



July 2025

*El Car Wash  
2690 West Sample Road  
Pompano Beach, FL 33069*

*Drainage Report  
KHA Project Number: 143360001*

***Prepared for:***  
*National Express Wash LLC  
2690 West Sample Rd  
Pompano Beach, FL 33069*

***Prepared by:***  
*Kimley-Horn and Associates, Inc.  
8201 Peters Road, Suite 2200  
Plantation, FL 33324*



**DRAINAGE REPORT  
FOR  
EL CAR WASH  
2690 WEST SAMPLE ROAD**

KHA Project No.: 143360001

July 2025

Prepared For:

*National Express Wash LLC*

---

George Balaban, P.E.  
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(954) 716-8824



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## PROJECT DESCRIPTION

The subject site is located on a  $\pm 1.11$ -acre property (Folios #484221070031, 484221070032, 484221070033) within Section 15, Township 48S, Range 42E within the City of Pompano Beach, Florida. The project consists of the redevelopment of an existing gas station with car wash that was previously demolished into an El Car Wash facility with associated parking, vacuum spaces and associated infrastructure. The project site is located at the SE corner of NW 27<sup>th</sup> Avenue and West Sample Road (Appendix A). A new stormwater management system is proposed consisting of exfiltration trenches to mitigate stormwater runoff.

## EXISTING CONDITIONS

The existing site consists of a car wash stall and gas station with associated parking spaces. Survey conducted by Jorge Cabrera dated December 10<sup>th</sup>, 2018 (Appendix B1) shows the previous site layout, and the topographical survey conducted on May 9<sup>th</sup>, 2024 (Appendix B2) shows the existing grades (after the demolition of the existing car wash and gas station facility).

A soil report from NRCS of existing soil data is provided in Appendix C. Geotechnical testing determined an average hydraulic conductivity (K-value) of  $1.13 \times 10^{-4}$  cfs/ft<sup>2</sup>-ft Head.

The project site is located within Broward Water Control District (WCD #3) special drainage district (Appendix D) and the C-14 East canal basin (per Appendix E).

The current conditions Broward County maps estimate the groundwater elevation at 7.0-ft NAVD88 (Appendix F). Future conditions maps for 2060 and 2070 from Broward County set the design water table elevation at 6.5-ft NAVD88 (Appendices G and H). However, the water table elevation to be used for site design was determined to be 7.50-ft NAVD88 per the Broward County Surface Water Management (BCSWM) WCD #3 department staff.

The site is located in Community Panel Number 12011C0170H of the Flood Insurance Rate Map (FIRM), revised July 18<sup>th</sup>, 2024. According to the National Flood Insurance Program, part of the project area is located within Zone AH with a base flood elevation (BFE) of 13-ft (see Appendix I).

## OBJECTIVE

The objective of this design is to provide a stormwater management system which will provide adequate flood protection for the proposed project and meet the environmental and regulatory requirements set forth by the federal, state, county, and local governmental agencies. These agencies include: The City of Pompano Beach, Broward County Environmental Protection Growth Management Department (BCEPGMD), and South Florida Water Management District (SFWMD).

This drainage report will be utilized to assess the existing conditions and assist in the selection of the most practical and efficient design for a stormwater management system.

The proposed stormwater management system modifications were developed following the standard methods set forth by Broward County Environmental Protection and Growth Management Department, SFWMD, and the City of Pompano Beach. The design criteria are as follows:

#### ***Water Quality Criteria – Treatment Required***

SFWMD water quality criteria requires that a volume equal to the greater of:

- The first inch of stormwater runoff from the entire site, or
- The amount of 2.5 inches times the percentage of impervious area,

to be treated on site. The required water quality will be met in the proposed exfiltration trench.

For sites within areas of Water Not Attaining Standards (WNAS), an additional 50% of water quality volume is required. As shown in Appendix J, the subject area is not in a WNAS region and therefore this extra volume is not required.

Table 1: Water Quality Required Volume Calculation

<b><i>Requirement</i></b>	<b><i>Calculation</i></b>
1" Over Entire Site	1" x 1ft/12" x 1.11-ac = 0.093 ac-ft
2.5" Over Impervious Area	2.5" x 1ft/12" x 0.63-ac = 0.147 ac-ft

The two and a half inches (2.5") times the percent impervious for the developed site governs. The proposed design will need to provide a minimum of 0.147 ac-ft of water treatment volume.

#### ***Water Quantity Criteria – Design Storm Events***

##### **5-Year, 1-Day Design Storm Event**

The post-development runoff from a storm event with duration of 1-day and a 5-year return frequency should be completely retained by the proposed stormwater management system and not stage above the proposed minimum inlet elevation.

##### **25-Year, 3-Day Design Storm Event**

The post-development runoff from a storm event with duration of 3-days and a 25-year return frequency should be completely retained within the property's limits. For projects where the post-maximum stage is lower than the pre-maximum stage, no perimeter berm shall be required for the property. For projects where the post-maximum stage is higher than the pre-maximum stage, a perimeter berm shall be required at or higher than the 25- Year, 3-Day storm event.

##### **100-Year, 3-Day Design Storm Event**

The building finished floor elevation must be set at or above the peak stage of a storm event with duration of 3-day and 100-year return frequency.

Table 2: SFWMD Rainfall Return by Design Storm Event (Appendix K)

<b><i>Design Storm Event</i></b>	<b><i>Rainfall Depth (inches)</i></b>
5-Year, 1-Day	7
25-Year, 3-Day	16
100-Year, 3-Day	20

The Florida Building Code, Building, 5<sup>th</sup> Edition (2014) section 1612.4 Design and construction requires – “The design and construction of building and structures in *flood hazard* areas, including coastal high hazard areas, shall be in accordance with Chapter 5 of ASCE 7 and with ASCE 24.” In accordance with ASCE 24-14 Table 1-1 Flood Design Class of Buildings and Structures, the proposed project is designated with a Flood Design Class of 2. The required minimum elevation of the lowest floor (Zone A: ASCE 24-14 Table 2-1) is required to be the BFE +1 foot or the Design Flood Elevation (DFE), whichever is higher.

The design finished floor elevation (FFE) shall be the greatest of the following criteria:

- Base Flood Elevation (as determined by FEMA) + 1-ft: 13-ft + 1-ft = 14-ft NAVD88
- Broward County’s 100 Year Flood Elevation Map (Appendix L): 13.5-ft NAVD88
- 100-Year 3-Day Design Storm Staging: 13.96-ft NAVD88 (without discharge)

The greatest of these criteria is 100-Year 3-Day design storm staging at 13.96-ft NAVD88 which shall govern the FFE for the proposed buildings.

## PROPOSED STORMWATER MANAGEMENT SYSTEM

The proposed stormwater improvements will have the capability to manage the stormwater runoff by directing stormwater into a series of catch basins with 417 LF of 8’ wide exfiltration trench providing 0.304 ac-ft of volume, a 58 LF x 20 LF storage trench providing 0.051 ac-ft of volume and an underground stormwater vault system providing an additional 0.570 ac-ft of volume. The provided exfiltration trench also contains sufficient water quality volume.

Water quantity requirements are met by the proposed design as shown in the following table:

Table 3: Summary of Existing and Proposed Staging

<i>Storm Event</i>	<i>Existing Stage (ft)</i>	<i>Proposed Stage (ft)</i>	<i>Design Criteria</i>
5-Year, 1-Day	12.90	9.13	Min. Parking Elev. (12.60’)
25-Year, 3-Day	13.83	13.62	Min. Berm Elev. (13.62’)
100-Year, 3-Day	14.17	14.03	Min. Finished Floor Elev. (13.96’)

For full TR-55 calculations, please refer to Appendices M.

Proposed drainage structures shall be installed in accordance with the attached Construction Drawings prepared by Kimley-Horn and Associates, Inc. All underground piping, catch basins, concrete and asphalt pavement shall be designed and constructed to conform to the Broward County and City of Pompano Beach design standards.

## CONCLUSION AND RECOMMENDATIONS

The stormwater system will satisfy the Broward County, City of Pompano Beach, and SFWMD criteria for the required design storm events, finished floor elevation, and water treatment requirements.

**REFERENCES**

South Florida Water Management District. 2023. Environmental Resource Permit Applicant's Handbook  
Volume II. West Palm Beach, Florida

State of Florida Department of Transportation 2023. Drainage Design Guide.  
Office of Design, Drainage Section, Tallahassee, Florida.

State of Florida Department of Transportation. 2023. FDOT Design Manual. Roadway Design Office.  
Tallahassee, Florida.

**DRC**

PZ25- 12000013  
12/03/2025

# APPENDIX A

## PROJECT LOCATION MAP

Plotted By: Bojerski, Jared Sheet Set: KHA Layout: AERIAL MAP June 02, 2025 09:25:02am K:\FTL\_Civil\143 Jobs\2690 West Sample Road Civil Eng\Design\Drainage Report\Appendix A - Location Map.dwg  
This document, together with the concepts and designs presented herein, is intended only for the specific purpose and client for which it was prepared. Reuse of and improper reliance on this document without written authorization and adaptation by Kimley-Horn and Associates, Inc. shall be without liability to Kimley-Horn and Associates, Inc.

**DRC**

PZ25-12000013  
12/03/2025



SCALE: AS SHOWN
DESIGNED BY JB
DRAWN BY JB
CHECKED BY GB

**Kimley»Horn**  
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PROJECT NO.  
143360001

2690 WEST SAMPLE ROAD  
CITY OF POMPANO BEACH  
PROJECT LOCATION MAP



SHEET NUMBER  
**EXHIBIT A**

APPENDIX B

B1: ALTA SURVEY  
(DECEMBER 10<sup>TH</sup>, 2018)

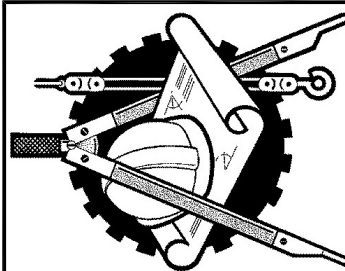
AND

B2: TOPOGRAPHICAL SURVEY  
(MAY 9<sup>TH</sup>, 2024)

GRAPHIC SCALE



( IN FEET )  
1 inch = 20 ft.



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[illegible]

Prepared for:

Festival Centre, LLC

CHECKED BY: JLC.	
DRAWN BY: ELF.	
FIELD DATE: 12/06/2018	
DATE: 12/10/2018	
SCALE: 1" = 20'	
JOB No. 18-4716	

SHEET

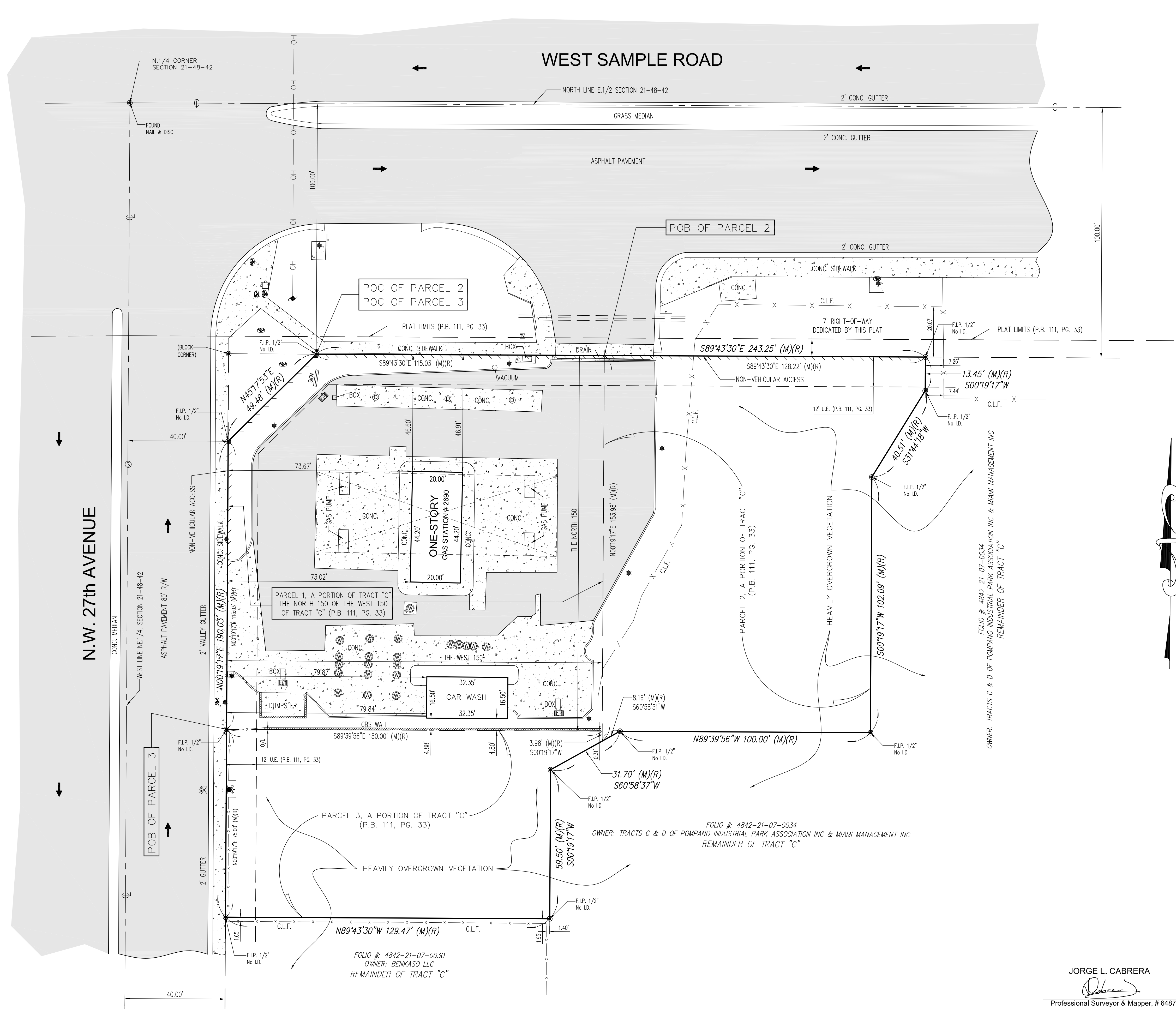
2 OF 2

### LEGEND

C) = Calculated  
CL = Clear  
CL = Center Line  
CONC. = Concrete  
CBS. = Concrete Block Stucco  
Δ = Delta  
ENC. = Encroachment  
F.F.E.L. = Finish Floor Elevation  
F.I.P. = Found Iron Pipe  
F.I.R. = Found Iron Rod  
F.N. = Found Nail  
F.N.&D. = Found Nail & Disc  
F.D.H. = Found Drill Hole  
I.D. = Identification  
L = Length  
ML = Monument Line  
(M) = Measured  
O/L = On Line  
PL = Property Line  
(P) = Plat  
P.C. = Point of Curvature  
P.B. = Plat Book  
P.C. = Page  
P.O.B. = Point of Beginning  
P.O.C. = Point of Commence  
R = Radius  
(R) = Record  
R/W = Right of Way  
U/E = Utility Easement

## SYMBOLS

	CABLE TV
	CATCH BASIN
	WATER METER
	CONCRETE POLE
	WOOD POLE
	LIGHT POLE
	SANITARY MANHOLE
	DRAINAGE MANHOLE
	ELECTRIC BOX
	WATER VALVE
	FIRE HYDRANT
	FLOW TRAFFIC
	PEDESTRIAN SIGNAL
	SIGN
	MONITORING WELL



JORGE L. CABRERA

Professional Surveyor & Mapper, # 6487  
State of Florida

This drawing is the property of Jorge L. Cabrera Professional Surveyor & Mapper Reproductions of this drawing are not valid unless Signed and embossed with the surveyor's seal  
This drawing is the property of Jorge L. Cabrera Professional Surveyor & Mapper Reproductions of this drawing are not valid unless Signed and embossed with the surveyor's seal

DRC

PZ25- 12000013  
12/03/2025

SURVEYOR'S NOTES:  
All distances as shown hereon are based on the US Survey foot.

