	50IL5 LEGEND		
50IL	NAME	CLA55	K FACTOR
GbA	Gladstone loam, 0 to 3 percent slopes	8	0.28
GmC	Glenville sitt loam, 8 to 15 percent slopes	С	0.43

STORMWATER MANAGEMENT SUMMARY							
AREA ID.	ESDV REQUIRED CU.FT.	E50v PROVIDED CU.FT.	REMARK5				
5ITE	3,950	3,960	DRY WELLS (M-5), GRASS SWALE (M-8 AND ROOFTOP DISCONNECTIONS (N-1)				
TOTAL	3,958	3,968					

GROSS AREA = 3.03 ACRES LOD = 2.60 ACRES RCN = 57.9TARGET Pe = 1.4"

DESIGN NARRATIVE

This report will demonstrate how the criteria set forth in the Maryland Stormwater Design Manual, Volumes I and II (effective October 2000, revised May 2009) will be satisfied on this project. The goal of creating hydrology similar to that of "Woods in Good Condition" will be accomplished through the use of the practices contained within Chapter 5 of said manual. The achievement of this goal will remove the requirement of providing Channel Protection Volume.

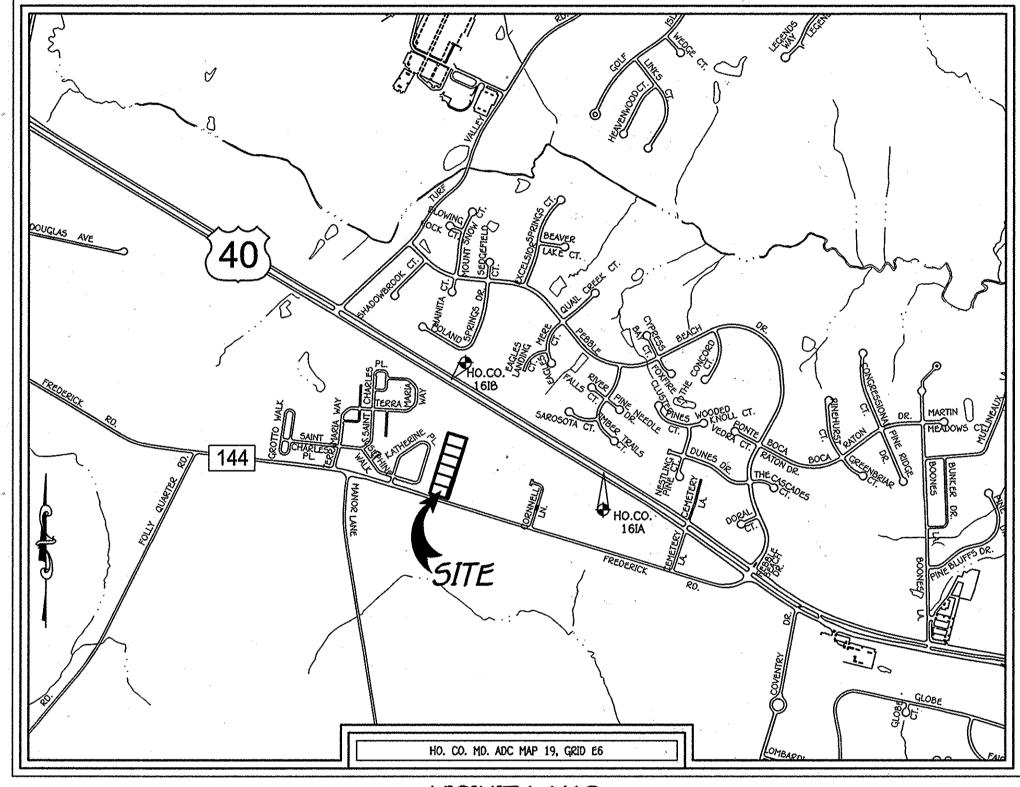
Terry's Place is a six lot single family lot subdivision including one existing house to remain and existing accessory structures to be removed. Property is zoned R-20 and located on Tax Map 16, Grid 23, Parcel No. 17, Lot 2 of the Howard County, Maryland Tax Map Database System. The property is an existing lot of record located at 10778 Frederick Road. Subdivision will utilize a proposed public water and sewer extension. The property is located in the Ellicott City area of Howard County in the watershed of an unnamed tributary of the Little Patuxent River (02131105). This property is relatively rectangular in shape and runoff on-site is mainly from west to east. The existing houses sit at the high point of the lots, and existing driveway will be widened to 16 feet and is located at a high point in Frederick Road. No forest exists on-site. Also, according to a field inspection conducted by Eco-Science Professionals (ESP) dated September 2014, no wetlands or streams are present on-site. The Web Soil Survey shows soils on the site consist of Gladstone loam (GbA), Type "B" soils and Glenville silt loam (GmC). Type "C" soils exist on the property. The runoff from the roofs of the proposed houses is to be directed overland and be treated by rooftop disconnection and through roof leaders to eleven (11) dry wells to be located on Lots 1 & 3 thru 6 in the front and rear of the proposed houses. Runoff from the

