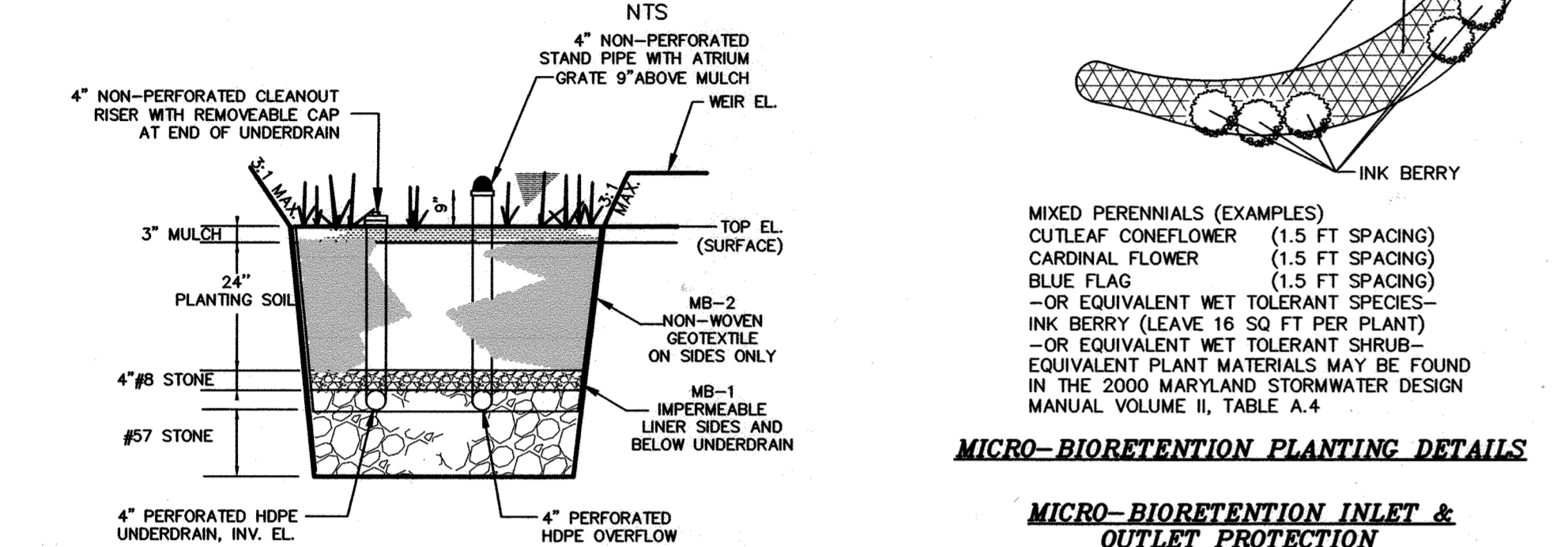


TYPICAL MICRO-BIORETENTION PROFILE



MICRO-BIORETENTION PLANTING DETAILS

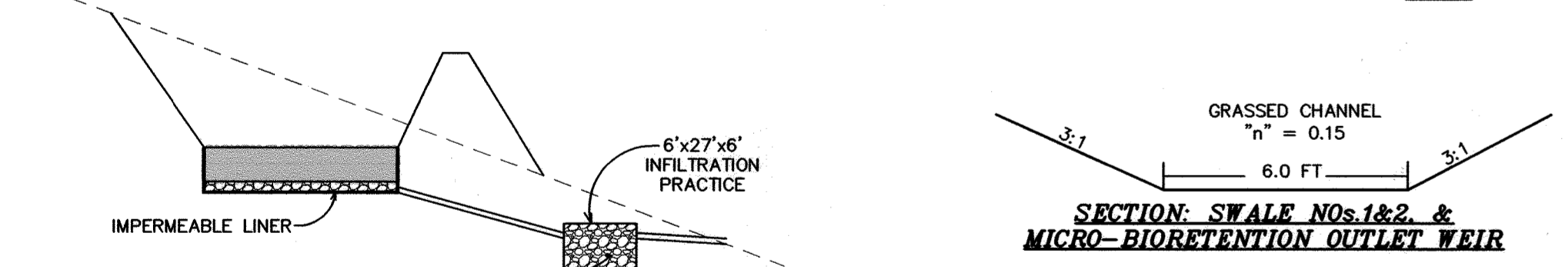
MICRO-BIORETENTION INLET & OUTLET PROTECTION

MICRO-BIORETENTION (M-6) DESIGN DATA

FACILITY	TOP EL. (SURFACE)	WEIR EL. (PONDING)	BERM EL.	INV. IN. (ELEV.)	INV. OUT. (ELEV.)	SURFACE AREA (S.F.)	PONDING AREA (S.F.)	PONDING DEPTH (IN.)	GRAVEL UNDERDRAIN
MB-1	765	766	766.5	762.08	757.5	932	1400	12.0	12.0"
MB-2	743	744	744.5	740.08	739.5	783	1185	12.0	18.0"

SWM PRACTICES SCHEDULE

AREA IDENTIFIER	PROPOSED PRACTICE	REQ'D ESDV	PROVIDED ESDV
1A	MB-1 (M-6) MICRO-BIORETENTION	793 C.F.	1495 C.F.*
1B	COMPENSATION	294 C.F.	78 C.F.
1C	DISCONNECTION	78 C.F.	78 C.F.
1D	DISCONNECTION	501 C.F.	181 C.F.
1E	DISCONNECTION	254 C.F.	181 C.F.
2A	MB-2 (M-6) MICRO-BIORETENTION	782 C.F.	1454 C.F.
2B	DISCONNECTION	58 C.F.	41 C.F.
2C	DISCONNECTION	87 C.F.	21 C.F.
2D	DISCONNECTION	58 C.F.	48 C.F.
2E	DISCONNECTION	79 C.F.	48 C.F.
TOTALS	ALL AREAS AND PRACTICES	3109 C.F.	3316 C.F.