The property described on this Sketch of ALTA/NSPS Land Title Survey is the same property as described in Exhibit "A" under Commitment Order Number: 7341700, with a Commitment Date of 11/19/2018 at 11:00 PM issued by Chicago Title Insurance Company.

Note: No updated Title Commitment and/or Opinion of Title was provided at the time of this Survey. This Survey No. 24-8007 is a revision and update of the original Survey No. 18-4716. Not all property corners were not recovered at the time of the updated survey work.

There are no visible encroachments on the subject property or upon adjacent land abutting said property.

At the time of survey, The National Flood Insurance Rate Map for Florida, Community Panel No. 120055 (City of Pompano Beach) 12011 C, 0170 H, FIRM Date 08/18/2014 and Revised with an effective date of 08/18/2014, published by the United States Department of Housing and Urban Development, designated by the Federal Emergency Management Agency (FEMA), delineates the herein described property within the following Flood Zones:

- Zone "X" (shaded), areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood;  
- Zone "X", areas determined to be outside the 0.2% annual chance floodplain;  
- Flood Hazard Zone "AH", Base Flood Elevation 13 feet (the Base Flood Elevation "AH" 13' refer to the NAVD, 1988).

All elevations as shown on this survey drawing are referred to the North American Vertical Datum, 1988 (NAVD).

BENCHMARK REFERENCES:

LABINS NGS BENCHMARK  
- BM DESIGNATION - 007  
PID - D02647  
STATE/COUNTY - FL/BROWARD  
COUNTRY - US  
USGS QUAD - WEST DIXIE BEND (2018)  
BM Elevation: 13.35(feet) NAVD (1988) Datum  
MARKER: DB = BENCH MARK DISK  
STAMPING: 007 2011  
TO REACH THE MARK FROM THE INTERSECTION OF WEST ATLANTIC BOULEVARD AND NORTH DIXIE HIGHWAY IN POMPANO BEACH, GO WEST ON WEST ATLANTIC BOULEVARD FOR 1.9 MI (3.1 KM) TO THE INTERSECTION OF POWER LINE ROAD. TURN RIGHT ON NORTH POWER LINE ROAD AND GO NORTHEAST FOR 3.1 MI (5.0 KM) TO A THE MARK ON THE RIGHT. SET IN THE TOP OF A 10-INCH (25 CM) ROUND CONCRETE MONUMENT RECESSED 0.2 FT (6 CM) BELOW THE LEVEL OF THE GROUND AND LEVEL WITH NORTH POWER LINE ROAD.

LABINS NGS BENCHMARK  
- BM DESIGNATION - 008  
PID - D02647  
STATE/COUNTY - FL/BROWARD  
COUNTRY - US  
USGS QUAD - WEST DIXIE BEND (2018)  
BM Elevation: 13.27(feet) NAVD (1988) Datum  
MARKER: DB = BENCH MARK DISK  
STAMPING: 008 2011  
THE MARK IS ABOUT 6.6 MI (10.6 KM) SOUTH-SOUTHWEST OF BOCA RATON, 4.97/5.9 KM SOUTHEAST OF WEST DIXIE BEND, 2.7 MI (4.3 KM) NORTH-NORTHWEST OF POMPANO BEACH, IN SECTION 15, TOWNSHIP 48 SOUTH, RANGE 42 EAST. OWNERSHIP IS THE FLORIDA DEPARTMENT OF TRANSPORTATION. TO REACH THE MARK FROM THE INTERSECTION OF WEST ATLANTIC BOULEVARD AND NORTH DIXIE HIGHWAY IN POMPANO BEACH, GO NORTH ON NORTH DIXIE HIGHWAY FOR 3.1 MI (5.0 KM) TO THE INTERSECTION OF SAMPLE ROAD. TURN LEFT ON WEST SAMPLE ROAD AND GO WEST FOR 1.45 MI (2.3 KM) TO THE MARK ON THE RIGHT. SET IN THE TOP OF A 10-INCH (25 CM) ROUND CONCRETE MONUMENT RECESSED 0.2 FT (6 CM) BELOW THE LEVEL OF THE GROUND AND 1.0 FT (0.3 M) ABOVE THE LEVEL OF WEST SAMPLE ROAD.

Some elevations as shown hereon were obtained by using RTK - GPS measurements and are subject to variations due equipment vertical displacement.

Delineation between Flood Zone lines were determine by the scale factor only and are noted and plotted within this survey drawing. These lines are the result of an approximation extracted from FEMA maps and are not depicted on any exact location with reference tied points or geometry. In the event of a design, obtaining a FEMA Elevation Certificate for

Flood Insurance, construction purposes or exact location where the dividing flood zone line is, insurance agents, architect or engineer should seek additional information or permission directly from FEMA agents for clarification.

Bearings are based/referred to an assumed meridian where the centerline of West Sample Road bears N 89° 41' 47" E, as shown on Plat Book 111, Page 33, Public Records of Broward County, Florida.

The total area of the surveyed parcels combined as described herein contains 48,531.95 square feet or (1.11) acres more or less.

In some instances graphic representations have been exaggerated to more clearly illustrate the relationship between physical improvements and/or lot lines. In all cases dimensions shall control the location of the improvements over scaled positions.

The dimensions and directions shown hereon are in substantial agreement with the legal description and calculated values unless otherwise noted.

Survey done by occupation, physical evidence, the recovery of existing property corners, field measurements, calculations, adjacent plats and legal description provided to the surveyor and also from the Broward County Public Records/ Property Appraiser Office and no claims as to ownership are made or implied.

Obstructed property corners are witnessed by improvements.

There is no visible evidence of any kind of any earth moving or building construction within recent months.  
Nor is there any observable evidence of the site being used as a solid waste dump, sump or sanitary landfill.

There is no observable evidence of recent street or sidewalk construction and or repairs within the Public Right of Way.

There are no additional changes in street right of way lines completed or proposed which have been made known to the Surveyor and are disclosed on the survey drawing.

Property is subject to restrictions, conditions, limitations, easements, and reservations of record and existing zoning ordinances.

Adjacent properties were not investigated at the time of this Survey.

Any fencing, walls, entrance features and landscaping could be subject to a "Safe Sight Distance Triangle" rule.

Call 811 or visit [www.sunshine811.com](http://www.sunshine811.com) before digging.

There may be restrictions not shown on this survey that may affect the future development of this property. Such restrictions could be found in the Public Records or Building and Zoning Department of Broward County, Florida and the City of Pompano Beach.

Only the easements provided to the surveyor and those shown on the recorded plat are noted or plotted hereon. This office has not performed any title search or any search within the Public or Private Records for easements.

Lands depicted hereon were surveyed per legal description provided by client and no claims as to ownership are made or implied.

Legal description subject to any dedications, limitations, reservations or easements of records; search of the Public Records not performed by this office. Code Restrictions not reflected on this survey.

Any notorious evidence of occupation and/or use of the described parcel for Right-of-Way, Ingress or Egress are shown on this survey drawing. However, this survey does not purport to reflect any recorded instruments for Right-of-Way other than shown on the recorded plat or stated in the legal description, as it appears on this drawing.

Only the visible above ground surface indications of the underground utilities have been located. There may be other underground utilities in addition to those evidenced by visible apertures as shown on this sketch. Underground utility references (if any) is based on limited information provided by the utility company or construction as-builts provided to the surveyor. Owner of his agent should verify all utility locations with the appropriate utility provider before using.

The scope of this survey is to define the boundary lines as defined by the deed and referenced plats, and show all above ground improvements.

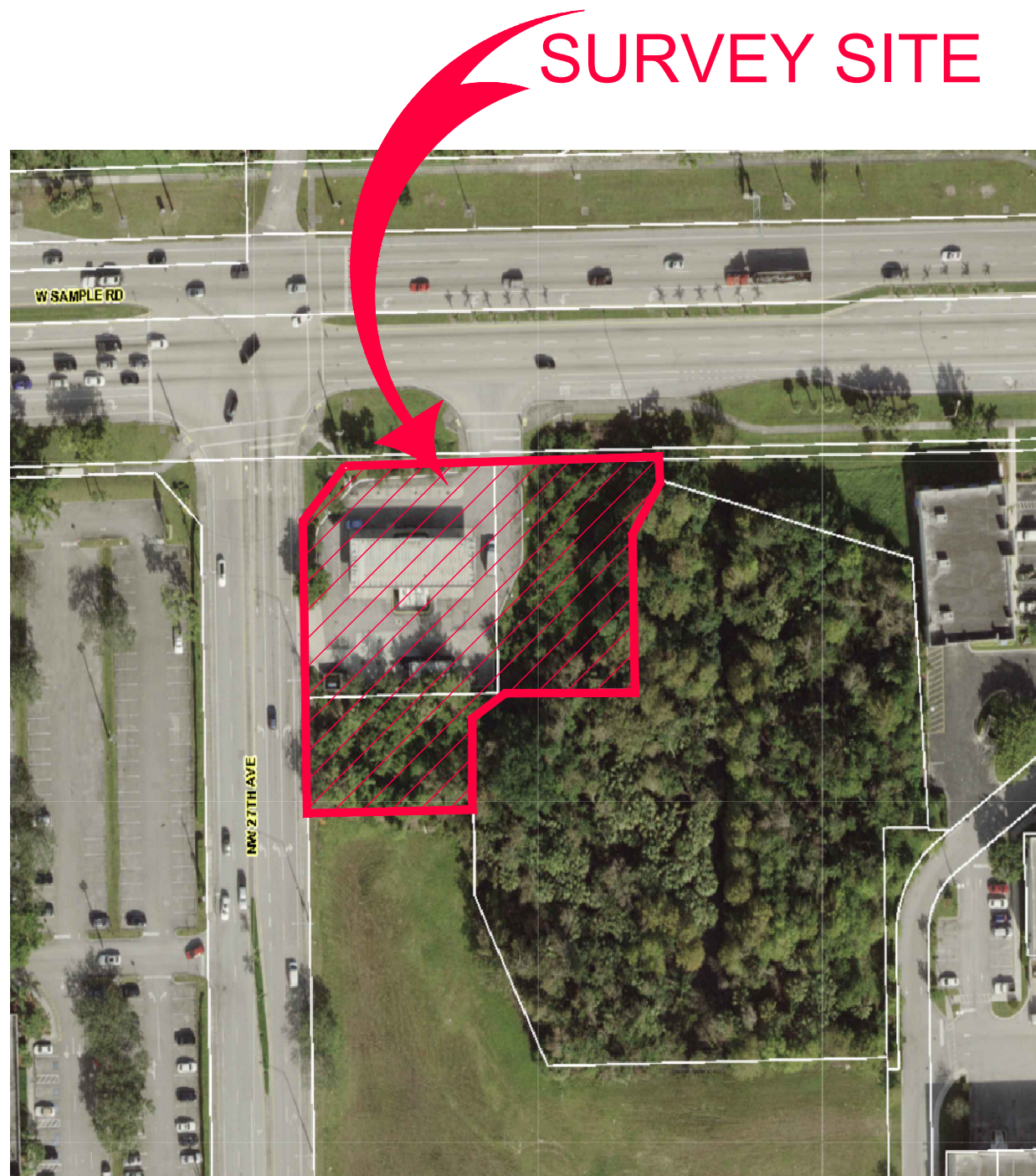
No encroachments were noted by this survey.

There are no party walls.

No underground footings were located and no subsurface investigation was performed at the time of survey.

The legal ownership of the fences and walls (if any) as shown hereon was not determined, and the locations as shown are based on the recovered boundary monumentation and calculations.

# SKETCH OF BOUNDARY SURVEY TOPOGRAPHIC SURVEY



## LOCATION MAP NOT TO SCALE

This survey is intended for the use of the parties to whom this survey is certified to and for. Any reproduction is not an original. This surveyor retains an original to verify these dated contents for validity.

This survey was conducted for the purpose of a "Boundary Survey" only and is not intended to delineate the regulatory jurisdiction of any federal, state, regional or local agency, board, commission or other entity. This survey does not reflect or determine ownership.

The accuracy obtained for all horizontal control measurements and office calculations of closed geometric figures, meets or exceeds the Minimum Technical Standards as set forth by the Florida Board of Professional Surveyors and Mappers as contained in Chapter 5J-17.05(3)(b)15.b.ii of 1 foot in 10,000 feet for Commercial / High Risk Areas.

This sketch shown hereon in its graphic form is the record depiction of the surveyed lands described herein and will in no circumstances be supplanted in authority by any other graphic or digital format. Each individual page indicates the scale that applies to that specific page. This survey consist of 3 pages. One page not valid without the others.

Surveyor did not perform the Tree Survey or the location of the trees. Smart-Sciences, Environmental Consulting provided a report with the approximate location of the existing trees and wetlands within this site. The location of the Trees and Wetlands as noted and shown within this survey drawing were determined by using the scale factor only based on the report provided.

The Tree Table Inventory, the Wetlands area and the location of the trees as shown hereon was prepared by Jimmy Lange, Senior Scientist from Smart-Sciences, Environmental Consulting under Smart-Science Project No. 361-001 issued March 28th, 2024. See information below:

Jimmy Lange  
Senior Scientist  
ISA FL-955A  
Smart-Sciences, Environmental Consulting  
330 SW 27<sup>th</sup> Avenue, Suite 504  
Miami, Florida 33135  
O: 786-313.3977 | C: 954.254.1020 | F: 305.356.4333  
[jlange@smart-sciences.com](mailto:jlange@smart-sciences.com)  
[www.smart-sciences.com](http://www.smart-sciences.com)  
Florida CBE | FDOT DBE | Miami-Dade SBE | Federal WOSB | SFWMD SBE

The easements, encumbrances and restrictions evidenced by Recorded Documents and/or other title exceptions provided to the Surveyor and noted in Schedule B, Section II of the Chicago Title Insurance Company, Commitment Order Number: 7341700, with a Commitment Date of 11/19/2018 at 11:00 PM, are a matter of survey and have been plotted hereon or noted below.

Item 1) Not a Survey matter, not noted or plotted hereon.

Item 2) Not a Survey matter, not noted or plotted hereon.

Item 3.a) See Sketch of ALTA/ACSM Land Title Survey. No encroachments were noted by this survey.

Item 3.b) Not a Survey matter, not noted or plotted hereon.

Item 3.c) Not a Survey matter, not noted or plotted hereon.

Item 3.d) Not a Survey matter, not noted or plotted hereon.

Item 4) Not a Survey matter, not noted or plotted hereon.

Item 5) Property is subject to the restrictions, covenants, conditions, easements and other matters as contained on the Plat of Pompano Industrial Park Third Addition, recorded in Plat Book 111, Page 33; as affected by Ordinance No. 85-11 recorded December 10, 1984 in Official Records Book 12186, Page 68; Ordinance No. 86-36 recorded January 29 1986 in Official Records Book 13144, Page 580; by Resolution No. 85-1993 recorded in Official Records Book 12054, Page 341; by Resolution No. 21-V-86 recorded September 25, 1986 in Official Records Book 13760, Page 404; by Ordinance No. 89-56 recorded May 23, 1989 in Official Records Book 16457, Page 47; by Resolution recorded April 7, 1997 in Official Records Book 26252, Page 251 and by Agreement to Place a Notation on Plat, recorded October 11, 2000 in Official Records Book 30925, Page 1266, of the Public Records of Broward County, Florida.  
All easements noted on the Plat and the Non-Vehicular access line are noted and plotted on this survey drawing.  
Plat also contains blanket conditions affecting the subject property.

