

GENERAL NOTES

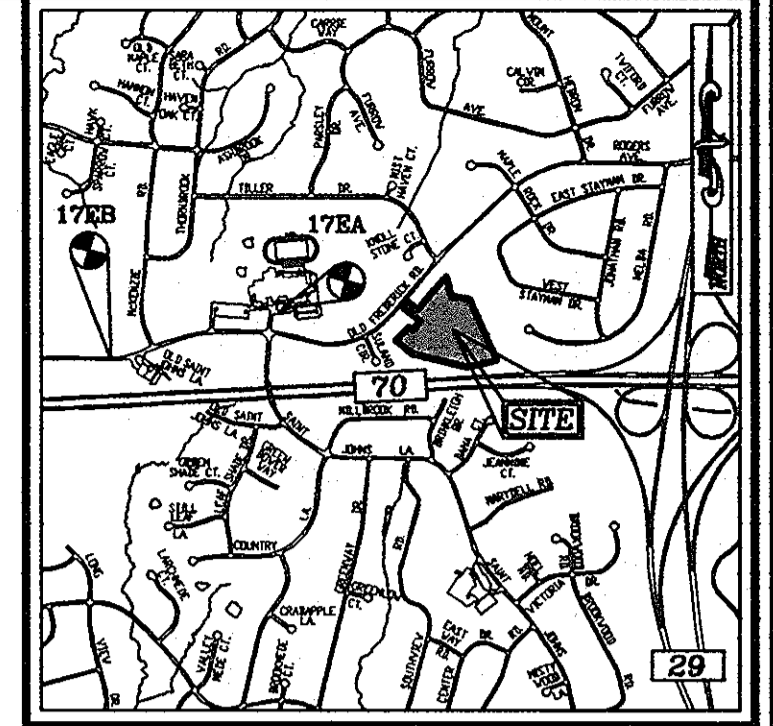
- ALL ASPECTS OF THE PROJECT ARE IN CONFORMANCE WITH THE LATEST HOWARD COUNTY STANDARDS UNLESS WAIVERS HAVE BEEN APPROVED.
- THE PROJECT BOUNDARY IS BASED ON A BOUNDARY SURVEY PREPARED BY ROBERT H. VOGEL ENGINEERING, INC., DATED APRIL 6, 2010.
- THE EXISTING TOPOGRAPHY SHOWN HEREON IS TAKEN FROM AN AERIAL TOPOGRAPHIC SURVEY WITH 2 FOOT CONTOUR INTERVALS, PREPARED BY POTOMAC AERIAL SURVEYS, INC., DATED MARCH 6TH 2010.
- FOREST STAND DELINEATION PLAN WAS PREPARED BY ROBERT H. VOGEL ENGINEERING INC., DATED MAY 2010.
- FOREST CONSERVATION PLAN PREPARED BY ROBERT H. VOGEL ENGINEERING, INC.
- TO THE BEST OF THE OWNERS KNOWLEDGE, THERE ARE NO CEMETERIES OR GRAVE SITES LOCATED ON THE SUBJECT PROPERTY.
- THERE IS NO 100-YR FLOODPLAIN WITHIN THE LIMITS OF THIS PROJECT.
- EXISTING UTILITIES ARE BASED ON HOWARD COUNTY RECORDS AND FIELD SURVEY.
- THIS PLAN IS SUBJECT TO THE AMENDED FIFTH EDITION OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS. DEVELOPMENT OR CONSTRUCTION OF THESE LOTS MUST COMPLY WITH SETBACK AND BUFFER REGULATIONS IN EFFECT AT THE TIME OF SUBMISSION OF THE SITE DEVELOPMENT PLAN, WAIVER PETITION, OR BUILDING AND GRADING PERMITS.
- THE SUBDIVISION PLAN IS SUBJECT TO THE FOLLOWING DPZ FILES: F-87-100
- THE SUBJECT PROPERTY IS ZONED "R-20" IN ACCORDANCE WITH THE 2/2/04 COMPREHENSIVE ZONING PLAN AND THE COMP. LITE ZONING REGULATIONS EFFECTIVE ON 7/28/06.
- A TRAFFIC STUDY WAS PREPARED BY THE TRAFFIC GROUP, INC., DATED MAY 2010.
- A TOTAL OF 25 LOTS AND 1 OPEN SPACE LOT ARE PROPOSED UNDER THIS PLAN. THE LOTS HAVE BEEN CREATED BY A RE-SUBDIVISION OF THE "KEIM PROPERTY" LOT 2, AND A SUBDIVISION OF PARCELS 78 AND 416.
- OPEN SPACE LOT 26 TO BE OWNED AND MAINTAINED BY THE HOME OWNERS ASSOCIATION.
- ALL DRIVEWAY ENTRANCES SHALL UTILIZE HOWARD COUNTY STANDARD DETAIL NO. R-6.03 MODIFIED FOR SIDEWALK ADJACENT TO CURB.
- THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH SECTION 16.124 OF THE HOWARD COUNTY CODE AND LANDSCAPE MANUAL. A FINANCIAL SURETY IN THE AMOUNT OF \$12,750.00 FOR THE REQUIRED 41 SHADE TREES AND 3 EVERGREEN TREES SHALL BE POSTED WITH THE DEVELOPERS AGREEMENT FOR THIS PLAN.
- PUBLIC STREET TREES ARE PROVIDED FOR THIS PROJECT IN ACCORDANCE WITH SECTION 16.124(e)(1) OF THE SUBDIVISION REGULATIONS AND THE LANDSCAPE MANUAL. FINANCIAL SURETY IN THE AMOUNT OF \$25,125.00 SHALL BE POSTED AS PART OF THE DEVELOPER'S AGREEMENT FOR THE REQUIRED 67 STREET TREES.
- TOTAL FOREST CONSERVATION OBLIGATION OF THIS PROJECT TO BE FULFILLED BY ON-SITE AFFORESTATION OF 1.84 ACRES. FINANCIAL SURETY IN THE AMOUNT OF \$40,075.50 (80,151 x 0.50) WILL BE POSTED WITH THE FOREST CONSERVATION MAINTENANCE AGREEMENT AT FINAL PLAN.
- STREET LIGHT PLACEMENT AND THE TYPE OF FIXTURE AND POLE SHALL BE IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL, VOLUME III, AND AS MODIFIED BY GUIDELINES FOR STREET LIGHTS IN RESIDENTIAL DEVELOPMENTS. A MINIMUM SPACING OF 20' SHALL BE MAINTAINED BETWEEN ANY STREETLIGHT AND ANY TREE.
- 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 STEEL, PERFORATED, SQUARE TUBE SLEEVE (12 GAUGE - 3' LONG). A GALVANIZED STEEL POLE CAP SHALL BE MOUNTED ON THE TOP OF EACH POST.
- NO GRADING, REMOVAL OF VEGETATIVE COVER OR TREES, PAVING AND NEW STRUCTURES SHALL BE PERMITTED WITHIN THE WETLANDS, WETLANDS BUFFER, STREAM BANK BUFFER, OR FOREST CONSERVATION EASEMENTS.
- WATER AND SEWER FOR THIS PROJECT WILL BE PUBLIC. WATER WILL BE PROVIDED THROUGH CONTRACT #71-W. SEWER WILL BE PROVIDED THROUGH CAPITAL PROJECT #S-6266.
- STORM WATER MANAGEMENT TO BE PROVIDED FOR THIS DEVELOPMENT BY ENVIRONMENTAL SITE DESIGN UTILIZING MICRO BIO-RETENTION, RAIN BARRELS, PERVIOUS DRIVEWAYS AND SIDEWALKS, AND ROOFTOP DISCONNECTS.
- SEDIMENT AND EROSION CONTROL WILL BE PROVIDED FOR THIS SITE.
- A NOISE STUDY IS NOT REQUIRED FOR THIS SUBDIVISION. AN EXISTING NOISE BARRIER IS PROVIDED ALONG INTERSTATE 70.
- THERE ARE EXISTING STRUCTURES LOCATED ON PARCELS 77, 78, AND 416. ALL EXISTING STRUCTURES LOCATED ON-SITE SHALL BE REMOVED PRIOR TO SIGNATURES ON FINAL PLAN.
- USING THE NEIGHBORHOOD PRESERVATION EXCHANGE OPTION DESCRIBED IN SECTION 128L OF THE ZONING REGULATIONS, THE RIGHTS FOR 1 OF THE RESIDENTIAL LOTS SHOWN ON THE SUBDIVISION PLAN FOR MOUNT HEBRON OVERLOOK HAS BEEN TRANSFERRED FROM PARCEL 594, TAX MAP 17, GRID 17, MORGAN PROPERTY.
- 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. 17EA AND 17EB WERE USED FOR THIS PROJECT.
- TEST PITS TO DETERMINE GROUND WATER AND ROCK ELEVATIONS WERE PERFORMED AND ARE INCLUDED IN THE SWM REPORT.
- ALL CURB AND GUTTER TO BE HOWARD COUNTY MODIFIED DETAIL R-3.01 UNLESS OTHERWISE NOTED.
- WETLANDS SHOWN ON-SITE ARE BASED ON A FIELD INVESTIGATION PREPARED BY ECO-SCIENCE PROFESSIONALS, INC., DATED JUNE 02, 2010. THERE ARE NO PROPOSED DISTURBANCES TO THE WETLANDS OR ASSOCIATED BUFFERS.

