CHURCH OF THE ASCENSION
SURFACE WATER MANAGEMENT REPORT

SUBMITTAL DATE:
OCTOBER 2025

PREPARED FOR:

DIOCESE OF VENICE IN FLORIDA, INC
1000 PINEBROOK RD.
VENICE, FL 34285
&
SOUTH FLORIDA WATER MANAGEMENT DISTRICT
2301 MCGREGOR BLVD., FORT MYERS, FL 33901

PREPARED BY:

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Table of Contents

1.0 SITE CONDITIONS AND PROPOSED FACILITIES

1.1 Purpose

The purpose of this application is to request an Environmental Resource Permit for the construction and operation of a 13.05-acre surface water management system (SWMS) serving the development known as Church of the Ascension. The project area for the overall site is 14.61 acres, 1.56 acres of which corresponds to areas outside of the SWMS basin and consists of the existing offsite lake north of the project site.

The site previously received ERP approval for construction to the existing SWMS under Permit No. 36-103211-P. The project area and existing buildings have been substantially damaged from the recent hurricanes that have impacted the island. As a result, the damaged church, an existing building, and supporting parking areas will be demolished to allow the construction of a new Church building, parking areas, and supporting infrastructure. The total permit area for the project is 14.61 acres. The proposed Stormwater Management System (SWMS) will be approximately 13.05 acres. This area will include the proposed Church building, existing buildings, parking and drive aisles, dry retention, and lakes.

1.2 Property Location

The proposed project is located at 6025 Estero Blvd, Fort Myers Beach, FL 33931. It is on the north side of Estero ROW, at the intersection of Estero Blvd and Mound Rd The site is in Lee County, Florida, within Section 33, Township 46 South, Range 24 East.

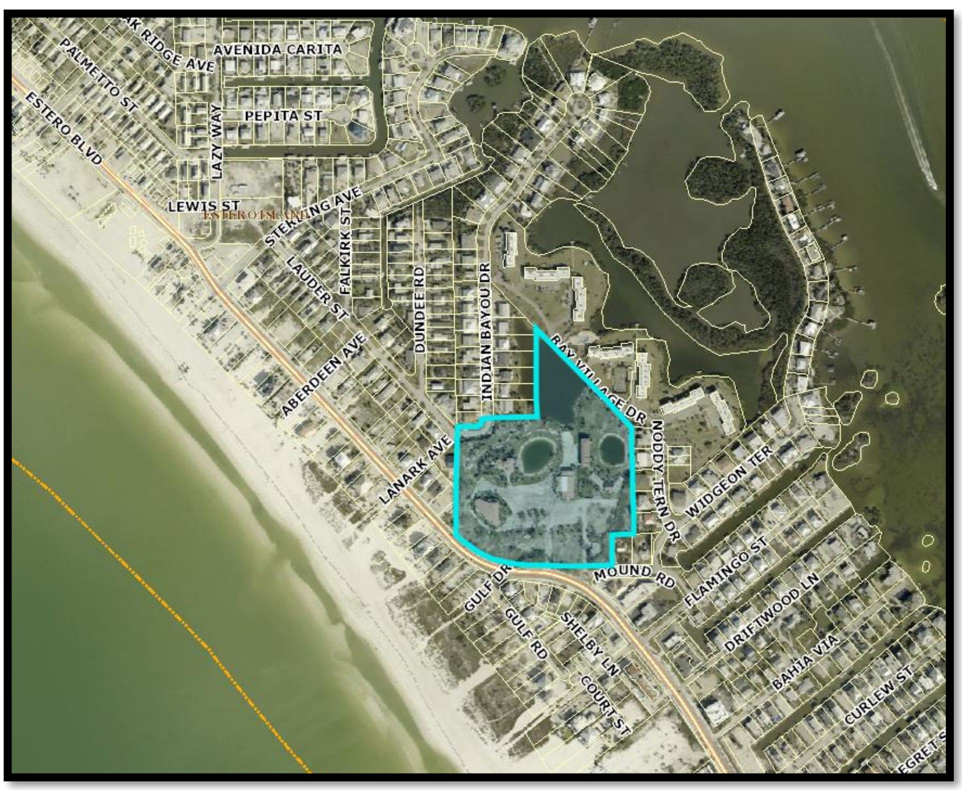


Figure 1: Location Map

1.3 Existing Conditions

The property was previously developed and recently permitted under Permit No. 36-103211-P. The site currently includes an existing church, multiple buildings, parking lots, two lakes, dry retention areas, and supporting infrastructure. While the church was constructed in the late 1960s and additional buildings were added in the early 1990s, recent hurricanes have damaged the structures.

Historically, stormwater has sheet-flowed towards the on-site dry retention and detention areas. From there, it is conveyed to the existing lakes through drainage pipes and open channel swales. The existing outfall for the stormwater management system (SWMS) is situated along the north side of the basin and discharges into an adjacent north lake. Since this north lake is located in a coastal area within the Town of Ft. Myers Beach, it is tidally influenced. Its final discharge point is into Estero Bay via a drainage ditch. The project area is surrounded by residential and multi-family properties, and no off-site stormwater flows enter the project site.

1.4 Proposed Facilities

The proposed improvements include the demolition of two existing buildings, followed by the construction of new church building and an associated parking lot. As part of the project, the modifications to the existing SWM system to support the new improvements will consist of additional dry retention areas and the expansion of the existing west lake on site. Stormwater will be conveyed to the dry retention area within the development via sheet flow, or storm inlets and pipes. The dry retention areas and lakes will provide water quality and nutrient loading for the basin in series. Table 1 below, summarizes the proposed 13.05-acre Surface Water Management System (SWMS) total land use.

Table 1 - Total Project and SWMS Land Use Table

Project Land Use	
Total Building	**0.69 ac.**
Total Pavement/Concrete	**3.47 ac.**
Total Lake Area	**1.59 ac.**
Total Dry Retention Area	**1.15 ac.**
Total Open Space	**6.15 ac.**
Total SWMS Basin	**13.05 ac.**
Areas Outside of SWMS Basin	
Other Areas	1.56 ac.
Total Project Area	**14.61 ac.**
Off-site Access Improvements (Providing WQ Compensation Only)	*0.00 ac.*

Stormwater from the management system (SWMS) will discharge off-site into the North Lake. This discharge occurs after the stormwater is conveyed through the system's lakes and passes through the existing control structure weir, which is located along the north side of the SWMS boundary. The outfall point is located along the southside of

the North Lake. The off-site lake outfalls towards the north along a drainage ditch that ultimately empties into Estero Bay. The existing control weir is proposed to be retained in its current configuration.
All design calculations and plans associated with this application utilize the North American Vertical Datum of 1988 (NAVD-88).

On-site Preserve Area

There are no wetlands on this site that require mitigation or preservation. For more detailed information, please refer to the existing approved ERP permit for the subject property, which is included in this report.

Water Quality and Quantity / Outfall

Water quality for the site is achieved through the proposed dry retention and wet detention areas within the Stormwater Management System (SWMS). These areas are designed to meet the required water quality treatment for nutrient loading (see Section 2.3) prior to any off-site discharge. Control weir Structure, located south of the North Lake (off-site), will ensure that no stormwater is discharged off-site until the necessary water quality and nutrient loading requirements are satisfied.

The SWMS will also provide water attenuation for the basin prior discharging off-site via the existing control structure. The existing control weir for the SWMS is located along the north boundary line and discharges into the southside of the North Lake (off-site), with final discharge into the Estero Bay via an existing drainage ditch conveyance. The existing control weir will remain as previously design.

Peak Stages and Finished Floor

The proposed finished floor elevations are governed by the FEMA flood zone elevation plus 2 ft. since the design 100-year peak storm event yield a lower elevation.

2.0 SURFACE WATER MANAGEMENT SYSTEM

2.1 Basis of Design and Assumptions

1) Design parameters are based on guidelines contained in the SFWMD Design Manual
2) Rainfall Distribution is based on the SFWMD 72-hour rainfall distribution and the FDOT-24, 24-hour rainfall distribution.
3) The storm water collection system design is based on the Town of Fort Myers Beach Land Development Code
4) Control elevation of 1.60 ft- NAVD is based on previous permitted control elevation of the site, Elev. = 1.60 ft-NAVD and available hydrologic gradient toward North Lake. (discharge point)
5) Elevations are based on the North American Vertical Datum of 1988 (NAVD).
6) Tailwater at the outfall based on previously approved conditions.
7) See Appendix B for detailed assumptions and ICPR assumptions.

Design Storms

- Minimum Parking Grade
  Return frequency = 10 – years
  Rainfall duration = 1 – days
  24-hour rainfall = 7.20 inches

- Minimum perimeter grading / road crown.
  Return frequency = 25 – years
  Rainfall duration = 3 – days
  24-hour rainfall = 11.20 inches

- Minimum finish floor elevations.
  Return frequency = 100 – years
  Rainfall duration = 3 – days
  24-hour rainfall = 15.10 inches

Time of Concentration

(t_c) = 2 (Total basin area/640) $^{0.5}$

Time of concentration is based on the basin area.

SCS Curve Number

The Curve Number (CN) for the basin was obtained by calculating the available soil storage as listed in the SFWMD Basis of Review (BOR). The site is currently generally of Canaveral fine sand and matlacha gravelly fine sand according to the Lee County Soil Survey. Based on the soil type, aerial photography, adjacent permits, and the Lee County Soil Survey, the site is classified as coastal. The depth to the water table was calculated based on the average finished grade and storage was based on the SFWMD BOR. The directly connected impervious areas (DCIA) were calculated based on the amount of roadway and parking lot areas.

Control Elevation and Discharge Rate

The proposed control elevation for the site is set at 1.60 ft, NAVD. This elevation has been determined based on previously ERP permit, Church of The Ascension / Monastery of St. Clare (Permit No. 36-103211-P, Control Elevation = 1.60 ft, NAVD), and the existing elevations on the North Lake. The 1.60 ft, NAVD control elevation is necessary to maintain hydraulic gradient along the site, to convey runoff toward the North Lake, and ultimately toward the Estero Bay Basin.

The project discharges ultimately into the Estero Bay Basin per SFWMD Basins, the allowable discharge rate for the site is 73.22 CFS, per the previously approved ERP permit. See ICPR Model Results for the project allowable and peak discharge rates. The existing control weir, located in the south side of the North Lake, was modeled on ICPR to confirm site is within the allowable discharge rate during the 25-year 3-day storm event. Please refer to Appendix B for the Pre-Development Discharge Calculations.

Design Tailwater

The north lake that the project discharges into is tidally influenced as it lies in a coastal area within the Town of Ft. Myers Beach. The lake discharges northerly to a tidal drainage ditch and then conveys stormwater northerly into a nearby canal. The tailwater elevation provided in the ICPR model is from the previously approved report under application number 200326-3101.

Land Use and Stage-Storage Assumptions

Land use was generally broken down into pavement, lake areas, dry retention areas, dry retention/lake banks, preserve, and open space. A perimeter berm is proposed to prevent uncontrolled discharges offsite. Building sites were not used in the storage calculations.

- Lake = Vertical Storage starting at control elevation
- Dry Retention = Vertical Storage starting at control elevation
- Pavement = Linear Storage starting at the minimum pavement storm grate elevation.
- Open Space = Linear Storage starting minimum open space/Preserve elevation within basin.
- Lake Bank = Linear Storage starting minimum lake elevation to top of lake bank.
- Dry Retention Bank = Linear Storage starting minimum retention elevation to top of bank.

2.2 Water Quality Calculations

Water quality was calculated based on the greater of either the first inch of runoff or 2.5” times the impervious acreage and the first one-half (1/2) inch of water volume, calculations were performed based on SFWMD BOR.

As the SWM system is located within Estero Bay (WBID #3258A1) an additional 50% of water quality treatment has been provided. Dry retention and wet detention areas are used to meet the required water quality volume, the 50% reduction was used for Dry retention.

2.3 Nutrient Loading

The site is located within the Estero Bay (WBID #3258A1). A nutrient loading analysis was done for a net improvement in storm water discharge using BMP Trains. The proposed storm water for the Basin is routed on series to the dry retention area that discharge into wet detention area prior off-site discharge.

As mentioned in Section 1.1, the SWMS basin is 13.06 acres, and the catchment area for the analysis of 13.06 acres was used for the nutrient loading calculation. Please note that the North Lake area is located outside of the SWMS system and is not included in the analysis.

The pre-condition and post-condition land use for the site consists of low-intensity commercial. EMC values were used from the BMP Trains 2020, Mass Loading Methodology Land Use Tables. Pre and post condition CN values have been based on the available data from the USGS soils survey, and the TR- 55 report for the land use category that best represents the site. Please refer to Appendix B for back up information of the CN values used for the analysis.

Below are the calculations and BMP Trains Report:

Church of the Ascension

Nutrient Loading Analysis | INPUT DATA

Pre-Development Ground Cover

Ground Cover	CN	Hydrologic Soil Group (HSG)	
Pervious	39	A	
	61	B	Open Space (lawns, parks, golf courses, cemeteries, etc.): Good Condition
Pervious Avg.	**50**	**A/B**	
Impervious	**98**	**A/B**	Impervious Areas: Paved parking lots, roofs, driveways, etc.

CN from 210-VI-TR-55, Second Ed., June 1986); Tables 2.2 a

BASIN	TOTAL BASIN AREA	TOTAL CATCHMENT AREA	LAKE AREA	SUB-TOTAL CONTRIBUTING AREA	CONTRIBUTING IMPERVIOUS*		TOTAL PERVIOUS AREA*
					TOTAL	DCIA	
Basin	13.05 ac	13.05 ac	0.85 ac	12.20 ac	5.62 ac	4.90 ac	7.43 ac
Total	**13.05 ac**	**13.05 ac**	**0.85 ac**	**12.20 ac**	**5.62 ac**	**4.90 ac**	**7.43 ac**

(1) Lakes are not included in the impervious area

** The 1.61 ac North Lake has been not included on the SWM calculations*

*** The 0.35 ac Lake has not been considered as a treatment option.*

Pre-Development Composite Non-DCIA CN and DCIA Percent

BASIN	SUB-TOTAL CONTRIBUTING AREA	IMPERVIOUS					COMPOSITE NON-DCIA CURVE NUMBER				
		TOTAL AREA		DCIA			PERVIOUS AREA	PERVIOUS CN	NON-DCIA IMP AREA (3)	IMP CN	NON-DCIA CN (4)
		%	(Acres)	% of IMP	DCIA (Acres)	DCIA % of SUB-TOTAL AREA (2)					
Basin	12.20 ac	46%	5.62 ac	87%	4.90 ac	40%	7.43 ac	50	0.72	98	54
Total	**12.20 ac**	**46%**	**5.62 ac**	**87%**	**4.90 ac**	**40%**	**7.43 ac**	**50**	**0.72**	**98**	**54**

(1) DCIA % of Sub-Total Area = DCIA / Sub-Total Area x 100

(2) Non-DCIA Impervious Area = Impervious Area - DCIA

(3) Composite Non-DCIA CN = [(Previous Area x Previous CN) + (Non-DCIA Imp Area x Imp CN)] / (Pervious Area + Non-DCIA Imp Area)

Church of the Ascension

Nutrient Loading Analysis | INPUT DATA

Post-Development Ground Cover

Ground Cover	CN	Hydrologic Soil Group (HSG)	
Pervious	39	A	
	61	B	Open Space (lawns, parks, golf courses, cemeteries, etc.): Good Condition
Pervious Avg.	**50**	**A/B**	
Impervious	**98**	**A/B**	Impervious Areas: Paved parking lots, roofs, driveways, etc.

CN from 210-VI-TR-55, Second Ed., June 1986); Tables 2.2 a

BASIN	TOTAL BASIN AREA	TOTAL CATCHMENT AREA	LAKE AREA	SUB-TOTAL CONTRIBUTING AREA	CONTRIBUTING IMPERVIOUS*		TOTAL PERVIOUS AREA*
					TOTAL	DCIA	
Basin	13.05 ac	13.05 ac	1.59 ac	11.46 ac	5.31 ac	4.62 ac	6.15 ac
Total	**13.05 ac**	**13.05 ac**	**1.59 ac**	**11.46 ac**	**5.31 ac**	**4.62 ac**	**6.15 ac**

(1) Lakes are not included in the impervious area

** The 1.61 ac North Lake has been not included on the SWM calculations*

*** The 0.35 ac Lake has not been considered as a treatment option.*

Post-Development Composite Non-DCIA CN and DCIA Percent

BASIN	SUB-TOTAL CONTRIBUTING AREA	IMPERVIOUS					COMPOSITE NON-DCIA CURVE NUMBER				
		TOTAL AREA		DCIA			PERVIOUS AREA	PERVIOUS CN	NON-DCIA IMP AREA (3)	IMP CN	NON-DCIA CN (4)
		%	(Acres)	% of IMP	DCIA (Acres)	DCIA % of SUB-TOTAL AREA (2)					
Basin	11.46 ac	46%	5.31 ac	87%	4.62 ac	40%	6.15 ac	50	0.69	98	55
Total	**11.46 ac**	**46%**	**5.31 ac**	**87%**	**4.62 ac**	**40%**	**6.15 ac**	**50**	**0.69**	**98**	**55**

(1) DCIA % of Sub-Total Area = DCIA / Sub-Total Area x 100

(2) Non-DCIA Impervious Area = Impervious Area - DCIA

(3) Composite Non-DCIA CN = [(Previous Area x Previous CN) + (Non-DCIA Imp Area x Imp CN)] / (Pervious Area + Non-DCIA Imp Area)

Post-Development Dry Retention Area Volume

DRY RETENTION	DRY RETENTION BOTTOM AREA	DRY RETENTION TOP AREA	DRY RETENTION DEPTH	DRY RETENTION VOLUME PROVIDED	RETENTION DEPTH OVER CONTRIBUTING AREA
Dry Retention Area 1	0.28 ac	0.35 ac	1.20 ft.	0.38 ac-ft	0.395 in.
Dry Retention Area 2	0.37 ac	0.44 ac	1.20 ft.	0.48 ac-ft	0.507 in.
Dry Retention Area 3	0.06 ac	0.09 ac	1.20 ft.	0.09 ac-ft	0.090 in.
Dry Retention Area 4	0.44 ac	0.47 ac	0.50 ft.	0.23 ac-ft	0.237 in.
Total	**1.14 ac**	**1.34 ac**	**0.5'-1.20'**	**1.17 ac-ft**	1.230 in.

Post-Development Wet Detention Permanent Pool Volume

	Basin 1
Lake Control Elev. =	1.60 ft. NAVD
Slope Break Point Elev. =	-5.40 ft. NAVD
Lake Bottom Elev. =	-10.40 ft. NAVD
Total Depth	12.00 ft.

Lake	Area at Control Elev.	Area at Break Point	Area at Bottom Elev.	PPV
1	1.24 ac	0.67 ac	0.50 ac	9.60 ac-ft
Total	1.24 ac	0.67 ac	0.50 ac	**9.60 ac-ft**

Complete Report (not including cost) Ver 4.3.5

Project: Church of the Ascension
Date: 10/3/2025 10:28:11 AM

Site and Catchment Information

Analysis: Net Improvement

Catchment Name	Basin
Rainfall Zone	Florida Zone 4
Annual Mean Rainfall	52.00

Pre-Condition Landuse Information

Landuse	Low-Intensity Commercial: TN=1.13 TP=0.188
Area (acres)	13.05
Rational Coefficient (0-1)	0.35
Non DCIA Curve Number	54.00
DCIA Percent (0-100)	40.00
Nitrogen EMC (mg/l)	1.130
Phosphorus EMC (mg/l)	0.188
Runoff Volume (ac-ft/yr)	19.566
Groundwater N (kg/yr)	0.000
Groundwater P (kg/yr)	0.000
Nitrogen Loading (kg/yr)	27.262
Phosphorus Loading (kg/yr)	4.536

Post-Condition Landuse Information

Landuse	Low-Intensity Commercial: TN=1.13 TP=0.188
Area (acres)	13.05
Rational Coefficient (0-1)	0.35
Non DCIA Curve Number	55.00
DCIA Percent (0-100)	40.00
Wet Pond Area (ac)	1.59
Nitrogen EMC (mg/l)	1.130
Phosphorus EMC (mg/l)	0.188
Runoff Volume (ac-ft/yr)	17.232
Groundwater N (kg/yr)	0.000

Groundwater P (kg/yr)	0.000
Nitrogen Loading (kg/yr)	24.009
Phosphorus Loading (kg/yr)	3.994

Catchment Number: 1 Name: Basin

Project: Church of the Ascension
Date: 10/3/2025

Multiple BMP in Series Design Parameters

BMP in Series Number: 1
BMP Type: Retention

Retention Depth (in)	1.230
Retention Volume (ac-ft)	1.175

BMP in Series Number: 2
BMP Type: Wet Detention

Permanent Pool Volume (ac-ft)	9.600
Permanent Pool Volume (ac-ft) for 31 days residence	1.464
Annual Residence Time (days)	203
Littoral Zone Efficiency Credit	
Wetland Efficiency Credit	

BMP in Series Number: 3
BMP Type: None

BMP in Series Number: 4
BMP Type: None

Watershed Characteristics

Catchment Area (acres)	13.05
Contributing Area (acres)	11.460
Non-DCIA Curve Number	55.00
DCIA Percent	40.00
Rainfall Zone	Florida Zone 4
Rainfall (in)	52.00

Surface Water Discharge

Required TN Treatment Efficiency (%)	
Provided TN Treatment Efficiency (%)	93
Required TP Treatment Efficiency (%)	
Provided TP Treatment Efficiency (%)	97

Load for Multiple BMP in Series

Load		Treatment		Surface Discharge
N: 24.01 kg/yr	→	N: 93 %	→	N: 1.68 kg/yr
P: 3.99 kg/yr		P: 97 %		P: 0.13 kg/yr

↓

Mass Reduction
N: 22.33 kg/yr
P: 3.87 kg/yr

Load Diagram for Multiple BMP (As Used In Routing)

Upstream Nodes	Load		Treatment		Mass Discharged
None	N: 24.01 kg/yr	→	N: 93.0 %	→	N: 1.68 kg/yr
	P: 3.99 kg/yr		P: 96.8 %		P: 0.13 kg/yr
	Q: 17.23 ac-ft				Q: 17.23 ac-ft

↓

Mass Removed
N: 22.33 kg/yr
P: 3.87 kg/yr

Summary Treatment Report Version: 4.3.5

Project: Church of the Ascension

Date:10/3/2025

Analysis Type: Net Improvement
BMP Types:
Catchment 1 - (Basin) Multiple BMP
Based on % removal values to the nearest percent

Routing Summary
Catchment 1 Routed to Outlet

Total nitrogen target removal met? **Yes**
Total phosphorus target removal met? **Yes**

Summary Report
Nitrogen

Surface Water Discharge

Total N pre load	27.26 kg/yr	
Total N post load	24.01 kg/yr	
Target N load reduction	%	
Target N discharge load	27.26 kg/yr	
Percent N load reduction	93 %	
Provided N discharge load	1.68 kg/yr	3.7 lb/yr
Provided N load removed	22.33 kg/yr	49.24 lb/yr

Phosphorus

Surface Water Discharge

Total P pre load	4.536 kg/yr	
Total P post load	3.994 kg/yr	
Target P load reduction	%	
Target P discharge load	4.536 kg/yr	
Percent P load reduction	97 %	
Provided P discharge load	.128 kg/yr	.28 lb/yr
Provided P load removed	3.867 kg/yr	8.527 lb/yr

2.4 Floodplain Compensation

As per FEMA flood map FIRM Elevation, the site is based on tidal events. Hence, no flood plain compensation calculation required. Below is the image of FEMA and the dotted line either side of the project location is a coastal line indicating the project is tidally influenced.

