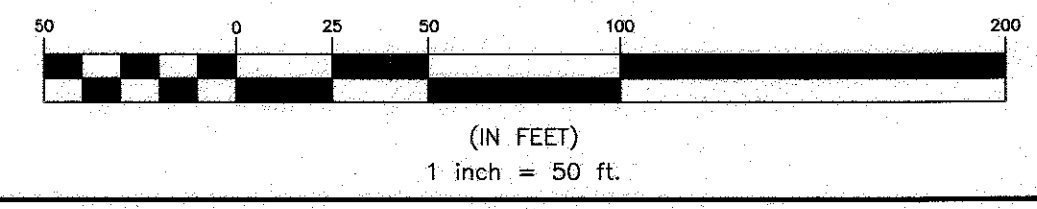


GRID NORTH

PLAN
SCALE: 1" = 50'



LEGEND

SOILS CLASSIFICATION	M&D
SOILS DELINEATION	
EXISTING CONTOURS (AERIAL 12/02)	
LIMIT OF WETLANDS	
EXISTING WOODS LINE	
PROPOSED WOODS LINE	
EXISTING STRUCTURE	
EXISTING SEPTIC FIELD	
PROPOSED SEPTIC FIELD	
PROPOSED FOREST CONSERVATION EASEMENT	
SLOPES 25% OR GREATER	
SLOPES BETWEEN 15% AND 25%	
EX. 100 YEAR FLOODPLAIN	
WELL	
PASSING PERCOLATION TEST LOCATION	

SPECIMEN TREE CHART

AG #	COMMON NAME	SCIENTIFIC NAME	DBH	VIGOR	COMMENTS	IMPACT
2806	northern red oak	Quercus rubra	31	Good		Retained
2807	black oak	Quercus velutina	31	Fair	Broken in this branch	Retained off parcel
2808	southern red oak	Quercus alba	39	Fair	Broken in this branch	Retained off parcel
2809	northern red oak	Quercus rubra	38	Fair		Retained off parcel
2810	white oak	Quercus alba	38	Good		Retained off parcel
2811	white oak	Quercus alba	30	Good		Retained in easement
2812	northern red oak	Quercus rubra	32	Good		Retained on lot*
2813	white oak	Quercus alba	31	Good		Retained on lot*
2814	white oak	Quercus alba	33	Fair		Removed
2815	northern red oak	Quercus rubra	31	Good		Removed
2816	white oak	Quercus alba	34	Fair	barbed wire through trunk	Retained in easement
2819	black gum	Nyssa sylvatica	33	Good		Retained off parcel
2820	white oak	Quercus alba	34	Good		Removed
2821	black gum	Nyssa sylvatica	34	Good		Removed
2822	northern red oak	Quercus rubra	34	Good		Retained on lot
2823	red maple	Quercus rubra	37	Fair	leaves brittle @ 5'	Retained in easement
2824	white oak	Quercus alba	37	Fair	leaves brittle @ 5'	Retained in easement
2825	black oak	Quercus velutina	36	Fair	Irregular trunk / leaning	Retained in easement
2826	northern red oak	Quercus rubra	32	Good		Retained in easement
2827	black oak	Quercus velutina	30	Good		Retained in easement
2828	northern red oak	Quercus rubra	30	Good		Retained in easement
2829	northern red oak	Quercus rubra	33	Fair	broken branches / 1/2 of double	Retained in easement
2830	northern red oak	Quercus rubra	33	Fair	some dead branches	Retained in easement
2831	white oak	Quercus alba	33	Good		Retained in easement
2832	northern red oak	Quercus rubra	33	Good		Retained in easement
2833	red maple	Quercus rubra	30	Fair	leaning / free rot	Retained in easement
2834	sweet gum	Liquidambar styraciflua	39	Good		Retained in easement
2835	sweet gum	Liquidambar styraciflua	30	Good	trunk rot / barbed wire	Retained in easement
2836	black oak	Quercus velutina	42	Fair	leaves brittle	Retained in easement
2837	black oak	Quercus velutina	30	Fair	tree rot damage	Retained in easement
2838	southern red oak	Quercus falcata	33	Good		Retained in easement
2839	southern red oak	Quercus falcata	34	Fair	dead branches	Retained in easement
2840	southern red oak	Quercus falcata	34	Fair		Retained in easement
2841	southern red oak	Quercus falcata	34	Fair		Retained in easement
2842	northern red oak	Quercus rubra	30	Fair	leaning	Removed
2843	black oak	Quercus velutina	30	Good		Retained on lot

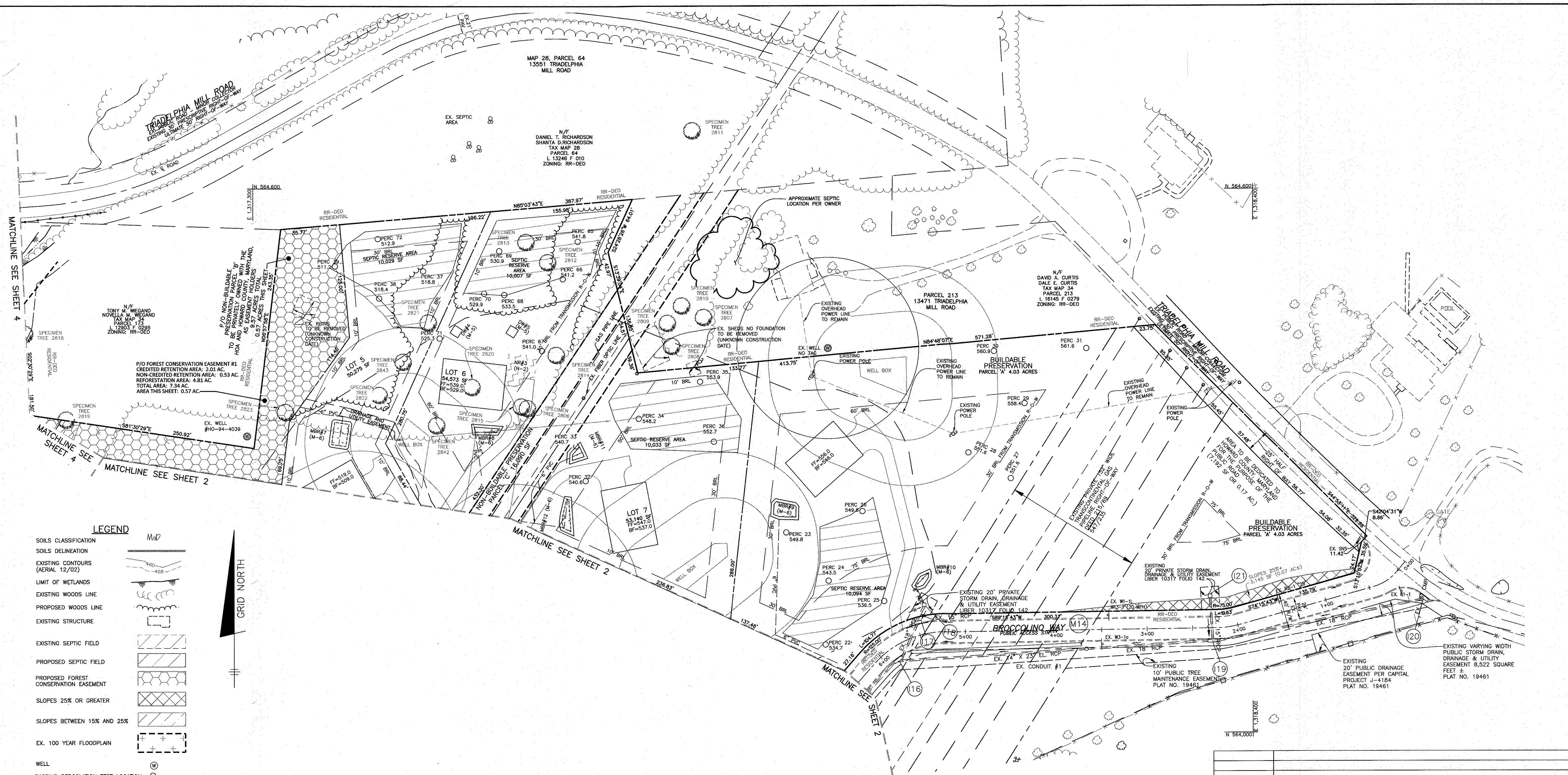
* Permission is granted for future removal of specimen trees to accommodate the replacement septic area per WF-16-064
note: no. 2816, 2817 & 2835

TENTATIVELY APPROVED
DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY

William J. J...
PLANNING DIRECTOR

11-20-16
DATE

NO. DATE REVISION	
<p>BENCHMARK ENGINEERS & LAND SURVEYORS & PLANNERS ENGINEERING, INC. 8480 BALTIMORE NATIONAL PKE & SUITE 315 ELLICOTT CITY, MARYLAND 21043 (P) 410-465-6105 (F) 410-465-6644</p> <p>WWW.BE-CIVILENGINEERING.COM EEO/DFE-CIVILENGINEERING.COM</p>	
<p>Professional Certification. 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. 45571, Expiration Date: 06-08-2018.</p> <p><i>John M. Carr</i> PROFESSIONAL ENGINEER 12/20/16</p>	
OWNER:	<p>BRIGHTON MILL II LOTS 1 THRU 12, BUILDABLE PRESERVATION PARCEL 'A' AND NON-BUILDABLE PRESERVATION PARCELS 'B' THRU 'D'</p>
DEVELOPER:	<p>TAX MAP: 34, GRID: 2, PARCEL: 16, ZONED: RR-DEO BROCCOLINO WAY CLARKSVILLE, MD 21029 FIFTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND</p>
LAYOUT PLAN	
DATE: JUNE, 2016	PROJECT NO. 2627
DRAFT: JC DESIGN: JC CHECK: -	SCALE: 1" = 50' SHEET 2 OF 19



LEGEND

SOILS CLASSIFICATION *MdD*

SOILS DELINEATION

EXISTING CONTOURS (AERIAL 12/02)

LIMIT OF WETLANDS

EXISTING WOODS LINE

PROPOSED WOODS LINE

EXISTING STRUCTURE

EXISTING SEPTIC FIELD

PROPOSED SEPTIC FIELD

PROPOSED FOREST CONSERVATION EASEMENT

SLOPES 25% OR GREATER

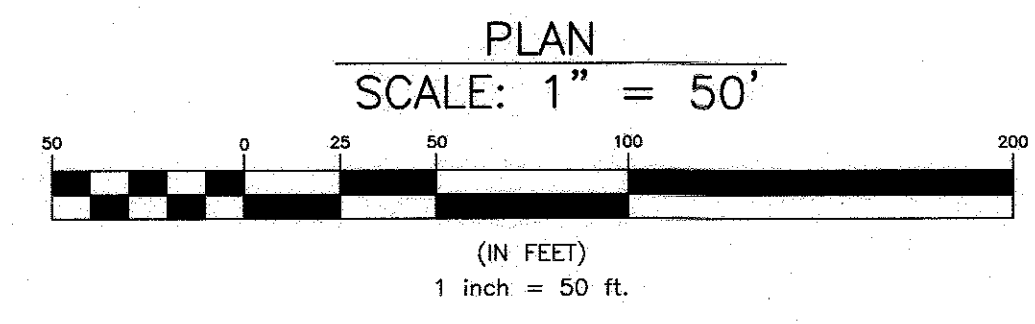
SLOPES BETWEEN 15% AND 25%

EX. 100 YEAR FLOODPLAIN

WELL

PASSING PERCOLATION TEST LOCATION

GRID NORTH



TENTATIVELY APPROVED
DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY

Nathan J. J. J. 11-20-16
PLANNING DIRECTOR DATE

NO.	DATE	REVISION

BENCHMARK
ENGINEERS & LAND SURVEYORS & PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE SUITE 315 ELLICOTT CITY, MARYLAND 21043
(P) 410-465-8105 (F) 410-465-8644

WWW.BE-CIVILENGINEERING.COM
BE@BE-CIVILENGINEERING.COM

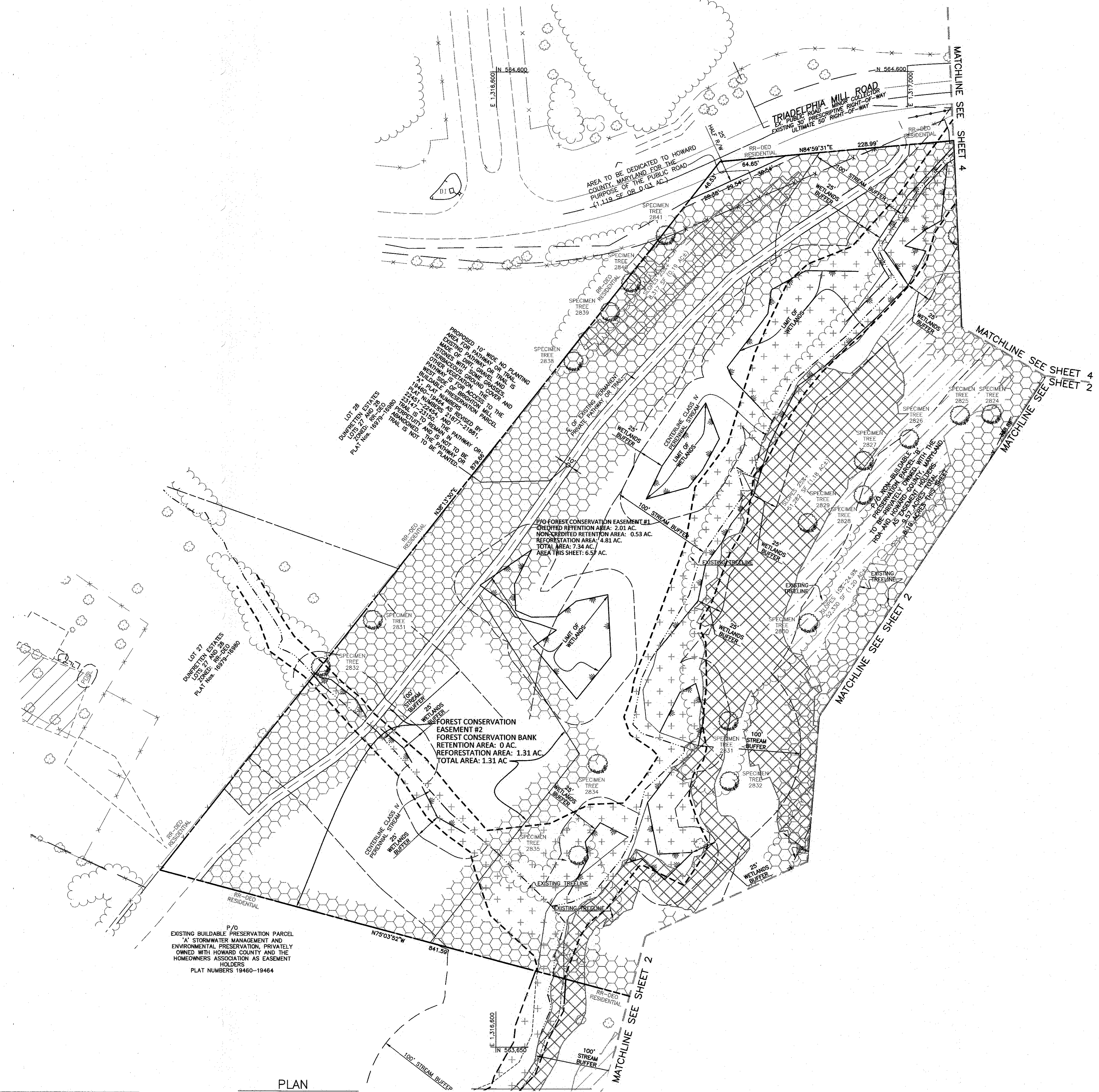
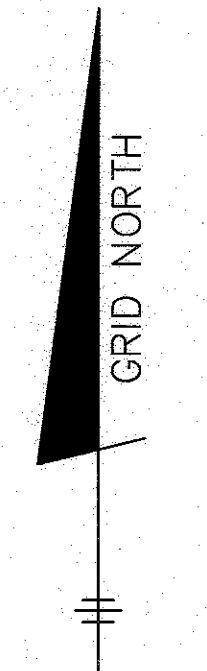
10/20/16

<p>OWNER: DAVID A. AND DALE E. CURTIS 304 KLINGER DRIVE WESTMINSTER, MD 21157 410-751-5686</p> <p>DEVELOPER: HIGHLAND DEVELOPMENT CORP P.O. BOX 228 CLARKSVILLE, MARYLAND 21029 410-365-0414</p>	<p style="text-align: center;">BRIGHTON MILL II</p> <p style="text-align: center;">LOTS 1 THRU 12, BUILDABLE PRESERVATION PARCEL 'A' AND NON-BUILDABLE PRESERVATION PARCELS 'B' THRU 'D'</p> <p style="text-align: center;">TAX MAP: 34, GRID: 2, PARCEL: 16, ZONED: RR-DEO</p> <p style="text-align: center;">CLARKSVILLE, MD 21029 FIFTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND</p> <p style="text-align: center;">LAYOUT PLAN</p> <p>DATE: JUNE, 2016 PROJECT NO. 2627 SCALE: 1" = 50' SHEET 3 OF 19</p>
--	--

DRAFT: JC DESIGN: JC CHECK: -

LEGEND

- SOILS CLASSIFICATION MaD
- SOILS DELINEATION
- EXISTING CONTOURS (AERIAL 12/02)
- LIMIT OF WETLANDS
- EXISTING WOODS LINE
- PROPOSED WOODS LINE
- EXISTING STRUCTURE
- EXISTING SEPTIC FIELD
- PROPOSED SEPTIC FIELD
- PROPOSED FOREST CONSERVATION EASEMENT
- SLOPES 25% OR GREATER
- SLOPES BETWEEN 15% AND 25%
- EX. 100 YEAR FLOODPLAIN
- WELL
- PASSING PERCOLATION TEST LOCATION



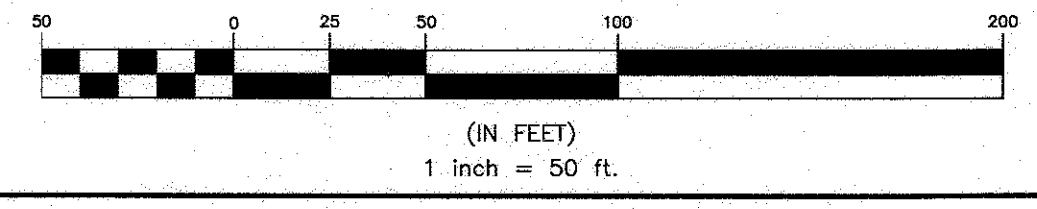
PROPOSED 10' WIDE NO PLANTING AREA FOR PATHWAY ON TRAIL IS VERMACE WITH PAVEMENT AND OTHER WETLANDS COVERING AND BUILDABLE FOR ACCESS TO THE 10' WIDE PATHWAY WILL BE 14' PLANTING BUFFER TO THE TRAIL. PLANTING BUFFER TO THE TRAIL IS 14' WIDE AND SHALL BE MAINTAINED AND NOT TO BE PLANTED FROM IS NOT TO BE PLANTED.

25% FOREST CONSERVATION EASEMENT #1
 CREDITED RETENTION AREA: 2.01 AC.
 NON-CREDITED RETENTION AREA: 0.53 AC.
 REFORESTATION AREA: 4.81 AC.
 TOTAL AREA: 7.34 AC.
 AREA THIS SHEET: 6.57 AC.

FOREST CONSERVATION EASEMENT #2
 FOREST CONSERVATION BANK
 RETENTION AREA: 0.4 AC.
 REFORESTATION AREA: 1.31 AC.
 TOTAL AREA: 1.31 AC.

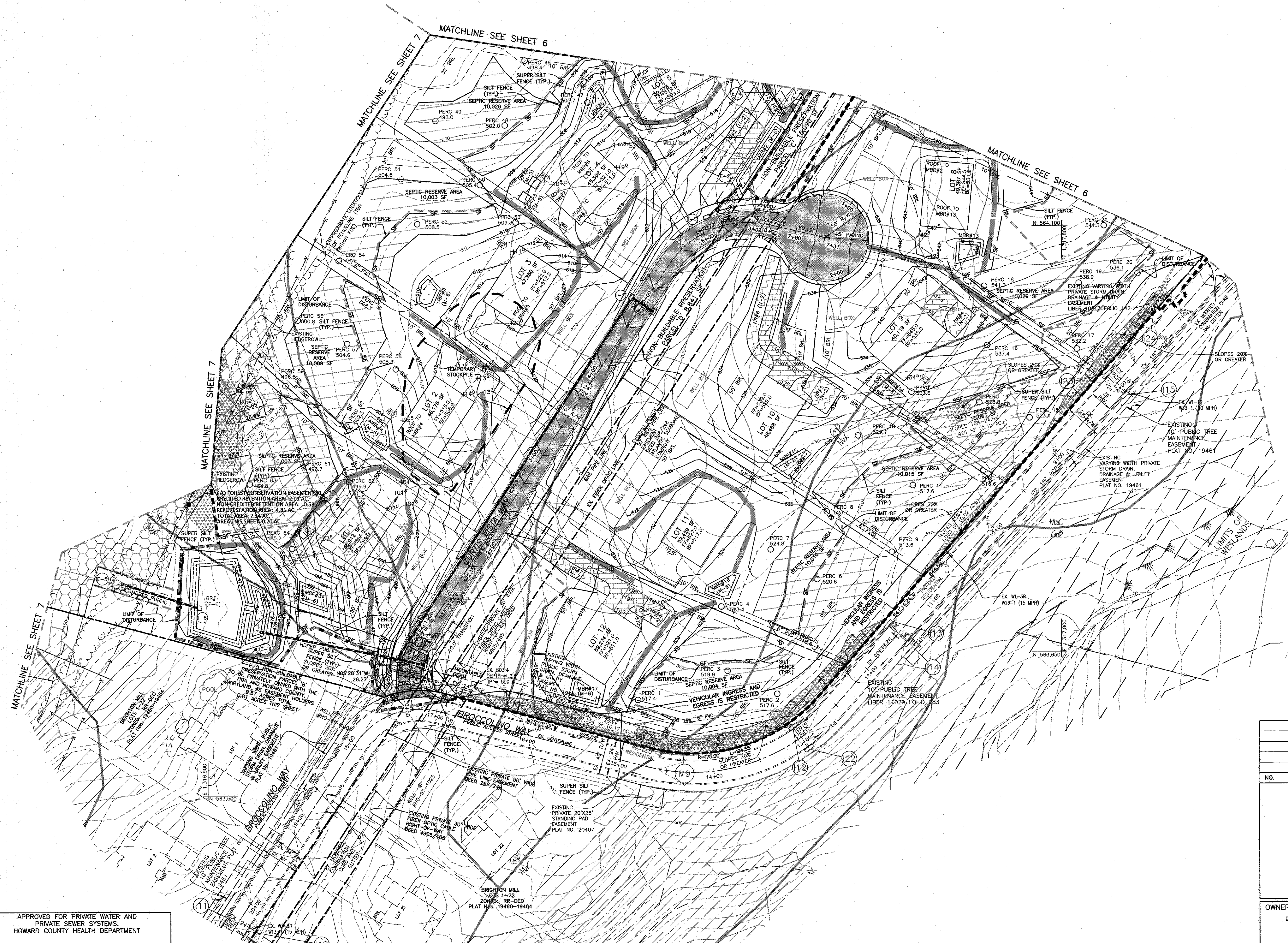
P/O EXISTING BUILDABLE PRESERVATION PARCEL
 "A" STORMWATER MANAGEMENT AND ENVIRONMENTAL PRESERVATION, PRIVATELY OWNED WITH HOWARD COUNTY AND THE HOMEOWNERS ASSOCIATION AS EASEMENT HOLDERS
 PLAT NUMBERS 19460-19464

PLAN
 SCALE: 1" = 50'



TENTATIVELY APPROVED
 DEPARTMENT OF PLANNING AND ZONING
 HOWARD COUNTY
Valerie J. ... 11-28-16
 PLANNING DIRECTOR DATE

<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; text-align: center;"> <p>BENCHMARK ENGINEERS & LAND SURVEYORS & PLANNERS ENGINEERING, INC. 8480 BALTIMORE NATIONAL PIKE SUITE 315 & ELLICOTT CITY, MARYLAND 21043 (P) 410-465-6105 (F) 410-465-6644 WWW.BE-CVLENGINEERING.COM BE@BEI-CVLENGINEERING.COM</p> </td> <td style="width: 50%; vertical-align: top; font-size: small;"> Professional Certification. 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. 45577, Expiration Date: 05-08-2018. M. Curtis 11/28/16 </td> </tr> </table>	<p>BENCHMARK ENGINEERS & LAND SURVEYORS & PLANNERS ENGINEERING, INC. 8480 BALTIMORE NATIONAL PIKE SUITE 315 & ELLICOTT CITY, MARYLAND 21043 (P) 410-465-6105 (F) 410-465-6644 WWW.BE-CVLENGINEERING.COM BE@BEI-CVLENGINEERING.COM</p>	Professional Certification. 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. 45577, Expiration Date: 05-08-2018. M. Curtis 11/28/16	<p style="text-align: center;">BRIGHTON MILL II</p> <p style="text-align: center;">LOTS 1 THRU 12, BUILDABLE PRESERVATION PARCEL 'A' AND NON-BUILDABLE PRESERVATION PARCELS 'B' THRU 'D'</p> <p style="text-align: center;">TAX MAP: 34, GRID: 2, PARCEL: 16, ZONED: RR-DEO BROCCOLINO WAY CLARKSVILLE, MD 21029 FIFTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND</p> <p style="text-align: center;">LAYOUT PLAN</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>DATE: JUNE, 2016</td> <td>PROJECT NO. 2627</td> </tr> <tr> <td>DRAFT: JC DESIGN: JC CHECK: -</td> <td>SCALE: 1" = 50'</td> </tr> </table>	DATE: JUNE, 2016	PROJECT NO. 2627	DRAFT: JC DESIGN: JC CHECK: -	SCALE: 1" = 50'
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DRAFT: JC DESIGN: JC CHECK: -	SCALE: 1" = 50'						



LEGEND

SOILS CLASSIFICATION *MaD*

SOILS DELINEATION

EXISTING CONTOURS (AERIAL 12/02)