- Natural Resource Protection: Environmentally sensitive areas do not exist on-site (steep slopes, wetlands, wetland buffer, floodplain, stream, and stream buffer), therefore no effort to protect natural resources on-site is required.
- II. Maintenance of Natural Flow Patterns: It is the intent of the proposed design to discharge runoff similar to the characteristics and direction of this site prior to any of the proposed improvements.
- III. Reduction of impervious areas through better site design. alternative surfaces and Nonstructural Practices The design of this project utilizes a common driveway and individual driveways for the two new lots.

 Non-Structural practices as permitted in Chapter 5, eleven (11) Dry Wells (M-5), Rooftop Disconnection (N-1), and Non-Rootop Disconnection (N-2) will be used to address ESD to the MEP requirements.
- IV. Integration of Erosion and Sediment Controls into Stormwater Strategy: Since this is a small drainage area (site sheet flows from the common driveway (along east property) to western property line, silt fence, super silt fence, and erosion control matting will be utilized for erosion & sediment control. There is no direct discharge of runoff directly to a stream. All site runoff will discharge to the the existing ground then eventually to the Little Patuxent River. No drainage easements will be required. It is anticipated that all cut will be utilized on-site for construction at time of Site
- V. Implementation of ESD Planning Techniques and practices to the Maximum Extent Practicable (MEP) The full required ESD volume is being provided.
- VI. Request for a Design Manual Waiver: No Waivers related to stormwater management are being requested in this project.

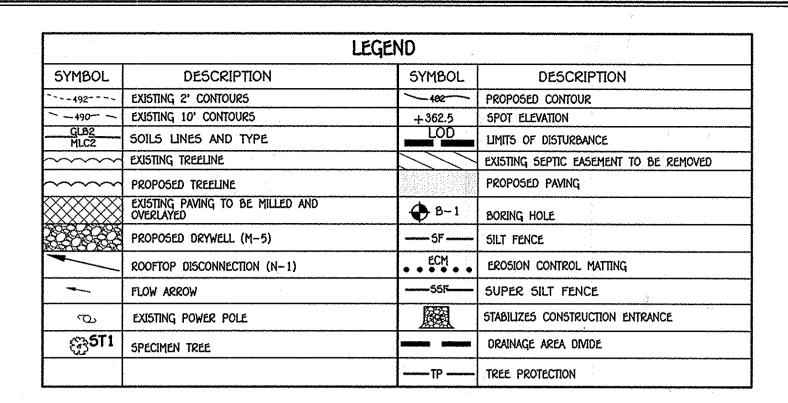
ENVIRONMENTAL CONCEPT PLAN TERRY'S PLACE, LOTS 1 THRU 6

TAX MAP No. 16 GRID No. 23 PARCEL NO. 17 LOT NO. 1 SECOND ELECTION DISTRICT HOWARD COUNTY, MARYLAND



VICINITY MAP SCALE: 1" = 1000'