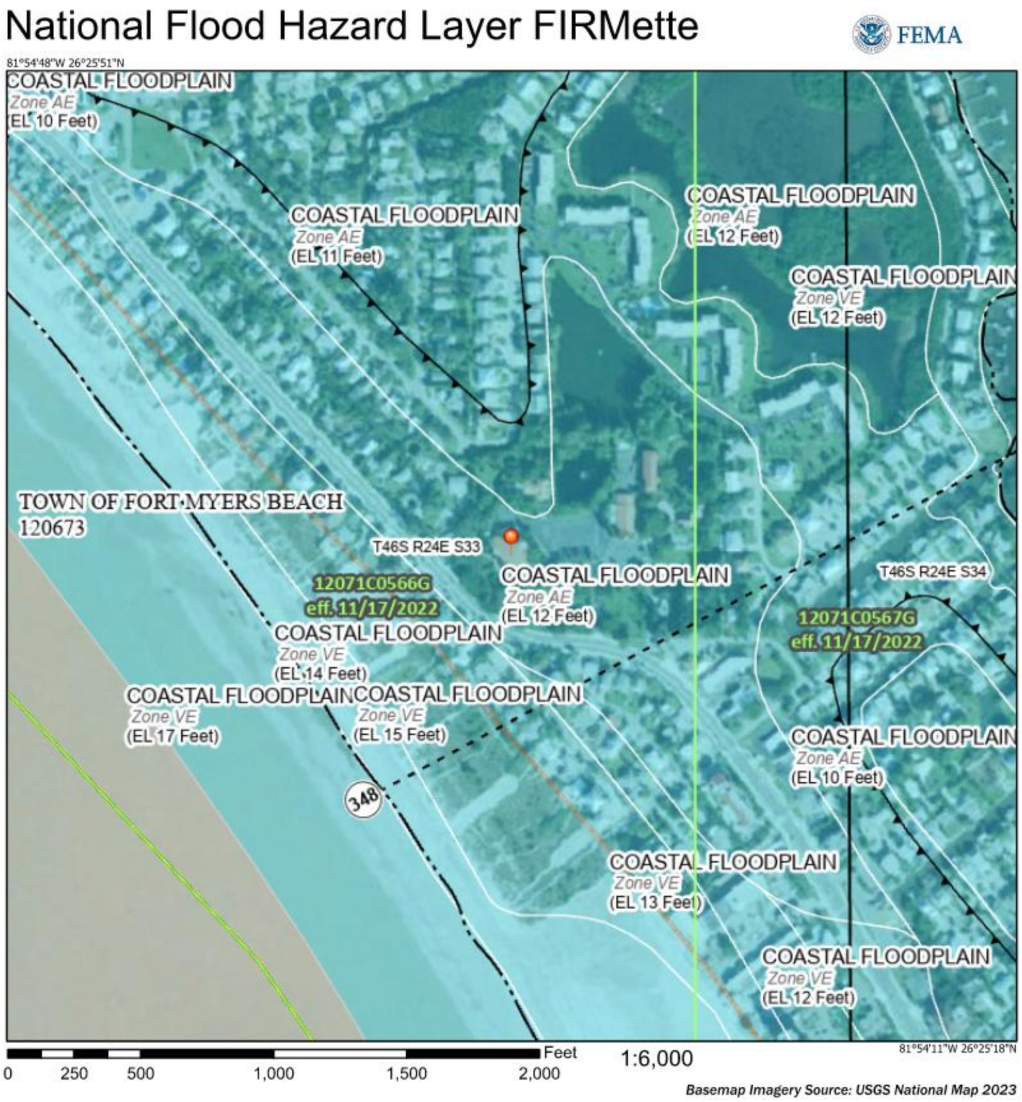


Figure 2: FEMA Flood Map (fema.gov/flood-map)

2.5 System Performance

An ICPR model was utilized to route the storm events and confirm the storage assumptions and water quantity calculations. The control structure was checked to ensure the 24-hour water quality discharge volume requirements and maximum discharge rate were adhered to. Back-to-back storm events were run to ensure the basins due to the recovery of the basins at hour 360, as a result the perimeter berms were set higher than the back-to-back peak stage. See Appendix C for ICPR inputs and model results.

2.5 ICPR Results and SWM Summary

The proposed SWM system utilizes storm water structures to collect storm overland flow across the pavement and open space. The storm water is then conveyed to the dry retention area and then into wet detention area in series which provide the required water quality and nutrient loading. The SWMS discharges within the allowable discharge rates parameters off-site from the proposed Lakes, via the proposed control structure weir to the north. The minimum parking lot elevation is set at the 10-year storm event, roadways are set to the 25-year storm event, the perimeter berm is set at the 25-year back-to-back storm event, and the building floors are set at the FEMA plus 2 ft, since 100- year storm event yield a lower stage elevation, See Appendix C for ICPR inputs and model results.

APPENDIX A – SWMS BASIN CALCULATIONS

Church of the Ascension
Staff Summary Report

Project Land Use

Total Building	**0.69 ac.**
Total Pavement/Concrete	**3.47 ac.**
Total Lake Area	**1.59 ac.**
Total Dry Retention Area	**1.15 ac.**
Total Open Space	**6.15 ac.**
Total SWMS Basin	**13.05 ac.**
Areas Outside of SWMS Basin	
Other Areas	1.56 ac.
Total Project Area	**14.61 ac.**
Off-site Access Improvements (Providing WQ Compensation Only)	*0.00 ac.*

Control Elevation:

Basin	Area	Control Elev. (ft., NAVD)	Method of Determination
Basin 1	**9.02 ac.**	**1.60 ft.**	Off-Site North Lake (Previously Approved Permit No. 36-103211-P)
Basin 2	**4.03 ac.**	**1.60 ft.**	

Water Quality Elevation:

Basin	Treatment Metho	Volume Required (ac-ft)	Volume Provided (ac-ft)	Water Quality Elevation (ft., NAVD)
Basin 1	**tention & Wet De**	**1.09 ac-ft**	**1.17 ac-ft**	**1.60 ft.**

Discharge Rate (25Year - 3 Day)

Basin	termination Meth	Discharge Rate	Allowable Discharge	Actual Peak Discharge *
Basin 1	**Permit No. 36-103**	**N/A**	**73.22 cfs**	**14.97 cfs**

** 3-in Minimum Orifice at Control*

Receiving Body:

Basin	Structure	Location	Receiving Body
Basin 1	**CS-1**	**Lake 1**	**Lee County Halfway Creek Basin via North Lake and Drainage Ditch**

Design Stages:

	Design Storm	Design Rain Fall	Peak Stage (ft., NAVD)	Proposed Min. Elevation (ft. NAVD)
Basin 1				
Min Finish Floor	r - 3 Day (Zero Di	15.10 in.	**4.98 ft.**	**16.00 ft.**
Min. Perimeter Berm	ar - 3 Day (Back to	11.20 in.	**3.51 ft.**	**3.60 ft.**
Min. Road Elevation	25 Year - 3 Day	11.20 in.	**3.51 ft.**	**3.60 ft.**
Min. Parking Elevation	10 Year - 1 Day	7.20 in.	**2.91 ft.**	**3.00 ft.**

*FEMA Elevation: 12.00 ft. Zone AE

and Effective Date: 12021C0412J / 12021C0414J, 2/8/2024

Water Quality/Discharge Structure

Basin	Existing Strucutre	Type	Width (in.)	Height (in)	Invert Elevation (ft., NAVD)
Basin 1	CS-1	Circular Orifice	**4.00 in.**	**1.60 in.**	**1.60 ft.**
		Wier	**120.00 in.**	**12.00 in.**	**2.64 ft.**

Church of the Ascension

Land Use Data

Project Land Use

Surface Water Management System (SWMS) Basin	13.05 ac.
Areas Outside SWM Basin	
Preserve	0.00 ac.
Other Areas	1.56 ac.
Total Project Area	**14.61 ac.**

Off-site Access Improvements (Providing WQ Compensation Only) *0.00 ac.*

Surface Water Management System Land Use

	Sub-Basin 1	Total Basin 1	% of Total Basin
Impervious			
Building	0.69 ac.	**0.69 ac.**	**5%**
Pavement/Concrete	3.47 ac.	**3.47 ac.**	**27%**
Pervious			
Open Space	6.15 ac.	**6.15 ac.**	**47%**
Water Management			
Lake at Control Elev.	1.59 ac.	**1.59 ac.**	**12%**
Dry Retention Bottom	1.15 ac.	**1.15 ac.**	**9%**
Total Basin Area	**13.05 ac.**	**13.05 ac.**	**100%**
Total Impervious Area	**6.90 ac.**	**5.31 ac.**	**41%**
Total Pervious Area	**6.15 ac.**	**6.15 ac.**	**47%**

Church of the Ascension
Basin 1 Stage Storage

Average Site Grade*

Land Use	Elevation Range		Avg Elev.	Area	Area x Avg Elev.
Lake at Control Elev.	1.60 ft	1.60 ft	1.6 ft	1.59 ac.	2.54
Lake Banks	1.60 ft	4.20 ft	2.9 ft	0.56 ac.	1.62
Pavement/Concrete	2.80 ft	10.00 ft	6.4 ft	3.47 ac.	22.21
Dry Retention Bottom	2.60 ft	2.60 ft	2.6 ft	1.15 ac.	2.99
Dry Retention Banks	2.60 ft	4.20 ft	3.4 ft	0.34 ac.	1.15
Open Space	2.90 ft	10.00 ft	6.5 ft	5.81 ac.	37.48
			Total =	**12.92 ac.**	**68.00**
*Does Not Include Building Areas			**Avg Site Grade =**	**5.26 ft**	

Soil Storage

Sub-Basin Area (ac)	13.05	
Sub-Basin Area, less Building area (ac)	12.92	
Pervious Area (ac)	6.15	
Average Site Grade (ft)	5.26	
Control Elevation (ft)	**1.6**	
Average Depth to Water Table (ft)	3.66	
Soil Compaction Factor (i.e. 25%)	25%	
Developed Storage Available (in)	7.25	From SFWMD; Basis for Review, Volume IV
Available Soil Storage	3.72	(Developed Storage Available) x (Pervious Area)/(12 inches/ft)
Site-Wide Soil Storage (S)	3.45	(Available Soil Storage/Site Area) x (12 inches/ft)
CN for Sub-Basin	**74.34**	CN = 1,000 /(S + 10)

Stage Storage

					Stage-Volume AF						
Land Use	**Storage Criteria**	**Elevation Range**		**Area**	**1.6 ft**	**2.6 ft**	**2.9 ft**	**3.0 ft**	**4.0 ft**	**4.2 ft**	**10.0 ft**
Lake at Control Elev.	Vertical	1.6 ft	1.6 ft	1.59 ac.	0.00	1.59	2.07	2.23	3.82	4.13	13.36
Lake Banks	Linear	1.6 ft	4.2 ft	0.56 ac.	0.00	0.11	0.18	0.21	0.62	0.73	3.98
Pavement/Concrete	Linear	2.8 ft	10.0 ft	3.47 ac.	0.00	0.00	0.00	0.01	0.35	0.47	12.49
Dry Retention Bottom	Vertical	2.6 ft	2.6 ft	1.15 ac.	0.00	0.00	0.35	0.46	1.61	1.84	8.51
Dry Retention Banks	Linear	2.6 ft	4.2 ft	0.34 ac.	0.00	0.00	0.01	0.02	0.21	0.27	2.23
Open Space	Linear	2.9 ft	10.0 ft	5.81 ac.	0.00	0.00	0.00	0.00	0.50	0.69	20.63
				10.77 ac.	**0.00 ac-ft**	**1.70 ac-ft**	**2.61 ac-ft**	**2.93 ac-ft**	**7.10 ac-ft**	**8.14 ac-ft**	**61.20 ac-ft**

Church of the Ascension

Water Quality Calcs

Surface Water Management System (SWMS) Area	**13.05 ac.**
Off-Site Impervious Area (Compensation)	**0.00 ac.**

Water Quality Volume Calculations

1. First-Inch of Runoff Criteria	
1.0" Runoff Volume =	**1.09 ac-ft**
1.0in x 1ft/12in x SWMS Area	
2. Percent Impervious Criteria	
WQ Site Area =	**10.77 ac.**
WQ Site Area = Project Area - (Lake + Roof)	
Impervious Area=	**4.62 ac.**
Impervious Area = Impervious Area - Building Area	
Percent Impervious =	**43%**
Percent Impervious Area = Impervious Area/WQ Site Area	
2.5" x Percent Impervious Runoff Vol. =	**1.02 ac-ft**
2.5in x 1ft/12in x Percent Impervious x (SWMS Area - Lake Area)	
Required Water Quality Criteria =	**1**
Required Water Quality Volume =	**1.09 ac-ft**
Required Off-Site Compensation =	**0.00 ac-ft**
Off-Site Impervious Area x 2.5in x 1ft/12in	
Water Quality Volume Sub-Total =	**1.09 ac-ft**
Add. 50% Water Quality Volume =	0.54 ac-ft
50% Reduction for Dry Retention =	0.54 ac-ft
Total Req. Water Quality Volume =	**1.09 ac-ft**
Water Quality Vol. Provided via Dry Retention =	**1.17 ac-ft**
Water Quality Vol. Provided via Lake =	**0.00 ac-ft**
Total Water Quality Vol. Provided =	**1.17 ac-ft**
Control Elevation =	**1.60 ft**
Water Quality Elevation =	**1.60 ft**
24 Hour Discharge Volume =	**0.48 ac-ft**
0.5in x 1ft/12in x (Basin Area-Lake Area)	

at Elev. **3.80 ft**

*** All required water quality is provided within the dry retention**

Discharge = 0.24 cfs

*** No water quality discharge proposed.**

Church of the Ascension

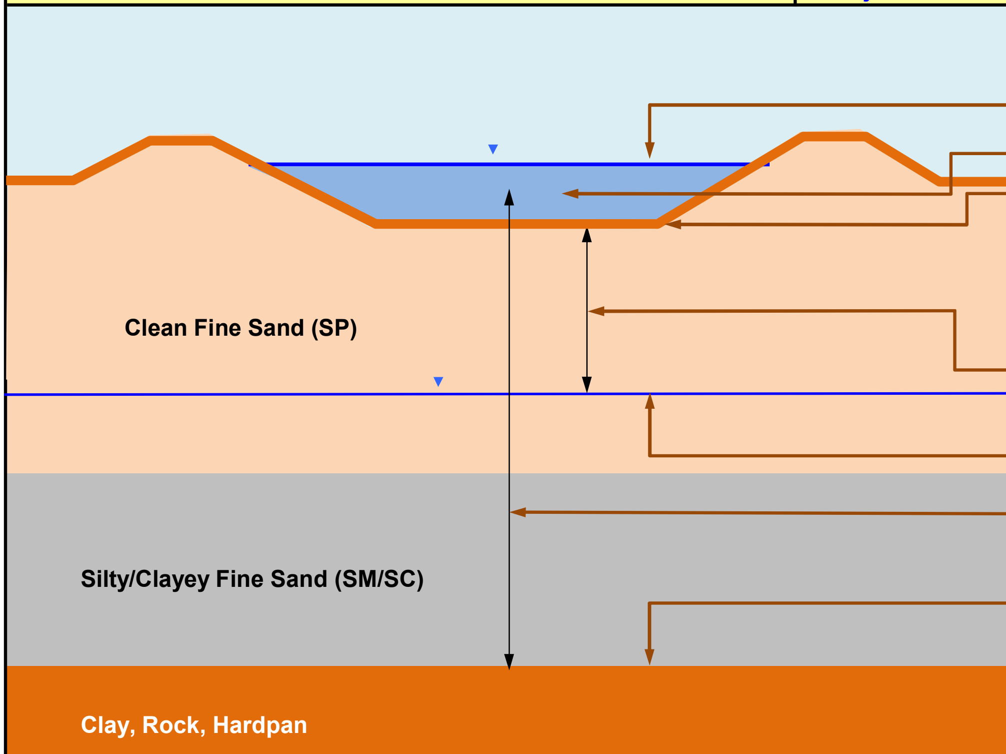
Maximum Allowable Discharge Rate/Maximum Water Quality Discharge Volume in 24hrs.

Maximum Allowable Discharge Rate

Surface Water Management System (SWMS) Area		13.05 ac.
Allowable Discharge Rate		N/A
SWMS Maximum Allowable Discharge Rate Per Permitt No. 36-103211-P		73.22 cfs
SWMS Actual Discharge Rate		14.97 cfs

MODRET Recovery Analysis
Dry Retention Pond

Project Name: ***Church of Ascension - RA#1***



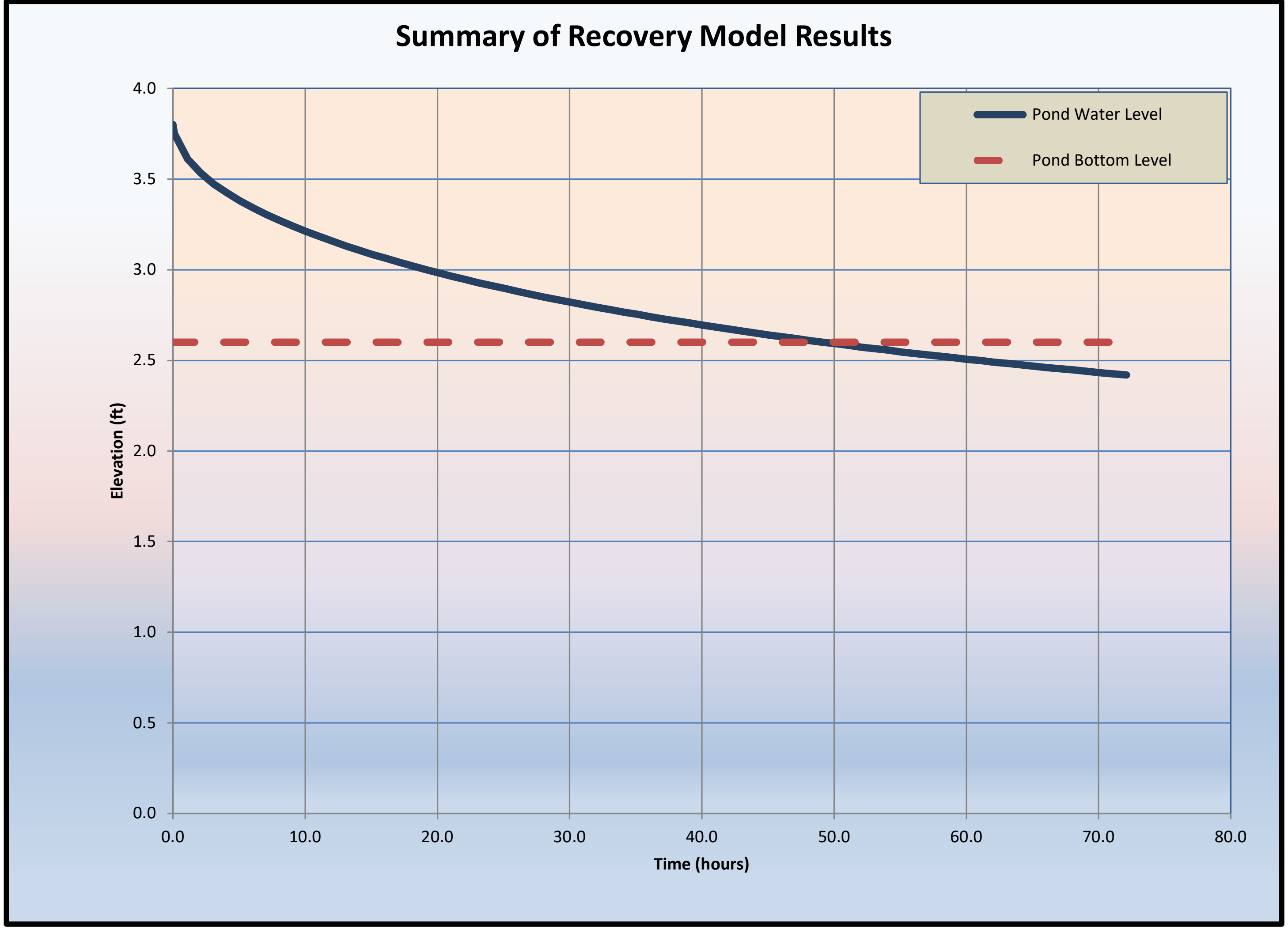
MODEL INPUT

Unsaturated Infiltration Included?	Yes	
Top of Recovery Volume Elevation	3.80	ft
Total Volume to be Recovered	16,448	ft3
Pond Bottom Elev./Bottom of Recovery	2.60	ft
Effective Storage Coefficient of Soil	0.09	dec.
User Specified Storage Coefficient		dec.
Soil Compaction Below Pond Bottom	Uncompacted	
Weighted Average Unsaturated Vertical Hydraulic Conductivity, Kvu	22.87	ft/day
Factor of Safety for Kvu	2.00	
Seasonal High Groundwater Elevation	1.60	ft
Weighted Average Horizontal Hydraulic Conductivity of Aquifer, Kh	51.45	ft/day
Base of Aquifer Elevation	-20.00	ft
Effective Base of Aquifer Elevation	-20.00	ft
Length to Width Ratio (L/W)	1.53	
Specified Recovery Time	72.00	hours
Modeled Time of Recovery	***49.10***	***hours***

NOTES:
The recovery is calculated using MODFLOW96 groundwater flow model and the modified Green & Ampt equations.

