

**SITE DATA**

LOCATION: TAX MAP 15, BLOCK 14  
 PARCEL: 169  
 3RD ELECTION DISTRICT  
 PRESENT ZONING: RR-DEO  
 GROSS AREA OF PROJECT: 16.42 AC.  
 AREA OF RIGHT-OF-WAY DEDICATION: 1.21 AC.  
 LIMIT OF DISTURBANCE: 6.00 AC.  
 PROPOSED USE OF SITE: RESIDENTIAL (SD)  
 NUMBER OF RESIDENTIAL LOTS PROPOSED: 7 LOTS  
 AREA OF RESIDENTIAL LOTS PROPOSED: 7.56 AC.  
 AREA OF STREAM/BUFFER: 5.35 AC.  
 AREA OF WETLANDS/BUFFER: 3.30 AC.  
 AREA OF MODERATE SLOPES (15% - 24.99%): 0.00 AC.  
 AREA OF STEEP SLOPES (25% OR GREATER): 0.00 AC.  
 AREA OF FLOOD PLAIN: 0.86 AC.  
 NET PROJECT AREA: 15.56 AC.  
 AREA OF EXISTING FOREST COVER: 3.91 AC.  
 AREA OF ERODIBLE SOILS: 5.82 AC.  
 AREA MANAGED BY ESDV (THIS PLAN): 5.63 AC.  
 IMPERVIOUS AREA: 0.89 AC.  
 GREEN AREA: 4.74 AC.

COORDINATE TABLE		
NO.	NORTH	EAST
200	593428.27	1314950.00
201	593420.46	1314947.52
202	592802.48	1314803.14
203	592901.88	1314095.63
204	592968.50	1313741.33
205	593111.52	1313167.31
206	593063.68	1313497.83
207	593239.82	1313722.68
11011	593432.31	1313922.68
1002	593451.67	1313906.34

# ENVIRONMENTAL CONCEPT PLAN

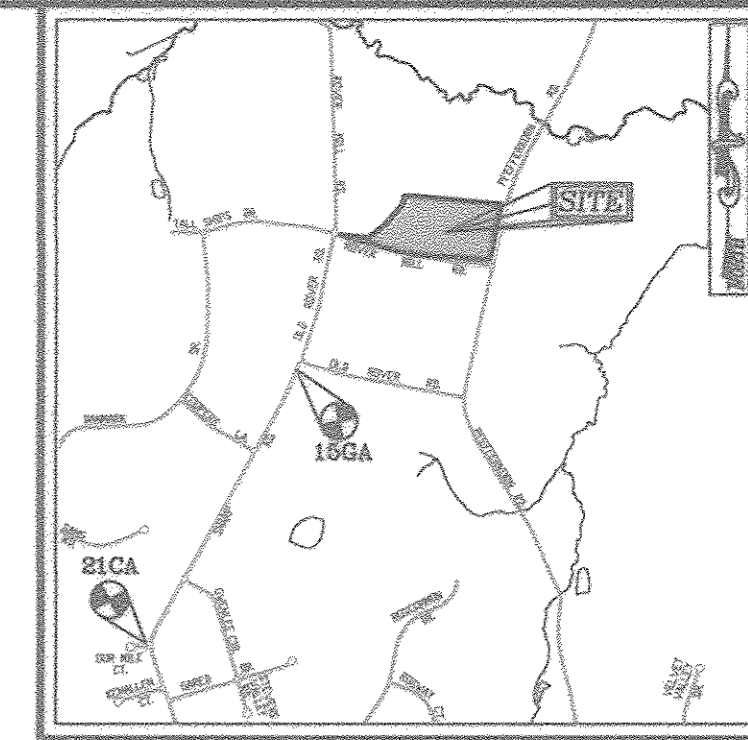
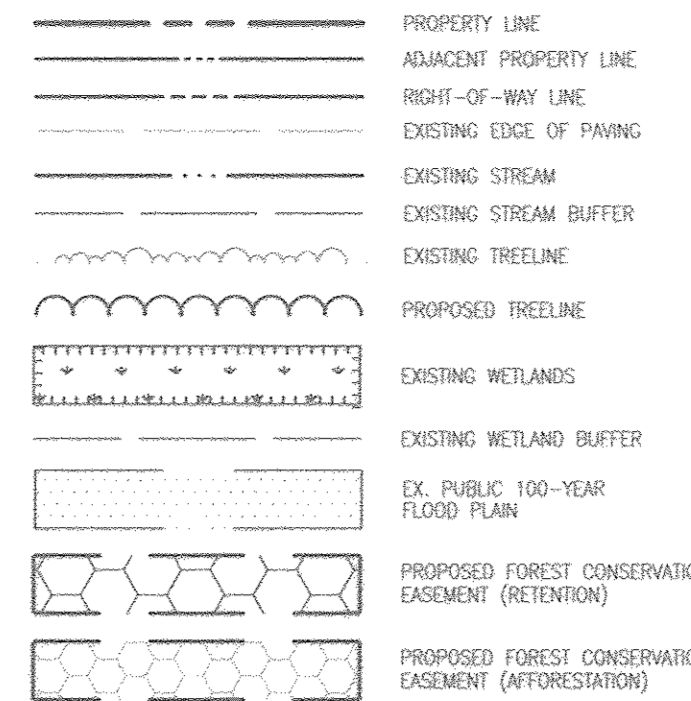
## ROVER MILL ESTATES

### LOTS 1-7 AND NON-BUILDABLE PRESERVATION PARCELS 'A' & 'B'

PFEFFERKORN ROAD  
 WEST FRIENDSHIP, MD 21794  
 L. 16745 / F. 155  
 16.42 AC.

LOT AREA TABULATION				
LOT	GROSS AREA	PIPESTEM AREA	NET AREA	MIN. LOT SIZE
1	46,877 SF	N/A	46,877 SF	40,000 SF
2	45,216 SF	585 SF	44,631 SF	40,000 SF
3	57,495 SF	1,065 SF	56,430 SF	40,000 SF
4	46,744 SF	2,234 SF	44,510 SF	40,000 SF
5	46,263 SF	1,529 SF	44,734 SF	40,000 SF
6	45,958 SF	816 SF	45,142 SF	40,000 SF
7	40,912 SF	N/A	40,912 SF	40,000 SF

**LEGEND:**



**VICINITY MAP**

SCALE: 1"=200'  
 ADC MAP: PAGE: 17 BLOCK: D4 & E4

**BENCHMARKS**

HOWARD COUNTY BENCHMARK 15GA (CONC. MON.)  
 N 591743.48 E 1312790.80 ELEV. 567.64  
 LOCATION: NEAR NORTH END OF SHARP ROAD  
 (CUL. DE SAC)  
 HOWARD COUNTY BENCHMARK 21CA (CONC. MON.)  
 N 58897.36 E 1311235.79 ELEV. 612.60  
 LOCATION: CORNER OF SHARP RD. & OUR MILE CT.