BENCHMARK INFORMATION B.M.#1 - HOWARD COUNTY CONTROL STATION #16IA - HORIZONTAL - NAD '83) N 589,509.413 ELEVATION = 462.92 - VERTICAL - (NAVD '88) B.M.#2 - HOWARD COUNTY CONTROL STATION #161B - HORIZONTAL - (NAD '03) E 1,344,753.928 ELEVATION = 469.84 - VERTICAL - (NAVD '88)



GENERAL NOTES

- THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS/BUREAU OF ENGINEERING/CONSTRUCTION INSPECTION DIVISION AT 410-313-1980 AT LEAST FIVE (5) WORKING DAYS PRIOR TO THE START OF WORK.
 THE CONTRACTOR SHALL NOTIFY (MISS UTILITY) AT 1-800-257-7777 AT LEAST 40 HOURS PRIOR TO ANY EXCAVATION WORK BEING
- 3. BOUNDARY SHOWN HEREON IS BASED ON PLAT #7060. TOPOGRAPHY SHOWN IS BASED FIELD RUN SURVEY BY I CARTER, INC. DATED AUGUST, 2014 AND SUPPLEMENTED WITH HOWARD COUNTY GIS TOPOGRAPHY AT 5' CONTOUR INTERPOLATED FOR 2' CONTOUR INTERVAL.
- THE COORDINATES SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL WHICH IS BASED UPON THE STATE PLANE COORDINATE SYSTEM. HOWARD COUNTY MONUMENT NOS. 161A AND 161B WERE USED FOR THIS PROJECT.
- PREVIOUS DPZ FILE NUMBERS: F-80-15, VP-79-87. STORM WATER MANAGEMENT IS IN ACCORDANCE WITH THE M.D.E. STORM WATER DESIGN MANUAL, VOLUMES I & II, REVISED 2009.
- NON-STRUCTURAL PRACTICES IN ACCORDANCE WITH CHAPTER 5 ARE BEING UTILIZED. THIS PROPERTY IS LOCATED INSIDE THE METROPOLITAN DISTRICT. ANY DAMAGE TO THE COUNTY'S RIGHT-OF-WAY SHALL BE CORRECTED AT THE DEVELOPER'S EXPENSE.
- THE SUBJECT PROPERTY IS ZONED R-20 (PER DATE 10/06/2013).
- 10. STEEP SLOPES, WETLANDS, STREAM, THEIR BUFFERS, AND FLOODPLAIN DO NOT EXIST ON—SITE.

 11. LANDSCAPING WILL BE PROVIDED AT THE FINAL PLAN STAGE OF THIS PROJECT.

 12. FOREST CONSERVATION OBLIGATIONS WILL BE ADDRESSED AT FINAL PLAN STAGE. IT IS ANTICIPATED THAT A FEE—IN—LIEU OF
- AFORESTATION WILL BE PROVIDED.

 13. SOIL BORINGS ARE REQUIRED FOR THIS PROJECT AND EXCAVATIONS HAVE BEEN CONDUCTED.

 14. APPROVAL OF THIS ECP DOES NOT CONSTITUTE AN APPROVAL OF ANY SUBSEQUENT AND ASSOCIATED SUBDIVISION PLAN/PLAT AND/OR SITE DEVELOPMENT PLAN AND/OR RED—LINE REVISION PLAN, REVIEW OF THIS PROJECT FOR COMPLIANCE WITH THE HOWARD COUNTY
- SUBDIVISION AND LAND DEVELOPMENT REGULATIONS AND THE HOWARD COUNTY ZONING REGULATIONS SHALL OCCUR AT THE SUBDIVISION PLAN. PLAN STAGES AND/OR RED—LINE REVISION PROCESS. THE APPLICANT AND CONSULTANT SHOULD EXPECT ADDITIONAL AND MORE DETAILED REVIEW COMMENTS (INCLUDING COMMENTS THAT MAY ALTER THE OVERALL SITE DESIGN) AS THIS PROJECT PROGRESSES THROUGH THE PLAN REVIEW PROCESS. 15. SOILS ARE BASED ON THE NRCS WEBSOIL SURVEY AND HOWARD COUNTY SOIL MAP 12.

