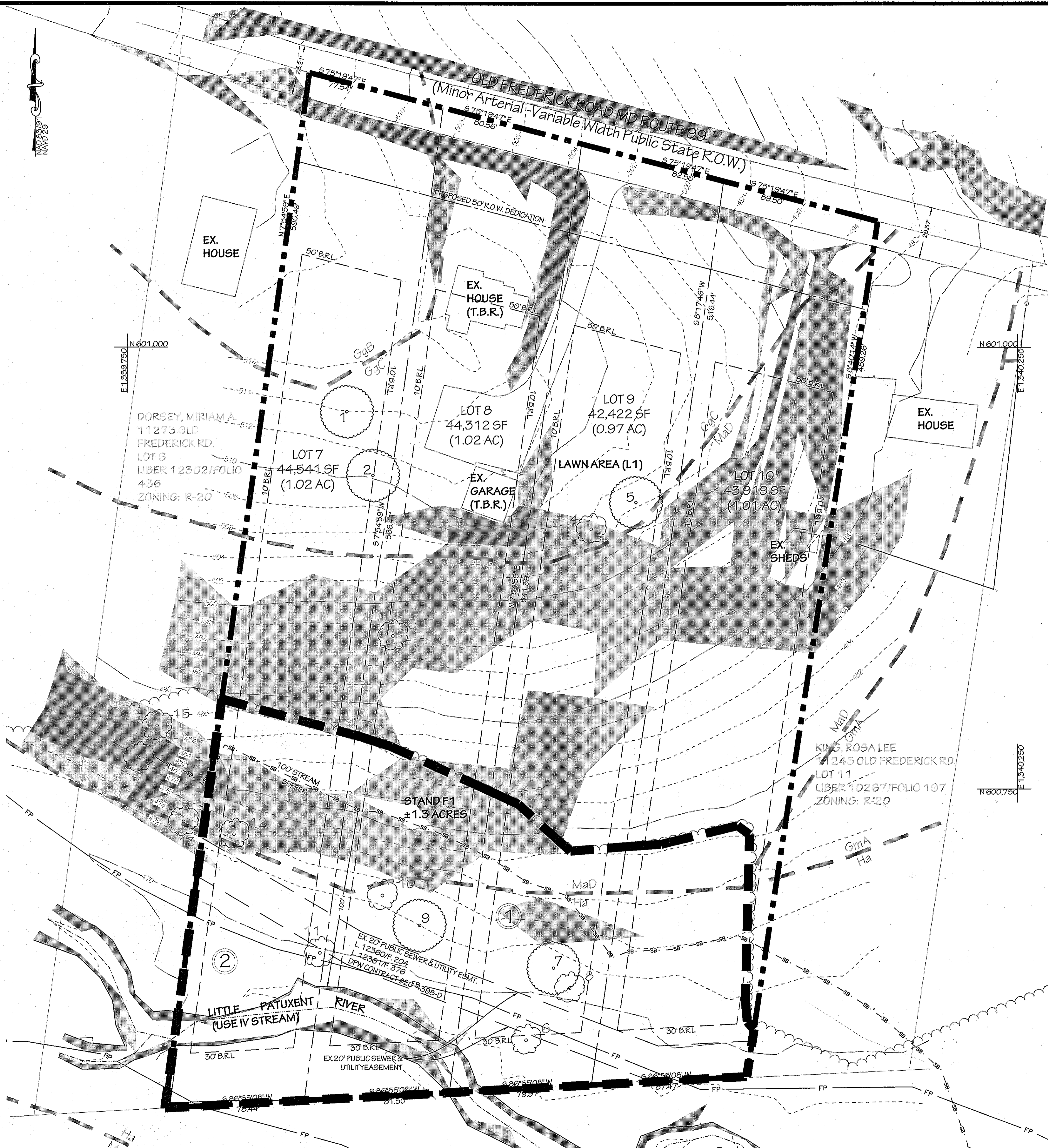
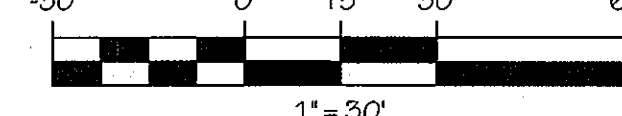


LeShanda N. Gibbs, RLA MD#3444
 10/30/2013 3:38 PM
 Sheet: 10-30-2013 PROJECTS - OLD FREDERICK ROAD PLANNING, NRI#50
 11665 OLD FREDERICK ROAD, NRI#50