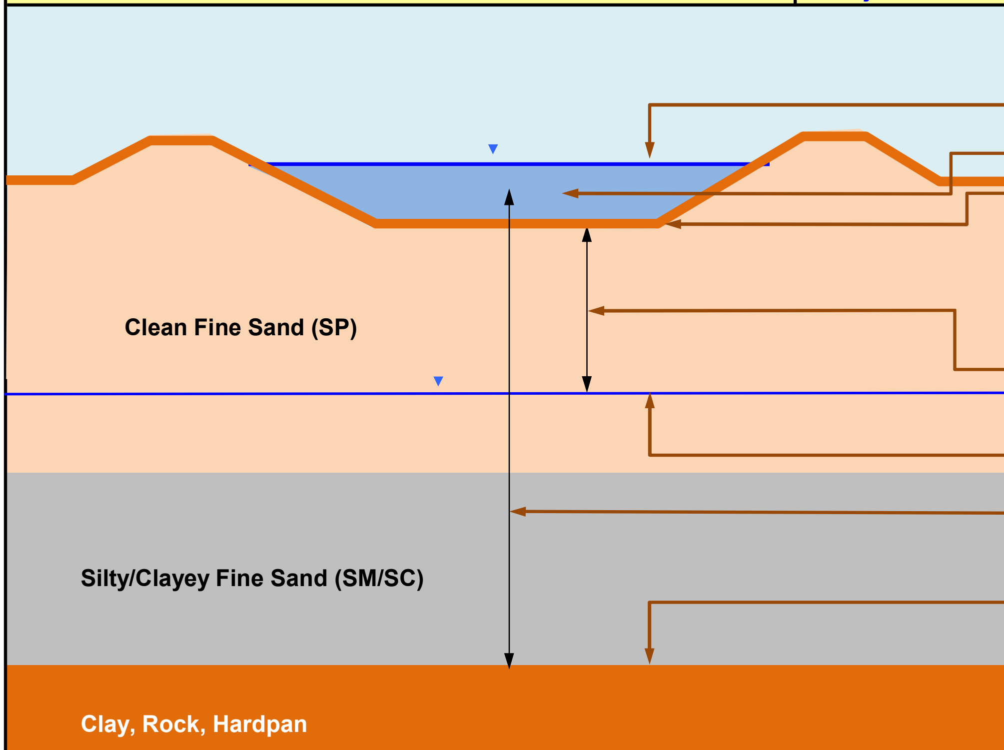
Date & Time: 9/15/2025 2:34 PM

Project Name: *Church of Ascension - RA#1* | **Recovery Time:** **49.1** **hours**



MODRET Recovery Analysis
Dry Retention Pond

Project Name: *Church of the Ascension - RA#2*



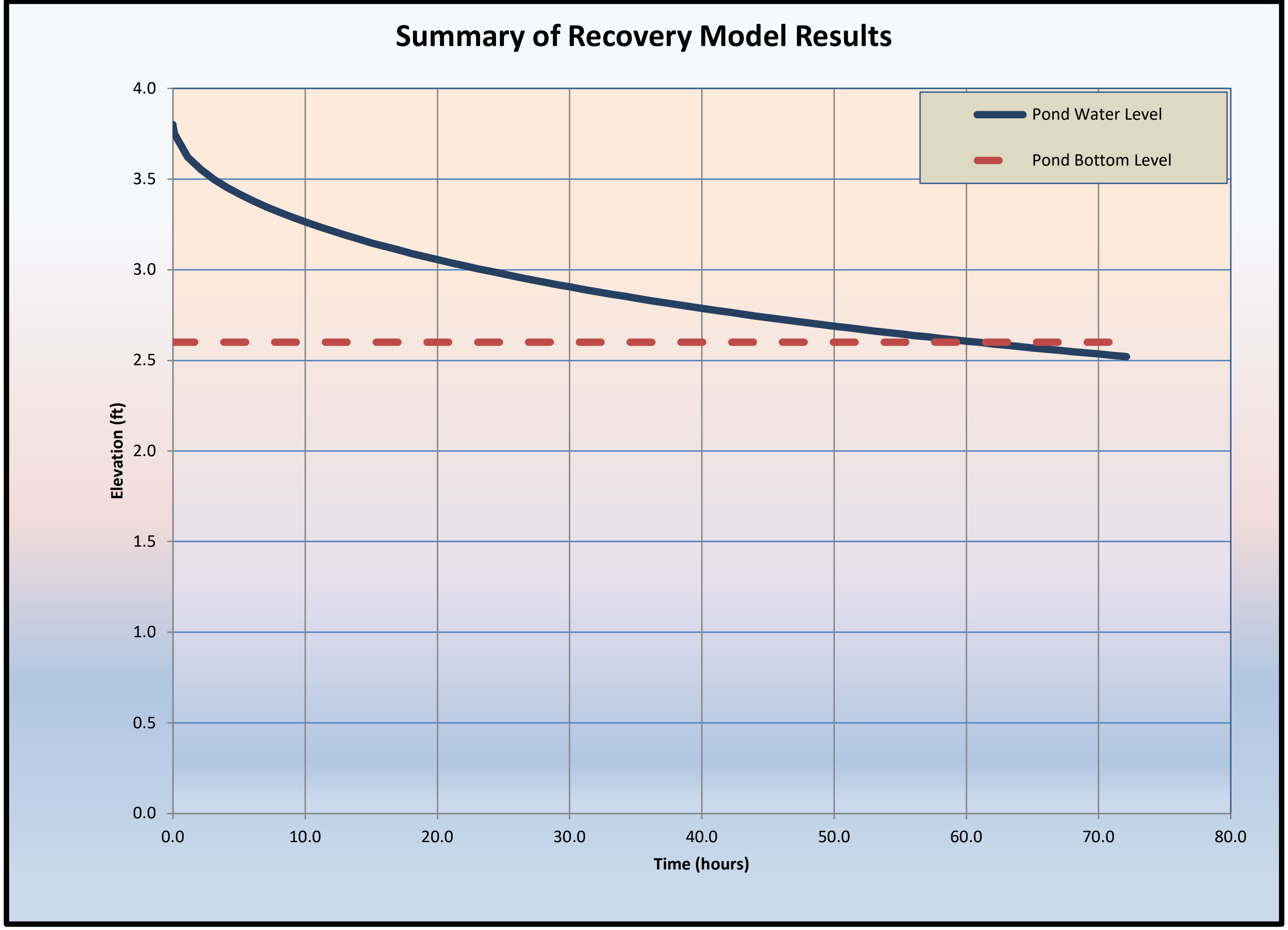
MODEL INPUT

Unsaturated Infiltration Included?	Yes	
Top of Recovery Volume Elevation	3.80	ft
Total Volume to be Recovered	21,103	ft3
Pond Bottom Elev./Bottom of Recovery	2.60	ft
Effective Storage Coefficient of Soil	0.09	dec.
User Specified Storage Coefficient		dec.
Soil Compaction Below Pond Bottom	Uncompacted	
Weighted Average Unsaturated Vertical Hydraulic Conductivity, Kvu	22.87	ft/day
Factor of Safety for Kvu	2.00	
Seasonal High Groundwater Elevation	1.60	ft
Weighted Average Horizontal Hydraulic Conductivity of Aquifer, Kh	51.45	ft/day
Base of Aquifer Elevation	-20.00	ft
Effective Base of Aquifer Elevation	-20.00	ft
Length to Width Ratio (L/W)	2.10	
Specified Recovery Time	72.00	hours
Modeled Time of Recovery	***60.10***	***hours***

NOTES:
The recovery is calculated using MODFLOW96 groundwater flow model and the modified Green & Ampt equations.

Date & Time: 9/15/2025 2:38 PM

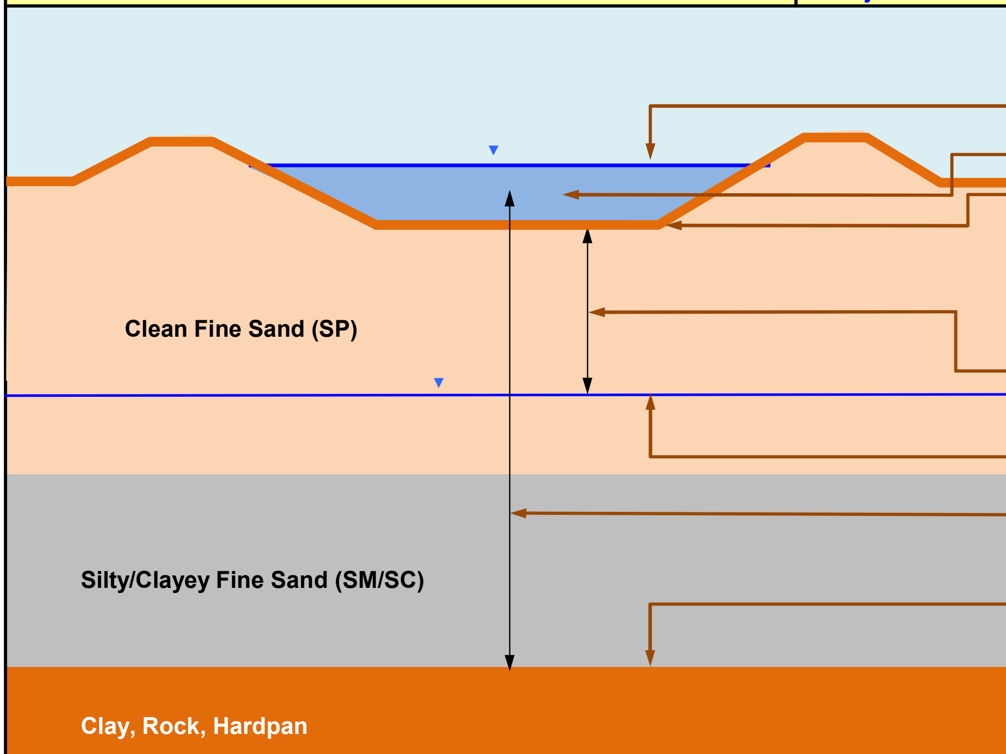
Project Name: *Church of the Ascension - RA#2*	**Recovery Time:** 60.1 hours



MODRET Recovery Analysis

Dry Retention Pond

Project Name: ***Church of the Ascension - RA#3***



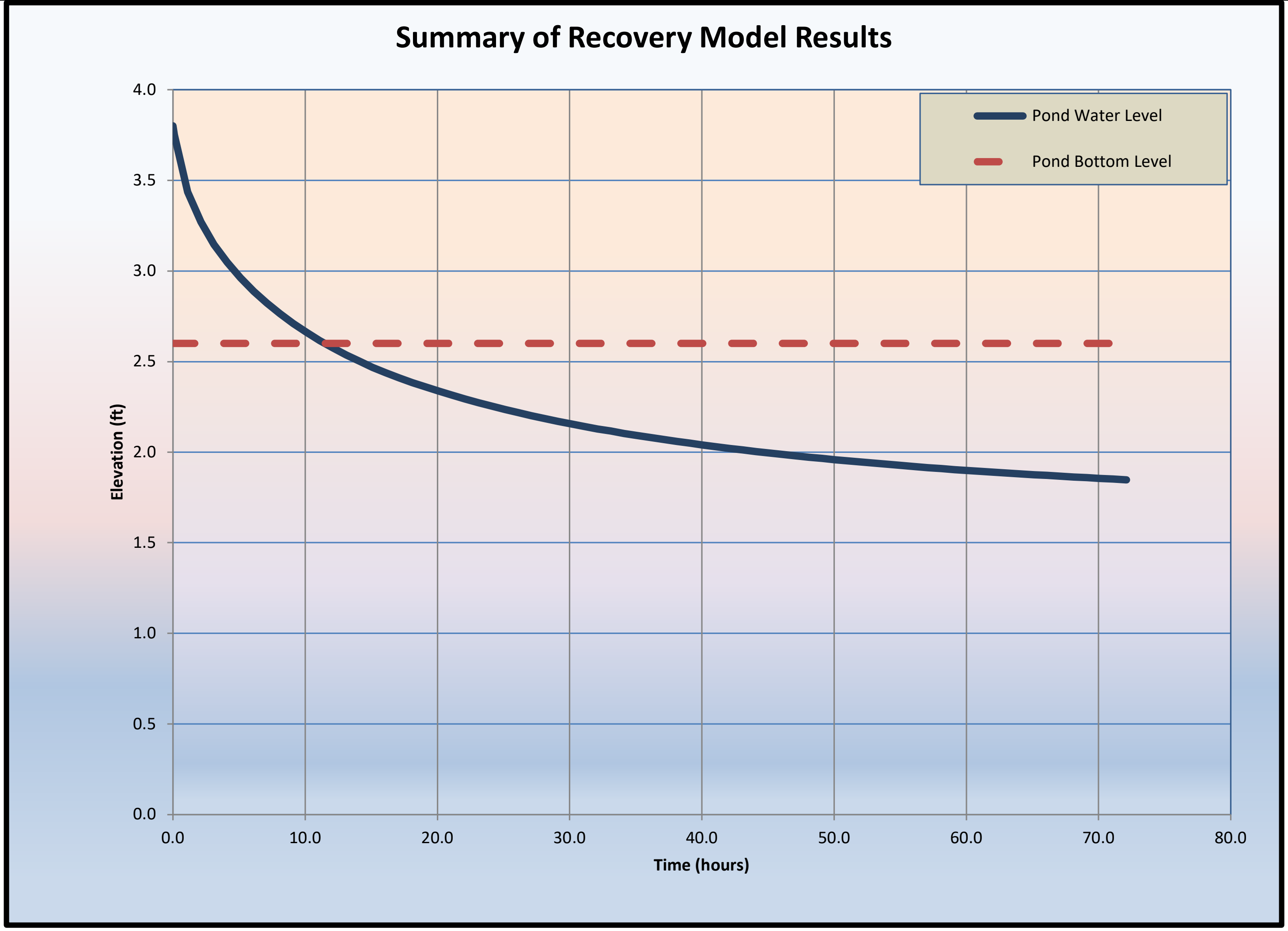
MODEL INPUT

Unsaturated Infiltration Included?	Yes	
Top of Recovery Volume Elevation	3.80	ft
Total Volume to be Recovered	3,762	ft3
Pond Bottom Elev./Bottom of Recovery	2.60	ft
Effective Storage Coefficient of Soil	0.09	dec.
User Specified Storage Coefficient		dec.
Soil Compaction Below Pond Bottom	Uncompacted	
Weighted Average Unsaturated Vertical Hydraulic Conductivity, Kvu	22.87	ft/day
Factor of Safety for Kvu	2.00	
Seasonal High Groundwater Elevation	1.60	ft
Weighted Average Horizontal Hydraulic Conductivity of Aquifer, Kh	51.45	ft/day
Base of Aquifer Elevation	-20.00	ft
Effective Base of Aquifer Elevation	-20.00	ft
Length to Width Ratio (L/W)	1.57	
Specified Recovery Time	72.00	hours
Modeled Time of Recovery	***11.10***	***hours***

NOTES:
The recovery is calculated using MODFLOW96 groundwater flow model and the modified Green & Ampt equations.

Date & Time: 9/15/2025 2:42 PM

Project Name: *Church of the Ascension - RA#3*	**Recovery Time:** 11.1 hours



APPENDIX B – PROJECT BACKUP INFORMATION

Previous ERP Permit No. 36-103211-P (Allowable Discharge Rate)

ST. CLARE'S ASCENSION CATHOLIC CHURCH

Surface Water Management Report

Prepared by:

Q. Grady Minor & Associates, P.A.
3800 Via Del Rey
Bonita Springs, Florida 34134
(239) 947-1144

March, 2020

Digitally signed
by Michael J.
Delate, P.E.
Date: 2020.05.12
13:39:56 -04'00'

Michael J. Delate, P.E.
Florida Registration No. 49442

Discharge Rate

As the site discharges in a tidally influenced body of water the allowable discharge rate was determined by calculating the discharge based on the current site conditions. The site currently discharges freely into the lake system and then overflows into the north lake offsite. The proposed weir controls discharge offsite into the lake.

Land Use and Stage-Storage Assumptions

Land use was generally broken down into pavement, lakes, and open space. An existing perimeter berm is prevents uncontrolled discharges offsite. Building sites were not used in the storage calculations.

- Lakes = Vertical Storage starting at Control Elevation.
- Pavement = Linear Storage starting at the minimum elevation.
- Open Space = Linear Storage starting at the lake top of bank.
- Lake Banks = Linear Storage starting at Control Elevation up to the top of bank.

2.2 Water Quality Calculations

Water quality was calculated based on the greater of either the first inch of runoff or 2.5" times the impervious acreage and calculations were performed based on SFWMD BOR to confirm the first one-half (1/2) inch of water volume is at or greater than 24 hours starting at the water quality elevation.

As the SWM system is located within Estero Bay (WBID #3258A1) and is impaired an additional 50% of water quality treatment has been provided.

One (1) wet detention lake is used in the water quality calculation as the other smaller lake does not meet the dimensional criteria in the SFWMD BOR.

2.3 Nutrient Loading

No nutrient loading calculations are require as this application only proposes to add a weir structure to control offsite discharges.

No other Best Management Practices (BMP) or limiting total maximum daily loads (TMDL) are required for this waterbody.

2.4 Floodplain Compensation

Floodplain compensation analysis is not required as the site is substantially constructed under the previous permit. This application only proposes to add a weir structure to control offsite discharges and the site is located within the FEMA coastal hydraulic model which designates the area as an AE zone.

PRE-DEVELOPMENT DISCHARGE

Pre-Development discharge is based on the existing conditions. Currently the site does not have a defined outfall therefore the pre-development discharge is estimated based on the rational method using a weighted C coeficient and rainfall amount of the 25 year storm event.

Rational Method = CiA

Calculate Weighted C coeficient

Land-Use	Area (ac)	C	Area X C
Buildings	0.938	0.95	0.891
Lake	0.959	0.95	0.911
Open Space	7.176	0.20	1.435
Dry Detention	1.271	0.10	0.127
Pavement / Conc	2.776	0.95	2.637
Sub-Total	13.120		6.001

Weighted C Value = 0.457

i = 12.2 in (25 Year Storm Event)
A = 13.120

Pre-Dev. Discharge (cfs) = C x i x A = 73.22

Manual Basin: MB-BASIN

Scenario:	Scenario1
Node:	BASIN
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	17.0000 min
Max Allowable Q:	0.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH256
Peaking Factor:	256.0
Area:	13.1200 ac

Area [ac]	Land Cover Zone	Soil Zone	Rainfall Name
13.1200	BASIN	BASIN	

Comment:

Node: BASIN

Scenario:	Scenario1
Type:	Stage/Volume
Base Flow:	0.00 cfs
Initial Stage:	1.60 ft
Warning Stage:	0.00 ft

Stage [ft]	Volume [ac-ft]	Volume [ft3]
1.60	0.00	0
3.90	2.54	110642
4.00	2.82	122839
4.50	4.87	212137
4.60	5.44	236966
4.90	7.54	328442
5.50	13.40	583704
6.00	19.85	864666
6.50	26.58	1157825
7.00	33.31	1450984

Comment:

Node: OUTFALL

Scenario:	Scenario1
Type:	Time/Stage
Base Flow:	0.00 cfs
Initial Stage:	2.18 ft
Warning Stage:	0.00 ft
Boundary Stage:	

Year	Month	Day	Hour	Stage [ft]
0	0	0	0.0000	2.18
0	0	0	5.0000	0.53
0	0	0	11.0000	2.47
0	0	0	17.0000	0.46
0	0	0	22.0000	2.27
0	0	0	28.0000	0.38
0	0	0	34.0000	2.43
0	0	0	40.0000	0.58
0	0	0	45.0000	2.34
0	0	0	51.0000	0.26
0	0	0	57.0000	2.36
0	0	0	63.0000	0.73
0	0	0	68.0000	2.39
0	0	0	74.0000	0.20
0	0	0	80.0000	2.26
0	0	0	86.0000	0.90
0	0	0	91.0000	2.42
0	0	0	98.0000	0.18
0	0	0	104.0000	2.13
0	0	0	110.0000	1.09
0	0	0	115.0000	2.42
0	0	0	122.0000	0.21
0	0	0	128.0000	1.98
0	0	0	133.0000	1.27
0	0	0	138.0000	2.42
0	0	0	145.0000	0.25
0	0	0	151.0000	1.86
0	0	0	156.0000	1.42
0	0	0	160.0000	2.39
0	0	0	168.0000	0.27
0	0	0	174.0000	1.79
0	0	0	179.0000	1.51
0	0	0	183.0000	2.35
0	0	0	191.0000	0.27
0	0	0	197.0000	1.74
0	0	0	202.0000	1.54
0	0	0	206.0000	2.34
0	0	0	214.0000	0.25
0	0	0	221.0000	1.78
0	0	0	225.0000	1.48
0	0	0	229.0000	2.35
0	0	0	237.0000	0.19
0	0	0	243.0000	1.88
0	0	0	248.0000	1.30
0	0	0	253.0000	2.38
0	0	0	260.0000	0.12
0	0	0	266.0000	2.01
0	0	0	271.0000	1.02
0	0	0	276.0000	2.48

Year	Month	Day	Hour	Stage [ft]
0	0	0	282.0000	0.11
0	0	0	288.0000	2.17
0	0	0	293.0000	0.69
0	0	0	298.0000	2.58
0	0	0	304.0000	0.18
0	0	0	310.0000	2.34
0	0	0	316.0000	0.36
0	0	0	322.0000	2.61
0	0	0	328.0000	0.32
0	0	0	334.0000	2.61
0	0	0	340.0000	0.32
0	0	0	360.0000	1.60

Comment:

Drop Structure Link: CS		Upstream Pipe		Downstream Pipe	
Scenario:	Scenario1	Invert:	1.60 ft	Invert:	1.60 ft
From Node:	BASIN	Manning's N:	0.0130	Manning's N:	0.0130
To Node:	OUTFALL	Geometry: Circular		Geometry: Circular	
Link Count:	1	Max Depth:	4.00 ft	Max Depth:	4.00 ft
Flow Direction:	Both	Bottom Clip			
Solution:	Combine	Default:	0.00 ft	Default:	0.00 ft
Increments:	0	Op Table:		Op Table:	
Pipe Count:	1	Ref Node:		Ref Node:	
Damping:	0.0000 ft	Manning's N:	0.0000	Manning's N:	0.0000
Length:	60.00 ft	Top Clip			
FHWA Code:	5	Default:	0.00 ft	Default:	0.00 ft
Entr Loss Coef:	0.50	Op Table:		Op Table:	
Exit Loss Coef:	0.50	Ref Node:		Ref Node:	
Bend Loss Coef:	0.00	Manning's N:	0.0000	Manning's N:	0.0000
Bend Location:	0.00 ft				
Energy Switch:	Energy				

Pipe Comment:

Weir Component			
Weir:	1	Bottom Clip	
Weir Count:	1	Default:	0.00 ft
Weir Flow Direction:	Both	Op Table:	
Damping:	0.0000 ft	Ref Node:	
Weir Type:	Sharp Crested Vertical	Top Clip	
Geometry Type:	Circular	Default:	0.00 ft
Invert:	1.60 ft	Op Table:	
Control Elevation:	1.60 ft	Ref Node:	
Max Depth:	0.33 ft	Discharge Coefficients	
		Weir Default:	3.200
		Weir Table:	

St. Clare's Ascension Catholic Church

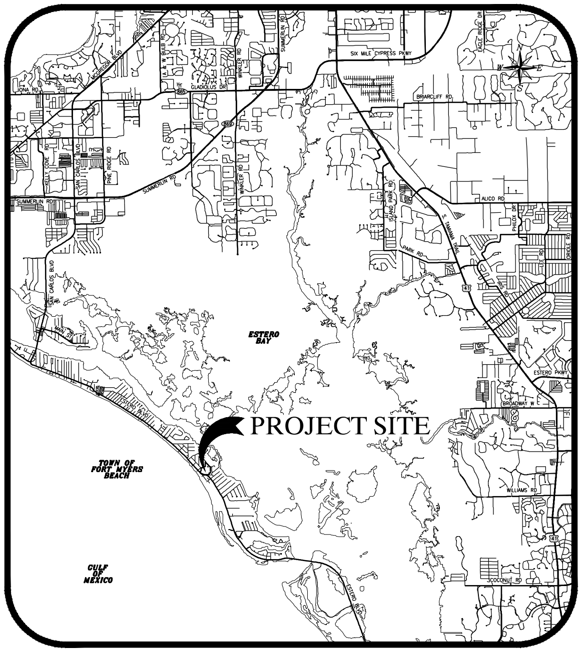
Surface Water Management Plans

Located in Town of Ft. Myers Beach, Lee County
Section 33, Township 46 South, Range 24 East

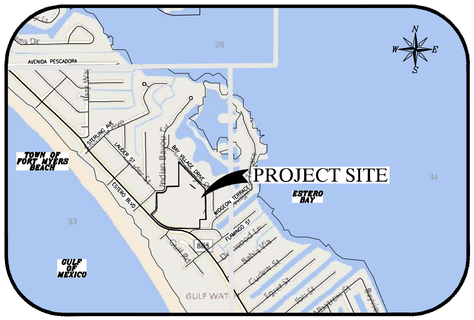
Owner/Developer:

Diocese of Venice
1000 Pine Brook Road
Venice, Fl. 34285

Town of Ft. Myers Beach Land Use: Mixed Residential
Environmental Resource Permit No. 36-02241-5
Lee County STRAP Number: 33-46-24-W2-00007.0000
Site Address: 6029 Estero Blvd.



Location Map
Scale: 1" = 1 MILE



Vicinity Map
Scale: 1" = 1000'

Index of Sheets

Sheet No.	Description
1	COVER SHEET AND INDEX OF SHEETS
2	GENERAL NOTES
3	AERIAL, EXISTING CONDITIONS PLAN
4	GRADING, PAVING AND DRAINAGE PLAN
5	DETAILED GRADING, PAVING AND DRAINAGE PLAN AND SECTIONS
6	EROSION CONTROL PLAN, NOTES AND DETAILS

Revisions

Revision	Date	Description	By
R	06/2021	RECORD PLANS	C.G.K.