LIMIT OF WETLANDS

EXISTING WOODS LINE

PROPOSED WOODS LINE

EXISTING STRUCTURE

EXISTING SEPTIC FIELD

PROPOSED SEPTIC FIELD

PROPOSED FOREST CONSERVATION EASEMENT

SLOPES 25% OR GREATER

SLOPES 20% OR GREATER

SLOPES BETWEEN 15% AND 25%

EX. 100 YEAR FLOODPLAIN

WELL

PASSING PERCOLATION TEST LOCATION

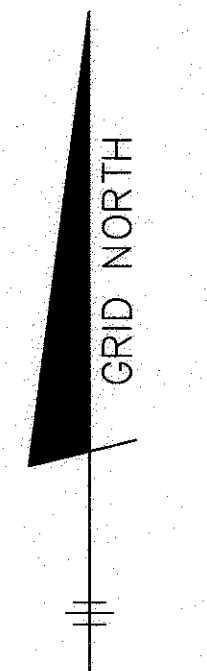
SUPER SILT FENCE

SILT FENCE

STABILIZED CONSTRUCTION ENTRANCE

LIMIT OF DISTURBANCE

EROSION CONTROL MATTING



LINED BIORETENTION FACILITIES**

Facility	Notes
BR-1	
MBR-2	LINED
MBR-3	LINED
MBR-4	LINED
MBR-5	
MBR-6	LINED
MBR-7	LINED
MBR-8	LINED
MBR-9	LINED
MBR-10	
MBR-11	
MBR-12	LINED
MBR-13	LINED
MBR-14	LINED
MBR-15	
MBR-16	
MBR-17	LINED

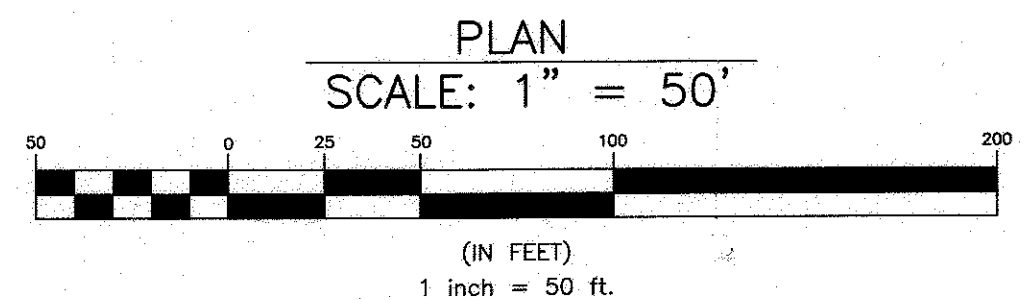
***PLEASE SEE SWM PLANS FOR MORE DETAILS

APPROVED FOR PRIVATE WATER AND PRIVATE SEWER SYSTEMS:
HOWARD COUNTY HEALTH DEPARTMENT

Rodion La Manna 11/14/2016
HOWARD COUNTY HEALTH OFFICER

TENTATIVELY APPROVED DEPARTMENT OF PLANNING AND ZONING HOWARD COUNTY

William J. Quinn 11-20-16
PLANNING DIRECTOR



SOILS CHART - SOIL SURVEY HOWARD COUNTY, MARYLAND PAGE

SYMBOL	HYDRIC	HYDROLOGIC GROUP	ALT. GROUP	NAME	k Value
GgB	B			GLENELG LOAM, 3 TO 8 PERCENT SLOPES	0.20
GgC	B			GLENELG LOAM, 8 TO 15 PERCENT SLOPES	0.20
GmB*	YES	C		GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES	0.37**
GmC	C			GLENVILLE-ODORUS SILT LOAM, 0 TO 8 PERCENT SLOPES	0.37**
MmC	B			MANOR LOAM, 8 TO 15 PERCENT SLOPES	0.24
MaD	B			MANOR LOAM, 15 TO 25 PERCENT SLOPES	0.24

* INDICATES HYDRIC SOILS
** HIGHLY ERODIBLE, K<0.35, AND/OR 15% OR GREATER SLOPES
TAKEN FROM THE NRCS WEB SOIL SURVEY, AUGUST 2014. SHEET 16

NO. DATE REVISION	
BENCHMARK ENGINEERS & LAND SURVEYORS & PLANNERS ENGINEERING, INC. 8480 BALTIMORE NATIONAL PIKE SUITE 315 & ELLICOTT CITY, MARYLAND 21043 (P) 410-465-8105 (F) 410-465-8644 WWW.BD-CIVILENGINEERING.COM BEI000-CIVILENGINEERING.COM	
Professional Certification. 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. 45577, Expiration Date: 06-08-2018.	
OWNER: DAVID A. AND DALE E. CURTIS 304 KLINGER DRIVE WESTMINSTER, MD 21157 410-751-5886	BRIGHTON MILL II LOTS 1 THRU 12, BUILDABLE PRESERVATION PARCEL 'A' AND NON-BUILDABLE PRESERVATION PARCELS 'B' THRU 'D' TAX MAP: 34, GRID: 2, PARCEL: 16, ZONED: RR-DEO CLARKSVILLE, MD 21029 FIFTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DEVELOPER: HIGHLAND DEVELOPMENT CORP P.O. BOX 228 CLARKSVILLE, MARYLAND 21029 410-365-0414	GRADING, SEDIMENT AND EROSION CONTROL PLAN AND SOILS MAP DATE: JUNE, 2016 PROJECT NO. 2627 DRAFT: JC DESIGN: JC CHECK: - SCALE: 1" = 50' SHEET 5 OF 19



LEGEND

SOILS CLASSIFICATION
 SOILS DELINEATION
 EXISTING CONTOURS (AERIAL 12/02)
 LIMIT OF WETLANDS
 EXISTING WOODS LINE
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 SUPER SILT FENCE
 SILT FENCE
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 EROSION CONTROL MATTING
 TREE PROTECTION FENCE

SPECIMEN TREE CHART

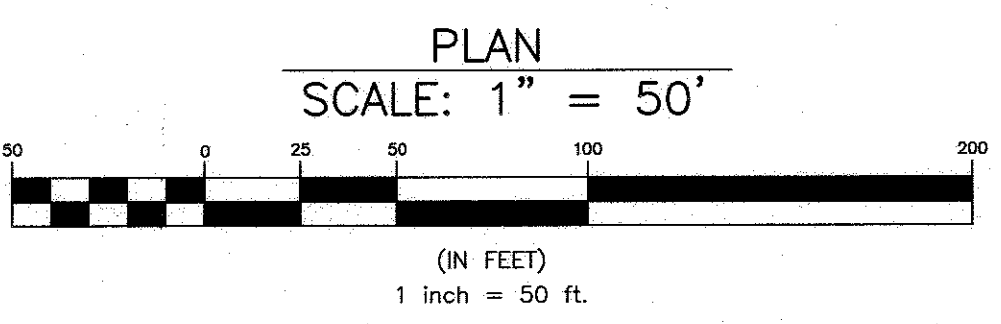
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note: no 2816, 2817 & 2835
 *Permission is granted for future removal of specimen trees to accommodate the replacement septic area per WP-16-064

SOILS CHART - SOIL SURVEY HOWARD COUNTY, MARYLAND PAGE

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GoB		C	C	GLENVILLE-CODORUS SILT LOAM, 0 TO 8 PERCENT SLOPES	0.37**
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MaD		B		MANOR LOAM, 15 TO 25 PERCENT SLOPES	0.24

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 TAKEN FROM THE NRCS WEB SOIL SURVEY, AUGUST 2014. SHEET 16



LINED BIORETENTION FACILITIES***

Facility	Notes
BR-1	
MBR-2	LINED
MBR-3	LINED
MBR-4	LINED
MBR-5	
MBR-6	LINED
MBR-7	LINED
MBR-8	LINED
MBR-9	LINED
MBR-10	
MBR-11	
MBR-12	LINED
MBR-13	LINED
MBR-14	LINED
MBR-15	
MBR-16	
MBR-17	LINED

***PLEASE SEE SWM PLANS FOR MORE DETAILS

APPROVED FOR PRIVATE WATER AND PRIVATE SEWER SYSTEMS:
 HOWARD COUNTY HEALTH DEPARTMENT

William M. Ross 11/14/2016
 HOWARD COUNTY HEALTH OFFICER DATE

TENTATIVELY APPROVED DEPARTMENT OF PLANNING AND ZONING HOWARD COUNTY

William J. Joffe 11-28-16
 PLANNING DIRECTOR DATE

NO. DATE REVISION

BENCHMARK ENGINEERS, INC.
 ENGINEERS & LAND SURVEYORS & PLANNERS
 8480 BALTIMORE NATIONAL PIKE SUITE 315 ELLICOTT CITY, MARYLAND 21043
 (P) 410-465-6105 (F) 410-465-6644

Professional Certification: 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. 45571, Expiration Date: 06-08-2015.

John M. Coe
 PROFESSIONAL ENGINEER

OWNER:
 DAVID A. AND DALE E. CURTIS
 304 KLINGER DRIVE
 WESTMINSTER, MD 21157
 410-751-5686

DEVELOPER:
 HIGHLAND DEVELOPMENT CORP
 P.O. BOX 228
 CLARKSVILLE, MARYLAND 21029
 410-365-0414

BRIGHTON MILL II
 LOTS 1 THRU 12, BUILDABLE PRESERVATION PARCEL 'A' AND NON-BUILDABLE PRESERVATION PARCELS 'B' THRU 'D'

TAX MAP: 34, GRID: 2, PARCEL: 16, ZONED: RR-DEO
 CLARKSVILLE, MD 21029
 FIFTH ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

GRADING, SEDIMENT AND EROSION CONTROL PLAN AND SOILS MAP

DATE: JUNE, 2016 PROJECT NO. 2627
 DRAFT: JC DESIGN: JC CHECK: - SCALE: 1" = 50' SHEET 6 OF 19



LEGEND

SOILS CLASSIFICATION

SOILS DELINEATION

EXISTING CONTOURS (AERIAL 12/02)

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EROSION CONTROL MATTING

SPECIMEN TREE CHART

AG #	COMMON NAME	SCIENTIFIC NAME	DBH	VIGOR	COMMENTS	Impact
2818	white oak	Quercus alba	34	Fair	barbed wire through trunk	Retained in easement
2824	white oak	Quercus alba	37	Fair	leaning	Retained in easement
2825	black oak	Quercus velutina	36.5	Fair	irregular trunk / leaning	Retained in easement
2826	northern red oak	Quercus rubra	32	Good		Retained in easement
2827	black oak	Quercus velutina	35	Good		Retained in easement
2828	northern red oak	Quercus alba	30	Good		Retained in easement
2829	northern red oak	Quercus alba	33	Fair	broken branches / 1/2 of double	Retained in easement
2830	northern red oak	Quercus alba	35	Fair	some dead branches	Retained in easement
2831	white oak	Quercus alba	33	Good		Retained in easement
2832	northern red oak	Quercus alba	35	Good		Retained in easement
2833	red maple	Quercus rubra	30.5	Fair	leaning / tree rot	Retained in easement
2834	tulip poplar	Liriodendron tulipifera	39	Good		Retained in easement
2835	tulip poplar	Liriodendron tulipifera	50	poor	trunk rot / barbed wire	Retained in easement
2837	pin oak	Quercus palustris	42	Fair	dead branches	Retained in easement
2838	black oak	Quercus velutina	50	Fair	tree rot damage	Retained in easement
2839	southern red oak	Quercus falcata	32	Good		Retained in easement
2840	southern red oak	Quercus falcata	38	Fair	dead branches	Retained in easement
2841	southern red oak	Quercus falcata	38	Fair		Retained in easement

note: no 2816, 2817 & 2835

BIORETENTION FACILITIES

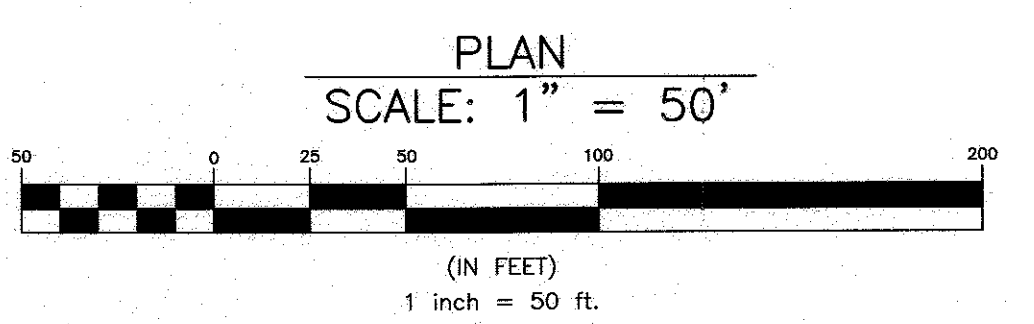
Facility	Notes
BR-1	ESDv provided by NRW6 and NRW7
MBR-2	LINED
MBR-3	LINED
MBR-4	LINED
MBR-5	LINED
MBR-6	LINED
MBR-7	LINED
MBR-8	LINED
MBR-9	LINED
MBR-10	LINED
MBR-11	LINED
MBR-12	LINED
MBR-13	LINED
MBR-14	LINED
MBR-15	LINED
MBR-16	LINED
MBR-17	LINED

APPROVED FOR PRIVATE WATER AND PRIVATE SEWER SYSTEMS:
HOWARD COUNTY HEALTH DEPARTMENT

William Lee Menna 11/14/2016
HOWARD COUNTY HEALTH OFFICER

TENTATIVELY APPROVED DEPARTMENT OF PLANNING AND ZONING HOWARD COUNTY

N. J. ... 11-28-16
PLANNING DIRECTOR



SOILS CHART - SOIL SURVEY HOWARD COUNTY, MARYLAND PAGE

SYMBOL	HYDRIC	HYDROLOGIC GROUP	ALT. GROUP	NAME	K Value
GpB	B			GLENELG LOAM, 3 TO 8 PERCENT SLOPES	0.20
GpC	B			GLENELG LOAM, 8 TO 15 PERCENT SLOPES	0.20
GmB	YES	C		GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES	0.37
GmC	YES	C		GLENVILLE-SODIUM SILT LOAM, 0 TO 8 PERCENT SLOPES	0.37
MaC	B			MANOR LOAM, 8 TO 15 PERCENT SLOPES	0.24
MaD	B			MANOR LOAM, 15 TO 25 PERCENT SLOPES	0.24

* INDICATES HYDRIC SOILS
** HIGHLY ERODIBLE, >0.35, AND/OR 15% OR GREATER SLOPES
TAKEN FROM THE NRCS WEB SOIL SURVEY, AUGUST 2014. SHEET 16

NO. DATE REVISION

BENCHMARK ENGINEERING, INC.
ENGINEERS & LAND SURVEYORS & PLANNERS
8480 BALTIMORE NATIONAL PIKE & SUITE 315 & ELLIOTT CITY, MARYLAND 21043
(P) 410-485-6105 (F) 410-485-6644
WWW.BEI-CVLENGINEERING.COM
BEI@BEI-CVLENGINEERING.COM

Professional Certification. 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. 45577, Expiration Date: 06-08-2018.

J. M. ... 12/20/16
PROFESSIONAL ENGINEER

OWNER:
DAVID A. AND DALE E. CURTIS
304 KLINGER DRIVE
WESTMINSTER, MD 21157
410-751-5686

DEVELOPER:
HIGHLAND DEVELOPMENT CORP
P.O. BOX 2228
CLARKSVILLE, MARYLAND 21029
410-365-0414

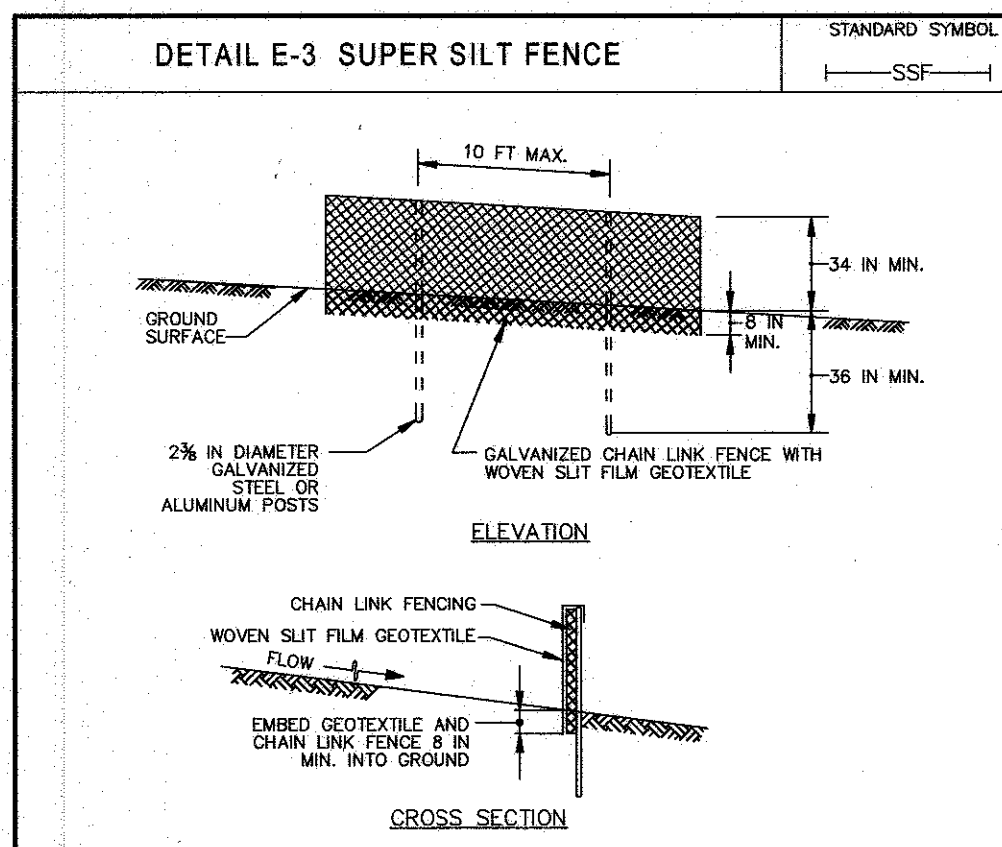
BRIGHTON MILL II
LOTS 1 THRU 12, BUILDABLE PRESERVATION PARCEL 'A' AND NON-BUILDABLE PRESERVATION PARCELS 'B' THRU 'D'

TAX MAP: 34, GRID: 2, PARCEL: 16, ZONED: RR-DEO
BROCCOLINO WAY
CLARKSVILLE, MD 21029
FIFTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

GRADING, SEDIMENT AND EROSION CONTROL PLAN AND SOILS MAP

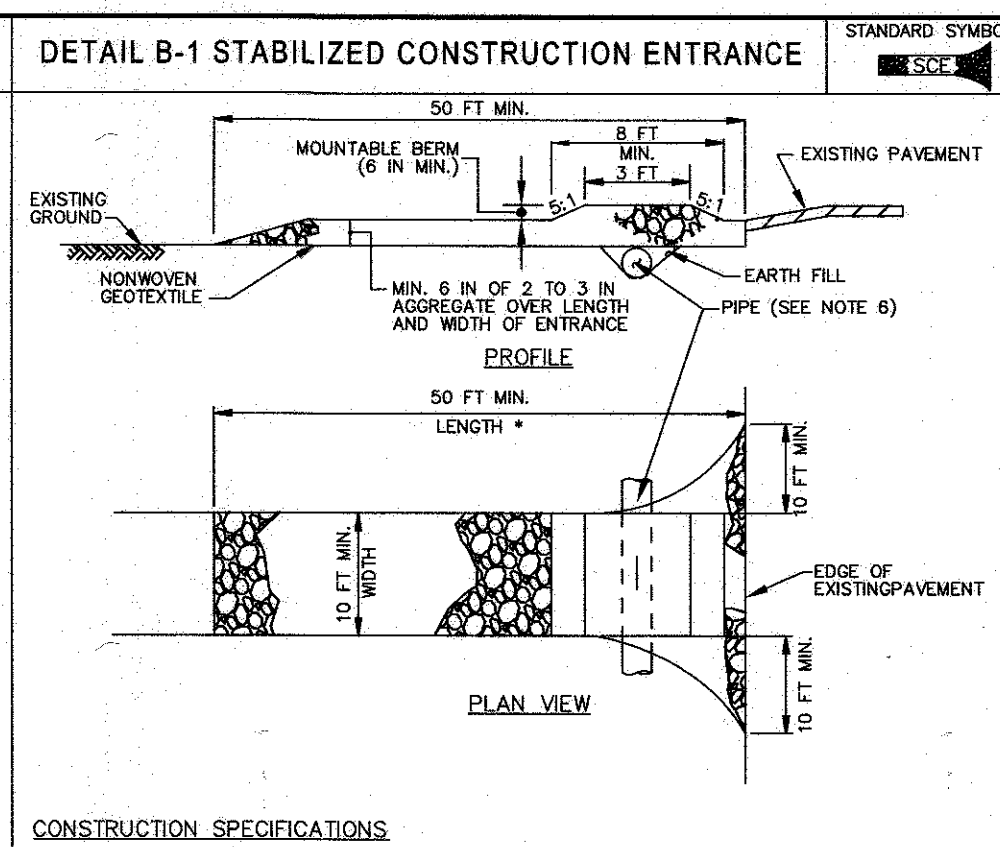
DATE: JUNE, 2016 PROJECT NO. 2627
SCALE: 1" = 50' SHEET 7 OF 19

DRAFT: JC DESIGN: JC CHECK: -



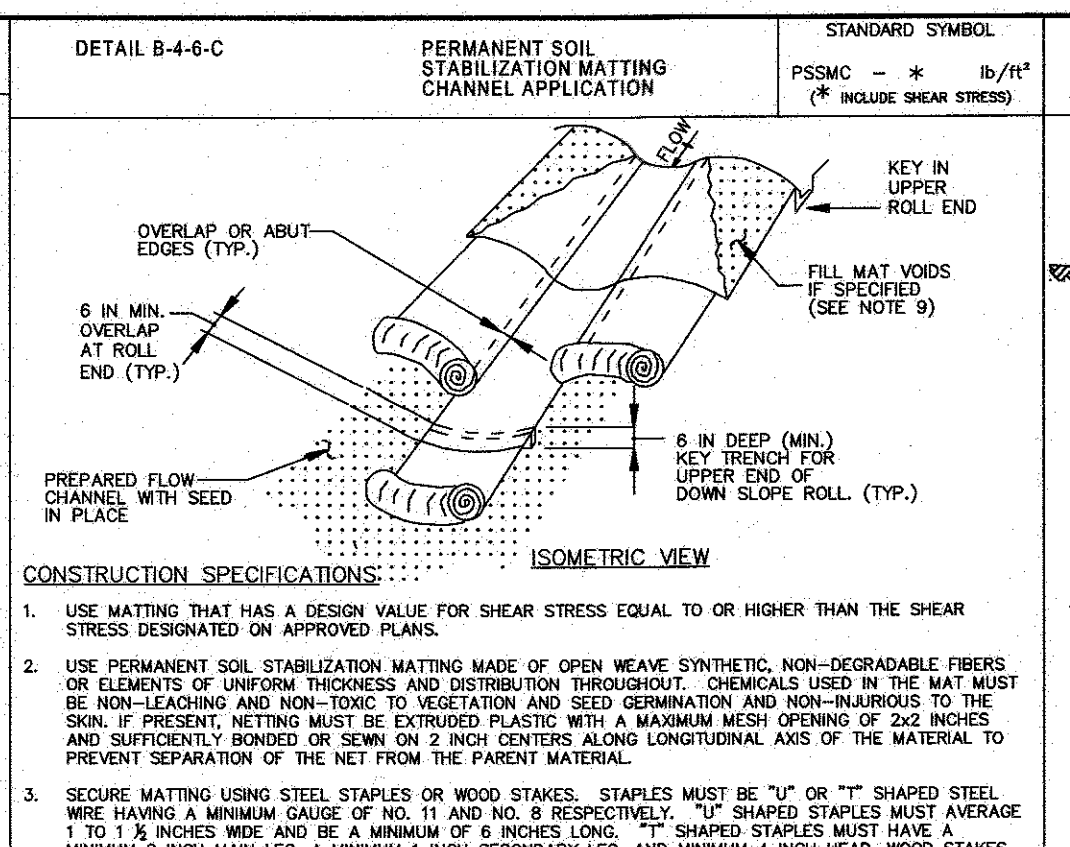
- CONSTRUCTION SPECIFICATIONS**
- INSTALL 26 IN DIAMETER GALVANIZED STEEL POSTS OF 0.083 INCH WALL THICKNESS AND SIX FOOT LENGTH SPACED NO FURTHER THAN 10 FEET APART. DRIVE THE POSTS A MINIMUM OF 36 INCHES INTO THE GROUND.
 - FASTEN 9 GAUGE OR HEAVIER GALVANIZED CHAIN LINK FENCE (26 INCH MAXIMUM OPENING) 42 INCHES IN HEIGHT SECURELY TO THE FENCE POSTS WITH WIRE TIES. PROVIDE RISE AS SPECIFIED ON APPROVED PLAN. WHEN THE SITE IS LOCATED AT A HIGH SPOT AND HAS NO DRAINAGE TO CONVEY A PIPE IS NOT NECESSARY. A MOUNTABLE BERM IS REQUIRED WHEN SUCH IS NOT LOCATED AT A HIGH SPOT.
 - PREPARE SUBGRADE AND PLACE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS.
 - PLACE CRUSHED AGGREGATE (2 TO 3 INCHES IN SIZE) OR EQUIVALENT RECYCLED CONCRETE (WITHOUT RUBBER) AT LEAST 6 INCHES DEEP OVER THE LENGTH AND WIDTH OF THE SILE.
 - MAINTAIN ENTRANCE IN A CONDITION THAT MINIMIZES TRACKING OF SEDIMENT. ADD STONE OR MAKE OTHER REPAIRS TO MAINTAIN CLEAN SURFACE. MOUNTABLE BERM, AND SPECIFIED DIMENSIONS. IMMEDIATELY REMOVE STONE, SAND, DIRT, OR OTHER MATERIALS FROM THE ENTRANCE BY VACUUMING, SCRAPPING, AND/OR SWEEPING. WASHING ROADWAY TO REMOVE MUD TRACKED ONTO PAVEMENT IS NOT ACCEPTABLE UNLESS WATER IS DIRECTED TO AN APPROVED SEDIMENT CONTROL PRACTICE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL
U.S. DEPARTMENT OF AGRICULTURE, 2011 MARYLAND DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES CONSERVATION SERVICE



