

**STORMWATER MANAGEMENT
REPORT
FOR
BLOCK 60.03, PROP LOT 17.01
CITY OF SEA ISLE
CAPE MAY COUNTY, NJ**

EDA #10430



Vincent C. Orlando

8/27/25

**Date
N.J.P.E. #32498**

Stormwater Management Calculations

Jamie Sofroney - Block 60.03, Prop Lot 17.01

City of Sea Isle, Cape May County, NJ

The 11,000 SF property, located on Landis Ave is currently an existing commercial building. The applicant intends to construct a new mixed-use building with retail on the first floor and a total of three (3) dwelling units on the 2nd and 3rd floors above on Proposed Lot 17.01. The existing lot will be subdivided and this construction will take place on only the 6,000 SF lot. A stormwater trench with one 18" perforated PVC pipe surrounded by stone has been proposed to mitigate runoff. The design is to encompass only proposed lot 17.01. The design is also for 30% of the 25 year storm in proposed conditions only, pre-development runoff is not utilized.

Pre-Development Runoff Calculation

$$Q = ciA$$

$$c = 0.25 \text{ (Grass/Landscape)} \quad A = 394 \text{ SF}$$

$$c = 0.57 \text{ (Stone)} \quad A = 2184 \text{ SF}$$

$$c = 0.99 \text{ (Impervious)} \quad A = 3422 \text{ SF}$$

$$c(\text{avg}) = \frac{(.25 \times 394) + (.57 \times 2,184) + (.99 \times 3,422)}{6,000}$$