Prepared by:

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FLORIDA P.E. LICENSE NO. 49442
EB/LB 0005151

DATE: MARCH 2020
FILE NAME: ACSCS-SFWMD-COV.DWG
JOB CODE: ACSCS
SHEET NUMBER 1 OF 6

SUBMITTAL SFWMD

St. Clare's Ascension Catholic Church
Surface Water Management Plans

GradyMinor

GENERAL UTILITY NOTES:

1. ALL WORK SHALL CONFORM TO LATEST REVISION OF THE TOWN OF FT. MYERS UTILITIES (CFMU) SPECIFICATIONS AND DETAILS WHICH IS AVAILABLE AT HTTP://WWW.CITYFTMYERS.COM/DEPARTMENTS/PUBLICWORKS/ENGINEERING/DETAILS.ASPX.
2. ANY QUANTITIES SHOWN ON PLANS ARE NOT VERIFIED BY CFMU.
3. A PRE-CONSTRUCTION MEETING IS REQUIRED BEFORE WORK MAY BEGIN. CFMU SHALL BE NOTIFIED 48 HOURS PRIOR TO PROJECT MOBILIZATION.
4. ALL WORK AND MATERIALS, WHICH DO NOT CONFORM TO CFMU SPECIFICATIONS, ARE SUBJECT TO REMOVAL AND REPLACEMENT AT THE CONTRACTOR'S EXPENSE.
5. ANY WORK PERFORMED WITHOUT THE KNOWLEDGE OF CFMU IS SUBJECT TO RE-EXCAVATION, REMOVAL AND REPLACEMENT OF SAME TO BE DONE AT THE CONTRACTOR'S EXPENSE.
6. THE CONTRACTOR SHALL PROVIDE SUFFICIENT PERSONNEL AND EQUIPMENT ON THE JOB AT ALL TIMES DURING CONSTRUCTION TO SATISFY THE SPECIFICATIONS AND TO COMPLETE WORK.
7. CFMU INSPECTION STAFF MAY OBSERVE PROJECT CONSTRUCTION.
8. THE CONTRACTOR IS TO UNCOVER ALL EXISTING LINES BEING TIED INTO AND VERIFY GRADES BEFORE BEGINNING CONSTRUCTION.
9. IT IS THE CONTRACTOR'S RESPONSIBILITY TO LOCATE AND TAKE ALL POSSIBLE PRECAUTIONS TO AVOID ANY DAMAGE TO ALL UNDERGROUND PIPELINES, TELEPHONE, CABLE TV, ELECTRIC LINES/CONDUITS AND STRUCTURES IN ADVANCE OF ANY CONSTRUCTION. CFMU WILL NOT GUARANTEE ANY LOCATIONS AS SHOWN ON THESE PLANS OR THOSE OMITTED FROM THESE PLANS. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MAY OCCUR BY HIS FAILURE TO EXACTLY LOCATE AND PROTECT EXISTING UTILITIES AND STRUCTURES.
10. CONTRACTOR SHALL VERIFY ALL QUANTITIES SHOWN ON THE PLANS. IF ANY DISCREPANCIES IN QUANTITIES ARE FOUND, THE CONTRACTOR SHALL NOTIFY THE PROJECT ENGINEER AND CFMU.
11. ALL REGULATORY AND PERMITTING AGENCIES' REQUIREMENTS SHALL BE COMPLIED WITH.
12. IN THE EVENT THAT HARD LIMESTONE FORMATION IS ENCOUNTERED, MAKING IT IMPOSSIBLE TO EXCAVATE TO THE DEPTH REQUIRED UNDER THIS CONTRACT, THE CONTRACTOR MAY BE ALLOWED TO REDUCE THE PIPE COVER TO NOT LESS THAN TWO (2) FEET WHILE MAINTAINING THE CFMU REQUIRED THICKNESS OF BEDDING UNDER THE PIPE. SUCH DEVIATION FROM THE PLANS MUST BE FIRST BE APPROVED BY CFMU AND THE ENGINEER PRIOR TO THE PIPE LAYING. IF TWO FEET OF COVER OR MORE CAN NOT BE ATTAINED, THE CONTRACTOR SHALL PROVIDE OTHER METHOD OF CONSTRUCTION OR PIPE PROTECTION WHICH SHALL FIRST BE APPROVED BY CFMU AND THE ENGINEER, AT NO ADDITIONAL COST TO THE CITY.
13. LOCATIONS, ELEVATIONS, AND DIMENSIONS OF EXISTING UTILITIES, STRUCTURES AND OTHER FEATURES ARE SHOWN ACCORDING TO THE BEST INFORMATION AVAILABLE AT THE TIME OF PREPARATION OF THESE PLANS, BUT DO NOT PURPORT TO BE ABSOLUTELY CORRECT. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL VERIFY AND BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL EXISTING UTILITIES, STRUCTURES, AND OTHER FEATURES AFFECTING HIS WORK. ANYTHING NOT SHOWN ON THESE DRAWINGS SHOULD BE BROUGHT TO THE ATTENTION OF THE ENGINEER AND SHALL NOT CONSTITUTE AN EXTRA, UNLESS APPROVED BY THE ENGINEER.
14. THE CONTRACTOR SHALL CONTACT THE ENGINEER AND CFMU IMMEDIATELY CONCERNING ANY CONFLICTS WITH CFMU UTILITIES/STRUCTURES ARISING DURING CONSTRUCTION OF ANY FACILITIES SHOWN ON THESE DRAWINGS.
15. TRAFFIC MUST BE MAINTAINED AT ALL TIMES PER LEE COUNTY DEPARTMENT OF TRANSPORTATION (LCDOT) AND PER FLORIDA DEPARTMENT OF TRANSPORTATION (FDOT) STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, LATEST EDITION.
16. THE CONTRACTOR SHALL VERIFY ALL UTILITIES AND PROVIDE AT LEAST 48 HOURS NOTICE TO THE INDIVIDUAL UTILITY COMPANIES AND FDOT AND LCDOT PRIOR TO CONSTRUCTION.
17. THE CONTRACTOR SHALL REPLACE ALL PAVEMENT, CURBS, DRIVEWAYS, SIDEWALKS, FENCES, ETC., WITH THE SAME TYPE OF MATERIAL THAT WAS REMOVED DURING CONSTRUCTION OR AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHALL RESTORE ALL AREAS AFFECTED BY THE CONSTRUCTION TO ITS ORIGINAL CONDITION, OR BETTER.
18. WITHIN THE FDOT AND LCDOT RIGHT-OF-WAY, ALL DISTURBED AREAS SHALL RECEIVE GRASSING (SEEDING) OR SODDING MATERIALS IN ACCORDANCE WITH FDOT SPECIFICATIONS. THOSE AREAS THAT ARE CLASSIFIED AS DRAINAGE DITCHES SHALL RECEIVE FULL SOLID SOD.
19. THE INFORMATION PROVIDED IN THESE PLANS IS SOLELY TO ASSIST THE CONTRACTOR IN ASSESSING THE NATURE AND EXTENT OF CONDITION WHICH MAY BE ENCOUNTERED DURING THE COURSE OF WORK. ALL CONTRACTORS ARE DIRECTED, PRIOR TO BIDDING, TO CONDUCT WHATEVER INVESTIGATIONS THEY MAY DEEM NECESSARY TO ARRIVE AT THEIR OWN CONCLUSION REGARDING THE ACTUAL CONDITIONS THAT WILL BE ENCOUNTERED, AND UPON WHICH THEIR BIDS WILL BE BASED.
20. ALL FRAMES, COVERS VALVE BOXES, METER BOXES, AND MANHOLES SHALL BE ADJUSTED TO FINISHED GRADE UPON COMPLETION OF PAVING OR RELATED CONSTRUCTION. ALL VALVE PADS SHALL BE POURED IN PLACE. NO PRE-FORMED VALVE PADS ALLOWED.
21. DURING DEMPOLITION OF WATER, SEWER AND STORM THE CITY OF FORT MUERS WILL REQUIRE LOAD TICKETS AS APPLICABLE AND INSPECTION WILL NEED TO BE CALLED WHEN PIPES ARE REMOVED.

CLEARING NOTES:

1. CLEARING SHALL BE LIMITED TO AREAS SHOWN ON THIS PLAN AS DESIGNATED IN THE FIELD BY THE ENGINEER AND DELINEATE BY SURVEY LATHE.
2. EXOTIC VEGETATION AS DEFINED BY THE LEE COUNTY LAND DEVELOPMENT CODE [LDC], SHALL BE REMOVED FROM THE SITE AND SUBSEQUENT ANNUAL EXOTIC REMOVAL (IN PERPETUITY) SHALL BE THE RESPONSIBILITY OF THE PROPERTY OWNER.
3. SILT FENCE IS NOT REQUIRED AS THE AREA IS BERMED ON ALL SIDES.

GENERAL NOTES

1. ELEVATIONS ARE BASED ON NORTH AMERICAN VERTICAL DATUM 1988 (NAVD 88).
2. COORDINATES ARE IN STATE PLANE WEST.
3. TO CONVERT TO NATIONAL GEODETIC VERTICAL DATUM (NGVD - 1929), ADD #.##.
4. THIS PROPERTY IS LOCATED WITHIN FLOOD ZONE X, HAVING NO BASE FLOOD ELEVATION, AND FLOOD ZONE AE, HAVING A BASE FLOOD ELEVATION OF X.XX' (NAVD 88), PER THE FEDERAL EMERGENCY MANAGEMENT AGENCY FLOOD INSURANCE RATE MAP # XXXXXXXXXXXXXXX, DATED XX/XX/20XX.
5. THIS SITE IS LOCATED IN A FLOODWAY OR COASTAL ZONE.
6. THIS SITE DOES EXHIBIT FRESHWATER OR SALTWATER INUNDATION.
7. ANY PUBLIC LAND PROPERTY CORNER WITHIN THE LIMITS OF CONSTRUCTION IS TO BE PROTECTED BY THE CONTRACTOR. IF A CORNER MONUMENT IS IN DANGER OF BEING DESTROYED AND HAS NOT BEEN PROPERLY REFERENCED, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER. ANY SURVEY MONUMENT DESTROYED BY CONSTRUCTION ACTIVITIES SHALL BE REPLACED BY A REGISTERED SURVEYOR & MAPPER AT THE CONTRACTOR'S EXPENSE.
8. THIS PROJECT WILL NOT CAUSE ADVERSE IMPACTS TO GROUND AND/OR SURFACE WATERS.
9. THIS SITE CAN BE USED SAFELY FOR BUILDING PURPOSES WITHOUT UNDUE DANGER FROM FLOOD OR ADVERSE SOIL OR FOUNDATION CONDITIONS CONTINGENT UPON SOIL BORINGS AND DESIGN FOR EACH STRUCTURE BY THE BUILDING ARCHITECT TO ACCOMMODATE SUBSOIL CONDITIONS. THIS STATEMENT DOES NOT INCLUDE SINKHOLES.
10. IRRIGATION SOURCE WILL BE FROM POTABLE WATER.
11. EXISTING DRAINAGE STRUCTURES WITHIN CONSTRUCTION LIMITS SHALL REMAIN, UNLESS OTHERWISE NOTED IN THE PLANS.
12. CONTRACTOR SHALL NOT DISTURB AREAS BEYOND 5 FEET OUTSIDE PROPOSED TOE-OF-SLOPE OR TOP OF DITCH. CONTRACTOR SHALL NOT WORK OUTSIDE OF RIGHT OF WAY LINE OR EASEMENTS.
13. BLACK SILT FENCE SHALL BE PLACED ALONG THE PROPERTY LINES AND/OR CONSTRUCTION LIMITS PRIOR TO CONSTRUCTION. REFER TO EROSION CONTROL PLAN SHEET FOR SILT FENCE CONSTRUCTION INFORMATION, AS APPLICABLE.
14. ALL DISTURBED AREAS SHALL RECEIVE SEED AND MULCH. EXCEPT WHERE SPECIFICALLY IDENTIFIED AS A PAY ITEM FOR A PARTICULAR AREA, SEED AND MULCH IS INCIDENTAL TO THE PROJECT.
15. UTILIZE SYNTHETIC BALES, TEMPORARY BERMING, SOD, SEED, AND MULCH TO CONTROL EROSION AS REQUIRED OR DIRECTED BY THE OWNER OR ENGINEER.
16. CONTRACTOR SHALL BE RESPONSIBLE FOR THE PREVENTION AND CONTROL OF ANY EROSION, SEDIMENTATION OR SURFACE WATER TURBIDITY CAUSED BY HIS ACTIVITY.
17. CONTROL STRUCTURES, SEDIMENT SUMPS AND OTHER FEATURES PERMITTED AS PART OF THE WATER MANAGEMENT SYSTEM SHALL BE CONSTRUCTED AS EARLY AS POSSIBLE IN THE CONSTRUCTION SEQUENCE.
18. ALL JUNCTION BOX RIMS AND GRATE INLETS SHALL BE SET AT THE PROPOSED FINISHED GRADE. ENGINEER AND/OR OWNER MAY ADJUST RIM AND GRATE ELEVATIONS IN FIELD.
19. DURING CONSTRUCTION, GRATE INLET AND JUNCTION BOX OPENINGS SHALL BE COVERED WITH FILTER FABRIC (MIRAFI 140N OR APPROVED EQUAL) TO PREVENT DEBRIS AND FILL FROM FALLING INTO THE INLET.
20. LANDSCAPING AND IRRIGATION SHALL BE INSTALLED PRIOR TO PRELIMINARY ACCEPTANCE.
21. EXISTING REFERS TO FACILITIES EITHER PREVIOUSLY CONSTRUCTED OR TO BE CONSTRUCTED UNDER SEPARATE DEVELOPMENT ORDER.
22. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND ELEVATIONS PRIOR TO COMMENCEMENT OF CONSTRUCTION. ANY DEVIATION IN PLAN INFORMATION SHALL BE REPORTED TO THE ENGINEER AND OWNER'S REPRESENTATIVE IMMEDIATELY.
23. CONTRACTOR IS REQUIRED TO OBTAIN FROM THE ENGINEER AND OWNER WRITTEN APPROVAL FOR ANY DEVIATION IN PLANS AND/OR SPECIFICATIONS.
24. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING TRAFFIC AND USAGE OF THE EXISTING STREETS ADJACENT TO THE PROJECT. ALL TRAFFIC MAINTENANCE CONTROL SHALL BE IN ACCORDANCE WITH FLORIDA MANUAL OF TRAFFIC CONTROL AND SAFE PRACTICES FOR STREET CONSTRUCTION, MAINTENANCE, AND UTILITY OPERATIONS. TRAFFIC CONTROL OPERATION PROCEDURES SHALL BE SUBMITTED TO OWNER FOR APPROVAL PRIOR TO BEGINNING CONSTRUCTION.
25. INSTALLATION OF SUBSURFACE CONSTRUCTION, INCLUDING BUT NOT LIMITED TO WATER AND IRRIGATION LINES, SEWER LINES, PUBLIC UTILITIES AND STORM DRAINAGE IS REQUIRED PRIOR TO COMPACTION OF SUBGRADE AND ROADWAY CONSTRUCTION.
26. CONTRACTOR SHALL ATTEND PRE-CONSTRUCTION MEETING WITH LEE COUNTY COMPLIANCE SERVICES STAFF, OWNER AND ENGINEER PRIOR TO START OF CONSTRUCTION.
27. THE FIRE PROTECTION WATER SUPPLY INCLUDING FIRE HYDRANTS, SHALL BE INSTALLED AND IN-SERVICE PRIOR TO PLACING COMBUSTIBLE MATERIALS ON SITE. FIRE HYDRANTS SHALL BE MARKED IN A UNIFORM MANNER, IN ACCORDANCE WITH NFPA 291.
28. EXOTIC VEGETATION AS DEFINED BY LEE COUNTY LAND DEVELOPMENT CODE [LDC] SHALL BE REMOVED FROM THE SITE AND SUBSEQUENT ANNUAL EXOTIC REMOVAL (IN PERPETUITY) SHALL BE THE RESPONSIBILITY OF THE PROPERTY OWNER.
29. CONTRACTOR SHALL CLEAR ALL EXCAVATION AND FILL AREAS. ACTUAL LIMITS OF CLEARING SHALL BE DETERMINED IN THE FIELD BY OWNER OR ENGINEER.
30. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVAL AND DISPOSAL OF ALL TREES, BRUSH, STUMPS AND DEBRIS (INCLUDING EXISTING STRUCTURES) NOT REQUIRED TO REMAIN IN THE PROPOSED CONSTRUCTION AREA. WHERE SO DEPICTED BY THE OWNER'S REPRESENTATIVE, TREES AND VEGETATION WITHIN THE CLEARING LIMITS SHALL BE PROTECTED, LEFT STANDING, AND TRIMMED TO PREVENT DAMAGE TO LIMBS AND ROOTS DURING CONSTRUCTION.
31. CONTRACTOR SHALL REMOVE ALL MUCK AND OTHER UNSUITABLE MATERIAL FROM FILL AREAS PRIOR TO PLACEMENT OF FILL. ALL MUCK AND OTHER UNSUITABLE MATERIAL EXCAVATION FROM LAKES OR REMOVED FROM FILL AREAS SHALL BE STOCKPILED AND THEN PROPOSED PROJECT AS DETERMINED BY OWNER.
32. ALL FILL SLOPES SHALL BE PROPERLY COMPACTED AS REQUIRED IN THE SPECIFICATIONS AND SHALL BE SEEDED OR SODDED AS DIRECTED BY OWNER WITHIN 28 HOURS OF FINAL GRADING.
33. THE CONTRACTOR SHALL ACCURATELY PLOT THE LOCATIONS AND DEPTHS OF ALL IMPROVEMENTS INSTALLED ON A FINAL SET OF RECORD DRAWINGS WHICH SHALL BE DELIVERED TO THE ENGINEER IMMEDIATELY.
34. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH FP&L ON THE INSTALLATION OF PARKING LOT LIGHTS.
35. THE REVIEW AND APPROVAL OF THESE IMPROVEMENT PLANS DOES NOT AUTHORIZE THE CONSTRUCTION OF REQUIRED IMPROVEMENTS WHICH ARE INCONSISTENT WITH EXISTING EASEMENTS OF RECORDS.
36. THE PROPERTY OWNER IS RESPONSIBLE FOR REPLACEMENT OF ALL DEAD LANDSCAPE MATERIAL AND MAINTENANCE OF THE REQUIRED IRRIGATION SYSTEM.
37. DUMPSTER TRASH PICKUP TO BE PROVIDED BY WASTE MANAGEMENT
38. THE OWNER OR HIS ASSIGNEE SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF THE WATER MANAGEMENT SYSTEM, OPEN SPACE, COMMON AREAS, AND PRIVATE STREETS.

DRAINAGE BASIN LAND USE SUMMARY				
LAND USE	BUILDING (AC)	IMPERVIOUS (AC)	PERVIOUS (AC)	TOTAL (AC)
BUILDINGS	0.938	0.000	0.000	0.938
LAKES	0.000	0.959	0.000	0.959
OPEN SPACE	0.000	0.000	7.176	7.176
DRY DETENTION BOTTOM	0.000	1.271	0.000	1.271
PAVING, CONCRETE, SIDEWALK	0.000	2.776	0.000	2.776
SUB-TOTAL	0.938	5.006	7.176	13.120
			TOTAL PERMIT AREA	13.120
AREAS OUTSIDE DRAINAGE BASIN				
LAKE				1.480
			TOTAL PROJECT AREA	14.600

WATER QUALITY CALULATIONS	
CRITERIA	
TOTAL DRAINAGE BASIN AREA =	13.12 AC
#1 1" RUNOFF VOLUME FROM DRAINAGE BASIN AREA =	1.09 AC-FT
OR	
#2 2.5" X PERCENT IMPERVIOUS	
WQ SITE AREA = (AREA - LAKES - BUILDINGS) =	11.50 AC
WQ IMPERVIOUS AREA = WQ SITE AREA - PERVIOUS AREA =	3.06 AC
WQ PERCENTER IMPERVIOUSNESS = WQ IMPERVIOUS AREA / WQ SITE AREA =	27 %
WQ VOLUME = 2.5" X WQ% IMPERVIOUS X (PROJECT AREA - LAKES) X 1'/12" =	0.67 AC-FT
REQUIRED WATER QUALITY VOLUME =	1.09 AC-FT
(GREAT OF CRITERIA #1 OR #2)	
ADDITIONAL 50% WATER QUALITY VOLUME =	0.55 AC-FT
ADDITIONAL 2.5" WQ VOLUME FOR TURN-LANE/DRIVE IMPROVEMENTS =	0.00 AC-FT
TOTAL WATER QUALITY REQUIRED =	**1.64 AC-FT**
TOTAL WATER QUALITY PROVIDED =	**1.64 AC-FT**
WATER QUALITY STAGE =	**2.44 FT**

SURFACE WATER MANAGEMENT SUMMARY	
CONTROL ELEVATION (FT.-NAVD)	1.60'
ALLOWABLE DISCHARGE (PRE-DEV)	80.34 CFS
PEAK 25-YEAR, 3-DAY STORM (CFS)	7.51 CFS
10-YEAR, 1-DAY STORM EVENT	6.80"
25-YEAR, 3-DAY STORM EVENT	11.50"
100-YEAR, 3-DAY STORM EVENT	14.30"
PEAK 10-YEAR, 1-DAY STORM STAGE (FT.-NAVD)	3.59'
PEAK 25-YEAR, 3-DAY STORM STAGE (FT.-NAVD)	4.02'
PEAK 100-YEAR, 3-DAY ZERO DISCHARGE STORM STAGE (FT.-NAVD)	5.48'
MINIMUM PARKING LOT ELEVATION (FT.-NAVD)	3.59'
MINIMUM ROAD CROWN ELEVATION (FT.-NAVD)	3.59'
MINIMUM FINISHED FLOOR ELEVATION (FT.-NAVD)	11.00' *
MINIMUM PERIMETER BERM ELEVATION (FT.-NAVD)	4.02'
FEMA ELEVATION (FT.-NAVD)	ZONE AE (EL. 11.0)

LEGEND

Revision	Date	Description	By

DESIGNED BY: M.J.D.
DRAWN BY: C.G.K.
APPROVED: M.J.D.
JOB CODE: ACSCS
SCALE: N.T.S.

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Bonita Springs: 239.947.1144 www.GradyMinor.com Fort Myers: 239.690.4380

ST. CLARE'S ASCENSION CATHOLIC CHURCH

GENERAL NOTES

ELEVATIONS SHOWN HEREON ARE BASED UPON NORTH AMERICAN VERTICAL DATUM 1988 (NAVD '88)
CONVERSION FACTOR TO NATIONAL GEODETIC VERTICAL DATUM 1929 (NGVD '29) IS (+)X.XXX'

MICHAEL J. DELATE, P.E.
FLORIDA P.E. LICENSE NO. 49442

MUNICIPALITY: TOWN OF FT. MYERS BEACH
SEC/TWNSHP/RNG: 33/46S/24E
DATE: MARCH 2020
SUBMITTAL TYPE: SFWMD

LEGEND

Revision	Date	Description	By

DESIGNED BY: M.J.D.
DRAWN BY: C.G.K.
APPROVED: M.J.D.
JOB CODE: ACSCS
SCALE: 1" = 50'

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ST. CLARE'S ASCENSION CATHOLIC CHURCH

AERIAL, EXISTING CONDITIONS PLAN

ELEVATIONS SHOWN HEREON ARE BASED UPON NORTH AMERICAN VERTICAL DATUM 1988 (NAVD '88)
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MICHAEL J. DELATE, P.E.
FLORIDA P.E. LICENSE NO. 49442

MUNICIPALITY: TOWN OF FT. MYERS BEACH
SEC/TWNSHP/RNG: 33/46S/24E
DATE: MARCH 2020
SUBMITTAL TYPE: SFWMD
SHEET 3 OF 6

LEGEND

Revision	Date	Description	By
R	06/2021	RECORD PLANS	C.G.K.

