

10- AND 100-YEAR PONDING - STAGE STORAGE

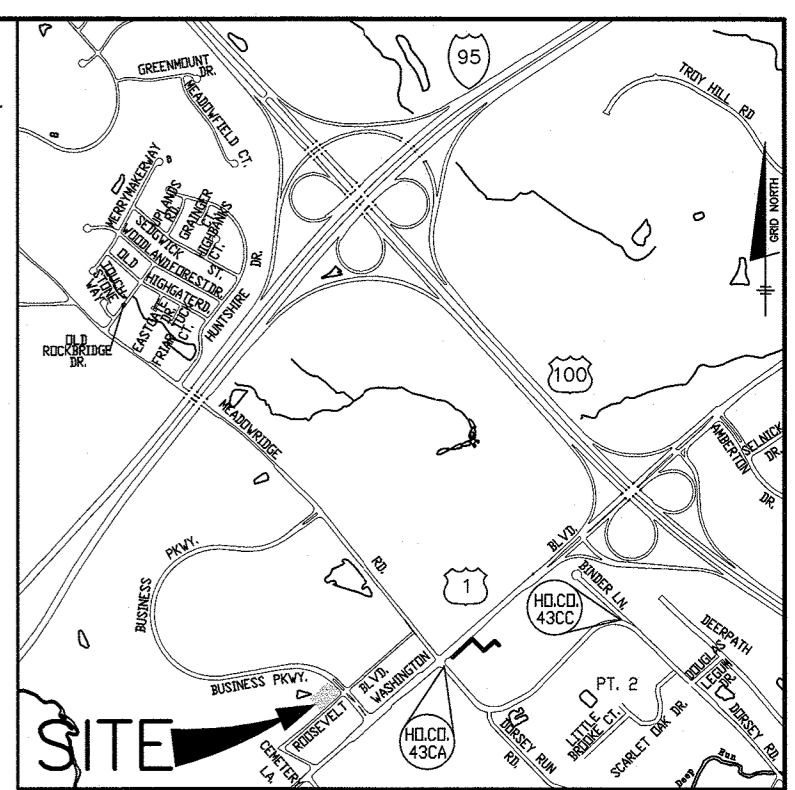
Elevation (ft)	Area (sf)	Average Contour Interval (ft)	Incremental Volume (ft³)	Total Volume (ft³)
192.75	1813	1.25	2695.0	0
194.00	2499	0.20	511.7	2695
194.20	2618	0.05	131.7	3207
194.25	2648	0.00	0.0	3338
194.25	3281	1.75	6981.6	3338
196.00	4698			10320

Above elevation 194.25, ponding will extend into forebay.

SITE ANALYSIS DATA/TABULATION

A) TOTAL PROJECT AREA	1.39 ± AC.
B) AREA OF WETLANDS AND BUFFER	0.34 ± AC.
C) AREA OF 100-YR. FLOODPLAIN	0.19 ± AC.
D) AREA OF FOREST	0.90 ± AC.
E) AREA OF STEEP SLOPES 15% - 24.99%	0.00 ± AC.
AREA OF STEEP SLOPES 25% OR GREATER	0.00 ± AC.
F) ERODIBLE SOILS	0.78 ± AC.
G) AREA OF PLAN SUBMISSION	1.39 ± AC.
H) LIMIT OF DISTURBED AREA	1.11 ± AC.
I) GREEN OPEN AREA	0.82 ± AC.
J) PRESENT ZONING DESIGNATION	CE-CLU
K) PROPOSED USES FOR THE SITE: COMMERCIAL	
L) IMPERVIOUS COVER	40.9%
EFFECTIVE SITE	62.2%

BENCH MARKS (NAD83)
 HO.CO. No.43CA ELEV.191.633
 STAMPED BRASS OR ALUMINUM DISC SET
 TOP OF A 3" DEEP COLUMN OF CONCRETE,
 AT CORNER US-1 AND DORSEY ROAD
 N 552860129 E 1379380380
 HO.CO. No.43CC ELEV.163.700
 CONCRETE MONUMENT WITH BRASS DISC
 AT RT-100/DORSEY ROAD/110 MILES-29
 N 553201462 E 1381152814