PRELIMINARY EQUIVALENT SKETCH PLAN MOUNT HEBRON OVERLOOK ENVIRONMENTAL CONCEPT PLAN

LOTS 1-25 AND OPEN SPACE LOT 26 A RE-SUBDIVISION OF THE "KEIM PROPERTY" LOT 2, AND A SUBDIVISION OF PARCELS 78 AND 416 HOWARD COUNTY, MARYLAND

LEGEND

- PROPERTY LINE
- RIGHT-OF-WAY LINE
- ADJACENT PROPERTY LINE
- EXISTING CURB AND GUTTER
- EXISTING UTILITY POLE
- EXISTING LIGHT POLE
- EXISTING MAILBOX
- EXISTING SIGN
- EXISTING SANITARY MANHOLE
- EXISTING SANITARY LINE
- EXISTING CLEAROUT
- EXISTING FIRE HYDRANT
- EXISTING WATER LINE
- EXISTING USE-IN-COMMON ROW (L 1491 / F 16)(L 8387 / F 610)
- EXISTING USE-IN-COMMON ACCESS EASEMENT (L 10792 / F 354) (PLAT #7110)
- EXISTING TREELINE (FIELD LOCATED)
- EXISTING TREES (FIELD LOCATED)
- EXISTING FENCE
- CENTERLINE OF EXISTING STREAM
- PROPOSED STORMDRAIN
- PROPOSED STORMDRAIN INLET
- PROPOSED SIDEWALK
- PROPOSED TREELINE
- PROPOSED CURB
- PROPOSED STREET LIGHT
- PROP. FOREST CONSERVATION (AFFORESTATION)
- PROP. RECREATIONAL OPEN SPACE
- PROP. 20' PUBLIC SEWER AND UTILITY EASEMENT



VICINITY MAP
SCALE: 1"=2000'
ADC MAP COORDINATE: PG. 4815 G3

BENCHMARKS
HOWARD COUNTY BENCHMARK - 17EA (CONC. MONUMENT)
N 594357.62 E 1357519.37 ELEV. 478.77
LOCATION: FRONT OF MT. HEBRON H.S. (ROUTE 99 AND ST. JOHN'S LA.)
HOWARD COUNTY BENCHMARK - 17EB (CONC. MONUMENT)
N 593813.86 E 1355731.85 ELEV. 453.48

SITE DATA
TAX MAP 17, GRID 16, PARCELS 77, 78, & 416
DEED REFERENCE: PARCEL 77: L 725 / F 486
PARCEL 78: L 6185 / F 690
PARCEL 416: L 8387 / F 610
ELECTION DISTRICT: 2ND
LOCATION: EAST SIDE OF OLD FREDERICK ROAD (ROUTE 99), APPROX. 540' NORTH OF SULLAND CIRCLE
EXISTING ZONING: R-20, UTILIZING R-ED OPTION: PER SECTION 108.F.3.

GROSS AREA: 12.29 AC
LIMIT OF DISTURBANCE: 8.50 AC
WETLANDS (ON-SITE): 0.23 AC
WETLANDS BUFFER (ON-SITE): 0.35 AC
AREA OF 100 YEAR FLOODPLAIN: 0.00 AC
AREA OF EXISTING FOREST: 0.00 AC
AREA OF STEEP SLOPES (15%-24.99%): 0.58 AC
AREA OF STEEP SLOPES (≥25%): 0.14 AC
ERODIBLE SOILS: 0.00 AC
AREA OF HOUSES: 1.15 AC
AREA OF PERVIOUS PUBLIC SIDEWALK: 0.12 AC
AREA OF PUBLIC ROAD: 0.96 AC
AREA OF PERVIOUS CONCRETE DRIVEWAY AND LEAD WALK: 0.41 AC
AREA OF GREEN SPACE: 9.65 AC
BASE DENSITY: 2 LOTS PER NET ACRE (2X12.15); 24 LOTS

NUMBER OF UNITS SENT USING THE NEIGHBORHOOD PRESERVATION EXCHANGE OPTION PER SECTION 128L OF THE ZONING REGULATIONS: 1 LOT
TOTAL LOTS ALLOWED (24+1): 25 LOTS
NUMBER OF PROPOSED RESIDENTIAL LOTS (SFD): 25 LOTS
AREA OF PROPOSED RESIDENTIAL LOTS (SFD): 4.19 AC
TOTAL AREA OF ROAD RIGHT OF WAY: 1.82 AC
OPEN SPACE REQUIRED: 50% OF GROSS AREA 6.15 AC
TOTAL AREA OF OPEN SPACE PROPOSED: 8.20 AC (50.45%)
REG. OPEN SPACE: 300 SF/DWELLING UNIT x 25: 7,500 SF
REG. OPEN SPACE PROVIDED: 7,750 SF
EXISTING USE OF SITE: RESIDENTIAL, SFD
PROPOSED USE OF SITE: SFD
PROPOSED WATER SYSTEM: PUBLIC
PROPOSED SEWER SYSTEM: PUBLIC
OPEN SPACE LOT 26 TO BE OWNED AND MAINTAINED BY THE HOME OWNERS ASSOCIATION
MINIMUM LOT AREA: 6,140 SF

OWNERS
PARCEL 77: EVANS M. KEIM, 9339 ROUTE 99, ELLICOTT CITY, MD 21042
PARCEL 78 & 416: ATHOL & LISA MORGAN, 5305 ROUTE 99, ELLICOTT CITY, MD 21042

DEVELOPER
DOUBLE R VENTURES, LLC, C/O LAND DESIGN & DEVELOPMENT, INC., 5300 DORSEY HALL DR., STE 102, ELLICOTT CITY, MARYLAND 21042-7819
ATTN: MR. DONALD R. REUWER, 443-367-0422

LOT TABULATION

TOTAL NO. OF PROPOSED LOTS:	26
TOTAL NO. OF DWELLING UNITS:	25
NO. OF SINGLE FAMILY DETACHED:	25
NO. OF OPEN SPACE LOTS:	1

