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2	ENVIRONMENTAL CONCEPT PLAN
3	GRADING AND SEDIMENT CONTROL PLAN
4	STORMWATER MANAGEMENT DETAILS
5	SOILS AND DRAINAGE AREA MAP

ENVIRONMENTAL CONCEPT PLAN

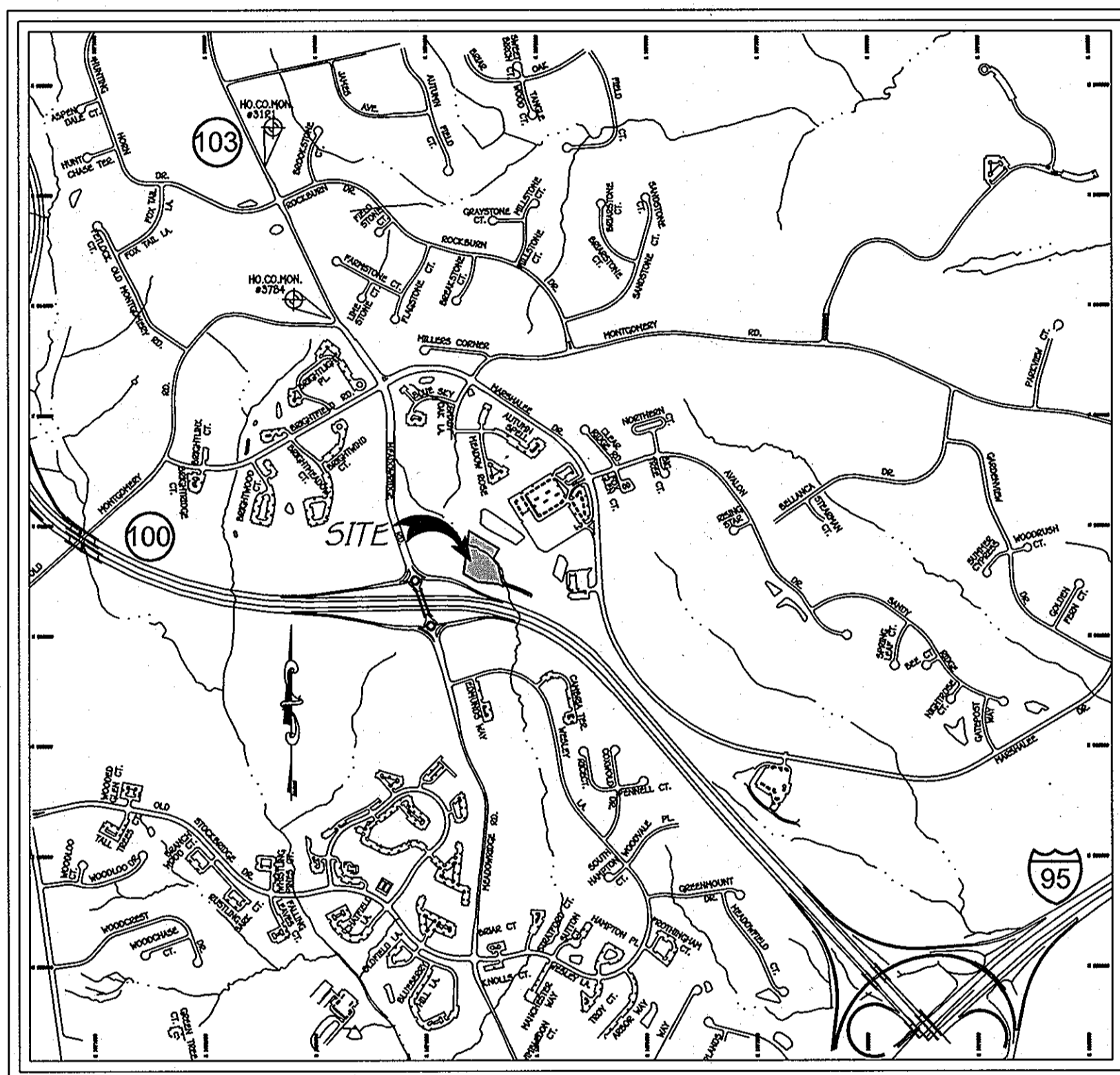
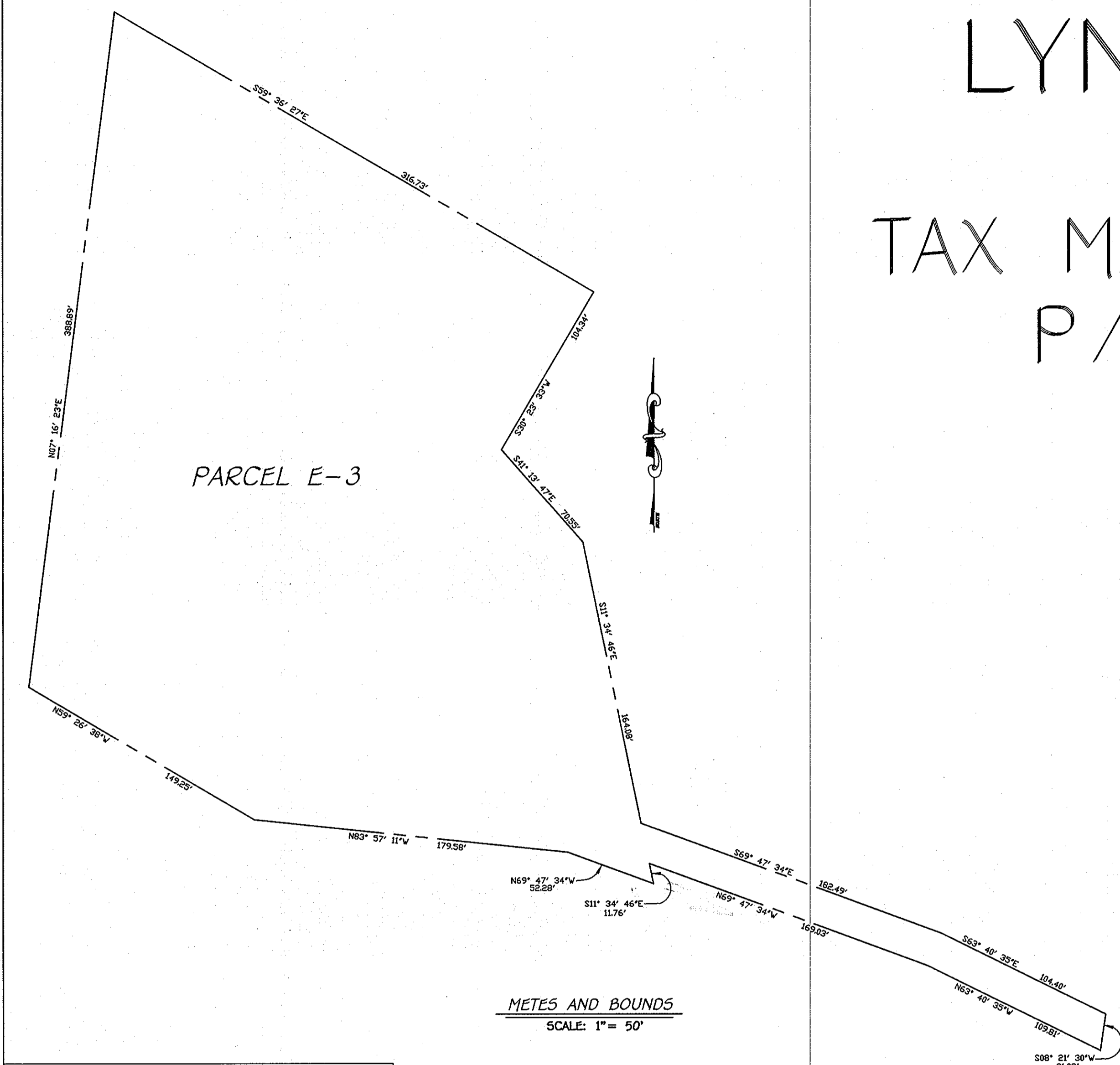
PARCEL E-3

LYNDWOOD SQUARE

ZONING: PEC

TAX MAP No. 37, GRID No. 10

P/O PARCEL No. 687



GENERAL NOTES:

- THIS PLAN IS SUBJECT TO THE AMENDED 5TH EDITION OF THE HOWARD COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS, COUNCIL BILL 45-2003 AND THE ZONING REGULATIONS AS AMENDED BY COUNCIL BILL NO. 75-2003. DEVELOPMENT OR CONSTRUCTION ON THIS PROPERTY MUST COMPLY WITH SETBACKS AND BUFFER REGULATIONS IN EFFECT AT THE TIME OF SUBMISSION OF A BUILDING OR GRADING PERMIT APPLICATION, WAIVER PETITION APPLICATION AND THE COMP-LITE ZONING REGULATIONS DATED JULY 28, 2006.
- THE SUBJECT PROPERTY IS ZONED PEC PER 2/2/2004 COMPREHENSIVE ZONING PLAN AND PER THE COMP-LITE ZONING REGULATIONS DATED 7/28/06.
- THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS / BUREAU OF ENGINEERING / CONSTRUCTION INSPECTION DIVISION AT (410) 313-1880 AT LEAST (5) FIVE WORKING DAYS PRIOR TO THE START OF WORK.
- THE CONTRACTOR SHALL NOTIFY "MESS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS IF APPLICABLE.
- BOUNDARY SURVEY PERFORMED BY PATTON, HARRIS RUST & ASSOCIATES, P.C. ON OR ABOUT MAY, 2004.
- COORDINATES BASED ON NAD83 MARYLAND COORDINATE SYSTEM AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS NO. 37BA AND NO. 37BB: Station No. 37BA - (N 563,785.6572 E 1,376,343.2094) Station No. 37BB - (N 563,663.4508 E 1,378,040.5102)
- ANY DAMAGE TO THE COUNTY'S RIGHT-OF-WAY SHALL BE CORRECTED AT THE DEVELOPER'S EXPENSE.
- CONTRACTOR SHALL CHECK SEWER HOUSE CONNECTION ELEVATION AT EASEMENT LINE PRIOR TO CONSTRUCTION.
- STORMWATER MANAGEMENT WILL BE PROVIDED IN ACCORDANCE WITH THE 2010 MDE, CHAPTER 5 REGULATIONS AND THE LATEST HOWARD COUNTY DESIGN MANUAL, VOL. 1, CHAPTER 5 ADOPTED ON OR ABOUT MAY 4, 2010. GROUNDWATER RECHARGE VOLUME WILL BE PROVIDED THROUGH THE USE OF A SINGLE STONE RESERVOIR LOCATED BENEATH THE PROPOSED BIO-SWALE FACILITY. THE REQUIRED ESD VOLUMES WILL BE PROVIDED BY AN UNDERGROUND SAND FILTER LOCATED BENEATH THE PROPOSED PARKING AREA AND 6 MICRO-BIORETENTION AREAS LOCATED WITHIN ISLAND AREAS. OVERBANK FLOOD PROTECTION VOLUME AND EXTREME FLOOD VOLUMES ARE NOT REQUIRED FOR THIS SITE. THE STORMWATER MANAGEMENT FACILITIES (MICRO-BIORETENTION AND UNDERGROUND SAND FILTER) WILL BE PRIVATELY OWNED BY THE H.O.A. AND JOINTLY BY H.O.A. AND HOWARD COUNTY.
- PUBLIC WATER AND SEWER ALLOCATION WILL BE GRANTED AT THE TIME OF ISSUANCE OF THE BUILDING PERMIT IF CAPACITY IS AVAILABLE AT THAT TIME.
- THIS SUBDIVISION IS SUBJECT TO SECTION 19.1225 OF THE HOWARD COUNTY CODE. PUBLIC WATER SERVICE HAS BEEN PROVIDED BY CONTRACTS 14-4276-D AND 14-3531-D. PUBLIC SEWER SERVICE HAS BEEN PROVIDED BY CONTRACTS 14-3360-D & 14-3996-D.
- BACKGROUND INFORMATION:
 - SUBDIVISION NAME: LYNDWOOD SQUARE
 - TAX MAP NO.: 37
 - PARCEL NO.: P/O 687
 - ZONING: PEC
 - ELECTION DISTRICT: FIRST
 - GROSS AREA OF TRACT = 2.727 ACRES
 - OPEN SPACE REQUIRED = 25% X 2.727 AC. = 0.68 AC. REQUIRED; OPEN SPACE PROVIDED = 2.05 AC.
 - PREVIOUS FILE NUMBERS FOR PARCELS E-2 & E-3: ZB 877 R+M, ZB 1005 M, 5-93-02, P-93-11, F-94-26, F-94-96, F-96-115, F-97-95, F-02-29, F-03-64, 5-91-11, WP-02-47, 500-05-063, F-09-010 & WP-09-209.
- AREA OF FLOODPLAIN = 0.67 ACRES
- AREA OF 25% OR GREATER SLOPES = 0.23 ACRES
 - AREA OF 15% TO 24.99% SLOPES = 0.57 ACRES
- LIMIT OF DISTURBED AREA: 1.50 AC.
- PRESENT ZONING: PEC
- BUILDING COVERAGE OF SITE: 0.15 AC. OR 5.5% OF SITE AREA
- PROPOSED USE FOR SITE AND STRUCTURES: DAY CARE FACILITY
- PARKING REQUIREMENTS: BUILDING AREA = 13,000 SQ.FT.

NO. OF SPACES REQUIRED:	NO. OF SPACES PROVIDED:
DAY CARE 3 SPACES/1000 SQ.FT. = 13.0 X 3 = 39	54 (INCLUDING 3 HANDICAP PARKING SPACES)
- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS IF APPLICABLE.
- THERE ARE NO HISTORIC STRUCTURES LOCATED ON THE SUBJECT PROPERTY.
- THERE ARE NO CEMETERIES ON THE SUBJECT PROPERTY.
- THE FLOODPLAIN DELINEATION SHOWN HEREON IS BASED ON A STUDY BY LAND DESIGN ENGINEERING, INC. APPROVED ON DECEMBER 31, 1991, P-93-11 AND F-94-26.
- THE WETLAND DELINEATION SHOWN HEREON IS BASED ON A STUDY BY EXPLORATION RESEARCH DATED 04-19-02 AND RECORDED ON PLAT NO. 15725.
- ALL FILL AREAS WITHIN ROADWAYS AND UNDER STRUCTURES SHALL BE COMPACTED TO A MINIMUM OF 95% COMPACTION OF AASHTO T-100.
- NO NOISE STUDY IS REQUIRED FOR THIS PROJECT.
- ALL PLAN DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED. ALL UNITS ARE ALIGNED SO THAT THE FRONT OF THE UNIT FACES OUTWARD TOWARDS THE EXISTING ROADWAYS.
- WAIVER PETITION WP-02-47 WAS APPROVED ON DECEMBER 28, 2001 WAIVING SECTION 16.1201(c) (TO PERMIT THE REQUIRED ROAD FRONTAGE OF 60-FEET FOR A NON-RESIDENTIAL PARCEL (E-1) TO BE REDUCED TO ZERO FEET), SUBJECT TO THE FOLLOWING CONDITIONS:
 - ACCESS TO PARCEL E-1 SHALL BE PROVIDED BY A RECORDED VEHICULAR ACCESS EASEMENT THAT WAS SHOWN ON FINAL PLAT F-02-29.
 - STATE HIGHWAY ADMINISTRATION WILL NOT BE RESPONSIBLE FOR ANY NOISE MITIGATION.
- REFUSE COLLECTION TO BE PROVIDED BY PRIVATE CONTRACTOR. THERE WILL BE INTERNAL TRASH COLLECTION WITHIN THE BUILDING TO BE REMOVED BY A PRIVATE JANITORIAL SERVICE FOR CURBSIDE PICK-UP.
 - SNOW REMOVAL AND ROAD MAINTENANCE TO BE PRIVATE.
- "SIGN POSTS" - ALL SIGN POSTS USED FOR TRAFFIC CONTROL SIGNS INSTALLED IN THE COUNTY RIGHT-OF-WAY SHALL BE MOUNTED ON A 2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE POST (14 GAUGE) INSERTED INTO A 2-1/2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE SLEEVE (12 GAUGE) - 3' LONG. A GALVANIZED STEEL POLE CAP SHALL BE MOUNTED ON TOP OF EACH POST.
- ALL CURB RETURNS ARE 5' UNLESS OTHERWISE NOTED.
- OUTDOOR LIGHTING SHALL BE IN COMPLIANCE WITH THE OUTDOOR LIGHTING REQUIREMENTS STANDARDS SPECIFIED IN THE HOWARD COUNTY ZONING REGULATIONS.
- LANDSCAPING WILL BE A MINIMUM OF 7-1/2' FROM EACH SIDE OF THE FIRE DEPARTMENT CONNECTION. PROVIDE A CLEAR UNOBSTRUCTED ACCESS PATH TO THE FIRE DEPARTMENT CONNECTION. NFPA-1 13.1.4.
- COMBUSTIBLE STORAGE MUST BE STORED A MINIMUM OF 15' AWAY FROM THE BUILDING. NFPA-1 10.17.1 AMENDED IN TITLE 17.
- NO CLEARING, GRADING, DISTURBANCE, REMOVAL OF VEGETATIVE COVER AND/OR TREES, DEVELOPMENT OR CONSTRUCTION IS PERMITTED WITHIN THE LIMITS OF THE FLOODPLAIN, WETLANDS (STREAMS) AND THEIR BUFFERS.
- THERE ARE NO EXISTING STRUCTURES/DWELLINGS LOCATED ON THE SUBJECT PROPERTY.
- MAINTENANCE AGREEMENTS FOR THE USE-IN-COMMON ACCESS EASEMENTS FOR PARCELS A-1, A-2, A-6, A-7, A-8, A-9 AND E-1 ARE RECORDED IN LIBER 6166 AT FOLIO 477.
- SOILS INFORMATION TAKEN FROM HOWARD COUNTY SOIL SURVEY ISSUED JULY 1968, MAP NO. 25.
- THE TOPOGRAPHIC CONTOURS ARE BASED ON A FIELD RUN SURVEY PERFORMED BY FISHER, COLLINS AND CARTER, INC. DATED OCTOBER, 2011.
- APPROVAL OF THIS ECP DOES NOT CONSTITUTE APPROVAL OF ANY SUBSEQUENT OR ASSOCIATED SUBDIVISION OR SITE DEVELOPMENT PLAN. REVIEW OF THIS PROJECT FOR COMPLIANCE WITH THE HOWARD COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS AND HOWARD COUNTY ZONING REGULATIONS SHALL OCCUR AT THE SUBDIVISION AND SITE PLAN STAGES. THEREFORE, THE APPLICANT AND CONSULTANT SHOULD EXPECT ADDITIONAL AND MORE DETAILED COMMENTS, INCLUDING THOSE THAT MAY ALTER OVERALL SITE DESIGN, AS THE PROJECT PROGRESSES.
- IN ACCORDANCE WITH THE HOWARD COUNTY ZONING REGULATIONS ADOPTED APRIL 13, 2004, SECTION 12B IN THE SUPPLEMENTARY ZONING DISTRICT REGULATIONS STATES IN A.10 THAT SETBACKS FROM LOT LINES INTERNAL TO A DEVELOPMENT WHEN TWO OR MORE CONTIGUOUS LOTS OR PARCELS ARE TREATED AS A SINGLE PARCEL FOR DEVELOPMENT PURPOSES, THE STRUCTURE AND USE SETBACKS FROM LOT LINES INTERNAL TO THE DEVELOPMENT SHALL NOT APPLY.

