

GENERAL NOTES

- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY STANDARDS AND SPECIFICATIONS. ALL WORK AND MATERIALS SHALL COMPLY WITH O.S.H.A. STANDARDS.
- EXISTING UTILITIES LOCATED FROM ROAD CONSTRUCTION PLANS, FIELD SURVEYS, PUBLIC WATER AND AND SEWER EXTENSION PLANS AND AVAILABLE RECORD DRAWINGS. APPROXIMATE LOCATION OF EXISTING UTILITIES ARE SHOWN FOR THE CONTRACTORS' INFORMATION. CONTRACTOR SHALL LOCATE EXISTING UTILITIES WELL IN ADVANCE OF CONSTRUCTION ACTIVITIES AND TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES AND TO MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE INCURRED DUE TO CONTRACTOR'S OPERATION SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTOR'S EXPENSE.
- THE EXISTING TOPOGRAPHY SHOWN HERE ON IS BASED ON A FIELD TOPOGRAPHICAL SURVEY PERFORMED BY ROBERT H. VOGEL ENGINEERING, INC., DATED MARCH 2014.
- COORDINATES AND ELEVATIONS ARE BASED ON MARYLAND COORDINATE SYSTEM - NAD83(1991) AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS 301E & 301F.
- THE PROPERTY LINES SHOWN HEREON IS BASED ON A BOUNDARY SURVEY PERFORMED BY ROBERT H. VOGEL ENGINEERING INC., DATED MARCH 25, 2014.
- ALL ELEVATIONS ARE TO FLOWLINE/BOTTOM OF CURB UNLESS OTHERWISE NOTED.
- THE GEOTECHNICAL ENGINEER TO CONFIRM PAVING SECTION PRIOR TO CONSTRUCTION. ALL PAVING TO BE PAVED PER GEOTECHNICAL RECOMMENDATIONS.
- THE SUBJECT PROPERTY IS ZONED NT PER THE OCTOBER 6, 2013 COMPREHENSIVE ZONING PLAN.
- PUBLIC WATER AVAILABLE THROUGH CONTRACT 228-W&S. PUBLIC SEWER AVAILABLE THROUGH CONTRACT 228-W&S.
- THERE ARE NO BURIAL GROUNDS, CEMETERIES, OR HISTORIC STRUCTURES LOCATED ON THIS PROPERTY.
- THERE IS NO 100YR FLOODPLAIN, WETLANDS, WETLAND BUFFERS, STREAMS, OR STREAM BUFFERS, OR STEEP SLOPES ON SITE.
- ANY EXISTING STREET TREES DAMAGED OR DESTROYED DURING CONSTRUCTION WILL BE REPLACED BY THE CONTRACTOR.
- THERE ARE NO SPECIEM OR CHAMPION TREES WITHIN THE LOD.
- THIS PROJECT IS EXEMPT FROM THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY CODE FOR THE FOREST CONSERVATION BECAUSE IT IS IN THE NT ZONING DISTRICT AND THIS PROPERTY HAS A SITE DEVELOPMENT PLAN APPROVED PRIOR TO DECEMBER 31, 1992.
- THIS PROJECT IS SUBJECT TO COMPLIANCE WITH THE AMENDED FIFTH EDITION OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS. DEVELOPMENT OR CONSTRUCTION ON THIS PROPERTY MUST COMPLY WITH SETBACK AND BUFFER REGULATIONS IN EFFECT AT THE TIME OF SUBMISSION OF THE SITE DEVELOPMENT PLAN, WAIVER PETITION APPLICATION OR BUILDING/ GRADING PERMIT APPLICATIONS.
- A KNOX BOX IS REQUIRED TO BE PLACED ON THE FRONT OF THE BUILDING. IT SHALL BE PLACED TO THE RIGHT OF THE MAIN ENTRANCE AT A RANGE OF 4'-6" IN HEIGHT AND NO MORE THAN 6' LATERALLY FROM THE DOOR. ITS LOCATION IS SHOWN ON THESE PLANS. THE BOX SHALL BE ELECTRONICALLY SUPERVISED TO NOTIFY THE OWNER THAT IT IS BEING ACCESSSED (INTEGRATED WITH THE FIRE ALARM SYSTEM).
- LANDSCAPING NOT PERMITTED WITHIN 7'-1/2' OF EACH SIDE OF THE FIRE DEPARTMENT CONNECTION. PROVIDE A CLEAR UNOBSTRUCTED ACCESS PATH TO THE FIRE DEPARTMENT CONNECTION. WIDTH=13.1'.
18. FIRE LANES SHOULD BE PROVIDED ON THIS SITE TO ALLOW EMERGENCY VEHICLE ACCESS. EITHER FIRE LANE SIGNAGE SHOULD BE INSTALLED, OR THE CURBS SHOULD BE PAINTED IN RED AND STENCILED TO IDENTIFY THE ROAD AS A FIRE LANE.
19. 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.
20. ALL EXTERIOR LIGHTING TO COMPLY WITH THE REQUIREMENTS FOUND IN ZONING SECTION 134 OF THE HOWARD COUNTY ZONING REGULATIONS.
21. STREET LIGHT PLACEMENT AND THE TYPE OF FIXTURE AND POLE SHALL BE IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL VOLUME III (2006), SECTION 5.5.A. A MINIMUM OF 20' SHALL BE MAINTAINED BETWEEN ANY STREET LIGHT AND ANY TREE.
22. STORMWATER MANAGEMENT FOR THIS PROJECT IS BEING PROVIDED BY ENVIRONMENTAL SITE DESIGN UTILIZING A MICRO-BIOTENTION FACILITY TO ACCOMMODATE THE TOTAL ESD VOLUME REQUIRED. THE SWM FACILITY IS TO BE PRIVATELY OWNED AND MAINTAINED.
23. ALL ROOF LEADERS TO DRAIN INTO STORM DRAIN SYSTEM.
24. TRASH AND RECYCLING COLLECTION TO BE PRIVATE.
25. THE PROPOSED BUILDING WILL HAVE AN AUTOMATIC FIRE PROTECTION SPRINKLER SYSTEM.
26. THE SUBJECT PROPERTY DOES NOT CONTAIN ANY ENVIRONMENTAL FEATURES. THEREFORE THERE IS NO DISTURBANCE TO ENVIRONMENTAL FEATURES.
27. SIGNAGE SHALL BE PROVIDED ON THE BUILDING IDENTIFYING THE BUILDING ADDRESS, AND EACH SUITE SEPARATED BY LETTER.
28. APPROVAL OF THIS ECP DOES NOT CONSTITUTE AN APPROVAL OF ANY SUBSEQUENT AND ASSOCIATED SUBDIVISION PLAN/PLAT AND/OR SITE DEVELOPMENT PLAN/RED-LINE REVISION PLAN AND/OR GRADING PLAN.