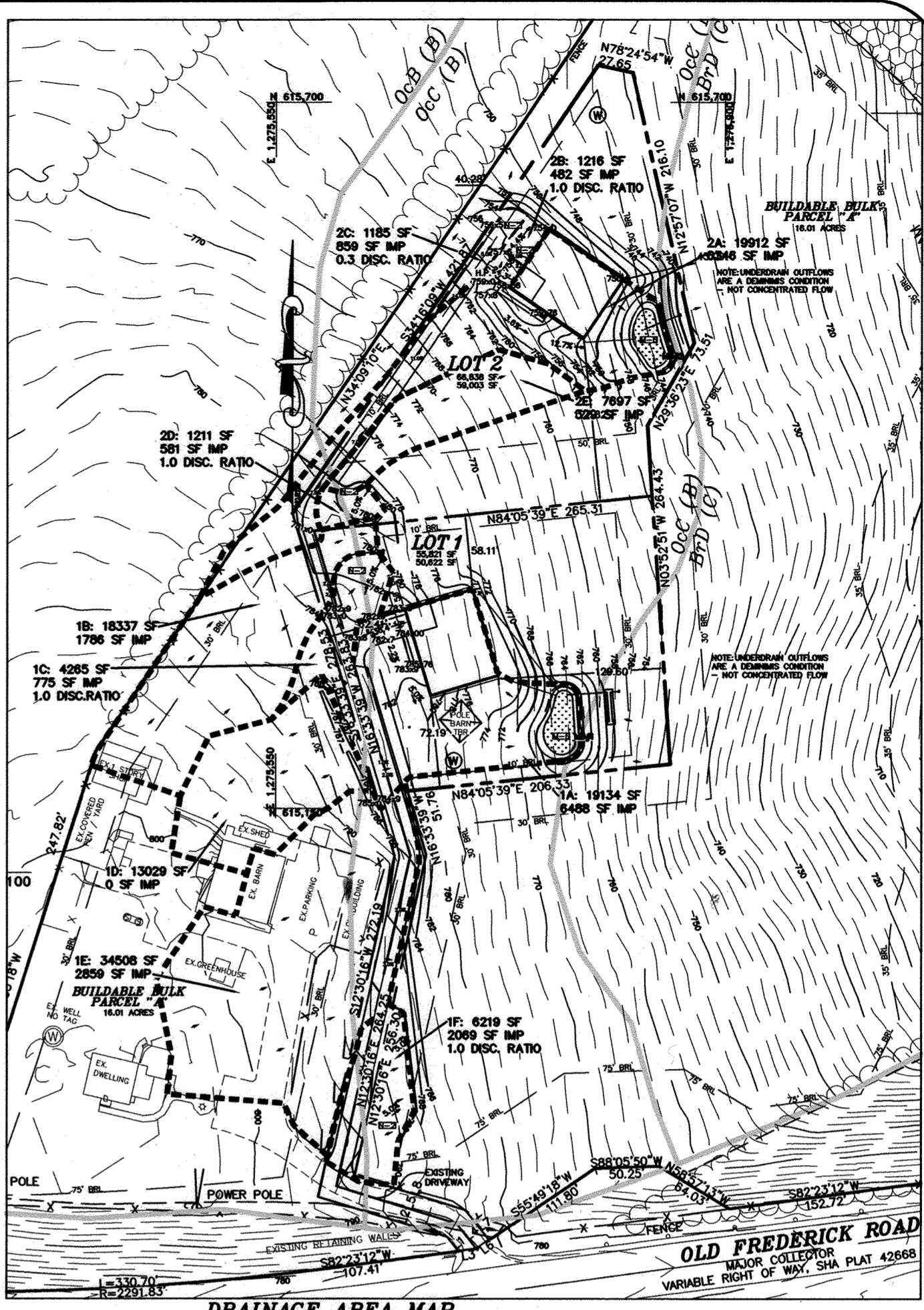
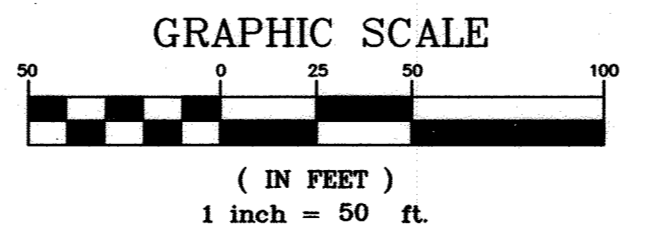
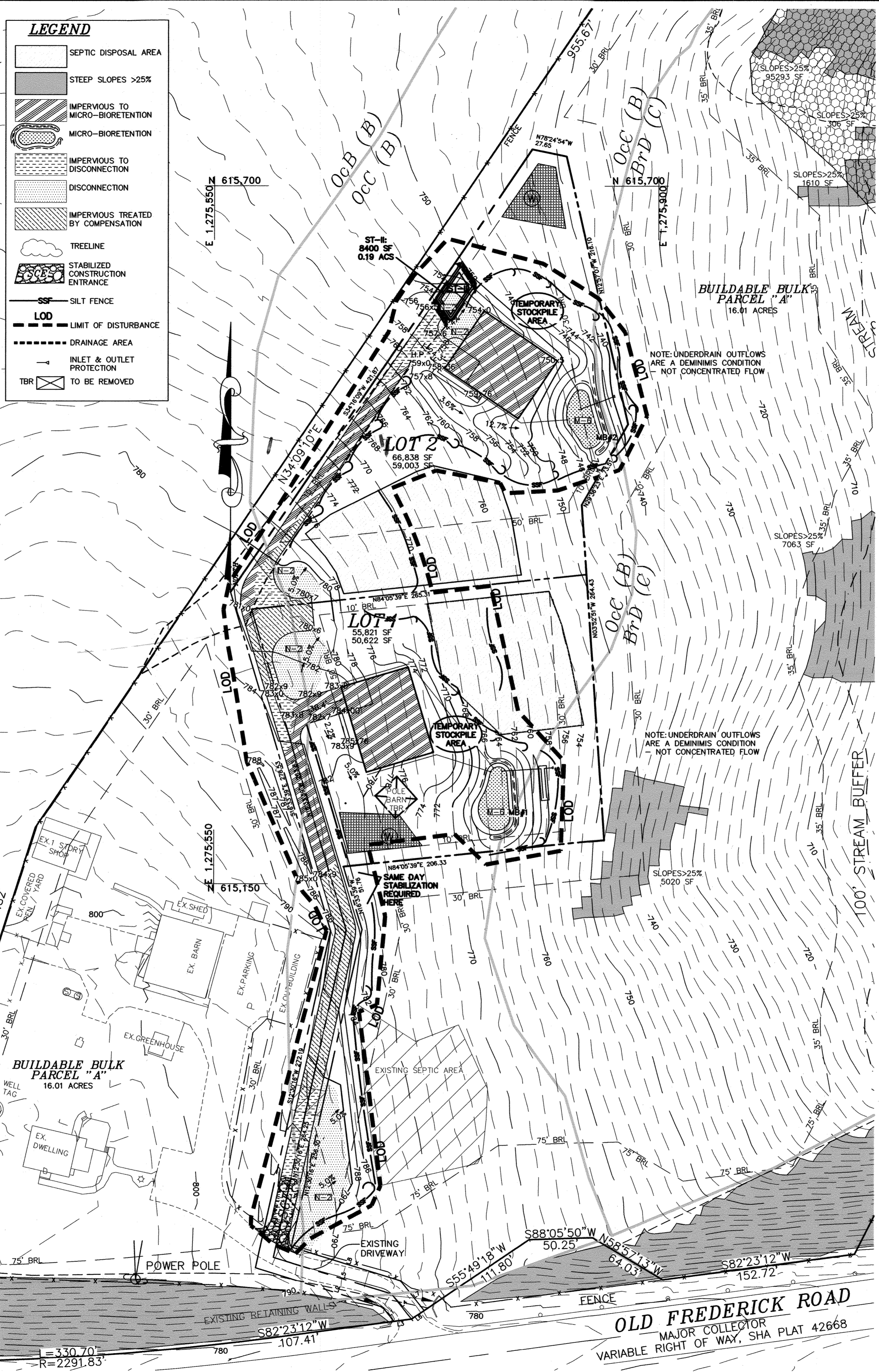
SECTION: SWALE NOS. 1&2 & MICRO-BIORETENTION OUTLET WEIR