LEGEND	
SYMBOL	DESCRIPTION
=====	EXISTING STORM DRAIN LINE
- x - x - x -	EXISTING FENCE
-----	BOUNDARY/RIGHT OF WAY LINE
-----	B.E.L. BUILDING RESTRICTION LINE
=====	PROPOSED CURB TRANSITION
=====	PROPOSED STORM DRAIN PIPE
-----	PROPOSED PERFORATED PIPE
=====	PROPOSED CONCRETE
=====	PROPOSED PAVING
=====	PROPOSED LIGHT
=====	EXISTING SOILS 5% AND GREATER W/ K _w > 0.35 SEE SHEET 5
=====	EXISTING SLOPES 15% TO 24.9%
=====	PROPOSED EROSION CONTROL MATTING
=====	PROPOSED L.O.D.
=====	EXISTING SLOPES 25% AND GREATER

LYNDWOOD SQUARE PROPERTY												
ESD SUMMARY TABLE No.1												
Date: 1-14-13												
ECP PLAN FOR ENTIRE SITE												
Gross Area of Site: 2.73 Acres												
Developable Area: 1.50 Acres												
Pre-Developed Conditions Composite RCNw: 55												
Target PE: 1.8 Inches												
Target ESDvol: 0.123 Ac. Ft. 5,354 Cu. Ft.												
Nomenclature Legend												
Micro Bio-Ret. (M-6)												
Sand Filter (F-3)												
Bio-Swale (M-5)												
Facility No.	Area (Sq. Ft.)	Imp. Area	Lawn Area	% of Total Site Area	ESD Practice Utilized	Untreated Imp. Area	Filter Area Provided (AF)	ESDvol Required (CF)	Adjusted ESDvol Required (CF)	ESDvol Provided (CF)	Rev Provided (CF)	% IMP
1	1980	1393	587	3.03	Micro Bio-Ret.	0	167	202	152	328	0	70%
2	5333	2111	3222	8.16	Micro Bio-Ret.	0	145	344	258	293	0	40%
3	2168	1749	447	3.31	Micro Bio-Ret.	0	76	253	190	253	0	81%
4	1131	875	256	1.73	Micro Bio-Ret.	0	25	125	94	125	0	77%
5	2371	800	1571	3.62	Micro Bio-Ret.	1	25	128	96	128	0	34%
6	1827	1643	184	2.79	Micro Bio-Ret.	0	48	236	177	236	0	90%
7	29767	18962	11075	45.55	Underground Sand Filter	0	660	3366	0	2830	0	63%
8	10334	5655	4679	15.81	Bio-Swale	0	1336	700	0	902	700	53%
Grand Totals	54809	32918	21991	64.57	Untreated Lawn	0.0	2882	6364	968	5095	730	90%
	Sq. Ft.	Sq. Ft.	Sq. Ft.		Acres		Sq. Ft.	Cu. Ft.	Cu. Ft.	Cu. Ft.	Cu. Ft.	
	1.26	0.76	0.50		0.24							
	Acres	Acres	Acres									

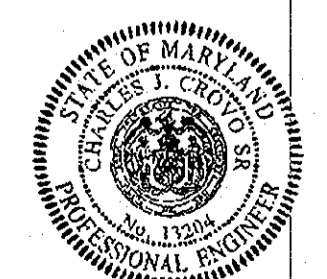
ESD NARRATIVE:

- THE EXISTING NATURAL RESOURCES ON-SITE CONSIST OF WETLANDS, STREAMS AND THEIR ASSOCIATED BUFFERS. THESE RESOURCES ARE BEING PROTECTED BY UTILIZING THE REQUIRED WETLAND BUFFERS AND STREAM BUFFERS FOR THESE FEATURES. THERE IS AN EXISTING FOREST AREA LOCATED ON-SITE.
- THE SITE IMPROVEMENTS AND DEVELOPED AREA WILL MAINTAIN THE EXISTING DRAINAGE PATTERNS AS CLOSE AS POSSIBLE. NO STREAM IMPACTS ARE PROPOSED THAT WOULD ALTER ANY NATURAL FLOW PATTERNS.
- THE REQUIRED EROSION AND SEDIMENT CONTROL MEASURES WILL BE IN ACCORDANCE WITH THE LATEST MDE STANDARDS AND SPECIFICATIONS UTILIZING SUPER SILT FENCE.
- THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS WILL NOT ALLOW PERMEABLE PAVEMENT FOR PUBLIC ROADS AT THIS TIME. HOWEVER, THE USE OF CURB OPENINGS DRAINING INTO MICRO BIO-RETENTION FACILITIES (M-6). THERE ARE ALSO A BIO-SWALE (M-5) PROPOSED ALONG WITH AN UNDERGROUND SAND FILTER (F-3) PROPOSED WITH THIS PROJECT.
- THE PROPOSED ESD MEASURES SHOWN ON THIS PLAN HAVE ATTEMPTED TO MEET THE REQUIRED PE OF 1.8-INCHES FOR THIS PROJECT TO THE MAXIMUM EXTENT PRACTICABLE. NO ADDITIONAL CHAPTER 3 DEVICES ARE PROPOSED AS ALTERNATIVES TO THE CHAPTER 5 ESD MEASURES AT THIS TIME.
- THERE ARE STEEP SLOPES 25% AND GREATER SHOWN ON SHEET 2 WHICH ARE BEING GRADDED AND CONSIST OF APPROXIMATELY 10,018 SQUARE FEET IN AREA.
- THERE IS AN EXISTING 100-YEAR FLOODPLAIN, DRAINAGE AND UTILITY EASEMENT WITHIN THE PROPERTY AND RECORDED IN PLAT# 11521.
- THE 100-YEAR FEMA FLOODPLAIN HAS BEEN SHOWN ON SHEETS 2, 3 AND 5.