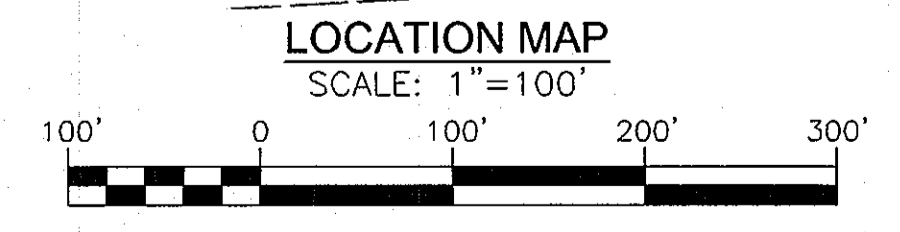
COORDINATE TABLE

POINT	NORTHING	EASTING	POINT	NORTHING	EASTING
1	594433.39	1358810.57	1030	593754.47	1359383.97
2	594690.70	1359221.56	1049	594138.02	1359370.17
3	594471.74	1359279.65	1052	594054.18	1359388.16
4	594464.84	1359297.00	1053	594174.61	1359532.48
5	593815.30	1359748.55	1054	594275.06	1359510.47
6	593770.30	1359563.83	1093	594342.17	1358923.45
7	593739.71	1359442.71	1112	594272.25	1359340.17
8	594161.06	1358835.36	1121	594378.46	1358764.50
1001	594021.55	1358693.86	1152	594003.13	1359665.07
1015	594001.14	1358721.06	1153	593758.36	1359773.79
1016	593894.43	1358866.70	1156	594454.36	1359465.23
1024	594227.45	1358952.21	1157	594485.91	1359292.32
1025	594130.10	1358873.88	1158	594608.47	1359151.23

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

[Signature] 1/13/11
CHIEF, DEVELOPMENT ENGINEERING DIVISION

[Signature] 1/12/11
CHIEF, DIVISION OF LAND DEVELOPMENT



SHEET INDEX

DESCRIPTION	SHEET NO.
COVER SHEET	1 OF 3
SITE LAYOUT	2 OF 3
NOTES AND DETAILS	3 OF 3

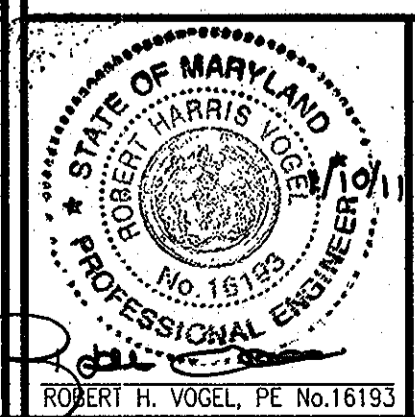
**PRELIMINARY EQUIVALENT SKETCH PLAN
MOUNT HEBRON OVERLOOK
ENVIRONMENTAL CONCEPT PLAN
COVER SHEET**

LOTS 1-25 AND OPEN SPACE LOT 26
A RE-SUBDIVISION OF THE "KEIM PROPERTY" LOT 2,
AND A SUBDIVISION OF PARCELS 78 AND 416
HOWARD COUNTY, MD

2ND ELECTION DISTRICT
TAX MAP: 17 GRID: 16
DPZ REF'S: F-87-100

ZONING: R-20
PARCELS: 77, 78, & 416
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

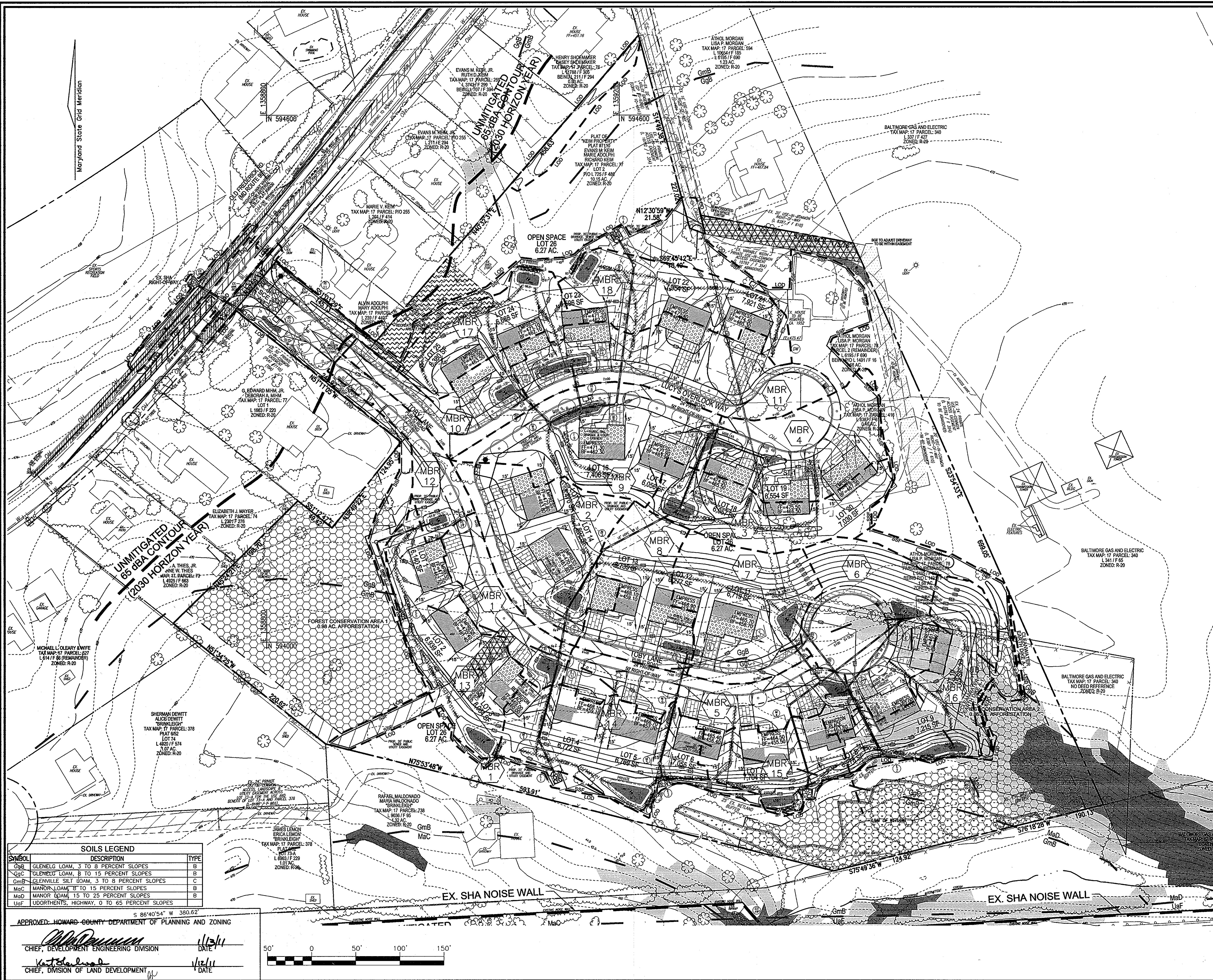


PROFESSIONAL CERTIFICATE

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: RHV
DRAWN BY: JMR
CHECKED BY: RHV
DATE: JANUARY 2011
SCALE: 1"=50'
W.O. NO.: 10-06

1 SHEET OF 3



LEGEND:

