## STORMWATER CALCULATIONS

COMPUTATION OF REQUIRED ESD VOLUME COMPUTED IN ACCORDANCE WITH MONTGOMERY COUNTY DPS WATER RESOURCES TECHNICAL POLICY WRTP-5 TOTAL PROPERTY AREA = 1,785,089 SF (40.98 ACRES) PROPERTY AREA HSG B = 582,803 SF (13.38 ACRES) PROPERTY AREA HSG C = 43,234 SF (1.00 ACRES) PROPERTY AREA HSG D = 1,159,052 SF (26.60 ACRES) EXISTING IMPERVIOUS AREA = 75,779 SF (1.74 ACRES) NEW IMPERVIOUS AREA = 4,198 SF (0.0964 ACRE) TOTAL IMPERVIOUS AREA = 79,977 SF (1.84 ACRES) NEW PROPERTY IMPERVIOUS RATIO = 1.84 ACRES / 40.98 ACRES X 100 = 4.49% < 40% NEW DEVELOPMENT DETERMINE COMPOSITE RCN FOR WOODED CONDITIONS: RCN (WOODS) HSG B = 55RCN (WOODS) HSG C = 70RCN (WOODS) HSG D = 77RCN (WOODS) = (55 X 13.38) ACRES) + (70 X 1.00 ACRES) + (77 X 26.60 ACRES) /40.98 ACRES = 69.65 DETERMINE ESD TARGETS: I = TOTAL IMPERVIOUS AREA / TOTAL AREA I = ( 1.84 ACRES / 40.98 ACRES) X 100 = 4.5% USE 5 % FOR HSG B SOILS I = 5% Table 5.3 Pe = 1 inch FOR HSG C SOILS I = 5% Table 5.3 Pe = 1 inch FOR HSG D SOILS I = 5% Table 5.3 Pe = 1 inch THE COMPOSITE Pe = 1 inch will reduce RCN to reflect "woods in good condition" DETERMINE ESD VOLUME FOR PROJECT: ESDv = ((Pe) (Rv) (A))/12COMPUTE RV BASED ON PROJECT LOD AND PROJECT IMPERVIOUS AREA Rv = 0.05 + 0.009 (I)PROJECT LOD = 16,082 SF (0.37 ACRES) PROJECT IMPERVIOUS AREA = 6,520 SF (0.15 ACRE) I = IMPERVIOUS AREA/PROJECT LOD = 0.15 ACRE / 0.37 ACRE) X 100 = 40.5Rv = 0.05 + 0.009 (40.5) = 0.415ESDv = ((Pe) (Rv) (A))/12 = ((1.0) (0.415) (16,082 SF))/12 = 556 CUBIC FTSELECT ESD PRACTICE NO SOILS INVESTIGATION HAS BEEN PERFORMED FOR THIS PROJECT. SELECT A NON-INFILTRATION PRACTICE M-6 MICRO-BIORETENTION RESTRICTIONS/REQUIREMENTS DRAINAGE AREA TO THE PRACTICE SHALL BE 20,000 SF OR LESS PRACTICE SHALL CAPTURE AND STORE 100% OF ESDV

## PRACTICE ESD-1 MBR-01 M-6 MICRO-BIORETENTION

SOILS HSG D. USE LANDSCAPE INFILTRATION ONLY

DRAINAGE AREA 1 9.650 SF LESS THAN 20,000 SF OK

DRAINAGE AREA 1 9,650 SF AF = 2% X 9,650 SF = 193 SF (MINIMUM)

THE TREATMENT AREA FOR THE FACILTY BASED ON DRAINAGE AREA AND IMPERVIOUS AREA IN DA

Rv = 0.05 + 0.009 (I)

DRAINAGE AREA DA-1: 9,650 SF

IMPERVIOUS AREA IN AREA DA-1: 4,950 SF

I = (IMPERVIOUS AREA / DRAINAGE AREA) X 100 = (4950/9650)X100 = 51

Rv = 0.05 + 0.009 (I) = 0.05 + 0.009 (51) = 0.55

ESDv(REQ) = ((Pe) (Rv) (A) )/12 = ((1) (0.55) (9,650 SF))/12 = 442 CUBIC FT

TRY 14' X 56' FILTER BED SIZE = 756 SF

Af = 14' X 56' = 756 SF WITH 2' PLANTING MEDIA AND 0.5' SAND AND 8" PONDING DEPTH

ESDv(CREDIT) = ((Pe) (Rv) (A))/12 = ((2.6) (0.55) (9,650 SF))/12 = 1,149 CUBIC FT

STORAGE VOLUME 100% ESDv 1 YEAR

STORAGE VOLUME BELOW MULCH BED

 $VOL = 0.4 ((756 \times 2.5)) = 756 CF$ 

STORAGE VOLUME ABOVE MULCH BED

VOL = 8/12 ((756 ) = 504 CF

TOTAL VOL = 756 CF +504 CF = 1260 CF GREATER THAN 1149 CF OK

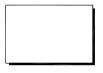
## TOTAL ESDV CAPACITY

ESDv (REQUIRED) = 556 CUBIC FEET FOR WATER QUALITY ESDv (PROVIDED) = 1,149 CUBIC FEET FOR WATER QUALITY

ESDv (REQUIRED) = 1,149 CF FOR STORAGE ESDv (PROVIDED) = 1,260 CF FOR STORAGE







TCG BARNESVILLE SITE 22900 OLD HUNDRED ROAD BARNESVILLE, MD 20838



SUBMITTALS		
DATE	DESCRIPTION	REV.
09-30-22	SW CONCEPT PLAN	
		$\perp$
		$\perp$

FROMECT NO. 1103.001
DESIGNER:
ENGINEER:
THESE DRAWINGS ARE FORMATTED TO BE FULL-SIZE AT 22"X34"
SCALE AS SHOWN ON PLAN DETAIL

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STORMWATER MANAGEMENT CONCEPT PHASE CALCULATIONS

SHEET NUMBER:

SW-4

Exhibit 14(d) OZAH Case No: CU 24-17

SURFACE AREA Af SHALL BE AT LEAST 2% OF DRAINAGE AREA FILTER BEDS SHALL BE BETWEEN 24 AND 48 INCHES DEEP. FILTER BEDS SHALL NOT INTERCEPT GROUNDWATER. IF DESIGNED AS I INFILTRATION PRACTICE, FILTER BED INVERTS SHALL BE SEPARATED

FILTER MEDIA, PLANTING SOIL, MULCH AND UNDERDRAIN SYSTEM SHALL CONFORM TO THE MARYLAND STORMWATER SPECIFICATIONS

THE SURFACE MULCH LAYER SHALL BE 2-3 INCHES THICK

4 FT VERTICALLY ABOVE HIGH WATER TABLE