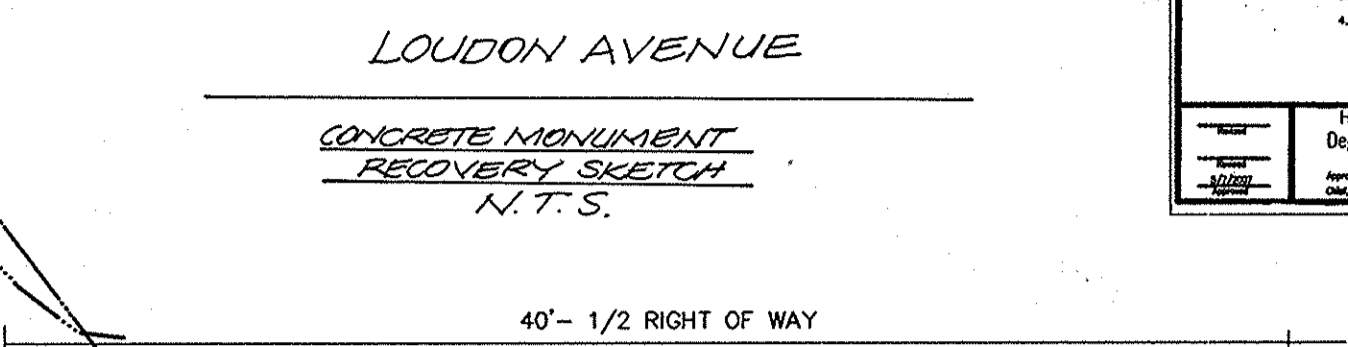
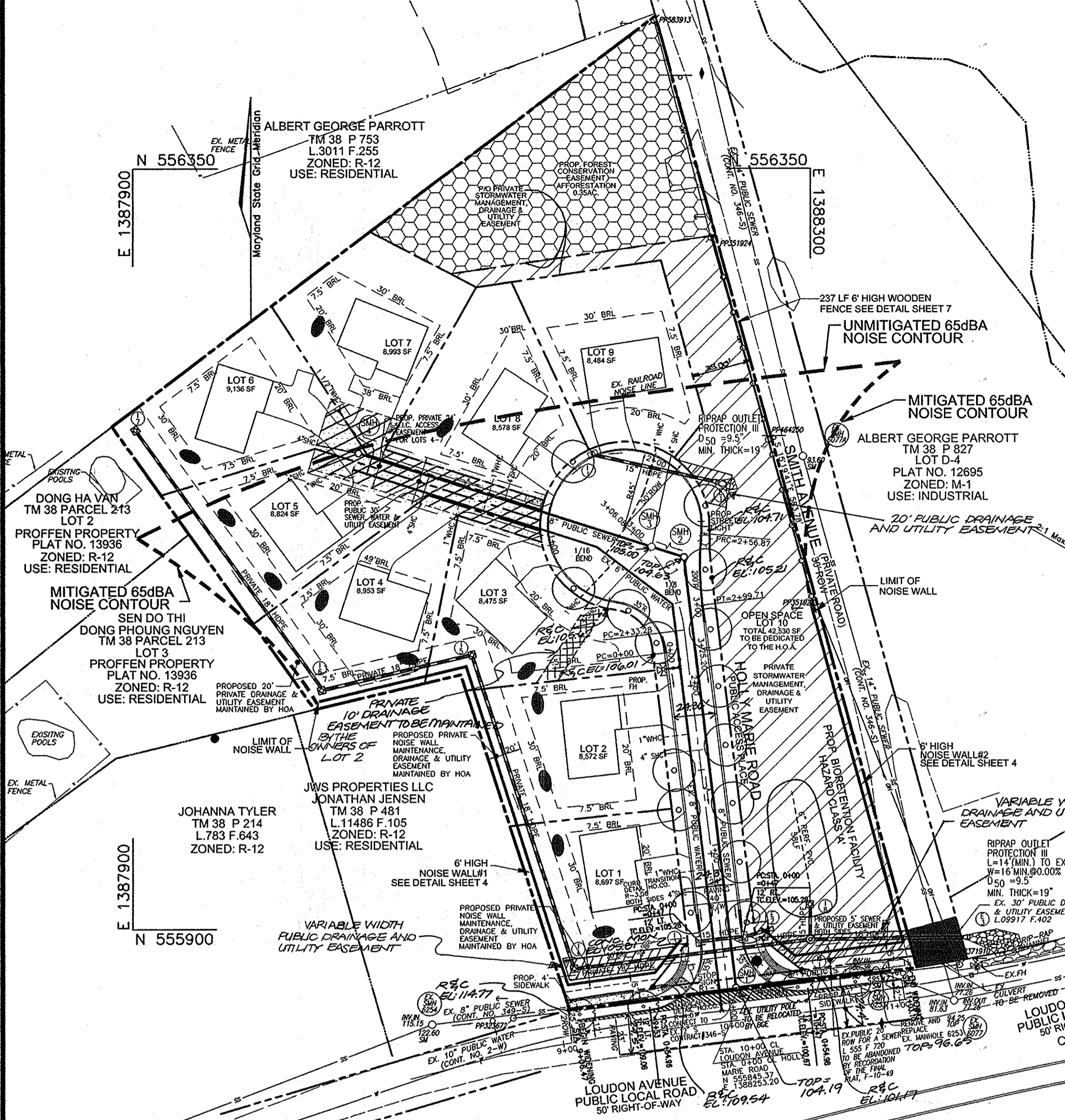
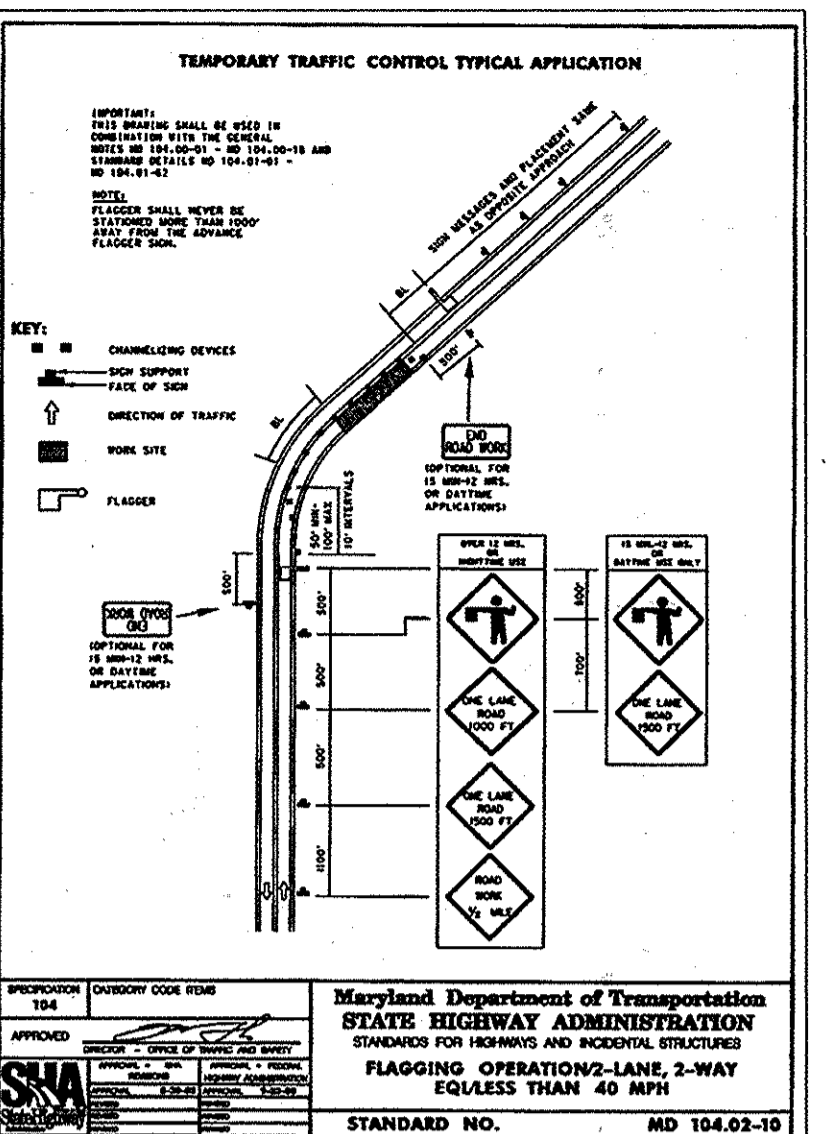
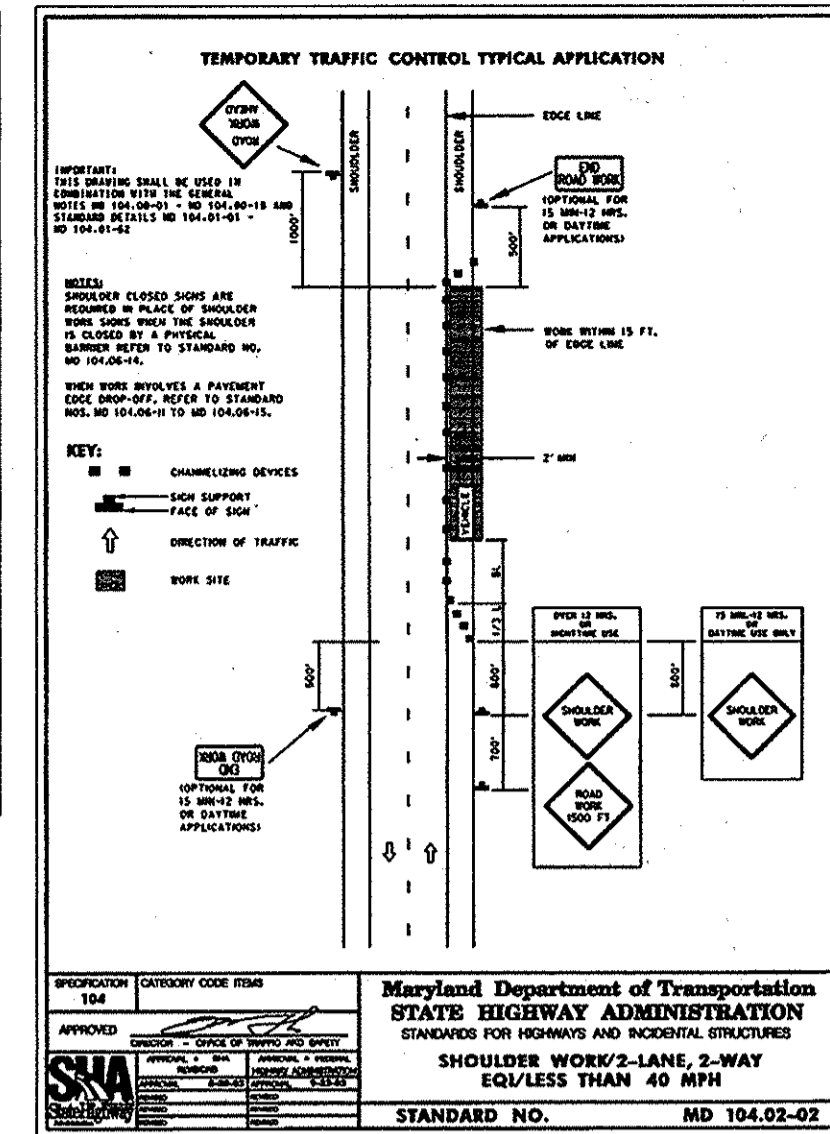
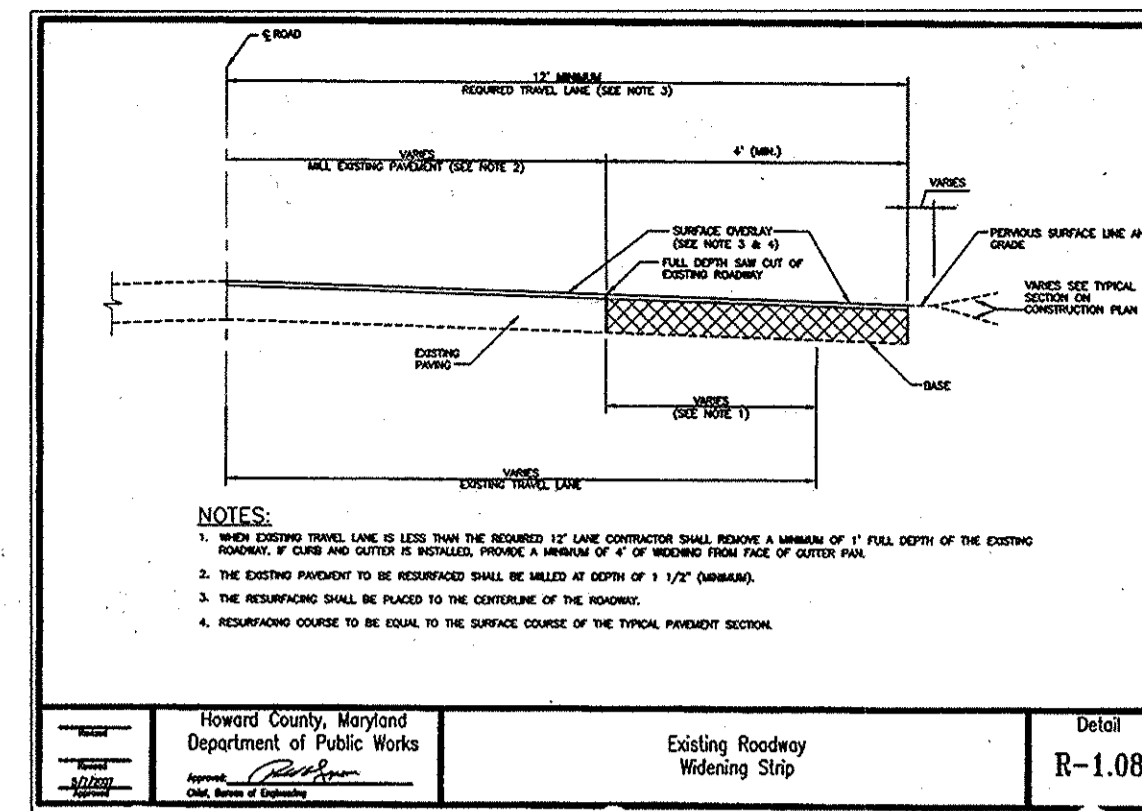
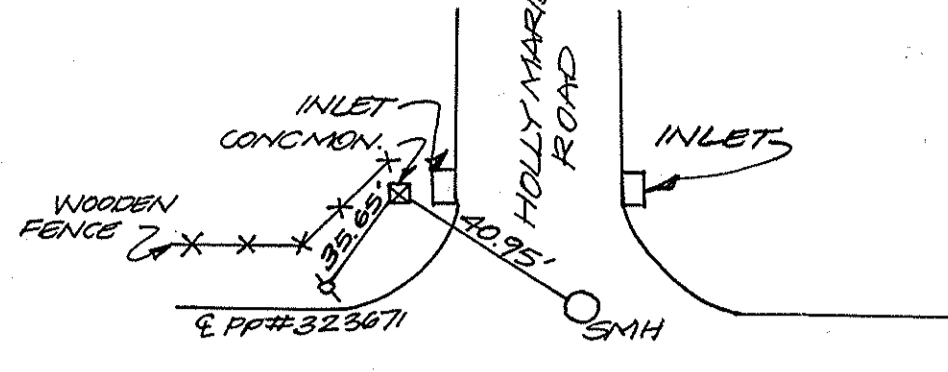
AS-BUILT CERTIFICATION
"I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS"
ROBERT H. VOGEL, P.E. NO.16193 9/25/12 DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS
2-26-10 DATE
CHIEF, BUREAU OF HIGHWAYS

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
3/2/10 DATE
CHIEF, DEVELOPMENT ENGINEERING DIVISION

3/2/10 DATE
CHIEF, DIVISION OF LAND DEVELOPMENT

NOTES:
THE EXISTING CENTERLINE MARKINGS ALONG LOUDON AVENUE AT NEW INTERSECTION SHALL BE REMOVED BY GRINDING. LIMITS SHALL BE DETERMINED BY THE TRAFFIC DIVISION-CONTACT AT 410-313-5752.



STREET TREES CHART	
NUMBER OF STREET TREES REQUIRED	NUMBER OF TREES PROVIDED
HOLLY MARIE ROAD-15(600LF/40)	15
LOUDON AVENUE-5(200LF/40)	5

SIGNAGE LOCATION CHART			
STREET NAME	STATION	OFFSET	FIXTURE/POLE TYPE
HOLLY MARIE ROAD	0+34.50	20' LEFT	R1-1 STOP SIGN

STREET LIGHT LOCATION CHART				
SYMBOL	STREET NAME	STATION	OFFSET	FIXTURE/POLE TYPE
☀	HOLLY MARIE ROAD	0+33	19' RT	150 WATT HPS VAPOR PREMIER POST-TOP FIXTURE MOUNTED ON A 14' BLACK FIBERGLASS POLE
☀	HOLLY MARIE ROAD	2+61LP	3' LT	100 WATT HPS VAPOR PREMIER POST-TOP FIXTURE MOUNTED ON A 14' BLACK FIBERGLASS POLE

LINE TABLE		
LINE	LENGTH	BEARING
L1	233.28	N06°52'28"W

CURVE TABLE						
CURVE	LENGTH	RADIUS	DELTA	TANGENT	CHORD	CHORD LENGTH
C1	72.80	91.75	45°27'50"	38.44	N29°36'23"W	70.91

NO.	REVISION	DATE
1	ADD PUBLIC DRAINAGE AND UTILITY EASEMENTS PER DIRECTION OF BUREAU OF UTILITIES	4/1/15

FINAL ROAD CONSTRUCTION PLAN, PROFILE, AND M.O.T. PLAN
EAGLE VALLEY
LOTS 1-9 AND OPEN SPACE LOT 10

TAX MAP 38' BLOCK 14
1ST ELECTION DISTRICT

ROBERT H. VOGEL ENGINEERING, INC.
ENGINEERS • SURVEYORS • PLANNERS
2407 MAIN STREET
ELICOTT CITY, MD 21043
TEL: 410.461.7666
FAX: 410.461.8961

PROFESSIONAL CERTIFICATE
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A duly licensed PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193, EXPIRATION DATE: 09-27-2010

DESIGN BY: JCO
DRAWN BY: KC
CHECKED BY: RHW
DATE: FEBRUARY 2010
SCALE: AS SHOWN
W.O. NO.: 05-61

2 SHEET OF 8

PLAN VIEW
SCALE: 1"=50'

LEGEND

- EXISTING RIGHT OF WAY BOUNDARY
- CENTER LINE ROAD
- PROPOSED STREET TREES
- PROP. 4' SIDEWALK
- PROP. NOISE WALL
- PROP. STREET LIGHT
- PROP. STREET SIGN
- PROP. PUBLIC SEWER, WATER AND UTILITY EASEMENT
- PROP. PRIVATE USE-IN-COMMON ACCESS EASEMENT
- PROP. PRIVATE STORMWATER MANAGEMENT DRAINAGE AND UTILITY EASEMENT
- EX. PUBLIC DRAINAGE AND UTILITY EASEMENT
- PROP. PRIVATE USE-IN-COMMON ACCESS EASEMENT
- PROP. PRIVATE USE-IN-COMMON ACCESS EASEMENT
- PROP. FOREST CONSERVATION EASEMENT

STANDARD COMBINATION CURB AND GUTTER
HOWARD COUNTY STANDARD R-3.01 (NOT TO SCALE)

HOLLY MARIE ROAD BITUMINOUS PAVEMENT (P-2)
R-2.01

AS-BUILT CERTIFICATION
I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE AS-BUILT PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS.