DITCH, GRASS SWALES, WEIRS, VELOCITY & SHEAR STRESS

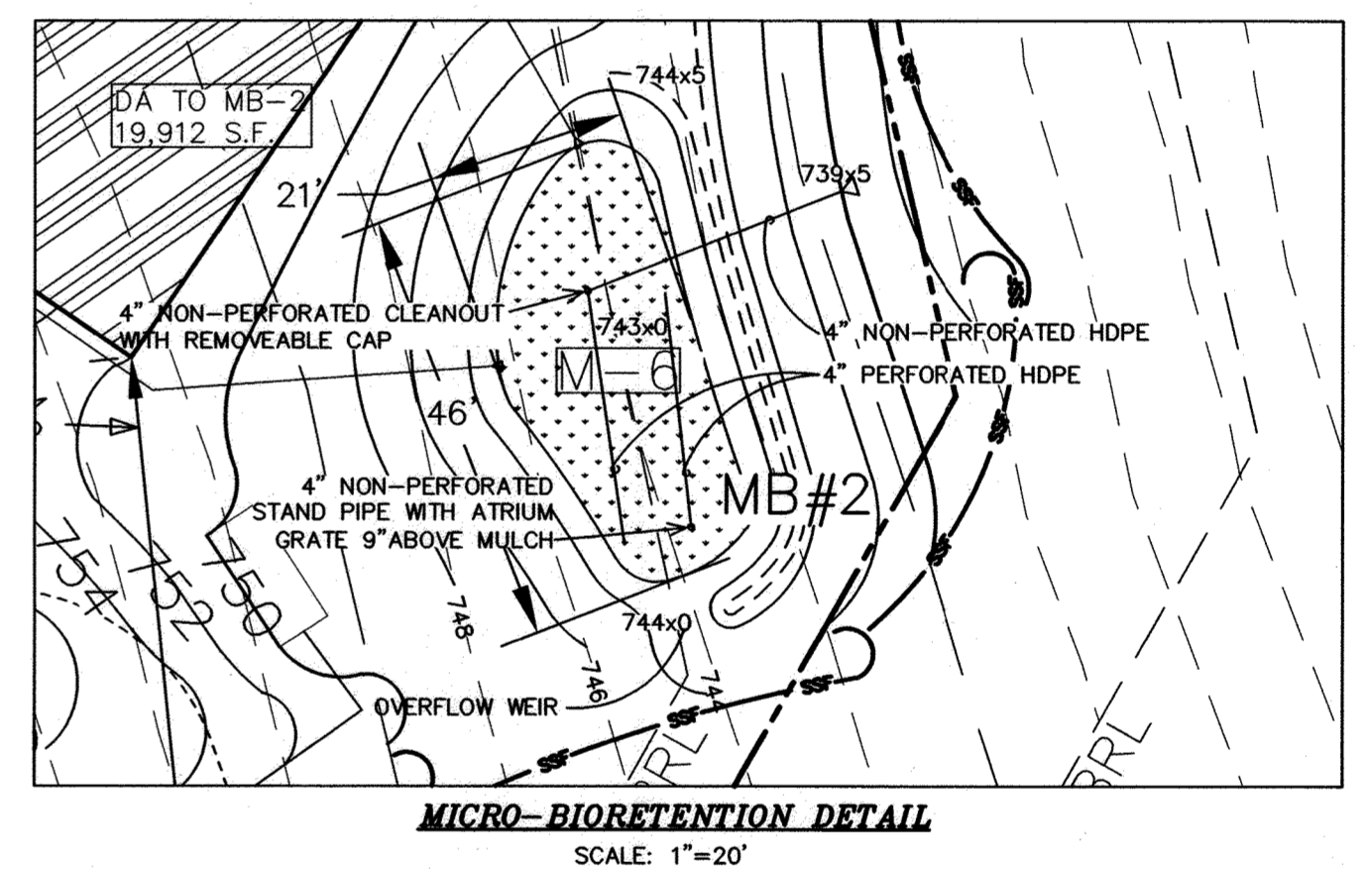
DA (ACRES)	OFFSITE DITCH-1 FACTOR	C	SWALE NO.1 FACTOR	SWALE NO.2 FACTOR	ON	WEIRFLOW TR-20
0.299	5	0.13	5	0.280	5	0.450
1 (IN/HR)	8.5	0.87	8.5	8.5	24HR IN	4.19
GRASS SF	0.21	13029	0.21	5097	0.21	9900
TOTAL SF	0.21	13029	0.21	5097	0.21	9900
WID (FT)	0.21	0.46	0.33	0.33	WID	CON
Q (CFS)	0.53	0.44	0.79	1.10		
AW (SF)	0.78	0.89	0.84	1.49		
Pw (FT)	2.93	6.86	6.82	7.00		
S (FT/FT)	0.02	0.05	0.13	0.10		
V (FPS)	0.58	0.82	0.98	1.12		
SHEAR (LBS/SF)	0.53	0.46	1.18	1.32		
DEPTH	0.16	0.11	0.11	0.11		
CALC. Q(CFS)	0.45	0.62	0.92	1.68		
WIDTH	2	3	3	6		