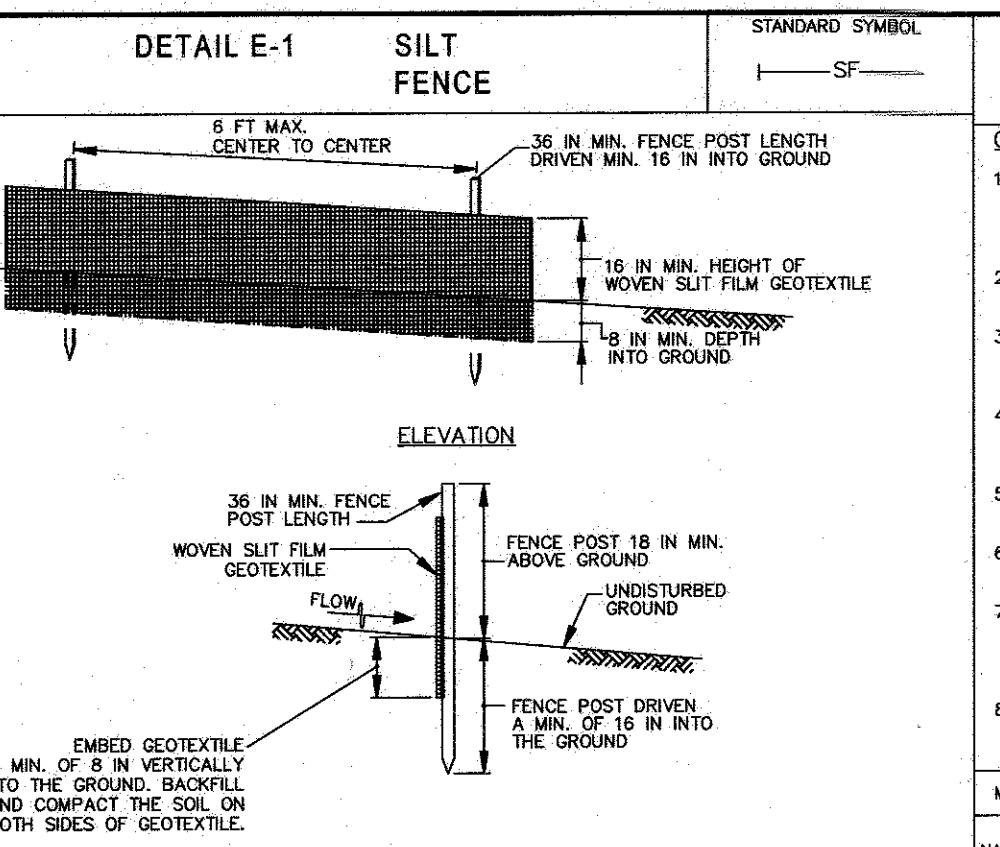
- CONSTRUCTION SPECIFICATIONS**
- PLACE STABILIZED CONSTRUCTION ENTRANCE IN ACCORDANCE WITH THE APPROVED PLAN. VEHICLES MUST TRAVEL OVER THE ENTIRE LENGTH OF THE SILE. USE MINIMUM LENGTH OF 50 FEET (430 FEET FOR SINGLE RESIDENCE L.O.D.). USE MINIMUM WIDTH OF 10 FEET. FLARE SIDE TO 10 FEET MINIMUM AT THE END OF THE ROAD TO PROVIDE A TURNING RADIUS.
 - PIPE ALLOW SURFACE WATER FLOWING TO OR DIVERTED TOWARD THE SIDE UNDER THE ENTRANCE. MAINTAIN PROPER DRAINAGE. PROTECT PIPE INSTALLED THROUGH THE SILE WITH A MOUNTABLE BERM. PROVIDE RISE AS SPECIFIED ON APPROVED PLAN. WHEN THE SITE IS LOCATED AT A HIGH SPOT AND HAS NO DRAINAGE TO CONVEY A PIPE IS NOT NECESSARY. A MOUNTABLE BERM IS REQUIRED WHEN SUCH IS NOT LOCATED AT A HIGH SPOT.
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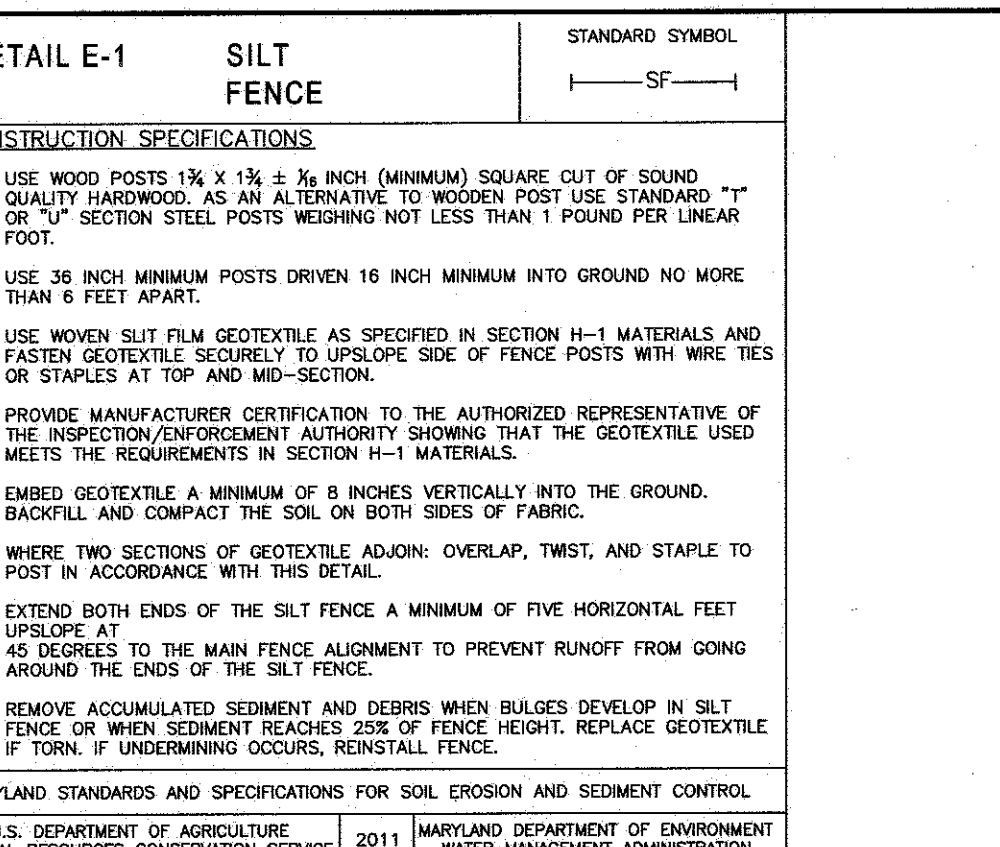
- CONSTRUCTION SPECIFICATIONS**
- USE MATTING THAT HAS A DESIGN VALUE FOR SHEAR STRESS EQUAL TO OR HIGHER THAN THE SHEAR STRESS DESIGNATED ON APPROVED PLANS.
 - USE PERMANENT SOIL STABILIZATION MATTING MADE OF OPEN WEAVE SYNTHETIC NON-DEGRADABLE FIBERS OR ELEMENTS OF UNIFORM THICKNESS AND DISTRIBUTION THROUGHOUT. CHEMICALS USED IN THE MAT MUST BE NON-LEACHING AND NON-TOXIC TO VEGETATION AND SEED GERMINATION AND NON-HARMFUL TO THE SOIL. IF PRESENT, NETTING MUST BE EXTREMELY CLOSE TO THE MAT WITH A MAXIMUM MESH OPENING OF A MINIMUM 8 INCH MAX. LEG, A MINIMUM 1/2 INCH SECONDARY LEG, AND MINIMUM 4 INCH HEAD. WOOD STAPLES MUST BE ROUND-SAWN HARDWOOD, 12 TO 24 INCHES IN LENGTH, 1.5 INCH IN CROSS SECTION, AND WEDGE SHAPE AT THE BOTTOM.
 - PERFORM FINAL GRADING, TOPSOIL APPLICATION, SEEDING PREPARATION, AND PERMANENT SEEDING IN ACCORDANCE WITH THE APPROVED PLAN. PLACE MATTING WITHIN 48 HOURS OF COMPLETING SEEDING OPERATIONS. UNLESS END OF WOODWAY STABILIZATION IS SPECIFIED ON THE APPROVED EROSION AND SEDIMENT CONTROL PLAN.
 - UNROLL MATTING IN DIRECTION OF WATER FLOW, CENTERING THE FIRST ROLL ON THE CHANNEL CENTER LINE. WORK FROM CENTER OF CHANNEL OUTWARD WHEN PLACING ROLLS. LAY MATTING SMOOTHLY AND FIRMLY UPON THE SUBGRADE SURFACE. AVOID STRIKING THE MATTING WITH TOOLS OR EQUIPMENT.
 - OVERLAP OR ABUT EDGES OF MATTING ROLLS PER MANUFACTURER RECOMMENDATIONS. OVERLAP ROLLS BY 8 INCHES (MINIMUM) WITH THE UPSTREAM MAT OVERLAPPING ON TOP OF THE NEXT DOWNSTREAM MAT.
 - KEY IN THE TOP OF SLOPE END OF MAT 6 INCHES (MINIMUM) BY DIGGING A TRENCH, PLACING THE MATTING INTO THE TRENCH, STAPLING THE MAT IN PLACE, REPLACING THE EXCAVATED MATERIAL, AND TAMPING TO SECURE THE SLOPE END IN THE KEY.
 - STAPLE/STAKE MAT IN A STAGGERED PATTERN ON 4 FOOT (MAXIMUM) CENTERS THROUGHOUT AND 2 FOOT (MAXIMUM) CENTERS ALONG SLOPES, JOINTS, AND ROLL ENDS.
 - AS SPECIFIED BY THE DESIGNER OR MANUFACTURER AND APPROVED ON THE TYPE OF MAT BEING INSTALLED, ONCE THE MATTING IS KEPT AND STAPLED IN PLACE, FILL THE MAT VOIDS WITH TOP SOIL OR GRANULAR MATERIAL AND LIGHTLY COMPACT OR ROLL TO MAXIMIZE SOIL/MAT CONTACT WITHOUT CRUSHING MAT.
 - ESTABLISH AND MAINTAIN VEGETATION SO THAT REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT ARE CONTINUOUSLY MET IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL
U.S. DEPARTMENT OF AGRICULTURE, 2011 MARYLAND DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES CONSERVATION SERVICE



- CONSTRUCTION SPECIFICATIONS**
- USE WOOD POSTS 1 1/2 x 1 1/2 INCH (MINIMUM) SQUARE CUT OF SOUND QUALITY HARDWOOD. AS AN ALTERNATIVE TO WOODEN POST USE STANDARD 1" DIA. SECTION STEEL POSTS WEARING NOT LESS THAN 1 POUND PER LINEAR FOOT.
 - USE 36 INCH MINIMUM POSTS DRIVEN 18 INCH MINIMUM INTO GROUND NO MORE THAN 6 FEET ABOVE SURFACE OF GROUND.
 - USE WOVEN SILT FENCE MAT AS SPECIFIED IN SECTION H-1 MATERIALS AND FASTEN GEOTEXTILE SECURELY TO UPSLOPE SIDE OF FENCE POSTS WITH WIRE TIES OR STAPLES AT TOP AND MID-SECTION.
 - PROVIDE MANUFACTURER CERTIFICATION TO THE AUTHORIZED REPRESENTATIVE OF THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT THE GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS.
 - EMBED GEOTEXTILE A MINIMUM OF 6 INCHES VERTICALLY INTO THE GROUND. BACKFILL AND COMPACT THE SOIL ON BOTH SIDES OF FENCE POSTS TO THE REQUIREMENTS IN SECTION H-1 MATERIALS.
 - WHERE TWO SECTIONS OF GEOTEXTILE ADJOIN, OVERLAP, TWIST, AND STAPLE TO POST IN ACCORDANCE WITH THIS DETAIL.
 - EXTEND BOTH ENDS OF THE SILT FENCE A MINIMUM OF FIVE HORIZONTAL FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT TO PREVENT RUNOFF FROM GOING AROUND THE ENDS OF THE SILT FENCE.
 - REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN SILT FENCE OR WHEN SEDIMENT REACHES 75% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN. IF UNDERMINING OCCURS, REINSTALL FENCE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL
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 - USE WOVEN SILT FENCE MAT AS SPECIFIED IN SECTION H-1 MATERIALS AND FASTEN GEOTEXTILE SECURELY TO UPSLOPE SIDE OF FENCE POSTS WITH WIRE TIES OR STAPLES AT TOP AND MID-SECTION.
 - PROVIDE MANUFACTURER CERTIFICATION TO THE AUTHORIZED REPRESENTATIVE OF THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT THE GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS.
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 - WHERE TWO SECTIONS OF GEOTEXTILE ADJOIN, OVERLAP, TWIST, AND STAPLE TO POST IN ACCORDANCE WITH THIS DETAIL.
 - EXTEND BOTH ENDS OF THE SILT FENCE A MINIMUM OF FIVE HORIZONTAL FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT TO PREVENT RUNOFF FROM GOING AROUND THE ENDS OF THE SILT FENCE.
 - REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN SILT FENCE OR WHEN SEDIMENT REACHES 75% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN. IF UNDERMINING OCCURS, REINSTALL FENCE.

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B-4 STANDARDS AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION
Definition: Using vegetation as cover to protect exposed soil from erosion.
Purpose: To promote the establishment of vegetation on exposed soil.
Conditions Where Practice Applies: On all disturbed areas not stabilized by other methods. This specification is divided into sections on incremental stabilization, soil preparation, soil amendments and topsoil, seeding and mulching; topsoil stabilization; and permanent stabilization.

Criteria
Effects on Water Quality and Quantity: Stabilization practices are used to promote the establishment of vegetation on exposed soil. When soil is stabilized with vegetation, the soil is less likely to erode and more likely to allow infiltration of rainfall, thereby reducing sediment loads and runoff to downstream areas. Planting vegetation in disturbed areas will have an effect on the water budget, especially on volumes and rates of runoff, infiltration, evaporation, transpiration, condensation, and groundwater recharge. Over time, vegetation will increase organic matter content and improve the water holding capacity of the soil, resulting in increased water infiltration and reduced runoff. Vegetation will help reduce the movement of sediment, nutrients, and other chemicals carried by runoff to receiving waters. Plants will also help protect groundwater supplies by assimilating toxic substances present within the root zone. Sediment control practices must remain in place during grading, seedbed preparation, seeding, mulching, and vegetative establishment.

Adequate Vegetative Establishment
Inspected seedbed areas for vegetative establishment and make necessary repairs, replacements, and reseedings within the planting season.
1. Adequate vegetative establishment requires 85 percent groundcover.
2. If an area has less than 40 percent groundcover, restabilize following the original recommendations for lime, fertilizer, seedbed preparation, and seeding.
3. If an area has between 40 and 94 percent groundcover, over-seed and fertilize using half of the rates originally specified.
4. Maintenance fertilizer rates for permanent seeding are shown in Table B.6.

B-4 STANDARDS AND SPECIFICATIONS FOR TEMPORARY STABILIZATION
Definition: To stabilize disturbed soils with vegetation for up to 6 months.
Purpose: To use fast growing vegetation that provides cover on disturbed soils.
Conditions Where Practice Applies: Exposed soils where ground cover is needed for a period of 6 months or more. For longer duration of time, permanent stabilization practices are required.

Criteria
1. Select one or more of the species or species mixes listed in Table B.1 for the appropriate Plant Hardiness Zone (from Figure B.3), and enter them in the Temporary Seeding Summary below along with application rates, seeding dates and seeding depths. If this Summary is not put on the plan and completed, then Table B.1 plus fertilizer and lime rates must be put on the plan.
2. For areas having soil texture, use and show the recommended rates by the testing agency. Soil tests are not required for Temporary Seeding.
3. When stabilization is required in a seeding season, apply seed and mulch or straw match same as prescribed in Section B-4.5.A.1 and maintain until the next seeding season.

B-4 STANDARDS AND SPECIFICATIONS FOR SOIL PREPARATION, TOPSOILING, AND SOIL AMENDMENTS
Definition: The process of preparing the soils to sustain adequate vegetative stabilization.
Purpose: To provide a suitable soil medium for vegetative growth.
Conditions Where Practice Applies: Where vegetative stabilization is to be established.

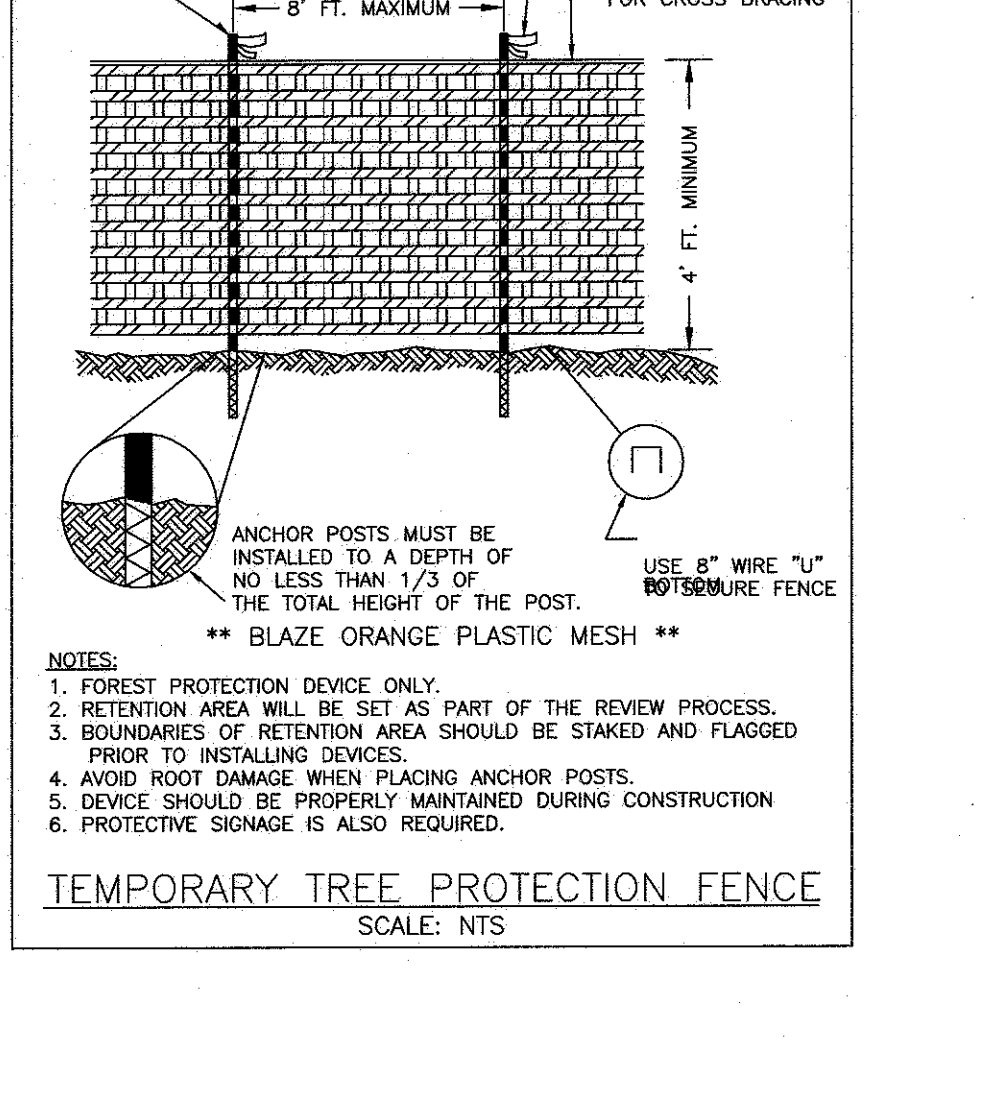
Criteria
A. Soil Preparation
1. Temporary Stabilization
a. Seedbed preparation consists of loosening soil to a depth of 3 to 5 inches by means of suitable agricultural or construction equipment, such as disc harrows or chisel plows or rippers mounted on construction equipment. After the soil is loosened, it must not be rolled or dragged smooth but left in the roughened condition. Slopes 3:1 or flatter are to be treated with ridges running parallel to the contour of the slope.
b. Apply fertilizer and lime as prescribed on the plans.
c. Incorporate lime and fertilizer into the top 3 to 5 inches of soil by disking or other suitable means.
2. Permanent Stabilization
a. A soil test is required for any earth disturbance of 5 acres or more. The minimum soil test conditions required for permanent vegetative establishment are:
i. Soil pH between 6.0 and 7.0.
ii. Soluble salts less than 500 parts per million (ppm).
iii. Soil contains less than 40 percent clay but enough fine material (greater than 30 percent silt plus clay) to provide the capacity to hold a graded amount of moisture. An exception: If topsoils will be planted, then a sandy soil (less than 30 percent silt plus clay) would be acceptable.
iv. Soil contains 1.5 percent minimum organic matter by weight.
v. Soil contains sufficient pore space to permit adequate root penetration.
b. Application of amendments or topsoil is required if on-site soils do not meet the above conditions.
c. Graded areas must be maintained in a true and even grade as specified on the approved plan, then scarified or otherwise loosened to a depth of 3 to 5 inches.
d. Apply soil amendments as specified on the approved plan or as indicated by the results of a soil test.
e. Mix soil amendments into the top 3 to 5 inches of soil by disking or other suitable means. Rake lawn areas to smooth the surface, remove large objects like stones and branches, and ready the area for seed application. Loosen surface soil by dragging with a heavy chain or other equipment to roughen the surface where site conditions will not permit normal seedbed preparation. Track slopes 3:1 or flatter with tracked equipment leaving the soil in an irregular condition with ridges running parallel to the contour of the slope. Leave the top 1 to 3 inches of soil loose and friable. Seedbed loosening may be unnecessary on newly disturbed areas.

B-4 STANDARDS AND SPECIFICATIONS FOR SEEDING AND MULCHING
Definition: The application of seed and mulch to establish vegetative cover.
Purpose: To protect disturbed soils from erosion during and at the end of construction.
Conditions Where Practice Applies: To the surface of all perimeter controls, slopes, and any disturbed area.

Criteria
A. Seeding
1. Specifications
a. All seed must meet the requirements of the Maryland State Seed Law. All seed must be subject to testing by a recognized seed laboratory. All seed used must have been tested within the 6 months immediately preceding the date of sowing such material on any project. Refer to Table B.4 regarding the quality of seed. Seed tags must be available upon request to the inspector to verify type of seed and seeding rate.
b. Mulch alone may be applied between the fall and spring seeding dates only if the ground is frozen. The appropriate seeding mixture must be applied when the ground thaws.
c. Inclosures: The inclosure for treating legume seed in the seed mixtures must be a pure culture of nitrogen fixing bacteria specifically for the species. Inclosures must not be used later than the date indicated on the container. Add fresh inclosures as directed on the package. Use four times the recommended rate when hydroseeding. Note: It is very important to keep inclosures as cool as possible until use. Temperatures above 75 to 80 degrees Fahrenheit can weaken bacteria and make the inclosure less effective.
d. Soil or seed must not be placed on soil which has been treated with soil sterilants or chemicals used for weed control until sufficient time has elapsed (14 days min.) to permit dispersal of phytotoxic material.
2. Application
a. Dry Seeding: This includes use of conventional dry or broadcast seeders.
i. Incorporate seed into the subsoil at the rates prescribed on Temporary Seeding Table B.1, Permanent Seeding Table B.5, or site-specific seeding summaries.
ii. Apply seed in two directions, perpendicular to each other. Apply half the seeding rate in each direction. Roll the seedbed area with a weighted roller to provide good seed to soil contact.
b. Drill or Outdragger Seeding: Mechanized seeders which apply seed and cover with soil.
i. Outdragger seeders are required to bury the seed in such a fashion as to provide a seedbed at least 1/4 inch of soil covering. Seedbed must be firm after planting.
ii. Apply seed in two directions, perpendicular to each other. Apply half the seeding rate in each direction.
c. Hydroseeding: Apply seed uniformly with hydroseeder (slurry includes seed and fertilizer).
i. If fertilizer is being applied at the time of seeding, the application rates should be as follows: nitrogen, 100 pounds per acre (or as preferred); phosphorus, 200 pounds per acre; potassium, 200 pounds per acre.
ii. Wood cellulose fiber may be used for anchoring straw. Apply the fiber binder at a net dry weight of 750 pounds per acre. Mix the wood cellulose fiber with water at a maximum of 50 parts cellulose fiber to 100 parts water.
iii. Synthetic binders such as Acrylic DLR (Agro-Tack), DCA-70, Penotest, Term Tack II, Term Tack AR or other approved equal may be used. Synthetic binder application rates as specified by the manufacturer. Application of liquid binders needs to be heavier at the ridges where wind catches much, such as in valleys and on crests of banks.
iv. Lightweight plastic netting may be stapled over the mulch according to manufacturer recommendations. Netting is usually available in rolls 4 to 15 feet wide and 300 to 3,000 feet long.

B-4 STANDARDS AND SPECIFICATIONS FOR SEEDING AND MULCHING
Definition: The application of seed and mulch to establish vegetative cover.
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i. Outdragger seeders are required to bury the seed in such a fashion as to provide a seedbed at least 1/4 inch of soil covering. Seedbed must be firm after planting.
ii. Apply seed in two directions, perpendicular to each other. Apply half the seeding rate in each direction.
c. Hydroseeding: Apply seed uniformly with hydroseeder (slurry includes seed and fertilizer).
i. If fertilizer is being applied at the time of seeding, the application rates should be as follows: nitrogen, 100 pounds per acre (or as preferred); phosphorus, 200 pounds per acre; potassium, 200 pounds per acre.
ii. Wood cellulose fiber may be used for anchoring straw. Apply the fiber binder at a net dry weight of 750 pounds per acre. Mix the wood cellulose fiber with water at a maximum of 50 parts cellulose fiber to 100 parts water.
iii. Synthetic binders such as Acrylic DLR (Agro-Tack), DCA-70, Penotest, Term Tack II, Term Tack AR or other approved equal may be used. Synthetic binder application rates as specified by the manufacturer. Application of liquid binders needs to be heavier at the ridges where wind catches much, such as in valleys and on crests of banks.
iv. Lightweight plastic netting may be stapled over the mulch according to manufacturer recommendations. Netting is usually available in rolls 4 to 15 feet wide and 300 to 3,000 feet long.