ROBERT H. VOGEL, P.E. #16193
DATE: 9/25/12

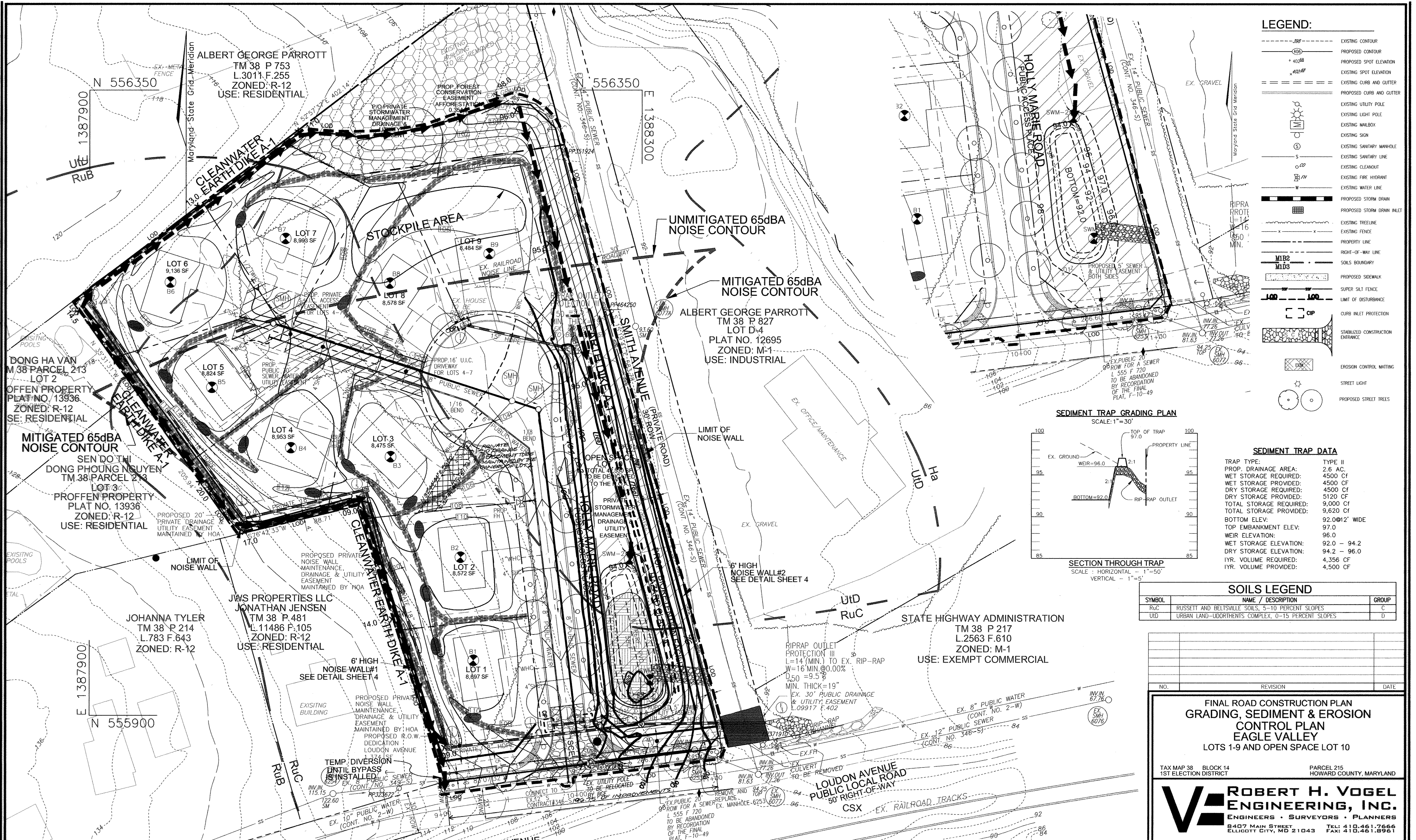
ROAD PROFILE
HOLLY MARIE ROAD
PUBLIC ACCESS STREET
SCALE: HORIZONTAL - 1"=50'
VERTICAL - 1"=5'

LINEAR PROFILE
HOLLY MARIE ROAD
SCALE: HORIZONTAL - 1"=50'
VERTICAL - 1"=5'

APPROVED: DEPARTMENT OF PUBLIC WORKS
DATE: 2-26-10

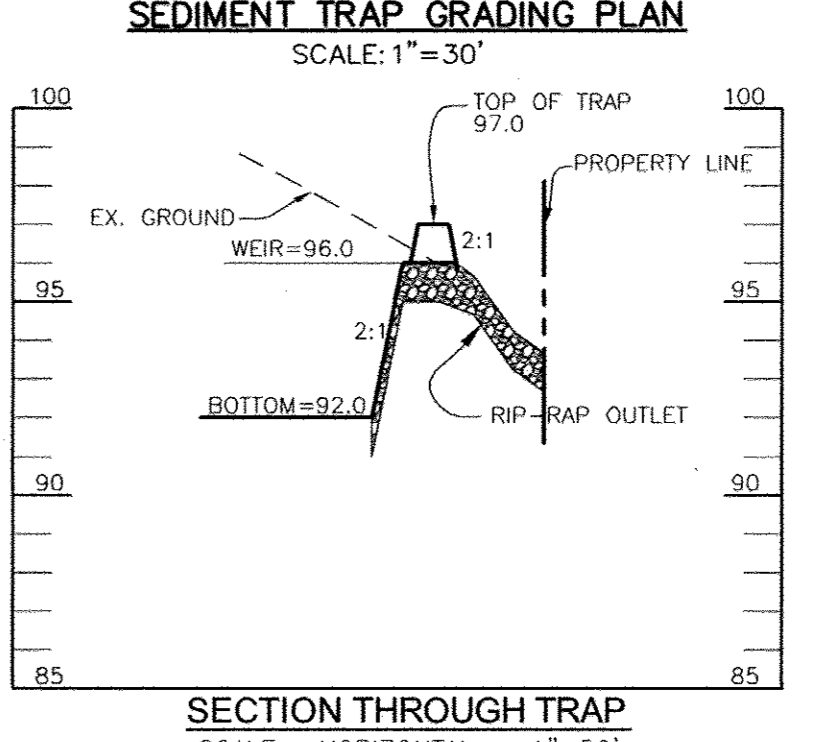
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
DATE: 3/2/10

APPROVED: DIVISION OF LAND DEVELOPMENT
DATE: 3/2/10



LEGEND:

	EXISTING CONTOUR
	PROPOSED CONTOUR
	PROPOSED SPOT ELEVATION
	EXISTING SPOT ELEVATION
	EXISTING CURB AND GUTTER
	PROPOSED CURB AND GUTTER
	EXISTING UTILITY POLE
	EXISTING LIGHT POLE
	EXISTING MAILBOX
	EXISTING SIGN
	EXISTING SANITARY MANHOLE
	EXISTING SANITARY LINE
	EXISTING CLEANOUT
	EXISTING FIRE HYDRANT
	EXISTING WATER LINE
	PROPOSED STORM DRAIN
	PROPOSED STORM DRAIN INLET
	EXISTING TREELINE
	EXISTING FENCE
	PROPERTY LINE
	RIGHT-OF-WAY LINE
	SOILS BOUNDARY
	PROPOSED SIDEWALK
	SUPER SILT FENCE
	LIMIT OF DISTURBANCE
	CURB INLET PROTECTION
	STABILIZED CONSTRUCTION ENTRANCE
	EROSION CONTROL MATTING
	STREET LIGHT
	PROPOSED STREET TREES



SEDIMENT TRAP DATA

TRAP TYPE:	TYPE II
PROP. DRAINAGE AREA:	2.6 AC.
WET STORAGE REQUIRED:	4500 CF
WET STORAGE PROVIDED:	4500 CF
DRY STORAGE REQUIRED:	4500 CF
DRY STORAGE PROVIDED:	5120 CF
TOTAL STORAGE REQUIRED:	9,000 CF
TOTAL STORAGE PROVIDED:	9,620 CF
BOTTOM ELEV.:	92.0@12' WIDE
TOP EMBANKMENT ELEV.:	97.0
WEIR ELEVATION:	96.0
WET STORAGE ELEVATION:	92.0 - 94.2
DRY STORAGE ELEVATION:	94.2 - 96.0
I/YR. VOLUME REQUIRED:	4,356 CF
I/YR. VOLUME PROVIDED:	4,500 CF

SOILS LEGEND

SYMBOL	NAME / DESCRIPTION	GROUP
RUC	RUSSETT AND BELTSVILLE SOILS, 5-10 PERCENT SLOPES	C
UID	URBAN LAND-UDORHTHENS' COMPLEX, 0-15 PERCENT SLOPES	D

NO.	REVISION	DATE

**FINAL ROAD CONSTRUCTION PLAN
GRADING, SEDIMENT & EROSION
CONTROL PLAN
EAGLE VALLEY
LOTS 1-9 AND OPEN SPACE LOT 10**

TAX MAP 38 BLOCK 14
1ST ELECTION DISTRICT

PARCEL 215
HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL ENGINEERING, INC.
ENGINEERS • SURVEYORS • PLANNERS
8407 MAIN STREET
ELLICOTT CITY, MD 21043
TEL: 410.461.7666
FAX: 410.461.8961

DESIGN BY: JCO
DRAWN BY: KGC
CHECKED BY: RHV
DATE: FEBRUARY 2010
SCALE: 1"=30'
W.O. NO.: 05-61

OWNER/DEVELOPER
MICHAEL L. PFAU
3675 PARK AVENUE
ELLICOTT CITY, MD 21043
PHONE: 410-480-0023

PROFESSIONAL CERTIFICATE
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193, EXPIRATION DATE: 09-27-2010.

3 SHEET OF **8**

APPROVED: DEPARTMENT OF PUBLIC WORKS
2-26-10
CHIEF, BUREAU OF HIGHWAYS

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
3/2/10
CHIEF, DEVELOPMENT ENGINEERING DIVISION

APPROVED: DIVISION OF LAND DEVELOPMENT
3/2/10
CHIEF, DIVISION OF LAND DEVELOPMENT

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

HOWARD S.C.D.
2/23/10
DATE

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."

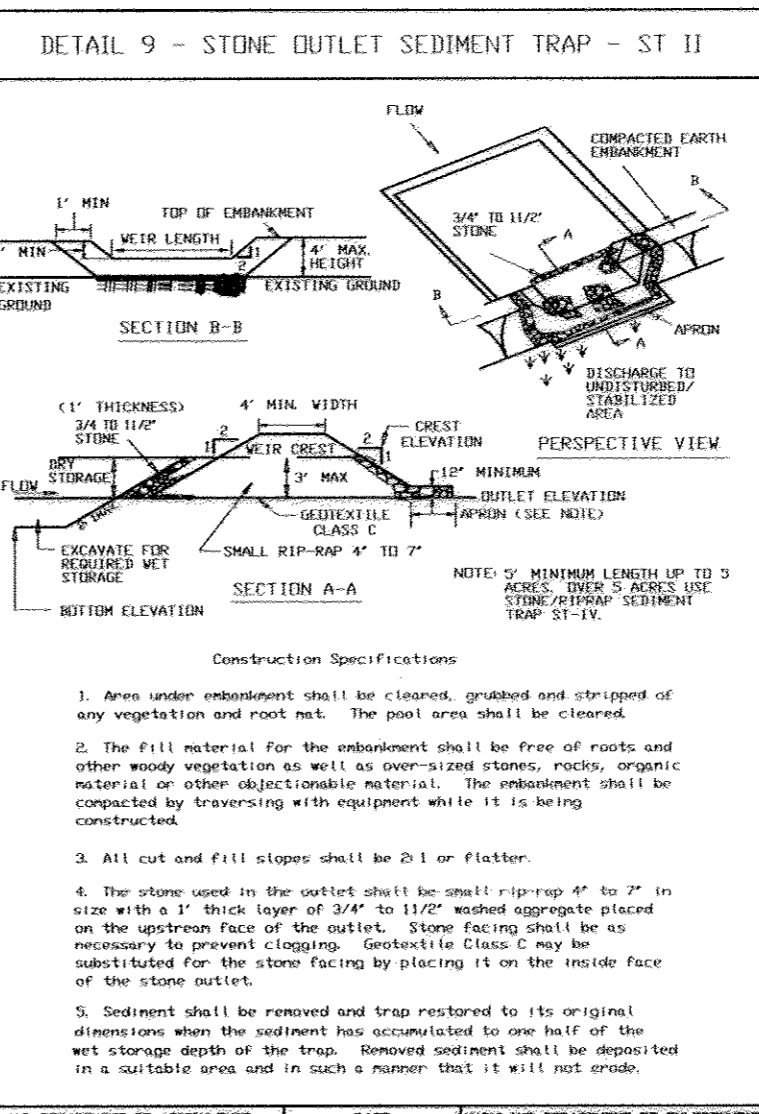
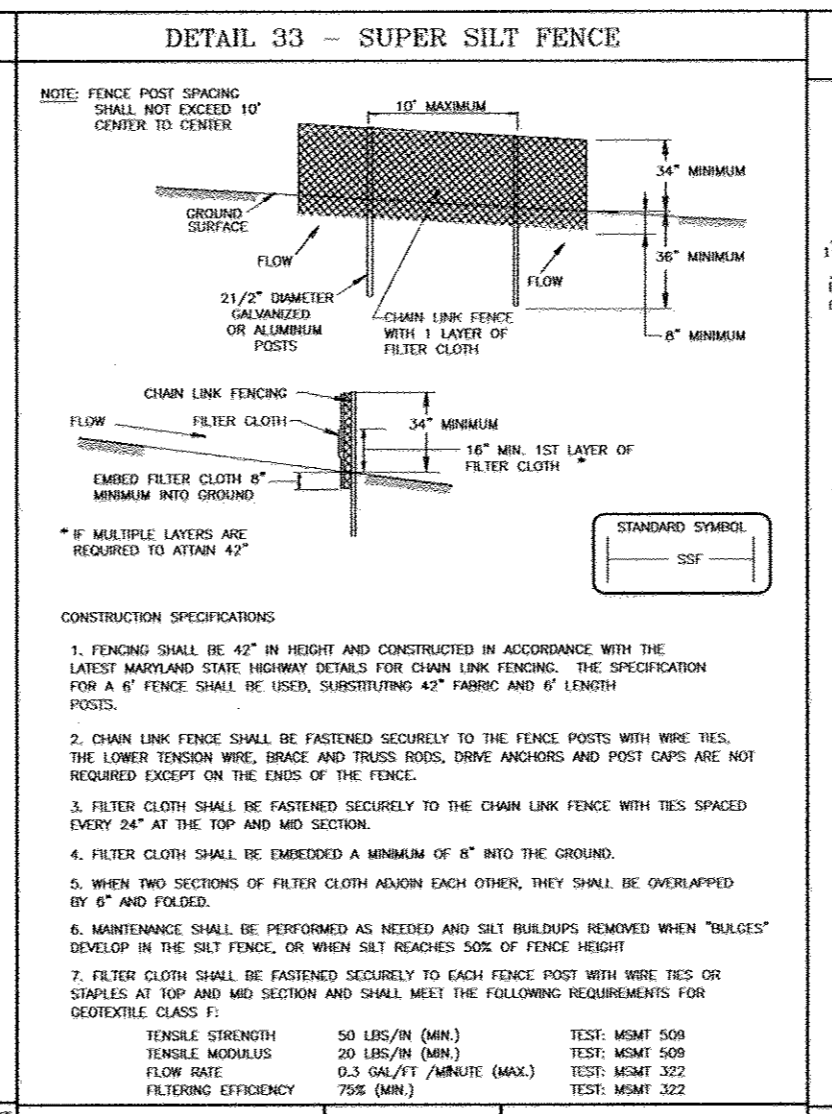
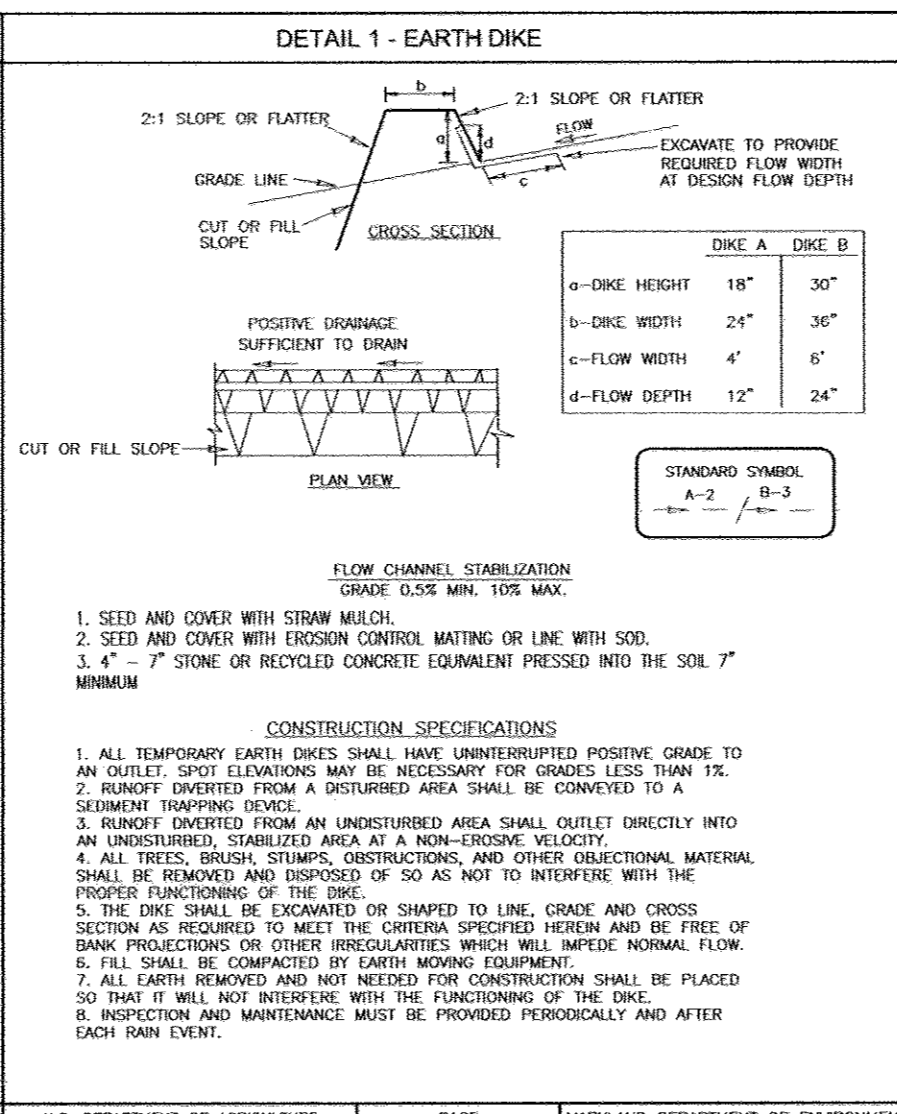
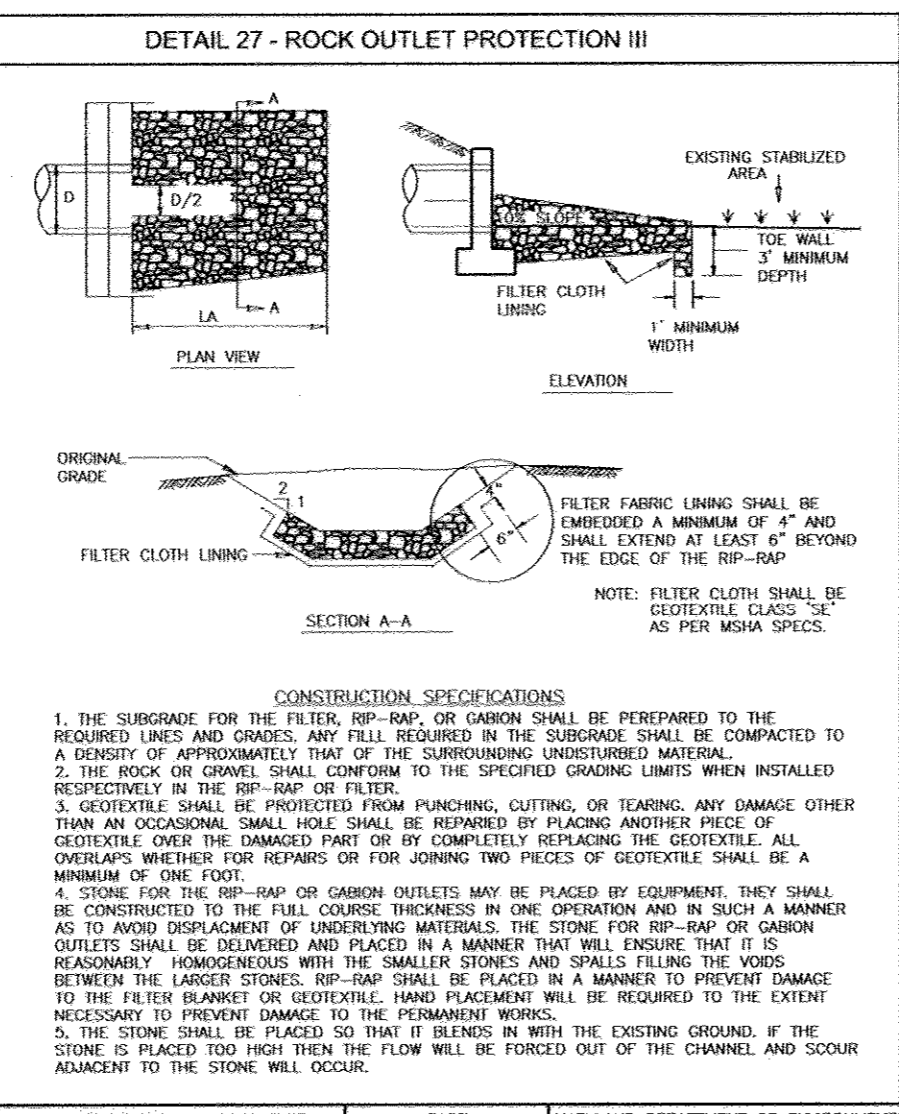
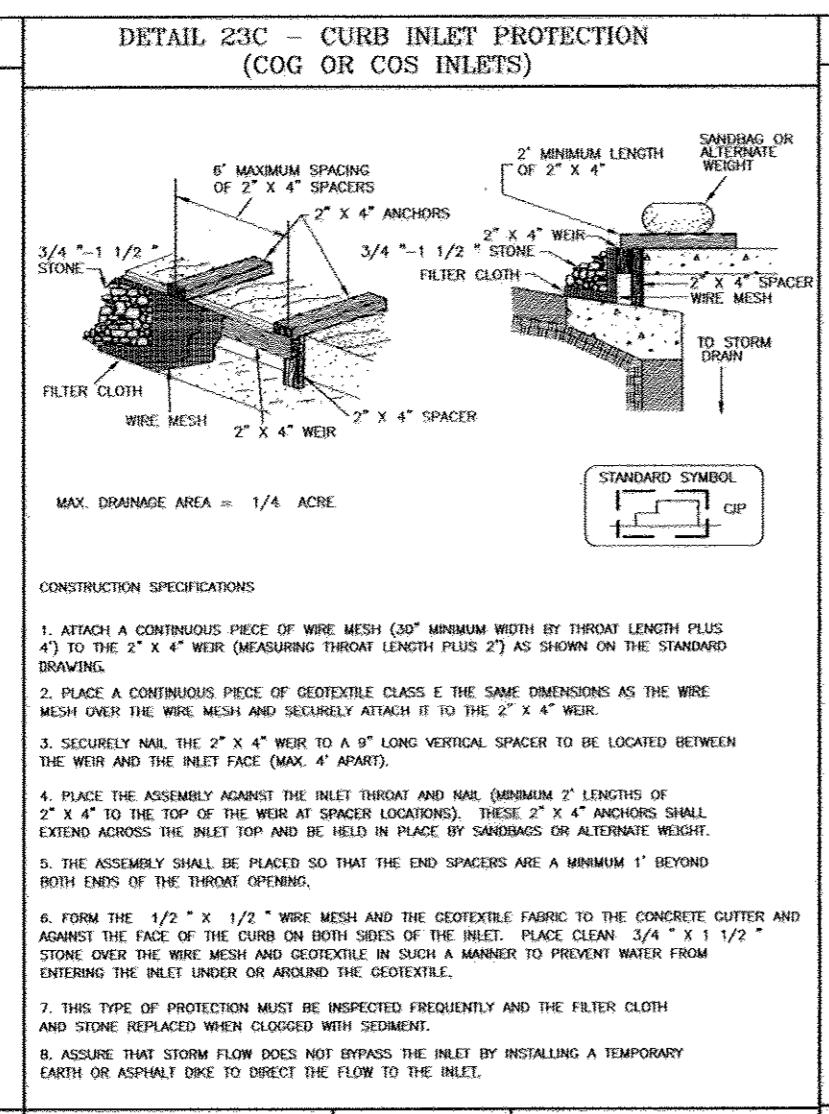
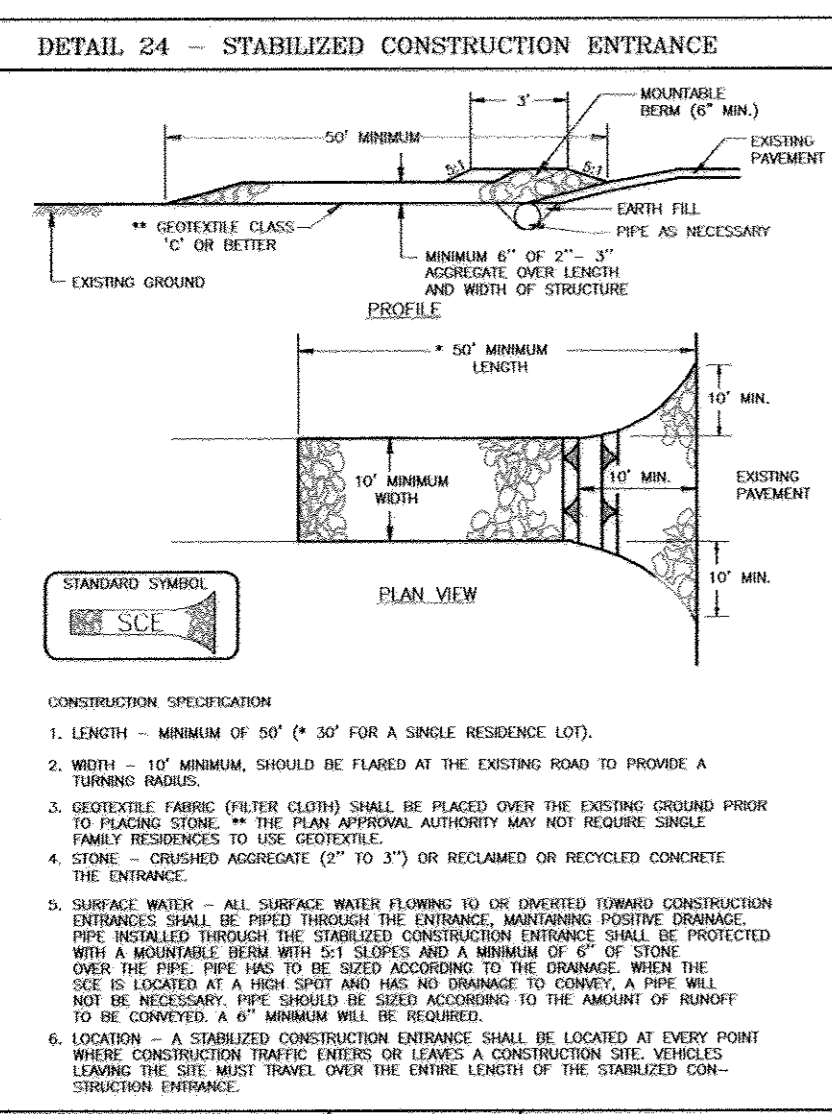
2/4/10
DATE