16. A WETLAND DELINEATION & FOREST STAND DELINEATION LETTER FOR THIS PROJECT DATED SEPTEMBER 2014 WAS PREPARED

SITE ANALYSIS DATA CHART

- A. TOTAL AREA OF THIS SUBMISSION = 3.03 AC.±. B. LIMIT OF DISTURBED AREA = 2.68 Ac.± PRESENT ZONING DESIGNATION = R-20 (PER 10/06/2013 COMPREHENSIVE ZONING PLAN) PROPOSED USE: RESIDENTIAL PREVIOUS HOWARD COUNTY FILES: F-80-15: VP-79-87. TOTAL AREA OF FLOODPLAIN LOCATED ON SITE = 0.00 AC. TOTAL AREA OF SLOPES IN EXCESS OF 15% = 0.00 AC. TOTAL AREA OF WETLANDS (INCLUDING BUFFER) = 0.00 AC. TOTAL AREA OF EXISTING FOREST = 0.00 AC. TOTAL GREEN OPEN AREA = 2.36 AC.+
- TOTAL IMPERVIOUS AREA = 0.67 AC. ± L. AREA OF ERODIBLE SOILS = 0.58 AC. M. AREA OF ROAD DEDICATION = 0.00 AC.

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FISHER, COLLINS & CARTER, INC. CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS			-	
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS				
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE	11 X		···	
ELLICOTT CITY, MARYLAND 21042] ;	
(410) 461 - 2955	11 15 1		_	
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			<u> </u>	
			-	
	NO.	REVISION DATE	┨ <u>┰</u> ̄ ̄	

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. 30306, EXPIRATION DATE: 01/12/2016.

OWNERS DAVID WOESSNER 300 MAGOTHY ROAD SEVERNA PARK, MARYLAND 21146 410-461-0837

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING Chil Coluber 2.23.15 Chief, Development Engineering Division PARCEL NO. PROJECT SECTION TERRY'S PLACE BLOCK NO. | ZONE TAX/ZONE | ELEC. DIST. CENSUS TR. 6023.03 1016/204 R-20 SECOND WATER CODE SEWER CODE N/A N/A