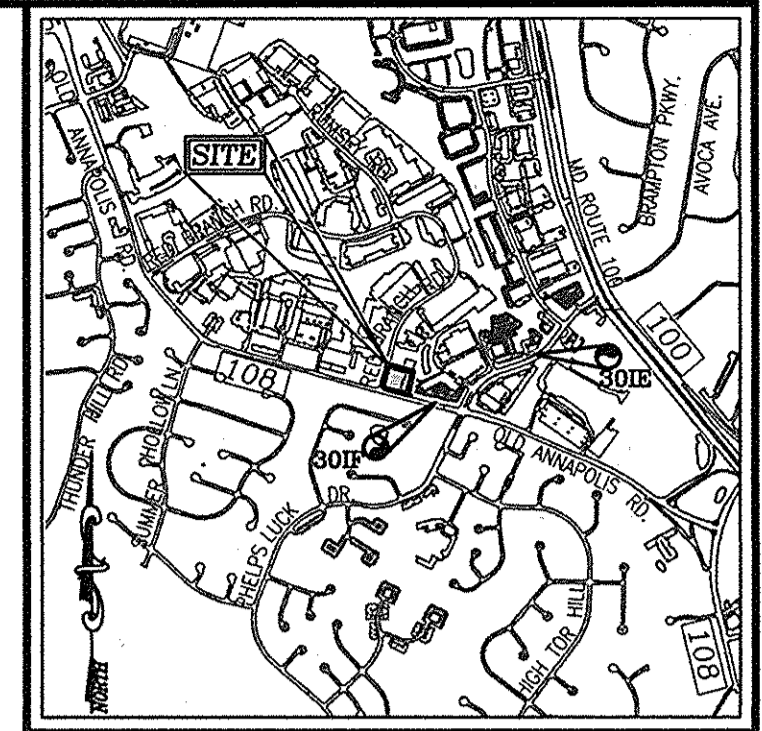
ezStorage

9002 RED BRANCH ROAD
LOTS 45 & 46, PLAT BOOK 15/10
LIBER 8320 FOLIO 317
PARCEL 269
ZONED:NT

ENVIRONMENTAL CONCEPT PLAN

BENCHMARKS

COORDINATES BASED ON NAD 83 MARYLAND COORDINATE SYSTEM AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS 301E, 301F.
HOWARD COUNTY BENCHMARK
301E N 568536.34 E 1364955.61 ELEV. 504.10
301F N 568033.11 E 1363934.26 ELEV. 473.36