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

2/4/10
DATE

"AS-BUILT" CERTIFICATION
"I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE AS-BUILT PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS."
9/25/12
DATE

ROBERT H. VOGEL, P.E. #16193
CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ON-SITE INSPECTIONS AND MATERIAL TESTS WHICH ARE CONDUCTED DURING CONSTRUCTION. THE ON-SITE SITE INSPECTION AND TESTS DEEMED SUFFICIENT AND APPROPRIATE BY COMMONLY ACCEPTED ENGINEERING STANDARDS. CERTIFY DOES NOT MEAN OR IMPLY A GUARANTEE. BY THE ENGINEER NOR DOES AN ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.



PERMANENT SEEDING NOTES

APPLY TO GRADED OR CLEARED AREAS NOT SUBJECT TO IMMEDIATE FURTHER DISTURBANCE WHERE A PERMANENT LONG-LEIVED VEGETATIVE COVER IS NEEDED.

SEEDBED PREPARATION: LOOSEN UPPER THREE INCHES OF SOIL BY RAKING, DISKING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING, IF NOT PREVIOUSLY LOOSENED.

SOIL AMENDMENTS: IN LIEU OF SOIL TEST RECOMMENDATIONS, USE ONE OF THE FOLLOWING SCHEDULES:

1. PREPERIOD: APPLY 2 TONS/ACRE DOLICLIMIC LIMESTONE (92 IBS/1000 SQ. FT.) AND 600 IBS/ACRE 10-10-10 FERTILIZER (14 IBS/1000 SQ. FT.) BEFORE SEEDING.
2. ACCEPTABLE: APPLY 2 TONS/ACRE DOLICLIMIC LIMESTONE (92 IBS/1000 SQ. FT.) AND 1000 IBS/ACRE 10-10-10 FERTILIZER (23 IBS/1000 SQ. FT.) BEFORE SEEDING.
3. SEEDING: HARROW OR DISK INTO UPPER THREE INCHES OF SOIL AT TIME OF SEEDING. APPLY 400 IBS/ACRE 30-0-0 UREAFORM FERTILIZER (9 IBS/1000 SQ. FT.)

SEEDING: FOR THE PERIODS MARCH 1 THRU APRIL 30, AND AUGUST 1 THRU OCTOBER 15, SEED WITH 60 IBS/ACRE (1.4 IBS/1000 SQ. FT.) OF KENTUCKY 33 TALL FESCUE. FOR THE PERIOD MAY 1 THRU JULY 31, SEED WITH 60 IBS KENTUCKY 33 TALL FESCUE PER ACRE AND 2 IBS/ACRE (0.5 IBS/1000 SQ. FT.) OF WEEPING LOVEGRASS. DURING THE PERIOD OF OCTOBER 16 THRU FEBRUARY 28, PROTECT SITE BY:

OPTION 1: TWO TONS PER ACRE OF WELLS ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING.

OPTION 2: USE SOO.

OPTION 3: SEED WITH 60 IBS/ACRE KENTUCKY 30 TALL FESCUE AND MULCH WITH 2 TONS/ACRE WELL ANCHORED STRAW.

MULCHING: APPLY 1-1/2 TO 2 TONS PER ACRE (70 TO 90 IBS/1000 SQ. FT.) OF UNNOTTED SMALL GRASS STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL OR 215 GALLONS PER ACRE (5 GAL/1000 SQ. FT.) OF EMULSIFIED ASPHALT ON FLAT AREAS, ON SLOPE 8 FEET OR HIGHER, USE 348 GALLONS PER ACRE (8 GAL/1000 SQ. FT.) FOR ANCHORING.

MAINTENANCE: INSPECT ALL SEEDING AREAS AND MAKE NEEDED REPAIRS, REPLACEMENTS AND RESEEDINGS.

21.0 STANDARDS AND SPECIFICATIONS FOR TOPSOIL

FOR SITES HAVING DISTURBED AREAS OVER 5 ACRES:

1. ON SOIL MEETING TOPSOIL SPECIFICATIONS, OBTAIN TEST RESULTS INDICATING FERTILIZER AND LIME AMENDMENTS REQUIRED TO BRING THE SOIL INTO COMPLIANCE WITH THE FOLLOWING:

- A. pH FOR TOPSOIL SHALL BE BETWEEN 6.0 AND 7.5. IF THE TESTED SOIL pH IS LESS THAN 6.0, SUFFICIENT LIME SHALL BE PRESCRIBED TO RAISE THE pH TO 6.0 OR HIGHER.
- B. CATIONIC CONTENT OF TOPSOIL SHALL NOT BE LESS THAN 1.5 PERCENT BY WEIGHT.
- C. TOPSOIL SHALL CONTAIN GREATER THAN 800 PARTS PER MILLION SHALL NOT BE USED.
- D. NO TOXIC SUBSTANCES OR CHEMICALS WHICH HAVE BEEN TREATED WITH SOIL STABILIZANTS OR CHEMICALS IS NOT BEYOND UPPER THREE INCHES OF SOIL AT TIME OF SEEDING. CONTAINING SUPPLIES OF MOISTURE AND PLANT NUTRIENTS.

2. THE ORIGINAL SOIL TO BE VEGETATED CONTAINS MATERIAL TOXIC TO PLANT GROWTH.

3. THE SOIL IS SO ACIDIC THAT TREATMENT WITH LIMESTONE IS NOT FEASIBLE.

4. FOR THE PURPOSE OF THESE STANDARDS AND SPECIFICATIONS, AREAS HAVING SLOPES STEEPER THAN 2:1 REQUIRE SPECIAL CONSIDERATION AND DESIGN FOR ADEQUATE STABILIZATION. AREAS HAVING SLOPES STEEPER THAN 2:1 SHALL HAVE THE APPROPRIATE STABILIZATION SHOWN ON THE PLANS.

CONSTRUCTION AND MATERIAL SPECIFICATIONS

I. TOPSOIL SALVAGED FROM THE EXISTING SITE MAY BE USED PROVIDED THAT IT MEETS THE STANDARDS AS SET FORTH IN THESE SPECIFICATIONS. TYPICALLY, THE DEPTH OF TOPSOIL TO BE SALVAGED FOR A GIVEN SOIL TYPE CAN BE FOUND IN THE REPRESENTATIVE SOIL PROFILE SECTION IN THE SOIL SURVEY PUBLISHED BY USDA-NRCS IN COOPERATION WITH MARYLAND AGRICULTURAL EXPERIMENTAL STATION.

II. TOPSOIL SPECIFICATIONS - SOIL TO BE USED AS TOPSOIL MUST MEET THE FOLLOWING:

1. TOPSOIL SHALL BE A LOAM, SANDY LOAM, LOAM, CLAY LOAM, SILT LOAM, SANDY CLAY LOAM, LOAMY SAND, OTHER SOILS MAY BE USED IF RECOMMENDED BY AN AGRICULTURIST OR A SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY. REGARDLESS, TOPSOIL SHALL NOT BE A MIXTURE OF COMPACTING TEXTURED SUBSOILS AND SHALL CONTAIN LESS THAN 5% BY VOLUME OF CORNERS, STONES, SLAG, COMBUSTIBLES, GRAVEL, STEEL, RUBBER, TRASH, OR OTHER MATERIALS WHICH ARE HARMFUL TO PLANT GROWTH.
2. TOPSOIL SHALL BE UNIFORMLY DISTRIBUTED IN A 4" - 8" LAYER AND LIGHTLY COMPACTED TO A MINIMUM THICKNESS OF 4".
3. SPREADING SHALL BE PERFORMED IN SUCH A MANNER THAT SOILING OR SEEDING CAN PROCEED WITH A MINIMUM OF ADDITIONAL SOIL PREPARATION AND TILLAGE. ANY IRREGULARITIES IN THE SURFACE RESULTING FROM TOPSOILING OR OTHER OPERATIONS SHALL BE CORRECTED IN ORDER TO PREVENT THE FORMATION OF DEPRESSIONS OR WATER COLLECTING AREAS. DETRIMENTAL TO PROPER GRADING AND SEEDING PREPARATION.

ALTERNATIVE TO PERMANENT SEEDING - INSTEAD OF APPLYING THE FULL AMOUNTS OF LIME AND COMMERICAL FERTILIZER, COMPOSTED SLUDGE AND AMENDMENTS MAY BE APPLIED AS SCHEDULED BELOW:

- A. COMPOSTED SLUDGE MATERIAL FOR USE AS A SOIL CONDITIONER FROM A PERSON OR PERSONS THAT ARE PERMITTED (AT THE DISCRETION OF THE DEPARTMENT OF THE MARYLAND DEPARTMENT OF ENVIRONMENT UNDER COMAR 26.04.06) TO OPERATE SHALL HAVE A pH OF 7.0 TO 8.0. COMPOST DOES NOT MEET THESE REQUIREMENTS. THE APPROPRIATE AMENDMENTS MUST BE ADDED TO MEET THE REQUIREMENTS PRIOR TO USE.
- B. COMPOSTED SLUDGE SHALL BE APPLIED AT A RATE OF 1 TON/7,000 SQUARE FEET.
- C. COMPOSTED SLUDGE SHALL BE AMENDED WITH A POTASSIUM FERTILIZER APPLIED AT THE RATE OF 4 LB/1,000 SQUARE FEET, AND 1/3 THE NORMAL LIME APPLICATION RATE.

SEDIMENT CONTROL NOTES

1. OBTAIN GRADING PERMIT.
2. NOTIFY HOWARD COUNTY BUREAU OF INSPECTIONS AND PERMITS (315-1880) AT LEAST 24 HOURS BEFORE STARTING ANY WORK.
3. CONSTRUCT STABILIZED CONSTRUCTION ENTRANCE. 1 DAY
4. INSTALL PERMETER CONTROLS: SUPER SILT FENCE AND CLEANWATER EARTH DIKES. 1 WEEK
5. AFTER OBTAINING PERMISSION FROM SEDIMENT CONTROL INSPECTOR INSTALL BYPASS SYSTEM. 1 MONTH
6. MASS GRADE START AND BEGIN CONSTRUCTION OF WATER & SEWER SYSTEM. 6 WEEKS
7. BEGIN CONSTRUCTION STORM DRAIN SYSTEM. 3 WEEKS
8. GRADE ROAD TO SUB-BASE. 1 DAYS
9. BEGIN CURB AND GUTTER AND ROAD PAVING. 1 WEEK
10. FINE GRADE SITE IN CONFORMANCE WITH PLAN. 3 WEEKS
11. WITH INSPECTOR APPROVAL AND FINAL ROAD PAVING COMPLETE STABILIZE ANY REMAINING DISTURBED AREAS. 3 DAYS
12. WITH INSPECTOR APPROVAL REMOVE SEDIMENT TRAP AND CONSTRUCT SWM FACILITY. 2 WEEKS
13. INSTALL STREET TREES, LANDSCAPING AND FOREST CONSERVATION PLANTINGS. 3 WEEKS
14. WITH APPROVAL OF SEDIMENT CONTROL INSPECTOR, REMOVE ALL SEDIMENT CONTROL MEASURES. 3 WEEKS

NOTES:

1. DURING GRADING AND AFTER EACH RAINFALL, CONTRACTOR WILL INSPECT AND PROVIDE NECESSARY MAINTENANCE TO THE SEDIMENT CONTROL MEASURES ON THIS PLAN.
2. FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN A 7 CALENDAR DAYS FOR ALL PERMETER SEDIMENT CONTROL B. 14 CALENDAR DAYS FOR ALL OTHER DISTURBED AREAS.

SEDIMENT CONTROL NOTES

1. A MINIMUM OF 48 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTION, LICENSE AND PERMITS SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION (410-313-1855).
2. ALL VEGETATION AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL AND REVISIONS THERETO.
3. FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN (A) 7 CALENDAR DAYS FOR ALL PERMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERMETER SLOPES, AND ALL SLOPES GREATER THAN 2:1, (B) 14 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
4. ALL SEDIMENT TRAPS/BASINS SHOWN MUST BE FENCED AND WARNING SIGNS POSTED AROUND THEIR PERIMETER IN ACCORDANCE WITH VOL. 1, CHAPTER 7, HOWARD COUNTY DESIGN MANUAL, STORM DRAINAGE.
5. ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR PERMANENT SEEDING, SOO, TEMPORARY SEEDING, AND MULCHING (SEC. C). TEMPORARY STABILIZATION WITH MULCH ALONE SHALL BE DONE WHEN RECOMMENDED SEEDING DATA DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES.
6. ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMISSION FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.