ANCHOR POSTS SHOULD BE MIN. 2" STEEL "U" CHANNEL OR 2"x2" TIMBER, 6" IN. LG.
HIGHLY VISIBLE FLAGGING
USE 2"x4" LUMBER FOR CROSS BRACING
ANCHOR POSTS MUST BE INSTALLED TO A DEPTH OF NO LESS THAN 1/3 OF THE TOTAL HEIGHT OF THE POST.
** BLAZE ORANGE PLASTIC MESH **
NOTIFY SEDIMENT CONTROL DIVISION 48 HOURS PRIOR TO START OF WORK
PHASE I

B-4 STANDARDS AND SPECIFICATIONS FOR SOIL PREPARATION, TOPSOILING, AND SOIL AMENDMENTS
Definition: The process of preparing the soils to sustain adequate vegetative stabilization.
Purpose: To provide a suitable soil medium for vegetative growth.
Conditions Where Practice Applies: Where vegetative stabilization is to be established.

Criteria
A. Soil Preparation
1. Temporary Stabilization
a. Seedbed preparation consists of loosening soil to a depth of 3 to 5 inches by means of suitable agricultural or construction equipment, such as disc harrows or chisel plows or rippers mounted on construction equipment. After the soil is loosened, it must not be rolled or dragged smooth but left in the roughened condition. Slopes 3:1 or flatter are to be treated with ridges running parallel to the contour of the slope.
b. Apply fertilizer and lime as prescribed on the plans.
c. Incorporate lime and fertilizer into the top 3 to 5 inches of soil by disking or other suitable means.
2. Permanent Stabilization
a. A soil test is required for any earth disturbance of 5 acres or more. The minimum soil test conditions required for permanent vegetative establishment are:
i. Soil pH between 6.0 and 7.0.
ii. Soluble salts less than 500 parts per million (ppm).
iii. Soil contains less than 40 percent clay but enough fine material (greater than 30 percent silt plus clay) to provide the capacity to hold a graded amount of moisture. An exception: If topsoils will be planted, then a sandy soil (less than 30 percent silt plus clay) would be acceptable.
iv. Soil contains 1.5 percent minimum organic matter by weight.
v. Soil contains sufficient pore space to permit adequate root penetration.
b. Application of amendments or topsoil is required if on-site soils do not meet the above conditions.
c. Graded areas must be maintained in a true and even grade as specified on the approved plan, then scarified or otherwise loosened to a depth of 3 to 5 inches.
d. Apply soil amendments as specified on the approved plan or as indicated by the results of a soil test.
e. Mix soil amendments into the top 3 to 5 inches of soil by disking or other suitable means. Rake lawn areas to smooth the surface, remove large objects like stones and branches, and ready the area for seed application. Loosen surface soil by dragging with a heavy chain or other equipment to roughen the surface where site conditions will not permit normal seedbed preparation. Track slopes 3:1 or flatter with tracked equipment leaving the soil in an irregular condition with ridges running parallel to the contour of the slope. Leave the top 1 to 3 inches of soil loose and friable. Seedbed loosening may be unnecessary on newly disturbed areas.

B-4 STANDARDS AND SPECIFICATIONS FOR SEEDING AND MULCHING
Definition: The application of seed and mulch to establish vegetative cover.
Purpose: To protect disturbed soils from erosion during and at the end of construction.
Conditions Where Practice Applies: To the surface of all perimeter controls, slopes, and any disturbed area.

Criteria
A. Seeding
1. Specifications
a. All seed must meet the requirements of the Maryland State Seed Law. All seed must be subject to testing by a recognized seed laboratory. All seed used must have been tested within the 6 months immediately preceding the date of sowing such material on any project. Refer to Table B.4 regarding the quality of seed. Seed tags must be available upon request to the inspector to verify type of seed and seeding rate.
b. Mulch alone may be applied between the fall and spring seeding dates only if the ground is frozen. The appropriate seeding mixture must be applied when the ground thaws.
c. Inclosures: The inclosure for treating legume seed in the seed mixtures must be a pure culture of nitrogen fixing bacteria specifically for the species. Inclosures must not be used later than the date indicated on the container. Add fresh inclosures as directed on the package. Use four times the recommended rate when hydroseeding. Note: It is very important to keep inclosures as cool as possible until use. Temperatures above 75 to 80 degrees Fahrenheit can weaken bacteria and make the inclosure less effective.
d. Soil or seed must not be placed on soil which has been treated with soil sterilants or chemicals used for weed control until sufficient time has elapsed (14 days min.) to permit dispersal of phytotoxic material.
2. Application
a. Dry Seeding: This includes use of conventional dry or broadcast seeders.
i. Incorporate seed into the subsoil at the rates prescribed on Temporary Seeding Table B.1, Permanent Seeding Table B.5, or site-specific seeding summaries.
ii. Apply seed in two directions, perpendicular to each other. Apply half the seeding rate in each direction. Roll the seedbed area with a weighted roller to provide good seed to soil contact.
b. Drill or Outdragger Seeding: Mechanized seeders which apply seed and cover with soil.
i. Outdragger seeders are required to bury the seed in such a fashion as to provide a seedbed at least 1/4 inch of soil covering. Seedbed must be firm after planting.
ii. Apply seed in two directions, perpendicular to each other. Apply half the seeding rate in each direction.
c. Hydroseeding: Apply seed uniformly with hydroseeder (slurry includes seed and fertilizer).
i. If fertilizer is being applied at the time of seeding, the application rates should be as follows: nitrogen, 100 pounds per acre (or as preferred); phosphorus, 200 pounds per acre; potassium, 200 pounds per acre.
ii. Wood cellulose fiber may be used for anchoring straw. Apply the fiber binder at a net dry weight of 750 pounds per acre. Mix the wood cellulose fiber with water at a maximum of 50 parts cellulose fiber to 100 parts water.
iii. Synthetic binders such as Acrylic DLR (Agro-Tack), DCA-70, Penotest, Term Tack II, Term Tack AR or other approved equal may be used. Synthetic binder application rates as specified by the manufacturer. Application of liquid binders needs to be heavier at the ridges where wind catches much, such as in valleys and on crests of banks.
iv. Lightweight plastic netting may be stapled over the mulch according to manufacturer recommendations. Netting is usually available in rolls 4 to 15 feet wide and 300 to 3,000 feet long.

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iv. Lightweight plastic netting may be stapled over the mulch according to manufacturer recommendations. Netting is usually available in rolls 4 to 15 feet wide and 300 to 3,000 feet long.

SEQUENCE OF CONSTRUCTION (CON'T)
PHASE 2 - HOUSE CONSTRUCTION
1. INSTALL SUPER SILT FENCES ALONG LOT STRIKE. (DAY 1)
2. EXCAVATE FOR FOUNDATION, ROUGH GRADE THE MICRO PRACTICES WITH PILE-TYPE INFLUXES TO FINISHED GRADE AND CREATE EMBANKMENTS. DO NOT EXCAVATE BELOW SWM MUDCH ELEVATION AT THIS STEP. STABILIZE SLOPES IN ACCORDANCE WITH THE TEMPORARY SEEDING NOTES. (DAY 2-6)
3. CONSTRUCT HOUSES, BACKFILL AND CONSTRUCT DRIVEWAYS, CONSTRUCT DRYWELLS AND ANY REMAINING SWM PRACTICES. (DAY 6-9)
4. INSTALL STORM DRAINS. (DAY 6-10)
5. INSTALL CURB & GUTTER AND BASS PAVING. MAINTAIN STABILIZED CONSTRUCTION ENTRANCE WITH MACADAM BERM TO CONTINUE FLOW TO UNEXCAVATED BROWBERENT FILL. (DAY 10-12)
6. STABILIZE ALL AREAS IN ACCORDANCE WITH THE TEMPORARY SEEDING NOTES. (DAY 12-125)
7. CONSTRUCT PUBLIC SWM FACILITIES COMPLETE WITH UNDERDRAIN PIPES. (DAY 126-155)
8. ONCE ALL AREAS HAVE BEEN STABILIZED WITH THE PERMANENT SEEDING NOTES AND UPON APPROVAL FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, REMOVE ALL REMAINING CONSTRUCTION ENTRANCES AND MACADAM BERM LEADING TO PUBLIC FACILITY. (DAY 156-165)
9. UPON APPROVAL OF THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, REMOVE ALL REMAINING SEDIMENT CONTROL DEVICES AND STAPLES AND ANY REMAINING AREAS IN ACCORDANCE WITH THE PERMANENT SEEDING NOTES. (DAY 166)

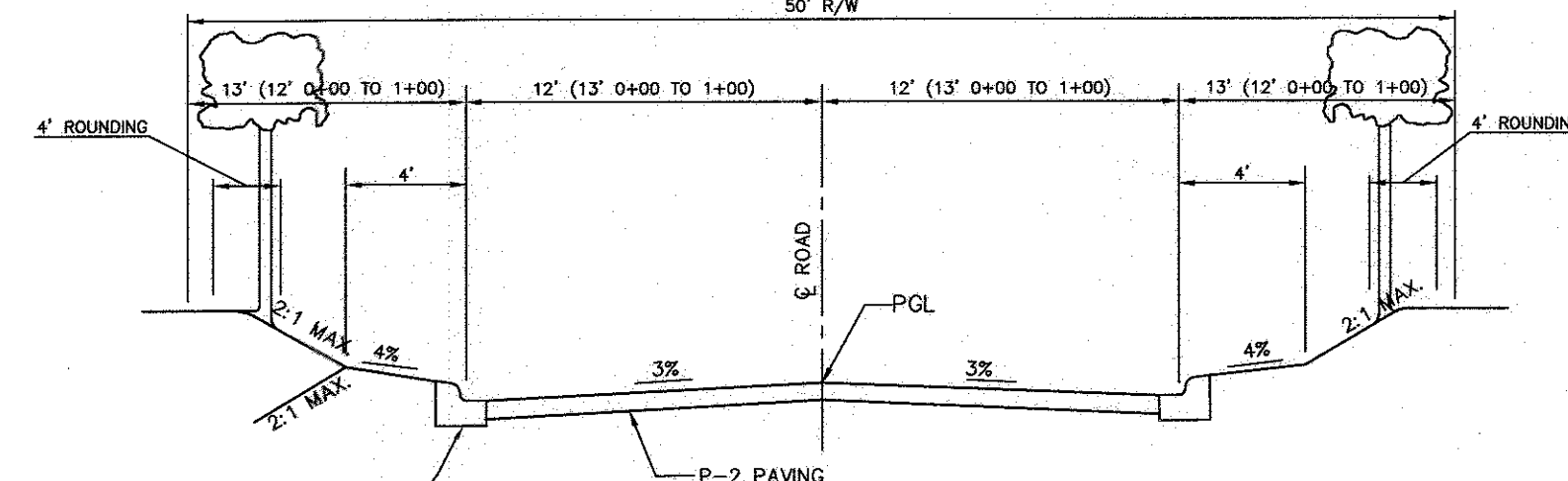
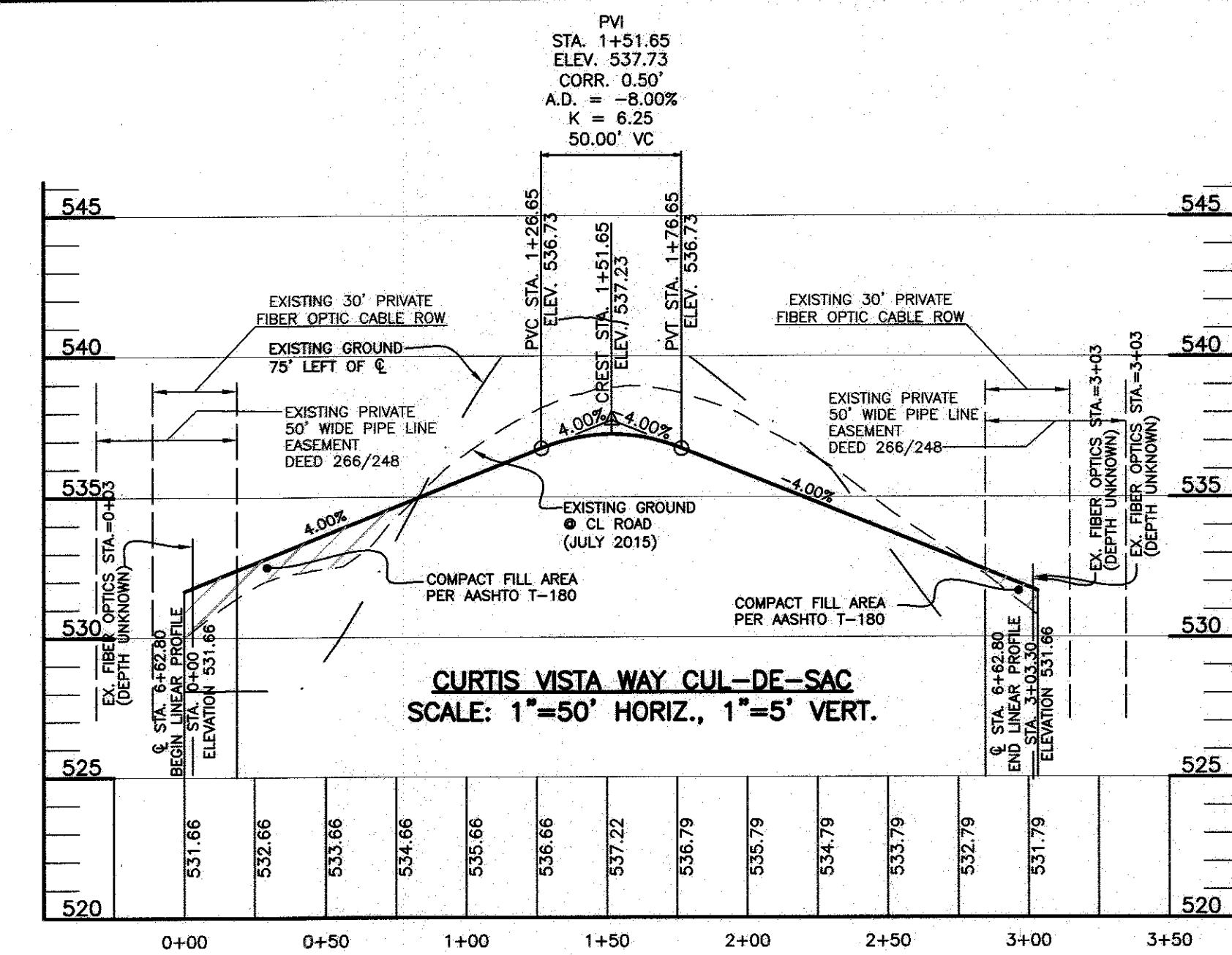
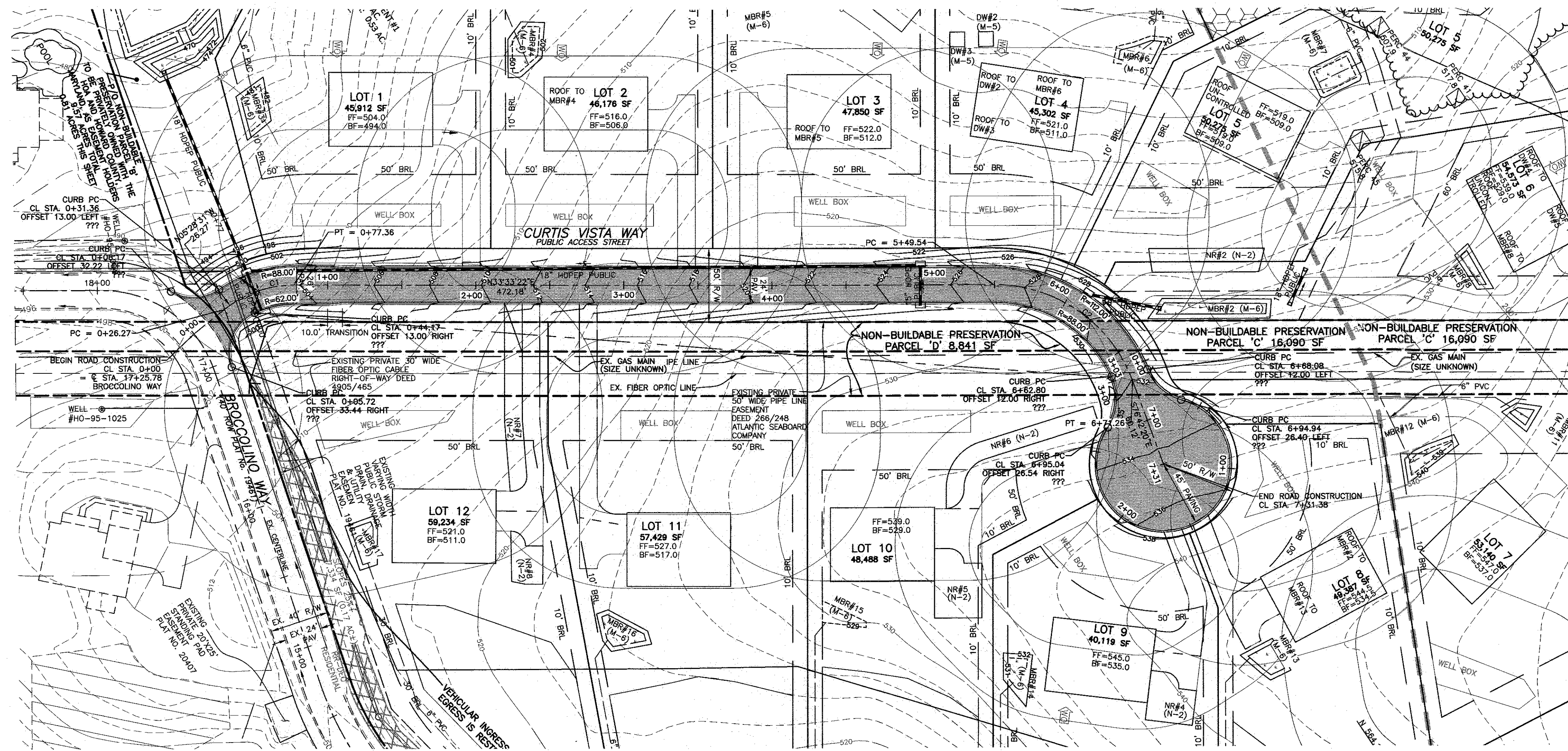
Table B.1: Temporary Seeding for Site Stabilization

Plant Species	Seeding Rate ¹		Seeding Depth (inches)	Recommended Seeding Dates by Plant Hardiness Zone ²				
	lb/acre	lb/1000 ft ²		5b and 6a	6b	7a and 7b	7c and 7d	7e and 7f
Annual Ryegrass (<i>Lolium perenne</i> spp. <i>multiflorum</i>)	40	1.0	0.5	Mar 15 to May 31; Aug 1 to Sep 30	Mar 1 to May 15; Aug 1 to Oct 15	Feb 15 to Apr 30; Aug 1 to Nov 15	Mar 1 to May 15; Aug 1 to Oct 15	Feb 15 to Apr 30; Aug 1 to Nov 15
Barley (<i>Hordeum vulgare</i>)	96	2.2	1.0	Mar 15 to May 31; Aug 1 to Sep 30	Mar 1 to May 15; Aug 1 to Oct 15	Feb 15 to Apr 30; Aug 1 to Nov 15	Mar 1 to May 15; Aug 1 to Oct 15	Feb 15 to Apr 30; Aug 1 to Nov 15
Oats (<i>Avena sativa</i>)	72	1.7	1.0	Mar 15 to May 31; Aug 1 to Sep 30	Mar 1 to May 15; Aug 1 to Oct 15	Feb 15 to Apr 30; Aug 1 to Nov 15	Mar 1 to May 15; Aug 1 to Oct 15	Feb 15 to Apr 30; Aug 1 to Nov 15
Wheat (<i>Triticum aestivum</i>)	120	2.8	1.0	Mar 15 to May 31; Aug 1 to Sep 30	Mar 1 to May 15; Aug 1 to Oct 15	Feb 15 to Apr 30; Aug 1 to Nov 15	Mar 1 to May 15; Aug 1 to Oct 15	Feb 15 to Apr 30; Aug 1 to Nov 15
Cereal Rye (<i>Secale cereale</i>)	112	2.8	1.0	Mar 15 to May 31; Aug 1 to Oct 31	Mar 1 to May 15; Aug 1 to Nov 15	Feb 15 to Apr 30; Aug 1 to Dec 15	Mar 1 to May 15; Aug 1 to Nov 15	Feb 15 to Apr 30; Aug 1 to Dec 15
Warm-Season Grasses								
Forstall Millet (<i>Setaria italica</i>)	30	0.7	0.5	Jun 1 to Jul 31	May 16 to Jul 31	May 1 to Aug 14		
Pearl Millet (<i>Pennisetum glaucum</i>)	20	0.5	0.5	Jun 1 to Jul 31	May 16 to Jul 31	May 1 to Aug 14		

NOTES:
1/ Seeding rates for the warm-season grasses are in pounds of Pure Live Seed (PLS). Actual planting rates shall be adjusted to reflect percent seed germination and purity, as tested. Adjustments are usually not needed for the cool-season grasses.
2/ Seeding rates listed above are for temporary seedings, when planted alone. When planted as a nurse crop with permanent seed mix, use 1/3 of the seeding rate listed above for barley, oats, and wheat. For permanent seedings (annual ryegrass, pearl millet, forstall millet), do not exceed more than 5% (by weight) of the overall permanent seeding mix. Cereal rye generally should not be used as a nurse crop, unless planting will occur in very fall beyond the seeding dates for other temporary seedings. Cereal rye has allelopathic properties that inhibit the germination and growth of other plants. If it must be used as a nurse crop, use 1/3 of the rate listed above.
3/ For sandy soils, plant seeds at twice the depth listed above.
4/ The planting dates listed are averages for each zone and may require adjustment to reflect local conditions, especially near the boundaries of the zones.

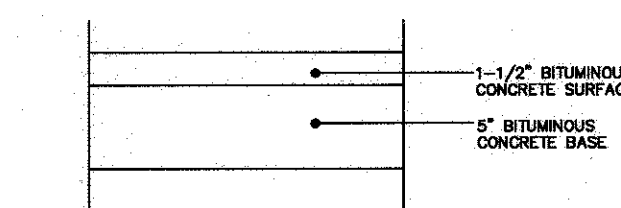
Table B.3: Recommended Planting Dates for Permanent Cover in Maryland¹

Type of Plant Material	Plant Hardiness Zones ²				
	5b and 6a	6b	7a and 7b	7c and 7d	7e and 7f
Seeds - Cool-Season Grasses (includes mixes with forbs and/or legumes)	Mar 15 to May 31 Aug 1 to Sep 30	Mar 1 to May 15 Aug 1 to Oct 15	Feb 15 to Apr 30 Aug 1 to Nov 15	Mar 1 to May 15 Aug 1 to Oct 15	Feb 15 to Apr 30 Aug 1 to Nov 15
Seeds - Warm-Season/Cool-Season Grass Mixes (includes mixes with forbs and/or legumes)	Mar 15 to May 31 Jun 1 to Jun 15*	Mar 1 to May 15** Jun 1 to Jun 15*	Mar 1 to May 15** Jun 1 to Jun 15*	Mar 1 to May 15** Jun 1 to Jun 15*	



TYPICAL ROADWAY SECTION

CURTIS VISTA WAY
(PUBLIC ACCESS STREET - 500 ADT OR LESS)
DESIGN SPEED: 30 MPH
STA. 0+12 TO STA. 7+31
NOT TO SCALE



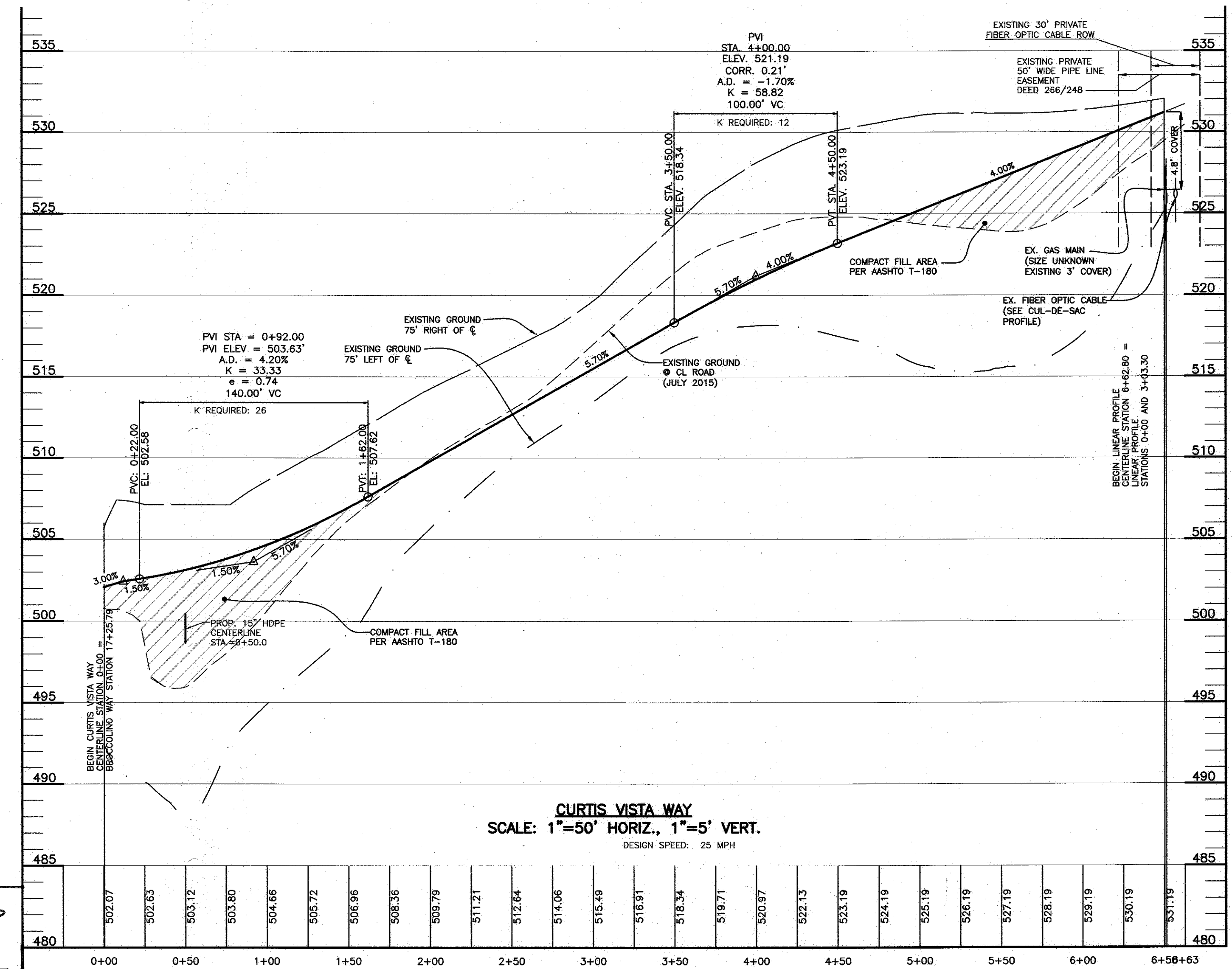
TYPICAL PAVEMENT SECTION

P-2 PAVING SECTION

USE ONLY THE TYPICAL SECTION SHOWN IN THE AREA OF THE GAS MAIN EASEMENTS. THE ALTERNATIVE IS NOT ACCEPTABLE IN THESE AREAS DUE TO DEPTH TO THE VARIOUS GAS MAINS. THE ALTERNATIVE PAVING SECTION INCLUDED IN DETAIL R-2.01 IS ACCEPTABLE OUTSIDE OF THE GAS MAIN EASEMENT AREAS. PROVIDE 1 FOOT FULL DEPTH SAWCUT ONTO TRIADAPLHIA MILL ROAD BEFORE ROAD WIDENING