VICINITY MAP
SCALE: 1"=2000'
ADC MAP/GRID = 16/4C

SITE DATA

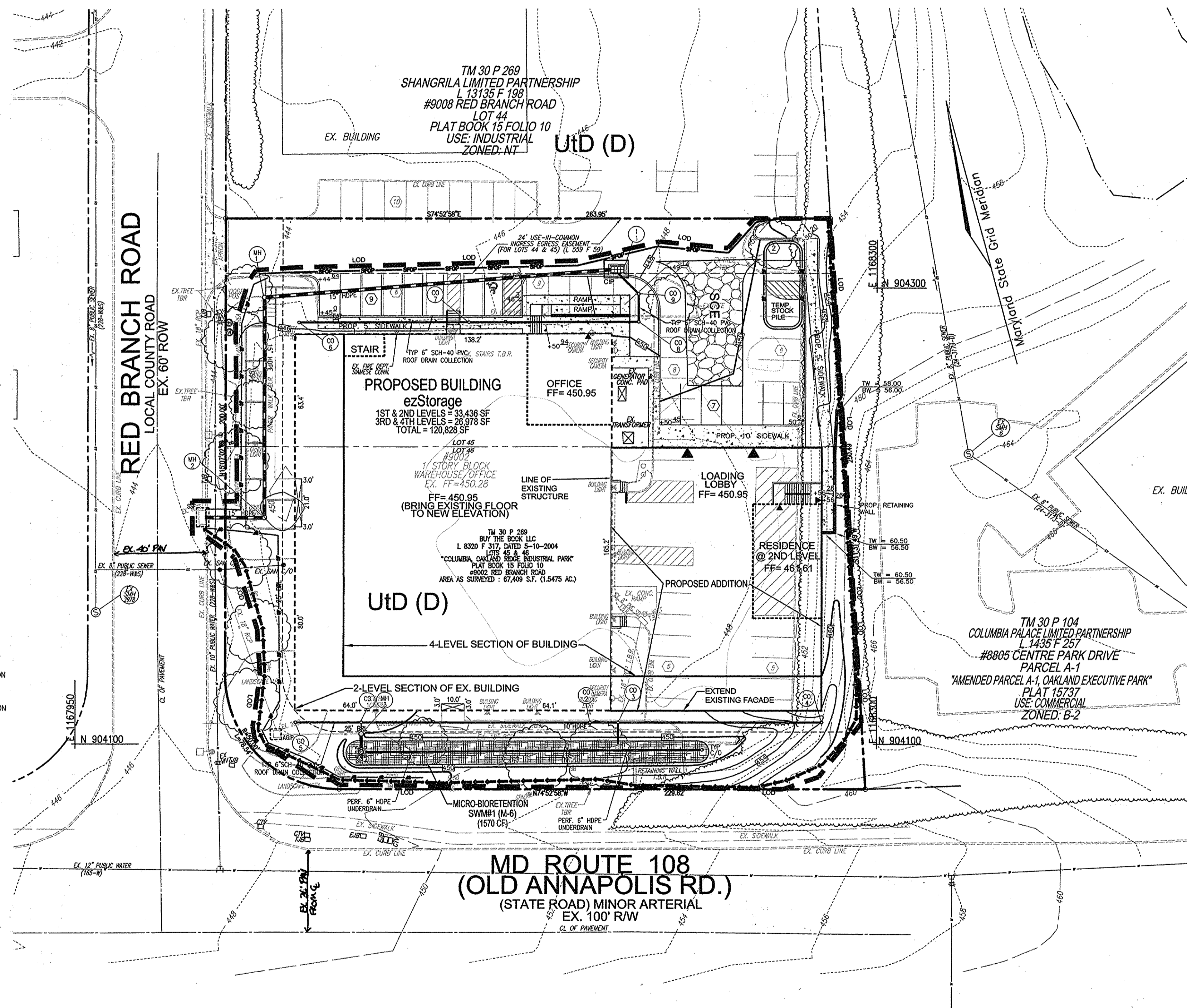
LOCATION : COLUMBIA, MD.;
TAX MAP 30, GRID 17, PARCEL 269
12th ELECTION DISTRICT
PRESENT ZONING : NT
PARCEL AREA : 1.55 AC
DPZ REFERENCES : FDP 25-A-II
USE OF STRUCTURES :
BUILDING : WAREHOUSE/OFFICE (120,828 SF)
BUILDING COVERAGE : BUILDING : 33,436 SF (0.76 AC. OR 49.50% GROUND COVERAGE)
TOTAL: 120,828 SF TOTAL BUILDING S.F.
PAVED PARKING LOT /AREA ON SITE: 16,117 SF (0.36 AC. OR 25.80% OF GROSS AREA)
AREA OF LANDSCAPE ISLAND: 17,757 SF (0.40 AC. OR 0.00% OF GROSS AREA)
LIMIT OF DISTURBED AREA: 1.52 AC.
WETLANDS ON SITE: 0.00 AC.
WETLAND BUFFERS ON SITE: 0.00 AC.
STREAMS AND THEIR BUFFERS ON SITE: 0.00 AC.
AREA OF ON-SITE 100 YEAR FLOODPLAIN: 0.00 AC.
AREA OF EXISTING FOREST ON SITE: 0.00 AC.
AREA OF STEEP SLOPES (15% OR GREATER): 0.00 AC.
AREA OF ERODIBLE SOILS: 0.00 AC.
AREA MANAGED BY ESDV (THIS PLAN): 1.55 AC.
IMPERVIOUS AREA : 1.15 AC.
*GREEN AREA: 0.40 AC.

ENVIRONMENTAL SITE DESIGN NARRATIVE

- THE PROPERTY DOES NOT CONTAIN ANY FOREST, WETLANDS, STREAMS OR 100 YEAR FLOODPLAIN. THERE ARE NO ENVIRONMENTAL FEATURES IMPACTED AND THE CONCEPT PLAN PROVIDES FOR THE SAFE DISCHARGE OF THE TREATED RUNOFF.
- THE SITE GENERALLY SLOPES FROM SOUTHEAST TO NORTHWEST. THE PROPOSED DEVELOPMENT WILL HAVE NO CHANGE IN THE EXISTING CHARACTER OF THE EXISTING NATURAL FLOW PATTERNS.
- THE CONCEPTUAL REDUCTION IN IMPERVIOUS AREA THROUGH BETTER SITE DESIGN IS ACHIEVED THROUGH THE ENVIRONMENTAL SITE DESIGN (ESD) FOR THE PROJECT TO THE MAXIMUM EXTENT PRACTICABLE (MEP). THE ESD CONCEPT PROPOSES THE USE OF A MICRO-BIOTENTION FACILITY (M-B). THE MBR (M-B) WILL DISCHARGE INTO THE EXISTING STORM DRAIN SYSTEM. THE PROPOSED ESD PRACTICE SHALL BE PRIVATELY OWNED AND MAINTAINED.
- SEDIMENT CONTROL FOR THIS SPECIFIC SITE PLAN WILL BE PROVIDED THROUGH THE USE OF PERIMETER CONTROLS (SILT FENCE, SUPER SILT FENCE, AND SILT FENCE ON PAVEMENT) AND INLET PROTECTION. SEDIMENT CONTROL SHALL BE IN ACCORDANCE WITH THE CURRENT REQUIREMENTS AND SHALL BE APPROVED BY THE HOWARD SOIL CONSERVATION DISTRICT.
- AS STATED IN #3 ABOVE, STORMWATER MANAGEMENT FOR THE PROJECT SHALL BE MET THROUGH THE USE OF A MICRO BIOTENTION FACILITY (M-B).
- NO WAIVERS ARE ANTICIPATED TO FULFILL THIS CONCEPT.

