STORMWATER MANAGEMENT REPORT

FOR

Thomas & Joan Schneider

Property Address:
249 85th Street
Sea Isle City, NJ 08243

CITY OF SEA ISLE
CAPE MAY COUNTY, NEW JERSEY

December 11, 2024
Last Revised:

Prepared by:

VASTARDIS CONSULTING ENGINEERS, LLC
29 HARVEY LANE
MALVERN, PA 19355
PH: 610.644.9663
FAX: 610.644.3789

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Stormwater Management Narrative

This 0.089 acre (net) parcel is located on the Northern side of 85th Street in Sea Isle City, Cape May County, New Jersey. The site is relatively flat, but appears to drain from North to South. The project site is presently a developed residential lot, with a dwelling, shed, several deck areas and a driveway. The Applicant proposes to remove the existing dwelling, shed and decks in order to construct a new 2-1/2 story residence. The Applicant also proposes to construct landscaping areas and stormwater management improvements.

Stormwater Management is being proposed to compensate for the additional runoff volume generated by the site improvements. A subsurface seepage bed is proposed North of the proposed residence as a means of meeting the stormwater management requirements in accordance with the City of Sea Isle Stormwater Management Ordinance.

Stormwater Management Methodology

Due to the scope of this project, the proposed stormwater management design must comply with the "Standards Applicable to Minor Development" (§ 26-38.2).

In summary, the proposed stormwater management feature must store a minimum of 30% of the net twenty-five (25-) year increase in runoff volume. Stormwater calculations must utilize the Rational Method. Pre-Development calculations must assume a "vacant" cover condition (C = 0.30). Post-Development covers are pervious (C = 0.35) and impervious (C = 0.99).

Refer to the enclosed calculations and plans/details, which ensure compliance with the Stormwater Management "Standards Applicable to Minor Development".

Flow Rate Calculations - Rational Method

249 85th Street, Sea Isle City, NJ 08243

Date: 12/11/2024, Revised:

DATA:

Tr, Return Period	25	Years	Formula:
i, Rainfall Intensity	4.88	in/hr	***Q = CiA***
Tc	15	mins, assumed	

PRE-DEVELOPMENT CALCULATIONS:

Watershed	Cover Type, Condition	"C" Value	Area (ft^2)	Area (ac.)	Weighted "C" Value	Total Area (ac.)	Flow Rate (cfs)
Project Site	Vacant	0.30	3,876	0.0890	**0.30**	**0.089**	**0.13**

Stormwater Runoff Volume calculated as the area beneath the Runoff Hydrograph Curve:

Volume Formula: ***V = QT*** (2 triangles)

Pre-Dev. V=	**117.24**	**C.F.**

POST-DEVELOPMENT CALCULATIONS:

Watershed	Cover Type, Condition	"C" Value	Area (ft^2)	Area (ac.)	Weighted "C" Value	Total Area (ac.)	Flow Rate (cfs)
Project Site	Impervious	0.99	2,761	0.0634	**N/A**	**0.063**	**0.31**
	Pervious	0.35	1,115	0.0256	**N/A**	**0.026**	**0.04**

Stormwater Runoff Volume calculated as the area beneath the Runoff Hydrograph Curve:

Volume Formula: ***V = QT*** (2 triangles)

Post-Dev. V=	**314.95**	**C.F.**

Per Sea Isle City Ordinance § 26-38.2c5.(a)(4), a minimum storage of 30% shall be provided relative to the increase in post-development stormwater runoff for the twenty-five (25) year storm event.