WASTE/BORROW LOCATION:

ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.

ADDITIONAL SEDIMENT CONTROLS MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.

ON ALL SITES WITH DISTURBED AREAS IN EXCESS OF 2 ACRES, APPROVAL OF THE INSPECTION AGENCY SHALL BE REQUESTED UPON COMPLETION OF INSTALLATION OF PERMETER EROSION AND SEDIMENT CONTROLS, BUT BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING. OTHER BUILDINGS OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL IS MADE.

TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE LENGTHS OR THAT WHICH SHALL BE BACK-FILLED AND STABILIZED WITHIN ONE WORKING DAY, WHICHEVER IS SHORTER.

* TO BE DETERMINED BY CONTRACTOR, WITH PRE-APPROVAL OF THE SEDIMENT CONTROL INSPECTOR WITH AN APPROVED AND ACTIVE GRADING PERMIT

TEMPORARY SEEDING NOTES

APPLY TO GRADED OR CLEARED AREAS LIKELY TO BE RE-DISTURBED WHERE A SHORT-TERM VEGETATIVE COVER IS NEEDED.

SEEDBED PREPARATION: LOOSEN UPPER THREE INCHES OF SOIL BY RAKING, DISKING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING, IF NOT PREVIOUSLY LOOSENED.

SOIL AMENDMENTS: APPLY 600 IBS/ACRE 10-10-10 FERTILIZER (14 IBS/1000 SQ. FT.)

SEEDING: FOR PERIODS MARCH 1 THRU APRIL 30 AND FROM AUGUST 15 THRU OCTOBER 15, SEED WITH 2-1/2 BUSHEL PER ACRE OF ANNUAL RYE (3.2 IBS/1000 SQ. FT.) FOR THE PERIOD MAY 1 - AUGUST 14, SEED WITH 3 IBS/ACRE OF WEEPING LOVEGRASS (6 IBS/1000 SQ. FT.) FOR THE PERIOD NOVEMBER 16 - FEBRUARY 28, PROTECT SITE BY APPLYING 2 TONS/ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING, OR USE SOO.

MULCHING: APPLY 1-1/2 TO 2 TONS/ACRE (70 TO 90 IBS/1000 SQ. FT.) OF UNNOTTED WEED-FREE, SMALL GRASS STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL OR 215 GAL PER ACRE (5 GAL/1000 SQ. FT.) OF EMULSIFIED ASPHALT ON FLAT AREAS, ON SLOPE 8 FT. OR HIGHER, USE 348 GAL PER ACRE (8 GAL/1000 SQ. FT.) FOR ANCHORING.

CONSTRUCTION AND MATERIAL SPECIFICATIONS

I. TOPSOIL SALVAGED FROM THE EXISTING SITE MAY BE USED PROVIDED THAT IT MEETS THE STANDARDS AS SET FORTH IN THESE SPECIFICATIONS. TYPICALLY, THE DEPTH OF TOPSOIL TO BE SALVAGED FOR A GIVEN SOIL TYPE CAN BE FOUND IN THE REPRESENTATIVE SOIL PROFILE SECTION IN THE SOIL SURVEY PUBLISHED BY USDA-NRCS IN COOPERATION WITH MARYLAND AGRICULTURAL EXPERIMENTAL STATION.

II. TOPSOIL SPECIFICATIONS - SOIL TO BE USED AS TOPSOIL MUST MEET THE FOLLOWING:

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2. TOPSOIL SHALL BE UNIFORMLY DISTRIBUTED IN A 4" - 8" LAYER AND LIGHTLY COMPACTED TO A MINIMUM THICKNESS OF 4".
3. SPREADING SHALL BE PERFORMED IN SUCH A MANNER THAT SOILING OR SEEDING CAN PROCEED WITH A MINIMUM OF ADDITIONAL SOIL PREPARATION AND TILLAGE. ANY IRREGULARITIES IN THE SURFACE RESULTING FROM TOPSOILING OR OTHER OPERATIONS SHALL BE CORRECTED IN ORDER TO PREVENT THE FORMATION OF DEPRESSIONS OR WATER COLLECTING AREAS. DETRIMENTAL TO PROPER GRADING AND SEEDING PREPARATION.

ALTERNATIVE TO PERMANENT SEEDING - INSTEAD OF APPLYING THE FULL AMOUNTS OF LIME AND COMMERICAL FERTILIZER, COMPOSTED SLUDGE AND AMENDMENTS MAY BE APPLIED AS SCHEDULED BELOW:

- A. COMPOSTED SLUDGE MATERIAL FOR USE AS A SOIL CONDITIONER FROM A PERSON OR PERSONS THAT ARE PERMITTED (AT THE DISCRETION OF THE DEPARTMENT OF THE MARYLAND DEPARTMENT OF ENVIRONMENT UNDER COMAR 26.04.06) TO OPERATE SHALL HAVE A pH OF 7.0 TO 8.0. COMPOST DOES NOT MEET THESE REQUIREMENTS. THE APPROPRIATE AMENDMENTS MUST BE ADDED TO MEET THE REQUIREMENTS PRIOR TO USE.
- B. COMPOSTED SLUDGE SHALL BE APPLIED AT A RATE OF 1 TON/7,000 SQUARE FEET.
- C. COMPOSTED SLUDGE SHALL BE AMENDED WITH A POTASSIUM FERTILIZER APPLIED AT THE RATE OF 4 LB/1,000 SQUARE FEET, AND 1/3 THE NORMAL LIME APPLICATION RATE.

SEDIMENT CONTROL NOTES

1. OBTAIN GRADING PERMIT.
2. NOTIFY HOWARD COUNTY BUREAU OF INSPECTIONS AND PERMITS (315-1880) AT LEAST 24 HOURS BEFORE STARTING ANY WORK.
3. CONSTRUCT STABILIZED CONSTRUCTION ENTRANCE. 1 DAY
4. INSTALL PERMETER CONTROLS: SUPER SILT FENCE AND CLEANWATER EARTH DIKES. 1 WEEK
5. AFTER OBTAINING PERMISSION FROM SEDIMENT CONTROL INSPECTOR INSTALL BYPASS SYSTEM. 1 MONTH
6. MASS GRADE START AND BEGIN CONSTRUCTION OF WATER & SEWER SYSTEM. 6 WEEKS
7. BEGIN CONSTRUCTION STORM DRAIN SYSTEM. 3 WEEKS
8. GRADE ROAD TO SUB-BASE. 1 DAYS
9. BEGIN CURB AND GUTTER AND ROAD PAVING. 1 WEEK
10. FINE GRADE SITE IN CONFORMANCE WITH PLAN. 3 WEEKS
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14. WITH APPROVAL OF SEDIMENT CONTROL INSPECTOR, REMOVE ALL SEDIMENT CONTROL MEASURES. 3 WEEKS

NOTES:

1. DURING GRADING AND AFTER EACH RAINFALL, CONTRACTOR WILL INSPECT AND PROVIDE NECESSARY MAINTENANCE TO THE SEDIMENT CONTROL MEASURES ON THIS PLAN.
2. FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN A 7 CALENDAR DAYS FOR ALL PERMETER SEDIMENT CONTROL B. 14 CALENDAR DAYS FOR ALL OTHER DISTURBED AREAS.

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2. ALL VEGETATION AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL AND REVISIONS THERETO.
3. FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN (A) 7 CALENDAR DAYS FOR ALL PERMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERMETER SLOPES, AND ALL SLOPES GREATER THAN 2:1, (B) 14 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
4. ALL SEDIMENT TRAPS/BASINS SHOWN MUST BE FENCED AND WARNING SIGNS POSTED AROUND THEIR PERIMETER IN ACCORDANCE WITH VOL. 1, CHAPTER 7, HOWARD COUNTY DESIGN MANUAL, STORM DRAINAGE.
5. ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR PERMANENT SEEDING, SOO, TEMPORARY SEEDING, AND MULCHING (SEC. C). TEMPORARY STABILIZATION WITH MULCH ALONE SHALL BE DONE WHEN RECOMMENDED SEEDING DATA DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES.
6. ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMISSION FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.

WASTE/BORROW LOCATION:

ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.

ADDITIONAL SEDIMENT CONTROLS MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.

ON ALL SITES WITH DISTURBED AREAS IN EXCESS OF 2 ACRES, APPROVAL OF THE INSPECTION AGENCY SHALL BE REQUESTED UPON COMPLETION OF INSTALLATION OF PERMETER EROSION AND SEDIMENT CONTROLS, BUT BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING. OTHER BUILDINGS OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL IS MADE.

TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE LENGTHS OR THAT WHICH SHALL BE BACK-FILLED AND STABILIZED WITHIN ONE WORKING DAY, WHICHEVER IS SHORTER.

* TO BE DETERMINED BY CONTRACTOR, WITH PRE-APPROVAL OF THE SEDIMENT CONTROL INSPECTOR WITH AN APPROVED AND ACTIVE GRADING PERMIT

HILLIS-CARRIES ENGINEERING ASSOCIATES, INC. RECORD OF SOIL EXPLORATION

Project Name: Eagle Valley SWM
 Location: Howard County, Maryland
 Date: 02/20/10
 Sheet No: 02/20/10

Depth	Description	Moisture	Temp	Color	Consistency	Notes
0-12"	Light brown, medium sand, silty (SAND) (SP)	18.5	65	10YR 6/6	1-2	
12-18"	Light brown, medium sand, silty (SAND) (SP)	18.5	65	10YR 6/6	1-2	
18-24"	Light brown, medium sand, silty (SAND) (SP)	18.5	65	10YR 6/6	1-2	
24-30"	Light brown, medium sand, silty (SAND) (SP)	18.5	65	10YR 6/6	1-2	
30-36"	Light brown, medium sand, silty (SAND) (SP)	18.5	65	10YR 6/6	1-2	
36-42"	Light brown, medium sand, silty (SAND) (SP)	18.5	65	10YR 6/6	1-2	
42-48"	Light brown, medium sand, silty (SAND) (SP)	18.5	65	10YR 6/6	1-2	
48-54"	Light brown, medium sand, silty (SAND) (SP)	18.5	65	10YR 6/6	1-2	
54-60"	Light brown, medium sand, silty (SAND) (SP)	18.5	65	10YR 6/6	1-2	
60-66"	Light brown, medium sand, silty (SAND) (SP)	18.5	65	10YR 6/6	1-2	
66-72"	Light brown, medium sand, silty (SAND) (SP)	18.5	65	10YR 6/6	1-2	
72-78"	Light brown, medium sand, silty (SAND) (SP)	18.5	65	10YR 6/6	1-2	
78-84"	Light brown, medium sand, silty (SAND) (SP)	18.5	65	10YR 6/6	1-2	
84-90"	Light brown, medium sand, silty (SAND) (SP)	18.5	65	10YR 6/6	1-2	
90-96"	Light brown, medium sand, silty (SAND) (SP)	18.5	65	10YR 6/6	1-2	
96-102"	Light brown, medium sand, silty (SAND) (SP)	18.5	65	10YR 6/6	1-2	
102-108"	Light brown, medium sand, silty (SAND) (SP)	18.5	65	10YR 6/6	1-2	
108-114"	Light brown, medium sand, silty (SAND) (SP)	18.5	65	10YR 6/6	1-2	
114-120"	Light brown, medium sand, silty (SAND) (SP)	18.5	65	10YR 6/6	1-2	

HILLIS-CARRIES ENGINEERING ASSOCIATES, INC. RECORD OF SOIL EXPLORATION

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HILLIS-CARRIES ENGINEERING ASSOCIATES, INC. RECORD OF SOIL EXPLORATION

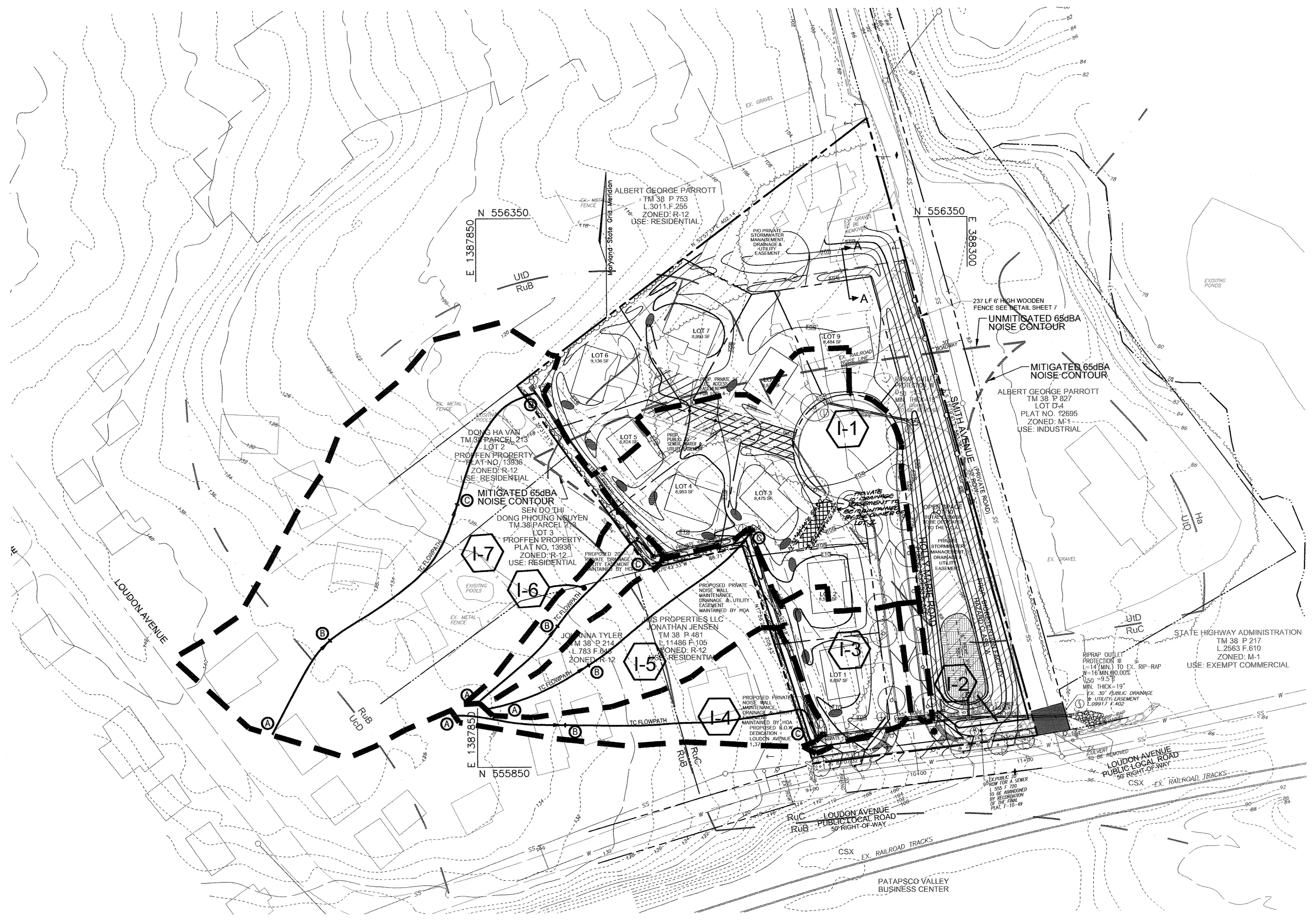
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HILLIS-CARRIES ENGINEERING ASSOCIATES, INC. RECORD OF SOIL EXPLORATION

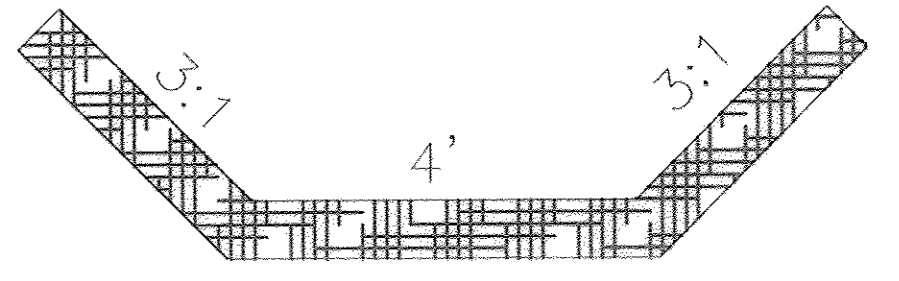
Project Name: Eagle Valley SWM
 Location: Howard County, Maryland
 Date: 02/20/10
 Sheet No: 02/20/10

Depth	Description	Moisture	Temp	Color	Consistency	Notes
0-12"	Light brown, medium sand, silty (SAND) (SP)	18.5	65			



LEGEND:

- EXISTING CONTOUR
- PROPOSED CONTOUR
- PROPOSED SPOT ELEVATION
- EXISTING SPOT ELEVATION
- EXISTING CURB AND GUTTER
- PROPOSED CURB AND GUTTER
- EXISTING UTILITY POLE
- EXISTING LIGHT POLE
- EXISTING MAILBOX
- EXISTING SIGN
- EXISTING SANITARY MANHOLE
- EXISTING SANITARY LINE
- EXISTING CLEANOUT
- EXISTING FIRE HYDRANT
- EXISTING WATER LINE
- PROPOSED STORM DRAIN
- PROPOSED STORM DRAIN INLET
- EXISTING TREE LINE (FIELD LOCATED)
- EXISTING FENCE
- PROPERTY LINE
- RIGHT-OF-WAY LINE
- SOILS BOUNDARY
- PROPOSED SIDEWALK
- PROPOSED STREET TREES



Q1=0.19 CFS Q10=3.89 CFS
 S =2.0% S =2.0%
 n =0.033 n =0.033
 d =0.05' d =0.31'
 V=0.87 FPS V=2.56 FPS

SECTION A-A
 GRASS CHANNEL DETAIL
 NOT TO SCALE

NO.	AREA	'C'	% IMP.	SOIL TYPE	ZONE
I-1	0.99 AC.	0.38	-	C	R-12
I-2	0.05 AC.	0.59	-	C	R-12
I-3	0.28 AC.	0.35	-	C	R-12
I-4	0.36 AC.	0.29	-	C	R-12
I-5	0.48 AC.	0.29	-	C	R-12
I-6	0.17 AC.	0.29	-	C	R-12
I-7	1.86 AC.	0.29	-	C	R-12

SOILS LEGEND

SYMBOL	NAME / DESCRIPTION	GROUP
RuC	RUSSETT AND BELTSVILLE SOILS, 5-10 PERCENT SLOPES	C
UD	URBAN LAND-UDORTHENTS COMPLEX, 0-15 PERCENT SLOPES	D

NO.	REVISION	DATE

**FINAL ROAD CONSTRUCTION PLAN
 STORM DRAINAGE
 AREA MAP
 EAGLE VALLEY
 LOTS 1-9 AND OPEN SPACE LOT 10**

TAX MAP 38 BLOCK 14 PARCEL 215
 1ST ELECTION DISTRICT HOWARD COUNTY, MARYLAND

**ROBERT H. VOGEL
 ENGINEERING, INC.**
 ENGINEERS • SURVEYORS • PLANNERS
 8407 MAIN STREET TEL: 410.461.7666
 ELLICOTT CITY, MD 21043 FAX: 410.461.8961

PROFESSIONAL CERTIFICATE

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193, EXPIRATION DATE: 09-27-2010.