CENTER LINE CURVE DATA

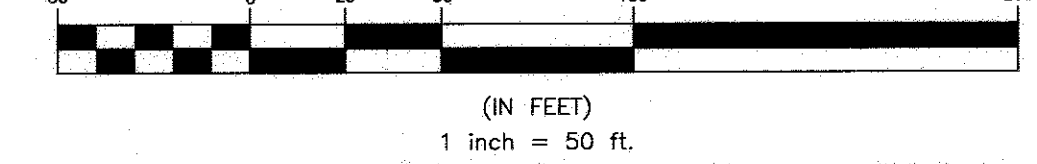
CURVE	ALIGNMENT	STATION	RADIUS	ARC	DELTA	TANGENT	CHORD DIRECTION	CHORD LENGTH
C1	CURTIS VISTA WAY	0+26.27 TO 0+77.36	75.00'	51.09'	39°01'53"	26.58'	N14°02'26"E	50.11'
C2	CURTIS VISTA WAY	5+49.54 TO 6+71.26	100.00'	121.72'	69°44'18"	69.68'	N68°25'31"E	114.34'



SECTION NUMBER	ROAD AND STREET CLASSIFICATION	CALIFORNIA BEARING RATIO (CBR)		PAVEMENT MATERIAL (INCHES)		MIN. HMA WITH GAB		HMA WITH CONSTANT GAB	
		3 TO <5	5 TO <7	>7	3 TO <5	5 TO <7	>7	3 TO <5	5 TO <7
P-2	PARKING DRIVE ANGLES: RESIDENTIAL AND NON-RESIDENTIAL WITH NO MORE THAN 10 HEAVY TRUCKS PER DAY LOCAL ROADS: ACCESS PLACE, ACCESS STREET CUL-DE-SAC: RESIDENTIAL	HMA SUPERPAVE FINAL SURFACE		1.5	1.5	1.5	1.5	1.5	1.5
		9.5 MM PG 64-22, LEVEL 1 (LOW ESAL)		1.0	1.0	1.0	1.0	1.0	1.0
		HMA SUPERPAVE INTERMEDIATE SURFACE		2.0	2.0	2.0	3.5	2.0	2.0
		9.5 MM PG 64-22, LEVEL 1 (LOW ESAL)		2.0	2.0	2.0	3.5	2.0	2.0
GRADED AGGREGATE BASE (GAB)		8.0	4.0	3.0	4.0	4.0	4.0	4.0	

SECTION NUMBER	ROAD AND STREET CLASSIFICATION	CALIFORNIA BEARING RATIO (CBR)	3 TO <5	5 TO <7	>7	3 TO <5	5 TO <7	>7
P-2	PARKING DRIVE ANGLES: RESIDENTIAL AND NON-RESIDENTIAL WITH NO MORE THAN 10 HEAVY TRUCKS PER DAY LOCAL ROADS: ACCESS PLACE, ACCESS STREET CUL-DE-SAC: RESIDENTIAL	HMA SUPERPAVE FINAL SURFACE	1.5	1.5	1.5	1.5	1.5	1.5
		9.5 MM PG 64-22, LEVEL 1 (LOW ESAL)	1.0	1.0	1.0	1.0	1.0	1.0
		HMA SUPERPAVE INTERMEDIATE SURFACE	2.0	2.0	2.0	3.5	2.0	2.0
		9.5 MM PG 64-22, LEVEL 1 (LOW ESAL)	2.0	2.0	2.0	3.5	2.0	2.0
		GRADED AGGREGATE BASE (GAB)	8.0	4.0	3.0	4.0	4.0	4.0

PROFILE
SCALE:
HORIZONTAL 1" = 50'
VERTICAL 1" = 5'



TENTATIVELY APPROVED
DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY
11-28-16
PLANNING DIRECTOR

Professional Certification. 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. 45577, Registration No. 06-08-2018.

BENCHMARK ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE & SUITE 315 A ELLICOTT CITY, MARYLAND 21043
(P) 410-465-8105 (F) 410-465-6844
WWW.BEI-ENGINEERING.COM

BRIGHTON MILL II
LOTS 1 THROUGH 12, BUILDABLE PRESERVATION PARCEL 'A' AND NON-BUILDABLE PRESERVATION PARCELS 'B' THROUGH 'D'

TAX MAP: 34, GRID: 2, PARCEL: 16 ZONED: RR-DEO
BROCCOLINO WAY
CLARKSVILLE, MD 21029
FIFTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

PRELIMINARY ROAD PROFILE

OWNER: DAVID A. AND DALE E. CURTIS
304 KLINGER DRIVE
WESTMINSTER, MD 21157
410-751-5686

DEVELOPER: HIGHLAND DEVELOPMENT CORP.
P.O. BOX 228
CLARKSVILLE, MARYLAND
21029 410-365-0414

DATE: JUNE, 2016
SCALE: AS SHOWN

BEI PROJECT NO. 2627
SHEET 9 OF 19

2-1/2"

FOREST CONSERVATION AREA
TREES FOR YOUR FUTURE

DUMPING, MACHINERY, OR STORAGE OF MATERIALS, CUTTING OR DISTURBANCE OF VEGETATION OR SOIL IN THIS AREA IS STRICTLY PROHIBITED

VIOLATORS ARE SUBJECT TO FINES AS IMPOSED BY THE HOWARD COUNTY FOREST CONSERVATION ACT

For more information or to report violations, please call Howard County Department of Recreation and Parks, Natural Resources Division
410-313-4725
TTY 410-313-4665

Materials: Number 3690 Scotcheal non-reflective substrate.
Color: Dark green text and border on beige background.
Note: Sign shall be placed in perpetuity.

REFLECTIVE SHEETING OR SPECIFIED DECAL

90° OF CURVATURE BY HANNET

BURIAL DEPTH MARK

MARKER DETAIL

MARKER - SECTION VIEW

LEGEND

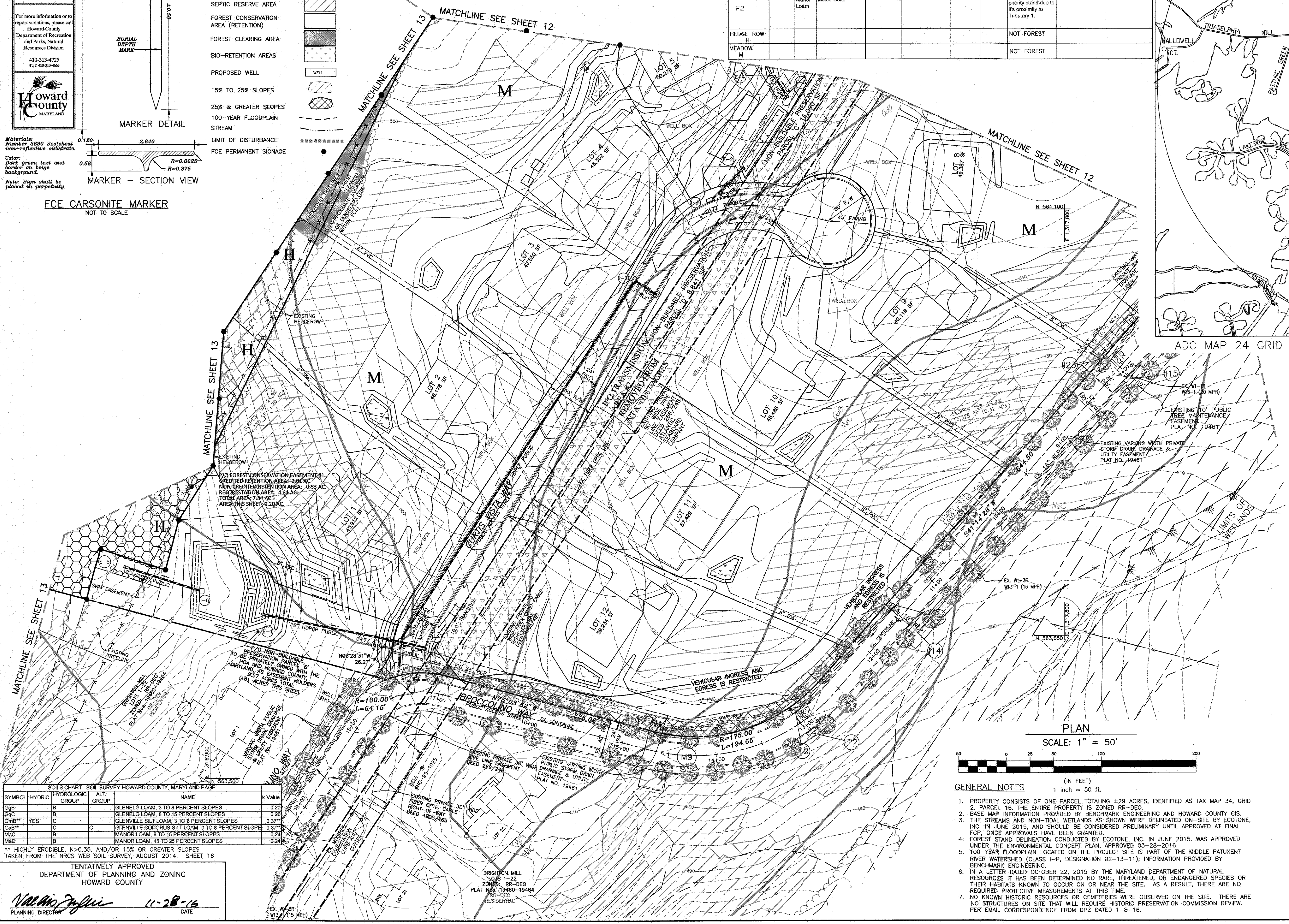
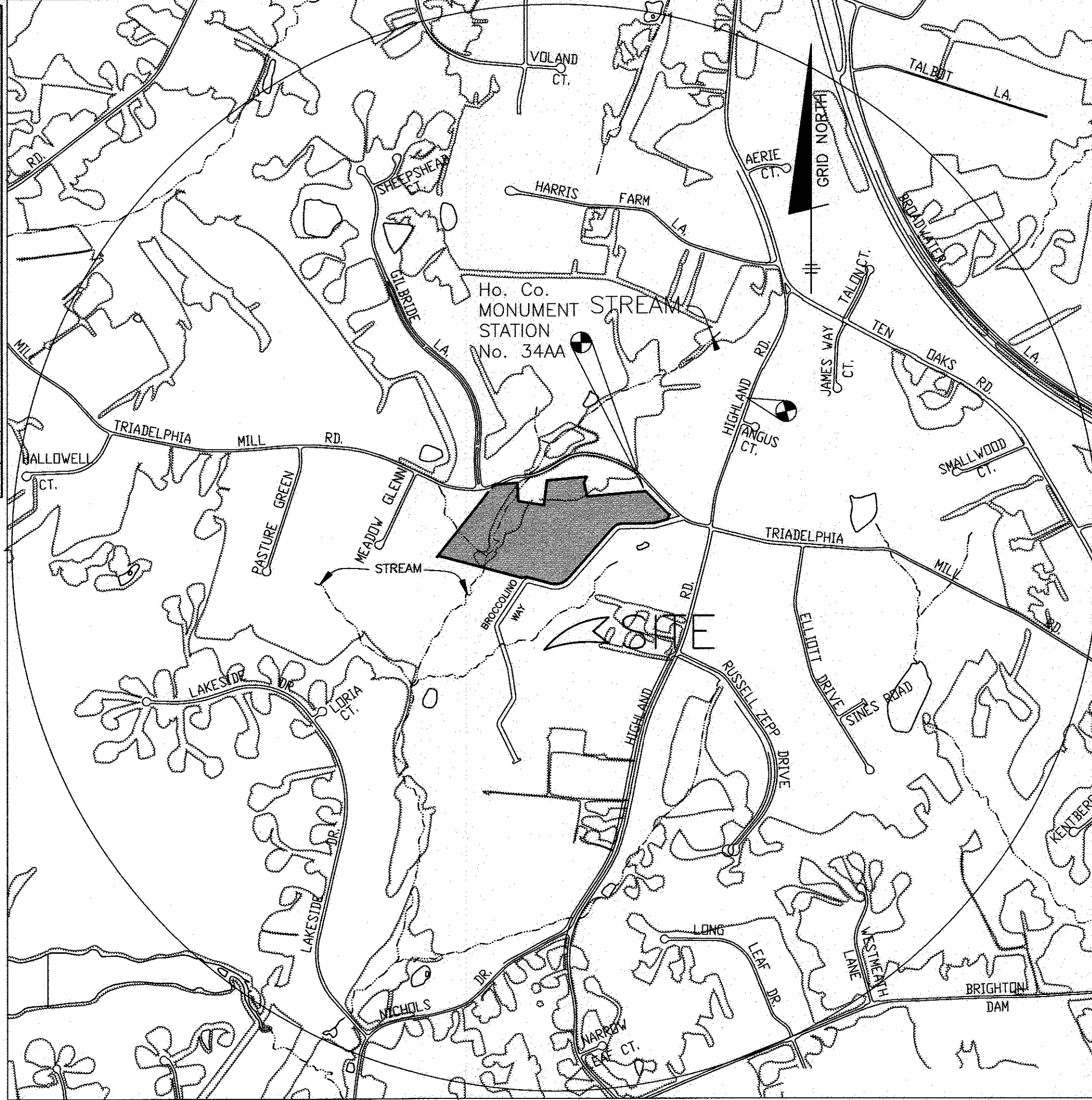
SOILS CLASSIFICATION	GgB	EXISTING SPECIMEN TREE	(Symbol)
SOILS DELINEATION	(Symbol)	EXISTING SPECIMEN TREE (TO BE REMOVED)	(Symbol)
EXISTING CONTOURS	(Symbol)	EXISTING STREET TREE	(Symbol)
LIMIT OF WETLANDS	(Symbol)	MEADOW	(Symbol)
EXISTING WOODS LINE	(Symbol)	HEDGEROW	(Symbol)
PROPOSED WOODS LINE	(Symbol)		
TREE PROTECTION FENCE	(Symbol)		
EXISTING STRUCTURE	(Symbol)		
EXISTING FIBER OPTICS & GAS EASEMENT	(Symbol)		
PROPOSED STRUCTURE	(Symbol)		
SEPTIC RESERVE AREA	(Symbol)		
FOREST CONSERVATION AREA (RETENTION)	(Symbol)		
FOREST CLEARING AREA	(Symbol)		
BIO-RETENTION AREAS	(Symbol)		
PROPOSED WELL	(Symbol)		
15% TO 25% SLOPES	(Symbol)		
25% & GREATER SLOPES	(Symbol)		
100-YEAR FLOODPLAIN	(Symbol)		
STREAM	(Symbol)		
LIMIT OF DISTURBANCE	(Symbol)		
FCE PERMANENT SIGNAGE	(Symbol)		

LEGEND

EXISTING SPECIMEN TREE	(Symbol)
EXISTING SPECIMEN TREE (TO BE REMOVED)	(Symbol)
EXISTING STREET TREE	(Symbol)
MEADOW	(Symbol)
HEDGEROW	(Symbol)
M	SEE FOREST STAND ANALYSIS TABLE (THIS SHEET)
H	SEE FOREST STAND ANALYSIS TABLE (THIS SHEET)

FOREST STAND ANALYSIS TABLE

A. TYPE OF COMMUNITY	B. AREA	C. SOIL INFORMATION			D. EXISTING VEGETATION	E. STAND CHARACTERISTICS		F. FOREST AREA IN SENSITIVE ENVIRONMENTS (acres)	G. HABITAT VALUE
		1. Soil Types	2. Typical Forest Cover for Soil Type	3. Woodland Suitability Index		1. Size (diameter)	2. Age		
Deciduous Forest F1	1.92 acres	MaC- Manor Loam	Mixed Oaks	43	White Oak Northern Red Oak Tulip poplar	24-36 18-30 18-30	50-75	Late successional forest in good condition with little or no understorey due to age class.	0.0 acres
Deciduous Forest F2	1.89 acres	MaC- Manor Loam	Mixed Oaks	44	Northern Red Oak White Oak Tulip poplar Red Maple Mockernut Hickory	18-30 18-30 18-24 14-18 9-12	50-75	Late successional forest in good condition with little or no understorey due to age class. This stand is a priority stand due to its proximity to Tributary 1.	1.09 acres
HEDGE ROW								NOT FOREST	
MEADOW								NOT FOREST	



SOILS CHART - SOIL SURVEY HOWARD COUNTY, MARYLAND PAGE

SYMBOL	HYDRO	HYDROLOGIC GROUP	ALT. GROUP	NAME	K Value
GgB	B			GLENELG LOAM, 3 TO 8 PERCENT SLOPES	0.20
GgC	B			GLENELG LOAM, 8 TO 15 PERCENT SLOPES	0.20
GmB**	YES	C		GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES	0.37**
GmB**	NO	C		GLENVILLE-CODORUS SILT LOAM, 0 TO 8 PERCENT SLOPE	0.37**
MnC	B			MANOR LOAM, 0 TO 15 PERCENT SLOPES	0.24
MnD	B			MANOR LOAM, 15 TO 25 PERCENT SLOPES	0.24

** HIGHLY ERODIBLE, K>0.35, AND/OR 15% OR GREATER SLOPES TAKEN FROM THE NRCS WEB SOIL SURVEY, AUGUST 2014. SHEET 16

- GENERAL NOTES**
- PROPERTY CONSISTS OF ONE PARCEL TOTALING ±29 ACRES, IDENTIFIED AS TAX MAP 34, GRID 2, PARCEL 16. THE ENTIRE PROPERTY IS ZONED RR-DEO.
 - BASE MAP INFORMATION PROVIDED BY BENCHMARK ENGINEERING AND HOWARD COUNTY GIS.
 - THE STREAMS AND NON-TIDAL WETLANDS AS SHOWN WERE DELINEATED ON-SITE BY ECOTONE, INC. IN JUNE 2015, AND SHOULD BE CONSIDERED PRELIMINARY UNTIL APPROVED AT FINAL TOP. ONCE APPROVALS HAVE BEEN GRANTED.
 - FOREST STAND DELINEATION CONDUCTED BY ECOTONE, INC. IN JUNE 2015. WAS APPROVED UNDER THE ENVIRONMENTAL CONCEPT PLAN, APPROVED 03-28-2016.
 - 100-YEAR FLOODPLAIN LOCATED ON THE PROJECT SITE IS PART OF THE MIDDLE PATUXENT RIVER WATERSHED (CLASS I-P, DESIGNATION 02-13-11), INFORMATION PROVIDED BY BENCHMARK ENGINEERING.
 - IN A LETTER DATED OCTOBER 22, 2015 BY THE MARYLAND DEPARTMENT OF NATURAL RESOURCES IT HAS BEEN DETERMINED NO RARE, THREATENED, OR ENDANGERED SPECIES OR THEIR HABITATS KNOWN TO OCCUR ON OR NEAR THE SITE. AS A RESULT, THERE ARE NO REQUIRED PROTECTIVE MEASUREMENTS AT THIS TIME.
 - NO KNOWN HISTORIC RESOURCES OR CEMETERIES WERE OBSERVED ON THE SITE. THERE ARE NO STRUCTURES ON SITE THAT WILL REQUIRE HISTORIC PRESERVATION COMMISSION REVIEW. PER EMAIL CORRESPONDENCE FROM DPZ DATED 1-8-16.

L. M. Kelly
DNR QUALIFIED PROFESSIONAL

Ecotone Inc.
FORESTS • WETLANDS • RIVERS • WILDLIFE

Office: 410-420-0900 / Fax: 410-420-0903
2120 High Point Road Forest Hill, Maryland 21050
www.ecotoneinc.com

NO.	DATE	REVISION

BENCHMARK ENGINEERING, INC.
ENGINEERS & LAND SURVEYORS & PLANNERS
8480 BALTIMORE NATIONAL PIKE & SUITE 315 & ELLICOTT CITY, MARYLAND 21043
(P) 410-465-6105 (F) 410-465-6644
WWW.BE-CIVILENGINEERING.COM

Professional Certification. 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. 45571, Expiration Date: 06-08-2018.

L. M. Kelly
PROFESSIONAL ENGINEER

OWNER:
DAVID A. AND DALE E. CURTIS
304 KLINGER DRIVE
WESTMINSTER, MD 21157
410-751-5686

DEVELOPER:
HIGHLAND DEVELOPMENT CORP
P.O. BOX 228
CLARKSVILLE, MARYLAND 21029
410-365-0414

BRIGHTON MILL II
LOTS 1 THRU 12, BUILDABLE PRESERVATION PARCELS 'A' AND NON-BUILDABLE PRESERVATION PARCELS 'B' THRU 'D'

TAX MAP: 34, GRID: 2, PARCEL: 16, ZONED: RR-DEO
BROCCOLINO WAY
CLARKSVILLE, MD 21029
FIFTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

PRELIMINARY FOREST CONSERVATION PLAN

DATE: JUNE, 2016
BEI PROJECT NO. 2627

DESIGN: JC
DRAFT: NAF
SCALE: 1" = 50'
SHEET 11 OF 19

LEGEND

- SOILS CLASSIFICATION
- SOILS DELINEATION
- EXISTING CONTOURS
- LIMIT OF WETLANDS
- EXISTING WOODS LINE
- PROPOSED WOODS LINE
- TREE PROTECTION FENCE
- EXISTING STRUCTURE
- EXISTING FIBER OPTICS & GAS EASEMENT
- PROPOSED STRUCTURE
- SEPTIC RESERVE AREA
- FOREST CONSERVATION AREA (RETENTION)
- FOREST CLEARING AREA
- BIO-RETENTION AREAS
- PROPOSED WELL
- 15% TO 25% SLOPES
- 25% & GREATER SLOPES
- 100-YEAR FLOODPLAIN
- STREAM
- LIMIT OF DISTURBANCE
- FCE PERMANENT SIGNAGE
- EXISTING SPECIMEN TREE
- EXISTING SPECIMEN TREE (TO BE REMOVED)



FOREST CONSERVATION EASEMENT #1 CHART

TYPE	NON-CREDITED	CREDITED	TOTAL AREA
REFORESTATION	0.00 AC.	4.81 AC.	4.81 AC.
RETENTION	0.53 AC.	2.01 AC.	2.54 AC.
TOTAL	0.53 AC.	6.82 AC.	7.35 AC.

FOREST CONSERVATION EASEMENT #2 CHART

TYPE	NON-CREDITED	CREDITED	TOTAL AREA
REFORESTATION	0.00 AC.	1.31 AC.	1.31 AC.
RETENTION	0.00 AC.	0.00 AC.	0.00 AC.
TOTAL	0.00 AC.	1.31 AC.	1.31 AC.

FOREST CONSERVATION WORKSHEET
BRIGHTON MILL, PHASE 2

Computations by: JC BEI JOB No. 2627 Date: 5/10/2016

NET TRACT AREA:

- A. Total tract area → 29.03 ac.
- B. Land Dedication (parks, county facility, etc.) → 0.00 ac.
- C. Area under underground transmission lines but not floodplain → 2.34 ac.
- D. Area to remain in Commercial Agricultural Production/Use → 0.00 ac.
- E. Other deductions (floodplain) → 1.58 ac.
- F. Net Tract Area → 25.11 ac.

LAND USE CATEGORY:

Select category (R/L, RMD, Sub, C/O, Inst) → RMD

G. Afforestation Threshold → 20% x "F" = 5.02 ac.

H. Conservation threshold → 25% x "F" = 6.28 ac.

EXISTING FOREST COVER:

- I. Existing forest cover → 3.81 ac.
- J. Area of forest above afforestation threshold → 0.00 ac.
- K. Area of forest above conservation threshold → 0.00 ac.

BREAK EVEN POINT:

- L. Forest retention above threshold with no mitigation → 0.00 ac.
- M. Clearing permitted without mitigation → 0.00 ac.
- Break Even Point → 5.79 ac.

PROPOSED FOREST CLEARING:

- N. Total area of forest to be cleared → 1.80 ac.
- O. Total area of forest to be retained → 2.01 ac.

PLANTING REQUIREMENTS:

- P. Reforestation for clearing above conservation threshold → 0.00 ac.
- Q. Reforestation for clearing below conservation threshold → 3.60 ac.
- R. Credit for retention above conservation threshold → 0.00 ac.
- S. Total reforestation required → 3.60 ac.
- T. Total afforestation required → 1.21 ac.
- U. Credit for landscaping - may not exceed 20% of "S." → 0.00 ac.
- V. Total reforestation and afforestation required → 4.81 ac.