V. Req'd=	**59.31**	**C.F.**

Flow Rate Calculations - Rational Method

249 85th Street, Sea Isle City, NJ 08243

Date: 12/11/2024, Revised:

DATA:

Tr, Return Period	25	Years	Formula:
i, Rainfall Intensity	4.88	in/hr	***Q = CiA***
Tc	15	mins, assumed	

POST-DEVELOPMENT DRAINAGE AREA TO UG1: SEEPAGE BED:

Watershed	Cover Type, Condition	"C" Value	Area (ft^2)	Area (ac.)	Weighted "C" Value	Total Area (ac.)	Flow Rate (cfs)
Project Site	Impervious	0.99	842	0.0193	**N/A**	**0.019**	**0.09**
	Pervious	0.35	0	0.0000	**N/A**	**0.000**	**0.00**

Stormwater Runoff Volume calculated as the area beneath the Runoff Hydrograph Curve:

Volume Formula: ***V = QT*** (2 triangles)

Post-Dev. V=	**84.07**	**C.F.**

STORMWATER MANAGEMENT: BMP DESIGN PARAMETERS

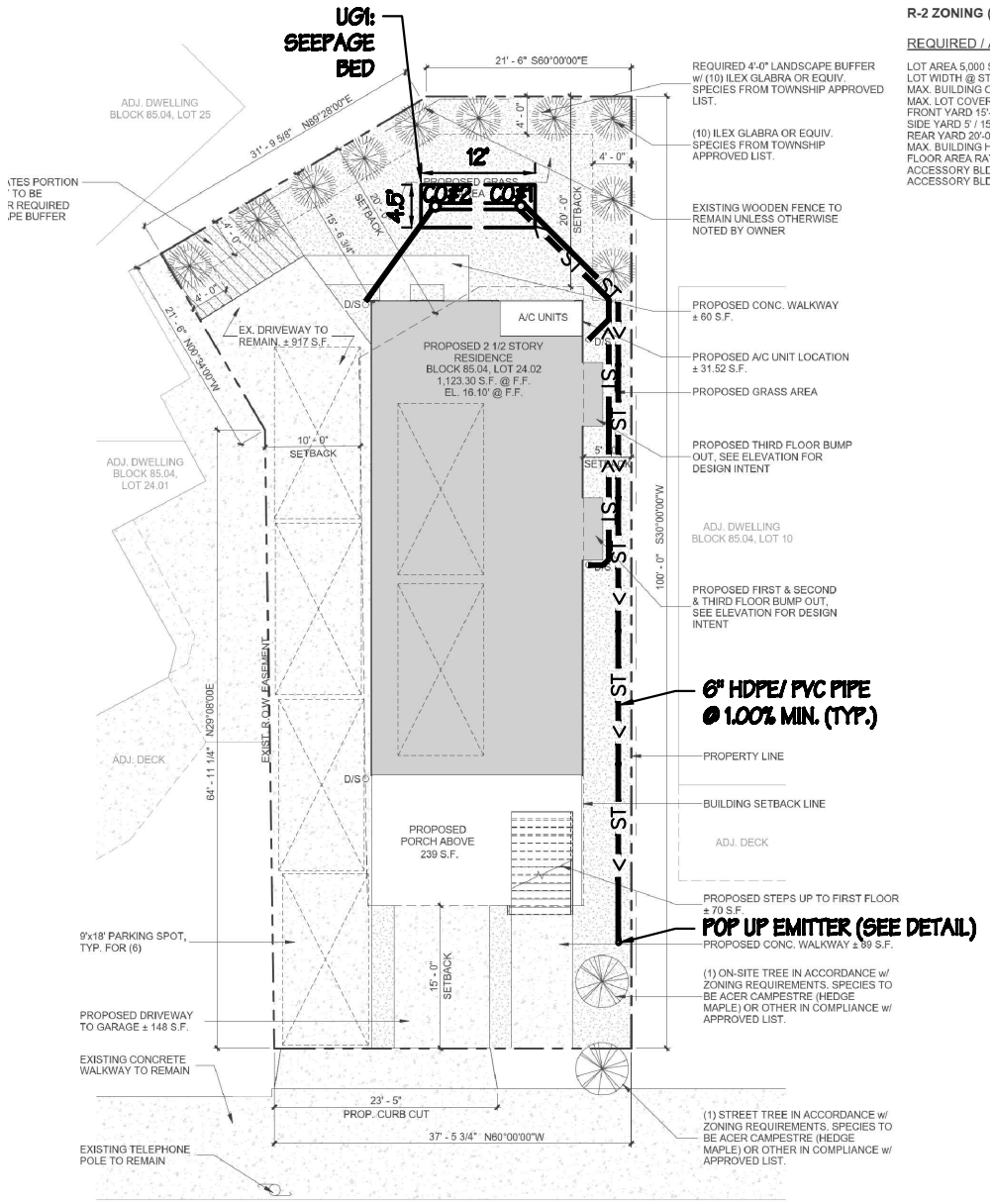
PROJECT: 249 85th Street

BMP Name: UG1- Underground Seepage Bed

UG1 Storage Capacity	
Bottom of Stone Elev.	0.00
Top of Stone Elev.	3.00
Bottom Area (sf)	54.0
Storage Depth (ft)	3.00
Available Storage (CF)*	**64.8**

Note(s)

* Includes a void ratio of 40% for stone;
Exceeds volume requirement, refer to Flow Rate Calculations - Rational Method Worksheet



85TH STREET
(60' R.O.W.)
F.K.A. CEDAR AVENUE

2 A1.1 PROPOSED ARCHITECTURAL SITE PLAN

R-2 ZONING (

REQUIRED / /

LOT AREA 5,000 (
LOT WIDTH @ ST
MAX. BUILDING C
MAX. LOT COVER
FRONT YARD 15'
SIDE YARD 5' / 15
REAR YARD 20'-0
MAX. BUILDING H
FLOOR AREA RA
ACCESSORY BLD
ACCESSORY BLD

NOTE(S):