$$c(\text{avg}) = 0.78$$

$$i = 7.26 \text{ in/hr (Tc = 5 Min.)}$$

$$A = 6,000 \text{ SF} = .138 \text{ Ac}$$

$$Q = (0.78) \times (7.26) \times (.138)$$

$$Q = 0.781 \text{ cfs}$$

$$V = (Q) T/t$$

$$T/t = 2.5(T/c) \text{ where (T/c) is 5 minutes}$$

$$V = (0.781 \text{ CFS})(12.5 \text{ min.})(60 \text{ sec./min})$$

$$V = 585 \text{ CF}$$

Post-Development Runoff Calculation

$$Q = ciA$$

$$c = 0.99 \text{ (assume all impervious)}$$

$$i = 7.26 \text{ in/hr (Tc = 5 Min.)}$$

$$A = 6,000 \text{ SF} = .138 \text{ Ac}$$

$$Q = (0.99) \times (7.26) \times (.138)$$

$$Q = 0.99 \text{ CFS}$$

$$V = (Q) T/t$$

$$T/t = 2.5(T/c) \text{ where (T/c) is 5 minutes}$$

$$V = (0.99 \text{ CFS})(12.5 \text{ min.})(60 \text{ sec./min})$$

$$V = 743 \text{ CF}$$

Volume Calculation

$$\text{(Post-Development Runoff)} = 743 \text{ CF}$$

$$30\% \text{ Volume} = 222 \text{ CF}$$

Storage Calculation

$$\text{One 18" Pipe @ 70 LF}$$

$$3.14 \times (.75)^2 \times 70 = 123 \text{ CF}$$

$$\text{2.5' x 2.5' x 70' Stone Trench}$$

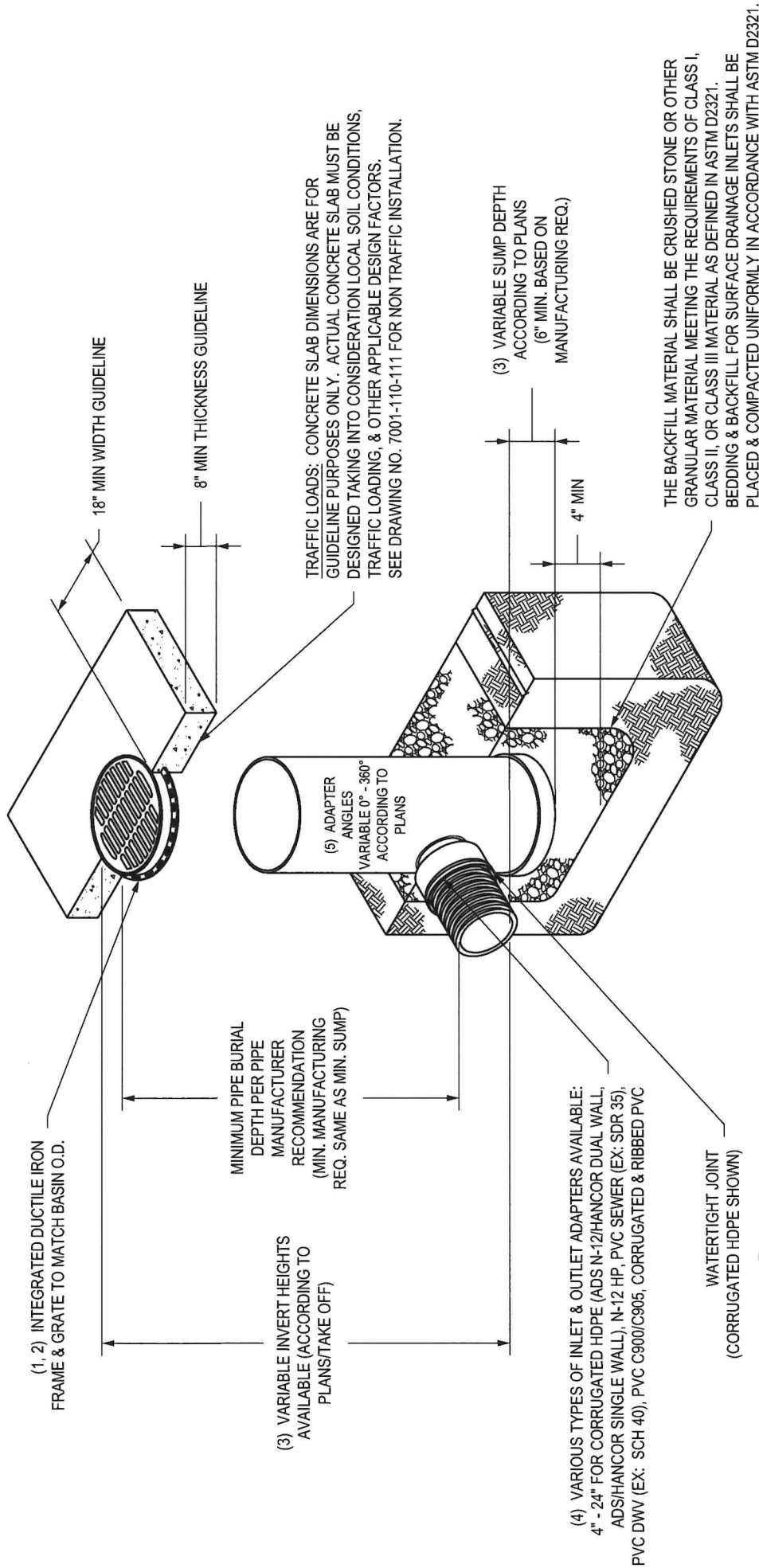
$$[(2.5' \times 2.5' \times 70') - 123] (0.35) = 110 \text{ CF}$$

$$\text{Total} = 233 \text{ CF} > 222 \text{ CF Required}$$

Summary:

The 25 year design storm generates approximately 743 CF of stormwater runoff from all improvements, of which 222 CF (30%) is required to be stored. The infiltration system has been designed to store approximately 233 CF of runoff. If the quantity of runoff exceeds the capacity of the trench, runoff will flow out of the proposed inlet and towards existing drainage patterns on the existing roadway.