GENERAL NOTES

- THE SUBJECT PROPERTY IS ZONED CE-CLU PER THE 10/06/13 COMPREHENSIVE ZONING PLAN.
- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS IF APPLICABLE.
- THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS/BUREAU OF ENGINEERING/CONSTRUCTION INSPECTION DIVISION AT (410) 313-1880 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 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
- TRAFFIC CONTROL DEVICES, MARKINGS AND SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). ALL STREET AND REGULATORY SIGNS SHALL BE IN PLACE PRIOR TO THE PLACEMENT OF ANY ASPHALT.
- ALL PLAN DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
- ALL EXISTING TOPOGRAPHY IS TAKEN FROM FIELD A RUN SURVEY WITH 2 FOOT CONTOUR INTERVALS PREPARED BY BENCHMARK ENGINEERING, INC. DATED FEBRUARY 2021 AND HOWARD COUNTY GIS.
- THE COORDINATES SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL, WHICH IS BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM. HOWARD COUNTY MONUMENTS 43CA AND 43CC WERE USED FOR THIS PROJECT.
- STORMWATER MANAGEMENT FOR THIS DEVELOPMENT WILL BE PROVIDED BY ESD PRACTICES. PROPOSED METHOD IS SUBMERGED GRAVEL WETLAND (M-5) WITH STORAGE VOLUME FOR THE REQUIRED 10 & 100 YEAR MANAGEMENT. FACILITIES SHALL BE PRIVATELY OWNED AND MAINTAINED.
- EXISTING UTILITIES LOCATIONS ARE BASED ON FIELD LOCATIONS, MARKINGS BY MISS UTILITY AND AS-BUILT DRAWINGS.
- THERE IS A FLOODPLAIN LOCATED ON THE PROPERTY, PER PLAT 9047.
- A FOREST STAND DELINEATION AND WETLAND DELINEATION WERE PERFORMED IN JANUARY, 2021, BY ECO-SCIENCE PROFESSIONALS, INC.
- APPROVAL OF THIS ECP PLAN DOES NOT CONSTITUTE ANY APPROVALS OF SUBSEQUENT SUBDIVISION PLANS, SITE DEVELOPMENT PLANS OR REDLINE REVISIONS TO APPROVED SITE DEVELOPMENT PLANS, FOREST CONSERVATION PLANS AND GRADING OR BUILDING PERMITS. THE APPLICANT AND CONSULTANT SHOULD EXPECT ADDITIONAL AND MORE DETAILED COMMENTS THAT MAY ALTER THE SITE DESIGN, HOUSE OR STRUCTURE LOCATION, DRIVEWAY LOCATION, GRADING, TREE CLEARING AND/OR OTHER REQUIREMENTS AS THE DEVELOPMENT PLAN PROGRESSES THROUGH THE PLAN REVIEW AND/OR PERMIT APPLICATION PROCESS IN ACCORDANCE WITH THE SUBDIVISION, LAND DEVELOPMENT AND ZONING REGULATIONS AND THE FOREST CONSERVATION REQUIREMENTS.
- PREVIOUS DPZ FILES: F-91-144, F-89-163.

DESIGN NARRATIVE:

The site was analyzed as woods in good condition and a target RCN was determined. A target rainfall depth treatment (Pe) was determined based on the measured impervious areas and HSG soil types. The target Pe for this site is 1.96 inches. The target Pe was treated using Environmental Site Design practices as outlined in Chapter 5 of the 2000 Maryland Stormwater Design Manual, as amended by Maryland's Stormwater Management Act of 2007. The selected method is Submerged Gravel Wetlands (M-2). 10-year and 100-year quantity control will be required.