	PROPERTY LINE		EXISTING FENCE
	RIGHT-OF-WAY LINE		CENTERLINE OF EXISTING STREAM
	ADJACENT PROPERTY LINE		PROPOSED STORMWATER INLET
	EXISTING UTILITY POLE		PROPOSED FREELINE
	EXISTING LIGHT POLE		PROPOSED STREET LIGHT
	EXISTING MANHOLE		PROPOSED STORMWATER
	EXISTING SANITARY MANHOLE		PROPOSED SPOT ELEVATION
	EXISTING SANITARY LINE		PROPOSED MODERATE SLOPES
	EXISTING FIRE HYDRANT		PROPOSED STEEP SLOPES
	EXISTING WATER LINE		FOREST CONSERVATION AREA (AFFORESTATION)
	EXISTING CONTOUR		ROOFTOP DISCONNECTS
	SOILS		RAIN BARREL ONLY
	EXISTING USE-IN-COMMON ACCESS EASEMENT (PLAT #1110)		PERMEABLE PAVEMENT (PAVERS)
	EXISTING FREELINE (RED LOCATES)		DRAINAGE AREA INLET
	EXISTING PIPES (RED LOCATES)		PROPOSED SILT FENCE
	PROPOSED STABILIZED CONSTRUCTION ENTRANCE		PROPOSED SUPER SILT FENCE
			PROPOSED LIMIT OF DISTURBANCE
			PROPOSED EARTH BANK
			EROSION CONTROL MATTING

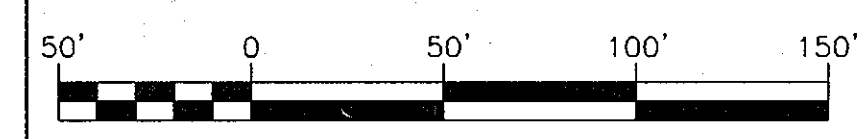
SOILS LEGEND

SYMBOL	DESCRIPTION	TYPE
GsB	GLENELG LOAM, 3 TO 8 PERCENT SLOPES	B
GgC	GLENELG LOAM, 8 TO 15 PERCENT SLOPES	B
GmB	GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES	C
MaC	MANOR LOAM, 8 TO 15 PERCENT SLOPES	B
MaD	MANOR LOAM, 15 TO 25 PERCENT SLOPES	B
UoF	UDORTHERTS, HIGHWAY, 0 TO 65 PERCENT SLOPES	B

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

[Signature] 1/13/11
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

[Signature] 1/12/11
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE



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 PARCEL 78 & 416: ATHOL & LISA MORGAN, 5305 ROUTE 99, ELLICOTT CITY, MD 21042
 PARCEL 340: BALTIMORE GAS AND ELECTRIC, 1341 F ST, ZONED: R-20

DEVELOPER
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 ATTN: MR. DONALD R. REUWER, 443-367-0422

NO.	REVISION	DATE

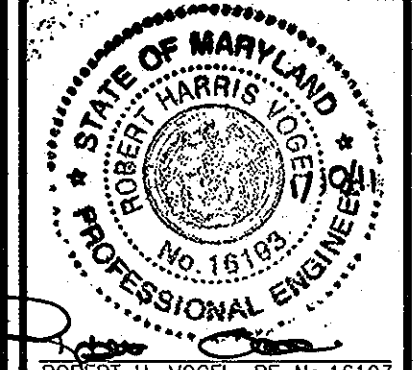
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 MOUNT HEBRON OVERLOOK
 ENVIRONMENTAL CONCEPT PLAN
 SITE LAYOUT**