LEGEND

	EXISTING CONTOUR		EXISTING FENCE
	PROPOSED CONTOUR		PROPERTY LINE
	EXISTING CURB AND GUTTER		RIGHT-OF-WAY LINE
	PROPOSED CURB AND GUTTER		SOILS BOUNDARY
	EXISTING UTILITY POLE		LIMIT OF DISTURBANCE
	EXISTING LIGHT POLE		PROPOSED SIDEWALK
	EXISTING MAILBOX		EXISTING TREELINE
	EXISTING SIGN		PROPOSED TREELINE
	EXISTING SANITARY MANHOLE		PROPOSED STORM DRAIN
	EXISTING SANITARY LINE		PROPOSED STORM DRAIN INLET
	EXISTING CLEANOUT		PROPOSED SILT FENCE ON PAVEMENT
	EXISTING FIRE HYDRANT		PROPOSED DIVERSION FENCE
	EXISTING WATER LINE		PROPOSED AT GRADE INLET PROTECTION
	PROPOSED SPOT ELEVATION		PROPOSED STANDARD INLET PROTECTION
	EXISTING SPOT ELEVATION		PROPOSED CURB INLET PROTECTION
	EXISTING TREE		PROPOSED STABILIZED CONSTRUCTION ENTRANCE
	EXISTING LANDSCAPE AREA		

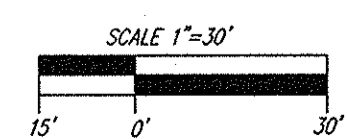


CONCEPT PLAN
SCALE: 1"=30'

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Phil Edwards
CHIEF, DEVELOPMENT ENGINEERING DIVISION 9-8-14
Kate Sheahan
CHIEF, DIVISION OF LAND DEVELOPMENT 9-09-14

SHEET INDEX		
DESCRIPTION	SHEET NO.	
COVER SHEET, CONCEPT PLAN	1 OF 2	
SWM DRAINAGE AREA MAP; SWM NOTES AND DETAILS	2 OF 2	



DEVELOPER/OWNER

BUY THE BOOK LLC
9002 RED BRANCH ROAD
C/O ENTERPRISE INFORMATION
COLUMBIA, MD 21045
(443) 713-4130

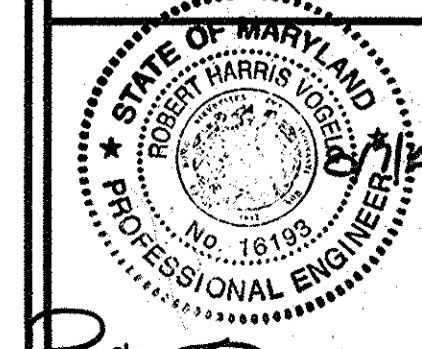
NO.	REVISION	DATE

ENVIRONMENTAL CONCEPT PLAN
ESDv CONCEPTUAL PLAN

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WAREHOUSE
9002 RED BRANCH ROAD
LOTS 45 & 46, PLAT BOOK 15/10
ZONED: NT
L 8320/F 317

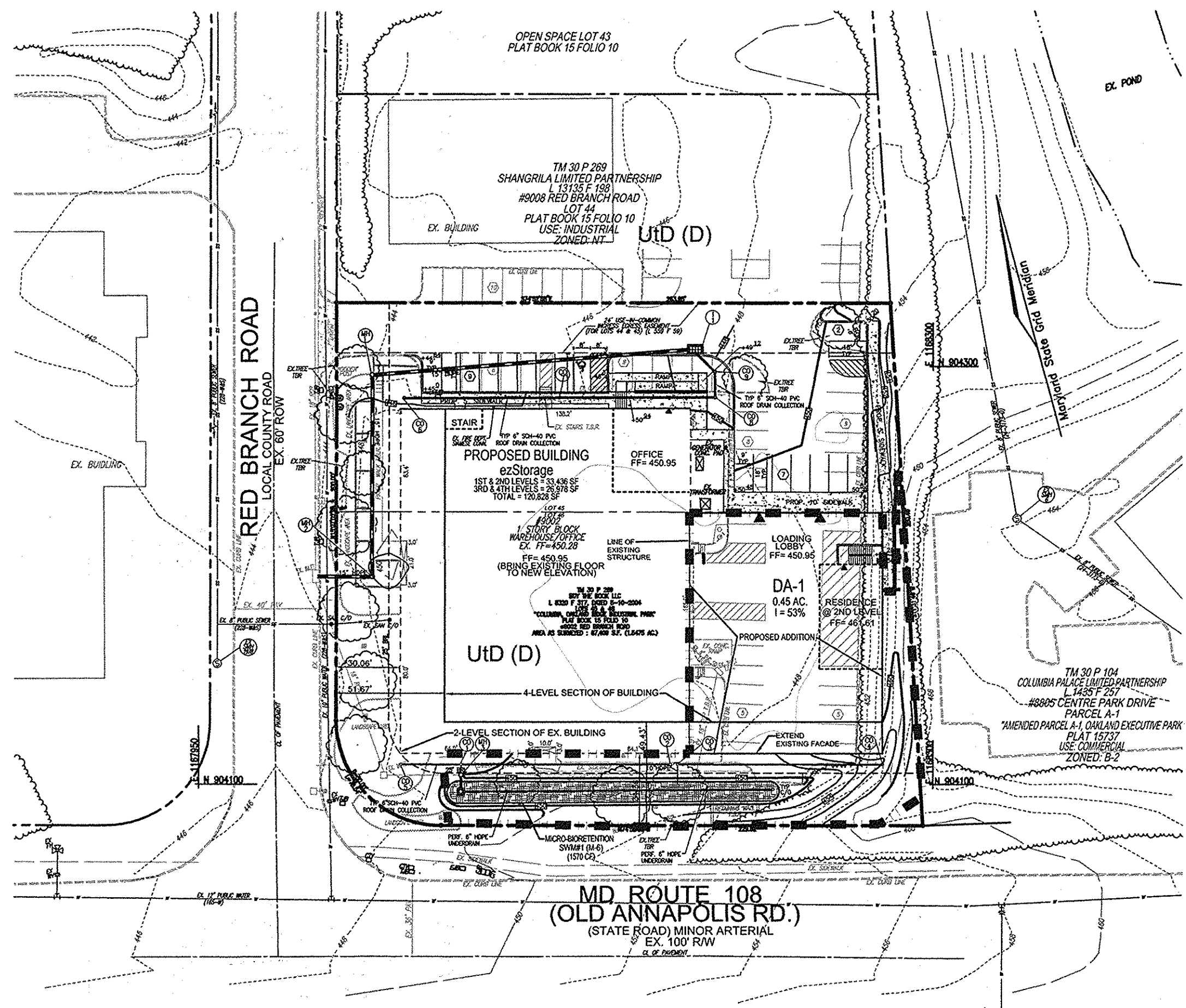
TAX MAP 30 BLOCK 17 PARCEL 269, LOTS 45 & 46
2ND ELECTION DISTRICT HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL ENGINEERING, INC.
ENGINEERS • SURVEYORS • PLANNERS
8407 MAIN STREET TEL: 410.461.7666
ELLCOTT CITY, MD 21043 FAX: 410.461.6961



