

DRAINAGE REPORT
FOR
NEW RESIDENCE
FOR LINDSDORF, LLC
AT
7800 SW 110TH STREET

Prepared by:



TCE PROJ. NO. 230825

Florida Certificate of Authorization No: 27209

**4011 West Flagler Street, Ste 404
Miami, Florida 33134**

July 8, 2025

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Table of Contents

- I. EXECUTIVE SUMMARY**
- II. VILLAGE OF PINECREST CRITERIA**
- III. DERM CRITERIA**
- IV. DRAWDOWN TIME**

Appendices

- **WATER QUALITY CALCULATIONS**
 - **PRE-DEVELOPMENT RUNOFF CALCULATIONS**
 - **POST-DEVELOPMENT RUNOFF CALCULATIONS (25Y-3D & 5Y-1H)**
 - **ON-SITE RETENTION VOLUME CALCULATIONS**
 - **PRE & POST-DEVELOPMENT DRAINAGE MAP**
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I. EXECUTIVE SUMMARY

The objective of the on-site storm water management system is to make sure that it meets the Village of Pinecrest Stormwater Level of Service and the required water quality treatment. Accordingly, the system shall provide water quality treatment for the first inch of runoff or 2.5 inches times the percentage of imperviousness, whichever is greater, and also make sure that post-development runoff doesn't exceed the pre-development runoff for the 25-year 1- day storm event. The on-site storm water management system shall also retain the 3.3 inches of runoff according to Miami-Dade DERM's criteria for the 5-year, 1-hour storm.

II. VILLAGE OF PINECREST CRITERIA

A spreadsheet was used to calculate the runoff for the Village of Pinecrest 25-year, 1-day storm event with an intensity of 9.5 inches to ensure the runoff volume is contained within the property and doesn't overflow to the public Right-of-Way or adjacent properties.

Based on the spreadsheets attached, the following are the results:

WATER QUALITY:

First Inch of runoff: = 2,331 cu. ft.

2.5" x Percent of imperviousness: = 1,536 cu. ft.

Required Water Quality Volume = 2,331 cu. Ft.

WATER QUANTITY:

Pre-Development Runoff Volume : = 10,093 cu. ft.

Post-Development Runoff Volume : = 12,792 cu. ft.

Required Water Quantity Volume = 12,792 – 10,093 = 2,699 cu. ft.

Required Water Quantity Volume = 2,699 cu. Ft.

CRITICAL VOLUME FOR ON-SITE RETAINAGE = 2,699 cu. ft.

ON-SITE RETENTION VOLUME PROVIDED = 2,898 cu. ft. OK!

III. DERM CRITERIA

A spreadsheet was used to calculate the runoff for Miami-Dade DERM's 5-year, 1-hour storm with an intensity of 3.3 inches to ensure the runoff volume is contained within the property and doesn't overflow to the public Right-of-Way or adjacent properties.

Based on the spreadsheets attached, the following are the results:

Post-Development Runoff Volume (5-year, 1-hour): 1,806 cu. ft.

ON-SITE RETENTION VOLUME PROVIDED = 2,898 cu. ft. > 1,806 cu. ft. OK!

IV. DRAWDOWN TIME:

According to the boring test performed, the existing subsoil is composed mostly of a tan medium sand with rock fragments and sandy limestone. Therefore, we are assuming a conservative infiltration rate of 0.5 inches per hour. Consequently, we estimate the drawdown time, for the average 6" deep retention volume, as 12 hours.



Date: 9/16/2024
Document: Residential Drainage Calculation
Project Manager:
Project Name: NEW RESIDENCE FOR LINDSDORF, LLC
Project Address: 7800 SW 110 ST, PINECREST, 33156

WATER QUALITY CALCULATIONS

Total Site Area = 27,970 sq. ft.
Roof Area (House+ Guest/Gym+Pool+Terrace)= 5,850 sq. ft.
Impervious Area (Paved+Deck)= 5,831 sq. ft.
Pervious Area = 16,289 sq. ft.

Site Area for water quality perv/imp (Total -Roof Area)= 22,120 sq. ft.
Impervious area for water quality = 5,831 sq. ft.