NYLOPLAST 24" DRAIN BASIN: 2824AG __X



GRATE OPTIONS	LOAD RATING	PART #	DRAWING #
PEDESTRIAN	MEETS H-10	2499CGP	7001-110-216
STANDARD	MEETS H-20	2499CGS	7001-110-217
SOLID COVER	MEETS H-20	2499CGC	7001-110-218
DOME	N/A	2499CGD	7001-110-219
DROP IN GRATE	LIGHT DUTY	2401D1	7001-110-075

- 1 - GRATES/SOLID COVER SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05.
- 2 - FRAMES SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05.
- 3 - DRAIN BASIN TO BE CUSTOM MANUFACTURED ACCORDING TO PLAN DETAILS. RISERS ARE NEEDED FOR BASINS OVER 84" DUE TO SHIPPING RESTRICTIONS. SEE DRAWING NO. 7001-110-065.
- 4 - DRAINAGE CONNECTION STUB JOINT TIGHTNESS SHALL CONFORM TO ASTM D3212 FOR CORRUGATED HDPE (ADS N-12/HANCOR DUAL WALL), N-12 HP & PVC SEWER.
- 5 - ADAPTERS CAN BE MOUNTED ON ANY ANGLE 0° TO 360°. TO DETERMINE MINIMUM ANGLE BETWEEN ADAPTERS SEE DRAWING NO. 7001-110-012.

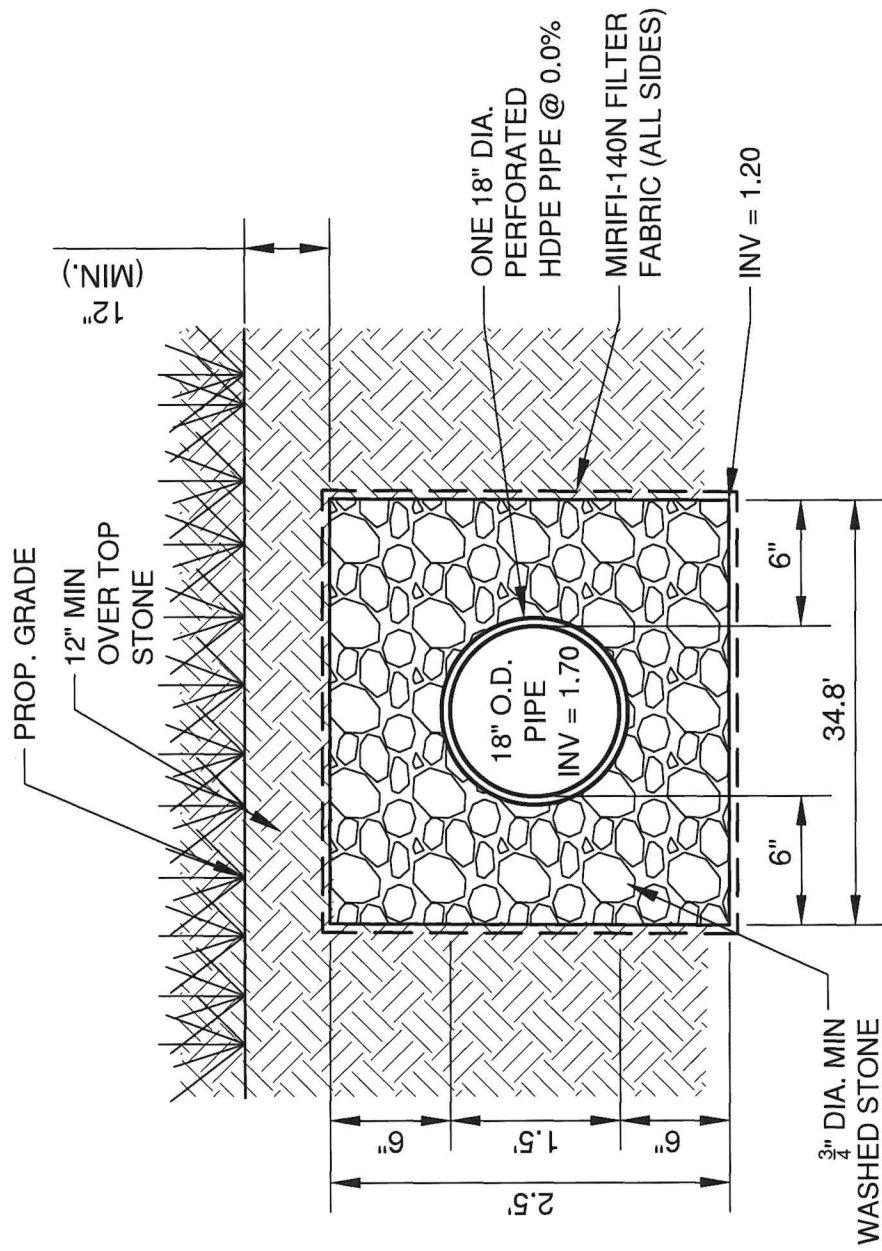
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DRAWN BY EBC
DATE 04-03-06
REVISED BY NMH
DATE 03-14-16