PROFESSIONAL CERTIFICATE
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. EXPIRES 09-27-2014
DESIGN BY: TW/DZE
DRAWN BY: TW
CHECKED BY: RHY
DATE: JULY 2014
SCALE: AS SHOWN
W.O. NO.: 14-10

SOILS LEGEND HOWARD COUNTY SOILS MAP 18			
SYMBOL	NAME / DESCRIPTION	GROUP	ERODIBLE
U5D	URBAN LAND - URBAN/URTHENTS COMPLEX, 0 TO 15 PERCENT SLOPES	D	YES



SWM DRAINAGE AREA MAP
SCALE: 1"=50'

DRAINAGE AREA #	AREA TREATED	FACILITY NUMBER	ENVIRONMENTAL SITE DESIGN PRACTICE										ESDv	
			PERMEABLE PAVEMENT	ADD UNDER PERM. PAVE	LANDSCAPE INFILTRATION	PERVIOUS SIDEWALK	BIO SWALE	GRAVEL TRENCH	MICRO BIO RETENTION	ADD UNDER MICRO BIO	ESDv			
1	30927	SWM#1	0	0	0	0	0	0	0	0	1570	0	1570	
SUBTOTAL 1			0	0	0	0	0	0	0	0	1570	0	1570	
TOTALS:			0	0	0	0	0	0	0	0	1570	0	1570	
TOTAL AREA		30927 SF											TOTAL ESDv PROVIDED:	1570
		0.71 AC												

DA	% IMPERV	Rv	DA	ESDv	MINIMUM VOLUME	MAXIMUM VOLUME	VOLUME PROVIDED
1	71	0.69	0.71	1901	1777	4620	1570
TOTAL ESDv BY SUBAREA				1901			1570

*Micro-bioretentions utilized in each subarea at the rate of 75%.