DESIGN BY: JCO
 DRAWN BY: KGC
 CHECKED BY: RHV
 DATE: FEBRUARY 2010
 SCALE: 1"=50'
 W.O. NO.: 05-61

5 SHEET OF 8

APPROVED: DEPARTMENT OF PUBLIC WORKS
William R. ... 2-26-10
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
Michael L. Pfaus 5/2/10
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

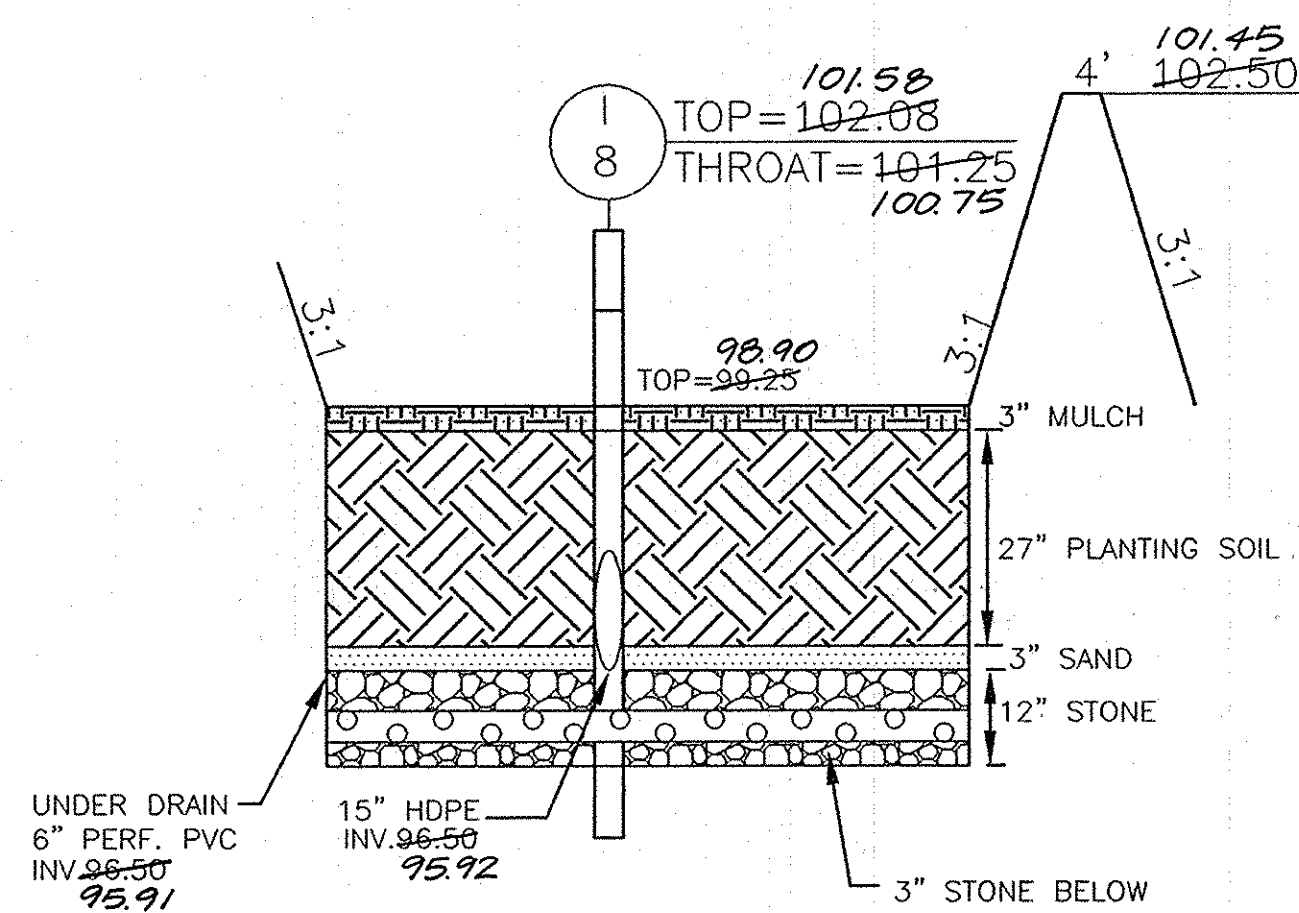
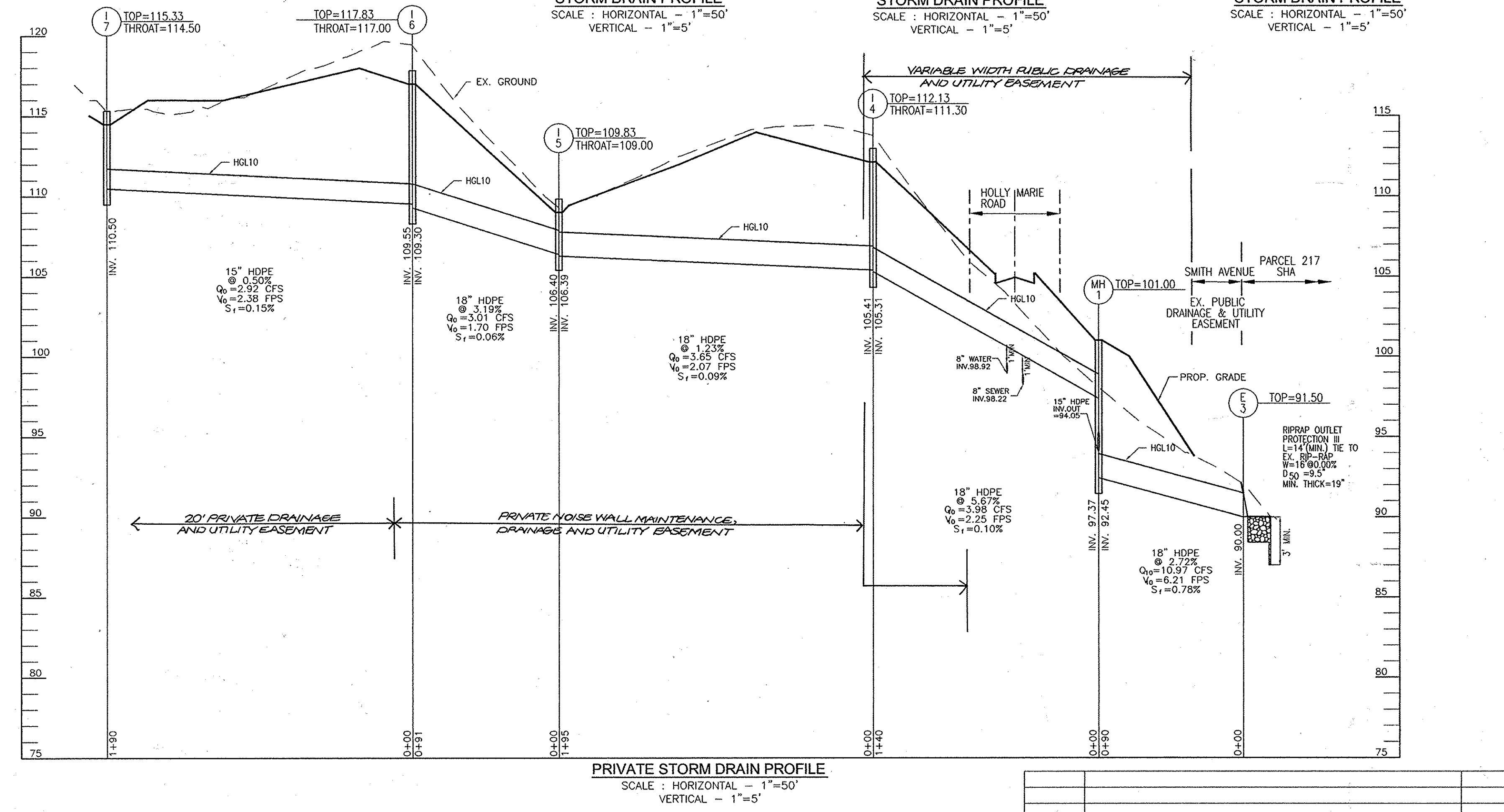
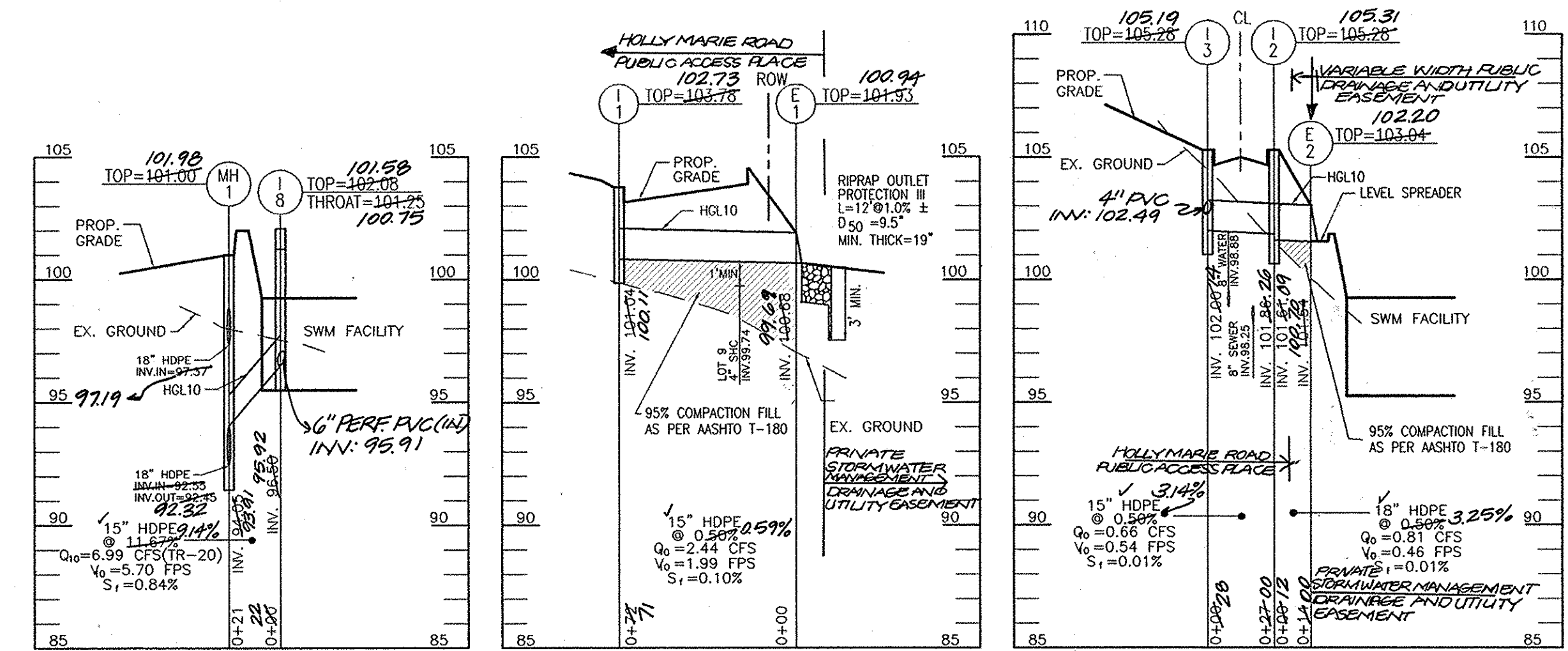
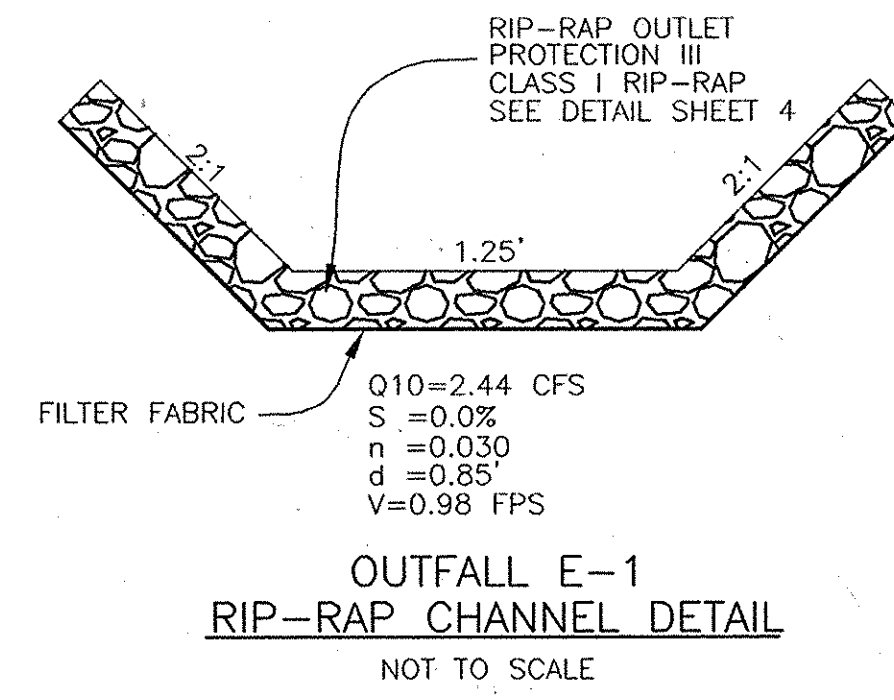
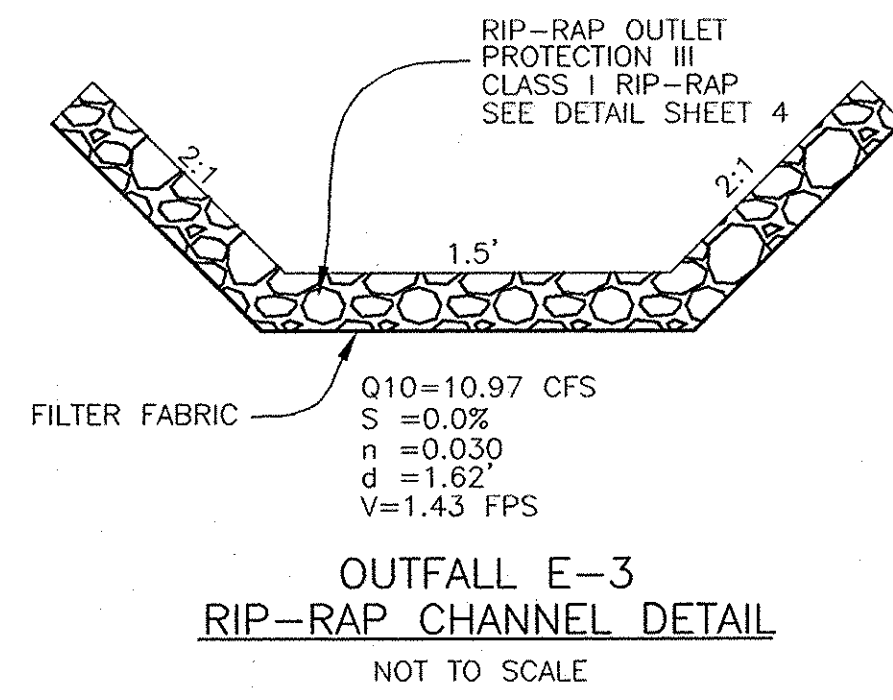
Neil Shelton 3/2/10
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

OWNER/DEVELOPER
 MICHAEL L. PFAU
 3675 PARK AVENUE
 ELLICOTT CITY, MD 21043
 PHONE 410-480-0023

STRUCTURE SCHEDULE							
NO.	TYPE	NORTHING	EASTING	TOP ELEV.	INV. IN.	INV. OUT.	REMARKS
I-1	TYPE 'A-5' INLET	N 556181.19	E 1388170.33	105.75	-	101.04	D-4.01
I-2	TYPE 'A-5' INLET	N 555895.87	E 1388261.21	105.21	101.20	101.20	D-4.01
I-3	TYPE 'A-5' INLET	N 555892.52	E 1388233.42	105.20	-	102.20	D-4.01
I-4	TYPE 'D' INLET, THROAT ELEV.111.30	N 555876.55	E 1388162.41	112.13	105.41	105.31	D-4.10
I-5	TYPE 'D' INLET, THROAT ELEV.109.00	N 556062.41	E 1388100.12	109.83	106.40	106.39	D-4.10
I-6	TYPE 'D' INLET, THROAT ELEV.117.00	N 556041.42	E 1388011.36	117.83	109.55	109.50	D-4.10
I-7	TYPE 'D' INLET, THROAT ELEV.114.50	N 556195.64	E 1387901.25	115.33	-	110.50	D-4.10
I-8	TYPE 'D' INLET, THROAT ELEV.101.25	N 555914.54	E 1388299.53	102.20	95.91	95.72	D-4.10
M-1	STANDARD 4" PRECAST MANHOLE	N 555893.72	E 1388299.77	101.00	92.22	92.22	G-5.12
E-1	END SECTION HDPE	N 556165.51	E 1388240.72	102.20	102.20	102.20	15" HDPE END SECTION
E-2	END SECTION HDPE	N 555899.54	E 1388275.29	102.20	102.20	102.20	18" HDPE END SECTION
E-3	END SECTION HDPE	N 555894.88	E 1388389.94	91.50	90.00	-	18" HDPE END SECTION

NOTE: TOP OF TYPE 'D' INLET IS TOP OF SLAB, TOP OF 'A' INLETS ARE TOP SLAB CENTER FACE OF CURB.

PIPE SCHEDULE		
PIPE SIZE	TYPE	TOTAL LENGTH
15"	HDPE	40 LF
18"	HDPE	700 LF
6"	PVC	58 LF



SECTION A-A
BIO RETENTION
SCALE: 1"=20"

OPERATION AND MAINTENANCE SCHEDULE FOR BIO-RETENTION AREAS

1. 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.
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 DEFICIENT STAKES AND WIRES.
3. MULCH SHALL BE INSPECTED EACH SPRING. REMOVE PREVIOUS MULCH LAYER BEFORE APPLYING NEW LAYER ONCE EVERY 2 TO 3 YEARS.
4. SOIL EROSION TO BE ADDRESSED ON AN AS NEEDED WITH A MINIMUM OF ONCE PER MONTH AND AFTER HEAVY STORM EVENTS.
5. FACILITY TO BE PRIVATELY OWNED AND MAINTAINED BY THE HOME OWNERS ASSOCIATION.

APPROVED: DEPARTMENT OF PUBLIC WORKS
 [Signature] 2-26-10
 CHIEF, BUREAU OF HIGHWAYS
 APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 [Signature] 3/2/10
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 [Signature] 3/2/10
 CHIEF, DIVISION OF LAND DEVELOPMENT

"AS-BUILT" CERTIFICATION
 I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE AS-BUILT PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS.
 [Signature] 9/25/12
 ROBERT H. VOGEL, P.E. #16193
 CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ONSITE INSPECTIONS AND MATERIAL TESTS WHICH ARE CONDUCTED DURING CONSTRUCTION. THE ONSITE SITE INSPECTION AND TESTS DEEMED SUFFICIENT AND APPROPRIATE BY COMMONLY ACCEPTED ENGINEERING STANDARDS CERTIFY DOES NOT MEAN OR IMPLY A GUARANTEE BY THE ENGINEER NOR DOES AN ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

NO.	REVISION	DATE
1	REVISE STORM DRAIN DESIGNATION PUBLIC/PRIVATE	4/1/15

FINAL ROAD CONSTRUCTION PLAN
STORM DRAIN PROFILES
EAGLE VALLEY
LOTS 1-9 AND OPEN SPACE LOT 10

TAX MAP 38 BLOCK 14 PARCEL 215
 1ST ELECTION DISTRICT HOWARD COUNTY, MARYLAND

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OWNER/DEVELOPER:
 MICHAEL L. PFAU
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 PHONE 410-480-0023

PROFESSIONAL CERTIFICATE
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DESIGN BY: JCO
 DRAWN BY: KG
 CHECKED BY: RHV
 DATE: FEBRUARY 2010
 SCALE: AS SHOWN
 W.O. NO.: 05-61

6 SHEET OF 8

**HOWARD COUNTY
FOREST CONSERVATION WORKSHEET**

ZONED R-ED
NET TRACT AREA: 3.23 AC
A. TOTAL TRACT AREA: 3.23 AC
B. AREA WITHIN 100 YEAR FLOODPLAIN: 0.00 AC
C. NET TRACT AREA: 3.23 AC

LAND USE CATEGORY
INPUT THE NUMBER "1" UNDER THE APPROPRIATE LAND USE ZONING, AND LIMIT TO ONLY ONE ENTRY. ZONED R-12.