NATURAL RESOURCES INVENTORY/FOREST STAND DELINEATION PLAN



Key	A. Type of Community	B. Area (acres)	C. Soil Information Soil Type Typical Forest Cover for soil type	Woodland Suitability Index	D. Existing Vegetation (Dominant Species Approximate %)	E. Stand Characteristics Avg. Size (Diam) (Inches) Age (Years) General Conditions	F. Forest Area in Sensitive Environments (acres)	G. Habitat Value	H. Specimen Trees
F1	FOREST	1.3	Mo, Ha	30	BLACK LOCUST	18"-29" 40 GOOD	0.65	1	2 AND LOCUST

General Notes

- The subject property is comprised of Lots 7-10 Liber 15015 Folio 005.
- The limit of this NRI/FSD area is 175,194 sq. ft. (4.02 ac).
- The subject property is zoned R-20 (Residential Single).
- The subject property is located on Howard County Tax Map No. 10, Grid 22.
- There are perennial or intermittent streams on the subject property. No wetlands have been observed or identified on the subject property.
- Boundary survey shown hereon was completed by Axiom Engineering Design LLC.
- Topographic survey shown hereon was obtained from Howard County GIS data.
- Natural Resources Inventory / Forest Stand Delineation fieldwork conducted on June 20, 2013 by LeShanda Gibbs, RLA. At this time, the location, size and species of the significant trees were confirmed. A forestry diameter tape was used to measure the diameter of these trees.
- Five (5) specimen trees (having a 30-inch diameter at breast height) were located within the subject property boundary. There are no trees that are State or National Champion Trees. All trees are less than 75% of the Champion Tree for that species.
- A portion of the subject property is located in zone "A" (Areas of 100-Year Flood) as shown on Flood Insurance Rate Map (FIRM) Community Panel 10 of 45, Map Number 24004400108B for Howard County, Maryland, and dated December 4, 1996.
- There were no rare, threatened or endangered species observed during the NRI site visit. Confirmation was received from the Maryland Department of Natural Resources in a letter dated July 16, 2013 stating that the Wildlife and Heritage Service has determined that there are no State or Federal records for RTEs within the subject project boundary.
- No known historic sites are located on the site. This site is not on the National Atlas or Index of Historic Sites.
- Soils information taken from USDA NRCS Soil Survey of Howard County.
- The site is located within the Little Patuxent Watershed, watershed Use Class IV-MDNR listing number 021311050957.
- Approval of this ECP does not constitute an approval of any subsequent and associated site development plan or building and/or grading permit.
- Review of this project for compliance with the Howard County Subdivision and Land Development Regulations and the Howard County Zoning Regulations shall occur at the site development plan stage. 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).
- Development or construction on these lots must comply with setback and buffer regulations in effect at the time of submission of the site development plan, waiver petition application, or building/grading permit.
- Site Development Plan approval by the Department of Planning and Zoning is required prior to building permits being issued for the construction of residential dwellings on these lots.
- Forest Conservation will be addressed via filing of a Declaration of Intent (DOI) for Single Residential Lot Exemption-Clearing Less than 20,000 square feet of forest. Four (4) separate SDPs will be prepared. One (1) SDP will be filed for each residential lot.
- The existing residential structure on Lot 8 was constructed in 1950. Both the residential dwelling and accessory garage are proposed to be removed (T.B.R.).

Forest Stand 'F1'

Forest Stand 1 (F1), 1.3 Acres is a late successional, low-land mixed hardwood forest that is adjacent to the existing perennial stream along the southern boundary of the subject property. Tulip Poplar (*Liriodendron tulipifera*), White Oak (*Quercus alba*), Red Maple (*Acer rubrum*), Honey Locust (*Gleditsia triacanthos*), and Black Gum (*Nyssa sylvatica*) dominate this stand. The forest association can be categorized as a Mixed Hardwood Association.

The trees located in this stand can best be described as generally in good condition with high, full crowns and an average DBH in the 18-29" category. The stand includes south-facing slopes leading to a stream. The canopy coverage is good at 80%+.

The understory is generally sparse, but there is a strong presence of Red Maple (*Acer rubrum*). Other understory species include greenbrier, Japanese Honeysuckle, Bush Honeysuckle, and some Oriental Bittersweet. There is a large presence of Mile-A-Minute Weed (*Persicaria perfoliata*), an invasive vine.

The location of this forest stand is Priority 1 and a High Priority assigned for both Retention and Preservation.