SOILS CHART - SOIL SURVEY HOWARD COUNTY, MARYLAND PAGE

SYMBOL	HYDRIC	ALT. GROUP	NAME	k Value
Gsb	B		GLENELG LOAM, 3 TO 8 PERCENT SLOPES	0.20
Gsc	B		GLENELG LOAM, 8 TO 15 PERCENT SLOPES	0.20
Gsb**	YES	C	GLENEVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES	0.37**
Gsb**	NO	C	GLENEVILLE CODORUS SILT LOAM, 0 TO 8 PERCENT SLOPE	0.37**
Mac	B		MANOR LOAM, 8 TO 15 PERCENT SLOPES	0.00 ac.
Mad	B		MANOR LOAM, 15 TO 25 PERCENT SLOPES	0.24

** HIGHLY ERODIBLE, K>0.35, AND/OR 15% OR GREATER SLOPES
TAKEN FROM THE NRCS WEB SOIL SURVEY, AUGUST 2014. SHEET 16

TENTATIVELY APPROVED
DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY

PLANNING DIRECTOR: *N. J. ...* 11-28-16
DATE

Seedling and Whip Planting

Correct and Incorrect Planting Depth

Mattock Planting

Seedling and Whip Planting Techniques

Note: Mulching newly planted seedlings helps the soil retain water and protects the seedling from compaction and stem injuries. Source: Adapted from Forest Conservation Manual, 1991

TREE SHELTER DETAIL

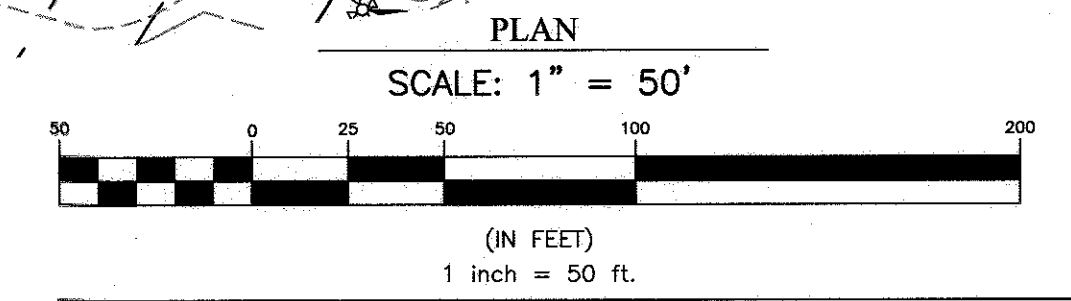
NOTES:

- Always install stake before planting tree to prevent damaging the roots
- Do not fasten ties too tightly, heaving of the tube caused by frost may damage tree if ties are not loose enough
- Substitutions in materials only with approval from the Project Engineer.

INSTALLATION SEQUENCE:

- Drive wooden stake 8 inches into the ground on the windward side of proposed tree location.
- Plant tree as shown in TREE PLANTING DETAIL.
- Place the tree shelter tube over tree and insert it 2 inches into the ground.
- Fasten the tree shelter tube to the stake with galvanized wire or plastic zip ties.

Stock Type: Shelter Height: Shelter Width: Stake Height
Tree 48 inches 4 inches (avg.) 48 inches
Shrub 24 inches 5 inches (min.) 30 inches



SPECIMEN TREE CHART

AG #	COMMON NAME	SCIENTIFIC NAME	DBH	VIGOR	COMMENTS	Impact
2806	northern red oak	Quercus rubra	31	Good		Removed
2807	black oak	Quercus velutina	31	Fair		Retained off Parcel
2808	northern red oak	Quercus alba	39	Fair	broken scaffold branches	Retained off Parcel
2809	northern red oak	Quercus rubra	38	Fair		Retained off Parcel
2810	white oak	Quercus alba	38	Good		Retained off Parcel
2811	white oak	Quercus alba	30	Good		Retained in easement
2812	northern red oak	Quercus rubra	32	Good		Retained on lot*
2813	white oak	Quercus alba	31.5	Good		Retained on lot*
2814	white oak	Quercus alba	33	Fair		Removed
2815	northern red oak	Quercus alba	31	Good		Removed
2818	white oak	Quercus alba	34	Fair	barbed wire through trunk	Retained in easement
2819	black gum	Nyssa sylvatica	33	Good		Retained off Parcel
2820	white oak	Quercus alba	34.5	Good		Removed
2821	black gum	Nyssa sylvatica	34	Good		Removed
2822	northern red oak	Quercus alba	34	Good		Retained on lot
2823	red maple	Quercus rubra	37	Fair	vines triple @ 5'	Retained in easement
2842	northern red oak	Quercus alba	30	Fair	leaning	Removed
2843	black oak	Quercus velutina	30	Good		Retained on Lot

note: no 2816, 2817 & 2835

*Permission is granted for future removal of specimen trees to accommodate the replacement septic area per WP-16-064

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TAX MAP: 34, GRID: 2, PARCEL: 16, ZONED: RR-DEO
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PRELIMINARY FOREST CONSERVATION PLAN

DATE: JUNE, 2016 BEI PROJECT NO. 2627
DESIGN: JC DRAFT: NAF SCALE: 1" = 50' SHEET 12 OF 19

Ecotone
FORESTS • WETLANDS • RIVERS • WILDLIFE Inc.
DNR QUALIFIED PROFESSIONAL

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2100 High Point Road Forest Hill, Maryland 21050
http://ecotoneinc.com

PLANTING SPECIFICATIONS

GENERAL

1. The Contractor shall notify Ecotone, Inc. and the land owner's representative at least two (2) weeks prior to start of planting within the project area so that planting zones may be marked in the field and the land owner can make any necessary preparations related to the agricultural activities on the areas surrounding the project site.

2. The Contractor is responsible for the location of all underground utilities prior to the start of construction. Any damages to utilities as a result of planting or other activities will be the sole responsibility of the Contractor and shall be repaired at the Contractor's expense.

STANDARDS

1. Planting material will conform to the current issue of the "American Standards for Nursery Stock", published by the American Association of Nurserymen.

2. The root system of container-grown plant material shall be white, well-developed, and well-distributed throughout the growing media, with the roots extending to the inside face of the container, and the container size must conform to the size specified. Plants not meeting these criteria will be rejected.

3. Foliage of non-dormant plants shall appear healthy, with no leaf spots, damage, discoloration, or evidence of insects on the plant. Plants not meeting these criteria will be rejected.

4. Planting materials may be substituted upon written approval from Howard County Department of Planning and Zoning Division of Land Development.

STORAGE AND DELIVERY

1. Seed shall be delivered in containers having labels reporting the origin, purity, and germination percentage of the seed, and the date of germination testing of the seed.

2. All container-grown plants shall be clearly and correctly labeled to allow confirmation of species and quantities. At least 25% of each species in every shipment shall have legible labels securely attached prior to delivery to the site.

3. All plants delivered to the project site must have thoroughly moist soil/root masses. Dry or light-weight plants shall be rejected.

4. All rejected material shall be immediately removed from the project site.

5. All plants delivered to the project site shall be stored in a cool, shaded location, and watered regularly so that roots are kept moist until time of planting.

PRODUCTS

1. Straw shall be from small grain species such as wheat or barley, and shall be free of rot, mildew, and noxious weed seeds.

PLANTING PROCEDURES

1. Planting shall be performed in accordance with the current edition of the Landscape Contractors Association "Landscape Specification Guidelines" and as specified below.

2. Plants shall be randomly installed within the planting area, using the plant spacing specified in the plant schedule as a guide.

3. Container-grown stock shall be planted during the periods of September 1 - November 15 or April 1 - May 15. Planting outside of these specified dates is not permissible without approval from Ecotone, Inc.

4. Planting shall not occur during periods of sub-freezing temperatures, when the ground is frozen or excessively wet or dry, or when other conditions not generally accepted as suitable for planting persist.

5. For each plant to be installed, excavate a planting hole at least 12 inches wider than the width of the root ball and to a depth which leaves approximately 1/8 of the root ball above existing grade.

6. Remove the plant by cutting or inverting the container.

7. Using a knife or sharp blade, make 4 to 5 one-inch deep vertical cuts along the root ball.

8. Install plant in the center of the hole, with approximately 1/8 of the root ball above surrounding grade.

9. Backfill planting hole with native soil. Any surplus soil remaining after planting shall be evenly scattered around plants.

10. Water each plant thoroughly after backfilling until the backfilled soil is saturated.

11. All woody material must be planted erect. Plants leaning greater than 10 degrees from perpendicular must be straightened or replanted by the Contractor.

12. A minimum of five species shall be planted within each Forest Conservation Easement to provide diverse forest habitat.

MAINTENANCE AND GUARANTEE

1. Plant material shall be maintained by the Contractor for a period of two growing seasons from the date of final inspection and acceptance by Ecotone, Inc. Maintenance shall include the removal of all dead or diseased woody vegetation.

2. The Contractor shall guarantee a 75% survival of all plants for the two year period stated above, except in the case of damage by fire, animal damage, vandalism, or other events beyond the Contractor's ability to control.

3. Plants which are 25% dead or more shall be considered dead.

4. Replacement plants shall be of the same type, size, and variety as the plants specified herein, or substitutions approved in writing by the Howard County Department of Planning and Zoning Division of Land Development. Replacement plants shall be provided and installed subject to the requirements of these plans and specifications.

5. At the end of the two year period all tree stakes and shelters may be removed from plantings.

Fertilizing Evaluation Criteria

Is or will be tree(s) be under stressful conditions? Has or will root pruning occur? Design Considerations

a) Use low nitrogen and slow release fertilizers.

b) Apply in late fall or early spring (see Figure "Tree Planting and Maintenance Calendar")

c) For small trees (<3" in diameter), use punch hole method or pressurized injection method (see Figure "Application of Fertilizers by Injection.")

d) For larger trees (>3" diameter), use punch hole method or pressurized injection method (see Figure "Application of Fertilizers by Injection.")

e) Do not apply fertilizer any closer than 3' from tree trunk for pressurized injection method.

f) Monitor for signs of stress.

FOREST PROTECTION PROCEDURES - Preconstruction Phase

1) The edge of the woods to be protected will be marked (staked or flagged) in the field per the limits of forest conservation easement shown in the approved site development plan prior to the start of construction activity. All areas within protective easement are to be considered "off limits" to any construction activities. The optional protective fencing shall be installed at the outside edge of forested areas and should be combined with sediment control devices when possible. The limit of the critical root zone and therefore the location of the protective devices is to be determined as follows: Edge of Forested Area - 1 foot of protective radius/inch of DBH or an eight foot protective radius, whichever is greater. Critical Root Zone for the forest on this site is an average of 12 feet from the trunk of the tree. Critical root zones for Specimen Trees are to be determined at final plan stage.

2) Construction activities expressly prohibited within the preservation areas are: Placing or stockpiling backfill or top soil in protected areas, Felling trees into protected areas, Driving construction equipment into or through protected areas, Burning in or in close proximity to protected areas, Stacking or storing supplies of any kind, Concrete wash-off areas, Conducting trenching operations, Grading beyond the limits of disturbance, Parking vehicles or construction equipment, Removal of root mat or topsoil, Sifting and construction of: Utility lines, Access roads, Impervious surfaces, Stormwater management devices, and Staging areas.

3) Protective fencing (see Figure "Protective Fencing") shall be the responsibility of the general contractor. The general contractor shall affix signs to the fencing at 25' minimum intervals indicating that these areas are "Forest Retention Area" (see Figure "Signage"). The general contractor shall take precautions to assure the restricted areas are not violated and that root systems are protected from smothering, flooding, excessive wetting from dewatering operations, off-site runoff, spillage, and drainage or solutions containing materials hazardous to tree roots.

4) The general contractor shall be responsible for any tree damaged or destroyed within the preservation areas whether caused by the contractor, his agents, employees, subcontractors, or licensees.

5) Foot traffic shall be kept to a minimum in the protective areas.

6) All trees which are not to be preserved within fifty feet of any tree preservation areas are to be removed in a manner that will not damage those trees that are designated for preservation. It is highly recommended that tree stumps within this fifty foot area be ground out with a stump grinding machine to minimize damage.

7) The general contractor shall designate a "wash out" area onsite for concrete trucks which will not drain toward a protected area.

8) A pre-construction meeting shall be held with local authorities before any disturbance has taken place on site.

Stress Reduction and Protection of Specimen Trees Isolated from Forest Retention Areas and General Forest Retention Areas

Isolated specimen trees that are to be preserved will be examined to determine if stress reduction techniques are needed. Protective measures and their evaluation criteria are provided on this plan only if they are employed herein.

Root Pruning Evaluation Criteria
Will the critical root zone be affected by construction activities such as grade changes, digging for foundations and roads or utility installation?
Design Considerations
a) Prune prior to construction as shown on the plan (see Figure "Root Pruning Detail.")
b) Prune root with a clean cut using proper pruning equipment such as a vibratory knife.
c) Exact location of pruning trench should be identified, and immediately backfilled to cover exposed roots after pruning with soil removed other topsoil, peat moss, or other suitable material or with other high organic soil.
d) For trees over 15" in diameter, root pruning may be done up to one year in advance of construction.
e) Tree(s) will be monitored for signs of stress.

Crown Reduction or Pruning Evaluation Criteria

Has the root system been significantly reduced (>30%) or are there dead, damaged, or diseased limbs?
Design Considerations
a) Reduce only at specified times of the year:
Flowering trees - only after flowering and before bud set
Non-flowering trees - in late winter, early spring or mid summer
b) No more than 1/3 of the crown should be removed at one time using acceptable pruning methods (see Figure "Crown Reduction Detail")
c) Monitor for signs of stress
Watering Evaluation Criteria
Will construction activities alter the hydrology of the site? Has or will root pruning occur? Design Considerations
a) Water only as necessary
b) Monitor for signs of stress (see Figure "Tree Planting and Maintenance Calendar")

Fertilizing Evaluation Criteria

Is or will be tree(s) be under stressful conditions? Has or will root pruning occur? Design Considerations
a) Use low nitrogen and slow release fertilizers.
b) Apply in late fall or early spring (see Figure "Tree Planting and Maintenance Calendar")
c) For small trees (<3" in diameter), use punch hole method or pressurized injection method (see Figure "Application of Fertilizers by Injection.")
d) For larger trees (>3" diameter), use punch hole method or pressurized injection method (see Figure "Application of Fertilizers by Injection.")
e) Do not apply fertilizer any closer than 3' from tree trunk for pressurized injection method.
f) Monitor for signs of stress.

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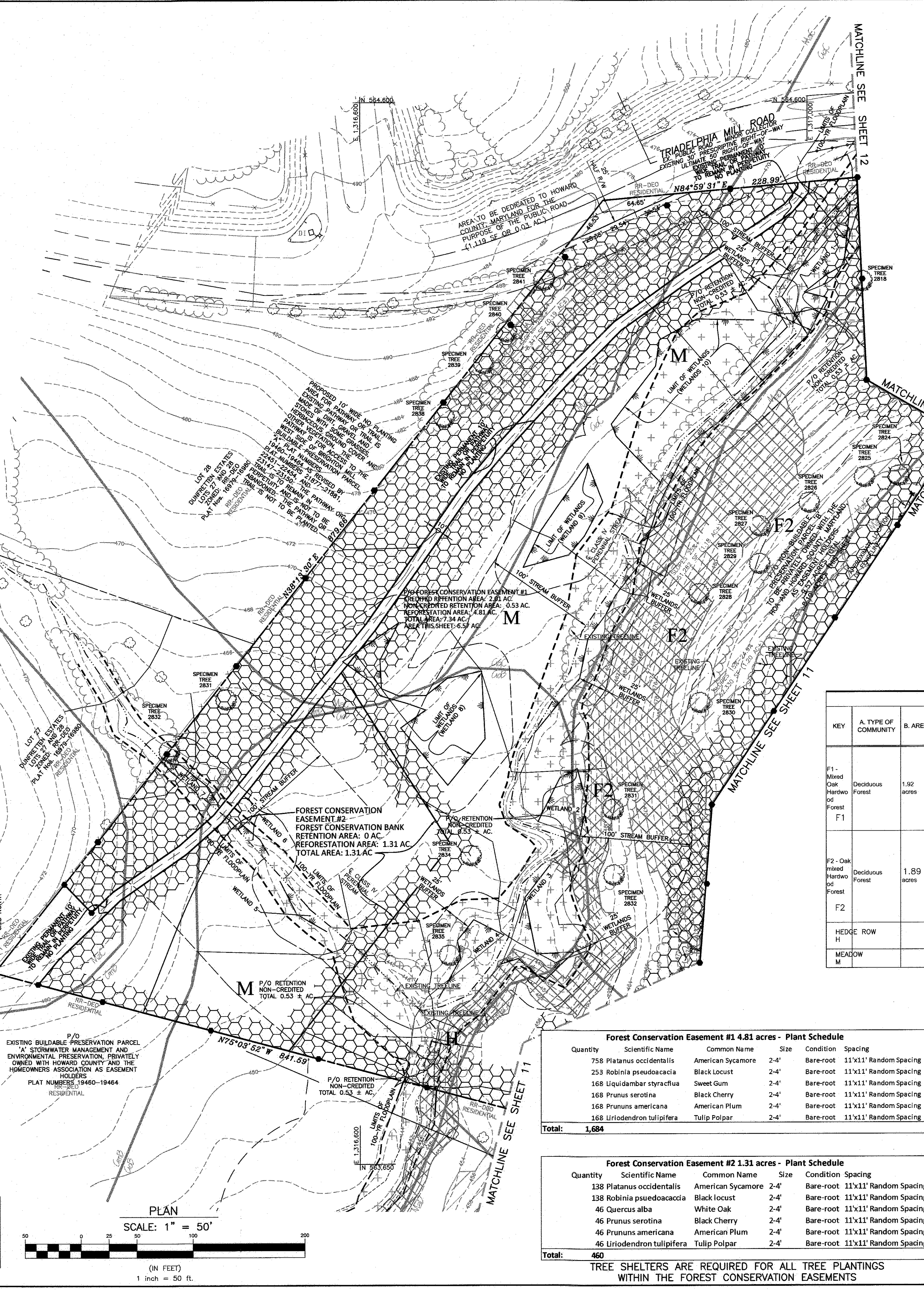
TENTATIVELY APPROVED
DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY

PLANNING DIRECTOR: *Valerie J. J. [Signature]* DATE: 11-28-16

SOILS CHART - SOIL SURVEY HOWARD COUNTY, MARYLAND PAGE

SYMBOL	HYDRIC	HYDROLOGIC	ALT.	NAME	K Value
CGb	B	GROUP	GROUP		
CGc	B			GLENNELG LOAM, 3 TO 8 PERCENT SLOPES	0.20
CGb**	YES	C		GLENNELG LOAM, 8 TO 15 PERCENT SLOPES	0.20
CGb**	YES	C		GLENNELG SILT LOAM, 3 TO 8 PERCENT SLOPES	0.37**
CGb**	YES	C		GLENNELG SILT LOAM, 8 TO 15 PERCENT SLOPES	0.37**
MmC	B			MANOR LOAM, 8 TO 15 PERCENT SLOPES	0.24
MmD	B			MANOR LOAM, 15 TO 25 PERCENT SLOPES	0.24

** HIGHLY ERODIBLE, K>0.35, AND/OR 15% OR GREATER SLOPES
TAKEN FROM THE NRCS WEB SOIL SURVEY, AUGUST 2014. SHEET 16



RESOURCE TABULATION

a. TOTAL AREA OF SITE	29.03 Ac.±
b. AREA OF 100 YEAR FLOODPLAIN (APPROX.)	1.88 Ac.±
c. AREA OF STEEP SLOPES (25% OR GREATER)	1.68 Ac.±
d. SPECIMEN TREES	29
e. CHAMPION TREES	0
f. STREAM BUFFER	5.38 Ac.±
g. STREAM	1400 LF±
h. WETLANDS	0.72 Ac.±
i. WETLANDS BUFFER	1.54 Ac.±

LEGEND

SOILS CLASSIFICATION
SOILS DELINEATION
EXISTING CONTOURS
LIMIT OF WETLANDS
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FCE PERMANENT SIGNAGE
EXISTING SPECIMEN TREE
EXISTING SPECIMEN TREE (TO BE REMOVED)

WETLANDS CHART

WETLAND #	WETLAND TYPE	AREA (ACRES)
WETLAND 1	FORESTED NATIONAL WETLAND	0.05 ac.
WETLAND 2	FORESTED NATIONAL WETLAND	0.04 ac.
WETLAND 3	EMERGENT NONTWIG WETLAND	0.04 ac.
WETLAND 4	EMERGENT NONTWIG WETLAND	0.05 ac.
WETLAND 5	EMERGENT NONTWIG WETLAND	0.03 ac.
WETLAND 6	EMERGENT NONTWIG WETLAND	0.03 ac.
WETLAND 7	EMERGENT NONTWIG WETLAND	0.01 ac.
WETLAND 8	EMERGENT NONTWIG WETLAND	0.14 ac.
WETLAND 9	EMERGENT NONTWIG WETLAND	0.09 ac.
WETLAND 10	EMERGENT NONTWIG WETLAND	0.28 ac.
TOTAL		0.72 ac.

SPECIMEN TREE CHART

AG #	COMMON NAME	SCIENTIFIC NAME	DBH	WGOR	COMMENTS	Impact
2818	white oak	Quercus alba	34	Fair	barbed wire through trunk	Retained in easement
2824	white oak	Quercus alba	37	Fair	leaning	Retained in easement
2825	black oak	Quercus velutina	36.5	Fair	irregular trunk/leaning	Retained in easement
2826	northern red oak	Quercus rubra	32	Good		Retained in easement
2827	black oak	Quercus velutina	35	Good		Retained in easement
2828	northern red oak	Quercus alba	30	Good		Retained in easement
2829	northern red oak	Quercus alba	33	Fair	broken branches 1/2 of double	Retained in easement
2830	northern red oak	Quercus alba	35	Fair	some dead branches	Retained in easement
2831	white oak	Quercus alba	33	Good		Retained in easement
2832	northern red oak	Quercus alba	35	Good		Retained in easement
2833	red maple	Quercus rubra	30.5	Fair	leaning/tree rot	Retained in easement
2834	lulo poplar	Liriodendron tulipifera	39	Good		Retained in easement
2836	lulo poplar	Liriodendron tulipifera	50	poor	trunk rot / barbed wire	Retained in easement
2827	pin oak	Quercus palustris	42	Fair	dead branches	Retained in easement
2838	black oak	Quercus velutina	50	Fair	tree rot damage	Retained in easement
2839	southern red oak	Quercus falcata	32	Good		Retained in easement
2840	southern red oak	Quercus falcata	38	Fair	dead branches	Retained in easement
2841	southern red oak	Quercus falcata	38	Fair		Retained in easement
2842	northern red oak	Quercus alba	30	Fair	leaning	Removed
2843	black oak	Quercus velutina	30	Good		Retained on Lot

FOREST STAND ANALYSIS TABLE

KEY	A. TYPE OF COMMUNITY	B. AREA	C. SOIL INFORMATION	D. EXISTING VEGETATION	E. STAND CHARACTERISTICS	F. FOREST AREA IN SENSITIVE ENVIRONMENTS (acres)	G. HABITAT VALUE
F1 - Mixed Oak Hardwood Forest	Deciduous Forest	1.92 acres	1. Soil Types 2. Typical Forest Cover for Soil Type	White Oak Northern Red Oak Tulip poplar	1. Size (diameter) 2. Age 3. General Conditions	0.0 acres	
F2 - Oak mixed Hardwood Forest	Deciduous Forest	1.89 acres		Northern Red Oak White Oak Tulip poplar Red Maple Mockernut Hickory		1.09 acres	
HEDGE ROW							NOT FOREST
MEADOW							NOT FOREST

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BRIGHTON MILL II
LOTS 1 THRU 12, BUILDABLE PRESERVATION PARCEL 'A' AND NON-BUILDABLE PRESERVATION PARCELS 'B' THRU 'D'

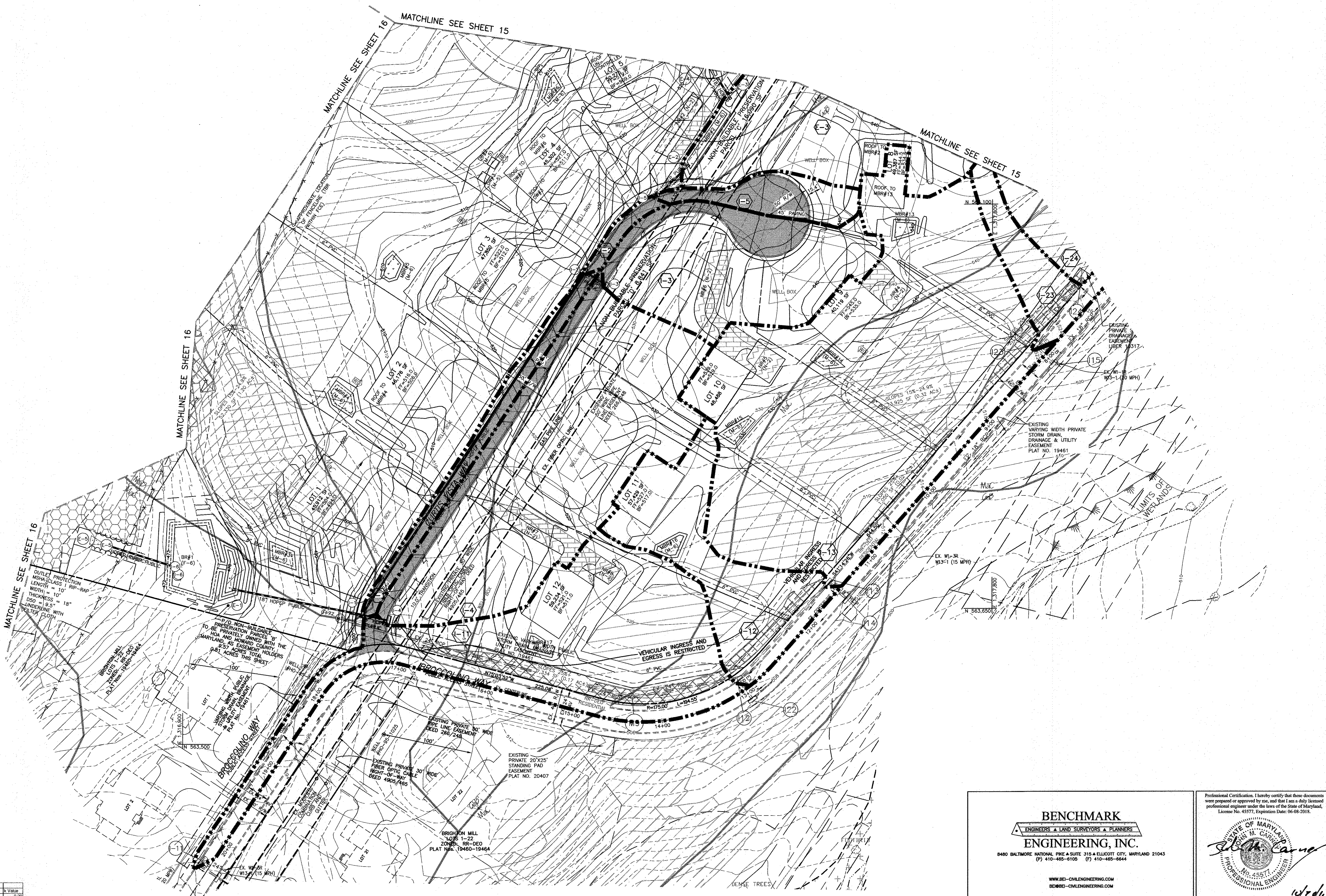
TAX MAP: 34, GRID: 2, PARCEL: 16, ZONED: RR-DEO