**GENERAL NOTES**

- STORM WATER MANAGEMENT TO BE PROVIDED FOR THIS DEVELOPMENT BY ENVIRONMENTAL SITE DESIGN UTILIZING MICRO-BIORETENTION FACILITIES (M-6), ROOFTOP DISCONNECTS (N-1), NON-ROOFTOP DISCONNECTS (N-2) AND DRY WELLS (M-5). THE FACILITIES WILL BE PRIVATELY OWNED AND MAINTAINED BY THE HOMEOWNERS ASSOCIATION OR THE PRIVATE LOT OWNER. REFERENCE 2010 MD STORMWATER DESIGN MANUAL (CHAPTER 5).
- THE SUBJECT PROPERTY IS ZONED "RR-DEO" IN ACCORDANCE WITH THE OCTOBER 6, 2013 COMPREHENSIVE ZONING PLAN. THIS SITE IS NOT LOCATED IN A HISTORIC DISTRICT.
- 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. 15GA AND 21CA WERE USED FOR THIS PROJECT.
- NO RARE, THREATENED OR ENDANGERED SPECIES OR THEIR HABITATS WERE OBSERVED ON THE PROPERTY.
- SEDMENT AND EROSION CONTROL WILL BE PROVIDED FOR THIS SITE.
- WETLANDS SHOWN ON-SITE ARE BASED ON A FIELD INVESTIGATION PERFORMED BY JOHN CANOLES OF ECO-SCIENCE PROFESSIONALS, INC., DATED AUGUST 10, 2017. THERE ARE NO PROPOSED DISTURBANCES TO THE WETLANDS OR ASSOCIATED BUFFERS.
- A FOREST STAND DELINEATION AND ENVIRONMENTAL RESOURCES ASSESSMENT WAS PERFORMED BY JOHN CANOLES OF ECO-SCIENCE PROFESSIONALS, INC., DATED AUGUST 10, 2017.
- A TOTAL OF 10 LOTS/PARCELS ARE PROPOSED UNDER THIS PLAN.
- APPROVAL OF THIS ECP DOES NOT CONSTITUTE AN APPROVAL OF ANY SUBSEQUENT AND ASSOCIATED SUBDIVISION PLAN/PLAT AND/OR SITE DEVELOPMENT PLAN AND/OR RED-LINE REVISION PLAN. REVIEW OF THIS PROJECT FOR COMPLIANCE WITH THE HOWARD COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS SHALL OCCUR AT THE SUBDIVISION PLAN/PLAT AND/OR SITE DEVELOPMENT PLAN STAGES AND/OR RED-LINE REVISION PROCESS. THE APPLICANT AND CONSULTANT SHOULD EXPECT ADDITIONAL AND MORE DETAILED REVIEW COMMENTS (INCLUDING COMMENTS THAT MAY ALTER THE OVERALL SITE DESIGN) AS THIS PROJECT PROGRESSES THROUGH THE PLAN REVIEW PROCESS.
- WATER AND SEWER SERVICE TO BE PROVIDED BY PRIVATE WELLS AND SEPTIC SYSTEMS.
- A PRE-SUBMISSION COMMUNITY MEETING WAS HELD ON DECEMBER 5, 2016 AT 6:00 PM AT GLENWOOD LIBRARY.
- WP-18-092 HAS BEEN SUBMITTED TO DPZ FOR THE REMOVAL OF 4 SPECIMEN TREES. A DECISION TO APPROVE OR DENY, WILL NOT BE MADE UNTIL AFTER THE PLANNING BOARD HEARING.
- THIS PROPERTY IS IN GROWTH TIER B PER SB-236. MAJOR SUBDIVISIONS OF 5 LOTS OR MORE ARE PERMITTED UTILIZING ON-SITE SEPTIC SYSTEMS, COMMUNITY SEPTIC SYSTEMS OR A SHARED SEPTIC IN HOWARD COUNTY SUBJECT TO PLANNING BOARD REVIEW AND APPROVAL RECOMMENDATION.
- THERE IS APPROXIMATELY 0.86 ACRES OF 100-YR FLOODPLAIN LOCATED WITHIN THE LIMITS OF THIS SITE.
- THE FLOODPLAIN STUDY FOR THIS PROJECT WAS PREPARED BY ROBERT H. VOGEL ENGINEERING, INC., DATED FEBRUARY 28TH, 2018, AND WAS APPROVED ON APRIL 02, 2018.

**ENVIRONMENTAL CONCEPT PLAN**

**INTRODUCTION**

The subject property is zoned RR-DEO and it is located on the northwest quadrant of Rover Mill Road and Pfefferkorn Road in western Howard County. The property is approximately 16.4 acres in size and has been used for agricultural farming activities. Approximately 2/3 of the property (east) is utilized for crops and the western portion of the site is encumbered with a stream, wetlands and forested resources. In accordance with Eco-Science Professionals report there are five specimen trees located in the existing Rover Mill Road right-of-way which are in "poor condition". These trees are proposed to be removed to accommodate road widening. There are two perennial streams which flow from south to north through the site.

The property drains in two directions. The smaller east portion of the site slopes from south to the north. The larger part of the site drains to the west and ultimately to the stream. The property flows to the Middle Patuxent River (02131106) and is considered a Use 1 watershed. There is no off-site drainage flowing on to the development area from off-site properties.

The subject property has not been recently subdivided and there are no other previous development plans on file with Howard County regarding this site. The site is not listed on the Howard County Historic Inventory and it is not on the Maryland Historic Trust Inventory. The soils in the development area are predominantly Manor Loam and Glenelg Loam which are classified as HSG "B".

The DFIEM maps do not designate 100-year floodplain within or in the vicinity of the subject property. The contributing drainage area to the easternmost stream is approximately 400 acres and the drainage area to the westernmost stream is approximately 80 acres. Therefore, a floodplain analysis has been prepared as a separate report. There is approximately 0.86 acres of 100-year floodplain located on the property.

The wetlands, streams and forest resources have been delineated by the environmentalist (Eco-Science Professionals) and their report accompanies this submission. The site has been designed to retain the existing wooded resources and to avoid wetlands, streams and their buffers.

The property will be served by private well and septic. The proposed project will not result in any impacts to environmental resources.

The project consists of 7 single family detached lots and non-buildable preservation parcels which also contain the environmental resources.

**METHODOLOGY**

The site ESDv was computed using the new development criteria for the limit of disturbance and the new impervious areas. The net project area was based on the limit of disturbance. The soils in the development area are predominantly Manor Loam and Glenelg Loam HSG "B". The site P<sub>r</sub> was computed as 1.18" for the development area. A R<sub>v</sub> factor of 0.93 was utilized for those areas where the area treated is 100% impervious. Otherwise, the R<sub>v</sub> factor was based on the actual impervious area for each subarea. The appendix includes the computations based on the individual subareas and a chart summarizing the ESDv required and provided and the practices utilized for each area.

The total ESD<sub>r</sub> required for the project is 4,354 cf and 4,441 cf is provided by the individual practices. The ESD<sub>v</sub> is provided by a combination of bioretention facilities, drywells, and rooftop disconnect and non-rooftop disconnects. The bioretention facilities are based on providing storage in the 10' above the m.s.l. (25% of ESD<sub>v</sub> volume) and Rev in stone below the facility (25% of ESD<sub>v</sub>). The pre-development drainage patterns have been retained. The drainage from the proposed development will predominantly be directed to the perennial stream. The eastern portion of the property will continue to flow to the north.

The Rev volume is 922 cf and will be provided in the stone below the facilities.

The 2011 Sediment and Erosion Control Standards will be utilized to protect existing environmental features through the implementation of silt fence and other appropriate practices.

**GEOTECHNICAL DISCUSSION**

The soils in the development area are predominantly Glenelg Loam and Manor Loam which are HSG "B" soils. The percolation test plan and percolation test results attached. These tests are utilized as the required soils information confirming that there is no groundwater or rock at the proposed facility locations (within 50' +/-).

**CONCLUSION**

The Environmental Concept Plan computations illustrate that ESD can be adequately accomplished to the maximum extent possible (MEP) for the proposed project. The natural drainage patterns are respected and maintained. The discharge from the site facilities will flow predominantly to the stream and to the north. There are no environmental features to be removed/disturbed with the exception of 4 out of the 5 specimen trees located in the Rover Mill right-of-way which are in poor condition.

The facilities proposed for this project will be privately owned and maintained. There are no existing drainage easements located on site. This project is proposing the utilization of various ESD practices to meet the MDE and Howard County requirements.

This project is designed to minimize additional and unnecessary earthwork and utilize existing infrastructure. Final sediment and erosion control approval will be required from the Howard Soil Conservation District.

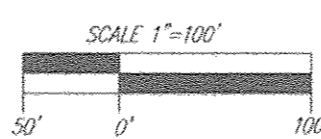
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

*Chad Johnson* 5-22-18  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION NY DATE  
*Kevin Johnson* 5-17-18  
 CHIEF, DIVISION OF LAND DEVELOPMENT EB DATE

SWM PRACTICE CHART		
ESD PRACTICES BY LOT		
LOT #	ESD PRACTICE	
1	DISCONNECT ROOFTOP RUNOFF (N-1), DISCONNECT NON-ROOFTOP RUNOFF (N-2), AND DRY WELL (M-5)	
2	DISCONNECT NON-ROOFTOP RUNOFF (N-2) AND DRY WELLS (M-5)	
3	DISCONNECT ROOFTOP RUNOFF (N-1), AND MICRO-BIORETENTION (M-6)	
4	MICRO-BIORETENTION (M-6)	
5	MICRO-BIORETENTION (M-6)	
6	DRY WELLS (M-5) AND MICRO-BIORETENTION (M-6)	
7	MICRO-BIORETENTION (M-6)	
UIC DRIVE	DISCONNECT NON-ROOFTOP RUNOFF (N-2) AND MICRO-BIORETENTION (M-6)	

**COVER SHEET**

SCALE: 1"=100'



SHEET INDEX	
DESCRIPTION	SHEET NO.
COVER SHEET	1 OF 7
LAYOUT PLAN	2 OF 7
SOILS MAP, GRADING, EROSION AND SEDIMENT CONTROL PLAN	3 OF 7
SOILS MAP, GRADING, EROSION AND SEDIMENT CONTROL PLAN	4 OF 7
SOILS MAP, GRADING, EROSION AND SEDIMENT CONTROL PLAN	5 OF 7
STORMWATER MANAGEMENT PLAN	6 OF 7
STORMWATER MANAGEMENT NOTES AND DETAILS	7 OF 7

NO.	REVISION	DATE

**ENVIRONMENTAL CONCEPT PLAN**

**COVER SHEET**

**ROVER MILL ESTATES**  
 LOTS 1-7 AND NON-BUILDABLE PRESERVATION PARCELS 'A' & 'B'  
 PFEFFERKORN ROAD  
 WEST FRIENDSHIP, MD 21794  
 L. 16745 / F. 155  
 16.42 AC.