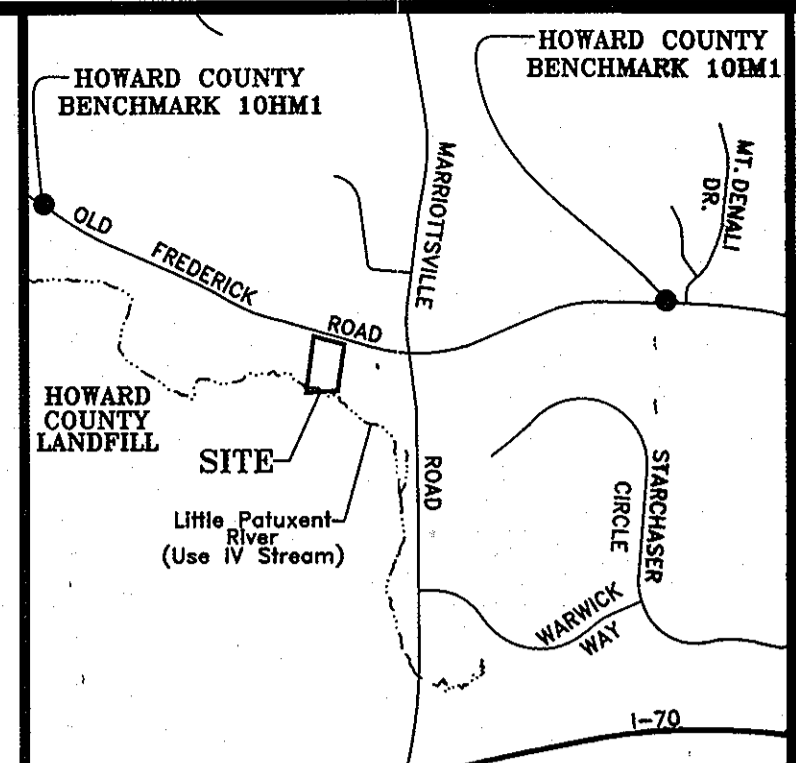
Area L1

Lawn 1 (L1), is an area of maintained lawn surrounding the existing residence and garage located on Lot 8. L1 is located on the upland northern slope of the property, towards Old Frederick Road. L1 is primarily maintained ornamental lawn, however there are a number of individual trees, including Red Maple, Black Gum, Honey Locust, and White Oak. No environmentally sensitive areas are located in L1. Three specimen trees are located within the L1 lawn area.

Specimen/Significant Trees					
No.	Botanical Name	Common Name	D.B.H.	Condition	Status
1	<i>Acer rubrum</i>	Red Maple	30"	Fair	Save
2	<i>Acer rubrum</i>	Red Maple	40"	Fair	Save
3	<i>Nyssa sylvatica</i>	Black Gum	26"	Good	Save
4	<i>Acer rubrum</i>	Red Maple	28"	Fair	Save
5	<i>Nyssa sylvatica</i>	Black Gum	34"	Good	Save
6	<i>Liriodendron tulipifera</i>	Tulip Poplar	24"	Good	Save
7	<i>Liriodendron tulipifera</i>	Tulip Poplar	34"	Good	Save
8	<i>Liriodendron tulipifera</i>	Tulip Poplar	26"	Dead	Save
9	<i>Gleditsia triacanthos</i>	Honey Locust	30"	Good	Save
10	<i>Nyssa sylvatica</i>	Black Gum	28"	Good	Save
11	<i>Nyssa sylvatica</i>	Black Gum	26"	Dead	Save
12	<i>Gleditsia triacanthos</i>	Honey Locust	29"	Fair	Save
13	<i>Gleditsia triacanthos</i>	Honey Locust	24"	Good	Save
14	<i>Liriodendron tulipifera</i>	Tulip Poplar	26"	Good	Save
15	<i>Liriodendron tulipifera</i>	Tulip Poplar	24"	Good	Save

Soil Table

SYMBOL	NAME	SLOPE	K-value	HYDROLOGIC SOIL GROUP
BeB	Benevola Silt Loam	3-8%	0.28	B
GgB	Glenelg Loam	3-8%	0.20	B
GgC	Glenelg Loam	8-15%	0.20	B
GmA	Glenville Silt Loam	0-3%	0.37	C
Ha	Hatboro Codorus Silt Loam	0-3%	0.37	D
MaD	Manor Loam	15-25%	0.24	B