1. PROPOSED ARCHITECTURAL SITE PLAN PREPARED BY ARCHITETRA p.c., DATED 12/09/24.

POST CONSTRUCTION STORMWATER MANAGEMENT PLAN

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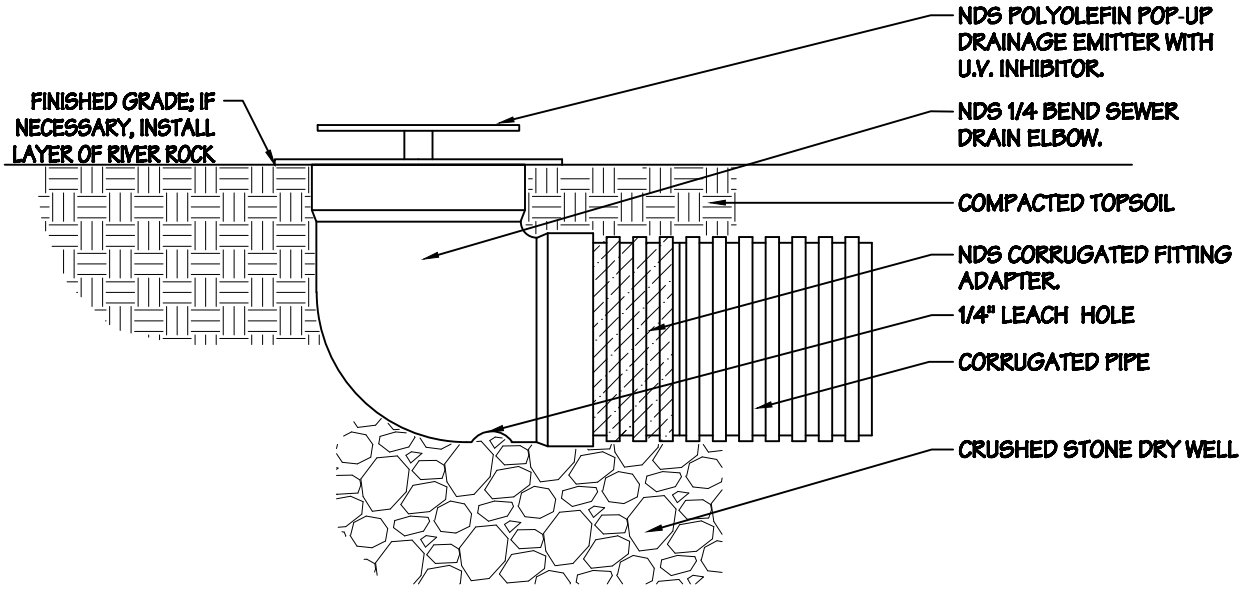
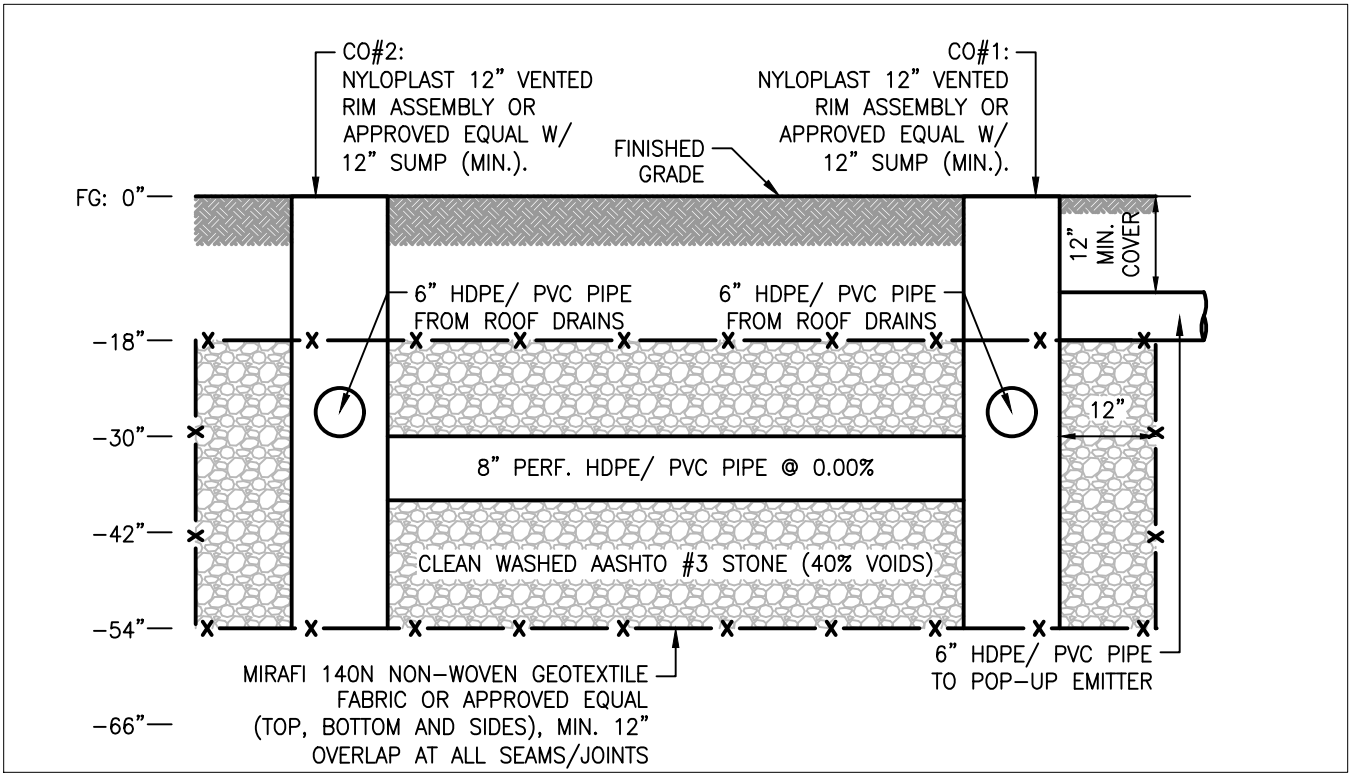
SCALE: 1" = 20'



NDS POP-UP DRAINAGE EMITTER DETAIL

SCALE: N.T.S.