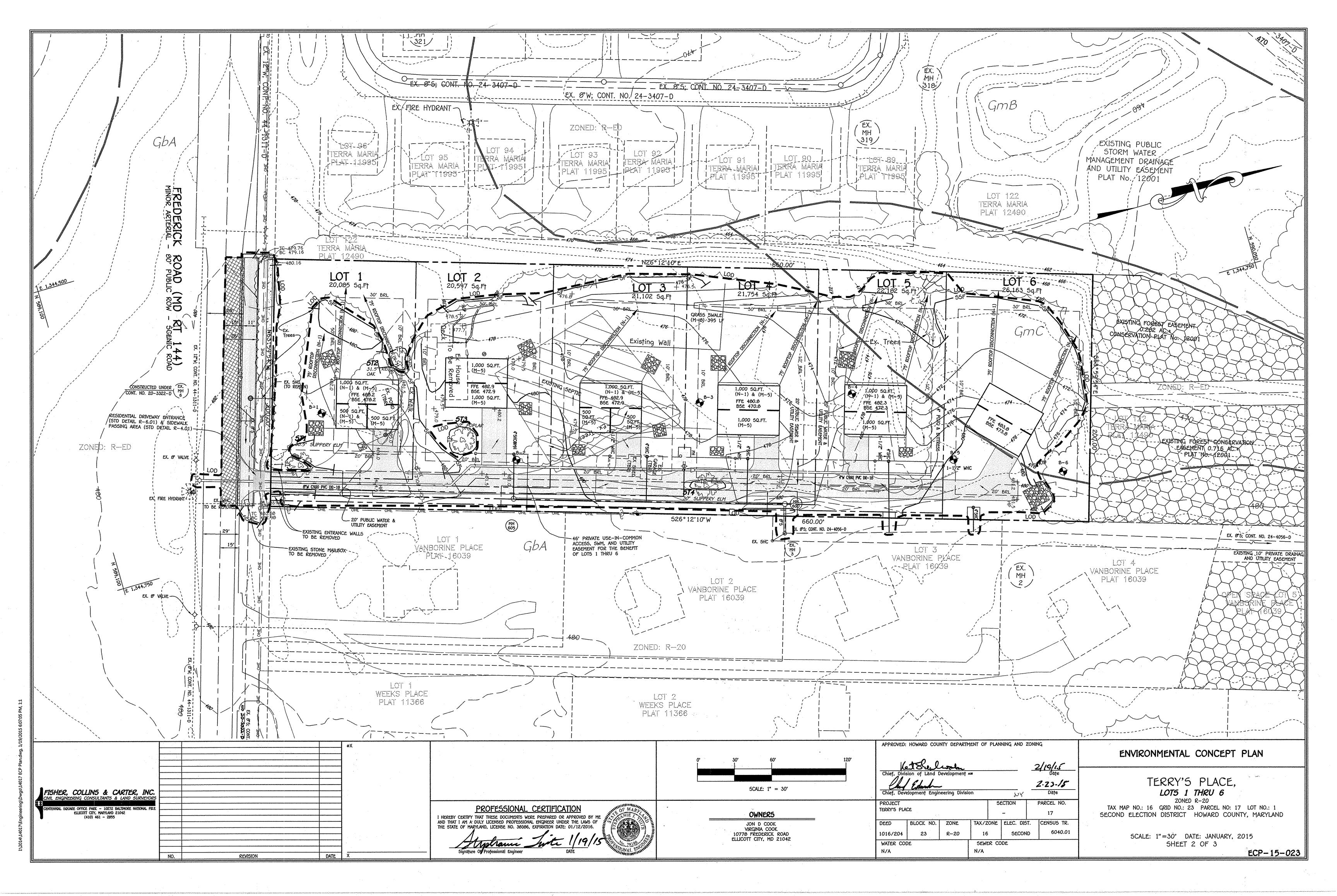
TITLE SHEET

TERRY'S PLACE, LOTS 1 THRU 6

ZONED R-20 TAX MAP NO.: 16 GRID NO.: 23 PARCEL NO: 17 LOT NO.: 1 SECOND ELECTION DISTRICT HOWARD COUNTY, MARYLAND

> SCALE: AS SHOWN DATE: JANUARY, 2015 SHEET 1 OF 3

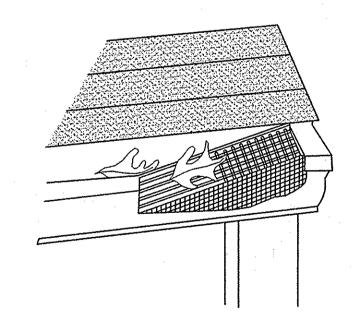
ECP-15-023



Material	Specification	Size	Notes
Plantings	see Appendix A: Table A.4	u\g	plantings are site-specific
Planting soil [2' to 4' deep]	loamy sand 60-65% compost 35-40% or sandy loam 30% coarse sand 30% compost 40%		USDA soil types loamy sand or sandy loam; clay content <5%
Organic Content	Min. 10% by dry weight (ASTM D 2974)		
Mulch	shredded hàrdwood		aged 6 months, minimum
Pea gravel diaphragm	ped gravel: ASTM-D-440	No. 8 or No. 9 (1/8 to 3/8)	
Curtain drain	ornamental stone: washed cobbles	stone: 2" to 5"	
Geotextile		n/a	PE Type 1 nonwoven
Gravel (underdrains and infiltration berms)	AASHTO M-43	No. 57 or No. Aggregate (3/8° to 3/4°)	
Underdrain piping	F 750, Type P5 20 or AASHTO M-270	4" to 6" rigid schedule 40 PVC or SDR35	Slotted or perforated pipe; 3/8" pert. © 6" on center, 4 holes per row; minimum of 3" of gravel over pipes; not necessary underneath pipes. Perforated pipe shall be wrapped with 1/4 inch galvanized hardware cloth
Poured in place concrete (if required)	MSHA Mix No. 3; f = 3500 psi at 20 days, normal weight, air-entrained; reinforcing to meet ASTM-615-60	n.ā	on-site testing of poured-in-place concrete required: 28 day strength and slump test; all concrete design (cast-in-place or pre-cast) not using previously approved 5tate or local standards requires design drawings sealed and approved by a professional structural engineer licensed in the 5tate of Maryland — design to include meeting ACI Code 350.R/89; vertical loading (H-10 or H-20]; allowable horizontal loading (based on soil pressures); and analysis of potential cracking
5and	AASHTO-M-6 or ASTM-C-33	0.02" to 0.04"	Sand substitutions such as Diabase and Graystone (AASHTO) #10 are not acceptable. No calcium carbonated or dolomitic sand substitutions are acceptable. No "rock dust" can be used for sand.