VICINITY MAP
 1" = 2000'
 HOWARD COUNTY STREET MAP GRID 4694, F-10
 TAX MAP: 10, GRID: 22, PARCEL: 65 & 66
 ZONING: R-20
 STREET ADDRESS: 11265 OLD FREDERICK ROAD
 MARRIOTTVILLE, MD 21104

LEGEND

- EX. MAJOR CONTOUR
- EX. MINOR CONTOUR
- - - EX. SITE BOUNDARY
- - - EX. ADJACENT PROPERTY LINE
- [] EX. BUILDING
- () EX. SPECIMEN TREES
- () EX. SIGNIFICANT TREES
- EX. TREE LINE
- FOREST STAND
- () FOREST SAMPLE PLOT POINTS
- EX. FLOODPLAIN
- EX. STREAM
- 100' STREAM BUFFER
- WEB SOIL SURVEY
- [] 25% SLOPES OR GREATER
- [] 15%-25% SLOPES

SITE ANALYSIS DATA SHEET

- a. SITE AREA: 4.02 AC
- b. WETLAND AREA: 0.00 AC
- c. FLOODPLAIN AREA: 0.37 AC
- d. FOREST AREA: 1.26 AC
- e. 15% STEEP SLOPES OR GREATER: 1.19 AC
- f. ERODIBLE SOILS: 0.00 AC
- g. LIMIT OF DISTURBANCE: 1.77 AC
- h. SITE USES:
 - SINGLE FAMILY DETACHED: 3.64 AC
 - RIGHT-OF-WAY DEDICATION: 0.38 AC
 - GREEN OPEN AREA: 2.41 AC
 - PROPOSED IMPERVIOUS AREA: 0.35 AC

PROFESSIONAL CERTIFICATION

I hereby certify that these documents were prepared and approved by me, and that I am a duly licensed professional Landscape Architect under the laws of the State of Maryland, License No. 3444, December 3, 2013.



LeShanda N. Gibbs, RLA MD#3444

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 Chief, Development Engineering Division
 Chief, Division of Land Development

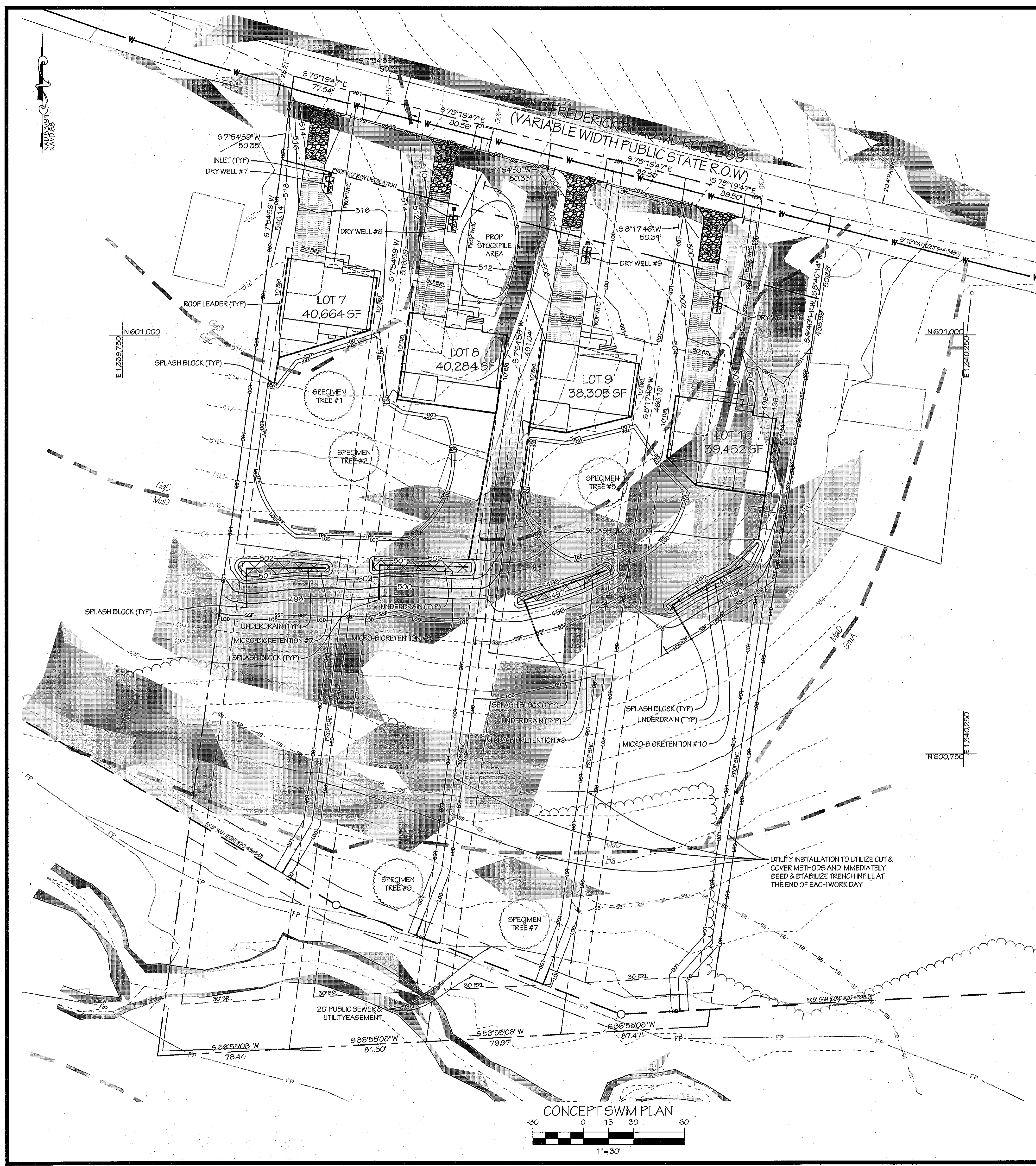
Axiom Engineering Design
 Civil Engineering • Land Surveying • Landscape Architecture • Land Planning
 6880 Columbia Gateway Dr., Ste. 150 Columbia, Maryland 21046
 Office: 410.276.6620 Fax: 410.276.6621
 info@axiomed.com www.axiomed.com