This site is a parcel comprised of undeveloped land, which was previously used as a sediment control basin during the initial development of the surrounding parcels. There is an area on the site which contains stockpiled soils from previous development in the area. The proposed development will include a commercial building and associated parking. To protect the natural resources in the area, it is important to delay release of stormwater runoff from new impervious areas to avoid increasing peak runoffs, and to adequately treat the stormwater to avoid damage to sensitive species. The design incorporates a Submerged Gravel Wetland facility to treat stormwater runoff and delay stormwater release and provide recharge. The outfall for the facility will discharge to stabilized, undisturbed areas. The stormwater outfalls are directed toward existing release points to help to mimic the natural flow of drainage.

Forest resources will be protected by providing offsite banking or fee-in-lieu contributions. There are no steep slopes on the property, but there is a stream and wetlands areas, with their associated buffers, and a protected wetland area, on Plat 9047. Water resources will be protected by keeping the development outside of the buffer areas, and providing full water quality and quantity treatment.

Conceptual sediment and erosion controls have been designed based on the 2011 Maryland Specifications for Soil Erosion and Sediment Control. A double row of super silt fence will be used to prevent runoff containing unacceptable levels of TSS from leaving the site and entering the adjacent stream and wetlands during the construction. It will be the obligation of the contractor to install, inspect and maintain these practices.

The target Pe for this site is 1.96 inches. By using Environmental Site Design practices as outlined in Chapter 5 of the 2000 Maryland Stormwater Design Manual as amended by Maryland Stormwater Management Act of 2007, full treatment of the target Pe of 1.96 was achieved, fully addressing the stormwater management requirements.

Design Manual Waivers will be required for the intersection distance from Business Parkway (218') and for the proximity to the 100-year flood elevation of the adjacent Stormwater Management Pond (15').

SOILS LEGEND

SYMBOL	TYPE	K* FACTOR	NAME
FoaA	D	.24	FALLSINGTON SANDY LOAM, 0-2 PERCENT SLOPES
RuB	C	.43**	RUSSETT AND BELTSVILLE SOIL, 2-5 PERCENT SLOPES
Uhd	D	.24	URBAN LAND-UDORTHENTS COMPLEX, 0-15 PERCENT SLOPES

SOIL MAPPING TAKEN FROM NRCS WEB SOIL SURVEY, MARCH 2021.
 *WHOLE SOIL K FACTOR
 **HIGHLY ERODIBLE SOILS K>0.35, AND/OR 15% OR GREATER SLOPES

10-100 YEAR SWM STORAGE CHART

STORM	EXISTING RUNOFF	PROPOSED RUNOFF**	STORAGE REQUIRED
10 YEAR	6.26 cfs	5.52 cfs	4,278 cf
100 YEAR	10.64 cfs	9.28 cfs	5,877 cf

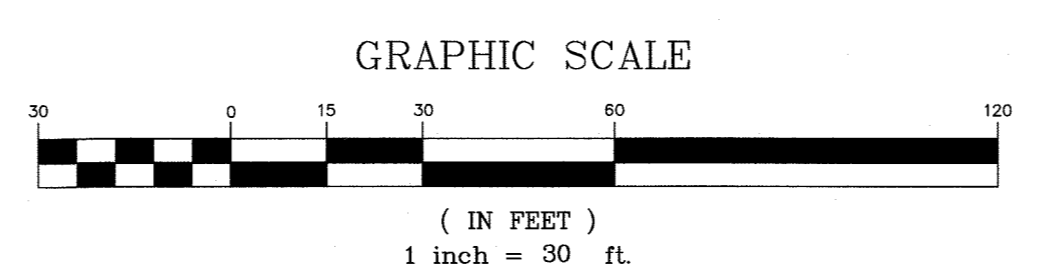
* STORAGE AND MANAGEMENT TO BE PROVIDED IN UNDERGROUND CHAMBERS.
 ** DEVELOPED RUNOFF AFTER ROUTING THROUGH UGWSM.