Item 6) Subject property lies within the lands as described in the Declaration of Covenants, Conditions and Restrictions and Reservation of Easements, recorded July 1, 1981 in Official Records Book 9669, Page 892; as amended by instrument recorded January 18, 1985 in Official Records Book 12269, Page 623. These are blanket documents affecting the subject property and contains no plottable matters.

Item 7) Not a Survey matter, not noted or plotted hereon.

Item 8) Not a Survey matter, not noted or plotted hereon.

Item 9) Not a Survey matter, not noted or plotted hereon.

Item 10) Not a Survey matter, not noted or plotted hereon.

Item 11) Not a Survey matter, not noted or plotted hereon.

Item 12) Subject property lies outside the lands as described in the Resolution No. 86-67 of the City o Pompano Beach accepting a Declaration of Limited Access Line Easement recorded January 29, 1986 in Official Records Book 13144, Page 604; as deeded to Broward County by Quit Claim Deed recorded September 11, 1986 in Official Records Book 13721, Page 594. Not plotted hereon.

Item 13) Not a Survey matter, not noted or plotted hereon.

Item 14) Not a Survey matter, not noted or plotted hereon.

Item 15) Not a Survey matter, not noted or plotted hereon.

Item 16) Not a Survey matter, not noted or plotted hereon.

Note: No updated Title Commitment and/or Opinion of Title was provided at the time of this Survey.  
This Survey No. 24-8007 is a revision and update of the original Survey No. 18-4716.

All recording references noted hereon are referring to the Broward County Public Records, unless otherwise noted.

REFERENCE PROPERTY ADDRESS / Broward County Public Records/Property Appraiser Office  
2690 West Sample Road  
Pompano Beach, FL 33069

REFERENCE FOLIO NUMBER(S) / Broward County Public Records/Property Appraiser Office  
4842 21 07 0031 for Parcel 1  
4842 21 07 0032 for Parcel 2  
4842 21 07 0033 for Parcel 3

LEGAL DESCRIPTION:  
PARCEL 1:

The North 150 feet of the West 150 feet of Tract C of POMPANO INDUSTRIAL PARK THIRD ADDITION, according to the Plat thereof as recorded in Plat Book 111, Page 33, of the Public Records of Broward County, Florida.

PARCEL 2:  
A Parcel of land being a portion of Tract C POMPANO INDUSTRIAL PARK THIRD ADDITION, according to the Plat thereof as recorded in Plat Book 111, Page 33, of the Public Records of Broward County, Florida, said parcel being more particularly described as follows:

Commencing at the Northerly most Northwest corner of said Tract C,  
thence with a bearing of S 89°43'30" E, along the Southerly right-of-way line of Sample Road for a distance of 115.03 feet to the Point of Beginning;  
thence continue with bearing of S 89°43'30" E, along the Southerly right-of-way line of Sample Road for a distance of 128.22 feet to a point;  
thence with a bearing of S 00°19'17" W, for a distance of 13.45 feet to a point;  
thence with a bearing of S 31°44'16" W, for a distance of 40.51 feet to a point;  
thence with a bearing of S 00°19'17" W, for a distance of 102.09 feet to a point;  
thence with a bearing of N 89°39'56" W, for a distance of 100.00 feet to a point;  
thence with a bearing of S 60°58'51" W, for a distance of 8.16 feet to a point;  
thence with a bearing of N 00°19'17" E, for a distance of 153.98 feet, more or less, to the Point of Beginning.  
Said last course being contiguous with the Easterly boundary of the following described parcel of land,  
The North 150 feet of the West 150 feet of Tract C of POMPANO INDUSTRIAL PARK THIRD ADDITION, according to the Plat thereof as recorded in Plat Book 111, Page 33, of the Public Records of Broward County, Florida.

PARCEL 3:  
A Parcel of land being a portion of Tract C POMPANO INDUSTRIAL PARK THIRD ADDITION, according to the plat thereof as recorded in Plat Book 111, Page 33, of the Public Records of Broward County, Florida, said parcel being more particularly described as follows:

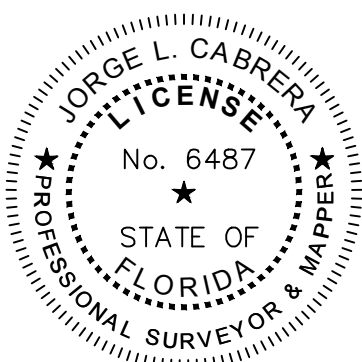
Commencing at the Northerly most Northwest corner of said Tract C;  
thence with a bearing of S 45°17'53" W, for a distance of 49.48 feet to a point;  
thence with a bearing of S 00°19'17" W, for a distance of 115.03 feet to the Point of Beginning;  
thence with a bearing of S 89°43'30" E, for a distance of 150.00 feet to a point, this course being contiguous with the Southerly boundary of the following described parcel:

The North 150 feet of the West 150 feet of Tract C of POMPANO INDUSTRIAL PARK THIRD ADDITION, according to the Plat thereof as recorded in Plat Book 111, Page 33, of the Public Records of Broward County, Florida.  
thence with a bearing of S 00°19'17" W, a distance of 3.98 feet to a point;  
thence with a bearing of S 60°58'51" W, for a distance of 23.55 feet to a point;  
thence with a bearing of S 00°19'17" W, for a distance of 59.50 feet to a point;  
thence with a bearing of N 89°43'30" W, for a distance of 129.47 feet to a point on the Easterly right-of-way line of NW 27th Avenue;  
thence with a bearing of N 00°19'17" E, along said Easterly right-of-way line of NW 27th Avenue for a distance of 75 .00 feet, more or less, to the Point of Beginning.

JORGE L. CABRERA

No. 6487  
STATE OF FLORIDA  
PROFESSIONAL SURVEYOR & MAPPER

Professional Surveyor & Mapper, # 6487



Prepared for:

Festival Centre, LLC

CHECKED BY: JLC.

DRAWN BY: JF / ELF

FIELD DATE: 04/30/2024

DATE: 05/09/2024

SCALE: AS SHOWN

JOB No. 24-8007

SHEET:

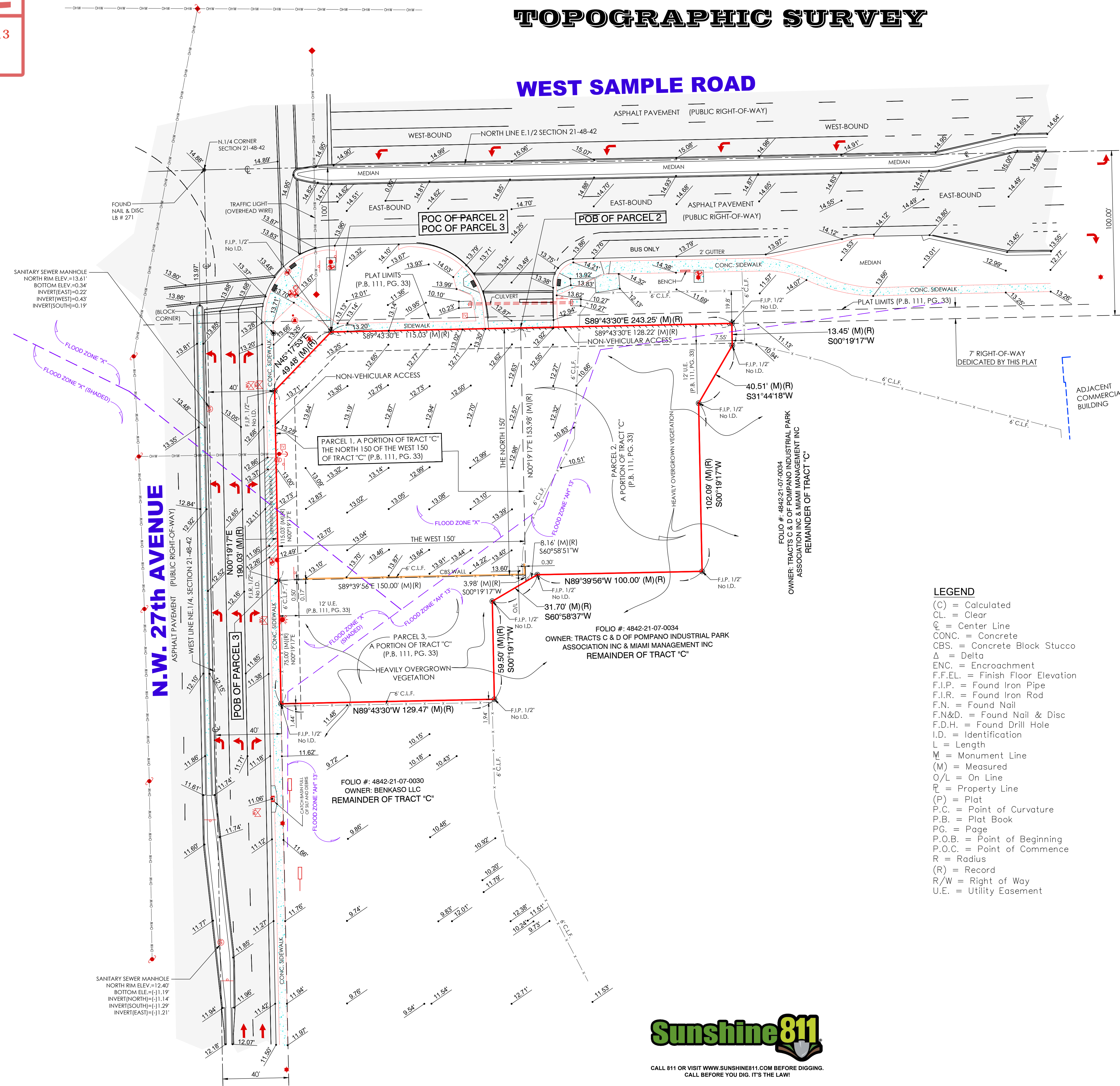
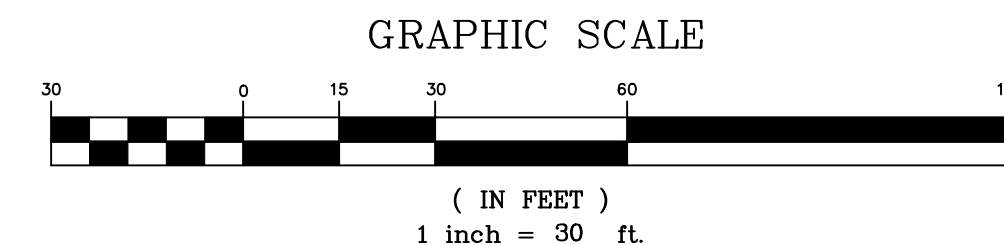
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## WEST SAMPLE ROAD



## SYMBOLS

### LEGEND

(C) = Calculated  
 CL = Clear  
 CL = Center Line  
 CONC. = Concrete  
 CBS. = Concrete Block Stucco  
 Δ = Delta  
 ENC. = Encroachment  
 F.F.EL. = Finish Floor Elevation  
 F.I.P. = Found Iron Pipe  
 F.I.R. = Found Iron Rod  
 F.N. = Found Nail  
 F.N.&D. = Found Nail & Disc  
 F.D.H. = Found Drill Hole  
 I.D. = Identification  
 L = Length  
 M = Monument Line  
 (M) = Measured  
 O/L = On Line  
 P = Property Line  
 (P) = Plat  
 P.C. = Point of Curvature  
 P.B. = Plat Book  
 PG. = Page  
 P.O.B. = Point of Beginning  
 P.O.C. = Point of Commence  
 R = Radius  
 (R) = Record  
 R/W = Right of Way  
 U.E. = Utility Easement

- |   |                           |
|---|---------------------------|
|  | CABLE TV                  |
|  | CATCH BASIN               |
|  | WATER METER               |
|  | CONCRETE POLE             |
|  | WOOD POLE                 |
|  | LIGHT POLE                |
|  | SANITARY MANHOLE          |
|  | DRAINAGE MANHOLE          |
|  | ELECTRIC BOX              |
|  | WATER VALVE               |
|  | FIRE HYDRANT              |
|  | FLOW TRAFFIC              |
|  | PEDESTRIAN SIGNAL         |
|  | SIGN                      |
|  | GAS WARNING               |
|  | PEDESTRIAN SIGNAL         |
|  | ANCHOR                    |
|  | EXISTING ELEVATION        |
|  | PALM                      |
|  | TREE                      |
|  | CHAIN LINK FENCE (C.L.F.) |
|  | CBS. WALL                 |

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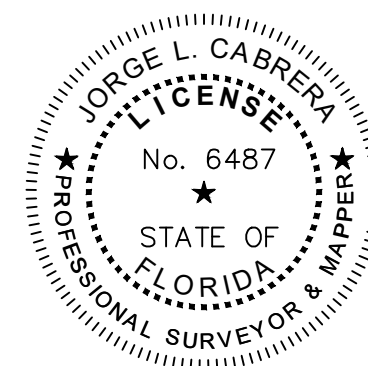
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FIELD DATE:	04/30/2024
DATE:	05/09/2024
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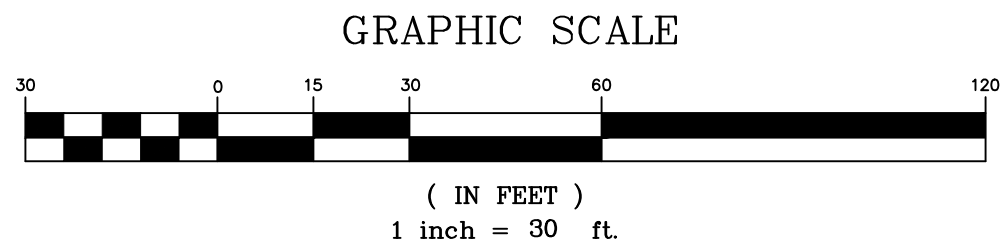
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# SKETCH OF BOUNDARY SURVEY TOPOGRAPHIC SURVEY

WEST SAMPLE ROAD

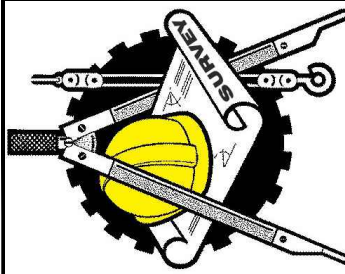


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R = Radius  
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## SYMBOLS

CABLE TV  
 CATCH BASIN  
 WATER METER  
 CONCRETE POLE  
 WOOD POLE  
 LIGHT POLE  
 SANITARY MANHOLE  
 DRAINAGE MANHOLE  
 ELECTRIC BOX  
 WATER VALVE  
 FIRE HYDRANT  
 FLOW TRAFFIC  
 PEDESTRIAN SIGNAL  
 SIGN  
 GAS WARNING  
 PEDESTRIAN SIGNAL  
 ANCHOR  
 EXISTING ELEVATION  
 PALM  
 TREE  
 CHAIN LINK FENCE (C.L.F.)  
 CBS. WALL



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No.	Date	Description

No.	Date	Description

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DRAWN BY: JF / ELF
FIELD DATE: 04/30/2024
DATE: 05/09/2024
SCALE: 1" = 30'
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SHEET:  
**3** OF 3