REVISIONS	BY	DATE

APPLICANTS / OWNERS:
TIMBERLAKE MARRIOTTVILLE, LLC
8888 BESTGATE ROAD, SUITE 411
ANNAPOLIS, MD 21401
240-388-0873

OLD FREDERICK ROAD, LOTS 7-10
 NATURAL RESOURCES INVENTORY/
 FOREST STAND DELINEATION
 3RD ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

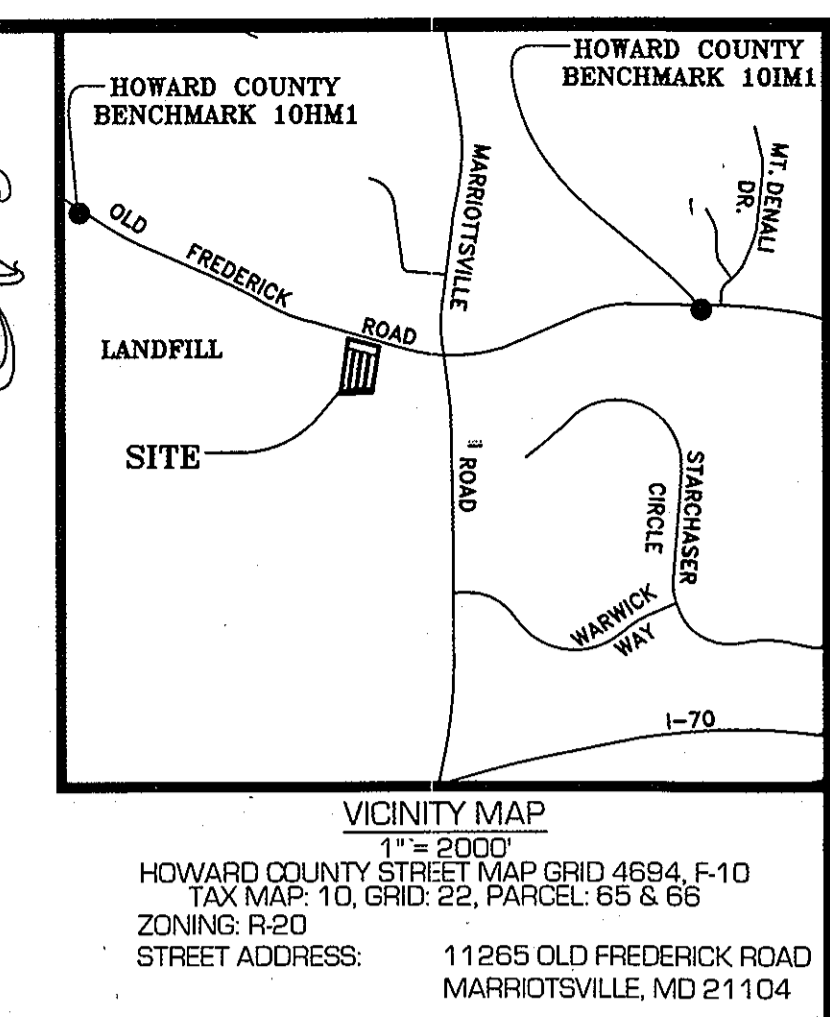
SCALE: 1" = 30'
 DATE: 10/30/13
 DESIGN:
 DRAWN: LNG
 REVIEWED: WJZ
 PROJECT #: 13-0028.00
 SHEET No:
NRI 1
 1 OF 3
 ECP-13-078