DESIGNED BY: M.J.D.
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APPROVED: M.J.D.
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ST. CLARE'S ASCENSION CATHOLIC CHURCH

GRADING, PAVING AND DRAINAGE DETAILS

ELEVATIONS SHOWN HEREON ARE BASED UPON NORTH AMERICAN VERTICAL DATUM 1988 (NAVD '88)
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MICHAEL J. DELATE, P.E.
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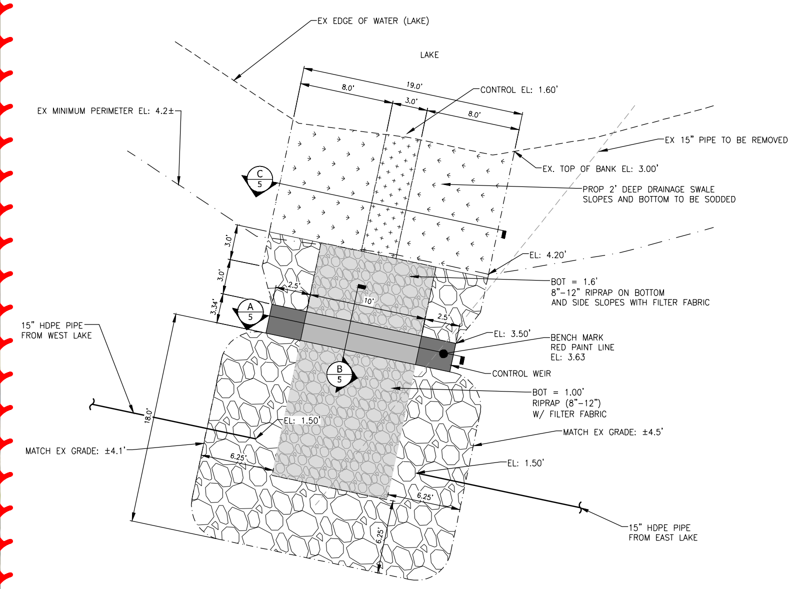
MUNICIPALITY: TOWN OF FT. MYERS BEACH
SEC/TWNSHP/RNG: 33/46S/24E
DATE: MARCH 2020
SUBMITTAL TYPE: SFWMD
SHEET 4 OF 6

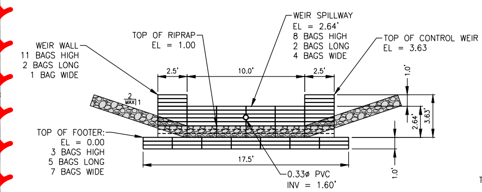
DETAILED SITE GRADING PLAN

Scale: 1" = 20'



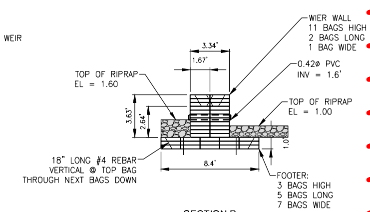
CONTROL WEIR AND SWALES DETAIL

N.T.S.



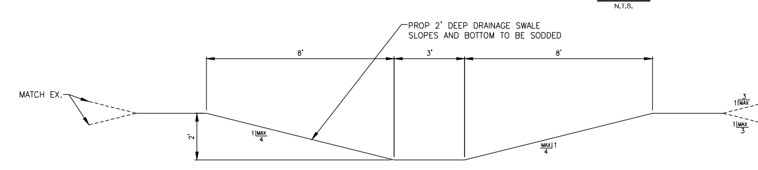
SECTION A

N.T.S.



SECTION B

N.T.S.



SECTION C - SWALE TO OFFSITE NORTH LAKE

N.T.S.

LEGEND

Revision	Date	Description	By
R	06/2021	RECORD PLANS	C.G.K.

DESIGNED BY: M.J.D.
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APPROVED: M.J.D.
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ST. CLARE'S ASCENSION CATHOLIC CHURCH

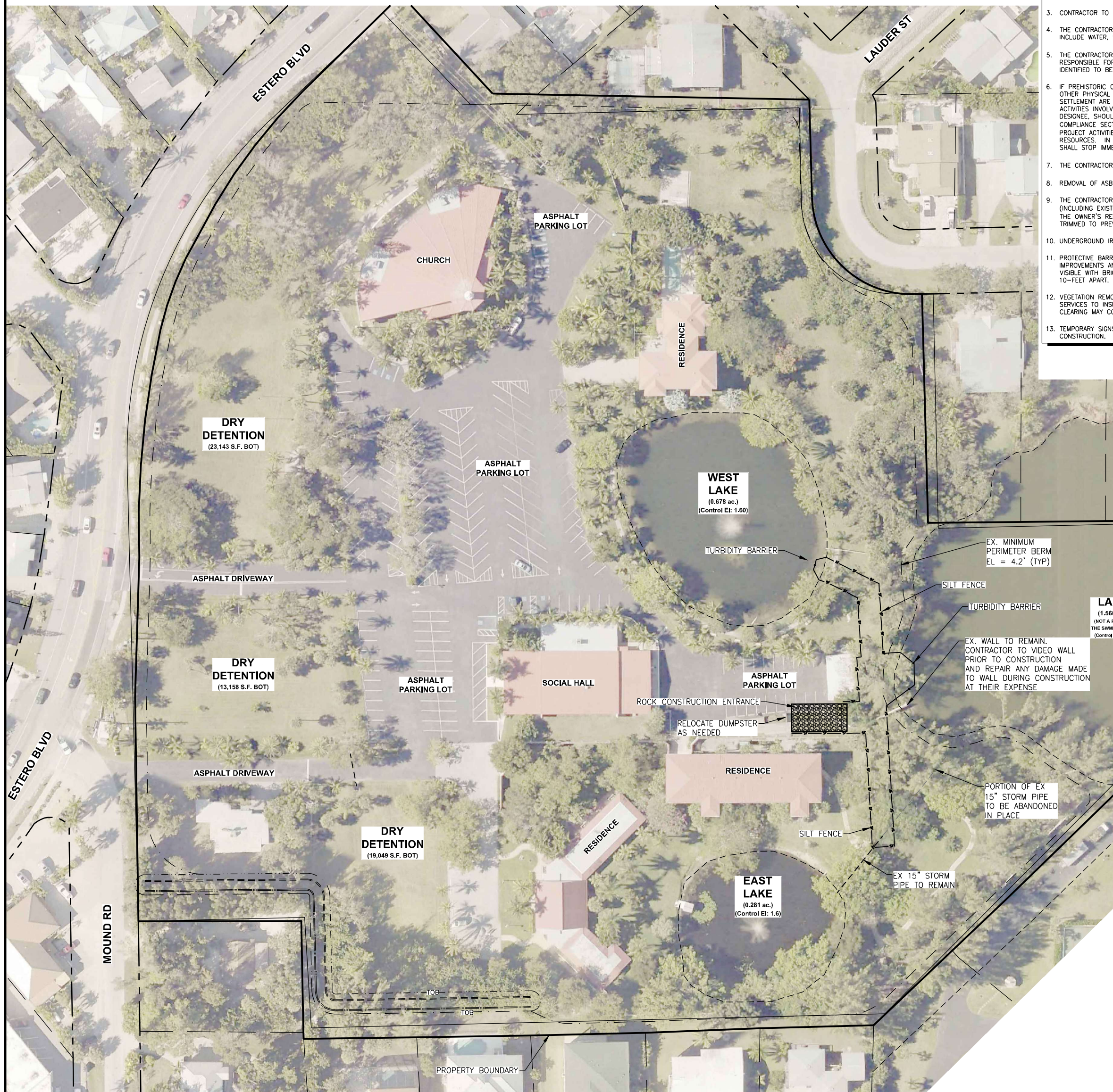
DETAILED GRADING, PAVING AND DRAINAGE PLAN AND SECTIONS

ELEVATIONS SHOWN HEREON ARE BASED UPON NORTH AMERICAN VERTICAL DATUM 1988 (NAVD '88) CONVERSION FACTOR TO NATIONAL GEODETIC VERTICAL DATUM 1929 (NGVD '29) IS (+)X.XXX'

MICHAEL J. DELATE, P.E.
FLORIDA P.E. LICENSE NO. 49442

MUNICIPALITY: TOWN OF FT. MYERS BEACH
SEC/TWNSHP/RNG: 33/46S/24E
DATE: MARCH 2020
SUBMITTAL TYPE: SFWMD

SHEET 5 OF 6



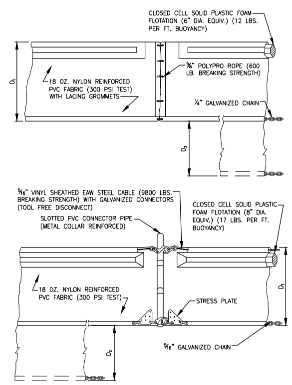
CLEARING/DEMOLITION NOTES:

1. CONTRACTOR TO DEMOLISH AND REMOVE ALL IMPROVEMENTS WITHIN LIMITS OF DEMOLITION/CLEARING SHOWN UNLESS OTHERWISE NOTED.
2. CONTRACTOR SHALL CLEAR ALL EXCAVATION AND FILL AREAS. ACTUAL LIMITS OF CLEARING SHALL BE DETERMINED IN THE FIELD BY OWNER AND/OR ENGINEER.
3. CONTRACTOR TO ESTABLISH AND PROPERLY FLAG PROPERTY LINES/CLEARING LIMITS PRIOR TO CLEARING.
4. THE CONTRACTOR SHALL COORDINATE THE REMOVAL OF ANY EXISTING UTILITIES WITH THE OWNER OF SAID UTILITY. THIS SHALL INCLUDE WATER, SEWER, GAS, CABLE TV, POWER AND TELEPHONE.
5. THE CONTRACTOR SHALL LOCATE ALL EXISTING UTILITIES PRIOR TO CLEARING AND/OR DEMOLITION (AS APPLICABLE) AND WILL BE RESPONSIBLE FOR THE DAMAGE OF ANY ON-SITE OR OFF-SITE UTILITIES THAT ARE NOT A PART OF THIS PROJECT AND NOT IDENTIFIED TO BE REMOVED.
6. IF PREHISTORIC OR HISTORIC ARTIFACTS, SUCH AS POTTERY OR CERAMICS, STONE TOOLS OR METAL IMPLEMENTS, OR ANY OTHER PHYSICAL REMAINS THAT COULD BE ASSOCIATED WITH NATIVE AMERICAN CULTURES, OR EARLY COLONIAL OR AMERICAN SETTLEMENT ARE ENCOUNTERED AT ANY TIME WITHIN THE PROJECT SITE AREA, THE PERMITTED PROJECT SHOULD CEASE ALL ACTIVITIES INVOLVING SUBSURFACE DISTURBANCE IN THE IMMEDIATE VICINITY OF SUCH DISCOVERIES. THE PERMITTEE, OR OTHER DESIGNEE, SHOULD CONTACT THE FLORIDA DEPARTMENT OF STATE, DIVISION OF HISTORICAL RESOURCES, REVIEW AND COMPLIANCE SECTION AT (850) 245-6333 OR (800) 847-7278, AS WELL AS THE APPROPRIATE PERMITTING AGENCY OFFICE. PROJECT ACTIVITIES SHOULD NOT RESUME WITHOUT VERBAL AND/OR WRITTEN AUTHORIZATION FROM THE DIVISION OF HISTORICAL RESOURCES. IN THE EVENT THAT UNMARKED HUMAN REMAINS ARE ENCOUNTERED DURING PERMITTED ACTIVITIES, ALL WORK SHALL STOP IMMEDIATELY AND THE PROPER AUTHORITIES NOTIFIED IN ACCORDANCE WITH SECTION 872.05, FLORIDA STATUTES.
7. THE CONTRACTOR IS RESPONSIBLE FOR THE LEGAL DISPOSAL OF ALL DEMOLITION/CLEARING DEBRIS OFF OWNERS PROPERTY.
8. REMOVAL OF ASBESTOS CONTAINING MATERIALS (IF ANY) SHALL BE IN ACCORDANCE WITH THE REGULATORY STANDARDS.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVAL AND DISPOSAL OF ALL TREES, BRUSH, STUMPS, AND DEBRIS (INCLUDING EXISTING STRUCTURES) NOT REQUIRED TO REMAIN IN THE PROPOSED CONSTRUCTION AREA. WHERE SO DEPICTED BY THE OWNER'S REPRESENTATIVE, TREES AND VEGETATION WITHIN THE CLEARING LIMITS SHALL BE PROTECTED, LEFT STANDING, AND TRIMMED TO PREVENT DAMAGE TO LIMBS AND ROOTS DURING CONSTRUCTION.
10. UNDERGROUND IRRIGATION, ELECTRIC, CABLE TV, PHONE, ETC. MAY EXIST AT THE SITE AND HAVE NOT BEEN LOCATED.
11. PROTECTIVE BARRIERS WILL BE INSTALLED AT THE PERIMETER OF PRESERVED VEGETATION AT THE COMMENCEMENT OF ANY SITE IMPROVEMENTS AND WILL REMAIN IN PLACE UNTIL COMPLETION OF CONSTRUCTION. THE PROTECTIVE BARRIER SHALL BE HIGHLY VISIBLE WITH BRIGHTLY COLORED ALL-WEATHER MESH MATERIAL OR EQUIVALENT AND THE STAKES SHALL BE NO MORE THE 10-FEET APART.
12. VEGETATION REMOVAL PERMIT TO BE APPLIED FOR PRIOR TO SILT FENCE INSTALLATION. COLLIER COUNTY ENVIRONMENTAL SERVICES TO INSPECT CLEARING LIMITS AND ISSUE PERMIT. ONCE PERMIT IS ISSUED, SILT FENCE TO BE INSTALLED, THEN CLEARING MAY COMMENCE.
13. TEMPORARY SIGNS IDENTIFYING PRESERVE AREAS SHALL BE PLACED AROUND THE PERIMETER OF THE PRESERVE AREAS DURING CONSTRUCTION.

N
0 25' 50' 100'
SCALE: 1" = 50'

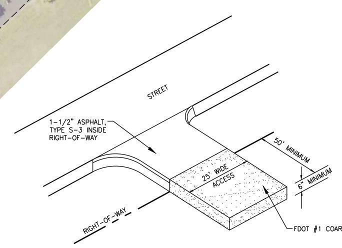
NOTES:

1) CONTRACTOR TO DEMOLISH AND REMOVE ALL IMPROVEMENTS WITHIN LIMITS OF DEMOLITION SHOWN UNLESS OTHERWISE NOTED.
2) CONTRACTOR TO ESTABLISH AND PROPERLY FLAG PROPERTY LINES PRIOR TO DEMOLITION.
3) THE CONTRACTOR SHALL UTILIZE SUITABLE EROSION CONTROL DURING DEMOLITION.
4) THE CONTRACTOR IS RESPONSIBLE FOR THE LEGAL DISPOSAL OF ALL DEMOLITION DEBRIS OFF OWNERS PROPERTY.
5) THE CONTRACTOR SHALL COORDINATE THE REMOVAL OF EXISTING UTILITIES WITH THE OWNER OF SAID UTILITY. THIS SHALL INCLUDE WATER, SEWER, GAS, CABLE TV, POWER AND TELEPHONE.
6) THE CONTRACTOR SHALL LOCATE ALL EXISTING UTILITIES PRIOR TO DEMOLITION AND WILL BE RESPONSIBLE FOR THE DAMAGE OF ANY ON-SITE OR OFF-SITE UTILITIES THAT ARE NOT A PART OF THIS PROJECT AND ARE NOT IDENTIFIED TO BE REMOVED.
7) REMOVAL OF ASBESTOS CONTAINING MATERIALS (IF ANY) SHALL BE IN ACCORDANCE WITH THE REGULATORY STANDARDS.

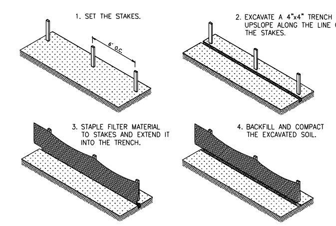


D_1 = 5' STD. (SINGLE PANEL FOR DEPTHS 5' OR LESS).
D_2 = 5' STD. (ADDITIONAL PANEL FOR DEPTHS > 5').
CURTAIN TO REACH BOTTOM UP TO DEPTHS OF 10 FEET.
TWO(2) PANELS TO BE USED FOR DEPTHS GREATER THAN 10 FEET UNLESS SPECIAL DEPTH CURTAINS SPECIFICALLY CALLED FOR IN THE PLANS OR AS DETERMINED BY THE ENGINEER.

FLOATING TURBIDITY BARRIERS
N.T.S.



GRAVEL OR PAVED CONSTRUCTION ENTRANCE DETAIL
(RUBBLE STRIP)
N.T.S.



TYPICAL SILT FENCE DETAIL
N.T.S.

LEGEND

Revision	Date	Description	By

DESIGNED BY: M.J.D.
DRAWN BY: C.G.K.
APPROVED: M.J.D.
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SCALE: 1" = 50'

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ST. CLARE'S ASCENSION CATHOLIC CHURCH

EROSION CONTROL PLAN, NOTES AND DETAILS

ELEVATIONS SHOWN HEREON ARE BASED UPON NORTH AMERICAN VERTICAL DATUM 1988 (NAVD '88)
CONVERSION FACTOR TO NATIONAL GEODETIC VERTICAL DATUM 1929 (NGVD '29) IS (+)X.XXX'

MICHAEL J. DELATE, P.E.
FLORIDA P.E. LICENSE NO. 49442

MUNICIPALITY: TOWN OF FT. MYERS BEACH
SEC/TWNSHP/RNG: 33/46S/24E
DATE: MARCH 2020
SUBMITTAL TYPE: SFWMD
SHEET 6 OF 6

G:\ENGINEERING\PROJ-ENG\A\ACSCS\01DWGS\SUBMITTALTYPE\SFWMD\ACSCS-SFWMD-ESC.DWG 6/4/2021 2:51 PM

Rainfall Data

NOAA Atlas 14, Volume 9, Version 2
Location name: Fort Myers Beach, Florida, USA*
Latitude: 26.4263°, Longitude: -81.9081°
Elevation: 7 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

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NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

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

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	**0.569** (0.479-0.684)	**0.640** (0.538-0.771)	**0.758** (0.634-0.916)	**0.856** (0.712-1.04)	**0.993** (0.793-1.26)	**1.10** (0.855-1.42)	**1.21** (0.901-1.62)	**1.32** (0.936-1.83)	**1.46** (0.994-2.12)	**1.57** (1.04-2.33)
10-min	**0.833** (0.701-1.00)	**0.938** (0.788-1.13)	**1.11** (0.929-1.34)	**1.25** (1.04-1.52)	**1.45** (1.16-1.84)	**1.61** (1.25-2.08)	**1.77** (1.32-2.37)	**1.93** (1.37-2.69)	**2.14** (1.46-3.10)	**2.30** (1.52-3.42)
15-min	**1.02** (0.855-1.22)	**1.14** (0.961-1.38)	**1.35** (1.13-1.64)	**1.53** (1.27-1.86)	**1.77** (1.42-2.25)	**1.96** (1.53-2.54)	**2.15** (1.61-2.89)	**2.35** (1.67-3.28)	**2.61** (1.78-3.78)	**2.81** (1.85-4.17)
30-min	**1.61** (1.36-1.94)	**1.81** (1.52-2.18)	**2.14** (1.80-2.59)	**2.42** (2.01-2.95)	**2.81** (2.24-3.56)	**3.11** (2.42-4.03)	**3.41** (2.55-4.58)	**3.72** (2.65-5.19)	**4.14** (2.82-6.00)	**4.46** (2.94-6.61)
60-min	**2.14** (1.80-2.57)	**2.41** (2.02-2.90)	**2.85** (2.38-3.44)	**3.22** (2.67-3.91)	**3.73** (2.98-4.73)	**4.13** (3.21-5.35)	**4.54** (3.39-6.08)	**4.95** (3.52-6.90)	**5.50** (3.74-7.98)	**5.93** (3.91-8.80)
2-hr	**2.67** (2.26-3.19)	**3.00** (2.53-3.59)	**3.55** (2.98-4.26)	**4.01** (3.35-4.84)	**4.65** (3.74-5.86)	**5.15** (4.03-6.63)	**5.66** (4.25-7.54)	**6.18** (4.42-8.56)	**6.87** (4.70-9.90)	**7.40** (4.92-10.9)
3-hr	**2.90** (2.46-3.45)	**3.28** (2.77-3.90)	**3.90** (3.29-4.66)	**4.43** (3.71-5.33)	**5.17** (4.17-6.50)	**5.75** (4.51-7.38)	**6.34** (4.78-8.42)	**6.94** (4.99-9.60)	**7.76** (5.34-11.2)	**8.39** (5.60-12.3)
6-hr	**3.22** (2.74-3.80)	**3.72** (3.16-4.40)	**4.55** (3.85-5.40)	**5.26** (4.43-6.29)	**6.28** (5.10-7.87)	**7.09** (5.60-9.07)	**7.92** (6.01-10.5)	**8.79** (6.36-12.1)	**9.98** (6.91-14.3)	**10.9** (7.32-15.9)
12-hr	**3.50** (2.99-4.10)	**4.16** (3.55-4.89)	**5.29** (4.50-6.24)	**6.28** (5.31-7.46)	**7.72** (6.31-9.68)	**8.89** (7.07-11.4)	**10.1** (7.73-13.4)	**11.4** (8.32-15.7)	**13.2** (9.21-18.8)	**14.6** (9.88-21.2)
24-hr	**4.01** (3.45-4.68)	**4.73** (4.06-5.52)	**6.02** (5.15-7.06)	**7.20** (6.12-8.50)	**9.00** (7.43-11.3)	**10.5** (8.43-13.4)	**12.1** (9.35-16.0)	**13.9** (10.2-19.0)	**16.4** (11.5-23.3)	**18.4** (12.5-26.6)
2-day	**4.89** (4.23-5.67)	**5.56** (4.80-6.45)	**6.84** (5.88-7.97)	**8.08** (6.90-9.47)	**10.0** (8.39-12.6)	**11.8** (9.52-15.0)	**13.7** (10.6-18.0)	**15.8** (11.7-21.6)	**18.9** (13.4-26.7)	**21.4** (14.7-30.6)
3-day	**5.40** (4.67-6.23)	**6.20** (5.36-7.16)	**7.69** (6.63-8.92)	**9.08** (7.78-10.6)	**11.2** (9.38-14.0)	**13.1** (10.6-16.5)	**15.1** (11.8-19.7)	**17.3** (12.9-23.5)	**20.4** (14.6-28.8)	**23.0** (15.8-32.8)
4-day	**5.81** (5.04-6.68)	**6.72** (5.83-7.75)	**8.37** (7.23-9.69)	**9.88** (8.48-11.5)	**12.1** (10.1-15.0)	**14.1** (11.4-17.7)	**16.1** (12.6-21.0)	**18.3** (13.6-24.8)	**21.5** (15.3-30.1)	**24.0** (16.6-34.2)
7-day	**7.01** (6.11-8.03)	**8.01** (6.97-9.18)	**9.76** (8.46-11.2)	**11.3** (9.75-13.1)	**13.6** (11.4-16.7)	**15.6** (12.7-19.4)	**17.6** (13.8-22.7)	**19.8** (14.8-26.5)	**22.9** (16.4-31.8)	**25.3** (17.6-35.8)
10-day	**8.19** (7.16-9.35)	**9.19** (8.02-10.5)	**10.9** (9.50-12.5)	**12.5** (10.8-14.4)	**14.7** (12.3-17.9)	**16.6** (13.5-20.6)	**18.6** (14.6-23.8)	**20.7** (15.5-27.5)	**23.6** (17.0-32.7)	**25.9** (18.1-36.5)
20-day	**11.7** (10.3-13.3)	**12.8** (11.2-14.6)	**14.7** (12.8-16.7)	**16.2** (14.1-18.6)	**18.4** (15.4-22.0)	**20.1** (16.5-24.6)	**21.9** (17.3-27.7)	**23.7** (17.9-31.2)	**26.2** (18.9-35.8)	**28.1** (19.7-39.3)
30-day	**14.6** (12.9-16.5)	**16.0** (14.0-18.0)	**18.1** (15.9-20.5)	**19.9** (17.3-22.7)	**22.2** (18.6-26.3)	**23.9** (19.6-29.0)	**25.6** (20.2-32.1)	**27.3** (20.6-35.6)	**29.5** (21.3-40.0)	**31.1** (21.9-43.3)
45-day	**18.2** (16.1-20.5)	**20.0** (17.6-22.5)	**22.8** (20.0-25.7)	**24.9** (21.8-28.3)	**27.6** (23.2-32.4)	**29.6** (24.3-35.5)	**31.4** (24.8-39.0)	**33.1** (25.0-42.8)	**35.1** (25.4-47.2)	**36.4** (25.7-50.5)
60-day	**21.2** (18.8-23.8)	**23.5** (20.7-26.3)	**26.9** (23.7-30.3)	**29.5** (25.8-33.4)	**32.8** (27.5-38.2)	**35.0** (28.7-41.8)	**37.0** (29.2-45.7)	**38.8** (29.3-49.9)	**40.8** (29.6-54.6)	**42.0** (29.8-58.1)