OPERATION AND MAINTENANCE SCHEDULE FOR MICRO-BIORETENTION (M-6)

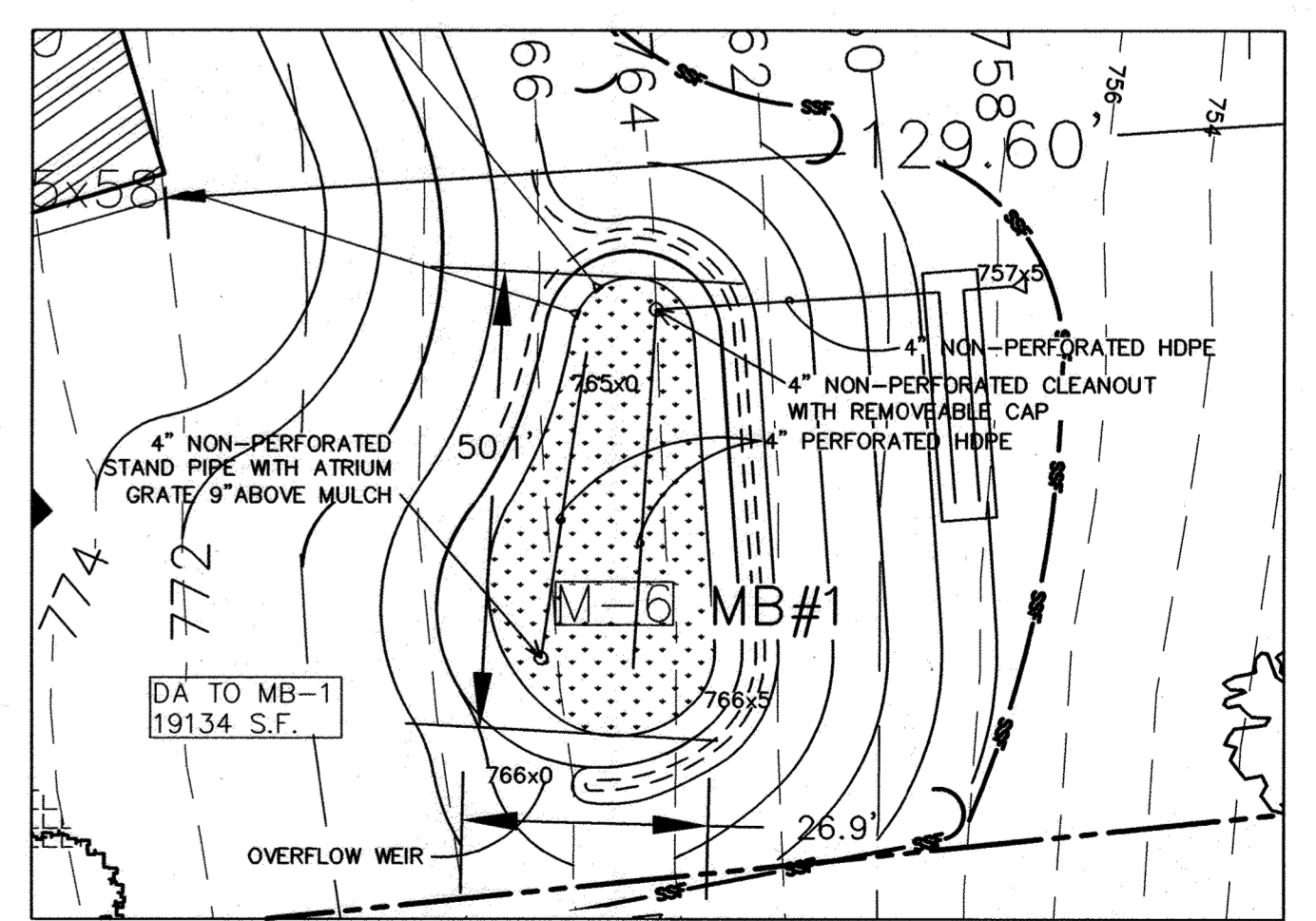
- ANNUAL MAINTENANCE OF PLANT MATERIAL, MULCH LAYER AND SOIL LAYER IS REQUIRED. MAINTENANCE OF MULCH AND SOIL IS LIMITED TO CORRECTING AREAS OF EROSION OR WASH OUT. ANY MULCH REPLACEMENT SHALL BE DONE IN THE SPRING. PLANT MATERIAL SHALL BE CHECKED FOR DISEASE AND INSECT INFESTATION AND MAINTENANCE WILL ADDRESS DEAD MATERIAL AND PRUNING. ACCEPTABLE REPLACEMENT PLANT MATERIAL IS LIMITED TO THE FOLLOWING: 2000 MARYLAND STORMWATER DESIGN MANUAL VOLUME II, TABLE A.4.1 AND 2.
- SCHEDULE OF PLANT INSPECTION WILL BE TWICE A YEAR IN SPRING AND FALL. THIS INSPECTION WILL INCLUDE REMOVAL OF DEAD AND DISEASED VEGETATION CONSIDERED BEYOND TREATMENT, TREATMENT OF ALL DISEASED TREES AND SHRUBS AND REPLACEMENT OF ALL DEFICIENT STAKES AND WIRES.
- MULCH SHALL BE INSPECTED EACH SPRING. REMOVE PREVIOUS MULCH LAYER BEFORE APPLYING NEW LAYER ONCE EVERY 2 TO 3 YEARS.
- SOIL EROSION TO BE ADDRESSED ON AN AS NEEDED BASIS, WITH A MINIMUM OF ONCE PER MONTH AND AFTER HEAVY STORM EVENTS.