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TREE TABLE									
Tree Inventory									
Tree #	Botanical Name	Common Name	DBH. (in)	Canopy Spread (ft)	Height	Condition	Disposition	Tree Type	Note
1672	Leucaena leucocephala	Leadtree	7.5	12	20	Good	TBD	Exempt	
1673	Leucaena leucocephala	Leadtree	6.5	14	20	Good	TBD	Exempt	
1674	Bursera simaruba	Gumbo Limbo	6.3	15	24	Good	TBD	Non-Specimen	
1675	Bursera simaruba	Gumbo Limbo	5.4	10	20	Good	TBD	Non-Specimen	
1676	Casuarina equisetifolia	Australian pine	19	25	50	Good	TBD	Exempt	
1677	Acacia auriculiformis	Earleaf acacia	13	40	28	Good	TBD	Exempt	
1678	Yucca elephantipes	Spineless Yucca	4	6	12	Good	TBD	Non-Specimen	
1679	Yucca elephantipes	Spineless Yucca	4	10	17	Good	TBD	Non-Specimen	
1680	Cocos nucifera	Coconut Palm	10.7	16	12	Good	TBD	Non-Specimen	
1681	Sabal palmetto	Cabbage palm	10	14	6	Good	TBD	Non-Specimen	
1682	Quercus virginiana	Live oak	4.3	14	18	Good	TBD	Non-Specimen	
1683	Quercus virginiana	Live oak	7.7	11	35	Good	TBD	Non-Specimen	
1684	Sabal palmetto	Cabbage palm	14	15	20	Good	TBD	Non-Specimen	
1685	Caryota mitis	Burmese Fishtail Palm	4.5	19	8	Good	TBD	Non-Specimen	10 stems; 4.5 is largest DBH. Mostly smaller.
1686	Syzygium cumini	Java plum	13.5	42	50	Good	TBD	Exempt	
1687	Ficus aurea	Strangler Fig	29.9	24	50	Good	TBD	Specimen	Partially growing on 1687, being shaded somewhat. Good health and form.
1688	Quercus virginiana	Live oak	14.8	13	30	Good	TBD	Non-Specimen	
1689	Acer rubrum	Red Maple	8.5	13	42	Good	TBD	Non-Specimen	
1690	Acer rubrum	Red Maple	6.2	11	30	Good	TBD	Non-Specimen	
1691	Sabal palmetto	Cabbage palm	11	11	6	Good	TBD	Non-Specimen	
1692	Sabal palmetto	Cabbage palm	16	15	16	Good	TBD	Non-Specimen	
1693	Pythosperma elegans	Solitaire palm	3.2	8	14	Good	TBD	Non-Specimen	
1694	Sabal palmetto	Cabbage palm	14	14	15	Good	TBD	Non-Specimen	
1695	Leucaena leucocephala	Leadtree	6	12	0	Good	TBD	Exempt	
1697	Leucaena leucocephala	Leadtree	8	15	0	Good	TBD	Exempt	
1698	Terminalia buceras	Black olive	12.5	18	35	Good	TBD	Non-Specimen	
1699	Leucaena leucocephala	Leadtree	7	15	0	Good	TBD	Exempt	
1700	Leucaena leucocephala	Leadtree	6	15	0	Good	TBD	Exempt	
1701	Ficus aurea	Strangler Fig	3.9	8	18	Fair	TBD	Non-Specimen	
1702	Sabal palmetto	Cabbage palm	14	18	18	Good	TBD	Non-Specimen	
1703	Quercus virginiana	Live oak	5.4	14	15	Good	TBD	Non-Specimen	
1704	Cupressus arborescens	Carobwood	4	12	20	Good	TBD	Non-Specimen	
1705	Sabal palmetto	Cabbage palm	12	16	12	Good	TBD	Non-Specimen	
1706	Quercus virginiana	Live oak	9.1	15	20	Good	TBD	Non-Specimen	
1707	Quercus virginiana	Live oak	12.8	16	28	Good	TBD	Non-Specimen	
1708-10	Sabal palmetto	Cabbage palm	12	24	14	Good	TBD	Non-Specimen	Three trees, combined canopy. Additional stems: 6.1, 9.1, 10, 6.0. Extensive trunk rot, conks, extensive dieback in canopy, canopy sparse, smothered by Syzygium.
1711	Acer rubrum	Red Maple	16.8	20	38	Poor	TBD	Non-Specimen	
1712	Acacia auriculiformis	Earleaf acacia	17.6	40	30	Good	TBD	Exempt	
1713	Quercus virginiana	Live oak	7.7	18	22	Good	TBD	Non-Specimen	
1714	Leucaena leucocephala	Leadtree	5	16	18	Good	TBD	Exempt	
1715	Quercus virginiana	Live oak	5.8	11	15	Good	TBD	Non-Specimen	
1716	Sabal palmetto	Cabbage palm	18	14	15	Good	TBD	Non-Specimen	
1717	Terminalia buceras	Black olive	17.2	35	40	Good	TBD	Non-Specimen	Measured above DBH due to bulge.
1718	Sabal palmetto	Cabbage palm	14	14	18	Good	TBD	Non-Specimen	
1719	Bursera simaruba	Gumbo Limbo	5.5	14	24	Good	TBD	Non-Specimen	
1720	Bursera simaruba	Gumbo Limbo	8.5	16	25	Good	TBD	Non-Specimen	
1721	Quercus virginiana	Live oak	9	15	15	Good	TBD	Non-Specimen	
1722	Sabal palmetto	Cabbage palm	15	14	15	Good	TBD	Non-Specimen	
1723	Terminalia buceras	Black olive	4.3	14	23	Good	TBD	Non-Specimen	
1724	Sabal palmetto	Cabbage palm	14	15	7	Good	TBD	Non-Specimen	
1725	Quercus virginiana	Live oak	9.5	17	20	Good	TBD	Non-Specimen	
1726	Terminalia buceras	Black olive	16.8	25	20	Good	TBD	Non-Specimen	
1727	Quercus virginiana	Live oak	6.6	18	18	Good	TBD	Non-Specimen	
1728	Quercus virginiana	Live oak	8.1	20	18	Good	TBD	Non-Specimen	
1729	Quercus virginiana	Live oak	9.5	21	22	Good	TBD	Non-Specimen	
1730	Quercus virginiana	Live oak	9.8	17	20	Good	TBD	Non-Specimen	
1731	Quercus virginiana	Live oak	8.6	14	22	Good	TBD	Non-Specimen	
1732	Quercus virginiana	Live oak	7.4	13	23	Good	TBD	Non-Specimen	
1733	Quercus virginiana	Live oak	10.5	22	24	Good	TBD	Non-Specimen	
1734	Quercus virginiana	Live oak	8.8	17	20	Good	TBD	Non-Specimen	
1735	Quercus virginiana	Live oak	8	18	25	Good	TBD	Non-Specimen	
1736	Quercus virginiana	Live oak	9.2	23	25	Good	TBD	Non-Specimen	
1737	Phoenix roebelenii	Pygmy date palm	4	3	5	Good	TBD	Non-Specimen	
1738	Sabal palmetto	Cabbage palm	11.1	13	15	Good	TBD	Non-Specimen	Off-Site in FDOT ROW
1739	Ficus aurea	Strangler Fig	5	15	20	Good	TBD	Non-Specimen	Off-Site in FDOT ROW
1740	Sabal palmetto	Cabbage palm	11	12	15	Good	TBD	Non-Specimen	Off-Site in FDOT ROW
1741	Sabal palmetto	Cabbage palm	13	8	18	Good	TBD	Non-Specimen	Off-Site in FDOT ROW
1743	Sabal palmetto	Cabbage palm	10	13	11	Good	TBD	Non-Specimen	Off-Site in FDOT ROW

JORGE L. CABRERA

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PROFESSIONAL SURVEYOR & MAPPER

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# APPENDIX C

## NRCS SOIL RESOURCE REPORT



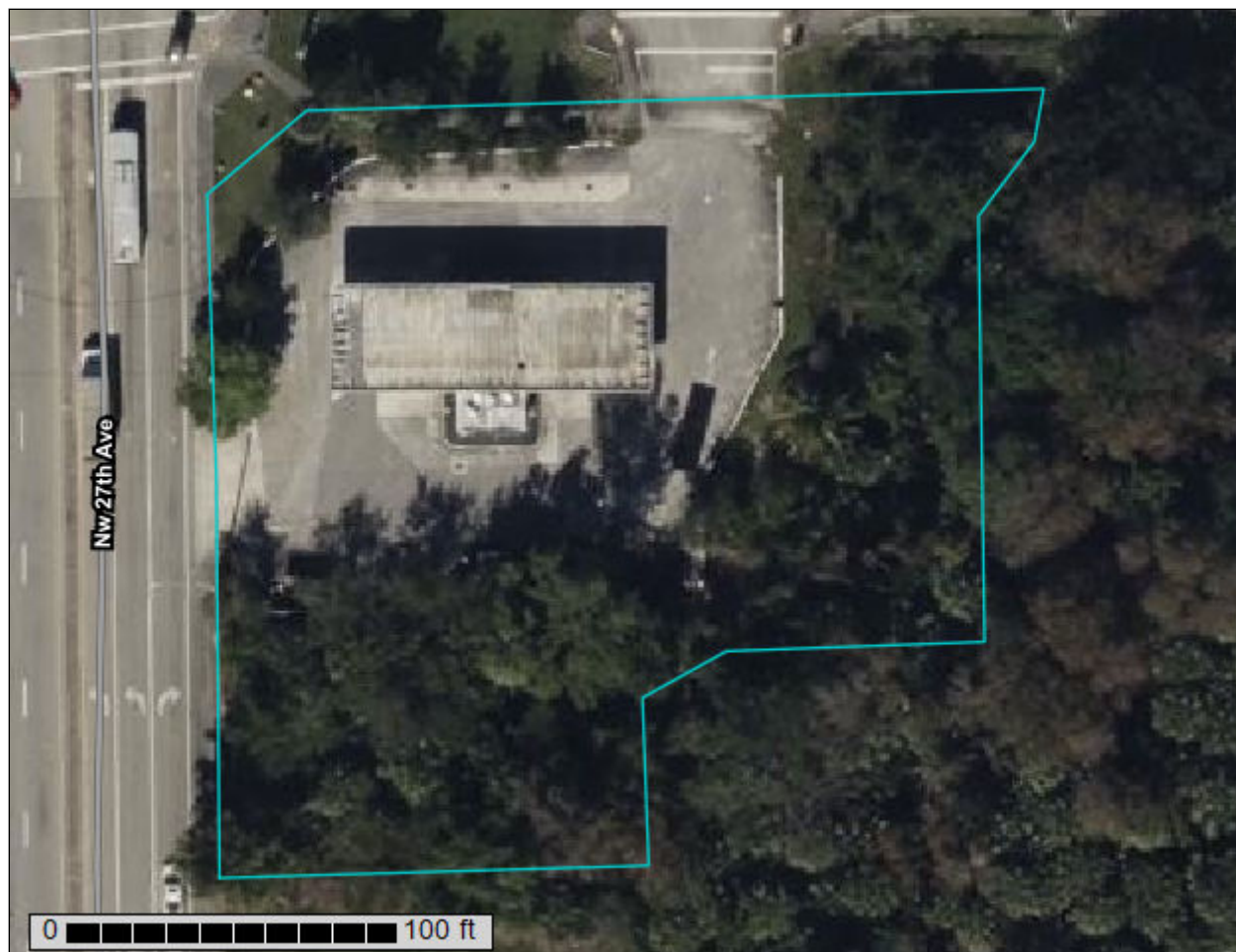
United States  
Department of  
Agriculture

NRCS

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Resources  
Conservation  
Service

A product of the National  
Cooperative Soil Survey,  
a joint effort of the United  
States Department of  
Agriculture and other  
Federal agencies, State  
agencies including the  
Agricultural Experiment  
Stations, and local  
participants

# Custom Soil Resource Report for Broward County, Florida, East Part



# Preface

---

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist ([http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2\\_053951](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951)).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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# How Soil Surveys Are Made

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Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

## Custom Soil Resource Report

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and



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identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

## Soil Map

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The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report  
Soil Map


## Custom Soil Resource Report

## MAP LEGEND

## Area of Interest (AOI)

 Area of Interest (AOI)


## Soils


 Soil Map Unit Polygons


 Soil Map Unit Lines


 Soil Map Unit Points

## Special Point Features

 Blowout


 Borrow Pit


 Clay Spot

 Closed Depression

 Gravel Pit


 Gravelly Spot

 Landfill

 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

 Spoil Area

 Stony Spot


 Very Stony Spot

 Wet Spot

 Other

 Special Line Features

## Water Features

 Streams and Canals


## Transportation

 Rails


 Interstate Highways

 US Routes

 Major Roads

 Local Roads

## Background

 Aerial Photography

## MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

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: Broward County, Florida, East Part  
Survey Area Data: Version 20, Aug 20, 2024

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

Date(s) aerial images were photographed: Jan 14, 2022—Jan 24, 2022

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
14	Matlacha gravelly fine sand, limestone substratum, 0 to 2 percent slopes	0.3	23.6%
19	Margate fine sand, occasionally ponded, 0 to 1 percent slopes	0.6	58.7%
27	Plantation, ponded-Matlacha-Urban land complex, 0 to 2 percent slopes	0.2	17.7%
<b>Totals for Area of Interest</b>		<b>1.1</b>	<b>100.0%</b>

## Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate

pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

**Broward County, Florida, East Part****14—Matlacha gravelly fine sand, limestone substratum, 0 to 2 percent slopes****Map Unit Setting***National map unit symbol:* 2x9dz*Elevation:* 0 to 30 feet*Mean annual precipitation:* 45 to 54 inches*Mean annual air temperature:* 70 to 77 degrees F*Frost-free period:* 360 to 365 days*Farmland classification:* Not prime farmland**Map Unit Composition***Matlacha, limestone substratum, and similar soils:* 88 percent*Minor components:* 12 percent*Estimates are based on observations, descriptions, and transects of the mapunit.***Description of Matlacha, Limestone Substratum****Setting***Landform:* Flats on marine terraces*Landform position (three-dimensional):* Tread, talf*Down-slope shape:* Convex, linear*Across-slope shape:* Linear*Parent material:* Sandy mine spoil or earthy fill over sandy marine deposits over limestone**Typical profile***^C - 0 to 23 inches:* gravelly fine sand*2Ab - 23 to 28 inches:* fine sand*2Eb - 28 to 44 inches:* fine sand*2C - 44 to 48 inches:* fine sandy loam*3R - 48 to 58 inches:* bedrock**Properties and qualities***Slope:* 0 to 2 percent*Depth to restrictive feature:* 36 to 80 inches to lithic bedrock*Drainage class:* Somewhat poorly drained*Runoff class:* Very low*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.06 to 0.20 in/hr)*Depth to water table:* About 18 to 42 inches*Frequency of flooding:* None*Frequency of ponding:* None*Calcium carbonate, maximum content:* 4 percent*Maximum salinity:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)*Sodium adsorption ratio, maximum:* 4.0*Available water supply, 0 to 60 inches:* Low (about 4.0 inches)**Interpretive groups***Land capability classification (irrigated):* None specified*Land capability classification (nonirrigated):* 6s*Hydrologic Soil Group:* B*Forage suitability group:* Forage suitability group not assigned (G155XB999FL)

## Custom Soil Resource Report

*Other vegetative classification:* Forage suitability group not assigned  
(G155XB999FL)  
*Hydric soil rating:* No

**Minor Components****Brynwood**

*Percent of map unit:* 5 percent  
*Landform:* Flatwoods on marine terraces  
*Landform position (three-dimensional):* Tread, talf  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Other vegetative classification:* South Florida Flatwoods (R155XY003FL), Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)  
*Hydric soil rating:* Yes

**Cypress lake**

*Percent of map unit:* 4 percent  
*Landform:* Flats on marine terraces, drainageways on marine terraces  
*Landform position (three-dimensional):* Tread, talf, dip  
*Down-slope shape:* Convex, linear  
*Across-slope shape:* Linear, concave  
*Other vegetative classification:* South Florida Flatwoods (R155XY003FL), Sandy over loamy soils on flats of hydric or mesic lowlands (G155XB241FL)  
*Hydric soil rating:* Yes