MATERIAL
PROJECT NO./NAME
SCALE 1:40
SHEET 1 OF 1

TITLE
24 IN DRAIN BASIN QUICK SPEC INSTALLATION DETAIL
DWG NO. 7001-110-192
REV E

ADS
Nyloplast
3130 VERONA AVE
BUFORD, GA 30518
PHN (770) 932-2443
FAX (770) 932-2490
www.nyloplast-us.com



DRAINAGE TRENCH DETAIL

N.T.S.

or other approved methods may be employed.

TABLE 7.1 TYPICAL RUNOFF COEFFICIENTS (C VALUES) FOR 100-YEAR FREQUENCY STORM				
LAND-USE DESCRIPTION	HYDROLOGIC SOIL GROUP			
	A	B	C	D
Cultivated land: without conservation treatment with conservation treatment	0.49 0.27	0.67 0.43	0.81 0.61	0.88 0.67
Pasture or range land: poor condition good condition	0.38 NA	0.63 0.25	0.78 0.51	0.84 0.65
Meadow: good condition	NA	NA	0.44	0.61
Wood or forest land: thin stand, poor cover, no mulch good cover	NA NA	NA NA	0.59 0.45	0.79 0.59
Open spaces, lawns, parks, golf courses, cemeteries: good condition, grass cover on 75% or more of area fair condition, grass cover on 50-75% of area	NA NA	0.25 0.45	0.51 0.63	0.65 0.74
Commercial and business areas (85% impervious)	0.84	0.90	0.93	0.96
Industrial districts (72% impervious)	0.67	0.81	0.88	0.92
Residential: <u>Average lot size</u> <u>Average Impervious</u> 1/8 acre 65% 1/4 acre 38% 1/3 acre 30% 1/2 acre 25% 1 acre 20%	0.59 0.25 NA NA NA	0.76 0.55 0.49 0.45 0.41	0.86 0.70 0.67 0.65 0.63	0.90 0.80 0.78 0.76 0.74
Paved parking lots, roofs, driveways, etc.	0.99	0.99	0.99	0.99
Streets and roads: paved with curbs and storm sewers gravel dirt	0.99 0.57 0.49	0.99 0.76 0.69	0.99 0.84 0.80	0.99 0.88 0.84
NOTE: NA denotes information is not available; design engineers should rely on another authoritative source.				
SOURCE: <i>Technical Manual for Land Use Regulation Program</i> , Department of Environmental Protection, Bureau of Inland and Coastal Regulations, Stream Encroachment Permits (Trenton, New Jersey, revised September 1995), p. 12.				



NOAA Atlas 14, Volume 2, Version 3
Location name: Sea Isle City, New Jersey, USA*
Latitude: 39.1432°, Longitude: -74.7015°
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 & aerals](#)