ARA	MDR	IDA	HDR	MPD	CIA
0	0	0	1	0	0

E. AFFOREST THRESHOLD: 15% X D = 0.48 AC
F. CONSERVATION THRESHOLD: 20% X D = 0.65 AC
G. EXISTING FOREST COVER: 0.00 AC
H. AREA OF FOREST ABOVE AFFORESTATION THRESHOLD: 0.00 AC
I. AREA OF FOREST ABOVE CONSERVATION THRESHOLD: 0.00 AC
J. BREAK EVEN POINT: 0.00 AC
K. CLEARING PERMITTED WITHOUT MITIGATION: 0.00 AC
L. TOTAL AREA OF FOREST TO BE CLEARED: 0.00 AC
M. TOTAL AREA OF FOREST TO BE RETAINED: 0.00 AC
N. REFORESTATION FOR CLEARING ABOVE CONSERVATION THRESHOLD: 0.00 AC
O. CREDIT FOR RETENTION ABOVE CONSERVATION THRESHOLD: 0.00 AC
P. TOTAL REFORESTATION REQUIRED (N+O): 0.00 AC
Q. TOTAL AFFORESTATION REQUIRED: 0.48 AC
R. TOTAL REFORESTATION AND AFFORESTATION REQUIRED: 0.48 AC

FOREST CONSERVATION EASEMENT HAVE BEEN ESTABLISHED TO FULFILL THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY FOREST CONSERVATION MANUAL. NO CLEARING, GRADING OR CONSTRUCTION IS PERMITTED WITHIN THE FOREST CONSERVATION EASEMENT. HOWEVER, MANAGEMENT PRACTICES AS DEFINED IN THE DEED OF FOREST CONSERVATION EASEMENT ARE ALLOWED.

FOREST CONSERVATION OBLIGATIONS FOR THIS PROJECT IS IN ACCORDANCE WITH SECTION 16.1201 OF THE HOWARD COUNTY CODE AND THE FOREST CONSERVATION MANUAL. THE 0.48 ACRES OF AFFORESTATION SHALL BE MET BY PLACEMENT OF 0.35 ACRES OF AFFORESTATION EASEMENT ONSITE AND THE REMAINDER 0.13 ACRES PLACED IN AN OFFSITE BANK IDENTIFIED AS TRINITY HOMES AT CYPRESS SPRINGS, LLC FOREST CONSERVATION BANK (SDP-09-61): TAX MAP 38, PARCELS 42, 44, 45 AND 46. THE OFFSITE 0.13 ACRES OF AFFORESTATION WILL BE MET AT A 2:1 RATIO REQUIRING 0.26 ACRES OF RETENTION. SURETY IN THE AMOUNT OF \$7,623.00 FOR THE 0.35 ACRES OF ONSITE AFFORESTATION (15,246SFx0.50) WILL BE POSTED WITH THE DEVELOPER'S AGREEMENT FOR THIS PLAN, F-10-49.

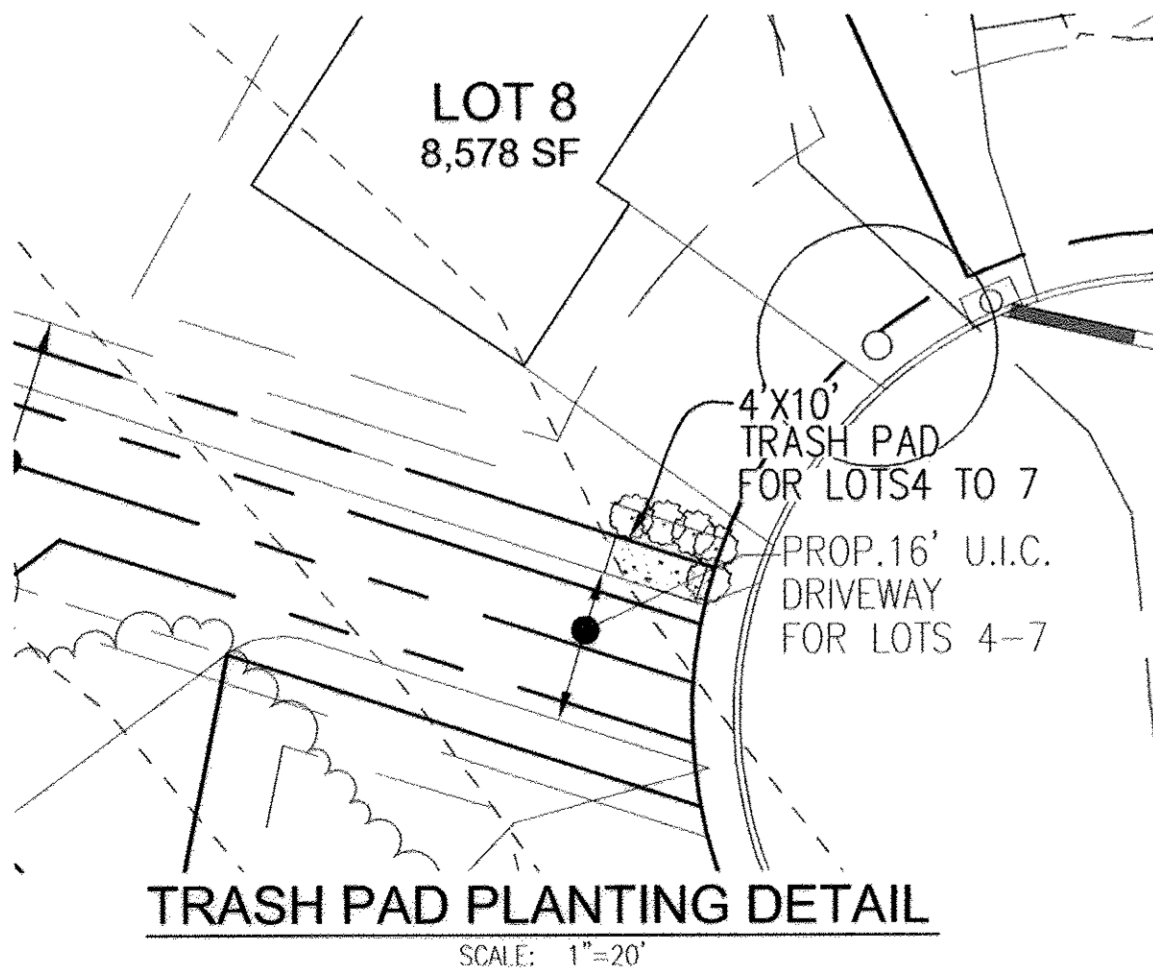
LANDSCAPE NOTES

AT THE TIME OF PLANT INSTALLATION, ALL SHRUBS AND TREES LISTED AND APPROVED ON THE LANDSCAPE PLAN, SHALL COMPLY WITH THE PROPER HEIGHT REQUIREMENT IN ACCORDANCE WITH THE HOWARD COUNTY LANDSCAPE MANUAL. IN ADDITION, NO SUBSTITUTIONS OR RELOCATIONS OF THE REQUIRED PLANTINGS MAY BE MADE WITHOUT PRIOR REVIEW AND APPROVAL FROM THE DEPARTMENT OF PLANNING AND ZONING. ANY DEVIATION FROM THE APPROVED LANDSCAPE PLAN MAY RESULT IN DENIAL OR DELAY IN THE RELEASE OF LANDSCAPE SURETY UNTIL SUCH TIME AS ALL REQUIRED MATERIALS ARE PLANTED AND/OR REVISIONS ARE MADE TO THE APPLICABLE PLANS. THE OWNER, TENANT AND/OR THEIR AGENTS SHALL BE RESPONSIBLE FOR MAINTENANCE OF THE REQUIRED LANDSCAPING INCLUDING BOTH PLANT MATERIALS AND BERMS, FENCES AND WALLS. ALL PLANT MATERIALS SHALL BE MAINTAINED IN GOOD GROWING CONDITION, AND WHEN NECESSARY, REPLACED WITH NEW MATERIALS TO ENSURE CONTINUED COMPLIANCE WITH APPLICABLE REGULATIONS. ALL OTHER REQUIRED LANDSCAPING SHALL BE PERMANENTLY MAINTAINED IN GOOD CONDITION, AND WHEN NECESSARY, REPAIRED OR REPLACED. THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL.

NO LANDSCAPING TO BE INSTALLED WITHIN ANY PUBLIC EASEMENT FOR WATER, SEWER OR STORM DRAIN.

STREET TREES ARE PROVIDED FOR THIS PROJECT IN ACCORDANCE WITH SECTION 16.124(e)(1) OF THE SUBDIVISION REGULATIONS AND THE LANDSCAPE MANUAL. A FINANCIAL SURETY TO BE POSTED AS PART OF THE DEVELOPER'S AGREEMENT FOR TOTAL REQUIRED 20 PUBLIC STREET TREES.

PERIMETER LANDSCAPING AND TRASH PAD SCREENING SHALL BE PROVIDED IN ACCORDANCE WITH THE HOWARD COUNTY LANDSCAPE MANUAL. SURETY IN THE TOTAL AMOUNT OF \$1,950.00 FOR 6 SHADE TREES AND 5 SHRUBS SHALL BE POSTED WITH THE DEVELOPER'S AGREEMENT FOR THIS FINAL PLAN, F-10-49. NOISE WALLS AND FENCING ARE CREDITED TOWARDS PERIMETER LANDSCAPING IN PERIMETERS 1, 2, 5 AND 7.



STREET TREES CHART

NUMBER OF STREET TREES REQUIRED	NUMBER OF TREES PROVIDED
HOLLY MARIE ROAD-15(600LF/40)	15
LOUDON AVENUE-5(200LF/40)	5

STREET TREES ALONG LOUDON AVENUE SHALL BE SMALL TREES (25' MAX. HEIGHT) DUE TO THE EXISTING POWER LINES.

BGE HAS REVIEWED AND APPROVED PROPOSED PLANTINGS.

DEVELOPER'S/BUILDER'S CERTIFICATE

I/WE CERTIFY THAT THE LANDSCAPING SHOWN ON THIS PLAN WILL BE DONE ACCORDING TO THE PLAN, SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE HOWARD COUNTY LANDSCAPE MANUAL. I/WE FURTHER CERTIFY THAT UPON COMPLETION, A CERTIFICATION OF LANDSCAPE INSTALLATION, ACCOMPANIED BY AN EXECUTED ONE (1) YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.

Signature: *Michael P. ...* Date: 2/1/10

SOILS LEGEND

SYMBOL	NAME / DESCRIPTION	GROUP
RuC	RUSSETT AND BELTSVILLE SOILS, 5-10 PERCENT SLOPES	C
URD	URBAN LAND-UDORTHENTS COMPLEX, 0-15 PERCENT SLOPES	D

TRASH PAD LANDSCAPING

SYM.	QTY.	DESCRIPTION	SIZE	REM.
○	5	DWARF JAPANESE YEW	3'-4" HT	B & B

SCHEDULE A: PERIMETER LANDSCAPE EDGE

CATEGORY	ADJACENT TO PERIMETER PROPERTIES							TRASH PAD	TOTAL
	1	2	3	4	5	6	7		
PERIMETER/FRONTAGE DESIGNATION	A	A	A	A	B	B	B	-	-
LANDSCAPE TYPE	208	89	206	402	584	86	67	-	-
CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET DESCRIBE BELOW IF NEEDED)	-	-	-	214*	134*	-	-	-	-
CREDIT FOR WALL, FENCE OR BERM (YES, NO, LINEAR FEET DESCRIBE BELOW IF NEEDED)	208**	89**	-	-	213**	86**	67**	-	-
NUMBER OF PLANTS REQUIRED (LF REMAINING)	0	0	206	188	1:50 0	0	0	-	REQUIRED
SHADE TREES	N/A	N/A	1:60 3	1:60 3	1:50 0	N/A	N/A	-	6
EVERGREEN TREES	-	-	-	-	1:40 0	-	-	-	5
SHRUBS	-	-	-	-	-	-	-	-	0
NUMBER OF PLANTS PROVIDED	0	0	3	3	0	0	0	-	6
SHADE TREES	-	-	-	-	0	-	-	-	6
EVERGREEN TREES	-	-	-	-	0	-	-	-	5
OTHER TREES (2:1 SUBSTITUTION)	-	-	-	-	-	-	-	-	5
SHRUBS (10:1 SUBSTITUTION)	-	-	-	-	-	-	-	-	5
(DESCRIBE PLANT SUBSTITUTION CREDITS BELOW IF NEEDED)	-	-	-	-	-	-	-	-	-

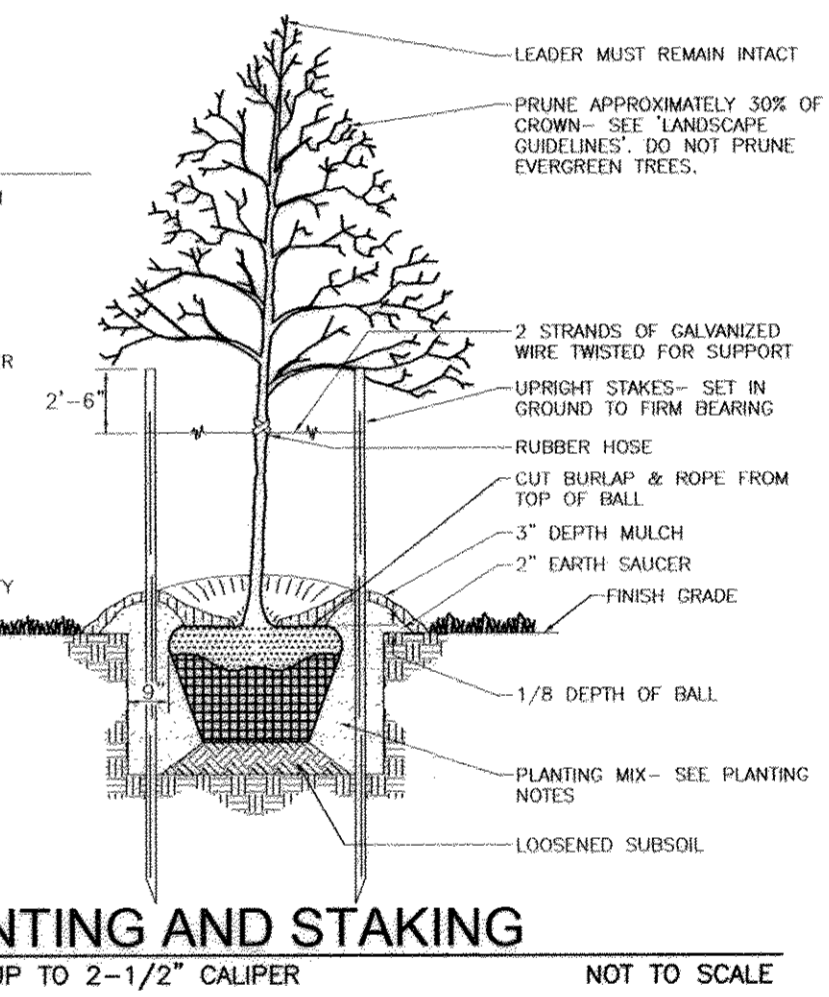
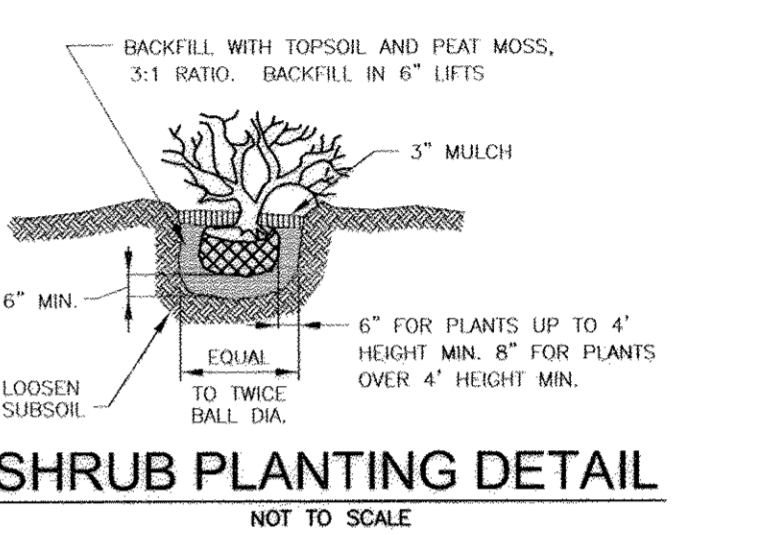
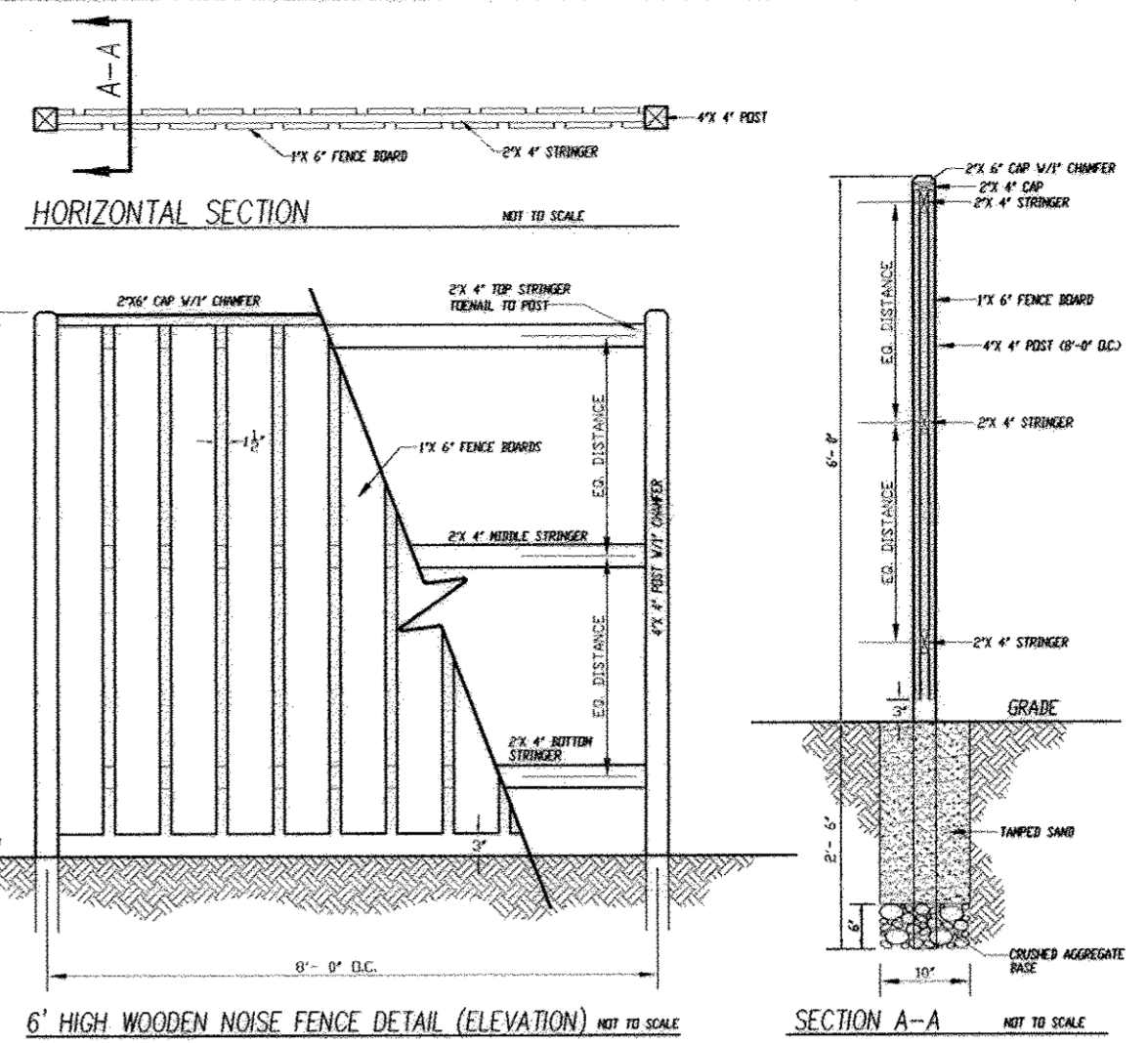
* CREDIT FOR FOREST CONSERVATION EASEMENT.
** PROPOSED 6" HIGH NOISE WALL # 1 & #2
*** CREDIT FOR 6" HIGH WOODEN FENCE.