DRAINAGE AREA MAP



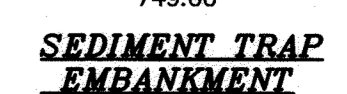
MICRO-BIORETENTION DETAIL



MICRO-BIORETENTION DETAIL

SEDIMENT TRAP CALCULATIONS

TRAP NO.	AREA (S.F.)	USE
TRAP NO. 1	8400 SF	0.19 ACRES USE 0.2 ACRES
TRAP NO. 2	1800 SF	0.04 ACRES USE 0.05 ACRES



SEDIMENT TRAP EMBANKMENT

ENGINEER'S CERTIFICATION
I HEREBY CERTIFY THAT THIS PLAN HAS BEEN DESIGNED IN ACCORDANCE WITH CURRENT MARYLAND EROSION AND SEDIMENT CONTROL REGULATIONS, AND STANDARDS, THAT IT REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE, AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

DESIGNER'S SIGNATURE: *Michael Kretsch*
DATE: 2/9/2023
PRINTED NAME: MICHAEL KRETSCHE
MD REGISTRATION NO. (P.E.): 34027

OWNER/DEVELOPER CERTIFICATION
I/WE HEREBY CERTIFY THAT ANY CLEARING, GRADING, CONSTRUCTION, OR DEVELOPMENT WILL BE DONE PURSUANT TO THIS APPROVED EROSION AND SEDIMENT CONTROL PLAN, INCLUDING INSPECTING AND MAINTAINING CONTROLS, AND THAT THE RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF TRAINING AT A MARYLAND DEPARTMENT OF THE ENVIRONMENT (MDE) APPROVED TRAINING PROGRAM FOR THE CONTROL OF EROSION AND SEDIMENT PRIOR TO BEGINNING THE PROJECT. I CERTIFY RIGHT-OF-ENTRY FOR PERIODIC ON-SITE EVALUATION BY HOWARD COUNTY, THE HOWARD SOIL CONSERVATION DISTRICT AND/OR MDE.

OWNER'S SIGNATURE: *Jim Greenfield*
DATE: 2/9/23
PRINTED NAME & TITLE: JIM GREENFIELD, TRUSTEE
HOWARD SCD SIGNATURE BLOCK
THIS PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
HOWARD SOIL CONSERVATION DISTRICT: *Alexander Butcher* 02/21/23

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. 34027, EXP. DATE 01/16/2025.

MICHAEL KRETSCHE: *Michael Kretsch* 2/9/2023
DATE: 2/9/2023

OWNER/DEVELOPER
JIM GREENFIELD, TRUSTEE
GY ASSOCIATES LLC
6420 AUTUMN SKY WAY,
COLUMBIA, MD 21044
443-324-4732

project	21-029	date	02.04.2023
illustration	MGK	scale	AS SHOWN
approval	MGK	description	AS SHOWN

GRADING AND STORM WATER MANAGEMENT AND L&OP NOTES ADDED SHEET 1. ORIGINAL SHEETS 1 OF 3, AND 2 OF 3 SUPERSEDED, REPLACED.

REPLACEMENT SHEET
PORTER PROPERTY
LOTS 1&2 AND BULK PARCEL "A"
TAX MAP: 1 - PARCEL: 41 - GRID 24
FOURTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
SUPPLEMENTAL STORMWATER MGMT PLANS & DETAILS

MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
8318 Forrest Street, Suite 300, Ellicott City, MD 21043
(410) 997-0296 Tel. (410) 997-0298 Fax.

CONSTRUCTION PERIOD PROTECTION PROGRAM

- A. Forest Protection Techniques**
1. **Soil Protection Area (Critical Root Zone)**
The soil protection area, or critical root zone, of a tree is that portion of the soil column where most of its roots may be found. The majority of roots responsible for water and nutrient uptake are located just below the soil surface. Temporary fencing shall be placed around the critical root zone of the forest in areas where the forest limits occur within 25 feet of the limit of disturbance.
2. **Fencing and Signage**
Existing forest limits occurring within 25 feet of the limits of disturbance shall be protected using temporary protective fencing. Permanent signage shall be placed around the afforestation area prior to plant installation, as shown on the plan.
- B. Pre-Construction Meeting**
Upon staking of limits of disturbance a pre-construction meeting will be held between the developer, contractor and appropriate County inspector. The purpose of the meeting will be to verify that all sediment control is in order, and to notify the contractor of possible penalties for non-compliance with the FCP.
- C. Storage Facilities/Equipment Cleaning**
All equipment storage, parking, sanitary facilities, material stockpiling, etc. associated with construction of the project will be restricted to those areas outside of the proposed Forest Conservation Easement. Cleaning of equipment will be limited to area within the LOD of the proposed homesites. Wastewater resulting from equipment cleaning will be controlled to prevent runoff into environmentally sensitive areas.
- D. Sequence of Construction**
The following timetable represents the proposed timetable for development of the subject property. The items outlined in the Forest Conservation Plan will be enacted within two (2) years of subdivision approval.
- Below find a proposed sequence of construction:
1. Install all signage and sediment control devices
 2. Hold pre-construction meeting between developer, contractor and County inspector
 3. Build access roads, install water and sewer, and construct houses. Stabilize all disturbed areas accordingly
 4. Remove sediment control
 5. Hold post-construction meeting with County inspectors to assure compliance with FCP Subpart Certification of Retention
- E. Construction Monitoring**
Eco-Science Professionals, or another qualified professional designated by the developer, will monitor construction of the project to ensure that all activities are in compliance with the Forest Conservation Plan.
- F. Post-Construction Meeting**
Upon completion of construction, Eco-Science Professionals, or another qualified professional designated by the developer, will notify the County that construction has been completed and arrange for a post-construction meeting to review the project site. The meeting will allow the County inspector to verify that forest retention requirements have been met.

