

PROJECT NAME: REGANZANI WAREHOUSE, POMPANO BEACH, FL

STORM DRAINAGE CALCULATIONS

Date: 2/17/2025

SITE CHARACTERISTICS AND AREAS

BUILDING AREA	7181.0	SF	43.32%	0.16	Ac.
IMPERVIOUS PAVED AREAS	3904.00	SF	23.55%	0.09	Ac.
POOL	0.00	SF	0.00%	0.00	Ac.
PERVIOUS SITE AREA	5493.00	SF	33.13%	<u>0.13</u>	Ac.
TOTAL SITE AREA	16578.00	SF	100.00%	0.38	Ac.

RUNOFF COEFFICIENTS

IMPERVIOUS AREAS	0.90	
PERVIOUS AREAS	0.35	
WATER TABLE ELEVATION	4.00	NGVD

DESIGN STORM FREQUENCY FOR WATER QUALITY

5 YEAR STORM 24 Hrs. RUNOFF, 2.5 x % IMPERVIOUS OR FIRST INCH WHICHEVER IS GREATER

First inch runoff (Total site area x 1/12)	<u>1381.50</u>	CF
Site area for water quality (Site area-Bldg+Pool)	9397.00	SF
Impervious area for water quality	3904.00	SF
% Impervious	41.55	%
2.5" x percent imperv	1.04	Inches
Volume required	1434.87	CF
5 year 24 hour storm rainfall (P)	6.00	Inches
Soil storage (percent pervious x soil storage)	1.13	Inches

Runoff = $\frac{(P-0.2 \times S)^2}{(P+0.8 \times S)}$

Where P = 6.0 inches for 5 year 24 hour storm

Runoff = 4.83 Inches

Volume = A x R/12 6669.30 CF

Use 5 year runoff of 6669.30 CF > 1381.50 CF > 1436.76 CF 2.5 x % impervious and for first inch of runoff



Site Storage Provided to store 6669.30 CF Required Runoff as follows:

1. Required Exfiltration trench storage = 6,671.48 CF volume
 2. Proposed swale area: 664.75 CF
- Total Storage Provided = 6,671.48 + 664.75 CF = 7,336.23 CF > 6669.30 CF required. Ok.

EXFILTRATION TRENCH CALCULATIONS

$$V = 6671.480 / 16578 \text{ SF} = 0.40 \text{ FT} \times 12 \text{ in/ft} = 4.83 \text{ inches} \times 16578 / 43560 = 1.84 \text{ ac-inches}$$

$$L = \frac{V}{K(HW + 2HxDu - Du \times Du + 2HDS) + 1.39 \times 10^{-4} \times W \times du}$$

Volume =	1.84	Ac-inches
A = Drainage Area	0.38	Ac
W = Trench Width	5.00	ft
K = Hydraulic Conductivity	2.65E-04	cfs/ft ² per ft of head
H = Depth to water table	1.86	ft
Du = Non Saturated trench depth	2.00	ft
Ds = Saturated trench depth	2.00	ft

Trench Required	273.09	LF
Trench Provided	280	LF