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 = 55
RCN (WOODS) HSG C = 70
RCN (WOODS) HSG D = 77
RCN (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))/12

COMPUTE 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 = 40.5

Rv = 0.05 + 0.009 (40.5) = 0.415

ESDv = ((Pe) (Rv) (A))/12 = ((1.0) (0.415) (16,082 SF))/12 = 556 CUBIC FT

SELECT 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
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
4 FT VERTICALLY ABOVE HIGH WATER TABLE
THE SURFACE MULCH LAYER SHALL BE 2-3 INCHES THICK
FILTER MEDIA, PLANTING SOIL, MULCH AND UNDERDRAIN SYSTEM SHALL
CONFORM TO THE MARYLAND STORMWATER SPECIFICATIONS

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 X 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

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TCG BARNESVILLE SITE
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BARNESVILLE, MD 20838

SEAL:

SUBMITTALS

DATE	DESCRIPTION	REV.
09-30-22	SW CONCEPT PLAN	

PROJECT NO: 1163.001
DESIGNER:
ENGINEER:

THESE DRAWINGS ARE FORMATTED TO BE FULL-SIZE AT 22"X34" SCALE AS SHOWN ON PLAN DETAIL

TITLE:
STORMWATER MANAGEMENT CONCEPT PHASE CALCULATIONS

SHEET NUMBER:
SW-4

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