**Jenada**

*Percent of map unit:* 3 percent  
*Landform:* Flats on marine terraces  
*Landform position (three-dimensional):* Tread, dip  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear, concave  
*Other vegetative classification:* Slough (R155XY011FL), Sandy soils on stream terraces, flood plains, or in depressions (G155XB145FL)  
*Hydric soil rating:* Yes

**19—Margate fine sand, occasionally ponded, 0 to 1 percent slopes****Map Unit Setting**

*National map unit symbol:* 2sm5l  
*Elevation:* 0 to 30 feet  
*Mean annual precipitation:* 55 to 70 inches  
*Mean annual air temperature:* 72 to 81 degrees F  
*Frost-free period:* 360 to 365 days  
*Farmland classification:* Not prime farmland

**Map Unit Composition**

*Margate and similar soils:* 85 percent  
*Minor components:* 15 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Margate****Setting**

*Landform:* Flats on marine terraces  
*Landform position (three-dimensional):* Tread, tal  
*Down-slope shape:* Linear  
*Across-slope shape:* Concave  
*Parent material:* Sandy marine deposits over limestone

**Typical profile**

*A - 0 to 8 inches:* fine sand  
*E - 8 to 16 inches:* fine sand  
*Bw - 16 to 28 inches:* fine sand  
*C - 28 to 32 inches:* very gravelly fine sand  
*2R - 32 to 42 inches:* bedrock

**Properties and qualities**

*Slope:* 0 to 1 percent  
*Depth to restrictive feature:* 20 to 40 inches to lithic bedrock  
*Drainage class:* Poorly drained  
*Runoff class:* Negligible  
*Capacity of the most limiting layer to transmit water (Ksat):* High to very high (1.98 to 19.98 in/hr)  
*Depth to water table:* About 0 to 18 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* Frequent  
*Calcium carbonate, maximum content:* 4 percent  
*Maximum salinity:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)  
*Sodium adsorption ratio, maximum:* 4.0  
*Available water supply, 0 to 60 inches:* Very low (about 2.6 inches)

**Interpretive groups**

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 4w  
*Hydrologic Soil Group:* A/D  
*Ecological site:* F156AY340FL - Subtropical Pine Flatwoods and Palmetto Prairie of Miami Ridge / Atlantic Coastal Strip  
*Forage suitability group:* Sandy soils on stream terraces, flood plains, or in depressions (G156AC145FL)  
*Other vegetative classification:* Sandy soils on stream terraces, flood plains, or in depressions (G156AC145FL)  
*Hydric soil rating:* Yes

**Minor Components****Basinger**

*Percent of map unit:* 5 percent  
*Landform:* Flats on marine terraces  
*Landform position (three-dimensional):* Tread, dip  
*Down-slope shape:* Linear  
*Across-slope shape:* Concave  
*Ecological site:* F155XY120FL - Sandy Flatwoods and Hammocks  
*Other vegetative classification:* Slough (R155XY011FL), Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)  
*Hydric soil rating:* Yes

**Matlacha***Percent of map unit:* 5 percent*Landform:* Flatwoods on marine terraces*Landform position (three-dimensional):* Tread, tal*Down-slope shape:* Convex, linear*Across-slope shape:* Linear*Ecological site:* F156AY340FL - Subtropical Pine Flatwoods and Palmetto Prairie  
of Miami Ridge / Atlantic Coastal Strip*Other vegetative classification:* Forage suitability group not assigned  
(G155XB999FL)*Hydric soil rating:* No**Plantation***Percent of map unit:* 5 percent*Landform:* Depressions on marine terraces*Landform position (three-dimensional):* Tread, dip*Down-slope shape:* Linear, concave*Across-slope shape:* Linear, concave*Ecological site:* R156AY320FL - Subtropical Freshwater Non-Forested Wetlands of  
Miami Ridge/ Atlantic Coastal Strip*Other vegetative classification:* Organic soils in depressions and on flood plains  
(G156AC645FL)*Hydric soil rating:* Yes**27—Plantation, ponded-Matlacha-Urban land complex, 0 to 2 percent slopes****Map Unit Setting***National map unit symbol:* 2y9j0*Elevation:* 0 to 20 feet*Mean annual precipitation:* 46 to 70 inches*Mean annual air temperature:* 77 to 81 degrees F*Frost-free period:* 365 days*Farmland classification:* Not prime farmland**Map Unit Composition***Plantation and similar soils:* 32 percent*Matlacha, limestone substratum, and similar soils:* 28 percent*Urban land:* 25 percent*Minor components:* 15 percent*Estimates are based on observations, descriptions, and transects of the mapunit.***Description of Plantation****Setting***Landform:* Depressions on marine terraces*Landform position (three-dimensional):* Tread, dip*Down-slope shape:* Linear, concave*Across-slope shape:* Linear, concave

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*Parent material:* Herbaceous organic material over sandy marine deposits over limestone

**Typical profile**

*Oa - 0 to 10 inches:* muck  
*A - 10 to 16 inches:* fine sand  
*Cg - 16 to 33 inches:* fine sandy loam  
*2R - 33 to 43 inches:* bedrock

**Properties and qualities**

*Slope:* 0 to 1 percent  
*Depth to restrictive feature:* 20 to 40 inches to lithic bedrock  
*Drainage class:* Very poorly drained  
*Runoff class:* Negligible  
*Capacity of the most limiting layer to transmit water (Ksat):* High to very high (1.98 to 19.98 in/hr)  
*Depth to water table:* About 0 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* Frequent  
*Maximum salinity:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)  
*Sodium adsorption ratio, maximum:* 4.0  
*Available water supply, 0 to 60 inches:* Moderate (about 6.6 inches)

**Interpretive groups**

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 7w  
*Hydrologic Soil Group:* A/D  
*Ecological site:* R156AY320FL - Subtropical Freshwater Non-Forested Wetlands of Miami Ridge/ Atlantic Coastal Strip  
*Forage suitability group:* Organic soils in depressions and on flood plains (G156AC645FL)  
*Other vegetative classification:* Organic soils in depressions and on flood plains (G156AC645FL)  
*Hydric soil rating:* Yes

**Description of Matlacha, Limestone Substratum****Setting**

*Landform:* Flats on marine terraces  
*Landform position (three-dimensional):* Tread, talf  
*Down-slope shape:* Convex, linear  
*Across-slope shape:* Linear  
*Parent material:* Sandy mine spoil or earthy fill over sandy marine deposits over limestone

**Typical profile**

*^C - 0 to 23 inches:* gravelly fine sand  
*2Ab - 23 to 28 inches:* fine sand  
*2Eb - 28 to 44 inches:* fine sand  
*2C - 44 to 48 inches:* fine sandy loam  
*3R - 48 to 58 inches:* bedrock

**Properties and qualities**

*Slope:* 0 to 2 percent  
*Depth to restrictive feature:* 36 to 80 inches to lithic bedrock  
*Drainage class:* Somewhat poorly drained  
*Runoff class:* Very low

## Custom Soil Resource Report

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.06 to 0.20 in/hr)

*Depth to water table:* About 18 to 42 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Calcium carbonate, maximum content:* 4 percent

*Maximum salinity:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

*Sodium adsorption ratio, maximum:* 4.0

*Available water supply, 0 to 60 inches:* Low (about 4.0 inches)

**Interpretive groups**

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 6s

*Hydrologic Soil Group:* B

*Ecological site:* F156AY340FL - Subtropical Pine Flatwoods and Palmetto Prairie of Miami Ridge / Atlantic Coastal Strip

*Forage suitability group:* Forage suitability group not assigned (G155XB999FL)

*Other vegetative classification:* Forage suitability group not assigned (G155XB999FL)

*Hydric soil rating:* No

**Description of Urban Land****Setting**

*Landform:* Marine terraces

*Landform position (three-dimensional):* Riser, talf

*Down-slope shape:* Linear

*Across-slope shape:* Linear

*Parent material:* No parent material

**Interpretive groups**

*Land capability classification (irrigated):* None specified

*Ecological site:* F156AY340FL - Subtropical Pine Flatwoods and Palmetto Prairie of Miami Ridge / Atlantic Coastal Strip

*Forage suitability group:* Forage suitability group not assigned (G155XB999FL)

*Other vegetative classification:* Forage suitability group not assigned (G155XB999FL)

*Hydric soil rating:* Unranked

**Minor Components****Shark valley**

*Percent of map unit:* 5 percent

*Landform:* Depressions on marine terraces

*Landform position (two-dimensional):* Toeslope

*Landform position (three-dimensional):* Dip, talf

*Down-slope shape:* Concave, linear

*Across-slope shape:* Concave, convex

*Ecological site:* R156AY220FL - Subtropical Freshwater Non-Forested Glades Marshes and Slough Wetlands of Everglades

*Other vegetative classification:* Organic soils in depressions and on flood plains (G156AC645FL)

*Hydric soil rating:* Yes

**Hallandale**

*Percent of map unit:* 5 percent

*Landform:* Flatwoods on marine terraces

## Custom Soil Resource Report

*Landform position (three-dimensional):* Tread, talf

*Down-slope shape:* Linear

*Across-slope shape:* Linear

*Ecological site:* F156AY340FL - Subtropical Pine Flatwoods and Palmetto Prairie of Miami Ridge / Atlantic Coastal Strip

*Other vegetative classification:* South Florida Flatwoods (R155XY003FL), Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)

*Hydric soil rating:* Yes

**Margate**

*Percent of map unit:* 4 percent

*Landform:* Flatwoods on marine terraces

*Landform position (three-dimensional):* Tread, dip

*Down-slope shape:* Linear

*Across-slope shape:* Concave

*Ecological site:* F156AY340FL - Subtropical Pine Flatwoods and Palmetto Prairie of Miami Ridge / Atlantic Coastal Strip

*Other vegetative classification:* Forage suitability group not assigned (G156AC999FL)

*Hydric soil rating:* Yes

**Cooper town**

*Percent of map unit:* 1 percent

*Landform:* Marshes on marine terraces

*Landform position (two-dimensional):* Toeslope

*Landform position (three-dimensional):* Dip, talf

*Down-slope shape:* Concave, linear

*Across-slope shape:* Concave, convex

*Ecological site:* R156AY220FL - Subtropical Freshwater Non-Forested Glades Marshes and Slough Wetlands of Everglades

*Other vegetative classification:* Organic soils in depressions and on flood plains (G156AC645FL)

*Hydric soil rating:* Yes

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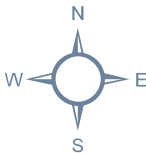
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APPENDIX D

BROWARD COUNTY DRAINAGE  
DISTRICT MAP

# DRAINAGE DISTRICTS

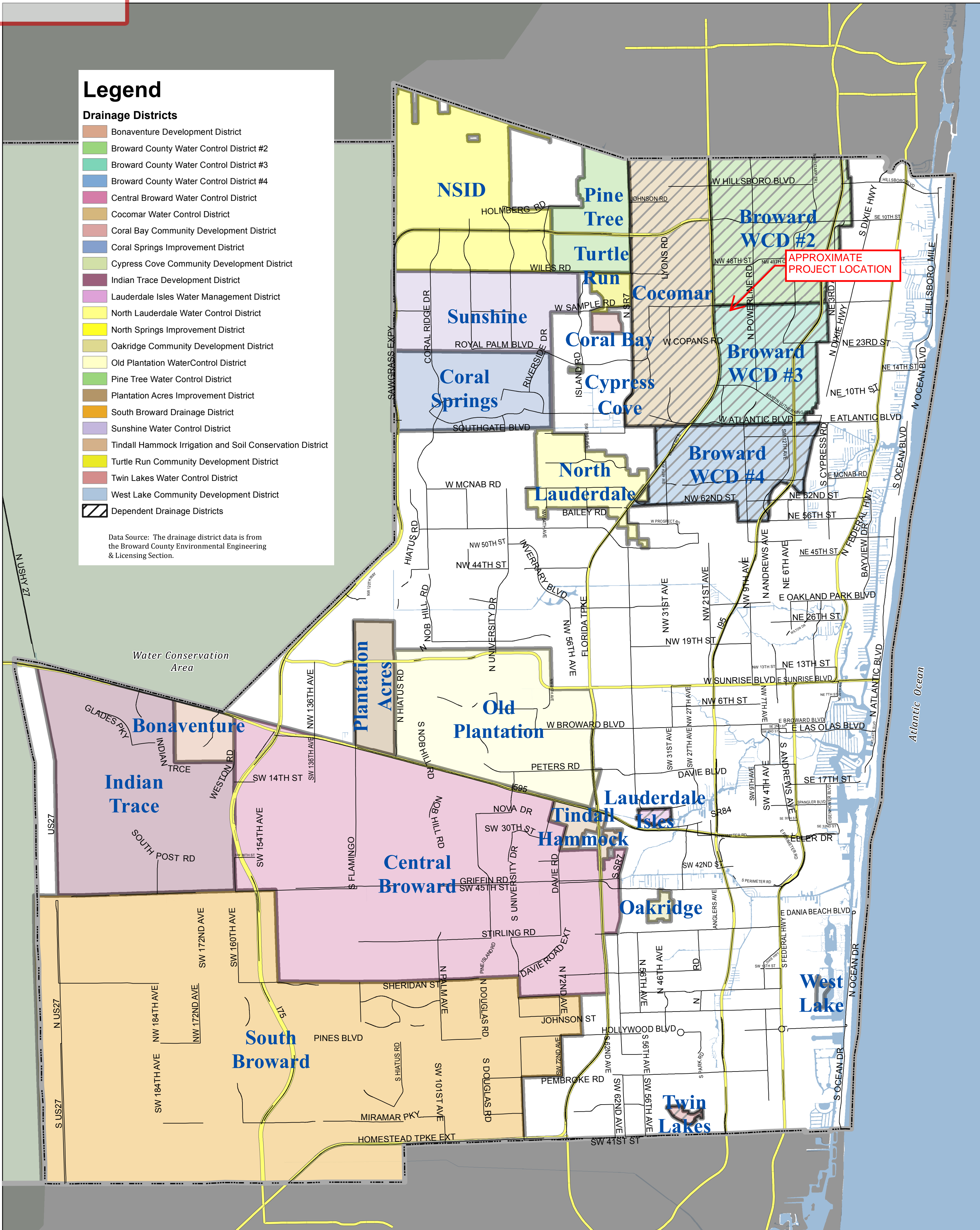


## Legend

### Drainage Districts

- Bonaventure Development District
- Broward County Water Control District #2
- Broward County Water Control District #3
- Broward County Water Control District #4
- Central Broward Water Control District
- Cocomar Water Control District
- Coral Bay Community Development District
- Coral Springs Improvement District
- Cypress Cove Community Development District
- Indian Trace Development District
- Lauderdale Isles Water Management District
- North Lauderdale Water Control District
- North Springs Improvement District
- Oakridge Community Development District
- Old Plantation Water Control District
- Pine Tree Water Control District
- Plantation Acres Improvement District
- South Broward Drainage District
- Sunshine Water Control District
- Tindall Hammock Irrigation and Soil Conservation District
- Turtle Run Community Development District
- Twin Lakes Water Control District
- West Lake Community Development District
- Dependent Drainage Districts

Data Source: The drainage district data is from the Broward County Environmental Engineering & Licensing Section.