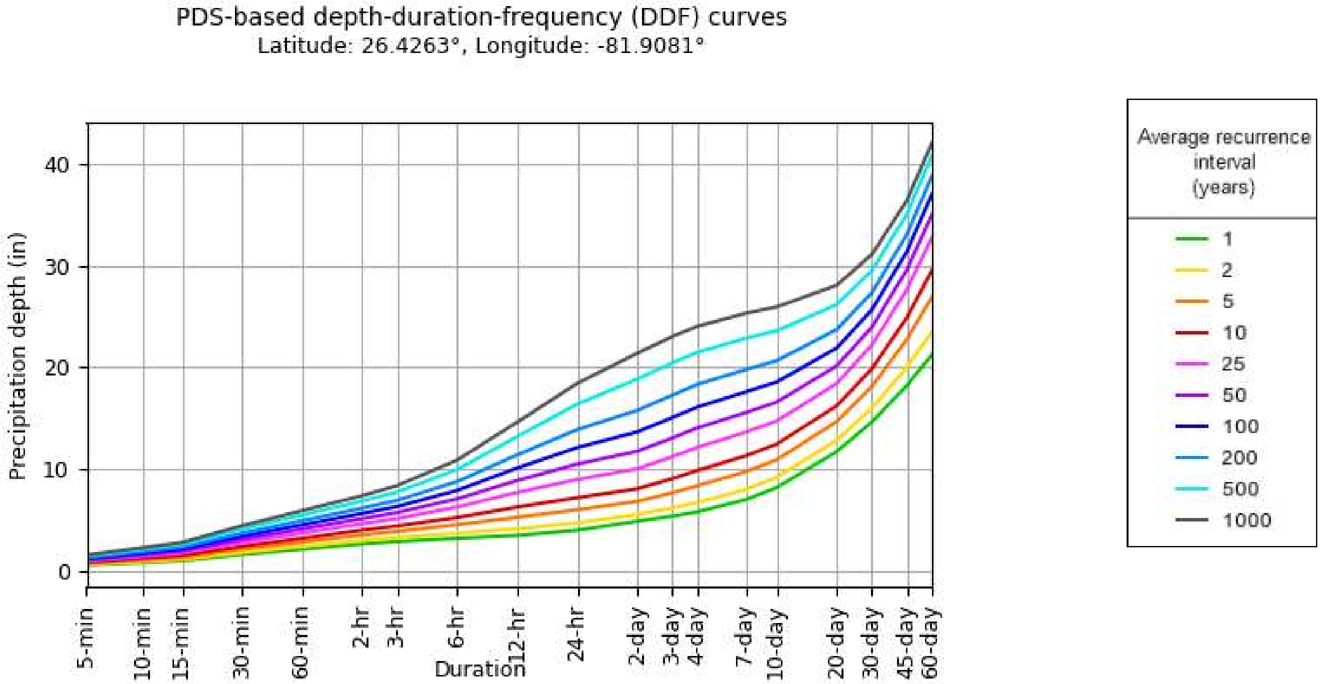
[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

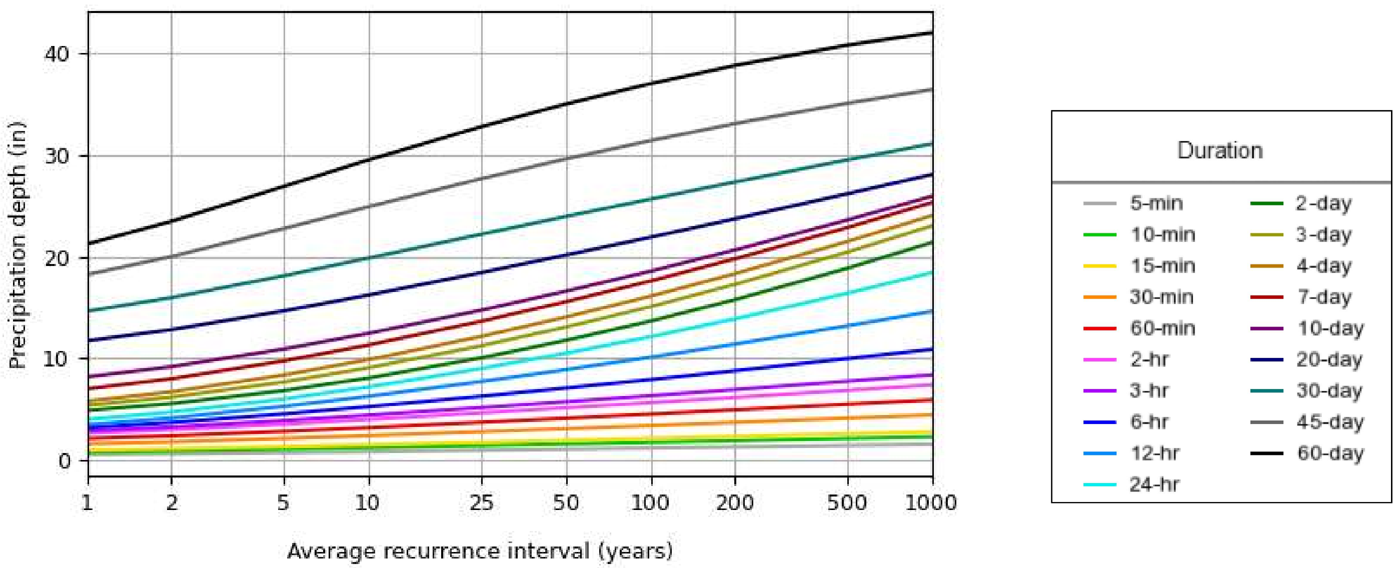
Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper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

Please refer to NOAA Atlas 14 document for more information.

Back to Top

PF graphical





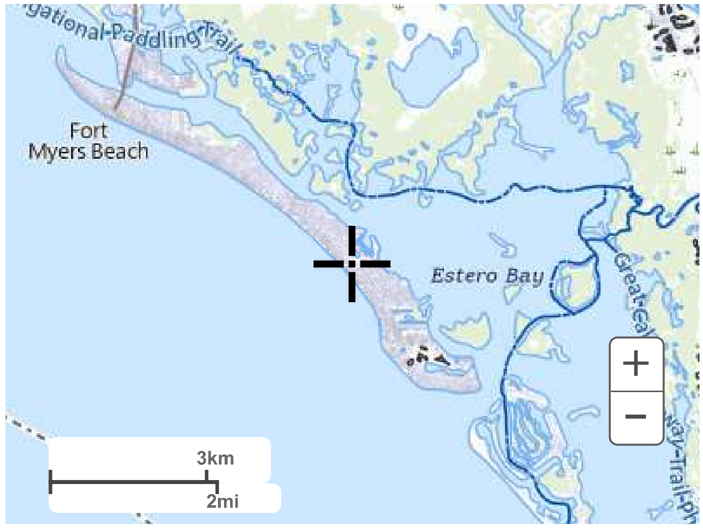
NOAA Atlas 14, Volume 9, Version 2

Created (GMT): Wed Sep 17 17:40:25 2025

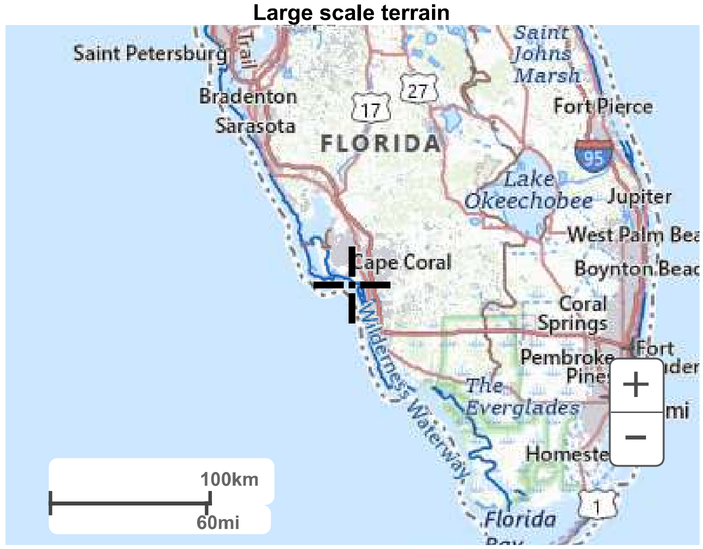
Back to Top

Maps & aerials

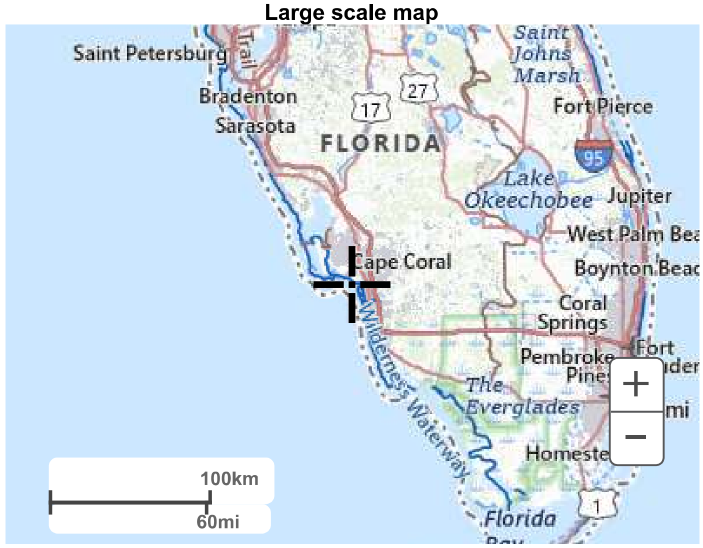
Small scale terrain



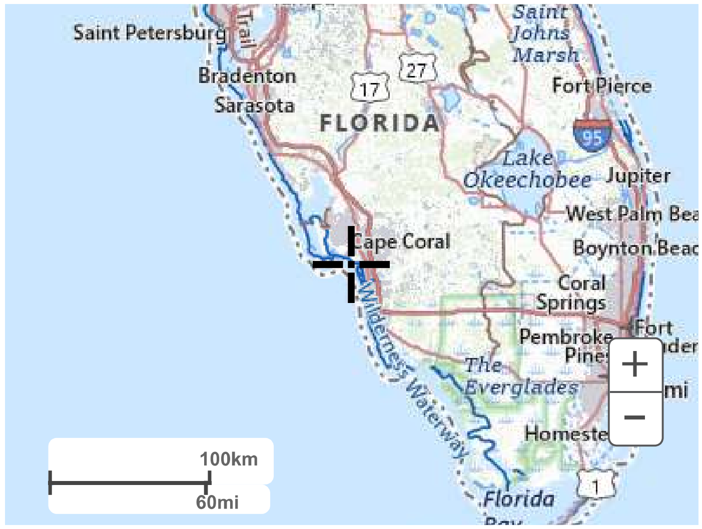
Large scale terrain



Large scale map



Large scale aerial



[Back to Top](#)

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BMP Backup

Table 2-2a Runoff curve numbers for urban areas [1/]

Cover description		Curve numbers for hydrologic soil group			
Cover type and hydrologic condition	Average percent impervious area [2/]	A	B	C	D
Fully developed urban areas (vegetation established)					
Open space (lawns, parks, golf courses, cemeteries, etc.) [3/]:					
Poor condition (grass cover < 50%)		68	79	86	89
Fair condition (grass cover 50% to 75%)		49	69	79	84
Good condition (grass cover > 75%)		39	61	74	80
Impervious areas:					
Paved parking lots, roofs, driveways, etc. (excluding right-of-way)		98	98	98	98
Streets and roads:					
Paved; curbs and storm sewers (excluding right-of-way)		98	98	98	98
Paved; open ditches (including right-of-way)		83	89	92	93
Gravel (including right-of-way)		76	85	89	91
Dirt (including right-of-way)		72	82	87	89
Western desert urban areas:					
Natural desert landscaping (pervious areas only) [4/]		63	77	85	88
Artificial desert landscaping (impervious weed barrier, desert shrub with 1- to 2-inch sand or gravel mulch and basin borders)		96	96	96	96
Urban districts:					
Commercial and business	85	89	92	94	95
Industrial	72	81	88	91	93
Residential districts by average lot size:					
1/8 acre or less (town houses)	65	77	85	90	92
1/4 acre	38	61	75	83	87
1/3 acre	30	57	72	81	86
1/2 acre	25	54	70	80	85
1 acre	20	51	68	79	84
2 acres	12	46	65	77	82
Developing urban areas					
Newly graded areas (pervious areas only, no vegetation) [5/]		77	86	91	94
Idle lands (CN's are determined using cover types similar to those in table 2-2c).					

1 Average runoff condition, and $I_a = 0.2S$.
2 The average percent impervious area shown was used to develop the composite CN's. Other assumptions are as follows: impervious areas are directly connected to the drainage system, impervious areas have a CN of 98, and pervious areas are considered equivalent to open space in good hydrologic condition. CN's for other combinations of conditions may be computed using figure 2-3 or 2-4.
3 CN's shown are equivalent to those of pasture. Composite CN's may be computed for other combinations of open space cover type.
4 Composite CN's for natural desert landscaping should be computed using figures 2-3 or 2-4 based on the impervious area percentage (CN = 98) and the pervious area CN. The pervious area CN's are assumed equivalent to desert shrub in poor hydrologic condition.
5 Composite CN's to use for the design of temporary measures during grading and construction should be computed using figure 2-3 or 2-4 based on the degree of development (impervious area percentage) and the CN's for the newly graded pervious areas.

Table 2-2b Runoff curve numbers for cultivated agricultural lands [1/]

Cover description			Curve numbers for hydrologic soil group			
Cover type	Treatment [2/]	Hydrologic condition [3/]	A	B	C	D
Fallow	Bare soil	—	77	86	91	94
	Crop residue cover (CR)	Poor	76	85	90	93
		Good	74	83	88	90
Row crops	Straight row (SR)	Poor	72	81	88	91
		Good	67	78	85	89
	SR + CR	Poor	71	80	87	90
		Good	64	75	82	85
	Contoured (C)	Poor	70	79	84	88
		Good	65	75	82	86
	C + CR	Poor	69	78	83	87
		Good	64	74	81	85
	Contoured & terraced (C&T)	Poor	66	74	80	82
		Good	62	71	78	81
	C&T+ CR	Poor	65	73	79	81
		Good	61	70	77	80
Small grain	SR	Poor	65	76	84	88
		Good	63	75	83	87
	SR + CR	Poor	64	75	83	86
		Good	60	72	80	84
	C	Poor	63	74	82	85
		Good	61	73	81	84
	C + CR	Poor	62	73	81	84
		Good	60	72	80	83
	C&T	Poor	61	72	79	82
		Good	59	70	78	81
	C&T+ CR	Poor	60	71	78	81
		Good	58	69	77	80
Close-seeded or broadcast legumes or rotation meadow	SR	Poor	66	77	85	89
		Good	58	72	81	85
	C	Poor	64	75	83	85
		Good	55	69	78	83
	C&T	Poor	63	73	80	83
		Good	51	67	76	80

1 Average runoff condition, and I_a=0.2S
2 Crop residue cover applies only if residue is on at least 5% of the surface throughout the year.
3 Hydraulic condition is based on combination factors that affect infiltration and runoff, including (a) density and canopy of vegetative areas, (b) amount of year-round cover, (c) amount of grass or close-seeded legumes, (d) percent of residue cover on the land surface (good ≥ 20%), and (e) degree of surface roughness.

Poor: Factors impair infiltration and tend to increase runoff.

Good: Factors encourage average and better than average infiltration and tend to decrease runoff.

Table 2-2c Runoff curve numbers for other agricultural lands [1/]

Cover description: Cover type	Hydrologic condition	Curve numbers for hydrologic soil group: A	B	C	D
Pasture, grassland, or range—continuous forage for grazing. [2/]	Poor	68	79	86	89
	Fair	49	69	79	84
	Good	39	61	74	80
Meadow—continuous grass, protected from grazing and generally mowed for hay.	—	30	58	71	78
Brush—brush-weed-grass mixture with brush the major element. [3/]	Poor	48	67	77	83
	Fair	35	56	70	77
	Good	30 [4/]	48	65	73
Woods—grass combination (orchard or tree farm). [5/]	Poor	57	73	82	86
	Fair	43	65	76	82
	Good	32	58	72	79
Woods. [6/]	Poor	45	66	77	83
	Fair	36	60	73	79
	Good	30 [4/]	55	70	77
Farmsteads—buildings, lanes, driveways, and surrounding lots.	—	59	74	82	86

1 Average runoff condition, and $I_a = 0.2S$.

2 *Poor:* <50%) ground cover or heavily grazed with no mulch.
Fair: 50 to 75% ground cover and not heavily grazed.
Good: > 75% ground cover and lightly or only occasionally grazed.

3 *Poor:* <50% ground cover.
Fair: 50 to 75% ground cover.
Good: >75% ground cover.

4 Actual curve number is less than 30; use CN = 30 for runoff computations.

5 CN's shown were computed for areas with 50% woods and 50% grass (pasture) cover. Other combinations of conditions may be computed from the CN's for woods and pasture.

6 *Poor:* Forest litter, small trees, and brush are destroyed by heavy grazing or regular burning.
Fair: Woods are grazed but not burned, and some forest litter covers the soil.
Good: Woods are protected from grazing, and litter and brush adequately cover the soil.

Table 2-2d Runoff curve numbers for arid and semiarid rangelands [1/]

Cover description		Curve numbers for hydrologic soil group			
Cover type	Hydrologic condition [2/]	A [3/]	B	C	D
Herbaceous—mixture of grass, weeds, and low-growing brush, with brush the minor element.	Poor		80	87	93
	Fair		71	81	89
	Good		62	74	85
Oak-aspen—mountain brush mixture of oak brush, aspen, mountain mahogany, bitter brush, maple, and other brush.	Poor		66	74	79
	Fair		48	57	63
	Good		30	41	48
Pinyon-juniper—pinyon, juniper, or both; grass understory.	Poor		75	85	89
	Fair		58	73	80
	Good		41	61	71
Sagebrush with grass understory.	Poor		67	80	85
	Fair		51	63	70
	Good		35	47	55
Desert shrub—major plants include saltbush, greasewood, creosotebush, blackbrush, bursage, palo verde, mesquite, and cactus.	Poor	63	77	85	88
	Fair	55	72	81	86
	Good	49	68	79	84

1 Average runoff condition, and I_a, = 0.2S. For range in humid regions, use table 2-2c.
2 Poor: <30% ground cover (litter, grass, and brush overstory).
Fair: 30 to 70% ground cover.
Good: > 70% ground cover.
3 Curve numbers for group A have been developed only for desert shrub.

United States Department of Agriculture

NRCS

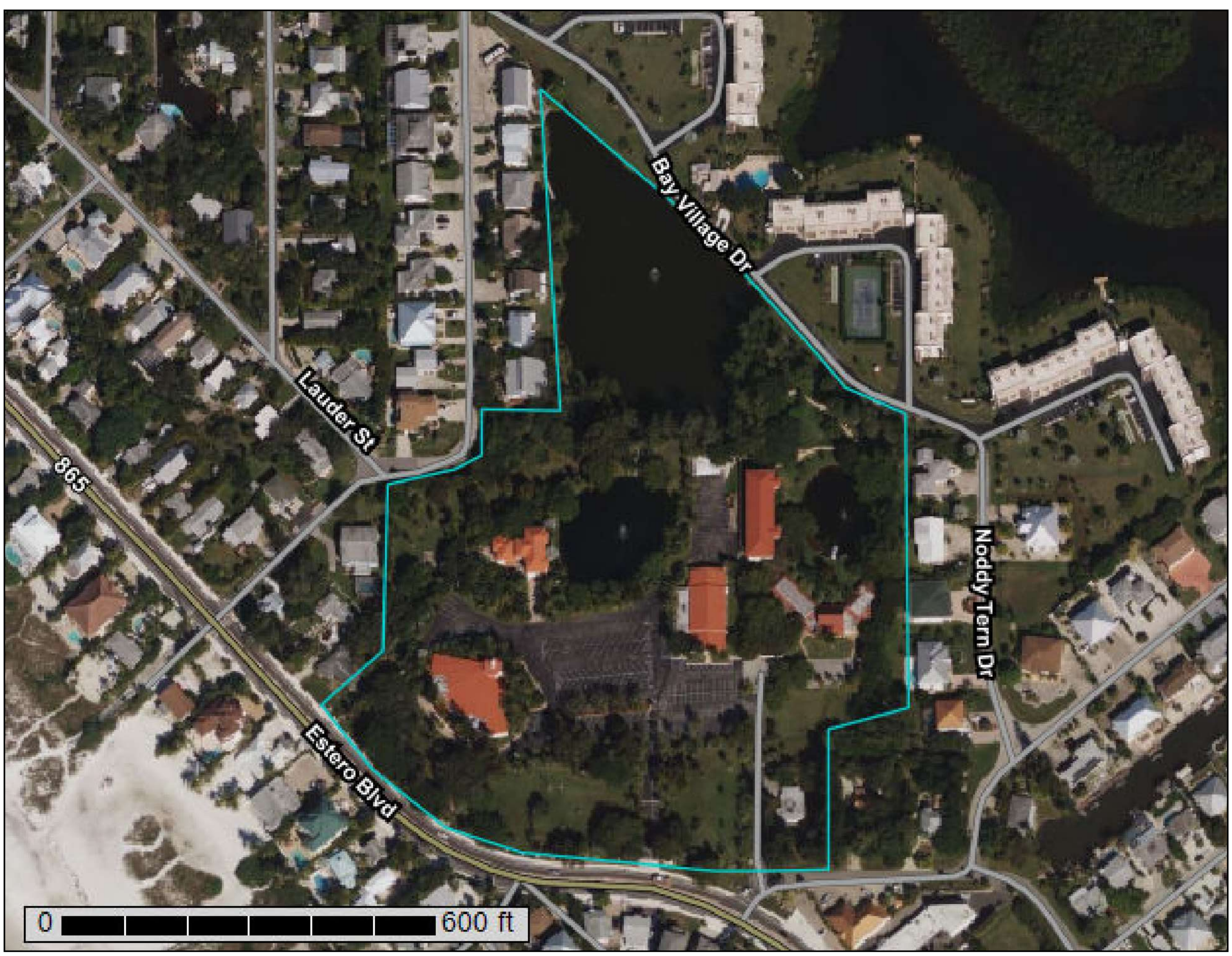
Natural Resources Conservation Service

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

Lee County, Florida

Ascension Church



August 29, 2025

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).