**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: RHV  
 DRAWN BY: JMR  
 CHECKED BY: RHV  
 DATE: MAY 2018  
 SCALE: AS SHOWN  
 W.O. NO.: 15-36

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193, EXPIRATION DATE 09-27-2018.

1 SHEET OF 7

**LEGEND:**

	PROPERTY LINE
	RIGHT-OF-WAY LINE
	ADJACENT PROPERTY LINE
	EXISTING EDGE OF PAVING
	EXISTING TREELINE
	EXISTING UTILITY POLE
	PROPOSED TREELINE
	EXISTING WELL
	EXISTING WOOD FENCE
	EXISTING METAL FENCE
	EXISTING WETLANDS
	EXISTING WETLAND BUFFER
	24' PRIVATE USE-IN-COMMON ACCESS EASEMENT FOR LOTS 2-6
	PROPOSED MICRO-BIORETENTION FACILITY (M-6)
	PROPOSED DRY WELL (M-5)
	PROPOSED FOREST CONSERVATION EASEMENT (RETENTION)
	PROPOSED FOREST CONSERVATION EASEMENT (AFFORESTATION)
	PROPOSED WELL



**OWNER/DEVELOPER**  
 PFEFFERKORN ROVER MILL, LLC  
 C/O RAJ KATHURIA  
 12668 FREDERICK ROAD  
 WEST FRIENDSHIP, MD 21794  
 (443) 574-1800

NO.	REVISION	DATE

**ENVIRONMENTAL CONCEPT PLAN**  
**LAYOUT PLAN**  
**ROVER MILL ESTATES**  
 LOTS 1-7 AND NON BUILDABLE PRESERVATION PARCELS 'A' & 'B'  
 PFEFFERKORN ROAD  
 WEST FRIENDSHIP, MD 21794  
 L 16745 / F 155  
 16.42 AC. PARCEL: 169  
 ZONED: RR-BED  
 HOWARD COUNTY, MARYLAND

**ROBERT H. VOGEL**  
**ENGINEERING, INC.**  
 ENGINEERS • SURVEYORS • PLANNERS  
 8407 MAIN STREET  
 ELLICOTT CITY, MD 21043  
 TEL: 410.461.7666  
 FAX: 410.461.8966

**PROFESSIONAL CERTIFICATE**

STATE OF MARYLAND  
 ROBERT H. VOGEL  
 REGISTERED PROFESSIONAL ENGINEER

DESIGN BY: RHY  
 DRAWN BY: JMR  
 CHECKED BY: RHY  
 DATE: MAY 2018  
 SCALE: AS SHOWN  
 W.O. NO.: 15-36

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. 18183, EXPIRATION DATE: 09-27-2018.

2 SHEET OF 7

**SPECIMEN TREE CHART**

NO.	SIZE (IN. DBH/FEET HEIGHT)	CHAZ	COMMON NAME	CONDITION	COMMENTS
ST 1	30.5"	45.75'	NORWAY MAPLE	POOR, MAJOR DIEBACK, NOT NATIVE	TO REMAIN
ST 2	31"	46.5'	NORWAY MAPLE	NOT NATIVE	TO BE REMOVED
ST 3	30"	45'	NORWAY MAPLE	POOR, SEVERE DIEBACK, NOT NATIVE	TO BE REMOVED
ST 4	34"	51'	NORWAY MAPLE	POOR, MAJOR DIEBACK, NOT NATIVE	TO BE REMOVED
ST 5	36.5"	54.75'	NORWAY MAPLE	NOT NATIVE	TO BE REMOVED

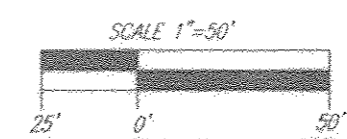
THIS AREA DESIGNATES A PRIVATE SEWAGE AREA OF AT LEAST 10,000 SQUARE FEET AS REQUIRED BY THE MARYLAND STATE DEPARTMENT OF THE ENVIRONMENT FOR INDIVIDUAL SEWAGE DISPOSAL IMPROVEMENTS OF ANY NATURE IN THIS AREA ARE RESTRICTED UNTIL PUBLIC SEWERAGE IS AVAILABLE. THESE AREAS SHALL BECOME HILL AND VOID UPON CONNECTION TO A PUBLIC SEWERAGE SYSTEM. THE COUNTY HEALTH OFFICER SHALL HAVE THE AUTHORITY TO GRANT ADJUSTMENTS TO THE PRIVATE SEWAGE AREA. RECORDED OF A MODIFIED SEWAGE AREA SHALL NOT BE NECESSARY.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division *WY* DATE: 5-22-18

Chief, Division of Land Development *EB* DATE: 5-17-18

**LAYOUT PLAN**  
 SCALE: 1"=50'



- LEGEND:**
- PROPERTY LINE
  - ADJACENT PROPERTY LINE
  - EXISTING EDGE OF PAVING
  - EXISTING STREAM BUFFER
  - EXISTING STREAM
  - EXISTING TREELINE
  - PROPOSED TREELINE
  - EXISTING UTILITY POLE
  - EXISTING WOOD FENCE
  - EXISTING METAL FENCE
  - EXISTING WETLANDS
  - EXISTING WETLAND BUFFER
  - EX. PUBLIC 100-YEAR FLOOD PLAIN
  - PROPOSED FOREST CONSERVATION EASEMENT (RETENTION)
  - PROPOSED FOREST CONSERVATION EASEMENT (AFFORESTATION)

Maryland State Grid Meridian

E 1313350  
N 593500



**OWNER/DEVELOPER**  
PFEFFERKORN ROVER MILL, LLC  
C/O RAJ KATHURIA  
12668 FREDERICK ROAD  
WEST FRIENDSHIP, MD 21794  
(443) 574-1800

NO.	REVISION	DATE

**ENVIRONMENTAL CONCEPT PLAN**  
**LAYOUT PLAN**  
**ROVER MILL ESTATES**  
LOTS 1-7 AND NON-BUILDABLE PRESERVATION PARCELS 'A' & 'B'  
PFEFFERKORN ROAD  
WEST FRIENDSHIP, MD 21794  
L 16745 F.E. 155  
16.42 AC. PARCEL: 169  
3RD ELECTION DISTRICT ZONED: RR-DEO  
TAX MAP: 15 GRID: 14 HOWARD COUNTY, MARYLAND

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

**PROFESSIONAL CERTIFICATE**

STATE OF MARYLAND  
ROBERT H. VOGEL  
REGISTERED PROFESSIONAL ENGINEER

DESIGN BY: RHV  
DRAWN BY: JMR  
CHECKED BY: RHV  
DATE: MAY 2018  
SCALE: AS SHOWN  
W.O. NO.: 15-36

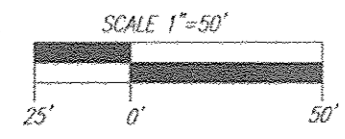
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 01818, EXPIRATION DATE 09-27-2018.

3 SHEET OF 7

THIS AREA DESIGNATES A PRIVATE SEWAGE AREA OF AT LEAST 10,000 SQUARE FEET AS REQUIRED BY THE MARYLAND STATE DEPARTMENT OF THE ENVIRONMENT FOR INDIVIDUAL SEWAGE DISPOSAL. IMPROVEMENTS OF ANY NATURE IN THIS AREA ARE RESTRICTED UNTIL PUBLIC SEWERAGE IS AVAILABLE. THESE AREAS SHALL BECOME NULL AND VOID UPON CONNECTION TO A PUBLIC SEWERAGE SYSTEM. THE COUNTY HEALTH OFFICER SHALL HAVE THE AUTHORITY TO GRANT ADJUSTMENTS TO THE PRIVATE SEWAGE AREA. RECODIFICATION OF A MODIFIED SEWAGE AREA SHALL NOT BE NECESSARY.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

*Chief, Development Engineering Division* 5-22-18  
DATE  
*Chief, Division of Land Development* 5-17-18  
DATE



**LAYOUT PLAN**  
SCALE: 1"=50'

SOILS LEGEND				
SYMBOL	NAME / DESCRIPTION	GROUP	K-FACTOR	ERODIBLE
GgB	GLENELG LOAM, 3 TO 8 PERCENT SLOPES	B	28	NO
GgC	GLENELG LOAM, 8 TO 15 PERCENT SLOPES	B	28	NO
GgB	GLENVILLE-BAILE SILT LOAMS, 0 TO 8 PERCENT SLOPES	C	43	YES
GgB	GLENVILLE-CODORUS SILT LOAMS, 0 TO 8 PERCENT SLOPES	C	43	YES
Mac	MANOR LOAM, 8 TO 15 PERCENT SLOPES	B	28	NO