CONCEPT SWM PLAN
 1" = 30'

SITE ANALYSIS

SITE AREA:	4.02 AC
WETLAND AREA:	0 AC
FLOODPLAIN AREA:	0.37 AC
FOREST AREA:	1.26 AC
15% - 25% SLOPES:	1.05 AC
> 25% SLOPES:	0.14 AC
ERODIBLE SOILS:	0 AC
LIMIT OF DISTURBANCE:	1.77 AC
SITE USES:	
SINGLE FAMILY DETACHED:	3.64 AC
RIGHT-OF-WAY DEDICATION:	0.38 AC
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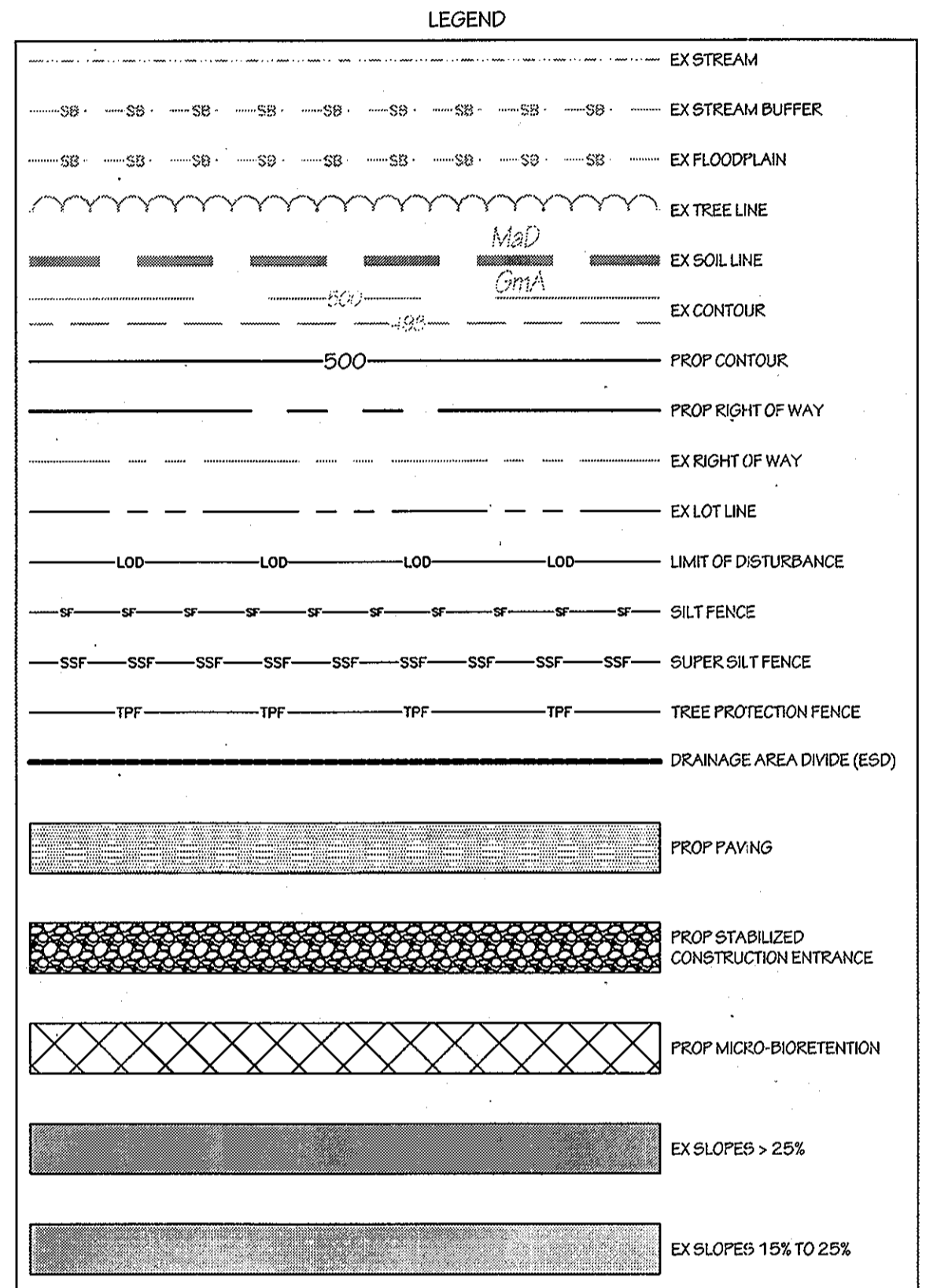