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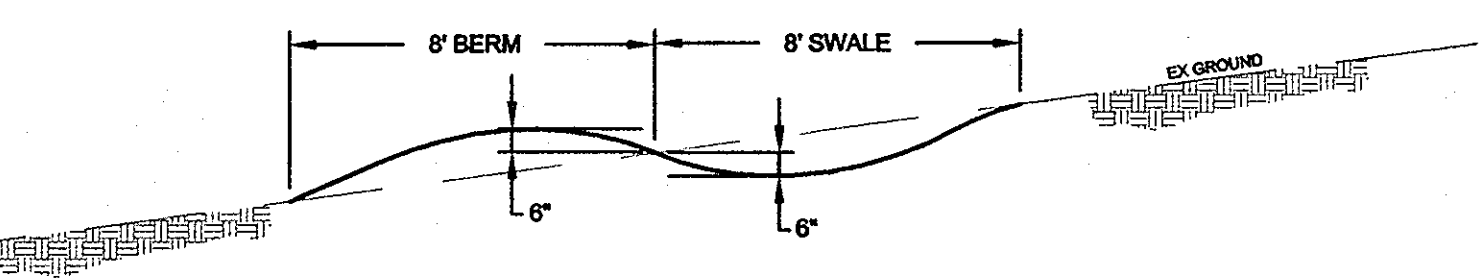
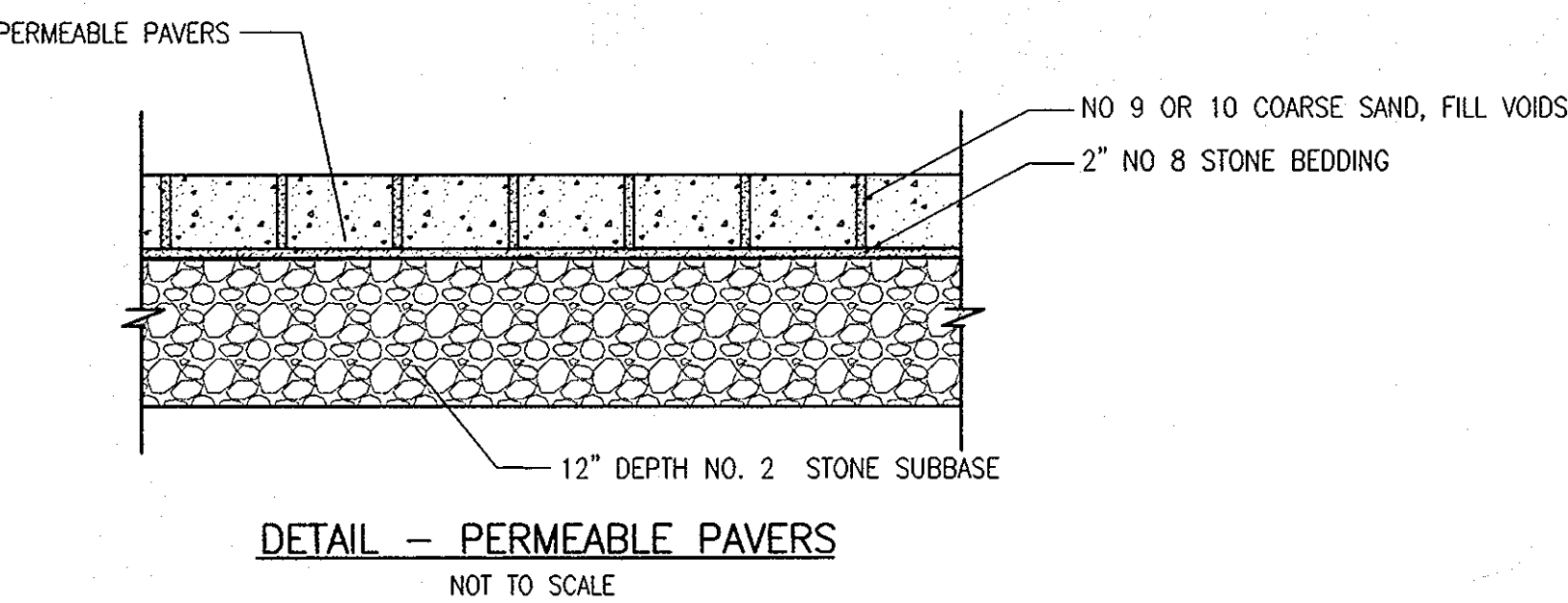
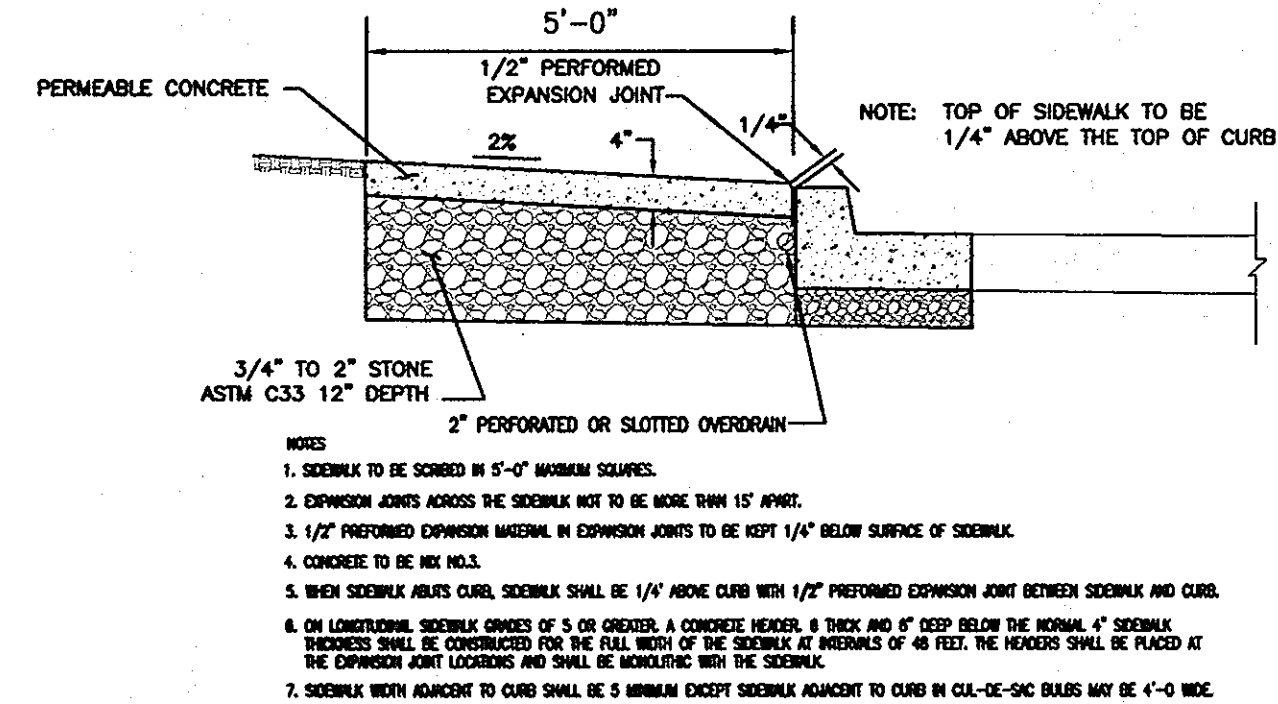
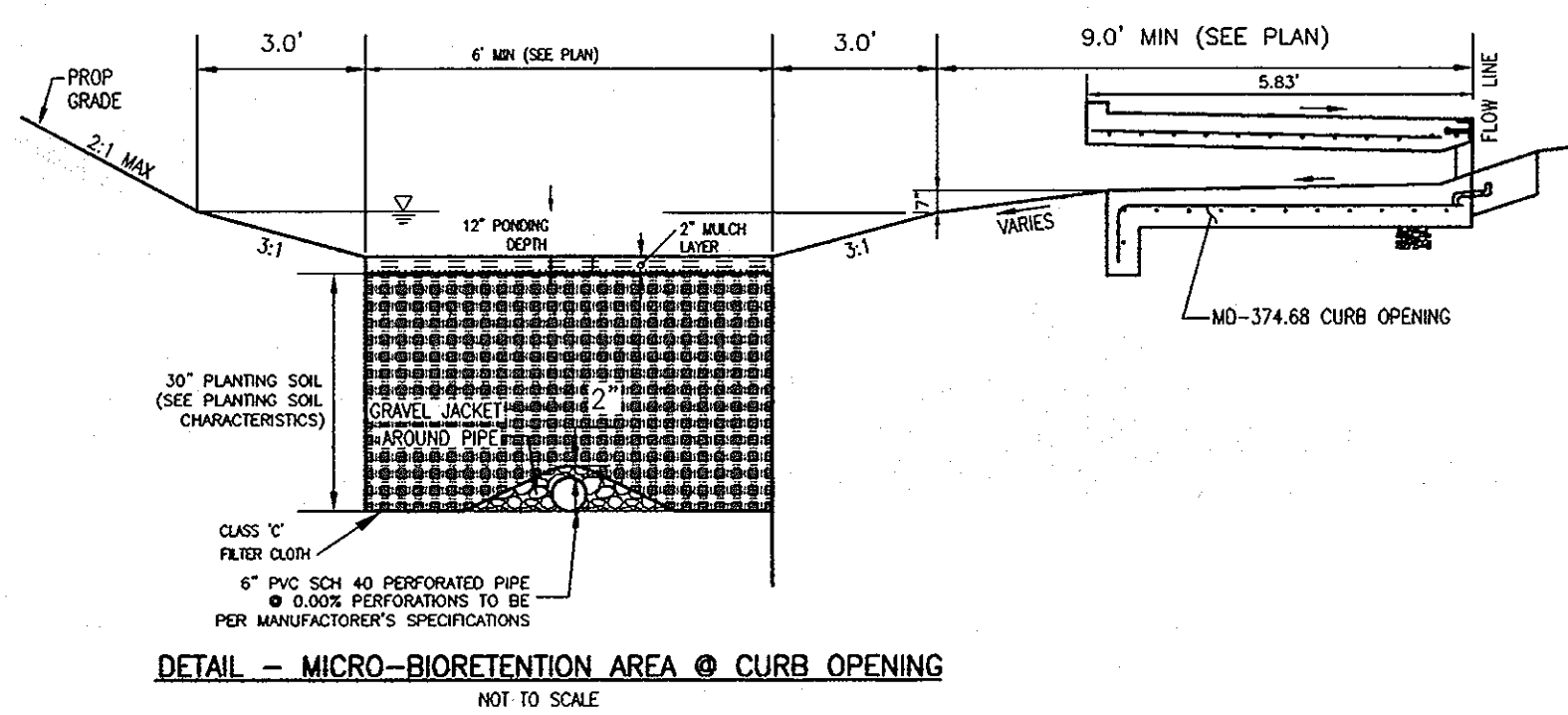