LEAF LEADER	
SCREEN SURCHARGE PIPE REQUIRED AND THE LENGTH WILL BE DETERMINED ONCE DRAINAGE PATTERNS ARE DE	DOWNSPOUT
BLOCK —CAP WITH LOCK	
	12°
6 ON FILTER FABRIC	PERF. P.V.C. PIPE W/CAP. PERF. AREA 5 TIMES PIPE AREA
12 0 12	OBSERVATION WELL 4-6 INCH PERFORATED PVC PIPE ON CONCRETE FOOTPLATE
BUILDING STONE ASTM D-440 SIZE #1 0 STONE ASTM D-440 SIZE #1	* FILTER FABRIC —TOP AND SIDES (NON- WOVEN) MSHA CL. "C"
FABRIC 10' MINIMUM	
	THE CAME COTOTIL
CONCRETE FOOT PLATE	12" SAND, ROTOTILL 1"-0" BELOW TRENCH BOTTOM
GROUND WATER V	Note: Trench may not be Installed in fill.

DRY WELL DETAIL (M-5)
NOT TO SCALE



GUTTER DRAIN FILTER DETAIL

NOT TO SCALE

STORMWATER MANAGEMENT NOTES

- 1. STORMWATER MANAGEMENT IS
 PROVIDED IN ACCORDANCE WITH WITH
 CHAPTER 5, "ENVIRONMENTAL SITE
 DESIGN" OF THE 2007 MARYLAND
 STORMWATER MANAGEMENT DESIGN
 MANUAL, EFFECTIVE MAY 4, 2010.
 2. MAXIMUM CONTRIBUTING ROOF TOP
- BE 1,000 SQ. FT. OR LESS.

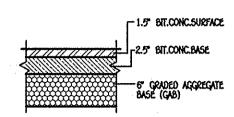
 3. DRYWELLS SHALL BE PROVIDED AT LOCATIONS WHERE THE LENGTH OF DISCONNECTION IS LESS THAN 75' AT 5%. THE SIZE AND CONSTRUCTION OF THE DRYWELL SHALL BE IN ACCORDANCE WITH THE DETAIL SHOWN ON THIS SHEET.

AREA TO EACH DOWNSPOUT SHALL

4. FINAL GRADING IS SHOWN ON THIS SITE DEVELOPMENT PLAN.

SECTION NUMBER	ROAD AND STREET CLASSIFICATION	CALIFORNIA BEARING RATIO (CBR)		5 TO <7	<u>.></u> 7	3 TO <5	5 TO <7	_≥7
		PAVEMENT MATERIAL (INCHES)	min hma with gab		HMA WITH CONSTANT GAB			
		HMA SUPERPAVE FINAL SURFACE 9.5 MM, PG 64-22, LEVEL 1 (ESAL)	2.0	2.0	2.0	2.0	2.0	2.0
P-5	minor arterial	HMA SUPERPAVE INTERMEDIATE SURFACE N/A	2.0	2.0	2.0	2.0	2.0	2.0
		HMA SUPERPAVE BASE 19.0 MM. PG 64-22, LEVEL 1 (ESAL)	6.0	6.0	6.0	7.0	5.0	4.0
	<u> </u>	GRADED AGGREGATE BASE (GAB)	11.0	5.0	4.0	8.0	8.0	8.0