ESDv Summary Table

Micro Practice	Fe Treated	Rev Provided
Micro-bioretentation #7	1.94 in	96 CF
Micro-bioretentation #8	2.16 in	88 CF
Micro-bioretentation #9	1.70 in	76 CF
Micro-bioretentation #10	1.59 in	79 CF
Dry Well #7	1.15 in	60 CF
Dry Well #8	1.03 in	60 CF
Dry Well #9	1.01 in	60 CF
Dry Well #10	1.03 in	60 CF

SOILS INFORMATION TABLE (HOWARD SOIL SURVEY MAP #5)

MAP SYMBOL	MAP UNIT NAME & SERIES	HYDROLOGIC SOIL GROUP
BeB	BENEVOLO SILT LOAM 3% TO 8% SLOPES	B
GgB	GLENELG LOAM 3% TO 8% SLOPES	B
GgC	GLENELG LOAM 8% TO 15% SLOPES	B
GmA	GLENVILLE SILT LOAM 0% TO 3% SLOPES	C
Ha	HATBORO CODORUS SILT LOAM 0% TO 3% SLOPES	D
MaD	MANOR LOAM 15% TO 25% SLOPES	B



PROJECT NARRATIVE

The project site is located on the south side of Old Frederick Road, MD Route 99, approximately 700' west of Mariottville Road. The subject property is zoned R-20, and lies in the 3rd election district of Howard County. The Hydrologic Soil Group for the disturbed area of the proposed development is Type B while some D soil and a very small portion of C soil is present on-site (see Drainage Area Map). The combined area of the four existing lots which comprise the site is 4.02 acres. The proposed project involves the construction of one single family detached residential dwelling on each of the four lots which will be served by public water and sewer.

The Little Patuxent River runs across the site from west to east with a recorded floodplain per Howard County Capital Project #D-4-1007.

Natural resources will be protected by not grading in the existing forest, floodplain, or stream buffer and enhanced by reducing the runoff rate to the waterway. Minimal disturbance to the stream buffer, forest, and floodplain will be necessary to construct the private sewer house connections. However, it is anticipated that tree clearing will not be necessary, and the utility installation will be "cut and cover" so as to not require erosion and sediment control measures for the utility trenches that will be open and immediately closed and stabilized post utility installation. The existing flow patterns will be maintained as shown on the drainage area map. The proposed impervious area for this development is that minimum needed to develop each lot. Given the small scale nature of this development, sediment controls can be limited to silt fence and stabilized construction entrances. It will be noted in the final sequence of construction that the micro-bioretentations may only be constructed after the contributing drainage areas area stabilized.

QUALITY MANAGEMENT

In accordance with Chapter 5 of the SWM Manual, Environmental Site Design (ESD) is implemented via four micro-bioretentation facilities and four dry wells to treat the target rainfall depth. The target rainfall depth (Pe) for the site is 1.0 inches, and the proposed facilities provide treatment for at least this rainfall depth. Portions of the driveways within the dedicated SHA right-of-way, roughly 50 feet in length, and some on-site portions of the driveways cannot be treated due to their location and grades. Therefore, the target rainfall depth is applied to this untreated impervious area, and the resulting ESDv is divided among the four micro-bioretentation facilities and provided there. Computations are provided later in this report. Because ESD treatment for the target rainfall depth is provided for all proposed impervious area, WQv, Rev, and CPV requirements are also satisfied. The micro-bioretentation facilities are located at the rear of each lot and will receive surface flow and piped flow from the downspouts of each house. Because of the steep topography, overflow structures are not proposed within the facilities. This would produce concentrated flows down the steep slopes and result in significant erosion. Rather, the facilities will pond to the maximum height of 1 foot, and any overflow will spill over the berm to act as a level spreader to facilitate a gentler flow down the slopes. Dry wells are proposed to treat the remaining portions of the driveways on-site where possible.