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 DRAWN BY: JMR
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 DATE: JANUARY 2011
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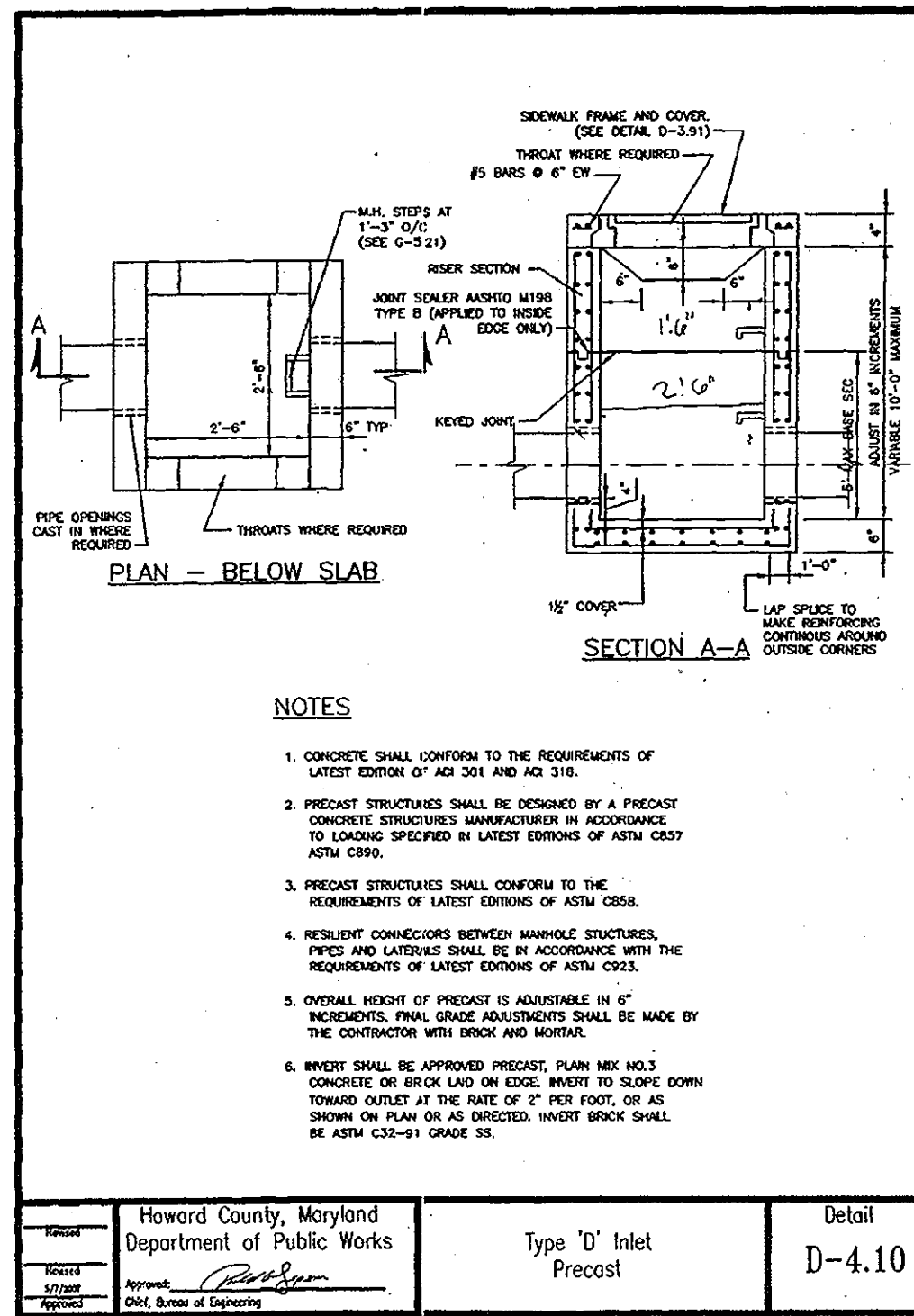
2 SHEET OF 3



- NOTES:**
- CLEANWATER DIVERSION DIKE/SWALE IS DESIGNED TO KEEP CLEAN STORMWATER RUNOFF FROM BEING TREATED IN PROPOSED FACILITIES.
 - THE DIKE/SWALE IS A PERMANENT FEATURE AND MUST BE MOUNTABLE FOR LAWN MOWING PURPOSES.
 - THE DIKE/SWALE WILL MAINTAIN POSITIVE DRAINAGE AT A MINIMUM OF 2% AND A MAXIMUM OF 8% TO AVOID EROSION VELOCITIES.
 - THE DIKE/SWALE WILL BE STABILIZED USING HOWARD COUNTY'S STANDARD PERMANENT SEEDING NOTES.

MOUNTABLE CLEAN WATER DIVERSION DIKE/SWALE
NOT TO SCALE

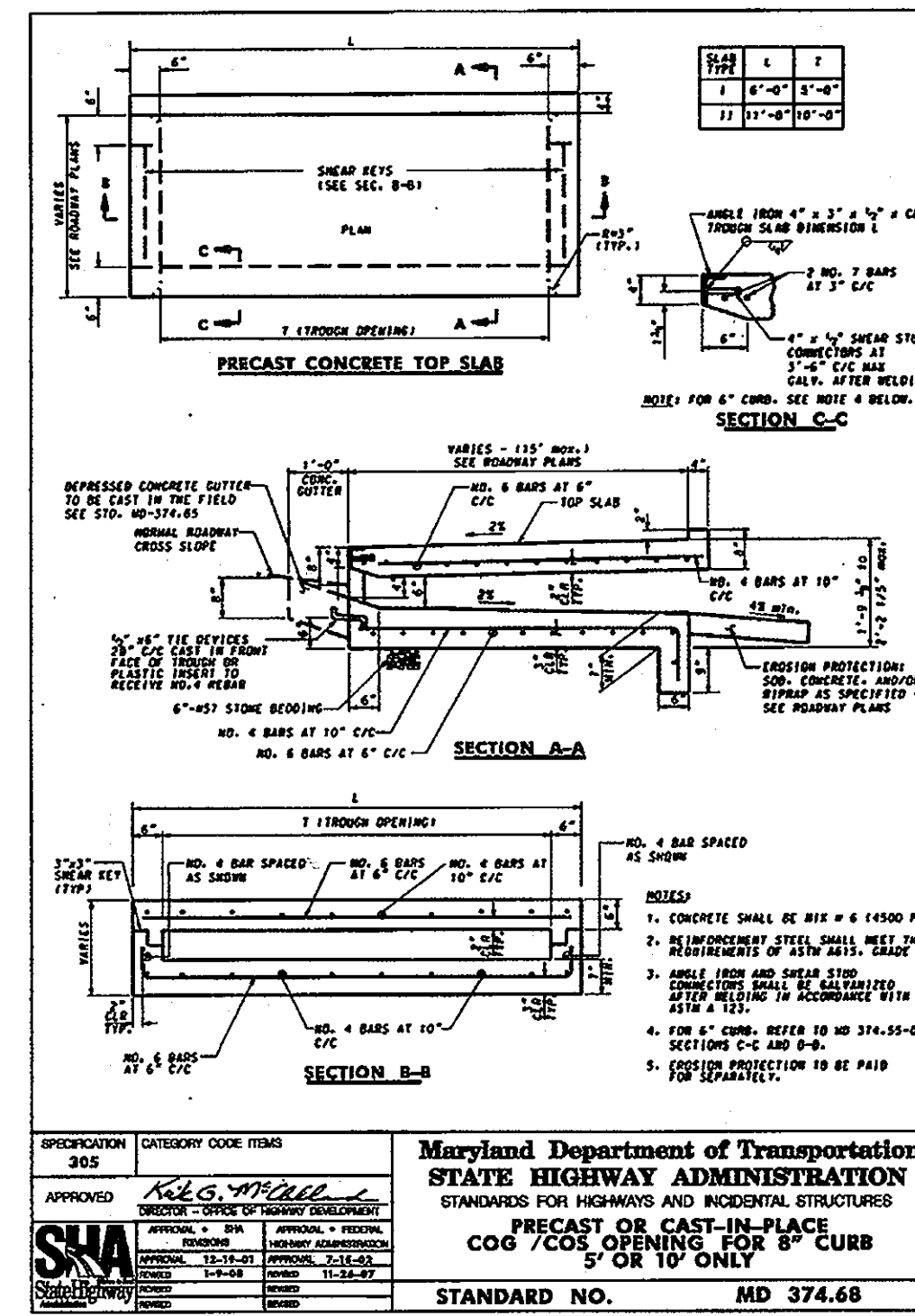
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
[Signature] 1/12/11
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE
[Signature] 1/12/11
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE



NOTES

- CONCRETE SHALL CONFORM TO THE REQUIREMENTS OF LATEST EDITION OF ACI 308 AND ACI 318.
- PRECAST STRUCTURES SHALL BE DESIGNED BY A PRECAST CONCRETE STRUCTURES MANUFACTURER IN ACCORDANCE TO LOADS SPECIFIED IN LATEST EDITION OF ACI 308 AND ACI 318.
- PRECAST STRUCTURES SHALL CONFORM TO THE REQUIREMENTS OF LATEST EDITION OF ACI 308.
- RESISTANT CONNECTIONS BETWEEN MANHOLE STRUCTURES, PIPES AND LATERALS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF LATEST EDITION OF ACI 308.
- OVERALL WIDTH OF PRECAST IS ADJUSTABLE IN 4" INCREMENTS. FINAL GRADE ADJUSTMENTS SHALL BE MADE BY THE CONTRACTOR WITH BRICK AND MORTAR.
- BRICK SHALL BE APPROVED PRECAST. PLAN MIX NO. 3 CONCRETE OR BRICK LAY ON EDGE. MORTAR TO SLOPE DOWN TOWARD SUELY AT THE RATE OF 1" FOR FOOT, OR AS SHOWN ON PLAN OR AS DIRECTED. MORTAR SHALL BE ASTM C132-91 GRADE 50.