PRELIMINARY FOREST CONSERVATION PLAN

DATE: JUNE, 2016
BEI PROJECT NO. 2627
SCALE: 1" = 50'
SHEET 13 OF 19

LEGEND

- SOILS CLASSIFICATION M&D
- SOILS DELINEATION
- EXISTING CONTOURS (AERIAL 12/02)
- LIMIT OF WETLANDS
- EXISTING WOODS LINE
- PROPOSED WOODS LINE
- EXISTING STRUCTURE
- EXISTING SEPTIC FIELD
- PROPOSED SEPTIC FIELD
- PROPOSED FOREST CONSERVATION EASEMENT
- SLOPES 25% OR GREATER
- SLOPES BETWEEN 15% AND 25%
- EX. 100 YEAR FLOODPLAIN
- WELL
- STORM DRAIN DRAINAGE AREA



AREA AND "C" FACTOR TABULATION

PROJECT: Brighton Mill II DATE: 11/30/2016 BY: JC BE: JOB # 2627

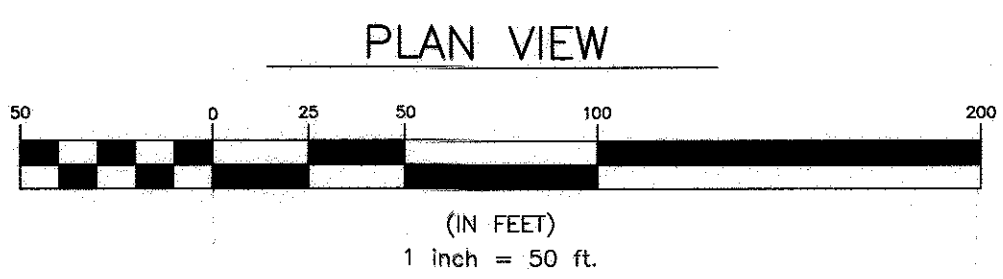
INLET #	ZONING	SUBAREA (Z)	AREA (A)	"C" FACTOR (C₁>25)	"C" FACTOR (C₂>25)	% IMPERVIOUS
11	RR-DEO		0.18	0.86	0.88	100
12	RR-DEO		0.04	0.86	0.88	100
13	RR-DEO		0.75	0.41	0.80	40
14	RR-DEO		1.47	0.37	0.85	34
15	RR-DEO		0.17	0.85	0.75	73
E-4	RR-DEO		2.12	0.30	0.38	28
EX-111	RR-DEO		1.23	0.44	0.53	44
EX-112	RR-DEO		0.58	0.33	0.41	29
EX-113	RR-DEO		2.36	0.30	0.38	25
EX-123	RR-DEO		0.20	0.46	0.56	51
EX-124	RR-DEO		1.56	0.38	0.34	30
EX-125	RR-DEO		2.10	0.14	0.19	1
EX-117	RR-DEO		0.50	0.62	0.72	68
EX-121	RR-DEO		1.30	0.31	0.37	21

SOILS CHART - SOIL SURVEY HOWARD COUNTY, MARYLAND PAGE

SYMBOL	HYDRIC	HYDROLOGIC GROUP	ALT. GROUP	NAME	K Value
OH	B	GLENELO LOAM	3 TO 8 PERCENT SLOPES	GLENELO LOAM, 3 TO 8 PERCENT SLOPES	0.20
OC	B	GLENELO LOAM	8 TO 15 PERCENT SLOPES	GLENELO LOAM, 8 TO 15 PERCENT SLOPES	0.20
OH*	YES	C	GLENEVILLE SILT LOAM	3 TO 8 PERCENT SLOPES	0.37
OC*	YES	C	GLENEVILLE COOKORUS SILT LOAM	0 TO 8 PERCENT SLOPES	0.37
MC	B	MANOR LOAM	8 TO 15 PERCENT SLOPES	MANOR LOAM, 8 TO 15 PERCENT SLOPES	0.24
MD	B	MANOR LOAM	15 TO 25 PERCENT SLOPES	MANOR LOAM, 15 TO 25 PERCENT SLOPES	0.24

NRCS WEB SOIL SURVEY, AUGUST 2014, SHEET 16
 * INDICATES HYDRIC SOILS
 ** HIGHLY ERODIBLE, K>0.35, AND/OR 15% OR GREATER SLOPES TAKEN FROM THE

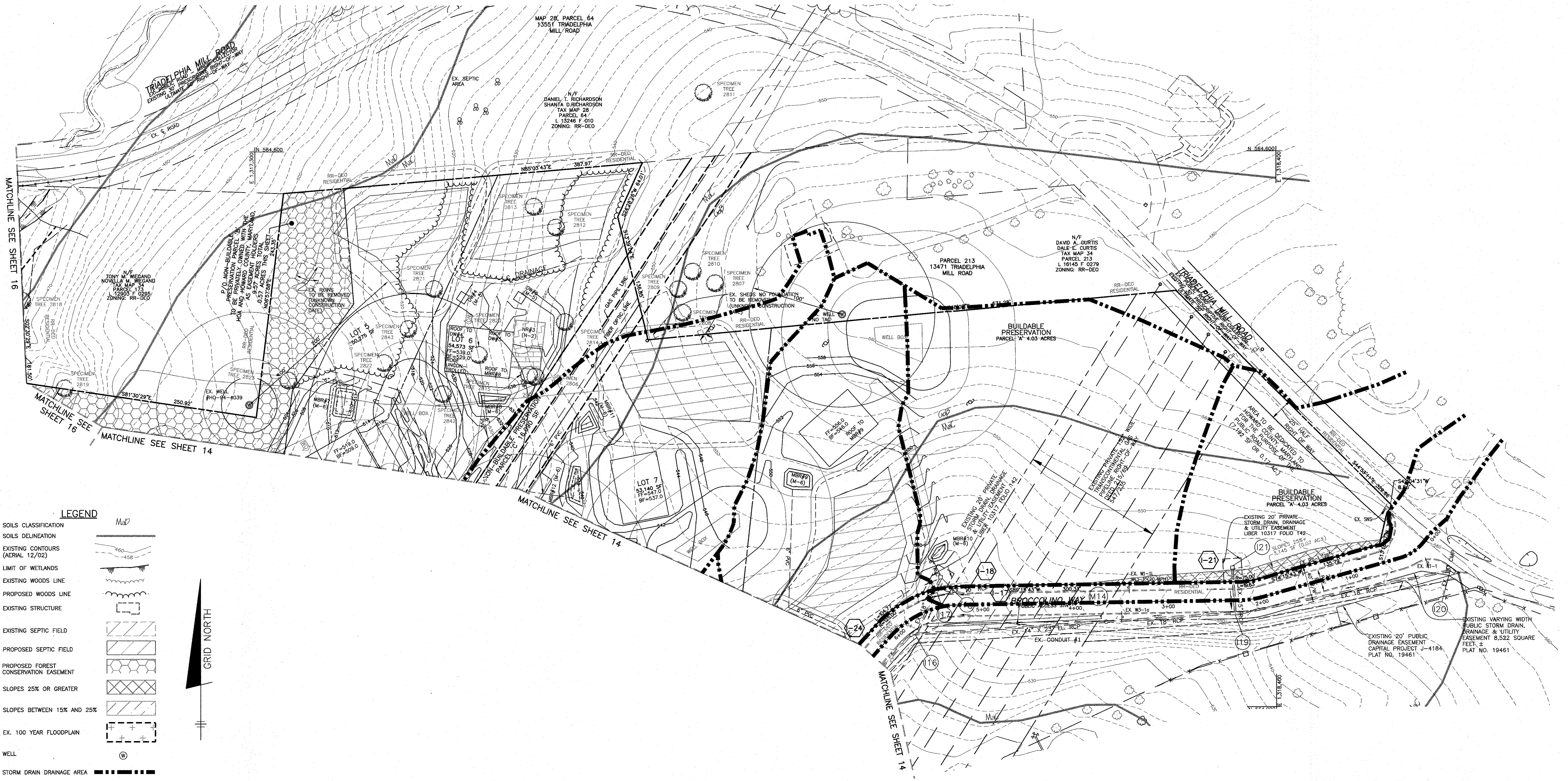
TENTATIVELY APPROVED
 DEPARTMENT OF PLANNING AND ZONING
 HOWARD COUNTY
Valerie J. Miller 11-20-16
 PLANNING DIRECTOR DATE



BENCHMARK
ENGINEERS & LAND SURVEYORS & PLANNERS
ENGINEERING, INC.
 8480 BALTIMORE NATIONAL Pkwa SUITE 315 ELLOTT CITY, MARYLAND 21043
 (P) 410-465-6105 (F) 410-465-6644

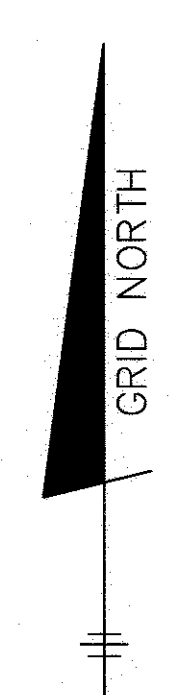
www.be-civilengineering.com
 be@be-civilengineering.com

OWNER: DAVID A. AND DALE E. CURTIS 304 KLINGER DRIVE WESTMINSTER, MD 21157 410-751-5686		BRIGHTON MILL II LOTS 1 THRU 12, BUILDABLE PRESERVATION PARCEL 'A' AND NON-BUILDABLE PRESERVATION PARCELS 'B' THRU 'D' TAX MAP: 34, GRID: 2, PARCEL: 16, ZONED: RR-DEO BROCCOLINO WAY CLARKSVILLE, MD 21029 FIFTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND STORM DRAIN DRAINAGE AREA MAP	
DEVELOPER: HIGHLAND DEVELOPMENT CORP P.O. BOX 228 CLARKSVILLE, MARYLAND 21029 410-365-0414			
DATE: JUNE, 2016	PROJECT NO. 2627	SHEET 14 OF 19	
DRAFT: JC DESIGN: JC CHECK: -	SCALE: 1" = 50'		



LEGEND

SOILS CLASSIFICATION
 SOILS DELINEATION
 EXISTING CONTOURS (AERIAL 12/02)
 LIMIT OF WETLANDS
 EXISTING WOODS LINE
 PROPOSED WOODS LINE
 EXISTING STRUCTURE
 EXISTING SEPTIC FIELD
 PROPOSED SEPTIC FIELD
 PROPOSED FOREST CONSERVATION EASEMENT
 SLOPES 25% OR GREATER
 SLOPES BETWEEN 15% AND 25%
 EX. 100 YEAR FLOODPLAIN
 WELL
 STORM DRAIN DRAINAGE AREA



PLAN VIEW

(IN FEET)
 1 inch = 50 ft.

AREA AND "C" FACTOR TABULATION

PROJECT: Brighton Mill II DATE: 1/19/2016 BY: JC BEI JOB # 2627

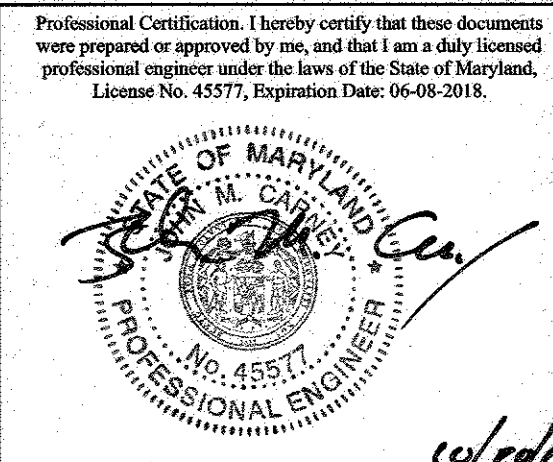
INLET #	ZONING	SUBAREA (B)	AREA (A)	"C" FACTOR (C)-25	"C" FACTOR (C)-15	% IMPERVIOUS
L1	RR-DEO		0.18	0.86	0.98	100
L2	RR-DEO		0.04	0.86	0.98	100
L3	RR-DEO		0.75	0.41	0.80	40
L4	RR-DEO		1.47	0.37	0.85	34
L5	RR-DEO		0.17	0.85	0.75	73
E-4	RR-DEO		2.12	0.30	0.38	25
EX I-11	RR-DEO		1.23	0.44	0.53	44
EX I-12	RR-DEO		0.58	0.33	0.41	29
EX I-13	RR-DEO		2.38	0.30	0.38	25
EX I-23	RR-DEO		0.29	0.46	0.55	51
EX I-24	RR-DEO		1.05	0.28	0.34	20
EX I-18	RR-DEO		2.10	0.14	0.19	1
EX I-17	RR-DEO		0.50	0.82	0.72	88
EX I-21	RR-DEO		1.30	0.31	0.37	21

SOILS CHART - SOIL SURVEY HOWARD COUNTY, MARYLAND PAGE

SYMBOL	HYDRIC	HYDROLOGIC GROUP	TILT GROUP	NAME	K VALUE
GB	B			GLENNELG LOAM, 3 TO 8 PERCENT SLOPES	0.20
GC	B			GLENNELG LOAM, 8 TO 15 PERCENT SLOPES	0.20
GB*	YES	C		GLENNVILLE Silt LOAM, 3 TO 8 PERCENT SLOPES	0.37*
GC*	YES	C		GLENNVILLE COOKERS Silt LOAM, 0 TO 8 PERCENT SLOPES	0.37*
MB	B			MANOR LOAM, 8 TO 10 PERCENT SLOPES	0.24
Md	B			MANOR LOAM, 16 TO 25 PERCENT SLOPES	0.24

* INDICATES HYDRIC SOILS
 ** HIGHLY ERODIBLE, K<0.35, AND/OR 15% OR GREATER SLOPES
 TAKEN FROM THE NRCS WEB SOIL SURVEY, AUGUST 2014. SHEET 16

BENCHMARK ENGINEERING, INC.
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 WWW.BE-CIVILENGINEERING.COM
 BEI08D-CIVILENGINEERING.COM



OWNER:
 DAVID A. AND DALE E. CURTIS
 304 KLINGER DRIVE
 WESTMINSTER, MD 21157
 410-751-5686

DEVELOPER:
 HIGHLAND DEVELOPMENT CORP
 P.O. BOX 228
 CLARKSVILLE, MARYLAND 21029
 410-365-0414

BRIGHTON MILL II
 LOTS 1 THRU 12, BUILDABLE PRESERVATION PARCEL 'A' AND NON-BUILDABLE PRESERVATION PARCELS 'B' THRU 'D'

TAX MAP: 34, GRID: 2, PARCEL: 16, ZONED: RR-DEO
 BROCCOLINO WAY
 CLARKSVILLE, MD 21029
 FIFTH ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

STORM DRAIN DRAINAGE AREA MAP

DATE: JUNE, 2016 PROJECT NO. 2627
 DRAFT: JC | DESIGN: JC | CHECK: - SCALE: 1" = 50' SHEET 15 OF 19

TENTATIVELY APPROVED
 DEPARTMENT OF PLANNING AND ZONING
 HOWARD COUNTY

N. Williams
 PLANNING DIRECTOR 11-23-16 DATE



LEGEND

SOILS CLASSIFICATION *MdD*

SOILS DELINEATION

EXISTING CONTOURS (AERIAL 12/02)

LIMIT OF WETLANDS

EXISTING WOODS LINE

PROPOSED WOODS LINE

EXISTING STRUCTURE

EXISTING SEPTIC FIELD

PROPOSED SEPTIC FIELD

PROPOSED FOREST CONSERVATION EASEMENT

SLOPES 25% OR GREATER

SLOPES BETWEEN 15% AND 25%

EX. 100 YEAR FLOODPLAIN

WELL

STORM DRAIN DRAINAGE AREA



AREA AND "C" FACTOR TABULATION

PROJECT: Brighton Mill II DATE: 1/13/2016 BY: JC BEI JOB # 2627

INLET #	ZONING (Z)	SUBAREA (S)	AREA (A)	"C" FACTOR (C)<25	"C" FACTOR (C)>25	% IMPERVIOUS
I-1	RR-DEO		0.15	0.98	0.98	100
I-2	RR-DEO		0.04	0.98	0.98	100
I-3	RR-EX-C		0.75	0.41	0.90	40
I-4	RR-DEO		1.47	0.37	0.65	34
I-5	RR-DEO		0.17	0.65	0.75	73
E-4	RR-DEO		2.12	0.30	0.38	25
EX-I11	RR-DEO		1.23	0.44	0.53	44
EX-I12	RR-DEO		0.56	0.33	0.41	29
EX-I13	RR-DEO		2.36	0.33	0.38	25
EX-I20	RR-DEO		0.29	0.46	0.55	51
EX-I24	RR-DEO		1.55	0.29	0.34	20
EX-I18	RR-DEO		2.10	0.14	0.19	1
EX-I17	RR-DEO		0.50	0.62	0.72	68
EX-I21	RR-DEO		1.30	0.31	0.37	21

SOILS CHART - SOIL SURVEY HOWARD COUNTY, MARYLAND PAGE

SYMBOL	HYDRIC	HYDROLOGIC GROUP	ALT. GROUP	NAME	K Value
GcB	B			GLENGEL LOAM, 3 TO 8 PERCENT SLOPES	0.20
GcC	B			GLENGEL LOAM, 8 TO 15 PERCENT SLOPES	0.20
GmB*	YES	C		GLENNVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES	0.37**
GcB*	YES	C		GLENNVILLE-CODDORUS SILT LOAM, 0 TO 8 PERCENT SLOPES	0.37**
MmC	B			MANOR LOAM, 8 TO 15 PERCENT SLOPES	0.24
MmD	B			MANOR LOAM, 15 TO 25 PERCENT SLOPES	0.24

TAKEN FROM THE NRCS WEB SOIL SURVEY, AUGUST 2014. SHEET 16
 * INDICATES HYDRIC SOILS
 ** HIGHLY ERODIBLE, K<0.35, AND/OR 15% OR GREATER SLOPES

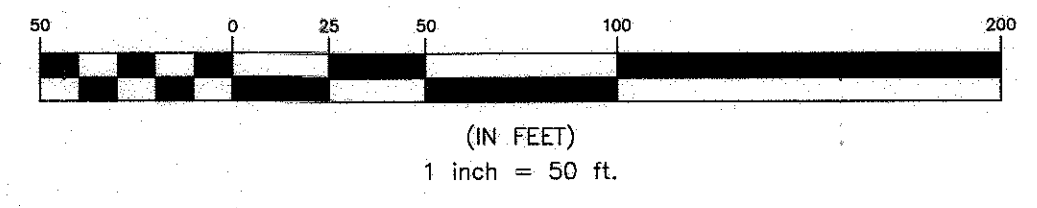
BENCHMARK
ENGINEERS & LAND SURVEYORS & PLANNERS
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<p>OWNER: DAVID A. AND DALE E. CURTIS 304 KLINGER DRIVE WESTMINSTER, MD 21157 410-751-5686</p> <p>DEVELOPER: HIGHLAND DEVELOPMENT CORP P.O. BOX 228 CLARKSVILLE, MARYLAND 21029 410-365-0414</p>	<p style="text-align: center;">BRIGHTON MILL II</p> <p style="text-align: center;">LOTS 1 THRU 12, BUILDABLE PRESERVATION PARCEL 'A' AND NON-BUILDABLE PRESERVATION PARCELS 'B' THRU 'D'</p> <p style="text-align: center;">TAX MAP: 34, GRID: 2, PARCEL: 16, ZONED: RR-DEO</p> <p style="text-align: center;">BROCCOLINO WAY CLARKSVILLE, MD 21029 FIFTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND</p> <p style="text-align: center;">STORM DRAIN DRAINAGE AREA MAP</p> <p>DATE: JUNE, 2016 PROJECT NO. 2627 SCALE: 1" = 50' SHEET 16 OF 19</p>
--	--

TENTATIVELY APPROVED
 DEPARTMENT OF PLANNING AND ZONING
 HOWARD COUNTY

Valdis Joffe 11-28-16
 PLANNING DIRECTOR DATE

PLAN VIEW



SWM DESIGN NARRATIVE:

NATURAL RESOURCES, INCLUDING WETLANDS & STREAMS AND ASSOCIATED BUFFERS SHALL BE PRESERVED AS THERE IS NO DISTURBANCE PROPOSED IN THESE AREAS. EXISTING FOREST ALONG THE WESTERN EDGE OF THE PROPOSED LOTS SHALL BE PRESERVED WITHIN A FOREST CONSERVATION EASEMENT. NO DISTURBANCE IS ALLOWED IN THESE AREAS AND ADDITIONAL PLANTING WILL BE PROVIDED IN THE PRIORITY AREAS.

EXISTING FLOW PATTERNS SHALL BE MAINTAINED. UNDER ULTIMATE CONDITIONS ALL DRAINAGE FLOW SHALL EXIT THE PROPERTY IN THE SAME LOCATION AS IT DOES UNDER EXISTING CONDITIONS.

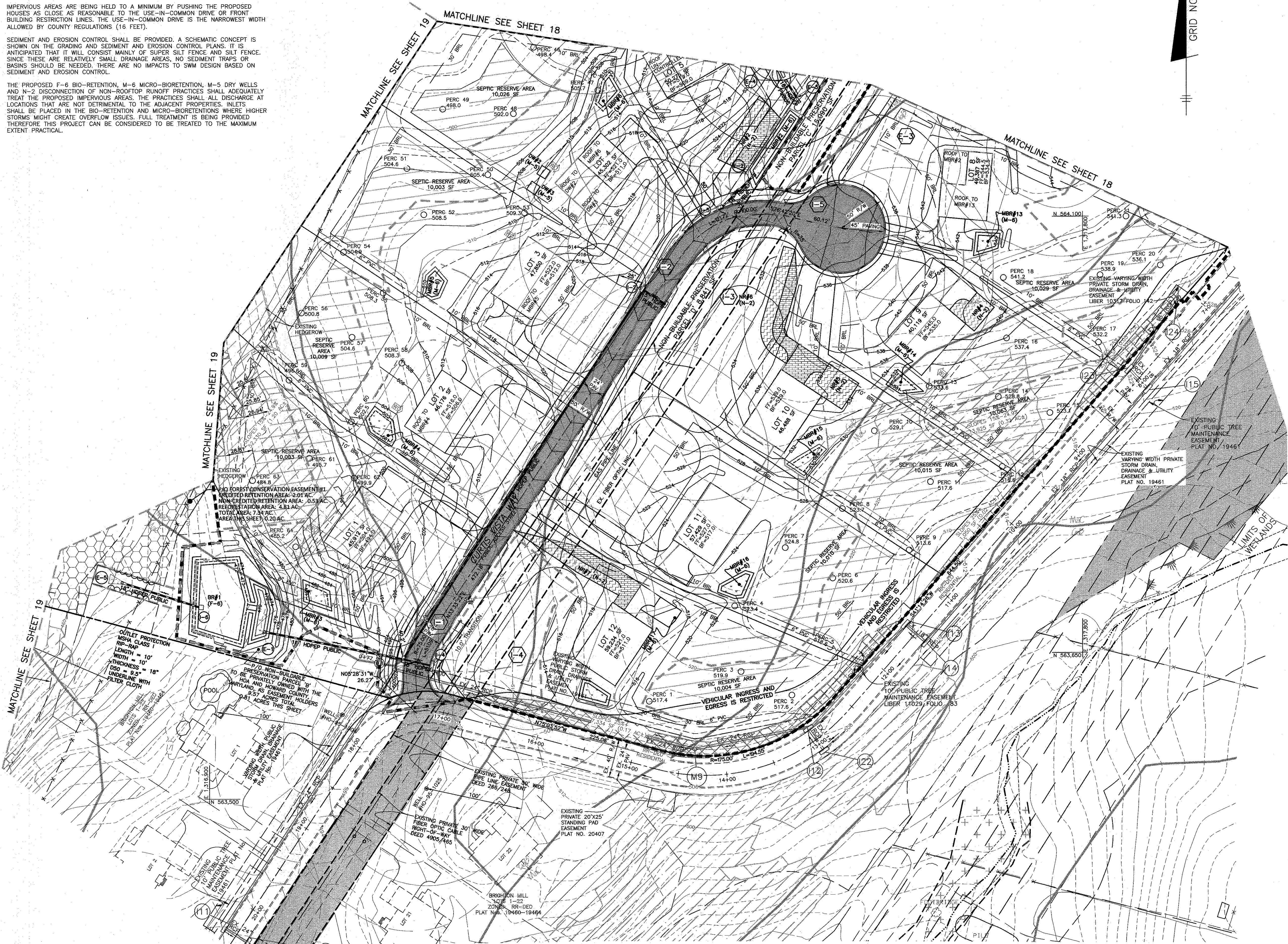
IMPERVIOUS AREAS ARE BEING HELD TO A MINIMUM BY PUSHING THE PROPOSED HOUSES AS CLOSE AS REASONABLE TO THE USE-IN-COMMON DRIVE OR FRONT BUILDING RESTRICTION LINES. THE USE-IN-COMMON DRIVE IS THE NARROWEST WIDTH ALLOWED BY COUNTY REGULATIONS (16 FEET).