FREDERICK ROAD WIDENING PAVING SECTION NOT TO SCALE



P-1 DRIVEWAY PAVING SECTION

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

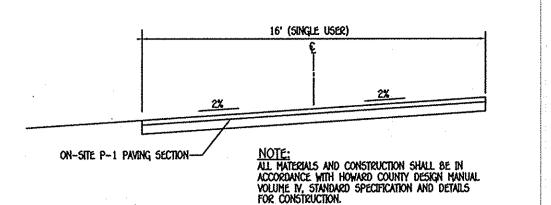
1. MAINTENANCE OF AREAS RECEIVING DISCONNECTION RUNOFF IS GENERALLY NO DIFFERENT THAN THAT REQUIRED FOR OTHER LAWN OR LANDSCAPED AREAS. THE AREAS RECEIVING RUNOFF SHOULD BE PROTECTED FROM FUTURE COMPACTION OR DEVELOPMENT OF IMPERVIOUS AREA. IN COMMERCIAL AREAS FOOT TRAFFIC SHOULD BE DISCOURAGED AS WELL.

OPERATION & MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED DRY WELLS (M-5)

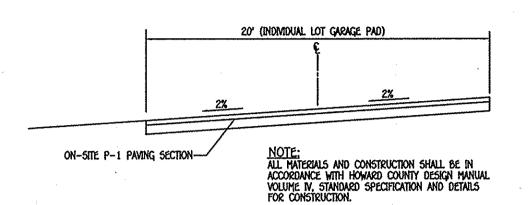
- A. THE OWNER SHALL INSPECT THE MONITORING WELLS AND STRUCTURES ON A QUARTERLY BASIS AND AFTER EVERY HEAVY STORM EVENT.
- B. THE OWNER SHALL RECORD THE WATER LEVELS AND SEDIMENT BUILD UP IN THE MONITORING WELLS OVER A PERIOD OF SEVERAL DAYS TO ENSURE TRENCH DRAINAGE.
- C. THE OWNER SHALL MAINTAIN A LOG BOOK TO DETERMINE THE RATE AT WHICH THE FACILITY DRAINS.
- D. WHEN THE FACILITY BECOMES CLOGGED SO THAT IT DOES NOT DRAIN DOWN WITHIN A SEVENTY-TWO (72) HOUR TIME PERIOD, CORRECTIVE ACTION SHALL BE TAKEN.
- E. THE MAINTENANCE LOG BOOK SHALL BE AVAILABLE TO HOWARD COUNTY FOR INSPECTION TO INSURE COMPLIANCE WITH OPERATION AND MAINTENANCE
- F. ONCE THE PERFORMANCE CHARACTERISTICS OF THE INFILTRATION FACILITY HAVE BEEN VERIFIED. THE MONITORING SCHEDULE CAN BE REDUCED TO AN ANNUAL BASIS UNLESS THE PERFORMANCE DATA INDICATES THAT A MORE FREQUENT SCHEDULE IS REQUIRED.

DRY WELL CHART							
DRYWELL NO.	AREA OF ROOF PER DOWN SPOUT	VOLUME REQUIRED	VOLUME PROVIDED	AREA OF TREATMENT	L D W		
1 (FT LT)	500 SQ. FT.	16 C.F.	266 C.F.	100%*	12' x 12' x 5'		
1 (FT RT)	500 5Q. FT.	56 C.F.	72 C.F.	100%*	6' x 6' x 5'		
1 (REAR)	1,000 5Q. FT.	32 C.F.	288 C.F.	100%*	12' x 12' x 5'		
2 (FT RT)	1,000 5Q. FT.	111 C.F.	200 C.F.	100%*	10' x 10' x 5'		
2 (REAR)	1,000 SQ. FT.	111 C.F.	200 C.F.	100%*	12' x 12' x 5'		
3 (FT LT)	500 SQ. FT.	56 C.F.	160 C.F.	100%*	8' x 10' x 5'		
3 (FT RT)	500 SQ. FT.	16 C.F.	200 C.F.	100%*	10' x 10' x 5'		
3 (REAR)	1,000 5Q. FT.	32 C.F.	288 C.F.	100%*	12' x 12' x 5'		
4 (FT LT)	1,000 5Q. FT.	111 C.F.	154 C.F.	100%*	7' x 11' x 5'		
4 (REAR)	1,000 5Q. FT.	32 C.F.	288 C.F.	100%*	12' x 12' x 5'		
5 (FT LT)	1,000 SQ. FT.	111 C.F.	154 C.F.	100%*	7' x 11' x 5'		
5 (REAR)	1,000 5Q. FT.	32 C.F.	336 C.F.	100%*	13' x 13' x 5'		
6 (FT RT)	1,000 5Q. FT.	111 C.F.	205 C.F.	100%*	16' x 16' x 2'		