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

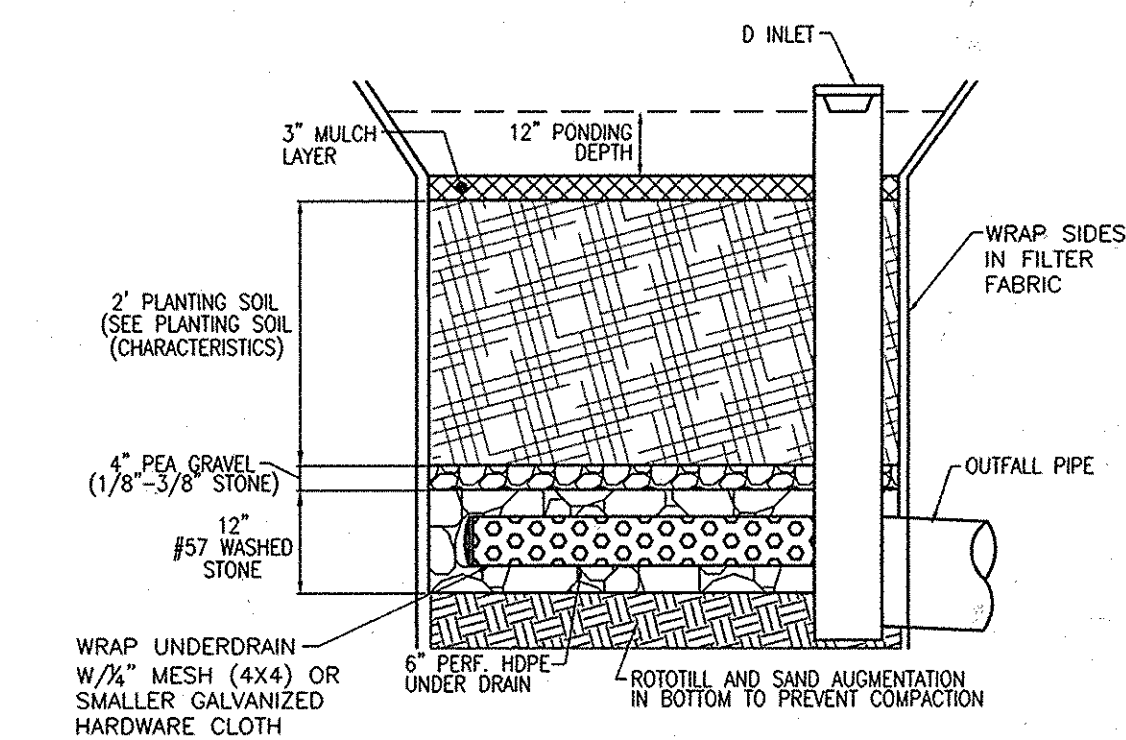
- MATERIAL SPECIFICATIONS**
THE ALLOWABLE MATERIALS TO BE USED IN THESE PRACTICES ARE DETAILED IN TABLE B.4.1.
- FILTERING MEDIA OR PLANTING SOIL**
THE SOIL SHALL BE A UNIFORM MIX, FREE OF STONES, STUMPS, ROOTS OR OTHER SIMILAR OBJECTS LARGER THAN TWO INCHES. NO OTHER MATERIALS OR SUBSTANCES SHALL BE MIXED OR DUMPED WITHIN THE MICRO-BIORETENTION PRACTICE THAT MAY BE HARMFUL TO PLANT GROWTH, OR PROVE A HINDRANCE TO THE PLANTING OR MAINTENANCE OPERATIONS. THE PLANTING SOIL SHALL BE FREE OF BERBERIS GRASS, QUACKGRASS, JOHNSON GRASS, OR OTHER NOXIOUS WEEDS AS SPECIFIED UNDER COMAR 15.08.01.05. THE PLANTING SOIL SHALL BE TESTED AND SHALL MEET THE FOLLOWING CRITERIA (TEXTURAL CLASSIFICATION):
 - SOIL COMPONENT - LOAMY SAND OR SANDY LOAM (USDA SOIL TEXTURAL CLASSIFICATION)
 - ORGANIC CONTENT - MINIMUM 10% BY DRY WEIGHT (ASTM D 2974). IN GENERAL, THIS CAN BE MET WITH A MIXTURE OF LOAMY SAND (60%-65%) & COMPOST (35% TO 40%) OR SANDY LOAM (30%), COARSE SAND (40%), AND COMPOST (40%).
 - CLAY CONTENT - MEDIA SHALL HAVE A CLAY CONTENT OF LESS THAN 5%.
 - PH RANGE - SHOULD BE BETWEEN 5.5 - 7.0. AMENDMENTS (E.G., LIME, IRON SULFATE PLUS SULFUR) MAY BE MIXED IN TO THE SOIL TO INCREASE OR DECREASE PH.
 THERE SHALL BE AT LEAST ONE SOIL TEST PER PROJECT. EACH TEST SHALL CONSIST OF BOTH THE STANDARD SOIL TEST FOR PH AND ADDITIONAL TESTING OF ORGANIC MATTER AND SOLUBLE SALTS. A TEXTURAL ANALYSIS SHALL BE PERFORMED FOR EACH LOCATION WHERE THE TOPSOIL WAS EXCAVATED.
- COMPACTION**
IT IS VERY IMPORTANT TO MINIMIZE COMPACTION OF BOTH THE BASE OF BIORETENTION PRACTICES AND THE REQUIRED BACKFILL. WHEN POSSIBLE, USE EXCAVATION HOES TO REMOVE ORIGINAL SOIL. IF PRACTICES ARE EXCAVATED USING LOADERS, THE CONTRACTOR SHOULD USE WIDE TRACK OR MARSH TRACK EQUIPMENT, OR LIGHT EQUIPMENT WITH TURTLE TYRE TIRES. USE OF EQUIPMENT WITH NARROW TRACKS OR NARROW TIRES, RUBBER TIRES WITH LARGE LUGS, OR HIGH-PRESSURE TIRES WILL CAUSE EXCESSIVE COMPACTION RESULTING IN REDUCED INFILTRATION RATES AND IS NOT ACCEPTABLE. COMPACTION WILL SIGNIFICANTLY CONTRIBUTE TO DESIGN FAILURE.
COMPACTION CAN BE ALLEVIATED AT THE BASE OF THE BIORETENTION FACILITY BY USING A PRIMARY TILLING OPERATION SUCH AS CHESEL FLOW, RIPPER, OR SUBSOILER. THESE TILLING OPERATIONS ARE TO REFRACURE THE SOIL PROFILE THROUGH THE 12 INCH COMPACTION ZONE. SUBSTITUTE METHODS MUST BE APPROVED BY THE ENGINEER. ROTOTILLERS TYPICALLY DO NOT TILL DEEP ENOUGH TO REDUCE THE EFFECTS OF COMPACTION FROM HEAVY EQUIPMENT.
ROTOTILL 2 TO 3 INCHES OF SAND INTO THE BASE OF THE BIORETENTION FACILITY BEFORE BACKFILLING THE OPTIONAL SAND LAYER. PUMP ANY PONDING WATER BEFORE PREPARING (ROTOTILLING) BACK OVER THE SAND, BACKFILLING THE TOPSOIL OVER THE SAND LAYER. FIRST PLACE 3 TO 4 INCHES TOPSOIL OVER THE SAND, THEN ROTOTILL THE SAND/TOPSOIL TO CREATE A GRADATION ZONE. BACKFILL THE REMAINDER OF THE TOPSOIL TO FINAL GRADE. WHEN BACKFILLING THE BIORETENTION FACILITY, PLACE SOIL IN LIFTS 12" TO 18". DO NOT USE HEAVY EQUIPMENT WITHIN THE BIORETENTION BASIN. HEAVY EQUIPMENT CAN BE USED AROUND THE PERIMETER OF THE BASIN TO SUPPLY SOILS AND SAND. GRADE BIORETENTION MATERIALS WITH LIGHT EQUIPMENT SUCH AS A COMPACT LOADER OR A DOZER/LOADER WITH MARSH TRACKS.
- PLANT MATERIAL**
RECOMMENDED PLANT MATERIAL FOR MICRO-BIORETENTION PRACTICES CAN BE FOUND IN APPENDIX A, SECTION A.2.3.
- PLANT INSTALLATION**
COMPOST IS A BETTER ORGANIC MATERIAL SOURCE, IS LESS LIKELY TO FLOAT, AND SHOULD BE PLACED IN THE INVERT AND OTHER LOW AREAS. MULCH SHOULD BE PLACED IN SURROUNDING TO A UNIFORM THICKNESS OF 2" TO 3". SHREDED OR CHIPPED HARDWOOD MULCH IS THE ONLY ACCEPTED MULCH. PINE MULCH AND WOOD CHIPS WILL FLOAT AND MOVE TO THE PERIMETER OF THE BIORETENTION AREA DURING A STORM EVENT AND ARE NOT ACCEPTABLE. MULCH MUST BE WELL AGED (6 TO 12 MONTHS) FOR THE BIORETENTION FACILITY. ROOTSTOCK OF THE PLANT MATERIAL SHALL BE KEPT MOST DURING TRANSPORT AND ON-SITE STORAGE. THE PLANT ROOT BALL SHOULD BE PLANTED SO 1/8TH OF THE BALL IS ABOVE FINAL GRADE SURFACE. THE DIAMETER OF THE PLANTING PIT SHALL BE AT LEAST 1/2 INCHES LARGER THAN THE DIAMETER OF THE PLANTING SET AND MAINTAIN THE PLANT STRAIGHT DURING THE ENTIRE PLANTING PROCESS. THOROUGHLY WATER AFTER SOIL COVER AFTER INSTALLATION. TREES SHALL BE BRANCHED USING 2" BY 2" STAKES ONLY AS NECESSARY AND FOR THE FIRST GROWING SEASON ONLY. STAKES ARE TO BE EQUALLY SPACED ON THE OUTSIDE OF THE TREE BALL. GRASSES AND LEGUME SEED SHOULD BE DRILLED INTO THE SOIL TO A DEPTH OF AT LEAST ONE INCH. GRASSES AND LEGUME PUGS SHALL BE PLANTED FOLLOWING THE NON-GRASS GROUND COVER PLANTING SPECIFICATIONS.
THE TOPSOIL SPECIFICATIONS PROVIDE ENOUGH ORGANIC MATERIAL TO ADEQUATELY SUPPLY NUTRIENTS FROM NATURAL CYCLING. THE PRIMARY FUNCTION OF THE BIORETENTION STRUCTURE IS TO IMPROVE WATER QUALITY. ADDING FERTILIZERS DEFERS, OR AT A MINIMUM, DEFERS THIS GOAL. ONLY ADD FERTILIZER IF WOOD CHIPS OR MULCH ARE USED TO AMEND THE SOIL. ROTOTILL UREA FERTILIZER AT A RATE OF 2 POUNDS PER 1000 SQUARE FEET.
- UNDERDRAINS**
UNDERDRAINS SHOULD MEET THE FOLLOWING CRITERIA:
 - PIPE - SHOULD BE 4" TO 6" DIAMETER, SLOTTED OR PERFORATED RIGID PLASTIC PIPE (ASTM 758, TYPE PS 28, OR AASHTO-M-278) IN A GRAVEL LAYER. THE PREFERRED MATERIAL IS SLOTTED, 4" RIGID PIPE (E.G., PVC OR HDPE).
 - PERFORATIONS - IF PERFORATED PIPE IS USED, PERFORATIONS SHOULD BE 3/8" DIAMETER LOCATED 6" ON CENTER WITH A MINIMUM OF FOUR HOLES. PER PIPE SHALL BE WRAPPED WITH A 1/4" (NO. 4 OR 4x4) GALVANIZED HARDWARE CLOTH.
 - GRAVEL - THE GRAVEL LAYER (NO. 57 STONE, PREFERRED) SHALL BE AT LEAST 3" THICK ABOVE AND BELOW THE UNDERDRAIN.
 - THE MAIN COLLECTOR PIPE SHALL BE AT A MINIMUM 0.5% SLOPE.
 - A RIGID, NON-PERFORATED OBSERVATION WELL MUST BE PROVIDED (ONE PER EVERY 1,000 SQUARE FEET) TO PROVIDE A CLEAN-OUT PORT AND MONITOR PERFORMANCE OF THE FILTER.
 - A 4" LAYER OF PEA GRAVEL (1/8" TO 3/8" STONES) SHALL BE LOCATED BETWEEN THE FILTER MEDIA AND UNDERDRAIN TO PREVENT MIGRATION OF FINES. IN TO THE UNDERDRAIN, THIS LAYER MAY BE CONSIDERED PART OF THE FILTER BED WHEN BED THICKNESS EXCEEDS 2".
 - THIS MAIN COLLECTOR PIPE FOR UNDERDRAIN SYSTEMS SHALL BE CONSTRUCTED AT A MINIMUM SLOPE OF 0.5%.
 - OBSERVATION WELLS AND/OR CLEAN-OUT PIPES MUST BE PROVIDED (ONE MINIMUM PER EVERY 1000 SQUARE FEET OF SURFACE AREA).
- MISCELLANEOUS**
THESE PRACTICES MAY NOT BE CONSTRUCTED UNTIL ALL CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED.