SOILS INFORMATION FROM USDA WEB SOIL SURVEY WEBSITE  
 -HOWARD COUNTY SOILS MAP NUMBER 11 - SKYESVILLE SW

NOTE:  
 HEAVILY ERODIBLE SOILS ARE THOSE SOILS WITH A SLOPE GREATER THAN 15 PERCENT  
 OR THOSE SOILS WITH A SOIL ERODIBILITY FACTOR K GREATER THAN 0.35 AND WITH  
 A SLOPE GREATER THAN 5 PERCENT

LEGEND:	
	PROPERTY LINE
	RIGHT-OF-WAY LINE
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	EXISTING EDGE OF PAVING
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	EXISTING METAL FENCE
	EXISTING 10' CONTOUR
	EXISTING 2' CONTOUR
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	EXISTING WETLAND BUFFER
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	PROPOSED MICRO-BIOREACTION FACILITY (M-6)
	PROPOSED DRY WELL (M-5)
	SOILS
	PROPOSED 10' CONTOUR
	PROPOSED 2' CONTOUR
	LIMIT OF DISTURBANCE
	STABILIZED CONSTRUCTION ENTRANCE
	SUPER SILT FENCE
	SILT FENCE
	PROPOSED FOREST CONSERVATION EASEMENT (RETENTION)
	PROPOSED FOREST CONSERVATION EASEMENT (AFFORESTATION)
	PROPOSED WELL



OWNER/DEVELOPER  
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NO.	REVISION	DATE

ENVIRONMENTAL CONCEPT PLAN  
 SOILS MAP, GRADING, EROSION  
 AND SEDIMENT CONTROL PLAN  
 ROVER MILL ESTATES  
 LOTS 1-7 AND NON BUILDABLE PRESERVATION PARCELS 'A' & 'B'  
 PFEFFERKORN ROAD  
 WEST FRIENDSHIP, MD 21794  
 L 16745 / F 155  
 18.42 AC.

**ROBERT H. VOGEL ENGINEERING, INC.**  
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 TEL: 410.461.7666 FAX: 410.461.8951

PROFESSIONAL CERTIFICATE  
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 11883 EXPIRATION DATE: 09-27-2018

DESIGN BY: RHV  
 DRAWN BY: JMR  
 CHECKED BY: RHV  
 DATE: MAY 2018  
 SCALE: AS SHOWN  
 W.O. NO.: 15-36

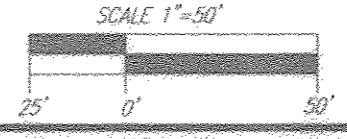
4 SHEET OF 7

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

*[Signature]*  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION  
 DATE: 5-22-18

*[Signature]*  
 CHIEF, DIVISION OF LAND DEVELOPMENT  
 DATE: 5-17-18

GRADING PLAN  
 SCALE: 1"=50'



SOILS LEGEND				
SYMBOL	NAME / DESCRIPTION	GROUP	K-FACTOR	ERODIBLE
GcB	GLENELG LOAM, 3 TO 8 PERCENT SLOPES	B	.28	NO
GcC	GLENELG LOAM, 8 TO 15 PERCENT SLOPES	B	.28	NO
GcB	GLENEVILLE-EMILE SILT LOAMS, 0 TO 8 PERCENT SLOPES	C	.43	YES
GcB	GLENEVILLE-CODORUS SILT LOAMS, 0 TO 8 PERCENT SLOPES	C	.43	YES
McC	MANDOR LOAM, 8 TO 15 PERCENT SLOPES	B	.28	NO

SOILS INFORMATION FROM USDA WEB SOIL SURVEY WEBSITE  
 HOWARD COUNTY SOILS MAP NUMBER 11 - SYKESVILLE SW

NOTE:  
 HIGHLY ERODIBLE SOILS ARE THOSE SOILS WITH A SLOPE GREATER THAN 15 PERCENT  
 OR THOSE SOILS WITH A SOIL ERODIBILITY FACTOR K GREATER THAN 0.35 AND WITH  
 A SLOPE GREATER THAN 5 PERCENT

LEGEND:	
	PROPERTY LINE
	RIGHT-OF-WAY LINE
	ADJACENT PROPERTY LINE
	EXISTING EDGE OF PAVING
	EXISTING STREAM BUFFER
	EXISTING STREAM
	EXISTING TREELINE
	PROPOSED TREELINE
	EXISTING UTILITY POLE
	EXISTING WOOD FENCE
	EXISTING METAL FENCE
	EXISTING 10' CONTOUR
	EXISTING 2' CONTOUR
	SOILS
	EXISTING WETLANDS
	EXISTING WETLAND BUFFER
	EX. PUBLIC 100-YEAR FLOOD PLAN
	PROPOSED FOREST CONSERVATION EASEMENT (RETENTION)
	PROPOSED FOREST CONSERVATION EASEMENT (AFFORESTATION)



Maryland State Grid Meridian

E 1313350  
 N 593500

E 1313350  
 N 592750

**GRADING PLAN**  
 SCALE: 1"=50'

**OWNER/DEVELOPER**  
 PFEFFERKORN ROVER MILL, LLC  
 C/O RAJ KATHURIA  
 12668 FREDERICK ROAD  
 WEST FRIENDSHIP, MD 21794  
 (443) 574-1600

NO.	REVISION	DATE

**ENVIRONMENTAL CONCEPT PLAN**  
**SOILS MAP, GRADING, EROSION**  
**AND SEDIMENT CONTROL PLAN**  
**ROVER MILL ESTATES**  
 LOTS 1-7 AND NON BUILDABLE PRESERVATION PARCELS 'A' & 'B'  
 PFEFFERKORN ROAD  
 WEST FRIENDSHIP, MD 21794  
 L 16745 / F 155  
 16.42 AC.

3RD ELECTION DISTRICT  
 TAX MAP: 15 GRID: 14

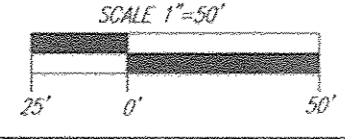
**ROBERT H. VOGEL ENGINEERING, INC.**  
 ENGINEERS • SURVEYORS • PLANNERS  
 8407 MAIN STREET  
 ELLICOTT CITY, MD 21043  
 TEL: 410.461.7666  
 FAX: 410.461.8961

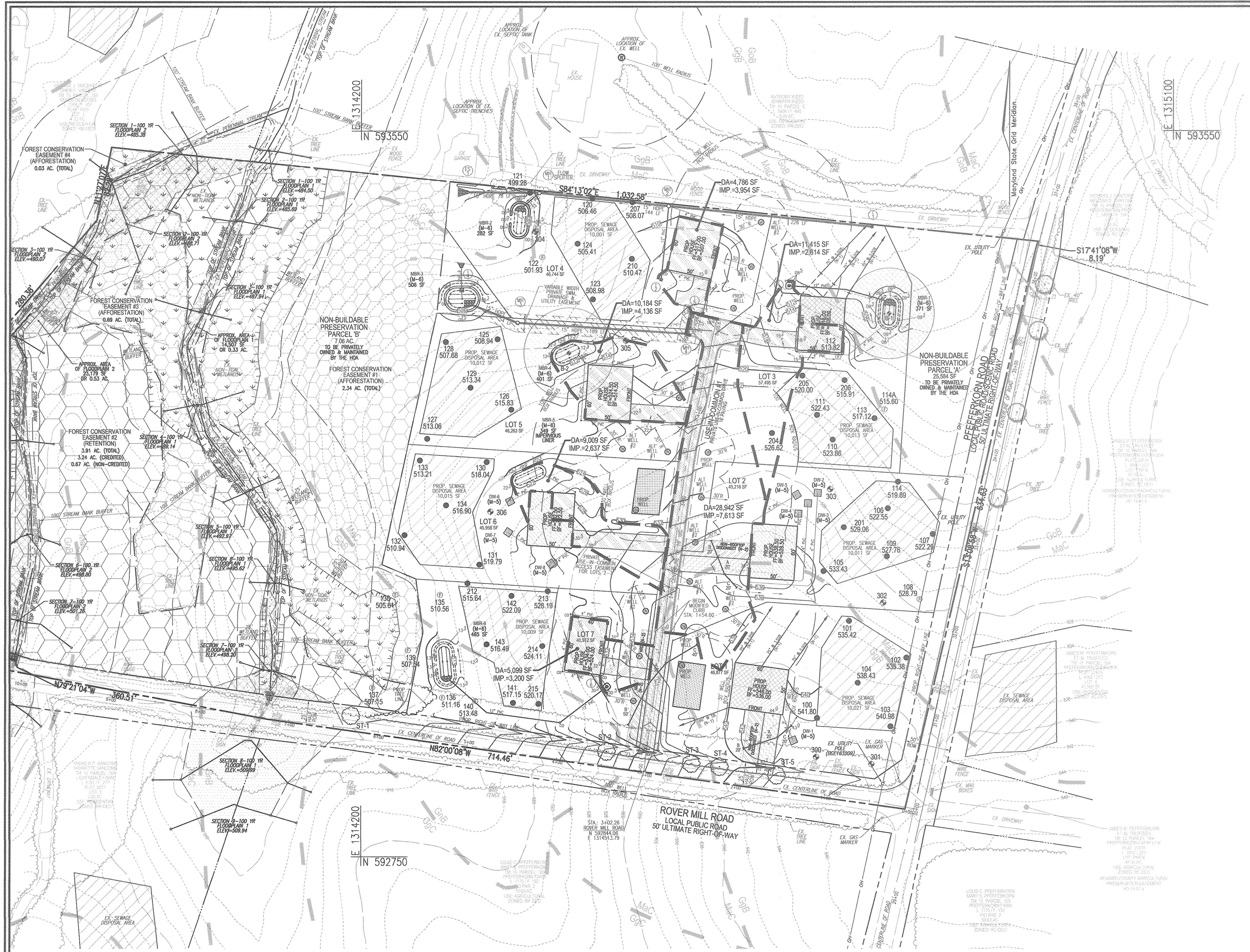
	DESIGN BY: RHY	PROFESSIONAL CERTIFICATE I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DAILY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193 EXPIRATION DATE: 09-27-2018
	DRAWN BY: JMR	
	CHECKED BY: RHY	
	DATE: MAY 2018	
SCALE: AS SHOWN	W.O. NO.: 15-36	5 SHEET OF 7