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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Contents

How Soil Surveys Are Made

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 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.

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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.

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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.

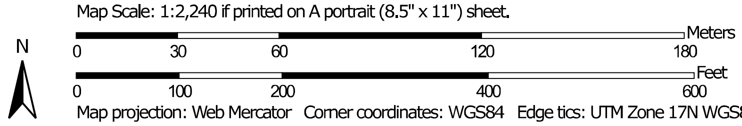
After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

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.

Soil Map

Map Scale: 1:2,240 if printed on A portrait (8.5" x 11") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 17N WGS84

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: Lee County, Florida
Survey Area Data: Version 22, Aug 21, 2024

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

Date(s) aerial images were photographed: Nov 14, 2021—Nov 23, 2021

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
4	Canaveral fine sand-Urban land complex, 0 to 2 percent slopes	13.0	80.8%
7	Matlacha gravelly fine sand-Urban land complex, 0 to 2 percent slopes	3.1	19.2%
Totals for Area of Interest		**16.1**	**100.0%**

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.

Lee County, Florida

4—Canaveral fine sand-Urban land complex, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2x9d6
Elevation: 0 to 20 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

Canaveral and similar soils: 50 percent
Urban land: 45 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Canaveral

Setting

Landform: Ridges on marine terraces, flats on marine terraces
Landform position (two-dimensional): Summit, backslope
Landform position (three-dimensional): Interfluve, tread, talf
Down-slope shape: Convex, concave
Across-slope shape: Linear
Parent material: Sandy marine deposits

Typical profile

A1 - 0 to 7 inches: fine sand
A2 - 7 to 15 inches: fine sand
C - 15 to 80 inches: paragravelly fine sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Very high (19.98 to 39.96 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: 5.0
Available water supply, 0 to 60 inches: Low (about 4.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: A
Ecological site: R155XY170FL - Sandy Coastal Grasslands and Forests
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

Interpretive groups

Land capability classification (irrigated): None specified
Ecological site: R155XY170FL - Sandy Coastal Grasslands and Forests
Hydric soil rating: Unranked

Minor Components

Captiva

Percent of map unit: 3 percent
Landform: Drainageways on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Linear
Across-slope shape: Concave
Ecological site: R155XY170FL - Sandy Coastal Grasslands and Forests
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL), Slough (R155XY011FL)
Hydric soil rating: Yes

Kesson, tidal

Percent of map unit: 2 percent
Landform: Tidal marshes on marine terraces
Landform position (three-dimensional): Tread, talf
Down-slope shape: Convex, linear
Across-slope shape: Linear
Ecological site: R155XY020FL - Haline Intertidal Marshes and Swamps
Other vegetative classification: Forage suitability group not assigned (G155XB999FL), Salt Marsh (R155XY009FL)
Hydric soil rating: Yes

7—Matlacha gravelly fine sand-Urban land complex, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2x9dc
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 and similar soils: 48 percent
Urban land: 42 percent

Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Matlacha

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

Typical profile

^C - 0 to 35 inches: gravelly fine sand
2Ab - 35 to 40 inches: fine sand
2Eb - 40 to 80 inches: fine sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 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 4.8 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)
Other vegetative classification: Forage suitability group not assigned (G155XB999FL)
Hydric soil rating: No

Description of Urban Land

Setting

Landform: Flatwoods on 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
Forage suitability group: Forage suitability group not assigned (G155XB999FL)
Other vegetative classification: Forage suitability group not assigned (G155XB999FL)
Hydric soil rating: Unranked

Minor Components

Caloosa

Percent of map unit: 5 percent
Landform: Marine terraces
Landform position (three-dimensional): Tread, rise
Down-slope shape: Linear, convex
Across-slope shape: Linear, convex
Other vegetative classification: Forage suitability group not assigned (G155XB999FL)
Hydric soil rating: No

St. augustine

Percent of map unit: 5 percent
Landform: Marine terraces
Landform position (three-dimensional): Tread, rise
Down-slope shape: Linear
Across-slope shape: Convex
Other vegetative classification: Forage suitability group not assigned (G155XB999FL)
Hydric soil rating: No

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Modret Backup

United States Department of Agriculture

NRCS

Natural 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

Lee County, Florida

Ascension Church

September 10, 2025

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).

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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Contents

How Soil Surveys Are Made

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 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.

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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 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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Soil Map

Map Scale: 1:2,580 if printed on A portrait (8.5" x 11") sheet.

Meters: 0, 35, 70, 140, 210

Feet: 0, 100, 200, 400, 600

N

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 17N WGS84

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: Lee County, Florida
Survey Area Data: Version 22, Aug 21, 2024

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

Date(s) aerial images were photographed: Nov 14, 2021—Nov 23, 2021

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
4	Canaveral fine sand-Urban land complex, 0 to 2 percent slopes	15.1	80.5%
7	Matlacha gravelly fine sand-Urban land complex, 0 to 2 percent slopes	3.6	19.5%
Totals for Area of Interest		**18.7**	**100.0%**

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.

Lee County, Florida

4—Canaveral fine sand-Urban land complex, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2x9d6
Elevation: 0 to 20 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

Canaveral and similar soils: 50 percent
Urban land: 45 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Canaveral

Setting

Landform: Ridges on marine terraces, flats on marine terraces
Landform position (two-dimensional): Summit, backslope
Landform position (three-dimensional): Interfluve, tread, talf
Down-slope shape: Convex, concave
Across-slope shape: Linear
Parent material: Sandy marine deposits

Typical profile

A1 - 0 to 7 inches: fine sand
A2 - 7 to 15 inches: fine sand
C - 15 to 80 inches: paragravelly fine sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Very high (19.98 to 39.96 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: 5.0
Available water supply, 0 to 60 inches: Low (about 4.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: A
Ecological site: R155XY170FL - Sandy Coastal Grasslands and Forests
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

Interpretive groups

Land capability classification (irrigated): None specified
Ecological site: R155XY170FL - Sandy Coastal Grasslands and Forests
Hydric soil rating: Unranked

Minor Components

Captiva

Percent of map unit: 3 percent
Landform: Drainageways on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Linear
Across-slope shape: Concave
Ecological site: R155XY170FL - Sandy Coastal Grasslands and Forests
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL), Slough (R155XY011FL)
Hydric soil rating: Yes

Kesson, tidal

Percent of map unit: 2 percent
Landform: Tidal marshes on marine terraces
Landform position (three-dimensional): Tread, talf
Down-slope shape: Convex, linear
Across-slope shape: Linear
Ecological site: R155XY020FL - Haline Intertidal Marshes and Swamps
Other vegetative classification: Forage suitability group not assigned (G155XB999FL), Salt Marsh (R155XY009FL)
Hydric soil rating: Yes

7—Matlacha gravelly fine sand-Urban land complex, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2x9dc
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 and similar soils: 48 percent
Urban land: 42 percent

Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Matlacha

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

Typical profile

^C - 0 to 35 inches: gravelly fine sand
2Ab - 35 to 40 inches: fine sand
2Eb - 40 to 80 inches: fine sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 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 4.8 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)
Other vegetative classification: Forage suitability group not assigned (G155XB999FL)
Hydric soil rating: No

Description of Urban Land

Setting

Landform: Flatwoods on 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
Forage suitability group: Forage suitability group not assigned (G155XB999FL)
Other vegetative classification: Forage suitability group not assigned (G155XB999FL)
Hydric soil rating: Unranked

Minor Components

Caloosa

Percent of map unit: 5 percent
Landform: Marine terraces
Landform position (three-dimensional): Tread, rise
Down-slope shape: Linear, convex
Across-slope shape: Linear, convex
Other vegetative classification: Forage suitability group not assigned (G155XB999FL)
Hydric soil rating: No

St. augustine

Percent of map unit: 5 percent
Landform: Marine terraces
Landform position (three-dimensional): Tread, rise
Down-slope shape: Linear
Across-slope shape: Convex
Other vegetative classification: Forage suitability group not assigned (G155XB999FL)
Hydric soil rating: No

Soil Information for All Uses

Soil Properties and Qualities

The Soil Properties and Qualities section includes various soil properties and qualities displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each property or quality.

Soil Physical Properties

Soil Physical Properties are measured or inferred from direct observations in the field or laboratory. Examples of soil physical properties include percent clay, organic matter, saturated hydraulic conductivity, available water capacity, and bulk density.

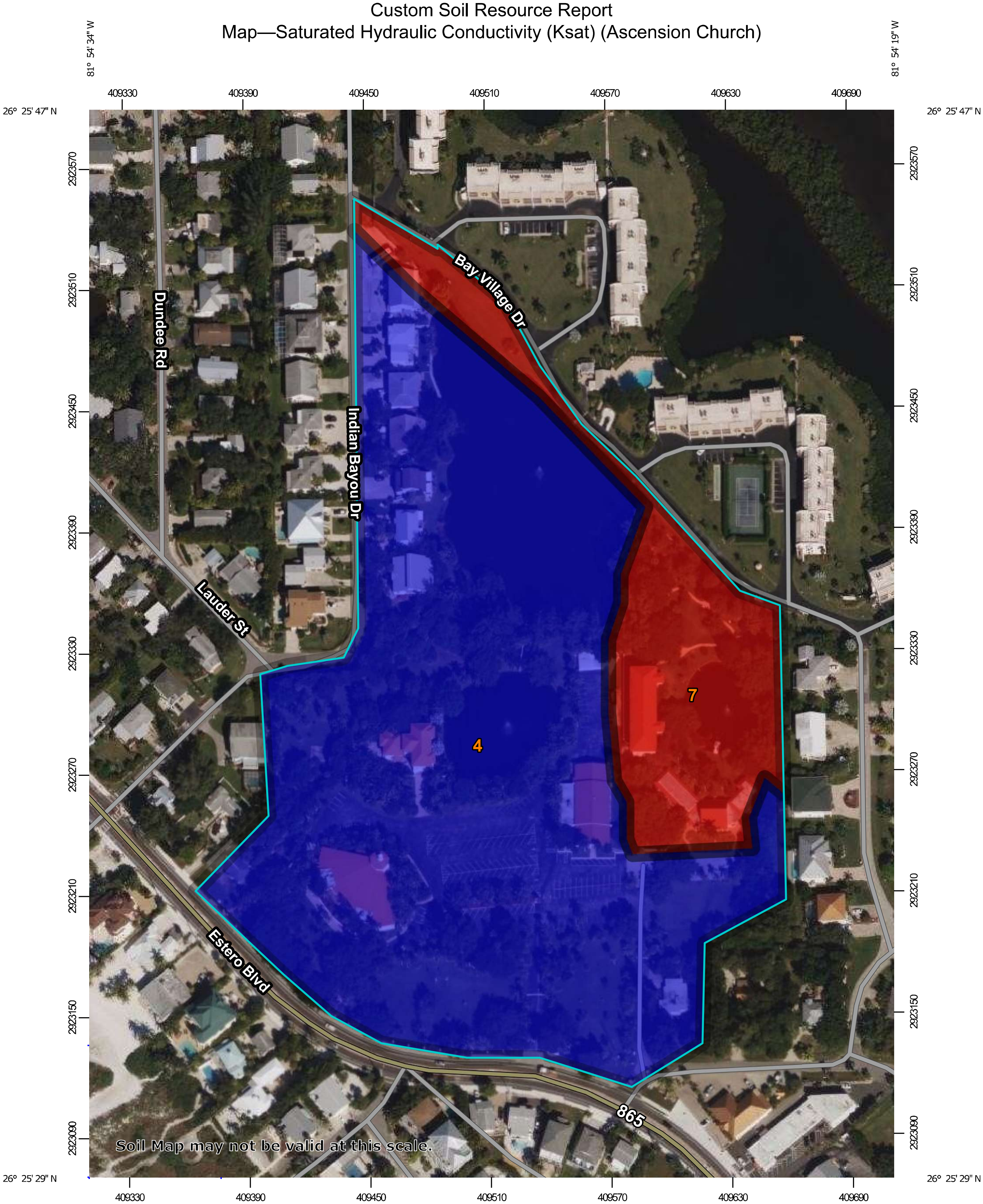
Saturated Hydraulic Conductivity (Ksat) (Ascension Church)

Saturated hydraulic conductivity (Ksat) refers to the ease with which pores in a saturated soil transmit water. The estimates are expressed in terms of micrometers per second. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Saturated hydraulic conductivity is considered in the design of soil drainage systems and septic tank absorption fields.

For each soil layer, this attribute is actually recorded as three separate values in the database. A low value and a high value indicate the range of this attribute for the soil component. A "representative" value indicates the expected value of this attribute for the component. For this soil property, only the representative value is used.

The numeric Ksat values have been grouped according to standard Ksat class limits.

Map—Saturated Hydraulic Conductivity (Ksat) (Ascension Church)



Map Scale: 1:2,580 if printed on A portrait (8.5" x 11") sheet.

Meters: 0, 35, 70, 140, 210

Feet: 0, 100, 200, 400, 600

N

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 17N WGS84

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

<= 63.9409

> 63.9409 and <= 210.0000

Not rated or not available

Soil Rating Lines

<= 63.9409

> 63.9409 and <= 210.0000

Not rated or not available

Soil Rating Points

<= 63.9409

> 63.9409 and <= 210.0000

Not rated or not available

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.

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

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Soil Survey Area: Lee County, Florida
Survey Area Data: Version 22, Aug 21, 2024

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

Date(s) aerial images were photographed: Nov 14, 2021—Nov 23, 2021

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.

Table—Saturated Hydraulic Conductivity (Ksat) (Ascension Church)

Map unit symbol	Map unit name	Rating (micrometers per second)	Acres in AOI	Percent of AOI
4	Canaveral fine sand-Urban land complex, 0 to 2 percent slopes	210.0000	15.1	80.5%
7	Matlacha gravelly fine sand-Urban land complex, 0 to 2 percent slopes	63.9409	3.6	19.5%
Totals for Area of Interest			**18.7**	**100.0%**

Rating Options—Saturated Hydraulic Conductivity (Ksat) (Ascension Church)

Units of Measure: micrometers per second

Aggregation Method: Dominant Component

Aggregation is the process by which a set of component attribute values is reduced to a single value that represents the map unit as a whole.

A map unit is typically composed of one or more "components". A component is either some type of soil or some nonsoil entity, e.g., rock outcrop. For the attribute being aggregated, the first step of the aggregation process is to derive one attribute value for each of a map unit's components. From this set of component attributes, the next step of the aggregation process derives a single value that represents the map unit as a whole. Once a single value for each map unit is derived, a thematic map for soil map units can be rendered. Aggregation must be done because, on any soil map, map units are delineated but components are not.

For each of a map unit's components, a corresponding percent composition is recorded. A percent composition of 60 indicates that the corresponding component typically makes up approximately 60% of the map unit. Percent composition is a critical factor in some, but not all, aggregation methods.

The aggregation method "Dominant Component" returns the attribute value associated with the component with the highest percent composition in the map unit. If more than one component shares the highest percent composition, the corresponding "tie-break" rule determines which value should be returned. The "tie-break" rule indicates whether the lower or higher attribute value should be returned in the case of a percent composition tie. The result returned by this aggregation method may or may not represent the dominant condition throughout the map unit.

Component Percent Cutoff: None Specified

Components whose percent composition is below the cutoff value will not be considered. If no cutoff value is specified, all components in the database will be considered. The data for some contrasting soils of minor extent may not be in the database, and therefore are not considered.

Tie-break Rule: Fastest

The tie-break rule indicates which value should be selected from a set of multiple candidate values, or which value should be selected in the event of a percent composition tie.

Interpret Nulls as Zero: No

This option indicates if a null value for a component should be converted to zero before aggregation occurs. This will be done only if a map unit has at least one component where this value is not null.

Layer Options (Horizon Aggregation Method): All Layers (Weighted Average)

For an attribute of a soil horizon, a depth qualification must be specified. In most cases it is probably most appropriate to specify a fixed depth range, either in centimeters or inches. The Bottom Depth must be greater than the Top Depth, and the Top Depth can be greater than zero. The choice of "inches" or "centimeters" only applies to the depth of soil to be evaluated. It has no influence on the units of measure the data are presented in.

When "Surface Layer" is specified as the depth qualifier, only the surface layer or horizon is considered when deriving a value for a component, but keep in mind that the thickness of the surface layer varies from component to component.

When "All Layers" is specified as the depth qualifier, all layers recorded for a component are considered when deriving the value for that component.

Whenever more than one layer or horizon is considered when deriving a value for a component, and the attribute being aggregated is a numeric attribute, a weighted average value is returned, where the weighting factor is the layer or horizon thickness.

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APPENDIX C – ICPR INPUTS AND RESULTS

Simple Basin: Simple Basin

Scenario: Scenario1
Node: BASIN1
Hydrograph Method: NRCS Unit Hydrograph
Infiltration Method: Curve Number
Time of Concentration: 17.0000 min
Max Allowable Q: 999999999.00 cfs
Time Shift: 0.0000 hr
Unit Hydrograph: UH256
Peaking Factor: 256.0
Area: 13.0500 ac
Curve Number: 74.3
Ia/S: 0.00
% Impervious: 41.00
% DCIA: 0.00
% Direct: 0.00
Rainfall Name:

Comment:

Node: BASIN1

Scenario: Scenario1
Type: Stage/Volume
Base Flow: 0.00 cfs
Initial Stage: 1.60 ft
Warning Stage: 0.00 ft
Alert Stage: 0.00 ft

Stage [ft]	Volume [ac-ft]	Volume [ft3]
1.60	0.00	0
2.60	1.70	74052
2.90	2.61	113692
3.00	2.93	127631
4.00	7.10	309276
4.20	8.14	354578
10.00	61.20	2665872

Comment:

Node: OUTFALL

Scenario: Scenario1
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 2.18 ft
Warning Stage: 0.00 ft

Alert Stage: 0.00 ft
Boundary Stage:

Year	Month	Day	Hour	Stage [ft]
0	0	0	0.0000	2.18
0	0	0	5.0000	0.53
0	0	0	11.0000	2.47
0	0	0	17.0000	0.46
0	0	0	22.0000	2.27
0	0	0	28.0000	0.38
0	0	0	34.0000	2.43
0	0	0	40.0000	0.58
0	0	0	45.0000	2.34
0	0	0	51.0000	0.26
0	0	0	57.0000	2.36
0	0	0	63.0000	0.73
0	0	0	68.0000	2.39
0	0	0	74.0000	0.20
0	0	0	80.0000	2.26
0	0	0	86.0000	0.90
0	0	0	91.0000	2.42
0	0	0	98.0000	0.18
0	0	0	104.0000	2.13
0	0	0	110.0000	1.09
0	0	0	115.0000	2.42
0	0	0	122.0000	0.21
0	0	0	128.0000	1.98
0	0	0	133.0000	1.27
0	0	0	138.0000	2.42
0	0	0	145.0000	0.25
0	0	0	151.0000	1.86
0	0	0	156.0000	1.42
0	0	0	160.0000	2.39
0	0	0	168.0000	0.27
0	0	0	174.0000	1.79
0	0	0	179.0000	1.51
0	0	0	183.0000	2.35
0	0	0	191.0000	0.27
0	0	0	197.0000	1.74
0	0	0	202.0000	1.54
0	0	0	206.0000	2.34
0	0	0	214.0000	0.25
0	0	0	221.0000	1.78
0	0	0	225.0000	1.48
0	0	0	229.0000	2.35
0	0	0	237.0000	0.19
0	0	0	243.0000	1.88
0	0	0	248.0000	1.30
0	0	0	253.0000	2.38
0	0	0	260.0000	0.12

Year	Month	Day	Hour	Stage [ft]
0	0	0	266.0000	2.01
0	0	0	271.0000	1.02
0	0	0	276.0000	2.48
0	0	0	282.0000	0.11
0	0	0	288.0000	2.17
0	0	0	293.0000	0.69
0	0	0	298.0000	2.58
0	0	0	304.0000	0.18
0	0	0	310.0000	2.34
0	0	0	316.0000	0.36
0	0	0	322.0000	2.61
0	0	0	328.0000	0.32
0	0	0	334.0000	2.61
0	0	0	340.0000	0.32
0	0	0	360.0000	1.60

Comment:

Drop Structure Link: CS		Upstream Pipe		Downstream Pipe	
Scenario:	Scenario1	Invert:	1.60 ft	Invert:	1.60 ft
From Node:	BASIN1	Manning's N:	0.0130	Manning's N:	0.0130
To Node:	OUTFALL	Geometry: Circular		Geometry: Circular	
Link Count:	1	Max Depth:	4.00 ft	Max Depth:	4.00 ft
Pipe Flow Direction:	Both	Bottom Clip			
Solution:	Combine	Default:	0.00 ft	Default:	0.00 ft
Increments:	0	Op Table:		Op Table:	
Pipe Count:	1	Ref Node:		Ref Node:	
Damping:	0.0000 ft	Manning's N:	0.0000	Manning's N:	0.0000
Length:	60.00 ft	Top Clip			
FHWA Code:	5	Default:	0.00 ft	Default:	0.00 ft
Entr Loss Coef:	1	Op Table:		Op Table:	
Exit Loss Coef:	1	Ref Node:		Ref Node:	
Bend Loss Coef:	0	Manning's N:	0.0000	Manning's N:	0.0000
Bend Location:	0.00 dec				
Energy Switch:	Energy				

Pipe Comment:

Weir Component			
Weir:	1	Bottom Clip	
Weir Count:	1	Default:	0.00 ft
Weir Flow Direction:	Both	Op Table:	
Damping:	0.0000 ft	Ref Node:	
Weir Type:	Sharp Crested Vertical	Top Clip	
Geometry Type:	Circular	Default:	0.00 ft
Invert:	1.60 ft	Op Table:	
Control Elevation:	1.60 ft	Ref Node:	

Max Depth: 0.33 ft

Discharge Coefficients

Weir Default: 3.200
Weir Table:
Orifice Default: 0.600
Orifice Table:

Weir Comment:

Weir Component

Weir: 2
Weir Count: 1
Weir Flow Direction: Both
Damping: 0.0000 ft
Weir Type: Sharp Crested Vertical
Geometry Type: Rectangular
Invert: 2.64 ft
Control Elevation: 1.60 ft
Max Depth: 999.00 ft
Max Width: 10.00 ft
Fillet: 0.00 ft

Bottom Clip

Default: 0.00 ft
Op Table:
Ref Node:

Top Clip

Default: 0.00 ft
Op Table:
Ref Node:

Discharge Coefficients

Weir Default: 3.200
Weir Table:
Orifice Default: 0.600
Orifice Table:

Weir Comment:

Drop Structure Comment:

Simulation: 10 Yr 1 Day

Scenario: Scenario1
Run Date/Time: 10/2/2025 1:54:07 PM
Program Version: StormWise 4.08.03

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	360.0000

	Hydrology [sec]	Surface Hydraulics [sec]
Min Calculation Time:	60.0000	0.1000
Max Calculation Time:		30.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	120.0000
0	0	0	60.0000	60.0000
0	0	0	80.0000	120.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	120.0000
0	0	0	60.0000	60.0000
0	0	0	80.0000	120.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:

Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set:

Green-Ampt Set:
Vertical Layers Set:
Impervious Set:

Tolerances & Options

Time Marching: SAOR
Max Iterations: 6
Over-Relax Weight Fact: 0.5 dec
dZ Tolerance: 0.0010 ft
Max dZ: 1.0000 ft