NOTES:

- APPROVAL OF THIS ECP DOES NOT CONSTITUTE AN APPROVAL OF ANY SUBSEQUENT AND ASSOCIATED SUBDIVISION PLAN/PLAT, SITE DEVELOPMENT PLAN/RED-LINE REVISION PLAN AND/OR GRADING PLAN.
- REVIEW OF THIS PLAN FOR COMPLIANCE WITH ZONING AND SUBDIVISION AND LAND DEVELOPMENT REGULATIONS SHALL OCCUR AT THE SUBDIVISION, SITE DEVELOPMENT PLAN, AND/OR PERMIT STAGES. THEREFORE, THIS PLAN IS SUBJECT TO ADDITIONAL AND MORE DETAILED COMMENTS AS THE PLAN IS PROCESSED THROUGH THESE STAGES.
- THERE ARE NO ENVIRONMENTAL FEATURES: FLOODPLAIN, WETLANDS, STREAMS OR FOREST THAT EXISTS ON THIS PROPERTY OR WITHIN THE DEVELOPED AREA.

OPERATION AND MAINTENANCE SCHEDULE FOR LANDSCAPE INFILTRATION (M-3), MICRO-BIORETENTION (M-6) RAIN GARDENS (M-7), BIORETENTION SWALE (M-8), AND ENHANCED FILTERS (M-9)

- 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.
- THE OWNER SHALL PERFORM A PLANT IN THE SPRING AND IN THE FALL OF 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 AND SHRUBS, AND REPLACE ALL DEFICIENT STAKES AND WIRES.
- 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.
- THE OWNER SHALL CORRECT SOIL EROSION ON AN AS NEEDED BASIS, WITH A MINIMUM OF ONCE PER MONTH AND AFTER EACH HEAVY STORM.