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	4.18 (3.76-4.64)	4.88 (4.38-5.41)	5.59 (5.02-6.20)	6.44 (5.77-7.14)	7.26 (6.48-8.05)	7.99 (7.10-8.87)	8.63 (7.63-9.59)	9.23 (8.10-10.3)	9.90 (8.60-11.1)	10.5 (9.08-11.9)
10-min	3.34 (3.00-3.71)	3.91 (3.50-4.33)	4.48 (4.02-4.96)	5.15 (4.62-5.71)	5.79 (5.17-6.42)	6.36 (5.65-7.06)	6.85 (6.07-7.61)	7.31 (6.42-8.15)	7.83 (6.80-8.79)	8.31 (7.15-9.38)
15-min	2.78 (2.50-3.09)	3.28 (2.94-3.62)	3.78 (3.39-4.18)	4.35 (3.90-4.82)	4.89 (4.37-5.42)	5.37 (4.77-5.96)	5.77 (5.11-6.42)	6.15 (5.40-6.86)	6.57 (5.71-7.38)	6.95 (5.99-7.85)
30-min	1.91 (1.71-2.12)	2.26 (2.03-2.50)	2.68 (2.41-2.97)	3.15 (2.82-3.49)	3.62 (3.23-4.02)	4.04 (3.59-4.49)	4.42 (3.91-4.91)	4.79 (4.20-5.34)	5.23 (4.54-5.87)	5.63 (4.85-6.36)
60-min	1.19 (1.07-1.32)	1.42 (1.27-1.57)	1.72 (1.54-1.91)	2.05 (1.84-2.27)	2.41 (2.15-2.68)	2.74 (2.44-3.04)	3.04 (2.70-3.38)	3.36 (2.95-3.74)	3.75 (3.26-4.21)	4.11 (3.54-4.64)
2-hr	0.730 (0.649-0.822)	0.872 (0.774-0.981)	1.07 (0.943-1.20)	1.28 (1.13-1.44)	1.52 (1.34-1.71)	1.74 (1.52-1.96)	1.94 (1.69-2.20)	2.16 (1.87-2.45)	2.44 (2.08-2.78)	2.70 (2.28-3.09)
3-hr	0.535 (0.477-0.605)	0.640 (0.568-0.721)	0.782 (0.692-0.881)	0.941 (0.831-1.06)	1.12 (0.987-1.27)	1.30 (1.13-1.46)	1.46 (1.26-1.65)	1.64 (1.40-1.86)	1.86 (1.58-2.13)	2.08 (1.74-2.39)
6-hr	0.331 (0.296-0.378)	0.394 (0.351-0.448)	0.480 (0.426-0.545)	0.579 (0.513-0.658)	0.698 (0.613-0.792)	0.812 (0.708-0.922)	0.926 (0.800-1.05)	1.05 (0.894-1.20)	1.21 (1.02-1.39)	1.37 (1.13-1.58)
12-hr	0.197 (0.176-0.224)	0.234 (0.208-0.265)	0.286 (0.254-0.324)	0.348 (0.308-0.394)	0.426 (0.375-0.482)	0.503 (0.438-0.570)	0.582 (0.501-0.662)	0.670 (0.568-0.765)	0.794 (0.657-0.912)	0.916 (0.743-1.06)
24-hr	0.113 (0.103-0.126)	0.138 (0.125-0.153)	0.179 (0.162-0.199)	0.215 (0.194-0.238)	0.270 (0.242-0.298)	0.318 (0.283-0.350)	0.372 (0.328-0.408)	0.433 (0.378-0.474)	0.526 (0.452-0.575)	0.608 (0.515-0.664)
2-day	0.065 (0.059-0.072)	0.079 (0.071-0.088)	0.103 (0.093-0.114)	0.123 (0.111-0.137)	0.154 (0.138-0.171)	0.181 (0.161-0.200)	0.212 (0.187-0.233)	0.246 (0.215-0.271)	0.297 (0.256-0.327)	0.342 (0.291-0.377)
3-day	0.045 (0.041-0.050)	0.055 (0.050-0.061)	0.072 (0.065-0.079)	0.086 (0.078-0.094)	0.107 (0.096-0.117)	0.125 (0.112-0.137)	0.145 (0.129-0.159)	0.168 (0.148-0.183)	0.202 (0.176-0.221)	0.232 (0.199-0.253)
4-day	0.036 (0.033-0.039)	0.043 (0.040-0.047)	0.056 (0.051-0.061)	0.067 (0.061-0.073)	0.083 (0.075-0.090)	0.096 (0.087-0.105)	0.112 (0.100-0.121)	0.129 (0.115-0.140)	0.154 (0.136-0.167)	0.176 (0.153-0.192)
7-day	0.023 (0.022-0.025)	0.028 (0.026-0.031)	0.036 (0.033-0.039)	0.042 (0.039-0.046)	0.052 (0.048-0.056)	0.060 (0.055-0.065)	0.069 (0.063-0.075)	0.079 (0.071-0.086)	0.094 (0.083-0.102)	0.107 (0.094-0.115)
10-day	0.018 (0.017-0.020)	0.022 (0.020-0.024)	0.028 (0.026-0.030)	0.032 (0.030-0.035)	0.039 (0.036-0.042)	0.044 (0.041-0.048)	0.050 (0.046-0.054)	0.057 (0.051-0.061)	0.066 (0.060-0.071)	0.075 (0.067-0.081)
20-day	0.012 (0.011-0.013)	0.014 (0.014-0.015)	0.017 (0.016-0.019)	0.020 (0.019-0.021)	0.024 (0.022-0.025)	0.026 (0.025-0.028)	0.029 (0.027-0.031)	0.032 (0.030-0.035)	0.037 (0.034-0.039)	0.040 (0.036-0.043)
30-day	0.010 (0.009-0.011)	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 (0.026-0.029)	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 (0.016-0.018)	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.