SHEET INDEX

SHEET NAME	TITLE	SHEET NO.
SWM 1	PLAN	1
SWM 2	DRAINAGE AREA MAPS	2

AXIOM Engineering Design
 Civil Engineering • Land Surveying • Landscape Architecture • Land Planning
 8888 Columbia Gateway Dr., Ste. 150, Columbia, Maryland 21046 • Office: 443.276.6250
 www.axiomdesign.com • Fax: 443.276.6251

WALTER G. ZAWISLAK, P.E.
 PROFESSIONAL CERTIFICATION
 I hereby certify that these documents were prepared or approved by me or under my direct supervision and that I am a duly licensed professional engineer in the State of Maryland, License No. 22028, Expiration Date 08/02/2019.

APPLICANT(S) / OWNER(S):
 TIMBERLAKE MARIOTTVILLE, LLC
 8888 BESTGATE ROAD, SUITE 411
 ANNAPOLIS, MD 21401
 240-388-0373

**OLD FREDERICK ROAD, LOTS 7-10
 SWM CONCEPT PLAN
 PLAN
 3RD ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND**

SCALE: 1" = 30'
DATE: 10/30/13
DESIGN: MAS
DRAWN: MAS
REVIEWED: WGZ
PROJECT #: 13-0028.00
SHEET No: SWM 1
 2 OF 3
 ECP-13-078

Last Saved: 10/30/2013, Last Plotted: 10/30/2013 05:54 AM, Sheet: V, 2013 PROJECTS, 13-0028.00 - OLD FREDERICK ROAD, ENGINEERING, SHEETS, SWM CONCEPT, PLAN

TAX MAP: 10, GRID: 22, PARCEL: 65 & 66
 ZONING: R-20
 STREET ADDRESS: 11265 OLD FREDERICK ROAD
 MARRIOTTVILLE, MD 21104

Axiom Engineering Design
 Civil Engineering • Land Surveying • Landscape Architecture • Land Planning
 8890 Columbia Gateway Dr., Ste. 150, Columbia, Maryland 21046
 Office: 443.276.6500
 Fax: 443.276.6521
 info@axiomed.com
 www.axiomed.com

PROPOSED DRAINAGE AREA SUMMARY

AREA	ACREAGE	RCN	ZONING	% IMPERVIOUS	SOIL TYPES			
					% A	% B	% C	% D
D7	0.02	92	R-20	84.64%	0	100	0	0
D8	0.02	90	R-20	78.70%	0	100	0	0
D9	0.02	90	R-20	78.62%	0	100	0	0
D10	0.02	89	R-20	76.78%	0	100	0	0
M7	0.38	66	R-20	12.95%	0	100	0	0
M8	0.17	72	R-20	28.95%	0	100	0	0
M9	0.19	71	R-20	27.71%	0	100	0	0
M10	0.31	67	R-20	16.95%	0	100	0	0



POST-DEVELOPMENT DRAINAGE AREA MAP
 1" = 30'

SOILS INFORMATION TABLE (HOWARD SOIL SURVEY MAP #5)

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MaD	MANOR LOAM 15% TO 25% SLOPES	B

REVISIONS

NO.	DATE	BY	REVISIONS

WALTER G. ZAWISLAK, P.E.
 PROFESSIONAL CERTIFICATION
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME OR UNDER MY CLOSE PERSONAL SUPERVISION AND I AM A LICENSED PROFESSIONAL ENGINEER IN THE STATE OF MARYLAND. LICENSE NO. 332935. EXPIRES DATE 06/30/2015

APPLICANT(S) / OWNER(S):
 TIMBERLAKE MARRIOTTVILLE, LLC
 886 BESTGATE ROAD, SUITE 411
 ANNAPOLIS, MD 21401

OLD FREDERICK ROAD, LOTS 7-10
SWM CONCEPT PLAN
 DRAINAGE AREA MAPS
 3RD ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

SCALE: 1" = 30'
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 REVIEWED: WGZ
 PROJECT #: 13-0028.00
 SHEET No:

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 Chief, Development Engineering Division
 Chief, Division of Land Development

SWM 2
 3 OF 3
 ECP-13-078

Lot: Sheet 10/30/2013 Date: Plot: 10/30/2013 10:28 AM Sheet: V:\2013 PROJECTS\13-0028.00-OLD FREDERICK ROAD\ENGINEERING\SHEETS\SWM CONCEPT\DA MAPS