MICRO-BIORETENTION (M-6)
NOT TO SCALE

NOTES

- THE SIDES OF THE MBRs ARE TO BE WRAPPED IN FILTER FABRIC. FILTER FABRIC SHALL NOT BE INSTALLED BETWEEN THE MBR LAYERS OR AT THE BOTTOM OF THE MICRO-BIORETENTION AS IT WILL CAUSE THE MBR TO FAIL.
- THE PERFORATED UNDERDRAIN PIPE OF THE MBR SHOULD BE WRAPPED WITH 1/4" MESH (4X4) OR SMALLER GALVANIZED HARDWARE CLOTH.

LEGEND:

---	EXISTING CONTOUR
- - - -	PROPOSED CONTOUR
+	PROPOSED SPOT ELEVATION
o	EXISTING SPOT ELEVATION
o	EXISTING CURB AND GUTTER
o	EXISTING UTILITY POLE
o	EXISTING LIGHT POLE
o	EXISTING MAILBOX
o	EXISTING SIGN
o	EXISTING SANITARY MANHOLE
o	EXISTING SANITARY LINE
o	EXISTING CLEANOUT
o	EXISTING FIRE HYDRANT
o	EXISTING WATER LINE
o	PROPOSED STORM DRAIN
o	PROPOSED STORM DRAIN INLET
o	EXISTING TREES (FIELD LOCATED)
o	EXISTING TREELINE (FIELD LOCATED)
o	EXISTING FENCE
o	PROPERTY LINE
o	RIGHT-OF-WAY LINE
o	SOILS BOUNDARY
o	PROPOSED SIDEWALK
o	PROPOSED PERMEABLE PAVEMENT
o	SWM DRAINAGE DIVIDE

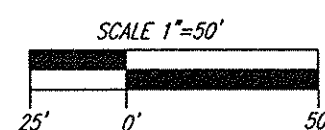
Appendix B.4. Construction Specifications for Environmental Site Design Practices

Material	Specification	Size	Notes
Planting soil	See Appendix A, Table A.4	n/a	Plantings are site-specific.
Planting soil (2" to 4" deep)	loamy sand (60 - 65%) & compost (35 - 40%) or sandy loam (30%), coarse sand (30%) & compost (40%)	n/a	USDA soil types loamy sand or sandy loam; clay content < 5%
Organic content	Min. 10% by dry weight (ASTM D 2974)		
Mulch	shredded hardwood		aged 6 months, minimums no pine or wood chips
Pea gravel diaphragm	pea gravel: ASTM-D-448	NO. 8 OR NO. 9 (1/8" TO 3/8")	
Curtain drain	ornamental stone: washed cobble	stone: 2" to 5"	
Geotextile		n/a	PE Type I nonwoven
Gravel (underdrains and infiltration berms)	AASHTO M-43	NO. 57 OR NO. 6	AGGREGATE (3/8" to 3/4")
Underdrain piping	F 758, Type PS 28 or AASHTO M-278	4" to 6" rigid schedule 40 PVC or SDR35	Slotted or perforated pipe; 3/8" perf. @ 6" on center, 4 holes per row; minimum of 3" of gravel over pipes; not necessary underdrain pipes. Perforated pipe shall be wrapped with 1/4-inch galvanized hardware cloth
Found in place concrete (if required)	MSHA Mix No. 3; F _c = 3500 psi @ 28 days, normal weight, air-entrained; reinforcing to meet ASTM A-618-40	n/a	28 day strength and slump test; all concrete design (cast-in-place or pre-cast) not using previously approved State or local standards requires design drawings sealed and approved by a professional structural engineer licensed in the State of Maryland + design to include meeting ACI Code 350.10.9.9; vertical loading (H-10 or H-20); allowable horizontal loading (based on soil pressure); and analysis of potential cracking
Sand	AASHTO-M-6 or ASTM-C-33	0.075" to 0.04"	Sand substitutions such as Diabase and Oryzstone (AASHTO) #10 are not acceptable. No minimum carbonated or dolomitic sand substitutions are acceptable. No "rock dust" can be used for sand.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division
9.8.14
DATE

Chief, Division of Land Development
9/04/14
DATE

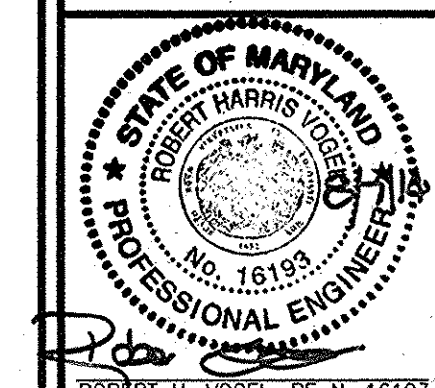


DEVELOPER/OWNER
BUY THE BOOK LLC
9002 RED BRANCH ROAD
C/O ENTERPRISE INFORMATION
COLUMBIA, MD 21045
(443) 713-4130

NO.	REVISION	DATE

ENVIRONMENTAL CONCEPT PLAN
SWM DRAINAGE AREA MAP
ezStorage
WAREHOUSE
9002 RED BRANCH ROAD
LOTS 45 & 46, PLAT BOOK 15/10
ZONED: NT, L 8320.F.317
TAX MAP 30 BLOCK 17
2ND ELECTION DISTRICT
PARCEL 269, LOTS 45 & 46
HOWARD COUNTY, MARYLAND

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



PROFESSIONAL CERTIFICATE
DESIGN BY: TW/DZE
DRAWN BY: TW
CHECKED BY: RHW
DATE: JULY 2014
SCALE: AS SHOWN
W.O. NO.: 14-10
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. MY LICENSE NO. 16193 EXPIRES ON 06-27-2014.
2 SHEET OF 2