NOTE: LAST FIVE (5') FEET OF PIPE SHALL BE PERFORATED AND IN A 12"X12" 3/4" STONE TRENCH LINED WITH GEOTEXTILE FABRIC.



UG1: SEEPAGE BED DETAILS

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CONSULTING ENGINEERS, LLC

SCALE: N.T.S.

NOAA Atlas 14, Volume 2, Version 3
Location name: Sea Isle City, New Jersey, USA*
Latitude: 39.1274°, Longitude: -74.7133°
Elevation: 5 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

G.M. Bonnin, D. Martin, B. Lin, T. Parzybok, M.Yekta, and D. Riley

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches/hour)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	**4.16** (3.74-4.63)	**4.87** (4.37-5.40)	**5.59** (5.02-6.19)	**6.43** (5.76-7.13)	**7.25** (6.47-8.04)	**7.97** (7.08-8.84)	**8.60** (7.61-9.56)	**9.19** (8.08-10.3)	**9.88** (8.58-11.1)	**10.5** (9.06-11.9)
10-min	**3.33** (2.99-3.70)	**3.90** (3.50-4.31)	**4.48** (4.01-4.96)	**5.14** (4.61-5.70)	**5.78** (5.16-6.41)	**6.34** (5.64-7.04)	**6.83** (6.05-7.60)	**7.29** (6.40-8.14)	**7.81** (6.79-8.77)	**8.28** (7.13-9.35)
15-min	**2.77** (2.49-3.08)	**3.27** (2.93-3.62)	**3.78** (3.38-4.18)	**4.34** (3.88-4.81)	**4.88** (4.36-5.42)	**5.36** (4.76-5.95)	**5.76** (5.10-6.40)	**6.13** (5.38-6.84)	**6.55** (5.69-7.36)	**6.93** (5.97-7.83)
30-min	**1.90** (1.71-2.11)	**2.26** (2.02-2.50)	**2.68** (2.40-2.97)	**3.14** (2.82-3.48)	**3.62** (3.23-4.01)	**4.03** (3.59-4.48)	**4.41** (3.90-4.90)	**4.77** (4.19-5.33)	**5.21** (4.53-5.85)	**5.61** (4.83-6.34)
60-min	**1.18** (1.06-1.32)	**1.42** (1.27-1.57)	**1.72** (1.54-1.90)	**2.05** (1.83-2.27)	**2.41** (2.15-2.67)	**2.73** (2.43-3.03)	**3.04** (2.69-3.38)	**3.35** (2.94-3.74)	**3.74** (3.25-4.20)	**4.10** (3.53-4.63)
2-hr	**0.726** (0.646-0.817)	**0.868** (0.771-0.975)	**1.06** (0.941-1.19)	**1.27** (1.13-1.43)	**1.51** (1.33-1.70)	**1.73** (1.51-1.94)	**1.93** (1.69-2.18)	**2.15** (1.86-2.44)	**2.42** (2.07-2.77)	**2.68** (2.27-3.08)
3-hr	**0.533** (0.475-0.602)	**0.636** (0.566-0.717)	**0.779** (0.691-0.878)	**0.937** (0.828-1.06)	**1.12** (0.984-1.26)	**1.29** (1.12-1.45)	**1.45** (1.26-1.64)	**1.63** (1.40-1.84)	**1.86** (1.57-2.12)	**2.07** (1.73-2.37)
6-hr	**0.330** (0.295-0.376)	**0.393** (0.350-0.446)	**0.479** (0.426-0.543)	**0.577** (0.511-0.655)	**0.696** (0.612-0.789)	**0.809** (0.706-0.918)	**0.922** (0.798-1.05)	**1.04** (0.891-1.19)	**1.21** (1.02-1.39)	**1.37** (1.13-1.58)
12-hr	**0.196** (0.175-0.223)	**0.233** (0.208-0.264)	**0.285** (0.253-0.323)	**0.347** (0.307-0.392)	**0.424** (0.373-0.480)	**0.501** (0.437-0.567)	**0.580** (0.499-0.659)	**0.667** (0.566-0.761)	**0.790** (0.654-0.907)	**0.911** (0.739-1.05)