BGE HAS REVIEWED AND APPROVED PROPOSED PLANTINGS.

PLANT SCHEDULE

KEY	QUAN.	PLANT NAME	SIZE	REMARK
○	5	ACER GINNALA AMUR MAPLE (STREET TREE-LOUDON AVENUE)	5'	B&B
○	6	ACER RUBRUM RED MAPLE (PERIMETER PLANTINGS)	2-1/2" - 3" CAL.	B&B
○	15	ACER RUBRUM RED MAPLE (STREET TREE-HOLLY MARIE ROAD)	2-1/2" - 3" CAL.	B&B

- ALL PLANT MATERIALS SHALL BE FULL AND HEAVY, BE WELL FORMED AND SYMMETRICAL, CONFORM TO THE MOST CURRENT AAN SPECIFICATIONS AND BE INSTALLED IN ACCORDANCE WITH LCAMM PLANTING SPECIFICATIONS.
- CONTRACTOR SHALL VERIFY LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO DIGGING.
- FINAL LOCATION OF PLANT MATERIAL MAY NEED TO VARY TO MEET FINAL CONDITIONS. TREES SHALL NOT BE PLANTED IN THE BOTTOM OF DRAINAGE SWALES.
- CONTRACTOR SHALL VERIFY PLANT QUANTITIES PRIOR TO BIDDING. IF PLAN DIFFERS FROM LANDSCAPE SCHEDULE, THE PLAN SHALL GOVERN.



LEGEND:

---	EXISTING CONTOUR
---	PROPOSED CONTOUR
---	EXISTING CURB AND GUTTER
---	PROPOSED CURB AND GUTTER
---	EXISTING UTILITY POLE
---	EXISTING LIGHT POLE
---	EXISTING MALEBOX
---	EXISTING SIGN
---	EXISTING SANITARY MANHOLE
---	EXISTING SANITARY LINE
---	EXISTING CLEANOUT
---	EXISTING FIRE HYDRANT
---	EXISTING WATER LINE
---	EXISTING FENCE
---	PROPERTY LINE
---	RIGHT-OF-WAY LINE
---	SOILS BOUNDARY
---	PROPOSED STORM DRAIN
---	PROPOSED STORM DRAIN INLET
---	PROPOSED SIDEWALK
---	PROPOSED LIGHT POLE
---	PROPOSED SHADE TREE
---	6\"/>
---	PROPOSED SHRUBS
---	PROPOSED STREET TREES

NO.	REVISION	DATE
-----	----------	------

**FINAL ROAD CONSTRUCTION PLAN
LANDSCAPE AND FOREST
CONSERVATION PLAN
EAGLE VALLEY
LOTS 1-9 AND OPEN SPACE LOT 10**

TAX MAP 38 BLOCK 14
1ST ELECTION DISTRICT

PARCEL 215
HOWARD COUNTY, MARYLAND

**ROBERT H. VOGEL
ENGINEERS • SURVEYORS • PLANNERS**

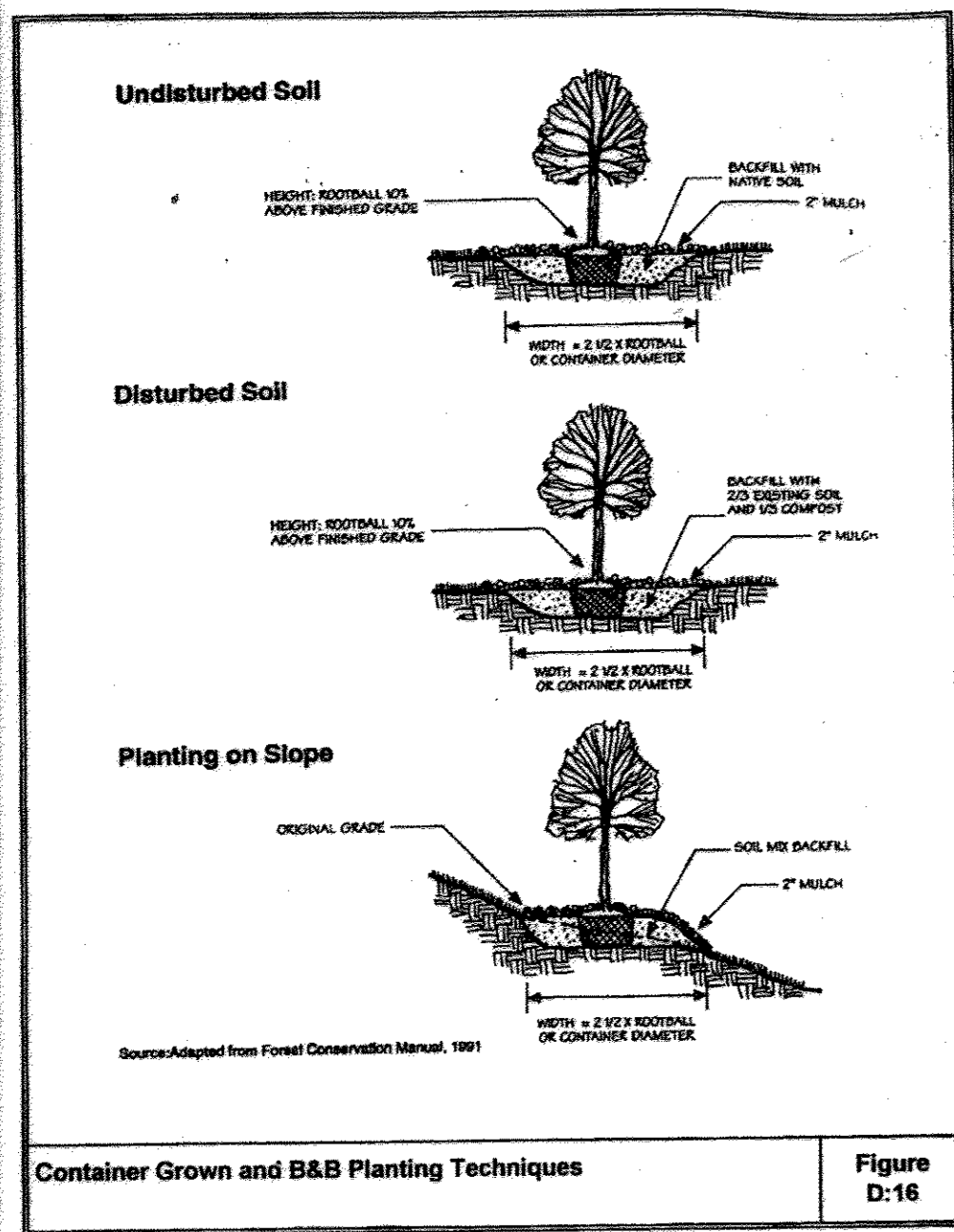
8407 MAIN STREET
ELLICOTT CITY, MD 21043

TEL: 410.461.7666
FAX: 410.461.8961

DESIGN BY: JCO
CHECKED BY: KG
DATE: FEBRUARY 2010
SCALE: 1"=50'
W.O. NO.: 05-61

PROFESSIONAL CERTIFICATE
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DAILY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193 EXPIRATION DATE: 09-27-2010

7 SHEET OF 8



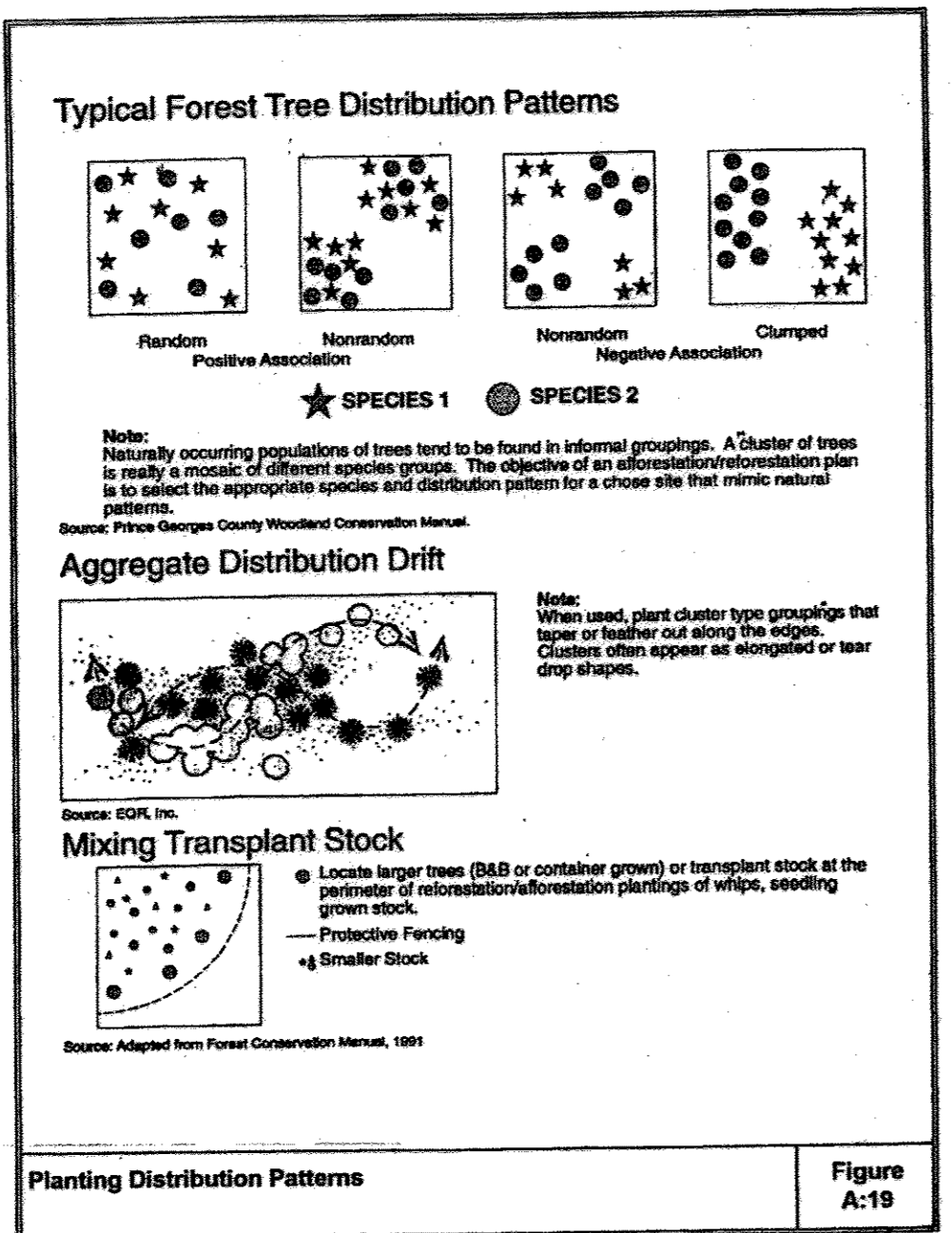
Container Grown and B&B Planting Techniques Figure D-16

Size	Number Required per Acre	Approximate Spacing feet on center	Survivability Requirement At the end of the second growing season
Bare Root Seedlings or Whips	700	8 x 8	55%
Container Grown Seedling Tubes (Minimum Cavity Width 1.5")	450	10 x 10	65%
Container Grown 1, 2, 3 Gallon	350	12 x 12	75%
Container Grown 5, 7 Gallon or 1" Caliper B & B	200	15 x 15	85%
Container Grown 15, 25 Gallon or 1.5 - 2" Caliper B & B	100	20 x 20	100%

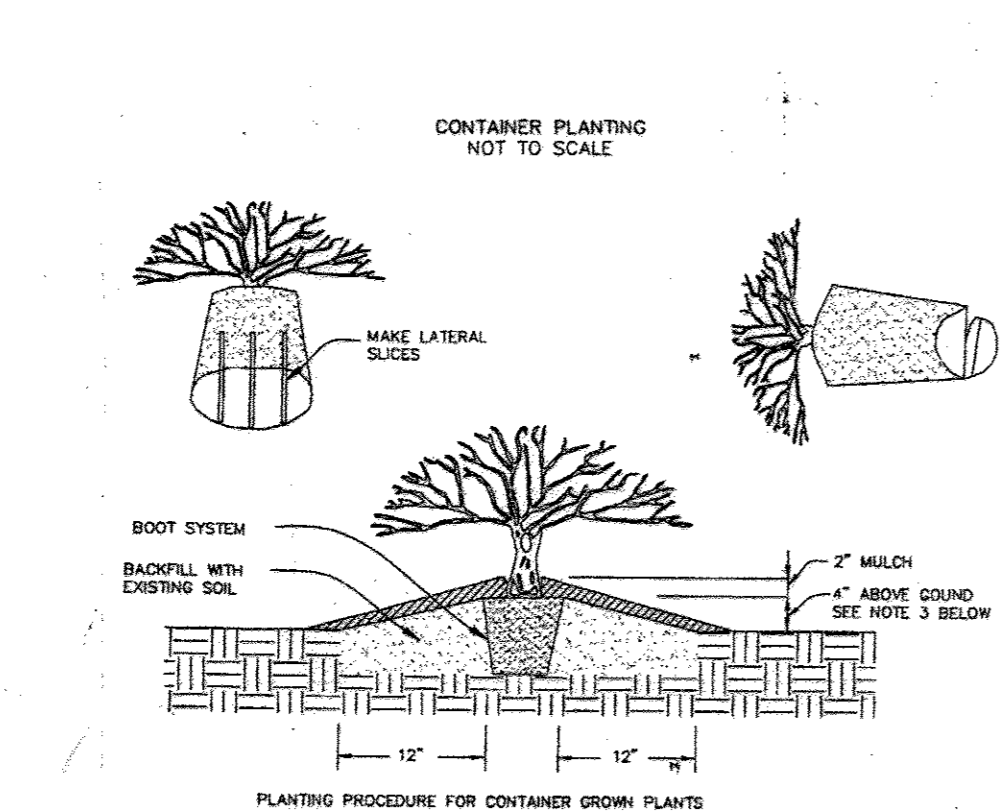
Notes:

- These stocking and survival requirements are the minimum numbers estimated to meet the definition of forest from bare land. In certain circumstances, any combination of the above mentioned stocking options, dry seeding, tree shelters, transplants, and/or natural regeneration may be appropriate strategies to fulfill the requirements of an approved FCD. They will be evaluated on a case-by-case basis by the approving authority.
- Spacing does not imply that trees or shrubs must be planted in a grid pattern.

Site Stocking Figure A-18

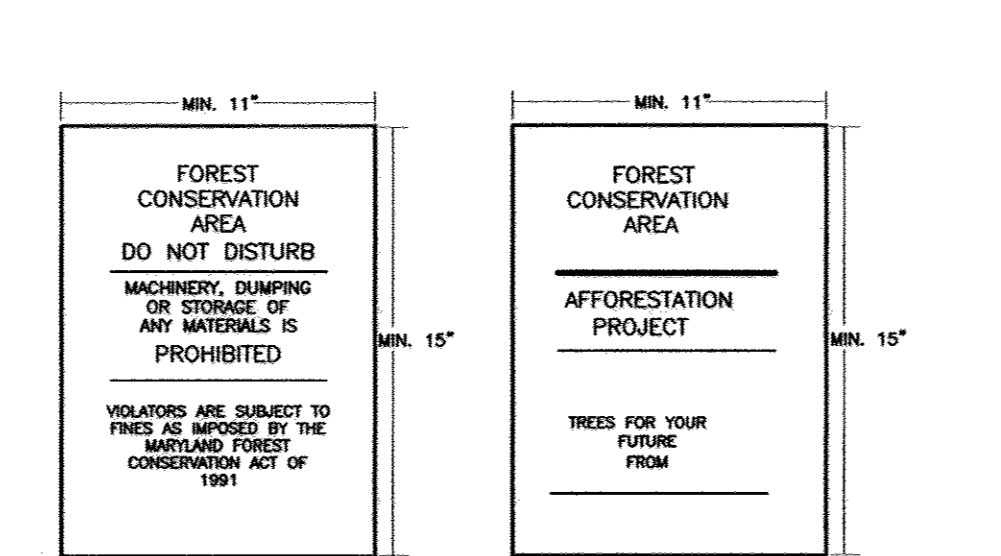


Planting Distribution Patterns Figure A-19



Notes:

- These stocking and survival requirements are the minimum numbers estimated to meet the definition of forest from bare land. In certain circumstances, any combination of the above mentioned stocking options, dry seeding, tree shelters, transplants, and/or natural regeneration may be appropriate strategies to fulfill the requirements of an approved FCD. They will be evaluated on a case-by-case basis by the approving authority.
- Spacing does not imply that trees or shrubs must be planted in a grid pattern.



SIGNAGE DETAIL
NOT TO SCALE

AFFORESTATION PLANTING NOTES

- AFFORESTATION AREAS MAY BE PLANTED AS SOON AS REASONABLE TO DO SO. LATE WINTER-EARLY SPRING PLANTINGS ARE PREFERRED. EARLIEST PLANTING DATES WILL VARY FROM YEAR TO YEAR BUT PLANTING MAY GENERALLY BEGIN AS SOON AS THE GROUND IS NO LONGER FROZEN. ALTERNATE PLANTING DATES MAY BE CONSIDERED AS CONDITION WARRANTS.
- SOIL AMENDMENTS AND FERTILIZATION RECOMMENDATIONS WILL BE MADE BASED UPON THE RESULTS OF SOIL ANALYSIS FOR NITROGEN, PHOSPHORUS, POTASSIUM, ORGANIC MATTER CONTENT AND pH. IF REQUIRED, FERTILIZER WILL BE PROVIDED USING A SLOW RELEASE, SOLUBLE 16-8-16 ANALYSIS DESIGNED TO LAST 5-8 YEARS CONTAINED IN POLYETHYLENE PERFORATED BAGS SUCH AS MANUFACTURED BY ADCO WORKS, P.O. BOX 310 HOLLIS, N.Y. 11423 OR APPROVED EQUAL.
- PLANT MATERIALS WILL BE PLANTED IN ACCORDANCE WITH THE PLANTING DETAILS AND PLANT SCHEDULE.
- PLANT MATERIAL SHALL BE NURSERY GROWN AND INSPECTED PRIOR TO PLANTING. PLANTS NOT CONFORMING TO THE AMERICAN STANDARD FOR NURSERY STOCK SPECIFICATIONS FOR SIZE, FORM, VIGOR, OR ROOTS, OR DUE TO TRUNK WOUNDS, BREAKAGE, DESICCATION, INSECT OR DISEASE MUST BE REPLACED.
- PLANTING STOCK MUST BE PROTECTED FROM DESICCATION AT ALL TIMES PRIOR TO PLANTING. MATERIALS HELD FOR PLANTING SHALL BE MOISTENED AND PLACED IN COOL SHADED AREAS UNTIL READY FOR PLACEMENT.
- NEWLY PLANTED TREES MAY REQUIRE WATERING AS LEAST ONCE PER WEEK DURING THE FIRST GROWING SEASON DEPENDING ON RAINFALL IN ORDER TO GET ESTABLISHED. THE INITIAL PLANTING OPERATION SHOULD ALLOW FOR WATERING DURING INSTALLATION TO COMPLETELY SOAK BACKFILL MATERIAL.
- MULCH SHALL BE APPLIED IN ACCORDANCE WITH THE DIAGRAM PROVIDED AND SHALL CONSIST OF COMPOSTED, SHREDDED HARDWOOD BARK MULCH, FREE OF WOOD ALCOHOL.
- ALL NURSERY STOCK TO BE SPRAYED WITH DEER REPELLENT CONTAINING BITREX, SUCH AS REPELLEX. ALL NURSERY STOCK TO BE GROWN WITH DEER REPELLENT TABLETS IN GROWING MEDIUM, SUCH AS REPELLEX TABLETS.