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

*Chad Blum* 5-22-18  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION  
 DATE

*Kurt Seelbach* 5-17-18  
 CHIEF, DIVISION OF LAND DEVELOPMENT  
 DATE





**LEGEND:**

- PROPERTY LINE
- RIGHT-OF-WAY LINE
- ADJACENT PROPERTY LINE
- EXISTING EDGE OF PAVING
- EXISTING STREAM BUFFER
- EXISTING STREAM
- EXISTING TREELINE
- PROPOSED TREELINE
- EXISTING UTILITY POLE
- EXISTING WELL
- EXISTING WOOD FENCE
- EXISTING METAL FENCE
- EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- EXISTING WETLANDS
- EXISTING WETLAND BUFFER
- EX. PUBLIC 100-YEAR FLOOD PLAN
- SOILS
- PROPOSED 10' CONTOUR
- PROPOSED 2' CONTOUR
- PASSED PERC. TEST
- FAILED PERC. TEST
- 24' PRIVATE USE-IN-COMMON ACCESS EASEMENT FOR LOTS 2-6
- PROPOSED MICRO-BIORETENTION FACILITY (M-5)
- PROPOSED DRY WELL (M-5)
- ROOFTOP DISCONNECT (N-1)
- DRAINAGE AREA DIVIDE
- AREA OF DRAINAGE TO GO TO DRY WELL (M-5)
- AREA OF DRAINAGE TO GO TO MICRO-BIO-RETENTION FACILITY (M-5)
- AREA OF DRAINAGE TO GO TO NON-ROOFTOP DISCONNECT (N-2)
- AREA OF DRAINAGE TO GO TO ROOFTOP DISCONNECT (N-1)
- PROPOSED FOREST CONSERVATION EASEMENT (RETENTION)
- PROPOSED FOREST CONSERVATION EASEMENT (AFFORESTATION)
- PROPOSED WELL

**SOILS LEGEND**

SYMBOL	NAME / DESCRIPTION	GROUP	K-FACTOR	ERODIBLE
GgB	GLENNELD LOAM, 3 TO 8 PERCENT SLOPES	B	.28	NO
GgC	GLENNELD LOAM, 8 TO 15 PERCENT SLOPES	B	.28	NO
GgB	GLENNVILLE-BALE SILT LOAMS, 0 TO 8 PERCENT SLOPES	C	.43	YES
GgB	GLENNVILLE-CODORUS SILT LOAMS, 0 TO 8 PERCENT SLOPES	C	.43	YES
Mac	MANOR LOAM, 8 TO 15 PERCENT SLOPES	B	.28	NO

NOTE:  
HIGHLY ERODIBLE SOILS ARE THOSE SOILS WITH A SLOPE GREATER THAN 15 PERCENT OR THOSE SOILS WITH A SOIL ERODIBILITY FACTOR K GREATER THAN 0.35 AND WITH A SLOPE GREATER THAN 5 PERCENT.

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**ENVIRONMENTAL CONCEPT PLAN  
 STORMWATER MANAGEMENT PLAN**

**ROVER MILL ESTATES**  
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**PROFESSIONAL CERTIFICATE**

DESIGN BY: \_\_\_\_\_ RHV  
 DRAWN BY: \_\_\_\_\_ JMR  
 CHECKED BY: \_\_\_\_\_ RHV  
 DATE: \_\_\_\_\_ MAY 2018  
 SCALE: \_\_\_\_\_ AS SHOWN  
 W.O. NO.: \_\_\_\_\_ 15-36

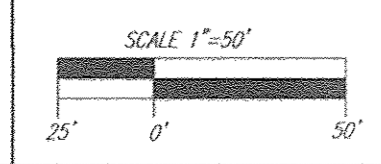
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6 SHEET OF 7

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

*Phil Edmund* 5-22-18  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

*Rest Slebocka* 5-17-18  
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE



**SWM PLAN**  
 SCALE: 1"=50'

**APPENDIX B.4.C SPECIFICATIONS FOR MICRO-BIORETENTION, RAIN GARDEN, LANDSCAPE INFILTRATION & INFILTRATION BASINS**

1. MATERIAL SPECIFICATIONS  
THE ALLOWABLE MATERIALS TO BE USED IN THESE PRACTICES ARE DETAILED IN TABLE B.4.1.
2. FILTERING MEDIA OR PLANTING SOIL

THE SOIL SHALL BE A UNIFORM MIX, FREE OF STONES, STUMPS, ROOTS OR OTHER SIMILAR OBJECTS LARGER THAN TWO INCHES. NO OTHER MATERIALS OR SUBSTANCES SHALL BE MIXED OR DUMPED WITHIN THE MICRO-BIORETENTION PRACTICE THAT MAY BE HARMFUL TO PLANT GROWTH, OR PROVE A HINDRANCE TO THE PLANTING OR MAINTENANCE OPERATIONS. THE PLANTING SOIL SHALL BE FREE OF BERMUDA GRASS, QUACKGRASS, JOHNSON GRASS, OR OTHER NOXIOUS WEEDS AS SPECIFIED UNDER COMAR 15.08.01.05.

- THE PLANTING SOIL SHALL BE TESTED AND SHALL MEET THE FOLLOWING CRITERIA:
- \* SOIL COMPONENT - LOAMY SAND OR SANDY LOAM (ASAC SOIL TEXTURAL CLASSIFICATION)
  - \* ORGANIC CONTENT - MINIMUM 10% BY DRY WEIGHT (ASTM D 2974). IN GENERAL, THIS CAN BE MET WITH A MIXTURE OF LOAMY SAND (60%-65%) AND COMPOST (35% TO 40%) OR SANDY LOAM (30%), COARSE SAND (30%), AND COMPOST (40%).
  - \* CLAY CONTENT - MEDIA SHALL HAVE A CLAY CONTENT OF LESS THAN 3%.
  - \* PH RANGE - SHOULD BE BETWEEN 5.5 - 7.0. AMENDMENTS (E.G., LIME, IRON SULFATE PLUS SULFUR) MAY BE MIXED IN TO THE SOIL TO INCREASE OR DECREASE PH.

THESE SHALL BE AT LEAST ONE SOIL TEST PER PROJECT. EACH TEST SHALL CONSIST OF BOTH THE STANDARD SOIL TEST FOR PH AND ADDITIONAL TESTS OF ORGANIC MATTER, AND SOLUBLE SALTS. A TEXTURAL ANALYSIS IS REQUIRED FROM THE SITE STOCKPILED TOPSOIL, IF TOPSOIL IS IMPORTED, THEN A TEXTURE ANALYSIS SHALL BE PERFORMED FOR EACH LOCATION WHERE THE TOPSOIL WAS EXCAVATED.

**3. COMPACTION**  
IT IS VERY IMPORTANT TO MINIMIZE COMPACTION OF BOTH THE BASE OF BIORETENTION PRACTICES AND THE REQUIRED BACKFILL. WHEN POSSIBLE, USE EXCAVATION HEES TO REMOVE ORIGINAL SOIL. IF PRACTICES ARE EXCAVATED USING LOADERS, THE CONTRACTOR SHOULD USE WHEEL TRACK OR MARSH TRACK EQUIPMENT, OR LIGHT EQUIPMENT WITH TURTLE TYRES. 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.

**4. PLANT MATERIAL**  
RECOMMENDED PLANT MATERIAL FOR MICRO-BIORETENTION PRACTICES CAN BE FOUND IN APPENDIX A, SECTION A.2.3.