Howard County, Maryland
 Department of Public Works
 Type 'D' Inlet
 Precast
 Detail
 D-4.10



Maryland Department of Transportation
 STATE HIGHWAY ADMINISTRATION
 STANDARD NO. MD 374.68

MOUNT HEBRON OVERLOOK INLET COMPS

MICRO BIO-RETENTION FACILITY	INLET TYPE D	ROAD INLET COG OPENING	DA ACRES	SOILS HYD CLASS	%IMP PERCENT	C RATIONAL
MBR-1	I-1	RI-1	0.24	B/C	40%	0.33
MBR-2	I-2	RI-2	0.54	B	40%	0.30
MBR-3	I-3	(SWALE)	0.90	B	40%	0.30
MBR-5	I-5	RI-5	0.37	B/C	40%	0.33
MBR-6	I-6	RI-6	0.56	B	40%	0.30
MBR-7	I-7	RI-7	0.49	B	40%	0.30
MBR-8	I-8	RI-8	0.36	B	40%	0.30
MBR-9	I-9	RI-9	0.56	B	40%	0.30
MBR-10	I-10	RI-10	0.26	B	40%	0.30
MBR-11	I-11	RI-11	0.50	B	40%	0.30
MBR-12		RI-12	0.17	B/C	40%	0.33
MBR-13		SWALE	0.48	C	40%	0.33
MBR-14		SWALE	0.54	B/C	40%	0.33
MBR-15		SWALE	0.36	B/C	40%	0.33
MBR-16		SWALE	0.45	B	40%	0.30
MBR-17		SWALE	0.30	B	40%	0.30
MBR-18		SWALE	0.42	B	40%	0.30
MBR-19		RI-12	0.11	B	40%	0.30
GS-1		SWALE	0.10	B	40%	0.30

MT. HEBRON OVERLOOK ENVIRONMENTAL CONCEPT PLAN

I. INTRODUCTION

The subject site is located on the south side of Old Frederick Road (MD Route 99) and on the north side of Interstate 70. The site access is located just west of Tiller Drive. The Baltimore Gas & Electric right-of-way is adjacent to the east property line. A majority of the subject property was created as Keim Property Lot 2. The balance of the project area incorporates Tax Map 17, parcels 78 and 416. The total project area is 12.29 acres.

Keim Property Lot 2 is vacant and is primarily open grass. There are very few trees located on the property with the exception of once specimen tree (Sugar Maple) located central to the property and regeneration located in the southeast corner of the property. There is a small area of wetlands located on the south side of the property adjacent to the State Highway Administration right-of-way. This area also contains shrub/scrub and unmaintained grass. The site was visited by J. Chris Ogle, Qualified Professional (Robert H. Vogel Engineering, Inc.) and John Canoles, Environmentalist (Eco-Science Professional, Inc.) to evaluate the existing vegetation, trees and determine the presence of wetlands.

Parcel 78 contains a residence which will be razed and the remainder of the property is maintained lawn and driveway/parking pad. Parcel 416 is vacant and is predominately.

The site is predominantly Glenelg Loam (GgB and C) and a smaller area of Glenville Silt Loam (GmB) which are hydrologic soil group B and C respectively. These soils are generally not susceptible to erosion and there is no evidence of existing erosion issues.

The site is proposed to be re-subdivided into 25 single family detached lots in accordance with the R-ED regulations. The site is designed to minimize the limit of disturbance and to minimize the overall grading required. The road profiles are designed to parallel existing grades to the greatest extent possible. The environmental site design practices also contribute to a smaller overall limit of disturbance.

There is approximately 7,847 sq ft of steep slopes (>25%) which will not be disturbed. A majority of the moderate slopes (15%-25%) will be preserved. There will be 3.7 acres of open space which will not be disturbed and will be utilized as afforestation and passive recreation. The overall drainage divides for the property have been preserved. To the greatest extent possible, the bio-retention facilities discharge to undisturbed ground. Where storm drain is required to convey the discharge from the interior micro-bioretenion facilities, the ultimate discharge location are not steep and protected with rip rap armor.

The conceptual sediment control plan has been prepared. As with the development plan, the sediment control is design to minimize unnecessary disturbances beyond the limits of the development limit of disturbance.

II. METHODOLOGY

The site is designed utilizing a closed section roadway with pass through inlets that discharge the road drainage directly to bio-retention facilities. The public sidewalk, house load walks and driveways are designed using permeable concrete (alternative surfaces). The reduced PE value is calculated utilizing these credits. Since the site can be considered to be homogeneous the reduced PE is utilized as the starting value for the individual subareas. The "treatment train" is then applied on a subarea basis. The individual subarea treatments consist of rooftop disconnects and rain barrel for the individual houses. Subsequent to the PE credits the remaining debt is accommodated by micro-bioretenion facilities. The entire PE for each subarea has been accommodated. The micro-bioretenion facilities are sized for the worst case of volume requirement or area of filter (based on drainage areas).

III. CONCLUSION

The Environmental Site Design for this project successfully incorporates the methodology present in the MDE stormwater Design Manual, Chapter 5. This report and the associated Concept Plan successfully address the following:

- Map of all site resources
- Field verification of the natural resource map
- Proposed limits of clearing and grading
- Location of proposed impervious areas
- Location of existing and proposed utilities
- Preliminary estimates of stormwater requirements
- Preliminary location of ESD practices
- Stable conveyance of stormwater at potential outfall locations
- Narrative addresses:
 - Natural resource protection and enhancement
 - Maintenance of natural flow patterns
 - Reduction of impervious areas through better site design, alternative surfaces, and non-structural practices
 - Integration of erosion and sediment control into the stormwater strategy
 - Implementation of ESD planning techniques and practices to the MEP