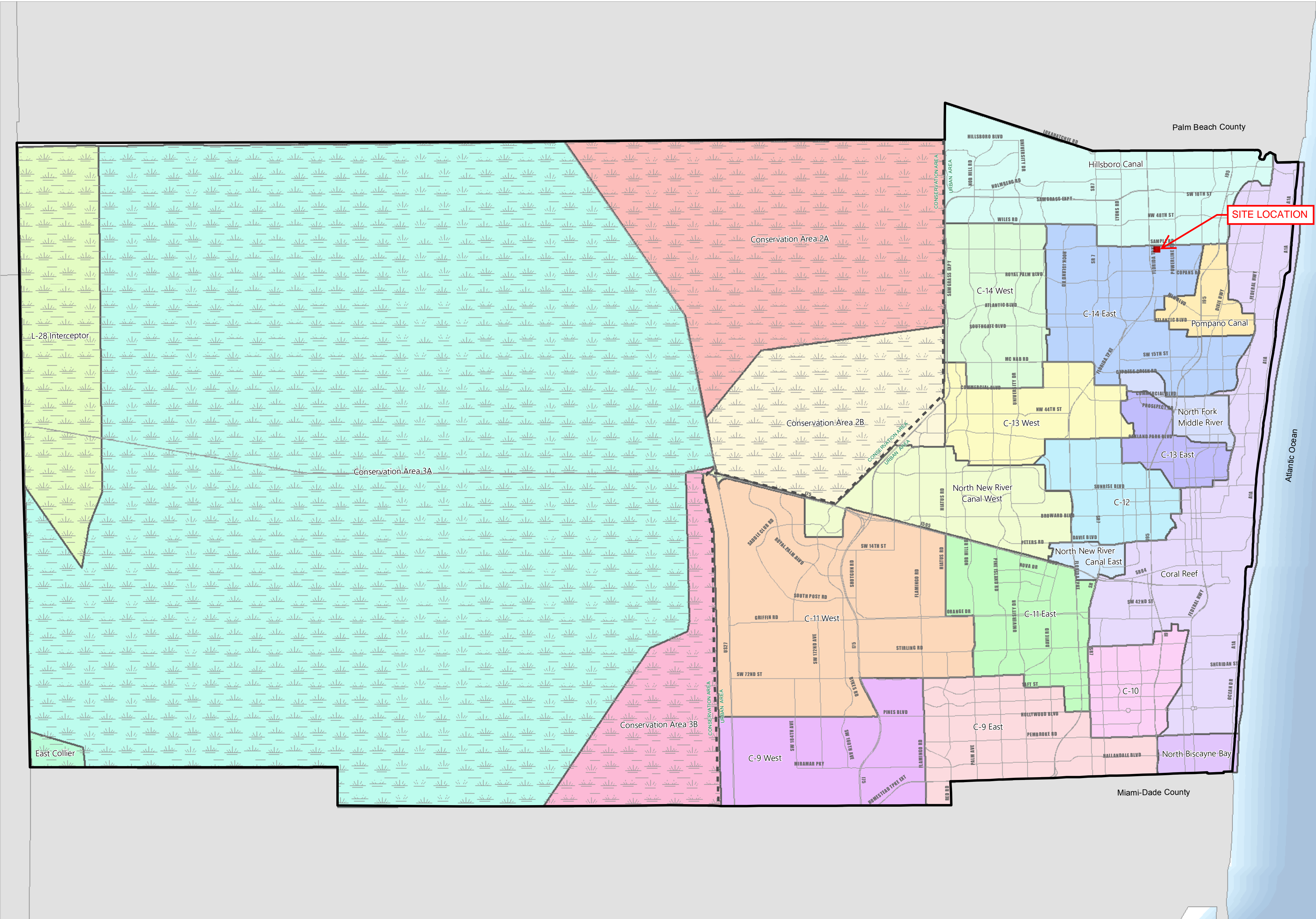




# APPENDIX E

## BROWARD COUNTY DRAINAGE BASIN MAP

# DRAINAGE BASINS



## Legend

- County Boundary
- Urban Area Boundary
- Major Roads
- Drainage Basins (with basin names)
- Water Conservation Areas (with names)

Source: South Florida Water Management District  
Environmental Protection and Growth Management Department  
Environmental Planning and Community Resilience  
Broward GIS, 2016

This map is for conceptual purposes only and is not intended for legal boundary determinations.

Environmental Protection & Growth Management Department  
Planning and Development Management Division  
Prepared by: GIS Section

0 2.5 5 7.5 Miles



MAP NO. WM-4

#14260 Cneira 3/20/18

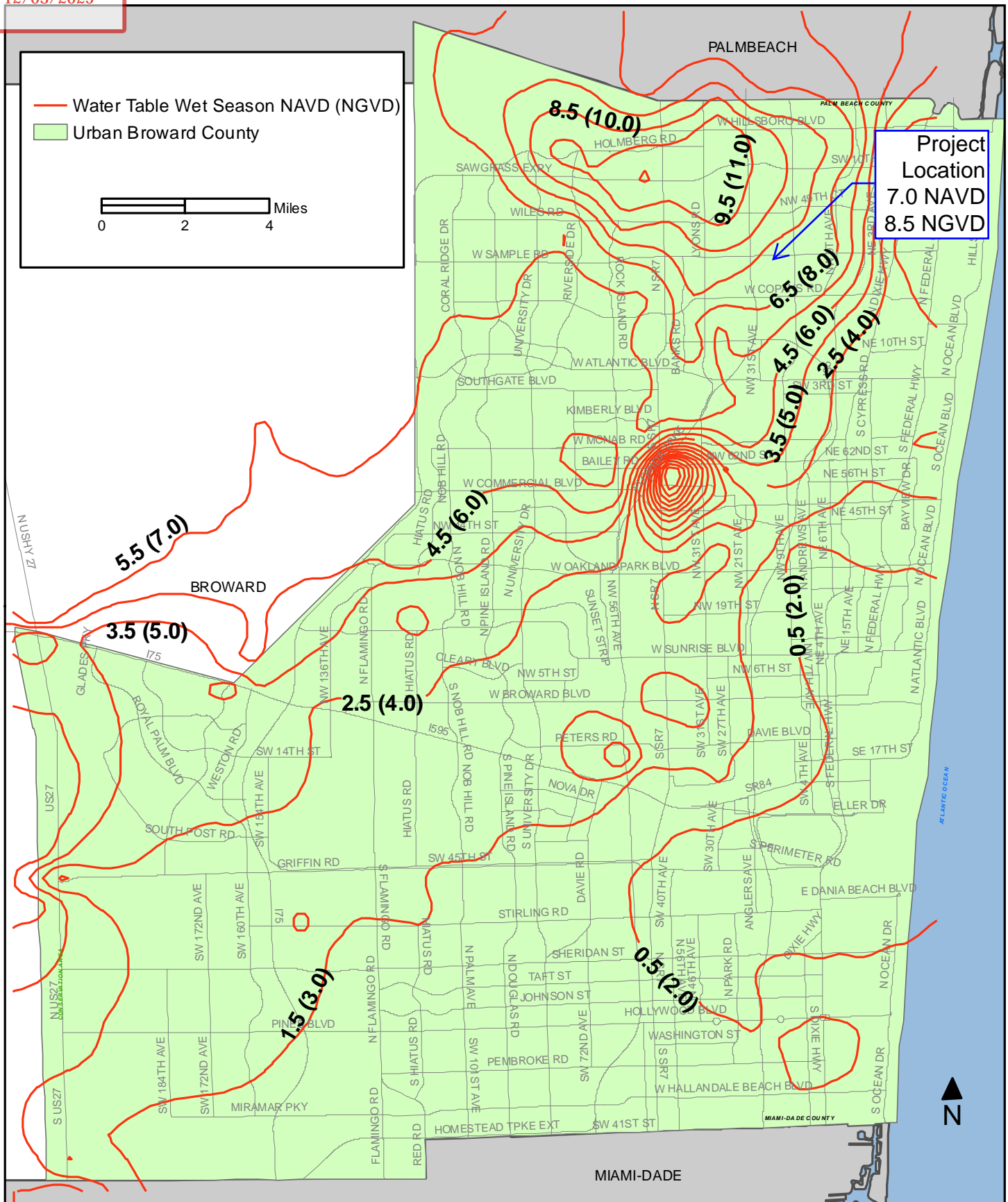
**DRC**

PZ25- 12000013  
12/03/2025

**APPENDIX F**

**BROWARD COUNTY AVERAGE WET  
SEASON WATER TABLE MAP**

## WATERTABLE MAP - AVERAGE WET SEASON



**DRC**

PZ25- 12000013  
12/03/2025

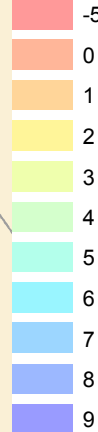
APPENDIX G

FUTURE CONDITIONS AVERAGE WET  
SEASON GROUNDWATER ELEVATION  
MAP 2060

# Future Conditions Average Wet Season Groundwater Elevation Map

DRAFT 4.0  
 05/05/2017

## Groundwater Table Elevation (feet, NAVD 1988)



**Site Location - Elev 6.5 (NAVD 1988)**

Water Conservation Area

0 1 2 Miles

Division Name: Environmental Planning and Community Resilience  
 Department Name: Environmental Protection and Growth Management

Miami-Dade County

USGS - United States Geological Survey  
 COAPS - Center for Ocean-Atmospheric Prediction Studies  
 CCSM - Community Climate System Model  
 USACE - United States Army Corps of Engineers  
 NRC3 - National Research Council Curve 3  
 NAVD 88 - 1988 North American Vertical Datum

The map represents the expected future average wet season groundwater elevations for Broward County. The average is based on model outputs for the months of May through October over the period of 2060-2069. The models used are The Broward County Inundation Model and the Broward County Northern Variable Density model, both developed by the USGS and MODFLOW based. The future conditions that are modified in the models are both precipitation and sea level rise. The future precipitation pattern is based on the COAPS downscaled CCSM global model and represents an increase of 9.1% rainfall from the base case of 1990-1999 (53.4 in/yr to 58.2 in/yr). Sea level rise was based on the USACE NRC3 curve which equates to an increase of 26.6 to 33.9 inches to the future period from 1992 levels. Final results are presented in NAVD 88.

This map is for planning purposes and should not be used for legal boundary determinations.

**DRC**

PZ25- 12000013  
12/03/2025

APPENDIX H

FUTURE CONDITIONS AVERAGE WET  
SEASON GROUNDWATER ELEVATION  
MAP 2070

PZ25-12000013  
12/03/2025

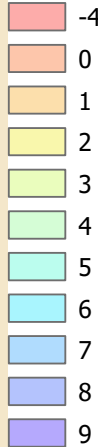
Draft  
Future Conditions (2070)

Palm Beach County



## Groundwater Elevation

Feet NAVD 1988



Site Location - Elev 6.5  
(NAVD 1988)

Water Conservation Areas

Atlantic Ocean

0 1 2  
Miles

Miami-Dade County

USGS - United States Geological Survey  
COAPS - Center for Ocean-Atmospheric Prediction Studies  
CCSM - Community Climate System Model  
NOAA - National Oceanic and Atmospheric Administration  
NAVD 88 - North American Vertical Datum 1988

Department Name - Resilient Environment Department

The map represents the predicted future average wet season groundwater elevations in Broward County based on model outputs for the months of May through October for the year 2070. The models used are MODFLOW-based Broward County Inundation Models Phase 1 and Phase 2, and the Broward County Northern Variable Density Model developed by the USGS. The modeled future conditions are precipitation and sea level rise. The future precipitation pattern is based on the COAPS downscaled CCSM global model and represents an increase of 9.1% from the base case of 1990-1999 (53.4 to 58.2 in/yr). This map is an update to Plate WM 2.1 Future Conditions, in accordance with the 2017 NOAA Intermediate-High Sea Level Rise Scenario for 2070 with a predicted increase of 40 inches relative to the year 2000. Final results are presented in Feet NAVD88.

This map is for planning purposes and should not be used for legal boundary determinations.

**DRC**

PZ25- 12000013  
12/03/2025

# APPENDIX I

## CURRENT FEMA FLOOD INSURANCE HAZARD MAP

# National Flood Hazard Layer FIRMette



PZ25 12000013  
80°9'17"W 26°16'10"N  
12/03/2025



## Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) Zone A, V, A99
		With BFE or Depth Zone AE, AO, AH, VE, AR
		Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
		Future Conditions 1% Annual Chance Flood Hazard Zone X
		Area with Reduced Flood Risk due to Levee. See Notes. Zone X
		Area with Flood Risk due to Levee Zone D
OTHER AREAS		NO SCREEN Area of Minimal Flood Hazard Zone X
		Effective LOMRs
GENERAL STRUCTURES		Area of Undetermined Flood Hazard Zone D
		Channel, Culvert, or Storm Sewer
		Levee, Dike, or Floodwall
OTHER FEATURES		20.2 Cross Sections with 1% Annual Chance Water Surface Elevation
		17.5
		Coastal Transect
		Base Flood Elevation Line (BFE)
		Limit of Study
		Jurisdiction Boundary
MAP PANELS		Coastal Transect Baseline
		Profile Baseline
		Hydrographic Feature
		Digital Data Available
		No Digital Data Available
		Unmapped



The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 6/2/2025 at 3:21 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

0 250 500 1,000 1,500 2,000 Feet

1:6,000

80°9'17"W 26°16'10"N

Basemap Imagery Source: USGS National Map 2023

**DRC**

PZ25- 12000013  
12/03/2025

**APPENDIX J**

**WATERS NOT ATTAINING STANDARDS**

**(WNAS) MAP**

## Water Quality Assessments, TMDLs, and BMAPs



6/2/2025

Alternative Restoration Plans

Bacteria Pollution Control Plan

Florida Total Maximum Daily Load (TMDL)

TMDLs Adopted

Waters Not Attaining Standards (WNAS)