POST-CONSTRUCTION MANAGEMENT PLAN

- Howard County requires a two year post-construction management plan be prepared as part of the Forest Conservation Plan. The plan goes into effect upon acceptance of the construction certification of completion by the County. Eco-Science Professionals, or another qualified professional designated by the developer, will be responsible for implementation of the post-construction management plan.
- The following items will be incorporated into the plan for the subject property:
- A. Fencing and Signage**
Permanent signage indicating the limits of the retention/planting area shall be maintained.
- B. General Site Inspections**
Site inspections will be performed to insure that retention of the forest is met in accordance with this plan and that the forest edge remains healthy and stable.
- C. Education**
The developer will provide appropriate materials to property owners informing them of the location and purpose of the forest conservation easement. Materials may include site plans and information explaining the intent of the forest conservation law.
- D. Final Inspection**
At the end of the two year post-construction management period, Eco-Science Professionals, or another qualified professional, will submit to the administrator of the Howard County Forest Conservation Program certification that all retention/afforestation requirements have been met. Upon acceptance of this certification, the County will release the developer from all future obligations and release the developer's bond.

FOREST CONSERVATION EASEMENTS

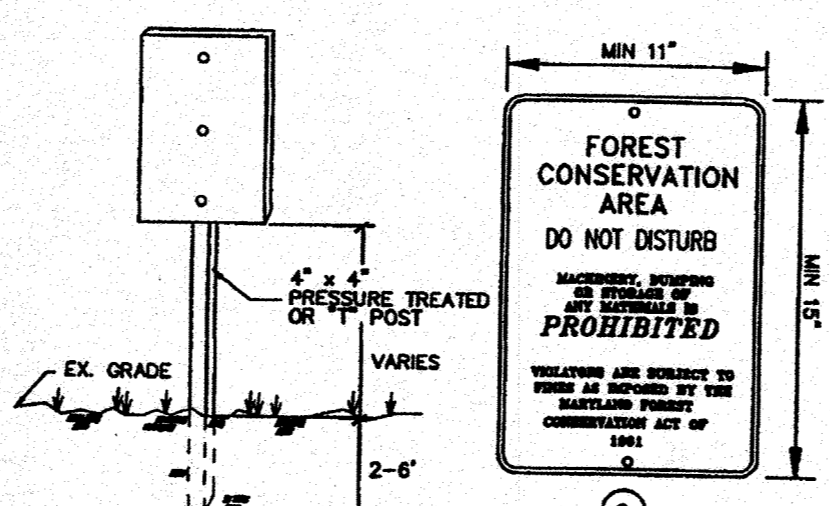
Easements are a legal means of providing permanent protection of forests, farmland and open space in accordance with the criteria outlined in the Howard County Forest Conservation Manual, a forest conservation easement will be recorded for the retention areas of the subject property. Subsequent to the easements for recordation will occur prior to commencement of construction activities.

FOREST STAND ANALYSIS TABLE

Key	Type of Community	Area *	Soil Information **		Existing Vegetation (Dominant Species and %)	Stand Characteristics	Forest Area in Sensitive Environment (acres)
			Soil Type	Topsoil Depth (inches)			
F1	Mixed Oak	4.4	BxD	upland hardwood	70-90	Good	4.4
			OcB	upland hardwood	60-80	Good	Slopes
			GnB	water tolerant hardwood	80-90	Good	bottoms

FCP NOTES

1. Any Forest Conservation Easement (FCE) area shown hereon is subject to protective covenants which may be found in the Land Records of Howard County which restrict the disturbance and use of these areas.
2. Forested areas occurring outside of the FCE shall not be considered part of the FCE and shall not be subject to protective land covenants.
3. Limits of disturbance shall be restricted to areas outside the limit of temporary fencing or the FCE boundary, whichever is greater.
4. There shall be no clearing, grading, construction or disturbance of vegetation in the Forest Conservation Easement, except as permitted by Howard County DPZ.
5. No stockpiles, parking areas, equipment cleaning areas, etc. shall occur within areas designated as Forest Conservation Easements.
6. Temporary fencing shall be used to protect forest resources during construction. Fencing shall be installed along limits of disturbance occurring within 50 feet of the proposed forest retention limits. Permanent protective signage indicating the limits of the Forest Conservation Easement shall be installed along the FCE limits. This signage shall be installed at 100 foot intervals along the FCE boundary, or at angle breaks. Approximate signage location is shown on the plan as -●-. All signage must remain in place for perpetuity.
7. There is no break even point for this project because the existing forest is below the conservation threshold. The Forest Conservation Act requirements for this project will be met through onsite retention of all existing forest, 4.4 acres forest. No forest clearing or clearing of specimen trees is proposed.