**5. PLANT INSTALLATION**  
COMPOST IS A BETTER ORGANIC MATERIAL SOURCE, IS LESS LIKELY TO FLOAT, AND SHOULD BE PLACED IN THE INVERT AND OTHER LOW AREAS. MULCH SHOULD BE PLACED IN SURROUNDINGS TO A UNIFORM THICKNESS OF 2" TO 3". SHREDDED OR CHIPPED HARDWOOD MULCH IS THE ONLY ACCEPTED MULCH. FINE 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.

**6. UNDERDRAINS**  
UNDERDRAINS SHOULD MEET THE FOLLOWING CRITERIA:

- \* PIPE - SHOULD BE 4" TO 6" DIAMETER, SLOTTED OR PERFORATED RIGID PLASTIC PIPE (ASTM 758, TYPE PS 28, OR AASHTO-M-278) IN A GRAVEL LAYER. THE PREFERRED MATERIAL IS SLOTTED, 4" RIGID PIPE (E.G., PVC OF HDPE).
- \* PERFORATIONS - IF PERFORATED PIPE IS USED, PERFORATIONS SHOULD BE 3/8" DIAMETER LOCATED 6" ON CENTER WITH A MINIMUM OF FOUR HOLES PER ROW. PIPE SHALL BE WRAPPED WITH A 1/4" (NO. 4 OR 4A) GALVANIZED HARDWARE CLOTH.
- \* GRAVEL - THE GRAVEL LAYER (NO. 57 STONE PREFERRED) SHALL BE AT LEAST 3" THICK ABOVE AND BELOW THE UNDERDRAIN.
- \* THE MAIN COLLECTOR PIPE SHALL BE AT A MINIMUM 0.5% SLOPE.
- \* A RIGID, NON-PERFORATED OBSERVATION WELL MUST BE PROVIDED (ONE PER EVERY 1,000 SQUARE FEET) TO PROVIDE A CLEAN-OUT PORT AND MONITOR PERFORMANCE OF THE FILTER.
- \* A 4" LAYER OF PEA GRAVEL (1/8" TO 3/8" STONE) SHALL BE LOCATED BETWEEN THE FILTER MEDIA AND UNDERDRAIN TO PREVENT MIGRATION OF FINES IN TO THE UNDERDRAIN. THIS LAYER MAY BE CONSIDERED PART OF THE FILTER BED WHEN BED THICKNESS EXCEEDS 24".

THIS MAIN COLLECTOR PIPE FOR UNDERDRAIN SYSTEMS SHALL BE CONSTRUCTED AT A MINIMUM SLOPE OF 0.5%. OBSERVATION WELLS AND/CLEAN-OUT PIPES MUST BE PROVIDED (ONE PER EVERY 1,000 SQUARE FEET OF SURFACE AREA).

**7. MISCELLANEOUS**  
THESE PRACTICES MAY NOT BE CONSTRUCTED UNTIL ALL CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED.

- MICROBIORETENTION NOTES:**
1. ONLY THE SIDES OF MICROBIORETENTION ARE TO BE WRAPPED IN FILTER FABRIC. FILTER FABRIC BETWEEN LAYER OR AT THE BOTTOM OF THE MICROBIORETENTION WILL CAUSE THE MBR TO FAIL, AND THEREFORE SHALL NOT BE INSTALLED.
  2. WRAP THE PERFORATED MBR UNDERDRAIN PIPE WITH 1/4" MESH (4x4) OR SMALLER GALVANIZED HARDWARE CLOTH.
  3. PROVIDE 5" MINIMUM SPACING BETWEEN UNDER DRAIN AND PERFORATED PIPE THROUGH STONE RESERVOIR OR SPACE PIPE EQUALLY ACROSS BOTTOM FOR SMALL BINS. (SEE PLANS)

- OPERATION AND MAINTENANCE SCHEDULE FOR (M-6) MICROBIORETENTION AREAS**
1. ANNUAL MAINTENANCE OF PLANT MATERIAL, MULCH LAYER, SAND MEDIA AND SOIL LAYER IS REQUIRED. MAINTENANCE OF MULCH AND SOIL IS LIMITED TO CORRECTING AREAS OF EROSION OR WASH OUT. CHECK FOR DEWATERING WITHIN 48 HOURS. WHEN NECESSARY, REPLACE FILTER MEDIA PER PLAN.
  2. SCHEDULE OF PLANT INSPECTION WILL BE TWICE A YEAR IN SPRING AND FALL. THIS INSPECTION WILL INCLUDE REMOVAL OF DEAD, DISEASED AND EXCESSIVE VEGETATION CONSIDERED BEYOND TREATMENT. REPLACEMENT OF ALL DISEASED TREES, SHRUBS, DEFICIENT STAKES AND WIRES WILL BE REQUIRED.
  3. MULCH LAYER SHALL BE INSPECTED EACH SPRING, ONCE EVERY 2 TO 3 YEARS, REMOVE PREVIOUS MULCH LAYER AND APPLY NEW 2 TO 3 INCH LAYER.
  4. SOIL EROSION AND FLOW BLOCKAGES TO BE ADDRESSED ON AN AS NEEDED BASIS WITH A MINIMUM OF ONCE PER MONTH AND AFTER HEAVY STORMS. INSPECT CLEAN OUTS AND OBSERVATION WELLS ALONG WITH OVERFLOW/OUTFALL/EXIT PIPES.