World Imagery

Low Resolution 15m Imagery

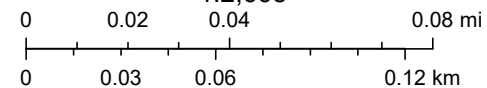
High Resolution 60cm Imagery

High Resolution 30cm Imagery

Citations

60cm Resolution Metadata

1:2,668



State of Florida, Maxar, Microsoft



# APPENDIX K

## SFWMD FLOOD CRITERIA MAPS

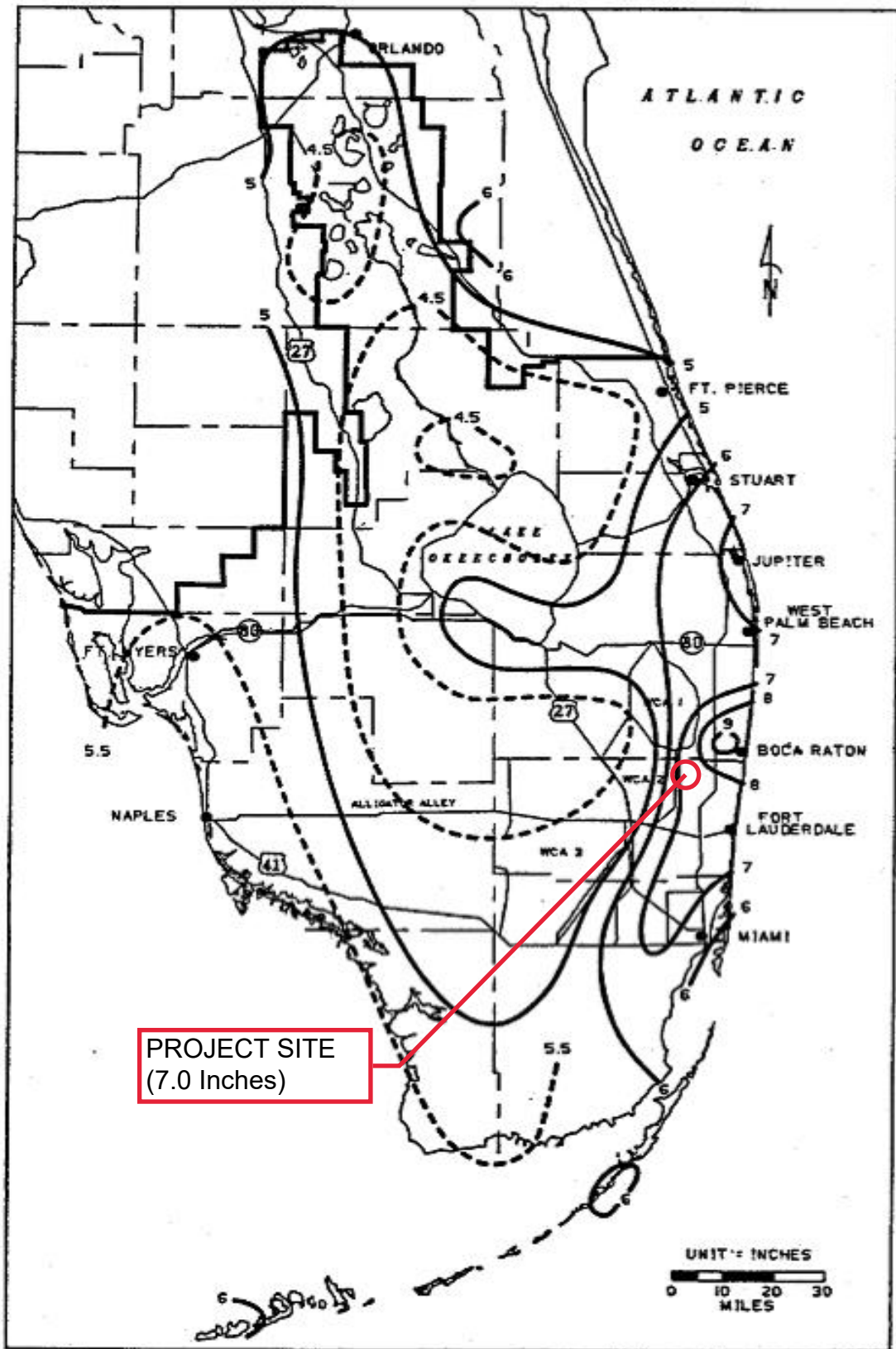


FIGURE C-3. 1-DAY RAINFALL: 5-YEAR RETURN PERIOD

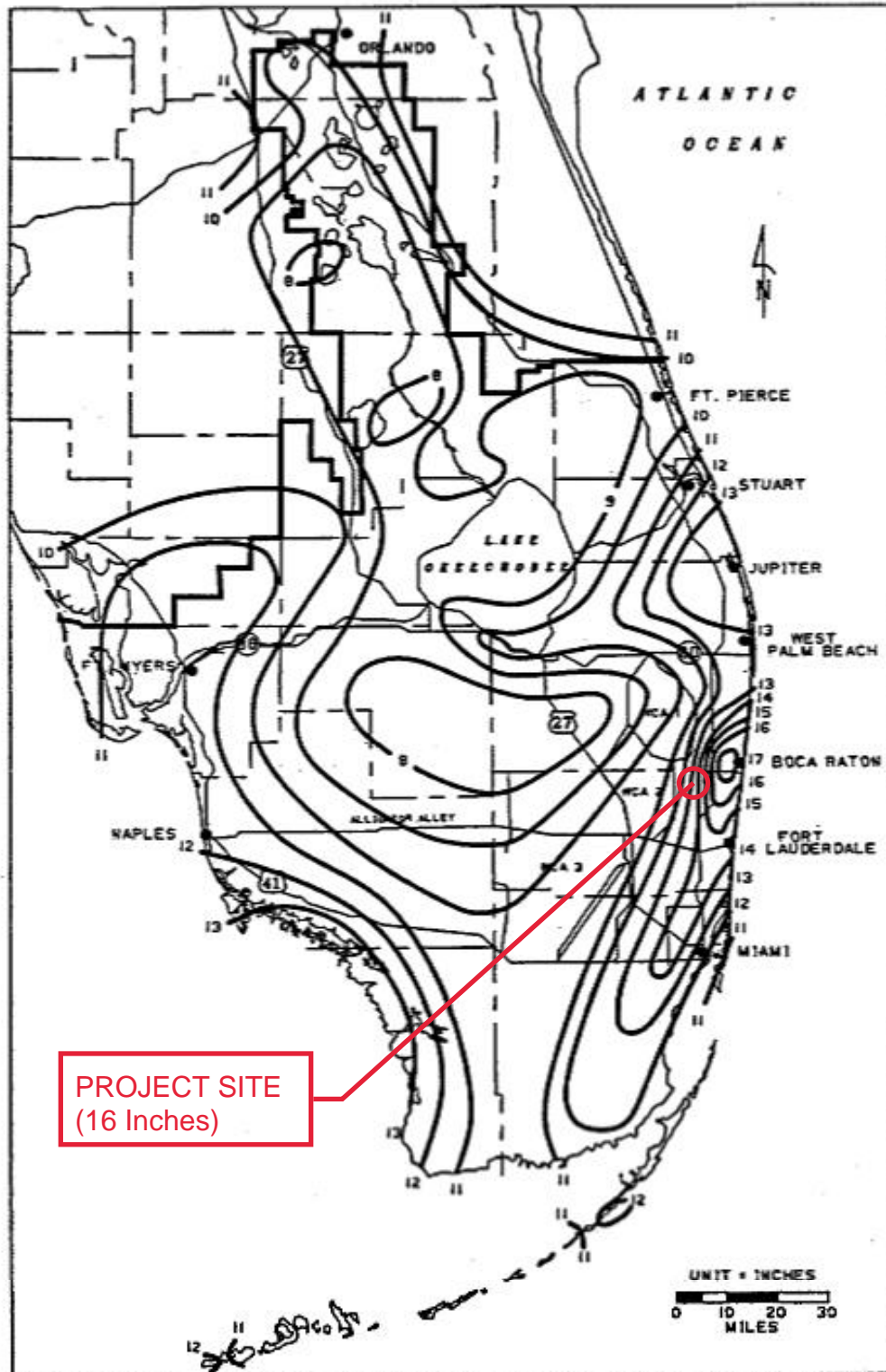


FIGURE C-8. 3-DAY RAINFALL: 25-YEAR RETURN PERIOD

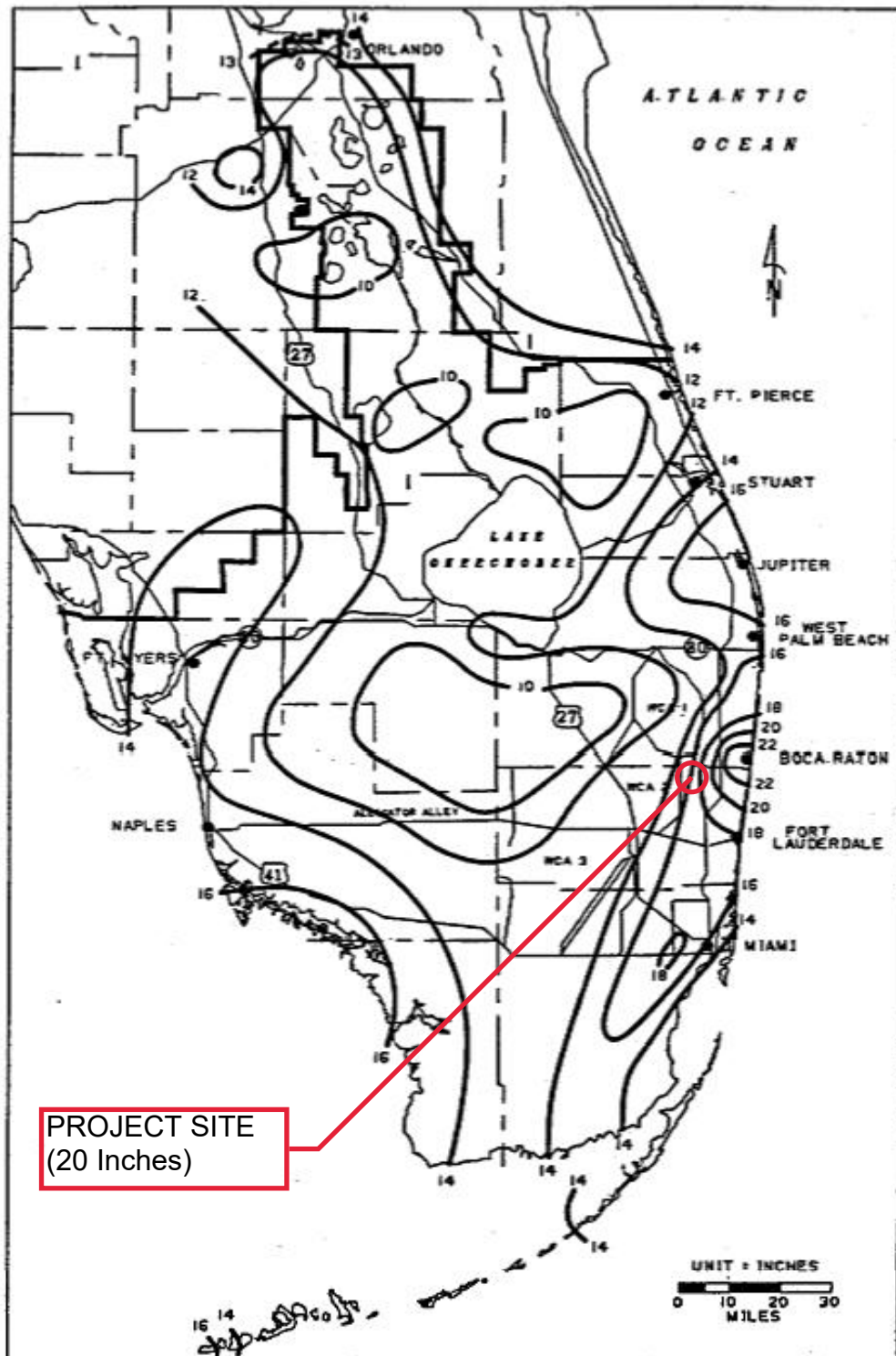
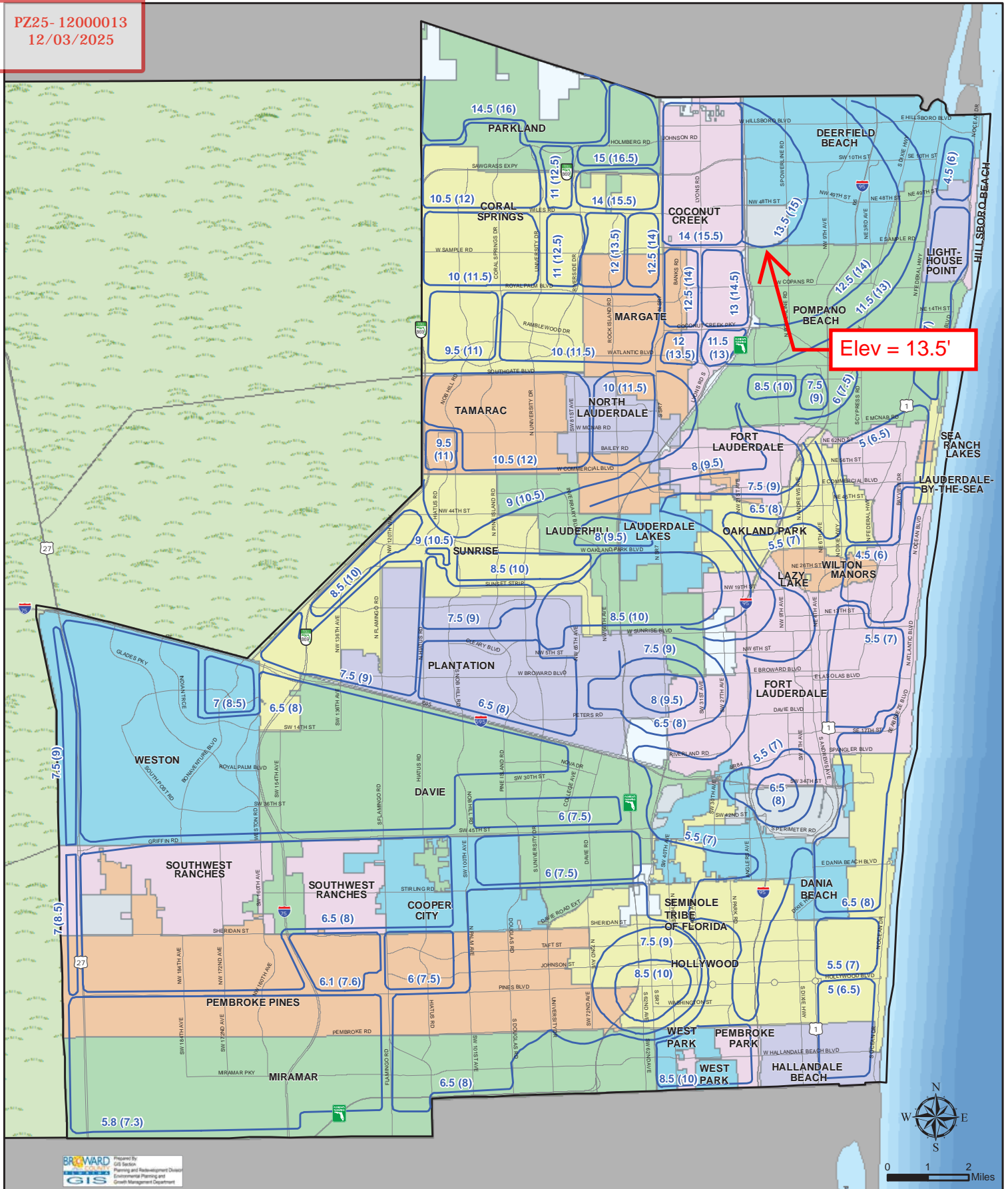


FIGURE C-9. 3-DAY RAINFALL: 100-YEAR RETURN PERIOD



# APPENDIX L

## BROWARD COUNTY 100 YEAR FLOOD ELEVATION MAP



**DRC**

PZ25- 12000013  
12/03/2025

# APPENDIX M

## TR-55 STORMWATER MANAGEMENT CALCULATIONS

**DRC**

PZ25-12000013  
12/03/2025

## Land Use + Soil Storage Calculations

2690 West Sample Road

Project No: 143360001

Designed by: JB

Checked by: GB

Date: 7/16/2025

### *Existing Land Use*

Description	Sub-Area (ac)	Area (ac)
Impervious Area		0.46
Building	0.03	
Asphalt / Sidewalk / Other Imp.	0.43	
Pervious Area		0.65
Landscaping (Low)	0.51	
Landscaping (High)	0.14	
Total Area		1.11

### *Proposed Land Use*

Description	Sub-Area (ac)	Area (ac)
Impervious Area		0.75
Building	0.12	
Asphalt / Sidewalk / Other Imp.	0.63	
Pervious Area		0.36
Landscaping	0.36	
Total Area		1.11

**DRC**

PZ25-12000013  
12/03/2025

## Land Use + Soil Storage Calculations

2690 West Sample Road

Project No: 143360001

Designed by: JB

Checked by: GB

Date: 7/16/2025

### Soil Storage

	Existing	Proposed	DATUM
Wet Season Water Table / Control Elevation	7.50	7.50	NAVD 88
Soil Storage Capability (Coastal, Flatwoods, Depressional)	Flatwoods	Flatwoods	
Average Site Elevation (Dry Detention Bottom)	0.00	0.00	NAVD 88
Average Depth to Water Table (Dry Detention Bottom)	-7.50	-7.50	ft
Soil Storage Capability (Flatwoods, w/ 25% reduction)	0.00	0.00	in
Soil Storage (S) Over the Site (Dry Detention Bottom)	0.00	0.00	in
Average Site Elevation (Dry Detention Banks)	11.88	0.00	NAVD 88
Average Depth to Water Table (Proposed Land Use)	4.38	-7.50	ft
Soil Storage Capability (Flatwoods, w/ 25% reduction)	6.75	0.00	in
Soil Storage (S) Over the Site (Proposed Land Use)	0.00	0.00	in
Average Site Elevation (Landscaping (High))	13.18	13.30	NAVD 88
Average Depth to Water Table (Landscaping (High))	5.68	5.80	ft
Soil Storage Capability (Flatwoods, w/ 25% reduction)	6.75	6.75	in
Soil Storage (S) Over the Site (Landscaping (High))	0.88	2.20	in
Soil Storage (S) Over the Site (Entire Site)	0.88	2.20	in
Curve Number (CN) Based on Soil Storage (S)	91.9	81.9	

**Site Stage-Storage - Existing**

2690 West Sample Road

Project No: 143360001

Stage Step Interval: 0.5

Start Stage Elevation: 7.50

Storage Type  
Area (ac)  
Avg Low Elev.  
Avg High Elev.