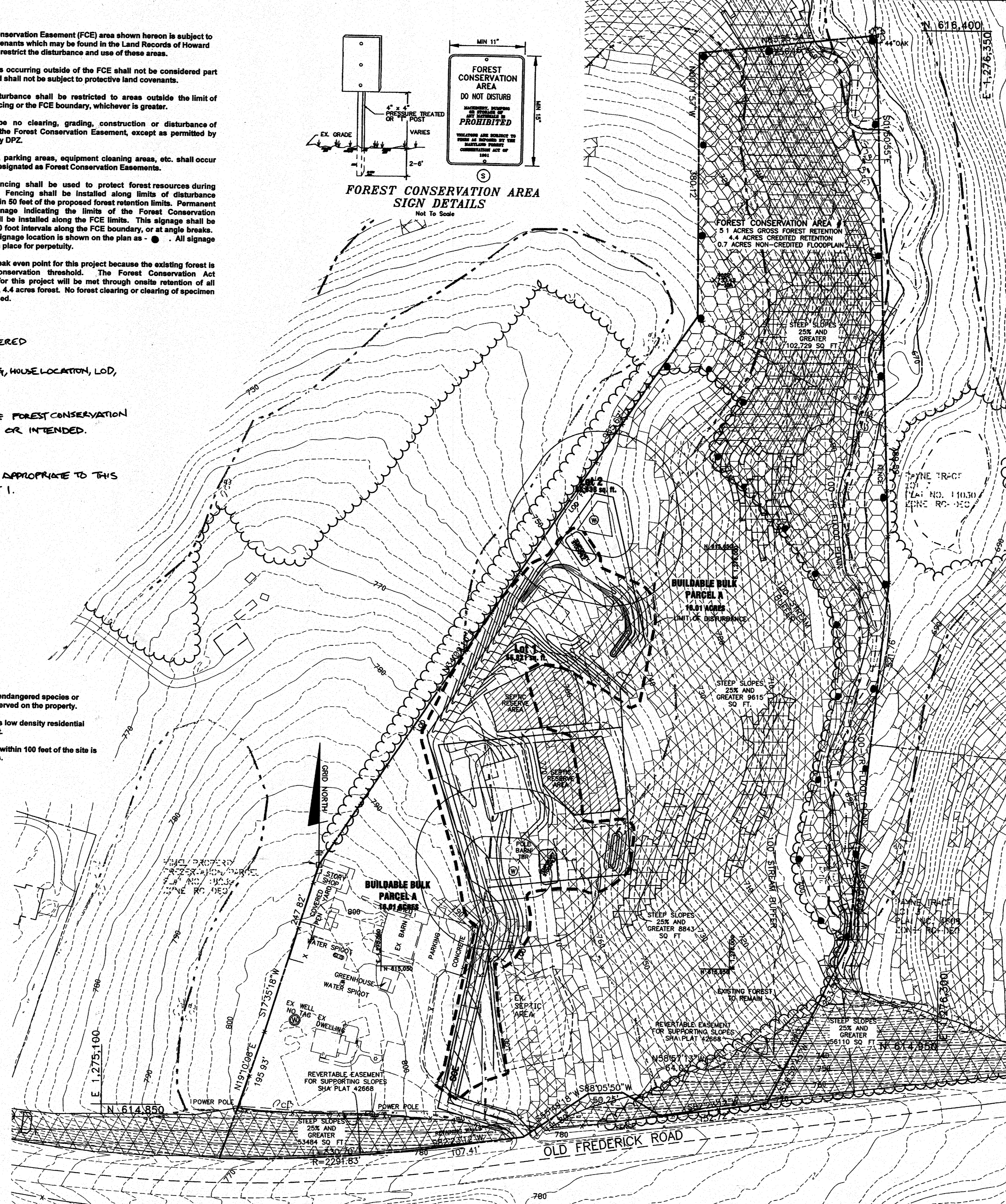


FOREST CONSERVATION AREA SIGN DETAILS
Not To Scale

- △ THIS SHEET RENUMBERED
- △ FOR LOTS 1&2 GRADING, HOUSE LOCATION, LOD, SEE SHEETS 1&2
- △ NO CHANGES TO THE FOREST CONSERVATION AREA ARE PROPOSED OR INTENDED.
- △ FOR BENCHMARKS APPROPRIATE TO THIS PROJECT, SEE SHEET 1.

SFSD NOTES:

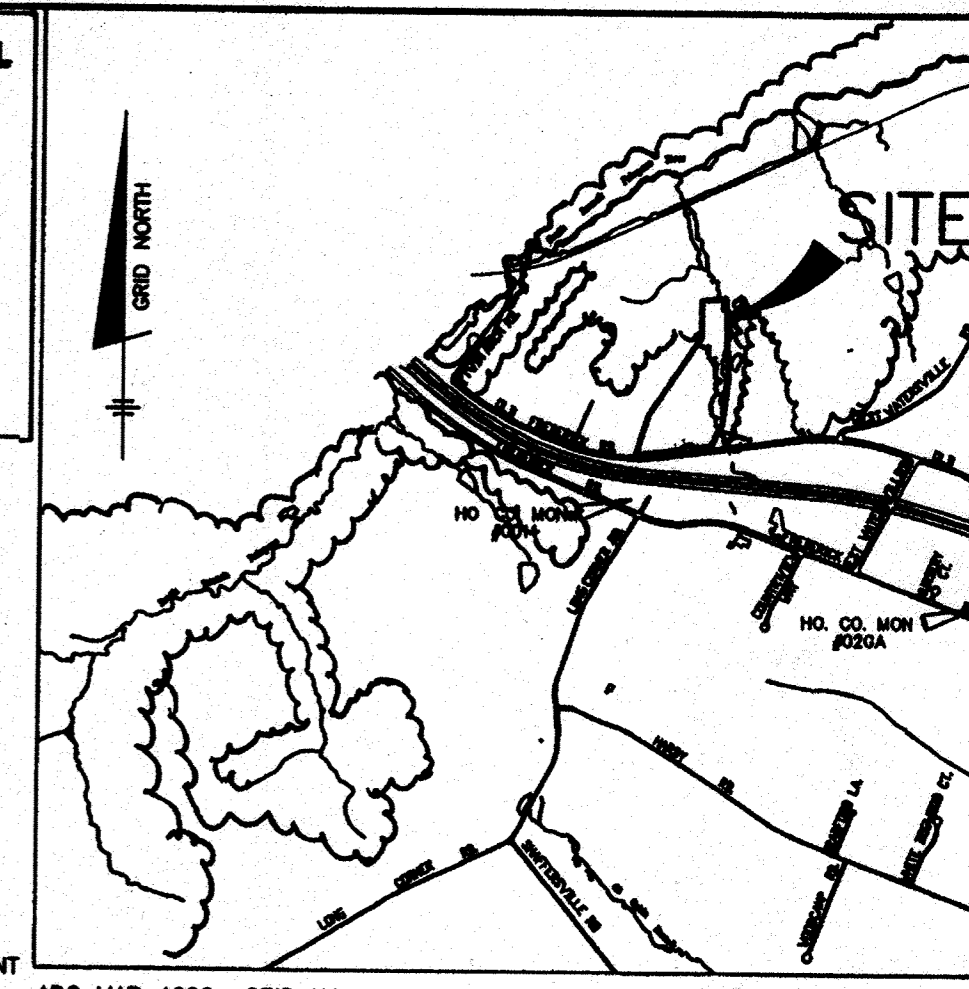
1. No rare, threatened or endangered species or their habitats were observed on the property.
2. Surrounding land use is low density residential development and forest.
3. Forest cover occurring within 100 feet of the site is approximately 4.6 acres.