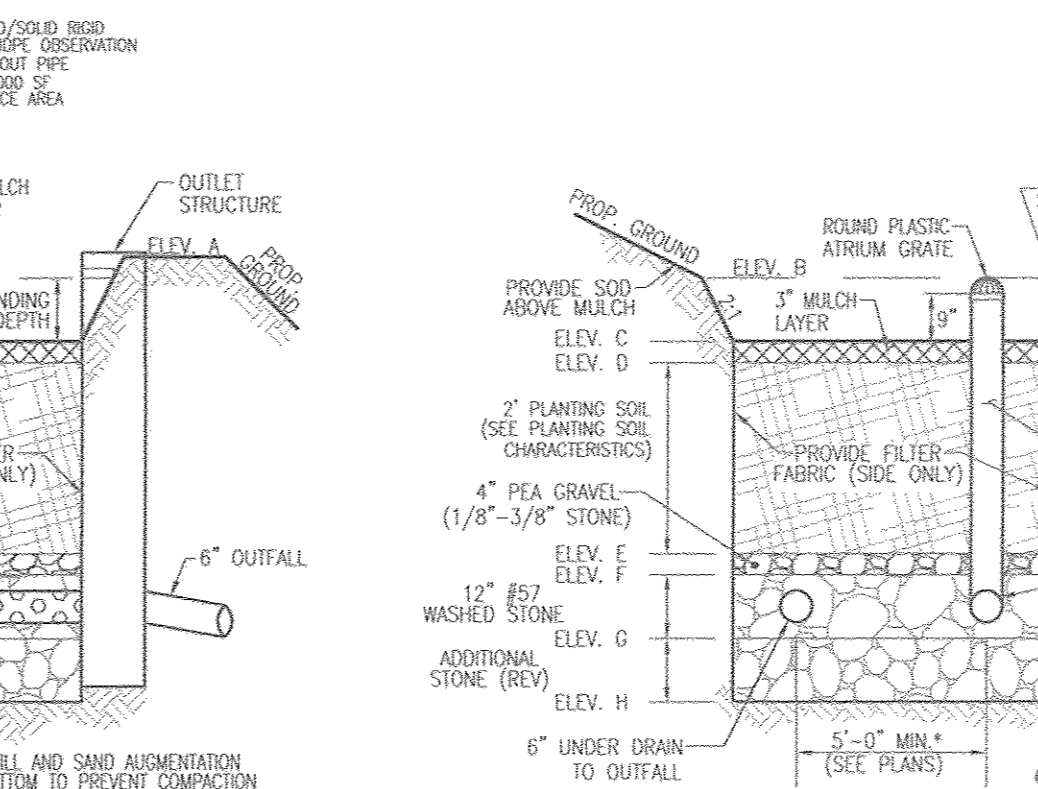
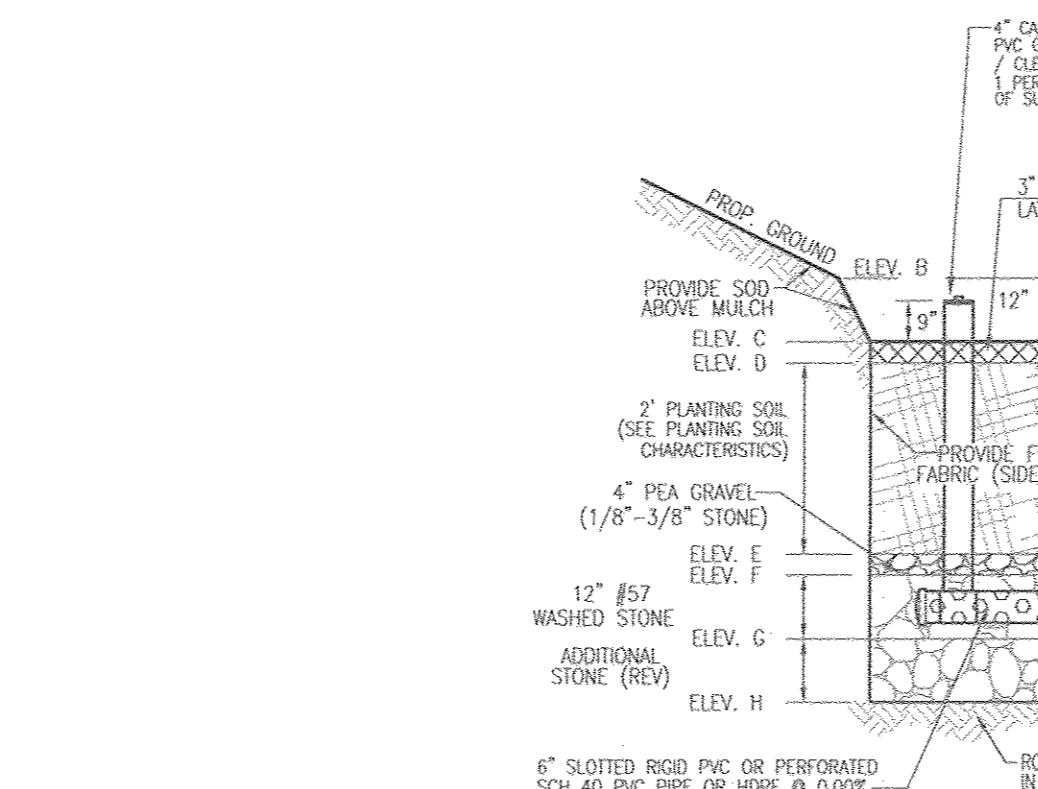
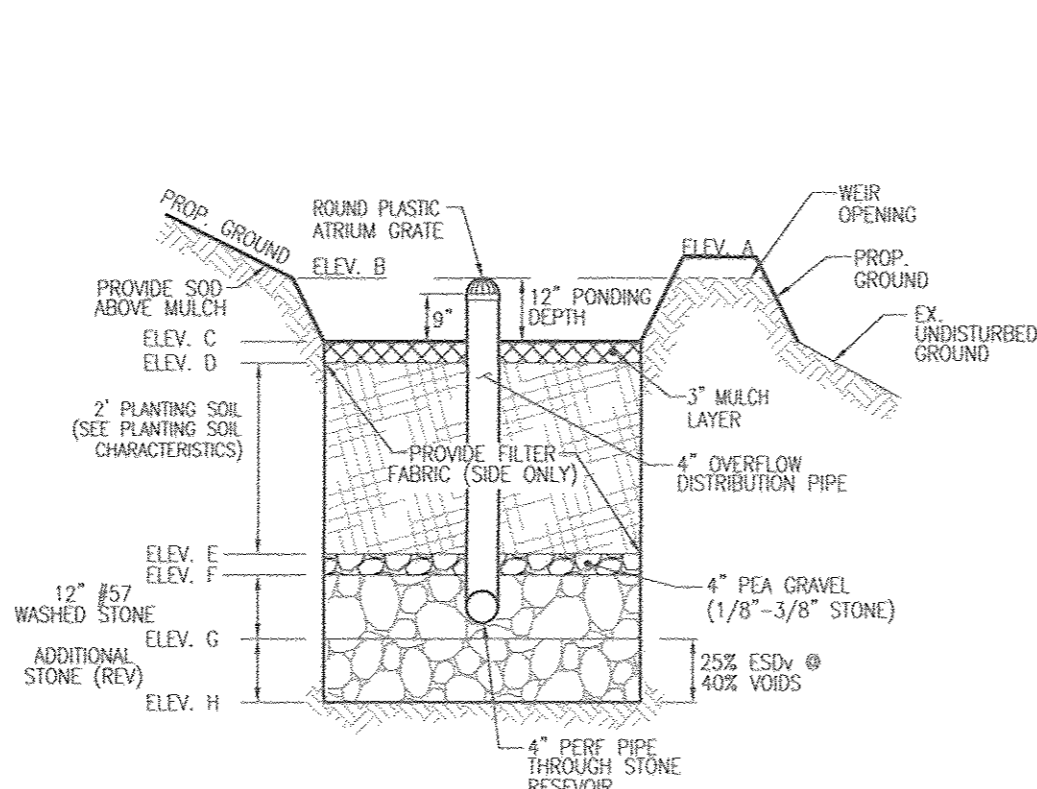
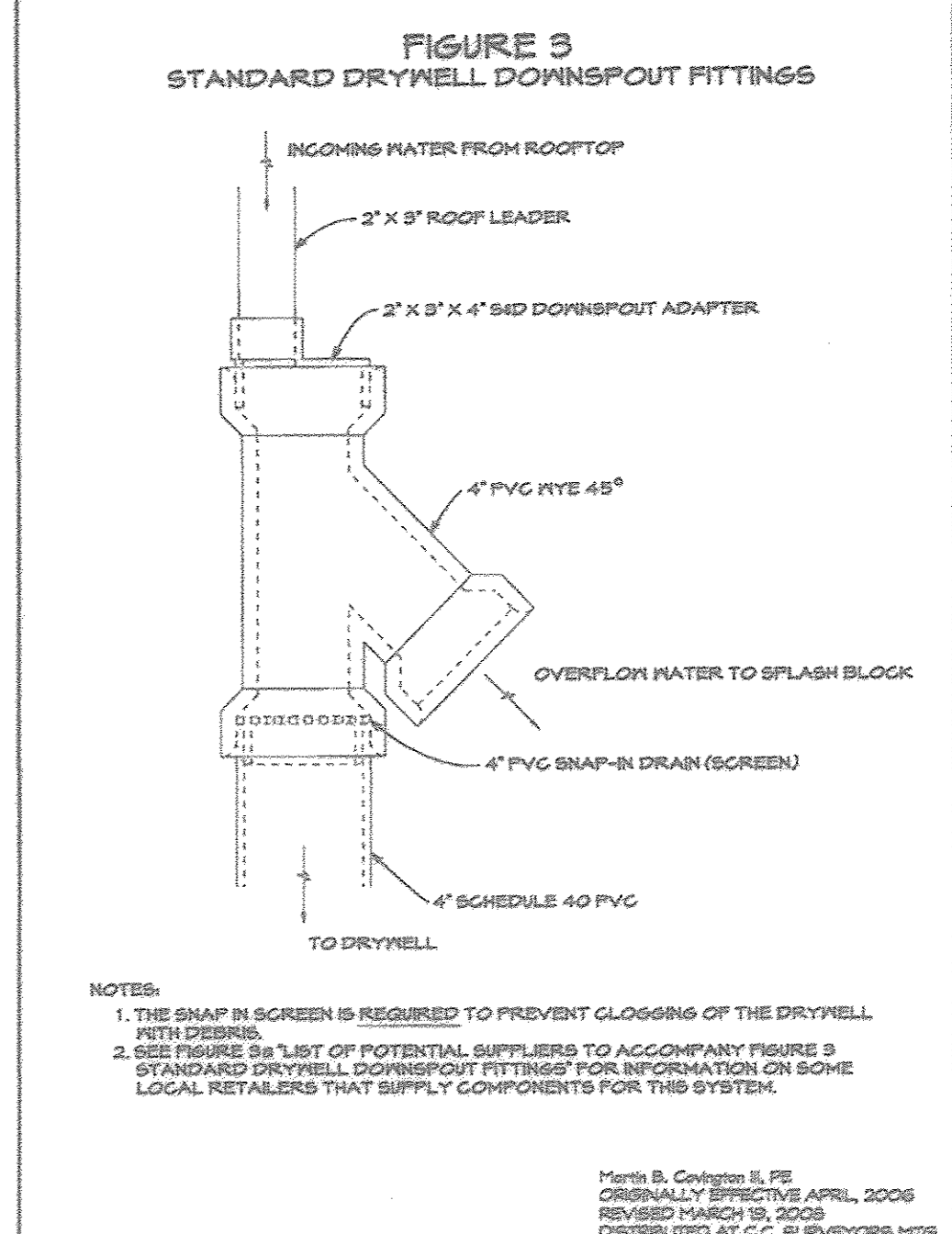
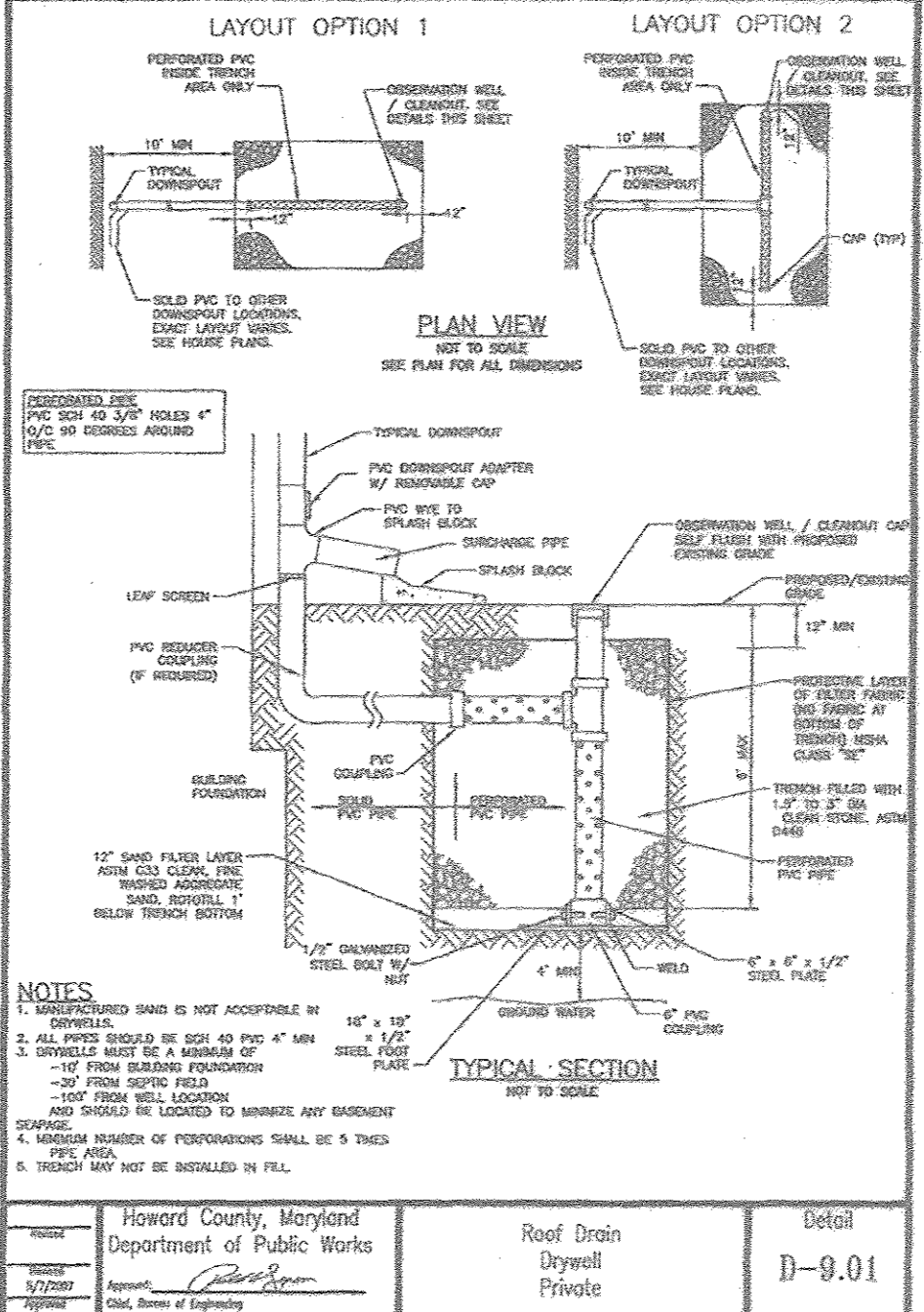
HOWARD COUNTY - OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED DISCONNECTION OF ROOFTOP RUNOFF (N-1), DISCONNECTION OF NON-ROOFTOP RUNOFF (N-2)