APPROVED: DEPARTMENT OF PLANNING AND ZONING

[Signature] 10-25-21
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

[Signature] 10/25/21
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

PLAN VIEW
1" = 30'



Recharge Volume Calculations

A = 0.92 Area in Acres
 I = 62% Impervious
 S = 0.11 %
 Rv = 0.61

HSG	% Of Site	Soil Specific Recharge Factor
A	0%	0.38
B	0%	0.26
C	78%	0.13
D	22%	0.06

Recharge Using Percent Volume Method
 Rev = 0.0054 ac-ft or 233.9 cf

Recharge Using Percent Area Method
 Rev = 0.0657 acres

Requirement may be met by either:
 a) treating 0.0054 ac-ft using structural methods,
 b) treating 0.0657 acres using non-structural methods, or
 c) a combination of both

Recharge Provided via SGW

Vol. =	0.0333 ac-ft	620%
Area =	ac	0%
Total =		620%

FACILITY SUMMARY TABLE

FACILITY	Drainage Area (sf)	Impervious (SF)	I (%)	Rv	ESDV (cf)	75% Storage (cf)	Volume Stored	Pe Treated
SGW-1	41446	31122	75%	0.726	4905	3679	3758 cf	2.00
TOTAL:	TOTAL:	TOTAL:	TOTAL:	TOTAL:	TOTAL:	TOTAL:	3758 cf	

The facility is privately owned and maintained.

FACILITY COMPUTATIONS

SGW-1: Submerged Gravel Wetland (M-2)

Total Drainage Area: 41446 s.f.
 Impervious Area: 31122 s.f.
 Impervious: 75%
 Rv = 0.726
 ESDV = 4905.4 c.f.
 75% Req'd Storage: 3679 c.f.
 10% Forebay Req'd: 491 c.f.
 65% Above Stone: 3188 c.f.
 Depth of Stone: 2 ft.
 Stone Porosity: 0.40
 Forebay Provided: 546.00

Forebay 1 Storage Computation:

Elevation (ft)	Area (sf)	Average Area (sf)	Contour Interval (ft)	Incremental Volume (ft³)	Total Volume (ft³)
192.75	162	277.0	1.50	415.5	0
194.25	392				416

Forebay 2 Storage Computation:

Elevation (ft)	Area (sf)	Average Area (sf)	Contour Interval (ft)	Incremental Volume (ft³)	Total Volume (ft³)
192.75	25	67.0	1.50	130.5	0
194.25	149				131

Storage Computation Above gravel and soil:

Elevation (ft)	Area (sf)	Average Area (sf)	Contour Interval (ft)	Incremental Volume (ft³)	Total Volume (ft³)
192.75	1813	2215.5	1.45	3212.5	0
194.20	2618				3212

Total ESDV Stored: 3758 c.f.

Rev: 1813 x 2' x 0.4 = 1450.4 cf

NO.	DATE	REVISION

BENCHMARK ENGINEERING, INC.
 8480 BALTIMORE NATIONAL PIKE SUITE 315 ELLICOTT CITY, MARYLAND 21043
 (P) 410-465-6105 (F) 410-465-6644
 WWW.BEI-CVLENGINEERING.COM

STATE OF MARYLAND PROFESSIONAL ENGINEER 28376
 AAM-BEI 2021.10.14 12:0

OWNER:
 ROUTE ONE MAPLE LAWN LLC
 C/O CHINNABABU GUDAPATI
 6120 SYRACUSE CT
 CLARKSVILLE, MD 21029
 267-408-2937

PREPARED FOR:
 ROUTE ONE MAPLE LAWN, LLC
 12118 HAYLAND FARM WAY
 ELLICOTT CITY, MD 21042
 267-408-2937

MEADOWRIDGE BUSINESS PARK
 PARCEL E-2
 7400 ROOSEVELT BOULEVARD

TAX MAP: 37 - GRID: 23 - PARCEL: 362
 ELECTION DISTRICT NO. 1 - HOWARD COUNTY, MARYLAND
 ZONED: CE-CLU

ENVIRONMENTAL CONCEPT PLAN

DATE: OCTOBER, 2021 BEI PROJECT NO. 2826
 SCALE: AS SHOWN SHEET 1 OF 1

DESIGN: AAM DRAFT: AAM