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

SPECIFICATIONS FOR BIORETENTION

- MATERIAL SPECIFICATIONS**
 1. ALLOWABLE MATERIALS TO BE USED IN BIORETENTION ARE DETAILED IN TABLE B.3.2.
- 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 OR DUMPED WITHIN THE BIORETENTION AREA THAT MAY BE HARMFUL TO PLANT GROWTH, OR PROVE A HINDERANCE TO THE PLANTING OR MAINTENANCE OPERATIONS. THE PLANTING SOIL SHALL BE FREE OF BERMUDA GRASS, QUACKGRASS, JOHNSON GRASS, OR OTHER NOXIOUS WEEDS AS SPECIFIED UNDER COMARY 10.03.01.05. THE PLANTING SOIL SHALL BE TESTED AND SHALL MEET THE FOLLOWING CRITERIA:
 PH RANGE: 5.2-7.0
 ORGANIC MATTER: 1.5-4 % (BY WEIGHT)
 MAGNESIUM SULFATE: 200-75 LB/AC
 PHOSPHORUS (PHOSPHATE-P): 20-35 LB/AC
 POTASSIUM (POTASH-K): 20-30 LB/AC
 SOLUBLE SALTS: NET TO EXCEED 100 PPM
- CONSTRUCTION**
 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 TEXTURAL ANALYSIS SHALL BE PERFORMED FOR EACH LOCATION WHERE THE TOP SOIL WAS EXCAVATED.
 SINCE DIFFERENT LABS 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 (PROVER) WITH LINE OR (LOWERS) WITH IRON SULFATE PLUS SULFUR.
- COMPACTION**
 IT IS VERY IMPORTANT TO MINIMIZE COMPACTION OF BOTH THE BASE OF THE BIORETENTION AREA AND THE REQUIRED BACKFILL. WHEN POSSIBLE, USE HOES TO REMOVE ORIGINAL SOIL. IF BIORETENTION AREAS ARE EXCAVATED USING LOADERS, THE CONTRACTOR SHOULD USE WIDE TRACK OR MARSH TRACK EQUIPMENT, OR LIGHT EQUIPMENT WITH TURF TIRE TREAD. USE OF EQUIPMENT WITH NARROW TRACKS OR NARROW TIRES, RUBBER TIRES WITH LARGE LUGS, OR HIGH PRESSURE TIRES WILL CAUSE EXCESSIVE COMPACTION RESULTING IN REDUCED INFILTRATION RATES AND IS NOT ACCEPTABLE. COMPACTION WILL SIGNIFICANTLY CONTRIBUTE TO DESIGN FAILURE.
 COMPACTION CAN BE ALLEVIATED AT THE BASE OF THE BIORETENTION FACILITY BY USING A PRIMARY TILLING OPERATION SUCH AS CHISEL PLOW, RIPPER, OR SUBSOILER. THESE TILLAGE OPERATIONS ARE TO RESTRICTIVE TO THE SOIL PROFILE TO THE 12 INCH COMPACTION ZONE. SUBSTITUTE METHODS MUST BE APPROVED BY THE ENGINEER. ROTOTILLERS TYPICALLY DO NOT TILL DEEP ENOUGH TO REDUCE THE EFFECTS OF COMPACTION FROM HEAVY EQUIPMENT.
 ROTOTILL 2 TO 3 INCHES OF SAND INTO THE BASE OF THE BIORETENTION FACILITY BEFORE BACKFILLING THE REQUIRED SAND LAYER. PUMP ANY POOLED WATER BEFORE PREPARING (ROTOTILLING) BASE.
 WHEN BACKFILLING THE TOPSOIL OVER THE SAND LAYER, FIRST PLACE 3 TO 4 INCHES OF TOPSOIL OVER THE SAND, THEN ROTOTILL THE SAND/TOPSOIL TO CREATE A GRADATION ZONE. BACKFILL THE REMAINDER OF THE TOPSOIL TO FINAL GRADE.
 WHEN BACKFILLING THE BIORETENTION FACILITY, PLACE SOIL IN LIFTS 12" TO 18". DO NOT USE HEAVY EQUIPMENT WITHIN THE BIORETENTION BASIN. HEAVY EQUIPMENT CAN BE USED TO BACKFILL THE PERIMETER OF THE BASIN TO SUPPLY SOILS AND SAND. GRADE BIORETENTION MATERIALS WITH LIGHT EQUIPMENT SUCH AS A COMPACT LOADER OR A DOZER/LOADER WITH MARSH TRACKS.
- PLANT MATERIAL**
 RECOMMENDED PLANT MATERIAL FOR BIORETENTION AREAS CAN BE FOUND IN APPENDIX A, SECTION A.2.3. OF THE 2000 MARYLAND STORMWATER DESIGN MANUAL.
- 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 SOILED (8 TO 12 MONTHS) FOR ACCEPTANCE.
 ROOT STOCK OF THE PLANT MATERIAL SHALL BE KEPT MOST DURING TRANSPORT AND ON-SITE STORAGE. THE PLANT ROOT BALL SHOULD BE PLANTED SO 1/2" OF THE BALL IS ABOVE FINAL GRADE SURFACE. THE DIAMETER OF THE PLANTING PIT SHALL BE AT LEAST SIX INCHES LARGER THAN THE DIAMETER OF THE PLANTING BALL. SET AND MAINTAIN THE PLANT STRAIGHT DURING THE ENTIRE PLANTING PROCESS.
 TREES SHALL BE BRACED USING 2" BY 2" STAKES ONLY AS NECESSARY AND FOR THE FIRST GROWING SEASON ONLY. STAKES ARE TO BE EQUALLY SPACED ON THE OUTSIDE OF THE TREE BALL.
 GRASSES AND LEGUME SEED SHOULD BE DRILLED INTO THE SOIL TO A DEPTH OF AT LEAST ONE INCH. GRASS AND LEGUME PLOTS SHALL BE PLANTED FOLLOWING THE NON-GRASS GROUND COVER AND SOIL PLANTING SPECIFICATIONS.
 THE TOPSOIL SPECIFICATIONS PROVIDE ENOUGH ORGANIC MATERIAL TO ADEQUATELY SUPPLY NUTRIENTS FROM NATURAL CYCLING. THE PRIMARY FUNCTION OF THE BIORETENTION STRUCTURE IS TO IMPROVE WATER QUALITY. ADDING FERTILIZERS DEFEATS, OR AT A MINIMUM, MAKES THE SOIL ONLY AN ADD FERTILIZER TO 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.
 UNDERDRAINS ARE TO BE PLACED ON A 2'-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 COLLECTION PIPE FOR UNDERDRAIN PERIMETER SHALL BE CONSTRUCTED AT A MINIMUM 8" DIPS OF 0.5%. OBSERVATION WELL AND/OR CLEAN-OUT PIPES MUST BE PROVIDED (ONE MINIMUM PER EVERY 1000 SQUARE FEET OF SURFACE AREA).
- MISCELLANEOUS**
 THE BIORETENTION FACILITY MAY NOT BE CONSTRUCTED UNTIL ALL CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED.

OPERATION AND MAINTENANCE

- SCHEDULE FOR BIO-RETENTION AREAS**
- 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. 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.
 - 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.
 - MULCH SHALL BE INSPECTED EACH SPRING. REMOVE PREVIOUS MULCH LAYER BEFORE APPLYING NEW LAYER ONCE EVERY 2 TO 3 YEARS.
 - SOIL EROSION TO BE ADDRESSED ON AN AS NEEDED WITH A MINIMUM OF ONCE PER MONTH AND AFTER HEAVY STORM EVENTS.

OWNERS

PARCEL 77
 EDWINS W. WEIM
 9339 ROUTE 99
 ELLICOTT CITY, MD 21042

DEVELOPER

PARCEL 78 & 416
 ATRON W. MORGAN
 5305 DORSEY HALL DR. STE 102
 ELLICOTT CITY, MARYLAND 21042-7819
 ATTN: MRY. DONALD R. REUWER
 443-367-0422

NO.	REVISION	DATE

PRELIMINARY EQUIVALENT SKETCH PLAN
MOUNT HEBRON OVERLOOK
ENVIRONMENTAL CONCEPT PLAN
NOTES AND DETAILS
 LOTS 1-25 AND OPEN SPACE LOT 26
 A RE-SUBDIVISION OF THE "KEIM PROPERTY" LOT 2,
 AND A SUBDIVISION OF PARCELS 78 AND 416
 HOWARD COUNTY, MD
 2ND ELECTION DISTRICT
 TAX MAP: 17 GRID: 16
 DPZ REFS: F-87-100
 ZONING: R-20
 PARCELS: 77, 78, & 416
 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 DAILY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193, EXPIRATION DATE: 09-27-2010.
 DESIGN BY: RHV
 DRAWN BY: JMR
 CHECKED BY: RHV
 DATE: JANUARY 2011
 SCALE: 1"=50'
 W.O. NO.: 10-06
 3 SHEET OF 3