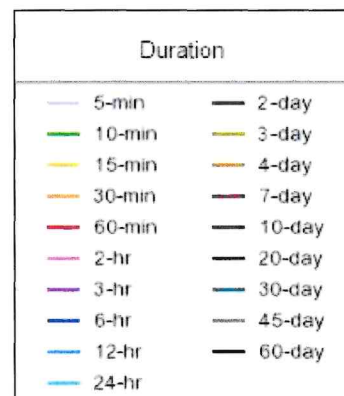
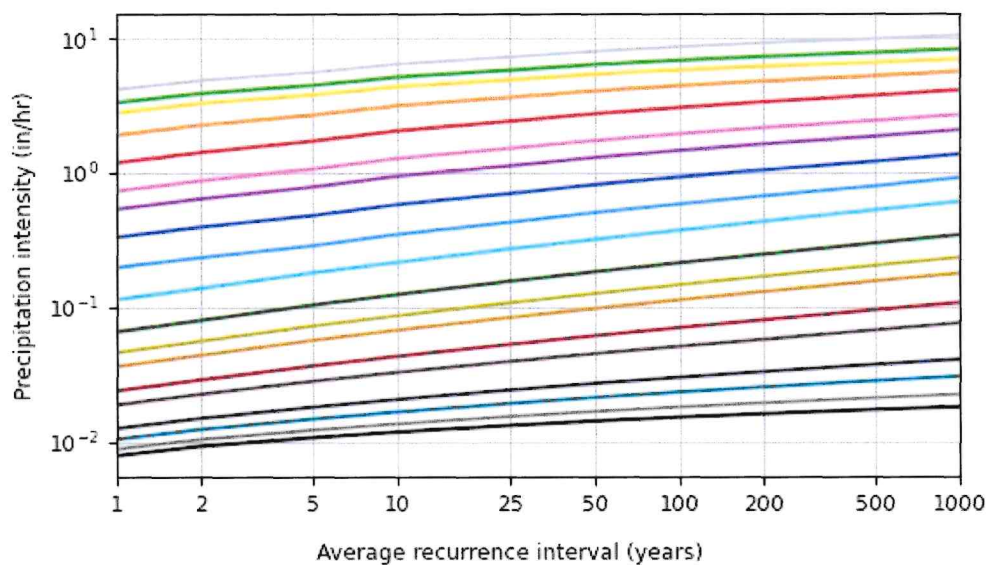
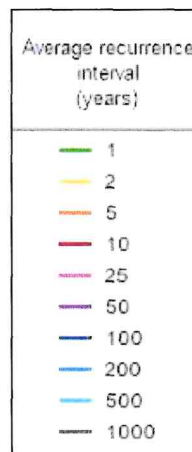
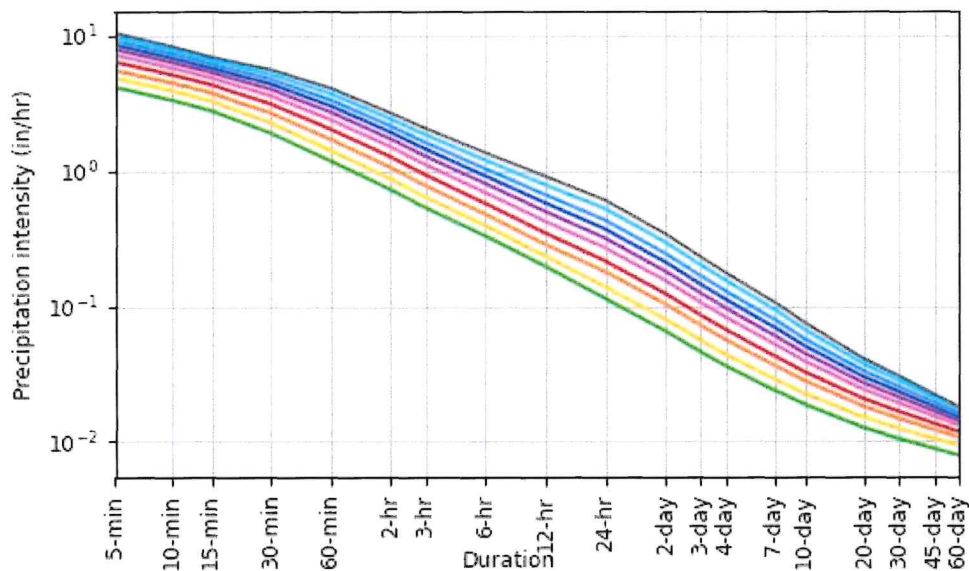
Please refer to NOAA Atlas 14 document for more information.