Impervious Area	Landscaping (Low)	Landscaping (High)	Total Area
L	L	L	
0.427	0.507	0.145	1.079
12.50	10.75	13.00	
13.75	13.00	13.35	

				TOTAL
Stage	Impervious Area	Landscaping (Low)	Landscaping (High)	CUM, AC-FT
7.50	0.000	0.000	0.000	0.000
8.00	0.000	0.000	0.000	0.000
8.50	0.000	0.000	0.000	0.000
9.00	0.000	0.000	0.000	0.000
9.50	0.000	0.000	0.000	0.000
10.00	0.000	0.000	0.000	0.000
10.50	0.000	0.000	0.000	0.000
11.00	0.000	0.007	0.000	0.007
11.50	0.000	0.063	0.000	0.063
12.00	0.000	0.176	0.000	0.176
12.50	0.000	0.345	0.000	0.345
13.00	0.043	0.570	0.000	0.613
13.50	0.171	0.824	0.047	1.042
14.00	0.374	1.077	0.119	1.570
14.50	0.587	1.331	0.192	2.110
15.00	0.801	1.584	0.264	2.649

## TP-55 Volume Calculations - Existing

Designed by: JB

Checked by: GB

Date: 7/16/2025

### Existing Land Use

	<u>5-year/24 hours</u>	<u>25-year /72 hours</u>	<u>100-year /72 hours</u>
Potential Maximum Retention (S) (in)	0.88	0.88	0.88
Rainfall (P) (in)	7	16	20
Total Site Drainage Area (A) (ac)	1.11	1.11	1.11
Runoff (Q) (in)	6.05	14.99	18.98
Volume of Runoff (V <sub>r</sub> ) (ac-ft)	0.56	1.39	1.76

### Stage - Storage Existing

Stage (elev., ft)	Site Storage (ac-ft)	Total Volume Stored in Exfiltration Trench (V <sub>wq</sub> +V <sub>add</sub> +V <sub>void</sub> ) (ac-ft)	Total Storage (ac-ft)
7.50	0.000	0.000	0.000
8.00	0.000	0.000	0.000
8.50	0.000	0.000	0.000
9.00	0.000	0.000	0.000
9.50	0.000	0.000	0.000
10.00	0.000	0.000	0.000
10.50	0.000	0.000	0.000
11.00	0.007	0.000	0.007
11.50	0.063	0.000	0.063
12.00	0.176	0.000	0.176
12.50	0.345	0.000	0.345
13.00	0.613	0.000	0.613
13.50	1.042	0.000	1.042
14.00	1.570	0.000	1.570
14.50	2.110	0.000	2.110
15.00	2.649	0.000	2.649

### Summary Stages

	Existing Stage (ft)	Criteria
5-year/24 hours	12.90	Min. Parking Elev.
25-year /72 hours	13.83	Min. Perim. Berm
100-year /72 hours (No Discharge)	14.17	Min. Finished Floor

### Equations Used (from Technical Release 55)

$$S = (1000/CN) - 10$$

$$Q = (P_{25} - 0.2S)^2 / (P_{25} + 0.8S)$$

$$V_r \text{ (ac-ft)} = (Q)(A)/12$$

**Site Stage-Storage - Proposed**

2690 West Sample Road

Stage Step Interval: 0.5

Project No: 143360001

Start Stage Elevation: 7.50

Storage Type Area (ac) Avg Low Elev. Avg High Elev.	Impervious Area	Landscaping	Total Area
	L	L	
	0.632	0.363	0.995
	12.60	13.00	
	14.00	13.60	

TOTAL			
Stage	Impervious Area	Landscaping	CUM, AC-FT
7.50	0.000	0.000	0.000
8.00	0.000	0.000	0.000
8.50	0.000	0.000	0.000
9.00	0.000	0.000	0.000
9.50	0.000	0.000	0.000
10.00	0.000	0.000	0.000
10.50	0.000	0.000	0.000
11.00	0.000	0.000	0.000
11.50	0.000	0.000	0.000
12.00	0.000	0.000	0.000
12.50	0.000	0.000	0.000
13.00	0.036	0.000	0.036
13.50	0.183	0.076	0.258
14.00	0.443	0.254	0.696
14.50	0.759	0.435	1.194
15.00	1.075	0.617	1.691

## Water Quality Calculations - Proposed

2690 West Sample Road  
Project No: 143360001

Designed by: JB  
Checked by: GB  
Date: 7/16/2025

### I. LAND USE:

1	Building	0.12 ac.	10.46%
2	Garages	0.00 ac.	0.00%
3	Asphalt / Sidewalk / Other Imp.	0.63 ac.	56.90%
4	Lake Surface	0.00 ac.	0.00%
5	Lake Banks	0.00 ac.	0.00%
6	Pervious Pavement	0.00	0.00%
7	Dry Detention Bottom	0.00 ac.	0.00%
8	Dry Detention Banks	0.00 ac.	0.00%
9	Landscaping (High)	0.36 ac.	32.64%
<b>Total =</b>		<b>1.11 ac.</b>	<b>100%</b>

**Total overall impervious surface with building = 67.36%**

**Is the site within a basin discharging to WNAS?** No

### II. WATER QUALITY CRITERIA:

Quality standards shall be provided for one of the following three combinations:

- If a wet detention system, then whichever is the greater of the following:
  - The first inch of runoff from the entire project site.
  - The amount of 2.5 inches times the percent impervious for the project site.
- Exfiltration trench requires the volume required for the wet detention system.
- If the site is within a basin that discharges to an Impaired Water Body (Waters Not Attaining Standards - WNAS), must provide an additional 50% of Required Water Quality Volume as reasonable assurance to not impact water quality.

### III. WATER QUALITY COMPUTATIONS:

- Compute the first inch of runoff from the entire developed project site:
 
$$= 1.00 \text{ inch} \times 1.11 \text{ acres} \times (1 \text{ foot} / 12 \text{ inches})$$

$$= \underline{\underline{0.093 \text{ ac-ft for the first inch of runoff}}}$$
- Compute 2.5 inches times the percent impervious for the developed project site:
  - Site area for water quality pervious / impervious calculations only:
 
$$= \text{Total Project} - (\text{Lake Area} + \text{Buildings})$$

$$= 1.11 \text{ acres} - (0.00 \text{ acres} + 0.12 \text{ acres})$$

$$= \underline{\underline{0.99 \text{ acres of site area for water quality calculations}}}$$
  - Impervious area for water quality pervious / impervious calculations only:
 
$$= \text{Site area for water quality} - \text{Pervious area}$$

$$= 0.99 \text{ acres} - 0.36 \text{ acres}$$

$$= \underline{\underline{0.63 \text{ acres of impervious area for water quality calculations}}}$$
  - Percentage of impervious area for water quality:
 
$$= \text{Impervious area for water quality} / \text{Site area for water quality} \times 100\%$$

$$= 0.63 \text{ acres} / 0.995 \text{ acres} \times 100\%$$

$$= \underline{\underline{63.55 \% \text{ Impervious}}}$$
  - For 2.5 inches times the percentage of impervious area:
 
$$= 2.5 \text{ inches} \times 63.55 \%$$

$$= \underline{\underline{1.59 \text{ inches to be treated}}}$$
  - Compute volume required for quality detention:
 
$$= \text{Inches to be treated} \times (\text{Total Site Area} - \text{Lake Area})$$

$$= 1.59 \text{ inches} \times (1.11 \text{ acres} - 0.000 \text{ acres}) \times (1 \text{ foot} / 12 \text{ inches})$$

$$= \underline{\underline{0.15 \text{ ac-ft required for detention storage}}}$$
- The first inch of runoff from the entire developed site = 0.093 ac-ft  
 2.5 inches times the percentage of impervious area = 0.147 ac-ft  
 Additional 50% if within WNAS (0.000 ac-ft if not within WNAS) = 0.000 ac-ft

**WQ volume of 0.147 ac-ft required**

## Exfiltration Trench Calculations - Proposed

2690 West Sample Road

Project No: 143360001

Designed by: JB  
Checked by: GB  
Date: 7/16/2025

### EXFILTRATION TRENCH CALCULATIONS:

1. Design Formula: 
$$L = 2 * (0.5 * V_{wq} + V_{add}) / (K((H_2 * W) + (2 * H_2 * D_u) - (D_u^2) + (2 * H_2 * D_s)) + (1.39 * 10^{-4} * W * D_u))$$

2. Design Information:

Weir Needed in ET System?

no

Weir Elevation

ft.

$V_{wq}$  = Water Quality Vol. to be Exfiltrated:

1.77 ac-in

3.28"xSite =

0.30 ac-ft

$V_{add}$  = Add. Storage Vol. in 1 hour (up to 3.28"xSite -  $V_{wq}$ ):

1.88 ac-in

3.64 ac-in

W = Trench Width:

8.00 ft.

K = Hydraulic Conductivity:

1.130E-04 cfs/sq-ft per ft head

H<sub>2</sub> = Depth of Water Table:

5.10 ft.

D<sub>u</sub> = Non-Saturated Trench Depth:

3.60 ft.

D<sub>s</sub> = Saturated Trench Depth:

3.00 ft.

Total Trench Depth:

6.60 ft.

3a. Exfiltration Trench Required (Quality):

120 ft.

3b. Exfiltration Trench Required (Max. Additional Storage):

255 ft.

3c. Total Maximum Exfiltration Trench Required:

374 ft.

4. Exfiltration Trench Provided:

417 ft.

5. Storage Provided:

Exfiltration Trench Vol Provided (Quality):

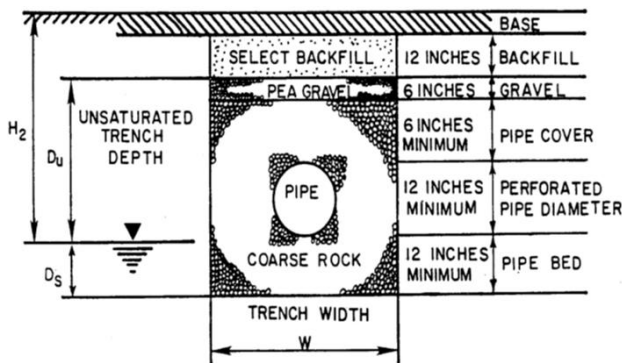
0.147 ac-ft

Exfiltration Trench Vol Provided (Additional Storage):

0.157 ac-ft

**Total Exfiltration Trench Vol Provided:**

**0.304 ac-ft**



### Thickness ( Elev (ft))

6	12.60	Lowest Inlet
12		Concrete + Base Thickness
		Select Backfill
6	11.10	Top of Trench (Top of Pea Gravel)
9		Pea Gravel
		Pipe Cover (Min. 6")
	0.00	Weir Elevation (if applicable)
	9.85	Inside Top of Pipe
24		Pipe Size (Min. 12")
	7.50	Invert of Pipe
12		Pipe Bed (Min. 12")
	4.50	Bottom of Trench
	7.50	Water Table / Control Water Elevation

### CHECKS

OK

Dry System (Pipe Invert Higher than Water)

Trench Calculations - Proposed  
2690 West Sample Road  
Project No: 143360001

Designed by: JB  
Checked by: GB  
Date: 7/16/2025

Elevation (NAVD88)	Storage Trench Volume (ac-ft)	Exfiltration Trench Volume (ac-ft)	Underground Storage Vault (ac-ft)	Total Volume (ac-ft)
6.5	0.000	0.000	0.000	0.000
7	0.000	0.033	0.000	0.033
7.5	0.000	0.066	0.000	0.066
8	0.007	0.099	0.079	0.185
8.5	0.014	0.132	0.158	0.305
9	0.021	0.165	0.238	0.424
9.5	0.028	0.198	0.317	0.543
10	0.036	0.231	0.396	0.663
10.5	0.043	0.264	0.475	0.782
10.77	0.047	0.282	0.518	0.846
11	0.050	0.297	0.554	0.901
11.1	0.051	0.304	0.570	0.925
11.5	0.051	0.304	0.570	0.925
12	0.051	0.304	0.570	0.925
12.5	0.051	0.304	0.570	0.925
13	0.051	0.304	0.570	0.925
13.5	0.051	0.304	0.570	0.925
14	0.051	0.304	0.570	0.925
14.5	0.051	0.304	0.570	0.925
15	0.051	0.304	0.570	0.925

### Volume of Storage Trench: Calculation Summary

Rock Cross-Sectional Area (SF) = (trench width) x (trench height) – (pipe cross-sectional area) = SF  
 Volume: Rock (CF) = (trench length) x (Rock Cross-Sectional Area) x (0.4) = CF  
 Volume: Pipe (CF) = (pipe length: manhole to manhole) x (pipe cross-sectional area)=CF  
 Combined Volume = **(Volume of Rock) + (Volume of Pipe) = CF**

Storage Trench Design	
# of Pipes	2 Pipes
Pipe Diameter:	18 in
Trench Width:	10 ft
Trench Height:	3.60 ft
Trench Length:	58.2 ft
Pipe Length:	68.2 ft
Pipe Area:	1.77 sf
Rock Area:	34.23 sf
Volume of Rock:	1992.35 cf
Volume of Pipe:	241.04 cf
Total Volume:	2233.39 cf
	<b>0.051 ac-ft</b>

### Volume Required

	5-year/24 hours	25-year /72 hours	100-year /72 hours
Potential Maximum Retention (S) (in)	2.20	2.20	2.20
Rainfall (P) (in)	7	16	20
Total Site Drainage Area (A) (ac)	1.11	1.11	1.11
Runoff (Q) (in)	4.910	13.629	17.579
Volume of Runoff (V <sub>r</sub> ) (ac-ft)	0.455	1.262	1.628

### Stage - Storage Proposed

Stage (elev., ft)	Site Storage (ac-ft)	Total Volume Stored in Exfil & Storage Trench (ac-ft)	Total Storage (ac-ft)
7.50	0.000	0.066	0.066
8.00	0.000	0.185	0.185
8.50	0.000	0.305	0.305
9.00	0.000	0.424	0.424
9.50	0.000	0.543	0.543
10.00	0.000	0.663	0.663
10.50	0.000	0.782	0.782
11.00	0.000	0.901	0.901
11.50	0.000	0.901	0.901
12.00	0.000	0.901	0.901
12.50	0.000	0.901	0.901
13.00	0.036	0.901	0.937
13.50	0.258	0.901	1.160
14.00	0.696	0.901	1.598
14.50	1.194	0.901	2.095
15.00	1.691	0.901	2.592

### Summary Quality

Required Min Water Quality to Meet:	0.147 ac-ft
Water Quality Volume Met at Stage:	7.84 ft

### Summary Stages

	Proposed Stage (ft)	Existing Stage (ft)	Criteria
5-year/24 hours	9.13	12.90	Min. Parking Elev.
25-year /72 hours	13.62	13.83	Min. Perim. Berm
100-year /72 hours (No Discharge)	14.03	14.17	Min. Finished Floor

### Equations Used (from Technical Release 55)

$$S = (1000/CN) - 10$$

$$Q = (P_{25} - 0.2S)^2 / (P_{25} + 0.8S)$$

$$V_r \text{ (ac-ft)} = (Q)(A)/12$$