CONCEPT DESIGN SUMMARY INFORMATION:

GROSS AREA	= 2.73 ACRES
DEVELOPABLE AREA/L.O.D.	= 1.50 ACRES
PROPOSED % IMPERVIOUS	= 50.1% ACTUAL (USE 55% IN CALCULATIONS = 0.76 ACRES)
AREA OF 15% OR GREATER SLOPES	= 0.80 ACRES
FOREST AREA	= 0.00 ACRES
FLOODPLAIN AREA (INCLUDES FEMA FLOODPLAIN AND EXISTING 100-YEAR FLOODPLAIN, DRAINAGE & UTILITY EASEMENT)	= 0.66 ACRES
GREEN OPEN SPACE AREA	= 1.89 ACRES
WETLAND/WETLAND BUFFER AREA	= 0.98 ACRES
ERODIBLE SOIL AREA	= 1.09 ACRES
TARGET PE	= 1.8 INCHES
TARGET ESDvol. REQUIREMENT	= 0.123 AC. FT. OR 5,354 CU. FT.
WITH THE USE OF 6 (M-6) MICRO-BIO RETENTION FACILITIES OUR TARGET ESDvol. HAS BEEN ADJUSTED TO 4,260 CU.FT. ADDITIONALLY, WE ARE FURTHER REDUCING THE TARGET ESDvol BY UTILIZING A (M-8) BIO-SWALE. WITH THIS WE CAN REDUCE THE ESDvol DOWNWARD TO 3,366 CU.FT. REQUIRED TO BE PROVIDED IN THE PROPOSED UNDERGROUND SAND FILTERS.	
TOTAL ESDvol. PROVIDED	= 5,095 CU.FT.
NOTE:	
1. SINCE THE ENVIRONMENTAL CONCEPT PLAN DOES NOT REQUIRE BORINGS OR GEOTECHNICAL ANALYSIS, THE GROUNDWATER TABLE DEPTH AND ANY ROCK FORMATIONS HAVE NOT BEEN VERIFIED. A FULL GEOTECHNICAL ANALYSIS WILL ACCOMPANY THE PRELIMINARY PLAN AT WHICH TIME THE PLAN CAN BE REVISED AS NECESSARY.	

FISHER, COLLINS & CARTER, INC.
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
 CENTRAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
 ELLICOTT CITY, MARYLAND 21042
 (410) 461 - 2995



"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. 13204, Expiration Date: November 3, 2014."

Charles J. Cravo, Sr., P.E.
 CHARLES J. CRAVO, SR., P.E.

2/13/13
 DATE

DATE	DESCRIPTION
3/13/13	Chief, Development Engineering Division
3/13/13	Chief, Division of Land Development

APPROVED: DEPARTMENT OF PLANNING AND ZONING

DEVELOPER/OWNER
 100-103 CENTER, L.L.C.
 c/o LAND DESIGN AND DEVELOPMENT, INC.
 5300 DORSEY HALL DRIVE
 SUITE 102
 ELLICOTT CITY, MARYLAND 21043
 443-367-0422

Address Chart	
BUILDING NO.	STREET ADDRESS
1	MEADOWRIDGE CENTER DRIVE

PROJECT	SECTION/AREA	PARCELS	LOT
LYNDWOOD SQUARE	-	E-3	-

DEED REF.	BLOCK NO.	ZONE	TAX MAP	ELEC. DIST.	CENSUS TR.
PLAT #20805	10	PEC	37	FIRST	6030

TITLE SHEET

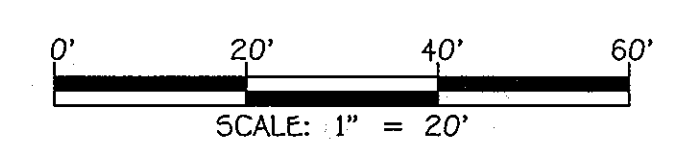
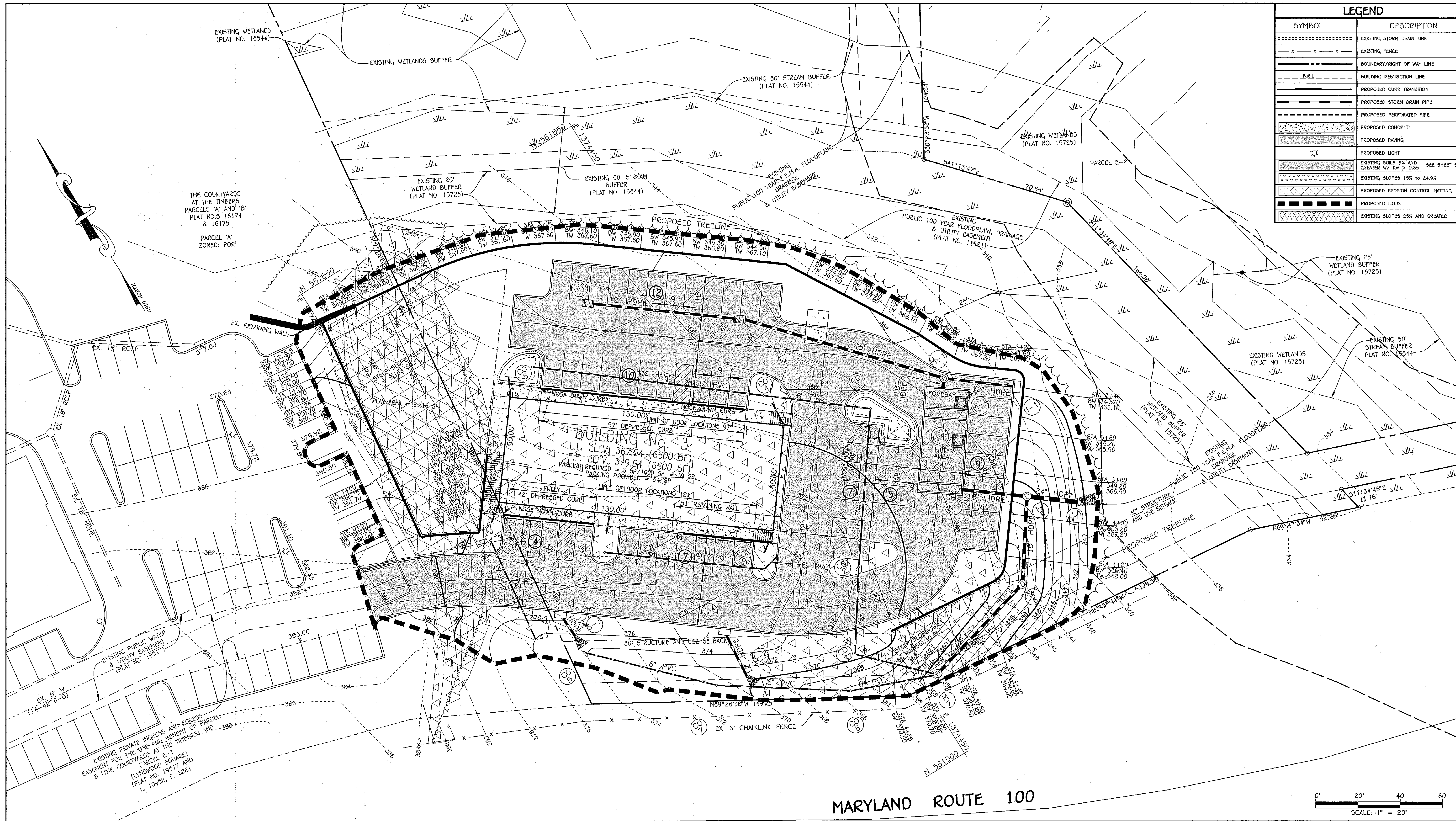
LYNDWOOD SQUARE
PARCEL E-3
DAY CARE BUILDING
ZONED PEC

TAX MAP No. 37 P/O PARCEL No. 687 GRID No. 10
 FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND
 SCALE: AS SHOWN DATE: FEBRUARY 19, 2013

SHEET 1 OF 5
 ECP-13-045

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LEGEND	
SYMBOL	DESCRIPTION
-----	EXISTING STORM DRAIN LINE
- x - x - x -	EXISTING FENCE
-----	BOUNDARY/RIGHT OF WAY LINE
- B.R.L. -	BUILDING RESTRICTION LINE
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☆	PROPOSED LIGHT
-----	EXISTING SOILS 5% AND GREATER W/ K.W. > 0.35 SEE SHEET 5
-----	EXISTING SLOPES 15% TO 24.9%
-----	PROPOSED EROSION CONTROL MATING
-----	PROPOSED L.O.D.
-----	EXISTING SLOPES 25% AND GREATER



MARYLAND ROUTE 100

FISHER, COLLINS & CARTER, INC.
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
 CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
 ELLICOTT CITY, MARYLAND 21114
 (410) 461-2095



"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. 13204, Expiration Date: November 3, 2014."