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PF graphical

PDS-based intensity-duration-frequency (IDF) curves

Latitude: 39.1432°, Longitude: -74.7015°





Large scale aerial



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[National Oceanic and Atmospheric Administration](#)
[National Weather Service](#)
[National Water Center](#)
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

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Soil Map—Cape May County, New Jersey



MAP LEGEND

Area of Interest (AOI)		Area of Interest (AOI)		Spoil Area	
Soils		Soil Map Unit Polygons		Stony Spot	
	Soil Map Unit Lines		Very Stony Spot	Wet Spot	
	Soil Map Unit Points		Other	Special Line Features	
Special Point Features		Water Features			
	Blowout	Transportation			
	Borrow Pit		Rails		
	Clay Spot		Interstate Highways		
	Closed Depression		US Routes		
	Gravel Pit		Major Roads		
	Gravelly Spot		Local Roads		
	Landfill	Background			
	Lava Flow				
	Marsh or swamp				
	Mine or Quarry				
	Miscellaneous Water				
	Perennial Water				
	Rock Outcrop				
	Saline Spot				
	Sandy Spot				
	Severely Eroded Spot				
	Sinkhole				
	Slide or Slip				
	Sodic Spot				

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.
Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Cape May County, New Jersey
Survey Area Data: Version 20, Sep 3, 2024

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Data not available.

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
AptAv	Appoquinimink-Transquaking-Mispiration complex, 0 to 1 percent slopes, very frequently flooded	1.1	1.0%
BEADV	Beaches, 0 to 15 percent slopes, very frequently flooded	17.5	16.2%
HorDr	Hooksan sand, 2 to 15 percent slopes, rarely flooded	4.6	4.3%
USPSAS	Urban land-Psamments, sulfidic substratum complex, 0 to 2 percent slopes, occasionally flooded	41.5	38.5%
USPSBR	Urban land-Psamments, wet substratum complex, 0 to 2 percent slopes, rarely flooded	32.1	29.7%
WATERs	Water, saline	11.0	10.2%
Totals for Area of Interest		107.8	100.0%