AFFORESTATION AREA MONITORING NOTES

- MONTHLY VISITS DURING THE FIRST GROWING SEASON ARE TO ASSESS THE SUCCESS OF THE PLANTINGS AND TO DETERMINE IF SUPPLEMENTAL WATERING, PEST CONTROL OR OTHER ACTIONS ARE NECESSARY. EARLY SPRING VISITS WILL DOCUMENT WINTER KILL AND AUTUMN VISITS WILL DOCUMENT SUMMER KILL.
- THE MINIMUM SURVIVAL RATE SHALL BE 75% OF THE TOTAL NUMBER OF TREES PLANTED PER ACRE AT THE END OF THE TWO YEAR MAINTENANCE PERIOD. WILD TREE SEEDLINGS FROM NATURAL REGENERATION ON THE PLANTING SITE MAY BE COUNTED UP TO 50% TOWARD THE TOTAL SURVIVAL NUMBER IF THE ARE HEALTHY NATIVE SPECIES AT LEAST 12 INCHES TALL.
- SURVIVAL WILL BE DETERMINED BY A STRATIFIED RANDOM SAMPLING OF THE PLANTINGS. THE SPECIES COMPOSITION OF THE SAMPLE POPULATION SHOULD BE PROPORTIONATE TO THE AMOUNT OF EACH SPECIES IN THE ENTIRE PLANTING TO BE SAMPLED.
- EFFECTIVE MONITORING WILL ASSESS PLANT SURVIVABILITY DURING THE FIRST GROWING SEASON AND MAKE RECOMMENDATIONS FOR REINFORCEMENT PLANTINGS IF REQUIRED AT THAT TIME.

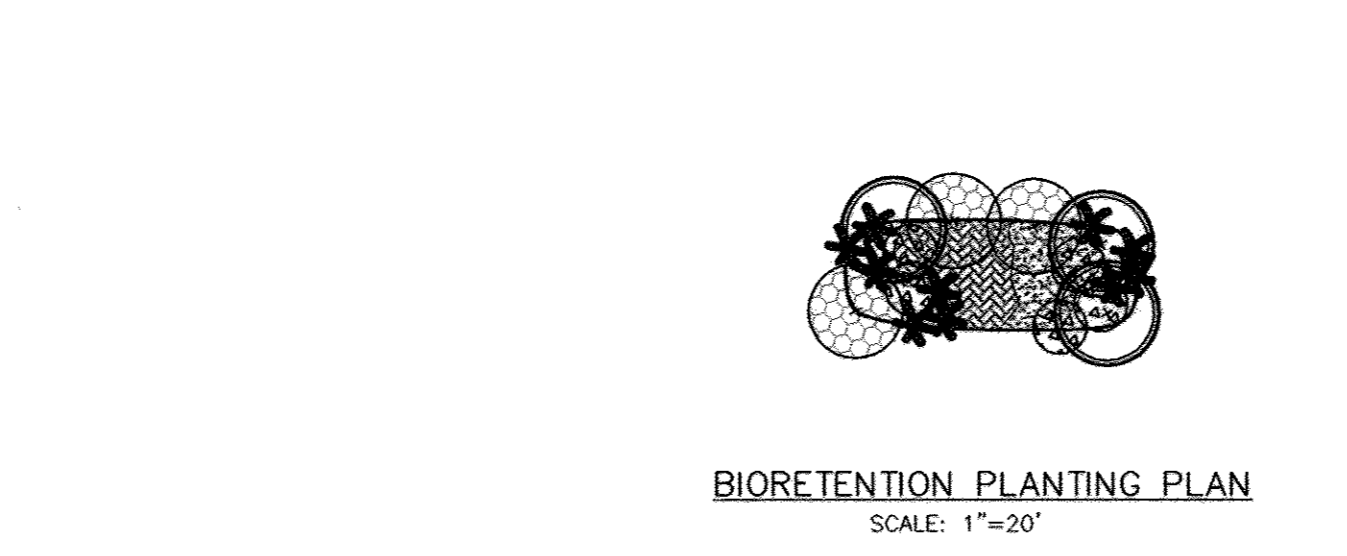
SEQUENCE OF CONSTRUCTION-FOREST CONSERVATION

- PRECONSTRUCTION MEETING /SITE WALK WITH CONTRACTORS AND OTHER RESPONSIBLE PARTIES TO DEFINE PROTECTION MEASURES TO BE UTILIZED AND TO POINT OUT PARTICULAR TREES TO BE SAVED.
- STAKE OUT LIMITS OF DISTURBANCE AND TREE PROTECTION FENCING LOCATIONS.
- INSTALL TREE PROTECTION FENCING; FENCING TO BE INSPECTED BY THE PROJECT ENGINEER OR THE PROJECT ECOLOGIST AND HOWARD COUNTY PLANNING AND ZONING.
- PROCEED WITH TREE REMOVAL AND SITE IMPROVEMENTS AS PER APPROVED SEDIMENT CONTROL PLAN - TO BE INSPECTED BY HOWARD COUNTY PLANNING AND ZONING.
- TEMPORARY TREE PROTECTION DEVICES SHALL BE REMOVED AFTER ALL FINISHED GRADING AND UTILITY CONSTRUCTION HAS OCCURRED AND WITH APPROVAL FROM THE HOWARD COUNTY OFFICE OF PLANNING AND ZONING.

PLANT SCHEDULE

QUANTITIES FOR AFFORESTATION AREAS

BOTANICAL NAME	AREA 1	SIZE	SPACING (FT)
Acer rubrum	15	1" Col.	15 X 15
Red Maple			
Liquidambar styraciflua	15	1" Col.	15 X 15
American Sweetgum			
Platanus occidentalis	15	1" Col.	15 X 15
Sycamore			
Prunus serotina	15	1" Col.	15 X 15
Black Cherry			
Quercus palustris	10	1" Col.	15 X 15
Pin Oak			



BIORETENTION PLANTING SCHEDULE

KEY	NO.	BOTANICAL NAME/COMMON NAME	SIZE	REMARKS
(X)	3	ACER RUBRUM RED MAPLE	1" - 1-1/2" CAL.	B & B
(*)	3	JUNIPER VIRGINIANA EASTERN RED CEDAR	5' - 6' HT.	B & B
(*)	5	VACCINIUM CORYMBOSUM HIGHBUSH BLUEBERRY	3 GALLON	CONT.
(*)	10	LINDERA BENZOIN SPICE BUSH	3 GALLON	CONT.
(*)	65	ANDROPOGON VIRGINICUS BROOM SEDGE	2" POT	CONT.
(*)	65	PANICUM VIRGATUM SWITCH GRASS	2" POT	1' O.C.

MATERIALS SPECIFICATIONS FOR BIO-RETENTION

MATERIAL	SPECIFICATION	SIZE	NOTES
PLANTINGS	SPECIFICATION	N/A	PLANTINGS ARE SITE-SPECIFIC
PLANTING SOIL (2.5' TO 4' DEEP)	20-30% TOPSOIL 70-30% LEAF COMPOSITE COX COURSE GRADE CONCRETE SAND	N/A	USDA SOIL TYPES: LOAMY SAND, SANDY LOAM OR LOAM
MULCH	SHREDDED HARDWOOD		ADD 6 MONTHS, MINIMUM
PEA GRAVEL (DRAINAGE AND CURTAIN DRAIN)	PEA GRAVEL, ASTM-D-448 ORNAMENTAL STONE, WASHED COBBLES	PEA GRAVEL NO. 6 STONE: 2" TO 5"	
GEOTEXTILE	CLASS "C"-APPARENT OPENING SIZE (ASTM-D-4751), GRASS TENSILE STRENGTH (ASTM-D-4632), PUNCTURE RESISTANCE (ASTM-D-4833)	N/A	FOR USE AS NECESSARY BENEATH UNDERDRAINS ONLY
UNDERDRAIN GRAVEL	ASHDIO M-43	0.375" TO 0.75"	
UNDERDRAIN PIPING	1" FIBER TYPE PS 28 OOR ASTM-D-778	4" TO 6" RIGID SCHEDULE 40 PVC OR SIBUR	3/8" PEDE # 6" O.C., 4 HOLES PER ROW MIN. OF 3" OF GRAVEL OVER PIPES; NOT NECESSARY UNDERDRAIN PIPES
FOUNDED IN PLACE CONCRETE (IF REQUIRED)	NSHA MIX NO. 3, 10-3000 PSI @ 28 DAYS, NORMAL WEIGHT, AIR-ENHANCED, REINFORCING TO MEET ASTM-615-60	N/A	ON-SITE TESTING OF FOUNDED-IN-PLACE CONCRETE REQUIRED. DESIGNER TO VERIFY DESIGN OF CONCRETE. ALL CONCRETE DESIGN (CAST-IN-PLACE OR PRE-CAST) NOT USING PREVIOUSLY APPROVED STATE OR LOCAL STANDARDS. REQUIRES DESIGN DRAWINGS SEALED AND APPROVED BY A PROFESSIONAL STRUCTURAL ENGINEER LICENSED IN THE STATE OF MARYLAND DESIGN TO INCLUDE MEETING ACI CODE 308.4R, VERTICAL LOADING (4-10 OR 10-20), ALLOWABLE HORIZONTAL LOADING BASED ON SOLE PRESSURE, AND ANALYSIS OF POTENTIAL CRACKING.
SAND (1' DEEP)	ASHDIO M-6 OR ASTM-C-33	0.02" TO 0.04"	SAND SUBSTITUTIONS SUCH AS DOLomite AND CRISTONE #10 ARE NOT ACCEPTABLE. NO CALCIUM CARBONATE OR DOLOMITE SAND SUBSTITUTIONS ARE ACCEPTABLE. NO "ROCK DUST" CAN BE USED FOR SAND

APPENDIX B.3. CONSTRUCTION SPECIFICATIONS FOR SAND FILTERS, BIORETENTION AND OPEN CHANNELS

1. MATERIAL SPECIFICATIONS

THE ALLOWABLE MATERIALS TO BE USED IN BIORETENTION AREA ARE DETAILED IN TABLE B.3.2.

2. 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 WITH THE BIORETENTION AREA THAT MAY BE DAMAGING TO PLANT GROWTH OR PROVIDE A HINDRANCE TO THE PLANTING OR MAINTENANCE OPERATIONS. THE PLANTING SOIL SHALL BE FREE OF BERBERIS GRASS, QUACKGRASS, JOHNSON GRASS, OR OTHER NOXIOUS WEEDS AS SPECIFIED UNDER COMAR 15.06.01.05.

THE PLANTING SOIL SHALL BE TESTED AND SHALL MEET THE FOLLOWING CRITERIA:

PH RANGE
ORGANIC MATTER 2 - 12%
PHOSPHORUS (PHOSPHATE) 10-20 PPM
POTASSIUM (POTASH) 4-20%
SOLUBLE SALTS NIT TO EXCEED 500 PPM

ALL BIORETENTION AREAS SHALL HAVE A MINIMUM OF ONE TEST. EACH TEST SHALL CONSIST OF BOTH THE STANDARD SOIL TEST FOR PH, PHOSPHORUS AND POTASSIUM AND ADDITIONAL TEST OF ORGANIC MATTER, AND SOLUBLE SALTS. A LABORATORY SHALL BE PERFORMED FOR EACH LOCATION WHERE THE TOP SOIL WAS EXCAVATED.

SINCE DIFFERENT LAB CALIBRATE THEIR TESTING EQUIPMENT DIFFERENTLY, ALL TESTING RESULTS SHALL COME FROM THE SAME TESTING FACILITY. SHOULD THE PH FALL OUT OF THE ACCEPTABLE RANGE, IT MAY BE MODIFIED (HIGHER) WITH LIME OR (LOWER) WITH IRON SULFATE PLUS SULFUR.

3. COMPACTION

IT IS VERY IMPORTANT TO MINIMIZE COMPACTION OF BOTH THE BASE OF THE BIORETENTION AREA AND THE REQUIRED BACKFILL. WHEN POSSIBLE, USE TRACKED OR LOW GROUND EQUIPMENT TO PREPARE THE BIORETENTION AREA. THE EQUIPMENT SHOULD USE WIDE TRACKS AND SHOULD NOT BE USED TO COMPACT THE BIORETENTION AREA. THE EQUIPMENT SHOULD NOT BE USED TO COMPACT THE BIORETENTION AREA. THE EQUIPMENT SHOULD NOT BE USED TO COMPACT THE BIORETENTION AREA. THE EQUIPMENT SHOULD NOT BE USED TO COMPACT THE BIORETENTION AREA.

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 15" TO 18". DO NOT USE HEAVY EQUIPMENT WITHIN THE BIORETENTION BASIN. HEAVY EQUIPMENT CAN BE USED AROUND THE PERIMETER OF THE BASIN TO SUBSIDE AND SAND. GRAVEL BIORETENTION MATERIALS WITH LIGHT EQUIPMENT SUCH AS A COMPACT LOADER OR A DOZER/LOADER WITH MARSH TRACKS.

4. PLANT MATERIAL

RECOMMENDED PLANT MATERIAL FOR BIORETENTION AREAS CAN BE FOUND IN APPENDIX A, SECTION A.2.3. OF THE 2000 MARYLAND STORMWATER DESIGN MANUAL.

5. PLANT INSTALLATION

MULCH SHOULD BE PLACED TO A UNIFORM THICKNESS OF 2" TO 3". SHREDDED 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.

ROOT STOCK OF THE PLANT MATERIAL SHALL BE KEPT MOIST DURING TRANSPORT AND ON-SITE STORAGE. THE PLANT ROOT BALL SHOULD BE PLANTED SO 1/3RD OF THE BALL IS ABOVE FINAL GRADE SURFACE. THE DIAMETER OF THE PLANTING HOLE 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.

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.

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-GRASSING AND 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, DEFOLIANTS, OR AT A MINIMUM, IMPROVES 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 OF NITROGEN PER 1000 SQUARE FEET.

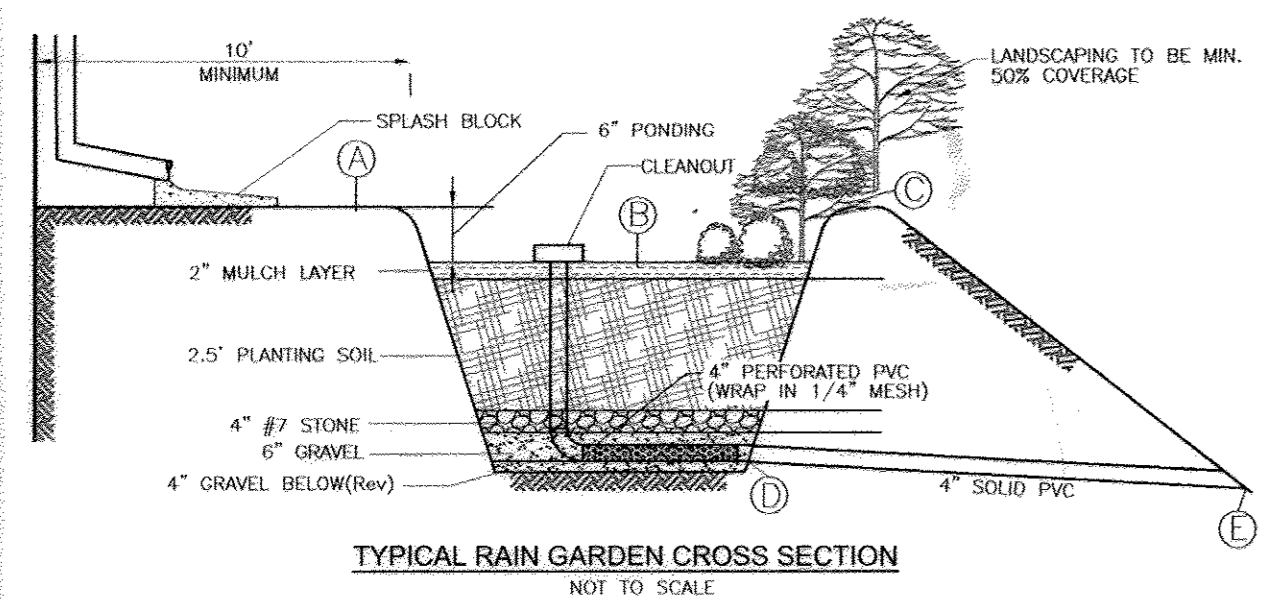
6. UNDERDRAINS

UNDERDRAINS ARE TO BE PLACED ON A 3'-0" WIDE SECTION FILTER CLOTH. PIPE IS PLACED NEXT, FOLLOWED BY THE GRAVEL BEDDING. THE ENDS OF UNDERDRAIN PIPES NOT TERMINATING IN AN OBSERVATION WELL SHALL BE CAPPED.

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

7. MISCELLANEOUS

THE BIORETENTION FACILITY MAY NOT BE CONSTRUCTED UNTIL ALL CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED.



RAINGARDEN ELEVATIONS

LOT #	RAIN GARDEN	A	B	C	D	E
LOT 1	RG 1	111.50	111.00	111.50	107.50	107.20
	RG 2	111.50	111.00	111.50	107.50	107.20
	RG 3	112.00	111.50	112.00	108.00	107.70
LOT 2	RG 4	112.00	111.50	112.00	108.00	107.70
	RG 5	109.50	109.00	109.50	105.50	105.20
LOT 3	RG 6	109.50	109.00	109.50	105.50	105.20
	RG 7	113.50	113.00	113.50	109.50	109.20
LOT 4	RG 8	113.50	113.00	113.50	109.50	109.20
	RG 9	114.00	113.50	114.00	110.00	109.70
LOT 5	RG 10	114.00	113.50	114.00	110.00	109.70
	RG 11	114.50	114.00	114.50	110.50	110.20
LOT 6	RG 12	107.50	107.00	107.50	103.50	103.20
	RG 13	113.00	112.50	113.00	109.00	108.70

J. CHRIS OGLE
DNR QUALIFIED FOREST PROFESSIONAL

APPROVED: DEPARTMENT OF PUBLIC WORKS
DATE: 2-26-10
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
DATE: 2/2/10
APPROVED: DEPARTMENT OF LAND DEVELOPMENT
DATE: 3/23/10

DEVELOPER'S/BUILDER'S CERTIFICATE

I/WE CERTIFY THAT THE LANDSCAPING SHOWN ON THIS PLAN WILL BE DONE ACCORDING TO THE PLAN, SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE HOWARD COUNTY LANDSCAPE MANUAL. I/WE FURTHER CERTIFY THAT UPON COMPLETION, A CERTIFICATION OF LANDSCAPE INSTALLATION, ACCOMPANIED BY AN EXECUTED ONE (1) YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.

DATE: 2/24/10

AFFORESTATION PROVIDED - AREA-1

0.35 ACRES 1" CALIPER TREES
70 TREES @ 200 TREES PER ACRE

OWNER/DEVELOPER
MICHAEL L. PFAU
3675 PARK AVENUE
ELLSWORTH CITY, MD 21043
PHONE 410-480-0023

NO.	REVISION	DATE

FINAL ROAD CONSTRUCTION PLAN
FOREST CONSERVATION DETAILS
AND BIORETENTION PLANTINGS
EAGLE VALLEY
LOTS 1-9 AND OPEN SPACE LOT 10

TAX MAP 38 BLOCK 14 PARCEL 215
1ST ELECTION DISTRICT HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL ENGINEERING, INC.
ENGINEERS • SURVEYORS • PLANNERS
8407 MAIN STREET TEL: 410.461.7666
ELLSWORTH CITY, MD 21043 FAX: 410.461.8961

DESIGN BY: JCO
DRAWN BY: KG
CHECKED BY: RHV
DATE: FEBRUARY 2010
SCALE: AS SHOWN
W.O. NO.: 05-61

PROFESSIONAL CERTIFICATE
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DAILY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193, EXPIRATION DATE: 09-27-2010

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