Charles J. Croft, Sr.
 CHARLES J. CROFT, SR., P.E.
 2/20/13
 DATE

DATE	DESCRIPTION
3/13/13	DATE
3/12/13	DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Kevin Stalwood
 Chief, Division of Land Development
 3/13/13
 DATE

William J. ...
 Chief, Development Engineering Division
 3/12/13
 DATE

DEVELOPER/OWNER
 100-103 CENTER, LLC
 c/o LAND DESIGN AND DEVELOPMENT, INC.
 5300 DORSEY HALL DRIVE
 SUITE 102
 ELLICOTT CITY, MARYLAND 21103
 443-367-0422

Address Chart			
BUILDING NO.	STREET ADDRESS		
1	MEADOWRIDGE CENTER DRIVE		
PROJECT: LYNDWOOD SQUARE			
DEED REF. PLAT #20805		BLOCK NO. 10	ZONE PEC
SECTION/AREA		PARCELS E-3	LOT -
TAX MAP 37		ELEC. DIST. FIRST	CENSUS TR. 6030

ENVIRONMENTAL CONCEPT PLAN

LYNDWOOD SQUARE
 PARCEL E-3
 DAY CARE BUILDING
 ZONED PEC

TAX MAP No. 37 P/O PARCEL No. 687 GRID No. 10
 FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND
 SCALE: 1" = 20' DATE: FEBRUARY 19, 2013
 SHEET 2 OF 5
 ECP-13-045

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Infiltration and Filter System Construction Specifications Operation and Maintenance Schedule For Bio-Retention Areas (M-6)

Infiltration and filter systems either take advantage of existing permeable soils or create a permeable medium such as sand for WC, and Re v. In some instances where permeability is great, these facilities may be used for Op as well. The most common systems include infiltration trenches, infiltration basins, sand filters, and organic filters.

When properly planted, vegetation will thrive and enhance the functioning of these systems. For example, pre-treatment buffers will trap sediments that often are bound with phosphorus and metals. Vegetation planted in the facility will aid in nutrient uptake and water storage. Additionally, plant roots will provide arteries for stormwater to permeate soil for groundwater recharge. Finally, successful plantings provide aesthetic value and wildlife habitat making these facilities more desirable to the public.

Design Constraints:

- > Planting buffer strips of at least 20 feet will cause sediments to settle out before reaching the facility, thereby reducing the possibility of clogging.
- > Determine areas that will be saturated with water and water table depth so that appropriate plants may be selected (hydrology will be similar to bioretention facilities, see figure A.5 and Table A.4 for planting material guidance).
- > Plants known to send down deep taproots should be avoided in systems where filter fabric is used as part of facility design.
- > Test soil conditions to determine if soil amendments are necessary.
- > Plants shall be located so that access is possible for structure maintenance.
- > Stabilize heavy flow areas with erosion control mats or sod.
- > Temporarily divert flows from seeded areas until vegetation is established.
- > See Table A.5 for additional design considerations.

Bio-retention

Soil Bed Characteristics

The characteristics of the soil for the bioretention facility are perhaps as important as the facility location, size, and treatment volume. The soil must be permeable enough to allow runoff to filter through the media, while having characteristics suitable to promote and sustain a robust vegetative cover crop. In addition, much of the nutrient pollutant uptake (nitrogen and phosphorus) is accomplished through absorption and microbial activity within the soil profile. Therefore, soils must balance their chemical and physical properties to support biotic communities above and below ground.

The planting soil should be a sandy loam, loamy sand, loam (USDA), or a loam/sand mix (should contain a minimum 35 to 60% sand, by volume). The clay content for these soils should be less than 25% by volume (Environmental Quality Resources (EQR), 1995; Engineering Technology Inc. and Biohabitats, Inc. (ET&B), 1993). Soils should fall within the SM, ML, SC classifications or the Unified Soil Classification System (USCS). A permeability of at least 1.0 feet per day (0.5"/hr) is required (a conservative value of 0.5 feet per day is used for design). The soil should be free of stones, stumps, roots, or other woody material over 1" in diameter. Brush or seeds from noxious weeds (e.g., Johnson Grass, Mugwort, Nutsedge, and Canada Thistle or other noxious weeds as specified under COMAR 15.09.01.05.) should not be present in the soils. Placement of the planting soil should be in 12 to 18 lifts that are loosely compacted (tamped lightly with a backhoe bucket or traversed by dozer tracks). The specific characteristics are presented in Table A.3.

Table A.3 Planting Soil Characteristics

Parameter	Value
pH range	5.2 to 7.00
Organic matter	1.5 to 4.0% (by weight)
Magnesium	35 lbs. per acre, minimum
Phosphorus (phosphate - P2O5)	75 lbs. per acre, minimum
Potassium (potash - K2O)	85 lbs. per acre, minimum
Soluble salts	500 ppm
Clay	10 to 25 %
Silt	30 to 55 %
Sand	35 to 60%

Mulch Layer

The mulch layer plays an important role in the performance of the bioretention system. The mulch layer helps maintain soil moisture and avoids surface sealing, which reduces permeability. Mulch helps prevent erosion, and provides a microenvironment suitable for soil biota at the mulch/soil interface. It also serves as a pretreatment layer, trapping the finer sediments, which remain suspended after the primary pretreatment.

The mulch layer should be standard landscape style, single or double shredded hardwood mulch or chips. The mulch layer should be well aged (stockpiled or stored for at least 12 months), uniform in color, and free of other materials, such as weed seeds, soil, roots, etc. The mulch should be applied to a maximum depth of three inches. Grass clippings should not be used as a mulch material.

Planting Guidance

Plant material selection should be based on the goal of simulating a terrestrial forested community of native species. Bioretention simulates an upland-species ecosystem. The community should be dominated by trees, but have a distinct community of understory trees, shrubs and herbaceous materials. By creating a diverse, dense plant cover, a bioretention facility will be able to treat stormwater runoff and withstand urban stresses from insects, disease, drought, temperature, wind, and exposure.

The proper selection and installation of plant materials is key to a successful system. There are essentially three zones within a bioretention facility (Figure A.5). The lowest elevation supports plant species adapted to standing and fluctuating water levels. The middle elevation supports plants that like drier soil conditions, but can still tolerate occasional inundation by water. The outer edge

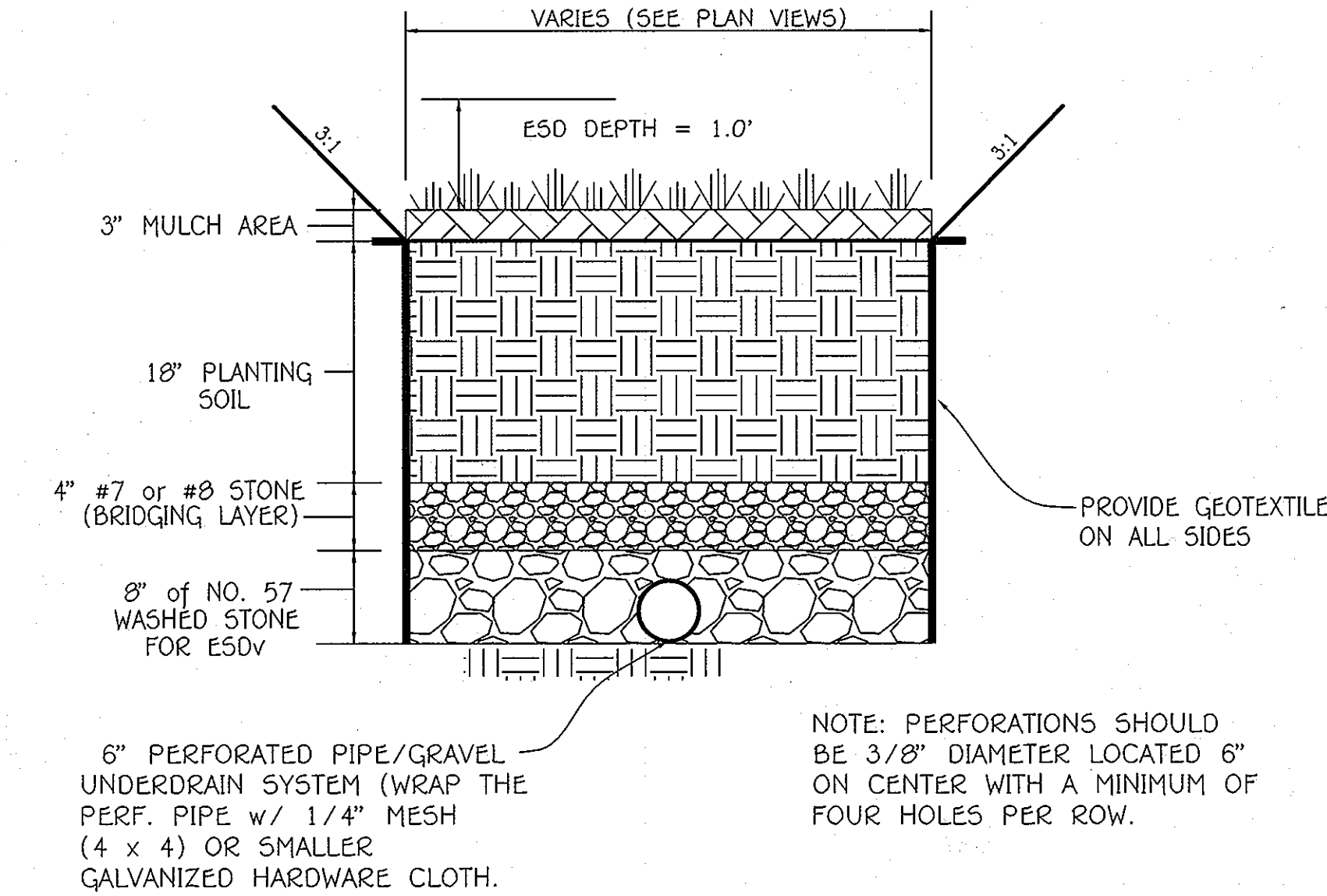
is the highest elevation and generally supports plants adapted to drier conditions. A sample of appropriate plant materials for bioretention facilities are included in Table A.4. The layout of plant material should be flexible, but should follow the general principals described in Table A.5. The objective is to have a system, which resembles a random, and natural plant layout, while maintaining optimal conditions for plant establishment and growth. For a more extensive bioretention plan, consult ET&B, 1993 or Clayton and Schueler, 1997.