1) COMPUTE THE 1" WQ RUNOFF VOLUME

1" WQ = 2,331 cu.ft.

2) COMPUTE 2.5" WQ RUNOFF VOLUME

% Imp.= 0.26
2.5" WQ = 2.5" x % Imp. x Total site / 12
2.5" WQ = 1,536 cu.ft.



Date: 10/24/2023
Document: Residential Drainage Calculation
Project Manager:
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Project Address: 7800 SW 110 ST, PINECREST, 33156

PRE-DEVELOPMENT RUNOFF CALCULATIONS

Summary

Definitions (PRE-DEVELOPMENT)		Project Information	Comments
I	Rainfall produced during 25 years, 24 hours storm event (Per figure C-3 SFWMD) - (in)	9.50	Design Storm
A	Site total area (sf)	27,970	
	Average elevation of Pervious Areas (ft)	11.50	
	High ground water elevation (ft)	2.50	
	Distance between Avg Elevation of Pervious Areas and the High Ground Water Elevation	9.00	AEPA - HGWE = Depth to Water table - DW

Project detailed information: (PRE-DEVELOPMENT)

Impervious areas		Description	Pervious areas		Description
Imp_1	2,976	paved area	Per_1	24,051	green area
Imp_2	943	house area	Per_2		
Imp_3			Per_3		
Imp_4					
Imp_5					
Imp_6					
Tot_Imp =	3,919		Tot_Per =	24,051	

Soil Storage Capacity Calculations (S)

(PRE-DEVELOPMENT)

Depth to Water Table	WE Compacted Water Storage (in)
1	0.45
2	1.88
3	4.95
4	8.18

$$S = \frac{\text{Pervious Area} * \text{WE}}{\text{Site Total Area}}$$

$$S = \frac{24,051}{27,970} * 8.18$$

WE = 8.18

S = 7.03

(PRE-DEVELOPMENT)

Runoff Depth Calculation (R)

$$R = \frac{(I - 0.2 * S)^2}{(I + 0.8 * S)}$$

$$R = 4.33 \text{ in}$$

PRE-DEVELOPMENT RUNOFF VOLUME:

$$V = A * R / 12$$

$$V_{pre} = 10,093 \text{ Cubic feet}$$



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POST-DEVELOPMENT RUNOFF CALCULATIONS

Summary

Definitions (POST-DEVELOPMENT)		Project Information	Comments
I	Rainfall produced during 25 years, 24 hours storm event (Per figure C-3 SFWMD) - (in)	9.50	Design Storm 25Y-1D
A	Site total area (sf)	27,970	
	Average elevation of Pervious Areas (ft)	11.50	
	High ground water elevation (ft)	2.50	
	Distance between Avg Elevation of Pervious Areas and the High Ground Water Elevation	9.00	AEPA - HGWE = Depth to Water table - DW

Project detailed information: (POST-DEVELOPMENT)

Impervious areas		Description	Pervious areas		Description
Imp_1	3,531	paved area	Per_1	1,207	drainfield area
Imp_2	2,883	house area	Per_2	15,082	green area
Imp_3	843	terrace area			
Imp_4	596	walkway/steps			
Imp_5	1,198	gym/guest house area			
Imp_6	1704	pool deck area			
Imp_7	926	pool area			
Tot_Imp =	11,681		Tot_Per =	16,289	

Soil Storage Capacity Calculations (S)

(POST-DEVELOPMENT)

Depth to Water Table	WE Compacted Water Storage (in)
1	0.45
2	1.88
3	4.95
4	8.18

$$S = \frac{\text{Pervious Area} * \text{WE}}{\text{Site Total Area}}$$

$$S = \frac{16,289}{27,970} = 8.18$$

WE = 8.18

S = 4.76

(POST-DEVELOPMENT)

Runoff Depth Calculation (R)

$$R = \frac{(I - 0.2 * S) * 2}{(I + 0.8 * S)}$$

$$R = 5.49$$

in

POST-DEVELOPMENT RUNOFF VOLUME:

$$V = A * R / 12$$

$$V_{\text{post}} = 12,792 \text{ Cubic feet}$$





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POST-DEVELOPMENT RUNOFF CALCULATIONS