SEDIMENT AND EROSION CONTROL SHALL BE PROVIDED. A SCHEMATIC CONCEPT IS SHOWN ON THE GRADING AND SEDIMENT AND EROSION CONTROL PLANS. IT IS ANTICIPATED THAT IT WILL CONSIST MAINLY OF SUPER SILT FENCE AND SILT FENCE. SINCE THESE ARE RELATIVELY SMALL DRAINAGE AREAS, NO SEDIMENT TRAPS OR BASINS SHOULD BE NEEDED. THERE ARE NO IMPACTS TO SWM DESIGN BASED ON SEDIMENT AND EROSION CONTROL.

THE PROPOSED F-6 BIO-RETENTION, M-6 MICRO-BIORETENTION, M-5 DRY WELLS AND N-2 DISCONNECTION OF NON-ROOFTOP RUNOFF PRACTICES SHALL ADEQUATELY TREAT THE PROPOSED IMPERVIOUS AREAS. THE PRACTICES SHALL ALL DISCHARGE AT LOCATIONS THAT ARE NOT DETRIMENTAL TO THE ADJACENT PROPERTIES. INLETS SHALL BE PLACED IN THE BIO-RETENTION AND MICRO-BIORETENTIONS WHERE HIGHER STORMS MIGHT CREATE OVERFLOW ISSUES. FULL TREATMENT IS BEING PROVIDED THEREFORE THIS PROJECT CAN BE CONSIDERED TO BE TREATED TO THE MAXIMUM EXTENT PRACTICAL.

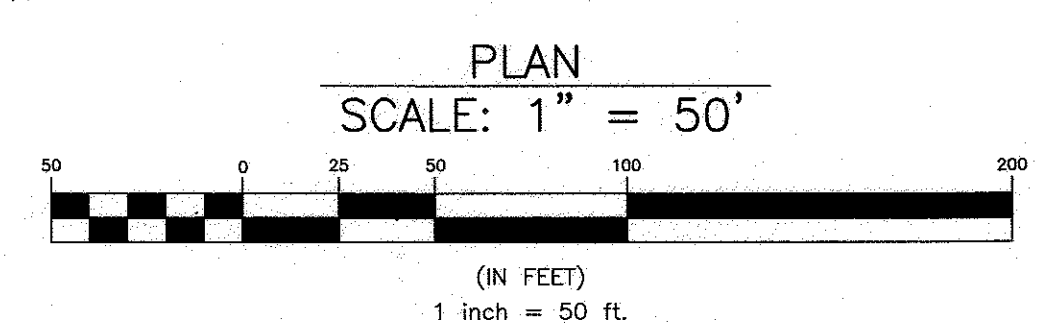
LEGEND

- SOILS CLASSIFICATION
- SOILS DELINEATION
- EXISTING CONTOURS (AERIAL 12/02)
- LIMIT OF WETLANDS
- EXISTING WOODS LINE
- PROPOSED WOODS LINE
- EXISTING STRUCTURE
- EXISTING SEPTIC FIELD
- PROPOSED SEPTIC FIELD
- PROPOSED FOREST CONSERVATION EASEMENT
- PROPOSED BIO-RETENTION
- PROPOSED DRY WELL
- SLOPES 25% OR GREATER
- SLOPES BETWEEN 15% AND 25%
- EX. 100 YEAR FLOODPLAIN
- WELL
- EFFECTIVE SITE AREA
- LIMIT OF DISTURBANCE
- SWM DRAINAGE DIVIDE
- PERCOLATION TEST LOCATION



TENTATIVELY APPROVED
DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY

Valdis Joffe 11-28-16
PLANNING DIRECTOR DATE



SYMBOL	HYDRIC	HYDROLOGIC GROUP / ALTERNATE GROUP	NAME	K Value
GcB	B		GLENELG LOAM, 3 TO 8 PERCENT SLOPES	0.20
GcC	C		GLENELG LOAM, 8 TO 15 PERCENT SLOPES	0.20
GcB**	B	C	GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES	0.37
GcB**	B	C	GLENVILLE-CODORUS SILT LOAM, 0 TO 8 PERCENT SLOPES	0.37
Mac	B		MANOR LOAM, 8 TO 15 PERCENT SLOPES	0.24
MdD	B		MANOR LOAM, 15 TO 25 PERCENT SLOPES	0.24

** HIGHLY ERODIBLE, K>0.35, AND/OR 15% OR GREATER SLOPES
TAKEN FROM THE NRCS WEB SOIL SURVEY, AUGUST 2014. SHEET 16

PROJECT:	Brighton Mill II Facility Summary	DATE:	03/21/16
Pe (LOTS):	1.0 inches	Pe (BR#1):	1.6 inches
		Pe (MRR#2):	1.8 inches

Facility	Drainage Area	Impervious	I (%)	Rv	ESDv (cf)	BIORETENTION FACILITIES		Rev.Prov.	Pe Treated	Notes
						Reqt Storage (75%)	Actual Storage (cf)			
BR-1	11410	2826	26%	0.285	4160	3120	3133	4177	1.54	ESDv provided by MRR#1 and MRR#2
MRR-2	19461	6352	33%	0.301	996	747	767	1049	1.30	LINED
MRR-3	13888	4517	32%	0.342	395	297	324	432	1.09	LINED
MRR-4	21281	5406	26%	0.279	494	371	446	596	1.20	LINED
MRR-5	1761	4527	58%	0.575	372	279	323	431	1.16	LINED
MRR-6	2519	3777	45%	0.459	318	238	279	372	1.17	LINED
MRR-7	6327	4772	51%	0.509	397	298	394	525	1.32	LINED
MRR-8	3953	1868	42%	0.426	142	106	121	161	1.14	LINED
MRR-9	15804	4997	30%	0.317	414	314	349	466	1.11	LINED
MRR-10	4543	1759	38%	0.391	151	113	119	159	1.05	LINED
MRR-11	4268	1275	30%	0.319	113	85	103	137	1.21	LINED
MRR-12	6174	3500	57%	0.680	288	216	222	296	1.03	LINED
MRR-13	4911	3488	74%	0.719	281	211	236	344	1.22	LINED
MRR-14	5519	3500	63%	0.621	285	214	235	313	1.10	LINED
MRR-15	5568	3500	63%	0.616	286	214	276	368	1.29	LINED
MRR-16	11944	4344	36%	0.377	376	282	300	480	1.28	LINED
MRR-17	5353	4073	76%	0.737	326	246	294	392	1.20	LINED
								10697	6144	

Designation	Area (SF)	Impervious	Drainage Area (SF)	Volume (cf)	ESDv	Length (ft)	Depth (ft)	Volume	Full ESDv
DW-2	875	875	0.95	69.27	7	5	98	98	yes
DW-3	875	875	0.95	69.27	7	5	98	98	yes
DW-4	875	875	0.95	69.27	7	5	98	98	yes
DW-5	875	875	0.95	69.27	7	5	98	98	yes
								392	

Designation	Area (SF)	Impervious	Drainage Area (SF)	Volume (cf)	ESDv	Contrib. Per Length (ft)	Per Disconnection Length (ft)	Ratio	Pe Treated	Volume
NR-3	659	1632	0.40	54.73	0	26	1.0	1.0	54.73	
NR-4	573	1504	0.39	49.24	0	23	1.0	1.0	49.24	
NR-5	1005	2395	0.43	85.24	0	37	1.0	1.0	85.24	
NR-6	1152	2595	0.45	100.69	0	12	1.0	1.0	100.69	
NR-7	940	1840	0.51	75.17	0	29	1.0	1.0	75.17	
										459.83

The total ESDv provided by this design is: 11549 CF
The total Pe provided by this design is: 6998 CF
Micro-Bioretentation facilities within the 100' well radius must be provided with an impermeable liner.

*Total ESDv is the treated ESDv divided by 0.75.
**The ESDv summary table portrays storage in excess of that required for Environmental Site Design requirements. The final plans will refine practices to eliminate treatment in excess of the target Pe and verify the best distribution of treatment across the site.

BENCHMARK
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SWM DESIGN NARRATIVE:

NATURAL RESOURCES, INCLUDING WETLANDS & STREAMS AND ASSOCIATED BUFFERS SHALL BE PRESERVED AS THERE IS NO DISTURBANCE PROPOSED IN THESE AREAS. EXISTING FOREST ALONG THE WESTERN EDGE OF THE PROPOSED LOTS SHALL BE PRESERVED WITHIN A FOREST CONSERVATION EASEMENT. NO DISTURBANCE IS ALLOWED IN THESE AREAS AND ADDITIONAL PLANTING WILL BE PROVIDED IN THE PRIORITY AREAS.

EXISTING FLOW PATTERNS SHALL BE MAINTAINED. UNDER ULTIMATE CONDITIONS ALL DRAINAGE FLOW SHALL EXIT THE PROPERTY IN THE SAME LOCATION AS IT DOES UNDER EXISTING CONDITIONS.

IMPERVIOUS AREAS ARE BEING HELD TO A MINIMUM BY PUSHING THE PROPOSED HOUSES AS CLOSE AS REASONABLE TO THE USE-IN-COMMON DRIVE OR FRONT BUILDING RESTRICTION LINES. THE USE-IN-COMMON DRIVE IS THE NARROWEST WIDTH ALLOWED BY COUNTY REGULATIONS (16 FEET).

SEDIMENT AND EROSION CONTROL SHALL BE PROVIDED. A SCHEMATIC CONCEPT IS SHOWN ON THE GRADING AND SEDIMENT AND EROSION CONTROL PLANS. IT IS ANTICIPATED THAT IT WILL CONSIST MAINLY OF SUPER SILT FENCE AND SILT FENCE. SINCE THESE ARE RELATIVELY SMALL DRAINAGE AREAS, NO SEDIMENT TRAPS OR BASINS SHOULD BE NEEDED. THERE ARE NO IMPACTS TO SWM DESIGN BASED ON SEDIMENT AND EROSION CONTROL.

THE PROPOSED F-6 BIO-RETENTION, M-6 MICRO-BIORETENTION, M-5 DRY WELLS AND N-2 DISCONNECTION OF NON-ROOFTOP RUNOFF PRACTICES SHALL ADEQUATELY TREAT THE PROPOSED IMPERVIOUS AREAS. THE PRACTICES SHALL ALL DISCHARGE AT LOCATIONS THAT ARE NOT DETRIMENTAL TO THE ADJACENT PROPERTIES. INLETS SHALL BE PLACED IN THE BIO-RETENTION AND MICRO-BIORETENTIONS WHERE HIGHER STORMS MIGHT CREATE OVERFLOW ISSUES. FULL TREATMENT IS BEING PROVIDED THEREFORE THIS PROJECT CAN BE CONSIDERED TO BE TREATED TO THE MAXIMUM EXTENT PRACTICAL.



LEGEND

SOILS CLASSIFICATION
SOILS DELINEATION
EXISTING CONTOURS (AERIAL 12/02)
LIMIT OF WETLANDS
EXISTING WOODS LINE
PROPOSED WOODS LINE
EXISTING STRUCTURE
EXISTING SEPTIC FIELD
PROPOSED SEPTIC FIELD
PROPOSED FOREST CONSERVATION EASEMENT
PROPOSED BIO-RETENTION
PROPOSED DRY WELL
SLOPES 25% OR GREATER
SLOPES BETWEEN 15% AND 25%
EX. 100 YEAR FLOODPLAIN
WELL
EFFECTIVE SITE AREA
LIMIT OF DISTURBANCE
SWM DRAINAGE DIVIDE
PERCOLATION TEST LOCATION

PROJECT: Brighton Mill II Facility Summary DATE: 03/21/16

Pe (LOTS): 1.0 inches Pe (BR#1): 1.6 inches Pe (MBR#2): 1.8 inches

Facility	Drainage Area	Impervious	I (%)	Rv	ESDv (cf)	Req'd Storage (75%)	Actual Storage (cf)	Total ESDv	Rev Prov.	Pe Treated	Notes
BR-1	114010	26626	26%	0.285	4160	3120	3133	4177	4177	1.54	ESDv provided by NBR and NBR2
MBR-2	18401	6352	35%	0.361	966	747	787	1049	1.90	LINED	
MBR-3	13696	4512	32%	0.342	396	297	324	432	1.09	LINED	
MBR-4	21281	5406	25%	0.279	484	371	446	596	1.20	LINED	
MBR-5	7781	4527	58%	0.575	372	279	323	431	1.16		
MBR-6	8319	3777	45%	0.459	318	238	279	372	1.17	LINED	
MBR-7	3367	4772	51%	0.508	397	298	354	525	1.32	LINED	
MBR-8	3363	1658	42%	0.428	142	106	121	161	1.14	LINED	
MBR-9	15804	4697	30%	0.317	418	314	349	465	1.11	LINED	
MBR-10	4643	1759	38%	0.391	151	113	119	159	1.05		
MBR-11	4268	1275	30%	0.319	113	85	103	137	1.21		
MBR-12	6174	3500	57%	0.560	388	216	222	296	1.03	LINED	
MBR-13	4691	3498	74%	0.719	281	211	258	344	1.22	LINED	
MBR-14	5519	3500	63%	0.621	285	214	235	313	1.10	LINED	
MBR-15	3568	3500	63%	0.616	286	214	276	368	1.29		
MBR-16	11544	4344	39%	0.377	376	282	300	400	1.38		
MBR-17	5333	4073	76%	0.737	328	246	294	392	1.20		
							10667	6144			

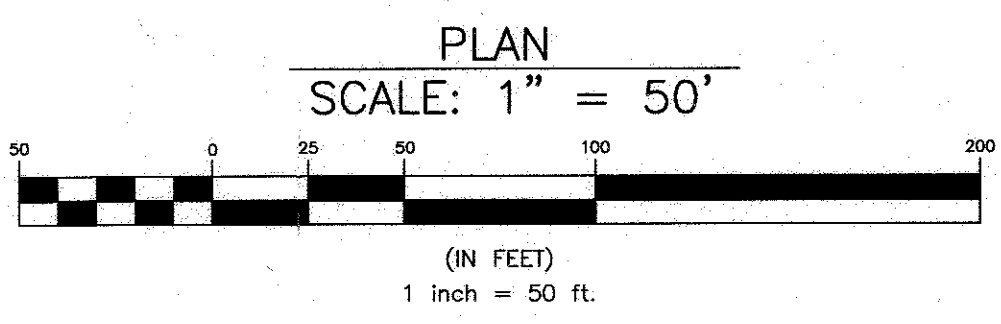
Dry Wells (M-5)

Designation	Area (SF)	Impervious Area (SF)	Runoff	Required (CF)	ESDv (cf)	Length (ft)	Depth (ft)	Volume Provided (CF)	Full ESDv Provided?
DW-2	875	875	0.95	69.27	7	7	5	98	yes
DW-3	875	875	0.95	69.27	7	7	5	98	yes
DW-4	875	875	0.95	69.27	7	7	5	98	yes
DW-5	875	875	0.95	69.27	7	7	5	98	yes
								392	

Non-Rooftop Disconnection (N-2)

Disconnection	Area (SF)	Impervious Area (SF)	Runoff	Required (CF)	ESDv (cf)	Contrib. Per Length (ft)	Disconnection Length (ft)	Ratio	Pe Treated	Volume
NR-2	1097	2297	0.48	91.85	2	16	16	1.0	1.0	91.85
NR-3	639	1632	0.40	54.73	0	26	0	1.0	1.0	54.73
NR-4	573	1504	0.39	49.24	0	23	0	1.0	1.0	49.24
NR-5	1005	2368	0.43	85.24	0	37	0	1.0	1.0	85.24
NR-6	1182	2689	0.45	100.40	6	17	17	1.0	1.0	100.40
NR-7	940	1940	0.51	78.17	0	29	0	1.0	1.0	78.17
										459.83

The total ESDv provided by this design is: 11549 CF
 The total Rev provided by this design is: 6966 CF
 Micro-bioretenion facilities within the 100' well radius must be provided with an impermeable liner.
 *Total ESDv is the treated ESDv divided by 0.75.
 **The ESDv summary table portrays storage in excess of that required for Environmental Site Design requirements.
 The final plans will refine practices to eliminate treatment in excess of the target Pe and verify the best distribution of treatment across the site.



TENTATIVELY APPROVED
 DEPARTMENT OF PLANNING AND ZONING
 HOWARD COUNTY
 11-20-16
 PLANNING DIRECTOR

BENCHMARK ENGINEERS & LAND SURVEYORS & PLANNERS
 ENGINEERING, INC.
 6480 BALTIMORE NATIONAL PIKE & SUITE 315 ELLOTT CITY, MARYLAND 21043
 (P) 410-465-6105 (F) 410-465-6644
 WWW.BE-CVL-ENGINEERING.COM
 BE08B-CVL-ENGINEERING.COM

Professional Certification. 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. 45577, Expiration Date: 06-08-2018.

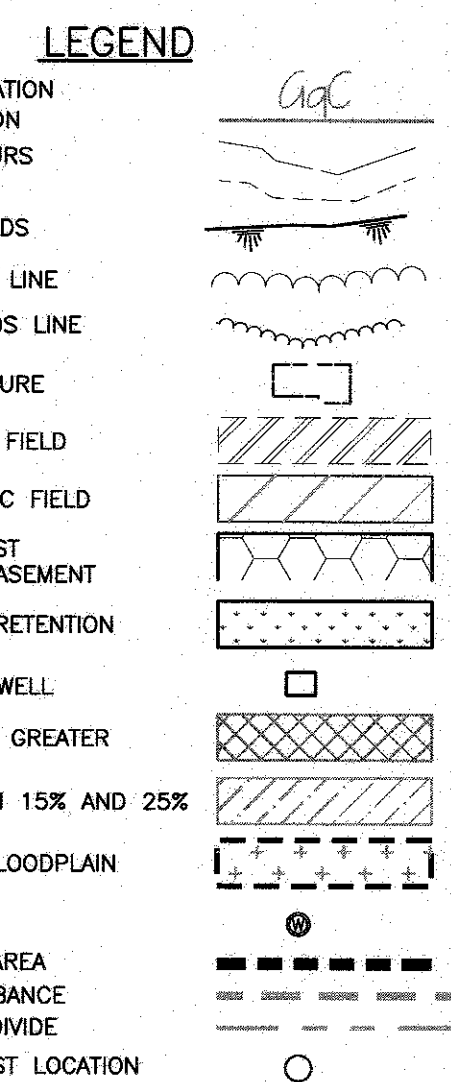
BRIGHTON MILL II
 LOTS 1 THRU 12, BUILDABLE PRESERVATION PARCEL 'A' AND NON-BUILDABLE PRESERVATION PARCELS 'B' THRU 'D'
 TAX MAP: 34, GRID: 2, PARCEL: 16, ZONED: RR-DEO
 DEVELOPER: HIGHLAND DEVELOPMENT CORP
 P.O. BOX 228
 CLARKSVILLE, MARYLAND 21029
 410-365-0414

PRELIMINARY STORMWATER MANAGEMENT PLAN

OWNER: DAVID A. AND DALE E. CURTIS
 304 KLINGER DRIVE
 WESTMINSTER, MD 21157
 410-751-5686

DATE: MAY, 2016 PROJECT NO. 2627
 DRAFT: JC DESIGN: JC CHECK: - SCALE: 1" = 50' SHEET 18 OF 19

** HIGHLY ERODIBLE, K>0.35, AND/OR 15% OR GREATER SLOPES
 TAKEN FROM THE NRCS WEB SOIL SURVEY, AUGUST 2014. SHEET 16



PROJECT:	Brighton Mill II	DATE:	03/21/16
Facility Summary			
Pe (LOTS):	1.0 inches	Pe (BR#1):	1.8 inches
		Pe (MBR#2):	1.8 inches

BIORETENTION FACILITIES												
Facility	Drainage Area	Impervious	I (%)	Rv	ESDv (cf)	Req'd Storage (75%)	Actual Storage (cf)	Total ESDv	Rev Prov.	Pe Treated	Notes	
BR-1	114010	29826	26%	0.295	4160	3120	3133	4177	4177	1.54	ESV provided by NRB and NRB7	
MBR-2	18401	6352	35%	0.361	996	747	787	1049		1.90	LINED	
MBR-3	13868	4512	32%	0.342	396	297	324	432		1.09	LINED	
MBR-4	21281	5406	25%	0.279	484	371	446	596		1.20	LINED	
MBR-5	7761	4627	59%	0.575	372	279	323	431	431	1.16		
MBR-6	8319	3777	45%	0.459	318	238	279	372		1.17	LINED	
MBR-7	9367	4772	51%	0.509	397	296	394	525		1.32	LINED	
MBR-8	3963	1868	47%	0.428	142	106	121	161		1.14	LINED	
MBR-9	11804	4697	39%	0.317	418	314	349	495		1.11		
MBR-10	4643	1759	38%	0.391	151	113	119	159	159	1.05		
MBR-11	4268	1275	30%	0.319	113	85	103	137	137	1.21		
MBR-12	6174	3500	57%	0.590	288	216	222	296		1.03	LINED	
MBR-13	4691	3468	74%	0.719	281	211	258	344		1.22		
MBR-14	5519	3500	63%	0.621	285	214	235	313		1.10	LINED	
MBR-15	5968	3500	63%	0.616	286	214	276	368	368	1.29		
MBR-16	11944	4344	36%	0.377	376	282	360	480	480	1.28		
MBR-17	5333	4073	76%	0.737	328	246	294	392	392	1.20		
								6144	6144			

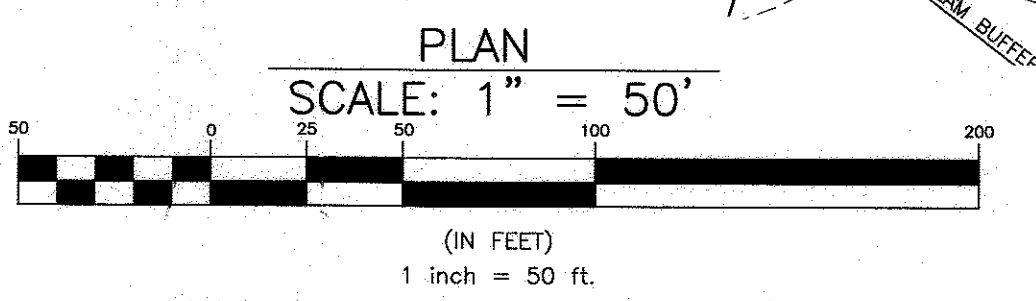
Dry Wells (M-5)									
Designation	Impervious Area (SF)	Drainage Area (SF)	Volumetric Runoff	ESDv	Length (ft)	Depth (ft)	Volume Provided (CF)	Full ESDv	Provided?
DW-2	875	875	0.95	89.27	7	5	98	98	yes
DW-3	875	875	0.95	89.27	7	5	98	98	yes
DW-4	875	875	0.95	89.27	7	5	98	98	yes
DW-5	875	875	0.95	89.27	7	5	98	98	yes

Non-Rooftop Disconnection (N-2)									
Designation	Impervious Area (SF)	Drainage Area (SF)	Volumetric Runoff	ESDv	Contrib. Per Length (ft)	Disconnection Length (ft)	Ratio	Pe Treated	Volume Provided (CF)
NR-2	1067	2297	0.46	91.85	2	16	1.0	1.0	91.85
NR-3	659	1632	0.40	54.73	0	28	1.0	1.0	54.73
NR-4	573	1504	0.39	49.24	0	23	1.0	1.0	49.24
NR-5	1005	2368	0.43	85.24	0	37	1.0	1.0	85.24
NR-6	1192	2689	0.45	100.60	6	12	1.0	1.0	100.60
NR-7	940	1840	0.51	78.17	0	29	1.0	1.0	78.17

The total ESDv provided by this design is: 11549 CF
 The total Rev provided by this design is: 6996 CF
 Micro-Bioretention facilities within the 100' well radius must be provided with an impermeable liner.

*Total ESDv is the treated ESDv divided by 0.75.
 **The ESDv summary table portrays storage in excess of that required for Environmental Site Design requirements. The final plans will refine practices to eliminate treatment in excess of the target Pe and verify the best distribution of treatment across the site.

TENTATIVELY APPROVED DEPARTMENT OF PLANNING AND ZONING HOWARD COUNTY
 Planning Director: *Nathan J. J. [Signature]* 11-28-16
 DATE



SYMBOL	HYDRIC	HYDROLOGIC GROUP	ALTERNATE GROUP	NAME	k Value
GpB	B			GLENELG LOAM, 3 TO 8 PERCENT SLOPES	0.20
GpC	B			GLENELG LOAM, 8 TO 15 PERCENT SLOPES	0.20
GpB**	YES	C		GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES	0.37**
GpB**	C	C		GLENVILLE-CODORUS SILT LOAM, 0 TO 8 PERCENT SLOPES	0.37**
MaC	B			MAJOR LOAM, 8 TO 15 PERCENT SLOPES	0.24
MaD	B			MAJOR LOAM, 15 TO 25 PERCENT SLOPES	0.24

** HIGHLY ERODIBLE, K>0.35, AND/OR 15% OR GREATER SLOPES
 TAKEN FROM THE NRCS WEB SOIL SURVEY, AUGUST 2014. SHEET 16

BENCHMARK ENGINEERING, INC.
 ENGINEERS • LAND SURVEYORS • PLANNERS
 8480 BALTIMORE NATIONAL PIKE & SUITE 315 & ELIJAH CITY, MARYLAND 21043
 (P) 410-465-8105 (F) 410-465-8644
 WWW.BE-CVLENGINEERING.COM
 BE@BE-CVLENGINEERING.COM

Professional Certification. 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. 45377, Expiration Date: 06-08-2018.

[Signature]
 10/20/16

OWNER:
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BRIGHTON MILL II
 LOTS 1 THRU 12, BUILDABLE PRESERVATION PARCEL 'A' AND NON-BUILDABLE PRESERVATION PARCELS 'B' THRU 'D'

TAX MAP: 34, GRID: 2, PARCEL: 16, ZONED: RR-DEO
 BROCCOLINO WAY
 CLARKSVILLE, MD 21029
 FIFTH ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

PRELIMINARY STORMWATER MANAGEMENT PLAN

DATE: MAY, 2016 PROJECT NO. 2627
 SCALE: 1" = 50' SHEET 19 OF 19