* AREA OF TREATMENT EXCEEDS THAT REQUIRED.



TYPICAL PRIVATE COMMON DRIVE CROSS SLOPE SECTION



TYPICAL PRIVATE INDIVIDUAL LOT GARAGE PAD CROSS SLOPE SECTION
NOT TO SCALE

FOREST CONSERVATION WORKSHEET VERSION 1.0

V 23,0010.11 2.10	
BASIC SITE DATA:	2 00
A. TOTAL TRACT AREA	3.03 0 3.03
LAND USE CATEGORY: (from table 3.2.1, page40, Manual) ARA MDR IDA HDR MPD CIA X	*
INFORMATION FOR CALCULATIONS:	0.45
D. AFFORESTATION THRESHOLD	0.45 0.61
F. EXISTING FOREST COVER WITHIN NET TRACT AREA	0
BREAK EVEN POINT: H. FOREST RETENTION ABOVE THRESHOLD WITH NO MITIGATION= I. CLEARING PERMITTED WITHOUT MITIGATION=	0
PROPOSED FOREST CLEARING:	
 J. TOTAL AREA OF FOREST TO BE CLEARED= K. TOTAL AREA OF FOREST TO BE RETAINED=	<u>o</u>
 PLANTING REQUIREMENTS: L. REFORESTATION FOR CLEARING ABOVE CONSERVATION THRESHOLD	0 0 0 0 0.45 0.45

SPECIMEN TREE TABLE							
KEY	5PECIE5	SIZE (DBH)	CRZ (FT RADIUS)	COMMENTS			
1	ULMUS RUBRA	30.5"	45.75	TO REMAIN			
2	QUERCUS RUBRA	31.5"	47.25	TO REMAIN			
3	POPULUS SP.	34"	51	TO REMAIN			
4	ULMUS RUBRA	30"	45	TO REMAIN			

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FISHER, COLLINS & CARTER, INC. CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS				- 4
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS		A CONTRACTOR OF THE CONTRACTOR		÷ .
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE	1			
ELLICOTT CITY, MARYLAND 21042 (410) 461 - 2855			·	
# (410) 461 - 2855				
				*
	NO.	REVISION	DATE.	X

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. 38386, EXPIRATION DATE: 01/12/2016.

JON D COOK
VIRGINIA COOK
10770 FREDERICK ROAD
ELLICOTT CITY, MD 21042

Chief, Division of Land Development NH

Chief, Development Engineering Division

PROJECT
TERRY'S PLACE

DEED

BLOCK NO. ZONE

TAX/ZONE

TAX/ZONE

LEC. DIST.

CENSUS TR.

1016/204

2/16/15

Z.23-/5

Date

Z.23-/5

Date

Light

Z.23-/5

Date

Light

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

PRELIMINARY STORMWATER MANAGEMENT NOTES & DETAILS

TERRY'S PLACE, LOTS 1 THRU 6 ZONED R-20

TAX MAP NO.: 16 GRID NO.: 23 PARCEL NO: 17 LOT NO.: 1 SECOND ELECTION DISTRICT HOWARD COUNTY, MARYLAND

SCALE: NOT TO SCALE DATE: JANUARY, 2015 SHEET 3 OF 3

ECP-15-023