1. The owner shall maintain the plant material, mulch layer and soil layer annually. Maintenance of mulch and soil is limited to correcting areas of erosion or wash out. Any mulch replacement shall be done in the spring. Plant material shall be checked for disease and insect infestation and maintenance will address dead material and pruning. Acceptable replacement plant material is limited to the following: 2000 Maryland stormwater design manual volume II, table A.4.1 and 2.

2. The owner shall perform a plant in the spring and in the fall each year. During the inspection, the owner shall remove dead and diseased vegetation considered beyond treatment, replace dead plant material with acceptable replacement plant material. Treat diseased trees and shrubs and replace all deficient stakes and wires.

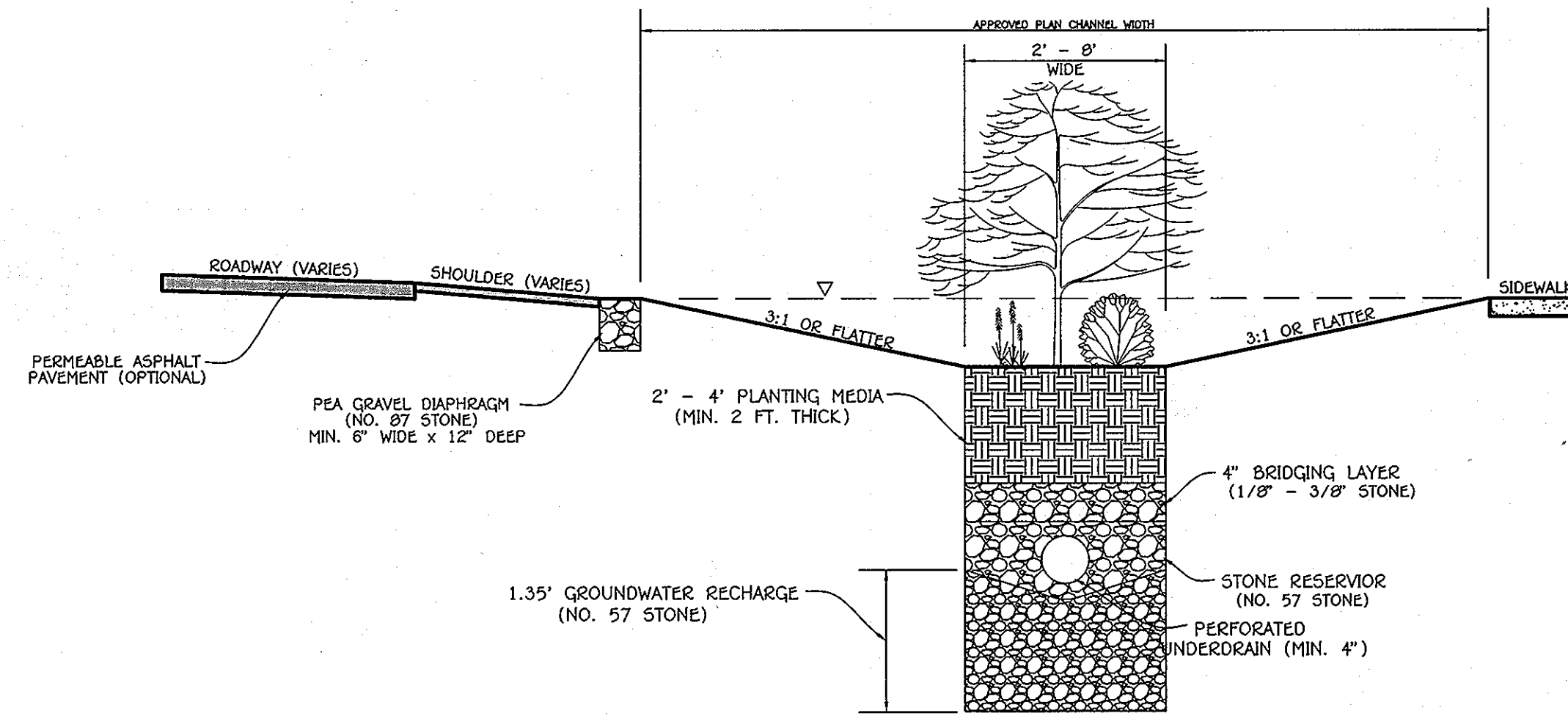
3. The owner shall inspect the mulch each spring. The mulch shall be replaced every two to three years. The previous mulch layer shall be removed before the new layer is applied.

4. The owner shall correct soil erosion on an as needed basis, with a minimum of once per month and after each heavy storm.