BENCHMARKS NAD'83 HORIZONTAL

HO. CO. #0011 STAMPED BRASS DISK SET ON TOP OF CONCRETE BASE. N 614192.383' E 1275272.715' ELEVATION 796.134'
HO. CO. #02GA STAMPED BRASS DISK SET ON TOP OF CONCRETE BASE. N 612999.867' E 1279074.833' ELEVATION 713.771'

- LEGEND**
- 700- EXISTING CONTOURS
 - - - EXISTING TREELINE
 - - - EXISTING CL. STREAM
 - - - APPROXIMATE 100' YEAR FLOODPLAIN
 - - - 100' STREAM BUFFER
 - - - PROPERTY BOUNDARY
 - - - PROPOSED FOREST CONSERVATION EASEMENT
 - - - PROPOSED SEPTIC AREA
 - - - EXISTING SEPTIC AREA
 - - - SOILS DELINEATION
 - - - 15%-25% SLOPES
 - - - STEEP SLOPES 25% AND GREATER
 - ⊙ EXISTING WELL
 - ⊙ PROPOSED WELL



VICINITY MAP
SCALE: 1" = 2000'

FOREST CONSERVATION WORKSHEET
Version 1.0

Project: Porter Property
Date: October 11, 2011

NET TRACT AREA		Acres
A	Total tract area	18.6
B	Area within 100 Year Floodplain	0.7
C	Area to remain in agricultural production	0.0
D	Net Tract Area	18.1

LAND USE CATEGORY		
E	Afforestation Threshold (percentage)	10.2
F	Conservation Threshold (percentage)	10.25

EXISTING FOREST COVER		Acres
G	Existing forest cover (excluding floodplain)	4.4
H	Area of forest above afforestation threshold	0.0
I	Area of forest above conservation threshold	0.0

BREAK EVEN POINT		Acres
J	Forest retention above threshold with no mitigation	NA
K	Cleaning permitted without mitigation	NA

PROPOSED FOREST CLEARING		Acres
L	Total area of forest to be Cleared or Retained Outside FCE	0.0
M	Total area of forest to be Retained in FCE	4.4

PLANTING REQUIREMENTS		Acres
N	Reforestation for clearing above Conservation Threshold	0.0
P	Reforestation for clearing below Conservation Threshold	0.0
Q	Credit for retention above conservation threshold	0.0
R	Total reforestation required	0.0
S	Total afforestation required	0.0
T	Total reforestation and afforestation required	0.0

SOILS LEGEND

MAP SYMBOL	SOIL GROUP	SOIL TYPE
BxD	B	BRINKLOW CHANNERY LOAM, 15 TO 25 PERCENT
GnB	C	GLENVILLE-BALE SILT LOAMS, 0 TO 8 PERCENT SLOPES
OcB	B	OCOQUAN LOAM, 3 TO 8 PERCENT
OcC	B	OCOQUAN LOAM, 8 TO 15 PERCENT SLOPES
UgF	B	UDORTHENS, HIGHWAY, 0 TO 65 PERCENT SLOPES

* INDICATES HYDRIC SOILS
HOWARD COUNTY, MD (MD027) NRCS WEB SOIL SURVEY 2.0

IC-21-2013 GRADING & STORM WATER MANAGEMENT (LOD REVISED) SHEETS 1, 2, 3 OF 4 TOTAL
NOTES ADDED SHEET 1, SHEET 4 RENUMBERED

NO.	DATE	REVISION

BENCHMARK ENGINEERING, INC.
ENGINEERS • LAND SURVEYORS • PLANNERS

8480 BALTIMORE NATIONAL PIKE A SUITE 418
ELlicott CITY, MARYLAND 21043
phone: 410-465-6105 • fax: 410-465-6844
WWW.BEI-CVLENGINEERING.COM

OWNER: ROBERT AND MARY PORTER 17706 OLD FREDERICK ROAD MOUNT AIRY, MARYLAND 21771	LOCATION: TAX MAP: 1, GRID: 24 PARCEL: ELECTION DISTRICT NO. 4 HOWARD COUNTY, MARYLAND
TITLE: SIMPLIFIED FOREST STAND DELINEATION & FOREST CONSERVATION PLAN	DATE: MAY, 2011 OCT. 12, 2011
DESIGN: AAM DRAFT: AAM CHECK: CAM	BEI PROJ. NO. 2323 SCALE: 1" = 80' SHEET 43 OF 43

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHEF, BUREAU OF HIGHWAYS _____ DATE _____

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHEF, DIVISION OF LAND DEVELOPMENT _____ DATE 4/16/12

CHEF, DEVELOPMENT ENGINEERING DIVISION _____ DATE 4/13/12

PLAN
SCALE: 1" = 80'

MD DNR Qualified Professional
USACE Wetland Designer
Certification # MD027-933MD061044003

Eco-Science Professionals, Inc.
Consulting Ecologists
P.O. Box 5066 Glen Arm, Maryland 21087
Telephone (410) 833-2480 Fax (410) 833-2488