Summary

Definitions (POST-DEVELOPMENT)		Project Information	Comments
I	Rainfall produced during 5 year, 1 hour storm event (Per figure C-3 SFWMD) - (in)	3.30	Design Storm 5Y-1H (DERM)
A	Site total area (sf)	27,970	
	Average elevation of Pervious Areas (ft)	11.50	
	High ground water elevation (ft)	2.50	
	Distance between Avg Elevation of Pervious Areas and the High Ground Water Elevation	9.00	AEPA - HGWE = Depth to Water table - DW

Project detailed information: (POST-DEVELOPMENT)

Impervious areas		Description	Pervious areas		Description
Imp_1	3,531	paved area	Per_1	1,207	drainfield area
Imp_2	2,883	house area	Per_2	15,082	green area
Imp_3	843	terrace area			
Imp_4	596	walkway/steps			
Imp_5	1,198	gym/guest house area			
Imp_6	1704	pool deck area			
Imp_7	926	pool area			
Tot_Imp =		11,681	Tot_Per =		16,289

Soil Storage Capacity Calculations (S)

(POST-DEVELOPMENT)

Depth to Water Table	WE Compacted Water Storage (in)
1	0.45
2	1.88
3	4.95
4	8.18

$$S = \frac{\text{Pervious Area} * \text{WE}}{\text{Site Total Area}}$$

$$S = \frac{16,289}{27,970} = 8.18$$

WE = 8.18

S = 4.76

(POST-DEVELOPMENT)

Runoff Depth Calculation (R)

$$R = (I - 0.2 * S)^{0.485}$$

$$(I + 0.8 * S)$$

R = 0.77

in

POST-DEVELOPMENT RUNOFF VOLUME:

$$V = A * R / 12$$

Vpost = 1,806 Cubic feet

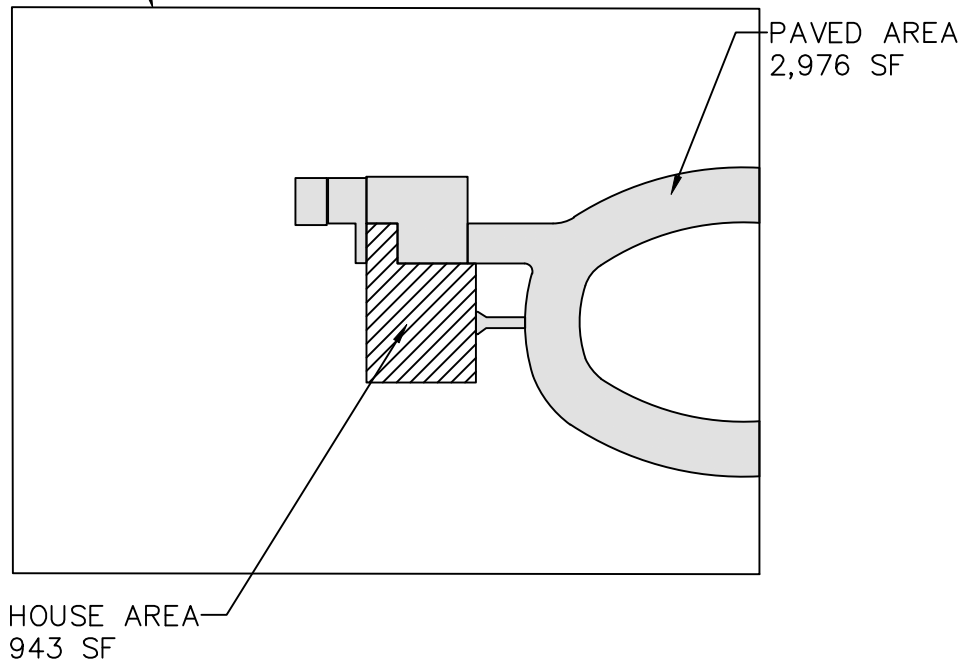


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DRAINAGE MAP

PRE-DEVELOPMENT CONDITION

TOTAL SITE AREA 27,970 SF



PAVED AREA	2,976 SF
HOUSE AREA	943 SF

TOTAL IMPERVIOUS AREA 3,919 SF

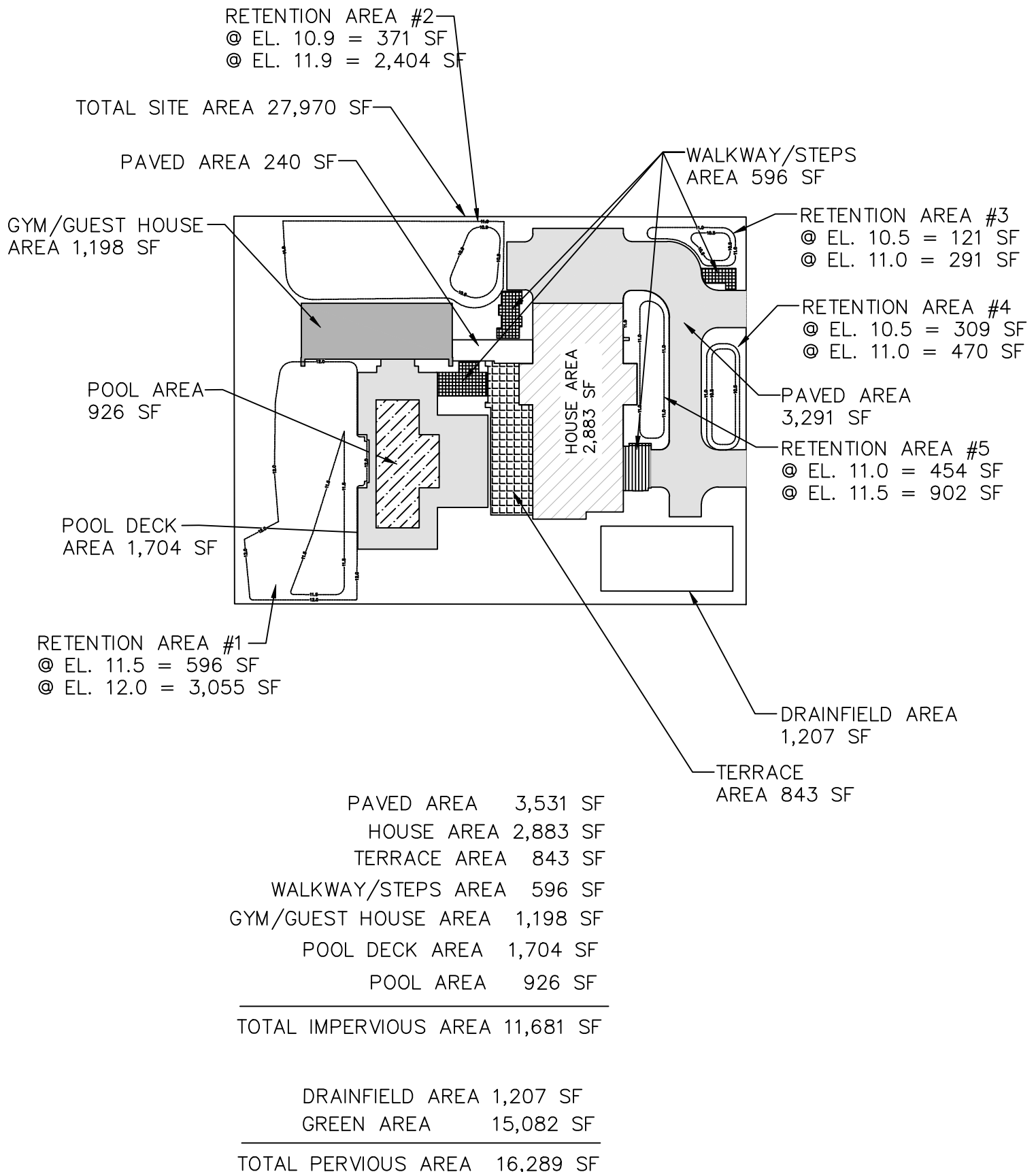
GREEN AREA	24,051 SF