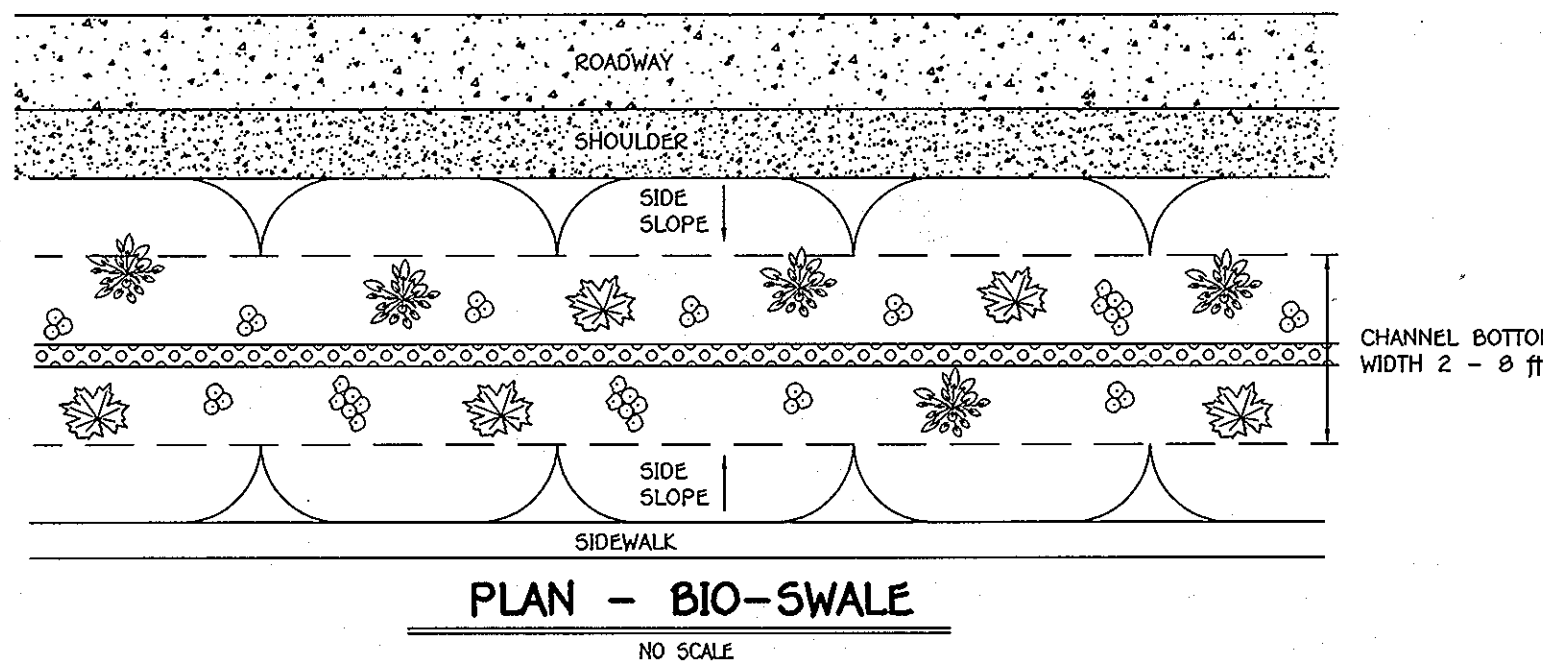
Micro Bio-Retention (M-6) Section

NO SCALE



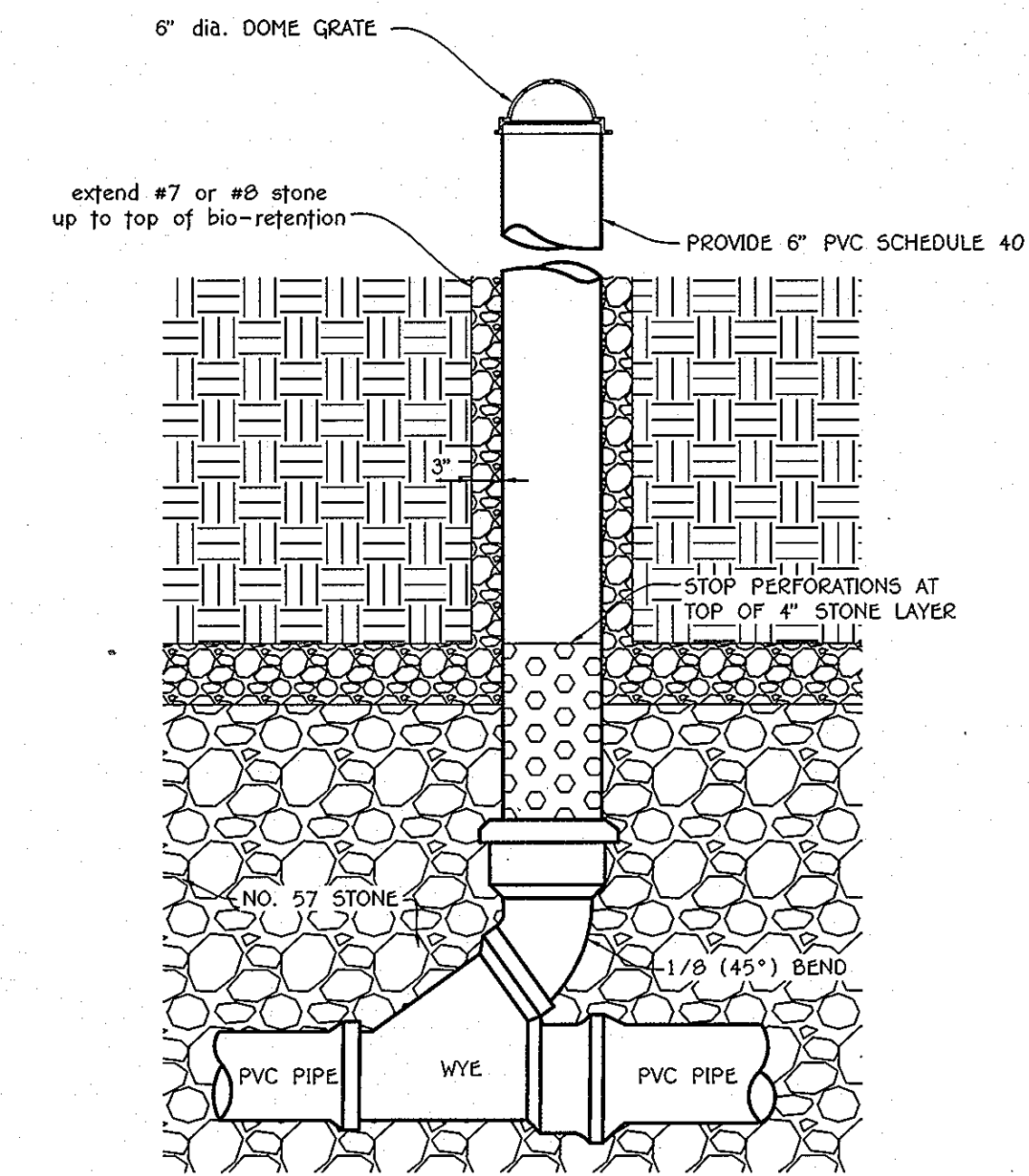
TYPICAL SECTION - BIO-SWALE

NO SCALE



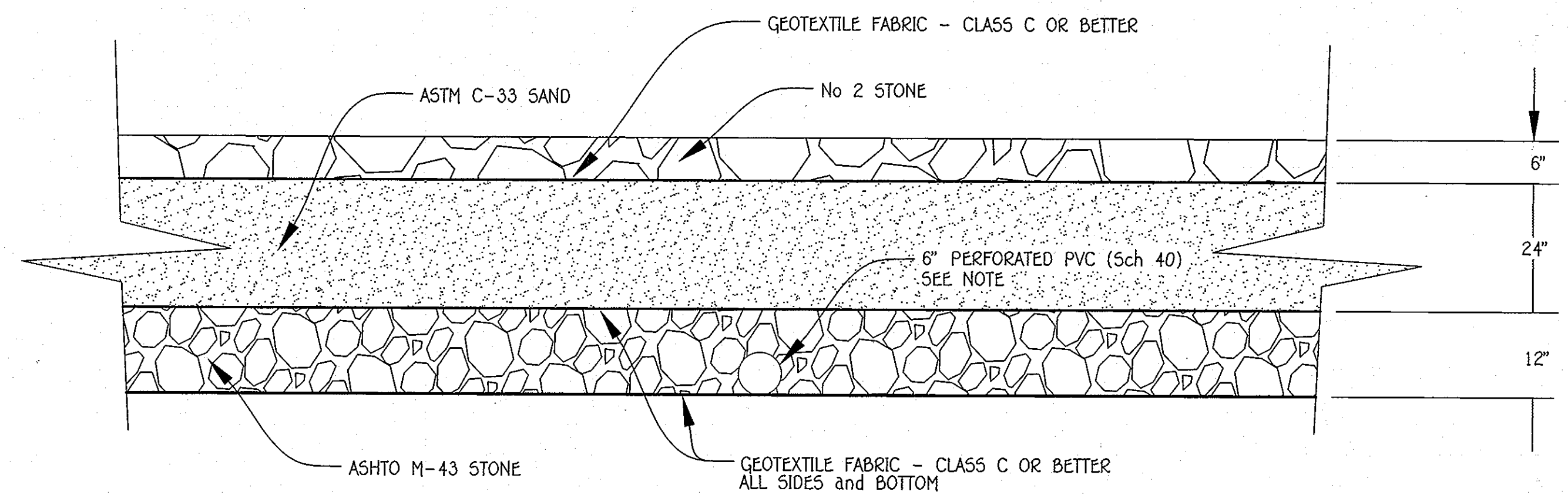
PLAN - BIO-SWALE

NO SCALE



Typical Clean-Out/ Observation Well Detail

NO SCALE



SAND FILTER TYPICAL SECTION

OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED UNDERGROUND STORMWATER FILTRATION SYSTEMS (F-2 AND F-3)

1. THE SEDIMENT CHAMBER OUTLET DEVICES SHALL BE CLEANED AND / OR REPAIRED WHEN DRAW DOWN TIMES WITHIN THE CHAMBER EXCEED 36 HOURS.
2. DEBRIS AND LITTER SHALL BE REMOVED AS NECESSARY TO INSURE PROPER OPERATION OF THE SYSTEM.
3. SEDIMENT SHALL BE CLEANED OUT OF THE SEDIMENTATION CHAMBER WHEN IT ACCUMULATES TO A DEPTH OF 6 INCHES. VEGETATION WITHIN THE SEDIMENT CHAMBER SHALL BE LIMITED TO A HEIGHT OF 18 INCHES.
4. WHEN WATER PONDS ON THE SURFACE OF THE FILTER BED FOR MORE THEN 72 HOURS, THE TOP FEW INCHES OF DISCOLORED MATERIAL SHALL BE REPLACED WITH FRESH MATERIAL. THE OWNER MUST FOLLOW PROPER CLEANING AND DISPOSAL OF THE REMOVED MATERIALS AND LIQUID.
5. A LOGBOOK SHALL BE MAINTAINED TO DETERMINE THE RATE AT WHICH THE FACILITY DRAINS.
6. THE MAINTENANCE LOGBOOK SHALL BE AVAILABLE TO THE HOWARD COUNTY FOR INSPECTION TO INSURE COMPLIANCE WITH OPERATION AND MAINTENANCE CRITERIA.
7. ONCE THE PERFORMANCE CHARACTERISTICS OF INFILTRATION SYSTEM 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.