24-hr	**0.113** (0.102-0.125)	**0.137** (0.125-0.152)	**0.179** (0.162-0.198)	**0.214** (0.193-0.237)	**0.268** (0.240-0.296)	**0.316** (0.281-0.348)	**0.370** (0.326-0.406)	**0.431** (0.376-0.472)	**0.523** (0.449-0.571)	**0.604** (0.512-0.659)
2-day	**0.065** (0.058-0.072)	**0.079** (0.071-0.088)	**0.102** (0.092-0.114)	**0.123** (0.110-0.136)	**0.154** (0.137-0.170)	**0.180** (0.160-0.199)	**0.211** (0.186-0.232)	**0.244** (0.213-0.269)	**0.296** (0.255-0.325)	**0.340** (0.289-0.374)
3-day	**0.045** (0.041-0.050)	**0.055** (0.050-0.061)	**0.071** (0.065-0.078)	**0.085** (0.077-0.094)	**0.106** (0.096-0.116)	**0.124** (0.111-0.136)	**0.144** (0.128-0.158)	**0.167** (0.147-0.182)	**0.201** (0.175-0.219)	**0.230** (0.198-0.252)
4-day	**0.035** (0.032-0.039)	**0.043** (0.040-0.047)	**0.056** (0.051-0.061)	**0.066** (0.061-0.072)	**0.082** (0.075-0.089)	**0.096** (0.087-0.104)	**0.111** (0.100-0.121)	**0.128** (0.114-0.139)	**0.153** (0.135-0.166)	**0.175** (0.152-0.190)
7-day	**0.023** (0.021-0.025)	**0.028** (0.026-0.031)	**0.036** (0.033-0.039)	**0.042** (0.039-0.046)	**0.052** (0.047-0.056)	**0.060** (0.055-0.065)	**0.069** (0.062-0.074)	**0.079** (0.071-0.085)	**0.093** (0.083-0.101)	**0.106** (0.093-0.114)
10-day	**0.018** (0.017-0.020)	**0.022** (0.020-0.024)	**0.027** (0.025-0.030)	**0.032** (0.030-0.034)	**0.039** (0.036-0.041)	**0.044** (0.040-0.047)	**0.050** (0.046-0.054)	**0.056** (0.051-0.061)	**0.066** (0.059-0.071)	**0.075** (0.066-0.080)
20-day	**0.012** (0.011-0.013)	**0.014** (0.013-0.015)	**0.017** (0.016-0.019)	**0.020** (0.019-0.021)	**0.023** (0.022-0.025)	**0.026** (0.024-0.028)	**0.029** (0.027-0.031)	**0.032** (0.030-0.034)	**0.036** (0.033-0.039)	**0.040** (0.036-0.043)
30-day	**0.010** (0.009-0.010)	**0.012** (0.011-0.013)	**0.014** (0.013-0.015)	**0.016** (0.015-0.017)	**0.019** (0.017-0.020)	**0.021** (0.019-0.022)	**0.023** (0.021-0.024)	**0.025** (0.023-0.026)	**0.028** (0.025-0.029)	**0.030** (0.027-0.032)
45-day	**0.008** (0.008-0.009)	**0.010** (0.009-0.010)	**0.012** (0.011-0.012)	**0.013** (0.012-0.014)	**0.015** (0.014-0.016)	**0.016** (0.015-0.017)	**0.017** (0.016-0.018)	**0.019** (0.018-0.020)	**0.020** (0.019-0.022)	**0.022** (0.020-0.023)
60-day	**0.007** (0.007-0.008)	**0.009** (0.008-0.009)	**0.010** (0.010-0.011)	**0.011** (0.011-0.012)	**0.013** (0.012-0.013)	**0.014** (0.013-0.014)	**0.015** (0.014-0.015)	**0.015** (0.015-0.016)	**0.017** (0.016-0.017)	**0.017** (0.016-0.018)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

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PF graphical