A. MAINTENANCE OF AREAS RECEIVING DISCONNECTED RUNOFF IS GENERALLY NO DIFFERENT THAN THAT REQUIRED FOR OTHER LAWN OR LANDSCAPED AREAS. THE OWNER SHALL ENSURE THE AREAS RECEIVING RUNOFF ARE PROTECTED FROM FUTURE COMPACTION OR DEVELOPMENT OF IMPERVIOUS AREA. IN COMMERCIAL AREAS, FOOT TRAFFIC SHOULD BE DISCOURAGED AS WELL.

**Appendix B.4. Construction Specifications for Environmental Site Design Practices**

**Table B.4.1 Materials Specifications for Micro-Bioretention, Rain Gardens & Landscape Infiltration-**

Material	Specification	Size	Notes
Plantings	see Appendix A, Table A.4	n/a	plantings are site-specific
Planting soil [2' to 4' deep]	loamy sand (60 - 65%) & compost (35 - 40%) or sandy loam (30%), coarse sand (30%), & compost (40%)	n/a	USDA soil types loamy sand or sandy loam; clay content < 5%
Organic content	Min. 10% by dry weight (ASTM D 2974)		
Mulch	shredded hardwood		aged 6 months, minimum; no pine or wood chips
Pea gravel diaphragm	pea gravel: ASTM-D-448	NO. 8 OR NO. 9 (1/8" TO 3/8")	
Curtain drain	ornamental stone: washed cobbles	stone: 2" to 5"	
Geotextile		n/a	PE Type 1 nonwoven
Gravel (underdrains and infiltration berms)	AASHTO M-43	NO. 57 OR NO. 6 AGGREGATE (3/8" to 3/4")	
Underdrain piping	F 758, Type PS 28 or AASHTO M-278	4" to 6" rigid schedule 40 PVC or SDR35	Slotted or perforated pipe; 3/8" perf. @ 6" on center, 4 holes per row; minimum of 3" of gravel over pipes; not necessary under mesh pipes. Perforated pipe shall be wrapped with 1/4-inch galvanized hardware cloth
Poured in place concrete (if required)	MSHA Mix No. 3; $f_c = 3500$ psi @ 28 days, normal weight, air-entrained, reinforcing to meet ASTM-615-60	n/a	on-site testing of poured-in-place concrete required: 28 day strength and slump test; 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 350.R/89; vertical loading [H-10 or H-20]; allowable horizontal loading (based on soil compressive); and analysis of potential cracking.
Sand	AASHTO M-6 or ASTM-C-33	0.02" to 0.04"	Sand substitutions such as Diabase and Graystone (AASHTO) #10 are not acceptable. No calcium carbonated or dolomitic sand substitutions are acceptable. No "rock dust" can be used for sand.



**MICRO-BIORETENTION (MBR-1, MBR-2, MBR-4, MBR-5, MBR-6)**  
W/ WEIR OUTFALL  
NOT TO SCALE

**MICRO-BIORETENTION (UNDERDRAIN) (MBR-3)**  
NOT TO SCALE

**MICRO-BIORETENTION (OVERFLOW) (MBR-3)**  
NOT TO SCALE

LOT #	FACILITY	A	B	C	D	E	F	G	H	WEIR ELEV.	FACILITY SIZE
LOT 3	MBR-1	509.30	509.00	508.00	507.75	505.75	505.42	504.42	503.59	509.00	371 SF
LOT 4	MBR-2	500.30	500.00	499.00	498.75	496.75	496.42	495.42	494.59	500.00	282 SF
LOT 5	MBR-4	512.30	512.00	511.00	510.75	508.75	508.42	507.42	506.59	512.00	401 SF
LOT 6	MBR-5	522.30	522.00	521.00	520.75	518.75	518.42	517.42	516.59	522.00	349 SF
LOT 7	MBR-6	513.30	513.00	512.00	511.75	509.75	509.42	508.42	507.59	513.00	445 SF

LOT #	FACILITY	A	B	C	D	E	F	G	H	UNDERDRAIN INLET	OUTFALL SW.	FACILITY SIZE
MBR-3	506.30	506.00	505.00	504.75	502.75	502.42	501.42	500.59	501.67	500.00	506 SF	

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

*Chief, Development Engineering Division* 5-22-18  
DATE

*Chief, Division of Land Development* 5-17-18  
DATE

**OWNER/DEVELOPER**  
PFEFFERKORN ROVER MILL, LLC  
C/O RAJ KATHURIA  
12668 FREDERICK ROAD  
WEST FRIENDSHIP, MD 21794  
(443) 574-1600

NO.	REVISION	DATE

**ENVIRONMENTAL CONCEPT PLAN**  
**STORMWATER MANAGEMENT NOTES AND DETAILS**  
**ROVER MILL ESTATES**  
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TAX MAP: 15 GRD: 14  
PARCEL: 169  
ZONING: RE-UD  
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DESIGN BY: RHV  
DRAWN BY: JMR  
CHECKED BY: RHV  
DATE: MAY 2018  
SCALE: AS SHOWN  
W.O. NO.: 15-36

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. 18183 EXPIRATION DATE 09-27-2018)

7 SHEET OF 7