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
OPTIONAL SOURCE OFFICE FILE - 10272 BALTIMORE NATIONAL FILE
ELLCOTT CITY, MARYLAND 21042
(410) 461-2895



"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. 13204, Expiration Date: November 3, 2014."

CHARLES J. CECIO, SR., P.E.

2/2/13 DATE

DATE	DESCRIPTION
	REVISION BLOCK
APPROVED: DEPARTMENT OF PLANNING AND ZONING	
<i>[Signature]</i>	3/13/13 Date
<i>[Signature]</i>	3/10/13 Date

DEVELOPER/OWNER
100-103 CENTER, L.L.C.
c/o LAND DESIGN AND DEVELOPMENT, INC.
5300 DORSEY HALL DRIVE
SUITE 102
ELLCOTT CITY, MARYLAND 21043
443-367-0422

Address Chart	
BUILDING NO.	STREET ADDRESS
1	MEADOWRIDGE CENTER DRIVE
PROJECT: LYNDWOOD SQUARE	
DEED REF. PLAT #20805	BLOCK NO. 10
ZONE PEC	TAX MAP 37
ELC. DIST. FIRST	CENSUS TR. 6030

Stormwater Management Details

LYNDWOOD SQUARE
PARCEL E-3
DAY CARE BUILDING
ZONED PEC

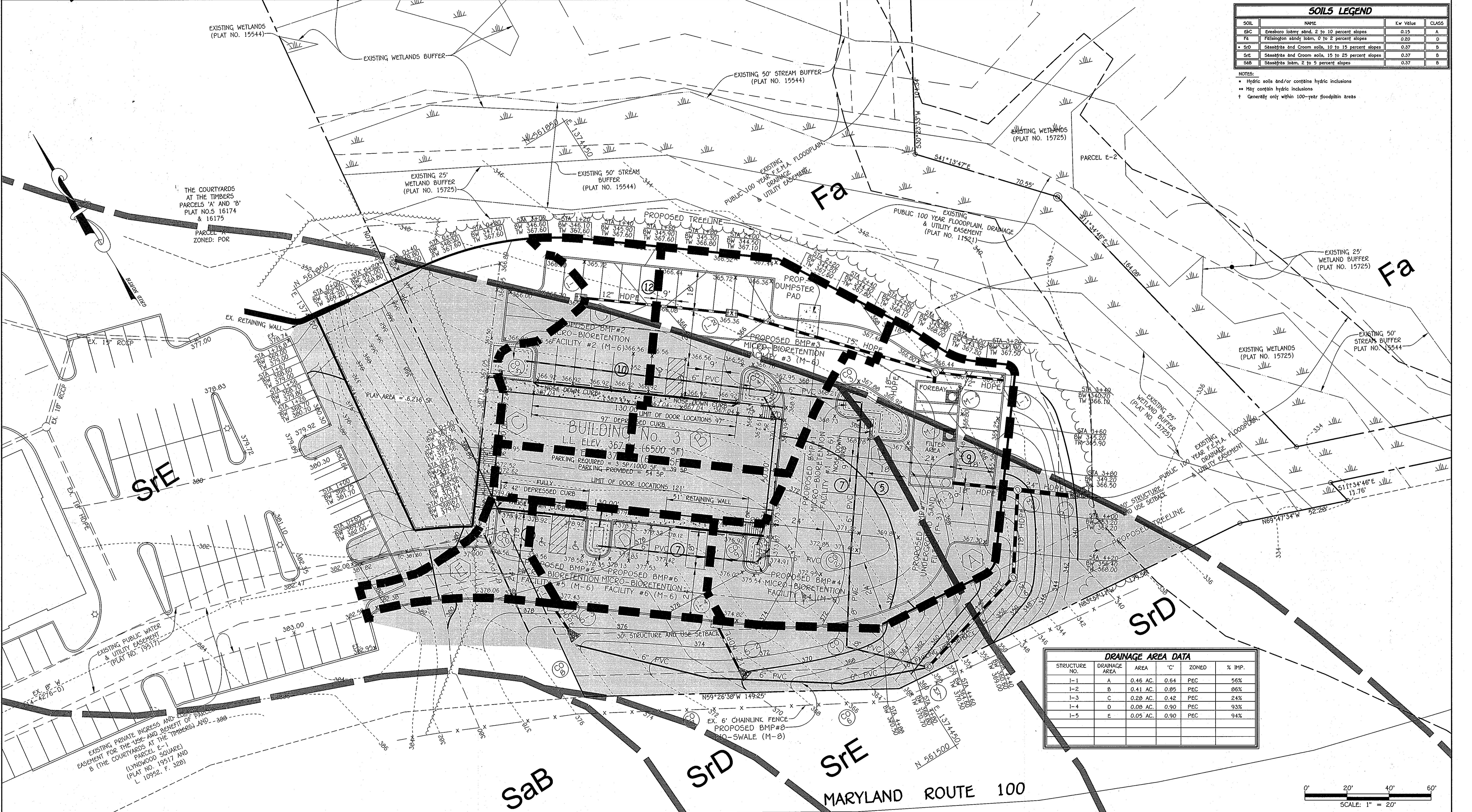
TAX MAP No. 37 P/O PARCEL No. 687 GRID No. 10
FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: AS SHOWN DATE: FEBRUARY 19, 2013

SHEET 4 OF 5

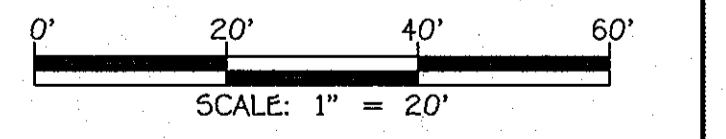
ECP-13-045

SOILS LEGEND			
SOIL	NAME	Kw Value	CLASS
E&C	Evesboro loamy sand, 2 to 10 percent slopes	0.15	A
Fa	Fallsington sandy loam, 0 to 2 percent slopes	0.20	D
SrD	Sassafras and Croom soils, 10 to 15 percent slopes	0.37	B
SrE	Sassafras and Croom soils, 15 to 25 percent slopes	0.37	B
SaB	Sassafras loam, 2 to 5 percent slopes	0.37	B

NOTES:
 * Hydric soils and/or contains hydric inclusions
 ** May contain hydric inclusions
 † Generally only within 100-year floodplain areas



DRAINAGE AREA DATA					
STRUCTURE NO.	DRAINAGE AREA	AREA	'C'	ZONED	% IMP.
1-1	A	0.46 AC.	0.64	PEC	56%
1-2	B	0.41 AC.	0.25	PEC	86%
1-3	C	0.28 AC.	0.42	PEC	24%
1-4	D	0.08 AC.	0.90	PEC	93%
1-5	E	0.05 AC.	0.90	PEC	94%



FISHER, COLLINS & CARTER, INC.
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
 CENTENNIAL SQUARE OFFICE PARK - 10725 BALTIMORE NATIONAL PkE
 ELLICOTT CITY, MARYLAND 21114
 (410) 461-2895



"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. 13204, Expiration Date: November 3, 2014."

Charles J. Crevo, Sr.
 CHARLES J. CREVO, SR., P.E.

2/28/13
 DATE

DATE: 3/13/13
 DESCRIPTION: REVISION BLOCK

APPROVED: DEPARTMENT OF PLANNING AND ZONING

K. P. [Signature] 3/13/13
 Chief, Division of Land Development

[Signature] 3/12/13
 Chief, Development Engineering Division

DEVELOPER/OWNER
 100-103 CENTER, L.L.C.
 c/o LAND DESIGN AND DEVELOPMENT, INC.
 5300 DORSEY HALL DRIVE
 SUITE 102
 ELLICOTT CITY, MARYLAND 21143
 443-367-0422

Address Chart				
BUILDING NO.	STREET ADDRESS			
1	MEADOWRIDGE CENTER DRIVE			

PROJECT	SECTION/AREA	PARCELS	LOT
LYNDWOOD SQUARE	-	E-3	-

DEED REF.	BLOCK NO.	ZONE	TAX MAP	ELEC. DIST.	CENSUS TR.
PLAT #20805	10	PEC	37	FIRST	6030

SOILS & DRAINAGE AREA MAP

LYNDWOOD SQUARE
 PARCEL E-3
 DAY CARE BUILDING
 ZONED PEC

TAX MAP No. 37 P/O PARCEL No. 687 GRID No. 10
 FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND
 SCALE: 1" = 20' DATE: FEBRUARY 19, 2013

SHEET 5 OF 5
 ECP 13-045