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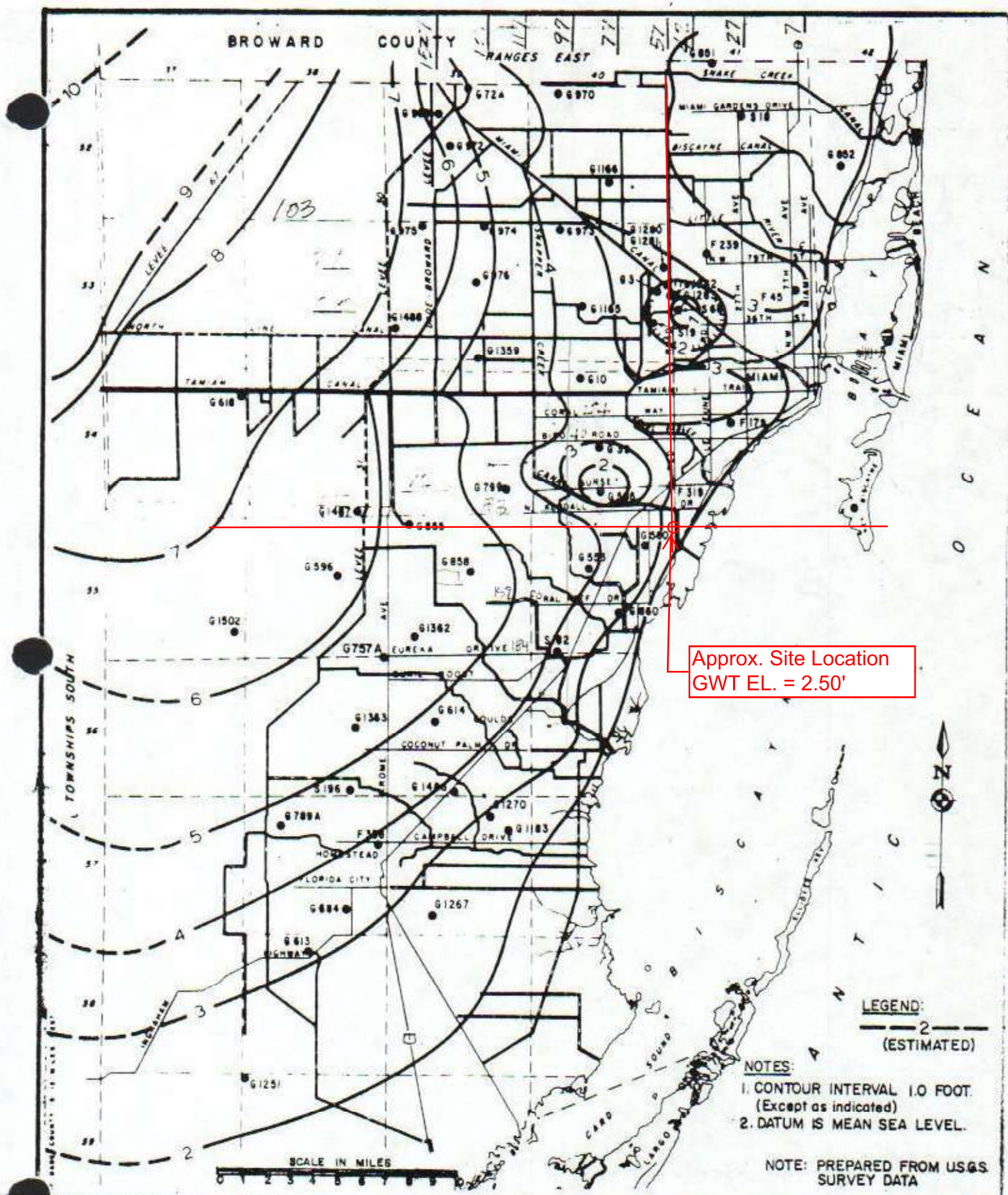
TOTAL PERVIOUS AREA	24,051 SF
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TOTAL SITE AREA 27,970 SF

DRAINAGE MAP

POST-DEVELOPMENT CONDITION





**METROPOLITAN
DADE COUNTY
PUBLIC WORKS**

APPROVED	REVISED
4/5/72	2/19/75
	4/14/77

DESIGN STANDARDS

**AVERAGE OCTOBER
GROUND WATER LEVEL**

Page 11 of 11

W.C.
22