Link Optimizer Tol: 0.0001 ft

IA Recovery Time: 24.0000 hr

Ia/S: 0.20 dec

Smp/Man Basin Rain Opt: Global

Rainfall Name: ~FDOT-24
Rainfall Amount: 7.20 in
Storm Duration: 24.0000 hr
Dflt Damping (1D): 0.0050 ft
Min Node Srf Area (1D): 100 ft2
Energy Switch (1D): Energy

Comment:

Simulation: 100 Yr - 72 hrs

Scenario: Scenario1
Run Date/Time: 10/2/2025 1:55:23 PM
Program Version: StormWise 4.08.03

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	360.0000

	Hydrology [sec]	Surface Hydraulics [sec]
Min Calculation Time:	60.0000	0.1000
Max Calculation Time:		30.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	120.0000
0	0	0	60.0000	60.0000
0	0	0	80.0000	120.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	120.0000
0	0	0	60.0000	60.0000
0	0	0	80.0000	120.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:

Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set:
Green-Ampt Set:
Vertical Layers Set:
Impervious Set:

Tolerances & Options

Time Marching: SAOR
Max Iterations: 6
IA Recovery Time: 24.0000 hr

Over-Relax Weight Fact:	0.5 dec	Ia/S:	0.20 dec
dZ Tolerance:	0.0010 ft		
Max dZ:	1.0000 ft	Smp/Man Basin Rain Opt:	Global
Link Optimizer Tol:	0.0001 ft		
		Rainfall Name:	~SFWMD-72
		Rainfall Amount:	15.10 in
		Storm Duration:	72.0000 hr
		Dflt Damping (1D):	0.0050 ft
		Min Node Srf Area (1D):	100 ft2
		Energy Switch (1D):	Energy

Comment:

Simulation: 25 Yr - 72 hrs

Scenario: Scenario1
Run Date/Time: 10/3/2025 2:05:39 PM
Program Version: StormWise 4.08.03

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	360.0000

	Hydrology [sec]	Surface Hydraulics [sec]
Min Calculation Time:	60.0000	0.1000
Max Calculation Time:		30.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	120.0000
0	0	0	60.0000	60.0000
0	0	0	80.0000	120.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	120.0000
0	0	0	60.0000	60.0000

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	80.0000	120.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:

Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set:
Green-Ampt Set:
Vertical Layers Set:
Impervious Set:

Tolerances & Options

Time Marching: SAOR
Max Iterations: 6
Over-Relax Weight Fact: 0.5 dec
dZ Tolerance: 0.0010 ft
Max dZ: 1.0000 ft
Link Optimizer Tol: 0.0001 ft

IA Recovery Time: 24.0000 hr
Ia/S: 0.20 dec
Smp/Man Basin Rain Opt: Global
Rainfall Name: ~SFWMD-72
Rainfall Amount: 11.20 in
Storm Duration: 72.0000 hr
Dflt Damping (1D): 0.0050 ft
Min Node Srf Area (1D): 100 ft2
Energy Switch (1D): Energy

Comment:

Node Max

Node Max Conditions : Multi Item | (sim, name) [Scenario1]

Sim Name	Node Name	Warning Stage [ft]	Alert Stage [ft]	Max Stage [ft]	Min/Max Delta Stage [ft]	Max Total Inflow [cfs]	Max Total Outflow [cfs]	Max Surface Area [ft2]
10 Yr 1 Day	BASIN1	0.00	0.00	2.91	0.0010	7.87	4.76	138656
10 Yr 1 Day	OUTFALL	0.00	0.00	2.61	-0.0033	4.76	0.36	0

Link Max

Link Min/Max Conditions : Multi Item | (sim, name) [Scenario1]

Sim Name	Link Name	Max Flow [cfs]	Min Flow [cfs]	Min/Max Delta Flow [cfs]	Max Us Velocity [fps]	Max Ds Velocity [fps]	Max Avg Velocity [fps]
10 Yr 1 Day	CS - Pipe	4.76	-0.36	-0.26	0.00	0.00	0.00
10 Yr 1 Day	CS - Weir: 1	0.35	-0.36	-0.02	-4.20	-4.20	-4.20
10 Yr 1 Day	CS - Weir: 2	4.53	0.00	0.02	1.67	1.67	1.67

Node Max

Node Max Conditions : Multi Item | (sim, name) [Scenario1]

Sim Name	Node Name	Warning Stage [ft]	Alert Stage [ft]	Max Stage [ft]	Min/Max Delta Stage [ft]	Max Total Inflow [cfs]	Max Total Outflow [cfs]	Max Surface Area [ft2]
25 Yr - 72 hrs	BASIN1	0.00	0.00	3.51	-0.0010	50.55	14.97	182579
25 Yr - 72 hrs	OUTFALL	0.00	0.00	2.61	-0.0033	14.97	0.36	0

Link Max

Link Min/Max Conditions : Multi Item | (sim, name) [Scenario1]

Sim Name	Link Name	Max Flow [cfs]	Min Flow [cfs]	Min/Max Delta Flow [cfs]	Max Us Velocity [fps]	Max Ds Velocity [fps]	Max Avg Velocity [fps]
25 Yr - 72 hrs	CS - Pipe	14.97	-0.36	-0.26	0.00	0.00	0.00
25 Yr - 72 hrs	CS - Weir: 1	0.35	-0.36	-0.02	-4.20	-4.20	-4.20
25 Yr - 72 hrs	CS - Weir: 2	14.81	0.00	0.03	1.76	1.76	1.76

Time Series

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]
Scenario1	25 Yr - 72 hrs	BASIN1	0.0000	1.60
Scenario1	25 Yr - 72 hrs	BASIN1	2.0027	1.62
Scenario1	25 Yr - 72 hrs	BASIN1	4.0027	1.62
Scenario1	25 Yr - 72 hrs	BASIN1	6.0027	1.62
Scenario1	25 Yr - 72 hrs	BASIN1	8.0027	1.62
Scenario1	25 Yr - 72 hrs	BASIN1	10.0027	1.63
Scenario1	25 Yr - 72 hrs	BASIN1	12.0027	1.69
Scenario1	25 Yr - 72 hrs	BASIN1	14.0027	1.72
Scenario1	25 Yr - 72 hrs	BASIN1	16.0027	1.74
Scenario1	25 Yr - 72 hrs	BASIN1	18.0027	1.76
Scenario1	25 Yr - 72 hrs	BASIN1	20.0027	1.79
Scenario1	25 Yr - 72 hrs	BASIN1	22.0027	1.83
Scenario1	25 Yr - 72 hrs	BASIN1	24.0027	1.88
Scenario1	25 Yr - 72 hrs	BASIN1	26.0027	1.92
Scenario1	25 Yr - 72 hrs	BASIN1	28.0027	1.96
Scenario1	25 Yr - 72 hrs	BASIN1	30.0027	2.01
Scenario1	25 Yr - 72 hrs	BASIN1	32.0027	2.05
Scenario1	25 Yr - 72 hrs	BASIN1	34.0027	2.11
Scenario1	25 Yr - 72 hrs	BASIN1	36.0027	2.17
Scenario1	25 Yr - 72 hrs	BASIN1	38.0027	2.21
Scenario1	25 Yr - 72 hrs	BASIN1	40.0027	2.25
Scenario1	25 Yr - 72 hrs	BASIN1	42.0027	2.29
Scenario1	25 Yr - 72 hrs	BASIN1	44.0027	2.33
Scenario1	25 Yr - 72 hrs	BASIN1	46.0027	2.38
Scenario1	25 Yr - 72 hrs	BASIN1	48.0027	2.41
Scenario1	25 Yr - 72 hrs	BASIN1	50.0027	2.46
Scenario1	25 Yr - 72 hrs	BASIN1	52.0027	2.51
Scenario1	25 Yr - 72 hrs	BASIN1	54.0027	2.60
Scenario1	25 Yr - 72 hrs	BASIN1	56.0027	2.72
Scenario1	25 Yr - 72 hrs	BASIN1	58.0027	2.81
Scenario1	25 Yr - 72 hrs	BASIN1	60.0010	3.15
Scenario1	25 Yr - 72 hrs	BASIN1	61.0073	3.51
Scenario1	25 Yr - 72 hrs	BASIN1	62.0053	3.39
Scenario1	25 Yr - 72 hrs	BASIN1	63.0010	3.24
Scenario1	25 Yr - 72 hrs	BASIN1	64.0075	3.10
Scenario1	25 Yr - 72 hrs	BASIN1	65.0075	2.99
Scenario1	25 Yr - 72 hrs	BASIN1	66.0075	2.91
Scenario1	25 Yr - 72 hrs	BASIN1	67.0075	2.85
Scenario1	25 Yr - 72 hrs	BASIN1	68.0075	2.82
Scenario1	25 Yr - 72 hrs	BASIN1	69.0075	2.79
Scenario1	25 Yr - 72 hrs	BASIN1	70.0075	2.77
Scenario1	25 Yr - 72 hrs	BASIN1	71.0075	2.76

Time Series

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]
Scenario1	25 Yr - 72 hrs	BASIN1	72.0075	2.75
Scenario1	25 Yr - 72 hrs	BASIN1	73.0075	2.73
Scenario1	25 Yr - 72 hrs	BASIN1	74.0075	2.70
Scenario1	25 Yr - 72 hrs	BASIN1	75.0075	2.68
Scenario1	25 Yr - 72 hrs	BASIN1	76.0075	2.66
Scenario1	25 Yr - 72 hrs	BASIN1	77.0075	2.65
Scenario1	25 Yr - 72 hrs	BASIN1	78.0075	2.63
Scenario1	25 Yr - 72 hrs	BASIN1	79.0075	2.62
Scenario1	25 Yr - 72 hrs	BASIN1	80.0075	2.61
Scenario1	25 Yr - 72 hrs	BASIN1	82.0075	2.59
Scenario1	25 Yr - 72 hrs	BASIN1	84.0075	2.57
Scenario1	25 Yr - 72 hrs	BASIN1	86.0075	2.54
Scenario1	25 Yr - 72 hrs	BASIN1	88.0075	2.52
Scenario1	25 Yr - 72 hrs	BASIN1	90.0075	2.50
Scenario1	25 Yr - 72 hrs	BASIN1	92.0075	2.48
Scenario1	25 Yr - 72 hrs	BASIN1	94.0075	2.46
Scenario1	25 Yr - 72 hrs	BASIN1	96.0075	2.44
Scenario1	25 Yr - 72 hrs	BASIN1	98.0075	2.41
Scenario1	25 Yr - 72 hrs	BASIN1	100.0075	2.39
Scenario1	25 Yr - 72 hrs	BASIN1	102.0075	2.37
Scenario1	25 Yr - 72 hrs	BASIN1	104.0075	2.34
Scenario1	25 Yr - 72 hrs	BASIN1	106.0075	2.32
Scenario1	25 Yr - 72 hrs	BASIN1	108.0075	2.30
Scenario1	25 Yr - 72 hrs	BASIN1	110.0075	2.28
Scenario1	25 Yr - 72 hrs	BASIN1	112.0075	2.26
Scenario1	25 Yr - 72 hrs	BASIN1	114.0075	2.24
Scenario1	25 Yr - 72 hrs	BASIN1	116.0075	2.24
Scenario1	25 Yr - 72 hrs	BASIN1	118.0075	2.22
Scenario1	25 Yr - 72 hrs	BASIN1	120.0075	2.20
Scenario1	25 Yr - 72 hrs	BASIN1	122.0075	2.18
Scenario1	25 Yr - 72 hrs	BASIN1	124.0075	2.15
Scenario1	25 Yr - 72 hrs	BASIN1	126.0075	2.13
Scenario1	25 Yr - 72 hrs	BASIN1	128.0075	2.11
Scenario1	25 Yr - 72 hrs	BASIN1	130.0075	2.10
Scenario1	25 Yr - 72 hrs	BASIN1	132.0075	2.07
Scenario1	25 Yr - 72 hrs	BASIN1	134.0075	2.06
Scenario1	25 Yr - 72 hrs	BASIN1	136.0075	2.04
Scenario1	25 Yr - 72 hrs	BASIN1	138.0075	2.05
Scenario1	25 Yr - 72 hrs	BASIN1	140.0075	2.05
Scenario1	25 Yr - 72 hrs	BASIN1	142.0075	2.03
Scenario1	25 Yr - 72 hrs	BASIN1	144.0075	2.02
Scenario1	25 Yr - 72 hrs	BASIN1	146.0075	2.00

Time Series

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]
Scenario1	25 Yr - 72 hrs	BASIN1	148.0075	1.98
Scenario1	25 Yr - 72 hrs	BASIN1	150.0075	1.96
Scenario1	25 Yr - 72 hrs	BASIN1	152.0075	1.95
Scenario1	25 Yr - 72 hrs	BASIN1	154.0075	1.93
Scenario1	25 Yr - 72 hrs	BASIN1	156.0075	1.92
Scenario1	25 Yr - 72 hrs	BASIN1	158.0075	1.91
Scenario1	25 Yr - 72 hrs	BASIN1	160.0075	1.93
Scenario1	25 Yr - 72 hrs	BASIN1	162.0075	1.95
Scenario1	25 Yr - 72 hrs	BASIN1	164.0075	1.93
Scenario1	25 Yr - 72 hrs	BASIN1	166.0075	1.92
Scenario1	25 Yr - 72 hrs	BASIN1	168.0075	1.91
Scenario1	25 Yr - 72 hrs	BASIN1	170.0075	1.89
Scenario1	25 Yr - 72 hrs	BASIN1	172.0075	1.88
Scenario1	25 Yr - 72 hrs	BASIN1	174.0075	1.87
Scenario1	25 Yr - 72 hrs	BASIN1	176.0075	1.86
Scenario1	25 Yr - 72 hrs	BASIN1	178.0075	1.85
Scenario1	25 Yr - 72 hrs	BASIN1	180.0075	1.84
Scenario1	25 Yr - 72 hrs	BASIN1	182.0075	1.85
Scenario1	25 Yr - 72 hrs	BASIN1	184.0075	1.88
Scenario1	25 Yr - 72 hrs	BASIN1	186.0075	1.88
Scenario1	25 Yr - 72 hrs	BASIN1	188.0075	1.87
Scenario1	25 Yr - 72 hrs	BASIN1	190.0075	1.86
Scenario1	25 Yr - 72 hrs	BASIN1	192.0075	1.85
Scenario1	25 Yr - 72 hrs	BASIN1	194.0075	1.84
Scenario1	25 Yr - 72 hrs	BASIN1	196.0075	1.83
Scenario1	25 Yr - 72 hrs	BASIN1	198.0075	1.82
Scenario1	25 Yr - 72 hrs	BASIN1	200.0075	1.81
Scenario1	25 Yr - 72 hrs	BASIN1	202.0075	1.81
Scenario1	25 Yr - 72 hrs	BASIN1	204.0075	1.80
Scenario1	25 Yr - 72 hrs	BASIN1	206.0075	1.83
Scenario1	25 Yr - 72 hrs	BASIN1	208.0075	1.85
Scenario1	25 Yr - 72 hrs	BASIN1	210.0075	1.84
Scenario1	25 Yr - 72 hrs	BASIN1	212.0075	1.84
Scenario1	25 Yr - 72 hrs	BASIN1	214.0075	1.83
Scenario1	25 Yr - 72 hrs	BASIN1	216.0075	1.82
Scenario1	25 Yr - 72 hrs	BASIN1	218.0075	1.81
Scenario1	25 Yr - 72 hrs	BASIN1	220.0075	1.80
Scenario1	25 Yr - 72 hrs	BASIN1	222.0075	1.80
Scenario1	25 Yr - 72 hrs	BASIN1	224.0075	1.79
Scenario1	25 Yr - 72 hrs	BASIN1	226.0075	1.78
Scenario1	25 Yr - 72 hrs	BASIN1	228.0075	1.80
Scenario1	25 Yr - 72 hrs	BASIN1	230.0075	1.83

Time Series

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]
Scenario1	25 Yr - 72 hrs	BASIN1	232.0075	1.83
Scenario1	25 Yr - 72 hrs	BASIN1	234.0075	1.82
Scenario1	25 Yr - 72 hrs	BASIN1	236.0075	1.82
Scenario1	25 Yr - 72 hrs	BASIN1	238.0075	1.81
Scenario1	25 Yr - 72 hrs	BASIN1	240.0075	1.80
Scenario1	25 Yr - 72 hrs	BASIN1	242.0075	1.79
Scenario1	25 Yr - 72 hrs	BASIN1	244.0075	1.80
Scenario1	25 Yr - 72 hrs	BASIN1	246.0075	1.79
Scenario1	25 Yr - 72 hrs	BASIN1	248.0075	1.78
Scenario1	25 Yr - 72 hrs	BASIN1	250.0075	1.78
Scenario1	25 Yr - 72 hrs	BASIN1	252.0075	1.79
Scenario1	25 Yr - 72 hrs	BASIN1	254.0075	1.83
Scenario1	25 Yr - 72 hrs	BASIN1	256.0075	1.83
Scenario1	25 Yr - 72 hrs	BASIN1	258.0075	1.82
Scenario1	25 Yr - 72 hrs	BASIN1	260.0075	1.81
Scenario1	25 Yr - 72 hrs	BASIN1	262.0075	1.80
Scenario1	25 Yr - 72 hrs	BASIN1	264.0075	1.80
Scenario1	25 Yr - 72 hrs	BASIN1	266.0075	1.80
Scenario1	25 Yr - 72 hrs	BASIN1	268.0075	1.80
Scenario1	25 Yr - 72 hrs	BASIN1	270.0075	1.79
Scenario1	25 Yr - 72 hrs	BASIN1	272.0075	1.79
Scenario1	25 Yr - 72 hrs	BASIN1	274.0075	1.79
Scenario1	25 Yr - 72 hrs	BASIN1	276.0075	1.82
Scenario1	25 Yr - 72 hrs	BASIN1	278.0075	1.84
Scenario1	25 Yr - 72 hrs	BASIN1	280.0075	1.83
Scenario1	25 Yr - 72 hrs	BASIN1	282.0075	1.82
Scenario1	25 Yr - 72 hrs	BASIN1	284.0075	1.81
Scenario1	25 Yr - 72 hrs	BASIN1	286.0075	1.80
Scenario1	25 Yr - 72 hrs	BASIN1	288.0075	1.81
Scenario1	25 Yr - 72 hrs	BASIN1	290.0075	1.82
Scenario1	25 Yr - 72 hrs	BASIN1	292.0075	1.81
Scenario1	25 Yr - 72 hrs	BASIN1	294.0075	1.80
Scenario1	25 Yr - 72 hrs	BASIN1	296.0075	1.80
Scenario1	25 Yr - 72 hrs	BASIN1	298.0075	1.83
Scenario1	25 Yr - 72 hrs	BASIN1	300.0075	1.85
Scenario1	25 Yr - 72 hrs	BASIN1	302.0075	1.84
Scenario1	25 Yr - 72 hrs	BASIN1	304.0075	1.83
Scenario1	25 Yr - 72 hrs	BASIN1	306.0075	1.83
Scenario1	25 Yr - 72 hrs	BASIN1	308.0075	1.82
Scenario1	25 Yr - 72 hrs	BASIN1	310.0075	1.83
Scenario1	25 Yr - 72 hrs	BASIN1	312.0075	1.85
Scenario1	25 Yr - 72 hrs	BASIN1	314.0075	1.84

Time Series

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]
Scenario1	25 Yr - 72 hrs	BASIN1	316.0075	1.83
Scenario1	25 Yr - 72 hrs	BASIN1	318.0075	1.82
Scenario1	25 Yr - 72 hrs	BASIN1	320.0075	1.81
Scenario1	25 Yr - 72 hrs	BASIN1	322.0075	1.84
Scenario1	25 Yr - 72 hrs	BASIN1	324.0075	1.87
Scenario1	25 Yr - 72 hrs	BASIN1	326.0075	1.86
Scenario1	25 Yr - 72 hrs	BASIN1	328.0075	1.85
Scenario1	25 Yr - 72 hrs	BASIN1	330.0075	1.84
Scenario1	25 Yr - 72 hrs	BASIN1	332.0075	1.83
Scenario1	25 Yr - 72 hrs	BASIN1	334.0075	1.86
Scenario1	25 Yr - 72 hrs	BASIN1	336.0075	1.89
Scenario1	25 Yr - 72 hrs	BASIN1	338.0075	1.88
Scenario1	25 Yr - 72 hrs	BASIN1	340.0075	1.87
Scenario1	25 Yr - 72 hrs	BASIN1	342.0075	1.86
Scenario1	25 Yr - 72 hrs	BASIN1	344.0075	1.85
Scenario1	25 Yr - 72 hrs	BASIN1	346.0075	1.84
Scenario1	25 Yr - 72 hrs	BASIN1	348.0075	1.83
Scenario1	25 Yr - 72 hrs	BASIN1	350.0075	1.82
Scenario1	25 Yr - 72 hrs	BASIN1	352.0075	1.81
Scenario1	25 Yr - 72 hrs	BASIN1	354.0075	1.80
Scenario1	25 Yr - 72 hrs	BASIN1	356.0075	1.80
Scenario1	25 Yr - 72 hrs	BASIN1	358.0075	1.79
Scenario1	25 Yr - 72 hrs	BASIN1	360.0075	1.78

Node Max (Back to Back)

Node Max Conditions : Multi Item | (sim, name) [Scenario1]

Sim Name	Node Name	Warning Stage [ft]	Alert Stage [ft]	Max Stage [ft]	Min/Max Delta Stage [ft]	Max Total Inflow [cfs]	Max Total Outflow [cfs]	Max Surface Area [ft2]
25 Yr - 72 hrs	BASIN1	0.00	0.00	3.51	-0.0010	50.55	14.99	182615
25 Yr - 72 hrs	OUTFALL	0.00	0.00	2.61	-0.0033	14.99	0.36	0

Link Max (Back to Back)

Link Min/Max Conditions : Multi Item | (sim, name) [Scenario1]

Sim Name	Link Name	Max Flow [cfs]	Min Flow [cfs]	Min/Max Delta Flow [cfs]	Max Us Velocity [fps]	Max Ds Velocity [fps]	Max Avg Velocity [fps]
25 Yr - 72 hrs	CS - Pipe	14.99	-0.36	-0.26	0.00	0.00	0.00
25 Yr - 72 hrs	CS - Weir: 1	0.35	-0.36	-0.02	-4.20	-4.20	-4.20
25 Yr - 72 hrs	CS - Weir: 2	14.83	0.00	0.03	1.76	1.76	1.76

Node Max

Node Max Conditions : Multi Item | (sim, name) [Scenario1]

Sim Name	Node Name	Warning Stage [ft]	Alert Stage [ft]	Max Stage [ft]	Min/Max Delta Stage [ft]	Max Total Inflow [cfs]	Max Total Outflow [cfs]	Max Surface Area [ft2]
100 Yr - 72 hrs	BASIN1	0.00	0.00	4.98	0.0010	69.75	0.00	335608
100 Yr - 72 hrs	OUTFALL	0.00	0.00	2.61	-0.0033	0.00	0.00	0

Link Max

Link Min/Max Conditions : Multi Item | (sim, name) [Scenario1]

Sim Name	Link Name	Max Flow [cfs]	Min Flow [cfs]	Min/Max Delta Flow [cfs]	Max Us Velocity [fps]	Max Ds Velocity [fps]	Max Avg Velocity [fps]
100 Yr - 72 hrs	CS - Pipe	0.00	0.00	0.00	0.00	0.00	0.00
100 Yr - 72 hrs	CS - Weir: 1	0.00	0.00	0.00	0.00	0.00	0.00
100 Yr - 72 hrs	CS - Weir: 2	0.00	0.00	0.00	0.00	0.00	0.00